

brother[®]

Brother Laser Printer

HL-600 Series

User's Guide

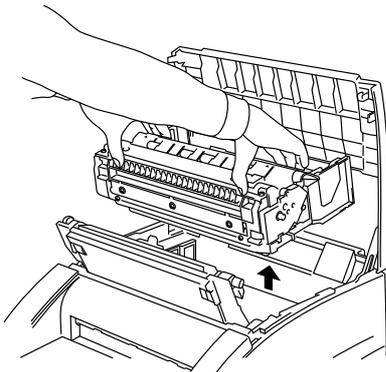
Shipment of the Printer

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.

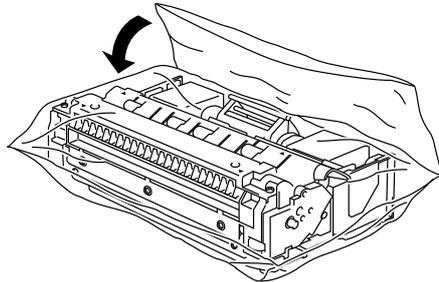
Warning

When shipping the Printer, the DRUM UNIT assembly including the TONER CARTRIDGE must be removed from the Printer and place it in the plastic bag. Failure to remove it and place it in the plastic bag during shipping, will cause severe damage to the Printer and will VOID THE WARRANTY.

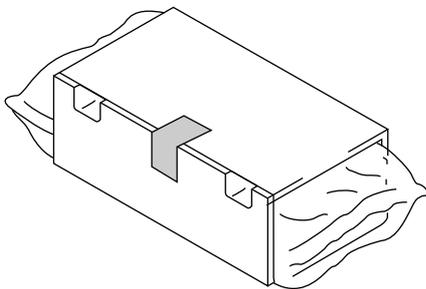
1 Remove the drum unit.



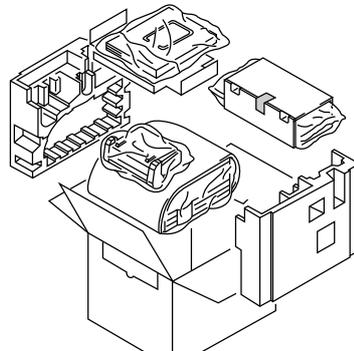
2 Place it in the plastic bag and fold the plastic bag under the drum unit.



3 Wrap it in the corrugated cardboard.



4 Re-pack the printer.
See "REPACKING THE PRINTER" in Chapter 5.





Laser Printer HL-600 Series User's Guide

(For USA & CANADA Only)

For technical and operational assistance, please call:

In USA	1-800-276-7746 (outside California) 714-859-9700 (within California)
In Canada	1-800-361-6466

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

In USA	Printer Customer Support Brother International Corporation 15 Musick Irvine, CA 92718
In Canada	Brother International Corporation, Ltd. 1, Rue Hôtel De Ville Dollard-des-Ormeaux P.Q. Canada H9B3H6

Trademarks

The brother logo is a registered trademark of Brother Industries, Ltd.

Apple, the Apple Logo, and Macintosh are trademarks, registered in the United States and other countries, and TrueType is a trademark of Apple Computer, Inc.

Epson is a registered trademark and FX-80 and FX-850 are trademarks of Seiko Epson Corporation.

Hewlett Packard is a registered trademark and HP LaserJet II, IIP, and IID are trademarks of Hewlett-Packard Company.

IBM, IBM PC, and Proprinter are registered trademarks of International Business Machines Corporation.

Microsoft and MS-DOS are registered trademarks of Microsoft Corporation. Windows is a registered trademark of Microsoft in the U.S. and other countries.

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

Compilation and Publication Notice

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

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

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

©1994 Brother Industries Ltd.

TABLE OF CONTENTS

REGULATIONS v

CHAPTER 1 INTRODUCTION

ABOUT THE GUIDEBOOKS	1-1
Finding Out How to Use the Printer	1-1
Definitions of Warnings, Cautions, and Notes	1-1
ABOUT YOUR PRINTER	1-2
Printer Overview	1-2
Features	1-3
OPERATING AND STORAGE ENVIRONMENT	1-5
Power Supply	1-5
Environment	1-5

CHAPTER 2 PAPER HANDLING

PAPER SPECIFICATIONS	2-1
MULTI-PURPOSE SHEET FEEDER	2-4
MANUAL FEED SLOT	2-8
OUTPUT TRAY AND PAPER SUPPORT WIRE	2-10

CHAPTER 3 CONTROL PANEL

LAMPS	3-1
READY Lamp	3-1
DATA Lamp	3-2
MANUAL Lamp	3-2
ALARM Lamp	3-2
SWITCHES	3-3
SELECT (RESET) switch	3-3
SELECT Switch	3-3
RESET Switch	3-4
FF/CONT (TEST) switch	3-4
FF/CONT Switch	3-4
TEST Switch	3-4
OTHER CONTROL FEATURES	3-5
Reprint Function	3-5
Sleep Mode	3-5
Test Print Mode	3-6
Reset/Hex Dump Mode	3-7

CHAPTER 4 OPTIONS

SERIAL INTERFACE BOARD	4-1
Selecting the RS-422A or RS-232C Serial Interface	4-2
Setting the Serial Interface Parameters	4-3
Connecting the Serial Interface Cable	4-5
MEMORY BOARD	4-6

CHAPTER 5 MAINTENANCE

REPLACING THE TONER CARTRIDGE	5-1
REPLACING THE DRUM UNIT	5-5
ADJUSTING THE PRINT DENSITY	5-9
CLEANING THE PRINTER	5-10
Cleaning the Printer Exterior	5-10
Cleaning the Printer Interior and Drum Unit	5-11
REPACKING THE PRINTER	5-14

CHAPTER 6 TROUBLESHOOTING

ALARM INDICATIONS AT A GLANCE	6-1
Operator Calls	6-1
Service Calls	6-4
PAPER JAMS	6-5
Q & A	6-8
Setting up the Printer Hardware	6-8
Setting up the Printer for DOS	6-8
Setting up the Printer for Windows	6-9
Setting up the Printer for Apple Macintosh Computers	6-10
Paper Handling	6-11
Printing	6-11
Print Quality	6-13

APPENDICES

PRINTER SPECIFICATIONS	Appendix-1
Printing	Appendix-1
Functions	Appendix-2
Electrical and Mechanical	Appendix-2
PARALLEL INTERFACE SPECIFICATION	Appendix-3
RESIDENT FONTS	Appendix-4
CHARACTER SETS	Appendix-5

INDEX Index-1

REGULATIONS

Federal Communications Commission Compliance Notice (For USA Only)

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 – About the Interface Cable

This printer has been certified to comply with FCC standards, which are applied to the U.S.A. only. A shielded interface cable should be used according to FCC 15.27(C). In addition, a grounded plug should be plugged into a grounded AC outlet after checking the rating of the local power supply for the printer to operate properly and safely.

Caution

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

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.

Radio Interference (For 220 - 240 V Model Only)

This apparatus complies with EN55022 (CISPR Publication 22) / Class B.

FDA Regulations

U.S. Food and Drug Administration (FDA) implemented regulations for laser products manufactured from August 2, 1976. These regulations apply to laser products manufactured from August 1, 1976. Compliance is mandatory for products marketed in the United States. The label shown on the back of the printer indicates compliance with the FDA regulations and must be attached to laser products marketed in the United States.

MANUFACTURED:
BROTHER INDUSTRIES, LTD.
15-1 Naeshiro-cho Mizuho-ku Nagoya, 467 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.

For Your Safety

To ensure safe operation the three-pin plug supplied must be inserted only into a standard three-pin power point which is effectively grounded through the normal household wiring.

Extension cords used with the equipment must be three-conductor and be correctly wired to provide connection to ground. Incorrectly wired extension cords are a major cause of fatalities.

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.

IEC 825 Laser Class (For 220–240 V Model Only)

CLASS 1 LASER PRODUCT.
APPAREIL À LASER DE CLASSE 1.
LASER KLASSE 1
LUOKAN 1 LASERLAITE
KLASS 1 LASER APPARAT
KLASS 1 : LASER
KLASSE 1 LASER PRODUKT

For Finland and Sweden

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.

Disconnect device

The equipment must be installed near the socket outlet which must be easily accessible.

Manufactured at

Brother Industries Ltd.
Kariya Plant
1-5, Kitajizoyama, Noda-cho, Kariya-shi, Aichi-ken 448, Japan.

Kariya Plant is carried out under a Quality System which is registered by JQA Quality Assurance and BSI Quality Assurance.

JQA Certificate of Registration No. 0340. BSI Certificate of Registration No. FM27391
--

Canadian Department of Communications Compliance Statement

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the interference-causing equipment standard entitled "Digital Apparatus", ICES-003 of the Department of Communications.

Avis de conformité aux normes du ministère des Communications du Canada

Cet appareil numérique respecte les limites de bruits radioélectriques applicables aux appareils numériques de Class B prescrites dans la norme sur le matériel brouilleur : "Appareils Numériques", NMB-003 édictée par le ministère des Communications.

DECLARATION OF CONFORMITY (EUROPE)

We, Brother International Europe Ltd.,
Brother House 1 tame Street, Guide Bridge,
Audenshaw, Manchester M34 5JE, UK.

declare that this product is in conformity with the following normative documents:

Safety:	EN 60950,	EN 60825
EMC:	EN 55022 Class B,	EN 50082-1

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).

Manufacture at the following facilities is carried out under a Quality System which is registered by BSI Quality Assurance and JQA Quality Assurance.

Brother Industries, Ltd., Kariya Plant
1-5, Kitajizoyama, Noda-cho, Kariya-shi, Aichi-ken 448, Japan.
BSI Certificate of Registration No. FM27391
JQA Certificate of Registration No. 0340

Issued by:

Brother International Europe Ltd.
European Development and Technical Services Division

IMPORTANT (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 the same fuse 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.

CHAPTER 1 INTRODUCTION

ABOUT THE GUIDEBOOKS

Finding Out How to Use the Printer

You have three guidebooks for this printer. Read each guidebook in the following order:

1. Read the Quick Setup Guide to set up your printer and connect it to your computer.
2. Read the Software Setup Guide to set up your computer for your printer by installing the printer driver, fonts and Remote Printer Console Program.
3. Read the User's Guide to get information about the following.
 - Features and operating environment requirements of your printer – Chapter 1
 - Paper Handling – Chapter 2
 - Control Panel – Chapter 3
 - Options – Chapter 4
 - Maintenance – Chapter 5
 - Troubleshooting – Chapter 6
 - Specifications – Appendices
 - Index

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 or damage to the printer.

⚠ Caution

Indicates cautions that must be observed to use the printer properly.

✍ Note

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

ABOUT YOUR PRINTER

Printer Overview

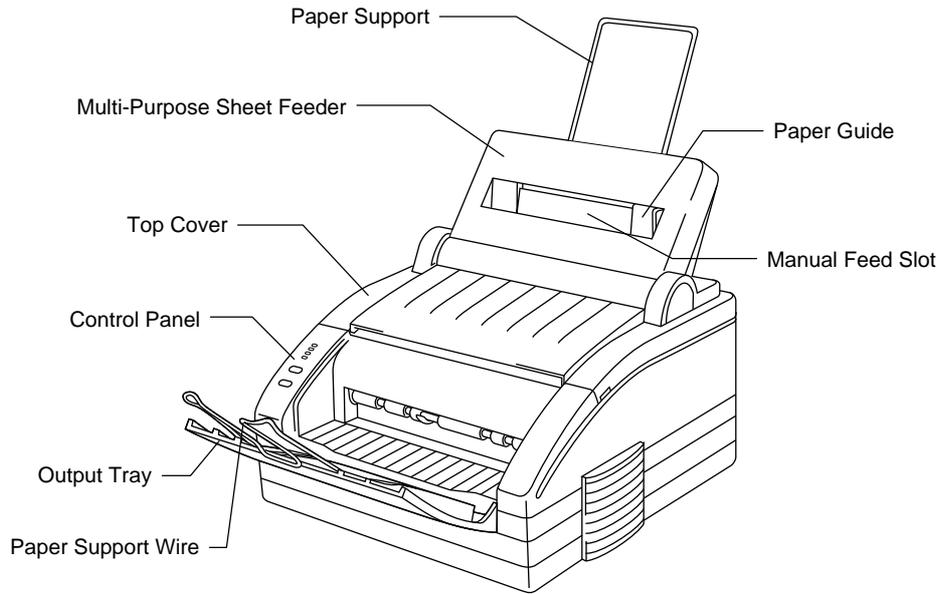


Fig. 1-1 Front View

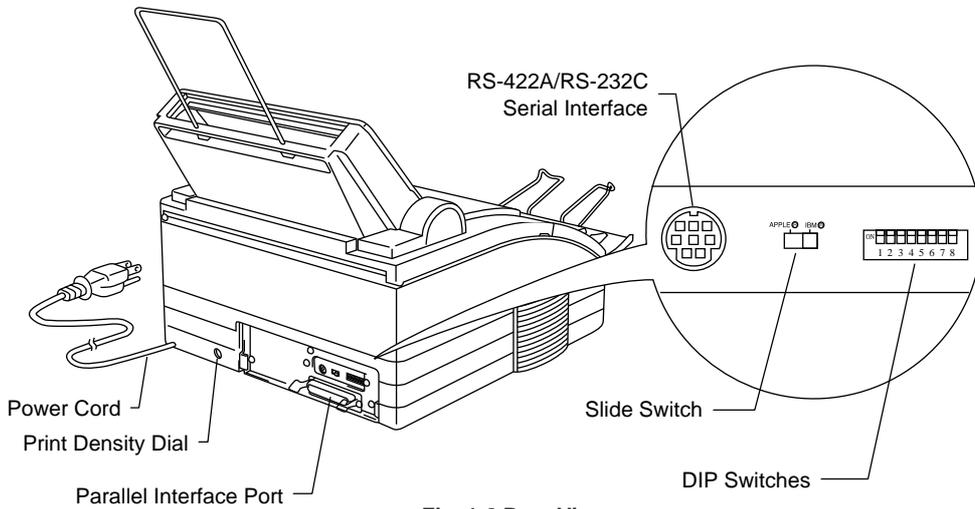


Fig. 1-2 Rear View

Note (*)

RS-422A/RS-232C Serial Interface Port, RS-422A/RS-232C Slide Switch and DIP Switches for Serial are optionally available. Some models have these options pre-installed.

Features

This printer has the following features:

❑ **300 dpi Resolution and 6ppm Printing Speed**

300 dots per inch (dpi) with microfine toner and six pages per minute (ppm) printing speed (A4 or Letter paper).

❑ **Versatile Paper Handling**

The printer has a multi-purpose sheet feeder and straight paper path mechanism. Using this mechanism, you can load A4, letter, legal, B5, A5 and executive sizes of paper, and various types of paper including envelopes, postcards, organizer paper, and your custom paper size. The multi-purpose sheet feeder also allows manual paper loading, so you can also use labels and transparencies.

❑ **Windows® Printing**

The dedicated printer driver and TrueType™-compatible fonts for Microsoft® Windows 3.1 are available on the floppy disk 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 set various printer settings including economy printing mode, custom paper size and sleep mode settings.

❑ **Remote Printer Console Program for DOS**

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

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**

This printer supports three printer emulation modes, HP LaserJet IIP, 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 set the printer emulation, you can do it using the Remote Printer Console Program.

❑ **Bi-Directional Parallel Interface**

The parallel interface of this printer allows bi-directional communication with a computer. This interface allows the printer to communicate back to the computer useful information such as the amount of memory installed, and other printer setup conditions. As the supplied Remote Printer Console or Windows 3.1 driver both support the bi-directional mode, they can both report the printer status.

❑ **Optional Apple Macintosh Interface (Pre-installed in some countries)**

The optional Apple Macintosh serial interface kit is available, which allows your printer to be connected to Apple Macintosh computers. With this option, you can use your printer with both an IBM PC, or compatible and an Apple Macintosh at the same time. This optional interface board can be used as an RS-422A interface for Macintosh or an RS-232C serial interface for IBM PC or compatible.

❑ **Enhanced Memory Management**

The printer has its own Data Compression Technology, which can automatically compress graphic data and download font data efficiently into the printer's memory. You can avoid memory errors and print most full page 300 dpi graphic and text data, including larger fonts, with the printer's standard memory.

❑ **Environmentally Friendly Economy Printing Mode**

This feature will cut your printing cost by around 50% by saving toner. This feature is useful when draft copies are used for proof-reading. You can select this mode on/off through the Remote Print Console software or Windows printer driver supplied with your printer.

Sleep Mode

Sleep mode automatically reduces power consumption when the printer is not in use. The printer consumes less than 10W when in sleep mode.

Low Running Cost

The toner cartridge is separate from the Drum Unit. You need to replace only the toner cartridge after around 3,000 pages, which is cost effective and ecologically friendly.

OPERATING AND STORAGE ENVIRONMENT

Please take note of the following before using the printer.

Power Supply

Use the printer within the specified power range.

AC power: $\pm 10\%$ of the rated power voltage in your district

Frequency: 50 Hz (220 V– 240 V) or 60 Hz (110–120 V)

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 a voltage 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 (59°F to 90.5°F)

Ambient humidity: 20% to 80% (without condensation)

Ventilate the room where you use the printer.

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.

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.

USER'S GUIDE

CHAPTER 2

PAPER HANDLING

PAPER SPECIFICATIONS

The printer can handle paper that has the following specifications.

Paper Type	Paper Size	Paper Weight	Sheet Feeder	Manual Feeder
Cut sheet	A4, Letter, Legal, B5, A5, Executive, Custom size 70-216 x 127-356 mm, 2.75-8.5 x 5-14 inches	60-135 g/m ² (16-36 lbs)	●	●
Envelopes	DL, C5, COM-10, Monarch		●	●
Organizer	Day-Timer [®] , J,K,L,M 70-216 x 127-356mm 2.75-8.5 x 5-11 inches		●	●
Labels	70-216 x 127-356 mm,			●
Transparencies	2.75-8.5 x 5-14 inches			●

Paper Capacity in Feeder

Multi-purpose

Sheet Feeder : Up to 22 mm (0.87 inch) in Height (below the mark.)
Approx. 200 sheets of 75 g/m² (20 lbs) A4/Letter paper or 10 envelopes

Output Tray : Approx. 100 sheets of 75 g/m² (20 lbs) A4/Letter paper

Remarks

It is recommended that you test paper, especially special sizes and types of paper, on this printer before purchasing large quantities.

Avoid feeding labels with carrier sheets exposed, or your printer will be damaged.

Use a recommended type of paper, especially plain paper and transparencies, for optimum printing. For more information on paper specifications, consult your nearest authorised sales representative or the place of purchase of your printer.

We recommend you use label or transparencies which are designed for laser printer.

We recommend you use long-grained paper for the best print quality.

If the paper will not load from the multi-purpose sheet feeder, use the manual feed slot and try again.

Before using paper with holes such as organizer sheets, you must fan the stack well to avoid the paper jams and misfeeds.

Before using any paper, make sure that it has no curl. If so, you should straighten the paper as much as possible. Feeding curled paper cause paper jams and misfeeds.

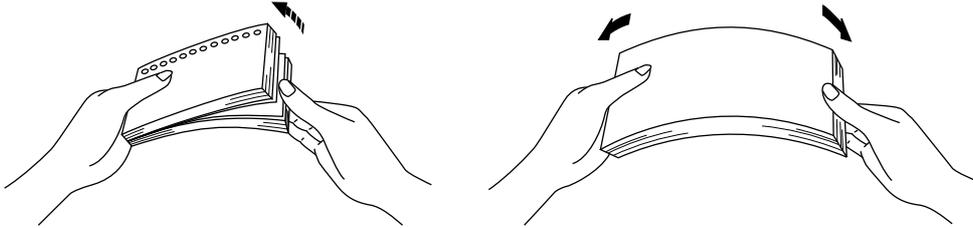


Fig. 2-1 Fan the Paper and Straighten the Paper

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 of baggy construction
- Envelopes not sharply creased
- Embossed envelopes
- Envelopes already printed with a laser printer
- Envelopes pre-printed on the inside
- Envelopes that cannot be arranged uniformly when placed in a pile

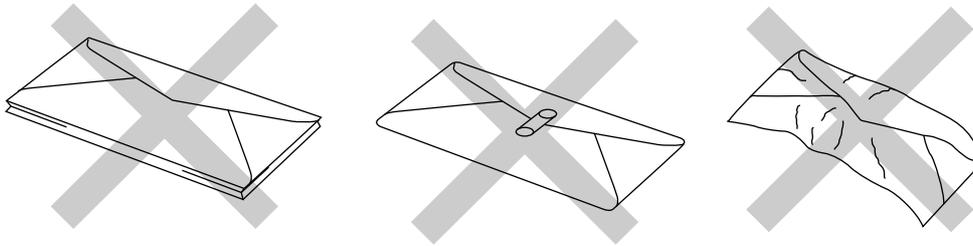
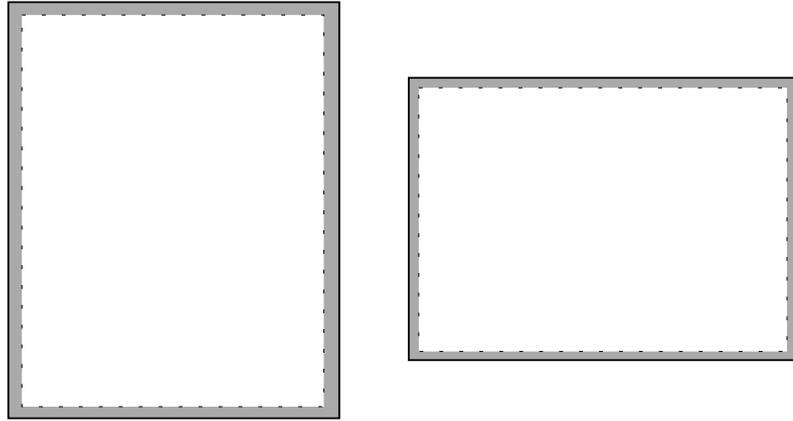


Fig. 2-2 Envelopes

Printable Area

The figure below shows the physically printable area.



■ Unprintable area
Approximately 4 mm(0.16 inch) for any sizes of paper

Fig. 2-3 Printable Area

MULTI-PURPOSE SHEET FEEDER

The printer has a multi-purpose sheet feeder that can feed plain paper, envelopes and organizer paper.

 **Caution**

When you use labels, or transparencies for overhead projectors, be sure to use the manual feed slot. See the next section “MANUAL FEED SLOT” for more details.

To use the multi-purpose sheet feeder, follow these steps:

1. Make sure that you have selected the proper paper source, paper size and orientation.

 **Note**

- You may select the proper paper source, paper size, and orientation in your application software.
- If your application software does not support your custom paper size, select the next paper size up that is closest but larger than the custom size. Then adjust the print area by changing right and left margins in your application software.

2. Make sure that the multi-purpose sheet feeder contains the selected size of paper in the selected orientation. If necessary, change the paper in the feeder.
3. Make sure that the multi-purpose sheet feeder is properly placed in the printer.
4. Choose a print command to send a file or document to the printer.

When the printer receives data, it begins the print process by loading paper from the multi-purpose sheet feeder. If the printer is in sleep mode when it receives data, it wakes up and starts the printing process automatically.

Loading Paper into the Feeder

To load paper into the feeder, follow these steps.

1. Open the multi-purpose sheet feeder. (①)
2. Load paper into the multi-purpose sheet feeder with the printing surface face down. (②)

⚠ Caution

- The feeder can hold up to 200 sheets of plain paper. If you load too many sheets, paper jams could occur.
- Make sure that the paper is stacked below the ▼ mark.
- If there is still some paper in the feeder, you must first remove it, put it together with the new paper and then insert the stack in the feeder.

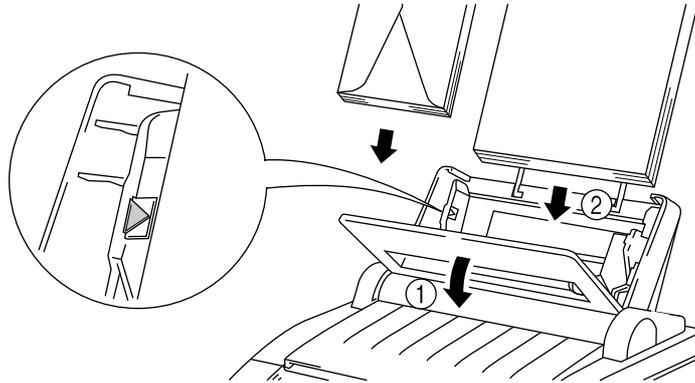


Fig. 2-4 Opening the Feeder and Loading Paper or Envelope in the Feeder

🔧 Note

If you load envelopes in the feeder, make sure they are inserted in the direction shown above.

3. Move the paper guide to the paper width. (①)
4. Close the multi-purpose sheet feeder. (②)

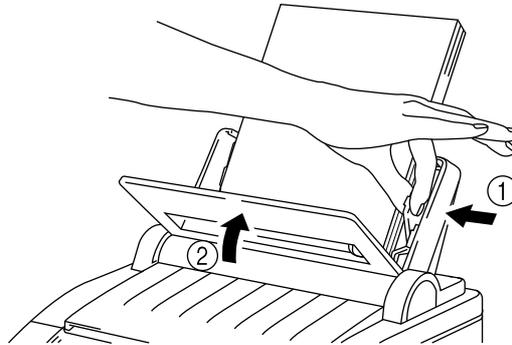


Fig. 2-5 Moving the Paper Guide and Closing the Feeder

Note

If the multi-purpose sheet feeder runs out of paper when you try to print, the ALARM and PAPER lamps blink to alert you with a paper empty error. You have to load paper in the feeder and push the FF/CONT switch to cancel the alarm and continue printing. If paper jams in the printer, the ALARM and PAPER lamps also blink. If the error is a paper jam, clear it referring to "PAPER JAMS" in Chapter 6.

Two Side Printing (Manual Duplexing)

The supplied printer driver for Windows 3.1 enables manual duplex printing. For more information about settings, see the help text of the printer driver.

The printer prints all the even numbered pages on one side of the paper first, and then prints all the odd pages on the reverse side of the paper.

When you have finished printing on one-side of the paper, the driver instructs you to re-insert the paper by a pop-up message on the computer. Follow the instructions on how to reinsert the paper.

⚠ Caution

- Before re-inserting the paper, you have to straighten them well, or you get the paper errors.
- Use of very thin or very thick paper is not recommended.
- If you encounter the double feeding error, we recommend you to hold the paper except the front sheet whilst the printer is feeding it.

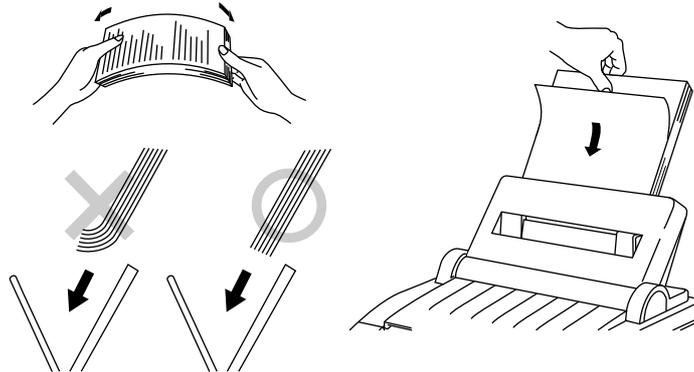


Fig. 2-6 Notes for Manual Duplexing

🔪 Note

When you use Manual Duplex function, it is possible that paper jam occurs or print quality might not be satisfactory.

MANUAL FEED SLOT

The multi-purpose sheet feeder also has a manual feed slot. You can manually load paper sheet by sheet into this slot. You do not need to remove paper from the multi-purpose sheet feeder.

When you use labels or transparencies, be sure to use this slot. For information on paper specifications, see "PAPER SPECIFICATIONS" in the previous section.

Load paper manually as follows:

1. Make sure that you have selected the manual paper feed, paper size and orientation in your software application.

Note

- You may select manual paper feed, paper size, and orientation in your application software. If your application software does not allow these settings, you should make them by using the RPC program supplied with your printer.
- If you do not select manual paper feed and insert a page in the manual feed slot, the printer loads the first page from the manual feed slot and loads the subsequent pages from the multi-purpose sheet feeder.
- If your application software does not support your custom paper size, select the next paper size up that is closest but larger than the custom size. Then adjust the print area by changing right and left margins in your application software.

2. Choose a print command to send a file or document to the printer.

If the printer is in sleep mode, receiving data wakes it up.

A blinking MANUAL lamp alerts you to insert a sheet of paper into the manual paper feed slot.

3. Holding the selected size of paper in the selected orientation (Portrait or Landscape). Place the side of the paper you wish to print on face down into the manual feed slot. Align the paper to the left side of the feed slot, insert it all the way into the manual feed slot. (①) Move the paper guide of the manual feed slot to the paper width you are using. (②)

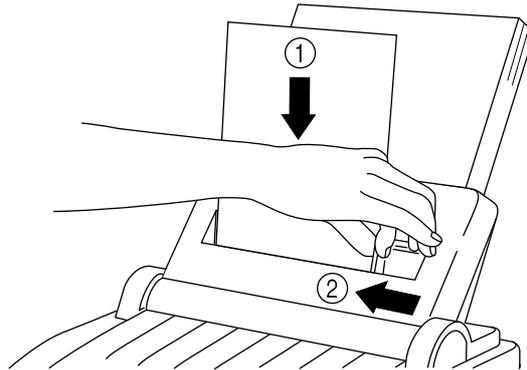


Fig. 2-7 Moving the Paper Guide

4. Press the FF/CONT switch.

The printer loads the paper from the manual feed slot and starts printing.

After the printer ejects the first page, the MANUAL lamp blinks again to alert you to insert the paper.

5. Insert the next sheet of paper all the way into the manual feed slot, aligning it as straight as possible.
6. Press the FF/CONT switch for the next page.

You need to press the FF/CONT switch for every paper you load manually. Repeat steps 5 and 6 until you have printed all the pages.

OUTPUT TRAY AND PAPER SUPPORT WIRE

The printer ejects paper with printed surfaces face down into the output tray at the front of the printer.

When the output tray is closed, the ejected paper comes out sheet by sheet through the slit at the front. When you open the tray, sheets can be stacked on the tray.

Follow these steps to open the output tray:

1. Pull the top of the tray down.
2. Extend the paper support wire.

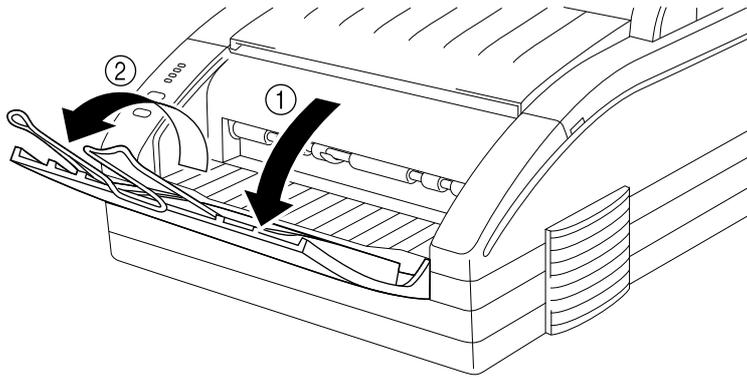


Fig. 2-8 Opening the Output Tray and Extending the Paper Support Wire

You can stack up to 100 sheets in the output tray.

⚠ Caution

- When you use transparencies, remove each sheet immediately after printing. Stacking sheets may cause toner to smear onto the back of the previous sheet.
- When the output tray is closed, you have to remove the ejected sheet, or you will get a paper jam when the second sheet is ejected.

CHAPTER 3 CONTROL PANEL

LAMPS

This section refers to the following lamps on the printer control panel.

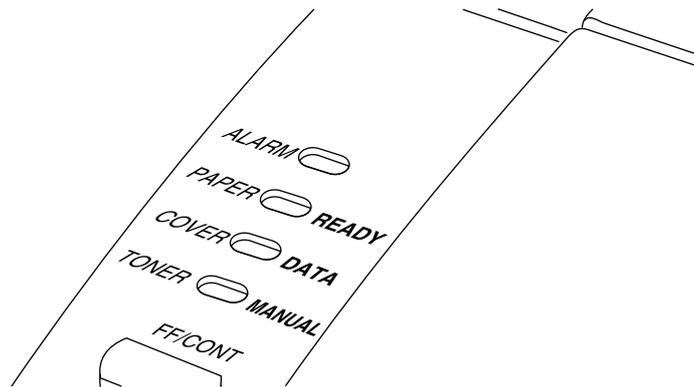


Fig. 3-1 Lamps on Control Panel

Note

When the power cord is not plugged into the AC outlet or the printer is in sleep mode, all lamps including the READY lamp are off.

READY Lamp

The green READY lamp indicates the current status of the printer.

The printer will wake up automatically from sleep mode data is received or a switch is pressed when the power cord is plugged in.

Lamp	Printer status
Off	The power cord is not plugged into the AC outlet.
○	The printer is in the sleep mode.
Blinking	The printer is warming up.
○↔●	(Blinking at 0.5 seconds)
Blinking	The printer is off-line.
○↔●	(Blinking at 1 seconds)
On	The printer is on-line.
●	

DATA Lamp

The yellow DATA lamp indicates the current status of the print data process.

Lamp	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 the memory.
On ●	Print data remains in the printer memory. If the DATA lamp is on for a long period of time and nothing has printed, you need to press the SELECT switch to turn the printer off-line and press the FF/CONT switch to print the data.

MANUAL Lamp

The yellow MANUAL lamp indicates the current paper source or paper feed method.

Lamp	Printer status
Off ○	The printer can print continuously by loading paper from the multi-purpose sheet feeder.
Blinking ○↔●	Manual paper feed is selected and the printer prompts you to insert paper in the manual paper feed slot and press the FF/CONT switch.

ALARM Lamp

The red ALARM lamp blinks to indicate a printer error status. If any error occurs, the printer indicates the error by blinking the ALARM lamp with another lamp or by printing an error report.

Note

The READY, DATA and MANUAL lamps are used to indicate printer errors with the ALARM lamp. See “ALARM INDICATIONS AT A GLANCE” in Chapter 6 and take corrective action for the error.

SWITCHES

This printer has the following control panel switches.

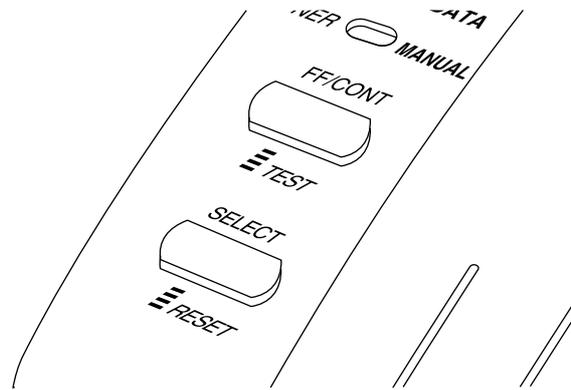


Fig. 3-2 Switches on Control Panel

Note

This printer has no power switch. You just plug the power cord into the AC outlet. The sleep mode feature handles all power control. For more information on sleep mode, see "OTHER CONTROL FEATURES" in this chapter.

SELECT (RESET) Switch

The lower switch on the control panel can work as the SELECT or RESET switch.

SELECT Switch

The SELECT switch turns the printer on-line and off-line alternately. When the printer is on-line, the READY lamp is on. When the printer is off-line, the READY lamp is blinking respectively.

If you press the SELECT switch during printing, the printer immediately stops printing even if the printer has started to print. It ejects the page, and then enters the off-line status. Press the SELECT switch again and the printer will print the complete page again.

RESET Switch

Depress and hold the RESET switch until all four lamps are turned on. The printer is then reset and restored to the user default settings. While the switch is being depressed, the printer ignores any data. If the switch is released before all the lamps are turned on, the reset function does not work. The RESET switch may be able to cancel an error status.

Caution

Remember that the RESET switch clears data from the printer memory and puts the printer into the sleep mode.

FF/CONT(TEST) Switch

The upper switch on the control panel can work as the Form Feed (FF), Continue (CONT), or Test print (TEST) switch.

FF/CONT Switch

If the DATA lamp is on, press the FF/CONT switch. The printer prints any data remaining in the printer memory.

When you use the manual feed slot, the FF/CONT switch is used as the Form Feed (FF) switch. When you see the MANUAL lamp blinking, insert a paper all the way into the manual feed slot and press the FF/CONT switch. After pressing the FF/CONT switch the printer loads the paper and begins printing. Remember that you need to press this switch to load every paper manually.

If an error occurs, the printer will usually recover the recoverable errors such as cover open error automatically. If the error does not clear automatically, press the FF/CONT switch to clear the error and continue the operation.

TEST Switch

Keep the TEST switch depressed until all lamps are turned on to execute the test printing. If the printer is on-line and print data remains in the printer memory, the printer cannot print a test sample page. If the printer is off-line and data remains in the printer memory, the printer prints the remaining data first and then prints a test sample page.

OTHER CONTROL FEATURES

The printer has the following useful features:

Reprint Function

You can use the FF/CONT switch as a Reprint switch, you can reprint the last printed page without sending it again from your computer.

After you have finished printing, press the SELECT switch to turn the printer off-line and press the FF/CONT switch, so that the printer starts reprinting the last printed page. If you press the FF/CONT switch one or more times during reprinting, the printer reprints the page as many times as you pressed the switch.

Note

- The reprint data remains in the printer's memory until the printer is reset, the emulation is changed, or some other settings are changed. After you have printed confidential data, be sure to reset the printer to clear it from the printer's memory.
- You can enable or disable this reprint function with the supplied Remote Printer Console program. See the software setup guide for more information about RPC.

Sleep Mode

Whether the printer is in the on-line or off-line state, and the printer does not receive data for a certain period of time (time out), it enters sleep mode. Sleep mode acts as though the printer was turned off. The factory set default time out is 15 minutes. While the printer is in sleep mode, all the lamps 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 any switch also wakes up the printer.

Note

- This printer has no power switch. The sleep mode handles the power control.
- 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 from 5 seconds to 60 seconds. The READY lamp blinks to indicate that the printer is warming up.
- You can change the time out for the sleep mode with the supplied printer driver and Remote Printer Console program. See the Software setup guide for more information about drivers.

Test Print Mode

The printer has a test print mode where you can select and perform any of three test prints. Follow these steps:

1. Press the SELECT switch to turn the printer off-line.
2. Hold down the FF/CONT switch and press the SELECT switch.

The printer enters the test print mode. The ALARM lamp blinks to indicate that the first choice, Test sample page, is selected. See the table below.

3. Press the FF/CONT switch to select another test.

Every time you press the switch, the blinking lamp changes to select another choice. See the table below.

4. Press the SELECT switch to perform the selected choice.

Blinking Lamp	Choice	Function
ALARM	Test sample page	The printer prints a test sample page.
READY	Print Fonts	The printer prints a list of the internal fonts of the printer.
DATA	Print Config	The printer prints the current settings that configure or set up the printer.
MANUAL	Print Fonts P	The printer prints a list of the permanent download fonts.

After printing the desired test sample page, the printer returns to the ready status.

Reset/Hex Dump Mode

The printer has a reset/hex dump mode where you can select and perform any of three resets or a hex dump print. Follow these steps:

1. Press the SELECT switch to turn the printer off-line.
2. Hold down the SELECT switch and press the FF/CONT switch.

The printer enters the reset/hex dump mode. The ALARM lamp blinks to indicate that the first choice, User Reset 1, is selected. See the table below.

3. Press the FF/CONT switch to select another choice.

Every time you press the switch, the blinking lamp changes to select a choice. See the table below.

4. Press the SELECT switch to perform the selected choice.

Blinking Lamp	Choice	Function
ALARM	User Reset 1	The printer is restored to the user default settings without clearing permanent fonts and macros. You can execute this by long-pushing the RESET switch.
READY	User Reset 2	The printer is restored to the user default settings and permanent fonts and macros are cleared.
DATA	Factory Reset	The printer is restored to the factory settings and permanent fonts and macros are cleared.
MANUAL	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 reset the printer.

After resetting, the printer returns to the ready status.

Note

User settings are the printer settings that you change with the remote printer console program. See the software setup guide for details.

USER'S GUIDE

CHAPTER 4 OPTIONS

SERIAL INTERFACE BOARD

To connect the printer with a serial interface to a DOS computer or to an Apple Macintosh computer, you need to install the optional serial interface board. When you have installed a serial interface board, you can share the printer between two computers using the parallel and serial interfaces at the same time. Automatic interface selection is a standard feature.

Note

The serial interface board for this printer is optional, but in some countries the serial interface board may have been installed by either the factory or dealer.

The serial interface board is installed onto the main controller board inside the printer. For the details about installation, see the instruction guide which was provided with the serial interface board.

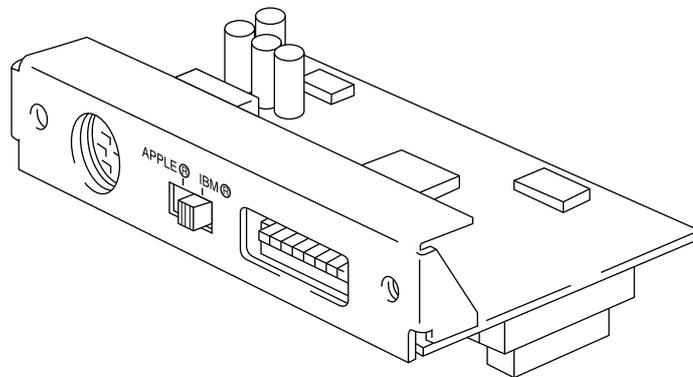


Fig. 4-1 Serial Interface Board

Selecting the RS-422A (Apple) or RS-232C (IBM) Serial Interface

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:

- Select RS-422A(Apple) for Macintosh computers: because RS-422A has been factory selected, if you are using a Macintosh computer, you do not need to change the setting. You may skip this section.
- Select RS-232C(IBM) or RS-422A(Apple) for PCs that operate with DOS or Windows.

If necessary, select the interface type as follow:

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 for IBM(RS-232C) or to the left side for Apple(RS-422A).

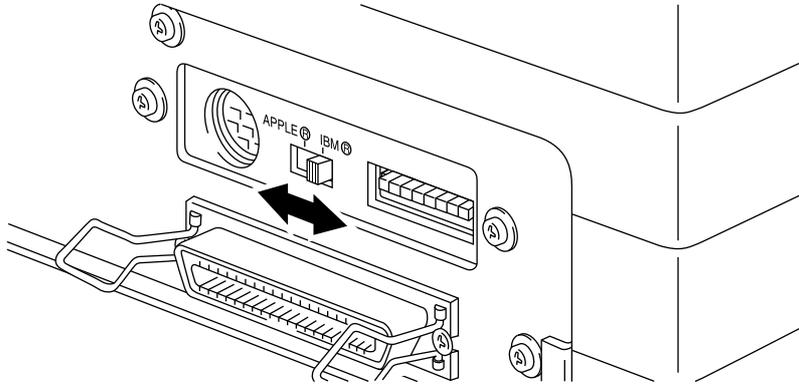


Fig. 4-2 Selecting the RS-422A (Apple) or RS-232C (IBM) Serial Interface

Setting 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 setting. 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 set serial settings 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.

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 by moving up (on) or down (off) the selectors of the dual in-line package (DIP) switch.

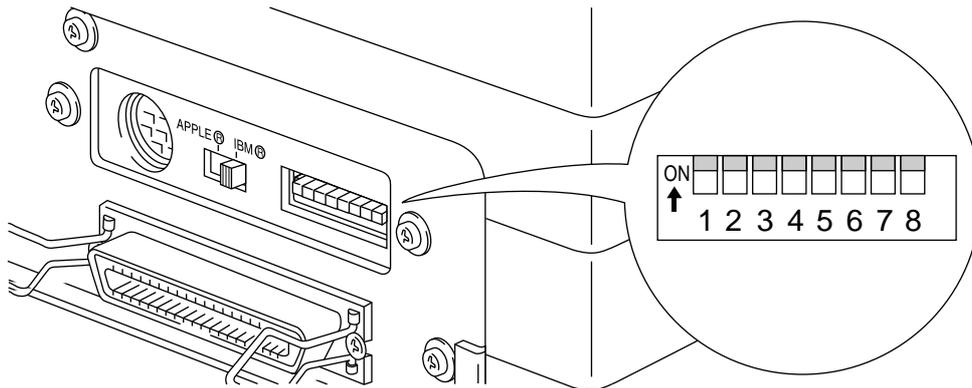


Fig. 4-3 Setting the Serial Interface Parameters

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 1	Selector 2	Parity
On	On	Odd
On	Off	Even
Off	—	None

⚠ Caution

- The factory settings are indicated in bold.
- 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.

Connecting 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 ImageWriter™” or “Macintosh to Personal LaserWriter™ 300”. Do not purchase a serial cable labeled as “Straight-thru” or “Local-Talk.”
- 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 of your computer dealer’s store. 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 cord is unplugged.

Caution

Be sure to unplug the power cord before connecting or disconnecting the interface cables, or the printer may be damaged.

2. Insert and secure the serial interface connector into the serial interface port of your printer.
3. Insert and secure the serial interface connector into the serial interface port of your computer.
4. Plug the power cord into the AC outlet.

MEMORY BOARD

Additional memory is useful and maybe necessary if you are downloading many different fonts or are printing a very complex document.

The printer has either 0.5, 1 or 2 MB of memory as standard. The memory capacity can be expanded up to 2 MB with an optional memory board.

Two types of memory boards are optionally available: one for 1 MB memory expansion and another for 1.5 MB memory expansion.

Note

The printer can recognize a maximum of only 2 MB of memory. Be careful to purchase the appropriate memory board for your printer.

Memory board	1MB	1.5 MB
0.5 MB model	Yes (1.5 MB)	Yes (2 MB)
1.0 MB model	Yes (2 MB)	No (2 MB)

✗ Although you can install the 1.5 MB optional memory board on the 1.0 MB model, the printer can recognize and use only 2 MB memory.

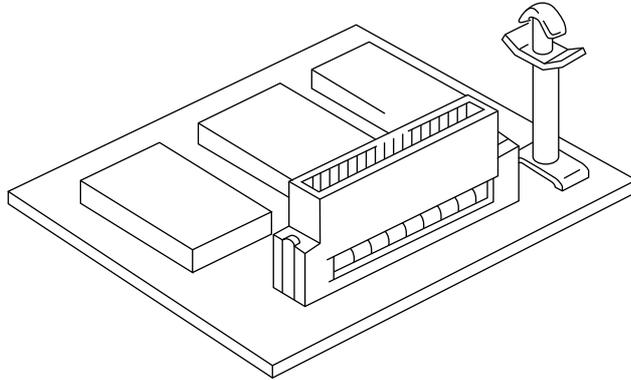


Fig. 4-4 Memory Board

The memory board is installed onto the main controller board inside the printer. For the installation details, please see the Instruction guide which was provided with the memory board.

CHAPTER 5 MAINTENANCE

REPLACING THE TONER CARTRIDGE

The printer can print approximately 3,000 pages with one toner cartridge. When the toner cartridge is running low, the ALARM and TONER lamps are turned on once every 5 seconds to indicate toner low.

Note

- It is recommended that you always keep a new toner cartridge ready for use for when you get the toner low warning.
- Discard the used toner cartridge according to local regulations. If you are not sure of them, consult your local dealer.
- It is recommended that you clean the printer at the same time as you replace the toner cartridge. See “CLEANING THE PRINTER” in this chapter.

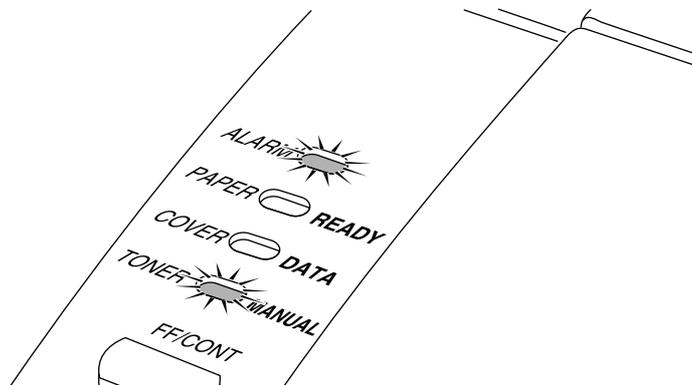


Fig. 5-1 Toner Low and Empty Indication

Caution

You may print approximately 100 pages after the first toner low indication. Both ALARM and TONER lamps will blink to indicate that the toner is empty. Once this indication appears, your printer cannot resume printing until you have installed a new toner cartridge.

Follow these steps to replace the toner cartridge:

1. Lift the multi-purpose sheet feeder to remove it.

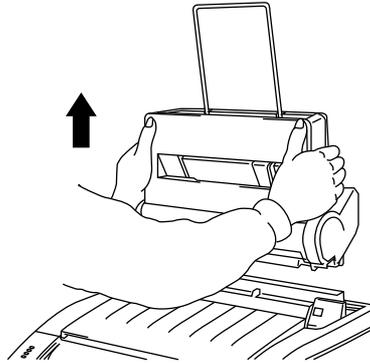


Fig. 5-2 Removing the Multi-Purpose Sheet Feeder

2. Gently push the shutter lever all the way to the rear of the printer.

Note

The toner cartridge cannot be removed unless the shutter is completely closed by turning the lever fully to the rear.

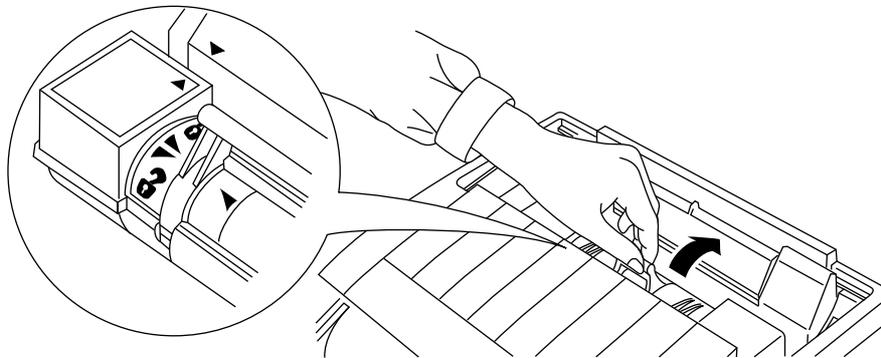


Fig. 5-3 Closing the Shutter of the Toner Cartridge

3. Remove the old toner cartridge from the printer.

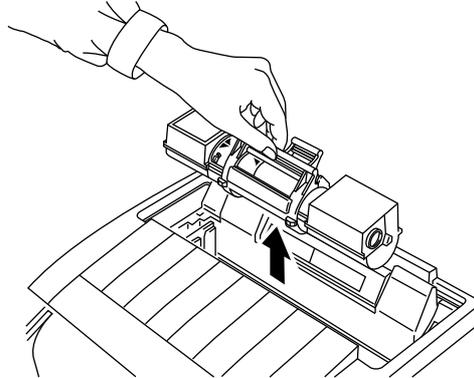


Fig. 5-4 Removing the Old Toner Cartridge

☞ **Caution**

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

4. Unpack the new toner cartridge, gently shake it five or six times before installing, and then remove the protective seal.

☞ **Caution**

Only unpack the toner cartridge immediately before installing it into the printer. If toner cartridges are left unpacked for a long period of time, the toner life is shortened.

✓ **Warning**

You can only use a Brother genuine toner cartridge. Using another brand of toner cartridge could void your printer's warranty.

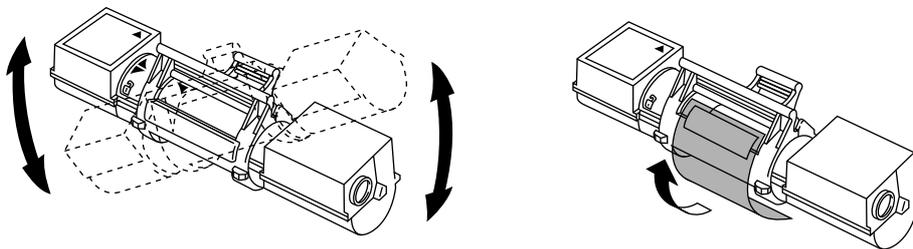


Fig. 5-5 Shaking the Toner Cartridge and Remove the Protective Parts

5. Install the new toner cartridge into the drum unit inside the printer.
Make sure that the ▲ marks are aligned.

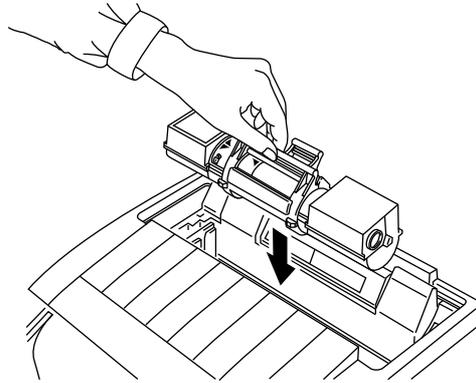


Fig. 5-6 Installing the Toner Cartridge into the Drum Unit

6. Gently push the shutter lever to the front of the printer until the two arrow marks are aligned with each other.

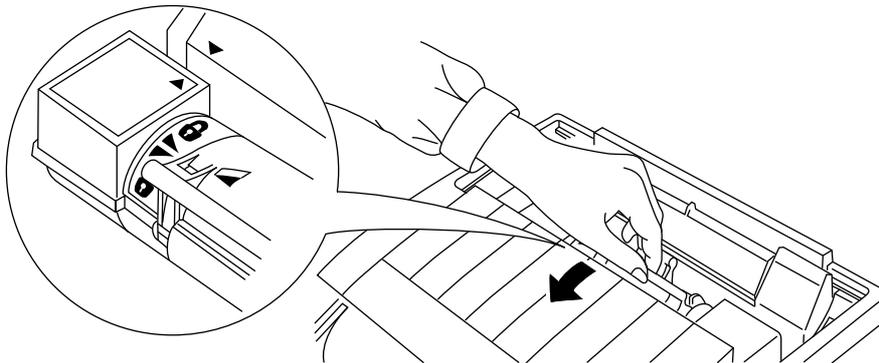


Fig. 5-7 Opening the Toner Cartridge Shutter

7. Install the multi-purpose sheet feeder.
See the section “MULTI-PURPOSE SHEET FEEDER” in Chapter 2.

REPLACING THE DRUM UNIT

The printer uses a drum unit to create the print images on. Check the print quality. If there has been a noticeable deterioration in the output print quality then the drum unit should be replaced.

Note

- When removing the drum unit, handle carefully as it may contain toner.
- You should clean the printer at the same time as you replace the drum unit. See “CLEANING THE PRINTER” in this chapter.
- Discard the used drum unit according to local regulations. If you are not sure of them, consult your local dealer.

Follow these steps to replace the drum unit:

1. Unplug the printer.
2. Remove the multi-purpose sheet feeder. Remove the toner cartridge and keep it in a safe place. See the chapter “REPLACING THE TONER CARTRIDGE” for more information.

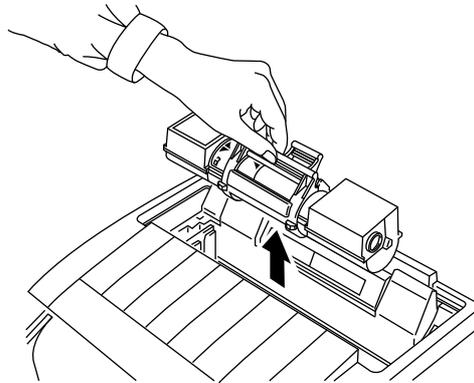


Fig. 5-8 Removing the Toner Cartridge

3. Open the top cover and drum cover of the printer.

⚠ Caution

After you have used the printer, some internal parts of the printer are extremely hot. When you open the top cover of the printer, never touch the shaded parts shown in the following diagram.

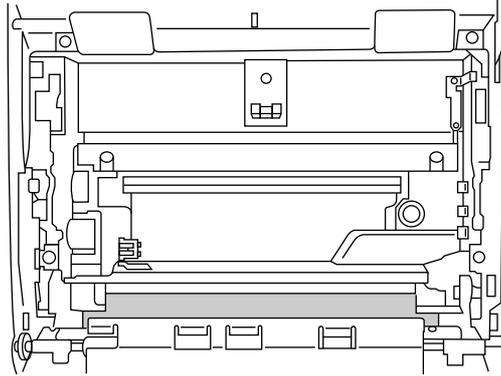


Fig. 5-9 Inside the printer

4. Remove the old drum unit and lift the drum unit gently. Make sure that you grasp the ▲ marks.

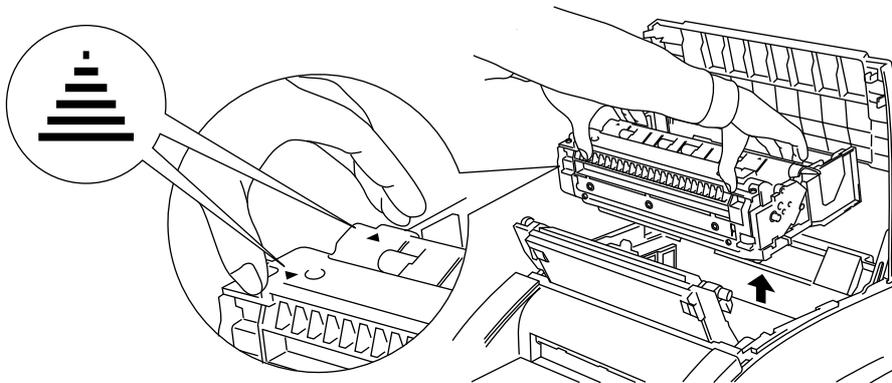


Fig. 5-10 Removing the Drum Unit

5. Unpack the drum unit and gently shake it five or six times horizontally.

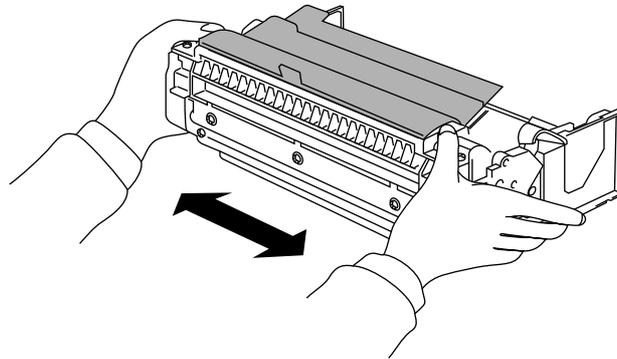


Fig. 5-11 Unpacking the Drum Unit

6. Remove the protective parts ① - ⑥ in order as shown below.

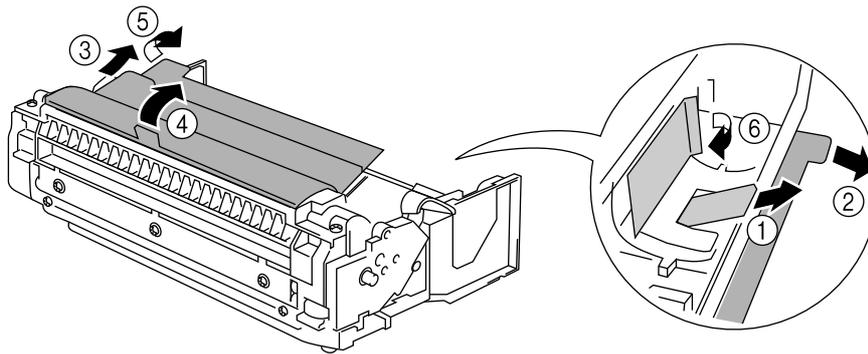


Fig. 5-12 Removing the Protective Parts

Caution

- Only unpack a drum unit immediately before installing it into the printer. If an unpacked drum unit is subjected to direct sunlight or room light, the unit may be damaged.
- Handle the toner cartridge and the drum unit carefully as it may contain the toner. If toner scatters and your hands or clothes get dirty, wipe or wash it off with cold water immediately.

7. Hold the drum unit flat and install the new drum unit into the printer.

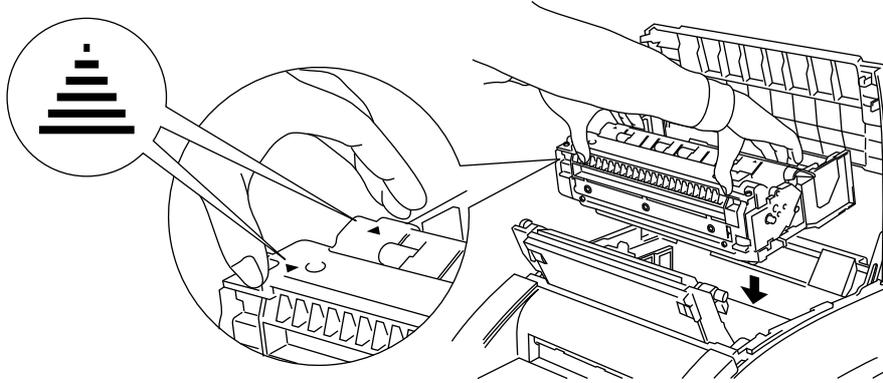


Fig. 5-13 Installing the Drum Unit

8. Close the drum cover and press until the locking pegs click into position and then close the top cover.
9. Install the toner cartridge into the drum unit inside the printer. See the chapter "REPLACING THE TONER CARTRIDGE" for more information.
10. Plug the power cord.

ADJUSTING THE PRINT DENSITY

The print density dial is located near the power cord on the back of the printer. You can use it to adjust the amount of toner applied to the paper.

When the toner cartridge and drum unit are replaced, or if the operating temperature and humidity are high or low, print conditions may change causing darker or lighter printouts.

Use a screwdriver to turn the print density dial clockwise for darker printouts and counterclockwise for lighter printouts. The dial has been set to the middle position.

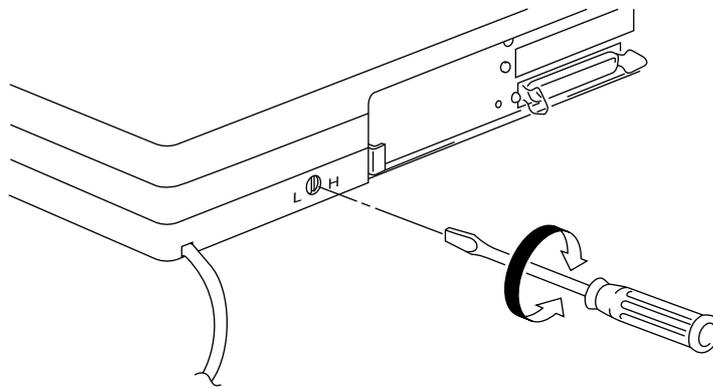


Fig. 5-14 Adjusting the Print Density Dial

CLEANING THE PRINTER

Clean the printer exterior and interior periodically. If printed pages get stained with toner, clean the printer interior and drum unit.

✓ **Warning**
Before cleaning the printer, unplug the power cord.

Cleaning the Printer Exterior

Clean the printer exterior as follows:

1. Unplug the power cord.
2. Remove the paper in the multi-purpose sheet feeder.
3. Use a damp cloth for cleaning.

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

4. Wipe dirt and dust away from the printer exterior and feeder with a cloth.
5. Load paper into the multi-purpose sheet feeder, and plug in the power cord.

Cleaning the Printer Interior and Drum Unit

Clean the printer interior and the drum unit as follows:

1. Unplug the power cord.
2. Remove the multi-purpose sheet feeder.
3. Open the top cover of the printer.
4. Open the drum cover.

Note

After you have used the printer, some internal parts of the printer are extremely hot. When you open the top cover of the printer, never touch the shaded parts shown in the following diagram.

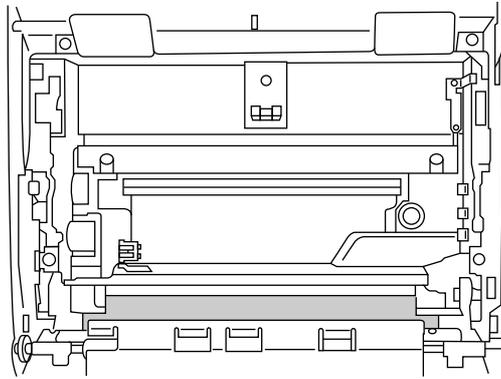


Fig. 5-15 Inside the printer

5. Wipe dirt and dust away from the drum cover and printer inside with the soft cloth. You may use cleaning alcohol (isophorol) with a cotton swab to wipe the rollers (①) and pinch rollers (②) of the drum cover.

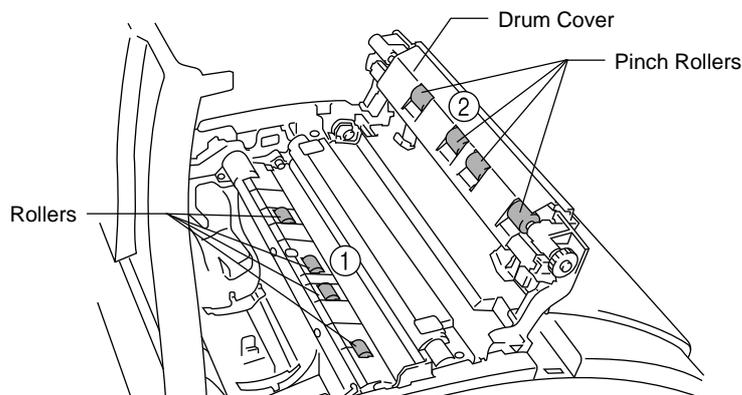


Fig. 5-16 Cleaning the Upper Shoot Cover and Rollers

✓ **Warning**

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

6. Take the drum unit out of the printer and put it aside.
7. Wipe the following electric plates ③, ④, ⑤ with cleaning alcohol on a cotton swab. Wipe the scanner window ⑥ and the toner sensor ⑦ with a soft dry cloth.

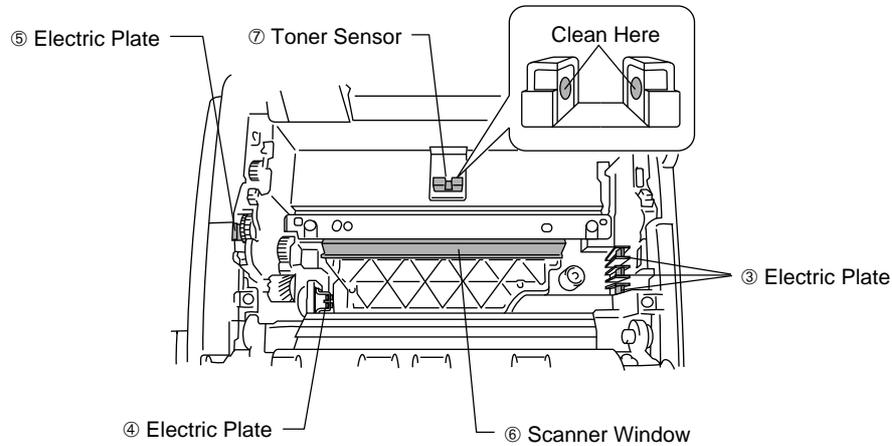


Fig. 5-17 Cleaning the Printer Interior

✓ **Warning**

- Do not wipe the scanner window with cleaning alcohol (isophorol).
- Make sure that the arrow marks on the toner cartridge are aligned with each other before turning the drum unit upside down. See the section "REPLACE THE TONER CARTRIDGE" in Chapter 5.

8. Turn the drum unit upside down carefully.

⚠ **Caution**

Handle the drum unit carefully as it contains the toner. If toner scatters and your hands or cloths get dirty, wipe or wash it off with cold water immediately.

9. Clean the primary corona wire inside the drum unit by gently sliding the tab right and left several times.

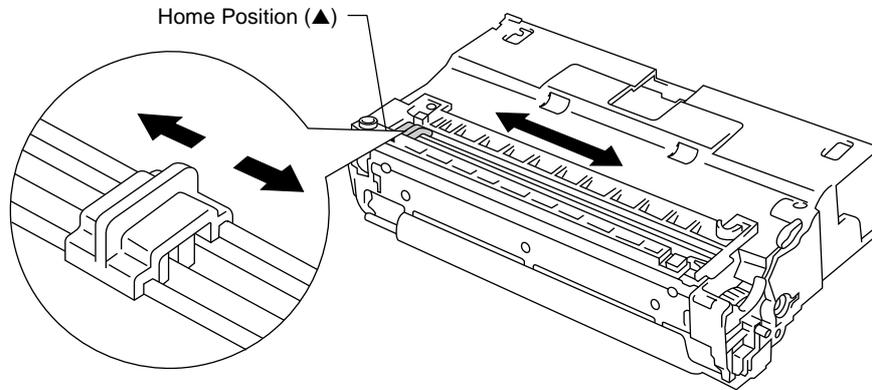


Fig. 5-18 Cleaning the Primary Corona Wire

10. Position the tab at left end of the drum unit (▲ mark position.)

✓ **Warning**
 Be sure to position the tab at the home position to the left end of the drum after cleaning.

11. Install the drum unit into the printer.
 See the section “REPLACING THE DRUM UNIT” in Chapter 5.
12. Close the drum cover and top cover.
13. Install the multi-purpose sheet feeder.
 See the section “MULTI-PURPOSE SHEET FEEDER” in Chapter 2.
14. Plug in the power cord.

RE-PACKING THE PRINTER

⚠ Caution

Whenever you transport the printer, use the packing materials which are provided with your printer. Also, follow the steps below to re-pack the printer, or the printer will be damaged.

1. Unplug the printer from the AC outlet.
2. Remove the multi-purpose sheet feeder and wrap it in the plastic bag.
3. Open the top cover and the drum cover.
4. Remove the drum unit assembly, referring to the previous section.

✍ Note

Remove the drum unit assembly with the toner cartridge included.

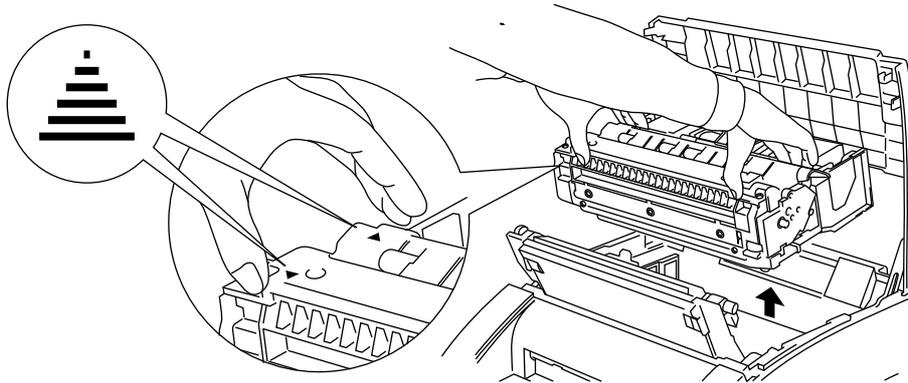


Fig. 5-19 Removing the Drum Unit Assembly

5. Place the drum unit assembly in the plastic bag, fold the plastic bag under the drum unit assembly, and wrap it in the corrugated cardboard.

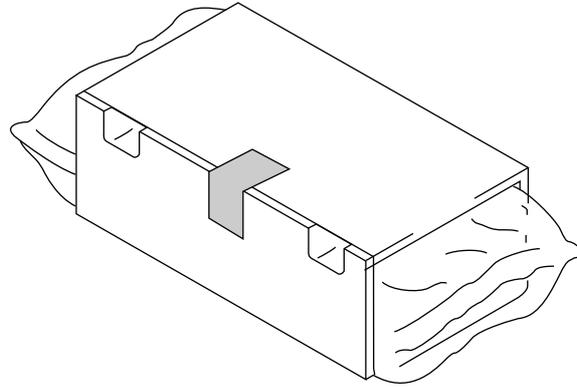


Fig. 5-20 Placing the Drum in the Plastic Bag and Wrapping it in the Corrugated Cardboard

6. Close the top cover, the drum cover, the paper support wire, and the output tray.
7. Wrap the printer in the plastic bag and place it in the carton box with the Styrofoam.
8. Place the multi-purpose sheet feeder, documents, and drum unit assembly in the carton box as shown below.
9. Close the carton box and tape it.

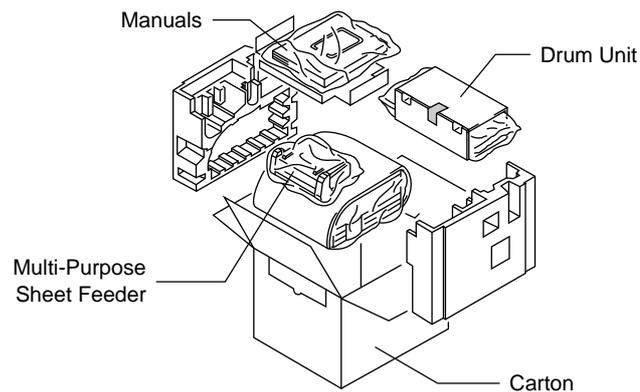


Fig. 5-21 Repacking the Printer

USER'S GUIDE

CHAPTER 6 TROUBLESHOOTING

ALARM INDICATIONS AT A GLANCE

Operator Calls

If an error occurs, the printer indicates an 'operator call' by blinking the ALARM lamp and any of the following lamps.

Find the error and take the proper action to correct it. The printer automatically recovers from most errors, but you may need to reset the printer with the switches as described below.

Blinking Lamp	Error	Action
PAPER ○↔● ALARM○↔●	Paper jam	Clear the paper jam referring to the next section "PAPER JAMS" and press the FF/CONT switch if the printer does not automatically resume printing.
	Paper empty	Load paper in the printer referring to Chapter 2 and press the FF/CONT switch.
	Mis Feed	Reinstall the paper and press the FF/CONT switch.
COVER ○↔● ALARM○↔●	Cover open	Close the top cover of the printer or install the multi-purpose sheet feeder into the printer firmly.
TONER ○↔● ALARM○↔● (every 5 seconds)	Toner low	Indicates that the printer has approximately 100 pages of printing left before the toner cartridge is empty.
TONER ○↔● ALARM●↔●	Toner Empty	Replace the toner cartridge with a new one.

For errors shown below, the printer indicates an operator call by blinking the ALARM lamp and printing the error messages on paper.

Error	Action
Memory Full	<ul style="list-style-type: none"> • Press the FF/CONT switch to print the data remaining in the printer. • If you are using the supplied Windows driver, try again after setting the TrueType mode to "Print as Graphics" in the PRINT menu of your application software. • Expand the printer memory with the optional memory board. • Reduce the print resolution or reduce the complexity of your document.
Print Overrun	<ul style="list-style-type: none"> • Press the FF/CONT switch to print the data remaining in the printer. • If you use the supplied Windows driver, try again after setting the TrueType mode to 'Print as Graphics' in the PRINT menu of your application software. • If this does not clear the error, reduce the complexity of your document or reduce the print resolution.
Centronics Interface Line Error	<ul style="list-style-type: none"> • Press the FF/CONT switch to resume printing. • Check that the connection between your computer and printer is secure and correct, and check the interface cable.
Serial Interface Framing Error	<ul style="list-style-type: none"> • Press the FF/CONT switch to resume printing. • Check the communication parameters settings such as baud rate and stop bit on both your computer and printer.
Serial Interface Parity Error	<ul style="list-style-type: none"> • Press the FF/CONT switch to resume printing. • Check the communication parameters settings such as bit length and parity on both your computer and printer.
Serial Interface Overrun Error	<ul style="list-style-type: none"> • Press the FF/CONT switch to resume printing. • The interface hardware may be damaged, consult your dealer.

Error	Action
Serial Interface Input Buffer Overflow	<ul style="list-style-type: none">• Press the FF/CONT switch to resume printing.• Check the communication parameters settings such as handshake protocol on both your computer and printer.• If the error occurs again, the interface hardware may be damaged, consult your dealer.

 Note

If the printer does not operate as you expect it to, it is recommended that you perform a user reset or factory reset with the switches or unplug the printer. If you still have problems, consult your dealer or our authorized service representative.

Service Calls

If an unrecoverable error occurs, the printer indicates the need for a service call by lighting all the lamps and then the following combination of lamps alternately:

Service Call	Fuser mal-function	Laser BD mal-function	Program error	D-RAM error
ALARM	●	○	○	●
READY	○	●	○	○
DATA	○	○	●	●
MANUAL	○	○	○	○

Service Call	Service A	Service B	Service C	Service D
ALARM	○	●	○	●
READY	●	●	○	○
DATA	●	●	○	○
MANUAL	○	○	●	●

Service Call	Service E0	Service E1	Service P	NV-RAM error
ALARM	○	●	○	●
READY	●	●	○	○
DATA	○	○	●	●
MANUAL	●	●	●	●

● ON ○ OFF

If you see any of these service call indications, reset the printer in either of the following ways:

1. Reset the printer using the RESET switch or the FF/CONT switch and try to print again.
2. Unplug and plug in the power cord and then try to print again.

If you cannot clear the error and see the same service call indication after resetting the printer, consult your dealer or our authorized service representative. Report the error status and situation referring to the above table.

Note

Check the top cover, the multi-purpose sheet feeder and the main controller board are firmly installed.

PAPER JAMS

Before you clear the paper jam error, you need to find the location of the paper jams. Locate the position referring to the following figure.

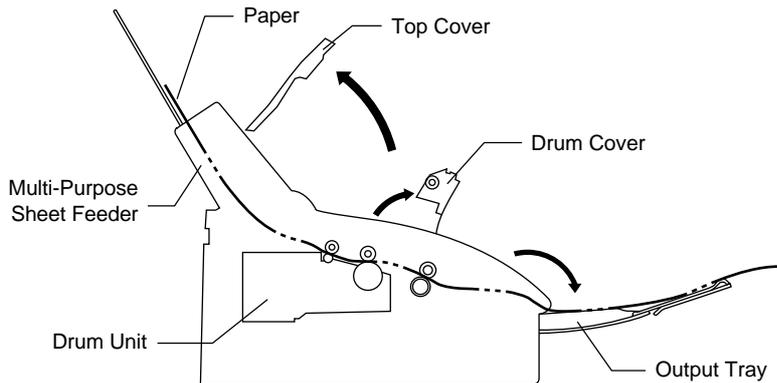


Fig. 6-1 Locating Paper Jam Position

After locating the position, clear the jammed paper referring to the following descriptions. If the jammed paper is removed completely, the printer may resume printing. If the printer does not resume printing, press the FF/CONT switch.

- Paper Jam at the Paper Output Tray

⚠ Caution

Do not pull the jammed paper from the output tray. Be sure to open the upper shoot cover inside the printer to remove the jam, or the jammed paper may tear and pieces of paper may remain inside the printer. See the next page how to remove the jammed paper.

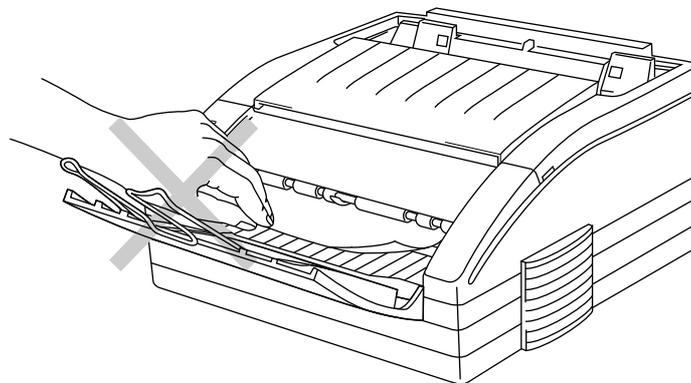


Fig. 6-2 Paper Jam at the Paper Output Tray

❑ Paper Jam in the Multi-Purpose Sheet Feeder

If a paper jam has occurred inside the multi-purpose sheet feeder, open the multi-purpose sheet feeder to pull up the jammed paper upward out of the feeder; then close the multi-purpose sheet feeder. Also, open the top cover and check that a torn piece doesn't remain inside the printer referring to the next section.

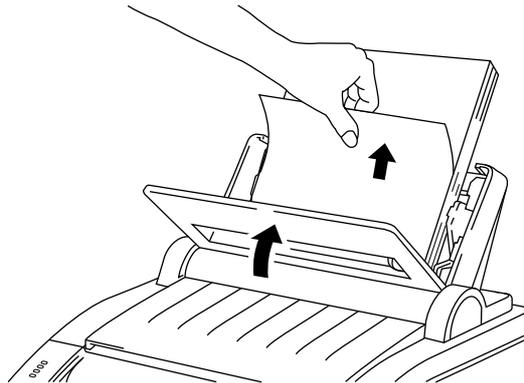


Fig. 6-3 Paper Jam in the Feeder

If the paper cannot be pulled up, see the next section “Paper Jam Under the Drum Cover.”

❑ Paper Jam under the Drum Cover

If a paper jam has occurred under the drum cover, remove the multi-purpose sheet feeder, open the top cover and the drum cover. Then, pull the jammed paper upwards and out of the printer. Close the covers.

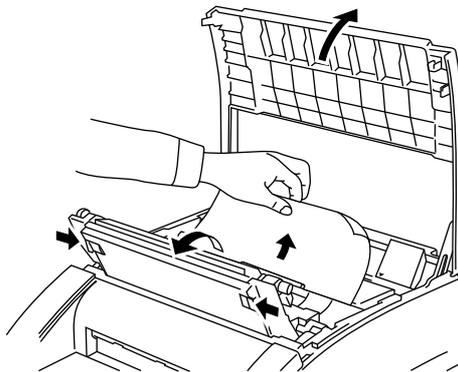


Fig. 6-4 Paper Jam under the Drum Cover

❑ Paper Jam Inside the Printer

If a paper jam has occurred under the drum unit, you must; remove the multi-purpose sheet feeder, open the top cover and the drum cover, remove the drum unit, and pull the jammed paper out of the printer. Then, re-install the drum unit and close the covers.

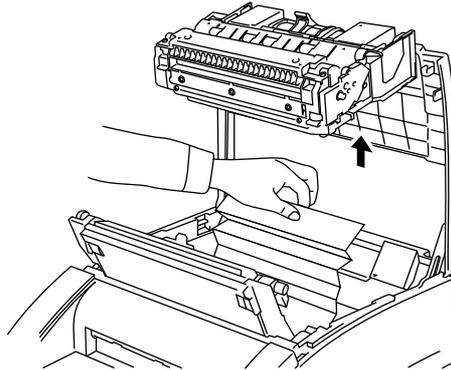


Fig. 6-5 Paper Jam Inside the Printer

⚠ **Caution**

After you have used the printer, some internal parts of the printer are extremely hot. When you open the top cover of the printer, never touch the shaded parts shown in the following diagram.

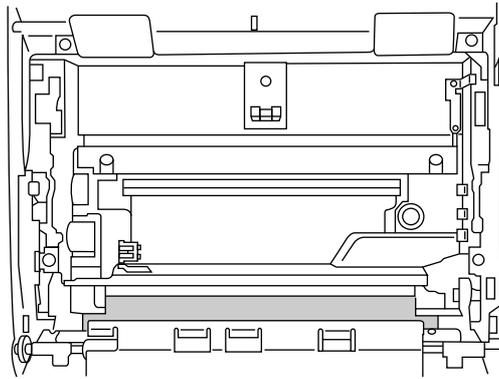


Fig. 6-6 Inside the Printer

Q & A

This section contains questions and answers for using your printer. If you have encountered problem, find the question relating to your problem and take the steps recommended to correct the problem.

Setting up the Printer Hardware

Question	Recommendation
The printer does not work. All lamps are off.	The printer may be in sleep mode. Press any switch to wake up printer.
The printer does not print.	Check the following: <ul style="list-style-type: none"> • The protective parts have been removed. • The toner cartridge and drum unit are installed properly. • The interface cable is securely connected between the printer and computer. • Notice if any lamps are blinking. Notice which lamps are blinking and refer to Operator Call section of this manual.

Setting up the Printer for DOS

Questions	Recommendation
I cannot print from my application software.	<ul style="list-style-type: none"> • Check if the DOS application software interface settings match that of your printer. (i.e., if you are using a parallel printer cable, then you would most likely set your DOS software printer port to LPT1.) • Check if the printer has any printer alarms active. • 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.

Questions	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 this printer emulates three widely used printer selections : HP LaserJet IIP, Epson FX-850, and IBM Proprinter XL. A suggestion is to reset the printer to factory settings by using the RESET function or by using the RPC to set the printer into HP emulation and then select the HP LaserJet IIP printer in your application software.
The printer does not print when I press the Print Screen Key. (DATA lamp On)	Press the FF/CONT switch. The data has been sent to the printer but the printer did not receive the Page Eject command (print screens do not send this command.)
The printer prints the first part of my document but doesn't print the last page. (DATA lamp On)	This was a common problem with database software and spreadsheet software when not correctly set up. The data has been sent to the printer but the printer did not receive the Page Eject command. Press the FF/CONT switch to eject the page. Then check with your software supplier on how to add a Page Eject (or Form Feed) command to the end of your print job.
How can I change the User settings or default settings of the printer?	Use the remote printer console (RPC) program.

Setting up the Printer for Windows

Questions	Recommendation
The printer does not work.	Check the followings: <ul style="list-style-type: none"> • The printer plugged in. • Interface cable is securely connected between the printer and computer. • There are any alarm conditions (blinking lamps.)

Questions	Recommendation
I cannot print from my application software.	<ul style="list-style-type: none"> • If you are using Windows 3.1, make sure the supplied printer driver is installed and selected with your application software. • If you are using Windows 3.0 or earlier, make sure that proper printer driver is installed and selected to match the printer emulation. • If you use the serial interface, make sure that the serial slide switch of the serial interface is in the correct position and the interface settings are correctly set up with the DIP switches.
How can I change the printer's default settings?	Exit to DOS and use the remote printer console program.
Sometimes I get a Print Overrun error when printing certain documents from Windows.	<ul style="list-style-type: none"> • Set the TrueType mode to 'Print as graphics' from the PRINT menu in your application software. • Reduce the print resolution or reduce the complexity of your document and try again.
Sometimes I get the Memory Full message. How can I correct this?	<ul style="list-style-type: none"> • Set the TrueType mode to 'Print as graphics' from the PRINT menu in your application software. • Another solution is to purchase more memory. • Reduce the print resolution or reduce the complexity of your document and try again.

Setting up the Printer for Apple Macintosh Computers

Questions	Recommendation
The printer does not print.	Check the following: <ul style="list-style-type: none"> • The printer is plugged in. • Paper is loaded. • No error conditions are active (any blinking lamps on printer.) • Printer is on-line.

Questions	Recommendations
I cannot print from my application software.	<ul style="list-style-type: none"> • Make sure that the supplied printer driver is installed in the System Folder and it is selected with Chooser. • Check the PORT selection within Chooser : it should match the port you physically attached the printer cable to. • The serial slide switch of the optional interface board is in the RS-422A position. • Check the printer cable type (you should not be using a Local-Talk or straight-thru cable.)

Paper Handling

Questions	Recommendations
The printer does not load paper.	<ul style="list-style-type: none"> • Note if the ALARM and PAPER lamps are blinking. If so, the multi-purpose sheet feeder is out of paper. Load a new stack of paper in the feeder. • If there is paper in the multi-purpose sheet feeder, make sure it is straight. If the paper is curled, you should straighten it before printing. • Reduce the stack of paper in the multi-purpose sheet feeder, then try again.
The printer does not load paper from the manual feed slot.	When the MANUAL lamp is blinking, press the FF/CONT switch for manual loading. Re-insert the paper firmly.
How can I load envelopes?	You can load envelopes from either the multi-purpose sheet feeder or 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 application manual.
What paper can I use?	You can use plain paper, envelopes, transparencies, labels, and organizer paper. For information on loading paper, see "Paper Handling" in Chapter 2.
How can I clear paper jams?	See "PAPER JAMS" in this chapter.

Printing

Questions	Recommendations
<p>The printer prints unexpectedly or it prints garbage.</p>	<ul style="list-style-type: none"> • Make sure your application software is correctly set up to use this printer and check the printer driver settings or printer settings in your application software. • Check the printer emulation settings. If you can use the supplied RPC program, use it to change the settings as required. Also, you can print the current setting list from the RPC program or Printer Control Panel. • You may clear the problem by resetting the printer to user or factory settings. See “-Reset/Hex Dump Mode” in Chapter 3. • Make sure that the correct interface type and settings are set up to match your computer. Be sure to use the RS-422A serial interface for Macintosh computers and the RS-232C serial interface for PCs.
<p>The printer cannot print full pages of a document. An error message “Print Overrun” occurs.</p>	<p>The printer received a very complex print job and could not process part of the page. This may be solved by the following ways.</p> <ul style="list-style-type: none"> • If you are using Windows 3.1 with the supplied printer driver, set the TrueType mode to ‘Print as graphics’. • Reduce the complexity of your document or reduce the print resolution.
<p>The printer prints the first couple of pages correctly, then some pages have text missing.</p>	<p>This is a problem usually relating to Serial Interface settings. Your computer is not recognizing the printer’s input buffer full signal. Causes could be: incorrect serial cable (incorrectly wired or too long), incorrect setting of your computer serial interface.</p>
<p>The printer cannot print my spreadsheet. A “Memory Full” error message occurs.</p>	<p>Some applications download several types and sizes of fonts. This can use up your printer memory very quickly. Either reduce the number of font sizes within your application, reduce resolution or purchase additional memory for the printer.</p>
<p>My headers or footers appear when I view my document on screen but do not show up when I print them.</p>	<p>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. Adjust the top and bottom margins in your document to allow for this.</p>

Print Quality

Questions	Recommendations
Printouts are too dark or light.	Turn the print density dial counterclockwise for lighter images and clockwise for darker images. It has been factory set to the middle position. See “ADJUSTING THE PRINT DENSITY” in Chapter 5.
Printed pages contains white stripes.	You may clear the problem by wiping the scanner windows with a soft cloth. (See “Cleaning the printer interior and Drum unit.”) If the same problem occurs after cleaning, replace the drum unit with a new one.



Fig. 6-7 White Stripes or Faint Images

Printed pages are stained with toner or has vertical stripes.	<p>Clean the printer interior and the primary corona wire of the toner cartridge. See “Cleaning the Printer Interior and Drum Unit” in Chapter 5.</p> <p>Make sure that the tab of the corona wire is at the home position.</p> <p>If the same print problem occurs after cleaning, replace the drum unit with a new one.</p>
---	---



Fig. 6-8 Dark Stripes or Toner Stains

<p>Printed pages have white spots in black text and graphics area.</p>	<ul style="list-style-type: none">• Make sure that you use paper that meets the specifications. Rough surface or thick media can cause the problem.• If you still have same problem, replace the drum unit with a new one.
--	---

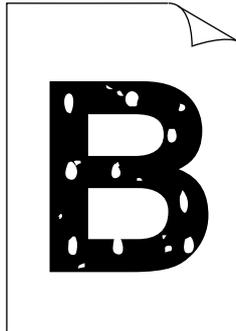


Fig. 6-9 White Spots

<p>Toner scatters and stains the printed page.</p>	<p>If toner scatters over the whole printing surface, adjust the print density dial inside the printer anticlockwise. See “ADJUSTING THE PRINT DENSITY” in Chapter 5.</p> <p>Clean the printer interior. See “Cleaning the Printer Interior and Drum Unit” in Chapter 5.</p> <p>Make sure that you use paper that meets specifications.</p> <p>If you still have same problem, replace the drum unit with a new one.</p>
--	--

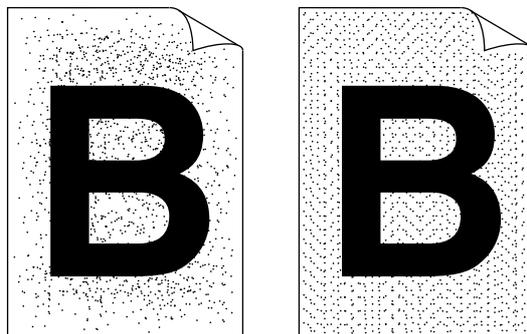


Fig. 6-10 Scattering Toner

<p>The whole page is printed in black.</p>	<p>Wipe the electric plate with cleaning alcohol. See “Cleaning the printer interior and Drum Unit” in Chapter 5. Never use heat-sensitive paper as it will cause this problem.</p> <p>If the same problem occurs after cleaning, replace the drum unit with a new one.</p>
--	---

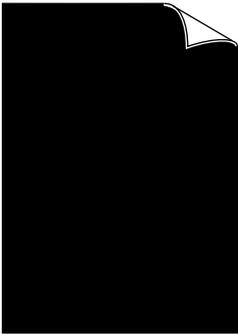


Fig. 6-11 Black Page

<p>Nothing is printed on the page.</p>	<ul style="list-style-type: none">• Make sure that the toner cartridge is not empty and that the sealing tape had been removed from the toner cartridge.• Wipe the electric plate with cleaning alcohol. See “Cleaning the printer interior and Drum Unit” in Chapter 5.
--	---

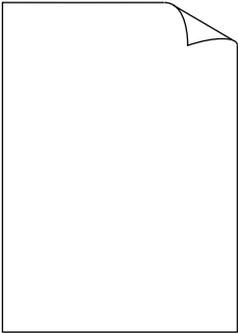


Fig. 6-12 White Page

<p>Printed pages are stained at fixed intervals.</p>	<p>The problem may disappear during extended use, if the printer has not been used for a long time. The surface of the drum has been scratched or exposed to light. Replace the Drum Unit with a new one.</p>
--	---

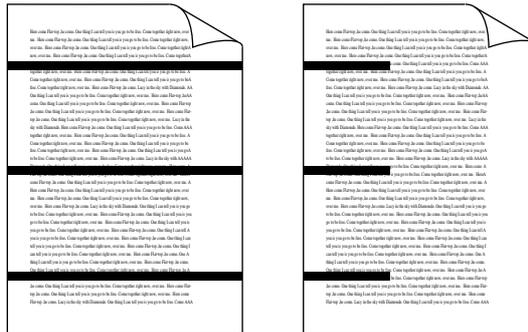


Fig. 6-13 Stained at Fixed Interval

Certain environmental conditions such as humidity, high temperatures, etc. may cause the following situation to occur.

<p>Printed pages are blurred at the center or either edge.</p>	<ul style="list-style-type: none"> • Make sure that the printer is placed on a flat, horizontal surface. • Remove the drum unit with the toner cartridge installed. Hold the unit horizontally with both hands and tap it firmly against a flat surface 3 or 4 times. Re-install the drum/toner unit and try printing again. If the print quality is acceptable, continue using this drum unit. If the print quality is not acceptable, please contact Brother customer service or your local authorized service center for further assistance.
--	---

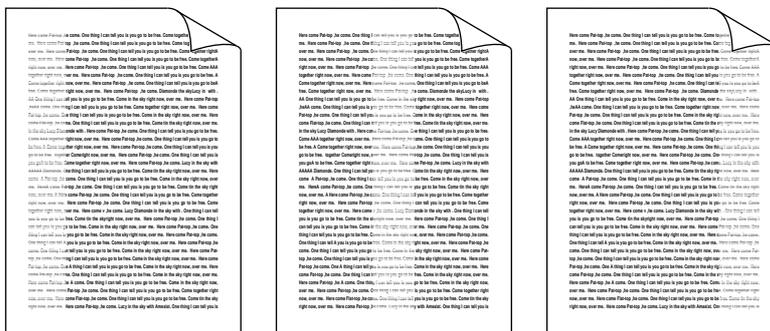


Fig. 6-14 Blurred Page

APPENDICES

PRINTER SPECIFICATIONS

Printing

Print Method	Electrophotography by semiconductor laser beam scanning
Laser	Wavelength : 780 nm Output : 5 mW max
Resolution	300 dots/inch
Print Quality	Normal printing mode Economy printing mode (50% toner saving)
Print Speed	6 pages/minute (when loading A4 or letter-size paper from the multi-purpose sheet feeder)
Warm-Up	Max. 1 minute at 23°C (73.4°F)
First Print	20 seconds (when loading A4-size paper from the multi-purpose sheet feeder)
Print Media	Toner in a cartridge Life Expectancy: 3,000 pages/cartridge (when printing A4- or letter-size paper at 4% print coverage)
TrueType Fonts on disks	TrueType-compatible soft-fonts for Windows on the supplied disk

Functions

CPU	MC68EC000 16 MHz
Emulation	Automatic emulation selection among HP LaserJet IIP (PCL level 4), EPSON FX-850, or IBM Proprinter XL
Printer Driver	Windows 3.1 driver, supporting Brother Native Compression mode and bi-directional capability Optional Macintosh driver (Standard in some countries.)
Interface	Bi-directional parallel RS-422A/RS-232C serial interface is optionally available. (The serial interface is a standard in some countries.)
Memory	0.5, 1.0 or 2.0 MB (subject to the printer model) Expandable up to 2 MB with the optional memory board.
Control Panel	2 switches and 4 lamps
Diagnostics	Self-diagnostic program

Electrical and Mechanical

Power Source	U.S.A. and Canada: AC 110 to 120 V, 60 Hz Europe and Australia: AC 220 to 240 V, 50 Hz
Power Consumption	Printing: 480 W or less Stand-by: 60 W or less Sleep: 10 W or less
Noise	Printing: 50 dB A or less Stand-by: 38 dB A or less
Temperature	Operating: 10 to 32.5°C (59 to 90.5°F) Storage: 0 to 40°C (38 to 104°F)
Humidity	Operating: 20 to 80% (without condensation) Storage: 20 to 80% (without condensation)
Dimensions (W x H x D)	364.9 x 182.5 x 362.8 mm (14.4 x 7.2 x 14.3 inches) (when the output tray is closed and the Multi-purpose sheet feeder is removed.)
Weight	Approx. 9.2 kg (20.3 lb.) including the drum unit

PARALLEL INTERFACE SPECIFICATION

Interface Connector Printer Side: Amphenol FCN-685J036-L/X or equivalent
A shielded cable should be used.

Pin Assignment

Pin No.	Signal	Direction	Pin No.	Signal	Direction
1	<u>DATA STROBE</u>	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	<u>ACKNLG</u>	Output	28	0V (S.G.)	–
11	BUSY	Output	29	0V (S.G.)	–
12	PE	Output	30	0V (S.G.)	–
13	SLCT	Output	31	<u>INPUT PRIME</u>	Input
14	<u>AUTO FEED</u>	Input	32	<u>FAULT</u>	Output
15	N.C.	–	33	N.C.	–
16	0V (S.G.)	–	34	N.C.	–
17	0V (S.G.)	–	35	N.C.	–
18	+5V	–	36	<u>SLCT IN</u>	Input

Note

To use bi-directional communication, the interface cable which has the pin connection above should be used.

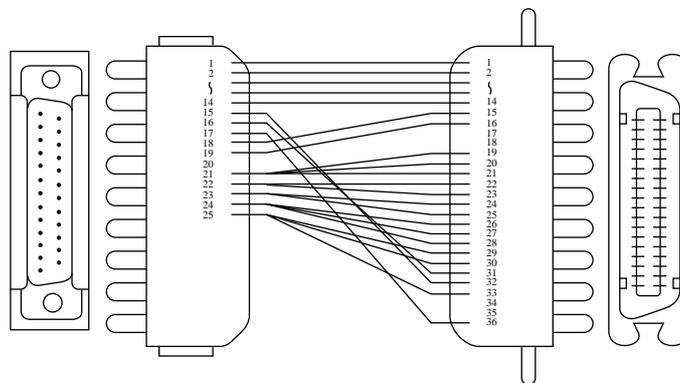


Fig. A-1 Parallel interface cable

RESIDENT FONTS

The following bitmapped fonts are resident in this printer.

Brougham10, 12 point,	upright/normal upright/bold italic/normal italic/bold
Brougham 12, 10 point	upright/normal upright/bold italic/normal italic/bold
Letter Gothic 16.66, 8.5 point	upright/normal upright/bold italic/normal italic/bold

(Portrait and Landscape are available for the above.)

SYMBOL SETS/ CHARACTER SETS

* IBM mode

- PC-8
- PC-8 D/N
- PC-850
- PC-852
- PC-860
- PC-863
- PC-865
- PC-8 Turkish

* EPSON mode

- US ASCII
- German
- UK ASCII I
- French I
- Danish I
- Italy
- Spanish
- Swedish
- Japanese
- Norwegian
- Danish II
- UK ASCII II
- French II
- Dutch
- South African
- PC-8
- PC-8 D/N
- PC-850
- PC-852
- PC-860
- PC-863
- PC-865
- PC-8 Turkish

* HP mode

- ISO14 JIS ASCII
- ISO57 Chinese
- ISO11 Swedish
- HP Spanish
- ISO17 Spanish
- ISO10 Swedish
- ISO16 Portuguese
- ISO84 Portuguese
- ISO85 Spanish
- PC-8
- PC-8 D/N
- PC-8 Turkish
- PC-850
- PC-852
- PC-860
- PC-863
- PC-865
- Roman 8
- ISO Latin 1
(ECMA-94)
- ISO60 Norwegian 1
- ISO61 Norwegian 2
- ISO4 UK
- ISO25 French
- ISO69 French
- HP German
- ISO21 German
- ISO15 Italian
- ISO6 ASCII
- Legal
- ISO2 IRV

Note

If you want to know what characters are in each symbol/character set, print CHARSETS.PRN file from "Print form" option in Direct Access Menu of the Remote Printer Console Program.

□ HP LaserJet IIP

Roman 8										ISO Latin1																					
0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		0	@	P	`	p				À	Á	Â	Ã	Ä	Å	0		0	@	P	`	p				À	Á	Â	Ã	Ä	Å
1	!	1	A	Q	a	q				Â	Ë	É	Ê	Ë	Ì	1	!	1	A	Q	a	q				À	±	Á	Ñ	â	ñ
2	"	2	B	R	b	r				Ë	°	Ë	Ø	ä	·	2	"	2	B	R	b	r				É	²	Ã	Õ	ã	õ
3	#	3	C	S	c	s				È	°	Ë	Ø	ä	·	3	#	3	C	S	c	s				É	³	Ã	Õ	ã	õ
4	\$	4	D	T	d	t				È	Ç	á	â	ð	¶	4	\$	4	D	T	d	t				É	´	Ã	Õ	ã	õ
5	%	5	E	U	e	u				È	Ç	é	í	í	¼	5	%	5	E	U	e	u				¥	µ	Å	Ö	å	ö
6	&	6	F	V	f	v				Ë	Ñ	ó	ø	ì	-	6	&	6	F	V	f	v				|	¶	Æ	Ö	æ	ö
7	'	7	G	W	g	w				Ë	ñ	ú	æ	Ó	¼	7	'	7	G	W	g	w				§	·	Ç	×	ç	÷
8	(	8	H	X	h	x				Ë	;	à	Ä	Ö	½	8	(	8	H	X	h	x				¨	·	È	Ø	è	ø
9	)	9	I	Y	i	y				Ë	;	è	ï	Ö	¾	9	)	9	I	Y	i	y				°	·	É	Ù	é	ù
A	*	:	J	Z	j	z				Ë	^	ò	Û	ö	¾	A	*	:	J	Z	j	z				°	·	Ê	Ú	ê	ú
B	+	;	K	[	k	{				Ë	ε	ù	Û	Š	«	B	+	;	K	[	k	{				«	·	Ë	Û	ë	û
C	,	<	L	\	l	|				Ë	¥	ä	É	š	■	C	,	<	L	\	l	|				¼	·	Ë	Ü	ì	ü
D	-	=	M	]	m	}				Ë	§	ë	ï	Û	»	D	-	=	M	]	m	}				½	·	Ë	Ý	í	ý
E	.	>	N	^	n	~				Ë	ü	ö	Û	ÿ	±	E	.	>	N	^	n	~				¾	·	Ë	ÿ	î	ÿ
F	/	?	O	_	o	¸				Ë	ε	ü	Ö	ÿ		F	/	?	O	_	o	¸				·	·	Ë	ÿ	ï	ÿ

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 character set of Roman 8.

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	#	\$	§	À	Ç	Ö	^	~	ã	ç	õ	°
ISO17 Spanish	£	\$	§	ı	Ñ	ç	^	~	°	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	#	\$	´	À	Ç	Ö	^	~	ã	ç	õ	-
ISO85 Spanish	#	\$	·	ı	Ñ	Ç	ç	~	°	ñ	ç	-
HP German	£	\$	§	Ä	Ö	Ü	^	~	ä	ö	ü	ß
HP Spanish	#	\$	@	ı	Ñ	ç	°	~	{	ñ	}	—

□ HP LaserJet IIP, EPSON FX-850, IBM Propritner XL

PC-8													PC-850																			
0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
0	▶	0	@	P	`	p	Ç	É	á	í	⌘	⌘	⌘	⌘	⌘	0	▶	0	@	P	`	p	Ç	É	á	í	⌘	⌘	⌘	⌘	⌘	
1	⊙	◀	!	1	A	Q	a	q	ü	æ	í	⌘	⌘	⌘	⌘	1	⊙	◀	!	1	A	Q	a	q	ü	æ	í	⌘	⌘	⌘	⌘	⌘
2	⊙	†	"	2	B	R	b	r	é	ø	ó	⌘	⌘	⌘	⌘	2	⊙	†	"	2	B	R	b	r	é	ø	ó	⌘	⌘	⌘	⌘	⌘
3	♥	||	#	3	C	S	c	s	â	ô	ú	⌘	⌘	⌘	⌘	3	♥	||	#	3	C	S	c	s	â	ô	ú	⌘	⌘	⌘	⌘	⌘
4	♦	¶	\$	4	D	T	d	t	ä	ö	ñ	⌘	⌘	⌘	⌘	4	♦	¶	\$	4	D	T	d	t	ä	ö	ñ	⌘	⌘	⌘	⌘	⌘
5	♣	§	%	5	E	U	e	u	à	ò	ñ	⌘	⌘	⌘	⌘	5	♣	§	%	5	E	U	e	u	à	ò	ñ	⌘	⌘	⌘	⌘	⌘
6	♠	-	&	6	F	V	f	v	â	û	æ	⌘	⌘	⌘	⌘	6	♠	-	&	6	F	V	f	v	â	û	æ	⌘	⌘	⌘	⌘	⌘
7	•	‡	'	7	G	W	g	w	ç	ù	ø	⌘	⌘	⌘	⌘	7	•	‡	'	7	G	W	g	w	ç	ù	ø	⌘	⌘	⌘	⌘	⌘
8	▣	↑	(	8	H	X	h	x	ê	ÿ	⌘	⌘	⌘	⌘	⌘	8	▣	↑	(	8	H	X	h	x	ê	ÿ	⌘	⌘	⌘	⌘	⌘	⌘
9	○	↓	)	9	I	Y	i	y	è	Ö	⌘	⌘	⌘	⌘	⌘	9	○	↓	)	9	I	Y	i	y	è	Ö	⌘	⌘	⌘	⌘	⌘	⌘
A	▣	→	*	:	J	Z	j	z	è	Ü	⌘	⌘	⌘	⌘	⌘	A	▣	→	*	:	J	Z	j	z	è	Ü	⌘	⌘	⌘	⌘	⌘	⌘
B	♂	←	+	;	K	[	k	{	ï	⌘	⌘	⌘	⌘	⌘	⌘	B	♂	←	+	;	K	[	k	{	ï	⌘	⌘	⌘	⌘	⌘	⌘	⌘
C	♀	⌘	,	<	L	\	l	|	î	⌘	⌘	⌘	⌘	⌘	⌘	C	♀	⌘	,	<	L	\	l	|	î	⌘	⌘	⌘	⌘	⌘	⌘	⌘
D	♪	⌘	-	=	M	]	m	}	ï	⌘	⌘	⌘	⌘	⌘	⌘	D	♪	⌘	-	=	M	]	m	}	ï	⌘	⌘	⌘	⌘	⌘	⌘	⌘
E	♫	▲	.	>	N	^	n	~	Ä	⌘	⌘	⌘	⌘	⌘	⌘	E	♫	▲	.	>	N	^	n	~	Ä	⌘	⌘	⌘	⌘	⌘	⌘	⌘
F	*	▼	/	?	O	_	o	Δ	Å	⌘	⌘	⌘	⌘	⌘	⌘	F	*	▼	/	?	O	_	o	Δ	Å	⌘	⌘	⌘	⌘	⌘	⌘	⌘

□ 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	

USER'S GUIDE

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 character set of US ASCII.

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	^	`	à	ò	è	ì
Spanish	¶	\$	@	í	Ñ	¿	^	`	''	ñ	}	~
Swedish	#	κ	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
Japanese	#	\$	@	[	¥	]	^	`	{	|	}	~
Norwegian	#	κ	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	#	\$	@	[	]	f	^	`	é	ij	è	''
South African	#	ê	É	Ê	Ö	è	Ü	é	ë	ö	ô	ü

INDEX

A

alarm 6-1
ALARM lamp 3-2, 6-1-4

B

bi-directional communication 1-4,
Appendix-3

C

carton box 5-14-15
Character Set Appendix-5
Cleaning 5-10
Control panel 3-1-7
cover open 6-1

D

DATA lamp 3-2
Density 5-9
DIP switch 4-3-4
drum unit 5-5
drum life 5-5
Duplex 2-7

E

economy printing mode 1-4
emulation 1-3
envelopes 2-1-2
environment 1-5
error 3-2, 6-1-13
error recover 3-4

F

factory reset 3-7
features 1-3
feeder 2-1-9
FF/CONT switch 3-4
font Appendix-4
font list print 3-6

front view 1-2

H

hex dump mode 3-7

I

interface error 6-2-3

L

label 2-1, 2-8
lamps 3-1-2
loading paper 2-5-6, 2-8-9

M

Macintosh interface 1-4, 4-1
malfunction 6-4
manual duplex 2-7
manual feed 2-8-9
MANUAL lamp 2-8, 3-2
memory board 4-6
memory full error 6-2
memory management 1-4
multi-purpose sheet feeder 2-1, 2-4-7

O

off-line 3-1, 3-3
on-line 3-1, 3-3
operator calls 6-1-3
option 1-4, 4-1-6
organizer sheet 2-1-2
output tray 2-1, 2-10
overview 1-2

P

packing the printer 5-14-15
paper 2-1
paper empty 2-6, 6-1

USER'S GUIDE

- paper guide 2-6
- paper handling 1-3, 2-1
- paper jam 2-6, 6-1, 6-5-7
- PAPER lamp 2-6
- paper source 2-1-9
- paper specifications 2-1
- paper support wire 2-10
- parallel interface 1-4, Appendix-3
- power 1-5
- power control 3-5
- power save mode 1-4
- power supply 1-5
- power switch 3-3
- printable area 2-3
- print configuration 3-6
- print density 5-9
- printer driver 1-3
- printing speed 1-3
- print overrun 6-2
- print quality 6-13-16

R

- READY lamp 3-1
- rear view 1-2
- remote printer console program 1-3
- reprint function 3-5
- reset 3-4, 3-7
- RESET switch 3-4
- resident font Appendix-4
- resolution 1-3
- RS-232C 1-4, 4-2-6
- RS-422A 1-4, 4-3

S

- SELECT switch 3-3
- serial interface 1-4, 4-1-4
- serial interface cable 4-5
- service calls 6-4
- sleep mode 1-4, 3-1, 3-5
- switch 3-3-4
- symbol set Appendix-5

T

- test print 3-4, 3-6
- test sample page 3-4
- TEST switch 3-4

- toner cartridge 5-1
- toner empty 5-1, 6-1
- TONER lamp 5-1
- toner low 5-1, 6-1
- transparency 2-1, 2-8
- two side printing 2-7

U

- user default setting 3-4
- user reset 3-7

W

- warm-up 3-1

(For USA & CANADA Only)

For technical and operational assistance, please call:

In USA	1-800-276-7746 (outside California) 714-859-9700 (within California)
In Canada	1-800-361-6466

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

In USA	Printer Customer Support Brother International Corporation 15 Musick Irvine, CA 92718
In Canada	Brother International Corporation, Ltd. 1, Rue Hôtel De Ville Dollard-des-Ormeaux P.Q. Canada H9B3H6

brother[®]

UL5422001©
Printed in Japan