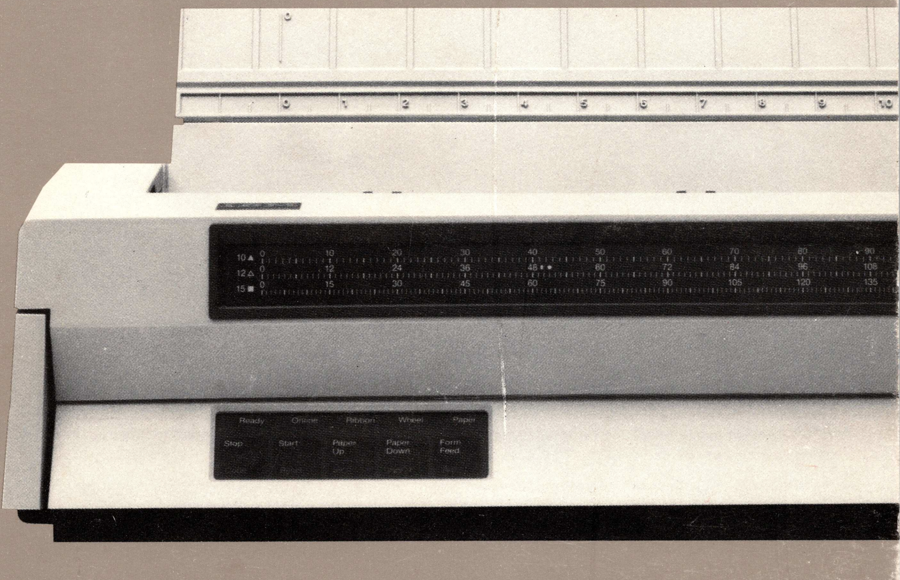
IBM

Wheelprinter E

Guide to Operations



Wheelprinter E

Guide to Operations

FCC Notice

The IBM Wheelprinter E generates and uses radio frequency energy. If the printer is not installed and used in accordance with the operating instructions, technical or service information, it may interfere with radio or television reception. It has been tested and found to comply with the limits for a Class B computing device pursuant to Subpart J of Part 15 of Federal Communications Commission (FCC) rules, which are designed to provide reasonable protection against such interference when operated in a residential area.

If this printer interferes with radio or television reception, which can be determined by switching the printer off and on, the user is encouraged to try one or more of the following:

- Move the receiving antenna on the radio or television;
- Relocate the printer in relation to the radio or television;
- Plug the printer into a different electrical outlet from the radio or television;
- Ensure that the grounding wire is tightly secured.

If necessary, contact your dealer or IBM service representative for additional suggestions.

The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. It is the responsibility of the user to correct such interference.

Warning: To comply with FCC regulations on electromagnetic interference for a Class B computing device, the printer cable must be shielded and properly grounded.

CAUTION
This product is equipped with a UL listed and CSA certified plug for user safety. It is to be used in conjunction with a properly grounded 115 VAC receptacle to avoid electrical shock.

To assure compliance with FCC regulations for a Class B computing device, use IBM cable Part Number 1525612. Use of substitute cable not properly shielded and grounded may result in violating FCC regulations.

First Edition, September 1985

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You can send comments or suggestions using the form in the back of this book. If the form has been removed, simply address your comments to the IBM Corporation, Dept. F98/962-3, 740 New Circle Road N.W., Lexington, KY 40511.

Information you supply may be used by IBM without obligation. You may, of course, use it yourself. Necessary changes will be made in later editions of the manual.

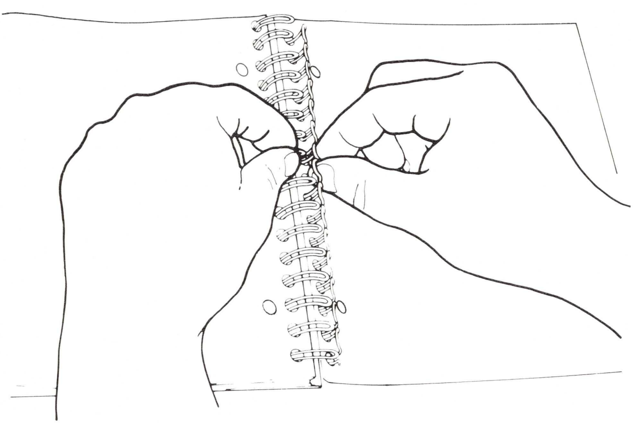
References to IBM products, programs, or services do not imply that IBM intends to make them available outside the United States.

Preface

This publication provides you with an introduction to the IBM Wheelprinter E. Included are instructions for setup, problem determination procedures (PDPs), and option installation.

This publication is intended for anyone who will be setting up or using the IBM Wheelprinter E. Your printer may not look exactly like the one in the illustrations of this book, but the functional descriptions are accurate.

If you wish, you may remove the wire binding and insert this manual in a binder.



Place this manual with the front cover down and open the back cover so the wire binding shows. Spread each pair of wires apart and remove the pages.

This manual has seven sections:

"Chapter 1, Introduction" highlights some of the major functions of the printer.

"Chapter 2, Setup" contains instructions for unpacking and setting up your printer, as well as running the printer self test.

"Chapter 3, Operation" introduces the functions of your printer.

"Chapter 4, Problem Determination Procedures" (PDPs) assists you in correcting problems that may occur during setup and/or normal operations.

"Chapter 5, Options" tells you how to install and operate the pinwheel form feeder.

"Chapter 6, Reference Information" contains additional information, such as ASCII codes, that you may need to use from time to time.

"Chapter 7, Repacking Instructions" tells you how to repack your printer in case you need to move it to another location.

Related Publications

If needed, additional technical information can be found in the *IBM Wheelprinter E Technical Reference* (Item No. 1279887 [Form No. S544-4078]), the *IBM Wheelprinter E Hardware Maintenance and Service Manual* (Item No. 1279888 [Form No. S544-4079]), *Sheetfeed Guide to Operations* (Item No. 6373115 [Form No. GA23-1034]), or *Sheetfeed Hardware Maintenance and Service* (Item No. 6373116 [Form No. SY20-8580]).

Contents

Chapter 1. Introduction

This publication contains instructions to help you start using your new IBM Wheelprinter E. Your new printer produces letter-quality printing at a rate of 16 characters per second (cps). The printer uses a parallel interface.

Your printer uses changeable printwheels to change the size or appearance of your printed characters.

As you become more skillful in using your new printer, you will find ASCII code charts a valuable tool for accessing the many control, graphic, and special character set codes.

An optional pinwheel form feeder is available for your printer and can use forms in widths of 76.2 to 381 mm (3 to 15 in).

A sheetfeed, which will automatically feed cut-sheet paper of standard widths and lengths (8½ by 11 inches and 8½ by 14 inches), is another available option for your printer. The sheetfeed has a capacity of approximately 100 sheets of 20-pound paper or 15 mm (0.59 in).

For Assistance

If you have problems with the printer or its options, refer to “Chapter 4, Problem Determination Procedures” for assistance.

If you need additional help with setup or operation, call your place of purchase.

Note: A spare ribbon and printwheel are required to diagnose some problems.

Safety Guidelines

- Keep hair and personal articles out of the printing and ribbon area when the printer is on to prevent getting them caught in the machine. Be sure to comply with this warning and ask others to do so.

- The IBM Wheelprinter E incorporates Class II (double-insulated) construction as defined by the International Electrotechnical Commission Publication 380, "Safety of Electrically Energized Office Machines," and other national standards.

  Class II construction provides protection against electric shock through the use of extra insulation and does not rely upon protective gounding.

  The IBM Wheelprinter E is equipped with a nongrounding type (two-wire) electrical cord because protective grounding is unnecessary.

- For Continued Protection Against Electrical Shock:

  1. Connect only to a properly grounded electrical outlet of the proper voltage.

  2. Refer servicing to trained professional service personnel.

  3. When servicing, use only identical replacement parts.

Chapter 2. Setup

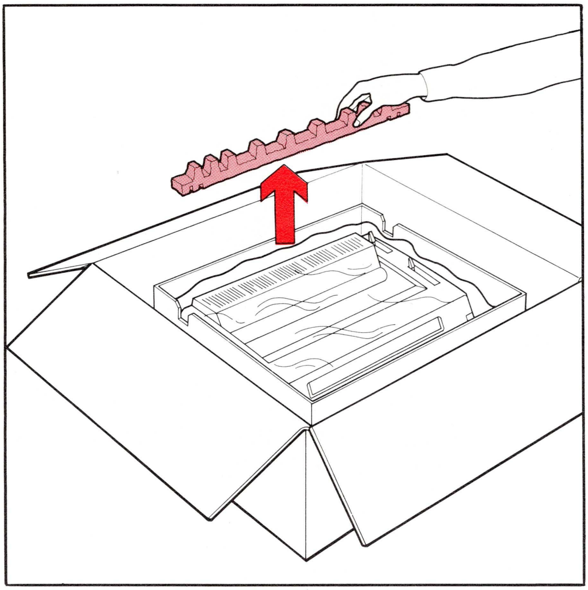
Introduction

Follow the steps in this chapter to unpack, set up, and check out your new printer.

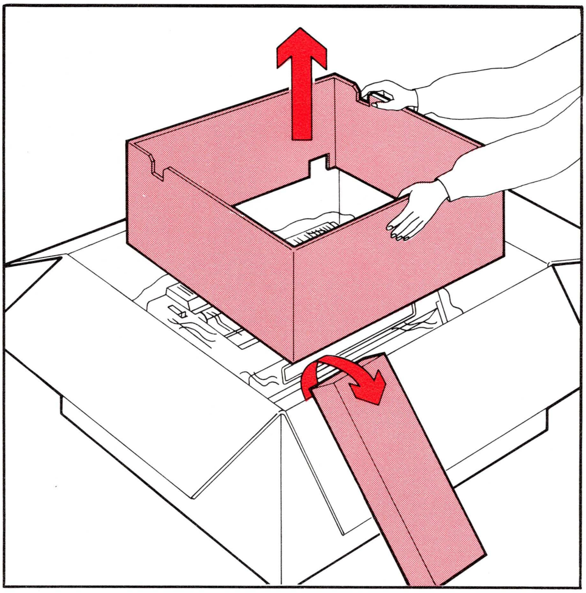
If you have any questions or need help during setup, call your place of purchase.

If your printer does not work properly after it is set up, refer to "Chapter 4, Problem Determination Procedures" for more assistance.

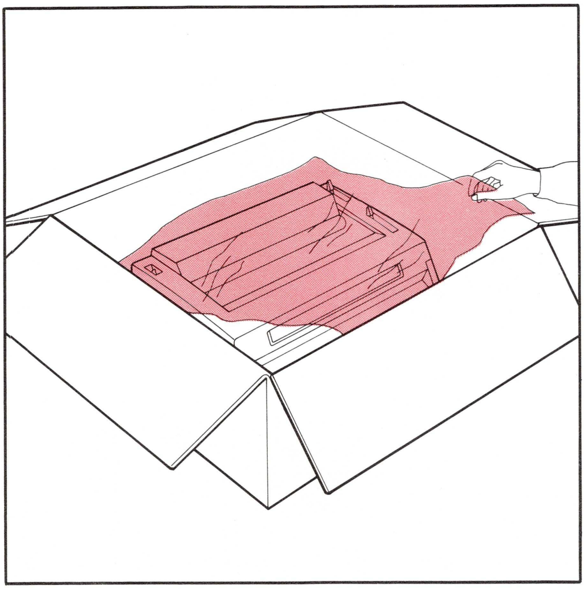
1. Remove the foam strip from the top of the cardboard liner.



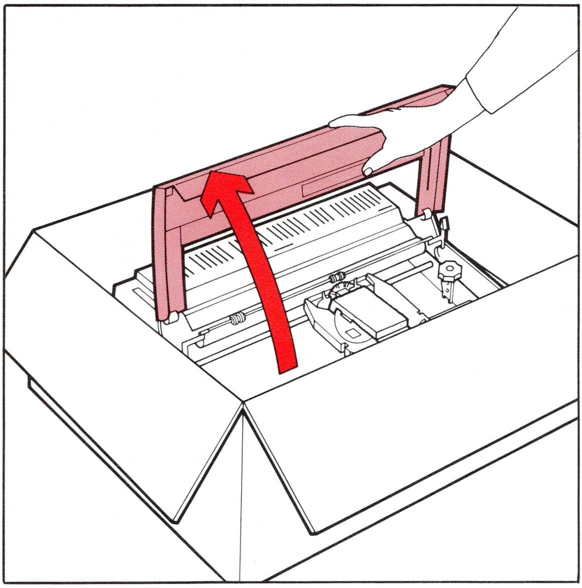
2. Remove the cardboard liner.



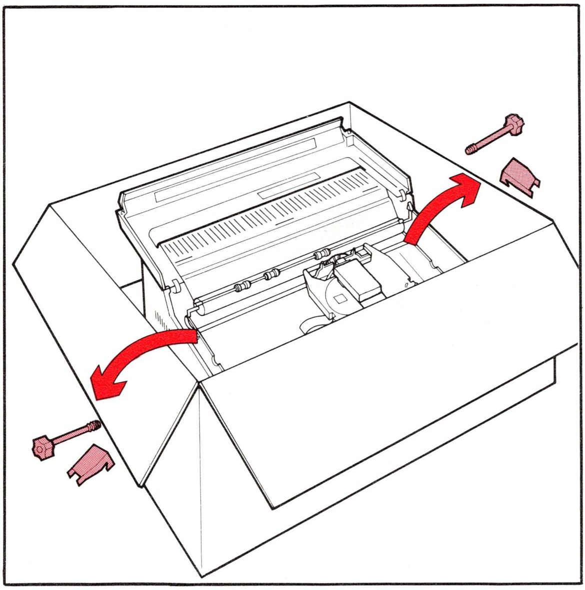
3. Remove the clear plastic protective cover.



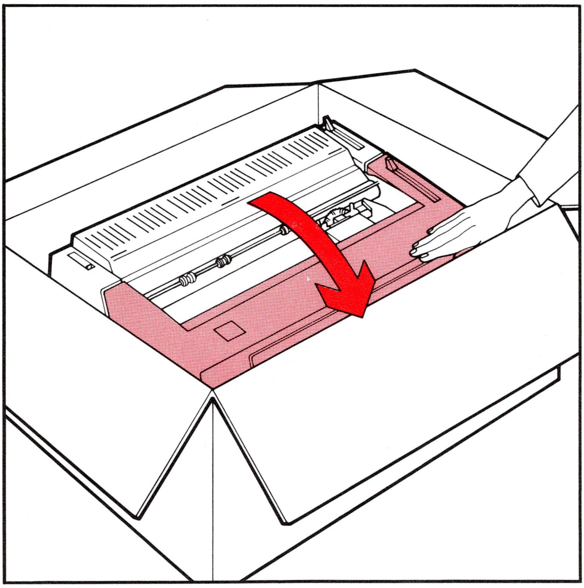
4. Raise the printer cover.



5. Unscrew the red plastic knobs on each side of the printer. Remove the bolts and shipping brackets from each side.

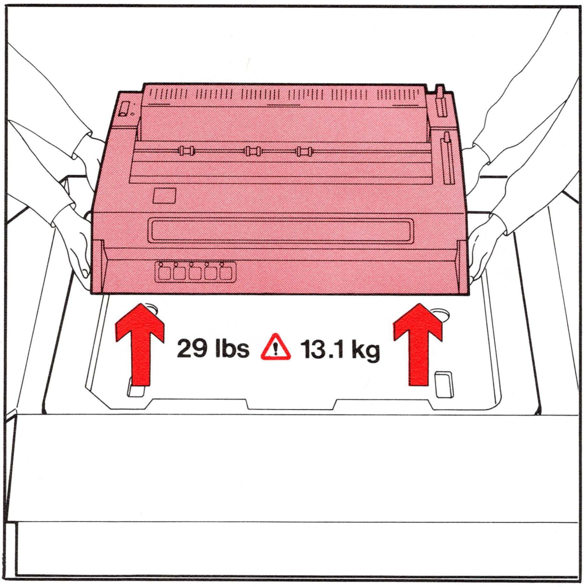


6. Close the printer cover.

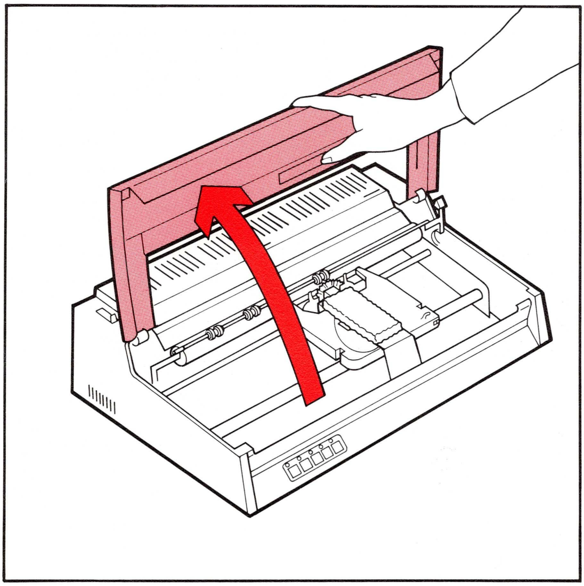


7. Ask someone to help you lift the printer off the tray and out of the box.

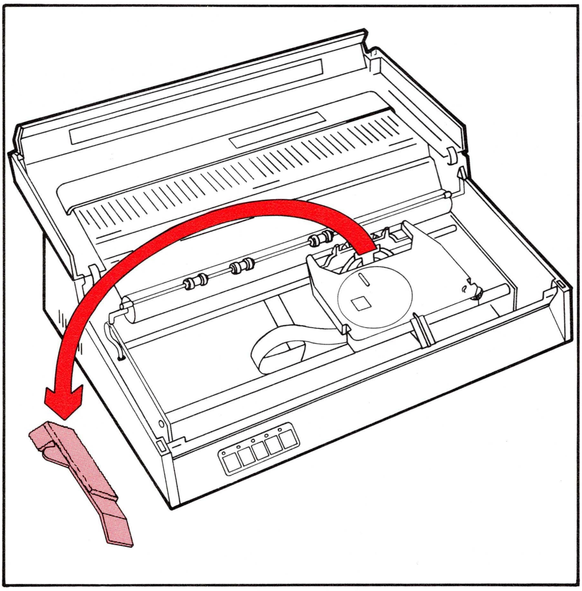
Place the printer on the table next to your computer.



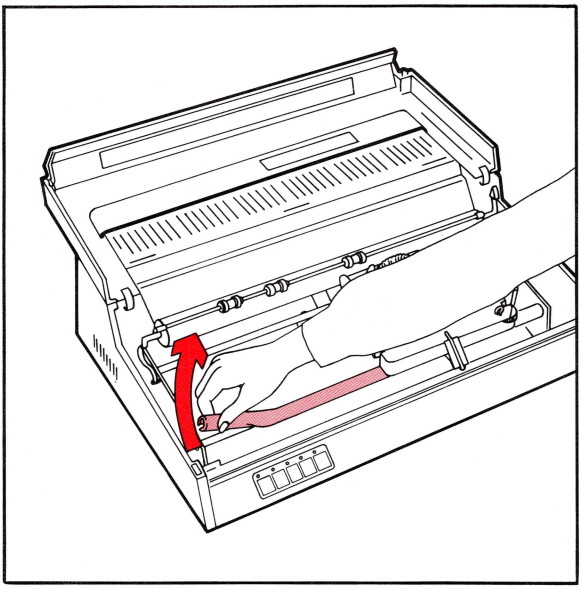
8. Raise the printer cover.



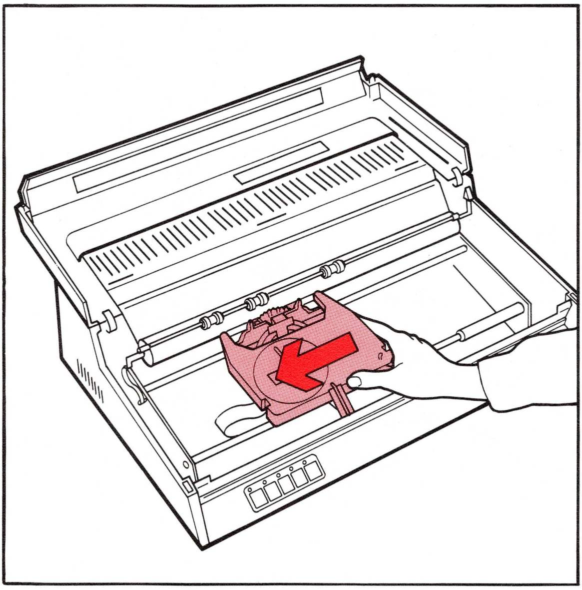
9. Remove the white foam that is between the ribbon cassette and the printwheel.



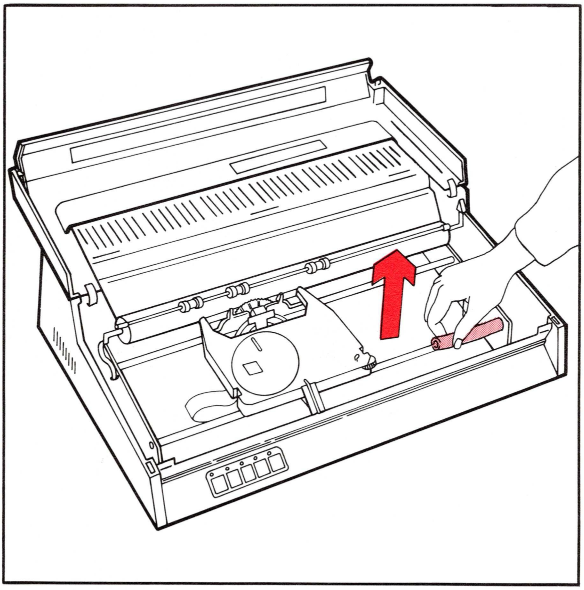
10. Lift the red rubber tube on the left side of the carrier rail to remove the tube from the printer.



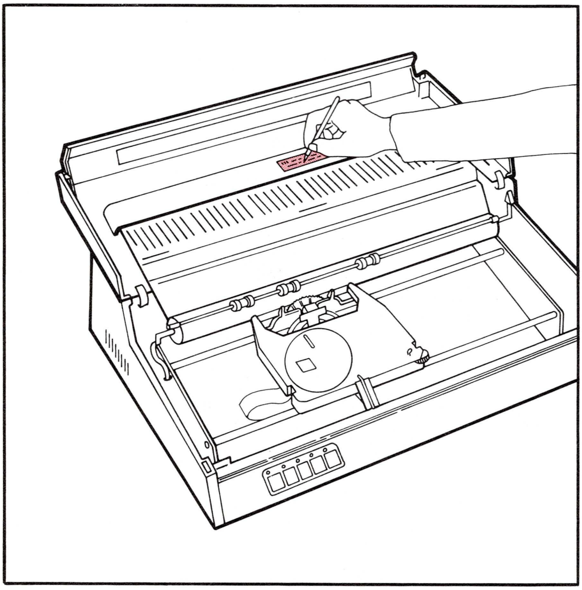
11. Push the ribbon cartridge to the left to move the carrier to the center.



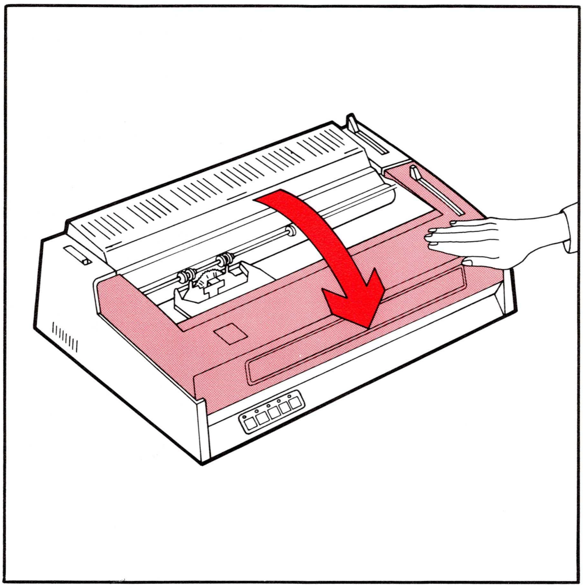
12. Lift the red rubber tube on the right side of the carrier rail to remove the tube from the printer.



13. Fill out the installation sticker located on the inside of the top cover.



14. Close the printer cover.

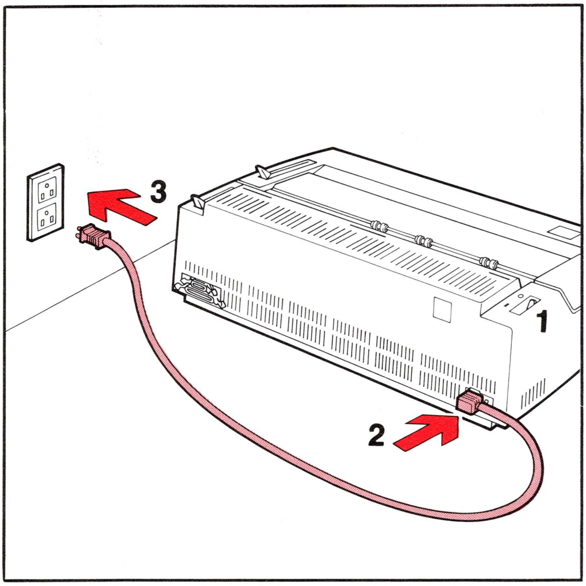


15. Remove the printer power cord from the accessory box.

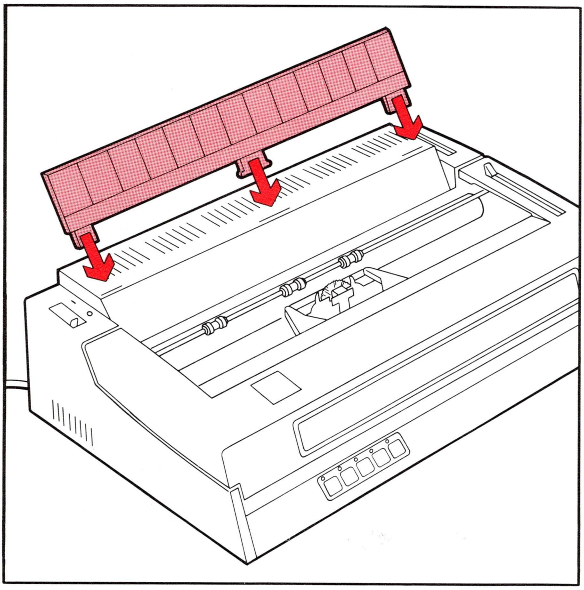
1. Make sure the Power switch is toward the front in the off position.

2. Plug the smaller end of the cord into the back of the printer.

3. Then plug the larger end into an electrical outlet.

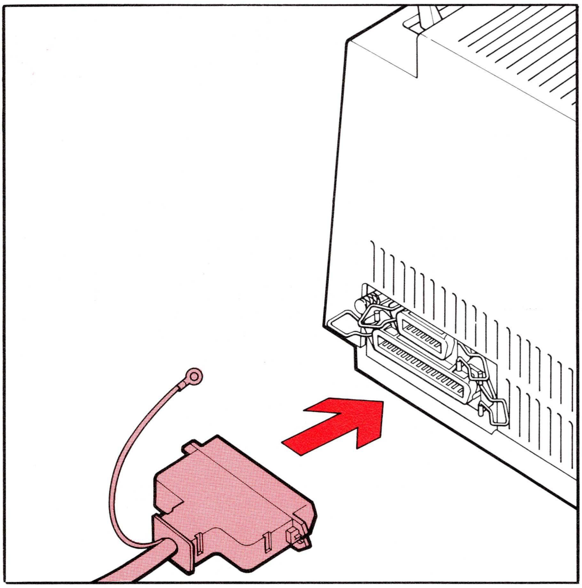


16. Remove the paper table from the accessory box. Hold the paper table so its back slants toward the back of the printer. Insert the three tabs on the paper table all the way into the three slots on the printer.

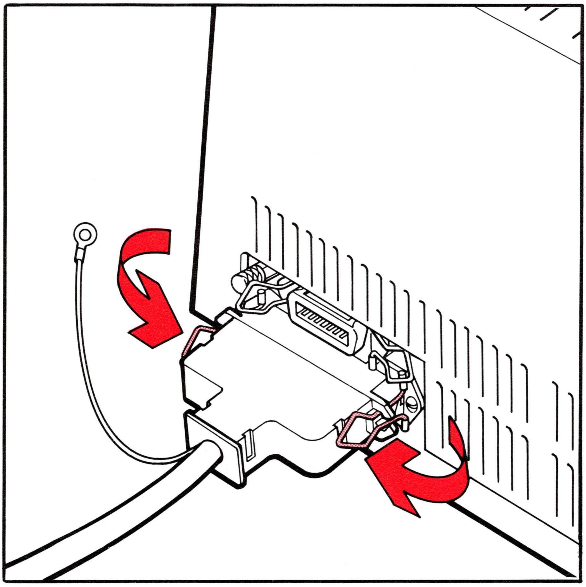


17. Attach the printer cable from your computer to the large socket on the back of the printer. Use the shape of the plug to help you attach the cable properly.

Note: The printer cable is not provided with the printer. Follow your computer instructions to attach the printer cable to your computer.

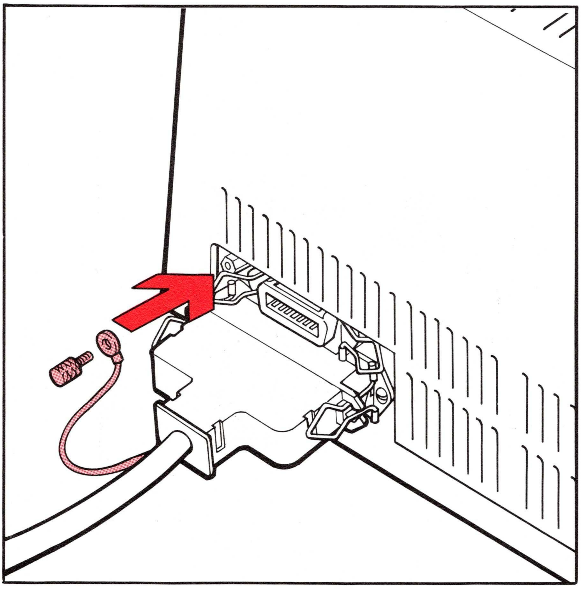


18. Push the clips into the notches on the plug to hold the plug in place.

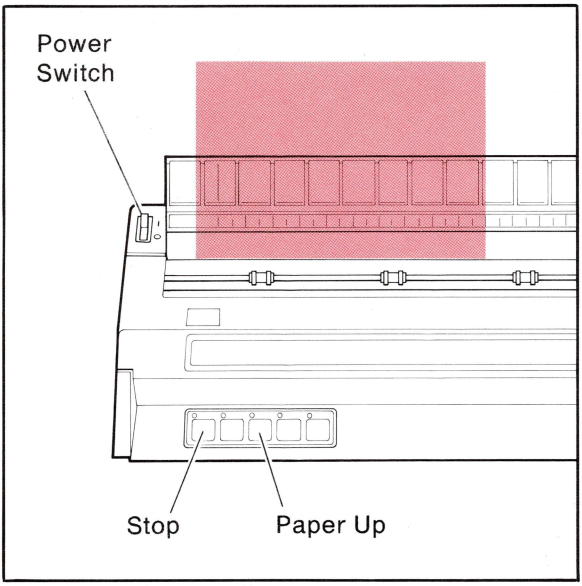


19. Loosen and remove the thumbscrew from the back of the printer.

Attach the grounding wire from the printer cable.

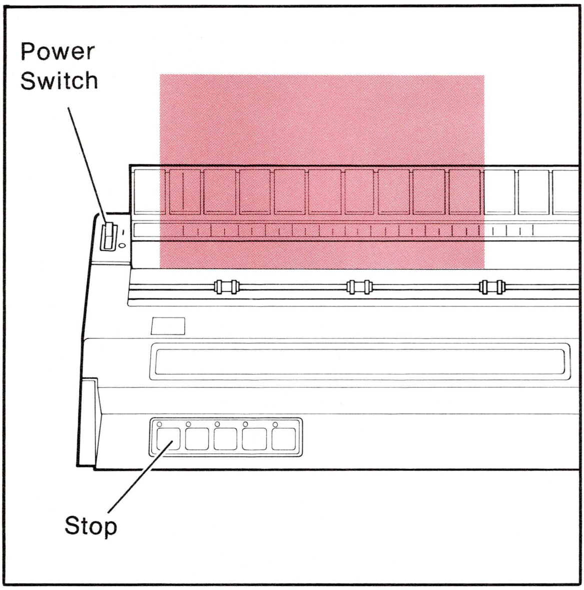


20. To verify that your printer is operating correctly, you should run the printer self test. This step will tell you how to insert paper into the printer and how to run the test.



1. Move the Power switch to the rear to the **|** position to turn the printer on.
2. Press the **Stop** button on the printer.
3. Insert a piece of paper lengthwise behind the platen on the printer. If the paper is *not* inserted lengthwise, the test will print on the platen.
4. Press and hold the *center* of the **Paper Up** button until the printer feeds the paper to the writing line.

   Note: If you need assistance inserting paper, refer to "Paper Insertion" on page 3-2.



5. Turn the printer off.
6. Press and hold down the *center* of the **Stop** button on the printer.
7. Turn the printer on while holding **Stop** pressed. You can release **Stop** when the printer beeps.

```
0100000000 87249013
anrmcsdhlfk,V-GUFBZHP)RLSNCTDEIAJO(M.Y,/W9K3X12054687*$#%^+`@Q&][\¦~<>}{!?"'=:_;xqvzwj.ybgupitoe
nrmcsdhlfk,V-GUFBZHP)RLSNCTDEIAJO(M.Y,/W9K3X12054687*$#%^+`@Q&][\¦~<>}{!?"'=:_;xqvzwj.ybgupitoea
rmcsdhlfk,V-GUFBZHP)RLSNCTDEIAJO(M.Y,/W9K3X12054687*$#%^+`@Q&][\¦~<>}{!?"'=:_;xqvzwj.ybgupitoean
mcsdhlfk,V-GUFBZHP)RLSNCTDEIAJO(M.Y,/W9K3X12054687*$#%^+`@Q&][\¦~<>}{!?"'=:_;xqvzwj.ybgupitoeanr
csdhlfk,V-GUFBZHP)RLSNCTDEIAJO(M.Y,/W9K3X12054687*$#%^+`@Q&][\¦~<>}{!?"'=:_;xqvzwj.ybgupitoeanrm
```

8. If the printer does not print, or if the print quality is poor, refer to "Chapter 4, Problem Determination Procedures" for assistance.
9. If your printer is printing properly, interrupt printing by turning the printer off.

21. If your printer is printing properly, you have finished with "Chapter 2, Setup."

Continue with "Chapter 3, Operation" to learn to operate your printer.

Additional Setup Information

Switch Settings

Your printer has ten switches that change the default setting of several printer features or match the printer's interface to that of the computer. You may need to change these switch settings before using the printer. If you wish to change your switch settings, refer to "Chapter 3, Operation" for assistance.

Pinwheel Form Feeder

Refer to "Chapter 5, Options" for assistance if your printer has a form feeder.

Sheetfeed

Refer to the instructions that came with your sheetfeed for assistance if your printer has a sheetfeed.

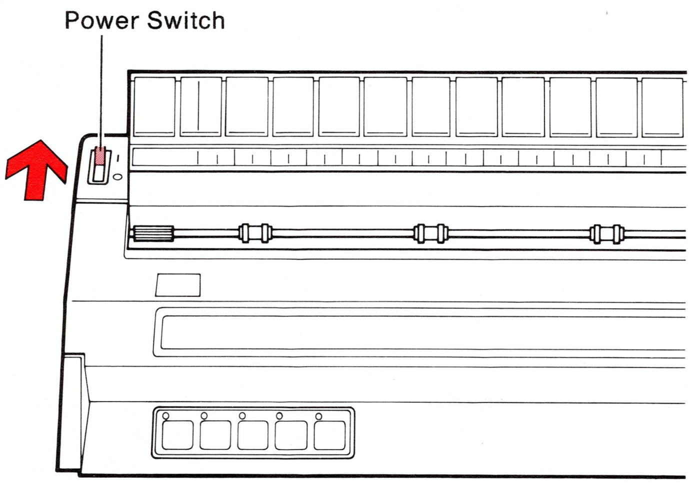
Packing Materials

After you have completed "Chapter 2, Setup," save the packing materials from your printer. Moving your printer without proper packing may result in damage.

For more information on repacking your printer, refer to "Chapter 7, Repacking Instructions."

Chapter 3. Operation

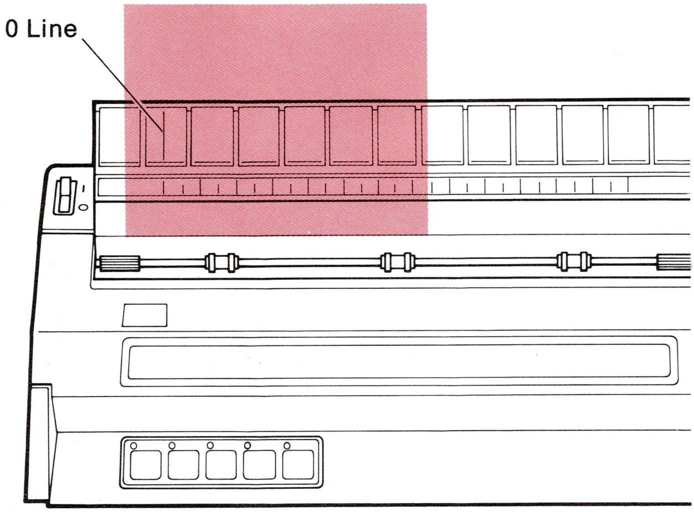
Printer Power Switch



Move the Power switch to the rear to the | position to turn the printer on.

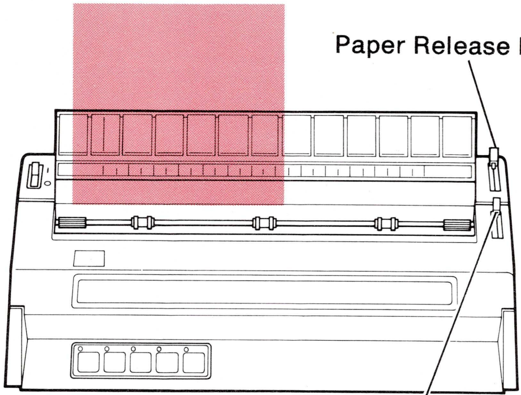
Every time you turn on the Power switch, all lights come on. After a few moments, only the **Ready** and **Online** lights will remain on after the printer beeps once. If this does not occur, refer to "Chapter 4, Problem Determination Procedures" for assistance.

Paper Insertion



The paper table has a paper guide to help you insert the paper properly. The line labeled **0** on the paper table can be used as a reference point in finding the left edge of the first printed character. You should print a few trial lines to establish the location of the first character on your printer.

Once you've found where your first character will appear, you can allow for a left margin by positioning the left edge of the paper to the left of the **0** line.



You can use the paper bail lever to insert paper automatically.

1. Turn the printer Power switch on.

2. Make sure the paper release lever is all the way toward the back.

3. Line up the left edge of the paper with the lines on the paper table behind the platen. It is *not* necessary to use the **Paper Up** button to roll the paper into the printer.

4. Pull the paper bail lever *past the first stop and all the way toward you.* When the paper begins to feed, gently release the lever but leave the paper bail open (away from the platen).

5. Do *not* push the paper bail against the paper. The paper bail will automatically move against the paper after the paper has indexed approximately six to ten lines.

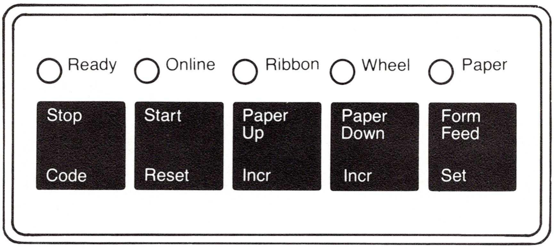
   Note: If you move the paper bail back too soon, the paper will crumple against the paper bail while printing the first few lines.

You cannot use the paper bail lever to insert paper under the following conditions:

- When the pinwheel feeder is installed
- When the sheet feeder is installed and a sheet of paper is loaded or loading.

Printer Lights

Note: If the printer is not working properly and any lights are flashing, refer to "Chapter 4, Problem Determination Procedures" for assistance.



- The **Ready** light is on when the printer is operational.

- The **Online** light is on when the printer is prepared to receive and print information from the computer.

  When this light is off, the printer cannot print. However, you can use the printer control buttons to position the paper.

- The **Ribbon** light comes on when the printer reaches the end of the ribbon. When the light comes on, the printer stops printing, goes offline and the beeper sounds three times.

  Once the ribbon problem or condition is corrected, you can press **Start** to turn off the light and resume printing.

  Note: The ribbon should be changed only while the printer is offline.

- The **Wheel** light is on when a printwheel is not present or a change printwheel command has been received. The printer is offline when the **Wheel** light is on.

  Once the printwheel is inserted, you can begin printing by pressing **Start**.

  Note: The printwheel should be changed only while the printer is offline.

- When the Auto Stop function (see "Using the Auto Stop Function" on page 3-13) is active, the **Paper** light comes on whenever the printer senses the end of a page. When the light comes on, the printer goes offline and the beeper sounds three times. You may now load another sheet of paper and press **Start** to resume printing.

  With the optional pinwheel form feeder attached, the **Paper** light comes on when the printer senses the end of continuous form paper. When the light comes on, the printer goes offline and the beeper sounds three times. You must add paper before you can go back online. (If you press **Start** without adding paper, the printer will beep, but will not go back online.)

  Note: You can send a computer command to tell the printer not to go offline when it senses the end of continuous form paper.

  For information on other options, see the instructions that came with the option.

Printer Control Buttons

The **Stop** and **Start** buttons control the online and offline status of your printer.

When your printer is online:

- The printer accepts commands from the computer and can print data.
- The **Ready** and **Online** lights are on.
- The remaining front panel lights are off.
- All front panel buttons except **Stop** do not function.

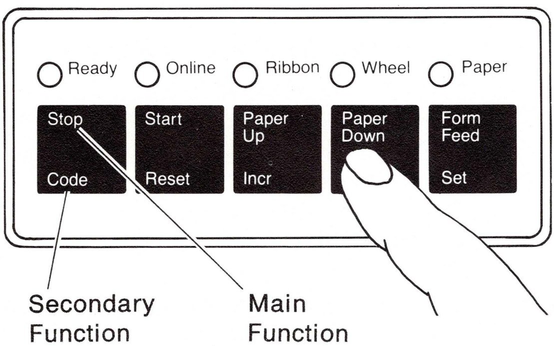
When your printer is offline:

- The printer does not accept commands from the computer to print data.
- The carrier moves toward the center of the platen.
- The **Ready** light is on.
- The **Online** light is off.
- The remaining front panel lights may be on or off.
- All front panel buttons are operable.

Each control button on your printer serves two separate functions: a main function and a secondary function. Press the button normally to use its main function. To use the secondary function of a button, press and hold the **Code** button, then press the second control button.

The main function on each button is printed in white letters and the secondary function is printed in green letters.

Note: You *must* press the *center* of the button, whether you are using its main or secondary function.



- The **Stop** button changes the printer status from online to offline. When the printer goes offline, the carrier moves to the center.

  You can also use the secondary functions of other buttons by pressing the **Stop** button as you would press the **Shift** key on a typewriter. When used in this way, the **Stop** button is referred to as **Code**.

  To use **Code**:

  1. Press and hold down **Code**.
  2. Keep **Code** held down while you press the other button you want to use.

- The **Start** button changes the printer status from offline to online. When the printer goes online, the carrier moves to the left margin or to the position where printing is to be resumed.

  When you press the **Start** (**Reset**) button while pressing **Code**, the printer goes online, the carrier moves to the left margin, and the printer resets all defaults. This is equivalent to turning the power off and on.

- The **Paper Up** button moves the paper up, thus moving the writing line down the page. You can use this button only when the printer is offline.

  The paper moves up six lines per inch. (You can send a computer command or change the default switch setting for a different amount of paper movement.)

  If you press the **Paper Up** button for longer than 1/2 second, the printer continues to feed the paper until you release the button.

  When you press **Paper Up** while pressing **Code**, the paper moves up slightly (1/96 of an inch rather than one line). Use this to help finely adjust the printing line.

  The printer will also feed the paper continuously when you hold **Code** and **Paper Up** pressed for longer than 1/2 second.

- The **Paper Down** button moves the paper down, thus moving the writing line up the page. You can use this button only when the printer is offline.

  The paper moves down six lines per inch. (You can send a computer command or change the default switch setting for a different amount of vertical paper movement.)

  If you press the **Paper Down** button for longer than 1/2 second, the printer continues to move the paper until you release the button.

When you press **Paper Down** while pressing **Code**, the paper moves down slightly (1/96 of an inch rather than one line). Use this to help finely adjust the printing line.

The printer will also move the paper continuously when you hold **Code** and **Paper Down** pressed for longer than 1/2 second.

- The **Form Feed** button advances the paper to the first line of the next form. The printer must be offline before this button will work. The paper moves to the top of the next form. The form length is set at either 11 or 12 inches, depending on the switch setting (unless you send a computer command for a different amount).

  When you press **Form Feed (Set)** while pressing **Code**, the printer sets the printing line as the first line of the form and the printwheel spins. From then on, each time you press **Form Feed**, the paper advances to this new first line on the next form.

  Note: Inserting paper by using the paper bail also sets this line as the top line of the form.

Interrupting a Printing Operation

You can interrupt a printing operation by pressing the **Stop** button on the printer.

1. Press and hold **Stop** until printing stops.
2. Press **Start** to begin printing again. Printing will resume at the point where it was stopped.

Interrupting a Printing Operation and Clearing the Buffer

The printer has a buffer storage area. Since the computer may occasionally send data faster than the printer can print it, this buffer allows the computer to continue sending data without having to wait for the printer to catch up. The buffer holds about one page of information.

You must clear the buffer if you interrupt a job and wish to start printing from the beginning again. You must also clear the buffer if you stop printing in the middle of one job and wish to begin printing a different job.

To interrupt a printing operation and clear the buffer:

1. Press and hold **Stop** until printing stops.
2. Press **Form Feed** to move the paper to the top of the next form.
3. Press and hold **Code** and then press **Start** (**Reset**).
   - The printer will come online.
4. Send the information from the computer to the printer again.

Using the Auto Stop Function

Normally, your printer continues printing as long as your computer sends commands. With the Auto Stop function, you can tell your printer to stop printing at the end of each page. You would use this function when you wish to print a multipage document and do not have a sheet feeder. To use the Auto Stop function:

1. Press and hold down **Code** and then pull the paper bail lever all the way forward.
   - This activates the Auto Stop function but does *not* insert paper.
2. Insert paper automatically using the paper bail lever as you normally do.
   - The Auto Stop function remains active until:
     - The computer resets the printer.
     - You turn the printer off.
     - You press the **Reset** button.
     - A computer command is received to terminate the Auto Stop function.

When the printer moves past the end of the page while in Auto Stop, the printer goes offline and beeps three times. The end of the page is determined by the page length switch setting or a computer command and not necessarily where the paper actually ends. (For more information, refer to "Switch Settings" on page 3-23.) For example, if the page length is set for 11 inches, the printer will go offline and beep three times when you feed past the 11-inch point, even if the page is physically longer than 11 inches.

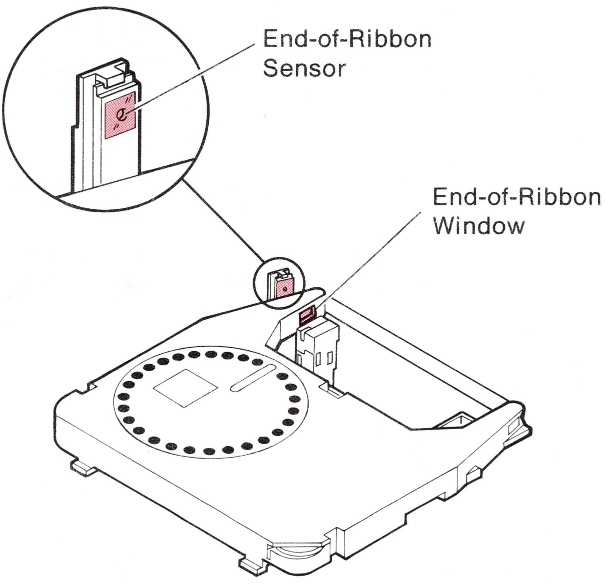
Note: Some software packages override this function. You should print a test document using the Auto Stop function to determine if your software is compatible with this feature.

Ribbon Installation

Your printer warns you when it is out of ribbon if you are using a ribbon cassette with an end-of-ribbon window (see the illustration below). When the printer senses that the end of the ribbon has passed this window, the **Ribbon** light comes on, the printer goes offline, and the beeper sounds three times.

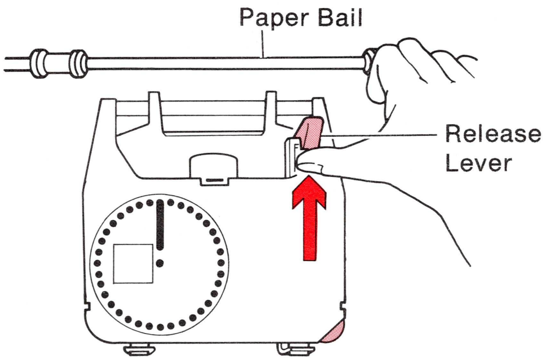
Any ribbon problem prevents the printer from going online and turns on the **Ribbon** light. Whenever the **Ribbon** light comes on, make sure that you have not run out of ribbon. (Look for the colored tape or "trailer" at the end of the ribbon.) If you are not out of ribbon, refer to "Chapter 4, Problem Determination Procedures" for assistance.

Note: The ribbon should be changed only with the printer offline. Whenever you change the ribbon, gently clean the end-of-ribbon sensor with a soft cloth.

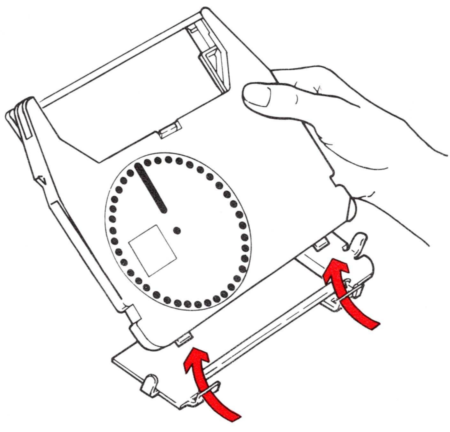


Removing the Ribbon Cassette

1. Place the printer offline.
2. Lift up the printer cover.
3. Make sure the paper bail is against the platen.
4. Push the release lever until the cassette releases.



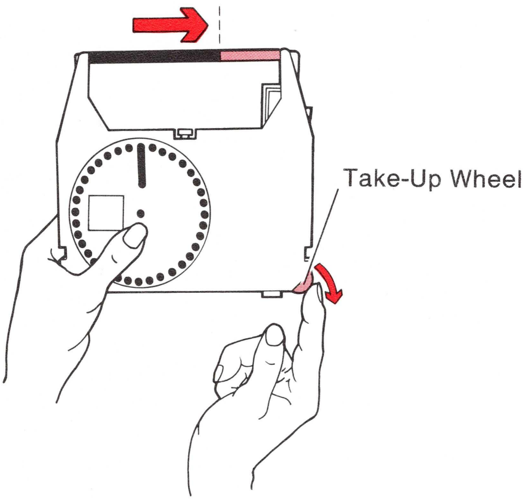
5. Lift the cassette up and out of the printer.



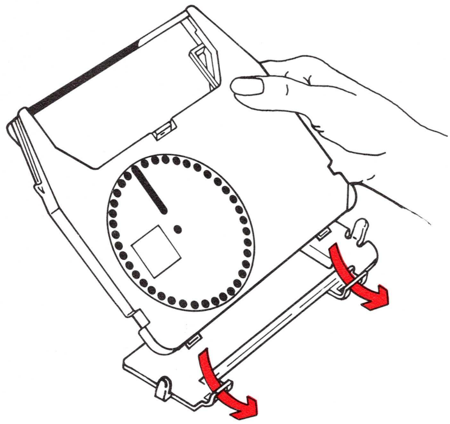
Installing the Ribbon Cassette

1. Before installing an IBM "Easystrike" Correctable Ribbon Cassette or an IBM "Easystrike" Multipurpose Ribbon Cassette into the printer, turn the take-up wheel to advance the colored leader past the center.

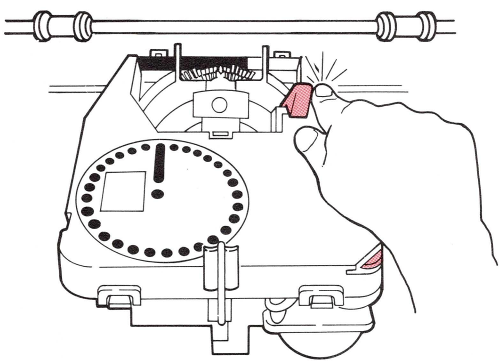
   Note: The IBM "Easystrike" Fabric Ribbon Cassette has a continuous loop of ribbon so there is no leader to advance.



2. Install the ribbon cassette into the printer.

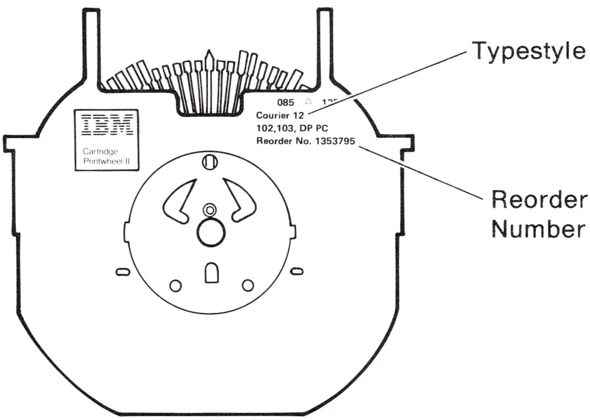


3. Push down on the right corner of the ribbon cassette to snap it into place.



Changeable Printwheels

The IBM Cartridge Printwheel II is available in several different typestyles and pitches. Some of the available typestyles are listed on page 6-4. The illustration below shows where to find the typestyle and reorder number on the printwheel.

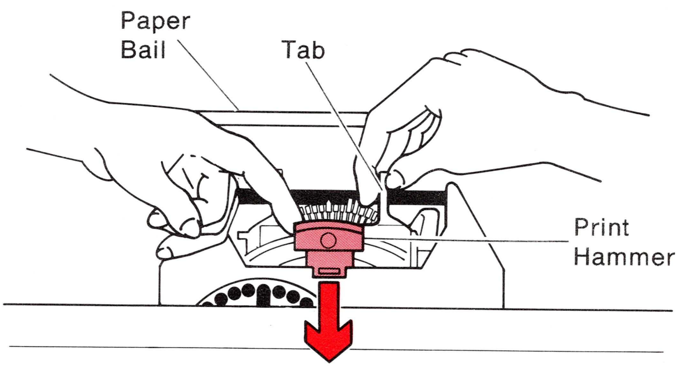


To order new or replacement printwheels, refer to "Ordering Procedures" on page 6-5.

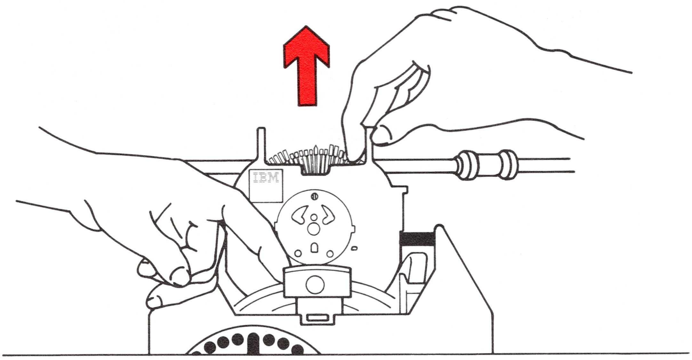
Removing the IBM Cartridge Printwheel II

CAUTION
To prevent unwanted carrier motion, make sure the paper bail is against the platen. Do *not* pull the paper bail toward you into the forward position. This action will initiate the paper load cycle and cause the carrier to move.

1. Pull the print hammer toward you and hold it.
2. While you are holding the print hammer, grasp the printwheel tab.

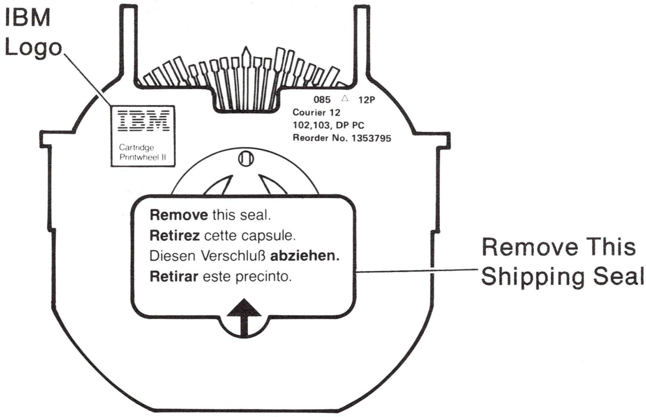


3. Lift the printwheel straight up and out of the slot.
4. Gently release the print hammer.



Installing the IBM Cartridge Printwheel II

Important: Remove the yellow shipping seal from the center of a new printwheel before installing.



When installing the IBM Cartridge Printwheel II, make sure the IBM logo is facing you. Read the information on the upper right corner to verify you have the desired pitch and typestyle.

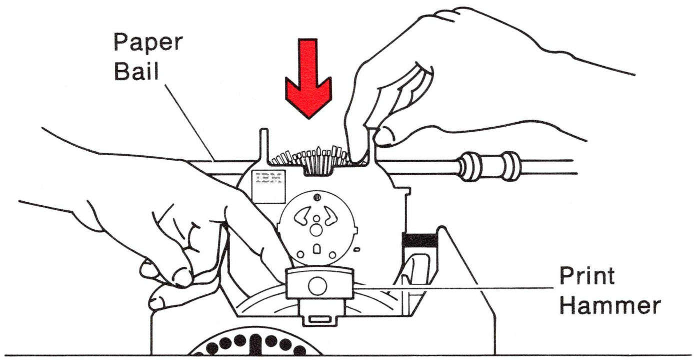
Your printer automatically sets the pitch to match the printwheel when:

- The printer is powered on.
- The **Reset** button is pressed.
- The computer resets the printer.
- A computer command is received to change printwheels.

Installing the Printwheel (continued)

CAUTION
To prevent unwanted carrier motion, make sure the paper bail is against the platen. Do *not* pull the paper bail lever toward you into the forward position. This action will initiate the paper load cycle and cause the carrier to move.

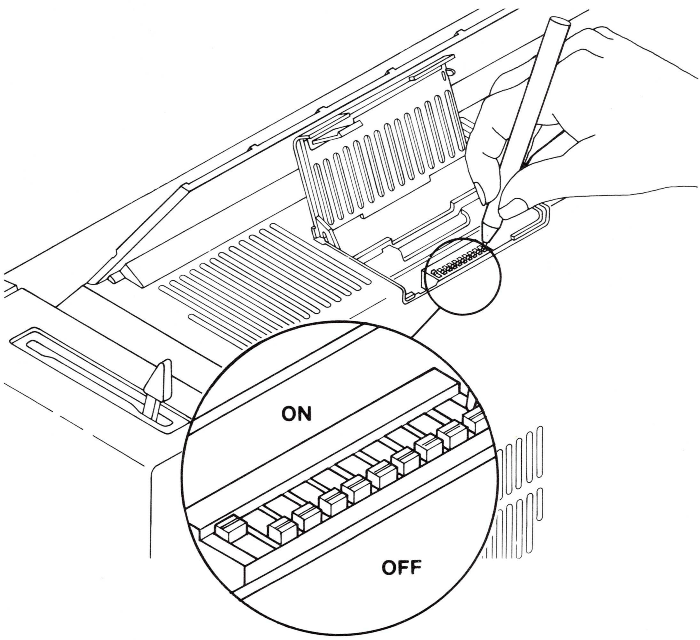
1. Hold the printwheel so the IBM name is in the upper left corner.
2. Pull and hold the print hammer toward you.
3. Slide the printwheel into the slot.
4. After the printwheel touches the bottom of the slot, gently release the print hammer.
5. Press the **Start** key to place the printer online.



Switch Settings

Your printer comes equipped with a group of switches. These switches change how your printer performs certain automatic functions. These switches are located under the door on top of the printer behind the paper table.

Always turn the Power switch off before changing a switch setting. Change the setting by moving the switch to the new setting with the tip of a pen. (Do *not* use a pencil.)



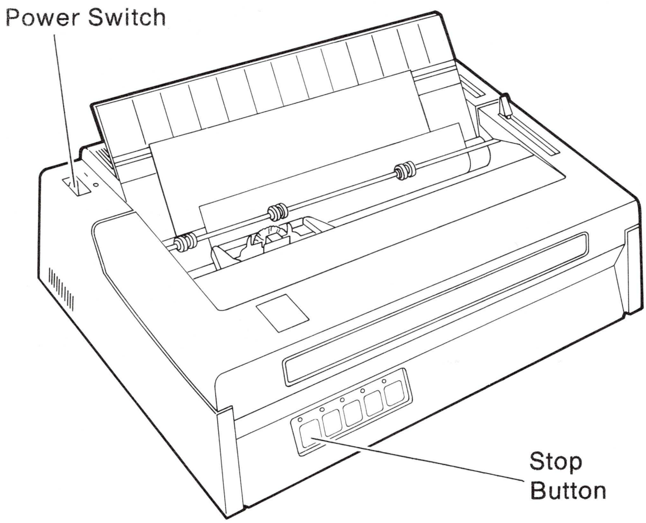
Switch Number	Function	Switch On	Switch Off	Set at Factory
1	The paper indexes after receiving a carrier return.	Active	Not Active	Off
2	Form Length	12 inches	11 inches	Off
3	Skipover perforation	Active	Not Active	Off
4-6	Country Select (see table on page 3-25)			Off, Off, Off
7	Audible Alarm	Not Active	Active	Off
8	Line Spacing	8 lines per inch	6	Off
9	Line Length	13.2 inches	8 inches	Off
10	Hex Dump	Active	Not Active	Off

Country Select Switches

Switch 4	Switch 5	Switch 6	Country	Printer Table
Off	Off	Off	U.S.	Table 1
Off	Off	On	Spain	Table 2
Off	On	Off	France	Table 2
Off	On	On	Germany	Table 2
On	Off	Off	Italy	Table 2
On	Off	On	UK	Table 2
On	On	Off	U.S.	Table 1
On	On	On	U.S.	Table 1

Printer Self Test

Whenever you want to make sure your printer is operating correctly, you should run the printer self test.



1. Make sure the paper is inserted lengthwise. If not, the test will print off the paper onto the platen.
2. Turn the printer off.
3. Unplug the printer cable from the rear of the printer.
4. Press and hold **Stop** on the printer.

5. Turn the printer on while holding **Stop** pressed. You can release **Stop** when the printer beeps.
   - The first line of printing shows your switch settings (1 = on, 0 = off), and an eight-character code. (This code is used by the person who services your printer.) The following lines show the characters on your printwheel.

Note: The actual characters printed depend on which printwheel you are using.

Switch Settings

Eight-Character Code

```
0100000000 87249013
anrmcsdhlfk,V-GUFBZHP)RLSNCTDEIAJO(M.Y,/W9K3X12054687*$#%^+`@Q&][\¦~<>}{!?"'=:_;xqvzwj.ybgupitoe
nrmcsdhlfk,V-GUFBZHP)RLSNCTDEIAJO(M.Y,/W9K3X12054687*$#%^+`@Q&][\¦~<>}{!?"'=:_;xqvzwj.ybgupitoea
rmcsdhlfk,V-GUFBZHP)RLSNCTDEIAJO(M.Y,/W9K3X12054687*$#%^+`@Q&][\¦~<>}{!?"'=:_;xqvzwj.ybgupitoean
mcsdhlfk,V-GUFBZHP)RLSNCTDEIAJO(M.Y,/W9K3X12054687*$#%^+`@Q&][\¦~<>}{!?"'=:_;xqvzwj.ybgupitoeanr
csdhlfk,V-GUFBZHP)RLSNCTDEIAJO(M.Y,/W9K3X12054687*$#%^+`@Q&][\¦~<>}{!?"'=:_;xqvzwj.ybgupitoeanrm
```

6. If the printer does not print, or if the print quality is poor, refer to "Chapter 4, Problem Determination Procedures" for assistance.
7. To interrupt printing, turn the printer off.

Chapter 4. Problem Determination Procedures

Use these Problem Determination Procedures before having your printer serviced. You may be able to correct the problem without help from a service representative and avoid unnecessary downtime and service costs. By following the step-by-step procedures and answering yes or no to the questions asked, you will be able to determine what to do to make your printer operational again.

Note: A spare ribbon and printwheel are needed to diagnose some problems.

Follow the steps in order. If you change anything on the printer, try to print again before going to the next step.

Look for your problem on the chart below and follow the instructions. If your problem is not listed, begin with Step 1 on page 4-3.

If your printer has run out of ribbon, but the **Ribbon** light did not come on:	Make sure your ribbon cassette has the end-of-ribbon window and the end-of-ribbon sensor is clean (see page 3-14). If your cassette has a window and it is clear, and the end-of-ribbon sensor is clean, your printer requires service.
If the **Ribbon** light is on and the printer beeped three times:	Go to Step 9 on page 4-5.
If the **Wheel** light is on and the printer beeped three times:	Go to Step 11 on page 4-6.
If you have a paper handling problem:	Go to Step 15 on page 4-7.
If the **Paper** light is on and the printer beeped three times:	Go to Step 17 on page 4-7.
If the lights are blinking and the printer beeped six times:	Make sure your ribbon and printwheel are installed properly. Turn the printer off, wait five seconds and then turn it on again. If the problem occurs again, your printer requires service.
For any other problem:	Start on the following page with Step 1 on page 4-3.

1. Make sure your printer power cord is properly connected.

   a. Make sure any other equipment plugged into the same wall outlet is operating.
   b. Make sure the printer power cord is plugged into the back of the printer.
   c. Make sure the printer is completely plugged into a wall outlet.
   d. Make sure the wall outlet does not turn off with the room lights.
   e. Plug the printer into a different wall outlet.

2. Make sure your printer cable is properly connected from your computer to your printer and any attached options are properly installed.

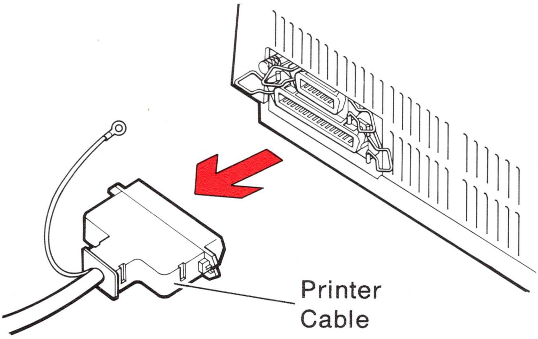
3. Make sure the printer is turned on.

   Did you find any problem while following the above steps?

   NO – Go to Step 4 on page 4-4.

   YES – Correct the problem and try to print again.

4. Turn off the Power switches on the printer and system unit (and expansion unit, if attached).



5. Disconnect the printer cable from the printer and make sure that nothing else is attached to the connector.

6. Turn the printer Power switch back on again.

   After a few moments, *only* the **Ready** and **Online** lights should still be on.

If your **Wheel** light is on and the printer beeps three times:	Go to Step 11 on page 4-6.

Are *only* the **Ready** and **Online** lights still on?

NO – Have your printer serviced.

YES – Go to Step 7 on page 4-5.

7. Run the printer self test.

   If you need help in running the printer self test, refer to "Printer Self Test" on page 3-26.

   Did some characters print on the paper?

   NO – Install a new ribbon cassette and run the printer self test again. If the problem persists, your printer requires service.

   YES – Continue with this step.

   Was the quality of the printing adequate? (Were you satisfied with the way the letters looked?) Did all the characters print?

   NO – Go to Step 36 on page 4-13.

   YES – Go to Step 8.

8. Is the **Ribbon** light on?

   NO – Go to Step 11 on page 4-6.

   YES – Go to Step 9.

9. Check the ribbon for the following problems:

   a. Make sure the printer has not run out of ribbon. (Look for the colored tape at the end of the ribbon.)
   b. Make sure the ribbon is not broken or wrinkled.
   c. Remove the ribbon cassette from the printer.
   d. Make sure the ribbon is tight and that all slack is taken up.
   e. Advance the ribbon and replace it in the printer.
   f. Try using another ribbon on the printer.

10. Try to print again.

    Did the **Ribbon** light go off?

    NO – Your printer requires service.

    YES – Go to Step 11 if you have another printer problem. If not, leave "Chapter 4, Problem Determination Procedures" and continue printing.

11. Is the **Wheel** light on solid?

    NO – Go to Step 13.

    YES – Go to Step 12.

12. Make sure your printwheel is installed properly. Press the **Start** button.

    Did the **Wheel** light go off?

    NO – Your printer requires service.

    YES – Go to Step 13 if you have another printer problem. If not, leave "Chapter 4, Problem Determination Procedures" and continue printing.

13. Do the printer buttons operate properly?

    NO – Go to Step 14 on page 4-7.

    YES – Go to Step 15 on page 4-7.

14. Turn the printer off, wait five seconds, and then turn it on again.

    Do the buttons operate properly now?

    NO – Your printer requires service.

    YES – Go to Step 15 if you have another printer problem. If not, leave "Chapter 4, Problem Determination Procedures" and continue printing.

15. Is the paper feeding properly?

    NO – Go to Step 17.

    YES – Go to Step 16.

16. Is the **Paper** light on?

    NO – Go to Step 35 on page 4-12.

    YES – Go to Step 17.

17. Do you have a pinwheel form feeder attached?

    NO – Go to Step 18.

    YES – Go to Step 20 on page 4-8.

18. Do you have a sheetfeed attached?

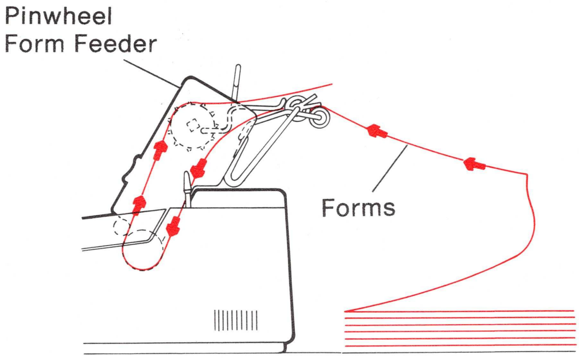
    NO – Go to Step 19 on page 4-8.

    YES – Go to Step 24 on page 4-9.

19. Make sure the paper release lever is all the way toward the back, then try to feed paper again. Does the problem persist?

NO – Start the job again from the system.

YES – Your printer requires service.



20. Make sure the forms and the pinwheel form feeder are installed properly.

21. Make sure there is nothing blocking the forms path.

    If you need help with any of the above, refer to "Chapter 5, Options."

    Did you find any problem with the form feeder?

    NO – Go to Step 22.

    YES – Correct the problem or have your pinwheel form feeder serviced.

22. Turn the printer off and remove the pinwheel form feeder. Remember to push the paper release lever all the way toward the back.

23. Insert a single sheet of paper into the printer.

    Did the paper feed properly?

    NO – Your printer requires service.

    YES – Your pinwheel form feeder requires service.

24. Make sure the sheetfeed and sheetfeed paper tray are installed correctly, the cable is connected correctly, the paper is loaded correctly, and the paper release lever is all the way toward the back.

25. Turn the printer Power switch off, then back on and observe the panel lights. Did the **Paper** light come on for a short time and then go off?

    NO – Go to Step 34 on page 4-12.

    YES – Go to Step 26.

26. Remove the paper tray. Is the paper straight in the paper tray and against the front and left edges of the metal stops? If you need help with loading the paper, see the instructions that came with your sheetfeed.

    NO – Load the paper correctly and try the job again.

    YES – Go to Step 27 on page 4-10.

27. Check the paper supply.

- Is the paper the correct size and weight for this printer?
- Is the paper free of damage?
- Have you fanned the paper so that the sheets of paper do not cling together?

28. Is the paper tray too full? (Paper capacity is approximately 100 sheets or 15 mm [0.59 in]).

NO – Replace the paper tray and go to Step 30 on page 4-11.

YES – Go to Step 29.

29. Press **Stop** and wait for the **Ready** light to go off.

a. Clear any paper jammed in the printer.
b. Remove the excess paper from the paper tray and install the paper tray.
c. Try the job again. Did the sheetfeed work properly?

NO – Your sheetfeed requires service.

YES – Your sheetfeed is working normally. Start the job again from the system.

30. Is the paper deflector in the correct position for the method of paper feeding you are using? If you need help with the automatic feeding of paper, see the instructions that came with your sheetfeed.

    NO – Set the paper deflector correctly and try the job again.

    YES – Go to Step 31.

    Note: The paper deflector can be removed for cleaning. Push the bottom of the deflector to the back and pull the top of the deflector up and out toward you. To install the deflector, reverse the procedure.

31. Press **Stop** and wait for the **Online** light to go off. Press **Form Feed** and wait for a sheet of paper to enter the printer.

    Did the paper stop at the first writing line?

    NO – Go to Step 34 on page 4-12.

    YES – Go to Step 32.

32. Is the paper bail open?

    NO – Go to Step 34 on page 4-12.

    YES – Go to Step 33 on page 4-12.

33. Press **Form Feed** and watch the paper move out of the printer into the paper tray. Did the paper move out correctly?

    NO – Go to Step 34.

    YES – Your sheetfeed is working normally. Start the job again from the system.

34. Turn the printer Power switch off. Disconnect and remove the sheetfeed from the printer. Turn the printer Power switch on.

    Manually feed a sheet of paper in to the printer. Does the paper feed correctly to the first writing line?

    NO – Your printer requires service.

    YES – Your sheetfeed requires service.

35. Is the quality of the printing adequate? (Are you satisfied with the way the letters look?)

    NO – Go to Step 36 on page 4-13.

    YES – Go to Step 38 on page 4-14.

36. Check the following items. Then check your print quality after checking each of the items.

    If you need help in checking these items, refer to "Chapter 3, Operation."

    a. Make sure you are printing on unwrinkled paper of acceptable quality.
    b. Advance the ribbon cartridge to an unused portion of ribbon.
    c. Try printing with a new ribbon.
    d. Replace the printwheel.
    e. Make sure the platen is latched down completely at both ends.
    f. If a pinwheel form feeder is attached, make sure it is installed correctly.

37. Try to print again.

    Did your print quality improve after following the above steps?

    NO – Have your printer serviced.

    YES – Go to Step 38 on page 4-14 if you have another printer problem. If not, leave "Chapter 4, Problem Determination Procedures" and continue printing.

38. Check the following items. Try to print again after checking each.

If you need help in checking these items, refer to "Chapter 3, Operation."

a. Make sure you are using the proper printwheel for your application.
b. Make sure your switch settings are properly set for your application.
c. Make sure you are using the correct printer cable (part number 1525612) and that it is properly attached to your computer and printer.

39. Your printer is also controlled by program commands from your system unit. There may be commands in your program that are causing the problem.

Try running a different program that you've run successfully in the past.

Do you still have a problem with the different program?

NO – Examine the original program for commands that are causing the problem.

YES – Go to Step 40 on page 4-15.

40. Run the diagnostic procedures for your computer.

    Did the diagnostic procedures locate any problem?

    NO – Go to Step 41.

    YES – Follow the instructions in your computer manual.

41. If your printer is still not working properly after following the above steps and you feel the problem is not in your computer, have your printer serviced.

Chapter 5. Options

Pinwheel Form Feeder

An optional pinwheel form feeder is available for your printer. This form feeder can use forms with an overall width of 76.2 to 381 mm (3 to 15 in) edge to edge, and with a pin-to-pin width of 63.5 to 368.3 mm (2.5 to 14.5 in). Three-part forms is the maximum thickness which should be fed through this form feeder.

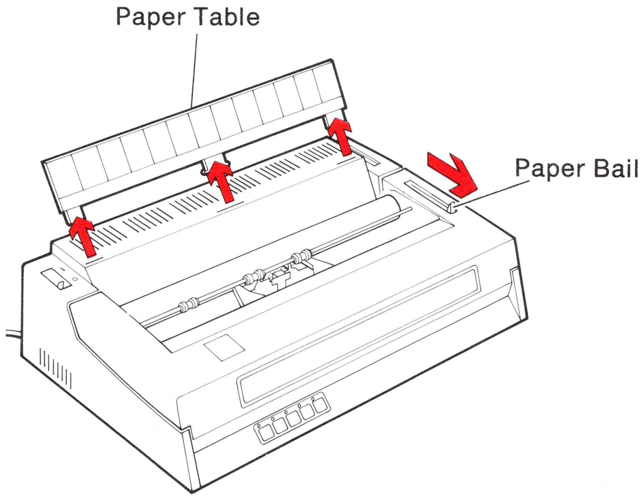
The pinwheel form feeder is a unidirectional feeder, and reverse feeding of continuous forms is not recommended.

Avoid printing on the perforations of the form paper.

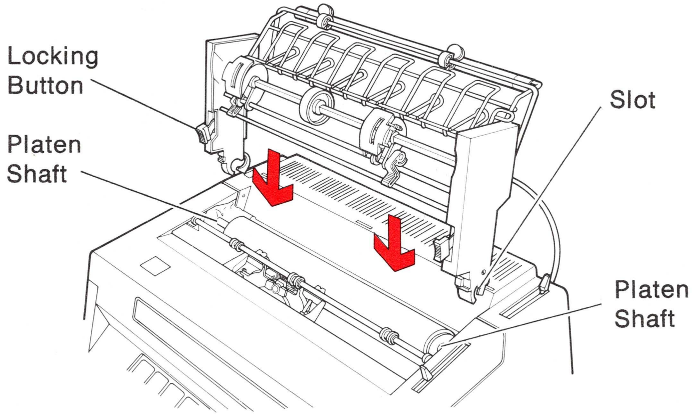
When the pinwheel form feeder is attached, you cannot use the paper bail to automatically insert or move the paper.

The printer uses the **Paper** light to warn you when you are at the end of a stack of forms. At the end of the stack of forms, the printer goes offline and the beeper sounds three times.

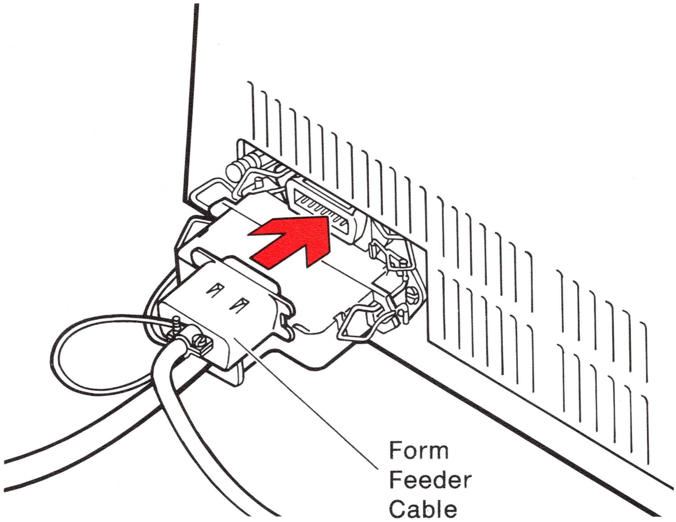
Installing the Form Feeder



1. Press **Stop** to place the printer offline.
2. Turn the printer Power switch off.
3. Remove the paper table.
4. Pull the paper bail forward.



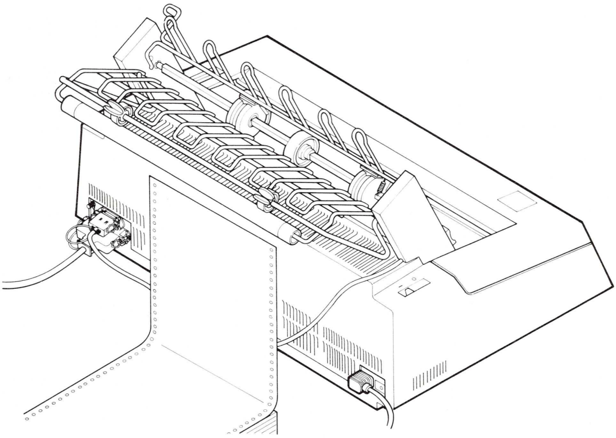
5. Lower the form feeder onto the printer so the slots rest on the platen shaft.
6. Let the form feeder rest back against the printer cover.
7. Firmly press the two black locking buttons to lock the form feeder in place.



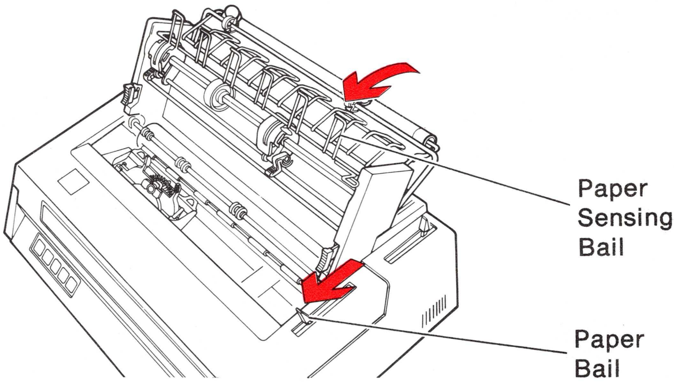
8. Plug the form feeder cable into the top connector on the back of the printer.
9. Push the clips into the notches on the connector to hold the cable in place.

Installing Forms

Use the following steps to install forms in your printer.

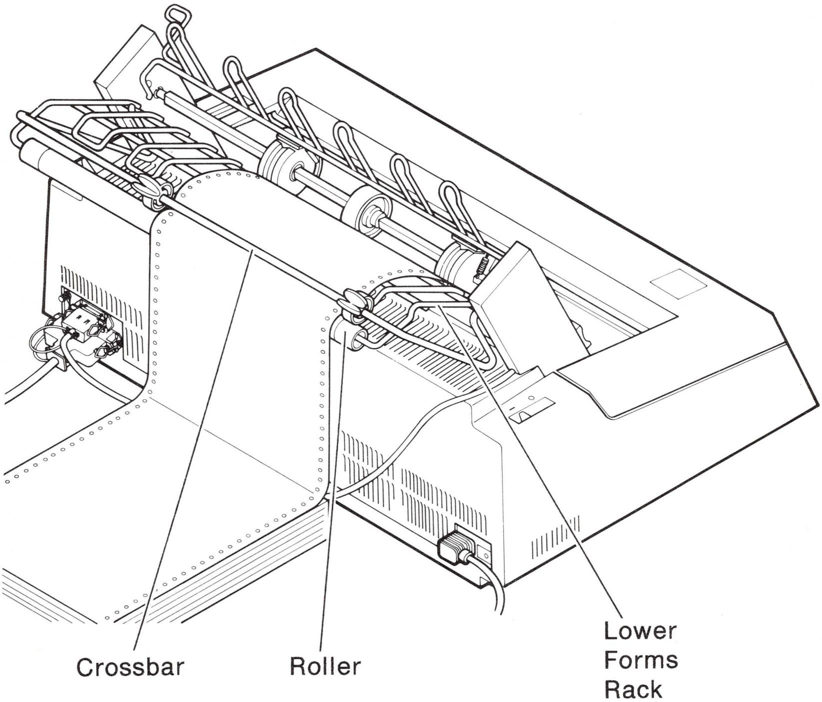


1. Press **Stop** to place the printer offline.
2. Position the forms directly behind and below the printer. The forms should be no more than 914.4 mm (3 ft) below the printer. Adjust the forms left or right so the forms feed into the printer straight.

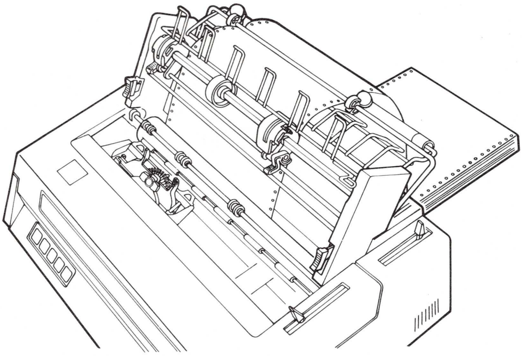


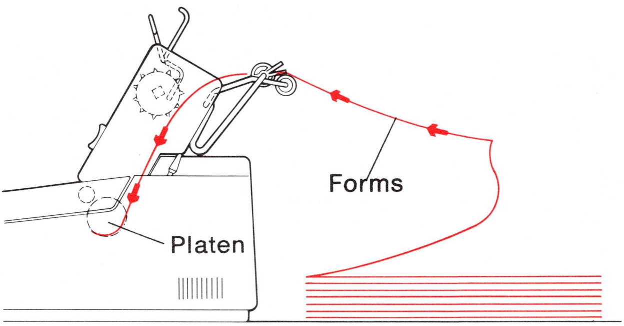
3. Pull the paper bail toward you until it stays in the open position. If you move the paper bail all the way forward, the printer will beep to indicate that you cannot use the paper bail to insert paper automatically.
4. Move the paper sensing bail toward you until it stays in the open position.

5. Insert the form under the crossbar at the back end of the feeder. The form must go *over* the roller, *under* the crossbar, and *over* the lower forms rack.



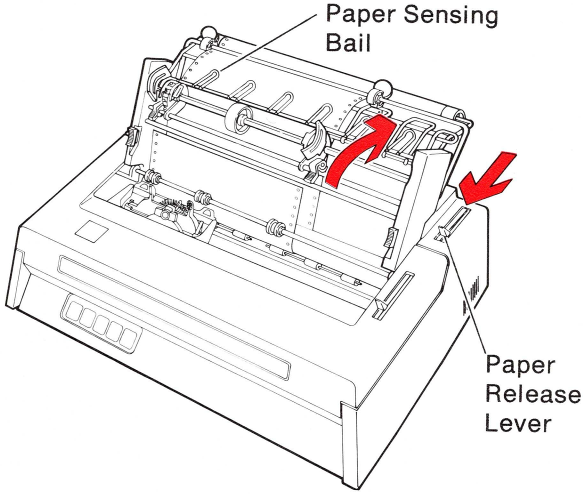
6. Feed the form behind the pinwheels until the form reaches behind the platen.

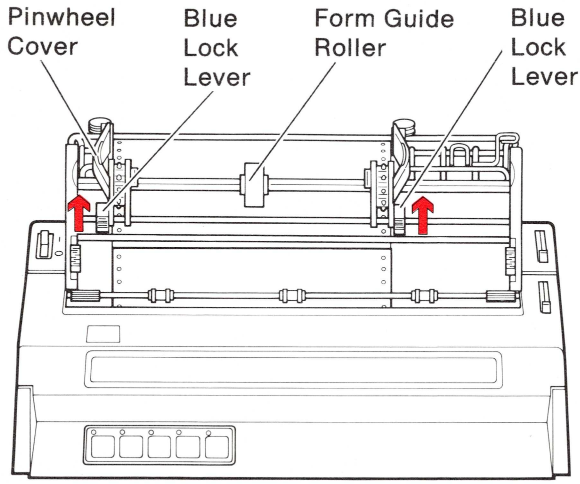




7. Lightly hold the form in place.
8. Move the paper sensing bail away from you until it rests on the form.
9. Use **Paper Up** to feed the form *under and around* the platen.
10. Pull the paper release lever all the way toward you and leave it there.

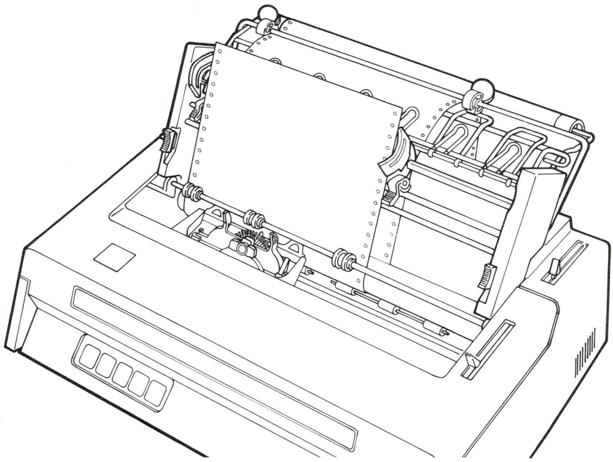
Note: The form *will not* feed properly during printing unless you pull the paper release lever forward.

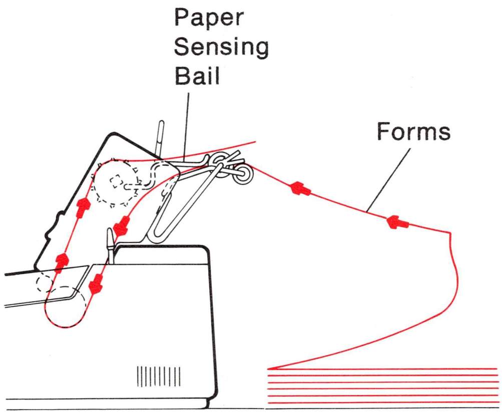


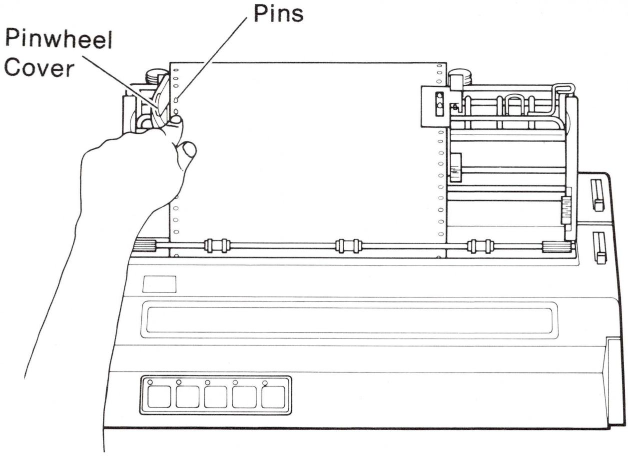


11. Open the pinwheel covers.
12. It may be necessary to move the pinwheels so the form fits over the pins. If you must move the pinwheels, unlock the pinwheels by tilting the blue pinwheel lock levers upward.
    a. Slide the left pinwheel *all the way* to the left.
    b. Move the paper left or right until the form fits over the pins on the left pinwheel.
    c. Slide the right pinwheel to the right or left so the form fits over the pins.
13. Center the form guide roller between the pinwheels.
14. Make sure the form is lined up so the first character prints where you want it to print.
    - Readjust the pinwheels if necessary.

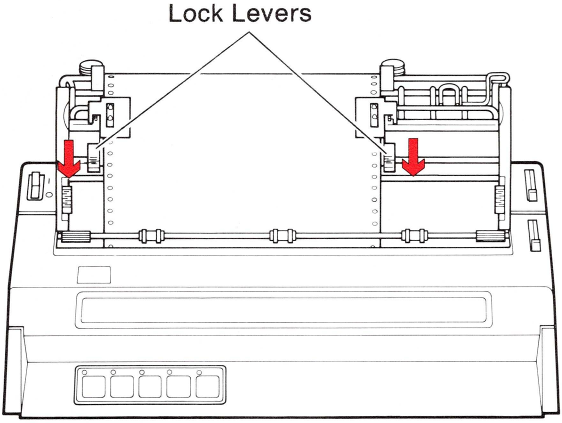
15. Pull the form through the feeder until the form extends about 12 inches above the platen and *over* the paper sensing bail.



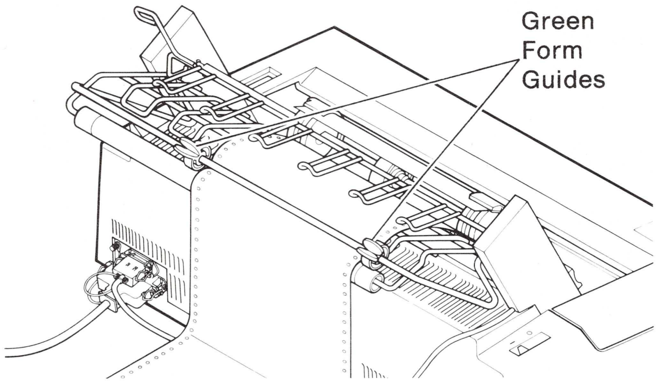




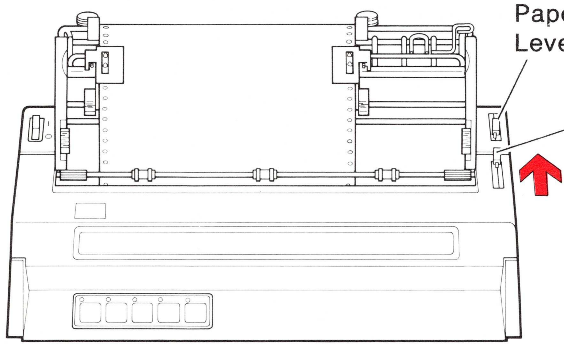
16. Position the holes in the form over the pinwheel pins and close the pinwheel covers. Remove any buckles in the paper by gently pulling the unused forms toward the rear of the machine.



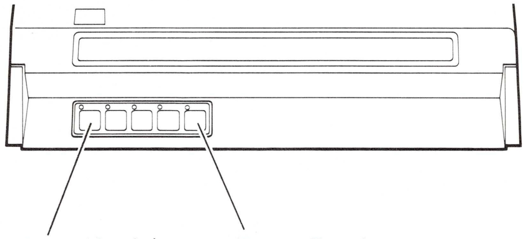
17. If you unlocked the pinwheels, lock them in place by tilting the blue pinwheel lock levers downward. Make sure the form is smooth between the pinwheels.



18. Move the green form guides near the edges of the forms by squeezing them. These guides help the forms to feed straight.



19. Close the paper bail. (The feeder holds the paper bail partially open.) Do *not* move the paper release lever.



20. To set the top of form, follow these steps:
    a. Use **Paper Up** to advance the paper to the top line of the next form. Do *not* use **Paper Down**.
    b. Press and hold **Stop** (**Code**) and press **Form Feed (Set)** to set the top line of the form.

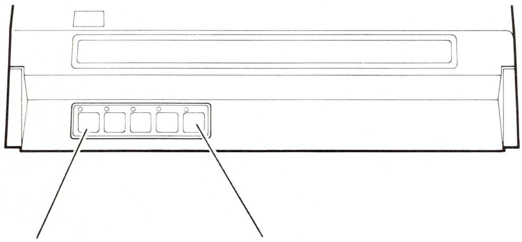
    If you need assistance, refer to "Setting the Top of Form" on page 5-17 for more information.

21. You are now ready to begin printing forms.

    Check the following if the forms don't feed properly after printing several forms:

    - Make sure you've pulled the paper release lever all the way toward you and left it in the forward position.
    - Make sure there are no buckles in the forms between the platen and the pinwheels by gently pulling the forms toward the rear of the machine.
    - Make sure you've adjusted the green form guides so they are near the edges of the forms.
    - Make sure the forms are lined up straight behind the printer.
    - Make sure that, as the forms are leaving the printer, they are feeding *over* the paper sensing bail and the crossbar at the back end of the feeder.

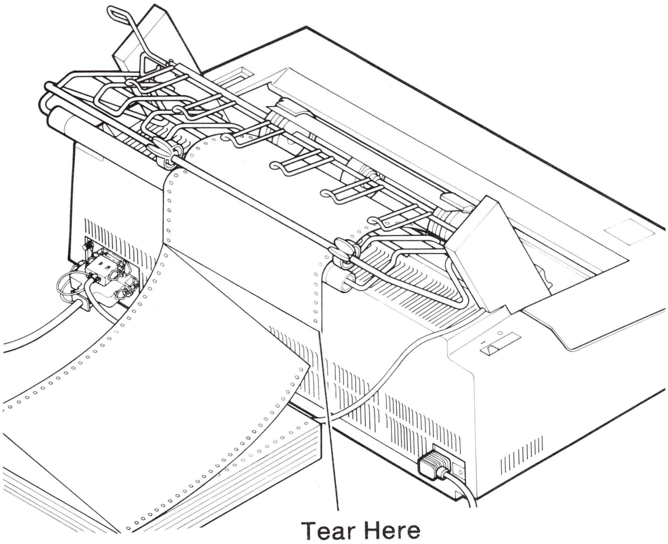
Setting the Top of Form



1. Use **Paper Up** to advance to the top line of the next form. Do *not* use **Paper Down**.
2. Press and hold **Stop** (**Code**) and press **Form Feed (Set)** to set the top line of the form.
   - The printwheel spins to indicate that the new top of form is set.

Note: The position of the forms, when the printer is powered on or when **Stop** (**Code**) and **Form Feed (Set)** are pressed, determines which line the forms will feed to when the form feed command is given. Pressing the **Form Feed** button, when the printer is offline, will also feed the forms to the top line of the next form. The length of the page can be changed by using the switches or by using printer commands from the system unit. The page length returns to the switch setting when the printer is powered off or receives a printer reset command from the system unit, or when the **Reset** button is pressed.

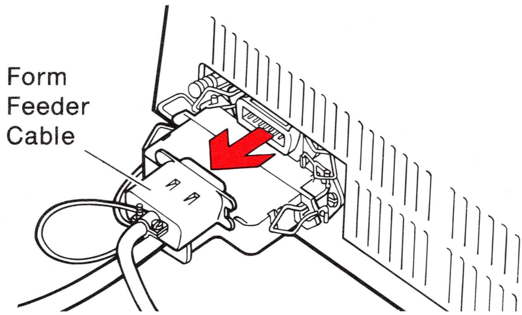
Removing Forms



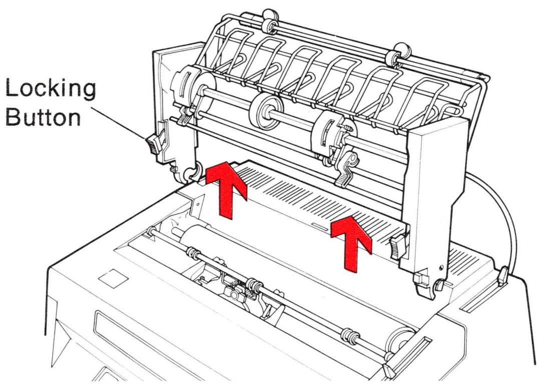
1. Press **Stop** to go offline.
2. Tear off the unfed forms along the perforations as close to the printer as possible.
3. Press **Form Feed** repeatedly until the forms are out of the form feeder.

Removing the Form Feeder

1. Press **Stop** to place the printer offline and to move the carrier to the center.
2. Turn the printer Power switch off.



3. Unplug the form feeder cable from the printer.



4. Unlock the two black locking buttons on the form feeder by pulling them toward you.
5. Lift the form feeder from the printer.
6. Install the paper table on the top cover of the printer.

Sheetfeed

An optional sheetfeed, which will automatically feed cut-sheet paper, is available for your printer. The sheetfeed has a paper tray with a paper supply section and an output section. The paper tray has a capacity of approximately 100 sheets of 20-pound paper or 15 mm (0.59 in). The sheetfeed uses paper of standard width and lengths.

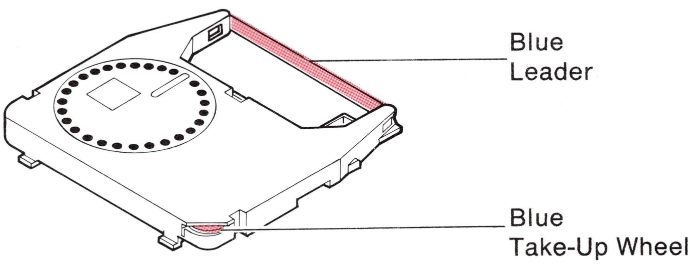
Chapter 6. Reference Information

Ribbons

To order an IBM ribbon, see "Ordering Procedures" on page 6-5.

IBM Easystrike™ Multipurpose Ribbon Cassette

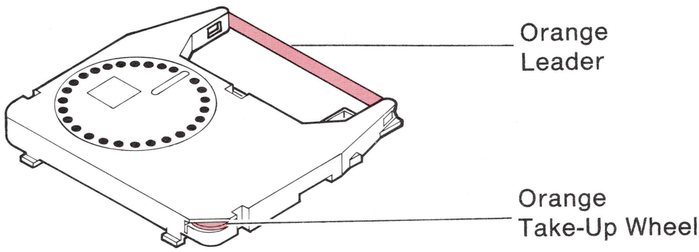
This ribbon provides a high-quality, uniform image on a broader range of papers. Typestyles larger than Courier work well with this ribbon. This ribbon is recommended for printing negotiable items, such as checks.



Reorder Number: 1337764 (black only).

IBM Easystrike™ Correctable Ribbon Cassette

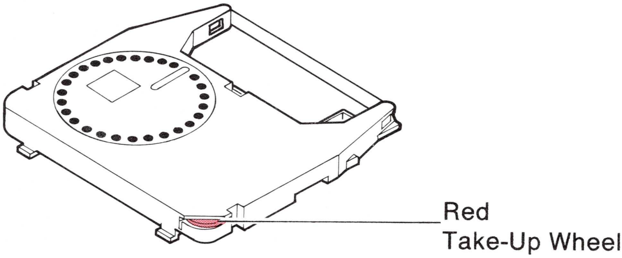
This ribbon is for general correspondence, and printing three copies or less gives the best results. It is recommended for documents that require exceptional print quality; however, it is not recommended for printing negotiable items, such as checks. Your original copy should be a smooth, 20-pound soft paper, such as good OCR or bond paper. Typestyles larger than Courier may not print uniformly with this ribbon. For larger typestyles, use the IBM "Easystrike" Multipurpose Ribbon Cassette, reorder number 1337764.



Reorder Numbers: 1337761 (black), 1337762 (brown), 1337763 (blue).

IBM Easystrike™ Fabric Ribbon Cassette

This ribbon is designed to be used for general-purpose, high-volume printing. It is recommended for draft document printing, classroom use, or anytime when economy is more important than quality.



Reorder Number: 1356000 (black only).

Printwheels

To order an IBM Cartridge Printwheel II, see "Ordering Procedures" on page 6-5.

IBM Cartridge Printwheel II Typestyles and Pitches

10 Pitch	12 Pitch	15 Pitch	PS Pitch
Artisan 10 Courier 10	Courier 12 Letter Gothic Prestige Elite	Courier 15 Gothic 15	Boldface Essay

Ordering Procedures

To order IBM supplies, contact your point of purchase:

IBM product center	____________________ (phone number)
Authorized IBM dealer	____________________ (phone number)
IBM Direct	____________________

Printing Applications for IBM "Easystrike" Ribbon Cassettes

	Multi-purpose	Correctable	Fabric
Legal Correspondence	•	•	•
Statistical Correspondence	•	•	•
Specification Writing	•	•	•
Medical Reports	•	•	•
Executive Correspondence	•	•	•
Routine Correspondence	•	•	•
Hard-to-Image Originals[1] (Engineering Drawings)	•	NR	NR
OCR	•	NR	NR
Carbon Copies or Multipart Forms	•	NR	NR
Speech Writing	•	NR	•
Negotiable Instruments (checks, stocks)	•	NR	NR
Erasable Bond[1]	•	NR	NR

• = Recommended
NR = Not Recommended

1 The surface of these materials varies widely. Care must be used in the selection of a specific material to be typed on, typestyle, and ribbon to produce the best result. When in doubt, prepare samples first.

Reproduction Applications for IBM "Easystrike" Ribbon Cassettes

	Multi-purpose	Correctable	Fabric
Heat Transfer	•	•	NR
Transfer Electrostatic	•	•	NR
Direct Electrostatic	•	•	NR
Offset Masters, Direct to Plate	NR	NR	•
Offset Masters, Copier Process	•	•	NR
Offset Masters, Photo Process	•	•	NR
Diazo Process, Ozalid[2] or Bruning[3]	•	•	NR

• = Recommended
NR = Not Recommended

2 Trademark of the GAF Corp.
3 Trademark of the Charles Bruning Co., Inc.

Printwheel Applications

Typestyle	Original	1–3 Carbon Copies	3–5 Carbon Copies	Offset Masters	Spirit Masters	Stencils
10 Pitch:						
Artisan 10	A	A	A	A	A	A
Courier 10	A	A	A	A	B	B
12 Pitch:						
Courier 12	A	A	A	A	B	B
Letter Gothic	A	A	A	A	B	B
Prestige Elite	A	A	B	A	A	A
15 Pitch:						
Courier 15	A	A	B	A	B	B
Gothic 15	A	B	C	NR	NR	B
PS:						
Boldface	A	B	C	NR	NR	B
Essay	A	A	B	A	B	B

Ratings:
A = Good; B = Fair; C = Marginal;
NR = Not Recommended

(Based on proper selection of ribbon, carbon paper, stencils, and so on)

Printer Control Codes

For certain applications, you can send specially coded characters from your computer to your printer to tell it how and what to print. These special characters are called printer control codes.

Below is an exercise using printer control codes with IBM Personal Computer BASIC. This exercise gives a printer instruction to print in the underline print mode.

1. If attached, position the computer expansion unit Power switch on.
2. Position the system unit Power switch on.
   - Do not load a diskette or cassette tape. The system will come up in IBM Personal Computer Cassette BASIC.
3. Position the printer Power switch on.
4. Type the following on one line:

```
LPRINT CHR$(27);CHR$(45); CHR$(1);"IBM Personal Computer"
```

5. Press the Enter (↵) button on the computer.
6. Your printer will print:

<u>IBM Personal Computer</u>

On the following pages you will find the complete ASCII control code charts for printer characters, controls, and graphics. You may want to keep it handy for future reference. The printer control codes are listed in ASCII decimal numerical order (e.g., NUL is 0 to ESC Z is 90). The examples in the "Printer Function" descriptions are written in the BASIC language.

Printer control codes are a manual method of implementing all of your printer's capabilities, even if your software package does not automatically support a particular capability. By using the proper printer control code, you can take advantage of all your printer's features.

Before using the printer control code charts, read your software instructions carefully, since each software application is unique. Some software allows you to embed control codes within text or data. Other software allows you to pass control codes only as part of the formatting lines, while some software packages prohibit the passing of any control codes to the printer.

ASCII decimal values for the printer control codes can be found in the printer tables starting on page 6-26.

Printer Control Code Chart

Printer Code	Printer Function
NUL	Null Used with ESC D as a list terminator. NUL is also used with other printer control codes to select options (e.g., ESC S). Example: LPRINT CHR$(0);
BEL	Bell Sounds the printer beeper. The activation of the beeper is switch selectable. Example: LPRINT CHR$(7);
BS	Backspace Backspaces the carrier one character width. Example: LPRINT CHR$(8);
HT	Horizontal Tab Tabs to the next horizontal tab stop. Tabs are set with ESC D. This code is ignored if there is no tab set. When the printer is powered on, tabs are set every eight columns, beginning with column 9. Example: LPRINT CHR$(9);
LF	Line Feed Spaces the paper up one line. Line spacing may be reset by ESC A, ESC 0, or ESC 2. Example: LPRINT CHR$(10);

Printer Code	Printer Function
FF	Form Feed The printer indexes to the top of the next form and the carrier moves to the left margin. Example: LPRINT CHR$(12);
CR	Carriage Return Returns the print position to the left margin on the same line. (No line feed operation takes place.) A switch setting is available to cause the printer to perform a line feed after every carrier return. *Note:* IBM Personal Computer BASIC adds a line feed to CHR$(13). Example: LPRINT CHR$(13);
SI	Shift In (Condense Print Mode) Changes the printer to condense print mode. All characters are printed with a 7/120-inch escapement (approximately 17.1 pitch). *Note:* A 15-pitch printwheel is recommended with this mode. Example: LPRINT CHR$(15);

Printer Code	Printer Function
DC2	Set 10 Pitch Changes the printer to 10-pitch print mode. All characters are printed with a 12/120-inch escapement. Example: LPRINT CHR$(18);
ESC	Escape Lets the printer know that the next data sent is a printer command. Example: LPRINT CHR$(27);
ESC –	Escape Minus (Set Underline Mode) Format: ESC –;*n*; ESC – followed by a *1* underlines all characters and spaces as they are printed. Example: LPRINT CHR$(27);CHR$(45);CHR$(1); ESC – followed by a *0* (zero) cancels the underline mode. Example: LPRINT CHR$(27);CHR$(45);CHR$(0);
ESC 0	Escape Zero (Set 1/8-Inch Line Feeding) Changes paper feeding to 1/8 inch. The default line spacing is switch selectable. Example: LPRINT CHR$(27);CHR$(48);
ESC 2	Escape Two (Start Variable Line Feeding) ESC 2 is an execution command for ESC A. If no ESC A command has been given, line feeding returns to 1/6 inch. The default line spacing is switch selectable. Example: LPRINT CHR$(27);CHR$(50);

Printer Code	Printer Function
ESC 4	Escape Four (Set Top of Form) Sets the current line as top of form. Example: LPRINT CHR$(27);CHR$(52);
ESC 5	Escape Five (Set Auto Feed Mode) Format: ESC 5;*n*; The auto feed mode causes the printer to perform automatically a line feed (LF) after each carrier return (CR) command. ESC 5 followed by a *1* turns on auto feed mode. A switch setting is available to cause the printer to perform a line feed after each carrier return. Example: LPRINT CHR$(27);CHR$(53);CHR$(1); ESC 5 followed by a *0* turns off auto feed mode. Example: LPRINT CHR$(27);CHR$(53);CHR$(0);
ESC 6	Escape Six (Select Printer Table 2) Selects printer character set in table 2. (See page 6-26.) The default character set is switch selectable. Example: LPRINT CHR$(27);CHR$(54);
ESC 7	Escape Seven (Select Printer Table 1) Selects printer character set in table 1. (See page 6-26.) The default character set is switch selectable. Example: LPRINT CHR$(27);CHR$(55);

Printer Code	Printer Function
ESC 8	Escape Eight (Ignore End of Page) Allows the printer to continue to print without stopping at the end of the form or page. When using friction feed (without the pinwheel form feeder attached), this command will cause the printer to continue printing. This is the default condition when using friction feed. This command terminates the Auto Stop function (see page 3-13). Example: LPRINT CHR$(27);CHR$(56);
ESC 9	Escape Nine (Stop at End of Form or Page) With the pinwheel form feeder attached, this command will cause the printer to stop and beep three times at the end of the form or page after an out-of-paper condition is sensed. This is the default condition when the pinwheel form feeder is attached. When using friction feed (without the pinwheel form feeder attached), this command will cause the printer to stop and beep three times after printing one page. This command is the same as the Auto Stop Function (see page 3-13). (Refer to ESC C.) Example: LPRINT CHR$(27);CHR$(57);
ESC :	Escape Colon (Set 12 Pitch) Changes the printer to 12-pitch print mode. All characters are printed with a 10/120-inch escapement. Example: LPRINT CHR$(27);CHR$(58);

Printer Code	Printer Function
ESC >	Escape Greater Than (Set Horizontal Motion Index) Format: ESC >;*n*; Causes all characters to be printed with a *n*/120-inch escapement. Example: LPRINT CHR$(27);CHR$(62);
ESC A	Escape A (Set Variable Line Feeding) Format: ESC A;*n*; Escape A sets the line feeding to *n*/*m* inch, where *m* is the vertical units parameter set by ESC [\. When the printer is powered on, *m* is set to 72. The valid range for *n* is 1 to 85. The example below tells the printer to set line feeding to 24/72 inch (assuming there has been no previous ESC [\ command). ESC 2 must be sent to the printer before the line feeding will change, for example, ESC A;CHR$(24);(text);ESC 2; (text). The text following ESC A;CHR$(24); will space at the previously set line feed increments. The text following ESC 2 will be printed with a new line feed increment of 24/72 inch. *n*/72 inch line feeding is approximated by *n'*/96 inch where $n' = \mathrm{INT}(n \times 4/3)$. Slight variations in line feeding may occur when increments not an even multiple of 1/96 inch are used (*no* variations at 6 or 8 lines per inch). The default line spacing is switch selectable. Example: LPRINT CHR$(27);CHR$(65);CHR$(24); CHR$(27);CHR$(50);

Printer Code	Printer Function
ESC C	Escape C (Set Page Length in Lines) Format: ESC C;*n*; The value *n* specifies the page length desired in lines. The example below sets the page length to 55 lines. The default page length is switch selectable. Example: LPRINT CHR$(27);CHR$(67);CHR$(55); Escape C (Set Page Length in Inches) Format: ESC C;0;*m*; The value *m* specifies the page length desired in inches. The example below sets the page length to 10 inches. Example: LPRINT CHR$(27);CHR$(67);CHR$(0); CHR$(10);

Printer Code	Printer Function
ESC D	Escape D (Set Horizontal Tab Stops) Format: ESC D;*n*1;*n*2;...*nk*;0; Up to 28 tab stops are recognized. The *n*'s in the above format indicate the tab stops in columns. Tab stop numbers must be received in ascending numerical order. The 0 value terminates the tab stop sequence. ESC D followed by 0 will clear all tab stops. If the value of the last tab stop is less than or equal to the current print position, the horizontal tab command is ignored. Tab stop values greater than the right margin are ignored. When the printer is powered on or an ESC R command is processed, tabs are set automatically in every eight columns beginning with column 9. The example below shows the horizontal tab stops set at printer column positions of 10, 20, and 40. Example: LPRINT CHR$(27);CHR$(68);CHR$(10); CHR$(20);CHR$(40);CHR$(0);
ESC E	Escape E (Begin Emphasis Print Mode) Emphasis print is performed by striking the character once, moving 1/120 inch and striking the character a second time. Emphasis print is not allowed during double strike print. Example: LPRINT CHR$(27);CHR$(69);
ESC F	Escape F (End Emphasis Print Mode) Terminates emphasis print mode. Example: LPRINT CHR$(27);CHR$(70);

Printer Code	Printer Function
ESC G	Escape G (Begin Double Strike Print Mode) Double strike print is performed by striking each character twice. Double strike print is not allowed during emphasis print. Example: LPRINT CHR$(27);CHR$(71);
ESC H	Escape H (End Double Strike Print Mode) Terminates double strike print mode. Example: LPRINT CHR$(27);CHR$(72);
ESC I	Escape I (Change Wheel) Format: ESC I;*n*; Causes the printer to go offline, the carrier to move toward the center, the beeper to sound three times, and the **Wheel** light to come on. After inserting the new printwheel, press the **Start** button to resume printing (*n* is ignored). The pitch will be sensed from the printwheel automatically. Example: LPRINT CHR$(27);CHR$(73);
ESC N	Escape N (Set Skip Perforation) Format: ESC N;*n*; Activates the skip perforation function. The number following ESC N sets the value for the number of lines to be skipped. The example shows a 12-line skip perforation. This will print 54 lines and feed the paper 12 lines for a 66-line form. ESC N is canceled anytime the page length (ESC C) is changed. The activation of skip perforation is switch selectable. Example: LPRINT CHR$(27);CHR$(78);CHR$(12);

Printer Code	Printer Function
ESC O	Escape O (Cancel Skip Perforation) Cancels the skip perforation function. Example: LPRINT CHR$(27);CHR$(79);
ESC P	Escape P (Set Proportional Space Mode) Format: ESC P;*n*; ESC P followed by a 1 prints each character with the width defined in the printer table in Section 6. The width of spaces is defaulted to 10/120 inch but may be changed via the Set Horizontal Motion Index command. Example: LPRINT CHR$(27);CHR$(80);CHR$(1); ESC P followed by a 0 restores the character width to the value in effect when proportional space mode was activated. Example: LPRINT CHR$(27); CHR$(80);CHR$(0);
ESC R	Escape R (Clear All Tabs) Sets default horizontal tabs every 8 columns, beginning with column 9. Example: LPRINT CHR$(27);CHR$(82);

Printer Code	Printer Function
ESC S	Escape S (Set Subscript/Superscript On) Format: ESC S;*n*; Subscripts and superscripts are performed by a 5/96-inch forward or reverse line feed. When ESC S is followed by a *1*, the printer will print in the subscript position. Example: LPRINT CHR$(27);CHR$(83);CHR$(1); When ESC S is followed by a *0* (zero), the printer will print in the superscript position. Example: LPRINT CHR$(27);CHR$(83);CHR$(0);
ESC T	Escape T (Set Subscript/Superscript Off) Returns the print position to the base writing line. Example: LPRINT CHR$(27);CHR$(84);
ESC U	Escape U (Set Print Direction) Format: ESC U;*n*; ESC U followed by a *1* causes each line to be printed left-to-right. Example: LPRINT CHR$(27);CHR$(85);CHR$(1); ESC U followed by a 0 causes each line to print in whichever direction involves the shortest move from the previous line. This is the default mode of operation. Example: LPRINT CHR$(27);CHR$(85);CHR$(0);

Printer Code	Printer Function
ESC X	Escape X (Set Horizontal Margins) Format: ESC X;*m*;*n*; In this sequence, *m* represents the left margin and *n* represents the right margin. *m* must be greater than or equal to *1*, *n* must be greater than or equal to *m*, and *n* must be less than or equal to the maximum line length. $1 \leq m \leq n \leq$ max The maximum line length is pitch dependent. In 10 pitch, the maximum line length is 132 columns. In 12 pitch, the maximum is 158 columns; in 15 pitch, 198 columns; in PS, 158 (12-pitch) columns. The margin default or line length is switch selectable. A carrier return is automatically performed after the margins are set. The example sets the left margin at 10 and the right margin at 90. *Note:* If you enter 0 (zero) in place of *m* or *n*, that margin setting will remain unchanged. Example: LPRINT CHR$(27);CHR$(88);CHR$(10); CHR$(90);

Printer Code	Printer Function
ESC [W	Escape Left Bracket W (Set Impression Control Setting) Format: ESC [;W;1;0;*n*; When *n* is 1, the impression control setting is normal. This is the default setting. Example: LPRINT CHR$(27);CHR$(91);CHR$(87); CHR$(1);CHR$(0);CHR$(1); When *n* is 2, the impression control setting is heavy. Example: LPRINT CHR$(27);CHR$(91);CHR$(87); CHR$(1);CHR$(0);CHR$(2);
ESC [\	Escape Left Bracket Reverse Slash (Set Vertical Units) Format: ESC [;\;1;0;*m*; This command sets the size of the increments used by subsequent ESC A commands. The default setting is 72. Values for *m* other than 48 or 96 will cause *m* to default to 72. The example sets the vertical units parameter *m* to 48. Example: LPRINT CHR$(27);CHR$(91);CHR$(92); CHR$(1);CHR$(0);CHR$(48);

Printer Code	Printer Function
ESC \	Escape Reverse Slash (Print All Characters) Format: ESC \;*Ln*;*Hn*;*n*1;*n*2;...*nk* This sequence interprets the number of characters in the data stream specified by *Ln* and *Hn* as graphic characters. No control code functions are performed while this sequence is in effect. The number of characters to be printed is equal to *Ln* plus 256 times *Hn*. The following example interprets the next 265 (9 + 256 × 1) bytes as printable characters. Example: LPRINT CHR$(27);CHR$(92);CHR$(09); CHR$(01);
ESC]	Escape Right Bracket (Reverse Line Feed) Spaces the paper down one line. Example: LPRINT CHR$(27);CHR$(93);
ESC ^	Escape Circumflex (Print Next Character) Format: ESC ^;*n*; This sequence interprets the next character in the data stream as a graphic character. No control code functions are performed while this sequence is in effect. The following example will print the paragraph symbol (¶), which has a decimal value of 20. Example: LPRINT CHR$(27);CHR$(94);CHR$(20);

Printer Code	Printer Function
ESC j	Escape Small j (Stop) This command causes the printer to go offline and beep three times. You can place the printer back online by pressing **Start**. The pitch will *not* be sensed from the printwheel. Example: LPRINT CHR$(27);CHR$(106);

Printer Table with ASCII Decimal and Hexadecimal Values

VALUE		SYMBOL	TABLE 1	TABLE 2	PS ESC. (1/120 INCH UNITS)
DEC	HEX				
0	00		NUL	NUL	10
1	01	☺			10
2	02	☻			10
3	03	♥		♥	10
4	04	♦		♦	10
5	05	♣		♣	10
6	06	♠		♠	10
7	07	•	BEL	BEL	10
8	08	◘	BS	BS	10
9	09	○	HT	HT	10
10	0A	◙	LF	LF	10
11	0B	♂			10
12	0C	♀	FF	FF	10
13	0D	♪	CR	CR	10
14	0E	♫			10
15	0F	☼	SI	SI	10
16	10	►			10
17	11	◄			10
18	12	↕	DC2	DC2	10
19	13	‼			10
20	14	¶			10
21	15	§		§	10
22	16	▬			10
23	17	↨			10
24	18	↑			10
25	19	↓			10
26	1A	→			10
27	1B	←	ESC	ESC	10
28	1C	∟			10
29	1D	↔			10
30	1E	▲			10
31	1F	▼			10

Printer Table (continued)

VALUE		SYMBOL	TABLE 1	TABLE 2	PS ESC. (1/120 INCH UNITS)
DEC	HEX				
32	20	SPACE	SPACE	SPACE	10
33	21	!	!	!	10
34	22	"	"	"	10
35	23	#	#	#	10
36	24	$	$	$	10
37	25	%	%	%	10
38	26	&	&	&	12
39	27	'	'	'	6
40	28	(	(	(	10
41	29	)	)	)	10
42	2A	*	*	*	10
43	2B	+	+	+	10
44	2C	,	,	,	10
45	2D	–	–	–	10
46	2E	.	.	.	10
47	2F	/	/	/	10
48	30	0	0	0	10
49	31	1	1	1	10
50	32	2	2	2	10
51	33	3	3	3	10
52	34	4	4	4	10
53	35	5	5	5	10
54	36	6	6	6	10
55	37	7	7	7	10
56	38	8	8	8	10
57	39	9	9	9	10
58	3A	:	:	:	10
59	3B	;	;	;	10
60	3C	<	<	<	10
61	3D	=	=	=	10
62	3E	>	>	>	10
63	3F	?	?	?	10

Printer Table (continued)

VALUE		SYMBOL	TABLE 1	TABLE 2	PS ESC. (1/120 INCH UNITS)
DEC	HEX				
64	40	@	@	@	10
65	41	A	A	A	14
66	42	B	B	B	14
67	43	C	C	C	14
68	44	D	D	D	14
69	45	E	E	E	12
70	46	F	F	F	12
71	47	G	G	G	14
72	48	H	H	H	14
73	49	I	I	I	8
74	4A	J	J	J	10
75	4B	K	K	K	14
76	4C	L	L	L	12
77	4D	M	M	M	14
78	4E	N	N	N	14
79	4F	O	O	O	14
80	50	P	P	P	12
81	51	Q	Q	Q	14
82	52	R	R	R	14
83	53	S	S	S	12
84	54	T	T	T	14
85	55	U	U	U	14
86	56	V	V	V	14
87	57	W	W	W	14
88	58	X	X	X	14
89	59	Y	Y	Y	14
90	5A	Z	Z	Z	12
91	5B	[	[	[	10
92	5C	\	\	\	10
93	5D	]	]	]	10
94	5E	^	^	^	10
95	5F	—	—	—	10

Printer Table (continued)

VALUE		SYMBOL	TABLE 1	TABLE 2	PS ESC. (1/120 INCH UNITS)
DEC	HEX				
96	60	`	`	`	10
97	61	a	a	a	10
98	62	b	b	b	12
99	63	c	c	c	10
100	64	d	d	d	12
101	65	e	e	e	10
102	66	f	f	f	8
103	67	g	g	g	12
104	68	h	h	h	12
105	69	i	i	i	6
106	6A	j	j	j	6
107	6B	k	k	k	12
108	6C	l	l	l	6
109	6D	m	m	m	14
110	6E	n	n	n	12
111	6F	o	o	o	10
112	70	p	p	p	12
113	71	q	q	q	12
114	72	r	r	r	10
115	73	s	s	s	10
116	74	t	t	t	8
117	75	u	u	u	12
118	76	v	v	v	12
119	77	w	w	w	14
120	78	x	x	x	12
121	79	y	y	y	12
122	7A	z	z	z	10
123	7B	{	{	{	10
124	7C	¦	¦	¦	10
125	7D	}	}	}	10
126	7E	~	~	~	10
127	7F	⌂	⌂	⌂	10

Printer Table (continued)

VALUE		SYMBOL	TABLE 1	TABLE 2	PS ESC. (1/120 INCH UNITS)
DEC	HEX				
128	80	Ç		Ç	14
129	81	ü		ü	12
130	82	é		é	10
131	83	â		â	10
132	84	ä		ä	10
133	85	à		à	10
134	86	å		å	10
135	87	ç	BEL	ç	10
136	88	ê	BS	ê	10
137	89	ë	HT	ë	10
138	8A	è	LF	è	10
139	8B	ï		ï	6
140	8C	î	FF	î	6
141	8D	ì	CR	ì	6
142	8E	Ä		Ä	14
143	8F	Å	SI	Å	14
144	90	É		É	12
145	91	æ		æ	14
146	92	Æ	DC2	Æ	14
147	93	ô		ô	10
148	94	ö		ö	10
149	95	ò		ò	10
150	96	û		û	12
151	97	ù		ù	12
152	98	ÿ		ÿ	12
153	99	Ö		Ö	14
154	9A	Ü		Ü	14
155	9B	¢	ESC	¢	10
156	9C	£		£	10
157	9D	¥		¥	10
158	9E	Pts		Pts	14
159	9F	ƒ		ƒ	10

Printer Table (continued)

VALUE DEC	VALUE HEX	SYMBOL	TABLE 1	TABLE 2	PS ESC. (1/120 INCH UNITS)
160	A0	á	á	á	10
161	A1	í	í	í	6
162	A2	ó	ó	ó	10
163	A3	ú	ú	ú	12
164	A4	ñ	ñ	ñ	12
165	A5	Ñ	Ñ	Ñ	14
166	A6	ª	ª	ª	10
167	A7	º	º	º	10
168	A8	¿	¿	¿	10
169	A9	⌐	⌐	⌐	10
170	AA	¬	¬	¬	10
171	AB	½	½	½	10
172	AC	¼	¼	¼	10
173	AD	¡	¡	¡	10
174	AE	«	«	«	14
175	AF	»	»	»	14
176	B0	░	░	░	14
177	B1	▒	▒	▒	10
178	B2	▓	▓	▓	10
179	B3	│	│	│	10
180	B4	┤	┤	┤	10
181	B5	╡	╡	╡	10
182	B6	╢	╢	╢	10
183	B7	╖	╖	╖	10
184	B8	╕	╕	╕	10
185	B9	╣	╣	╣	10
186	BA	║	║	║	10
187	BB	╗	╗	╗	10
188	BC	╝	╝	╝	10
189	BD	╜	╜	╜	10
190	BE	╛	╛	╛	10
191	BF	┐	┐	┐	10

Printer Table (continued)

VALUE		SYMBOL	TABLE 1	TABLE 2	PS ESC. (1/120 INCH UNITS)
DEC	HEX				
192	C0	└	└	└	10
193	C1	┴	┴	┴	10
194	C2	┬	┬	┬	10
195	C3	├	├	├	10
196	C4	─	─	─	10
197	C5	┼	┼	┼	10
198	C6	╞	╞	╞	10
199	C7	╟	╟	╟	10
200	C8	╚	╚	╚	10
201	C9	╔	╔	╔	10
202	CA	╩	╩	╩	10
203	CB	╦	╦	╦	10
204	CC	╠	╠	╠	10
205	CD	═	═	═	10
206	CE	╬	╬	╬	10
207	CF	╧	╧	╧	10
208	D0	╨	╨	╨	10
209	D1	╤	╤	╤	10
210	D2	╥	╥	╥	10
211	D3	╙	╙	╙	10
212	D4	╘	╘	╘	10
213	D5	╒	╒	╒	10
214	D6	╓	╓	╓	10
215	D7	╫	╫	╫	10
216	D8	╪	╪	╪	10
217	D9	┘	┘	┘	10
218	DA	┌	┌	┌	10
219	DB	█	█	█	10
220	DC	▄	▄	▄	10
221	DD	▌	▌	▌	10
222	DE	▐	▐	▐	10
223	DF	▀	▀	▀	10

Printer Table (continued)

VALUE		SYMBOL	TABLE 1	TABLE 2	PS ESC. (1/120 INCH UNITS)
DEC	HEX				
224	E0	α	α	α	10
225	E1	β	β	β	10
226	E2	Γ	Γ	Γ	12
227	E3	π	π	π	12
228	E4	Σ	Σ	Σ	14
229	E5	σ	σ	σ	12
230	E6	μ	μ	μ	12
231	E7	τ	τ	τ	10
232	E8	Φ	Φ	Φ	14
233	E9	θ	θ	θ	14
234	EA	Ω	Ω	Ω	14
235	EB	δ	δ	δ	10
236	EC	∞	∞	∞	10
237	ED	φ	φ	φ	14
238	EE	ε	ε	ε	10
239	EF	∩	∩	∩	10
240	F0	≡	≡	≡	10
241	F1	±	±	±	10
242	F2	≥	≥	≥	10
243	F3	≤	≤	≤	10
244	F4	⌠	⌠	⌠	10
245	F5	⌡	⌡	⌡	10
246	F6	÷	÷	÷	10
247	F7	≈	≈	≈	10
248	F8	°	°	°	10
249	F9	●	●	●	10
250	FA	•	•	•	10
251	FB	√	√	√	10
252	FC	η	η	η	10
253	FD	2	2	2	10
254	FE	■	■	■	10
255	FF	SPACE	SPACE	SPACE	10

Printer Table with ASCII Decimal and Hexadecimal Values for Selected Countries

The printer table beginning on the next page illustrates the characters available on each of the following countries' printwheels. For the characters which are supported but not available on a country's printwheel, a space of the appropriate width for the pitch being used will print.

The following abbreviations represent the countries in the printer table:

US = United States
SP = Spain
FR = France
GE = Germany
IT = Italy
UK = United Kingdom

Printer Table – Selected Countries (continued)

VALUE DEC	VALUE HEX	SYMBOL	US	SP	FR	GE	IT	UK
21	15	§			X	X	X	
33	21	!	X	X	X	X	X	X
34	22	"	X	X	X	X	X	X
35	23	#	X	X	X	X	X	X
36	24	$	X	X	X	X	X	X
37	25	%	X	X	X	X	X	X
38	26	&	X	X	X	X	X	X
39	27	'	X	X	X	X	X	X
40	28	(	X	X	X	X	X	X
41	29	)	X	X	X	X	X	X
42	2A	*	X	X	X	X	X	X
43	2B	+	X	X	X	X	X	X
44	2C	,	X	X	X	X	X	X
45	2D	-	X	X	X	X	X	X
46	2E	.	X	X	X	X	X	X
47	2F	/	X	X	X	X	X	X
48	30	0	X	X	X	X	X	X
49	31	1	X	X	X	X	X	X
50	32	2	X	X	X	X	X	X
51	33	3	X	X	X	X	X	X
52	34	4	X	X	X	X	X	X
53	35	5	X	X	X	X	X	X
54	36	6	X	X	X	X	X	X
55	37	7	X	X	X	X	X	X
56	38	8	X	X	X	X	X	X
57	39	9	X	X	X	X	X	X
58	3A	:	X	X	X	X	X	X
59	3B	;	X	X	X	X	X	X
60	3C	<	X	X	X	X	X	X
61	3D	=	X	X	X	X	X	X
62	3E	>	X	X	X	X	X	X
63	3F	?	X	X	X	X	X	X
64	40	@	X	X			X	X
65	41	A	X	X	X	X	X	X

Printer Table — Selected Countries
(continued)

VALUE		SYMBOL	US	SP	FR	GE	IT	UK
DEC	HEX							
66	42	B	X	X	X	X	X	X
67	43	C	X	X	X	X	X	X
68	44	D	X	X	X	X	X	X
69	45	E	X	X	X	X	X	X
70	46	F	X	X	X	X	X	X
71	47	G	X	X	X	X	X	X
72	48	H	X	X	X	X	X	X
73	49	I	X	X	X	X	X	X
74	4A	J	X	X	X	X	X	X
75	4B	K	X	X	X	X	X	X
76	4C	L	X	X	X	X	X	X
77	4D	M	X	X	X	X	X	X
78	4E	N	X	X	X	X	X	X
79	4F	O	X	X	X	X	X	X
80	50	P	X	X	X	X	X	X
81	51	Q	X	X	X	X	X	X
82	52	R	X	X	X	X	X	X
83	53	S	X	X	X	X	X	X
84	54	T	X	X	X	X	X	X
85	55	U	X	X	X	X	X	X
86	56	V	X	X	X	X	X	X
87	57	W	X	X	X	X	X	X
88	58	X	X	X	X	X	X	X
89	59	Y	X	X	X	X	X	X
90	5A	Z	X	X	X	X	X	X
91	5B	[	X					X
92	5C	\	X					X
93	5D	]	X					X
94	5E	^	X	X	X	X	X	X
95	5F	—	X	X	X	X	X	X
96	60	`	X	X		X		X
97	61	a	X	X	X	X	X	X
98	62	b	X	X	X	X	X	X

Printer Table – Selected Countries
(continued)

VALUE		SYMBOL	US	SP	FR	GE	IT	UK
DEC	HEX							
99	63	c	X	X	X	X	X	X
100	64	d	X	X	X	X	X	X
101	65	e	X	X	X	X	X	X
102	66	f	X	X	X	X	X	X
103	67	g	X	X	X	X	X	X
104	68	h	X	X	X	X	X	X
105	69	i	X	X	X	X	X	X
106	6A	j	X	X	X	X	X	X
107	6B	k	X	X	X	X	X	X
108	6C	l	X	X	X	X	X	X
109	6D	m	X	X	X	X	X	X
110	6E	n	X	X	X	X	X	X
111	6F	o	X	X	X	X	X	X
112	70	p	X	X	X	X	X	X
113	71	q	X	X	X	X	X	X
114	72	r	X	X	X	X	X	X
115	73	s	X	X	X	X	X	X
116	74	t	X	X	X	X	X	X
117	75	u	X	X	X	X	X	X
118	76	v	X	X	X	X	X	X
119	77	w	X	X	X	X	X	X
120	78	x	X	X	X	X	X	X
121	79	y	X	X	X	X	X	X
122	7A	z	X	X	X	X	X	X
123	7B	{	X					X
124	7C	¦	X					X
125	7D	}	X					X
126	7E	~	X					X
128	80	Ç		X				
129	81	ü		X	X	X	X	
130	82	é		X	X		X	
131	83	â	X	X	X	X	X	X
132	84	ä		X	X	X	X	

Printer Table – Selected Countries
(continued)

VALUE		SYMBOL	US	SP	FR	GE	IT	UK
DEC	HEX							
133	85	à	X	X	X	X	X	X
135	87	ç		X	X			
136	88	ê	X	X	X	X	X	X
137	89	ë		X	X		X	
138	8A	è	X	X	X	X	X	X
139	8B	ï		X	X		X	
140	8C	î	X	X	X	X	X	X
141	8D	ì	X	X		X	X	X
142	8E	Ä			X			
147	93	ô	X	X	X	X	X	X
148	94	ö		X	X	X	X	
149	95	ò	X	X		X	X	X
150	96	û	X	X	X	X	X	X
151	97	ù	X	X	X	X	X	X
152	98	ÿ		X	X		X	
153	99	Ö				X		
154	9A	Ü				X		
156	9C	£			X		X	X
158	9E	Pts		X				
160	A0	á		X			X	
161	A1	í		X			X	
162	A2	ó		X			X	
163	A3	ú		X			X	
164	A4	ñ	X	X				X
165	A5	Ñ		X				X
168	A8	¿		X				
170	AA	¬				X		
173	AD	¡		X				
225	E1	β				X		
230	E6	µ			X			
248	F8	°			X			
253	FD	²			X			

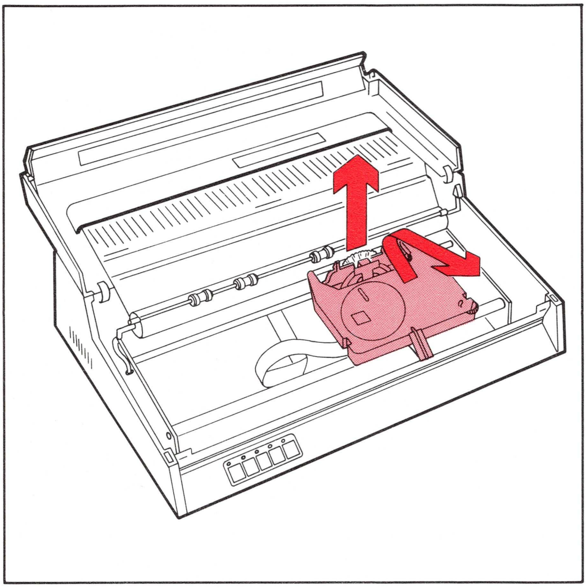
Chapter 7. Repacking Instructions

Follow these steps to repack your printer for relocation or service.

Moving your printer without packaging it properly may result in damage. If you have any questions or need help, call your place of purchase.

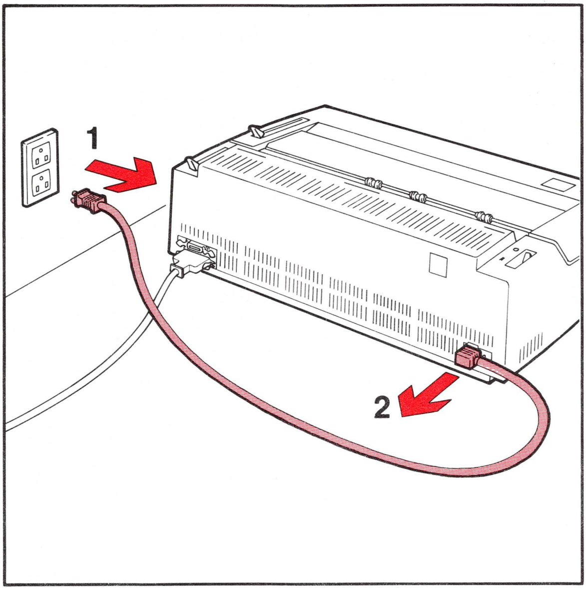
Use the carton that the printer came in to repack the printer. (If you did not save the original carton, you can order a repacking kit [part number 7342772] from your place of purchase.)

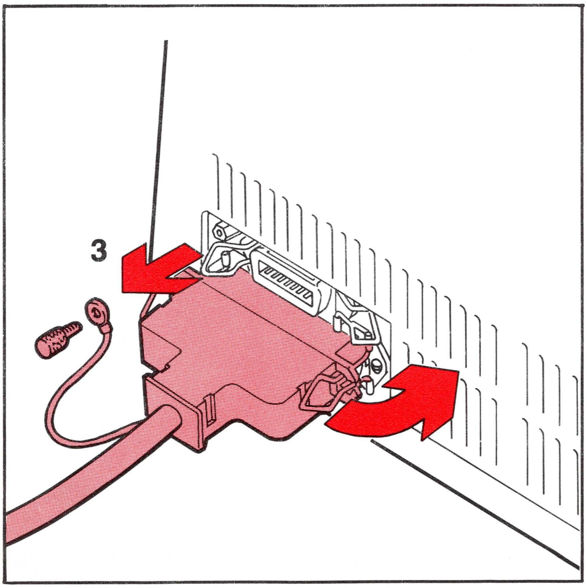
1. Remove the ribbon cassette (see "Removing the Ribbon Cassette" on page 3-15) and the printwheel (see "Removing the IBM Cartridge Printwheel II" on page 3-19) from your printer before packing. Remove any other options (the form feeder or sheet feeder) which you may have attached. Do *not* return these items with the printer.



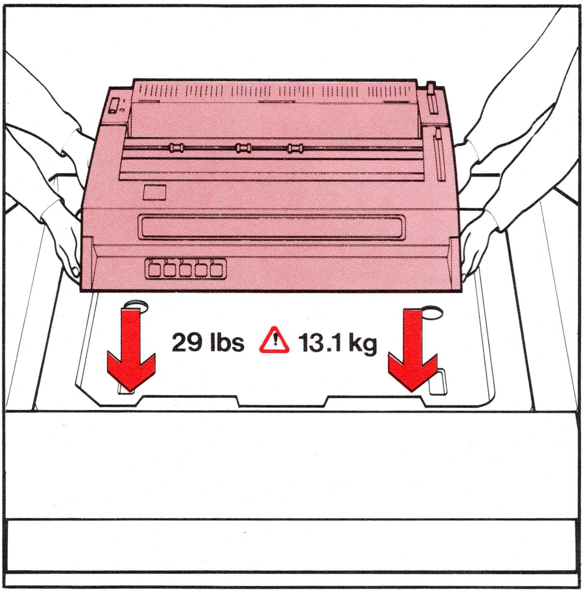
2. Disconnect all cables from the rear of the printer.

1. Unplug the electrical cord from the wall outlet.
2. Unplug the electrical cord from the printer.
3. Disconnect the printer cable from the rear of the printer (see page 2-18 if you need assistance).

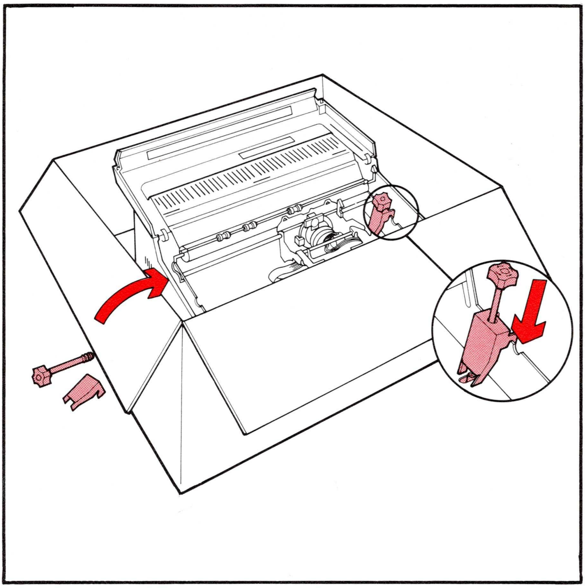




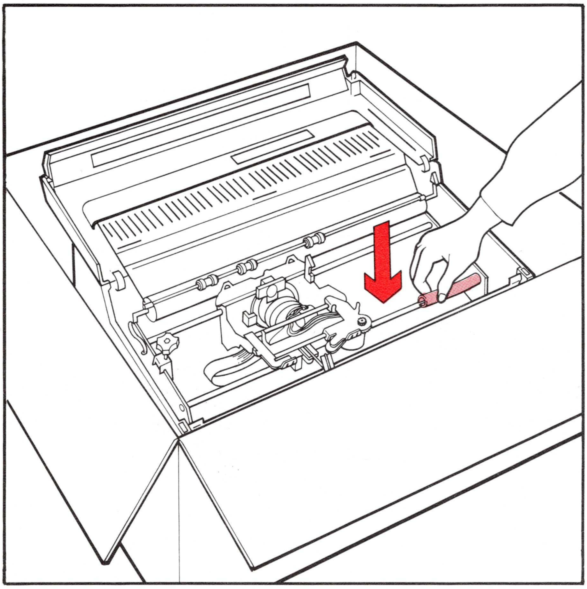
3. Ask someone to help you place the printer on the tray assembly in the box. Make sure the threaded posts are visible through the holes in the bottom of the machine.



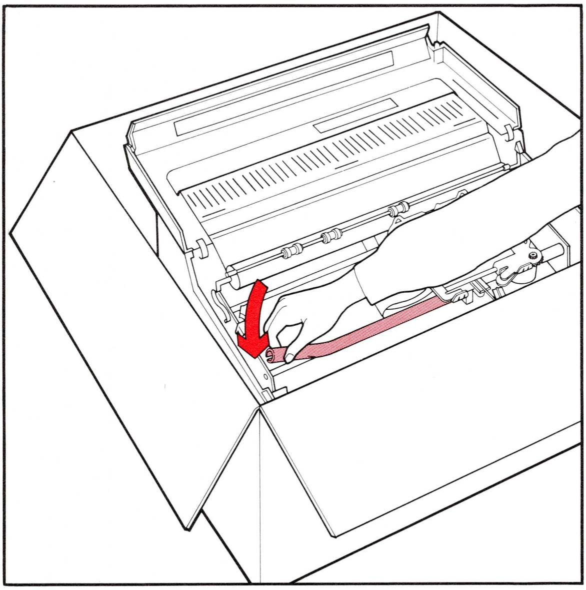
4. Open the printer cover and install the shipping brackets so the notches fit over the left and right black metal side plates. Install the shipping bolts through the holes in the brackets and into the threaded posts. Tighten the bolts securely.



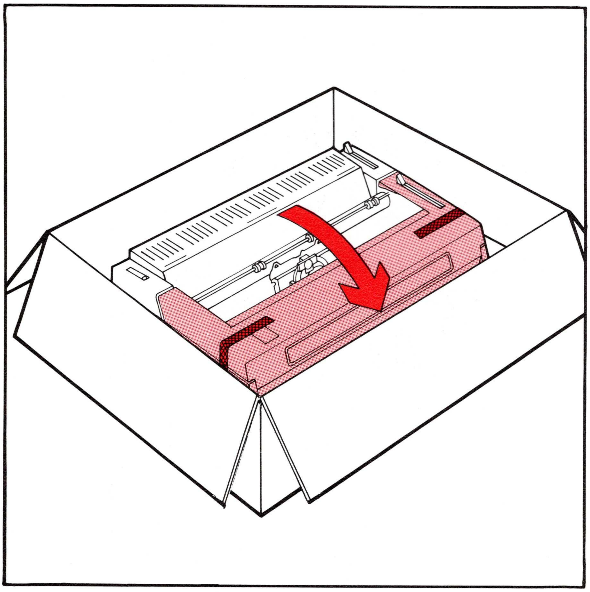
5. Place the short red tube over the right end of the carrier rail.



6. Move the carrier to the right and place the long red tube over the left end of the carrier rail.

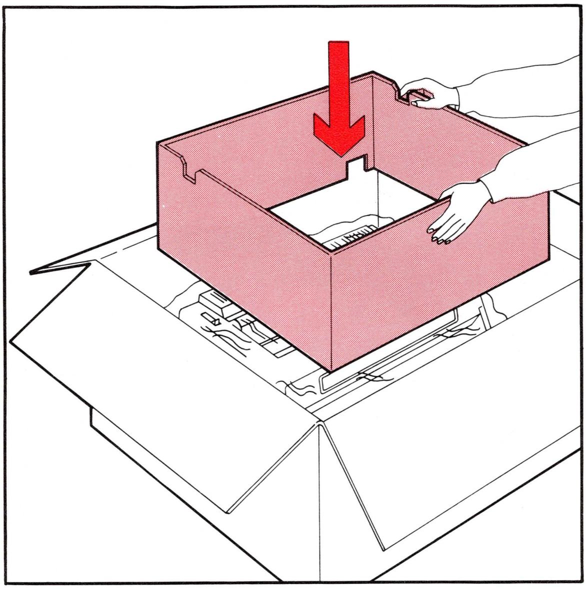


7. Close the printer cover and secure it to the printer with approximately six inches of reinforced tape on each side of the printer near the front.



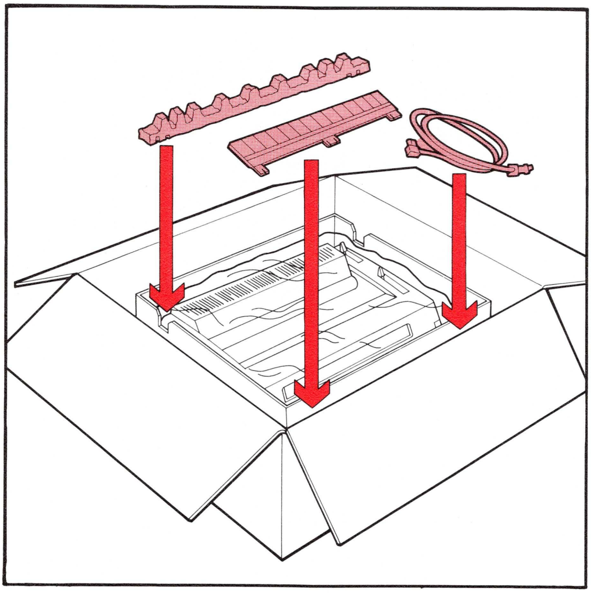
8. Lay the sheet of plastic over the printer.

Place the cardboard liner over the printer with the cutout over the cable connectors.

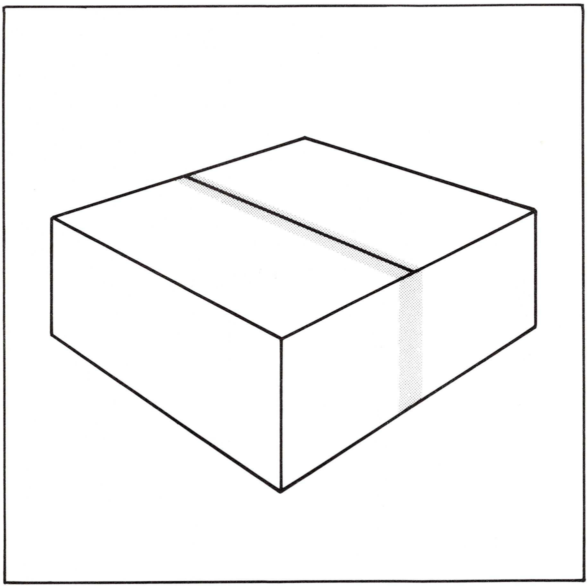


9. Insert the foam strip into the cutouts on the top of the cardboard liner.

Place the paper table and the printer power cord in the front of the box between the cardboard liner and the wall of the box.



10. Seal the box with 2-inch wide shipping tape. Any pieces of packing material not used may be discarded.



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