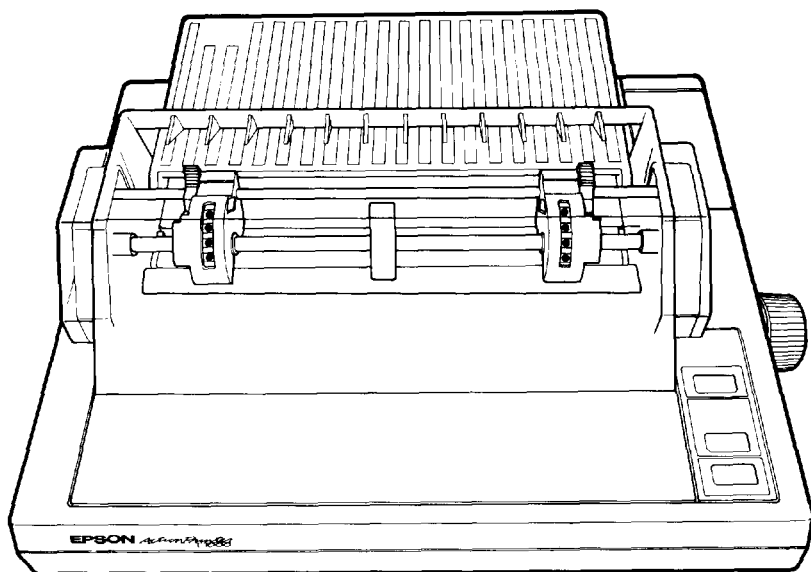


EPSON[®] *ActionPrinter*[™] L-1000

User's
Manual



Where to Get Help

Customer support and service for Epson products are provided by a network of authorized Epson dealers and service centers throughout the United States. Epson America provides product information and toll-free support to its dealers and service centers.

Epson is confident that this policy will provide you with the assistance you need. For service center and technical support referrals, please call our Consumer Information number: 1-800-922-8911.

Options and Supplies

To locate or purchase ActionPrinter™ accessories or supplies, please call 1-800-873-7766.

EPSON[®] *ActionPrinter™*
L-1000

User's Manual

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Introduction

The ActionPrinter™ **L-1000** is an advanced 24-pin impact dot matrix printer combining a compact design and high performance with a wide range of features.

Features

In addition to **the** high-quality printing and ease of operation you have come to expect from Epson® printers, your printer offers the following:

- Draft mode with fast printing of up to 180 characters per second in 12 cpi (12 characters per inch).
- Two built-in Letter Quality fonts (Roman and Sans Serif) for producing high-quality documents.
- A convenient control panel design that allows for direct selection of fonts.
- Fourteen international character sets, a legal set, italics, and the Epson Extended Graphics set.
- Easy paper handling, featuring automatic single-sheet loading.
- Compatibility with the Epson ESC/P® commands used by other Epson Letter Quality printers.

About This Guide

This user's guide provides fully illustrated, step-by-step instructions for setting up and operating your printer.

Finding your way around

- Chapter 1 contains information on unpacking, setting up, testing, and connecting the printer. Be sure to read and follow the instructions in this chapter first.
- Chapters 2 and 3 include important information on paper handling and general printer operation. This information is necessary for the day-to-day operation of your printer.
- Other chapters contain information on general maintenance, specifications, and printer commands. There is also a glossary of printer terms and an index.

At the back of this manual is a Quick Reference card.

Conventions used in this guide



WARNINGS: must be followed carefully to avoid damage to your printer and computer.



CAUTIONS: should be followed carefully to ensure that your printer operates correctly.

Notes: contain important information and useful tips on the operation of your printer.

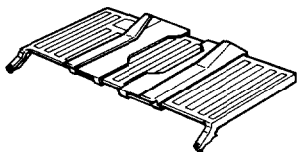
Chapter 1

Setting Up the Printer

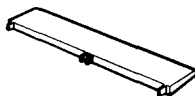
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Unpacking the Printer

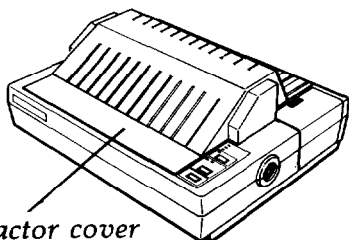
As you unpack the printer, check that you have all the parts shown below and that none have been damaged during transportation.



Paper guide

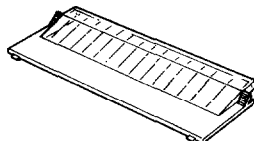


Paper rest



Tractor cover

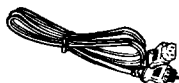
Printer



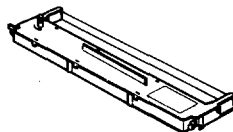
Printer cover



Paper feed knob



Power cable



Ribbon cartridge

Note: You'll find the paper feed knob in a piece of the foam packing. Also, in some locations, the power cable may be attached to the printer.

After removing the parts, store the packaging materials in case you ever need to transport your printer.

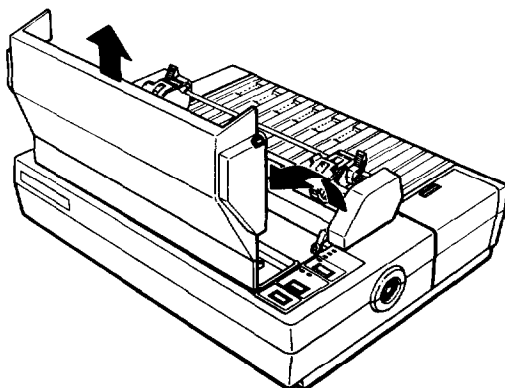


CAUTION: There are several different versions of the printer designed for different electrical standards. The power supply type is shown on the label on the back of the printer. If it does not **show** the correct voltage for your country, contact your dealer. It is not possible to adjust **the** printer for use on another voltage.

Removing the pull tractor

By removing the pull tractor now, you will be prepared to perform the printer's self test later. Follow these steps to remove the pull tractor:

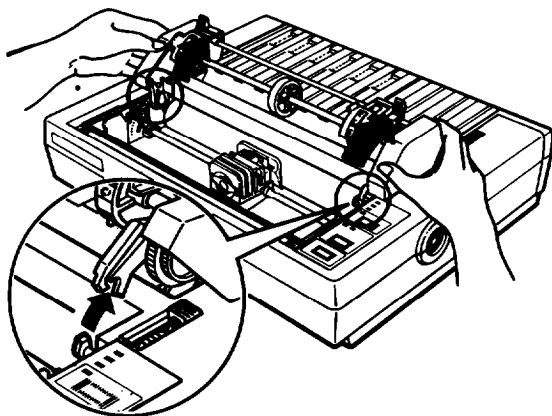
1. Raise the tractor cover to the upright position. Then lift the cover up and off.



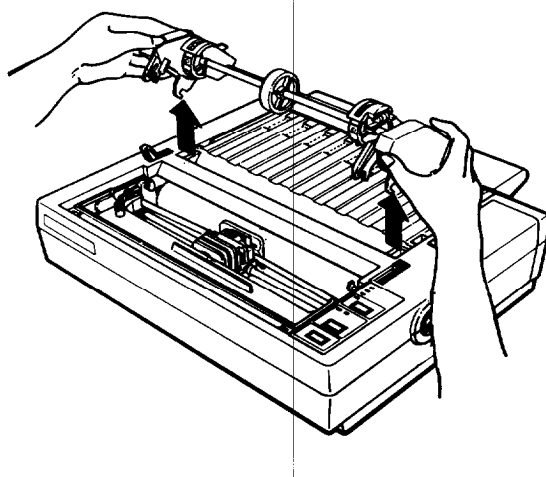
Note: Remove the packaging material inserted between both sides of **the** tractor unit and the tractor cover. Be sure to store this material with the other packaging materials in case you ever need to transport the printer.

Unpacking the Printer

2. Hold both ends of the tractor unit and slowly tilt the unit back until the front notches of the unit are free.



3. Lift the tractor unit up and off.;

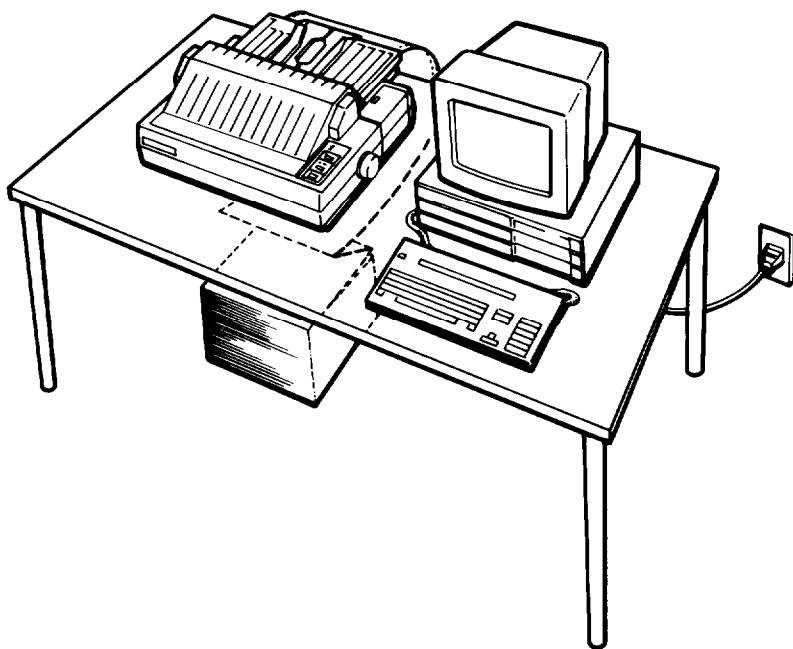


Choosing a Place for the Printer

When you select a location for your printer, keep the following in mind:

- Place the printer on a flat, stable surface.
- Place the printer close enough to the computer for its cable to reach.
- Leave adequate room around the printer to allow for easy operation and maintenance.
- Use a grounded outlet; do not use an adapter plug.

The illustration below shows a good printer location.



Note: If you plan to use a printer stand, make sure it meets the following requirements:

- The stand must support at least 30 lb or **14 kg** (twice the weight of the printer).
- The stand must not tilt the printer more than 15 degrees from horizontal. With a cut sheet feeder, the stand must keep the printer level.
- If the paper supply is below the printer stand, make sure that the paper cannot catch on the underside of the stand or on the stand supports.
- Make sure that the power cord and the interface cable do not interfere with paper feeding. If possible, secure them to a printer stand support.



WARNING:

- Avoid locations that are subject to direct sunlight, excessive heat, moisture, or dust.
- Avoid using electrical outlets that are controlled by wall switches or automatic timers. Accidental disruption of power can wipe out information both in your computer's memory and in your printer's memory.
- Avoid using outlets on the same circuit with large motors or other appliances that might disturb the power supply.
- Keep the entire computer system away from potential sources of interference such as loudspeakers or the base units of cordless telephones.

Assembling the Printer

To assemble the printer, you need only do the following:

- Install the paper feed knob.
- Install the ribbon cartridge.
- Attach the paper guide.

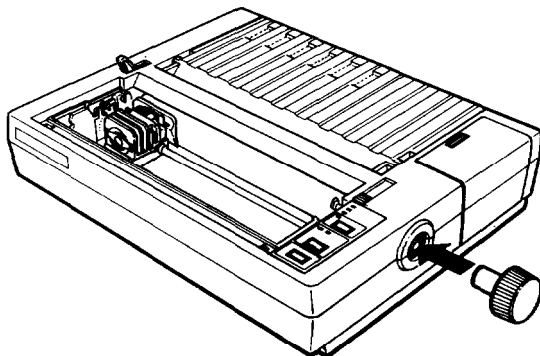
Installing the paper feed knob

The first step in setting up the printer is to install the paper feed knob. You use this knob to manually feed paper in the printer when the printer is turned off.

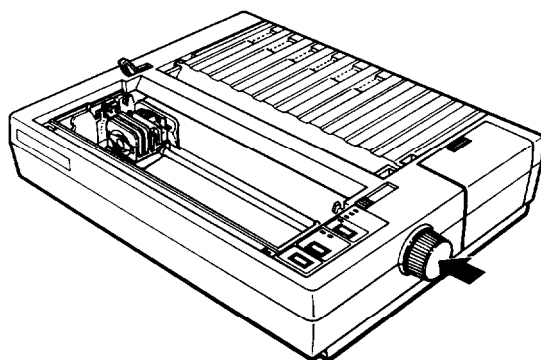
You'll find the paper feed knob packed in an indentation in the white foam packing material.



1. Insert the knob into the hole on the printer's side and rotate it until it slips onto the six-sided shaft.



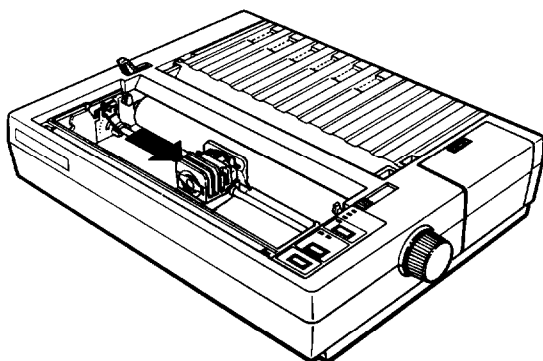
2. Push firmly on the knob until it fits against the printer case.



Installing the ribbon cartridge

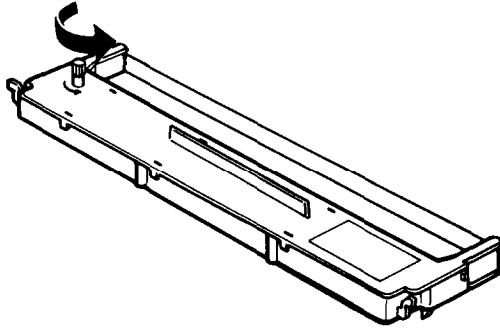
Follow these steps to install the ribbon cartridge.

1. Slide the print head to the middle of the printer.

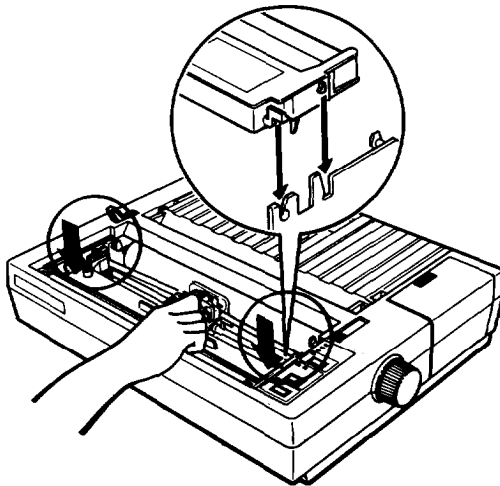


CAUTION: Never move the print head while the printer is turned on because this can damage the printer. Also, if you have been using the printer, the print head may be hot; let it cool for a few minutes before touching it.

2. Remove the ribbon cartridge from its box and remove the plastic wrapper.
3. Turn the ribbon-tightening knob in the direction of the arrow. This removes any excess slack in the ribbon and makes it easier to install.



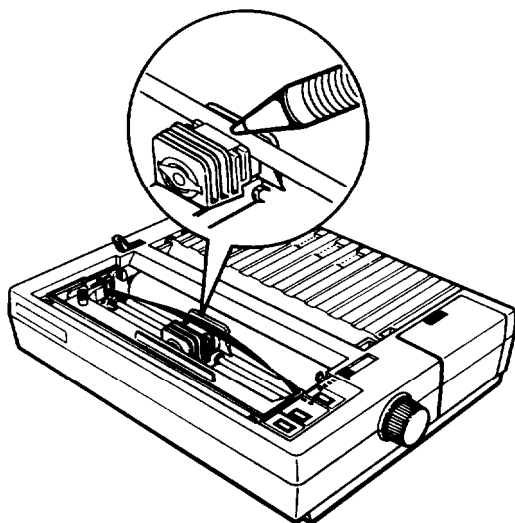
4. Hold the ribbon cartridge by its handle and push it firmly down into position, making sure the plastic hooks fit into the printer.



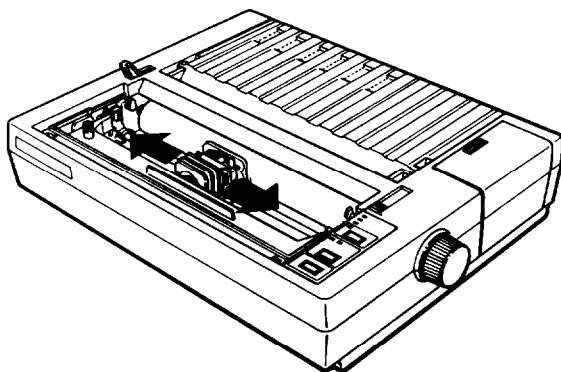
Press lightly on both sides of the cartridge to be sure the hooks are properly inserted.

Assembling the Printer

5. Use a pointed object, such as the tip of a pencil, to guide the ribbon between the print head and ribbon guide while you turn the ribbon-tightening knob to help feed the ribbon into place.



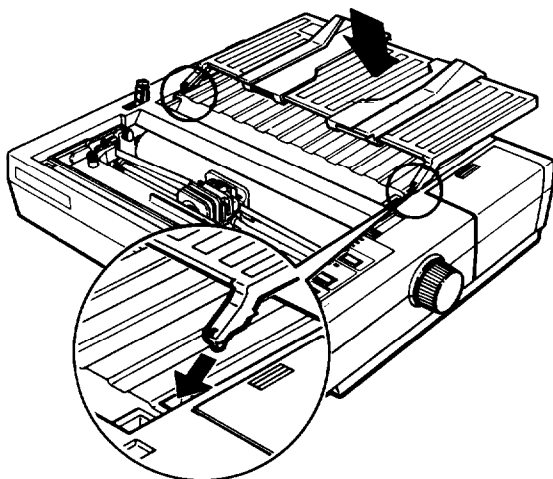
6. Slide the print head from side to side to be sure it moves smoothly. Also check that the ribbon is not twisted or creased.



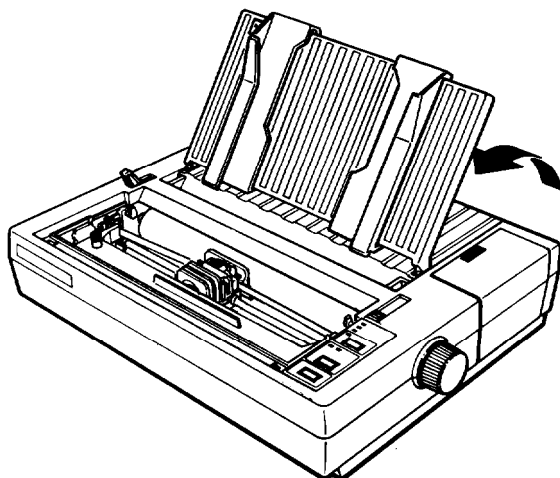
Attaching the paper guide

The paper guide functions to feed the paper smoothly and efficiently. Follow these steps to install the paper guide:

1. Place the paper guide on the printer.

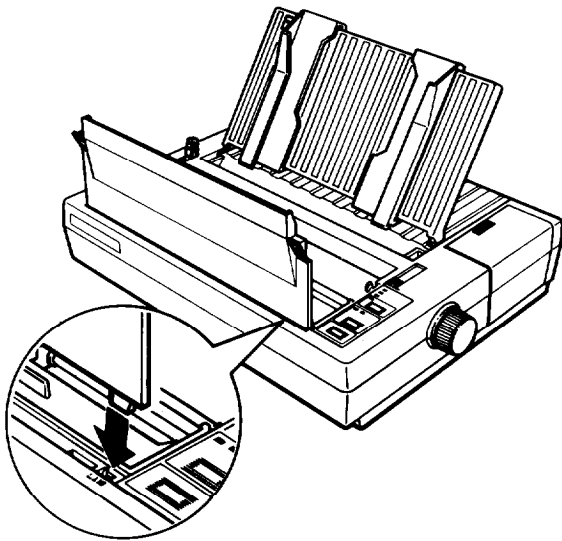


2. Raise the paper guide until it locks into place.

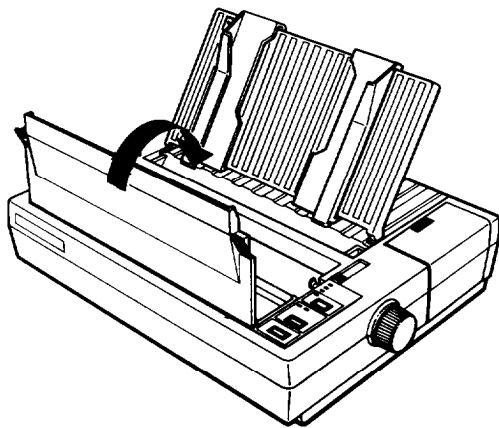


Assembling the Printer

3. Attach the printer cover by fitting the legs of the cover into the notches at the front of the printer.



4. Close the printer cover.



Testing the Printer

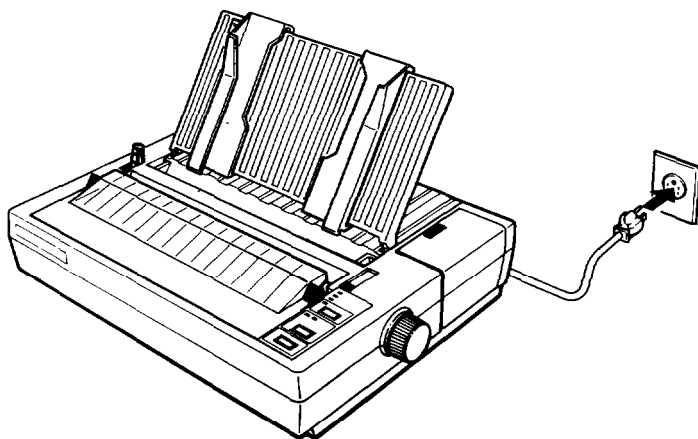
Now that your printer is fully assembled, you can use the built-in self test function to see that the printer is working correctly even though it is not connected to a computer. Be sure to perform this test to check that **your** printer is operating properly.

Before running the self test, you need to connect your printer to an electrical outlet and load a sheet of paper.

Plugging in the printer

Follow these steps to plug in the printer:

1. Be sure the printer is turned off.
2. Plug the power cable into a properly grounded electrical outlet.

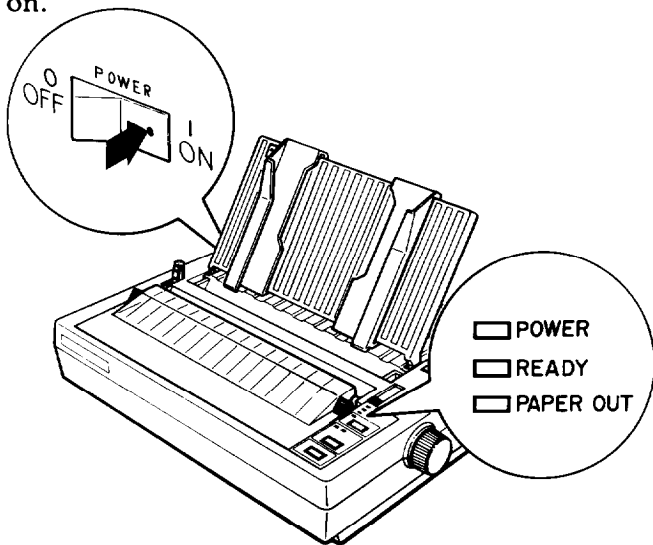


WARNING: After turning the printer off, always wait at least five seconds before turning it back on. Turning **the** power on and off rapidly can damage the printer.

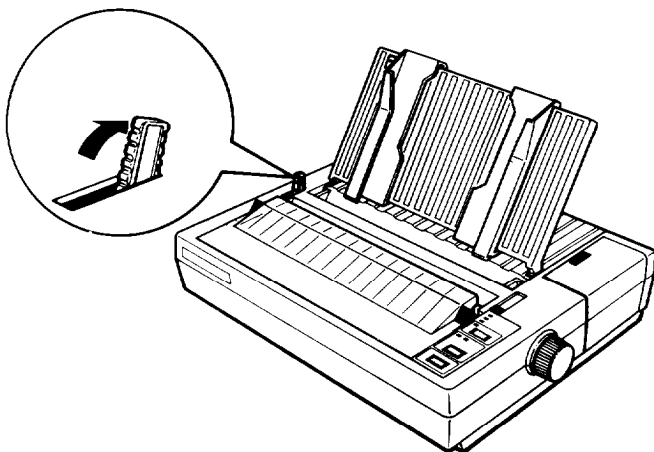
Loading a sheet of paper

Next, you need to load a sheet of paper that is letter or A4 size.

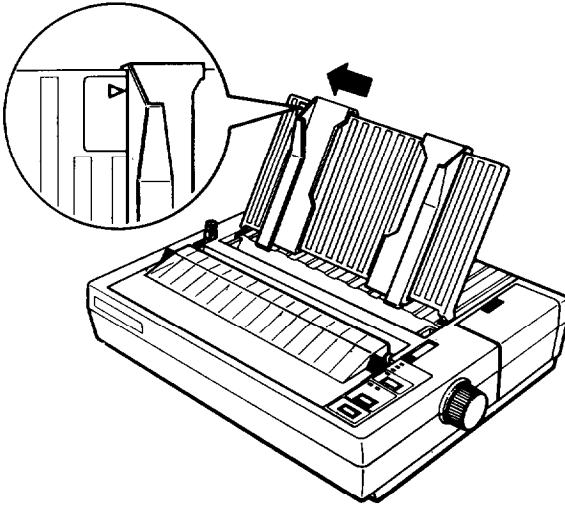
1. Turn on the printer. The green **POWER** and red **PAPER OUT** lights come on.



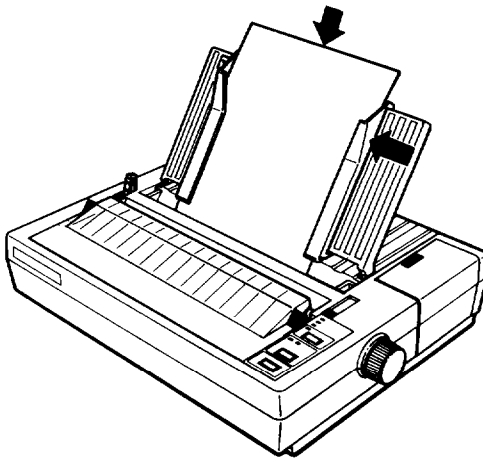
2. Be sure that the paper release lever is pushed back to the single sheet position.



3. Move the left edge guide so it locks in place next to the guide mark.



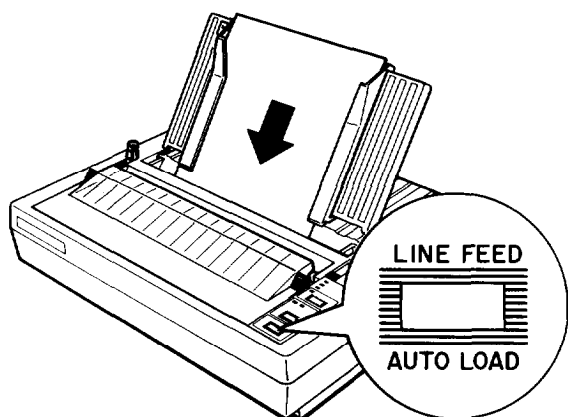
4. Adjust the right edge guide to match the width of your paper. Next, slide a sheet down between the edge guides until it meets resistance.





WARNING: Never run the self test using paper that is narrower than 8¼ inches (**210 mm** or **A4** size) because then the print head prints directly onto the platen.

5. Press the **AUTO LOAD** button once to automatically load the paper.



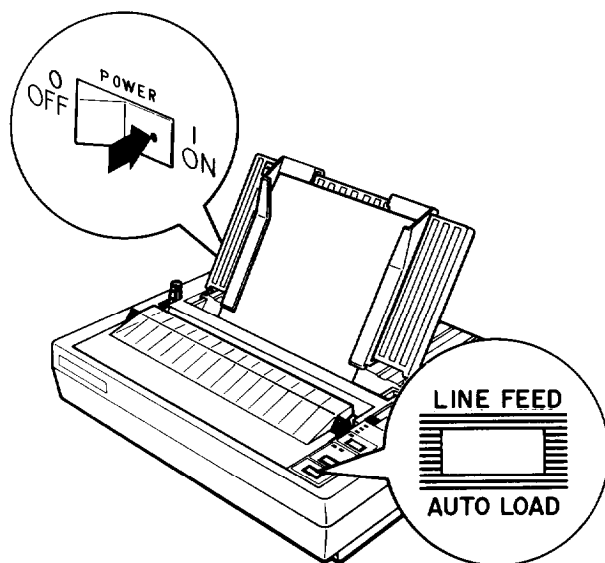
Note: If the platen turns without loading the paper, remove the paper and re-insert it more firmly; then press the **AUTO LOAD** button again.

Running the self test

The self test can be run in draft mode or Letter Quality mode. Follow the steps below:

1. Be sure you have loaded a sheet of paper, as described above.
2. Turn off the printer.

- While holding down the **LINE FEED** button (draft mode) or the **FORM FEED** button (Letter Quality mode), turn **on** the printer. After printing starts, release the button.

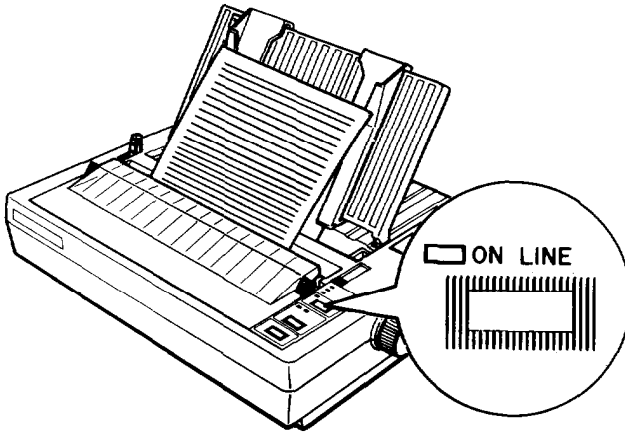


A list of your printer's settings is printed first, followed by a series of characters. Here is part of a typical draft self test:

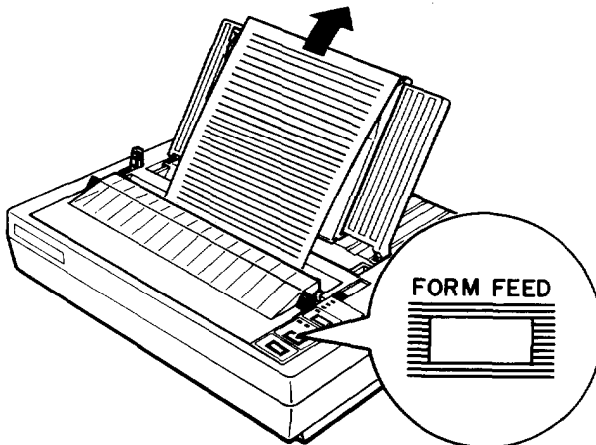
Country	SW1-1	1-2	1-3	Page length
USA	on	on	on	11"
France	on	on	off	12"
Germany	on	off	on	CSF page length
	on	off	off	61 Lines
	on	on	on	65 Lines
	on	off	off	1"skip
\$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPS %&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPS &'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPS '()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPS ()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPS				

Testing *the Printer*

4. The self test continues until the paper runs out or you press the **ON LINE** button. If the test results are satisfactory and you wish to stop the test, press the **ON LINE** button.



5. To end the self test, be sure the printer is not printing. If paper is still loaded, press the **FORM FEED** button to eject it. Then turn off the printer.



Connecting the Printer to Your Computer

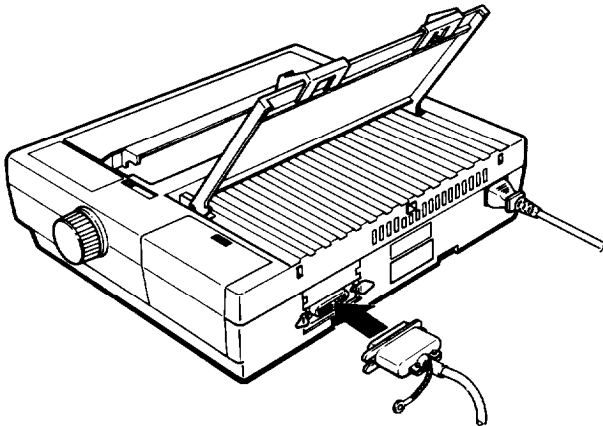
If the self test printed correctly and your printouts looked like the ones shown, you are now ready to connect your printer to the computer. If the self test did not print correctly, see “Where to Get Help” on the inside front cover of this guide.

The printer has a built-in parallel interface. If you have a suitable shielded cable, you should be able to connect your printer immediately. If you are unsure whether your computer has a parallel interface, see your computer’s operating manual.

The parallel interface

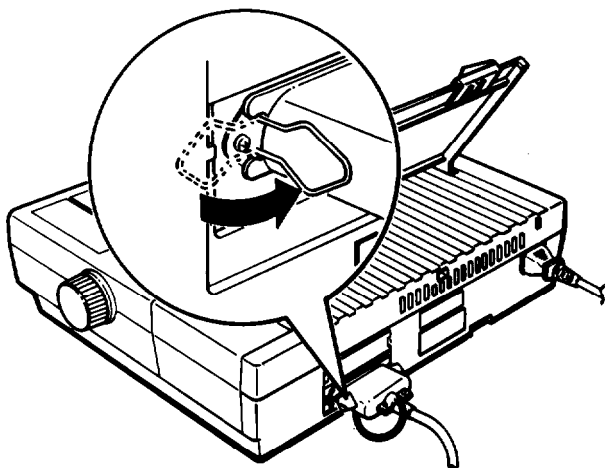
Connect the parallel interface cable as described below:

1. Be sure both the printer and computer are turned off.
2. Plug the cable connector securely into the printer.



Connecting the Printer to Your Computer

3. Squeeze the wire clips together until they lock in place on either side of the connector.



Note: If your cable has a ground wire, connect it to the ground connector beneath the interface connector.

4. Plug the other end **of the cable** into the computer. (If there is a ground wire at the computer end of the cable, attach it to the ground connector at the back of the computer.)

Printer Selection Menus

Most application programs let you specify the type of printer you are using so that the program **can** take full advantage of the printer's features. Many of these programs provide an installation or setup section that presents a list of printers to choose from.

Choosing from a menu

Because the family of Epson printers shares a great many commands, you can use an application program **even** if it does not list your printer on its printer selection menu. Choose from the following list (the printers are listed in **the** order of preference):

- L-1000
- L-750
- LQ-850/950/1050
- LQ-500
- LQ-2550
- LQ-800/1000
- LQ-1500

If none of these printers is listed, select the first one available on the following list.

EX	MX
FX	Epson printer
LX	Standard printer
Rx	Draft printer

To use all the features of your printer, however, it is best to use a program with one of the LQ printers on its menu. If your program does not list these printers, contact the manufacturer to see if an update is available.

Chapter 2

Paper Handling

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Using Single Sheets

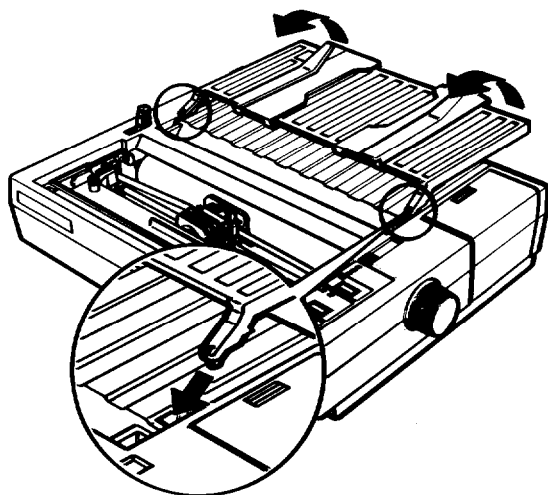
Your printer can accommodate single sheets with a width of 7.2 inches (182 mm) to 8.5 inches (216 mm).

If the pull tractor unit is installed, you need to remove it before you can print on single sheets. See “Removing the pull tractor” in Chapter 1.

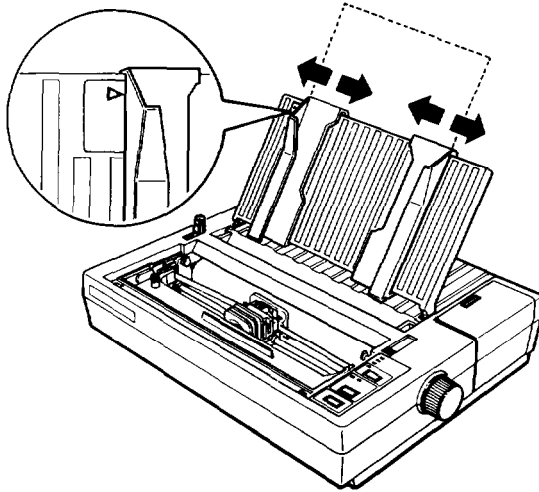
Attaching the paper guide

Follow these steps to attach the paper guide:

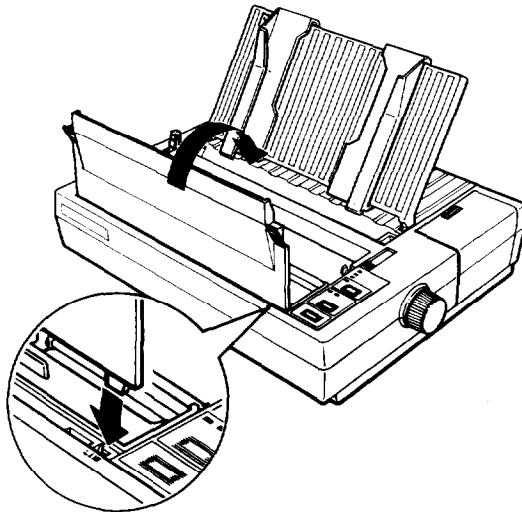
1. Place the paper guide on the printer. Then raise it up until it locks into place.



2. Slide the left edge guide until it locks in place at the guide mark. Next, adjust the right edge guide to match the width of your paper.



3. Attach the printer cover.

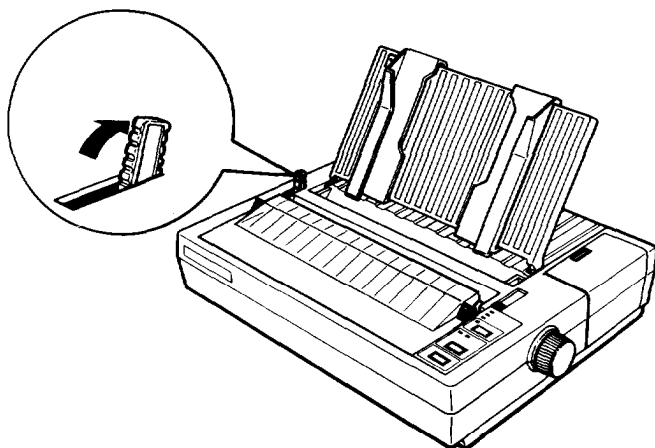


Using Single Sheets

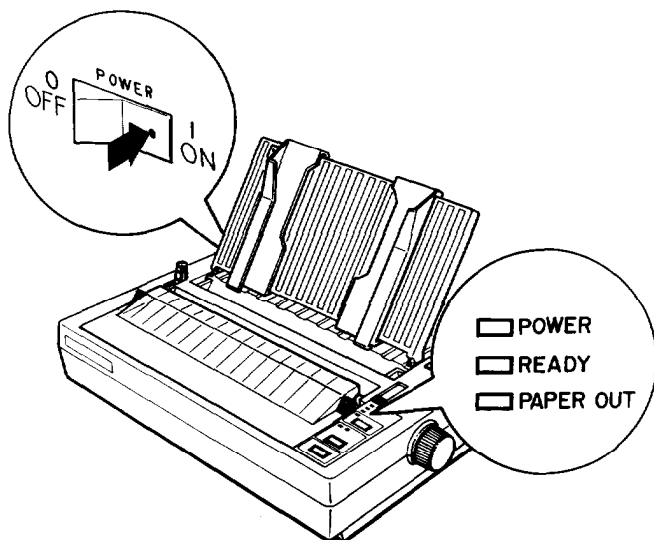
Loading paper

Follow these steps to load paper in the printer:

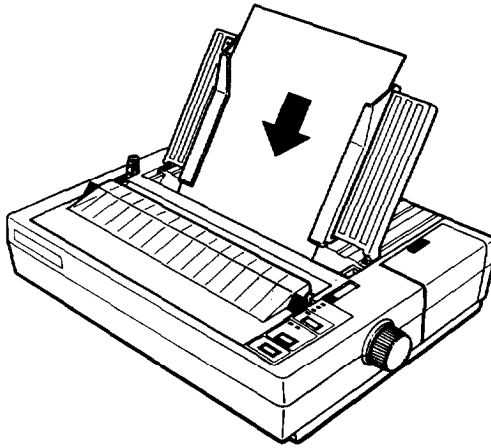
1. Push the paper release lever back to the single-sheet position.



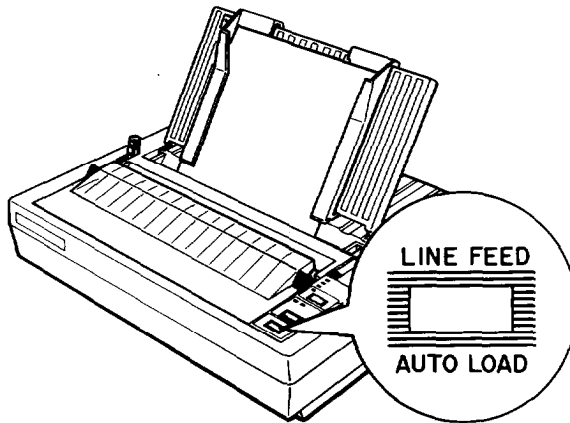
2. Turn on the printer. The **POWER** and **PAPER OUT** lights should be on.



3. Slide the paper down between the edge guides until it meets resistance.

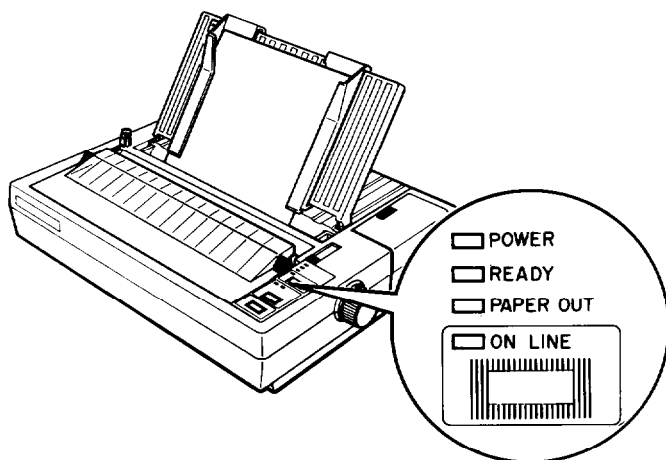


4. Press the **AUTO LOAD** button once to load the paper automatically.



Note: If the platen turns without loading the paper, completely remove the paper and re-insert it more firmly. Then press the **AUTO LOAD** button again.

5. Press the **ON LINE** button to set the printer on line.



To eject the paper, set the printer off line (by pressing the **ON LINE** button) and then press the **FORM FEED** button.



CAUTION: Never advance the paper using the paper feed knob while the printer is turned on.

Reloading during printing

When you print a document more than one page long using single sheets of paper, there are two ways your software can allow you to load a new sheet at the end of a printed page:

- If your software sends characters in a continuous stream, the printer stops printing **when** it reaches **the** bottom of the paper. **When** this happens, **the** page ejects and the **ON LINE** light goes off automatically.
- If your software handles printing page by page, it probably stops sending characters at the end of a page and prompts you to insert more paper. In this case, the **ON LINE** light may remain on. If it does, the first thing you should do is press **the ON LINE** button once to take the printer off line.

In either case, once the **ON LINE** light is off, remove the sheet that has just been printed and load a new sheet as before. Press **ON LINE** to start printing **the next** page.

Using Continuous Paper

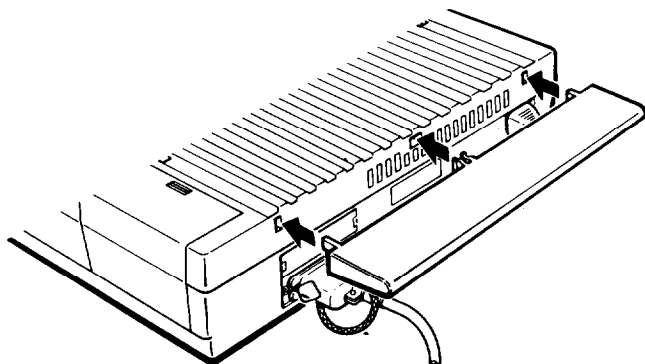
To print on continuous paper, you need to install the pull tractor unit. With the pull tractor installed, you can print on continuous paper with a width of **4 inches (101 mm)** to 10 inches (254 mm).

If the pull tractor is already installed, skip to “Positioning your continuous paper supply” later in this chapter.

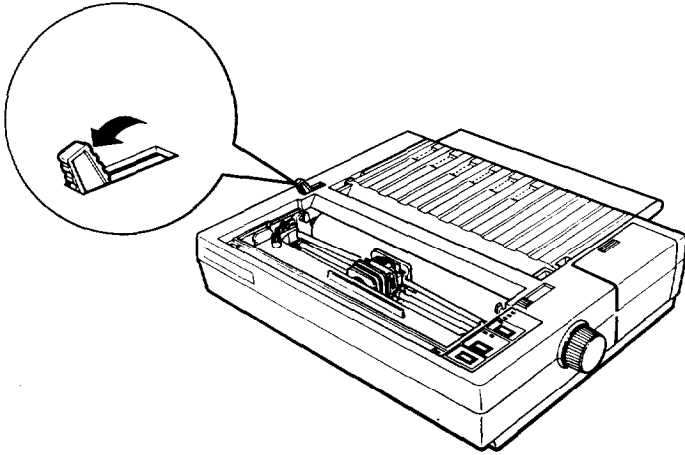
Installing the pull tractor

Follow these steps to install the pull tractor:

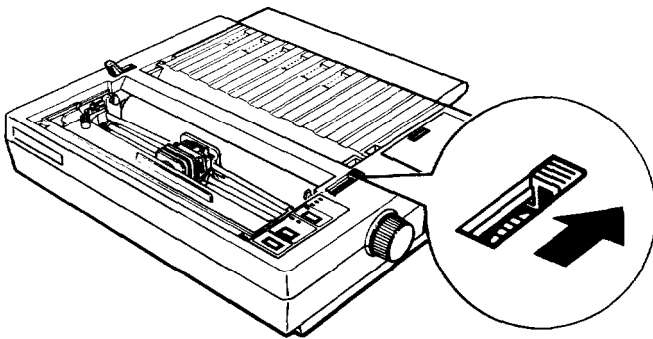
1. Turn off the printer and remove the printer cover and paper guide.
2. Attach the paper rest.



3. Pull the paper release lever forward to the continuous paper position.

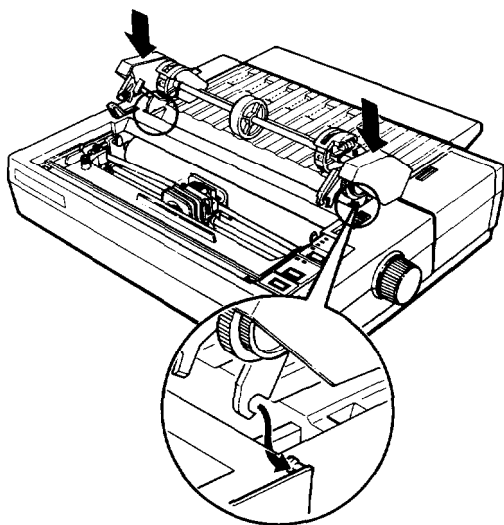


4. Open the slot cover for the tractor unit.

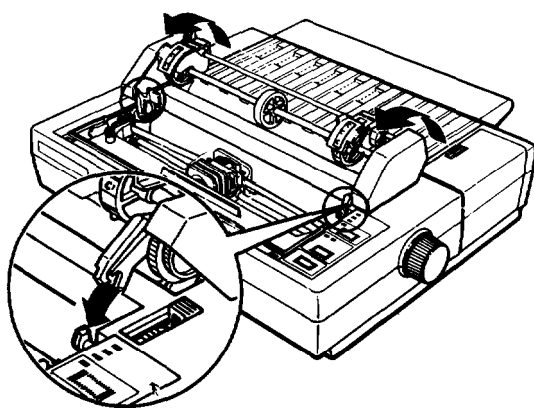


Using Continuous Paper

5. Fit the rear notches of the tractor unit over the rear mounting pins of the printer.

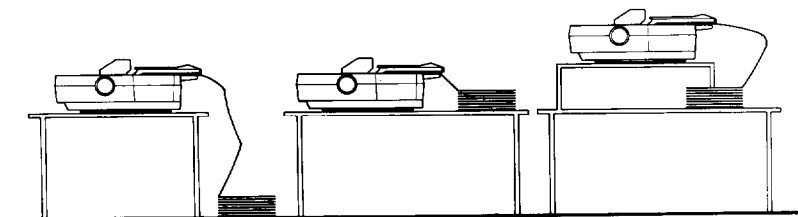


6. Press the tractor unit forward until its front notches lock onto the front mounting pins of the printer.



Positioning your continuous paper supply

Here are three ways to position your printer and supply of continuous paper:

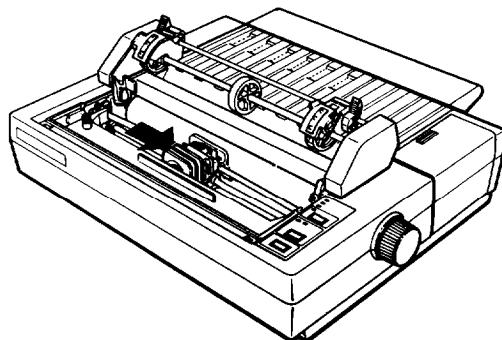


It is also important to align your paper supply with the paper loaded in the tractor so that the paper feeds smoothly and straight into the printer.

Loading continuous paper

Follow these steps to load continuous paper.

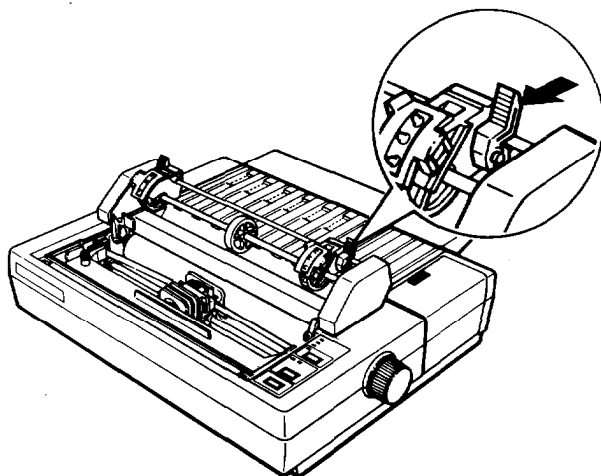
1. Turn off the printer.
2. Slide the print head to the middle of the printer.



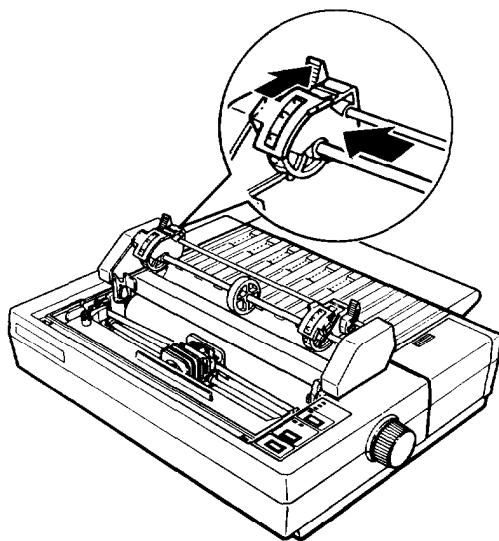
WARNING: If the printer has been used recently, the print head may be hot. Let it cool before attempting to move it.

Using Continuous Paper

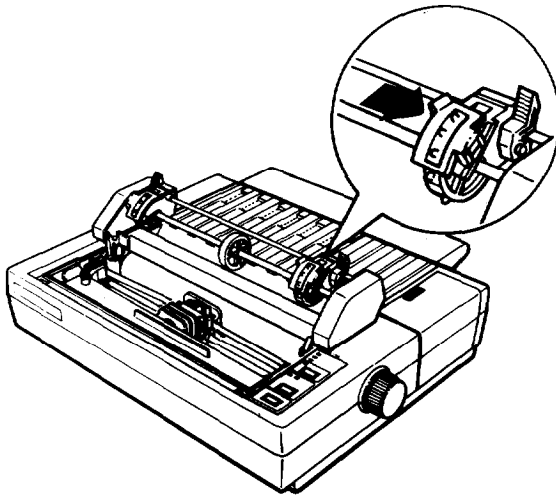
3. Pull the sprocket lock levers forward to unlock the sprocket frames.



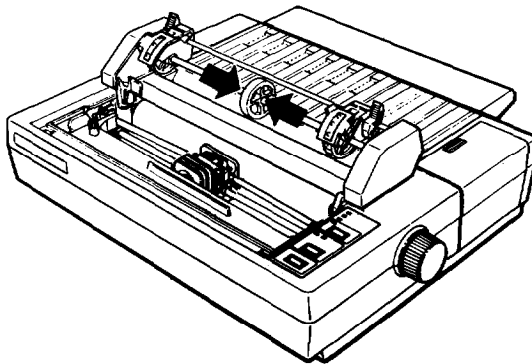
4. Slide the left sprocket frame to approximately 1/2 inch (12 mm) from the far left position, Then push the sprocket lever back to lock it in place.



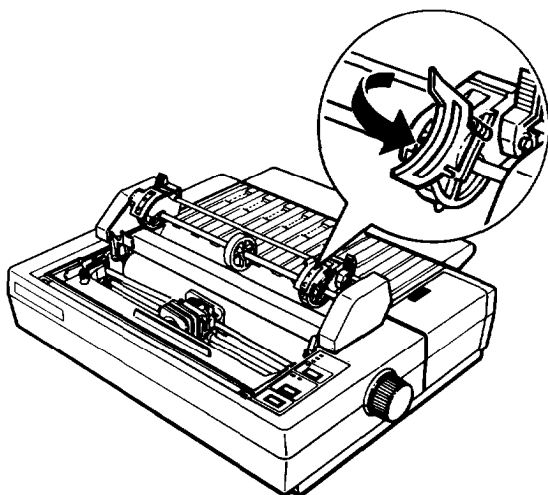
5. Slide the right sprocket frame to match the width of your paper, but do not lock it.



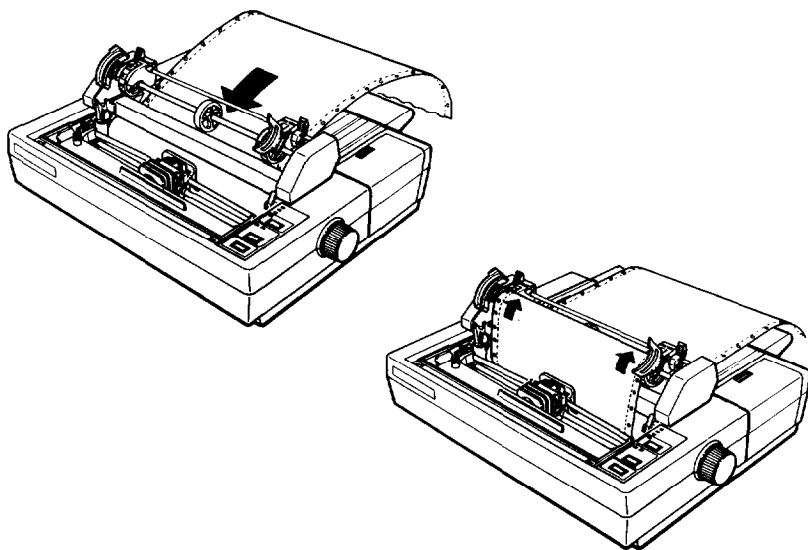
6. Position the paper support midway between the two sprocket frames.



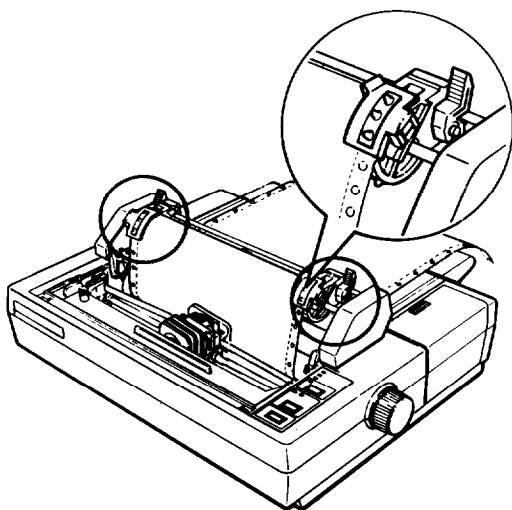
7. Open both sprocket covers.



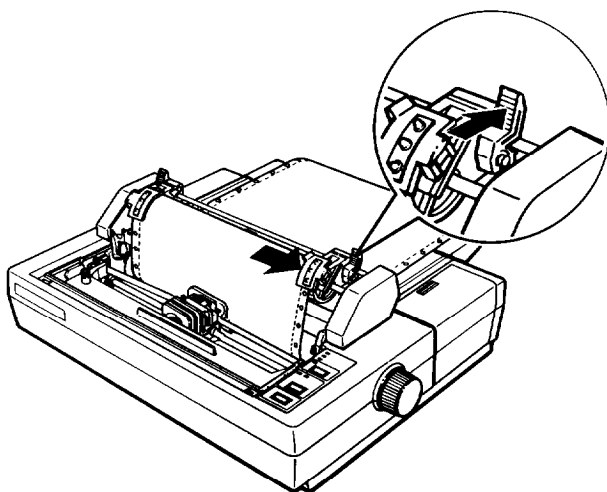
8. Be sure your paper has **a** clean, straight edge and then insert the paper into the printer until it emerges between the platen and the ribbon guide. Pull it up to the sprocket frames.



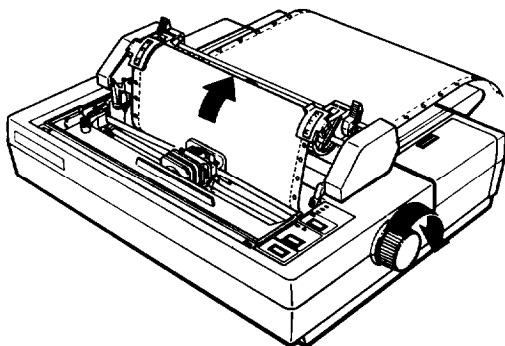
9. Fit the holes of the paper over **the** tractor pins of the sprocket frames, and then close the sprocket covers.



10. Adjust the position of the right sprocket frame to remove any slack across **the** paper and then lock it into place.



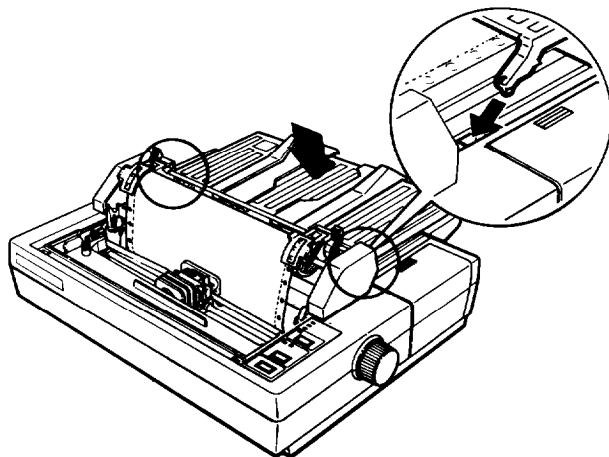
11. If there is slack in the paper between the print head and the tractor unit, use the paper feed knob to take up the slack.



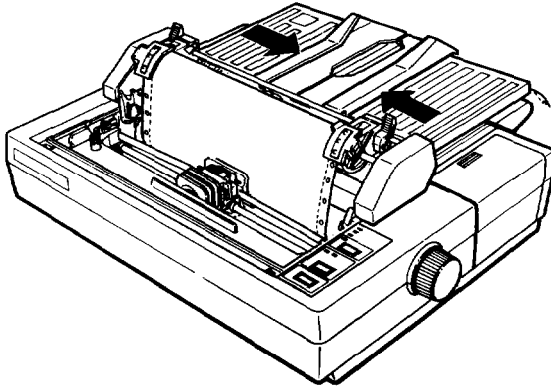
Attaching the paper guide

With continuous paper, the paper guide functions as a paper separator.

1. Place the paper guide over the printer and paper.



2. Slide the edge guides to the center of the paper's width.

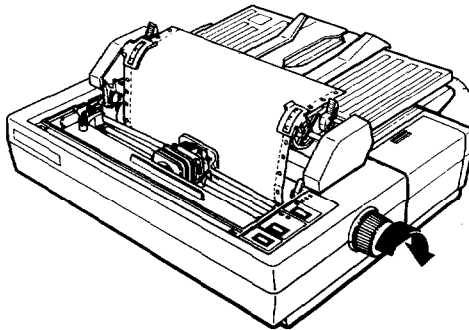


Setting the top of form position

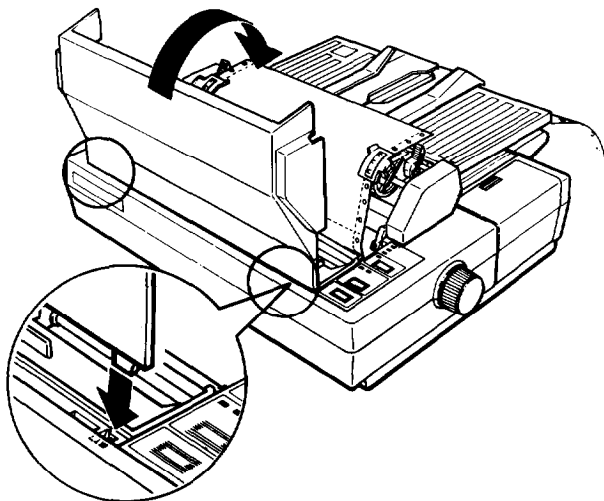
It is important to set the top of form position properly because this position determines the first printable line of each page: The top of form position remains valid until the printer is turned off, reset, **or** initialized.

Follow these steps to set the top of form position.

1. Turn off the printer.
2. Use the paper feed knob to feed the paper until its perforation is just about even with the ribbon.



3. Attach the tractor cover to the printer.



4. Turn on the printer.

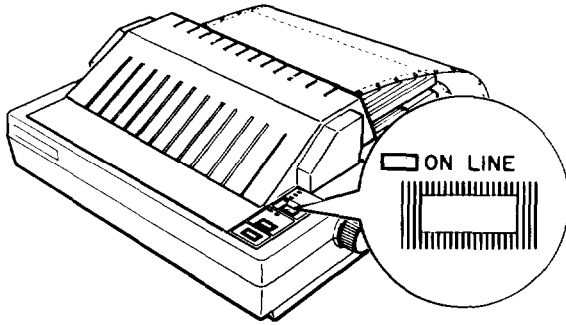


CAUTION: If you use the paper feed knob to feed the paper after turning on the printer, the printer loses track of the set position. If you wish to retain the set **top** of form position, be sure **to** use the **LINE FEED** or **FORM FEED** button to feed paper.

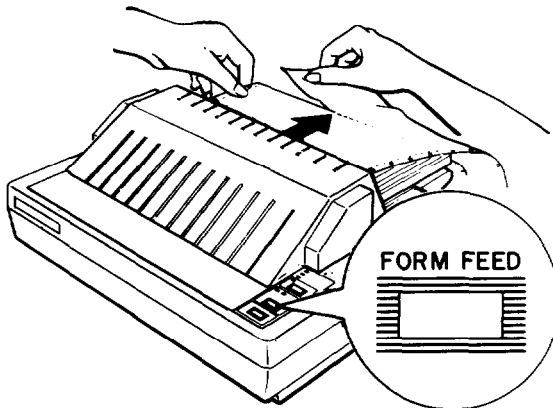
When you have finished printing

To tear off the paper after you have finished printing, follow the steps below:

1. After printing is completed, set the printer off line.



2. Press the **FORM FEED** button to feed the paper forward, and then tear it off at the perforation.



Printing on Special Paper

In addition to printing on single sheets and continuous paper, your printer can also print on a wide variety of paper types, such as multi-part forms. Before printing on special types of paper, you need to change the paper thickness setting.

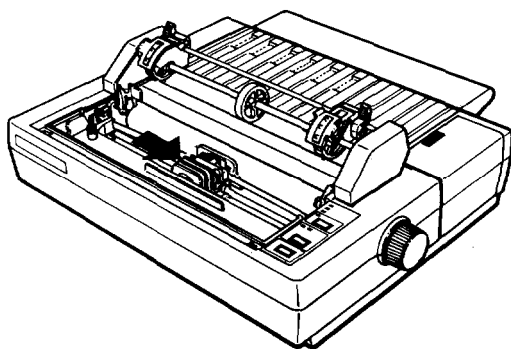


WARNING: Always return the lever to position 2 when you go back to printing on ordinary paper.

The paper thickness lever

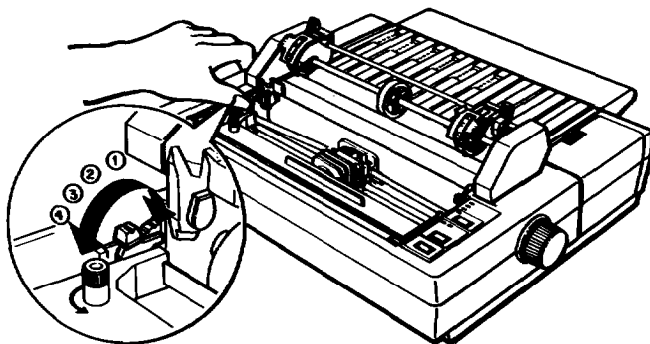
Change the position of the paper thickness lever as follows:

1. Turn off the printer.
2. Remove the tractor cover or the printer cover.
3. Slide the print head to the middle of the printer.



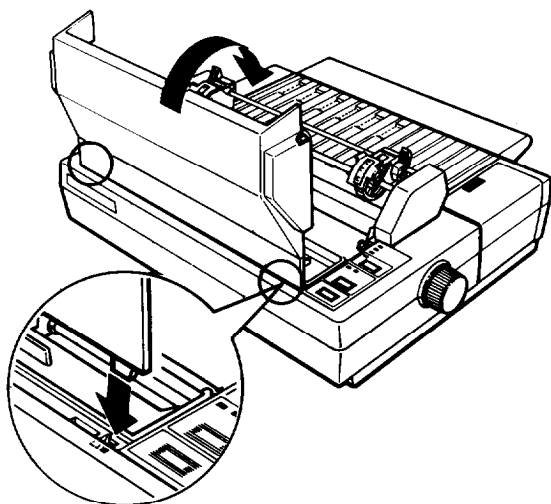
WARNING: If the printer has been used recently, the print head may be hot. Let it cool before attempting to move it.

4. Set the paper thickness lever to match the thickness of your paper, according to the table below.



Paper Type	Lever Position
Ordinary (single sheets or continuous)	2
Thin paper	2 or 1
Multi-part paper	
2 sheets (original + 1 copy)	3
3 sheets (original + 2 copies)	4

5. Attach the tractor cover or printer cover.



Using multi-part forms

With the pull tractor unit installed, your printer can print on continuous multi-part forms. You can use multi-part forms up to three sheets thick including the original. Be sure you set the paper thickness lever to the proper position using the table on the previous page.



WARNING: Do not use multi-part forms with the single-sheet feeding system.

Except for the paper thickness lever setting, you load multi-part paper the same way as continuous paper. For details, see the section on loading continuous paper in this chapter. Pay special attention to setting the top of form position.



WARNING: When printing multi-part forms, be sure the printing does not exceed the printable range of your forms.

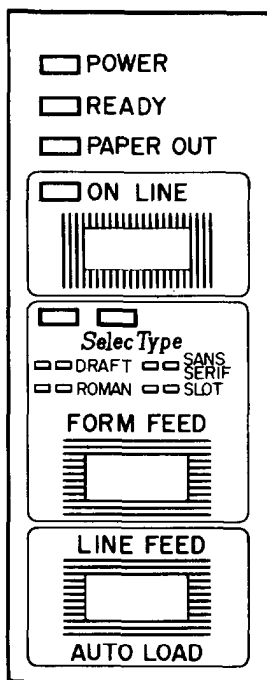
Chapter 3

Using the Printer

Operating the Control Panel	3-2
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Operating the Control Panel

The buttons **on the** control panel let you control many of the printer settings. The control panel also has indicator lights so you can check the current status of the printer's settings.

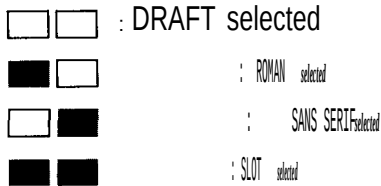


Lights

- POWER:** On when the power switch is on and power is supplied.
- READY:** On when the printer is ready to accept data. This light flickers during printing.
- PAPER OUT:** On when the printer is out of paper.

ON LINE: **On when** the printer can receive and print data from the computer. If this light flickers, the print head is overheated. In this case, the printer waits until the print head cools and then resumes printing.

SelectType: The two SelectType lights indicate which font is currently selected as indicated by the labels next to each font name.



When draft is selected, neither light is **ON**. When Roman is selected, the left light is on. When Sans Serif is selected, the right light is on. When you are using an optional font module font, both lights are on.

Buttons

ON LINE: This button controls the printer's on line/off line status. When **the** printer is on line, the **ON LINE** light is **on** and the printer can receive and print data from **the** computer.

FORM FEED: When the printer is off line, press this button to eject a single sheet of paper or advance continuous paper to the top of the next page. When the printer is on line, press this button to select the character font. See **the** section in this chapter on selecting a font with SelectType.

**LINE FEED/
AUTO LOAD:** When **the** printer is off line, press this button to feed the paper one line, or hold it down to feed paper continuously. After inserting a single **sheet** while the **PAPER OUT** light is **on**, press this button to automatically load the paper.

Other control panel features

The control panel also gives you access to several special functions.

Self test: By holding down the **LINE FEED** button (for draft mode) or the **FORM FEED** button (for Letter Quality mode) while you turn on the printer, you can start the printer's self test. The self test printout lets you check the current DIP switch settings and operating status of the printer.

LINE FEED: Draft mode

FORM FEED: Letter Quality mode

See the section on testing the printer in Chapter 1 for more information.

Data dump: By holding down both the **LINE FEED** and **FORM FEED** buttons while you turn on the printer, you turn on the data dump mode. This feature allows advanced users to find the cause of communication problems between the printer and the software.

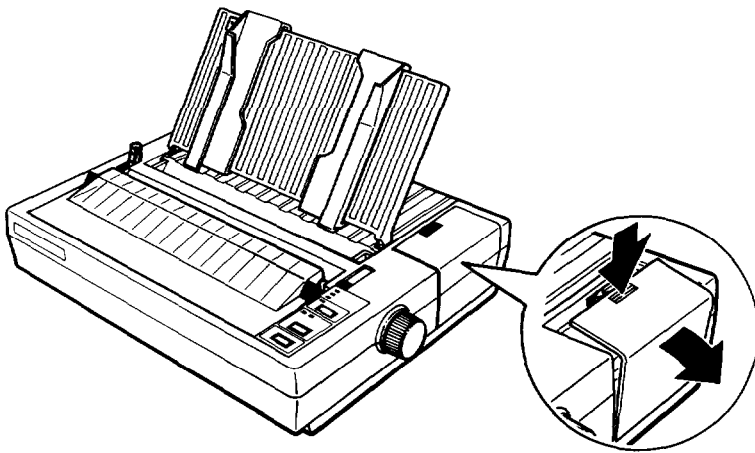
DIP Switches

By changing the settings of the two sets of DIP switches inside **the** font compartment, you **can** control various printer features, such as the character set and page length. These new settings become valid whenever the printer is turned on, reset, or initialized.

Setting the DIP switches

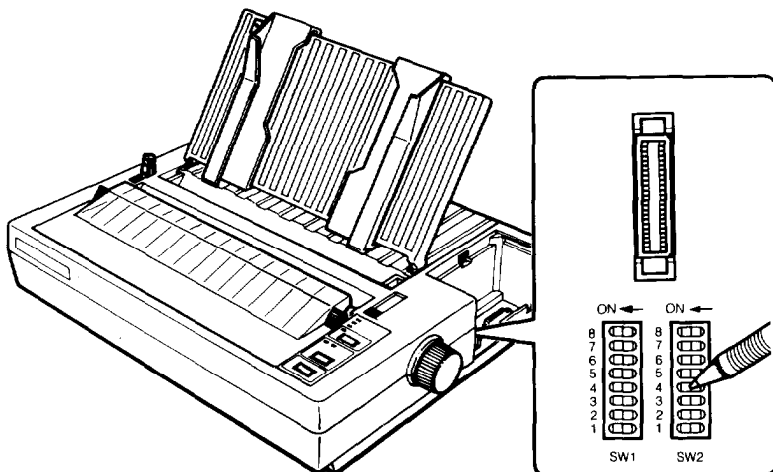
Follow these steps to set the DIP switches:

1. Be sure the printer is turned off.
2. Remove the font compartment cover.

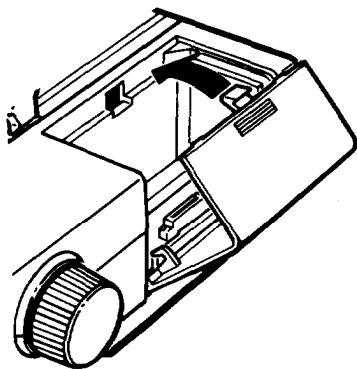


DIP Switches

3. Use a pointed instrument, such as the tip of a pen, to **move** the switch to either the on or the off position. The tables on the following pages give the DIP switch functions for each setting.



4. Reattach the font compartment cover.



The new settings become valid when you turn on the printer.

DIP switch functions

The tables below describe **the** DIP switch functions. Note that the settings may vary depending on the country. Check the default DIP switch settings which appear on your self test printout.

DIP Switch 1

SW	Description	ON	OFF
1-1 1-2 1-3	International character set	See table on page 3-8.	
1-4 1-5	Font selection	See table on page 3-8.	
1-6	Condensed mode	Condensed	Normal
1-7	Character table	Graphic	Italic
1-8	Cut sheet feeder mode	ON	OFF

DIP Switch 2

SW	Description	ON	OFF
2-1	Page length	12 inches	11 inches
2-2	CSF page length	A4 size (65 lines)	Letter size (61 lines)
2-3	Skip over perforation	ON	OFF
2-4	Auto line feed	ON	OFF
2-5	Input buffer capacity	8 kbytes	1 kbyte
2-6	Print direction for graphics	Bidirectional	Unidirectional
2-7 2-8	Character pitch selection	See table on page 3-8.	

DIP Switches

International character set

Country	SW1-1	SW1-2	SW1-3
USA	ON	ON	ON
France	ON	ON	OFF
Germany	ON	OFF	ON
United Kingdom	ON	OFF	OFF
Denmark 1	OFF	ON	ON
Sweden	OFF	ON	OFF
Italy	OFF	OFF	ON
Spain 1	OFF	OFF	OFF

Font selection

Font	SW1-4	SW1-5
Roman	OFF	OFF
Sans Serif	ON	OFF
Slot	OFF	ON
Draft	ON	ON

Pitch selection

Character pitch	SW2-7	SW2-8
10 pitch	OFF	OFF
12 pitch	ON	OFF
15 pitch	OFF	ON
Proportional	ON	ON

Auto **line feed**

When auto line feed is on (DIP switch 2-4 on), each carriage return code (CR) is automatically accompanied by the line feed code (LF).

Input **buffer capacity**

The input buffer stores data from your computer. If you **want** to free your computer for other tasks while the printer prints, change **the** setting to 8 Kbytes (DIP switch 2-5 on). Before defining user-defined characters, however, be sure to set the switch to 1 Kbyte (off).

Print direction for graphics

The printer ordinarily prints text bidirectionally for speed and prints graphics characters unidirectionally for precise vertical alignment. You can, however, change text printing to unidirectional with the software command ESC **U1**. If DIP switch 2-6 is on, you can change graphics character printing to bidirectional with ESC **U0**. If DIP switch 2-6 is off, graphics character printing is unidirectional whether or not ESC **U0** is used.

Page length

DIP switch 2-1 lets you select a page length of 11 inches (27.94 cm) or **12** inches (30.48 cm). If you are using paper **that** is 12 inches long, you can set this switch on. For 11-inch paper **the** factory setting is off.

Skip over perforation

DIP switch 2-3 controls the skip over perforation function. If this switch is on when you are using continuous paper, the printer leaves a one-inch (25.4 mm) margin between the last printed line on one page and the first printable line on the next page so that the printer skips over the perforation.

Most application programs take care of the top and bottom margins. Therefore, do not turn on skip over perforation unless your program does not provide these margins.

If you adjust your top of form position to the proper point, you can get half of the margin at the bottom of one page and half at the top of the next page as shown below.

DIP SW2-3 OFF (Skip over perforation OFF)

23456789: ;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]
3456789: ;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^
456789: ;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_
56789: ;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_'

6789: ;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_ 'a
789: ;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_ 'at
89: ;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_ 'abc
9: ;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_ 'abcd
: ;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_ 'abcde

DIP SW2-3 ON (Skip over perforation ON)

23456789 : ;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^'
3456789: ;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_

456789: ;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_
56789: ;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_ 'a
6789: ;<=>?@ABCDEFGHIJKL MNOPQRSTUVWXYZ[\]^_ 'at

Selecting Typestyles

Your printer can produce a wide range of typestyles by using different character fonts, pitches, widths, and other enhancements. You **can** select the character font using a software command, **the** SelectType feature on your control panel, or by setting DIP switches.

Built-in character fonts

Your printer has three built-in character fonts:

DRAFT

!"#\$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJK
LMNOPQRSTUVWXYZ [\]^_`abcdefghijklmnopqrstuv
wxyz[|]`

We've just seen your excellent ad for
miniature zebras in a recent back issue of
Trader's times. What is the price schedule
for quantities over one gross?

ROMAN

!"#\$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJK
LMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuv
wxyz[|]`

We've just seen your excellent ad for
miniature zebras in a recent **back** issue of
Trader's Times. What is the price schedule
for quantities over one gross?

SANS SERIF

!"#\$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJK
LMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuv
wxyz[|]`

We've just seen your excellent ad for
miniature zebras in a recent back issue of
Trader's Times. What is the price schedule
for quantities over one gross?

Selecting Typestyles

Draft mode uses fewer dots per character for high-speed printing, which makes it ideal for rough drafts and editing work.

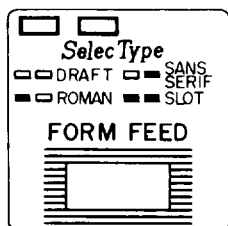
Roman and Sans Serif are Letter Quality (LQ) fonts. Letter Quality takes a little longer to print, but produces fully-formed characters for presentation-quality documents.

Optional font modules are also available for use with your printer. For more information, see the section on the Multi-Font Module in the Appendix.

Selecting a font with SelecType

To select a font using SelecType, follow these steps:

1. Be sure **the** printer is on, contains paper, and is on line.
2. Check to see that the printer is not receiving data (the **READY** light should not be flickering).
3. Press the **FORM FEED** button until **the** two SelecType lights match the desired font, as shown below.



Status of the SelecType lights



DRAFT *selected*



ROMAN *selected*



SANS SERIF *selected*



SLOT (font *module*) *selected*

SelecType skips over the **SLOT** option (both lights on) if an optional font module is not installed.

The font selected by SelecType remains valid until another font is selected by a software command or until the printer is turned off, reset, or initialized.

Selecting a font with DIP switches

You can set your favorite font as the default font by setting DIP switches 1-4 and 1-5.

The printer comes with Roman as the default font. If you wish to change it, set the DIP switches as shown in the table below.



CAUTION: Be sure **the** printer is turned off before changing any DIP switch settings.

Font	SW1-4	SW1-5
Roman	OFF	OFF
Sans Serif	ON	OFF
Slot	OFF	ON
Draft	ON	ON

In addition to font selection, you can also change **the** character pitch and add other print enhancements by using software commands listed in the Command Summary, Chapter 6.

Selecting an International Character Set

Selecting an international character set provides you with the characters and symbols used in other languages. By setting the DIP switches, you can select one of eight international character sets.

To select an international character set, set DIP switches 1-1, 1-2, and 1-3 according to the table below. This table shows the characters in each international character set.

Country	ASCII code (hex)												DIP SW		
	23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E	1-1	1-2	1-3
0 USA	#	\$	@	[	\	]	^	'	{		}	~	ON	ON	ON
1 France	#	\$	à	•	ç	§	^	'	é	ù	è	¨	ON	ON	OFF
2 Germany	#	\$	§	Ä	Ö	Ü	^	'	ä	ö	ü	ß	ON	OFF	ON
3 UK	£	\$	@	[	\	]	^	'	{		}	~	ON	OFF	OFF
4 Denmark I	#	\$	@	Æ	Ø	Å	^	'	æ	ø	å	~	OFF	ON	ON
5 Sweden	#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü	OFF	ON	OFF
6 Italy	#	\$	@	•	\	é	^	ù	à	ò	è	ì	OFF	OFF	ON
7 Spain I	¢	\$	@	;	Ñ	¿	^	'	¨	ñ	}	~	OFF	OFF	OFF



CAUTION: When you change the setting of a DIP switch, be sure to first turn off the printer. Change the DIP switch and then turn the printer back on.

Besides the eight sets above, the six international character sets and the legal set shown on the next page are also available through a software command.

Country	ASCII code (hex)											
	23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E
8 Japan	#	\$	@	[	¥	]	^	'	{		}	~
9 Norway	#	¤	É	Æ	Ø	Å	Û	é	æ	ø	å	ü
10 Denmark II	#	\$	É	Æ	Ø	Å	Û	é	æ	ø	å	ü
11 Spain II	#	\$	á	í	Ñ	¿	é	'	í	ñ	ó	ú
12 Latin America	#	\$	á	í	Ñ	¿	é	ü	í	ñ	ó	ú
13 Korea	#	\$	@	[	₩	]	^	'	{		}	~
64 Legal	#	\$	§	°	'	"	¶	'	©	®	†	™

Choosing a Character Table

DIP switch 1-7 selects the italics character table or the Epson Extended Graphics character table. The Epson Extended Graphics table contains international accented characters, Greek characters, mathematical symbols, and character graphics for printing lines, comers, and shaded areas.

If you have **an IBM®** or compatible computer, select Epson Extended Graphics by setting DIP switch **1-7** on. You can then print both text and the character graphics that are displayed **on** your screen. Also you can still print italics using the ESC 4 command. Samples of italics and Epson Extended Graphics are shown below.

Italics

```
! "#$%&'()*+,-./0123456789:;<=>?@ABCDEFGH  
IJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnop  
pqrstuvwxyz{|}~
```

Epson Extended Graphics



CAUTION: When you change the setting of a DIP switch, be sure to first turn off the printer. Change the DIP switch and then turn the printer back on.

Troubleshooting and Maintenance

Problems and Solutions	4-2
The printer does not print	4-2
The printout is spaced incorrectly	4-3
The printout is faint or uneven	4-3
The printer stops printing	4-4
Single sheets do not feed properly	4-4
Continuous paper does not feed properly	4-5
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Problems and Solutions

This chapter discusses problems you may encounter and their likely solutions.

This section lists possible problems and likely solutions. For additional information, see “Where to Get Help” on the inside front cover of this guide.

The printer does not print

- Be sure that the printer is turned on and the **POWER** light is on. If the printer is turned on but **the POWER** light is not on, check to see that the printer is fully plugged in and that the electrical outlet is also turned on.
- Be sure that the **ON LINE** light is on. If it is not on, press the **ON LINE** button.
- Be sure **that** the printer is connected to the computer. Check both ends of the cable between the printer and **the** computer.
- Be sure that the printer is not out of paper. (The **PAPER OUT** light should be off.)

If the printer still does not print, disconnect the printer from the computer and try the self test described in Chapter 1. If **the** self test works properly, **the** printer is working, and the problem probably lies in the computer, the software, or **the** cable. If the self test does not work, contact the store where you purchased your printer or call the Epson toll-free number.

The printout is spaced incorrectly

Text is printed all on one line, or the printer is inserting extra blank lines between lines of text.

- If all the text is printed on **the** same line, no line feed signal is being sent at the end of each line of text. Turn DIP switch 2-4 **on**.
- If the printer is inserting extra blank lines between lines of text, extra line feed signals are being sent. Turn DIP switch 2-4 off.
- If **the** printer inserts extra blank lines even after turning DIP switch 2-4 off, you may need a different cable which disables the AUTO FEED XT signal of your interface.

The printout is faint or uneven

- The ribbon may not be properly installed. See the section on ribbon installation in Chapter 1.
- The ribbon may be worn out. See the section on replacing the ribbon later in this chapter.
- The paper thickness lever may be in the wrong position. See the section on the paper thickness lever in Chapter 2.
- The print head may be worn out. This is especially likely if parts of printed characters are missing. Contact an Authorized Epson Dealer to have the head replaced. Never attempt to replace the head yourself because other parts of the printer should be checked at the same time.

The printer stops printing

- The printer may be out of paper. Check the paper supply.
- The paper may be jammed. Remove the jammed paper and reload.
- The ribbon may be jammed. See the section on replacing the ribbon later in this chapter.
- If the **READY** light is off and the **ON LINE** light is flickering, the printer **has** stopped to allow the print head to cool. Printing resumes soon; you do not have to do anything to restart it.
- If the printer stops, the beeper sounds, and the **ON LINE** light does **not** flicker, turn the printer off and **then** turn it back on and try to print again. If **the** printer beeps again and does not print, take it to a qualified service person.

Single sheets do not feed properly

- The position of the paper release lever may be wrong. Push it back to the single-sheet position.
- The paper may be too large or too small. See the printer's paper specifications in Chapter 5.
- The paper guide **may** not be installed properly. See **the** section on installing the paper guide in Chapter 2.
- The cut sheet feeder mode may be selected by the DIP switch. See **the** section on setting DIP switches in Chapter 3.

Continuous paper does not feed properly

- The position of the paper release lever may be wrong. Pull it forward to the continuous paper position.
- The paper may not be mounted on the sprockets correctly. See that the sprocket holes of the paper fit correctly over the sprockets.
- The paper guide may not be installed properly. See the section on continuous paper in Chapter 2.
- The paper supply may be stacked too far from the printer or not aligned with the tractor. Also, there may be some obstacle in the way of the paper or something on top of the paper supply. See Chapter 2 for instructions on the proper placement of the paper supply.

The printout is not what you expect

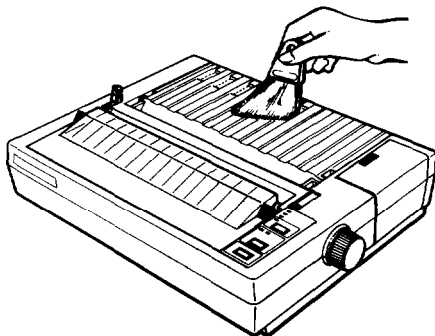
- The wrong international character set may be selected. See the section on international character sets in Chapter 3.
- The wrong character table (italics or Epson Extended Graphics) may be selected. See the section on character tables in Chapter 3.
- The font, pitch, or size may not be selected properly. See that your software is correctly set up for your printer.
- Your application program may be changing the SelecType settings. Use the program's setup (or installation) procedure to remove the **codes** that interfere with your SelecType settings. Another solution is to use the printer control codes for your application program instead of SelecType to control your printing. The manual for your program can tell you how to change the printing style.

Cleaning the Printer

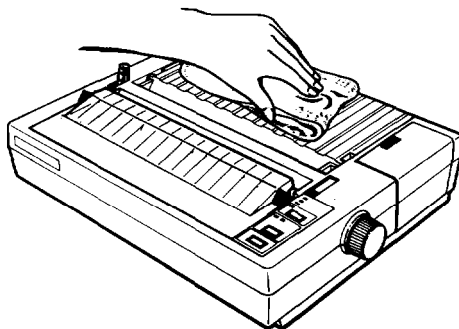
To keep your printer operating at its best, you should clean it thoroughly several times a year.

Follow **these** steps to clean **the** printer.

1. Be sure the printer is turned off.
2. Remove the paper guide, tractor unit, and any installed options.
3. Use a soft brush to carefully clear away all dust and dirt.



4. If the outer case or paper guide is dirty **or dusty**, clean it with a **soft**, clean cloth dampened with mild detergent dissolved in water. Keep the printer cover in place to prevent water from getting inside the printer.





WARNING:

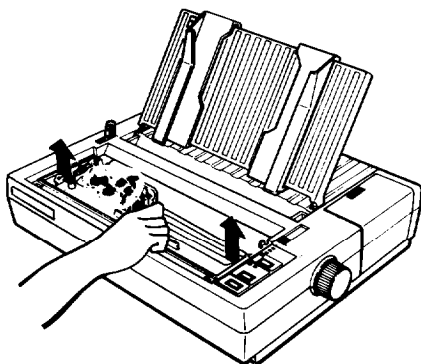
- Never use alcohols or thinners to clean the printer; these chemicals can damage the components as well as **the case**.
- Be careful not to get water on the printer mechanism or electronic components.
- Do not use a hard or abrasive brush.
- Do not spray **the** inside of the printer with lubricants; unsuitable oils can damage the mechanism. Contact your Authorized Epson Dealer if lubrication is needed.

Replacing the Ribbon

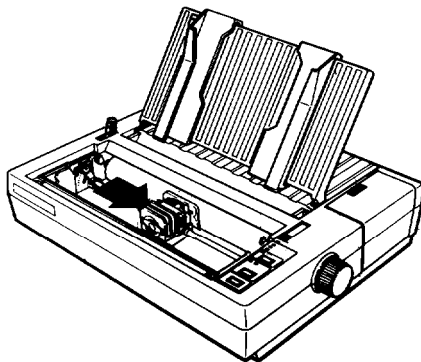
When your printing becomes too faint you need to replace the ribbon. The # 7753 Epson replacement ribbon cartridge is recommended.

Follow these steps to replace **the** ribbon:

1. Be sure the printer is turned off and printer cover is removed.
2. To remove the ribbon cartridge, lift it straight up and out of the printer.

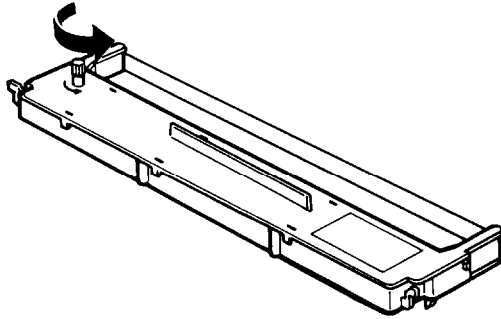


3. Slide the print head to the middle of the printer.

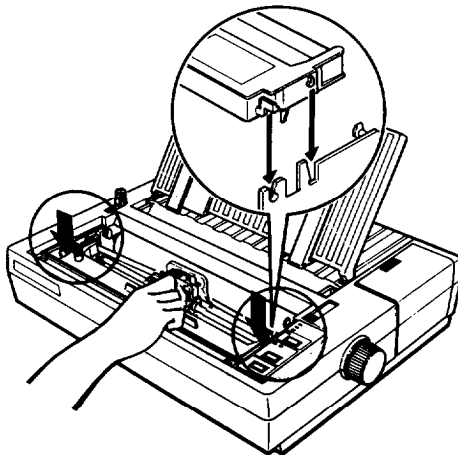


WARNING: If the printer has been used recently, the print head **may** be hot. Let it cool before attempting to replace **the** ribbon.

4. To remove excess slack in the new ribbon, turn the ribbon-tightening knob in the direction of the arrow.



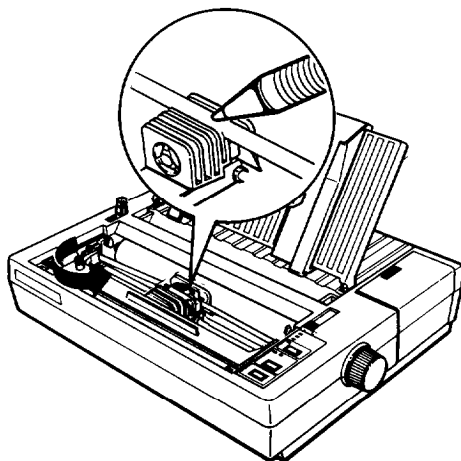
5. Push the new ribbon cartridge firmly into position, making sure the plastic hooks fit into the printer.



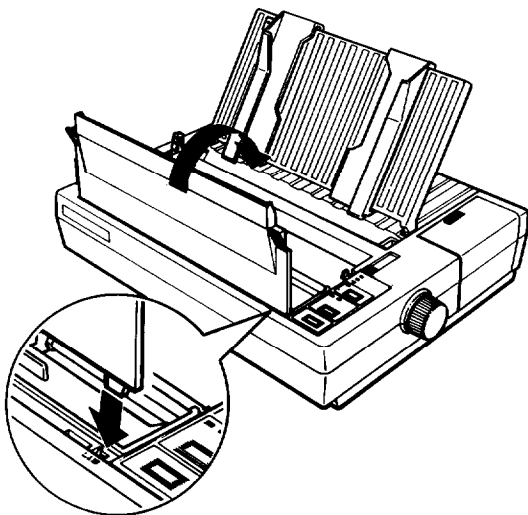
Note: Press lightly on both sides of the cartridge to be sure the hooks are properly inserted.

Replacing the Ribbon

6. Use a pointed object, such as a pencil, to guide the ribbon between the print head and ribbon guide while you turn the ribbon-tightening knob to help feed-the ribbon into place.



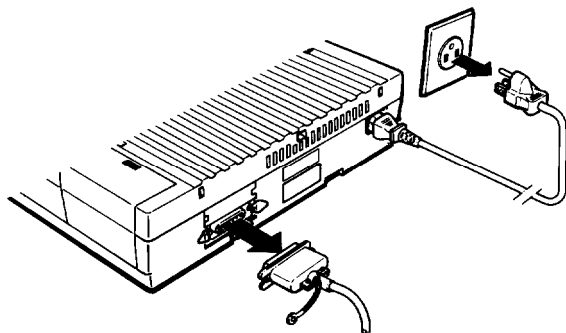
7. Slide the print head from side to side to be sure it moves smoothly. Also check that the ribbon is not twisted or creased.
8. Insert the legs of the printer cover into the printer, then tilt the printer cover back into place.



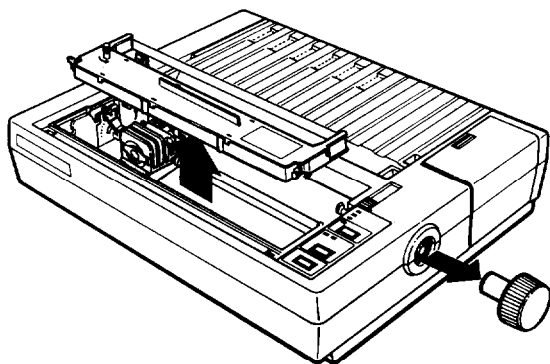
Transporting the Printer

If you need to transport your printer **some** distance, carefully repack the printer using the original box and packaging materials, as described below.

1. Turn off **the** printer.
2. Remove the paper guide and paper rest.
3. Unplug the power cable from the electrical outlet; **then** disconnect the interface cable from **the** printer.



4. Remove **the** ribbon cartridge and paper feed knob.



5. If you have removed the pull tractor and the tractor cover, replace them now according to the instructions in Chapter 2.



WARNING: Never hold the printer by the font compartment cover—even if you are only carrying the printer a short distance. This cover could come off and cause you to drop the printer.

Technical Specifications

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Printer Specifications

Printing

Printing method: 24-pin impact dot matrix

Printing speed:

Pitch	Quality	Characters/second/line
10	draft	150
10	Letter Quality	50
12	draft	180
12	Letter Quality	60

Printing direction: Bidirectional logic-seeking for text and unidirectional for dot graphics printing and character graphics printing. See page 3-9 for further information.

Line spacing: 1/6 inch, or programmable in increments of 1/180th of an inch

Printable columns:

Character pitch	Maximum printed characters
10 pitch	80
10 pitch double-wide	40
10 pitch condensed	137
12 pitch	96
12 pitch double-wide	48
12 pitch condensed	160
15 pitch	120
15 pitch double-wide	60
Proportional	68 (maximum width character) 160 (minimum width character)

Buffer: 1 Kbyte or 8 Kbytes (DIP switch selectable)

Character fonts:

Font	Available Pitches (characters per inch)
Epson Draft	10, 12, 15
Epson Roman	10, 12, 15, proportional
Epson Sans Serif	10, 12, 15, proportional
Courier (optional)	10, 12, 15
Prestige (optional)	10, 12, 15
Script (optional)	10, 12, 15
OCR-B (optional)	10
OCR-A (optional)	10
Orator (optional)	10
Orator-S (optional)	10

Character tables: 96 standard ASCII characters
14 international character sets and a legal set
Epson Extended Graphics characters

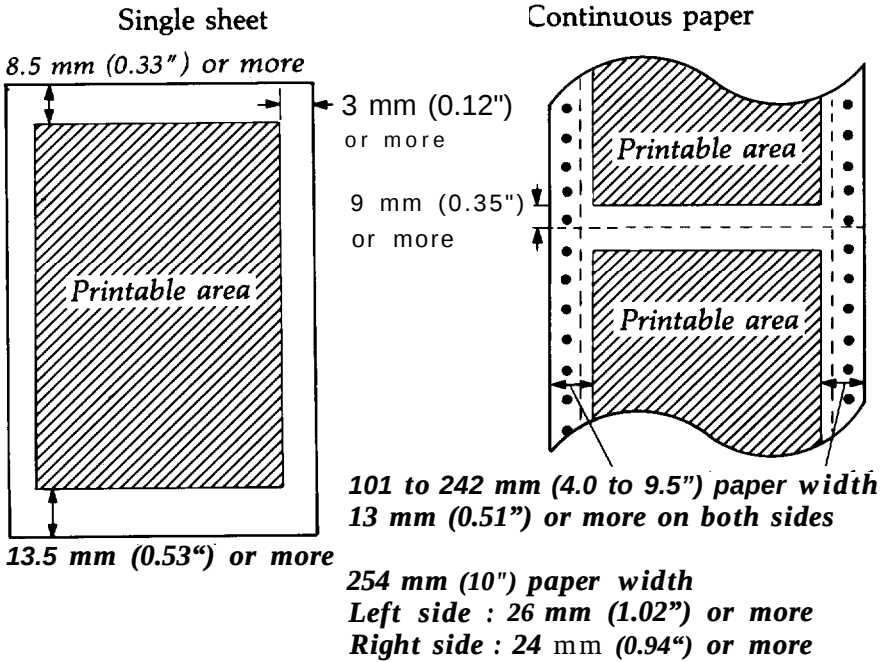
Paper

Paper feed methods: Friction
Single-bin cut sheet feeder (optional)
Pull tractor

Paper width: Single sheets
7.2 to 10.1 inches (182 to 257 mm)
Continuous
4.0 to 10.0 inches (101 to 254 mm)

Paper length: Single sheets
7.2 to 14.3 inches (182 to 364 mm)

Printable area:



*** This distance is 27 mm (1.06 inches) if the paper width is 257 mm (10.1 inches).**

Paper feed speed: Approx. 100 ms/line at 1/6-inch line spacing with intermittent feeding;
2.2 inches/s with continuous feeding.

Paper thickness: Single sheets
0.0025 to 0.004 inches (0.065 to 0.1 mm)
Continuous
0.0025 to 0.01 inches (0.065 to 0.25 mm)

Number of copies: With continuous multi-part paper only;
one original plus up to two copies.
Maximum thickness: 0.01 inches (0.25 mm)

Mechanical

Ribbon:	Cartridge ribbon, available in black only (# 7753). Do not use ribbons for 9-pin printers. Life expectancy (in Letter Quality characters, at 48 dots/character): 2 million
MCBF:	For all components excluding print head: 3 million lines
MTBF:	4000 power on hours
Print head life:	200 million strokes per wire
Dimensions and weight:	Height: 139 mm (5.5 inches) Width: 390 mm (15.3 inches) Depth: 320 mm (12.6 inches) Weight: 7 Kg (15 lb)

Electrical

Voltage:	120 VAC $\pm 10\%$ (120 V model) 220 VAC $\pm 10\%$ (220 V model) 240 VAC $\pm 10\%$ (240 V model)
Power consumption:	120 Watts maximum
Frequency:	49.5 to 50.5 Hz (50 Hz version) 59.5 to 60.5 Hz (60 Hz version)
Insulation resistance:	10 MΩ between AC power line and chassis
Dielectric strength (between AC line and chassis):	120 V model: AC 1.0 kV (rms), 1 minute AC 1.2 kV (rms), 1 second 220/240 V model: AC 1.25 kV (rms), 1 minute AC 1.5 kV (rms), 1 second

Printer Specifications

Environmental

Temperature:	Operation: 41°F to 95°F (5°C to 35°C)
	Storage: -22°F to 140°F (-30°C to 60°C)
Humidity:	Operation: 10% to 80% without condensation
	Storage: 5% to 85% without condensation
Shock:	Operation: Up to 1 G within 1ms
	Storage: Up to 2 G within 1ms
Vibration:	Operation: Up to 0.25 G at up to 55 Hz
	Storage: Up to 0.50 G at up to 55 Hz

Interface Specifications

Your printer is equipped with a parallel interface.

Pin assignments for the parallel interface

Connector pin assignments and a description of their respective interface signals are shown in the following table.

signal Pin	Return Pin	Signal	Direction	Description
1	19	STROBE	IN	STROBE pulse to read data. Pulse width must be more than 0.5 microseconds at the receiving terminal.
2	20	DATA 1	IN	These signals represent information of the 1st to 8th bits of parallel data, respectively. Each signal is at HIGH level when data is logical 1 and LOW when it is logical 0.
3	21	DATA 2	IN	
4	22	DATA 3	IN	
5	23	DATA 4	IN	
6	24	DATA 5	IN	
7	25	DATA 6	IN	
8	26	DATA 7	IN	
9	27	DATA 8	IN	
10	28	ACKNLG	OUT	About an 11-microsecond pulse. LOW indicates that data has been received and that the printer is ready to accept more data.
11	29	BUSY	OUT	A HIGH signal indicates that the printer cannot receive data. The signal goes HIGH in the following cases: 1) During data entry (ea. char. time) 2) During printing 3) When off line 4) During printer-error state
12	30	PE	OUT	A HIGH signal indicates that the printer is out of paper.

Interface Specifications

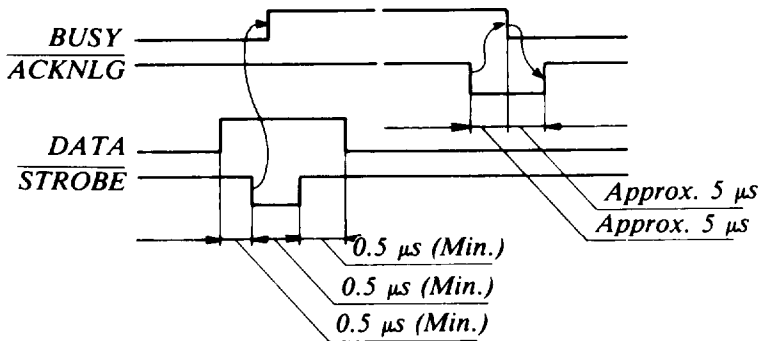
Signal Pin	Return Pin	Signal	Direction	Description
13	—	SLCT	OUT	Pulled up to +5 V through 3.3 K Ω resistance.
14	—	$\overline{\text{AUTO FEED XT}}$	IN	When this signal is LOW, the paper is automatically fed 1 line after printing. (The signal level can be fixed to this by setting DIP switch 2-4 to ON.)
15	—	NC	—	Unused.
16	—	GND	—	Logic ground level.
17	—	CHASSIS GND	—	Printer's chassis ground, which is isolated from the logic ground.
18	—	NC	—	Unused.
19-30	—	GND	—	Twisted-pair return signal ground level.
31	—	$\overline{\text{INIT}}$	IN	When this level becomes LOW, the printer controller is reset to its power-up state and the print buffer is cleared. This level is usually HIGH; its pulse width must be more than 50 microseconds at the receiving terminal.
32	—	$\overline{\text{ERROR}}$	OUT	This level becomes LOW when the printer is: 1) in paper out state. 2) off line. 3) in error state.
33	—	GND	—	Same as for Pins 19-30.
34	—	NC	—	Unused.
35	—	—	OUT	Pulled up to +5 V through 3.3 K Ω resistance.
36	—	SLCT IN	IN	The DC1/DC3 code is valid only when this signal is HIGH (Internal fixing can be carried out with Jumper J6. The level of this signal is factory-set to LOW.)

Note:

1. The column heading "Direction" refers **to** the direction of signal flow as viewed from the printer.
2. "Return" denotes the twisted-pair return, to be connected at signal ground level. For the interface wiring, be sure to use a twisted-pair cable for each signal and to complete the connection on the return side.
3. All interface conditions are based on TTL level. Both the rise and the fall times of each signal must be less than 0.2 microseconds.
4. Data transfer must be carried out by observing the ACKNLG or BUSY signal. (Data transfer to this printer can be carried out only after receipt of the ACKNLG signal or when the level of the BUSY signal is LOW.)

Interface timing

The figure below shows the timing for **the** parallel interface.



Printing enabled/disabled signals and control conditions

The table below shows the relationship between printing being enabled or disabled, **the** on line/off line status, and the receipt of **the** data on/off control characters, DC1 or DC3.

ON LINE (Indicator on)	SLCT IN	DC1/DC3 (Data on/off control)	ERROR	BUSY	ACKNLG	Printing (Disabled/enabled)
on line	Low	DC1/DC3 (no effect)	High	High/Low	Pulsed ea. char.	Enabled (normal cond.)
on line	High	DC1 Recv'd	High	High/Low	Pulsed ea. char.	Enabled
on line	High	DC3 Recv'd	High	High/Low	Pulsed ea. char.	Disabled*
off line	High/Low (no effect)	DC1/DC3 (no effect)	Low	High	Not generated	Disabled

While printing is disabled, character data is being received and acknowledged so that the printer can look for another DC1 character, which would allow it to resume printing.

Initialization

There are three ways that the printer can be initialized (returned to a fixed set of conditions).

Hardware initialization	1. The power is turned on. 2. The printer receives an INIT signal at the parallel interface (pin 31 goes LOW).
Software initialization	3. Software sends the ESC @ (Initialize the printer) command.

These three kinds of initialization have slightly different effects. In particular, ESC @ resets the font to the current SelecType setting; the other two methods reset the typestyle according to the default settings selected by the DIP switches within the font compartment. Also, ESC @ does not initialize the printer mechanism, clear the input data buffer, or clear the user-defined character set.

Default Settings

The table below shows the default conditions that become valid when the printer is initialized.

Item	Reset to:
Top of form position	Current paper position
Left and right margins	Cancelled
Line spacing	1/6-inch line spacing
Vertical tab position	Cleared
Horizontal tab positions	Every eight characters
VFU channel	Channel 0
Font selection	Hardware: reset to current DIP switch setting. Software: reset to the current SelecType setting.
Character pitch	Reset to current DIP switch setting.
Justification	Left justification
Special printing effects	Cancelled
User-defined character set	Hardware: cleared Software: Deselected only
Graphic mode assignment	ESC K = ESC * 0, ESC L = ESC * 1, ESC Y = ESC * 2, ESC Z = ESC * 3

In addition, **when** the printer is initialized by turning on the power or by an INIT signal, **the** data buffer is cleared of all text.

Chapter 6

Command Summary

This summary contains all the commands used by the printer. If a command has no parameters, it is merely listed. If it has parameters, they are explained. The parameters are indicated by lowercase italicized letters, usually *n*. The examples below show how the parameters are indicated.

ESC @ is a command with no parameters.

ESC U 1/0 is a command that uses 1 to turn the feature on and 0 to turn it off.

ESC \$ n1 n2 is a command with two parameters.

ESC D nn is a command with a variable number of parameters.

ASCII	Dec.	Hex.	Description
Printer Operation			
ESC@	64	40	Initialize Printer
DC1	17	11	Select Printer
DC3	19	13	Deselect Printer
DEL	127	7F	Delete Character
ESC <	60	3C	Select Unidirectional Mode (one line)
ESC U 1/0	85	55	Turn Unidirectional Mode On/Off
ESCEM <i>n</i>	25	19	Control Cut Sheet Feeder Mode 4: Turns mode on R: Ejects a sheet 0: Turns mode off
ESC=	61	3D	Set MSB to 0
ESC>	62	3E	Set MSB to 1

Note: For the ESC EM command the variables are the characters "0" (48 decimal or 30 hex) and "4" (52 decimal or 34 hex). Do not use 1 decimal, 01 hex, 4 decimal, or 04 hex.

Command Summary

ASCII	Dec.	Hex.	Description
Printer Operation (continued)			
ESC#	35	23	Cancel MSB Control
BEL	7	07	Beeper
Data Control			
CR	13	0D	Carriage Return
CAN	24	18	Cancel Line
Vertical Motion			
FF	12	0C	Form Feed
ESC C n	67	43	Set Page Length in Lines n = no. of lines (1-127)
ESC C0 n	67	43	Set Page Length in Inches n = no. of inches (1-22)
ESC N n	78	4E	Set Skip Over Perforation n = no. of lines (1-127)
ESC 0	79	4F	Cancel Skip Over Perforation
LF	10	0A	Line Feed
ESC 0	48	30	Select 1 /8-inch Line Spacing
ESC 2	50	32	Select 1/6-inch Line Spacing
ESC 3 <i>n</i>	51	33	Set n/180-inch Line Spacing
ESC A n	65	41	Set n/60-inch Line Spacing
ESC J <i>n</i>	74	4A	Perform <i>n/180-inch</i> Line Feed
VT	11	0B	Tab Vertically
ESC B <i>nn</i>	66	42	Set Vertical Tabs Up to 16 tabs; last <i>n</i> should be 0 (1-255)

ASCII	Dec.	Hex.	Description
Vertical Motion			
ESC b nn	98	62	Set Vertical Tabs in Channels Same as ESC B except the first n selects a channel for tabs.
ESC / n	47	2F	Select Vertical Tab Channel n = the vertical tab channel (0-7)
Horizontal Motion			
ESC l n	108	6C	Set Left Margin n = left margin column
ESC Q n	81	51	Set Right Margin n = right margin column
BS	8	08	Backspace
ESC \$ n1 n2	36	24	Set Absolute Print Position Specifies print position from the left margin in 1/60-inch units Total units = $n1 + (n2 \times 256)$
ESC \ nl n2	92	5C	Set Relative Print Position Moves current print position in units of 1/120 inch for draft and 1/180 for LQ Total units = $n1 + (n2 \times 256)$
HT	9	09	Tab Horizontally
ESC D nn	68	44	Set Horizontal Tabs Up to 32 tabs (1-255) entered in ascending order Terminated by 0

Command Summary

ASCII	Dec.	Hex.	Description
Overall Printing Style			
ESC x n	120	78	Select Letter Quality or Draft 1: Letter Quality 0: Draft
ESC k n	107	6B	Select Typestyle Family 0: Roman 5: OCR-B (Typestyles 2-8 1: Sans Serif 6: OCR-A available only if 2: Courier 7: Orator the Multi-Font 3: Prestige 8: Orator-S Module is 4: Script installed)
ESC ! n	33	21	Master Select To find the value of <i>n</i> add together the numbers of the typestyles you want to combine from the list below: 10 pitch: 0 decimal, 00hex; 12 pitch: 1,01; proportional: 2,02; condensed: 4,04; emphasized: 8,08; double-strike: 16,10; double-wide: 32,20; italics: 64,40; underline: 128,80

Print Size and Character Width

ESC P	80	50	Select 10 CPI
ESC M	77	4D	Select 12 CPI
ESC g	103	67	Select 15 CPI
ESC p1 / 0	112	70	Turn Proportional Mode On/Off
SI	15	0F	Select Condensed Mode
ESC SI	15	0F	Select Condensed Mode
D C 2	18	12	Cancel Condensed Mode
SO	14	0E	Select Double-wide Mode (one line)

ASCII Dec. Hex. Description

Print Size and Character Width (continued)

ESC SO	14 0E	Select Double-wide Mode (one line)
ESC W 1/0	87 57	Turn Double-wide Mode On/Off
DC4	20 14	Cancel Double-wide Mode (one line)
ESC w 1/0	119 77	Turn Double-high Mode On/Off

Print Enhancement

ESC E	69 45	Select Emphasized Mode
ESC F	70 46	Cancel Emphasized Mode
ESC G	71 47	Select Double-strike Mode
ESC H	72 48	Cancel Double-strike Mode
ESC S0	83 53	Select Superscript Mode
ESC S1	83 53	Select Subscript Mode
ESC T	84 54	Cancel Superscript/Subscript Mode
ESC (-nn	40 28	Select Score ESC(-301n1n2 n1 = 1: Underline n1 = 2: Strikethrough n1 = 3: Overscore n2 = 0: Cancel score line selected by <i>n1</i> n2 = 1: Single continuous line n2 = 2: Double continuous line <i>n2</i> = 5: Single broken line n2 = 6: Double broken line
ESC - 1/0	45 2D	Turn Underline Mode On/Off

ASCII	Dec.	Hex.	Description
Print Enhancement (continued)			
ESC 4	52	34	Select Italic Mode
ESC 5	53	35	Cancel Italic Mode
ESC q n	113	71	Select Character Style 0: Normal style 1: Outline 2: Shadow 3: Outline with shadow
Word Processing			
ESC a n	97	61	Select Justification 0: Left justification 1: Centering 2: Right justification 3: Full justification
ESC SP n	32	20	Set Intercharacter Space n = number of units of space added to the space between characters (1-127) Units are 1/120 inch (draft) and 1/180 inch (LQ and proportional)
Character Tables			
ESC t n	116	74	Select Character Tables Selects character table for codes 128-255 0: Italic 1: Extended Graphics 2: Re-maps download characters from 0-127 to 128-255

ASCII	Dec.	Hex.	Description
Character Tables (continued)			
ESC R n	82	52	Select an International Character Set 0: USA 1: France 2: Germany 3:UK 4: Denmark 5: Sweden 6: Italy 7: Spain 8: Japan 9: Norway 10: Denmark II 11: Spain II 12: Latin America 13: Korea 64: Legal
User-defined Characters			
ESC & <i>nn</i>	38	26	Define User-defined Characters ESC & 0 n1 <i>n2 d0</i> d1 d2 data n1 = code for first character; <i>n2</i> = code for last character; d0 = left space of character; d1 = Body width of character; d2 = right space of character data: 3 bytes required for each column; super/subscripts require only 2 bytes per column
ESC :0 n 0	58	3A	Copy ROM to RAM <i>n</i> = font family 0: Roman (Fonts in font cartridges 1: Sans Serif can also be copied)
ESC % n	37	25	Select User-defined Set 0: Normal set 1: User-defined set
ESC 6	54	36	Enable Printable Characters With Extended Graphics this command enables the printing of codes 128-159
ESC 7	55	37	Enable Upper Control Codes Cancels ESC 6

Command Summary

ASCII	Dec.	Hex.	Description
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Graphics

ESC K n1 n2	75	4B	Select Single-density Graphics Mode
ESC L n1 n2	76	4C	Select Double-density Graphics Mode
ESC Y n1 n2	89	59	Select High-speed Double-density
ESC Z n1 n2	90	5A	Select Quadruple-density Graphics
ESC K,L,Y, and Z each select an 8-pin mode			
Total columns = $n1 + (n2 \times 256)$			
ESC * m n1 n2	42	2A	Select Graphics Mode
Total columns = $n1 + (n2 \times 256)$			

Option	Pins	m	Horiz. dots/inch
Single-density	a	0	60
Double-density	a	1	120
High-speed double-density*	8	2	120
Quadruple-density*	a	3	240
CRT I	a	4	40
CRT II	a	6	90
Single-density	24	32	60
Double-density	24	33	120
CRT III	24	38	90
Triple-density	24	39	180
Hex-density*	24	40	360

* Adjacent dots cannot be printed in this mode.

ESC ? s m	63	3F	Reassign Graphics Mode
s = K,L,Y, or Z			
m = mode (0-6)			

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The Interface Boards

A number of optional interfaces are available in case your computer does not have a parallel interface.

Compatible interfaces

The Epson interfaces that are compatible with your printer are listed below.

Interface number	Name
# 8 1 4 3	New serial interface
#8148	Intelligent serial interface
# 8 1 6 5	Intelligent IEEE-488 interface

If you are unsure whether you need an optional interface or would like to know more about interfaces, contact your Epson dealer.

Note: Please note that not all of these interfaces are available in all countries.
--

Installing the interface board

The optional interface boards available for your printer are easy to install. The only tools you need are a flat-blade screwdriver and a crosshead (Phillips) screwdriver.

Before installing an optional interface board, follow these steps:

1. Turn off both the printer and your computer.
2. Disconnect the parallel cable from the printer and the computer.
3. Remove the printer cover.
4. Remove the paper guide.
5. Remove the ribbon cartridge.
6. Remove any installed printer options.

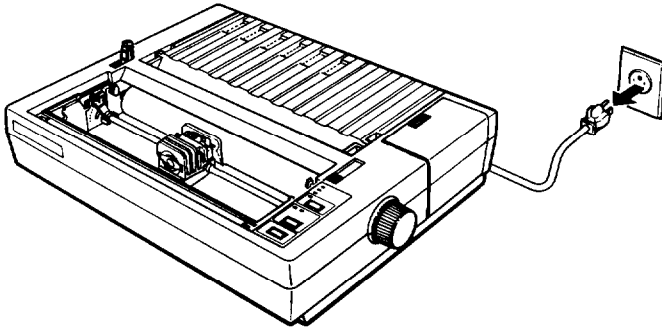
Removing the upper case



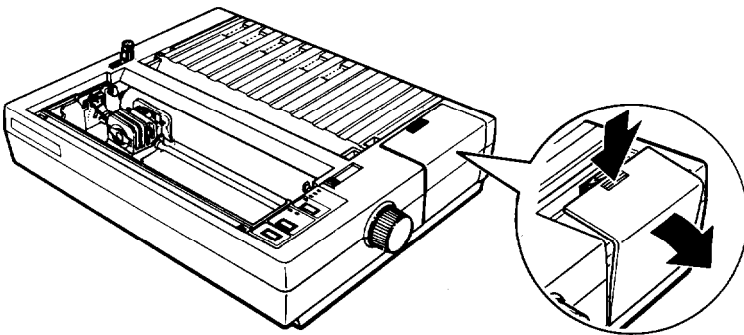
WARNING: High voltages are present inside the printer when the power is on. Do not attempt to remove the upper case unless the printer is turned off and the power cord is unplugged.

Also, try not to touch contacts on the circuit board of the printer because many of the components can be destroyed by the static electricity present in your body.

1. Unplug the power cable from the electrical outlet.



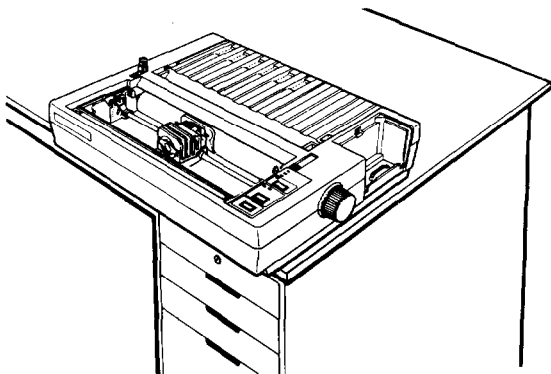
2. Remove the front compartment cover.





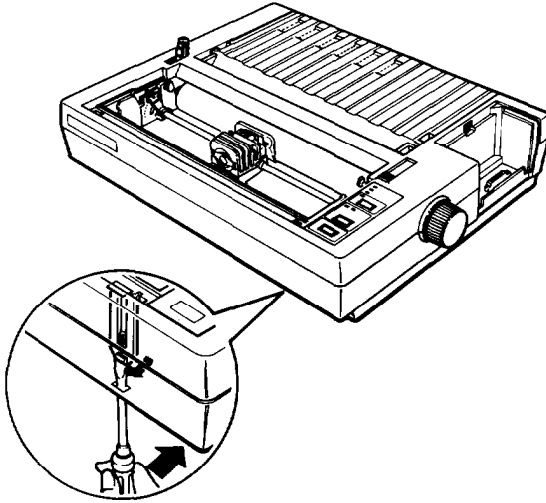
CAUTION: Use caution when removing or attaching the upper case to avoid damaging the printer.

3. To remove the upper case, first put the printer on a table or desk so that its front extends slightly over the edge, allowing access to the openings on the front of the underside of the printer.

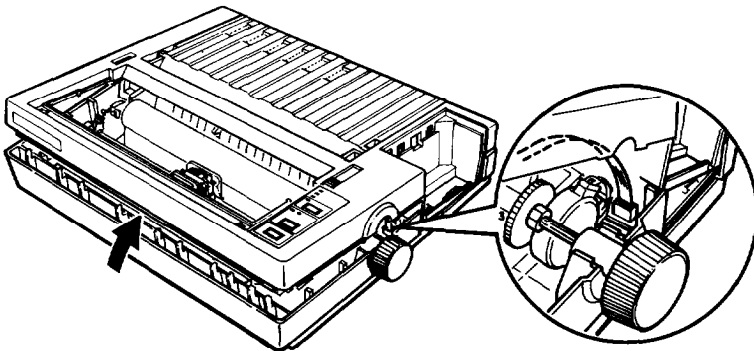


WARNING: Be sure that the printer is not so far forward that it is in danger of falling off the table.

4. Insert a flat-blade screwdriver into either opening on the underside of the printer. Push the screwdriver up and press the handle of the driver toward the back of the printer to release the clips on the case.

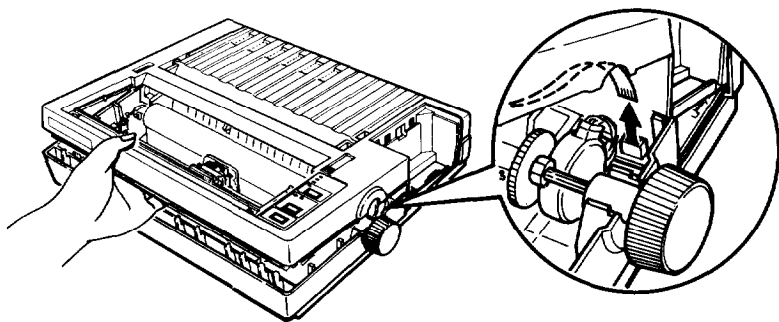


5. Partially raise the upper case, taking care not to strain the flat cable attached to the control panel.

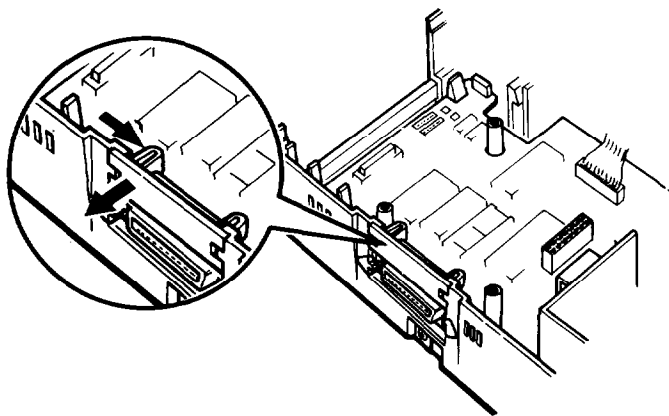


The Interface Boards

6. Carefully disconnect the control panel cable from the connector labelled CN4 on the main board, as shown below. Then lift off the cover and set it aside.

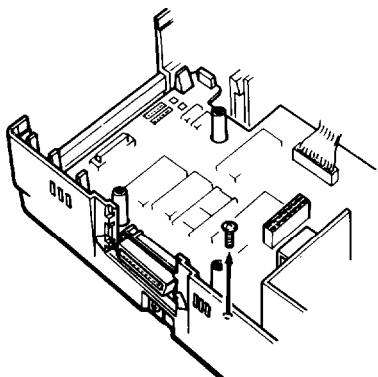


7. Remove the shield plate on the back of the printer by pressing in on the plastic clips located at the back of the plate.



8. Using a cross-head screwdriver, remove the screw labelled CG (shown on the next page) from the main board. Then set it aside in a safe place.

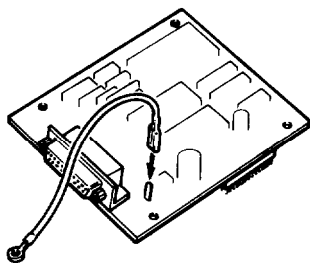
Note: Two screws are labelled CG. Be sure to remove **the** one indicated in the illustration below.



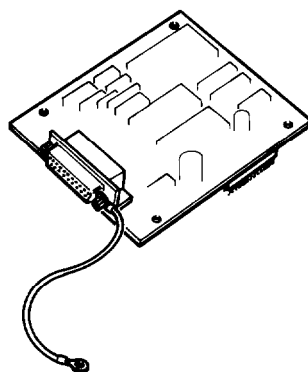
Installing the board

There are two basic types of interface board designs-the frame ground (FG) wire is attached for one type and not attached for the other. This difference does not affect the operation of the interface in any way.

1. If the interface board comes with an FG (frame ground) wire that is not already attached to the board, attach the wire as shown below on the left.



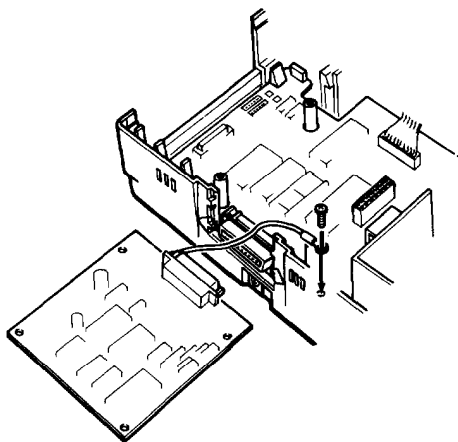
FG wire not attached



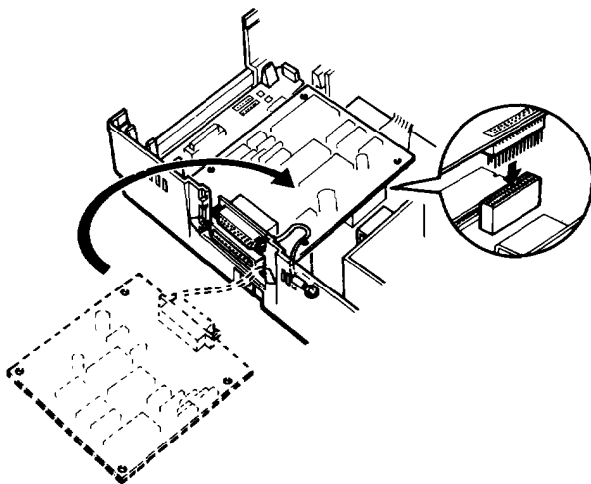
FG wire attached

The Interface Boards

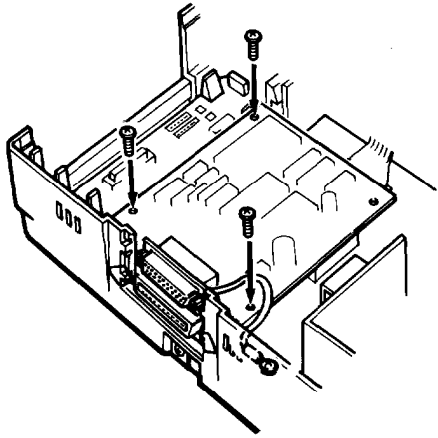
2. Carefully place the interface board **next** to the printer as shown below. Use **the** CG screw to connect **the** round end of the FG (frame ground) wire to the main board.



3. Holding the interface board level, rotate it clockwise into position and **attach** it to **the** main board. Be sure that the connector pins are properly inserted into the mating connector.



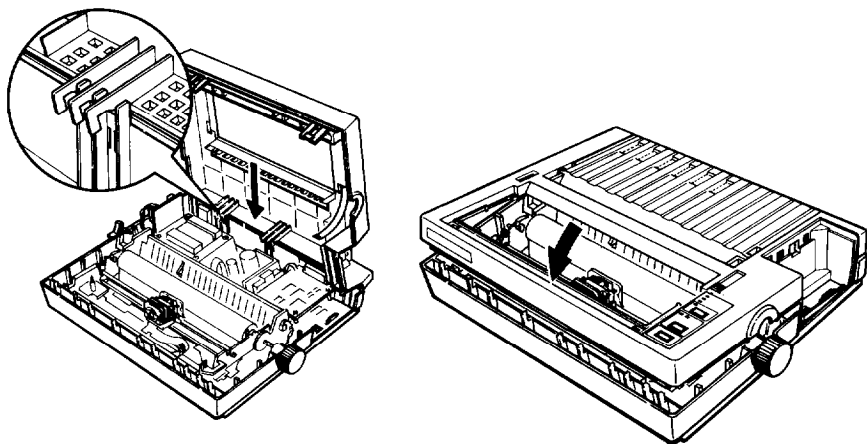
4. Secure the board with the three screws provided.



5. For all interface boards except the #8143 new serial interface board, set the DIP switches on the interface board according to the manual accompanying your interface board. (If you have the #8143 board, see page A-12.)
6. Reattach the upper case as described in the following section.

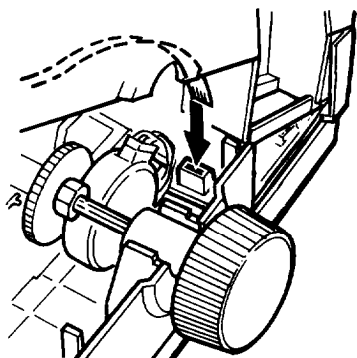
Attaching the upper case

1. Fit **the** hinges of **the** upper case into the openings in the lower case. Now partially lower the upper case.

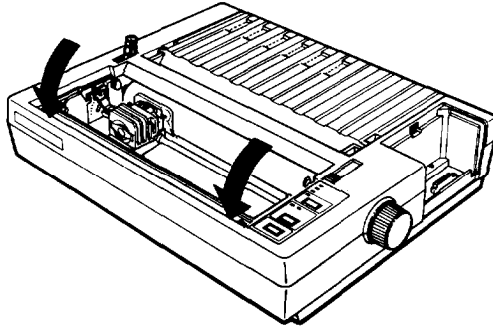


WARNING: Take care not to pinch the FG wire between the upper and lower cases.

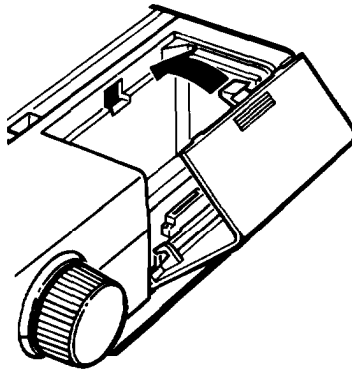
2. Carefully insert **the** control panel cable into the connector labelled CN4 on the main board.



3. Close the upper case. Press down on the front of the case to lock it into place.



4. Reattach the front compartment cover.



WARNING: When you use the optional interface, be sure to disconnect the printer cable from the printer's built-in parallel interface. You should never leave two interface cables connected at the same time.

5. Replace the ribbon cartridge, printer cover, and any other necessary parts or options.

#8143 new serial interface board

If you are using an optional interface, you may need to match the communications protocol of the printer and the computer so they can communicate properly. Use the information in your optional interface manual or your computer's manual to match the computer with the interface.

For the #8143 optional interface board, use the DIP switch settings shown below. These DIP switches are on the interface board, not on the printer.

#8143 DIP switch settings

DIP SW	Function	ON	OFF
1-1	Selects baud rate	See following table.	
1-2	Selects data length	7 bits	8 bits
1-3	Selects baud rate	See following table.	
1-4	Selects baud rate	See following table.	
1-5	Selects EVEN ODD parity	EVEN	ODD
1-6	Enables/disables parity check	Enabled	Disabled
1-7	Selects baud rate	See following table.	
1-8	Enables/disables #8143 mode	Enabled	Disabled

#8143 baud rate selection

Baud rate	SW1-7	SW1-1	SW1-4	SW1-3
75	ON	ON	ON	ON
110	ON	ON	ON	OFF
134.5	ON	ON	OFF	ON
150	ON	ON	OFF	OFF
200	ON	OFF	ON	ON
300	ON	OFF	ON	OFF
600	ON	OFF	OFF	ON
1200	ON	OFF	OFF	OFF
1800	OFF	ON	ON	ON
2400	OFF	ON	ON	OFF
4800	OFF	ON	OFF	ON
9600	OFF	ON	OFF	OFF
19200	OFF	OFF	ON	ON
19200	OFF	OFF	ON	OFF
19200	OFF	OFF	OFF	ON
19200	OFF	OFF	OFF	OFF

Note: During current loop operation, normal data transfer cannot be guaranteed at a baud rate higher than 1200 bps.

Error handling

When a parity error is detected, your printer prints an asterisk (*). All other errors are ignored.

The Multi-Font Module

The optional Multi-Font Module (#7407) gives you seven additional fonts for *your* printer. Once you install it in the slot, the following fonts are available:

Courier, Prestige, Script, OCR-A, OCR-B, Orator, and Orator-S.

The Multi-Font Module is installed in the slot in **the** printer. See the manual that comes with the module for full information on using **the** Multi-Font Module.

Note: Font modules #7400, #7401, #7402, and #7403 **can** also be used with your printer.

The following samples show **the** character set available for **each** font.

Courier

!"#\$%&'()*+,-./0123456789:;<=>?àABCDEFGHIJK
LMNOPQRSTUVWXYZ°ç§^_`abcdefghijklmnopqrstuv
wxyzéùè"ÇüéäääääçëëëïïïÀĀĒæÆðöðŮÿÜÜç£¥Ptfáíó
úñÑāō¿;-¬½¼;«»

Prestige

!"#\$%&'()*+,-./0123456789:;<=>?àABCDEFGHIJK
LMNOPQRSTUVWXYZ°ç§^_`abcdefghijklmnopqrstuv
wxyzéùè"ÇüéäääääçëëëïïïÀĀĒæÆðöðŮÿÜÜç£¥Ptfáíó
úñÑāō¿;-¬½¼;«»

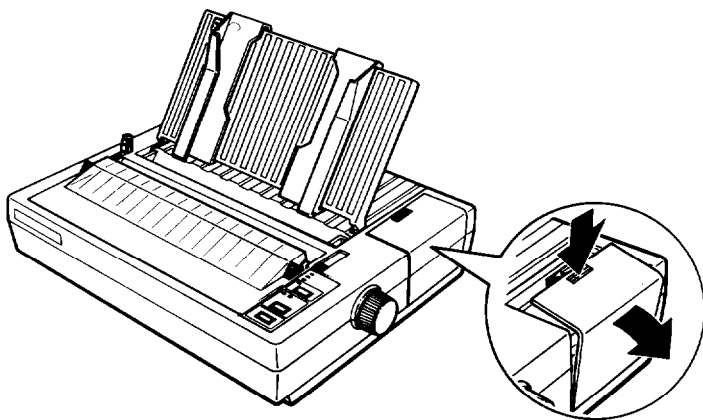
Script

!"#\$%&'()*+,-./0123456789:;<=>?àABCDEFGHIJK
LMNOPQRSTUVWXYZ°ç§^_`abcdefghijklmnopqrstuv
wxyzéùè"ÇüéäääääçëëëïïïÀĀĒæÆðöðŮÿÜÜç£¥Ptfáíó
úñÑāō¿;-¬½¼;«»

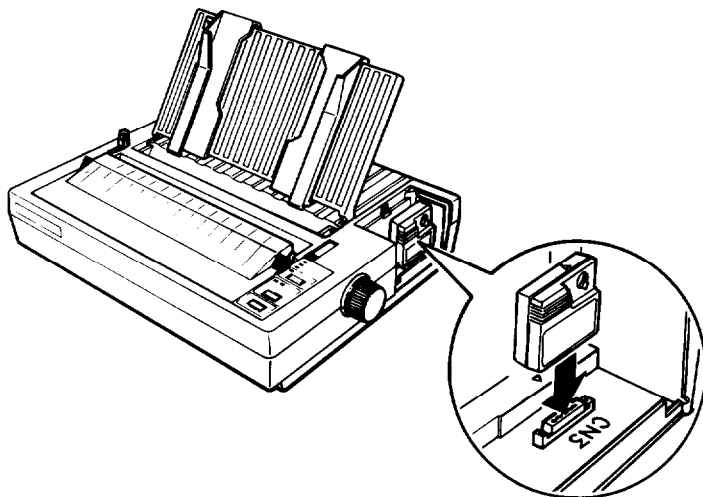
Installing the Multi-Font Module

Follow these steps to install the Multi-Font Module:

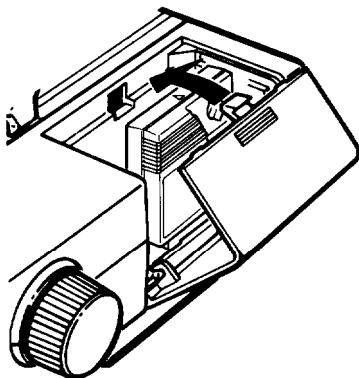
1. Turn off the printer.
2. Remove the font compartment cover.



3. Insert the Multi-Font Module securely into the connector so that the small arrow on the font module points to the small arrow in the Multi-Font Module compartment.



4. Replace the compartment cover.

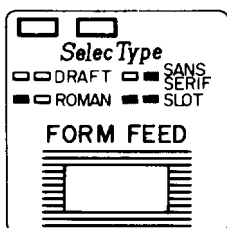


Selecting the Multi-Font Module

You can select the Multi-Font Module by using the SelecType panel or by setting two DIP switches located inside the font compartment.

To select the font using SelecType:

1. Turn on the printer and set it on line.
2. Press the **FORM FEED** button until both SelecType lights are on.
This selects the Multi-Font Module.



When you select a font using SelecType, it remains in use until the printer is turned off, reset, or initialized.

Glossary

Note that these definitions apply specifically to printers.

application program

A program that helps you carry out a particular task, such as word processing or financial planning.

ASCII

American Standard Code for Information Interchange. A standardized coding system for assigning numerical codes to letters and symbols.

baud rate

A measure of the speed of data transmission. Usually equivalent to bits per second.

bidirectional printing

Printing in which the print head goes from left to right only on every other line. On the other lines, it goes from right to left. This increases the speed of printing because the head prints in both directions.

bit

A binary digit (**0** or **1**), which is the smallest unit of information used by a printer or computer. See also number systems.

byte

A unit of information consisting of eight bits.

condensed

Printing in which each character is approximately 60% of the width of standard characters. Useful for fitting wide tables or spreadsheets onto the paper.

continuous paper

Paper which has sprocket-feed holes on each side, is perforated between pages, and is supplied in a folded stack. Also called fanfold paper.

control code

Besides the codes for printable characters, the ASCII standard also includes 33 other codes which are called control codes. These control codes perform such functions as sounding the beeper and performing a carriage return or line feed.

cut sheet feeder (CSF)

An optional, detachable device which automatically feeds single sheets of paper into the printer.

default

A value or setting that takes effect when the equipment is turned on, reset, or initialized.

DIP switches

Small switches in a printer that control various printer functions and set **the** default status of the printer **when** it is turned on or initialized. DIP stands for Dual In-line Package.

dot matrix

A method of printing in which **each** letter or symbol is formed by a pattern (matrix) of individual dots.

double-high printing

Printing in which **each** character is twice **as** high as normal.

double-strike printing

A way of producing bolder characters. Each character is printed twice; the second time, the dots are printed slightly below the original dots. Can only be used in draft mode.

double-wide printing

A print width in which each character is twice as wide as normal characters.

draft

One of two print qualities available on your printer. Draft uses a minimum number of dots per character for high-speed printing. See also Letter Quality.

emphasized printing

A way of producing darker characters. Each character is printed twice, with the second slightly to the right of the first.

Epson Extended Graphics

The Epson Extended Graphics character table contains international accented characters, Greek characters and character graphics for printing lines, comers, and shaded areas.

ESC/P

Abbreviation for Epson Standard Code for Printers. This system of commands gives you software control of your printer from your computer. It is standard for all Epson printers and supported by most application software for personal computers.

font

A font is a style of type designated by a family name.

font modules

Options that plug into your printer to add character fonts available in Letter Quality mode.

form feed

A control code and a panel button **that** advances the paper to the **next** top of form.

interface

The connection between the computer and **the** printer. A parallel interface transmits data one character or code at a time, and a serial interface transmits data one bit at a time.

italic

A typestyle in which the characters slant. This sentence is italicized.

Letter Quality (LQ)

One of two print qualities available on your printer. Letter Quality reduces the print speed and increases the number of dots per character to increase the print quality. Draft uses a minimum number of dots per character for high-speed printing.

line feed

A control code and a panel button that advances **the** paper one line space.

on line

When the printer is on line, it is in communication with **the** computer connected to it.

parallel interface

See interface.

parity

Parity is a method for a computer and printer to check the reliability of data transmission.

pitch

Indicates the number of characters per inch (cpi).

platen

The black roller that provides a backing for the printing.

print quality

Your printer **has** two types of print quality: draft and Letter Quality. Draft is for high-speed, draft quality jobs; Letter Quality is for final, polished documents.

proportional printing

Printing in which the width of the character varies from character to character. For example, a capital W receives much more space than a lower case i. The result looks more like a typeset book than a typewritten draft.

RAM

Random Access Memory. The portion of **the** printer's memory used as a buffer and for storing user-defined characters. All data stored in RAM is lost when the printer is turned off.

self test

A method of checking **the** operation of **the** printer. When the self test is run, the printer prints out its current DIP switch settings and **the** characters that are stored in its ROM.

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Command descriptions are not indexed here. For information on a specific command, see Chapter 6.

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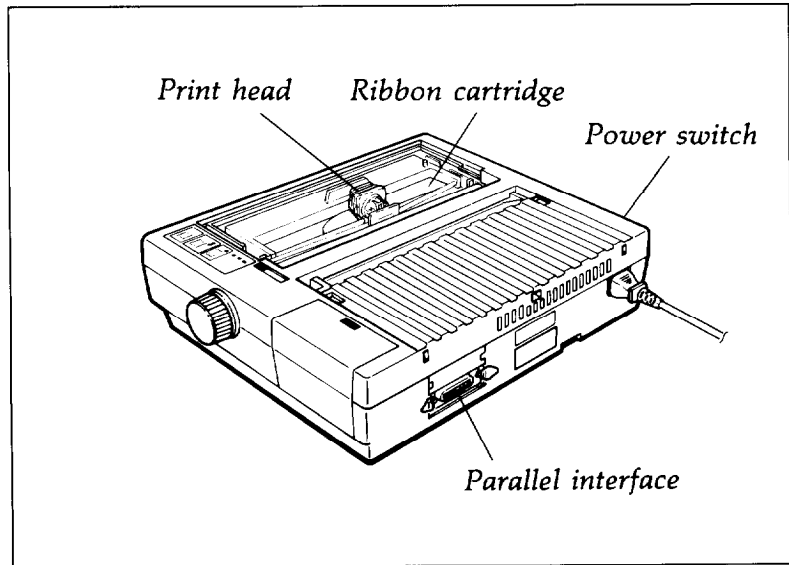
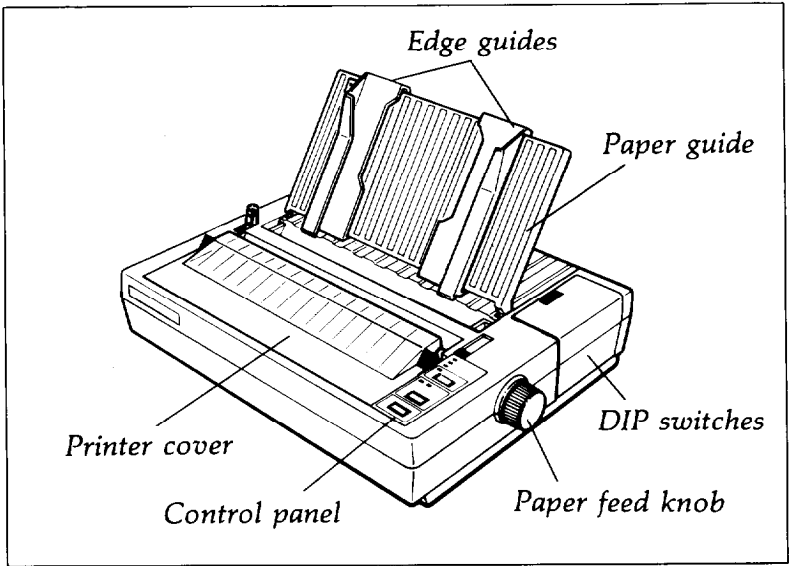
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Quick Reference



Commands Arranged by Topic

PRINTER OPERATION/DATA CONTROL

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ESC @	64	40	Initialize Printer
DC1	17	11	Select Printer
DC3	19	13	Deselect Printer
DEL	127	7F	Delete Character
ESC <	60	3C	Select Unidirectional Mode (one line)
ESC U I/O	85	55	Turn Unidirectional Mode On/Off
ESC EM <i>n</i>	25	19	Control Cut Sheet Feeder Mode
ESC =	61	3D	Set MSB to 0
ESC >	62	3E	Set MSB to 1
ESC #	35	23	Cancel MS6 Control
BEL	7	07	Beeper
CR	13	0D	Carriage Return
CAN	24	18	Cancel Line

VERTICAL MOTION

FF	12	0C	Form Feed
ESC C <i>n</i>	67	43	Set Page Length in Lines
ESC C 0 <i>n</i>	67	43	Set Page Length in Inches
ESC N <i>n</i>	78	4E	Set Skip Over Perforation
ESC O	79	4F	Cancel Skip Over Perforation
LF	10	0A	Line Feed
ESC 0	48	30	Select 1/8-inch Line Spacing
ESC 2	50	32	Select 1/6-inch Line Spacing
ESC 3 <i>n</i>	51	33	Set <i>n</i> /180-inch Line Spacing
ESC A <i>n</i>	65	41	Set <i>n</i> /60-inch Line Spacing
ESC J <i>n</i>	74	4A	Perform <i>n</i> /180-inch Line Feed
VT	11	0B	Tab Vertically
ESC B <i>nn</i>	66	42	Set Vertical Tabs
ESC b <i>nn</i>	98	62	Set Vertical Tabs in Channels
ESC / <i>n</i>	47	2F	Select Vertical Tab Channel

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ESC R <i>n</i>	82	52	Select an International Character Set

HORIZONTAL MOTION

ASCII	Dec.	Hex.	Description
ESC l <i>n</i>	108	6C	Set Left Margin
ESC Q <i>n</i>	81	51	Set Right Margin
BS	8	08	Backspace
ESC \$ <i>n1 n2</i>	36	24	Set Absolute Print Position
ESC \ <i>n1 n2</i>	92	5C	Set Relative Print Position
HT	9	09	Tab Horizontally
ESC D <i>nn</i>	68	44	Set Horizontal Tabs

OVERALL PRINTING STYLE/PRINT SIZE/CHARACTER WIDTH

ESC x <i>n</i>	120	78	Select Letter Quality or Draft
ESC k <i>n</i>	107	6B	Select Typestyle Family
ESC ! <i>n</i>	33	21	Master Select
ESC P	80	50	Select 10 CPI
ESC M	77	4D	Select 12 CPI
ESC q	103	67	Select 15 CPI
ESC p 1/0	112	70	Turn Proportional Mode On/Off
SI	15	0F	Select Condensed Mode
ESC SI	15	0F	Select Condensed Mode
DC2	18	12	Cancel Condensed Mode
SO	14	0E	Select Double-wide Mode (one line)
ESC SO	14	0E	Select Double-wide Mode (one line)
ESC W 1/0	a7	57	Turn Double-wide Mode On/Off
DC4	20	14	Cancel Double-wide Mode (one line)
ESC w 1/0	119	77	Turn Double-high Mode On/off

PRINT ENHANCEMENT

ESC E	69	45	Select Emphasized Mode
ESC F	70	46	Cancel Emphasized Mode
ESC G	71	47	Select Double-strike Mode
ESC H	72	48	Cancel Double-strike Mode
ESC S 0	83	53	Select Superscript Mode
ESC S 1	83	53	Select Subscript Mode
ESC T	84	54	Cancel Superscript/Subscript Mode
ESC (- <i>nn</i>	40	28	Select Score
ESC-1/0	45	2D	Turn Underline Mode On/Off
ESC 4	52	34	Select Italic Mode
ESC 5	53	35	Cancel Italic Mode
ESC q <i>n</i>	113	71	Select Character Style

USER-DEFINED CHARACTERS/GRAPHICS

ASCII	Dec.	Hex.	Description
ESC & <i>nn</i>	38	26	Define User-defined Characters
ESC: 0 <i>n</i> 0	58	3A	Copy ROM to RAM
ESC % <i>n</i>	37	25	Select User-defined Set
ESC 6	54	36	Enable Printable Characters
ESC 7	55	37	Enable Upper Control Codes
ESC K <i>n1 n2</i>	75	4B	Select Single-density Graphics Mode
ESC L <i>n1 n2</i>	76	4C	Select Double-density Graphics Mode
ESC Y <i>n1 n2</i>	89	59	Select High-speed Double-density
ESC Z <i>n1 n2</i>	90	5A	Select Quadruple-density Graphics
ESC * <i>m n1 n2</i>	42	2A	Select Graphics Mode
ESC ? <i>s m</i>	63	3F	Reassign Graphics Mode

DIP SWITCH 1

Switch	Description	ON	OFF
1-1	International character set	See table on page 3-8	
1 - 2	" "	" "	
1-3	" "	" "	
1-4	Font selection	See table on page 3-8	
1-5	" "	" "	
1-6	Condensed mode	Condensed	Normal
1-7	Character table	Graphic	Italic
1-8	Cut sheet feeder mode	ON	OFF

DIP SWITCH 2

Switch	Description	ON	OFF
2-1	Page length	12 inches	11 inches
2-2	CSF page length	A4 size	Letter size
2-3	Skip over perforation	ON	OFF
2-4	Auto line feed	ON	OFF
2-5	Input buffer capacity	8 Kbytes	1 Kbytes
2-6	Print direction for graphics	Bidirectional	Unidirectional
2-7	Character pitch selection	See table on page 3-8	
2-8	^E *	*	

FCC COMPLIANCE STATEMENT FOR AMERICAN USERS

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 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.

WARNING

The connection of a non-shielded printer interface cable to this printer will invalidate the FCC Certification of this device and may cause interference levels which exceed the limits established by the FCC for this equipment. If this equipment has more than one interface connector, do not leave cables connected to unused interfaces.

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Application Software
- One-Year Limited Warranty

ActionPrinter by EPSON®
L-1000

Quick Reference

Overall Printig Style/Print Size

Code	Dec	Hex	Function	Page
ESC x	120	78	Select Letter Quality or Draft	9-22
ESC k	107	6B	Select Typestyle Family	9-23
ESC l	33	21	Master Select	9-23
ESC P	80	50	Select 10 Pitch	9-24
ESC M	77	4D	Select 12 Pitch	9-24
ESC g	103	67	Select 15 Pitch	9-24
ESC p	112	70	Turn Proportional Mode On/Off	9-25
SI (ESC SI)	15	0F	Select Condensed Mode	9-25
DC2	18	12	Cancel Condensed Mode	9-26
SO (ESC SO)	14	0E	Select Double-wide Mode (one line)	9-26
DC4	20	14	Cancel Double-wide Mode (one line)	9-27
ESC W	87	57	Turn Double-wide Mode On/Off	9-27
ESC w	119	77	Turn Double-high Mode On/Off	9-26

Print Enhancement/Word Processing

ESC E	69	45	Select Emphasized Mode	9-27
ESC F	70	46	Cancel Emphasized Mode	9-28
ESC G	71	47	Select Double-strike Mode	9-28
ESC H	72	48	Cancel Double-strike Mode	9-28
ESC S0	83	53	Select Superscript Mode	9-29
ESC S1	83	53	Select Subscript Mode	9-29
ESC T	84	54	Cancel Superscript/Subscript	9-29
ESC -	45	2D	Turn Underlining On/Off	9-30
ESC q	113	71	Select Character Style	9-30
ESC a	97	61	Select Justification	9-31
ESC sp (space)	32	20	Select Intercharacter Space	9-31

Character Tables

ESC t	116	74	Select Character Table	9-32
ESC 4	52	34	Select Italic Mode	9-32
ESC 5	53	35	Cancel Italic Mode	9-32
ESC R	82	52	Select an International Character Set	9-33

User-defined Characters/Graphics

ESC &	38	26	Define User-defined Characters	9-33
ESC :	58	3A	Copy ROM to RAM	9-34
ESC %	37	25	Select User-defined Set	9-34
ESC 6	54	36	Enable Printable Characters	9-34
ESC 7	55	37	Enable Upper Control Codes	9-35
ESC K	75	4B	Select Single-density Graphics Mode	9-35
ESC L	76	4C	Select Double-density Graphics Mode	9-35
ESC Y	89	59	Select High-speed Double-density Graphics	9-36
ESC Z	90	5A	Select Quadruple-density Graphics Mode	9-36
ESC *	42	2A	Select Graphics Mode	9-36
ESC ?	63	3F	Reassign Graphics Mode	9-37

DIP Switch 1

Switch	Description	ON	OFF
1-1	International character set	See the table below	
1-2			
1-3			
1-4	Font selection	See the table below	
1-5			
1-6	Condensed mode on/off	Condensed	Normal
1-7	Character table	Graphics	Italics
1-8	Cut sheet feeder mode on/off	ON	OFF

DIP Switch 2

Switch	Description	ON	OFF
2-1	Page length	12 inches	11 inches
2-2	CSF page length	A4 size (65 lines)	Letter size (61 lines)
2-3	Skip over perforation	ON	OFF
2-4	Auto Line Feed	ON	OFF
2-5	Input buffer capacity	8 Kbytes	1 Kbyte
2-6	Print direction for graphics*	Bidirect.	Unidirect.
2-7	Character pitch	See the table below	
2-8			

- * Unidirectional printing of graphics can be selected by using ESC U1 when SW2-6 is on.

International character set selection

SW1-1	SW1-2	SW1-3	Country
ON	ON	ON	U.S.A.
ON	ON	OFF	France
ON	OFF	ON	Germany
ON	OFF	OFF	U.K.
OFF	ON	ON	Denmark 1
OFF	ON	OFF	Sweden
OFF	OFF	ON	Italy
OFF	OFF	OFF	Spain 1

Font selection

SW1-4	SW1-5	Font
OFF	OFF	Roman
ON	OFF	Sans Serif
OFF	ON	Slot
ON	ON	Draft

Character pitch

SW2-7	SW2-8	Character pitch
OFF	OFF	10 CPI
ON	OFF	12 CPI
OFF	ON	15 CPI
ON	ON	Proportional

Commands Arranged by Topic

The following control codes are listed briefly for quick reference. For a more detailed explanation, see the page reference in Chapter 9. Variables are not included in this quick reference due to their complexity. For those codes that contain variables, such as ESC Q n for setting the right margin, see Chapter 9.

Printer Operation/Data Control

Code	Dec	Hex	Function	Page
ESC @	64	40	Initialize Printer	9-9
DC1	17	11	Select Printer	9-9
DC3	19	13	Deselect Printer	9-10
DEL	127	7F	Delete Character	9-10
ESC <	60	3C	Select Unidirectional Mode (one line)	9-10
ESC U	85	55	Turn Unidirectional Mode On/Off	9-11
ESCEM	25	19	Turn Cut Sheet Feeder On/Off	9-11
ESC =	61	3D	Set MSB to 0	9-12
ESC >	62	3E	Set MSB to 1	9-12
ESC #	35	23	Cancel MSB Control	9-12
BEL	7	07	Beeper	9-12
CR	13	0D	Carriage Return	9-13
CAN	24	18	Cancel Line	9-13

Vertical Motion/Horizontal Motion

FF	12	0C	Form Feed	9-14
ESC C	67	43	Select Page Length in Lines	9-14
ESC C 0	67	43	Select Page Length in Inches	9-14
ESC N	78	4E	Set Skip Over Perforation	9-15
ESC o	79	4F	Cancel Skip Over Perforation	9-15
LF	10	0A	Line Feed	9-15
ESC 0	48	30	Select 1/8-inch Line Spacing	9-16
ESC 2	50	32	Select 1/6-inch Line Spacing	9-16
ESC 3	51	33	Select n/180-inch Line Spacing	9-16
ESC A	65	41	Select n/60-inch Line Spacing	9-17
ESC J	74	4A	Perform n/180-inch Line Feed	9-17
VT	11	0B	Tab Vertically	9-17
ESC B	66	42	Select Vertical Tabs	9-18
ESC b	98	62	Select Vertical Tabs In Channels	9-18
ESC /	47	2F	Select Vertical Tab Channel	9-18
ESC I	108	6C	Set Left Margin	9-19
ESC Q	81	51	Set Right Margin	9-19
BS	8	08	Backspace	9-20
ESC \$	36	24	Set Absolute Print Position	9-20
ESC \	92	5C	Set Relative Print Position	9-21
HT	9	09	Tab Horizontally	9-21
ESC D	68	44	Set Horizontal Tabs	9-22