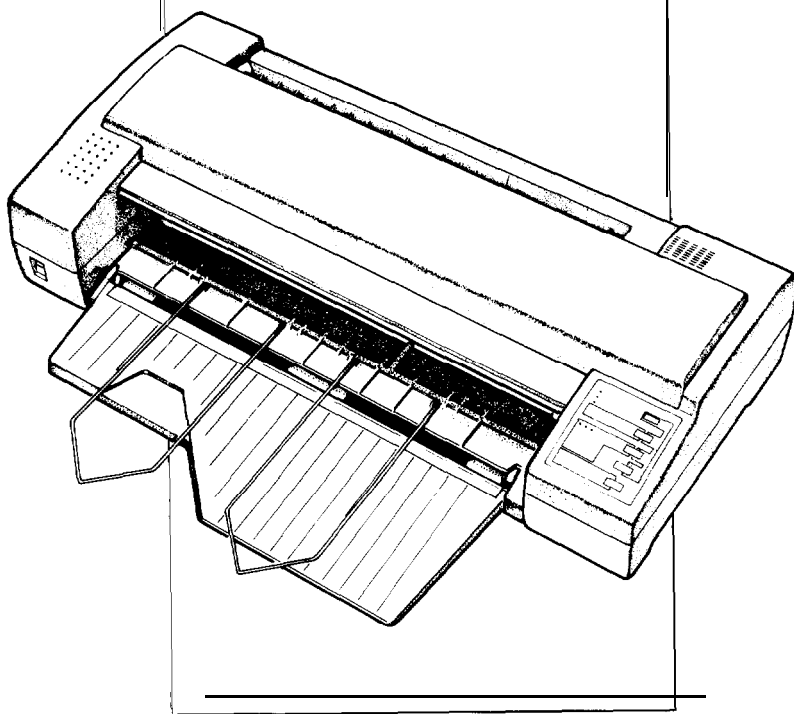
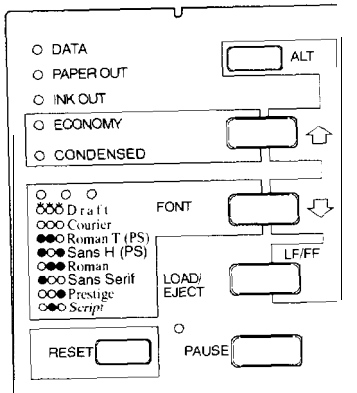
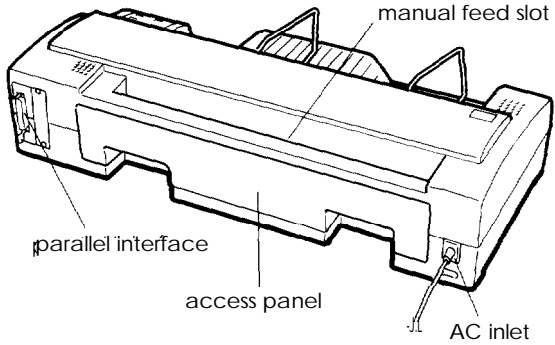
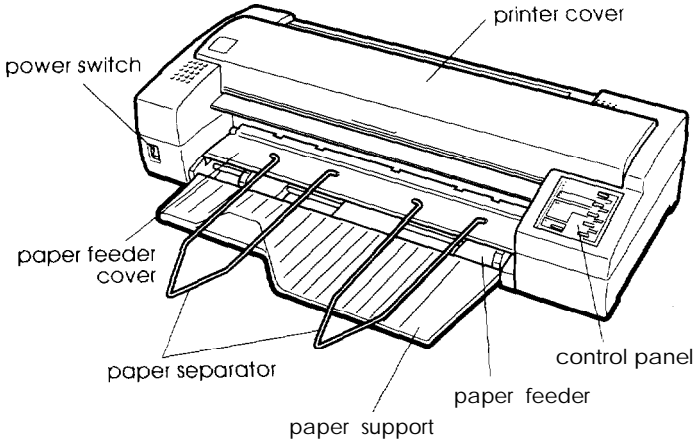


User's Guide
Stylus™ 1000



EPSON®

Printer Parts



EPSON

48-NOZZLE INK JET PRINTER

Stylus 1000

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User's Guide

Important Safety Instructions

1. Read all of these instructions before you set up your printer.
2. Follow all warnings and instructions marked on the printer.
3. Unplug the printer from the wall outlet before you clean it, and use a damp cloth for cleaning, not liquid or aerosol cleaners.
4. Do not use your printer near water or spill any liquid on it.
5. Do not place the printer on an unstable cart, stand, table, or other surface that may allow the printer to fall.
6. 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.
7. Never place the printer near or over a radiator or heat register.
8. 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.
9. 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.
10. Do not put your printer where the cord will be walked on.

11. 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.
12. 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.
13. 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.
14. Unplug the printer from the wall outlet and have it repaired by a qualified service person under the following conditions:
 - A. When the power cord or plug is damaged or frayed
 - B. If liquid has been spilled into it
 - C. If it has been exposed to rain or water
 - D. 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.
 - E. If it has been dropped or the cabinet has been damaged
 - F. If it exhibits a distinct change in performance, indicating a need for service.

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.

- P Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Cl Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Q 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 règlement sur le brouillage radioélectrique edicté par le Ministère des Communications du Canada.

Tips for Printing on Single Sheets

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 8.5 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 8.5 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 standard 8.5 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.

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Introduction

Your new Epson printer is a 48-nozzle ink jet printer, ideal for quiet, high-speed printing.

Features

Your printer offers the following features:

- * High print quality. Epson's new ink jet technology delivers crisp 360 x 360 dot-per-inch (dpi) text and graphics.
- * Flexible paper handling. Use the built-in paper feeder to load up to 100 sheets automatically. You can also insert envelopes or single pages manually without removing the paper supply.
- * Wide range of paper size with 136 printable columns. You can print on paper up to A3 size: 297 mm x 420 mm (11.7 inches x 16.5 inches) using the paper feeder. You can manually insert paper up to 420 mm x 420 mm (16.5 inches x 16.5 inches).
- * Quiet printing. Ink jet technology helps maintain a quiet working environment.
- * Epson ESC/P 2™. This enhanced printer control language adds scalable fonts and improved graphics capability.
- * Compatibility. Supports the Epson ESC/P® commands widely used in software written for other Epson printers.
- * Convenience. Drop-in ink cartridge prints up to 700 pages. (at 1000 characters per page, using the Roman font)

Options

The following options enable you to make full use of your printer.

Push-Tractor Unit (C80029*)

With this option you can print on continuous paper as well as single sheets. See Chapter 2 for details.

Interface Cards

Optional interface cards, including one for LocalTalk™, are available to supplement the printer's built-in parallel interface. See Chapter 3 for details.

How to Use This Manual

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

- a Chapter 1 describes how to unpack and set up the printer. It also describes printing a self test and configuring your software for the printer. These instructions include basic directions regarding the ink, paper, and placement of the printer; be sure to read and follow these instructions carefully.
- cl Chapter 2 explains paper handling. It contains instructions on using the optional push tractor and printing on special paper.
- a Chapter 3 covers operating the control panel, changing printer settings, the use of options, and maintenance and troubleshooting.
- a The Appendix includes printer specifications, commands, and character tables.
- a A glossary of printer terms and an index are included 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.

Where to Get Help for United States Users

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 ConnectionSM at (800) 922-8911:

- a Assistance in locating your nearest Authorized Epson Reseller or Service Center
- a Technical assistance with the installation, configuration, and operation of Epson products
- a Information on ESC / P 2 drivers for your software
- a Sales of the ESC / P reference manual, which contains comprehensive information on ESC / P 2
- a Epson technical information library fax service
- a Product literature with technical specifications on our current and new products
- a Sales of ribbons, supplies, parts, documentation, and accessories for your Epson product
- a Customer Relations

Chapter 1

Setting Up the Printer

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About Your Ink Jet Printer

If you're new to ink jet printers, you may wonder how they differ from dot matrix or laser printers. Two noticeable benefits of this technology are high print quality and quiet printing.

An ink jet printer produces cost-effective, high-quality print results. When you use the right paper, you get the crisp, sharp printouts usually associated with laser printers. And the ink cartridge inside your printer is easier to replace and more affordable than the toner cartridges used by lasers.

Inside the ink jet print head, tiny spray units, or jets, draw ink from the cartridge and then propel it onto the page in the form of characters or graphics. Because the print head doesn't strike the page as it prints, an ink jet printer is much quieter than an impact dot-matrix printer.

A few precautions

Even if you are familiar with other types of printers, be sure to read through the following list of precautions to operate your ink jet printer safely and efficiently.

- ❑ The ink cartridge contains ethyl alcohol. Under normal circumstances, it will not come out of the cartridge. If leakage occurs, however, make sure ink does not come in contact with your skin or eyes. If it does get on your skin, wash it off with soap and water. If it gets in your eyes, flush them with plenty of water and contact a physician.
- Cl Keep ink cartridges out of the reach of children.
- ❑ Do not dismantle the ink cartridges or try to refill them.
- ❑ Once you install the ink cartridge, do not open the clamp or remove the ink cartridge except to replace it with a new one. The cartridge may become unusable otherwise.

- ❑ Install the ink cartridge immediately after you remove it from its package. Leaving the cartridge unpacked for a long time before use may result in poor print quality.

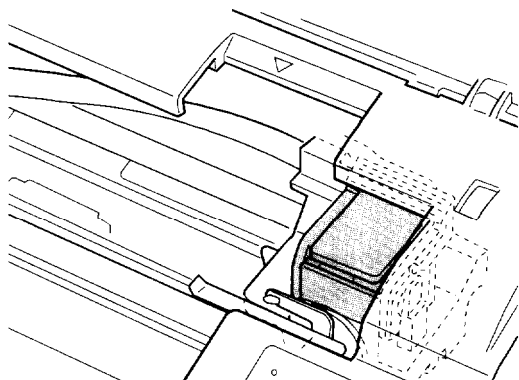
Do not use an ink cartridge beyond its rated life expectancy. Ink cartridges are good up to the date printed on the cartridge carton.

Do not shake an ink cartridge. Shaking or swinging an ink cartridge may cause leakage of ink.

- ❑ Do not put your hand inside the printer or touch the cartridge during printing.

Before transporting the printer, make sure the print head is capped, and do not remove the ink cartridge.

Before you turn off the printer, make sure that the print head is capped. (It is capped when it is in the far right position as shown below.) The printer caps the print head when no data is received for several seconds; you can also cap the print head by pressing the PAUSE button.



Choosing the right paper

One of the keys to getting great results with your ink jet printer is selecting the right paper. With paper that is too absorbent, the ink can bleed slightly, causing characters to blur. With paper that is not absorbent enough, the ink may take too long to dry and may smear easily.

The finish and thickness of the paper are also important. Avoid paper that has a rough finish or a slick, coated finish. Also, avoid paper that is too thick or too thin. See the paper specifications in the Appendix for more information.

Most correspondence-quality paper works in your printer without problems. However, it is a good practice to test any paper or envelopes in your printer before buying large quantities.

To test a supply of paper, perform the self test using a single sheet from the package and check the results. Test both sides of the paper to determine which gives you the best quality printing. If the ink does not bleed or smear, the paper should be suitable for use with your printer.

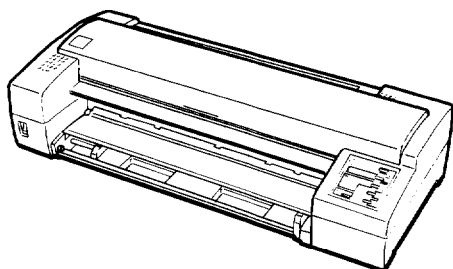
Because the drying speed for the ink depends on the pattern being printed, the type of paper used, and the temperature and humidity, some smudging or streaking may occur under certain conditions. If the ink does not dry quickly enough, try removing sheets one at a time as they finish printing.

Note:

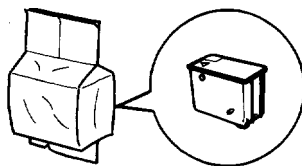
- ❑ *Ink jet printers are particularly sensitive to the condition of your paper. Keep unused paper in its original packaging material and store it in a cool, dry place.*
- ❑ *Use recycled paper under normal temperature and humidity conditions only. Poor quality paper may reduce print quality, as well as cause paper jams and other problems. If you encounter problems, switch to a higher grade of paper.*

Unpacking the Printer

Your printer box should include these items:



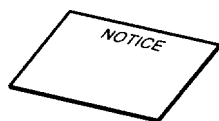
Printer



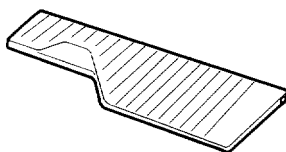
Ink cartridge



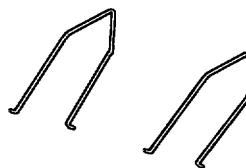
Power cord



Notice sheet



Paper support



Paper separator

In some locations, the power cord comes attached to the printer. The shape of the AC plug varies by country; be sure the plug included is the right shape for your location.



Caution:

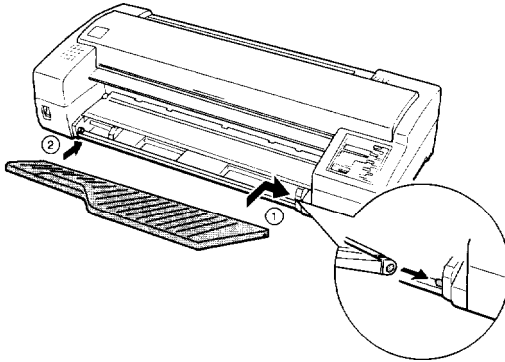
It is not possible to change the printer's voltage. Check the label on the back of the printer to make sure the printer's voltage matches your electrical outlet. If not, contact your dealer.

You must remove all packing and protective materials packed with your printer before you can set it up and turn on the power. Follow the directions on the Notice Sheet (inserted in your printer) to remove these materials.

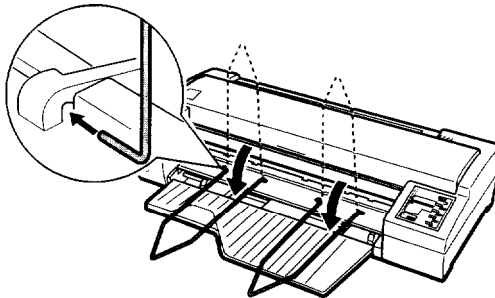
Attaching the paper support and the paper separators

You should install the paper support and the paper separators before you begin using the printer. To install, follow the steps below.

1. Attach the paper support. Grasp the paper support and place the right end notch over the mounting post of the printer. Then, push the left notch onto the left mounting post.



2. Attach the paper separators. Hold the first paper separator upright and push the tips into the notches. Then lower the paper separator. Repeat for the second paper separator.



Choosing a Place for the Printer

When selecting a location for your printer, follow these guidelines:

- ❑ Place the printer on a flat, horizontal, stable surface. If the printer is tilted or at an angle, it cannot operate properly.
- ❑ Place the printer close enough to the computer for the interface cable to reach it easily.
- ❑ Leave adequate room for easy operation and maintenance.
- ❑ Avoid using or storing the printer in places subject to rapid changes in temperature and humidity. Also keep it away from direct sunlight, strong light sources, or heat generating devices.
- ❑ Avoid places subject to shocks and vibrations.
- ❑ Place the printer where you can easily unplug the power cord.
- ❑ Avoid electrical outlets controlled by wall switches or automatic timers. Also, 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.
- ❑ Use a grounded power outlet; do not use an adapter plug.
- ❑ When you use continuous paper, make sure the paper path is not obstructed. See Chapter 2 for details.

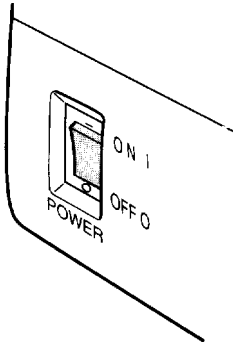
If you plan to use a printer stand, follow these guidelines:

- ❑ Use a stand that supports at least 17.2 kg (38 lbs.).

- Cl Never use a stand that tilts the printer. It should always be kept level.
- Cl Place cables so they do not interfere with paper feeding; secure them to a leg of the stand if possible.

Plugging in the Printer

1. Make sure that the power switch is turned off. It is off when the “G” 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. Also, make sure that you have the correct power cable for your power source.



Caution:

It is not possible to change the printer's voltage. 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 back of the printer.
4. Plug the power cord into a properly grounded electrical outlet.

Installing the Ink Cartridge

Each ink cartridge contains enough ink to print about 700 pages. The exact number of pages a single cartridge can print varies according to the amount of text and graphics on each page.



Warning:

The ink cartridge is a self-contained unit. Under ordinary use, ink will not leak from the cartridge. If ink does come out, avoid contact with skin and eyes. If ink gets into your eyes, flush them immediately with plenty of water and contact a physician. Wash all traces of ink from your skin with soap and water. If irritation occurs, contact a physician.

The first time you use your new printer, you need to charge the ink delivery system with ink. You need to perform this operation only once.

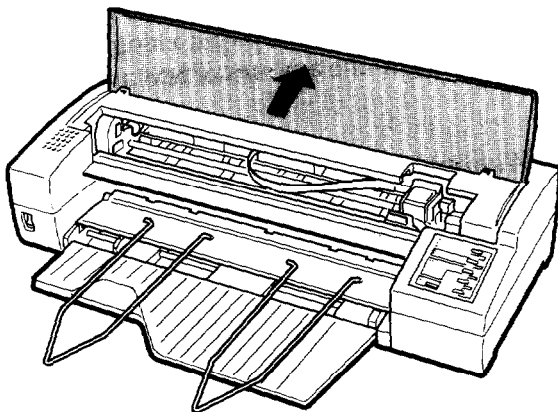
Install the ink cartridge as follows:

Note:

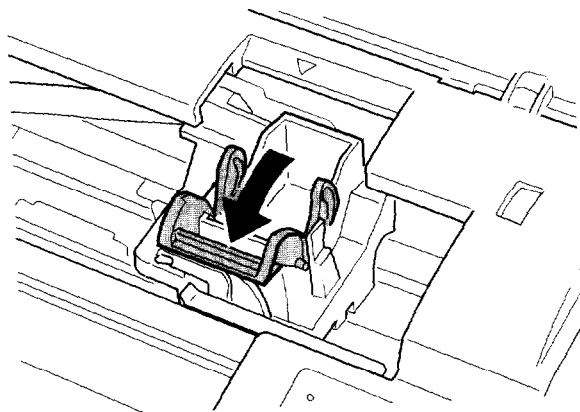
Do not open the ink cartridge package until just before you install the cartridge, or the ink may dry up.

1. Make sure the printer is turned off.
2. Hold down both the ALT and PAUSE buttons while you turn on the printer. Release the buttons after the printer starts initializing; the print head then moves to the ink cartridge replace position.

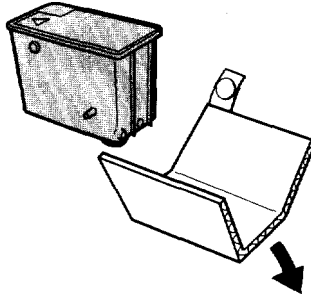
3. Open the printer cover.



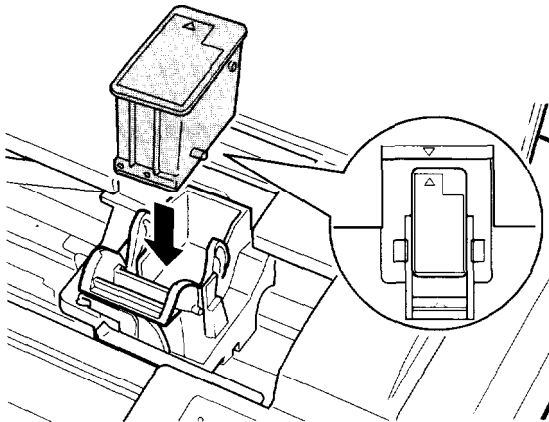
4. Pull the top of the ink cartridge clamp towards you to open it.



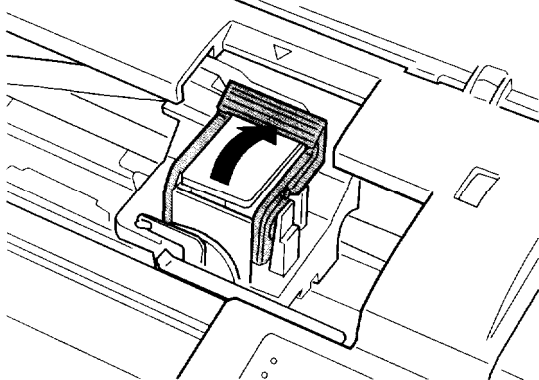
5. Open the foil package containing the ink cartridge and remove it from the protective cardboard. Make sure to remove the tape seal from the ink cartridge.



6. Lower the cartridge into the holder with the label face up and the arrow mark on the cartridge towards the arrow mark on the printer case.



7. Push the ink cartridge clamp towards the back of the printer to secure the cartridge.



R **Caution:**
Once you install the ink cartridge, do not open the clamp or remove the ink cartridge except to replace it with a new one. The cartridge may become unusable otherwise.

8. Press the ALT button again to charge the ink delivery system. It takes about one minute.

The PAUSE light flashes throughout the cycle and turns off when the ink charging has finished.

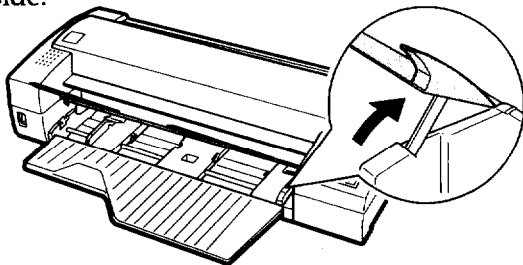
R **Caution:**
Do not turn off or reset the printer until the ink-charging cycle is complete.

9. Close the printer cover.

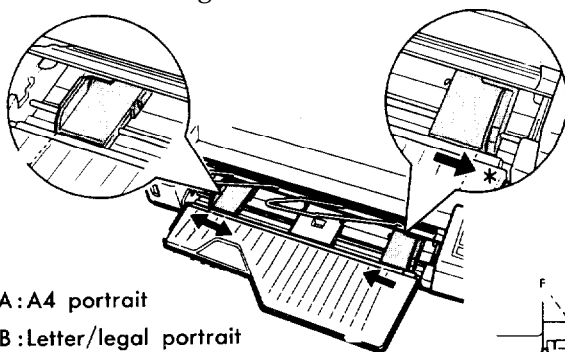
Loading Paper in the Paper Feeder

After you charge the ink delivery system, you can use the built-in self test to make sure the printer is working properly. You can run the self test with paper from the built-in paper feeder or by feeding a sheet manually. This section describes loading paper in the paper feeder.

1. Open the paper feeder cover while holding up the lever on the right side.

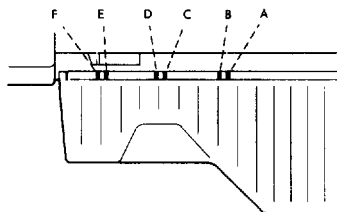


2. Slowly slide the right edge guide as far to the left as it will go, and align it to the guide mark. Then adjust the left edge guide to match the width of your paper. You may also use the guide mark for A4 size paper (or letter /legal size paper for the U.S. version). When you load paper 420 mm (16.5 inches) wide, move the right edge guide as far to the right as it will go.

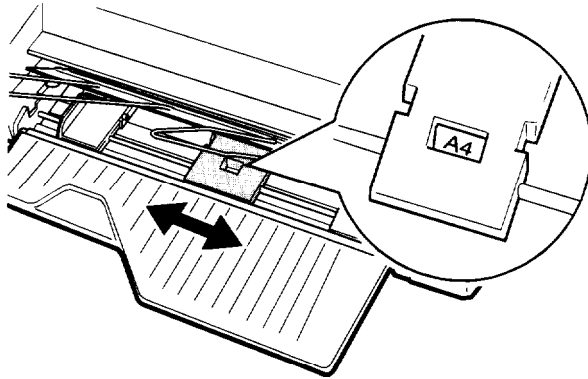


* Right for
420-mm wide paper

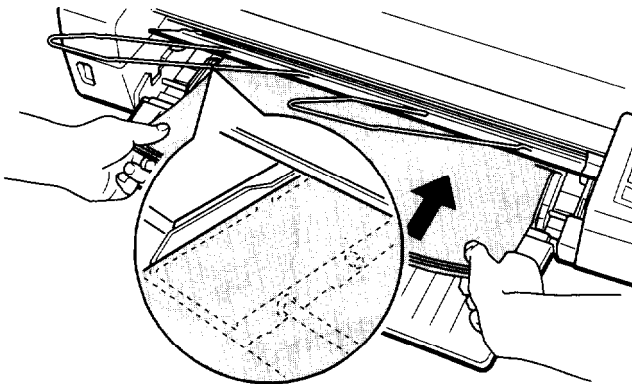
- A: A4 portrait
- B: Letter/legal portrait
- C : Letter landscape
- D :A4 landscape
- E : Legal landscape
- F: B4 landscape



3. Move the center support to the center of both edge guides. When you load paper in the landscape direction, adjust the center support until you can see the paper size you are using through the cutout in the center support.



4. Fan a stack of paper; then tap it on a flat surface to even the edges. While aligning the paper's edges with the edge guides, insert it with the printable surface face down all the way into the paper feeder until it meets resistance.



Note:

The paperfeeder holds up to 100 sheets (the maximum for 64-g/m² or 16-lb. paper). Do not load paper higher than the mark on the edge guide.

5. Close the paper feeder cover.

When you send data to the printer or when you run the self test, the printer advances the paper to the loading position and starts printing.

Now you are ready to run the self test. For more about printing with the paper feeder, be sure to read “Tips for Using the Paper Feeder” in Chapter 2.

Testing the Printer

When using the paper feeder, the self test begins by printing on the first and last lines of page 1; this allows the printer to measure the page length. Then the printer prints character samples on page 2.

Note:

Use paper at least 360 mm (14 inches) wide; otherwise, the print head prints directly on the platen and shortens your printer life. The paper feeder holds up to 100 sheets (the maximum for 64-g/m² or 16-lb. paper).

Follow these steps to run the self test:

1. Make sure the printer is turned off.
2. While holding down the FONT button (LQ mode) or the LOAD/EJECT button (draft mode), turn on the printer.

The printer loads a sheet of paper from the paper feeder and begins the self test. It prints on the first and last lines of page 1 to measure the page length. Then the printer prints character samples on page 2.

In LQ mode, the printer prints characters in each font, in the order the fonts appear on the control panel. Here is part of a typical self test:

Courier

```
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNQRSTU  
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNQRSTU  
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNQRSTU  
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNQRSTU  
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNQRSTUVW  
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNQRSTUVWX  
Roman T  
'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNQRSTUVWXYZ[\]^_`abcdefghi  
'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNQRSTUVWXYZ[\]^_`abcdefghij  
'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNQRSTUVWXYZ[\]^_`abcdefghijk
```

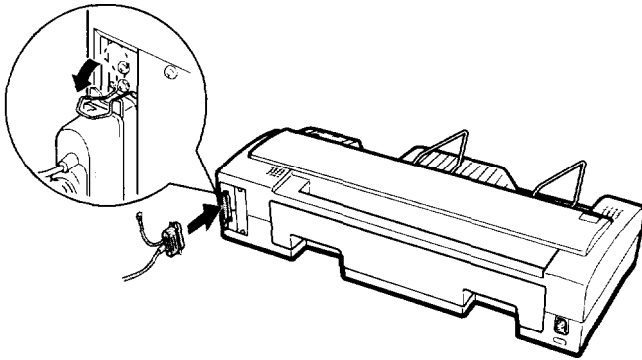
3. The test continues until the paper in the paper feeder runs out or you press the PAUSE button. To stop the test, press the PAUSE button. To resume the test, press the PAUSE button again.
4. To end the self test, press the PAUSE button to stop printing and then press the LOAD/EJECT button to eject the paper.
5. Turn off the printer.

Connecting the Printer to Your Computer

If the self test prints correctly, you are 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:

1. Make sure both the printer and computer are turned off.
2. Plug the cable connector securely into the printer's interface connector.
3. Squeeze the wire clips together until they lock in place on both sides. If your cable has a ground wire, connect it to the ground connector above the interface connector.



4. Plug the other end of the cable into the computer's parallel interface. If there is a ground wire at the computer end of the cable, connect it to the ground connector at the back of the computer.

Setting Up Your Software Programs

Most software programs let you specify the type of printer you use so that the software can take full advantage of the printer's features. Many provide an installation or setup menu that presents a list of printers.

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

Stylus 1000	} ESC/P 2	SQ-850/2550	} ESC/P
Stylus 800		SQ-850+/ 1050+	
SQ-870/1170		LQ-550/1010	
LQ-870/1170		LQ-2550	
LQ-570/1070		LQ-800/1000	
		LQ-1500	

If none of these printers is listed among your software's options, select the first one available from the following: LQ, EX, FX, LX, RX, MX, Epson printer, Standard printer, and Draft printer.

After you select the most appropriate printer as described above, you may want to create and print a sample file with the fonts and formats that you use most often. Printing the sample file shows you how the printer works with your software.

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

Chapter 2

Paper Handling

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Printing on Single Sheets

You can load single sheets up to 420 mm (16.5 inches) wide using the built-in paper feeder or the manual insertion slot.

Tips on using the paper feeder

For the steps on using the paper feeder, see “Loading paper in the paper feeder” in Chapter 1. Following the tips below will give you the best performance when loading paper with the paper feeder.

- ❑ Load paper into the paper feeder before you turn on the printer or send data. When the printer receives data from the computer, it loads a single sheet and begins to print.
- ❑ If the printer runs out of paper during a print job, reload the paper feeder and then press the LOAD/EJECT button to continue printing.
- ❑ Press the LOAD/EJECT button if you need to eject a sheet of loaded paper.
- ❑ You can switch to either manual loading or to the optional push tractor without removing the paper supply from the paper feeder. For details, see “Loading paper manually” or “Switching to continuous paper” later in this chapter.
- ❑ If the ink does not dry fast enough, try removing sheets one at a time as they finish printing.
- ❑ The default page length for paper loaded from the paper feeder is 61 lines (letter-size paper) or 65 lines (A4-size paper). You can change it using your software or printer commands, if necessary. See the Appendix for more about printer commands.

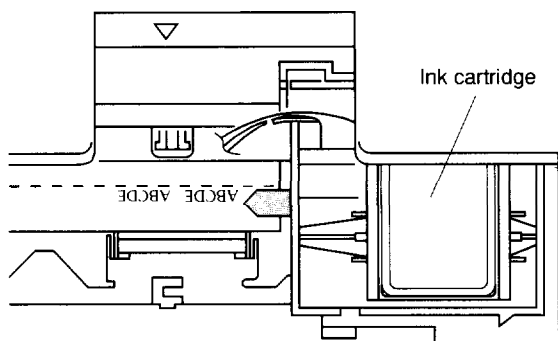
- ❑ Because most software takes care of the top and bottom margins, you should usually adjust the margins by using your software, taking the printer's default loading position into account.
- ❑ You can use the printer's micro-feed feature to adjust the paper loading position or to adjust the current print position during a print job. See below.

Adjusting the loading position

The loading position is the position of the paper when the printer loads it. If printing is too high or low on the page, change the loading position with the micro-feed feature.

1. Make sure the printer is turned on.
 2. Load a sheet of paper from the paper feeder by pressing the LOAD/EJECT button.
 3. Open the printer cover and the paper feeder cover.
 4. As soon as the paper is loaded, hold down the ALT button and press the ECONOMY/CONDENSED button to move the loading position up 1/180 inch, or the FONT button to move the loading position down 1/180 inch. Continue pressing the appropriate button until you reach the position you want.
 5. Close the printer cover and the paper feeder cover.
 6. Send data from the computer to start printing.
- ❑ The printer has a minimum and maximum loading position. If you try to move the loading position beyond these limits, the printer beeps and the paper stops moving.
 - ❑ When the paper reaches the factory-set loading position, the printer beeps. Use the factory setting as a reference point when adjusting the loading position.

The pointer on the print head indicates the base line of printed characters. (You may have to experiment a few times to get the results you want.)



When you adjust the loading position for single-sheet paper, the printer remembers the new position only until you turn off the power. The loading position returns to the factory setting when the power is turned on again.

Adjusting the print position

The print position is the position on the page where the print head is currently printing. If you want to change the current vertical print position, you can use the micro-feed feature as follows:

1. Press the PAUSE button to stop printing; the PAUSE light comes on.
2. Hold down the ALT button and press the ECONOMY/CONDENSED (up) or FONT (down) button to adjust the print position on the page.
3. Press the PAUSE button again to resume printing. (You may have to experiment a few times to get the results you want.)

Note:

The printer has a limit-5.0 mm (0.31 inches)-to the amount you can move the vertical print position backwards using micro feed. Feeding stops when you reach this limit.

Loading paper manually

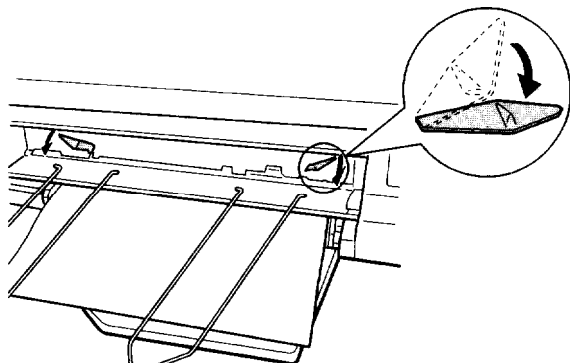
You can load single sheets of paper or envelopes from the manual feed slot without removing the paper supply from the paper feeder.

You can use the manual feed slot to load single sheets of paper from 182 mm (7.2 inches) to 420 mm (16.5 inches) wide and long.

When you load paper manually, you can use the printer's micro-feed feature, just as when you load paper from the paper feeder.

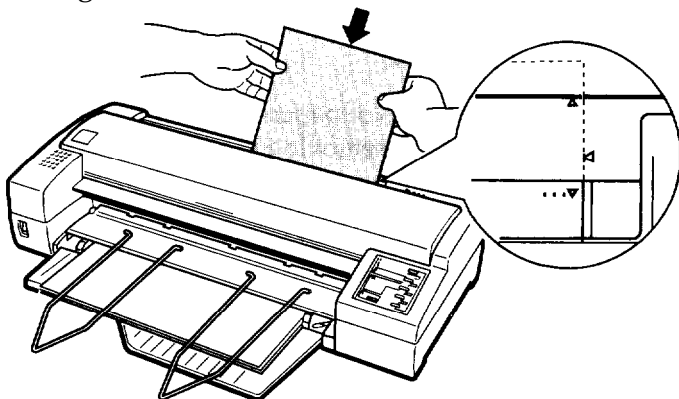
Follow these steps to load a single sheet in the manual feed slot:

1. Turn on the printer. Lower both sides of the page eject guide.

**Note:**

If a sheet of paper is in the slot before you turn on the printer, the paper is ejected with nothing printed.

2. Insert a single sheet of paper into the slot until it meets resistance, aligning the right edge of the paper with the arrow mark on the printer. When you use paper 420 mm (16.5 inches) wide, align the right edge of the paper with the right end.



3. The printer loads the sheet.

Note:

If the sheet does not load straight, press the LOAD/EJECT button to eject it. Then try loading it again.

4. Send data from the computer to start printing.

When the printer finishes printing, it ejects the sheet. If the sheet does not come all the way out, press the LOAD/EJECT button.

Press the LOAD/EJECT button or send data to the printer without inserting a sheet into the manual slot to switch back to the paper feeder. The page eject guides raise automatically. The printer then loads a sheet of paper from the paper feeder.

Note:

If the ink does not dry fast enough, try removing sheets one at a time as they finish printing.

Using Continuous Paper with Optional *Push Tractor*

You can use the optional push tractor to print on continuous paper from 102 mm (4 inches) to 406 mm (16 inches) wide.

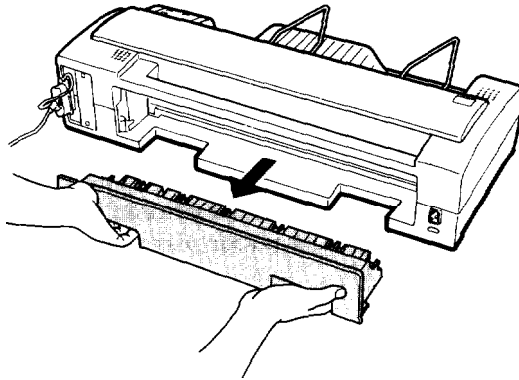
Installing the push tractor



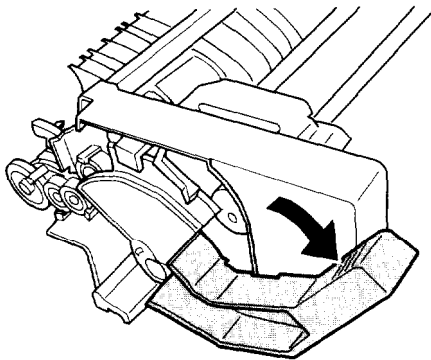
Warning:

Be careful not to touch the part of the access panel or push tractor that fits inside the printer.

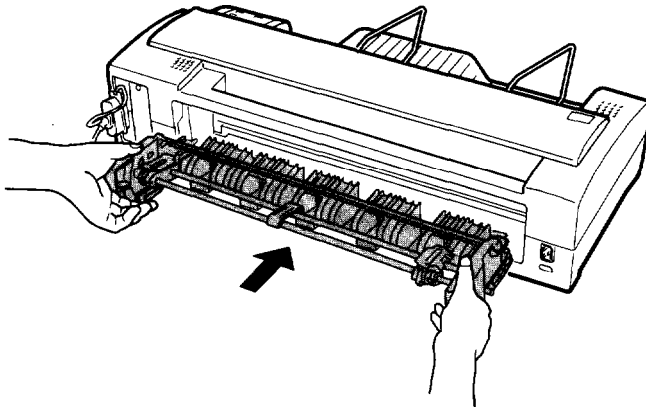
1. Make sure the printer is turned off. Then insert your fingers into the cutouts on both sides of the access panel; pull straight back on the top of the cutouts to remove the access panel from the printer.



2. Push the release lever of the tractor down to the single-sheet position.

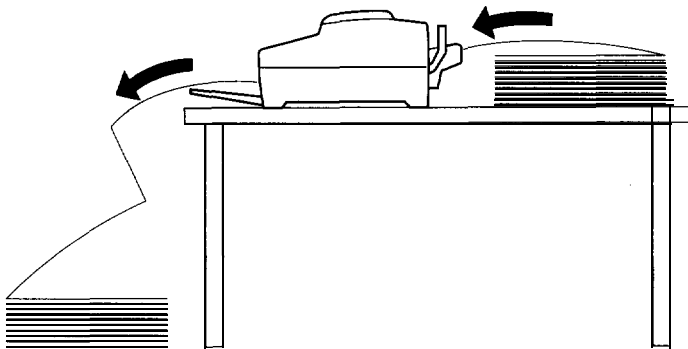


3. Grasp both ends of the tractor and push it into the printer, as shown below, until it locks in place.

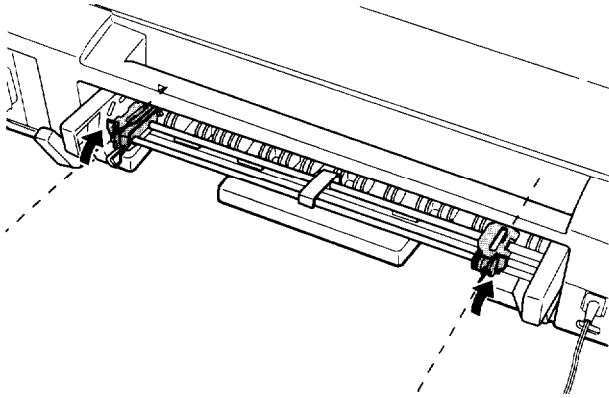


Loading continuous paper

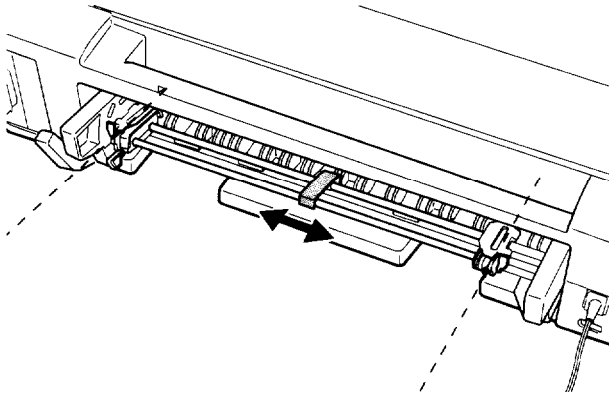
1. Place the supply of continuous paper behind the printer so that the printer feeds the paper smoothly. Make sure the paper path is not obstructed, and allow the printed pages to be stacked in front of the printer. See below for an illustration of proper paper placement.



2. Release the sprocket units by raising the sprocket-lock levers. Align one sprocket unit with the mark as shown below. Slide the other sprocket unit to match the width of your paper, but do not lock it.

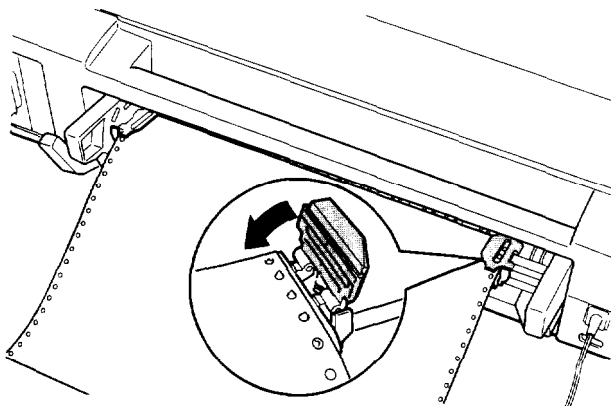


3. Position the center support midway between the two sprocket units.

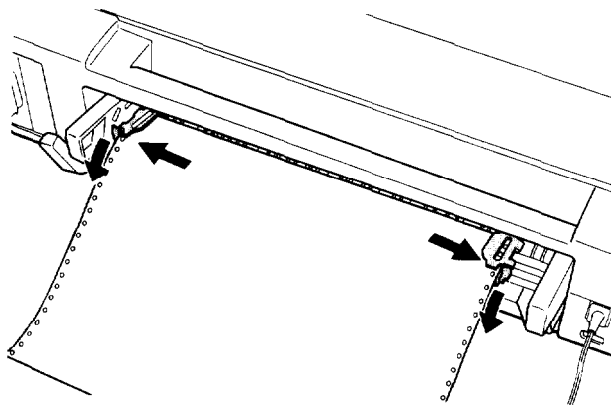


4. Open both sprocket covers.

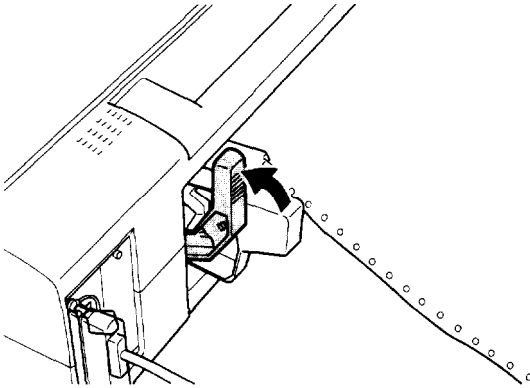
5. Fit the first four holes of the paper over the sprocket pins, and then close the sprocket covers.



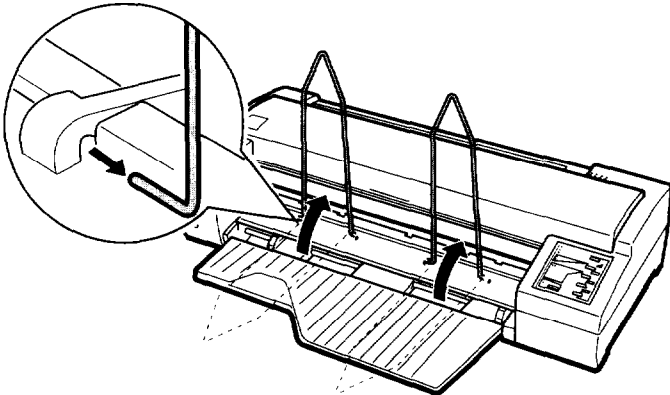
6. Slide the left sprocket unit to remove any slack in the paper. Then lower the sprocket-lock levers until they lock into place.



7. Raise the release lever to the continuous-paper position.



8. Raise the paper separators and remove them.



9. Lower both sides of the page eject guide as shown on page 2-5. Turn on the printer. When it receives data, it advances the paper to the loading position and starts printing.

Tips on using continuous paper

Follow the tips below for the best performance when printing on continuous paper.

If the printer runs out of paper during a print job, attach additional paper to the push tractor and press the LOAD/EJECT button to continue printing.

- ❑ You can switch to single sheets without removing the paper supply from the push tractor. For instructions, see “Switching to single sheets” later in this chapter.
- ❑ You can use the printer’s micro-feed feature to adjust the position, just as when you load single sheets. The printer remembers this new position even after you turn it off. See page 2-3.

When you turn on the printer with paper loaded, it reverses the paper to the paper-park position and then advances it to the next page. To keep the loading position accurate, remove any printed sheets before you turn off the printer .

Using the tear-off feature

After you have finished printing, you can use the tear-off feature to advance paper to the tear-off edge of the printer. You can then easily tear off printed sheets. When you resume printing, the printer feeds paper back to the loading position. This feature lets you save paper that would normally be lost between documents.

To use the tear-off feature, turn the tear-off mode on using the default-settings mode as described in Chapter 3.

The printer advances paper to the tear-off position only when the printer receives a full page of data or a form-feed command and no more data is received for three seconds.



Caution:

- ❑ **Never** use the tear-off feature with labels. When fed backward, labels may come off the backing and jam the printer.
- U When you use labels, always turn the tear-off mode off using the default-settings mode.

If the perforation is not aligned with the tear-off edge, adjust the tear-off position as follows:

1. Make sure the paper is in the tear-off position.
2. While holding down the ALT button, press the ECONOMY/CONDENSED (up) or FONT (down) button to adjust the position. The printer remembers the new position even after you turn it off.
3. Tear off any printed pages.

Note:

- The printer has a minimum and maximum tear-off position. If you try to move the tear-off position beyond these limits, the printer beeps and the paper stops moving.*
- When the paper reaches the factory-set tear-off position, the printer beeps. Use the factory setting as a reference point when adjusting the tear-off position.*

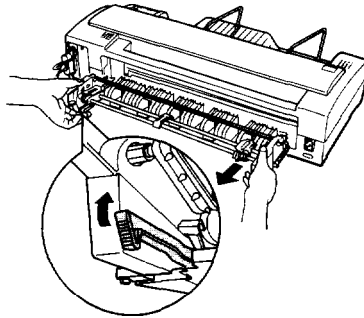
Removing the push tractor

1. Tear off any printed pages. Press the LOAD/EJECT button to feed the paper backward out of the printer and into the paper-park position. Remove the paper from the push tractor.

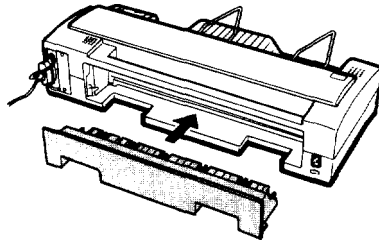
R Caution:

- Never feed labels backward. To remove labels from the printer, see “Labels” later in this chapter.*
 - Make sure you tear off your printed document before feeding paper backward. Reverse feeding several pages at a time may cause a paper jam.*
2. Turn off the printer. Attach the paper separators as shown on page 1-6.
 3. Lower the release lever to the single-sheet position.

4. Pull up on both levers on the sides of the bottom of the tractor and pull the tractor out of the printer.



5. Replace the access panel.



Switching Between Continuous Paper and Single Sheets

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

Switching to single sheets

To switch from continuous paper to single sheets, follow the steps below.

1. If any printed sheets remain in the printer, tear off the printed pages.
2. Press the LOAD/EJECT button. The printer feeds the continuous paper backward to the paper-park position.

R Caution:

- Always tear off paper before back-feeding; back-feeding too many sheets can cause a paper jam.
 - Never back-feed labels. Labels can easily come off their backing and jam the printer.
3. Move the release lever to the single-sheet position.

Note:

If the printer beeps, raise the release lever and press the LOAD/EJECT button to feed the paper backwards to the paper-park position. You can then lower the lever again.

4. Attach the paper separators as shown on page 1-6.
5. The printer is ready to print. When it receives data, it loads a single sheet from the paper feeder or manual feed slot.

Switching to continuous paper

To switch from single sheets back to continuous paper, follow the steps below.

1. If a single sheet is in the paper path, press the LOAD/EJECT button to eject it.
2. Raise the release lever to the continuous-paper position.

Note:

*If **the** printer beeps, lower the release lever and press the LOAD/EJECT button to eject the paper. Then raise the lever again.*

3. Remove the paper separators as shown on page 2-11.
4. The printer is ready to print. When it receives data, it loads continuous paper from the push tractor and begins to print.

Printing on Special Paper

In addition to printing on single sheets and continuous paper, your printer can print on a wide variety of other paper types, such as envelopes and labels.

Envelopes

You can load the following envelope sizes from the manual feed slot.

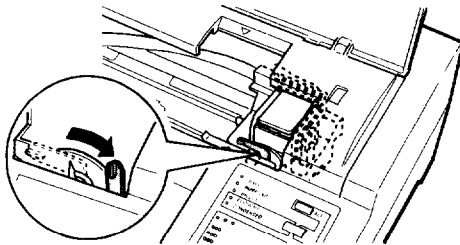
No. 6 envelope, 166 mm (6.5 inches) x 92 mm (3.6 inches)

No. 10 envelope, 240 mm (9.5 inches) x 104 mm (4.1 inches)

Printing on envelopes

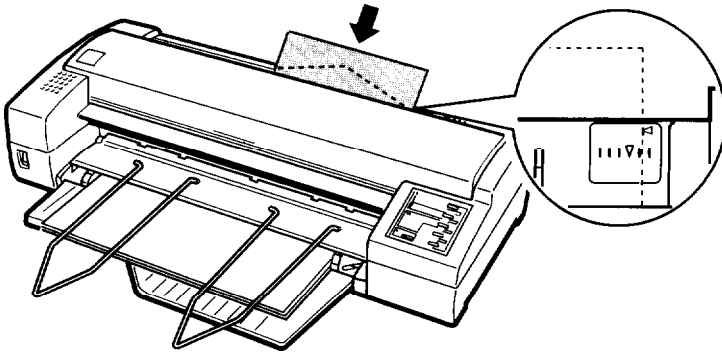
You can use the manual feed slot to print on individual envelopes.

1. Turn on the printer and open the printer cover.
2. Turn the paper-thickness lever clockwise as far as it will go



3. Close the printer cover.

4. Lower both sides of the page eject guide.
5. Insert an envelope with the wide end entering the printer first, printable side face-up, until it meets resistance. The printer then loads the envelope to the print position.



6. Send data from your computer. The printer ejects the envelope when it finishes printing.

Note:

- Make sure YOUR software keeps the printing entirely within the printable area of the envelope. See the Appendix for details.*
 - Use envelopes only under normal operating conditions.*
 - If the ink is not drying fast enough, try removing envelopes one at a time as they finish printing.*
7. To switch back to the paper feeder, turn the paper-thickness lever counterclockwise as far as it will go. Then press the LOAD/EJECT button to load from the paper feeder.

Labels

Only use labels mounted on a continuous backing sheet with tractor sprocket holes. Do not try to print labels on single sheets; labels on a shiny backing sheet may not feed properly.

You load labels the same way as continuous paper, except you turn the paper-thickness lever clockwise as far as it will go.

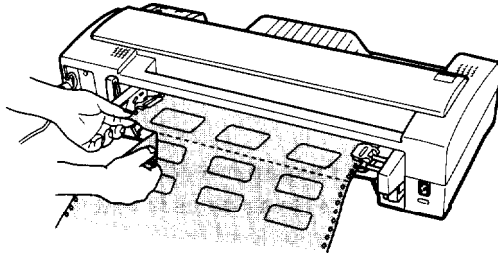


Caution:

- Never feed labels backward by pressing the LOAD/EJECT button. They will easily peel off the backing and jam the printer.*
- Make sure the tear-off mode is set to off in the default settings mode when using labels.*
- Use labels under normal operating conditions only because they are sensitive to extreme temperature and humidity.*
- Do not leave labels loaded in the printer between jobs; they may jam when you resume printing.*

To remove labels from the printer, follow the steps below.

1. Tear off the labels at the rear of the printer.



2. Press the LOAD/EJECT button while holding down the ALT button to advance the remaining labels out of the printer.

Chapter 3

Using the Printer

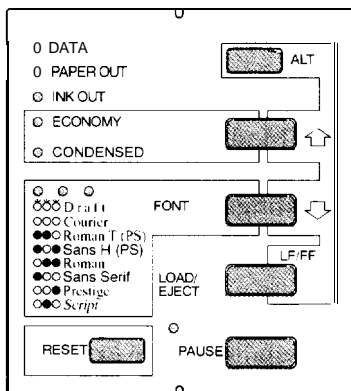
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Operating the Control Panel

The printer control panel gives you easy control over most common printer operations. It consists of indicator lights and buttons.

You can also change the default settings with this panel. See “Changing the default settings” on page 3-11.



Indicator lights

The indicator lights tell you the current status of the printer and give information about error conditions. See “Troubleshooting” for details on errors.

PAUSE

On when printing is paused

FONT

Indicates the current font setting. These three lights go on and off when you press the FONT button. The font menu on the control panel tells you which font is selected. For instructions on selecting fonts, see page 3-5.

CONDENSED

On when the condensed printing mode is selected. When this mode is selected, the printer prints a condensed version of selected fonts. See page 3-7 for more information.

ECONOMY

On when the economy printing mode is selected. When this mode is selected, the printer uses less ink. This mode is ideal for rough drafts and editing work.

INK OUT

On when the ink cartridge runs out of ink. It flashes when the ink is low. For instructions on replacing the ink cartridge, see page 3-18.

PAPER OUT

On when the printer runs out of paper. Rapid flashing indicates a paper jam.

DATA

On when data remains in the printer's memory.

Note:

When the network interface mode is set to on in the default settings mode, data may be present in the printer's buffer even though the printer is not continuously printing. Always make sure the DATA light is off before turning off the printer.

Buttons

RESET

Clears the printer's buffer and initializes the printer settings to their factory settings. See page A-10 for details.

PAUSE

Press this button to stop printing temporarily. Press it again to resume printing.

LOAD/EJECT

Press this button to load paper. However, the printer normally loads paper automatically. When single-sheet paper is in the loading position, the printer ejects the sheet when you press this button. When continuous paper is in the loading position or tear-off position, the printer feeds the paper backward to the paper-park position.

If you have been printing from the manual feed slot, pressing this button switches paper loading back to the paper feeder.

FONT

Press this button to cycle through the font choices on the font menu. The FONT lights indicate the current selection.

ECONOMY/CONDENSED

Press this button to select economy or condensed printing. The indicator lights indicate which mode is on.

ALT

Hold down this button for several seconds to move the print head to the ink cartridge replace position when the printer is paused.

The ALT button also alters the functions of the other buttons. Hold down the ALT button and press another button to perform the following functions:

PRINT HEAD CLEANING (ALT + PAUSE)

Starts the print head cleaning cycle. See “Cleaning the Print Head” on page 3-20 for details.

LF/FF (ALT + LOAD/EJECT)

Press this button briefly to feed the paper forward one line. Hold this button down to eject a single sheet or to advance continuous paper to the top of next page. You can also use this button to feed continuous paper from the paper-park position to the loading position.

MICRO FEED:

(ALT + FONT)

Feeds paper forward in 1/180-inch increments.

(ALT +ECONOMY/CONDENSED)

Feeds paper backward in 1/180-inch increments.

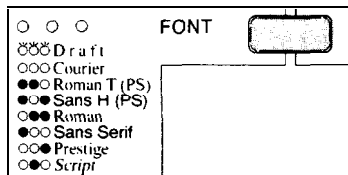
See page 2-3 for details.

Selecting Character Fonts

Your printer has eight built-in character fonts including two new Epson fonts: Epson Roman T and Epson Sans Serif H. (The Roman T is similar to the Times™ font; Sans Serif H is similar to Helvetica™)

The draft font of your printer has an excellent appearance compared with draft fonts in other printers. It uses fewer dots per character than the other fonts to increase printing speed. This allows you to print good quality documents for rough drafts and editing work.

Press the FONT button to select from the eight fonts listed on the control panel. The three FONT lights come on (O), or go off (o), or flash (⊙) to indicate the active font.



Note:

- ❑ Roman T and Sans Serif H fonts are available in proportional spacing only.
- ❑ Font selections you make in your software usually override these control panel selections. For best results, use your software to select fonts.

The table below lists the available fonts and shows how the FONT lights appear for each selection.

FONT	Fonts	Samples
Ö Ö Ö	Draft	ABCDEFGHIjklm0123456789
| ○ ○ ○	Epson Courier	ABCDEFGHIjklm0123456789
● ● ○	Epson Roman T	ABCDEFGHIjklm0123456789
● 0 ●	Epson Sans Serif H	ABCDEFGHIjklm0123456789
/ 0 ● ●	Epson Roman	ABCDEFGHIjklm0123456789
● ○ ○	Epson Sans Serif	ABCDEFGHIjklm0123456789
○ ○ ●	Epson Prestige	ABCDEFGHIjklm0123456789
○ ● ○	Epson Script	ABCDEFGHIjklm0123456789

0 on ● off Ö flashing

Scalable fonts

The size of the Roman, Sans Serif, Roman T, and Sans Serif H fonts can be selected from 8 to 32 points in 2-point increments by using your software or by sending an ESC/P 2 command. See the documentation that came with your software for information on selecting the size of scalable fonts. See the Appendix for a list of ESC/P 2 commands.

Roman

Epson Epson Epson **Epson**

Roman T

Epson Epson Epson **Epson**

Sans Serif

Epson **Epson** Epson **Epson**

Sans Serif H

Epson Epson Epson **Epson**

Condensed printing

Condensed printing reduces the size of characters to approximately 60 percent of their normal width, allowing more characters to fit on a line. This is useful for spreadsheets and other software that needs to print the maximum amount of information on a page.

You can condense most fonts by pressing the ECONOMY/CONDENSED button. (Epson Roman T, Epson Sans Serif H, and 15-cpi printing cannot be condensed.)

The printout below shows condensed 10-cpi printing.

T h i s i s 1 0 c p i p r i n t i n g .
This is condensed 10 cpi printing.

Note:

If your software controls character fonts and you select the condensed mode, you should select condensed mode through the software rather than with the control panel. Software or command settings usually override panel settings.

Using the Default-Settings Mode

Your printer comes with a series of internal settings that control a variety of printer functions, such as print direction and **auto** line feed. 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 most user's needs, so you may not need to change them. The table below lists the features you can set in the default-settings mode.

For a detailed description of each setting, see "Default settings descriptions." To change a setting, see "Changing the default settings" on page 3-11.

Settings	Options
Character table	Italic U.S.A., Italic France, Italic Germany, Italic U.K., Italic Denmark. Italic Sweden, Italic Italy, Italic Spain 1, PC437, PC850, PC860, PC863, PC865, PC853*, PC857*, PC437 Greek'. PC851*, PC855*, PC866*, PC852*, BRASCI1**, Abicomp**
Auto print direction	On, Off
Continuous-paper page length	11 inches, 12 inches, 8.5 inches, 70/6 inches
Skip-over-perforation	On, Off
Network interface mode	On, Off
Mixed text/graphics mode	On, Off
Auto line feed	On, Off
Auto interface selection	On, Off
Auto interface wait time	10 seconds, 30 seconds
Tear off	On, Off

. Available only in the European version

** Available only in the North/South American version

Note:

Most software controls the character table and auto line feed. If your software controls these features, you may never need to set them with the control panel.

Default settings descriptions

Character table

Character tables contain the characters and symbols used by different languages. The printer prints text with the selected character table. When you select this feature, the font light on the control panel goes on or off to indicate the current selection.

Auto print direction

The printer ordinarily prints text bidirectionally for speed and prints graphics characters unidirectionally for precise vertical alignment.

When auto print direction is set to on, the printer switches between bidirectional (for text data) and unidirectional motion (for graphics data). When this feature is set to off, the print head motion is controlled by your software.

Continuous-paper page length

When you are printing on continuous paper, this feature lets you select from the four page lengths described in the table on page 3-15.

Skip-over-perforation

When this feature is on and you are using continuous paper, the printer leaves a 1-inch (25.4-mm) margin between the last printable line on one page and the first printable line on the next page. This causes the printer to skip over the perforation between continuous sheets.

Most software takes care of the top and bottom margins. Do not turn on skip-over-perforation unless your software does not provide these margins.

Adjust your top-of-form position with the micro-feed feature to get half of the margin at the bottom of one page and half at the top of the next page.

Network interface mode

If your printer is connected to a single computer, leave this feature off. If you want to use the printer in a network environment and share it among multiple computers, set this feature to on.

Note:

When this feature is set to on, data may be present in the printer's buffer even though the printer is not continuously printing. Always make sure the DATA light is off before turning off the printer.

Mixed text/graphics mode

This feature is for software that has problems printing scalable font text combined with graphics. Leave the mixed text/graphics mode set to off if you don't notice any problems in your printout.

Auto line feed

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

Auto interface selection

This feature is necessary when an optional interface card is installed and interface cables are connected to both the parallel interface and the optional interface card.

When this feature is on, the printer determines which interface receives data and then switches to that interface until the end of the print job (when no data is received from the selected interface for the amount of time specified by the Auto interface wait time). Usually, you should set this feature to on.

When this feature is set to off, the printer receives data only from the interface specified by the DIP switch on the optional interface card.

Auto interface wait time

This feature is necessary when the auto interface selection is set to on. If the data from the computer is not sent within the specified period, the printer **re-determines** the source of any new data. Otherwise, the printer receives data only from the currently selected interface and ignores data from the other interface. You can set the time to either 10 seconds or 30 seconds.

Tear off

You can set this feature on to select tear-off mode. See “Using the tear-off feature” in Chapter 2 for information on tear-off mode. Use the tear-off feature only with continuous paper.

Do not use the tear-off feature with labels.

Changing the default settings

You change the printer’s default settings using the control panel buttons; the control panel lights show your selections.

Follow the steps below to make your changes:

1. Make sure the printer is turned off and A4, letter, or larger paper is loaded in the paper feeder.

2. Hold down the ECONOMY/CONDENSED button and turn on the printer to enter the default-settings mode.

The printer loads a sheet of paper and prints a brief summary and instructions. It instructs you to select the language that you want messages printed in (English, French, German, Italian, or Spanish).

3. Press the FONT button until the FONT lights indicate the language of your choice; then press the ALT button to make your selection.

Languages	FONT
English	● ● ○
French	● ○ ●
German	○ ● ●
Italian	● ○ ○
Spanish	○ ○ ●

○ on ● off

After you press the ALT button, the printer prints the current default settings and the next instruction in the language you selected. Wait until printing is finished; then go to the next step.

4. To move to the feature you want to change, press the ALT button until the DATA, PAPER OUT, and INK OUT lights indicate the appropriate selection.

For example, if you want to change the character table setting, press the ALT button until the DATA and PAPER OUT lights are off and the INK OUT light is on.

- Next, press the FONT button to change the setting.

As you move from setting to setting, the FONT lights turn on (○), off (●), and flash (◌) to show your selection, as indicated in the tables on page 3-14 and 3-15.

Default-settings menu	DATA	PAPER OUT	INK OUT
Character table	●	●	○
Auto print direction	●	●	◌
Continuous-paper page length	●	○	●
Skip-over-perforation	●	○	○
Network interface mode	●	○	◌
Mixed text/graphics mode	●	◌	●
Auto line feed	●	◌	○
Auto interface selection	●	◌	◌
Auto interface wait time	○	●	●
Tear off	○	●	○

○ on ● off ◌ flashing

- Repeat steps 4 and 5 to make all of your changes.
- To exit the default-settings mode, turn the printer off.

Note:

- You may exit default-setting mode any time by turning off the printer. Any changes you have made remain in effect until you change them again.
- Cl If you want to check the new default settings, enter the default-settings mode again and print the current settings. Turn the printer off to exit without making changes.

Default-settings menu	Settings	FONT
Character table	Italic U.S.A	m o o
	Italic France	● ● ○
	Italic Germany	● ● ö
	Italic U.K.	● ○ ●
	Italic Denmark 1	● ○ ○
	Italic Sweden	● ○ ö
	Italic Italy	● ö ●
	Italic Spain 1	● ö ○
	PC437 (USA, Standard Europe)	● ö ↓ ○
	PC850 (Multilingual)	○ ● ●
	PC860 (Portuguese)	○ ● ○
	PC863 (Canadian-French)	○ ● ö
	PC865 (Norwegian)	○ ○ ●
	PC853 (Turkish)* BRASCII (Brazilian Portuguese)*	○ ○ ○
	PC857 (Turkish)* Abicomp (Brazilian Portuguese)**	○ ○ ö
	PC437 Greek (Greek)'	○ ö ●
	PC851 (Greek)'	○ ö ○
	PC855 (Cyrillic)*	○ ö ö
	PC866 (Russian)*	ö ● ●
	PC852 (East Europe)'	ö ● ○
Auto print direction	on	a . 0
	Off	● ● ○

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

Default-settings menu	Settings	FONT
Continuous-paper page length	11 inches	● ● ●
	12 inches	● ● ○
	8.5 inches	● ● ○
	70/6 inches	● ○ ●
Skip-over-perforation	off	● ● ●
	on	● ● ○
Network interface mode	Off	● ● ●
	on	● ● ○
Mixed text/graphics mode	Off	● ● ●
	on	● ☒ ☐
Auto line feed	Off	● ● ●
	on	● ● ○
Auto interface selection	on	● ● ●
	Off	● ● ○
Auto interface wait time	30 seconds	● ● ●
	10 seconds	● ● ○
Tear off	Off	● ● ●
	on	● ● ○

Optional Interface Cards

You can use optional interface cards to supplement your printer's built-in parallel interface.

The Epson interface cards below are compatible with your printer. (Not all interfaces are available in all countries.)

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

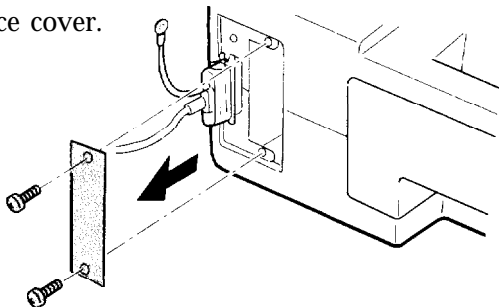
Model Numbers	Names
C82305*/C82306*	Serial interface card
C82307*/C82308*	32 KB Serial interface card
C82310*	32 KB Parallel interface card
C82313*	32 KB IEEE-488 interface card
C82312*	LocalTalk interface card

. The last digit varies by country

Installing an Interface Card

Follow the steps below to install an optional interface card. Removal of the interface card is the reverse of these steps.

1. Make sure the printer is turned off. Unplug the printer's power cord and disconnect the interface cable.
2. Remove the screws from the interface cover. Remove the interface cover.

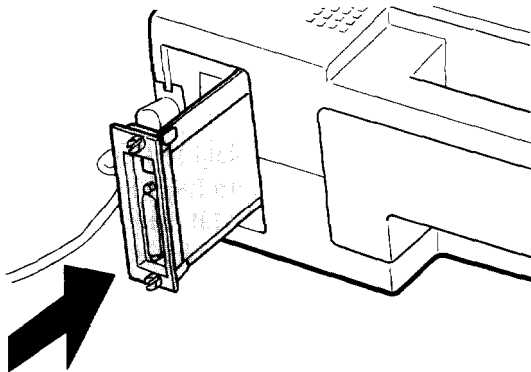


3. Be sure to set any switches and jumpers on the card. See the interface card's manual for details.

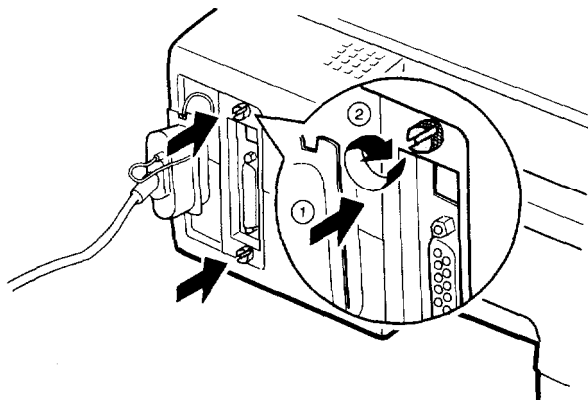
Note:

You can set the Auto interface selection and Auto interface wait time in default-settings mode. See pages 3-10 and 3-Z 1 for more information.

- Slide the interface card along the slots **on** both sides of the interface compartment. Push in firmly to make sure you fully insert the connector at the rear of the interface card into the printer's internal socket.



- Re-insert the screws and tighten to complete installation of the optional interface.



*The C82305 */C82306 * serial interface card*

To use the C82305*/C82306* interface card, see the sections below on selecting a baud rate, handshake timing, and error handling. For all other data transfer conventions, see the C82305*/C82306* interface card manual.

Selecting a baud rate

You can select from the following baud rates: 300, 600, 1,200, 2,400, 4,800, 9,600 and 19,200 bps (bits per second). When you set the baud rate, see the bit-rate selection table in the C82305*/C82306* interface card manual.

Handshake timing

When the vacant area for data in the input buffer drops to 256 bytes, the printer outputs an X-OFF code or sets the DTR flag to 1 (MARK) to indicate that it cannot receive data. When the vacant area for data in the buffer increases to 512 bytes, the printer outputs an X-ON code or sets the DTR flag to 0 (SPACE) to indicate that it is ready to receive data.

Error handling

When the printer detects an error, it prints an asterisk (*).

Maintenance and Transportation

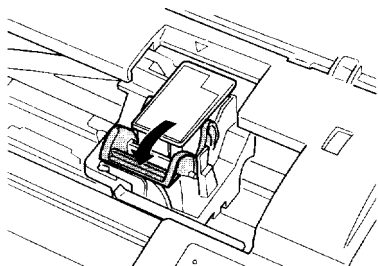
Replacing the ink cartridge

When the INK OUT light on the control panel flashes, the ink in the ink cartridge is low. The printer continues printing until the cartridge is completely empty. When it is out of ink, the printer stops and the INK OUT light stays on. Printing does not resume until you insert a new cartridge.

It's a good idea to keep a spare ink cartridge on hand. Use Epson ink cartridge SO20025 to ensure proper operation and preserve the life of the print head. Other brands of ink may clog the print head or damage it.

Follow these steps to remove the empty cartridge:

1. Make sure the printer stops printing and both the INK OUT and PAUSE lights stay on. Then open the printer cover.
2. Hold down the ALT button for several seconds and release the button when the print head moves to the ink cartridge replace position.
3. Pull the ink cartridge clamp toward you to release the cartridge. (The clamp pushes the ink cartridge up so it is easy to grasp.)



4. Lift the cartridge out of the printer and dispose of it properly. Do not take the used cartridge apart or try to refill it.



Warning:

The ink cartridge is self-contained to prevent leaks. However, if ink gets on your hands, wash them thoroughly with soapy water. Avoid touching your eyes. If irritation occurs, contact a physician.

5. Turn to page I-11 and follow the instructions from step 5 on to install the new cartridge. After installing, make sure that you press the PAUSE button and that the PAUSE light is turned off.

Note:

When you replace the cartridge, the printer does not recharge the ink delivery system again. However, the print head may start moving as the printer performs normal maintenance procedures. This can take up to 40 seconds to complete.

Cleaning the print head

If print quality diminishes, use the printer's built-in print-head cleaning cycle to ensure the nozzles are delivering ink properly. To avoid wasting ink, clean the print head only if print quality declines.

Follow these steps:

1. Make sure the printer is turned on and the PAUSE light is on. If the PAUSE light is not on, press the PAUSE button to pause the printer.
2. Hold down the ALT button and press the PAUSE button for two seconds.

The cleaning cycle takes about 40 seconds. The PAUSE light flashes throughout the cycle and then stays on when the cleaning cycle is finished.

3. Press the PAUSE button to resume printing.

Cleaning the printer

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

Before you clean the printer, make sure the printer is turned off and remove any paper.

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

To clean the outer case, use a soft, clean cloth dampened with mild detergent. Keep the printer cover closed to prevent water from getting inside the printer.

If the inside of the printer accidentally gets soiled with ink, wipe it off with a damp cloth.

**Caution:**

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

Transporting the printer

If you need to transport your printer some distance, carefully repack it using a box and enough packing materials to prevent damage to your printer, as described below:

1. Open the printer cover and make sure that the print head is capped in the far right position. If it is not capped, turn on the printer to cap it. Then, turn off the printer.
2. Remove the paper separators from the printer. Then, remove the paper support.
3. Unplug the power cord from the electrical outlet; then disconnect the interface cable from the printer.
4. Remove the paper from the paper feeder and attach the protective material to the printer. Repack it in a box.

**Caution:**

- 3 *Do not remove the ink cartridge when you transport your printer.*
- ❑ *Keep the printer flat in the box during transport.*

If the print quality is poor after transport, clean the print head. See “Cleaning the Print Head.”

Troubleshooting

Most problems you may encounter while operating your printer have simple solutions. Find your problem in this section and follow the recommended steps. If you cannot solve your problem using these instructions, contact your dealer or a qualified service person for assistance.

Error indicators

You can get information on problems you encounter by looking at the control panel. Check the lights on your printer and compare them to the list below. Follow the recommended steps to fix the error.

PAPER OUT	INK OUT	PAUSE	BUZZER	ERROR status
○	—	—	short, 3 times	Paper end
◐	—	—	short, 3 times	Paper jam
—	◐	—	none	Ink is low
—	○	○	short, 3 times	Ink is gone No ink cartridge
—	○	◐	short, 3 times	Fatal ink system error
●	●	◐	none	Cleaning/Charging
●	—	—	short, 3 times	Release lever error
●	—	—	long, 5 times	Back feed/Eject error
●	●	●	long, 5 times	Carriage error

● off ○ on ◐ flashing — unchanged

Paper end

No paper is loaded in the printer. Load paper again.

Paper jam

The paper is jammed inside the printer. Follow the steps on page 3-33.

Ink is low

The ink cartridge is almost out of ink. Get ready to replace the ink cartridge.

Ink is gone/No ink cartridge

The ink cartridge is empty or not installed. Replace the ink cartridge with a new one.

Fatal ink system error

Contact your dealer.

Cleaning/Charging

The printer is in the charging cycle or the cleaning cycle. This is not an error.

Release lever error

The release lever is in the wrong position. Move the release lever to the correct position.

Back feed/Eject error

The paper is too long. When using continuous paper, tear off any printed page before ejecting. Use paper that is within the specified size. See “Technical Specifications” in the Appendix.

Carriage error

A carriage error occurred. Turn off the printer. After a few seconds turn it back on again.

Power supply

The printer does not work or control panel lights are off.

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

Check that the “I” side of the power switch is pressed down to turn on the printer.

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 it is working.

The lights come on briefly but then go off and stay off.

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

Note:

- ❑ 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 printer is operating properly, and the problem probably lies in the computer, the software, or the cable. If the self test does not work, contact your dealer.
- ❑ Use the hex dump mode to pinpoint communication problems between the printer and your software. To enter the hex dump mode, hold down the LOAD/EJECT and FONT buttons and turn on the printer. Then send data from the computer. The printer prints the exact codes it receives from the computer in hexadecimal format. You can analyze this information to isolate problems.

Printing stops and the PAUSE light is on.

Printing is temporarily suspended. Press the PAUSE button to continue.

The PAUSE light is off but nothing prints.

Check both ends of the cable between the printer and the computer. Make sure the interface cable is plugged in securely. Make sure your interface cable meets both the printer and computer specifications.

The printer sounds like it is printing, but nothing prints.

The print head nozzles may be clogged. Hold down the ALT button and press the PAUSE button for two seconds to clean the print head. See “Cleaning the Print Head” earlier in this chapter.

Dots are missing in printed characters or graphics.

The print head nozzles may be clogged. Hold down the ALT button and press the PAUSE button for two seconds to clean the print head. See “Cleaning the Print Head” earlier in this chapter.

Set the Mixed text/graphics mode to on in the default-settings mode. See “Using the Default-Settings Mode” earlier in this chapter.

Set the Network interface mode to on in the default-settings mode. See “Using the Default-Settings Mode” earlier in this chapter.

The printed image is light or faint.

The print head nozzles may be clogged. Hold down the ALT button and press the PAUSE button for two seconds to clean the print head. See “Cleaning the Print Head” earlier in this chapter.

The paper-thickness lever may not be set correctly. The raised position is for envelopes and may cause faint printouts if used for plain paper. For details on the paper-thickness lever, see “Printing on Special Paper” in Chapter 2.

Your paper may be moist or damp. Ink jet printers are sensitive to moisture absorbed by the paper. Do not store your paper in a damp or humid environment.

You may have selected the economy printing mode. To exit this mode, press the ECONOMY/CONDENSED button until the ECONOMY light goes off.

The printed image is blurred.

You may not be using the correct type of paper. See Chapter 1 for tips on choosing the right paper.

You may not be printing on the correct side of the paper. Test both sides to determine which side gives you the best print quality.

Your paper may be moist or damp. Do not store your paper in a damp or humid environment.

The typesyles or characters set with your software do not print.

Check that the software is correctly configured for your printer.

The font selected on the control panel does not print.

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

The wrong characters are printed.

The wrong character table is selected. Change the character table as described in “Using the Default-Settings Mode” earlier in this chapter.

Printing starts too high or too low on the page.

Adjust the top margin using your software or use the printer’s micro-feed feature to make minor adjustments to the loading position. See “Tips on using the paper feeder” in Chapter 2.

All the text prints on the same line.

Set Auto line feed to on in the default-settings mode so that the printer adds a line-feed to each carriage return. See “Using the Default-Settings Mode” earlier in this chapter.

The text prints an extra blank line between each text line.

Set Auto line feed to off in the default-settings mode so that two line-feed signals are not sent. See “Using the Default-Settings Mode” earlier in this chapter.

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

The printed page length is not what you expected.

The page length setting may not match the length of the paper loaded in the printer. Change the page length setting with your software to match the paper you are using. When using continuous paper, you can change the length in the default settings mode.

When using an optional interface card, the printer does not print or the printout is not what you expected.

The other interface may be selected by the Auto interface selection feature. Set Auto interface selection to off in the default settings mode; the DIP-switch setting on the optional interface board then selects the interface.

You may be trying to use an interface card or cable with the wrong specifications. Check the specifications to make sure you can use the interface card or cable with this printer.

The computer and printer interface settings may not match. Make sure the settings on the computer and printer match.

The interface may have been disabled. Make sure that the switch near the interface connector is turned on.

Paper handling

Single sheets do not feed properly from the paper feeder.

Too many sheets are loaded in the paper feeder. Remove the paper from the paper feeder and reload the paper no higher than the mark on the edge guide.

The paper is too thick or too thin to be fed. Make sure the paper is within the specifications. Some paper types require manual feeding. See “Technical Specifications” in the Appendix.

Check that the release lever is in the single-sheet position when using the push tractor.

The paper-feeder cover may be opened. Close the paper-feeder cover.

Paper may be jammed near the print head.

The printer loads more than one sheet at a time.

The paper is too thin. Make sure the paper is within the specifications. See “Technical Specifications” in the Appendix.

The ejected paper is wrinkled.

The paper is too thin or is damp. Make sure the paper is within the specifications. See “Technical Specifications” in the Appendix. Do not store your paper in a damp or humid environment.

Single-sheet paper does not fully eject.

Use the LOAD/EJECT button to eject the page.

The paper may be too long. Use paper that is within the specified size. See “Technical Specifications” in the Appendix.

Paper from the paper feeder is crooked.

The paper may be old or creased. Use only new, clean sheets of paper.

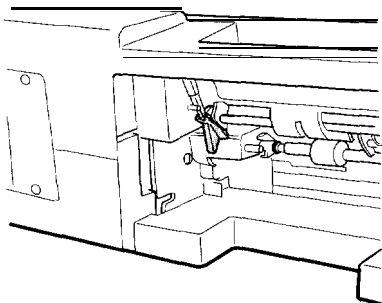
There may be too much paper on the paper support.

Make sure that your paper is the proper size and quality. See the Appendix.

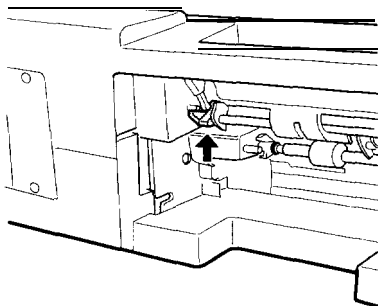
When installing the push tractor, it does not lock in place.

The release lever is in the continuous paper position. Move the release lever to the single-sheet position.

The lever inside the printer is in the wrong position as shown below.



Remove the printer cover and the push tractor. Raise the lever as shown below and do not move the lever afterwards.



After installing the push tractor, the release lever is locked.

When installing the push tractor, the release lever is in the wrong position. Remove the push tractor and lower the release lever to the single-sheet position. Then re-install the push tractor.

The push tractor does not feed the paper.

The release lever is in the wrong position. Move the release lever to the continuous-paper position.

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

The lever inside the printer is in the wrong position. Remove the printer cover and the push tractor. Raise the lever as shown in illustrations above and do not move the lever afterwards.

Paper feeding of continuous paper is crooked or the paper jams.

Check that the release lever is in the correct position.

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 (3.28 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 page 2-16.

Check that the paper size and thickness is within the specified range. See the Appendix.

There may be slack in the paper. Adjust the position of the sprocket units.

The continuous paper does not eject properly.

The page is too long. Tear off the paper and remove it from the printer. Use paper that is within the specified length range. See the Appendix.

The paper is jammed inside the printer.

Clearing a paper jam

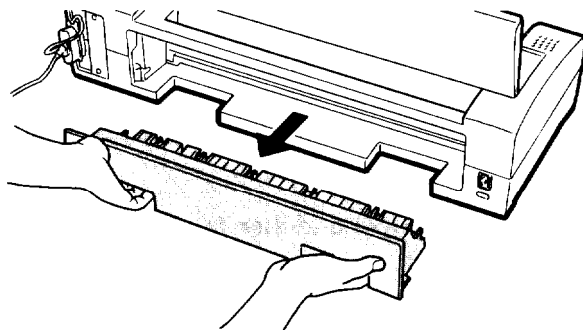
To clear a paper jam follow the steps below:



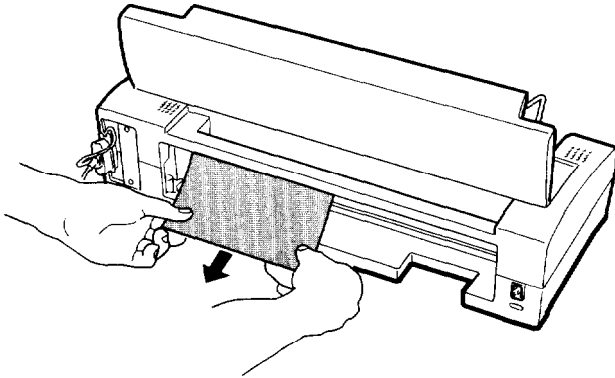
Warning:

Be careful not to touch the part of the access panel or push tractor that fits inside the printer.

1. Open the printer cover and the paper feeder cover.
2. Pull the access panel straight out of the rear of the printer, as shown below. When loading continuous paper, remove the push tractor.



3. Pull the paper out gently. If the paper tears, make sure you remove any remaining pieces.



4. If the paper is caught in the paper ejection area, gently pull it out of the printer.
5. Push the access panel back into the rear of the printer. When loading continuous paper, replace the push tractor. Close the printer cover and the paper feeder cover.

Preventing paper feeding and paper jam problems

If you have frequent paper feeding or paper jam problems, refer to this checklist of corrective measures:

- Use a higher-quality paper, one that is not too thin or rough. Some types of paper require manual feeding. See Chapter 2.
- Fan the stack of paper and then tap it on its edge to align it before you load it.
- Be sure that you do not load paper higher than the mark on the edge guide.
- Try turning the stack of paper over in the paper feeder. Most packages of paper indicate the best side with an arrow on the end of the package. Make sure the best side is loaded face down.

Appendix

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Technical Specifications

Printer specifications

Printing

Printing method: Drop on demand 48-nozzle ink jet matrix

Printable columns and printing speed:

Character pitch	Printable columns	Printing speed (Letter Quality)	Printing speed (Draft)
10 cpi	136	150 cps	250 cps
12 cpi	163	180 cps	300 cps
15 cpi	204	225 cps	375 cps
17 cpi (10 cpi condensed)	233	257 cps	428 cps
20 cpi (12 cpi condensed)	272	300 cps	500 cps

cpi: characters per inch

cps: characters per second

Maximum Resolution: 360 x 360 dpi text and graphics

Printing direction: Bidirectional with logic-seeking for text and graphics. (The auto print direction can be set in the default-setting mode.)

Line spacing: 1/6 inch, 1/8 inch, or programmable in 1/360-inch increments

Paper feed speed: 82 milliseconds per 1/6-inch line
2.2 inches/set. for continuous paper

Input buffer: 64 KB when Mixed text/graphics option in default-settings mode is set to ON
128 KB when Mixed text/graphics option in default-settings mode is set to OFF

Character tables:

North/South America:	1 italic and 7 graphics character tables
Europe:	1 italic and 12 graphics character tables
Other countries:	1 italic and 5 graphics character tables
Character sets:	14 international character sets and 1 legal character set

Bitmap fonts:

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

Select other font/pitch combinations using ESC/P 2 commands. See the command summary later in this chapter for a list of commands.

Scalable fonts:

Font	Min. pnt.	Max. pnt.	Increments
Epson Roman	8	32	2 pt
Epson Sans Serif	8	32	2 pt
Epson Roman T	8	32	2 pt
Epson Sans Serif li	8	32	2 pt

Paper

Single sheets (Paper feeder):

Width	182 to 420 mm (7.1 to 16.5 inches)
Length	182 to 297 mm (7.1 to 11.7 inches)
Thickness	0.065 to 0.11 mm (0.0026 to 0.0043 inches)
Weight	64 to 90 g/m ² (18 to 24 lb)
Quality	Bond paper, plain paper

Single sheets (Manual insertion):

Width	182 to 420 mm (7.1 to 16.5 inches)
Length	182 to 420 mm (7.1 to 16.5 inches)
Thickness	0.065 to 0.11 mm (0.0026 to 0.0043 inches)
Weight	52 to 90 g/m ² (14 to 24 lb)
Quality	Bond Paper, plain paper

- Use 90g/m² (24 lb.) paper under normal temperature and humidity conditions only.
- Cl Use recycled paper under normal temperature and humidity conditions only. Poor quality paper may reduce print quality, as well as cause paper jams and other problems. If you encounter problems, switch to a higher grade of paper.

Continuous paper:

Width	102 to 406 mm (4 to 16 inches)
Thickness	0.065 to 0.1 mm (0.0026 to 0.0039 inches)
Weight	52 to 82 g/m ² (14 to 22 lb)
Quality	Plain paper

Labels:

Size	102 to 406 mm (4 to 16 inches) width for backing sheet 63.5 x 23.8 mm (2.5 x 0.94 inches) minimum for label
Thickness	0.2 mm (0.0078 inches) maximum total
Quality	Plain paper

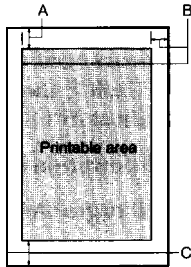
- Use labels only under normal temperature and humidity conditions.
- Use continuous type labels only with the optional push tractor.

Envelopes:

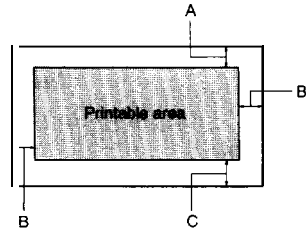
Size	No. 6 166 x 92 mm (6.5 x 3.6 inches) No. 10 240 x 104 mm (9.5 x 4.1 inches)
Thickness	0.16 to 0.52 mm (0.0063 to 0.0197 inches)
Weight	45 to 90 g/m ² (12 to 24 lb)
Quality	Bond paper, plain paper, air mail

- Use envelopes only under normal temperature and humidity conditions.
- Cl Insert envelopes long side first; use the manual feed slot only.
- Make sure the difference in thickness within the printable area is less than 0.25 mm (0.01 inches).

Printable area:
Single sheets
(paper feeder and manual insertion)



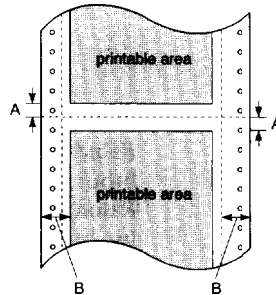
Envelopes



- A The minimum top margin is **3.0 mm (0.12 inches)**.
- B The minimum left and right margins are **3.0 mm (0.12 inches)**. However, the maximum printable width is **345 mm (13.6 inches)**.
- C The minimum bottom margin is **13.0 mm (0.51 inches)**.

Continuous paper

- A The minimum top and bottom margins (above and below the perforation) are **9.0 mm (0.35 inches)**.
- B The minimum left and right margins are **3.0 mm (0.12 inches)**. However, the maximum printable width is **345 mm (13.6 inches)**.



Mechanical

Paper-feed method:

Friction

Ink cartridge (S020025):

Color:

Black

Print capacity:

Approximately 0.7 million characters in letter quality mode
2 years from production date

Cartridge life:

(The cartridge life may vary, depending on how often you use the print head cleaning function.)

Ink cartridge (S020025):

Temperature:	
Storage:	-30° to 40°C (-22° to 104°F)
Transit:	-30° to 60°C (-22° to 140°F) 1 month at 40°C (104°F) 120 hours at 60°C (140°F)
Freezing:	-3°C (26.6°F) thaws in approx. 2 hours at 25°C (77°F)

MTBF:	6,000 power-on hours
Lifetime print capacity:	75,000 pages (A4 or letter)
Print head life:	1,000 million dots per nozzle

Dimensions and weight:	
Height	164 mm (6.45 inches)
Width	666 mm (26.25 inches)
Depth	284 mm (11.2 inches) without paper feeder 466 mm (18.3 inches) with paper feeder
Weight	8.6 kg (19.0 lb.)

Electrical

120 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:	0.5 A
Power consumption:	Approx. 13 W (during self-test printing in LQ mode at 10 cpi)

220-240 V model:

Rated voltage:	AC 220 to 240 V
Input voltage range:	AC 198 to 264 V
Rated frequency range:	50 to 60 Hz
Input frequency range:	49.5 to 60.5 Hz
Rated current:	0.3 A
Power consumption:	Approx. 13 W (during self-test printing in LQ mode at 10 cpi)

Note:

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

Environmental

Temperature:

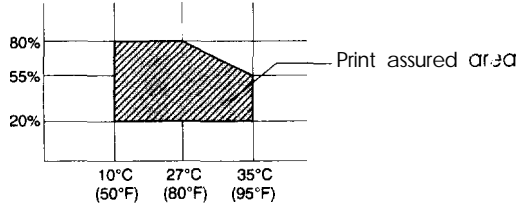
Operation: 10° to 35°C (50° to 95°F)

Storage: -20° to 50°C (-4° to 122°F)

Humidity (without condensation):

Operation: 20 to 80% RH-I

Storage: 5 to 85% RH



Safety approvals

Safety standards:

US model: UL1950 with D3, CSA22.2 #220

European model: EN 60950 (TÜV) IEC 950 (SEMKO, DEMKO, NEMKO, SETI)

R.F.I.:

US model: FCC Part 15 Subpart B class B

European model: Vfg. 243 (VDE 0878 part 3, part 30)
EN 55022 (CISPR Pub 22) class B

Interface Specifications

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

Specifications and pin assignments

The built-in parallel interface has the following characteristics:

Data format: &bit parallel

Synchronization: STROBE pulse

Handshake timing: BUSY and ACKNLG signals

Signal level: TTL compatible

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

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

Signal Pin	Return Pin	Signal	Direction	Description
1	19	STROBE	IN	STROBE pulse to read data. Pulse width must be more than 0.5 μ s at the receiving terminal.
2	20	DATA 1	IN	These signals represent information in bits 1 to 8 of parallel data respectively. Each signal is at HIGH level when data is logical 1 and LOW when it is logical 0.
3	21	DATA 2	IN	
4	22	DATA 3	IN	
5	23	DATA 4	IN	
6	24	DATA 5	IN	
7	25	DATA 6	IN	
8	26	DATA 7	IN	
9	27	DATA 8	IN	
10	28	ACKNLG	OUT	About an approx.10- μ s 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 (for each character) 2) During printing 3) When the PAUSE button is pressed 4) During an error state
12	30	PE	OUT	A HIGH signal indicates the printer is out of paper.
13	-	SLCT	OUT	Pulled up to 5 V through 1.0k Ω resistance
14	-	AUTO FEED XT	IN	When this signal is LOW, the paper is automatically fed one line after printing.
15	-	NC		Not used
16	-	GND	-	Logic ground level
17	-	CHASSIS GND	-	Printer's chassis ground, which is isolated from the logic ground

Signal Pin	Return Pin	Signal	Direction	Description
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 state when the power is first turned on and the print buffer is cleared. This level is normally HIGH; its pulse width must be more than 50 μ s at the receiving terminal.
32	-	ERROR	OUT	This level becomes LOW when: 1) The paper-is out 2) The PAUSE button is pressed 3) An error occurs
33	-	GND	-	Same as for pins 19-30
34		NC		Not used
35	-			Pulled up to 5 V through 1.0k Ω resistance
36		NC		Not used

Note:

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

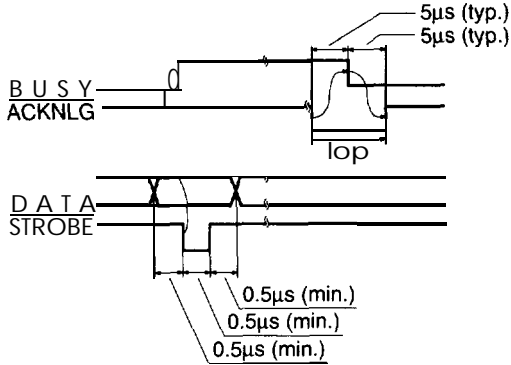
"Return" denotes the twisted-pair return, connected at signal ground level. For the interface wiring, be sure to use a twisted-pair cable for each signal and to complete the connection on the return side.

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:

<p>Hardware initialization</p>	<ul style="list-style-type: none"> <input type="checkbox"/> The power is turned on. <input type="checkbox"/> The printer receives an INIT signal from the parallel interface (pin 31 goes LOW). <p>The following condition then results:</p> <ol style="list-style-type: none"> 1) The printer mechanism is initialized. 2) The input data buffer is cleared. 3) The download character set is cleared. 4) The print buffer is cleared. 5) The default values are set. (Panel settings are reset.)
<p>Software initialization</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Software sends the ESC @ (initialize the printer) command. <p>The following condition then results:</p> <ol style="list-style-type: none"> 1) The print buffer is cleared. 2) The default values are set. (The last panel settings are kept.)
<p>Control panel initialization</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Hold down the RESET button. <input type="checkbox"/> The printer switches to an interface using the Auto interface selection feature. <p>The following results:</p> <ol style="list-style-type: none"> 1) The input data buffer is cleared. 2) The print buffer is cleared. 3) The default values are set. (The last panel settings are kept.)

Default settings

The table below shows the default settings that take effect when the printer is initialized. In addition, hardware and control panel initialization clears the data buffer.

Item	Default setting
Top-of-form position	Current paper position
Page length	Single sheets: 65 lines for A4-size paper 61 lines for letter-size paper 22 inches for manual insertion
Left and right margins	Canceled
Line spacing	1 /6-inch line spacing
Character size	10.5 point
Vertical tab position	Cleared
Horizontal tab positions	Every eight characters
Font selection	Last font selected on control panel
Special printing effects	Canceled (except condensed printing)
Download character set	Hardware initialization: cleared Software/control panel initialization: deselected only

Command Summary

Sending printer commands

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

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

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

Using the command summary

The following section lists and describes all the commands by topic. If a command has no parameters, it is merely listed. If it has parameters, they are explained. The parameters are indicated by lowercase italicized letters, usually *n*. The examples below show how the parameters are indicated.

ESC @ is a command with no parameters.

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

ESC \$ *n*1 *n*2 is a command with two parameters.

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

General operation

<u>ASCII</u>	<u>-</u>	<u>Dec.</u>	<u>Hex.</u>	<u>Description</u>
ESC @		64	40	Initialize Printer
ESC U 1/0		85	55	Turn Unidirectional Mode On/Off
ESC EM <i>n</i>		25	19	Control Paper Loading/Ejecting <i>n</i> = "R" : Eject a sheet

Paper feeding

<u>ASCII</u>	<u>-</u>	<u>Dec.</u>	<u>Hex.</u>	<u>Description</u>
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

ASCII	Dec.	Hex.	Description
ESC 3 <i>n</i>	51	33	Set <i>n</i> / 180-inch Line Spacing
ESC + <i>n</i>	43	2B	Set <i>n</i> /360-inch Line Spacing

Page format

ASCII	Dec.	Hex.	Description
ESC (c <i>mn</i>	40 99	28 63	Set Page Format ESC (c 4 0 <i>m1 m2 n1 n2</i> <i>m</i> = <i>m1</i> + <i>m2</i> × 256 <i>m</i> : Top margin in defined units <i>n</i> = <i>n1</i> + <i>n2</i> × 256 <i>n</i> : Bottom margin in defined units
ESC (C <i>nn</i>	40 67	28 43	Set Page Length in Defined Unit ESC (C 2 0 <i>n1 n2</i> <i>n</i> = <i>n1</i> + <i>n2</i> × 256 <i>n</i> : Number of defined units
ESC C <i>n</i>	67	43	Set Page Length in Lines <i>n</i> = Number of lines
ESC C 0 <i>n</i>	67	43	Set Page Length in Inches <i>n</i> = Number of inches
ESC N <i>n</i>	78	4E	Set Bottom Margin for Continuous Paper <i>n</i> = Number of lines
ESC 0	79	4F	Cancel Top/Bottom Margin for Continuous Paper
ESC l <i>n</i>	108	6C	Set Left Margin <i>n</i> = Left margin column
ESC Q <i>n</i>	81	51	Set Right Margin <i>n</i> = Right margin column

Print position motion

ASCII	Dec.	Hex.	Description
ESC \$ $n_1 n_2$	36	24	Set Absolute Horizontal Print Position $n = n_1 + n_2 \times 256$ n : Specifies print position from left margin in defined units * Before you define the unit, the default unit is 1/60 inch for this command.
ESC \ $n_1 n_2$	92	5C	Set Relative Horizontal Print Position $n = n_1 + n_2 \times 256$ n : Moves current print position in defined units * Before you define the unit, the default unit is 1/120 inch in draft and 1/180 inch in LQ for this command.
ESC (V $n n$	40 86	28 56	Set Absolute Vertical Print Position ESC (V 2 0 $n_1 n_2$ $n = n_1 + n_2 \times 256$ n : Specifies print position from top margin in defined units
ESC (v $n n$	40 118	28 76	Set Relative Vertical Print Position ESC (v 2 0 $n_1 n_2$ $n = n_1 + n_2 \times 256$ n : Moves current print position in defined units
ESC D $n n$	68	44	Set Horizontal Tabs Up to 32 tabs entered in ascending order Terminated by 0
HT	9	09	Tab Horizontally
ESC B $n n$	66	42	Set Vertical Tabs Up to 16 tabs; last n should be 0
VT	11	0B	Tab Vertically
ESC | n	74	4A	Advance paper $n / 180$ inch

Font selection

<i>ASCII</i>	<i>Dec.</i>	<i>Hex.</i>	<i>Description</i>
ESC k <i>n</i>	107	6B	Select Typeface <i>n</i> = 0: Roman 4: Script 1: Sans Serif 10: Roman T 2: Courier 11: Sans Serif H 3: Prestige
ESC X <i>m</i>	88	58	Select Font by Pitch and Point ESC X <i>m</i> <i>n</i> 1 <i>n</i> 2 <i>m</i> : Set pitch to 360/ <i>m</i> cpi <i>m</i> = 0: No change in pitch <i>m</i> = 1: Select proportional <i>m</i> = 0, 1, 18, 21, 24, 30, 36, 42, 48, 60, or 72 <i>n</i> = <i>n</i> 1 + <i>n</i> 2 x 256 <i>n</i> : Set point size in 0.5 points Total points = (<i>n</i> 1 + <i>n</i> 2 x 256) x 0.5 <i>n</i> = 0: No change in point <i>n</i> = 0, 16, 21, 24, 28, 32, 36, 40, 44, 48, 52, 56, 60, or 64 (for Roman, Sans Serif Roman T, and Sans Serif H.) <i>n</i> = 0, 21, 42 (for other typefaces) * ESC P, M, g, p, !, or @ cancel ESC X.
ESC ! <i>n</i>	33	21	Master Select To find the value of <i>n</i> , add together the numbers of the font attributes and enhancements you want to combine from the list below: <i>n</i> = 0: 10 cpi 16: Double-strike 1: 12 cpi 32: Double-width 2: Proportional 64: Italic 4: Condensed 128: Underline 8: Bold
ESC I	80	50	Select 10.5 point, 10 cpi
ESC M	77	4D	Select 10.5 point, 12 cpi
ESC g	103	67	Select 10.5 point, 15 cpi
ESC p / O	112	70	Turn Proportional Mode On/Off
ESC x <i>n</i>	120	78	Select LQ or Draft <i>n</i> = 0: Draft 1: LQ

<i>ASCII</i>	<i>Dec.</i>	<i>Hex.</i>	<i>Description</i>
ESC 4	52	34	Select Italic Font
ESC 5	53	35	Cancel Italic Font
ESC E	69	45	Select Bold Font
ESC F	70	46	Cancel Bold Font

font *enhancement*

<i>ASCII</i>	<i>Dec.</i>	<i>Hex.</i>	<i>Description</i>
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 S 0	83	53	Select Superscript Printing
ESC S 1	83	53	Select Subscript Printing
ESC T	84	54	Cancel Superscript/Subscript Printing
ESC (- <i>nm</i>	40 45	28 2D	Select Line/Score ESC (- 3 0 1 <i>n1 n2</i> <i>n1</i> =1: Underline 2: Strikethrough 3: Overscore <i>n2</i> =0: Cancel score line selected by <i>n1</i> 1: Single continuous line 2: Double continuous line 5: Single broken line 6: Double broken line
ESC q <i>n</i>	113	71	Select Character Style <i>n</i> = 0: Normal style 1: Outline 2: Shadow 3: Outline with shadow
ESC G	71	47	Select Double-Strike Printing

ASCII	Dec.	Hex.	Description
ESCH	72	48	Cancel Double-Strike Printing
ESC - l/O	45	2D	Turn Underline On/Off

Spacing

ASCII	Dec.	Hex.	Description
ESC SP <i>n</i>	32	20	Set Intercharacter Space <i>n</i> = Number of units of space added to the space between characters Units is 1/120 inch (draft) or 1/180 inch (LQ and proportional)
ESC (U <i>nm</i>	40 85	28 55	Define Unit ESC (U 1 0 <i>n</i> Define positioning unit as $n/3600$ inch <i>n</i> = 10, 20, 30, 40, 50, or 60 <i>n</i> = 10: default
ESC c <i>n1 n2</i>	99	63	Set Horizontal Motion Index (HMI) Select Pitch in $n/360$ -inch units Total units = $n1 + n2 \times 256$

Character handling

ASCII	Dec.	Hex.	Description
ESC 6	54	36	Enable Printing of Upper Control Codes This command enables the printing of codes 128 to 159 (if current table has characters in those locations).
ESC 7	55	37	Enable Upper Control Codes Cancels ESC 6
ESC R <i>n</i>	82	52	Select an International Character Set <i>n</i> =0: USA 7: Spain I 64: Legal 1: France 8: Japan 2: Germany 9: Norway 3: UK 10: Denmark 4: Denmark I 11: Spain II 5: Sweden 12: Latin America 6: Italy 13: Korea

ASCII	Dec.	Hex.	Description
ESC (t <i>nn</i>	40 116	28 74	Assign Character Table ESC (t 3 0 <i>d1 d2 d3</i> Assign character table set with <i>d2</i> and <i>d3</i> to table <i>d1</i> <i>d1</i> = 0, 1, 2, 3, 48, 49, 50, or 51 <i>d2 d3</i> Character Table 0 0 Italic 1 0 PC 437 (USA) 1 16 PC 437 Greek (Greek)* 3 0 PC 850 (Multilingual) 4 0 PC 851 (Greek)* 5 0 PC 853 (Turkish)* 6 0 P C 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) 25 0 BRASCII (Brazilian Portuguese)** 26 0 Abicom (Brazilian Portuguese)** * available for European version only **available for North/South American version only
ESC t <i>n</i>	116	74	Select Character Table Select character table <i>n</i> assigned by ESC (t <i>n</i> = 0, 1, 2, 3, 48, 49, 50, or 51 <i>n</i> = 2 : Remaps download characters from 0 - 127 to 128 - 255, unless a character table has been assigned to 2 with the ESC (t command
ESC : 0 <i>n</i> 0	58	3A	Copy ROM to RAM <i>n</i> = 0, 1, 2, 3, 4, 5, 6, or 9 <i>n</i> : Typeface (see list in ESC k command description)
ESC % <i>n</i>	37	25	Select User-Defined Set <i>n</i> = 0: Normal set 1: User-defined set

ASCII	Dec.	Hex.	Description
ESC & <i>nm</i>	38	26	Define User-Defined Character ESC 8-t 0 <i>n1 n2 d0 d1 d2</i> data <i>n1</i> = First character number <i>n2</i> = Last character number <i>d0</i> = Left space of character <i>d1</i> = Body width of character <i>d2</i> = Right space of character data: 3 bytes required for each character; super/subscript requires only 2 bytes per character
ESC (^ <i>nm</i>	40 94	28 5E	Print Data as Characters ESC (^ <i>n1 n2</i> data <i>n</i> = <i>n1</i> + <i>n2</i> x 256 <i>n</i> : Amount of data data: The following <i>n</i> bytes of data printed as characters

Graphics

ASCII	Dec.	Hex.	Description
ESC (G <i>nm</i>	40 71	28 47	Select Graphics Mode ESC (G 1 0 <i>n</i> <i>n</i> = 1 or 49 * Cancel Graphics mode with ESC @
ESC . <i>nm</i>	46	2E	Print Raster Graphics ESC . <i>c v h m n1 n2</i> data <i>c</i> = 0: Full graphics mode 1: Compressed mode <i>v</i> = 10, 20: Dot density for vertical in 3600/ <i>v</i> DPI <i>h</i> = 10, 20: Dot density for horizontal in 3600/ <i>h</i> DPI <i>m</i> : Number of vertical dots 24 ≥ <i>m</i> ≥ 1 <i>n</i> : Number of horizontal dots Total dots = <i>n1</i> + <i>n2</i> x 256 * The following combination is not allowed: <i>v</i> = 10 and <i>h</i> = 20

Bit image

ASCII	Dec.	Hex.	Description
ESC * <i>nm</i>	42	2A	Select Bit Image ESC * <i>m n1n2</i> data $n = n1 + n2 \times 256$ <i>n</i> : Total columns Total data = $(n1 + n2 \times 256) \times f$ <i>t</i> = Number of data bytes per column

<i>m</i>	Horizontal density (dpi)	Vertical density (dpi)	Pins	Adjacent dots print	<i>f</i>
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	24	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	Yes	3
71	180	360	48	Yes	6
72	360	360	48	No	6
73	360	360	48	Yes	6

Character Tables

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

The characters for hex codes 00 through 7F are the same as the PC437 table, so only the PC437 tables are shown completely. The rest of the tables show only the characters for hex codes 80 through FF.

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

PC437 (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	⌘	L	Y	α	≡
1		!	1	A	Q	a	q	r	ü	æ	í	⌘	⌘	Y	β	±
2		DC2	"	B	R	b	r	s	6	æ	í	⌘	⌘	Y	π	≥
3			#	3	C	S	c	s	â	ô	ú	⌘	⌘	Y	π	≤
4		DC4	\$	4	D	T	d	t	ä	ö	ñ	⌘	⌘	Y	Σ	∫
5			%	5	E	U	e	u	à	ò	Ñ	⌘	⌘	Y	σ	∫
6			&	6	F	V	f	v	â	ù	ã	⌘	⌘	Y	μ	÷
7			'	7	G	W	g	w	ç	ê	ë	⌘	⌘	Y	τ	∞
8			(	8	H	X	h	x	ÿ	ÿ	ÿ	⌘	⌘	Y	φ	∞
9	HT	EM	)	9	I	Y	i	y	ë	ÿ	ÿ	⌘	⌘	Y	θ	∞
A	LF	*	:	J	Z	j	z	{	è	Û	ÿ	⌘	⌘	Y	Ω	∞
B	VT	ESC	+	;	K	[	k	{	è	Û	ÿ	⌘	⌘	Y	δ	∞
C	FF		=	L	M	\	l	m	ì	ì	ì	⌘	⌘	Y	ø	∞
D	CR		-	<	M	]	m	~	ï	ï	ï	⌘	⌘	Y	ø	∞
E	SO	.	>	N	^	~	n	~	hi	Pt	«	⌘	⌘	Y	ø	∞
F	SI	/	?	O	_	o	o	o	À	f	»	⌘	⌘	Y	ø	∞

PC850 (Multilingual)

CODE	8	9	A	B	C	D	E	F
0	Ç	É	á	⌘	L	ø	Ó	±
1	ü	æ	í	⌘	⌘	ð	β	±
2	é	Æ	ó	⌘	⌘	ë	Γ	≥
3	â	ö	ú	⌘	⌘	è	π	≤
4	ä	ö	ñ	⌘	⌘	è	Σ	∫
5	à	ò	Ñ	⌘	⌘	ï	σ	∫
6	â	ù	ã	⌘	⌘	í	μ	÷
7	ç	û	ä	⌘	⌘	î	ρ	∞
8	ê	ÿ	ÿ	⌘	⌘	ï	ρ	∞
9	ë	ÿ	ÿ	⌘	⌘	ÿ	ÿ	∞
A	è	Û	ÿ	⌘	⌘	ÿ	ÿ	∞
B	é	Û	ÿ	⌘	⌘	ÿ	ÿ	∞
C	í	ÿ	ÿ	⌘	⌘	ÿ	ÿ	∞
D	ì	ÿ	ÿ	⌘	⌘	ÿ	ÿ	∞
E	x	x	«	⌘	⌘	ÿ	ÿ	∞
F	ø	»	⌘	⌘	⌘	ÿ	ÿ	∞

PC860 (Portuguese)

CODE	8	9	A	B	C	D	E	F
0	Ç	É	á	⌘	L	±	α	≡
1	ü	Æ	í	⌘	⌘	±	β	±
2	é	Æ	ó	⌘	⌘	±	Γ	≥
3	â	ö	ú	⌘	⌘	±	π	≤
4	ä	ö	ñ	⌘	⌘	±	Σ	∫
5	à	ò	Ñ	⌘	⌘	±	σ	∫
6	â	ù	ã	⌘	⌘	±	μ	÷
7	ç	û	ä	⌘	⌘	±	τ	∞
8	ê	ÿ	ÿ	⌘	⌘	±	φ	∞
9	ë	ÿ	ÿ	⌘	⌘	±	θ	∞
A	è	Û	ÿ	⌘	⌘	±	Ω	∞
B	é	Û	ÿ	⌘	⌘	±	δ	∞
C	í	ÿ	ÿ	⌘	⌘	±	ø	∞
D	ì	ÿ	ÿ	⌘	⌘	±	ø	∞
E	x	x	«	⌘	⌘	±	ø	∞
F	ø	»	⌘	⌘	⌘	±	ø	∞

PC863 (Canadian-French)

PC865 (Norwegian)

CODE	8	9	A	B	C	D	E	F
0	Ç	É	Á	⋮	Ł	⋮	α	≡
1	ü	È	í	⋮	ł	⋮	β	±
2	é	Ê	ó	⋮	Ł	⋮	Γ	≥
3	ê	Ë	ú	⋮	ł	⋮	π	≤
4	â	Ô	û	⋮	Ł	⋮	Σ	∞
5	à	Ï	ü	⋮	ł	⋮	σ	μ
6	ä	Ÿ	û	⋮	Ł	⋮	τ	∞
7	ç	ê	ÿ	⋮	ł	⋮	φ	∞
8	ê	ë	ÿ	⋮	Ł	⋮	θ	∞
9	è	Û	ÿ	⋮	ł	⋮	Ω	∞
A	ë	Û	ÿ	⋮	Ł	⋮	Ω	∞
B	ï	£	ÿ	⋮	ł	⋮	∞	∞
C	ï	£	ÿ	⋮	Ł	⋮	∞	∞
D	ï	£	ÿ	⋮	ł	⋮	∞	∞
E	ï	£	ÿ	⋮	Ł	⋮	∞	∞
F	ï	£	ÿ	⋮	ł	⋮	∞	∞

CODE	8	9	A	B	C	D	E	F
0	Ç	É	Á	⋮	Ł	⋮	α	≡
1	ü	È	í	⋮	ł	⋮	β	±
2	é	Ê	ó	⋮	Ł	⋮	Γ	≥
3	ê	Ë	ú	⋮	ł	⋮	π	≤
4	â	Ô	û	⋮	Ł	⋮	Σ	∞
5	à	Ï	ü	⋮	ł	⋮	σ	μ
6	ä	Ÿ	û	⋮	Ł	⋮	τ	∞
7	ç	ê	ÿ	⋮	ł	⋮	φ	∞
8	ê	ë	ÿ	⋮	Ł	⋮	θ	∞
9	è	Û	ÿ	⋮	ł	⋮	Ω	∞
A	ë	Û	ÿ	⋮	Ł	⋮	Ω	∞
B	ï	£	ÿ	⋮	ł	⋮	∞	∞
C	ï	£	ÿ	⋮	Ł	⋮	∞	∞
D	ï	£	ÿ	⋮	ł	⋮	∞	∞
E	ï	£	ÿ	⋮	Ł	⋮	∞	∞
F	ï	£	ÿ	⋮	ł	⋮	∞	∞

PC853 (Turkish) *

PC857 (Turkish) *

CODE	8	9	A	B	C	D	E	F
0	Ç	É	Á	⋮	Ł	Ó	-	
1	ü	È	í	⋮	ł	Ö	±	
2	é	Ê	ó	⋮	Ł	Ë	∞	
3	ê	Ë	ú	⋮	ł	È	∞	
4	â	Ô	û	⋮	Ł	É	∞	
5	à	Ï	ü	⋮	ł	Ê	∞	
6	ä	Ÿ	û	⋮	Ł	Ë	∞	
7	ç	ê	ÿ	⋮	ł	È	∞	
8	ê	ë	ÿ	⋮	Ł	É	∞	
9	è	Û	ÿ	⋮	ł	Ê	∞	
A	ë	Û	ÿ	⋮	Ł	Ë	∞	
B	ï	£	ÿ	⋮	ł	È	∞	
C	ï	£	ÿ	⋮	Ł	É	∞	
D	ï	£	ÿ	⋮	ł	Ê	∞	
E	ï	£	ÿ	⋮	Ł	Ë	∞	
F	ï	£	ÿ	⋮	ł	È	∞	

CODE	8	9	A	B	C	D	E	F
0	Ç	É	Á	⋮	Ł	Ó	-	
1	ü	È	í	⋮	ł	Ö	±	
2	é	Ê	ó	⋮	Ł	Ë	∞	
3	ê	Ë	ú	⋮	ł	È	∞	
4	â	Ô	û	⋮	Ł	É	∞	
5	à	Ï	ü	⋮	ł	Ê	∞	
6	ä	Ÿ	û	⋮	Ł	Ë	∞	
7	ç	ê	ÿ	⋮	ł	È	∞	
8	ê	ë	ÿ	⋮	Ł	É	∞	
9	è	Û	ÿ	⋮	ł	Ê	∞	
A	ë	Û	ÿ	⋮	Ł	Ë	∞	
B	ï	£	ÿ	⋮	ł	È	∞	
C	ï	£	ÿ	⋮	Ł	É	∞	
D	ï	£	ÿ	⋮	ł	Ê	∞	
E	ï	£	ÿ	⋮	Ł	Ë	∞	
F	ï	£	ÿ	⋮	ł	È	∞	

PC437 Greek (Greek)"

PC85 7 (Greek) *

CODE	8	9	A	B	C	D	E	F
0	Α	Ρ	ι	☐	Λ	Ϛ	ω	Ω
1	Β	Σ	κ	☐	⊥	⊥	ά	±
2	Γ	Τ	λ	☐	⊥	⊥	έ	≥
3	Δ	Υ	μ	⊥	⊥	⊥	ή	≤
4	Ε	Φ	ν	⊥	⊥	⊥	ϊ	
5	Z	X	ξ	⊥	⊥	⊥	ί	∫
6	H	Ψ	ο	⊥	⊥	⊥	ό	÷
7	Θ	Ω	π	⊥	⊥	⊥	ύ	≈
a	I	α	ρ	⊥	⊥	⊥	Ϛ	°
9	K	β	σ	⊥	⊥	⊥	ω	£
A	Λ	γ	ς	⊥	⊥	⊥	Α	¥
B	M	δ	τ	⊥	⊥	⊥	Ε	√
C	N	ε	υ	⊥	⊥	⊥	Η	n ²
D	E	ζ	φ	⊥	⊥	⊥	Ι	
E	O	η	χ	⊥	⊥	⊥	Ο	■
F	Π	θ	ψ	⊥	⊥	⊥	Υ	

CODE	8	9	A	B	C	D	E	F
0	Ç	Ï	ï	☐	⊥	⊥	Τ	ξ
1	ü		ÿ	☐	⊥	⊥	Υ	- ±
2	é	Ο	ό	☐	⊥	⊥	Φ	θ
3	â	ö	ύ	⊥	⊥	⊥	Χ	ι
4	ä	ö	Α	⊥	⊥	⊥	Ψ	κ
5	à	ÿ	Β	⊥	⊥	⊥	Ω	λ
6	À	ÿ	Γ	⊥	⊥	⊥	α	μ
7	Ç	ù	Δ	⊥	⊥	⊥	β	ν
a	è	Ω	E	⊥	⊥	⊥	γ	ξ
9	ë	Ö	Z	⊥	⊥	⊥	υ	Ψ
A	è	Ü	H	⊥	⊥	⊥	ε	·
B	ï	á	θ	⊥	⊥	⊥	ο	ω
C	î	é	Ι	⊥	⊥	⊥	σ	ü
D	Ë	é	«	⊥	⊥	⊥	ς	ô
E	Ä	ή	»	⊥	⊥	⊥	τ	■
F	Η	ι		⊥	⊥	⊥	τ	

PC855 (Cyrillic) .

PC866 (Russian) *

CODE	8	9	A	B	C	D	E	F
0	б		а	☐	⊥	л	я	-
1	в	ь	А	☐	⊥	Л	Р	ы
2	г	ъ	Б	☐	⊥	л	Р	ы
3	г	ъ	Б	⊥	⊥	М	С	э
4	è	һ	ц	⊥	⊥	н	С	з
5	È	һ	Ц	⊥	⊥	Н	Т	ш
6	е	к	Д	⊥	⊥	о	Т	ш
7	е	К	д	⊥	⊥	О	У	э
a	s	ÿ	е	⊥	⊥	п	У	Э
9	S	ÿ	Е	⊥	⊥	л	У	Щ
A	i	и	Ф	⊥	⊥	⊥	В	Щ
B	I	и	Ф	⊥	⊥	⊥	В	ч
C	ï	ю	ф	⊥	⊥	⊥	в	
D	ÿ	ю	г	⊥	⊥	⊥	в	
E	j	ъ	«	⊥	⊥	⊥	ь	
F	J	ъ	»	⊥	⊥	⊥	ь	■

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	е
3	Г	У	г	⊥	⊥	⊥	у	е
4	Д	Ф	д	⊥	⊥	⊥	ф	ÿ
5	Е	Х	е	⊥	⊥	⊥	х	ÿ
6	Ж	Ц	ж	⊥	⊥	⊥	ц	ÿ
7	З	Ч	з	⊥	⊥	⊥	ч	ÿ
a	И	Ш	и	⊥	⊥	⊥	ш	°
9	Й	Щ	й	⊥	⊥	⊥	щ	·
A	К	Ъ	к	⊥	⊥	⊥	ъ	·
B	Л	Ь	л	⊥	⊥	⊥	ь	√
C	М	ь	м	⊥	⊥	⊥	ь	№
D	Н	Э	н	⊥	⊥	⊥	э	и
E	О	Ю	о	⊥	⊥	⊥	ю	■
F	П	Я	п	⊥	⊥	⊥	я	

PC852 (East Europe) *

BRASCII (Braz. Portuguese) * *

CODE	8	9	A	B	C	D	E	F
0	Ç	É	Á	␣	Ł	đ	Ó	-
1	ü	Ł	í	␣	ł	Đ	Ó	~
2	é	í	ó	␣	Đ	Ō	Ñ	˘
3	â	ô	ú	␣	Ď	Ň	ň	ˇ
4	ä	ö	Å	␣	đ	ň	ñ	š
5	û	Ł	ą	␣	Ď	Ň	ň	š
6	ç	ı	ż	␣	Ď	Ň	ň	š
7	ç	ı	ż	␣	Ď	Ň	ň	š
a	ı	ş	ş	␣	Ď	Ň	ň	š
9	è	Ö	e	␣	Ď	Ň	ň	š
A	Ó	Ü	␣	␣	Ď	Ň	ň	š
B	ó	Ů	z	␣	Ď	Ň	ň	š
C	ï	t	ç	␣	Ď	Ň	ň	š
D	z	ł	ş	␣	Ď	Ň	ň	š
E	Ä	x	«	␣	Ď	Ň	ň	š
F	Č	č	»	␣	Ď	Ň	ň	š

CODE	8	9	A	B	C	D	E	F
0	NUL	SP	°	À	Đ	à	đ	
1			±	Á	Ń	á	ñ	
2		DC2	²	Â	Ò	â	ò	
3			³	Ã	Ó	ã	ó	
4		DC4	¼	Ä	Ô	ä	ô	
5			½	Å	Õ	å	õ	
6			¾	Æ	Ö	æ	ö	
7			§	Ç	Ø	ç	ø	
a			¨	È	Ø	è	ø	
9	HT	EM	©	É	Ù	é	ù	
A	LF		®	Ê	Ú	ê	ú	
B	VT	ESC	«	Ë	Û	ë	û	
C	FF		»	Ê	Ü	ê	ü	
D	CR		¬	Ì	Û	ì	ü	
E	SO		½	Í	Ý	í	ý	
F	SI		¾	Î	Þ	î	þ	

Abicom (Braz. Portuguese) . * /talk

CODE	8	9	A	B	C	D	E	F
0	NUL	SP	Ò	ı	ò			
1			À	6	à	6		
2		DC2	Á	6	á	ô		
3			Â	Ö	ã	6		
4		DC4	Ä	U	ã	ii		
5			is	Û	c	ii	æ	
6			e	Ü	c	ù		
7			c	Ů	b	ii		
a			E	0	c	Q		
9	HT	EM	E	U	ê	ii		
A	LF		E	Y	ë	ÿ		
B	VT		ESC	f	ı	β		
C	FF		f	•	i	P		
D	CR		f	•	i	o		
E	SO		ı	§	ı	ı		
F	SI		Ń	°	ñ	±	DEL	

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
a			(	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.

International character sets

You can select one of the following international character sets by using the default-setting mode or sending the ESC R command. For example, when you select "Italic France," the characters in the "France" row on the table below are used in the italic character table.

The following eight international character sets can be selected in the default-setting mode or with the ESC R command.

Country	ASCII code hex											
	23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E
USA	#	\$	@	[	\	\]	^	'	{	|	}	~
France	#	\$	à	°	ç	§	^	é	é	ii&	.	.
Germany	#	\$	§	Ä	Ö	Ü	^	é	ä	ö	ü	ß
UK	£	\$	@	[	\	\]	^	'	{	|	}	~
Denmark	#	\$	@	Æ	Ø	Å	^	é	æ	ø	å	ü
Sweden	#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
Italy	#	\$	@	°	\	é	^	ù	à	ò	è	ì
Spain	Pt	\$	@	i	m	¿	^	é	ii}			-

The following seven additional sets are available only with the ESC R command.

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

Characters available with the ESC (^) command

To print the characters in the table below, use the ESC (^) command.

CODE	0	1	7
0			▶
1	☺	◀	
2	☹	↕	
3	♥	!!	
4	♦	¶	
5	♣		
6	♠	—	
7	•	↑	↓
a	■	↑	
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.

ASCII

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

auto line feed

When this feature is selected in the default-setting mode, each carriage-return code (CR) is automatically followed by a line-feed (LF) code.

bidirectional printing

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

bit

A binary digit (0 or 1); this is the basic 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.

character fable

A collection of letters, numbers, and symbols 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 paper.

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.

default

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

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

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

ESC/P

Abbreviation for Epson Standard Code for Printers. This is the system of commands your computer uses to control your printer. It is standard for all Epson printers and supported by most software for personal computers.

ESC/P 2

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

font

A style of type designated by a family name.

form feed

A control code and control panel button that advance the paper to the next top-of-form 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).

ink jet

A method of printing in which each letter or symbol is formed by spraying ink onto paper.

interface

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

italic

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

Letter Quality (LQ)

One of two print qualities available on your printer. Letter Quality provides better readability and appearance at a reduced print speed. See also *draft*

line feed

A control code and control panel button that advance the paper one line space.

loading position

The position to which the paper is automatically loaded.

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.

printable area

The area of a page in which print quality is assured. 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.

ROM

Read Only Memory. A portion of memory that can only be read and cannot be used for data storage. ROM remains, even when you turn off the printer.

self test

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

software program

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

subscript

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

superscript

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

tear off

A paper feed operation that automatically feeds the perforation of continuous paper to the tear-off position so you can tear it off easily, 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 when tear-off mode is set to on in default settings. Using the micro-feed feature, you can adjust the position so that the paper's perforation meets the printer's tear-off edge.

top-of-form

The position on the paper that the printer recognizes as the first printable line. The printer feeds the paper to this position when it loads the paper.

unidirectional/ printing

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

user-defined characters

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

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User's Guide