

FUJITSU

USER'S MANUAL

Print Partner™

4000/8000

4/8 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 into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio / TV technician for help.

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

- Testing of this equipment was performed on model number M3876MA or M3877MA.
- 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.

**Notice to Canadian
Users**

This digital apparatus does not exceed the class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe B prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

**Notice to German
Users****Bescheinigung des Herstellers/Importeurs**

Hiermit wird bescheinigt, daß der/die/das

- M3876MB/M3877MB in Übereinstimmung mit den Bestimmungen der
- AmtsblVfg 243/1991 funk-entstört ist. Der Deutschen Bundespost wurde das Inverkehrbringen dieses Gerätes angezeigt und die Berechtigung zur Überprüfung der Serie auf Einhaltung der Bestimmungen eingeräumt
- Maschinenlärminformationsverordnung 3. GSGV, 18.01.1991: Der höchste Schalldruckpegel beträgt 70 dB (A) oder weniger gemäß ISO 7779.

In case that the interface board, Ethernet A or B, 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

- Testing of this equipment was performed on model number M3876MA or M3877MA.
- 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.

Notice to Canadian Users

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Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

Notice to German Users

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- Maschinenlärminformationsverordnung 3. GSGV, 18.01.1991: Der höchste Schalldruckpegel beträgt 70 dB (A) oder weniger gemäß ISO 7779.

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

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C145-E040-01EN, July 1994

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Ventura Software, Inc.: Ventura Publisher

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Xerox Corporation: 4024, Ethernet, Xerox XYQUEST, Inc.: XyWrite

Safety Instructions

- Read this section and remember these instructions for your safety and your printer's correct performance.
- Follow the cautions and notices labeled on the printer or marked with icons in the manual.
- 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 500 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 a long time.
- Disconnect the power cord from the outlet whenever thunder storm is nearby. Leaving the power cord connected may damage the printer or your property.
- Do not put the printer in direct sunlight, near a heater, or near water. Leave space around the printer.
- Do not touch the heat roller and motors if you have been printing recently.
- 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 and 15 meters (50 feet) or less for the serial interface.
- Be sure the printer is turned off before connecting the interface.
- Do not turn off the printer while it is printing.
- Do not disassemble or remove any components unless instructed in the maintenance procedures.
- 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 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.

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Preface

Thank you for purchasing the Fujitsu PrintPartner 4000/8000 Page Printer. The PrintPartner 4000 is a 4-ppm page printer and the PrintPartner 8000 is an 8-ppm page printer. Some components, descriptions, and specifications differ with the two models, as distinguished in the corresponding part. The PrintPartner 4000/8000 is compatible with the HP LaserJet III printers which are one of the industry-standard page printers. Fujitsu has designed the PrintPartner 4000/8000 to provide high-quality printouts easily and reliably.

Available options are:

- 1-, 2-, 4-, and 8-megabyte memory expansion cards
- Font card: Font card A (HP font compatible)
- Emulation card: FPS (PostScript compatible)
- Interface expansion boards: serial interface, LocalTalk, and Ethernet A and B
- Paper trays: A4 and letter sizes

Organization

Manuals and Printer Setup Utility Program

The PrintPartner 4000/8000 has two manuals, user's manual and reference 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 reference manual (English only) provides additional details for highly experienced technical users.

The PrintPartner 4000/8000 comes with the PPMENU disk which stores the printer remote setup utility program, PPMENU. It allows you to easily customize and program your printer to your computer and software environments, using your computer keyboard and display.

Operating Environments

To run the PPMENU, you need an IBM-PC/AT computer or compatible, with at least 1MB of memory available on a hard disk, a 3.5" 2HD floppy disk drive, and an EGA (640 × 350 dots) display. You must also be using MS-DOS version 3.3 or higher.

We invite your suggestions and comments on both the manuals and the printer itself. Send your suggestions to any of the Fujitsu addresses listed on the back cover of this manual.

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.



Caution:

Ignoring this information could result in personal injury.



Notice:

Ignoring this information could result in loss of data or harm to your equipment.



Important:

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

Control Panel

The name of the online button appears as all capital letters inside a box like ONLINE to clearly distinguish from the online indicator.

The PrintPartner 4000/8000's control panel has a single button and five indicators with more than one function assigned. Their labeled names mean basic functions. Additional functions are indicated by the time you hold down the button or by combinations of indicators turning on, turning off, and flashing.

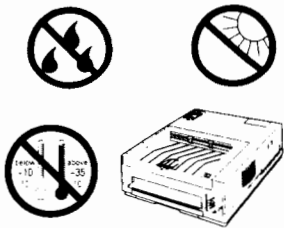
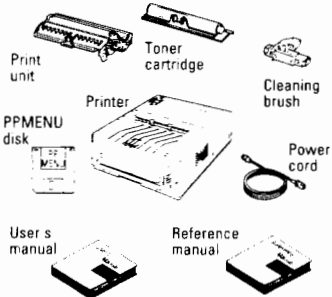
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Quick Start

The Quick Start is for experienced users who do not need detailed setup procedures. The table below summarizes the major setup tasks. Each task corresponds to a first or second level section in Chapter 1. Refer to this chapter if you need more information on something.

Following the summary table is a brief guide to information you may need to enhance, customize, or program the printer.

Setup Summary

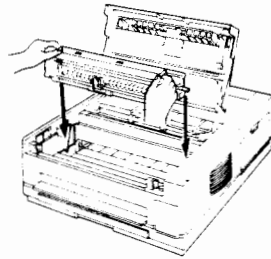
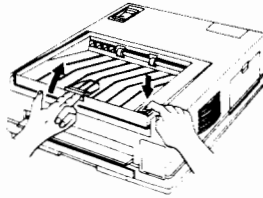
Task	Procedure
Pick a suitable location 	Choose a location with these characteristics: <ul style="list-style-type: none"> • A sturdy, level surface in a well-ventilated area • Away from direct sunlight, high temperature, and high humidity • Space on sides for air circulation • Near an outlet with clean, grounded power
Unpack the printer 	Make sure you received: <ul style="list-style-type: none"> • Printer • Print unit • Toner cartridge • User's manual • PPMENU disk • Reference manual • Power cord • Cleaning brush

Task

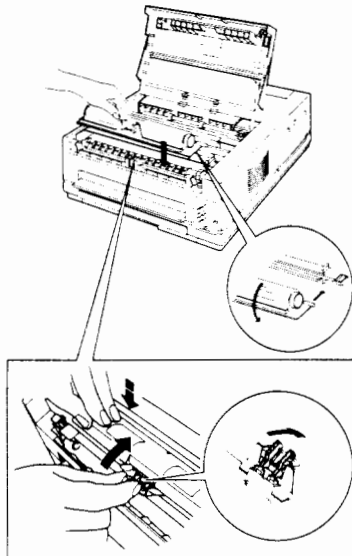
Procedure

Install print unit

Press the button and lift the top cover to open the top cover.

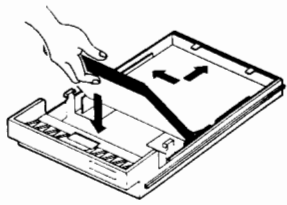
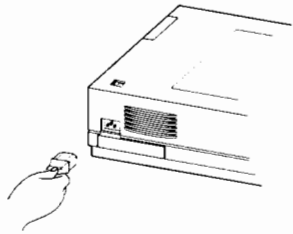
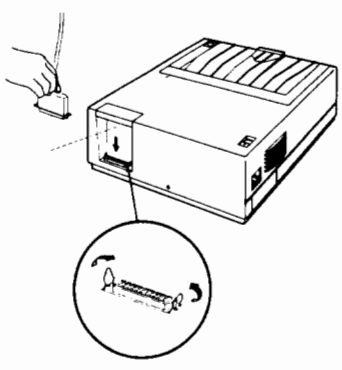


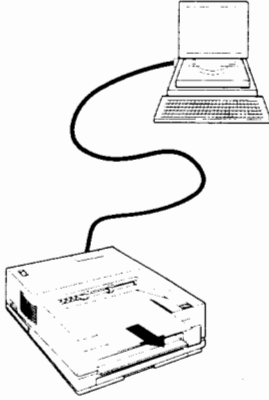
Remove the two protective sheets from the print unit even if your printer is shipped with the print unit mounted. Lower the print unit into the printer by sliding the drum shafts of the print unit into the side grooves of the printer until it sits into place.



Mount the toner cartridge on the print unit by placing the locating pins under tabs and then holding the center catches over the toner cartridge.

Be sure to lock the toner cartridge by the green catches. Remove the plastic seal from the toner cartridge. Close the top cover.

Task	Procedure
<p>Place paper in paper tray</p> 	<p>Lift the front of the paper tray and remove from the printer.</p> <p>Put paper stack in the paper tray. If the front area of the paper stack is raised, push it down until it is locked.</p> <p>Insert the paper tray into the tray slot until it clicks.</p>
<p>Connect power cord</p> 	<p>Follow these guidelines:</p> <ul style="list-style-type: none"><li>• To avoid possible electromagnetic interference or power supply problems, do not use an extension cord.<li>• For your safety, use a grounded outlet.
<p>Connect to your computer</p> 	<p>Turn power off. Attach the parallel interface.</p>

Task	Procedure
<p>Print first document</p> 	<p>With a printer driver software:</p> <ul style="list-style-type: none">• Select HP LaserJet III printer driver.• Prepare a document for printing.• Put the printer online.• Print the document. <p>With a setup string or embedded command software:</p> <ul style="list-style-type: none">• Prepare a document for printing. For simplicity, use a text-only document without setup strings or embedded commands.• Put the printer online.• Print the document.

Enhancements and Customization

To help you enhance, customize, or program the printer, the user's manual and reference manual contain the following additional information:

User's manual

- To install additional memory, see Chapter 5.
- To load additional fonts, see Chapter 5.
- To install an alternate emulation, see Chapter 5.
- To get additional paper tray, see Chapter 5.
- To customize printer defaults, see Chapter 4 and run the printer remote setup utility program, PPMENU.

Reference manual

- To customize printer response with setup strings and embedded commands, refer to the discussion of LaserJet printer commands in Chapter 3.
- To customize the interfaces, refer to Chapter 5 and run the printer remote setup utility program, PPMENU.

Getting Started

This chapter provides complete setup instructions in the following sections:

- *Getting Acquainted.* Provides illustrations and names the printer's main parts.
- *Getting Ready.* Discusses how to choose a suitable location for the printer. Also shows an inventory of the parts you should have received.
- *Setting Up.* Covers assembly of the printer itself.
- *Connecting the Printer to Your Computer.* Explains the five types of interfaces (cables) and tells you how to connect the parallel interface.
- *Printing Your First Document.* Provides a procedure to print a trial document and discusses how to adjust print density.
- *Where to Go from Here.* Directs you to the next section of the manual you need, depending on what you want to do next.

Getting Acquainted

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

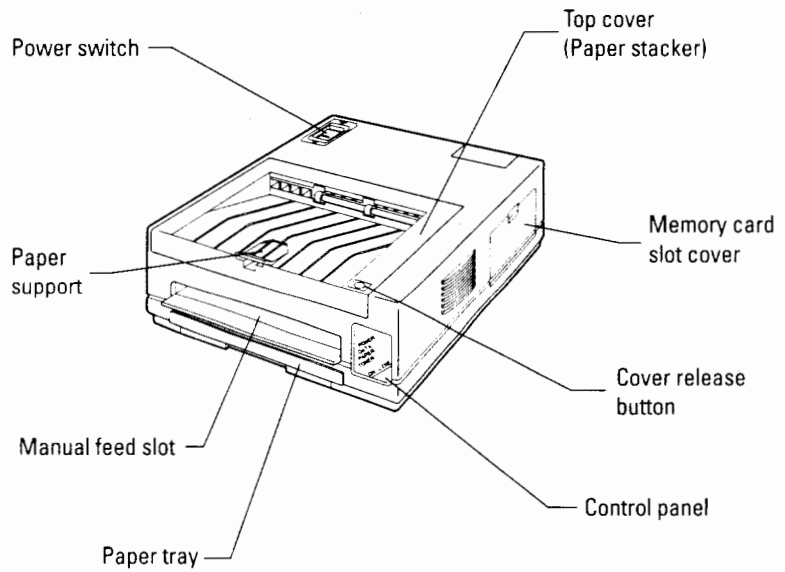


Figure 1-1 Front and right side view

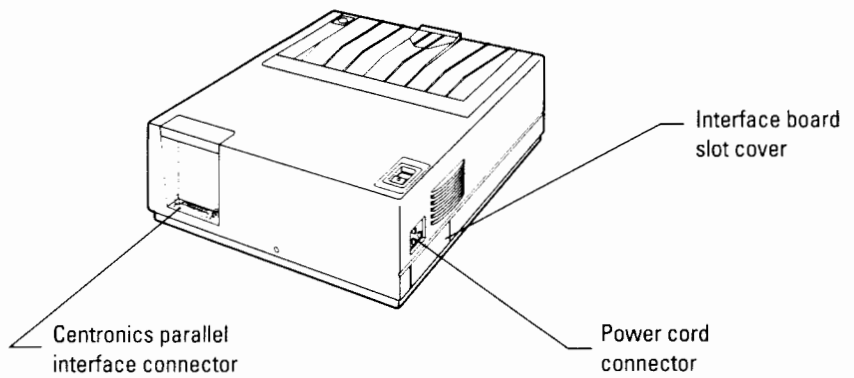


Figure 1-2 Rear and left side view

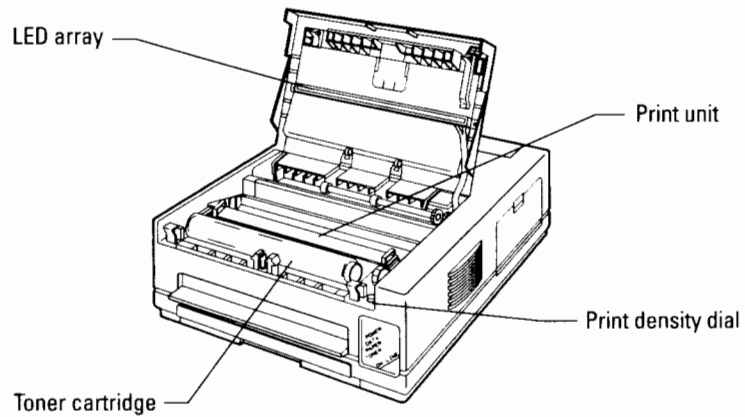


Figure 1-3 Interior view

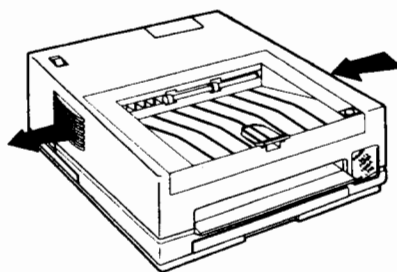
Getting Ready

This section helps you to:

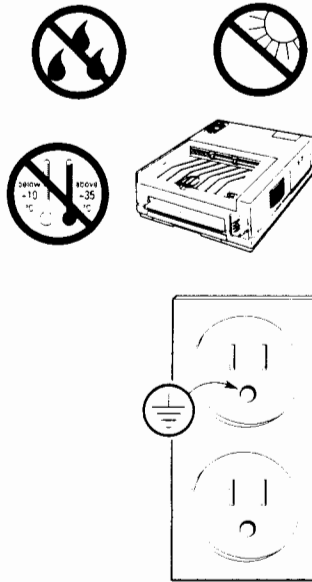
- Choose a suitable location for the printer
- Inventory the parts of the printer as you unpack it

Picking a Suitable Location

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

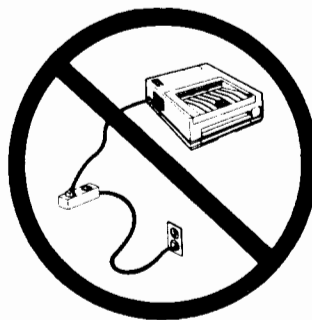


- Place the printer on a sturdy, level surface.
- Choose a room that is well ventilated and free of excessive dust. Leave space on either side of the printer to allow for proper ventilation.



- 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 10°C to 35°C (50°F to 95°F). Humidity should be between 20% and 80% RH (no condensation).

- 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.



- 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.

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.



Important:

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

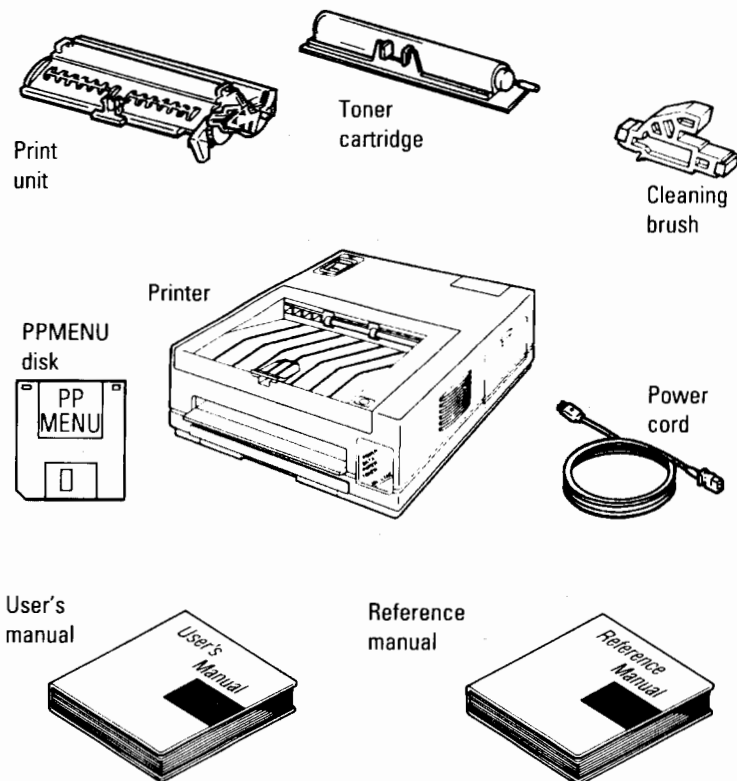


Figure 1-4 Printer inventory

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.

Installing the Print Unit and Toner Cartridge

Install the following two components:

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

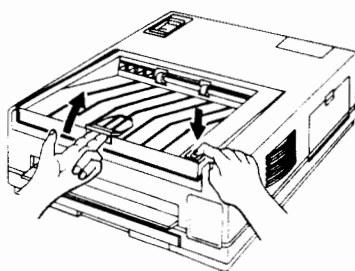


Notice:

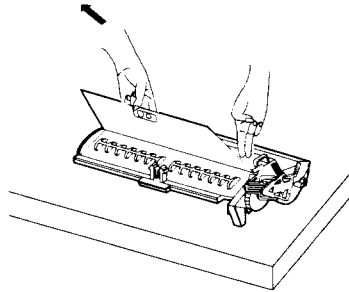
Be careful with the print unit's drum (the green surface). The drum is easily damaged by contamination or by exposure to light for more than three minutes. Follow these guidelines:

- Never touch or scratch the drum surface.
- When the print unit is not in the printer, store it in a dark place or cover it with a clean sheet of paper.
- When the print unit is in the printer, keep the printer top cover closed. If you must work inside the printer for more than three minutes, remove the print unit with the toner cartridge mounted and store it in a dark place.

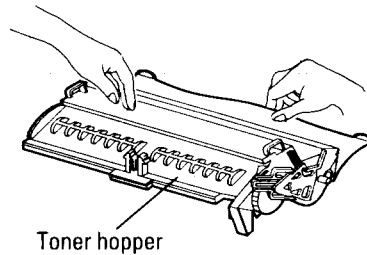
If your printer is shipped with the print unit mounted, the following steps differ slightly. Always remove the two protective sheets from the print unit. To install the print unit and the toner cartridge, follow these steps:



1. **Open the top cover.** The release button is on the upper right front of the printer. Press the button and lift the top cover to open it.
2. **Remove the print unit from its envelope.** Place the unit on a level, steady place.



3. **Remove the upper protective sheet from the print unit.** Pull out the sheet that appears beneath the green plate.



4. **Remove the lower protective sheet from the print unit.** Peel off the sheet that sticks to the drum.

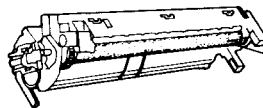


Notice:

Be sure to remove the two protective sheets immediately before installing the print unit. Operating the printer without removing the sheets will make the print unit unusable.

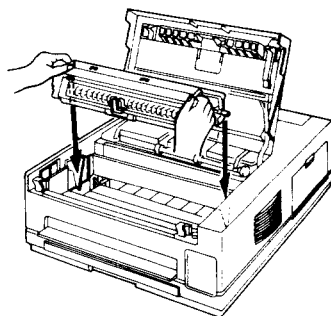
Do not touch or scratch the green drum surface after removing the protective sheets.

Print unit

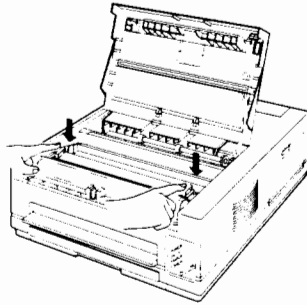


Green drum

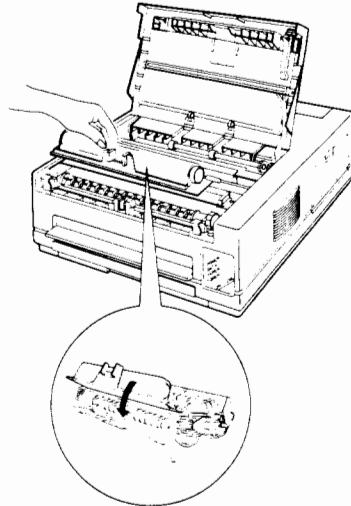
Be careful not to put dust or foreign matters into the toner hopper.



5. **Lower the print unit into the printer.** Grasp the print unit by its green handles. Keep the surface of the green plate horizontal. The ends of the drum shaft should slide down into the grooves on the sides of the printer and the left front electrode is placed into the square hole at the left side of the printer.

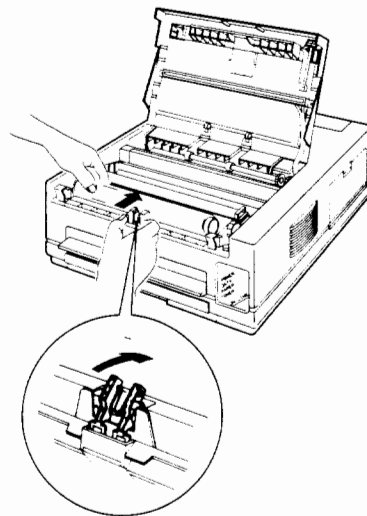


6. **Seat the print unit in place.**
Press down gently on the green handles until the print unit sits into position.

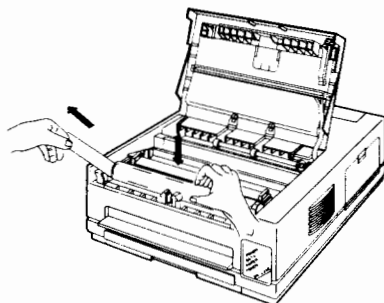


7. **Remove the toner cartridge from its envelope.**

8. **Install the toner cartridge.**
Place both locating pins of the toner cartridge under the tabs of the print unit. Then, slowly lower the toner cartridge.

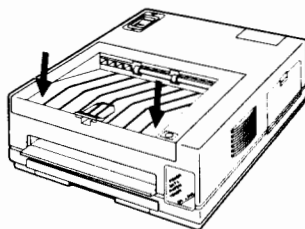


9. **Lock the toner cartridge.**
Pinching the center green catches together, pull the catches down and towards the front of the printer. Using the other hand, swing the toner casing down as far as possible and push the catches up so as to clamp the toner cartridge to the print unit.



10. Remove the plastic seal.

Holding the toner cartridge, peel off the end of the seal marked with triangle. Pull off the seal as gently as possible to avoid scattering toner. Be careful not to stain yourself with toner which is stuck to the seal.



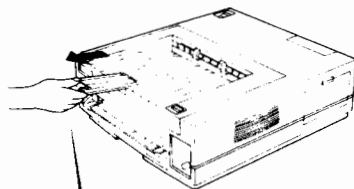
11. **Close the printer's top cover.** Press down firmly on either the front left and right portions or the front center portion of the top cover and make sure the top cover is locked completely.



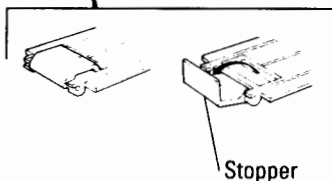
Notice:

Be sure to hold the toner cartridge while removing the seal to avoid scattering toner.

If you have installed the toner cartridge, never remove it from the print unit until it has no toner, to avoid scattering toner inside the printer.

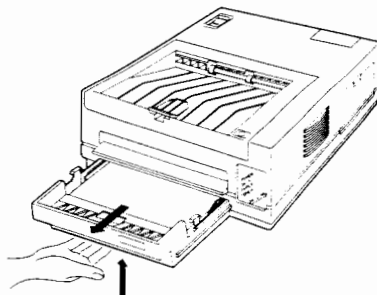


12. **Pull the paper support all the way.** For the PrintPartner 8000, set up the stopper by turning it. The PrintPartner 4000 does not have the stopper.



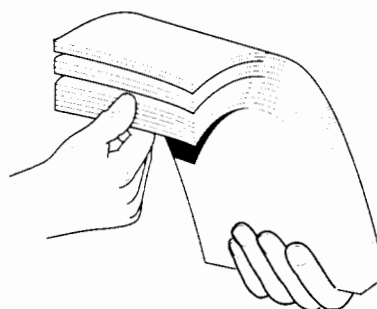
Loading Paper and Installing the Paper Tray

This printer can use a single paper tray. The size of the standard paper tray is letter (for USA) or A4 (for Europe). You can purchase other sizes of paper trays. See Chapter 5 and Appendix C. Follow this procedure to test your printer. We recommend that you use copier paper. For now load about 50 sheets for testing the printer.



1. **Draw out the paper tray.**
Holding the front of the tray up, pull out the tray.

2. **Prepare the paper tray.**
Remove the adhesive tape.



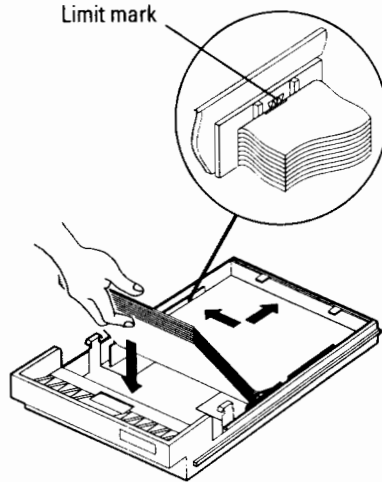
3. **Fan the paper stack to prevent sheets from sticking together.**



Notice:

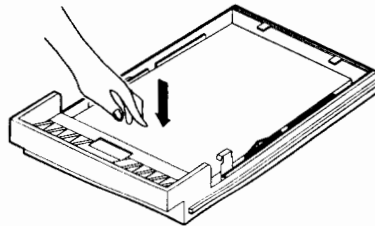
Be careful with the printing side of paper. Put the paper stack in the paper tray with the printing side faced down.

If paper is curled, remove the curl.

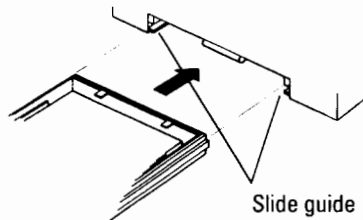
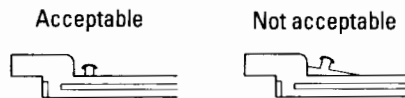


4. **Load the paper.** Place the front part (one third) of the paper stack on the tray and slide it backwards so that the stack is placed under the two stoppers. Gather the edges of the stack together to ensure correct positioning of paper in the tray.

Make sure the stack does not exceed the limit mark. The maximum capacity is 100 sheets of 0.09 mm thick paper.



5. **Lock the pressure plate.** If the front of the stack is raised, push it down until the pressure plate clicks locked.



6. **Install the paper tray.** Align the sides of the tray with the guide grooves of the tray slot and firmly slide the tray all the way into the slot.



Notice:

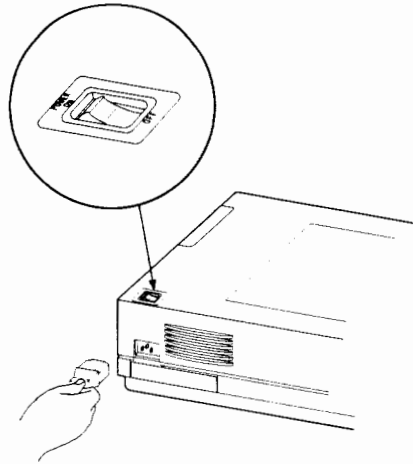
You cannot install the paper tray with the pressure plate raised.

Connecting the Power Cord

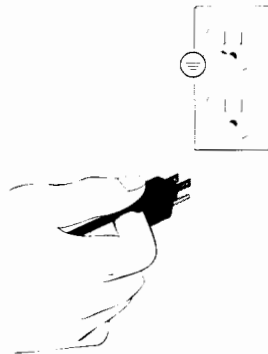
This printer comes equipped with one of the two voltage ratings:

- 120 VAC (such as for the USA)
- 220 to 240 VAC (such as for Europe)

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 visible (the switch should be depressed on the cover's "OFF"-labeled side).
2. **Plug the female end of the power cord into the connector on the left of the printer.**



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

**Caution:**

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

Connecting the Printer to Your Computer

This section explains how to connect the printer to your computer via the parallel interface. For information about the serial interface (option), see Chapter 5.

**Notice:**

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.

About Interfacing

You can connect the printer to your computer using a parallel interface as standard. Many computers have a parallel interface port. However, if your computer does not have the parallel interface port or the printer is used in a network, the following optional interfaces are available.

- **Serial (RS-232C/422A)**

Use serial communications 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**

Use the LocalTalk if the printer is connected to a Macintosh computer that constitutes an easy LAN.

- **Ethernet A**

Use Ethernet A if the printer is used in a NetWare environment.

- **Ethernet B**

Use Ethernet B if the printer is used in a NetWare or UNIX environment.

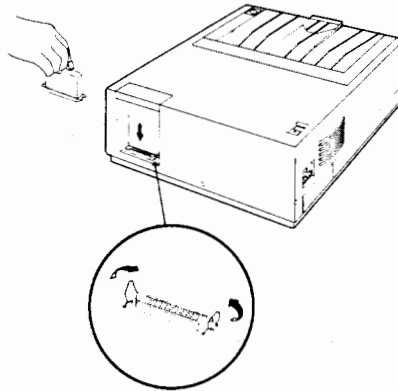
Connecting to the Parallel Port

This printer does not come with a parallel interface cable. A standard Centronics interface cable will do. Your dealer can advise you on the cable you require. If you need the technical specifications for the parallel interface cable, refer to the reference manual.



Notice:

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



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.

Printing Your First Document

Your printer should now be set up and connected to your computer. This section explains how to test your setup by printing a trial document from a software program. For printing without using your computer and software, see **Printing a Status Report** described in Chapter 3.

Turn on your printer and observe the initialization sequence. If no optional font and RAM boards have been installed, the sequence lasts about one minute, during which the following events occur:

- All indicators light up briefly to show initialization.
- The printer conducts a number of self-checks.
- The main motor rotates to check mechanical functions and clean the drum.
- The ONLINE indicator lights up, indicating the printer is online and ready to print.

The following procedure is for software programs that use printer drivers. Printer drivers automatically translate formatting choices of a document, such as tab settings or boldface type, into commands the printer understands. In such programs, you choose a printer by name, usually on a print menu. The second procedure is for programs that require setup strings or embedded printer commands. In such programs, you prepare printer commands for the printer by yourself.

Following the procedures is a discussion of problems you might encounter.



Important:

For information on printer drivers, setup strings, and embedded commands, see Chapter 2.

Printing with a Printer Driver

To print a trial document, follow these steps:

1. Load a suitable printer driver, if necessary.

In most programs, you need to load the printer driver into the program before you can use it to print a document. Consult your software documentation for the procedure.

Because the PrintPartner 4000/8000 is a new product, you will not be able to find a printer driver specifically for the Fujitsu PrintPartner 4000/8000. Check with your dealer for availability.

If a printer driver for the Fujitsu PrintPartner 4000/8000 is not available, use an HP LaserJet driver. If you cannot find a printer driver for HP LaserJet III (PCL5), you can use a driver for an earlier version of the HP LaserJet. Earlier versions have the names HP LaserJet, HP LaserJet Plus, and HP LaserJet series II. To take full advantage of the printer's capabilities, you should obtain an HP LaserJet III driver from the software manufacturer.

2. Open your trial document.

Use an existing file, or start a new document and type in some text or create some graphics.

3. **Select HP LaserJet as the document printer.**

In most programs, you make the selection on 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 resident in this printer.**

In most programs, you select fonts from a menu. The resident fonts of this printer are Courier, Line Printer, CG Times, and Univers.

If you print a document that does not use one of the resident fonts, the printer will substitute the nearest equivalent resident font. Some of the formatting, such as line and page breaks, may change.

5. **Check the printer.**

Make sure the ONLINE indicator on the printer control panel lights.

6. **Print your document.**

Start the program. The default paper size is fixed to A4 (for Europe) or letter (for the USA). However, you can print a document on a different size of paper using the manual feed slot. See Chapter 3.



Important:

Some software programs have printer drivers but also allow setup strings or embedded commands. If your document contains printer commands for another printer, problems may result. The program may return an error message when you try to print or the printout may be unreadable. To print successfully, remove the printer commands from the document or create a document without printer commands.

Printing with a Setup String or Embedded Commands

This procedure assumes that your software program does not have printer drivers. That is, all formatting depends on setup strings and embedded commands. When you begin to create formatted documents, you will need to use the HP LaserJet III commands listed in the reference manual. But to test your setup, print a very simple document that *does not include* any setup strings or embedded commands. This printer will print the document using default print parameters.

If you try to print a document that contains setup strings or embedded commands for another printer, the printout will probably be unreadable. Some programs have a "Text only" or "ASCII text" print option that removes all printer command codes. You can use one of these options to have this printer print a document using default print parameters.

To print a trial document, follow these steps:

1. Open your trial document.

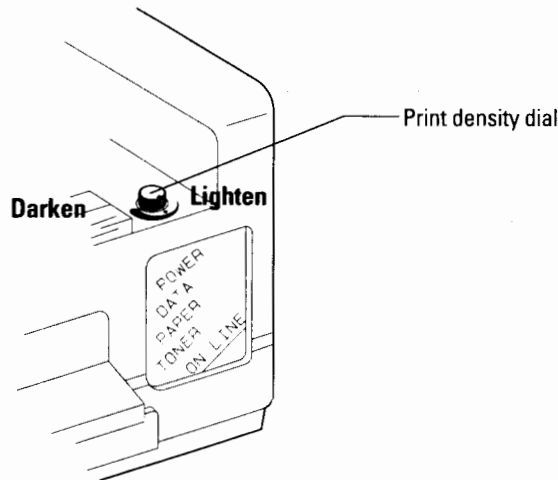
Start a new document and type in some text, or use an existing document that does not include setup strings or embedded commands.

You can use a document that does have setup strings or embedded commands if your program has a "Text only" or "ASCII text" print option.

2. Check the printer and print your document.

Make sure the printer is online and start the program in the same manner as described in the preceding procedure.

If you feel the printout is too light or too dark, adjust the print density. The dial is inside the top cover above the control panel. Clockwise darkens the print. Counterclockwise lightens the print. After making the adjustment, close the top cover and print your trial document again to check the results.



If you see a problem with the printed pages except the print density, see Chapter 7 for possible causes and solutions.

If your document printed successfully, skip to the section **Where to Go from Here** at the end of this chapter. If you have a problem, see the section **If Something Goes Wrong**.

If Something Goes Wrong

This section briefly discusses the most common problems you might encounter. For more complete troubleshooting information, see Chapter 7. Chapter 7 also describes all printer error and status indications.

Problem	Remedy
No response by printer	Check the following: <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 status.
No printout; DATA indicator on	The printer has received data from the computer but has not printed the page for some reason. To print the page, put the printer offline by pressing ONLINE . Then press and hold down ONLINE for five or more seconds.
Unreadable printout	Possible causes and solutions are: <ul style="list-style-type: none">• A wrong printer driver is selected. Select HP LaserJet III or some earlier version LaserJet 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

Read Chapter 3 for information on how to use the control panel and on handling various types of paper.

If your software programs use **printer drivers**, see Chapter 2 if you want more information on how printer drivers control a printer.

If your software programs require **setup strings** or **embedded commands**, read the relevant sections in Chapter 2.

You will also need to learn about the commands for controlling the printer. Refer to the reference manual for the following information:

- Command format
- Common uses for printer commands
- Descriptions of the most commonly used commands

Making the Printer and Computer Work Together

This chapter provides more information on the various ways that software programs control printers. Printer control falls into three general categories:

- Programs that use **printer drivers**
- Programs that control printers by **setup strings, embedded commands**, or a combination of these two means
- Programs that essentially do not control printers (including also the DOS print screen command). In this case, you can use special **setup programs** to control the printer. You can also use the **PPMENU** to set print options in the printer.

Read the discussions in this chapter to decide how your software controls the printer. If you already know this, you can read to learn more about how a given type of control works.

The reference manual provides specific advice on how to use this printer with several popular software programs. Refer to its Chapter 1.

Printer Drivers

A printer driver is software that automatically translates formatting choices, such as tab settings or boldface type, into commands the printer understands. When you install or first use a program with printer drivers, the program usually prompts you for the type of printer you have. This way the program knows which printer driver to use. Often this prompt appears when you run the installation or setup program. In some cases, you select the printer type in the program itself when you print a file.

If your software uses printer drivers, you don't have to learn about the commands that make your printer work. The software takes care of everything for you.

Because the PrintPartner 4000/8000 is a new product, you will not be able to find a printer driver specifically for the Fujitsu PrintPartner 4000/8000. Check with your dealer for availability.

Otherwise, most IBM PC software programs that use printer drivers support the HP LaserJet III printers. Because this printer emulates the HP LaserJet III, you should specify HP LaserJet III as your printer type.

Software programs that use printer drivers include:

Adobe Illustrator for Windows	MultiMate Advantage
AutoCAD	PageMaker for Windows
Corel Draw	PFS: First Publisher
dBase IV	Q&A
Display Write 4	Q&A Write
Framework	SuperCalc (graphics only)
Freelance Graphics	Symphony
GEM	Ventura Publisher
Lotus 1-2-3	WordPerfect
Microsoft Multiplan	WordPerfect Executive
Microsoft Windows	WordStar 2000+
Microsoft Word	WordStar Professional
Microsoft Works	XyWrite

Setup Strings

A setup string is a printer command or a sequence of commands that sets one or more formatting parameters for a document. Your software program sends a setup string to the printer each time you print a file. In most programs, you can define a general-purpose setup string to use with any file. Usually you can also create specific setup strings for particular files. The reference manual explains how to use the printer commands for the HP LaserJet printers.

Typically, a setup string contains a reset command that restores the printer to its default condition. The string might also contain commands to set particular format parameters. Examples of parameters you might set are page orientation, margins, line spacing, and font.

Software programs that use setup strings include:

Dac-Easy Accounting	VP-Planner
dBase IV	WordPerfect Executive
Lotus 1-2-3	WordStar 3.3
SuperCalc	

Embedded Commands

Some software programs provide a way for users to put their own printer commands directly into a file. Placing printer commands directly into a file is called embedding the commands in the file.

Embedded commands give you precise control over the capabilities of your printer. However, embedded commands can interact with themselves and with your software in confusing ways.

For example, you might embed a command to advance to a new page halfway down a page of text. The printer will advance to a new page while your program thinks it's still on the previous page. The result would be printed pages only partially filled with text.

The effects can also be more subtle. For example, you might embed a command to change point size within a block of justified text. Changing the point size changes the character widths. Therefore, the lines after the command would not align at the right margin with the lines before the command.

Embedded commands are useful for things like making one line of a spreadsheet bold. However, these commands are not recommended for special effects in a word processing program.

Programs that allow you to embed commands include:

dBase IV	SuperCalc
Lotus 1-2-3	VP-Planner
Microsoft Word	WordStar 3.3
Sidekick	

Setup Programs

A few programs have no way to control a printer and do not allow you to embed commands. In this case, you can still use your printer's capabilities by controlling the printer with a separate program. The controlling program is called a printer setup program.

Printer setup programs send commands to your printer before or during execution of another program. This intervention allows you to use some of the printer commands your software program lacks.

You may want to investigate the following setup programs:

LaserControl
Printerworks for Lasers
RAM Resident Printmerge

PPMENU

A final option if your software lacks printer control capabilities is to set format options in the printer itself using the PPMENU which is a printer remote setup utility program supplied in the PPMENU disk. You set format options in remote setup menus just by selecting items one after another on the computer display. See Chapter 4 for running the PPMENU.

You can set the following format options:

- Font characteristics, including the typeface, bold or italic text, point size, pitch, the symbol set, and the special symbol set
- Line wrap characteristics
- Page characteristics, including the page size, orientation, and lines of text

Printing and Paper Handling

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

- Control panel tutorial

The tutorial describes the indicators and the **ONLINE** button. Following the descriptions is an example of how to use the control panel.

- Control panel functions

This section describes the functions available from the control panel.

- 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 and button. The tutorial describes the use of the button in some detail, and follows with an example.

The Control Panel

The control panel consists of five indicators and a single button.

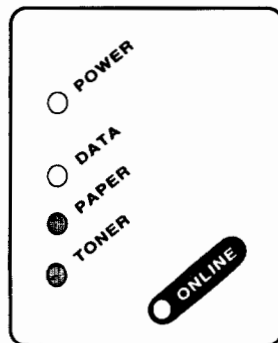


Figure 3-1 Control panel

Indicators

The control panel has five indicators which are labeled according to their main functions. These indicators may show:

- What the printer is doing
- Whether the printer is online or offline
- When paper is to be supplied
- When the toner cartridge is to be replaced

The following table lists main functions of the indicators.

Indicator	Main function
POWER	Indicates printer power is on.
DATA	Flashes when data is being sent from your computer. Lights steadily to indicate the printer's buffer contains unprocessed data.
PAPER	Flashes when the printer requests manual insertion of paper. Lights steadily when a paper jam or paper out has occurred.
TONER	Flashes for one or more of the following: <ul style="list-style-type: none">• When toner runs short (toner low)• When the fuser unit is to be replaced During flashing, the status report prints the causes. Lights steadily to indicate toner has run out. (toner empty)
ONLINE	Indicates the printer is online and ready to print.



Important:

Online means the printer can be controlled by the computer. Offline means the printer is effectively disconnected from the computer. The printer does not respond to any commands from the computer when offline.

Combined indicators also inform you of printer's error conditions requiring your attention, such as fuser failure or ROM/RAM alarm. See Chapter 7 for a complete list of these errors and basic printer statuses with explanations.

The **ONLINE** Button

To use the control panel **ONLINE** button effectively, you must understand that the **ONLINE** button has different functions – depending on the status of the **ONLINE** and **DATA** indicators at any given time – as summarized in the following table.

ONLINE indicator	How to use ONLINE	Function
On	Press for a moment.	Switches the printer offline.
Off	Press for a moment.	Switches the printer online.
	Press and hold down for five or more seconds.	Directs the printer to perform a Form Feed command. If data remains in buffer (the DATA indicator is on), it is printed.
Flashing	Press for a moment.	Clears a recoverable error (overflow, overrun, paper mismatch).

Control Panel Functions

Switching the Printer between Online and Offline

The printer is switched between online and offline.

- When the printer is online, pressing **ONLINE** switches the printer offline.
- When the printer is offline without any operator call conditions (for example, no paper alarm), pressing **ONLINE** switches the printer online.

Printing Data Remaining in the Buffer

When the printer is offline, pressing and holding down **ONLINE** for five or more seconds sends a Form Feed command telling 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

When the ONLINE indicator is flashing, pressing **ONLINE** clears an error condition and continues printing without any interruption. You can use this function to ignore a paper mismatch error. For example, you might want to print a page with letter-size format on a A4-size sheet. This type of error is indicated by the ONLINE indicator flashing with the PAPER indicator lit steadily. See Chapter 7 for other errors of this type.

Printing a Status Report

This section explains how to print a status report. This is another function of the **ONLINE** button. The printout takes about a few minutes. It takes more time if optional font cards have been installed.

To print a status report, follow these steps:

1. **Turn off the printer.**
2. **Press and hold **ONLINE** while turning on the printer.**
Wait through the initialization sequence until all the indicators (except POWER) go off.
3. **Release **ONLINE** at once when all indicators (except POWER) turn off.**

The ONLINE indicator turns on and the status report begins printing.

**Notice:**

Do not turn off the printer while the status report is printing because certain status information may be stored in disorder.

The status report summarizes printer option settings and available fonts. The first page gives the setup summary. The succeeding pages list the available fonts in portrait orientation. The last page lists the available fonts in landscape orientation.

The status report includes a warning message to prompt you to replace a consumable when it is printed while the TONER indicator flashes.

PRINTING AND
PAPER HANDLING

```

--- STATUS REPORT ---

NUMBER OF COPIES :01          AVAILABLE PERSONALITIES
FORM              :060LINES   RESIDENT              :PCL5
COMPATIBLE MODE  :ON         OPTION                 :HexDump
SELECTED FONT    :RESIDENT    OPTION FONT           :NON
FONT SOURCE      :0001        SELECTED HOST I/F     :PARALLEL
FONT NUMBER      :0001        PARALLEL ACK TIMING  :OUTSIDE
SELECTED TRAY    :TRAY1       I/O BUFFER            :1KBYTES
PAPER SIZE       :LETTER      SERIAL I/F CONFIGURATION
TRAY PAPER SIZE  :LETTER (TRAY1) BAUD RATE             :9600BAUD
ORIENTATION      :PORTRAIT    DATA FORMAT          :8NONE1
PROTECTION       :OFF         DATA FLOW CONTROL    :DTR HI
SELECTED PERSONALITY :PCL5
SMOOTHING        :ON
THICK PAPER      :OFF
MEMORY(RAM)      :5120KBYTES
FIRMWARE         :Ver1.2 Lev06
FONT             :Ver1.0 Lev04
ENGINE FIRMWARE  :Ver2.0 Lev01

                SELF TEST
                TEST
                SELF TEST

                SELF TEST
                TEST
                SELF TEST

                Page Printer

```

Figure 3-2 Status report (first page)

Handling Paper

This section covers these topics related to paper:

- Types and sizes of paper you can use with this printer, including envelopes and transparencies
- Ensuring that both the software program and the printer have compatible paper size settings
- Feeding paper manually

Paper Types and Sizes

This printer can print on a variety of common office papers in addition to standard photocopier bond. Bond paper can range in basis weight from 64 to 90g/m² (17 to 24 pound) for the paper tray and from 64 to 105 g/m² (17 to 28 pound) for the manual feed slot. Smooth paper produces the best print quality, but textured papers usually provide satisfactory results.



Notice:

When your printer model is the PrintPartner 8000, follow these guidelines:

- When you are using thick paper or special paper and find improper adhering of toner to the paper, turn the thick paper mode on using the PPMENU. This mode is invalid for envelopes.
- Do not turn the thick paper mode on unless you are using thick paper. Turn the mode off when you no more use thick paper. Printing ordinary paper with this mode on may cause decrease in print quality or reliability of the printer.

This printer can print on a wide range of paper sizes, but the size of the paper tray is fixed.

- When using the paper tray, the size is one of the following standards:

Paper size	Dimensions
Letter (US letter size)	8.5 × 11 inches
Executive	7.25 × 10.5 inches
A4 (European letter size)	210 mm × 297 mm

- When using the manual feed slot, the size is:
 - Minimum: 100 mm wide × 148 mm long (3.94 × 5.81 inches)
 - Maximum: 216 mm wide × 360 mm long (8.5 × 14.13 inches)

Although this printer can print on any sheet within the limits stated above, printing area and margin calculations are based on several paper sizes. Use the PPMENU to change the supported paper size.

To avoid paper mismatch errors or unwanted print results, you should ensure the following conditions:

- The paper tray is for the paper size that your software program has formatted the page for.
- The printer's paper size setting matches the actual size of paper in the tray. Refer to the PPMENU for the paper size setting and for more information.

General Tips

- Do not use paper that is wrinkled or curled.
- Do not use paper with staples or metal parts.

Preprinted Sheets

In general, you can safely print on preprinted sheets such as letterhead. However, letterhead with thermographic (raised) printing, embossing, or foil stamping may not work well. The forces used to create these effects (heat and/or pressure) are also used in the printer's fuser unit. For this reason, the fuser unit may damage the preprinted image.

Load preprinted paper with the printed side facing down in the paper tray. When using the manual feed slot, place paper with the printed side facing up. For printing in portrait orientation, the letterhead should be at the front of the tray. For landscape orientation, it should be at the left of the tray. For more information on printing in different orientations, see Appendix A, **About Page Printers**.

Transparencies

This printer can print on overhead transparency material.

- Use materials specially designed for laser printers or photocopiers.
- Always feed transparency material from the manual feed slot.
- To remove curls from printed transparency materials, use correct frames or put a weight on them for a certain period.

Envelopes

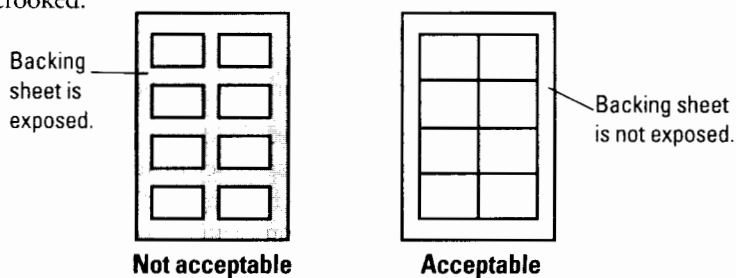
This printer prints well on envelopes if you carefully follow these guidelines:

- Use these envelope sizes:
 - US size 10: 105 × 239 mm (4.1 × 9.4 inches)
 - German type: 111 × 220 mm (4.4 × 8.7 inches)
- To avoid damage to the printer, never use envelopes with clasps, snaps, windows, or synthetic materials.
- Feed from the manual feed slot.
- Feed the envelopes with the gummed side of the flaps facing downward.
- Do not use “encapsulated” adhesives, which seal by pressure alone without moisture.
- To avoid jamming, restrict paper weight to under 64g/m² (17 pound).
- To avoid creasing along the edges, use high-quality envelopes with stiff edges.
- To avoid uneven printing, do not attempt to print on the gummed overlap areas.
- Be sure to feed or load the envelopes with the envelope centered against the manual feed slot. Use the guide of the paper sizes.
- Before attempting large-scale printing on envelopes, consult with your stationery dealer. Also, test the envelopes carefully for consistent, trouble-free printing.

Labels

This printer prints well on labels if you carefully follow these guidelines:

- Be careful to use labels under normal operating conditions. Labels are sensitive to temperature and humidity.
- Use only labels without backing sheets exposed in the printable area. Labels mounted separately on a backing sheet tend to slip and print crooked.



- Test-print labels before using them. If jamming problems occur and continue, try a different type of label.

Feeding Paper Manually

This printer has a slot that allows you to feed sheets manually one by one. Use the manual feed slot to print a document on a different type of paper without unloading your regular paper from the paper tray. You also use manual feed for printing envelopes, overhead transparencies, and labels.

To use the manual feed slot, first select MANUAL for the tray select using the PPMENU, then start your software program to print a file.

Center paper before inserting

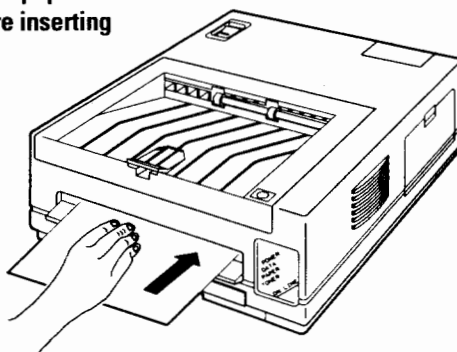


Figure 3-3 Manual feed slot

When the printer is ready to print the first page, the PAPER indicator flashes to prompt you to prepare a sheet of paper (or whatever paper size your file is formatted for). Place a sheet in the slot as shown in Figure 3-3. Center the sheet against the slot and put the side to be printed on face up. Use the paper size guide on the slot for centering. Insert the sheet until it is stopped by the feed rollers. Keep it in these conditions until paper is fed. Insufficient insertion prevents paper from being fed or causes skewed feeding. Once paper is fed, let go off it because it is fed automatically two seconds after insertion. If your file has additional pages, the printer prompts you for another sheet.



Figure 3-4 Paper size guide

Printing on Nonstandard Size Paper and on Envelopes

Most of the control over printing on nonstandard size paper must come from your software program. Programs handle page size specifications in many different ways.

This section provides the following guidance for the considerations that apply to this printer.

Considerations on Paper Size

The following considerations apply to the printer:

- For envelopes and other nonstandard paper sizes, use the manual feed slot.
- Using the PPMENU, select a paper size that is equal to or *larger* than the physical size of the nonstandard size paper. Otherwise, part of the printed image may be cut off.

Selecting a paper size larger than the physical paper size creates one problem. The printer calculates the printing area based on the setting by the PPMENU. Therefore, the printing area may be larger than the physical size of the nonstandard size paper. For this reason, the printer may “print” data that runs off the edges of the paper. Printing off the edges of the paper deposits toner inside the printer. This can affect print quality and shorten the life of the print unit. This problem occurs also when you put paper without centering it in the manual feed slot. To avoid this problem, adjust the page setup in your program so the print data falls within the limits of the physical page or center the paper in the manual feed slot.



Important:

For more information about printing area, paper orientation, and other page printer characteristics, see Appendix A, **About Page Printers**.

Setting Printer's Features

This chapter focuses on the printer remote setup utility program, PPMENU, stored in the PPMENU floppy disk which is furnished with the printer. The PPMENU allows you to easily change your printer's features directly from your computer display and keyboard in place of the printer's control panel. You use it to configure your printer to suit the requirements of your computer, software, and documents. The PPMENU also has maintenance-aid functions which allow you to perform the printer self-test and print a list of available fonts.

The parameters you can change using the PPMENU affect page layout, font, and printer control. If your software programs have printer drivers, the printer drivers control these parameters for you. You may never need to change the settings manually using the PPMENU. However, there are two functions which you can't change or control from your application software. See the end of this chapter, "**Important Functions**".

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

Remote Setup Utility Program, PPMENU

The PPMENU first displays the opening menu where you can find setup menus, maintenance-aid functions, and functions assigned to some keys. You can set parameters or perform a function by using pulldown-menus accessed through your mouse or keyboard.

To use the PPMENU, your computer and its operating environments must be as follows:

- IBM PC/AT or compatible
- MS-DOS 3.3 or higher
- EGA or higher display
- Hard disk drive installed

The PPMENU is supplied with a 3 1/2" 2HD floppy disk (1.44 MB, 512 bytes/sector). Consult your dealer when your computer does not have the corresponding floppy disk drive.

To install the PPMENU files to the hard disk (suppose C) and start the PPMENU, follow these steps:

1. Insert the PPMENU disk in the floppy disk drive (suppose B).
2. Type B: then press ENTER.
3. Type INSTALL then press ENTER.
4. To run PPMENU, type PPMENU then press ENTER.

The following opening menu is displayed:

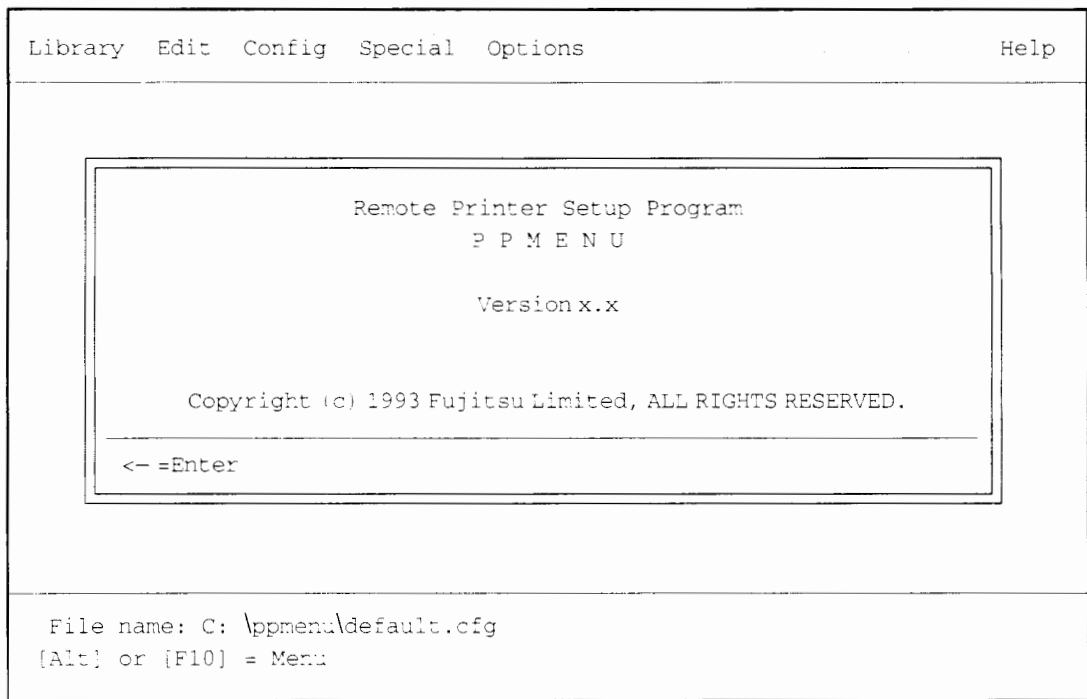


Figure 4-1 Opening menu

5. To highlight the first menu title, move the mouse cursor to the menu titles bar on the desired menu and press the left mouse button or press F10 or Alt on the keyboard. Select one of the menus in the top menu titles bar using the mouse or the left/right cursor keys and confirm

your selection by pressing the left mouse button or the Enter key. The corresponding menu is displayed and the first item in it is highlighted.

After the items of a menu are displayed, you can select any one you wish. Using the mouse, move the mouse cursor on the item of your choice and press the left mouse button to select it. Using the keyboard, press the up/down cursor keys to move the highlighting bar to the desired item and confirm your choice with the Tab or Enter key.

- To exit the options window of items and return to the menu titles bar, press the left mouse button or the ESC key on your keyboard. To exit to DOS, choose the item "Exit" in the "Library" menu.

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Help Information

To get general information on the PPMENU program, press the F1 key. To get the help index, press the Alt+F1 keys simultaneously. Press the left mouse button in the ESC field or press the Esc key to return to the original screen. To get information on the shortcut keys, press Alt+F9.

Menu Functions and Items

Below you can see the structure of the functions and items found in the menus of this printer setup program.

Library	Edit	Config
Read User Created Read Default Save Save as Exit the program About	Language Settings Default Settings PCL Font related Settings Interface Settings Status Settings * Info Settings* Clear Warning Settings * FPS related Settings	Set Language Set PCL Defaults Set FPS Defaults Set Interface Inquire Defaults Inquire Interface
Special	Options	Help
Selftest Print Font Clear Warnings * Set Request Status Set all Status off * Get Info	Printer Configuration Mouse control ... Beep ... Color palette ... Shadow on Border double on	General information F1 How to use the mouse F8 Keyboard Layout F9 Shortcut keys Alt+F9 Help index ... Alt+F1

* These items are inhibited.

The top menu titles bar offers the following function menu:

Library

- Read User Created Allows you to load a previously saved printer setting for further handling.
- Read Default Reads in the default configuration from the disk.
- Save Saves the currently edited configuration under the file name indicated at the bottom of the screen. Note that changing and saving the default configuration is not possible.
- Save as Saves the currently edited configuration under a new file name.
- Exit the program Terminates the program.
- About Displays information about the PPMENU.

Edit

- Language Settings Selects the command language the printer shall use. Always take care that the printer is set to the language your application is using.
- Default Settings Selects the default settings for the printer.
 - Copies* Numeric window. Number of copies the printer shall print from each page sent by the host. Range is 1 to 99.
 - Paper size* Select window. Paper format to be supported by the printer.
 - Orientation* Select window. Printing direction.
 - Form lines* Numeric window. Number of lines per form. Range is 5 to 128.
 - Smoothing (FEIT)* Select window. Turns the smoothing option on or off.
 - Page protect* Select window. Turns the page protect option on or off.

<i>Tray</i>	Select window. Selects a paper input source.
<i>Thick paper mode</i>	Select window valid for 8-ppm models. Turns the thick paper mode option on or off. Note that this mode must be off whenever you are using paper of ordinary thickness.
PCL Font related Settings	Configures the printer's font to your needs.
<i>Font number</i>	Numeric window. Selects a font by its internal number. Range is 1 to 9999.
<i>Pitch</i>	Numeric window. Selects the character width. Range is 0.44 to 99.99.
<i>Font source</i>	Select window. Selects where the printer shall find the font.
<i>Compatible mode</i>	Select window. Turns the font compatible mode on or off.
<i>Font name</i>	Select window. Selects the desired font name.
<i>Point size</i>	Numeric window. Selects the character height. Range is 4.00 to 999.75.
<i>Symbol set</i>	Select window. Selects the desired symbol set.
Interface Settings	Configures the printer's interfaces to meet the requirements of your system.
<i>Interface</i>	Select window. Lets you select the interface to be used.
<i>Acknowledge</i>	Select window. Sets the timing of the ACK signal from the printer.
<i>Baud rate</i>	Select window. Selects the transfer speed on the serial interface.
<i>Format</i>	Select window. Sets the data format for the serial interface. The first digit indicates the number of data bits. Then comes the parity and the last digit indicates the number of stop bits.

Flow control Select window. Selects the interface protocol.

Status Settings Inhibited.

Info Settings Inhibited.

Clear Warning Settings Inhibited.

FPS related Settings Inhibited.

Config

Set Language Sends the command string to the printer to set the printer language you selected in the Edit Language Settings menu.

Set PCL Defaults Sends the command string to the printer to set the printer default settings you selected in the Edit Default Settings menu for the PCL emulation.

Set FPS Defaults Same as the above, but for the FPS emulation.

Set Interface Sends the command string to the printer to set the printer interface and communication options you selected in the Edit Interface Settings menu.

Inquire Defaults Causes the program to inquire from the printer the current default settings and to compare them with the settings in the current selected configuration.

Inquire Interface Causes the program to inquire from the printer the current interface settings and to compare them with the settings in the current selected configuration.

Special

Selftest Sends a command to the printer to start the execution of the selftest function.

Print Font Causes the printer to print the font list.

Clear Warnings Inhibited.

Set Request Status Causes the program to request the actual status

from the printer and show it in a display window.

Set all Status off	Inhibited.
Get Info	Acquires information about the printer's basic configuration and capabilities.

Option

Printer Configuration	In later versions, PPMENU will be able to recognize and control a validity of printers.
Mouse control	Allows you to adjust the tracking speed of your mouse.
Beep	Customizes the beep sound used by PPMENU to get your attention. The beep can be changed in frequency, beep time and you can turn it on or off.
Color palette	Gives you some choice for the color setting in the PPMENU screen.
Shadow on	Switches between single or shadowed borders (right and bottom) around the pull-down menus.
Border double on	Switches between single or double borders around the pull-down menus.

The above features are for this printer's resident emulation, HP LaserJet III. These contents differ with emulations you selected. However, the points are the same.

To replace the old settings in the printer with the new ones in the menus, use the "Config" function to send the present settings you have just changed. To save these changed settings in your computer, use the "Save" or the "Save as" function (see explanation of the difference in the Help file).

You can use other functions to check the current settings, to print font samples, to facilitate daily settings, and to maintain the printer. Refer to the help message on each function.

Factory Defaults

The PPMENU initially shows the factory defaults of each item in the Edit menu. Table 4-1 shows the factory defaults. Parameters of the Default Settings menu and the Font Related Settings menu are normally controlled by a printer driver. The defaults for these parameters apply only in the absence of parameter information from the computer.

Table 4-1 PCL5 (LaserJet III) emulation factory default parameter settings

Feature	Default	Other options or range of options
Printer language	PCL5	FPS
Number of copies	1 copy	1 to 99 pages
Paper size	Letter	A4, Executive, and so on
Page orientation	Portrait	Landscape
Form lines	60 lines	5 to 128 lines
Smoothing (FEIT)	On	Off
Page protect	Off	On
Paper tray	Tray 1	Manual
Thick paper mode (*)	Off	On
Font number	1	1 to 9999
Pitch	10 cpi	0.44 to 99.99 cpi
Font source	I (resident)	M1 (option card, SIMM font)
Compatible mode	On	Off
Font name	Courier 10	LinePrinter 17, CG Times, Univers, and so on
Point size	12 point	4.00 to 999.75 point
Symbol set	ROMAN8	ISO4, ISO6, ISO11, ISO15, and so on
Interface	Parallel	Serial
ACK signal timing	Outside	Inside
Baud rate	9600 baud	1200, 2400, 4800, or 19200 baud
Data format	8 None 1	Combinations of data bits, parity type, and stop bit(s)
Flow control	DTR HI	DTR LOW, XON, or ROBSON

Shading identifies those features dependent on each other. Pitch and point size are used for scalable fonts only (pitch for fixed-spacing fonts and point size for proportional-spacing fonts).

* Valid for 8-ppm models and made selectable when you select Options from the menu titles bar, select Printer Configuration, and select PrintPartner 8000 as the printer name option.

Important Functions

Among the above PPMENU, the following are some important operational settings and maintenance functions that you cannot change or control from your application software.

- **Language.** Allows you to select an emulation other than PCL5 (HP LaserJet III) when an optional emulation card is installed.
- **Page Protect.** If you have expanded memory, the Page Protect function guards against loss of data on pages with complex graphics.

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Enhancing and Customizing the Printer

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

- Add RAM up to a total of 9 megabytes including resident RAM.
- Expand the fonts available from the printer.
- Install an alternate to the resident HP LaserJet III emulation.
- Add an additional interface to the Centronics parallel interface.
- Add different sizes of paper trays.

You can order these options separately. See Appendix C for ordering information. Contact your dealer for information on other options that are or will be available since you purchased the printer.

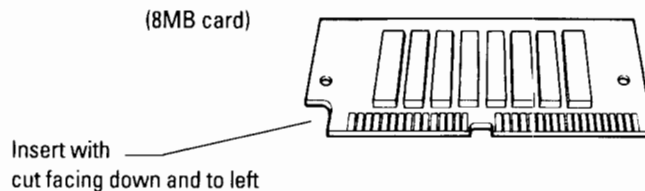
The following gives you brief information and installation instructions on each option.

Adding RAM

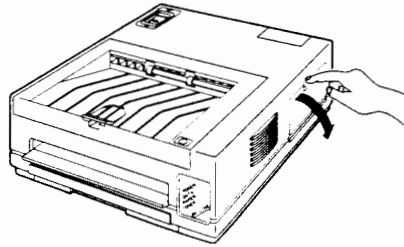
You may need to expand RAM to process more data for either of the following reasons:

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

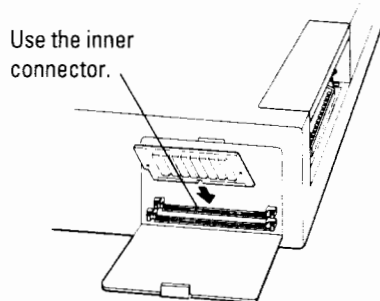
You can install a single memory expansion card. The card can have one, two, four, or eight megabytes of RAM. Together with the printer's standard one megabyte, these expansion options offer a range of RAM from two to nine megabytes.



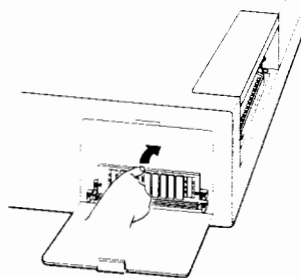
To install the RAM card, first make sure the printer is turned off and follow these steps:



1. **Open the memory card slot cover at the right side of the printer.** You can now see two connectors. The inner one is for the RAM card.

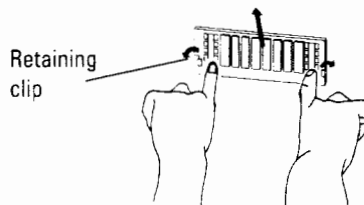


2. **Orient the RAM card.** Hold the card with the cut corner down and facing left and insert the card aslant into the inner connector.



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

Turn power on. If necessary, change buffer memory assignment using the PPMENU according to your job.



To remove the RAM card, push out the retaining clips. Then, card slants outwards. Pull the card to remove.

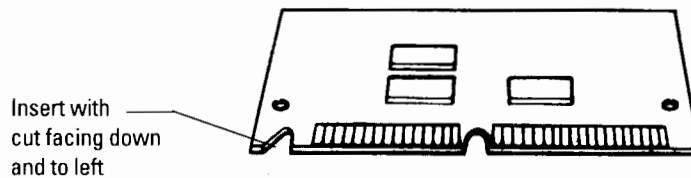
Adding Available Fonts

Additional fonts are offered with font cards. You can use these fonts to fit your documents to your jobs. Font card A (HP font compatible) is available.

You can install a single font card. One card can have multiple fonts. Together with the printer's standard fonts, these fonts offer a wide range of fonts for printing general texts, accounting data, and other professional expressions.

The installation procedure of the font card is the same as that of the RAM card. However, you must use the outer connector. Since the emulation card also uses the outer connector, you cannot use the font card and the emulation card at the same time.

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Installing an Alternate Emulation

Alternate emulations are offered with emulation cards. You can use these emulations to connect your printer to different computers. The FPS (PostScript compatible) card is available. However, you need a 2MB additional memory to use the FPS emulation.

Installing an alternate emulation has two main steps:

- Install the emulation card and an additional memory card.
- Select the alternate emulation using the PPMENU.

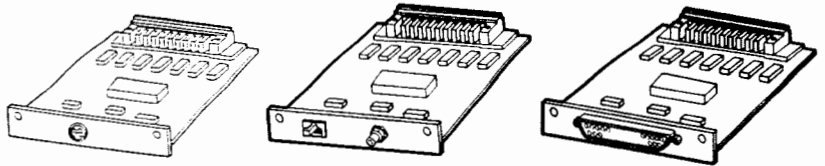
The installation procedure of the emulation card is the same as that of the RAM card. Use the outer connector. Since the font card also uses the outer connector, you cannot use both emulation card and font card at the same time.

With the emulation card installed, you can select the alternate emulation in the control language menu of the PPMENU. Refer to the PPMENU for information on how to select options in the menu.

Once you select the alternate emulation, the other menus change to reflect the options and functions of the new emulation. Consult the documentation supplied with the emulation card for the menu functions and items. Procedures for working in the menus remain the same as for the resident emulation.

Installing an Interface Expansion Board

The printer's standard interface is parallel. The available optional interfaces are serial, LocalTalk, and Ethernet. If your computer cannot have a parallel port for your printer or the location of your printer is distant from the computer, you use the serial port, LocalTalk port, or Ethernet port of the computer to connect your printer. For this purpose, the serial interface (RS-232C/422A) board, LocalTalk board, and Ethernet boards A and B are offered.

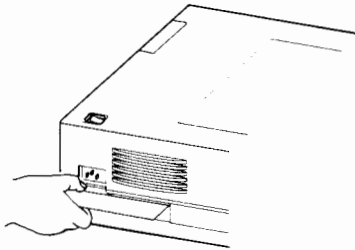


LocalTalk interface board

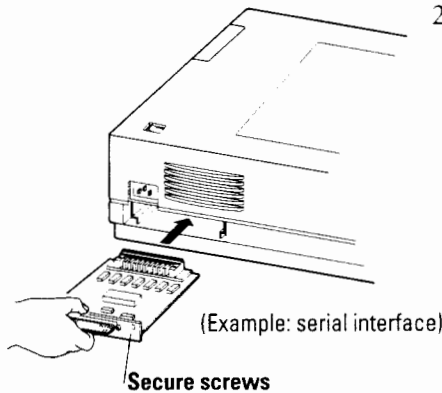
Ethernet interface board

Serial interface board

Installing an Interface Board



1. To install an interface board, first make sure the printer is turned off. Break the interface board slot cover off from the left side of the printer cover. You can see the slot.



2. Hold the board with the parts mounting side up. Slide the board into the slot along the guides and push it until it is stopped. Secure the board by the two screws supplied with the board.

Connecting to the LocalTalk Port

Connecting to the LocalTalk port involves the following one task:

- Connect the interface cable to 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.

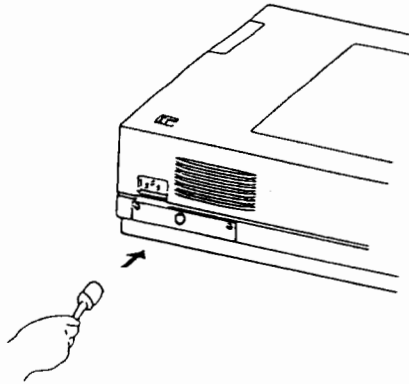
For example, the LocalTalk Locking Connector Kit—DIN-8 (Apple product) is available. Also refer to your computer documentation for the type of connector required by its LocalTalk port.

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Notice:

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



To make the connection, firmly plug the cable connector into the LocalTalk interface port on the left 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 interface is parallel. While the LocalTalk interface board is installed, the printer automatically understands whether the computer selects the printer through 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

Connecting to the Ethernet Port

The Ethernet interface board of this printer has two connectors, 10BASE-2 and 10BASE-T. The 10BASE-2 connector is for a coaxial cable, bus connection. The 10BASE-T connector is for a twisted-pair cable, star connection. Either will do.

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 connector of the interface board according to the connector type of your cable by a DIP switch on the board. See the manual of the board.
- 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.

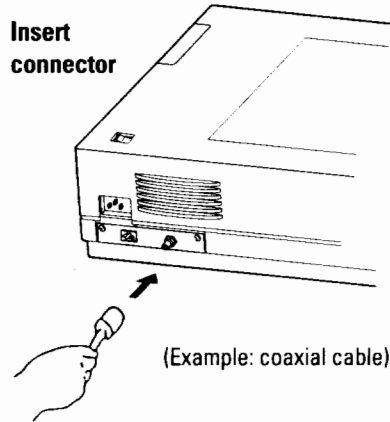
For example, C66L-2810-0111 and C66L-1240-0002 (Fujitsu products) are available for 10BASE-T and 10BASE-2 ports respectively. Also refer to your network documentation for the type of connector required by its Ethernet port.



Notice:

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

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 left 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.

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Selecting the Ethernet Interface

The printer's standard interface is parallel. While the Ethernet interface board is installed, the printer automatically understands whether the computer selects the printer through the Ethernet interface.

Ethernet Specifications

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

Specification	Description
The span of 10BASE-2	Max. 185 meters (coaxial, bus connection)
The span of 10BASE-T	Max. 100 meters (twisted-pair, start connection)
Speed of data transmission	10M bits/second

Connecting to the Serial Port

Connecting to the serial port involves three tasks:

- Connect the interface cable to the printer and your computer.
- Change interface settings of the printer from parallel to serial using the PPMENU.
- Verify that the serial interface parameters of the printer and your computer are the same. Also, use the PPMENU.

Connecting the Serial Interface Cable

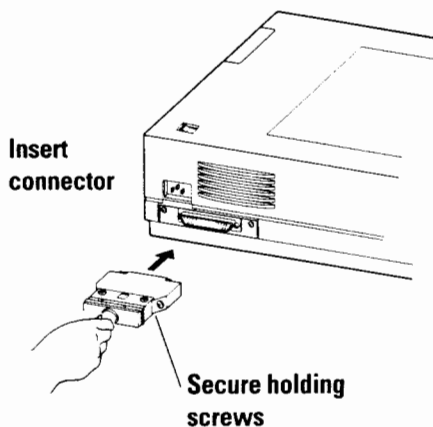
To connect to the serial interface port, you need a cable correctly wired for this printer and your computer. The cable must also have the proper connectors. Your dealer or technical support person can supply you with the proper cable.

If you need to provide information on wiring requirements, refer to the reference manual. The printer's serial port requires a male DB25 connector. Refer to your computer documentation for the type of connector required by its serial port.



Notice:

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



To make the connection, plug the cable connector into the serial interface port on the left 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.

Selecting the Serial Interface

The printer's standard interface is parallel. Change the interface setting of the printer to serial. Use the PPMENU. If you have not yet turned on the printer, do so now. Wait through the initialization sequence until the ONLINE indicator lights.

Verifying Serial Parameter Settings

Next, you must make sure the serial parameter settings are the same for 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 default settings in the following table.

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Setting	Default value
Baud rate	9600
Data bits	8
Stop bits	1
Parity	None
Flow control	DTR HI

If the settings match, you are finished. If the interface parameters of the printer and the computer do not match, the ONLINE indicator flashes without any other indications. The printer does not respond at all or prints wrong characters. Change settings by one of the three ways:

- Use the PPMENU to change the printer's defaults.
The reference manual explains the parameters to be set.
- Set permanent defaults in your computer that 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.



Important:

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

- 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.

Adding Different Sizes of Paper Trays

This printer is shipped with a fixed size of paper tray. For example, it is the letter size for the USA and the A4 size for Europe. You can use different sizes of paper trays as shown in the following table. To install the paper tray, refer to **Loading Paper and Installing the Paper Tray** in Chapter 1.

Paper size	Dimensions
Letter (US letter size)	8.5 × 11 inches
Executive	7.25 × 10.5 inches
A4 (European letter size)	210 × 297 mm

Maintenance

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

**Notice:**

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

MAINTENANCE

Preventive Maintenance

There is no recommendation for any scheduled preventive maintenance, but 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 top cover for more than three minutes, remove the print unit with the toner cartridge 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.
- Print a status report when the TONER indicator flashes and confirm the cause of indicator flashing. For printing, see Chapter 1.

Periodic Routine Maintenance

Table 6-1 lists the printer's periodic routine maintenance and indicates when this maintenance needs to be performed.

Table 6-1 Periodic Routine Maintenance

Maintenance	When to perform
Replace toner cartridge	When the TONER indicator flashes (toner low) or lights steadily (toner empty), or when printing is too light
Replace print unit	When printing is too bad even after replacing or cleaning other parts
Clean corona wire	When replacing the print unit or toner cartridge, or when printout shows vertical white lines
Clean paper path	When replacing the print unit or toner cartridge, after clearing a paper jam, or when printouts show toner smudging
Clean LED array	When replacing the print unit or toner cartridge, or when print density is uneven
Clean precharger wire	When print density is uneven or when printing shows black vertical lines

Replacing the Toner Cartridge

The toner cartridge is designed to last approximately 1600 printed pages under the condition of 5% coverage on A4 paper. The first toner cartridge may print a little fewer pages.

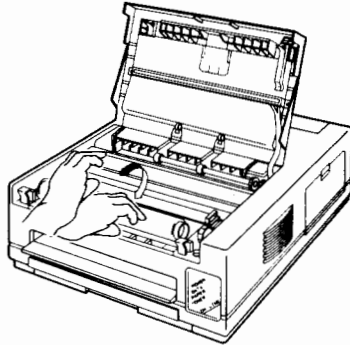
Replace the toner cartridge when the TONER indicator flashes (toner low), when the indicator is lit steadily (toner empty), or when printing becomes lighter than you find satisfactory. Steady lighting of the TONER indicator means the toner cartridge contains no toner. Under the no toner condition, the printer will not work.



Important:

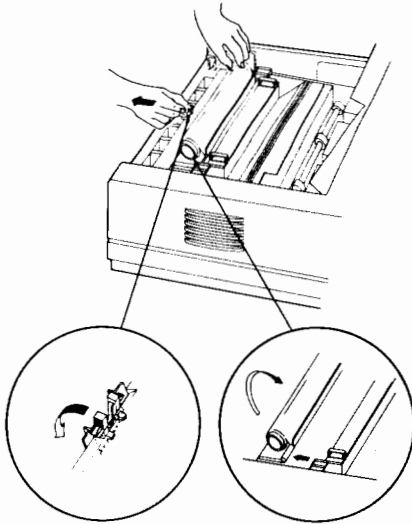
You can continue to print after the toner low status if the print quality is still satisfactory. However, you must at least prepare a new toner cartridge.

To replace the toner cartridge, follow these steps:



1. **Open the top cover.**
2. **Tap the toner cartridge.** Tap the toner case to drop any remaining toner from toner cartridge into process cartridge. This avoids the remaining toner from being spilt inside the printer during replacement.

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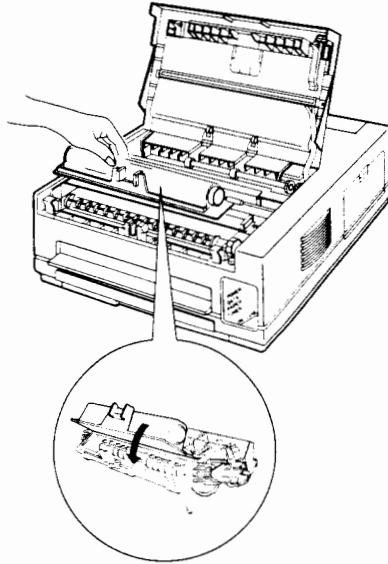


3. **Unlock and remove the old toner cartridge.** Pinching the center green cathes together, pull the catches down and towards the front of the printer. Using the other hand, swing the casing up and away from the green catches to release from the print unit. Gently remove the cartridge. If necessary, clean toner around the toner hopper entry of the print unit.

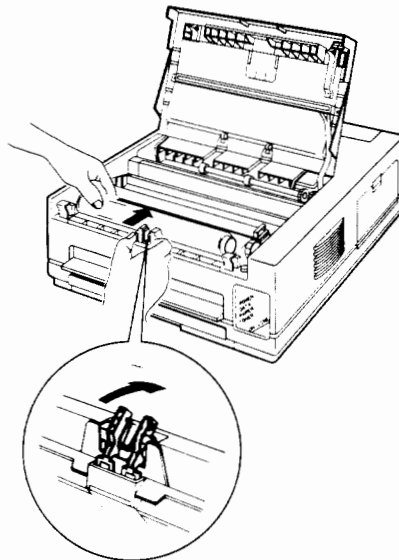


Notice:

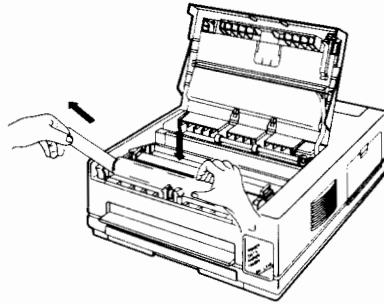
Be careful not to put dust or foreign matters into the toner hopper.



4. **Install the new toner cartridge.** Remove the toner cartridge from its envelope. Place the circular locating pins of the toner cartridge under the tabs on the print unit. Then, slowly lower the toner cartridge. If the toner cartridge is lowered rapidly, the toner may be scattered.



5. **Lock the toner cartridge.** Pinch the center green catches together and push upwards to hook them onto the toner cartridge.



6. **Remove the plastic seal.**
Holding the toner cartridge, pull the end of the sheet as gently as possible to avoid scattering toner.



Notice:

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

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Replacing the Print Unit and Internal Cleaning

The print unit life is designed to last about 10,000 pages of 5% coverage 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 ends when background smudge, ghost, or dropouts occurs. Avoid unnecessary high coverage printing to maintain the print unit performance.

Replacing the print unit involves replacing the toner cartridge. It is better to perform the following set of procedures when replacing the print unit:

- Remove the old print unit including the toner cartridge.
- Clean the LED array.
- Clean the paper path.
- Clean the corona wire.
- Install the new print unit, then the new toner cartridge.

The following sections describe these procedures in the order listed.

Removing the Print Unit

Perform this procedure in the following cases:

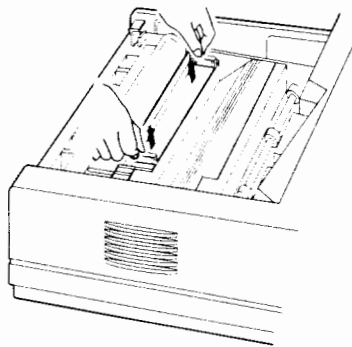
- To replace the print unit
- To store the print unit in a clean, dark place when working inside the printer for more than three minutes



Caution:

For safety, turn off the printer and disconnect the power cord before beginning.

To remove the print unit, follow these steps:



1. **Open the top cover.**

2. **Remove the print unit.**

Grasp the unit by its green handles. Then lift it straight up and out.



Notice:

To avoid spilling toner, be sure to keep the print unit upright and keep the toner cartridge mounted on the print unit.

Cleaning the LED Array

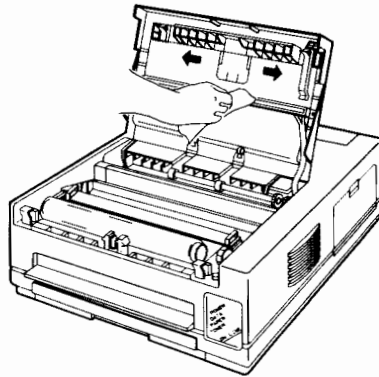
Perform this procedure in the following cases:

- When replacing the print unit
- When the print density is uneven



Caution:

Do not use alcohol or other cleaning solutions that make the LED's lenses cloudy.



The LED array is a grid of light-emitting diodes that form the image on the drum. For best print quality, you should keep the array clean. Use any soft, lint-free cloth to clean any dust or toner from the array.

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Cleaning the Paper Path

Perform this procedure in the following cases:

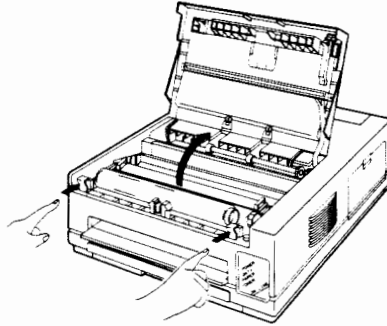
- When replacing the print unit
- After clearing a paper jam
- When printouts show toner smudging



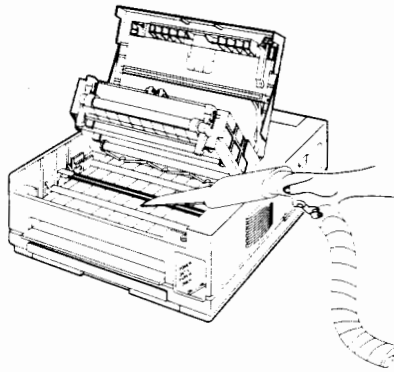
Notice:

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

If you think you need more time, remove the print unit and store it in a clean, dark place. To remove the unit, see the section **Removing the Print Unit** earlier in this chapter.



1. **Open the support frame.** Push the green lock levers to unlock the support frame and lift the frame up until it stays open.



2. **Clean the paper path.** Look for spilled toner on the inside of the printer. Use a damp cloth or a small vacuum cleaner to remove any toner stains.



Notice:
Never touch or scratch the drum surface.

Cleaning the Corona Wire

The corona wire is located in the metallic housing (chrome frame) on the base frame of the printer inside.

Perform this procedure in the following cases:

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



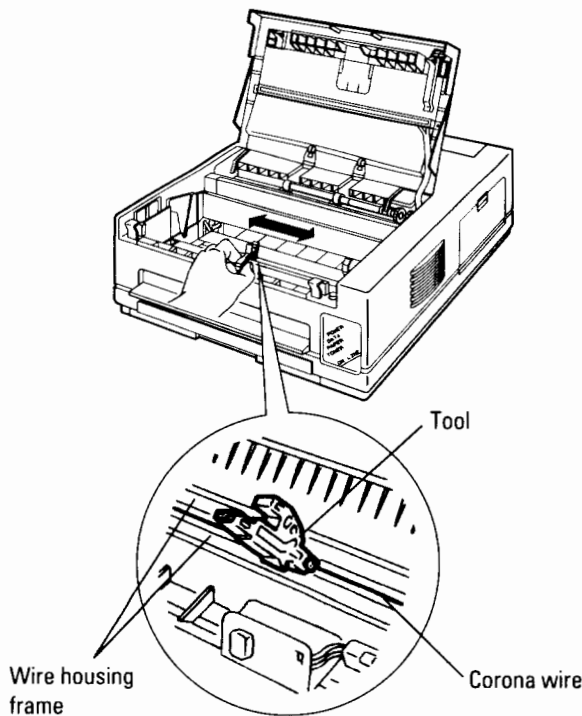
Notice:

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

Be careful not to break the corona wire.

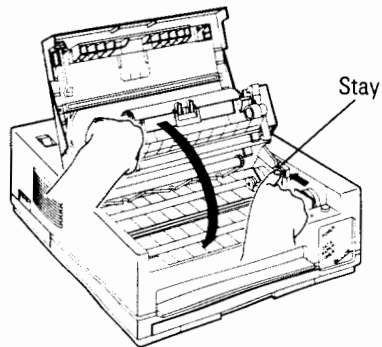
MAINTENANCE

Use the cleaning brush supplied with the printer. Take care of the direction of the tool.

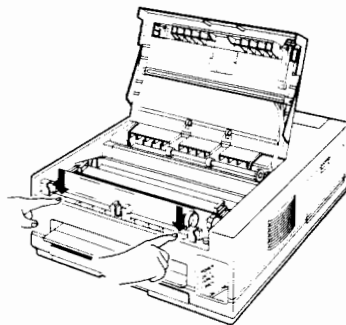


Remove the print unit and store it in a dark, level, steady place. Using the tool as shown in the figure, clean the corona wire. Fit the positioning cut onto the wire housing frame and gently move the tool along the length of the wire to remove any dirt or other substance. Be careful not to break or otherwise damage the wire.

After you have cleaned the printer, close the support frame.



1. **Unlock the stay and close the frame.** Press the stay forward to disengage it from the frame's arm and push down the support frame.



2. **Lock the support frame.** Push down on the front parts (marked PUSH) of the frame until the support frame clicks shut.

Installing the New Print Unit



Notice:

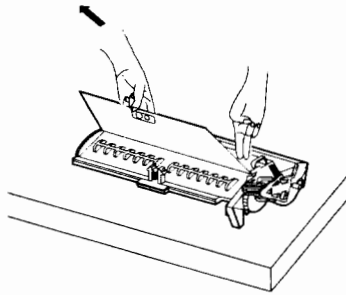
To avoid exposing the photoconductor drum to light or contamination, follow these guidelines:

- 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 three minutes.

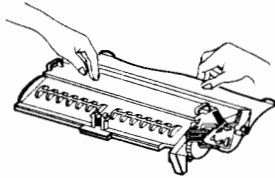
To avoid damaging the drum:

- Do not touch or scratch the drum surface.
 - Be sure to remove the plastic sheet before installing the print unit. Operating the printer without removing the sheet will make the print unit unusable.
-

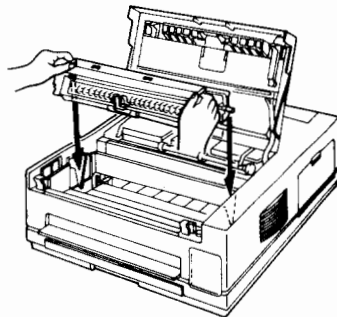
To install the new print unit, follow these steps:



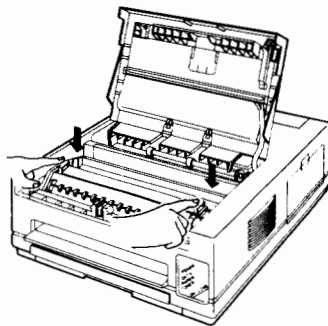
1. **Remove the print unit from its envelope.** Place the unit on a level, steady place.
2. **Remove the upper sheet from the print unit.** Holding the print unit, gently pull out the sheet that appears beneath the green plate.



3. **Remove the lower sheet from under the print unit.** Peel off the sheet that sticks to the drum.



4. **Lower the print unit into the printer.** Grasp the print unit by its green handles. Keep the surface of the green plate horizontal. The ends of the drum shaft should slide down into the grooves on the sides of the printer and the left front electrode is placed into the square hole at the left side of the printer base.



5. **Seat the print unit in place.** Press down gently on the green handles until the print unit sits into position.

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Notice:

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

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

Close the printer's top cover. Press down the top cover until it clicks shut.

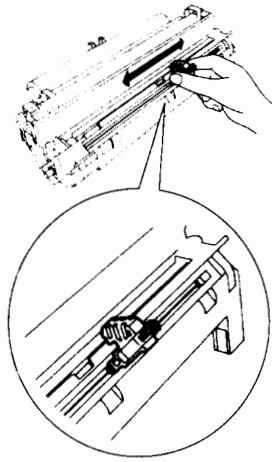
Reconnect the power cord and turn on the printer.

Cleaning the Precharger Wire

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

- Your printed pages have dark vertical lines, or the print density is uneven.
- Cleaning the corona wire and the LED array does not solve the problem.

Use the cleaning brush supplied with the printer. Take care of the direction of the tool. To clean the precharger wire, follow these steps:



1. **Open the top cover of the printer.**
2. **Remove the print unit from the printer.** Place the unit on a level, steady place.
3. **Clean the wire.** To clean the wire, position the tool as shown in the figure, then slide the tool gently along the length of the wire to remove any toner or other particles. Be careful not to break or otherwise damage the wire.

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Notice:

- Avoid exposing the drum to light for more than three minutes.
- Do not touch or scratch the drum surface.

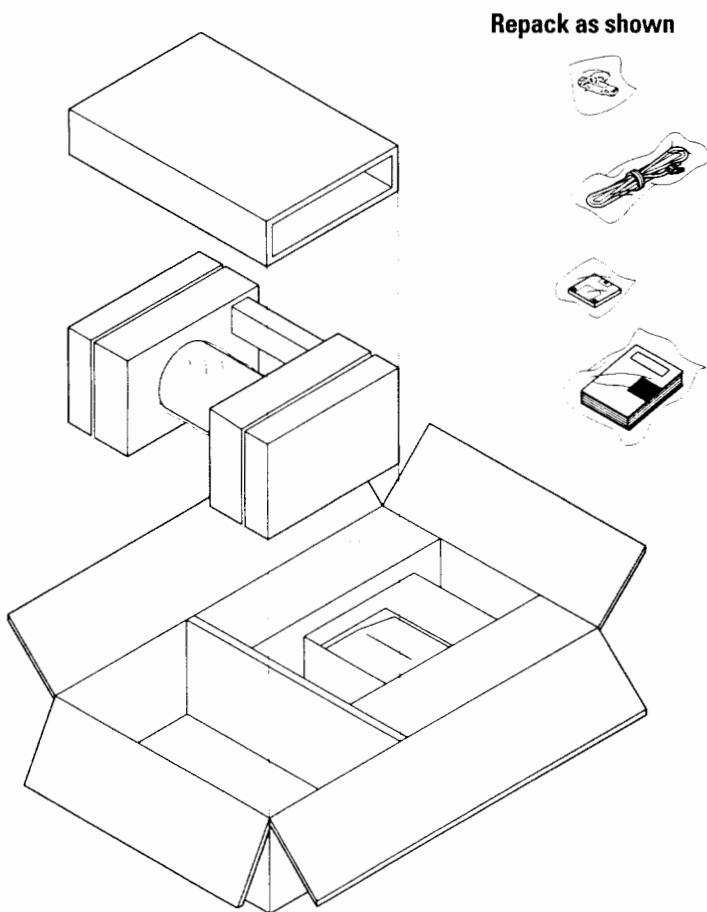
Repacking the Printer

If you need to ship your printer or store it for an extended time, protect the printer by packing it in its original carton.

First remove the print unit with the toner cartridge mounted. Without separating them, place print unit in its original wrapping if available. Otherwise, wrap the print unit in clean paper to shut out any light.

To protect the printer from moisture, place it in the plastic bag it was shipped in. Seal the bag with tape.

Place the printer in its carton using the original corrugated cardboards to brace and protect the printer. The illustration shows the position of the printer components within the carton.



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 problem and suggests solutions. For detailed procedures, see Chapter 6, **Maintenance**.

This chapter is divided into five sections:

- *Clearing Paper Jams.* This section explains how to locate and clear paper jams.
- *Operational Problems.* Start here if the printer doesn't function properly. You may save yourself a service call.
- *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.

Clearing Paper Jams

The printer has sensors to detect paper jams. If a jam occurs, the printer displays it with the PAPER indicator lit steadily. Because the paper path is short and simple, you should have no problem locating the jam.

**Notice:**

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

To clear a paper jam, follow these steps:

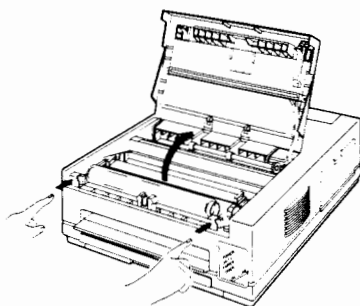


Notice:

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

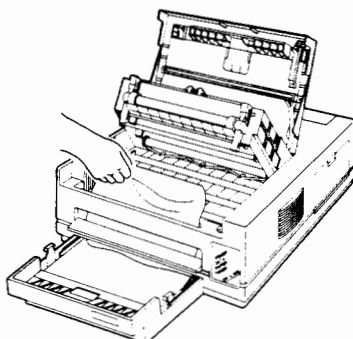
Be careful not to expose the drum to light for more than three minutes.

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



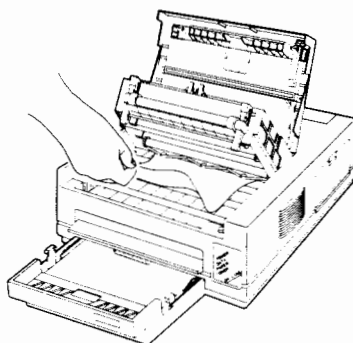
1. Open the support frame.

Open the top cover. Push the green lock lever to unlock the support frame and lift the frame until it stays open.



2. Check the paper tray.

The sheet may have jammed before exiting the tray. Pull out the tray and the sheet. If you cannot pull out the tray or the sheet, continue with the procedure.



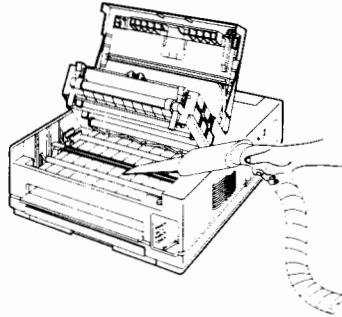
3. Check inside the printer.

If the sheet has jammed before the heat roller, remove the sheet as shown in the figure.

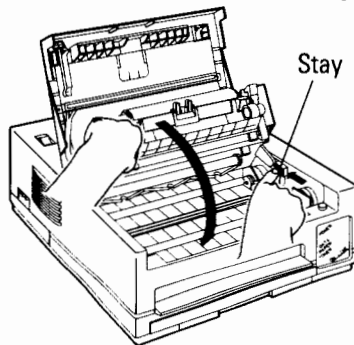


Caution:

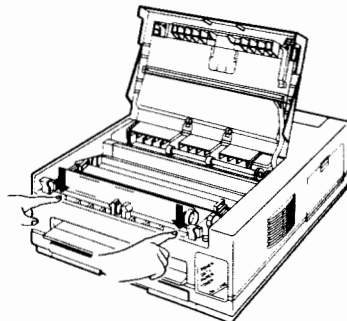
Do not touch the heat roller and the two motors at the right. These areas are hot. See the label attached to the top cover.



4. **Clean the inside of the printer.** Look for spilled toner inside the printer. Clean away any toner with a damp cloth or a small vacuum cleaner.



5. **Unlock the stay and close the frame.** Press the stay forward to disengage it from the frame's arm and push down the support frame.



6. **Lock the support frame.** Push the front parts (marked PUSH) of the frame until the support frame clicks shut.
7. **Close the top cover.**



Caution:

Before closing the top cover, make sure the support frame is latched completely. Closing the top cover with the support frame unlatched may cause the top cover not to open again.

SOLVING
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	Top edge of paper stack may be deformed (wavy or bent sheets). Try turning the paper stack around. Paper stack may not be aligned properly. Pull out the tray, straighten the paper stack against the paper guides, and once again insert the tray. Too many sheets in the paper stack. Make sure the stack is level with or below the limit mark on the left paper guide. The paper pressure plate may not be released. Pull out the tray and insert the tray again until it clicks up.

Operational Problems

Problem	Solutions
No power when you turn on the printer	Check that the power cord is plugged in at both ends and that the power outlet has power.
Printer does not initialize	Close the top cover completely.
Printer initializes, but does not become online	Install a print unit, or make sure the support frame is correctly set. Check that the paper tray is inserted all the way.
Printer initializes, but the settings are wrong	Use the PPMENU to select the desired settings.

Print Quality Problems

Problem	Solutions
Printing is too light	Turn the print density dial clockwise. Check as to whether the paper you are using is wet. Remove the print unit and rock it to distribute the toner evenly. Clean the corona wire.
Printing is too dark	Turn the print density dial counter-clockwise.
Page is black	Clean the precharger wire. Replace the print unit.
Page is blank	Clean the corona wire. Clean the LED array. Replace the print unit.
Vertical density is uneven	Remove the print unit and rock it to distribute the toner evenly, or replace the print unit. Clean the LED array. Clean the corona wire. Clean the precharger wire.
Vertical white lines appear	Clean the LED array. Clean the corona wire.
Vertical black lines appear	Clean the precharger wire.
Ghost printing	Print several pages if this problem occurs after a paper jam. Clean the corona wire. Check as to whether the paper you are using is wet. Contact your dealer if the fuser unit is damaged.
Pages have toner stains or smudging	Print several pages if this problem occurs after a paper jam. Clean the paper path. Contact your dealer if the fuser unit is damaged.

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Problem	Solutions
Toner insufficiently adheres to or easily comes off paper when you are printing thick paper or special paper with the PrintPartner 8000.	Turn the thick paper mode on using the PPMENU.
Vertical lines appear in sold black printing, stains appear in the back of a page, or paper is wrinkled or curled when you are printing with the PrintPartner 8000.	Check if the thick paper mode of the PPMENU is on and, if on, turn the mode off.

Error Indications

Errors refer to a problem or condition which requires you to take action. This printer shows them by using the four indicators of the control panel. The following table lists the error indications, explains causes, and suggests solutions.

ONLINE	DATA	PAPER	TONER	Causes and solutions
Off	Off	Off	Off	This is not an error. It indicates that you pressed and held down the [ONLINE] button to print a status report. Release the [ONLINE] button when all indicators turn off.
Flash	*	Off	*	<p>Cause: The following errors occurred.</p> <ul style="list-style-type: none"> • Memory overflow error • Overrun error (incomplete in extracting compressed data) • Communication error <p>Solution: Press the [ONLINE] button.</p>
Flash	*	On	*	<p>Cause: A paper mismatch error occurred.</p> <p>Solution: Press the [ONLINE] button.</p>

ONLINE	DATA	PAPER	TONER	Causes and solutions
*	On	*	*	<p>Cause: Data remained in buffer.</p> <p>Solution: Press the ONLINE button, if necessary, to put printer offline, then press and hold down the ONLINE button for five or more seconds to print data.</p>
*	*	Flash	*	<p>Cause: Paper insertion is ready.</p> <p>Solution: Put paper into manual feed slot.</p>
Off	*	On	*	<p>Cause: The following errors occurred.</p> <ul style="list-style-type: none"> • Paper jam • Paper out • No paper tray <p>Solution: Perform the following.</p> <ul style="list-style-type: none"> • Clear jam. • Supply paper. • Install paper tray.
*	*	*	Flash	<p>Cause: The following occurred.</p> <ul style="list-style-type: none"> • Toner runs short (toner low). • Fuser unit expired <p>Solution: Perform the following.</p> <ul style="list-style-type: none"> • Prepare new toner cartridge. • Replace fuser unit. <p>(Consult your dealer.)</p>
Off	*	*	OK	<p>Cause: Toner runs out (toner empty).</p> <p>Solution: Replace toner cartridge.</p>
Flash	Flash	Flash	Flash	<p>Cause: The following occurred.</p> <ul style="list-style-type: none"> • Printer hardware alarm • Printer firmware alarm <p>Solution: Consult your dealer.</p>

Asterisk means irrelevant indication.
Shadow means key indication.

SOLVING PROBLEMS

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.

ONLINE	DATA	PAPER	TONER	Meaning
On	On	On	On	The printer is initializing, resetting errors, or resetting parameters.
On	Off	Off	(Not On)	The printer is online and idle.
On	Flash	Off	(Not On)	The printer is: <ul style="list-style-type: none">• Receiving, processing, or printing data.• In remote setup mode.• Printing status report or self-test pattern.
Off	Off	Off	(Not On)	The printer is offline without error conditions.
Off	Flash	Off	(Not On)	<ul style="list-style-type: none">• The printer is printing start page.• The printer is changed to offline during<ul style="list-style-type: none">- Receiving, processing, or printing data- Remote setup mode- Printing status report or self-test pattern

Not On means the indicator is either off or flashing.
Shadow means key indication.

Warning Messages

This printer counts the number of the printed sheets to estimate the life of the consumable (fuser unit). The status report includes a warning message when it is printed after the count reaches the predetermined value.

When a warning message is printed, contact your dealer because you may have to replace the fuser unit. However, depending on the print quality, you may not have to replace the fuser unit because you may be satisfied with the actual print quality.

About Page Printers

This appendix provides basic information on how page printers work. Knowing this information will help you to better understand the operation of your printer.

Much of the information is specific to HP LaserJet III printers, the resident emulation for this printer. If you install a different emulation from an emulation card, some details of this discussion may differ for that emulation.

How Pages Are Printed

Page printers print an entire page at a time instead of just a letter or a line at a time. Nothing is printed until the printer has received a full page of data. The following conditions cause the printer to assume a full page of data has been received and to print a page:

- *A form feed command.* This command is the conventional signal to a printer to feed a sheet of paper and print the data in its buffer. Typically, the printer receives this command from your software because of a page break in your document. There are two ways to send this command yourself. You can press **ONLINE** on the control panel for five or more seconds when the printer is offline. In MS-DOS on your computer, you can type `ECHO ^L > PRN` and press the ENTER key. (^L means to press L while holding down the Control key.)
- *A reset command.* If the printer receives a reset command from the computer, the printer immediately prints the current page. The printer uses only data received before it received the reset command. The printer then clears any data remaining in its buffer and returns all print parameters to their default values.
- *Printing runs off the bottom of the page.* If the print data would result in printing below the bottom margin, the printer feeds and prints a page.
- *A command to change page orientation.* The printer prints a page if it receives a command to change from portrait to landscape orientation or vice versa. The printer uses the data from the original orientation. The printer then begins processing the data for the new orientation.

Printing Area and Margins

With page printers, you need to consider two sets of margins:

- *Non-print margins.* Page printers are programmed not to print to the edge of the page. A small margin around the edge of the page defines the printing area. Nothing is printed outside this area.
- *Page format margins.* Usually you set these margins in your software (the top, bottom, left, and right margins). The printer also has defaults if the print data does not set them.

If the print data would result in printing beyond the right or bottom non-print margin, the printer prints the data that falls within the printing area. All other data is discarded.

If the print data would result in printing below the bottom page format margin, the printer continues printing as far as the non-print margin. The remaining data is discarded. You can print below the normal text margin (headers and footers, for example), but you risk loss of data.

The most common problems related to margins are:

- Placing headers or footers, including page numbers, too near the edge of the page. The image is clipped at the non-print margins.
- Printing a file formatted for a page larger than the paper loaded in the printer. This results in a printout that runs off the page.

To avoid the first problem, note the size of the non-print margins. These determine how close to the edge of the page you can place text and graphics.

To avoid the second problem, ensure that the following sizes are the same:

- Page size as specified in your document
- Size of the paper tray
- Paper size specified by the PPMENU

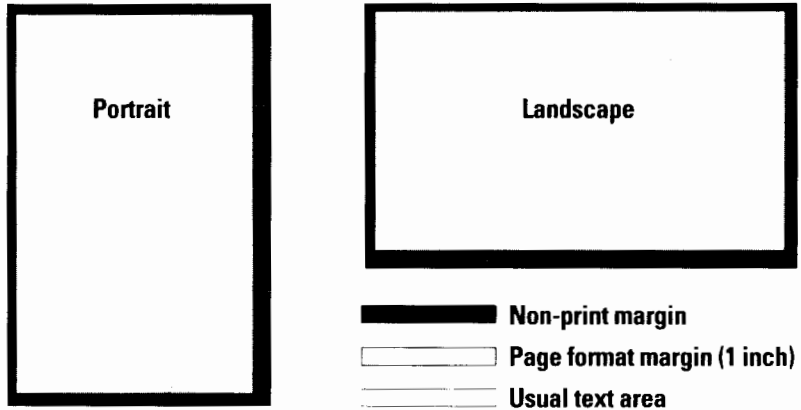


Notice:

Printing off the physical page causes toner to be deposited inside the printer. This wastes toner and can result in print quality problems.

When using the manual feed slot, be sure to center the paper to avoid this problem.

The figure below illustrates non-print and page format margins. For the exact size of the non-print margins for the standard paper sizes, refer to the programmer's manual.



**ABOUT PAGE
PRINTERS**

Page Orientation

The LaserJet III emulation allows you to print pages in either portrait or landscape orientation. The orientation used in printing a page is determined by a printer command. Many software programs allow you to choose an orientation as part of the page setup. The program sends the orientation command for you when you print. Orientation can also be specified in a setup string or an embedded command, or selected by the PPMENU.

Figure A-1 illustrates the two orientations and shows the relationship between the loaded paper and the resulting printout. Knowing this relationship is important if you want to print on letterhead. In portrait orientation, place the letterhead toward you and upside down at the paper tray. In landscape orientation, place the letterhead against the left frame.

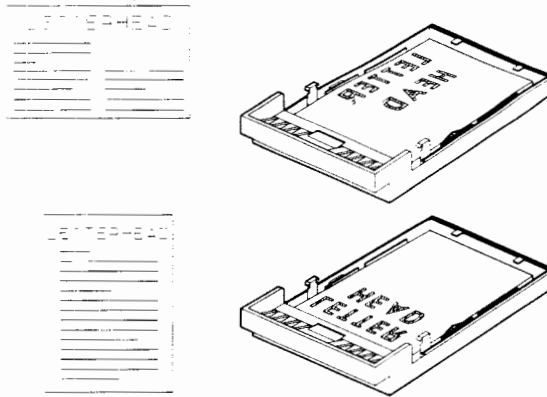


Figure A-1 Portrait and landscape orientation

When using the manual feed slot, place the paper with its letterhead facing up. In portrait orientation, insert the paper with its letterhead away from you. In landscape orientation, insert the paper with its letterhead left.

Some software programs allow you to print both portrait and landscape information on a single page. The function that allows you to do this is usually called something like “text rotation.” Consult your software documentation for information.

Font Samples

This appendix provides print samples of the fonts resident in this printer, and of the fonts available on font cards. This printer has two types of resident fonts: fourteen bitmapped fonts with fixed spacing, and eight scalable, proportionally spaced fonts. See Chapter 2 of the reference manual for additional information on the resident fonts.

Resident Bitmapped Fonts

Courier 10 pitch, 12 point (portrait and landscape)

Regular **ABCDEFGHIJKlmnopqrstuvwxyz0123456789**

Bold **ABCDEFGHIJKlmnopqrstuvwxyz0123456789**

Italic *ABCDEFGHIJKlmnopqrstuvwxyz0123456789*

Courier 12 pitch, 10 point (portrait and landscape)

Regular **ABCDEFGHIJKlmnopqrstuvwxyz0123456789**

Bold **ABCDEFGHIJKlmnopqrstuvwxyz0123456789**

Italic *ABCDEFGHIJKlmnopqrstuvwxyz0123456789*

FFONTS AND
COMPATIBILITY

Line Printer 16.66 pitch, 8.46 point (portrait and landscape)

Regular **ABCDEFGHIJKlmnopqrstuvwxyz0123456789**

Resident Scalable Fonts

CG Times

Regular **ABCDEFGHIJKLMnopqrstuvwxyz0123456789**

Bold **ABCDEFGHIJKLMnopqrstuvwxyz0123456789**

Italic *ABCDEFGHIJKLMnopqrstuvwxyz0123456789*

Bold Italic ***ABCDEFGHIJKLMnopqrstuvwxyz0123456789***

Univers

Regular **ABCDEFGHIJKLMnopqrstuvwxyz0123456789**

Bold **ABCDEFGHIJKLMnopqrstuvwxyz0123456789**

Italic *ABCDEFGHIJKLMnopqrstuvwxyz0123456789*

Bold Italic ***ABCDEFGHIJKLMnopqrstuvwxyz0123456789***

Supplies and Accessories

This appendix provides tables of ordering information for supplies needed in periodic maintenance and 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 cartridge (CA02417-C902) (CA02417-C982)	The cartridge contains toner. For PrintPartner 4000 For PrintPartner 8000
Print unit (CA02417-C922) (CA02417-C972)	The print unit consists of a photoconductor drum, a developing unit, and a drum cleaner in a single module. For PrintPartner 4000 For PrintPartner 8000

Accessories

Part name (order number)	Description
Memory expansion cards (CA02417-C851) (CA02417-C852) (CA02417-C854) (CA02417-C858)	Allows RAM expansion by one of the following: 1 megabyte 2 megabytes 4 megabytes 8 megabytes
Font card A (CA02417-C831)	HP font compatible
Serial interface board (CA02417-C801)	RS-232C/422A
LocalTalk board (CA02417-C811) (CA02417-C814)	AppleTalk compatible For PrintPartner 4000 only For PrintPartner 4000 and 8000
Ethernet board A (CA02417-C861)	NetWare compatible
Ethernet board B (CA02417-C871)	NetWare & TCP/IP compatible
Paper trays (CA02417-C711) (CA02417-C701)	Letter A4
FPS card (CA02417-C821) (CA02417-C822)	PostScript compatible For PrintPartner 4000 only For PrintPartner 4000 and 8000

- FPS card (PostScript compatible) cannot be used with a font card at the same time. The FPS emulation requires a 2-megabyte additional memory card.

Specifications

Specification	Description
Printing technology	LED light-sourced electrophotography
Emulations	Standard: Hewlett-Packard LaserJet III (PCL5) Optional: PostScript compatible
Dimensions	Width: 345 mm (13.6 inches) Depth: 387 mm (15.2 inches) Height: 130 mm (5.1 inches) Weight: 7.2 kg (16 pounds)
Power requirements	120 VAC , 60 Hz (USA) 220 to 240 VAC , 50 to 60 Hz (Europe) Consumption: Maximum 500 W (full option) Average during operating 150 W or less (PrintPartner 4000) 200 W or less (PrintPartner 8000) 30 W or less during stand by
Environmental requirements	Temperature: 10° to 35°C (50° to 95°F) during operating 0° to 45°C (32° to 113°F) during storage Humidity: 20% to 80% relative humidity (non-condensing) during operating and storage
Acoustic noise	Sound pressure level (bystander positions) Printing: 48 dBA (PrintPartner 4000) Standby: Background noise level Declared noise emissions in accordance with ISO9296 and ISO7779

Specification	Description
Safety certification	Safety: Meets or complies UL 1950, CSA No. 950, and EN60950 specifications Radiations: Meets or complies FCC Part 15B Class B and Vfg 243/1991 specifications
Performance	Print resolution: 300 dots per inch (text and graphics) Smoothing: Fujitsu enhanced imaging technology (FEIT) Printing speed: For character printing on A4 size paper from paper tray 4 pages per minutes for PrintPartner 4000 8 pages per minutes for PrintPartner 8000 Warm-up time: At 25°C (77°F) 45 seconds or less for PrintPartner 4000 60 seconds or less for PrintPartner 8000 Recommended duty cycle: 500 pages per month (up to 3000 pages per month) Toner cartridge life: 1600 pages at 5% print coverage Print unit life: 10,000 pages at 5% print coverage Fuser unit life: 60,000 pages at 5% print coverage
Computer interface	Standard: Parallel (Centronics) Optional: Serial (RS-232C/422A) LocalTalk (AppleTalk compatible) Ethernet A (NetWare compatible) Ethernet B (NetWare & TCP/IP compatible)
Controller	Processor: Intel 80960KA 20 MHz RAM: 1 MB (expandable to 2, 3, 5, or 9 MB)

Specification	Description																								
Fonts	Resident: <table border="0" style="margin-left: 20px;"> <thead> <tr> <th><i>Bitmapped</i></th> <th><i>Pitch</i></th> <th><i>Point</i></th> </tr> </thead> <tbody> <tr> <td>Courier</td> <td>12</td> <td>10</td> </tr> <tr> <td>Courier bold</td> <td>12</td> <td>10</td> </tr> <tr> <td>Courier italic</td> <td>12</td> <td>10</td> </tr> <tr> <td>Courier</td> <td>10</td> <td>12</td> </tr> <tr> <td>Courier bold</td> <td>10</td> <td>12</td> </tr> <tr> <td>Courier italic</td> <td>10</td> <td>12</td> </tr> <tr> <td>Line Printer</td> <td>16.66</td> <td>8.46</td> </tr> </tbody> </table>	<i>Bitmapped</i>	<i>Pitch</i>	<i>Point</i>	Courier	12	10	Courier bold	12	10	Courier italic	12	10	Courier	10	12	Courier bold	10	12	Courier italic	10	12	Line Printer	16.66	8.46
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	Courier	12	10																						
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	Line Printer	16.66	8.46																						
	* Portrait and landscape available for each font																								
	<i>Scalable</i>																								
	CG Times																								
	CG Times italic																								
	CG Times bold																								
	CG Times bold italic																								
Univers																									
Univers bold																									
Univers italic																									
Univers bold italic																									
Font cards: Font card A (HP font compatible)																									
Soft fonts: Available from independent vendors																									

SPECIFICATIONS

Specification	Description
Paper	<p><i>Type</i> Single sheet photocopy paper (equivalent to Xerox 4024), bond paper, overhead transparencies (equivalent to 3M 731), and envelopes. See Chapter 3 for more information.</p> <p><i>Size</i> Tray: Letter (8.5 × 11 inches) or Executive (7.25 × 10.5 inches) or A4 (210 mm × 297 mm)</p> <p>Manual feed slot: Minimum: 100 mm wide × 148 mm long (3.94 × 5.81 inches)</p> <p>Maximum: 216 mm wide × 360 mm long (8.5 × 14.13 inches)</p> <p><i>Weight</i> 64 to 90 g/m² (17 to 24 pound bond) in tray 64 to 105 g/m² (17 to 28 pound bond) in manual feed slot</p> <p><i>Insertion</i> Feeder tray and manual feed slot</p> <p><i>Ejection</i> Face-down output stacker</p> <p><i>Capacity</i> Tray: 100 sheets of 0.09 mm thick paper Manual feed slot: 1 sheet Stacker: 50 sheets of 0.09 mm thick paper (possible to decrease depending on paper types and paper curl conditions)</p>

Glossary

Application software

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

ASCII character set

ASCII is an acronym for American Standard Code for Information Interchange. The ASCII character set consists of 256 codes (numbered 0 to 255). The codes represent letters, numbers, punctuation, special characters, and a few standard typing functions such as backspace.

Each code is represented by a unique binary number. Often the number is expressed as a decimal or a hexadecimal number. For example, the letter "A" is represented by 01000001 binary, which is the same as 65 decimal or 41 hexadecimal.

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.

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: 

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.

Byte

Eight binary digits. Data is often expressed in bytes. For example, each ASCII character is represented by one byte of data. The letter "A" is represented by the byte 01000001.

Bytes can also be expressed by their decimal or hexadecimal values. The ASCII letter "A" can be expressed as 65 decimal or 41 hexadecimal.

Command

An instruction that tells the printer to do something. A printer command usually consists of an escape character followed by one or more additional characters. *See also* Escape character.

Command set

A set of commands that control one brand of printer. The command set for HP LaserJet printers, for example, is different from the command set for Apple LaserWriter printers.

If printer A emulates printer B, this means printer A can be controlled with the same command set that controls printer B.

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 negative 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 fill in. If the density is too light, pinholes appear in black areas. Print density can be adjusted with the print density dial.

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.

Embedded command

A printer command that is sent to the printer by the computer along with text or graphic data.

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.

Escape character

A nonprinting character used to identify a printer command. An escape character tells the printer that the codes that follow are commands instead of text. In ASCII, the escape character is decimal 27 (hexadecimal 1B).

GLOSSARY

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 settings selected 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.

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.

Hex dump

A special printout used for troubleshooting. A hex dump shows all data sent by the computer to the printer, including control characters. The data in a hex dump is expressed in hexadecimal format.

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.

ISO symbol set

ISO stands for International Standards Organization. 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.

LED array

In an electrophotographic page printer, the series of light-emitting diodes (LEDs) parallel to the photoconductive drum. The LED array changes the image data to light patterns, which are reproduced on the drum to create the page image. *See also* Photoconductive drum.

LocalTalk

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

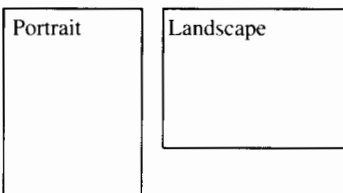
Margin

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 (5mm), 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.

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:

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.

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 the image is transferred to the paper. *See also* LED array.

Postscript

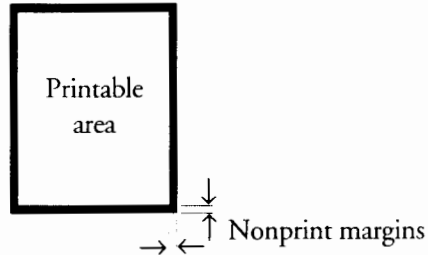
See Page description language.

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.

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.

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 RS232C 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.

Setup string

A printer command or group of commands sent by application software to the printer at the start of each print job. Typically, setup strings are used by software applications that do not have printer drivers.

Symbol set

The set of characters used in a font. Most symbol sets contain the 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.

Transfer unit

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

PPMENU

A menu used to select the printer's default font and page formatting settings.

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Fujitsu Offices

Please send your comments on this manual or on Fujitsu products to the following addresses:

FUJITSU COMPUTER PRODUCTS OF AMERICA, INC.
2904 Orchard Parkway, San Jose
CA 95134-2022, U.S.A.
TEL: (1-408) 432-6333
FAX: (1-408) 894-1709

FUJITSU CANADA INC.
2800 Matheson Boulevard East
Mississauga, Ontario L4W 4X5, CANADA
TEL: (1-905) 602-5454
FAX: (1-905) 602-5457

FUJITSU AUSTRALIA LIMITED
475 Victoria Avenue, Chatswood
N.S.W., 2067, AUSTRALIA
TEL: (61-2) 410-4555
FAX: (61-2) 411-8603

FUJITSU DEUTSCHLAND GmbH.
Frankfurter Ring 211
8000, München 40, F.R. GERMANY
TEL: (49-89) 32378-0
FAX: (49-89) 32378-100

FUJITSU ESPAÑA, S.A.
Edificio Torre Europa 5ª
Paseo de la Castellana 95
28046 Madrid, SPAIN
TEL: (34-1) 581-8000
FAX: (34-1) 581-8300

FUJITSU EUROPE LIMITED
2 Longwalk Road, Stockly Park, Uxbridge
Middlesex UB11 1AB, ENGLAND
TEL: (44-81) 573-4444
FAX: (44-81) 573-2643

FUJITSU FRANCE S.A.
Batiment Aristote, Rue Olof Palme 94006
Créteil cedex, FRANCE
TEL: (33-1) 43-99-4000
FAX: (33-1) 43-99-0700

FUJITSU HONG KONG LIMITED
Room 2521, Sun Hung Kai Centre
30 Harbour Road, HONG KONG
TEL: (852) 827-5780
FAX: (852) 827-4724

FUJITSU ITALIA S.p.A.
Via Melchiorre Gioia No. 8
20124 Milano, ITALY
TEL: (39-2) 657-2741
FAX: (39-2) 657-2257

FUJITSU NORDIC AB
Torggatan 8, S-171 54 Solna, SWEDEN
TEL: (46-8) 764-76 90
FAX: (46-8) 28-0345

FUJITSU (SINGAPORE) PTE. LTD.
75 Science Park Drive
#02-06 CINTECH II, SINGAPORE 0511
TEL: (65) 777-6577
FAX: (65) 777-8794

TATUNG-FUJITSU CO., LTD.
5F Tatung Bldg., 255 Nanking East Road
3rd Sec. Taipei, TAIWAN
TEL: (886-2) 713-5396
FAX: (886-2) 717-4644

FUJITSU LIMITED
International Operations
Marunouchi 1-6-1, Chiyoda-ku
Tokyo 100, JAPAN
TEL: (81-3) 3216-3211
FAX: (81-3) 3216-9353



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