# EPSON® *ActionPrinter*™ 2250

U S E R' S   G U I D E

Printer Parts

narrow cover   printer cover

power switch

control panel

paper cassette

parallel interface

ribbon Cartridge

print head

gear

paper guide

AC inlet

Never move this lever.

FONT lights

Light 1   Light 2   READY light

EPSON ActionPrinter 750   FONT   LF/FF

● ● Roman

● ○ Sans Serif

○ ● Draft

○ ○ Draft Condensed

PAPER PARK

READY

Font button   LF/FF button

Control panel

EPSON® *ActionPrinter* 2250

User's Guide

FCC Compliance Statement

For United States 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. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio and 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 equipment interface cable to this equipment will invalidate the FCC Certification of this device and may cause interference levels which exceed the limits established by the FCC for this equipment. It is the responsibility of the user to obtain and use a shielded equipment interface cable with this device. If this equipment has more than one interface connector, do not leave cables connected to unused interfaces.

Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

For Canadian Users

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of the Canadian Department of Communications.

Le present appareil numérique n'émet pas de bruits radioelectriques dépassant les limites applicables aux appareils numériques de Classe B prescrites dans le règlement sur le brouillage radioelectrique édicté par le Ministère des Communications du Canada.

Important Safety Instructions

·   Read all of these instructions before you set up your printer.

·   Follow all warnings and instructions marked on the printer.

·   Unplug the printer from the wall outlet before you clean it, and use a damp cloth for cleaning, not liquid or aerosol cleaners.

·   Do not use your printer near water or spill any liquid on it.

·   Do not place the printer on an unstable cart, stand, table or other surface that may allow the printer to fall.

·   Do not block any slots or openings in the cabinet. These are provided for the ventilation necessary to ensure reliable operation and protection from overheating. Placing the printer on a bed, sofa, rug, or other similar surface may block the openings. Also, do not place the printer in a built-in installation unless proper ventilation is provided.

·   Never place the printer near or over a radiator or heat register.

·   Use the type of power source indicated on the label. If you are not sure of the type of power available, consult your dealer or local power company.

·   This printer may be equipped with a plug having a third (grounding) pin, which fits only into a grounding-type outlet. This is a safety feature. If you are unable to insert the plug into the outlet, have an electrician replace your obsolete outlet. Do not defeat the purpose of the grounding-type plug.

·   Do not put your printer where the cord will be walked on.

·   If you use an extension cord, make sure that the total of the ampere ratings on the products plugged into the extension cord does not exceed the extension cord's ampere rating. Also, make sure that the total of all products plugged into the wall outlet does not exceed 15 amperes.

·   Never push objects of any kind into your printer because they may touch dangerous voltage points or short out parts that could result in a risk of fire or electric shock.

·   Except as specifically explained in the user's manual, do not attempt to repair the printer yourself. This could expose you to dangerous voltage points or other risks. Refer all servicing in those compartments to service personnel.

· Unplug the printer from the wall outlet and have it repaired by a qualified service person under the following conditions:

> When the power cord or plug is damaged or frayed
>
> If liquid has been spilled into it
>
> If it has been exposed to ram or water
>
> If it does not operate normally when the operating instructions are followed. Adjust only those controls that are covered by the operating instructions since improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the printer to normal operation.
>
> If it has been dropped or the cabinet has been damaged
>
> If it exhibits a distinct change in performance, indicating a need for service

Where United States Users Can Get Help

Epson America provides local customer support and service through a nationwide network of authorized Epson dealers and Service Centers.

Epson also provides the following support services through the Epson Consumer Resource Center at (800) 922-8911:

- Assistance in locating your nearest Authorized Epson Reseller or Service Center
- Technical assistance with the installation, configuration, and operation of Epson products
- Sales of the ESC/P Reference manual
- Epson technical information library fax service
- Product literature with technical specifications on our current and new products
- Sales of ribbons, supplies, parts, documentation, and accessories for your Epson product
- Customer Relations
- User group locations

For United Kingdom Users

Epson product guarantee

Under the law, goods sold must comply with their description and must be of merchantable quality and fit for their purpose or correspond with any sample.

This guarantee does not affect the seller's legal obligation or the rights of the consumer in the "consumer transactions" under any Statute, including Sections 12 to 15 of the Sales of Goods Act, 1979.

All Epson Products, other than OEM products, are fully guaranteed against faulty operation or performance for a period of ONE YEAR from date of purchase by the user of the product.

All claims under this guarantee MUST be supported by evidence of purchase, normally the bill of sale invoice, and it is the responsibility of the claimant to furnish such proof. Epson (UK) Limited does not issue or operate any form of guarantee registration card.

Claims are made by the user returning the product to the supplier from whom it was purchased or, if this is impractical, to any Epson supplier who also handles the same product. In the event of any difficulty, users are requested to contact the Service Co-ordinator Manager at Epson (UK) Limited.

Epson (UK) Limited, or Epson Appointed Distributors, will at their discretion repair or replace part or all of the product to provide, in their judgement, a satisfactory performance of the product consistent with its age and apparent usage.

This guarantee covers the cost of both the parts and labour required to correct any malfunction of the equipment, but specifically excludes: wear and tear, consumables, physical damage due to incorrect use or misuse and damage or faulty operation due to unauthorized and inexpert repair.

The guarantee is restricted to the performance of the product alone, and Epson (UK) Limited does not accept responsibility for any consequential loss or damage, nor claimed or implied performance, when the product is used in any combination with other equipment or program software.

Product guarantee may be invalidated as a result of excessive or inappropriate use, use in adverse environment or in conditions outside the specifications or if the product has been subjected to unapproved modifications.

The guarantee does not cover visits to the user's premises or the repair or commissioning of the product on site.

Use of options

Epson (UK) Limited shall not be liable against any damages or problems arising from the use of any options or consumable products other than those designated as Original Epson Products or Epson Approved Products by Epson (UK) Limited.

Safety information

Warning: This appliance must be earthed. Refer to rating plate for voltage and check that the appliance voltage corresponds to the supply voltage.

Important: The wires in the mains lead fitted to this appliance are colored in accordance with the following code:

Green and yellow - Earth
Blue - Neutral
Brown - Live

As the colors of the wires in the mains lead of this appliance may not correspond with the colored markings identifying the terminals in your plug, proceed as follows:

The green and yellow wire must be connected to the terminal in the plug which is marked with the letter E or with the earth symbol ($\perp$) or colored green or green and yellow.

The blue wire must be connected to the terminal in the plug marked with the letter N or colored black.

The brown wire must be connected to the terminal in the plug marked with the letter L or colored red.

If damage occurs to the plug, replace the cord set or consult a qualified electrician.

Replace fuses only with a fuse of the correct size and rating.

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Introduction

Your new Epson® printer is an advanced 9-pin dot matrix printer that combines high performance with a wide range of features.

Features

These features give your Epson printer outstanding value:

- Fast printing speed. You can print up to 240 characters per second in 12 cpi draft mode.

- Easy paper handling. The built-in paper cassette holds up to 50 single sheets of paper. You can also install the push tractor to print on continuous paper, multi-part forms, and labels. Also you can switch between single-sheet and continuous printing without removing either paper supply.

- Compatibility. The printer supports the Epson ESC/P® commands widely used in software programs written for other Epson LX printers.

- Two printer positions. You can set the printer upright or flat, whichever you prefer.

- A range of popular fonts. You can choose from two draft fonts and two near letter quality fonts for professional results.

- Unique control-panel design. The sleek, two-button panel makes it easy to customize the printer's default settings.

- No adjustment necessary for paper thickness. You do not need to adjust a paper thickness lever when you use thick paper.

In some locations, the push tractor is an option (part number **C80026***) .

Finding Your Way Around

Here's what you'll find in this book:

- Chapter 1 contains step-by-step instructions for unpacking, setting up, testing, and connecting your printer. Be sure to read and follow these instructions.

- Chapter 2 is a detailed discussion of paper handling.

- Chapter 3 describes how to use the control panel to customize your printer settings. It also contains maintenance and troubleshooting information.

- The Appendix includes the printer specifications, commands, and character tables.

- A glossary of printer terms and an index are at the end.

Warnings, Cautions, and Notes

WARNINGS must be followed carefully to avoid bodily injury.

CAUTIONS must be observed to avoid damage to your equipment.

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

Chapter 1
Setting Up the Printer

Unpacking the Printer

Your printer box should include these items.
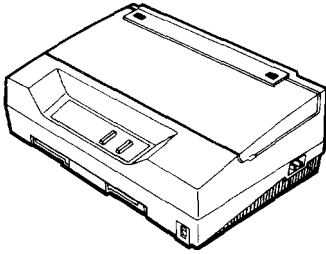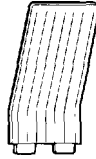
printer   output guide   ribbon cartridge
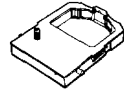
power cord*   cable clip   push tractor**
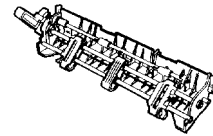
- In some locations, the power cord is attached to the printer.
** In some countries, the push tractor is an option (part number C80026✱).

CAUTION: There are several versions of this printer designed for different voltages, and it is not possible to change the voltage. If the label on the back of the printer does not show the correct voltage for your country, contact your dealer.

label
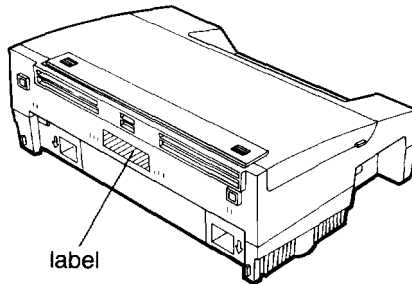
Removing the protective materials

During shipping, a piece of foam packing, a print head protector, and a piece of tape protect the printer and paper cassette. Before you use the printer, you must remove these protective items.

1. Use the tabs on both sides of the printer cover to lift it off the printer. First remove the protective cover. Then remove the foam packing and the two protectors from inside the printer.
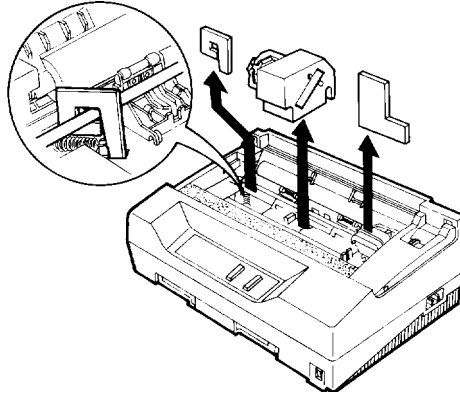
2. Remove the ribbon cartridge from its foam packing.

3. Pull the paper cassette out of the printer. Remove the tape that holds down the metal plate in the cassette during shipping.
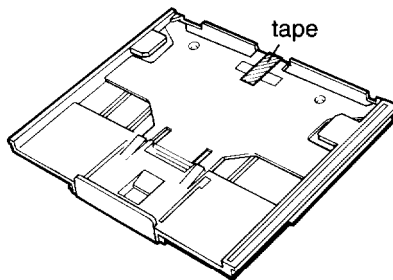
> **Note:** Store these protective items with the other packing materials.

Choosing a Place for the Printer

The printer works flat or upright, as shown below. You can set it whichever way fits your preference or working space. (When you install the push tractor, you must use the flat position.)
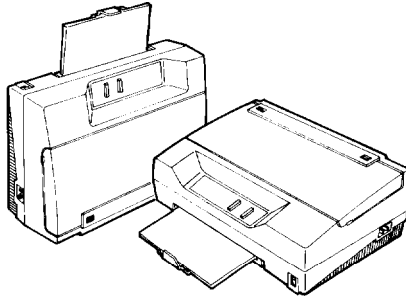
When selecting a place for your printer, follow these guidelines:

- Place the printer on **a** flat, stable surface. Do not slide the printer on rough surfaces because you may damage the flap on the bottom.

- Place the printer close enough to the computer for its interface cable to reach the computer.

- Leave adequate room for easy operation and maintenance.

- Avoid locations that are subject to direct sunlight, excessive heat, moisture, or dust.

- Use a grounded outlet; do not use an adapter plug.

- Place the printer where you can easily unplug the power cord.

- Avoid electrical outlets controlled by wall switches or automatic timers, and avoid outlets on the same circuit as large motors or other appliances that can cause fluctuations in line voltage.

- Keep the entire computer system away from potential sources of electromagnetic interference, such as loudspeakers or the base units of cordless telephones.

If you plan to use a printer stand, follow these guidelines:

*   Use a stand that supports at least 10 kg (22 lbs).

*   Never use a stand that tilts the printer. It should always be kept level.

*   Make sure to provide enough clearance below the stand so your continuous paper feeds smoothly.

*   Place cables so they do not interfere with paper feeding; secure them to a leg of the stand if possible.

*   Align the continuous paper stack so the paper feeds straight into the tractor's sprocket units.

Installing the Ribbon Cartridge

Before you install the ribbon cartridge, make sure the power cord is not plugged into an electrical outlet.

1. Use the tabs on both sides of the printer cover to lift it off the printer. Then slide the print head to the middle of the printer.
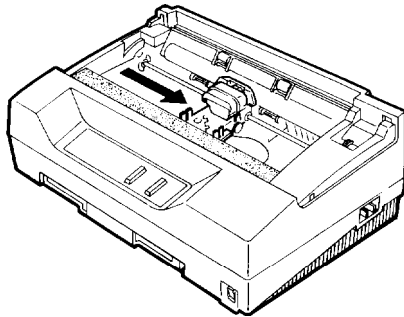
> **CAUTION:** Never move the print head while the printer is turned on; this can damage the printer. Also, if you have just used the printer, let the print head cool for a few minutes before you touch it.

2. Turn the ribbon-tightening knob in the direction of the arrow to remove any slack in the ribbon. Insert the ribbon cartridge into the printer as shown; then press both sides of the cartridge firmly to fit the plastic posts into the slots.
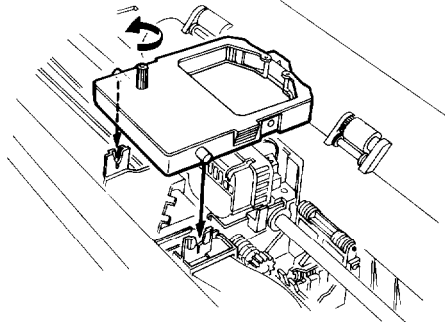
3. Turn the ribbon-tightening knob to feed the ribbon into place. Make sure it is not twisted or creased.

CAUTION:

• Never move the small levers on the ends of the metal shaft (shown below). They have already been adjusted at the factory.

Never move this lever.
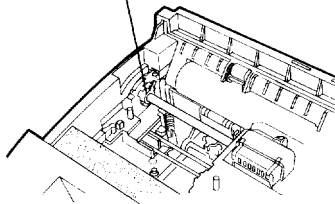
• Disregard the numbers 0 and 1 under the printer cover on the left side. They are not necessary for printer operation.

4. Replace the printer cover by inserting its tabs into the holes on the printer as shown below; then close the cover.
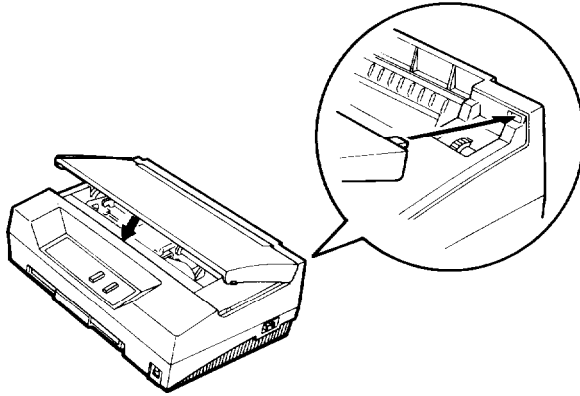
Plugging in the Printer

1. Make sure the power switch on the printer is turned off. It is off when the **0** side of the switch is pressed down.
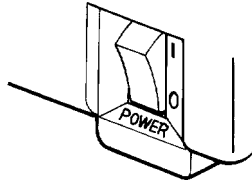
2. Check the label on the back of the printer to make sure the voltage required by the printer matches that of your electrical outlet.

> **CAUTION:** If the rated voltage and your outlet voltage do not match, contact your dealer for assistance. Do not plug in the power cord.

3. If the power cord is not attached to the printer, connect it to the AC inlet on the printer.

4. Plug the power cord into a properly grounded electrical outlet.

Running the Self Test

You can run the self test with either continuous paper or single sheets; this section describes the easier way, with single sheets.

If you want to use continuous paper, see "Using Continuous Paper with the Push Tractor" in Chapter 2.

Loading paper into the paper cassette

1. You can install the output guide to support printed pages as they come out of the printer. To install it, insert the tabs on the guide into the mounting slots on the printer case as shown below. Be sure to turn the guide over and install it in the opposite direction when you use the printer in the upright position.
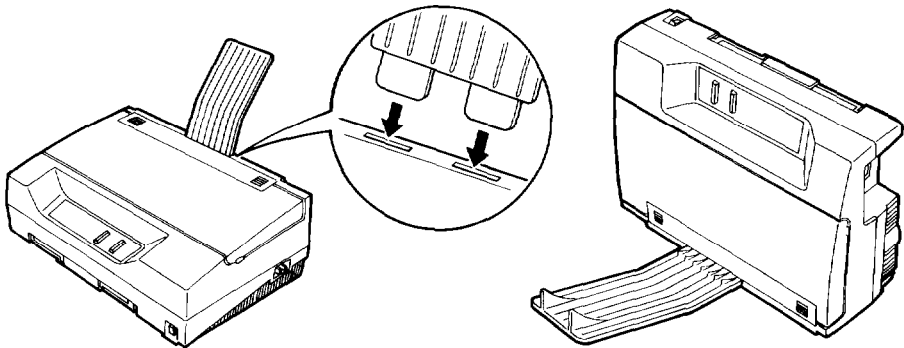
2. Pull the paper cassette out of the printer.
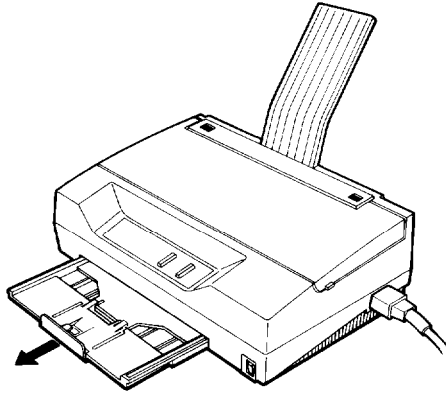
3. Fan a stack of A4 or letter-size paper and then even up the edges.

Note: The US version uses letter-size paper; all others use A4 paper. The paper size (letter or A4) is shown on the inside of the paper cassette. The cassette holds up to 50 sheets (70 kg or 22 lb maximum).

4. Pull out the paper support.
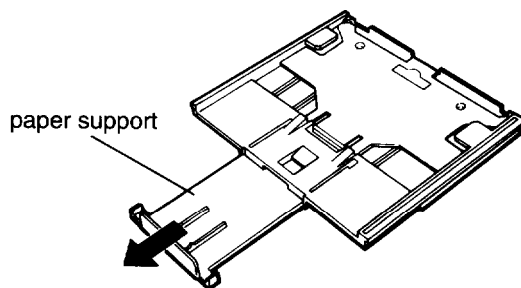
paper support

5. While holding down the metal plate in the paper cassette, put the paper in the cassette. Make sure the paper is underneath all five tabs, especially the small ones on the top edge of the cassette.
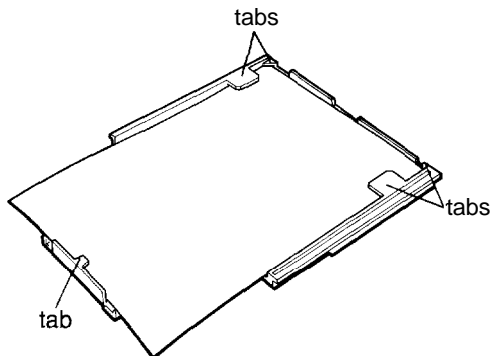
6. Insert the paper cassette into the printer as far as it will go. The edge of the paper stack extends beyond the front of the printer.
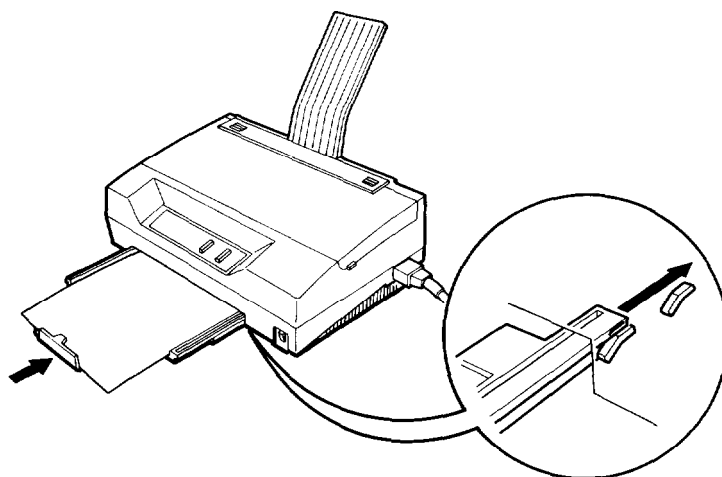
Running the test

1. Make sure the printer is turned off.

2. While holding down the **LF/FF** (⬆) button, turn on the printer. The printer gives two long and two short beeps, and then it loads the paper automatically and begins the self test.

   The printer prints characters in the current font and character table. Here is part of a typical self test:

   ```
    !"#$%&´()*+,-./0123456789:;<=>?@ABCDEFGHIJKL
   !"#$%&´()*+,-./0123456789:;<=>?@ABCDEFGHIJKLM
   "#$%&´()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMN
   #$%&´()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNO
   $%&´()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOP
   %&´()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQ
   &´()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQR
   ```

> **Note:** If the paper cassette is empty when you turn the power on, the printer beeps three times and the **READY** light flashes. Load paper as described above and press the **LF/FF** button to start the self test.

3. To stop the self test, turn off the printer.

If the self test does not work properly, contact your dealer.

Connecting the Printer to Your Computer

If the self test prints correctly, you're ready to connect your printer to the computer. You need a parallel printer cable to connect your computer to the printer's built-in parallel interface.

Follow these steps to connect the parallel interface cable:

1. Make sure both the printer and computer are turned off; then plug the cable connector securely into the printer's interface connector.

2. Squeeze the wire clips together until they lock in place on either side.
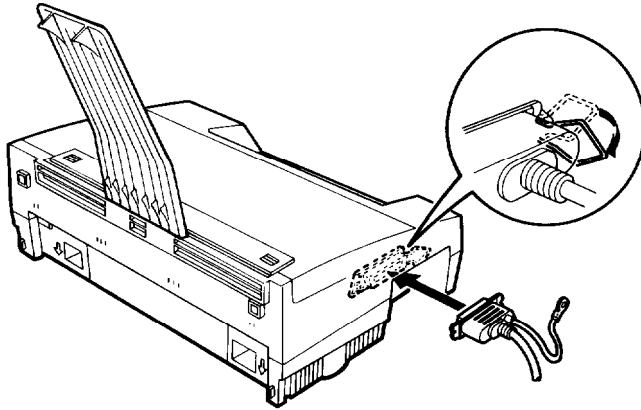
> **Note:** If your cable has a ground wire, connect it to the ground connector below the interface connector.

3. Put the cable through the cable clip; then insert the clip in the slot on the bottom of the printer. (You may have to remove the output guide when you put the printer upright to attach the cable clip.)
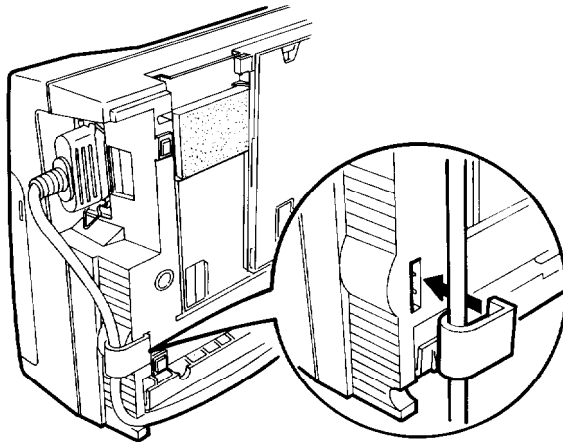
4. Plug the other end of the cable into the computer. If there is a ground wire at the computer end of the cable, attach it to the ground connector **at** the back **of** the computer.

Note: If you want the power cord or interface cable to be on the opposite side, route it through the slot on the back.
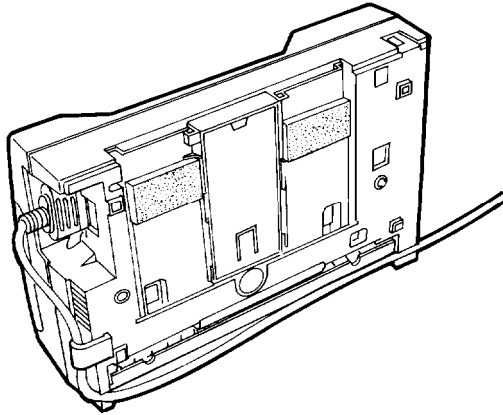
Setting Up Your Software Programs

Most software programs let you specify the type of printer you use so that the program can take full advantage of the printer's features. Many programs provide a printer selection menu.

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

LX-100
ActionPrinter 2250
LX-810/850
LX-800
LX-86
LX-80
FX-850
FX-86e / 800
EX-800
FX-85
FX-80+
FX-80

If none of these printers is listed, select the first one of these available: LX, FX, EX, RX, MX, Epson printer, Standard printer, Draft printer.

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

Printing a test file

After you select the most appropriate printer, create and print a test file using the fonts, symbols, features, and formats that you use most often. Printing the test file shows you how the printer works with your software program.

If the printing results are not what you expect, see Troubleshooting in Chapter 3, or consult your computer or software manual.

Chapter 2

Paper Handling

2

Printing on Single Sheets

You can load standard-sized single sheets with the paper cassette and you can load single sheets of paper from 148 mm (5.8 inches) to 257 mm (10.1 inches) wide with the manual insertion slot.

Tips for using the paper cassette

Review "Loading paper into the paper cassette" on page 1-8. Also, the tips below will help you get the best performance when using the cassette.

• Load paper in the cassette before you turn on the printer and send data. When the printer receives data from the computer, it loads a single sheet automatically and begins to print.

• If the printer runs out of paper during a print job, reload the paper cassette and press the **LF/FF** button to load the paper.

• Press the **LF/FF** button to eject a sheet of loaded paper.

• You can adjust the top-of-form position with the gear under the printer cover. It is marked by + and - signs. Open the printer cover and turn the gear to adjust the position. The notches on the ribbon mask indicate the base line of printed characters. The gear adjustment affects only the loaded page. If you want to change the top-of-form position permanently, you can adjust it in the default-setting mode described in Chapter 3. However, most software programs take care of the top and bottom margins. You usually don't need to set the top-of-form position on the printer.
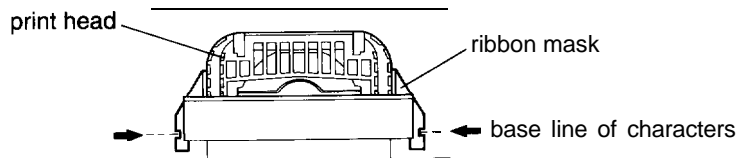
● When you want to push the paper support back into the paper
   cassette, first remove paper from the cassette. Then hold down
   the locking tab while pushing the paper support in.
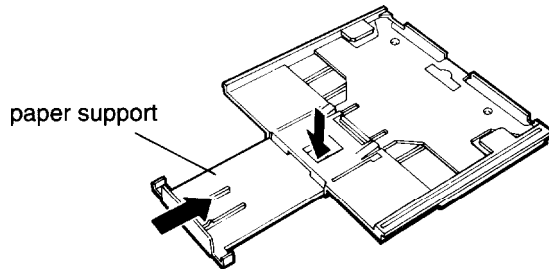
● The default page length for the paper cassette is 65 lines (A4-size
   paper) or 61 lines (letter-size paper). You can change it using
   your software or printer commands, if necessary. See the
   Appendix for more about printer commands.

● You can switch to manual insertion or to the push tractor
   without removing the paper cassette. For instructions, see
   "Loading paper manually" or "Switching Between Continuous
   Paper and Single Sheets" later in this chapter.

Loading paper manually

You can load single sheets of paper from the rear manual insertion
slot. (If you've installed the push tractor, remove it before loading
paper manually.)

1. Place the printer in the upright position and turn it on.

2. Next, lower the flap on the rear slot. Then insert a single sheet into the slot, aligning the paper edge with the arrow mark on the printer case. The page loads automatically. When the printer receives data, it begins printing.
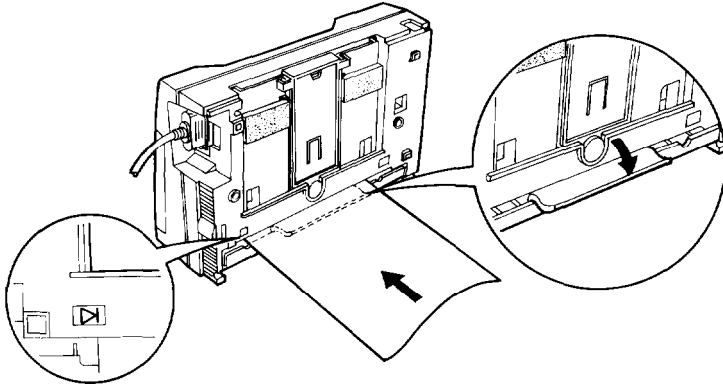
Be sure to raise the flap when not using manual insertion.

> **CAUTION:** Be sure to turn on the printer before you insert the page into the slot. If you turn on the printer after you insert paper, the printer prints on the platen without loading the paper.

*   You can adjust the top-of-form position in the same way that you do for paper loaded from the cassette.

*   When you want to switch to the paper cassette, press the **LF/FF** button without inserting a page into the rear slot. The printer loads a page from the cassette.

Using Continuous Paper with the Push Tractor

You can use the push tractor to print on continuous paper from 101 mm (4 inches) to 254 mm (10 inches) wide.

> **Note:** In some locations, the tractor is an option (part number **C80026*).**

Installing the push tractor

1. Make sure the printer is turned off and is in the flat position. Remove the paper guide.
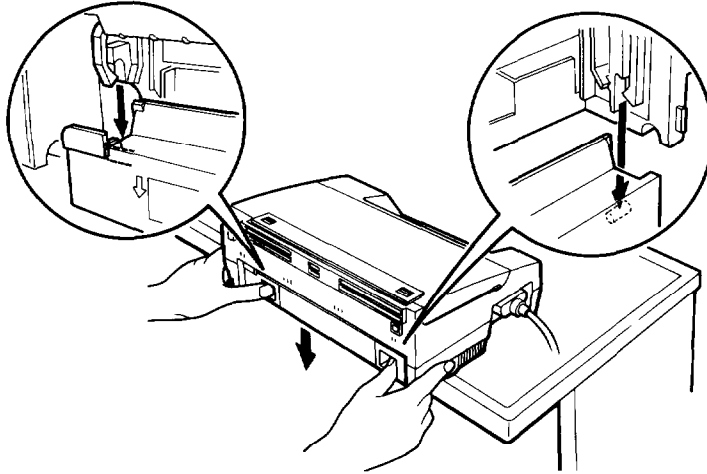
2. Make sure the paper-release lever on the left side of the push tractor is lowered to the single-sheet position.

3. Hold the tractor as shown and fit the edges of both sides into the slots at the back of the printer. Then lift it straight up until you hear the unit snap into place.
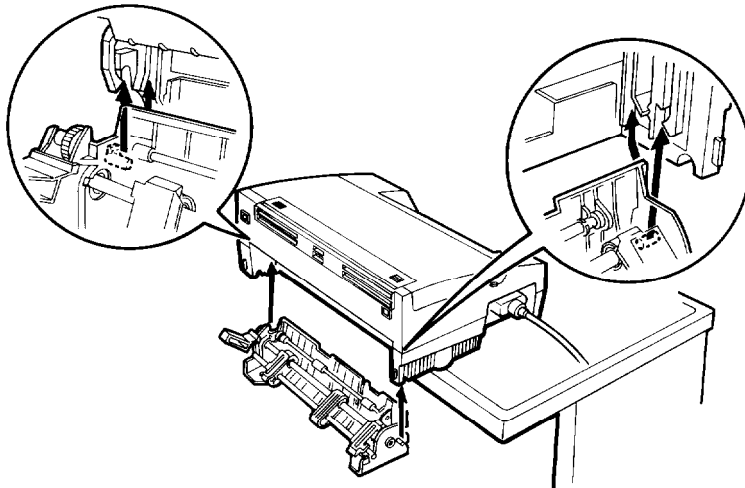
4. Raise the paper-release lever and push it firmly into the continuous-paper position.
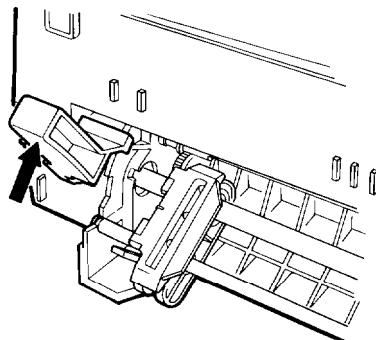
Loading continuous paper

1. Place the continuous paper supply below the printer so the paper feeds smoothly into the printer as shown. (You can also use a printer stand.)
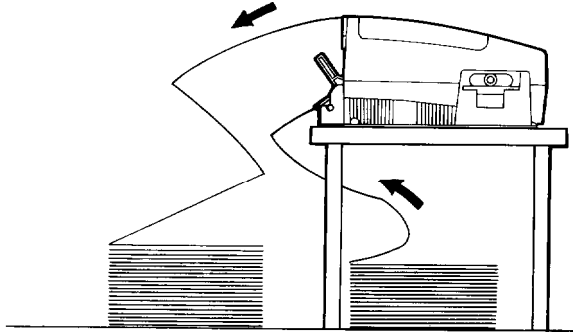
⚠ **CAUTION:** When you are using labels with the tractor, always put the supply below the printer and have the printed labels feed out the back of the printer. Otherwise they may come off their backing and cause a jam.

2. Make sure the paper-release lever is in the upper position.

3. Release the sprocket units by pushing the lock levers up.
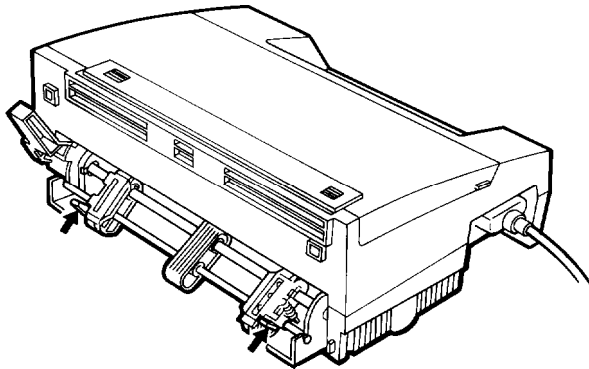
4. Adjust the right sprocket unit, aligning the paper edge with the arrow mark on the case. Then slide the left sprocket unit to match the width of your paper, but do not lock it.
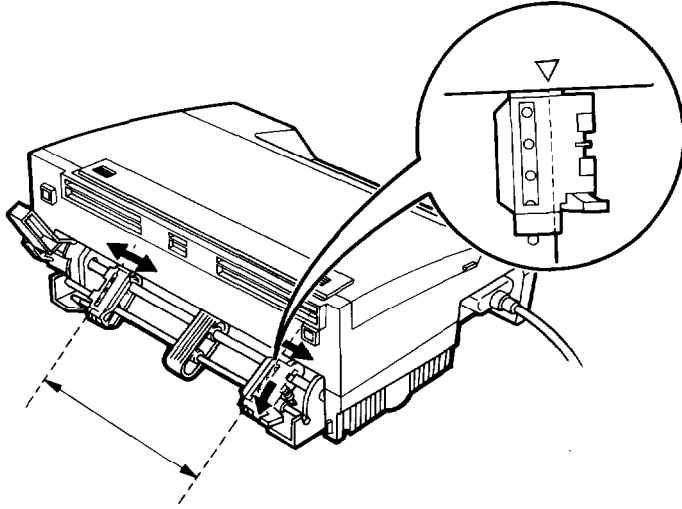
5. Position the paper support midway between the two sprocket units. Open both sprocket covers.
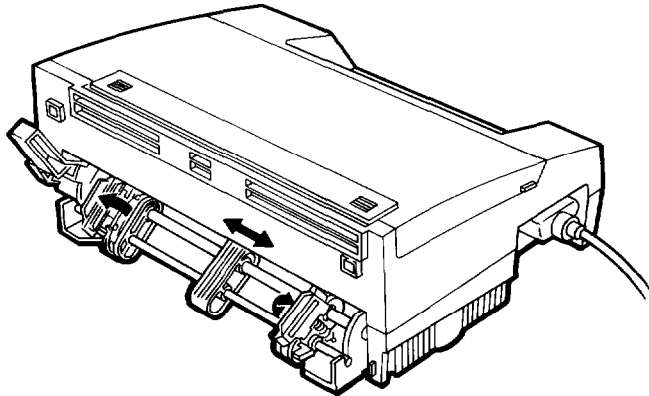
6. Make sure your paper has a clean, straight leading edge. Fit the first four holes of the paper over the sprocket pins, and then close the sprocket covers. Slide the left sprocket unit to remove any slack in the paper. Then push the lock lever down to lock it in place. Note that this printer prints on the underside of the paper.
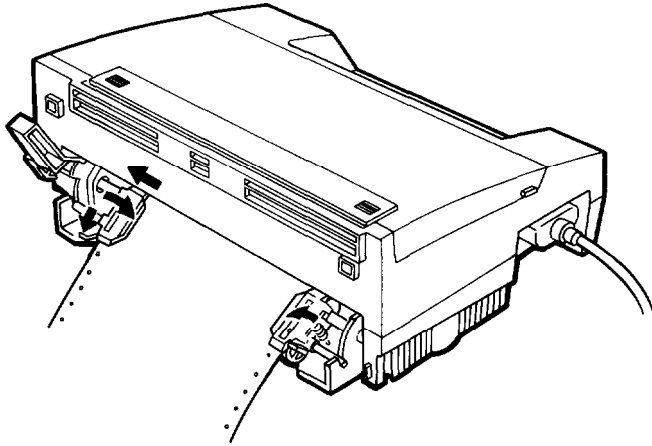
7. Turn on the printer. It advances the paper to the loading position automatically when it receives data.

> **Note:** If the printer runs out of paper during a print job, load additional paper onto the push tractor and press the **LF/FF** button.

Tips for using continuous paper

*   You can adjust the top-of-form position temporarily. Open the printer cover and turn the gear marked by + and - signs to adjust the position. This adjustment is lost when you turn off the printer or feed the paper backward to the paper-park position described later in this chapter.

paper-park position
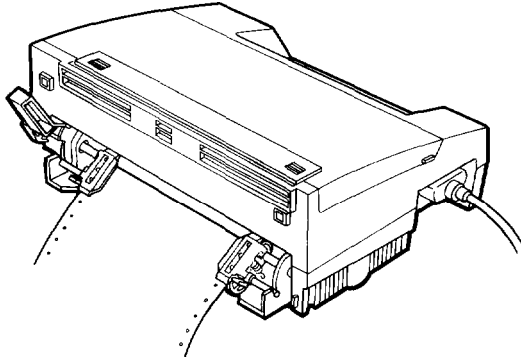
*   If you want to change the top-of-form position permanently, adjust it with the default-setting mode as described in Chapter 3.

*   Each time you turn on the printer with paper loaded, it reverses the continuous paper to the paper-park position and then advances it to the next top-of-form. Always remove your printed sheets before you turn off the printer to keep the top-of-form position accurate.

Note: When you set the back-feed setting to Disable in the default-setting mode, the printer does not feed the paper backward even if you press the **LF/FF** and **FONT** buttons or you turn on the printer with paper loaded. For details, see "Labels" in this chapter or "Using the Default-Setting Mode" in Chapter 3.

Using the tear-off feature

When you use continuous paper, the tear-off feature makes it easier to tear off the last printed sheet and save the paper normally lost between documents.

Note:

- You can tell the printer to feed the perforation of your paper to either the edge of the printer cover or approximately 80 mm (three inches) beyond, by setting the tear-off option as described in Chapter 3.
- When you set the back-feed setting to Disable in the default-setting mode, the tear-off feature does not work. For details, see "Labels" in this chapter or "Using the Default-Setting Mode" in Chapter 3.

Here's how the tear-off feature works:

1. When the printer finishes printing the last page and the print head moves to the top-of-form position on the next page, the printer automatically advances the paper to the tear-off position.

2. The **READY** light () blinks to indicate the printer is in tear-off mode.

3. You can then easily tear off the page along the perforation.

4. When the printer receives data, it feeds the paper backward to the top-of-form position and the printer begins printing.

Removing the push tractor

1. Tear off any printed pages. Press the **LF/FF** and **FONT** buttons at the same time to feed the remaining paper backward to the paper-park position. Remove the paper from the push tractor.

> **CAUTION:** Always tear off the printed document and excess paper before feeding paper backward. Never feed more than one page backward through the printer.

2. Turn off the printer and lower the paper-release lever to the single-sheet position. Then pull the push tractor straight down and out of the printer.
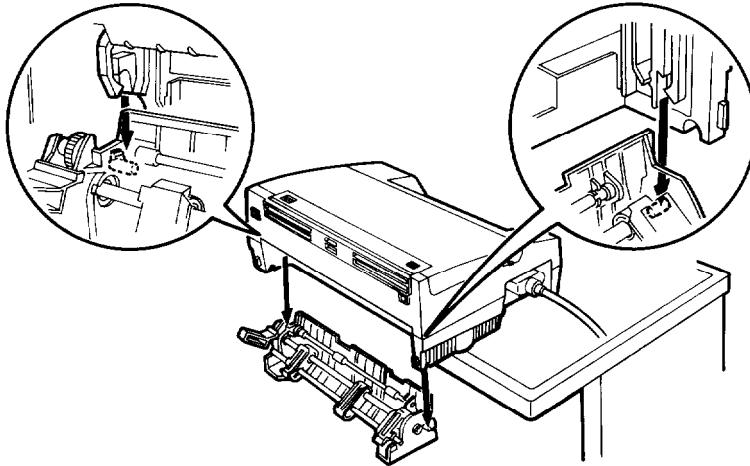
3. Replace the paper guide.
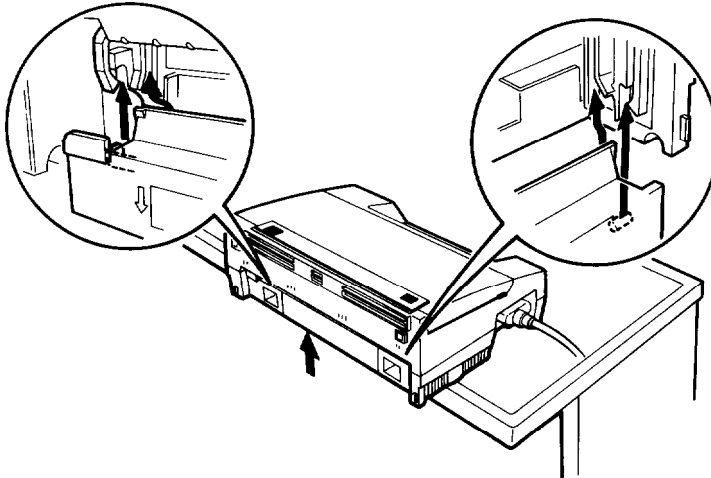
Switching Between Continuous Paper and Single Sheets

When you use the push tractor, you can easily switch to single-sheet printing without removing the continuous paper supply.

Switching to single sheets

Here's how to switch from continuous paper to single sheets:

1. If you have a printed document still in the printer, tear off the printed pages and then press the **LF/FF** and **FONT** buttons at the same time to reverse the remaining paper back to the paper-park position.

> **CAUTION:**
> - Always tear off printed pages before feeding paper backward; feeding too many sheets backward can cause a paper jam.
> - Never feed labels backward. They can easily peel off of their backing and jam the printer. See "Labels" later in this chapter for information on removing labels.

2. Lower the paper-release lever to the single-sheet position.
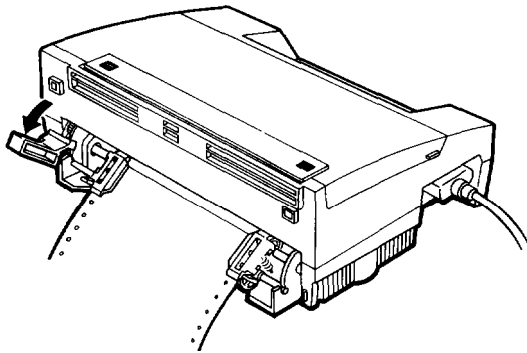
> **CAUTION:** If you lower the paper-release lever while continuous paper is still loaded, the printer beeps five times and the **READY** light goes off. If this happens, raise the paper-release lever and press the **LF/FF** and **FONT** buttons at the same time to reverse the paper to the paper-park position. You can then lower the lever again.

3. The printer is ready to print. When it receives data, it automatically loads a single sheet from the paper cassette and begins to print.

Switching to continuous paper

To switch from single sheets back to continuous paper, follow these steps:

1. If a single sheet is in the paper path, hold the **LF/FF** button down to eject it.

2. Raise the paper-release lever and push it firmly into the continuous-paper position.

> **CAUTION:** If you raise the paper-release lever when a single sheet is in the paper path, the printer beeps and the READY light goes off. If this happens, lower the paper-release lever and hold LF/FF down to eject the page completely. Then raise the lever again.

3. The printer is ready. When the printer receives data, it automatically loads continuous paper from the push tractor and begins to print.

Printing on Special Paper

In addition to printing on single sheets and continuous paper, your printer can print on a wide variety of other paper types, such as envelopes, labels, and multi-part forms. You need not adjust the printer for the paper thickness when you use these paper types.

CAUTION:
- Never move the small levers on the ends of the metal shaft (shown below). They have already been adjusted at the factory.

Never move this lever.
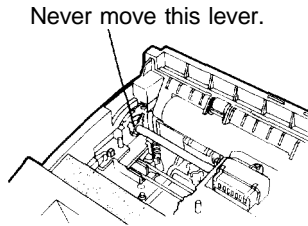
- Disregard the numbers 0 and 1 under the printer cover on the left side. They are not necessary for printer operation.

Envelopes

You can use the manual insertion slot to print on individual envelopes.

● Always load envelopes manually through the rear slot. To load an envelope, follow the steps described in "Loading paper manually" earlier in this chapter.

● Before loading an envelope, lower the flap on the printer's rear slot.

● Always feed envelopes by inserting the wide edge into the printer first, as shown.
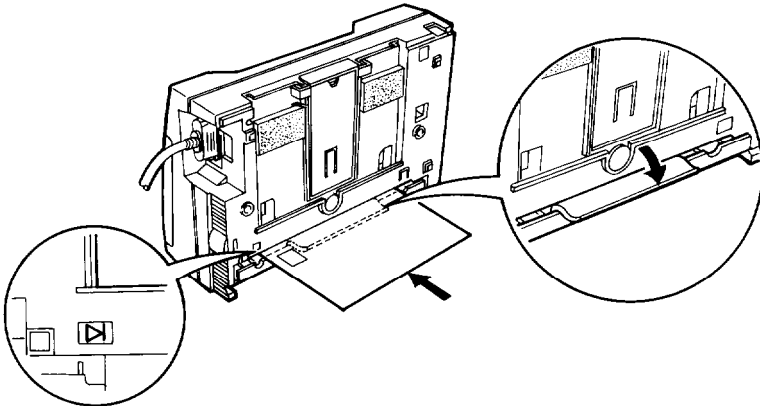
● Use envelopes under normal operating conditions only.

● Printing on the edge of an envelope can damage the print head. Make sure your software program keeps the printing entirely within the printable area of the envelope. For more information on the printable area, see the Appendix.

Multi-part forms

You can use carbonless continuous multi-part forms of up to three parts (one original plus two copies).

- Load multi-part forms with the push tractor only. You load multi-part continuous paper the same way as ordinary continuous paper. For details, see "Loading continuous paper" on page 2-7.

- Use only multi-part forms joined with spot-gluing that is free of wrinkles and waves. Never print on multi-part forms joined with metal staples, tape, or continuous gluing.

- If you need to adjust the top-of-form position, use your software or change the default top-of-form position as described in Chapter 3. You may have to experiment to get the setting you want.

Labels

This printer can print on labels, but you must use the push tractor.

> **CAUTION:** When you use labels, always be sure that they are not fed backward because backward feeding can make them peel off their backing and jam the printer.

To make sure that the labels do not peel off and jam the printer, change the back-feed setting in the default-setting mode to Disable. (For instructions, see "Changing the default settings" in Chapter 3.) When the back-feed setting is Disable, the printer never feeds paper backward.

The back-feed setting of Disable produces the following results:

- The printer does not feed paper to the paper-park position even if you press the **LF/FF** and **FONT** buttons.

- The tear-off feature is disabled.

• The printer does not feed paper back to the paper-park position and then advance it to the top-of-form position between jobs even if paper is loaded when you turn on the printer.

In addition to changing the back-feed setting, also follow the instructions below when you print on labels:

• Always use labels designed for use with a tractor. Do not try to print on single-sheet labels.

• Be sure to set up the printer and paper supply as shown on page 2-7.

• Because labels are especially sensitive to extremes of temperature and humidity, use them under normal operating conditions only.

• Make sure that your printing stays entirely within the printable area of the labels because printing on the edge of a label or on the backing sheet can damage the printer. See the Appendix for more information on the printable area.

> **Note:** When you want to remove labels from the printer, always tear off the fresh supply of labels at the rear of the printer as shown below and then press the **LF/FF** button to advance the remaining labels out of the printer. This is necessary to prevent the labels from being fed backward.
>
>
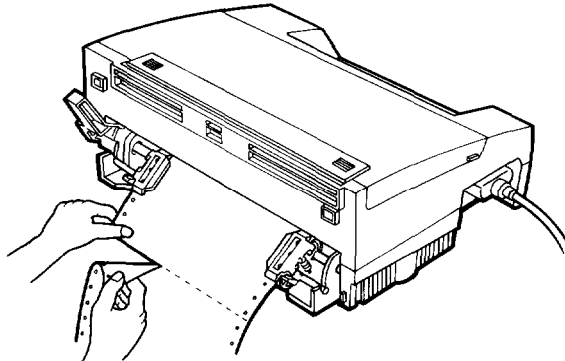
Chapter 3

Using the Printer

3

Operating the Control Panel

You can control basic printer operations - line feeding, form feeding, paper loading and ejecting, and font selection -with the buttons on the control panel. The indicator lights show the printer status..
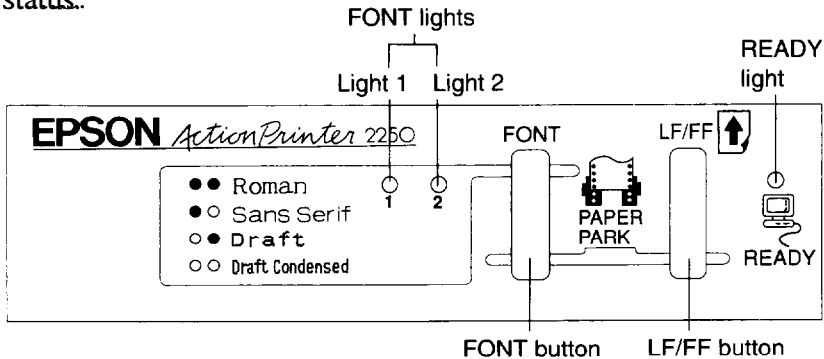
Lights

The panel lights provide information on certain printer conditions and settings.

READY light

The READY light is on when the printer is ready to receive data from the computer. It flashes briefly each time you turn on the printer. **The READY** light also flashes under the following conditions:

- The printer is out of paper.

- The printer is in the tear-off mode (when the push tractor is installed.)

When an error occurs, the **READY** light goes off.

FONT lights

The **FONT** lights indicate the current font setting. These lights change when you press the **FONT** button. Look at the font menu on the control panel to see which font is selected. For instructions on selecting fonts with the **FONT** button, see page 3-5.

The **FONT** lights (Light 1 and Light 2) also indicate your selection in the default-setting mode. For more information about the default-setting mode, see page 3-5.

Buttons

The two buttons on the control panel perform different functions depending on the printer mode.

FONT button

Press the **FONT** button during normal operation to cycle through the font choices on the font menu. The two **FONT** lights indicate current selections. For more about choosing a font with this button, see page 3-5.

Hold down the **FONT** button while you turn on the printer to enter the default-setting mode. When you are in the default-setting mode, use this button to make your selection. For more information about the default-setting mode, see page 3-5.

LF/FF button

Press the **LF/FF** button during normal operation to feed paper line by line. Hold down the **LF/FF** button to load a single sheet of paper or to advance continuous paper to the next top-of-form. You can also press the **LF/FF** button to eject a page.

When you are in the default-setting mode, use this button to change the default settings. For more information about the default-setting mode, see page 3-5.

PAPERPARK

If you are using continuous paper, you can press the **LF/FF** and **FONT** buttons at the same time to move the paper back to the paper-park position.

! 0 •	**CAUTION:** **Never** feed labels backward; they may peel off their backing sheet and damage the printer. Use the **LF/FF** button to feed them forward.

Other control-panel features

The control panel also gives you access to two special features:

Self Test   The self test lets you check whether your printer is operating properly. To run the self test, see page 1-11.

Data dump   The data dump allows advanced users to pinpoint communications problems between the printer and computer. Hold down the **LF/FF** and **FONT** buttons while turning on the printer to enter data dump mode. The printer prints the exact codes (in hexadecimal format) reaching it from the computer.

Selecting Character Fonts

To choose one of the fonts available with your printer, press the **FONT** button.

FONT

```
●● Roman        ◯  ◯
●◯ Sans Serif   1   2
◯● Draft
◯◯ Draft Condensed
```
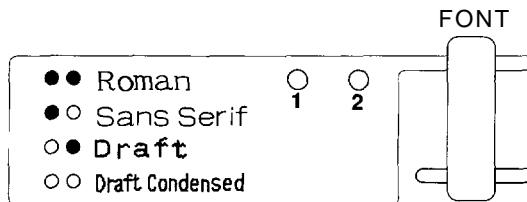
The two **FONT** lights come on (●) and go off (0) to indicate the current selection. The table below lists the fonts and shows how the **FONT** lights appear for each selection.

Font	FONT Lights Light 1 Light 2		Sample
Epson NLQ Roman	●	●	**ABCDEFGhiJblm0123456789**
Epson NLQ Sans Serif	●	0	ABCDEFGhijklm0123456789
Epson Draft	0	●	ABCDEFGhijklm0123456789
Draft condensed	0	0	ABCDff6hijkM1234W89

● on   0 off

Using the Default-Setting Mode

Your printer has internal settings that control such functions as top-of-form position and page length. These settings are called default settings because they take effect each time you turn on the printer.

For most users, the factory settings are best, but you can change these settings if necessary. The table below lists all the features you can change in the default-setting mode; the next section tells you how to change them; and the section after that describes each feature in detail.

Features	Settings
Character spacing	10 cpi or 12 cpi
Shape of zero	Unslashed 0 or slashed Ø
Skip-over-perforation	Off or On
Tear-off position	On cutter or above cutter
Auto line feed	Off or On
Back feed	Enable or disable
Character table	Italic U.S.A., Italic France, Italic Germany, Italic U.K., Italic Denmark 1, Italic Sweden, italic Italy, Italic Spain 1, PC 437, PC 850, PC 860, PC 863, PC 865, PC 437 Greek*, PC 851*, PC 852*, PC 853*, PC 855*, PC 857*, PC 861*, PC 866, PC 869*, USSR GOST, BRASCII**, or Abicomp** * Available in the European version only. ** Available in the North/South American version only.
Page length	11, 12, 8.5, or 70/6 inches (A4)
TOF position	*-3, -2,* -1, 0, +l, +2, or +3

Note: Most software programs control the printer features listed here. If you can use your software program to control the printer, you may never need to use the default-setting mode. In fact, you may find that your program settings override your printer's default settings. See your software documentation for more information.

Changing the default settings

If you do need to change any default settings, you can do as described below. You press the control panel buttons, and the control panel lights show your selections.
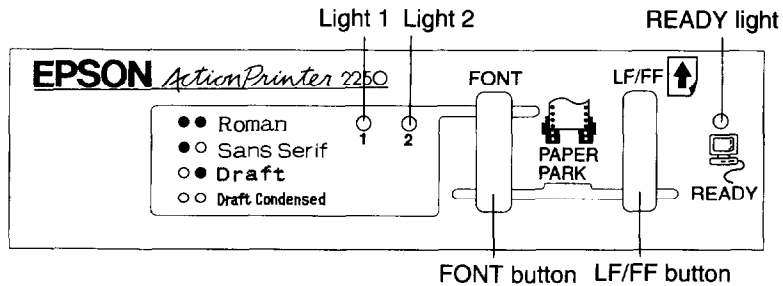
Follow the steps below to make your changes.

> **Note: You** can repeat steps 6 through 8 if you want to make more than one change. Also, you can turn off the printer and start over if you are not sure about a setting.

1. Make sure the printer is turned off and paper is loaded in the paper cassette. If you installed the push tractor, always use continuous paper for the default-setting mode.

2. Slide the narrow cover off of the printer cover as shown. This makes it easier to read the printed messages.
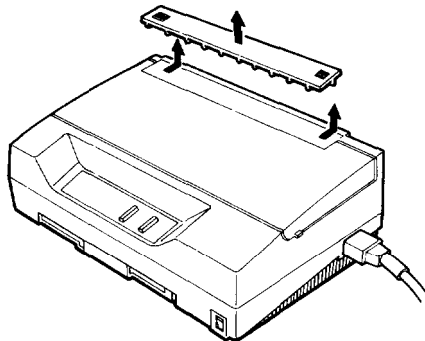
3. To enter the default-setting mode, hold down the **FONT** button while you turn on the printer.

   The printer loads a sheet of paper automatically and prints the first instruction and a table that shows you which languages you can choose. You can print the default-setting mode messages in English, French, German, Italian, or Spanish.

4. To choose English, press the **FONT** button until light 1 is off and light 2 is on; then press the **LF/FF** button.

   To choose another language, use the table below and press the **FONT** button until the lights indicate your selection; then press the **LF/FF** button.

Table A: Language selection

Language	Light 1	Light 2
English	OFF	ON
French	OFF	BLINK
German	ON	OFF
Italian	ON	ON
Spanish	ON	BLINK

   Once you press the **LF/FF** button, the printer prints the current default settings and the next instruction in the selected language. After printing is finished, go to the next step.

5. If you want more help text to be printed, press the **FONT** button. After printing is finished, go to the next step.

   If you don't want the help text, press the **LF/FF** button. You **can** then go to the next step immediately.

> **Note:** When you first use the default-setting mode, it's a good idea to press the **FONT** button to print the help text before changing default settings. The printed text guides you through the operation. Once you are familiar with the operation, press the **LF/FF** button to skip printing.

6. Use Table B to choose the feature you want to change. Then press the **FONT** button as many times as necessary until lights 1 and 2 match your selection.

Table B: Default settings

Light 1	Light 2	Menu	READY light	
			OFF	ON
OFF	ON	Character spacing	10 cpi	12 cpi
OFF	BLINK	Shape of zero	Unslashed 0	Slashed 0
ON	OFF	Skip-over-perforation	Off	On
ON	ON	Tear-off position	On cutter	Above cutter
ON	BLINK	Auto line feed	Off	On
BLINK	OFF	Back feed	Enable	Disable
BLINK	ON	Character table	No change	Change (Table C)
BLINK	BLINK	Page length	No change	Change (Table D)
OFF	OFF	TOF position	No change	Change (Table E)

For example, if you want to change the character table, press the **FONT** button until light 1 is blinking and light 2 is on.

7. Press the **LF/FF** button to change the setting. The **READY** light turns on or off to show your selection, as indicated in Table B, and your new setting is saved automatically and remains in effect until you change it.

    If you are changing the character table, page length, or TOF position, go to step 8 next. Otherwise, go to step 9.

8. If you are changing the character table, page length, or TOF position, you must make additional settings as shown in the tables below. Press the **LF/FF** button until light 1, light 2, and the **READY** light indicate your selection. Then press the **FONT** button to set the feature.

    Once you press the **FONT** button, the printer advances to the next item in table B and your setting is saved automatically. The new setting remains in effect until you change it.

Table C: Character table

Light 1	Light 2	READY light	Character table
OFF	OFF	ON	Italic U.S.A.
OFF	OFF	BLINK	Italic France
OFF	ON	OFF	Italic Germany
OFF	ON	ON	Italic U.K.
OFF	ON	BLINK	Italic Denmark 1
OFF	BLINK	OFF	Italic Sweden
OFF	BLINK	ON	Italic Italy
OFF	BLINK	BLINK	Italic Spain 1
ON	OFF	OFF	PC 437 (USA, standard Europe)
ON	OFF	ON	PC 850 (Multilingual)
ON	OFF	BLINK	PC 860 (Portuguese)
ON	ON	OFF	PC 863 (Canadian French)
ON	ON	ON	PC 865 (Nordic)
ON	ON	BLINK	PC 437 Greek (Greek)*, BRASCII (Brazilian Portuguese)**
ON	BLINK	OFF	PC 851 (Greek)*, Abicomp (Brazilian Portuguese)**
ON	BLINK	ON	PC 869 (Greek)*
ON	BLINK	BLINK	PC 852 (East Europe)*
BLINK	OFF	OFF	PC 853 (Turkish)*
BLINK	OFF	ON	PC 857 (Turkish)*
BLINK	OFF	BLINK	PC 855 (Cyrillic)*
BLINK	ON	OFF	PC 866 (Russian)*
BLINK	ON	ON	USSR GOST (Russian)*
BLINK	ON	BLINK	PC 861 (Icelandic)

* Available in the European version only.
** Available in the North/South American version only.

Table D: Page length

Light 1	Light 2	READY light	Page length
OFF	OFF	ON	11 inches
OFF	OFF	BLINK	12 inches
OFF	ON	OFF	8.5 inches
OFF	ON	ON	70/6 inches (A4)

Table E: TOF position

Light 1	Light 2	READY light	TOF position
OFF	OFF	ON	–3
OFF	OFF	BLINK	–2
OFF	ON	OFF	–1
OFF	ON	ON	±0
OFF	ON	BLINK	+1
OFF	BLINK	OFF	+2
OFF	BLINK	ON	+3

9. Turn off the printer to exit the default-setting mode.
    Any changes you have made remain in effect until you change
    them again.

10. After you exit the default-setting mode, slide the narrow cover
    back on the printer.
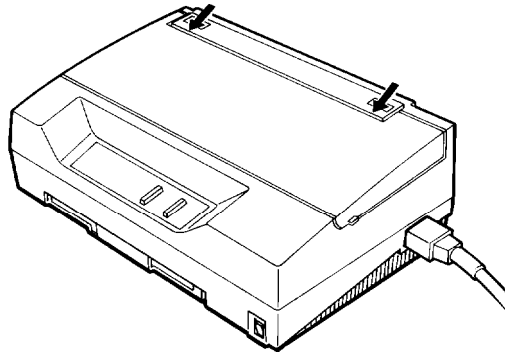
Default settings

This section describes all the features in the default-setting mode.

Character spacing

When you select 10 cpi, the printer prints 10 characters per inch
(cpi). When you select 12 cpi, it prints 12 characters per inch.

Shape of zero

The printer prints the zero character with a slash (0) when the
setting is on, or no slash (0) when the setting is off. The slashed zero
allows you to easily distinguish between an uppercase "0" and a
zero when printing such items as program lists.

Skip-over-perforation

When you turn on this feature, the printer skips over the perforations of continuous paper, providing a 1-inch margin between the last line printed on one page and the first line printed on the next. Because most software programs set their own top and bottom margins, you should use this feature only if your program does not provide them. This feature does not affect single-sheet paper.

Tear-off position

When you use continuous paper with the push tractor, this feature advances the paper perforation to the tear-off position where you can easily tear off the printed page. When the printer receives data, it automatically reverses the paper to the top-of-form position and starts printing, so you can use all of the next sheet.

You can choose from two tear-off positions with this feature. If you select On cutter, the printer feeds the paper perforation to the edge of the printer cover. If you select Above cutter, the printer feeds the perforation about 80 mm (3 inches) beyond the printer cover's edge.

Auto line feed

When the auto line feed feature is on, each carriage return (CR) code is accompanied by a line feed (LF) code. If your printed text is unexpectedly double-spaced, set this feature to off. If text lines print on top of each other, set it to on.

Back feed

When you set this feature to Disable, the printer never feeds paper backward.

l   The printer does not feed paper to the paper-park position even if you press the LF/FF and **FONT** buttons.

ı The tear-off feature is disabled.

ı The printer does not feed paper back to the paper-park position and then advance it to the top-of-form position between jobs even if paper is loaded when you turn on the printer.

Set this feature to Disable when you use labels, or when you do not want to tear off continuous paper after each print job.

Character table

Character tables contain the characters and symbols used in different languages. Your printer includes a wide variety of character tables. You can choose from these options:

Italic character table:
- U.S.A.   • France   • Germany
. U.K.   • Denmark 1   • Sweden
• Italy   • Spain 1

Graphic character table:
- PC 437 (USA, standard Europe)   • PC 850 (Multilingual)
- PC 860 (Portuguese)   • PC 863 (Canadian French)
- PC 865 (Nordic)   • PC437 Greek (Greek)"
- PC 851 (Greek)*   • PC 852 (East Europe)*
- PC 853 (Turkish)*   • PC 855 (Cyrillic)*
- PC 857 (Turkish)*   • PC 861 (Icelandic)*
- PC 866 (Russian)*   • PC 869 (Greek)*
- USSR COST (Russian)*   . BRASCII
- Abicomp   (Brazilian Portuguese)**
  (Brazilian Portuguese)**

* Available in the European version only.
** Available in the North/South American version only.

See the Appendix for specific characters in these character tables.

Page length

This option is available only when you use continuous paper with the push tractor. You can set the page length to 8.5, 11, 12, or 70/6 (A4) inches.

TOF (top-of-form) position

Whenever you press the **LF/FF** button or send the form feed command, the printer loads paper to the top-of-form (TOF) position. The TOF position is factory set to the ±0 position (8.5 mm - 0.33 inch - from the top edge of paper). You can set this position from - 3 to +3 in l-mm (0.04-inch) increments.

Maintenance and Transportation

Cleaning the printer

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

1. Make sure the printer is turned off. Remove any paper as well as the paper cassette and output guide.

2. Use a soft brush to carefully brush away all dust and dirt.

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

> **CAUTION:**
> - Never use alcohol or thinners to clean the printer; these chemicals can damage the components as well as the case.
> - 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 dealer or a qualified service person if you think lubrication is needed.
> - Be careful not to get water on the printer mechanism or electronic components.

Replacing the ribbon cartridge

When the printing becomes faint, you need to replace the ribbon cartridge.

We recommend that you use Epson ribbon cartridge S015047 for this printer. Genuine Epson ribbons are designed and manufactured to work properly with your Epson printer. Their high quality ensures proper operation and long life of the print head and other printer parts. Using any other ribbon may damage your printer or shorten its life.

> **CAUTION:** If you have just used the printer, let the print head cool for a few minutes before you touch it.

To remove the old ribbon cartridge, first move the print head to the center of the printer. Then remove the cartridge by lifting the posts on either side of it.
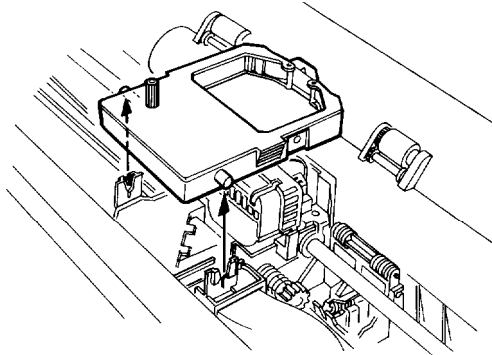
To replace the ribbon cartridge, follow the steps in "Installing the Ribbon Cartridge" in Chapter 1.

Transporting the printer

If you need to transport your printer some distance, carefully repack it using the original box and packing materials, as described below:

1. Turn off the printer. Unplug the power cord from the electrical outlet; then disconnect the interface cable from the printer.

2. Remove the output guide and the ribbon cartridge.

3. Remove the push tractor, if installed.

4. Attach the protective materials to the printer. See page 1-3.

5. Repack the printer, ribbon cartridge, output guide, and power cord in the original packing materials and place them in the printer's original box.

Troubleshooting

Most problems you may encounter while operating your printer have simple solutions. If you have a printer problem, find it in the list below and then see the appropriate page for help.

Power supply

* Power is not being supplied.   See 3-20.

Printing

* The printer does not print.   See 3-20.
* The print is faint or uneven.   See 3-21.
* Dots are missing in printed characters or graphics.   See 3-22.
* Printed characters are not what you expected.   See 3-22.
* The print position is not what you expected.   See 3-23.

Paper handling

* Single sheets do not feed properly from the paper
  cassette.   See 3-24.
* Single sheets do not feed properly from the manual
  insertion slot.   See 3-25.
* Continuous paper does not feed properly.   See 3-25.

You can check the operation of your printer using the self test. See "Running the Self Test" in Chapter 1. If the self test works properly, the problem probably lies in the computer, the software, or the interface cable. If the self test does not work, contact your dealer or a qualified service person for assistance.

Power supply

Power is not being supplied.

l   *The lights on the control panel do not go on.*

> Check that the power cord is properly plugged into the electrical outlet.

> If the electrical outlet is controlled by an outside switch or automatic timer, use a different outlet.

> Plug another electrical device into the outlet to determine whether the outlet is operating properly.

l   *The lights come on briefly and then go off The lights stay off even when the power is turned on again.*

> Check that the printer's voltage rating matches the voltage of your electrical outlet. If the voltages do not match, unplug the printer and contact your dealer immediately. Do not reconnect the power cord to an electrical outlet.

Printing

The printer does not print.

l   *The READY light is on but nothing is printed.*

> Check that the software is installed properly for your printer. Check the software's printer settings.

> Check both ends of the interface cable between the printer and the computer. Make sure this cable is a shielded twisted-pair parallel cable that meets both the printer and computer specifications.

l   *The READY light is/lashing.*

> The printer may be out of paper. Load paper in the printer.

• *The printer sounds like it is printing, but nothing is printed.*

> The ribbon cartridge may not be installed properly. See the section on ribbon installation in Chapter 1.

> The ribbon may be worn out. Replace the ribbon cartridge as described earlier in this chapter.

• *The printer makes a strange noise, the beeper sounds several times, and the printer stops abruptly.*

> Turn off the printer and check for a paper jam, a ribbon jam, or other problems. If the printer still does not print correctly, contact your dealer.

• *The beeper sounds several times and the READY light goes off.*

> An error has occurred. Turn off the printer and turn it on again. If the **READY** light stays off, contact your dealer or a qualified service person. (If an error occurs when you try to switch between single sheets and continuous paper, see page **3-26.)**

The print is faint or uneven.

• *Printed characters have **parts** missing at the bottom.*

> The ribbon cartridge may not be installed properly. See the section on ribbon installation in Chapter 1.

• *The printout is faint.*

> The ribbon may be worn out. Replace the ribbon cartridge as described earlier in this chapter.

Dots are missing in printed characters or graphics.

*   *A line **of** dots is missing in the printout.*

    The print head is damaged. Stop printing and contact your
    dealer to replace it.

*   *Dots are missing in random positions.*

    Either there is too much slack in the ribbon or the ribbon has
    come loose. Re-install the ribbon cartridge as described in
    Chapter 1.

Printed characters are not what you expected.

*   The *typestyles or characters you sent with your* software *are not
    printed.*

    Check that the software is correctly configured for your
    printer. For instructions, see Chapter 1.

*   *The font selected on the control panel does not print.*

    Your software may be overriding your control panel setting.
    Check the font setting in your software program.

*   *The* wrong *characters are printed.*

    The wrong character table is selected. Check the default
    character table setting as described in "Changing the default
    settings" on page 3-7.

The print position is not what you expected.

● *Printing starts too high or too low on the page, or the bottom part* of one *page is printed at the top* of *the next page.*

> Reduce or eliminate the top margin with your application software.

> Use your software to specify the type of paper you are using (single-sheet or continuous) and to reduce the lines-per-page setting.

> Change the TOF position in the default-setting mode. See "Changing the default settings" on page 3-7.

> Also, it is possible to open the printer cover and turn the gear to make minor adjustments to the loading position for the current page only. See Chapter 2.

● *All the text is printed on the same line.*

> Set the auto line feed to on in the default-setting mode so the printer adds a line-feed code to each carriage return. See "Changing the default settings" on page 3-7.

● *The text is printed with extra blank lines between the lines* of text.

> Two line-feed signals are being sent. Set the auto line feed to off in the default-setting mode. See "Changing the default settings" on page 3-7.

> Line spacing is incorrect. Adjust the line-space setting with your software.

● *Page length does not match the length* of *the paper.*

> Check the page length set by your software and adjust it if necessary.

> If you are using continuous paper, change the page length in the default-setting mode. See "Changing the default settings" on page 3-7.

- *Regular **gaps** occur in the printout.*

     One-inch skip-over-perforation may be set. Set skip-over-perforation to off in the default-setting mode. See "Changing the default settings" on page 3-7.

Note:
- You can use data dump mode to find the cause of communication problems between the printer and your software programs. See page 3-4.
- If the printer still does not print correctly, try the self test described in Chapter 1. If the self test works properly, the printer is all right, and the problem probably lies in the computer, the software, or the cable. If the self test does not work, contact your dealer or a qualified service person.

Paper handling

Single sheets do not feed properly from the paper cassette.

- *When the push tractor is installed, the platen does not rotate and paper does not feed.*

     Check that the paper-release lever is in the lower, single-sheet position.

- *The platen rotates but paper does not feed and the READY light flashes.*

     The paper cassette is out of paper. Load paper in the cassette.

- *Paper feeding is crooked **or** the **paper** jams.*

     Turn off **the** printer and pull out the paper. Remove the paper cassette and make sure the paper is properly loaded in the paper cassette.

- *Pages do* not *fully eject.*

     Use the **LF/FF** button to eject the pages.

Single sheets do not feed properly from the manual insertion slot.

● *Paper feeding is crooked **or** the **paper** jams.*

> Turn off the printer and pull out the paper. Insert a new sheet straight into the paper slot. Make sure you're using the right type of paper. See the paper specifications in the Appendix.

● *The **paper** may be **too far** to the right.*

> Move the paper a little to the left.

● *The **paper** does not eject completely.*

> The paper may be too long. Use paper that is within the specified range. See the paper specifications in the Appendix.

Continuous paper does not feed properly.

◉ *When you send data or press the LF/FF button, the push tractor does not feed the **paper.***

> Check that the paper-release lever is in the raised, continuous-paper position.

> The paper has come off the push tractor. Reattach the paper to the push tractor.

ı ***Paper** feeding is crooked **or** the **paper** jams.*

> The position of your paper supply may be preventing it from feeding straight. Make sure the paper supply is not obstructed by a cable or some other object.

> Make sure that your paper supply is positioned within 1 meter (3 feet) of the printer.

> Check that the holes on the sides of the paper are aligned with each other. Also, make sure the sprocket units are locked and their covers are closed.

> Check that the paper size and thickness are within the specified range. See the paper specifications in the Appendix.

- *The paper does not eject properly.*

  The page may be too long. Tear off the fresh supply of paper and eject the page from the printer. Use only paper that is within the specified length range described in the Appendix.

- *When you switch between single sheets and continuous paper, the beeper sounds several times and the READY light goes off*

  You may have tried to change the paper-release lever position while paper remained in the printer. Return the paper-release lever to the previous position and eject paper (or feed paper to the paper-park position). Then change the paper-release lever position.

- *The paper does not feed backward to the paper-park position* **or** *the tear-off feature does not work.*

  You may have set the back-feed setting in the default-setting mode to Disable. Set the back-feed setting to Enable. See "Changing the default settings" on page 3-7. However, when you print on labels, make sure you set the back-feed setting to Disable.

Appendix

A

Technical Specifications

Printer specifications

Printing

Printing method: 9-pin impact dot matrix

Printing speed:

Quality	Characters/inch	Characters/second/line
Draft	10	200
	12	240
NLQ	10	40
	12	48

Printing direction: Bidirectional logic-seeking for text printing. (Unidirectional can be selected with a software command.) Unidirectional for graphics.

Line spacing: l/6 inch, l/8 inch, or programmable in l/216-inch increments

Paper feed speed: 86.5 ms per l/6-inch line; 2.88 inches/second with continuous feed

Buffer: 4KB

Download memoy: Memory capacity for 6 NLQ and 6 draft user-defined characters

Printable columns:

Character sizes	Maximum printed characters
10 cpi	80
10 cpi condensed	137
12cpi	96
12 cpi condensed	160

Resident fonts:	Epson Draft
	Epson NLQ Roman
	Epson NLQ Sans Serif

Character tables:

North⁄South America:	One italic and 7 graphics character tables
Europe:	One italic and 15 graphics character tables
Other countries:	One italic and 5 graphics character tables

Character sets:	13 international character sets

Paper

Single skeets (Paper cassette):

Size	US model: Letter (8.5 x 11 inches)
	Other models: A4 (210 x 297 mm)
Thickness	0.065 to 0.14 mm (0.0026 to 0.0055 inches)
Weight	64 to 90 g/m^2 (17 to 24 lb)
	• Use 90 g/m^2 (24 lb) paper under normal conditions.
Input paper supply	50 sheets for 82 g/m^2 (22 lb)
	60 sheets for 64 g/m^2 (17 lb)
	Total thickness of paper stack should be less than 5 mm (0.2 inches).

Single skeets (Manual insertion):

Width	148 to 257 mm (5.8 to 10.1 inches)
Length	92 to 364 mm (3.6 to 14.3 inches)
Thickness	0.065 to 0.14 mm (0.0026 to 0.0055 inches)
Weight	53 to 90 g/m^2 (14 to 24 lb)
	• Use 90 g/m^2 (24 lb) paper under normal conditions.

Continuous paper:

Width	101 to 254 mm (4 to 10 inches)
Copies	Three sheets (one original plus two copies)
Thickness	0.065 to 0.25 mm (0.0026 to 0.0098 inches) total
Weight	53 to 82 g/m^2 (14 to 22 lb) for one sheet
	40 to 58 g/m^2 (12 to 15 lb) per sheet in multi-part forms
	• Use only two or three-part carbonless multi-part forms and use them with the push tractor.

Appendix A-3

Single sheets (Manual insertion):

Width	**148** to 257 mm (5.8 to 10.1 inches)
Length	**92 to 364** mm (3.6 to 14.3 inches)
Thickness	0.065 to 0.14 mm (0.0026 to 0.0055 inches)
Weight	**52 to 90** g/m^2 (14 to 24 lb)

Continuous **paper:**

Width	101 to 254 mm (4 to 10 inches)
Copies	Two sheets (one original plus one copy)
Thickness	0.065 to 0.18 mm (0.0026 to 0.0071 inches) total
Weight	**52 to 82** g/m^2 (14 to 22 lb) for one sheet
	40 to 58 g/m^2 **(12** to 15 lb) per sheet in multi-part forms

- Use only two-part carbonless multi-part forms and use them only with the optional push tractor.

Note: YOU can use recycled paper under normal conditions. If you notice increases in ribbon consumption and **paper jamming, use a higher grade of** paper.

Labels:

Size	101 to 254 mm (4 to 10 inches) width for backing sheet
	63.5 x 23.8 mm (2 1/2x 15/16 inches) minimum for a label
Thickness	**0.07** to 0.09 mm (0.0028 to 0.0035 inches) for backing sheet
	0.16 to 0.19 mm (0.0063 to 0.0075 inches) total
Weight	**68** g/m^2 (17 lb)

- Use continuous type labels only with the optional push tractor.
- Use labels only under normal temperature and humidity conditions.

Envelopes:

Size No. 6	166 x 92 mm (6.5 x 3.6 inches)
No. 10	**240 x 104** mm (9.4 x 4.1 inches)
Thickness	**0.16** to 0.48 mm (0.0063 to 0.019 inches)
Weight	**45 to 75** g/m^2 (12 to 20 lb)

- Use envelopes only under normal temperature and humidity conditions.
- Load envelopes with the longer side inserted into the rear slot by manual insertion only.

Note: You can use recycled paper under normal conditions. If you notice increases in ribbon consumption and paper jamming, use a higher grade of `paper`.

Labels:

Size	101 to 254 mm (4 to 10 inches) width for backing sheet
	63.5 x 23.8 mm (2.50 x 0.94 inches) minimum for a label
Thickness	0.07 to 0.09 mm (0.0028 to 0.0035 inches) for backing sheet
	0.16 to 0.19 mm (0.0063 to 0.0075 inches) total
Weight	68 g/m^2 (18 lb)

- Use only continuous type labels and use them only with the push tractor.
- Use labels only under normal temperature and humidity conditions.

Envelopes:

Size No. 6	166 x 92 mm (6.5 x 3.6 inches)
No. 10	240 x 104 mm (9.5 x 4.1 inches)
Thickness	0.16 to 0.48 mm (0.0063 to 0.0197 inches)
Weight	45 to 75 g/m^2 (12 to 20 lb)

- Use envelopes only under normal temperature and humidity conditions.
- Load envelopes manually, with the longer side inserted into the rear slot.

Printable area:
   Single sheets (paper cassette and manual insertion) and envelopes
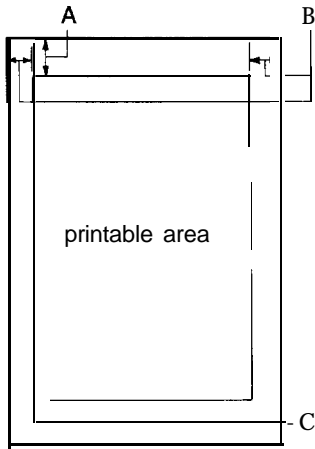
A   The minimum top margin is 8.5 mm (0.33 inches).

B   The minimum left margin is 3 mm (0.12 inches).
     The minimum right margin is:
          3.8 mm (0.15 inches) for the A4-size paper cassette
          9.7 mm (0.38 inches) for the letter-size paper cassette
          3 mm (0.12 inches) for manual insertion
          However, the maximum printable width is 203 mm (8 inches).
C   The minimum bottom margin is 13.5 mm (0.53 inches).

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Continuous paper
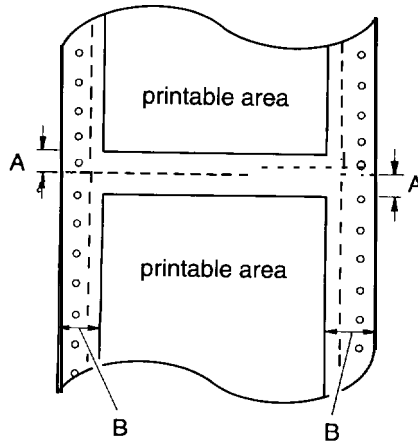
A   The minimum top and bottom margins above and below the perforation are 9 mm (0.35 inches).

B   The minimum left margin is 13 mm (0.51 inches).
    The minimum right margin is 13.8 mm (0.54 inches).
    The maximum printable width is 203 mm (8 inches).

Mechanical

Paper-feed methods:	Friction (paper cassette and manual insertion) Push tractor
Ribbon:	Black ribbon cartridge S015047 Life expectancy: 3 million characters at 14 dots/character
MTBF:	4000 power-on hours
Print head life:	200 million strokes/wire
Dimensions and weight:	Height 130 mm (5.1 inches)
	Width 375 mm (14.8 inches)
	Depth 252 mm (9.9 inches) without push tractor
	307 mm (12.1 inches) with push tractor
	Weight 4.5 kg (10 lb) without push tractor
	4.9 kg (10.9 lb) with push tractor

A-6   Appendix

Electrical

220 V model:

Rated voltage:	AC 120 V
Input voltage range:	AC 103.5 to 132 V
Rated frequency range:	*50* to 60 Hz
Input frequency range:	*49.5* to 60.5 Hz
Rated current:	1.1 A
Power consumption:	Approx. 30 W (during self-test printing in draft mode at 10 cpi)
Dielectric strength	AC 1 kV rms, 1 minute or AC 1.2 kV rms, 1 second (between AC line and chassis)

220-230V model:

Rated voltage:	AC 220-230 V
Input voltage range:	AC 198 to 244 V
Rated frequency range:	*50* to 60 Hz
Input frequency range:	*49.5* to 60.5 Hz
Rated current:	*0.6* A
Power consumption:	Approx. 30 W (during self-test printing in draft mode at 10 cpi)
Dielectric strength:	AC 1.5 kV rms, 1 minute (between AC line and chassis)

240 V model:

Rated voltage:	AC 240 V
Input voltage range:	AC 216 to 264 V
Rated frequency range:	50 to 60 Hz
Input frequency range:	*49.5* to 60.5 Hz
Rated current:	*0.6* A
Power consumption:	Approx. 30 W (during self-test printing in draft mode at 10 cpi)
Dielectric strength:	AC 1.5 kV rms, 1 minute (between AC line and chassis)

Note: Check the label on the back of the printer for the voltage of your printer.

Appendix A-7

Technical Specifications

Environmental

Temperature: Operation: 5 to 35°C (41 to 95°F)
              Storage: -20 to 55°C (4 to 131°F)

Humidity (without condensation):
              Operation: 30 to 80 % RH
              Storage: 5 to 85 % RH

Safety approvals

Safety standards:
              US model: UL1950 with D3, CSA22.2 No.220
              European model: EN 60950 (TÜV, SEMKO, DEMKO, NEMKO, SE-H)

RFI: US model: FCC part 15 subpart B class B
              European model: Vfg 243 (VDE 0878 part 3) EN 55022 class B

Interface specifications

Your printer is equipped with an 8-bit parallel interface.

Specifications and pin assignments

The built-in parallel interface has the following characteristics:

Data format: 8-bit parallel

Synchronization: STROBE pulse

Handshake timing: BUSY and ACKNLG signals

Signal level: TTL compatible

Connector: 36-pin 57-30360 Amphenol connector or equivalent

The table below provides the connector pin assignments and describes their respective interface signals.

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 3 4 5 6 7 8 9	20 21 22 23 24 25 26 27	DATA 1 DATA 2 DATA 3 DATA 4 DATA 5 DATA 6 DATA 7 DATA 8	IN IN IN IN IN IN IN IN	These signals represent information in the 1 st 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.
10	28	ACKNLG	OUT	About a 1 O-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 2) During printing 3) During an error state
12	30	PE	OUT	A HIGH signal indicates that the printer is in a paper-out state or in an error state.
13	-	SLCT	OUT	Pulled up to 5V through 1.0 KΩ resistance.
14	-	AUTO FEED XT	IN	When this signal is LOW, the paper is automatically fed one line after printing. (The signal level can be fixed to this by setting Auto Line Feed on in the default-setting mode.)
15	-	-	-	Not used
16	-	GND	-	Logic ground level
17	-	CHASSIS GND	-	Printer's chassis ground, which is isolated from the logic ground

Appendix A-9

Signal Pin	Return Pin	Signal	Direction	Description
18	–	–	–	Not used
19-30	–	GND	-	Twisted-pair return signal ground level.
31	16	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 normally HIGH; its pulse width must be more than 50 microseconds at the receiving terminal.
32	–	ERROR	OUT	This level becomes LOW when the printer is: 1) in a paper-out state 2) in an error state
33	–	GND	–	Same as for pins 19-30.
34	–	–	–	Not used
35		+5v	OUT	Pulled up to 5V through 1.0 KΩ resistance.
36		-	-	Not used

Note:
ı The column heading "Direction" refers to the direction of signal flow as viewed from the printer.
ı "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.
ı All interface conditions are based on the TTL level. Both the rise and fall times of each signal must be less than 0.2 microseconds.
ı 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 BUSY signal is LOW.

A-10   Appendix

Interface timing

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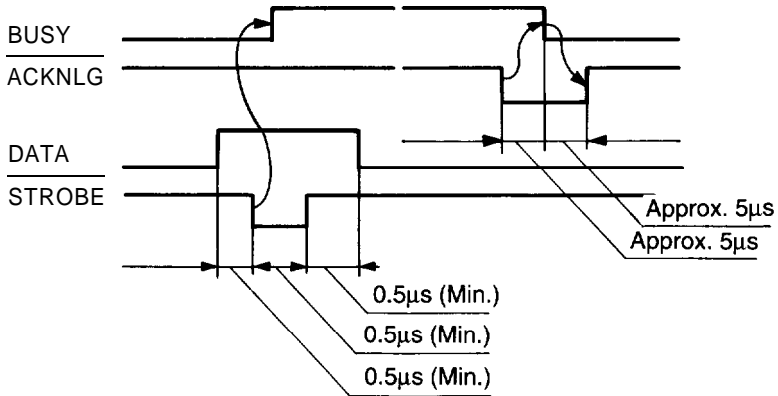
Initialization

The printer can be initialized (returned to a fixed set of conditions) in three ways:

Hardware initialization	ι The power is turned on.- * The printer receives an INIT signal from the parallel interface (pin 31 goes LOW).
Software initialization	ι Software sends the ESC @ (initialize the printer) command.

Default settings

The table below shows the default settings that take effect when the printer is initialized.

Item	Default setting
Top-of-form position	Current paper position or setting in the default-setting mode.
Page length	Single sheets: 65 lines for A4-size paper, 61 lines for letter-size paper, 22 inches for manual insertion Continuous paper: Subject to control panel setting in the default-setting mode
Left and right margins	Cancelled
Line spacing	1/6-inch line spacing
Horizontal tab positions	Every eight characters
Font selection	Last font selected on control panel
Special printing effects	Cancelled (except condensed printing)
Download character set	Hardware initialization: cleared Software initialization: deselected only

In addition, hardware initialization clears the data buffer.

Command Summary

Sending printer commands

Most actions your printer performs are handled by your software. Software commands instruct the printer to print in a particular typeface, feed the paper a certain amount after printing each line, start printing on a particular place on the page, and so on.

Some software programs let you send these commands yourself. This allows you to enhance your text in ways that may not normally be available through the software. For example, some word processing programs do not offer italics, but by inserting a command in your document, you can use italics anywhere you like. The commands your printer recognizes are listed in this command summary.

How you format commands depends on the software you are using. Some software programs accept only the decimal format, while others let you type in ASCII characters. (Some programs don't let you insert printer commands at all.) In addition, your software probably specifies certain punctuation you must use to enter the command. If your software allows you to send commands to the printer, the software manual should explain exactly what format and punctuation are required.

Using the command summary

The following section lists and describes all the commands by topic. 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 l/0 is a command that uses 1 to turn the feature on and 0 to turn it off.

ESC K *nl n2* is a command with two parameters.

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

Printer operation

ASCII	Dec.	Hex.	Description
ESC @	64	40	Initialize Printer
DC1	17	11	Select Printer
DC3	19	13	Deselect Printer
ESCs1/0	115	73	Turn Half-Speed Mode On/Off
ESC<	60	3C	Select Unidirectional Mode (one line)
ESC U 1/0	85	55	Turn Unidirectional Mode On/Off
ESC 8	56	38	Disable Paper-Out Detection
ESC 9	57	39	Enable Paper-Out Detection
ESC EM *n*	25	19	Control Paper Loading/Ejecting *n* = "R" Ejecting a sheet
BEL	7	07	Beeper

Data control

ASCII	Dec.	Hex.	Description
CR	13	OD	Carriage Return
CAN	24	18	Cancel Line
DEL	127	7F	Delete Character

Vertical motion

ASCII	Dec.	Hex.	Description
FF	12	0C	Form Feed
ESC C *n*	67	43	Set Page Length in Lines *n* = Number of lines

ASCII	Dec.	Hex.	Description
ESC C 0 *n*	67	43	Set Page Length in Inches n = Number of lines
ESC N n	78	4E	Set Skip-Over-Perforation n = Number of lines
ESC O	79	4F	Cancel Skip-Over-Perforation
LF	10	0A	Line Feed
ESC 0	48	30	Select l/8-inch Line Spacing
ESC l	49	31	Select 7/72-inch Line Spacing
ESC 2	50	32	Select l/6-inch Line Spacing
ESC 3 n	51	33	Select n/216-inch Line Spacing
ESC A n	65	41	Select n/72-inch Line Spacing
ESC J n	74	4A	Perform n/216-inch Line Feed
VT	11	0B	Tab Vertically
ESC B *nn*	66	42	Set Vertical Tabs Up to 16 tabs entered in ascending order; last *n* should be 0
ESC b c nn	98	62	Set Vertical Tabs in Channels Same as ESC B, except that c selects a channel for the vertical tabs, which must be between 0-7.
ESC /c	47	2F	Select Vertical Tab Channel

Horizontal motion

ASCII	Dec.	Hex.	Description
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

ASCII	Dec.	Hex.	Description
ESC e 0 n	101	65	Set Horizontal Tab Increments n = Horizontal tab interval in spaces (n £ 21 at 10 cpi, 25 at 12 cpi, or 36 in condensed modes)
ESC e 1 *n*	101	65	Set Vertical Tab Increments n = Vertical tab interval in lines
ESC f 0 *n*	102	66	Horizontal Skip n = Number of spaces to skip
ESC f 1 *n*	102	66	Vertical Skip n = Number of lines to skip
HT	9	09	Tab Horizontally
ESC D nn	68	44	Set Horizontal Tabs Up to 32 tabs entered in ascending order; last n should be 0

Overall printing style

ASCII	Dec.	Hex.	Description
ESC x *n*	120	78	Select NLQ or Draft n = l : N L Q 0: Draft
ESC k *n*	107	6B	Select NLQ Font n = 0: Roman 1: Sans Serif

ESC ! n	33	21	Master Select
			To find the value of n, add together the
			numbers of the typestyles you want to combine
			from the list below:
			n = 0: 10 cpi 16: Double-strike
			    1: 12 cpi 32: Double-width
			    4: Condensed 64: Italic
			    8: Emphasized 128: Underline

Print size and character width

ASCII	Dec.	Hex.	Description
ESC P	80	50	Select 10 cpi
ESC M	77	4D	Select 12 cpi
SI	15	0F	Select Condensed Mode
ESC SI	15	0F	Select Condensed Mode
DC2	18	12	Cancel Condensed Mode
SO	14	0E	Select Double-Width Mode (one line)
ESC SO	14	0E	Select Double-Width Mode (one line)
DC4	20	14	Cancel Double-Width Mode (one line)
ESC W l/O	87	57	Turn Double-Width Mode On/Off

Print enhancement

ASCII	Dec.	Hex.	Description
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 SO	83	53	Select Superscript Mode
ESC S1	83	53	Select Subscript Mode
ESC T	84	54	Cancel Superscript/Subscript Mode
ESC 4	52	34	Select Italic Mode
ESC 5	53	35	Cancel Italic Mode
ESC - l/0	45	2D	Turn Underline Mode On/Off

Word processing

ASCII	Dec.	Hex.	Description
ESC a n	97	61	NLQ Justification n = 0: Left justification 1: Centering 2: Right justification 3: Full justification

Character tables

ASCII	Dec.	Hex.	Description
ESC t *n*	116	74	Select Character Tables Selects character table n assigned by *ESC* (t n = 0, 1, 48, 49 only
ESC (t *nn*	40 116	2874	Assign Character Table ESC (t 3 0 *d1 d2 d3* Assign character table set with *d2* and *d3* to table *dl* *dl* = 0, 1,48, or 49

d2	d3	Character table
0	0	Italic
1	0	PC437 (USA)
1	16	PC437 Greek (Greek)*
3	0	PC850 (Multilingual)
4	0	PC851 (Greek)*
5	0	PC853 (Turkish)*
6	0	PC855 (Cyrillic)*
7	0	PC860 (Portuguese)*
8	0	PC863 (Canadian-French)
9	0	PC865 (Nordic)
10	0	PC852 (East Europe)*
11	0	PC857 (Turkish)*
14	0	PC866 (Russian)*
15	0	PC869 (Greek)*
16	0	USSR GQST (Russian)*
24	0	PC861 (Icelandic)*
25	0	BRASCII (Brazilian Portuguese)**
26	0	Abicomp (Brazilian Portuguese)**

*   Available in European version only
**   Available in North/South American version only

A-18   Appendix

ASCII	Dec.	Hex.	Description

ESC R n	82	52	Select an International Character Set
			n=0:USA 7: Spain I
			    1: France 8: Japan
			    2: Germany 9: Norway
			    3: U.K. 10: Denmark II
			    4: Denmark I 11: Spain II
			    5: Sweden 12: Latin America
			    6: Italy

ESC 6	54	36	Printable Code Area Expansion
ESC 7	55	37	Enable Upper Control Codes

User-defined characters

ASCII	Dec.	Hex.	Description
ESC & nn	38	26	Define User-Defined Characters ESC & 0 *nl n2 al dd* n1 = Code for first character (58-63) *n2* = Code for last character (58-63) al = Use top (128) or bottom (0) 8 pins of print head *dd* = In draft mode, 1 byte is required for each of the 11 columns of each character being defined. In NLQ mode, 3 bytes are required for each of the 11 columns of each character being defined.
ESC: 0 n 0	58	3A	Copy ROM into RAM n = 0: Roman 1: Sans Serif
ESC % n	37	25	Select User-Defined Set *n* = 0: Normal set 1: User-defined set

Graphics

ASCII	Dec.	Hex.	Description
ESC K *nl n2*	75	4B	Select Single-Density Graphics Mode Total columns = *nl + (n2 x 256)*
ESC L *nl n2*	76	4C	Select Double-Density Graphics Mode Total columns = *nl + (n2 x 256)*
ESC Y *nl n2*	89	59	Select High-Speed Double-Density Graphics Mode Total columns = *nl + (n2 x 256)*
ESC Z *nl n2*	90	5A	Select Quadruple-Density Graphics Mode Total columns = *nl + (n2 x 256)*
ESC * m *nl n2*	42	2A	Select Graphics Mode Total columns = *nl + (n2 x 256)*

Option	Alternate code	m	Horiz. density (dots/in.)
Single-density	ESC K	0	60
Double-density	ESC L	1	120
High-speed double-density*	ESC Y	2	120
Quadruple-density*	ESC Z	3	240
CRT I	none	4	80
Plotter (1 : 1)	none	5	72
CRT II	none	6	90

* Adjacent dots cannot be printed in this mode.

ASCII	Dec.	Hex.	Description
ESC ? s n	63	3F	Reassign Graphics Mode s is the character (K, L, or Z) to be reassigned to mode n (0-6)
ESC ^ m nl *n2*	*94*	5E	Select 9-Pin Graphics Mode *m:* Print density (0 for single, *1* for double) Total columns = *nl + (n2 × 256)*

A-20   Appendix

Character Tables

You can select these character tables with the default-setting mode or by using a software command.

All tables except the italic character table are the same as the PC 437 table for hex codes 00 through 7F, so only the PC 437 and italic tables are shown completely. The rest of the tables show only the characters for hex codes 80 through FF.

The tables with * after the table name are available in the European version only; those with ** are available in the North/South American version only.

PC 437 (USA, standard Europe)

CODE	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL		SP	0	@	P	`	p	Ç	É	á	░	└	╨	α	≡
1		DC1	!	1	A	Q	a	q	ü	æ	í	▒	┴	┬	β	±
2		DC2	"	2	B	R	b	r	é	Æ	ó	▓	┬	╥	Γ	≥
3		DC3	#	3	C	S	c	s	â	ô	ú	│	├	╙	π	≤
4		DC4	$	4	D	T	d	t	ä	ö	ñ	┤	─	╘	Σ	⌠
5		§	%	5	E	U	e	u	à	ò	Ñ	╡	┼	╒	σ	⌡
6			&	6	F	V	f	v	å	û	ª	╢	╞	╓	μ	÷
7	BEL		'	7	G	W	g	w	ç	ù	º	╖	╟	╫	τ	≈
8	BS	CAN	(	8	H	X	h	x	ê	ÿ	¿	╕	╚	╪	Φ	°
9	HT	EM	)	9	I	Y	i	y	ë	Ö	⌐	╣	╔	┘	θ	∙
A	LF		*	:	J	Z	j	z	è	Ü	¬	║	╩	┌	Ω	·
B	VT	ESC	+	;	K	[	k	{	ï	¢	½	╗	╦	█	δ	√
C	FF		,	<	L	\	l	|	î	£	¼	╝	╠	▄	∞	ⁿ
D	CR		−	=	M	]	m	}	ì	¥	¡	╜	═	▌	φ	²
E	SO		.	>	N	^	n	~	Ä	₧	«	╛	╬	▐	∈	■
F	SI		/	?	O	_	o	DEL	Å	ƒ	»	┐	╧	▀	∩	

PC 850 (Multilingual)

CODE	8	9	A	B	C	D	E	F
0	Ç	É	á	░	└	ð	Ó	─
1	ü	æ	í	▒	┴	Ð	ß	±
2	é	Æ	ó	▓	┬	Ê	Ô	‗
3	â	ô	ú	│	├	Ë	Ò	¾
4	ä	ö	ñ	┤	─	È	õ	¶
5	à	ò	Ñ	Á	┼	ı	Õ	§
6	å	û	ª	Â	ã	Í	µ	÷
7	ç	ù	º	À	Ã	Î	þ	¸
8	ê	ÿ	¿	©	╚	Ï	Þ	°
9	ë	Ö	®	╣	┌	┘	Ú	¨
A	è	Ü	¬	║	┴	┌	Û	·
B	ï	ø	½	╗	┬	█	Ù	¹
C	î	£	¼	╝	├	▄	ý	³
D	ì	Ø	¡	¢	═	▌	Ý	²
E	Ä	×	«	¥	╬	Ì	¯	■
F	Å	ƒ	»	┐	¤	▀	´	

PC 860 (Portuguese)

CODE	8	9	A	B	C	D	E	F
0	Ç	É	á	░	└	┴	α	≡
1	ü	À	í	▒	┴	┬	β	±
2	é	È	ó	▓	┬	┴	Γ	≥
3	â	ô	ú	│	├	└	π	≤
4	ã	õ	ñ	┤	─	└	Σ	⌡
5	à	ò	Ñ	┤	┼	┌	σ	⌠
6	Á	Ú	ª	┤	├	┌	µ	÷
7	ç	ù	º	┐	├	┼	τ	≈
8	ê	Ì	¿	┐	└	┼	Φ	°
9	Ê	Õ	Ò	┤	┌	┘	θ	·
A	è	Ü	¬	║	┴	┌	Ω	·
B	í	¢	½	┐	┬	█	δ	√
C	Ô	£	¼	┘	├	▄	∞	ⁿ
D	ì	Ù	¡	┘	─	█	φ	²
E	Ã	₧	«	┘	┼	▀	ε	■
F	Â	Ó	»	┐	┴	▀	∩	

PC 863 (Canadian-French)

CODE	8	9	A	B	C	D	E	F
0	Ç	É	¦	░	└	┴	α	≡
1	ü	È	´	▒	┴	┬	β	±
2	é	Ê	ó	▓	┬	┴	Γ	≥
3	â	ô	ú	│	├	└	π	≤
4	Â	Ë	¨	┤	─	└	Σ	⌠
5	à	Ï	¸	┤	┼	┌	σ	⌡
6	¶	û	³	┤	├	┌	µ	÷
7	ç	ù	¯	┐	├	┼	τ	≈
8	ê	¤	Î	┐	└	┼	Φ	°
9	ë	Ô	⌐	┤	┌	┘	θ	·
A	è	Ü	¬	║	┴	┌	Ω	·
B	ï	¢	½	┐	┬	█	δ	√
C	î	£	¼	┘	├	▄	∞	ⁿ
D	‗	Ù	¾	┘	─	█	φ	²
E	À	Û	«	┘	┼	▀	ε	■
F	§	ƒ	»	┐	┴	▀	∩	

PC 865 (Nordic)

CODE	8	9	A	B	C	D	E	F
0	Ç	É	á	░	└	┴	α	≡
1	ü	æ	í	▒	┴	┬	β	±
2	é	Æ	ó	▓	┬	┴	Γ	≥
3	â	ô	ú	│	├	└	π	≤
4	ä	ö	ñ	┤	─	└	Σ	⌠
5	à	ò	Ñ	┤	┼	┌	σ	⌡
6	å	û	ª	┤	├	┌	µ	÷
7	ç	ù	º	┐	├	┼	τ	≈
8	ê	ÿ	¿	┐	└	┼	Φ	°
9	ë	Ö	⌐	┤	┌	┘	θ	·
A	è	Ü	¬	║	┴	┌	Ω	·
B	ï	ø	½	┐	┬	█	δ	√
C	î	£	¼	┘	├	▄	∞	ⁿ
D	ì	Ø	¡	┘	─	█	φ	²
E	Ä	₧	«	┘	┼	▀	ε	■
F	Å	ƒ	¤	┐	┴	▀	∩	

PC 437 Greek (Greek)"

CODE	8	9	A	B	C	D	E	F
0	A	Ρ	ι	▓	∟	┴	ω	Ω
1	B	Σ	κ	▓	┴	┬	ά	±
2	Γ	Τ	λ	▓	┬	┤	έ	≥
3	Δ	Υ	μ	│	├	└	ή	≤
4	E	Φ	ν	┤	─	┌	ϊ	⌠
5	Z	Χ	ξ	┤	┼	┌	ι	⌡
6	H	Ψ	ο	╢	├	┌	ό	÷
7	Θ	Ω	π	╖	├	┌	ύ	≈
8	I	α	ρ	╕	└	┼	ϋ	°
9	K	β	σ	╣	┌	┘	ώ	£
A	Λ	γ	ς	║	┴	┌	Ά	¥
B	M	δ	τ	╗	┬	█	Έ	√
C	N	ε	υ	╝	├	█	Ή	ⁿ
D	Ξ	ζ	φ	╜	─	█	Ί	²
E	O	η	χ	╛	┼	█	Ό	■
F	Π	θ	ψ	┐	┴	█	Ύ	

PC 851 (Greek)"

CODE	8	9	A	B	C	D	E	F
0	Ç	Ί	ϊ	▓	∟	Τ	ζ	–
1	ü		ΐ	▓	┴	Υ	η	±
2	é	Ό	ό	▓	┬	Φ	θ	υ
3	â	ô	ύ	│	├	Χ	ι	φ
4	ä	ö	Α	┤	─	Ψ	κ	χ
5	à	Ύ	Β	Κ	┼	Ω	λ	§
6	Ά	û	Γ	Λ	Π	α	μ	ψ
7	ç	ù	Δ	Μ	Ρ	β	ν	;
8	ê	Ώ	Ε	Ν	┖	γ	ξ	°
9	ë	Ö	Ζ	┤	┌	δ	ο	¨
A	è	Ü	Η	║	┴	┌	π	ω
B	ï	ά	½	┐	┬	█	ϱ	ϋ
C	î	£	Θ	┤	├	█	σ	ΰ
D	Έ	έ	Ι	Ξ	═	δ	ζ	ώ
E	Ä	ή	«	Ο	┼	ε	τ	■
F	Ή	ί	»	Σ	┴	█	΄	

PC 852 (East Europe)"

CODE	8	9	A	B	C	D	E	F
0	Ç	É	á	▓	∟	đ	Ó	–
1	ü	Ĺ	í	▓	┴	Đ	ß	˝
2	é	ĺ	ó	▓	┬	Ď	Ô	ˇ
3	â	ô	ú	│	├	Ë	Ń	˘
4	ä	ö	Ą	┤	─	ď	ń	§
5	ů	Ľ	ą	Á	┼	Ň	ň	§
6	ć	ľ	Ž	Â	Ă	Í	š	÷
7	ç	Ś	ž	Ě	ă	Î	š	¸
8	ł	ś	Ę	Ş	┖	ě	Ŕ	°
9	ë	Ö	ę	┤	┌	┘	Ú	¨
A	Ő	Ü	┤	║	┴	┌	ŕ	·
B	ő	Ť	ź	┐	┬	█	Ű	ű
C	î	ť	Č	┤	├	█	ý	Ř
D	Ź	Ł	ş	ż	═	Ţ	Ý	ř
E	Ä	×	«	ż	┼	Ů	ţ	■
F	Ć	č	»	┐	¤	█		

PC 853 (Turkish)*

CODE	8	9	A	B	C	D	E	F
0	Ç	É	á	▓	∟		Ó	–
1	ü	ċ	í	▓	┴		ß	
2	é	Ċ	ó	▓	┬	Ê	Ô	ℓ
3	â	ô	ñ	│	├	Ë	Ò	ħ
4	ä	ö	Ñ	Á	─	È	Ġ	˘
5	à	ò	Ñ	Â	┼	ı	ġ	§
6	ĉ	û	Ğ	À	Ŝ	í	µ	÷
7	ç	ù	ğ	Ş	ŝ	Î	Ĥ	¸
8	ê	İ	Ĥ	Ş	┖	Ï	ĥ	°
9	ë	Ö	ĥ	┤	┌	┘	Ú	¨
A	è	Ü	½	║	┴	┌	Û	·
B	ï	ĝ	½	┐	┬	█	Ù	³
C	î	£	ĵ	┤	├	█	Ŭ	²
D	ì	Ĝ	ş	ż	═		ŭ	
E	Ä	×	«	ż	┼	Ì		■
F	Ĉ	ĵ	»	┐	¤	█	΄	

PC 855 (Cyrillic)*

CODE	8	9	A	B	C	D	E	F
0	ђ	љ	а	▒	└	л	Я	—
1	Ђ	Љ	А	▒	┴	Л	р	ы
2	ѓ	њ	б	▒	┬	м	Р	Ы
3	Ѓ	Њ	Б	│	├	М	с	з
4	ё	ћ	ц	┤	─	н	С	З
5	Ё	ќ	Ц	х	┼	Н	т	ш
6	е	Ќ	д	Х	к	о	Т	Ш
7	Є	ў	Д	и	К	п	у	э
8	ѕ	ў	е	И	╚	П	У	Э
9	Ѕ	ÿ	Е	╣	╔	╝	х	щ
A	і	џ	ф	║	╩	┌	Х	Щ
B	І	Џ	Ф	╗	╦	█	в	ч
C	ї	ю	г	╝	╠	█	В	Ч
D	Ї	Ю	Г	й	═	┘	ь	
E	ј	ъ	«	Й	╬	Я	Ь	■
F	Ј	Ъ	»	┐	¤	■	ю	

PC 857 (Turkish)*

CODE	8	9	A	B	C	D	E	F
0	Ç	É	á	▒	└	º	Ó	—
1	ü	æ	í	▒	┴	ª	ß	±
2	é	Æ	ó	▒	┬	Ê	Ô	
3	â	ô	ú	│	├	Ë	Ò	¾
4	ä	ö	ñ	┤	─	È	õ	¶
5	à	ò	Ñ	Á	┼	ı	Õ	§
6	å	û	Ğ	Â	ã	Í	µ	÷
7	ç	ù	ğ	À	Ã	Î		¸
8	ê	İ	¿	©	╚	Ï	×	°
9	ë	Ö	®	╣	╔	╝	Ú	¨
A	è	Ü	¬	║	╩	┌	Û	·
B	ï	ø	½	╗	╦	█	Ù	¹
C	î	£	¼	╝	╠	█	ì	³
D	ı	Ø	¡	¢	═	┤	ÿ	²
E	Ä	Ş	«	¥	╬	Ì	̄	■
F	Å	ş	»	┐	¤	■	´	

PC 861 (Icelandic)*

	8	9	A	B	C	D	E	F
0	Ç	É	á	▒	└	┴	α	≡
1	ü	æ	í	▒	┴	┬	β	±
2	é	Æ	ó	▒	┬	├	Γ	≥
3	â	ô	ú	│	├	└	π	≤
4	ä	ö	Á	┤	─	┴	Σ	⌠
5	à	þ	Í	╡	┼	┌	σ	⌡
6	å	û	Ó	╢	╞	┬	µ	÷
7	ç	Ý	Ú	╖	╟	┴	τ	≈
8	ê	ý	¿	╕	╚	┼	Φ	°
9	ë	Ö	⌐	╣	╔	┘	θ	∙
A	è	Ü	¬	║	╩	┌	Ω	·
B	Ð	ø	½	╗	╦	█	δ	√
C	ð	£	¼	╝	╠	█	∞	ⁿ
D	Þ	Ø	¡	╜	═	┤	φ	²
E	Ä	₧	«	╛	╬	┼	ε	■
F	Å	ƒ	»	┐	╧	▄	∩	

PC 866 (Russian)*

CODE	8	9	A	B	C	D	E	F
0	А	Р	а	▒	└	┴	р	Ё
1	Б	С	б	▒	┴	┬	с	ё
2	В	Т	в	▒	┬	├	т	Є
3	Г	У	г	│	├	└	у	є
4	Д	Ф	д	┤	─	┌	ф	Ї
5	Е	Х	е	╡	┼	┌	х	ї
6	Ж	Ц	ж	╢	╞	┬	ц	ў
7	З	Ч	з	╖	╟	┴	ч	ў
8	И	Ш	и	╕	╚	┼	ш	°
9	Й	Щ	й	╣	╔	┘	щ	∙
A	К	Ъ	к	║	╩	┌	ъ	·
B	Л	Ы	л	╗	╦	█	ы	√
C	М	Ь	м	╝	╠	█	ь	№
D	Н	Э	н	╜	═	┤	э	¤
E	О	Ю	о	╛	╬	┼	ю	■
F	П	Я	п	┐	╧	▄	я	

PC 869 (Greek)*

CODE	8	9	A	B	C	D	E	F
0		Ϊ	ϋ		└	Τ	ζ	─
1		Ϊ	ϋ		┴	Υ	η	±
2		Ό	ό		┬	Φ	θ	υ
3			ύ	│	├	Χ	ι	φ
4			Α	┤	─	Ψ	κ	χ
5		Ύ	Β	Κ	┼	Ω	λ	§
6	Ά	Ϋ	Γ	Λ	Π	α	μ	ψ
7		©	Δ	Μ	Ρ	β	ν	΄
8	·	Ώ	Ε	Ν		γ	ξ	¨
9	¬	²	Ζ	╣	╚	⌐	ο	↑
A	¦	³	Η	║	╔	⌐	π	ω	÷
B	«	ά	½	╗	╦		ρ	ϋ
C		£	Θ	╝	╠	╧	σ	ϋ
D	Έ	έ	Ι	Ξ	=	δ	ς	ώ
E	─	ή	«	Ο	╬	ε	τ	■
F	Ή	ί	»	╛	Σ	■	΄	

USSR GOST (Russian)*

CODE	8	9	A	B	C	D	E	F
0	┴	Г	г	А	Р	а	р	Ё
1	┴	┐	┐	Б	С	б	с	ё
2	┬	Ι	┘	В	Т	в	т	/
3	├	L	└	Г	У	г	у	\
4	─		─	Д	Ф	д	ф	/
5	┤	│	│	Е	Х	е	х	\
6	┐	║	║	Ж	Ц	ж	ц	→
7	├	3	Ч	З	Ч	з	ч	←
8	┌	И	Ш	И	Ш	и	ш	↑
9	└	Й	Щ	Й	Щ	й	щ	↓
A	└	║		К	Ы	к	ы	÷
B	┘		║	Л	Ь	л	ь	▲
C	┘		║	М	Ъ	м	ъ	¤
D	┌		║	Н	Э	н	э	¤
E	┌	║	║	О	Ю	о	ю	■
F	Г	┴	║	П	Я	п	я	

BRASCII (Brazilian Portuguese)**

CODE	8	9	A	B	C	D	E	F
0	NUL		SP	°	À	Ð	à	ð
1		DC1	¡	±	Á	Ñ	á	ñ
2		DC2	¢	²	Â	Ò	â	ò
3		DC3	£	³	Ã	Ó	ã	ó
4		DC4	¤	´	Ä	Ô	ä	ô
5			¥	µ	Å	Õ	å	õ
6			¦	¶	Æ	Ö	æ	ö
7	BEL		§	·	Ç	Œ	ç	œ
8	BS	CAN	¨	¸	È	Ø	è	ø
9	HT	EM	©	¹	É	Ù	é	ù
A	LF		ª	º	Ê	Ú	ê	ú
B	VT	ESC	«	»	Ë	Û	ë	û
C	FF		¬	¼	Ì	Ü	ì	ü
D	CR		─	½	Í	Ý	í	ý
E	SO		●	¾	Î	Þ	î	þ
F	SI		─	¿	Ï	ß	ï	ÿ

Abicomp (Brazilian Portuguese)**

CODE	8	9	A	B	C	D	E	F
0	NUL		SP	Ò	¡	ò		
1		DC1	À	Ó	à	ó		
2		DC2	Á	Ô	á	ô		
3		DC3	Â	Õ	â	õ		
4		DC4	Ã	Ö	ã	ö		
5			Ä	Œ	ä	œ		
6			Ç	Ù	ç	ù		
7	BEL		È	Ú	è	ú		
8	BS	CAN	É	Û	é	û		
9	HT	EM	Ê	Ü	ê	ü		
A	LF		Ë	Ÿ	ë	ÿ		
B	VT	ESC	Ì	¨	ì	ß		
C	FF		Í	£	í	ª		
D	CR		Î	·	î	º		
E	SO		Ï	§	ï	¿		
F	SI		Ñ	°	ñ	±		DEL

PC 869 (Greek)*

CODE	8	9	A	B	C	D	E	F
0		Ί	ϊ		╚	T	ζ	─
1		Ί	ΐ	⊥	⊥	Y	η	±
2		Ό	ό		┬	Φ	ϑ	υ
3			ύ	│	├	X	ι	φ
4		Ύ	Α	┤	─	Ψ	κ	χ
5		Β	K	┼	Ω	λ	§
6	Ά	Ψ	Γ	Λ	Π	α	μ	ψ
7		Ο	Δ	M	P	β	ν	¨
8	·	Ω	E	N	Ŀ	γ	ξ	°
9	¬	²	Z	╣	┘	⌐	ο	··
A	¦	³	H	║	┌	π	ω
B	«	ά	½	╗	┬	┌	ϱ	ϋ
C	»	£	Θ	╝	┴	■	σ	ΰ
D	Έ	έ	I	Ξ	═	δ	ς	ώ
E	─	ή	«	O	╬	ε	τ	■
F	Ή	ί	»	┐	Σ	■	΄	

USSR GOST (Russian)*

CODE	8	9	A	B	C	D	E	F
0	┴	┌	┌	А	Р	а	р	Ё
1	⊥	┐	┐	Б	С	б	с	ё
2	┬	┘	┘	В	Т	в	т	/
3	┤	┕	┕	Г	У	г	у	\
4	┤	─	─	Д	Ф	д	ф	/
5	┐	│	│	Е	Х	е	х	\
6	┐	┤	┬	Ж	Ц	ж	ц	→
7	┝	┤	┤	З	Ч	з	ч	←
8	┝	┤	┤	И	Ш	и	ш	↑
9	┕	┤	├	Й	Щ	й	щ	↓
A	┌	┿	┼	К	Ъ	к	ъ	÷
B	┘	│	■	Л	Ы	л	ы	±
C	┘	░	■	М	Ь	м	ь	№
D	┝	░	■	Н	Э	н	э	¤
E	┝	┿	■	О	Ю	о	ю	■
F	┌	┿	■	П	Я	п	я	

Italic

CODE	8	9	A	B	C	D	E	F
0	NUL		SP	0	●	P	'	p
1			!	1	A	Q	a	q
2		DC2	"	2	B	R	b	r
3			#	3	C	S	c	s
4		DC4	$	4	D	T	d	t
5			%	5	E	U	e	u
6			&	6	F	V	f	v
7			'	7	G	W	g	w
8			(	8	H	X	h	x
9	HT	EM	)	9	I	Y	i	y
A	LF		*	:	J	Z	j	z
B	VT	ESC	+	;	K	[	k	{
C	FF		,	<	L	\	l	|
D	CR		–	=	M	]	m	}
E	SO		.	>	N	^	n	~
F	SI		/	?	O	_	o	

No character is available for hex code 15 in the italic character table.

Glossary

The following definitions apply specifically to printers. If a word is italicized, see that topic for more information.

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

bidirectional printing
Printing in which the print head prints in both directions. This increases the speed of printing.

bit
A binary digit (0 or l), which is the smallest unit of information used by a printer or computer.

buffer
The portion of the printer's memory used to store data before printing it.

byte
A unit of information consisting of eight bits.

characters per inch cpi)
A measure of the size of text characters, sometimes referred to as pitch. The printer's default setting is 10 cpi.

character table
A collection of letters, numbers, and symbols that provides you with the characters used in a particular language.

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

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

control code
Special codes used to control printer functions (such as a carriage return or line feed) instead of printing characters.

cpi
See characters per inch.

data dump
A troubleshooting feature that helps advanced users find the cause of communication problems between the printer and the computer. When the printer is in data dump mode, it prints each code it receives in hexadecimal notation and ASCII characters.

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

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

double-width printing
Printing in which each character is twice as wide as normal.

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

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.

form feed
A control code and control panel button that advances the paper to the next top-of-form position.

initialization
Returns the printer to its defaults (fixed set of conditions).

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.*

line feed
A control code that advances the paper one line space.

NLQ printing
One of two print qualities available on your printer. Near letter quality provides better readability and appearance at a reduced print speed. See also *draft printing.*

paper-park position
The position in which the paper is backed out of the paper path but is still attached to the push tractor.

parallel interface
See interface.

printable area
The area of a page on which the printer can print. It is smaller than the physical size of the page due to margins.

push tractor
A detachable device that automatically pushes continuous paper into the printer from the loading side.

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.

reset
To return a printer to its defaults either by sending a command, an INIT signal, or by turning the printer off and then back on.

self test
A method for checking the operation of the printer. When you run the self test, the printer prints the characters stored in its ROM.

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

subscript
Printing in which each character is printed at about two-thirds the normal height in the lower part of the character space.

superscript
Printing in which each character is printed at about two-thirds the normal height in the upper part of the character space.

tear-off
A paper feed operation that automatically feeds the perforation of continuous paper to the tear-off position and then feeds the paper back to the loading position.

tear-off position
The position the printer feeds the paper to at the end of print job. You can change the position in the default-setting mode so that the paper's perforation meets the printer's tear-off edge or passes approximately 80 mm (3 inches) beyond the edge.

top-of-form
The position on the paper that the printer recognizes as the first printable line.

unidirectional printing
Printing in which the print head prints in one direction only. Unidirectional printing is useful for printing graphics because it allows more precise vertical alignment than bidirectional printing.

user-defined characters
Characters that are defined and stored in the printer by the user. Also called download characters.

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