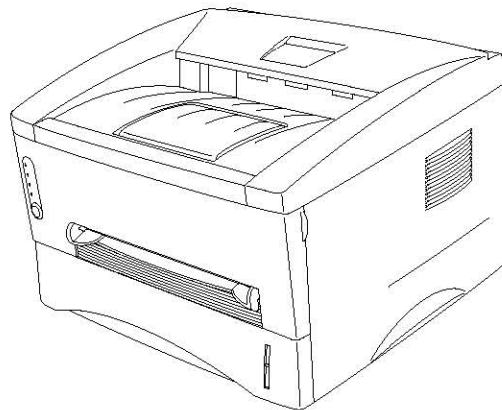**brother.**

Brother Laser Printer
SERVICE MANUAL

MODEL: HL-1240/1250

Read this manual thoroughly before maintenance work.

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

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-1240/1250 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.

APPENDICES : Serial No. descriptions, Drum life & 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.

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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 form 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: K 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.

The label for Chinese manufactured products

MANUFACTURED: C 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.

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.

CLASS 1 LASER PRODUCT
APPAREIL LASER DE CLASSE 1
LASER KLASSE 1 PRODUKT
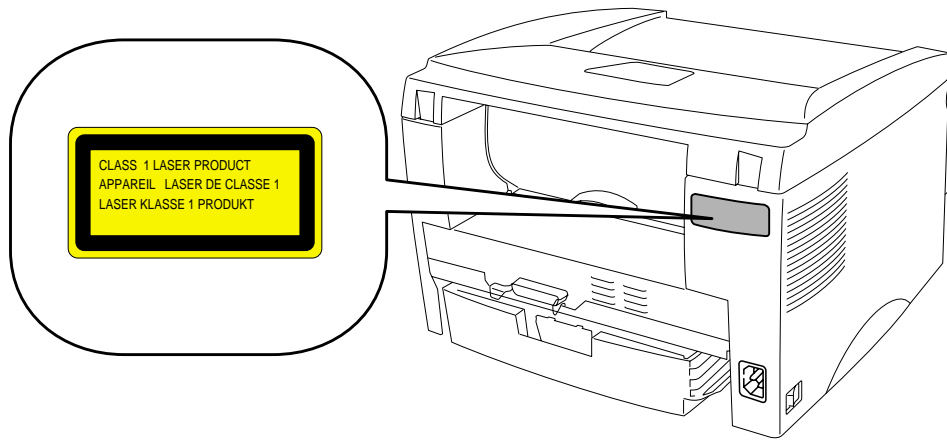
This printer has a laser diode which emits invisible laser radiation in the Laser Unit. The Laser Unit should not be opened without disconnecting the two connectors connected with the AC power supply and laser unit. Since the variable resistor in the laser unit is adjusted in accordance with the standards, 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 FUR 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>
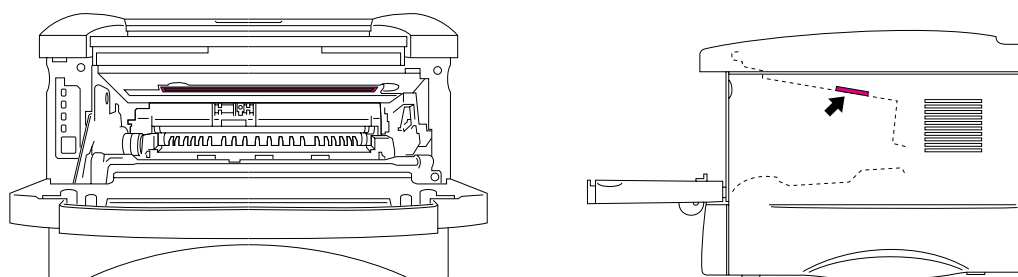
ADDITIONAL INFORMATION

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.

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DEFINITIONS OF WARNINGS, CAUTIONS AND NOTES

The following conventions are used in this service manual:

⚠ *WARNING*

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

🛈 *CAUTION:*

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.

⚠ *WARNING*

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

⚠ *WARNING*

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.

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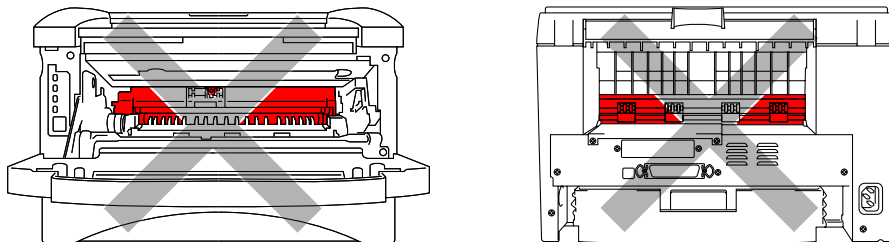
If you analyze malfunctions with the power plug inserted into the power outlet, special caution should be exercised even if the power switch is OFF because it is a single pole switch.

CHAPTER1   GENERAL

1.   FEATURES

This printer has the following features;

High Resolution and Fast Print Speed

<HL-1240>
True 600 x 600 dots per inch (dpi) (GDI mode), true 300 x 300 dots per inch (dpi) (PCL mode) with microfine toner and up to 12 pages per minute (ppm) print speed (A4 or Letter paper).

<HL-1250>
True 600 x 600 dots per inch (dpi) and 1200 x 600 dpi for graphics with microfine toner and 12 pages per minutes (ppm) print speed (A4 or Letter paper).

Versatile Paper Handling

The printer loads paper automatically from the paper cassette. The paper cassette can hold A4, letter, B5, Executive A5 and A6 sizes of paper. The manual feed slot 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, Windows® 3.1 and Windows® NT 4.0 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

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 95/98 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, iMac and Power Macintosh G3 Using USB)

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.

Remote Printer Console Program for DOS

The utility program, Remote Printer Console (RPC), is available on the CD-ROM supplied with your printer. When you operate your computer in a DOS (Disk Operating System) environment, this program allows you to easily change the default settings of the printer such as fonts, page setup and emulations.

This program also provides a status monitor program, which is a Terminate-and-Stay Resident (TSR) program. It can monitor the printer status while running in the background and report the current status or errors on your computer screen.

Popular Printer Emulation Support

These printers support the following printer emulation modes;
The HL-1240 supports HP LaserJet IIP.
The HL-1250 supports HP LaserJet 6P (PCL6), Epson FX-850 and IBM Proprinter XL. When you use DOS application software or Windows® version 3.0 or earlier, you can use any of these emulations to operate the HL-1250 printer. The printer also supports auto-emulation switching between HP and Epson or HP and IBM. If you want to set the printer emulation, you can do it using the Remote Printer Console Program.

High Resolution Control & Advanced Photoscale Technology (for HL-1250 only)

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. You can select from two economy modes, 25% toner saving and 50% toner saving, 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-1240) or 6W (HL-1250) 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 around 3,000 pages for the standard cartridge and around 6,000 pages for the optional high-capacity cartridge, which is both cost both effective and ecologically friendly.

Bar Code Print (for HL-1250 only)

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

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

2. OVERVIEW

<Front View>
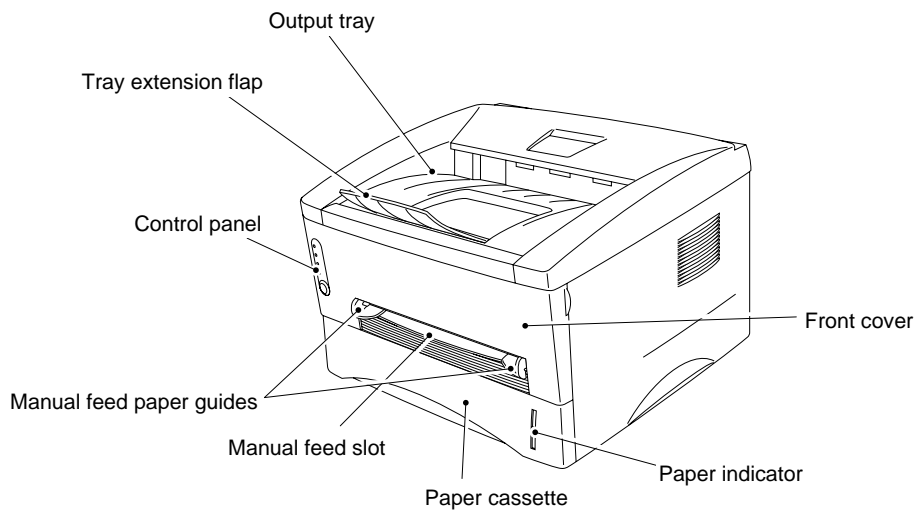
Fig. 1-1

<Rear View>

HL-1240
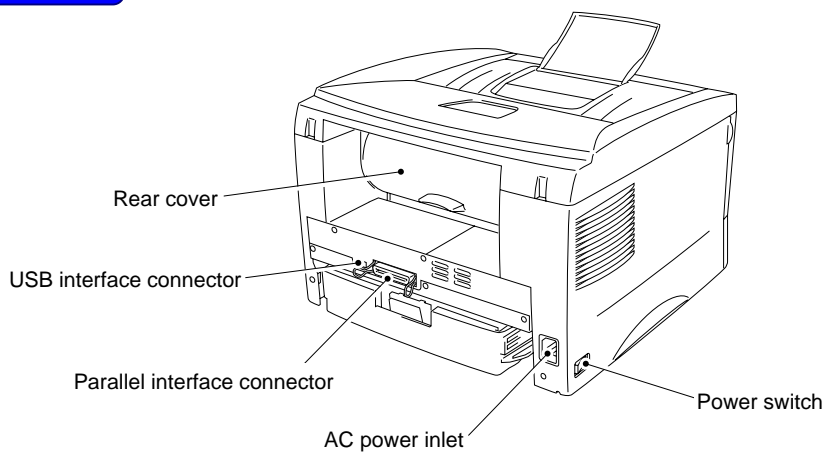
Fig. 1-2

HL-1250
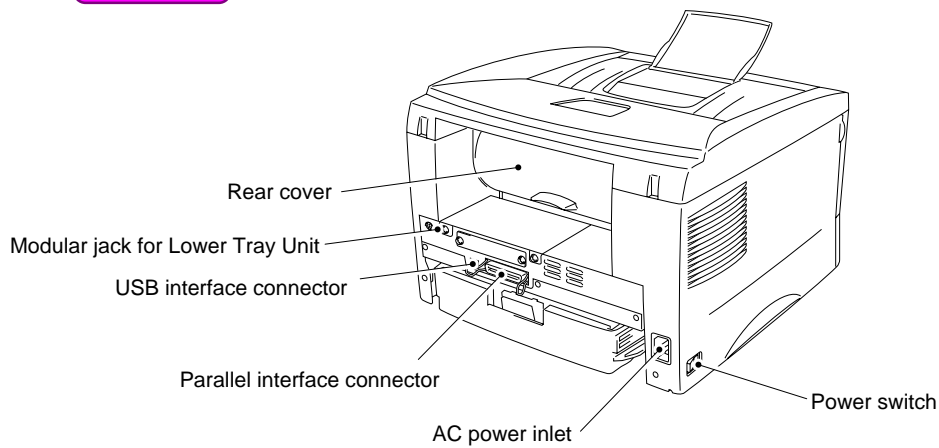
Fig. 1-3

3. SPECIFICATIONS

3.1 Printing

Print method	Electrophotography by semiconductor laser beam scanning

Laser   Wave length: 780 nm
                      Output: 5mW max

Resolution   HL-1240:   600 x 600 dots/inch (GDI)
                                          300 x 300 dots/inch (under DOS or other operating system)

HL-1250:   1200(H) x 600(V) dots/inch (for Windows® DIB graphics)
600 x 600 dots/inch (for Windows® and DOS)
300 x 300 dots/inch (under Apple Macintosh using the optional RS-100M)

Print quality   Normal printing mode
Economy printing mode (up to 25% and 50% toner saving)

Print speed   Up to 12 pages/minute*
(when loading A4 or Letter-size paper from the paper cassette.)

Warm-up   Max. 45 seconds at 23°C (73.4°F)

First print   15 seconds
(when loading A4 or Letter-size paper from the paper cassette.)

Print media   Toner cartridge
Life expectancy: 3,000 pages/cartridge (Standard cartridge)
                                 6,000 pages/cartridge (High-capacity cartridge)
(when printing A4 or Letter-size paper at 5% print coverage)

Developer   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 APPENDIX 3 'PRINT SPEEDS WITH VARIOUS SETTINGS'.

3.2 Functions

CPU   HL-1240:   MB86833 66MHz
         HL-1250:   MB86832 66MHz

Emulation   HL-1240:   Brother Printing Solution for Windows®
                                 HP LaserJet IIP (PCL level 4)
HL-1250:   Brother Printing Solution for Windows®
Automatic emulation selection among HP LaserJet 6P (PCL level 6), EPSON FX-850 or IBM Proprinter XL

Printer driver	• Windows® 3.1/3.11, Windows® 95/98, Windows® NT 4.0 driver: supporting Brother Native Compression mode
	• Windows® 3.1/3.11, Windows® 95/98 driver: supporting bi-directional capacity
	• iMac, Power Macintosh G3 with USB printer driver
	• Optional Macintosh driver available for System 6.0.7 or higher (for HL-1250 only)
Interface	• Bi-directional parallel
	• Universal Serial Bus (USB)
	• Optional RS-422A/RS-232C serial (RS-100M) available (for HL-1250 only)
Memory	HL-1240: 2.0 Mbytes
	HL-1250: 4.0 Mbytes
	Expandable up to 36 Mbytes by installing an industry standard SIMM
Control panel	1 button and 4 LEDs
Diagnostics	Self-diagnostic program

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 (peak)*: 940 W or less
	Printing (average): 340 W or less
	Standing by: 80 W or less
	Sleep*: 5 W or less (HL-1240) / 6 W or less (HL-1250)
Noise	Printing: 49 dB A or less
	Standing by: 27 dB 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)	A4 paper cassette installed: 360 x 370 x 235 mm (14.2 x 14.6 x 9.3 inches)
	Legal paper cassette installed: 360 x 430 x 235 mm (14.2 x 16.9 x 9.3 inches)
	A4 lower paper cassette installed: 360 x 370 x 345 mm (HL-1250 only) (14.2 x 14.6 x 13.6 inches)
	Legal lower paper cassette installed: 360 x 430 x 345 mm (HL-1250 only) (14.2 x 16.9 x 13.6 inches)
Weight	Approx. 9.2 kg (20.2 lb.) including the drum unit.
	Approx. 12.7 kg (27.9 lb.) including the drum unit and Lower Tray unit.

*NOTE:

- *The peak figure of power consumption is worked out when the halogen heater lamp is turned ON.*
- *The peak figure of power consumption is worked out excluding inrush current value.*
- *The peak figure of power consumption is a reference value and should be used internally at Brother offices only.*
- *The power consumption figure quoted for sleep mode is when the fan has stopped.*

3.4 Paper

3.4.1 Feedable paper

(1) Type & size

Feeding source	Paper type	Paper size
Paper cassette	Normal paper Transparencies	A4, Letter, B5 (ISO), A5, A6, Executive, Legal*
Manual feed slot	Normal paper	A4, Letter, B5 (JIS/ISO), A5, A6, Executive, Legal 70-216 x 116-356 mm (2.75-8.5 x 4.57-14 inches)
	Envelopes	DL, C5, COM10, Monarch, B5 (ISO)
	Organizers	J, K, L sizes of DAY-TIMER
	Labels	A4, Letter
	Transparencies	A4, Letter
	Other sizes	70-216 x 116-356 mm (2.75-8.5 x 4.57-14 inches)
Optional lower paper cassette (HL-1250 only)	Normal paper Transparencies	A4, Letter, B5 (ISO), A5, Executive, Legal*

*NOTE:

Legal-size paper can be printed with the standard paper cassette or the optional lower cassette for the US and Canada models only.

(2) Other paper specifications

<Paper Cassette>

	Cut sheet
Basis weight	64 to 105 g/m^2 (17 to 28 lb.)
Caliper	0.08 to 0.13 mm (0.003 to 0.005 in.)
Moisture content	4% to 6% by weight

<Manual Feed Slot>

	Cut sheet	Envelope
Basis weight	64 to 158 g/m^2 (17 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

(3) Recommended paper

- Letter: Xerox 4200 (75 g/m^2)
- A4:   Xerox 80 Premier Paper (80 g/m^2)
- Label: Avery laser label or equivalent
- Transparency: 3M CG3300 or equivalent

🛈 *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.*

3.4.2 Paper cassette capacity

(1) Maximum load height

Paper cassette:

<Normal paper>	Up to 27mm (1.06 inches) in height (250 sheets of 80 g/m^2 A4/Letter paper)
<Transparencies>	10 sheets

(2) Paper feed conditions

Type	Weight	Cassette	Manual feed (1 sheet)
Normal paper (cut sheet)	64 to 80 g/m^2	◯ (250 sheet)	◯
	158 g/m^2	✕	◯
Special paper (cut sheet)	Labels	✕	◯
	Envelopes	✕	◯
	Organizers	✕	◯

3.4.3 Print delivery

(1) Output tray stacking

capacity: Maximum 150 sheets (80 g/m^2)
face-down only

(2) Straight paper path output at the rear of the printer

capacity: 1 sheet **Thicker paper printing is recommended.
face-up only

NOTE:

- *When using the straight paper path feed and the rear output method for thicker paper printing, lift up the rear cover at the rear of the printer.*

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

3.5 Printing Area

3.5.1 Effective printing area

The effective printing area means the area within which the printing of all the data received without any omissions can be guaranteed.

(1) Supported by the engine

(2) Supported by the emulation

208mm

4.23mm

4.23mm

25   25

2,400 (80 characters)
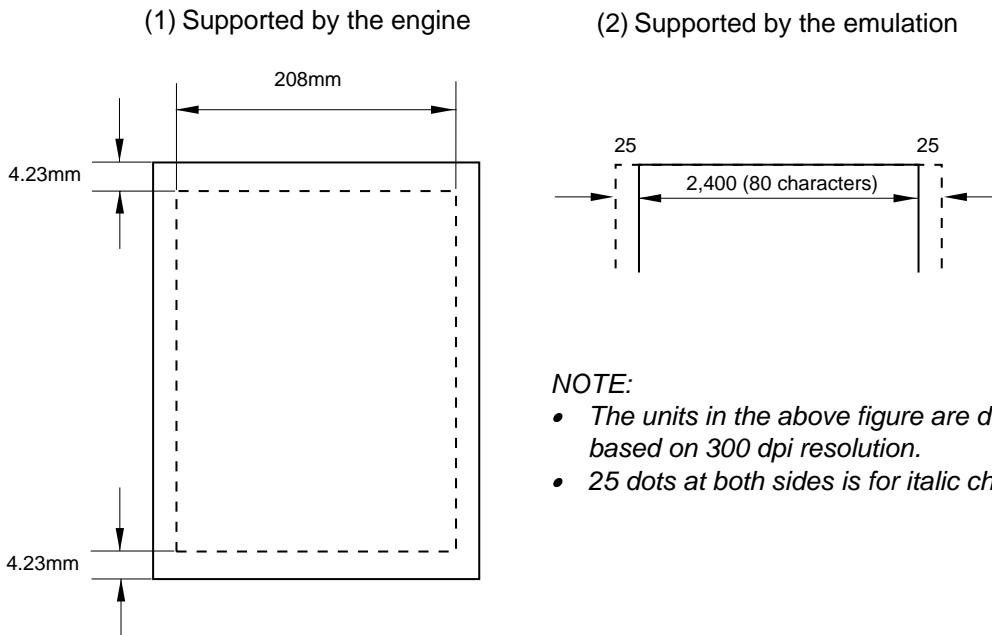
NOTE:

- *The units in the above figure are dot size based on 300 dpi resolution.*
- *25 dots at both sides is for italic characters.*

3.5.2 Print guaranteed area
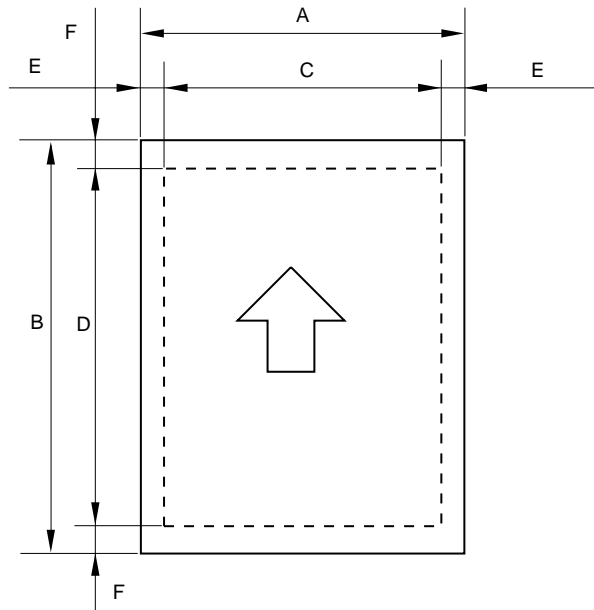
The values above vary depending on the paper size. For details, see the table on the next page.

The table below shows the print guaranteed areas for each paper size.

Size	A	B	C	D	E	F
A 4	210.0 mm 8.27" (2,480 dots)	297.0 mm 11.69" (3,507 dots)	203.2 mm 8.0" (2,400 dots)	288.5 mm 11.36" (3,407 dots)	3.4 mm 0.13" (40 dots)	4.23 mm 0.17" (50 dots)
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)	270.9 mm 10.67" (3,200 dots)	6.35 mm 0.25" (75 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)	347.1 mm 13.67" (4,100 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)	241.5 mm 9.5" (2,852 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)	258.2 mm 10.17" (3,050 dots)	6.35 mm 0.25" (75 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)	201.5 mm 7.93" (2,380 dots)	6.01 mm 0.24" (71 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)	140.0 mm 5.51" (1,654 dots)	↑	↑
Organizer (J size)	69.85 mm 2.75" (825 dots)	116.0 mm 4.57" (1,370 dots)	56.2 mm 2.21" (675 dots)	107.5 mm 4.23" (1,270 dots)	6.35 mm 0.25" (75 dots)	↑
Organizer (K size)	95.25 mm 3.75" (1,125 dots)	171.45 mm 6.75" (2,025 dots)	86.78 mm 3.42" (975 dots)	162.98 mm 6.42" (1,925 dots)	↑	↑
Organizer (L size)	139.7 mm 5.5" (1,650 dots)	215.9 mm 8.5" (2,550 dots)	131.23 mm 5.17" (1,500 dots)	207.43 mm 8.17" (2,450 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)	232.8 mm 9.16" (2,750 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)	182.0 mm 7.16" (2,150 dots)	↑	↑
C 5	162 mm 6.38" (1,913 dots)	229 mm 9.01" (2,704 dots)	150.0 mm 5.9" (1,771 dots)	220.5 mm 8.68" (2,604 dots)	6.01 mm 0.24" (71 dots)	↑
DL	110 mm 4.33" (1,299 dots)	220 mm 8.66" (2,598 dots)	98.0 mm 3.86" (1,157 dots)	211.5 mm 8.33" (2,498 dots)	↑	↑

NOTE:

- *The paper sizes indicated here should conform to the nominal dimensions specified by JIS.*
- *A4 paper must accommodate 80 characters printed in pica pitch (203.2 mm).*
- *The dot size is based on 300 dpi resolution.*
- *Organizer is not supported by any printer emulations (commands).*

CHAPTER2   INSTALLATION AND BASIC OPERATION

1.   CONDITIONS REQUIRED FOR INSTALLATION

1.1   Power Supply

- The source voltage must stay within ±10% of the rated voltage shown on the rating plate.
- The power cord, including extensions, should not exceed 5 meters (16.5 feet).
- Do no share the same power circuit with other high-power appliances, particularly an air conditioner, copier or shredder. If it is unavoidable that you must use the printer with these appliances, it is recommended that you use an isolation transformer or a high-frequency noise filter.
- Use a voltage regulator if the power source is not stable.

1.2   Environment

- The printer should be installed near a power outlet, which is easily accessible.
- The room temperature is maintained between 10°C and 32.5°C. The relative humidity is maintained between 20% and 80%.
- The printer should be used in a well ventilation room.
- Place the printer on a flat, horizontal surface.
- Keep the printer clean. Do not place the printer in a dusty place.
- Do not place the printer where the ventilation hole of the printer is blocked. Keep approximately 100 mm (4 inches) between the ventilation hole and the wall.
- Do not place the printer where it is exposed to direct sunlight. Use a blind or a heavy curtain to protect the printer from direct sunlight when the printer is unavoidably set up near a window.
- Do not place the printer near devices that contain magnets or generate magnetic fields.
- Do not subject the printer to strong physical shocks or vibrations.
- Do not expose the printer to open flames or salty or corrosive gasses.
- Do not place objects on top of the printer.
- Do not place the printer near an air conditioner.
- Keep the printer horizontal when carrying.
- Do not cover the slots in the side cover.

1.3   System Requirements for Brother Printer Solution for Windows®

Check the following system requirements to setup and operate the printer using Brother Printing Solution for Windows:

- IBM PC or compatible with 80486 SX or higher microprocessor
- 10MB of space available on your hard disk for the printer driver and all fonts.
- Microsoft Windows® 3.1/3.11, Windows® 95/98 or Windows® NT 4.0

2. UNPACKING

When unpacking the printer, check to see that all of the following components are included in the carton.
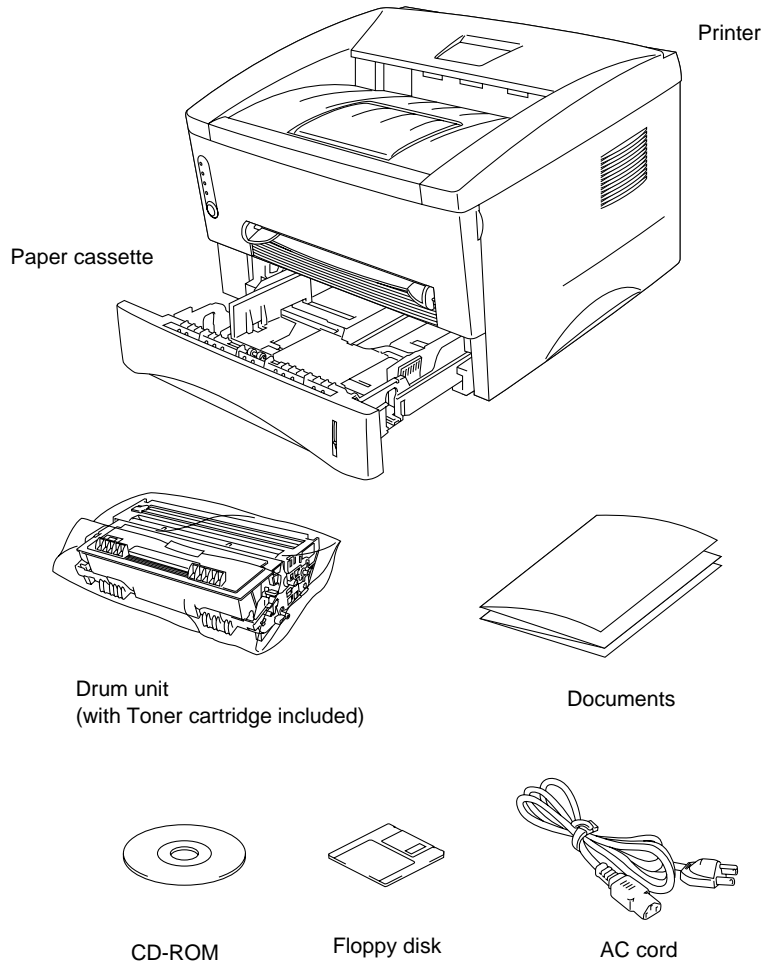
Fig. 2-1

NOTE:

Components may vary depending on the country.

3. INSTALL THE PRINTER

You need to implement hardware setup and driver installation to use the printer.

Firstly, identify the Operating System on your computer. Then, purchase the appropriate interface cable (parallel or USB) for your computer.

The installation programs for the hardware setup and driver installation are contained on the supplied CD-ROM.

If you do not have a CD-ROM drive, you can install the printer driver from the supplied floppy disk. (See Subsection 3.2 'For Windows® Users with No CD-ROM Drive'.)

3.1 For Windows® Users

(1) Turn on your PC power. Close all the applications running on your PC.

(2) Insert the supplied CD-ROM into the CD-ROM drive.

(3) The opening screen will appear automatically in Windows® 95/98/NT4.0.

NOTE:

If the opening screen does not appear;

*Click **Start** and select **Run**. Then, type `D:\START` in the command line box and click **OK**. (If your CD-ROM drive is not D, type the correct drive letter instead of "`D`".)*

In Windows® 3.1;

*Click the File menu in the Program Manager screen and select **Run**. Then, type `D:\START` in the command line box and click **OK**. (If your CD-ROM drive is not D, type the correct drive letter instead of "`D`".)*

(4) Select the model of your printer.

Fig. 2-2

(5) Select the language you want, then follow the instructions on the screen.

Fig. 2-3

(6) Click the **Initial Setup** button.

Fig. 2-4

(7) You can view the Initial Setup operations in the video movie.

Fig. 2-5

(8) Click the interface cable you are going to use, Parallel or USB.

Fig. 2-6

(9) If you click the **NOW** button, you can install the printer driver immediately.

(10) After the printer driver has been installed, the HL-1240 or HL-1250 window will appear. Follow the on-screen messages to complete the installation.
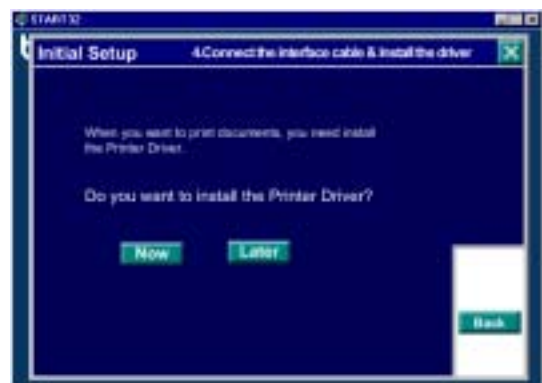
Fig. 2-7

If your printer is connected using a parallel interface cable, the setup is now completed. If you want to connect your printer using a USB interface cable, refer to .

3.2 For Windows® Users with No CD-ROM Drive

If you do not have a CD-ROM drive, setup the printer following the steps below, then install the printer driver from the floppy disk.

3.2.1 Install the drum unit

(1) Open the front cover.

(2) Unpack the drum unit assembly and rock it from side to side 5 or 6 times to distribute the toner evenly inside the cartridge. (Fig. 2-8)
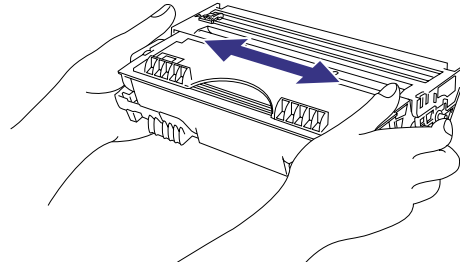
Fig. 2-8

(3) Install the drum unit into the printer until it snaps into place and close the front cover.

3.2.2 Load paper

(1) Pull the paper cassette completely out of the printer.

(2) Slide the paper guides to the paper size you want until they snap into a slot. (Fig. 2-9)
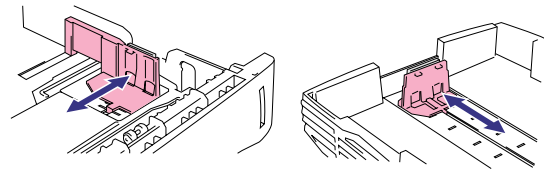
Fig. 2-9

(3) Load paper into the paper cassette. Check that paper is flat placed. (Fig. 2-10) Paper should be loaded up to the lines on the sliding guide.

(4) Re-install the paper cassette into the printer.
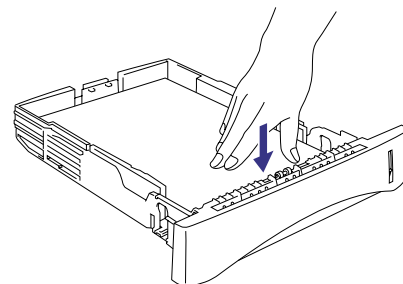
Fig. 2-10

3.2.3 Print a test page

(1) Check that the power switch is off.

(2) Connect the AC power cord to the printer.

(3) Plug the AC power cord into an AC outlet, then turn on the power switch. (Fig. 2-11)

AC power cord
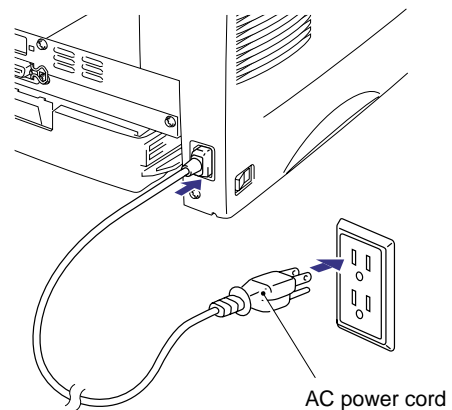
Fig. 2-11

(4) Extend the tray extension flap. After the printer has warmed up the Ready LED changes from blinking to lit. (Fig. 2-12)

(5) Press the control panel button. The printer will print a test page. Check the test page printed correctly.
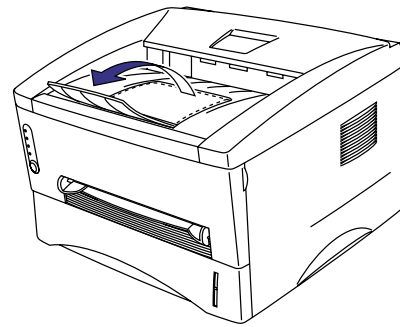
Fig. 2-12

3.2.4 Connect the printer and the computer

(1) Turn off the power switch.

(2) Connect the parallel interface to the computer, then connect it to the printer. (Fig. 2-13)

(3) Use the clips on the printer connector to secure the parallel interface cable.

(4) Turn on the printer power switch.

Parallel interface cable
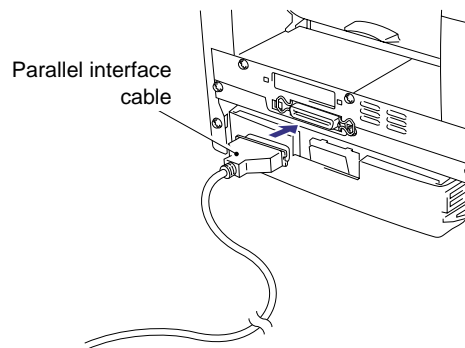
Fig. 2-13

3.2.5 Install the printer driver from floppy disk

(1) Turn on the computer power. If the "Add New Hardware Wizard" window appears, click the **Cancel** button.

(2) Insert the supplied floppy disk into the floppy disk drive.

(3) Install the printer driver using the Setup.exe file.

In Windows® 95/98

i) Click the **Start** button and select **Run**.

ii) Type `A:\SETUP` and click **OK**. (If your floppy disk drive is not A, insert the correct drive letter instead of 'A'.)

iii) Follow the instructions that appear on the screen.

In Windows® 3.1

i)   Click File menu in the Program Manager screen and select **Run**.

ii)   Type `A:\SETUP` click **OK**. (If your floppy disk drive is not A, insert the correct drive letter instead of 'A'.)

iii) Follow the instructions that appear on the screen.

3.3   Using the USB Interface (For Windows® 98 only)

3.3.1   Connect the USB interface cable

(1) Check that the printer power switch is on.

(2) Connect the USB interface cable to the computer, then connect it to the printer. (Fig. 2-14)

USB interface cable
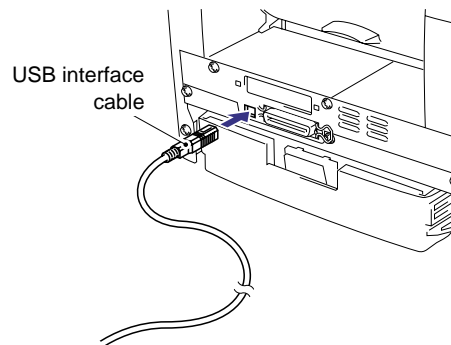
Fig. 2-14

3.3.2   Install the USB driver

(1) The "Add New Hardware Wizard" window will appear. Click the **Next** button.
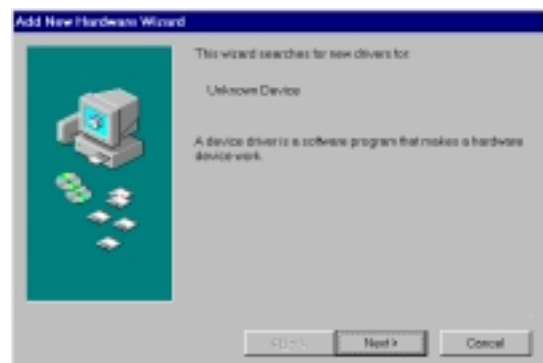
Fig. 2-15

(2) Select "Search for the best driver for your device." Click the **Next** button.
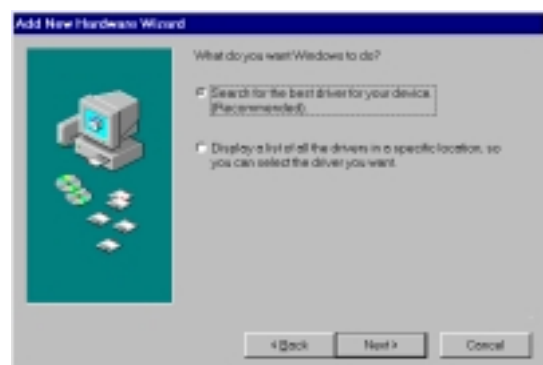
Fig. 2-16

(3) Insert the supplied CD-ROM into the CD-ROM drive and select "CD-ROM drive". Click the **Next** button.
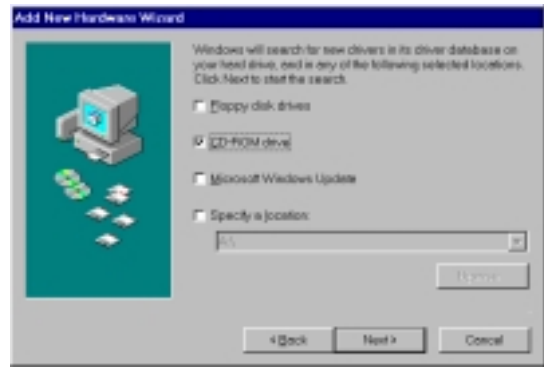
Fig. 2-17

(4) Click the **Next** button, then the USB driver will be installed.
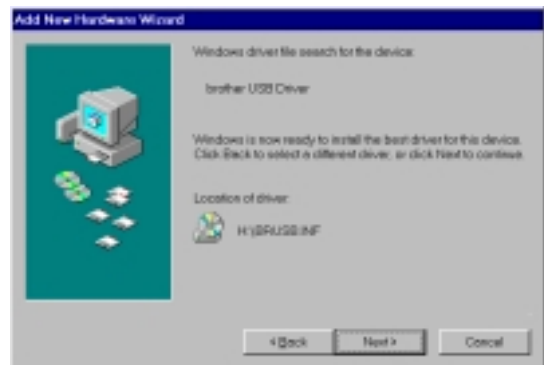
Fig. 2-18

(5) Click the **Finish** button.
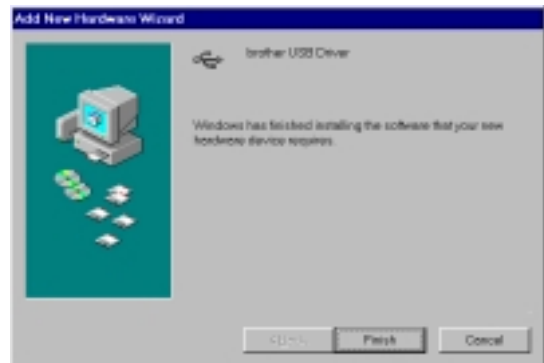
Fig. 2-19

(6) Click the **Yes** button, then your PC will re-start.
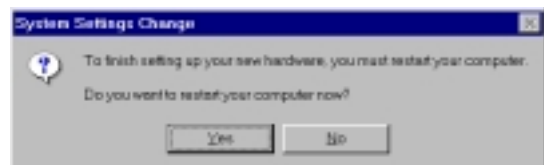
Fig. 2-20

3.3.3 Set the PC printer port

Your PC printer port has to be set to "USB port".

(1) Click the **Start** button and select Printers in Settings.

(2) Select your printer model icon in Printers so that the printer icon is highlighted.

(3) Select Properties from the File menu, then click the Details tab.

(4) Select **BRUSB: (USB Printer Port)** in the "Print to the following port" box. (Fig. 2-21)

(5) Click the **OK** button to close the Properties dialog box. The setup is now completed.
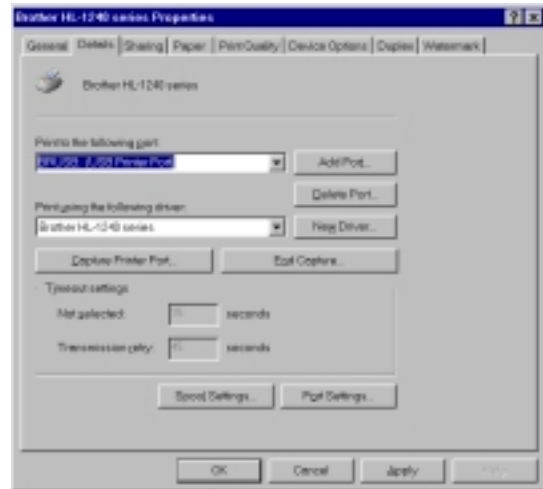
Fig. 2-21

NOTE:

Both the parallel cable and USB interface cable can be connected to the printer at the same time.

3.4 For Macintosh (iMac and Power Macintosh) with USB Users Only

You can setup the printer following the Initial Setup instructions on the supplied CD-ROM.

(1) Turn on the computer power, then insert the CD-ROM into the CD-ROM drive. The window shown below will appear automatically.

Fig. 2-22

(2) Click the "Instructional Video" icon in the window above to view the Initial Setup operations in the video movie.

(3) Click the "Printer Driver Installer" icon in the window above to install the printer driver.

4.   PAPER HANDLING

The printer provides two types of paper loading method; paper cassette and manual feed slot.

4.1   Load Paper into the Paper Cassette

You can load normal paper and transparencies into the paper cassette. If you load paper into the paper cassette, the printer automatically feeds paper sheet by sheet and ejects the printed page into the output tray.

For the details on cassette loading, refer to Subsection 3.2.2 'Load Paper' in this chapter and Subsection 3.4 'Paper' in CHAPTER 1.

4.2   Load Paper Manually

You can feed envelopes, labels and organizers as well as normal paper and transparencies into the manual feed slot. (For details on feedable paper, see Subsection 3.4 'Paper' in CHAPTER 1.)

When using the manual feed slot, follow the steps below;

(1)   Select the manual feed mode in the printer driver, and send the print data to the printer.

NOTE:

A 'NO PAPER' message is shown in the status monitor until a sheet of paper is inserted into the manual feed slot.

(2)   Set the width of the manual feed slot paper guides using both hands to the paper width to be used. (Fig. 2-23)
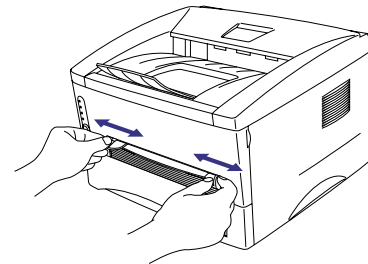
Fig. 2-23

(3)   Insert the paper into the manual feed slot with both hands until the front edge of the paper touches the paper feed roller.

(4)   Hold the paper in this position until the printer feeds the paper a short distance, then let go of the paper. (Fig. 2-24)
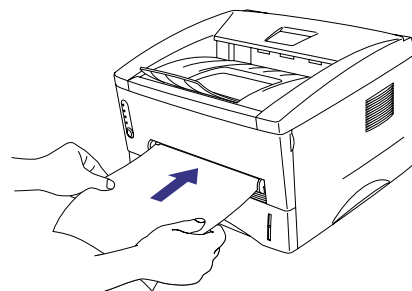
Fig. 2-24

(5) After the printer ejects the printed page, insert the next sheet of paper as in the previous step. The printer will wait until you insert the next sheet of paper. Repeat this as necessary for the number of pages you need to print.

NOTE:

It is recommended to remove printed pages immediately after printing if the output tray extension flap is not extended.

The printer has a **straight paper path** from the manual feed slot to the rear of the printer when the rear cover is lifted up. Use this paper feed and output method when printing on thicker paper or card.

(1) Select the manual feed mode in the printer driver.
(2) Lift up the rear cover at the rear of the printer. (Fig. 2-25)
(3) Send the print data to the printer.
(4) Follow Steps (3) to (4) in the previous page to load paper.
(5) Close the rear cover of the printer.
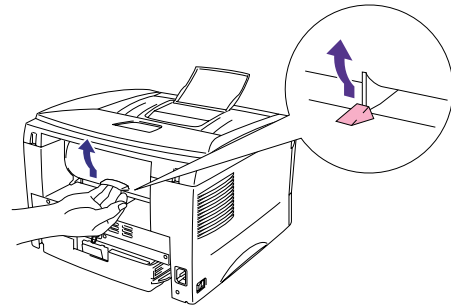
Fig. 2-25

> ⓘ *CAUTION:*
>
> *Remove each sheet immediately after printing. Stacking the sheets may cause curl or media feed jams.*

4.3 Two Side Printing (Manual Duplexing)

The supplied printer driver allows you to do manual duplex printing.

When using the manual duplex function, note the following information;

> ⓘ *CAUTION:*
>
> - *If the paper is too thin, it may cause wrinkling.*
> - *If paper is curled, straighten it and then set it into the paper cassette.*
> - *The paper type should be regular paper. Do not use bond paper.*
> - *When setting paper into the paper cassette, empty the cassette first, then insert the printed paper only, printed side face up. (Do not add the printed paper onto the top of the unprinted paper stack.)*
> - *If the paper is not feeding correctly, the paper might be curled. Remove the paper and straighten it.*

4.3.1 To print on both sides of the paper from the paper cassette

(1) Select the required manual duplex printing mode from the driver.
(2) The printer will automatically print all the even numbered pages on one side of the paper first.
(3) Remove the printed even numbered pages from the output tray.
(4) Re-insert them into the paper cassette, loading the paper <u>with the side to be printed (blank side) face down, and the top edge toward you</u>. Follow the instructions on the computer screen. (Fig. 2-26)
(5) The printer will now automatically print all the odd pages on the reverse side of the paper.
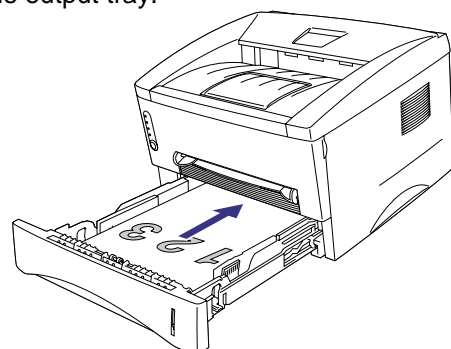
Fig. 2-26

4.3.2   To print on both sides of the paper from the manual feed slot

> **🛈 *CAUTION:***
>
> - *Before re-inserting the sheets, straighten them, or paper feed errors will occur.*
> - *The use of very thin or very thick paper is not recommended.*
> - *When the manual duplex function is used, it is possible that paper jams may occur or print quality may not be satisfactory.*

(1)   Select the required manual duplex printing mode and manual feed mode from the driver.

(2)   Using both hands, insert the paper into the manual feed slot with the side to be printed first facing upwards. Follow the instructions on the computer screen.

(3)   Repeat action (2) until you have printed all the even numbered pages.

(4)   Remove the printed even numbered pages from the output tray

(5)   Re-insert them in order into the manual feed slot, loading the paper with the side to be printed (blank side) face up, and the top edge towards the printer. Follow the instructions on the computer screen. (Fig. 2-27)

(6)   Repeat action (5) until you have printed all the odd numbered pages on the reverse side of the paper.
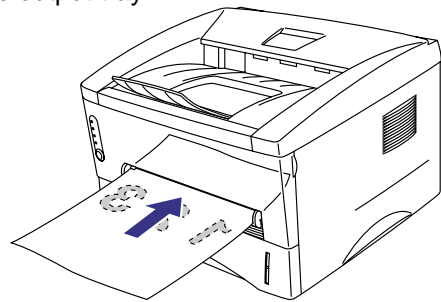
Fig. 2-27

5. CONTROL PANEL OPERATION

There are four LEDs and a button on the control panel. The LEDs indicate the printer status, and pressing the button enables several functions in the printer.
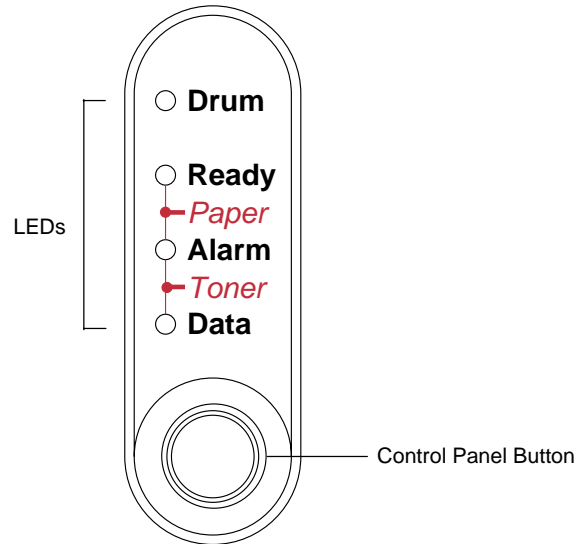
Fig. 2-28

5.1 Ready (Paper) LED Indications

The Ready LED indicates the current status of the printer.

LED	Printer status
OFF	The power switch is off, or the printer is in sleep mode. If the printer is in sleep mode, it will wake up automatically when it receives data or when you press the control panel button.
Blinking	\<Blinking at 1 second intervals\> The printer is warming up. \<Blinking at 2 seconds intervals\> The printer is cooling down and stops printing until the internal temperature of the printer lowers.
ON	The printer is ready to print.

This LED also works as the Paper LED with the Alarm LED. They blink simultaneously to indicate a paper error. See Subsection 2.1 'Operator Calls' in CHAPTER 6 for details.

Error	Action
Paper jam	Clear the paper jam and press the panel button if the printer does not automatically resume printing.
No paper	Load paper in the printer and press the panel button.
Misfeed	Re-install the paper and press the panel button.

5.2   Data (Toner) LED Indications

The Data LED indicates the current status of the print data process.

LED	Printer status
OFF	The printer has no print data.
Blinking	The printer is receiving data from the computer or the printer is processing data in memory.
ON	Print data remains in the printer memory. If the Data LED is on for a long period of time and nothing has printed, you need to press the button to print the remaining data.

This LED also works as the Toner LED with the Alarm LED. They blink simultaneously to indicate a toner error. See also Subsection 2.1 'Operator Calls' in CHAPTER 6 for details.

Error	Action
Toner low	Indicates that the toner cartridge is nearly empty. Purchase a new toner cartridge ready for when the 'Toner empty' error is indicated.
Toner empty	Replace the toner cartridge with a new one.

5.3   Drum LED Indications

The Drum LED indicates the drum unit is nearly at the end of its life.

LED	Printer status
OFF	The drum unit can be used.
ON	The drum unit is nearly at the end of its life. It is recommended to obtain a new drum unit to replace the current one.

5.4   Alarm LED Indications

The Alarm LED blinks (with no other LEDs) to indicate a printer error status such as "cover open" or "memory full".

If any other error occurs, the printer indicates the error by blinking the Alarm LED with another LED or by printing an error report. Refer to Subsection 2.2 'Service Calls' in CHAPTER 6.

5.5 Control Panel Button Operations

The control panel button is used for the following purposes depending on the situation.

Operation	Description
Cancel printing	If the button is pressed during printing, the printer immediately stops printing and ejects the paper.
Wake-up	If the printer is in sleep mode, pressing the button wakes it up into the ready status. It will take up to 45 seconds for the printer to go into the ready status.
Form feed	If the Data LED is on, press the button. The printer prints any data remaining in the printer memory.
Error recovery	If an error occurs, the printer will recover from some errors automatically. If the error does not clear automatically, press the button to clear the error and continue printer operation.
Reprint function	You can reprint a print job without sending it from the computer again. When you press the button with the Data LED off, the printer reprints the last job you printed if the whole job can be kept in printer memory. If the print job is too large or there is insufficient memory, the last page only will be reprinted.

5.6 Other Control Features

The printer has the following useful features;

5.6.1 Sleep mode

When the printer does not receive data for a certain period of time (timeout), it enters sleep mode. The default timeout is 5 minutes and it is automatically adjusted to the most suitable time-out setting depending on the frequency of your printer use (Intelligent Sleep Mode).

While the printer is in sleep mode, all the LEDs are off and it is as if it was turned off, but the printer can still receive data from the computer. Receiving a print file or document automatically wakes up the printer to start printing. Pressing the button also wakes up the printer.

NOTE:

- *When the printer goes into sleep mode, the fan will not stop until the printer engine has cooled down. The fan running time varies depending on the sleep mode timeout because the fan running conditions are defined as follows;*

  1) The fan runs for 10 minutes whenever printing finishes.

  2) The fan runs while the printer is in ready status.

  3) The fan runs for at least 5 minutes after the printer goes into sleep mode.

  (EX: If the timeout is 5 minutes, the fan will be running for 5 minutes after the printer goes into sleep mode.)

- *Sleep mode allows the print engine to cool, so the temperature of the room and how long the printer has been in sleep mode affects the warm-up time. This warm-up time can take up to 45 seconds. The Ready LED blinks to indicate that the printer is warming up.*

- *You can change the timeout for the sleep mode with the supplied printer driver (all models) or Remote Printer Console program. The time-out setting is in the range of 1 to 15 minutes. Refer to the Help section in the printer driver or RPC program for more information about the sleep mode setting.*

5.6.2   Test print mode

The printer incorporates various test print modes. The printer enters into each test print mode by panel button operation.

For details on test print mode, see Subsection 9.1 'Test Print Mode' in CHAPTER 6.

CHAPTER3   THEORY OF OPERATION

1.   ELECTRONICS

1.1   General Block Diagram

HL-1240

Fig. 3-1 shows a general block diagram of the HL-1240 printer.
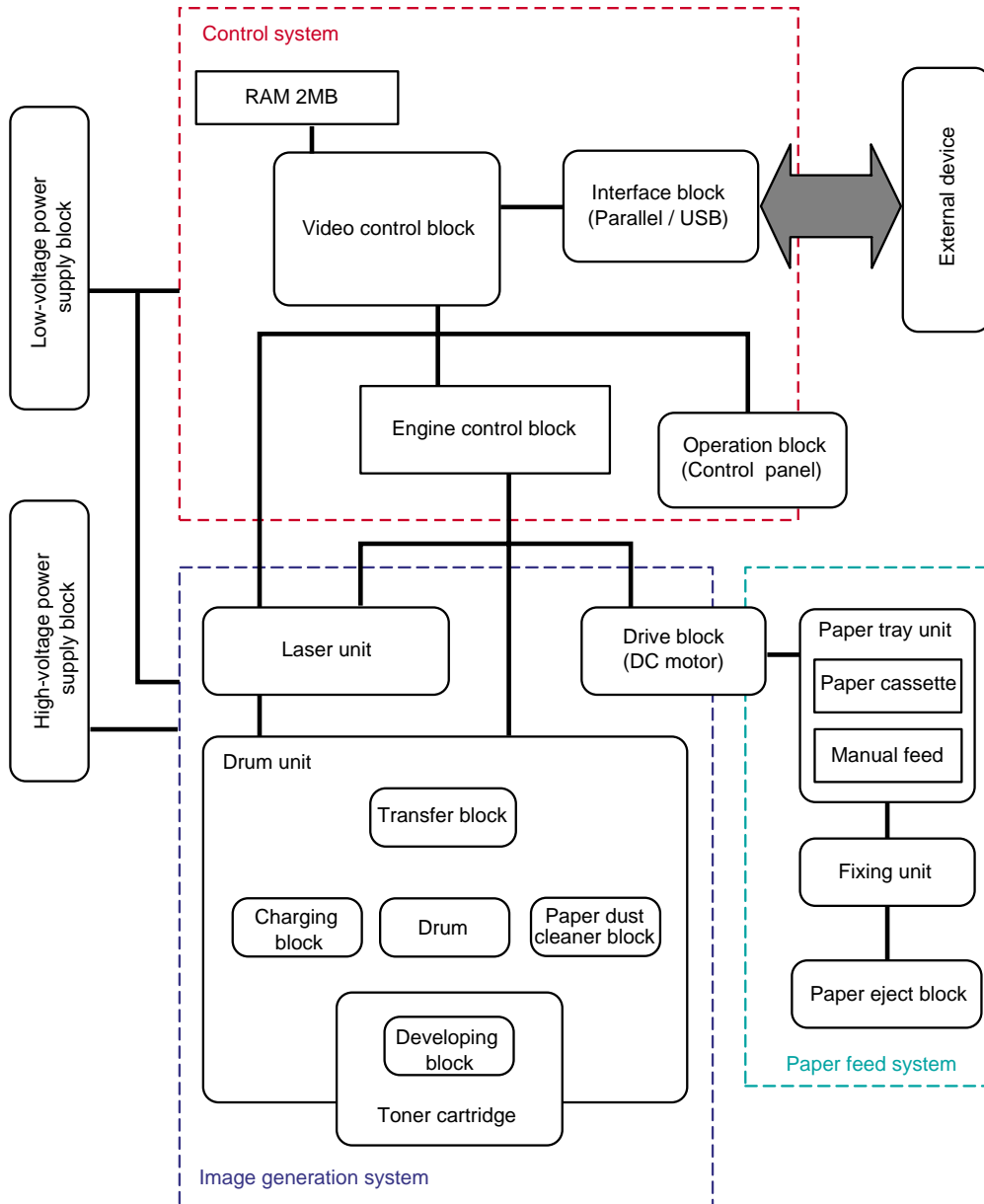
Fig. 3-1

HL-1250

Fig. 3-2 shows a general block diagram of the HL-1250 printer.
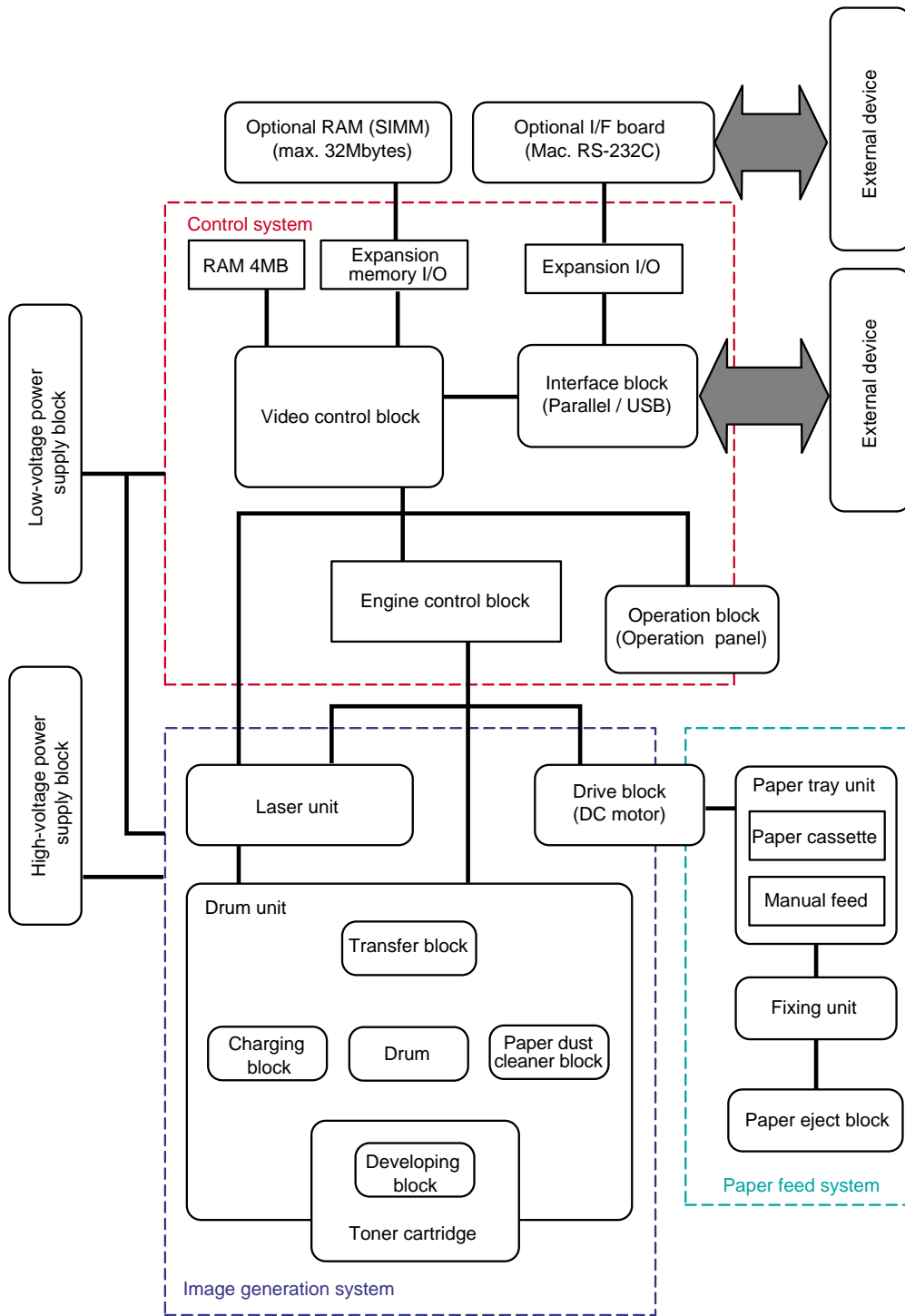
Fig. 3-2

1.2   Main PCB Block Diagram

HL-1240

Fig. 3-3 shows the block diagram of the main PCB of the HL-1240 printer.

A S I C

Reset Circuit	CPU Core (MB86833) BUS INT
	Oscillator (32.7MHz)
Program + Font ROM 1.0 Mbytes	Address Decoder DRAM Control
RAM (2.0 Mbytes)	Timer
	FIFO
	CDCC Parallel I/O → To PC
	USB I/O → To PC
	Soft Support
EEPROM (128 ×8 bits)	EEPROM I/O
	Engine Control I/O

To Engine PCB
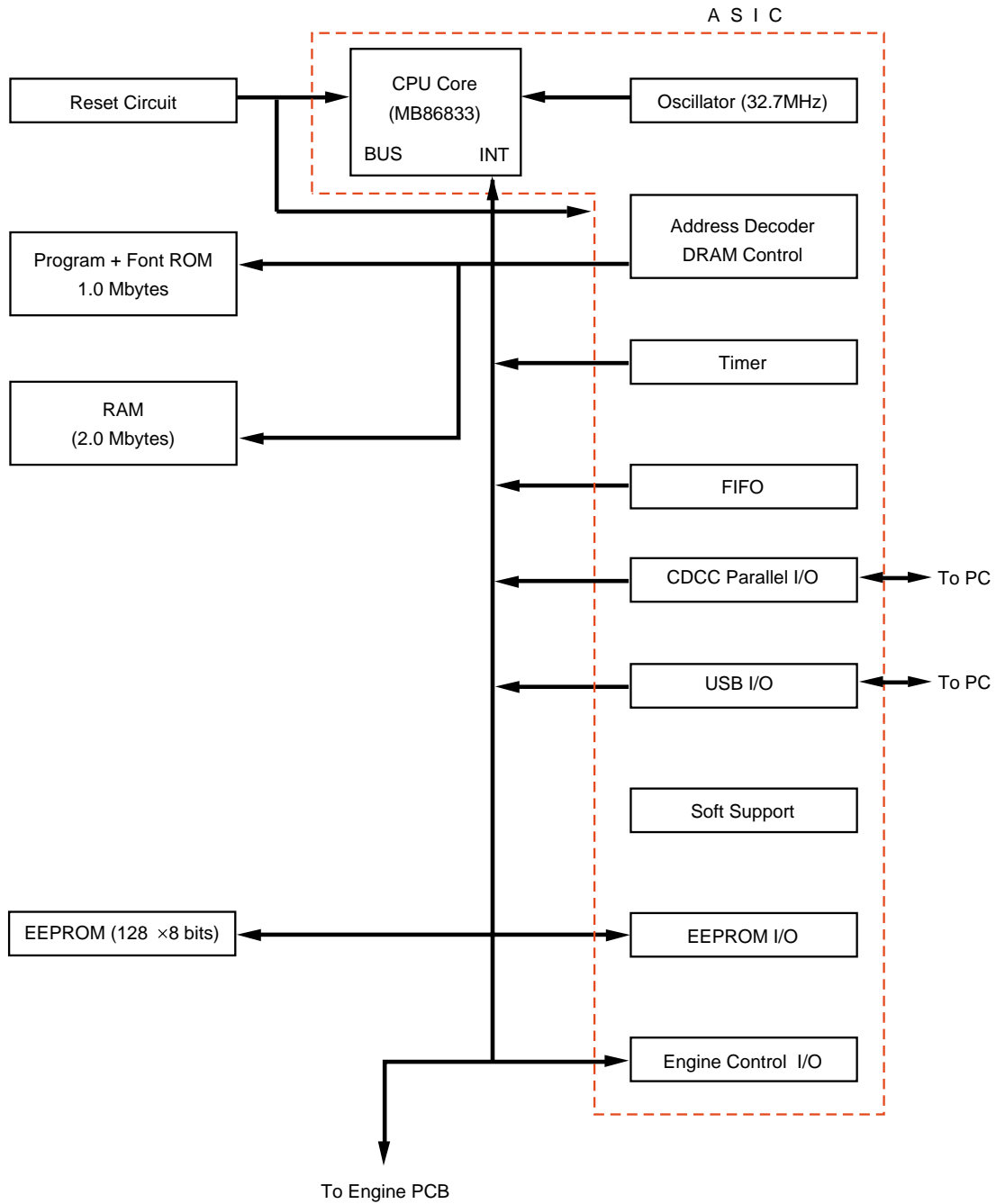
Fig. 3-3

HL-1250

Fig. 3-4 shows the block diagram of the main PCB of the HL-1250 printer.
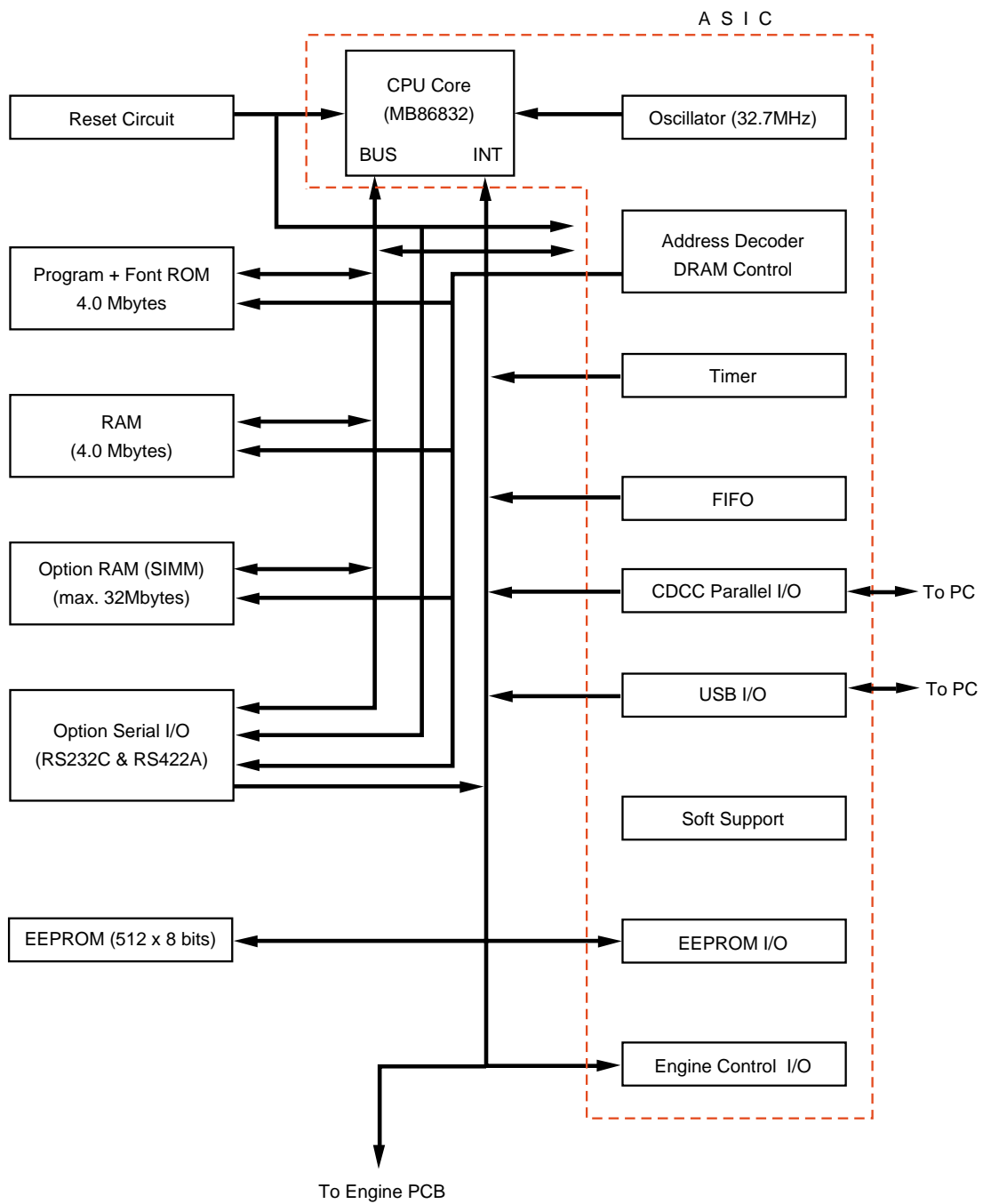
Fig. 3-4

1.3 Main PCB

1.3.1 ASIC

HL-1240

A Fujitsu 32bit RISC CPU, MB86833 (SPARC lite) is built in the ASIC. While the CPU is driven with a clock frequency of 33 MHz in the user logic block, it itself runs at 66 MHz, which is generated by multiplying the source clock by two.

The functions of the interface block communication with external devices are described below;

(1) IEEE1284

Stores the data received from the PC into DRAM as controlled by the DMA controller. It is applicable to both normal receiving and bi-directional communication (nibble mode, byte mode, ECP mode).

(2) USB interface

Stores the data received from the PC into DRAM as controlled by the DMA controller. The transmission speed is 12Mbps.

(3) Engine GA transfer circuit

Communicates with the engine GA by a full-duplex synchronous serial method. The communication speed is 2Mbps.

Fig. 3-5

HL-1250

A Fujitsu 32bit RISC CPU, MB86832 (SPARC lite) is built in the ASIC. While the CPU is driven with a clock frequency of 33 MHz in the user logic block, it itself runs at 66 MHz, which is generated by multiplying the source clock by two.

The functions of the interface block communication with external devices are described below;

(1) IEEE1284

Stores the data received from the PC into DRAM as controlled by the DMA controller. It is applicable to both normal receiving and bi-directional communication (nibble mode, byte mode, ECP mode).

(2) USB interface

Stores the data received from the PC into DRAM as controlled by the DMA controller. The transmission speed is 12Mbps.

(3) Engine GA transfer circuit

Communicates with the engine GA by a full-duplex synchronous serial method. The communication speed is 2Mbps.

Fig. 3-6

1.3.2 ROM

HL-1240

An 8 Mbits ROM (x 16 bit) is mounted into this socket.
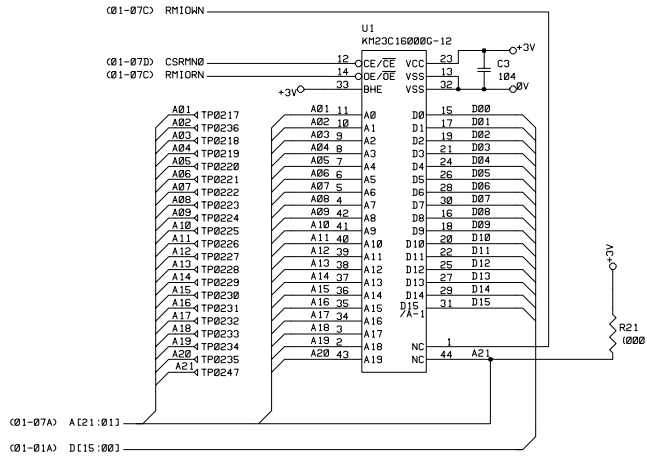
Fig. 3-7

HL-1250

Two 16 Mbits ROMs (x 16 bit) are mounted into these sockets.
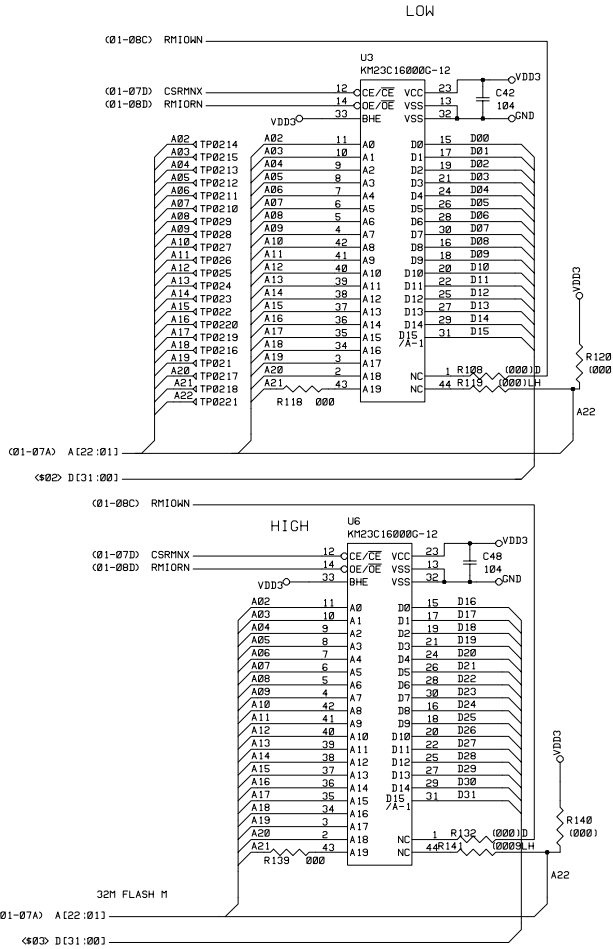
Fig. 3-8

1.3.3 DRAM

HL-1240

A 16M-bit DRAM (x 16 bits) is used as the RAM.
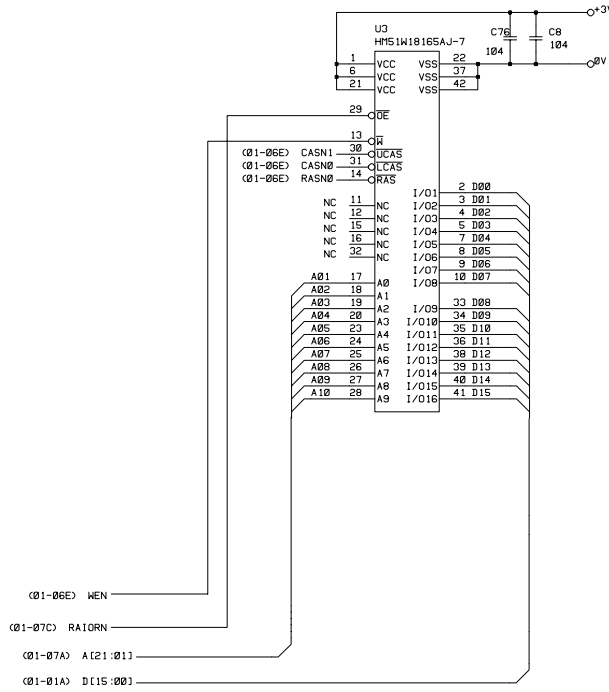
Fig. 3-9

HL-1250

Two 16M-bit DRAMs (x 16 bits) are used as the RAM.
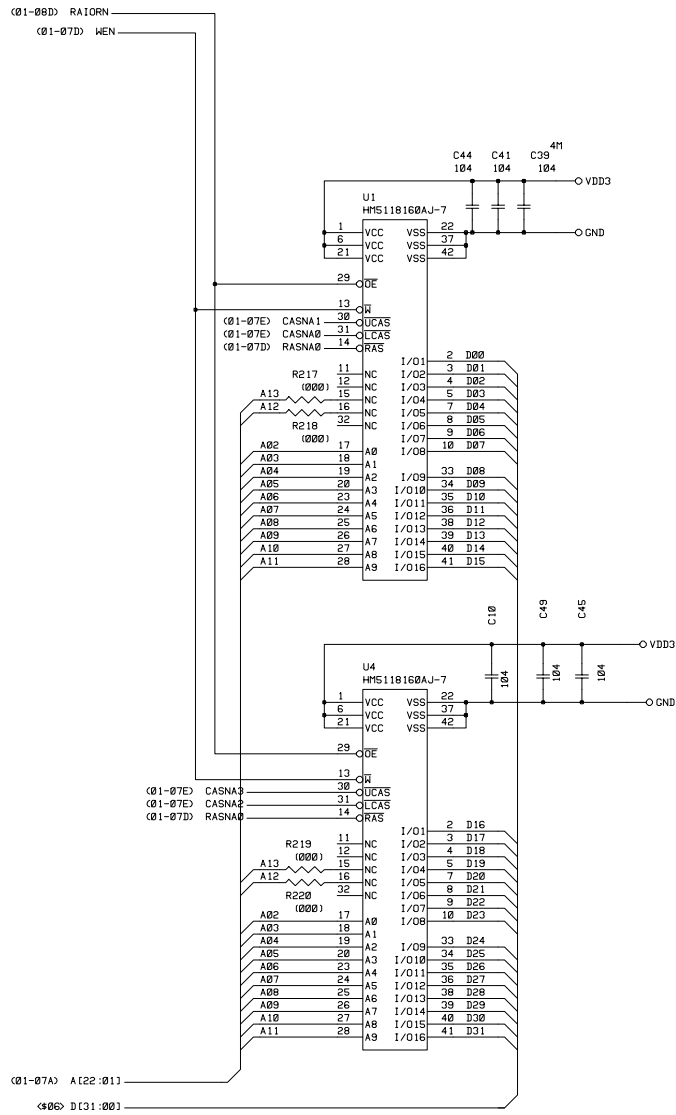
Fig. 3-10

1.3.4   Optional RAM

HL-1250

A 32bit (72 pin) SIMM can be fitted as optional RAM. The main PCB has one slot and the capacity of SIMM can be from 1 Mbyte to 32 Mbytes.
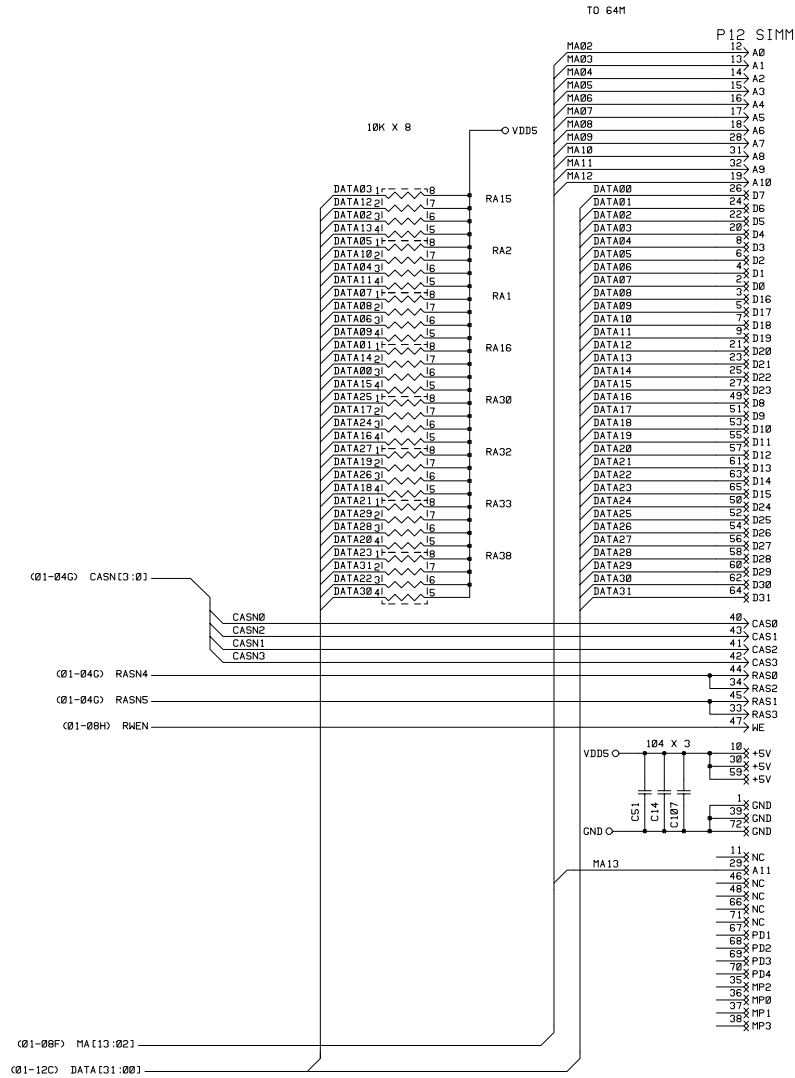
Fig. 3-11

1.3.5 Optional serial I/O

HL-1250

The interrupt of the serial I/O is input to the EXINT terminal of the ASIC, and is recognized by the CPU. A 32-byte register is provided for this I/O, which is read from and written to by the CPU.
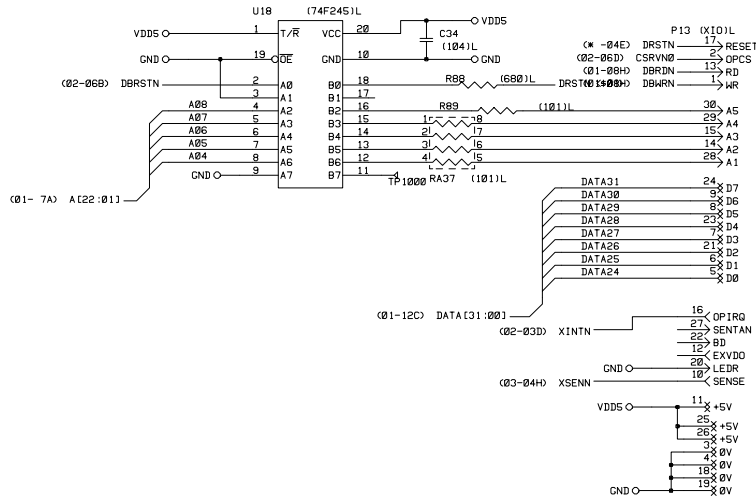
Fig. 3-12

1.3.6 EEPROM

HL-1240

The EEPROM is X24C01A type of two-wire method with a 128 x 8 bits configuration.
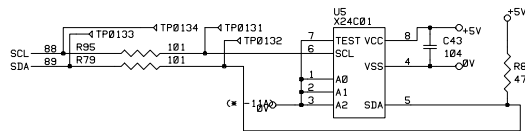
Fig. 3-13

HL-1250

The EEPROM is X24C04 type of two-wire method with a 512 x 8 bits configuration.
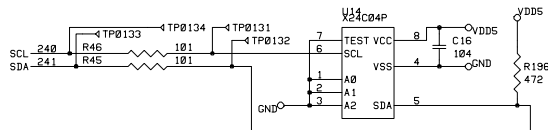
Fig. 3-14

1.3.7 Reset circuit

HL-1240

The reset IC is a RN5VD42A. The reset voltage is 4.2V (typ.) and the LOW period of reset is 80ms (typ.)
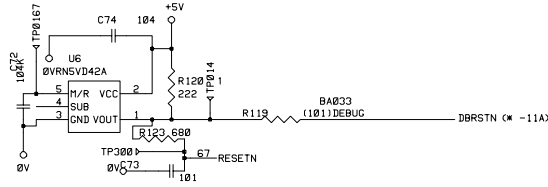
Fig. 3-15

HL-1250

The reset IC is a RN5VD42A. The reset voltage is 4.2V (typ.) and the LOW period of reset is 80ms (typ.)
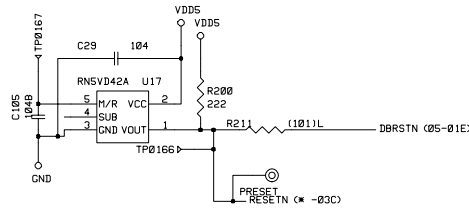
Fig. 3-16

1.3.8   Engine I/O

HL-1240

Fig. 3-17 shows the engine interface circuit. The interface with the engine PCB is by full-duplex synchronous serial method.
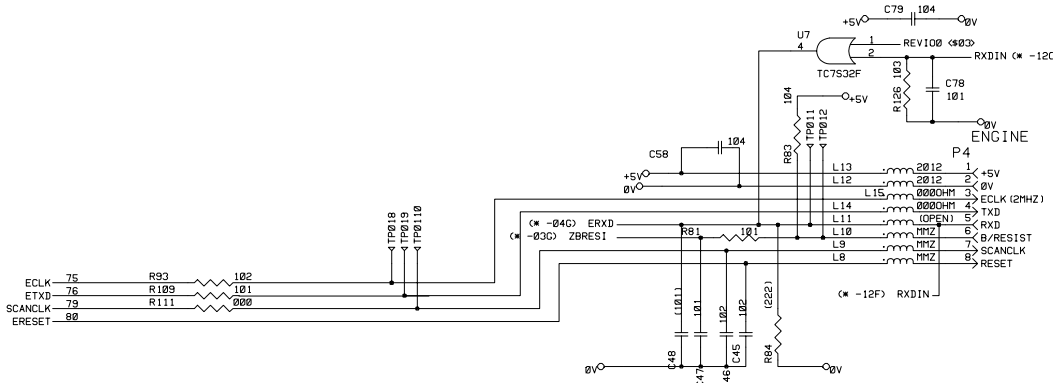
Fig. 3-17

HL-1250

Fig. 3-18 shows the engine interface circuit. The interface with the engine PCB is by full-duplex synchronous serial method.
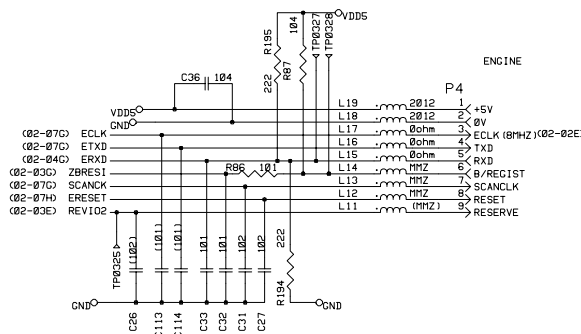
Fig. 3-18

1.4   Engine PCB

The gate array which transforms the serial signal from the main PCB into the parallel signal is mounted on the engine PCB.

The engine PCB controls the following parts by using the transferred signal data;

- Main motor
- Panel PCB
- Fan motor
- Thermistor
- Polygon motor
- Solenoid
- High-voltage power supply

- Toner sensor
- Cover sensor
- Front registration sensor
- Rear registration sensor
- Upper paper cassette sensor (HL-1250 only)
- Lower paper cassette registration sensor (HL-1250 only)

1.5   Power Supply

1.5.1   Low-voltage power supply

The power supply uses a switching regulation system to generate the regulated DC power (+5 V and +24 V), which are converted from the AC line.

The regulated output and the production code of each power supply are listed below;

Regulated Output	Production Code
+5 V / 1.6 A	100V: MPW1555
+24 V / 2.15 A	200V: MPW1455
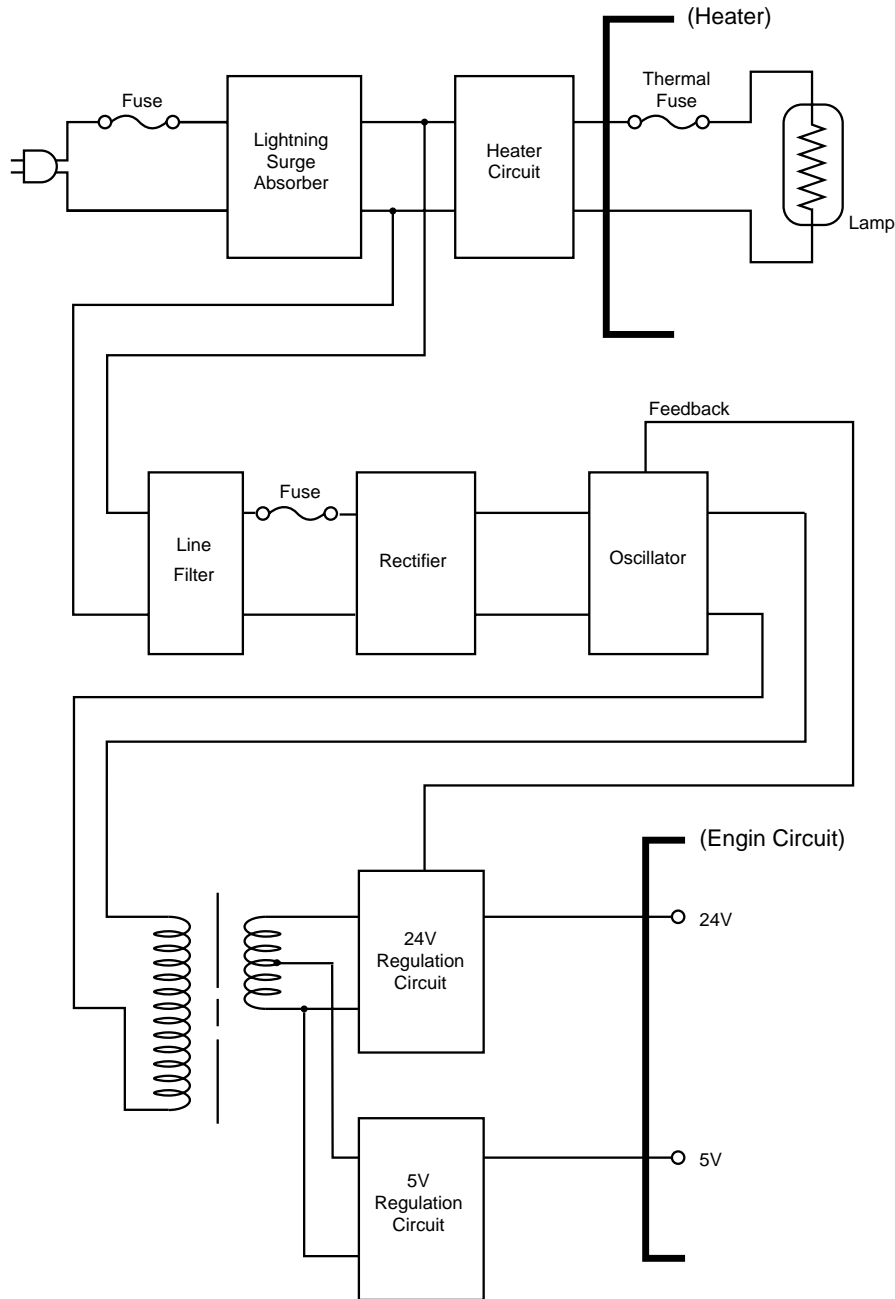
Fig. 3-19

1.5.2 High-voltage power supply

The high-voltage power supply generates and outputs the voltages and currents for the charging, development and transfer functions.
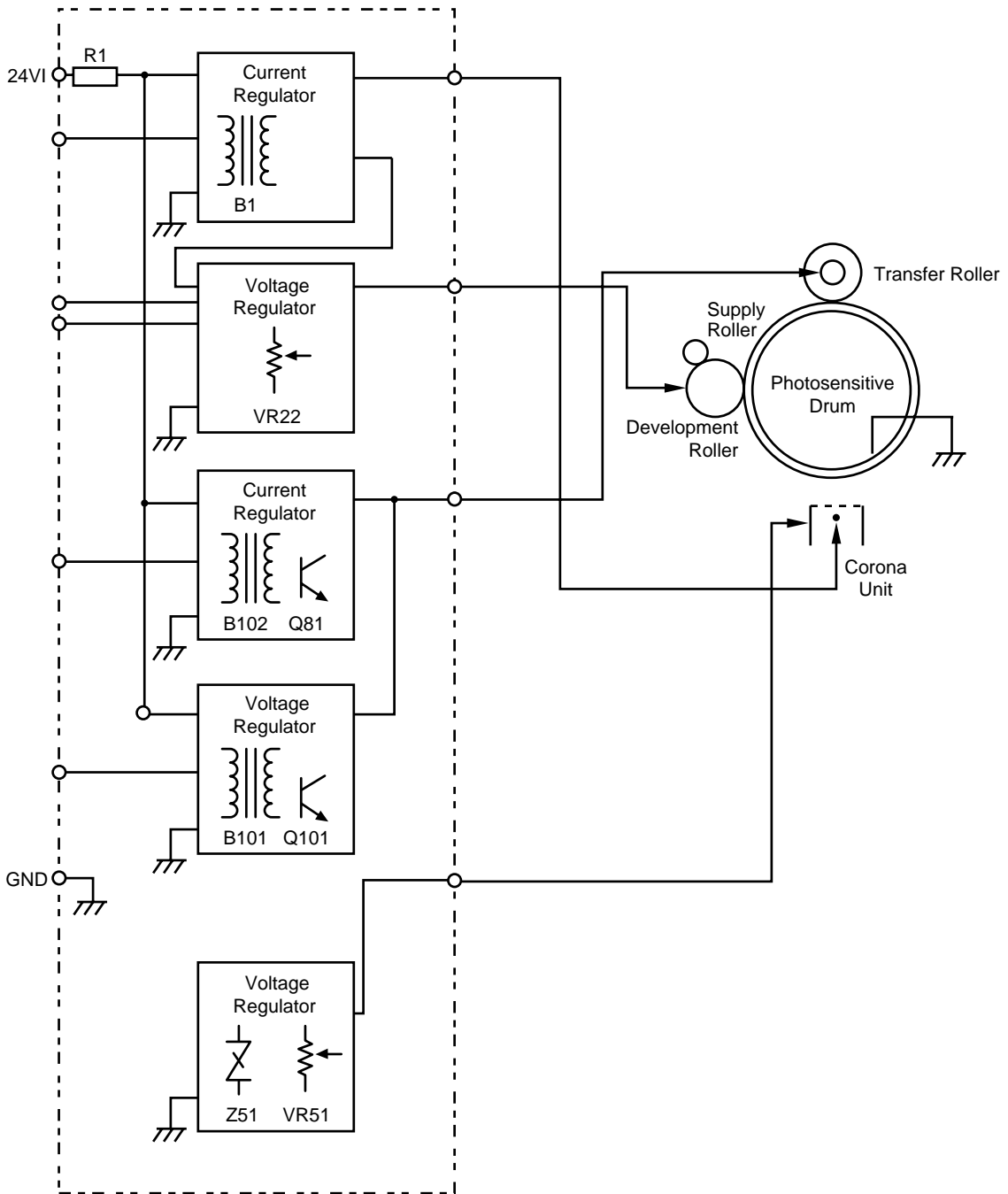
Fig. 3-20

2. MECHANICS

2.1 Overview of Printing Mechanism

Fig. 3-21

Laser Unit

Laser ———— Cover Sensor (B)

Polygon Motor

Main PCB

Engine PCB

Front Registration Sensor

Rear Registration Sensor

Upper Paper Cassette Sensor (HL-1250)

Lower Paper Cassette Registration Sensor (HL-1250)

High-Voltage Power Supply PCB

Drum Unit

Primary Charger (Corona Wire)

Primary Charger (Grid)

Development Roller

Supply Roller

Transfer Roller

Low-Voltage Power Supply PCB

Fixing Unit

Halogen Heater Lamp

Solenoid

Fan Motor

Main Motor

Toner Sensor PCB (light emission) ———— Cover Sensor (A)

Toner Sensor PCB (light reception)

Thermistor (for Heat Roller)

Panel PCB

Fig. 3-22

2.2 Paper Transfer

2.2.1 Paper supply

The paper pick-up roller picks up one sheet of paper from the paper cassette every time it is rotated and feeds it to the paper feed roller.
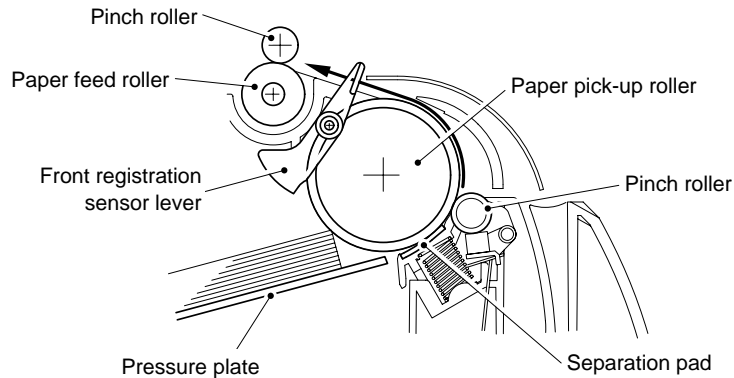
Fig. 3-23

The paper is gripped between the paper pick-up roller and the separation pad and separated into individual sheets.

The pick-up roller is directly connected to the clutch mechanism, whose rotation is stopped by the stopper arm. When the pick-up solenoid is activated, the clutch mechanism is engaged by the solenoid action and the paper pick-up roller is driven. The paper drawn out of the tray by the pick-up roller pushes against the front registration sensor lever and the paper top position/absence of paper is detected by sensing the motion of the lever.

2.2.2 Paper registration

After the paper top position is detected by the front registration sensor, the paper, separated into individual sheets by the paper pick-up roller, is fed further for a specified time, and the paper top position reaches the paper feed roller so that the paper skew is adjusted. Then, the solenoid is turned off, the paper feed roller starts turning, and the paper is fed to the transfer block in the drum unit.
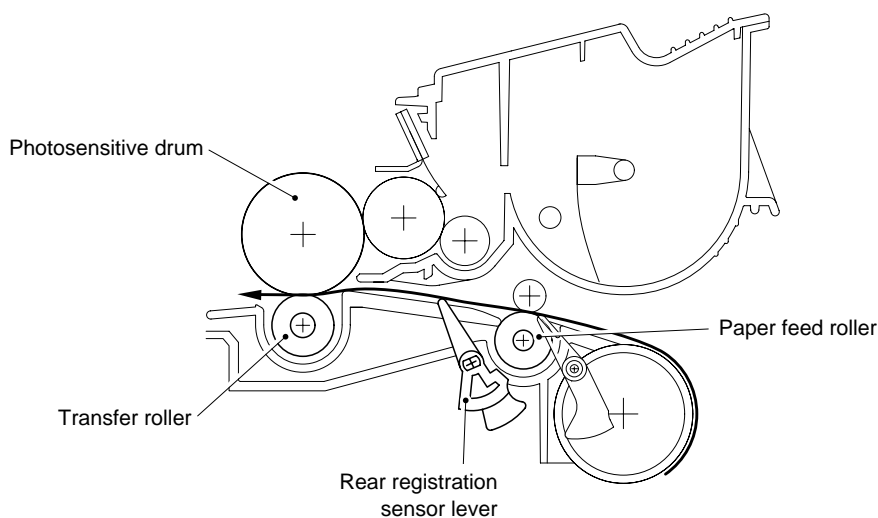
Fig. 3-24

The rear registration sensor in the path from the feed roller to the transfer roller controls the first print position on the paper.

2.2.3 Paper eject

After the printing image on the photosensitive drum is transferred onto the paper, the paper is fed to the fixing unit to fix unfixed toner onto the paper.

Afterwards, the paper is ejected from the fixing unit by the first eject roller in the fixing unit. The eject sensor lever detects whether the paper is ejected correctly or not.

After the paper exits from the first eject roller, the paper is turned by the rear cover and ejected face down into the top output tray through the second eject roller. If the rear cover is open, the paper is ejected face up straight to the printer rear (straight paper path).
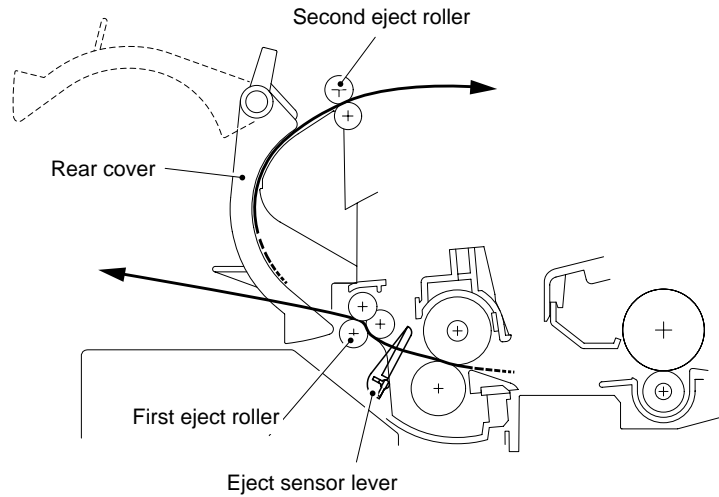
Fig. 3-25

2.3 Sensors

2.3.1 Cover sensors A and B

Detect opening and closing of the front cover.
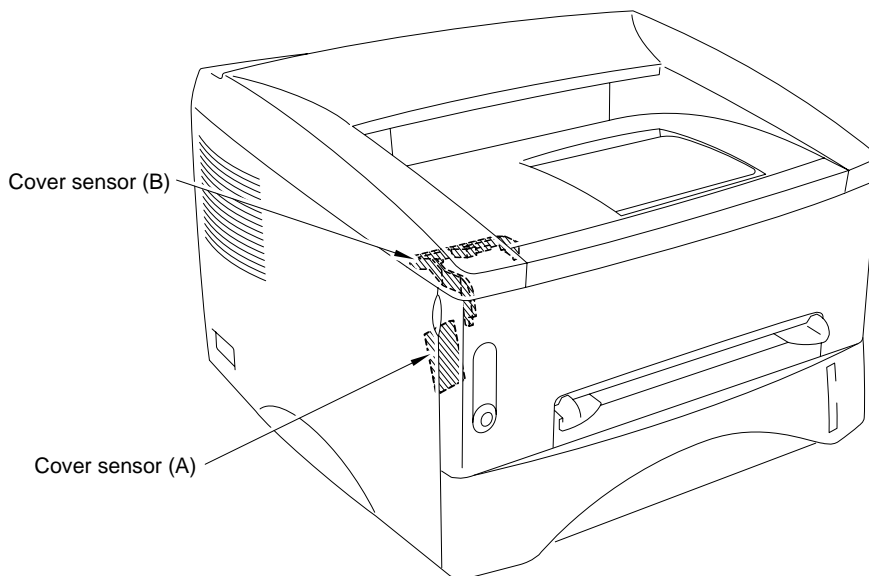
Fig. 3-26

2.3.2 Toner sensor

Detects if there is toner in the toner cartridge. The toner sensor at the left side emits light through the window on the left side of the toner cartridge, then the toner sensor at the right side receives it when the toner is low. They also detect whether or not the drum unit is installed. (The toner cartridge is installed in the drum unit.)

Toner sensor
(light reception)

Toner sensor
(light emission)
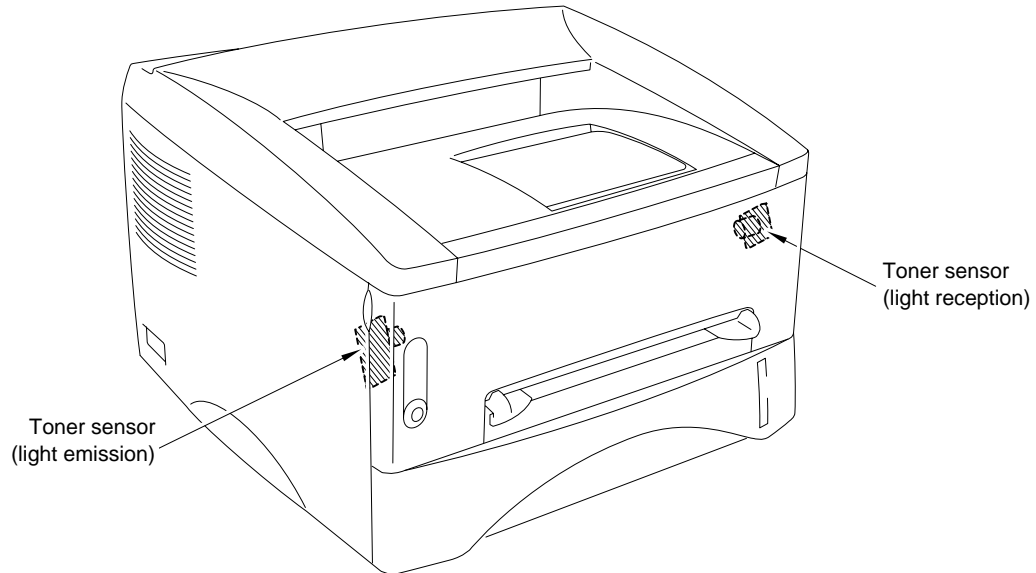
Fig. 3-27

2.4 Drum Unit

2.4.1 Photosensitive drum

Generates the latent electrostatic image and develops the image on the drum surface.

2.4.2 Primary charger

Forms a uniform charge on the drum surface.

(1) Corona wire
Generates the ion charge on the drum.

(2) Grid
Spreads the ion charge evenly over the drum surface.

2.4.3 Transfer roller

Transfers the toner image to the paper from the drum surface.

2.4.4 Cleaner

Removes the paper dust or dirt on the surface of the photosensitive drum.

2.5 Toner Cartridge

Develops the electrostatic latent image on the photosensitive drum with toner and forms the visible image.

2.6 Print Process

2.6.1 Charging

The drum is charged to approximately 870V by an ion charge which is generated by the primary charger. The charge is generated by ionization of the corona wire, which has a DC bias from the high-voltage power supply applied to it. The flow of the ion charge is controlled by the grid to ensure it is distributed evenly on the drum surface. The aluminum drum sleeve in the photosensitive drum is grounded.
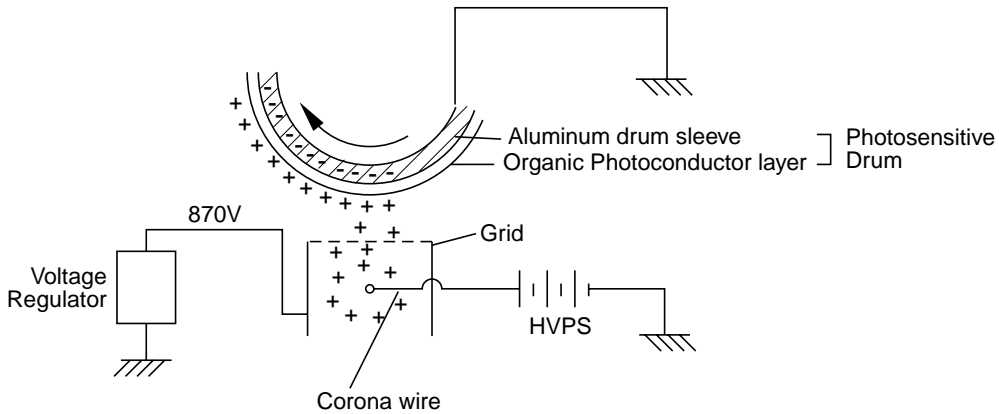
Fig. 3-28

The primary charge uses a corona wire, but since the drum is positively charged, only less than 1/10 of the usual quantity of ozone is generated compared with the negatively charged drum. The level of ozone expelled from the printer is therefore not harmful to the human body. Applicable safety standards have been complied with.

2.6.2 Exposure stage

After the drum is positively charged, it is exposed to the light emitted from the laser unit.
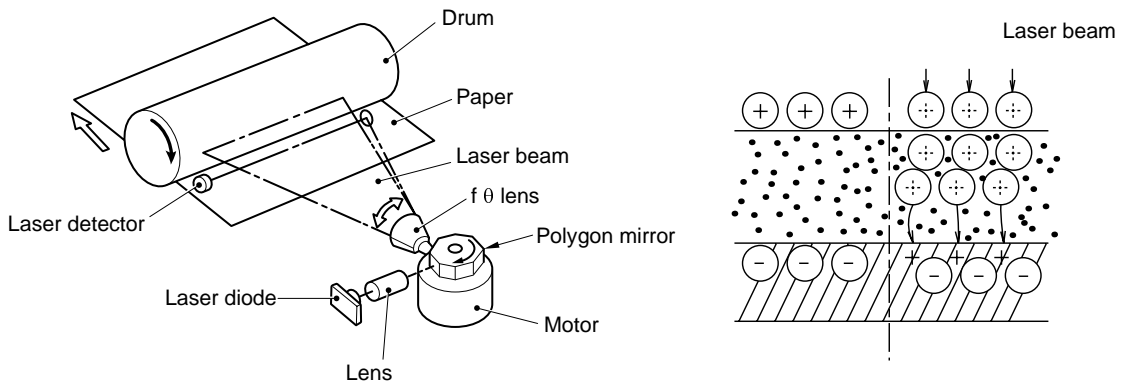
Fig. 3-29

The area exposed to the laser beam is the image to be printed. The surface potential of the exposed area is reduced, forming the electrostatic image to be printed.

① Primary charging

② Laser beam exposure and developing
   (a) Unexposed area
      (Non image area)
   (b) Exposed area
      (Image area)

③ Transfer the image to paper
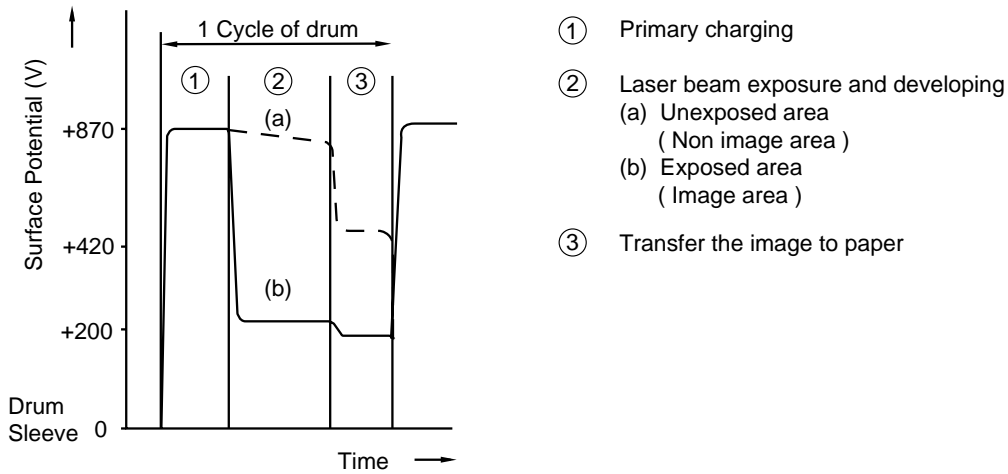
Fig. 3-30

2.6.3 Developing

Developing causes the toner to be attracted to the electrostatic image on the drum so as to transform it into a visible image.

The developer consists of a non-magnetic toner. The development roller is made of conductive rubber and the supply roller (which is also made of conductive sponge) rotate against each other. The toner is charged and carried from the supply roller to the development roller. The toner adheres to the development roller and is conveyed to the photosensitive drum at an even thickness controlled by the blade. The toner is nipped between the development roller and the drum and developed onto the latent image on the drum. The electrostatic field between the drum and the development roller, which is DC-biased from the high-voltage power supply, creates the electrostatic potential to attract toner particles from the development roller to the latent image area on the drum surface.
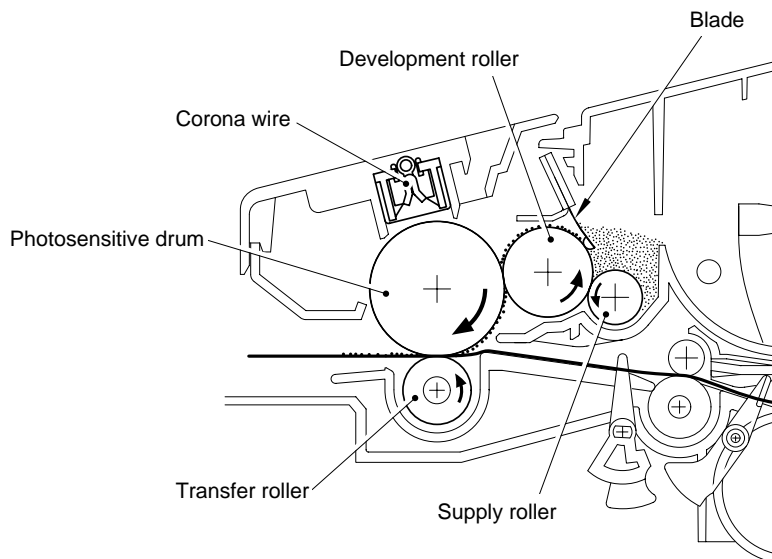
Fig. 3-31

2.6.4 Transfer

(1) Transfer process

After the drum has been charged and exposed, and has received a developed image, the toner formed is transferred onto the paper by applying a negative charge to the back of the paper. The negative charge applied to the paper causes the positively charged toner to leave the drum, and adhere to the paper. As a result, the image is visible on the paper.

(2) Cleaning process of transfer roller

If the toner is not transferred onto the paper perfectly it is possible that there may be residual toner on the drum which will adhere to the transfer roller. The transfer voltage changes to a positive voltage during non-printing rotation of the drum. Therefore the transfer roller is cleaned by returning the positively charged toner adhering to the transfer roller onto the photo-conductive drum.

2.6.5 Fixing stage

The image transferred to the paper by static electricity is fixed by heat and pressure when passing through the heat roller and the pressure roller in the fixing unit. The thermistor keeps the surface temperature of the heat roller constant by detecting the surface temperature of the heat roller and turning on or off the halogen heater lamp.
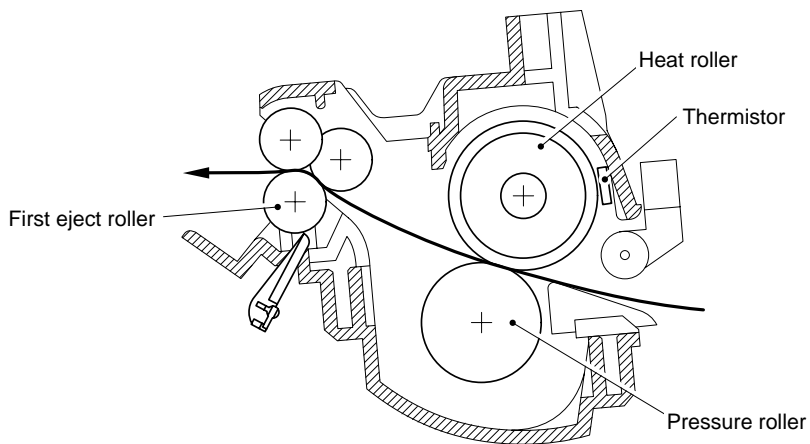
Fig. 3-32

CHAPTER4   DISASSEMBLY AND RE-ASSEMBLY

1.   SAFETY PRECAUTIONS

To avoid creating secondary problems by mishandling, follow the warnings and precautions below during maintenance work.

⚠ *WARNING*

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

(2) *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.*
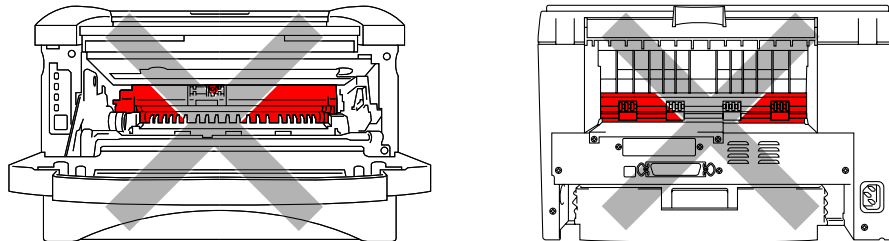
ⓘ *CAUTION:*

(1) *Be careful not to lose screws, washers, or other parts removed.*

(2) *Be sure to apply grease to the gears and applicable positions specified in this chapter.*

(3) *When using soldering irons or other heat-generating tools, take care not to accidentally damage parts such as wires, PCBs and covers.*

(4) *Before handling any PCBs, touch a metal portion of the equipment to discharge any static electricity charge on your body, or the electronic parts or components may be damaged.*

(5) *When transporting PCBs, be sure to wrap them in the correct protective packaging.*

(6) *Be sure to replace self-tapping screws correctly, if removed. Unless otherwise specified, tighten screws to the following torque values.*

    TAPTITE, BIND or CUP B
            M3: 70N • cm
            M4: 80N • cm
    TAPTITE, CUP S
            M3: 80N • cm
    SCREW
            M3: 70N • cm
            M4: 80N • cm

(7) *When connecting or disconnecting cable connectors, hold the connector body, not the cables. If the connector has a lock, release the connector lock first to release it.*

(8) *After a repair, check not only the repaired portion but also all connectors. Also check that other related portions are functioning properly before operational checks.*

2. DISASSEMBLY FLOW

PCBs

```
①  AC CORD
     ↓
②  DRUM UNIT
     ↓
③  PAPER CASSETTE
     ↓
④  FRONT COVER
     ↓
⑤  TOP COVER
     ↓
⑥  MAIN COVER
     ↓
⑦  LASER UNIT
```

⑧ DRIVE UNIT → ⑨ FIXING UNIT → Ⓐ

⑧ DRIVE UNIT → ㉑ PAPER FEED ROLLER ASSY ← Ⓑ

⑩ BASE PLATE

⑪ MAIN PCB ASSY → ⑫ LOWER TRAY RELAY PCB ASSY (HL-1250 only)

⑬ LOW-VOLTAGE PS PCB ASSY

⑭ ENGINE PCB ASSY / HIGH-VOLTAGE PS PCB ASSY → ⑮ PANEL PCB ASSY

Ⓑ

⑯ SOLENOID ASSY ← Ⓐ

⑯ SOLENOID ASSY → ⑰ FAN MOTOR

⑮ PANEL PCB ASSY → ⑯ SOLENOID ASSY

⑱ TONER SENSOR PCB ASSY (emission)

⑲ TONER SENSOR PCB ASSY (reception)

⑳ PAPER PICK-UP ROLLER ASSY

3. DISASSEMBLY PROCEDURE

3.1 AC Cord

(1) Disconnect the AC cord from the printer AC inlet.

Printer

AC cord
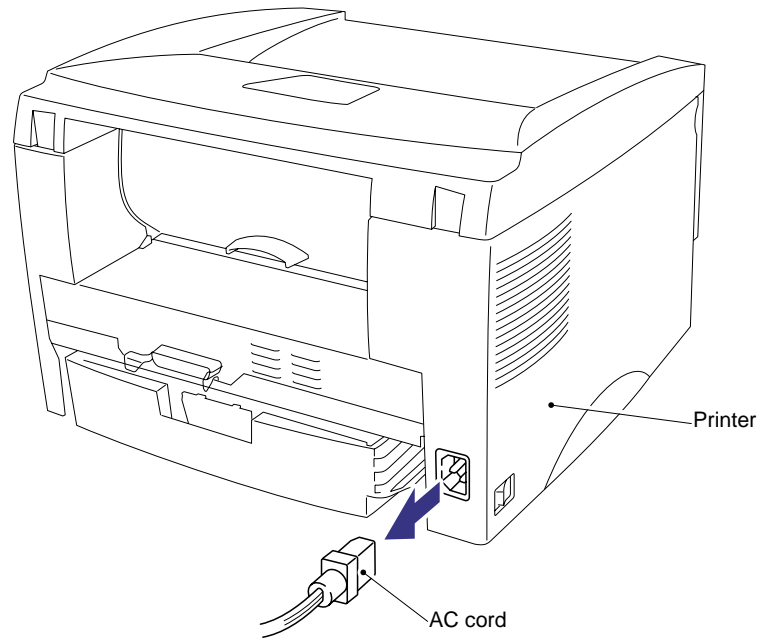
Fig. 4-1

3.2 Drum Unit

(1) Open the front cover and remove the drum unit from the printer.

Drum unit
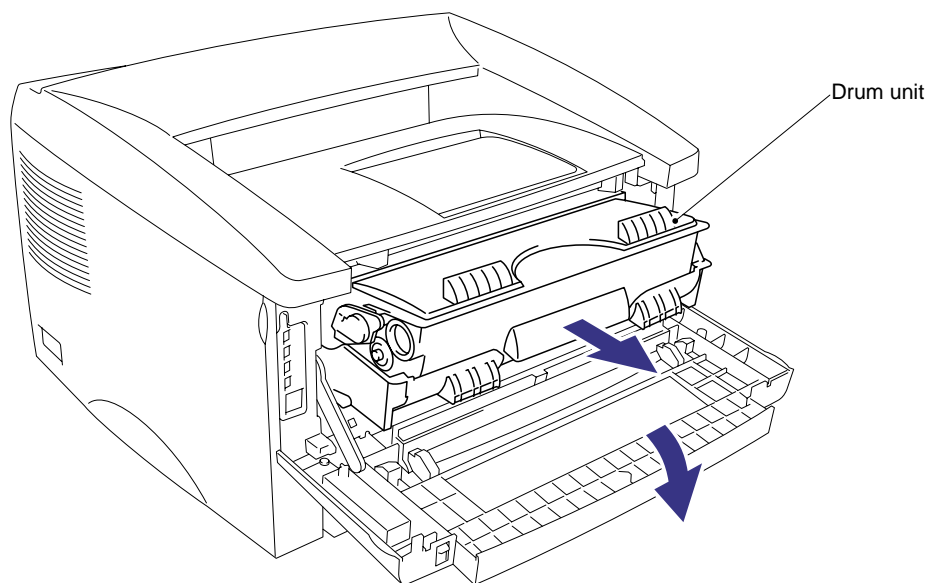
Fig. 4-2

3.3 Paper Cassette

(1) Close the front cover, pull out the paper cassette from the printer and remove the paper from the cassette.
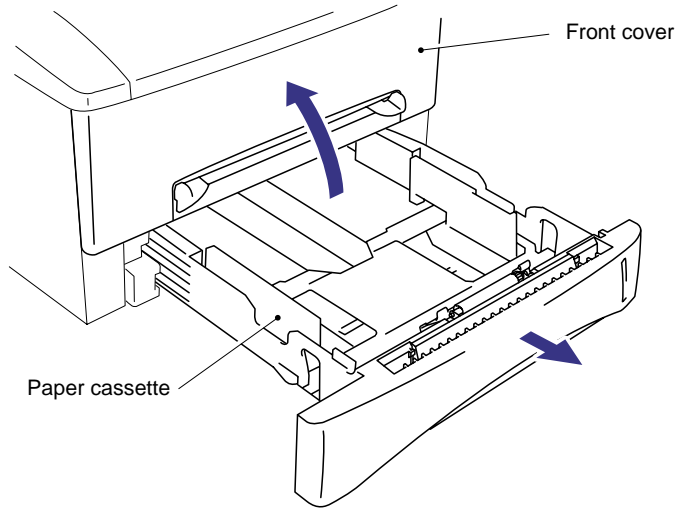
Fig. 4-3

(2) Remove the separation pad holder ASSY by pulling it upwards, then remove the separation pad spring from the paper cassette.
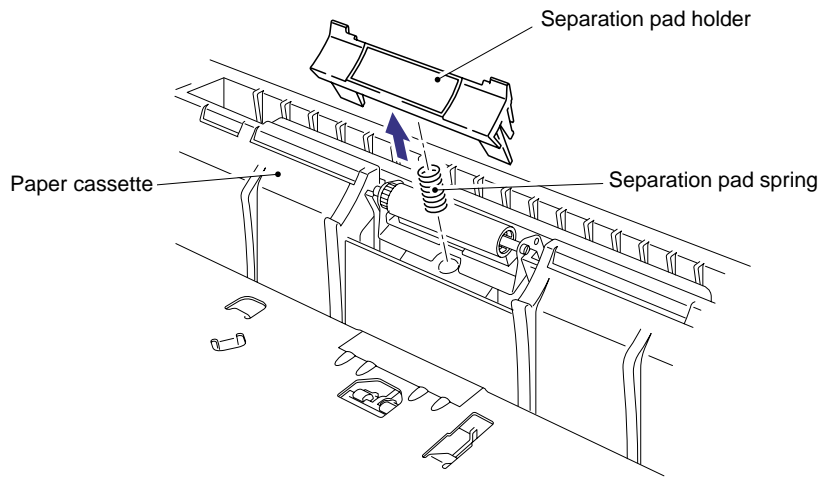
Fig. 4-4

NOTE:

When replacing/re-assembling the separation pad holder, remove the old grease and apply a suitable amount of grease referring to the figure below;

Paper pick-up roller

Paper cassette

Grease: Molykote PG-662
(1 rice-grain size)
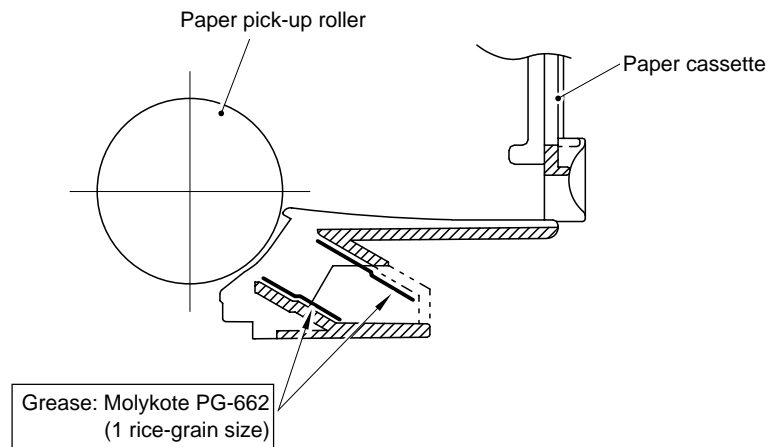
Fig. 4-5

(3) Turn the paper cassette upside down, then remove the cassette cover film by peeling it carefully from the underside of the cassette.

(4) Remove the M3x8 Taptite screw and remove the paper cassette cover from the front of the cassette.

Cassette cover film

Taptite, TORX pan M3x8

Paper cassette

Paper cassette cover
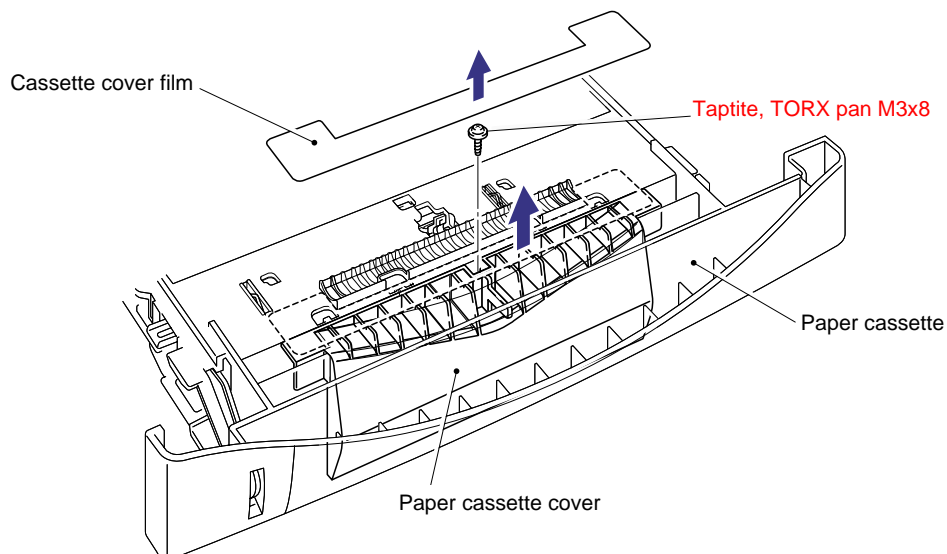
Fig. 4-6

NOTE:

- *'The cover film must not be reused after it has been removed. Always replace it with a new one.*

- *The screw securing the paper cassette cover indicated RED in the figure above is very special. When disassembling/re-assembling the screw, you need a special screw driver. Refer to the parts reference list.*

(5) Keeping the paper cassette upside down, release the pressure roller holder assembly from the cassette by releasing the metal mounting plate from the plastic retaining boss. Use a flat screwdriver to press the metal plate forwards until it clears the boss and then remove the pressure roller holder assembly downwards from the cassette.

(6) Remove the cassette pressure roller from the assembly, then remove the pressure roller shaft from the pressure roller.

(7) Remove the sponge holder ASSY from the holder. The two sponge holder springs will also come off.
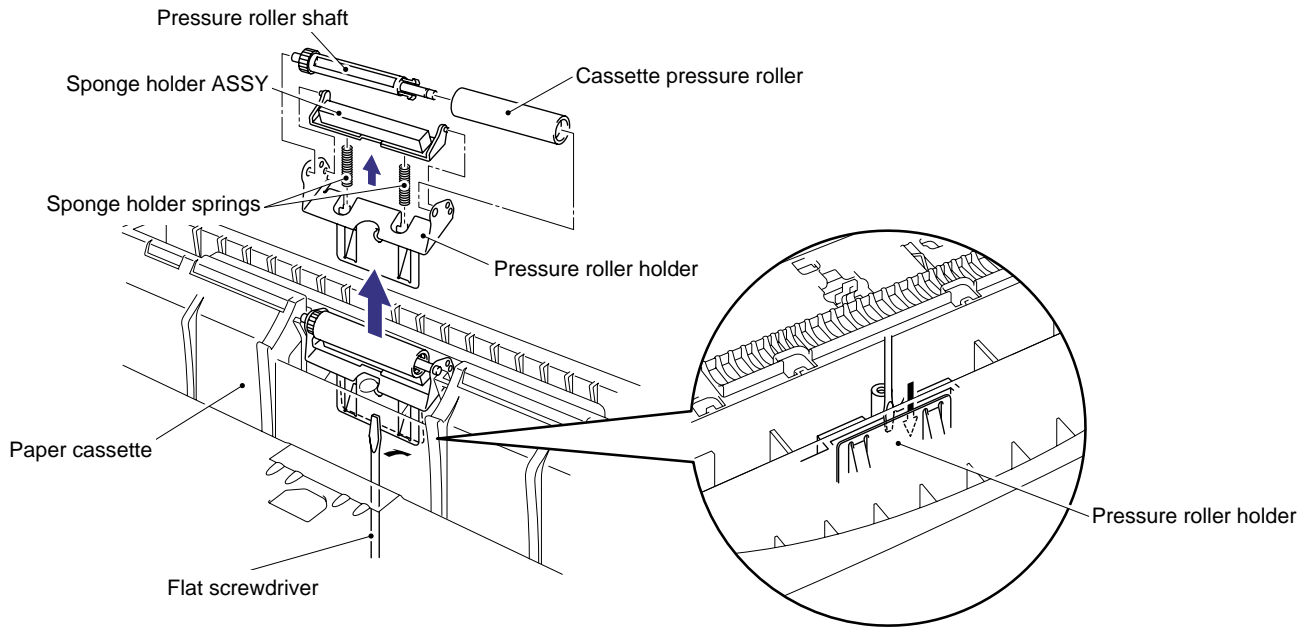
Fig. 4-7

(8) Keeping the paper cassette upside down, remove the two M2.6x5 Taptite screws.

(9) Unhook the catches of each side guide, then press the lock lever towards the front of the cassette to release the pressure plate.
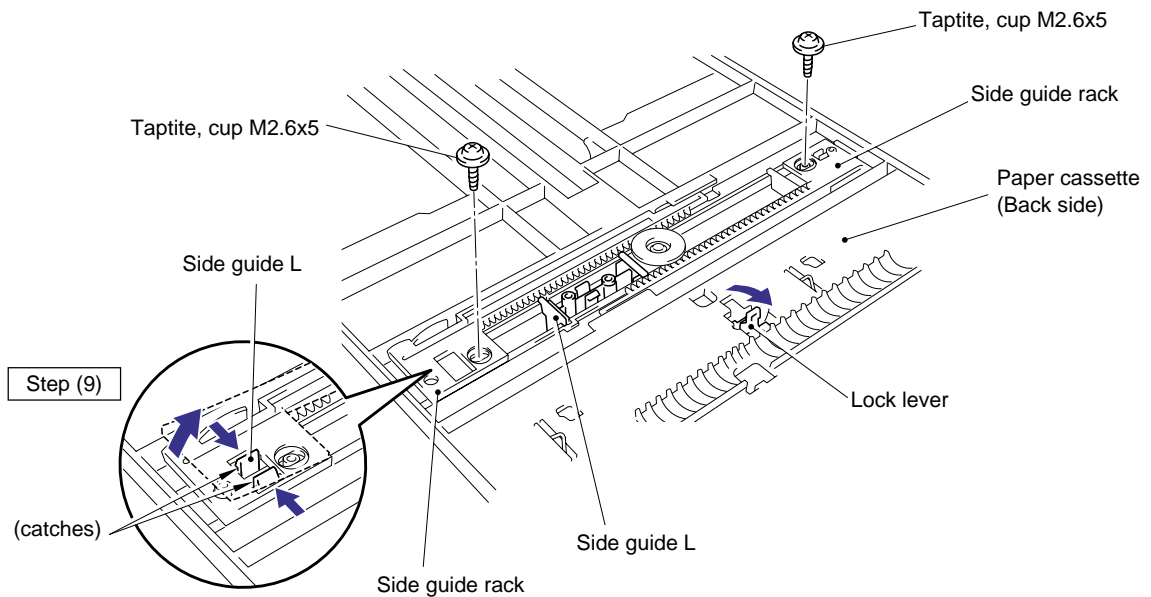
Fig. 4-8

(10) Turn the cassette the correct way up and slide the two paper guides to the center of the cassette.

(11) Remove the side guides Left and Right from the paper cassette.
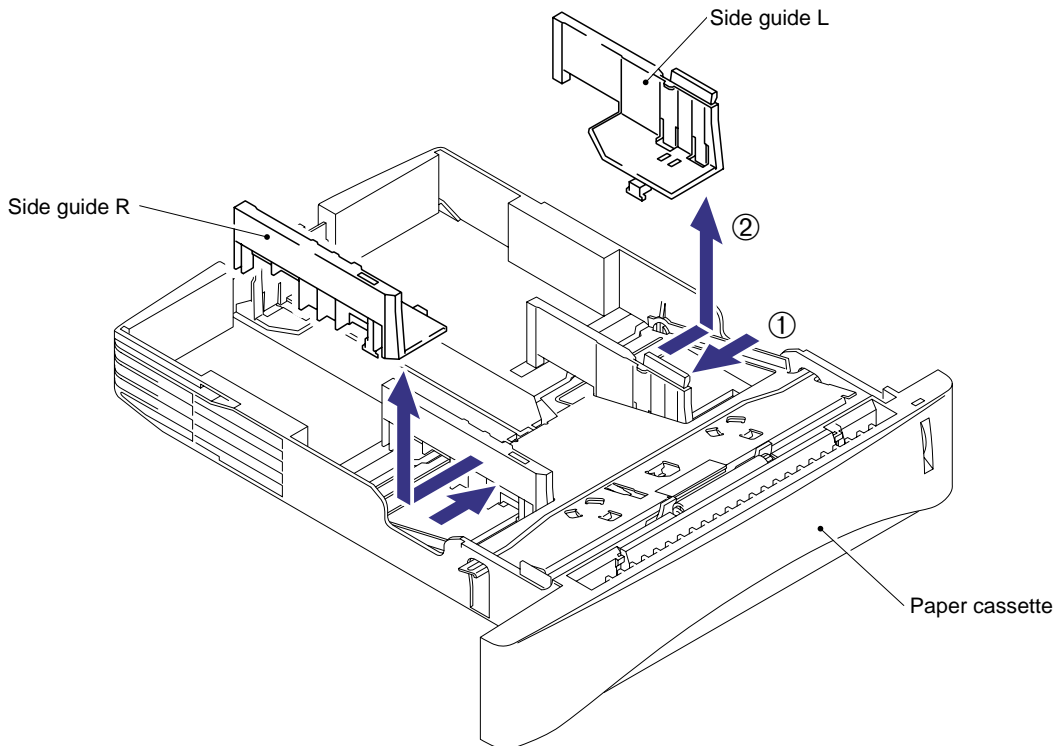
Fig. 4-9

(12) Unhook the two catches (A) of the pressure plate while pulling the plastic frame outwards, then unhook the other two catches (B) of the plate while pulling the plastic frame outwards to remove the pressure plate ASSY.

(13) Unhook the pressure plate spring from the plastic hook to remove the two pressure plate springs.
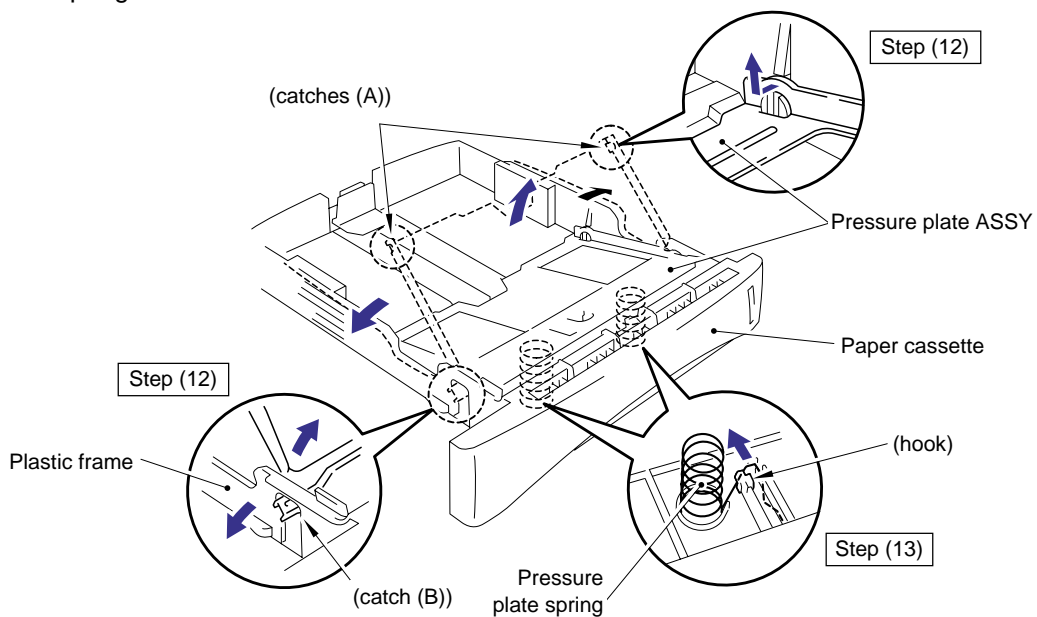
Fig. 4-10

🛑 **CAUTION:**

When unhooking the catches to remove the pressure plate, do not bend the pressure plate, gently ease the plastic cover. If the pressure plate is deformed, paper feeding problems may occur.

NOTE:

When re-assembling the pressure plate ASSY, ensure that the paper indicator arm is under the pressure plate.

(14) Remove the release lever extension spring.

(15) Unhook the two catches and rotate the lock lever to remove it downwards from the cassette.
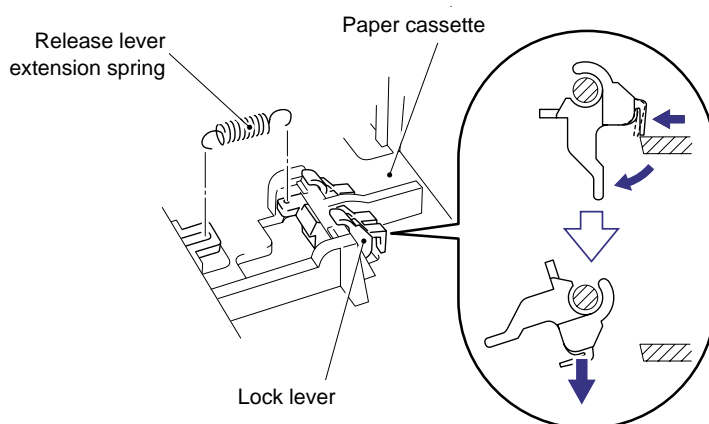
Fig. 4-11

NOTE:

When re-assembling the lock lever, insert it upwards from underneath the cassette and rotate it until the two catches lock into place..

(16) Slide the rear paper guide fully forwards in the cassette and remove it from the slot.
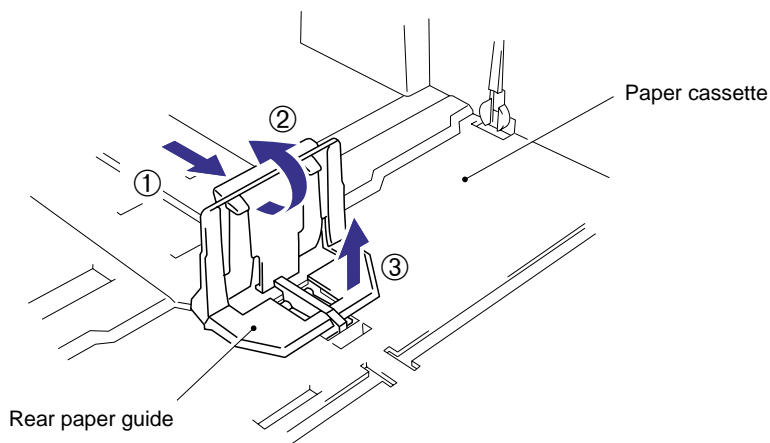
Fig. 4-12

(17) Turn the cassette upside down and remove the one M3x8 Taptite screw to remove the side guide gear. Then remove the one friction spring.

(18) Remove the two side guide racks.

(19) Remove the paper indicator.
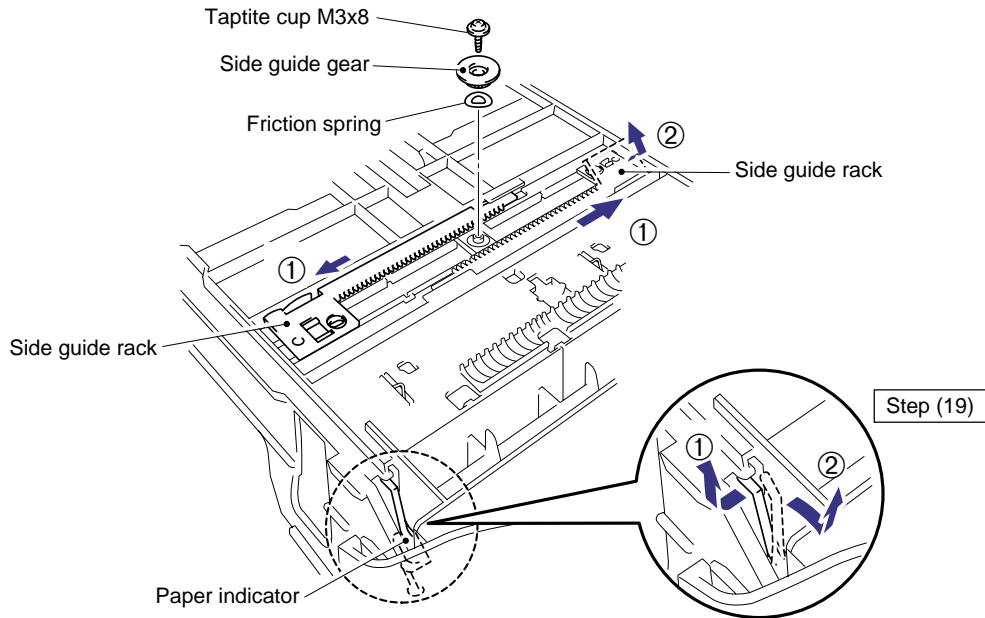
Fig. 4-13

NOTE:

When re-assembling the side guide racks, they should both be aligned so that the wide end of the racks are in line with the inside edge of the paper guide release slots in the cassette before refitting the spring and gear.

3.4   Front Cover

(1) Open the front cover.

(2) Remove the four M3x8 Taptite screws from the main cover.
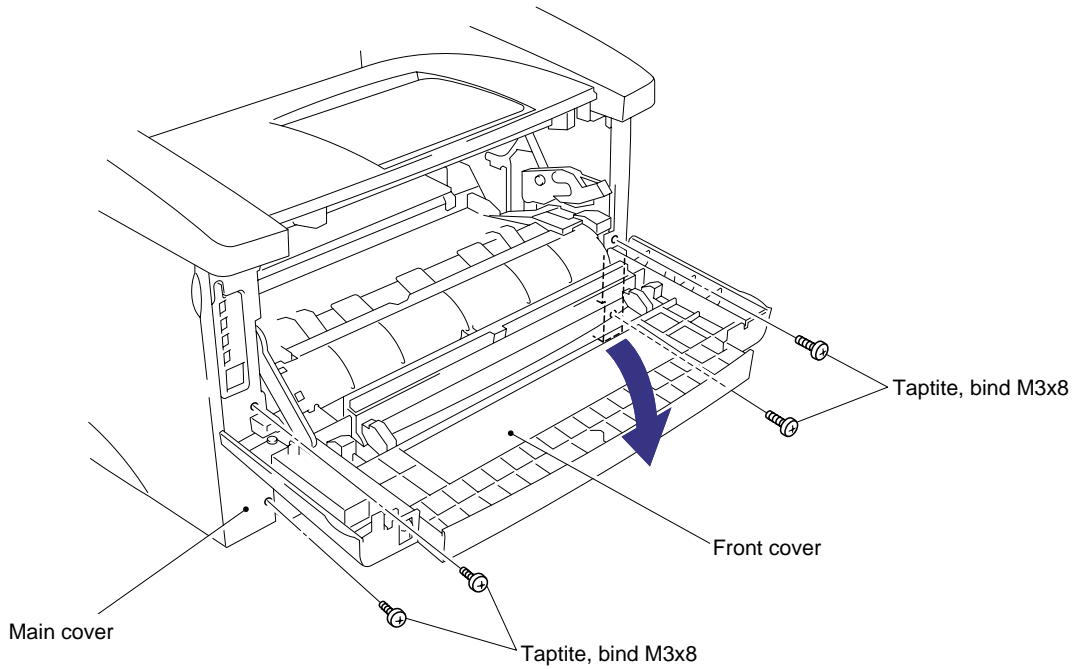
Fig. 4-14

(3) Position the front cover at the angle of 45 degrees and release the bosses at the right and left hand sides and the link at the left hand side.

(4) Remove the front cover.
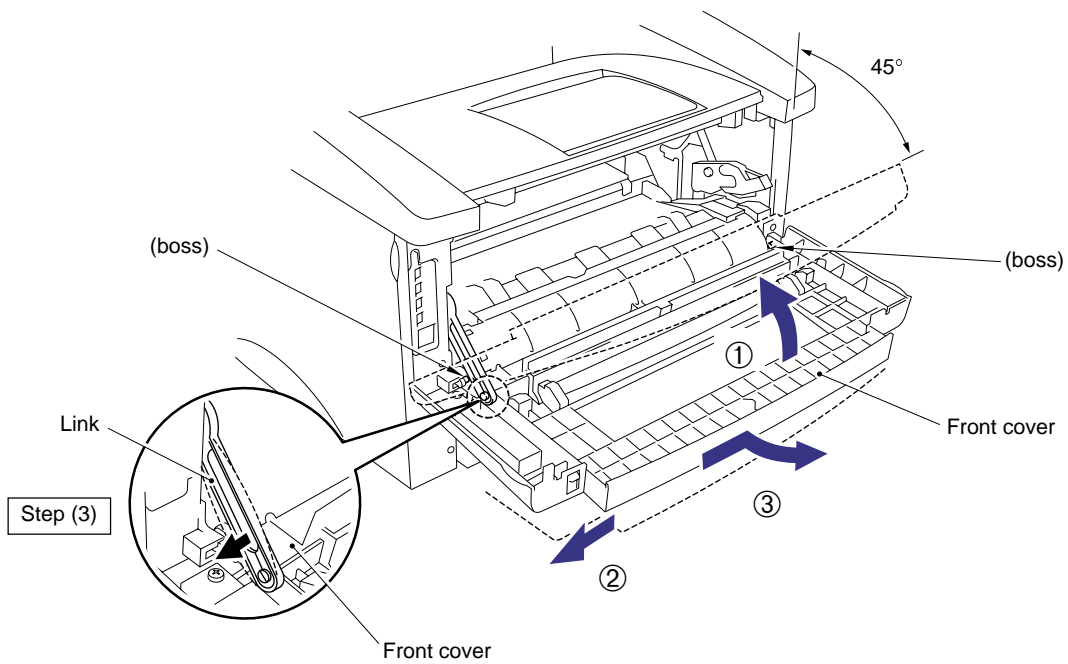
Fig. 4-15

3.5   Top Cover

(1) Remove the two M3x10 Taptite screws securing the top cover.

(2) Release the hooks on either side of the top cover from the bosses on the main cover by pulling the top cover forwards.
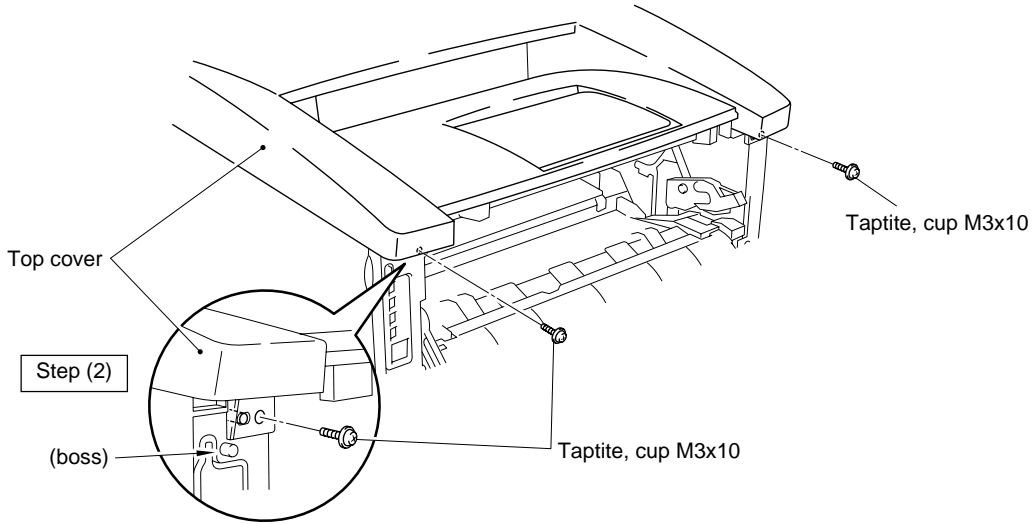
Fig. 4-16

(3) Open the rear cover, then release the hooks (A) at the right and left hand sides of the top cover while pushing them towards the side of the printer from the rear.

(4) Lift up the top cover and release the hooks (B) at the right and left hand sides of the top cover to remove the top cover.
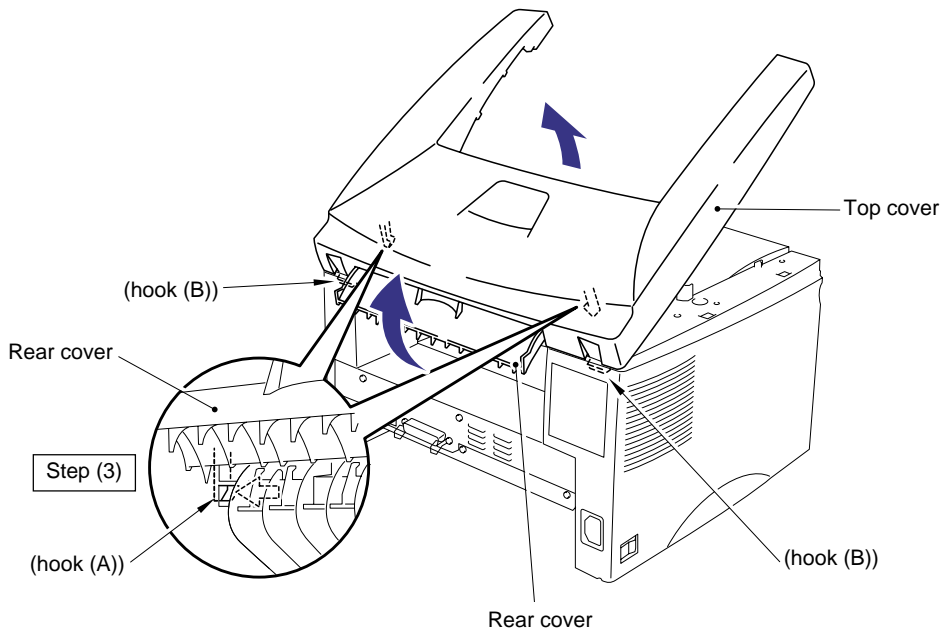
Fig. 4-17

(5) Turn the top cover upside down and remove the second eject roller ASSY by lifting the middle of the roller upwards until the roller releases from the cover.
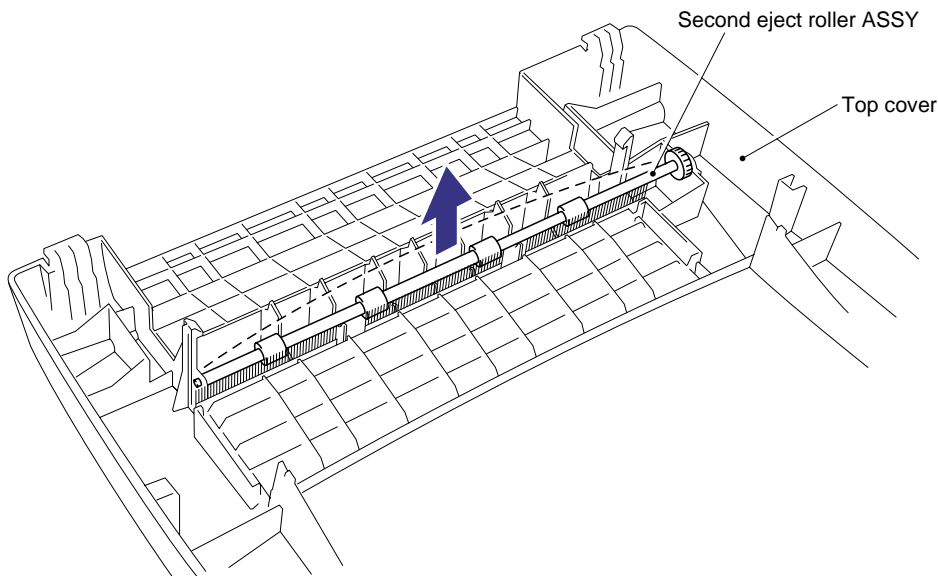
Fig. 4-18

3.6 Main Cover

(1) Remove the two M3x8 Taptite screws from the rear of the main cover.

(2) Release the hooks at the right and left hand top sides of the printer, then, while pulling the cover outwards to clear the power socket and switch, lift up the main cover to remove it complete with the rear cover.
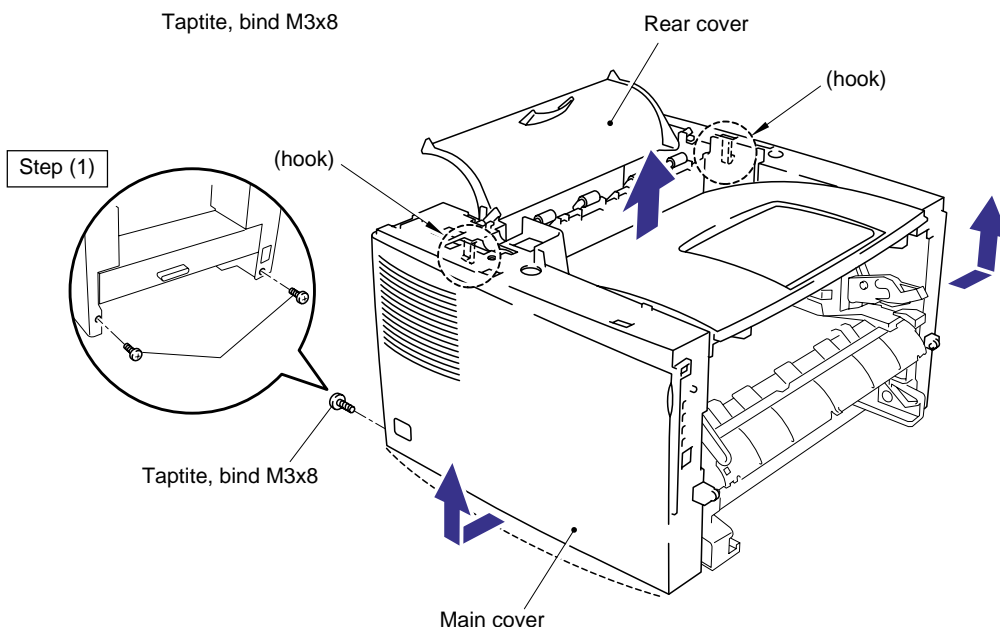
Fig. 4-19

(3) Bend the tray extension flap upwards slightly to remove the tray extension flap.
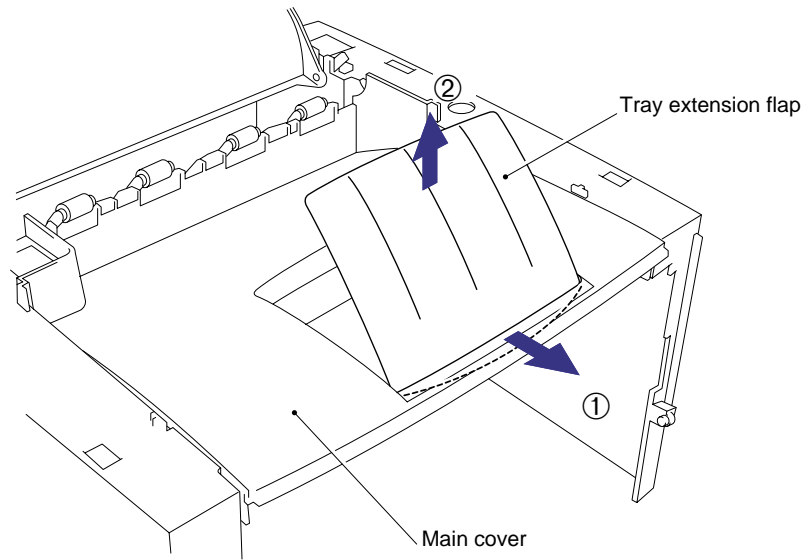
Fig. 4-20

(4) Release the rear cover springs Left and Right from the hooks on the main cover.

(5) Remove the rear cover complete with the rear cover springs Left and Right from the main cover.

(6) Remove the four pinch rollers and four pinch roller springs by moving them to the vertical and then removing them by lifting them upwards.
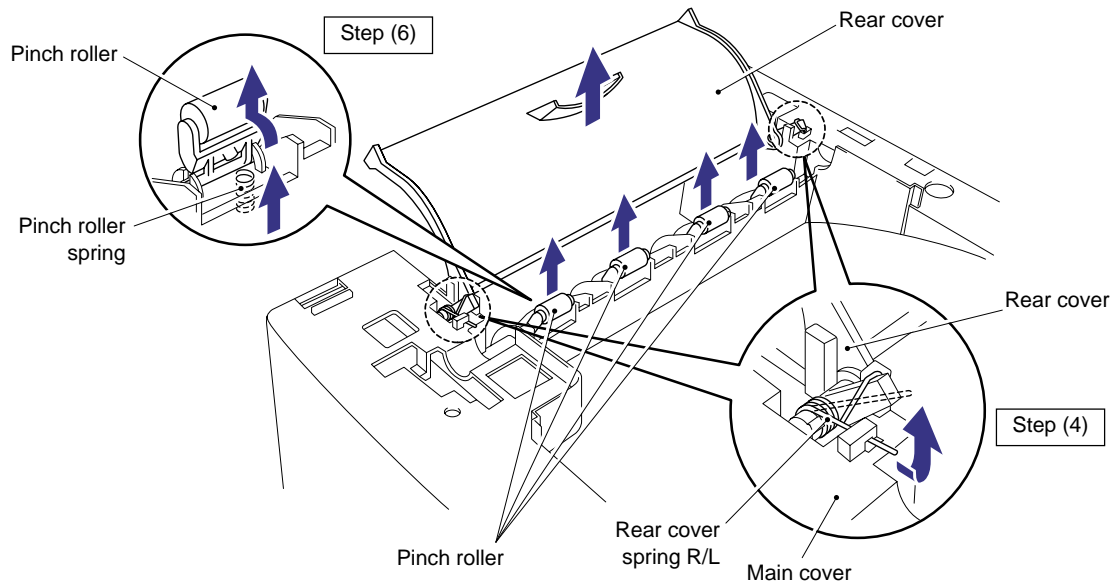
Fig. 4-21

3.7 Laser Unit

(1) Remove the three M3x16 Taptite screws.

(2) Push the P harness cover to the right to release it from the hook and remove the P harness cover.

(3) Disconnect the LD harness and the polygon motor connector.

(4) Taking care not to touch the lens and mirror, remove the laser unit.
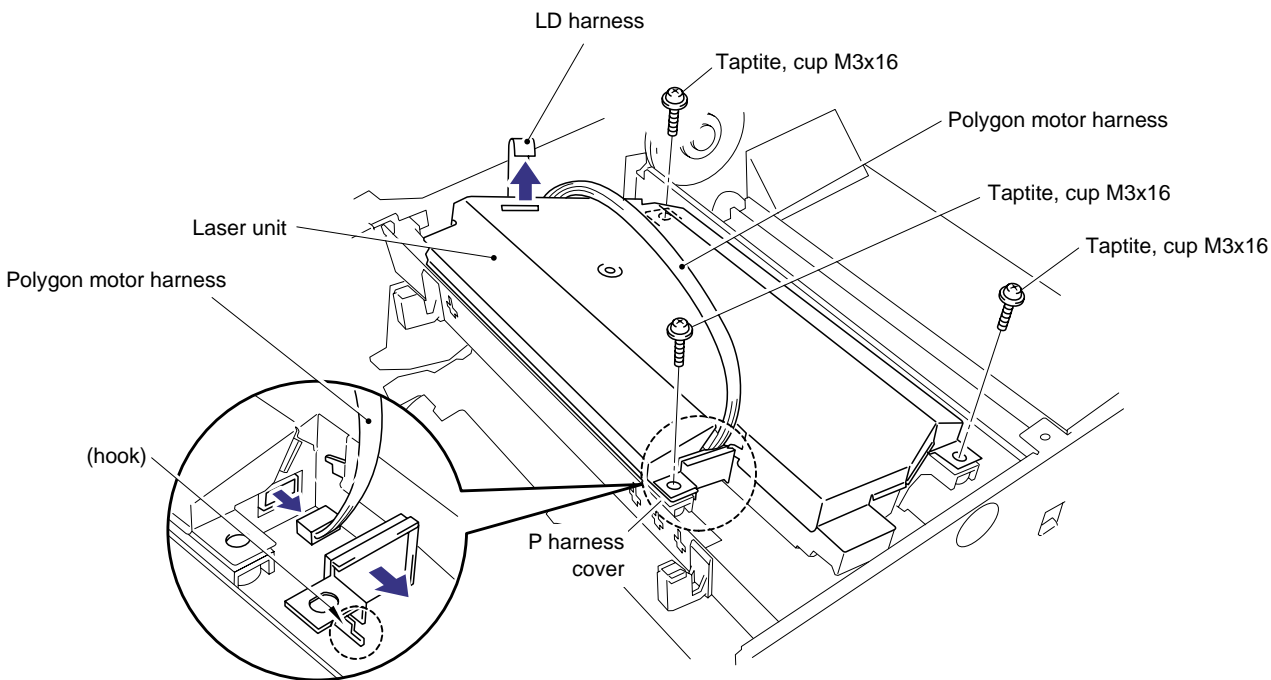
Fig. 4-22

⚠ *CAUTION:*

- *Never touch the reflect mirror and lens inside the laser unit. If there is any dirt or dust on the mirror or lens, blow it off using an air gun.*

- *Never touch the scanner window on the printer body. If there is any dirt or dust on the window, blow it off using an air gun. If cleaning the underside of the scanner window, wipe off dirt or dust with soft clean paper. Refer to subsection 3.3 'Cleaning the Scanner Window' in CHAPTER 5.*
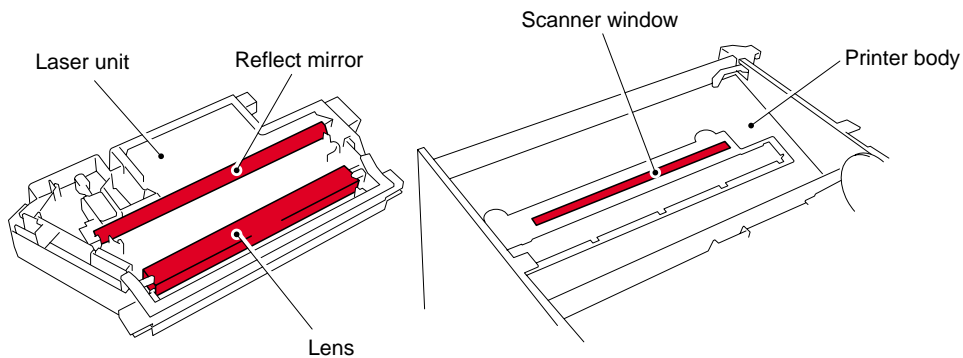
Fig. 4-23

3.8   Drive Unit

(1) Place the printer body carefully on its right hand side so that the drive unit is at the top.

(2) Remove the five M3x6 Taptite screws securing the gear plate.

(3) Disconnect the heater harness connector and release the panel PCB harness from the hooks.

(4) Carefully lift the drive unit and while supporting the PCB, disconnect the main motor connector.

(5) Remove the drive unit.
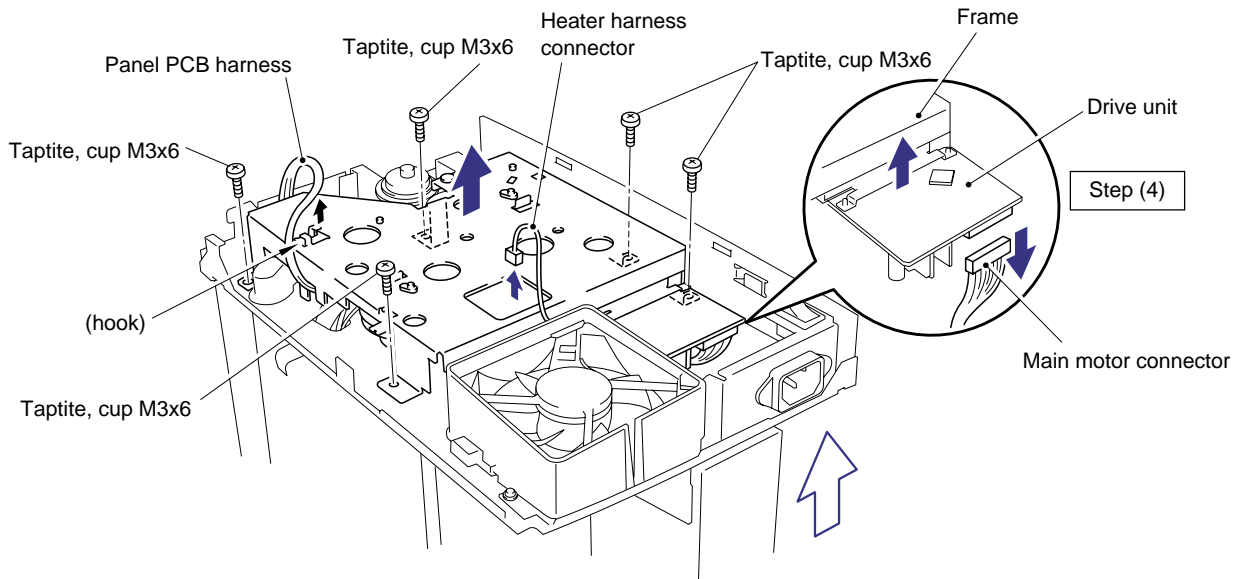
Fig. 4-24

(6) Remove the four M3x6 Taptite screws to remove the main motor ASSY from the drive unit.
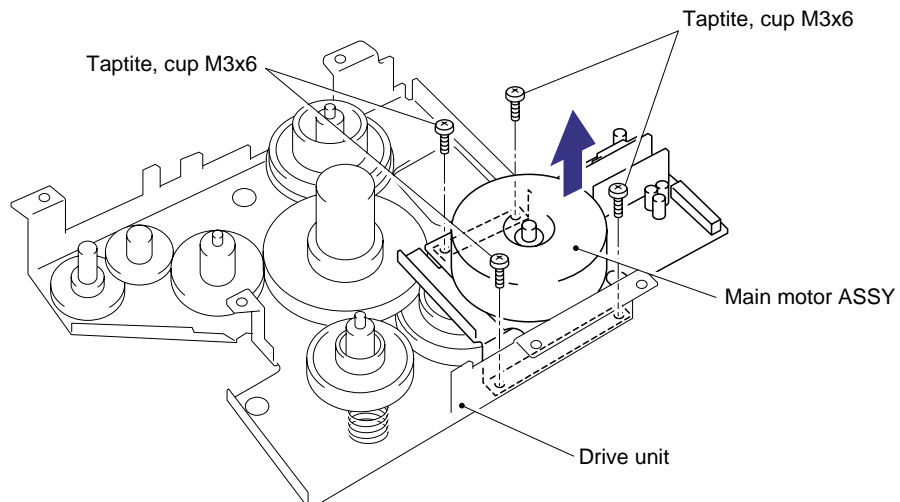
Fig. 4-25

NOTE:

When replacing/re-assembling the main motor, remove the old grease and apply a suitable amount of grease referring to the figure below;
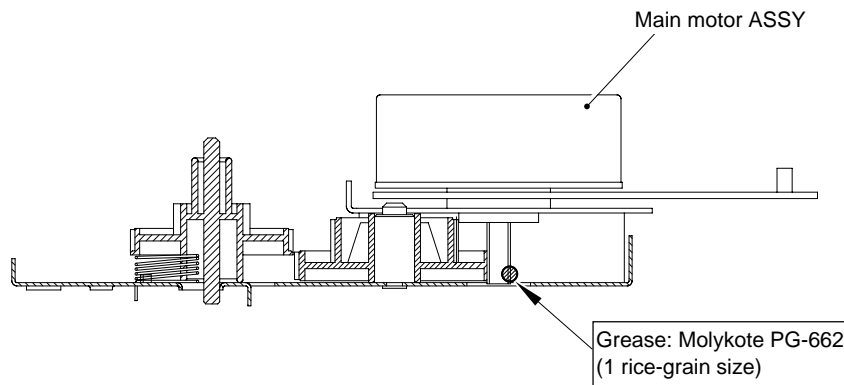
Fig. 4-26

(7) Remove the development joint complete with the joint spring, then remove the link.
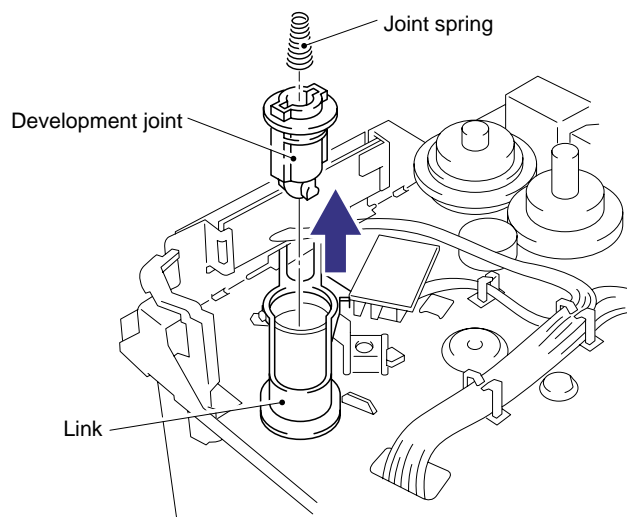
Fig. 4-27

3.9   Fixing Unit

(1)   Place the main frame on its base so that the rear side is facing you.

(2)   Press the two hooks inwards to remove gear 59.

(3)   Disconnect the two connectors of the heater harness and release the harness from the hooks on the top of the fixing unit.

(4)   Remove the one M3x8 Taptite screw and two shoulder screws securing the fixing unit, taking care not to lose the contact spring fitted to the front left hand should screw position.
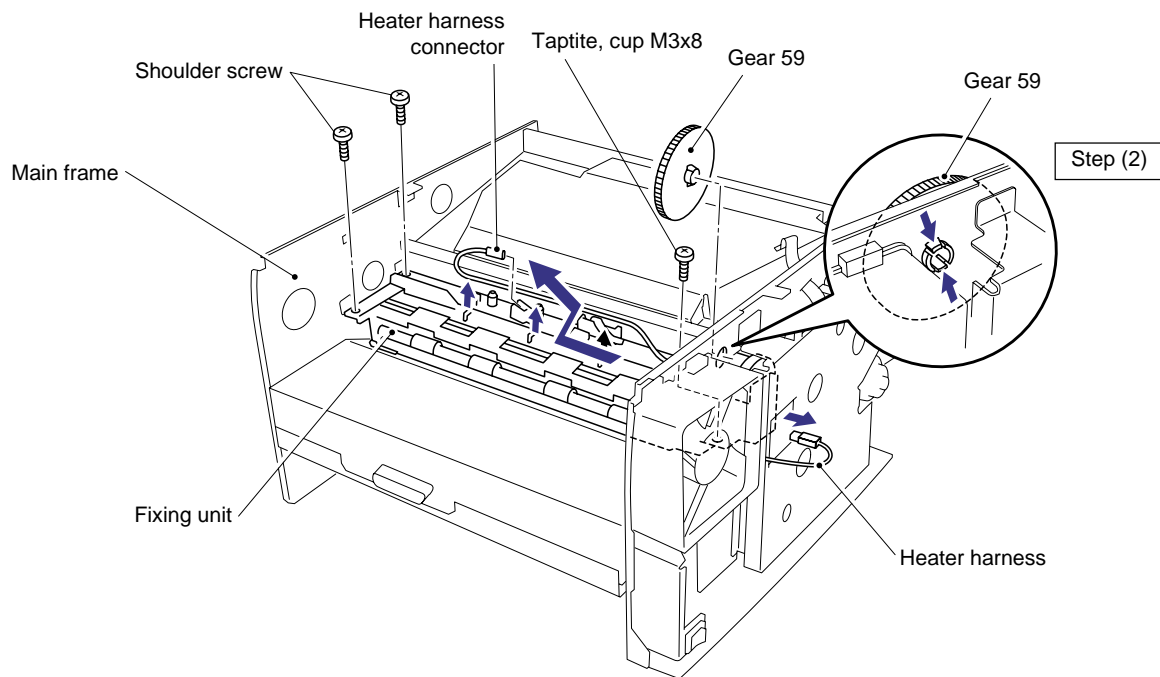
Fig. 4-28

NOTE:

When re-assembling the fixing unit, ensure you do not forget to assemble gear 59.

(5)   Lift up the fixing unit and move it toward you and to the left to allow the drive gear to clear the frame and then disconnect the thermistor connector from the engine PCB.

(6)   Remove the fixing unit from the main frame.
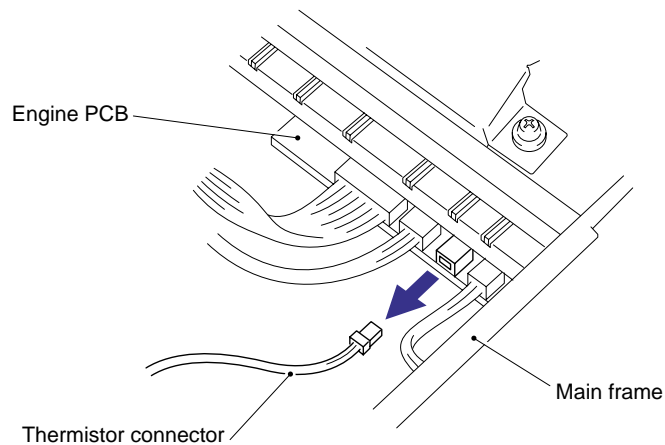
Fig. 4-29

NOTE:

When re-assembling the fixing unit, align the fixing unit frame at the drive unit side into the concave part of the main frame.
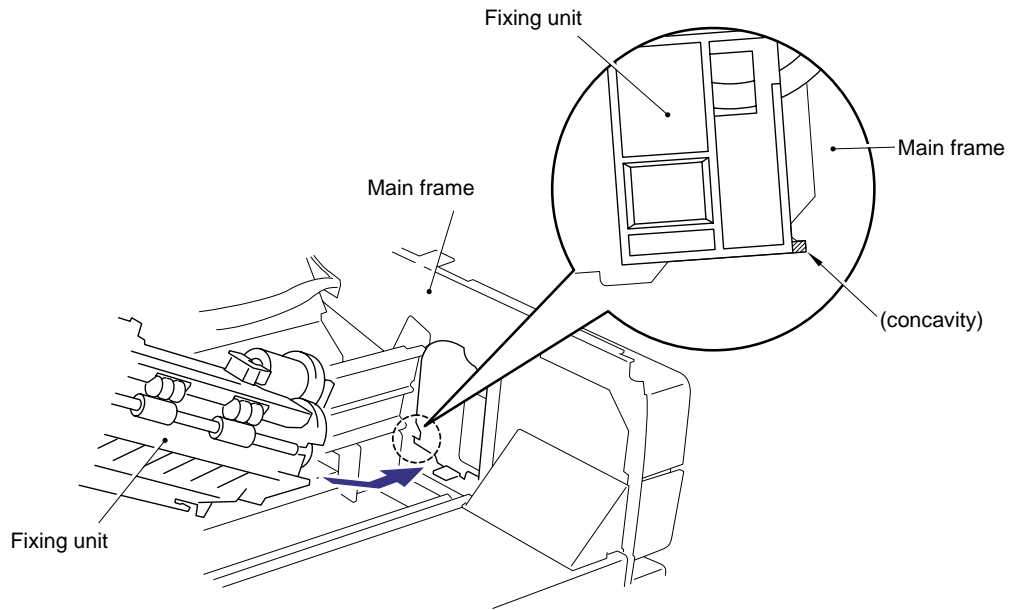
Fig. 4-30

(7) Remove the M3x10 screw to remove the star wheel holder ASSY from the fixing unit by lifting the left hand end of the assembly slightly and then moving the assembly to the right to release the right hand end from the fixing unit frame.
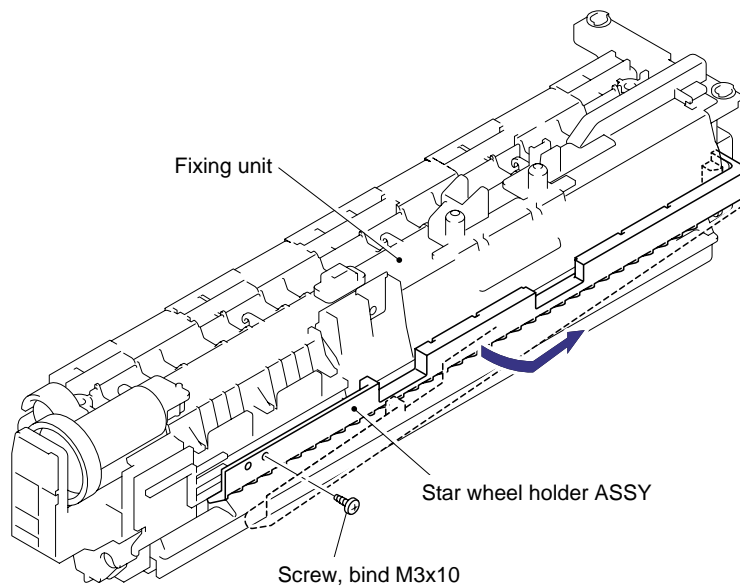
Fig. 4-31

(8) Remove the two M3x20 Taptite screws from the top of the fixing unit frame.

(9) Release the thermistor harness from the hooks.

(10) Release the two hooks at the right and left sides securing the fixing unit cover to the fixing unit frame.
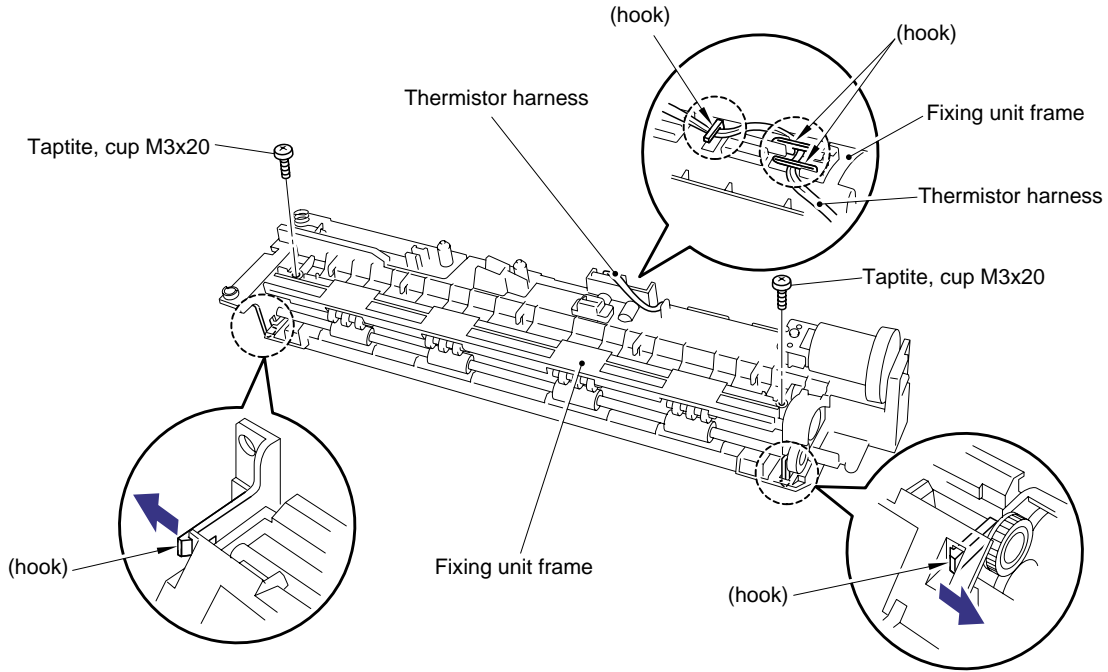
Fig. 4-32

(11) Remove the fixing unit cover from the fixing unit frame.
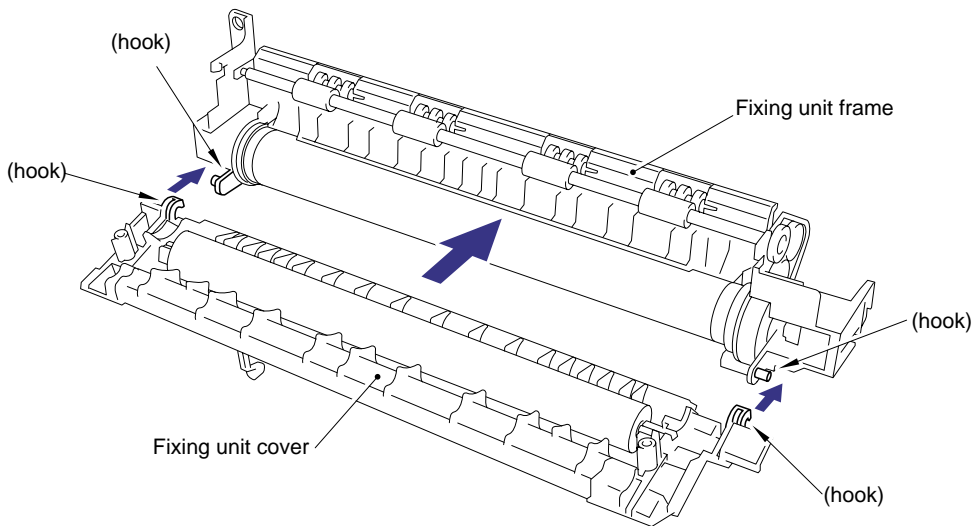
Fig. 4-33

(12) Remove the one M3x10 Taptite screw securing the halogen lamp connector plate at the drive unit side of the fixing unit frame and then loosen the M3x6 screw at the other side.

(13) Lift the right hand end of the heat roller and remove the halogen heater lamp from the heat roller.

Colored side
115V: Yellow
230V: Purple
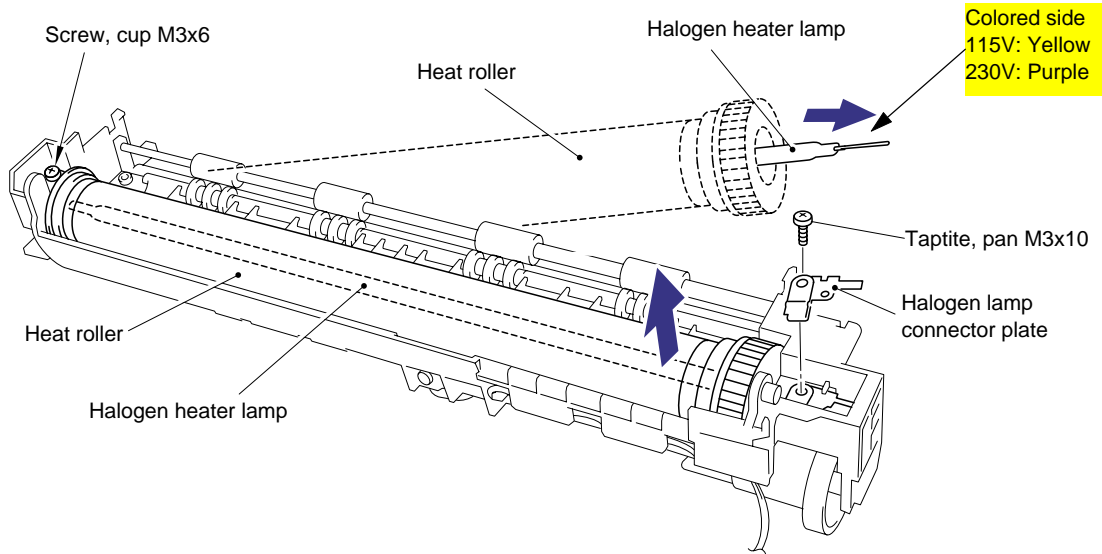
Fig. 4-34

⚠ CAUTION:

- *Never touch the surface of the halogen heater lamp.*
- *When securing the screw to assemble the halogen lamp connector plate, ensure to use the plastic jig as shown in the figure below to avoid the edge of the halogen heater lamp damaged;*
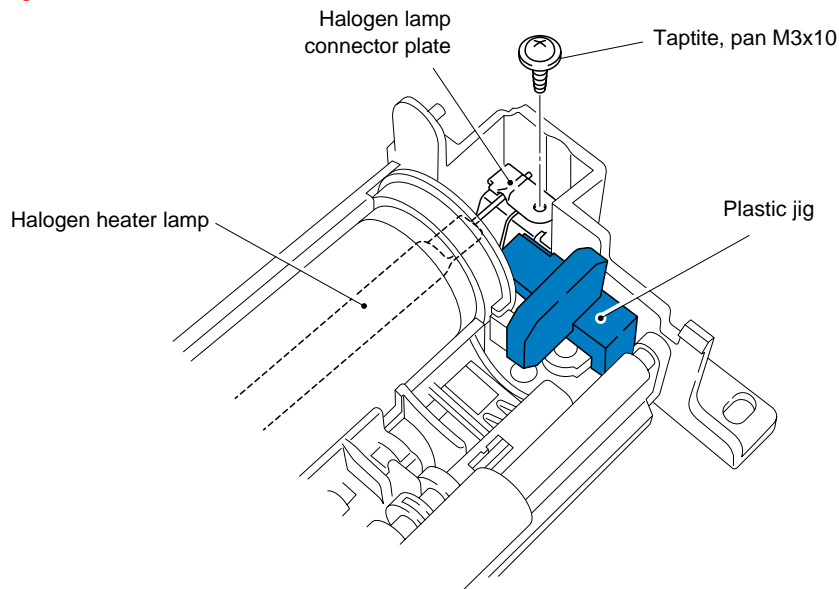
Fig. 4-35

NOTE:

When re-assembling the halogen heater lamp, ensure that the direction of the halogen heater lamp is correct referring to the figure above.

(14) Lift and remove the heat roller. The heat roller gear will also come off.

(15) Remove the heat roller bearing from the left hand end of the heat roller. To remove the bearing at the gear side, first remove the washer, then remove the bearing.
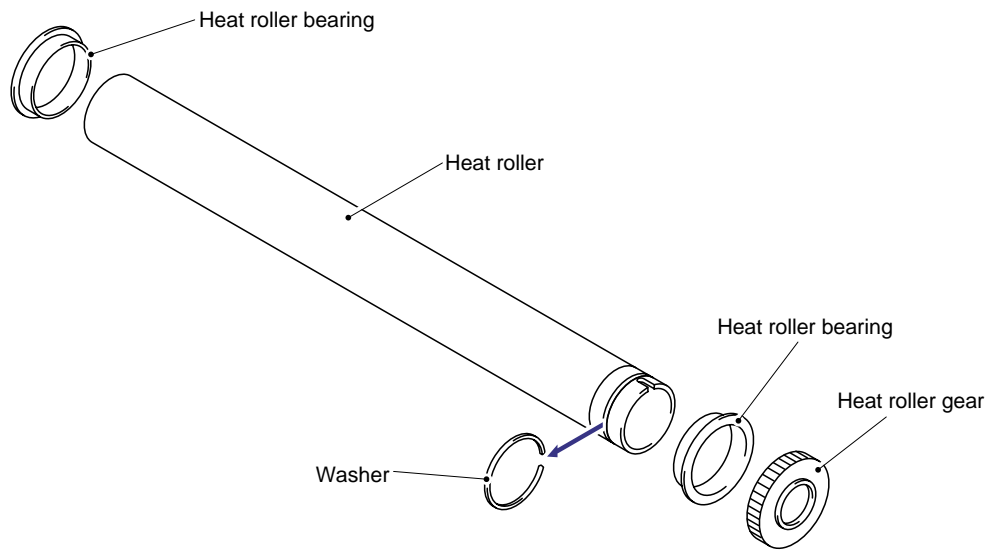
Fig. 4-36

> ⚠️ *CAUTION:*
>
> *Never touch the surface of the heat roller.*

NOTE:

- *When re-assembling the heat roller to the fixing unit frame, place the two projections at the right hand side of the roller onto the bosses on the frame as shown in the figure below.*
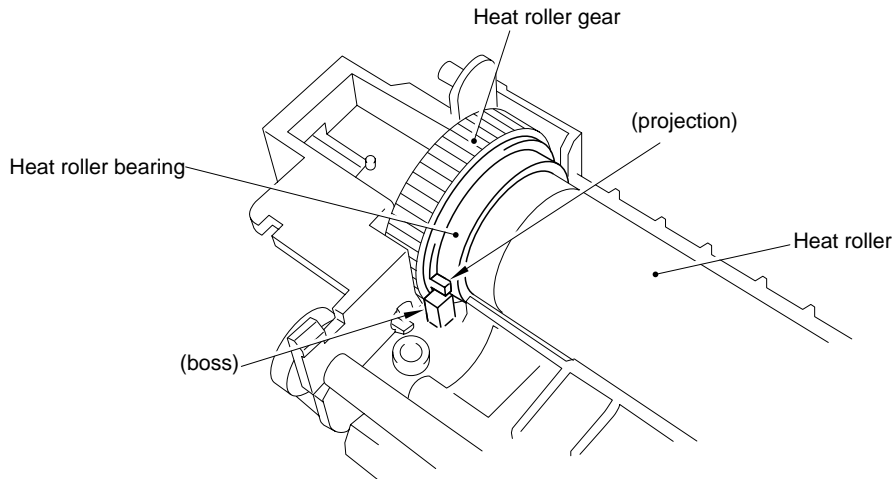
Fig. 4-36

- *When re-assembling the heat roller to the fixing unit frame, ensure you do not damage the heat roller with the four hooks on the fixing unit frame.*
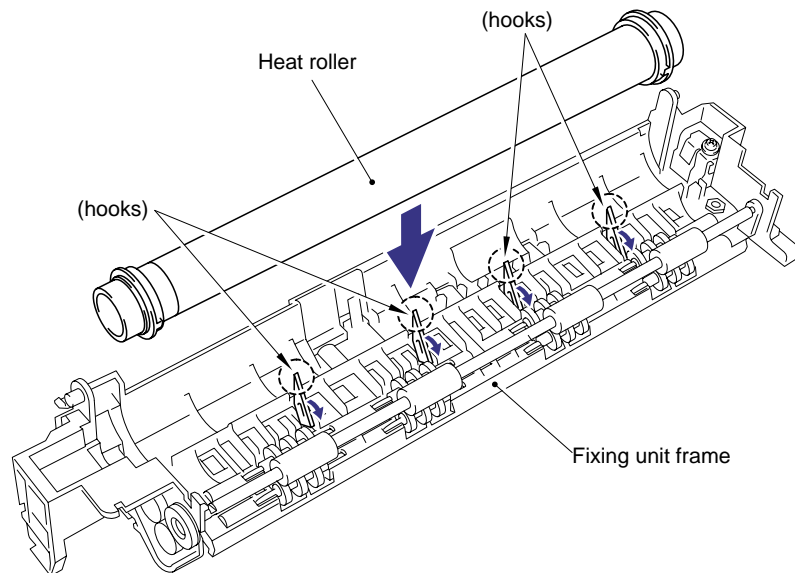
Fig. 4-37

(16) Remove the heat roller cleaner complete with the cleaner spring from the fixing unit frame by lifting it upwards until the spring releases from the frame.

(17) Remove the cleaner spring from the heat roller cleaner.
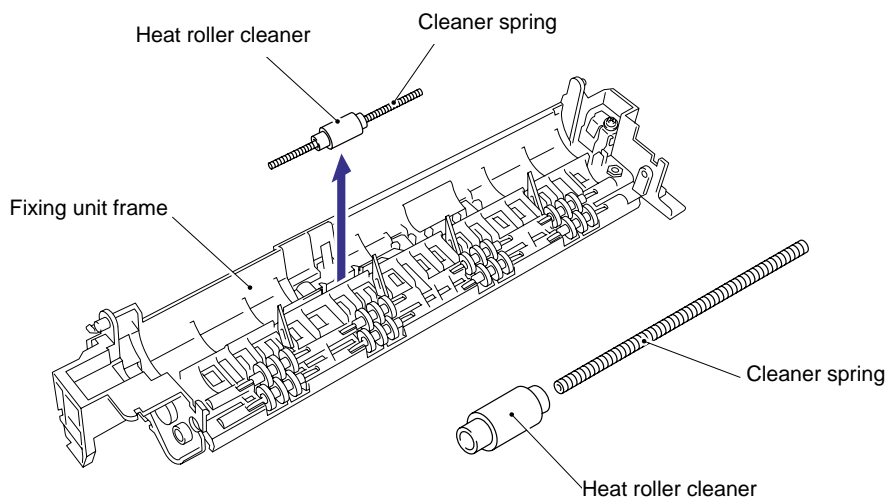
Fig. 4-38

NOTE:

- *When re-assembling the heat roller cleaner complete with the cleaner spring onto the fixing unit frame, ensure the direction of the roller is correct referring to the figure above.*

- *Ensure also that the spring is seated correctly in the locating channel and does not protrude from either end.*

(18) Remove the pressure roller from the fixing unit cover by gently levering the right hand side upwards to release it from the bearing and then sliding it to the right to remove it.

(19) Remove the pressure roller cleaner complete with the cleaner spring from the fixing unit cover by lifting it upwards until the spring releases from the cover.

(20) Remove the cleaner spring from the pressure roller cleaner.
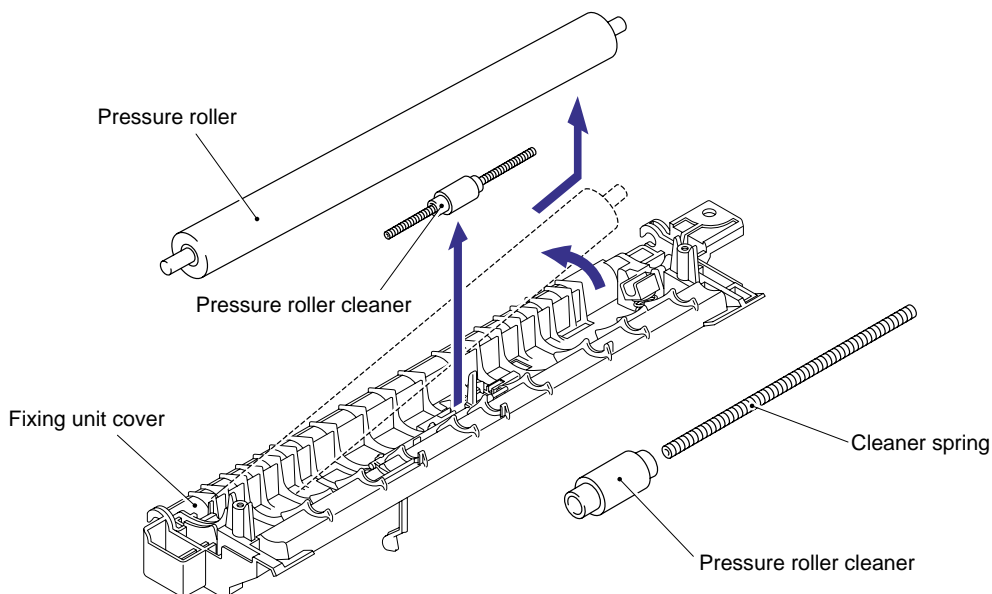
Fig. 4-39

NOTE:

- *When re-assembling the pressure roller cleaner complete with the cleaner spring onto the fixing unit cover, ensure the direction of the roller is correct referring to the figure above.*

- *Ensure also that the spring is seated correctly in the locating channel and does not protrude from either end.*

(21) Release the thermistor harness from the hooks on the fixing unit frame and then remove the one M3x12 Taptite screw and remove the thermistor.

(hooks)

Thermistor

Fixing unit frame

Taptite, cup M3x12
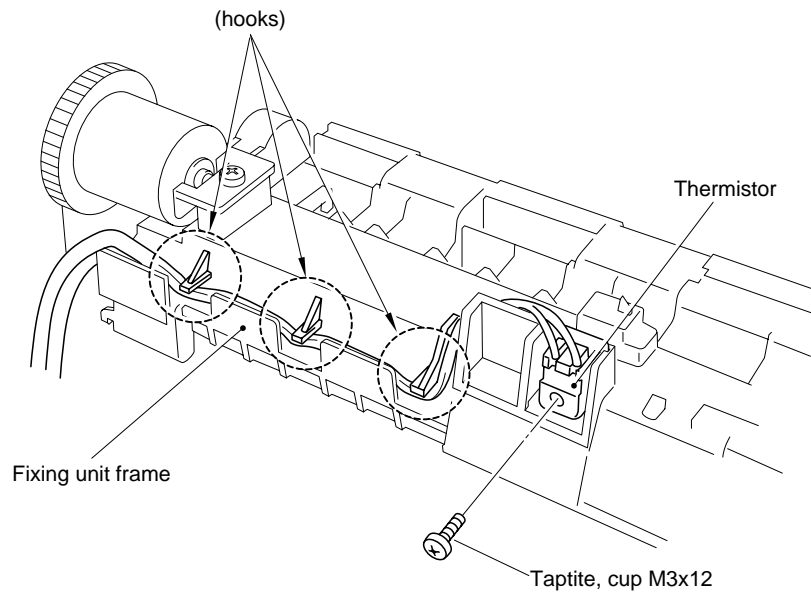
Fig. 4-40

NOTE:

When re-assembling the thermistor to the fixing unit frame, ensure the direction of the thermistor is correct referring to the figure below;

Fixing unit frame

Thermistor

Taptite, cup M3x12
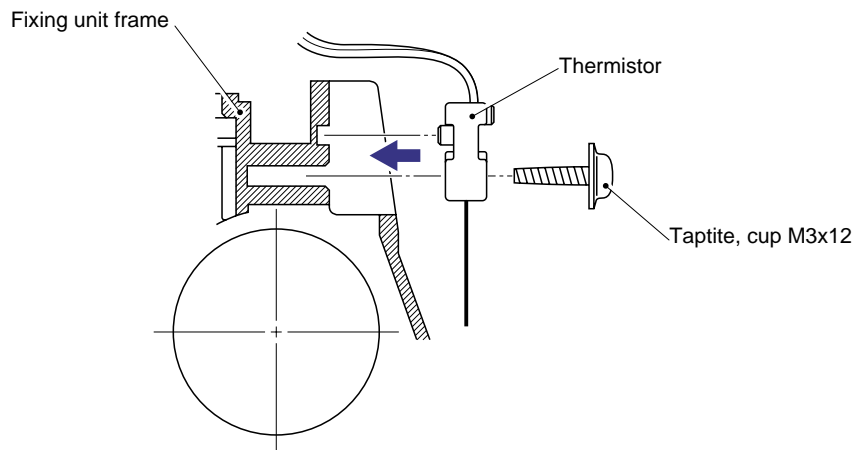
Fig. 4-41

(22) Press the two catches holding the idle gear 13 to the frame and then remove the idle gear 13. Slide the first eject roller to the left until the slot in the roller shaft aligns with the slot in the frame and then remove the roller by pulling it forwards.

Fixing unit frame

First eject roller

Idle gear 13
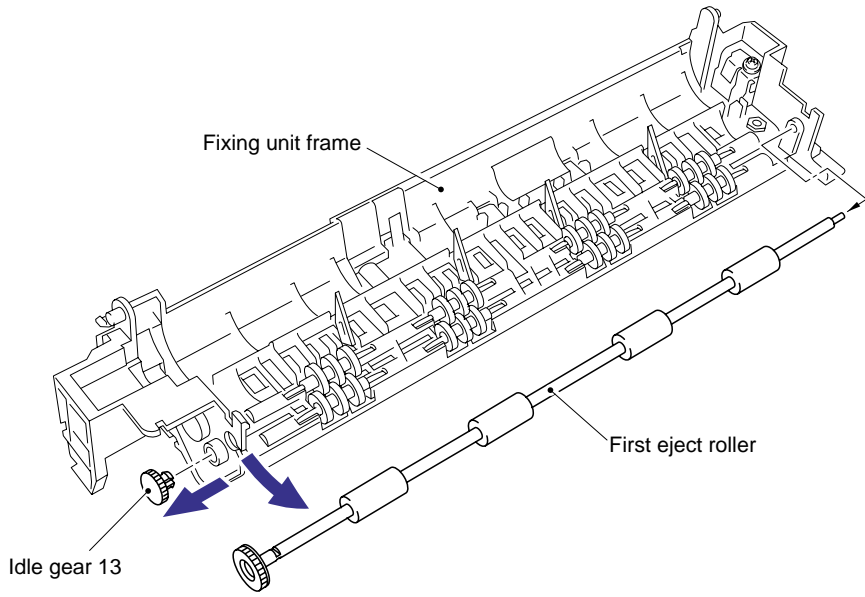
Fig. 4-42

(23) Remove the eight eject pinch rollers and pinch springs by lifting them upwards until the springs release from the frame.

Fixing unit frame

Pinch spring

Eject pinch roller
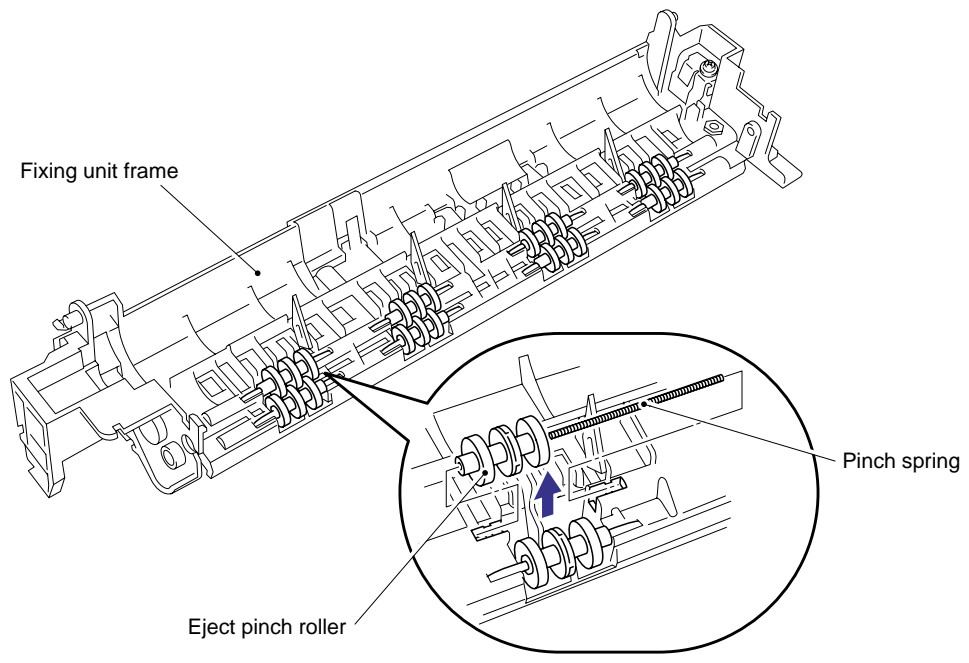
Fig. 4-43

3.10   Base Plate

(1)   Turn the main frame upside down.

(2)   Remove the five M4x10 Taptite screws and 16 (sixteen) M3x8 Taptite screws from the base plate.

(3)   Slide the base plate to the rear of the printer to remove it.

> ⚠ *CAUTION:*
>
> *Do not remove the ground wire connected to the base plate if it is not necessary to remove the low-voltage power supply unit. Unnecessary disconnection of the ground wire may cause increased printer noise.*
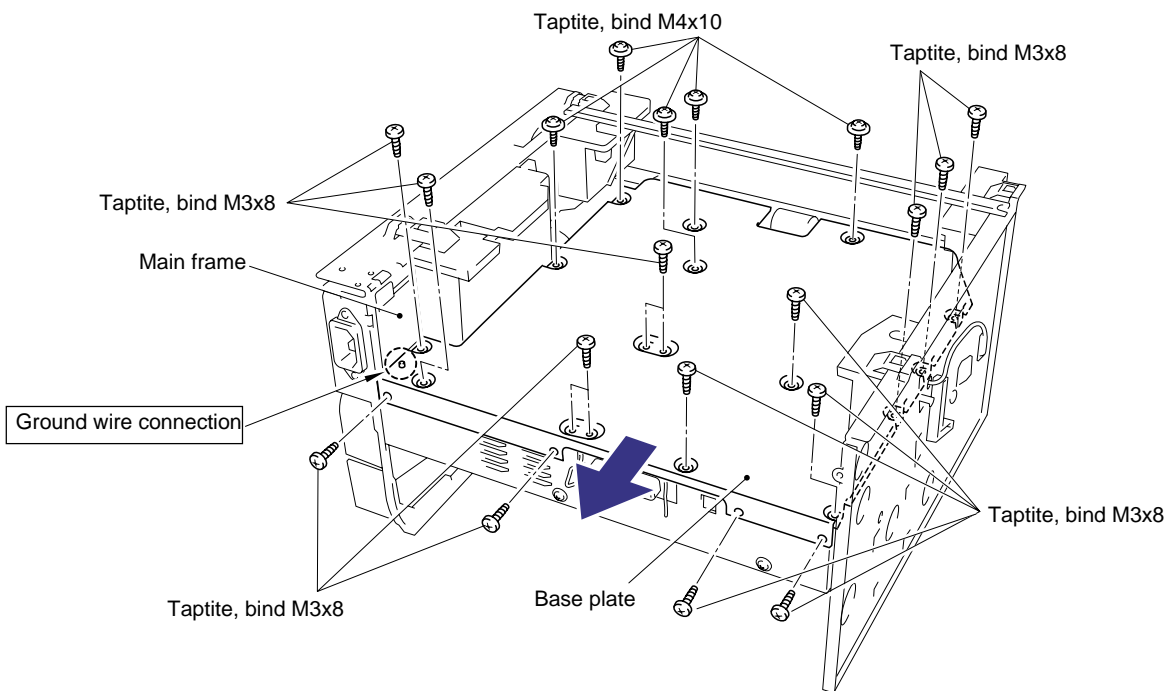
Fig. 4-45

> ⚠ *CAUTION:*
>
> - *When re-assembling the base plate, be sure that the ground wire connected to the paper feed roller ASSY is fixed into the slit on the plastic chute referring to the figure below;*
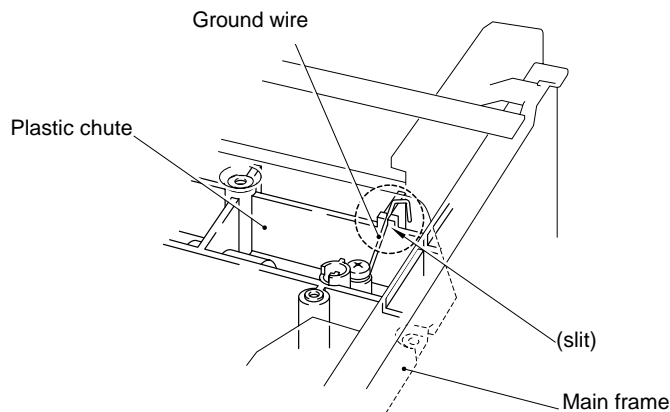
Fig. 4-46

• *When securing the screws to assemble the base plate, ensure to use the jig shaft referring to the figure below so that the engine PCB is assembled correctly;*

Jig shaft

Taptite, bind M4x10

Taptite, bind M4x10

Base plate

Main frame

Fig. 4-47

4-25A
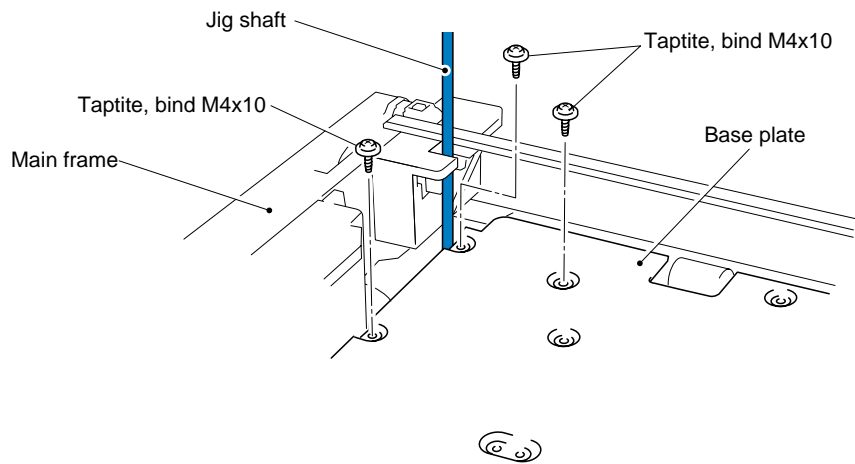
3.11 Main PCB ASSY

(1) Remove the two M3x8 screws from the I/F plate to release the main PCB.

(2) Lift the insulation sheet and remove the main PCB ASSY.

(3) Disconnect the three connectors for the low-voltage power supply, engine PCB and LD.
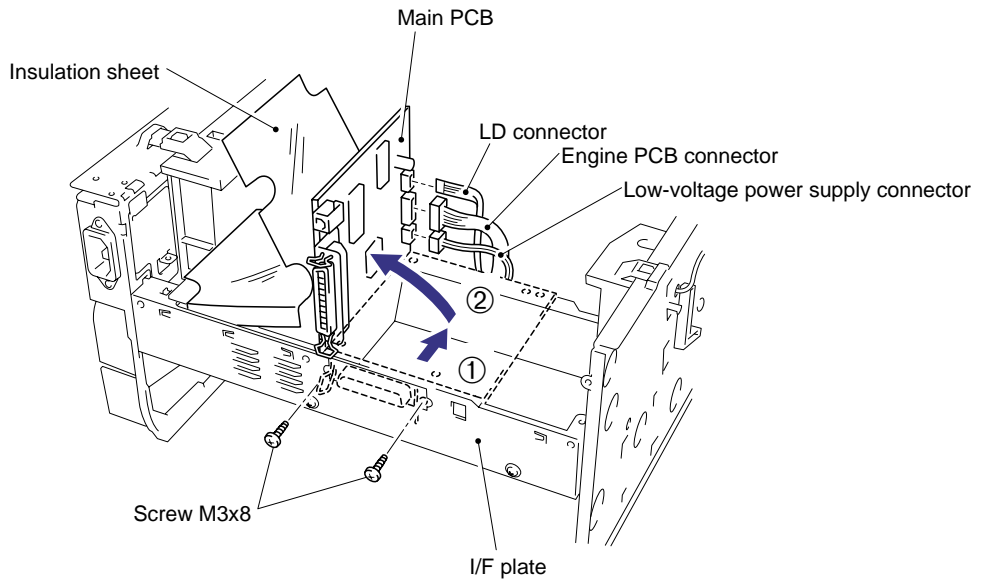
Fig. 4-46

3.12 Lower Tray Relay PCB ASSY (For HL-1250 only)

(1) Remove the M3x6 Taptite screw and remove the lower tray relay PCB ASSY.
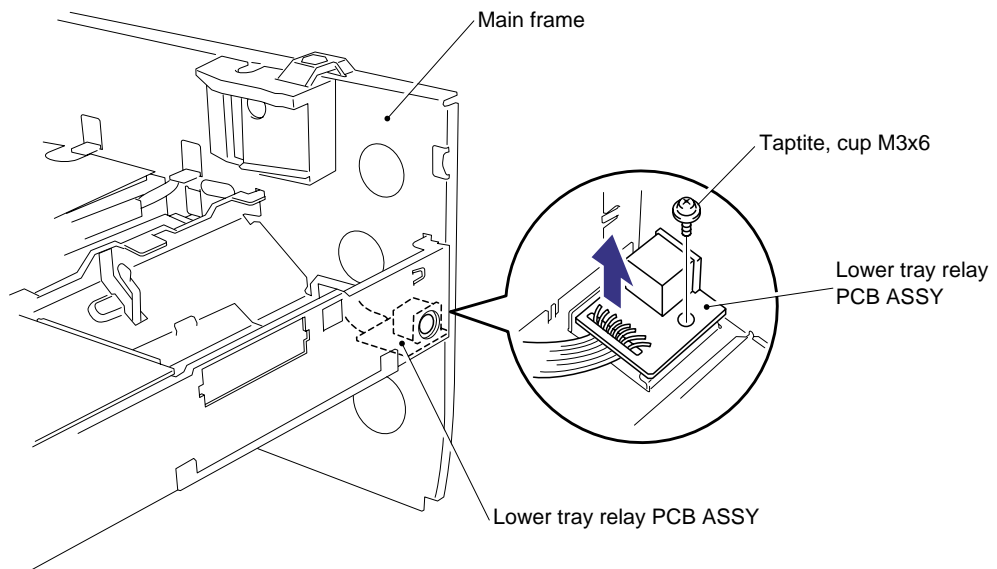
Fig. 4-47

3.13 Low-Voltage Power Supply PCB ASSY

(1) Remove the M3x8 Taptite screw to remove the insulation sheet.

(2) Slightly lift up the low-voltage power supply PCB ASSY from the frame and disconnect the engine PCB connector. Then lift the power supply PCB ASSY further and disconnect the halogen heater lamp connector.

(3) Remove the M3.5x6 screw to disconnect the ground wire from the base plate.
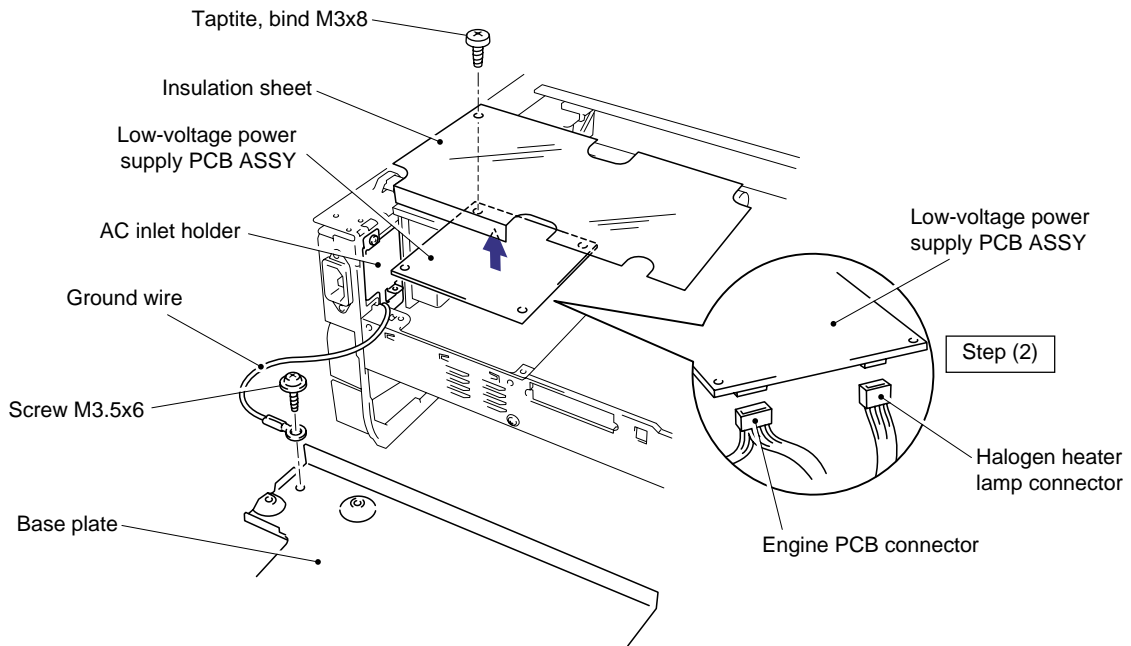
Fig. 4-48

(4) Remove the M3x6 Taptite screw securing the AC inlet holder.

(5) Turn the AC inlet to the right to release it and remove the AC inlet ASSY and the low-voltage power supply PCB together.
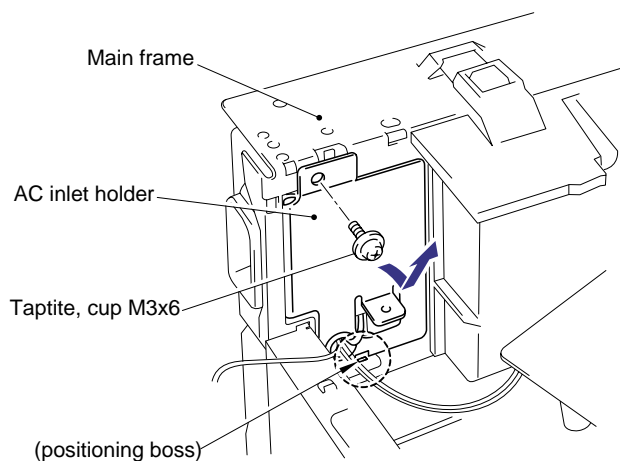
Fig. 4-49

NOTE:

When re-assembling the AC inlet holder, fix the holder onto the positioning bosses first, then secure it to the frame with the screw. (Refer to the figure above.)

PR99153

3.14 Engine PCB ASSY / High-Voltage Power Supply PCB ASSY

(1) Remove the M4x12 Taptite screw to remove the insulation sheet.

(2) Remove the three M4x12 Taptite screws securing the engine PCB and the high-voltage power supply PCB.

(3) Lift the engine PCB and high-voltage power supply PCB together and disconnect the connector which connects two PCBs together to remove the high-voltage power supply PCB ASSY.

(4) If necessary, remove the T/R electrode helical spring from the T/R plate.
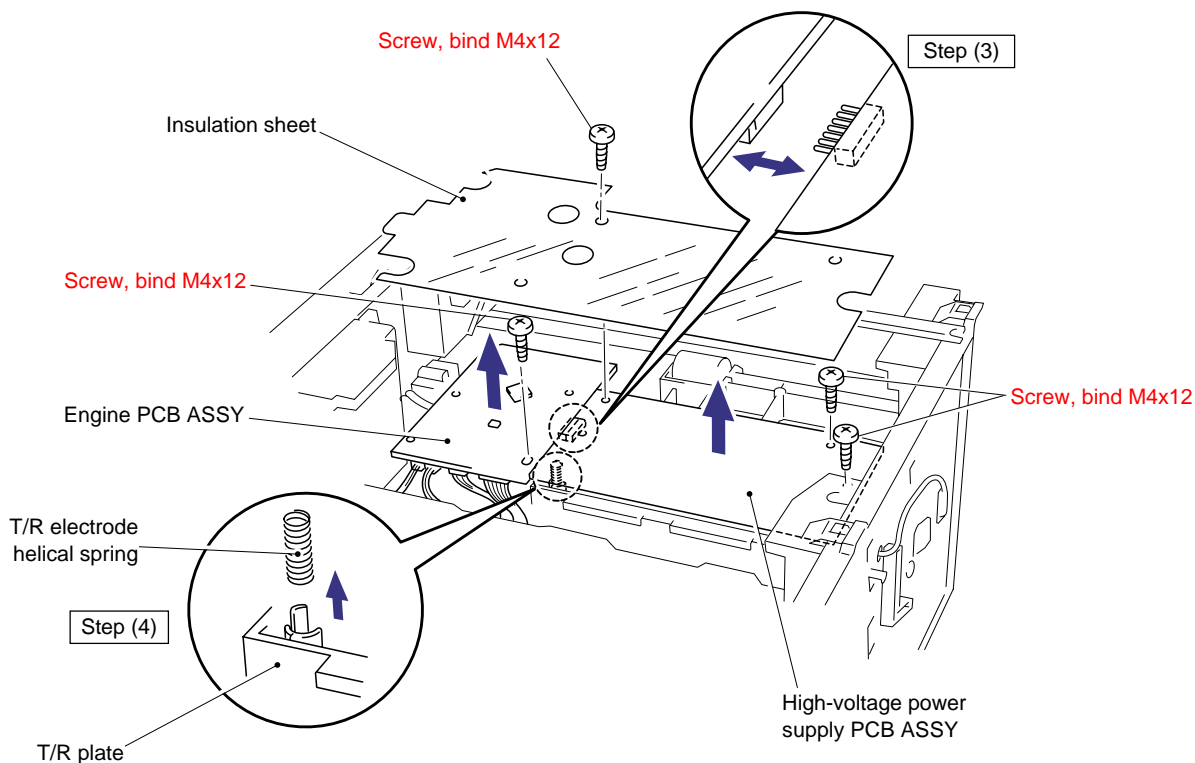
Fig. 4-50

⚠ *CAUTION:*

Be sure not to lose the T/R electrode helical spring after removing it.

NOTE:

When re-assembling the T/R electrode helical spring onto the plate, press the spring onto the plate firmly with a flat bladed screwdriver and ensure that it is retained securely.

(5) Disconnect the 11 (eleven) connectors for HL-1240 or 12 (twelve) connectors for HL-1250 from the engine PCB to remove the engine PCB ASSY.
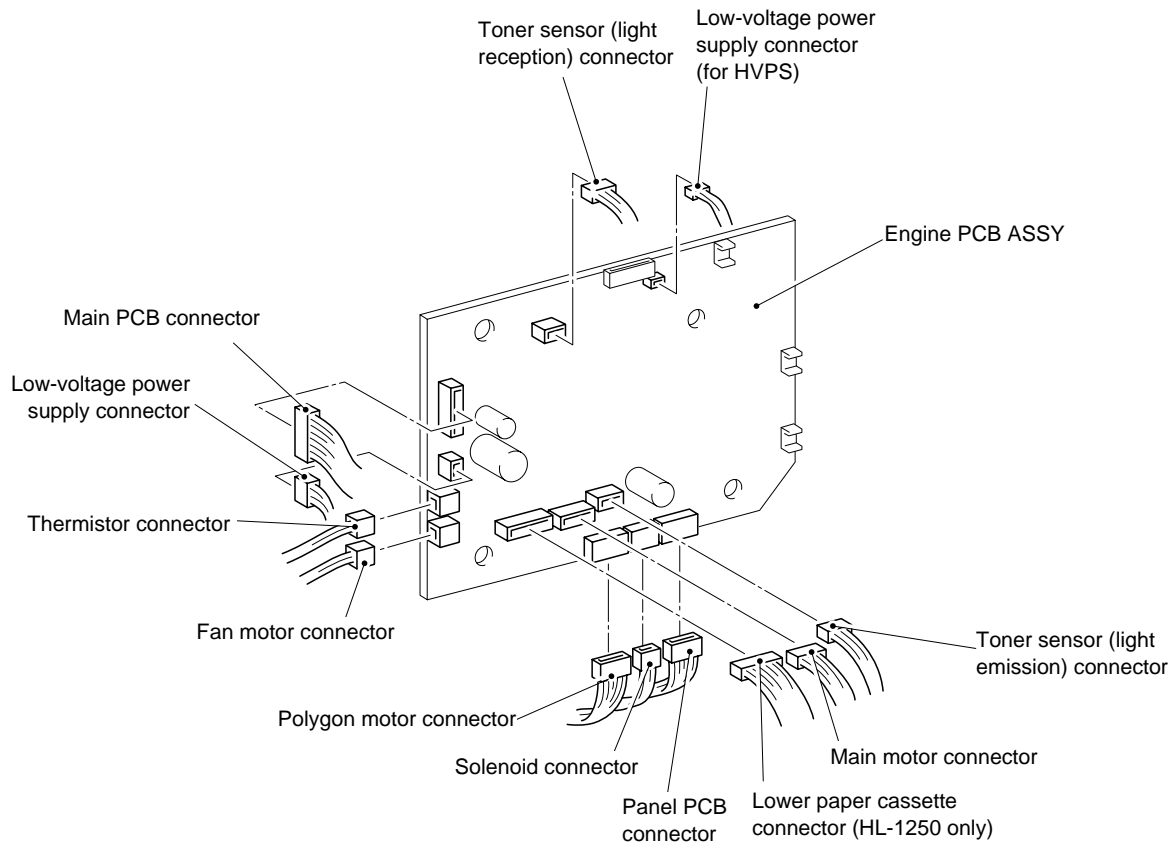
Fig. 4-51

ⓘ *CAUTION:*

- *Even if you want to remove only one of either the engine and high-voltage power supply PCBs, ensure you remove all screws securing both PCBs and disconnect the central connector while lifting both of them up. Failure to do may damage the PCBs.*
- *When re-assembling the engine PCB, ensure it is aligned with the positioning boss first. Be careful the main motor harness is not caught between the engine PCB and the frame.*
- *When re-assembling the engine PCB or high-voltage power supply PCB, ensure the central connector is connected correctly.*

3.15 Panel PCB ASSY

NOTE:

Be sure to remove the drive unit and disconnect the panel PCB connector on the engine PCB before removing the panel PCB ASSY.

(1) Remove the M3x6 Taptite screw, then remove the panel PCB ASSY.

Panel PCB

Taptite, cup M3x6
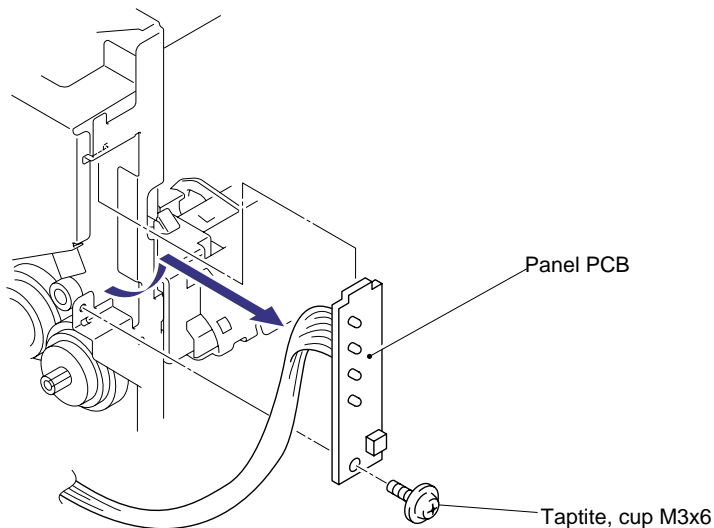
Fig. 4-52

3.16 Solenoid ASSY

NOTE:

Be sure to remove the drive unit and disconnect the solenoid connector on the engine PCB before removing the solenoid ASSY.

(1) Place the main frame so that the drive unit side is at the top.

(2) Release the catch and remove the planetary gear from the paper pick-up roller shaft.

(3) Remove the planetary gear from the paper feed roller shaft and gear 56.

Planetary gear
(for paper pick-up roller)

Gear 56

Main frame

Solenoid

(catch)

Planetary gear
(for paper pick-up roller)

Planetary gear
(for paper feed roller)
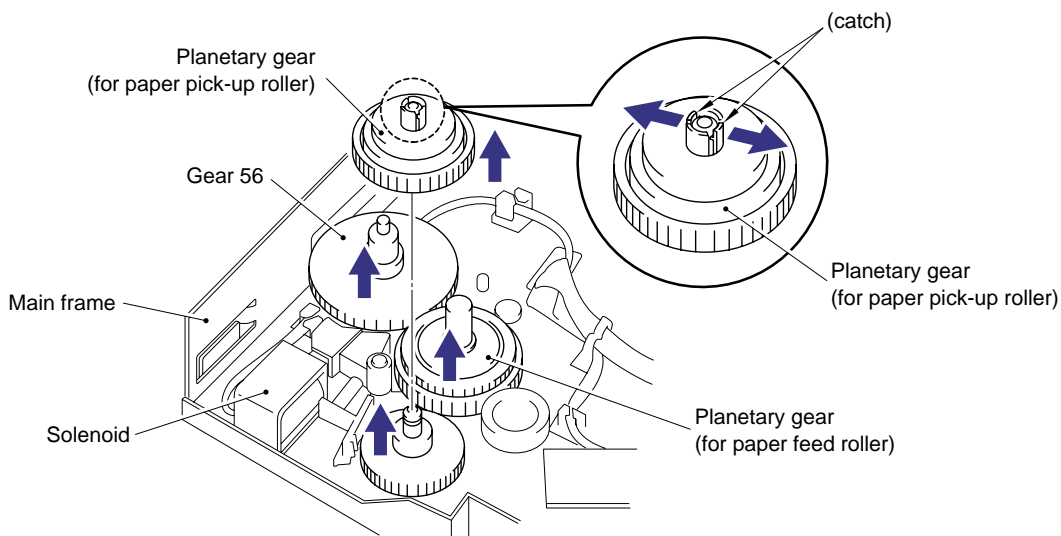
Fig. 4-53

(4)   Release the catch and remove the clutch levers for the feed roller and pick-up roller.
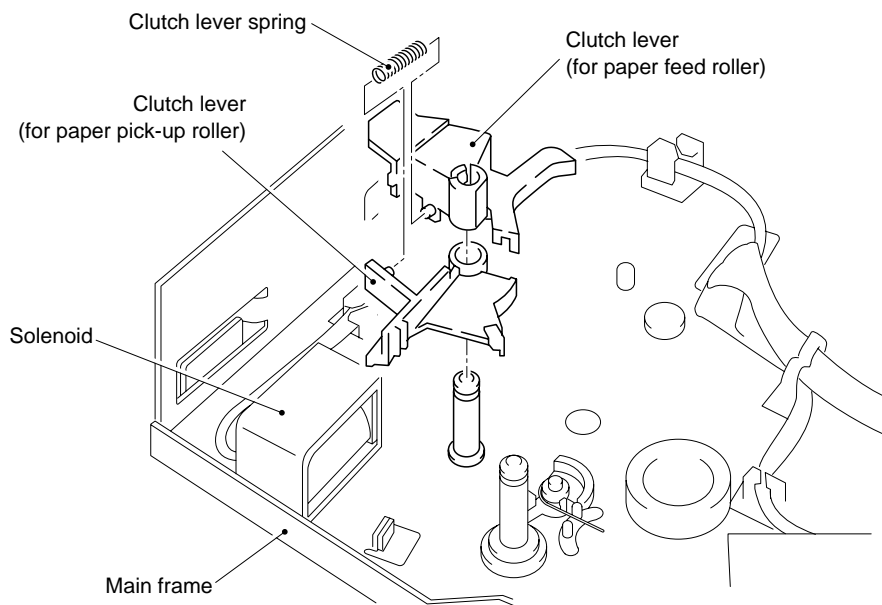
Fig. 4-54

> ❗ *CAUTION:*
>
> *When removing the clutch levers, the clutch lever spring may come off. Be sure not to lose it.*

(5)   Place the main frame the right way up and remove gear 59.
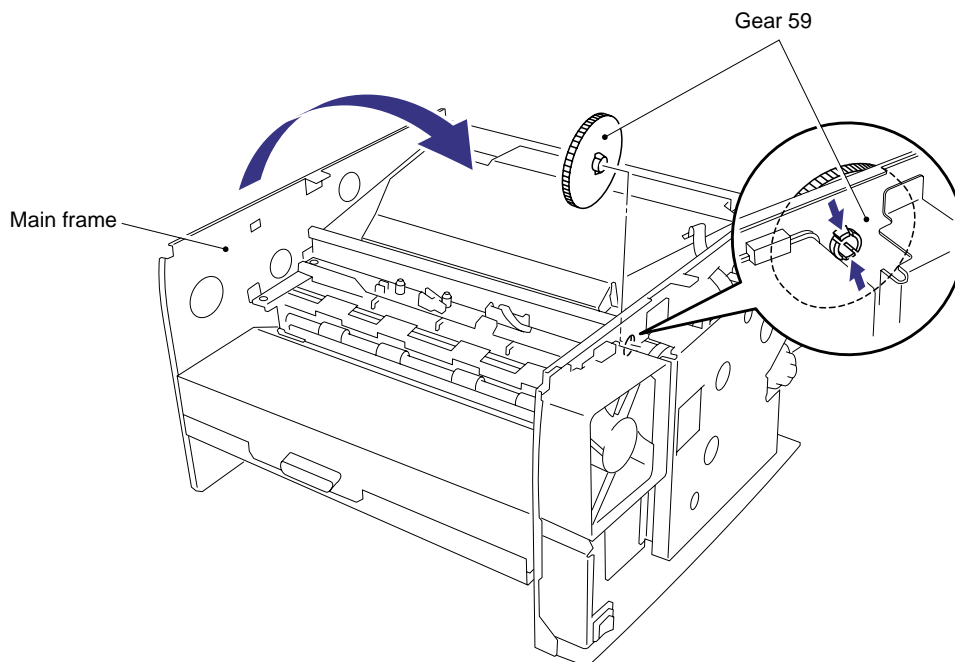
Fig. 4-55

NOTE:

When re-assembling the fixing unit, ensure you do not forget to assemble gear 59.

(6) Turn the main frame upside down.

(7) Remove the two M3x6 Taptite screws and release the solenoid harness from the hook and remove the cassette guide L/F.
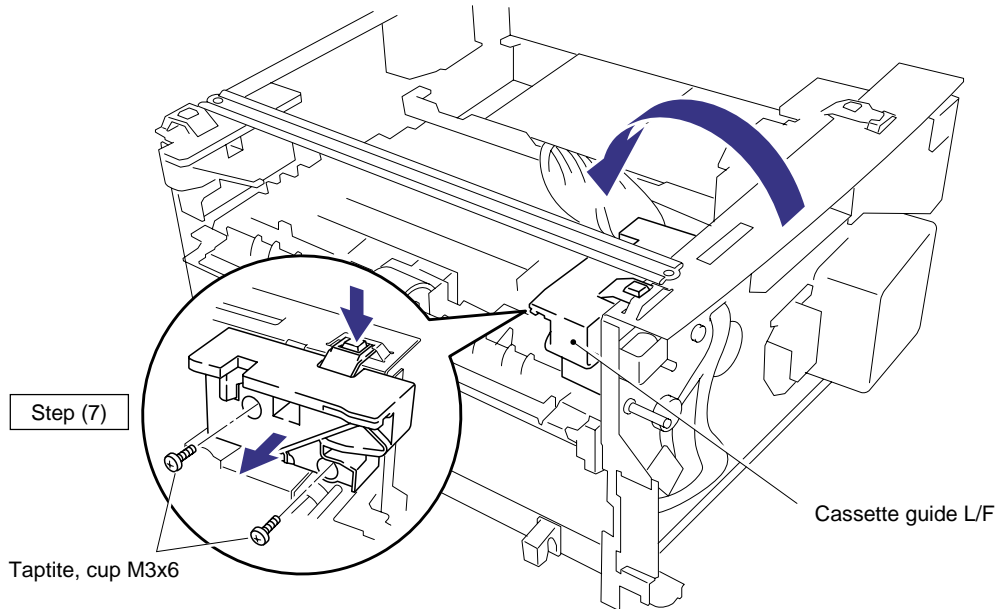
Fig. 4-56

(8) Remove the M3x4 screw and the tape on the solenoid harness and remove the solenoid ASSY.
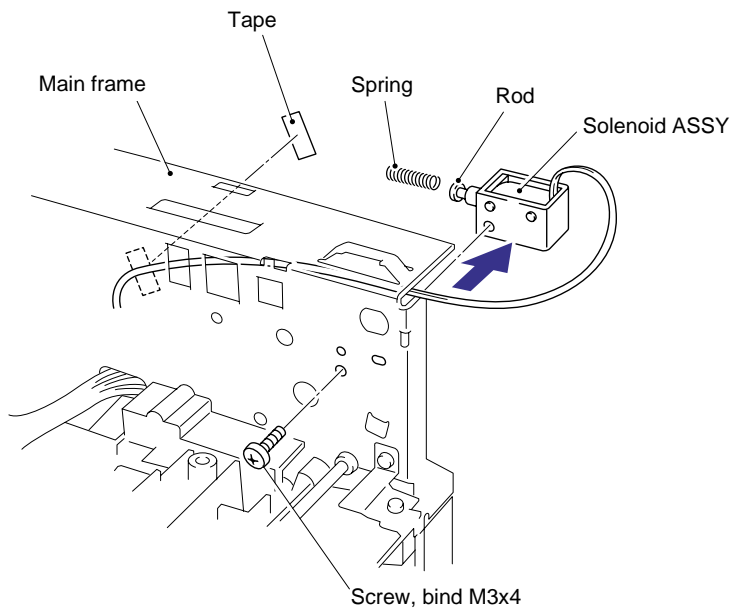
Fig. 4-57

⚠ *CAUTION:*

When removing the solenoid, the solenoid rod and spring may come off. Be careful not to loose them. (Refer to the figure above.)

3.17 Fan Motor ASSY

NOTE:

Be sure to remove the fixing unit and disconnect the fan motor connector on the engine PCB before removing the fan motor ASSY.

(1) Place the main frame so that the fan motor ASSY is at the top.

(2) Remove the two M3x6 Taptite screws securing the fan cover.

(3) Remove the fan motor ASSY with the fan cover and remove the fan motor ASSY from the cover.
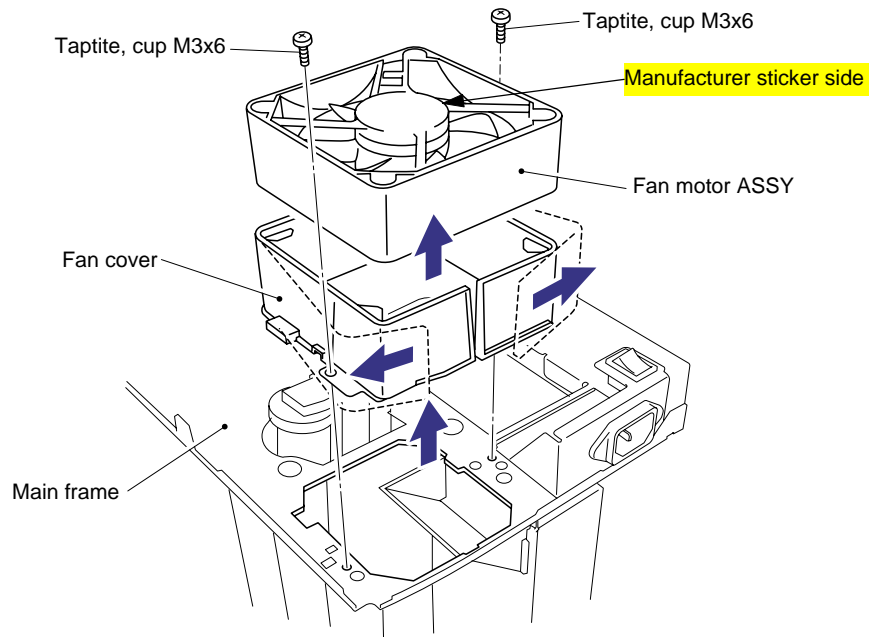
Fig. 4-58

NOTE:

When re-assembling the fan motor, fix the harness into the groove on the motor, then fix the motor onto the bosses.
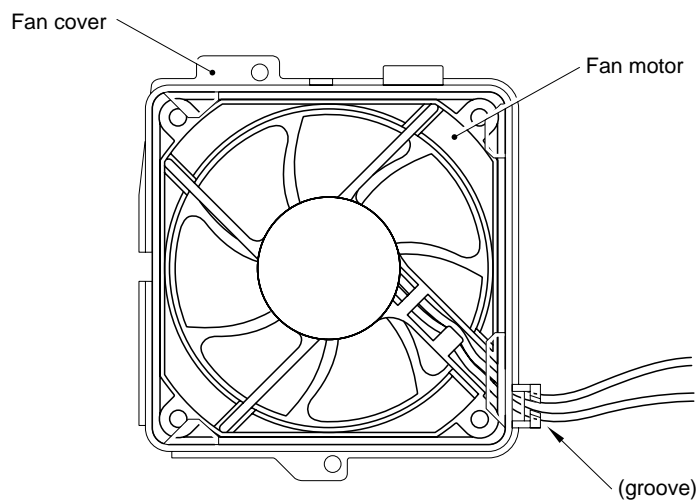
Fig. 4-59

3.18 Toner Sensor PCB ASSY (Light Emission)

NOTE:

Be sure to disconnect the toner sensor (light emission) connector on the engine PCB before removing the toner sensor PCB ASSY (light emission).

(1) Release the hooks of the toner sensor PCB ASSY (light emission) and remove it.

Toner sensor PCB ASSY
(light emission)

(hooks)

Toner sensor holder
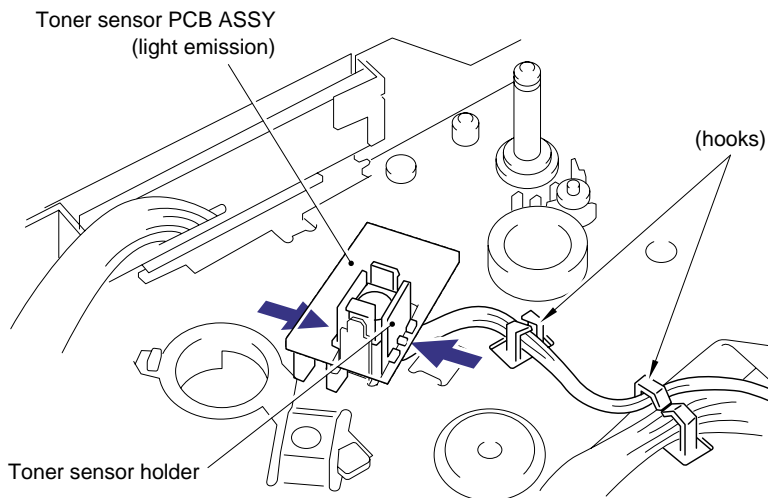
Fig. 4-60

3.19 Toner Sensor PCB ASSY (Light Reception)

NOTE:

Be sure to disconnect the toner sensor (light reception) connector on the engine PCB before removing the toner sensor PCB ASSY (light reception).

(1) Remove the one M3x6 Taptite screw and release the hooks, then remove the toner sensor PCB ASSY (light reception).

(hooks)

Taptite, cup M3x6

Toner sensor PCB ASSY
(light reception)
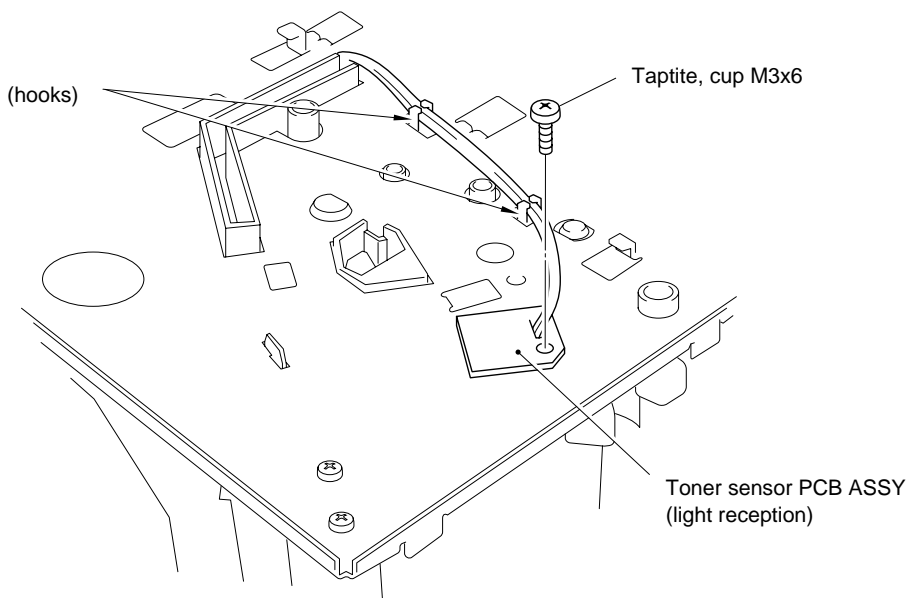
Fig. 4-61

3.20 Paper Pick-up Roller ASSY

NOTE:

Be sure to remove all the covers and the base plate before removing the paper pick-up roller ASSY.

(1) Place the main frame upside down.

(2) Unhook the hook to remove the inner gear 54, gear 45 and gear 20 from the main frame.

(3) Remove the bearing from the paper pick-up roller shaft.

(4) Release the hook on the bearing at the other side of the shaft and remove the paper pick-up roller ASSY and the shaft from the main frame.
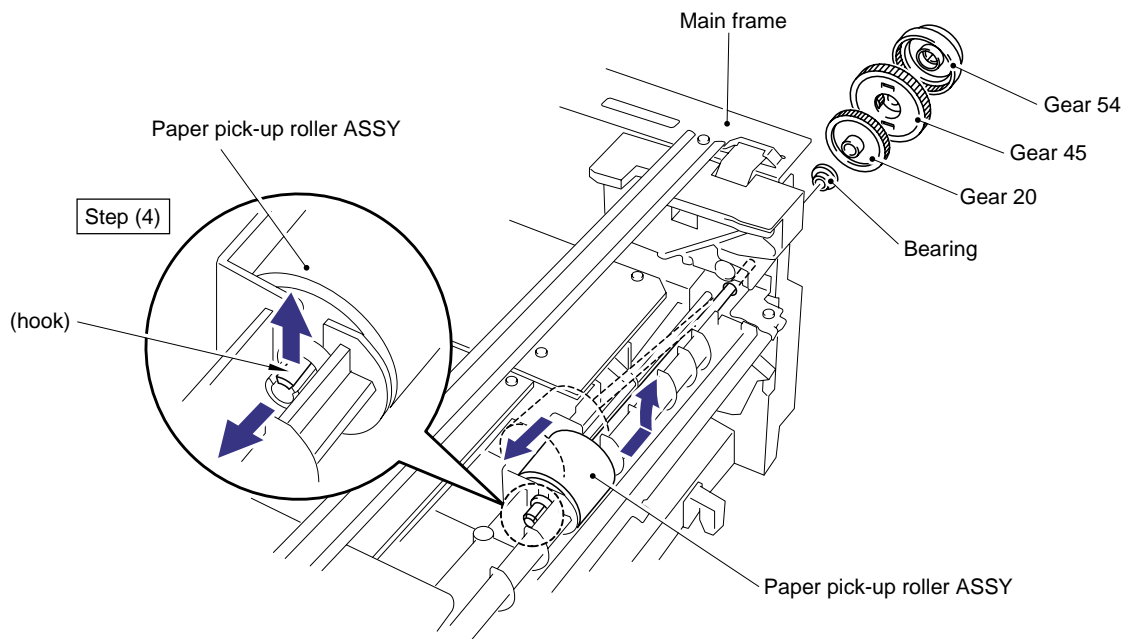
Fig. 4-62

(4) Remove the bearing and the paper pick-up roller ASSY from the shaft.
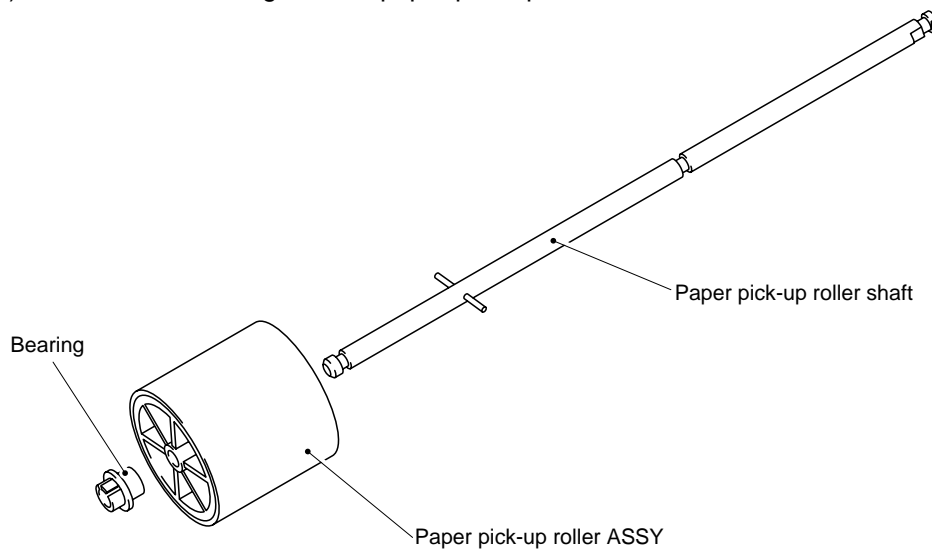
Fig. 4-63

3.21 Paper Feed Roller ASSY

NOTE:

Be sure to remove all the covers and the PCBs before removing the paper feed roller ASSY.

(1) Unhook the black plastic hook on the shaft to remove gear 21.

Gear 21
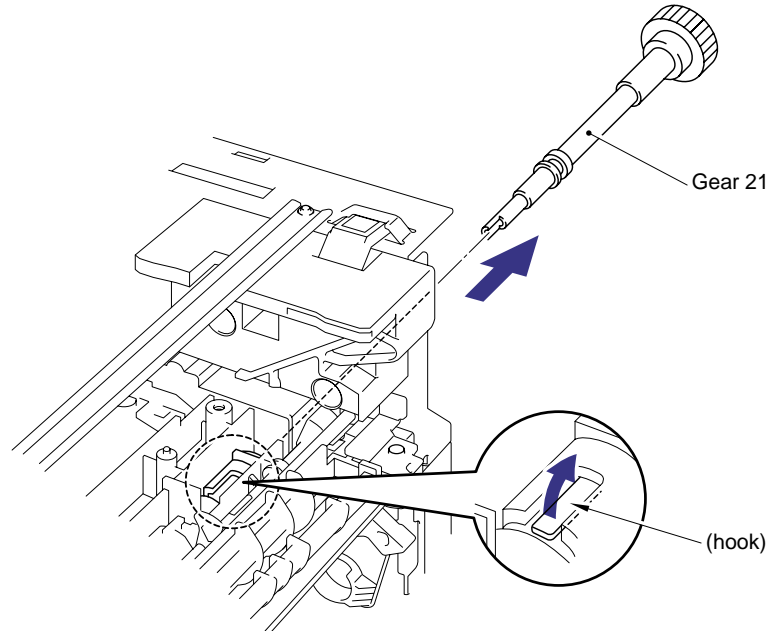
(hook)

Fig. 4-64

(2) Turn the main frame the right way up.

(3) Unhook the hook on the bearing, then slightly slide the paper feed roller ASSY to the drive unit side.

(4) Lift up and remove the paper feed roller with the bearing and joint and remove the bearing and joint from the paper feed roller ASSY.

Bearing

Paper feed roller ASSY

Joint

(hook)

Bearing

Fig. 4-65

4.   PACKING

Insertion sheet

Accessory bag

Accessory carton

AC Cord

Pad

Drum Unit
(with Toner Cartridge included)

Pad

Printer

Carton
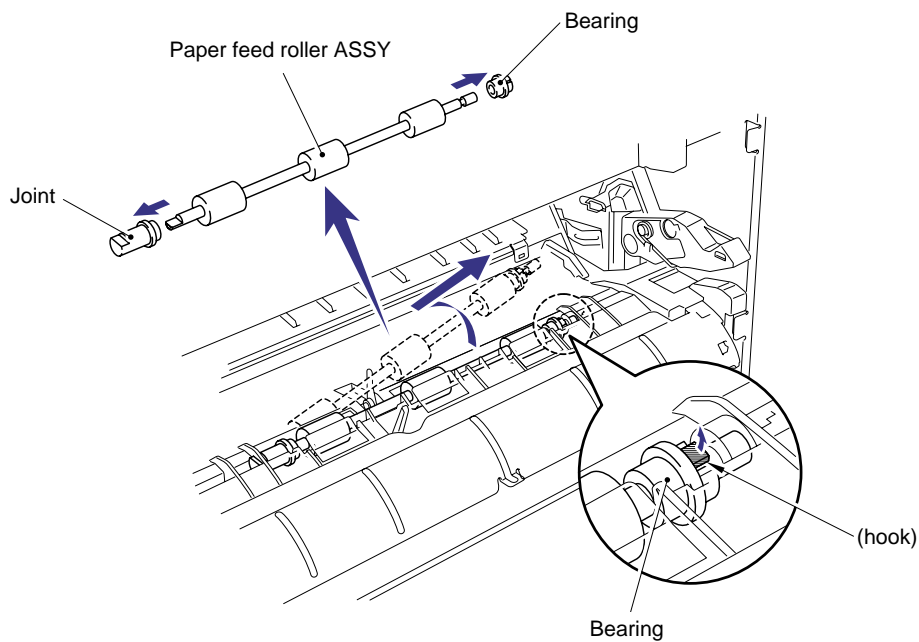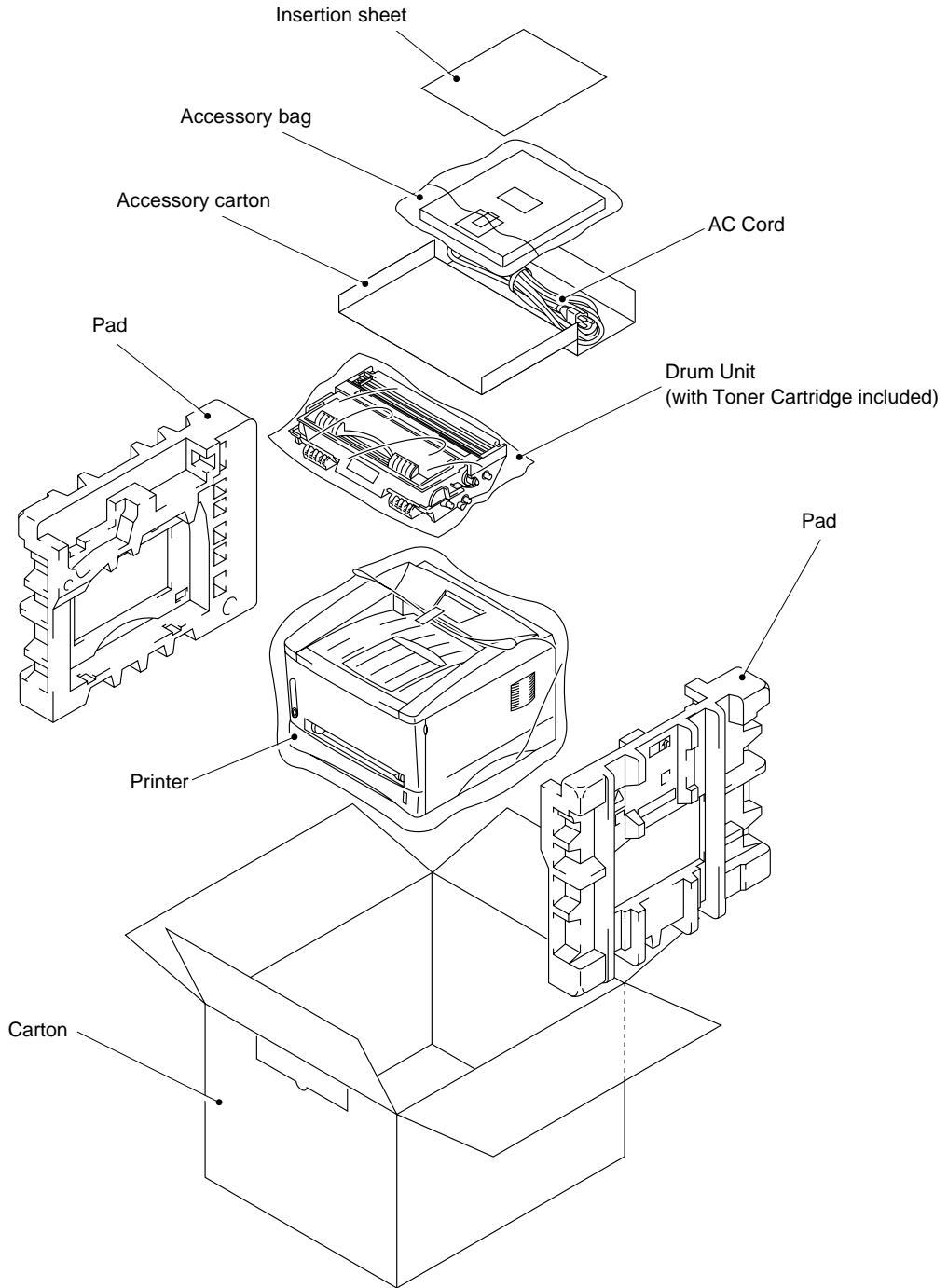
Fig. 4-66
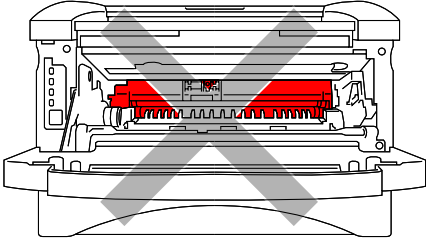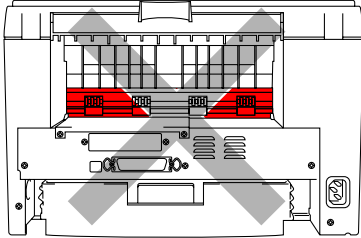
CHAPTER5   PERIODIC MAINTENANCE

To avoid creating secondary problems by mishandling, follow the warnings below during maintenance work.

⚠ *WARNING*

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

(2) 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.

---

1.   CONSUMABLE PARTS

The consumable parts described in this section are parts which are subject to deterioration or damage and should be replaced at least once during the period of warranty of the product if any print quality problem appears.

1.1   Drum Unit

The Drum LED is on when the drum unit is nearly at the end of its life.

Life expectancy: 20,000 pages

NOTE:

There are many factors that determine the actual drum life, such as temperature, humidity, type of paper and toner that you use, the number of pages per print job, etc.

<Replacement Procedure>

(1) Open the front cover of the printer and pull out the drum unit.

(2) Place the drum unit on a flat, horizontal surface, and remove the toner cartridge from the drum unit while pushing the lock lever down with your right hand. (Fig. 5-1)

(3) Unpack the new drum unit.
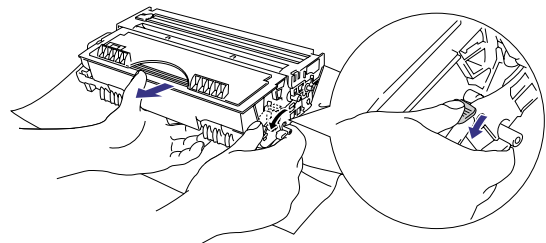
Fig. 5-1

(4) Install the toner cartridge into the new drum unit until it locks into place, indicated by a click. When the toner cartridge is installed correctly, the lock lever is lifted automatically. (Fig. 5-2)

(5) Install the new drum unit into the printer. Check that the printer is turned on, the front cover is open and the Drum and Alarm LEDs illuminate.
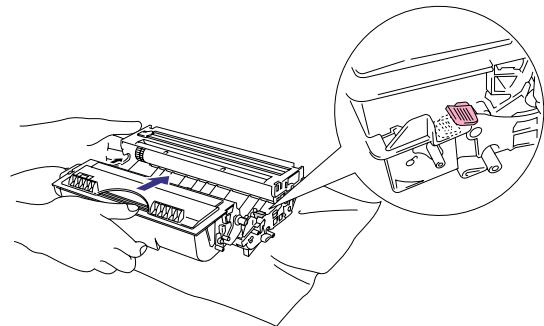
Fig. 5-2

(6) Press the control panel button until all the LEDs are on. (The LED turns on in sequence from top to bottom.) The drum page counter is reset.

(7) Close the front cover, and check that the Drum LED is now off.

⬤ *CAUTION:*

- *For best performance, use only genuine Brother toner. The product should only be used in a clean, dust-free environment with adequate ventilation..*

- *Only unpack a drum unit immediately before you need to install it into the printer. If an unpacked drum unit is subjected to excessive direct sunlight or room light, the unit may be damaged.*

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

- *Do not reset the page counter when replacing the toner cartridge only.*

1.2   Toner Cartridge

Toner low: The Data and Alarm LEDs blink once every five seconds.

Toner empty: The Data and Alarm LEDs blink once every second.

Life expectancy: 3,000 pages/standard toner cartridge
6,000 pages/high-capacity toner cartridge
(When printing A4- or Letter-size paper at 5% print coverage)

NOTE:

There are many factors that determine the actual toner life, such as temperature, humidity, type of paper that you use, the number of pages per print job, etc.

<Replacement Procedure>

(1) Open the front cover, and pull out the drum unit from the printer.

(2) Place the drum unit containing the old toner cartridge on a flat, horizontal surface, and remove the toner cartridge from the drum unit while pushing the lock lever down with your right hand.

(3) Unpack the new toner cartridge, and gently rock it from side to side 5 or 6 times keeping it horizontal. (Fig. 5-3)
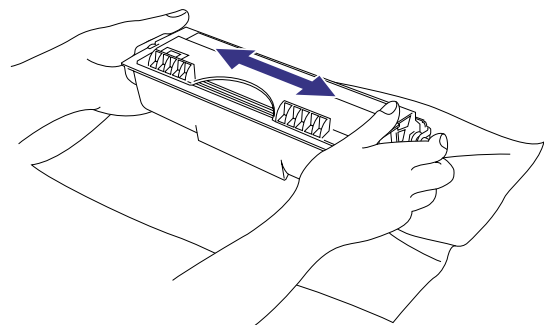
Fig. 5-3

(4) Remove the protective cover. (Fig. 5-4)

(5) Install the new toner cartridge into the drum unit until it locks into place, indicated by a click. When the toner cartridge is installed correctly, the lock lever is lifted automatically.
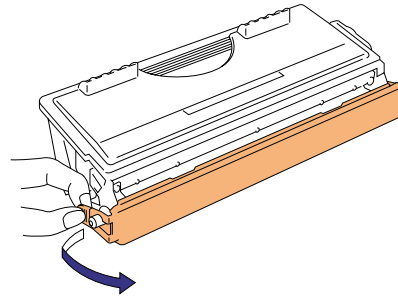
Fig. 5-4

(6) Clean the primary corona wire inside the drum unit by gently sliding the wire cleaner (blue tab) to the right end and left end several times. (Fig. 5-5)

(7) Return the cleaner to the home position before re-installing the drum unit.

(8) Re-install the drum unit into the printer and close the front cover.
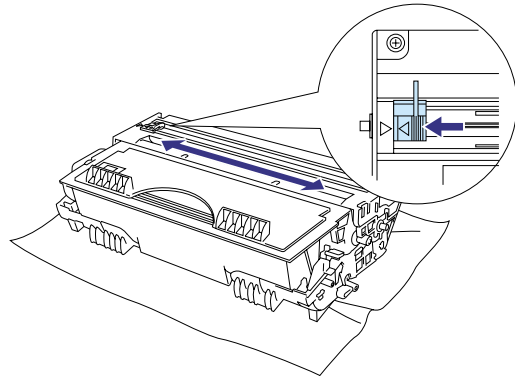
Fig. 5-5

⚠ CAUTION:

- *Keep the drum unit level after removing the toner cartridge to avoid possible toner spill or scatter.*

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

- *Only unpack a toner cartridge immediately before you need to install it into the printer. If a toner cartridge is left unpacked for a long period of time, the toner life is shortened*

- *If an unpacked drum unit is subjected to excessive direct sunlight or room light, the unit may be damaged.*

- *Use a Brother genuine toner cartridge which is specially formulated to ensure top print quality.*

- *Printing with a 3rd party toner or toner cartridge may reduce not only the printing quality but also the quality and life of the printer itself. It may also cause serious damage to the performance and life of a genuine Brother drum unit. Warranty cover is not applied to problems caused by the use of 3rd party toner or toner cartridges.*

- *Make sure that the wire cleaner on the drum unit is returned to the home position (▲ mark position) before re-installing the drum unit into the printer, or printed pages may have vertical stripes. (Refer to Fig. 5-5.)*

- *Install the toner cartridge immediately after you remove the protective part. Do not touch the development roller and photosensitive drum colored red as shown below;*
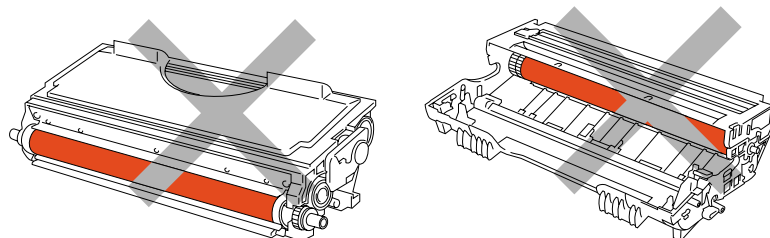
Fig. 5-6

2.   PERIODICAL REPLACEMENT PARTS

Periodical replacement parts are the parts to be replaced periodically to maintain product quality. These parts would affect the product quality greatly if they lost their function even if they do not appear to be damaged or there is no change in their appearance.)

The periodical replacement parts listed below should be replaced at the service center referring to the service life. For the procedures to replace these parts, refer to CHAPTER 4 "DISASSEMBLY AND RE-ASSEMBLY".

Parts Name	Part No.	Qty	Service life (number of prints)	Replacement Procedure
Fixing Unit (120V)	LJ4164001	1	50,000 pages	See P. 4-16.
Fixing Unit (230V)	LJ4168001	1	50,000 pages	See P. 4-16.
Separation Pad Holder ASSY	UL9084001	1	50,000 pages	See P. 4-4.
Paper Pick-up Roller ASSY	UL9066001	1	50,000 pages	See P. 4-34.

NOTE:

The above table shows only estimated values. They are subject to change without prior notice.

3. PERIODICAL CLEANING

Clean the following parts periodically to avoid any printer problems or print image defects.

> 🛈 *CAUTION:*
>
> *While drum unit and scanner window cleaning basically can be implemented by the end user, the electrical terminals inside the printer and on the drum unit should be cleaned by a service technician. Instruct the users not to touch those terminals.*

3.1 Cleaning the Printer Exterior

Clean the printer exterior to keep the printer clean.

1) Turn off the power switch and unplug the power cord.

2) Wipe dirt and dust away from the printer exterior with a damp cloth and allow the printer to dry completely before turning the power on again.

> 🛈 *CAUTION:*
>
> *Use water or neutral detergents for cleaning. Cleaning with volatile liquids such as thinners or benzene will damage the surface of the printer.*

3.2 Cleaning the Drum Unit

When replacing the drum unit or toner cartridge with a new one, be sure to clean the drum unit.

1) Turn off the power switch and unplug the power cord.

2) Remove the drum unit from the printer.

3) Clean the primary corona wire inside the drum unit by gently sliding the wire cleaner (blue tab) to the right end and left end several times.
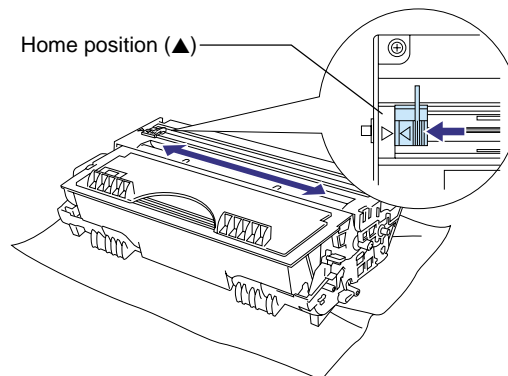
Home position (▲)

Fig. 5-7

4) Return the cleaner to the home position.

> 🛈 *CAUTION:*
>
> *Make sure that the wire cleaner on the drum unit is returned to the home position (▲ mark position) before re-installing the drum unit into the printer, or printed pages may have vertical stripes.*

5) Install the drum unit into the printer.

3.3   Cleaning the Scanner Window

When replacing the drum unit or toner cartridge with a new one, be sure to clean the scanner window.

1) Turn off the power switch and unplug the power cord.

2) Remove the drum unit from the printer.

3) Gently wipe the scanner window (colored magenta in the figures below) with a soft dry cloth.
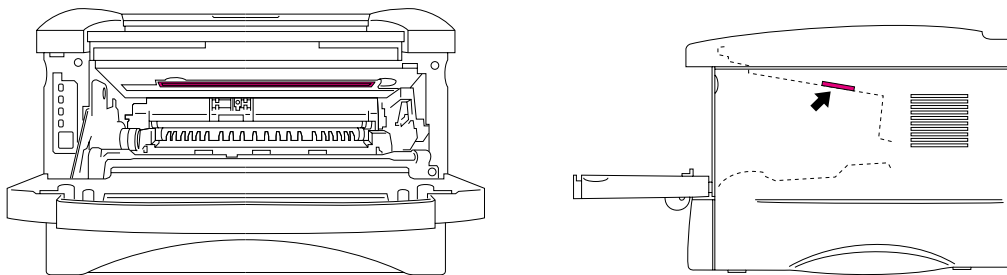
Fig. 5-8

ⓘ *CAUTION:*

- *Do not touch the scanner window with your fingers.*
- *Do not wipe the scanner window with cleaning alcohol (isopropyl).*

3.4   Clean the Electrical Terminals

When replacing the drum unit or toner cartridge with a new one, be sure to clean the electrical terminals inside the printer body.

1) Turn off the power switch and unplug the power cord.

2) Remove the drum unit from the printer.

3) Wipe the electrical terminals as shown in the figure below with a soft dry cloth.
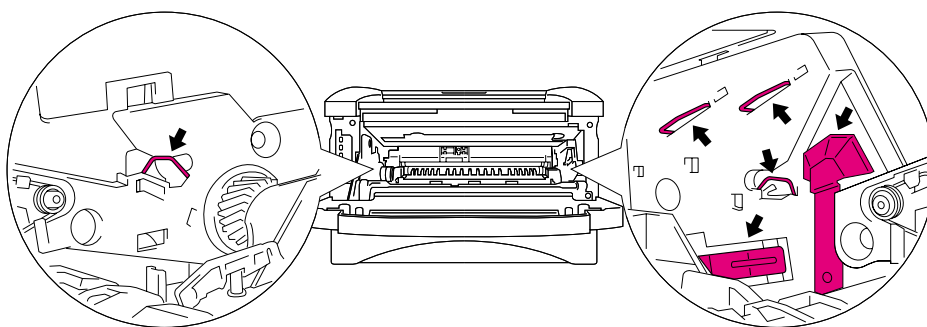
Fig. 5-9

4.   MTBF / MTTR

The meantime between failure (MTBF) and the meantime to repair (MTTR) for this printer are as follows;

MTBF: Up to 4,000 hours

MTTR: Average 30 minutes

CHAPTER6   TROUBLESHOOTING

1.   INTRODUCTION

1.1   Initial Check

(1)   Operating environment

Check if :

- The source voltage stays within ±10% from the rated voltage shown on the rating plate.

- The printer is installed on a solid, level surface.

- The room temperature is maintained between 10°C and 32.5°C. The relative humidity is maintained between 20% and 80%.

- The printer is not located in a dusty place.

- The printer is not exposed to ammonia fumes or other harmful gases.

- The printer is not located in a hot or humid area (such as near water or a humidifier).

- The printer is not exposed to direct sunlight.

- The room is well-ventilated.

- The printer is not placed where the ventilation hole of the printer is blocked.

(2)   Print paper

Check if :

- A recommended type of print paper is being used. [If the paper is too thick or too thin, or tends to curl, paper jams or paper feed problems may occur, or printed images may be blurred.]

- The print paper is damped. [If so, use fresh paper, and check whether the print quality improves or not.]

- The print paper is short-grained paper or acid paper. [If so, print quality problems may occur.]

For further information on paper, refer to subsection 3.4 'Paper' in CHAPTER 1.

(3)   Consumable parts

Check if :

- The Toner LED is not lit on the printer control panel when a toner cartridge is installed in the printer. [If the LED is lit, replace the cartridge with a new one.]

For further information on consumable parts, refer to Section 1 'Consumable Parts' in CHAPTER 5.

(4)   Others

Condensation:

When the printer is moved from a cold room into a warm room in cold weather, condensation may occur inside the printer, causing various problems as listed below:

- Condensation on the optical surfaces such as the scanning mirror, lenses, the reflection mirror and the protection glass may cause the print image to be light.

- If the photosensitive drum is cold, the electrical resistance of the photosensitive layer is increased, making it impossible to obtain the correct contrast when printing.

- Condensation on the corona unit may cause corona charge leakage.

- Condensation on the hopper plate and separation pad may cause paper feed troubles.

If condensation has occurred, print several pages or leave the printer for 2 hours to allow it to reach room temperature.

If the drum unit is unpacked soon after it is moved from a cold room to a warm room, condensation may occur inside the unit, which may cause incorrect images. Instruct the user to allow the unit to come to room temperature before unpacking it. This will take one or two hours.
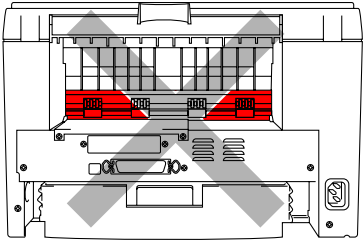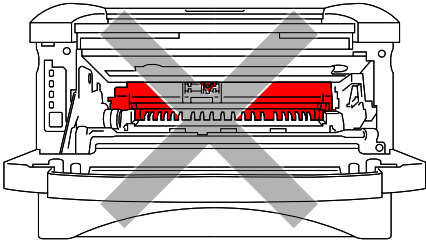
1.2   Warnings for Maintenance Work

To avoid creating secondary problems by mishandling, follow the warnings below during maintenance work.

⚠ *WARNING*

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

(2) 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.

1.3   Identify the Problem

If you encounter any printer error or problem, first identify it referring to the chart below, then see the appropriate section.

NOTE:

The following troubleshooting sections contain both the actions which users should take or check and the ones which service technicians should perform.

The printer does not print.

LED is blinking.	→ 2.1 'Operator Calls'
	→ 2.2 'Service Calls'
Status monitor error message appears.	→ 3.1 'Error Messages in the Status Monitor' → (Service errors only) → Turn off and on the printer power switch.
Error message is printed.	→ 3.2 'Error Message Printout' (Service errors only) → Turn off and on the printer power switch.
	(The same error appers.) → 6. 'Malfunctions'
The printer does not load paper.	→ 4.1 'Paper Load Problems'
Paper jam occurs.	→ 4.2 'Paper Jams'
The printer does not start printing.	→ 5. 'Software Setting Problems'

Printed page has a problem.

Printed image has a problem.	→ 7 'Image Defects'
	→ 4.2 'Paper Feeding Problems'
Printout is not correct.	→ 8 'Incorrect Printout'

2. OPERATOR CALLS & SERVICE CALLS

2.1 Operator Calls

An 'operator call' which the printer indicates on the LEDs is user recoverable. Identify the error from the table below and take the corrective action described for each indication to correct it. The printer automatically recovers from most errors, but it may also be necessary to reset the printer with the control panel button.

LED Indication	Error	Remedy
Alarm LED is blinking.	Cover open	Close the front cover. If the error is not cleared even after closing it, open the cover once and close it again. The error may occur because of the laser BD malfunction. Refer to 'M-7 BD failure' in Section 6.
Ready & Alarm LEDs are blinking.	Paper jam	Clear the jammed paper inside the printer. Press the panel button if the printer does not automatically resume printing.
	No paper	Load paper into the printer and press the panel button.
	Misfeed	Re-install the paper and press the panel button.
Alarm & Data LEDs are blinking. (every 5 seconds)	Toner low	Indicates that the toner cartridge is nearly empty. Purchase a new toner cartridge in order to be ready for when the 'toner empty' message is indicated.
Alarm & Data LEDs are ON.	Toner empty	Replace the toner cartridge with a new one.

2.2 Service Calls

When the printer indicates the need for a service call by illuminating all the LEDs and then a combination of LEDs alternately as shown in the table on the next page, a user unrecoverable error may have occurred.

Instruct the user to turn off the power switch, wait a few seconds and then turn it on again and try to print again. If the error is not cleared and the same service call appears, see Section 6 'Malfunctions' to take the corrective action.

```
            ┌─────────────────┐
            │  Error occurs.  │
            └─────────────────┘
                     │
          ┌──────────────────────┐
          │  Confirm the LED     │
          │     indication.      │
          └──────────────────────┘
                     │
          ┌──────────────────────┐
          │  Turn OFF/ON         │
          │  the power switch.   │
          └──────────────────────┘
                     │
               ╱───────────╲           NO
              ╱ Error occurs ╲───────────────────┐
              ╲   again.     ╱                    │
               ╲───────────╱                      │
                    │ YES                          │
          ┌──────────────────┐      ┌────────────────────────┐
          │  See Section 6   │      │   Temporary error.     │
          │  'Malfunction'.  │      │   Use the printer with-│
          └──────────────────┘      │   out corrective action.│
                                     └────────────────────────┘
```
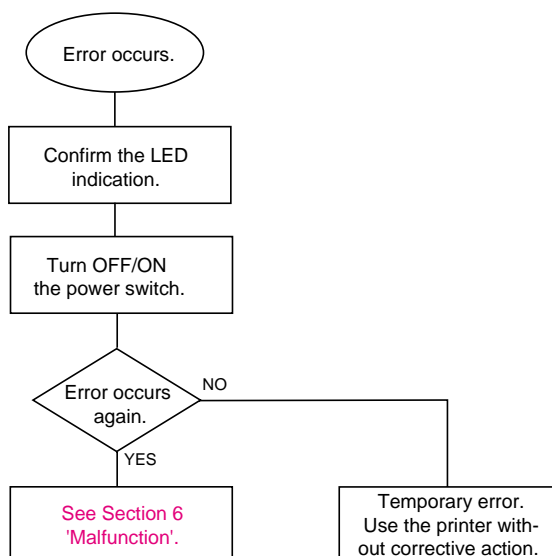
Type of error	Drum	Ready	Alarm	Data	Remedy
Fuser Malfunction	O				See 'M-9 Fuser failure'.
Laser BD Malfunction		O			See 'M-7 BD failure'.
Scanner Malfunction	O	O			See 'M-8 Scanner failure'.
ROM Error			O		See 'M-10 ROM error'.
D-RAM Error	O		O		See 'M-10 D-RAM error'.
Service A *		O	O		See 'M-11 Service A'.
Service B *	O	O	O		See 'M-11 Service B'.
Engine Interface Error				O	See 'M-12 Engine interface error'.
Main Motor Malfunction		O	O	O	See 'M-3 Main motor does not rotated'.
NV-RAM Error	O		O	O	See 'M-10 NV-RAM error'.
CPU Runtime Error *	O	O	O	O	See 'M-11 CPU runtime error'.

* Refer to the further description of these errors as follows;

- Service A: Address Error
- Service B: Bus Error
- CPU Runtime Error: A CPU error other than the above two defects, such as an Illegal Instruction or Operation Overflow

How the LEDs indicate an error

ex. Fuser Malfunction
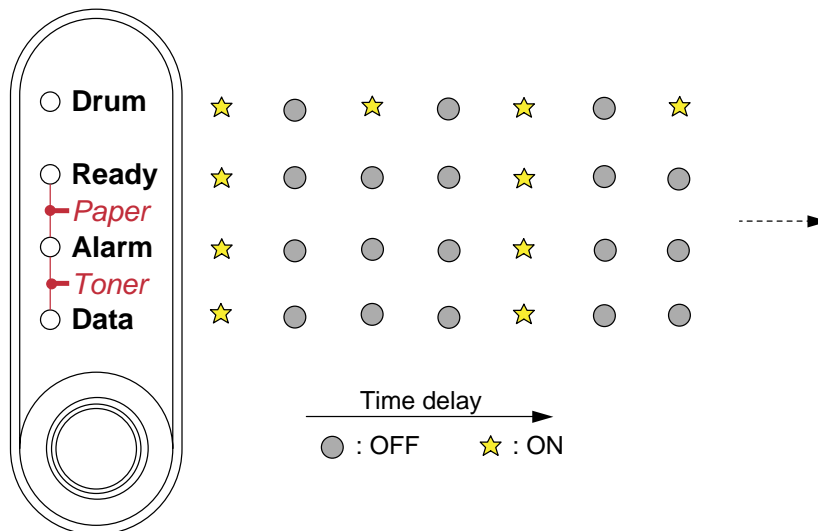
Fig. 6-1

3. ERROR MESSAGES

3.1 Error Messages in the Status Monitor

The status monitor will report problems with the printer as defined in the following table. Take the corrective actions for the error message the status monitor reports.

Error Message	Remedy
COVER OPEN	Close the front cover. If the front cover is half-opened, the error may not be cleared even after closing it. In that case, open the cover once and close it again.
NO PAPER or MISFEED	(1) Load paper into the paper cassette properly. (2) If paper is empty, load a new stack of paper into the cassette. (3) Check that paper in the cassette is straight. If it is curled, straighten it before printing. Sometimes it is helpful to remove the paper, turn the stack over and put it back into the paper cassette. (4) Reduce the amount of paper in the cassette. Keep paper loads below 27mm in depth. (5) Check that the paper is a specified type of paper.
PAPER JAM	Clear the jammed paper inside the printer. Press the panel button if the printer does not automatically resume printing.
TONER LOW	Indicates that the toner cartridge is nearly empty. Purchase a new toner cartridge in order to be ready for when the 'toner empty' message is indicated.
TONER EMPTY	Replace the toner cartridge with a new one.
PRINT OVERRUN	(1) Press the panel button to print the data remaining in the printer. (2) Reduce the complexity of the document or reduce the print resolution. (3) (For HL-1250 only) Expand the printer memory by adding a commercially available SIMM. Set page protection to ON by using the supplied Windows® driver or RPC program. (4) (For HL-1250 only) Change the following settings in the supplied Windows® driver and try again. The best combination of settings below will vary depending on the document. Graphics Mode / True Type mode / Use Printer TrueType Fonts
MEMORY FULL	(1) Press the panel button to print the data remaining in the printer. (2) Reduce the complexity of the document. (3) (For HL-1250 only) Expand the printer memory by adding a commercially available SIMM.
RESOLUTION ADAPTED (The printer has printed the document at a reduced resolution.)	(1) Reduce the complexity of the document before printing to prevent automatic reduction of the resolution. (2) (For HL-1250 only) Expand the printer memory by adding a commercially available SIMM.

Error Message	Remedy
FUSER MALFUNCTION	Turn the power switch off, wait a few seconds and then turn it on again. Leave the printer for 10 minutes with power on. If the same error occurs again, see 'M-9 Fuser failure'.
LASER BD MALFUNCTION	Turn the power switch off, wait a few seconds and then turn it on again. If the same error occurs again, see 'M-7 BD failure'.
SCANNER MALFUNCTION	Turn the power switch off, wait a few seconds and then turn it on again. If the same error occurs again, see 'M-8 Scanner failure'.
D-RAM ERROR	Turn the power switch off, wait a few seconds and then turn it on again. If the same error occurs again, see 'M-10 ROM error / D-RAM error / NV-RAM error'.
NV-RAM ERROR	Turn the power switch off, wait a few seconds and then turn it on again. If the same error occurs again, see 'M-10 ROM error / D-RAM error / NV-RAM error'
MAIN MOTOR ERROR	Turn the power switch off, wait a few seconds and then turn it on again. If the same error occurs again, see 'M-3 Main motor does not rotate'.
ENGINE INTERFACE ERROR	Turn the power switch off, wait a few seconds and then turn it on again. If the same error occurs again, see 'M-12 Engine interface error'.

3.2 Error Message Printouts

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

Error Message	Remedy
MEMORY FULL	(1) Press the panel button to print the data remaining in the printer. (2) Reduce the complexity of the document. (3) (For HL-1250 only) Expand the printer memory by adding a commercially available SIMM.
PRINT OVERRUN	(1) Press the panel button to print the data remaining in the printer. (2) Reduce the complexity of the document or reduce the print resolution. (3) (For HL-1250 only) Expand the printer memory by adding a commercially available SIMM. Set page protection to ON by using the supplied Windows® driver or RPC program. (4) (For HL-1250 only) Change the following settings in the supplied Windows® driver and try again. The best combination of settings below will vary depending on the document. Graphics Mode / True Type mode / Use Printer TrueType Fonts
RESOLUTION ADAPTED (The printer has printed the document at a reduced resolution.)	(1) Reduce the complexity of the document before printing to prevent automatic reduction of the resolution. (2) (For HL-1250 only) Expand the printer memory by adding a commercially available SIMM.
SERIAL INTERFACE FRAMING ERROR (HL-1250 only)	(1) Press the panel button to resume printing. (2) Check the communication parameter settings* such as baud rate and stop bit on both the PC and printer are the same.
SERIAL INTERFACE PARITY ERROR (HL-1250 only)	(1) Press the panel button to resume printing. (2) Check the communication parameter settings* such as bit length and parity on both the PC and printer are the same.
SERIAL INTERFACE OVERRUN ERROR (HL-1250 only)	(1) Press the panel button to resume printing. (2) If the error occurs again, the RS-100M interface hardware may be damaged. Replace the RS-100M.
SERIAL INTERFACE INPUT BUFFER OVERFLOW (HL-1250 only)	(1) Press the panel button to resume printing. (2) Check the communication parameter settings* such as the handshake protocols on both the PC and printer are the same. (3) If the error occurs again, the RS-100M interface hardware may be damaged. Replace the RS-100M.

NOTE:

The communication parameter settings are printed on the Print Configuration sheet. For details on how to print the Print Configuration sheet, see Section 1 'Print Configuration' in Appendix 4.

4.   PAPER PROBLEMS

When any paper related problem occurs, ensure that the paper used meets the recommended paper specifications referring to Subsection 3.4 'Paper' in CHAPTER 1.

4.1   Paper Loading Problems

Problem	Remedy
The printer does not load paper.	(1) Check that paper in the paper cassette is straight. If it is curled, straighten it before printing. Sometimes it is helpful to remove the paper, turn the stack over and put it back into the paper cassette. (2) Reduce the amount of paper in the cassette. Keep paper loads below 27mm in depth. (3) Check that manual feed mode is not selected in the printer driver.
The printer does not load paper from the manual feed slot.	(1) Re-install the paper firmly into the manual feed slot, one sheet at a time. (2) Check that manual feed mode is selected in the printer driver.
The printer will not load envelopes.	Check that envelopes are loaded into the manual feed slot. The application software must be set up correctly to print on the envelope size you are using.
The printer does not print into the output tray.	Close the rear cover.
The printer does not print on the specified paper. (HL-1250 with optional lower tray unit only)	(1) Check that the Lower tray cable is connected to the printer. (2) Check that the appropriate printer driver is selected.

4.2 Paper Jams

4.2.1 Clearing jammed paper

Clear the jammed paper following the procedures below;

(1) Remove the paper cassette completely from the printer.

(2) Pull any jammed paper up and out of the printer.(Fig. 6-2)

(3) Open the front cover.
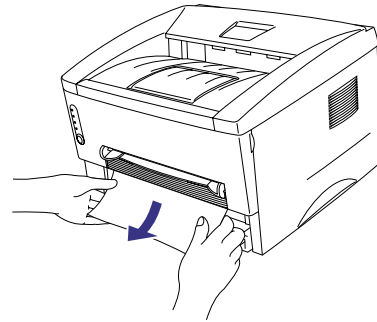
Fig. 6-2

(4) Remove the drum unit assembly. Pull any jammed paper up and out of the printer.

Do not remove the drum unit assembly with additional force at this time if you cannot remove it easily. Instead, pull the edge of the jammed paper from the paper cassette.
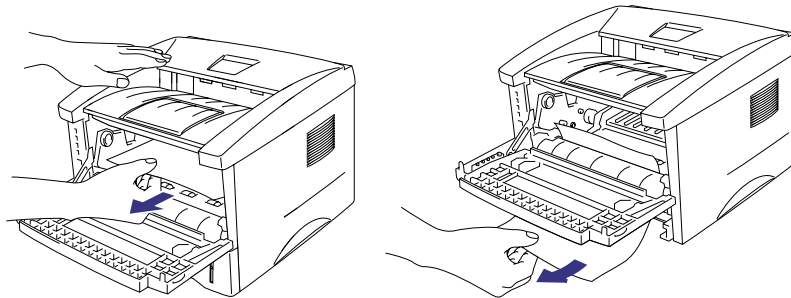
Fig. 6-3

(5) Open the rear cover and pull the jammed paper out of the fixing unit. If you have to pull the paper towards the back of the printer, the fuser may get dirty with toner powder and may result in toner scatter on the next printed page or pages. Print a few copies of the test page until the toner scatter on the printed pages stops. (Fig. 6-4)

(6) Close the rear cover.

(7) Install the drum unit assembly and close the front cover.
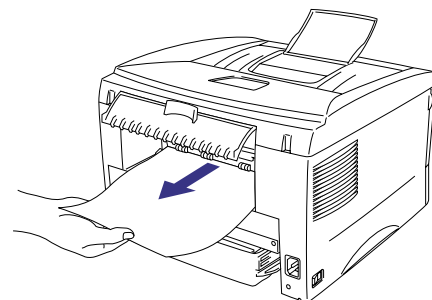
Fig. 6-4

NOTE:

If the jammed paper is removed completely, install the paper cassette first, then close the front cover and the printer will resume printing automatically. If the printer does not resume printing automatically, press the control panel button.

4.2.2 Causes & countermeasures

The causes for paper jam problems vary depending on the location of the paper jam. When a paper jam occurs inside the printer, you have to find the location of the paper jam first, remove the jammed paper and then take the appropriate countermeasure referring to the table below;

Problem	Type of Jam	Cause	Remedy
Jam when the printer is turned on.	Paper stuck	The front registration sensor or paper eject sensor is turned on.	Remove the paper inside the printer. If there is no paper, check the suspect sensors referring to NOTE.
Top of paper stopped at 230mm from the second exit roller. Next paper is not fed.	Jam caused by paper length detected as longer than 400mm (16 in).	The front registration sensor is not returning properly and is not turning off.	Check front registration sensor motion referring to NOTE.
Bottom of paper stopped around the transfer roller.	Jam caused by paper length detected as shorter than 80mm.	The front registration sensor was turned off early. Malfunction of actuator or hardware noise.	Check the front registration sensor referring to NOTE.
Top of paper stopped between the paper feed roller and the pick-up roller.	Jam caused by a paper feed delay.	Paper was not fed in at the proper timing due to paper dust or wear of the rubber pick-up roller.	Remove the paper dust attached to the pick-up roller. If the rubber is worn out, replace it with a new one.
Top of paper stopped at 35mm from the contact point of the heat roller and pressure roller.	Jam caused by the paper sensed as not being ejected from the paper eject sensor.	The paper eject sensor is not working properly and has not turned off. (single printing)	Check sensor motion referring to NOTE.
Top of paper stopped at 30 - 40mm from the contact point of the heat roller and pressure roller. Jammed paper is not printed at all.	Jam caused by incorrect paper pick up.	The surface of the separation pad or the pick-up roller is dirty or worn out.	1) Clean the surface of the separation pad or pick-up roller. 2) Replace the separation pad or pick-up roller.
Jam after paper is ejected.	Jam caused by the paper sensed as not being ejected from the paper eject sensor.	The paper eject sensor or front registration sensor is not working properly and has not turned off. (continuous printing)	Check sensor motion referring to NOTE.

NOTE:

How to check the sensors:
1) *Turn off the printer power switch, open the front cover, and remove the drum unit.*
2) *Turn on the printer while pressing the control panel button. The Drum LED comes ON.*
3) *Lightly press the panel button again.*
    → *Alarm LED is ON = Front registration sensor is turned ON.*
4) *Press and release the panel button again.*
    → *Drum LED is ON = Paper eject sensor is turned ON.*

For details on the sensors, see 'Factory inspection mode' in Subsection 9.2.

4.3 Paper Feeding Problems

Even if the paper is printed and ejected without any problems such as paper jams, paper feeding problems below may appear.

Users can clear these problems by following the 'User Check' items for each problem. Even if the same problem occurs again, follow the procedures in the table below.

F-1	Double feeding

☑ User Check

Check the paper used meets the recommended paper specifications.

Possible cause	Step	Check	Result	Remedy
Separation pad	1	Is the surface of the separation pad worn out?	Yes	Replace the separation pad.

F-2	Wrinkles or creases

☑ User Check

(1) Check that paper is loaded into the paper cassette correctly.

(2) Check the paper used meets the recommended paper specifications.

(3) Try printing using the straight-through output path.

(4) Turn over the stack of paper in the cassette or try rotating the paper 180° in the cassette.

Possible cause	Step	Check	Result	Remedy
Paper	1	Is the problem solved if new paper is used?	Yes	Instruct the user how to store paper so that it does not absorb moisture.
Fixing unit entrance guide	2	Is the entrance guide dirty?	Yes	Clean the entrance guide.
Fixing unit	3	Is the pressure roller dirty?	Yes	Clean the pressure roller.
			No	Replace the fixing unit.

F-3	Page skew

✔ User Check

(1) Check that the paper or other media is loaded into the paper cassette correctly and that the paper guides are not too tight or too loose against the paper stack.

(2) If using the manual feed slot, check how to load paper into the manual feed slot correctly.

(3) The paper cassette may be too full. Load paper below 27mm in depth.

(4) Check the paper used meets the recommended paper specifications.

F-4	Curl or Wave

✔ User Check

(1) Check the paper used meets the recommended paper specifications. Both high temperature and humidity will cause paper to curl.

(2) If the printer is used infrequently, the paper may have sat for too long in the paper cassette. Turn over the stack of paper in the paper cassette. Also, try rotating the paper 180° in the paper cassette.

(3) Try printing using the straight-through output path.

NOTE:

For no paper supplied as the cause of a malfunction, see ‘M-4 No paper supplied’ in Section 6 ‘Malfunctions’.

5.   SOFTWARE SETTING PROBLEMS

The printer may not print the data correctly if there are incorrect software settings.

S-1	"There was an error writing to LPT1: (or BRUSB) for the printer" Error message appears.

✔ User Check

(1) Check that the printer cable is not damaged or broken. Check also that the cable is connected to the correct interface connectors of both the printer and PC.

(2) Check that the correct printer is selected if you have an interface switching device.

(3) Check that the appropriate printer driver is selected as 'Set as Default'. Check also that the correct print port is set for the selected printer driver.

(4) Check that the printer is not connected to the same port which is also connected to a mass storage device or scanner. Remove all other devices and connect the port to the printer only. Turn off the printer status monitor in the device options tab in the printer driver.

(5) If the print port is set as an ECP port, change it to a normal port.

(6) Try printing the test page referring to Subsection 9.1 'Test Print Mode' in this chapter.

(7) Try resetting the factory settings.

Possible cause	Step	Check	Result	Remedy
Failure inside the printer	1	Is it possible to print the test page with the method of Subsection 9.1 'Test Print Mode' in this chapter?	No	Identify the error type, then refer to the specified section of this chapter.
Main PCB failure	2	Is it possible to print with another PC and printer cable?	No	Replace the main PCB.
			Yes	This problem may appear under the specified system environment. Check the environment which the user used.

| S-2 | Unable to print from application software <u>with the serial interface.</u> (HL-1250 only) |

✔ User Check

Check that the slide switch of the serial interface is in the correct position and the serial interface setting are correctly set up with the DIP switches.

Possible cause	Step	Check	Result	Remedy
Failure inside the printer	1	Is it possible to print the test page with the method of Subsection 9.1 'Test Print Mode' in this chapter?	No	Identify the error type, then refer to the specified section of this chapter.
Main PCB failure	2	Is it possible to print with another PC, printer cable and RS-100M?	No	Replace the main PCB.
RS-100M failure	3	Is it possible to print with another PC and cable?	No	Replace the RS-100M.
			Yes	This problem may appear under the specified system environment. Check the environment which the user used.

| S-3 | Unable to print from application software <u>under DOS</u>. |

✔ User Check

(1) Check that the DOS application software interface settings match that of your printer.

(2) Check if the printer has any printer alarms active.

(3) Check if the appropriate printer is selected in your application software.

(4) (HL-1250 only) If the serial interface is used, check that the RS-232C serial interface is selected with the slide switch. Check that the interface settings are correctly set up with the proper DIP switches. Check that the serial parameters of baud rate, parity and stop bits match between your application software and the printer.

Possible cause	Step	Check	Result	Remedy
Failure inside the printer	1	Is it possible to print the test page with the method of Subsection 9.1 'Test Print Mode' in this chapter?	No	Identify the error type, then refer to the specified section of this chapter.
Main PCB failure	2	Is it possible to print with another PC and printer cable?	No	Replace the main PCB.
			Yes	This problem may appear under the specified system environment. Check the environment which the user used.

NOTE:

If this problem appears when using the RS-100M, follow the procedures in "S-2" on this page.

S-4	Unable to print from application software <u>with an Apple Macintosh Computer.</u> (HL-1250 only)

▼ **User Check**

(1) Check that the supplied Macintosh printer driver is installed in the System Folder and it is selected with Chooser.

(2) Check the PORT selection within the Chooser. It should match the port to which you physically attached the printer cable.

(3) Check that the serial slide switch of the optional interface board is in the Apple (RS-422A) position.

(4) Check the printer cable type: you cannot use a Local Talk or straight-through cable.

Possible cause	Step	Check	Result	Remedy
Failure inside the printer	1	Is it possible to print the test page with the method of Subsection 9.1 'Test Print Mode' in this chapter?	No	Identify the error type, then refer to the specified section of this chapter.
Main PCB failure	2	Is it possible to print with another PC, printer cable and RS-100M?	No	Replace the main PCB.
RS-100M failure	3	Is it possible to print with another PC and cable?	No	Replace the RS-100M.
			Yes	This problem may appear under the specified system environment. Check the environment which the user used.

S-5	Although the USB driver is installed, it is unable to find the BRUSB: port.

▼ **User Check**

(1) Re-install the USB driver by following the steps below;
   i) Double-click the file "DeinsUSB.exe" in the USB directory of the CD-ROM or the floppy disk.
   ii) Turn the printer off and on again.
   iii) "Add New Hardware Wizard" is launched again, follow the instructions in the Wizard to re-install the driver.

(2) Try to connect the printer directly to the computer if it is connected through a network.

Possible cause	Step	Check	Result	Remedy
Computer settings	1	Does 'Universal Serial Bus Controllers' appear in the Device Manager tab of 'System Properties' in Control Panel?	No	This problem can be caused by your computer settings. See the computer manual.
USB cable / printer damage	2	Does the 'BRUSB' port appear in the Device Manager tab of 'System Properties' in Control Panel?	No	The USB cable is damaged. Replace the cable. If the same problem appears, the printer will be damaged.

S-6	HL-1240 (or HL-1250) does not appear in Chooser with iMac and Power Macintosh G3 with USB.

✔ **User Check**

(1) Check the printer is turned on.

(2) Check the USB interface cable is connected correctly.

(3) Check the printer driver is installed correctly.

Possible cause	Step	Check	Result	Remedy
Printer connection	1	Select 'Apple System Profiler' in Apple Menu. Are the following items indicated in the USB box of the Device and Volumes tab? • Product ID: 6*($6) (for HL-1240) or 7*($7) (for HL-1250) • Vender: Brother International Corporation (or 0x4f9)	No	Check the printer is turned on and the USB interface cable is connected correctly. Check that the USB cable used is the shielded twisted pair type and 5 m or less. Try to connect the printer and PC with the USB cable directly.
Driver installation	2	Are there the following files in the Extensions Folder of System Folder? <For System 8.6 or higher> • BR_Backgrounder • BR_PrintMoniter(USB) • HL-1200/MFL Pro • USBPrinterDriver <For System 8.1, 8.5, 8.51> • BR_Backgrounder • BR_PrintMoniter(USB) • HL-1200/MFL Pro • USBPrinterDriver(BR6*) • USBPrinterDriver(BR7*) • USBPrinterDriver(BR8*) • USBPrinterDriver(BR9*) • USBPrinterDriver(BR100*)	No	Try to re-install the printer driver.
			Yes	Turn off the printer and PC power switch, and check all connections between them. Then, turn them on again.

NOTE:

The value following 'BR' is a product ID, which is defined as follows;
6:   HL-1240
7:   HL-1250
8:   HL-1270N
9:   MFC-P2500 or HL-P2500
100:   MFC model

6. MALFUNCTIONS

When taking countermeasures for malfunctions as described in this section, check connectors for contact failure before measuring the voltage at the specified connector pins.

M-1	No AC power supplied

Possible cause	Step	Check	Result	Remedy
Supply voltage	1	Is the correct voltage present at the outlet?	No	Inform the user that the correct voltage is not supplied at the outlet.
Power plug	2	Is the power cord securely plugged into the outlet?	No	Plug the power cord securely into the outlet.
Fuse (F1, F2)	3	Is the fuse blown?	Yes	If the fuse blows again immediately after replacing the low-voltage power supply PCB, check that there is not a short circuit somewhere in the AC power supply line.
Wiring	4	Unplug the power supply plug. Is there a broken wire between the AC input connector of the low-voltage power supply and the power plug?	Yes	Replace the AC power cord.

M-2	No DC power supplied

Possible cause	Step	Check	Result	Remedy
AC power supply	1	Is AC power supplied between connectors CN1-L and CN1-N when the power plug is plugged into the outlet?	No	Follow the same check procedure of M-1 "No AC power supplied".
Wiring, DC load	2	Turn off the power switch and disconnect the P3 and P5 connectors on the engine PCB. Turn on the power again. Measure the voltages between the terminals. Do the measured voltage satisfy the prescribed valued in the table below?	Yes	Turn off the power switch, reconnect the connector and turn the power switch on again. If the protector circuit is activated, check the connector, the wiring from the connector, and the DC load.
Low-voltage power supply PCB	3		No	Replace the low-voltage power supply PCB.

PCB	+ lead pin	- lead pin	Voltage
Engine	P5-2	P5-3	Approx. 24V
	P3-10	P3-9	Approx. 5V

⚠️ **WARNING**

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.

M-3	Main motor does not rotate

Possible cause	Step	Check	Result	Remedy
Failure of connector	1	Is the connection of connector P9 on the engine PCB correct?	No	Reconnect the connector.
Main motor	2	Is the problem solved by replacing the main motor?	Yes	Replace the main motor.
Engine PCB	3	Is the problem solved by replacing the engine PCB?	Yes	Replace the engine PCB.
Main PCB	4	Is the problem solved by replacing the main PCB?	Yes	Replace the main PCB.

M-4	No paper supplied

Possible cause	Step	Check	Result	Remedy
Failure of connector	1	Is the contact of the solenoid connector on the engine PCB good?	No	Reconnect the connector.
Engine PCB circuit	2	Set paper in the manual paper slot and make a test print by pressing the control panel button.	Yes	Replace the engine PCB.
Paper pick-up clutch solenoid		Does the voltage between pins 2 (SOLENOID) and 1 (24V) of the P13 connector on the engine PCB change from approx. 24V DC to 0V within the specified time?	No	Replace the paper pick-up solenoid.
Separation pad / pick-up roller failure	3	Is the surface of the separation pad or the pick-up roller dirty or worn out?	Yes	1) Clean the surface of the separation pad or pick-up roller. 2) Replace the separation pad or pick-up roller.
Main PCB	4	Is the problem solved by replacing the main PCB?	Yes	Replace the main PCB.

M-5	Insufficient output from high-voltage power supply unit

Possible cause	Step	Check	Result	Remedy
High-voltage contact	1	Do any of the terminals on the high-voltage contacts have dirt or contact burns?	Yes	Clean the terminals.
High-voltage power supply PCB	2	Check the connections of the connector between the high-voltage power supply and the engine PCB are secured correctly.	Yes	Replace the high-voltage power supply PCB
			No	Reconnect the connector between the high-voltage power supply and the engine PCB.

M-6	Fixing heater temperature failure

Possible cause	Step	Check	Result	Remedy
Poor thermistor harness contact	1	Is the contact of connector P6 on the engine PCB good?	No	Reconnect the connector.
Blown thermal fuse	2	Remove the fixing unit and measure the resistance of the thermistor. Is it open circuit?	Yes	Replace the fixing unit.
Thermistor failure	3	Is the thermistor installed properly?	Yes	Replace the fixing unit.
			No	Reinstall the thermistor properly.
Halogen heater lamp failure	4	Remove the fixing unit and measure the resistance of the halogen heater lamp. Is it open circuit?	Yes	Replace the halogen heater lamp.

M-7	BD failure

Possible cause	Step	Check	Result	Remedy
Harness connection failure	1	Is connector P10 on the main PCB secured correctly?	No	Reconnect the connector securely.
			Yes	Replace the laser unit.

M-8	Scanner failure

Possible cause	Step	Check	Result	Remedy
Harness connection failure	1	Is the connection of the scanner motor connector P12 on the engine PCB secure?	No	Reconnect the connector securely.
Power supply input	2	Is the voltage between pins 1 (+24V DC) and 2 (GND) of connector P12 on the engine PCB 24V DC?	No	Check if +24V DC is supplied between pins 2 (+24V DC) and 3 (+24V RET) of connector P5 on the engine PCB. If not, check the power supply output on the low-voltage power supply PCB.
			Yes	Replace the laser unit.

M-9	Fuser failure

Possible cause	Step	Check	Result	Remedy
Poor thermistor harness contact	1	Is the contact of connector P6 on the engine PCB good?	No	Reconnect the connector.
Blown thermal fuse	2	Remove the fixing unit and measure the resistance between the input connectors. Is it open circuit?	Yes	Replace the fixing unit.
Thermistor failure	3	Is the thermistor installed properly?	Yes	Replace the fixing unit.
			No	Reinstall the thermistor properly.
Halogen heater lamp failure	4	Remove the fixing unit and measure the resistance of the halogen heater lamp. Is it open circuit?	Yes	Replace the halogen heater lamp.
Heater harness connection failure	5	Is the heater harness connector connected to the low-voltage power supply PCB and fixing unit secure?	No	Reconnect the connectors securely.

NOTE:

- *This problem will be cleared if leaving the printer power ON for ten minutes.*
- *If the heater is cooled down sufficiently, this problem may be cleared by turning on the printer power switch while pressing the panel button. **Be warned, however, that this operation will melt the fixing unit if the heater is hot.***

M-10	ROM error / D-RAM error / NV-RAM error

Possible cause	Step	Check	Result	Remedy
Main PCB	1	Is it possible to print the test page with the method of Subsection 9.1 'Test Print Mode' in this chapter?	No	Replace the main PCB.
Software bug	2	Does this problem appear when printing specific data or printing under a specific environment?	Yes	Inform the Brother office of the used specific data, printer condition and system environment.

M-11	Service A (Address error) / Service B (BUS error) / CPU runtime error

Possible cause	Step	Check	Result	Remedy
Main PCB	1	Is it possible to print the test page with the method of Subsection 9.1 'Test Print Mode' in this chapter?	No	Replace the main PCB.
Software bug	2	Does this problem appear when printing specific data or printing under a specific environment?	Yes	Inform the Brother office of the used specific data, printer condition and system environment.

M-12	Engine interface error

Possible cause	Step	Check	Result	Remedy
Harness connection failure	1	Is the connection between connector P6 on the main PCB and connector P3 on the engine PCB secure?	No	Reconnect the connectors securely.
Engine PCB	2	Is the problem solved by replacing the engine PCB?	Yes	Replace the engine PCB.
Main PCB	3	Is the problem solved by replacing the main PCB?	Yes	Replace the main PCB.

7. IMAGE DEFECTS

7.1 Image Defect Examples

I-1 Light

I-2 Dark

I-3 Completely blank

I-4 All black

I-5 Dirt on back of paper

I-6 Black vertical streaks

I-6 Black vertical streaks

I-7 Black horizontal stripes

I-8 Black vertical streaks

I-9 White vertical streaks

I-10 White horizontal streaks

I-11 Faulty registration

I-12 Poor fixing

I-13 Image distortion

I-14 Faint print

I-15 White spots

I-16 Black spots

I-17 Black band

I-18 Gray background

I-19 Hollow print

I-20 Downward fogging of solid black

I-21 Horizontal lines
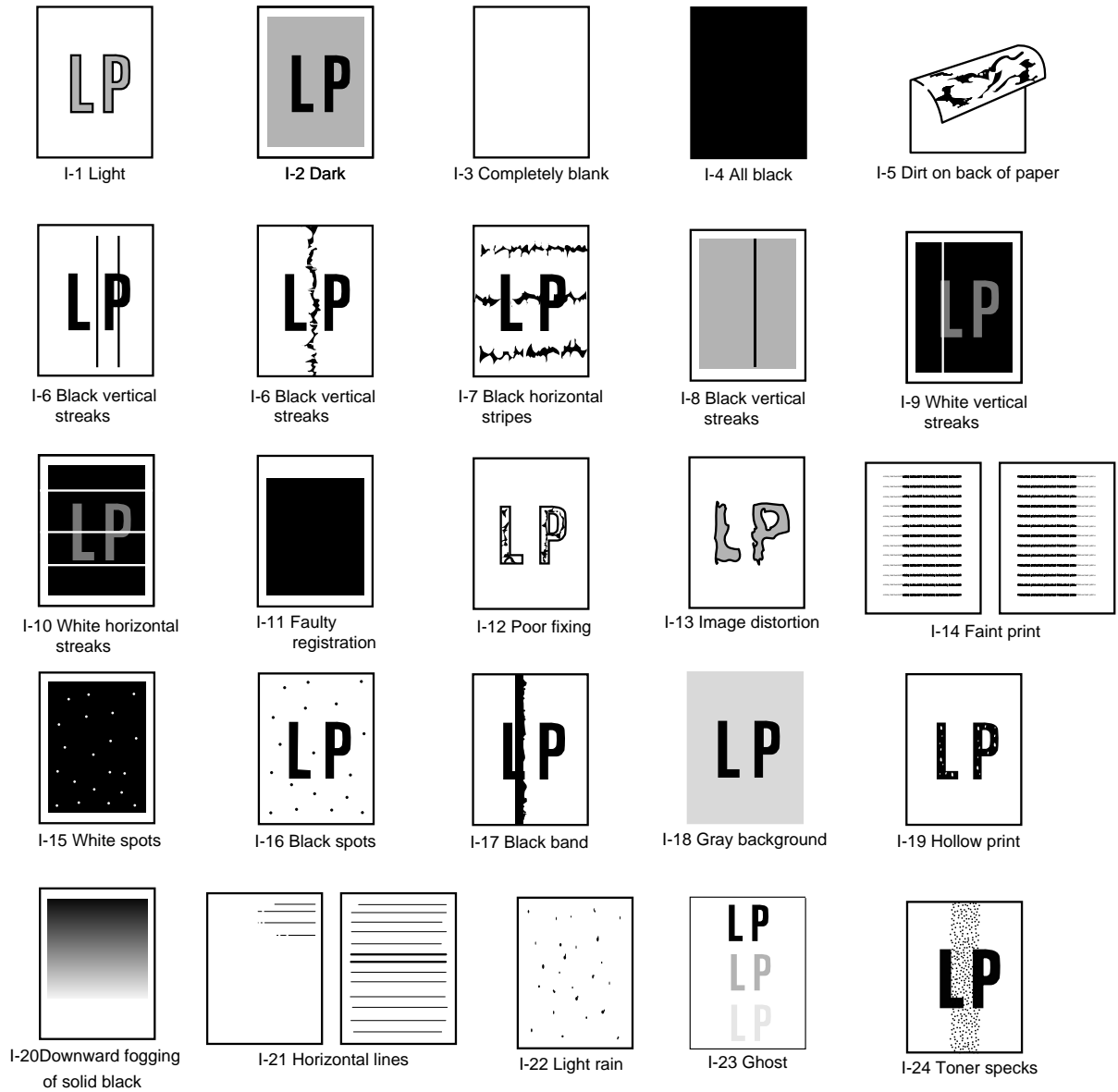
I-22 Light rain

I-23 Ghost

I-24 Toner specks

Fig. 6-5

7.2 Troubleshooting Image Defect

Several types of the image defects can be cleared by end users. For those defects, instruct the user to check the 'User Check' items described in each table. Even if the same image defect appears, the following procedures should be followed in the event of specific image defects.

See also Subsection 7.3 for information about the location of the grounding contacts.

🛈 CAUTION:

When using the printer for a special job, such as printing of name cards, print quality cannot be guaranteed.

| I-1	Light
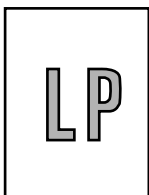
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✔ User Check

(1) Check the printer's environment. Conditions such as humidity, high temperatures, etc. may cause this situation to occur.

(2) If the whole page is light, toner save mode may be on. Disable toner save mode within Printer Properties tab of the driver.

(3) Try installing a new toner cartridge or drum unit.

Possible cause	Step	Check	Result	Remedy	Ground contacts
Toner sensing failure (printer side)	1	Can printing be started with the drum unit and toner cartridge removed?	Yes	Check if the toner sensor is dirty and check the toner sensor connection.	
Toner sensing failure (toner cartridge side)	2	Is the problem solved when 4 or 5 pages are printed after the toner cartridge is replaced with a full one?	Yes	The wiper of the toner cartridge is defective. Replace the toner cartridge.	
Drum connection failure	3	Are all the contacts between the drum unit and printer body connected correctly?	No	Clean contact electrodes both on the drum unit and in the printer body.	①, ④, ⑤, ⑥
High-voltage power supply PCB failure	4	Is the harness connection between the high-voltage power supply PCB and the engine PCB correct?	Yes	Replace the high-voltage power supply PCB.	
Engine PCB / Main PCB failure	5	Is the harness connection between the engine PCB and the main PCB correct?	Yes	Replace the engine PCB or the main PCB.	
Dirt on the scanner window	6	Is there any dirt on the scanner window?	Yes	Wipe it off with a soft clean paper.	
Laser unit failure	7	Is the problem solved after replacing the laser unit?	Yes	Replace the laser unit.	

I-2	Dark
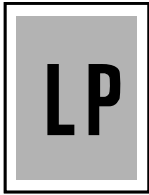
☑ User Check

(1) Check the paper used meets the recommended paper specifications.

(2) Check the printer's environment. High temperature and high humidity conditions can increase the amount of background shading.

(3) Clean the corona wire with the wire cleaner.

(4) Try installing a new toner cartridge or drum unit.

Possible cause	Step	Check	Result	Remedy	Ground contacts
Corona failure (contact failure)	1	Are the charge electrodes between the printer body and the drum unit dirty?	Yes	Clean both electrodes.	③
Drum unit failure	2	Is the problem solved after replacing the drum unit?	Yes	Replace the drum unit with a new one.	
Toner cartridge failure	3	Is the problem solved after replacing the toner cartridge?	Yes	Replace the toner cartridge with a new one.	
High-voltage power supply PCB failure	4	Is the connections of the connector between the high-voltage power supply PCB and the engine PCB secured correctly?	Yes	Replace the high-voltage power supply PCB.	
Main PCB failure	5	Are there any disconnected connectors?	No	Replace the main PCB.	
Engine PCB failure	6	Are there any disconnected connectors?	No	Replace the engine PCB.	

I-3	Completely blank

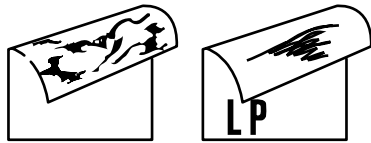| Possible cause	Step	Check	Result	Remedy	Ground contacts
Developing bias contact failure	1	Are the developing bias contacts between the printer body and drum unit dirty?	Yes	Clean the electrodes at both sides.	④
Drum unit	2	Are the drum shaft and drum electrode of the printer body connected correctly?	Yes	Clean the shaft and the electrode.	①
			No	Check the connection between the shaft and the electrode.	①
Drum unit failure	3	Is the problem solved after replacing the drum unit?	Yes	Replace the drum unit.	
Toner cartridge failure	4	Is the problem solved after replacing the toner cartridge?	Yes	Replace the toner cartridge with a new one.	
Scanner harness connection failure	5	Is the scanner harness connected securely? (Check if there is any play in the connection.)	No	Reconnect the connector correctly.	
Main PCB failure	6	Are printing signals being input to the laser unit? Is the problem solved after replacing the main PCB?	Yes	Replace the main PCB.	
Laser unit failure	7	Is the scanner interlock lever damaged? Is the scanner mirror broken or loose?	Yes	Replace the laser unit.	
			No	Replace the high-voltage power supply PCB.	

I-4	All black
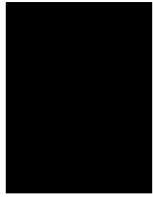
User Check

(1) Clean the corona wire of the drum unit.

(2) The drum unit may be damaged. Install a new drum unit.

Possible cause	Step	Check	Result	Remedy	Ground contacts
Corona failure	1	Is the corona wire dirty?	Yes	Clean the corona wire with the wire cleaner.	②
	2	Is the corona wire broken?	Yes	Replace the drum unit.	
	3	Are the charge electrodes between the printer body and the drum unit dirty?	Yes	Clean both electrodes.	③
Harness connection	4	Is the laser unit connected to the main PCB correctly?	No	Connect the harness between the laser unit and the main PCB correctly.	
High-voltage power supply PCB failure	5	Is the problem solved after replacing the high-voltage power supply PCB?	Yes	Replace the high-voltage power supply PCB.	
Main PCB failure	6	Is the problem solved after replacing the main PCB?	Yes	Replace the main PCB.	

I-5	Dirt on the back of paper

Possible cause	Step	Check	Result	Remedy
Fixing unit dirty	1	Is the pressure roller dirty? Is any other area in the printer dirty?	Yes	Clean the pressure roller referring to the following procedure.
Dirt in the drum unit	2	Is the transfer roller dirty? Is the problem solved after replacing the drum unit?	Yes	Replace the drum unit
			No	Replace the high-voltage power supply PCB.

NOTE:

- *This problem may disappear after printing approximately 10 pages of completely blank sheets.*

- *The dirt on the back of paper as shown at the right is caused by toner on the star wheel hooks in the fixing unit. This problem may disappear after printing a few pages.*
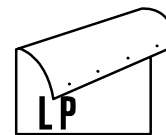

Fig. 6-6

How to clean the pressure roller

Clean the pressure roller as follows;

(1) Set three or more sheets of paper in the paper cassette.

(2) Open the front cover, and turn on the power switch while holding down the control panel button.

(3) Release the panel button when the Drum LED is on.

(4) Close the front cover.

(5) Hold down the panel button until the Ready LED is on, then release the button. Three patterns; grid, zip and solid black are printed.

(6) Turn off the power switch with the front cover closed.

(7) Set paper in the manual feed slot with the solid black side down.

(8) Turn on the power switch while holding down the control panel button.

(9) Release the panel button when the Drum LED is on.

(10) Press the panel button again and release it immediately. A page of test pattern is printed while cleaning the pressure roller.

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I-6	Black and blurred vertical streaks
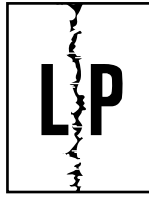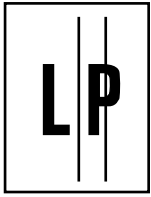
✔ User Check

(1) Clean the corona wire in the drum unit.

(2) Check that the corona wire is at the home position.

(3) Check that the toner cartridge is not empty.

(4) The drum unit may be damaged. Install a new drum unit.

(5) The toner cartridge may be damaged. Install a new toner cartridge.

Possible cause	Step	Check	Result	Remedy
Corona failure	1	Is the vertical block streak about 10mm wide? (Check if the wire cleaner is at its home position.)	Yes	Return the wire cleaner to its home position.
Dirt in the paper feed system	2	Is the paper cassette or feed system on the drum unit dirty with toner?	Yes	Clean the toner off.
Scratch on the drum	3	Is the drum surface scratched?	Yes	Replace the drum unit.
Cleaning failure	4	Is the drum surface dirty with toner in streaks?	Yes	Replace the drum unit.
Scratch on the heat roller	5	Is the surface of the heat roller scratched?	Yes	Replace the fixing unit.

NOTE:

- *If you print the same pattern continuously, the drum will be worn and black vertical streaks will appear on the paper.*
- *This problem may occur with <u>noise</u> due to the corona wire dirty. In that case, clean the corona wire with the wire cleaner.*

I-7	Black and blurred horizontal stripes

✓ User Check

(1) The drum unit may be damaged. Install a new drum unit.

(2) Check the paper used meets the recommended paper specifications.

(3) Clean the printer interior and the corona wire in the drum unit.

Possible cause	Step	Check	Result	Remedy	Ground contacts
Scratch on the drum	1	Are the horizontal stripes at 94mm (photosensitive drum) intervals?	Yes	The photosensitive drum was scratched. Replace the drum unit.	
Toner stuck on the developer roller	2	Are the horizontal stripes at 39mm (developer roller) intervals?	Yes	After printing several pages, the problem will disappear. If not, replace the toner cartridge.	
Scratch on the heat roller	3	Are the horizontal stripes at 79mm (heat roller) intervals?	Yes	Replace the heat roller.	
Corona contact failure	4	Are the charge electrodes between the printer body and the drum unit dirty?	Yes	Clean both electrodes.	③
High-voltage power supply PCB failure	5	Is the problem solved after replacing the high-voltage power supply PCB?	Yes	Replace the high-voltage power supply PCB.	

I-8	Black vertical streaks (in a gray background)
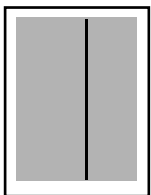
Possible cause	Step	Check	Result	Remedy	Ground contacts
Translucent stain on the scanner window	1	Is there any dirt on the scanner window?	Yes	1) Clean the scanner window. 2) If it is not effective, replace the laser unit.	
Corona failure	2	Is the corona wire dirty?	Yes	Clean the corona wire with the wire cleaner.	②

| I-9	White vertical streaks

✔ User Check

(1) Try to wipe the scanner window with a soft cloth.

(2) The toner cartridge may be damaged. Install a new toner cartridge.

(3) Check the printer's environment. High temperature and high humidity conditions can cause this problem.

(4) Damp (wet) paper might be used. Try to change to freshly unpacked paper.

Possible cause	Step	Check	Result	Remedy
Transfer failure	1	Is the transfer roller scratched?	Yes	Replace the drum unit.
Condensation	2	Has condensation occurred inside the printer?	Yes	Try to print several pages or leave the printer 2 hours to allow it to reach room temperature.

| I-10	White horizontal stripes
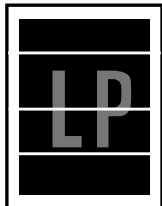
✔ User Check

(1) Check the paper used meets the recommended paper specifications. A rough surfaced paper, damp paper or thick media can cause the problem.

(2) Check that the appropriate media type is selected in the printer driver.

(3) The problem may disappear by itself. Try printing multiple pages to clear this problem especially if the printer has not been used for a long time.
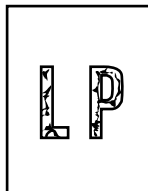
(4) The drum unit may be damaged. Install a new drum unit.

Possible cause	Step	Check	Result	Remedy	Ground contacts
Developing bias contact failure	1	Are the developing bias contacts between the printer body and toner cartridge dirty?	Yes	Clean the electrodes at both sides.	④

| I-11	Faulty registration
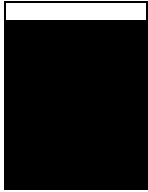
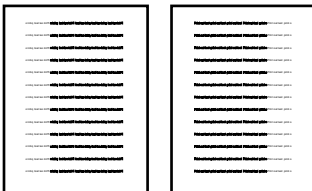| Possible cause	Step	Check	Result	Remedy
Excessive paper load	1	Is the paper loaded in the paper cassette more than 27mm high?	Yes	Instruct the user to keep paper loads below 27mm in depth.
Print paper	2	Is the specified weight of the recommended paper being used?	No	Recommend to use the specified types of paper.
	3	Is the first printing position within ±1mm of the tolerance specification?	Yes	Adjust the Y offset by using the utility software supplied.
Rear resist sensor position incorrect	4	Is the position of the rear registration sensor normal?	No	Reposition the sensor to the correct position.

I-12	Poor fixing

Possible cause	Step	Check	Result	Remedy
Print paper	1	Is thick paper of more than 43lb being used?	Yes	Recommend to use the specified types of paper.
Toner sensing failure (When printing is faint.)	2	Is the problem solved by replacing the drum unit or the toner cartridge?	Yes	1) Toner is empty. 2) The toner sensing is defective. Clean the toner sensor. 3) If the wiper in the toner cartridge is broken, replace the toner cartridge with a new one.
Thermistor failure	3	Is the thermistor fitted correctly?	No	Fit the thermistor correctly.
Low-voltage power supply PCB failure	4	Is the problem solved by replacing the low-voltage power supply PCB?	Yes	Replace the low-voltage power supply PCB.

| I-13	Image distortion
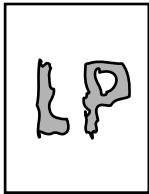
Possible cause	Step	Check	Result	Remedy
Laser unit installation	1	Is the laser unit secured to the frame incorrectly? (Check if there is any play.)	Yes	Secure the unit correctly and tighten the screws.
Scanner LD emission failure Scanner motor rotation failure	2	Is the laser diode or the scanner motor defective?	Yes	Replace the laser unit.
Scanner connection failure	3	Is the scanner harness connected properly? (Check if it is coming loose.)	No	Connect the harness correctly.

I-14	Faint print

Possible cause	Step	Check	Result	Remedy
Printer installation	1	Is the printer placed horizontally?	No	Place the printer on a flat surface.
Toner cartridge	2	Does the problem happened immediately after replacing the toner cartridge with a new one?	Yes	Remove and carefully shake the toner cartridge horizontally.
Scanner window dirty	3	Is the scanner window dirty?	Yes	Clean the scanner window with a soft dry cloth.
Laser unit failure	4	Is the problem solved by replacing the laser unit?	Yes	Replace the laser unit.

I-15	White spots
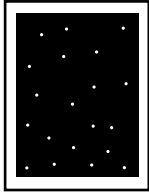
☑ User Check

(1) If the problem is not solved after printing a few pages, the drum unit may have glue from label stock on the photosensitive drum surface. Refer to Step 1 in the table below and NOTE in the next page.

(2) The drum unit may be damaged. Install a new drum unit.

Possible cause	Step	Check	Result	Remedy
Drum unit failure	1	Are the white spot at 94mm intervals?	Yes	1) If toner or glue remains stuck, wipe it off gently with a cotton swab. (Refer to NOTE in the next page.) 2) If the drum surface is scratched, replace the drum unit.
Drum unit failure	2	Is the problem solved after replacing the drum unit?	Yes	Replace the drum unit.
No toner	3	Is the toner in the toner cartridge almost empty?	Yes	Replace the toner cartridge with a new one.
Print paper	4	Is the problem solved after changing to specified freshly unpacked paper?	Yes	Damp (wet) paper might be used. Recommend to change freshly unpacked paper.
Environment	5	Does the problem still appear after the printer has warmed up?	Yes	1) Replace the drum unit. 2) Advise the user of the specified print environment.

NOTE:

Clean the drum unit as follows:

(1) Remove the toner cartridge from the drum unit Place the printing samples in front of the drum unit, and find the exact position of the image defect.
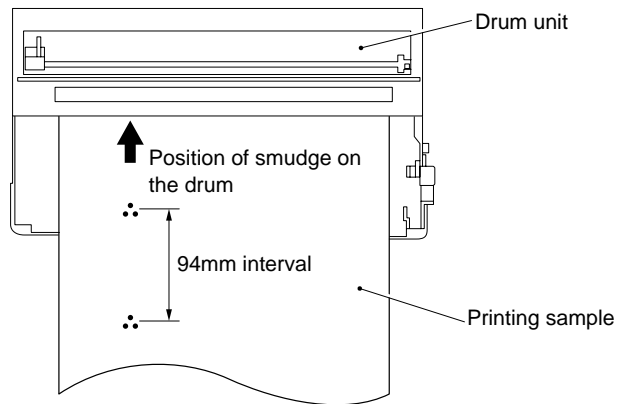

Fig. 6-7

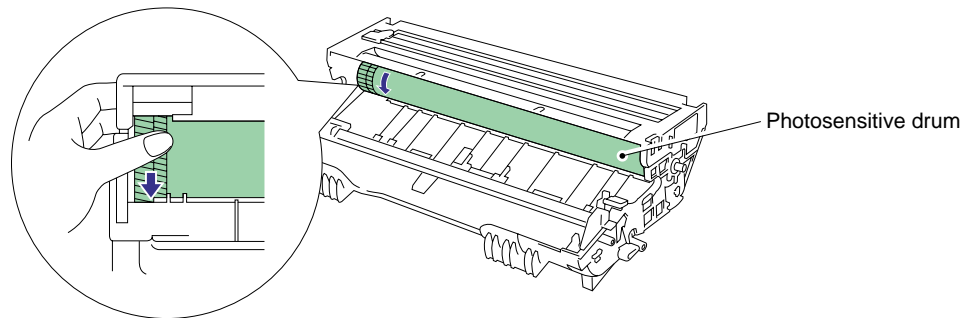*(2) Turn the drum gear by hand while looking at the surface of the photosensitive drum.*

Fig. 6-8

(3) Wipe the surface of the photosensitive drum with a cotton swab until the dust or paper powder on the surface comes off.
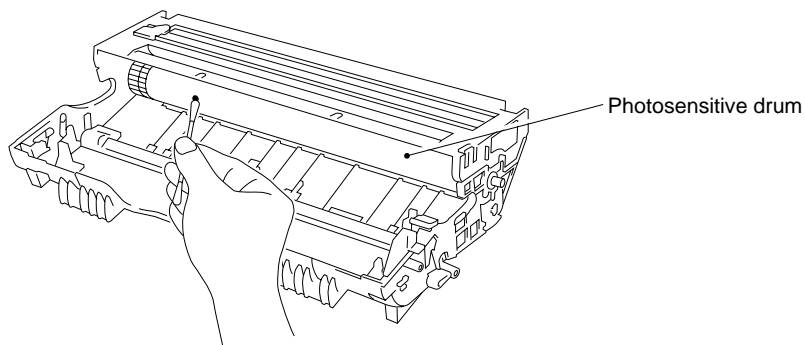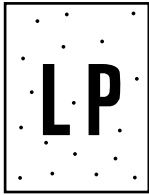

Fig. 6-9

🔔 *CAUTION:*

- *Do not wipe the surface of the photosensitive drum with something sharp. (ball-point pen etc.)*
- *Use the cleaning liquid which is a 50-50 mixture of ethyl alcohol and pure water.*

I-16	Black spots

✔ User Check

(1) If the problem is not solved after printing a few pages, the drum unit may have glue from label stock on the photosensitive drum surface. Refer to Step 1 in the table below and NOTE in the previous page.

(2) The drum unit may be damaged. Install a new drum unit.

Possible cause	Step	Check	Result	Remedy
Drum unit	1	Are the spots at 94mm intervals? (The problem is not solved after printing a few pages.)	Yes	1) If toner or glue remains stuck, wipe it off gently with a cotton swab. (Refer to NOTE in the previous page.) 2) If the photosensitive drum is scratched or deteriorated (exposed), replace the drum unit.
Fixing unit	2	Are the spots at 79mm intervals? (The problem is not solved after printing a few pages.)	Yes	1) Check and clean the heat roller with a cloth dampened with alcohol. 2) Replace the fixing unit.
High-voltage power supply PCB failure	3	Is the problem solved after replacing the high-voltage power supply PCB?	Yes	Replace the high-voltage power supply PCB.

I-17	Black band
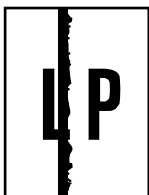
Possible cause	Step	Check	Result	Remedy	Ground contacts
Corona failure	1	Is the wire cleaner at its home position?	No	Return the wire cleaner to its home position.	②
Corona failure	2	Is the corona wire dirty?	Yes	1) Clean the corona wire. 2) If the problem still appears after cleaning, replace the drum unit.	②

I-18	Gray background

LP

Possible cause	Step	Check	Result	Remedy
Print paper	1	Does the paper being used meet the paper specification (weight, etc.).	No	Recommend to use the specified types of paper.
			Yes	Recommend to change to freshly unpacked paper.
Toner sensing failure (printer side)	2	Is Ready LED on even after removing the drum unit and toner cartridge?	Yes	Toner sensor failure. Clean the toner sensor and check the toner sensor connection.
Toner cartridge failure	3	Is the problem solved after replacing the toner cartridge?	Yes	Replace the toner cartridge.
Drum unit failure	4	Is the problem solved after replacing the drum unit?	Yes	Replace the drum unit.
			No	Replace the high-voltage power supply PCB.

NOTE:

The following cases increase the possibility of this problem.

- *Acid paper is being used.*
- *The drum unit is at the end of its life.*
- *There is dust or paper powder.*

I-19	Hollow print

LP

☑ **User Check**

(1) Check the paper used meets the recommended paper specifications.

(2) Select the 'Thick paper mode' in the printer driver, or use thinner paper than you are currently using.

(3) Check the printer's environment, conditions such as high humidity may cause this situation to occur.

Possible cause	Step	Check	Result	Remedy
Print paper	1	Is thick paper of more than 43lb being used or extremely rough surface paper?	Yes	Recommend to use the specified types of paper.
			No	Refer and compare with I-15.

| I-20	Downward fogging of solid black
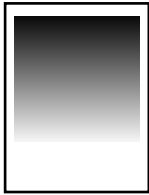
| Possible cause	Step	Check	Result	Remedy
Toner cartridge failure	1	Is the problem solved after replacing the toner cartridge?	Yes	Replace the toner cartridge.
High-voltage power supply PCB failure	2	Is the problem solved after replacing the high-voltage power supply PCB?	Yes	Replace the high-voltage power supply PCB.

I-21	Horizontal lines
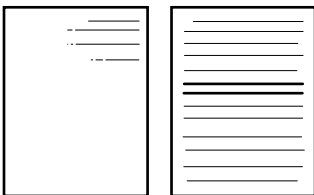
Possible cause	Step	Check	Result	Remedy	Ground contacts
Paper feed roller	1	Are the feed roller shaft and the ground contact connected correctly?	No	Check the connection between the shaft and the ground contact. Also check the ground contact on the back of the feed roller. Refer to P.4-24.	
Paper cassette contacts	2	Are the ground contacts on the back side of the paper cassette connecting correctly?	No	Clean the contacts.	⑦

I-22	Light rain
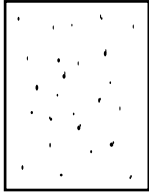
Possible cause	Step	Check	Result	Remedy
Drum unit failure	1	Is the problem solved after replacing the drum unit?	Yes	Replace the drum unit.
High-voltage power supply PCB failure	2	Is the problem solved after replacing the high-voltage power supply PCB?	Yes	Replace the high-voltage power supply PCB.

I-23	Ghost
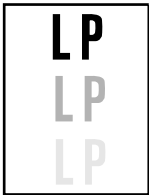
☑ User Check

(1) Check the paper used meets the recommended paper specifications. Damp paper, thick media or rough surfaced paper can cause the problem.

(2) Check the printer's environment. High temperature and high humidity conditions can cause the problem.

(3) Check that the appropriate media type is selected in the printer driver.

(4) Try installing a new drum unit.

Possible cause	Step	Check	Result	Remedy
Driver setting	1	Is thin paper such as 64g/m^2 used under the thick paper mode?	Yes	1) Change the current mode to the normal mode from the driver setting. 2) Print 5 or 6 blank pages if this problem occurs.
Drum unit failure	2	Is the problem solved after replacing the drum unit?	Yes	Replace the drum unit.
High-voltage power supply PCB failure	3	Is the problem solved after replacing the high-voltage power supply PCB?	Yes	Replace the high-voltage power supply PCB.

I-24	Toner specks
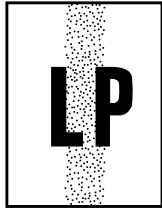
☑ User Check

(1) Check the paper used meets the recommended paper specifications. A rough surfaced paper may cause the problem.

(2) The toner cartridge may be damaged. Install a new toner cartridge.

(3) The drum unit may be damaged, or may be nearly at the end of life. Install a new drum unit.
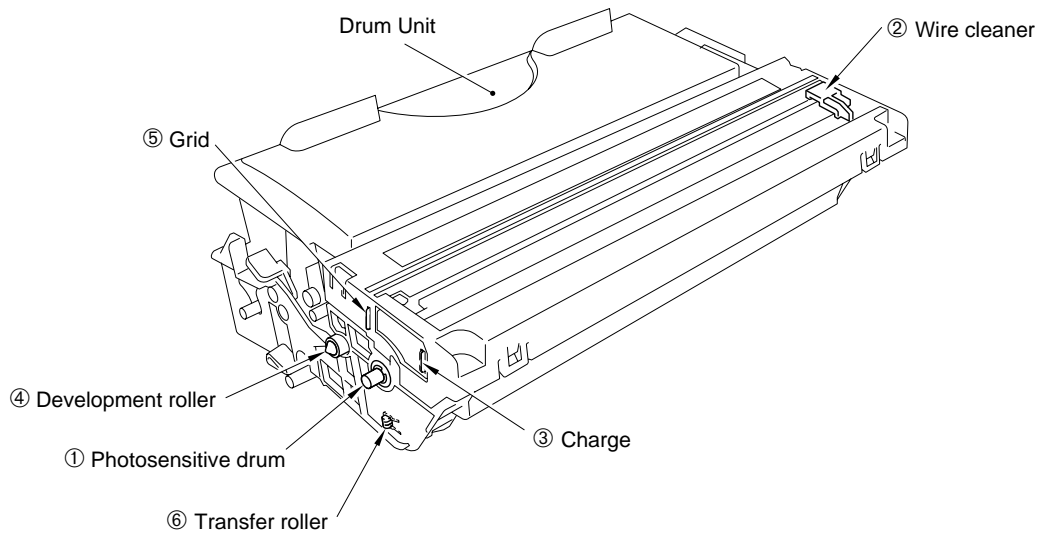
7.3 Location of Grounding Contacts

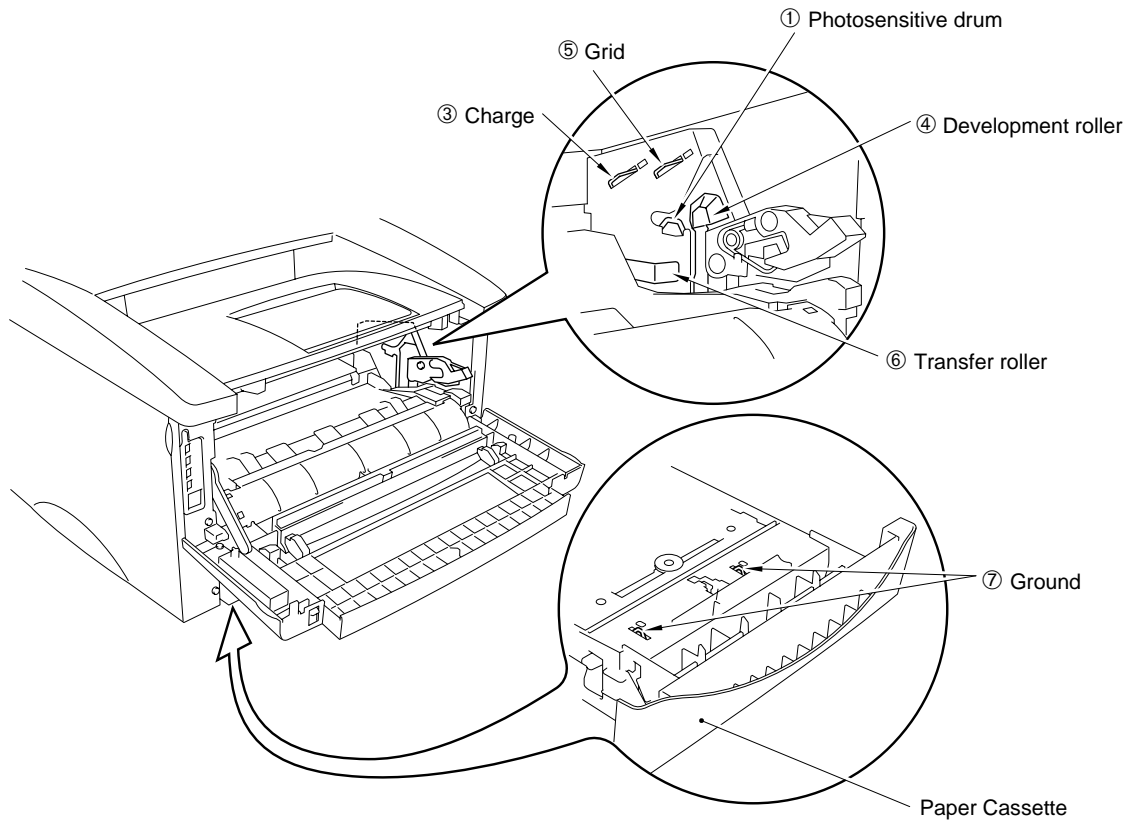### 7.3.1 Drum unit

Fig. 6-10

7.3.2 Printer body & Paper cassette

Fig. 6-11

8. INCORRECT PRINTOUT

When the data is not printed correctly as it is seen on the PC screen, follow the procedures below in the event of a specific error.

P-1	The printer prints unexpectedly or it prints garbage.

✔ User Check

(1) Check if the printer cable is not too long. It is recommended to use a parallel cable of less than 2 meters (6.6 feet) in length.

(2) Check that the printer cable is not damaged or broken. Check also that the printer cable is connected to the correct interface connectors of both the printer and PC.

(3) If an interface switching device is used, remove it and connect the computer directly to the printer and try again.

(4) Check that the appropriate printer driver is selected as 'Set as Default'. Check also that the correct print port is set for the selected printer driver.

(5) Check that the printer is not connected to the same port which is also connected to a mass storage device or scanner. Remove all other devices and connect the port to the printer only. Turn off the printer status monitor in the device options tab in the printer driver.

(6) If the print port is set as an ECP port, change it to a normal port.

(7) Try printing the test page referring to Subsection 9.1 'Test Print Mode' in this chapter.

(8) Try resetting the factory settings.

Possible cause	Step	Check	Result	Remedy
Failure inside the printer	1	Is it possible to print the test page with the method of Subsection 9.1 'Test Print Mode' in this chapter?	No	Identify the error type, then refer to the specified section of this chapter.
Main PCB failure	2	Is it possible to print with another PC, printer cable and RS-100M**?	No	Replace the main PCB.
RS-100M** failure	3	Is it possible to print with another PC and cable?	No	Replace the RS-100M.
			Yes	This problem may appear under the specified system environment. Check the environment which the user used.

**NOTE:

Take Step 2 when using the RS-100M or take Step 3 only when this problem appears while using the RS-100M.

NOTE:

If the printer prints garbage or incorrect fonts, instruct the user to use the 'Troubleshooting for Printer won't print' tool of the self-diagnostics tools. If the problem cannot solved, instruct user to use the 'Diagnostics' tool described in the Appendix so that you can get a log file to investigate the cause of the problem. For details on the self-diagnostics tools, see APPENDIX 5 'HOW TO USE SELF-DIAGNOSTICS TOOLS'.

P-2	Unable to print full pages of a document with the "PRINT OVERRUN" message.

☑ User Check

(1) Press the panel button to print the data remaining in the printer.

(2) If this does not clear the error, reduce the complexity of your document or reduce the printer resolution.

(3) Expand the printer memory by adding a commercially available SIMM. (HL-1250 only)

(4) Change the following setting in the printer driver and try again. The best combination of settings below will vary depending on your document. (HL-1250 only)

　　Graphic Mode / TrueType™ mode / Use Printer TrueType™ Fonts.

NOTE:

This problem may appear if the data is too complex. If it is not cleared by taking the actions above, it will be impossible to print such data under the printer specifications.

P-3	Unable to print full pages of a document with the "MEMORY FULL" message.

☑ User Check

(1) Press the panel button to print the data remaining in the printer.

(2) Reduce the complexity of your document or reduce the printer resolution.

(3) Expand the printer memory by adding a commercially available SIMM. (HL-1250 only)

NOTE:

This problem may appear if the data is too complex.

For the HL-1240 printer, if it is not cleared by taking the actions above, it will be impossible to print such data under the printer specifications.

For the HL-1250 printer, take the following procedures.

<For HL-1250 only>

Possible cause	Step	Check	Result	Remedy
Unable to recognize SIMM	1	Check the memory size in Print Configuration. Is it the default size?	Yes	Expand the memory size by adding SIMM. If the memory is already at the maximum size, it will be impossible to print the data under the printer specifications.
SIMM / main PCB failure	2	Try installing SIMM into another printer, then check the memory size in Print Configuration.	Yes	Replace the SIMM.
		Is it possible to print the data?	No	Replace the main PCB.

| P-4 | Headers or footers are not printed out even though they are viewed on PC screen. |

✔ User Check

Most laser printers have a restricted area that cannot be printed on. Usually the first two lines and last two lines of text cannot print (leaving 62 printable lines). Adjust the top and bottom margins in your document to allow for this.

| P-5 | The printer prints the first couple of pages correctly, then some pages have text missing. |

✔ User Check

(For connecting by RS-232C/422A on HL-1250 only)

A problem related to serial interface setting. The PC is not recognizing the printer's input buffer full signal. Causes could be incorrect serial cable (incorrectly wired or too long) or incorrect setting of the computer serial interface.

| P-6 | The printer sometimes prints a couple of characters and then ejects the page. |

✔ User Check

(For DOS environment only)

The application printer emulation setting and the printer's emulation do not match. Check in the application software which printer you have selected to make sure the printer is set up correctly. Remember that the printer emulates widely used printer selections:

    HL-1240: HP LaserJet IIP
    HL-1250: HP LaserJet 6P, Epson FX-850 IBM Proprinter XL

Try setting the printer into HP emulation and then select the HP LaserJet IIP (for HL-1240) or HP LaserJet 6P (for HL-1250) printer in the application software.

9. INSPECTION MODE

9.1 Test Print Mode

The printer incorporates various test print modes.

Select the test mode you want to use following the steps below;

(1) Turn off the power switch of the printer and check that the front cover is closed.

(2) Turn on the power switch while holding down the control panel button. Press the button until the Drum LED comes on.

The Drum LED illuminates to indicate that the printer enters into the test print mode.

(3) If you want to execute the test print, release and then press the button again when the Drum LED comes on.

If you want to execute another option, hold down the button to select it as shown in the table below. Release and then press the button to execute the selected option.

LED	Type of mode	Function
Drum	Test Sample Page	The printer prints a test sample page. The printer returns to the ready status after printing.
Ready	Print Configuration & Print Fonts I	The printer prints the current configuration of the printer and a list of the internal fonts. The printer returns to the ready status after printing.
Alarm	Factory Reset	The printer is restored to the factory setting and permanent fonts and macros are cleared. The printer returns to the ready status after printing.
Data	Hex Dump Print	The printer can print data as hexadecimal values so that you can check data errors and problems. To exit from this mode, you have to turn off the printer.

For the demo printer

Once you have sent any data from a PC to a demo printer to print, the demo printer turns into a normal printer. Follow the procedure below to return it to being a demo printer

(1) Turn off the power switch of the printer and check that the front cover is closed.

(2) Turn on the power switch while holding down the control panel button until the Drum LED comes on.

(3) Release the panel button.

(4) Press the button until all the LEDs have come on from top to bottom and then the <u>Drum LED comes on a second time</u>.

(5) Release the button, then demo page printing starts.

NOTE:

The above operation is effective for the demo printer only. If you implement the operation for the normal printer, no demo page is printed.

9.2 Inspection Mode

The printer incorporates various inspection modes such as the factory inspection mode and the test print mode.

The printer supports a factory inspection mode, continuous grid pattern print mode, 3 patterns print mode and NV-RAM value dump mode.

Select the inspection mode you want to use following the steps below;

(1) Turn off the power switch of the printer

(2) Open the front cover, and turn on the power switch while holding down the control panel button.

(3) When the printer enters into the inspection mode, the Drum LED is ON. Holding down the panel button will cause the LEDs to turn ON in the order Drum → Ready → Alarm → Data → Drum. When you release the button, a mode is selected.

The mode selected is indicated by the LED which is ON when you release the button.

The inspection modes are assigned to the respective LEDs as shown below;

LED	Type of inspection
Drum	Factory inspection mode
Ready	Continuous grid pattern print mode
Alarm	3 patterns print mode (grid, zip, black)
Data	NV-RAM value dump mode**
Drum + Ready	ROM code reprogramming mode (only when flash memory is fitted)
Ready + Alarm	RAM check
Alarm + Data	4% density pattern print mode

**NOTE:

The NV-RAM value dump mode is not incorporated in the US model.

Factory inspection mode

The factory inspection mode is used to check if the sensors in the printer are functioning correctly. In the process of this inspection, the LEDs and the control panel button are also checked.

On entering this mode, the LEDs show the status of the respective sensors as shown in the figure below;
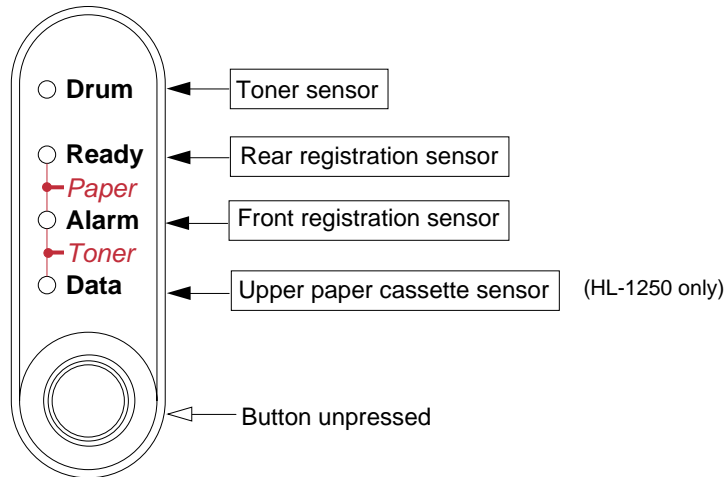
Fig. 6-12

Toner sensor	ON (The toner cartridge is installed.)	Drum LED ON
	OFF (No toner cartridge is installed.)	Drum LED OFF
Rear registration sensor	ON (Paper is detected.)	Ready LED ON
	OFF (No paper is detected.)	Ready LED OFF
Front registration sensor	ON (Paper is detected.)	Alarm LED ON
	OFF (No paper is detected.)	Alarm LED OFF
Upper paper cassette sensor (HL-1250 only)	ON (No paper cassette is installed.)	Data LED ON
	OFF (The paper cassette is installed.)	Data LED OFF

For checking more sensors, press the panel button. The LEDs show the status of the respective sensors as shown in the figure below.
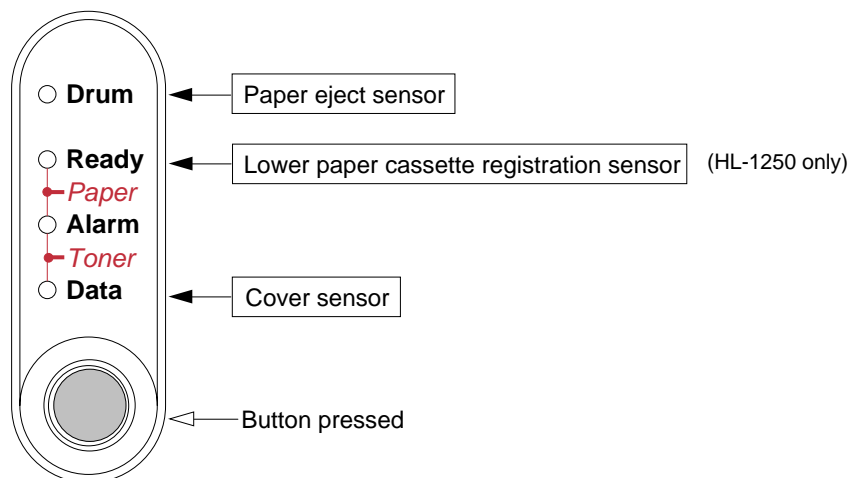
Fig. 6-13

Paper eject sensor	ON (Paper is detected.)	Drum LED ON
	OFF (No paper is detected.)	Drum LED OFF
Lower paper cassette registration sensor (HL-1250 only)	ON (No lower paper cassette is installed. / Paper is detected.)	Ready LED ON
	OFF (The lower paper cassette is installed. / No paper is detected.)	Ready LED OFF
Cover sensor	ON (The front cover is closed.)	Data LED OFF
	OFF (The front cover is open.)	Data LED ON

The procedure for the factory inspection mode is as follows.

(1) Turn off the printer power switch, open the front cover, and remove the drum unit.

(2) Turn on the printer power switch while holding down the control panel button. The Drum LED comes ON.

(3) Lightly press the panel button again.

(4) Check that all the LEDs except the Ready LED are OFF.
   ✏ If the toner sensor is ON, the Drum LED stays ON (error).
   ✏ If the front registration sensor is ON, the Alarm LED stays ON (error).
   ✏ If the upper paper cassette sensor is ON, the Data LED stays ON. (error) (HL-1250 only)

NOTE:

The lower paper cassette solenoid is turned ON/OFF even if the panel button is not pressed.

(5) Check the rear registration sensor.
   ✏ If the rear registration sensor is stuck backwards, the Ready LED stays OFF. (error)
   ✏ If the rear registration sensor is moved back and forth, the Ready LED comes ON at any time. (error)

(6) Check that only the Data LED comes ON while pressing the panel button.
   ✏ If the paper eject sensor is ON, the Drum LED stays ON. (error)
   ✏ If the lower paper cassette registration sensor is ON, the Ready LED stays ON. (error) If the registration sensor is ON, the lower paper cassette solenoid is turned ON, and the Ready LED also stays ON. (HL-1250 only)

NOTE:

The lower paper cassette solenoid is turned ON/OFF even if the panel button is not pressed.

(7) Install the drum unit.
   ✏ Check that the Drum LED goes ON and the Ready LED goes OFF.

(8) Close the front cover.

(9) Continue to press the control panel button.
   ✏ Check that the Data LED stays OFF.

(10) Release the panel button.

(11) If all the sensors except the toner sensor are correct, the printer goes back to the Ready status.
   If any error is detected, the printer stays in the inspection mode.

NOTE:

If the printer goes back to the Ready status after the toner sensor does not detect the drum unit, the printer starts to recognize the main motor.

APPENDIX   1. SERIAL NO. DESCRIPTIONS

The descriptions below show how to understand the meanings of the numbers printed on the labels or bag of the printer and printer parts.

< ID for production month >

A:	January	B:	February	C:	March	D:	April
E:	May	F:	June	G:	July	H:	August
J:	September	K:	October	L:	November	M:	December

< ID for factory >

9:	Kariya Plant	A:	Mie Brother	C:	BIUK
J:	Buji Nan Ling Factory				

(1)   Printer ....printed on the label attached on the rear of the main body

<MODEL NO.>   < SERIAL NO. >

X X X X X G 9 J 1 1 1 1 0 1

SEQUENTIAL NO.
FACTORY ID NO.
YEAR
MONTH
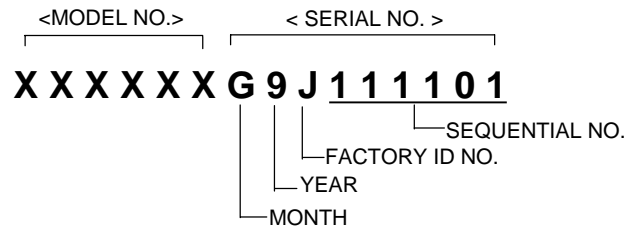
(2)   Process unit ....imprinted on the aluminum bag
(Drum unit with toner cartridge)

9 F 3 0   J

YEAR
MONTH
DATE
FACTORY ID NO.
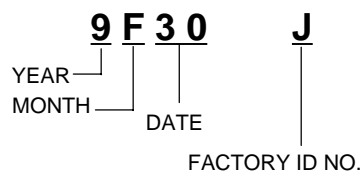
(3)   Drum unit ....printed on the bar code label attached inside the drum unit

F 9 9 1 0 0 1 0 4

MONTH
YEAR
SERIAL NO.
FACTORY ID NO.
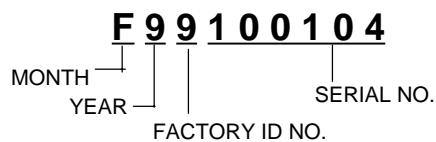
(4) Toner cartridge......imprinted on the aluminum bag

9 F 3 0   J

YEAR ─┐
MONTH ─┘   DATE

FACTORY ID NO.
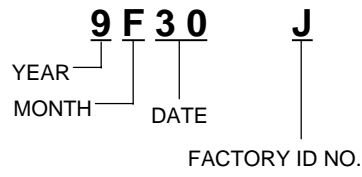
.........printed on the bar code label attached on the toner cartridge

TONER LOT NO.   **E 9 0 0 1 0 2**

MONTH ─┐
YEAR ─┘

SERIAL NO.

CARTRIDGE
PRODUCTION INFO.   **F 9 9 6 0 0 1 9 9**

MONTH ─┐
YEAR ─┘

FACTORY ID NO.

SERIAL NO.
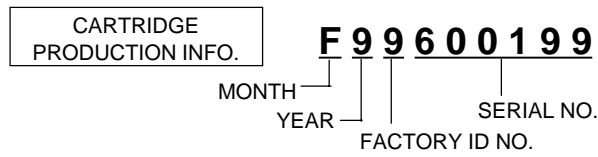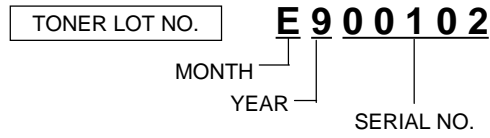
(5) Laser unit ....on the laser unit

2 1 0 0 1

DATE NO.

ID NO. 1: HL-1240/1250

FACTORY ID NO. 2: Buji Nan Ling Factory
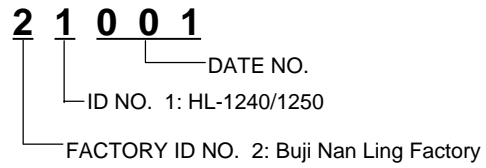
APPENDIX   2. DIAMETER / CIRCUMFERENCE OF ROLLERS

The diameter and circumference of each roller are listed below;

No.	Parts Name	Diameter (Circumference)
1	Paper Feed Roller	ϕ 14.0 mm (44.0 mm)
2	Transfer Roller	ϕ 15.20 mm (47.7 mm)
3	Photosensitive Drum	ϕ 29.97 mm (94.1 mm)
4	Heat Roller	ϕ 25.0 mm (78.5 mm)
5	Pressure Roller	ϕ 20.0 mm (62.8 mm)

APPENDIX   3. PRINT SPEEDS WITH VARIOUS SETTINGS

Print speed is up to <u>12 ppm</u> when loading A4 or Letter size paper from the paper cassette in the Regular mode.

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

<A4 or Letter size>

Media type setting	All models
Transparency	up to 12 ppm
Thin Paper	up to 12 ppm
Regular	up to 12 ppm
Thick Paper	up to 12 ppm
Thicker/Bond Paper	A4: 3 ppm / Letter: 3 ppm or more

<Smaller size than A4 or Letter>

Media type setting	HL-1240 demo model	HL-1240/1250 standard model
Transparency	6 ppm after 5 min. have passed.	Max. speed
Thin Paper	6 ppm after 5 min. have passed.	Max. speed
Regular	6 ppm after 5 min. have passed.	12 ppm after 5 min. have passed.
Thick Paper	6 ppm after 30 sec. have passed.	6 ppm after 30 sec. have passed.
Thicker/Bond Paper	A6: 3.75 ppm	A6: 3.75 ppm

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 12 ppm or more. It varies depending on the paper size.*

APPENDIX 4. HOW TO KNOW DRUM UNIT LIFE & PAGE COUNTER

If you want to know the drum unit life or the number of printed pages, you should print out the Print Configuration page.

NOTE:

The page counter, drum counter and drum unit life bar are NOT printed on the Print Configuration page for some models. *For those models, use the Printer Information tool which indicates the page counter, etc. on the PC screen, referring to Section 3 'Printer Information' in APPENDIX 5.*

1. Print Configuration

(1) Turn on the power switch of the printer while pressing the printer control panel button.

(2) Release the panel button when the Drum LED comes on.

(3) Press the panel button again and release it when the Ready LED comes on.

(4) Print the Print Configuration page.

The page counter and drum counter are printed at the right upper in Print Configuration. (Refer to the figure below.) Note that he drum counter is an actual page counter after a new drum unit is replaced, and may be different from the drum unit life shown in the drum life bar. For details, see Section 2 'How to Read the Drum Unit Life'.

<Sample - HL-1240 for Europe>

Fig. A-1

NOTE:

The descriptions printed in Print Configuration vary depending on the printer models or countries.

2. How to Read the Drum Unit Life

The drum unit life is shown by the bar at the bottom of Print Configuration as follows;

- It initially indicates 100% and gradually decreases.

- It indicates 0% when the Drum LED is on.

- It stays at 0% even if further printing is done.
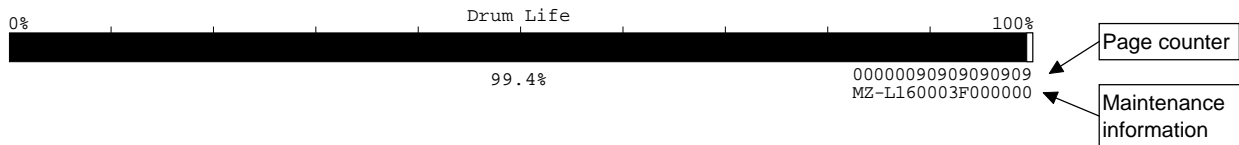
Fig. A-2

The drum unit life is based on the page counter. If the average number of drum rotations is more than the number of drum rotations in non-continuous printing, however, the drum unit life is counted by the number of drum rotations.

Since the drum counter printed in Print Configuration is an actual page counter after a new drum unit is replaced, the drum unit life may be different from the drum counter.

For details on the difference between the drum unit life and drum counter, refer to the drum unit life calculation below;

<How to calculate drum unit life>

**Printing time for 1 page/job in discontinuous printing = 14 seconds

(Page counter reduced the number of drum rotation) = (Time of motor rotation) ÷ (14 sec.)

Example:

	Cold start (Idling for 6 sec.)	Hot start	Page counter
1 page/job	(6 + 14) / 14 = 1.43	14 / 14 = 1	1
2 pages/job	(6 + 14 + 5) / 14 = 1.79	(14 + 5) / 14 = 1.36	2
16 pages/job	(6 + 14 + 5 x 15) / 14 = 6.79	(14 + 5 x 15) / 14 = 6.36	16

If printing 1 page per job with cold start, the drum unit life is decreased earlier.

NOTE:

For the numbers at the right below of the bar, see the following sections, '3. How to Read the Page Counter' and '4. How to Read the Maintenance Information'.

3.   How to Read the Page Counter

The page counter is shown at the right upper in Print Configuration.

It is also shown in the upper line on the right below the drum life bar and indicates the number of the printed pages in units of 1 and 1,000.

- Value in units of 1

The hexadecimal value stored in NV-RAM is printed.

Example: 000000E0D0D0D0D0D

Value in units of 1,000
(Refer to the list below.)   → 0 00 00 0E 0D 0D 0D 0D 0D

60,000 x 0 + 600 x 0 + 14 + 13 + 13 + 13 + 13 + 13 = 79
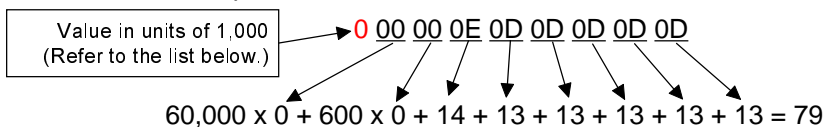
- Value in units of 1,000

Page counter indicated by units of 1,000 pages.

→ 0 - 99 pages	0	600 - 699 pages	6
100 - 199 pages	1	700 - 799 pages	7
200 - 299 pages	2	800 - 899 pages	8
300 - 399 pages	3	900 - 999 pages	9
400 - 499 pages	4	1,000 - 1,999 pages	A
500 - 599 pages	5	2,000 - 2,999 pages	B

4. How to Read the Maintenance Information

The maintenance information such as the frequency of consumable parts replacement or paper jam is known from the 17-digit numbers shown in the lower line on the right below the drum unit life bar.

NOTE:

The 17-digit numbers is also shown in the Printer Information dialog box which is one of the self-diagnostics tools. For details, refer to Section 3 'Printer Information' in APPENDIX 5.

To obtain the maintenance information, you need to implement the Maintenance Information utility which supplied on Service Databank by following the steps below;

1) Download the Maintenance Information utility from the Printer Utility DB in Service Databank.

2) Open the utility, then select 'Decode the 4-byte data' in the menu.
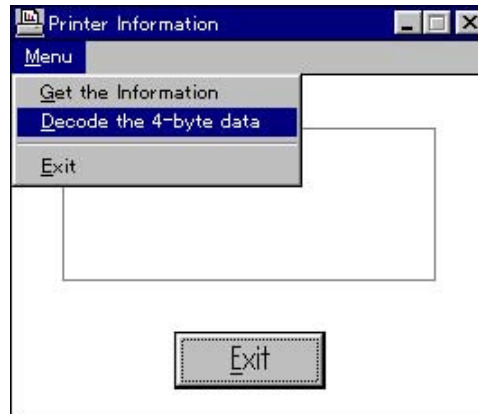
Fig. A-3

3) Enter the 8-digit numbers of the 17-digit.

4) Click the **OK** button.
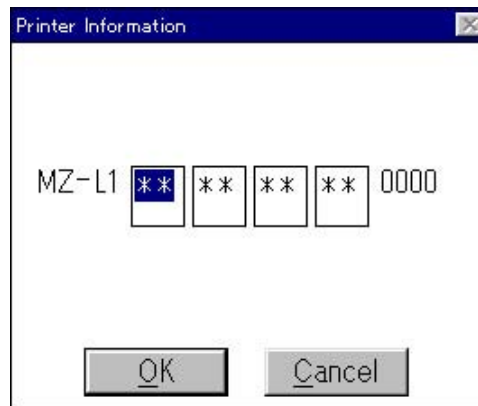
Fig. A-4

5) The dialog box shown at the right will appear and show the frequencies of drum unit change, toner cartridge change and paper jam.
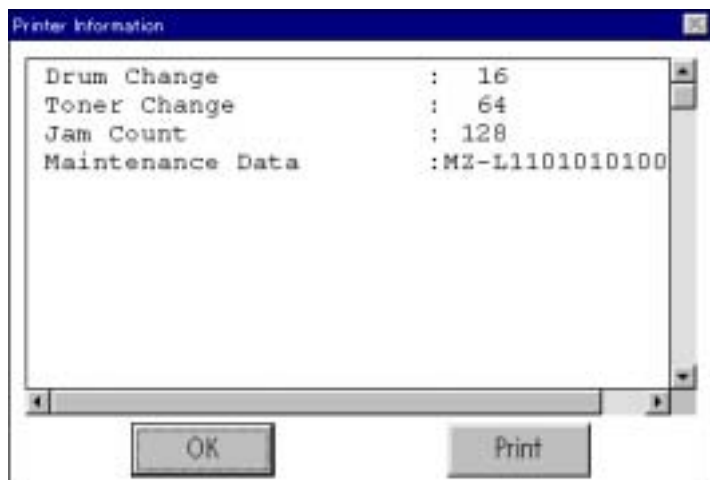
Fig. A-5

If the printer is connected to a parallel port, you can take the following steps;

1) *Open the Maintenance Information utility, then select 'Get the Information' in the menu.*
2) *Select the LPT port you are using and click the **OK** button.*

Fig. A-6

3) *Click the **Exit** button.*
4) *The dialog box will appear and show the frequencies of drum unit change, toner cartridge change and paper jam.*

Fig. A-7

Note that each maintenance information is counted under the conditions below;

Information	Conditions
Drum unit change	When drum unit life is 100 pages or more, and the drum counter is reset. (Maximum counter: 63)
Toner cartridge change	When the toner cartridge is replaced after a Toner Empty error is stored in NVRAM, then warming-up completes without a Toner Empty or Toner Low error being detected. (Maximum counter: 127)
Paper jam	When a paper jam occurs. (Maximum counter: 2047)

APPENDIX   5. HOW TO USE THE SELF-DIAGNOSTICS TOOLS

Three self-diagnostics tools below are automatically installed when the printer driver is installed;

1) Troubleshooting for Printer won't print
2) Diagnostics
3) Printer Information

The following sections describe the details on each tool.

1.   Troubleshooting for Printer won't print

This tool instructs you how to clear the problem such as 'The printer can't print' or 'The printer prints garbage or incorrect fonts'.

1) When you start the program, the Help dialog box shown below appears.
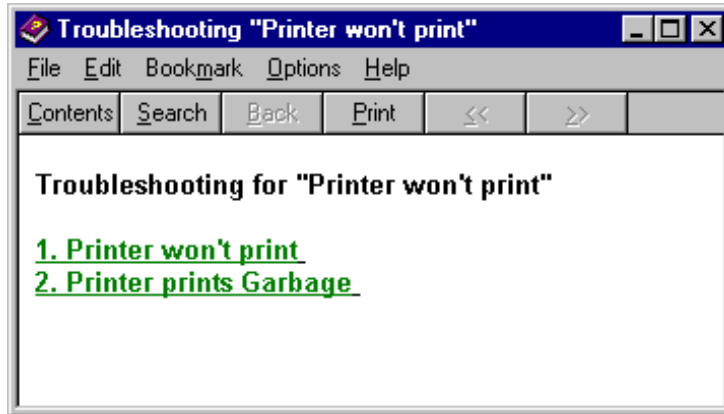
Fig. A-8

2) Select the problem you have had, then the specified window appears.
3) Follow the instructions that appear on the PC screen.

If the problem cannot be solved, start the "Diagnostics" tool to create a log file which should be sent to the authorized service center to investigate the cause of problem. For the details on the "Diagnostics" tool, see the following section, '2. Diagnostics'.

2. Diagnostics

This tool helps you to report your PC environment to investigate the cause of problem such as 'Printer won't print' or 'Printer prints garbage or incorrect fonts'. Before using this tool, however, you have to check if you can clear the problem using the 'Troubleshooting for printer won't print' tool described in the previous section.

1) When you start the program, the dialog box shown below appears. Follow the steps described in the box, then click the **OK** button.
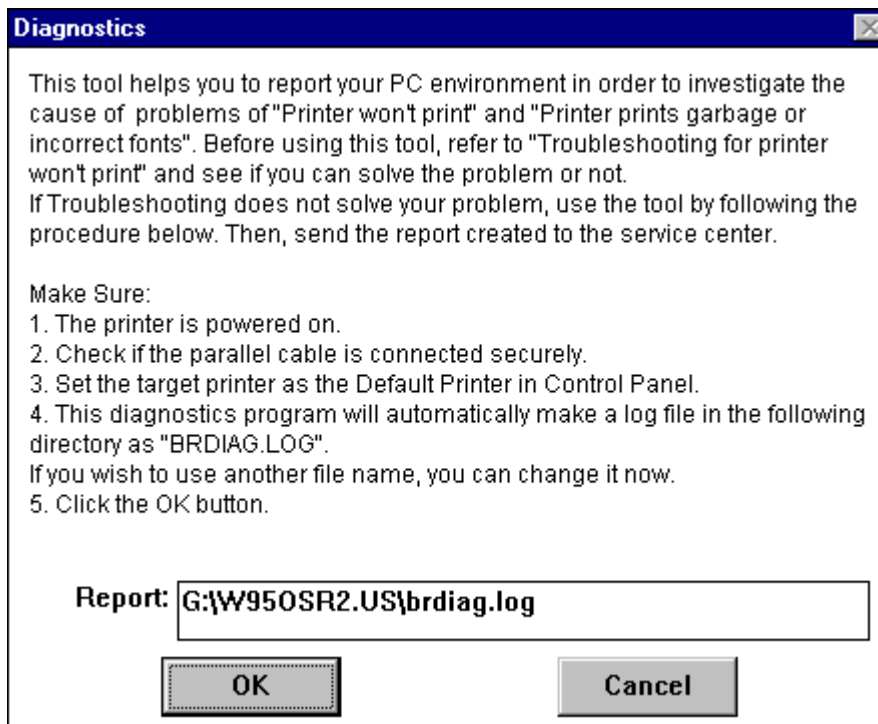
Fig. A-9

2) The message below appears, click the **OK** button if you want to check whether there is any incorrect data or not. If you do not want to check it, click the **Cancel** button.
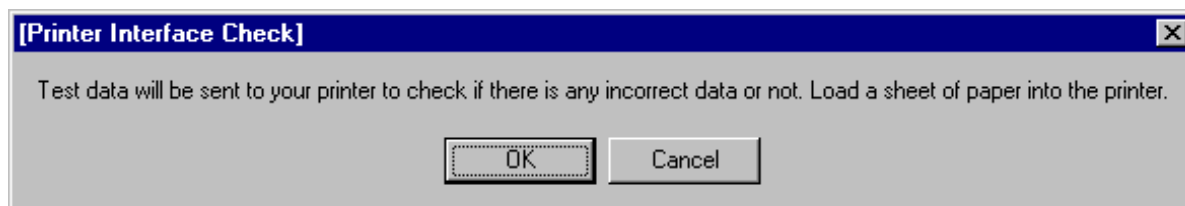
Fig. A-10

3) If you click the **OK** button in Step 2, the dialog box below appears.
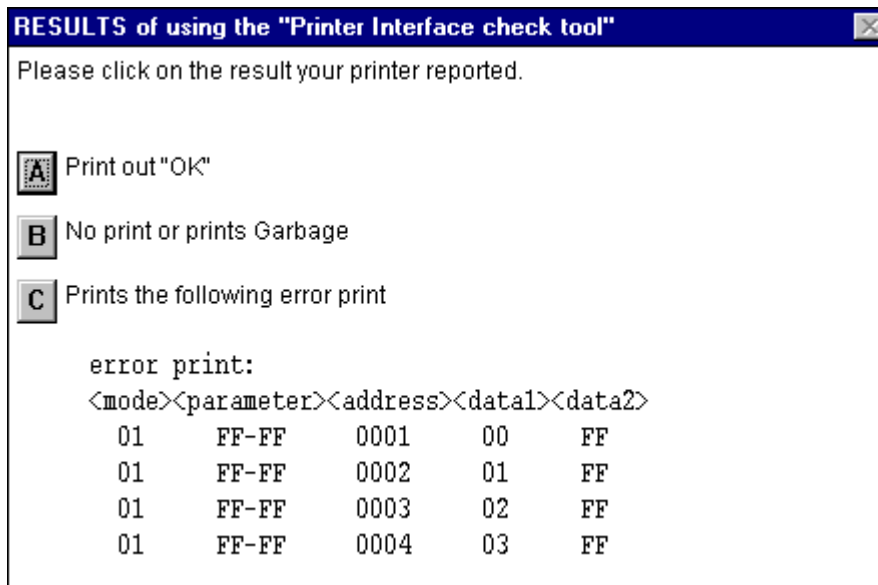
Fig. A-11

4) Check the result that the printer reported and click the **A**, **B** or **C** button depending on the result.

5) The created log file is shown on the PC screen. (The software will ask whether you wish to print the log file or not.)

Send the log file created with this tool to investigate the problem to the authorized service center.

3. Printer Information

The drum unit life or page counter is printed on Print Configuration in some countries as described in APPENDIX 4 'HOW TO KNOW DRUM UNIT LIFE & PAGE COUNTER'.

This tool also shows the printer information such as printer version or page counter for all models only when the printer is connected to a parallel port.

1) When you start the program, the dialog box shown below appears.
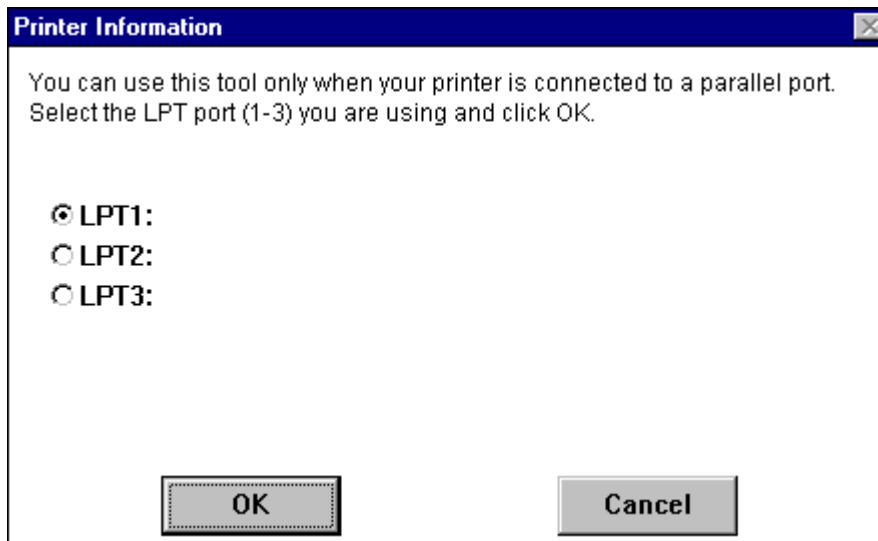
Fig. A-12

2) Select the LPT port you are using and click the **OK** button.

3) The dialog box below appears and indicates the printer information, printer ID, version, drum unit life, page counter and drum counter.
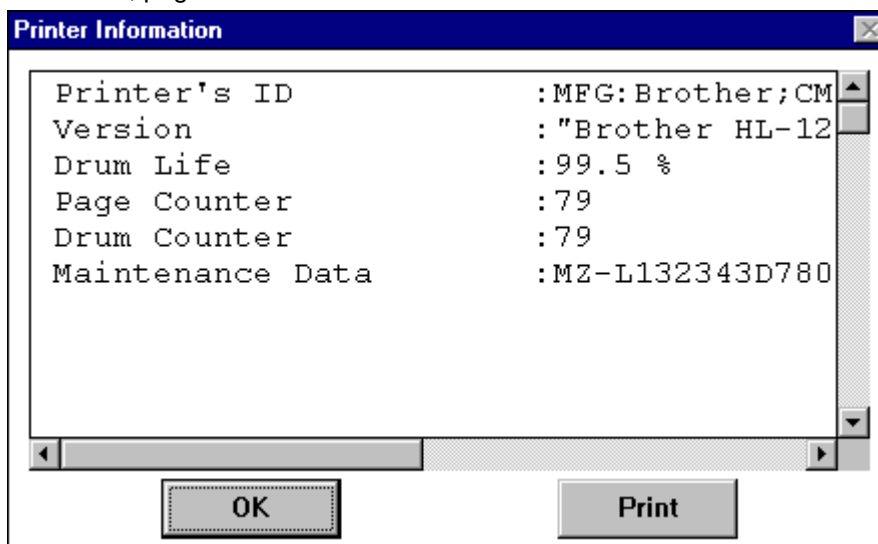
Fig. A-13

NOTE:

For how to read the Maintenance Data shown in the dialog box above, see Section 3 'How to Read the Maintenance Information' in APPENDIX 4.

APPENDIX   6. NVRAM DEFAULT VALUE

The default values for the main items to be set in NVRAM are as follows;

Items	Descriptions
Timing of Drum LED ON	16,000 page (Counted from the drum unit life.)
Development switching timing	The developing bias is switched from 475V to 375V when 3,000 pages are printed. (Counted from the number of the drum rotation in non-continuous printing)
Fixing temperature	• Transparency: 163°C • Thin paper: 183°C • Regular paper: 195°C • Thick paper: 215°C • Thicker/Bond paper: 215°C (in non-continuous printing)
Smaller size mode	See APPENDIX 3 'PRINT SPEEDS WITH VARIOUS SETTINGS'.

APPENDIX   7. PAPER CASSETTE INFORMATION (FOR EUROPE ONLY)

The A4 size paper cassette fitted to the printer is different from the service manual information for printers shipped to Europe as follows:-

1) The paper cassette supplied with the HL-1240/1250 printer has a plastic rib on the paper tray cover.

2) The plastic rib is removed from the tray cover for the paper cassette supplied with the LT-400, (optional Lower Tray Unit) as shown on the right;

Paper tray cover

Plastic rib

Cutting position
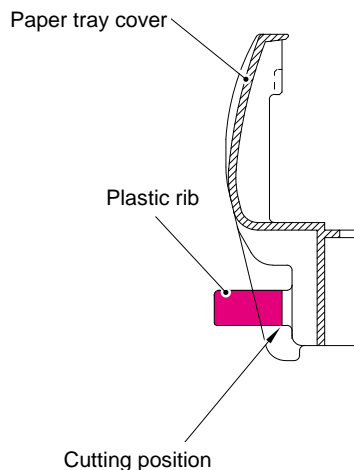
Fig. A- 14

3) If the optional LT-400 Lower Tray Unit is installed onto the HL-1250 printer, it is necessary to exchange the cassette supplied with the LT-400 Unit with the upper cassette already fitted into the printer. Install the cassette originally fitted in the printer into the LT-400 Unit.

   Failure to do so will cause paper jams as the paper cannot be fed from the lower cassette to the printer body because the plastic rib on the paper tray cover is blocking the paper path.

4) For paper cassettes supplied as spare parts, the plastic rib has been cut off so that you can use it as both an upper cassette and lower cassette.
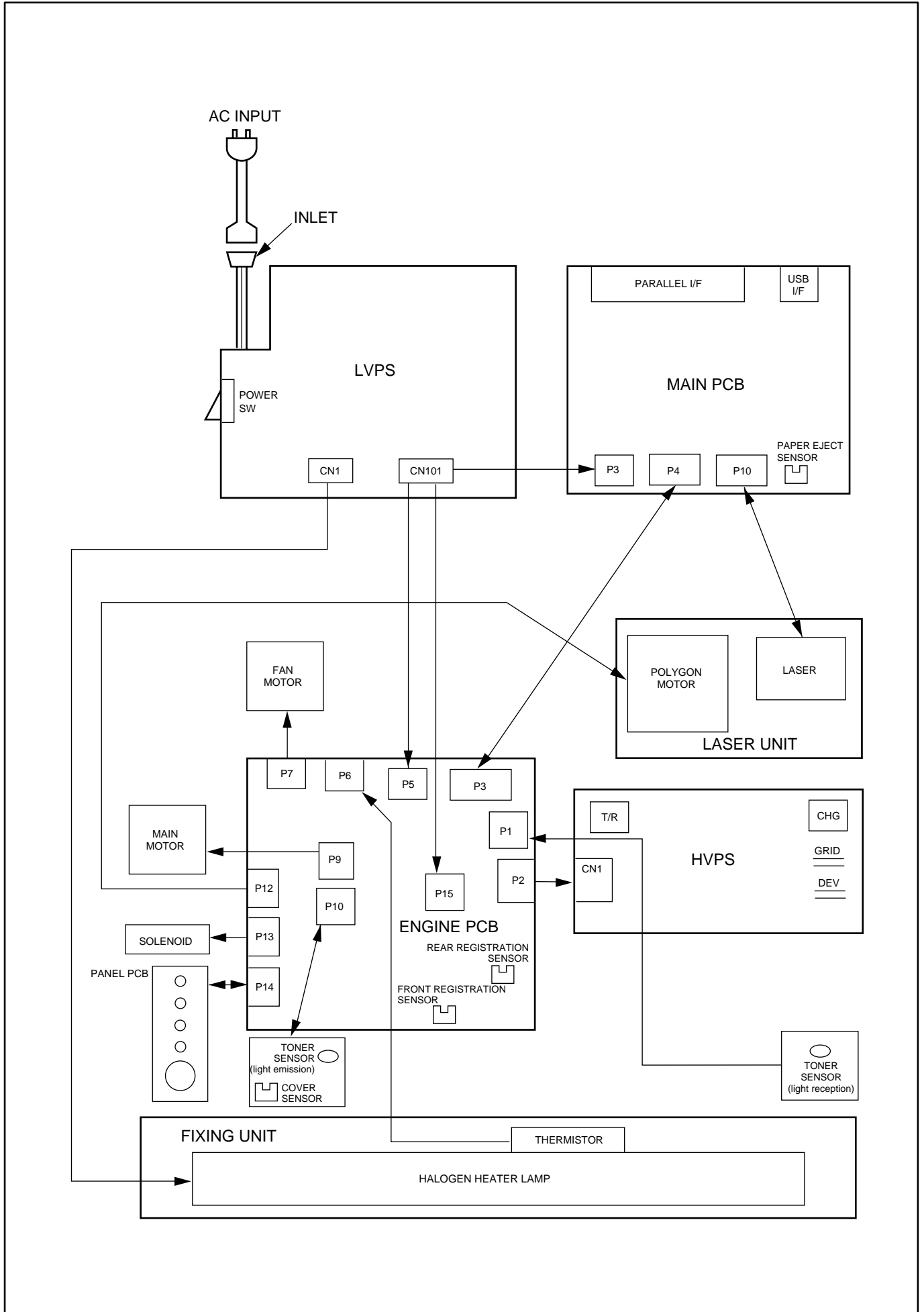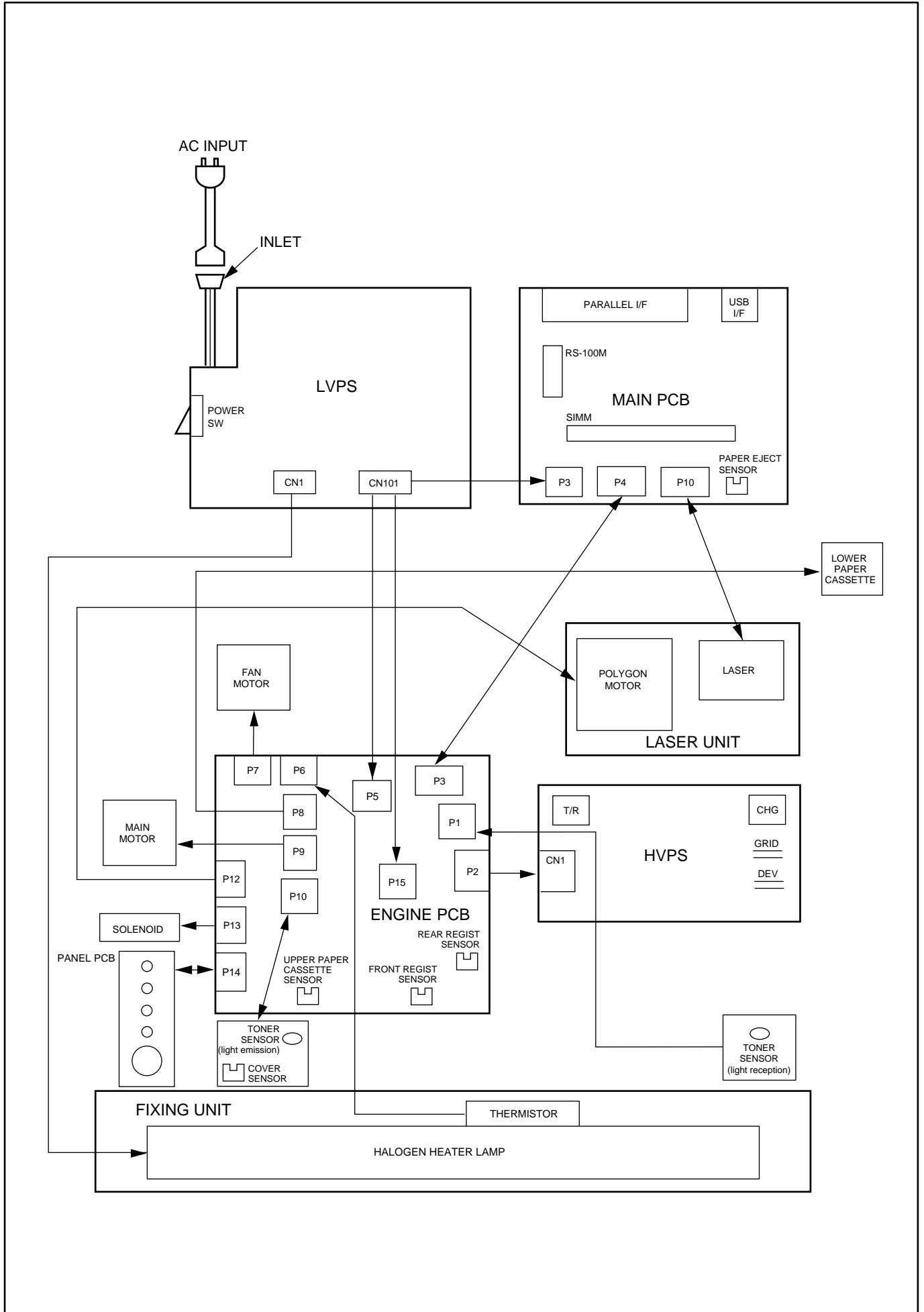
Appendix 10. Main PCB Circuit Diagram, HL-1240 (1/2)
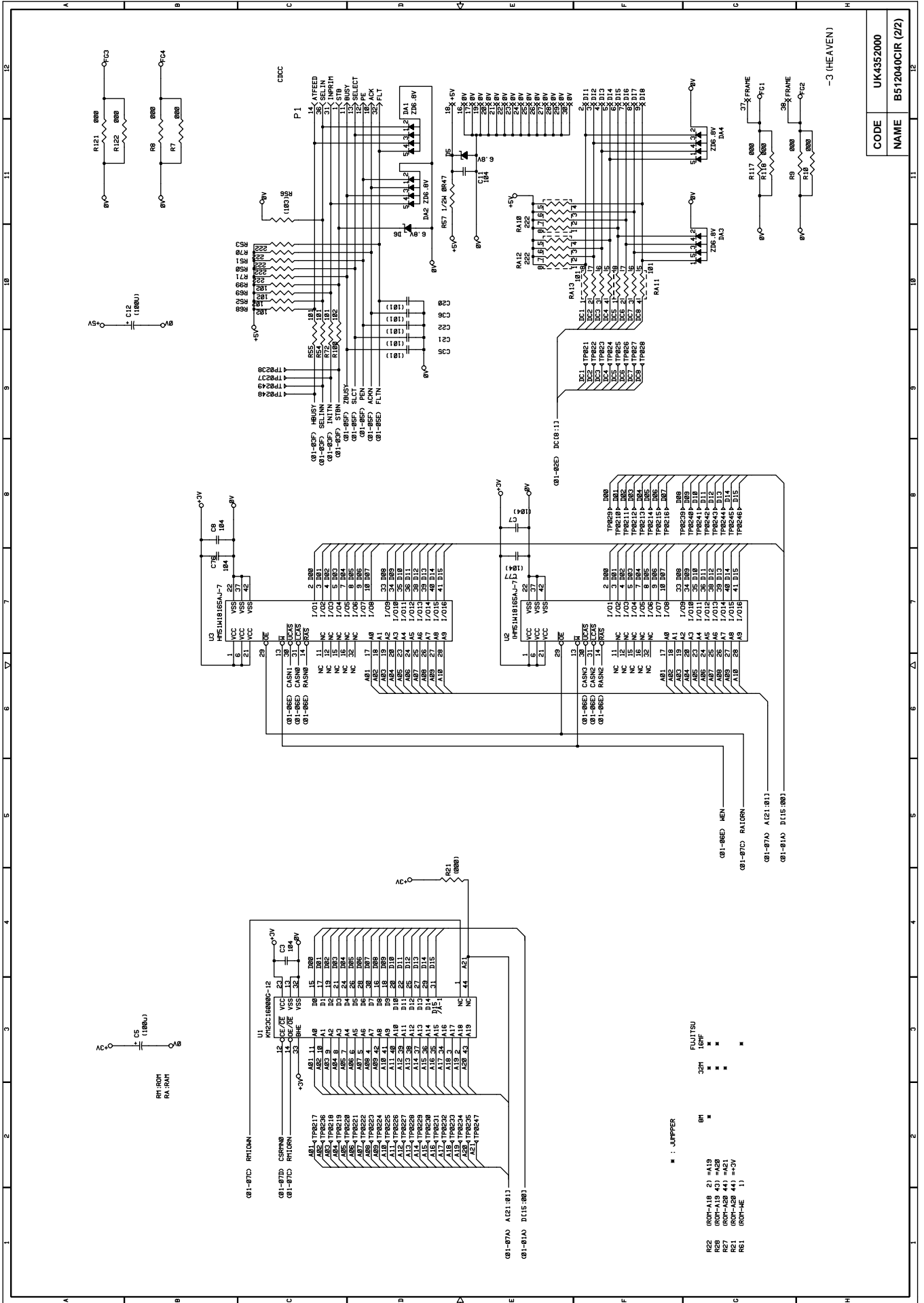
CODE UK4352000

NAME B512040CIR (1/2)

A - 18

CPU,BUFFER (UTOPIA)

CODE	UK4361000
NAME	B51249CIR (1/5)

A - 20

CPU (UTOPIA)

CODE	UK4361000
NAME	B51Z049CIR (2/5)

A - 21

NEED (DEBUG) PARTS WHEN DEBUG

CODE	UK4361000
NAME	B512049CIR (5/5)

I/F_ENGINE (UTOP1A)

CODE UK4444000

NAME B512059CIR

A - 25

Appendix 18. Low-voltage Power Supply PCB Circuit Diagram (110 - 120V)
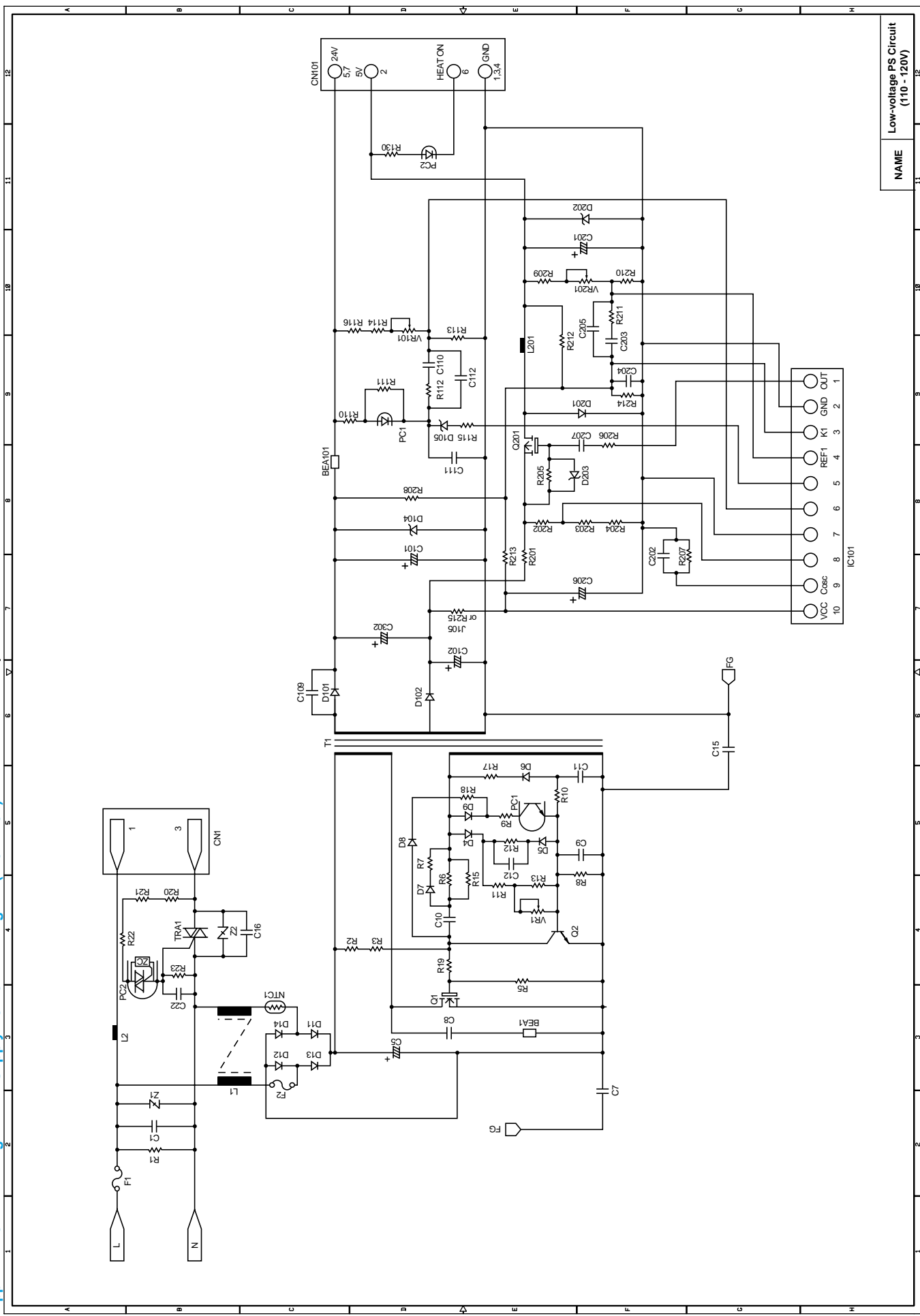
Low-voltage PS Circuit
(110 - 120V)

NAME

A - 26

Appendix 19. Low-voltage Power Supply PCB Circuit Diagram (220 - 240V)
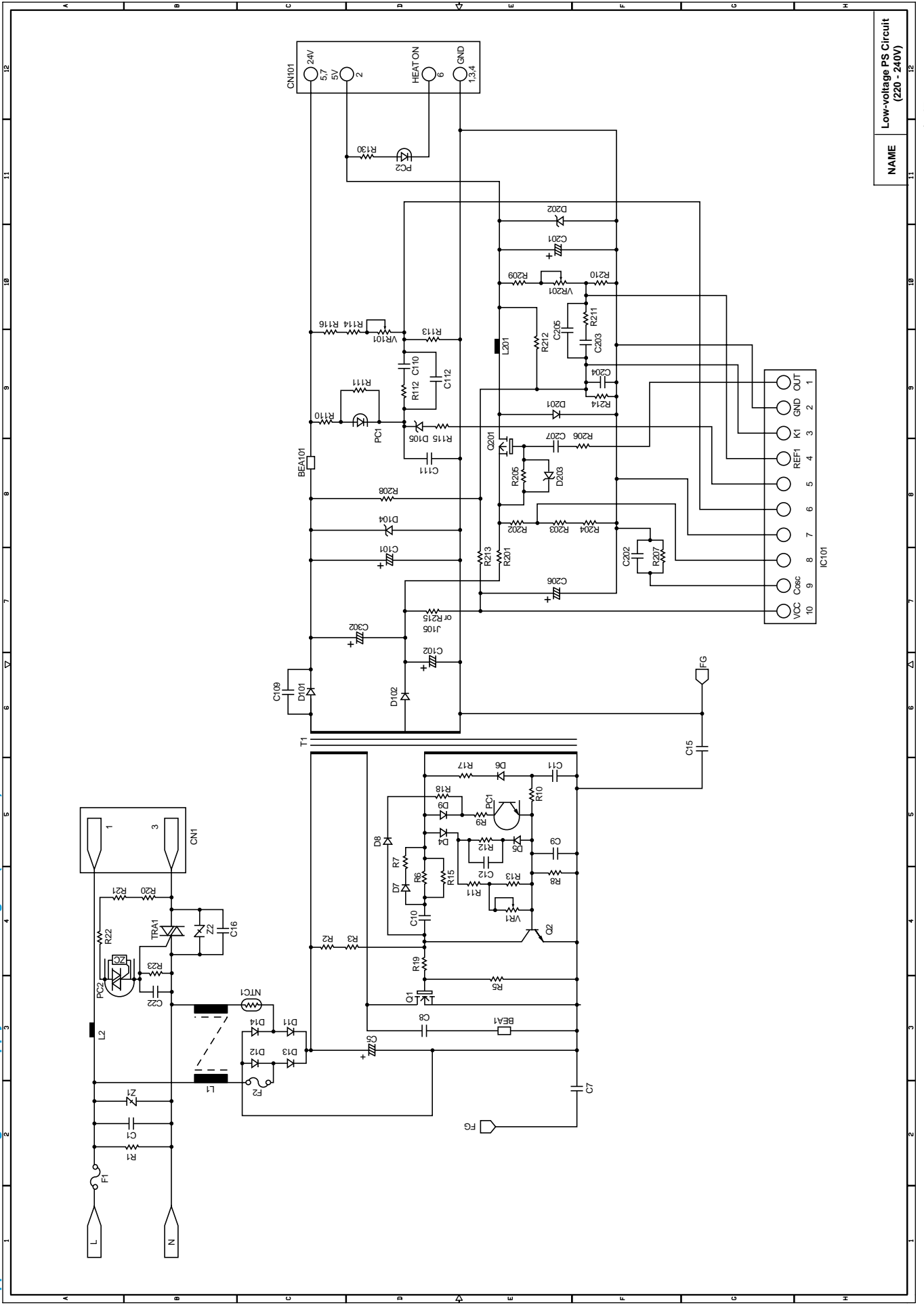
| NAME | Low-voltage PS Circuit (220 - 240V) |

A - 27

Appendix 20. High-voltage Power Supply PCB Circuit Diagram

NAME   High-voltage PS Circuit

A - 28

INDEX

U

W

Brother Laser Printer

PARTS REFERENCE LIST

MODEL: HL-1240/1250
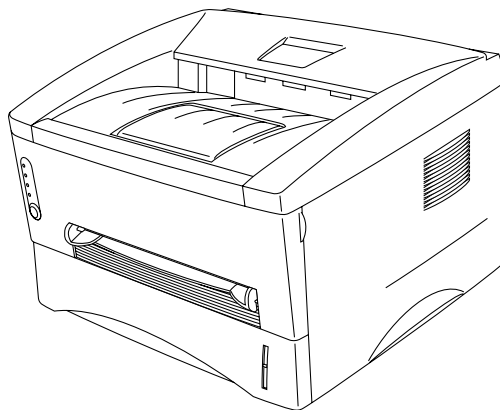
Read this list thoroughly before maintenance work.

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

NOTE FOR USING THIS PARTS REFERENCE LIST

1. In the case of ordering parts, it needs mentioning the following items:

   (1) Code

   (2) Q'ty

   (3) Description

   (4) Symbol (PCB No., Revision , and Parts location mounted on the PCB.)

   Note : No orders without Parts Code or Tool No. can be accepted.

< Example >

	(1)	(2)	(3)	(4)	
REF.NO.	CODE	Q'TY	DESCRIPTION	SYMBOL	REMARK

Revision No.: marked on the main printed circuit board.

B48K056 - 201A

Design change indication
Specification No .
Pattern alteration No.
Circuit board No.
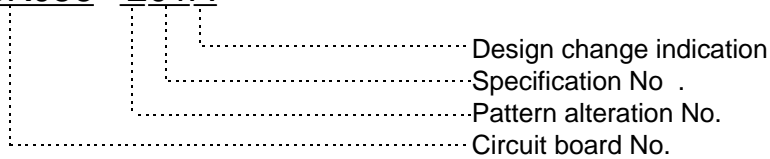
Revision No.: marked on the power supply printed circuit board.

Rev. A

Design change indication
(The first version has no sign.)
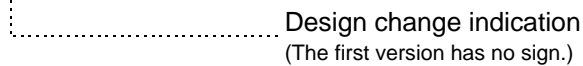
2. Design-changed parts :
   If the parts are changed, any one of the following symbols is indicated in the REMARKS column.

   #A : compatible between old and new

   #B : replaceable from old to new

   #D : incompatible

   # : newly established

3. The original of this list was made based on the information available in August, 1999.

4. Parts are subject to change in design without prior notice.

CONTENTS

1. FRAME / DRIVE UNIT

REF.NO.	CODE	Q'TY	DESCRIPTION	SYMBOL	REMARK
1	UL9311001	1	MAIN MOTOR ASSY		
2	087320616	4	TAPTITE, CUP S M3X6		
3	LJ4069001	1	SOLENOID ASSY		
4	000300415	1	SCREW, BIND M3X4		
5	LJ4432001	1	TAPE 32X12		
6	UL8984001	1	LINK		
7	LJ4015001	1	FAN MOTOR UNIT		
8	UL9099001	1	TONER EMPTY PCB UNIT (LIGHT EMISSION)	B512038	
9	UK4405001	1	PANEL PCB ASSY	B512048	
10	087320616	3	TAPTITE, CUP S M3X6		
11	UL8507001	4	RUBBER FOOT		
12	UL9104001	1	TONER EMPTY PCB UNIT (LIGHT RECEPTION)	B512037	
13	087320616	1	TAPTITE, CUP S M3X6		
14	LJ8031001	1	LT RELAY PCB ASSY, HL-1250	B512060	
15	087320616	1	TAPTITE, CUP S M3X6		

MODEL HL-1240/1250 84U-Z01/Z02-010

2. LASER UNIT

REF.NO.	CODE	Q'TY	DESCRIPTION	SYMBOL	REMARK
1	LJ4157001	1	LASER UNIT (SP)	(B512033)	
2	087321615	3	TAPTITE, CUP S M3X16		

MODEL HL-1240/1250 84U-Z01/Z02-020

1. FRAME / DRIVE UNIT
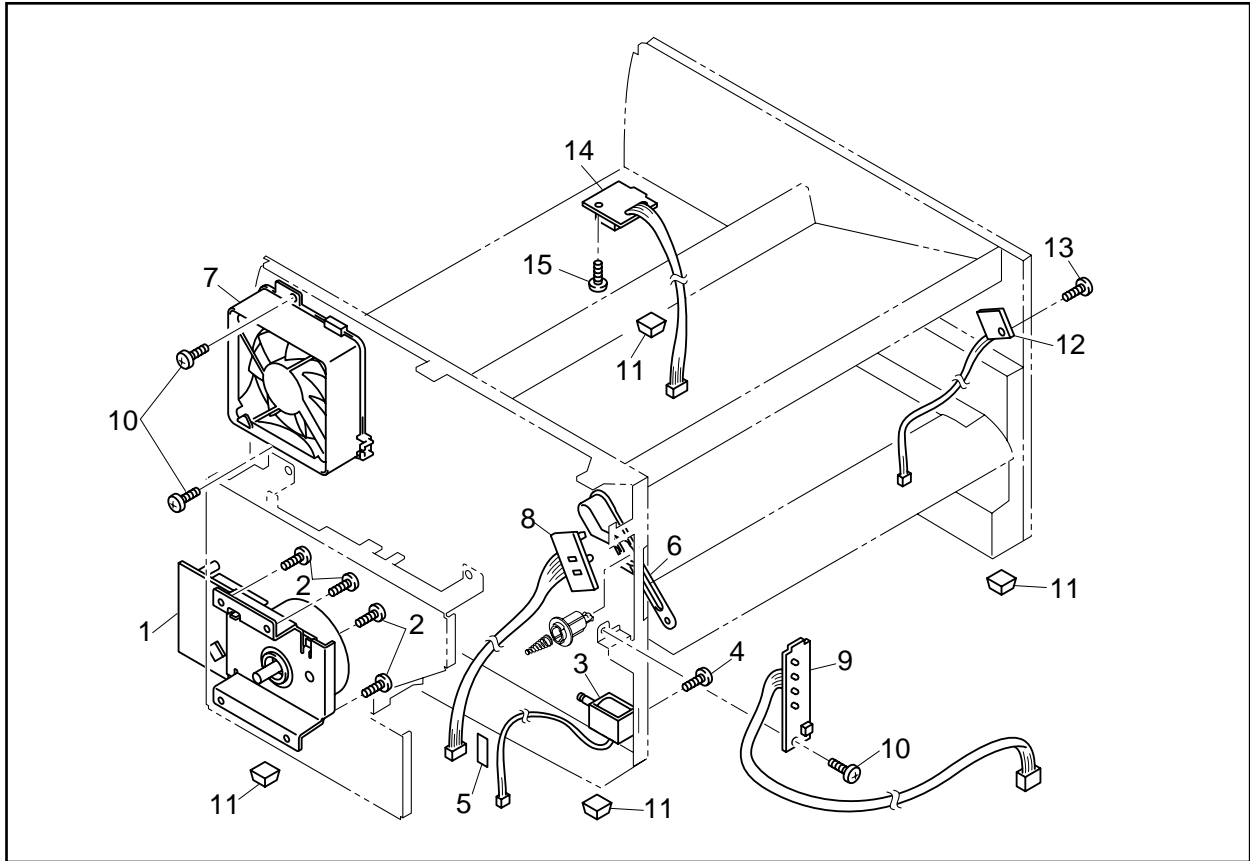
MODEL   HL-1240/HL-1250   84U-Z01/Z02-010

2. LASER UNIT
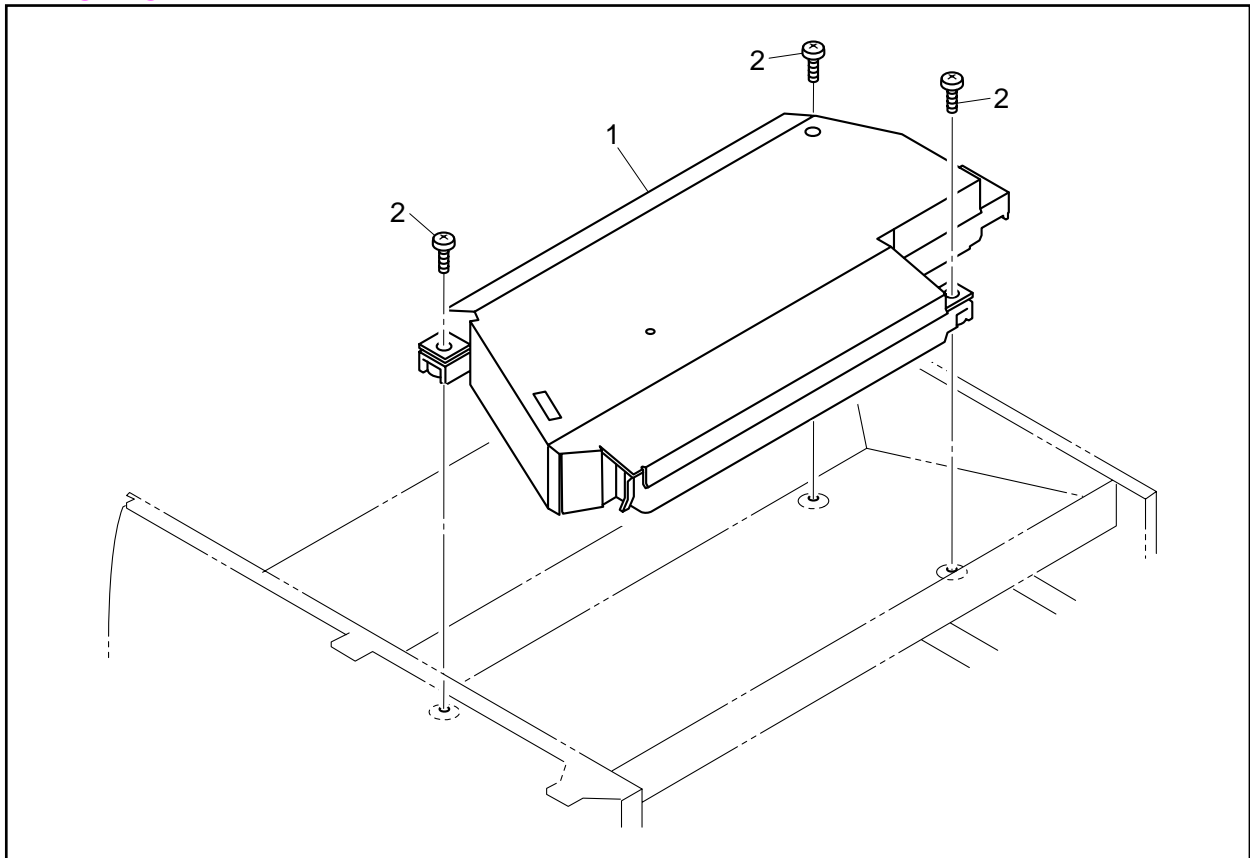
MODEL   HL-1240/HL-1250   84U-Z01/Z02-020

3. PAPER FEEDER

REF.NO.	CODE	Q'TY	DESCRIPTION	REMARK
1	UL9060001	1	PAPER FEED ROLLER ASSY	
2	UL9066001	1	PAPER PICK-UP ROLLER ASSY	
3	LJ4499001	1	TR ELECTRODE HELICAL SPRING	

MODEL HL-1240/1250 84U-Z01/Z02-040

4. PAPER CASSETTE

REF.NO.	CODE	Q'TY	DESCRIPTION	REMARK
1	LJ4181001	1	PAPER TRAY ASSY, A4 (SP)	
1	LE1162001	1	PAPER TRAY ASSY, LGL (SP)	
1-1	UL9074001	1	PRESSURE PLATE ASSY, A4	
1-1	LJ4537001	1	PRESSURE PLATE ASSY, LGL	
1-2	UL9077001	2	PRESSURE PLATE SPRING	
1-3	UL9078001	1	SIDE GUIDE L	
1-4	UL9079001	1	SIDE GUIDE R	
1-5	U73515001	2	TAPTITE, CUP B M2.6X5	
1-6	UL9080001	2	SIDE GUIDE RACK	
1-7	UL9081001	1	SIDE GUIDE GEAR	
1-8	UL9082001	1	FRICTION SPRING	
1-9	087310815	1	TAPTITE, CUP B M3X8	
1-10	UL9083001	1	REAR PAPER GUIDE	
1-11	UL9084001	1	SEPARATION PAD HOLDER ASSY	
1-12	UL9090001	1	SEPARATION PAD SPRING	
1-13	UL9091001	1	PAPER INDICATOR	
1-14	UL9092001	1	LOCK LEVER	
1-15	LJ4196001	1	PRESSURE ROLLER HOLDER, A4	
1-15	LJ4534001	1	PRESSURE ROLLER HOLDER, LGL	
1-16	LJ4195001	1	PRESSURE ROLLER COLLAR	
1-17	LJ4226001	1	PRESSURE ROLLER SHAFT	
1-18	UL9095001	1	RELEASE LEVER EXTENSION SPRING	
1-19	LJ2061001	1	PAPER TRAY COVER	
1-20	UF8709001	1	TAPTITE, TORX PAN B M3X8	
1-21	LJ4272001	1	TRAY COVER FILM	
1-22	LJ4221001	1	SCRATCH SPONGE HOLDER ASSY	
1-23	LJ4200001	2	SCRATCH SPONGE SPRING	

MODEL HL-1240/1250 84U-Z01/Z02-045/046

3. PAPER FEEDER
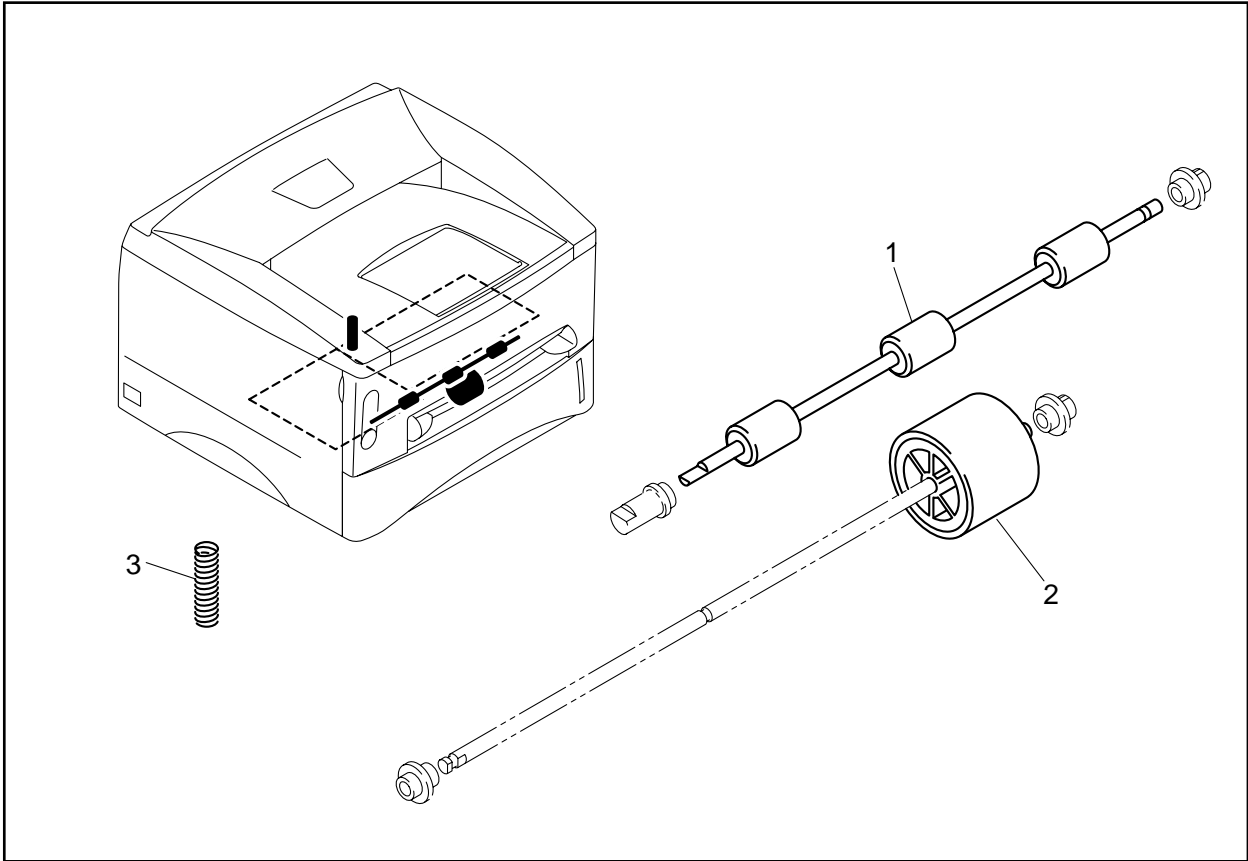
MODEL   HL-1240/HL-1250   84U-Z01/Z02-040

4. PAPER CASSETTE
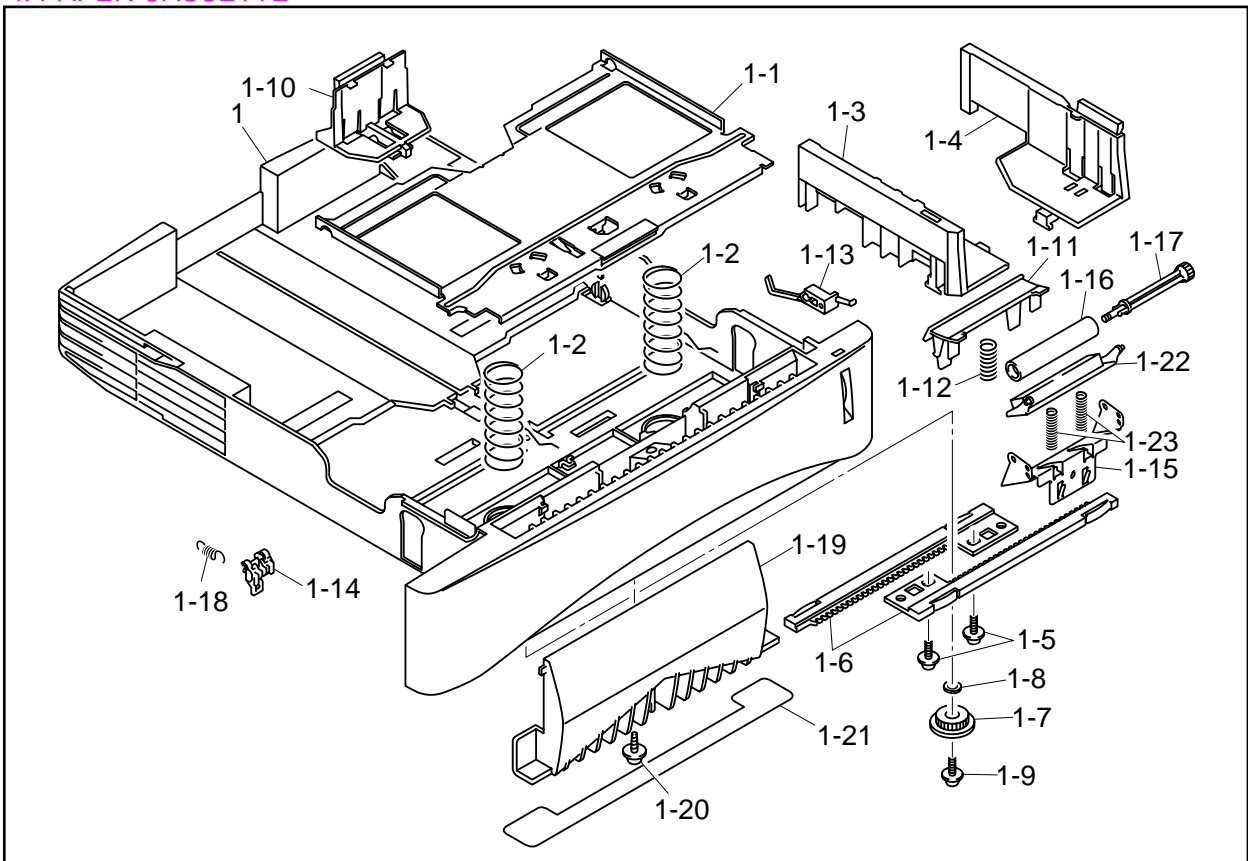
MODEL   HL-1240/HL-1250   84U-Z01/Z02-045/046

5. FIXING UNIT

REF.NO.	CODE	Q'TY	DESCRIPTION	REMARK
1	LJ4164001	1	FIXING UNIT, 115V (SP)	
1	LJ4168001	1	FIXING UNIT, 230V (SP)	
1-1	UL8902001	1	THERMISTOR ASSY	
1-2	087311215	1	TAPTITE, CUP B M3X12	
1-3	LJ4169001	1	HEAT ROLLER 25 (SP)	
1-4	UL8908001	2	HR BEARING 25	
1-5	LJ4160001	1	HALOGEN LAMP, 115V (SP)	
1-5	LJ4163001	1	HALOGEN LAMP, 230V (SP)	
1-6	UL8929001	8	EJECT PINCH ROLLER	
1-7	LJ4431001	8	PINCH SPRING	
1-8	LJ4407001	2	CLEANER ROLLER ASSY	
1-9	LJ4409001	2	CLEANER SPRING	
1-10	087312015	2	TAPTITE, CUP B M3X20	
1-11	Z07200001	1	TAPTITE, PAN B M3X10	
2	087320815	1	TAPTITE, CUP S M3X8	
3	UF0060001	2	SHOULDER SCREW	

MODELHL-1240/1250 84U-Z01/Z02-050/051

7. MAIN PCB

REF.NO.	CODE	Q'TY	DESCRIPTION	SYMBOL	REMARK
1	LJ8066001	1	MAIN PCB ASSY, HL-1240 (SP)	B512040-310A	
1	LJ8067001	1	MAIN PCB ASSY, HL-1240 HEB (SP)	B512040-311	
1	LJ8080001	1	MAIN PCB ASSY, HL-1250 (SP)	B512049-110B	
1-1	LJ8140001	1	MASK ROM, HL-1240		
1-1	LJ8047001	1	MASK ROM, HL-1240 HEB		
1-1	LJ8130001	1	MASK ROM, HL-1250 LOW		
1-2	LJ8131001	1	MASK ROM, HL-1250 HIGH		

MODEL HL-1240/1250 84U-Z01/Z02-101

5. FIXING UNIT
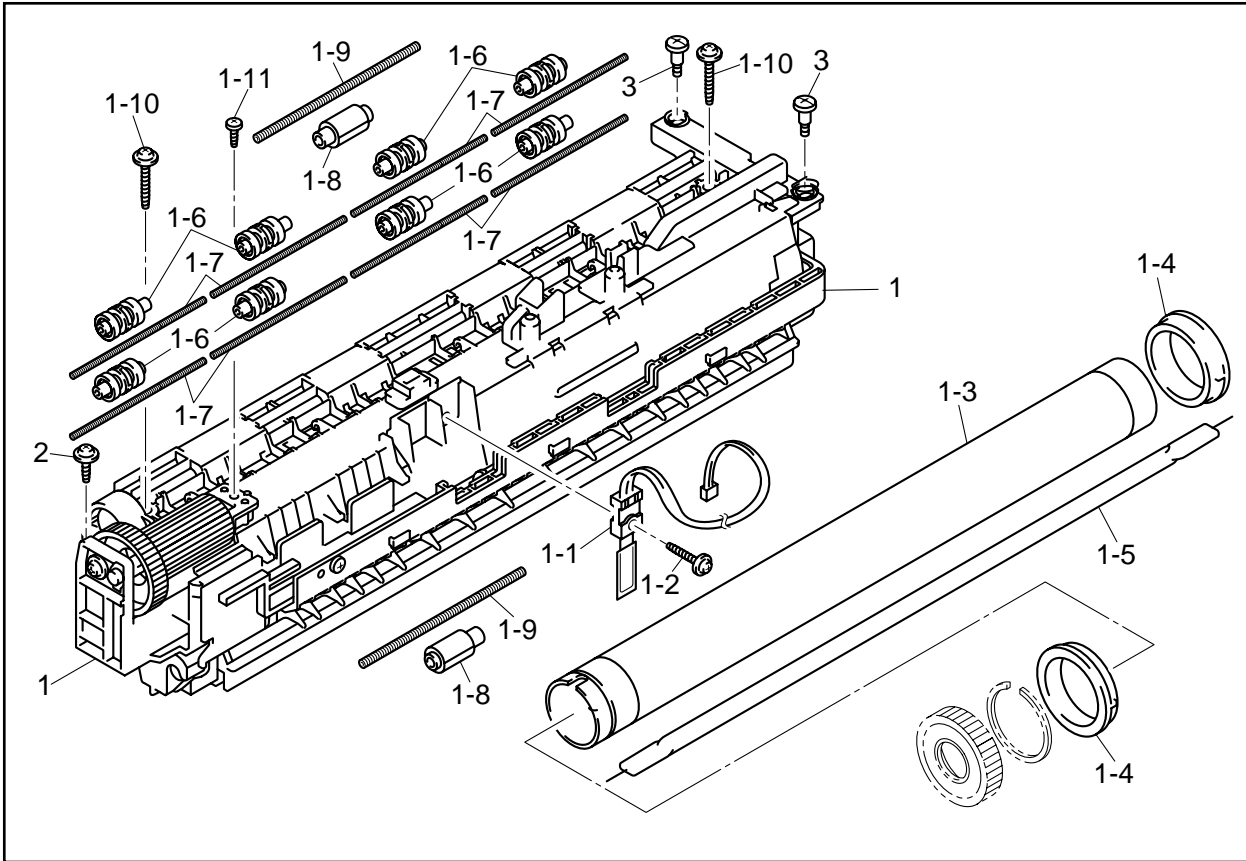
MODEL   HL-1240/HL-1250   84U-Z01/Z02-050/051

7. MAIN PCB
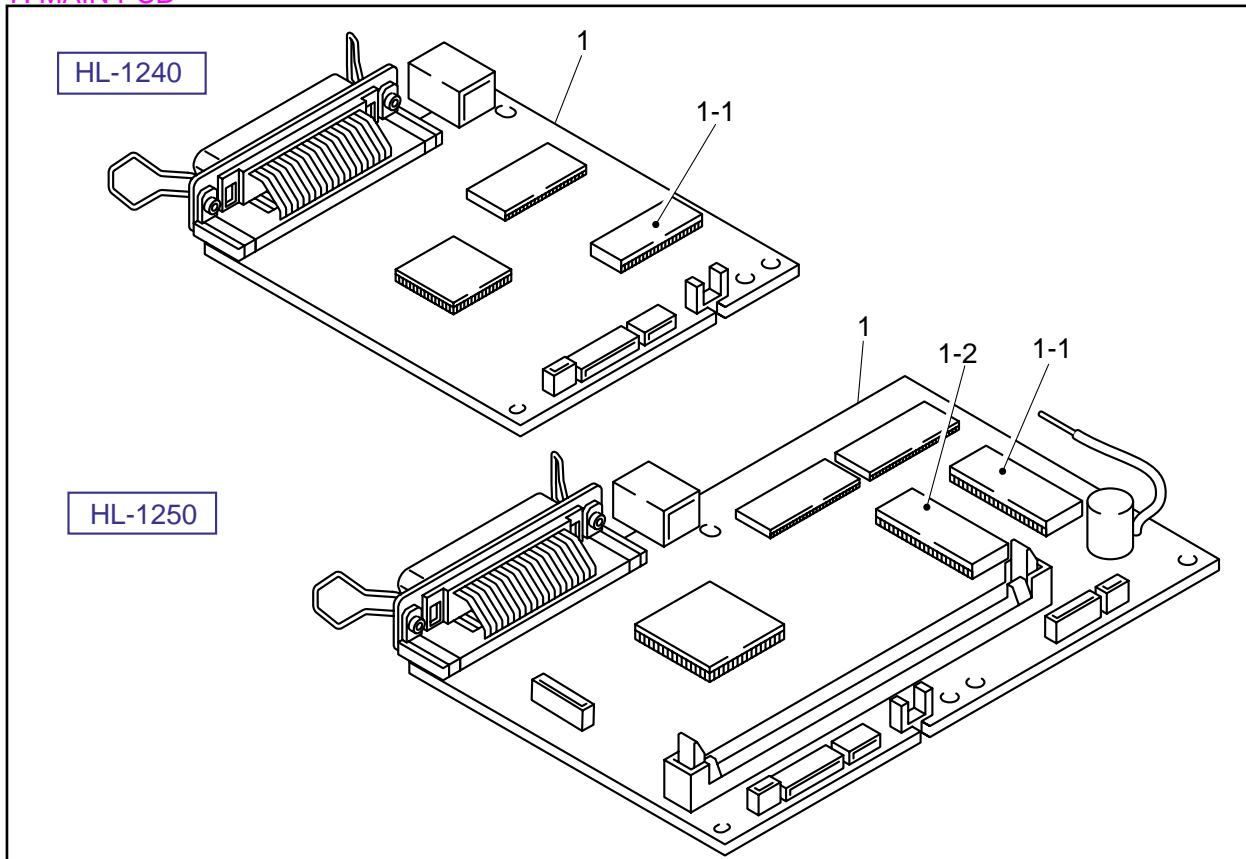
HL-1240

HL-1250

MODEL   HL-1240/HL-1250   84U-Z01/Z02-101/103

6. COVER

REF.NO.	CODE	Q'TY	DESCRIPTION	REMARK
1	LJ4122001	1	MAIN COVER ASSY	
2	UL9122001	4	PINCH ROLLER ASSY	
3	UL9125001	4	PINCH ROLLER SPRING	
4	UL9126001	1	REAR COVER	
5	UL9127001	1	REAR COVER SPRING L	
6	UL9128001	1	REAR COVER SPRING R	
7	UL9129001	1	FRONT COVER ASSY	
8	UL9140001	1	TRAY EXTENSION FLAP	
9	UL9088001	1	TOP COVER	
10	UL9142001	1	SECOND EJECT ROLLER ASSY	
11	087321015	2	TAPTITE, CUP S M3X10	
12	085320816	6	TAPTITE, BIND S M3X8	
13	UL9143001	1	MODEL PLATE 1240	
13	UL9315001	1	MODEL PLATE 1250	
14	UL6740001	1	LASER CAUTION LABEL, EUR	
15	UL9146001	1	MYLAR LABEL 1240, US	
15	UL9249001	1	MYLAR LABEL 1240, CAN	
15	UL9250001	1	MYLAR LABEL 1240, EUR	
15	UL9316001	1	MYLAR LABEL 1250, US	
15	LJ4078001	1	MYLAR LABEL 1250, CAN	
15	UL9317001	1	MYLAR LABEL 1250, EUR	
16	LJ4048001	1	MYLAR LABEL US, 2	
16	LJ4050001	1	MYLAR LABEL CAN, 2	
17	LJ4049001	1	MYLAR LABEL US, 3	
17	LJ4051001	1	MYLAR LABEL CAN, 3	

MODEL HL-1240/1250 84U-Z01/Z02-060
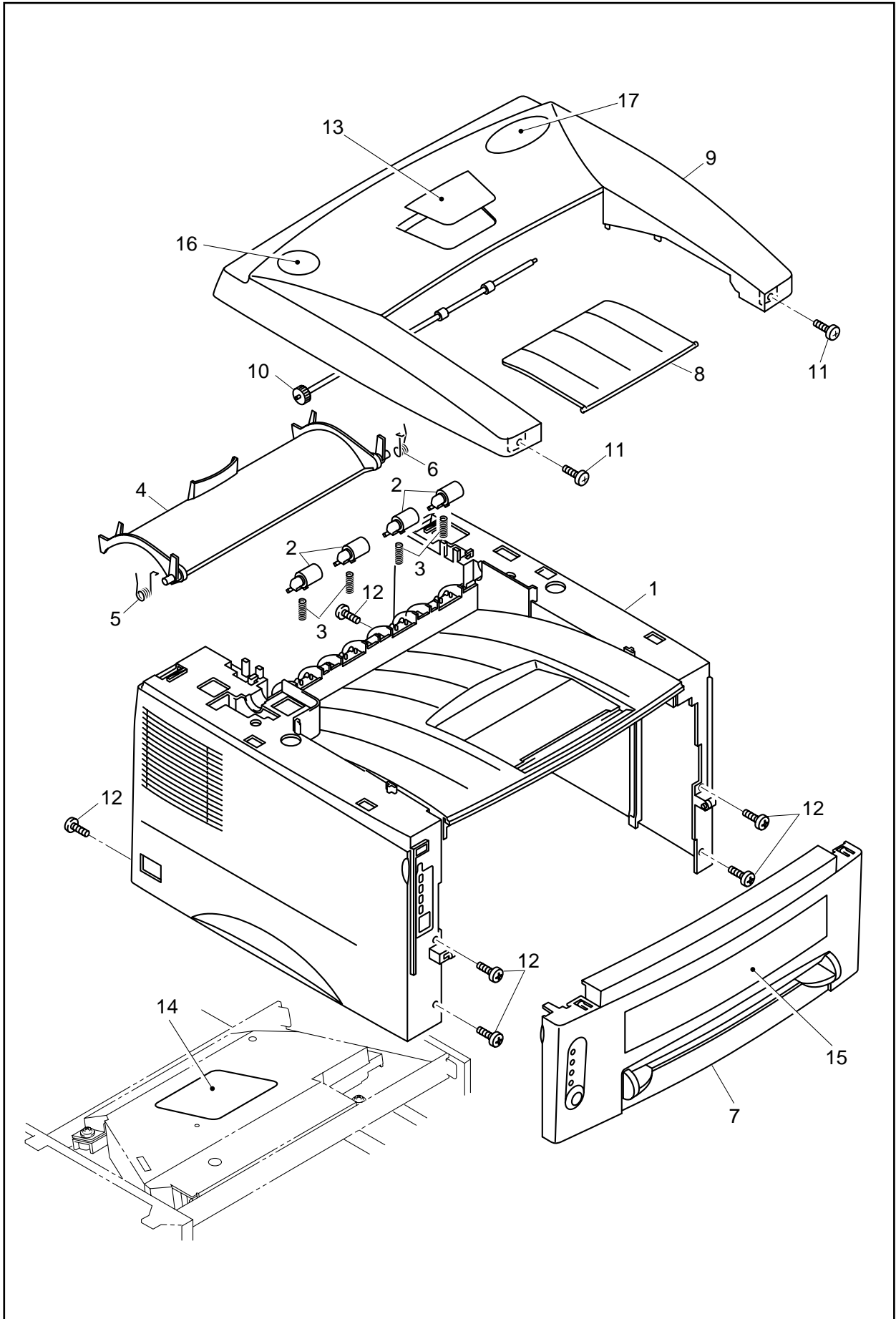
MODEL HL-1240/HL-1250　84U-Z01/Z02-060

8. ENGINE PCB

REF.NO.	CODE	Q'TY	DESCRIPTION	SYMBOL	REMARK
1	LJ4178001	1	ENGINE PCB ASSY, 1240 (SP)	B512059-301	
1	LJ4222001	1	ENGINE PCB ASSY, 1250 (SP)	B512059-302	

MODEL HL-1240/1250 84U-Z01/Z02-151

9. LOW-VOLTAGE POWER SUPPLY

REF.NO.	CODE	Q'TY	DESCRIPTION	SYMBOL	REMARK
1	LJ4172001	1	LOW-VOLTAGE PS ASSY, 115V (SP)		
1	LJ4175001	1	LOW-VOLTAGE PS ASSY, 230V (SP)		
2	UK4426001	1	INLET UNIT, 115V		
2	UK4430001	1	INLET UNIT, 230V		
4	085320816	1	TAPTITE, BIND S M3X8		
5	087320616	1	TAPTITE, CUP S M3X6		

MODEL HL-1240/1250 84U-Z01/Z02-200/201

8. ENGINE PCB
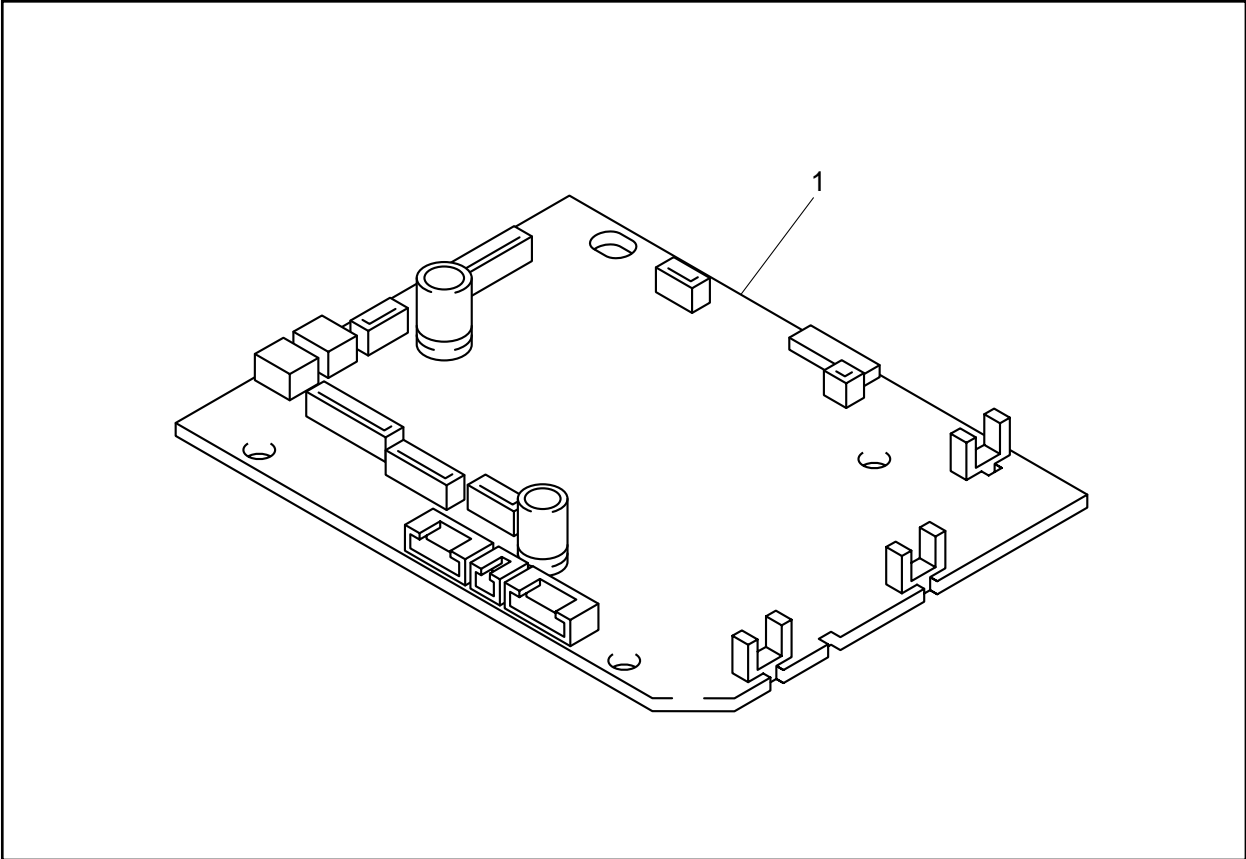
MODEL   HL-1240/HL-1250   84U-Z01/Z02-151
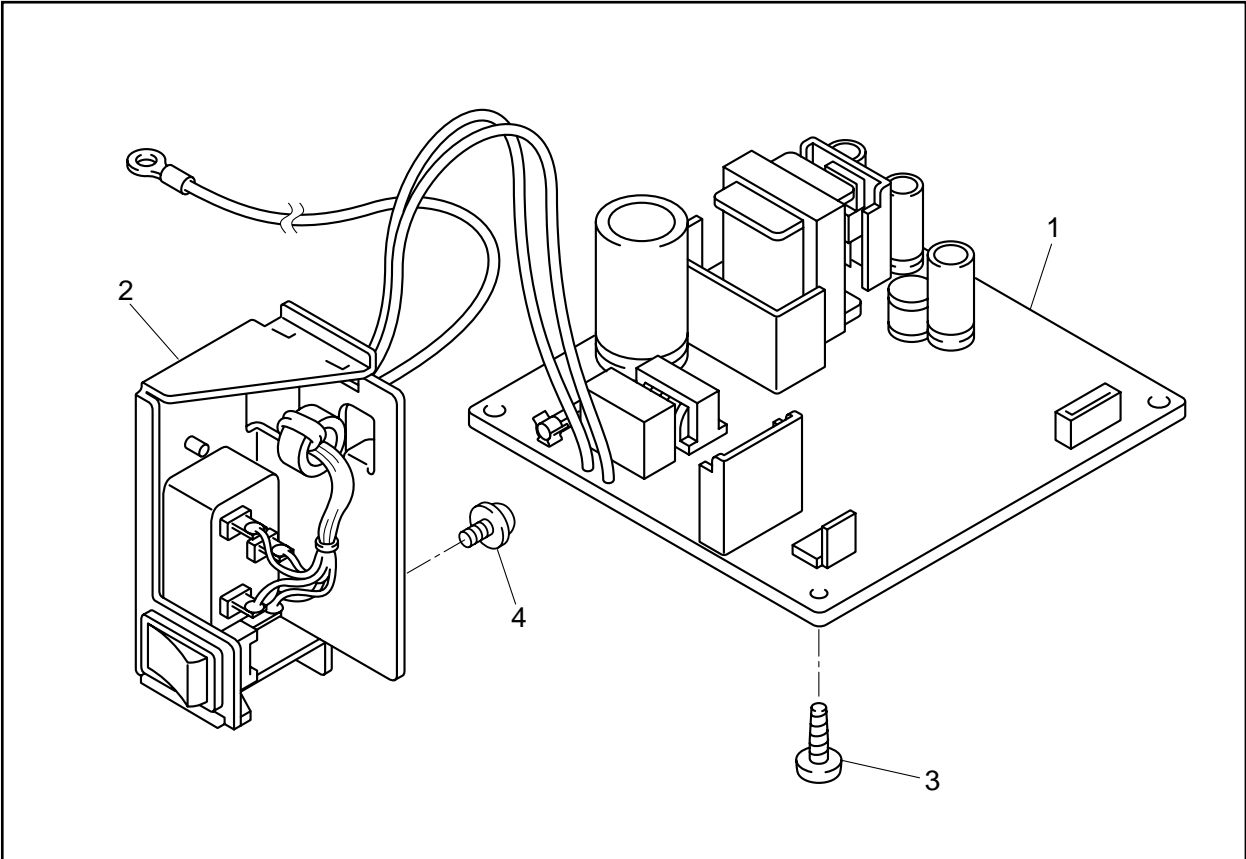
9. LOW-VOLTAGE POWER SUPPLY PCB

MODEL   HL-1240/HL-1250   84U-Z01/Z02-200/201

REF.NO.	CODE	Q'TY	DESCRIPTION	REMARK
1	LJ4176001	1	HIGH-VOLTAGE PS ASSY (SP)	
2	085411215	4	SCREW BIND B TITE M4X12	CHNG

MODEL HL-1240/1250 84U-Z01/Z02-220

T/I NO. PR99153

11. AC CORDS

REF.NO.	CODE	Q'TY	DESCRIPTION	REMARK
1A	UH1051001	1	AC CORD, UL/CSA	
1B	UK4503001	1	AC CORD ASSY, SAA	
1C	UK4502001	1	AC CORD ASSY, SEV	
1D	UK4099001	1	AC CORD, CHLI	
1E	UH1054001	1	AC CORD, BS	
1F	U34322001	1	AC CORD #6, ISRAEL	
1G	U34320001	1	AC CORD #4, BS	
1H	UK4094001	1	AC CORD, DEMKO	
1I	UK4501001	1	AC CORD ASSY, VDE	

MODEL HL-1240 84U-Z01/Z02-230

10. HIGH VOLTAGE POWER SUPPLY PCB
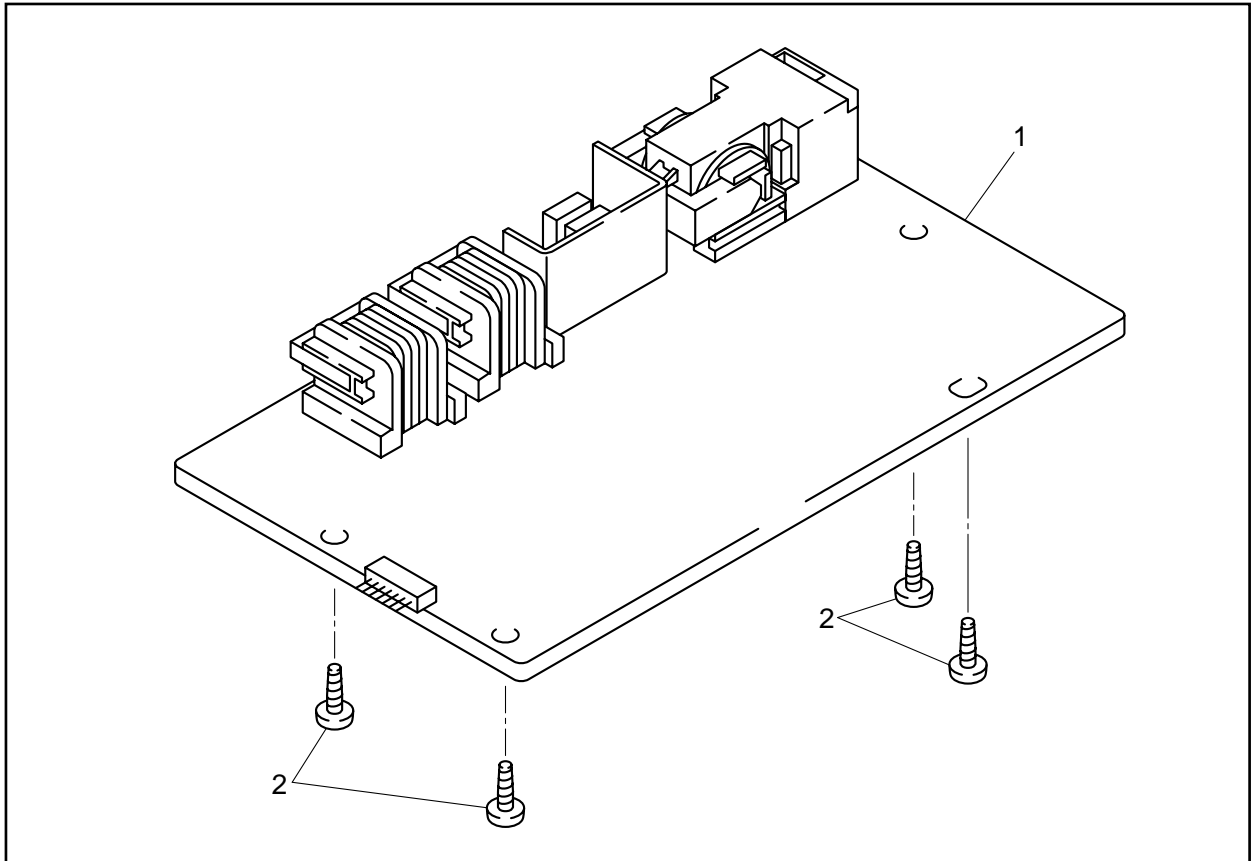
MODEL   HL-1240/HL-1250   84U-Z01/Z02-220

11. AC CORD

1A		1F	
1B		1G	
1C		1H	
1D		1I	
1E			
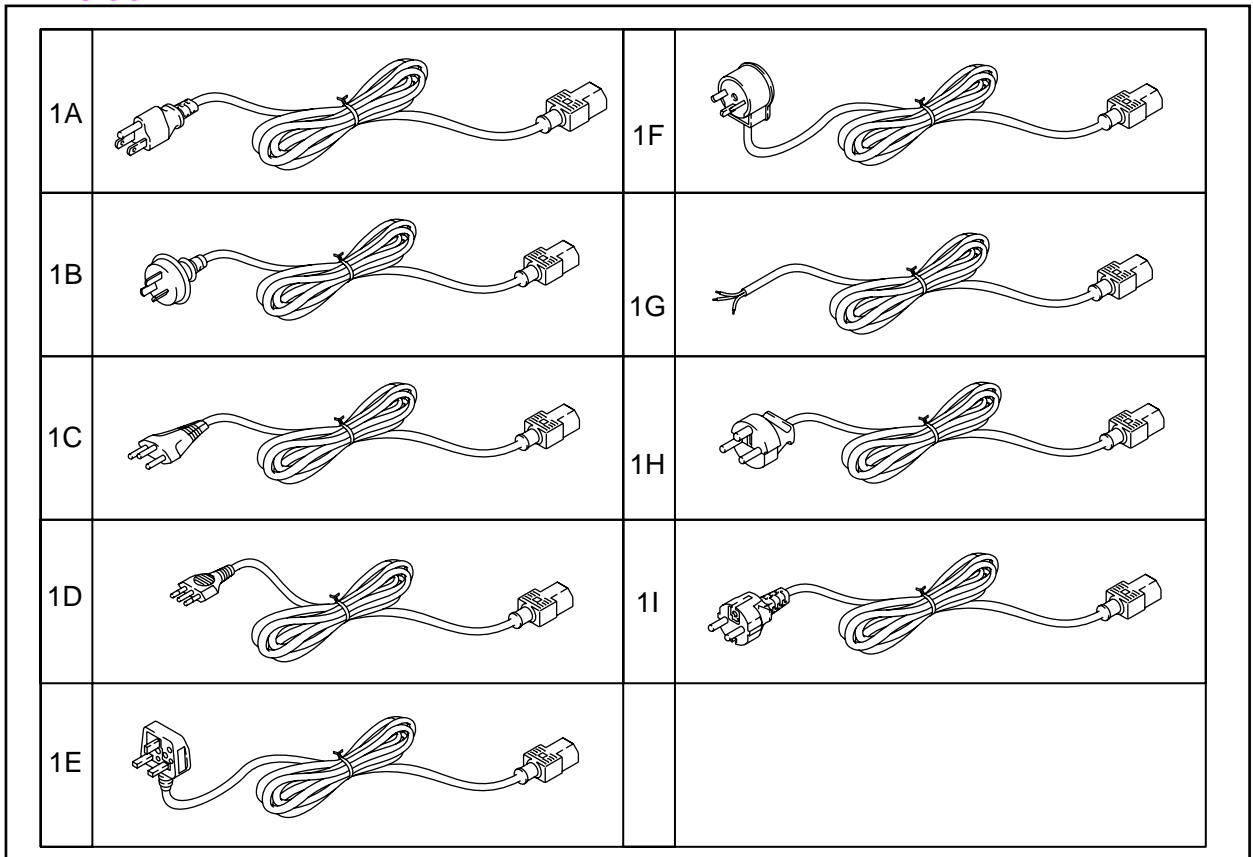
MODEL   HL-1240/HL-1250   84U-Z01/Z02-230

- 12 -

12. ACCESSORIES

REF.NO.	CODE	Q'TY	DESCRIPTION	REMARK
1	UK4387001	1	PR DRIVER DISK ASSY 1, HL-1240	
1	UK4392001	1	PR DRIVER DISK ASSY 2, HL-1240	
1	UK4390001	1	PR DRIVER DISK ASSY 1, HL-1250	
1	UK4394001	1	PR DRIVER DISK ASSY 2, HL-1250	
2	UK4389001	1	CD ASSY	
3	UL9243001	1	SETUP GUIDE, US	
3	UL9269001	1	SETUP GUIDE, FRA	
3	UL9111001	1	SETUP GUIDE, GER	
3	UL9270001	1	SETUP GUIDE, NL	
3	UL9292001	1	SETUP GUIDE, NOR	
3	UL9274001	1	SETUP GUIDE, SWE	
3	UL9271001	1	SETUP GUIDE, DEN	
3	UL9272001	1	SETUP GUIDE, SPA	
3	UL9273001	1	SETUP GUIDE, ITA	
4	UE2014001	1	BAG, 215X350H	

MODEL HL-1240/1250 84U-Z01/Z02-920

13. PACKING MATERIALS

REF.NO.	CODE	Q'TY	DESCRIPTION	REMARK
1	UE0818001	1	CARTON, HL-1240 US	
1	UE0820001	1	CARTON, HL-1240 EU	
1	UE0822001	1	CARTON, HL-1240 CAN	
1	LL0014001	1	CARTON, HL-1250 US	
1	LL0016001	1	CARTON, HL-1250 EU	
1	LL0015001	1	CARTON, HL-1250 CAN	
2	UE2280001	1	STYROFORM PAD ASSY, LGL	
2	LJ4038001	1	STYROFORM PAD ASSY, A4	
3	UE2283001	1	ACCESSORY CARTON	
4	UE2126001	1	BAG, 700X800H	

MODEL HL-1240/1250 84U-Z01/Z02-930

12. ACCESSORIES
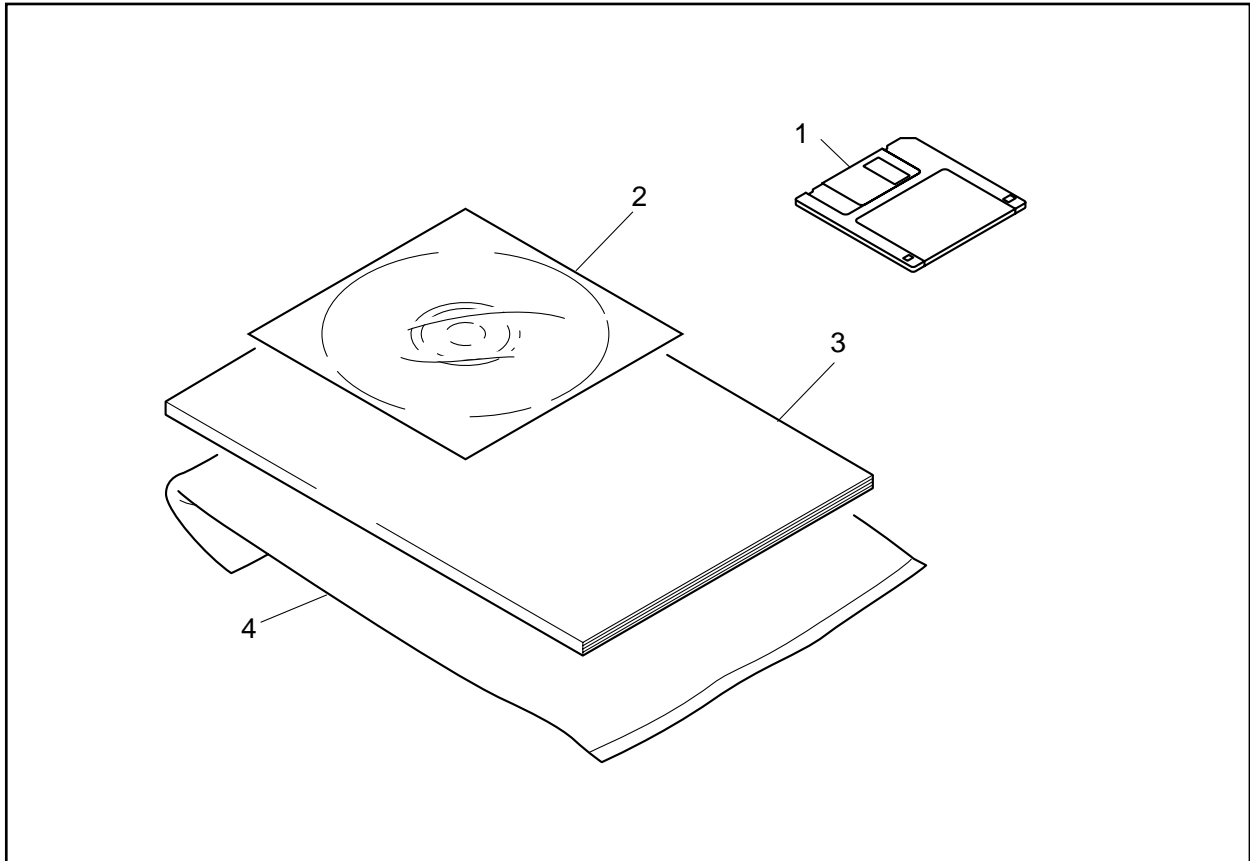
MODEL   HL-1240/HL-1250   84U-Z01/Z02-920

13. PACKING MATERIALS
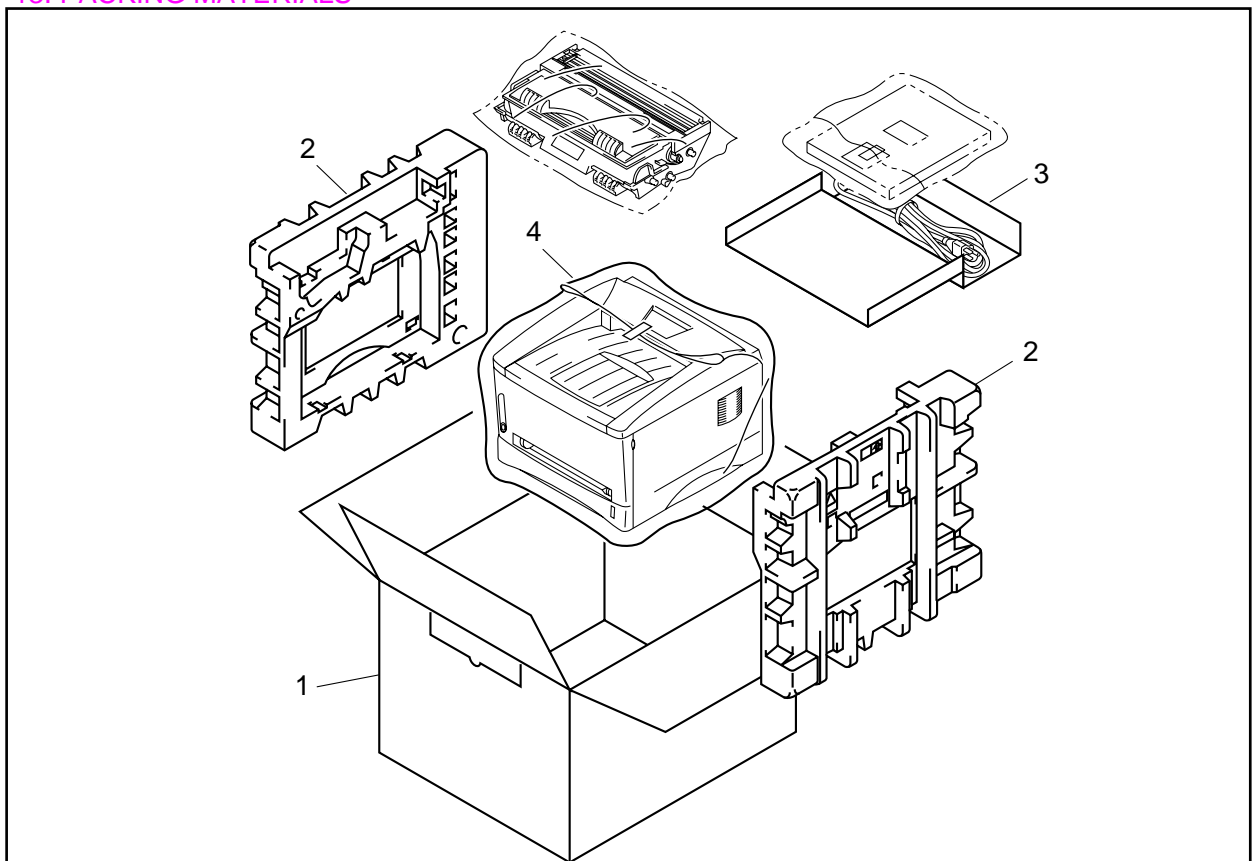
MODEL   HL-1240/HL-1250   84U-Z01/Z02-930
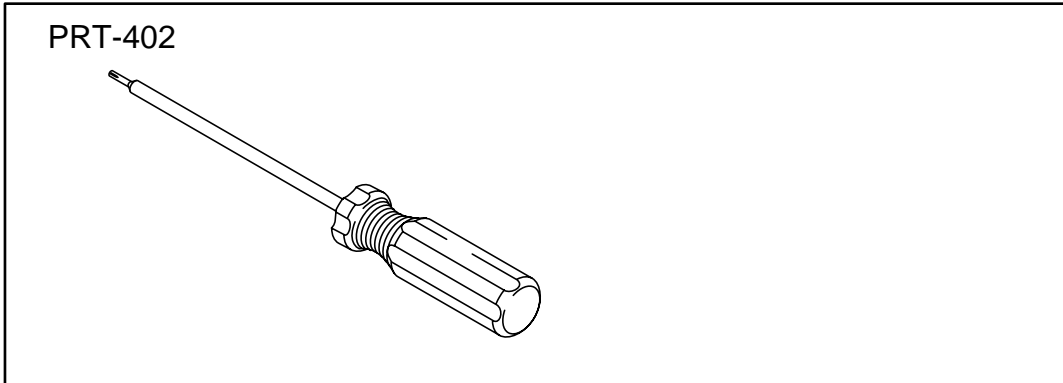
PRT-402

TOOL NO.	TOOL NAME	REMARK
PRT-402	TORX SCREW DRIVER	

MODEL   HL-1240/HL-1250   84U-Z01/Z02

brother®

Brother Laser Printer

HL-1240/1250

User's Guide
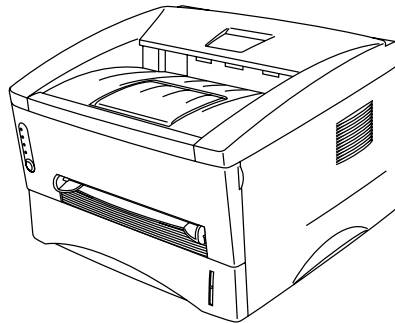
Please read this manual thoroughly before using the printer. You can print or view this manual from the CD-ROM at any time, please keep the CD-ROM in a convenient place for quick and easy reference at all times.

TABLE OF CONTENTS

CHAPTER 2 OPTIONS

CHAPTER 3 MAINTENANCE

CHAPTER 4 TROUBLESHOOTING

APPENDIX

Definitions of Warnings, Cautions, and Notes

The following conventions are used in this User's Guide:

⚠ **Warning**

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

---

❶ **Caution**

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

✎ **Note**

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

To Use the Printer Safely

⚠ **Warning**

- **After you have just used the printer, some internal parts of the printer are extremely hot. When you open the front cover or rear cover of the printer, never touch the shaded parts shown in the following illustration.**
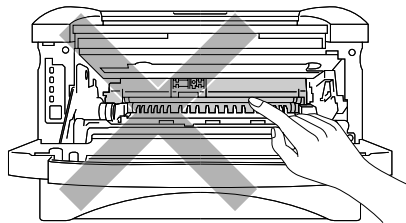
⚠ High Temperature
Front view
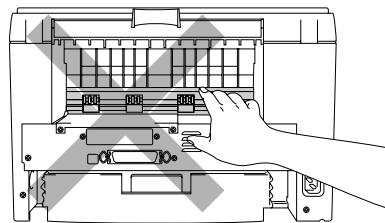
⚠ High Temperature
Rear view

- **There are high voltage electrodes inside the printer. Before cleaning the printer, make sure you have turned off the power switch and unplugged the power cord from the power outlet.**
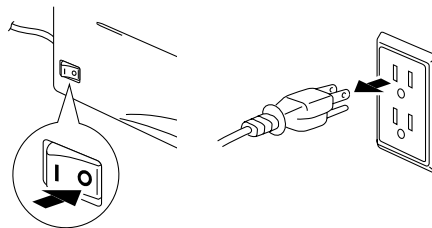
Turning off the Power Switch and Unplug the Printer

Shipment of the Printer

If for any reason you must ship your Printer, carefully package the Printer to avoid any damage during transit. It is recommended that you save and use the original packaging. The Printer should also be adequately insured with the carrier.

❶ Caution

When shipping the Printer, the DRUM UNIT assembly including the TONER CARTRIDGE must be removed from the Printer and placed in the plastic bag. **Failure to remove the unit and place it in the plastic bag during shipping will cause severe damage to the Printer and will VOID THE WARRANTY.**
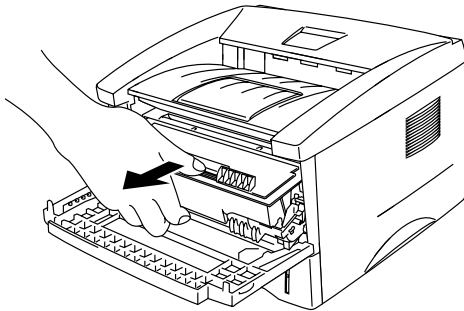
1 Remove the drum unit assembly.	2 Place it in the plastic bag and seal the bag completely.
3 Remove the AC cord from the printer. Re-pack the printer. 	
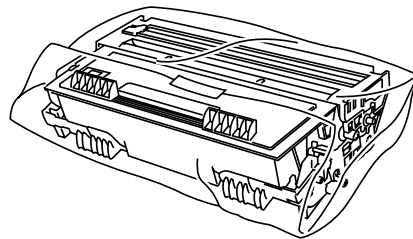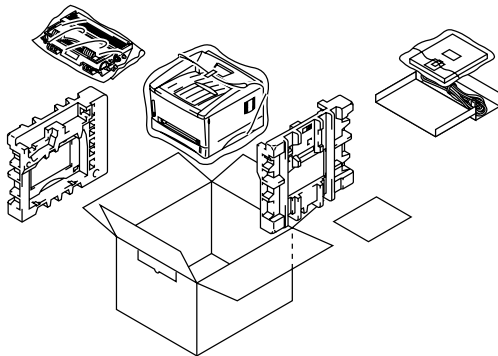
(For USA & CANADA Only)

For technical and operational assistance, please call:

In USA	1-800-276-7746	(within US)
In CANADA	1-800-853-6660	
	514-685-6464	(within Montreal)

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

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

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

BBS
For downloading drivers from our Bulletin Board Service, call:
In USA   1-888-298-3616
In CANADA   1-514-685-2040
Please log on to our BBS with your first name, last name and a four digit number for your password. Our BBS supports modem speeds up to 14,400, 8 bits no parity, 1 stop bit.

Fax-Back System
Brother Customer Service has installed an easy to use Fax-Back System so you can get instant answers to common technical questions and product information for all Brother products. This is available 24 hours a day, 7 days a week. You can use the system to send the information to any fax machine, not just the one you are calling from.
Please call 1-800-521-2846 (U.S.A) or 1-800-681-9838 (Canada) and follow the voice prompts to receive faxed instructions on how to use the system and your index of Fax-Back subjects.

DEALERS/SERVICE CENTERS (USA only)
For the name of an authorized dealer or service center, call 1-800-284-4357.

SERVICE CENTERS (Canada only)
For service center addresses in Canada, call 1-800-853-6660

INTERNET ADDRESS
For technical questions and downloading drivers: **http://www.brother.com**

CHAPTER1
ABOUT THIS PRINTER

What is included in the carton

Components

When you unpack the printer, check to see that you have all of the following parts:
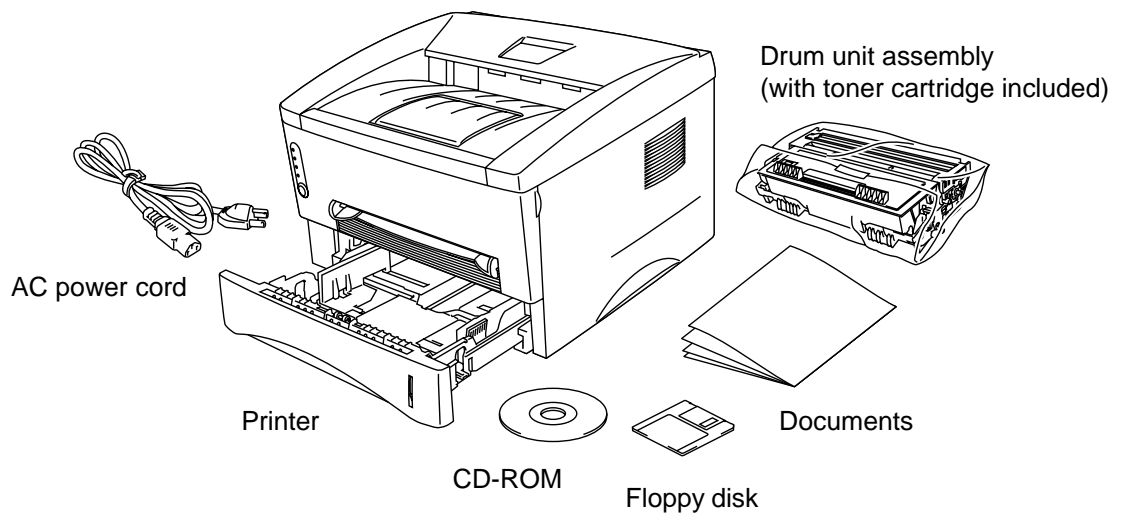
Fig. 1-1 Components in the Printer Carton

Components may differ from one country to another.

About your printer

Face down output tray

Tray extension flap

Manual feed slot

Control panel

Paper cassette

Front cover

Manual feed paper guides

Fig. 1-2 Front View

Rear cover

Rear cover

Modular jack for lower tray unit

AC power inlet

AC power inlet

Parallel Interface connector

USB (Universal Serial Interface Bus) connector
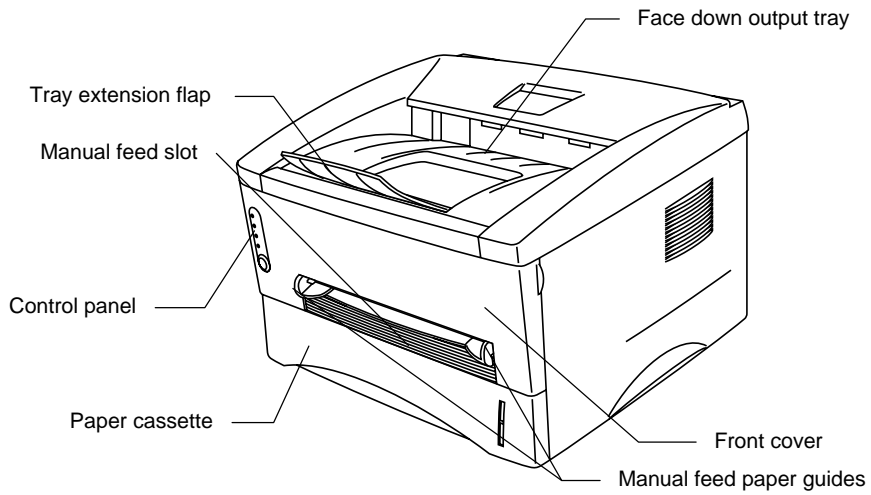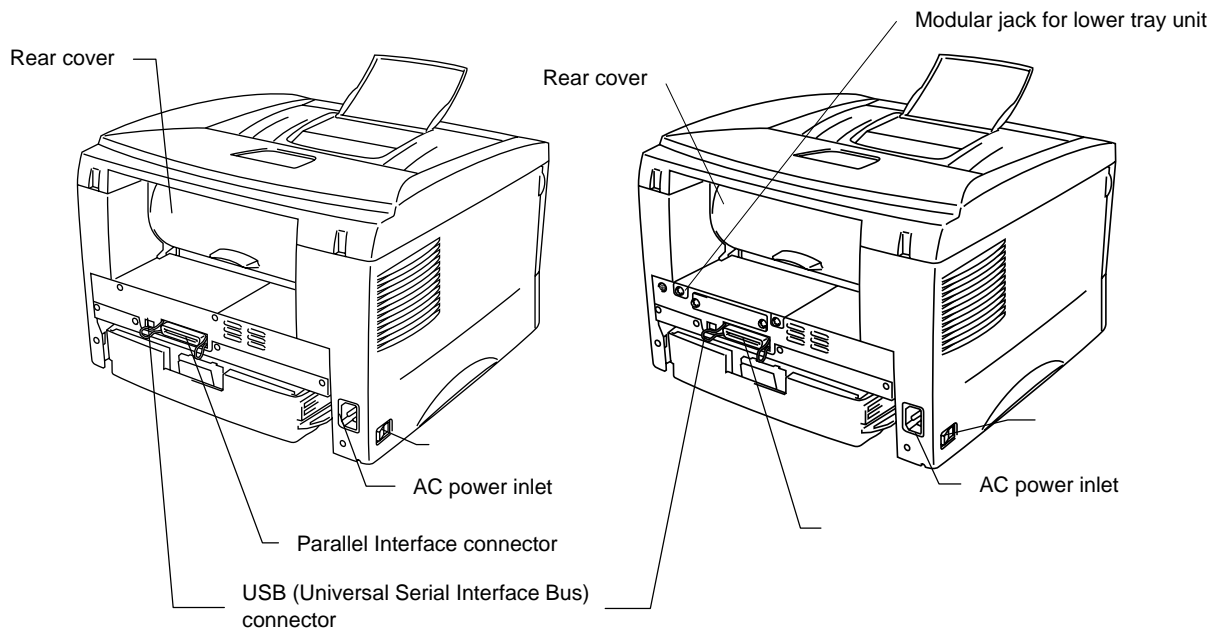
Fig. 1-3 HL-1240 Rear View

Fig. 1-4 HL-1250 Rear View

Features of your printer

❏ **High Resolution and Fast Printing Speed**

HL-1240 :

True 600 x 600 dots per inch (dpi) (GDI mode), True 300 x 300 dots per inch (dpi) (PCL mode) with microfine toner and up to 12 pages per minute (ppm) print speed (A4 or Letter paper).

HL-1250 :

True 600 x 600 dots per inch (dpi) and 1200 x 600 dpi for graphics with microfine toner and up to 12 pages per minute (ppm) print speed (A4 or Letter paper).

❏ **Front Operation**

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

❏ **Versatile Paper Handling**

This printer loads paper automatically from the paper cassette. The paper cassette can hold A4, letter, B5, Executive, A5 and A6 sizes of paper. The manual feed slot allows manual paper loading sheet by sheet so you can use a variety of types and sizes of paper. For additional information, see "What kind of paper can I use" in Chapter 1.

❏ **Enhanced Printing Performance and User-Friendly Operation for Windows®**

The dedicated printer drivers for Microsoft® Windows® 95/98, Windows 3.1 and Windows NT 4.0 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 the 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 and many layout functions. You can easily set these print options through the Printer Setup Menu.

❏ Quick Print Setup

You can easily make changes to settings which you need to change frequently in a small selection window on your screen.

❏ Remote Printer Console Program for DOS

The Remote Printer Console (RPC) utility program is available on the CD-ROM supplied with your printer. When you operate your computer in a DOS (Disk Operating System) environment, this program allows you to easily change the default settings of the printer such as fonts, page setup, and emulations.

This program also provides a status monitor program, which is a Terminate-and-Stay Resident (TSR) program. It can monitor the printer status while running in the background and report the current status or errors on your computer screen.

❏ Popular Printer Emulation Support

These printers support the following popular printer emulation modes.

The *HL-1240* supports HP LaserJet IIP (PCL4).

The *HL-1250* supports HP LaserJet 6P (PCL6), Epson FX-850 and IBM Proprinter XL. 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 and Epson or HP and IBM. If you want to select the printer emulation, you can do it using the Remote Printer Console Program.

❏ Printer Status Monitor with Bi-directional Parallel Interface

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. For example: when your printer is out of paper, the dialog box will display "No Paper" and instructions for the proper corrective action.

❏ USB Interface (For Windows 98, iMac and Power Macintosh G3 with USB users Only)

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

❏ High Resolution Control & Advanced Photoscale Technology (For HL-1250 Only)

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.

❏ Enhanced Memory Management

The printer provides its own data compression technology in the printer hardware and the supplied printer driver software, which can automatically compress graphic 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 larger fonts, with the printer's standard memory.

❏ Environment-Friendly

Economy Printing Mode
This feature will cut your printing cost by saving toner. It is useful to obtain draft copies for proof-reading. You can select from two economy modes—25% toner saving and 50% toner saving—through the Windows printer driver supplied with your printer.

Sleep Mode (Power Save Mode)
When the printer is not used for a certain period of time, sleep mode automatically reduces power consumption. The HL-1240 consumes less than 5 Watts, the HL-1250 consumes less than 6 Watts 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 approximately 3,000 pages, which is both cost effective and ecologically friendly. (**An optional high capacity toner unit that will print up to 6,000 pages can also be used in this printer.**)

The actual number of pages printed with a toner cartridge may vary depending on your average type of print job, the figures quoted are based on 5% coverage per page.

You can print up to 20,000 pages with the drum unit, however there are many factors that determine the actual drum life.

❏ Bar Code Print (HL-1250 Only)

This printer can print the following 11 types of bar codes:

- Code 39
- Interleaved 2 of 5
- EAN-8
- EAN-13
- UPC-A
- EAN-128

- UPC-E
- Codabar
- US-PostNet
- ISBN
- Code 128

What printer options are available

❏ **External Print Server (Brother NC-2010p)**

An optional Network print server Brother NC-2010p is available, which allows your printer to be connected to your Network via the parallel interface. See "What is the Brother print server (NC-2010p)" in Chapter 2

❏ **Lower Tray Unit (LT-400) (HL-1250 Only)**

A lower tray unit expands the paper source capacity. You can load extra paper and switch between the upper and lower paper sources automatically. See "The Lower Tray Unit" in Chapter 2.

❏ **Serial Interface (RS-100M) (HL-1250 Only)**

To connect the printer to a computer or a Unix workstation with a serial interface or to an Apple Macintosh computer, you need to install the optional interface board (RS-100M). See "How to use the SERIAL INTERFACE (RS-100M) connection" in Chapter 2.

❏ **SIMM (Memory) (HL-1250 Only)**

The printer has 4.0 Mbytes of standard memory and one slot for optional additional memory. The memory can be expanded up to 36 Mbytes by installing a commercially available single in-line memory modules (SIMM). It is recommended to add memory if you want to print graphics at higher resolutions.

Place the printer

Please take note of the following before using the printer.

Power Supply

- Use the printer within the specified power range.
    AC power: ±10% of the rated power voltage in your country
    Frequency: 50 Hz (220 V– 240 V) or 50/60 Hz (110–120 V)
    Check the rating plate on the back of the printer for your model's
    specification.
- The power cord, including extensions, should not exceed 5 meters (16.5 feet).
- Do not share the same power circuit with other high-power appliances,
  particularly an air conditioner, copier, shredder and so on. If it is unavoidable
  that you must use the printer with these appliances, it is recommended that you
  use an isolation transformer or a high-frequency noise filter.
- Use a voltage regulator if the power source is not stable.

Environment

- The printer should be installed near a power outlet, which is easily accessible.
- Use the printer only within the following ranges of temperature and humidity.
    Ambient temperature: 10°C to 32.5°C (50°F to 90.5°F)
    Ambient humidity: 20% to 80% (without condensation)
- The printer should be used in a well ventilation room.
- Place the printer on a flat, horizontal surface.
- Keep the printer clean. Do not place the printer in a dusty place.
- Do not place the printer where the ventilation hole of the printer is obstructed.
  Keep a gap of approximately 100 mm (4 inches) between the ventilation hole
  and the wall.
- Do not place the printer where it is exposed to direct sunlight. Use a blind or a
  heavy curtain to protect the printer from direct sunlight when the printer is
  unavoidably set up near a window.
- Do not place the printer near devices that contain magnets or generate magnetic
  fields.
- Do not subject the printer to strong physical shocks or vibrations.
- Do not expose the printer to open flames or salty or corrosive gasses.
- Do not place objects on top of the printer.
- Do not place the printer near an air conditioner.
- Keep the printer horizontal when carrying.
- Do not cover the slots in the top cover.

System Requirements for the Brother Printing Solution for Windows

Check the following system requirements to setup and operate the printer in Brother Printing Solution for Windows:

- IBM PC or compatible with 80486 SX or higher microprocessor
- 10 MB of space available on your hard disk for the printer driver and all fonts
- Microsoft Windows 3.1/3.11, Windows 95/98 or Windows NT 4.0

What kind of paper can I use

Media Type

	Paper type	Paper size
Paper cassette (standard)	cut sheet	letter, A4, ISO B5, Executive, A5, A6, and legal (US and Canada Only)
	Transparencies	A4, Letter
Manual feed slot	cut sheet	letter, A4, B5 (JIS/ISO), Executive, A5, A6, legal
	envelope	COM 10, Monarch, C5, DL and ISO B5
	organizer	Day-Timer® J, K, L
	Transparencies	A4, Letter
	Labels	A4, Letter
	other sizes	70-216 x 116-356 mm, 2.75-8.5 x 4.57-14 inches
Optional lower paper cassette (For HL-1250 Only)	cut sheet	letter, A4, ISO B5, Executive, A5 and legal (US and Canada Only)

Paper Specification

Paper Cassette

	Cut Sheet
Basis Weight	64 to 105 g/m^2
Caliper	0.08 to 0.13 mm (0.003 to 0.005 in.)
Moisture Content	4% to 6% by weight

Manual Feed Slot

	Cut Sheet	Envelope
Basis Weight	64 to 158 g/m^2	75 to 90 g/m^2 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

> ☞ **Note**
> • We recommend you use labels or transparencies which are designed for use in laser printers.
> • The printing speed may change, depending on the paper size and the media type in use, in order to avoid damage to the printer.

Paper Capacity

Upper Paper Cassette

A4/Letter paper: Approx. 250 sheets of 80 g/m^2 Up to 27 mm (1.06 inch) in height (up to the mark)

Transparencies   10 sheets

Face down printing into the output tray

A4/Letter paper: Approx. 150 sheets of 80 g/m^2

Face up printing out of the rear of the printer

Thicker paper: Single sheet of thicker paper

Recommended Paper

Cut sheet: Xerox 4200 (in USA) / Xerox 80 Premier Paper (in Europe) or equivalent

Label: Avery laser label or equivalent

Transparencies: 3M CG3300 or equivalent

Remarks

It is recommended that you test paper, especially special sizes and types of paper and heavy paper, on this printer before purchasing large quantities.

Avoid using coated paper, such as vinyl coated paper.

Avoid using preprinted or highly textured paper.

Use a recommended type of paper, especially plain paper and transparencies, for optimum printing. For more information on paper specifications, consult your nearest authorized sales representative or the place you purchased your printer.

If the paper has problems feeding from the paper cassette, use the manual feed slot and try again.

Use neutral paper. Do not use acid paper to avoid any damage to the printer drum unit.

Make sure that you have selected the appropriate media type in the printer driver for optimum printing.

The print quality might be degraded or the life of the drum unit might be shortened with the following usage. Using the printer for special print jobs for long periods of time (i.e. printing name cards, etc.)

Cut Sheet

We recommend you use long-grained paper for the best print quality.
If you are using short-grained paper, it may be the cause of paper jams.

Labels / Transparencies

Avoid feeding labels with the carrier sheet exposed, or your printer will be damaged.

We recommend you use labels or transparencies which are designed for use in laser printers.

Special Paper

Before using paper with holes, such as organizer sheets, you must fan the stack well to avoid paper jams and misfeeds.

Do not use organizer sheets that are stuck together. The glue that is used might cause damage to the printer.

Before using any paper, make sure that it is not curled. If it is, you should straighten the paper as much as possible. Feeding curled paper can cause paper jams and misfeeds.

**Fig. 1-5 Fan the Paper and
Straighten the Paper**

Different types of paper should not be loaded at the same time in the paper cassette, it may cause paper jams or misfeeds.

Envelopes

The following types of envelopes are not recommended for use.

- Damaged, curled, wrinkled, or irregularly shaped envelopes
- Extremely shiny or highly textured envelopes
- Envelopes with clasps
- Envelopes with self-adhesive closures
- Envelopes of baggy construction
- Envelopes not sharply creased
- Embossed envelopes
- Envelopes already printed by a laser printer
- Envelopes pre-printed on the inside
- Envelopes that cannot be arranged uniformly when placed in a pile
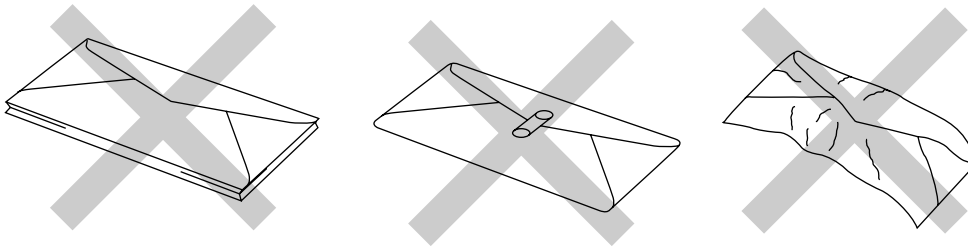
Fig. 1-6 Envelopes

Printable Area

The figure below shows the physically printable area.

6.35 mm
(0.25 in.)

4.2 mm =
(0.17 in.)

5.1 mm
(0.20 in.)

= 4.2mm
(0.17 in.)
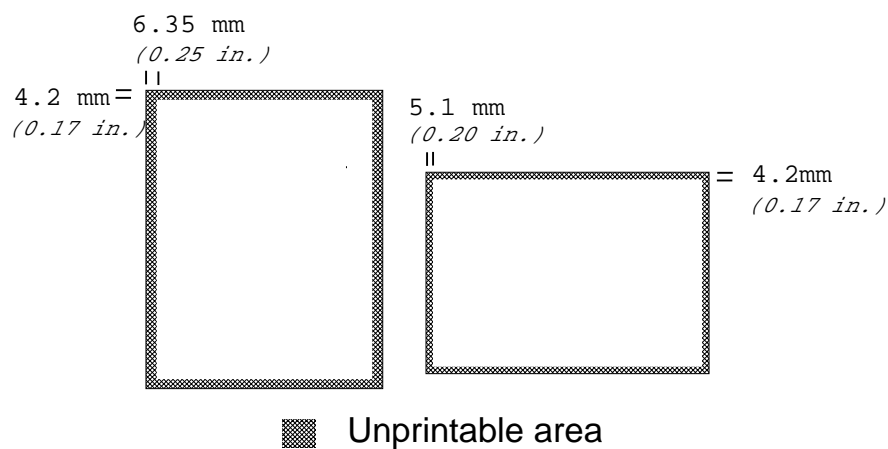
▨ Unprintable area

Fig. 1-7 Printable Area

How to load paper into the Paper Cassette

☛ **1.** Pull the paper cassette completely out of the printer.
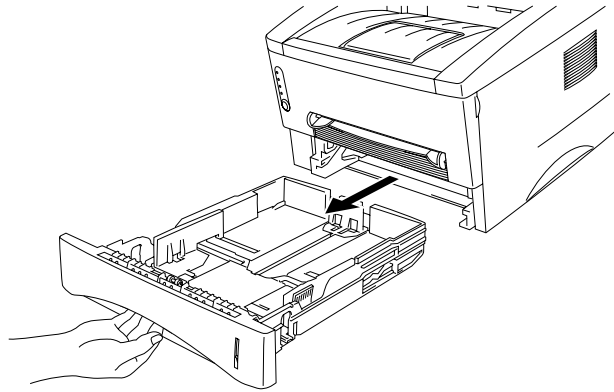
Fig. 1-8 Pull out the paper cassette

☛ **2.** Adjust the paper guides at the right and rear of the paper cassette to match the paper size you want to load. Make sure that the tip of the paper guides fit into the slots correctly.
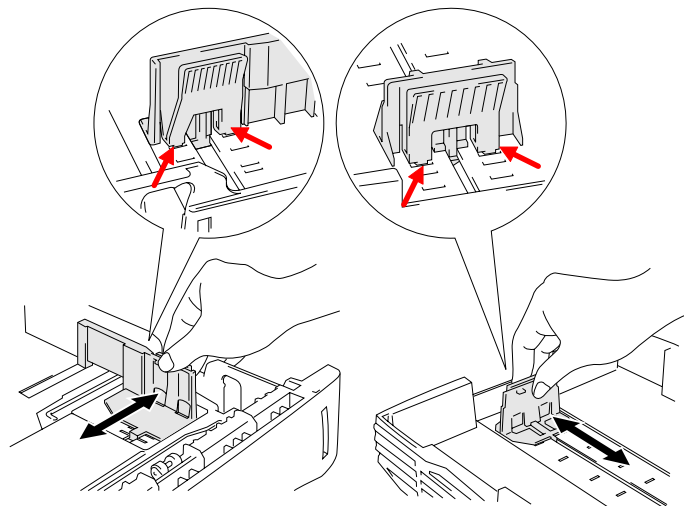
Fig. 1-9 Adjust the paper guides

☛ **3.** Load paper into the paper cassette. Make sure that the paper is flat in the cassette at all four corners.
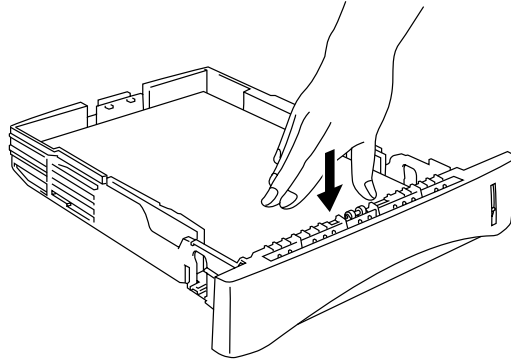
Fig. 1-10 Load the paper

☛ **Note**
Do not load more than 250 sheets of paper (80 g/m^2) in the cassette, or paper jams may occur. Paper should be loaded up to the lines on the sliding guide.
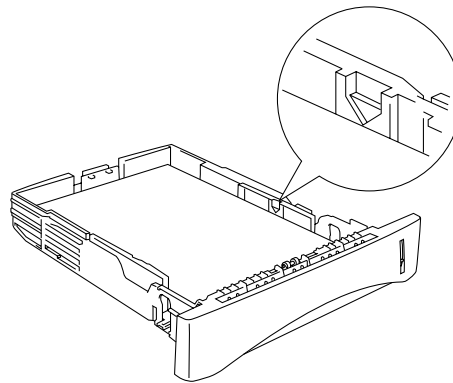
Fig. 1-11 Paper Lines

☛ **4.** Install the paper cassette into the printer. Make sure it is inserted fully into the printer.

☛ **Note**
- Extend the Output tray extension flap to prevent the paper from sliding off the face down output tray.
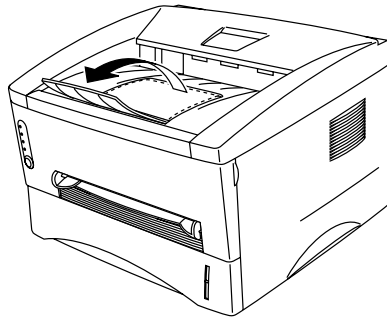
Fig. 1-12 Extend the Output tray extension flap

- We recommend that you remove printed pages immediately after printing if you choose not to extend the Output tray extension flap.

ⓘ **Caution**

Remove each sheet immediately especially when you use transparencies.
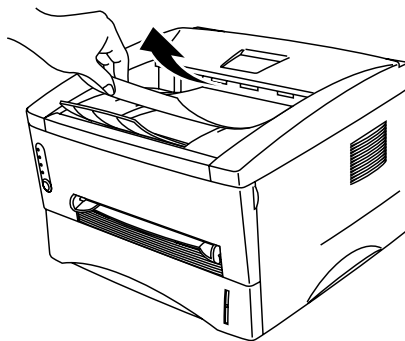
Fig. 1-13 Remove each sheet

How to load a sheet of paper manually

☛ **Note**
- Insert the paper into the manual feed slot using both hands.
- The printer turns the manual feed mode on automatically when you insert paper into the manual feed slot.
- If the paper you are printing is between A4 and A6 in size, and between 64 g/m^2 and 105 g/m^2 we recommend that you use the paper cassette.

You may also view the technique of loading one sheet of paper manually in the instructional video on the supplied CD-ROM.

☛ **1.** Select manual feed mode in the printer driver.

<Windows 95 / 98 and Windows 3.1>

<Windows NT4.0>
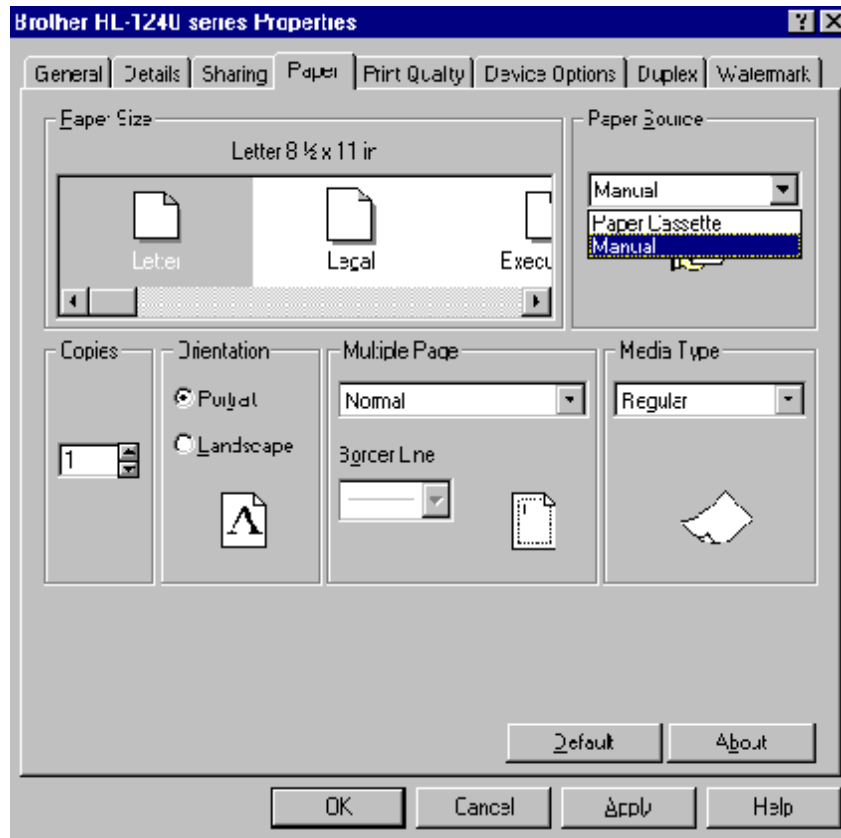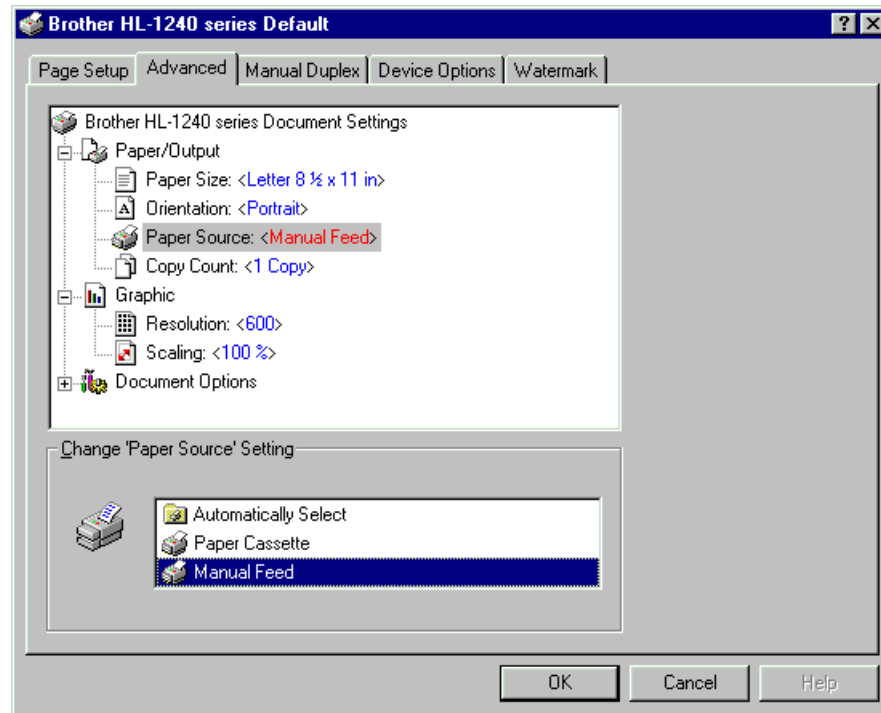
Fig. 1-14 Select manual feed mode

☛ **2.**   Send the print data to the printer.

☛ **Note**

A "NO PAPER" message is shown in the Status Monitor until you insert a sheet of paper into the manual feed slot.
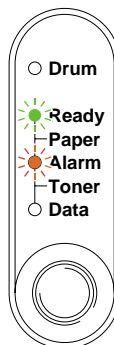
Fig. 1-15 No paper

☛ **3.** Set the width of the manual feed slot paper guides using both hands to the paper width to be used.
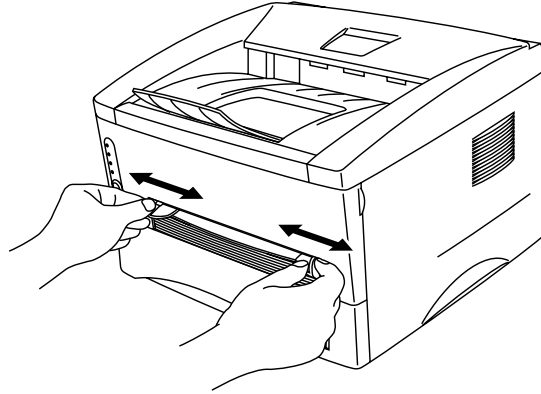
Fig. 1-16 Set the width of the manual feed slot paper guides

☛ **4.** Insert the paper into the manual feed slot with both hands until the front edge of the paper touches the paper feed roller. Hold the paper in this position until the printer feeds the paper in automatically a short distance and then let go of the paper.
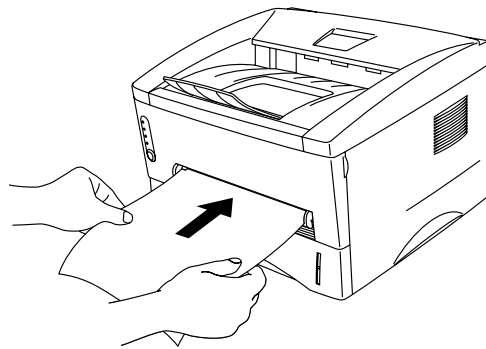
Fig. 1-17 Insert the paper

☛ **5.** After the printer ejects the printed page, insert the next sheet of paper as in step 4 above. The printer will wait until you insert the next sheet of paper. Repeat this as necessary for the number of pages you need to print.

To print on thicker paper and card

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

☞ **1.** Select manual feed mode in the printer driver.

☞ **2.** Lift up the rear cover at the rear of the printer.
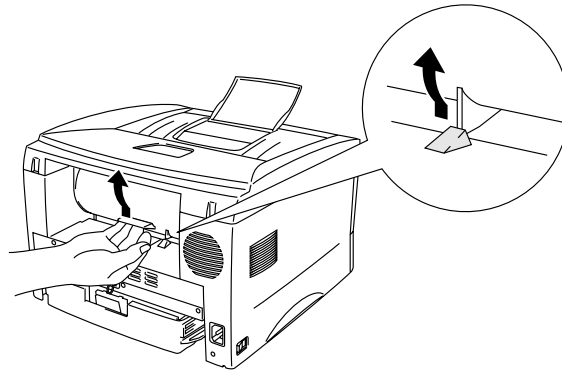
Fig. 1-18 Lift up the rear cover

☞ **3.** Send the print data as usual.

☛ **Note**

A "NO PAPER" message is shown in the Status Monitor until you insert a sheet of paper into the manual feed slot.

○ **Drum**
Ready
Paper
Alarm
Toner
○ **Data**
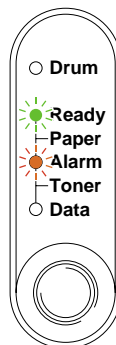
Fig. 1-19 No paper

☛ **4.** Set the width of the manual feed paper guides using both hands to the paper width you want to use.

☛ **5.** Insert the paper into the manual feed slot with both hands until the front edge of the paper touches the paper feed roller. Hold the paper in this position until the printer feeds the paper in automatically a short distance and then let go of the paper.

☛ **6.** After the printer ejects the printed page, insert the next sheet of paper as in step 5 above. The printer will wait until you insert the next sheet of paper. Repeat this as necessary for the number of pages you need to print.

☛ **7.** Close the rear cover of the printer.

🛑 **Caution**
- Remove each sheet immediately after printing. Stacking the sheets may cause curl or media feed jams.
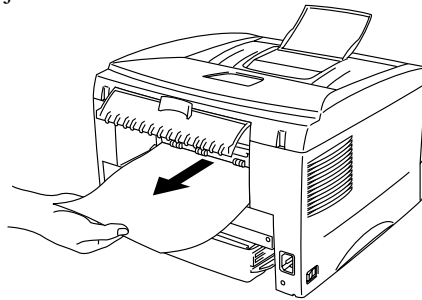
Fig. 1-20 Remove each sheet immediately

How to print on both sides of the paper (Manual Duplexing)

The supplied printer drivers for Windows 95/98, Windows 3.1 and Windows NT 4.0 all enable manual duplex printing. For more information about how to make the settings, see the Help text in the printer driver.

Guidelines for printing on both sides of the paper

1 It may cause wrinkling if the paper is too thin.

2 If paper is curled, straighten it and then set it into the paper cassette.

3 The paper type should be regular paper. Do not use bond paper.

4 When setting paper into the paper cassette, empty the cassette first, then insert the printed paper only, printed side face up. (Do not add the printed paper onto the top of the unprinted paper stack.)

5 If the paper is not feeding correctly, it is possible that the paper is curled, remove the paper and straighten it.

To print on both sides of the paper from the paper cassette

☛ **1.** Select the required manual duplex printing mode from the driver.

☛ **2.** The printer will automatically print all the even numbered pages on one side of the paper first.

☛ **3.** Remove the printed even numbered pages from the output tray and re-insert them into the paper cassette, loading the paper with the side to be printed (blank side) face down, and the top edge toward you. Follow the instructions on the computer screen.
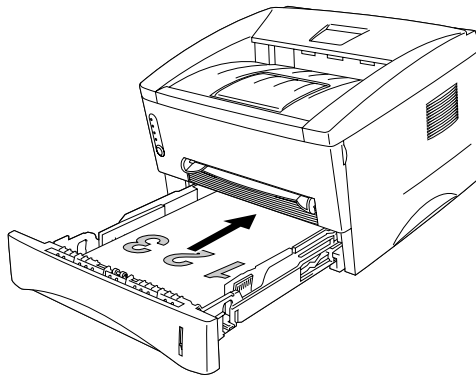
Fig. 1-21 Paper orientation for the paper cassette

☛ **4.** The printer will now automatically print all the odd pages on the reverse side of the paper.

To print on both sides of the paper from the manual feed slot

> **⚠ Caution**
> - Before re-inserting the sheets, you have to straighten them, or you may get paper feed errors.
> - The use of very thin or very thick paper is not recommended.
> - When you use the Manual Duplex function, it is possible that paper jams may occur or print quality might not be satisfactory. If a paper jam has occurred, please refer to "PAPER JAMS and how to clear them" in Chapter 4.

☛ **1.** Select the required manual duplex printing mode and manual feed mode from the driver.

☛ **2.** Using both hands, insert the paper into the manual feed slot with the side to be printed first facing upwards.
Follow the instructions on the computer screen.
Repeat this until you have printed all the even numbered pages.

☛ **3.** Remove the printed even numbered pages from the output tray and re-insert them in order into the manual feed slot, loading the paper with the side to be printed (blank side) face up, and the top of the printed side towards the printer. Follow the instructions on the computer screen.
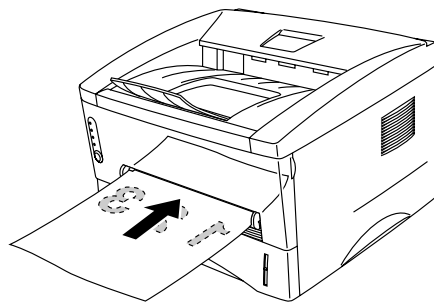
Fig. 1-22 Paper operation for the manual feed slot

☛ **4.** Repeat action 3 until you have printed all the odd numbered pages on the reverse side of the paper.

What do the LED indications mean

This section refers to the following LED and button on the printer control panel.

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

○ LED is Off

☀ LED is Blinking

● LED is On
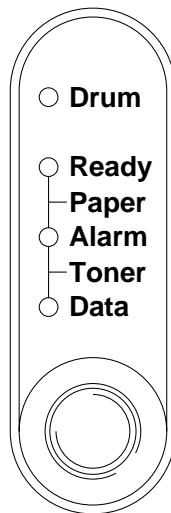
Fig. 1-23 LEDs and Button on the Control Panel
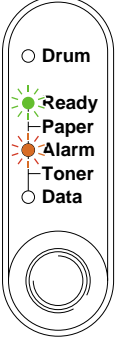
✎ **Note**
When the power switch is off or the printer is in sleep mode, all LEDs including the **Ready** LED are off.

Ready (Paper) LED indications

The **Ready** LED indicates the current status of the printer.

LED	Printer status
Off ◯	The power switch is off or the printer is in sleep mode. If the printer is in sleep mode, it will wake up automatically when it receives data or when you press the control panel button.
Blinking ☀	(Blinking at 1 second intervals) The printer is warming up. (Blinking at 2 seconds intervals) The printer is cooling down and stops printing until the internal temperature of the printer lowers.
On ●	The printer is ready to print.

This LED also works as the **Paper** LED with the **Alarm** LED. They blink simultaneously to indicate a paper error
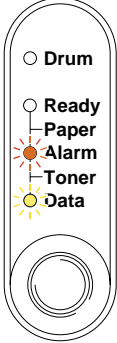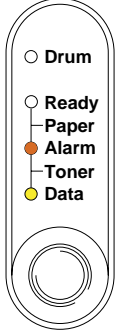
LED	Error	Action
◯ Drum ☀Ready ⊢Paper ☀Alarm ⊢Toner ◯ Data	Paper jam	Clear the paper jam referring to Chapter 4 "PAPER JAMS and How to clear them" and press the panel button if the printer does not automatically resume printing.
	No paper	Load paper in the printer referring to "How to load paper into the Paper cassette" in Chapter 1 and press the panel button.
	Misfeed	Reinstall the paper and press the panel button.

Data (Toner) LED indications

The **Data** LED indicates the current status of the print data process.

LED	Printer status
Off ○	The printer has no print data.
Blinking	The printer is receiving data from the computer or the printer is processing data in memory.
On	Print data remains in the printer memory. If the **Data** LED is on for a long period of time and nothing has printed, you need to press the button to print the remaining data.

This LED also works as the **Toner** LED with the **Alarm** LED. They blink simultaneously to indicate a toner error. See "How to replace the Toner cartridge" in Chapter 3 .

LED	Error	Action
 Blinking every 5 seconds	Toner low	Indicates that the toner cartridge is nearly empty. Purchase a new toner cartridge and have it ready for when Toner empty is indicated.
	Toner empty	Replace the toner cartridge with a new one referring to Chapter 3.

Drum LED indications

The **Drum** LED indicates the Drum unit is nearly at the end of its life.

LED	Printer status
Off ❍	The drum unit can be used.
On 🟡	The drum unit is nearly at the end of its life. We recommend you to obtain a new drum unit to replace the current one. See "How to replace the drum unit" in Chapter 3.

Alarm LED indications

The **Alarm** LED blinks (with no other LEDs) to indicate a printer error status such as "COVER OPEN" or "MEMORY FULL." If any other error occurs, the printer indicates the error by blinking the **Alarm** LED with another LED or by printing an error report. For additional information, see "Control Panel Indications" in Chapter 4.

Control Panel Button Operations

The control panel button is used for the following purposes depending on the situation.

Cancel Printing

If you press the button during printing, the printer immediately stops printing and ejects the paper.

Wake-Up

If the printer is in sleep mode, pressing the button wakes it up into the ready state. It will take up to 45 seconds for the printer to go into the **Ready** state.

Form Feed

If the **Data** LED is on, press the button. The printer prints any data remaining in the printer memory: this operation is called "Form Feed."

Error Recovery

If an error occurs, the printer will recover from some errors automatically. If the error does not clear automatically, press the button to clear the error and continue printer operation.

Other Control Features

The printer has the following useful features:

Sleep Mode

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

✎ **Note**

- When the printer goes into sleep mode, the fan will not stop until the printer engine has cooled down.

- Sleep mode allows the print engine to cool, so the temperature of your room and how long the printer has been in sleep mode affects the warm-up time. This warm-up time can take up to 45 seconds. The **Ready** LED blinks to indicate that the printer is warming up.

- You can change the timeout for the sleep mode with the supplied printer driver (all models) or Remote Printer Console program. Refer to the Help section in the printer driver or RPC program for more information about the sleep mode setting.

Test Print Mode

The printer has the following test print modes. Follow these steps:

☛ **1.** Make sure that the front cover is closed.

☛ **2.** Hold down the control panel button and turn on the power switch. Keep the button depressed until the **Drum** LED comes on.

The **Drum** LED illuminates to indicate that the printer is in the test print mode.

☛ **3.** Release and then press the button again to execute the test print or hold down the button to select another option as shown in the table below and release the button to execute the selected option.

LED Lit	Choice	Function
Drum	Test sample page	The printer prints a test sample page. The printer returns to the ready status after printing.
Ready	Print Config & Print Fonts I	The printer prints the current configuration of the printer and a list of the internal fonts. The printer returns to the ready status after printing.
Alarm	Factory Reset	The printer is restored to the factory setting and permanent fonts and macros are cleared. The printer returns to the ready status after printing.
Data	Hex Dump Print	The printer can print data as hexadecimal values so that you can check data errors and problems. To exit from this mode, you have to turn off the printer.

CHAPTER2
OPTIONS

Optional Accessories and Supplies

This printer has the following optional accessories and supplies, and you can increase the capabilities of the printer with these items.

Supplies

	Item	Information
1	Toner cartridge	See page 3-3
2	Drum unit	See page 3-9
3	Print Server	See page 2-9
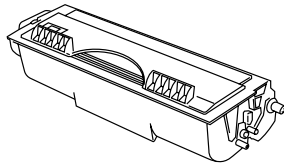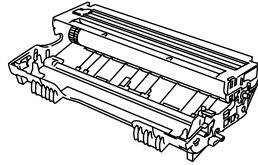
1　　　　　　　**2**　　　　　　　**3**

<For HL-1250 Only>
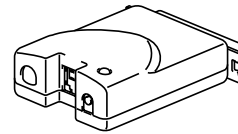
	Item	Features	Information
1	Lower Tray Unit	Paper feeder and 250 sheet tray	See page 2-2
2	Serial Interface	Connect the printer to the computer serial port or to a Unix workstation.	See page 2-3
3	SIMM	The memory can be expanded up to 36 Mbytes	See page 2-10.
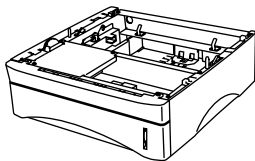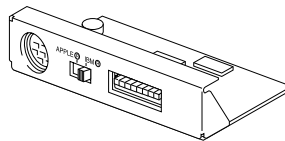
1　　　　　　　**2**　　　　　　　**3**
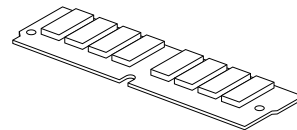
The Lower Tray unit (For HL-1250 Only)

The lower tray unit is an optional device that functions as a third paper source. It can contain a maximum of 250 sheets of paper (80 g/m^2).
To obtain the optional lower tray unit, please consult the dealer or store where you purchased the printer.
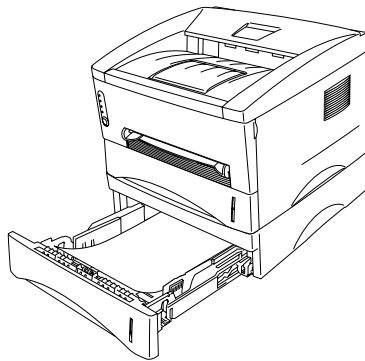
Fig. 2-1 Loading Paper in the Lower Tray Unit

With the lower tray unit installed, load paper into the lower paper cassette in exactly the same way as you load paper in the upper paper cassette.

The paper sizes that may be used in the lower paper cassette are not the same for the upper paper cassette as shown below.

Paper type	Available size	Weight and capacity
Cut sheet	letter, A4, ISO B5, Executive, A5 and legal (US and Canada Only)	64 to 105 g/m^2 plain paper 250 sheets

❶ Caution

If a paper jam occurs when using the lower tray unit, check for correct installation of the paper cassette.

How to use the SERIAL INTERFACE (RS-100M) Connection (For HL-1250 Only)

To connect the printer to a DOS computer with a serial interface or to an Apple Macintosh computer with a serial interface, you need to install the optional serial interface board (RS-100M). When you have installed the serial interface board, you can share the printer between two computers (two IBM compatible PCs or one IBM compatible PC and one Apple Macintosh) using the parallel and serial interfaces at the same time. Automatic interface selection between the two connections is a standard feature.

✎ **Note**
- The serial interface board for this printer is an option, but in some countries the serial interface board may have been installed by either the factory or dealer.
- The serial interface for Apple Macintosh (RS-422A) will only print at 300 dpi.

The serial interface board is installed onto the main controller board inside the printer. For installation details, see the instruction guide which is provided with the serial interface board.

How to select the RS-422A (Apple) or RS-232C (IBM) Serial Interface (For HL-1250 Only)

✎ **Note**

This section is only for printer models which have had the serial interface installed.

🛑 **Caution**

Be sure to select the serial interface type to match your computer as follows:
- For Apple Macintosh computers: you should not have to change any settings because the Apple (RS-422A) setting is factory selected (default).
- For IBM compatible PCs you should move the switch to the IBM (RS-232C) setting.
- If you are using an Apple Macintosh on the RS-422A port and an IBM compatible PC on the parallel port, it is not necessary to make any changes to the switch setting.

If necessary, select the interface type as follows:

☛ **1.** Make sure that the printer is in the off-line state.

☛ **2.** Select the RS-422A(Apple) or RS-232C(IBM) interface by changing the serial interface slide switch to the right to select the IBM(RS-232C) interface or to the left to select the Apple(RS-422A) interface.
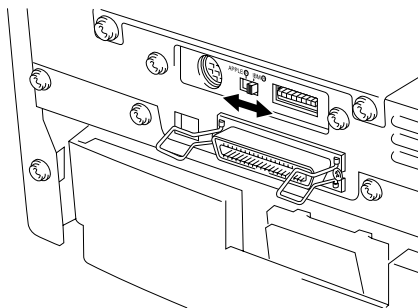
Fig. 2-2 Selecting the RS-422A (Apple) or RS-232C (IBM) Serial Interface

How to set the Serial Interface Parameters

> ✎ **Note**
> This section is only for printer models which have had the serial interface installed.

> ❗ **Caution**
> Be sure to set the parameters to match your computer as follows:
> * Never change the RS-422A parameters for Apple Macintosh computers. The RS-422A parameters have been correctly set at the factory for Apple Macintosh computers, you do not need to change the settings. You may skip this section. If you change parameters for the RS-232C serial interface and you switch back to RS-422A for Apple Macintosh computers, be sure to restore the parameters to the factory settings.
> * Set the RS-232C parameters to match your computer. You can change the serial settings for your PC in several different places; within your DOS application, within the Windows Printer Icon (for Windows application software only) or within your AUTOEXEC.BAT file using MODE commands. For information on serial interface parameters, see the user's guide of your computer or software.
> * Do not alter the dual in - line package (DIP) switch settings when the printer power is on.

If necessary, set the serial interface parameters as follow:

☛ **1.** Make sure that the printer is in the off-line state.

☛ **2.** Set the serial interface parameters you require by referring to Table 1 below and by moving up (on) or down (off) the selectors of the dual in-line package (DIP) switch. The default settings for both RS-422A and RS-232C modes are all switches set to OFF (down).
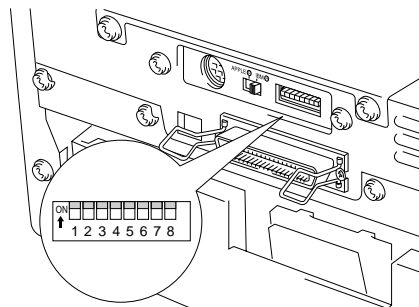
Fig. 2-3 Setting the Serial Interface Parameters

Table 1: Serial Interface Parameters Settings

Selector	Parameters	On (up)	Off (down)
1	Baud Rate	See Table 2	
2	Baud Rate	See Table 2	
3	Data Length	7 bits	8 bits
4	Stop Bit	2 bits	1 bit
5	Parity	See Table 3.	
6	Parity	See Table 3.	
7	Protocol	Xon/Xoff + DTR	DTR only
8	Robust Xon	On	Off

Table 2: Baud Rate Settings

Selector 1	Selector 2	For RS-422A	For RS-232C
Off	**Off**	57600	9600
On	Off	9600	4800
Off	On	1200	1200
On	On	19200	19200

Table 3: Parity Settings

Selector 5	Selector 6	Parity
On	On	Odd
On	Off	Even
Off	**Off**	None

> ✎ **Note**
> - The factory settings are indicated in bold (all switches OFF).
> - If the robust Xon setting is turned on with selector 8, the printer sends Xon signals at one second intervals to the connected computer until it receives data. It is effective only if selector 7 is set to the On position for the Xon/Xoff plus DTR setting.

RS-100M Interface Connector
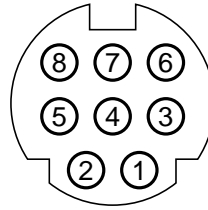
Fig. 2-4 Interface Connector

Pin Assignment

Pin No.	Signal	
	IBM(RS-232C)	Apple(RS-422A)
1	DTR	DTR
2	DSR	DSR
3	TxD	TxD-
4	0V	0V
5	RxD	RxD-
6		TxD+
7		N.C.
8		RxD+

How to connect the Serial Interface Cable

> ✎ **Note**
> This section is only for printer models which have had the serial interface installed.

You need a serial interface cable with an 8-pin, DIN-type connector to connect your printer and computer.

> ✎ **Note**
> - Consult your dealer for a serial interface cable.
> - If you are a Macintosh user, you can easily find the necessary cable at a local computer store. Look for Apple serial cables labeled as "Macintosh to StyleWriter™" or "Macintosh to Personal LaserWriter™ LS" or the "Apple System Peripheral 8 Cable". Do not purchase a serial cable labeled as "Straight-through" or "LocalTalk".
> - If you are a PC user, you need to purchase a special serial cable from your dealer. If you have a 9-pin connector on your computer, look for a cable labeled "IBM AT to ImageWriter II" cable. If you have a 25-pin connector, look for a cable labeled "DB25 to ImageWriter II." These cables most likely would be found in the Apple Macintosh section at your computer dealer. For more information about the interface specification, consult your dealer.

You can connect a parallel and a serial interface cable at the same time. The auto interface selection function allows you to share the printer with two computers. To do this, connect the parallel interface cable and then connect the serial interface cable as follows:

☛ **1**. Make sure that the power switch is turned off.

---

❶ Caution

Be sure to turn off the power switch before connecting or disconnecting the
interface cables, or the printer may be damaged.

☛ **2**. Insert and secure the parallel interface connector from the computer into the parallel
interface port of the printer.

☛ **3**. Insert and secure the serial interface connector from the computer or Macintosh into
the serial interface port of the printer.

☛ **4**. Turn on the power switch.

What is the Brother print server (NC-2010p)

An optional Network print server Brother NC-2010p is available, which allows your printer to be connected to your network via the parallel interface.

Brother print servers allow multiple host computers to share a Brother printer on a 10 Mbit Ethernet network. Any user can print their job as if the printer was directly connected to their computer. No special software is required on the host computers and users on DEC, UNIX, Novell, AppleTalk, LAN Server/Warp Server, Windows NT, Windows 95/98, NetBIOS and Banyan VINES computers can simultaneously access the same printer.

Features

The Brother print servers offers the widest range of features in the industry, including:

- LAT, TCP/IP, Netware, AppleTalk, NetBIOS, Banyan VINES and DLC/LLC protocols
- Network Operating System compatibility:

    - Digital Equipment Corporation networks, including PATHWORKS and DECprint Server
    - UNIX systems that support either the Berkeley lpr/lpd printing protocol, printing to a raw TCP port
    - Novell Netware V2.15 or above, V3.xx, or V4.xx, including support for NetWare Directory Services (NDS)
    - AppleTalk Phase 2
    - Windows NT4.0 and NT3.5x
    - IBM LAN Server V4.0 or above, or any earlier version that has IBM TCP/IP V2.xx
    - Windows 95/98 (Peer-to-Peer or client mode)

- Very high performance
- Superior network and printer management::

    - BRAdmin and BRAdmin32 Windows-based Management utilities.
    - SNMP MIB I and MIB II over IP or IPX
    - Remote console management via DEC NCP, TELNET or NetWare.
    - HTTP web browser management capability

- Ipd-Plus feature for providing multiple services with custom setup and reset strings plus text-to-PostScript conversion
- Flash memory for easy updating of firmware

How to add extra Memory (For HL-1250 Only)

The HL-1240 printer has 2 Mbyte of standard memory and is not able to be upgraded with additional memory.

The HL-1250 printer has 4 Mbyte of standard memory and a slot for optional additional memory. The memory can be expanded up to a total of 36 Mbytes by installing a commercially available single in-line memory module (SIMM).

Additional memory is useful and may be necessary if you are using the Page Protection function.

Minimum Memory Recommendation (including resident memory)

Page Protect = AUTO or Off

	300 dpi	**600 dpi**
Letter/A4	2 MB	2 MB
Legal	2 MB	2 MB

Page Protection = Letter, A4, or Legal

	300 dpi	**600 dpi**
Letter/A4	2 MB	6 MB
Legal	3 MB	6 MB

This printer can accept memory SIMM with the following specifications:

Speed	60 nsec - 80 nsec
Pin Type	72 pin
Height	35.00 mm (1.38") or less
Output	32 bit or 36 bit

> ✐ **Note**
> The HL-1250 can also support a resolution of true 600 dpi and 1200 x 600 dpi under Windows 95/98, Windows 3.1 and Windows NT 4.0 with the supplied printer driver. We recommend you expand the printer memory to avoid any memory full errors.

> ✐ **Note**
> The printer has only one slot for a SIMM upgrade. If you want to increase your printer memory again after you have already installed a SIMM module into the slot, you will need to remove the previously installed SIMM first. For example, if you had previously increased the printer memory from the standard 4MB to 12MB by adding an 8MB SIMM and you wish to increase your total memory to 36 MB, you need to remove the installed 8MB SIMM and install a new 32MB SIMM into the printer.

How to install additional SIMM memory

To install the SIMM, follow these steps:

☛ **1.** Turn off the power switch and unplug the AC cord from the AC outlet. Disconnect the interface cable (printer cable) from the printer.
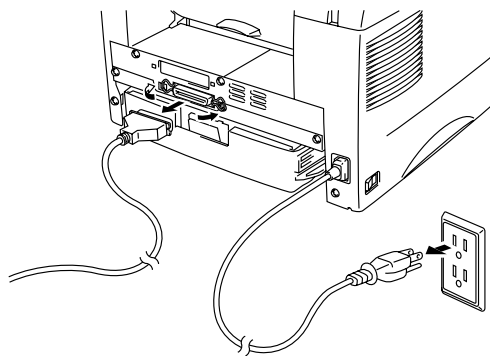
Fig. 2-5 Unplug the AC Cord and Disconnect the Interface Cable

⚠ Caution

Be sure to turn off the power switch and unplug the AC cord to the printer before installing or removing the SIMM to/from the main controller PCB.

☛ **2.** Open the rear cover. Unscrew the screws securing the access cover and remove it.
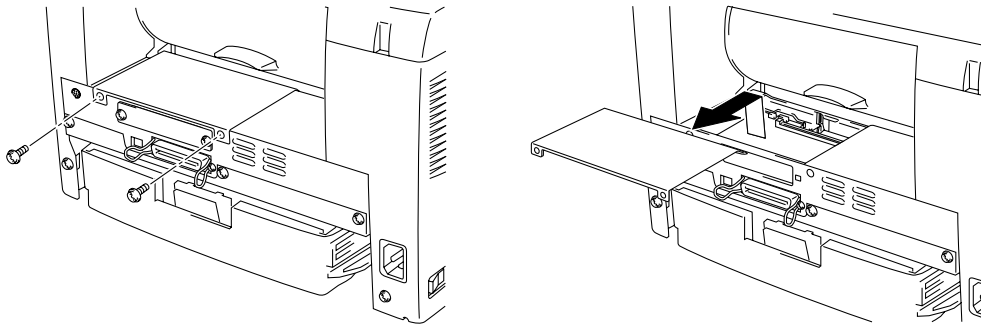
Fig. 2-6 Removing the Main Controller PCB

☛ **3.** Unpack the SIMM and hold it by its edge.

⚠ Caution

SIMM boards may be damaged by even a small amount of static electricity. Do not touch the memory chips or the board surface. When handling the board and before installing or removing it, wear an antistatic wrist strap, or frequently touch the surface of the antistatic package or bare metal on the printer.

☛ **4.** Install the SIMM into the slot at an angle and then push it gently towards the vertical until it clicks into place.
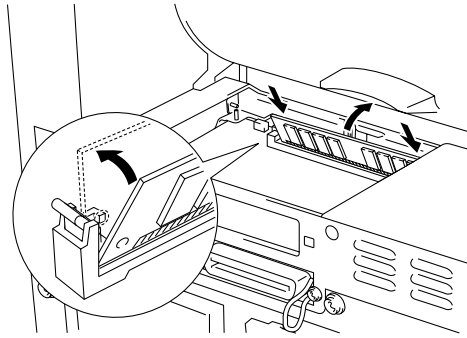
Fig. 2-7 Install the SIMM

☛ **5.** Install the access cover.

☛ **6.** Secure the access cover with the two screws. Close the rear cover.

☛ **7.** Reconnect the interface cable (printer cable) from your computer. Plug the power cord into the AC outlet and turn on the power switch.

☛ **8.** To check that the SIMM is installed correctly, you should perform a Test Print "Print Configuration" which will print the current total memory size.

✎ **Note**
If you have already installed the serial interface (RS-100M), remove it first, and then install the SIMM.

CHAPTER3
MAINTENANCE

The following are maintenance messages and appear on the LEDs. These messages prompt you to replace each of the consumables before they run out.

LED maintenance message	Consumable to replace	Approximate life	How to replace
Toner empty	Toner cartridge	3,000 pages * (standard toner cartridge) 6,000 pages * (high capacity toner cartridge)	See 3-3
Drum life	Drum unit	Up to 20,000 pages *	See 3-9

Periodic maintenance parts

To maintain print quality, the fixing unit should be replaced after printing the following number of pages.

Item	Approximate life	To purchase replacement
Fixing unit	50,000 pages *	Call customer support
Separator pad holder assy	50,000 pages *	Call customer support
Pick up roller assy	50,000 pages *	Call customer support

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

How to replace the Toner Cartridge

The printer, when the standard capacity toner cartridge is used, can print approximately 3,000 pages at 5% coverage on A4/Letter size paper with one toner cartridge. When the High capacity toner cartridge is used, approximately 6,000 pages can be printed under the same conditions. When the toner cartridge is running low, the **Alarm** and **Data** (Toner) LEDs blink once every 5 seconds to indicate toner low.

✐ **Note**
- Actual page count will vary depending on your average document type. (i.e.: standard letter, detailed graphics, etc.)
- It is recommended that you always keep a new toner cartridge ready for use in case you get a toner low warning.
- Discard the used toner cartridge according to your local regulations. If you are not sure of them, consult your local dealer. Be sure to seal the toner cartridge tightly so that toner powder does not spill out of the cartridge. Dispose of the used toner cartridge in accordance with local plastic waste regulations.
- It is recommended that you clean the printer when you replace the toner cartridge. See "How to clean the printer" in this chapter, you can also view the CD video.
- There are many factors that determine the actual toner life, such as temperature, humidity, type of paper that you use, the number of pages per print job, etc. Under ideal conditions, the average toner life is estimated at approximately 3,000 pages (standard) / 6,000 pages (High capacity toner cartridge). The actual number of pages that your toner will print may be significantly less than this estimate. Because we have no control over the many factors that determine the actual toner life, we cannot guarantee a minimum number of pages that will be printed by your toner.
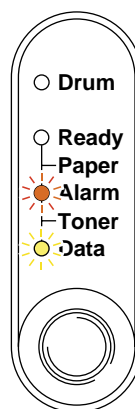
Fig. 3-1 Toner low indication

The toner cartridge is replaced in the following way. You can also view the toner
cartridge replacement method in the instructional video on the supplied CD-ROM:

☛ 1.   Open the front cover. Pull out the drum unit assembly.
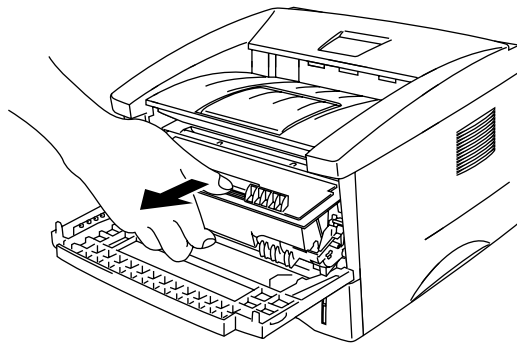
Fig. 3-2 Removing the drum Unit

❗ Caution
- It is recommended that you put the drum unit assembly on a piece of disposable
  paper or cloth in case of accidental toner spill or scatter.
- Do not touch the electrodes shown below to prevent damage to the printer
  caused by static electricity.
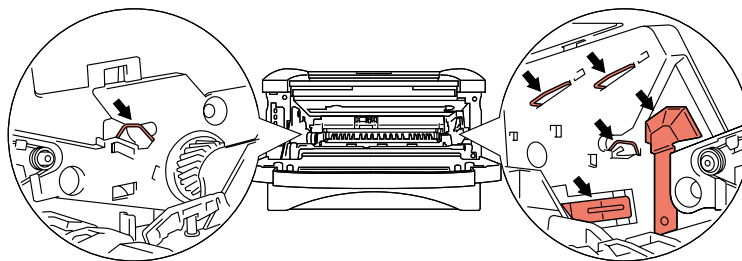
Fig 3-3 Electrodes

☛ **2.** Place the drum unit assembly containing the old toner cartridge on a flat, horizontal surface, and pull the toner cartridge out of the drum unit assembly while pushing the lock lever down with your right hand.
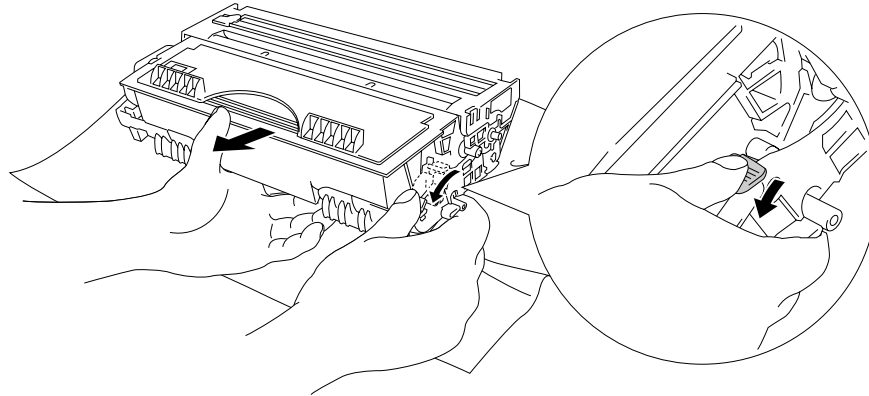
Fig. 3-4 Removing the old toner cartridge

⚠ **Caution**

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

☛ **3.** Unpack the new toner cartridge, gently rock it from side to side 5 or 6 times keeping it horizontal.
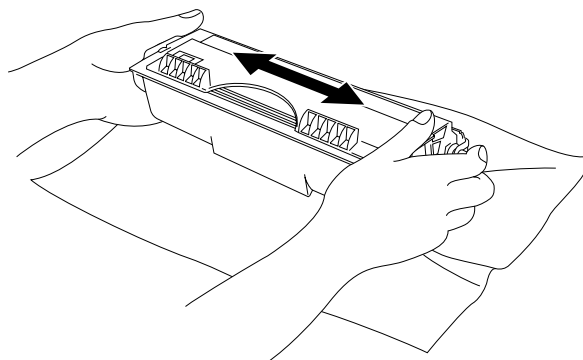
Fig. 3-5 Rocking the toner cartridge

☛ **4.** Remove the protective cover.
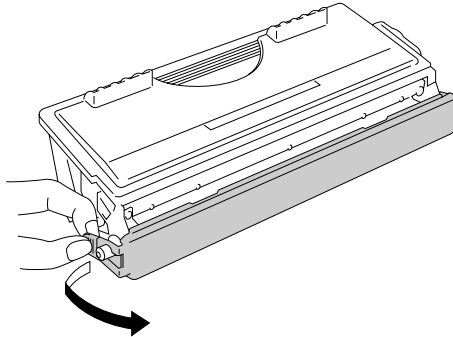
Fig.3-6 Remove the protective cover

⚠ Caution

- Only unpack the toner cartridge immediately before you need to install it into the printer. If toner cartridges are left unpacked for a long period of time, the toner life is shortened.
- If an unpacked drum unit is subjected to excessive direct sunlight or room light, the unit may be damaged.
- Use a Brother genuine toner cartridge which is specially formulated to ensure top print quality.
- Printing with a 3rd party toner or 3rd party toner cartridge may reduce not only the printing quality but also the quality and life of the printer itself. It may also cause serious damage to the performance and life of a genuine Brother drum unit. Warranty coverage does not apply to problems caused by the use of 3rd party toner or 3rd party toner cartridges.
- Printing with a 3rd party drum unit or OPC drum may reduce not only the printing quality but also the quality and life of the printer itself. It may also cause serious damage to the performance and life of a genuine Brother drum unit. Warranty coverage does not apply to problems or damage caused by the use of a 3rd party drum unit or OPC drum.
- Install the toner cartridge immediately after you remove the protective part. Do not touch the shaded part shown below.
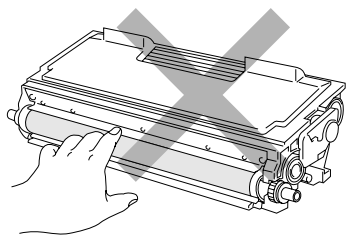
Fig. 3-7 Developer roller   **Fig. 3-8 OPC drum**
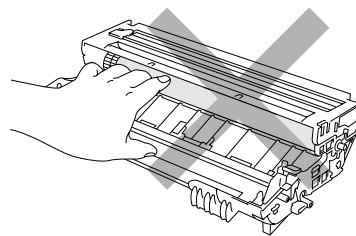
☛ **5.** Install the new toner cartridge into the drum unit until it locks into place, indicated by a click. When the toner cartridge is installed correctly, the lock lever is lifted automatically.
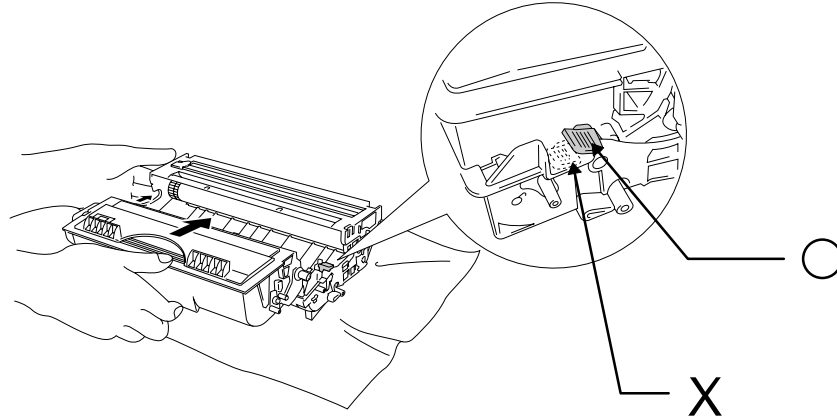
**Fig. 3-9 Installing the toner cartridge
into the drum unit**

---

❶ Caution

Make sure that the toner cartridge is installed correctly, or the toner cartridge may separate from the drum unit when you hold the drum unit assembly.

☛ **6**. Clean the primary corona wire inside the drum unit by gently sliding the blue tab to the right end and left end several times. Return the tab to the home position before reinstalling the drum unit assembly.

Home Position (▲)

Fig. 3-10 Cleaning the primary corona wire

⚠ **Caution**

Make sure that you return the tab to the home position (▲ mark position) before reinstalling the drum unit assembly into the printer or printed pages may have vertical stripes.

☛ **7**. Re-install the drum unit assembly into the printer and close the front cover.
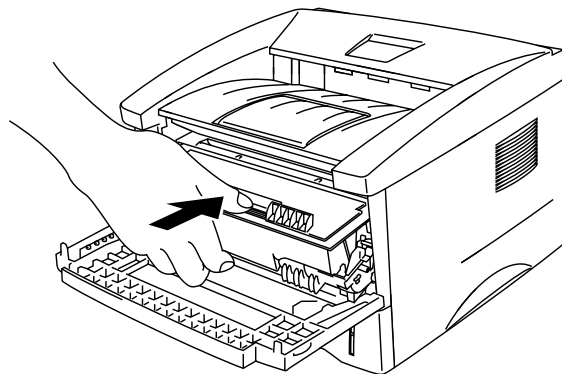
Fig 3-11 Re-install the drum unit assembly

How to replace the Drum Unit

The printer uses a drum unit to create the print images on paper. If the **Drum** LED is on, it indicates the drum unit is nearly at the end of its life. We recommend you obtain a new drum unit to replace the current one. Even if the **Drum** LED is on, you may be able to continue to print without replacing the drum unit for a while. If there is a noticeable deterioration in the output print quality even before the **Drum** LED lights, then the drum unit should be replaced.
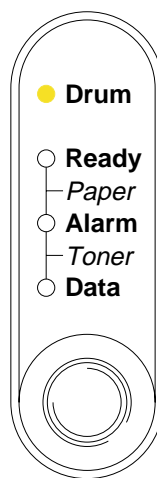
Fig. 3-12 Drum unit nearly at the end of its Life

---

❶ Caution
- When removing the drum unit, handle it carefully as it may contain toner.
- You should clean the printer when you replace the drum unit. See "How to clean the printer" in this chapter and in the instructional video on the supplied CD-ROM.

✎ Note
- The drum unit is a consumable, and it is necessary to replace it periodically.
- There are many factors that determine the actual drum life, such as temperature, humidity, type of paper and toner that you use, the number of pages per print job, etc. Under ideal conditions, the average drum life is estimated at approximately 20,000 pages. The actual number of pages that your drum will print may be significantly less than this estimate. Because we have no control over the many factors that determine the actual drum life, we cannot guarantee a minimum number of pages that will be printed by your drum.
- For best performance, use only genuine Brother toner. The product should only be used in a clean, dust-free environment with adequate ventilation.

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

☛ **1.** Open the front cover of the printer and pull out the drum unit assembly.
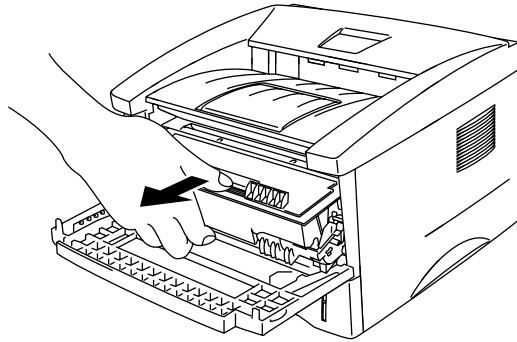
Fig. 3-13 Removing the drum unit assembly
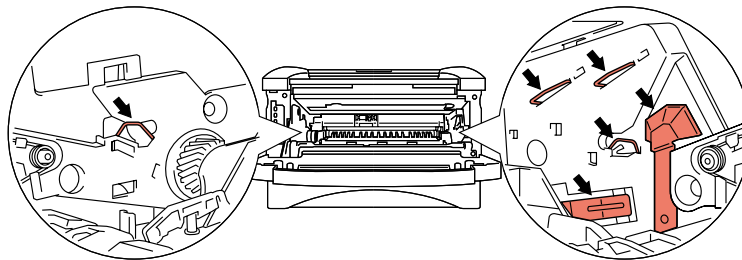
> ❗ **Caution**
>
> Do not touch the electrodes shown below to prevent damage to the printer caused by static electricity.
>
>
>
> **Fig. 3-14 Electrodes**

☛ **2.** Place the drum unit assembly on a flat, horizontal surface, and pull the toner cartridge out of the drum unit assembly while pushing the lock lever down with your right hand.
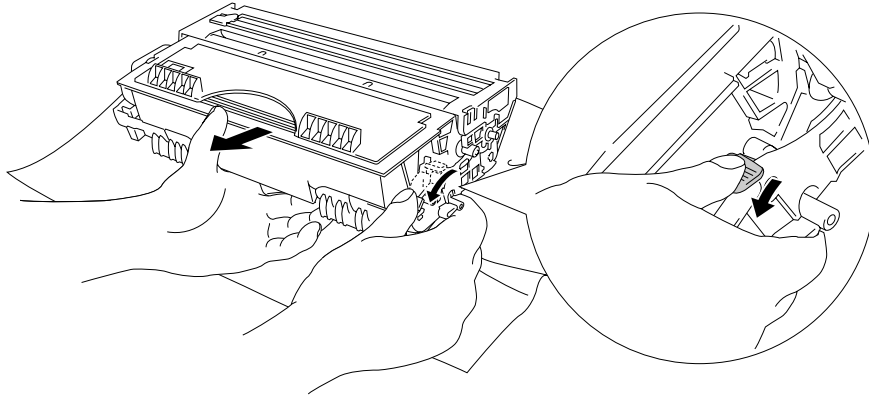
Fig. 3-15 Removing the toner cartridge

✎ **Note**
- Discard the used drum unit according to local regulations. If you are not sure of them, consult your local dealer/retailer. Be sure to seal up the drum unit tightly so that toner powder does not spill out of the unit.
- It is recommended to put the drum unit on a piece of disposable paper or cloth in case of accidental toner spill or scatter.
- Handle the toner cartridge carefully as it contains toner. If toner scatters and your hands or clothes get dirty, wipe or wash it off with cold water immediately.

☛ **3.** Unpack the new drum unit.

❗ Caution
- Only unpack a drum unit immediately before you need to install it into the printer. If an unpacked drum unit is subjected to excessive direct sunlight or room light, the unit may be damaged.
- Handle the drum unit carefully. If toner scatters on your hands or clothes, wipe or wash it off with cold water immediately.

☛ 4. Install the toner cartridge into the new drum unit until it locks into place, indicated by a click. When the toner cartridge is installed correctly, the lock lever is lifted automatically.

> **⑴ Caution**
>
> Make sure that the toner cartridge is installed correctly, or the toner cartridge may separate from the drum unit when you hold the drum unit assembly.
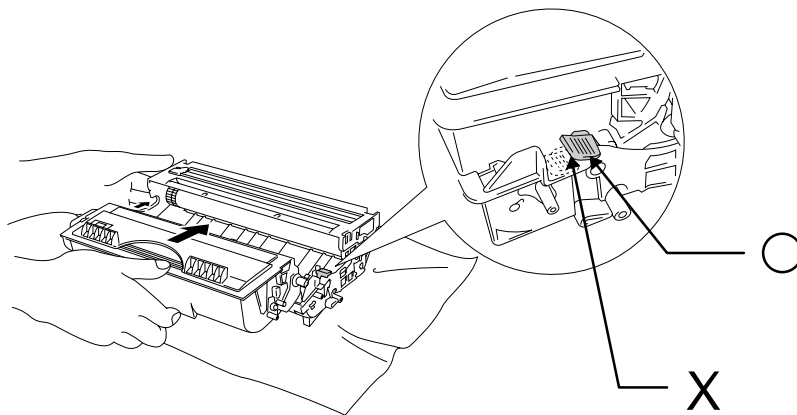
Fig.3-16 Install the toner cartridge into the drum unit

☛ 5. Install the drum unit assembly into the printer.
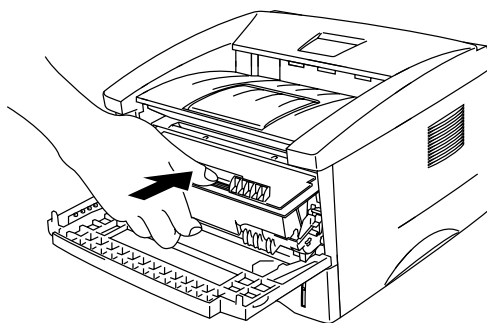
Fig. 3-17 Installing the drum unit

Make sure that the printer is turned on, the front cover is open and the **Drum** and **Alarm** LEDs are illuminated.

●

☛ **6.** Reset the page counter referring to the instructions supplied with the new drum unit.

┌───┐
│ **❗ Caution**   │
│ Do not reset the page counter when you replace the toner cartridge only. │
└───┘

☛ **7.** Close the front cover.

☛ **8.** Make sure that the **Drum** LED is now off.

How to clean the printer

Clean the printer exterior and interior periodically. If printed pages get stained with toner, clean the printer interior and drum unit.

Cleaning the printer exterior

> ✏ **Note**
> Clean the printer exterior using the information in the following instructions. This is also shown in the instructional video on the supplied CD-ROM.

☛ **1.** Turn off the power switch and unplug the power cord.
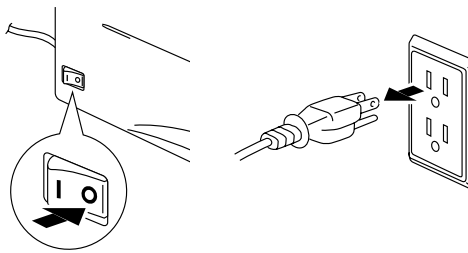
> ⚠ **Warning**
> **There are high voltage electrodes inside the printer. Before cleaning the printer, make sure you have turned off the power switch and unplugged the power cord from the power outlet.**
>
> **Fig. 3-18 Turning off the switch and unplugging**

☛ **2.** Use a damp cloth for cleaning.

> **⬤ Caution**
>
> Use water or neutral detergents for cleaning. Cleaning with volatile liquids such as thinners or benzene will damage the surface of the printer.

☛ **3.** Wipe dirt and dust away from the printer exterior with the damp cloth and allow the printer to dry completely before turning the power on again.

☛ **4.** Plug in the power cord.

Cleaning the printer interior and Drum Unit

> ✎ **Note**
> Clean the printer interior and the drum unit using information in the following instructions. This is also shown in the instructional video on the supplied CD-ROM.

☛ **1.** Turn off the power switch and unplug the power cord.

> ⚠ **Warning**
> - **There are high voltage electrodes inside the printer. Before cleaning the printer, make sure you have turned off the power switch and unplugged the power cord from the outlet.**
>
>
>
> **Fig. 3-19 Turning off the switch and unplugging**
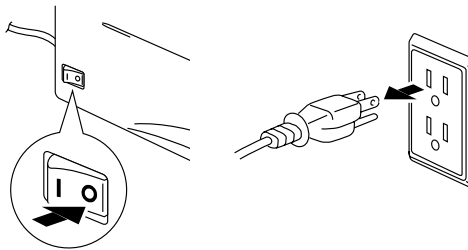
☛ **2.** Open the front cover of the printer.

☛ **3.** Take the drum unit assembly out of the printer and put it to one side.

⚠ **Warning**

After you have just used the printer, some internal parts of the printer are extremely hot. When you open the front cover of the printer, never touch the shaded parts shown in the following illustration.

⚠ **High Temperature**
Front view

⚠ **High Temperature**
Rear view

Fig. 3-20 Inside the printer
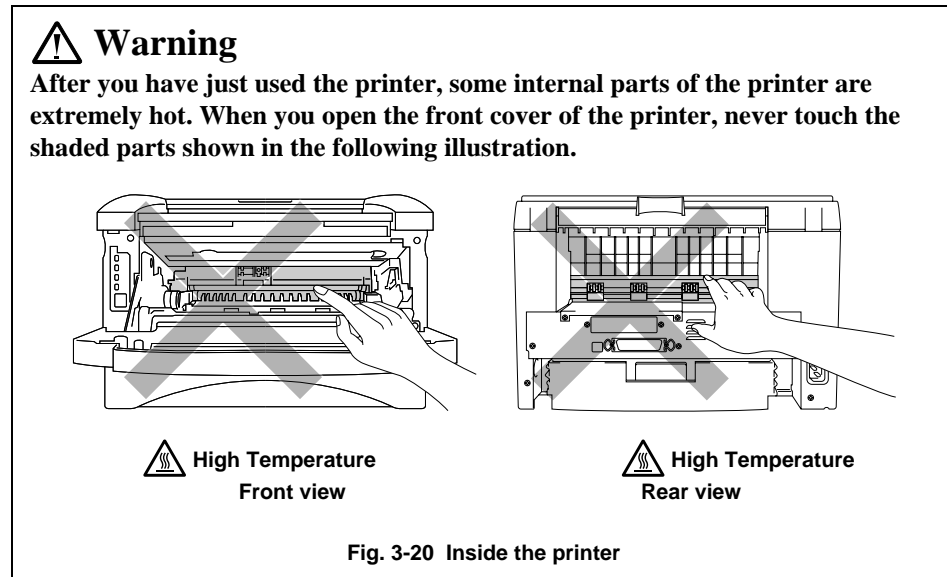
☛ **4.** Gently wipe the scanner window with a soft dry cloth.
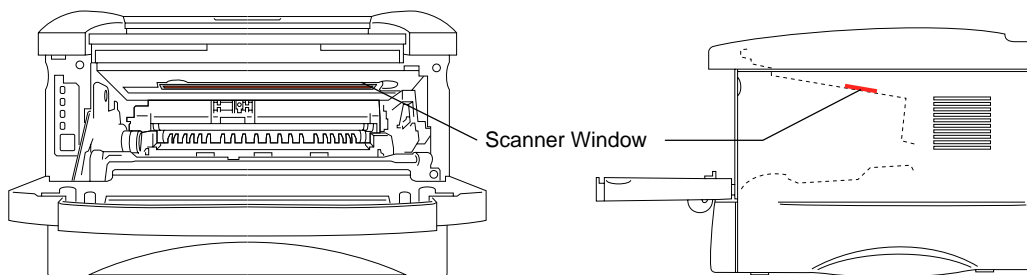
Scanner Window

Fig. 3-21 Cleaning the scanner window

🛇 **Caution**

- Do not touch the scanner window with your fingers.
- Do not wipe the scanner window with cleaning alcohol (isophorol).
- Handle the drum unit carefully as it contains toner. If toner scatters and your hands or cloths get dirty, wipe or wash it off with water immediately.

✎ **Note**

It is recommended to put the drum unit on a piece of disposable paper or cloth in case of accidental toner spill or scatter.

☛ **5.** Clean the primary corona wire inside the drum unit by gently sliding the tab to the right hand end and left hand end several times.
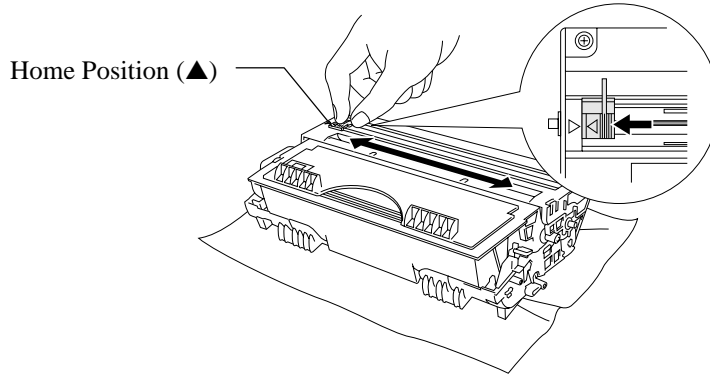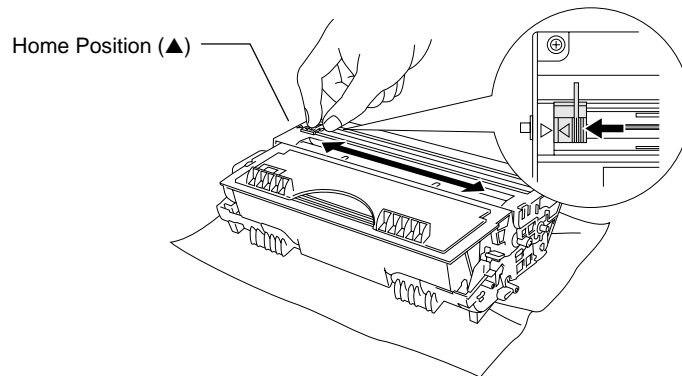

Home Position (▲)

Fig. 3-22 Cleaning the primary corona wire

☛ **6.** Return the tab to the home position (▲ mark position) before reinstalling the drum unit assembly into the printer.

⚠ **Caution**

Be sure to position the tab at the home position, or printed pages may have vertical stripes.

☛ **7.** Install the drum unit assembly into the printer.
See the section "How to replace the Drum unit" earlier in this Chapter.

☛ **8.** Close the front cover.

☛ **9.** Plug in the power cord and turn on the power switch.

CHAPTER4 TROUBLESHOOTING

Identifying your problem

First, check the following:

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

Printer does not print

If you did not solve your problem with the above checks, please find your problem in the following list and refer to the section listed.

● **Printer LED is blinking**	Go to **'Control Panel Indications'** on page 4-2
● **Status Monitor Error Message appears**	Go to **'Error messages in the Status Monitor'** on page 4-6
● **Printed Error Message**	Go to **'Error Messages printouts'** on page 4-8
● **Paper Handling**	Go to **'Paper Handling'** on page 4-10, or '**PAPER JAMS and how to clear them'** on page 4-11
● **Others**	Go to '**Others'** on page 4-16.

Pages are printed, however there are problems with:-

● **Print quality**	Go to **'Improving the print quality'** on page 4-18
● **Printout is incorrect**	Go to **'How to Print correctly'** on page 4-24

Control Panel Indications

Operator calls and how to clear them

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

○	LED is Off
☀	LED is Blinking
☛	LED is On

If a recoverable error occurs, the printer indicates an 'operator call' by the LED indications as shown in the table below.

Identify the error from the table below and take the corrective action described for each indication to correct it. The printer automatically recovers from most errors, but you may also need to reset the printer with the panel button as described below.

For example, the following are the indications when the toner is low.
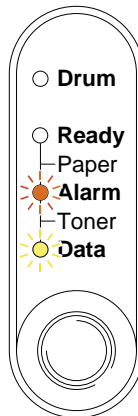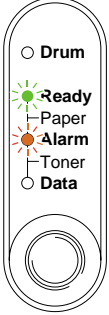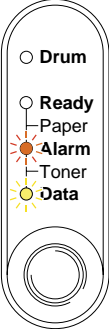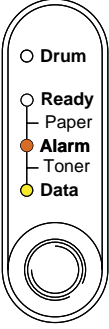
Fig. 4-1   LED indications caused by toner low

LED	Error	Action
○ Drum ● Ready ├ Paper ● Alarm ├ Toner ○ Data	Paper jam	Clear the paper jam by referring to the next section "PAPER JAMS and how to clear them". Press the panel button if the printer does not automatically resume printing.
	No paper	Load paper into the printer referring to Chapter 1 and press the panel button.
	Misfeed	Reinstall the paper and press the panel button.
○ Drum ○ Ready ├ Paper ● Alarm ├ Toner ○ Data (every 5 seconds)	Toner low	Indicates that the toner cartridge is nearly empty. Purchase a new toner cartridge and have it ready for when Toner Empty status is indicated.
○ Drum ○ Ready ├ Paper ● Alarm ├ Toner ● Data	Toner empty	Replace the toner cartridge with a new one referring to Chapter 3.

Service call indications

If an unrecoverable error occurs, the printer will indicate the need for a service call by illuminating all the LEDs and then the following combination of LEDs alternately:

For example, the following are the indications when a Fuser malfunction error occurs.
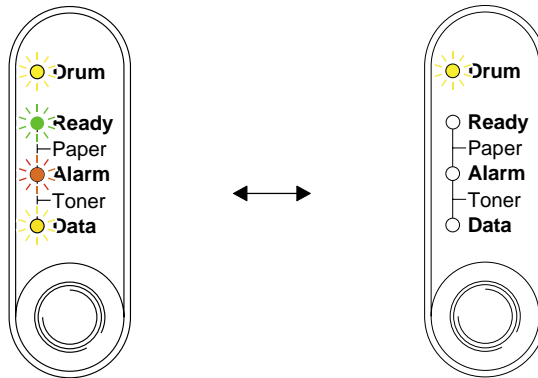
Fig. 4-2 LED indications caused by a fuser malfunction error

Service Call	Fuser malfunction	Laser BD malfunction	Scanner malfunction	ROM error
Drum	flashing (orange)	○	flashing (orange)	○
Ready	○	flashing (red)	flashing (red)	○
Alarm	○	○	○	flashing (green)
Data	○	○	○	○

Service Call	D-RAM error	Service A	Service B	Engine Interface error
Drum	flashing (orange)	○	flashing (orange)	○
Ready	○	flashing (green)	flashing (green)	○
Alarm	flashing (green)	flashing (red)	flashing (red)	○
Data	○	○	○	flashing (orange)

Service Call	NV-RAM error	Main motor malfunction	CPU runtime error
Drum	flashing (orange)	○	flashing (orange)
Ready	○	flashing (green)	flashing (green)
Alarm	flashing (green)	flashing (red)	flashing (red)
Data	flashing (orange)	flashing (orange)	flashing (orange)

If you see any of these service call indications, turn off the power switch, wait a few seconds, then turn it on and try to print again.

If you cannot clear the error and see the same service call indication after turning on the printer, consult your dealer or our authorized service representative. Please note the indication and report the error status and problem by referring to the above table.

> ✎ **Note**
> Ensure that the front cover is fully closed before reporting a Service call.

Error messages in the Status Monitor

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

Error message	Action
COVER OPEN	• Close the front cover of the printer.
NO PAPER or MISFEED	• The paper cassette may be out of paper or not properly installed. If it is empty, load a new stack of paper into the paper cassette. • If there is paper in the paper cassette, make sure it is straight. If the paper is curled, you should straighten it before printing. Sometimes it is helpful to remove the paper, turn the stack over and put it back into the paper cassette. • Reduce the amount of paper in the paper cassette, then try again. • Make sure that you use paper that meets Brother's recommended paper specifications. See "What kind of paper can I use" in Chapter 1.
PAPER JAM	• Refer to 'PAPER JAMS and how clear them'.
TONER LOW	• Purchase a new toner cartridge and have it ready for when the Toner Empty status is indicated.
TONER EMPTY	• Refer to 'How to replace the Toner cartridge' in Chapter 3 or view the instructional video on the CD-ROM.
PRINT OVERRUN	• Press the panel button to print the data remaining in the printer. • If this does not clear the error, reduce the complexity of your document or reduce the print resolution. **(For HL-1250 Only)** • Expand the printer memory by adding a commercially available SIMM. Refer to 'How to add extra Memory' in Chapter 2. Set page protection to ON by using the supplied Windows driver or RPC program. • Change the following settings in the supplied Windows driver and try again. The best combination of settings below will vary depending on your document. 　　Graphics Mode 　　True Type^{TM} mode 　　Use Printer True Type^{TM} Fonts

Error message	Action
MEMORY FULL	• Press the panel button to print the data remaining in the printer. • Reduce the print resolution or reduce the complexity of your document. **(For HL-1250 Only)** Expand the printer memory by adding a commercially available SIMM memory. Refer to 'How to add extra Memory' in Chapter 2.
RESOLUTION ADAPTED (The printer has printed the document at a reduced resolution.)	• Reduce the complexity of your document before you print to prevent automatic reduction of the resolution. **(For HL-1250 Only)** • Expand the printer memory by adding a commercially available SIMM memory. Refer to 'How to add extra Memory' in Chapter 2.
FUSER MALFUNCTION	• Turn the power switch off, wait a few seconds and then turn it on again. • Leave the printer for 10 minutes with power on. If the error occurs again, consult your dealer.
LASER BD MALFUNCTION	• Turn the power switch off, wait a few seconds and then turn it on again. If the error occurs again, consult your dealer.
SCANNER MALFUNCTION	• Turn the power switch off, wait a few seconds and then turn it on again. If the error occurs again, consult your dealer.
D-RAM ERROR	• Turn the power switch off, wait a few seconds and then turn it on again. If the error occurs again, consult your dealer.
NV-RAM ERROR	• Turn the power switch off, wait a few seconds and then turn it on again. If the error occurs again, consult your dealer.
MAIN MOTOR ERROR	• Turn the power switch off, wait a few seconds and then turn it on again. If the error occurs again, consult your dealer.
ENGINE INTERFACE ERROR	• Turn the power switch off, wait a few seconds and then turn it on again. If the error occurs again, consult your dealer.

Error message printouts

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

Error message	Action
MEMORY FULL	• Press the panel button to print the data remaining in the printer. • Reduce the print resolution or reduce the complexity of your document. **(For HL-1250 Only)** • Expand the printer memory by adding a commercially available SIMM. Refer to 'How to add extra Memory' in Chapter 2.

PRINT OVERRUN	• Press the panel button to print the data remaining in the printer.
	• If this does not clear the error, reduce the complexity of your document or reduce the print resolution.
	
	(For HL-1250 Only)
	• Expand the printer memory by adding a commercially available SIMM. Refer to 'How to add extra Memory' in Chapter 2. Set page protection to ON by using the supplied Windows driver or RPC program.
	• Change the following settings in the supplied Windows driver and try again. The best combination of settings below will vary depending on your document.
	    Graphics Mode
	    True Type™ mode
	    Use Printer True Type™ Fonts

RESOLUTION ADAPTED (The printer has printed the document at a reduced resolution)	• Reduce the complexity of your document before you print to prevent automatic reduction in the resolution. **(For HL-1250 Only)** • Expand the printer memory by adding a commercially available SIMM. Refer to 'How to add extra Memory' in Chapter 2.
SERIAL INTERFACE FRAMING ERROR **(HL-1250 Only)**	• Press the control panel button to resume printing. • Check the communication parameter settings such as baud rate and stop bit on both your computer and printer are the same.
SERIAL INTERFACE PARITY ERROR **(HL-1250 Only)**	• Press the control panel button to resuming printing. • Check that the communication parameter setting such as bit length and parity on both your computer and printer are the same.

Error Message	Action
SERIAL INTERFACE OVERRUN ERROR **(HL-1250 Only)**	• Press the control panel button to resume printing. • If the error occurs again, the interface's hardware may be damaged. Please consult your dealer.
SERIAL INTERFACE INPUT BUFFER OVERFLOW **(HL-1250 Only)**	• Press the control panel button to resume printing. • Check the communication parameter settings such as the handshake protocols on both your computer and printer. • If the error occurs again, the interface hardware may be damaged, consult your dealer.

Paper Handling

First, ensure that you are using paper that meets Brother recommended paper specifications. See "What kind of paper can I use" in Chapter 1.

Problem	Recommendation
The printer does not load paper.	• If there is paper in the paper cassette, make sure it is straight. If the paper is curled, you should straighten it before printing. Sometimes it is helpful to remove the paper, turn the stack over and put it back into the paper cassette. • Reduce the amount of paper in the paper cassette, then try again. • Check that manual feed mode is not selected in the printer driver.
The printer does not load paper from the manual feed slot.	• Re-insert the paper firmly, one sheet at a time. • Make sure that manual feed mode is selected in the printer driver.
The printer will not load envelopes.	• The printer can load envelopes from the manual feed slot. Your application software must be set up correctly to print on the envelope size you are using. This is usually done in the page setup or document setup menu of your software. Refer to your software application manual.
A paper jam has occurred.	• Clear the jammed paper referring to "PAPER JAMS and how to clear them" or the paper jam instructional video on the CD-ROM.
The printer does not print into the output tray.	• Close the rear cover.
The printer does not print on the specified paper. **(HL-1250 with optional Lower Tray Unit Only)**	• Make sure that the cable is connected to the printer • Make sure that the appropriate printer driver is selected.

PAPER JAMS and how to clear them

When a paper jam occurs, the printer indicates by lighting the LEDs as shown below.
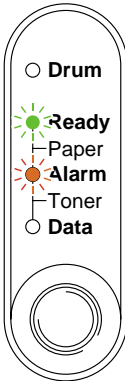
Fig. 4-3 LED indication caused by a paper jam

⚠ Warning

After you have just used the printer, some internal parts of the printer are extremely hot. When you open the front or rear cover of the printer, never touch the shaded parts shown in the following diagram.

⚠ **High temperature**
Front view

⚠ **High temperature**
Rear view

Fig 4-4 Inside the printer

Clear the jammed paper referring to the following description or you can view the paper jam instructional video on the CD-ROM.

If the jammed paper is removed completely by using the information in the following steps, you can close the paper cassette first, then close the front cover and the printer will resume printing automatically. If the printer does not resume printing automatically, press the control panel button. If the printer still does not resume printing, please check that all the remaining jammed paper has been removed from the printer. Then try printing again.

✎ **Note**
- If a paper jam occurs when using the lower tray unit, check for correct installation of the upper paper cassette.
- Always remove all paper from the paper cassette and straighten the stack when new paper is added. This helps prevent multiple sheets of paper from feeding through the printer at one time and reduces paper jams.

● **1.** Remove the paper cassette completely from the printer.
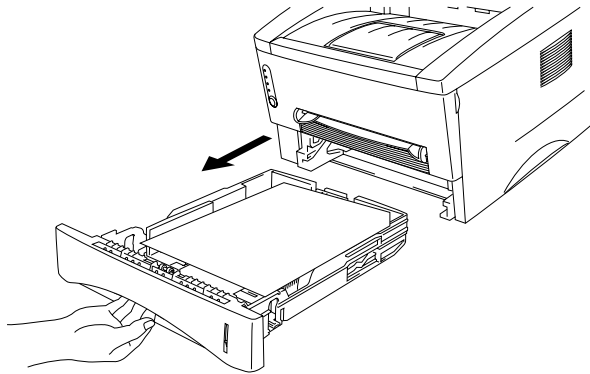
Fig. 4-5 Remove the paper cassette

● **2.** Pull any jammed paper up and out of the printer.
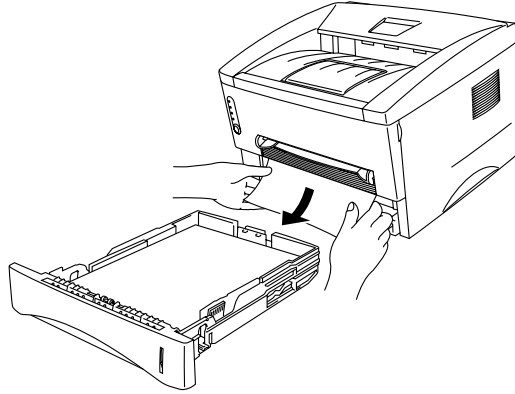
Fig. 4-6 Pull the jammed paper up and out

● **3.** Open the front cover.

● **4.** Remove the drum unit assembly. Pull any jammed paper up and out of the printer. Do not remove the drum unit assembly with additional force at this time if you cannot remove it easily. Instead, pull the edge of the jammed paper from the paper cassette.
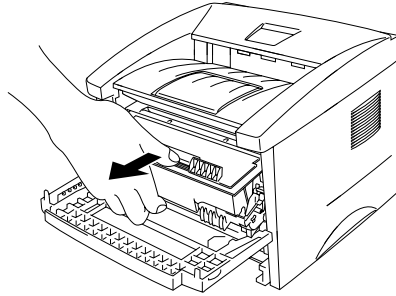
Fig. 4-7 Remove the drum unit assembly

Fig. 4-8 Pull the jammed paper

> **⚠ Caution**
>
> Do not touch the electrodes shown below to prevent damage to the printer caused by static electricity.
>
>
>
> **Fig. 4-9 Electrodes**
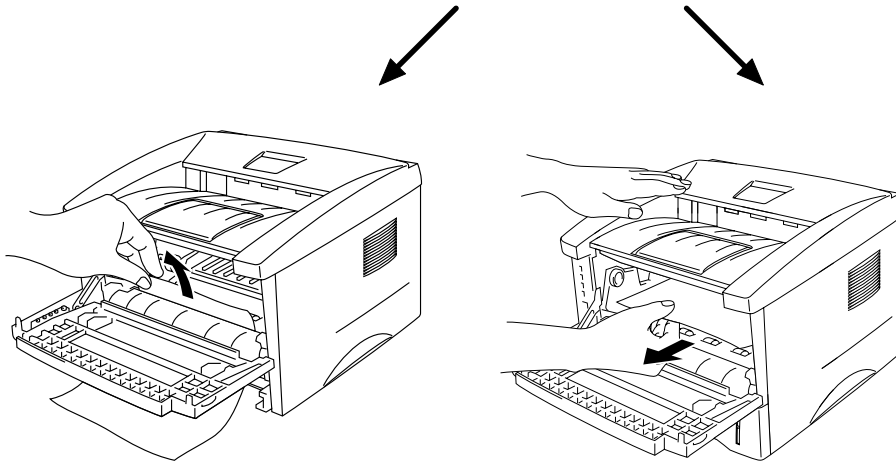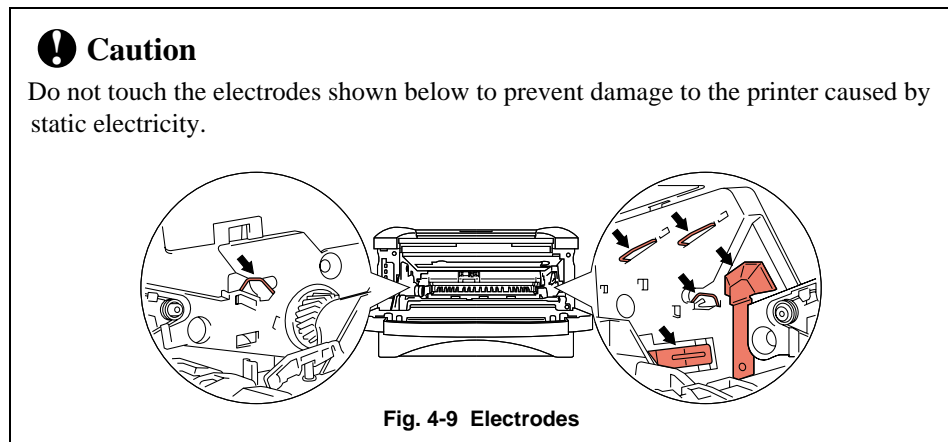
● **5.** Open the rear cover and pull the jammed paper out of the fuser unit.
If you have to pull the paper towards the back of the printer, the fuser may get dirty with toner powder and may result in toner scatter on the next printed page or pages. Print a few copies of the test page until the toner scatter on the printed pages stops.
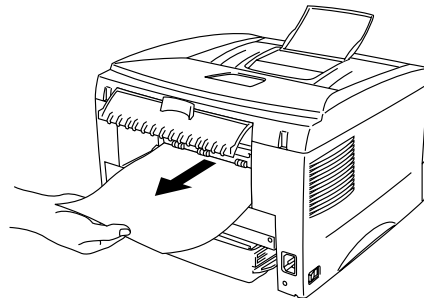
Fig. 4-10 Pull the jammed paper

● **6.** Close the rear cover.

● **7.** Install the drum unit assembly and close the front cover.

Others

Problem	Recommendation
The printer cannot print. "There was an error writing to LPT1: (or BRUSB) for the printer." error message occurs on your PC.	• Check that the printer cable is not damaged or broken. • Make sure the correct printer is selected if you have an interface switching device.

For printing with the Serial Interface (HL-1250 Only)

Problem	Recommendation
Unable to print from application software.	• If you use the serial interface, make sure that the slide switch of the serial interface is in the correct serial position and the interface settings are correctly set up with the DIP switches.

For DOS users

Problem	Recommendation
Unable to print from application software.	• Check that the DOS application software interface settings match that of your printer : for example, if you are using a parallel printer cable, you would most likely set your DOS software printer port to LPT1. • Check if the printer has any printer alarms. • Check if the appropriate printer is selected in your application software. **(For HL-1250 Only)** • If the serial interface is used, make sure that the RS-232C serial interface is selected with the slide switch. Make sure that the interface settings are correctly set up with the proper DIP switches. Make sure the serial parameters of baud rates, parity and stop bits match between your application software and the printer.

For Apple Macintosh Computers user

Problem	Recommendation
Unable to print from application software.	• Make sure that the supplied Macintosh printer driver is installed in the System Folder and it is selected with Chooser. • Check the PORT selection within the Chooser : it should match the port to which you physically attached the printer cable. • The serial slide switch of the optional interface board should be in the Apple (RS-422A) position. • Check the printer cable type : you cannot use a Local Talk or straight-through cable. Refer to Chapter 2 for details on printer cable types.

For iMac and Power Macintosh G3 with USB

Problem	Recommendation
HL-1240 (or HL-1250) does not appear in Chooser.	• Check the printer is turned on. • Check the USB interface cable is connected correctly. • Check the printer driver is installed correctly.
Unable to print from application software.	Make sure that the supplied Macintosh printer driver is installed in the System Folder and it is selected with Chooser.

Improving the print quality

> ⓘ **Caution**
>
> If the **Drum** LED is on you can clear a print quality problem by replacing the drum unit with a new one. The Drum LED indicates that the drum unit is at the end of life.

This section provides information on the following topics:
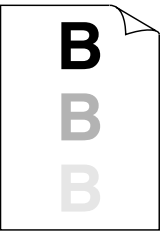
Image defect examples	Recommendation
ABCDEFGH **abcdefghijk** **A B C D** **a b c d e** **0 1 2 3 4** **Faint**	• Check the printer's environment. Conditions such as humidity, high temperatures, etc. may cause this print defect to occur. • If the whole page is too light, toner save mode may be on. Disable toner save mode within the Printer Properties tab of the Driver. • Try installing a new toner cartridge. See "How to replace the Toner cartridge" in Chapter 3. • Try installing a new drum unit. See "How to replace the Drum unit" in Chapter 3.
ABCDEFGH **abcdefghijk** **A B C D** **a b c d e** **0 1 2 3 4** **Gray background**	• Make sure that you use paper that meets the Brother's recommended specifications. See "What kind of paper can I use" in Chapter 1. • Check the printer's environment; high temperature and high humidity conditions can increase the amount of background shading. • Installing a new toner cartridge. See "How to replace the Toner cartridge" in Chapter 3. • Installing a new drum unit. See "How to replace the Drum unit" in Chapter 3.
B **B** **B** **Ghost**	• Make sure that you use paper that meets the specifications. A rough surfaced paper, paper that has absorbed moisture or thick media can cause the problem. • Make sure that you select the appropriate media type in the printer driver. See "What kind of paper can I use" in Chapter 1. • Try installing a new drum unit. See "How to replace the Drum unit" in Chapter 3.
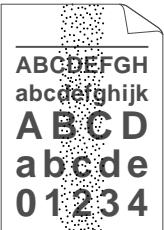
Image defect examples	Recommendation
ABCDEFGH **abcdefghijk** **A B C D** **a b c d e** **0 1 2 3 4** **Toner specks**	• Make sure that you use paper that meets the specifications. A rough surfaced paper may cause the problem. See "What kind of paper can I use" in Chapter 1. • The drum unit may be damaged. Install a new drum unit. See "How to replace the Drum unit" in Chapter 3.
B **Hollow print**	• Make sure that you use paper that meets the specifications. See "What kind of paper can I use" in Chapter 1. • Select the 'Thick paper mode' in the printer driver, or use thinner paper than you are currently using. • Check the printer's environment as conditions such as high humidity may cause this situation to occur.
All black	• Clean the primary corona wire of the drum unit. See "How to clean the printer interior and Drum unit". • The drum unit may be damaged. Install a new drum unit. See "How to replace the Drum unit" in Chapter 3.
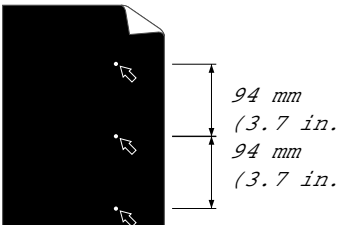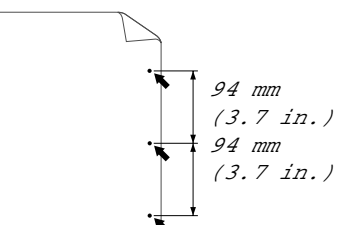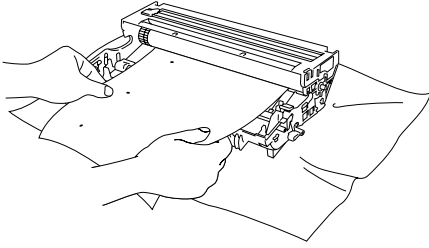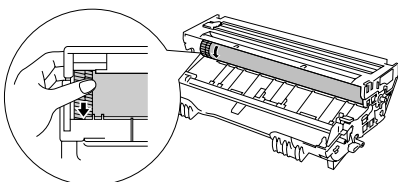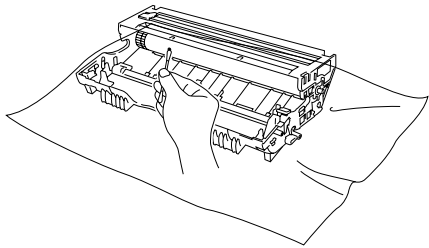
Image defect examples	Recommendation
White Spots Printed pages have white spots in black text and graphics at intervals of 94 mm (3.7 in.). **Black Spots** Printed pages have black spots at intervals of 94 mm (3.7 in.).	• If the problem is not solved after printing a few pages, the drum unit may have glue from label stock on the OPC drum surface. Clean the drum unit as follows 1. Position the print sample in front of the drum unit, and find the exact position of the image defect. **Fig.4-11 Find the exact position of the image defect** 2. Turn the drum unit gear by hand while looking at the surface of the OPC drum. **Fig. 4-12 Turn the drum gear** 3. When you have located the mark on the drum that matches the print sample, wipe the surface of the OPC drum with a cotton swab until the dust or paper powder on the surface comes off. **Fig. 4-13 Wipe the surface of the OPC drum**

Image defect examples	Recommendation
94 mm (3.7 in.) *94 mm (3.7 in.)* **White Spots** Printed pages have white spots in black text and graphics at intervals of 94 mm (3.7 in.). *94 mm (3.7 in.)* *94 mm (3.7 in.)* Printed pages have black spots at intervals of 94 mm (3.7 in.).	**Caution** Do not try to clean the surface of the photosensitive drum with anything sharp such as ball-point pen etc. • The drum unit may be damaged. Install a new drum unit. See "How to replace the Drum unit" in Chapter 3.
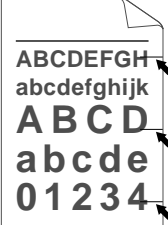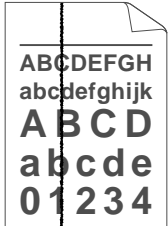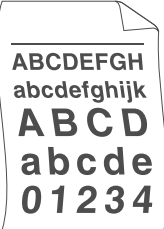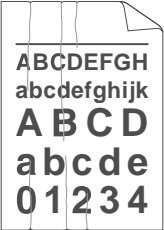
Image defect examples	Recommendation
Black Horizontal repetitive defects Toner scatters and stains the printed page.	• The drum unit may be damaged. Install a new drum unit. See "How to replace the Drum unit" in Chapter 3. • Make sure that you use paper that meets specifications. See "What kind of paper can I use" in Chapter 1. ✒ **Note** • 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. See the previous page. • Do not use paper which has clips or staples because they will scratch the surface of the drum. • If the unpacked drum unit is subject to excessive direct sunlight or room light, the unit may be damaged.
White horizontal stripes	• Make sure that you use paper that meets the specifications. A rough surfaced paper or thick media can cause the problem. • Make sure that you select the appropriate media type in the printer driver. • The problem may disappear by itself. Try printing multiple pages to clear this problem especially if the printer has not been used for a long time. • The drum unit may be damaged. Install a new drum unit. See "How to replace the Drum unit" in Chapter 3.
Horizontal Lines	• Clean the printer interior and the primary corona wire in the drum unit. See "How to clean the printer" in Chapter 3. • The drum unit may be damaged. Install a new drum unit. See "How to replace the Drum unit" in Chapter 3.
Black Vertical lines Printed pages are stained with toner or have vertical stripes.	• Clean the primary corona wire of the drum unit. See "How to clean the printer interior and Drum unit". • Make sure that the primary corona wire cleaner is at the home position. • The drum unit may be damaged. Install a new drum unit. See "How to replace the Drum unit" in Chapter 3. • The toner cartridge may be damaged. Install a new toner cartridge. See "How to replace the Toner cartridge" in Chapter 3. Make sure that a torn piece of paper is not inside the printer covering the scanner window. • The fixing unit may be smudged. Call customer support.

Image defect examples	Recommendation
. **White Vertical streaks**	• You may clear the problem by wiping the scanner window with a soft cloth. See "How to clean the printer" in Chapter 3. • The toner cartridge may be damaged. Install a new toner cartridge. See "How to replace the Toner cartridge" in Chapter 3.
Page skew	• Make sure the paper or other media is loaded into the paper cassette correctly and that the guides are not too tight or too loose against the paper stack. • Set the paper guides correctly. Make sure that the tip of the paper guides fit into the slot correctly. See "How to load paper into the Paper cassette" in Chapter 2. • If you are using the manual feed slot see "How to load one sheet of paper manually" in Chapter 1. • The paper cassette may be too full. See "How to load paper into the paper cassette" in Chapter 2. • Check the paper type and quality. See "What kind of paper can I use" in Chapter 1.
Curl or wave	• Check the paper type and quality. Both high temperature and humidity will cause paper to curl. See "What kind of paper can I use" in Chapter 1. • If you use the printer infrequently, the paper may have sat for too long in the paper cassette. Turn over the stack of paper in the paper cassette. Also, try rotating the paper 180° in the paper cassette. • Try printing using the straight-through output path. See "How to load one sheet of paper manually" in Chapter 1.
Wrinkles or creases	• Make sure that paper is loaded properly. See "How to load paper into the paper cassette" in Chapter 1. • Check the paper type and quality. See "What kind of paper can I use" in Chapter 1. • Try printing using the straight-through output path. See "How to load one sheet of paper manually" in Chapter 1. • Turn over the stack of paper in the tray or try rotating the paper 180° in the input tray.

How to print correctly

Problem	Recommendation
The printer prints unexpectedly or it prints garbage.	- Make sure the printer cable is not too long. We recommend you use a parallel cable of less than 2 metres (6.6 feet) in length. - Check if the printer cable is damaged or broken. - If you are using an interface switching device, remove it and connect your computer directly to your printer and try again. - Check that the appropriate printer driver is selected as 'Set as Default'. - Check that the printer is not connected to the same port which is also connected to a mass storage device or scanner. Remove all other devices and connect the port to the printer only. Turn off printer status reporting in the device options tab in the printer driver.

The printer cannot print full pages of a document. An error message "PRINT OVERRUN" occurs.	- Press the panel button to print the data remaining in the printer. - If this does not clear the error, reduce the complexity of your document or reduce the print resolution.
	(HL-1250 Only) - Expand the printer memory by adding a commercially available SIMM. Refer to 'How to add extra Memory' in Chapter 2. Set page protection to ON by using the supplied Windows driver or RPC program. - Change the following settings in the supplied Windows driver and try again. The best combination of settings below will vary depending on your document.
	    Graphics Mode
	    True Type™ mode
	    Use Printer True Type™ Fonts

The printer cannot print full pages of a document. A "MEMORY FULL" error message occurs.	- Press the panel button to print the data remaining in the printer. - Reduce the print resolution or reduce the complexity of your document. **(HL-1250 Only)** - Expand the printer memory by adding a commercially available SIMM. Refer to 'How to add extra Memory' in Chapter 2.

Problem	Recommendation
My headers or footers appear when I view my document on screen but do not show up when I print them.	• Most laser printers have a restricted area that cannot be printed on. Usually the first two lines and the last two lines of a page cannot have print (leaving 62 printable lines). Adjust the top and bottom margins in your document to allow for this.
(For connecting using the RS-232C/422A interface on HL-1250 Only) The printer prints the first couple of pages correctly, then some pages have text missing.	• This is a problem usually relating to serial interface settings. Your computer is not recognizing the printer's input buffer full signal. This could be caused by incorrect serial cable (incorrectly wired or too long) or incorrect setting of your computer serial interface.

For DOS users

Problem	Recommendation
The printer prints, but it prints incorrect information. Sometimes it prints a couple of characters and then ejects the page, etc..	• This is an indication that your application printer emulation setting and the printer's emulation do not match. Check in your application software which printer you have selected to make sure the printer is set up correctly. Remember the printer emulate widely used printer selections: HL-1240 (HP LaserJet IIP) / HL-1250 (HP LaserJet 6P, Epson FX-850 and IBM Proprinter XL). Try setting the printer into HP emulation and then select the HP LaserJet IIP (for HL-1240) or HP LaserJet 6P (for HL-1250) printer in your application software.

APPENDIX

Printer Technical Specifications

Printing

Print Method	Electrophotography by semiconductor laser beam scanning	
Laser	Wavelength: Output:	780 nm 5 mW max
Resolution	HL-1240:	600 dots/inch (GDI) 300 dots/inch (under DOS and other operating systems)
	HL-1250:	1200 (H) x 600 (V) dots/inch (for Windows DIB graphics) 600 (H) x 600 (V) dots/inch (for Windows and DOS) 300 (H) x 300 (V) dots/inch (using Apple Macintosh with the optional RS-100M)
Print Quality	Normal printing mode	Economy printing mode (up to 25% and 50% toner saving)

Print Speed	Up to 12 pages per minute	When A4 or letter-size paper is loaded from the paper cassette
	NOTE:	Maximum print speed is obtained by printing several copies of the same page. Print speed may vary depending on interface type, emulation, processing power of the computer, memory allocated to the print job, paper size and graphic quality.
Warm-Up	Max. 45 seconds at 23°C (73.4°F)	The warm up time depends on the ambient temperature and humidity.
First Print	15 seconds	When A4 or letter-size paper is loaded from the paper cassette
Print Media Life Expectancy:	Toner cartridge: 6,000 pages/high capacity toner cartridge 3,000 pages/standard toner cartridge	When printing A4- or letter-size paper at 5% print coverage.
	NOTE:	Toner life expectancy will vary depending on the type of average print job printed.
Life Expectancy:	Drum unit: Average up to 20,000 pages	
	NOTE:	There are many factors that determine the actual drum life, such as temperature, humidity, type of paper and toner that you use, the number of pages per print job, etc.

Functions

TrueType Fonts on CD	TrueType-compatible soft-fonts for Windows are provided on the supplied CD. Quantity of fonts is 35.
Emulation **HL-1240**: **HL-1250**:	Brother Printing Solution for Windows HP LaserJet IIP (PCL 4) Brother Printing Solution for Windows Automatic emulation selection among HP LaserJet6P (PCL 6), EPSON FX-850 or IBM Proprinter XL
Printer Driver	Windows 3.1/3.11, Windows 95/98 and Windows NT 4.0 driver, supporting Brother Native Compression mode Windows 3.1/3.11, Windows 95/98 driver, supporting bi-directional capacity iMac, Power Macintosh G3 with USB printer driver
	Optional Macintosh driver available for System 6.0.7 or higher (HL-1250 with RS-100M user only)
Interface	Bi-directional parallel USB interface An RS-422A/RS 232C serial interface (RS-100M) is optionally available. (HL-1250 Only)
Memory **HL-1240** : **HL-1250**:**:	 2 MB 4 MB Expandable up to 36 MB by installing an industry standard SIMM
Diagnostics	Self-diagnostic program

Electrical and Mechanical

Power Source	U.S.A. and Canada:	AC 110 to 120 V, 50 / 60 Hz
	Europe and Australia:	AC 220 to 240 V, 50 /60 Hz
Power Consumption	Printing (average):	340 W or less
	Stand-by:	80 W or less
	Sleep (HL-1240):	5 W or less
	(HL-1250):	6 W or less
		(When the fan stops)
Noise	Printing:	49 dB A or less
	Sleep:	27 dB A or less
Temperature	Operating:	10 to 32.5°C (50 to 90.5°F)
	Non operational:	0 to 40°C (38 to 104°F)
Humidity	Operating:	20 to 80% (without condensation)
	Storage:	10 to 85% (without condensation)
Dimensions (W x D x H)	A4 paper cassette:	360 x 370 x 235 mm
		(14.2 x 14.6 x 9.3 inches)
	Legal paper cassette:	360 x 430 x 235 mm
	(US and Canada Only)	(14.2 x 16.9 x 9.3 inches)
Weight		Approx. 9.5 kg (20.9 lbs) including the drum unit and toner cartridge

Parallel Interface Specifications

> ✎ **Note**
> - To ensure best quality performance use an IEEE 1284 compliant parallel cable between the printer and your computer. Only IEEE 1284 cables support all of the advanced printing capabilities, like bi-directional communication. These cables will be clearly marked with "IEEE-1284".
> - We recommend to use a parallel cable that is 2.0 meters (6.6 feet) or less.

Interface Connector   Printer Side: Amphenol 57RE-40360-730B (D12)
                                                         or equivalent
                                                         A shielded cable should be used.

Pin Assignment

Pin No.	Signal	Direction	Pin No.	Signal	Direction
1	$\overline{\text{DATA STROBE}}$	Input	19	0V (S.G.)	–
2	DATA 1	Input	20	0V (S.G.)	–
3	DATA 2	Input	21	0V (S.G.)	–
4	DATA 3	Input	22	0V (S.G.)	–
5	DATA 4	Input	23	0V (S.G.)	–
6	DATA 5	Input	24	0V (S.G.)	–
7	DATA 6	Input	25	0V (S.G.)	–
8	DATA 7	Input	26	0V (S.G.)	–
9	DATA 8	Input	27	0V (S.G.)	–
10	$\overline{\text{ACKNLG}}$	Output	28	0V (S.G.)	–
11	BUSY	Output	29	0V (S.G.)	–
12	PE	Output	30	0V (S.G.)	–
13	SLCT	Output	31	$\overline{\text{INPUT PRIME}}$	Input
14	$\overline{\text{AUTO FEED}}$	Input	32	$\overline{\text{FAULT}}$	Output
15	N.C.	–	33	N.C.	–
16	0V (S.G.)	–	34	N.C.	–
17	0V (S.G.)	–	35	N.C.	–
18	+5V	–	36	$\overline{\text{SLCT IN}}$	Input

> ✒ **Note**
> To use bi-directional communication, an interface cable which has the pin
> connections above must be used.
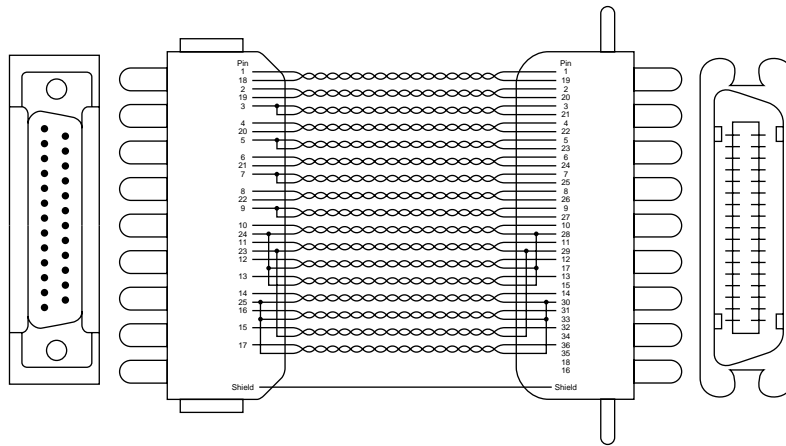
Fig. A-1 Parallel interface cable

USB (Universal Serial Bus) Interface

Interface connector
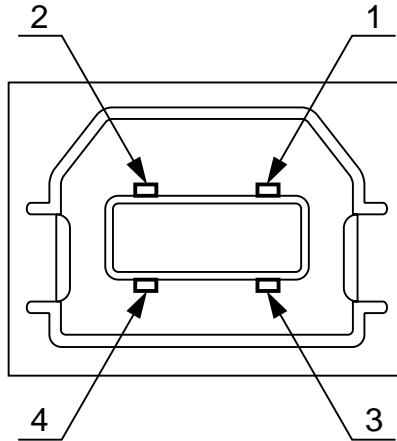
Fig. A-2 USB interface connector

Pin Assignment

Pin No.	Signal	
1	Vcc (+5V)	
2	- Data	Serial Data -
3	+ Data	Serial Data +
4	Ground	

Resident Font

The following bitmapped fonts are resident in this printer.

HL-1240:
Bitmapped Fonts

- Brougham 10 (12 point) Normal, Italic, Bold, BoldItalic (Portrait & Landscape)
- Brougham 12 (10 point) Normal, Italic, Bold, BoldItalic (Portrait & Landscape)
- Letter Gothic 16.66 (8.5 point) Normal, Italic, Bold, BoldItalic (Portrait & Landscape)

HL-1250 :
Bitmapped Fonts

This printer has the following bitmapped fonts. They can be used in the HP LaserJet 6P, EPSON FX-850, and IBM Proprinter XL modes. They have the following characteristics.

- Letter Gothic 16.66 Normal, Italic, Bold, BoldItalic (Portrait & Landscape)
- OCR-A(Portrait & Landscape)
- OCR-B(Portrait & Landscape)

Scalable Fonts

The following scalable fonts can be used in the HP LaserJet 6P, EPSON FX-850 and IBM Proprinter XL modes.

Intellifont Compatible Fonts

- Alaska (Extrabold)
- Antique Oakland (Oblique, Bold)
- Brougham (Oblique, Bold, BoldOblique)
- Cleveland Condensed
- Connecticut
- Guatemala Antique (Italic, Bold, BoldItalic)
- Letter Gothic (Oblique, Bold)
- Maryland
- Oklahoma (Oblique, Bold, BoldOblique)
- PC Tennessee Roman (Italic, Bold, BoldItalic)
- PC Brussels Light (Italic, Demi, DemiItalic)
- Utah (Oblique, Bold, BoldOblique)
- Utah Condensed (Oblique, Bold, BoldOblique)

Microsoft Windows 3.1 TrueType Compatible Fonts

- BR Symbol
- Helsinki (Oblique, Bold, BoldOblique)
- Tennessee Roman (Italic, Bold, BoldItalic)
- W Dingbats

Symbol Sets / Character Sets

OCR Symbol Sets (HL-1250 Only)

When the OCR-A or OCR-B font is selected, the corresponding symbol set is always used.

- OCR-A
- OCR-B

HP LaserJet IIP Mode (HL-1240)

Roman 8 (8U)	ISO4 UK (1E)	ISO25 French (6F)
ISO Latin1 (0N)	ISO6 ASCII (0U)	ISO57 Chinese (2K)
PC-8 (10U)	ISO10 Swedish (3S)	ISO60 Norwegian1 (0D)
PC-850 (12U)	ISO11 Swedish (0S)	ISO61 Norwegian2 (1D)
PC-852 (17U)	ISO14 JIS ASCII (0K)	ISO69 French (1F)
PC-8 Turkish (9T)	ISO15 Italian (0I)	ISO84 Portuguese (5S)
Windows Latin1 (19U)	ISO16 Portuguese (4S)	ISO85 Spanish (6S)
Legal (1U)	ISO17 Spanish (2S)	HP German (0G)
ISO2 IRV (2U)	ISO21 German (1G)	HP Spanish (1S)

HP LaserJet 6P Mode (HL-1250)

Roman 8 (8U)	Legal (1U)	ISO6 ASCII (0U)
ISO Latin1 (0N)	Ventura Math (6M)	ISO10 Swedish (3S)
ISO Latin2 (2N)	Ventura Intl (13J)	ISO11 Swedish (0S)
ISO Latin5 (5N)	Ventura US (14J)	ISO14 JIS ASCII (0K)
ISO Latin6 (6N)	PS Math (5M)	ISO15 Italian (0I)
PC-8 (10U)	PS Text (10J)	ISO16 Portuguese (4S)
PC-8 D/N (11U)	Math-8 (8M)	ISO17 Spanish (2S)
PC-850 (12U)	Pi Font (15U)	ISO21 German (1G)
PC-852 (17U)	MS Publishing (6J)	ISO25 French (6F)
PC-775 (26U)	Windows 3.0 (9U)	ISO57 Chinese (2K)
PC-1004 (9J)	Desktop (7J)	ISO60 Norwegian1 (0D)
PC-8 Turkish (9T)	MC Text (12J)	ISO61 Norwegian2 (1D)
Windows Latin1 (19U)	Symbol (19M)	ISO69 French (1F)
Windows Latin2 (9E)	Windings (579L)	ISO84 Portuguese (5S)
Windows Latin5 (5T)	ISO2 IRV (2U)	ISO85 Spanish (6S)
Windows Baltic (19L)	ISO4 UK (1E)	HP German (0G)
		HP Spanish (1S)

EPSON Mode (HL-1250 Only)

US ASCII	PC-8 Turkish	Japanese
PC-8	German	Norwegian
PC-8 D/N	UK ASCII I	Danish II
PC-850	French I	UK ASCII II
PC-852	Danish I	French II
PC-860	Italy	Dutch
PC-863	Spanish	South African
PC-865	Swedish	

IBM Mode (HL-1250 Only)

PC-8	PC-852	PC-865
PC-8 D/N	PC-860	PC-8 Turkish
PC-850	PC-863	

✎ **Note**

If you want to know what characters are in each symbol/character set, print the CHARSETS.PRN file from the "Print form" option in the Direct Access Menu of the Remote Printer Console Program.

❏ HP LaserJet IIP/ HP LaserJet 6P

Roman8

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0				0	@	P	`	p				‾	â	Å	Á	Þ
1			!	1	A	Q	a	q			À	Ý	ê	î	Ã	þ
2			"	2	B	R	b	r			Â	ý	ô	Ø	ã	·
3			#	3	C	S	c	s			È	°	û	Æ	Ð	µ
4			$	4	D	T	d	t			Ê	Ç	á	å	ð	¶
5			%	5	E	U	e	u			Ë	ç	é	í	Í	¾
6			&	6	F	V	f	v			Î	Ñ	ó	ø	Ì	¼
7			'	7	G	W	g	w			Ï	ñ	ú	æ	Ó	—
8			(	8	H	X	h	x			´	¡	à	Ä	Ò	½
9			)	9	I	Y	i	y			`	¿	è	ì	Õ	ª
A			*	:	J	Z	j	z			ˆ	¤	ò	Ö	õ	º
B			+	;	K	[	k	{			¨	£	ù	Ü	Š	«
C			,	<	L	\	l	|			˜	¥	ä	É	š	■
D			-	=	M	]	m	}			Ù	§	ë	ï	Ú	»
E			.	>	N	^	n	~			Û	ƒ	ö	ß	Ÿ	±
F			/	?	O	_	o	▒			£	¢	ü	Ô	ÿ	

ISO Latin1

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0				0	@	P	`	p				°	À	Ð	à	ð
1			!	1	A	Q	a	q			¡	±	Á	Ñ	á	ñ
2			"	2	B	R	b	r			¢	²	Â	Ò	â	ò
3			#	3	C	S	c	s			£	³	Ã	Ó	ã	ó
4			$	4	D	T	d	t			¤	´	Ä	Ô	ä	ô
5			%	5	E	U	e	u			¥	µ	Å	Õ	å	õ
6			&	6	F	V	f	v			¦	¶	Æ	Ö	æ	ö
7			'	7	G	W	g	w			§	·	Ç	×	ç	÷
8			(	8	H	X	h	x			¨	¸	È	Ø	è	ø
9			)	9	I	Y	i	y			©	¹	É	Ù	é	ù
A			*	:	J	Z	j	z			ª	º	Ê	Ú	ê	ú
B			+	;	K	[	k	{			«	»	Ë	Û	ë	û
C			,	<	L	\	l	|			¬	¼	Ì	Ü	ì	ü
D			-	=	M	]	m	}				½	Í	Ý	í	ý
E			.	>	N	^	n	~			®	¾	Î	Þ	î	þ
F			/	?	O	_	o	▒			¯	¿	Ï	ß	ï	ÿ

Windows Latin1

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0				0	@	P	`	p	€			°	À	Ð	à	ð
1			!	1	A	Q	a	q		‘	¡	±	Á	Ñ	á	ñ
2			"	2	B	R	b	r	‚	’	¢	²	Â	Ò	â	ò
3			#	3	C	S	c	s	ƒ	“	£	³	Ã	Ó	ã	ó
4			$	4	D	T	d	t	„	”	¤	´	Ä	Ô	ä	ô
5			%	5	E	U	e	u	…	•	¥	µ	Å	Õ	å	õ
6			&	6	F	V	f	v	†	–	¦	¶	Æ	Ö	æ	ö
7			'	7	G	W	g	w	‡	—	§	·	Ç	×	ç	÷
8			(	8	H	X	h	x	ˆ	˜	¨	¸	È	Ø	è	ø
9			)	9	I	Y	i	y	‰	™	©	¹	É	Ù	é	ù
A			*	:	J	Z	j	z	Š	š	ª	º	Ê	Ú	ê	ú
B			+	;	K	[	k	{	‹	›	«	»	Ë	Û	ë	û
C			,	<	L	\	l	|	Œ	œ	¬	¼	Ì	Ü	ì	ü
D			-	=	M	]	m	}				½	Í	Ý	í	ý
E			.	>	N	^	n	~	Ž	ž	®	¾	Î	Þ	î	þ
F			/	?	O	_	o	▒		Ÿ	¯	¿	Ï	ß	ï	ÿ

(HL-1250 only)
Windows Latin2

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0				0	@	P	`	p	€			°	Ŕ	Đ	ŕ	đ
1			!	1	A	Q	a	q		‘	ˇ	±	Á	Ń	á	ń
2			"	2	B	R	b	r	‚	’	˘	˛	Â	Ň	â	ň
3			#	3	C	S	c	s		“	Ł	ł	Ă	Ő	ă	ó
4			$	4	D	T	d	t	„	”	¤	´	Ä	Ô	ä	ô
5			%	5	E	U	e	u	…	•	Ą	µ	Ĺ	Ő	ĺ	ő
6			&	6	F	V	f	v	†	–	¦	¶	Ć	Ö	ć	ö
7			'	7	G	W	g	w	‡	—	§	·	Ç	×	ç	÷
8			(	8	H	X	h	x			¨	¸	Č	Ř	č	ř
9			)	9	I	Y	i	y	‰	™	©	ą	É	Ů	é	ů
A			*	:	J	Z	j	z	Š	š	Ş	ş	Ę	Ú	ę	ú
B			+	;	K	[	k	{	‹	›	«	»	Ë	Ű	ë	ű
C			,	<	L	\	l	|	Ś	ś	¬	Ľ	Ě	Ü	ě	ü
D			-	=	M	]	m	}	Ť	ť		˝	Í	Ý	í	ý
E			.	>	N	^	n	~	Ž	ž	®	ľ	Î	Ţ	î	ţ
F			/	?	O	_	o	▒	Ź	ź	Ż	ż	Ď	ß	ď	˙

The following table shows characters available only in the corresponding character set. The numbers at the top of the table are code values with which characters are to be replaced in the Roman 8 character set. For other characters, see the Roman 8 character set.

SYMBOL SET	23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E
ISO2 IRV	#	¤	@	[	\	]	^	`	{	|	}	‾
ISO4 UK	£	$	@	[	\	]	^	`	{	|	}	‾
ISO6 ASCII	#	$	@	[	\	]	^	'	{	|	}	~
ISO10 Swedish	#	¤	@	Ä	Ö	Å	^	`	ä	ö	å	‾
ISO11 Swedish	#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
ISO14 JIS ASCII	#	$	@	[	¥	]	^	`	{	|	}	‾
ISO15 Italian	£	$	§	°	ç	é	^	ù	à	ò	è	ì
ISO16 Portuguese	#	$	§	Ã	Ç	Õ	^	`	ã	ç	õ	°
ISO17 Spanish	£	$	§	¡	Ñ	¿	^	`	°	ñ	ç	‾
ISO21 German	#	$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß
ISO25 French	£	$	à	°	ç	§	^	`	é	ù	è	¨
ISO57 Chinese	#	¥	@	[	\	]	^	`	{	|	}	‾
ISO60 Norwegian1	#	$	@	Æ	Ø	Å	^	`	æ	ø	å	‾
ISO61 Norwegian2	§	$	@	Æ	Ø	Å	^	`	æ	ø	å	|
ISO69 French	£	$	à	°	ç	§	^	µ	é	ù	è	¨
ISO84 Portuguese	#	$	´	Ã	Ç	Õ	^	`	ã	ç	õ	~
ISO85 Spanish	#	$	·	¡	Ñ	Ç	¿	`	´	ñ	ç	¨
HP German	£	$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß
HP Spanish	#	$	@	¡	Ñ	¿	°	`	{	ñ	}	~

❏ HP LaserJet IIP/6P, EPSON FX-850, IBM Proprinter XL

PC-8

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		▶		0	@	P	`	p	Ç	É	á	▒	└	╨	α	≡
1	☺	◀	!	1	A	Q	a	q	ü	æ	í	▓	┴	╤	ß	±
2	☻	↕	"	2	B	R	b	r	é	Æ	ó	▚	┬	╥	Γ	≥
3	♥	‼	#	3	C	S	c	s	â	ô	ú	│	├	╙	π	≤
4	♦	¶	$	4	D	T	d	t	ä	ö	ñ	┤	─	╘	Σ	⌠
5	♣	§	%	5	E	U	e	u	à	ò	Ñ	╡	┼	╒	σ	⌡
6	♠	▬	&	6	F	V	f	v	å	û	ª	╢	╞	╓	μ	÷
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PC-850

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		▶		0	@	P	`	p	Ç	É	á	▒	└	ð	Ó	-
1	☺	◀	!	1	A	Q	a	q	ü	æ	í	▓	┴	Ð	ß	±
2	☻	↕	"	2	B	R	b	r	é	Æ	ó	▚	┬	Ê	Ô	_
3	♥	‼	#	3	C	S	c	s	â	ô	ú	│	├	Ë	Ò	¾
4	♦	¶	$	4	D	T	d	t	ä	ö	ñ	┤	─	È	õ	¶
5	♣	§	%	5	E	U	e	u	à	ò	Ñ	Á	┼	ı	Õ	§
6	♠	▬	&	6	F	V	f	v	å	û	ª	Â	ã	Í	μ	÷
7	•	↨	'	7	G	W	g	w	ç	ù	º	À	Ã	î	þ	,
8	◘	↑	(	8	H	X	h	x	ê	ÿ	¿	©	╚	Ï	Þ	°
9	○	↓	)	9	I	Y	i	y	ë	Ö	®	╣	╔	┘	Ú	¨
A	◙	→	*	:	J	Z	j	z	è	Ü	¬	║	╩	┌	Û	·
B	♂	←	+	;	K	[	k	{	ï	ø	½	╗	╦	█	Ù	¹
C	♀	∟	,	<	L	\	l			î	£	¼	╝	╠	▄	ý	³
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E	♫	▲	.	>	N	^	n	~	Ä	×	«	¥	╪	Ì	▪	
F	☼	▼	/	?	O	_	o	⌂	Å	ƒ	»	┐	¤	■	´	

❏ EPSON FX-850

US ASCII

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0				0	@	P	`	p					0	@	P	`	p
1			!	1	A	Q	a	q					!	1	A	Q	a	q
2			"	2	B	R	b	r					"	2	B	R	b	r
3			#	3	C	S	c	s					#	3	C	S	c	s
4			$	4	D	T	d	t					$	4	D	T	d	t
5			%	5	E	U	e	u					%	5	E	U	e	u
6			&	6	F	V	f	v					&	6	F	V	f	v
7			'	7	G	W	g	w					'	7	G	W	g	w
8			(	8	H	X	h	x					(	8	H	X	h	x
9			)	9	I	Y	i	y					)	9	I	Y	i	y
A			*	:	J	Z	j	z					*	:	J	Z	j	z
B			+	;	K	[	k	{					+	;	K	[	k	{
C			,	<	L	\	l							,	<	L	\	l	/
D			-	=	M	]	m	}					-	=	M	]	m	}
E			.	>	N	^	n	~					.	>	N	^	n	~
F			/	?	O	_	o						/	?	O	_	o	

The following table shows characters available only in the corresponding character set. The numbers at the top of the table are code values with which characters are to be replaced in the US ASCII character set. For other characters, see the US ASCII character set.

SYMBOL SET	23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E
German	#	$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß
UK ASCII I	£	$	@	[	\	]	^	`	{	|	}	~
French I	#	$	à	°	ç	§	^	`	é	ù	è	¨
Danish I	#	$	@	Æ	Ø	Å	^	`	æ	ø	å	~
Italy	#	$	@	°	\	é	^	ù	à	ò	è	ì
Spanish	₧	$	@	¡	Ñ	¿	^	`	¨	ñ	}	~
Swedish	#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
Japanese	#	$	@	[	¥	]	^	`	{	|	}	~
Norwegian	#	¤	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
Danish II	#	$	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
UK ASCII II	#	£	@	[	\	]	^	`	{	|	}	~
French II	#	â	à	î	ç	ê	û	ô	é	ú	è	ï
Dutch	#	$	@	[	]	ƒ	^	`	é	ij	è	¨
South African	#	ê	É	Ê	Ö	è	Ü	é	ë	ö	ô	ü

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REGULATIONS

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

Responsible Party : Brother International Corporation
100 Somerset Corporate Boulevard
Bridgewater, NJ 08807-0911, USA
TEL : (908) 704-1700

declares, that the products
Product Name :   Brother Laser Printer HL-1240, HL-1250
Model Numbers :   HL-12
Product Options :   ALL

complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and (2) this device must accept any
interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital
device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable
protection against harmful interference in a residential installation. This equipment generates,
uses, and can radiate radio frequency energy and, if not installed and used in accordance with
the instructions, may cause harmful interference to radio communications. However, there is
no guarantee that interference will not occur in a particular installation. If this equipment does
cause harmful interference to radio or television reception, which can be determined by turning
the equipment off and on, the user is encouraged to try to correct the interference by one or
more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is
  connected.
- Consult the dealer or an experienced radio/TV technician for help.

Important

A shielded interface cable should be used in order to ensure compliance with the limits for a
Class B digital device.
Changes or modifications not expressly approved by Brother Industries, Ltd. could void the
user's authority to operate the equipment.

Industry Canada Compliance Statement (For Canada Only)

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

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

International ENERGY STAR Compliance Statement

The purpose of the International ENERGY STAR Program is to promote the development and popularization of energy-efficient office equipments, which includes computers, monitors, printers, facsimile receivers and copy machines world-wide.
As an International ENERGY STAR partner, Brother Industries, Ltd. has decided that this product meets the guideline of the program.

Radio Interference (220-240 V Model Only)

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

Before this product is used, ensure that you use a double-shielded interface cable with twisted-pair conductors and that it is marked "IEEE 1284 compliant". We recommend to use a parallel cable that is 2.0 meters (6.6 feet) or less.

Laser Safety (For 110–120 V Model Only)

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

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

FDA Regulations (For 110-120 V Model Only)

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

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

MANUFACTURED:
BROTHER INDUSTRIES (USA) INC.
2950 Brother Blvd., Bartlett, TN 38133, U.S.A.
This product complies with FDA radiation performance standards, 21 CFR Subchapter J

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

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

Declaration of Conformity (For Europe)

We,   Brother Industries, Ltd.,
            15-1, Naeshiro-cho, Mizuho-ku, Nagoya 467-8561, Japan

declare that this product is in conformity with the following normative documents.

Safety: EN 60950,   EN 60825
EMC: EN 55022 Class B,   EN 55024
                EN 61000-3-2,   EN 61000-3-3
following the provisions of the Low Voltage Directive 73/23/EEC and the Electromagnetic Compatibility Directive 89/336/EEC (as amended by 91/263/EEC and 92/31/EEC).

Issued by:
Brother Industries, Ltd.
Printer Products Division

IEC 825 Specification (For 220–240 V Model Only)

This printer is a Class 1 laser product as defined in IEC 825 specifications. The label shown below is attached in countries where it is required.

```
CLASS 1LASER PRODUCT
APPAREIL Å LASER DE CLASSE 1
LASER KLASSE 1 PRODUKT
```
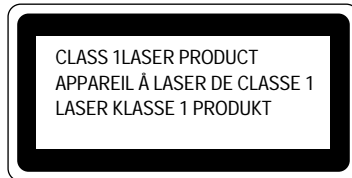
This printer has a Class 3B Laser Diode which emits invisible laser radiation in the Scanner Unit. The Scanner Unit should not be opened under any circumstances.

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.

IMPORTANT - For Your Safety

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

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

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

Disconnect device

This printer must be installed near a power outlet which is easily accessible. In case of emergencies, you must disconnect the power cord from the power outlet in order to shut off power completely.

Geräuschemission / Acoustic Noise Emission (For Germany Only)

Lpa < 70 dB (A) DIN 45635-19-01-KL2

IMPORTANT - Wiring Information (For U.K. only)

If the power cord supplied with this printer is not suitable for your electrical outlet, remove the plug from the mains cord and fit an appropriate three pin plug. If the replacement plug is intended to take a fuse then fit a fuse with the same rating as the original.

If a moulded plug is severed from the power cord then it should be destroyed because a plug with cut wires is dangerous if plugged into a live socket outlet. Do not leave it where a child might find it.

In the event of replacing the plug fuse, fit a fuse approved by ASTA to BS1362 with the same rating as the original fuse.

Always replace the fuse cover. Never use a plug with the cover omitted.

WARNING - THIS PRINTER MUST BE PROPERLY EARTHED.

The wires in the mains cord are coloured in accordance with the following code:

Green and yellow: Ground
Blue: Neutral
Brown: Live

The colours of the wiring in the power lead of this printer may not correspond with the markings which identify the terminals in your plug. If you need to fit a different plug, proceed as follows.

Remove a length of the cord outer sheath, taking care not to damage the coloured insulation of the wires inside.

Cut each of the three wires to the appropriate length. If the construction of the plug permits, leave the green and yellow wire longer than the others so that, in the event that the cord is pulled out of the plug, the green and yellow wire will be the last to disconnect.

Remove a short section of the coloured insulation to expose the wires.

The wire which is coloured green and yellow must be connected to the terminal in the plug which is marked with the letter "E" or by the earth symbol or coloured green or green and yellow.

The wire which is coloured blue must be connected to the terminal which is marked with the letter "N" or coloured black or blue.

The wire which is coloured brown must be connected to the terminal which is marked with the letter "L" or coloured red or brown.

The outer sheath of the cord must be secured inside the plug. The coloured wires should not hang out of the plug.

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