



FUJITSU

USER'S MANUAL

*Print Partner*TM

20W

20 ppm page printer



Notice to American Users

Federal Communications Commission Radio Frequency Interference Statement

Notice: 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 to 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.

FCC warning: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Notes

- The use of a non-shielded interface cable with the referenced device is prohibited. The length of the parallel interface cable must be 3 meters (10 feet) or less. The length of the serial interface cable must be 15 meters (50 feet) or less.
- The length of the power cord must be 3 meters (10 feet) or less.

Laser Safety Information

This printer has been designed and manufactured according to FDA regulations "title 21, CFR, chapter I, subchapter J, based on the Radiation Control for Health and Safety Act of 1968", and is classified as class 1 laser product.

Warning: Use of controls, adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Notice to Canadian Users

Notice aux Utilisateurs Canadiens

Hinweis für deutsche Benutzer

This class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la Classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Bescheinigung des Herstellers/Importeurs

Hiermit wird bescheinigt, daß der M385420WA in Übereinstimmung mit den Bestimmungen der EN 45014 (CE) funkenstört ist.

- Maschinenlärminformationsverordnung 3. GSGV, 18.01.1991: Der höchste Schalldruckpegel beträgt 70 dB (A) oder weniger gemäß EN27779-1991.



In case that the Ethernet interface board is installed, this equipment complies with EMI regulations as follows:

Notice to American Users

Federal Communications Commission Radio Frequency Interference Statement

Notice: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FCC warning: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Notes

- The use of a non-shielded interface cable with the referenced device is prohibited. The length of the parallel interface cable must be 3 meters (10 feet) or less. The length of the Ethernet interface cable must be 100 meters (328 feet) or less for type 10BASE-2 and 185 meters (607 feet) or less for type 10BASE-T.
- The length of the power cord must be 3 meters (10 feet) or less.

Notice to Canadian Users

This class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Notice aux Utilisateurs Canadiens

Cet appareil numérique de la Classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Notice to European and Oceanian Users

Warning: This is a product which meets Class A of EN55022 and AS/NZS3548. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.



As an ENERGY STAR® Partner, (Company name) has determined that this product meets the ENERGY STAR® guidelines for energy efficiency.

The International ENERGY STAR® Office Equipment Program is an international program that promotes energy saving through the use of computers and other office equipments. The program backs the development and dissemination of products with functions that effectively reduce energy consumption. It is an open system in which business proprietors can participate voluntarily. The targeted products are office equipment such as computers, displays, printers, facsimiles, and copiers. Their standards and logos are uniform among participating nations.



The contents of this manual may be revised without prior notice and without obligation to incorporate changes and improvements into units already shipped.

We have made every effort to ensure that the information included here is complete and accurate at the time of publication. The company assumes no liability for errors and omissions.

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C145-E295-02EN, January 1999

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International Business Machines Corporation: IBM, IBM PC/AT, IBM PS/2, PC-DOS
Microsoft Corporation: Microsoft, MS-DOS, Windows
Lexmark International Inc.: MarkVision
Miles, Inc.: Intellifont
Novell, Inc.: NetWare
Pipeline Associates, Inc.: PowerPage
Xerox Corporation: Ethernet, Xerox



Precautions

Read this section and remember these instructions to ensure your safety and your printer's correct performance. Follow the cautions and notices labeled on the printer or marked with icons in the manual. Save this manual for future reference.

- Use only the power cord furnished with the printer and a properly grounded outlet. Do not use an extension power cord.
- Confirm that the rated voltage of your printer matches the voltage of your power outlet. The maximum wattage of the printer is 700 watts.
- Turn off the printer and disconnect the power cord before beginning maintenance operations.
- Disconnect the power cord from the outlet whenever you are not using the printer for an extended period of time.
- Disconnect the power cord from the outlet whenever thunder storms are nearby. Leaving the power cord connected may allow damage to the printer or other property.
- Do not put the printer in direct sunlight, near a heater, or near water. Leave adequate space around the printer.
- Do not touch any connector contacts and corona wires. This could cause electrostatic damage to the printer.
- Do not touch the heat roller and motors if you have been printing recently. These parts may be hot.
- Do not touch or scratch the green drum surface, and do not expose it to light for more than three minutes.
- Use only a shielded interface cable of 3 meters (10 feet) or less for the parallel interface, 15 meters (50 feet) or less for the serial interface, 100 meters (328 feet) or less for Ethernet interface 10BASE-T/100BASE-TX connection, and 185 meters (607 feet) or less for the Ethernet interface 10BASE-2 connection.
- Be sure the printer is turned off before connecting the interface.
- Do not turn the printer off while it is printing.
- Do not disassemble or remove any components unless instructed in this manual.
- Keep the print unit upright when removing or installing it.
- Do not apply excessive pressure on the corona wire when cleaning it.
- Do not use alcohol or other cleaning solutions on the drum surface or on any interior parts of the printer.
- Clear paper jams quickly, especially when they occur in the heat roller unit.
- Do not drop small objects, such as paper clips, into the printer.
- Do not set page margins off the physically printable page area.
- Turn off the printer and disconnect the power cord immediately if an abnormal condition occurs: for instance, if the printer smokes, prints abnormally, becomes wet, or falls. Then consult your dealer.



FM-6

User's Manual





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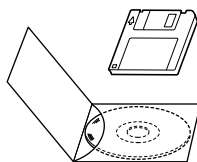
Preface

Thank you for purchasing the FUJITSU PrintPartner 20W Page Printer. The PrintPartner 20W is a 20-ppm (in 600-dpi)/10-ppm (in 1200-dpi), laser printer with triple interface consisting of Centronics parallel (type B connector), Centronics parallel (type C connector), and RS-232C serial (DB9 connector). It is compatible with the HP LaserJet 5 printers. It is also compatible with PostScript level 2 printers by using the PowerPage® Level 2 interpreter.

User installable options are:

- 4-, 8-, 16-, and 32-megabyte memory expansion cards
- Interface expansion boards: LocalTalk, Ethernet C, D, or F, and IrDA
- FLASH ROM card: 4-megabytes, for PCL5e only
- Barcode card: Barcodes and OCR fonts
- 250- or 500-sheet paper trays (trays 1 to 4): A3, A4, A5, JIS B4, JIS B5, letter, legal, executive, and ledger sizes (tray 1: 250-sheet only)
- 250- or 500-sheet paper feeder: Base mechanism plus paper tray (trays 2 to 4)
- Duplex unit: Two-sided printing mechanism

Manual and Software Set



The PrintPartner 20W has a single user's manual. This user's manual provides a summary of everything for from non-technical users unfamiliar with page printers to highly experienced technical users.

The PrintPartner 20W comes with a software set (a CD-ROM and a floppy disk) to supply you with the following items of printer control software.

- Printer Drivers for Windows 3.X, 95/98, NT 3.51, and NT 4.0, which provide the computer's operating system with the programs that control this printer.



- MarkVision™ by Lexmark for Windows 95/98/NT 4.0, printer management utility programs, which allow you to easily understand the printer (status, statistics, or features) and displays the printer control panel on your computer display to remotely operate the printer.
- Network Printer Utility for Windows 3.x, which allows you to remotely change or confirm settings of Ethernet C or D board of the printer or locally check the printer.
- PPMENU for MS-DOS, printer remote setup utility program, which allows you to easily customize and program your printer to your computer and software environments, using your computer keyboard and display

The CD-ROM contains all items of the software but the floppy disks contain printer drivers for Windows 3.1/3.11 and Windows 95/98 only.

Operating Environments

To run a Printer Driver, you need an IBM PC/AT or PS/2 computer or compatible running MS-Windows 3.1/3.11, MS-Windows 95/98, MS-Windows NT 3.51, or MS-Windows NT 4.0.

To run MarkVision™, you need an IBM PC/AT or PS/2 computer or compatible running MS-Windows 95/98 or MS-Windows NT 4.0, with at least 9MB of memory available on a hard disk, a CD-ROM drive or a 3.5" double-sided high density (2HD) floppy disk drive, and a VGA (640 × 480 dots) or higher resolution display.

To run the Network Printer Utility, you need an IBM PC/AT or PS/2 computer or compatible running MS-Windows 3.1/3.11, with at least 5MB of memory available on a hard disk, a CD-ROM drive or a 3.5" double-sided high density (2HD) floppy disk drive, and a VGA (640 × 480 dots) or higher resolution display.

To run PPMENU, you need an IBM PC/AT or PS/2 computer or compatible running MS-DOS, with at least 1MB of memory available on a hard disk, a CD-ROM drive or a 3.5" double-sided high density (2HD) floppy disk drive, and a VGA (640 × 480 dots) display. You must also be using PC-DOS version 5.02, MS-DOS version 3.3, or higher version.



Conventions

Icons draw your attention to advisory messages, as illustrated below. A line precedes and follows the message to show where the message begins and ends.



Warning:

Ignoring this information could result in serious personal injury.



Caution:

Ignoring this information could result in minor personal injury, loss of data, or harm to your equipment.

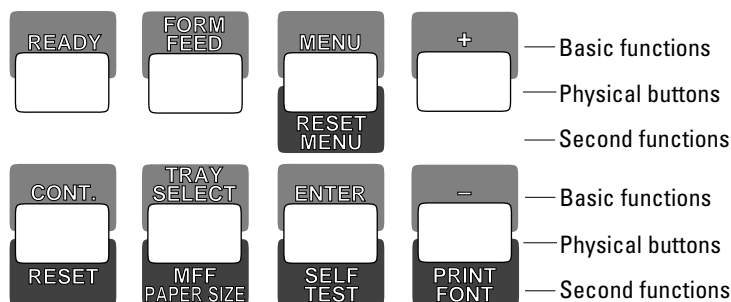


Important:

These notes contain remarks, tips, and other useful supplementary information.

Control Panel

The printer's control panel incorporates two rows of buttons, with each button having one or two labels (see below). The physical button is beneath the rectangular section of no-labeled space. The top label represents the basic function, which is activated by a touch of the button. The bottom label represents the second function, which is activated when you release the button after holding it down more than five seconds.





The control panel has a character display of 16 columns × 2 lines.

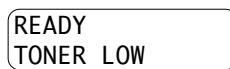
In text, the names of the control panel buttons appear as all capital letters inside a box like **READY** and control panel display messages appear in a fixed-spacing font like READY. Button names or messages occupying two lines are expressed in a single line shown below.

Buttons:



→ **FORM FEED**

Display messages:



→ READY TONER LOW

The asterisk in the display column indicates that the displayed option is currently selected in the selected menu.

Changing Message Language (**MENU**)

You can select a language used for control panel messages. Selectable languages are English, French, German, Italian, Spanish, and Swedish.

To select a language, follow these steps:

1. Turning the printer on while pressing **MENU**.

The message C.P. LANGUAGE ENGLISH appears after printer initialization.

2. Press the **+** or **-** button until the desired language appears. Press the **ENTER** button.

The asterisk appears after the language, indicating the language is selected.

3. Save the selection.

Pressing the **READY** button saves the new setting and returns the printer to the ready state. The printer will display the selected language for messages.



CHAPTER

1

GETTING STARTED

Getting Started

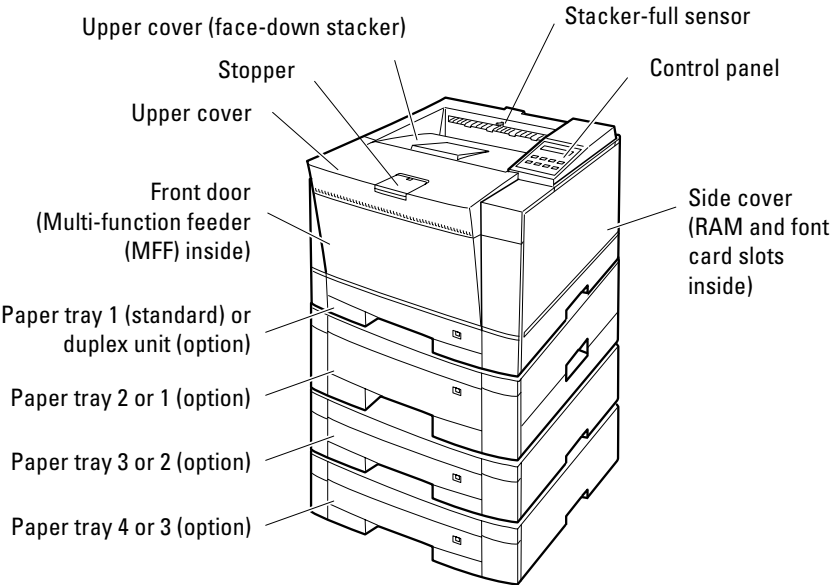
This chapter provides complete setup instructions in the following sections:

- *Getting Acquainted.* Learning the printer's main parts and its paper paths.
- *Getting Ready.* Choosing a suitable location and unpacking the printer.
- *Setting Up.* Assembling the printer.
- *Connecting the Printer.* Selecting an interface and connecting to the computer.
- *Installing a Printer Driver and other software.*
- *Printing Your First Document.*
- *Where to Go from Here.*

Getting Acquainted

The illustrations on the following pages identify the main parts of the printer and paper paths with some options installed. These parts are referred to throughout the manual, so take some time to become familiar with them.

Component Names



The table below indicates the paper tray numbers when an optional duplex unit is installed or not.

Optional duplex unit	Not installed	Installed
Standard tray slot	Paper tray 1	Duplex unit
Optional feeder unit	Paper tray 2	Paper tray1 (*)
Optional feeder unit	Paper tray 3	Paper tray2
Optional feeder unit	Paper tray 4	Paper tray3

* When an optional duplex unit is installed, the optional feeder unit that comes with the duplex unit should be installed to the printer and the standard paper tray (tray 1) should be installed in the feeder unit. In this case, the maximum paper tray configuration consists of three trays.

Figure 1-1 Front and right side view



Getting Acquainted

GETTING
STARTED

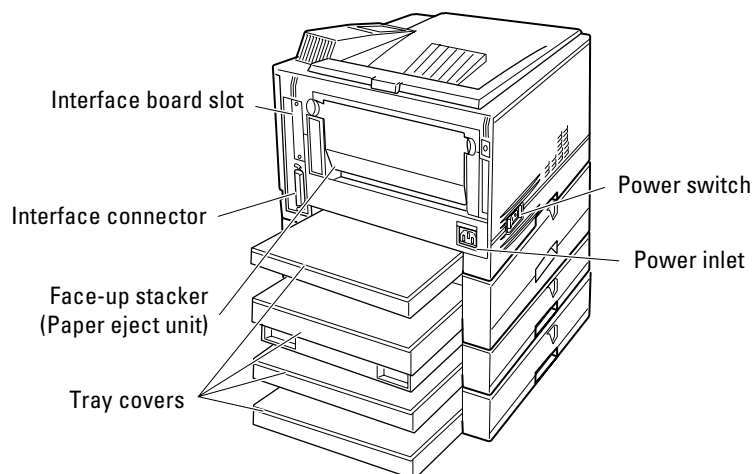


Figure 1-2 Rear and left side view

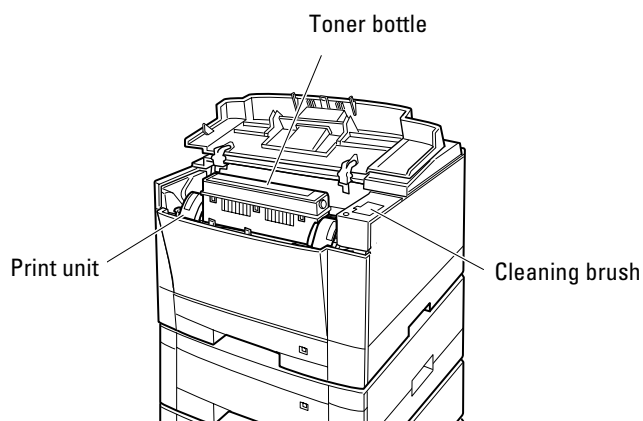


Figure 1-3 Interior view

Paper Path

- ① Paper is fed from the paper tray (or multi-function feeder).
- ② Paper is printed by the print unit.
- ③ The toner image on paper is fused by the heat roller and pressure roller in the fuser unit.
- ④ Paper is ejected with the printed side down to the paper stacker (face-down).
- ⑤ If paper is printed with the rear stacker open, it is ejected with the printed side up to the rear stacker.

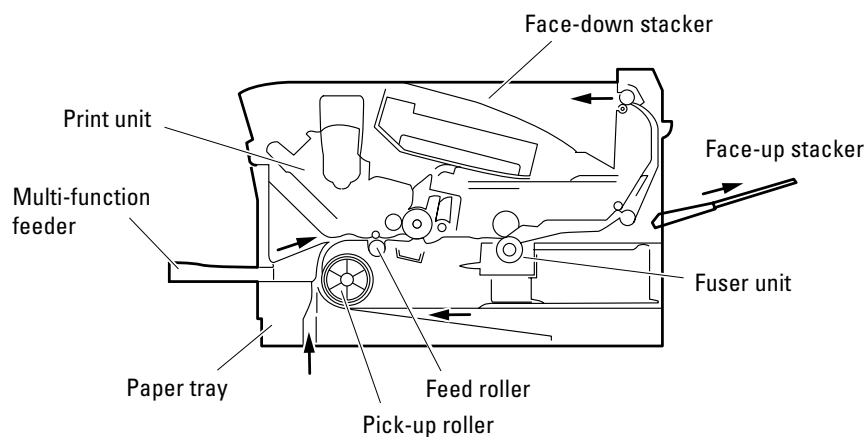


Figure 1-4 Paper paths



Important:

The face-up stacker must be closed when you want to eject paper to the face-down stacker.



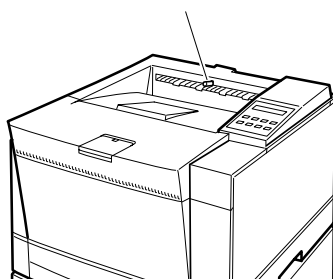
Getting Acquainted

Stacker-full Sensor

This printer is equipped with a stacker-full sensor. If too much paper is stacked on the paper stacker, the sensor detects it and informs of an error.

GETTING
STARTED

Stacker-full sensor



If the following message is displayed, remove the paper on the paper stacker.

STACKER FULL



Important:

If ejected paper curls upward, not so much paper can be stacked. Remove paper little by little before the stacker-full sensor works.



Getting Ready

Getting Ready

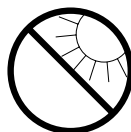
This section will help you:

- Choose a suitable location for the printer
- Inventory the parts of the printer as you unpack it

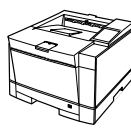
Picking a Suitable Location

The first step is to pick a suitable location for your printer. For peak performance and usability, follow these guidelines:

- Place the printer on a sturdy, level surface.
- Do not tilt the printer 5 degrees or more in any direction. Doing so may cause toner to spill or cause other malfunctions.
- Choose a room that is well ventilated and free of excessive dust. Leave 20 cm space on the left side of the printer for proper ventilation.



- To avoid exposing the printer to extremes of temperature, do not put the printer in direct sunlight or near a heater.



- Ideal room temperature is from 15°C to 25°C (59°F to 77°F). Humidity should be between 30% and 70% RH (no condensation).



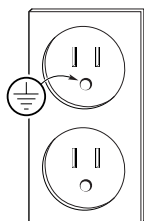
Caution:

Do not rapidly warm the printer room, which has been cooled enough, using a heater. Otherwise, condensation may occur inside the printer mechanism and cause the printer to fail in performing normal printing. Wait until the printer gets accustomed to the room temperature.

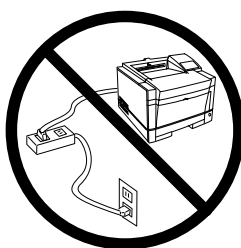


Getting Ready

GETTING
STARTED



- Use a grounded AC power outlet. Do not use a three-pronged adapter in an ungrounded outlet.



- Use only the power cord furnished with the printer. Do not use an extension cord.



Warning:

For your safety from an electric shock, observe the above prohibition.



- Do not touch any connector contacts and corona wires to avoid possible electrostatic damage to the printer.



- Do not use a circuit shared with equipment that causes electrical noise, such as motors.
- Do not use a circuit shared with equipment that uses a lot of power, such as a copier or a coffee maker.



Getting Ready



Caution:

Note the following when you use supersonic humidifiers in your room: If tap water or well water is used in a supersonic humidifier, water impurities ejected into the air settle inside the printer, thus causing image errors. Use water free from impurities such as pure water.

To operate the printer smoothly, take sufficient spaces around the printer. See the figure below:

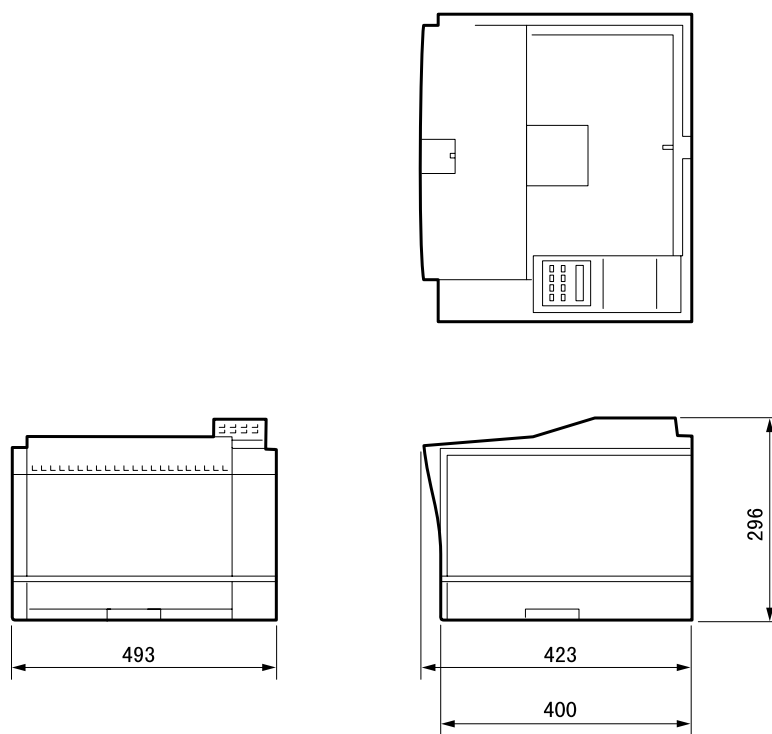


Figure 1-5 Printer dimensions (unit: mm)



Getting Ready

Unpacking and Checking Your Printer

As you unpack the printer, check each item carefully for damage. If you find damage, notify your dealer. Check also that you have received all the items shown below.

This printer comes with everything you need except an interface cable. If you do not yet have a cable, you must purchase one before you can connect the printer to your computer.

GETTING
STARTED



Important:

Save the original carton and packing materials in case you need to store or transport your printer.

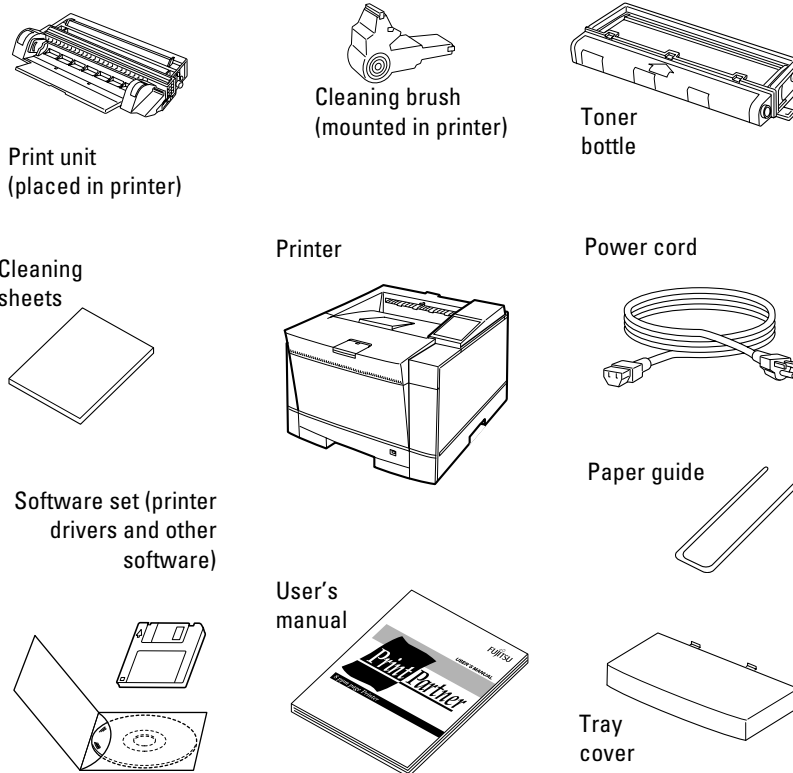


Figure 1-6 Printer inventory



Getting Ready

- An interface cable is not a standard accessory. Please purchase an appropriate cable according to the interface you intend to use.
- The power cord may differ slightly from this figure depending on the country where you purchased the printer.
- The software set consists of:
 - CD-ROM labeled PrintPartner Software
 - Floppy disk labeled Printer Drivers for Windows 3.X
- The cleaning brush is a tool for cleaning the printer and the print unit. It is mounted inside the printer (under the print unit).



Setting Up

Setting Up

This section describes how to assemble the printer and connect the power cord after choosing a suitable location for the printer and checking that you received all the parts.

GETTING
STARTED

Preparing the Print Unit and Installing the Toner Bottle

This printer is shipped with a print unit and a toner bottle. The print unit is mounted in the printer with protective materials attached. Be sure to remove the two protective materials from the print unit. This operation is possible with the print unit mounted. First prepare and install the following two components:

- Print unit (photoconductor drum, developing unit, etc.)
- Toner bottle

The toner bottle first installed after you purchase the printer or a new print unit will last about 2500 printed pages under the condition of 5% coverage on A4 paper. The succeeding toner bottles last about 5000 printed pages each.



Caution:

- Do not expose the print unit to direct rays of the sun or strong lights.
- Do not work for print unit attachment at a place exposed to strong lights. Make every effort to finish work within five minutes.
- Do not touch the surface of the photoconductor drum.
- Do not place the print unit upright or up side down.
- Toner is harmless for human body. However, if it sticks to your hand or clothing, wash it away immediately.



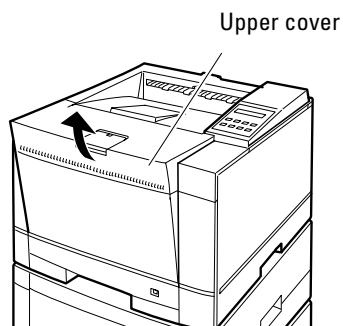
Warning:

- Be careful not to get toner in your eyes or mouth. If toner sticks to your hand, wash it away promptly. Should you drink it by accident, consult your doctor promptly.
- Do not touch any parts (fuser and its peripheral) where the “Hot” label is affixed. It burns you. If paper clings to the fuser, do not take the risk of removing it. Instead, turn power off promptly and call your vendor.



Setting Up

To prepare the print unit and install the toner bottle, follow these steps:



1. **Open the upper cover.** Lift the milled portions at the front left and right of the upper cover to open it.
2. **Seat the print unit in place.** This printer is shipped with a print unit mounted. Press down gently on the left and right portions marked PUSH until the print unit is positioned in place.



Warning:

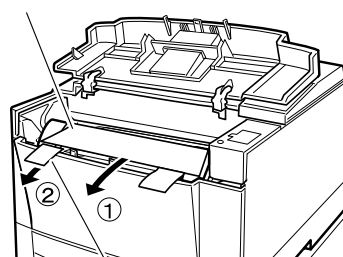
When opening the upper cover, be careful not to get your hand caught between the cover and printer frame. It may hurt you. Do not carelessly touch the upper cover while it is open; otherwise, the cover may drop in the close direction and crush your hand.



Caution:

Do not touch the components inside the printer.

Protective sheet



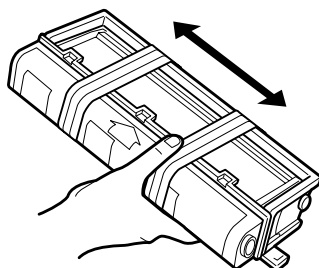
Narrow tape

3. **Remove the protective materials from the print unit.** With the print unit mounted, peel off the center yellow tape, pull the portion marked “REMOVE THIS ①” to remove protective sheet ①, and gently pull transparent narrow tape ② toward the right and you until the “END” mark is visible and remove the tape.



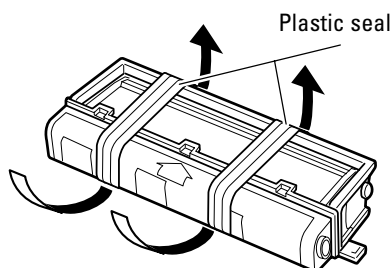
Setting Up

GETTING
STARTED



4. Shake the toner bottle.

Remove the toner bottle from its bag and move it back and forth in a horizontal motion two or three times.



5. Remove the plastic seal from the toner bottle.

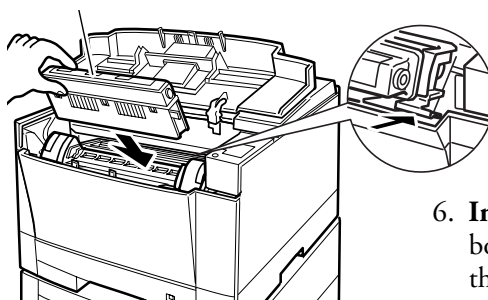
Gently pull off the seal being careful not to spill toner. Handle the seal carefully to avoid staining your hands or clothes.



Caution:

While removing the seals, press down the toner bottle so as not to drop the toner bottle and not to spill toner.

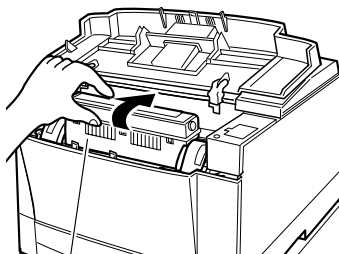
Toner bottle



6. Install toner bottle. Slide both positioning guides of the toner bottle into the grooves of the print unit.



Setting Up



Toner bottle

7. Lock the toner bottle.

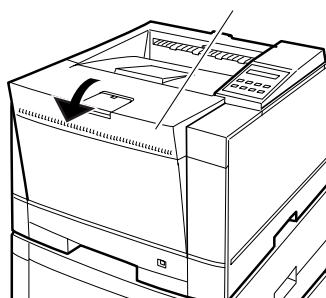
While holding down the toner bottle, pull its top up then push it backward until it clicks into place. (The bottle stands nearly upright when installed correctly.)



Caution:

- If you have installed the toner bottle, do not remove it from the print unit until it is empty. This could cause toner to spill into the printer.
- Do not run the printer with the toner bottle removed from the printing unit. It may spill toner inside the printer.

Upper cover



- ### 8. Close the printer's upper cover.
- Press down firmly on the center front portion of the upper cover and make sure the upper cover is locked completely.



Setting Up

GETTING
STARTED

Loading Paper

This section explains how to load paper into the paper tray or the multi-function feeder. See Chapter 2 for the types of paper that can be loaded.



Important:

Load paper after the printer power is turned on.

Loading Paper in the Paper Tray

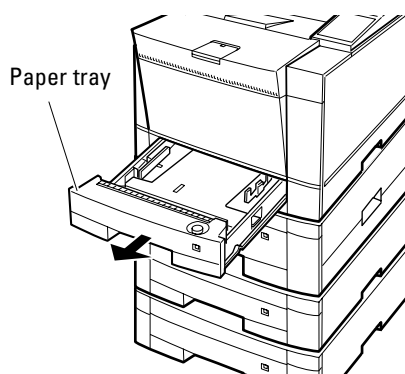
This printer has a single paper tray that is universal to paper sizes. You can add three more trays called second tray, third tray, and fourth tray by purchasing optional paper feeders (feeder units and paper trays). See Chapter 3 and Appendix B.

Because each paper tray has the same mechanism to make it universal to paper sizes, the following steps are described using the second paper tray.



Important:

Different sizes of paper cannot be loaded simultaneously into one tray.



1. Pull the paper tray out of the printer.
2. Remove a restraint tape and polystyrene foams securing each component.

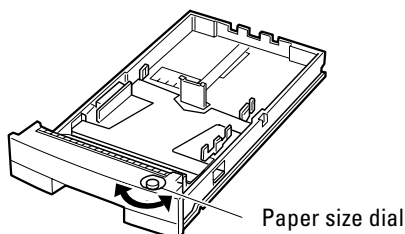


Setting Up



Caution:

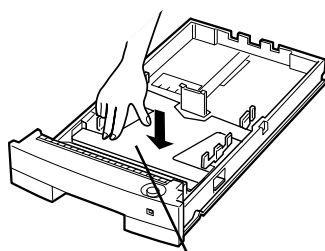
- Load paper with the print side down.
- When additional sheets of paper are supplied to the tray which is not empty, it may cause paper mispick, double-feed, skew at the boundary between old paper and new paper. Especially the uppermost and lowermost sheets in the package cause this trouble.
- If paper waves or curves, smooth it before loading.
- Paper may curve differently depending on the side on which it is placed. If paper curves when it is loaded, try and put it on the opposite side.



Paper size dial

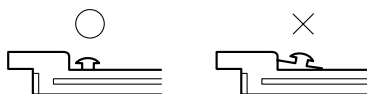
3. Adjust the paper size dial.

A paper size dial is provided on the front right of the paper tray. Set it to the size of paper loaded.



Pressure plate

- ### 4. Lock the pressure plate.
- If the front of the pressure plate is raised, push it down until the pressure plate clicks into place. Make sure that left and right sides of the plate are clicked.

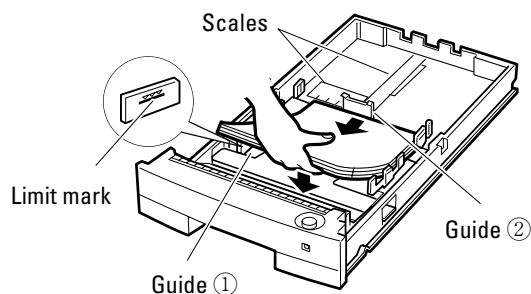


Important:

You cannot install the paper tray with the pressure plate raised.



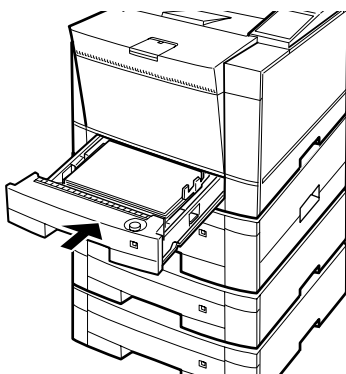
Setting Up



5. **Adjust the guides.** While lifting guide ①, move it widthwise to set the guide to the desired paper size on the scale. While tilting guide ② toward you (in the direction of the arrow), move it lengthwise to the desired paper size on the scale.

GETTING
STARTED

6. **Load paper.**
Make sure the stack does not exceed the limit mark.
7. **Reinstall the paper tray.**
Slide the paper tray along the guide rails and push it in until it locks.



Caution:

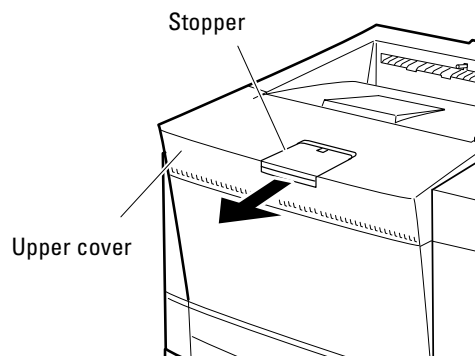
Push the paper tray until it hits the bottom. Failure to do so may cause a paper size error or paper jam.



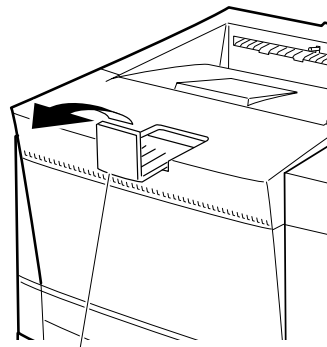
Setting Up

Setting the Stopper

When A3-size, B4-size, or ledger-size paper is printed, arrange the stopper on the upper cover as follows:



1. **Pull out the stopper.** Hold the stopper at the front center of the upper cover and pull it toward you.



2. **Raise the stopper and adjust it for the paper size to be used.**

- Raise the stopper in the vertical position.
- For B4-size paper, push in the stopper all the way.
- For A3-size paper, adjust the square window of the stopper to the A3 mark.
- For ledger-size paper, pull out the stopper all the way.

When you do not use the stopper, return it to the original position in reverse order of setting.

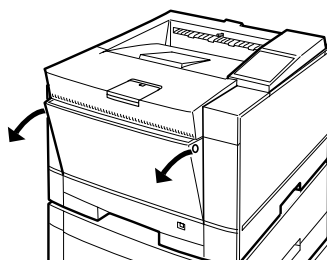




Loading Paper in the Multi-function Feeder

The multi-function feeder (MFF) is useful to print a lot of thick or nonstandard size paper or sheets. The MFF can automatically feed sheets one by one to print continuously. Up to 100 sheets of paper (64 kg/m²) can be loaded at a time in the multi-function feeder.

To set the multi-function feeder, follow these steps:



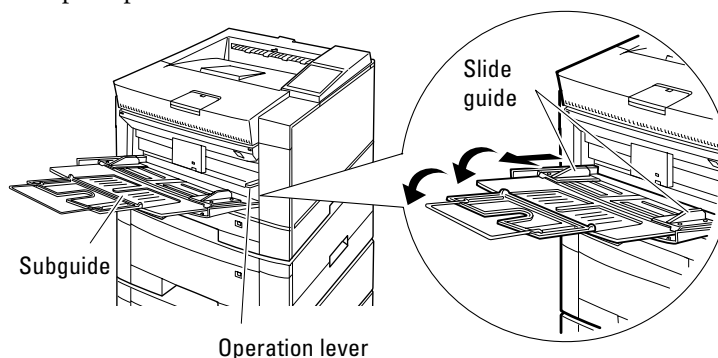
1. **Open the front cover.** Put fingers at the both top sides of the front door and pull the front door toward you.



Caution:

The multi-function feeder can open at an angle of about 80°. To avoid damage to it, do not apply excessive force on the paper tray or do not put heavy things on it.

2. **Lower the operation lever to the “open” position.** Push down the operation lever at the right of the multi-function feeder to the “open” position.



3. **Pull out the subguides.** Subguides are provided on the front of the multi-function feeder for long sheets of paper and can be extended in three stages depending on the length of paper used. Extend the subguides according to the paper length.



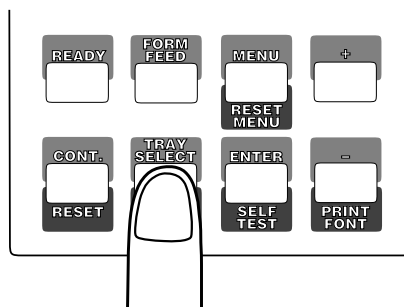
Setting Up

4. **Load paper and adjust the slide guides.** Put paper stack with the print side up on the multi-function feeder and push it forward so that the front edge of the paper stack is stopped. Then, adjust the left and right slide guides to the width of the paper stack.
 - Place A3-, B4-, or ledger-size paper or envelopes in the longitudinal direction.
 - Place A4-, B5-, A5-, or letter-size paper in the transverse direction.
5. **Push up the operation lever to the “close” position.** Push up the operation lever at the right of the multi-function feeder to the “close” position.



Caution:

- Do not use creased or wrinkled paper. When using exceptional paper, riffle the paper stack enough to separate sheets of paper from each other before putting it on the paper tray.
- When using paper, do not leave the paper in the multi-function feeder for long time. It may cause waving of paper and dropouts in printing.



6. **Set the physical paper size of the MFF.** Use the MFF paper size menu to select the size of paper loaded in the MFF. For menu operation, see Chapter 2.



Important:

The MFF has two operation modes: First mode and Cassette mode. When using it in Cassette mode (default), you must specify the physical paper size of the MFF.

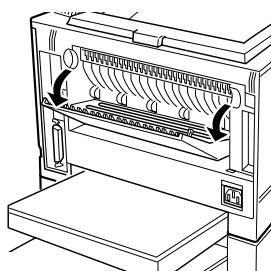


Setting Up

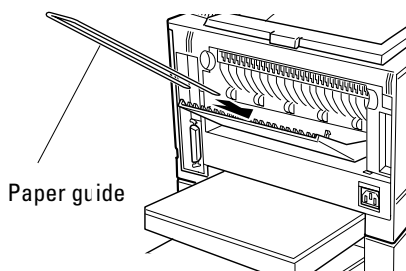
Using the Rear Stacker

When the rear stacker is used, paper hardly curve inside the printer. Therefore, it is suitable to print special types of paper such as thick paper, transparencies, labels, and envelopes. When printing special paper, use the rear stacker as follows:

GETTING
STARTED



1. **Open the rear stacker.** Put your fingers in the dents provided on the upper left and right sides on the back of the printer, then pull open the rear stacker.



2. **Attach the paper guide.** Prepare the paper guide supplied with the printer, then insert it into the holes provided on the back of the rear stacker.



Important:

The rear stacker cannot accommodate too much paper. Therefore, when thick papers are printed, remove every four or five papers that are ejected. When transparencies are printed, remove one by one every time it is ejected.





Setting Up

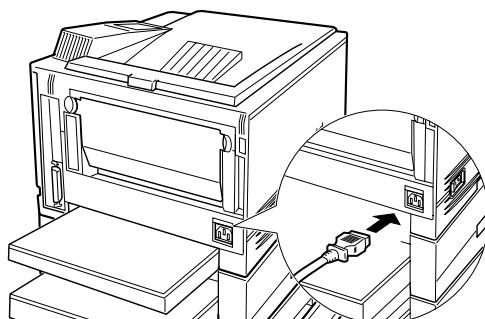
Connecting the Power Cord

The printer's input voltage rating is 120 VAC or 230 VAC.

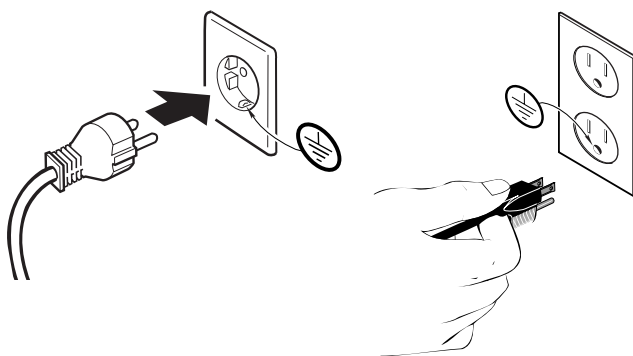


Caution:

The manufacturer's nameplate on the back of the printer indicates this rating. Confirm that the rated voltage of your printer matches the voltage of your power outlet.



1. **Check that the printer is turned off.** The "O"-marked side of the switch should be depressed.
2. **Plug the female end of the power cord into the connector on the left back of the printer.**



3. **Plug the male end into a wall outlet.**



Warning:

For your safety, use only a properly grounded outlet. To avoid possible electromagnetic interference or power supply problems, do not use an extension cord.





Setting Up

GETTING
STARTED

Turning Power On/Off

The power switch is turned on to start the printer. The printer becomes ready to print about 80 seconds after the power switch is turned on.

When the duplex unit is mounted, turn on the power switch with the unit mounted. Failure to do so may cause the unit to malfunction.

Turn off the power switch at the end of work each day or if the printer is not used for a long time.



Caution:

Turning off the printer power clears print data stored in printer memory.

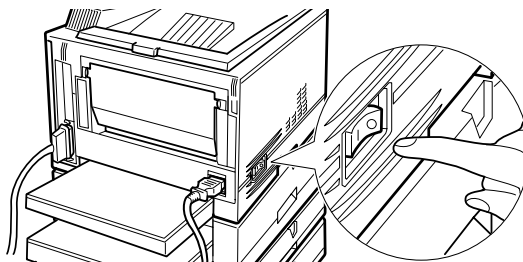


Important:

With the power save function enabled, the printer automatically enters power save mode if it is left unused for the specified time with power on.

Turning power on

Press the power switch on the “I”-marked side to turn on the printer power.





Setting Up

All the four indicators on the control panel are turned on, and the following messages are displayed on the liquid crystal display.

<<<INITIALIZE>>> then WARMING UP

It takes about 70 seconds for the printer to perform initialization and warm-up. The printer is ready to print when the ONLINE indicator on the control panel lights and the following message is displayed on the liquid crystal display.

READY

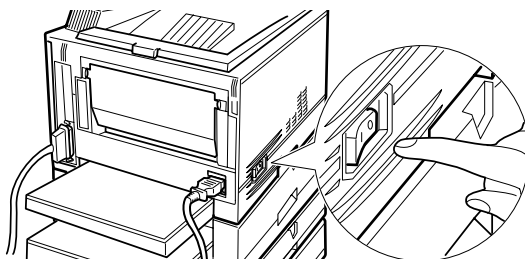


Important:

If the liquid display or ONLINE indicator does not work when the power is turned on, see Chapter 5 “Solving Problems”.

Turning power off

Press the power switch on the “O”-marked side to turn off the printer power. When the power is turned off, all indicators and liquid crystal display on the control panel are turned off.



Caution:

- Do not turn off power during printing. If you accidentally turn off power during printing, see “Removing Paper Jam” in Chapter 5 and remove paper remaining in the printer mechanism.
- Do not turn off power during initialization. Doing so may shorten the service life of the print unit.



Connecting the Printer to Your Computer

Connecting the Printer to Your Computer

This section explains how to connect the printer to your computer via the parallel or serial interface.

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STARTED



Important:

The following restrictions apply to interface cables:

- To comply with regulations for radio frequency emissions, use only shielded cable for computer-to-printer communications.
- The length of the parallel interface cable must be 3 meters (10 feet) or less.
- The length of the serial interface cable must be 15 meters (50 feet) or less.



Caution:

Read the following carefully, and connect the interface cable correctly. Incorrect connection may cause the printer or computer to malfunction.

About Interfacing

Generally, you can connect the printer to your computer using a standard parallel or serial interface. However, if your printer is used as a network printer, use an optional LocalTalk or Ethernet interface. An optional infrared interface is also provided.

• Parallel (Centronics) or serial (RS-232C)

Use a serial interface if the printer is not near the computer. Many computers have both parallel and serial interface ports. Serial communication can operate up to 15 meters (50 feet). Parallel communication is normally limited to 3 meters (10 feet).

• LocalTalk (option)

Use the LocalTalk interface if the printer is connected to a Macintosh network.

• Ethernet C, D, or F (option)

Use an Ethernet interface (type C, D, or F) if the printer is used in a NetWare or TCP/IP corresponding.



Connecting the Printer to Your Computer

- **IrDA (option)**

Use IrDA (infrared adapter) if the printer is used in an infrared communications system.

Whichever interface you use, the printer automatically detects the interface that the computer is using.

For these options refer to Chapter 3.

Connecting to the Parallel Port

This printer does not come with a parallel interface cable. You can use the following two types of Centronics interface cables (sold separately) for this purpose. Your dealer can advise you on the cable you require.

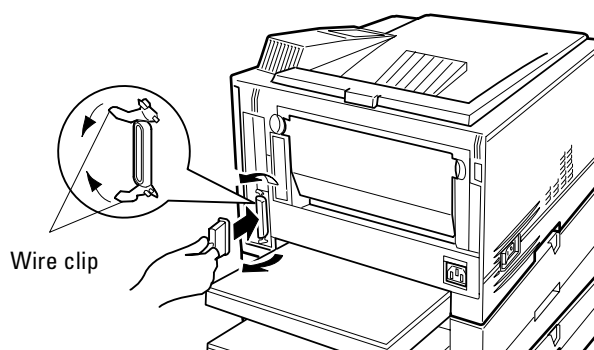
- Centronics cable with IEEE 1284 type B connector at the printer side
- Centronics cable with IEEE1284 type C connector (half size) at the printer side



Caution:

Be sure that both printer and computer are turned off before connecting the interface.

Do not touch any connector contacts or corona wires to avoid possible electrostatic damage to the printer.



To make the connection, plug the cable connector into the parallel interface port on the back of the printer. Secure the connector with the wire clips. Plug the other connector into your computer's parallel port. Consult your computer documentation if you need help.



Connecting the Printer to Your Computer

Connecting to the Serial Port

Connecting to the serial port involves the following tasks:

- Connect the interface cable to the printer and your computer.
- Print out the status report to check the serial parameter settings.

GETTING
STARTED

Connecting the Serial Interface Cable

To connect to the serial interface port, you need a cable correctly wired for this printer and your computer. The cable must also have the proper connectors. Your dealer or technical support person can supply you with the proper cable.

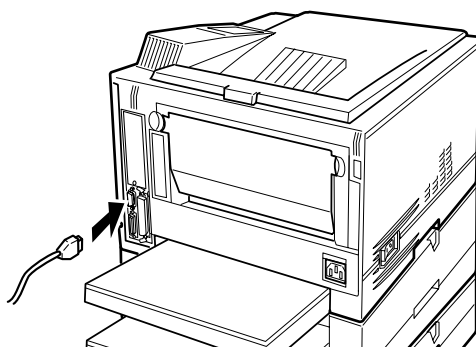
The serial interface of this printer requires a null-modem cable with a male D-SUB 9-pin connector at the printer side. Refer to your computer documentation for the type of connector required by its serial port.



Caution:

Be sure that both printer and computer are turned off before connecting the interface cable.

Do not touch any connector contacts to avoid possible electrostatic damage to the printer.



To make the connection, plug the cable connector into the serial interface port at the back right of the printer. Secure the connector by tightening the screws in the connector hood. Plug the other connector into your computer's serial port. Consult your computer documentation if you need help.



Connecting the Printer to Your Computer

Verifying Serial Parameter Settings

Next, you must make sure the serial parameter settings are the same between the computer and the printer. Consult your computer and software documentation to determine the settings your computer uses. Then compare these to the printer's settings in the following table.

Item	Parameter setting (printer side)
Baud rate	9600 (default)
Data bits	8 (fixed)
Stop bits	1 (fixed)
Parity	None (fixed)
Pacing (protocol)	DTR (default)
DTR polarity	HI (default)
ROBUST (XON/XOFF)	Off (default)

If the settings match, the installation is complete. If the interface parameters of the printer and the computer do not match, the message display indicates COMM.ERROR. The printer may not respond at all or it may print wrong characters. Change the settings in one of the two ways:

- Change options of the serial menu in setup mode.
- Set permanent defaults in your computer to match the printer's defaults.

On an IBM PC or compatible computer running MS-DOS, you can set permanent defaults by placing the following commands in your AUTOEXEC.BAT file:

```
MODE COM1:9600,N,8,1,P  
MODE LPT1:=COM1:
```

Also make sure that the file MODE.COM is in your boot directory. Then whenever you boot your computer, the computer will print through the serial port using the printer's settings.



Connecting the Printer to Your Computer



Important:

For information on DOS files and commands, consult your DOS manual or the manual supplied with your computer.

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STARTED**

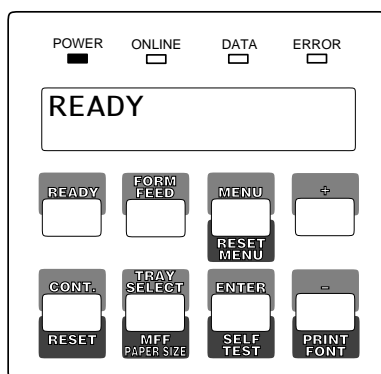
Note that you may also be able to specify serial parameters through your software programs. Some software programs allow you to specify the printer port and serial settings from within the program. Consult the documentation supplied with the software.



Printing a Test Page Offline

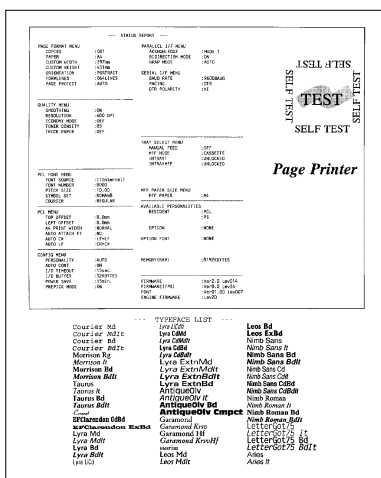
Printing a Test Page Offline

The printer has a status report function which prints a page summarizing printer option settings and showing samples of resident fonts. Use this function to check the printer performance offline.



1. **Turn the printer on.** The printer initializes the mechanism and then enters the ready state. The message display indicates <<<INITIALIZE>>>, WARMING UP, then READY.

2. **Print a test page offline.** Press the **READY** button to put the printer offline (the ONLINE indicator turns off). Press the **SELF TEST** button for more than five seconds. The message display indicates PCL PAGE CONFIG. Press the **ENTER** button to start printing.



The message display indicates **SELF TEST** and the DATA indicator flashes. A status report page is printed.

Check that the printing is successful.



Important:

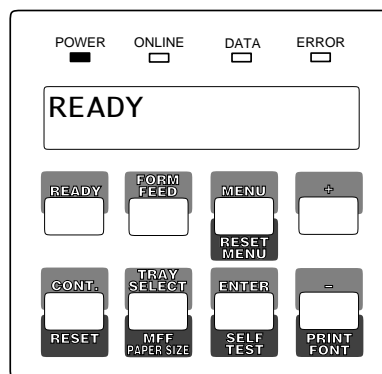
You can select **FPS PAGE CONFIG** by pressing the **+** or **-** button while the message display indicates **PCL PAGE CONFIG**.

Selecting an Emulation

This printer has two emulations (PCL and FPS) as a standard feature. You can use these emulations to connect your printer to different computers. PCL emulates HP LaserJet 5 printers and FPS emulates PostScript Level 2 compatible printers by the PowerPage® Level 2 interpreter.

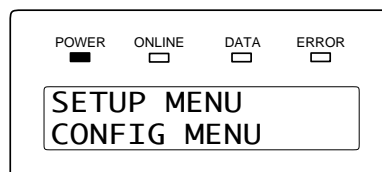
When the printer has both emulations, it automatically selects the active emulation with default settings. To specify an emulation, select the emulation using the control panel. Use the Personality menu of the Config menu as shown below.

GETTING
STARTED

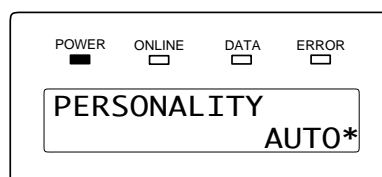


1. **Enter setup mode.** Press the **READY** button to put the printer offline (the ONLINE indicator turns off). Then, press the **MENU** button briefly six times.

The message display indicates **SETUP MENU CONFIG MENU**.



2. **Select the Personality menu.** Press the **ENTER** button briefly. The message display indicates **PERSONALITY AUTO***.



3. **Select emulation.** Press the **ENTER** button briefly. The option **AUTO** changes to **PCL**, **PS**, then back to **AUTO**. Press the **READY** button when the desired option is displayed.

The selected emulation is selected (an asterisk is followed). Once you change the emulation, the other menus automatically change to reflect the options and functions of the new emulation. For details of the setup menu, see Chapter 2.



Installing a Printer Driver

Installing a Printer Driver

Now that you connected your printer to the parallel port of the computer, you are ready to install a Windows printer driver into your computer. The Windows printer driver is essential for controlling your printer in Microsoft Windows environments. Several printer drivers are contained in the attached software set consisting of a CD-ROM and a floppy disk.

Printer drivers in the CD-ROM are:

- Standard drivers for Windows 3.X
- Standard drivers for Windows 95/98
- FPS drivers for Windows 95/98
- Standard driver for Windows NT 3.51
- Standard driver for Windows NT 4.0
- FPS driver for Windows NT 4.0

Printer drivers in the floppy disk are:

- Standard driver for Windows 3.X

Standard drivers are to be installed when your printer is used as a PCL printer and FPS drivers are to be installed when your printer is used as a PostScript printer.

When you are using Windows 95/98 or Windows NT 4.0, it is recommended that you should install a printer driver using MarkVision™ because the printer driver is reinforced with MarkVision™'s features such as remotely changing settings of a network printer and checking status of a network printer. For MarkVision™, see the next section.

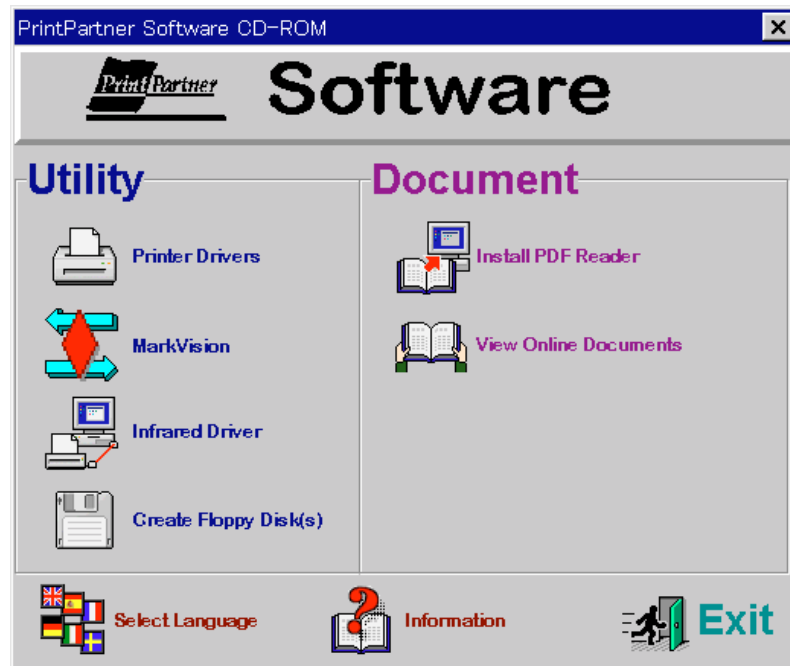
To install a printer driver in Windows 95/98, note the following:

- When you install the printer driver, the original OS (CD-ROM or floppy disks) is required during installation.

Installing a Printer Driver

When the CD-ROM is installed, the following menu screen is displayed in Windows 95/98 or Windows NT 4.0.

GETTING
STARTED



Get to Know Your Printer Driver

The Printer Driver has two functions:

1. it automatically translates formatting choices, such as tab settings or boldface type, into commands the printer understands.
2. it allows you to set up the printer according to your needs.

If you encounter problems with this installation, confirm that your configuration corresponds to the minimum requirements listed on page vi at the start of this manual. If the configuration corresponds to these requirements and troubles persist, contact your dealer for assistance.



Installing a Printer Driver

When running application programs under Windows, you select the printer type in the application program itself before you print a document.



Important:

If you encounter conflicts with other already installed external drivers that use bidirectional communication on the Centronics port or with drivers of other dedicated Windows printers used in parallel with this printer (conflicts like the failure to establish communication between the Printer Driver and the printer), remove these from Windows and reinstall the PrintPartner 20W Printer Driver.

Printer Drivers Supplied by the CD-ROM

To install printer drivers contained in the CD-ROM, see the booklet “Quick Start” enclosed in the CD-ROM envelope.

Printer Drivers Supplied by the Floppy Disk

To install the Windows 3.X Printer Standard Driver contained in the floppy disk, follow these steps:

1. Start Microsoft Windows 3.X.
2. Insert the floppy disk into drive A.
3. Click “File” and choose “Run”.
4. Type A:INSTALL, then press ENTER.
5. From here, follow the instructions on the screen.

The FUJITSU PrintPartner 20W Windows 3.X Standard Printer Driver is now installed.

For further details, see the driver’s Readme file.



Installing Other Software

Installing Other Software

GETTING
STARTED

This section provides information about the two kinds of printer management software contained in the CD-ROM supplied with this printer. The topics are:

- *PPMENU*: Enables you to remotely control or configure your printer's features from your computer's screen.
- *MarkVision™*: Monitors printer status (status is displayed with text and graphics), displays optional printer's features, and cooperates with printer drivers. It also describes the printer control panel function by which MarkVision™ allows you to remotely operate your printer from the printer control panel displayed on your computer's screen.

Note that PPMENU is available in MS-DOS, PC-DOS, or Windows DOS prompt environments and MarkVision™ is available in Windows 95, Windows 98, or Windows NT4.0 environments.

PPMENU

Generally, the printer driver controls the printer. You can also control the printer using the remote setup utility program called PPMENU, stored in the attached CD-ROM.

PPMENU allows you to easily change your printer's features directly from your computer. You use it to configure your printer to suit the requirements of your computer, software, and documents to be printed.

The parameters you can change using PPMENU affect page layout, font, and printer control. If your software programs have printer drivers, those printer drivers control the parameters for you. Therefore, it may not be necessary to change the settings using PPMENU.

PPMENU needs to be installed only if you will print from DOS or DOS based applications.

To install PPMENU, see the booklet "Quick Start" enclosed in the CD-ROM envelope.

For more details and the latest modifications, refer to the "ReadMe.txt" file concerning PPMENU.

Lexmark's MarkVision™

MarkVision™ by Lexmark is an integrated software for managing printers, contained in the CD-ROM. It has the following main functions:

- Monitoring the printer
- Displaying the printer status and features (including options) and statistics
- Providing the printer control panel on the computer's screen (Remote control panel)

These functions are most effective and valuable for remote printers in network environments.

MarkVision™ is automatically activated when an abnormal condition occurs in the printer. It operates in Windows 95/98 and Windows NT4.0 environments.

The remote control panel is quite a nice function that enables you to easily and remotely operate the printer even if your printer is set up remotely. MarkVision™ displays the printer control panel on the computer's screen and gives you the exactly same functions as available with the control panel of the printer. You can perform a function by clicking a button on the computer's screen without pushing a button of the printer's control panel.

To install MarkVision™, see the booklet "Quick Start" enclosed in the CD-ROM envelope.

For more details and the latest modifications, refer to the Operation Guide PDF document file and the "ReadMe.txt" file concerning MarkVision™ in the CD-ROM.



Printing Your First Document

Printing Your First Document

Your printer should be set up and connected to your computer. This section explains how to test your installation setup by printing a trial document from an application program under Windows. To test the printer alone, without your computer, you can use the status report printing which does not require the use of a computer. See **Printing a Status Report** in Chapter 2.

**GETTING
STARTED**

Turn on your printer and observe the initialization sequence. If no RAM (extra memory) cards have been installed, the sequence lasts about one minute, during which the following events occur:

- The printer conducts a number of self-checks.
- The main motor rotates to check mechanical functions and clean the drum.
- The message display indicates READY, indicating the printer is ready for printing.

The following procedures show you how to print your trial document.

To print a trial document, follow these steps:

1. **Start Windows and a Windows application.**
2. **Open your trial document.**

Select an existing or start a new document. Choose a small document for the first trial.

3. **Select PP20W as the document printer.**

In most programs, you make the selection in a print menu. Consult your program documentation for the exact procedure.

4. **If desired, change the font(s) in the document to one of the fonts offered by your application.**
5. **Check the printer.**

Look in the main window of the Print Manager to make sure the printer is activated.



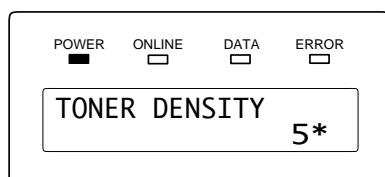
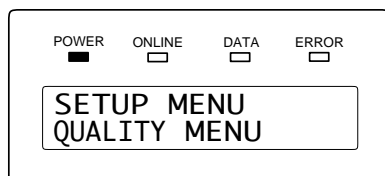
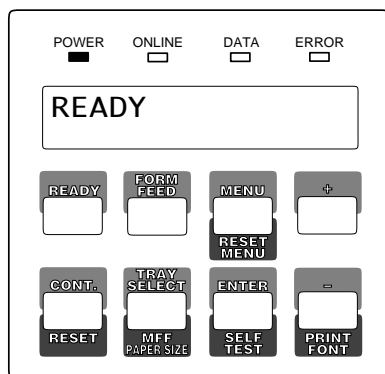
Printing Your First Document

6. Print your document.

Start the program. The default paper size is fixed to A4 (for Europe) or Letter (for the USA).

Adjusting Print Density

If you feel that the printout is too light or too dark, adjust the print density from the control panel in setup mode. After making the adjustment, print your trial document again and check the results. Use the Toner density menu of the Quality menu as shown below.



1. **Enter setup mode.** Press the **READY** button to put the printer offline (the ONLINE indicator turns off). Then, press the **MENU** button briefly two times.

The message display indicates **SETUP MENU**
QUALITY MENU.

2. **Select the Toner density menu.** Press the **ENTER** button briefly four times. The message display indicates **TONER DENSITY 5***.
3. **Change density.** Press the **ENTER** button briefly. The option changes between 1 (lightest) and 10 (darkest). Press the **READY** button when the density you estimate proper is displayed.

The selected density is selected (an asterisk is followed). For details of the setup menu, see Chapter 2.



Printing Your First Document

If you see a problem with the printed pages other than print density, see Chapter 5 for possible causes and solutions.

If your document printed successfully, skip the next subsection **If Something Goes Wrong**.

GETTING
STARTED

If Something Goes Wrong

This section briefly discusses the most common problems you might encounter. For more complete troubleshooting information, see Chapter 5. Chapter 5 also describes all printer error and status indicators.

Problem	Remedy
No response by printer	Ensure that: <ul style="list-style-type: none">• The printer is turned on and online. The ONLINE indicator should be lit.• The cable from the computer to the printer is properly connected at both ends.• Your software program has sent the print data to the printer. Many programs have a printer control function that shows print
No printout; DATA indicator on	The printer has received data from the computer but has not printed the page. To print the page, put the printer offline by pressing READY briefly then press FORM FEED .



Where To Go From Here

Problem	Remedy
Unreadable printout	Possible causes and solutions are: <ul style="list-style-type: none">• A wrong printer driver is selected. Select the PrintPartner 20W Printer Driver as the document printer.• The document contains unknown printer commands. Remove any setup strings or embedded commands, or print the document with a Text only or ASCII text print option.

Where To Go From Here

To help you enhance or customize the printer, the user's manual contains the following additional information:

- To get information on how to use the control panel and on handling various types of paper, see Chapter 2.
- To customize printer defaults, see Chapter 2.
- To install additional memory, see Chapter 3.
- To install an additional interface, see Chapter 3.
- To install an additional paper tray, see Chapter 3.
- To install a duplex unit, see Chapter 3.



CHAPTER

2

Printing and Paper Handling

PRINTING AND
PAPER HANDLING

This chapter provides information you may need for day-to-day printing. The topics are:

- Control panel tutorial

The tutorial describes the indicators, message display, and buttons. It includes an example of how to use the control panel.

- Control panel functions

This section describes the functions by buttons.

- Menu functions

This section describes how to use the control panel for customizing printer defaults.

- Handling paper

This section describes how to print on various types of paper.

Control Panel Tutorial

This section introduces the printer's control panel, beginning with a description of the indicators, message display, and buttons. The tutorial describes the use of the buttons in some detail and follows with an example.

The Control Panel

The control panel consists of four indicators, a message display, and eight buttons. The physical buttons are beneath the LCD display. The top row of labels represents basic functions. The bottom row of labels represents secondary functions. See later in this section for a list of functions.

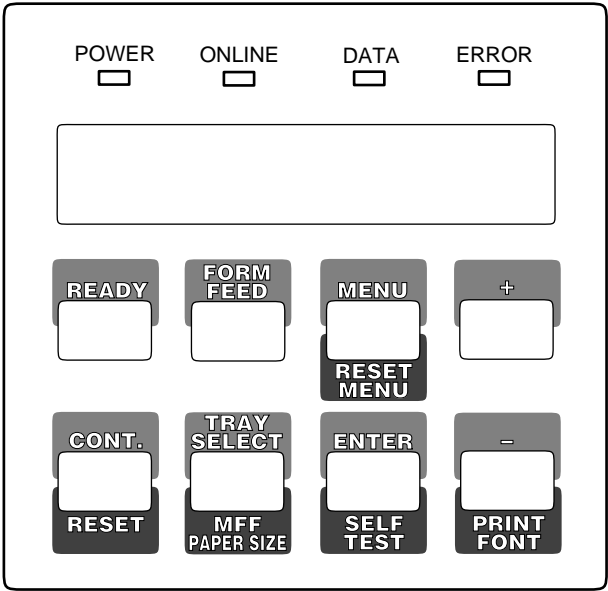


Figure 2-1 Control panel

Indicators

The control panel has four labeled LED indicators across the top.

Indicator	Meaning
POWER	Indicates printer power is on.
ONLINE	Indicates the printer is online and ready to print.
DATA	Flashes when data is being sent from your computer. Lights steadily to indicate the printer's buffer contains unprocessed data.
ERROR	Indicates a printer error has occurred. Details are indicated by the message display.

Message Display (LCD)

The message display uses a liquid-crystal display representing status and errors by two lines of sixteen characters. In operating mode, it may show:

- What the printer is doing
- Whether the printer is ready to print
- When paper should be added
- When paper should be manually inserted
- When the toner bottle needs to be replaced
- When the print unit needs to be replaced
- An error message condition such as paper jam



Important:

A "Ready" message means the printer has no data to print without any errors and the **READY** button is not pressed. "Not Ready" means the printer detected an error or the **READY** button was pressed in the Ready state.

Error messages inform you of conditions requiring your attention, such as TRAY n PAPER OUT, COVER OPEN n, or PAPER JAM n. They also warn you of hardware problems, such as FUSER FAILURE or BD CYCLE ERROR. The TONER LOW message informs you that the toner bottle needs replacement. See Chapter 5 for a complete list of messages and explanations.

In tray select mode or MFF paper size mode, the message display shows the selected tray or the selected paper size respectively. In menu mode, the message display shows menu items and option selections. These modes are explained later in this chapter.

Buttons

One or two functions are assigned to a button. To use the functions represented by the top labels, simply press the button. To use the functions represented by the bottom labels, press and hold down the button for five or more seconds. The following tables summarizes the functions.



Control Panel Tutorial

Pressing the button briefly

Except for the **READY** button, the following buttons are also valid when the printer is offline.

Button (top label)	Function
READY	Switches the printer between online and offline.
FORM FEED	Performs a form feed to print the remaining data.
CONT.	Clears a recoverable error and continues printing.
TRAY SELECT	Puts the printer in tray select mode which allows you to select the paper tray to be used.
MENU	Puts the printer in setup mode.
ENTER	Selects the displayed option as the printer default. This button and the two buttons below are valid in setup, tray select, or MFF paper size mode.
+	Displays the next option.
-	Displays the previous option.

Pressing and holding down the button for five or more seconds

The following buttons are also valid when the printer is offline.

Button (bottom label)	Function
RESET	Clears the buffer of any print data and puts the printer through its initialization sequence.
RESET MENU	Besides the above reset function, resets all printer operation options to their factory default values except interface settings (parallel menu, serial menu, and network menu).
MFF PAPER SIZE	Puts the printer in MFF paper size mode, which allows you to select the paper size to be used.
SELF TEST	Selects the self test menu, which lists printer operation options currently selected.
PRINT FONT	Selects the print font menu, which lists the fonts currently available.

Control Panel Functions

Changing Message Language (**MENU**)

You can select a language used for control panel messages. Selectable languages are English, French, German, Italian, Spanish, and Swedish.

To select a language, follow these steps:

1. **Turning the printer on while pressing **MENU**.**

The message C . P . LANGUAGE ENGLISH appears after printer initialization.

2. **Press the **+** or **-** button until the desired language appears. Press the **ENTER** button.**

The asterisk appears after the language, indicating the language is selected.

3. **Save the selection.**

Pressing the **READY** button saves the new setting and returns the printer to the ready state. The printer will display the selected language for messages.

PRINTING AND
PAPER HANDLING

Printing Data Remaining in the Buffer (**FORM FEED**)

Pressing **FORM FEED** tells the printer to advance to the next page. The practical effect is to print any data remaining in the buffer. For example, the buffer might contain data from an interrupted print job. When the buffer contains residual data, the control panel DATA indicator is steadily lit.

Clearing an Error Condition to Continue Printing (**CONT.**)

When a recoverable error occurred, pressing **CONT.** clears the error condition and continues printing. For example, you can resume printing after adding paper in response to a TRAY1 PAPER OUT message. You can use **CONT.** to ignore a message such as Load TRAY1 A4. For example, you might want to print a page with A4-size format on a letter-size sheet. **CONT.** also allows you to override the INSERT A4 prompt when feeding paper manually. By pressing **CONT.**, the printer prints from tray1 instead.



Control Panel Functions

Clearing the Buffer and Reinitializing the Printer (**RESET**)

Pressing and holding down **RESET** for five or more seconds clears the print buffer and tells the printer to initialize itself. You might use this function if you cancel a print job in the middle and want to clear the printer and start over. In this case, permanently downloaded fonts are removed by the initialization process. You must download the fonts again.

Clearing EEPROM (**RESET**)

Turning the printer on while pressing and holding down **RESET** resets the menu settings of EEPROM to the factory default values. The message display indicates **EEPROM CLEAR** for a second, **WARMING UP**, then **READY** (about a minute after). Unlike resetting menu by **RESET MENU**, this function also resets the interface settings. Use this function to return all menu settings to the original standard conditions.

Setting the Fuser Unit Cleaning Mode (**READY**)

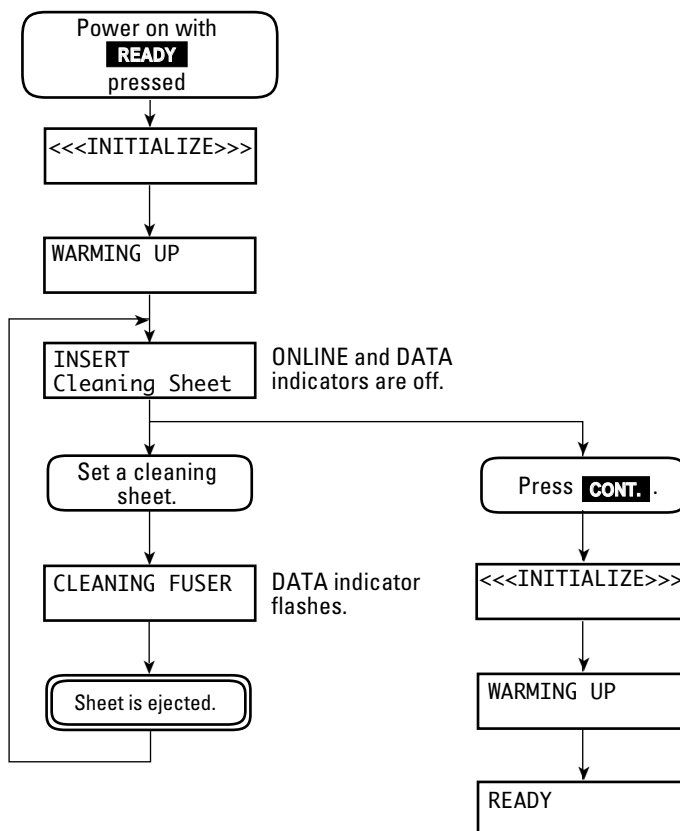
Turning the printer on while pressing and holding down **READY** sets the fuser unit cleaning mode after printer initialization. Before setting this mode, be sure to remove paper from the multi-function feeder (MFF).

When entering this mode, the printer requests you to set a cleaning sheet in the MFF. Setting a cleaning sheet starts feeding the sheet to clear the fuser unit. After cleaning, the printer ejects the sheet and waits for setting of the next sheet.

While the printer waits for setting of the next sheet, pressing **CONT.** clears the cleaning mode and puts the printer in the ready state.

If an error such as paper jam or cover open occurs during execution in cleaning mode, the printer returns to the cleaning sheet waiting state after the error is cleared. **RESET** and **MENURESET** are disabled.

Control Panel Functions



PRINTING AND
PAPER HANDLING



Control Panel Functions

Selecting the Self Test Menu (**SELF TEST**)

Pressing **SELF TEST** puts the printer into the self test menu which allows you to print a status report which lists printer operation options currently selected in the selected emulation.

To select the self test menu and print a status report, follow these steps:

1. **Make sure that the message display indicates READY with the ONLINE and DATA indicators off.**

2. **Press the **SELF TEST** button for five or more seconds.**

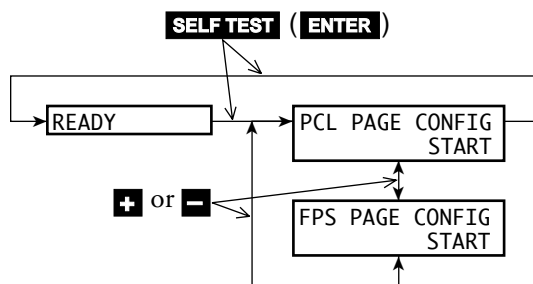
The message changes to PCL PAGE CONFIG START.

3. **Select a desired emulation.**

Press the **+** or **-** buttons until the desired emulation appears.

4. **Start printing.**

Press the **ENTER** button. The message display indicates SELF TEST and the DATA indicator flashes, then a status report page is printed.



Control Panel Functions

--- STATUS REPORT ---

PAGE FORMAT MENU		PARALLEL I/F MENU	
COPIES	:001	ACKNOWLEDGE	:MODE 1
PAPER	:A4	BIDIRECTION MODE	:ON
CUSTOM WIDTH	:297mm	NPAP MODE	:AUTO
CUSTOM HEIGHT	:431mm	SERIAL I/F MENU	
ORIENTATION	:PORTRAIT	BAUD RATE	:9600BAUD
FORM LINES	:064 LINES	PACING	:DTR
PAGE PROTECT	:AUTO	DTR POLARITY	:HI

QUALITY MENU		TRAY SELECT MENU	
SMOOTHING	:ON	MANUAL FEED	:OFF
RESOLUTION	:600 DPI	MFF MODE	:CASSETTE
ECONOMY MODE	:OFF	INTRAY1	:UNLOCKED
TONER DENSITY	:05	INTRAYMFF	:UNLOCKED
THICK PAPER	:OFF		

PCL FONT MENU		MFF PAPER SIZE MENU	
FONT SOURCE	:I (Internal)	MFF PAPER	:A4
FONT NUMBER	:0000		
PITCH SIZE	:10.00	AVAILABLE PERSONALITIES	
SYMBOL SET	:ROMAN8	RESIDENT	:PCL
COURIER	:REGULAR		:PS

PCL MENU		OPTION	
TOP OFFSET	:0.0mm	OPTION	:NONE
LEFT OFFSET	:0.0mm	OPTION FONT	:NONE
A4 PRINT WIDTH	:NORMAL		
AUTO ATTACH FF	:NO		
AUTO CR	:LF=LF		
AUTO LF	:CR=CR		

CONFIG MENU		MEMORY (RAM)	
PERSONALITY	:AUTO		:8192KBYTES
AUTO CONT	:ON		
I/O TIMEOUT	:15sec.	FIRMWARE	
I/O BUFFER	:32KBYTES	FIRMWARE (FPS)	:Ver2.0 Lev014
POWER SAVE	:15min.	FONT	:Ver01.00 Lev007
PREPICK MODE	:ON	ENGINE FIRMWARE	:Lev20

SELF TEST

TEST

SELF TEST

Page Printer

PRINTING AND PAPER HANDLING

--- TYPEFACE LIST ---

Courier Md Courier MdIt Courier Bd Courier BdIt Morrison Rg Morrison It Morrison Bd Morrison BdIt Taurus Taurus It Taurus Bd Taurus BdIt Coronet EFClarendon CdBd EFClarendon ExBd Lyra Md Lyra MdIt Lyra Bd Lyra BdIt Lyra LiCd	Lyra LiCdIt Lyra CdMd Lyra CdMdIt Lyra CdBd Lyra CdBdIt Lyra ExtnMd Lyra ExtnMdIt Lyra ExtnBdIt Lyra ExtnBd AntiqueOlv AntiqueOlv It AntiqueOlv Bd AntiqueOlv Cmpct Garamond Garamond Krsv Garamond Hf Garamond KrsvHf MARITIMUS Leos Md Leos MdIt	Leos Bd Leos ExBd Nimb Sans Nimb Sans It Nimb Sans Bd Nimb Sans BdIt Nimb Sans Cd Nimb Sans CdIt Nimb Sans CdBd Nimb Sans CdBdIt Nimb Roman Nimb Roman It Nimb Roman Bd Nimb Roman BdIt LetterGot75 LetterGot75 It LetterGot75 Bd LetterGot75 BdIt Aries Aries It
---	---	--

Figure 2-2 Status report (PCL emulation)



Control Panel Functions

Selecting the Font Print Menu (**PRINT FONT**)

Pressing **PRINT FONT** puts the printer into the print font menu which allows you to list the fonts available in the selected emulation.

To select the print font menu and print the font list, follow these steps:

1. **Make sure that the message display indicates READY with the ONLINE and DATA indicators off.**

2. **Press the **PRINT FONT** button for five or more seconds.**

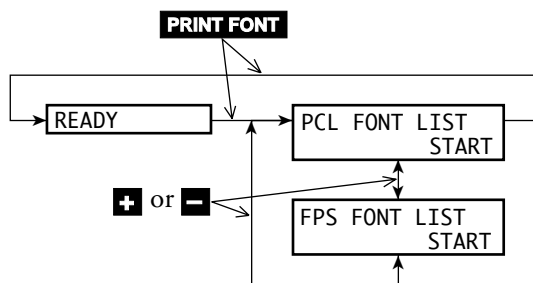
The message changes to PCL FONT LIST START.

3. **Select a desired emulation.**

Press the **+** or **-** buttons until the desired emulation appears.

4. **Start printing.**

Press the **ENTER** button. The message display indicates PRINT FONT and the DATA indicator flashes, then a font report page is printed.





PRINTING AND PAPER HANDLING

User's Manual



Control Panel Functions

Selecting Paper Tray, MFF, or Manual Feed Mode (**TRAY SELECT**)

Pressing **TRAY SELECT** puts the printer in tray select mode which allows you to set paper sources in locked or unlocked status. In the locked status, the paper source selection is fixed. In the unlocked status, the paper source is automatically switched to another source in a certain condition (auto tray selection). The paper sources are tray 1, trays 2 to 4 (if installed), and MFF (in MFF mode or in manual feed mode).

The MFF operation is controlled by MFF mode in which “first” mode and “cassette” mode are provided.

First mode

The MFF has the highest priority and is selected first of all if printing is requested. You do not need to set the paper size of the MFF. (The MFF paper size menu is disabled.) The printer starts printing assuming that the loaded paper has the job-specified size of paper.

If you are printing using tray 1, 2, 3, or 4 with this mode set, you can immediately switch the tray to the MFF just by putting paper on the MFF. This is called on-demand printing.

Cassette mode (default)

The MFF is controlled in the same manner as for other paper trays. However, it has the lowest priority as compared with trays 1 to 4. You must set the physical size of the paper loaded on the MFF, using the MFF paper size menu. If the MFF paper size does not match the job-specified size, a paper mismatch error occurs.

Manual feed mode

Besides the above two modes, the MFF has a manual feed mode. Operation slightly differs with the two modes.

In first mode:

If paper is already loaded on the MFF, it is picked without the paper insertion request message. If paper is not loaded on the MFF, the paper insertion request message is displayed.

In cassette mode:

Whether or not paper is loaded on the MFF, the paper insertion request message is displayed. If paper is already loaded on the MFF, printing starts after you press **CONT.** If paper is not loaded on the MFF, printing starts when you load paper.

PRINTING AND
PAPER HANDLING

You can select two or three paper sources at a time, but must select at least one paper source. Tray 1, trays 2 to 4 (if installed), and MFF cassette mode are all selected as factory default.

When two or three paper sources are selected for auto tray selection (unlocked) and when a paper source runs out of paper or a paper miss match error occurs, the printer switches the paper source for another one.

To select a paper source for auto tray selection, follow these steps:

1. **Make sure that the message display indicates READY with the ONLINE and DATA indicators off.**

2. **Press the **TRAY SELECT** button briefly.**

The message changes to TRAY TRAY1*. The asterisk means that tray 1 is selected for auto tray selection (unlocked).

3. **Select or deselect a paper source.**

This step is valid when tray 2 (option) or MFF (standard) is installed. Pressing the **ENTER** button in this condition makes the asterisk disappear. Tray 1 is deselected. Pressing the **ENTER** button again makes the asterisk reappear. Tray 1 is selected.

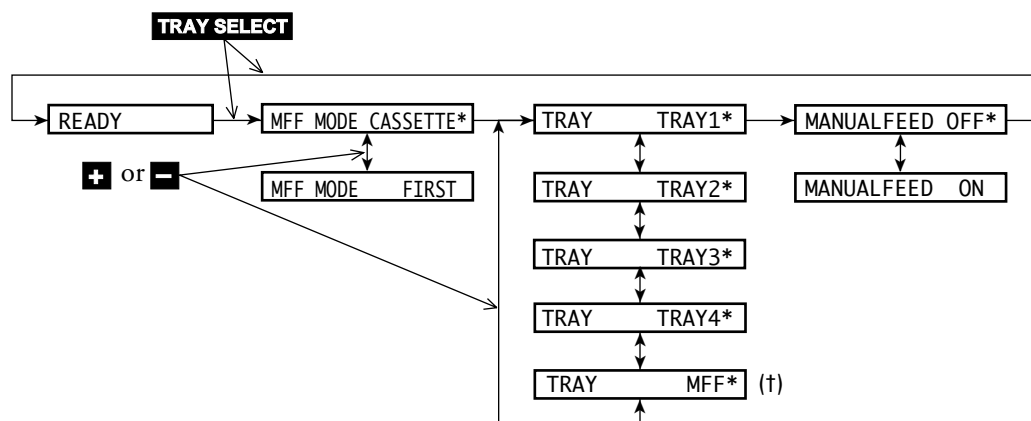
4. **Select or deselect other paper sources.**

Press the **+** or **-** buttons briefly to display another paper source. Use the **ENTER** button in the same way as described above.

5. **Save the selections.**

Press **READY** button to save the new settings and return to the ready state.

Control Panel Functions



According to tray selection, the INTRAY LOCK status printed in a status report changes as follows:

Tray selection	Intray lock status
TRAY TRAY1	INTRAY1 :LOCKED
TRAY TRAY1*	INTRAY1 :UNLOCKED
TRAY TRAY2	INTRAY2 :LOCKED
TRAY TRAY2*	INTRAY2 :UNLOCKED
TRAY TRAY3	INTRAY3 :LOCKED
TRAY TRAY3*	INTRAY3 :UNLOCKED
TRAY TRAY4	INTRAY4 :LOCKED
TRAY TRAY4*	INTRAY4 :UNLOCKED
TRAY MFF (†)	INTRAYMFF :LOCKED
TRAY MFF* (†)	INTRAYMFF :UNLOCKED

† When MFF MODE = FIRST, TRAY MFF is not displayed or selected.

Setting MFF Paper Size (**MFF PAPER SIZE**)

Pressing **MFF PAPER SIZE** puts the printer in MFF paper size mode which allows you to inform the controller of the physical paper size used in the MFF. You must select the size of paper currently loaded in the MFF. This menu is available when the MFF mode is “cassette”.

To select a paper size, follow these steps:

1. **Make sure that the message display indicates READY with the ONLINE and DATA indicators off.**
2. **Press the **MFF PAPER SIZE** button for five or more seconds.**

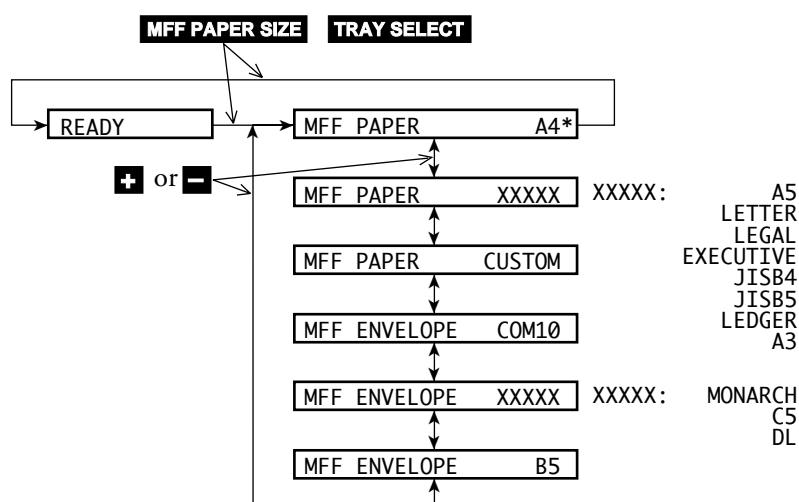
The message changes to MFF PAPER A4*. The asterisk means that A4 size is selected for the MFF.

3. **Select a desired paper size.**

Press the **+** or **-** buttons until the desired paper size appears. Press the **ENTER** button. The asterisk appears and the paper size is selected.

4. **Save the selection.**

Press the **READY** button to save the new setting and return to the ready state.





Control Panel Functions

Selecting the Thick Control Menu (**TRAY SELECT**)

This printer has the thick control menu which allows you to select one of the two thick control modes for adjusting the printer for paper thickness. One is the normal mode (factory default) and the other is the extension mode.

The normal mode allows you to print thick paper, but has only one choice between two options (ON for thick paper and OFF for ordinary paper). This choice is common to all paper sources: tray 1, trays 2 to 4 (if installed), and MFF (in first/cassette mode or manual feed mode).

The extension mode allows you to print several kinds of thin paper, thick paper, and thick envelopes for every paper sources: eight options for every tray 1, trays 2 to 4 (if installed), or MFF (in first/cassette mode or manual feed mode).

When one mode is selected, you cannot use the other mode.

To select a thick control mode, follow these steps:

1. **Turning the printer on while pressing and holding down **TRAY SELECT**.**

The message indicates THICK CONTROL NORMAL* after printer initialization. The asterisk means that normal mode is selected for paper thickness.

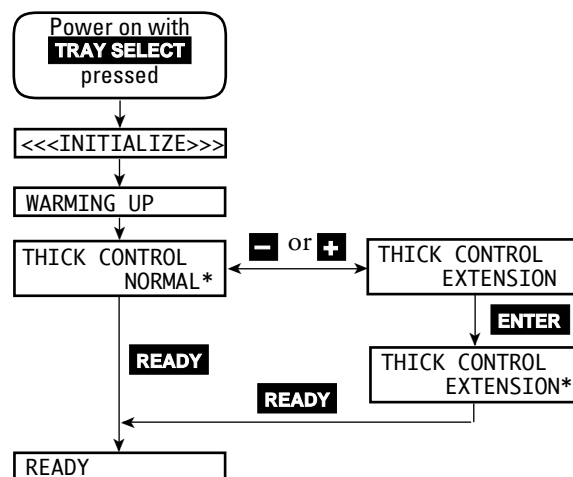
2. **Select a desired mode.**

Press the **+** or **-** button until the desired mode appears. Press the **ENTER** button. The asterisk appears and the mode is selected.

3. **Save the selection.**

Press the **READY** button to save the new setting and return to the ready state.

This selection remains even if you turn the printer off.

PRINTING AND
PAPER HANDLING

When you select a mode, the contents of the Quality menu changes according to the mode selected.

When the thick control is normal, only the Thick Paper item appears for paper thickness. This item has two options, OFF and ON.

When the thick control is extension, the Tray1 Media, Tray2 Media, Manual Media, MFF Media, Tray3 Media, and Tray4 Media items appear for paper thickness. Tray2 Media to Tray4 Media appear when trays 2 to 4 are installed respectively. Each item has eight options from -2 to 5.

To select an option in thick control mode, follow these steps:

1. **Make sure that the message display indicates READY with the ONLINE and DATA indicators off.**
2. **Press the **MENU** button briefly.**

The message changes to SETUP MENU PAGE FORMAT MENU.

3. **Press the **MENU** button.**

The message changes to SETUP MENU QUALITY MENU.

4. **Press the **ENTER** button.**

The message changes to SMOOTHING ON*.

5. **Press the **MENU** button three times.**

The message changes to THICK PAPER OFF* when the thick control is normal, or TRAY1 MEDIA 0* when the thick control is extension.



Control Panel Functions

6. **When the thick control is extension, press the **MENU** button until the desired item appears.**

The message changes to TRAY2 MEDIA 0*, TRAY3 MEDIA 0*, TRAY4 MEDIA 0*, MANUAL MEDIA 0*, or MFF MEDIA 0*.

7. **Select a desired option.**

Press the **+** or **-** button until the desired option appears. Press the **ENTER** button. The asterisk appears and the option is selected.

When the thick control is extension, repeat steps 6 and 7.

8. **Save the selection.**

Press the **READY** button to save the new setting and return to the ready state.

This selection remains even if you turn the printer off.

Each option means as follows:

When the thick control is normal:

- Off: Ordinary paper
- On: Thick paper

When the thick control is extension:

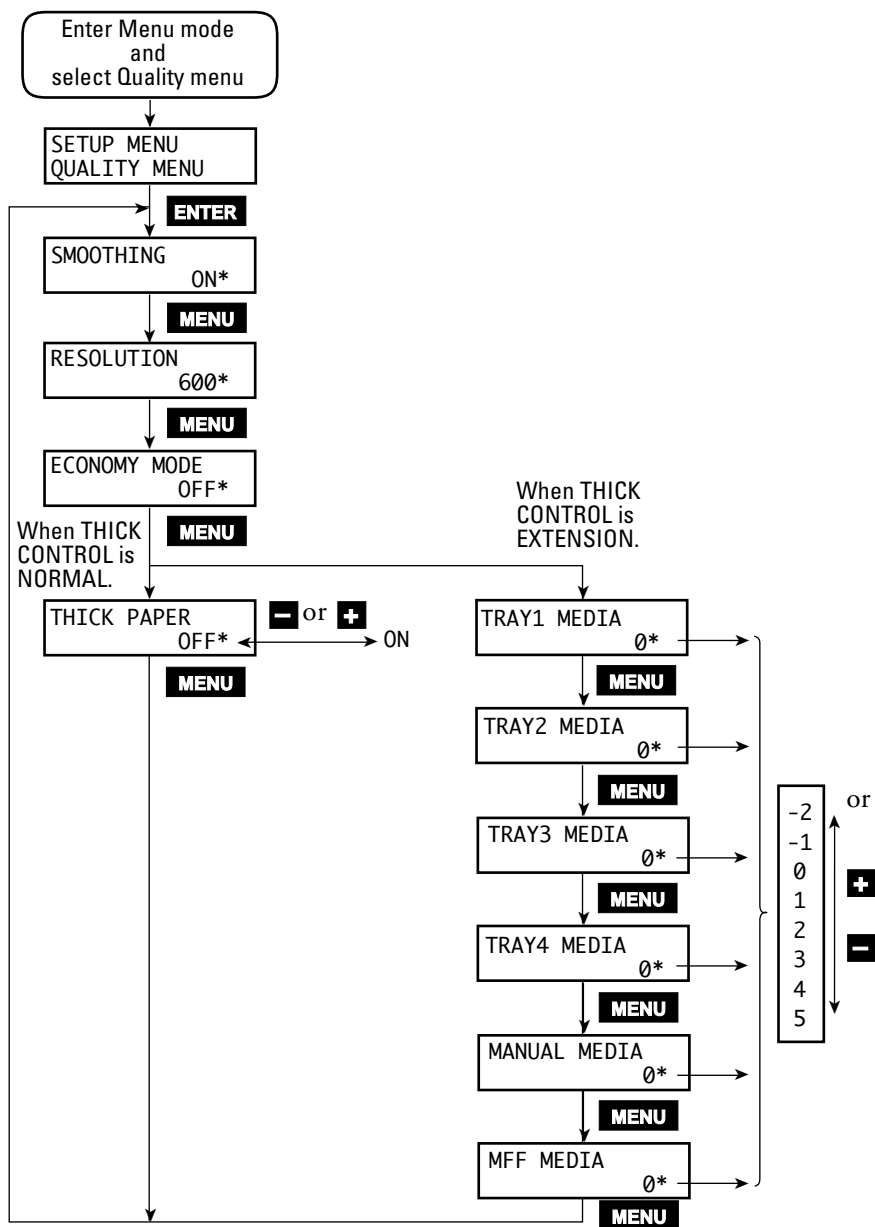
- 2: Thin paper when resulting in waving
- 1: Thin paper when resulting in thin printing with duplex unit
- 0: Ordinary paper
- 1: Thick paper
- 2: Thick envelope when resulting in toner easily coming off
- 3: Thick envelope when resulting in thin printing
- 4: Thick rough paper when resulting in smudging
- 5: Thick rough paper when resulting in thin printing

Try several options and select an appropriate option that results in the most satisfied print quality. However, use the normal mode basically.



Caution:

Turn the mode off or reset it to 0 after printing thick or thin paper.





Menu Functions

Selecting Menu Option (**MENU**) and Resetting Menu (**RESET MENU**)

Pressing **MENU** briefly puts the printer in menu mode which allows you to set up the printer, for example, selecting a paper size, changing a font, and adjusting serial interface parameters. You can select options from the menu by using the four buttons, **MENU**, **+**, **-**, and **ENTER**.

Pressing **RESET MENU** for five or more seconds in menu mode resets all parameters to the factory default values except interface settings (parallel menu, serial menu, and network menu).

The following section briefly explains the menu mode and its operation.

Menu Functions

The menu mode allows you to change your printer's defaults using the four buttons on the control panel. You can use the control panel's menu mode to configure your printer to suit the requirements of your computer, software, and documents.

Menu Structure and How to Use Control Panel Buttons

The menu mode is structured as a tree consisting of submenus, items, and options. The following example shows a small portion of the tree and illustrates how the four buttons work.

In the example:

Submenus are **PAGE FORMAT MENU** and **QUALITY MENU**. Items are **COPIES**, **PAPER**, and **SMOOTHING**. Options are **001**, **002**, **LETTER**, **LEGAL**, **ON**, and **OFF**.

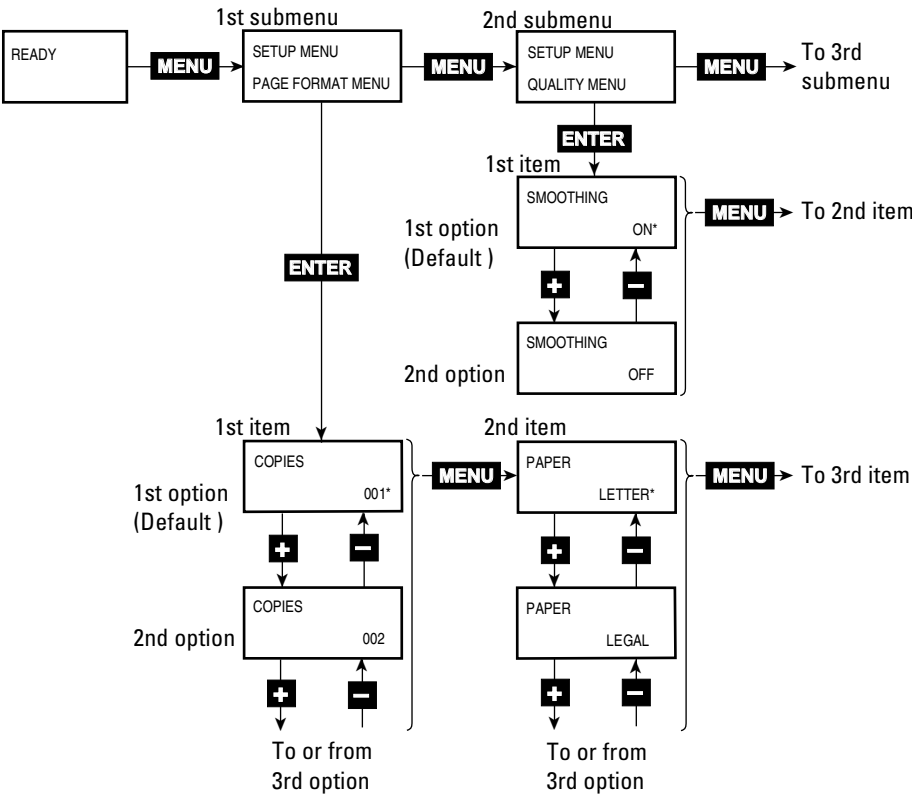
MENU selects menu mode when the printer is ready and offline. Once the printer is in menu mode, **MENU** selects the first submenu and moves you right to the next submenu. If you are on the last submenu, pressing **MENU** returns you to the first submenu.

When a submenu is selected, **ENTER** selects the first item of the submenu. Once the first item is selected, **MENU** moves you right to the next item, regardless of an option selected. If you are on the last item, pressing **MENU** returns you to the first item.

Use **+** and **-** to move up and down the options list.

When an item is displayed, **ENTER** selects that option (adds an asterisk after the option indicating that the option is stored in RAM).

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Submenus, Items, and Options

The following table shows all of submenus and items and summary of options displayed on the message display in menu mode. The display initially shows the factory default option followed by an asterisk (underlined in the table).



Menu Functions

Submenu (bold)/Item	Options
Page format menu	
Copies	<u>001</u> , 002, 003, ..., 999 (pages)
Paper/Envelope	A4, A5, <u>Letter</u> , Legal, Executive, JISB4, JISB5, Ledger, A3, Custom (*1) COM10, Monarch, C5, DL, B5
Custom size X	100 to <u>297</u> (mm)
Custom size Y	148 to <u>431</u> (mm)
Orientation	<u>Portrait</u> , Landscape
Form lines	005, 006, 007, ..., <u>060</u> , ..., 128 (lines/page) (*2)
Page protect	<u>Auto</u> , On
Duplex mode	<u>Off</u> , On (*3)
Bind	<u>Long edge</u> , Short edge (*3)
Quality menu	
Smoothing (*4)	<u>On</u> , Off
Resolution	<u>600</u> , 300, 1200 (dpi)
Economy mode	<u>Off</u> , On
Toner density	1, 2, ..., <u>5</u> , ..., 9, 10
Thick paper (*5)	<u>Off</u> , On
Tray1 media (*6)	-2, -1, <u>0</u> , 1, 2, 3, 4, 5
Tray2 media (*6)	-2, -1, <u>0</u> , 1, 2, 3, 4, 5
Tray3 media (*6)	-2, -1, <u>0</u> , 1, 2, 3, 4, 5
Tray4 media (*6)	-2, -1, <u>0</u> , 1, 2, 3, 4, 5
Manual media (*6)	-2, -1, <u>0</u> , 1, 2, 3, 4, 5
MFF media (*6)	-2, -1, <u>0</u> , 1, 2, 3, 4, 5
PCL font menu	
Font source	<u>Internal</u> , <i>Soft</i> , <i>SIMM</i> (*7)
Font number	<u>000</u> , 001, 002, 003, ..., N (depending on the font source, max. 999)
Pitch size (*8)	0.44, 0.45, 0.46, ..., 99.99 (characters/inch)
Point size (*9)	4.00, 4.25, 4.50, 4.75, 5.00, ..., 999.75 (point)
Symbol set	<u>Roman8</u> , ISOL1, ISOL2, ISOL5, PC8, PC8-DN, PC850, PC852, PC8TK, ...
Courier	<u>Regular</u> , Dark
PCL menu (*10)	
Top offset	-25.0, -24.9, -24.8, ..., <u>00.0</u> , ..., +24.9, +25.0 (mm)
Left offset	-25.0, -24.9, -24.8, ..., <u>00.0</u> , ..., +24.9, +25.0 (mm)
A4 print width	<u>Normal</u> , 80 columns/line
Auto attach FF	<u>No</u> , Yes
Auto CR	<u>LF</u> , LF+CR
Auto LF	<u>CR</u> , CR+LF

**Menu Functions**

Submenu (bold)/Item	Options
FPS menu (*11)	
Jam recovery	<u>Off</u> , On
Print FPS errors	<u>On</u> , Off
Job timeout	<u>0</u> , 10, 11, 12, ..., 298, 299, 300 (0: no check)
Wait timeout	0, 10, 11, 12, ..., 298, 299, <u>300</u> (0: no check)
Manual timeout	0, 10, 11, 12, ..., <u>60</u> , ..., 298, 299, 300 (0: no check)
Model selection	<u>Auto model</u> , Memory model, Speed model
Config menu	
Personality	<u>Auto</u> , PCL, PS (*11)
Auto continue	<u>On</u> , Off, Ext
I/O timeout (*12)	5, 6, 7, ..., <u>15</u> , ..., 298, 299, 300 (seconds)
I/O buffers	Auto, <u>32K</u> , 64K, 128K, 256K (bytes)
Power save	<u>On after 15 min</u> , 30 min, 60 min, 120 min, Off
<u>Pre pick</u>	Off, <u>On</u>
Parallel menu	
Acknowledge (*13)	<u>Mode1</u> , Mode2, Mode3
Bi-direction	<u>On</u> , Off, ECP
NPAP mode	<u>Auto</u> , On, Off
Serial menu (*14)	
Baud rate	2400, 4800, <u>9600</u> , 19200, 38400, 57600
Pacing	<u>DTR</u> , Xon/Xoff
DTR polarity	<u>Hi</u> , Low
ROBUST XON	On, <u>Off</u>
Network menu (*15)	
NPAP mode	<u>Auto</u> , On
Bootp	<u>No</u> , Yes
IP address	###. ###. ###. ### (### = 0, 1, 2, ..., 255) (*16)
IP netmask	###. ###. ###. ### (### = 0, 1, 2, ..., 255) (*16)
IP gateway	###. ###. ###. ### (### = 0, 1, 2, ..., 255) (*16)
Clear warning	Shows the printing component to be replaced.
<Clear warning>	Print unit

*1 Default is Letter or A4. For example, Letter for U.S. customers and A4 for European customers.

*2 This is for Letter and portrait. It automatically changes depending on paper size and page orientation.

*3 Valid when a duplex unit is installed

*4 Makes the contours of objects appear smoother than normally possible with the printers standard resolution.



Menu Items

- *5 Displayed when the thick control is normal (factory default).
- *6 Displayed when the thick control is extension. Tray2 media and MFF media are displayed when tray 2 and MFF are installed respectively.
- *7 Displayed when soft fonts are downloaded or a font SIMM card is installed
- *8 Displayed when the selected font is a scalable and fixed-spacing one. The default depends on a selected font.
- *9 Displayed when the selected font is a scalable and proportional-spacing one. The default depends on a selected font.
- *10 Effective when PCL jobs are being executed. These values are used as defaults of top and left offset specifications in PCL mode.
- *11 Displayed when the FPS is selected for personality
- *12 This is essential for sharing the printer among multiple computers.
- *13 This is for the parallel interface.
- *14 Displayed when a serial interface board is installed
- *15 Displayed when a network interface board is installed
- *16 Consists of four parameters. The one followed by < can be changed.



Menu Items

Menu Items

The following briefly explains each item of the menu mode.

Page format menu

Copies	The number of copies the printer prints from each page
Paper/Envelope	A paper size or envelope size to be used by the printer
Custom size X	Length of custom-sized paper to be used by the printer
Custom size Y	Width of custom-sized paper to be used by the printer
Orientation	A printing direction
Form lines	The number of lines printed per page
Page protect	Whether a block of printer memory is reserved exclusively for text and graphics data, especially for printing dense text or complex graphics, to prevent memory overflow errors. However, it reduces the amount of printer memory available for downloadable fonts.
Duplex mode	Two-sided printing mode
Binding	Where an extra area for fastening pages is located, short or long edge of a page

PRINTING AND
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Quality menu

Smoothing	Whether the edge smoothness technology is applied (improves resolution to 1200 dpi class)
Resolution	The number of dots printed per inch
Economy mode	Toner saving mode
Toner density	Thickness of printout
Thick paper	Mode for printing thick paper for all paper input sources. Be sure to turn this off whenever you are using paper of ordinary thickness.
Tray1 media	Mode for printing thick or thin paper for tray 1. Be sure to return to 0 whenever you are using paper of ordinary thickness.



Menu Items

Tray2 media	Mode for printing thick or thin paper for tray 2. Be sure to return to 0 whenever you are using paper of ordinary thickness.
Tray3 media	Mode for printing thick or thin paper for tray 3. Be sure to return to 0 whenever you are using paper of ordinary thickness.
Tray4 media	Mode for printing thick or thin paper for tray 4. Be sure to return to 0 whenever you are using paper of ordinary thickness.
Manual media	Mode for printing thick or thin paper for MFF in manual feed mode. Be sure to return to 0 whenever you are using paper of ordinary thickness.
MFF media	Mode for printing thick or thin paper for MFF. Be sure to return to 0 whenever you are using paper of ordinary thickness.
PCL font menu	
Font source	Where the printer finds the font
Font number	The internal number of a font to be selected
Pitch size	Character width (characters per inch)
Point size	Character height (multiple of 1/72 inch)
Symbol set	A set of characters used in a font, consisting of the standard letters, numbers, and punctuation. It differs in the accented characters, line drawing characters, and special symbols by languages.
Courier	Thickness of the strokes of the Courier font
PCL menu	
Top offset	Distance by which the page is virtually shifted from the top edge of physical paper in PCL emulation
Left offset	Distance by which the page is virtually shifted from the left edge of physical paper in PCL emulation



Menu Items

A4 print width	Setting the width of the printable area for A4 paper size
<i>Normal</i>	PCL6 compatible
<i>80 columns/line</i>	Expands the width of the printable area so that 80 characters of a 10-pitch font can be printed within a line. This setting is available only for A4 paper size in portrait orientation.
Auto attach FF	FF code (paper ejection) issued at timeout
Auto CR	CR code added to an LF code
Auto LF	LF code added to a CR code
FPS menu	
Jam recovery	Whether the jammed page is reprinted
Print FPS errors	Whether an error report is printed out
Job timeout	Time interval to be allotted between jobs
Wait timeout	Time interval to be allotted for waiting a job end
Manual timeout	Time interval to be allotted for manual insertion
Model selection	Switching printing control (band/full page)
<i>Auto model</i>	Standard setting. Automatically switches the following two models depending on the total RAM capacity. <ul style="list-style-type: none">• Standard 8MB: equivalent to memory model• 12MB or more (standard 8MB + optional 4MB or more): equivalent to speed model
<i>Speed model</i>	Attaches importance to speedup of printing control, thus processing all pages per job.
<i>Memory model</i>	(Virtual) memory model. Attaches importance to reliable printing rather than speedup, thus processing data per page.

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PAPER HANDLING

Menu Items

Config menu

Personality	Selecting an emulation (personality) without a PJI command which clearly specifies the emulation
Auto continue	Automatic control of continuing recoverable errors (On: automatically clears errors other than paper mismatch 10 seconds after an error, Ext: automatically clears errors including paper mismatch 10 seconds after an error)
I/O timeout	Time interval allowed for switching the interface
I/O buffers	Size of interface buffer
Power save	Setting the time interval during which the printer remains idle state before entering sleep mode after printing last
<i>On after 15 min</i>	Power save mode on. The printer enters sleep mode after remaining idle state for ## minutes after printing last.
<i>On after 30 min</i>	
<i>On after 60 min</i>	
<i>On after 120 min</i>	
<i>Off</i>	Power save mode off.
Pre pick	Earlier start of picking paper from an optional tray

Parallel menu

Acknowledge	The pulse width of the ACK signal
<i>Mode1</i>	0.5 μ s
<i>Mode2</i>	1.0 μ s
<i>Mode3</i>	4.0 μ s
Bi-direction	Bi-directional Centronics interface mode
NPAP mode	Whether the NPAP commands are used. When using MarkVision™, the NPAP mode must be Auto or On.



Menu Items

Serial menu

Baud rate	Data transfer speed on the serial interface
Pacing	Protocol of the serial interface
DTR polarity	Level of the DTR signal in the DTR protocol
ROBUST XON	ROBUST mode in the Xon/Xoff protocol

Network menu

NPAP mode	Whether the NPAP commands are used. When using MarkVision™, the NPAP mode must be Auto or On.
BootP	Whether the TCP/IP protocol that enables a workstation to find its IP address is enabled or disabled for the network adapter
IP address	A unique address of the printer in the TCP/IP network environment
IP netmask	Bit mask that logically subdivides the network, specifying a local network portion of the IP address
IP gateway	A unique address of the equipment for the gateway to outside of the enclosed environment

Clear warning

<Clear warning> print unit	Clearing the print unit counter
----------------------------	---------------------------------



Handling Paper

Handling Paper

The print quality considerably varies depending on the type of paper used or the way of keeping paper. This section explains the following:

- Types and sizes of paper you can use with this printer, including envelopes and transparencies
- Adjusting the printer for a variety of paper thickness.
- How to change the available paper size of the paper tray
- General precautions on handling paper

Paper Types and Sizes

This printer can print on a variety of common office papers including recycled paper in addition to standard photocopier paper. Paper can range in basic weight from 64 to 75 g/m² (17 to 20 pound) for paper trays (standard and option) and from 64 to 128 g/m² (17 to 34 pound) for the multi-function feeder, single-sided printing or from 64 to 90 g/m² (17 to 24 pound) for the multi-function feeder, duplex printing. Smooth paper produces the best print quality, but textured papers usually provide satisfactory results.

The following descriptions also apply to an optional paper tray.



Caution:

When you use thick paper, follow these guidelines:

- When you are using thick paper, thick envelopes, or special paper and find improper adhering of toner to the paper, turn the thick paper mode on using the control panel. This mode is invalid for transparencies and labels.
- When you cannot be satisfied with the results of the thick paper mode or want to print on thin paper, use the extension mode of paper thickness.
- Turn the mode off or reset it to 0 when you print on regular paper. Printing regular paper with this mode on or set to a value other than 0 may cause a decrease in print quality or reliability of the printer.

This printer can print on a wide range of paper sizes, but the size is limited when using paper trays.





Handling Paper

- When using a paper tray, the sizes are:

Paper size (physical)	Dimensions
A3 Portrait	297 × 420 mm
A4 Landscape (European letter)	297 × 210 mm
A5 Portrait	148 × 210 mm
JIS B4 Portrait	257 × 364 mm
JIS B5 Landscape	257 × 182 mm
Letter Landscape (US letter)	11 × 8.5 in
Legal Portrait (US legal)	8.5 × 14 in
Executive Landscape	10.5 × 7.25 in
Ledger Portrait	11 × 17 in

PRINTING AND
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- When using the MFF, the size are as follows besides the sizes in the above table.

Paper size (physical)	Dimensions
Same as the above table	Same as the above table
Custom	Custom size X × Custom size Y (*) (Depends on user-specified size)
Envelope COM-10	4 1/8 × 9.5 inches
Envelope Monarch	3 7/8 × 7.5 inches
Envelope C5	162 × 229 mm
Envelope DL	110 × 220 mm
Envelope B5	176 × 250 mm

- * Custom sizes X and Y can be set within the range below by the page format menu.
- Custom size X: 100 mm wide × 297 mm long (3.9 × 11.7 inches)
- Custom size Y: 148 mm wide × 431 mm long (5.8 × 17.0 inches)

When the duplex unit is used, printable paper size is as follows:

Custom size X: 100 mm wide × 297 mm long (3.9 × 11.7 inches)

Custom size Y: 182 mm wide × 431 mm long (7.2 × 17.0 inches)

If paper size exceeds the above range, the printer automatically performs one-sided printing.



Handling Paper

Although this printer can print on any sheet within the limits stated above, printing area and margin calculations are based on several paper sizes as shown in the table below. Use the control panel to change the supported paper size.

Paper size (logical)	Dimensions	Abbreviation
A3	297 × 420 mm	A3
A4	210 × 297 mm	A4
A5	148 × 210 mm	A5
JIS B4	257 × 364 mm	JB4
JIS B5	182 × 257 mm	JB5
Letter	8.5 × 11 inches	LT
Legal	8.5 × 14 inches	LG
Executive	7.25 × 10.5 inches	EX
Ledger	11 × 17 inches	LD
Envelope COM-10	4 1/8 × 9.5 inches	CO
Envelope Monarch	3 7/8 × 7.5 inches	MO
Envelope C5	162 × 229 mm	C5
Envelope DL	110 × 220 mm	DL
Envelope B5	176 × 250 mm	B5
Custom	Custom size X × Custom size Y (Depends on user-specified size)	CT

When the PCL emulation is used and if the physical paper size (tray size or MFF paper size) is different from the logical paper size (value specified by setup menu of paper size), a paper mismatch error occurs.

If a paper mismatch error occurs, the printer requests you to load the correct size of paper on the MFF by the following message:

LOAD MFF XXX

XXX means the abbreviation of paper size shown in the third column of the above table. It is also used in the paper insertion request message for a paper out error or manual feed mode.

However, you can load the correct size of paper in tray 1, 2, 3, or 4 to clear the error.



Adjustment for Paper Thickness

When you are using thin paper, thick paper, or thick envelopes, you may find improper adhering of toner to the paper, wavy paper, or thin printing. This printer can improve the above print quality within the paper specifications by means of the thick control menu which has two modes, normal and extension. The printer is set in normal mode as a factory default. To change the mode and select an option, see **Selecting the Thick Control Menu** described earlier in this chapter.

In normal mode, you can use the thick paper mode, which allows you to print on thick paper, from 90 g/m² or more (24 pound or more). The setting is common to all paper sources. The thick paper mode is automatically used regardless of its option setting when you select an envelope for MFF paper size.

In extension mode, you can use media modes on tray 1 and trays 2 to 4 (if installed), and MFF, which allow you to print on thin paper, thick paper, or thick envelopes. A different setting can be specified every paper source. The media mode = 1 (thick paper) is automatically used when you select an envelope for MFF paper size so long as the media mode = 0 (ordinary paper) is being selected.



Caution:

Turn the mode off or reset it to 0 when you print on regular paper. Printing regular paper with this mode on or set to a value other than 0 may cause a decrease in print quality or reliability of the printer.

Use the following guidelines when printing on thick paper or thick envelopes:

Basically use the thick paper mode (option: on or off) in the normal mode:

- Off: Ordinary paper
- On: Thick paper, 90 g/m² or more (24 pound or more),
Rough surface of paper,
Toner easily scraped off by fingers, or
Printing or back side stained with toner





Handling Paper



Important:

Use the ordinary paper mode (thick paper mode off) if paper thicker than 90 g/m² (24 pound) does not have problems in fusing. With thick paper mode on, large curl may result.



Caution:

Depending on conditions of paper surface, insufficient fusing may occur even in thick mode. In this case, use paper with smooth surface.

General Precautions and Paper Storage

Observe the following when handling print media.

- When you purchase lots of paper, we recommend you to try printing well some sample sheets in advance and make sure that there is no printing problem.
- If transparencies or labels are printed, purchase these products intended for laser printers. Since some of these products sold in the market are not suitable for this printer, perform test printing in advance.
- Use the multi-function feeder to print special paper like thick paper, transparencies, labels, and envelopes. The print quality may be inferior to plain paper.
- When special paper is used, the rear stacker can be used to minimize paper curl. See “Using the Rear Stacker” in Chapter 2 for information on how to use the rear stacker.

Thick Paper

- Thick paper may not be printed normally if it curls too much. Smooth the thick paper in advance to the extent that it curls up within 2 mm.
- Do not load paper with one side printed into the multi-function feeder for printing the other side. It stains paper.



Handling Paper

Transparencies

- Use such types of transparencies that do not melt or deteriorate when heated (about 170°C) during fusion.
- Since transparencies are likely to cause double feed, riffle them well before loading.

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Labels

- Use labels that have been prepared for laser printers in such a way that they are stuck to a backing sheet covering the whole surface with no glossy surface of the backing sheet exposed.
- Use labels that are stuck with glue that does not melt or deteriorate when heated (about 170°C) during fusion.

Envelopes

Observe the following:

- Ambient conditions:
 - Temperature: 15 to 28°C
 - Humidity: 20 to 60% RH
- Paper feeding:
 - Use the multi-function feeder.
 - Number of envelopes that can be loaded: Load envelopes so long as they do not exceed the limit mark.
 - Hold the envelope with the print side (addressee side) up and with the flap bent, then load it so that it is fed in the longitudinal direction. The envelope cannot be printed on its back.
- Paper ejection:
 - Use the rear stacker (face-up stacker) that can accommodate up to 10 envelopes.
- Setting the printer driver:
 - Select Thick Paper. For the paper size, select User-defined Size and specify the width and the length of the envelopes to be printed.
- Fusing:
 - If fusing is insufficient (toner is easily scraped off by fingers), use the thick paper mode.



Handling Paper

Unavailable Paper

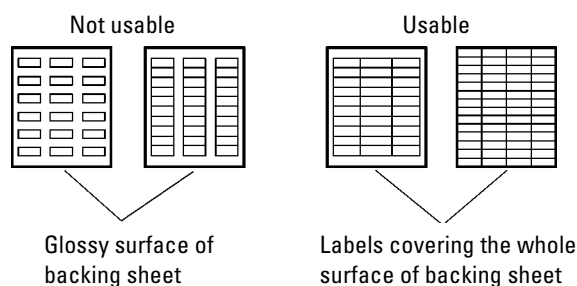
Do not use the following sheets of paper because they may cause paper jams, damage the printer itself, or result in dirty printing.

- Too thick or thin paper
- Wet or damp paper
- Printed paper
- Multiple sheets pasted together or glued paper
- Curved, wrinkled, folded, or broken paper
- Curled paper
- Sheets stuck together by static electricity
- Complicated-shape of paper, or paper with binding holes or perforations
- Surface-treated paper or specially coated paper
- Paper for offset printing
- Paper preprinted with inks that use conductive materials such as metal or carbon or generate gas when heated to 170°C or more
- Paper that melts or deteriorates when heated to 170°C or more
- Heat-sensitive paper or carbon paper
- Stapled, clipped, ribboned, or taped paper
- Paper with rough surface such as coarse-grained paper or fibrous paper
- Paper with large cut edges
- Paper with much paper powder
- Embossed paper or paper with very uneven surface
- Extremely glossy paper
- Envelopes with a transparent window



Handling Paper

- Labels that are stuck to a backing sheet with the glossy surface of the backing sheet partially exposed and that are not prepared for laser printers



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Paper Storage

Bad storage of paper may reduce quality of paper, resulting in poor printing. Store paper correctly as referring to the following to keep the paper in its best condition.

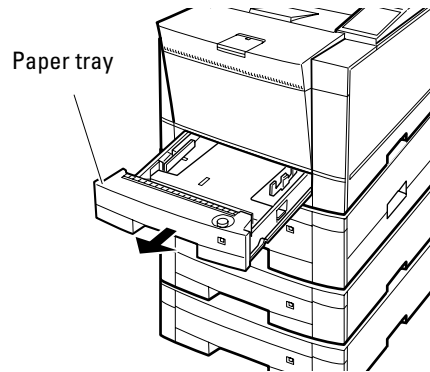
- Paper dislikes moisture. Store paper at a place free of water. Do not open the paper package until you actually use the paper.
- If unpacked paper is left unused, repack it with the original packing paper while taking care not to allow dust to enter, then store it at a less-humid place.
- If you do not use the printer for a long time, remove paper from the paper tray and repack it with the original packing paper, then store it at a less-humid place.
- Store paper in a place not exposed in direct sun light and at low humidity.
- Store paper on a level surface. Storage on the tilt may curl or wrinkle paper.
- Do not pile up a great number of paper packages to avoid damage to the paper. Do not put a heavy or hard thing on a paper package.
- Do not give paper sudden change in temperature to avoid dryness and moisture absorption of the paper. Bring paper packages in the place where the printer is used and leave them about a day before unpacking.



Handling Paper

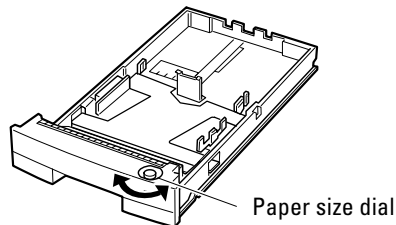
Changing the Paper Size in the Tray

This printer is equipped with a standard paper tray (250 sheets) called tray 1. It is universal type and can be adjusted to one of the ten paper sizes: A3, A4, A5, JIS B4, JIS B5, Ledger, Legal, Letter, and Executive. You can add three more trays (250 or 500 sheets) called second tray, third tray, and fourth tray by purchasing optional paper feeders (feeder units and paper trays). Because each paper tray has the same mechanism as to making it universal to paper sizes, the following steps are described using the first paper tray. To change the size, follow these steps:



1. Pull the paper tray out of the printer.

2. Remove paper stack if remained.



3. Adjust the paper size dial.
Turn the paper size dial on the front right of the paper tray and set it to the size of paper to be loaded.



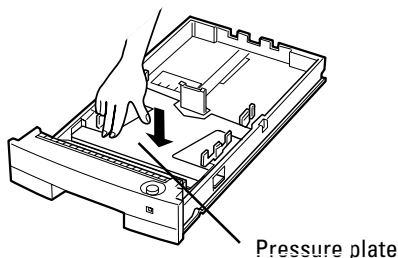
Important:

Select the correct paper size on the print menu of your application program, or a paper mismatch error will occur.





Handling Paper



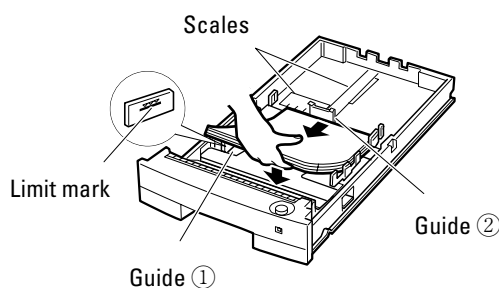
4. **Lock the pressure plate.** If the front of the pressure plate is raised, push it down until the pressure plate clicks into place. Make sure that left and right sides of the plate are clicked.

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Important:

You cannot install the paper tray with the pressure plate raised.



5. **Adjust the guides.** While lifting guide ①, move it widthwise to set the guide to the desired paper size on the scale. While tilting guide ② toward you (in the direction of the arrow), move it lengthwise to the desired paper size on the scale.

6. **Load paper.**

Make sure the stack does not exceed the limit mark.



Caution:

Put the paper stack in the tray with the printing side faced down.

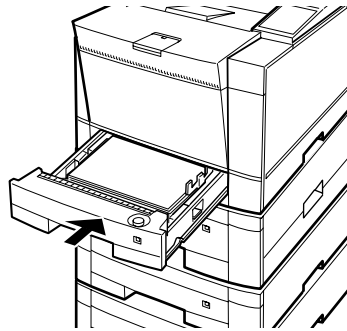
If paper is wavy or curled, remove wavy or curled sheets of paper.

If paper is abnormally curled or becomes cylindrical after printing, use the paper upside down. It may reduce a degree of curl.





Handling Paper



7. **Install the paper tray.**
Slide the tray down the left and right guide grooves until it is locked.

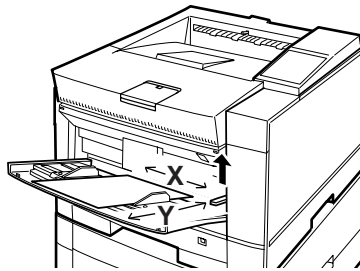
Printing on Custom-Sized Paper

This printer can print on custom-sized paper (nonstandard size paper). Use the multi-function feeder (MFF) for this purpose. You can also use the MFF to print custom-sized paper one by one by setting the MFF in manual feed mode.

To use the MFF, follow these steps:

1. **Specify the size of paper to be used.** Set the printer in menu mode using the control panel and select the Page Format menu.
 - a. Select Custom for Paper/Envelope.
 - b. Adjust Custom X and Custom Y to the size of paper to be used.

To the paper feed direction, length X is perpendicular and length Y is parallel as shown below.



When you specify the paper size from the printer driver, use a property sheet screen.





Handling Paper

2. **Specify the physical paper size of the MFF.** When the MFF mode is “Cassette” (default), select the MFF Paper Size menu from the control panel and select “Custom” in the menu. When the MFF mode is “First”, you do not need to specify the paper size.

PRINTING AND
PAPER HANDLING



Caution:

Using custom-sized paper may decrease the printing precision and quality.

Printable Areas

Page printers cannot print the entire of physical pages. It cannot print edge areas of paper. The printable areas are 5 mm (1/6 inch to be exact) inside the edges of paper.



Important:

Printing off the physical page causes unused toner to be recovered to the print unit. Frequent repetition of this printing can result in print quality problems.

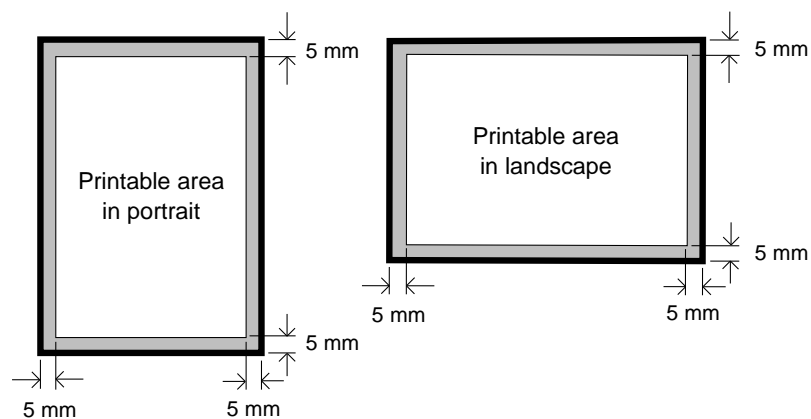


Figure 2-4 Printable areas



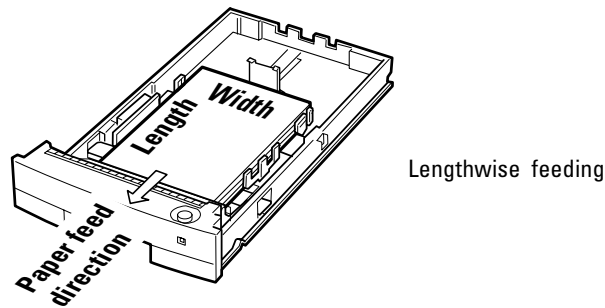
Handling Paper

Loading Direction of Paper

This printer can handle various sizes of paper: A3, A4, A5, JISB4, JISB5, letter, legal, executive, ledger, custom-sized, and envelopes. However, you must put paper in a paper tray or the MFF in the specified direction depending on the size of paper.

1. A3, A5, JISB4, ledger, legal, custom-sized, and envelopes (MFF only)

Orient the length of paper in the paper feed direction.



2. A4, JISB5, letter, executive

Orient the width of paper in the paper feed direction

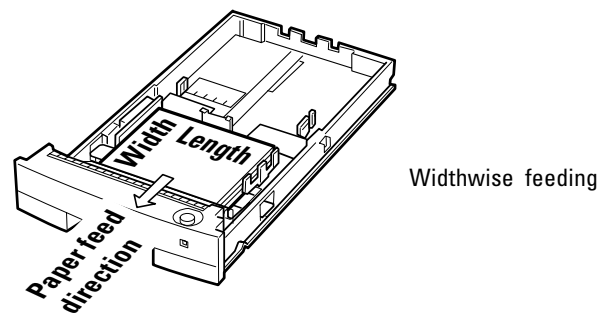


Figure 2-5 Paper loading directions



Handling Paper

Page Orientation

When you want to print on preprinted paper like letterhead, it is important to understand the relationship between the paper loading direction (lengthwise/widthwise feeding) and the page orientation (portrait/landscape).

PRINTING AND
PAPER HANDLING

When using a paper tray, place the paper with its letterhead facing down. Insert the paper as shown below.

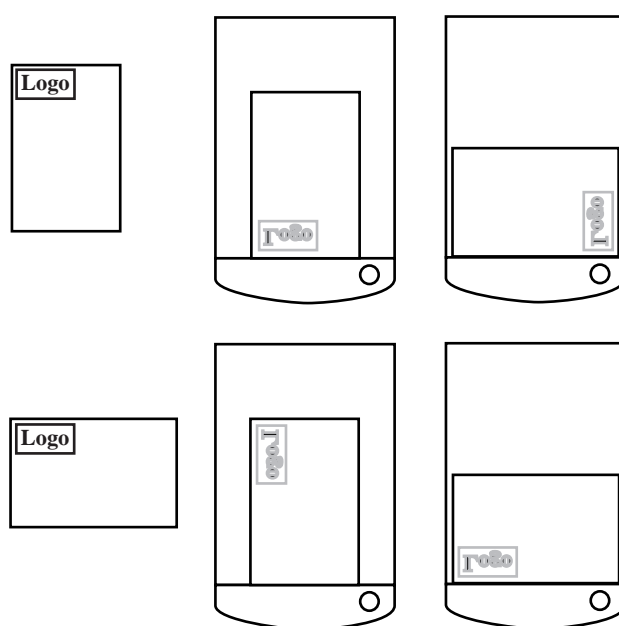


Figure 2-6 Loading letterhead in a paper tray



Handling Paper

When using the MFF, place the paper with its letterhead facing up.
Insert the paper as shown below.

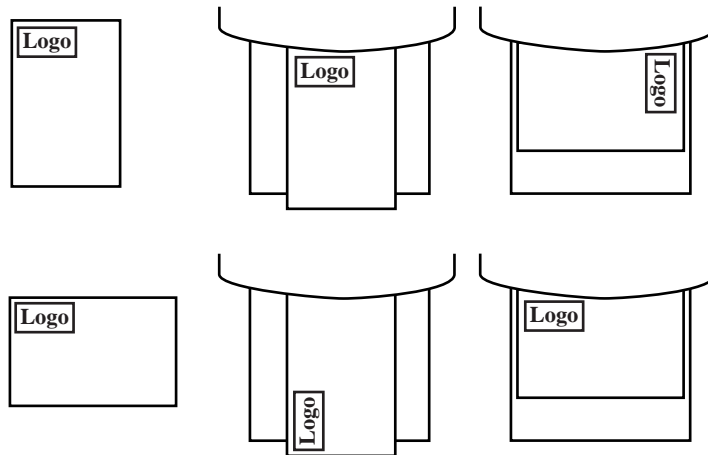


Figure 2-7 Loading letterhead on the MFF



CHAPTER

3

Enhancing and Customizing the Printer

ENHANCING &
CUSTOMIZING

This chapter explains the following ways to enhance or customize your printer:

- Add RAM up to a total of 64 megabytes except the resident RAM.
- Add an additional interface to the parallel and serial interfaces.
- Add 250- or 500-sheet paper feeders (feeder units and paper trays) as the second to fourth paper sources including changing the paper tray size.
- Add a duplex unit as the two-sided printing mechanism.

You can order these options separately. See Appendix B for ordering information. Contact your dealer for information on other new options that may be available.

The following gives you brief information and installation instructions for each option.



Warning:

Use only correct optional components. Using other components may cause a fire, electric shock, or other faults.

When an optional component is attached or detached, do not remove any screws other than specified. Removing screws carelessly may cause injury or faults.



Caution:

Be sure that the printer is turned off before installing an option.

Do not touch any connector contacts to avoid possible electrostatic damage to the printer.



Adding RAM or Font Card

Adding RAM or Font Card

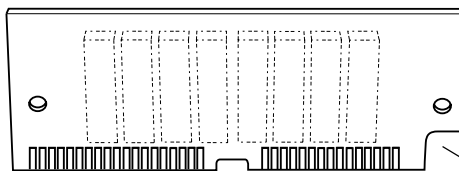
You may need to expand RAM to process more data for either of the following reasons:

- You commonly download several fonts when printing a job
- You print files with complex graphics

You can install two memory expansion cards. The expansion card can have 4, 8, 16, or 32 megabytes of RAM. Together with the printer's resident memory of 8 megabytes, these expansion options offer a range of RAM from 8 to 72 megabytes.

You can also install a font card to add fonts.

(8MB card)



Insert with cut facing down and to the right



Warning:

Before attaching or detaching an expansion RAM card, make sure that the printer power is off. Failure to do so may cause an electric shock or faults.



Caution:

To prevent the expansion RAM card or font card from being destroyed by static electricity, observe the following:

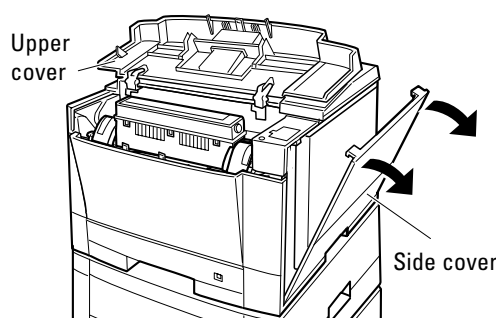
- Take out the expansion RAM card or font card from the bag immediately before attaching it to the printer.
- Before touching the expansion RAM card or font card, touch something made of metal (such as a cabinet) to remove static electricity from your body.
- Hold the expansion RAM card or font card by its edges and do not touch the electric circuit parts and wiring on the expansion RAM card or font card.

Adding RAM or Font Card

Up to two RAM cards, in any combination of 4-, 8-, 16, and 32-megabyte RAM cards, can be attached to the *ivory* connectors. One font card can be attached to the *black* connector.

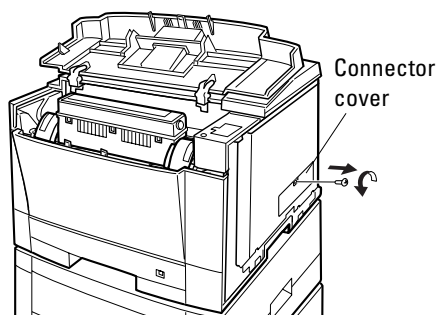
To install an RAM or font card, follow these steps:

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CUSTOMIZING



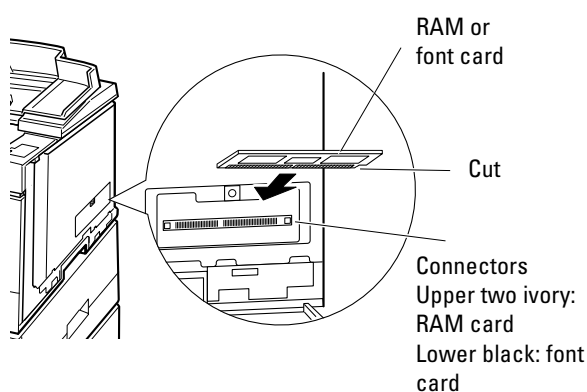
1. **Make sure that the printer power is off.** Check that the printer power is off (the power switch is pressed on the “O” side).

2. **Open the upper cover and then the right side cover of the printer.** You will see a small connector cover on the metal plate.



3. **Remove the connector cover.** Remove the fastening screw and the cover. You can now see three connectors (upper two *ivory* ones for RAM cards and lower *black* one for a font card).

4. **Orient the RAM or font card.** Hold the card with the cut corner down and facing right and insert the card aslant into connector (the RAM card to an *ivory* connector and the font card to the *black* connector).



5. **Install the RAM or font card.** Push its top edge downwards so that holes of the card align with locating pins of the connector and the card is secured by retaining clips.

Adding RAM or Font Card



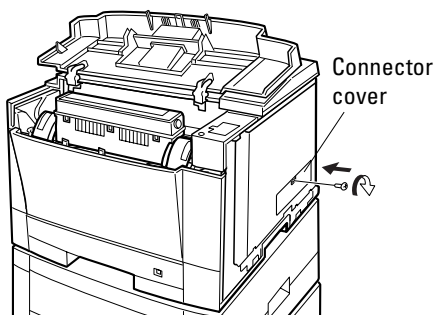
Caution:

The expansion RAM card or font card is easily damaged by static electricity. Hold it by its edges and do not touch the electric circuit parts and wiring.



Important:

When installing two RAM cards, first install the lower one, and then the upper one. If you install them in the opposite order, the upper card prevents the lower card from being installed.

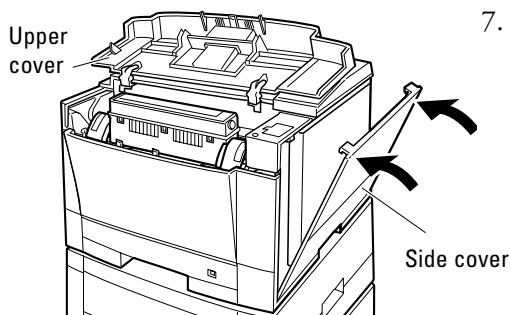


6. **Secure the connector cover.**
Secure the connector cover, which was removed in step 3, with a screw.



Caution:

Be sure to secure the connector cover to avoid a fire hazard.

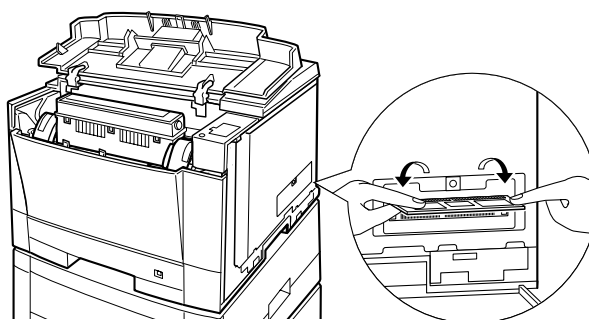


7. **Close the side cover and then upper cover.**

Turn power on. If necessary, change buffer memory assignment (page protect or jam recovery) using the control panel.

Removal

To remove the RAM or font card, use fingers to push out the retaining springs applied to the card. Then, lay down the card to the front and pull it out.

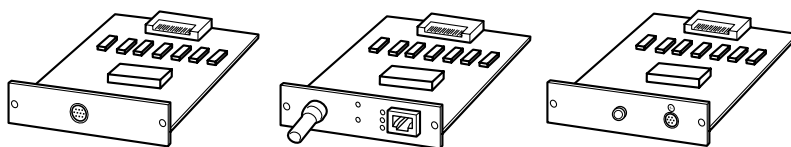


**ENHANCING &
CUSTOMIZING**

Installing an Interface Expansion Board

Installing an Interface Expansion Board

The printer's standard interfaces are parallel (Centronics \times 2) and serial (RS-232C \times 1). The currently available optional interfaces are LocalTalk, Ethernet, and IrDA. If the location of your printer is distant from the computer, you can use the LocalTalk port or Ethernet port of the computer to connect your printer. FUJITSU offers the optional LocalTalk board and Ethernet boards for these purposes. The IrDA board is an infrared interface adapter.



LocalTalk interface board Ethernet interface board (*) IrDA interface board

* There are three types of Ethernet interface boards, C, D, and F. Type C has two connectors and types D and F have a connector (the coaxial connector is not provided).



Caution:

When sharing the printer among multiple computers, setting the I/O time-out short may cause a printing problem.



Caution:

Be sure that the printer is turned off (the power switch is pressed on the "O" side) before installing an option.

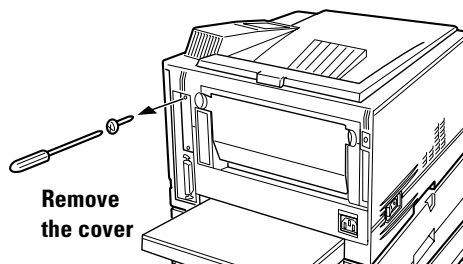
To prevent the interface board from being destroyed by static electricity, observe the following:

- Take out the interface board from the bag immediately before attaching it to the printer.
- Before touching the interface board, touch something made of metal (such as a cabinet) to remove static electricity from your body.
- Hold the interface board by its edges and do not touch the electric circuit parts and wiring on the interface board.

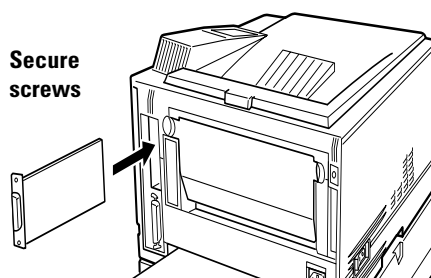


Installing an Interface Expansion Board

Installing an Interface Board



Remove the cover



Secure screws

1. Make sure the printer is turned off. Check that the power switch is pressed on the "O" side.
2. Remove the interface board slot cover from the back right of the printer.

3. Insert the interface board. Hold the board with the parts mounting side left. Slide the board into the empty interface slot along the guides. When the board hit the connector inside the printer, press the board to connect it to the connector firmly. Secure the board by the two screws removed in step 2.

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When the interface board is removed and not used, put the slot cover back in position and secure it with the screw.

Connecting to the LocalTalk Port

To connect to the LocalTalk port, simply connect the interface cable between the printer and your computer.

Connecting the LocalTalk Interface Cable

To connect to the LocalTalk interface port, you need a cable correctly wired for this printer and your computer. The cable must also have the proper connectors. Your dealer or technical support person can supply you with the proper cable.



Installing an Interface Expansion Board

For example, the LocalTalk Locking Connector Kit—DIN-8 (Apple product) is available. Also refer to your computer documentation for the type of connector required by its LocalTalk port.



Caution:

Be sure that the printer is turned off before connecting the interface cable.

Do not touch any connector contacts to avoid possible electrostatic damage to the printer.

To make the connection, firmly plug the cable connector into the LocalTalk interface port on the back right of the printer. Plug the other connector into your computer's LocalTalk port. Consult your computer documentation if you need help.

Selecting the LocalTalk Interface

The printer's standard interfaces are parallel and serial. While the LocalTalk interface board is installed, the printer automatically detects that the computer is using the LocalTalk interface.

LocalTalk Specifications

The table below shows the physical specifications of the LocalTalk interface.

Specification	Description
The span of a single LocalTalk network	Max. 300 meters
Number of devices on a single LocalTalk network	Max. 32 devices
Speed of data transmission	230. 4K bits/second
Protocol	8 bit packet



Installing an Interface Expansion Board

Connecting to the Ethernet Port

Type C board has two connectors, 10BASE-2 and 10BASE-T. Type D or F board has only a connector, 10BASE-T or 10BASE-T/100BASE-TX respectively. The 10BASE-2 connector is for a coaxial cable, bus connection. The 10BASE-T or 100BASE-TX connector is for a twisted-pair cable, star connection. Either will do.

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Connecting to the Ethernet port involves the following three tasks:

- Check the type of cables your network uses.
- Select the 10BASE-2 or 10BASE-T/100BASE-TX connector of the interface board according to the connector type of your cable.
- Connect the interface cable to the printer and a network port.

Connecting the Ethernet Interface Cable

To connect to the Ethernet interface port, you need a cable correctly wired for your network. The cable must also have the proper connectors. Your dealer or technical support person can supply you with the proper cable.

For example, C66L-2810-0111 and C66L-1240-0002 (Fujitsu products) are available for 10BASE-T and 10BASE-2 ports respectively. Also refer to your network documentation for the type of connector required by its Ethernet port.



Caution:

Be sure that the printer is turned off before connecting the interface cable.

Do not touch any connector contacts to avoid possible electrostatic damage to the printer. For the same reason, do not remove the protective cover from the 10BASE-2 port which is not in use because you use the 10BASE-T port.

The procedure below applies to the 10BASE-2 port.

To make the connection, firmly plug the cable connector into the Ethernet interface port on the back right of the printer. Secure the connector by turning the connector hood. Plug the other connector into a network's Ethernet port. Consult your computer documentation if you need help.



Installing an Interface Expansion Board

Selecting the Ethernet Interface

The printer's standard interfaces are parallel and serial. While the Ethernet interface board is installed, the printer automatically detects that the computer is using the Ethernet interface.

Ethernet Specifications

The table below shows the physical specifications of the Ethernet interface.

Specification	Description
Span of 10BASE-2	Max. 185 meters (coaxial, bus connection)
Sspan of 10BASE-T/100BASE-TX	Max. 100 meters (twisted-pair, star connection)

Adding Paper Sources

Second to Fourth Paper Feeders

If you switch paper sizes frequently, you may want to add another paper source. Or you may simply wait to increase the paper capacity of your printer. You can easily do this by installing up to three pairs of optional paper feeders (feeder units and paper trays).

These optional paper trays are identified as *second tray*, *third tray*, and *fourth tray* and the one in the standard configuration is identified as *first tray*. (Note that the three optional paper trays are identified as *first tray*, *second tray*, and *third tray* when an optional duplex unit is installed in place of the standard paper tray.)

The paper types and sizes used with optional paper trays are the same as those for the standard paper tray. The capacity is 250 sheets or 500 sheets (twice that of the standard paper tray).

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CUSTOMIZING



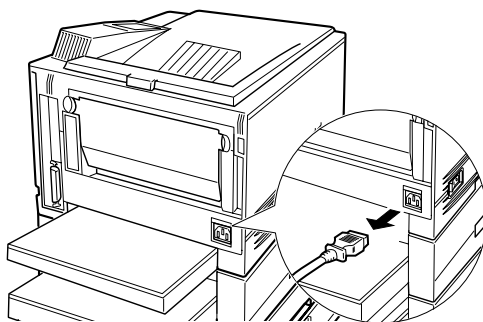
Warning:

- Before mounting or dismounting a paper feeder, set the printer power switch to the “O” side and disconnect the power plug from the outlet. Failure to do so may cause an electric shock or faults.
- If needed, touch the metal part of the paper feeder carefully so as not to hurt your hand.
- Be careful not to get your fingers caught between the printer and paper feeder. It may hurt you.
- The printer, with consumable items attached, weighs about 27 kg. Two or more persons are required to carry it. When lifting the printer, one person must firmly hold the bottom of the printer by both hands on the left and right sides viewed from the front (control panel side). Simultaneously, another person must hold the printer on the opposite side in the same way. Never hold any part other than the bottom to lift the printer. The printer may drop and hurt workers.



Adding Paper Sources

To install the paper feeder (feeder unit and paper tray), follow these steps:



1. **Turn off the printer and disconnect the power cord.** Make sure that the printer power is off (the power switch is pressed on the “O” side), and disconnect the power cord from the outlet. Disconnect the power cord from the power cord connector on the back of the printer. Disconnect also the interface cable if connected.
2. **Prepare the paper feeder.** Take out the paper feeder from the carton box place it on site. Check that the lock is released as shown in the figure in step 4. If not, push the lock lever in the opposite direction of the arrow “LOCK”. (See the figure in step 4.)



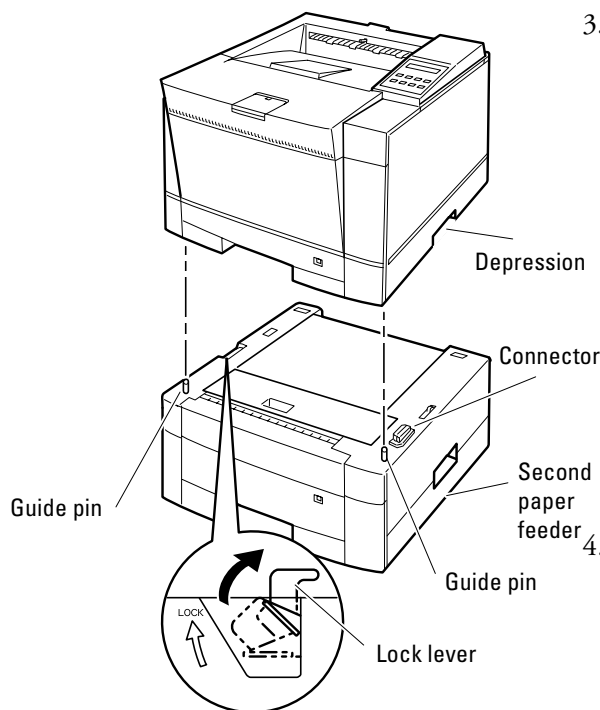
Caution:

- Place the paper feeder in the direction shown in the figure in step 4. Give a service clearance of about 50 cm each on the front and back of the printer.
- The printed circuit boards in the paper feeder are easily damaged. Do not touch connectors by hand.





Adding Paper Sources



3. **Place the printer on the paper feeder.** Hold the printer horizontally by the depressions at the bottom left and right sides of the printer, align it so that the guide pins on the paper feeder inserts into the holes on the bottom of the printer, then lower the printer carefully on the paper feeder. Two persons are required for this operation. (See the figure in step 4.)
4. **Lock the printer to the paper feeder.** Pull up the lock lever in the direction of the arrow "LOCK".

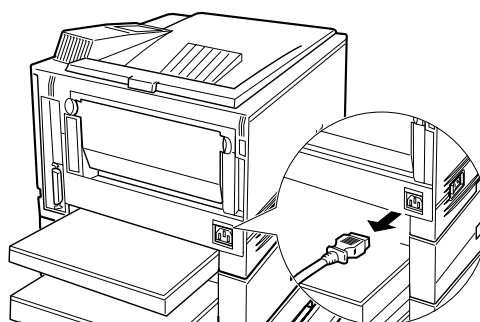
ENHANCING & CUSTOMIZING



Caution:

Unlock state is equivalent to the paper out state.

To remove the paper feeder (feeder unit and paper tray), follow these steps:

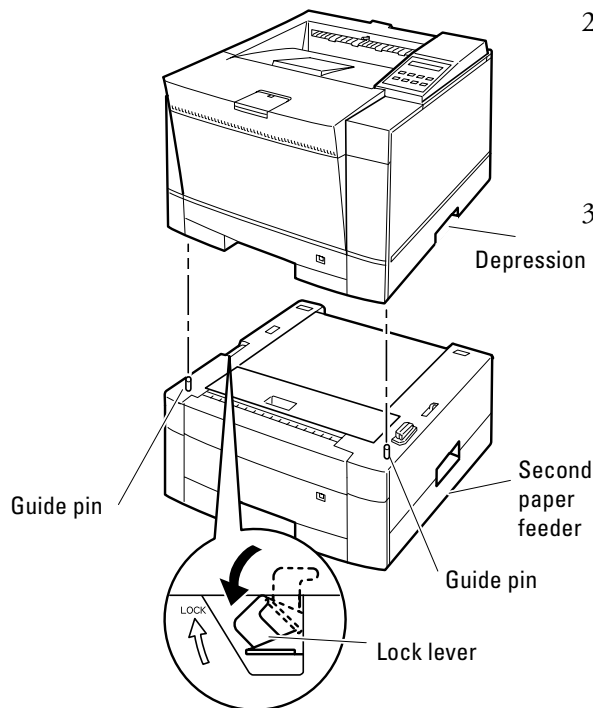


1. **Turn off the printer and disconnect the power cord.** Make sure that the printer power is off (the power switch is pressed on the "O" side), and disconnect the power cord from the outlet. Disconnect the power cord from the power cord connector on the back of the printer. Disconnect also the interface cable if connected.





Adding Paper Sources



2. **Unock the printer from the paper feeder.** Push down the lock lever in the opposite direction of the arrow “LOCK”.

3. **Lift the printer straight.** Ask someone to hold down the paper feeder, then firmly hold the depressions on the bottom of the left and right sides of the printer and lift the printer straight up. Two or more persons are required to lift the printer.



Caution:

Lift the printer straight up. Otherwise, connecting parts such as the guide pins may be damaged.

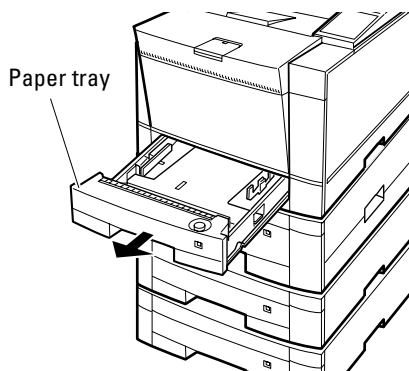
Changing the Optional Paper Tray Size

The second to fourth paper trays are universal type and can be adjusted to one of the nine paper sizes: A3, A4, A5, JIS B4, JIS B5, Ledger, Legal, Letter, and Executive. Because each paper tray including the standard tray has the same mechanism as to making it universal to paper sizes, the following steps are described using the first paper tray. To change the size, follow these steps:





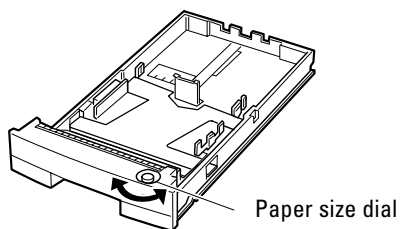
Adding Paper Sources



1. Pull the paper tray out of the printer.

2. Remove paper stack if remained.

ENHANCING & CUSTOMIZING

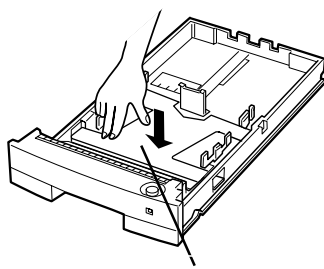


3. Adjust the paper size dial.
Turn the paper size dial on the front right of the paper tray and set it to the size of paper to be loaded.



Important:

Select the correct paper size on the print menu of your application program, or a paper mismatch error will occur.



Pressure plate

4. Lock the pressure plate. If the front of the pressure plate is raised, push it down until the pressure plate clicks into place. Make sure that left and right sides of the plate are clicked.

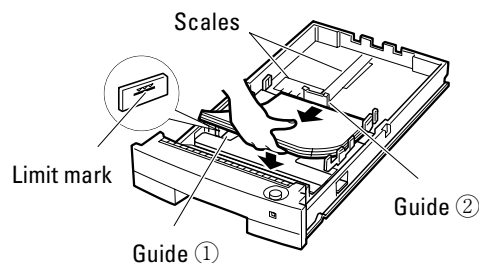


Important:

You cannot install the paper tray with the pressure plate raised.



Adding Paper Sources



5. **Adjust the guides.** While lifting guide ①, move it widthwise to set the guide to the desired paper size on the scale. While tilting guide ② toward you (in the direction of the arrow), move it lengthwise to the desired paper size on the scale.

6. **Load paper.** Make sure the stack does not exceed the limit mark.

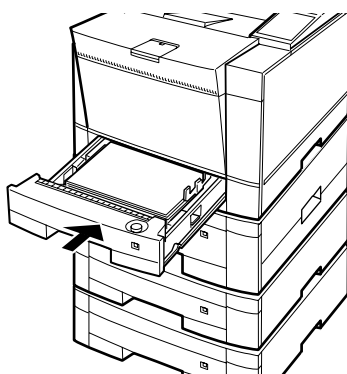


Caution:

Put the paper stack in the tray with the printing side faced down.

If paper is wavy or curled, remove waved or curled sheets of paper.

If paper is abnormally curled after printing, use the paper upside down. It may reduce a degree of curl.



7. **Install the paper tray.** Slide the tray down the left and right guide grooves until it is locked.



Adding Duplex Unit

Adding Duplex Unit

The optional duplex unit allows the printer to print data both sides of a sheet of paper. When purchasing a duplex unit, a 250-sheet paper feeder (without paper tray) comes with it. The duplex unit is labeled with “DUPLEX”.

The duplex unit has the same external dimensions as the standard paper tray. It is installed in the place where the standard paper tray is installed. So, you must remove the standard paper tray, install the supplied paper feeder, and then install the removed standard paper tray in the paper feeder. To install the paper feeder, see “Second to Fourth Paper Feeders” in this chapter.

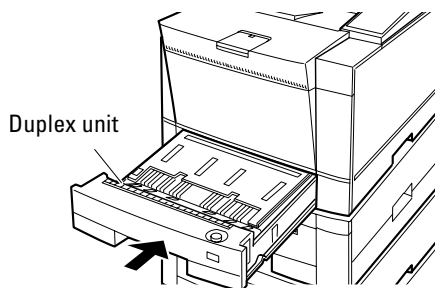
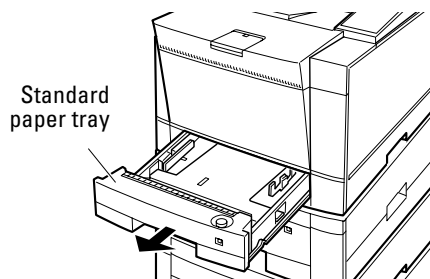
ENHANCING &
CUSTOMIZING



Important:

- The duplex unit cannot be recognized by the printer if it is installed in the printer after power is turned on. (If you replace the standard paper tray with the duplex unit while power is on, the duplex unit is not recognized as a duplex unit.)
- In the same way, if you replace the duplex unit with a paper tray while power is on, the paper tray is not recognized as a paper tray.

To install the duplex unit, follow these steps:



1. **Make sure that the printer power is off.** Check that the printer power is off (the power switch is pressed on the “O” side).
2. **Remove the standard paper tray from the printer.**
3. **Install the duplex unit.** Slide in the duplex unit along the guide grooves on both sides of the bay where the standard paper tray was installed and push it in until it is locked.
4. **Turn the printer power on.**



Adding Duplex Unit

To remove the duplex unit, reverse the above procedure.



Caution:

- Do not install the duplex unit anywhere other than the standard paper tray bay in the printer.
 - Do not fail to reinstall the standard paper tray after the duplex unit is removed.
-



CHAPTER

4

Maintenance

This chapter covers preventive maintenance, periodic routine maintenance, and repacking the printer for shipment or storage.

MAINTENANCE



Caution:

Before performing any maintenance, be sure that the printer is turned off.

During maintenance procedures, do not touch any connector contacts to avoid possible electrostatic damage to the printer.

When performing maintenance, do not disassemble or remove any components unless specifically directed in the procedures.

Preventive Maintenance

The following guidelines can help to ensure trouble-free operation:

- Follow the guidelines in Chapter 1 when selecting a location for your printer.
- To minimize paper jams, store paper under favorable conditions. Do not expose paper to high humidity or moisture, which can cause wavy edges. Do not store paper in direct sunlight or allow it to become very dry, which can impart an electrostatic charge. Store paper flat, not on edge.
- If you must open the printer's upper cover for more than three minutes, remove the print unit with the toner bottle mounted and store it in a dark place. Exposure of the photoconductor drum to light for more than three minutes can cause damage.
- Make sure small objects such as paper clips do not drop into the printer.
- If you do not use the printer for a long time, remove paper from paper trays and store it in the original package. Printing may be blurred in the portion that was stuck out from the printer.
- When the message display indicates **REPLACE PARTS**, print a status report or display a **<CLEAR WARNING>** message in menu mode to confirm the cause of the message. For the procedures, see Chapter 2.



Periodic Routine Maintenance

- Replace the toner bottle as soon as possible to prevent any dust from entering the print unit from the opening.
- Shake the toner bottle before installation.
- When removing the print unit, put it in a level surface without any object, which may cause dust to enter the print unit or damage the photoconductor drum.

Periodic Routine Maintenance

Table 4-1 lists the printer's periodic routine maintenance and indicates when this maintenance should be performed.

Table 4-1 Periodic Routine Maintenance

Maintenance	When to perform
Replace toner bottle	When the message display indicates TONER EMPTY
Replace print unit	When print quality is bad, even after replacing or cleaning other parts When the message display indicates REPLACE PARTS PRINT UNIT (Replace the print unit at the next replacement of the toner bottle)
Clean paper path	When replacing the print unit, when printouts show toner smudging, when back or edges of paper are stained, or after clearing a paper jam
Clean precharger wire of print unit	When print density is uneven or when printing shows black vertical lines
Clean transfer charger wire	When replacing the print unit or toner bottle, when printout shows vertical white lines, or when printing is too light
Clean fuser unit rollers	When printouts show toner smudging, when back of paper is stained, or after clearing a paper jam (see Chapter 5)



Periodic Routine Maintenance

Replacing the Toner Bottle

The toner bottle is designed to last approximately 5000 printed pages under the condition of 5% coverage on A4 paper. The first toner bottle may print about half as many as the subsequent (2500 pages).

Replace the toner bottle when the “TONER EMPTY” status is set or when printing becomes lighter than you find satisfactory.

MAINTENANCE



Important:

The quality of toner bottles is assured about two years after production under unpacking conditions.



Warning:

- Do not put any toner bottle into a fire. Toner powder may scatter around and cause a burn.
- Put the waste toner bottle in a carton box or PVC bag and dispose of it as a nonflammable item.
- Be careful not to get toner in your eyes or mouth. If toner sticks to your hand, wash it away promptly. Should you drink it by accident, consult your doctor promptly.
- Keep toner bottles out of reach of children to prevent them from drinking toner by accident. Should anybody drink it, consult your doctor promptly.



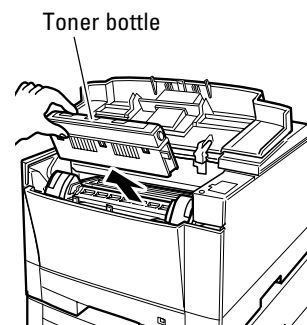
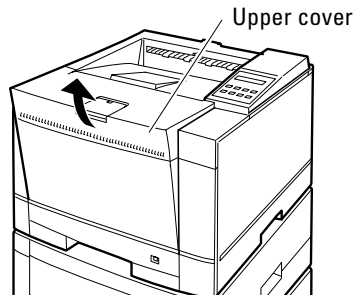
Caution:

- Whenever you replace the toner bottle, clean the corona wire and the precharger wire to prevent a degradation in print quality.
- If the toner bottle is replaced before "TONER EMPTY", it may cause a smudge on the page.



Periodic Routine Maintenance

To replace the toner bottle, follow these steps:



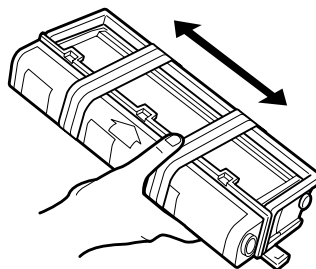
1. **Open the upper cover.**
2. **Tap the toner bottle.** Tap the toner case to drop any remaining toner from toner bottle into print unit. This avoids the remaining toner from being spilt inside the printer during replacement.
3. **Unlock and remove the old toner bottle.** Pull the top of the toner bottle toward you to swing the bottle from the upright position to the removable position. Gently lift the bottle. If necessary, clean toner around the toner hopper entry of the print unit.



Caution:

Do not remove the print unit without the toner bottle in order to avoid scattering toner.

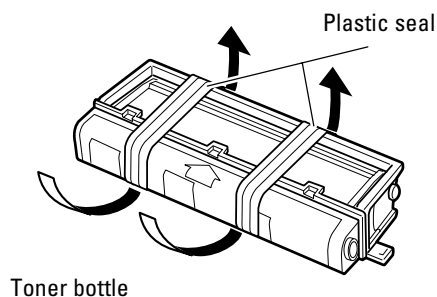
Be careful not to allow dust or foreign matter into the toner hopper.



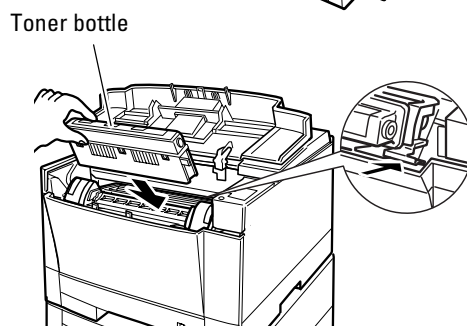
4. **Take out a new toner bottle from its envelope.**
5. **Fully shake the toner bottle two or three times.**



Periodic Routine Maintenance

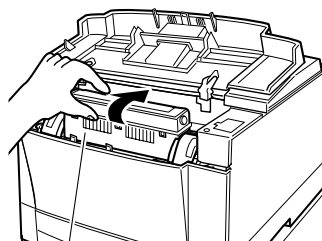


6. **Remove the plastic seal from the toner bottle.** Pull off the seal as gently as possible to avoid spilling toner. Handle the seal carefully to prevent staining your hands or clothes.



7. **Install the new toner bottle.** Slide the positioning guides on both sides of the toner bottle along the grooves of the print unit.

MAINTENANCE



8. **Lock the toner bottle.** While holding down the toner bottle, pull its top up then push it backward until it clicks into place.

Toner bottle

9. **Close the upper cover.**



Caution:

Do not remove the toner bottle from the print unit until all the toner has been used in order to avoid scattering toner inside the printer when replacing it.



Periodic Routine Maintenance

Replacing the Print Unit

The print unit life is designed to last about 40,000 pages of 5% coverage continuous printing on A4 paper or about one year after unpacking, whichever comes first. The print unit life depends on print coverage, paper type, and operating and/or storage conditions. The print unit life may end in the following cases:

- when toner smudges the background of printing
- when an image of the previous page ghosts on the next page
- when dropouts occur

Avoid unnecessary high coverage printing to maintain the print unit performance.

For the print unit life, this printer indicates the near end of life only. The printer message display begins indicating **REPLACE PARTS** when the print unit can print 3000 to 5000 more pages left. Prepare a new print unit if you notice this indication.

Even if the print unit reaches its near-end-of-life, use the print unit until its toner runs out (the message display indicates **TONER EMPTY**) for economy. After replacing the print unit, be sure to clear the **REPLACE PARTS** message by using the control panel. For control panel operations, see the end of this section.



Warning:

- Do not put the print unit into a fire. Especially, if the print unit with a toner bottle attached is put in a fire, toner powder may scatter and cause a burn.
 - Put the waste print unit in a carton box or PVC bag and dispose of it as a nonflammable item.
 - Be careful not to get toner in your eyes or mouth. If toner sticks to your hand during replacement of the print unit, wash it away promptly. Should you drink it by accident, consult your doctor promptly.
 - Keep print units out of reach of children to prevent them from drinking toner by accident. Should anybody drink it, consult your doctor promptly.
-



Periodic Routine Maintenance



Important:

The quality of print units is assured about two years after production under unpacking conditions.



Caution:

The print unit is very sensitive to light. When shaking the unit to make toner uniform or replacing the unit, note the following:

- Do not expose the print unit to direct sun light or strong light (about 1,500 luxes or more). Do not leave it even under ordinary room light for five minutes or more.
- Do not expose the drum to light.

MAINTENANCE

When replacing the print unit, be sure to replace the toner bottle too. It is better to perform the following set of procedures when replacing the print unit:

- Remove the old print unit. (Never detach the toner bottle from the print unit before removing the print unit from the printer.)
- Clean the paper path.
- Clean the transfer charger wire.
- Install the new print unit, then the new toner bottle.



Caution:

Do not return the toner remaining in the old print unit to the toner bottle to reuse the toner for the new print unit. It may cause a printing trouble because such toner contains harmful foreign matters like paper particles. Be sure to replace the old print unit with the toner bottle mounted.

The following sections describe these procedures in the order listed.



Periodic Routine Maintenance

Removing the Print Unit

Perform this procedure in the following cases:

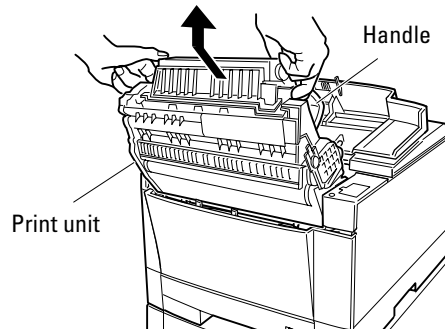
- To replace the print unit
- To work inside the printer for more than three minutes. (Store the print unit in a clean, dark place.)



Caution:

Be sure that the printer is turned off before beginning.

To remove the print unit, follow these steps:



1. Open the upper cover.

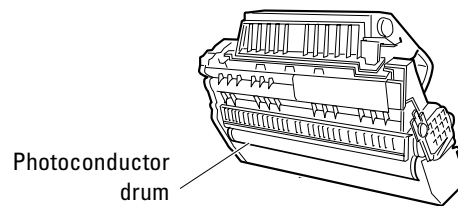
2. Remove the print unit.

Hold the left and right handles (green labels) at the top of the print unit and gently lift the print unit at a 45° angle toward the front of the printer.



Caution:

- Remove the print unit with the toner bottle attached.
- When placing the print unit after it is removed from the printer, be careful not to hit the surface of the photoconductor drum (green part) to other components.



- Place the removed print unit with the front side in the above figure facing down to avoid spilling toner. Do not place it upside down.
- Never hold the toner bottle to remove the print unit, or the print unit may fall off the toner bottle.



Periodic Routine Maintenance

Cleaning the Paper Path

Clean the paper path:

- When replacing the print unit
- When printouts show toner smudging
- When back or edges of paper are stained
- After clearing a paper jam
- When printing wider paper after continuously printing narrow paper

MAINTENANCE

Clean the paper path also every month to keep the printer in good condition and permit it to keep clear printing.

If necessary to clean the outside of the printer, clean the surface of the printer cover with a cloth well squeezed after wet with water or a diluted neutral detergent. Thereafter, wipe with a soft dry cloth.



Warning:

- Before starting to clean the printer, be sure to turn off the power switch and disconnect the power plug from the outlet.
- Cleaning the printer with the power switch on may cause a burn or electric shock.
- The inside of the printer is very hot immediately after the printer power is turned off. After the power switch is turned off, wait for about 10 minutes to allow the inside temperature to decrease.



Caution:

- Do not use any substance other than water and neutral detergents. Using a volatile solvent like benzene or thinner may discolor or deform the cover.
- Oil is not required. Do not oil the printer.



Periodic Routine Maintenance

To clean the paper path, follow these steps:

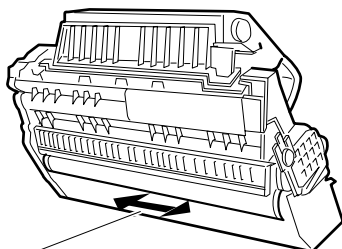


Caution:

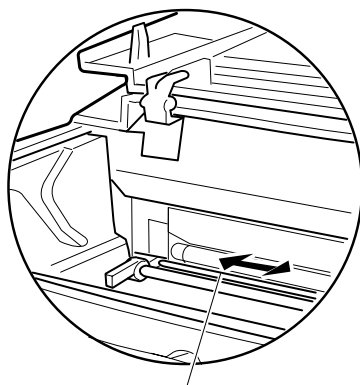
If the print unit is still installed, complete this procedure quickly. You should avoid exposing the photoconductor drum to light for more than five minutes.

If you think you need more time, remove the print unit and store it in a clean, dark place or cover it with clean paper. To remove the unit, see the preceding section **Removing the Print Unit**.

Never touch or scratch the green drum surface.



Underside the print unit



Guide of the transfer unit

1. **Open the upper cover and remove the print unit.**
2. **Clean the paper path.**
 - Check the inside of the printer, the underside of the print unit, and the guide of the transfer unit for spilled toner.
 - If spilled toner is found, remove it with a dry or well-squeezed cloth. Be careful not to damage the surface of the photoconductor drum in the print unit or not break the transfer charger wire.



Periodic Routine Maintenance

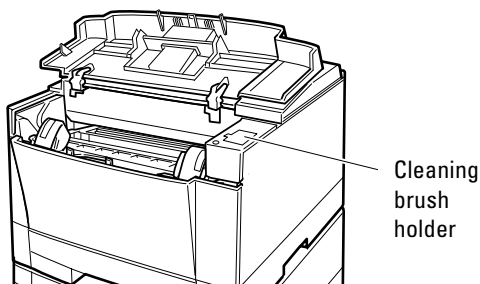
Cleaning the Precharger Wire

The precharger wire is on the print unit. Normally you should not need to clean this wire. However, the following conditions may indicate that the wire needs cleaning:

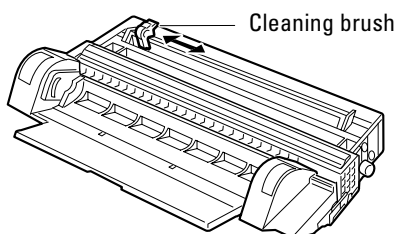
- Print density is uneven.
- Your printed pages have dark vertical lines.
- Cleaning the transfer charger wire does not solve the problem.

Use the cleaning brush supplied with the printer. This L-shaped tool has two cleaning pads: one for the precharger wire and the other for the transfer charger wire inside the printer. Use the pad on the longer branch marked “P” in the depression. To clean the precharger wire, follow these steps:

MAINTENANCE



1. **Open the upper cover of the printer.** You can find the cleaning brush at the front right top of the printer.
2. **Remove the print unit from the printer.** Place the unit on a level, steady place.



3. **Clean the wire.** Position the tool as shown in the figure, then gently slide it left and right two or three times along the length of the wire to remove any toner or other particles. Be careful not to break the wire.



Caution:

- Avoid exposing the drum to light for more than five minutes.
- Do not touch or scratch the drum surface.
- Never use other things than the cleaning brush attached.



Periodic Routine Maintenance

Cleaning the Transfer Charger Wire and Separator Needles

The transfer charger wire is located in the slender metallic housing on the base frame inside the printer.

Perform this procedure:

- When replacing the print unit
- When the printout shows vertical white lines
- When printing is too light

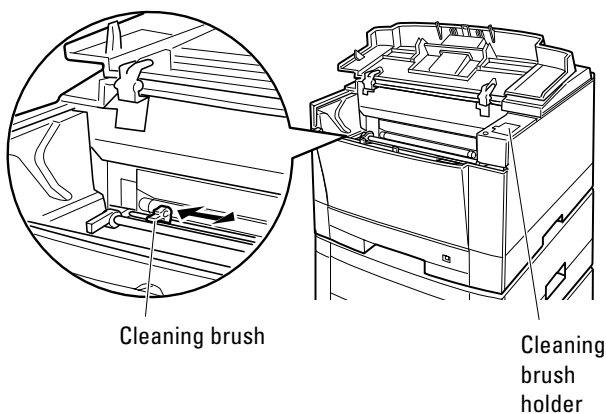


Caution:

You should avoid exposing the photoconductor drum to light for more than five minutes.

Be careful not to break the transfer charger wire.

Use the cleaning brush supplied with the printer. This L-shaped tool has two cleaning pads: one for the transfer charger wire and the other for the precharger wire inside the print unit. Use the pad on the shorter branch marked "T" in the depression.



1. **Open the upper cover of the printer.** You can find the cleaning brush at the front right top of the printer.
2. **Remove the print unit from the printer.** Place the unit on a level, steady place.
3. **Clean the wire and the separator needles.** Fit the positioning cut onto the wire housing frame, then gently slide the tool left and right two or three times along the length of the wire to remove any dirt or other substance.



Caution:

Never use other things than the cleaning brush attached.

After cleaning is finished, return the cleaning brush to its holder.



Periodic Routine Maintenance

Installing the New Print Unit



Caution:

To avoid exposing the photoconductor drum to light or contamination, follow these guidelines:

- Do not remove the print unit from its envelope until you are ready to install it.
- Complete the procedure as quickly as possible to avoid exposing the drum to light for more than five minutes.

To avoid damaging the drum:

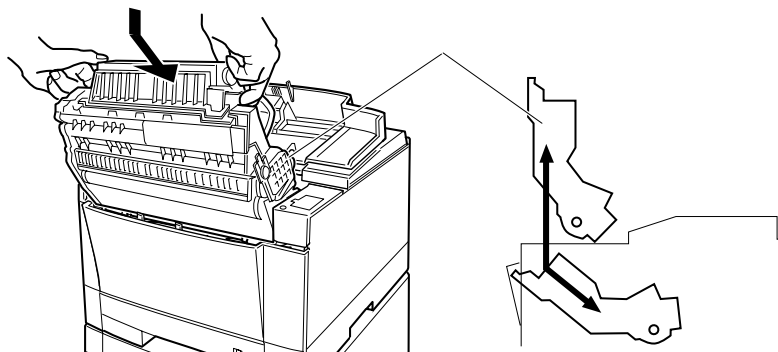
- Be sure to remove the plastic sheets after installing the print unit. Operating the printer without removing the sheets will make the print unit unusable.
- Never touch or scratch the green drum surface.
- Be careful not to allow dust or foreign matters into the toner hopper.

MAINTENANCE

To install the new print unit, follow these steps:

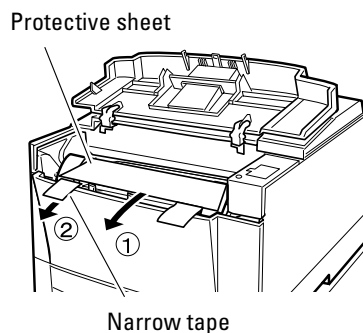
1. **Remove the print unit from its envelope.** Place the unit on a level, steady place.
2. **Put the print unit into the printer.** Hold the print unit by the left and right handles at the top of the print unit with the green drum surface facing you.

First, lower the print unit straight down while sliding the ends of the drum shaft along the grooves on the sides of the printer. Then, slide the print unit at a 45 degree angle toward back of the printer.





Periodic Routine Maintenance

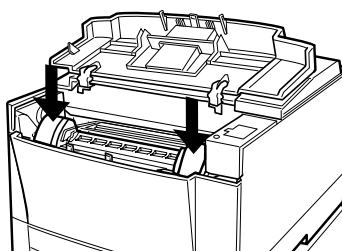


3. Remove the protective materials from the print unit. Peel off the center yellow tape, pull the portion marked "REMOVE THIS ①" to remove protective sheet ①, and gently pull transparent narrow tape ② toward the right and you until the "END" mark is visible and remove the tape.



Caution:

Never turn on the printer before removing tape ②.



4. Seat the print unit in place. Press down gently on the left and right portions marked PUSH until the print unit is positioned in place.

When handling the print unit, never allow its green surface to touch anything, since it can be easily scratched.



Caution:

If you do not proceed to the next step immediately, close the printer's upper cover to protect the photoconductor drum from light.

After you have installed the print unit, install the toner bottle. See **Replacing the Toner Bottle** described previously in this chapter.

Close the printer's upper cover. Press down the upper cover until it clicks shut. Reconnect the power cord and turn on the printer. Be sure to clear the "REQUEST PARTS" message.

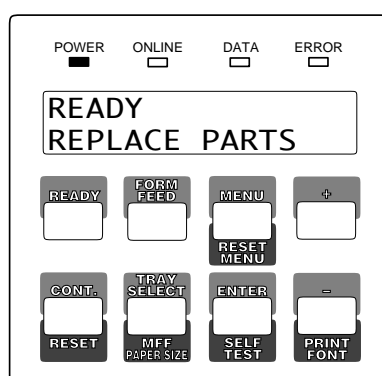


Clearing the “REPLACE PARTS” Message

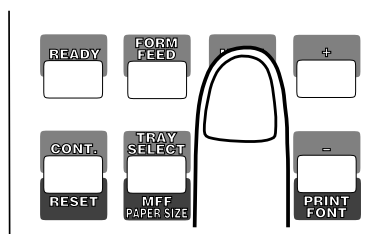
Perform this operation whenever you have replaced the print unit, or the printer continues displaying the warning message “REPLACE PARTS”. Never perform this operation without replacing the print unit, or the message is not displayed at the end of service life.

To clear the “REPLACE PARTS” message, follow these steps:

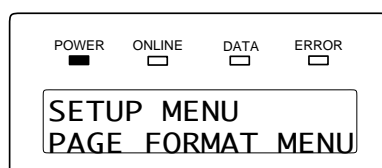
MAINTENANCE



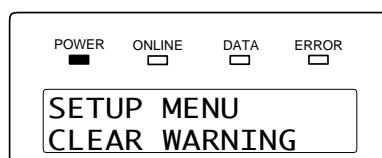
1. Make sure the printer is offline. If necessary, press the **READY** button to put the printer offline. The ONLINE indicator is off with the REPLACE PARTS message displayed.



2. Press the **MENU** button to put the printer in menu mode.



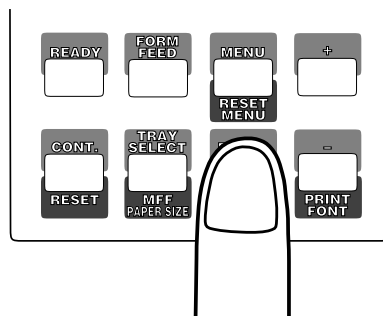
The message changes to
SETUP MENU PAGE
FORMAT MENU.



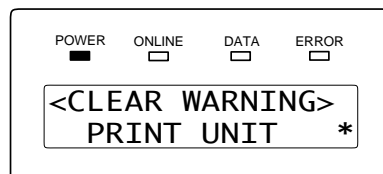
3. Press the **MENU** button repeatedly until the lower message changes to CLEAR WARNING.



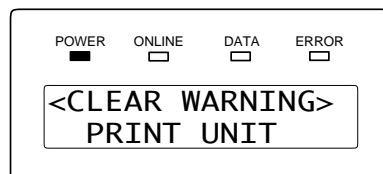
Periodic Routine Maintenance



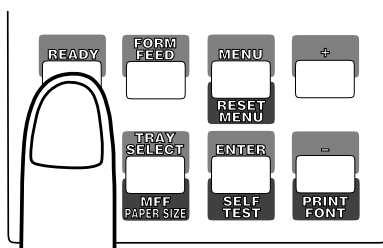
4. Press the **ENTER** button to select this function.



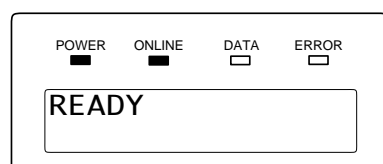
The message changes to **<CLEAR WARNING> PRINT UNIT ***. The asterisk means that the print unit is expired.



5. Press the **ENTER** button again to perform the function. The asterisk disappears from the message, indicating the counter is reset.



6. Press the **READY** button to return the printer online.



The ONLINE indicator lights up without the **REPLACE PARTS** message.



Important:

After the reset operation, check the status report to make sure that the Warning Message is cleared.





Periodic Routine Maintenance

Handling and Storing Print Units with Toner Bottles

This section provides notes on handling or storing print units with toner bottles.

Notes on Handling

When handling a print unit, note the following:

- Do not expose the print unit to the direct sun light or strong light.
- Do not leave the print unit even under room light for five minutes or more.
- If the print unit is removed from the printer, put it in its original black bag for avoiding strong light, or wrap it in dust-proof paper or cloth.
- If the print unit is moved from a cold area to a warm area, leave it for one hour or more under room temperature before use.
- Do not place the print unit upright or upside down.
- Once a toner bottle is attached to the print unit, do not swing the unit strongly or do not give it shock. Toner may spill.
- Do not touch the green surface of the photoconductor drum.

MAINTENANCE

Notes on Storage

When storing a print unit, note the following:

- Do not unpack the print unit until it is actually used. If it is unpacked accidentally, put it back in the original black bag and store it.
- Store the print unit under the following environment free of the direct sun light:
 - Temperature range: 0 to 40°C
 - Humidity range: 20 to 80% RH (no condensation)
- Do not store the print unit at a high temperature and humidity environment.
- Do not store the print unit upright or upside down.
- Do not store the print unit near a magnetized component such as a CRT screen, hard disk drive, or floppy disk.
- Keep the print unit out of reach of little children.



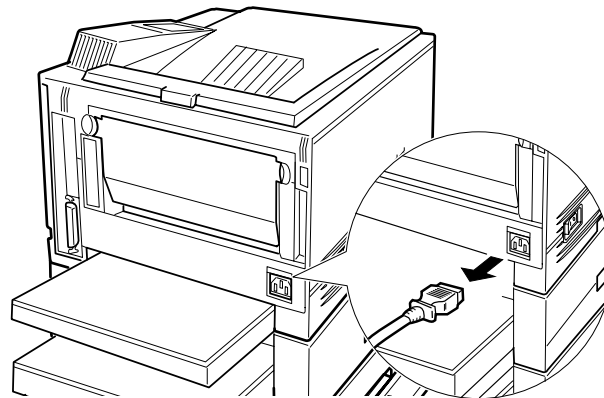
Stopping the Printer for a Long Time

Stopping the Printer for a Long Time

When you will not use the printer for one week or more, turn off the power switch and disconnect the power plug from the outlet. Also, remove paper from the multi-function feeder and paper tray, and store it in an environment with less humidity and dust.

1. **Check that the printer power is off and disconnect the power cord.** Check that the printer power is off (the power switch is pressed on the “O” side). Disconnect the power cord from the outlet.

Disconnect the power cord also from the connector on the back of the printer.



Important:

If an error message is displayed, act properly by referring to “Error Indications” in Chapter 5, then turn off the printer power.

2. **Remove paper.** Remove paper from the multi-function feeder and paper tray, and store it in an environment with less humidity and dust.



Important:

For storage of paper, see “Paper Storage” in Chapter 2.



Moving the Printer

Moving the Printer



When transporting or moving the printer, note the following:

Warning:

The printer weighs about 27 kg excluding options and paper. Two or more persons are required to carry it. When lifting the printer, one person must firmly hold the bottom of the printer by both hands on the left and right sides viewed from the front (control panel side). Simultaneously, another person must hold the printer on the opposite side in the same way. Never hold any part other than the bottom to lift the printer. The printer may drop and hurt workers.

MAINTENANCE



Caution:

When moving the printer in which an optional paper feeder is installed, remove the paper feeder in advance. Pack the printer and paper feeder properly in advance so that they are not damaged during transportation. It is recommended to keep the original packing materials if it is anticipated that the printer be transported for a long distance in the future.

Moving the Printer Nearby

When replacing the desk on which the printer is mounted or moving the printer to the next room, follow the procedure below:



Moving the Printer

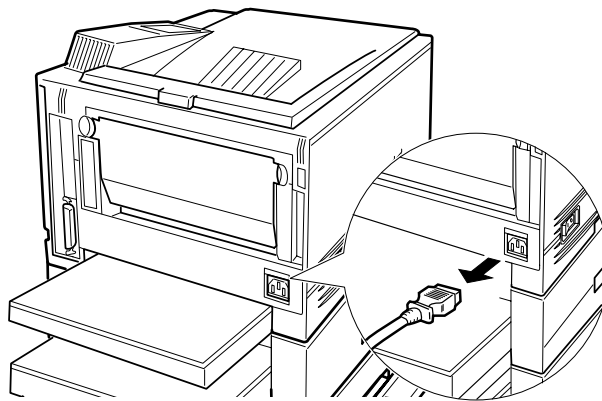
1. **Check that the printer power is off and disconnect the power cord.** Check that the printer power is off (the power switch is pressed on the “O” side). Disconnect the power cord from the outlet.

Disconnect the power cord also from the connector on the back of the printer.

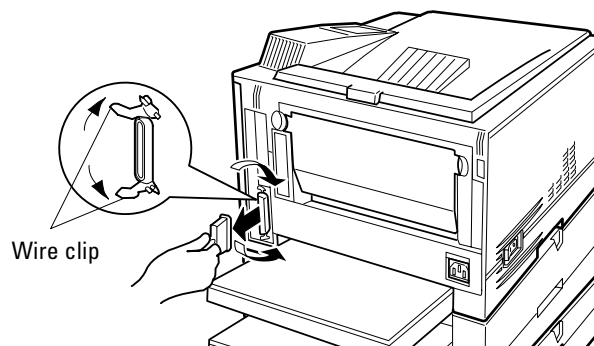


Important:

If an error message is displayed, act properly by referring to “Error Indications” in Chapter 5, then turn off the printer power.



2. **Disconnect the interface cable.** Disconnect the interface cable from the connector on the printer.





Moving the Printer

3. **Remove paper.** Remove paper from the multi-function feeder and paper tray, and store it in an environment with less humidity and dust.



Important:

For storage of paper, see “Paper Storage” in Chapter 2.

4. **Remove the print unit.** Open the upper cover and remove the print unit. (See “Replacing the Print Unit and Internal Cleaning” in this chapter for information on how to remove the print unit.)

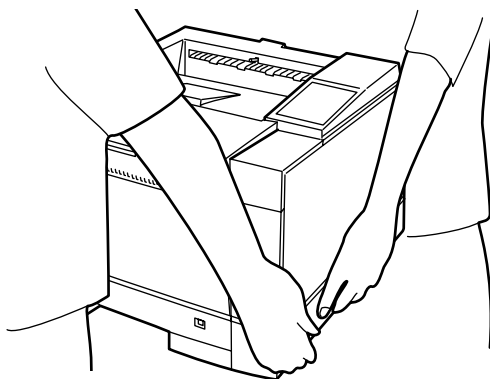


Caution:

- If the printer is moved with the print unit (including the toner bottle) installed, toner may scatter inside the printer.
- Do not swing the print unit after removal. Toner may spill.
- Put the removed print unit in its original black bag for avoiding strong light, or wrap it in dust-proof paper or cloth.

5. **Move the printer.** Two persons are required to move the printer. Move it carefully.

6. **Mount the printer at a proper place.**



Important:

For the procedure for mounting the printer at another place, see “Setting Up” in Chapter 1.

MAINTENANCE

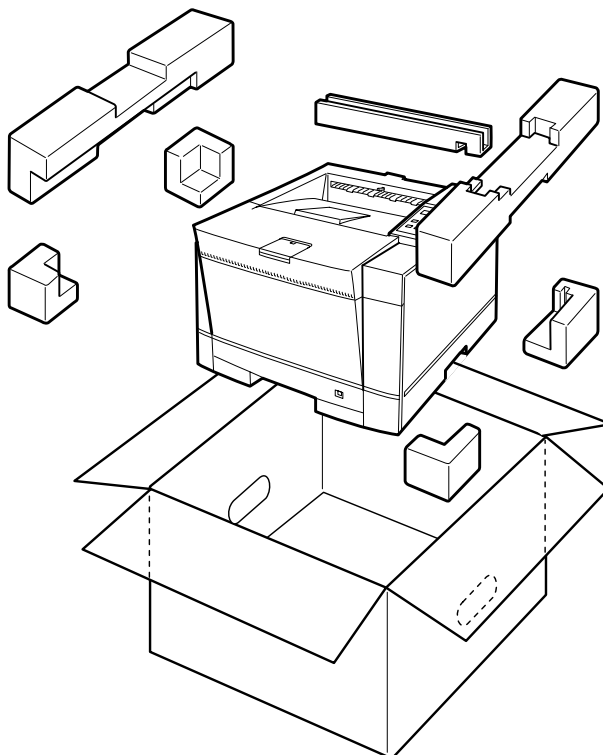


Repacking and Transporting the Printer

Repacking and Transporting the Printer

When transporting the printer, remove the attached components and repack them. Follow the procedure below:

1. **Remove the detachable components.** Remove the detachable components in accordance with steps 1 to 4 in “Moving the Printer Nearby.”
2. **Repack the components.** Repack the printer and components as shown in the figure below. The printer is a precision machine. Therefore, handle it carefully while observing the following. Also, refer to “Handling and Storing the Print Unit” in this chapter.
 - Repack the printer and components with the packing materials used when it was purchased. Seal the bag with tape.
 - Do not fail to remove the print unit from the printer. (Do not remove the toner bottle from the print unit.) Put the removed print unit in a PVC bag and transport it.





CHAPTER

5

Solving Problems

Although this printer is designed to be highly reliable, you may occasionally experience problems. The most common problems are paper jamming and poor print quality. This chapter helps you to identify the cause of the problem and suggests solutions. For detailed procedures, see Chapter 4, **Maintenance**.

**SOLVING
PROBLEMS**

This chapter is divided into five sections:

- *Common Problems.* Start here if the printer doesn't function properly. You may save yourself a service call.
- *Clearing Paper Jams.* This section explains how to locate and clear paper jams.
- *Print Quality Problems.* Check here if the printed pages don't look as they should.
- *Error Indications.* The printer has self-diagnostic tests for a variety of hardware and interface problems. If a test indicates a problem, the printer displays it on the control panel. This section explains these error conditions.
- *Printer Status Indications.* These statuses are not error conditions. Most of them require no action by you. However, explanations are included here for your information.



Caution:

During solution of a problem, do not touch any connector contacts to avoid possible electrostatic damage to the printer.



Common Problems

Common Problems

Even if you suspect that the printer has failed, it often turns out that there is no trouble.

When you suspect that the printer has failed, check the items listed below.

What happened?	Typical case	What to investigate
<ul style="list-style-type: none">• Power cannot be turned on.• Power is turned off soon after power-on.	<ul style="list-style-type: none">• Power cord is disconnected• Power failure• Outlet malfunction.• Voltage mismatch.	<ul style="list-style-type: none">• Insert the power cord completely and check that the power is turned on.• Check that other electric products operate.• Check the voltage at the outlet.* See “Connecting the Power Cord” and “Turning Power On/Off” in Chapter 1.
<ul style="list-style-type: none">• No print operation.	<ul style="list-style-type: none">• The printer power is not turned on.• The Interface cable is disconnected.• Not in the online state.	<ul style="list-style-type: none">• Check to see if the Interface cable is not disconnected.• Check that the [online] indicator lights and the “READY” message is displayed.* See “Turning Power On/Off” and “Connecting the Printer to Your Computer” in Chapter 1.
<ul style="list-style-type: none">• The control panel sometimes malfunctions.	<ul style="list-style-type: none">• You did not press the switch positively.	<ul style="list-style-type: none">• Press the center of the switch firmly.
<ul style="list-style-type: none">• There is abnormal sound.	<ul style="list-style-type: none">• There is foreign matter, such as paper particles, clips, etc. inside the printer.• Incomplete seating of the paper tray.	<ul style="list-style-type: none">• Inspect the internal sections of the printer.• Seat the paper tray completely.* See “Loading Paper in the Paper Tray” in Chapter 1 and “Clearing Paper Jams” in this chapter.



Common Problems

What happened?	Typical case	What to investigate
<ul style="list-style-type: none">Paper is slanted, broken, or jammed.	<ul style="list-style-type: none">Paper is not loaded and aligned correctly.Unsuitable paper is used.Printer is not leveled.	<ul style="list-style-type: none">Investigate the paper or printer conditions and take a proper action.<ul style="list-style-type: none">* See “Picking a Suitable Location” and “Loading Paper in the Paper Tray” in Chapter 1. See “General Precautions and Paper Storage” in Chapter 2.
<ul style="list-style-type: none">Two or more sheets are fed.	<ul style="list-style-type: none">Sheets of paper are stuck together.	<ul style="list-style-type: none">Loosen sheets of paper or transparencies well.For labels, set one by one to print on them.<ul style="list-style-type: none">* See “Loading Paper in the Paper Tray” in Chapter 1.
<ul style="list-style-type: none">Paper jam occurred.	<ul style="list-style-type: none">Sheets of paper are liable to stuck together.Paper is not loaded and aligned correctly.Unsuitable paper is used.Printer is not leveled.	<ul style="list-style-type: none">Investigate the paper or printer conditions and take a proper action.<ul style="list-style-type: none">* See “Picking a Suitable Location” and “Loading Paper in the Paper Tray” in Chapter 1. See “General Precautions and Paper Storage” in Chapter 2 and “Clearing Paper Jams” in this chapter.
<ul style="list-style-type: none">Paper tray cannot be drawn out.	<ul style="list-style-type: none">Power is turned off during printing.Paper jam occurred.	<ul style="list-style-type: none">Several seconds after turning the power off (place the power switch to the “O” position), turn the power on (place the power switch to the “ ” position).Investigate conditions as appropriate and take a proper action.<ul style="list-style-type: none">* See “Turning Power On/Off” in Chapter 1 and “Clearing Paper Jams” in this chapter.

SOLVING
PROBLEMS



Common Problems

What happened?	Typical case	What to investigate
<ul style="list-style-type: none">• Back side of paper is smeary.	<ul style="list-style-type: none">• The paper transport passage inside the printer is contaminated.	<ul style="list-style-type: none">• Make test print on several sheets of paper and determine whether the contamination has been eliminated by observing how smearing is reduced.* See “Cleaning the Paper Path” in Chapter 4 and “Cleaning the Fuser Unit Rollers” in Chapter 5.
<ul style="list-style-type: none">• Light print.• Missing characters.• There are smears on the output paper.	<ul style="list-style-type: none">• The print units are not set correctly.• The life of the print units is terminated.• Unsuitable paper is used.• Fusing roller is contaminated.• Economy mode is on.	<ul style="list-style-type: none">• Investigate conditions as appropriate and take a proper action.* See the cleaning related sections in “Replacing the Print Unit” in Chapter 4 and “Print Quality Problems” in this chapter.• Turn off economy mode or make the print density darker.
<ul style="list-style-type: none">• An error message is displayed and print is not performed.		<ul style="list-style-type: none">• Investigate conditions as appropriate and take a proper action.* See “Error Indications” in this chapter.
<ul style="list-style-type: none">• Print is interrupted and nonsense characters are printed.	<ul style="list-style-type: none">• Interface cable is not connected securely.• The personal computer processing time is longer than port switching time.	<ul style="list-style-type: none">• Check to see if the Interface cable is connected securely.• Set the port switching time longer or off (I/O timeout in Config menu).* See “Connecting the Printer to Your Computer” in Chapter 1 and “Menu Functions” in Chapter 2.

Clearing Paper Jams

The printer has sensors to detect paper jams. If a jam occurs, the ERROR indicator lights and the printer displays it on the message display. The message is **PAPER JAM n** (*n*: 0 to 4 indicating the jam location). Because the paper path is short and simple, you should have no problem locating the jam.

- n = 0: Paper tray
- n = 1: Print unit
- n = 2: Fuser unit
- n = 3: Eject rollers
- n = 4: Duplex unit

In this situation, all switches are disabled. Remove the paper jam according to the procedure explained below. After the paper jam is removed and the cover is closed, the error message disappears and the printer turns online.

If “On” is selected in advance for “Jam recovery” in “FPS menu” in setup mode, the printer resumes printing from the page where the paper jam occurred.

SOLVING
PROBLEMS



Important:

- If an error message remains displayed even after a paper jam is removed and the cover is closed, paper has not been removed completely. Check it again, and remove jammed paper completely.
- If a paper jam occurs, open and close the upper cover at least once.
- Remove paper carefully lest it be broken.



Warning:

- When removing a paper jam or acting for fault recovery, be careful not to get your necklace or necktie caught by the internal printer mechanism. It may hurt you.
- When removing a paper jam or acting for fault recovery, be careful not to touch projections in the printer. It may hurt you.
- When removing a paper jam, remove the paper entirely and leave no paper scraps in the printer. Paper scraps, if left in the printer, may cause a fire. If paper winds up the fuser or roller, do not force to remove it but call your dealer.



Clearing Paper Jams



Caution:

Clear paper jams quickly to avoid problems with the fuser unit.

Do not touch or scratch the green drum surface when clearing the paper jam.

Be careful not to expose the drum of the print unit to light for more than five minutes.

Take special care when removing a jam from the transfer unit to avoid damage to the corona wire.

Preventive Measures for Paper Jams

To prevent paper jams, observe the following:

- Install the printer on the level.
- Use adequate paper.
- Load paper properly into the paper tray or multi-function feeder.
- Use paper without curls.
- Push the paper tray completely to the bottom.

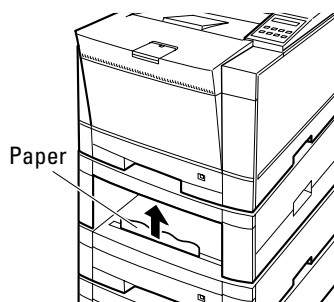
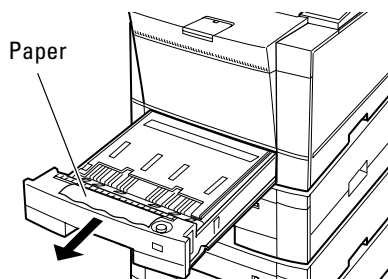
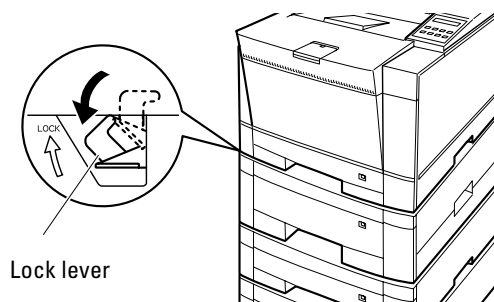


Clearing Paper Jams

Paper Jams in a Paper Tray

Procedures for clearing paper jams are common to the standard paper tray and optional second to fourth paper trays except step 1. The following procedure is for the second paper tray.

To clear a paper jam, follow these steps:



1. **Unlock the lock lever of all feeder units.** Push down the lock lever at the left side of each paper tray to release feed roller engagement.
2. Pull off paper tray 1 or the duplex unit about half way from the printer.
3. Remove the jammed sheet in paper tray 1 or the duplex unit. (Example: duplex unit)
4. Pull out paper tray 1 or the duplex unit completely from the printer.
5. Remove the jammed sheet from the lower feeder unit. If the jammed sheet is juttred out from the lower feeder unit, pull it gently.
6. Repeat these steps for tray 2 and 3 in order.

SOLVING
PROBLEMS



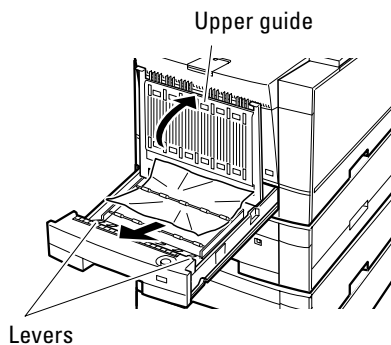
Clearing Paper Jams

7. Return all paper trays or duplex unit to the original position.
Push each all the way until it is stopped.
8. Return all the lock levers to the lock position.

Paper Jams in the Duplex Unit

To clear a paper jam in the duplex unit, follow these steps:

1. Pull out the duplex unit until the rear edge of its upper guide is visible.
 - It may be hard to pull out the duplex unit when the second, third, or fourth paper feeder was in use. In this case, release the lock lever at the left side of the paper feeder and pull out the duplex unit until the far end of the upper guide is seen..
 - Even after the lock lever of each paper feeder is released, the duplex unit may not be pulled out if paper is caught between a lower paper tray and the printer. If so, remove jammed paper in accordance with the procedure in “Paper Jams in the Paper Path (under the Print Unit)” later in this section.



2. Open the upper guide and remove the jammed sheet. Pull the two levers at both sides of the duplex unit towards you to unlock the upper guide. While holding the green lever at the right of the upper guide to open the upper guide and remove the sheet.

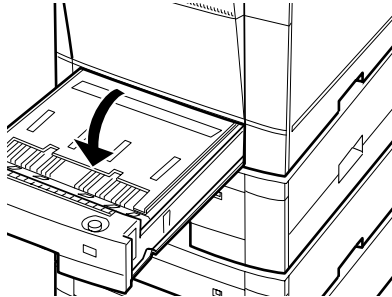



Caution:

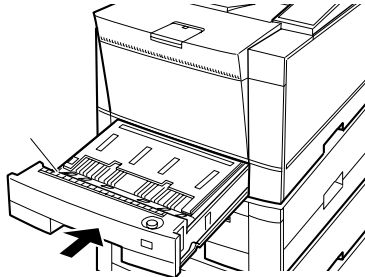
While removing the jammed paper, be sure to hold the upper guide of the duplex unit open so that it cannot fall down toward you and catch you on your fingers.



Clearing Paper Jams



3. **Close the upper guide.**
Gently push the left and right portions marked  until the two levers are locked.



4. **Return the duplex unit.**
5. **Be sure to return the lock lever to the original lock position if it is released.**

SOLVING
PROBLEMS

Paper Jams in the Paper Path (from the Print Unit to the Fuser Unit)



Caution:

Do not touch or scratch the green drum surface when clearing the paper jam.

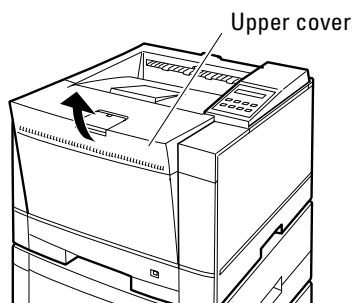
Be careful not to expose the drum of the print unit to light for more than five minutes.

Take special care when removing a jam from the transfer charger unit to avoid damage to the transfer charger wire.

To clear a paper jam under the print unit, follow these steps:



Clearing Paper Jams

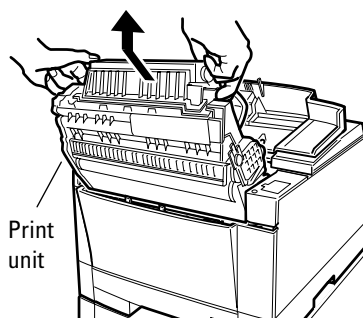


1. Open the upper cover.



Caution:

In this stage, do not pull out the first cassette or the duplex unit.



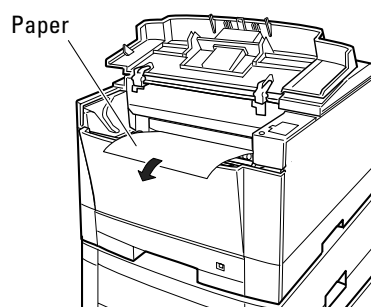
2. Remove the print unit.

Hold the left and right handles at the top of the print unit and pull the print unit at a 45° angle toward the front of the printer. Gently place the print unit on a level surface without dust and foreign matters. Cover the photoconductor drum with paper to shield from light.



Caution:

Never hold the toner bottle to remove the print unit. It causes the print unit to fall off the toner bottle.

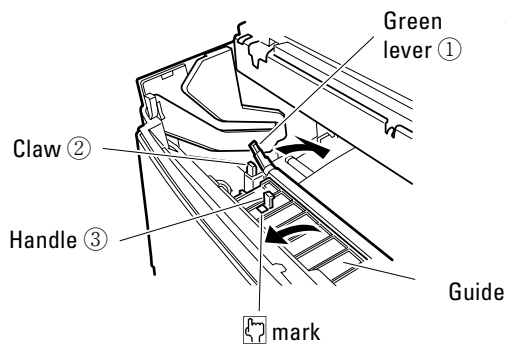


3. If the jammed sheet is juttred out from the fuser unit, remove it gently.

If you cannot hold the jammed sheet, remove the paper eject unit from the rear of the printer and remove the jammed sheet.



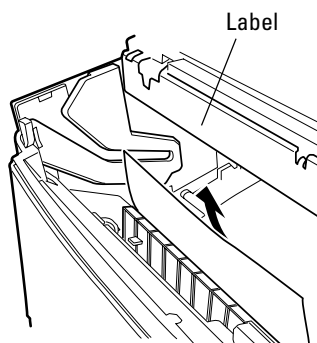
Clearing Paper Jams



4. Open the paper guide toward you.

- Raise the two green levers ① at both ends of the roller inside the printer.
- Push the two green claws ② of the paper guide toward the rear of the printer to unlock the paper guide.
- Pull the two handles ③ marked with a hand icon toward you to open the paper guide. Do not touch the black toner sensor provided in the center of the paper guide.

SOLVING
PROBLEMS



5. Remove the jammed sheet upward.



Warning:

Do not touch the heat roller of the fuser. This hot area may burn your hand. See the label attached to the frame under the upper cover.



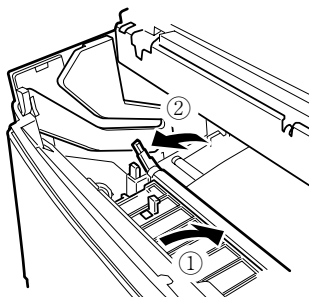
Caution:

Clear paper jams quickly to avoid problems with the fuser unit.

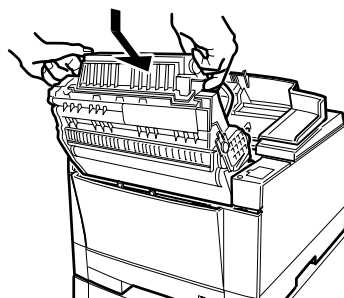




Clearing Paper Jams



6. **Close the paper guide.**
Push the paper guide ① toward the rear of the printer and press it down until the two green claws at both ends of the guide are locked. Then, pull the green levers ② at both ends of the roller toward you and press it down to lock them.

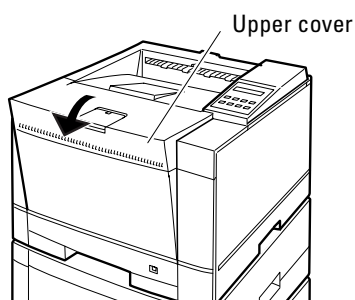


7. **Install the print unit.** Hold the handles at both top ends of the print unit with the photoconductor drum facing you.
 - Gently slide the print unit down along the grooves at both sides of the printer inside.
 - Gently press the top of the print unit down to seat it in place.



Caution:

If the print unit is hard to install, make sure that the green levers be returned to the original positions (see the preceding step 5).



8. **Close the upper cover.**
Before closing it, make sure the print unit is in place.



Clearing Paper Jams

Paper Jams in the Paper Path (in the Paper Eject Unit)

To clear a paper jam in the fuser unit, follow these steps:



Warning:

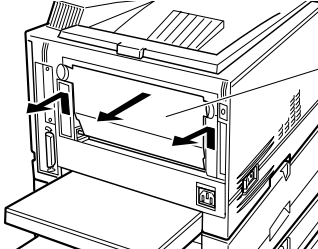
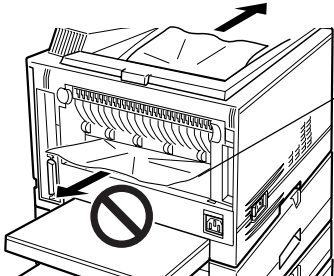
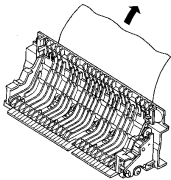
Do not touch the heat roller. This hot area may burn your hand. See the label attached to the frame under the paper eject unit.

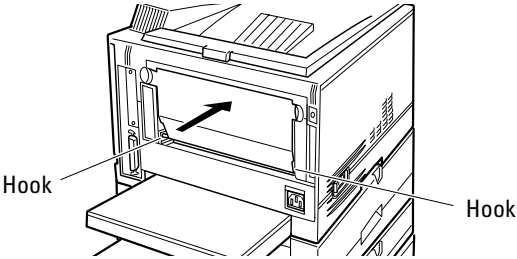


Caution:

Clear paper jams quickly to avoid problems with the fuser unit.

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- 1. **Remove the paper eject unit.** Hold the depressions at both ends of the paper eject unit and lift and pull it out toward you.
- 2. **Remove the jammed sheet from the paper eject unit or from the face-down stacker (paper eject rollers).**

Jammed sheet jutting out the fuser unit should be removed from the front side of the printer unless it is impossible (see the previous section).
- 3. **Return the paper eject unit.** Hold the depressions at both ends of the paper eject unit and push it in along the guides at both ends of the printer until it clicks.

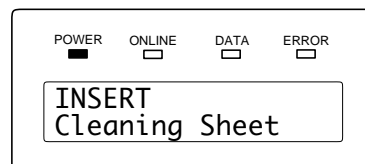
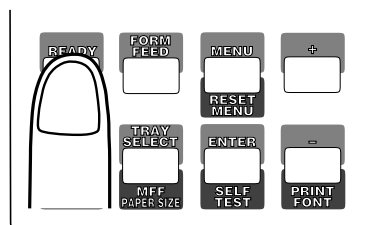
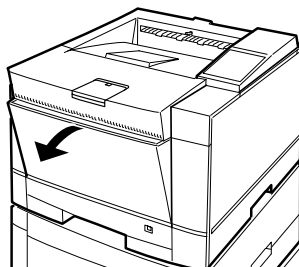
Make sure that the unit is caught by the hooks under the near end of the unit.



Clearing Paper Jams

Cleaning the Fuser Unit Rollers

After clearing a paper jam in the fuser unit, clean the rollers in the unit using the cleaning sheets supplied with the printer. To clean the fuser unit rollers, follow these steps:

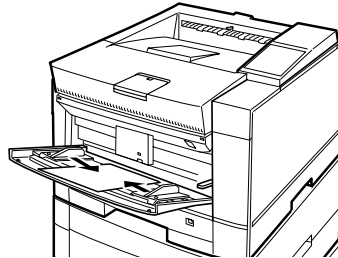


1. Turn off the power switch.
2. Open the front door. Pull down the front door toward the front of the printer. If it is open, make sure that no sheets of paper are not loaded on the MFF.
3. Push the operation lever up. Push up the lever located at the right of the multi-function feeder.
4. Set the fuser unit cleaning mode. While pressing down **READY**, turn on the power switch.

The message display indicates **INITIALIZE**, **WARMING UP**, then **INSERT Cleaning Sheet**.



Clearing Paper Jams



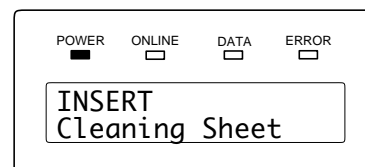
5. Set a cleaning sheet. Put a cleaning sheet widthwise on the base of the feeder and adjust the left and right slide guides to the width of the sheet.

The printer takes in the cleaning sheet, cleans the fuser unit rollers, and ejects the sheet.

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The printer waits for loading the next sheet.

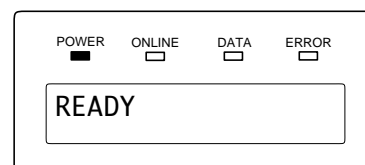
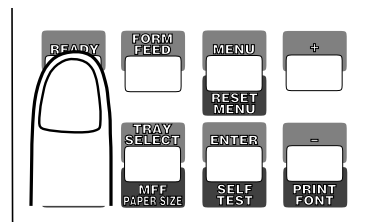


6. Repeat the cleaning two or three times.

7. Press **CONT.** to exit from cleaning mode.

The message display indicates INITIALIZE, WARMING UP, then READY.

8. Close the front door. Close the front door after the cleaning.



Important:

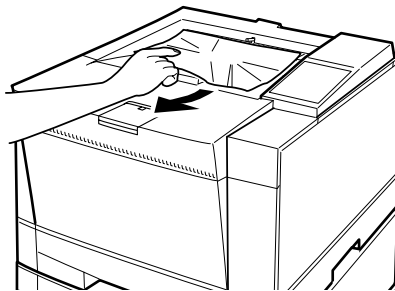
- In cleaning mode, the printer acts specially for cleaning. Therefore, do not load paper other than the cleaning sheet.
- The cleaning sheet is designed to be used several times. If it becomes dirty or wrinkled, use a new cleaning sheet.



Clearing Paper Jams

Paper Jams in the Paper Path (at the Eject Rollers)

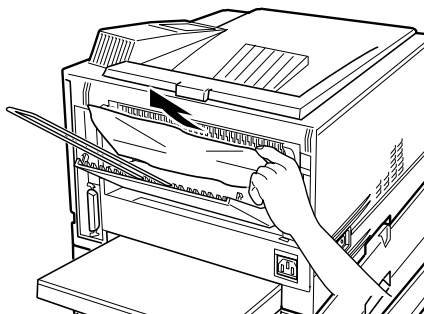
To clear a paper jam at the eject rollers from which paper is ejected to the face-down stacker, follow these steps:



1. **Remove the jammed sheet.** Gently pull out the jammed sheet not so as to remain pieces of paper in the printer.

Paper Jams in the Paper Path (in the Face-up Stacker)

To clear a paper jam in the face-up stacker, follow these steps:



1. **Remove the jammed sheet.** Gently pull out the jammed sheet not so as to remain pieces of paper in the printer.

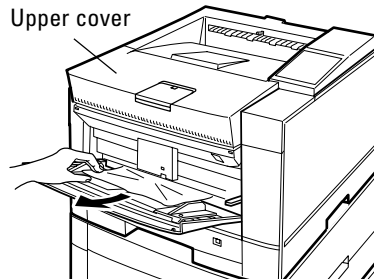
Paper Jams in the Multi-function Feeder

To clear a paper jam in the multi-function feeder, follow these steps:

1. **Push the operation lever down.** Push down the lever located at the right of the multi-function feeder.



Clearing Paper Jams



2. **Remove the jammed sheet.** Gently pull out the jammed sheet from the feeder's paper pick-up portion.

When the standard paper tray is installed, first pull it out about 5 cm, remove the sheet, then return the paper tray.

3. **Put new sheets of paper on the feeder.** If you want to continue printing, load sheets of paper and adjust the left and right slide guides to the width of paper.
4. **Push the operation lever up.** Push up the lever located at the right of the multi-function feeder.
5. **Clear the paper jam message.** Open and close the upper cover to clear the error message.

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PROBLEMS**

The table below contains advice on dealing with repeated paper feed problems.

Problem	Causes and solutions
Paper does not feed cleanly from paper tray	<p>Top edge of paper stack may be deformed (wavy or bent sheets). Try turning the paper stack around.</p> <p>Paper stack may not be aligned properly. Pull out the tray, straighten the paper stack against the paper guides, and re-insert the tray.</p> <p>Too many sheets in the paper stack. Make sure the stack is level with or below the limit mark on the left paper guide.</p> <p>The paper pressure plate may not be released. Pull out the tray and insert the tray again until it clicks up.</p>



Print Quality Problems

Print Quality Problems

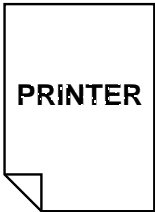
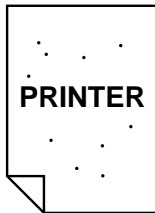
This section describes actions to be taken when print quality has deteriorated.

If all actions listed below are not effective in improving the print quality, or if an event other than listed below has occurred, contact your dealer. Be sure to clean the inside of the printer too whenever you take the following actions.



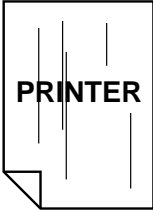
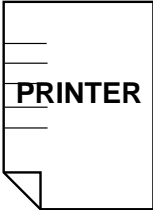
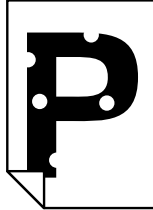
Warning:

Immediately after the printer is used, its inside is very hot. When handling the internal components of the printer, use great care not to touch the fuser unit. Touching the fuser unit may cause burns. See the labels attached to the frame under the paper eject unit and to the frame under the upper cover.

What happened?	Typical case	What to investigate
<ul style="list-style-type: none">• Light print• Blurred print• Not clear print• Uneven print darkness 	<ul style="list-style-type: none">• Paper is dampish.	<ul style="list-style-type: none">• Replace the paper with new one.
	<ul style="list-style-type: none">• Print density is not set properly.	<ul style="list-style-type: none">• Adjust the print density. See “Adjusting Print Density” in Chapter 1.
	<ul style="list-style-type: none">• The print unit is deteriorated or damaged.	<ul style="list-style-type: none">• Replace the print unit with new one. See “Replacing the Print Unit” in Chapter 4.
	<ul style="list-style-type: none">• No toner.	<ul style="list-style-type: none">• Replace the toner bottle with new one. See “Replacing the Toner Bottle” in Chapter 4.
<ul style="list-style-type: none">• Spotted print 	<ul style="list-style-type: none">• Corona wire is dirty.	<ul style="list-style-type: none">• Clean the wire. See “Cleaning the Transfer Charger Wire” in Chapter 4.
	<ul style="list-style-type: none">• Unsuitable paper is used.	<ul style="list-style-type: none">• Load proper paper. See “Paper Types and Sizes” in Chapter 2.
	<ul style="list-style-type: none">• The print unit is deteriorated or damaged.	<ul style="list-style-type: none">• Replace the print unit with new one. See “Replacing the Print Unit” in Chapter 4.



Print Quality Problems

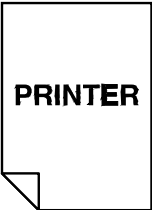

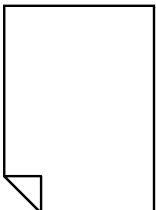
What happened?	Typical case	What to investigate
<ul style="list-style-type: none"> Vertical lines are printed. 	<ul style="list-style-type: none"> The print unit is deteriorated or damaged. Precharger wire is dirty. 	<ul style="list-style-type: none"> Replace the print unit with new one. See “Replacing the Print Unit” in Chapter 4. Clean the wire. See “Cleaning the Precharger Wire” in Chapter 4.
<ul style="list-style-type: none"> Horizontal lines appear at even intervals. 	<ul style="list-style-type: none"> Contamination is deposited to the paper transport passage inside the printer. The print unit is deteriorated or damaged. 	<ul style="list-style-type: none"> Make several sheets of test print and determine whether the contamination has been eliminated by observing how smearing is reduced. Replace the print unit with new one. See “Replacing the Print Unit” in Chapter 4.
<ul style="list-style-type: none"> White dots appear in paint areas. 	<ul style="list-style-type: none"> Unsuitable paper is used. The print unit is deteriorated or damaged. 	<ul style="list-style-type: none"> Load proper paper. See “Paper Types and Sizes” in Chapter 2. Replace the print unit with new one. See “Replacing the Print Unit” in Chapter 4.

SOLVING PROBLEMS




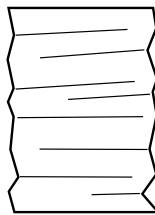
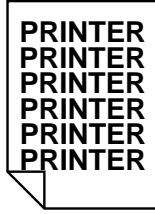
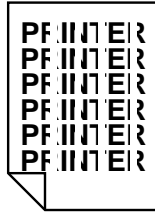


Print Quality Problems

What happened?	Typical case	What to investigate
<ul style="list-style-type: none"> Toner comes off easily when touched with fingers. 	<ul style="list-style-type: none"> Paper is dampish. Unsuitable paper is used. Thicker paper is used. 	<ul style="list-style-type: none"> Replace the paper with new one. Load proper paper. See "Paper Types and Sizes" in Chapter 2. Use the thick paper mode. See "Selecting the Thick Control Menu" in Chapter 2.
<ul style="list-style-type: none"> Whole paper is painted with a specific color. 	<ul style="list-style-type: none"> The print unit is deteriorated or damaged. There is a fault in the high voltage power supply. 	<ul style="list-style-type: none"> Replace the print unit with new one. See "Replacing the Print Unit" in Chapter 4. Contact your dealer.
<ul style="list-style-type: none"> Nothing is printed. 	<ul style="list-style-type: none"> Multiple sheets of paper have been fed at a time. No toner. The print unit is deteriorated or damaged. There is a fault in the high voltage power supply. 	<ul style="list-style-type: none"> After removing the paper from the cassette or tray, loosen the sheets well and load them again. Replace the toner bottle with new one. See "Replacing the Toner Bottle" in Chapter 4. Replace the print unit with new one. See "Replacing the Print Unit" in Chapter 4. Contact your dealer.



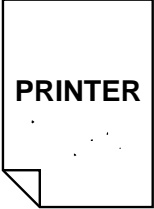
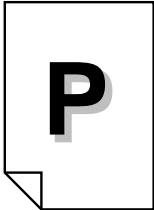

Print Quality Problems

What happened?	Typical case	What to investigate
<ul style="list-style-type: none"> Voids occur. 	<ul style="list-style-type: none"> Paper is dampish. Unsuitable paper is used. 	<ul style="list-style-type: none"> Replace the paper with new one. Load proper paper. See "Paper Types and Sizes" in Chapter 2.
<ul style="list-style-type: none"> Paper wrinkles. 	<ul style="list-style-type: none"> Unsuitable paper is used. Paper is dampish. Paper is not loaded properly. 	<ul style="list-style-type: none"> Load proper paper. See "Paper Types and Sizes" in Chapter 2. Replace the paper with new one. Load paper correctly. See "Loading Paper" in Chapter 1.
<ul style="list-style-type: none"> Blurred characters 	<ul style="list-style-type: none"> Unsuitable paper is used. Paper is dampish. The print unit is deteriorated or damaged. 	<ul style="list-style-type: none"> Load proper paper. See "Paper Types and Sizes" in Chapter 2. Replace the paper with new one. Replace the print unit with new one. See "Replacing the Print Unit" in Chapter 4.
<ul style="list-style-type: none"> Voids occur lengthwise. 	<ul style="list-style-type: none"> The toner bottle is not seated correctly. The print unit is deteriorated or damaged. 	<ul style="list-style-type: none"> Seat the toner bottle correctly. See "Replacing the Toner Bottle" in Chapter 4. Replace the print unit with new one. See "Replacing the Print Unit" in Chapter 4.

SOLVING PROBLEMS



Print Quality Problems

What happened?	Typical case	What to investigate
<ul style="list-style-type: none"> Excess toner smears. 	<ul style="list-style-type: none"> Print density is not set properly. The print units are deteriorated or damaged. 	<ul style="list-style-type: none"> Adjust the print density. See “Adjusting Print Density” in Chapter 1. Replace the print units with new ones. See “Replacing the print unit” in Chapter 10.
<ul style="list-style-type: none"> Bold characters are shaded. 	<ul style="list-style-type: none"> Print density is not set properly. The print units are deteriorated or damaged. 	<ul style="list-style-type: none"> Adjust the print density. See “Adjusting Print Density” in Chapter 1. Replace the print units with new ones. See “Replacing the print unit” in Chapter 10.
<ul style="list-style-type: none"> The back side of paper is smeary. 	<ul style="list-style-type: none"> Separators of the fusing roller is contaminated. 	<ul style="list-style-type: none"> Use the cleaning sheets to clean the separators. See “Cleaning the Fuser Unit Rollers” in this chapter.



Important:

When replacing the print unit due to any troubles, reset the print unit counter (whether or not the message display indicates "REPLACE PARTS" regarding the print unit).





Error Indications

Error Indications

Errors refer to a problem or condition which requires you to take action. The printer shows errors by using the ERROR indicator and the message display of the control panel. The following table lists the error indications, explains causes, and suggests solutions.

Message	Causes and solutions
BD CYCLE ERROR	Cause: Malfunction in the laser unit Solution: If the error recurs, consult your dealer for service.
COMM. ERROR	Cause: Communication error Solution: Press the CONT. button and select the correct settings of the serial interface using the control panel setup mode.
COVER OPEN 1	Cause: Incomplete closing of upper cover Solution: Close the upper cover.
COVER OPEN 2	Cause: Incomplete locking of paper eject unit Solution: Lock the paper eject unit.
COVER OPEN 3	Cause: Incomplete insertion of the optional duplex unit Solution: Insert the duplex unit all the way.
FAN FAILURE n	Cause: The following occurred: 1: Malfunction in the fan of the power supply 2: Malfunction in the fan of the printer mechanism Solution: If the error recurs, consult your dealer for service.
FUSER FAILURE	Cause: Malfunction in the fuser unit Solution: If the error recurs, consult your dealer for service.
INVALID SIMM	Cause: Incorrect SIMM card installed Solution: Press the CONT. button.

SOLVING
PROBLEMS

Error Indications

Message	Causes and solutions
JOB TIMEOUT	Cause: FPS job timeout (This error occurs when the FPS emulation is active.) Solution: Press the CONT. button.
LOAD MFF size	Cause: Paper mismatch occurred. (MFF is indicated even if the error occurred for a paper tray.) Solution: Set the specified MFF or tray to the correct paper size specified.
MANUAL TIMEOUT	Cause: Paper was not put on the MFF in manual feed mode in the prescribed time. (This error occurs when the FPS emulation is active.) Solution: Press the CONT. button.
MEMORY OVER FLOW	Cause: Memory overflow error Solution: Press the CONT. button.
MOTOR FAILURE n	Cause: Malfunction in the feed motor, etc. Solution: If the error recurs, consult your dealer for service. 1: Pick-up (printer body), 2: Register, 3: Photoconductor drum, 4: Pick-up (optional feeder units) 8: Duplex unit
NO PROCESS UNIT	Cause: No print unit is installed. Solution: Install the print unit.
OVERRUN ERROR	Cause: Incomplete in extracting compressed data Solution: Press the CONT. button.
PAPER JAM n	Cause: Paper jam in the specified position Solution: Clear the jammed paper from the following area: 0: Pick roller, 1: Entry to paper path 2: Paper path, 3: Ejection from paper path 4: Duplex unit



Error Indications

Message	Causes and solutions
Source PAPER OUT LOAD size	Cause: Paper out in the specified paper source (paper tray 1, 2, 3, or 4 or MFF), paper tray not installed correctly, or feeder unit lock lever unlocked Solution: Supply the specified size of paper, install the paper tray, or lock the feeder unit lock lever.
STACKER FULL	Cause: Face-down paper stacker full Solution: Remove paper from the face-down paper stacker.
SYSTEM ERROR n	Cause: A system error on the controller board Solution: If the error recurs, consult your dealer for service.
TRAYn MISS SET	Cause: Paper tray installed incorrectly or feeder unit lock lever unlocked Solution: Install the paper tray or lock the feeder unit lock lever.
TONER EMPTY	Cause: Toner runs out. Solution: Replace toner bottle and heat roller cleaner.

SOLVING
PROBLEMS



Action-required Status Indications and Printer Status Indications

Action-required Status Indications

These conditions, not errors, require you to take action. The following table lists the message indications, explains causes, and suggests solutions.

Message	Causes and solutions
INSERT size	Cause: Printer is ready for paper. Solution: Put paper on the MFF. If paper is already loaded, press CONT.
READY TONER LOW	Cause: Toner runs short. Solution: Prepare new toner bottle.
READY REPLACE PARTS	Cause: Print unit is near end. Solutions: Replace print unit. Note: Enter menu mode and select Clear Warning. After replacement, be sure to press ENTER to perform Clear Warning.

Printer Status Indications

Printer statuses refer to conditions which generally require no action by you. The following table lists the printer statuses and explains their meaning. It does not include messages in menu mode.

Message	Meaning
FORM FEED	The printer displays this message when you press FORM FEED with the DATA indicator off. The printer is printing data remaining in buffer.
<<<INITIALIZE>>>	The printer is initializing. This message appears whenever you turn on the printer, close the upper cover, or lock the paper guide.
MENU RESET	The printer displays this message when you press RESET MENU for five or more seconds. This reset returns parameter settings in the menu to their factory defaults except for interface settings as well as clears error latches, buffered data, and temporary soft fonts.



Printer Status Indications and Warning Messages

Message	Meaning
PRINT FONT	The printer displays this message when you press PRINT FONT for five or more seconds then press ENTER . The printer is printing the font report.
READY	The printer is ready to print.
RESET	The printer displays this message when you press RESET for five or more seconds. This reset clears error latches, buffered data, and temporary soft fonts.
SELF TEST	The printer displays this message when you press SELF TEST for five or more seconds then press ENTER . The printer is printing the status report.
WARMING UP	The printer is warming up to its operating temperature.

SOLVING
PROBLEMS

Warning Messages

This printer counts the number of the printed sheets to estimate the life of the consumables (print unit). The printer indicates the following warning message when and after the count reaches a predetermined value.

READY
REPLACE PARTS

When the warning message is indicated, press the **READY** button to put the printer offline and press the **MENU** button to enter menu mode. The Clear Warning message appears, indicating the expired unit by an asterisk. When the print unit is expired, the message is:

<CLEAR WARNING>
PRINT UNIT*

However, depending on the print quality, you may not have to replace print unit because you may suit be satisfied with the print quality.





APPENDIX

A

Font Samples

This appendix provides samples of the fonts resident in this printer. Resident fonts are provided separately for two emulation modes:

- PCL mode
- FPS mode

PCL Mode

Bitmapped Font

Line Printer

FONT SAMPLES

Scalable Fonts

Courier Md
Courier MdIt
Courier Bd
Courier BdIt
Morrison Rg
Morrison It
Morrison Bd
Morrison BdIt
Taurus
Taurus It
Taurus Bd
Taurus BdIt
Coronet
EFClarendon CdBd
EFClarendon ExBd
Lyra Md
Lyra MdIt
Lyra Bd
Lyra BdIt
Lyra LiCd
Lyra LiCdIt
Lyra CdMd
Lyra CdMdIt
Lyra CdBd
Lyra CdBdIt

Lyra ExtnMd
Lyra ExtnMdIt
Lyra ExtnBdIt
Lyra ExtnBd
AntiqueOlv
AntiqueOlv It
AntiqueOlv Bd
AntiqueOlv Cmpct
Garamond
Garamond Krsv
Garamond Hf
Garamond KrsvHf
Mauritius
Leos Md
Leos MdIt
Leos Bd
Leos ExBd
Nimb Sans
Nimb Sans It
Nimb Sans Bd
Nimb Sans BdIt
Nimb Sans Cd
Nimb Sans CdIt
Nimb Sans CdBd
Nimb Sans CdBdIt



PCL Mode

Nimb Roman
Nimb Roman It
Nimb Roman Bd
Nimb Roman BdIt
LetterGot75
LetterGot75 It
LetterGot75 Bd
LetterGot75 BdIt
Aries
Aries It
Aries Bd
Aries BdIt
Libra
Libra It
Libra Bd
Libra BdIt
EFBodoni No2
Bodoni No5
Bodoni No5 It
Bodoni No5 Bd
Bodoni No5 BdIt
CooperBlk
CooperBlk It
CentSchl
CentSchl It
CentSchl Bd
CentSchl BdIt
Clarendon Bk
Clarendon Bd
Saturn
Saturn Bd
Saturn Extn
Saturn ExtnBd

Dorado Li
Dorado Lilt
Dorado Bd
Dorado BdIt
Dorado
Dorado It
Dorado ExBd
Dorado Cd
Dorado CdBd
GoudyOs
GoudyOs It
GoudyOs Bd
GoudyOs BdIt
GoudyOs ExBd
EFGrandera
EFGrandera It
EFGrandera Bd
EFGrandera BdIt
Gemini
Gemini It
Gemini Bd
Gemini BdIt
EFRivero Bd
Cassiopeia
SaturnMono
SaturnMono It
SaturnMono Bd
SaturnMono BdIt
✦*■*⊙⊙▼▲
Σψμβολ
◆□□◆



FPS Mode

FPS Mode

Courier

Courier-Bold

Courier-BoldOblique

Courier-Oblique

Helvetica

Helvetica-Bold

Helvetica-BoldOblique

Helvetica-Oblique

Helvetica-Narrow

Helvetica-Narrow-Bold

Helvetica-Narrow-BoldOblique

Helvetica-Narrow-Oblique

Times-Roman

Times-Bold

Times-BoldItalic

Times-Italic

Symbol

Palatino-Roman

Palatino-Bold

Palatino-BoldItalic

Palatino-Italic

NewCenturySchlbk-Roman

NewCenturySchlbk-Bold

NewCenturySchlbk-BoldItalic

NewCenturySchlbk-Italic

AvantGarde-Book

AvantGarde-Demi

AvantGarde-DemiOb

AvantGarde-BookOb

Bookman-Light

Bookman-Demi

Bookman-DemiItalic

Bookman-LightItalic

ZapfChancery-MediumItalic

ZapfDingbats

FONT SAMPLES





APPENDIX

B

Supplies and Accessories

This appendix provides ordering information on supplies required for periodic maintenance as well as optional accessories.

Contact your dealer to order or obtain additional information about the supplies and accessories listed here.

Supplies

Part name (order number)	Description
Toner pack (CA02758-C300)	The toner pack contains two toner bottles.
Print unit (CA04340-C410)	The print unit consists of a photoconductor drum, a developing unit, and a drum cleaner in a single module.

SUPPLIES AND
ACCESSORIES

Accessories

Part name (order number)	Description
Memory expansion cards (*1) (CA02417-C854) (CA02417-C858) (CA02758-C856) (CA04040-C853)	Allows RAM expansion by one of the following: 4 megabytes 8 megabytes 16 megabytes 32 megabytes
FLASH ROM card (CA04291-C850)	4 megabytes, for PCL5e only
Barcode card (CA04291-C860)	Barcodes and OCR fonts

Accessories

Part name (order number)	Description
LocalTalk board 2 (CA04291-C826)	AppleTalk compatible
Ethernet boards (*2) (CA04040-C832) (CA04040-C833) (CA04040-0852) (CA04040-0851) (CA02946-C942)	NetWare, TCP/IP, and EtherTalk corresponding Type C (English manual) Type C (for Europe) Type D (English manual) Type D (for Europe) Type F (common)
IrDA kit (CA04040-C890)	Infrared adapter
Paper trays (CA02946-C973) (CA02946-C978)	Universal for paper sizes 250 sheets 500 sheets
Paper feeders (CA04340-C920) (CA04340-C950)	Paper feeder consists of a feeder unit (base mechanism) and a paper tray. 250 sheets 500 sheets
Duplex unit (CA04340-C981)	Two-sided printing mechanism

*1 We recommend the installation of additional memory cards of 8MB or more when you use the FPS emulation. When you print complex data with a little memory capacity, in some cases some data will be lost because the printer will compress the print data. Generally, increasing memory capacity speeds printing and will not cause a memory overflow (depends on the amount of data and memory).

*2 Types of Ethernet boards

Type C: 10BASE-2 and 10BASE-T

Type D: 10BASE-T

Type F: 10BASE-T/100BASE-TX



APPENDIX

C

Specifications

Specification	Description
Printing technology	Semiconductor laser + electrophotography
Emulations	Hewlett-Packard LaserJet 5 (PCL6) PostScript level-2 compatible Switched automatically or by the control panel
Dimensions	Width: 493 mm (19.4 inches) Depth: 423 mm (16.7 inches) 595 mm (23.4 inches) with tray cover Height: 296 mm (11.7 inches) Weight: 25 kg (55.1 pounds) without consumables
Power requirements	Input voltage: 120 VAC +6%, -10% or 230 VAC +6%, -10% Frequency: 50 or 60 Hz +2%, -4% Input current: 9 A or less (120 VAC) 4.5 A or less (230 VAC) Consumption: Maximum 700 W Average during operating 450 W or less 45 W or less during sleep mode
Environmental requirements	Temperature: 10° to 32.5°C (50° to 90.5°F) during operating 0° to 40°C (32° to 104°F) during storage Humidity: 20% to 80% relative humidity (non-condensing) during operating and storage Maximum wet bulb 29°C (84°F)

SPECIFICATIONS

Specifications

Specification	Description												
Acoustic noise	<p>Sound pressure level (front, bystander position)</p> <p>Printing: 50 dBA without optional paper feeders 54 dBA with optional paper feeders</p> <p>Standby: 40 dBA</p> <p>Declared noise emissions in accordance with ISO9296 and ISO7779</p>												
Safety and EMC certification or compliance	<table> <tr> <td>Safety: Models</td><td>Meets or complies with</td></tr> <tr> <td>(M3854 20WA)</td><td>UL 1950 CSA C22.2 No. 950 21 CFR 1040.10, Class I</td></tr> <tr> <td>(M3854 20WB)</td><td>EN 60950 EN 60825, Class 1</td></tr> <tr> <td>EMC: Models</td><td>Meets or complies with</td></tr> <tr> <td>(M3854 20WA)</td><td>FCC Part 15B, Class B (Class A for Ethernet) ICES, Class B (Class A for Ethernet)</td></tr> <tr> <td>(M3854 20WB)</td><td>EN 55022, Class B (Class A for Ethernet) EN 50082-1</td></tr> </table>	Safety: Models	Meets or complies with	(M3854 20WA)	UL 1950 CSA C22.2 No. 950 21 CFR 1040.10, Class I	(M3854 20WB)	EN 60950 EN 60825, Class 1	EMC: Models	Meets or complies with	(M3854 20WA)	FCC Part 15B, Class B (Class A for Ethernet) ICES, Class B (Class A for Ethernet)	(M3854 20WB)	EN 55022, Class B (Class A for Ethernet) EN 50082-1
Safety: Models	Meets or complies with												
(M3854 20WA)	UL 1950 CSA C22.2 No. 950 21 CFR 1040.10, Class I												
(M3854 20WB)	EN 60950 EN 60825, Class 1												
EMC: Models	Meets or complies with												
(M3854 20WA)	FCC Part 15B, Class B (Class A for Ethernet) ICES, Class B (Class A for Ethernet)												
(M3854 20WB)	EN 55022, Class B (Class A for Ethernet) EN 50082-1												
Performance	<p>Print resolution: 600 dpi/1200 dpi</p> <p>Smoothing: Equivalent to 2400 dpi</p> <p>Printing speed: For A4 size paper fed widthwise 20 ppm in 600 dpi 10 ppm in 1200 dpi</p> <p>Warm-up time: At 23°C (73.4°F) (*1) 80 seconds or less</p> <p>Recommended duty cycle: 3000 pages per month</p> <p>Toner bottle life: 5000 pages at 5% coverage printing</p> <p>Print unit life: 34,000 pages at 5% coverage continuous printing (2 pages/job)</p>												

*1 Depends on whether an Ethernet board is installed or not.



Specifications

Specification	Description
Computer interface	Standard: Parallel (Centronics) × 2, conforming to IEEE1284 (Compatible, Nibble, and ECP modes) Serial (RS-232C) Optional: LocalTalk (AppleTalk compatible) Ethernet C, D, or F (NetWare, TCP/IP, EtherTalk corresponding) IrDA (infrared adapter) Switching: Automatic sensing
Controller	Processor: NKK R4645 (150 MHz) RAM: 8 MB SIMM: 4, 8, 16, or 32 MB, 2 slots provided
Fonts	Resident: PCL mode, 115 fonts available <i>Bitmapped (1 font)</i> Line Printer <i>Scalable (114 fonts)</i> Courier, Morrison, Taurus, Coronet, EF Clarendon, EF Clarendon, Lyra, Antique Olive, Garamond, Maurítius, Leos, , Nimbus Sans, Nimbus Roman, Letter Gothic, Aries, Libra, EF Bodoni, Bodoni, Cooper Black, Century Schoolbook, Clarendon, Saturn, Dorado, Goudy Os, EF Grandera, Gemini, EF Rivero, Cassiopeia, Saturn Mono, Dingbats, Symbol, Sorts FPS mode, 35 fonts available Courier, Helvetica, Helvetica Narrow, Times, Symbol, Palatino, New Century Schoolbook, Avant Garde, Bookman, Zapf Chancery, Zapf Dingbats Soft fonts: Available from independent vendors

SPECIFICATIONS



Specifications

Specification		Description
Paper	Size	Paper tray and MFF A3 (297 × 420 mm) A4 (210 × 297 mm) A5 (148 × 210 mm) JIS B4 (257 × 364 mm) JIS B5 (182 × 257 mm) Ledger (279 × 432 mm) Legal (216 × 355 mm) Letter (216 × 279 mm) Executive (184 × 267 mm) Ledger (279 × 432 mm) MFF only (including in manual feed mode) Custom (100 × 148 mm to 297 × 431 mm) Envelopes (COM10, Monarch, C5, DL, B5)
	Weight	Paper fed from tray: 64 to 90 g/m ² (17 to 24 pound bond) Paper fed from MFF and single-sided printing: 64 to 128 g/m ² (17 to 34 pound bond) Paper fed from MFF and two-sided printing: 64 to 90 g/m ² (17 to 24 pound bond)
	Input	Tray (standard): 250 sheets of 64 g/m ² weight paper 250-sheet tray (option): 250 sheets of 64 g/m ² weight paper 500-sheet tray (option): 500 sheets of 64 g/m ² weight paper Multi-function feeder (MFF, standard): 100 sheets of 64 g/m ² weight paper (possible to decrease depending on paper types and paper curl conditions)



Specifications

Specification		Description
Paper	Output	Face-down stacker: 250 sheets of 64 g/m ² weight paper (possible to decrease depending on paper types and paper curl conditions) Face-up stacker: 20 sheets of 64 g/m ² weight paper (possible to decrease depending on paper types and paper curl conditions)

SPECIFICATIONS



C-6

User's Manual





Glossary

Application software

A program that performs a particular task on a computer. Examples are word processing, spreadsheet, and database programs.

Baud

The speed of data transmission measured in bits per second. Baud rates apply to data transmission through the printer's serial interface. Baud is also called baud rate.

For example, 1200 baud is approximately equal to 120 characters per second.

Bit

A binary digit, or bit, is the smallest unit of information in a computer's memory. A bit can have the value 0 or 1, which represents the OFF and ON state in a computer's memory. Eight bits equals one byte.

GLOSSARY

Bit map

An image representation in which each point in the image is separately defined. For monochrome images, each point is defined by a single unit of information. For color images, each point is defined by several units of information, representing the different color elements.

The characters produced by a dot matrix printer are a kind of bit map. Each character image is created by defining the points in the dot matrix as either on or off.

Example:

○	●	●	○
●	○	○	●
○	●	○	○
○	○	●	○
○	○	○	○
●	○	○	●
○	●	●	○



Glossary

Bitmapped font

A font in which the character images are defined by bit maps. With bitmapped fonts, a separate set of definitions is required for each point size. For example, Times 10 point and Times 12 point are considered separate fonts. *See also* Scalable font.

Configuration

A combination of settings that allows your computer and printer to work together. Some of the necessary settings are in the computer or application software, while other settings are in the printer. For example, the interface setting must be set the same in both the computer and the printer.

Corona wire

A fine wire in the printer that gives a positive charge to the paper. This charge causes the toner on the drum to transfer to the paper.

Default

A setting automatically used when you or your application software do not make a selection. The settings in effect when you turn on or reset the printer are called power-on defaults. *See also* Factory default.

Density

The darkness of the image as it appears on the page. If the density is too dark, the small white areas inside letters and numbers will be filled in. If the density is too light, pinholes appear in black areas. Print density can be adjusted with the Quality menu in setup mode.

Downloadable font

A font that is transferred (downloaded) to the printer's memory when or before it is needed. Before they are transferred, downloadable fonts are stored on font cards, floppy disks, or the computer's hard disk. Downloadable fonts are also called soft fonts.

Emulation

The ability of one printer to understand the command set of another printer. Emulations may be built into a printer's memory or may be supplied on optional plug-in emulation cards or cartridges.



Ethernet

A communication hardware for a high-speed network: developed by Xerox Corporation.

Factory default

The settings that are programmed into a printer at the factory. The printer uses these settings unless they are replaced by user selected settings entered from the control panel or through application software.

Flow control

See Serial protocol.

Font

A complete set of characters and symbols in one size, typeface, and style. Size refers to the character height, and is usually measured in points (1/72 inch). Typeface refers to the character design, such as Courier, Times, or Helvetica. Style refers to the character appearance, such as Italic or Bold. Typical examples of fonts are 12-point Courier Bold, and 10-point Times Italic.

GLOSSARY

Fuser unit

One of the internal parts of a page printer. The fuser unit bonds the toner to the paper. It consists of a heat roller and a pressure roller that the paper passes under after toner has been applied.

Initialization

Resets the printer to its power-on defaults. Initialization clears the print buffer of any data and places the printer online. *See also* Reset.

Interface

The means by which information is transferred from one part of a system to another. For example, the cable between the printer and the computer is an interface.



Glossary

ISO symbol set

ISO stands for “International Organization for Stanardization”. An ISO symbol set contains special international characters that replace the following twelve ASCII characters: #, \$, @, [, \,], ^, 9, {, |, }, and ~. ISO symbols sets are available for most European languages, Chinese, and Japanese.

LocalTalk

A protocol for an easy AppleTalk that connects devices and computers in a Macintosh system, developed by Apple Computer.

Margin

The space at the edges of a page in which no printing occurs. There are four margins: left, right, top, and bottom. In application software, margins are usually expressed in inches, centimeters, or points. In printer commands, left and right margins are specified as columns, while top and bottom margins are specified as lines.

Page printers have a minimum margin, typically of about .2 inch (5 mm), on all four sides, called the nonprint margin. No printing occurs in this margin. If the application software specifies a margin of 0, actual printing begins at the edge of the nonprint margin. *See also* Printable area.

MarkVision™

A printer management integrated software which monitors printer status, displays optional printer's features, spools print data, and cooperates with printer drivers. It also displays the virtual printer control panel to allow remote operation of printers.

Orientation

The direction of print on a page. Printing such that the shorter edges of the paper are at the top and bottom is called portrait orientation. Printing such that the longer edges of the paper are at the top and bottom is called landscape orientation.



Example:

Portrait



Landscape



Page description language

A set of codes that describe the placement of text and graphics on a page. Page Control Language (PCL), the language used by HP LaserJet printers, and Postscript are examples of page description languages.

Page protect

A printer feature that reserves a block of printer memory exclusively for text and graphics data. Page protect prevents memory overflow errors when printing very dense text or complex graphics. However, page protect also reduces the amount of printer memory available for downloadable fonts.

GLOSSARY

Parallel interface

A connection between the computer and printer in which data is transferred simultaneously through multiple wires. A parallel interface is faster than a serial interface, but the distance over which it can send data is limited. The Centronics interface is a type of parallel interface. *See also* Serial interface.

Photoconductive drum

The part inside a page printer on which the image is created before it is transferred to the paper.

Postscript

See Page description language.

Precharger wire

A fine wire in the printer's process cartridge that imparts an electrical charge to the photoconductive drum. The charge makes the drum sensitive to light.

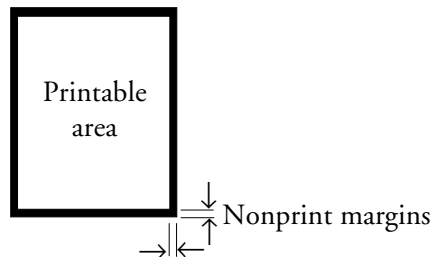


Glossary

Printable area

The area of the physical page in which the printer is able to print. Page printers have a nonprint margin, typically about .2 inch (5 mm) wide, at each edge of the paper. The printable area is the space within these margins. *See also* Margin.

Example:



Printer driver

A set of instructions in application software that translates formatting choices into printer commands. When installing the application, the user identifies the type of printer being used so the application knows which printer driver to use.

Print unit

A maintenance package consisting of the photoconductive drum, developing unit, toner, and drum cleaner.

Reset

Clears the print buffer and places the printer online. Unlike initialization, reset leaves the currently selected settings in effect. That is, reset does not restore the power-on defaults. *See also* Initialization.

Resolution

The fineness of the printing. Resolution depends on the number of dots per inch. High resolution (with more dots) is finer and more precise than low resolution, which is coarser with rougher edges.



Glossary

Scalable font

A font capable of printing in any point size. Scalable fonts are stored on the computer's hard disk. Each font consists of character templates that are used by the accompanying font utility software to create the characters in the desired point size.

Some font utilities create a complete set of characters in the desired size and send the complete set to the printer. Other utilities create and send only the individual characters as they are needed, which conserves printer memory.

Serial interface

A connection between the computer and printer in which data is transmitted sequentially over a single wire. A serial interface is slower than a parallel interface, but it can send data over a much greater distance. The RS-232C interface is a type of serial interface. *See also* Parallel interface.

Serial protocol

A set of rules used by the computer and the printer to regulate the flow of data between them.

Symbol set

The set of characters used in a font. Most symbol sets contain standard letters, numbers, and punctuation. Symbol sets differ in the accented characters, line drawing characters, and special symbols they contain. ASCII, Roman-8 and PC-8 and examples of symbol sets.

Symbol sets are also called character sets, which is the term usually used with dot matrix printer fonts. *See also* ASCII character set; ISO symbol set.

Toner

Electrically charged carbon particles that adhere to charged areas on the photoconductive drum to produce an image pattern. The carbon pattern is transferred to the paper and melted by the fuser unit to form a permanent image on the paper.

GLOSSARY



Glossary

Transfer unit

The part inside a page printer that transfers the image from the photoconductive drum to the paper.



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