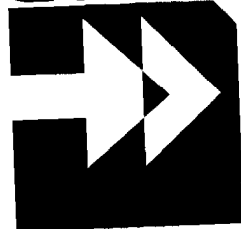


EPSON®



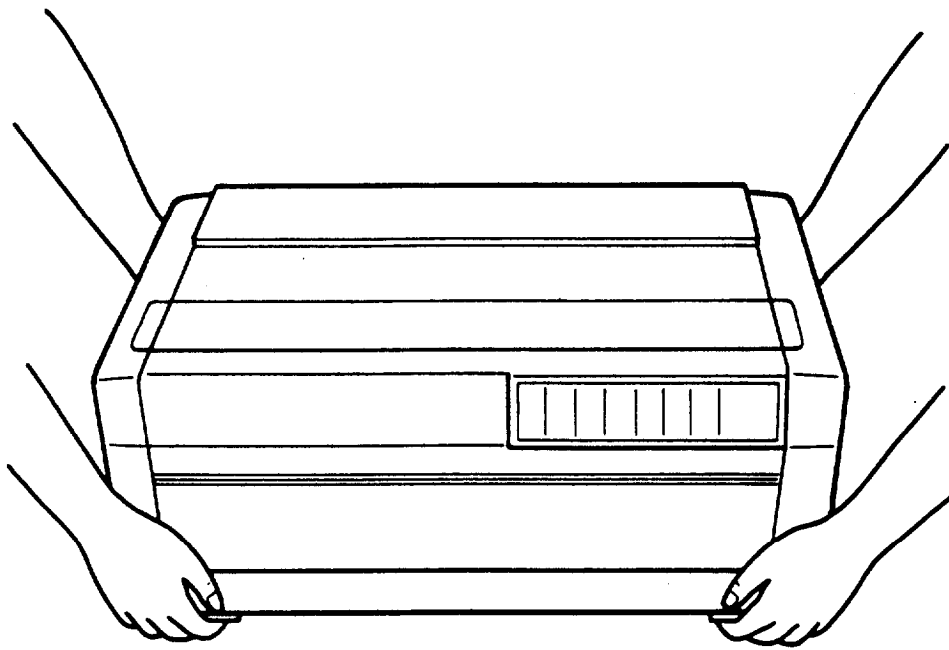
U S E R ' S

GUIDE



DFX-5000+

4002443
S01-00



NOTE:

- Do not lift or carry this printer alone. Make sure that two people carry it, lifting from the bottom as shown here.
- Do not try to remove the elastic cord from either front or rear tractors. It is not a protective material.

HINWEIS:

- Heben bzw. tragen Sie den Drucker nicht allein. Der Drucker sollte von zwei Personen angehoben und getragen werden, wie in der Abbildung gezeigt.
- Bitte NICHT das Spannseil am vorderen und hinteren Traktor entfernen. Diese gehören nicht zum Verpackungsmaterial.

ATTENTION:

- Ne soulevez pas ou ne transportez pas cette imprimante tout seul. Mettez-vous a deux personnes pour la transporter ou la soulever, comme indique ci-dessus.
- Ne pas essayer d'enlever le cordon élastique des tracteurs avant ou arrière. C'en'est pas un matériau de protection.

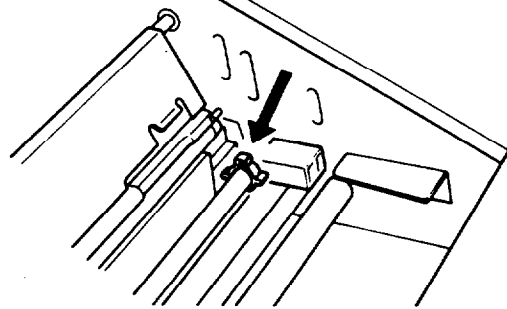
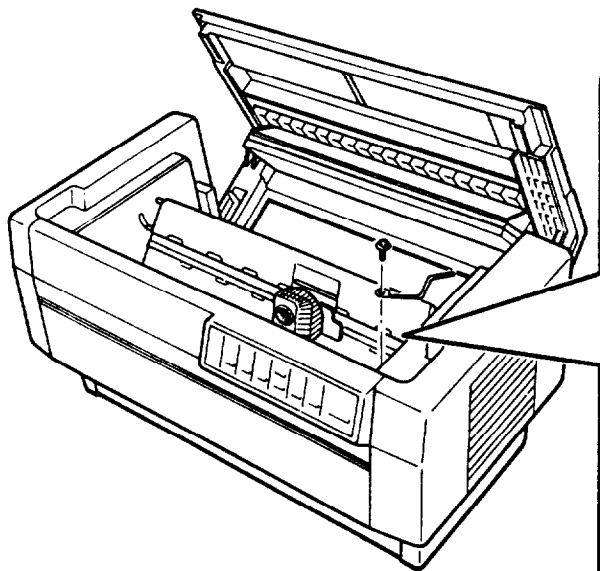
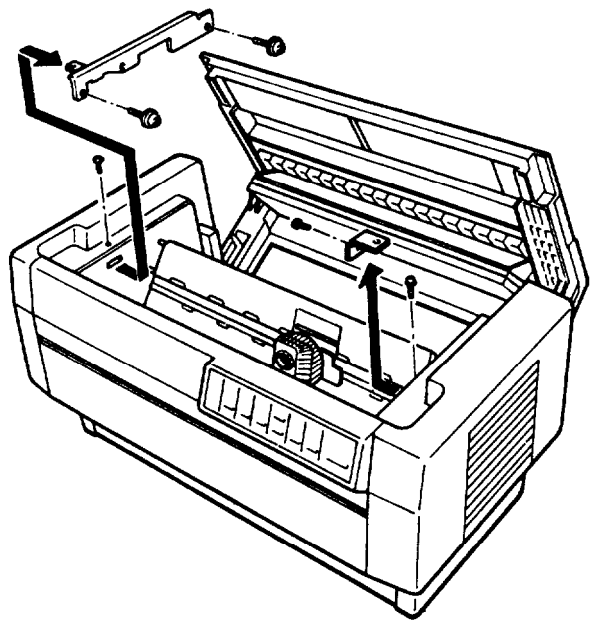
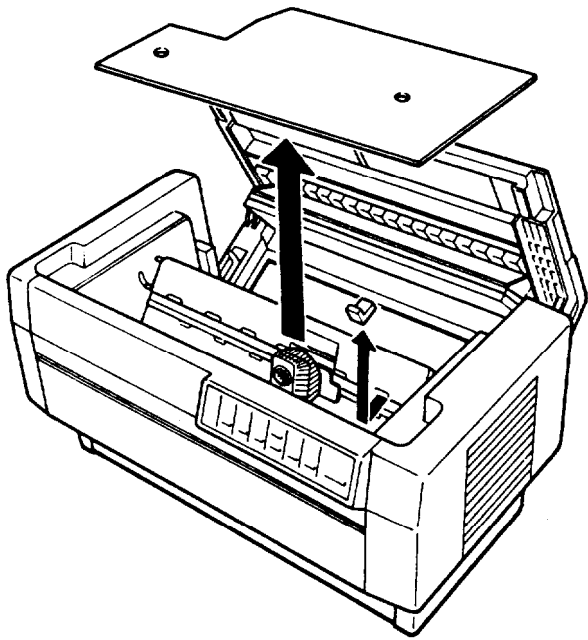
NOTA:

- Si tiene que mover o transportar esta impresora, no lo haga sólo, levántela con ayuda de otra persona, sujetándola por la base tal como se indica en la ilustración.
- No intente retirar el cable elástico del tractor frontal ni del tractor posterior. No es material de protección.

NOTA:

- Non sollevate o trasportate questa stampante da soli. Siate sicuri che la stampante venga trasportata da due persone, sollevandola dal basso, come mostrato in figura.
 - Non togliete gli elastici dal trattore posteriore e frontale. Non fanno parte del materiale di protezione.
-

NOTICE



- When removing the screw, do not remove this part.
- Wenn Sie die Schraube entfernen, dieses Teil bitte NICHT entfernen.
- Ne pas ôter cette partie en retirant la vis.
- Cuando retire el tornillo, no extraiga esta parte.
- Quando togliete la vite non rimuovete questa parte.

NOTE:
To prevent damage during shipping several pieces of protective material are packed with your printer. You must remove these before you assemble your printer.

HINWEIS:
Zur Vermeidung von Transportschäden wurde der Drucker durch schützende Verpackungsteile gesichert. Diese Teile müssen vor dem Zusammenbau des Druckers entfernt werden.

ATTENTION:
Afin d'éviter tout dommage durant le transport, des matériaux de protection ont été emballés avec l'imprimante. Veuillez à bien les retirer avant de l'installer.

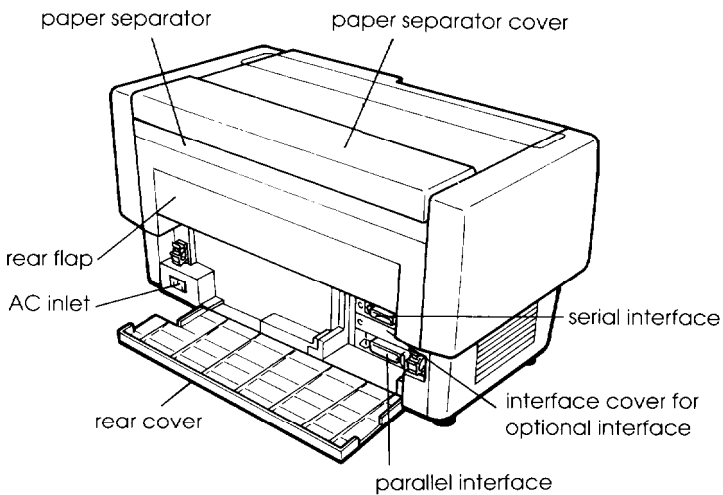
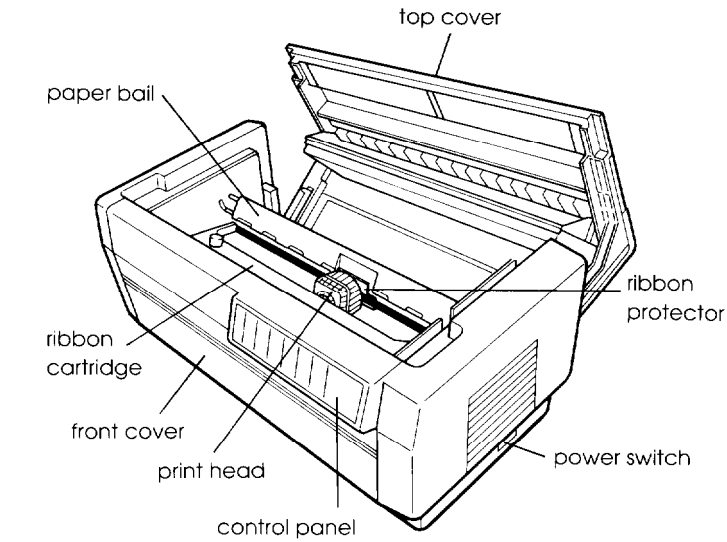
NOTA:
L'imballaggio della vostra stampante contiene molti elementi protettivi, per prevenire danni durante il trasporto. Non dimenticate di toglierli prima di iniziare a utilizzare la stampante.

NOTA:
Para evitar daños durante el transporte, su impresora viene protegida por varias piezas de material protector. Debe retirar estas piezas antes de montar su impresora.

Please also read the back of this sheet.
Lesen Sie bitte auch die Rückseite dieses Hin weisblattes.
Lire attentivement le recto de cette feuille.

Por favor lea también el dorso de esta hoja.
Legete anche il retro di questo foglio.

Printer Parts



EPSON®

9-PIN DOT MATRIX PRINTER

DFX-5000+

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Nagano, Japan

User's Guide

FCC Compliance Statement For United States Users

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio or television reception. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio and television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures.

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

WARNING

The connection of a non-shielded equipment interface cable to this equipment will invalidate the FCC Certification of this device and may cause interference levels which exceed the limits established by the FCC for this equipment. It is the responsibility of the user to obtain and use a shielded equipment interface cable with this device. If this equipment has more than one interface connector, do not leave cables connected to unused interfaces. Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

For Canadian Users

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

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

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Glossary

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Getting Started

The Epson® DFX-5000+ printer is an advanced dot matrix printer designed for business applications.

Here's how to get started with your printer:

- ❑ Read the important safety instructions in this introduction
- ❑ Follow the steps in Chapter 1, "Setup and Print." By the end of just one chapter you'll be ready to print on continuous paper using the application software of your choice. If you want to use different paper types and tractors, read Chapter 2.
- ❑ Use the rest of this user's guide as a reference for enhancing print quality, using printer options, and troubleshooting printer problems.

Features

Here are some of the features that make your printer unique:

- ❑ Extra-fast printing speeds. Up to 560 characters per second in draft mode.
- ❑ Two built-in push tractors (front and rear) for convenient paper handling. This dual system lets you switch between different types of continuous paper quickly and easily. The printer remembers separate top-of-form positions for each tractor.
- ❑ Automatic thickness and width adjustment for various paper types and sizes, including multi-part forms and labels.

- ❑ A paper memory feature that produces highquality printing on your multi-part forms by using stored paper format and thickness information to adjust the print head.
- ❑ An automatic paper handling system that lets you control all operations from the control panel. For example, you can switch between paper loaded on the front and rear tractors with the push of a button. Another button feeds the paper forward so you can tear it off and then reverses it to the top of the page so it is ready to print.
- ❑ An automatic interface selection feature that allows you to connect more than one computer at a time.
- ❑ Compatibility with the Epson ESC/P® commands used by Epson FX printers.
- ❑ An IBM® Proprinter emulation mode that provides compatibility with software written specifically for IBM printers.

Options

The following options are available for use with your printer. For detailed information on the installation and use of these options, see Chapter 4.

Pull tractor (#8309)

This option improves the handling of heavy multi-part forms and labels. It also enhances printing alignment on preprinted forms.

Optional interface cards

A number of optional interface cards can be used to supplement the built-in parallel and serial interfaces. Two of the cards (Coax and Twinax) let you use your printer as a local printer for your IBM mainframe or minicomputer. These cards connect directly to the printer and allow it to function as a local IBM printer without the addition of any other circuitry or components. Guidelines for choosing the right interface and instructions for installing an interface card are given in Chapter 4.

Where United States Users Can Get Help

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

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

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

Epson product guarantee

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

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

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

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

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

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

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

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

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

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

Use of *options*

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

Safety information



Warning:

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

Important:

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

Green and yellow -- Earth

Blue -- Neutral

Brown -- Live

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

- ❑ The green and yellow wire must be connected to the terminal in the plug which is marked with the letter E or the earth symbol (\perp) or coloured green or green and yellow.
- ❑ The blue wire must be connected to the terminal in the plug marked with the letter N or coloured black.
- ❑ The brown wire must be connected to the terminal in the plug marked with the letter L or coloured red.

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

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

Important Safety Instructions

- ❑ Read all of these instructions before you set up your printer.
- ❑ Follow all warnings and instructions marked on the printer.
- ❑ Unplug the printer from the wall outlet before you clean it, and use a damp cloth for cleaning, not liquid or aerosol cleaners.
- ❑ Do not use your printer near water or spill any liquid on it.
- ❑ Do not place the printer on an unstable cart, stand, table, or other surface that may allow the printer to fall.

- ❑ Do not block any slots or openings in the cabinet. These are provided for the ventilation necessary to ensure reliable operation and protection from overheating. Placing the printer on a bed, sofa, rug, or other similar surface may block the openings. Also, do not place the printer in a built-in installation unless proper ventilation is provided.
- ❑ Never place the printer near or over a radiator or heat register.
- ❑ Use the type of power source indicated on the label. If you are not sure of the type of power available, consult your dealer or local power company.
- ❑ This printer may be equipped with a plug having a third (grounding) pin, which fits only into a grounding-type outlet. This is a safety feature. If you are unable to insert the plug into the outlet, have an electrician replace your obsolete outlet. Do not defeat the purpose of the grounding-type plug.
- ❑ Do not put your printer where the cord will be walked on.
- ❑ If you use an extension cord, make sure that the total of the ampere ratings on the products plugged into the extension cord does not exceed the extension cord's ampere rating. Also, make sure that the total of all products plugged into the wall outlet does not exceed 15 amperes.
- ❑ Never push objects of any kind into your printer because they may touch dangerous voltage points or short out parts that could result in a risk of fire or electric shock.
- ❑ Except as specifically explained in the user's manual, do not attempt to repair the printer yourself. This could expose you to dangerous voltage points or other risks. Refer all servicing in those compartments to service personnel.

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

When the power cord or plug is damaged or frayed

If liquid has been spilled into it

If it has been exposed to rain or water

If it does not operate normally when the operating instructions are followed. Adjust only those controls that are covered by the operating instructions since improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the printer to normal operation.

If it has been dropped or the cabinet has been damaged

If it exhibits a distinct change in performance, indicating a need for service

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.

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Chapter 1

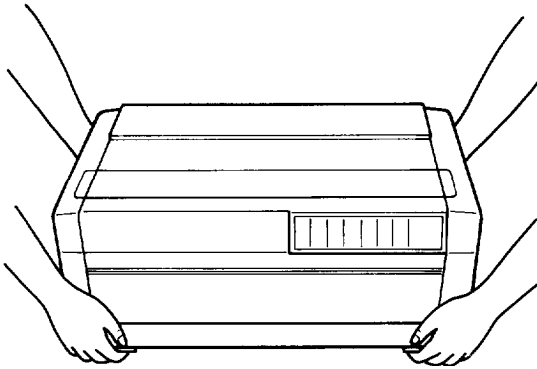
Set Up and Print



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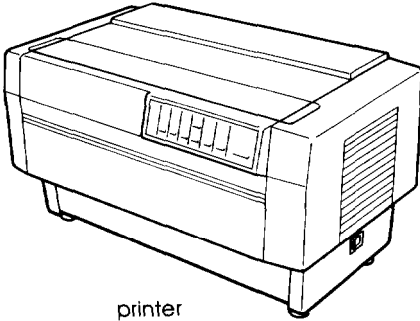
Unpacking the Printer

Because the printer weighs approximately 29 kg (64 lb), you should not lift or carry it by yourself. Two people should carry it, lifting from the bottom.

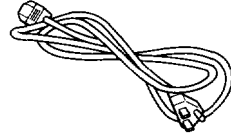


Checking the parts

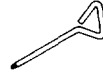
Check to see that you have the parts shown below and that nothing has been damaged during transportation.



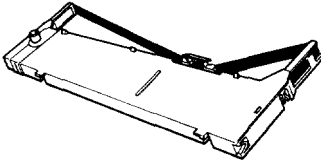
printer



power cord



cross-head screwdriver



ribbon cartridge



optional connector lock nuts

After you unpack the printer, store the packing materials in case you ever need to transport the printer.

Removing the protective *materials*

The printer is protected during shipping by several pieces of packing material that must be removed before you turn on the printer.

Please see the Notice Sheet inserted in your printer for instructions on removing the protective materials. Then store them with the other packing material.



Caution:

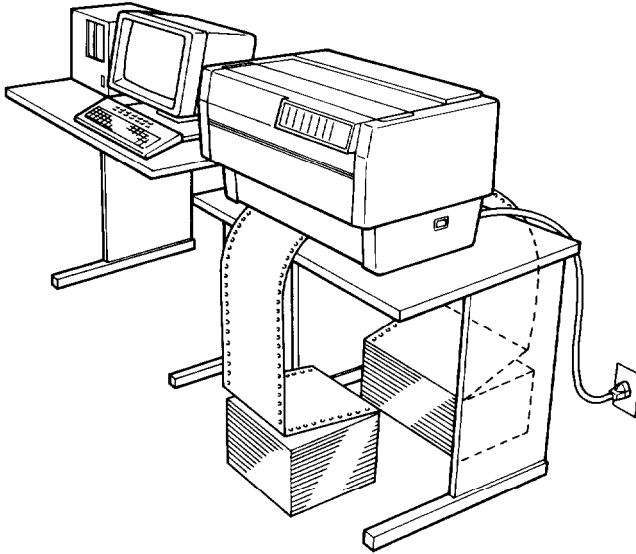
- Be sure to remove all protective materials before you turn on the printer.*
- Do not try to remove the elastic cord from the front or rear tractors. It is not a protective material.*

Choosing a Place for the Printer

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

- Place the printer on a flat, stable surface.
- Place the printer close enough to the computer for its cable to reach.
- Leave plenty of room around the printer for your front and rear stacks of continuous paper as well as your printed output.
- Use a grounded outlet; do not use an adapter plug.
- Avoid locations that are subject to direct sunlight, excessive heat, moisture, or dust.
- Avoid using electrical outlets that are controlled by wall switches or automatic timers. Accidental disruption of power can wipe out information in both your computer's memory and your printer's memory.
- Avoid using outlets on the same circuit with large motors or other appliances that might disturb the power supply.
- Keep the entire computer system away from potential sources of interference, such as loudspeakers or the base units of cordless telephones.

The illustration below shows a good printer location.



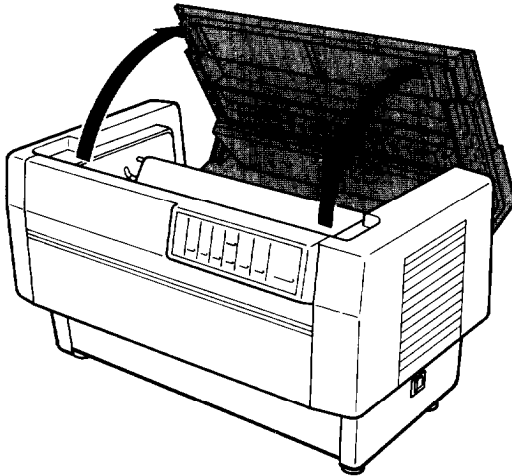
If you plan to use a printer stand, follow these guidelines:

- Use a stand that supports at least 58 kg (128 lb).
- Never use a stand that tilts the printer. It should always be kept level.
- Make sure to provide enough clearance below the stand and between the legs so your continuous paper feeds smoothly.
- Place cables so they do not interfere with paper feeding; secure them to a leg of the stand if possible.

Installing the Ribbon Cartridge

Before installing the ribbon cartridge, make sure that the protective packing materials are removed and that the printer is turned off. Remove the ribbon cartridge from its box and plastic wrapper and then follow these steps:

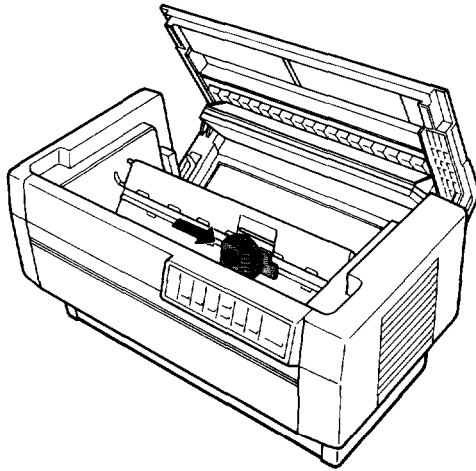
1. Open the top cover by gently lifting its front edge up and away from you.



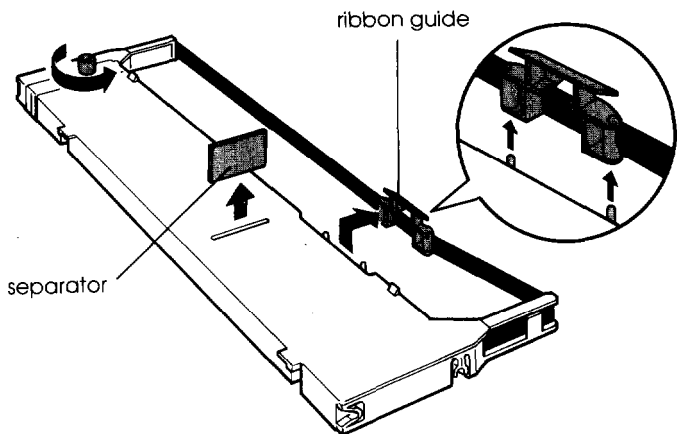
Warning:

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

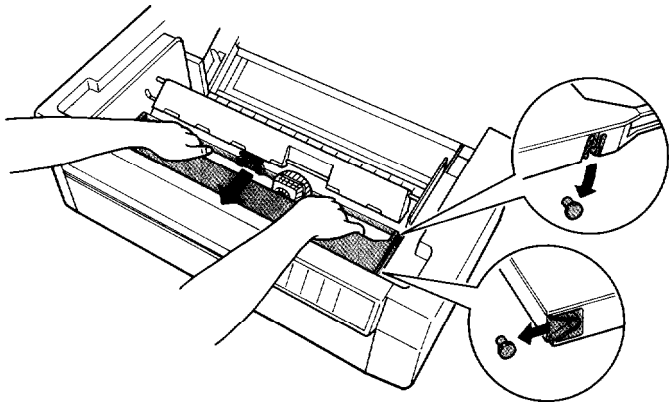
2. Slide the print head to the exposed part of the paper bail as shown below.



3. Remove and throw away the plastic separator from the middle of the ribbon cartridge. Next, detach the ribbon guide from the cartridge and turn the ribbon-tightening knob in the direction of the arrow to take up any slack in the ribbon.

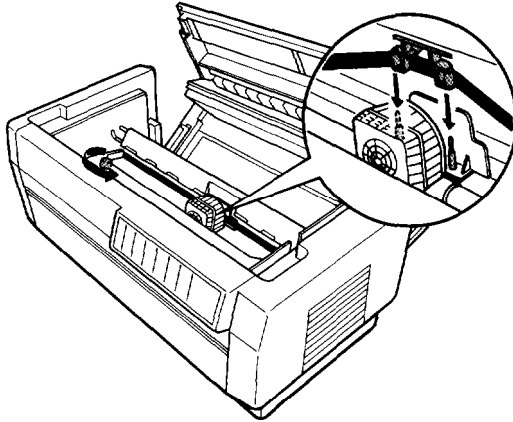


4. Hold the ribbon cartridge with both hands and lower it into the printer as shown below. Pulling the cartridge toward you, slide the slots nearest you over the corresponding two pins in the printer. Then push the cartridge down into position until the other two slots snap into place over the mounting pins in the printer.

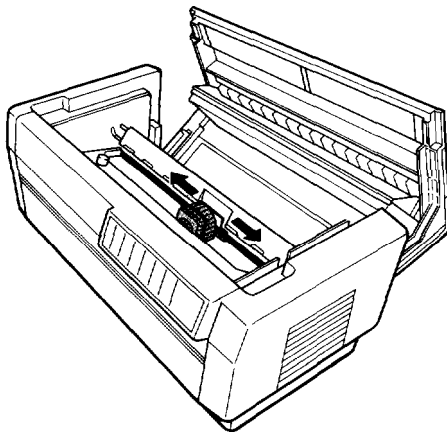


5. Press lightly on both sides of the cartridge to make sure it is locked in place.

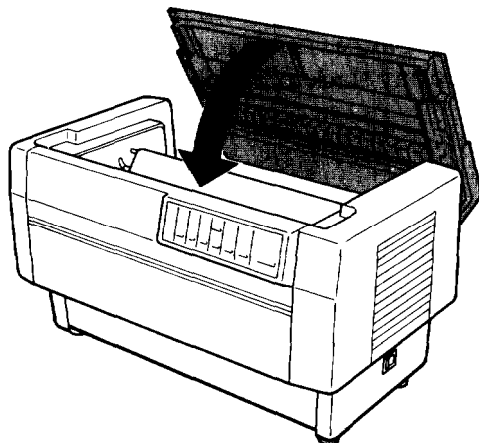
6. Insert the ribbon guide over the metal pins on each side of the print head as shown below. The smaller end of the guide should be on top, with its angled edge facing back toward the platen. Turn the ribbon-tightening knob again to remove any slack in the ribbon.



7. Slide the print head from side to side to see that it moves smoothly and that the ribbon is not twisted or creased.

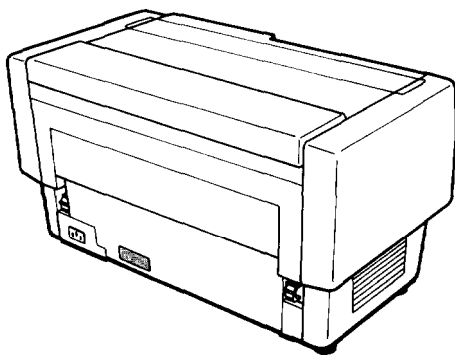


8. Close the printer's top cover.

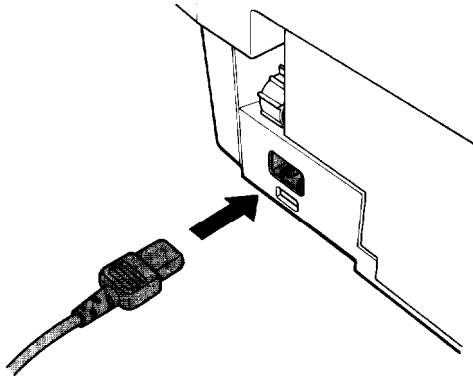


Plugging in the Printer

1. Make sure the printer is turned off. (The **O** on the power switch located on the lower right side of the printer should be visible.)
2. Check the label on the printer's rear panel to see if the voltage required by the printer matches that of your electrical outlet. If it does not match, contact your Epson dealer without connecting the power cord.



3. Plug the power cord into the AC inlet on the printer's rear panel.



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



Caution:

Whenever you turn off the power, wait at least five seconds before turning it back on; otherwise you may damage the printer.

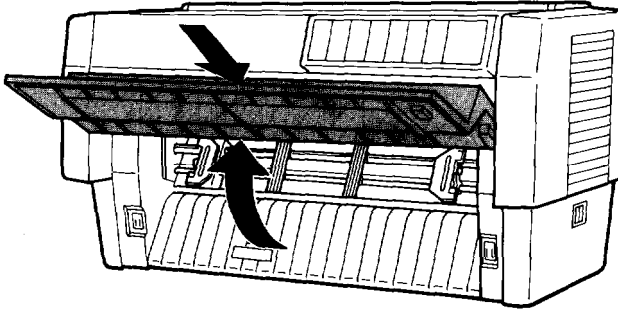
Testing the Printer

Now that your printer is fully assembled, you can use your printer's built-in test function to be sure the printer is working correctly before you connect it to a computer.

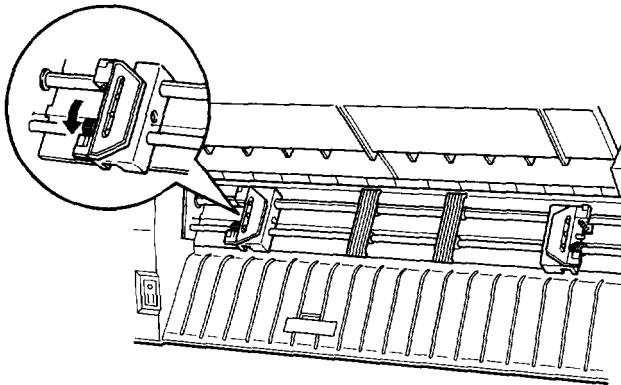
Before performing the test, you need to load paper.

Loading paper onto the front tractor

1. Open the printer's front cover by lifting the middle of its bottom edge up until it locks in place, as shown below.



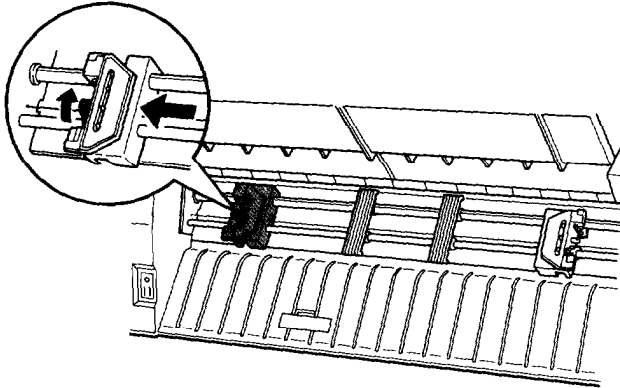
2. Release the sprocket lock levers on both the right and left sprocket units by pulling each lever down.



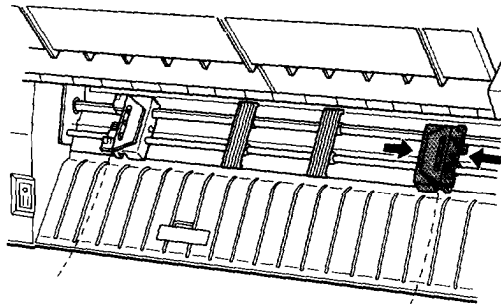
Caution:

Do not try to pull on or remove the elastic cord from the tractor.

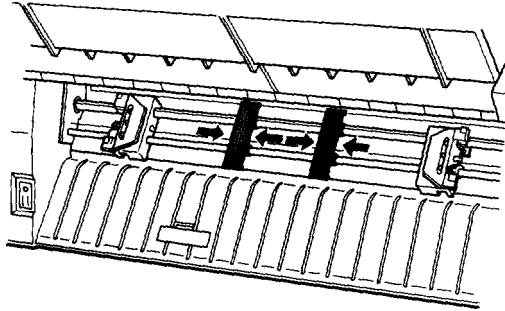
3. Slide the left sprocket unit all the way to the left. Lock it into place by pushing the sprocket lock lever up.



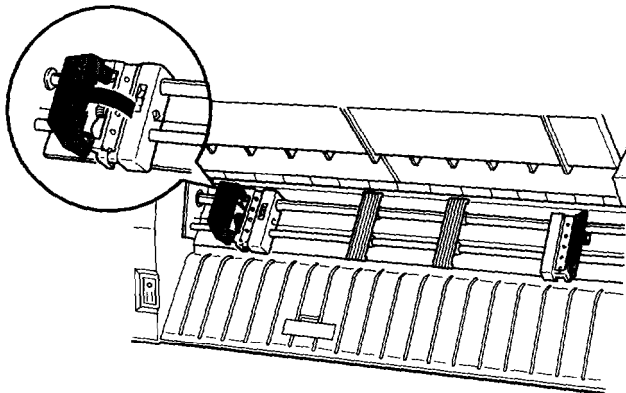
4. Now slide the right sprocket unit to approximately match the width of your paper. (Do not lock it in place yet.)



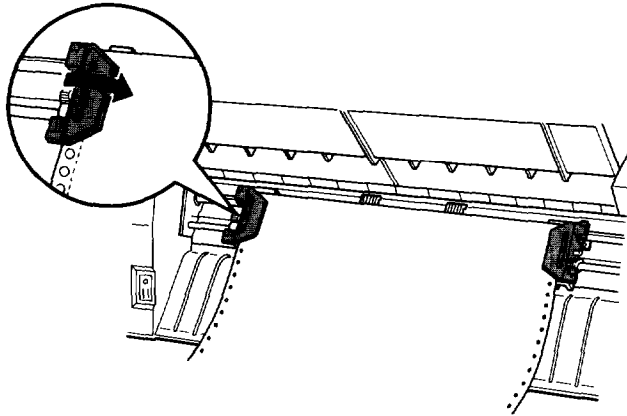
5. Slide the two paper supports so that they are spaced evenly between the sprocket units.



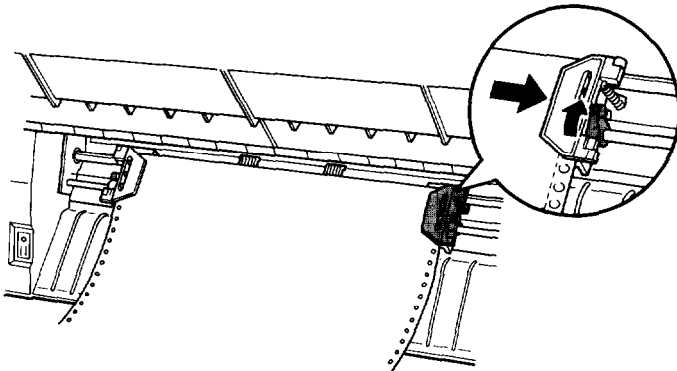
6. Open both sprocket covers.



7. Be sure your paper has a clean, straight edge, and then fit the first five holes in the paper over the pins of the sprocket units as shown below. The side of the paper that you want to print on should be facing you. Now close the sprocket covers.



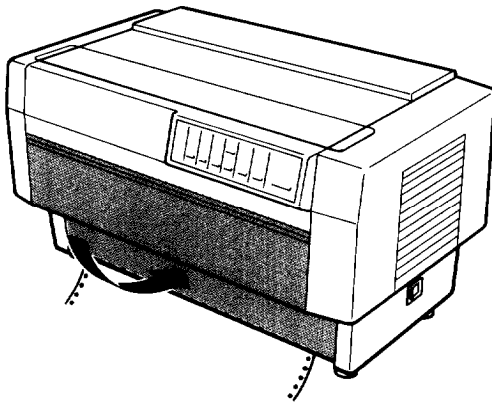
8. Slide the right sprocket unit so that the paper is straight and has no wrinkles. Lock the sprocket unit in place by pushing the sprocket lock lever up.





Caution:

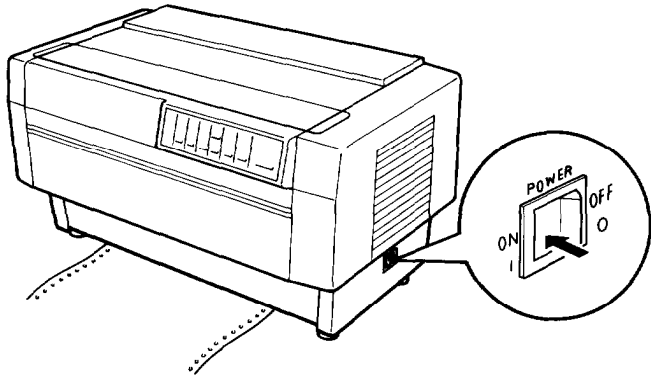
- After you lock the right sprocket, it may still move slightly; this is normal.*
 - Be careful not to pull the paper too tightly when adjusting the right sprocket.*
9. Pull out slightly on the printer's front cover and lower it until it is closed.



Caution:

- Do not push down on the front cover; always pull it out slightly before closing.*
- Before turning on the printer, be absolutely sure you have removed all protective materials. Turning on the printer while the print head cannot move may seriously damage the mechanism.*

10. Turn on the printer. The print head moves to the left of the printer and the POWER and PAPER OUT lights come on. Also, either the front or rear tractor arrow on the PAPER SELECT indicator lights up.



11. Press the LF/FF/LOAD button to load your paper. (If the paper does not load, the front tractor may not be selected. Press the FRONT/REAR button to select the front tractor. This loads the paper automatically.)
12. After the paper loads, turn off the printer.

Running the self test

The self test can be run in either draft or near letter quality (NLQ) mode.

1. While holding down the LF/FF button (for draft mode) or TEAR OFF button (for NLQ mode), turn on the printer. After printing starts, release the button.

The printer prints a series of characters. Here is part of a typical self test printout in high-speed draft.

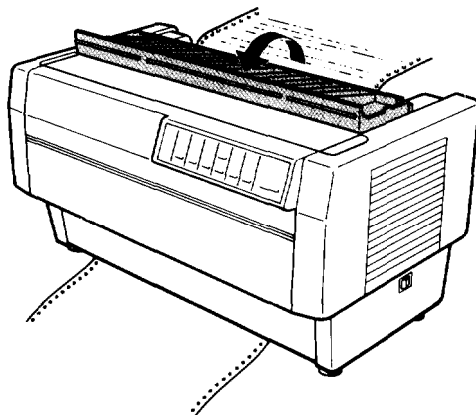
```
/0123456789 ; ; <=>?@ABCDEFGHIJKLMNQRST  
0123456789 ; ; <=>?@ABCDEF GHIJKLMNQRSTU  
123456789 ; ; <=>?@ABCDEFGHIJKLMNQRSTUV  
23456789 ; ; <=>?@ABCDEFGHIJKLMNQRSTUWV  
3456789 ; ; <=>?@ABCDEFGHIJKLMNQRSTUWVX  
456789 ; ; <=>?@ABCDEF GHIJKLMNQRSTUWVXY  
56789 ; ; <=>?@ABCDEFGHIJKLMNQRSTUWVXYZ  
6789 ; ; <=>?@ABCDEFGHIJKLMNQRSTUWVXYZ[  
789 ; ; <=>?@ABCDEFGHIJKLMNQRSTUWVXYZ[\  
89 ; ; <=>?@ABCDEFGHIJKLMNQRSTUWVXYZ[\  
9 ; ; <=>?@ABCDEFGHIJKLMNQRSTUWVXYZ[\  
^
```

Note:

When NLQ quality is selected using DIP switch 1-3, the self test runs in NLQ mode even if you press the LF/FF button.

2. The self test continues until the paper runs out or until you press the PA USE button. If the test results are satisfactory and you wish to stop the test, press the PAUSE button. (To resume the test, press the PAUSE button again.)
3. To end the self test, press the PA USE button to stop printing and then hold down the LF/FF button to advance the paper.

4. Open the paper separator cover and tear off the paper at the perforation.



5. Turn off the printer.

Note:

- If you open the top cover while the printer is printing, the printer beeps four times, stops printing, and goes into pause status. To resume printing, close the top cover and press the PAUSE button.*
- You can select normal draft mode or high-speed draft mode using DIP switch 1-2. For details, see Chapter 3.*
- If continuous paper is fed past the sprocket (on the last page, for example), the paper may not feed properly.*

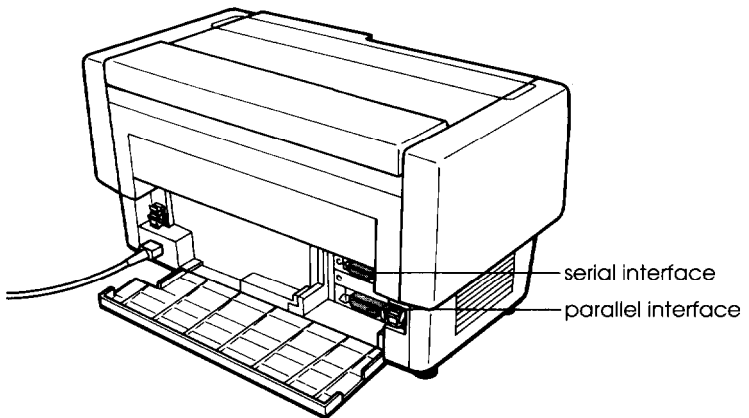
Connecting the Printer to Your Computer

If the self test printed correctly, you are now ready to connect the printer to your computer.

Your printer has two separate interface connections: a Centronics®-compatible parallel interface and an RS-232C-compatible serial interface. If you are not sure which one is required by your computer, check your computer manual.

Note:

Your printer has an automatic interface selection feature that allows you to connect more than one interface to the printer at a time. See the section on using automatic interface selection in Chapter 3.

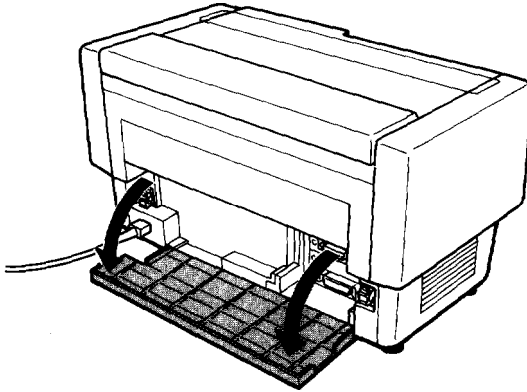


If you have a suitable shielded cable, you should be able to connect the printer immediately. If you have one of the few computers that requires a different type of interface, you should be able to use one of the optional interfaces described in Chapter 4.

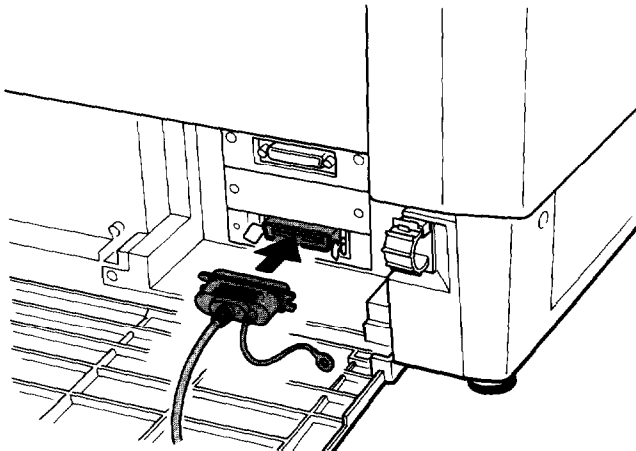
Connecting the built-in interface

Use this procedure for either the built-in parallel or serial interface.

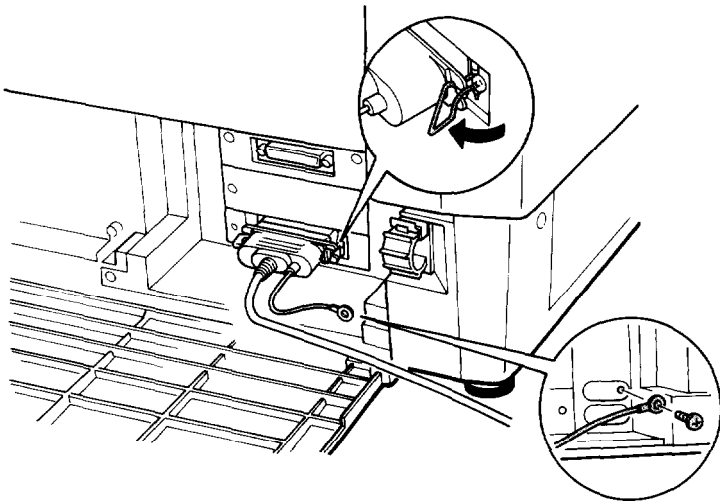
1. Turn off both your printer and computer.
2. Open the rear cover by grasping it by the handholds on each side.



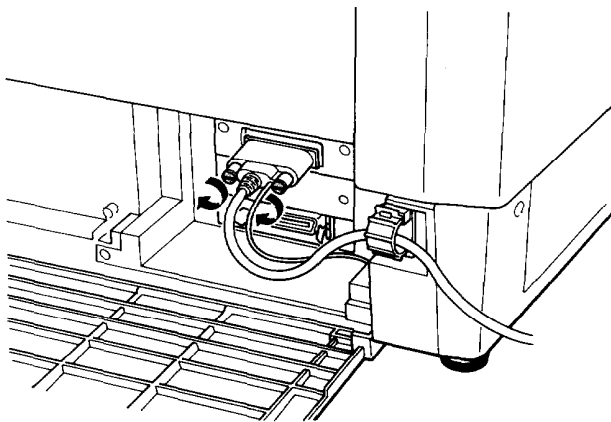
3. Plug the cable connector securely into the parallel or serial interface.



4. When you connect the parallel interface, squeeze the wire clips together until they lock in place on either side of the connector. If your cable has a ground wire, connect it to the printer's ground connector.



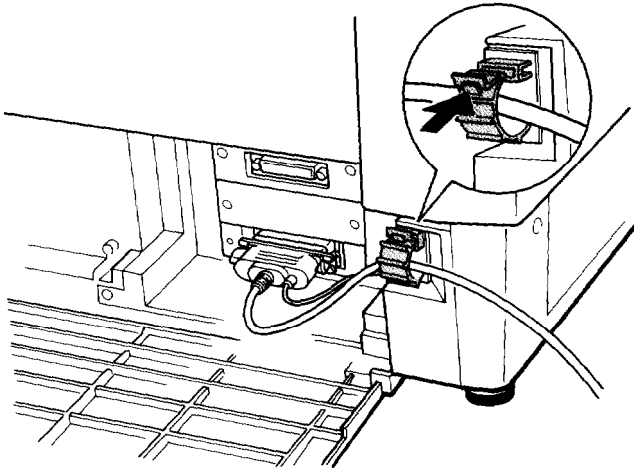
When you connect the serial interface, fasten the screw on the cable connector.



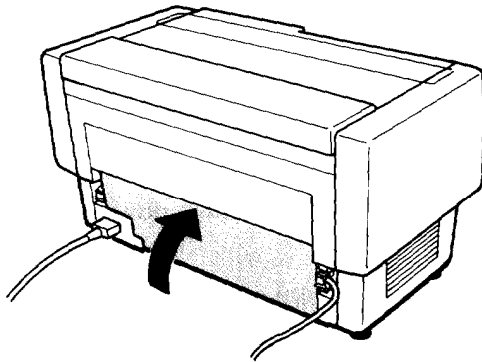
Note:

If the screws that come with the cable do not fit into the connector lock nuts on the interface, replace the lock nuts with the optional lock nuts provided with the printer.

5. Open the plastic clamp to the right of the interface connectors by pulling out its top tab. Insert the cable in the plastic clamp and close the clamp, as shown below.



6. Close the rear cover.



**Caution:**

Always close the rear cover before using the printer.

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

Before using the printer's serial interface, you need to select serial communication by changing the printer's DIP switch settings. You may also need to change two other serial interface settings, serial bit rate and parity, before your printer and computer can communicate properly. See the section on setting DIP switches in Chapter 3 for more information.

Using Software Programs

To take full advantage of your printer's features, find the instructions for your software programs below.

Microsoft® Windows™ 3.1

If Windows is already installed on your system, follow the steps below to set it up with your printer. Then your printer will work correctly for all your Windows programs, such as Word for Windows and Lotus® 1-2-3® for Windows.

Note:

If Windows is not already installed on your system, run the setup program as described in the Windows documentation, and follow steps 4 through 10 below when you reach the section for choosing a printer.

1. **In the window labeled Main, double click the Control Panel icon.**
2. **Double click the Printers icon.**

3. Choose the Add> button on the right side of the screen.
4. In the list of printers box, select Epson DFX-5000+.

If DFX-5000+ is not available, select Epson DFX-8000 or Epson DFX-5000.

If neither of these is available, select Epson FX-870/1170 or another Epson FX model.
5. Choose the Install button. A dialog box may instruct you to insert a diskette.
6. If necessary, insert the diskette required.
7. Choose the Setup button.
8. Choose the OK button.
9. Highlight Epson DFX-5000+ (or the printer you added) and click the button labeled Set As Default Printer.
10. Click the Close button.

You have now installed the printer driver for Windows.

Note:

To use 15 characters per inch on your printer, you need the DFX-5000+ driver. If your version of Windows does not include it, contact Microsoft Windows Product Support to obtain the DFX-5000+ driver.

What is a Printer Driver?

The software you use to enter and format your documents sends codes that run (or “drive”) your printer. These software codes select the font, margins, page size, line spacing, and other features of the document you are printing. Therefore, it is important that you choose the right printer driver and install it correctly from within your software. If there is a problem with the appearance of your document, a software setting is the most likely the cause.

Non-Windows Software

Most software programs let you specify the type of printer you are using so that the program can take full advantage of the printer’s features. If your application program has an installation or setup procedure that lets you select your printer from a list of printers, choose the Epson DFX-5000+ printer. If the list does not include the DFX-5000+, choose one of the following printers, listed in order of preference:

DFX-8000
DFX-5000
FX-870/1170
FX

Note:

*To use 15 characters per inch on your printer, you need a DFX-5000+ printer driver. If your software program does not list this printer, contact the software manufacturer to see **if** an update is available.*

You're Ready to Print

You are now ready to print documents. If you need additional information about your printer, such as loading different paper types, look for the appropriate topic in other chapters in this user's guide.



Caution:

Running the printer continuously for extended periods of time is not recommended. It can cause the printer to wear out sooner than expected.

Chapter 2

Loading and Using Paper

Using the Two-Tractor System	2-2
Positioning the paper supply	2-2
Loading Paper onto the Rear Tractor	2-3
Adjusting the Paper Position	2-10
Adjusting the top-of-form position	2-11
Adjusting the printing position	2-13
Tearing Off the Printed Pages	2-14
Tear-off mode	2-14
Using the TEAR OFF button	2-16
Adjusting the tear-off position	2-16
Switching Between Front and Rear Tractors	2-19
Changing the Paper	2-21
Printing on Multi-Part Forms and Labels	2-24
Using multi-part forms	2-25
Using labels	2-26



Using the Two-Tractor System

Your printer's paper handling system consists of a front push tractor and a rear push tractor. Both tractors are easy to load and operate, and both accommodate a wide variety of paper types, including labels and multi-part forms. The printer automatically adjusts to the thickness of your loaded paper, so you don't need to make any manual adjustments for paper thickness settings.

You can use any width continuous paper, from 4 inches (101 mm) to 16 inches (406 mm) wide. Your printer senses paper width automatically.

If you are going to use more than two types of paper, it's best to load the paper you use most often onto the rear tractor. That way you can reserve the front tractor, which is easier to reach, for the paper you change more frequently. Use only the front tractor for printing on labels.



Caution:

Before using your paper, check that it matches the specifications described in Appendix A. Also check that your paper has a straight edge.

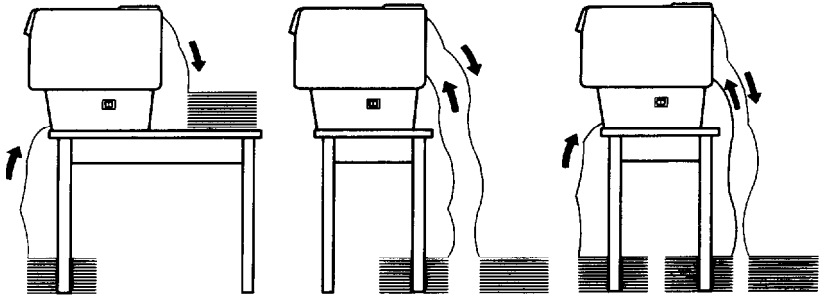
Note:

If continuous paper is fed past the sprocket (on the last page, for example), the paper may not feed properly.

Positioning the paper supply

Since you can load continuous paper from both the front and the rear, be sure to leave enough room around the printer for the two stacks of fresh paper as well as for a stack of printed output. It is also important to keep both stacks of fresh paper aligned with the printer so that the paper can feed smoothly into the printer.

The following illustration shows three ways to position your printer and paper: with the front tractor loaded, with the rear tractor loaded, and with both tractors loaded.



Note:

Make sure that your stack of printed pages does not interfere with the rear tractor's paper supply.

Loading Paper onto the Rear Tractor

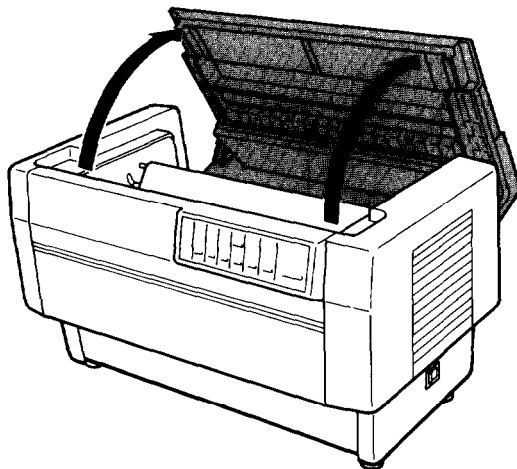
The following steps show you how to load paper onto the rear tractor. You do not need to remove the paper from the front tractor first because the printer does this for you when you select the rear tractor.

Note:

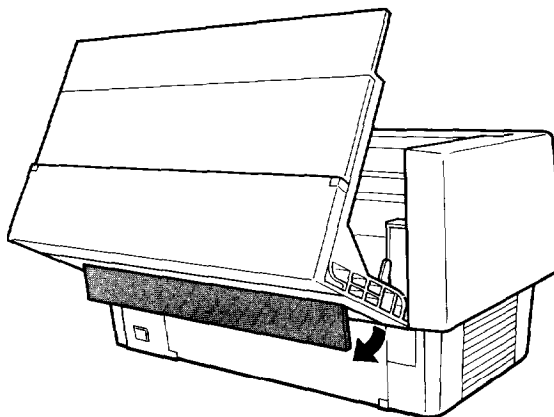
If you performed a self test as described in Chapter 1, you loaded continuous paper onto the front tractor. If you did not run a self test, see "Loading paper onto the front tractor" in Chapter 1.

1. Turn off the printer.

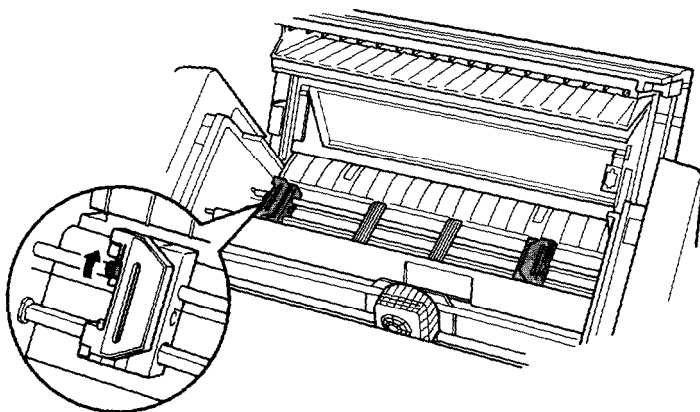
2. Open the printer's top cover by gently lifting its front edge up and away from you, as shown below.



3. Open the rear flap at the back of the top cover.

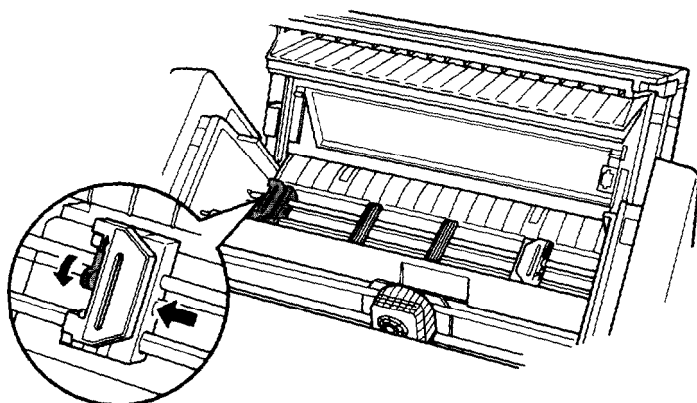


4. Release the sprocket lock levers on the rear tractor's right and left sprocket units by pushing each lever back.

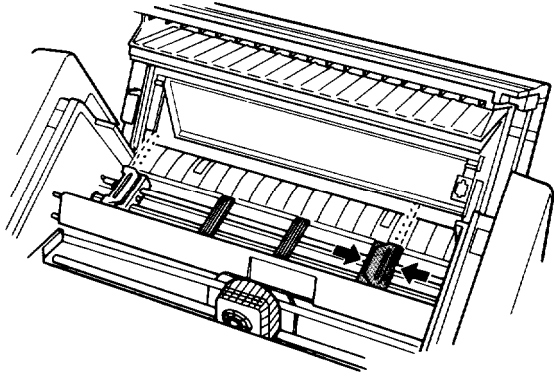


Caution:
Do not try to pull on or remove the elastic cord from the tractor.

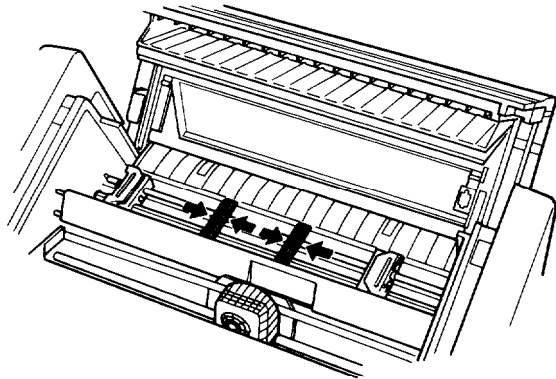
5. Slide the left sprocket unit all the way to the left. Lock it in place by pulling the sprocket lock lever forward.



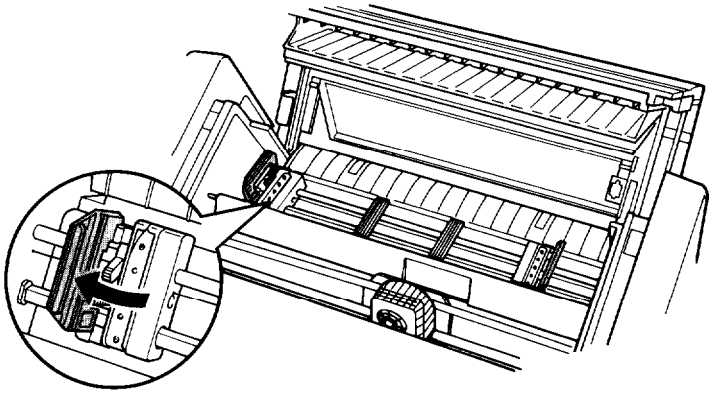
6. Now slide the right sprocket unit to approximately match the width of your paper. (Do not lock it in place yet.)



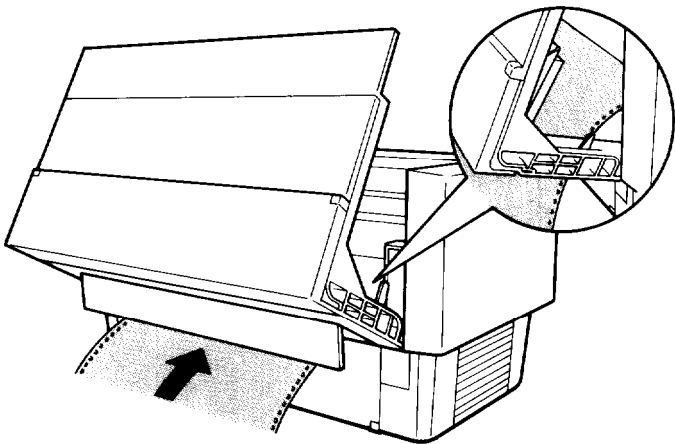
7. Slide the two paper supports so they are spaced evenly between the two sprocket units.



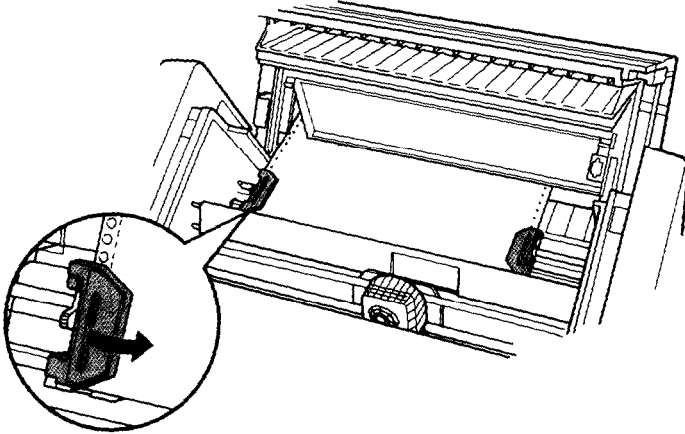
8. Open both sprocket covers.



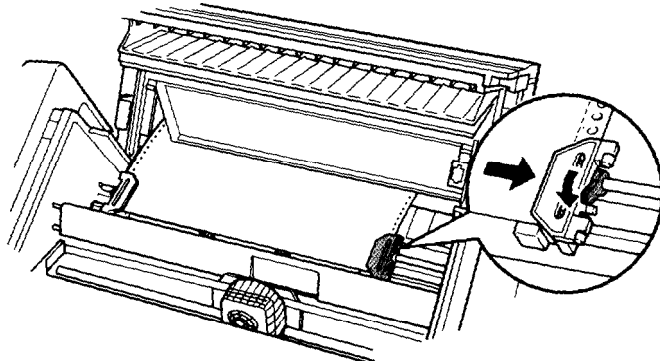
9. Make sure your paper has a clean, straight edge. With the side of the paper you want to print on facing down, insert your paper through the opening at the rear. You may find it easier to load the paper by standing to the side of the printer. That way you can feed the paper into the rear opening with one hand and pull it through with the other.



10. Fit the first five holes in the paper over the pins of the sprocket units as shown below. NOW close the sprocket covers.



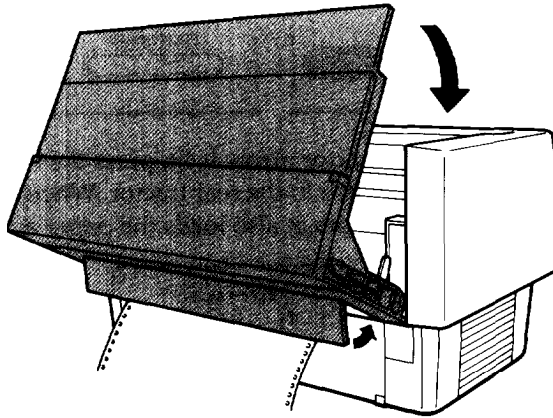
11. Slide the right sprocket unit to a position so that the paper is straight and has no wrinkles. Lock the sprocket unit in place by pulling the sprocket lock lever forward.



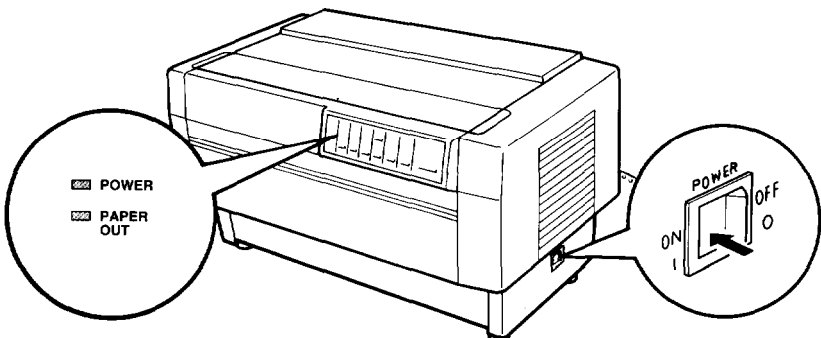
Note:

- ❑ After you lock the right sprocket, it may still move slightly; this is normal.
- ❑ Be careful not to pull the paper too tightly when adjusting the right sprocket.

12. Close the top cover and the rear flap. The paper is now loaded to the standby position.

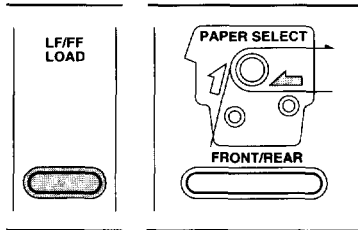


13. Turn on the printer. The print head moves to the left of the printer and the POWER and PAPER OUT lights go on. Also, either the front or rear tractor arrow on the PAPER SELECT indicator lights up, depending on which tractor was selected when the printer was turned off last.

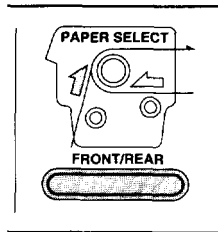


14. Check the PAPER SELECT indicator to see which tractor is selected:

- ❑ If the rear tractor arrow is lit, press the LF/FF/LOAD button to load the paper.



- ❑ If the front tractor arrow is lit, press the FRONT/REAR button to switch to the rear tractor. When the printer switches tractors, it also loads the paper automatically.



15. The paper is now loaded to the top-of-form position. If it looks like the printing will start too high or low on the page, see the next section for instructions on adjusting the paper position.

Adjusting the Paper Position

You can adjust the top-of-form position as well as the printing position at any point on the page by using the TOP OF FORM and MICRO FEED buttons. The printer then remembers the new top-of-form position. When you use the optional pull tractor, you can adjust the paper position in the same way as described below.

Note:

The printing position (based on the fop-of-form position) is controlled by your software. To change the print position, adjust your software's print settings. Use the following procedure only if **your software** does not allow print position adjustment.

Adjusting the fop-of-form position

The top-of-form position is the position the printer feeds the paper to when it loads the paper or performs a form feed. This position is important because it determines where the printing begins on each page. If the printing is too high or low on the page, you can adjust the top-of-form position either permanently or temporarily depending on how you use the TOP OF FORM button.

- ❑ When you want to *permanently* change the top-of-form position, you enter the top-of-form mode using the TOP OF FORM control panel button. The printer remembers the new top-of-form position even after the printer is turned off, reset, or initialized. (The printer remembers separate top-of-form positions for the front and rear tractors.)
- ❑ When you want to *temporarily* change the top-of-form position, you adjust the position using the MICRO FEED buttons during pause status without entering top-of-form mode. The printer remembers the temporary top-of-form position until the next time you load paper, switch tractors, or turn off the printer. See “Adjusting the printing position” later in this chapter.

You can set the top-of-form position from 2.6 mm (0.1 inches) below the top edge of the paper. The factory setting is 5.8 mm (0.2 inches).

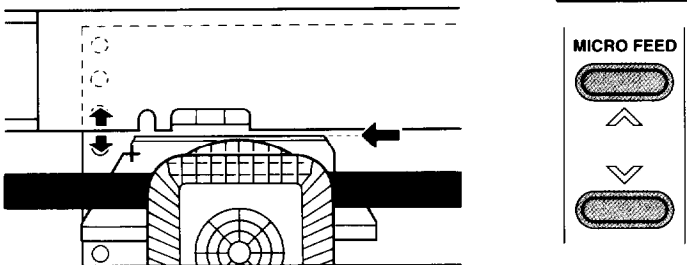
The following steps show you how to reset (permanently change) the top-of-form position.



Caution:

To adjust the top-of-form position when labels are loaded in the printer, use the forward-feeding (top) MICRO FEED button only; do not enter the top-of-form mode. (See "Adjusting the printing position" later in this chapter.) Never feed labels backward through the printer.

1. Make sure the printer is turned on and the desired tractor is selected (the corresponding tractor arrow should be lit).
2. Press the TOP OF FORM button to enter top-of-form mode. The printer beeps once, and the TOP OF FORM light flashes. Also, the printer advances the paper so that the top-of-form position is lined up with the red line on the clear plastic ribbon protector.
3. Open the top cover.
4. Use the MICRO FEED buttons to feed the paper to the desired top-of-form position. The top edge of the ribbon protector shows you where the bottom edge of your first line of text will print. This position is based on the first printable line of text. If your software inserts a top margin of five lines, your text will actually print five lines below the top-of-form position.



Note:

The red line on the ribbon protector can be used as a reference only when you are in the fop-of-form mode. At all other times your fop-of-form position is hidden behind the print ribbon.

5. Press the TOP OF FORM button again to exit top-of-form mode and save your new top-of-form position. Then close the top cover.

Note:

If you enter fop-of-form mode right after loading paper, you can set the loading and fop-of-form positions at the same time. (When you use the optional pull tractor, you cannot adjust the loading position.)

Adjusting the printing position

If you need to adjust the printing position in the middle of a page, or to adjust the top-of-form position when using labels, follow the steps below.

When you move the printing position, you temporarily change the top-of-form position by **the** same amount. For example, if you adjust the printing in the middle of the page so that it falls a half-inch lower, **the next** page will begin printing a half-inch lower as well. The printer remembers this temporary top-of-form position until the next time you load paper, switch tractors, or turn off the printer.

1. Start printing your document. When you reach the text that you want to align at a particular spot on the page, press the PAUSE button to stop printing.
2. **Use** MICRO FEED buttons to adjust the position where you **want** your next **line** of text to fall. Press the button once to feed the paper forward or backward in 1/216-inch increments, or hold it down to move the paper continuously.

**Caution:**

If you are printing on labels, use only the forward-feeding (top) MICRO FEED button.

3. When you are finished, press the PAUSE button to continue printing your document.

Tearing Off the Printed Pages

After you finish printing, you can use the tear-off feature to advance continuous paper on the push tractor to the tear-off edge of the printer. You can then easily tear off printed sheets. When you resume printing, the printer automatically feeds paper back to the loading position.

This feature lets you save paper that would normally be lost between documents.

You can use the tear-off feature in two ways: by turning on DIP switch 3-8 to select automatic tear-off mode, or by pressing the TEAR OFF button on the control panel.

If the perforation between pages is NOT aligned with the tear-off edge, you can adjust the tear-off position using the micro-feed feature. The printer remembers this new tear-off position.

**Caution:**

Never use the tear-off feature to reverse feed labels, when the optional pull tractor is installed, or when using the paper memory feature described in Chapter 3.

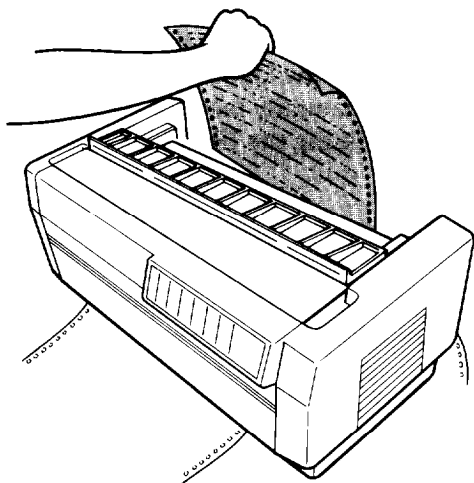
Tear-off mode

When you select tear-off mode with DIP switch 3-8, the printer automatically advances continuous paper to the tear-off position when you finish printing.

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.

1. Make sure the printer is turned off.
2. Turn DIP switch 3-8 on.
3. Turn the printer on.

When tear-off mode is on and you print on continuous paper on the push tractor, the printer advances the final printed page to the tear-off position. Then you can tear off all printed pages.



If the perforation is not aligned with the tear-off edge, adjust the tear-off position as described in the section on adjusting the tear-off position.

When you resume printing, the printer automatically feeds the paper back to the loading position and begins printing.

Using the TEAR OFF button

Whether or not the printer is in tear-off mode, you can use the TEAR OFF button to advance continuous paper to the tear-off position by following the steps below.

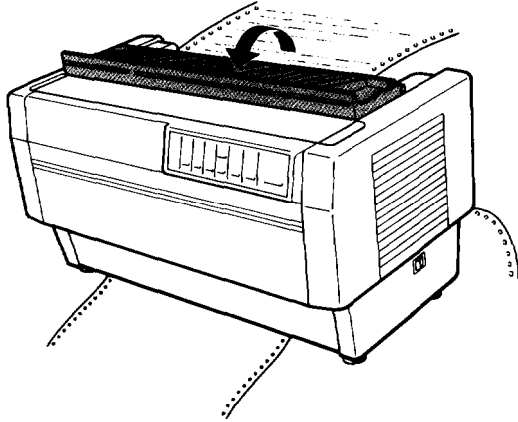
1. Make sure printing is finished. Then press the TEAR OFF button. The printer advances the paper to the tear-off edge and the TEAR OFF light comes on.
2. Tear off all printed pages. If the perforation is not aligned with the tear-off edge, adjust the tear-off position as described in the next section.
3. When you resume printing, the printer automatically feeds the paper back to the loading position and begins printing. (You can also manually feed the paper back to the loading position by pressing the TEAR OFF button again.)

Adjusting the tear-off position

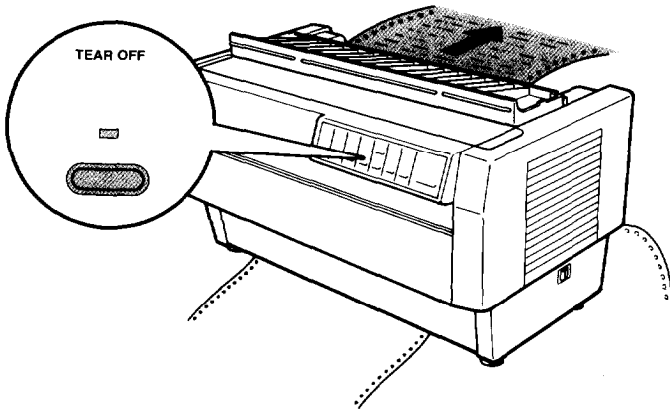
If the paper's perforation is not aligned with the tear-off edge, follow the steps below:

1. Turn on the printer and select the desired tractor.

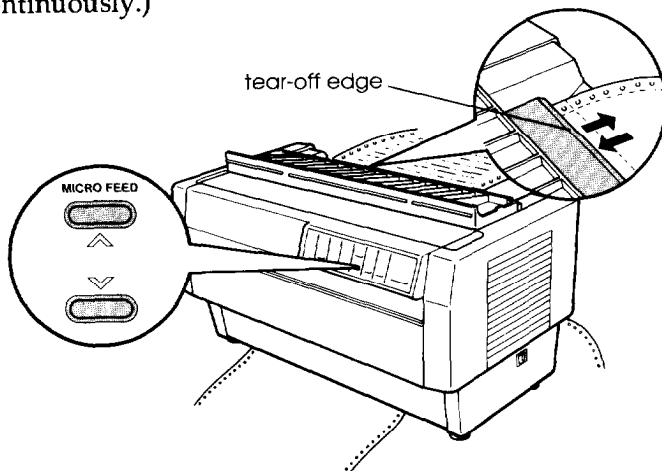
2. Now open the paper separator cover (the flap on the top part of the printer's top cover). This exposes the printer's tear-off edge.



3. Press the TEAR OFF button to enter the tear-off mode. The TEAR OFF light goes on and the printer feeds the paper's perforation to the printer's tear-off edge.



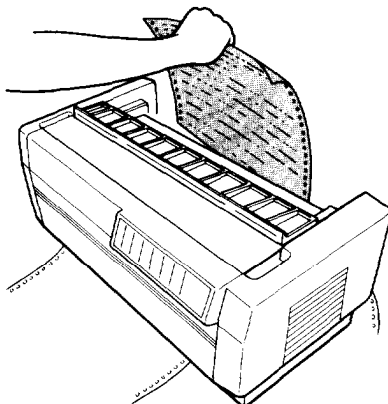
4. If the paper is not aligned with the tear-off edge, then press the MICRO FEED buttons to feed the paper forward or backward in 1/216-inch increments. (You can also hold down either MICRO FEED button to feed the paper continuously.)



Note:

You can reset the tear-off position only when you are in tear-off mode (after you press the TEAR OFF button once and the TEAR OFF light is on). The printer remembers the new tear-off position even after the printer is turned off, reset, or initialized.

5. Tear off the page using the tear-off edge on the printer's top cover.



6. Press the TEAR OFF button to feed the paper back to the top-of-form position. You are now ready to print your next document.



Caution:

Always tear off the printed document before you feed the paper back to the top-of-form position. Never feed paper backward more than one page.

Switching Between Front and Rear Tractors

You can easily switch between paper loaded on the front tractor and paper loaded on the rear tractor. The following steps describe the procedure for switching from the front tractor to the rear tractor, but you can follow the same steps to switch from the rear tractor to the front tractor. (To switch tractors when the optional pull tractor is installed, see Chapter 4.)

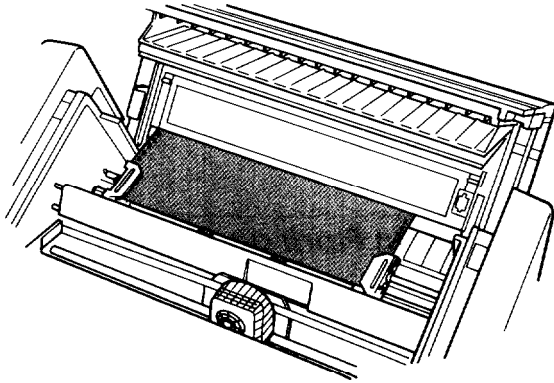


Caution:

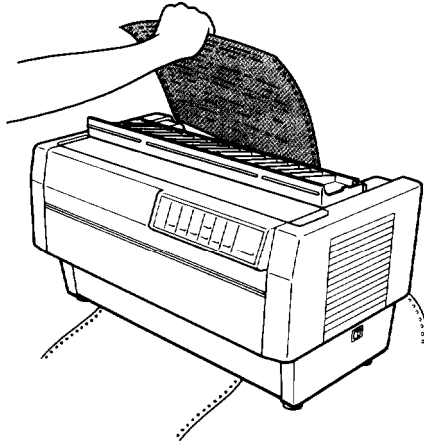
Never switch between tractors when labels are already loaded in the printer. Instead, completely remove the labels first by tearing off the fresh supply below the tractor and pressing LF/FF to eject the remaining labels.

Before you start, make sure the printer is turned on and that the front tractor is selected (the front tractor arrow on the PAPER SELECT indicator should be lit). If you are in the middle of printing a document, wait for the printer to finish printing before you switch tractors. Then follow these steps:

1. If no paper is loaded in the rear tractor, load paper to the standby position (the first five pins of the sprocket units), as described in steps 1 through 13 beginning on page 2-3.



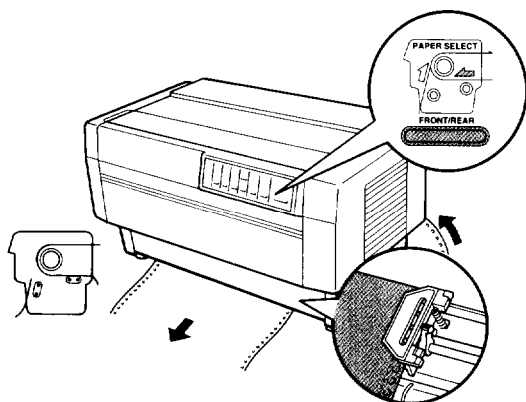
2. If you have a printed document or excess paper still in the printer, use the tear-off feature described in the previous section to tear off the document or excess paper.



Caution:

Always tear off the printed document and any excess paper before witching tractors. Never feed more than one page backward through the printer.

3. Press the FRONT/REAR button to switch to the rear tractor. The front-loaded paper automatically feeds back to the standby position and the rear-loaded paper advances to the top-of-form position.



Changing the Paper

The following steps describe the procedure for changing paper on the front tractor, but you can follow the same steps when you change the paper on the rear tractor.

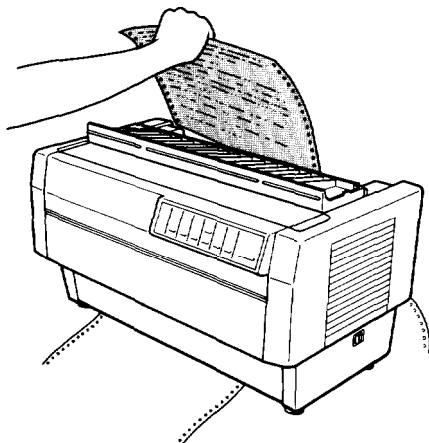
Before you start, make sure the printer is turned on and the front tractor is selected. (If you are changing the paper on the rear tractor, the rear tractor should be selected instead.)



Caution:

Never change paper using the following procedure if labels are already loaded in the printer. Instead, completely remove the labels first by tearing off the fresh supply below the tractor and pressing LF/FF to eject the remaining labels. Then load the new paper as described earlier in this chapter.

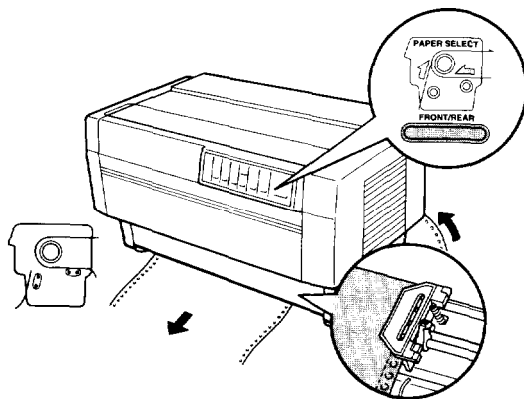
1. If you have a printed document still in the printer, use the tear-off feature described earlier to tear off the document or excess paper.



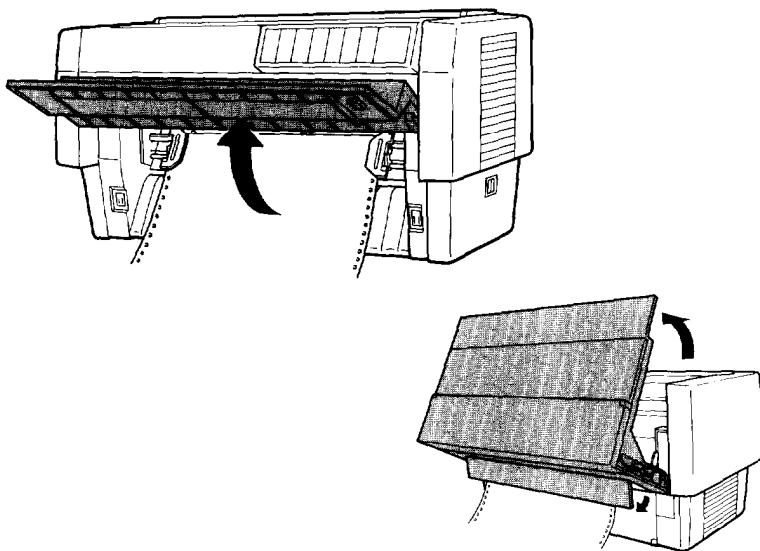
Caution:

Always tear off printed documents before changing the paper. Never feed more than one page backward through the printer.

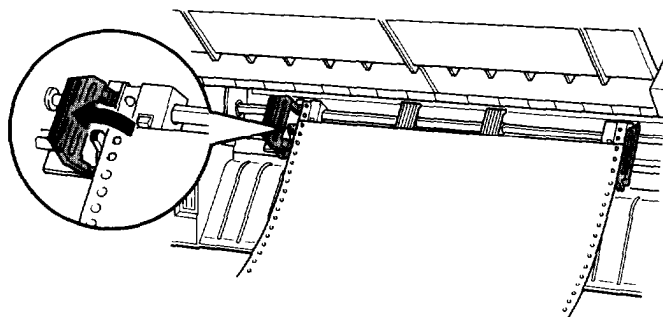
2. Press the FRONT/REAR button to switch to the rear tractor. The front-loaded paper automatically feeds back to the standby position.



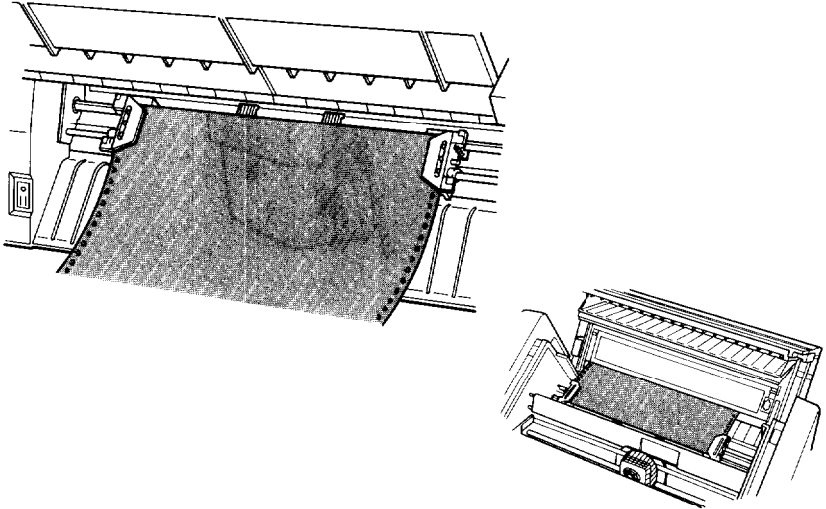
3. Open the printer's front cover. (To change the rear-loaded paper, open the printer's top cover and the rear flap.)



4. Open the sprocket covers and remove the paper from the tractor.



5. Load the new paper as described in steps 1 through 12 beginning on page 1-12 (or for rear-loaded paper, steps 1 through 15 beginning on page 2-3).



Printing on Multi-Part Forms and Labels

You can print on various types of paper, including multi-part forms and labels. Your printer can also handle a variety of paper thicknesses, from thin paper to six-part forms. The printer automatically adjusts to the width and thickness of your paper.

When you print on multi-part forms and labels, the positioning of your text on the page can be critical. For more information on aligning your text, see the sections on adjusting top-of-form and printing positions earlier in this chapter. You should also check both your printer and your software page length settings before you load labels or forms.

If you are using labels, preprinted forms, or multi-part forms, you may want to use the optional pull tractor. See Chapter 4.



Caution:

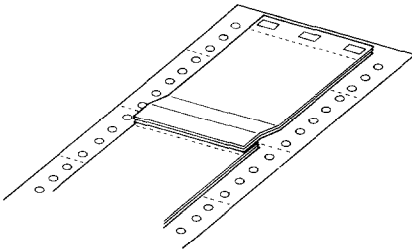
When printing on labels, be absolutely sure that your printing stays within the printable area of the label to prevent damage to the print head. For more information on the printable area, see Appendix A.

Using multi-part forms

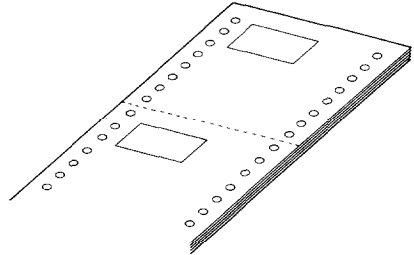
You can use multi-part (carbonless) forms with up to four sheets, including the original, on the rear tractor. On the front tractor, you can use forms with up to six sheets.

You load continuous multi-part forms the same way you load any other type of continuous paper. Before loading multi-part forms, however, make sure the paper has a clean straight edge and does not separate or tear apart. See the sections on loading paper earlier in this chapter.

When you use the paper memory feature described in Chapter 3, the DFX-5000+ can print on multi-part forms that vary in thickness, such as forms with labels on them or forms that overlap slightly where they are glued together. These forms are thicker in the label area and in the places where they overlap or are joined together, as shown below.



Overlapping multi-part forms



Multi-part forms with labels

**Caution:**

Be sure to use the paper memory feature before you print on multi-partforms that vary in thickness. See Chapter 3 for instructions.

When you print on these forms, make sure that the printing fits within the printable area and that the top-of-form position is set properly. The printable area is shown in Appendix A.

Using labels

When using labels, always choose the type mounted on continuous paper with sprocket holes for use with a tractor. Labels should be used in the front tractor only. You load labels the same way that you load continuous paper as described in Chapter 1, "Loading paper onto the front tractor."

**Caution:**

Never use the TEAR OFF, FRONT/REAR, or reverse-feeding (bottom) MICRO FEED button when labels are loaded in the printer. Labels must never be fed backward through the printer because they can easily come off the backing and jam the printer.

Although you must never feed labels backward through the printer, you can still use the automatic paper handling features if you follow these precautions:

- Instead of using the TEAR OFF button to remove printed labels, press the LF/FF button until the last printed label is at the point where you can tear it off easily.
- Before using the FRONT/REAR button to switch tractors or change paper, remove the entire supply of labels first. Always remove labels by tearing off the fresh supply at a perforation below the tractor and then pressing the LF/FF button to eject the remaining labels.

- When adjusting the top-of-form or printing position, use **only** the forward-feeding (top) MICRO FEED button.



Caution:

Because labels are especially sensitive to extreme temperatures and humidity, always use them under normal operating conditions.

Chapter 3

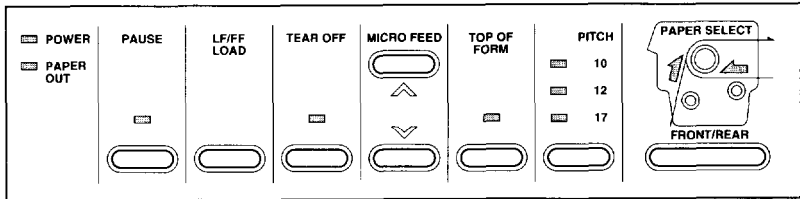
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The Control Panel

The control panel gives you access to several powerful features. The panel consists of indicator lights and buttons.

Indicator lights



POWER

On when the power switch is on and power is supplied to the printer.

PAPER OUT

On when the printer is out of paper. This light goes on whenever no paper is positioned behind the print head, even if paper is loaded on the tractors in the standby position.

Flashes when the paper jams.

PAUSE

On when printing is paused.

TEAR OFF

On when the printer is in tear-off mode. The printer remembers any change you make to the tear-off position when this light is on.

TOP OF FORM

Flashes when the printer is in top-of-form mode. The printer remembers any change you make to the top-of-form position when this light flashes.

PITCH

10

On when the printer is set to print ten characters per inch.

12

On when the printer is set to print twelve characters per inch.

17

On when the printer is set to print seventeen characters per inch.

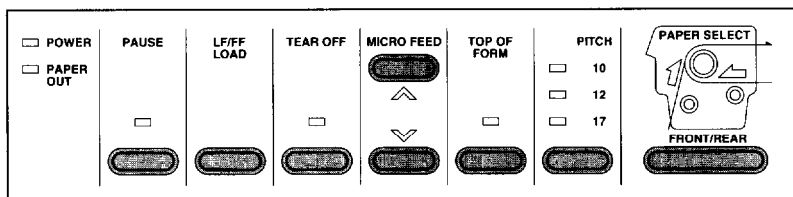
PAPER SELECT FRONT

On when the front tractor is selected. The light is green when paper is loaded (even if the paper is in the standby position), and red when the tractor is out of paper.

PAPER SELECT REAR

On when the rear tractor is selected. The light is green when paper is loaded (even if the paper is in the standby position), and red when the tractor is out of paper.

Buttons



PAUSE

Controls whether the printer can print or not. Press this button to stop or start printing when data is in the input buffer.

LF/FF/LOAD

LF advances paper one line at a time. To feed your paper one line, press this button once.

FF advances the paper to the top of the next page. To use this feature, press and hold the button for about one second.

LOAD loads paper on the push tractor of the selected paper path when no paper is currently loaded.

This button can also be used to run the printer's draft self test. See the section on running the self test in Chapter 1.

TEAR OFF

Feeds the paper to the printer's tear-off edge and puts the printer in tear-off mode.

If the perforation of your paper does not align exactly with the printer's tear-off edge, use the MICRO FEED buttons to adjust the tear-off position. See the section on adjusting the tear-off position in Chapter 2.

This button can also be used to run the printer's NLQ self test. See the section on running the self test in Chapter 1.



Caution:

Never use the TEAR OFF button with labels. Use the LF/FF button instead to feed the printed labels to a point where they can be torn off

MICRO FEED

These two buttons advance or reverse the loaded paper in 1/216-inch increments. You can use these buttons to adjust the top-of-form, tear-off, and printing positions.

To reset the top-of-form position, press the TOP OF FORM button to enter top-of-form mode. Then use the MICRO FEED buttons to move the paper to the desired position. See the section on adjusting the top-of-form position in Chapter 2.

To reset the tear-off position, press the TEAR OFF button to enter tear-off mode and feed the paper to the tear-off position. Then use the MICRO FEED buttons to move the paper to the desired position. See the section on adjusting the tear-off position in Chapter 2.

To adjust the printing position, press either MICRO FEED button to advance or reverse the paper to the desired position. See the section on adjusting the printing position in Chapter 2.

These buttons are also used for the paper memory feature described later in this chapter.



Caution:

When using labels, use only the top MICRO FEED button. Never feed labels backward through the printer.

TOP OF FORM

Lets you enter and exit the top-of-form mode so you can adjust the top-of-form position. The top-of-form position is where printing begins on each page.

If your printing is too high or low on the page, you can reset the top-of-form position by entering top-of-form mode and using micro feed to adjust the position. The printer remembers this new top-of-form position even after it is turned off, reset, or initialized. Also, the printer remembers separate top-of-form positions for the front and rear tractors.

See the section on adjusting the top-of-form position in Chapter 2.

PITCH

Lets you select the characters per inch for printing. Push the button until the light appears next to your preference. (Your software setting overrides this setting.)

PAPER SELECT FRONT/REAR

Lets you select the front or rear tractor. If you have been using paper loaded on one tractor, first remove the printed output before pressing this button to switch the tractor. When you switch between tractors, the paper already loaded in the printer is fed backward to the standby position and the paper on the newly selected tractor is loaded.



Caution:

Never use the FRONT/REAR button when labels are loaded in the printer. All ways tear off any printed pages or excess paper so you don't feed more than one page backward through the printer.

Other control pane/ features

- Self test** By holding down the LF/FF or TEAR OFF button while you turn on the printer, you can start the printer's self test. The self test prints the characters in the printer's ROM (Read Only Memory). See the section on running the self test in Chapter 1.
- Hex dump** By holding down both the LF/FF and TEAR OFF buttons while you turn on the printer, you can turn on the hex dump mode. This feature prints the codes that are sent to the printer so that advanced users can find the cause of communication problems between the computer and printer. See the section on the hex dump mode in Chapter 5 for more information.
- Print settings** By holding down the PAUSE button while you turn on the printer, the printer prints the current DIP-switch settings.

Using DIP Switches

This printer has three sets of DIP switches. DIP switches control a variety of printer functions such as page length and printing speed. DIP-switch settings are shown in the DIP-switch tables starting on page 3-10. Descriptions of all the DIP-switch functions are provided beginning on page 3-14.

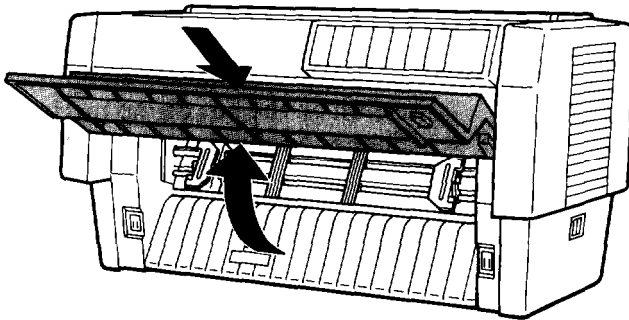
Because the factory (default) settings are designed to accommodate the needs of most users, you may never need to change the DIP-switch settings.

Note:

You can print out the current DIP-switch settings by holding down the PAUSE button while you turn on the printer.

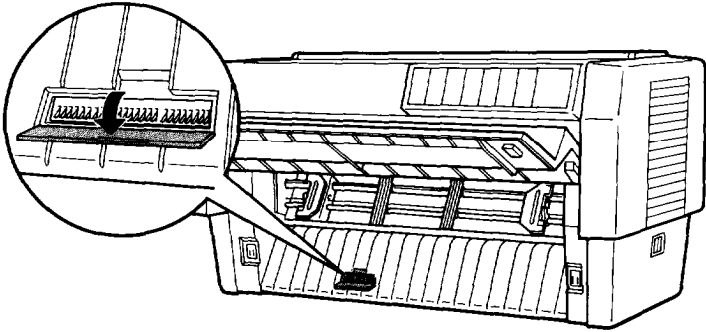
Changing DIP-switch settings

1. Turn off the printer.
2. Open the printer's front cover by lifting the middle of its bottom edge up until it locks in place.

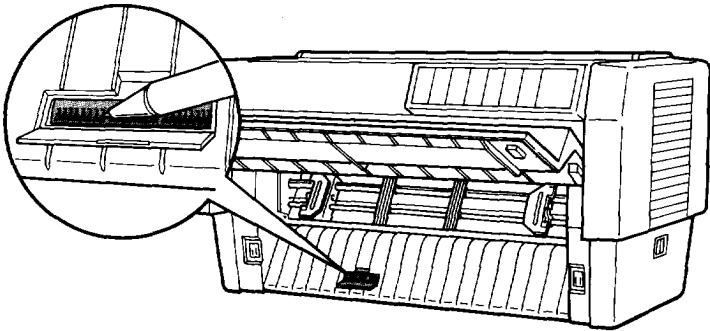


3. The DIP switches are located in a small compartment on the front paper guide, behind the front tractor paper. If paper is loaded on the front tractor, either remove it or lift it up out of the way so you can reach the DIP switches.

4. Open the DIP-switch cover.



5. Use a pointed instrument, such as the tip of a ballpoint pen, to turn the switch either on or off. A DIP switch is on when it is up, and off when it is down.



Note:

Always make sure that the printer is turned off before changing the DIP-switch settings.

6. Close the DIP-switch cover and replace the paper.
7. Next, close the front cover.
8. Turn on the printer to initialize the new settings. When you change a DIP-switch setting, the new settings take effect only after you turn on or reset the printer.

DIP-switch tables

The following tables show the settings for each DIP switch. For more information about each feature, see the explanations following the DIP-switch tables.

DIP switch 1

Switch	Description	ON	OFF
1-1	Printer mode	IBM*	ESC/P
1-2	Draft printing speed	Normal	High
1-3	Character quality	NLQ	Draft
1-4	Character table (in Epson ESC/P mode) (For setting in IBM* mode, see table E.)	See table A	
1-5			
1-6			
1-7			
1-8			

* IBM Pro Printer II emulation.

DIP switch 2

Switch	Description	ON	OFF
2-1	Shape of zero	Slashed	Not slashed
2-2	Input buffer enable	N o	Yes
2-3	Auto line feed	Yes	N o
2-4	Interface type/parity	See table B	
2-5			
2-6			
2-7	Serial bit rate	See table C	
2-8			

DIP switch 3

Switch	Description	ON	OFF
3-1	Page length	See table D	
3-2			
3-3	Skip-over-perforation	Skip	No skip
3-4	Paper memory (*)	Memory 2	Memory 1
3-5	Overlapping multi-part forms (*)	Yes	N o
3-6	Multi-part forms with label (*)	Yes	N o
3-7	Skip over binding	Yes	N o
3-8	Automatic tear off	Yes	N o

* These switches are for paper memory settings.

Table A (Epson ESC/P mode only)

Character table	SW 1-4	SW 1-5	SW 1-6	SW 1-7	SW 1-8
Italic U.S.A.	OFF	OFF	OFF	OFF	OFF
Italic France	OFF	OFF	OFF	OFF	ON
Italic Germany	OFF	OFF	OFF	ON	OFF
Italic U.K.	OFF	OFF	OFF	ON	ON
Italic Denmark	OFF	OFF	ON	OFF	OFF
Italic Sweden	OFF	OFF	ON	OFF	ON
Italic Italy	OFF	OFF	ON	ON	OFF
Italic Spain	OFF	OFF	ON	ON	ON
PC437	OFF	ON	OFF	OFF	OFF
PC850	OFF	ON	OFF	OFF	ON
PC860	OFF	ON	OFF	ON	OFF
PC863	OFF	ON	OFF	ON	ON
PC865	OFF	ON	ON	OFF	OFF
PC861	OFF	ON	ON	OFF	ON
BRASCI	OFF	ON	ON	ON	OFF
Abicomp	OFF	ON	ON	ON	ON
PC437 Greek*	ON	OFF	OFF	OFF	OFF
PC869*	ON	OFF	OFF	OFF	ON
ISO 8859-7*	ON	OFF	OFF	ON	OFF
PC853*	ON	OFF	OFF	ON	ON
PC857*	ON	OFF	ON	OFF	OFF
ISO Latin 1T*	ON	OFF	ON	OFF	ON
PC855*	ON	OFF	ON	ON	OFF
PC866*	ON	OFF	ON	ON	ON
PC852*	ON	ON	OFF	OFF	OFF
MAZOWIA*	ON	ON	OFF	OFF	ON
Code MJK*	ON	ON	OFF	ON	OFF
Bulgaria*	ON	ON	OFF	ON	ON

* Available in the European version only.

PC437 is selected by all other switch combinations.

Table B Interface type/parity

Interface/parity			SW 2-4	SW 2-5	SW 2-6
Auto interface selection	Odd parity for serial	Wait time: 30 sec.	OFF	OFF	OFF
		Wait time: 10 sec.	OFF	OFF	ON
	No parity for serial	Wait time: 30 sec.	OFF	ON	OFF
		Wait time: 10 sec.	OFF	ON	ON
Parallel			ON	OFF	OFF
Serial odd parity			ON	OFF	ON
Serial even parity			ON	ON	OFF
Serial no parity			ON	ON	ON

The printer waits this interval after a print job before it accepts data from another interface.

Table C Serial bit rate

Bit rate	SW 2-7	SW 2-8
19200	OFF	OFF
9600	OFF	ON
1200	ON	OFF
300	ON	ON

Table D Page length

Page length	SW 3-1	SW 3-2
11 inches	OFF	OFF
12 inches	OFF	ON
8.5 inches	ON	OFF
70/6 inches	ON	ON

Table E (IBM mode only)

Switch No.	Function	ON	OFF
1-4	Automatic carriage return	No	Yes
1-5	Not used	—	—
1-6	80-9FH code handling	Characters	Commands
1-7	Not used	—	—
1-8	Character table	PC865	PC437

DIP-switch functions

The different features you can control with the printer's DIP switches are described below.

Printer mode

When DIP switch 1-1 is on, the printer operates in IBM ProPrinter II emulation mode. When this DIP switch is off, the printer operates in Epson ESC/P mode. Table E shows the functions of DIP switches 1-4, 1-5, 1-6, 1-7, and 1-8 in IBM mode. Table A shows the functions of those same DIP switches in ESC/P mode.

Draft printing speed

When DIP switch 1-2 is off, high-speed draft mode is selected. When this switch is on, normal draft mode is selected. This switch affects the printer only if DIP switch 1-3 is set to draft mode (turned off) or if draft mode is selected in your software. In high-speed draft mode, you can print up to 560 characters per second at 10 cpi (characters per inch). In normal draft mode, you can print up to 420 characters per second at 10 cpi. Normal draft mode produces characters that are more fully formed than characters produced in high-speed draft mode.

Note:

High-speed draft mode is available only for 10 cpi printing. Also, underlining and double-width are the only print enhancements that work in high-speed draft mode. If you use a feature such as emphasized or double-strike in high-speed draft mode, the printer temporarily slows to normal draft speed until the feature is turned off. This allows you to use any print enhancement without canceling high-speed draft mode.

Character qualify

When DIP switch 1-3 is on, the printer prints in near letter quality (NLQ) mode. When this DIP switch is off, it prints in draft mode.

This is NLQ printing.

This is normal draft printing.

Character table

When DIP switch 1-1 is off and DIP switches 1-4 through 1-8 are set on and off in various combinations, you can select the character tables available in the Epson ESC/P mode. When DIP switch 1-1 is on and DIP switches 1-6 or 1-8 are on or off, you can select character table settings in IBM emulation mode. See Appendix B for complete character tables.

Shape of zero

When DIP switch 2-1 is on, the printer prints slashed zeros (0). When the DIP switch is off, the printer prints open zeros (0). This feature is useful for clearly distinguishing between an uppercase O and zero when printing documents such as program lists.

input buffer

The printer's input buffer provides additional memory to free up the computer more quickly when you print large amounts of text or graphics. The input buffer is enabled when DIP switch 2-2 is off. To disable the buffer, turn DIP switch 2-2 on.

Auto line feed

When DIP switch 2-3 is on, the printer adds a line feed (LF) command to every carriage return (CR) code sent by the application program software. When the switch is off, line feeds occur only when the software sends line feed commands to the printer. Since most computers and application programs automatically add line feeds to carriage returns, you should use this feature only if your text is printing all on one line.

Note:

If you select auto line feed but your text still prints on one line, you need to disable the AUTO FEED XT signal. See your Epson dealer for assistance.

Interface type/parity

You may need to change DIP switches 2-4, 2-5, and 2-6 so that your printer and computer can communicate properly. These three DIP switches control the interface type and parity. (You may also need to select a different serial bit rate. See the following section on serial bit rate.)

Table B (shown earlier) has the DIP-switch settings for auto interface selection, parallel interfaces, and for serial interfaces with odd or no parity. When the auto interface selection is selected, the printer determines which interface receives data and then switches to that interface until the end of the print job. (A print job ends when no data is received from the selected interface for the amount of time specified by the auto interface wait time setting.) If you don't know what type of interface your computer requires, check your computer manual. Also check your computer manual to make sure your computer and printer have the same parity setting.

Serial bit rate

Besides selecting the interface and parity, if your computer is set up for serial communications you may also need to change the serial bit (also known as baud) rate setting. The serial bit rate is the rate at which the printer receives data from the computer.

Table C (shown earlier) has the DIP-switch settings for the printer's four bit rate settings. Check your computer manual or application program for the correct serial bit rate setting. Your computer and printer should always be set to the same bit rate.

Page length

To set page lengths other than those listed in Table D (shown earlier), see the printer commands in Appendix B. Be sure to set the page length to match the paper you plan to use.

Skip-over-perforation

When DIP switch 3-3 is on, the printer inserts a one-inch margin between the last line printed on one page and the first line printed on the next page. By adjusting your top-of-form position, you can get half the margin at the bottom of one page and half at the top of the next page. See the section on adjusting the top-of-form position in Chapter 2. Since most application programs insert their own top and bottom margins, you should use this feature only if your program does not provide them.

Paper memory, overlapping multi-part forms, multi-part forms with labels

By setting DIP switches 3-4 through 3-6, you can print on multi-part forms that vary in thickness. See the section on using the paper memory feature later in this chapter.

Skip over binding

When DIP switch 3-7 is on, the print head avoids the binding area along the right and left edges of multi-part forms during paper feeding, thus avoiding paper jams.

Automatic tear off

When DIP switch 3-8 is on, the printer automatically feeds the paper to the printer's tear-off edge. To adjust the tear-off position, use the MICRO FEED buttons to align the paper's perforation with the printer's tear-off edge. See the section on adjusting the automatic tear-off position in Chapter 2.

Using Automatic Interface Selection

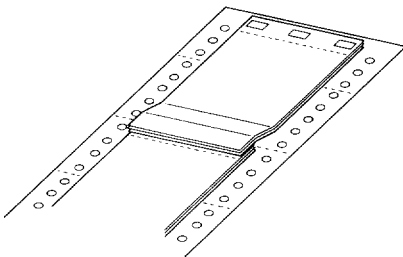
Automatic interface selection lets you connect computers to more than one interface at a time. The printer receives data from the interfaces on a first-come, first-serve basis. Once the printer prints the data from one interface, it becomes idle after 10 or 30 seconds, depending upon the DIP-switch setting. Then the printer receives and prints data from the first interface that sends data.

Note:

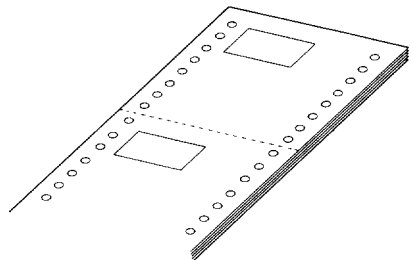
Do not use your built-in serial interface if you have installed an optional serial interface card (C82305/C82306*); the optional card overrides the built-in interface. If the DIP switch on the optional card is set to disable, you can use the built-in serial interface.*

Using the Paper Memory Feature

When you use multi-part forms that overlap, or forms with labels on them, use the paper memory feature for better print quality. This feature achieves better print quality by automatically adjusting the gap between the print head and the platen based upon the type of paper set in memory.



Overlapping multi-part forms



Multi-part forms with labels

Note:

The paper memory feature is available only with the front tractor.



Caution:

When using overlapping multi-part forms, do not press the TEAR OFF, FRONT/REAR, TOP OF FORM or reverse-feeding (bottom) MICRO FEED button or a paper jam may result. To remove these forms, tear off the fresh supply at a perforation below front tractor and press the LF/FF button to eject the remaining forms.

Saving paper memory settings

This procedure requires setting several DIP switches. See the section on changing DIP-switch settings earlier in this chapter.

1. Make sure the printer is turned off.
2. Turn DIP switch 3-4 off to save your settings for memory number 1 or on for memory number 2.
3. Select the page length by turning DIP switches 3-1 and 3-2 on or off as shown below.

Page length	SW 3-1	SW 3-2
11 inches	OFF	OFF
12 inches	OFF	ON
8.5 inches	ON	OFF
70/6 inches	ON	ON

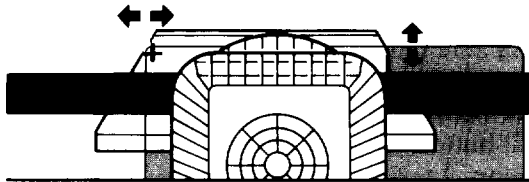
4. Select the paper type by turning DIP switches 3-5 and 3-6 on or off as shown below.

Page type	SW 3-5	SW 3-6
Normal paper	OFF	OFF
Multi-part forms with labels	OFF	ON
Overlapping multi-part forms	ON	OFF
Overlapping multi-part forms with labels	ON	ON

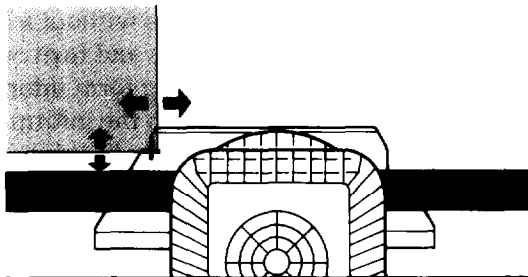
- For overlapping multi-part forms without a label, hold down both MICRO FEED buttons and turn on the printer. The printer saves the overlapping form information in the memory area you selected. When the information is saved, the printer beeps and is then ready to print. You have now finished all steps for saving information on overlapping multi-part forms without a label.

For regular and overlapping multi-part forms with a label, hold down both MICRO FEED buttons and turn on the printer. The printer beeps. Press the LF/FF/LOAD button to load the forms. The printer loads and checks the forms. When the check is finished, the printer beeps continuously until you open the top cover in the next step.

- Open the printer cover.
- Move the pointer (the point where the two lines intersect) to the label's upper left corner. Use the MICRO FEED buttons to move the paper up or down and manually move the print head left or right.



8. Press the TOP OF FROM button.
9. Move the pointer to the label's lower right corner. Use the MICRO FEED buttons to move the paper up or down and manually move the print head left or right.



10. Press the TOP OF FORM button.
11. Close the printer cover.
12. If the printer beeps one or two times, the settings were saved. If the printer beeps ten times, the settings were not saved. In this case, turn off the printer and repeat steps 5 through 11.

Loading paper memory settings

1. Make sure the printer is turned off.
2. To recall the memory 1 setting, hold down the top MICRO FEED button while you turn on the printer. To recall the memory 2 setting, hold down the bottom MICRO FEED button while you turn on the printer.

Note:

- ❑ *If you don't want to use paper memory settings 1 or 2 for a particular job, simply hold down the FRONT/REAR button while you turn on the printer.*

- ❑ *A one-inch skip over perforation is automatically included for overlapping multi-part forms.*

Chapter 4

Using the Printer Options

Using the Pull Tractor	4-2
Installing the pull tractor	4-2
Using the pull tractor with the front tractor	4-5
Using the pull tractor with the rear tractor	4-9
Removing the pull tractor	4-12
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Using the Pull Tractor

The optional pull tractor (#8309) provides optimum continuous paper handling. The pull tractor is especially useful with continuous multi-part forms and labels. When the pull tractor is installed, the tear-off feature is not available. For best results, use the pull tractor with either the printer's front or rear built-in tractor, as described in this section.

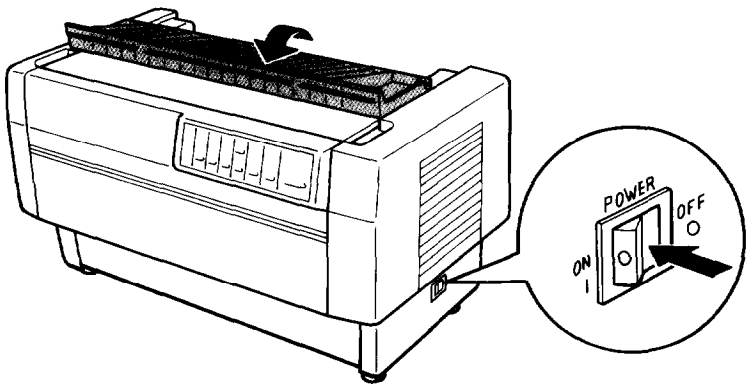
Installing the pull tractor

To install the pull tractor, you need a cross-head screwdriver.

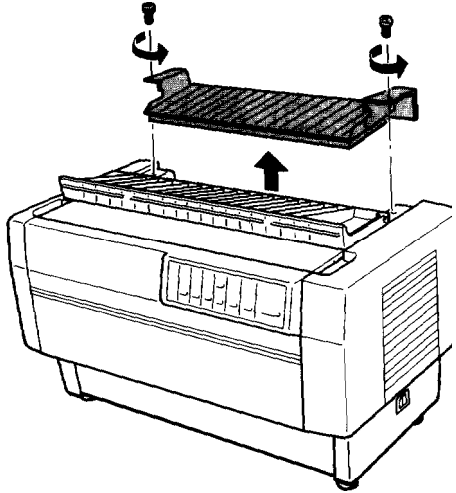
Note:

*If you **are** going to be using the pull tractor with the built-in rear tractor, you should load **paper** onto **the rear tractor** before installing the pull tractor. See the section on loading **paper** onto the **rear tractor** in Chapter 2.*

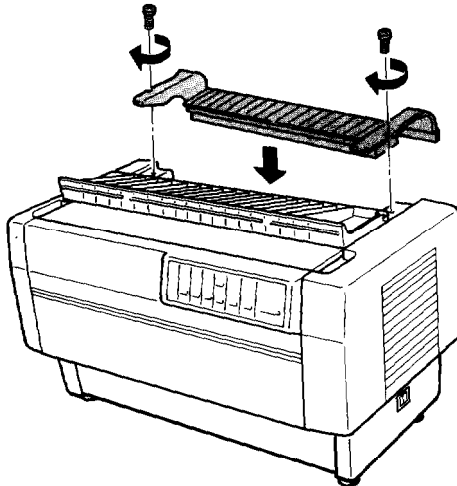
1. Turn off the printer and open the paper separator cover.



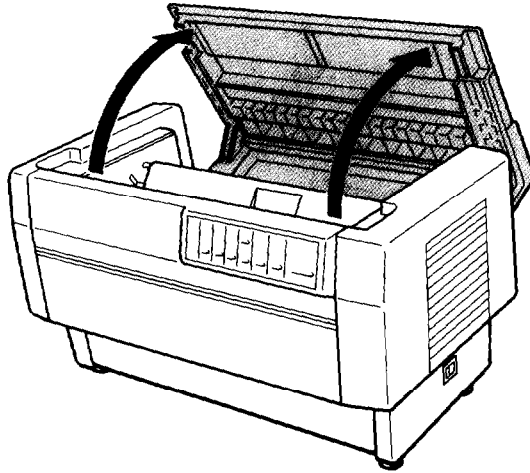
2. Use the cross-head screwdriver to remove the two screws securing the paper separator to the printer. Then lift the paper separator off the printer.



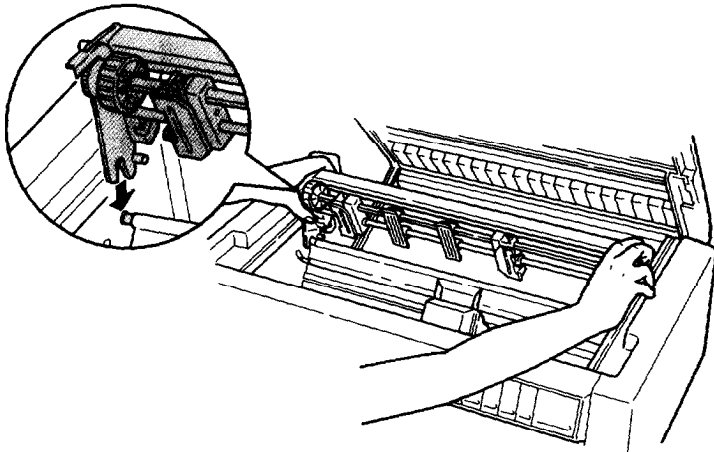
3. Using the two screws you just removed from the printer's original paper separator, install the paper separator that comes with the pull tractor.



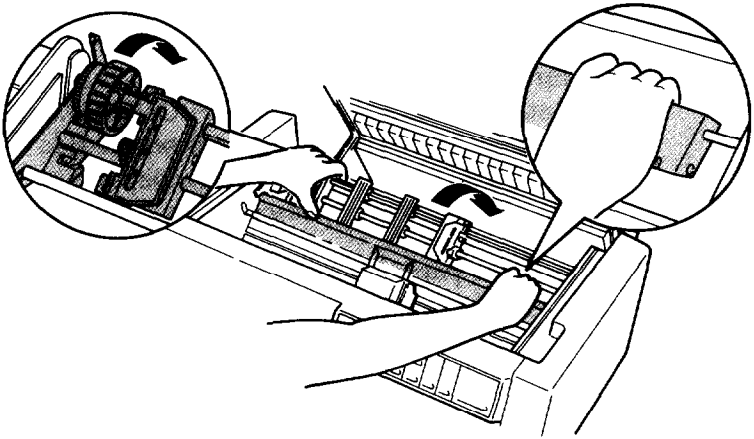
4. Close the paper separator cover and open the printer' top cover.



5. Holding the pull tractor with its gears to the left, fit the tractor's front notches over the mounting shaft of the printer.



6. Open the paper bail using the tab on its right side. Then tilt the pull tractor back until its rear latches click into place over the printer's rear mounting pins.



7. Gently close the paper bail (do not apply excess pressure), and then close printer's top cover.

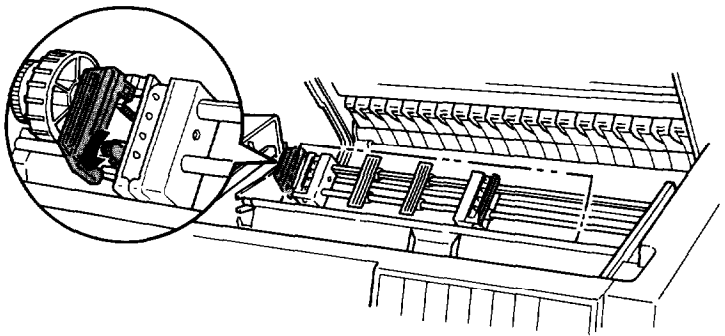
Using the pull tractor with the front tractor

If you are using labels or multi-part forms with more than four parts (including the original), you should use the pull tractor with the printer's built-in front tractor.

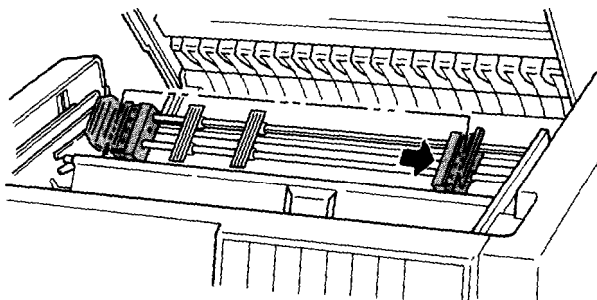
You can switch between the front and rear tractors at any time when you are using the pull tractor. Just press the FRONT/REAR button and then use the LF/FF button to feed the paper the additional distance to the pull tractor. (Labels require special handling. See the section on using labels in Chapter 2.)

The tear-off feature does not work when the pull tractor is installed. To tear off documents, press the LF/FF button to advance the paper to a point where it can be tom off.

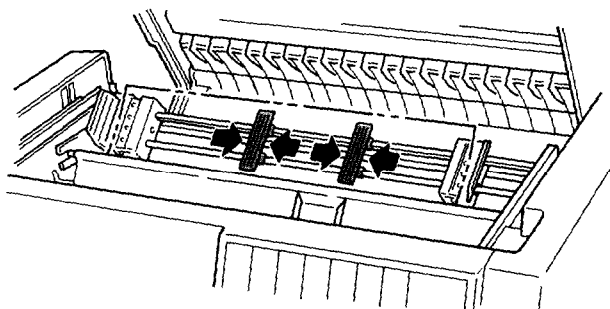
1. Turn on the printer and open the top cover.
2. Make sure paper is loaded on the front tractor to the top-of-form position. If paper is already on the tractor but it is in the standby position, press the FRONT/REAR or LF/FF button (depending on which tractor is selected) to load the paper to the top-of-form position. If no paper is on the front tractor at all, load paper as described in Chapter 1.
3. Once you have paper loaded on the printer's front tractor, use the LF/FF button to advance the paper to the pull tractor.
4. Release both sprocket lock levers on the pull tractor by pulling them toward you. Then open both sprocket covers.



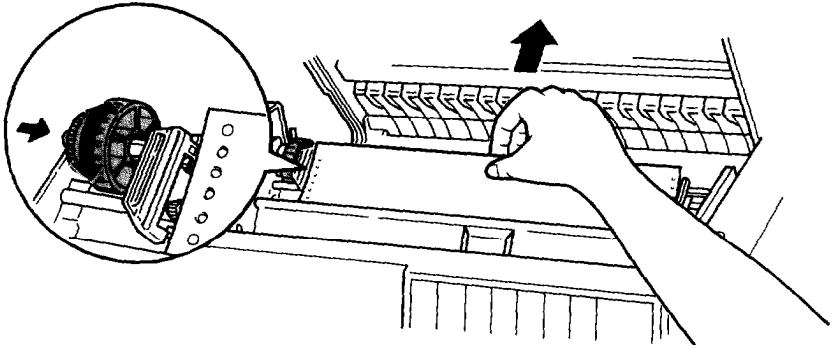
5. Adjust the sprocket units to match the width of your paper.



6. Slide the two paper supports so they are spaced evenly between the two sprocket units.



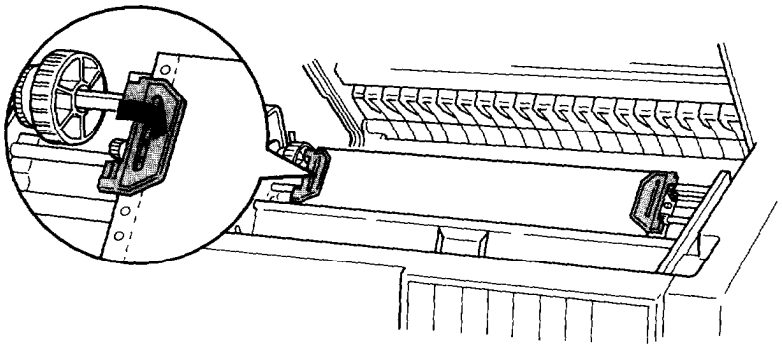
7. Fit the sprocket holes of the paper over the sprocket pins. If there is slack in the paper or if the holes in the paper do not align properly with the sprocket pins, pull up the paper slightly and use the pull tractor knob to adjust the position of the paper as shown below. Slide the knob to the right first, and then turn it as necessary.



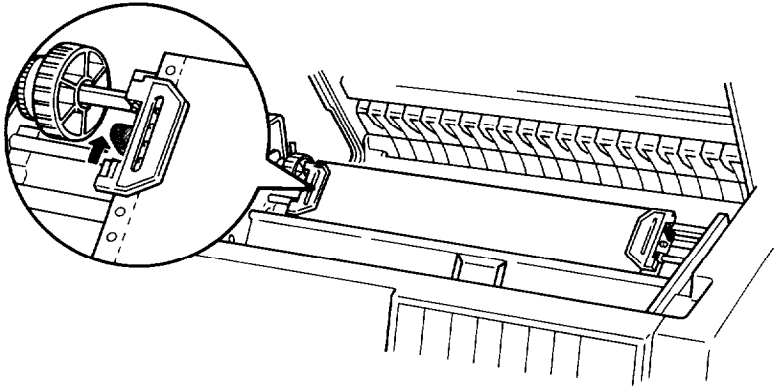
Caution:

Be sure the sprocket units of the built-in front tractor and the optional pull tractor are aligned.

8. Close the sprocket covers.



- Slide the sprocket units so that the paper is straight and smooth, and then lock them into place.



Caution:

Be sure the sprocket units are not too far a part. If they pull your paper too tightly or tear the edges of the paper holes, a paper jam may result. To remove any excess tension in your paper, release the right sprocket unit and lock it again.

- Adjust the top-of-form position as described in Chapter 2, if necessary.
- Close the top cover. Press the LF/FF button to feed the paper out the back of the printer. Make sure the edge of the first sheet emerges below the paper separator.

Using the pull tractor with the rear tractor

If you are using labels or multi-part forms with more than four parts (including the original), do not use the rear tractor; use the front tractor as described in the previous section.

You can switch between the front and rear tractors at any time when you are using the pull tractor. Just press the FRONT/REAR button and then use the LF/FF button to feed the paper the additional distance to the pull tractor. (Labels require special handling. See the section on using labels in Chapter 2.)

The tear-off feature does not work when the pull tractor is installed. To tear off documents, press the LF/FF button to advance the paper to a point where it can be torn off.

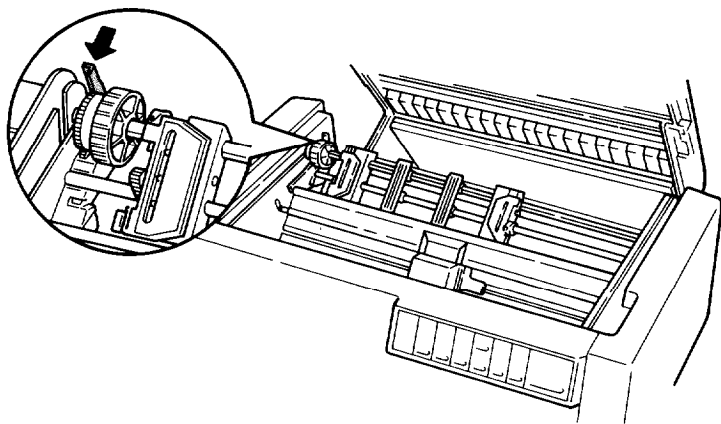
The following steps show you how to load paper using the optional pull tractor (already installed) with the printer's built-in rear tractor. If you have not yet installed the pull tractor, load paper onto the rear tractor and then install the pull tractor as described earlier in this chapter.

1. Open the top cover.

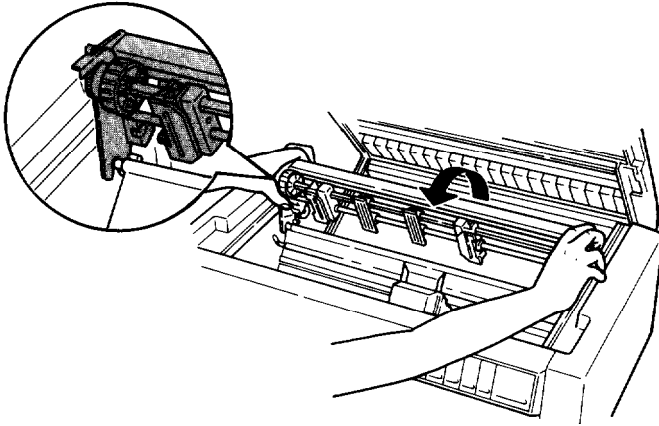
Note:

If paper is on the rear tractor, in either the top-of-form or standby position, skip to Step 6.

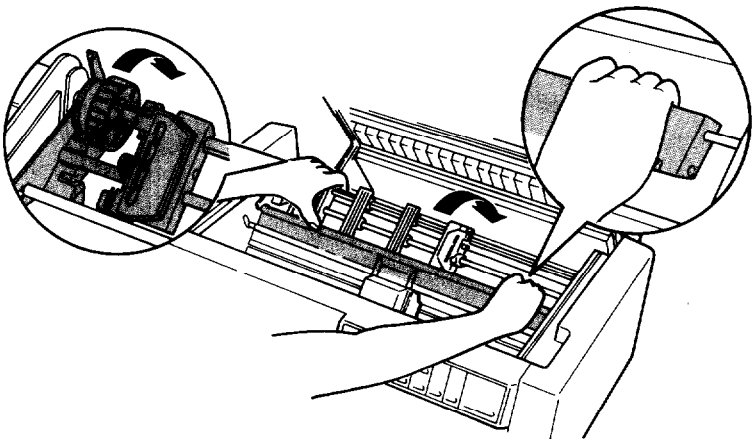
2. Pull the levers on the pull tractor toward you to release the pull tractor.



3. Tilt the tractor forward so that its pins rest on the metal frame of the printer.



4. Load paper onto the rear tractor as described beginning on page 2-4, steps 3 through 11.
5. Open the paper bail using the tab on its right side. Then tilt the pull tractor back until the rear latches click into place over the printer's rear mounting pins.



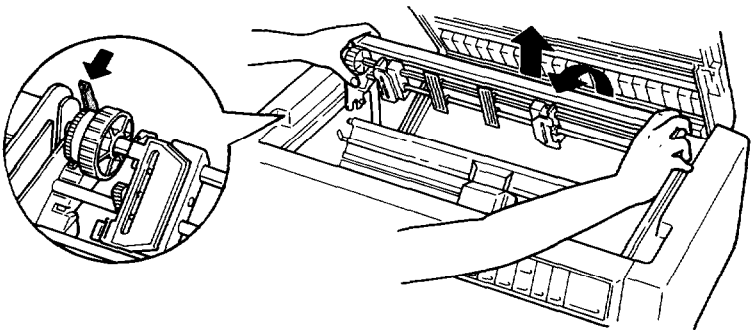
6. Turn on the printer, and use the LF/FF button to advance the paper to the pull tractor.

Now follow steps 4 through 11 starting on page 4-6.

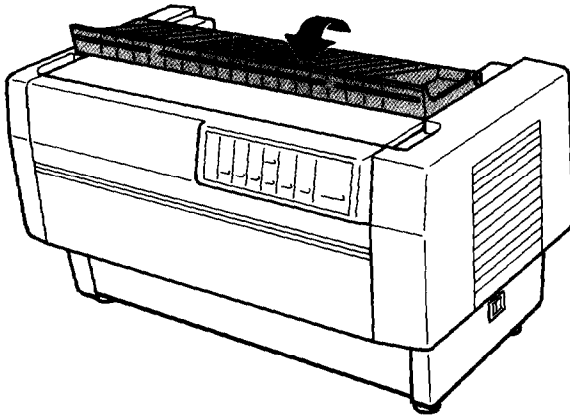
Removing the pull tractor

You'll need a cross-head screwdriver and the paper separator that was originally installed on the printer.

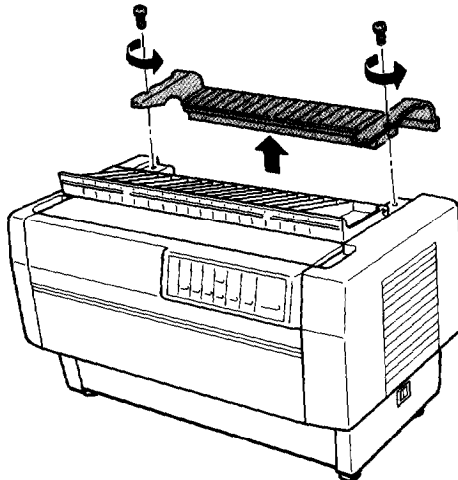
1. Remove any paper installed on the tractor and turn off the printer.
2. Open the top cover and locate the levers that lock the pull tractor in place on the printer. Pull these levers forward to release the pull tractor. Then lift the tractor up and out of the printer.



3. Close the printer's top cover and open the paper separator cover.



4. Using a cross-head screwdriver, remove the paper separator that came with the pull tractor.



5. Reinstall the original paper separator and close the paper separator cover.

Optional Interface Cards

You can use optional interface cards to supplement your printer's built-in serial and parallel interfaces. If you don't know whether you need an optional interface or if you want to know more about interfaces, contact your Epson dealer.

Note:

Your printer has an auto interface selection feature that allows you to connect to more than one interface at a time. See the section on using automatic interface selection in Chapter 3.

Coax and twinax interfaces enable the printer to communicate with an IBM minicomputer or mainframe via coax or twinax protocol. This allows Epson printers to function as local IBM printers without the addition of any other circuitry or components.

The following Epson interfaces are compatible with your printer. Not all of these interfaces are available in all countries.

Number	Name
C82305*/C82306*	Serial interface card
C82307*/C82308*	32KB serial interface card
C82310*	32KB parallel interface card
C82312*	Local Talk interface card
C82313*	32KB IEEE-488 interface card
C82314*	Coax interface card
C82315*	Twinax interface card
C82324*	Ethernet interface card

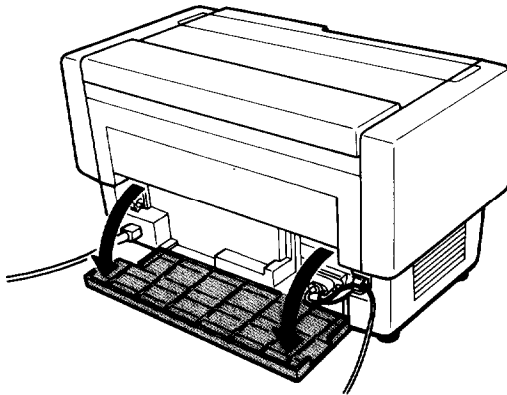
* The digit varies by country.

Installing an interface card

Note:

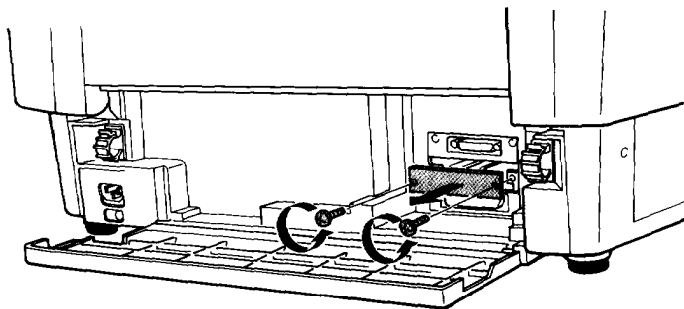
If you install an optional interface card, make sure your printer's DIP switches are set for parallel interface, even if you are installing a serial interface card.

1. Turn off both your printer and your computer. Then remove all power and interface cables from the printer.
2. Turn your printer so that the rear cover faces you.
3. Open the printer's rear cover.

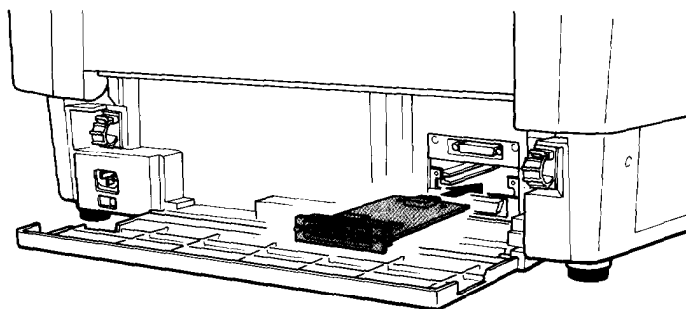


4. Be sure to set any switches and jumpers on the card, as necessary. See the interface cards manual for details. Make sure that you set jumper JG to on, or the card will not work properly. (To set the jumper to on, cover both wires of the terminal with the rectangular jumper plug.)

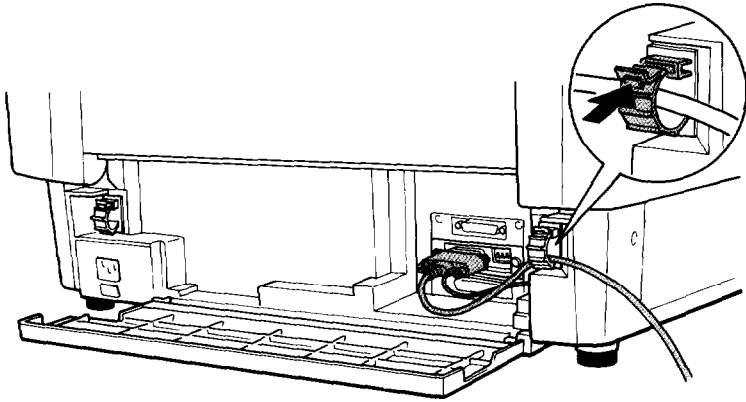
5. Use a screwdriver to remove the screws securing the interface shield plate; remove the shield plate.



6. Slide the interface card into the grooves in the interface slot. Push it in firmly to make sure it connects to the printer's internal socket.



7. Secure the interface with the screws provided with the card.
8. Plug the connector cable into the interface card as shown.



9. Plug the other end of the cable into your computer.
10. Close the interface cover.
11. Plug the power cord into your printer and an electrical outlet.

Chapter 5

Troubleshooting and Maintenance

Error Indicators	5-2
Problems and Solutions	5-3
The printer does not print	5-3
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The printout is spaced incorrectly	5-4
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Error Indicators

The printer's beeps indicate a variety of status or error situations. If you hear beeps as shown below, you can resolve the problem quickly.

Status	Beep pattern	Remedy
Paper out	.....	Load paper.
Paper jam	..... (The PAPER OUT light flashes.)	Remove jammed paper and then press the PAUSE button.
Other paper errors	—	Load paper. Tear off any printed page when switching the tractors.
Top cover open	—	Close the top cover and press the PAUSE button.
Paper memory setting error	.*****	Redo the paper memory setting.
Micro adjustment limit reached	..... , , , (continuous)	Stop pressing the MICRO FEED button.
Other errors	.....	Turn off the printer and leave it about 10 minutes, then turn on the printer again. If the error occurs again, contact your dealer.
	
	
	
	
	

..... Short interval

. . Long interval

Problems and Solutions

The printer does not print

Make sure the printer is turned on and the POWER light is on. If the printer is turned on but the POWER light is not on, check to see that the printer is fully plugged in and that the electrical outlet is also turned on. If the electrical outlet is controlled by an outside switch or automatic timer, use a different outlet.

If 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.

Make sure the printer is connected securely to the computer. Check both ends of the cable between the printer and the computer.

Make sure that the PAUSE light is not lit. If it is lit, printing has been temporarily suspended. Press the PAUSE button to continue.

Make sure the printer is not out of paper. The tractor arrow on the PAPER SELECT indicator should be green.)

Make sure the correct tractor arrow is lit on the PAPER SELECT indicator. If the wrong tractor is selected, make sure paper is loaded in the standby position on the tractor you want to use, and then press the FRONT/REAR button to switch to that tractor. See the sections on loading paper in Chapter 2.

Make sure that all protective materials are removed. If not, turn off the printer, remove the protective materials, and turn the printer back on. See the Notice Sheet that came inside the printer for instructions on removing protective materials.

If the printer still does not print, disconnect the printer from the computer and try the self test described in Chapter 1. If the self test works properly, the printer is working and the problem probably lies in the computer, the software, or the cable. If the self test does not work, contact your Epson dealer.

The printer stops printing

The printer may be out of paper. Check the paper supply.

The paper may be jammed. Remove the jammed paper and reload. Then press the PAUSE button. See the sections on loading paper in Chapter 2.

The ribbon may be jammed. This problem is usually caused by too much slack or a worn ribbon. See Chapter 1 to tighten the ribbon or the section on replacing the ribbon later in this chapter.

The top cover may be open. If the top cover is opened during printing, the printer beeps four times and stops printing. To resume printing, close the top cover and press the PAUSE button.

If the printer stops and the beeper sounds, turn the printer off and check for paper jams or other problems. Turn it back on and try to print again. If the printer beeps again and does not print, take it to a qualified service person.

The printout is spaced incorrectly

If all the text is printed on the same line, no line feed command is being sent at the end of each line of text. Turn DIP switch 2-3 on.

If the printer is inserting extra blank lines between lines of text, extra line feed commands are being sent. Turn DIP switch 2-3 off.

If the printer inserts extra blank lines even when DIP switch 2-3 is turned off, you need to disable the AUTO FEED XT signal coming from your computer. See your Epson dealer for assistance.

The printout is faint or uneven

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

The ribbon may be worn out. See the section on replacing the ribbon cartridge later in this chapter.

The print head may be worn out. This is especially likely if parts of printed characters are missing. Contact your dealer to have the head replaced. Never attempt to replace the head yourself because other parts of the printer should be checked at the same time.

The printout is not what you expect

The wrong character table may be selected. See the section on selecting character tables with DIP switches in Chapter 3. You can also select the character table using software commands. (See Appendix B.)

The printer may not be securely connected to the computer. Check both ends of the cable between the printer and the computer.

Your software's font, page layout, printer port, or other printer settings may not be selected properly. Make sure your software is correctly set up for your printer and that you specify continuous-feed paper as the type of paper.

If the printing is too high or low on the page, adjust it by following the instructions in the sections in Chapter 2 on adjusting the top-of-form position and adjusting the printing position.

Your application program may be overriding the DIP-switch settings. See your software manual for more information on selecting the desired settings or for removing interfering codes. For more information on sending printer commands, see Appendix B.

Make sure that the DIP switches are set correctly for use with the built-in parallel or serial interface. See the section on DIP-switch settings for interface type, parity, and serial bit rate in Chapter 3.

If you are using an optional interface card, make sure that DIP switches on the printer are set for parallel, regardless of whether the optional card is parallel or serial. See the section on DIP-switch settings for interface type in Chapter 3.

Paper does not feed properly

The paper may not be mounted on the sprockets correctly. Make sure the sprocket holes of the paper fit correctly over the sprockets.

Make sure the sprockets are positioned to match the width of your paper and that they are locked in place with their covers closed.

Check the paper on the tractor's sprockets to make sure it is not ripped, jammed, or skewed. If something is wrong with the paper, tear off the paper below the tractor and press the LF/FF button to eject the remaining paper. Then load fresh paper, making sure the first sheet has a clean, straight edge.

The paper supply may be too far from the printer, or not aligned with the front or rear tractor. Also, some obstacle may be in the way of the paper or something may be on top of the paper supply. If you use the rear tractor, make sure that your printed documents do not interfere with the rear paper supply. See Chapter 2 for instructions on the proper placement of the paper supply.

If you are using labels, you must take extra paper handling precautions. See the section in Chapter 2 on using labels.

Hex Dump Mode

The printer has a special feature to make it easy for experienced users to find the cause of communication problems between the printer and application programs. In hex dump mode, all codes received by the printer are printed.

1. To enter hex dump mode, hold down both the LF/FF and TEAR OFF buttons while you turn on the printer.
2. Next, run a software program (even one you have written in any programming language) and send a print job to the printer. Your printer prints all the codes it receives in hexadecimal format as shown in the sample below:

```
Data Dump Mode
0000 1B 40 1B 52 00 1B 74 01 1B 36 12 1B 50 20 20 20 .@.R...t..6..P
0001 20 20 54 68 69 73 20 69 73 20 61 6E 20 65 76 61 This is an exa
0002 6D 70 6C 65 20 6F 66 20 61 20 64 61 74 61 20 64 mple of a data d
0003 75 6D 70 20 70 72 69 6E 74 6F 75 74 2E 20 54 68 ump printout. Th
0004 69 73 20 69 73 20 66 65 61 74 75 72 65 20 6D 61 is is feature ma
0005 6B 65 73 20 69 74 20 65 61 73 79 20 66 6F 72 20 kes it easy for
```

3. To turn off hex dump mode, press the PAUSE button and then turn off the printer.

Look at the hex dump printout shown in Step 2. By comparing the characters printed in the right column with the printout of the hexadecimal codes, you can check the codes being sent to the printer. If characters are printable, they appear in the right column as ASCII characters. Nonprintable codes, such as control codes, are represented by dots.

As an example of how to interpret a hex dump printout, look at the first five hex codes on the first line of the printout sample (1B 40 1B 55 31). Each hex 1B represents the ESC code, 40 represents @, 55 represents U, and 31 represents the numeral 1. Check the first line of the right column and you will find a dot, an @ sign, another dot, a U, and a 1. If you look in Appendix B, you will see that these are the commands to initialize the printer and turn on unidirectional mode.

Maintaining the Printer

Cleaning the printer

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

If you have installed the optional pull tractor, remove it before cleaning the printer.

1. Turn off the printer and close all of its covers.
2. Using a soft brush, carefully remove all dust and dirt.

3. If the outer case is dirty or dusty, clean it with a soft, clean cloth dampened with mild detergent dissolved in water. Keep all of the covers closed to prevent water from getting inside the printer.



Caution:

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

Replacing the ribbon cartridge

When your printing becomes too faint, you need to replace the ribbon. Use the #8766 Epson replacement cartridge only.

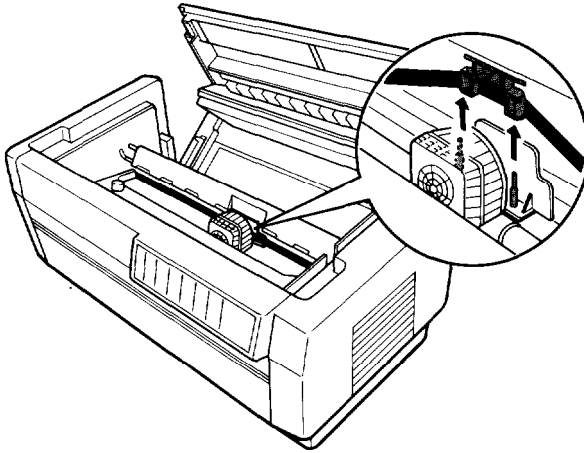


Warning:

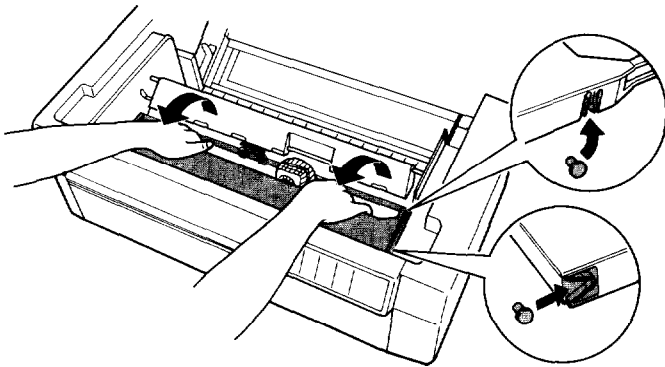
If the printer has been used recently, the print head may be hot. Let it cool before attempting to replace the ribbon.

1. Press the PAUSE button. Then turn off the printer.
2. Open the printer's top cover and slide the print head to the exposed part of the paper bail.

3. Lift the ribbon guide off the print head as shown below.



4. Pull up on the side of the ribbon cartridge as shown below to release it from the printer's mounting pins. Remove the cartridge by lifting it up and away from you.



**Caution:**

Make sure you don't pull on the flat gold cable beneath the ribbon cartridge.

Follow steps 2 through 8 in “Installing the Ribbon Cartridge,” in Chapter 1.

Transporting the printer

If you need to transport your printer some distance, carefully replace it using the original box and packing materials as follows.

**Warning:**

Even when you need to carry the printer only a short distance, do not carry it by yourself. The printer should always be carried by two people holding the printer at the bottom.

1. Turn off the printer and remove any paper loaded in the printer. If any printer options are installed, remove them.
2. Unplug the power cord from the electric outlet and the back of the printer. Disconnect the interface cable from the printer.
3. Remove the ribbon cartridge.
4. Install the protective materials onto the printer.

Appendix A

Technical Specifications

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Printer Specifications

Printing

Printing method: 9-pin impact dot matrix

Printing speed:

Pitch	Quality	Characters/second/line
10	High-speed draft	560
10	Normal draft	420
10	Near letter quality	84
12	Draft	504
12	Near letter quality	101

Printing direction: Bidirectional logic seeking for text printing. Unidirectional for graphics (can also be switched to bidirectional by using the proper software command).

Line spacing: 1/6-inch, 1/8-inch, or programmable increments of 1/216-inch

Paper feed speed:

Continuously Approx. 17 ms/line (10 inches per second)
Intermittently Approx. 26 ms/line

Note: *Feeding speed reduces to 6 inches per second when the optional pull tractor is mounted.*

Printable columns:

Pitch	Maximum printed characters
10 pitch	136
12 pitch	163
17 pitch	233

Buffer: 20KB or 0KB (DIP-switch selectable)

Character fonts:

Font	Available pitches (cpi)
Epson high-speed draft	10
Epson draft	10, 12, 15*, 17
Epson Roman (NLQ)	10, 12, 15*, 17
Epson Sons Serif (NLQ)	10, 12, 15*, 17

*The 15 cpi pitch is available only by sending software commands.

Character tables:

Europe

One italic and 20 graphics character tables

Other countries

One italic and 8 graphics character tables

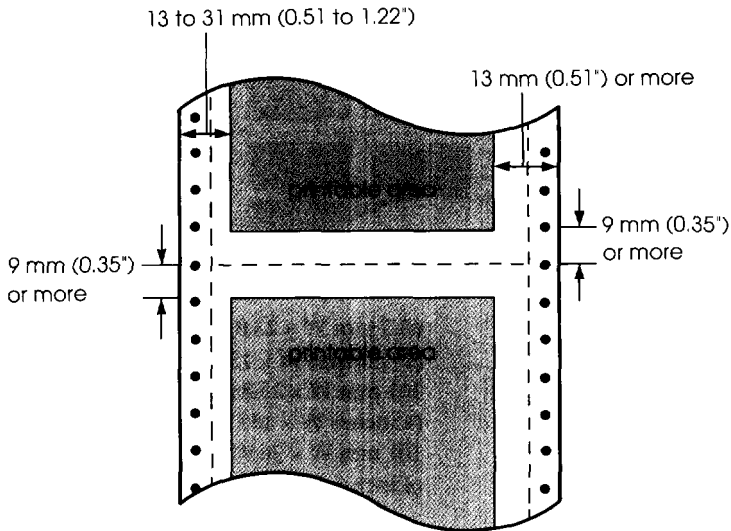
Character sets:

13 international character sets

Paper

Continuous paper:

Printable area



Quality

Plain paper

Width

101 to 406 mm (4 to 16 inches)

Number of copies	
Front	6 sheets (1 original + 5 copies)
Rear	4 sheets (1 original + 3 copies)

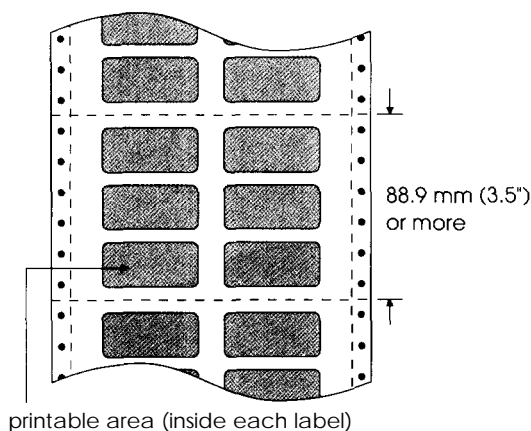
Note: *The number of copies are for carbonless sheets.*

Total thickness	
Front	0.46 mm (0.018 inches) maximum
Rear	0.30 mm (0.012 inches) maximum

Weight	
Single	45 to 70 kg (14 to 22 lb)
Multi-part	35 to 48 kg (11 to 15 lb) x n (n ≤ 8) and within the total thickness

Labels:

Printable area



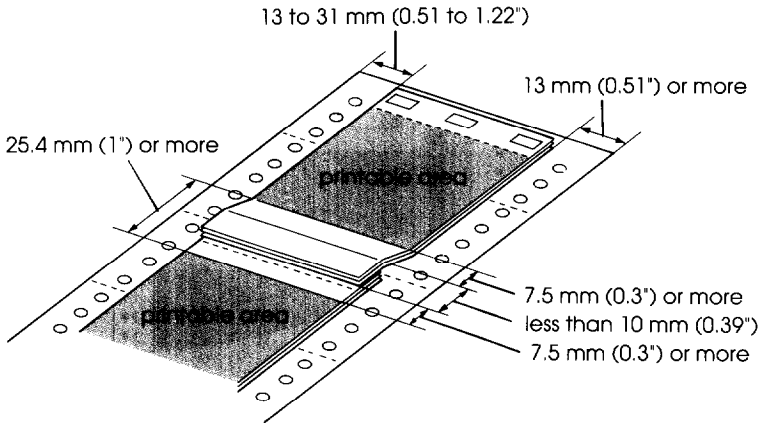
Size	63.5 mm W x 23.8 mm H (2 5/8 inches W x 15/16 inches H) 101 mm W x 23.8 mm H (4 inches W x 15/16 inches H) 101 mm W x 26.99 mm H (4 inches W x 17/16 inches H)
------	---

Backing sheet	
Width	101 to 406 mm (4 to 16 inches)
Length	88.9 mm (3.5 inches) minimum

Total thickness 0.19 mm (0.0075 inches) maximum
 The difference in thickness must be less than 0.12 mm (0.0047 inches).

Overlapping multi-part forms:

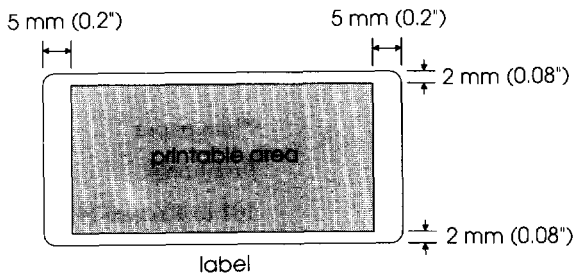
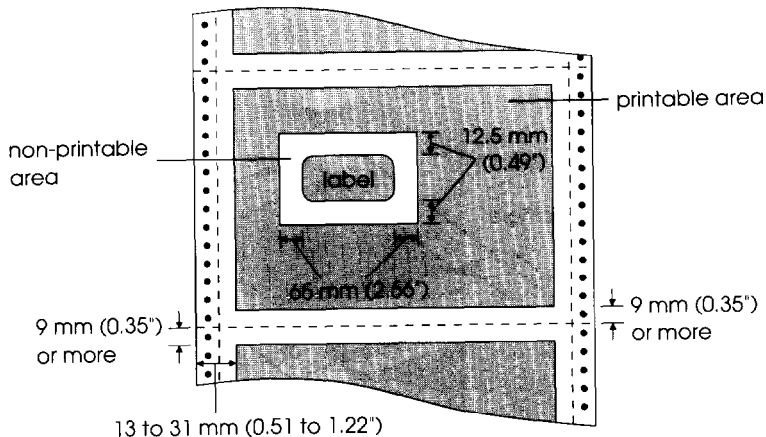
Printable area



Quality	Plain paper
Paper path	Front only
Width	101 to 406 mm (4 to 16 inches)
Copy capability	
Front	5 sheets (1 original + 4 copies)
Overlap length	10 mm (0.394 inches) maximum
Total thickness	
Print area	0.46 mm (0.018 inches) maximum
Overlap	0.71 mm (0.028 inches) maximum including the backing sheet
Weight	
Multi-part	35 to 48 kg (11 to 15 lb) within the total thickness
Backing sheet	45 to 70 kg (14 to 22 lb)

Multi-part forms with labels:

Printable area



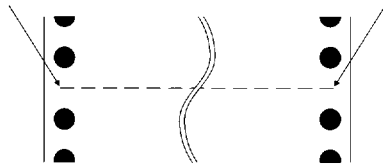
Quality	Plain paper
Paper path	Front only
Width	101 to 406 mm (4 to 16 inches)
Total thickness	0.46 mm (0.018 inches) maximum
Weight	
Single	45 to 70 kg (14 to 22 lb)
Multi-part	35 to 48 kg (11 to 15 lb) x n (n ≤ 8) and within the total thickness

Paper requirements:

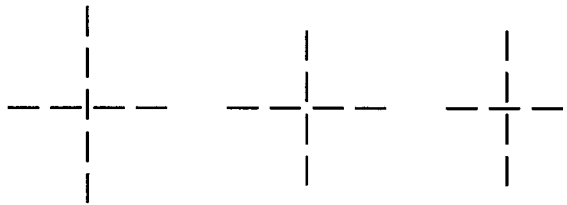
General

- The sprocket hole must be a circle or notched circle.
- The holes must be cleanly cut.
- The perforation between pages should not extend all the way to the edges of the paper, as shown below.

The edges of paper are not perforated.



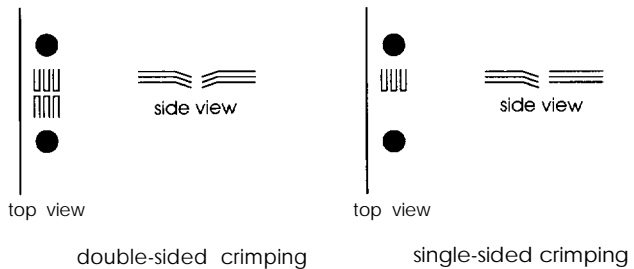
- At the perforation between pages, the horizontal and vertical perforation cuts should not cross, as shown here.



- The ratio of the cut/uncut length at the perforation should be less than 5:1.
- Expansion at the perforation (when the paper is kept flat) should be less than 1 mm (0.04 inches).

Multi-part forms

- It is best to use pressure-sensitive multi-part forms.
- The form sheets should be securely joined together along the left and right edges by crimping, spot-gluing, or tape stitching. For the best printing quality, use multi-part forms joined with spot-gluing. Never use multi-part forms joined with metalstaples.
- Crimping should be pressed in from the original sheet side and go completely through all copy sheets. Also, crimping should be double-sided; using single-sided crimping may cause the printer to jam.



- For multi-part forms joined with spot-gluing, be sure the spots of glue are spaced the same way on the left and right edges of the paper.
- The binding area should be flat and have no creases.
- Overlapping multi-part forms should be joined together at the top of the pages and not along the sides of the pages.
- The sprocket holes of all sheets in the form should be aligned properly.
- The binding position should be outside the printable area.

Labels

- Labels should be securely attached to the backing sheet.
- The backing sheet should be covered with the label material, both in the label area and in the spaces between labels. (The backing sheet should not be exposed.)
- The corners of the labels should be rounded.
- The label surface should be flat.

Mechanical

Paper feed methods:	Push tractor (front and rear) Push-pull feed with optional pull tractor
Ribbon:	Cartridge ribbon, available in black only (#8766). Do not use ribbons for 24-pin printers. Life expectancy is 15 million characters (at 14 dots/character).
MTBF:	8000 power-on hours (25% duty) Running the printer continuously for extended periods of time is not recommended. It can cause the printer to wear out sooner than expected.
Print head life:	300 million characters at 14 dots per character
Dimensions and weight:	Height: 369 mm (14.5 inches) Width: 700 mm (27.6 inches) Depth: 382 mm (15.0 inches) Weight: 29 kg (approx. 64 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	5.0 A
Power consumption	Approx. 115 W (during self-test printing in draft 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	3.0 A
Power consumption	Approx. 110 W (during self-test printing in draft mode at 10 cpi)

Environmental

Temperature:	Operation: 5°C to 35°C (41°F to 95°F) Storage: -30°C to 65°C (22°F to 150°F)
Humidity:	Operation: 10% to 80% RH without condensation Storage: 5% to 85% RH without condensation

Safety approvals

Safety standards:

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

R.F.I.:

US model:	FCC Part 15 Subpart B class B
European model:	Vfg. 243 (VDE 0878 part 3) CISPR Pub 22 class B

Interface Specifications

This printer is equipped with both a parallel and a serial interface.

Parallel interface

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

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 11- 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 that the printer is out of paper.
13	-	SLCT	OUT	Always HIGH

Signal Pin	Return Pin	Signal	Direction	Description
14	.	$\overline{\text{AUTO FEED XT}}$	IN	When this signal is LOW, the paper is automatically fed one line after printing.
15	.	NC	.	Not used
16	.	O V	.	Logic ground level
17	.	FG	.	Printer's chassis ground, which is isolated from the logic ground
18	.	+5V	.	Pulled up to +5V through 3.3 k Ω resistance.
19-30	.	GND	.	Twisted-pair return signal ground level
31	—	$\overline{\text{INIT}}$	IN	When this level becomes LOW, the printer controller is reset to its 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 μs at the receiving terminal.
32	.	$\overline{\text{ERROR}}$	OUT	This level becomes LOW when the printer is: 1) In a paper-out or a paper jam state 2) When the PAUSE button is pressed 3) In an error state
33	.	GND	.	Signal ground
34	.	NC	.	Not used
35	.	+5V	OUT	Pulled up to +5V through 3.3 k Ω resistance
36	.	SLCTIN	IN	The DC1/DC3 codes are valid only after this signal is HIGH when the printer is turned on.

Note

- All interface conditions are based on TTL level. Both the rise and fall 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 the receipt of the ACKNLG signal or when the level of the BUSY signal is LOW.)
- The column heading "Direction" refers to the direction of the signal flow as viewed from the printer.
- "Return" denotes the twisted-pair return to be connected at signal ground level. For the interface wiring, be sure to use a twisted-pair cable for each signal and to complete the connection on the return side.

Serial interface

The DFX-5000+ built-in serial interface is an RS-232C asynchronous interface with the following characteristics.

Data format:	1 start bit Data word length: 8 bits Odd, even, or no parity 1 or more stop bit
Signal level:	Mark logical "1" (-3 V to -27 V) Space logical "0" (+3 V to +27 V)
Handshaking:	Handshaking by DTR signal or Xon/Xoff.
Bit rate:	300, 1200 , 9600, 19200 bps
Connector plug:	EIA 25-pin connector

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

Signal pin	Signal	Direction	Description
1	FG	—	Chassis ground
2	TXD	OUT	Transmits data for XON/XOFF
3	RXD	IN	Receives data
4-6	NC	—	Not connected
7	SG	—	Signal ground
8-10	NC	—	Not connected
11, 20	DTR	OUT	Indicates whether or not the printer is ready to receive input data. If data input is not ready, DTR = "MARK".
12-19	NC	—	Not connected
21-25	NC	—	Not connected

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

Optional interfaces

The interface cards that may be used with this printer are listed on page 4-14.

Initialization

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

Hardware initialization	The printer is turned on.
	The printer receives an INIT signal at the parallel interface
Software initialization	Software sends the ESC @ (initialize the printer) command.

These three kinds of initialization have slightly different effects. All three methods reset the typestyle according to the default settings selected by the DIP switches inside the front cover. However, ESC @ does not initialize the printer mechanism, clear the input data buffer, or clear the user-defined character set.

Top-of-form reset

The top-of-form (TOF) position is reset by:

- Printer initialization
- ESC/P software reset command (ESC @)
- Page length set command (ESC C)
- IBM mode top-of-form setting command (ESC4).

Appendix B

Printer Commands and Character Tables

Sending Printer Commands	B- 2
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Epson ESC/P Commands Arranged by Topic	B-3
IBM Emulation Mode Commands Arranged by Topic	B-9
Commands that duplicate Epson ESC/P commands	B-10
Commands that differ from Epson ESC/P commands	B-11
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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. 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 \$ *n1 n2* is a command with two parameters.

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

Epson ESC/P Commands Arranged by Topic

Printer operation:

<u>ASCII</u>	<u>Dec.</u>	<u>Hex.</u>	<u>Description</u>
ESC @	64	40	Initialize Printer
DC1	17	11	Select Printer
DC3	19	13	Deselect Printer
ESC <	60	3C	Select Unidirectional Mode (one line)
ESC U 1/0	85	55	Turn Unidirectional Mode On/ Off
ESC =	61	3D	Set MSB to 0
ESC >	62	3E	Set MSB to 1
ESC #	35	23	Cancel MSB Control
BEL	7	07	Beeper

Data control:

<u>ASCII</u>	<u>Dec.</u>	<u>Hex.</u>	<u>Description</u>
CR	13	0D	Carriage Return
CAN	24	18	Cancel Line
DEL	127	7F	Delete Character

Vertical motion:

<u>ASCII</u>	<u>Dec.</u>	<u>Hex.</u>	<u>Description</u>
FF	12	0C	Form Feed
ESC Cn	67	43	Set Page Length in Lines <i>n</i> = Number of lines
ESC C 0 n	67	43	Set Page Length in Inches <i>n</i> = Number of lines
ESC Nn	78	4E	Set Skip-Over-Perforation <i>n</i> = Number of lines
ESC O	79	4F	Cancel Skip-Over-Perforation

ASCII	Dec.	H e x .	Description
LF	10	0A	Line Feed
ESC 0	48	30	Select 1/8-inch Line Spacing
ESC 1	49	31	Select 7/72-inch Line Spacing
ESC 2	50	32	Select 1/6-inch Line Spacing
ESC 3 n	51	33	Set n/216-inch Line Spacing
ESC A n	65	41	Select n/72-inch Line Spacing
ESC J n	74	4A	Perform n/216-inch Line Feed
VT	11	0B	Tab Vertically
ESC B mn	66	42	Set Vertical Tabs Up to 16 tabs entered in ascending order; last n should be 0
ESCbcnn	98	62	Set Vertical Tabs in Channels Same as ESC B, except that c selects a channel for the vertical tabs, which must be between 0-7.
ESC / c	47	2F	Select Vertical Tab Channel

Horizontal motion:

ASCII	Dec.	H e x .	Description
ESC l n	108	6C	Set Left Margin n = Left margin column
ESC Q n	81	51	Set Right Margin n = Right margin column
BS	8	08	Backspace
ESC \$ nl n2	36	24	Set Absolute Horizontal Print Position n = (nl + n2 x 256)/60 inches n: Specifies print position as n/60 inches from left margin
ESC \ nl n2	92	5C	Set Relative Horizontal Print Position n = (nl t n2 x 256)/120 inches n: Moves current print position by n/120 inches. If displacement is to the left, subtract it from 65536.

ASCII	Dec.	Hex.	Description
H T	9	09	Tab Horizontally
ESC D nn	68	44	Set Horizontal Tabs Up to 32 tabs entered in ascending order; last n should be 0

Overall printing style:

ASCII	Dec.	Hex.	Description
ESC x n	120	78	Select NLQ or Draft <i>n</i> = 0: Draft 1: NLQ
ESC k n	107	6B	Select NLQ Font <i>n</i> = 0: Roman 1: Sans Serif
ESC ! n	33	21	Master Select To find the value of <i>n</i> , add together the numbers of the tpestyles 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: Emphasized
ESC P	80	50	Select 10 cpi
ESC M	77	4D	Select 12 cpi
ESC g	103	67	Select 15 cpi
ESC p 1/0	112	70	Turn Proportional Mode On/Off
SI	15	0F	Select Condensed Mode
ESC SI	15	0F	Select Condensed Mode
DC2	18	12	Cancel Condensed Mode
SO	14	0E	Select Double-Width Mode (one line)
ESC SO	14	0E	Select Double-Width Mode (one line)
DC4	20	14	Cancel Double-Width Mode (one line)
ESC W 1/0	87	57	Turn Double-Width Mode On/Off

Print enhancement:

ASCII	Dec.	Hex.	Description
ESC E	69	45	Select Emphasized Font
ESC F	70	46	Cancel Emphasized Font
ESC G	71	47	Select Double-Strike Mode
ESC H	72	48	Cancel Double-Strike Mode
ESC S0	83	53	Select Superscript Mode
ESC S1	83	53	Select Subscript Mode
ESC T	84	54	Cancel Superscript/Subscript Mode
ESC 4	52	34	Select Italic Mode
ESC 5	53	35	Cancel Italic Mode
ESC - 1/0	45	2D	Turn Underline On/Off

Word processing:

ASCII	Dec.	Hex.	Description
ESC an	97	61	NLQ Justification n = 0: Left justification 1: Centering 2: Right justification 3: Full justification
ESC SP	32	20	Set Intercharacter Space n = 1/120-inch space (O-127) added or right side of each character

Character tables:

ASCII	Dec.	Hex.	Description
ESC t n	116	74	Select Character Tables Selects character table <i>n</i> assigned by ESC(t) <i>n</i> = 0, 1, 48, 49 only

ASCII	Dec.	Hex.	Description
ESC(t mn	40116	2874	Assign Character Table ESC (t 30 d1 d2 d3 Assign character table set with d2 and d3 to table <i>d1</i> <i>d1</i> = 0, 1, 48, or 49 d2 d3 Character Table 0 0 Italic 1 0 PC 437 (USA) 1 16 PC 437 Greek (Greek)* 3 0 PC 850 (Multilingual) 5 0 PC 853 (Turkish)* 6 0 PC 855 (Cyrillic)* 7 0 PC 860 (Portuguese) 8 0 PC 863 (Canadian-French) 9 0 PC 865 (Nordic) 10 0 PC 852 (East Europe)* 11 0 PC857 (Turkish)* 14 0 PC 866 (Russia)* 15 0 PC 869 (Greek)* 24 0 PC 861 (Icelandic) 25 0 BRASCII (Brazilian Portuguese) 26 0 Abicomp (Brazilian Portuguese) 27 0 MAZOWIA (Poland)* 28 0 Code MJK (CSFR)* 29 7 ISO-8859-7 (Latin/Greek)* 31 0 ISO Latin 1T (Turkish)* 32 0 Bulgaria (Bulgaria)* * Available in European version only
ESC Rn	82	52	Select an International Character Set n= 0: USA 7: Spain I 1: France 8: Japan 2: Germany 9: Norway 3: UK 10: Denmark II 4: Denmark I 11: Spain II 5: Sweden 12: Latin America 6: Italy
ESC 6	54	36	Printable Code Area Expansion
ESC 7	55	37	Enable Upper Control Codes

User-defined characters:

<u>ASCII</u>	<u>Dec.</u>	<u>Hex.</u>	<u>Description</u>
ESC & nn	38	26	Define User-Defined Characters ESC & 0n1 n2 a1 dd n1 = Code for first character n2 = Code for last character a1 = Use top (128) or bottom (0) 8 pins of print head dd = In draft mode, 1 byte is required for each of the 11 columns of each character being defined. In NLQ mode, 3 bytes area required for each of the 11 columns of each character being defined.
ESC: 0 n 0	58	3A	Copy ROM to RAM n = 0: Roman 1: Sans Serif
ESC % n	37	25	Select User-Defined Set n = 0: Normal set 1: User-defined set
ESC I	73	49	Printable Code Area Expansion Codes 0 to 31 and 128 to 159 decimal n = 0: Non-printable codes 1: Printable codes for userdefined characters

Graphics:

<u>ASCII</u>	<u>Dec.</u>	<u>Hex.</u>	<u>Description</u>
ESC K n1 n2	75	4B	Select Single-Density Graphics Mode Total columns = $n1 + (n2 \times 256)$
ESC L n1 n2	76	4C	Select Double-Density Graphics Mode Total columns = $n1 + (n2 \times 256)$
ESC Y n1 n2	89	59	Select High-Speed Double-Density Graphics Mode Total columns = $n1 + (n2 \times 256)$

ASCII	Dec.	Hex.	Description
ESC Z n1 n2	90	5A	Select Quadruple-Density Graphics Mode Total columns = $n1 + (n2 \times 256)$
ESC* m n1 n2 42		2A	Select Graphics Mode Total columns = $n1 + (n2 \times 256)$

Option	Alternate code	m	Horiz. density (dots/in.)
Single-density	ESC k	0	60
Double-density	ESC L	1	120
High-speed double-density*	ESC Y	2	120
Quadruple-density*	ESC Z	3	240
CTR I	none	4	80
Plotter (1:1)	none	5	72
CRT II	none	6	90
Double-density plotter	none	7	144

* Adjacent dots cannot be printed in this mode.

ESC? sn	63	3F	Reassign Graphics Mode s is the character (K, L, or Z) to be reassigned to mode n (0-6)
ESC ^ m n1 n2	94	5E	Select 9-Pin Graphics Mode m: Print density (0 for single, 1 for double) Total columns = $n1 + (n2 \times 256)$

IBM Emulation Mode Commands Arranged by Topic

This section lists and describes the commands available in IBM ProPrinter II emulation mode. Commands that are the same in IBM emulation and Epson ESC/P mode are listed here and described in the Epson ESC/P command section. Commands that have different functions in IBM emulation mode are described here.

Commands that duplicate Epson ESC/P commands

This section lists commands that are the same in IBM emulation and Epson ESC/P mode. See the section on Epson ESC/P commands for descriptions of the commands listed below.

Printer operation:

BEL, DC1, DC3, ESC U

Data control:

CR, CAN

Vertical motion:

LF, VT, FF, ESC 0, ESC 1, ESC 3, ESC C, ESC C 0, ESC N, ESC 0

Horizontal motion:

BS, HT

Print size and character width:

SO, SI, DC4, ESC SO, ESC SI, ESC W

Print enhancement:

ESC, ESC E, ESC F, ESC G, ESC H, ESC SO, ESC SI, ESC T

Graphics:

ESC K, ESC L, ESC Y, ESC Z

Note:

IBM emulation mode graphics are the same as Epson ESC/P mode graphics except that ESC ?, ESC ?, and ESC ^ are not available.

Commands *that differ from Epson ESC/P commands*

Printer operation:

ASCII	Dec.	Hex.	Description
ESC Q 22	81 22	51 16	Deselect Printer

Vertical motion:

ASCII	Dec.	Hex.	Description
ESC 2	50	32	Select Programmable Line Spacing
ESC 4	52	34	Set Top-of-Form
ESC 5n	53	35	Turn Automatic Line Feed On/Off <i>n</i> = 1: Mode is turned on. 0: Mode is turned off.
ESC A n	65	41	Set <i>n</i> /72-inch Line Spacing <i>n</i> must be from 1 to 85.
ESC J n	74	4A	Perform <i>n</i> /216-inch Line Feed <i>n</i> must be from 0 to 255.
ESC B <i>nn</i>	66	42	Set Vertical Tabs ESC B <i>n1 n2 . . . 0</i> Sets up to 64 vertical tabs. 1 to 255, in ascending order. Terminated by 0.

Horizontal motion:

ASCII	Dec.	Hex.	Description
ESC D <i>nn</i>	68	44	Set Horizontal Tabs ESC D <i>n1 n2 . . . 0</i> Sets up to 28 horizontal tabs. 1 to 137 terminated by 0.
ESC R	82	52	Restore Default Tab Settings
ESC X <i>nn</i>	88	58	Set Left and Right Margins ESC X <i>n1 n2</i> <i>n1</i> = left margin <i>n2</i> = right margin

Overall printing style:

ASCII	Dec.	Hex.	Description
ESC I n	73	49	Select Font n = 0: Draft 10 cpi font 1: Draft 12 cpi font 2: NLQ Sans Serif font 3: NLQ Roman font 4: Draft 10 cpi user-defined font 5: Draft 12 cpi userdefined font 6: NLQ 10 cpi user-defined font (resident Sans Serif font for undefined characters) 7: NLQ 10 cpi user-defined font (resident Roman font for undefined characters) 11: NLQ Roman 10 cpi italic

Print size and character width:

In IBM emulation mode, four modes are incompatible with each other. These modes are 10 cpi, 12 cpi, condensed, and proportional. If you select any one of these, you cancel all the others.

ASCII	Dec.	Hex.	Description
DC2	18	12	Select 10 cpi
ESC:	58	3A	Select 12 cpi
ESC P n	80	50	Turn Proportional Mode On/Off n = 1: Mode is turned on. 0: Mode is turned off.

ASCII	Dec.	Hex.	Description
ESC [<i>m</i>	91 64	5B 40	Set Double-Height/Double-Width Printing ESC [<i>m</i> <i>n1</i> <i>n2</i> <i>m1</i> <i>m2</i> <i>m3</i> <i>m4</i> <i>n1</i> = 4 <i>n2</i> = 0 <i>m1</i> = 0 <i>m2</i> = 0 <i>m3</i> affects character height and line feeds as shown below:

<i>m3</i>	Character height	Line feed
1	Standard	Unchanged
2	Double-height	Unchanged
16	Unchanged	Single
17	Standard	Single
18	Double-height	Single
32	Unchanged	Double
33	Standard	Double
34	Double-height	Double

m4 sets the character width.
1: Standard
2: Double-width

Print enhancement:

ASCII	Dec.	Hex.	Description
ESC <i>_n</i>	95	5F	Turn Overscoring Mode On/Off <i>n</i> = 1: Mode is turned on. 0: Mode is turned off.

Character tables:

ASCII	Dec.	Hex.	Description
ESC 6	54	36	Select International Character Set
ESC 7	55	37	Select Standard Character Set
ESC \ <i>nn</i>	92	5C	Print Characters from Symbol Set ESC \ <i>n1</i> <i>n2</i> data <i>nl</i> + (<i>n2</i> x 256)
ESC ^	94	5E	Print One Character from Symbol Set

User-defined characters:

ASCII	Dec.	Hex.	Description
ESC = <i>mn</i>	61	3D	Define User-Defined Characters ESC = $n1\ n2\ \dots\ nk$ If C is the total number of characters to be defined $B = (C \times 13) + 2$ $n1 = \text{MOD}(B/256)$ $n2 = \text{INT}(B/256)$ $n3 = 20$ in all cases $n4$ = the code of the first character to be defined $n5 = 0$ if the top 8 pins are used; $n5 = 128$ for the bottom 8 pins $n6 = 0$ in all cases The values $n7$ through nk are the data numbers that define the characters, with 11 data numbers for each character.

Character Tables

These character tables are selected with the DIP switches or by using a software command.

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

The tables with * after the table name are available in the European version only.

PC437 (USA, standard Europe)

CODE	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL			0	@	P	`	p	Ç	É	á	⋯	L	⊥	α	≡
1			!	1	A	Q	a	q	ü	æ	í	⋯	⊥	⊥	β	±
2		DC2	"	2	B	R	b	r	é	Æ	ó	⋯	⊥	⊥	Γ	∓
3			#	3	C	S	c	s	â	ö	ú	⋯	⊥	⊥	Π	⋈
4		DC4	\$	4	D	T	d	t	ã	õ	ñ	⋯	⊥	⊥	Σ	⋈
5		S	%	5	E	U	e	u	à	ò	Ñ	⋯	⊥	⊥	σ	⋈
6			&	6	F	V	f	v	â	ô	û	⋯	⊥	⊥	μ	÷
7			'	7	G	W	g	w	ç	ÿ	ÿ	⋯	⊥	⊥	τ	∞
8			(	8	H	X	h	x	ê	ÿ	ÿ	⋯	⊥	⊥	θ	∞
9	HT	EM	)	9	I	Y	i	y	è	ÿ	ÿ	⋯	⊥	⊥	ø	∞
A	LF		*		J	Z	j	z	é	ÿ	ÿ	⋯	⊥	⊥	Ω	∞
B	VT	ESC	+		K	[	k	{	è	ÿ	ÿ	⋯	⊥	⊥	δ	∞
C	FF		,		L	\	l	|	é	ÿ	ÿ	⋯	⊥	⊥	ø	∞
D	CR		-		M	]	m	~	è	ÿ	ÿ	⋯	⊥	⊥	ø	∞
E	SO		.		N	^	n		é	ÿ	ÿ	⋯	⊥	⊥	ø	∞
F	SI		/		O	_	o		è	ÿ	ÿ	⋯	⊥	⊥	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	⋯	⊥	È	Ö	—
3	â	ö	ú	⋯	⊥	Ê	Ö	—
4	ã	õ	ñ	⋯	⊥	Ë	Ö	—
5	à	ò	Ñ	⋯	⊥	Ì	Ö	—
6	á	ó	ã	⋯	⊥	Í	Ö	—
7	ç	ÿ	ÿ	⋯	⊥	Î	Ö	—
8	ê	ÿ	ÿ	⋯	⊥	Ï	Ö	—
9	è	ÿ	ÿ	⋯	⊥	Ï	Ö	—
A	é	ÿ	ÿ	⋯	⊥	Ï	Ö	—
B	í	ø	±	⋯	⊥	Ï	Ö	—
C	î	£	±	⋯	⊥	Ï	Ö	—
D	ï	Ø	±	⋯	⊥	Ï	Ö	—
E	ï	ø	±	⋯	⊥	Ï	Ö	—
F	ï	x	±	⋯	⊥	Ï	Ö	—

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	ã	õ	ñ	⋯	⊥	⊥	Σ	⋈
5	à	ò	Ñ	⋯	⊥	⊥	σ	⋈
6	á	ó	ã	⋯	⊥	⊥	μ	÷
7	ç	ÿ	ÿ	⋯	⊥	⊥	τ	∞
8	ê	ÿ	ÿ	⋯	⊥	⊥	θ	∞
9	è	ÿ	ÿ	⋯	⊥	⊥	ø	∞
A	é	ÿ	ÿ	⋯	⊥	⊥	Ω	∞
B	í	ø	±	⋯	⊥	⊥	δ	∞
C	î	£	±	⋯	⊥	⊥	ø	∞
D	ï	Ø	±	⋯	⊥	⊥	ø	∞
E	ï	ø	±	⋯	⊥	⊥	ø	∞
F	ï	x	±	⋯	⊥	⊥	ø	∞

(Canadian-French)

CODE	8	9	A	B	C	D	E	F
0	Ç	É	í	⋯	⌞	⌞	α	≡
1	ü	É	ó	⋯	⌞	⌞	β	±
2	é	É	ó	⋯	⌞	⌞	Γ	≥
3	â	ô	ú	⋯	⌞	⌞	π	≤
4	À	È	·	⋯	⌞	⌞	Σ	⌞
5	à	È	·	⋯	⌞	⌞	σ	⌞
6	ç	ù	·	⋯	⌞	⌞	μ	⌞
7	ç	ù	·	⋯	⌞	⌞	τ	⌞
8	è	ø	·	⋯	⌞	⌞	Φ	⌞
9	è	Ø	·	⋯	⌞	⌞	θ	⌞
A	è	Û	·	⋯	⌞	⌞	Ω	⌞
B	î	ϕ	·	⋯	⌞	⌞	δ	⌞
C	î	ϕ	·	⋯	⌞	⌞	δ	⌞
D	—	Û	·	⋯	⌞	⌞	ø	⌞
E	—	Û	·	⋯	⌞	⌞	ø	⌞
F	S	f	»	⋯	⌞	⌞	ø	⌞

PC868 (Norwegian)

CODE	8	9	A	B	C	D	E	F
0	Ç	É	á	⋯	⌞	⌞	α	≡
1	ü	æ	ó	⋯	⌞	⌞	β	±
2	é	æ	ó	⋯	⌞	⌞	Γ	≥
3	â	ô	ú	⋯	⌞	⌞	π	≤
4	ä	ö	ñ	⋯	⌞	⌞	Σ	⌞
5	à	ò	ñ	⋯	⌞	⌞	σ	⌞
6	ä	ù	Q	⋯	⌞	⌞	μ	⌞
7	ç	ù	Q	⋯	⌞	⌞	τ	⌞
8	è	ÿ	z	⋯	⌞	⌞	Φ	⌞
9	è	ÿ	z	⋯	⌞	⌞	θ	⌞
A	è	Û	·	⋯	⌞	⌞	Ω	⌞
B	î	ø	·	⋯	⌞	⌞	δ	⌞
C	î	ø	·	⋯	⌞	⌞	δ	⌞
D	ì	ø	·	⋯	⌞	⌞	ø	⌞
E	ì	ø	·	⋯	⌞	⌞	ø	⌞
F	À	f	»	⋯	⌞	⌞	ø	⌞

PC861 (Icelandic)

CODE	8	9	A	B	C	D	E	F
0	Ç	É	á	⋯	⌞	⌞	α	≡
1	ü	æ	í	⋯	⌞	⌞	β	±
2	é	æ	ó	⋯	⌞	⌞	Γ	≥
3	â	ö	ú	⋯	⌞	⌞	π	≤
4	ä	ö	Á	⋯	⌞	⌞	Σ	⌞
5	à	þ	í	⋯	⌞	⌞	σ	⌞
6	ä	û	Ó	⋯	⌞	⌞	μ	⌞
7	ç	ý	Ó	⋯	⌞	⌞	τ	⌞
8	è	ý	z	⋯	⌞	⌞	Φ	⌞
9	è	Û	·	⋯	⌞	⌞	θ	⌞
A	ð	ø	·	⋯	⌞	⌞	Ω	⌞
B	ð	ø	·	⋯	⌞	⌞	δ	⌞
C	ð	ø	·	⋯	⌞	⌞	ø	⌞
D	Þ	Ø	·	⋯	⌞	⌞	ø	⌞
E	Þ	Ø	·	⋯	⌞	⌞	ø	⌞
F	À	f	»	⋯	⌞	⌞	ø	⌞

BRASCII (Brazilian Portuguese)

CODE	8	9	A	B	C	D	E	F
0	NUL		°	·	À	Ð	à	ð
1			±	·	Á	Ñ	á	ñ
2	DC2	ç	±	·	Â	Ò	â	ò
3		£	±	·	Ã	Ó	ã	ó
4	DC4	¤	±	·	Ä	Ô	ä	ô
5		¥	±	·	Å	Õ	å	õ
6		¥	±	·	Æ	Ö	æ	ö
7		¥	±	·	Ç	Ç	ç	ç
8		¥	±	·	È	Ø	è	ø
9		¥	±	·	É	Ù	é	ù
A	HT	EM	±	·	Ê	Ú	ê	ú
B	LF		±	·	Ë	Û	ë	û
C	VT	ESC	±	·	Ê	Ü	ë	ü
D			±	·	Ë	Û	ë	ü
E	CR		±	·	Í	Ý	í	ý
F	SO		±	·	Î	Þ	î	þ
	SI		±	·	Ï	Û	ï	Û

Abicomp (Brazilian Portuguese) PC437 Greek (Greek)*

CODE	8	9	A	B	C	D	E	F
0	NUL			Ò	ì	ò		
1			À	Ó	à	ó		
2		DC2	Ä	Ö	ä	ö		
3			Å	Ï	å	ï		
4		DC4	Ä	Ï	ä	ï		
5			Å	Ï	å	ï		
6			Ç	Ù	ç	ù		
7			È	Ú	è	ú		
8			É	Û	é	û		
9	HT	EM	Ê	Ü	ê	ü		
A	LF		Ë	Ý	ë	ÿ		
B	VT	ESC	Ì	ÿ	ì	ÿ		
C	FF		Í	£	í	£		
D	CR		Î	£	î	£		
E	SO		Ï	£	ï	£		
F	SI		Ñ	£	ñ	£	DEL	

CODE	8	9	A	B	C	D	E	F
0	A	P	ı	⌘	⌘	ω	Ω	
1	B	Σ	κ	⌘	⌘	ά	±	
2	Γ	Τ	λ	⌘	⌘	έ	≥	
3	Δ	Υ	μ	⌘	⌘	ή	≤	
4	E	Φ	ν	⌘	⌘	ί	⌘	
5	Z	X	ξ	⌘	⌘	ί	⌘	
6	H	Ψ	ο	⌘	⌘	ό	⌘	
7	Θ	Ω	π	⌘	⌘	ύ	⌘	
8	I	K	ρ	⌘	⌘	ώ	⌘	
9	A	Λ	σ	⌘	⌘	Α	⌘	
A	B	M	τ	⌘	⌘	Β	⌘	
B	C	N	υ	⌘	⌘	Γ	⌘	
C	D	E	φ	⌘	⌘	Δ	⌘	
D	E	O	χ	⌘	⌘	Ε	⌘	
F	Π	Θ	ψ	⌘	⌘	Ο	⌘	

PC869 (Greek)*

CODE	8	9	A	B	C	D	E	F
0	ı	ı	⌘	⌘	⌘	⌘	⌘	⌘
1	ı	ı	⌘	⌘	⌘	⌘	⌘	⌘
2	ı	ı	⌘	⌘	⌘	⌘	⌘	⌘
3	ı	ı	⌘	⌘	⌘	⌘	⌘	⌘
4	ı	ı	⌘	⌘	⌘	⌘	⌘	⌘
5	ı	ı	⌘	⌘	⌘	⌘	⌘	⌘
6	ı	ı	⌘	⌘	⌘	⌘	⌘	⌘
7	ı	ı	⌘	⌘	⌘	⌘	⌘	⌘
8	ı	ı	⌘	⌘	⌘	⌘	⌘	⌘
9	ı	ı	⌘	⌘	⌘	⌘	⌘	⌘
A	ı	ı	⌘	⌘	⌘	⌘	⌘	⌘
B	ı	ı	⌘	⌘	⌘	⌘	⌘	⌘
C	ı	ı	⌘	⌘	⌘	⌘	⌘	⌘
D	ı	ı	⌘	⌘	⌘	⌘	⌘	⌘
E	ı	ı	⌘	⌘	⌘	⌘	⌘	⌘
F	ı	ı	⌘	⌘	⌘	⌘	⌘	⌘

ISO 8859-7 (Latin/Greek)*

CODE	8	9	A	B	C	D	E	F
0			°	ı	ı	ı	ı	ı
1			ı	ı	ı	ı	ı	ı
2			ı	ı	ı	ı	ı	ı
3			ı	ı	ı	ı	ı	ı
4			ı	ı	ı	ı	ı	ı
5			ı	ı	ı	ı	ı	ı
6			ı	ı	ı	ı	ı	ı
7			ı	ı	ı	ı	ı	ı
8			ı	ı	ı	ı	ı	ı
9			ı	ı	ı	ı	ı	ı
A			ı	ı	ı	ı	ı	ı
B			ı	ı	ı	ı	ı	ı
C			ı	ı	ı	ı	ı	ı
D			ı	ı	ı	ı	ı	ı
E			ı	ı	ı	ı	ı	ı
F			ı	ı	ı	ı	ı	ı

PC853 (Turkish)*

CODE	8	9	A	B	C	D	E	F
0	Ç	È	á	⌘	⌘	Ó	-	
1	ü	é	í	⌘	⌘	Ö	±	
2	ë	ê	ó	⌘	⌘	Û	h	
3	â	â	ô	⌘	⌘	Ö	h	
4	ä	ä	ö	⌘	⌘	Û	h	
5	à	à	ò	⌘	⌘	Ö	S	
6	ç	ç	ù	⌘	⌘	Û	÷	
7	ê	è	î	⌘	⌘	h	.	
8	ë	è	ï	⌘	⌘	h	.	
9	è	è	î	⌘	⌘	h	.	
A	è	è	î	⌘	⌘	h	.	
B	è	è	î	⌘	⌘	h	.	
C	è	è	î	⌘	⌘	h	.	
D	è	è	î	⌘	⌘	h	.	
E	è	è	î	⌘	⌘	h	.	
F	è	è	î	⌘	⌘	h	.	

PC857 (Turkish)*

CODE	8	9	A	B	C	D	E	F
0	Ç	È	á	⌘	⌘	Ó	-	
1	ü	é	í	⌘	⌘	Ö	±	
2	ë	ê	ó	⌘	⌘	Û	h	
3	â	â	ô	⌘	⌘	Ö	h	
4	ä	ä	ö	⌘	⌘	Û	h	
5	à	à	ò	⌘	⌘	Ö	S	
6	ç	ç	ù	⌘	⌘	Û	÷	
7	ê	è	î	⌘	⌘	h	.	
8	ë	è	ï	⌘	⌘	h	.	
9	è	è	î	⌘	⌘	h	.	
A	è	è	î	⌘	⌘	h	.	
B	è	è	î	⌘	⌘	h	.	
C	è	è	î	⌘	⌘	h	.	
D	è	è	î	⌘	⌘	h	.	
E	è	è	î	⌘	⌘	h	.	
F	è	è	î	⌘	⌘	h	.	

ISO Latin 1T (Turkish)*

CODE	8	9	A	B	C	D	E	F
0			°	°	À	Ğ	à	ğ
1			±	±	Á	Ñ	á	ñ
2			²	²	Â	Ò	â	ò
3			³	³	Ã	Ó	ã	ó
4			´	´	Ä	Ô	ä	ô
5			µ	µ	Å	Õ	å	õ
6			¶	¶	Ç	Ö	ç	ö
7			·	·	È	Ø	è	ø
8			¸	¸	É	Ù	é	ù
9			¹	¹	Ê	Ú	ê	ú
A			º	º	Ë	Û	ë	û
B			»	»	Ì	Ü	ì	ü
C			¼	¼	Í	Ý	í	ý
D			½	½	Î	Ş	î	ş
E			¾	¾	Ï	ß	ï	ß
F			¸	¸	İ		ı	ı

PC855 (Cyrillic)*

CODE	8	9	A	B	C	D	E	F
0	ђ	ь	а	⌘	⌘	л	я	-
1	ъ	ъ	б	⌘	⌘	л	р	ы
2	у	ѣ	в	⌘	⌘	л	р	ы
3	ф	ѥ	г	⌘	⌘	л	с	з
4	х	Ѧ	д	⌘	⌘	л	с	з
5	ц	ѧ	е	⌘	⌘	л	т	ш
6	ч	Ѩ	ё	⌘	⌘	л	т	ш
7	ш	ѩ	ё	⌘	⌘	л	у	э
8	щ	Ѫ	ё	⌘	⌘	л	у	э
9	ъ	ѫ	ё	⌘	⌘	л	у	э
A	ы	Ѭ	ё	⌘	⌘	л	у	э
B	ь	ѭ	ё	⌘	⌘	л	у	э
C	ю	ѯ	ё	⌘	⌘	л	у	э
D	ѐ	Ѱ	ё	⌘	⌘	л	у	э
E	ё	ѱ	ё	⌘	⌘	л	у	э
F	ђ	Ѳ	ё	⌘	⌘	л	у	э

PC866 (Russian) *

CODE	8	9	A	B	C	D	E	F
0	А	Р	а	▒	Л	л	р	ё
1	Б	С	б	▒	Л	л	с	ё
2	В	Т	в	▒	Л	л	т	ё
3	Г	У	г	▒	Л	л	у	ё
4	Д	Ф	д	▒	Л	л	ф	ё
5	Е	Х	е	▒	Л	л	х	ё
6	Ж	Ц	ж	▒	Л	л	ц	ё
7	З	Ч	з	▒	Л	л	ч	ё
8	И	Ш	и	▒	Л	л	ш	ё
9	Й	Щ	й	▒	Л	л	щ	ё
A	К	Ъ	к	▒	Л	л	ъ	ё
B	Л	Ы	л	▒	Л	л	ы	ё
C	М	Э	м	▒	Л	л	э	ё
D	Н	О	н	▒	Л	л	о	ё
E	Ю		ю	▒	Л	л		ё
F	Я		я	▒	Л	л		ё

PC852 (East Europe)*

CODE	8	9	A	B	C	D	E	F
0	Ç	É	Á	▒	Л	л	đ	Ó
1	ü	í	í	▒	Л	л	Đ	ó
2	é	í	ó	▒	Л	л	Đ	ó
3	á	ó	ú	▒	Л	л	Đ	ó
4	ä	ö	À	▒	Л	л	đ	ó
5	û	ł	ą	▒	Л	л	Đ	ó
6	ć	ł	ż	▒	Л	л	Đ	ó
7	ç	ś	ż	▒	Л	л	Đ	ó
8	ł	ś	Ń	▒	Л	л	Đ	ó
9	ě	š	Ń	▒	Л	л	Đ	ó
A	ő	ű		▒	Л	л	Đ	ó
B	ó	ı	ž	▒	Л	л	Đ	ó
C	í	ı	č	▒	Л	л	Đ	ó
D	ž	č	»	▒	Л	л	Đ	ó
E	č	»		▒	Л	л	Đ	ó
F	č	»		▒	Л	л	Đ	ó

MAZOWIA (Poland)*

CODE	8	9	A	B	C	D	E	F
0	Ç	Ę	Ż	▒	Л	л	α	≡
1	ü	ę	ż	▒	Л	л	β	±
2	é	ł	ó	▒	Л	л	Γ	≥
3	á	ł	ó	▒	Л	л	Π	≤
4	ä	ó	ń	▒	Л	л	Σ	∫
5	à	ć	Ń	▒	Л	л	σ	∫
6	ą	ú	ż	▒	Л	л	μ	∫
7	ç	ù	ż	▒	Л	л	τ	∫
8	ě	ś	Ś	▒	Л	л	φ	∫
9	ë	š	Ń	▒	Л	л	φ	∫
A	ë	š	Ń	▒	Л	л	φ	∫
B	ı	ż	ł	▒	Л	л	δ	∫
C	ı	ż	ł	▒	Л	л	δ	∫
D	ı	ż	ł	▒	Л	л	δ	∫
E	ı	ż	ł	▒	Л	л	δ	∫
F	ı	ż	ł	▒	Л	л	δ	∫

Code MJK (CSFR)*

CODE	8	9	A	B	C	D	E	F
0	Č	Ě	Á	▒	Л	л	α	≡
1	ü	ž	í	▒	Л	л	β	±
2	é	ž	ó	▒	Л	л	Γ	≥
3	đ	ž	ó	▒	Л	л	Π	≤
4	ä	ö	ň	▒	Л	л	Σ	∫
5	ä	ö	Ń	▒	Л	л	σ	∫
6	đ	ú	Ń	▒	Л	л	μ	∫
7	č	š	Ń	▒	Л	л	τ	∫
8	ě	š	Ń	▒	Л	л	φ	∫
9	ě	š	Ń	▒	Л	л	φ	∫
A	ı	ř	ř	▒	Л	л	δ	∫
B	ı	ř	ř	▒	Л	л	δ	∫
C	ı	ř	ř	▒	Л	л	δ	∫
D	ı	ř	ř	▒	Л	л	δ	∫
E	ı	ř	ř	▒	Л	л	δ	∫
F	ı	ř	ř	▒	Л	л	δ	∫

Bulgaria (Bulgaria)*

CODE	8	9	A	B	C	D	E	F
0	А	Р	а	р	⌞	▒	α	≡
1	Б	С	б	с	⌞	▒	β	±
2	В	Т	в	т	⌞	▒	Γ	≥
3	Г	У	г	у	⌞	▒	π	≤
4	Д	Ф	д	ф	⌞	▒	Σ	∫
5	Е	Х	е	х	⌞	▒	σ	∫
6	Ж	Ц	ж	ц	⌞	▒	μ	÷
7	З	Ч	з	ч	⌞	▒	τ	≈
8	И	Ш	и	ш	⌞	▒	Φ	°
9	Й	Щ	й	щ	⌞	▒	Θ	·
A	К	Ъ	к	ъ	⌞	▒	Ω	·
B	Л	Ы	л	ы	⌞	▒	δ	√
C	М	Ь	м	ь	⌞	▒	ω	n²
D	Н	Э	н	э	⌞	▒	∅	²
E	О	Ю	о	ю	⌞	▒	Є	■
F	П	Я	п	я	⌞	▒	∩	■

Italic

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

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

International character sets

You can select one of the following international character sets with the DIP switches or by 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 first eight international character sets can be selected with the DIP switches or with the ESC R command. The last five sets are available only when you send the ESC R command. The value of *n* is used for the ESC R command.

<i>n</i>	Country	ASCII code (hex)											
		23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E
0	U.S.A.	#	\$	@	[	\	\]	^	'	{	|	}	~
1	France	#	\$	à	°	ç	§	^	'	é	ù	è	~
2	Germany	#	\$	§	Ä	Ö	Ü	^	'	ä	ö	ü	ß
3	U.K.	£	\$	@	[	\	\]	^	'	{	|	}	~
4	Denmark I	#	\$	@	Æ	Ø	Å	^	'	æ	ø	å	~
5	Sweden	#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
6	Italy	#	\$	@	°	\	é	^	ù	à	ò	è	ì
7	Spain I	Pt	\$	@	;	Ñ	¿	^	'	ñ	}	}	~
8	Japan	#	\$	@	[	¥	]	^	'	{	|	}	~
9	Norway	#	¤	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
10	Denmark II	#	\$	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
11	Spain II	#	\$	á	;	Ñ	¿	é	'	í	ñ	ó	ú
12	Latin America	#	\$	á	;	Ñ	¿	é	ü	í	ñ	ó	ú

Character tables in the IBM emulation mode

This section lists the character tables available in the IBM emulation mode. The IBM emulation mode can be selected with the DIP switches.

These character tables can be selected with the DIP switches, or by using the ESC 6 (table 2) or ESC 7 (table 1) software command.

The PC865 table is the same as the PC 437 table for hex codes 00 through 7F, so only the characters for hex codes 80 through FF are shown.

PC437 (table 1)

CODE	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL			0	@	P	`	p	NUL	á	í	ñ	ñ	ñ	ó	±
1		DC1	!	1	A	Q	a	q		á	í	ñ	ñ	ñ	ó	±
2		DC2	"	2	B	R	b	r		á	í	ñ	ñ	ñ	ó	±
3			#	3	C	S	c	s		á	í	ñ	ñ	ñ	ó	±
4		DC4	\$	4	D	T	d	t		á	í	ñ	ñ	ñ	ó	±
5			%	5	E	U	e	u		á	í	ñ	ñ	ñ	ó	±
6			&	6	F	V	f	v		á	í	ñ	ñ	ñ	ó	±
7	BEL		'	7	G	W	g	w		á	í	ñ	ñ	ñ	ó	±
8	BS	CAN	(	8	H	X	h	x	BEL							
9	HT		)	9	I	Y	i	y	HT	CAN	¿	¿	¿	¿	¿	¿
A	LF		*	:	J	Z	j	z	LF		¿	¿	¿	¿	¿	¿
B	VT	ESC	+	;	K	[	k	{	VT	ESC	¿	¿	¿	¿	¿	¿
C	FF		,	<	L	\	l	|	FF		¿	¿	¿	¿	¿	¿
D	CR		-	=	M	]	m	}	CR		¿	¿	¿	¿	¿	¿
E	SO		.	>	N	^	n	~	SO		¿	¿	¿	¿	¿	¿
F	SI		/	?	O	_	o		SI		¿	¿	¿	¿	¿	¿

PC437 (table 2)

CODE	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL			0	@	P	`	p	Ç	É	á	í	ñ	ñ	ñ	ñ
1		DC1	!	1	A	Q	a	q	Ú	æ	á	í	ñ	ñ	ñ	ñ
2		DC2	"	2	B	R	b	r	É	æ	á	í	ñ	ñ	ñ	ñ
3	♥		#	3	C	S	c	s	á	ó	ú	ñ	ñ	ñ	ñ	ñ
4	♦	DC4	\$	4	D	T	d	t	à	ò	ú	ñ	ñ	ñ	ñ	ñ
5	♣		%	5	E	U	e	u	à	ò	ú	ñ	ñ	ñ	ñ	ñ
6	♠		&	6	F	V	f	v	à	ò	ú	ñ	ñ	ñ	ñ	ñ
7	BEL		'	7	G	W	g	w	ç	ù	ú	ñ	ñ	ñ	ñ	ñ
8	BS	CAN	(	8	H	X	h	x	è	ì	ò	¿	¿	¿	¿	¿
9	HT		)	9	I	Y	i	y	è	ì	ò	¿	¿	¿	¿	¿
A	LF		*	:	J	Z	j	z	é	í	ó	¿	¿	¿	¿	¿
B	VT	ESC	+	;	K	[	k	{	é	í	ó	¿	¿	¿	¿	¿
C	FF		,	<	L	\	l	|	é	í	ó	¿	¿	¿	¿	¿
D	CR		-	=	M	]	m	}	é	í	ó	¿	¿	¿	¿	¿
E	SO		.	>	N	^	n	~	é	í	ó	¿	¿	¿	¿	¿
F	SI		/	?	O	_	o		é	í	ó	¿	¿	¿	¿	¿

PC865 (table 1)

CODE	8	9	A	B	C	D	E	F
0	NUL		á	⋮	⌒	ð	ó	—
1		DC1	í	⋮	⌒	ð	ó	±
2		DC2	ó	⋮	⌒	ð	ó	⌒
3			ú	⋮	⌒	ð	ó	⌒
4		DC4	ñ	⋮	⌒	ð	ó	⌒
5			ñ	⋮	⌒	ð	ó	⌒
6			ñ	⋮	⌒	ð	ó	⌒
7	BEL		ñ	⋮	⌒	ð	ó	⌒
8	BS	CAN	¿	⋮	⌒	ð	ó	⌒
9	HT		⌒	⋮	⌒	ð	ó	⌒
A	LF		⌒	⋮	⌒	ð	ó	⌒
B	VT	ESC	⌒	⋮	⌒	ð	ó	⌒
C	FF		⌒	⋮	⌒	ð	ó	⌒
D	CR		⌒	⋮	⌒	ð	ó	⌒
E	SO		⌒	⋮	⌒	ð	ó	⌒
F	SI		⌒	⋮	⌒	ð	ó	⌒

PC865 (table 2)

CODE	8	9	A	B	C	D	E	F
0	Ç	É	á	⋮	⌒	⌒	α	≡
1	ù	æ	í	⋮	⌒	⌒	β	±
2	é	Æ	ó	⋮	⌒	⌒	Γ	⌒
3	â	ö	ú	⋮	⌒	⌒	π	⌒
4	ä	ö	ñ	⋮	⌒	⌒	σ	⌒
5	ä	ö	ñ	⋮	⌒	⌒	σ	⌒
6	ä	ö	ñ	⋮	⌒	⌒	σ	⌒
7	ç	ù	ö	⋮	⌒	⌒	τ	⌒
8	è	ý	¿	⋮	⌒	⌒	φ	⌒
9	è	ÿ	⌒	⋮	⌒	⌒	θ	⌒
A	è	ÿ	⌒	⋮	⌒	⌒	θ	⌒
B	ì	ü	⌒	⋮	⌒	⌒	ω	⌒
C	ì	ü	⌒	⋮	⌒	⌒	ω	⌒
D	ì	ü	⌒	⋮	⌒	⌒	ω	⌒
E	ì	ü	⌒	⋮	⌒	⌒	ω	⌒
F	ì	ü	⌒	⋮	⌒	⌒	ω	⌒

Symbol set

Characters defined in the following symbol set can be printed using the ESC \ (characters) or ESC ^ (one character) software command.

CODE	0	1	7
0		▶	
1	⊙	◀	
2	⊙	⬆	
3	♥	≡	
4	♦	≡	
5	♣	≡	
6	♠	⌒	
7	•	⬆	
8	■	↑	
9	○	↓	
A	◻	↓	
B	◊	↑	
C	⊙	⌒	
D	⊙	⬆	
E	♫	▲	
F	⊙	▼	△

Glossary

Note that these definitions apply specifically to printers.

application program

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

ASCII

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

baud rate

A measure of the speed of data transmission. Usually equivalent to bits per second. Also called serial bit rate.

bidirectional printing

Printing in which the print head moves from left to right on every other line and from right to left on the others. This increases the speed of printing.

bit

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

buffer

See **memory**.

byte

A unit of information consisting of eight bits.

character set

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

character table

A portion of a character set that can be used for graphic symbols or italic characters.

characters per inch (cpi)

A measure of the size of text characters, often referred to as pitch. 10 cpi is the printer's default setting.

default

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

DIP switches

Small switches in a printer that control various printer functions and set the default status of the printer when it is turned on or initialized. DIP stands for dual inline package.

dot matrix

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

draft

One of three print qualities available on your printer. Draft uses less dots per character for faster printing. See also high-speed *draft* and near letter *quality*.

ESC (escape)

A special control code used to begin most printer commands.

ESC/P

Abbreviation for Epson Standard Code for Printers (read E-S-C-P), a system of commands that lets you control your printer using your computer's software. The system is standard for all Epson printers and supported by most software programs for personal computers.

font

A style of type designated by a family name, such as Epson Roman or Epson Sans Serif.

hex dump

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

high-speed draft

One of three print qualities available on your printer. High-speed draft uses a minimum number of dots per character to produce extremely high-speed printing. See also draft and *near letter quality*.

initialize

To establish the initial default status of the printer by turning the printer on or sending an INIT signal.

input buffer

See **memory**.

interface

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

memory

The printer, like a computer, has a memory. When you print a file from a computer, the contents of the file are transferred quickly from the computer's memory to the printer's memory. The printer then prints information from its own memory. This frees the computer to do other work while the printer is still working. The printer memory is sometimes called the buffer, or the input buffer.

micro feed

A feature that adjusts the top-of-form, printing, and tear-off positions.

near letter quality (NLQ)

One of three print qualities available on your printer. Near letter quality reduces the print speed and increases the number of dots per character to produce high-resolution characters. See also *daft* and *high-speed draft*.

paper bail

The part of the printer that holds the paper flat against the platen.

parallel interface

See interface.

parity

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

pitch

The number of characters per inch (cpi). The standard is 10 cpi.

platen

The silver plate behind the paper bail that provides a backing for the printing.

printing position

The position on the page where text or graphics will print. The printing can be adjusted using the MICRO FEED buttons.

pull tractor

An optional paper feeder that is useful when printing on preprinted or multi-part forms.

push tractor

A device that feeds continuous paper through the printer. Both the front and rear built-in tractors are push tractors; they push the paper through the printer to the print head.

RAM

Random Access Memory. The portion of the printer's memory that is used as a buffer and for storing user-defined characters.

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