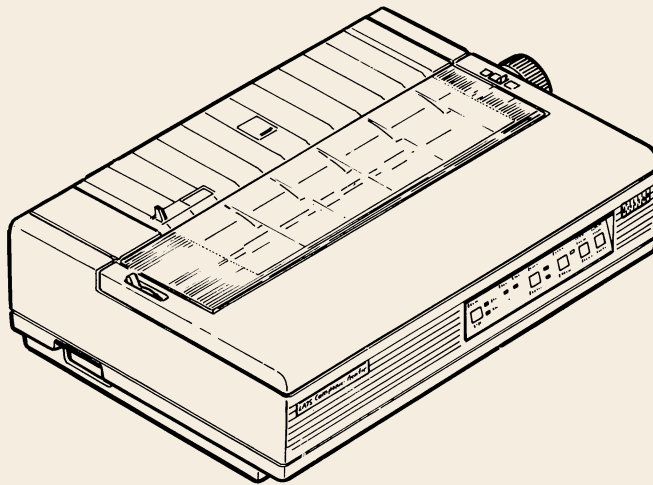


Installing and Using the LA75 Companion Printer



Installing and Using the LA75 Companion Printer

1st Edition, May 1986

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This equipment generates and uses radio frequency energy and if not installed properly, that is in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures.

- Reorient the receiving antenna.
- Relocate the receiver with respect to the printer.
- Move the printer away from the receiver.
- Plug the printer into a different outlet so that the printer and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the booklet *How to Identify and Resolve Radio/TV Interference Problems*, prepared by the Federal Communications Commission, helpful. This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

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INTRODUCTION

ABOUT THIS BOOK

Installing and Using the LA75 Companion Printer is part of the LA75 Companion Printer documentation package. This book is written for someone with little or no computer experience. It teaches you how to install and operate the printer.

This guide is divided into five chapters and has four appendices.

Chapter 1 Installing the Printer

This chapter describes how to unpack and install the printer. It names the printer parts, shows you how to test the printer, and how to connect the printer to your computer system or video terminal. **Read this chapter completely before you begin the installation procedure.**

Chapter 2 Printing Files

This chapter teaches you how to use the printer's operating controls to print your files.

Chapter 3 Loading Paper

This chapter provides a detailed explanation of the different ways to load paper.

Chapter 4 Configuring the Printer

This chapter explains how to configure the printer so that it can communicate with your computer system.

Chapter 5 Maintaining the Printer

This chapter tells how to keep the printer clean, how to replace the ribbon cartridge and the fuse, and install or replace the printhead. A troubleshooting checklist in this chapter can help you identify and correct simple problems and possibly save you a service call.

Appendices

Appendix A has information and order numbers for accessories and supplies.

Appendix B has information on repairs and calling Field Service.

Appendix C has technical specifications and paper specifications.

Appendix D has a summary of basic escape sequences.

Warnings, Cautions, and Notes

The warnings, cautions, and notes in this guide have specific purposes.

WARNING: Contains information about preventing personal injury.

CAUTION: Contains information about preventing damage to equipment.

NOTE: Contains general information you should be aware of.

ABOUT THE DOCUMENTATION PACKAGE

There are two other documents in this package that are intended for the applications programmer who needs interface and control function descriptions.

LA75 Companion Printer Programmer
Reference Manual

EK-0LA75-RM

LA75 Companion Printer Programmer
Reference Card

EK-0LA75-RC

Both the programmer reference manual and the programmer reference card are intended for the user with programming experience. A programmer uses the information to design application software programs or to update existing programs.

SOFTWARE REQUIREMENTS

The LA75 has many features. The features you can use depend on the following conditions.

- The computer system (also known as the host) that the printer is connected to.
- The operating software that your computer system uses.
- The software program you are using.

Check the documentation for the software you are using to learn what printer features you can access.

Your software may allow insertion of the printer attribute escape sequences. Some basic escape sequences are listed in Appendix D of this guide. Refer to your software documentation for information about how to insert escape sequences.

If you are not a programmer and need help choosing the right software package for your application needs, contact your Digital sales representative.

Section 1

Installing the LA75 Companion Printer

INSTALLING THE PRINTER 1

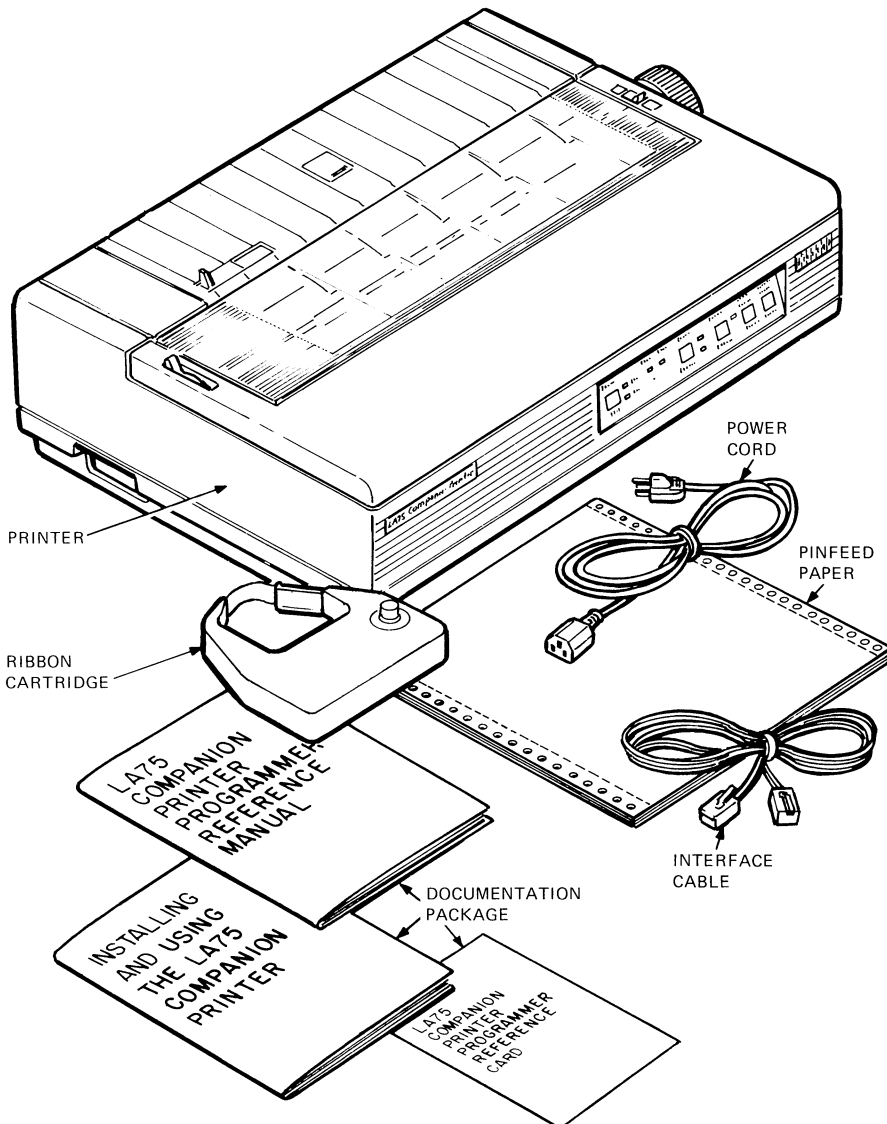
This chapter describes how to unpack and install the printer. It names the printer parts, shows you how to test the printer, and how to connect the printer to your computer. **Read this chapter completely before you begin the installation procedure.**

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CHECKING THE CONTENTS OF THE BOX

Unpack the LA75 and make sure you have all the items shown below. If any items are missing or damaged, immediately contact your sales representative and delivery agent.

Please complete the installation procedures in sequence. After you install the LA75, keep this guide near the printer for easy reference.



SITE CONSIDERATIONS

The LA75 can be installed in an office, school, or home environment.

Environmental Conditions

- Install the printer in an area away from a heater or other heat source, and away from an air conditioner or strong drafts.
- Avoid installing the printer in a dusty or humid environment.

Work Location

- Place the printer on a flat, solid, level area such as a desk or printer stand.
- Allow enough space around the printer to ensure correct ventilation and easy access to all sides of the printer.

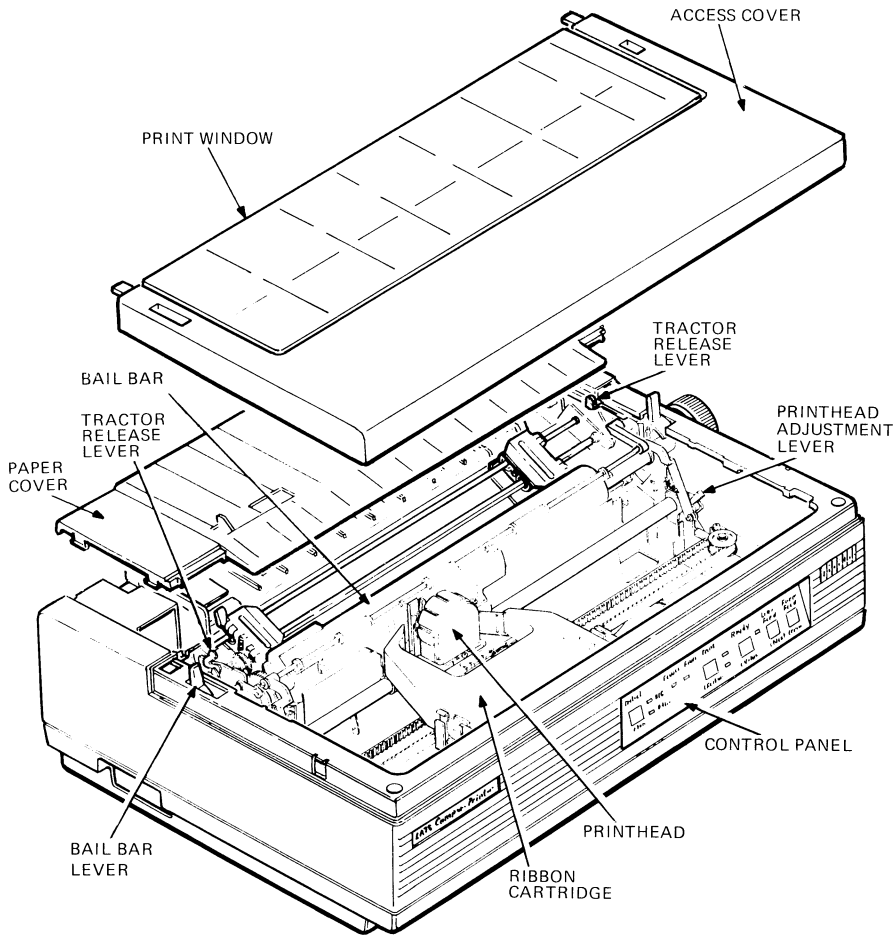
Power Requirements

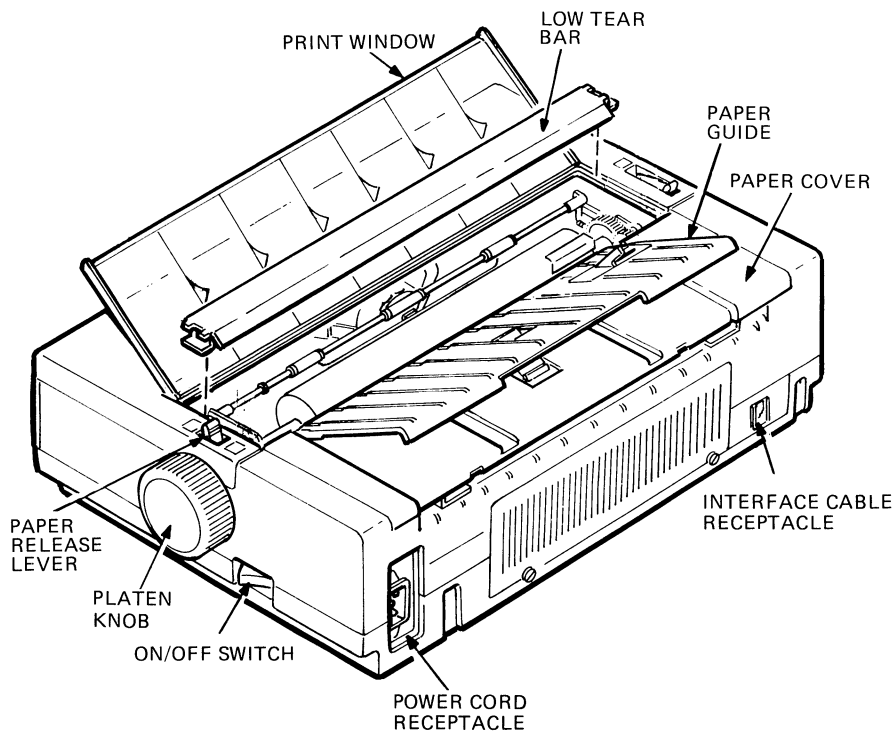
- No special wiring is required. A typical household or office wall outlet is sufficient.
- Do not plug other equipment such as coffee pots, office copiers, or air conditioners into the same wall outlet.

NOTE: See Appendix C for more detailed specifications.

A LOOK AT THE PRINTER

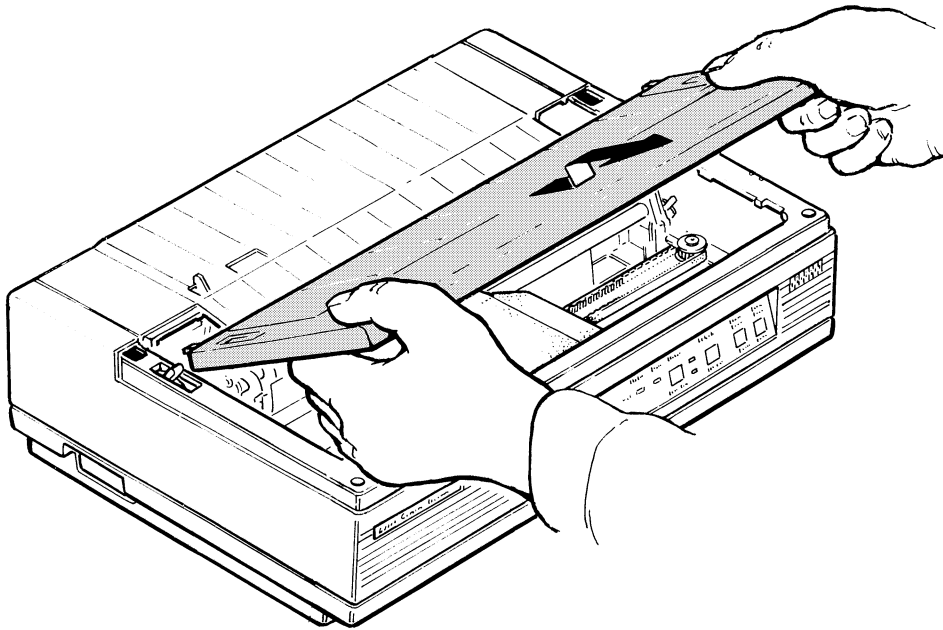
Before installing the LA75, take a minute to familiarize yourself with the printer.





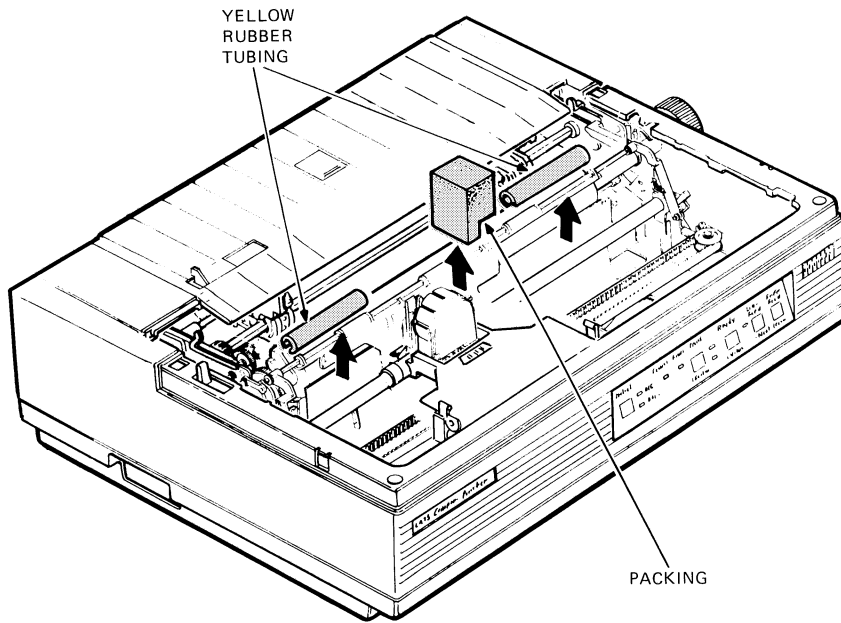
Removing the Packing Material

1. Remove the access cover.



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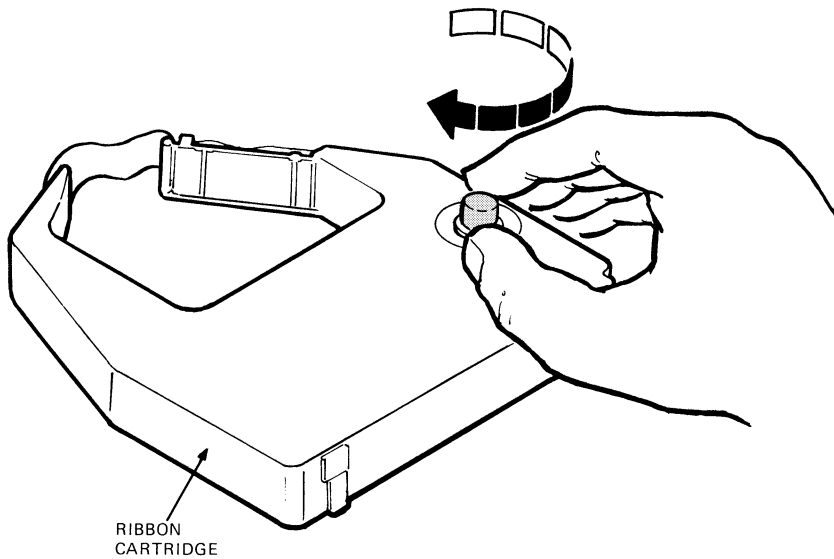
2. Remove the packing from the ribbon cartridge area.
3. Remove the yellow rubber tubing from the carriage shaft.



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Installing the Ribbon Cartridge

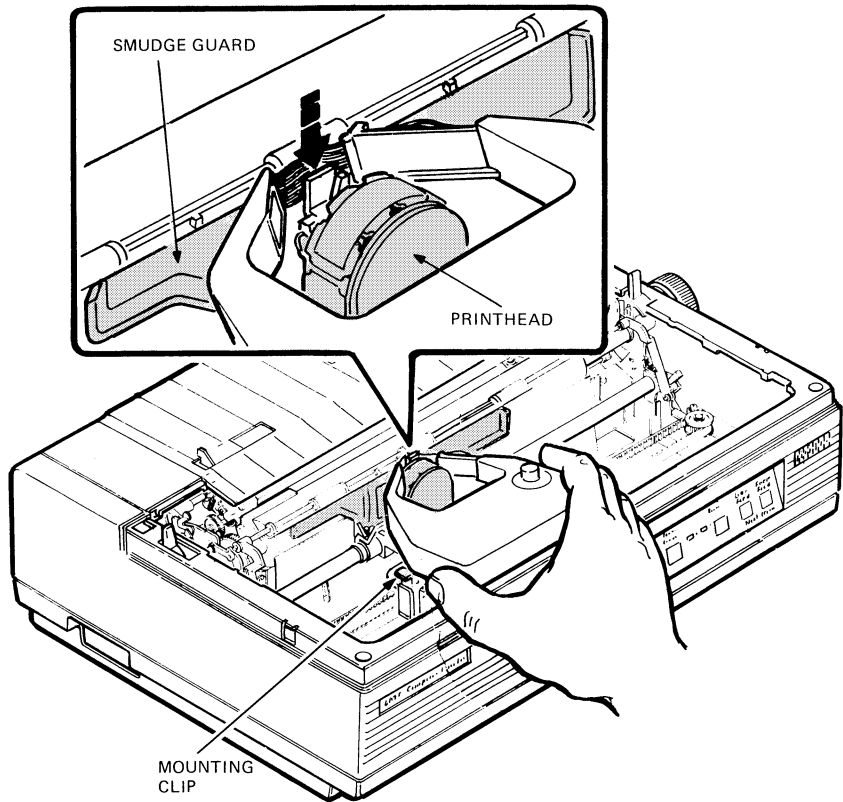
1. Remove the ribbon cartridge from the wrapper.
2. Turn the ribbon adjustment knob in the direction indicated on the cartridge.



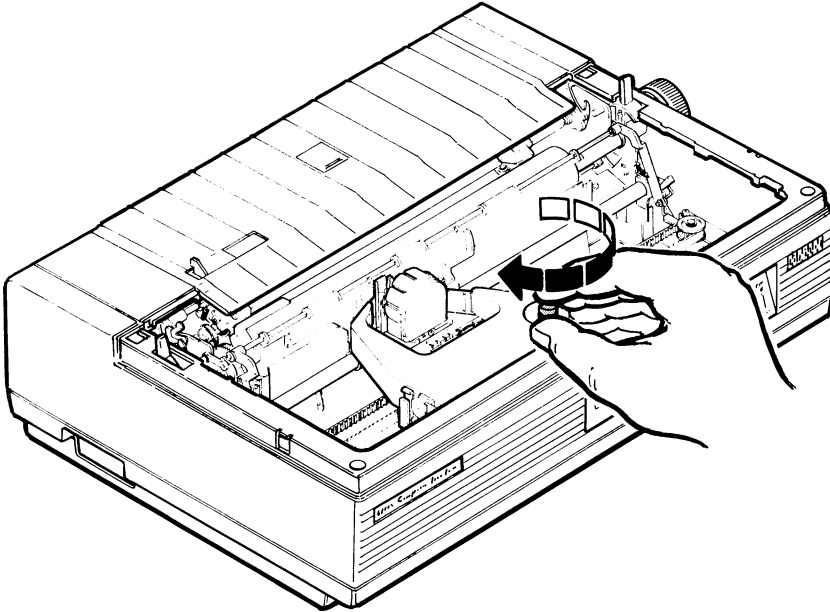
MA-0126-86

3. Fit the ribbon cartridge between the mounting clips on the carriage. Make sure the ribbon fits between the printhead and the smudge guard. Press down on the cartridge until you hear it click into place.

NOTE: Make sure the ribbon is secured on both the left and right sides.



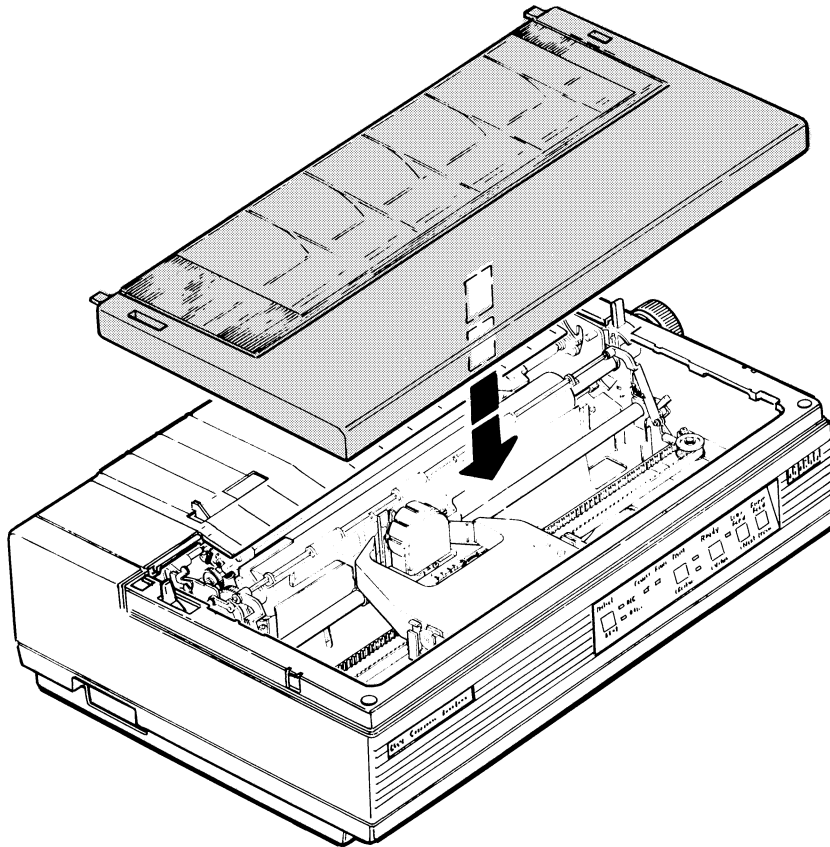
4. Turn the ribbon adjustment knob enough to tighten the ribbon.



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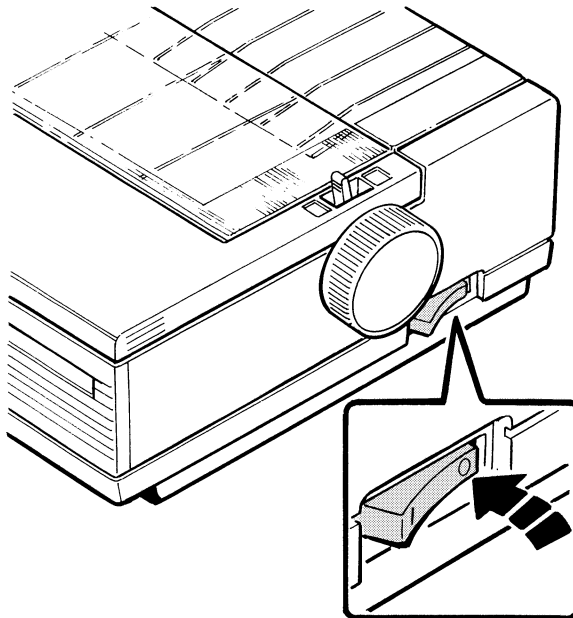
5. Replace the access cover.

NOTE: *The printer does not work with the access cover off.*



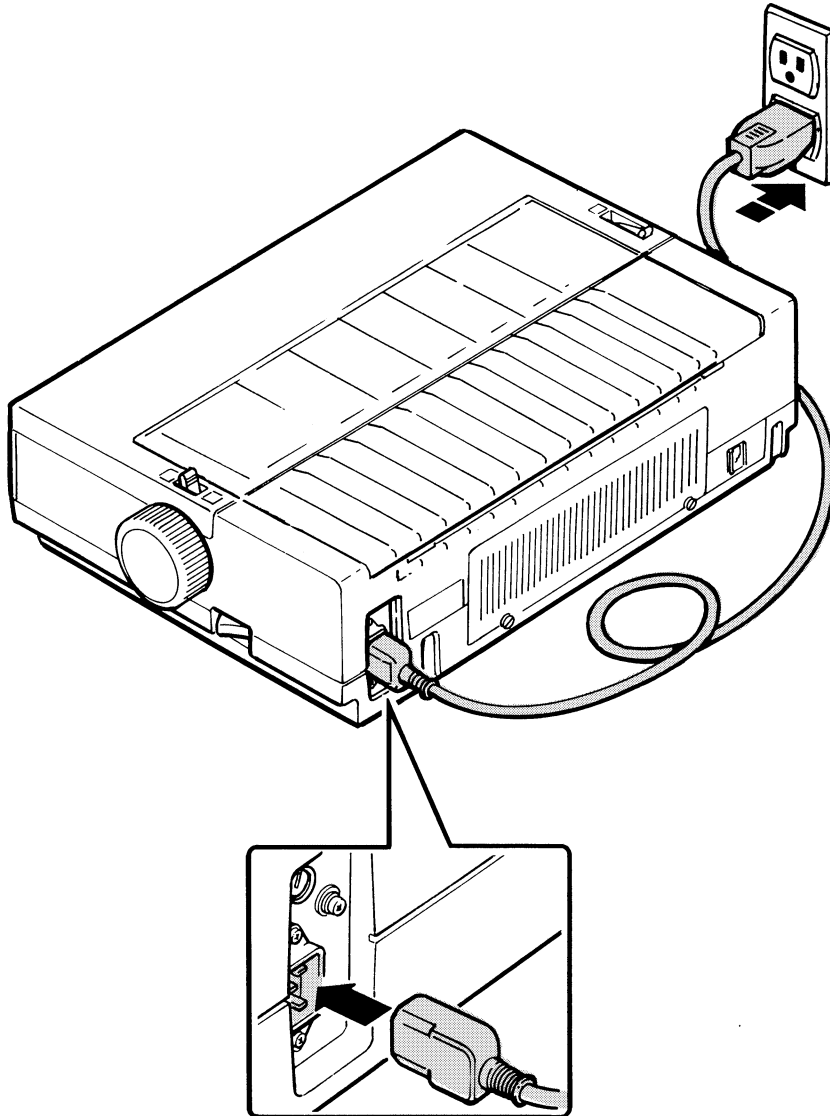
Installing the Power Cord

1. Make sure the power switch is set to 0 (off).



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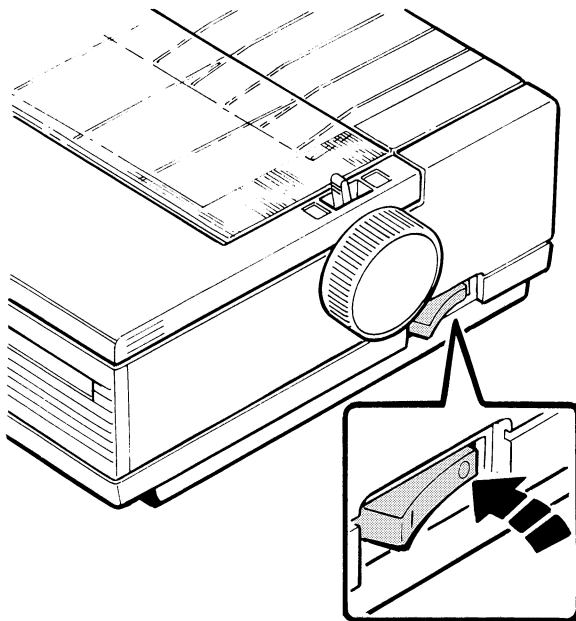
2. Plug the power cord into the back of the printer.
3. Plug the other end of the cord into the electrical outlet.



TESTING THE PRINTER

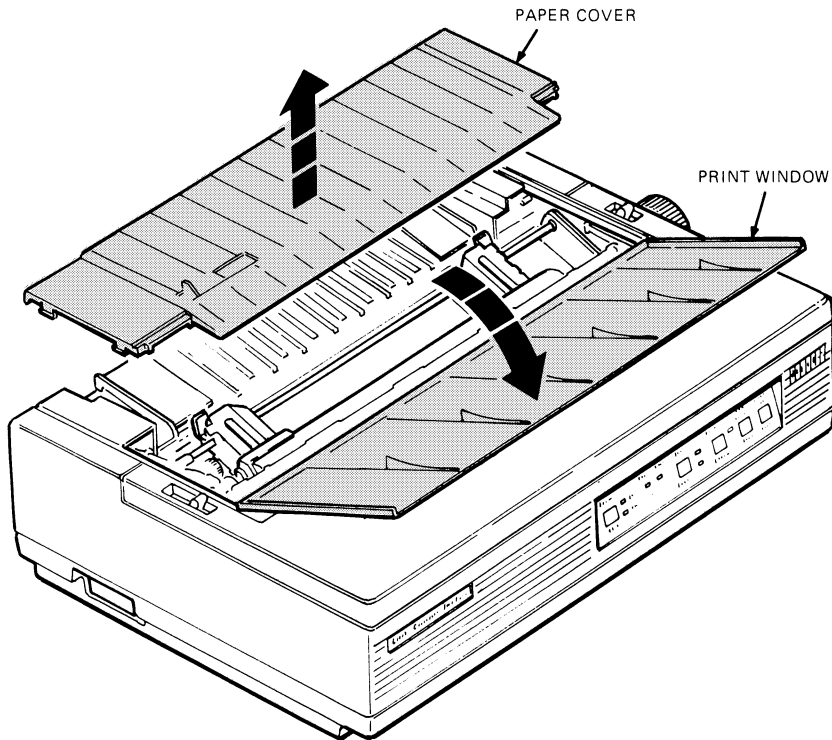
The print self-test allows the printer to check its operation independently. To load paper into the printer and run the self-test, perform the following steps.

1. Make sure the power switch is set to 0 (off).



V-A 0130 86

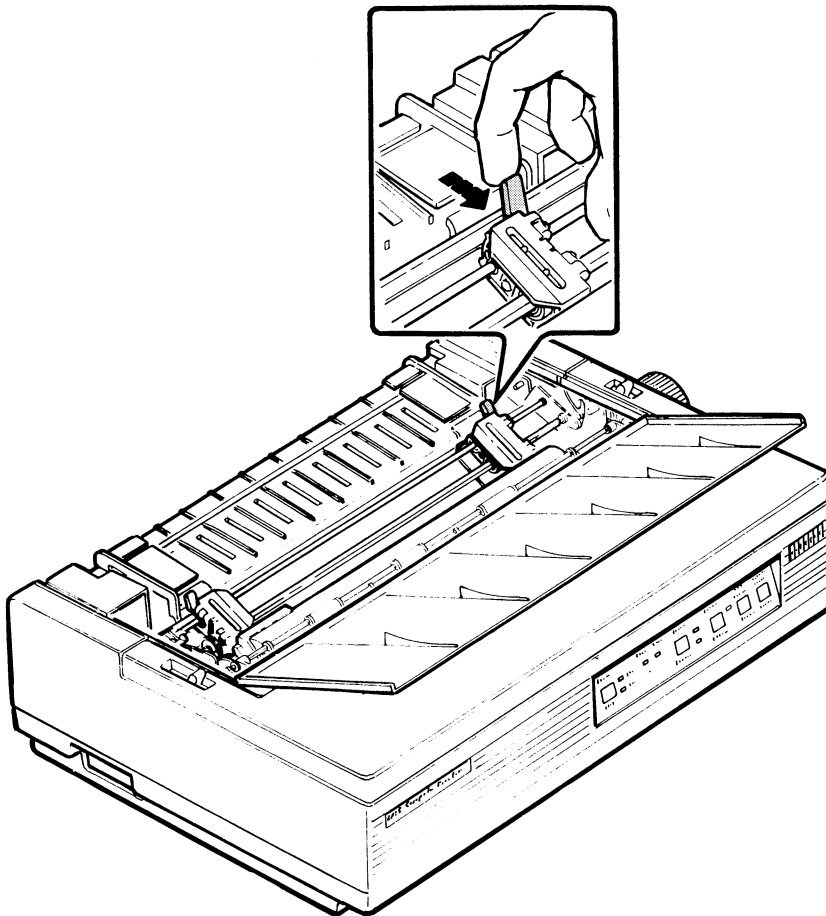
2. Open the print window. Remove the paper cover.



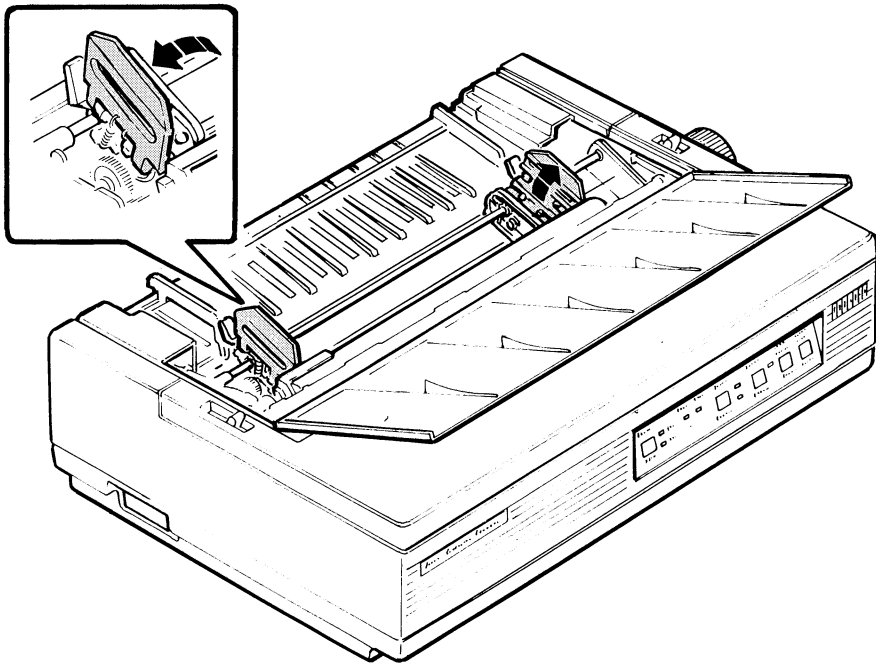
1A0133-86

3. Unlock only the clamp on the right tractor by pulling the clamp toward the front of the printer.

NOTE: The left tractor has been factory set so that the left edge of the paper (column 1) lines up correctly with the printhead when it starts printing. Digital recommends that you do not unlock the left tractor clamp.

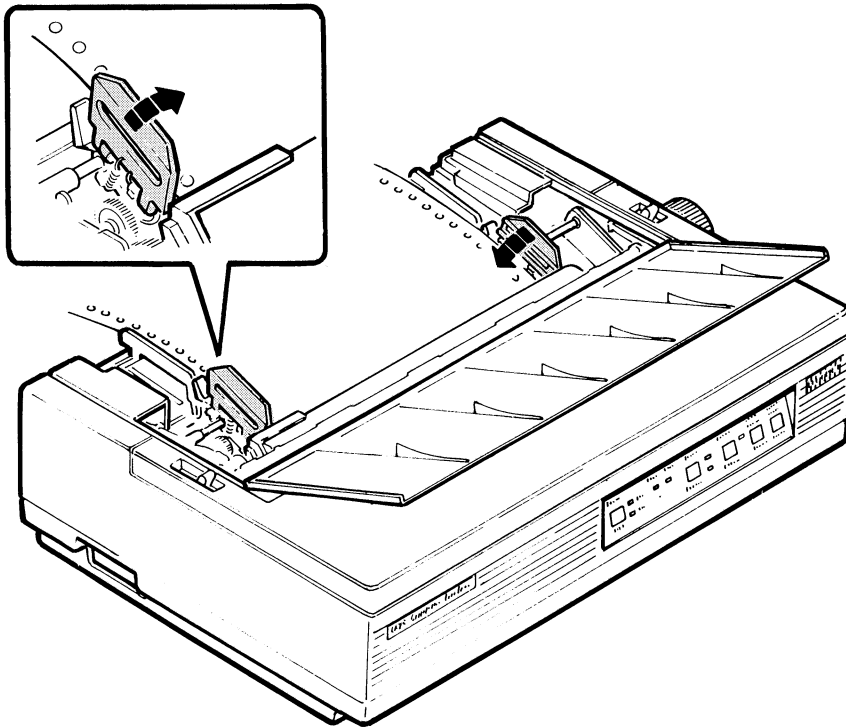


4. Open both tractor doors.



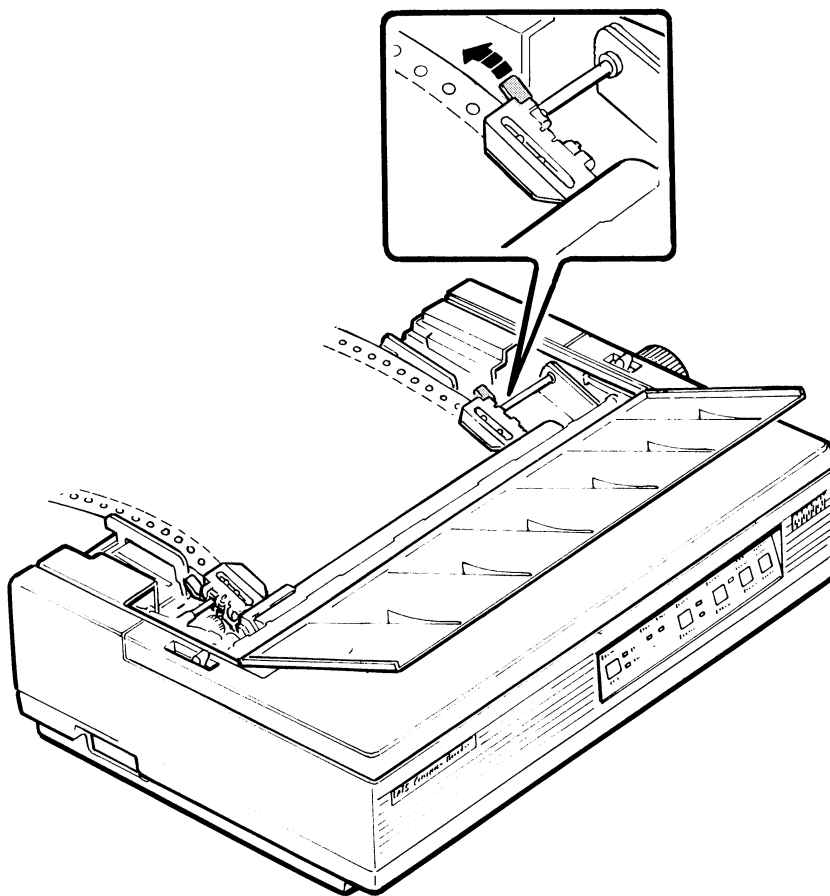
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5. Align the pinfeed holes on both edges of the paper with the tractor pins of both tractors. Close the tractor doors to secure the paper.

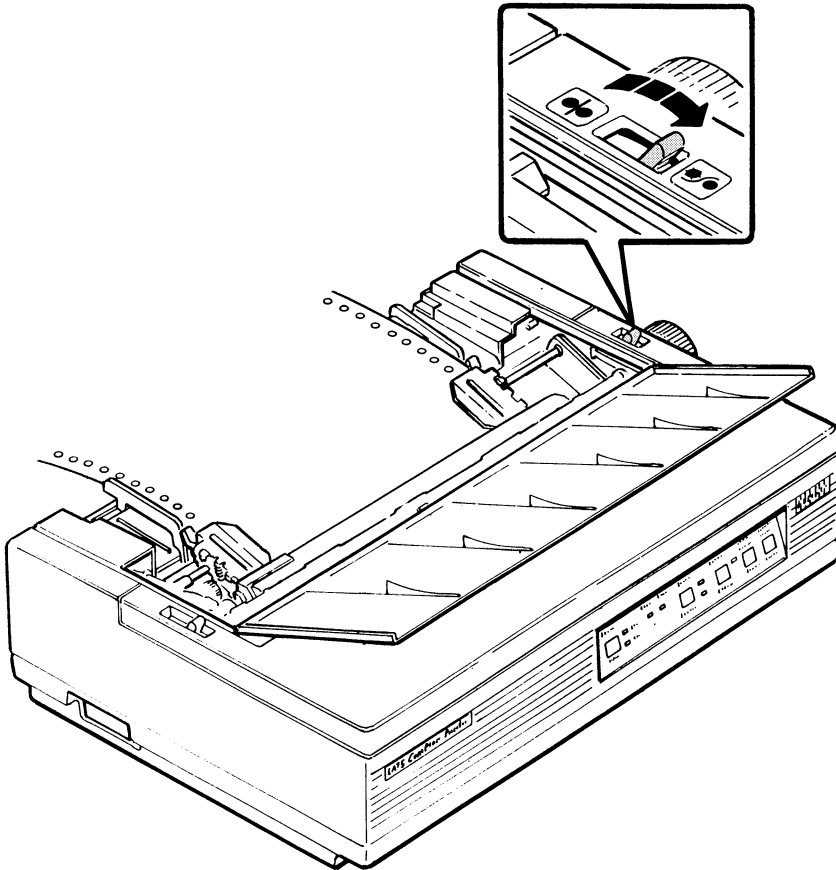


6. Readjust the right tractor position by moving it to the right so that the paper is stretched tightly between the two tractors. Lock the right tractor in place by pushing the tractor clamp toward the back of the printer.

NOTE: If you stretch the paper too tightly, the side perforations will tear or the pin holes can enlarge.

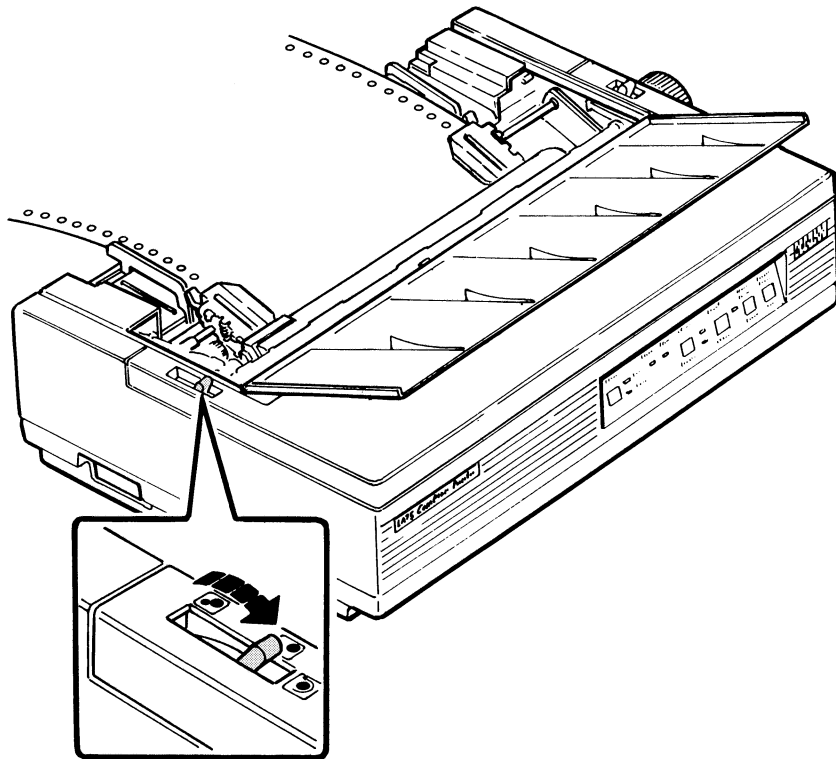


7. Pull the paper release lever toward the front of the printer to set the printer in tractor mode.

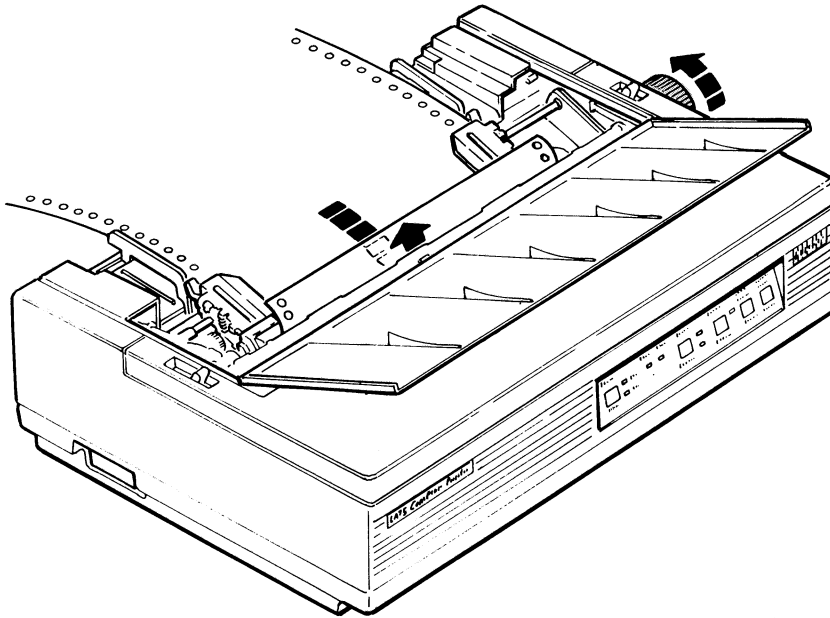


8. Pull the bail bar lever toward the front of the printer.

The bail bar moves away from the platen.

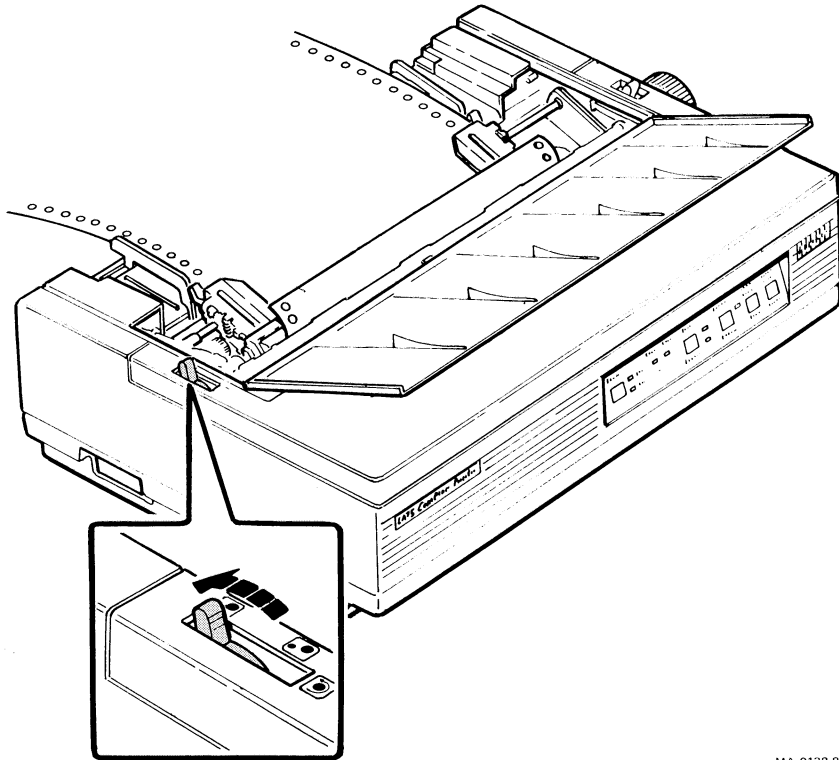


9. Turn the platen knob toward the back of the printer to position the paper above the bail bar.

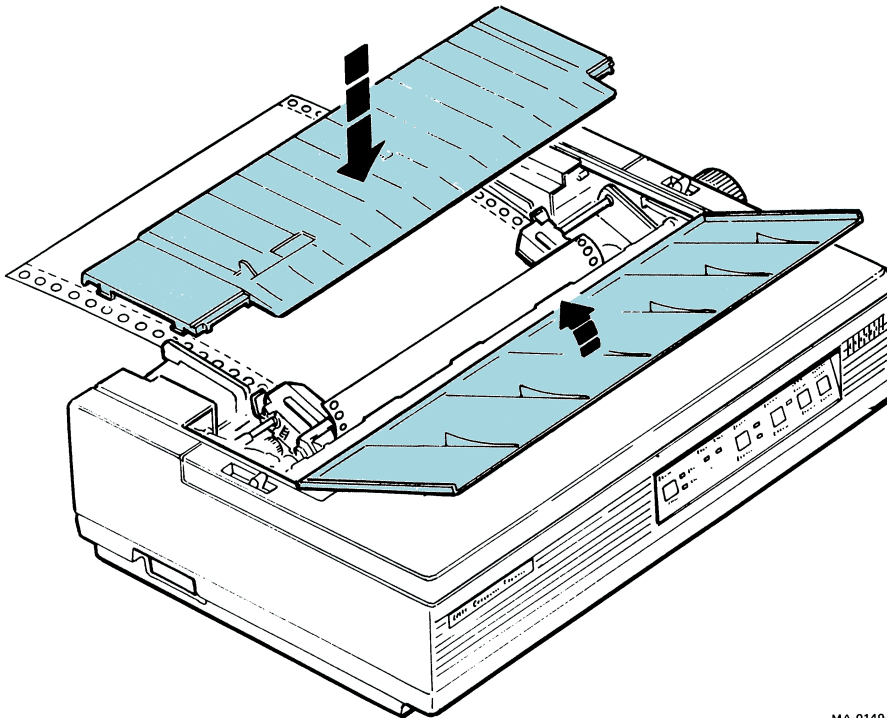


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10. Push the bail bar lever toward the back of the printer to set the bail bar against the paper and the platen.

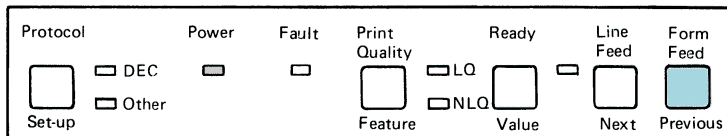


11. Replace the paper cover. Close the print window.



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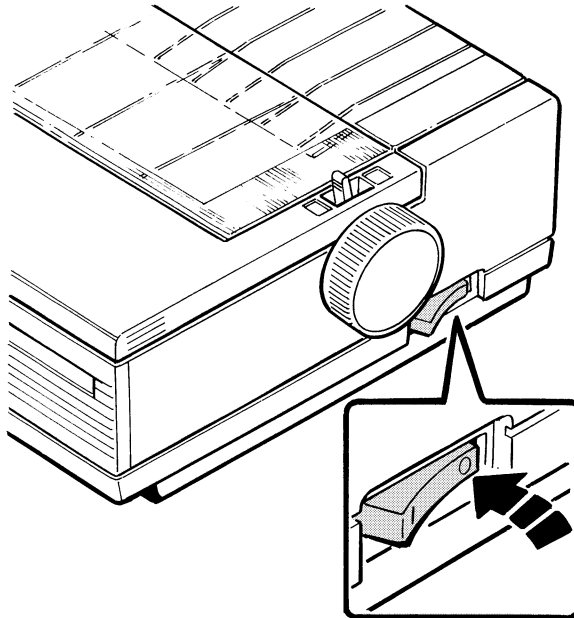
12. Press and hold down the Form Feed switch, and turn the power switch to 1 (on).



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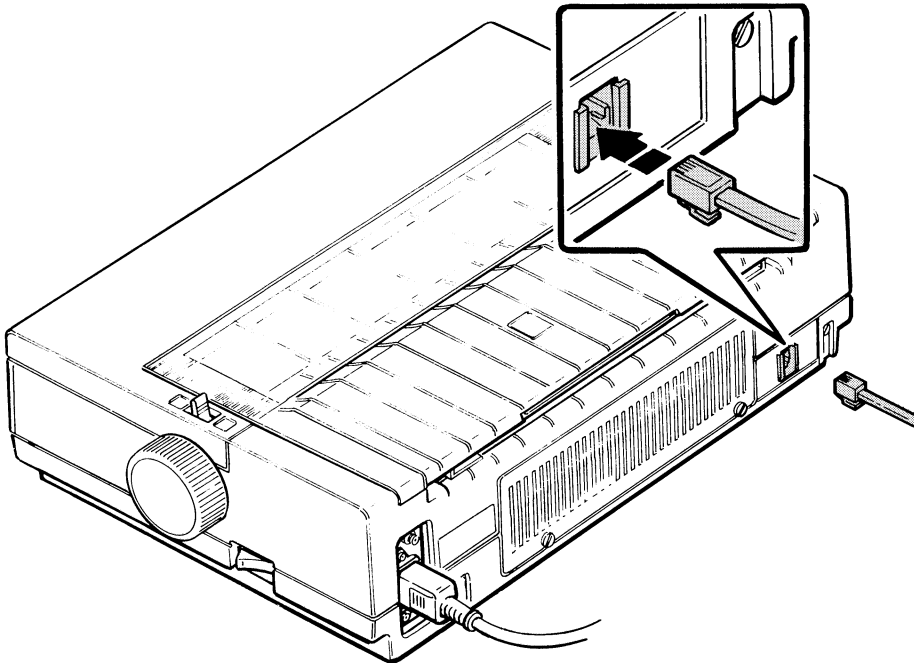
CONNECTING THE PRINTER TO A COMPUTER SYSTEM

1. Turn the power switch to 0 (off).



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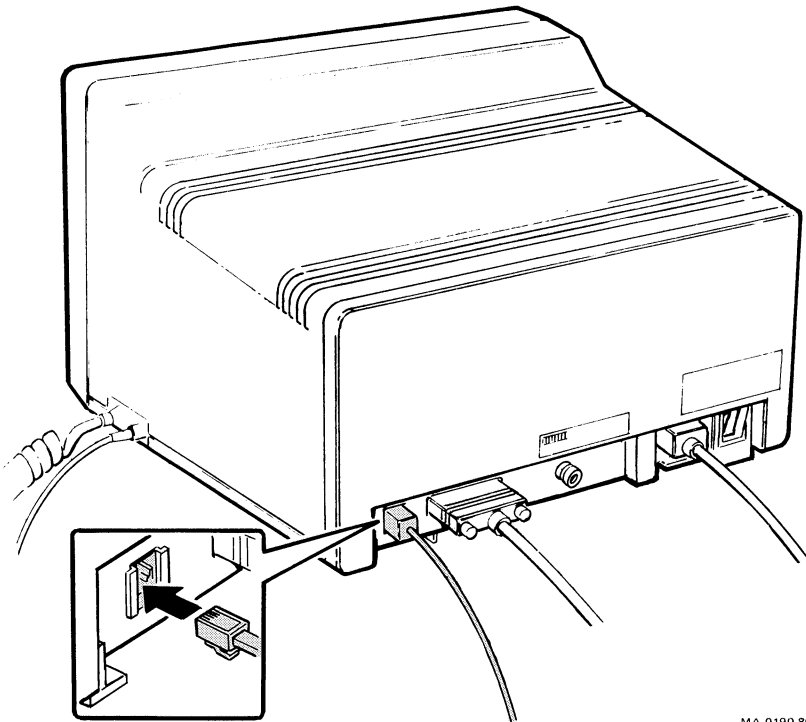
2. Plug the interface cable into the back of the printer.



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3. Plug the other end of the interface cable directly into your host computer. If you use an adapter, first plug the interface cable into the appropriate adapter and then to your host computer or video terminal (with printer port).

NOTE: See Table 1-1 for a list of adapters.



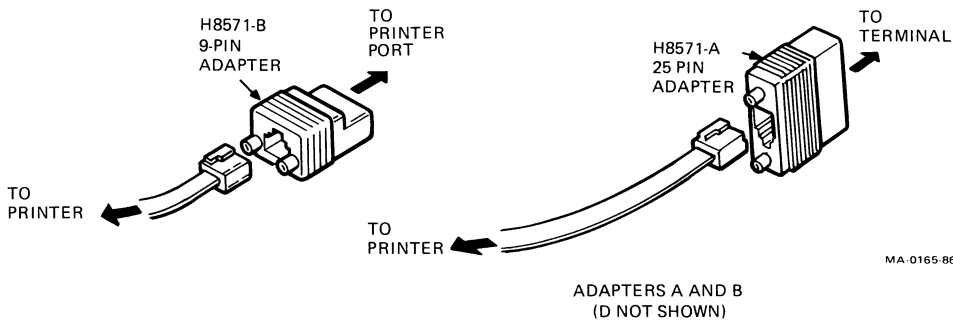


Table 1-1 Interface/System Cable Adapters

Host Computer/Video Terminal	Adapter Part Number
VT100 series with printer port	H8571-A
VT200 series	H8571-B
PC100 series (Rainbow)	H8571-D
PC325 (Professional)	H8571-B
PC350 (Professional)	H8571-B
PC380 (Professional)	H8571-B
DECmate	H8571-B
VAXstation II	H8571-B

NOTE: Use the H8571-A adapter for any host computer not listed in this table that has an RS232 serial 25-pin male printer port. Use the H8571-B adapter for any host computer not in this table that has an RS232 serial 9-pin male printer port.

Order adapters through the DECdirect catalog by using the adapter part number.

Printing a File

Refer to your computer system documentation for information about operating the printer with your computer. Your computer or terminal may require printer set-up before it can operate with the printer.

If your computer does not require printer set-up, you can print a file by following these steps.

1. Make sure there is paper in the printer and that you have advanced the paper to the print position.
2. Turn your computer or video terminal on.
3. Turn the power switch on the LA75 to 1 (on). The printer is ready to print.
4. Follow the instructions in your computer system's documentation on printing a file.

NOTE: Make sure you turn on your host computer first, then turn on the printer. The printer may print error characters if not powered on in this sequence. Make sure you turn off the printer first, then turn off the host computer.

If You Have Difficulties Printing a File

Here are some suggestions if your file does not print, or if the file prints incorrectly.

1. Check the printer and the host computer configuration set-up. The printer's baud rate, parity and data bits, and protocol should match those of the host computer. Table 4-1, Factory Set Configurations, has information on these three features. Also check your computer system's documentation for information on these features.
2. Read and follow the directions in Chapter 4, Configuring the Printer, if you must change the printer's configuration set-up to match your host computer's configuration.
3. If your printer still does not print your files correctly, see the Troubleshooting Checklist in Chapter 5.
4. If you are not sure of how to correct the problem, call Digital service. See Appendix B in this guide for more service information.

Section 2

Using the LA75 Companion Printer

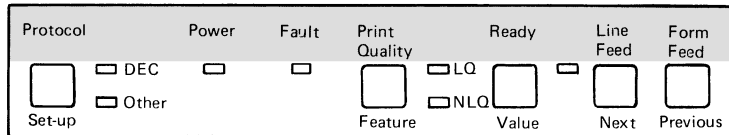
PRINTING FILES 2

This chapter teaches you how to use the printer controls to print a file.

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ABOUT THE LA75 CONTROL PANEL

In this chapter you will learn how to use the printer's operating controls and how to print your files. To print files, the control panel switches perform the functions that appear in white letters above the switch.



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NOTE: The functions on the control panel that appear below the switches are explained in Chapter 4, *Configuring the Printer*.

Printer Operating Controls and Indicators

Power Indicator

The power indicator is green. It lights when the printer is turned on.

Fault Indicator

The fault indicator is red. It lights and stays lit when the paper supply is out or if there is a mechanical problem.

The Fault indicator flashes continuously when the printer finds an electronic problem. See Table 5-1, Troubleshooting Checklist, to determine the probable cause of the problem and suggestions for correcting it.

Ready

The Ready switch puts the printer *on-line* or *off-line*. When the Ready indicator lights, the printer is on-line and ready to print. When the Ready indicator is not lit, the printer is off-line and will not print.

If you press the Ready switch while the printer is printing (putting it off-line), the LA75 completes only the line it is printing and then stops.

The Fault indicator lights when the printer is at or near the end of the paper. You can press the Ready switch to print one line at a time on the sheet the printer is printing on before loading more paper into the printer.

Protocol

The Protocol switch lets you change the way the printer communicates with your computer system. To change between "DEC" and "Other," press the switch once.

NOTE: Use "Other" when you want the LA75 to perform like the IBM Proprinter.

Print Quality

The Print Quality switch allows you three choices of print quality:

1. Letter quality (LQ), which prints at 32 characters per second (char/s), and
2. Near letter quality (NLQ), which prints at 42 char/s.

In both cases, an indicator lights next to the print quality you have selected.

3. If no indicator lights, the print quality is controlled by what you programmed into the printer's set-up memory, or through software commands.

The LA75 has two other print qualities: memo quality (125 char/s) and draft quality (250 char/s). See Chapter 4, Configuring the Printer, for more information on print qualities.

NOTE: All character per second (char/s) speeds listed in this book are quoted at their maximum burst speeds. See Appendix C for more information on character per second speeds.

Draft
This is an example of Draft printing.

Memo
This is an example of Memo printing.

NLQ
This is an example of NLQ printing.

LQ
This is an example of LQ printing.

Line Feed

The Line Feed switch advances the paper in the printer one line at a time. Continued pressure on the switch advances the paper a number of lines.

Form Feed

The Form Feed switch advances the paper in the printer one form length at a time.

Printing Files

NOTE: Make sure that there is paper loaded in the printer. Use the platen knob to advance the paper to the print position. Print position is usually just below the perforation on continuous pinfeed paper.

NOTE: Make sure you turn on your host computer first, then turn on the printer. The printer may print error characters if not powered on in this sequence. Make sure you turn off the printer first, then turn off the host computer.

1. Set the power switch to 1 (on). The green Power indicator lights.
2. Choose Protocol, if necessary. The indicator next to your choice lights.
3. Choose Print Quality, if necessary. The indicator next to your choice lights.

You are now ready to print.

NOTE: The LA75 printer configuration is factory set for use with Digital's computer systems in the United States. If you have trouble printing your files correctly, you may need to change the printer's configuration. Read and follow the steps outlined in Chapter 4, Configuring the Printer, for information on how to make these changes.

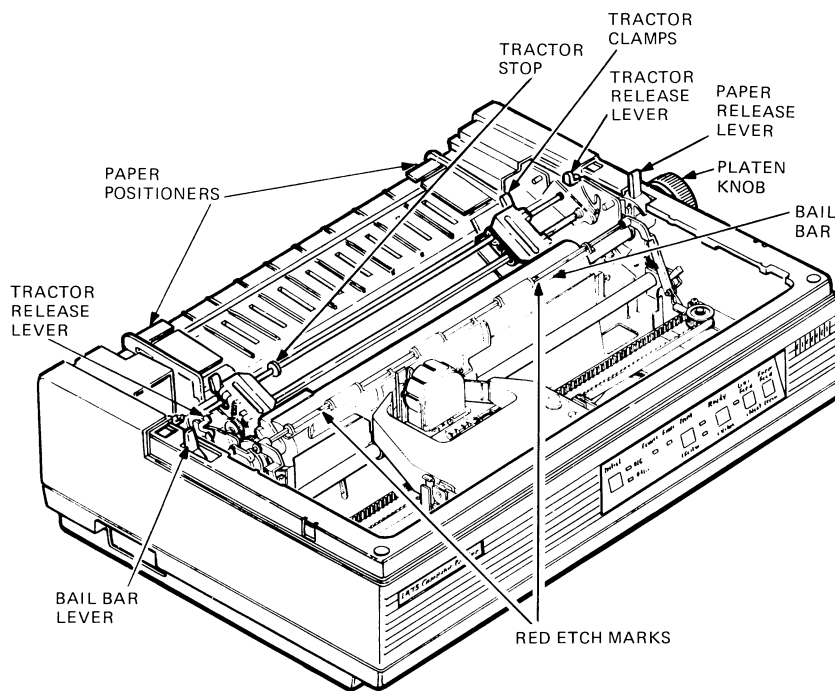
LOADING PAPER 3

This chapter gives a detailed explanation of the different ways to load paper, use the printhead adjustment lever, and use the low tear bar.

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PAPER CONTROLS

The levers and controls described in this section are used for loading and positioning paper in the printer.



MA-0142-86

Bail Bar Lever

The bail bar lever controls the paper bail and the autopark function. This function is used for loading single sheets of paper when pinfeed paper is in the printer.

The bail bar lever has three positions: closed, which moves the paper bail against the platen; open, which moves the paper bail away from the platen; and autopark, which backs pinfeed paper away from the platen to allow printing on a single sheet.

Bail Bar

The bail bar holds the paper against the platen. The red etch marks on the bail bar indicate the print area for a standard sheet of paper. Use these etch marks to help position the paper correctly.

Paper Release Lever

The paper release lever controls the paper holding tension. Pull the lever toward the front of the printer for tractor feed. Push the lever toward the back of the printer for friction feed.

Platen Knob

The platen knob allows manual control of the platen for inserting paper and for changing the paper's vertical position.

Paper Positioners

The paper positioners underneath the paper cover help keep the pinfeed paper in the correct position as it feeds into the printer.

Tractor Release Levers

The tractor release levers are used to position the entire tractor unit for a push or a pull paper feed operation.

Tractor Clamps

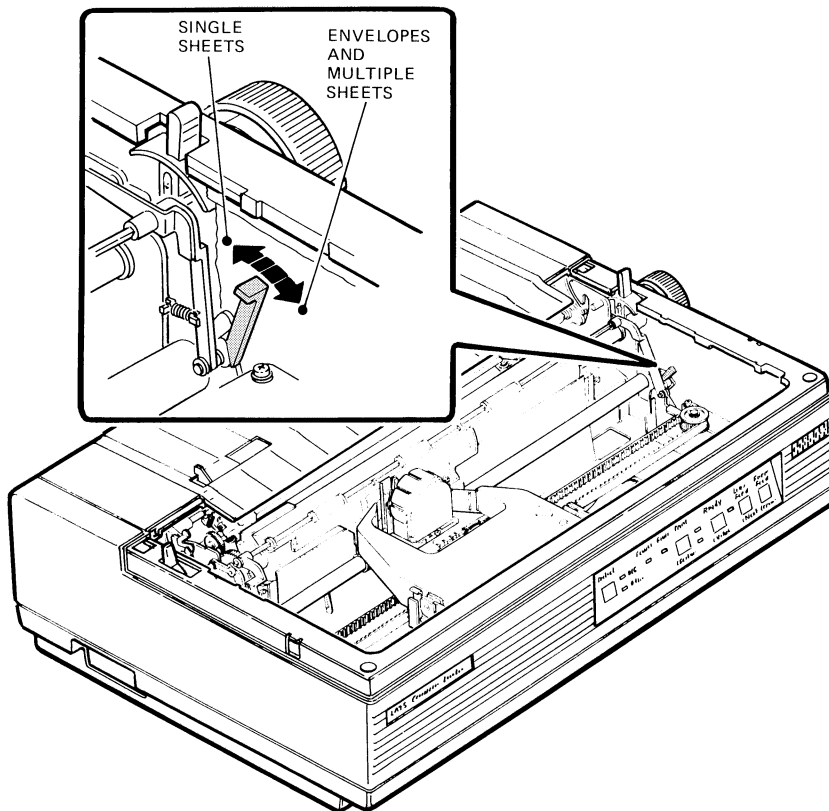
The tractor clamps allow you to adjust the position or location of the tractors for different paper sizes. Pull the clamp toward the front of the printer to move the tractor to the left or right. Push the clamp toward the back of the printer to lock the tractor in place.

Tractor Stop

The tractor stop prevents the left tractor from being moved too far to the right. This enables the left edge of the paper (column 1) to line up correctly with the printhead when it starts printing.

Printhead Adjustment Lever

The printhead adjustment lever changes the printhead position to allow for different thicknesses of paper, and for forms or envelopes. This lever can be moved in four positions to vary the distance between the printhead and the platen. (See Adjusting the Printhead on page 78 for more information.)



LOADING PAPER

There are three ways to load paper for the LA75:

- Load pinfeed paper through the printer’s bottom slot.
- Load pinfeed paper at the back of the printer.
- Hand feed single sheets at the back of the printer.

NOTE: Bottom feeding is intended for printing applications using forward paper motion only. For applications which require reverse paper motion to achieve printing functions such as bolding, underlining, and super/sub scripting, using the rear paper feed method.

See Table 3-1 for Digital’s recommendations on using the three methods.

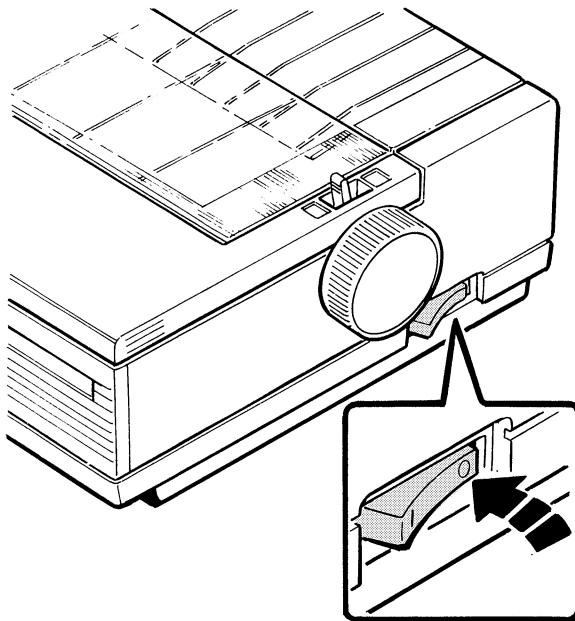
Table 3-1 Loading Methods and Types of Paper		
Method	Type of Paper	Type of Printing
Bottom feed	Pinfeed paper <ul style="list-style-type: none">• Single-part• Multipart• Labels	Text and graphics
Rear feed	Pinfeed paper <ul style="list-style-type: none">• Single-part	Text and graphics
Hand feed	Single sheets <ul style="list-style-type: none">• Single sheets• Envelopes• Single forms	Text and graphics

Bottom Load (Pinfeed Paper – Tractors in the Pull Position)

***NOTE:** Using the printer's bottom slot requires a special printer table or stand. Talk to your Digital sales representative or see Appendix A for ordering information.*

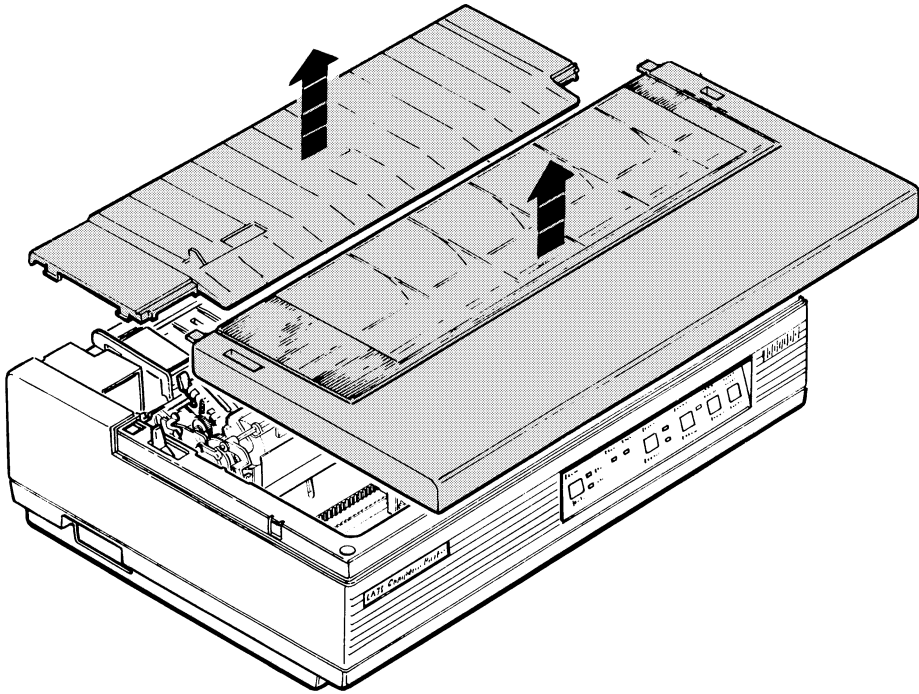
The printer is shipped to you with the tractors in the push position (tractors in down position). To load pinfeed paper through the bottom slot, you must first set the tractors in the pull position. Steps 1 through 4 tell how to set the tractors in the pull position.

1. Turn the power switch to 0 (off).



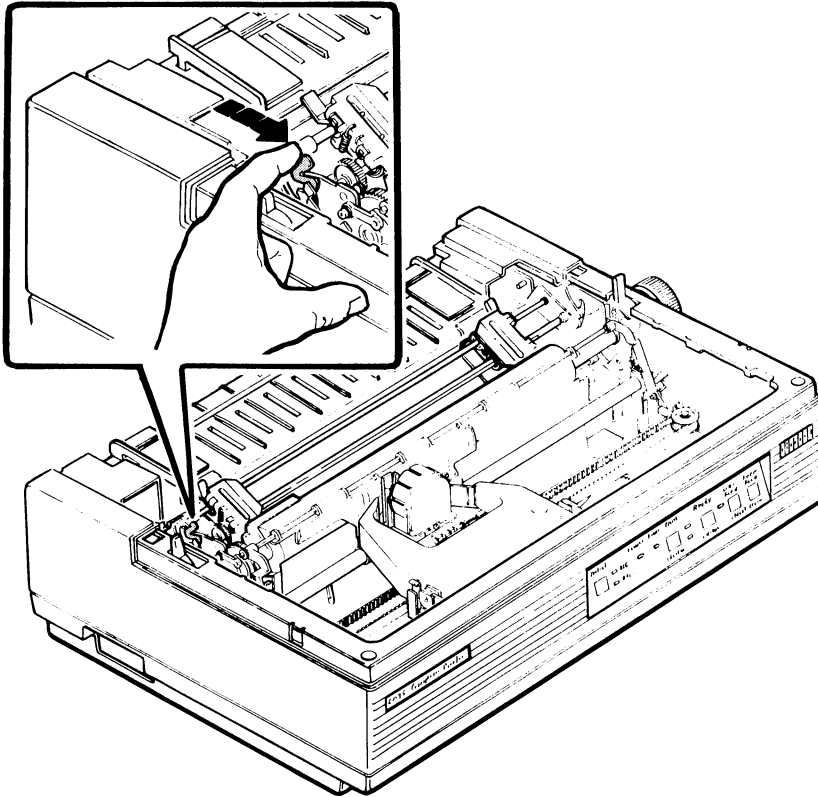
MA 0130 86

2. Remove the access cover and the paper cover.

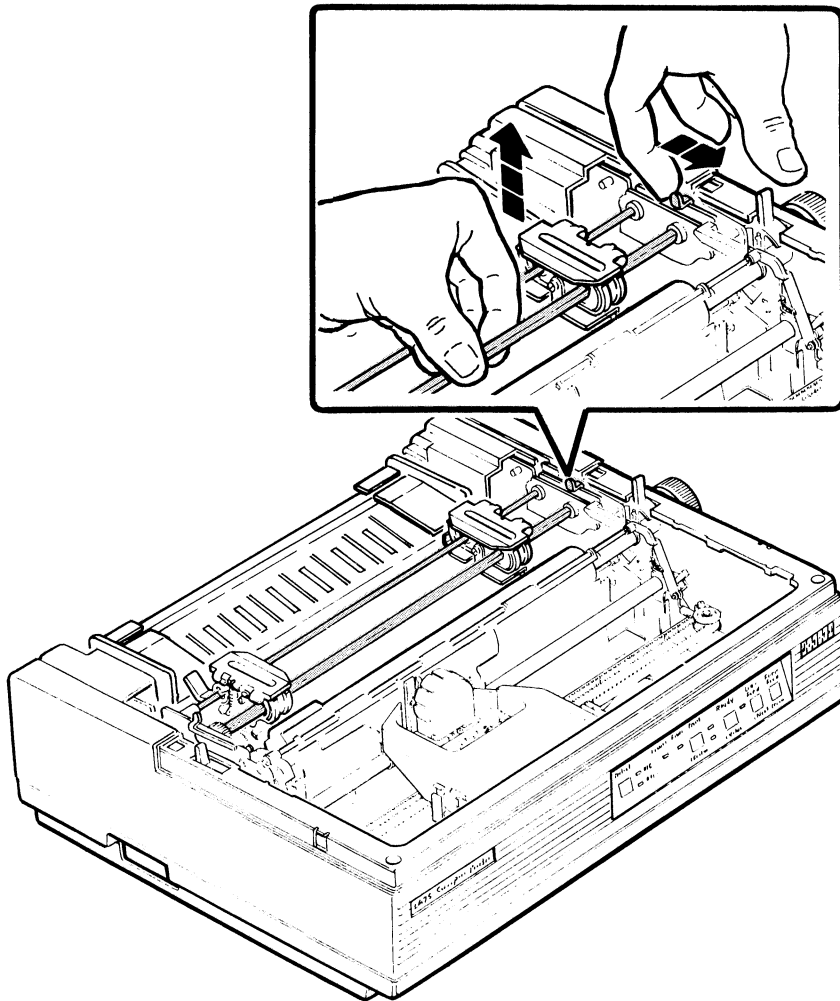


MA-0146-86

3. Move the left tractor release lever toward the front of the printer until it locks.

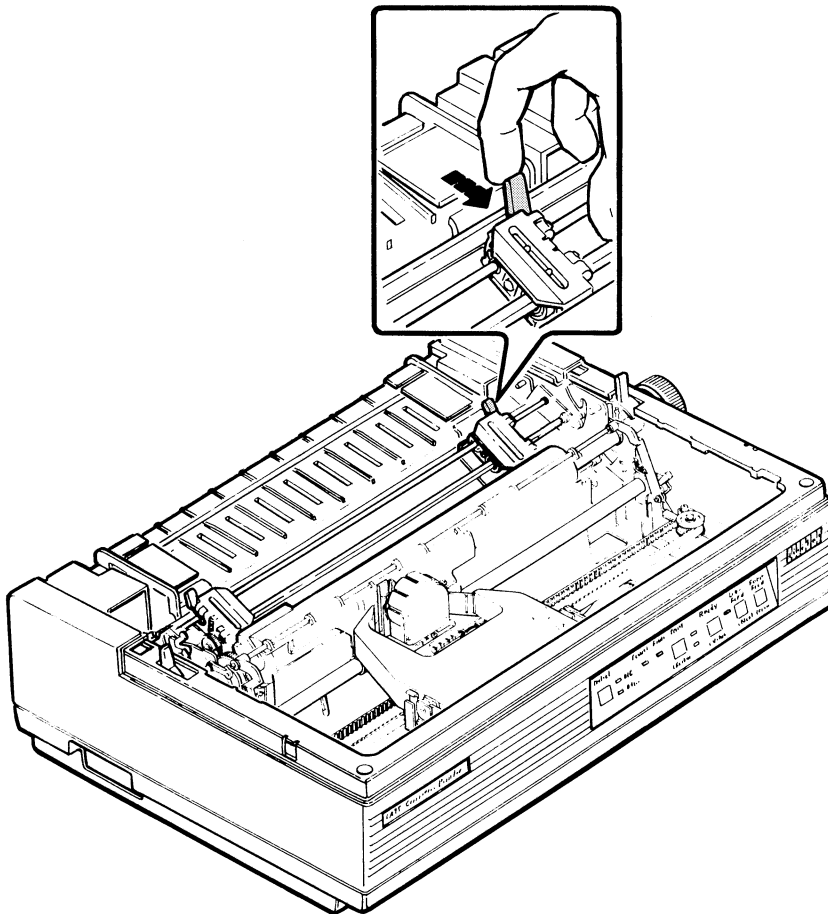


4. Move the right tractor release lever toward the front of the printer while pulling the tractor unit up. The tractors are now in the pull position.

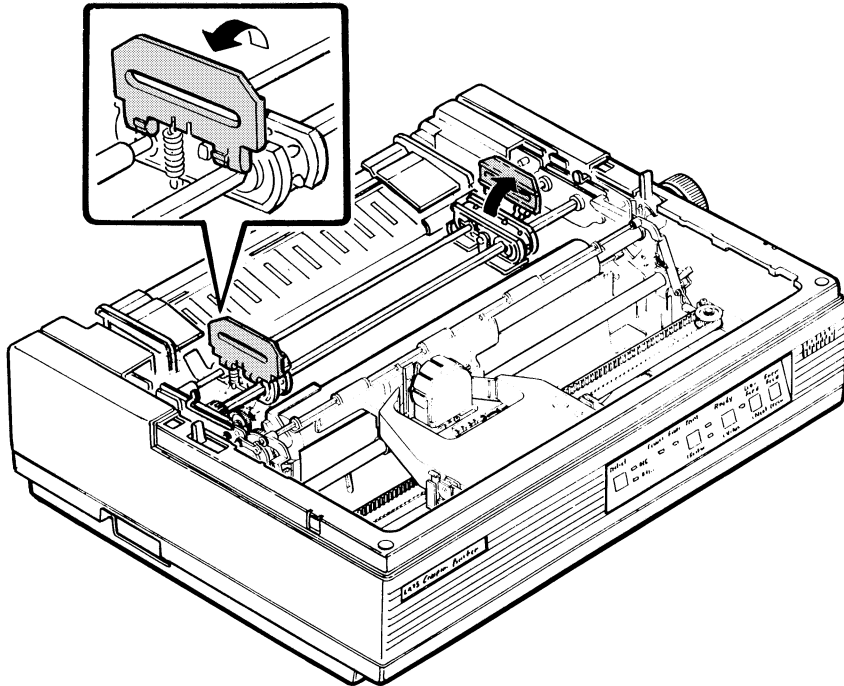


5. Unlock the clamp on the right tractor by pulling the clamp toward the front of the printer.

NOTE: Check that the left tractor is against the tractor stop. If it is not, unlock the left tractor clamp and move the tractor to the right until it stops. This enables the left edge of the paper (column 1) to line up correctly with the printhead when it starts printing.

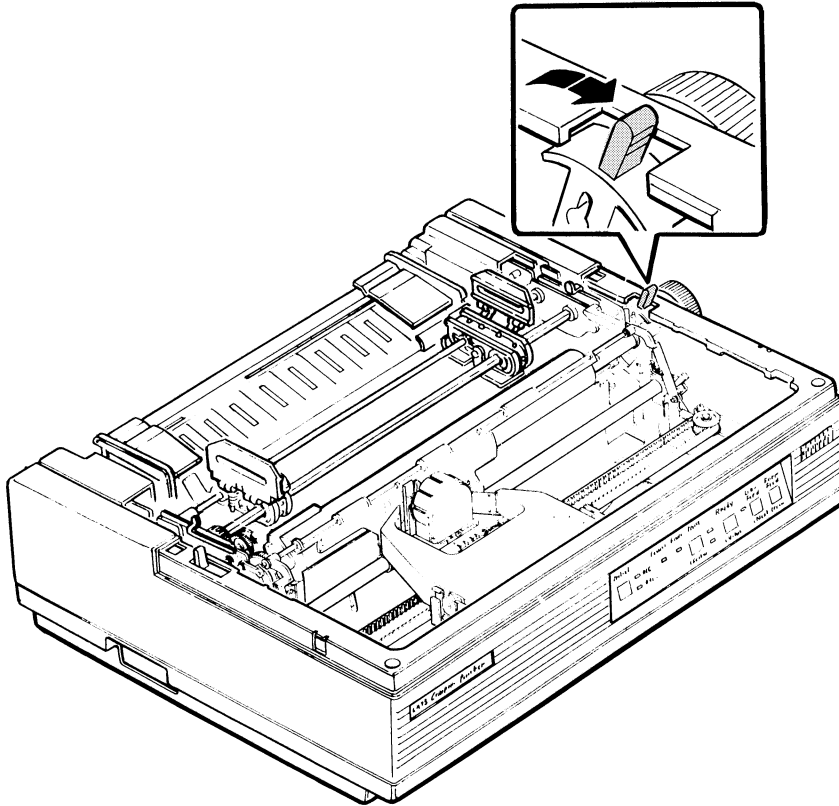


6. Open both tractor doors.

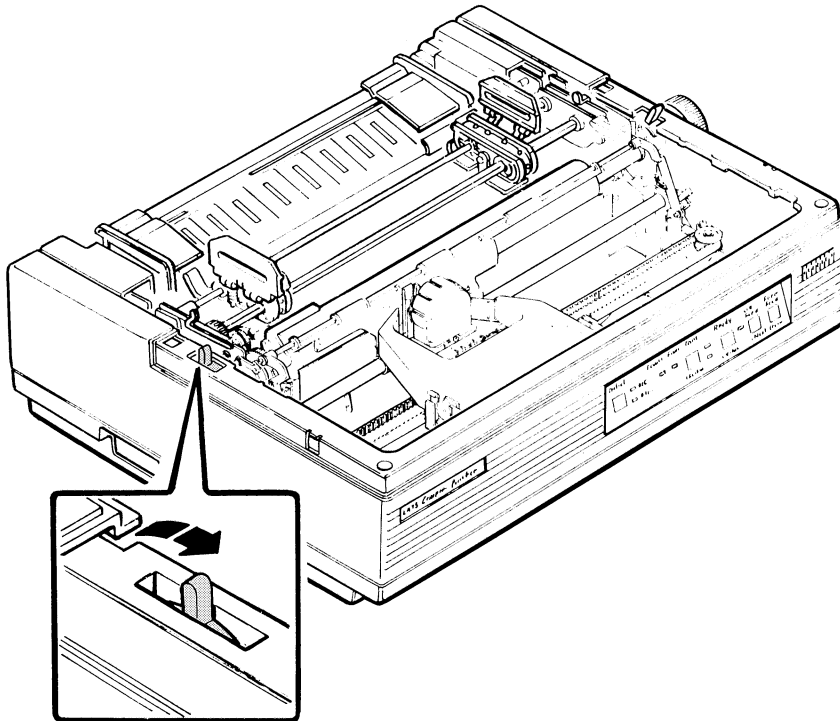


MA 0179-86

7. Move the paper release lever toward the front of the printer to set the printer in tractor mode.

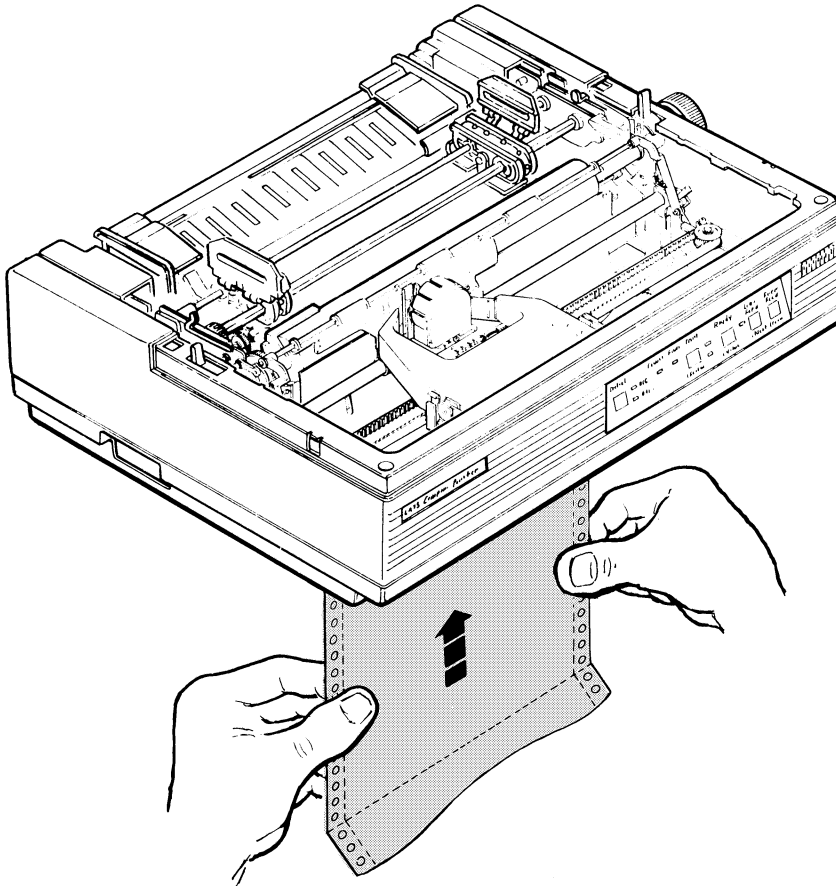


8. Move the bail bar release lever forward to the middle position so that the bail bar moves away from the platen.

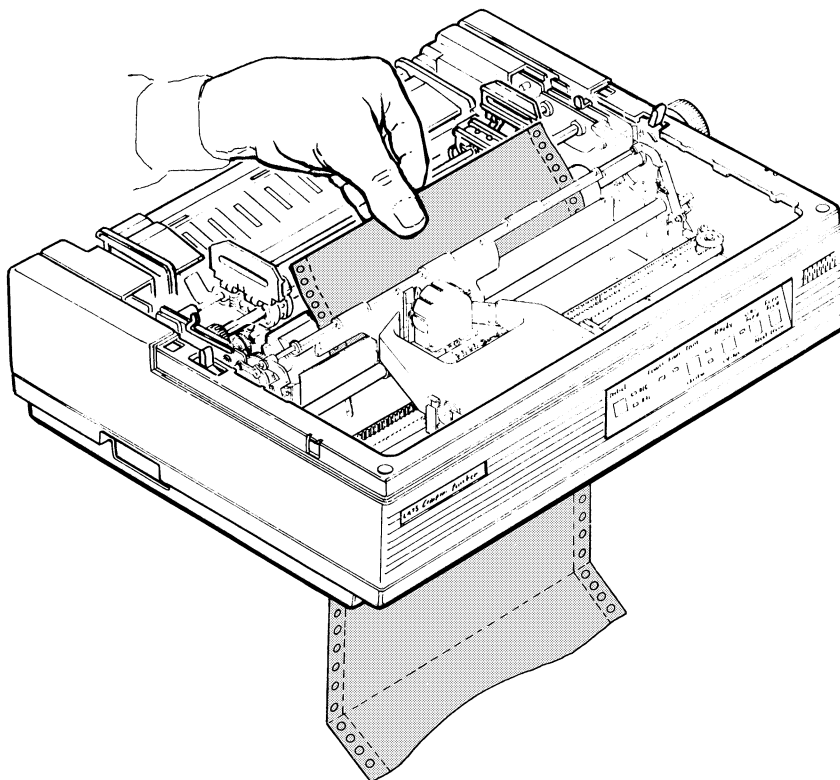


9. Insert the paper through the bottom slot of the printer.

NOTE: To prevent skewing, position the paper so that it feeds straight into the bottom of the printer.

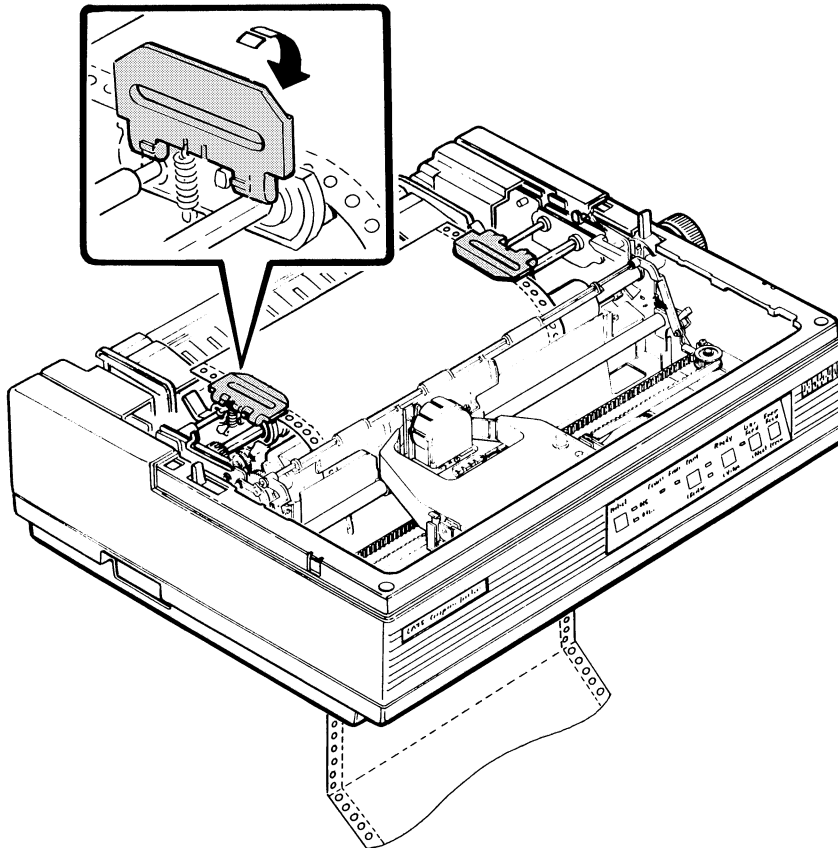


10. Pull the paper up between the platen and the smudge guard and bring it back to the tractors.



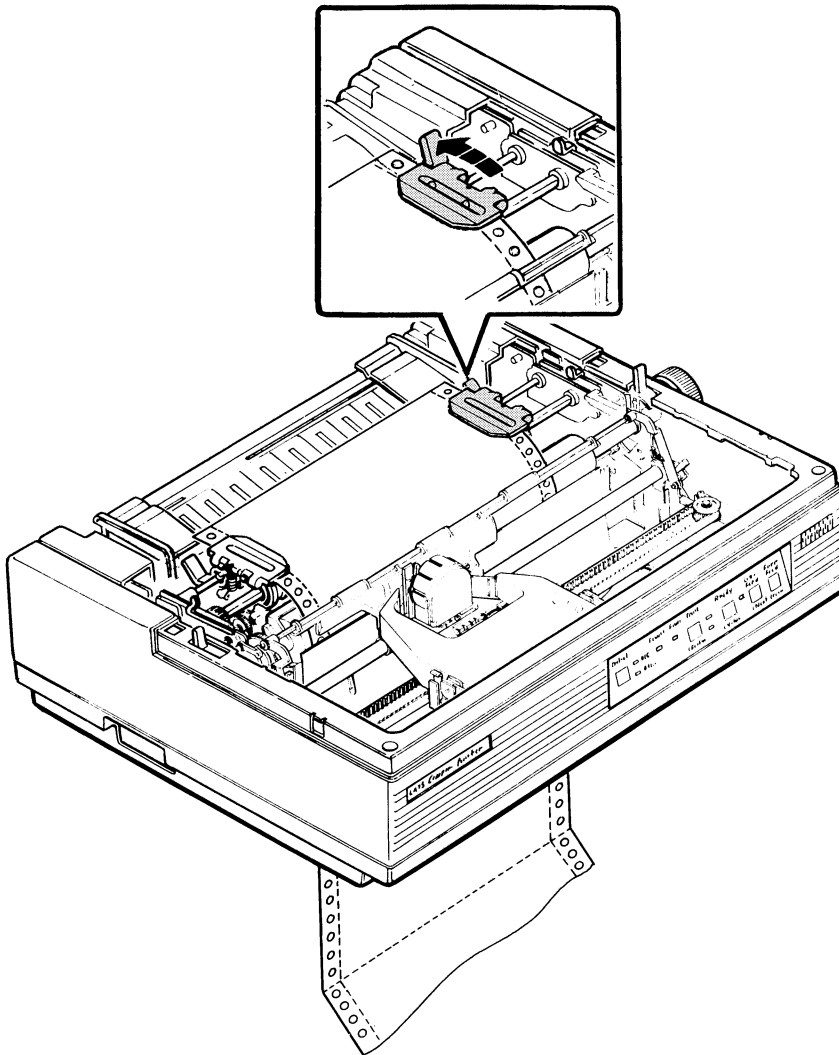
11. Align the pinfeed holes on both edges of the paper with the tractor pins of both tractors. Close the tractor doors to secure the paper.

NOTE: The red etch marks on the bail bar indicate the print area for a standard sheet of paper. Use these etch marks to help position the paper correctly.

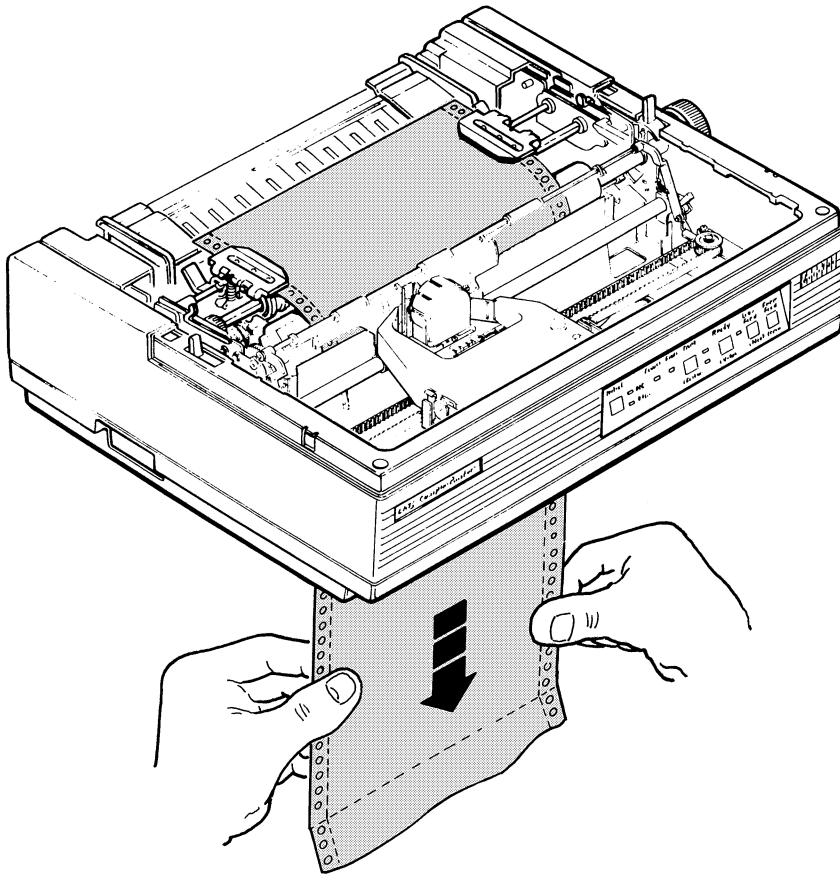


12. Adjust the right tractor by moving it to the right or left so that the paper is stretched taut between the two tractors. Lock both tractors in place by pushing the clamps toward the back of the printer.

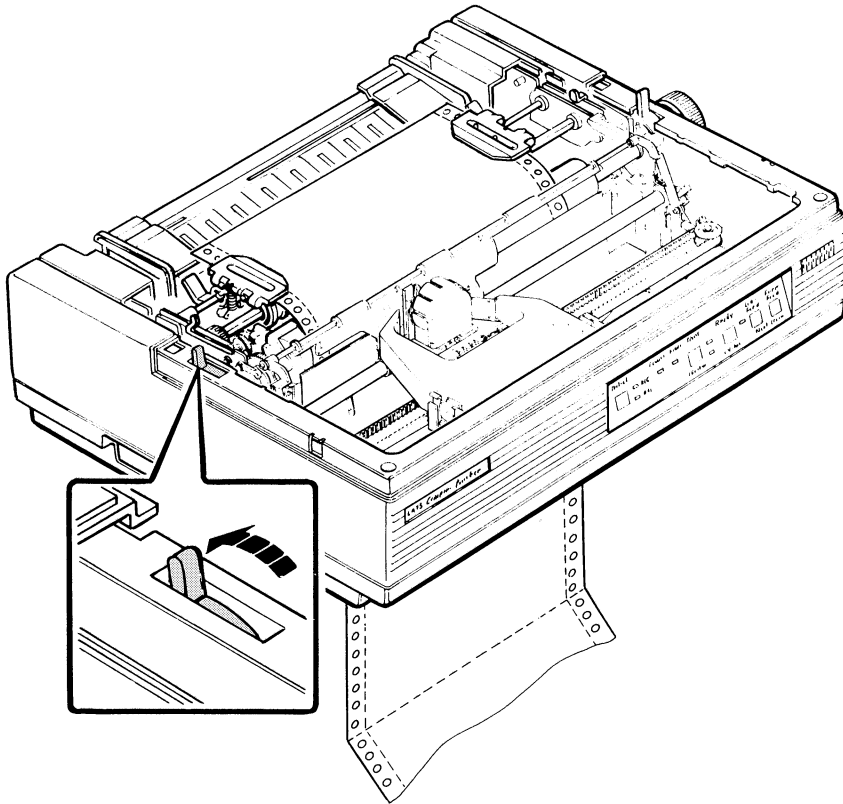
NOTE: If the paper is stretched too tightly, the side perforations will tear or the pin holes can enlarge.



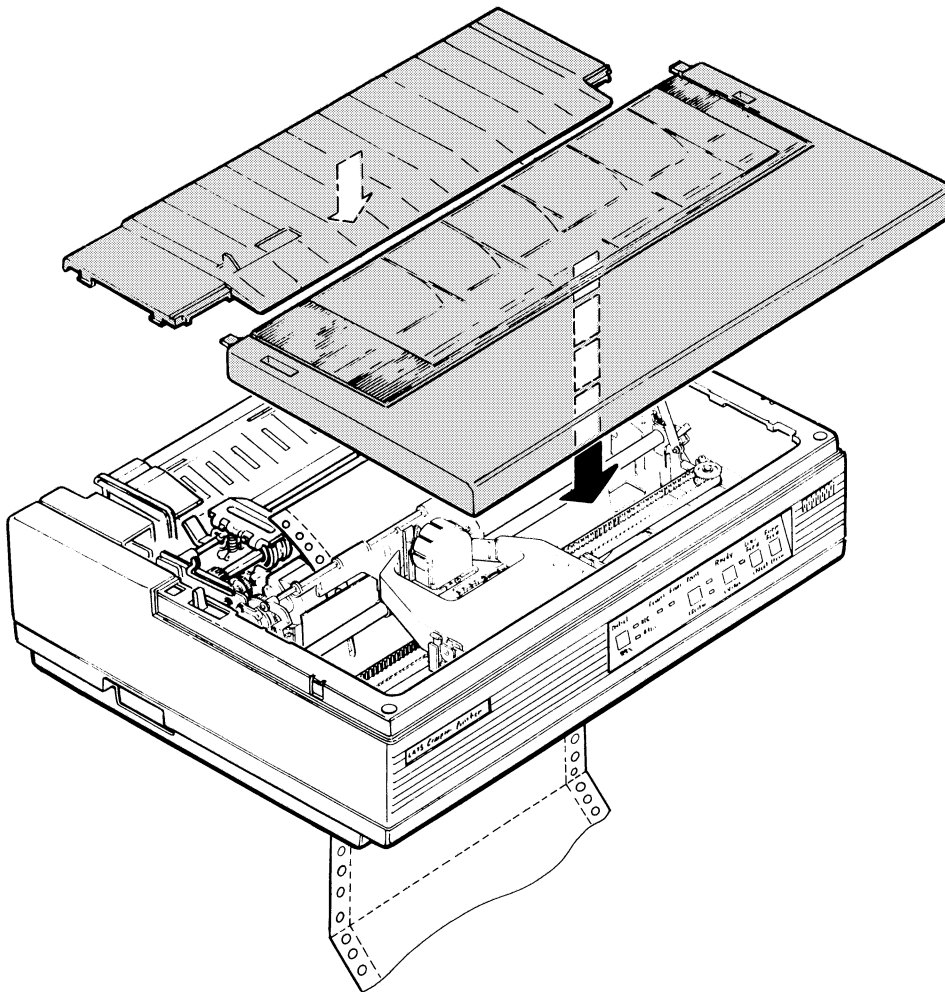
13. Adjust the paper by pulling it down from beneath the printer's bottom slot.



14. Move the bail bar lever toward the back of the printer so that the bail bar is against the paper and platen.



15. Replace the access cover and paper cover.

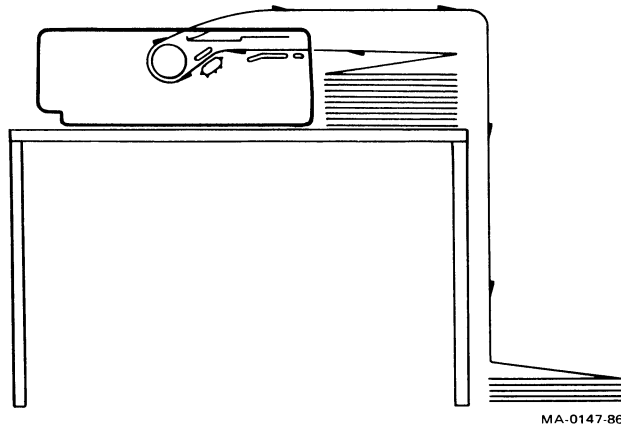


MA-0188-86

16. Use the platen knob to advance the paper to the print position.

You are now ready to print.

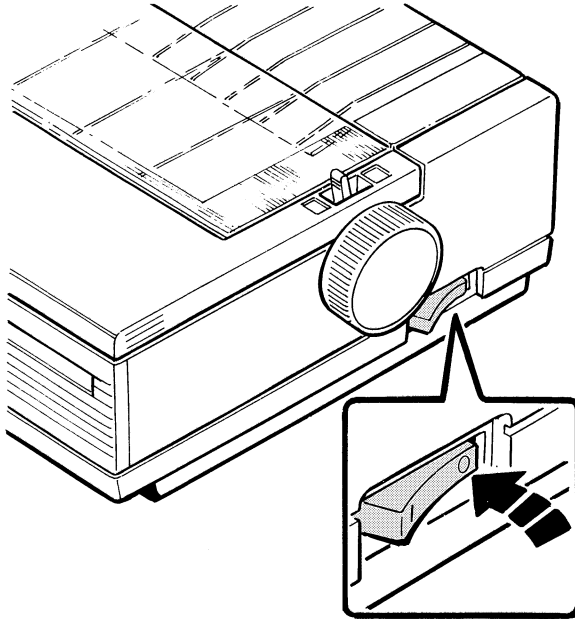
Rear Load (Pinfeed Paper – Tractors in the Push Position)



NOTE: *Digital recommends that you use only single-part paper for this method.*

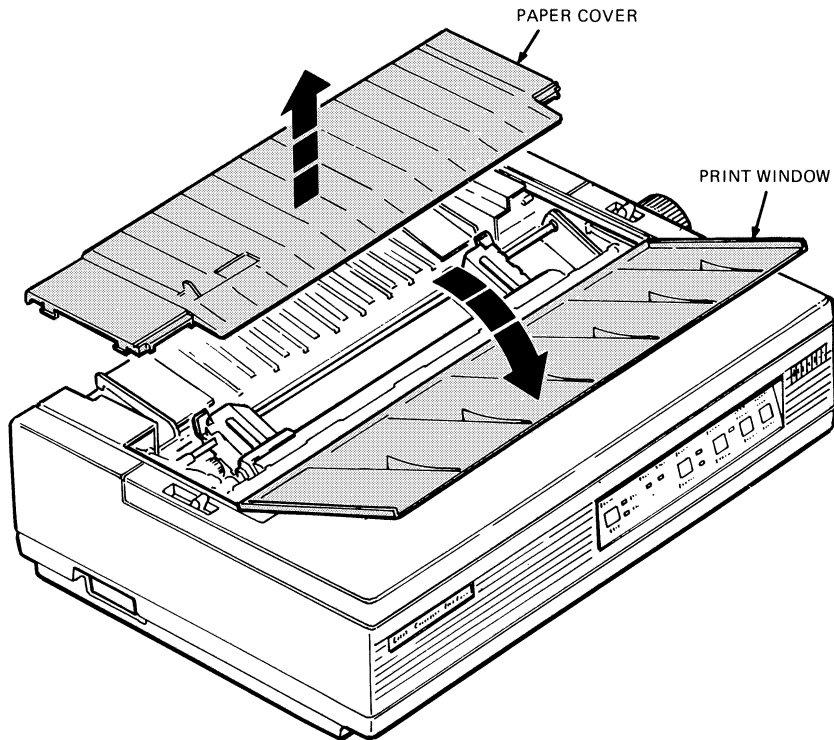
Steps 1 through 4 tell how to set the tractors in the push position.

1. Turn the power switch to 0 (off).



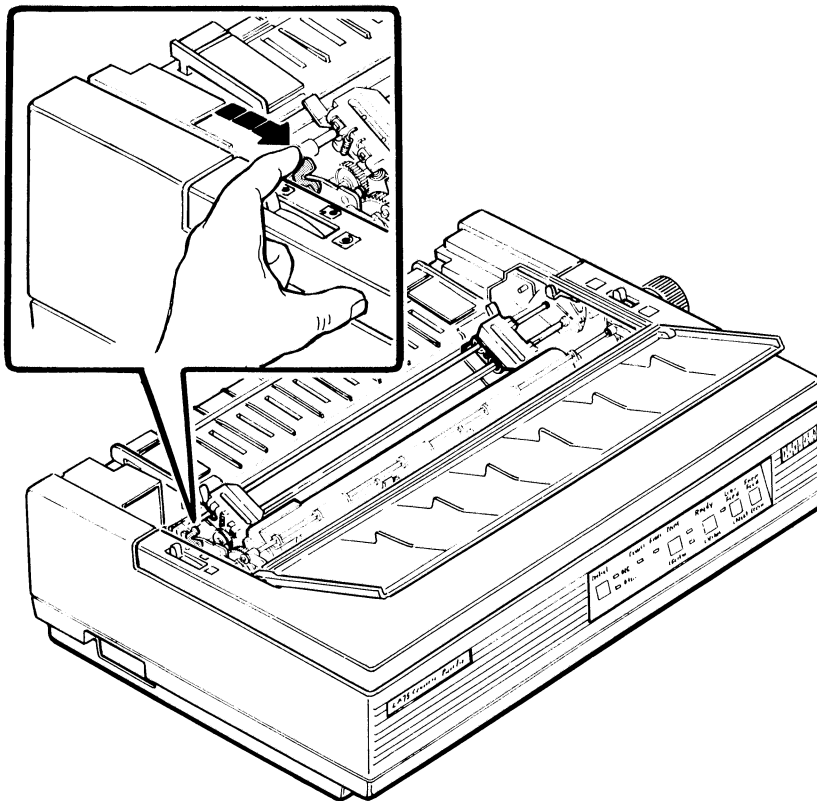
MA 0130-86

2. Open the print window and remove the paper cover.

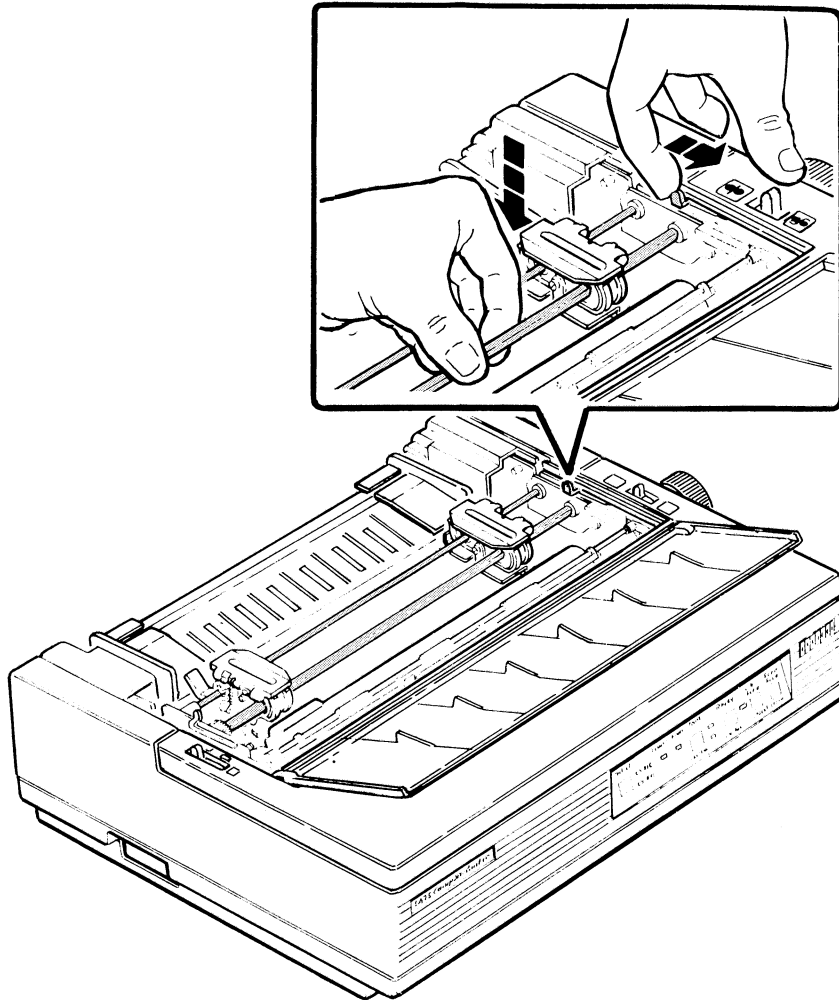


MA0133-86

3. Move the left tractor release lever toward the front of the printer until it locks.

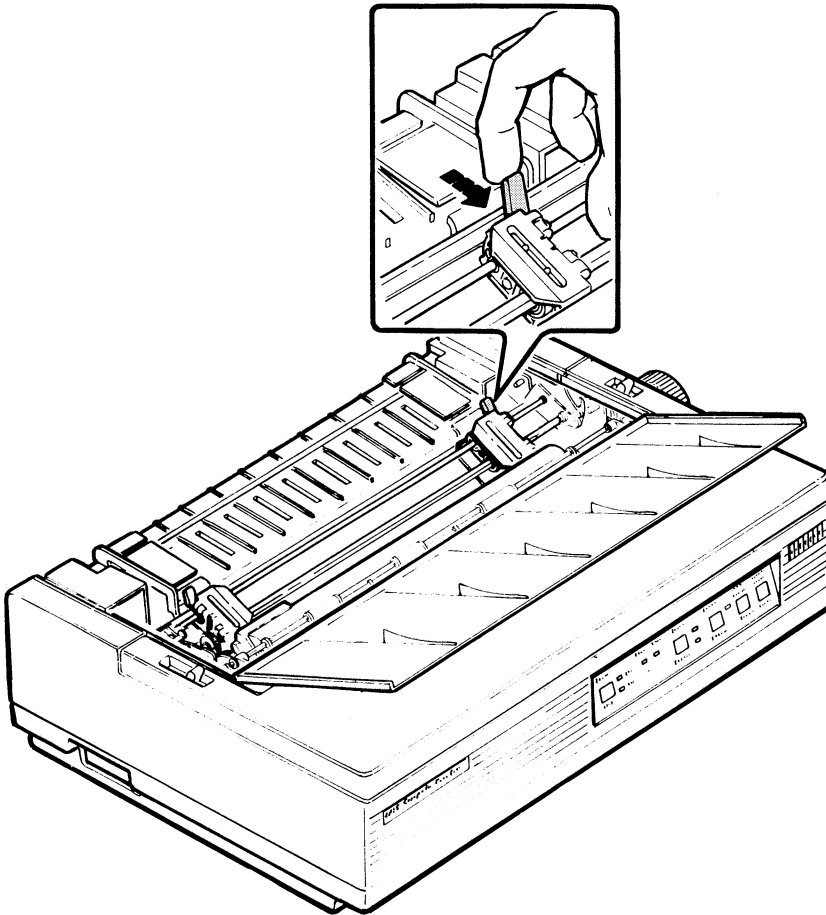


4. Move the right tractor release lever toward the front of the printer while pushing the tractor unit down. The tractors are now in the push position.

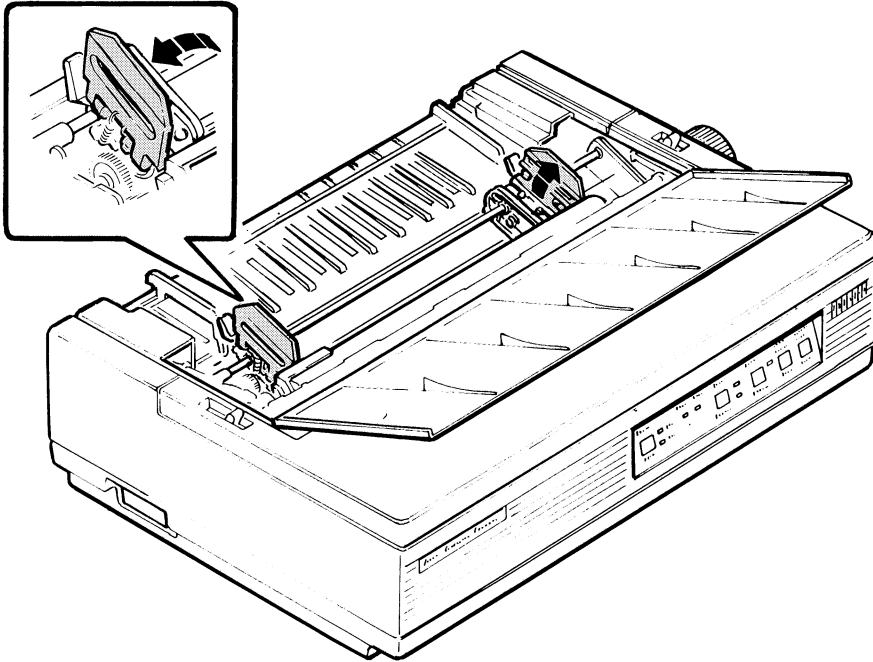


5. Unlock the clamp on the right tractor by pulling the clamp toward the front of the printer.

NOTE: Check that the left tractor is against the tractor stop. If it is not, unlock the left tractor clamp and move the tractor to the right until it stops. This enables the left edge of the paper (column 1) to line up correctly with the printhead when it starts printing.



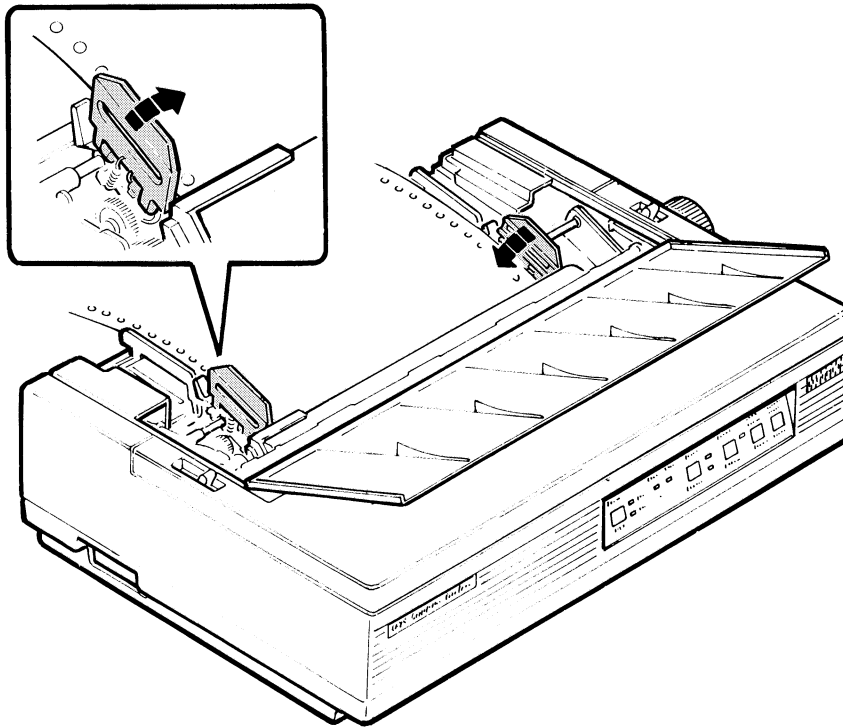
6. Open both tractor doors.



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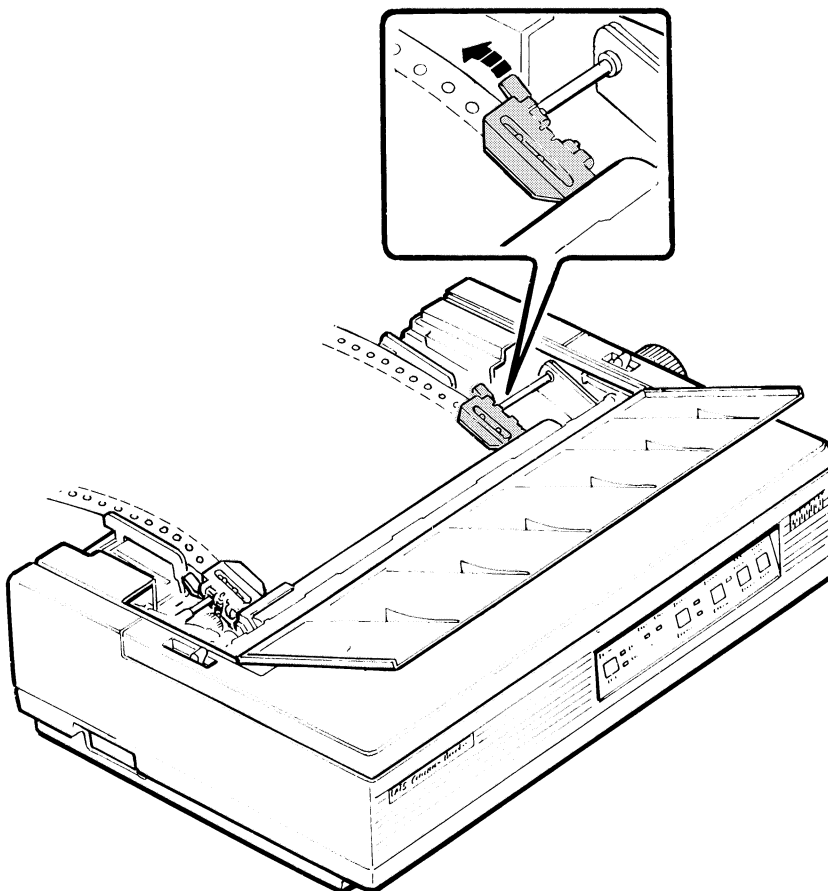
7. Align the pinfeed holes on both edges of the paper with the tractor pins of both tractors. Close the tractor door to secure the paper.

NOTE: The red etch marks on the bail bar indicate the print area for a standard sheet of paper. Use these etch marks to help position the paper correctly.

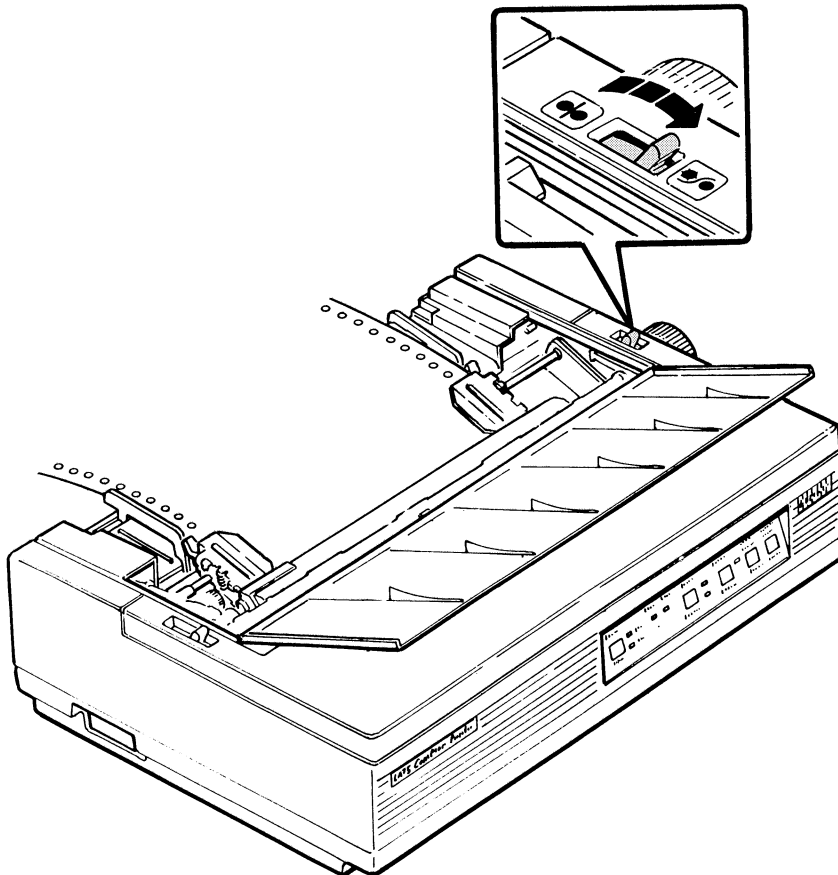


8. Adjust the right tractor by moving it to the right or left so that the paper is stretched taut between the two tractors. Lock the right tractor clamp by pushing the clamp toward the back of the printer.

NOTE: *If you stretch the paper too tightly, the side perforations will tear or the pin holes can enlarge.*



9. Move the paper release lever to the front of the printer to set the printer in tractor mode.

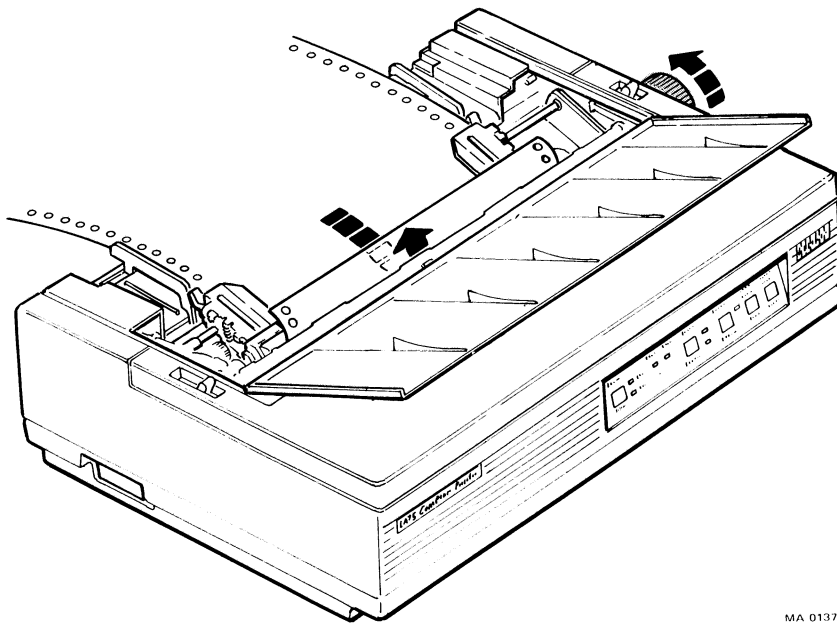


Moving the Paper to the Print Position

You can now advance the paper to the print position manually or automatically.

Advancing the Paper Manually

1. Turn the platen knob toward the back of the printer until the paper is in the print position.
2. Replace the paper cover. Close the print window.



MA 0137 86

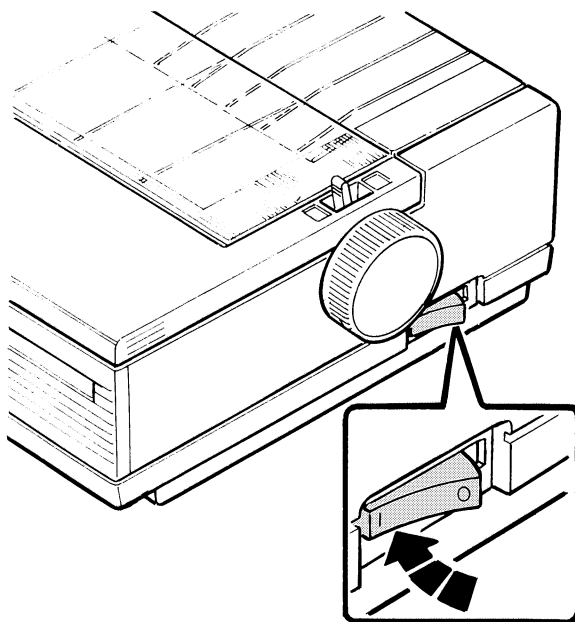
Activating the Automatic Paper Feed

1. Turn the power switch to 1 (on).

The Power and Fault indicators light.

The printhead moves to the center to the print position.

NOTE: If the Fault indicator does not light, the paper is too close to the platen. Turn the platen knob toward the back of the printer until the Fault indicator lights.

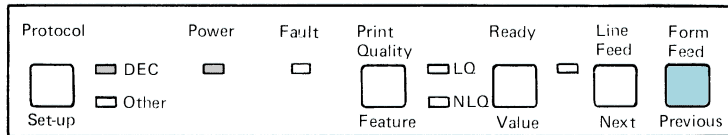


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CAUTION: Before performing step 2, make sure the bail bar is resting against the platen.

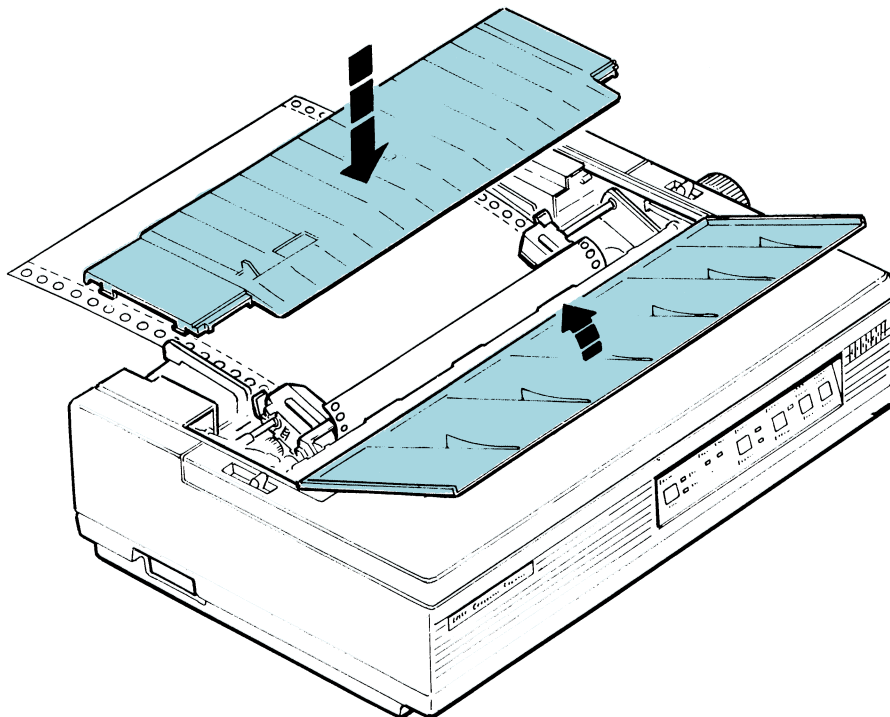
2. Press the Form Feed switch.

The paper automatically moves under the platen to the print position.



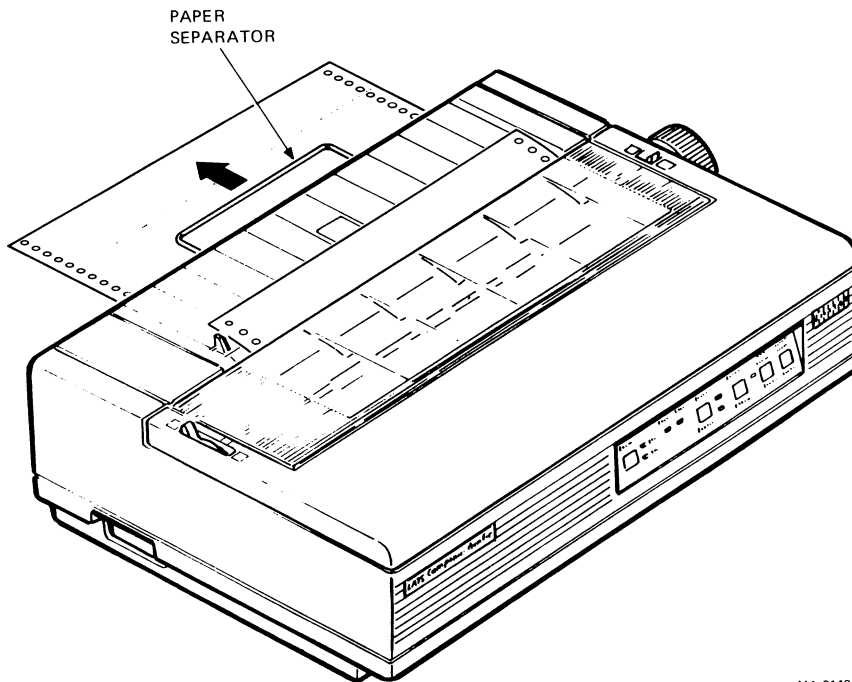
MA 0139 86

3. Replace the paper cover. Close the print window.



MA 0140 86

4. Pull out the wire paper separator.



MA 0143-86

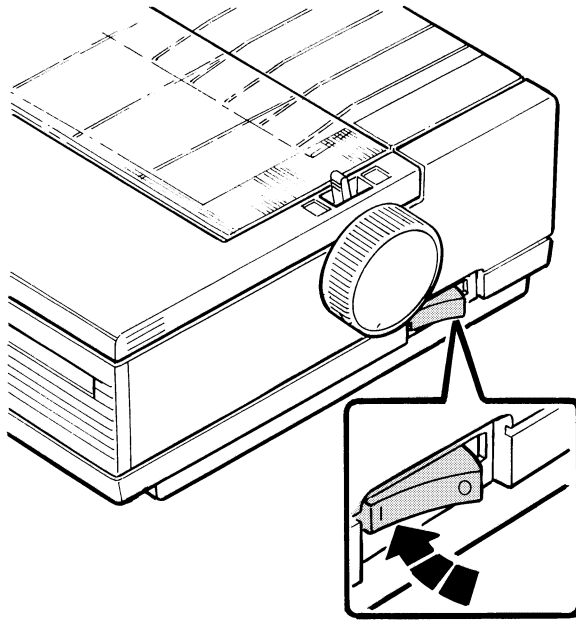
You are now ready to print.

Loading Single Sheets of Paper (With or Without Pinfeed Paper in the Printer)

NOTE: To print on a single sheet of paper with pinfeed paper already loaded, follow step 2 on page 72.

1. Turn the power switch to 1 (on).

The Power and Fault indicators light.

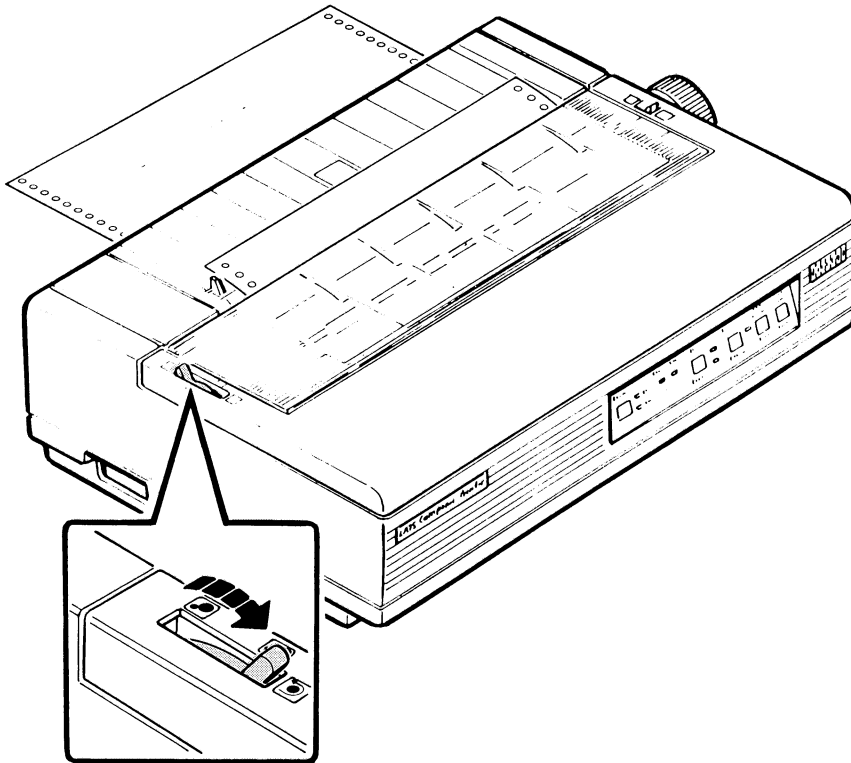


MA 0152 86

2. Back the pinfeed paper off the platen by pulling the bail bar lever all the way forward to the autopark position.

The paper backs out of the print position and remains in the tractors.

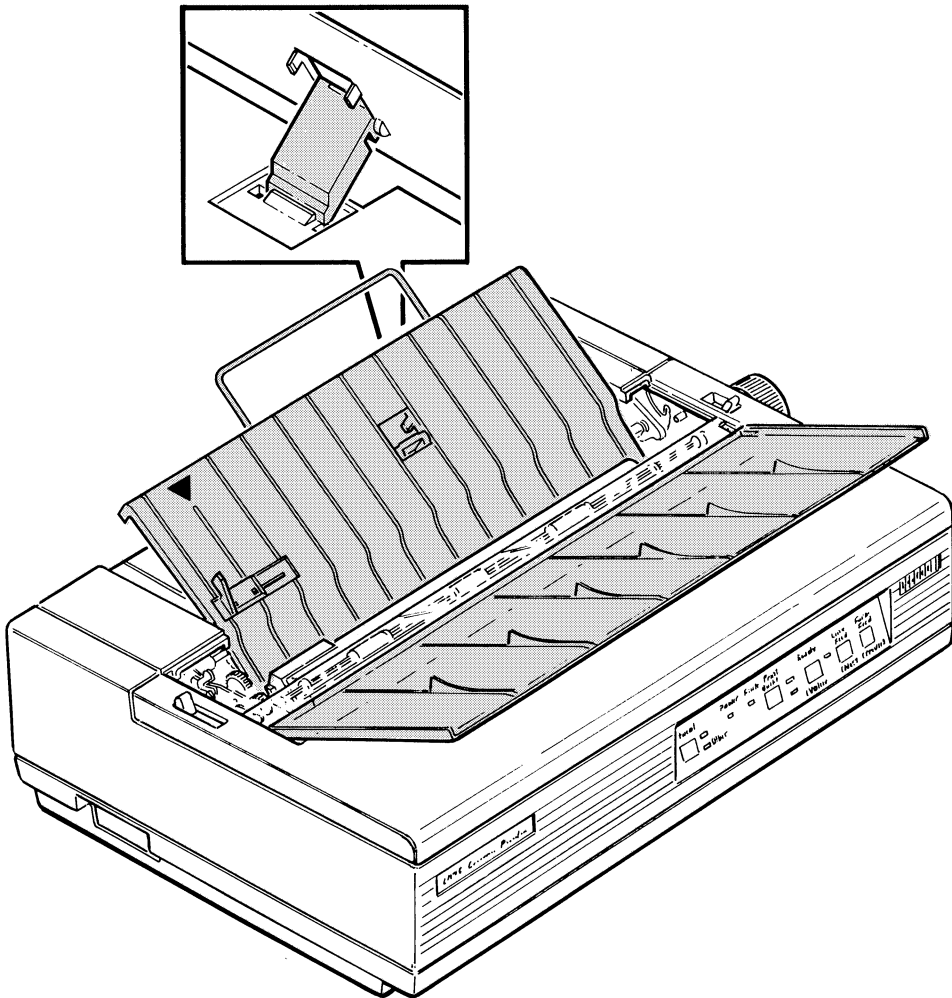
NOTE: The autopark feature allows you to back out only two pages (55.88 centimeters, 22 inches) at a time.



MA 0167-86

You are now ready to load a single sheet of paper.

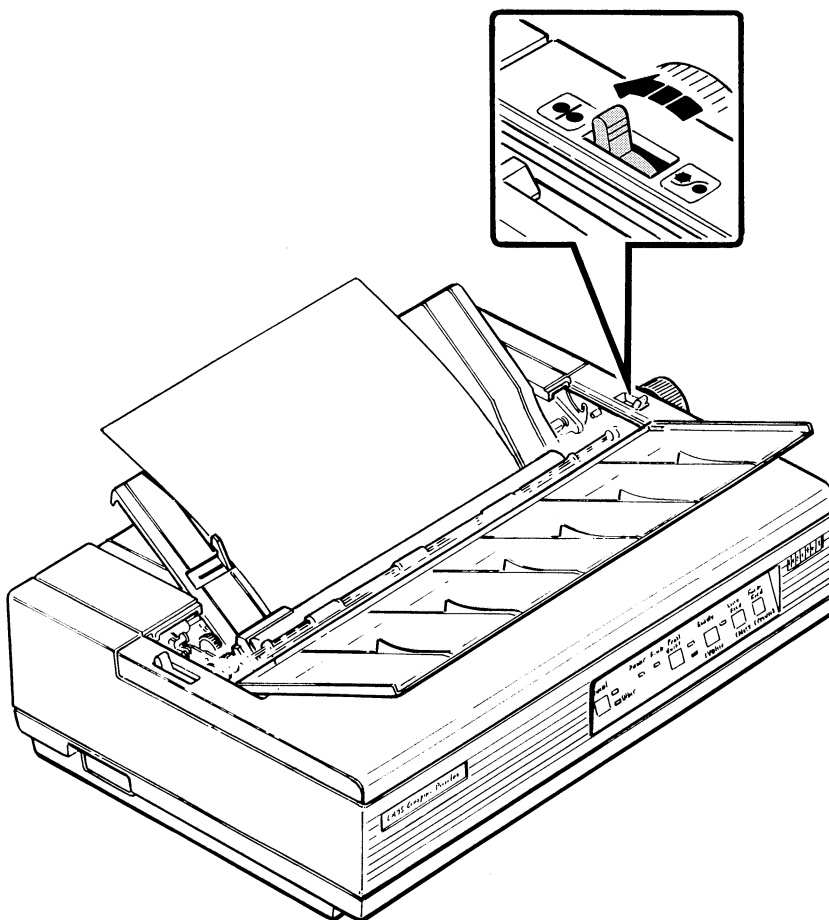
3. Open the print window.
4. Raise the paper guide and secure it in place. Pull out the paper separator.



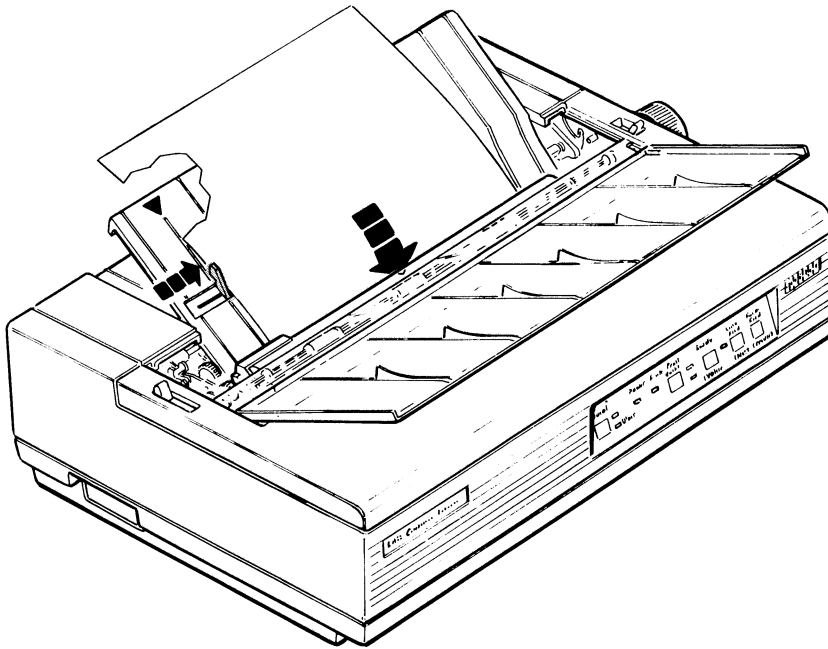
5. Move the paper release lever toward the back of the printer so that it is in friction mode.
6. Place a single sheet of paper on the paper guide so that the paper is resting just under the platen.

NOTE: The red etch marks on the bail bar indicate the print area for a standard sheet of paper. Use these etch marks to help position the paper correctly.

If the Fault indicator goes out when the paper is inserted, move the paper away from the platen until the Fault indicator lights.



7. Move the paper edge guide to the right until it is aligned with the arrow on the paper guide.



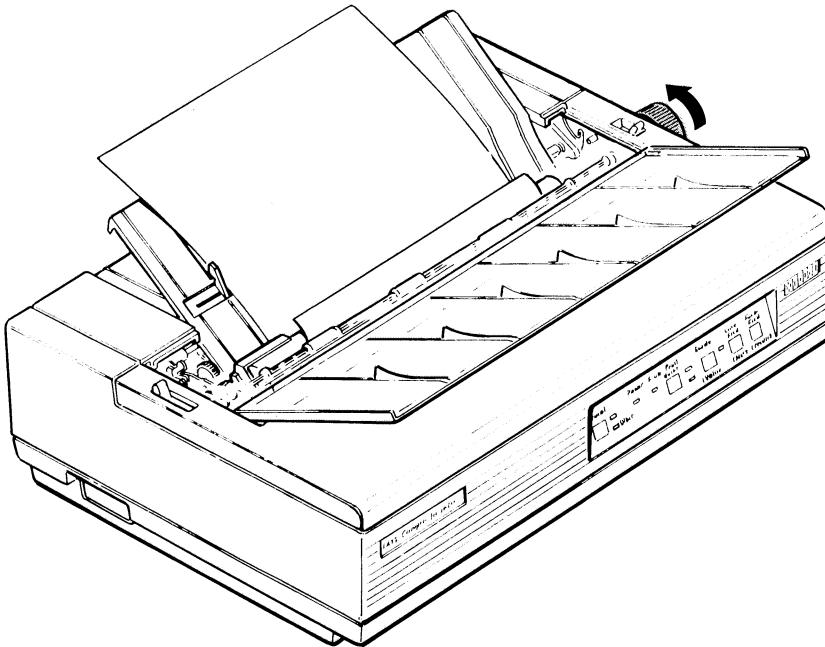
MA 0154-86

Moving the Paper to the Print Position

You can now advance the paper to the print position manually or automatically.

Advancing the Paper Manually

1. Turn the platen knob toward the back of the printer until the paper is in the print position.
2. Close the print window.

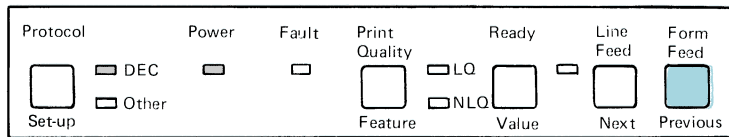


Activating the Automatic Paper Feed

CAUTION: Before performing step 1, make sure the bail bar is resting against the platen.

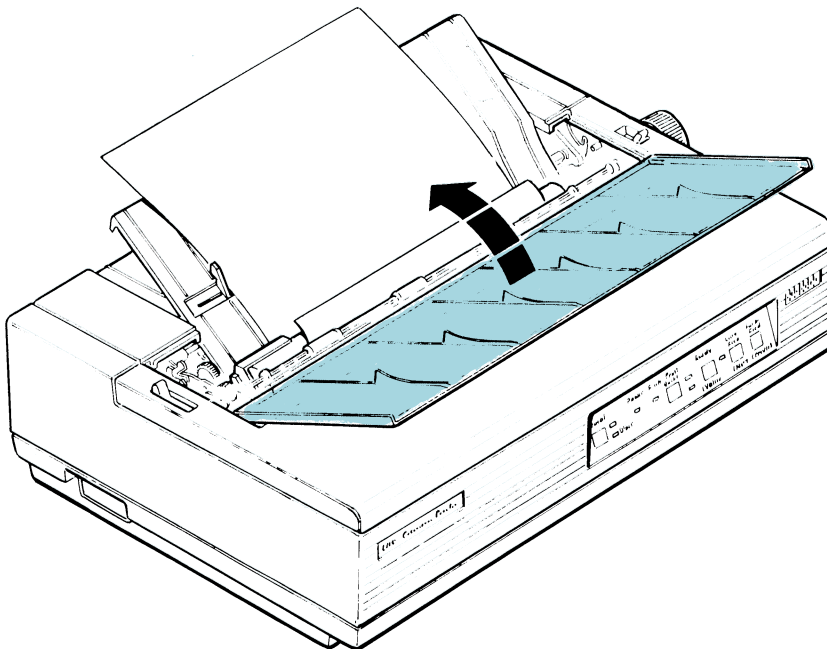
1. Press the Form Feed switch.

The paper automatically moves under the platen to the print position.



MA 0139-86

2. Close the print window.



MA 0156-86

You are now ready to print on the single sheet.

NOTE: To reload the pinfeed paper after you have finished printing on the single sheet, see *Rear Load (Pinfeed Paper)* in Chapter 3.

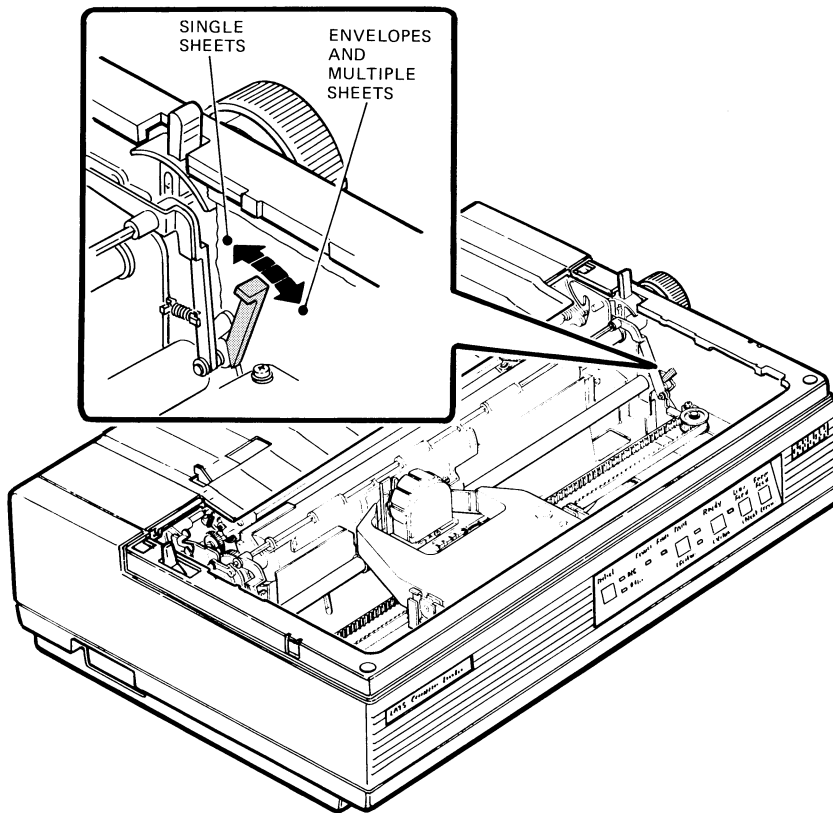
ADJUSTING THE PRINTHEAD FOR PAPER THICKNESS

For single-part pinfeed paper and single-sheet, hand-fed paper:

- Push the printhead adjustment lever all the way toward the platen.

For multipart paper or envelopes:

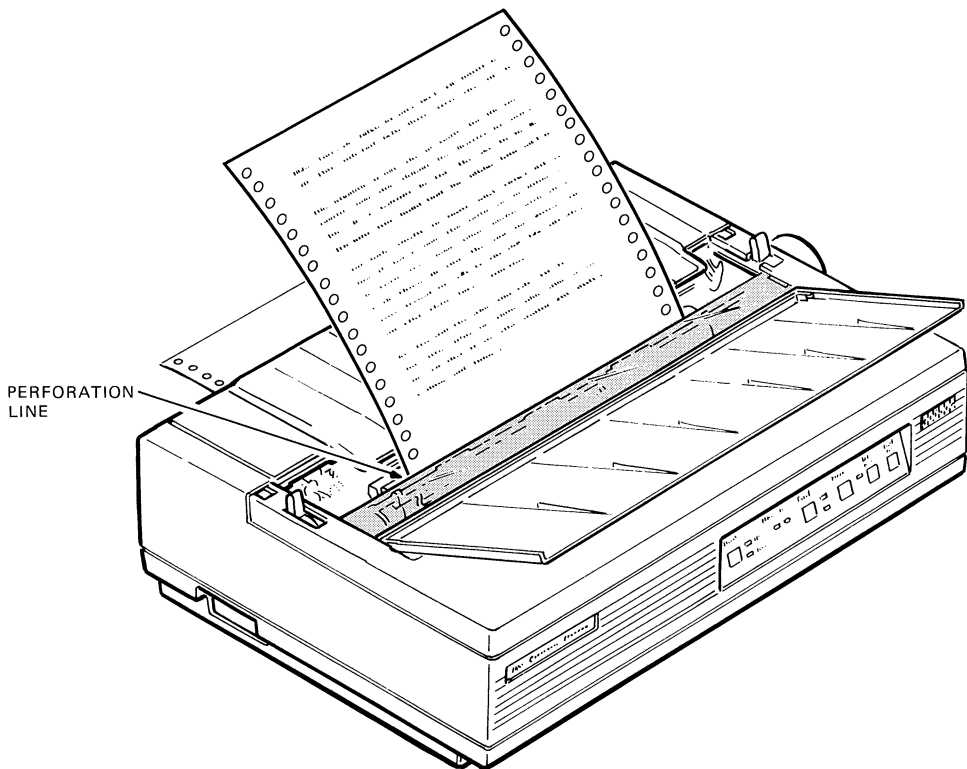
- Pull the lever toward the front of the printer.



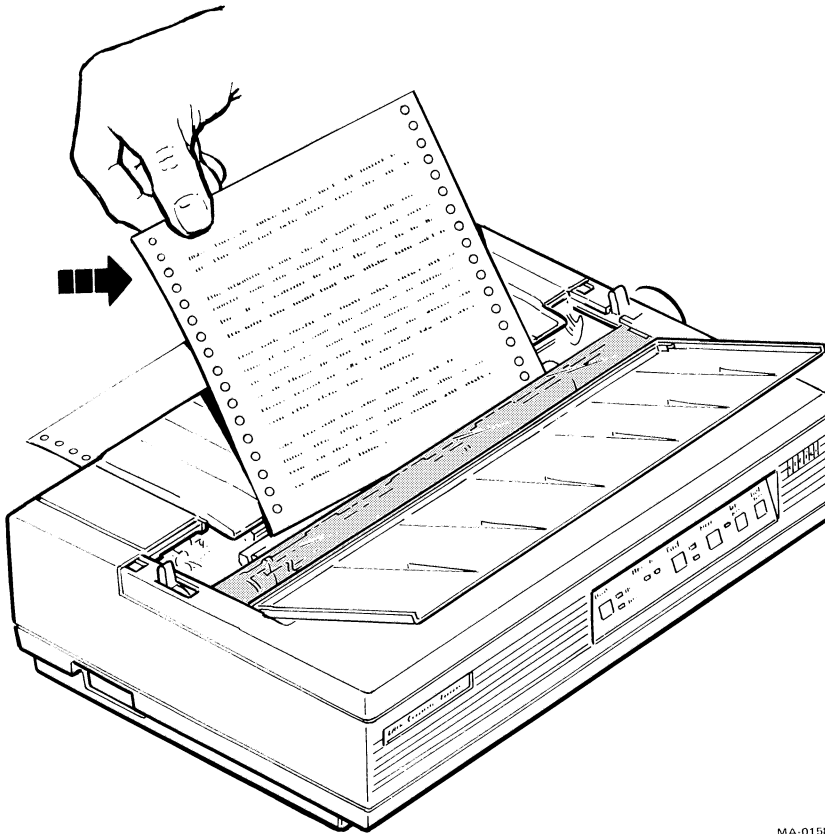
USING THE LOW TEAR BAR

The low tear bar allows you to tear off forms or paper one inch above the printhead. Use the low tear bar only with pinfeed paper fed from the back of the printer.

1. Print your file.
2. Open the print window.
3. Make sure that the horizontal perforations of the form or paper are just above the low tear bar. If they are not, press Line Feed until the perforations rest against the low tear bar.



4. Pull the paper or form across the low tear bar until the paper is detached from the next sheet.

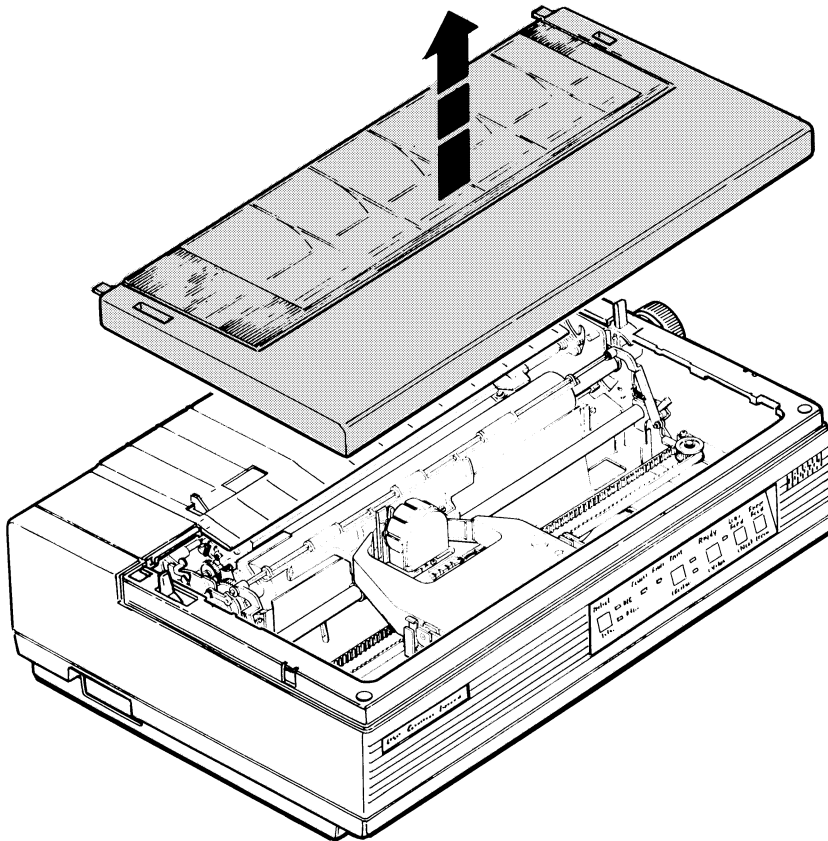


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5. Close the print window.

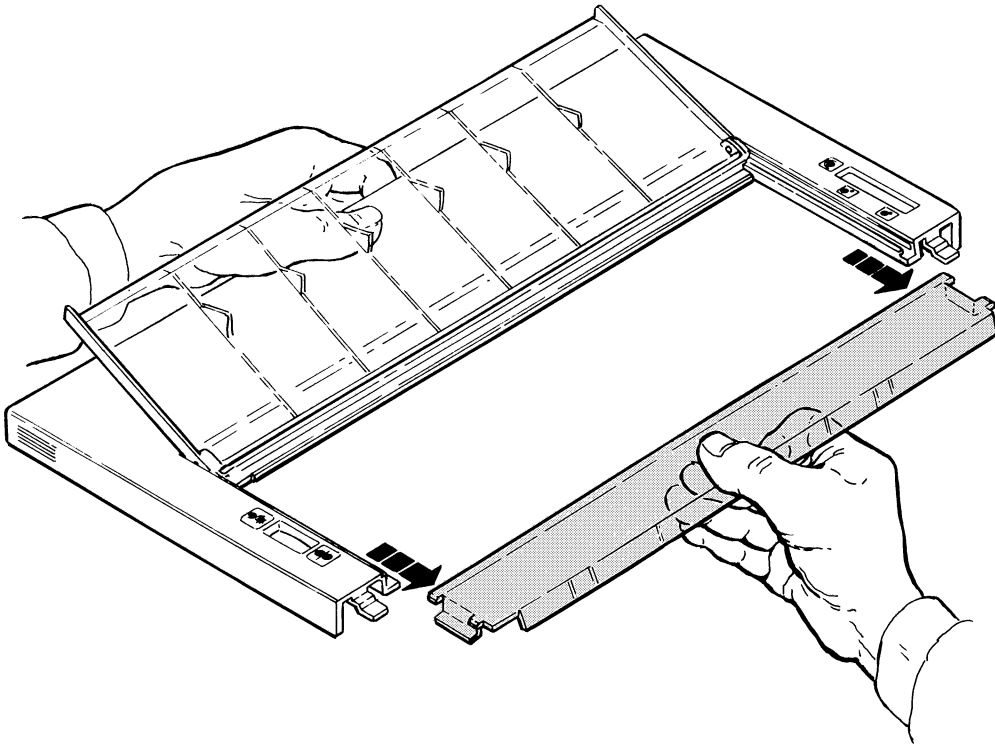
REMOVING THE LOW TEAR BAR

1. Remove the access cover from the printer.



MA-0159-86

2. Open the print window and slide the low tear bar off.



MA-0174-86

CONFIGURING THE PRINTER 4

This chapter explains how to configure the printer so that it can communicate with your computer.

What is Configuration?	84
Determining the Printer's Configuration	84
Table 4-1 Factory-Set Configurations	85
Set-Up Mode Controls and Indicators	86
Changing the Printer's Configuration	87
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Feature Select State	88
Saving New Values and Exiting Set-Up Mode	89
What Are Features and Values?	89
Table 4-2 LA75 Features, Values, and Factory Settings	92

WHAT IS CONFIGURATION?

In this chapter you will learn how to set-up, or configure, the printer so that your printer and computer can communicate with each other correctly.

Communication between the computer and the printer requires that both the computer operating system and the printer have the same communication settings, or features. The most important of these are baud rate, data bits and parity, and protocol. You may also need to change some of the printer's other features depending on your hardware and software requirements. (See Table 4-2 for a complete list of printer features.)

Set-up mode allows you to access the LA75's configuration memory. The memory stores a list of all the printer's features and values, as well as which values you have chosen to run the printer. The set-up controls, which are discussed in the following section, allow you to access set-up mode.

Determining the Printer's Configuration

Check your computer system's documentation to determine what your system requirements are for baud rate, data bits and parity, and protocol.

NOTE: VAXmate users consult your system administrator for printer set-up instructions.

Check to see what is programmed into your LA75's set-up memory by following these instructions.

1. Turn the power switch to 0 (off).
2. Press and hold the Set-up switch while you set the power switch to 1 (on).

The LA75 prints a list of what is in its set-up memory. Table 4-1 is an example of what information is stored in set-up memory.

3. Press the Set-up switch and turn off the power switch.
4. Compare the printer's current configuration with the requirements of your computer or video terminal. Read the following sections if you need to change the printer's set-up memory.

Table 4-1 Factory-Set Configurations

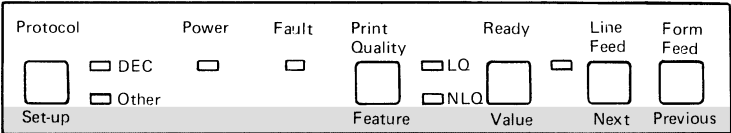
LA75-S Code Version 1.0

Feature	Value
1 Baud Rate	7 4800
2 Data Bits and Parity	7 8-None
3 Protocol	1 DEC
4 Form Length	2 11 inches
5 Character Set (DEC)	1 U.S. ASCII
6 Supplemental Character Set (DEC)	1 DEC Supplemental
7 Print Density (DEC)	1 Draft
8 Printer ID (DEC)	1 LA50 ID
9 Text Mode Right Margin (DEC)	1 Truncate
10 Auto LF on CR (DEC)	2 NO Auto LF
11 Auto CR on LF (DEC)	2 NO Auto CR
12 CAN Control Code (DEC)	1 Cancel Control Functions
13 80 or 132 Columns (DEC)	1 80 Columns
14 Paper Out Bell (Emulation)	2 On
15 Slashed Zero (Emulation)	2 Zero without slash
16 Auto LF on CR (Emulation)	2 No auto LF
17 Active Character Set (Emulation)	1 Graphics set A
18 Auto CR on LF (Emulation)	2 No auto CR
19 Power-up Density (Emulation)	1 Draft
20 LQ or NLQ (Emulation)	1 Select NLQ
1 Baud Rate	7 4800

MA 0170-86

SET-UP MODE CONTROLS AND INDICATORS

In set-up mode, the control panel performs the functions that appear in dark gray letters below the switches.



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Set-up

Pressing the Set-up switch while turning the printer on puts the printer in set-up mode. After you have changed the printer's configuration, pressing the Set-up switch allows you to save the new values and exit set-up mode.

Feature

Pressing the Feature switch puts the printer in feature select state.

Value

Pressing the Value switch changes the printer from feature select state to value select state.

Next

Pressing the Next switch lists and steps through the next feature or set of values when you are setting the printer's configuration. Each time you press the Next switch, the printer advances one feature or value.

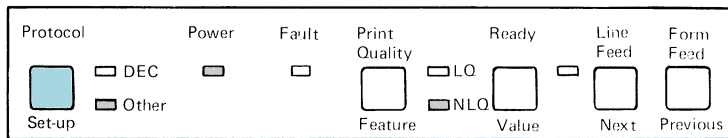
Previous

Pressing the Previous switch allows you to go back one feature or value when you are setting your printer's configuration. Each time you press the Previous switch, the printer goes back one feature or value.

Changing the Printer's Configuration (Set-Up Mode)

NOTE: Before beginning the set-up procedure, make sure the power switch is set to 0 (off) and that paper is advanced to the print position.

1. Press and hold the Set-up switch while setting the power switch to 1 (on).

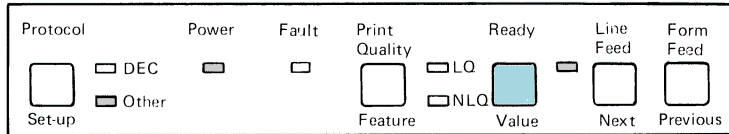


MA 0139 86

2. The green Power indicator lights. The Other and the NLQ indicators flash.
3. The printer automatically does the following:
 - Prints a list of the features and values stored in its memory (Table 4-1).
 - Enters feature select state (the indicator next to NLQ flashes).
 - Prints the first feature in the list (baud rate) and its value.
4. Press the Next switch to see the next feature or the Previous switch to see the previous feature.
5. Press the Value switch to enter value select state if you want to change the value for the first feature, or any other feature.

Value Select State

1. Press the Value switch.



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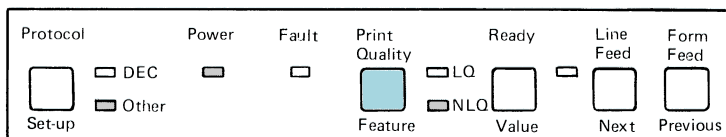
NOTE: The indicator to the right of the Value switch begins flashing; the NLQ indicator stops flashing.

2. Press the Next switch or the Previous switch to see the next or previous value.
3. Stop at the value you want to select.

Now you can return to feature select state to list the next feature and its value.

Feature Select State

1. Press the Feature switch.



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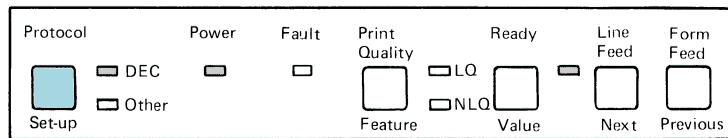
NOTE: The indicator to the right of the Value switch stops flashing; the NLQ indicator begins flashing.

2. Press the Next switch or the Previous switch to list the next or previous feature and its current value.
3. Stop at the feature whose value you want to change. Enter value select state by pressing the Value switch.

Saving New Values and Exiting Set-Up Mode

1. Press the Set-up switch once to store your set-up changes in the printer's memory.

NOTE: At this time, either the DEC indicator or the Other indicator flashes, depending on which value you selected for the feature Protocol.



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2. The printer automatically returns to print mode.

NOTE: If the power is turned off before the Set-up switch is pressed, no changes are stored in the printer's memory.

WHAT ARE FEATURES AND VALUES?

The LA75 has 20 features or functions stored in its set-up memory. Each of the features has at least two values (Table 4-2). A value is an option or choice within each feature.

When you are in set-up mode, you can change the value for any feature. Changing the set-up memory changes the way the printer runs and how it communicates with your host computer.

An example will help to show the difference between a feature and a value.

The set-up menu gives you eight choices for the baud rate feature. Baud rate is the speed at which the printer can receive data from your host computer. The printer's baud rate is factory set at 4800 bits per second.

Suppose that your host computer's baud rate is set at 1200 bits per second. To have accurate communication between your host computer and the printer, you must change the LA75's baud rate value from 4800 to 1200.

In this example, baud rate is the feature; 4800 and 1200 are the values.

Features 1 through 4

Features 1 through 4 set the values for baud rate, data bits and parity, form length, and protocol. Read your host computer's user guide (or equivalent manual) to determine the correct settings for your computer.

1. **Baud Rate** is the speed (bits per second) at which the computer and the printer communicate.
2. **Data bits and parity** determine the format the printer uses to communicate with the host computer.
3. **Protocol** determines with what host computer the LA75 is compatible. Value 1 (DEC) sets the printer to communicate and be compatible with Digital's computers. Value 2 (Other) sets the printer to act like the IBM Proprinter.
4. **Form length** allows you to define the page length to be either 11 or 12 inches.

Features 5 through 13 DEC Protocol

Features 5 through 13 are active if you have selected DEC for the Protocol feature.

5. **Character set** (1 through 16) defines the alphanumeric character sets with which your files are printed. Choose the character set you usually use to develop your files.
6. **Supplemental character set** allows you to choose one of four character sets: DEC supplemental, ISO supplemental, DEC technical, and Katakana.
7. **Print density** defines the quality of print (number of dots per character). The print densities are draft, memo, near letter quality, and letter quality.
8. **Printer ID** defines the device name used by the printer when responding to requests from your host computer, or application software. LA50 ID allows the printer to respond as an LA50. LA210 ID allows it to respond as an LA210. Conformance level 2 allows it to respond as a level 2 device (functionally equivalent to LA210 printer).

9. **Text mode right margin** controls the processing of characters that go beyond the right margin. Truncate ignores the characters in a line that exceeds the right margin. Wrap prints the characters that exceed the right margin on the next line beginning at the left margin.
10. **Auto line feed on CR** determines whether the printer automatically advances the paper one line when the carriage return control character is received.
11. **Auto carriage return on LF** determines whether the printer automatically performs a carriage return when the line feed control character is received.
12. **CAN control code** allows you to cancel any current active control function or to erase the input buffer.
13. **80 or 132 columns** allows you to select print line width – 80 (10 characters per inch) or 132 (16.5 characters per inch) columns.

Features 14 through 20 Other Protocol (IBM Emulation)

Features 14 through 20 are active if you select Other for the protocol feature. These features let the LA75 emulate, or act like, the IBM Proprinter.

14. **Paper-out bell** determines if the printer will sound a bell, when it detects a paper-out signal.
15. **Slashed zero** gives you the choice of defining how the zero is printed: with or without a slash through it.
16. **Auto line feed on CR** determines whether the printer automatically advances the paper one line when the carriage return control character is received.
17. **Active character set** defines which graphics character set the printer uses. Set A is a national set. Set B is a graphics and multinational set.
18. **Auto carriage return on LF** determines whether the printer automatically performs a carriage return when the line feed control character is received.

19. **Power-up density** determines the print quality the printer provides when it is turned on (power-up). It can be draft (250 char/s), or print quality as defined by the value of feature 20 (LQ or NLQ).

20. **LQ** or **NLQ** defines the print quality and is selected through emulation software. It also defines the value of feature 19 (power-up density).

NOTE: Some of these 20 features can be overridden by software controls (Table 4-2).

Table 4-2 LA75 Features, Values, and Factory Settings

Feature Number	Feature	Software Controlled	Value Number	Value
1	Baud rate	No	1	110
			2	200
			3	300
			4	600
			5	1200
			6	2400
			7	4800*
			8	9600
2	Data bits and parity	No	1	7-Even
			2	7-Odd
			3	7-Space
			4	7-Mark
			5	8-Even
			6	8-Odd
			7	8-None*
3	Protocol	Yes	1	DEC*
			2	Other
4	Form length	Yes	1	12 inches
			2	11 inches*
*Factory-set value.				

Table 4-2 LA75 Features, Values, and Factory Settings (Cont)

Feature Number	Feature	Software Controlled	Value Number	Value
5	Character set (DEC)	Yes	1	U.S. ASCII*
			2	Great Britain
			3	DEC Finland
			4	France
			5	DEC French Canada
			6	Germany
			7	Italy
			8	JIS Roman
			9	DEC Norway/Denmark
			10	Spain
			11	DEC Sweden
			12	Norway/Denmark
			13	DEC Dutch
			14	DEC Swiss
			15	DEC Portugal
			16	(Reserved)
6	Supplemental character set (DEC)	Yes	1	DEC supplemental*
			2	ISO supplemental
			3	DEC technical
			4	Katakana
7	Print density (DEC)	Yes	1	Draft*
			2	Memo
			3	NLQ
			4	LQ
8	Printer ID (DEC)	Conformance level I.D. only	1	LA50 ID*
			2	LA210 ID
			3	Conformance Level 2
9	Text mode right margin (DEC)	Yes	1	Truncate*
			2	Wrap
10	Auto LF on CR (DEC)	Yes	1	Auto LF on CR
			2	No auto LF*
11	Auto CR on LF (DEC)	Yes	1	Auto CR on LF
			2	No auto CR*

Table 4-2 LA75 Features, Values, and Factory Settings (Cont)

Feature Number	Feature	Software Controlled	Value Number	Value
12	CAN control Code (DEC)	No	1	Cancel control functions*
			2	Kill buffer
13	80 or 132 columns (DEC)	Yes	1	80 columns*
			2	132 columns
14	Paper-out bell (Emulation)	Yes	1	Off
			2	On*
15	Slashed zero (Emulation)	No	1	Zero with slash
			2	Zero without slash*
16	Auto LF on CR (Emulation)	Yes	1	Auto LF on CR
			2	No auto LF*
17	Active character set (Emulation)	Yes	1	Graphics set A*
			2	Graphics set B
18	Auto CR on LF (Emulation)	No	1	Auto CR on LF
			2	No auto CR*
19	Power-up density (Emulation)	Yes	1	Draft*
			2	LQ or NLQ
20	LQ or NLQ (Emulation)	No	1	Select NLQ*
			2	Select LQ

*Factory-set value.

5

MAINTAINING THE PRINTER

This chapter describes how to keep the printer clean, replace the ribbon cartridge and the fuse, and install or replace the printhead. Table 5-1 is a troubleshooting checklist that can help you identify and correct simple problems and possibly save a service call.

General Maintenance	96
Correcting Simple Problems	97
Table 5-1 Troubleshooting Checklist	98
Removing and Replacing the Ribbon Cartridge	102
Removing and Replacing the Printhead	108
Removing and Replacing the Fuse	112

GENERAL MAINTENANCE

The printer does not need preventive maintenance. Clean its surface with a damp cloth only. Clean the platen with Digital-recommended cleaner only (see Appendix A for ordering information). Do not use excessive water or cleaners with solvents.

Office Area

To maintain correct operating temperatures, keep the printer away from extreme temperatures, such as direct sunlight, room heaters, and air conditioners.

Keep paper clips, matches, coffee, and cold drinks away from the printer.

Paper

Select the correct kind of paper for the job. Always make sure to position paper squarely and set it tightly around the platen. Also make sure the printhead adjustment lever is in the correct position (page 78). See Appendix C for paper specifications. To remove paper from the printer, use the Form Feed switch or turn the platen knob.

Ribbon Cartridge and Printhead

Keep samples of early printouts to help you know when to replace the ribbon cartridge and printhead. Use only Digital-approved ribbon cartridges in the printer. Other cartridges may not give the same performance and may damage the printer. See page 102 for information on how to replace the ribbon cartridge and page 108 for information on how to replace the printhead. See Table 5-1 for tips on how to know when to replace the ribbon cartridge and printhead or when to contact your service representative.

Store ribbon cartridges and printheads in their containers in the same environment as the printer (Appendix C).

CORRECTING SIMPLE PROBLEMS

Table 5-1, Troubleshooting Checklist, shows you how to correct many simple printer problems without calling for service. Always check this table before calling for service.

If you have a problem, follow these steps.

1. Find the description of the problem on the Troubleshooting Checklist.
2. Read the probable causes for that problem.
3. Follow the suggested solutions for each probable cause.

NOTE: The probable causes are listed in the order of what is most likely to be the cause, to what is least likely to be the cause.

If you cannot find your problem in the checklist, or if you cannot solve the problem, follow these steps.

1. Turn the power switch to 0 (off).
2. Do not try to make internal repairs.
3. Contact the nearest Digital service center, or your sales representative.

Appendix B describes Digital's repair and support services.

Table 5-1 Troubleshooting Checklist

Problem	Probable Cause	Suggested Solution
No Power		
Printer does not start when you turn power on.	Power source is defective	Check power at outlet.
	Power cord is not connected or is broken.	Check power cord connections.
		Check power cord for damage.
	Fuse is blown.	Replace fuse (page 112). If the fuse blows again, call Digital service.
No Printout		
Ready indicator is lit, but the printer is not printing.	Printer communications cable is not installed correctly.	Check cable connections at the printer and computer.
	Protocol setting may be incorrect.	Power off printer. Power on printer and choose protocol setting to match printing application.
Ready indicator is off. Fault indicator is off.	Printer is off-line.	Press the Ready switch to put the printer on-line.
	Access cover is open.	Close the access cover. Press Ready.
Fault indicator is lit but not blinking.	Printer is out of paper, or paper is not inserted correctly.	Reload paper, then press Ready.
Carriage vibrates. Fault indicator is lit.	Printhead carriage path is blocked.	Open access cover. Remove the obstruction. Close access cover, then press Ready.

Table 5-1 Troubleshooting Checklist (Cont)

Problem	Probable Cause	Suggested Solution
Carriage moves, but printer does not print.	Ribbon is behind the printhead.	Adjust the ribbon, then press Ready.
	Ribbon is not installed.	Install the ribbon, then press Ready.
	Printhead adjustment is too far back.	Check printhead adjustment.
Printer does not start and Ready indicator is off. Pressing Ready does not turn the indicator on.	Access cover is open.	Close the access cover, then press Ready.
When power is turned on, the carriage stays to the left home position and the Fault light blinks.	Internal problem.	Call Digital service (Appendix B).
Poor Printing		
Print quality is poor.	Paper is not the recommended type.	Use Digital-recommended paper (Appendix C).
	Ribbon is not the recommended type.	Use Digital-recommended ribbon (Appendix C).
	Ribbon cartridge is not mounted correctly; ribbon cartridge is old or defective.	Adjust or replace the ribbon cartridge.
	Printhead is too far from paper.	Adjust printhead adjustment lever for single, multipart sheets or envelopes, as required.
	Printhead is defective.	Replace printhead (page 108).

Table 5-1 Troubleshooting Checklist (Cont)

Problem	Probable Cause	Suggested Solution
Blank spaces (missing dots) are in horizontal row of characters.	Internal failure.	Call Digital service (Appendix B).
	Printhead is worn.	Replace the printhead (page 108). Also see Appendix B for service information.
Print lines overlap.	Paper path is obstructed.	Clear paper path.
Printed pages have garbled characters.	You have not chosen the correct values for your host computer.	Check the features menu stored in the printer's memory, especially baud rate, data bits and parity, and protocol (page 85).
		If necessary, reselect the correct features and values for your host computer (page 84).
Printer prints characters at a slant, paper tears or jams, or paper does not move.	Paper release lever is not in the correct position.	Set the lever to the correct position (page 39).

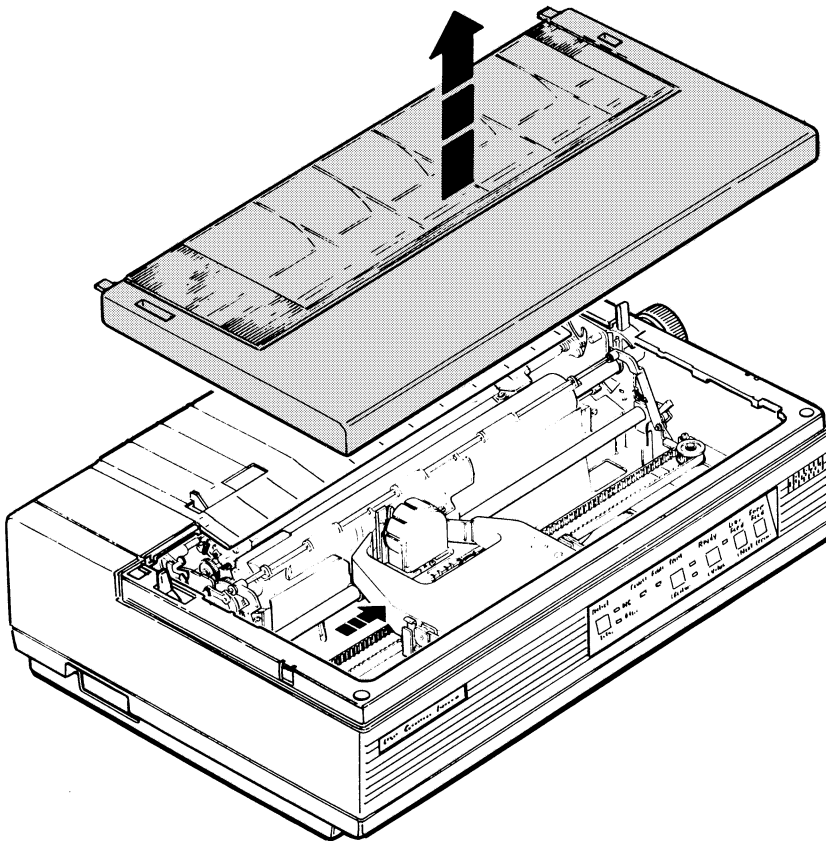
Table 5-1 Troubleshooting Checklist (Cont)

Problem	Probable Cause	Suggested Solution
Paper Problems		
Paper jams. Fault indicator is off.	Paper path is obstructed.	Clear the paper path.
	Pinfeed paper holes are not seated in the tractor pins.	Adjust the paper.
	Tractors are not in the correct position for paper width.	Unlock and move the tractors (page 44). Avoid stretching or wrinkling the paper.
	Paper release lever is not in correct position.	Move paper release lever to correct position.
Paper jams; Fault indicator is on.	Paper path is obstructed.	Clear paper path; remove jammed paper.
	Paper release lever is not in correct position.	Move paper release lever to correct position.
Printer stops and the Fault indicator lights. Pressing Ready causes the printer to print one line.	Printer is out of paper.	Reload paper and press Ready.
Fault indicator blinks.	Internal problem.	Turn power off, then on. If the Fault indicator continues to blink, call Digital service (Appendix B).

REMOVING AND REPLACING THE RIBBON CARTRIDGE

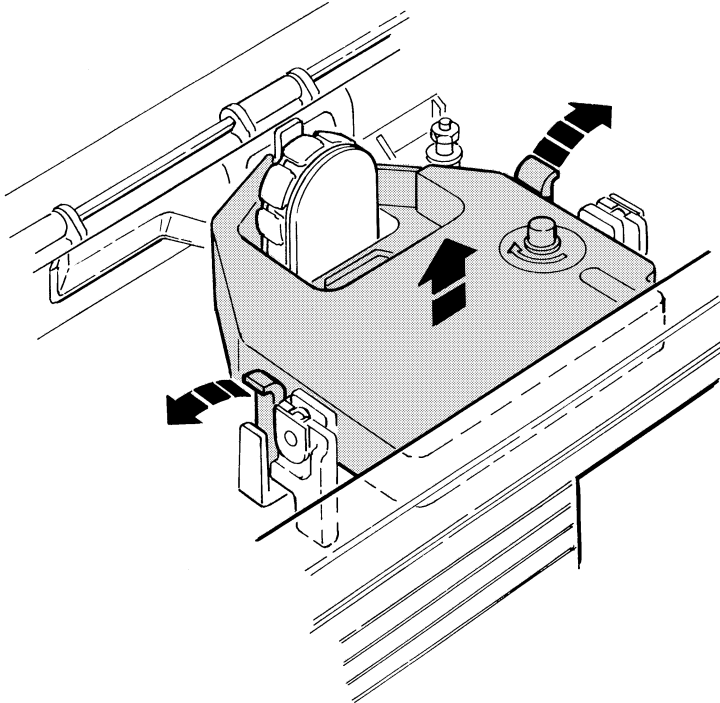
WARNING: Turn the power switch to 0 (off) before replacing the ribbon cartridge.

1. Remove the printer access cover.
2. Move the printhead carriage to the center of the platen.



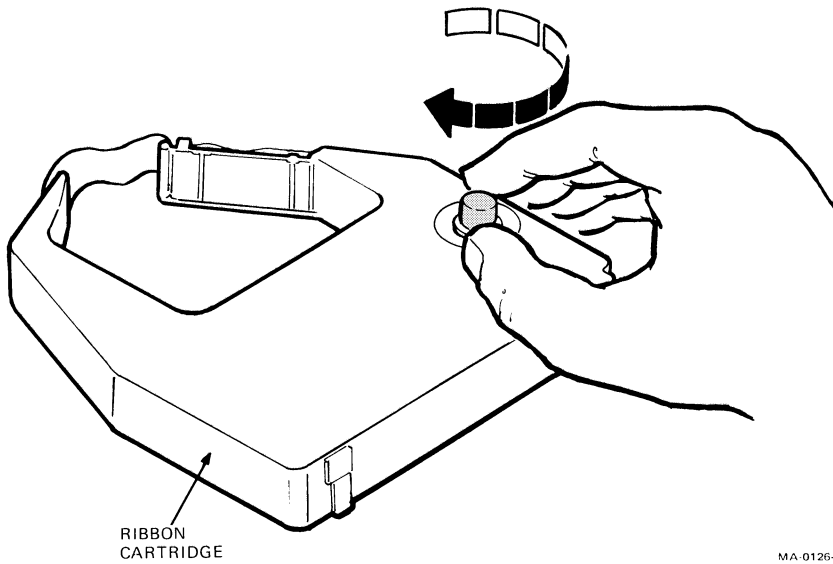
3. Push the ribbon cartridge notches outward and pull up on the ribbon cartridge to remove it. Discard the old ribbon cartridge.

NOTE: See Appendix A for the replacement ribbon cartridge order number.



MA 0160 86

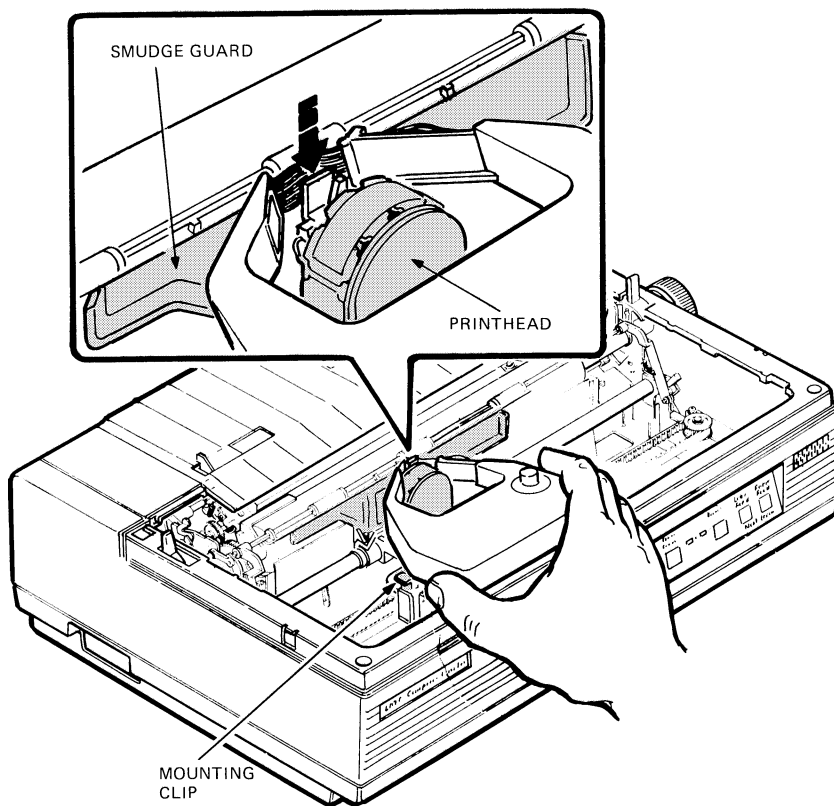
4. On the new cartridge, turn the ribbon adjustment knob in the direction indicated on the cartridge.



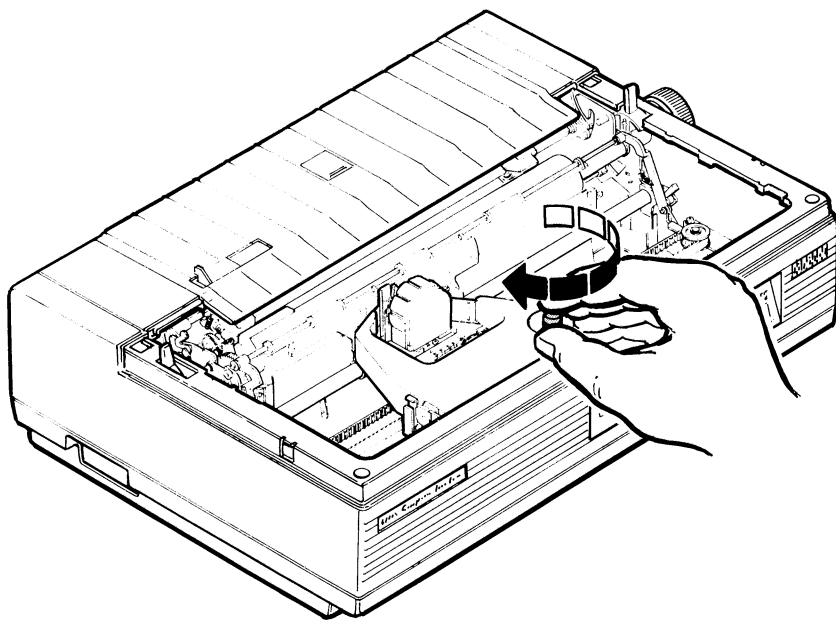
MA 0126-86

5. Fit the ribbon cartridge between the mounting clips on the carriage. Make sure that the ribbon fits between the printhead and the smudge guard. Press down on the cartridge until you hear it click into place.

NOTE: Make sure the ribbon is secured on both the left and right sides.

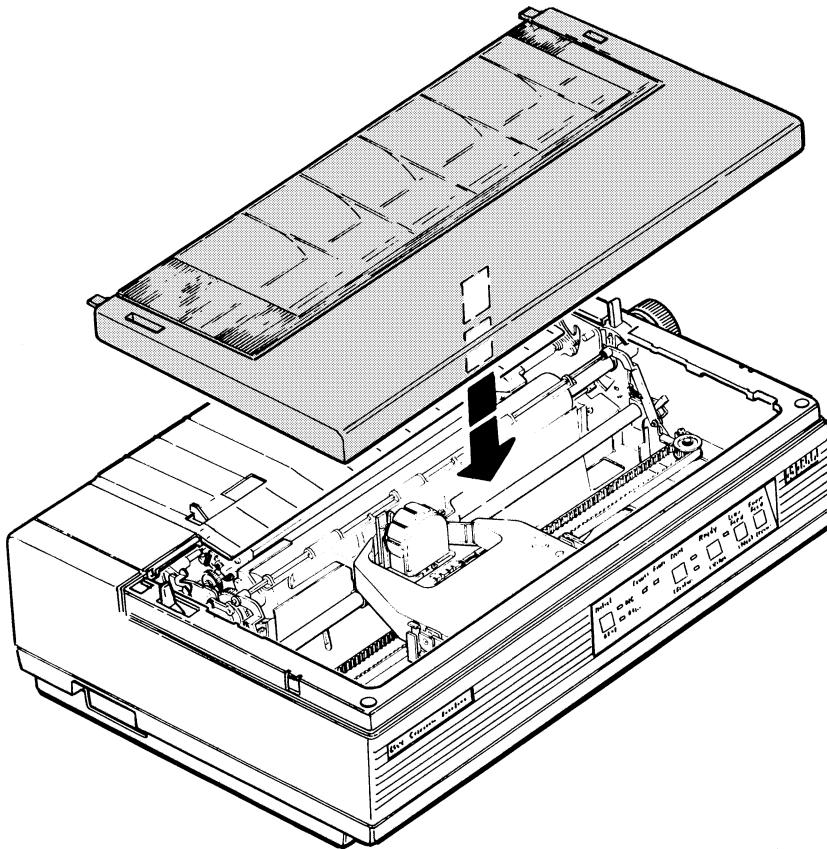


6. Tighten the ribbon with the ribbon adjustment knob.



MA-0128-86

7. Replace the printer access cover.



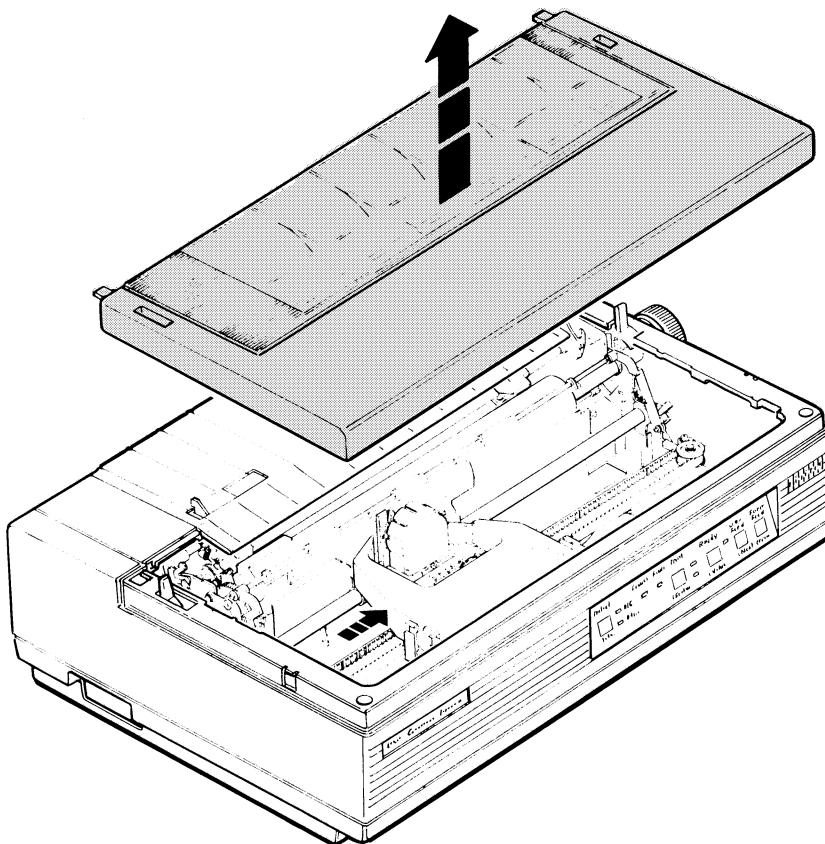
MA-0129-86

REMOVING AND REPLACING THE PRINTHEAD

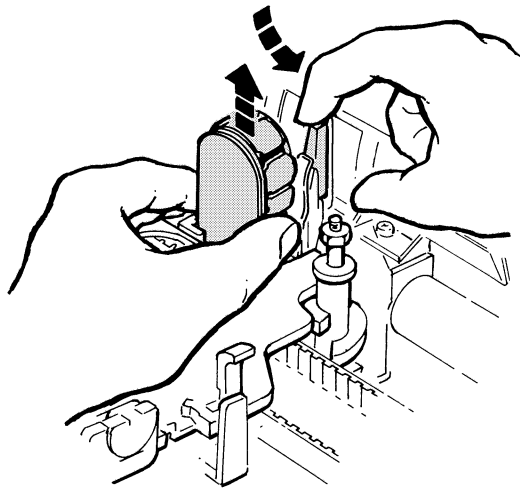
WARNING: Turn the power switch to 0 (off) before you replace the printhead.

NOTE: If you have a Digital service contract, have the Field Service technician replace the printhead.

1. Remove the printer access cover.
2. Move the printhead carriage to the center of the platen.

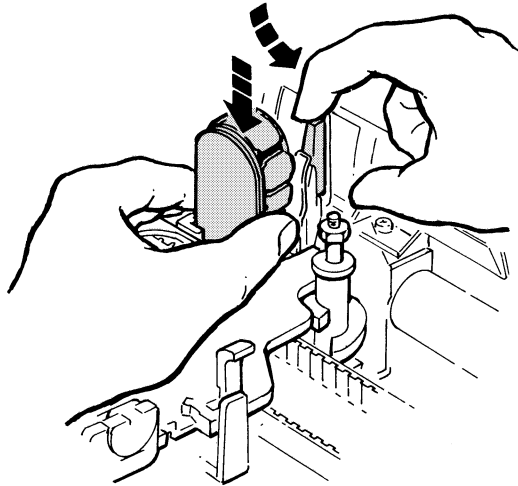


3. Remove the ribbon cartridge (page 102).
4. Push the head clamp to the right and pull the printhead straight up to remove it from the carriage. Discard the old printhead.



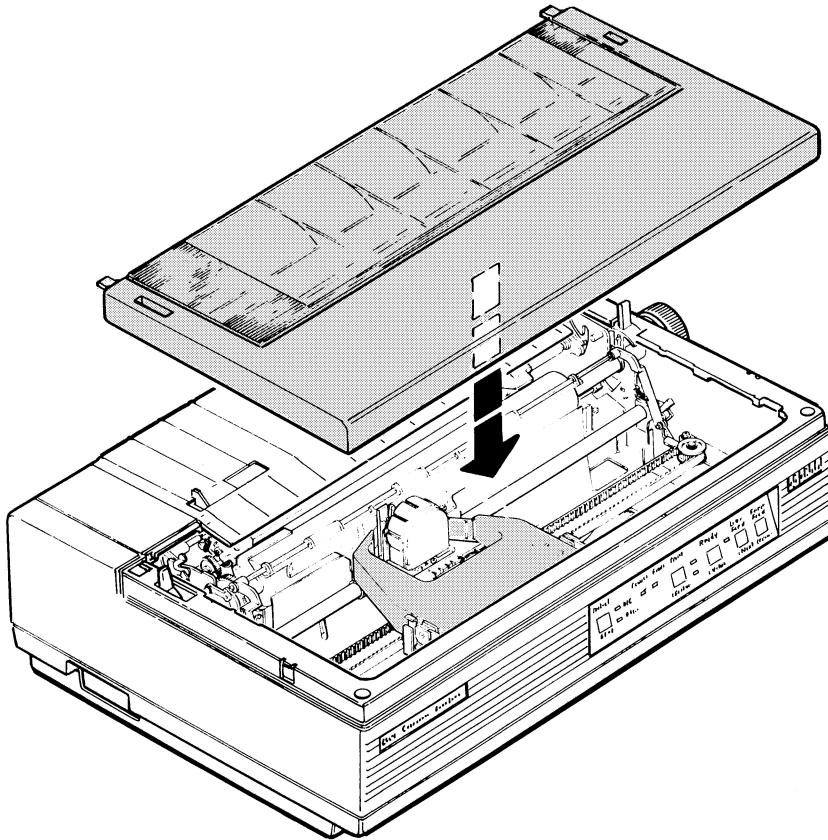
MA 0161 86

5. Push the head clamp to the right and insert the replacement printhead into the connector on the carriage.



MA-0162-86

6. Replace the ribbon cartridge (page 102).
7. Replace the access cover.



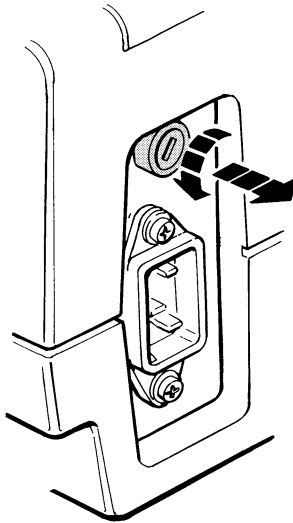
MA-0129-86

See Adjusting the Printhead in Chapter 3 to adjust the printhead for paper thickness.

REMOVING AND REPLACING THE FUSE

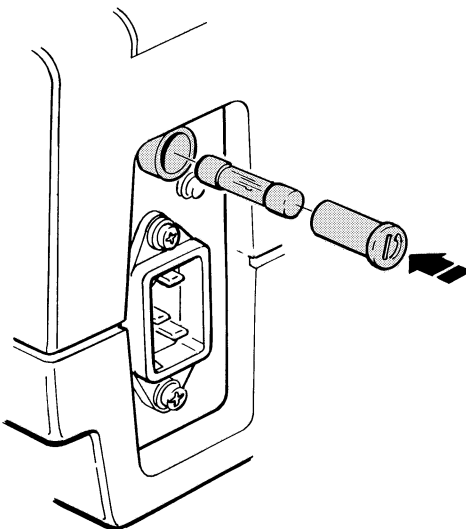
WARNING: Turn the power switch to 0 (off). Disconnect the power cord from the wall outlet and the printer.

1. Push the fuse holder in while turning it to the left. Remove the fuse holder.



MA 0163-86

2. Replace the old fuse with a new one of equal value.



MA 0164-B6

ACCESSORIES AND SUPPLIES A

A wide variety of accessories and supplies (including manuals) are available to enhance printer versatility and make operation easier. To place an order or request a catalog, call the Digital sales office in your area during regular business hours.

Accessories

Option Number	Description
PCXXF-CF	Acrylic desk-top stand
LA50X-FF	Paper catcher
LAXXA-AA	Desk stand acoustic cover
H0401-A	Crossover serial switch

Supplies

Option Number	Description
BC16E-10	System interface cable
LA50R-06	Nylon ribbon cartridges, 6 per box
PCXXA-AM/AB	Platen cleaner, 10 applicators per box
H9850-PA	Paper, 9-1/2 in × 11 in, 1/2 in perforated edges, 20 lb, 2700 sheets per carton
H9850-LR	Paper, 9-1/2 in × 11 in, 1/2 in perforated edges, 20 lb, 540 sheets per pack

ADAPTERS

If you need to order an adapter for your computer system or video terminal, use the option numbers listed in Table 1-1, Interface/System Cable Adapters. Order adapters through the DECdirect catalog.

FIELD SERVICE INFORMATION B

DIGITAL'S SERVICES

Digital provides a wide range of maintenance programs that cover small systems and terminals. These include on-site, carry-in, and mail-in maintenance services. You can use these programs to select a plan that meets your service needs, from complete Digital support, to self-maintenance.

ON-SITE SERVICE

Digital offers fast, low-cost, quality maintenance performed at your site by Digital-trained service specialists. Whether you take advantage of our DECservice or Basic Service Agreements, or choose our Time and Materials service, you can be sure that your small system or terminal is getting the best possible maintenance.

CARRY-IN SERVICE

There are several hundred Digital service centers in major cities world-wide, which offer convenient, fast, and dependable "return-to" maintenance at a savings over on-site service.

DECmailer

If you are capable of self-maintenance, you should use our fast turnaround module and subassembly repair service – DECmailer.

For more information on any of Digital's Maintenance Services, call the Digital Field Service office in your area during normal business hours.

OPERATING SPECIFICATIONS **C**

LA75 SPECIFICATIONS

Weight	10 kg (22 lb)
Dimensions	
Height	130 mm (5.12 in)
Width	452 mm (17.8 in)
Depth	348 mm (13.7 in)
Environment	
Temperature	10°C to 40°C (50°F to 104°F)
Relative humidity	10% to 90%
Voltage, frequency	
LA75-A2	120 V, 50/60 Hz
LA75-A3	240 V, 50/60 Hz
LA75-A4	220 V, 50/60 Hz
LA75-A5	100 V, 50/60 Hz
Power consumption	120 W maximum
Power receptacle	Nonswitched, 3-prong, grounded
Power cord	1.83 m (6 ft) detachable
Data interface	6-pin modular connector

System cable	Part number BC16E-10 EIA Standard RS-423	
	Connection to RS232C 9-pin and 25-pin printer ports is achieved with optional adapters	
Ribbon Cartridge	Part number LA50R-06	
Printhead	Part number 29-25916-00 9-pin dot matrix	
Printing method	Bidirectional Unidirectional, left to right Forward and reverse paper motion*	
Input buffer capacity	2 kilobyte (2048 characters)	
Buffer control	XON/XOFF software protocol, READY/OFF-LINE front panel control	
Print density (horizontal X vertical dots)	Draft mode	12 × 9 matrix
	Memo mode	24 × 9 matrix
	Near letter quality mode	24 × 17 matrix
	Letter quality mode	36 × 18 matrix

Printing speed

Mode	Burst Speed†	Throughput Speed‡
Draft	250 char/s	182 char/s
Memo	125 char/s	96 char/s
Near letter quality	42 char/s	35 char/s
Letter quality	32 char/s	26 char/s

* For bottom paper feed applications, use forward motion only. Use rear paper feed for applications requiring forward/reverse printing motions (super/sub scripting, bolding, underlining).

† Burst print speeds (maximum speed) are measured while printing text at 80 characters per line at 10 characters per inch.

‡ Throughput print speeds (average speed) are measured while printing text at ten characters per inch with line spacing of six lines per inch.

Font	Courier
Characters per inch (horizontal pitch)	10, 12, 16.5, 17.1 (standard-width characters)
	5, 6, 8.25, 8.55 (double-width characters)
Vertical pitch	2,3,4,6,8,12 lines per inch
Character sets	U.S. ASCII
	National Replacement (NRC) (See Table 4-2 for complete list.)
	ISO 8-bit supplemental
	DEC supplemental
	DEC technical
	VT100 Special Graphic (line drawing)
	Katakana
	IBM Proprinter: Graphic Set A Graphic Set B All Character Set, Symbol Drawing
Character attributes	True descenders (j, y, p, g, q) Italics Superscript Subscript Shadow bold Underline Double underline Overscore

PAPER SPECIFICATIONS

Method of Loading	Paper Type	Width	Weight	Thickness
Rear and bottom	Single part pinfeed paper	108 to 254 mm 4.25 in to 10 in	56 to 75 g/m ² 15 to 20 lb	–
Bottom only	3-part forms with carbon	108 to 254 mm 4.25 to 10 in		0.30 mm or less 0.012 in or less
	first sheet		37 to 60 g/m ² 10 to 16 lb	
	copies		45 to 56 g/m ² 12 to 15 lb	
	4-part forms without carbon	108 to 254 mm 4.25 to 10 in		0.30 mm or less 0.012 in or less
	Sheets 1–3		54 to 56 g/m ² 14.5 to 15 lb	
	Sheets, 4		49 to 56 g/m ² 13 to 15 lb	
	Labels on carrier	108 to 254 mm 4.25 to 10 in		0.30 mm or less 0.012 in or less
Hand fed	Single sheet (plain bond)	254 mm or less 10 in or less	60 to 90 g/m ² 16 to 24 lb	0.05 to 0.30 mm 0.0002 to 0.012 in
	Envelopes			0.30 mm or less 0.012 in or less

BASIC ESCAPE SEQUENCES D

Some applications programs may require insertion of escape sequences to activate the printer's features. The following is a list of common escape sequences for DEC Protocol and IBM Proprinter emulation that control these features.

NOTE: Make sure that the printer is set to DEC protocol when you are printing DEC files and Other protocol when you are printing other files.

DEC PROTOCOL

Horizontal Pitch

The following control sequences set the horizontal pitch and select single-width printing.

Function	Sequence
Sets pitch to 10 char/in	ESC [w ESC [0 w ESC [1 w } Choose one sequence
Sets pitch to 12 char/in	ESC [2 w
Sets pitch to 16.5 char/in (changes printing to 132 columns)	ESC [4 w
Sets pitch to 17.1 char/in	ESC [1 1 w

The following control sequences set the horizontal pitch and select double-width printing.

Function	Sequence
Sets pitch to 5 char/in	ESC [5 w
Sets pitch to 6 char/in	ESC [6 w
Sets pitch to 8.25 char/in	ESC [8 w
Sets pitch to 8.55 char/in	ESC [1 2 w

Print Density

The following control sequences generate one of four print densities: draft, memo, near letter quality, and letter quality.

Function	Sequence
Selects draft printing	ESC [" z
	ESC [0 " z
	ESC [1 " z
	} Choose one sequence
Selects letter quality (LQ) printing	ESC [2 " z
Selects memo printing	ESC [3 " z
Selects near letter quality (NLQ) printing	ESC [4 " z

Underline, Bold, and Italics

The following control sequences generate single or double underlines, bold or italic letters.

Function	Sequence
Turns off bold, italics, underline, and double underline printing.	ESC [0 m or none
Turns on bold printing.	ESC [1 m
Turns on italics printing.	ESC [3 m
Turns on underline printing; turns off double underline printing, if selected.	ESC [4 m
Turns on double underline printing; turns off underline printing, if selected.	ESC [21 m
Turns off bold printing.	ESC [22 m
Turns off italics printing.	ESC [23 m
Turns off underline and double underline printing.	ESC [24 m

To use these sequences consecutively, use the following format.

ESC [Ps ; ... ; Ps m

For example, to turn on bold, italics, and underline, the sequence is as follows.

ESC [1 ; 3 ; 4 m

IBM EMULATION PROTOCOL

The following escape sequences control the printing functions.

Function	Sequence
Turns on shadow bold printing.	ESC E
Turns off shadow bold printing.	ESC G
Turns on LQ or NLQ mode, depending on menu feature setting 20.	ESC H
Turns on draft mode.	ESC I Ps

You can use the following sequence to select printing mode. The Ps parameter you select determines the printing mode.

Ps	Mode
0	Selects draft mode.
2	Selects LQ/NLQ mode.
4	Selects draft mode. Uses down-line loaded set.
6	Selects NLQ mode. Uses down-line loaded set.

Sets and resets underlining.	ESC - Ps
------------------------------	----------

If Ps = 1 (0/1), it underlines all characters that follow this sequence.

If Ps = NUL (0/0), it turns off underlining.

