EPSON® ActionPrinter™ 3250

ESC/P2™ EPSON

Printer Parts

narrow cover

printer cover

power switch

control panel

paper cassette

parallel interface

ribbon cartridge

paper-thickness lever

print head

gear

paper guide

AC inlet

FONT/YES FORM FEED/NO

FONT lights — button button

READY light

Control panel

EPSON® *Action Printer*™
3250

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 présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de Classe B prescrites dans le réglement sur le brouillage radioélectrique édicté par le Ministére 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 rain 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

- Information on ESC/P 2 drivers for your software

- Sales of the ESC/P Reference manual, which contains comprehensive information on ESC/P 2

- 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

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 coloured in accordance with the following code:

Green and yellow -- Earth
Blue -- Neutral
Brown -- Live

As the colours of the wires in the mains lead of this appliance may not correspond with the coloured 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 ($\pm$) or coloured green or green and yellow.

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

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

Tips for Printing on Single Sheets

There are a few things you should know about printing on single sheets as opposed to continuous paper. When you print on single sheets, you may notice that your printer prints the first page of your file correctly but then prints too low on the next page, or that it prints the last few lines from one page onto the next.

These differences in print position are easy to adjust; you can simply change some of the settings in your application program as described below to get the right results.

1. When you install an application program, it normally asks you what printer you are using. Make sure you choose the correct printer. See Chapter 1 for the right printer to choose.

2. Many programs include an option to set the maximum lines per page. If your program has a lines-per-page setting and you are using 8 1/2 x 11-inch paper, set the lines per page to 61; for A4, try 65.

Note: To find the right lines-per-page setting for paper that is not 8 1/2 x 11, create a test document using your application program. Set your top and bottom margins to 0 and then create a file of numbered lines from 1 to 66. When you print your file, notice the last number printed on the first page. This is your maximum lines-per-page setting.

3. If your program doesn't have a lines-per-page setting, try decreasing the top margin or increasing the bottom margin, or both, until you get the results you want.

4. You can also try adjusting the form length setting. For a 8 l/2 x 11-inch page, try setting the form length at 10 inches (10.5 inches for A4).

5. Some programs also let you indicate whether you are using single sheets or continuous paper. Make sure you choose single sheets.

Contents

Introduction

Your new Epson® printer is an advanced 24-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 200 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 insert pages manually without removing your paper cassette.

- Epson ESC/P 2. Along with font sizes scalable from 8 to 32 points, this powerful printer control language has enhanced graphics for sharp, 360 x 360 dots-per-inch output.

- Compatibility. The printer supports the Epson ESC/P® commands widely used in application programs written for other Epson LQ and SQ 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 five 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.

In addition, you can install an optional push tractor (C80026*) 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.

* This number varies by country. See your Epson dealer for the correct number for your country.

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.
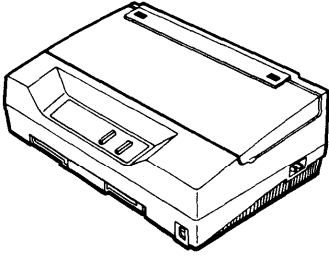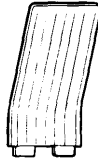
printer   output guide   ribbon cartridge*
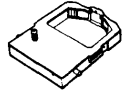
power cord**   cable clip   push tractor***
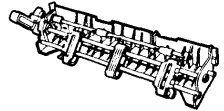
* The ribbon cartridge is attached near the parallel interface connector with a piece of tape.

** 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
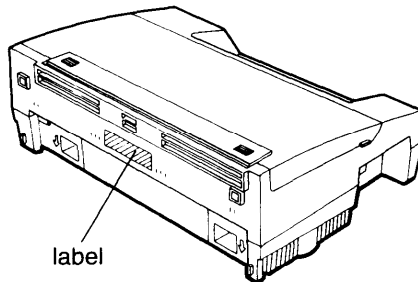
Removing the protective materials

During shipping, a 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 two protectors from inside the printer.
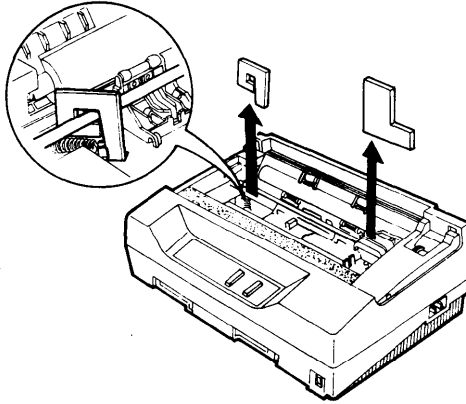
2. Pull the paper cassette out of the printer. Remove the tape that holds down the metal plate in the cassette during shipping.

tape
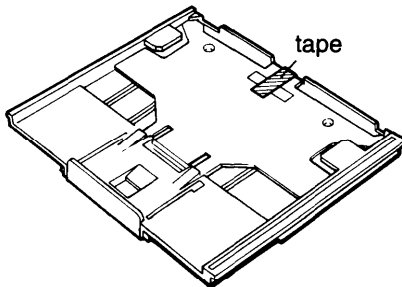
Note: Store these protective items with the other packing materials.

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.
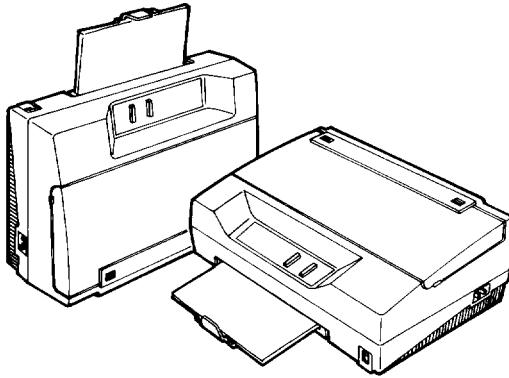
When selecting a place for your printer, follow these guidelines:

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

- 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 9 kg (20 lbs).

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

- Make sure to provide enough clearance below the stand and between the legs 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 optional 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.
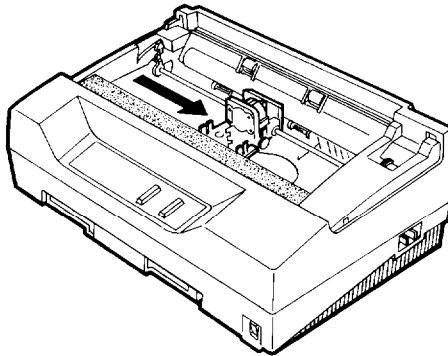
> **CAUTION:** Never move the print head while the printer is turned on; this can damage the printer. Also, if you have just used the printer, let the print head cool for a few minutes before you touch it.

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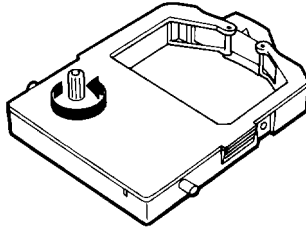
3. Insert the ribbon cartridge into the printer as shown; then press both sides of the cartridge firmly to fit the plastic posts into the slots.
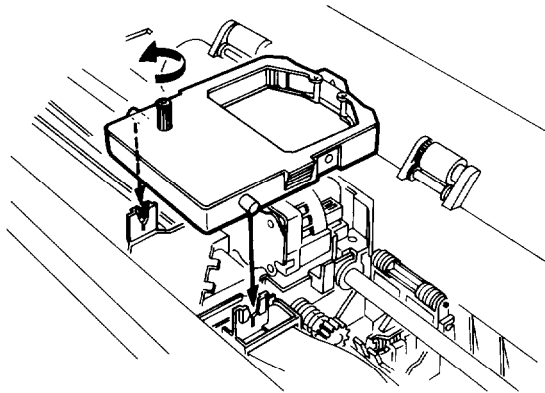
4. Turn the ribbon-tightening knob to feed the ribbon into place. Make sure it is not twisted or creased.

5. Replace the printer cover by inserting its tabs into the holes on the printer as shown below; then close the cover.
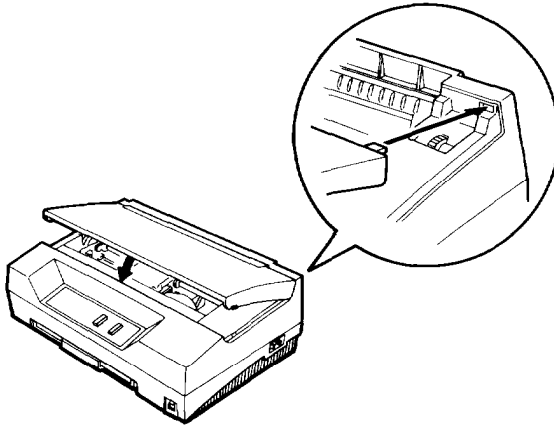
Attaching the Output Guide

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.
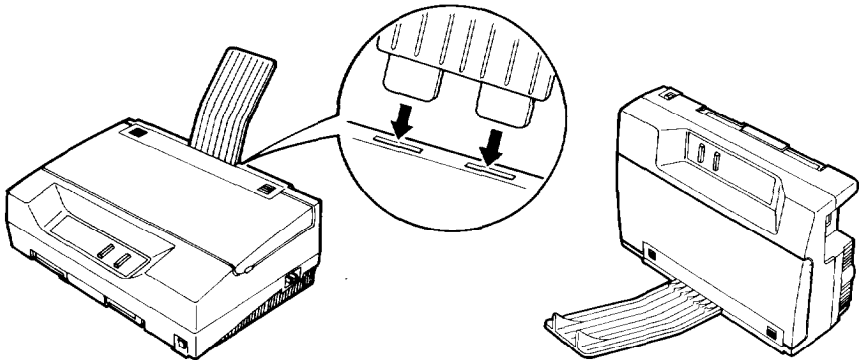
Plugging in the Printer

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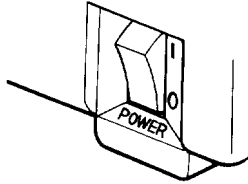
2. Check the label on the back of the printer to make sure the voltage required by the printer matches that of your electrical outlet.

> 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.

Loading paper into the paper cassette

1. Pull the paper cassette out of the printer.
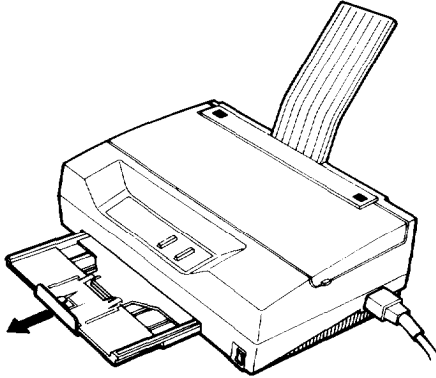
2. Fan a stack of A4- or letter-size paper and then tap it on a flat surface to even the edges.

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

3. Pull out the paper support.
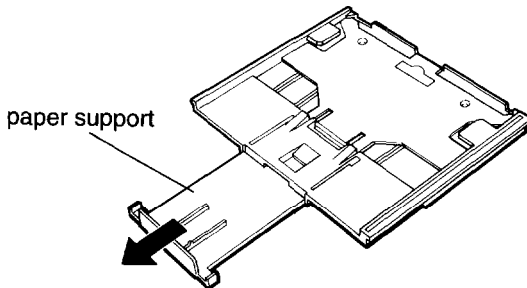
paper support

4. 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.
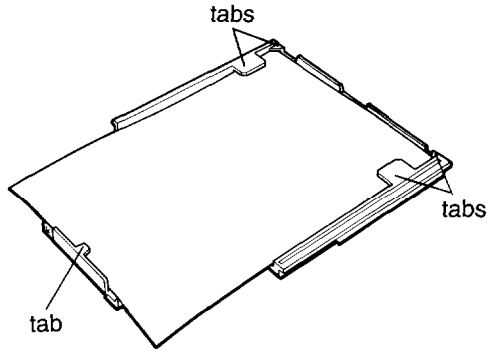
5. Insert the paper cassette into the printer as far as it will go. The edge of the paper stack extends beyond the front of the printer.
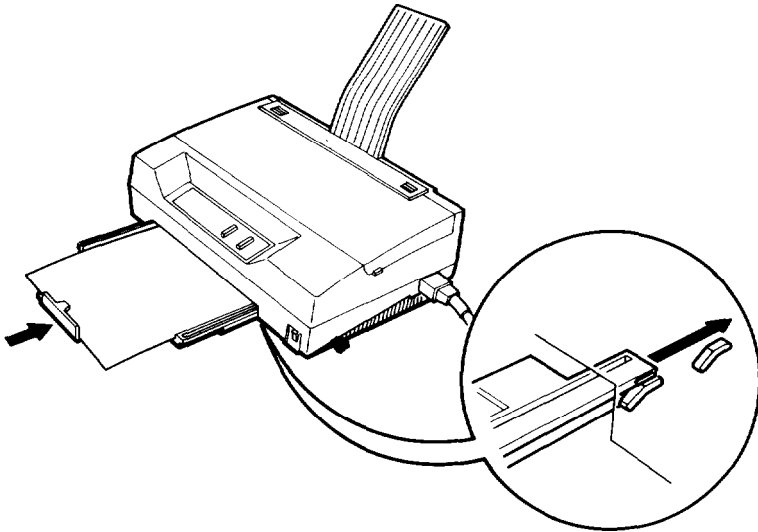
Running the test

1. Make sure the printer is turned off.

2. While holding down the **FORM FEED** (m) button, turn on the printer. 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:

```
 !"#$%&I()*+,-./0123456789:;<=>?@ABCDEFGHIJKL
!'I#$%&'( )*+,-. /0123456789:;<=>?@ABCDEFGHIJKLM
"#$%&I()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMN
#$%&I()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNCJ
$%&I ()*+,-. /0123456789:;<=>?@ABCDEl?GHIJKLMNOP
%a'()*+,-. /0123456789:; <=>?@ABCDEFGHIJKLMNOPQ
%I()*+,-. 10123456789:; <=>?@ABCDEFGHIJKLMNOPQR
```

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

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

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 shielded twisted-pair parallel 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.
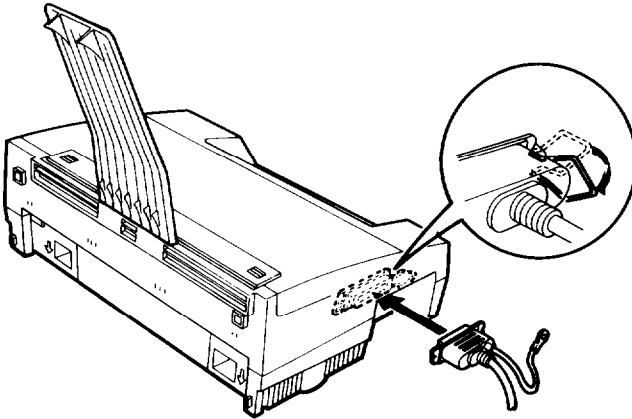
Note: If your cable has a ground wire, connect it to the ground connector below the interface connector.

3. Put the cable through the cable clip; then insert the clip in the slot on the bottom of the printer.
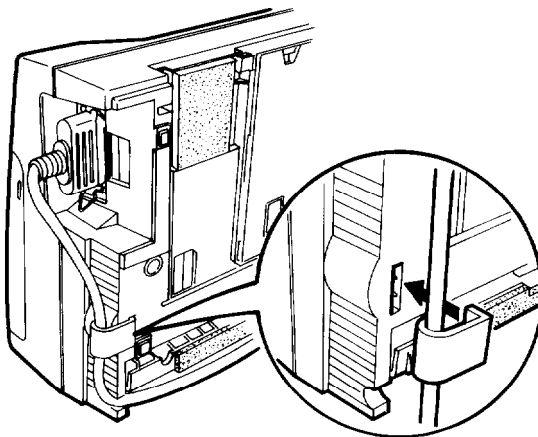
4. Plug the other end of the cable into the computer. If there is a
    ground wire at the computer end of the cable, attach it to the
    ground connector at the back of the computer.

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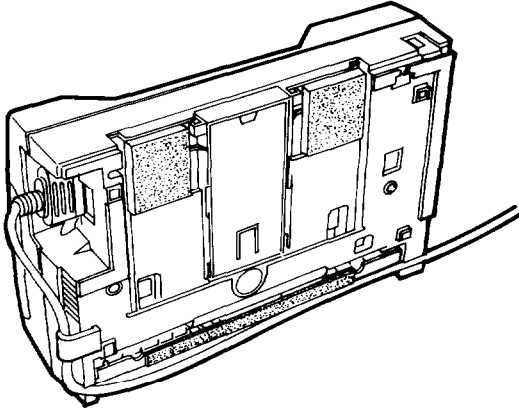
Setting Up Your Application Software

Most application 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 an installation or setup menu that
presents a list of printers.

To take full advantage at your printer's features, including ESC/P 2, choose one of the first four printers on the list below. If none of these is listed, contact your software manufacturer for an update that includes one of the four. Until you receive an update, choose another printer as close to the top of the list as possible.

LQ-100
ActionPrinter 3250   ESC/P2
LQ-570
LQ-870

LQ-510/550
LQ-860
LQ-850
LQ-200
LQ-500   ESC/P
LQ-2550
LQ-2500
LQ-800
LQ-1500

If none of these printers is listed among your program's options, select the first available of the following: EX, FX, LX, RX, MX, Epson printer, Standard printer, Draft printer. Because these are 9-pin printers, however, your graphics printing may not be correct.

Printing a test file

After you select the most appropriate printer as described above, 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 application program.

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

Note: When you print full resolution graphics (360 x 360 dpi), the result may have a slightly smudged appearance. If this occurs, choose a lower resolution in your application software.

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

To review the steps for loading paper in the paper cassette, see "Loading paper into the paper cassette" on page 1-9. The tips below help you get the best performance when printing with the cassette.

- Load paper in the paper 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 **FORM FEED** button to load the paper.

- Press the **FORM FEED** 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 application 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.
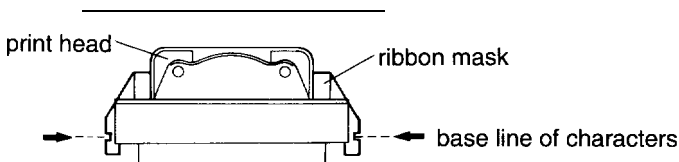
- When you want to push the paper support back into the paper cassette, first remove paper from the paper cassette. Then push the paper support in while pushing down on the locking tab.

paper support
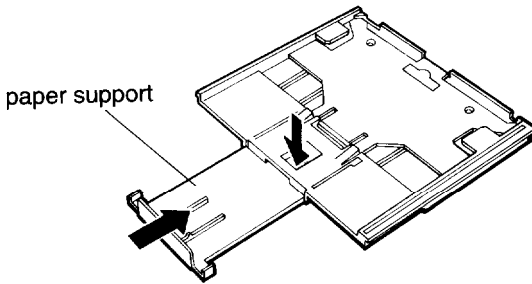
- The default page length for the paper cassette is 65 lines (A4-size paper) or 61 lines (letter-size paper). You can change it using your application software or printer commands, if necessary. See the Appendix for more about printer commands.

- You can switch to manual insertion or to the optional 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 optional 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.
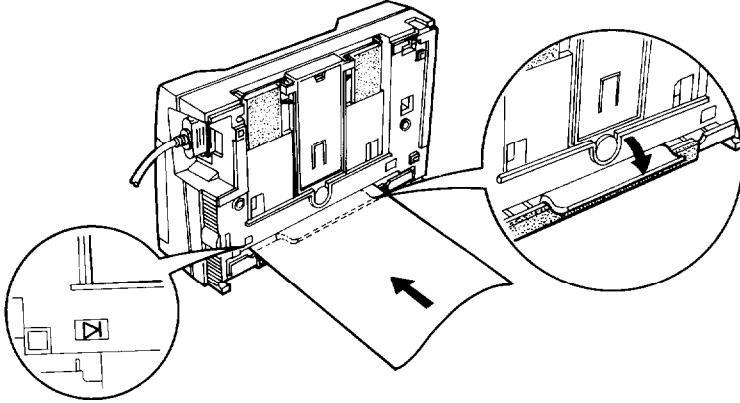
Be sure to raise the flap when not using manual insertion.

> **CAUTION:** Be sure to turn on the printer before you insert the page into the slot. If you turn on the printer after paper insertion, 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 **FORM FEED** button without inserting a page into the rear slot. The printer loads a page from the cassette.

Using Continuous Paper with Optional Push Tractor

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

Installing the push tractor

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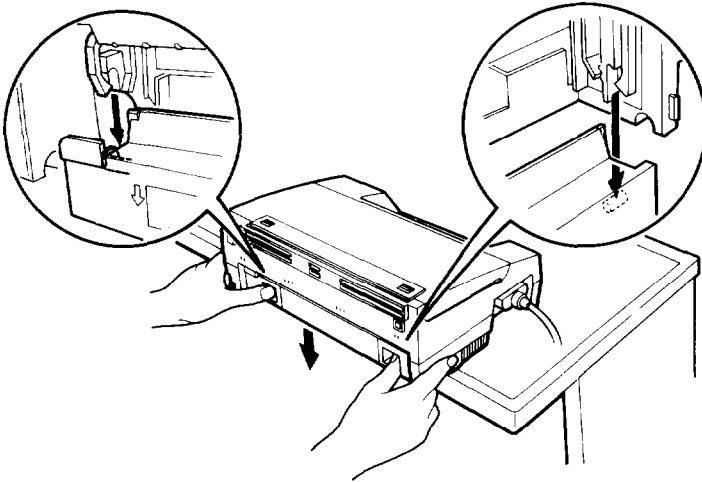
2. Make sure the paper-release lever is lowered to the single-sheet position.

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.
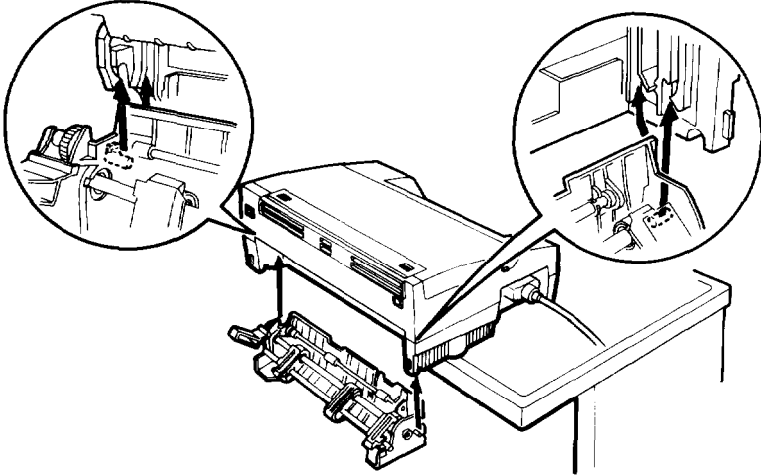
4. Raise the paper-release lever to the continuous-paper position.
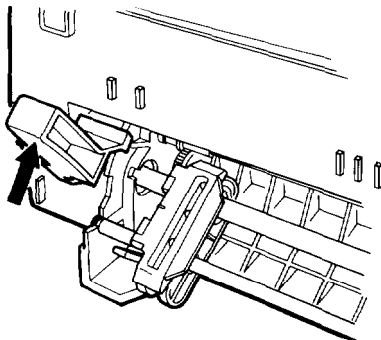
Loading continuous paper

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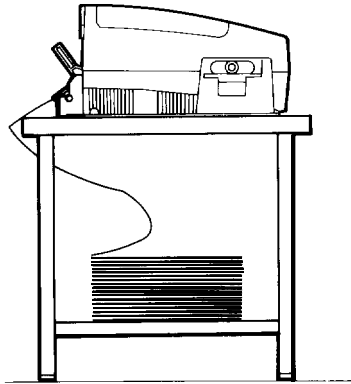
2. Make sure the paper-release lever is in the upper position.

3. Release the sprocket units by pushing the lock levers up.

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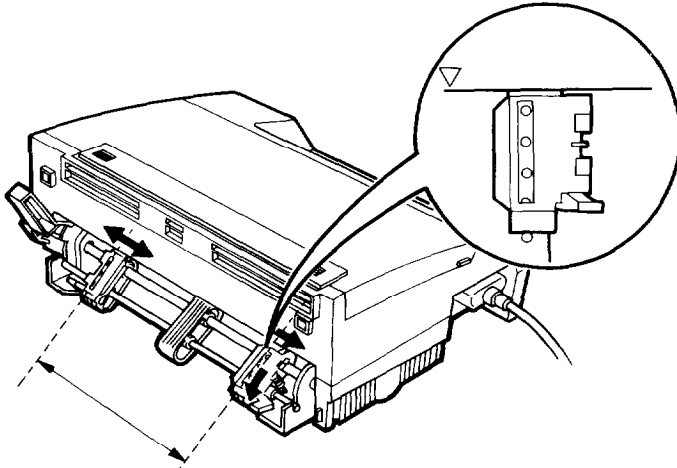
5. Position the paper support midway between the two sprocket units. Open both sprocket covers.
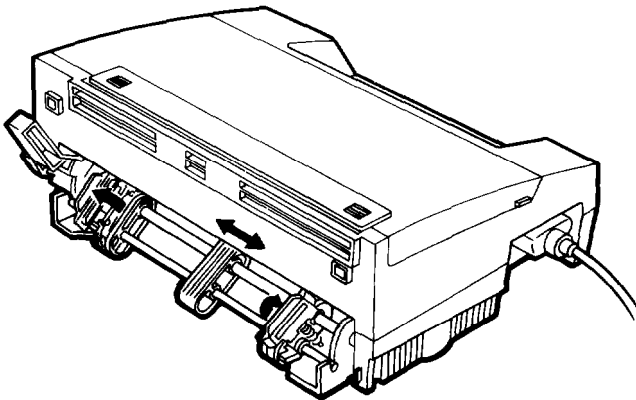
6. Make sure your paper has a clean, straight edge. Fit the first four holes of the paper over the sprocket pins, and then close the sprocket covers. Slide the left sprocket unit to remove any slack in the paper. Then push the lock lever down to lock it in place. Note that this printer prints on the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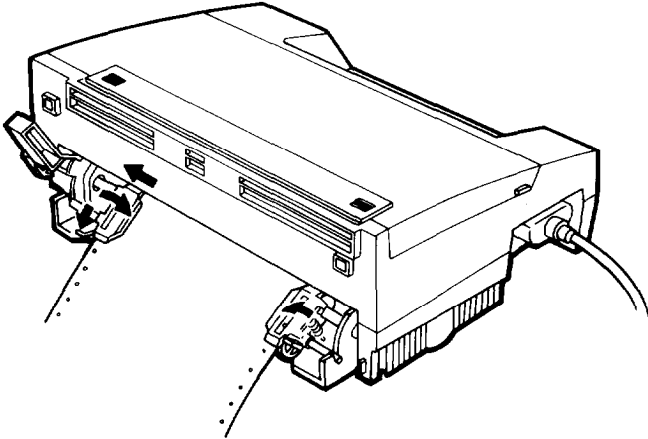
7. Turn on the printer. It advances the paper to the loading position automatically when it receives data.

Note: If the printer runs out of paper during a print job, attach additional paper to the push tractor and press the **FORM FEED** 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 by pressing the **FORM FEED** and **FONT** buttons at the same time.

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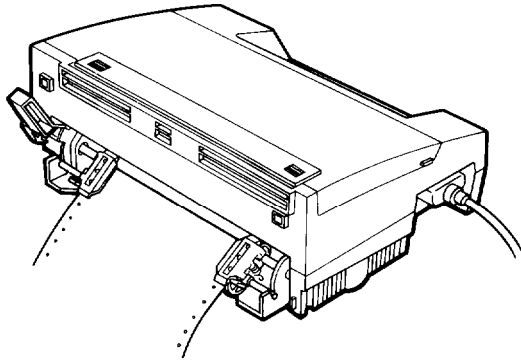
• If you want to change the top-of-form position permanently, adjust it with the default-setting mode as described in Chapter 3.

• 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.

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 saves 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 eight centimeters (three inches) beyond, by setting the tear-off option as described in Chapter 3.

Here's how the tear-off feature works:

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

2. The **READY** light (m) 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 **FORM FEED** 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.

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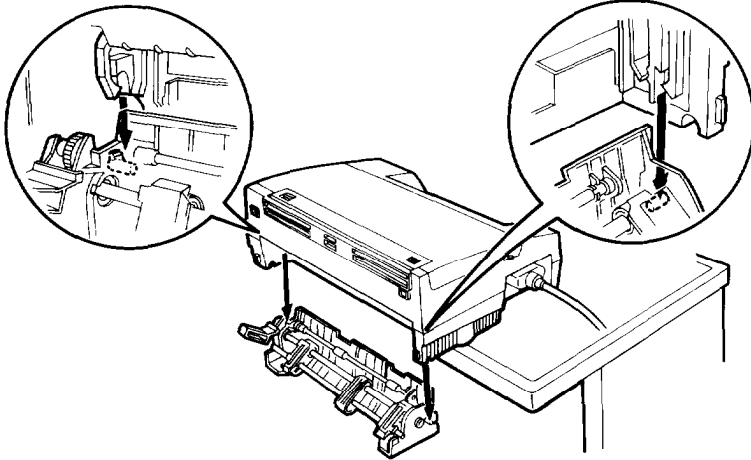
4. Replace the paper guide.
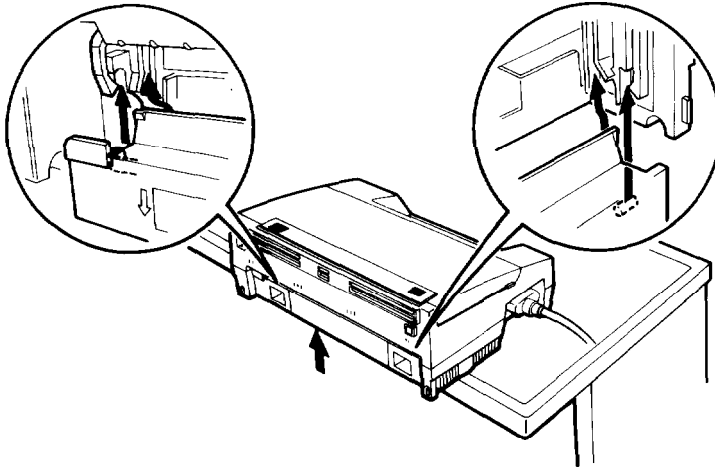
Switching Between Continuous Paper and Single Sheets

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 **FORM FEED** 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.
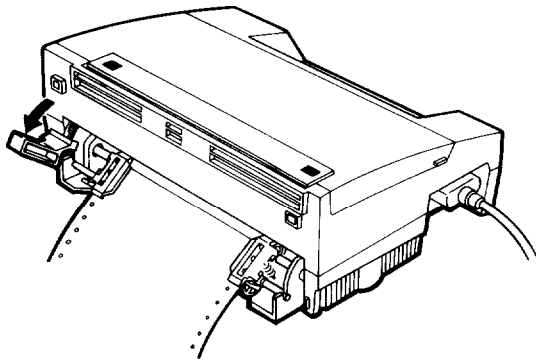
> **CAUTION:** If you lower the paper-release lever while continuous paper is still loaded, the printer beeps and the **READY** light goes off. If this happens, raise the paper-release lever and press the **FORM FEED** and **FONT** buttons at the same time to reverse the paper to the paper-park position. 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, press the **FORM FEED** button to eject it.

2. Raise the paper-release lever to the push-tractor 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. In this case, lower the paper-release lever and press FORM FEED to eject the page completely. You can then raise the lever again.

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

Adjusting the paper-thickness lever

Before you print on special paper, you may need to change the paper-thickness setting for the paper you are using.

1. Remove the printer cover and set the paper-thickness lever to match the thickness of your paper. Choose the setting from the table below.
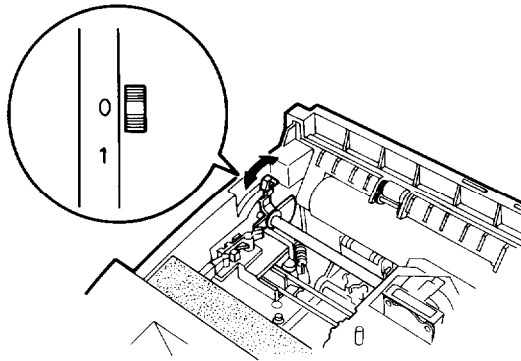
-PaperType	Lever Position
Ordinary (single sheets or continuous)	0
Multi-part forms (carbonless) 2 sheets (original + 1 copy)	0
Labels	1
Envelopes	1

Note: Setting the paper-thickness lever to 1 reduces the printing sneed.

2. Replace the cover.

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, set the paper-thickness lever to position 1 and lower the flap on the printer's rear.

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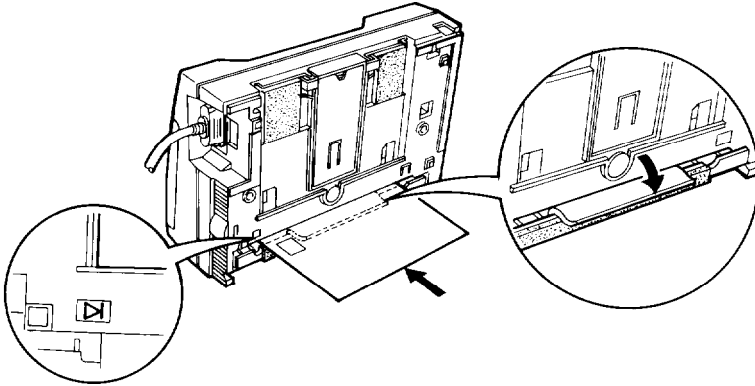
• Use envelopes under normal operating conditions only.

• Printing on the edge of an envelope can damage the print head. Make sure your application 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 two parts
(one original plus one copy).

*   Set the paper-thickness lever to position 0 when printing on
    multi-part forms.

*   Load multi-part forms with the optional 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
    application 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

You can use the push tractor to print on labels. For best results, pay
attention to these special considerations:

*   Always choose labels mounted on a continuous backing sheet
    with sprocket holes for use with a tractor. Do not try to print
    labels on single sheets because labels on a shiny backing sheet
    almost always slip a little.

*   Always set the paper-thickness lever to position 1.

*   Never feed labels backward. They can easily peel off the backing
    and jam the printer.

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

- Make sure the printing stays entirely within the printable area of labels. For more information on the printable area, see the Appendix.

- Never leave labels loaded in the printer between jobs; if you turn on the printer with labels loaded, the printer feeds them backward to the paper-park position, possibly resulting in a jam.

Here's the correct way to remove labels from the printer:

1. Tear off the fresh supply of labels at the rear of the printer.
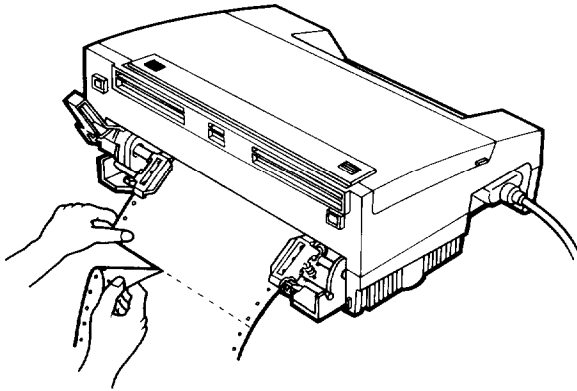
2. Press the **FORM FEED** button to advance the remaining labels out of the printer.

Chapter 3

Using the Printer

3

Operating the Control Panel

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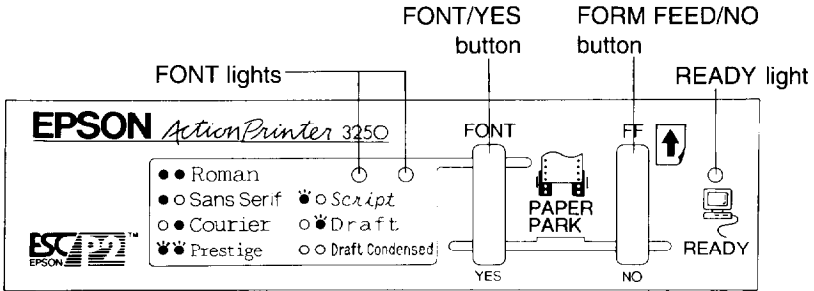
Lights

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

READY

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 optional push tractor is installed).

• The printer is overheated. (In this case, the printer waits until the print head cools and then resumes printing.)

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

FONT

The two **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 determine which font is selected. For instructions on selecting fonts with the **FONT** button, see page 3-5.

Buttons

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

FONT/YES

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

When you are in the default-setting mode, use this button to enter a positive response to a printer question or to select a new default setting. For more information about the default-setting mode, see page 3-6.

FORM FEED/NO

Press the **FORM FEED** button during normal operation to load a single sheet of paper or to advance continuous paper to the next top-of-form. You can also press **FORM FEED** to eject a page.

When you are in the default-setting mode, use this button to enter a negative response to a printer question or to skip to the next setting. For more information about the default-setting mode, see page 3-6.

PAPER PARK

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

> **CAUTION:** Never feed labels backward through the printer; they may peel off their backing sheet and damage it. Use the **FORM FEED** button to feed them forward.

Other control-panel features

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

Self Test   The self test lets you check whether your printer is operating properly. To run the self test, see page 1-8.

Hex dump   The hex dump allows advanced users to pinpoint communications problems between the printer and computer. For instructions on running a hex dump, see page 3-13.

Demonstration   The demonstration page is a printout of text and type enhancements that show2 you the unique capabilities of your printer. To print the demonstration page, see page 3-13.

Selecting Character Fonts

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

FONT

Y E S

The two **FONT** lights come on (O), go off (0), and flash (6) to indicate the current selection. The table below lists the fonts and shows how the **FONT** lights appear for each selection.

Font	FONT Lights	Sample
Epson Roman	● ●	ABCDEFGhijklm0123456789
Epson Sans Serif	● ○	**ABCDEFGhijklm0123456789**
Epson Courier	○ ●	ABCDEFGhijklm0123456789
Epson Prestige	● ●	ABCDEFGhijklm0123456789
Epson Script	● ○	*A B C D E F G h i j k l m 0 1 2 3 4 5 6 7 8 9*
Epson Draft	○ ●	ABCDEFGhijklm0123456789
Draft condensed	○ ○	ABCDEFGHIJKLM0123456789

● on   ○ off   ● flashing

The Roman and Sans Serif fonts can be scaled (or sized) from 8 to 32 points in 2-point increments, using your application software or ESC/P 2 commands. If you need information about controlling font size with your application software, see your software user's guide. For a list of printer commands available with this printer, see the Appendix.

Using the Default-Setting Mode

Your printer comes with a series of internal settings that control a variety of printer functions, such as page length and top of form position. Because these settings take effect each time you turn on the printer, they are called default settings.

The factory default settings are designed to meet the needs of most users, so you may not need to change them. The table below lists all the features you can set in the default-setting mode.

Setting	Options

Character table	Non-European version:
	  437,850,860,863,865
	European version:
	  437,850,860,863,865,437 Greek,
	  851, 852, 053, 855, 857, 864, 866, 869,
	  or USSR GOST

Page length (for continuous paper)	11 in., 12 in., 8.5 in., or 70/6 in. (A4)
Skip-over-perforation	On or Off
Tear-off position	On cutter or Above cutter
TOF position	-3, -2, -1, +O, +I, +2, or +3
Graphic print direction	Unidirectional or Bidirectional
Download	On or Off
Auto line feed	On or Off
Hex dump/demonstration	Hex dump or Demonstration

Note: Most application programs control the printer features listed here. If you can use your application 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 application program documentation for more information.

If you find that you do need to change a default setting, you can make your changes with the YES and **NO** buttons on the control panel.
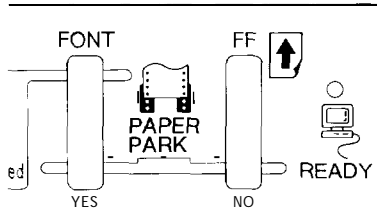
Here's a quick overview of how you change your printer settings:

1. Enter the default-setting mode.
2. Use the YES and **NO** buttons to respond to printed questions.
3. Turn off the printer to exit the default-setting mode.

See the next section for step-by-step instructions. For a short summary of each printer feature, turn to page 3-11.

Changing the default settings

1. Make sure the printer is turned off and paper is loaded in the paper cassette. If you installed the optional push tractor, you can use continuous paper.
2. Slide the narrow cover off of the printer cover as shown. This makes it easier to read the printed messages.
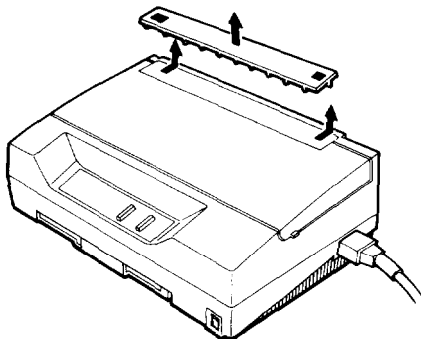
3. To enter the default-setting mode, hold down the **YES** button
    while you turn on the printer. The printer loads a sheet of paper
    automatically and prints a message:

    English?   YES/NO

    You can print the messages in the default-setting mode in
    English, French, German, Italian, or Spanish.

4. To choose English, press YES.

    To choose another language, press **NO.** The printer prints another
    selection. Continue to press the **NO** button until the language you
    want to select appears; then press YES.

    Once you press the **YES** button, the printer saves the setting and
    uses your selected language to print a list of the current default
    settings and instructions for changing them. Here's a sample of
    what you'll see:

Current Settinss:

Meesage Language	:English	Message Direction	:Normal
Character Table	:860	Page Length	:II inch
Skip Over Perforation	:On	Tear+ff Position	:On cutter
TOF Position	:±0	Graphic Print Direction	:Uni-D
Download	:On	Auto Line Feed	:Off
Hex Dump/Demonstration	:Hex Dump		

*Each printer feature will now be printed in turn, with a /settings for that feature. The current setting will be
underlined. If you do not want to change the setting p/ control panel. If you press YES the next setting will be
printed. If there are several possible setting then eac /ting will be printed in turn – press NO until the setting
you want is printed. When you press YES that setting / d the next printer feature will be printed.*

    Each of the features you can change appears on this list.

5. Next, the printer prints the first question.

    Message Direction: <u>Normal.</u> Upside-down   Change? YES/NO

Note: If you are using the push tractor, the printer skips this
question. You cannot change the message direction for the push
tractor.

The steps for changing all settings are identical.

Look at the underlined setting. If it is correct and you do not want to change it, press **NO;** the printer goes on to the next feature.

If you want to make a change, press **YES.** When you press **YES,** the printer prints the next option available for the current setting, followed by OK? YES/NO. You can continue to press **NO** until the option you want to select appears; or press YES to select it. When you press **YES,** the printer saves the new setting and goes on to the next feature.

For example, you might want to press YES to change the message direction to upside down if you are using the printer in the upright position. If you press **YES,** the printer adds a new message line:

Message Direction: <u>Normal.</u> Upside-down   Change? YES/NO
                  Upside-down   OK? YES/NO

If you press **YES,** the printer changes the print direction and goes on to the next feature. If you press **NO,** the printer adds a third line:

Message Direction: <u>Normal</u>, Upside-down   Change? YES/NO
                  Upside-down   OK? YES/NO
                  Normal   OK? YES/NO

Press **YES** to choose the normal print direction. The printer saves the setting and goes on to the next feature. If you make a mistake and press **NO,** don't worry. The printer repeats the available options until you make your choice with the **YES** button.

6. Continue answering the questions with the **YES** and **NO** buttons to change as many default settings as you like. Your settings are saved automatically and remain in effect until you change them again.

Note: Press the **NO** button quickly several times to skip over features that you do not wish to change.

7. After you reach the last feature (Hex Dump/Demonstration) and make your selection, the printer prints a list of the new default settings.

8. To exit the default-setting mode, at any time, turn off the printer. Any changes you make remain in effect until you change them again.

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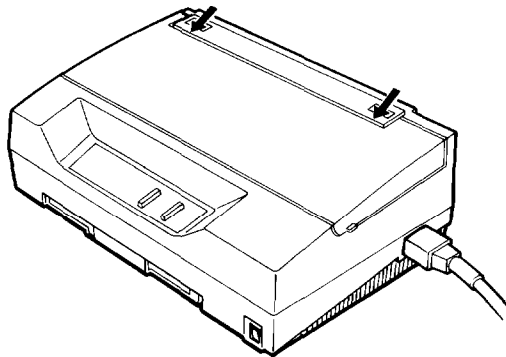
Default setting features

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

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:

Non-European version:
- PC 437 (USA, standard Europe)
- PC 860 (Portuguese)
- PC 865 (Nordic)
- PC 850 (Multilingual)
- PC 863 (Canadian-French)

European version:
- PC 437 (USA, standard Europe)
- PC 860 (Portuguese)
- PC 865 (Nordic)
- ☞ 851 (Greek)
- PC 853 (Turkish)
- PC 857 (Turkish)
- PC 866 (Russian)
- USSR GOST (Russian)
- PC 850 (Multilingual)
- PC 863 (Canadian-French)
- ☞ 437 Greek (Greek)
- PC 852 (East Europe)
- PC 855 (Cyrillic)
- PC 864 (Arabic)
- ☞ 869 (Greek)

For specific characters, see "Character Tables" in the Appendix.

Page length

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

Skip-over-perforation

When this option is set to on, the printer skips over the perforations of continuous paper, so that it provides a l-inch margin between the last line printed on one page and the first line printed on the next. Since most application programs insert their own top and bottom margins, you should use this feature only if your program does not provide them. This feature is active only if you install the optional push tractor.

Tear-off position

When you use continuous paper with the optional push tractor, this feature advances the paper so you can tear off the printed page and then reverses the paper so you can use all of the next sheet. You can choose from two tear-off positions with this printer.

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.

TOF (top-of-form) position

Whenever you press the **FORM FEED** 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 - .33 inches - from the top edge of paper). You can set this position from -3 to +3 in l-mm (.04 inches) increments.

Graphic print direction

Printing is normally bidirectional. However, unidirectional printing allows for precise vertical alignment of print dots. If you select unidirectional printing, the printer prints graphics unidirectionally even if you select bidirectional with the ESC UO software command.

Download

You must turn on the download function before you download fonts or other user-defined characters to the printer memory. If you are not using user-defined characters, you can turn it off to increase the printer's memory capacity.

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 option off. If text lines print on top of each other, set it on.

Hex dump/Demonstration

The hex dump/demonstration feature lets you print a hexadecimal dump or a demonstration page. If you choose Hex dump, the printer prints the exact codes (in hexadecimal format) reaching it from the computer. You can analyze this information to isolate communication problems. If you select Demonstration, the printer prints a page describing and demonstrating many of the features available with your printer.

Once you select hex dump or demonstration, turn off the printer and wait five seconds. Then hold down both the **FORM FEED** and **FONT** buttons while you turn on the printer to enter the hex dump mode or print the demonstration page.

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. Epson recommends the SO15032 ribbon cartridge.

> 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 the unit.
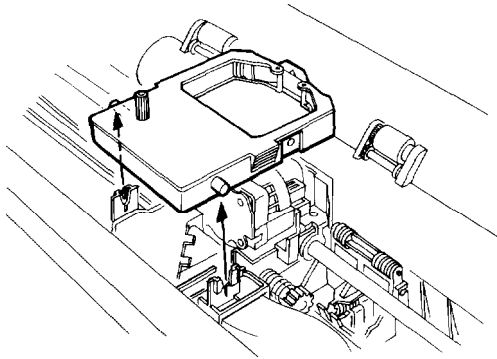
To replace the ribbon cartridge, follow the steps in "Installing the Ribbon Cartridge" in Chapter 1.

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.

2. Unplug the power cord from the electrical outlet; then disconnect the interface cable from the printer.

3. Remove the output guide.

4. Remove the optional push tractor, if installed.

5. Remove the ribbon cartridge.

6. Attach the protective materials to the printer and paper cassette. See page l-3.

7. 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 3-17.

Printing

- The printer does not print.   See 3-17.
- The print is faint or uneven.   See 3-18.
- Dots are missing in printed characters or graphics.   See 3-19.
- Printed characters are not what you expected.   See 3-19.
- The print position is not what you expected.   See 3-20.

Paper handling

- Single sheets do not feed properly from the paper
  cassette.   See 3-21.
- Single sheets do not feed properly from the manual
  insertion slot.   See 3-22.
- Continuous paper does not feed properly.   See 3-22.

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.
```

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

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

    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.

- *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.
```

- *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.

- *The READY light is-flashing.*

    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 READY light is flashing but the printer does not print □□ it stops printing abruptly.*

  The print head is overheated. Wait a few minutes; the printer will resume printing automatically when the print head cools.

- *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 3-23.)

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.

   Check that the paper-thickness lever is set correctly for the paper you are using. See "Adjusting the paper-thickness lever" in Chapter 2.

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 application 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 application software to specify the type of paper you are using (single sheet or continuous) and to set the lines-per-page setting. These settings take into account the different requirements of the two printing methods.

    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 application software.

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

    Check the page length set by your application software and adjust 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.

●   *Vertical printed lines do not align.*

> Set the graphic print direction to Uni-D for unidirectional printing in the default-setting mode. For instructions, see "Changing the default settings" on page 3-7.

Note:
●   You can use hex dump mode to find the cause of communication problems between the printer and your application programs. See page 3-13.
●   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 optional 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 **FORM FEED** 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 FORM FEED 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.

- *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-thickness lever is set correctly for the paper you are using. See "Adjusting the paper-thickness lever" in Chapter 2.

     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 skeets and continuous paper, the beeper sounds several times and the READY light goes 0ff.*

     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.

Appendix

A

Technical Specifications

Printer specifications

Printing

Printing method: 24-pin impact dot matrix

Printing speed:

Quality	Characters/inch	Characters/second/line
Draft	IO	167
	12	200
LQ	10	60
	12	72

Printing direction: Bidirectional logic-seeking for text and graphics. (Unidirectional for graphics can be selected with the default-setting mode or the proper software command.)

Line spacing: l/6 inch, l/8 inch, or programmable in l/360-inch increments

Paper feed speed: 91 ms per l/6-inch line; 2.22 inches/second with continuous feed

Input buffer: 1l KB when download default setting OFF
1.75KB when download default setting ON

Printable columns:

Character sizes	Maximum printed characters
IO cpi	80
IO cpi condensed	137
12 cpi	96
12 cpi condensed	160
15 cpi	120

Resident fonts:

Font	10 cpi	12 cpi	15 cpi	Proportional
Epson Draft	○	○	○	
Epson Roman	○	○	○	○
Epson Sans Serif	○	○	○	○
Epson Courier	○	○	○	
Epson Prestige	○	○		
Epson Script	○	○		

You can also select other font/pitch combinations using ESC/P 2 commands. See the command summary later in this chapter for details.

Scalable fonts:

Font	Min pt	max pt	Increments
Epson Roman	8	32	2 pt
Epson Sans Serif	8	32	2 pt

Character tables:	One italic and 15 graphics character tables for European version One italic and 5 graphics character tables for non-European version
Character sets:	14 international character sets and one legal character set

Paper

Single sheets (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/m² (17 to 24 lb) • Use 90 g/m² (24 lb) paper under normal conditions.
Input paper supply	50 sheets for 82 g/m² (22 lb) 60 sheets for 64 g/m² (17 lb) Total thickness of paper stack should be less than 5 mm (0.2 inches).

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 0.0197 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.

Printable area:

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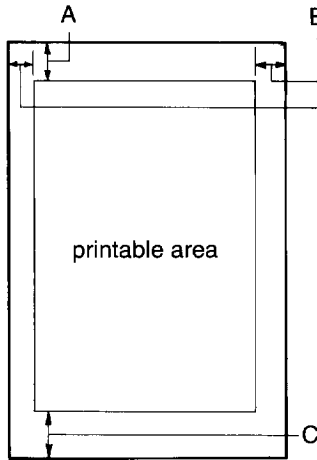
A   The minimum top margin is 8.5 mm (0.33 inches).

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).

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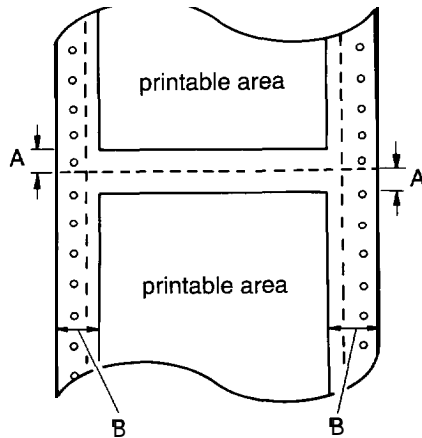
A   The minimum top and bottom margins above and below the perforation are 9 mm (0.35 inches).

B   The minimum left and right margins are 13 mm (0.51 inches).
The maximum printable width is 203 mm (8 inches).

Mechanical

Paper-feed methods:	Friction (paper cassette and manual insertion) Push tractor (optional)
Ribbon:	Black ribbon cartridge SO15032 Life expectancy: 2 million characters at 48 dots/character
MTBF:	4000 power-on hours (10% duty)
Print head life:	100 million strokes/wire
Dimensions and weight:	Height 130 mm (5.1 inches) Width 375 mm (14.8 inches) Depth 252 mm (9.9 inches) Weight 4.5 kg (10 lb)

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: | 30 W (during self-test printing in draft mode at 10 cpi)
Dielectric strength: | AC 1 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: | 30 W (during self-test printing in draft mode at 10 cpi)
Dielectric strength: | AC 1.5 kV rms, 1 second (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: | 30 W (during self-test printing in draft mode at 10 cpi)
Dielectric strength: | AC 1.5 kV rms, 1 second (between AC line and chassis)

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

Environmental

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

Humidity (withouf condensation):

| | Operation: | 30 to 80 %RH |
| | Storage: | 5 to 85 %RH |

Safety approvals

Safety standards:

| | US model: | UL1950 with D3, CSA22.2 #220 |
| | European model: | EN 60950 (TUV), IEC 950 (SEMKO, DEMKO, NEMKO, SETI) |

| *RFI:* | US model: | FCC class B |
| | European model: | VDE0871, CISPR PUB.22 |

Interface specifications

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

Specifications and pin assignments

The built-in parallel interface has the following characteristics:

Data format: 8-bit parallel

Synchronization: $\overline{\text{STROBE}}$ pulse

Handshake timing: BUSY and $\overline{\text{ACKNLG}}$ 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 DATA8	IN IN IN IN IN IN IN IN	These signals represent information of the 1st to 8th bits of parallel data, respectively. Each signal is at HIGH level when data is logical 1 and LOW when it is logical 0.
10	28	ACKNLG	OUT	About a IO-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 the printer cannot receive data. The signal goes HIGH in the following cases: 1) During data entry (ea. char. time) 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 .O KQ 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 to on in the default-setting mode.)

Signal Pin	Return Pin	Signal	Direction	Description
15	-	NC	–	Not used
16	–	GND	–	Logic ground level
17	–	CHASSIS GND	–	Printer's chassis ground, which is isolated from the logic ground
18	–	NC	–	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	-	NC	-	Not used
35	-		OUT	Pulled up to 5V through 1 .O KQ resistance.
36	-	NC		Not used

Note:
- The column heading "Direction" refers to the direction of signal flow as viewed from the printer.
- "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.
- 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.
- 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.

Interface timing

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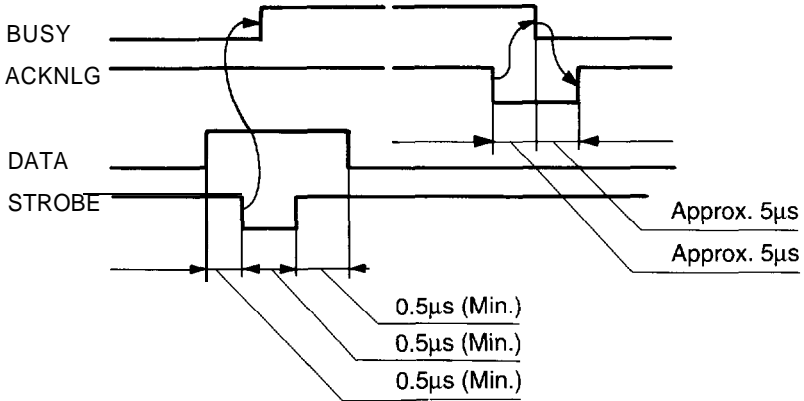
Initialization

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

Hardware initialization	* The power is turned on. * The printer receives an INIT signal from the parallel interface (pin 31 goes LOW).
Software initialization	* 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
Character size	10.5 point
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

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

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

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

General operation

ASCII	Dec.	Hex.	Description
ESC@	64	40	Initialize Printer
ESCUl/O	85	55	Turn Unidirectional Mode On/Off
ESCEMn	25	19	Control Paper Loading/Ejecting n = "R" Eject a sheet

Paper feeding

ASCII	Dec.	Hex.	Description
CR	13	0D	Carriage Return
FF	12	0C	Form Feed
LF	10	0A	Line Feed
ESC 0	48	30	Select 1/8-inch Line Spacing
ESC 2	50	32	Select 1/6-inch Line Spacing
ESC3 n	51	33	Set n/180-inch Line Spacing
ESC+n	43	2B	Set n/360-inch Line Spacing

Page format

ASCII	Dec.	Hex.	Description
ESC(cnn	40 99	28 63	Set Page Format ESC(c4OmZm2nln2 *m=ml + m2 x256* m: Top margin in defined units $n = nl + n2 x 256$ n: Bottom margin in defined units
ESC(Cnn	40 67	28 43	Set Page Length in Defined Unit ESC(C20nln2 n = nl + n2 x 256 n: Number of defined units
ESCCn	67	43	Set Page Length in Lines *n* = Number of lines
ESCCOn	67	43	Set Page Length in Inches n = Number of inches
ESCNn	78	4E	Set Bottom Margin for Continuous Paper *n* = Number of lines
ESCO	79	4F	Cancel Top/Bottom Margin for Continuous Paper
ESCln	108	6C	Set Left Margin n = Left margin column
ESCQn	81	51	Set Right Margin n = Right margin column

Print position motion

ASCII	Dec.	Hex.	Description
ESC $ nl *n2*	*36*	24	Set Absolute Horizontal Print Position n = nl + n2 x 256 n: Specifies print position from left margin in defined units • Before you define the unit, the default is l/60-inch for this command.

ASCII	Dec.	Hex.	Description

ESC \ nl *n2*	*92*	5C	Set Relative Horizontal Print Position
			n = nl + n2 x 256
			n: Moves current print position in defined units
			• Before you define the unit, the default is
			   1 ⁄ 120-inch in draft and 1 ⁄ 180- inch in LQ
			   for this command.

ESC(Vnn	40 86	28 56	Set Absolute Vertical Print Position ESC(V20nln2 *n = nl + n2 x 256* *n:* Specifies print position from top margin in defined units
ESC (v *nn*	40 118	28 76	Set Relative Vertical Print Position ESC(v20nln2 *n= nl +n2 x 256* n: Moves current print position in defined units
ESC D nn	68	44	Set Horizontal Tabs Up to 32 tabs entered in ascending order Terminated by 0
HT	9	09	Tab Horizontally
ESC B *nn*	66	42	Set Vertical Tabs Up to 16 tabs; last n should be 0
VT	11	0B	Tab Vertically
ESC J n	74	4A	Advance paper n⁄180-inch

Font selection

ASCII	Dec.	Hex.	Description

ESC k n	107	6B	Select Typeface
			n = 0: Roman 3: Prestige
			        1: Sans Serif 4: Script
			        2: Courier

Font enhancement

ASCII	Dec.		Hex.		Description
SI	15		0F		Select Condensed Printing
DC2	18		12		Cancel Condensed Printing
s o	14		0E		Select Double-Width Printing (one line)
ESC W l/O	87		57		Turn Double-Width Printing On/Off
DC4	20		14		Cancel Double-Width Printing (one line)
ESC w l/O	119		77		Turn Double-Height Printing On/Off
ESC G	71		47		Select Double-Strike Printing
ESC H	72		48		Cancel Double-Strike Printing
ESC S O	83		53		Select Superscript Printing
ESC S l	83		53		Select Subscript Printing
ESC T	84		54		Cancel Superscript/Subscript Printing
ESC (- nn	40	45	28	2D	Select Line/Score ESC (- 301 n1 n2 nl = 1: Underline 2: Strikethrough 3: Overscore $n2$ = 0: Cancel score line selected by *nl* 1: Single continuous line 2: Double continuous line 5: Single broken line 6: Double broken line
ESC - l/O	45		2D		Turn Underline On/Off
ESC q n	113		71		Select Character Style n = 0: Normal style 1: Outline 2: Shadow 3: Outline with shadow

Spacing

ASCII	Dec.	Hex.	Description
ESC SP *n*	32	20	Set Intercharacter Space n = Number of units of space added to the space between characters Units are l/120 inch (draft) and l/180 inch (LQ and proportional)
ESC (U nn	40 85	28 55	Define Unit ESC (U l O n Define positioning unit as *n/3600* inch *n* = 10,20,30,40,50, or 60 *n* = 10: default
ESC c *nl n2*	99	63	Set Horizontal Motion Index (HMI) Select Pitch in n/360-inch units Total units = nl + n2 x 256

Character handling

ASCII	Dec.	Hex.	Description
ESC (tnn	40 116	28 74	Assign Character Table ESC (t 3O dl d2 d3 Assign Character Table set with *d2* and *d3* to table *dl* *dl* = 0, 1, 2, 3, 48, 49, 50, or 51

d2 d3 Character Table

d2	d3	Character Table
0	0	Italic
1	0	PC 437 (USA)
3	0	PC 850 (Multilingual)
4	0	PC 851 (Greek)*
5	0	PC 853 (Turkish)*
6	0	PC 855 (Cyrillic)*
7	0	PC 860 (Portuguese)
8	0	PC 863 (Canada-French)
9	0	PC 865 (Norway)
10	0	PC 852 (East Europe)*
11	0	PC 857 (Turkish)*
13	0	PC 864 (Arabic)*
14	0	PC 866 (Russian)*
15	0	PC 869 (Greek)*
16	0	USSR GOST (Russian)*
1	16	PC 437 Greek (Greek)*

* available for European version

ASCII	Dec.	Hex.	Description
ESC t n	116	74	Select Character Table Select character table n assigned by ESC (t n = 0, 1, 2, 3, 48, 49, 50, or 51 n = 2: Remaps download characters from O-127 to 128-255 (unless a character table has been assigned to 2 with the ESC (+ command)
ESC R n	82	52	Select an International Character Set

n	Country	ASCII code (hex)											
		23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E
0	U.S.A.	#	$	@	[	\	]	^	`	{	¦	}	~
1	France	#	$	à	°	ç	§	^	`	é	ù	è	¨
2	Germany	#	$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß
3	U.K.	£	$	@	[	\	]	^	`	{	¦	}	~
4	Denmark I	#	$	@	Æ	Ø	Å	^	`	æ	ø	å	~
5	Sweden	#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
6	Italy	#	$	@	°	\	é	^	ù	à	ò	è	ì
7	Spain I	Pt	$	@	¡	Ñ	¿	^	`	¨	ñ	}	~
8	Japan	#	$	@	[	¥	]	^	`	{	¦	}	~
9	Norway	#	¤	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
10	Denmark II	#	$	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
11	Spain II	#	$	á	¡	Ñ	¿	é	`	í	ñ	ó	ú
12	Latin America	#	$	á	¡	Ñ	¿	é	ü	í	ñ	ó	ú
13	Korea	#	$	@	[	₩	]	^	`	{	¦	}	~
64	Legal	#	$	§	°	´	"	¶	`	©	®	†	™

ASCII	Dec.	Hex.	Description
ESC & nn	38	26	Define User-Defined Character ESC & 0 *nl* n2 *d0 dl d2* data nl = First character number *n2* = Last character number *d0* = Left space of character *dl* = Body width of character *d2* = Right space of character data: 3 bytes required for each column; super/subscript requires only 2 bytes per column

ASCII	Dec.	Hex.	Description
ESC : 0 n 0	58	3A	Copy ROM to RAM n = 0, 1, 2, 3, 4, 5, 6, or 9 n: Typeface (see list in ESC k command description)
ESC % n	37	25	Select User-Defined Set n = 0: Normal set 1: User-defined set
ESC 6	54	36	Enable Printing of Upper Control Codes This command enables the printing of codes 128-159 (if current table has characters in those locations).
ESC 7	55	37	Enable Upper Control Codes Cancels ESC 6
ESC (ˆ nn	40 94	28 5E	Print Data as Characters ESC (ˆ nl n2 data $n = nl + n2 \times 256$ n: Amount of data data: The following n bytes of data printed as characters

Bit image

ASCII	Dec.	Hex.	Description
ESC * nn	42	2A	Select Bit Image ESC * m nl n2 data $n = nl + n2 \times 256$ n: Total columns Total data $= (nl + n2 \times 256) \times t$ t = Number of data bytes per column

m	Horizontal density (dpi)	Vertical density (dpi)	Pins	Adjacent dots print	t
0	60	60	8	Yes	1
1	120	60	8	Yes	1
2	120	60	8	No	1
3	240	60	8	No	1
4	80	60	8	Yes	1
6	90	60	8	Yes	1
32	60	180	24	Yes	3
33	120	180	24	Yes	3
38	90	180	24	Yes	3
39	180	180	24	Yes	3
40	360	180	24	No	3

Graphics

ASCII	Dec.	Hex.	Description
ESC (G *nn*	40 71	28 47	Select Graphics Mode ESC(GlOn *n = 1* or 49 • Cancel Graphics mode with ESC @
ESC . *nn*	46	2E	Print Raster Graphics ESC.cvhmnln2 data c = 0: Full graphics mode 　　　1: Compressed mode u = 10,20: Dot density for vertical in 3600/v DPI h = 10,20: Dot density for horizontal in 3600/h DPI m: Number of vertical dots $1 \le m \le 24$ n: Number of horizontal dots Total dots = $nl + n2 \times 256$ • The following combination is not allowed: u = l0 and h = 2 0

Character Tables

These character tables are selected with the default-setting mode or by using a software command. All the tables are the same for hex codes 00 through 7F. Therefore, only first table is shown completely. The rest of the tables show only the characters for hex codes 80 through FF.

For all character tables except the italic character table, the ESC 6 and ESC 7 software commands let you select whether hex codes 80 to 9F are characters (ESC 6) or control codes (ESC 7).

The tables with * after the table name are available in the European 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			!	1	A	Q	a	q	ü	æ	í	▒	┴	┬	β	±
2		DC2	"	2	B	R	b	r	é	Æ	ó	▓	┬	▌	Γ	≥
3			#	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			'	7	G	W	g	w	ç	ù	º	╖	╟	┼	τ	≈
8			(	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		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	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	¡	╜	═	▌	ø	²
E	Ã	₧	«	┘	╬	▐	∈	■
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	╜	═	▌	ø	²
E	À	Û	«	┘	╬	▐	∈	■
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	¡	╜	═	▌	ø	²
E	Ä	₧	«	┘	╬	▐	∈	■
F	Å	ƒ	¤	┐	┴	█	∩	

PC 437 Greek (Greek)"

CODE	8	9	A	B	C	D	E	F
0	A	P	ι	▒	└	┴	ω	Ω
1	B	Σ	κ	▒	┴	┬	ά	±
2	Γ	Τ	λ	▒	├	Ι	έ	≥
3	Δ	Υ	μ	│	─	└	ή	≤
4	E	Φ	ν	┤	─	└	ϊ	⌠
5	Z	X	ξ	┼	┼	ί	⌡	
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	Î	ΐ	▒	└	Τ	ζ	–
1	ü	Ϊ	ΰ	▒	┴	Υ	η	±
2	é	Ô	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	┤	┌	┘	ο	¨
A	è	Ü	Η	┤	┴	┌	π	ω
B	ï	ά	½	┐	┬	█	ρ	ϋ
C	î	£	Θ	┘	─	█	σ	ΰ
D	Έ	έ	Ι	Ξ	─	δ	ς	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	˛
3	â	ô	ú	│	├	Ë	Ń	ˇ
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	─	┬	Ý	ř
E	Ä	×	«	ż	┼	█	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	ú	│	├	Ë	Ò	ŉ
4	ä	ö	ñ	┤	─	È	Ġ	˘
5	à	ò	Ñ	Á	┼	ı	ġ	§
6	ĉ	û	Ğ	Â	Ŝ	ĵ	µ	÷
7	ç	ù	ğ	À	ŝ	Î	Ĥ	¸
8	ê	ı	Ĥ	Ş	└	Ï	ħ	°
9	ë	Ö	ħ	┤	┌	┘	Ú	¨
A	è	Ü		┤	─	┌	Û	˙
B	ï	ĝ	½	┐	┬	█	Ù	³
C	î	£	Ĵ	┘	─	█	Ŭ	²
D	ì	Ĝ	ş	Ż	─		ŭ	
E	Ä	×	«	ż	┼	Ì		■
F	Ç	ĵ	»	┐	¤	▄	´	

PC 855 (Cyrillic)"

CODE	8	9	A	B	C	D	E	F
0	ђ	љ	a	▒	└	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	Ћ	Ц	х	┼	Н	т	ш
6	є	ќ	д	Х	к	о	Т	Ш
7	Є	Ќ	Д	и	К	О	у	э
8	ѕ	ў	е	И	╚	п	У	Э
9	Ѕ	Ў	Е	╣	╔	┘	ж	щ
A	і	џ	ф	║	╩	┌	Ж	Щ
B	І	Џ	Ф	╗	╦	█	в	ч
C	ї	ю	г	╝	╠	▄	В	Ч
D	Ї	Ю	Г	й	═	Π	ь	§
E	ј	ъ	«	Й	╬	Я	Ь	■
F	Ј	Ъ	»	┐	¤	■	№	

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	┼		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 864 (Arabic)"

CODE	8	9	A	B	C	D	E	F
0	°	ß		·	ç	ذ	ــ	ـٰ
1	·	∞	─	١	ع	ر	فـ	٠
2	·	ø	┬	٢	ئ	ز	قـ	ن
3	√	±	£	٣	أ	س	كـ	ه
4	▒	½	¤	٤	ؤ	ش	لـ	ﻼ
5	─	¼	ﺍ	٥	ﺇ	ص	مـ	ى
6		≈		٦	ﺍ	ض	نـ	ﻲ
7		«	٧	ﻁ	ﻁ	ﻉ	ﻩ	
8	┤	»	ﻝ	ﺝ	ﺽ	ﻭ	ﻱ	
9			ﺏ	ﺕ	ﻅ	ﻯ	ﻕ	
A			ﺕ	ﺙ	ﻍ	ﻝ	ﻙ	
B			ﺙ		ﻑ			
C	┐	ﻻ		ﺱ	ﻑ	÷	ﺥ	
D		ﻷ	ﺝ	ﺵ	ﻁ	×	ﺥ	
E	┌	ﻵ	ﺡ	٪	ﺝ		■	
F	┘		ﻝ		ﺹ		ﻡ	

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	Ь	л	╗	╦	█	ы	№
C	М	Ы	м	╝	╠	█	ь	¤
D	Н	Э	н	╜	╧	█	э	■
E	О	Ю	о	╛	╨	█	ю	■
F	П	Я	п	┐	╤	█	я	

PC 869 (Greek)"

CODE	B	S	A	B	C	D	E	F
0		Ϊ	ΰ		└	Τ	ζ	-
1		Ϊ	ΰ		┴	Υ	η	±
2		Ώ	ό			Φ	ϑ	υ
3			ύ		├	Χ	ι	φ
4			Α	┤	─	Ψ	κ	χ
5		Υ	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	ο	··
A	│	³	Η	║	╙	π	ω	
B	·	ά	┤	┐	╥	ϱ	ü	
C	·	£	Θ	┘	┬	σ	ΰ	
D	Έ	έ	Ι	Ξ	═	δ	ζ	ώ
E	─	ή	◄	Ο	┼	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	э	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.

Character available with ESC (ˆ

To print the characters in the table below, you must first send the ESC (ˆ command.

CODE	0	1	7
0		►	
1	☻	◄	
2	☻	↕	
3	♥	‼	
4	♦	¶	
5	♣		
6	♠	▬	
7	•	↨	
8	▪	↑	
9	○	↓	
A	◙	→	
B	♂	←	
C	♀	∟	
D	♪	↔	
E	♫	▲	
F	☼	▼	۵

The following characters are available with PC 864 (Arabic) only.

CODE	0	1	7
0		►	
1	☻	◄	
2	♪	↕	
3	♫	‼	
4	☼	¶	
5	▬		
6	▌	▬	
7	▌	↨	
8	▌	↑	
9	▐	↓	
A	▐	→	
B	▙	←	
C	▜	∟	
D	▐	↔	
E	▐	▲	
F	▟	▼	△

Glossary

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

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

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

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.

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-height printing
Printing in which each character is twice as tall as normal.

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 LQ *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.

ESC/P 2
The enhanced version of the ESC/P printer command language. Commands in this language give laser-like features, such as scalable fonts and enhanced graphics printing.

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-margin position.

hex 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 hex dump mode, it prints each code it receives in hexadecimal notation and ASCII characters. Also called data dump.

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.

LQ printing
One of two print qualities available on your printer. 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 optional 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.

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

push tractor
An optional, 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.

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 8 centimeters (3 inches) beyond the edge.

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

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 downloaded characters.

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Command descriptions are not indexed here.