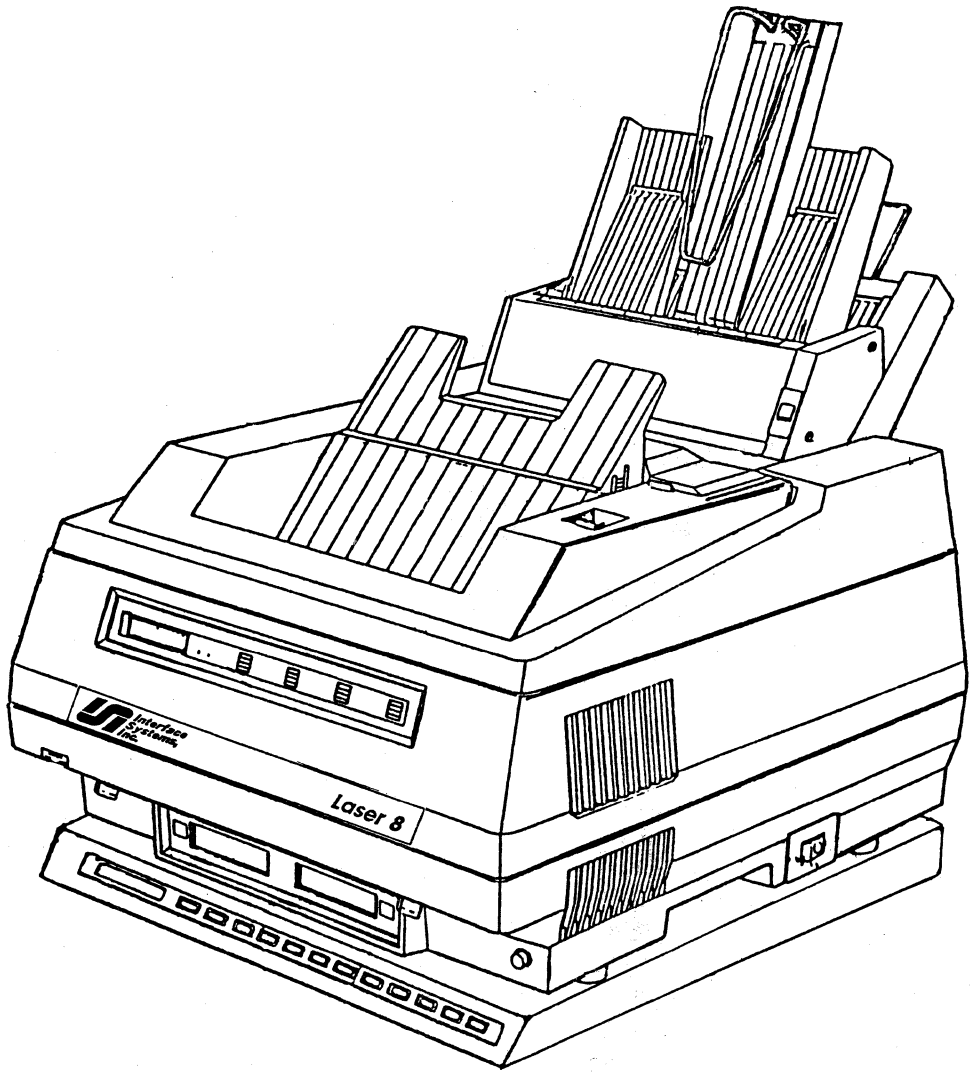
# Operator's Guide




# Laser 8

# Operator's Guide

## For the ISI Laser 8

Interface Systems, Inc.
5855 Interface Drive
Ann Arbor, Michigan

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# How to Use This Manual

**This manual will guide you through all the procedures you'll need to set up and operate your laser unit. Your laser unit consists of the Laser 8 and the Laser 8 Driver. If you are setting up your laser unit for the first time, be sure to read the sections in order. To help you find the information you need quickly and easily, this manual has been divided into six sections:**

| | |
|---|---|
| Chapter 1 | ***Getting Started:*** Tells you all the procedures needed to get your laser unit set up and running. It includes instructions on unpacking, connecting, switch settings, and powering on. Initial installation of the PC cartridge, toner cartridge, sheet guide, and second hopper are also included. |
| Chapter 2 | ***Loading Forms:*** Tells you paper loading instructions for single hopper operation, and for second hopper operation. |
| Chapter 3 | ***Operating the Laser Unit:*** Tells you how to control and monitor your unit by using the key functions, LCD display, and switches on your printer. Detailed instructions are given for setting printing parameters, saving new settings, and using second functions. |
| Chapter 4 | ***Solving Printer Problems:*** Covers solutions for printer problems which may occur during operation. |
| Chapter 5 | ***Maintaining the Laser Unit:*** Gives instructions on replacing and replenishing items such as the forms, toner, PC cartridge, separator belt, and felt cleaning pad. It also lists special tips on the care and cleaning of your unit. |
| Appendix Section | Tells you about switch settings, paper specifications and special programming instructions such as escape sequences, and repacking instructions. |

# Introduction

Your new ISI Laser 8 page printer produces excellent near typeset quality print on paper or transparencies at a speedy 8 pages per minute. Using the latest in proven LED (light emmiting diode) technology, ISI's laser unit provides trouble free service and ease of operation.

The Laser 8 comes equipped with four built-in fonts and two ports for optional font cartridges. And with underline, bold, and shadow printing capabilities, plus a choice of widthwise (Portrait) and lengthwise (Landscape) printing, the Laser 8 gives you a wide variety of printing capabilities.

You can upgrade the Laser 8 with options such as a 250 sheet second hopper for face-down, collated output. The dual hopper feature also allows documents which require two types of forms to be printed effectively. A 250 sheet paper tray for the face-up slot is also available.

The list below is a quick overview of the standard features offered by your Laser Unit.

- The latest in electro-photographic technology (LED print array)
- 300 x 300 dots per inch resolution
- Prints 8 pages per minute
- 4 resident fonts including a unique symbol font
- Two 250 sheet input/output bins
- Handles three sizes of paper: letter, legal, and A4 (European)
- Direct compatibility with IBM 3270 type A controllers
- Optional font cartridges available
- 10, 12, 15, and 16.67 characters per inch (CPI) printing
- 6 and 8 lines per inch (LPI)
- User access to printer special functions through ISI defined "escape" sequences.
- Optional 250 sheet second hopper available

It is easy to get to know and use your printer. For best results, read this guide completely before using the printer. Keep the guide handy for reference.

# Chapter 1

## Setting Up

**In this chapter you will be performing all the procedures necessary to prepare your ISI Laser 8 for printing. When you have completed all the procedures in this chapter, you will have your printer completely installed.**


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**Your printer will be shipped in two cartons, (three if you have purchased the optional second hopper). One contains the Laser 8, and the other contains the Laser 8 Driver. You need to unpack and inspect each item in the two cartons for shipping damage.**

---

❑WARNING

**Do not operate a damaged printer. It may cause further damage and can void the warranty.**

## Unpacking the Laser 8 Printer

To unpack and inspect your Laser 8, follow these steps.

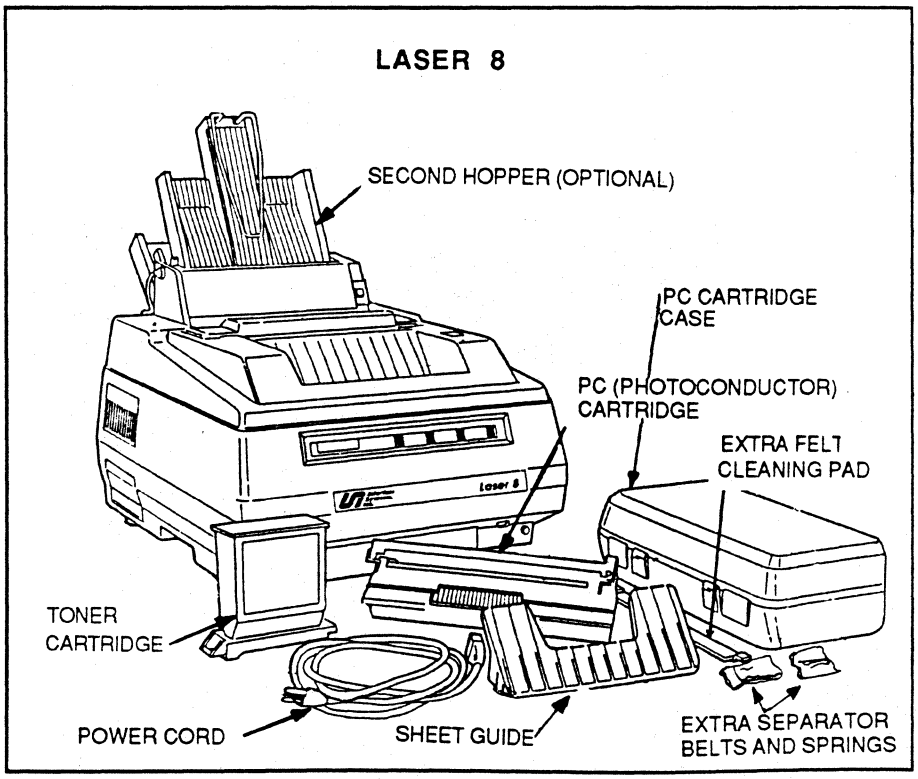
1. Remove any packing material from the carton.

2. Carefully lift the various items out of the cartons and place them near the setup site.

3. Make sure you have all the items shown below. If any are missing, contact your sales representative.

✣NOTE

**After unpacking, place all the packing materials back in the shipping carton. Save this material and the carton for future storage, shipping, or moving of the printer. See Appendix for repacking instructions.**



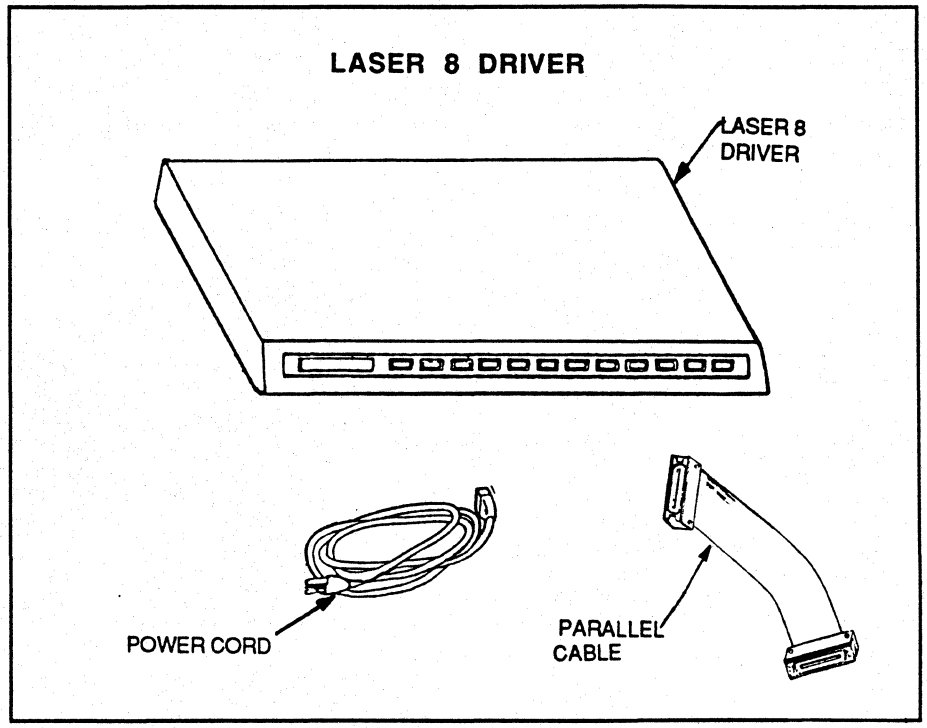
## Unpacking the Laser 8 Driver

To unpack your Laser 8 Driver, do the following.

1. Remove any packing material from the carton.

2. Carefully lift the various items out of the carton and place them near the setup site.

3. Make sure you have all the items shown below. If any are missing, contact your sales representative.




## Inspecting

Inspect all items for obvious shipping damage such as dents, scratches, cracks, broken switches or other broken parts. If an item appears damaged notify the delivery company immediately.

**When you set up your Laser Unit you will need some equipment in addition to the items supplied in the shipping containers.**

The items you will need are:

1. One standard three-prong grounded power outlet per printer.

2. One coaxial cable with a BNC coaxial connector and a compatible controller to attach it to. The length should not exceed 1500 meters (4920 feet).

3. One sturdy table or desk.

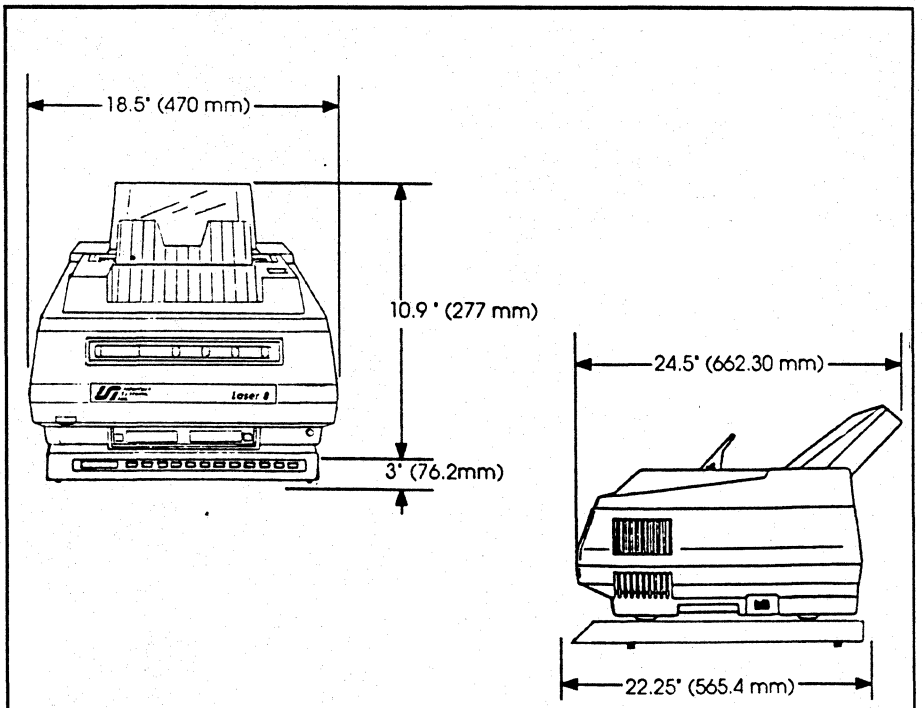
## *Finding a Location*

**A suitable environment is very important for the proper operation of your Laser Unit.**

The location of the printer should meet the following specifications.

- The area should be well-ventilated and away from direct sunlight, humidifiers and sudden temperature changes.
- Temperatures should be between 50 and 95 degrees F (10 and 35 degrees C).
- Relative humidity should be between 20 and 80%.
- Adequate space should surround the unit for hookup of the cables, a user work area, and any additional equipment you may want.

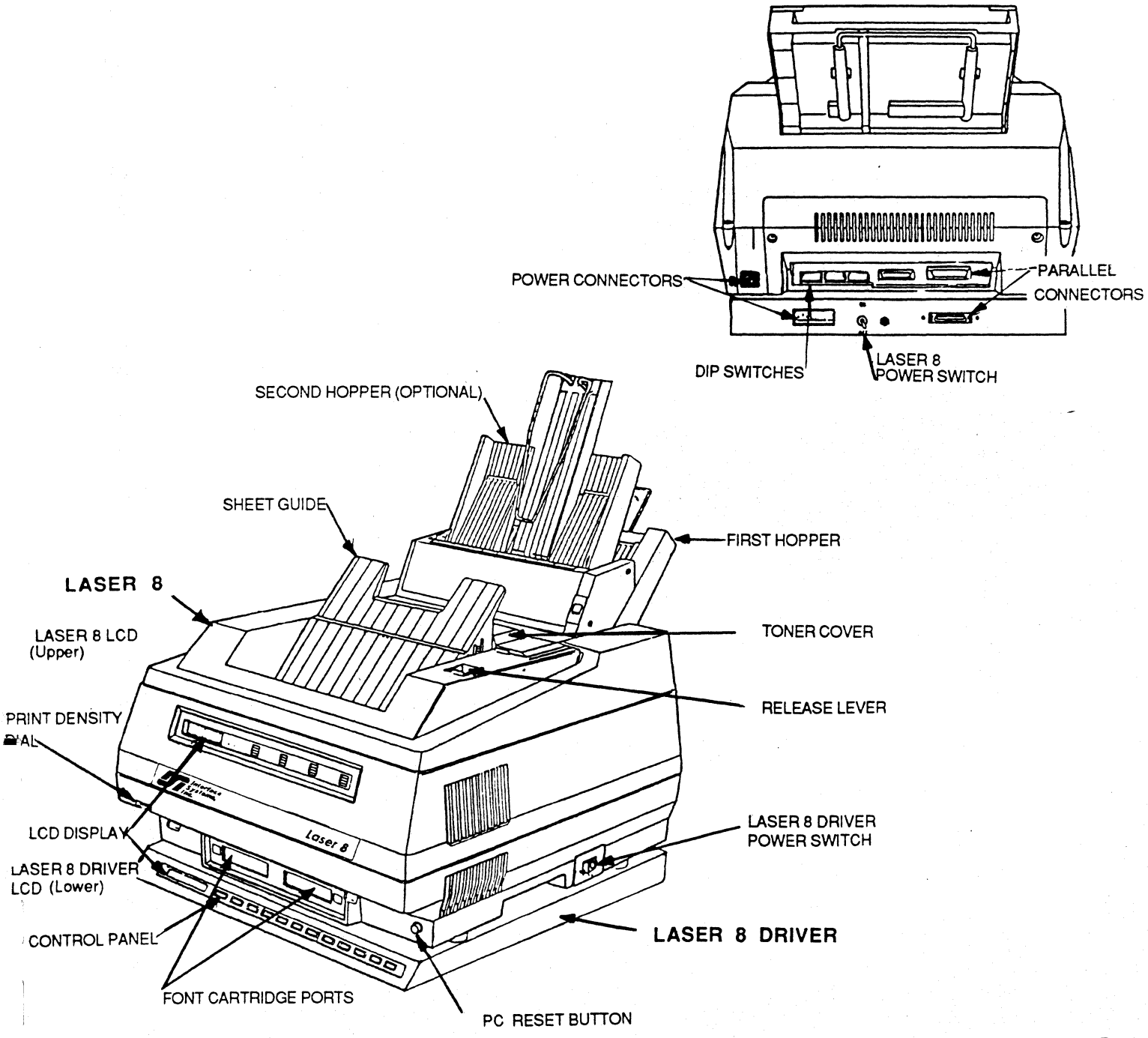
Place the Laser 8 on top of the Laser 8 Driver as shown in the illustration below.




**CLEARANCE SPECIFICATIONS**

**To avoid confusion, you should be familiar with the Laser 8's and Laser 8 Driver's parts and their locations before you begin operation.**

The following illustration shows where the parts are located on your Laser 8 unit. Refer to these illustrations when identifying parts thoughout the manual.

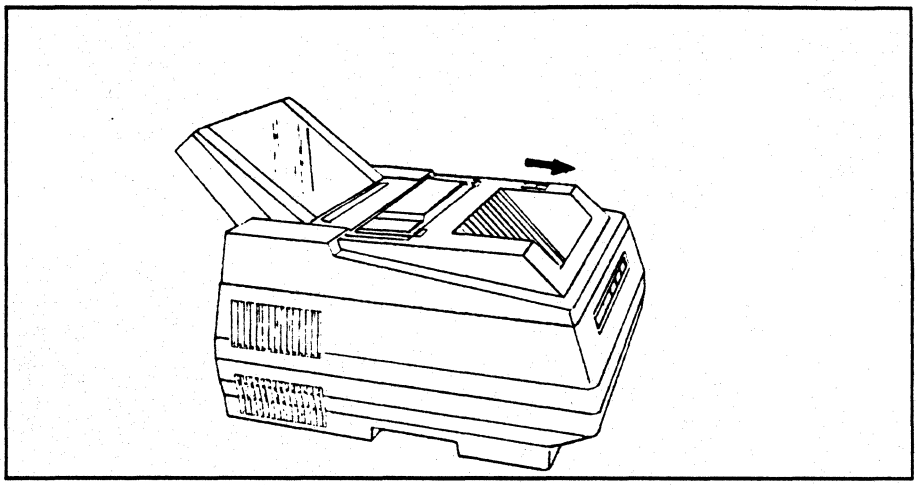


## *Installing the Photoconductor (PC) Cartridge*

**The PC cartridge shipped with your printer lasts for approximately 5,000 sheets. Follow these steps to install the PC cartridge. When "PC LIFE" is displayed on the upper LCD panel, see *"Replacing the PC Cartridge"* on page 73..**

To install the PC cartridge, follow these steps.

1. Pull the green release lever forward to open the upper unit.

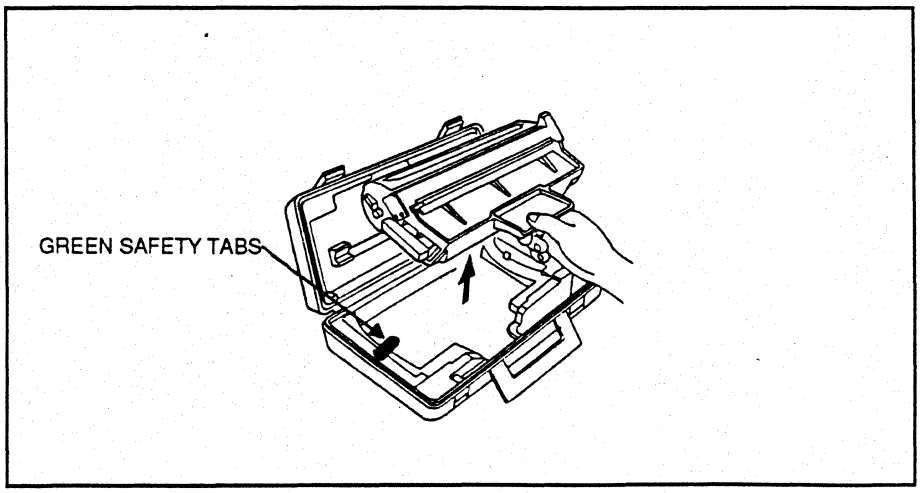


2. Slide the florescent green safety tabs out of the way.

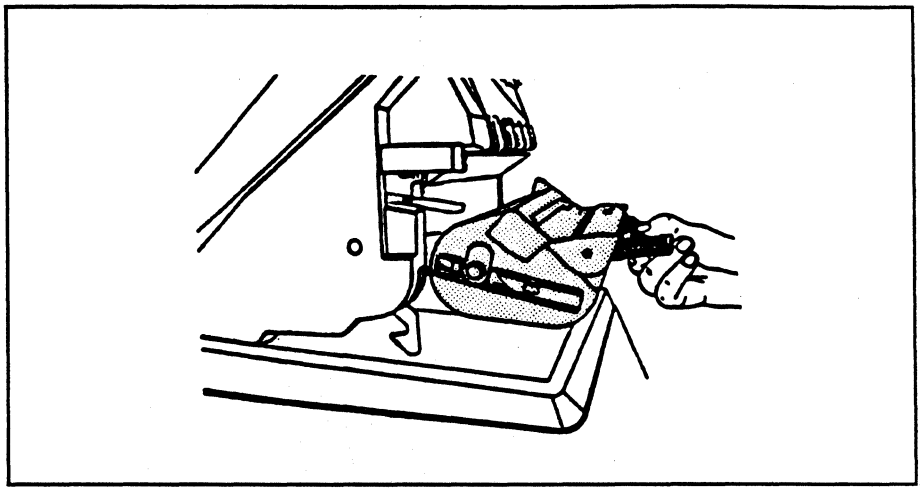
3. Remove the PC cartridge from its case and hold the cartridge by its handle.

**❑WARNING**

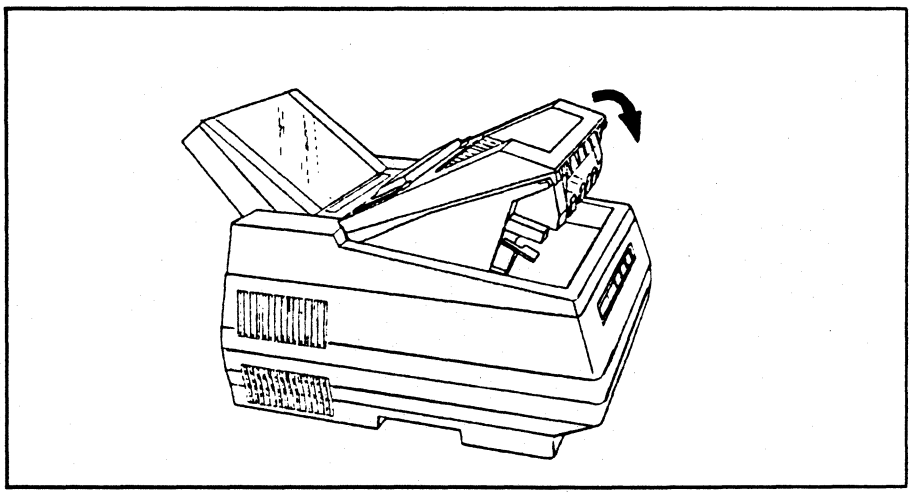
**Keep the PC cartridge case closed until you are ready to install the cartridge in the printer. Do not touch the blue drum or expose it to light for more than 60 seconds at a time.**



3. Slide the PC cartridge along the guides inside the upper unit until you hear both sides lock firmly in place.



4. Close the upper unit immediately to protect the PC drum from light exposure.



Save and keep handy the PC cartridge case, cleaning pad, and cotton swab. When cleaning or maintenance procedures are performed on the Laser 8 you will need to place the PC cartridge back in the protective case.

If you need to move the printer, remove the PC cartridge and store it in the cartridge case before repacking the printer. See "*Appendix* " for repacking instructions.

**✣NOTE**

**Never move the Laser 8 with the PC cartridge in place.**

## *Installing the Toner Cartridge*

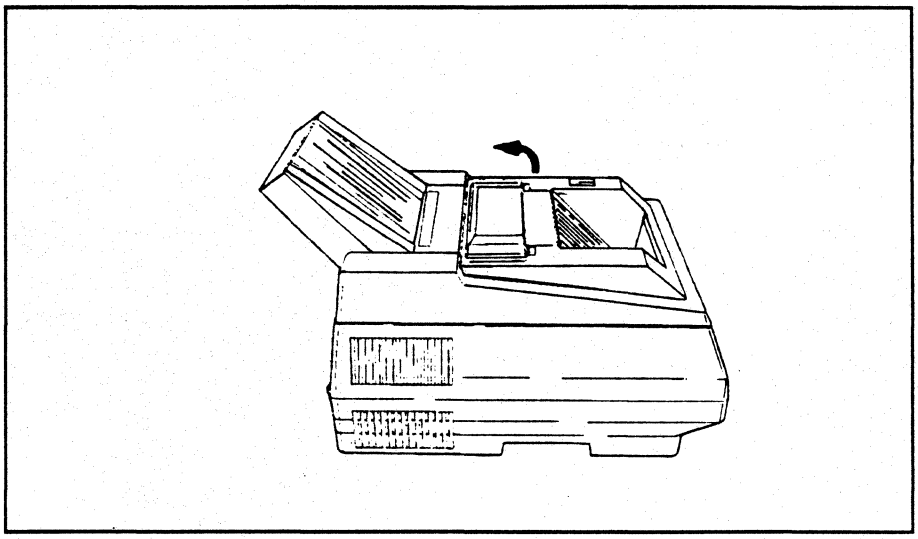
**One disposable toner cartridge comes with your printer. The toner powder inside lasts for approximately 2,500 pages. This section tells you the procedure for initial installation of toner. When " TONER EMPTY" is displayed on the upper LCD panel, see *"Adding Toner"* on page 69.**

### Preparing for Installation

Follow these steps at installation to load the contents of the cartridge into the developer station.

1. Remove the toner cartridge from its case

2. Press the toner cover tabs and lift to open the toner cover.

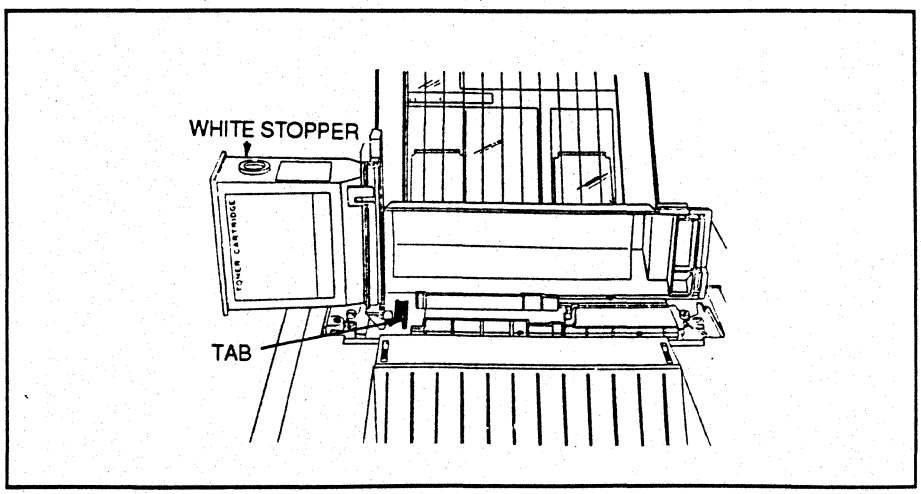


3. Shake the toner cartridge up and down several times.

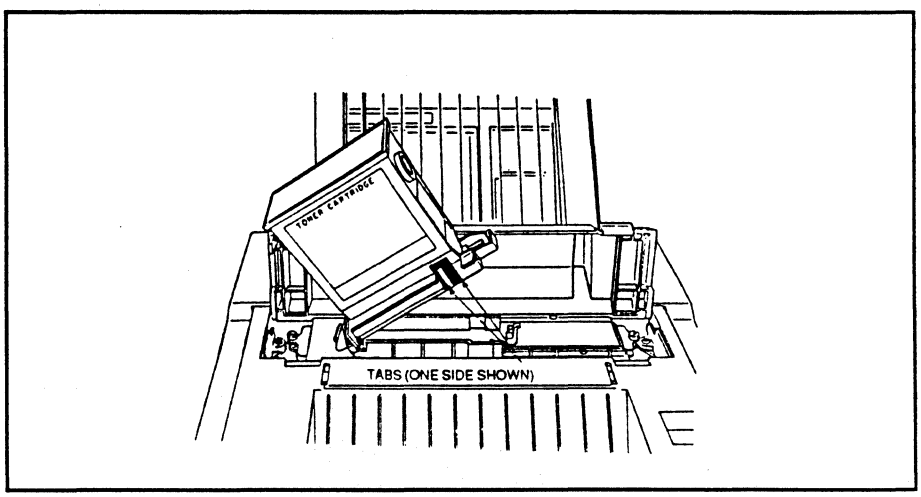
### Installing the Cartridge

1. Hold the toner cartridge so that the white stopper is on the right when you stand in front of the printer.

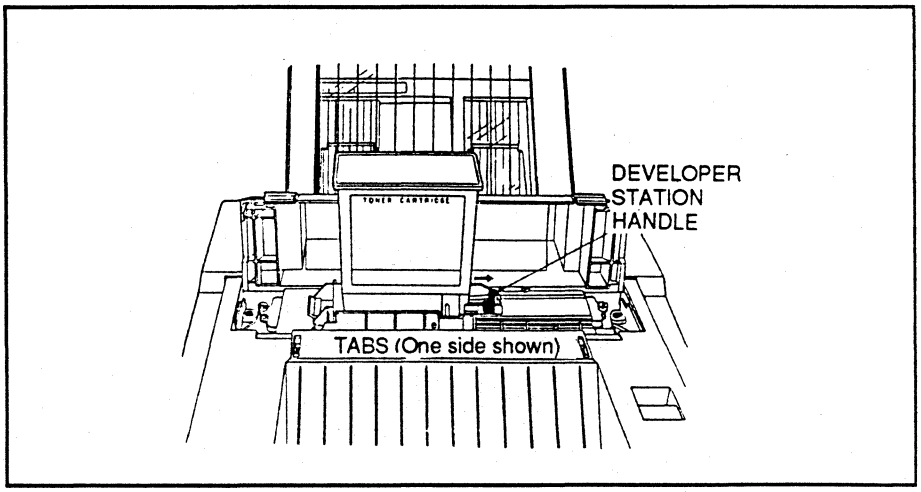
2. Tip the cartridge on its left side and slide it under the tab on the top left of the developer station.



3. While pressing in the tabs on both sides of the cartridge, move the cartridge to an upright, locked position on the developer station.



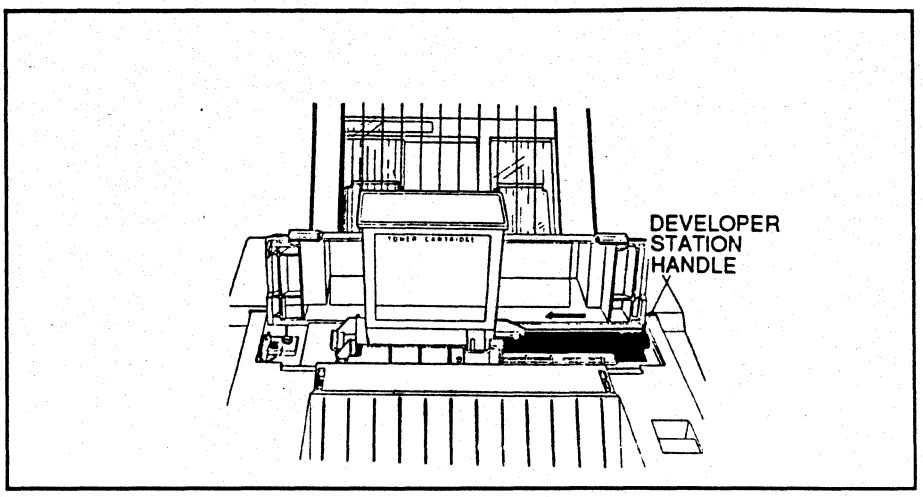

4. Pull the developer station handle all the way out to the right side of the printer. The toner empties into the developer station.



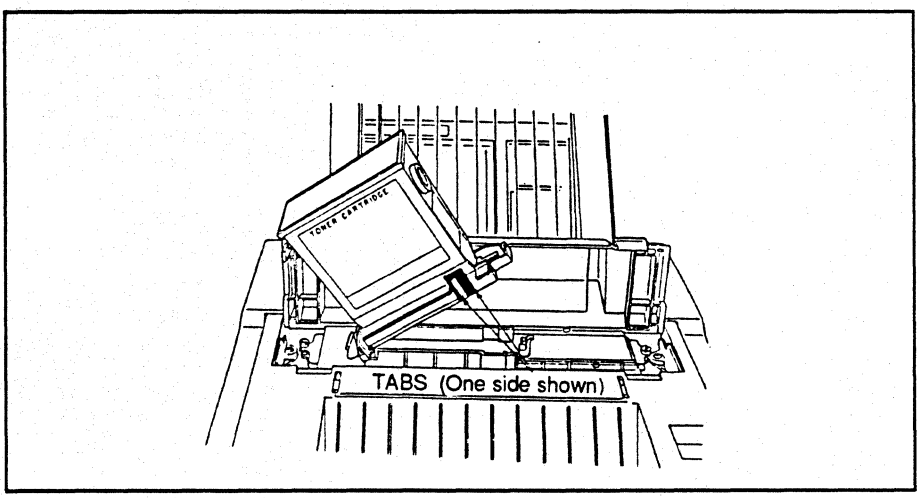

5. Tap the top of the cartridge several times to allow toner to flow easily into the developer station.

## Removing the Cartridge

1. Push the developer station handle all the way in, back to its original position.




2. While pressing in the tabs on either side of the cartridge, lift the toner cartridge off the developer station and discard it.



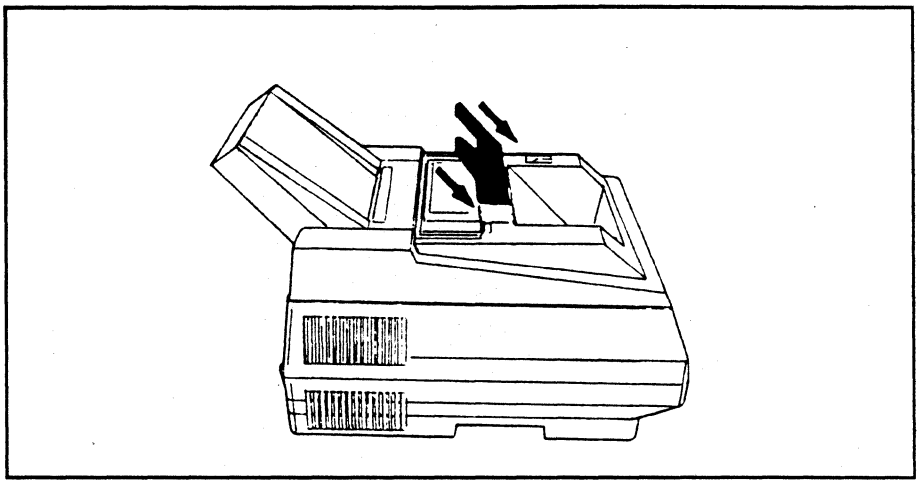

3. Close the toner cover.

## *Attaching the Sheet Guide*

**The sheet guide is an extension of the face-down bin. The guide helps to neatly stack printed pages. If you will be attaching the optional second hopper, skip this procedure and continue to the next page.**

To install the guide, complete these two easy steps.

1. Insert the tabs of the sheet guide into the holes on the face-down bin.
2. Press to secure.



## *Installing the Second Hopper*

**The second hopper is an optional paper handling accessory which doubles your printer's input hopper capacity and allows you to feed two types of paper to the printer. If you have a second hopper, you should attach it now.**

---

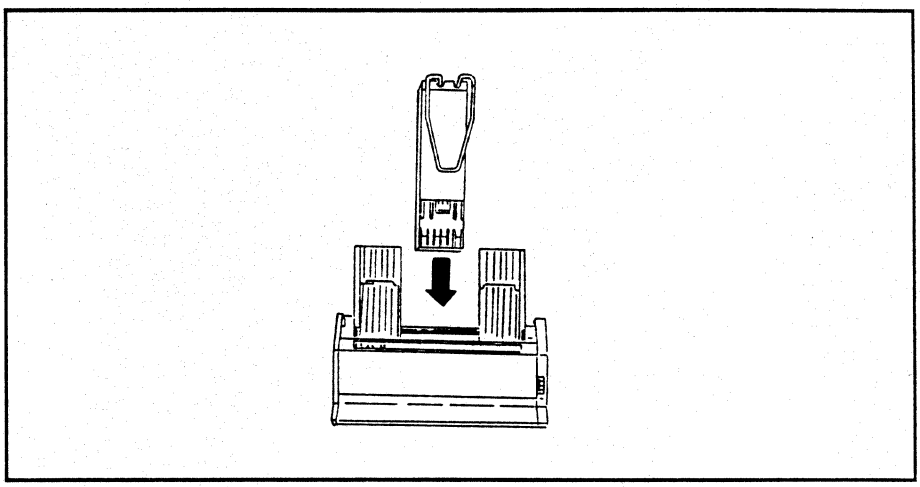
**❑WARNING**

**Make sure that the laser unit is powered off and unplugged, or an electrical shock resulting in serious injury can occur.**

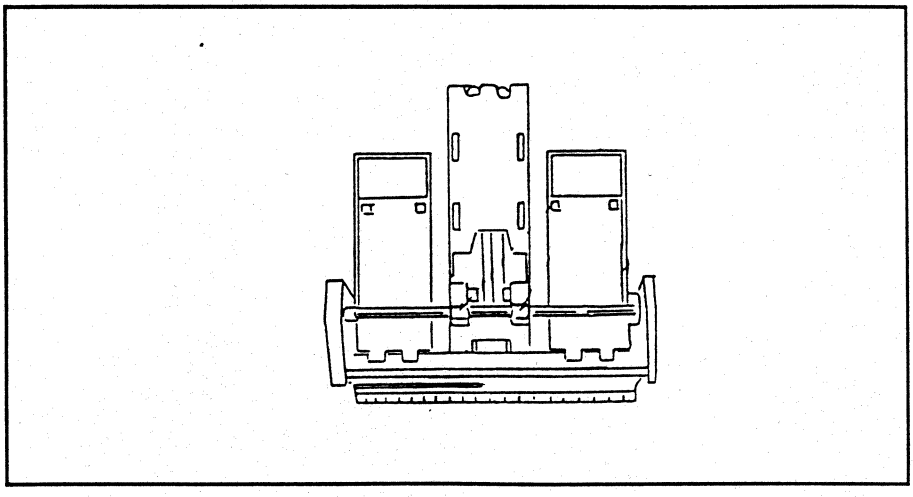
### Installing the Center Guide

Before installing the hopper on the Laser 8, install the center guide as described below.

1. Snap the center guide onto the shaft of the second hopper.



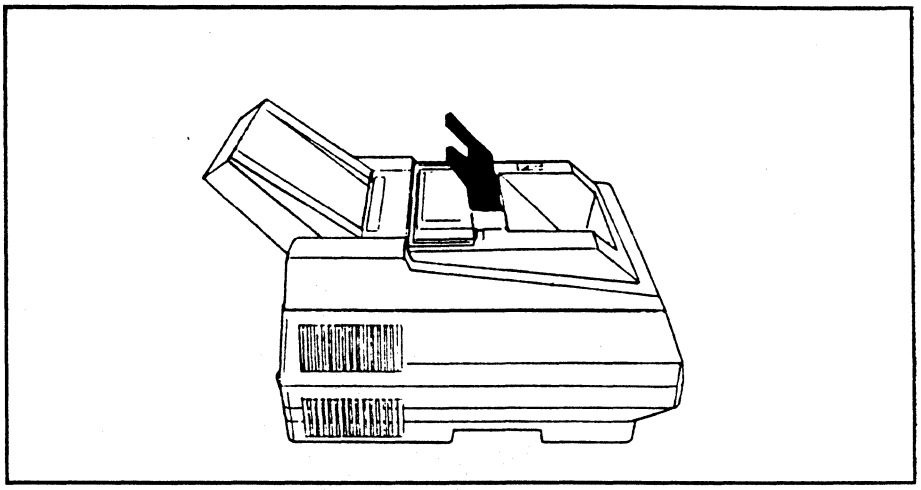
2. Make sure the two tabs at the bottom of the center guide are inserted into the plate.



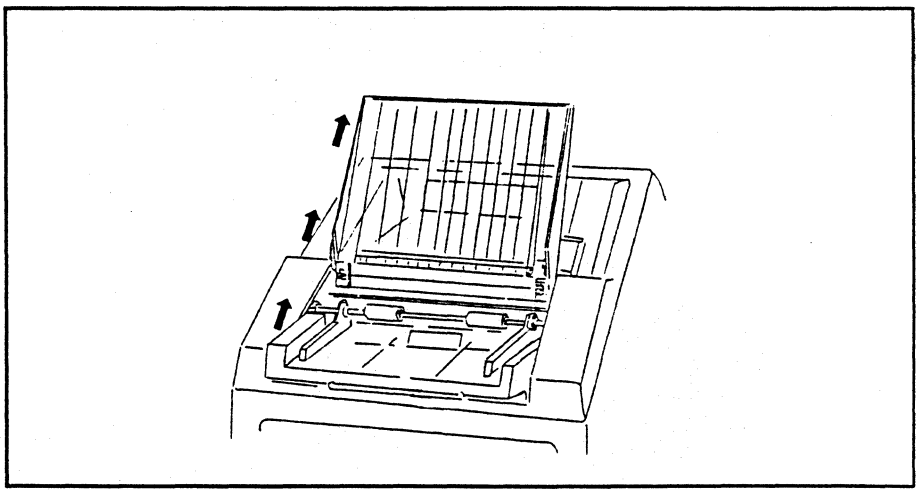
## Preparing for Second Hopper Installation

To prepare the Laser 8 for second hopper installation, see the following instructions.

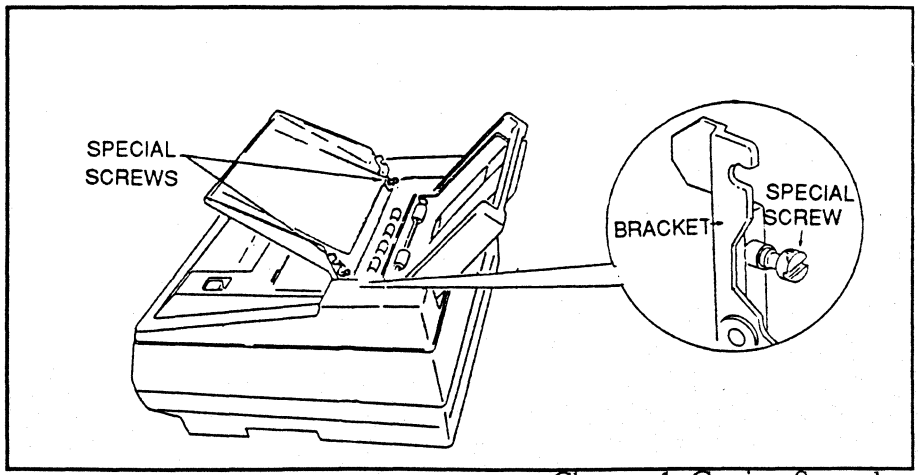
1. Remove the sheet guide.



2. Open the manual guide cover of the first hopper.



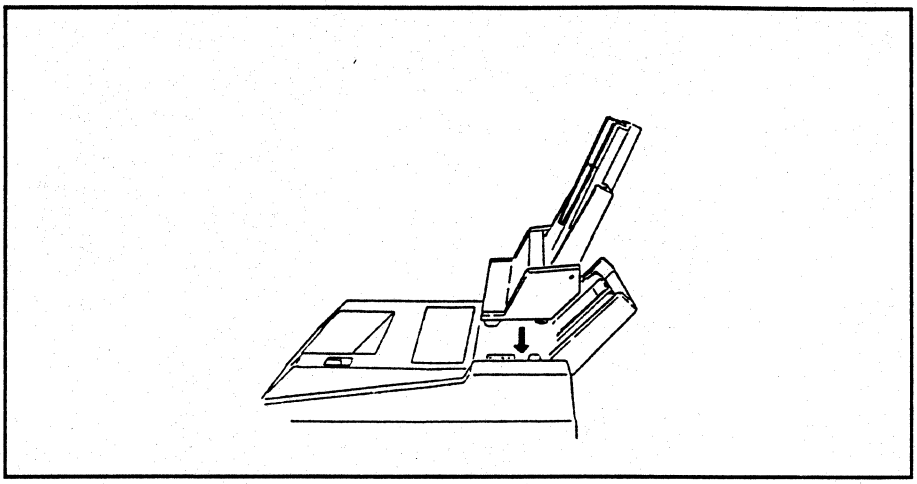
3. Loosen the thumb screws on both sides of the manual guide cover to remove the cover from the bracket.



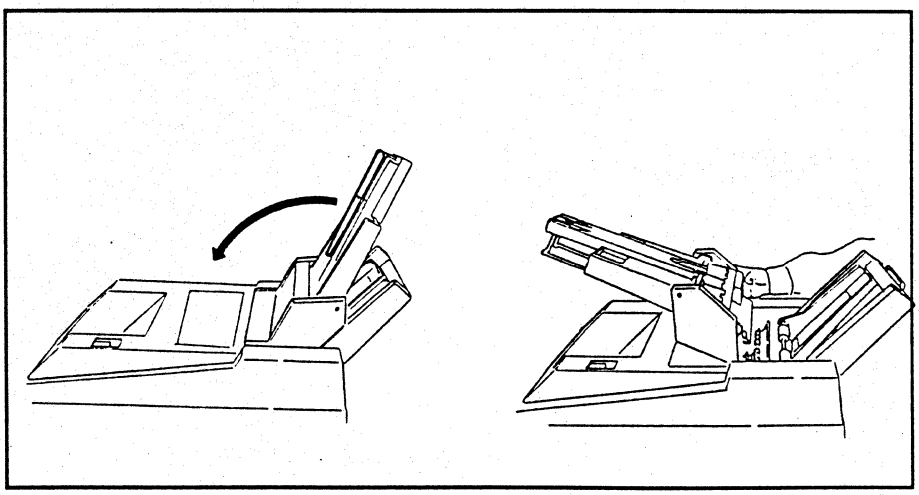
## Attaching the Second Hopper

To install the second hopper, follow these steps.

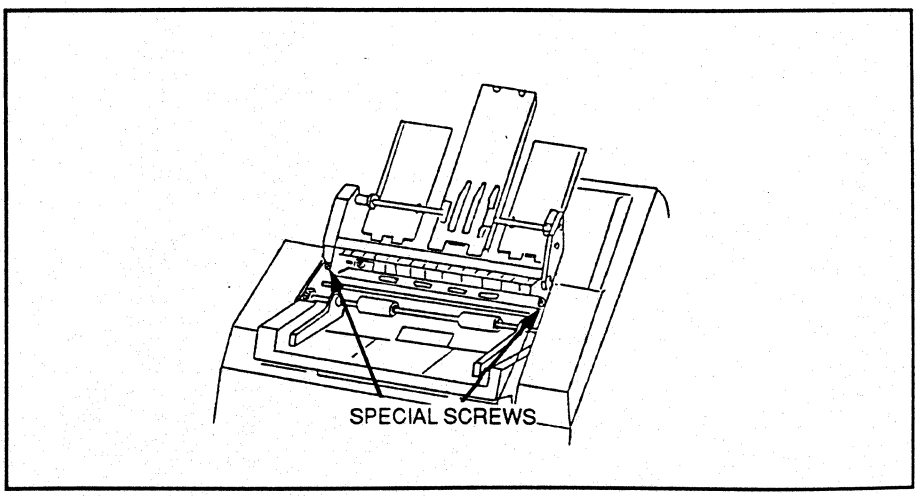
1. Put the second hopper at the position where the manual guide cover was installed.



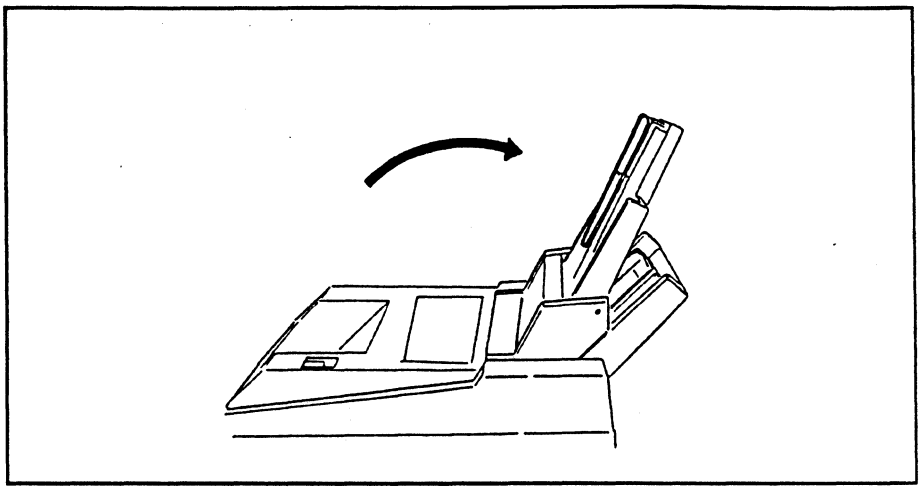
2. Pull the second hopper down and forward making sure that the left and right brackets firmly contact the bottom of the second hopper.



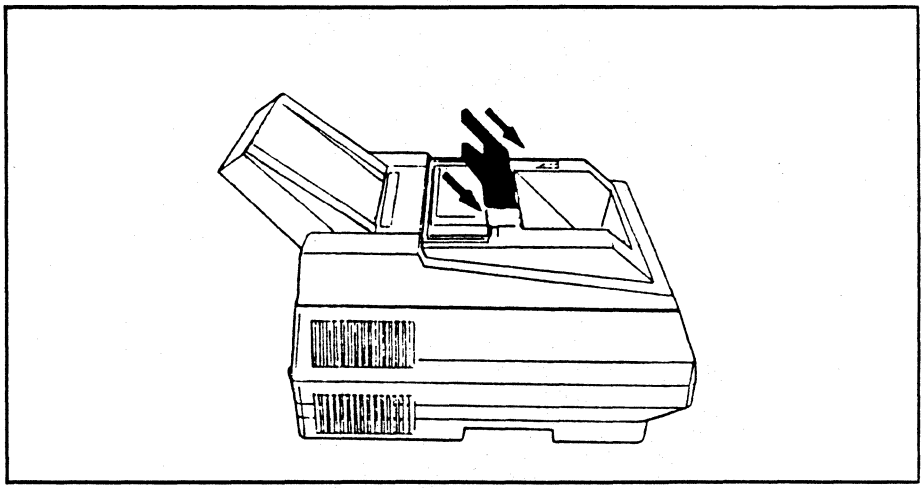
3. Fasten the left and right special screws to install the second hopper to the brackets.



4. Raise the second hopper to an upright postion.



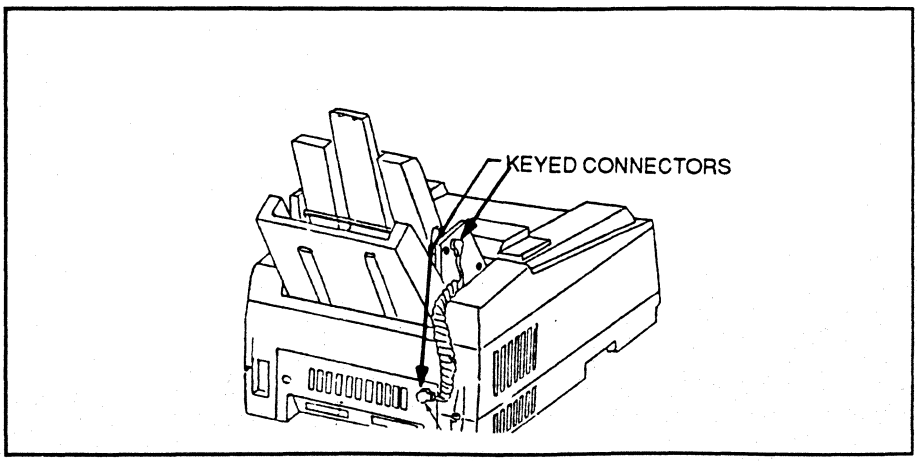
5. Install the sheet guide.



## Installing the Cable

To attach the cable from the second hopper to the Laser 8, perform the following instructions.

1. Plug the three-prong end of the cable into the connector on the left side of the second hopper.



2. Plug the other end of the cable into the connector at the rear of the printer.

**✣NOTE**

**The cable and connector are keyed. Make sure the notch on the cable lines up with the small hole in the connector.**

## *Connecting the Laser 8 to the Laser 8 Driver*

**Before the Laser 8 can be fully operational you must connect the Laser 8 to the Laser 8 Driver. You will need the 12 inch long Centronics parallel type cable included in the shipping carton to complete the connection.**

Perform the following instructions to connect the Laser 8 and the Laser 8 Driver.

1. Be sure the Laser 8 and the Laser 8 Driver are both turned off.

2. Bring the cable to the two units.

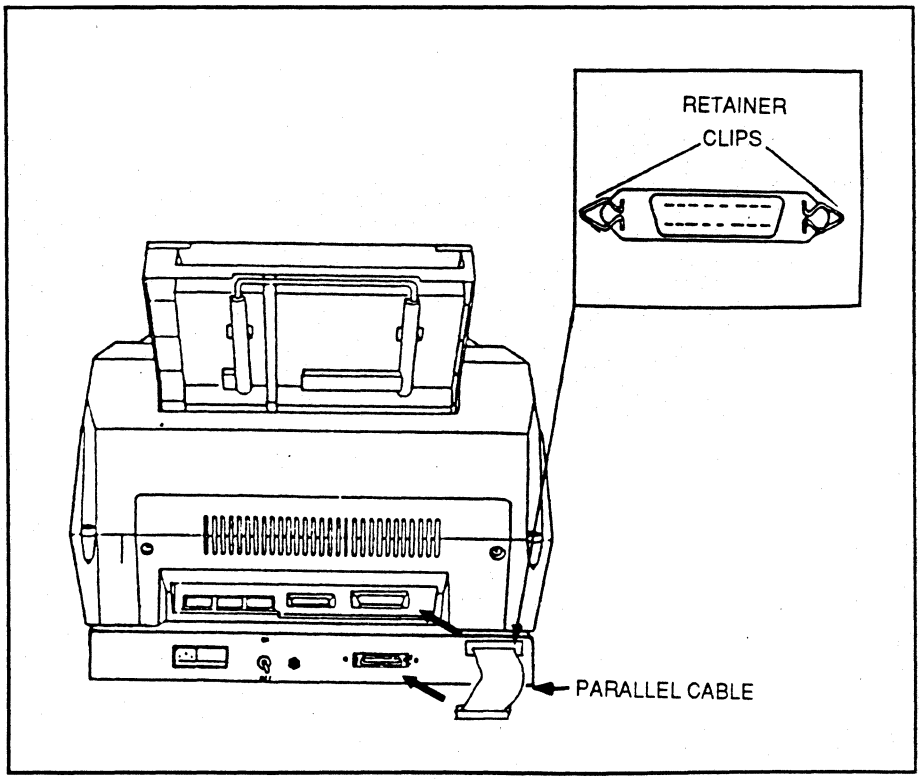
3. Locate the connector on the back of the units as shown.

4. Plug the cable connector into the Laser 8 and the Driver making sure it is secure.

**✣NOTE**

**The cable and connectors are shape keyed and can only be attached one way. Do not force the connection.**

5. Fasten the retainer clips to the cable connector.



## *Connecting the Power Cord*

**You will receive one power cord in each shipping container. One cord is for connecting the Laser 8 to a power outlet, and the other is for connecting the Laser 8 Driver to a power outlet.**

---

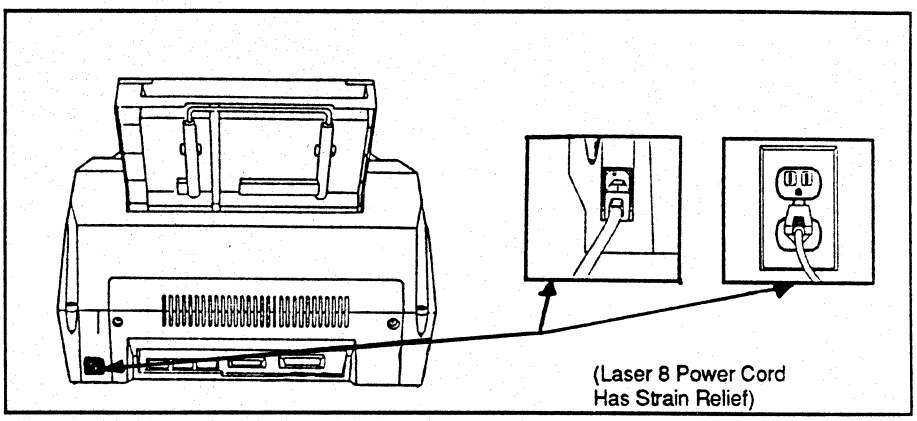
**✣NOTE**

**Always plug the power cord into a properly grounded outlet.**

### Connecting the Laser 8

To connect the Laser 8 to power follow the procedure listed below.

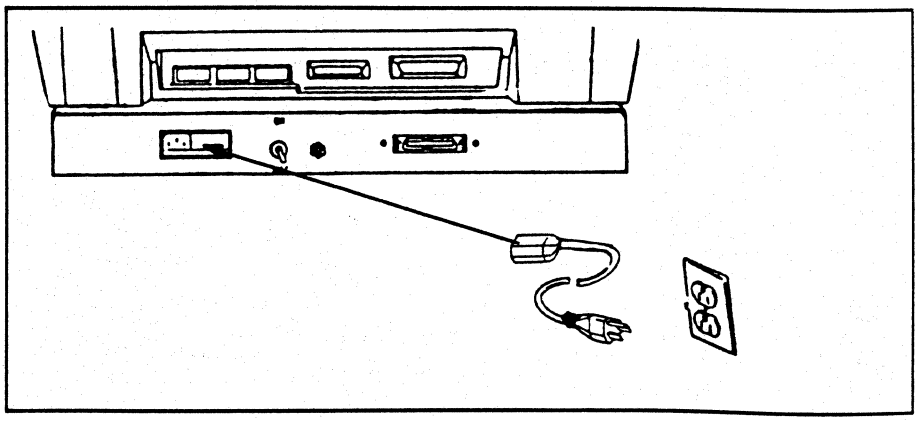
1. Make sure the Laser 8 power switch is set to OFF.
2. Connect the power cord to the rear of the Laser 8.
3. Plug the other end of the power cord into an outlet.




### Connecting the Laser 8 Driver

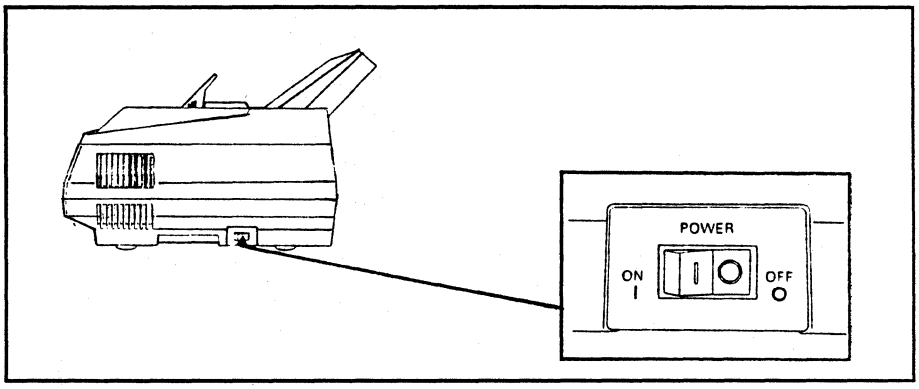
To connect the Laser 8 Driver to power do the following.

1. Make sure the Laser 8 Driver power switch is set to OFF.
2. Connect the power cord to the rear of the Laser 8 Driver.
3. Plug the other end of the power cord into an outlet.



**After the power cord has been connected to a well grounded power outlet, you may power the unit up. Please follow the directions carefully.**

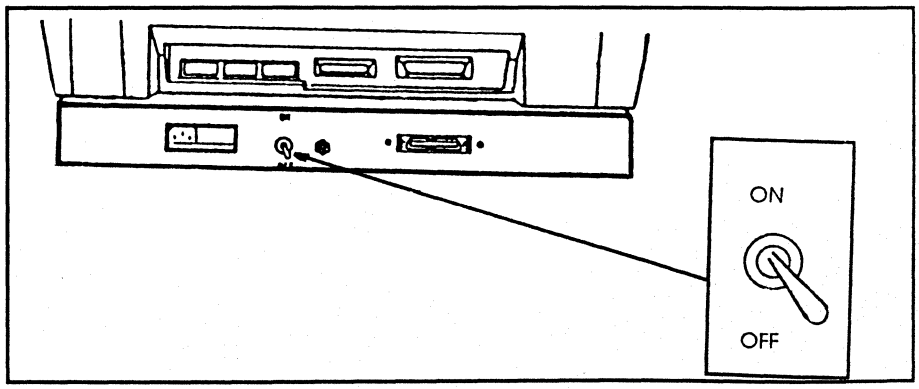
1. Push the Laser 8's power switch to the on position. The upper LCD will read:
   - "WAIT" for about two minutes.
   - Then "WARM UP" blinks on the upper half of the display and the name of the first resident font appears on the lower half of the display.
   - Finally, "CONT" and the paper size appear on the upper half of the display while the lower half remains unchanged.




2. When the upper LCD reads "CONT." , power on the Laser 8 Driver.
   - "Testing" will appear in the lower LCD for a moment, then
   - "Ready" will appear and you are ready for operation.

**❑WARNING**

**The alarm will sound and a fault will appear in the lower LCD if the Laser 8 Driver is powered on before "CONT" is displayed. If this occurs power the Laser 8 Driver off for about five seconds. Be sure "CONT" is displayed in the upper LCD, then power the Driver back on.**

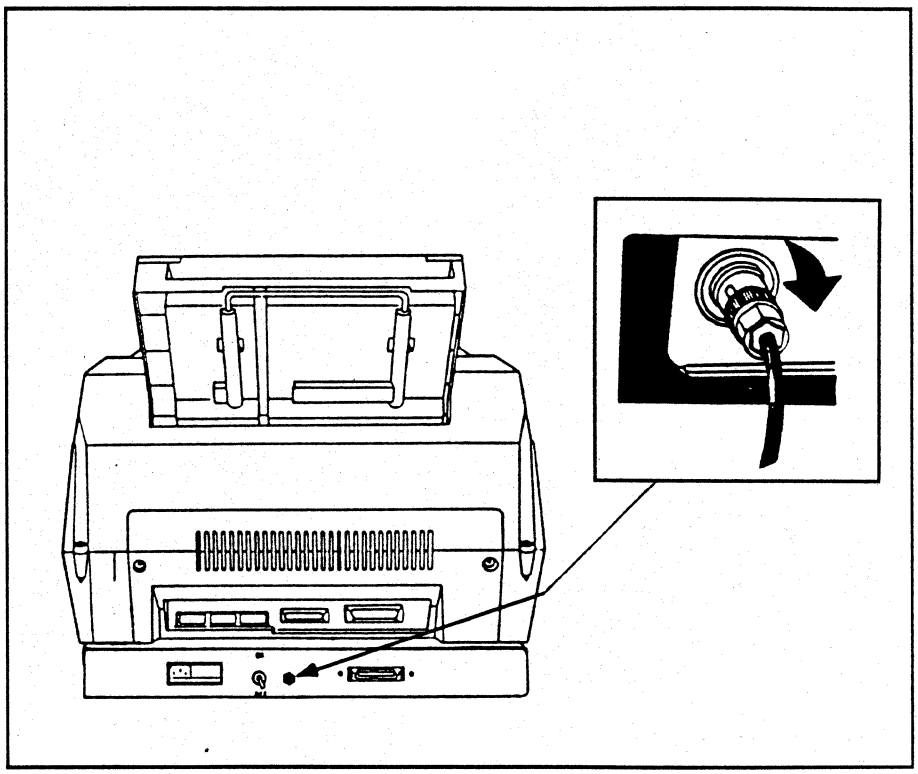


## *Attaching the Coaxial Cable*

**A standard RGU62 coaxial cable connects the printer to the host controller. You must purchase this cable separately.**

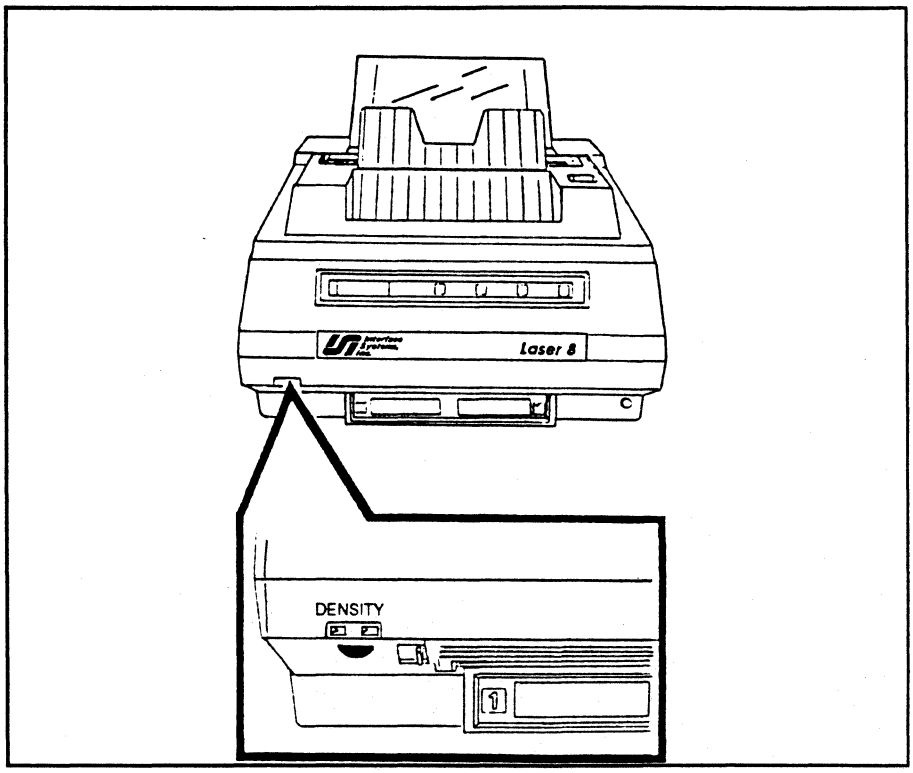
To connect the coaxial cable:

1. Make sure the Laser 8 Driver's power is off.
2. Connect the interface cable to the correct port on the rear of the printer.
3. Connect the other end of the cable to the interface port on the host controller.



**The print density dial allows you to control the lightness or darkness of print.**

Turn the dial to the right for lighter print or to the left for darker print. The recommended setting is at the center position. Approximately two pages will print before you will see the result of the adjustment.

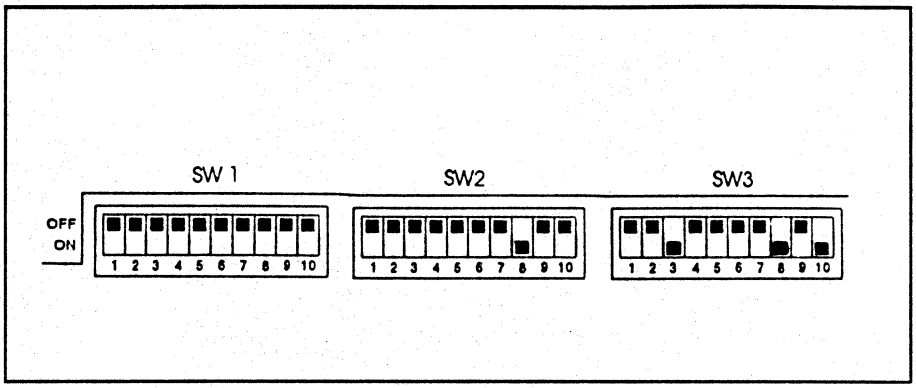


## *Default Settings*

**There are two types of default settings for your Laser 8 unit; dip switch defaults and printing option defaults. When you power your laser unit on, it will be set to the factory defaults shown below. These default settings determine the functions that your printer will perform on power up.**

### Laser 8 Default Settings (Upper Unit)

There are three switch packs on the rear of your Laser 8: SW1, SW2, and SW3. The **only** switch you will change while in 3270 mode is switch #3 in SW1. This switch determines which page size is being used, legal or letter (see page 34 for instructions). The following illustration shows how the switches **must** be set when you are in 3270 mode. Additional switch settings and their functions are available for use in parallel host mode **only**. See *Appendix* for a detailed list.




### Laser 8 Driver Default Settings (Lower Unit)

There are two switch packs on the inside of your Laser 8 Driver which cannot be changed by the operator. If alternate settings are desired, call your Sales Representative for more information. A listing of alternate settings can be found in the Appendix. When the Laser 8 Driver is powered on, the dip switch defaults are:

**Dip Switch Defaults**

- Language - English U.S.
- IBM Model Selection - Model 4k buffer
- Will not print null lines.
- Perform form feed after local copy.

There are also a number of printing option defaults which may be changed by the operator. The operator may change these printing options temporarily or permanently through the control panel. If you want to change these defaults, see page 45 for additional settings and instructions.

**Printing Option Defaults**

- Case: dual (upper and lower case)
- Spacing: single
- Lines Per Inch (LPI): 6



(Continued)

- Page Size: letter
- Maximum Presentation Position (MPP): 132 characters per line
- Maximum Forms Length (MPL): 66 lines per page (for standard 11 inch form)
- Characters Per Inch (Char/In): 10
- Orientation (Orient): Portrait
- Style (fonts): Courier
- Margins: .25 inch left margin
- Hopper: 1

# Chapter 2

**Loading Paper and Transparencies**

**In this chapter you will learn how to feed and load letter, legal, and A4 size paper when one or two hoppers are attached.**

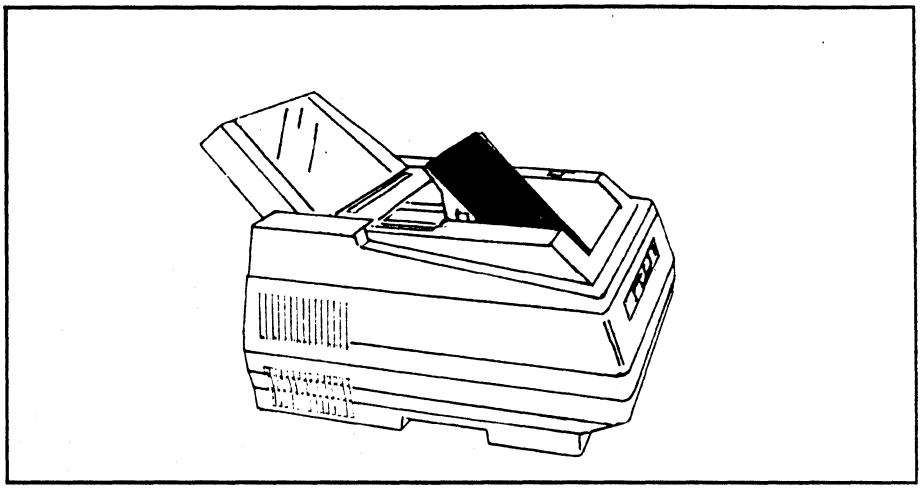

Page

*Feeding Paper or Transparencies* 29
Face-Down Bin 29
Face-Up Bin 29
*Using the Manual Feed Slot.* 30
*Loading the First Hopper* 31
Preparing the Laser 8 31
Loading Paper 32
*Loading the First Hopper (With Second Hopper Attached)* 34
*Loading the Optional Second Hopper* 35

**Paper can be fed automatically or manually to a 250 sheet capacity face-down bin or a single sheet face-up slot.**

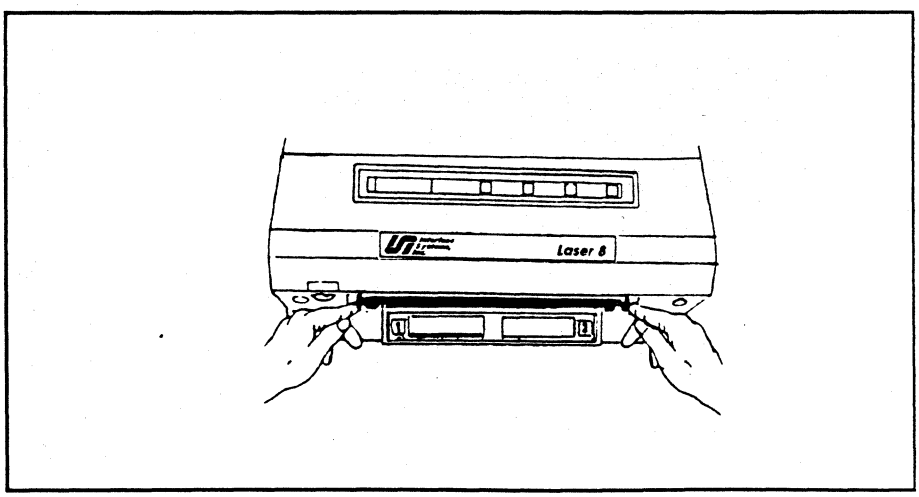
**Face-Down Bin**

Printed sheets automatically collate and feed to the face-down bin.



**Face-Up Slot**

To feed printed sheets or transparencies face-up, open the face-up slot by pushing the two tabs toward each other. Always use the face-up slot when printing transparencies. An optional 200 sheet capacity face-up paper tray is available.



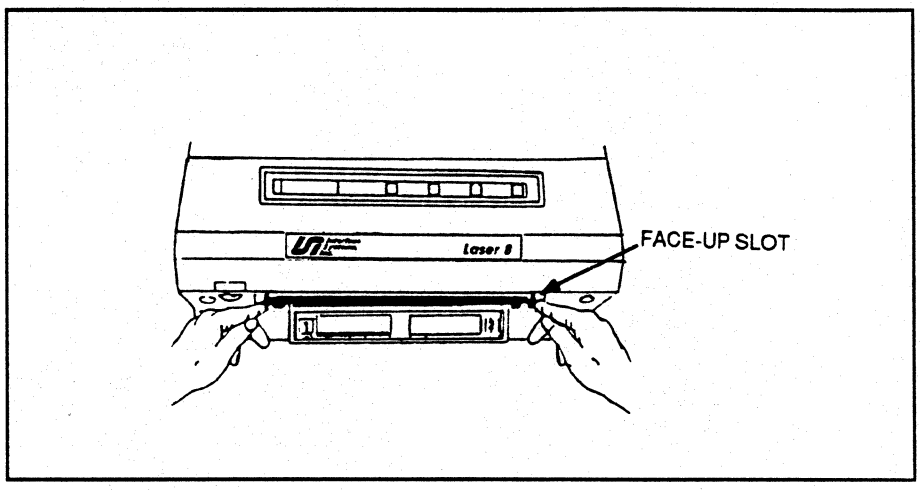
## *Using the Manual Feed Slot*

**The manual feed slot should be used when you want to print legal size sheets or transparencies individually. If you use smaller paper or transparencies, the printable area is smaller and some data is not printed. The manual feed feature is not available when the optional second hopper is attached.**

To load paper or transparencies into the manual feed slot perform the following steps.

1. Perform the power on procedure (see page 21).

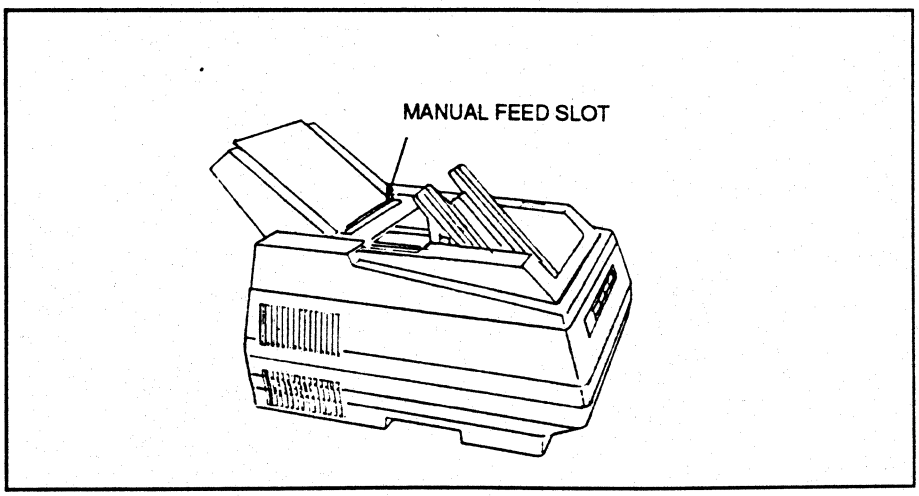
2. Open the face-up slot if you are printing on transparencies.




3. Press PAUSE/CONTINUE on the upper control panel.

4. Press MANUAL FEED on the upper control panel.

5. Insert one sheet or transparency at a time in the manual feed slot. Be sure the paper is seated in the slot. The printer must sense the paper before it will feed.



**This section tells you how to load hopper one with letter, legal, and A4 size paper or transparencies. When you receive your printer from the factory, the default is set for letter size paper.**

---

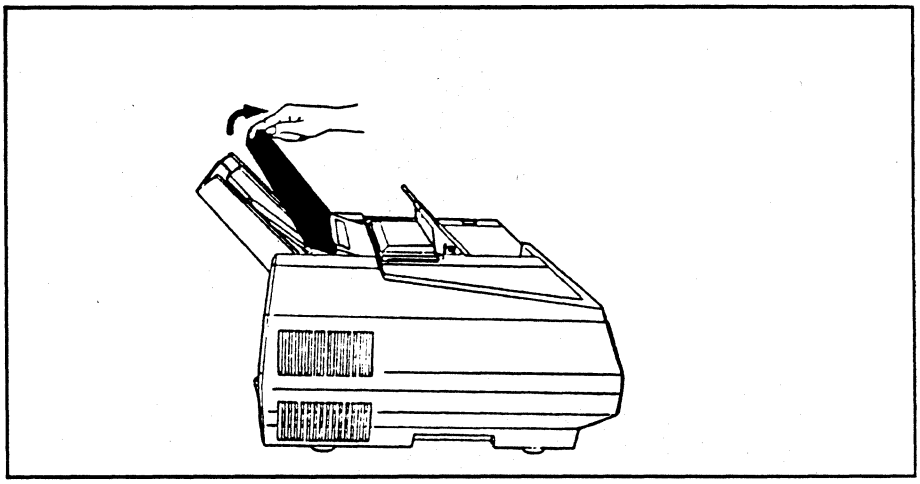
**✣NOTE**

**If the factory default setting gets changed, or if you want to use legal or A4 paper, you must refer to *"Selecting Page Size"* on page 52 for additional setup information.**

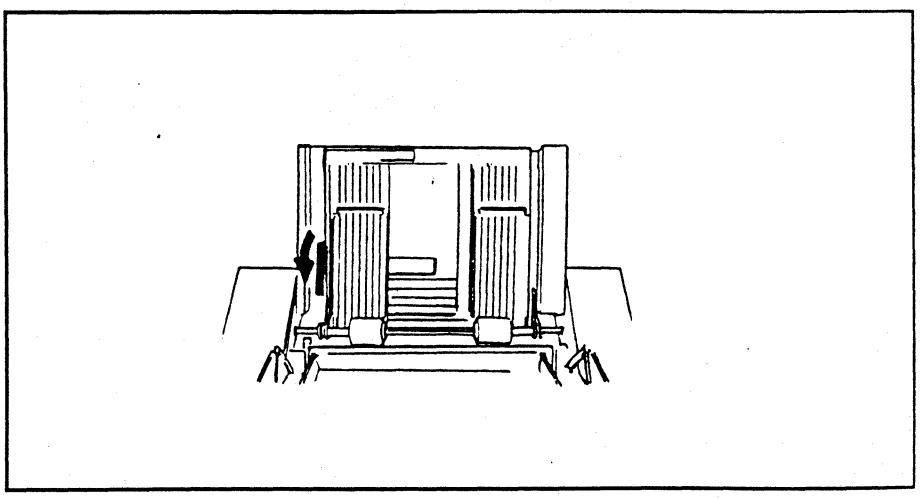
## Preparing the Laser 8

1. Make sure the sheet guide is installed (see *"Attaching the Sheet Guide"*).

2. Open the hopper cover.



3. Pull the green lock lever forward.



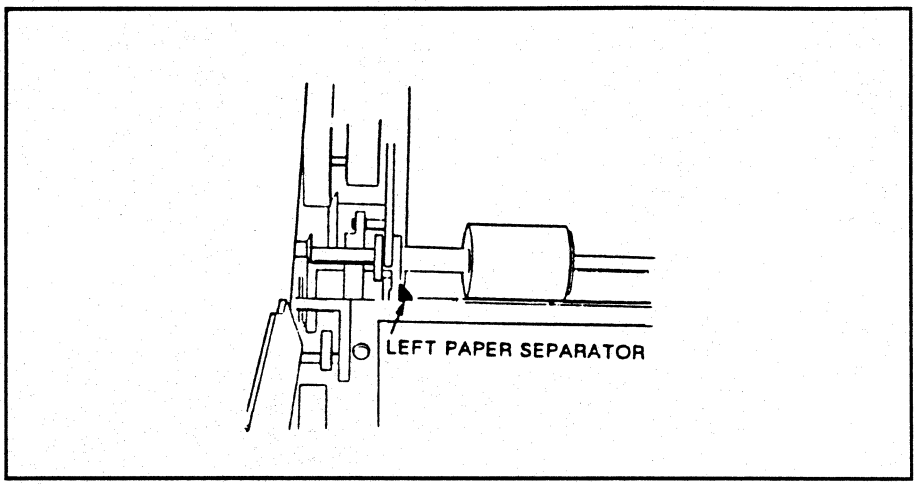
4. When loading legal size paper or transparencies, pull up the extension bar. (See above note).

## Load Paper

1. Place up to 250 sheets of paper or transparencies in the hopper (see *Appendix* for paper specifications). Be sure that the paper or transparencies fit under the two paper separators at the bottom of the hopper.

**❑WARNING**

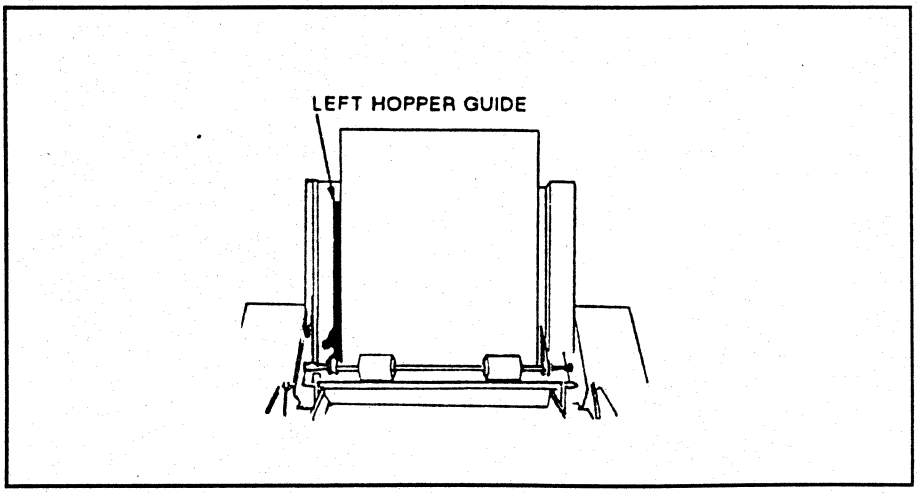
**Overloading the input hopper will cause paper jams!**



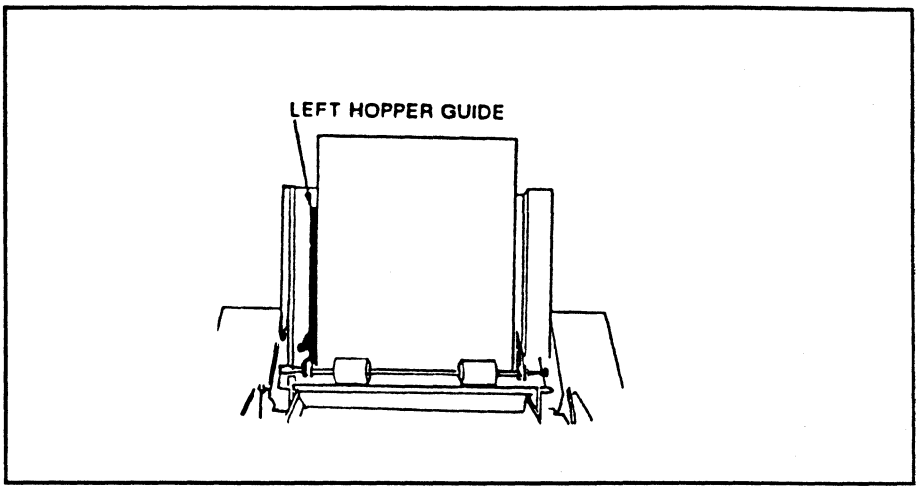

2. Adjust the left hopper guide to snugly fit the width of the paper or transparencies.

**✣NOTE**

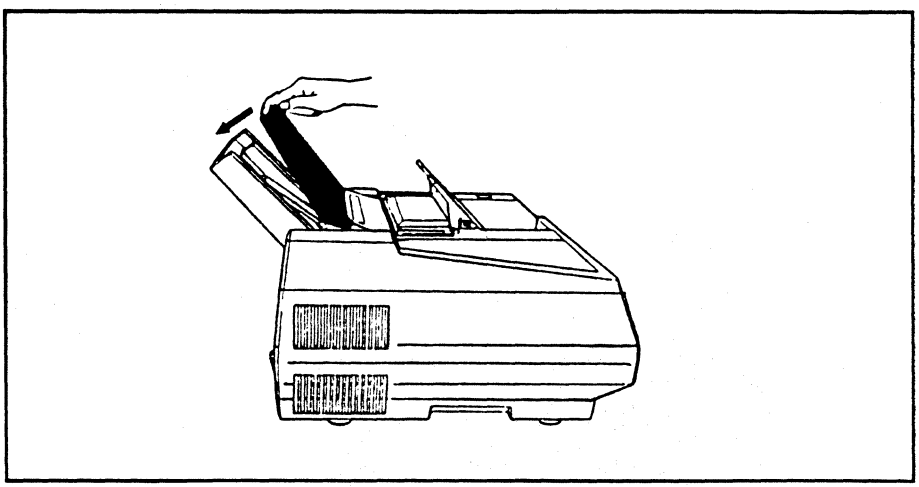
**If the left paper guide does not align with the measurement at the top of the hopper, a paper size error may appear on the LCD.**



3. Push the green lock lever backward.




4. Close the hopper cover.

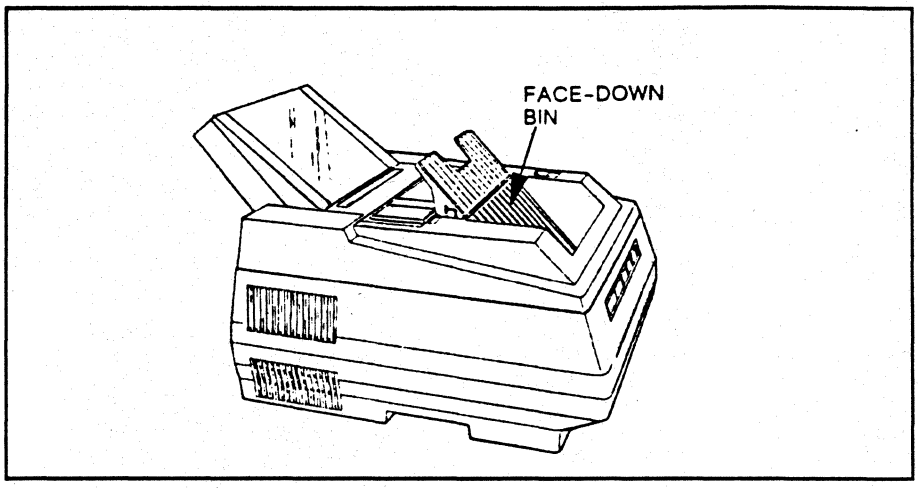


5. Open the face-up slot if your are using transparencies (see *"Feeding Forms" on page 29*).

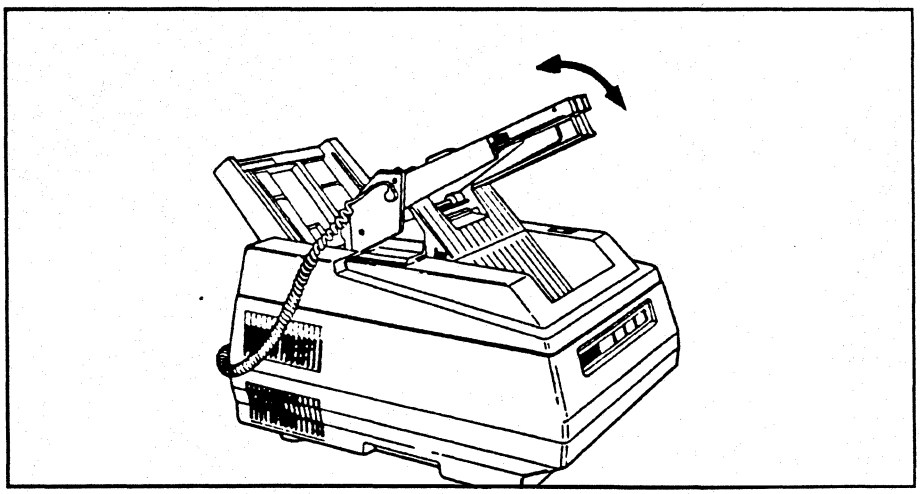
## *Loading the First Hopper With Second Hopper Attached*

**When you receive your printer from the factory it is set to use letter size paper. If you want to feed legal or A4 paper, see *"Selecting Page Size"* on page 52 or 53 for additional setup instructions. This section will tell you how to load letter, legal, and A4 size paper into hopper one when the optional second hopper is attached.**

1. Remove any paper from the face-down bin.




2. Pull the second hopper forward.
3. Perform the procedure listed in *Loading the First Hopper"* pages 31-33.
4. Push the second hopper back to its original position.

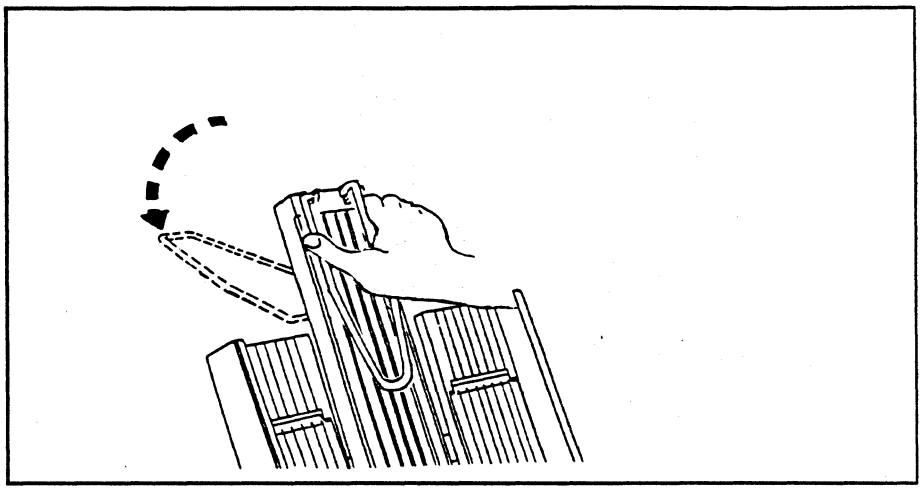


## *Loading the Optional Second Hopper*

**The Laser 8 and optional second hopper are set for letter size paper when they are shipped from the factory. If you want to use legal or A4 size paper you must refer to *"Selecting Page Size"* on page 53 for additional setup information. You must also select the hopper through the data stream or through the control panel (see pg.61 for selection instructions).**

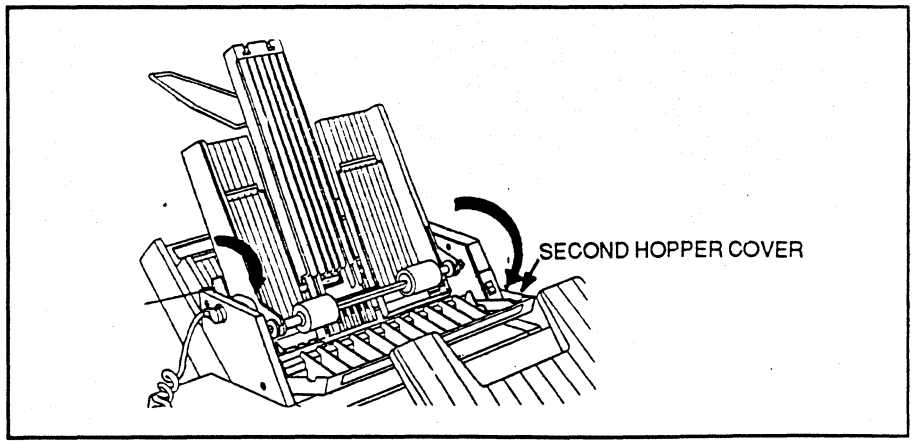
Make sure the sheet guide is installed before you load paper or transparencies. If you are using transparencies open the face-up slot. To load the second hopper:

1. Squeeze the sides of the paper holder together and flip the holder to the back of the hopper.



2. Open the second hopper cover.

3. Pull the green lock lever forward.



4. Place up to 250 sheets of paper or transparencies in hopper (see Appendix for paper specifications). Be sure the paper or transparencies fit under the two paper separators at the bottom of the hopper.

❑WARNING

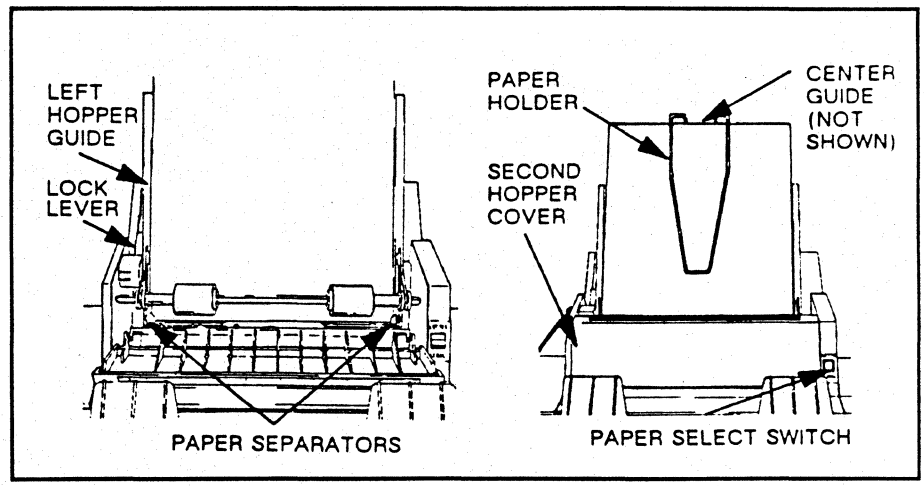
**Overloading the input hopper will cause paper jams!**

5. Adjust the left hopper guide to fit the width of the paper or transparencies.

✣NOTE

**If the left paper guide does not align with the measurement at the top of the hopper, a page size error may appear on the upper LCD.**

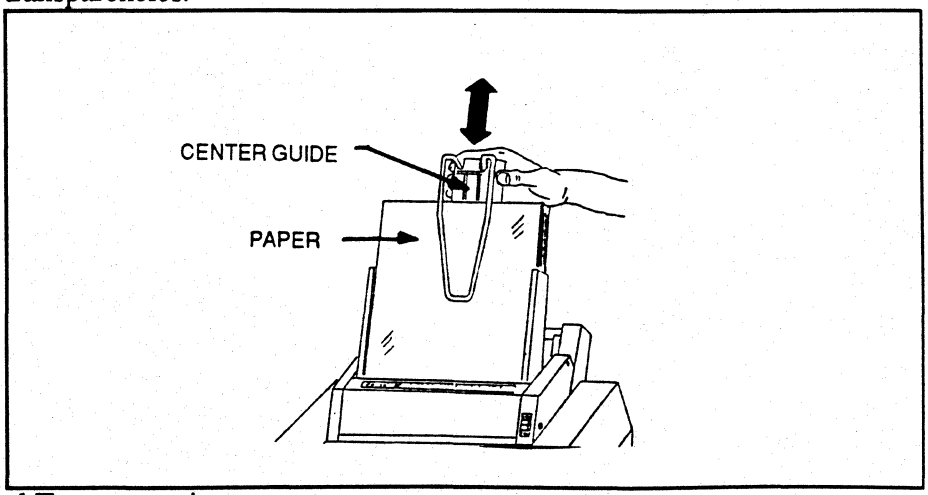
6. Push the green lock lever backward.



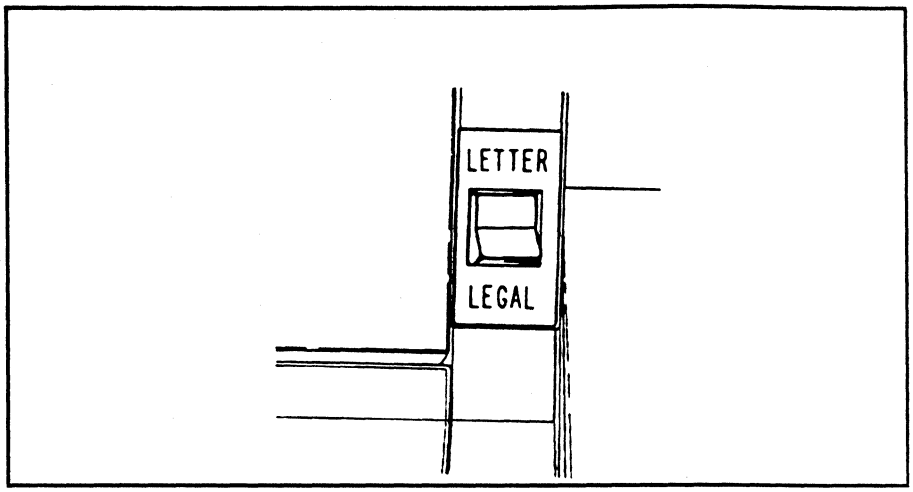

7. Close the second hopper cover.

8. Return the paper holder to its original position.

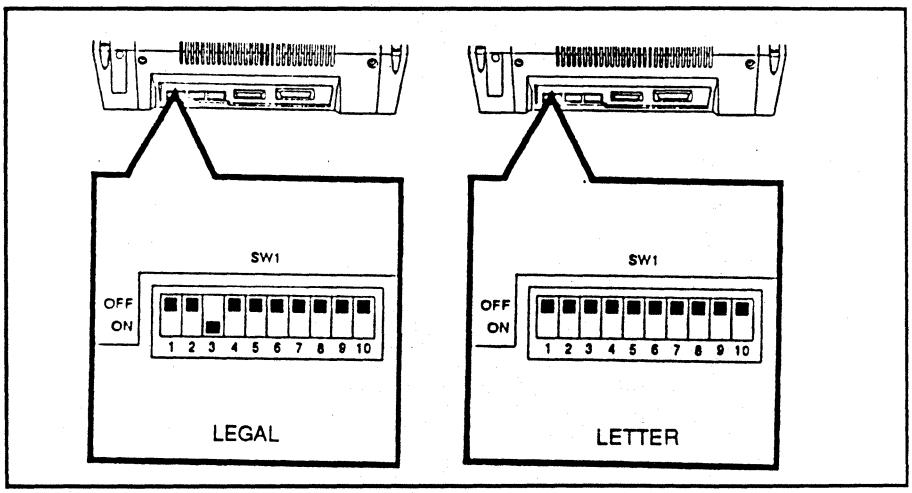
9. Adjust the height of the center guide to the size of the paper or transparencies.



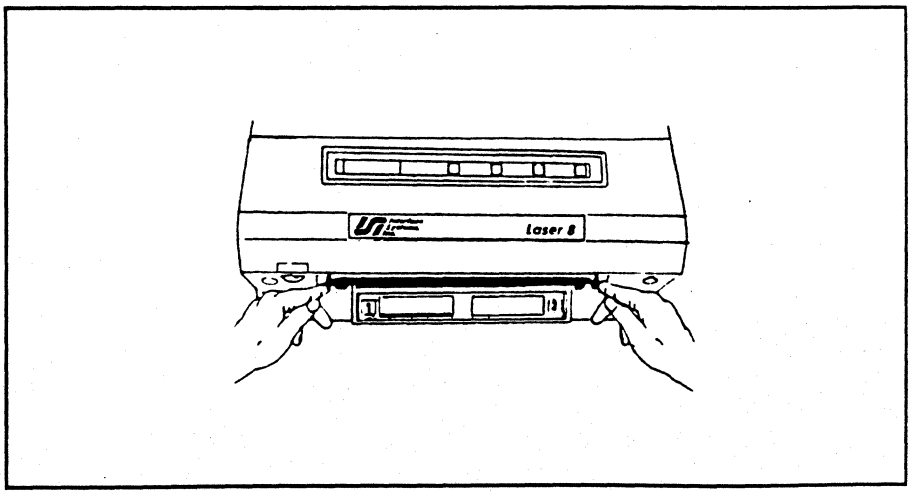
10. Be sure the paper select switch on the right side of the second hopper is set to the type of paper you are using.




11. Be sure switch number 3 in SW1 on the rear of the Laser 8 is set to the type of paper you are using.




12. Open the face-up slot if you are using transparencies



# Chapter 3

## Operating the Laser Unit

**In this chapter you will learn how to control and monitor the operations of your Laser 8 unit. At the end of the chapter, you will be able to use all the keys, understand the LCD messages, and set and save all printing parameters.**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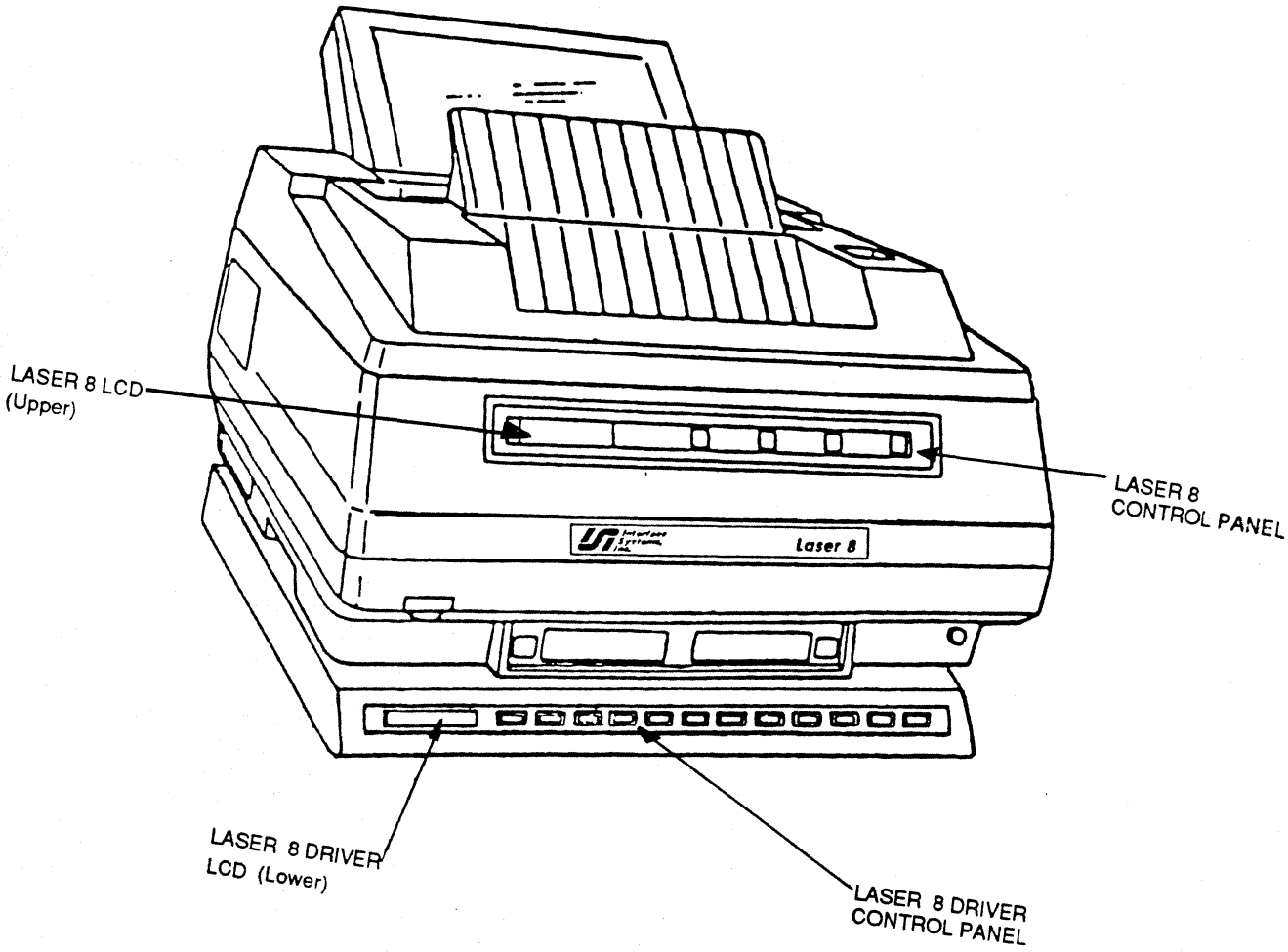
## The Control Panel

There is an upper and lower control panel on the front of the Laser unit. Each control panel consists of various keys and an LCD (Liquid Crystal Display) which are used to control and monitor the operation of the printer. The control panel which will be used the most in 3270 mode is the lower panel. The upper panel will be used only when instructed or when the Laser 8 is being used with a personal computer.



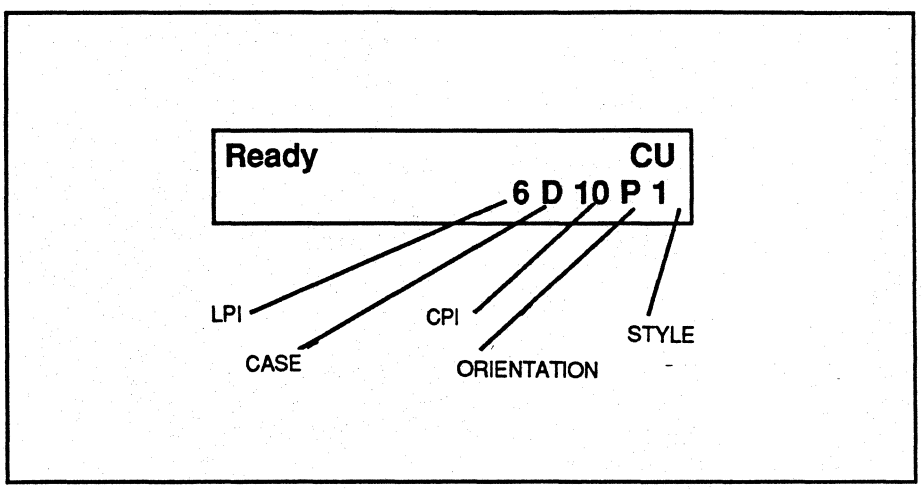
## *Reading the Liquid Crystal Display (LCD)*

**You can monitor the operation of your laser unit by reading the various codes and messages displayed on the Liquid Crystal Display (LCD). An LCD is located on the left end of both the upper and lower control panels. The LCD that you will use the most is located on the Laser 8 Driver (lower). The LCD on the Laser 8 (upper) should only be used when instructed.**

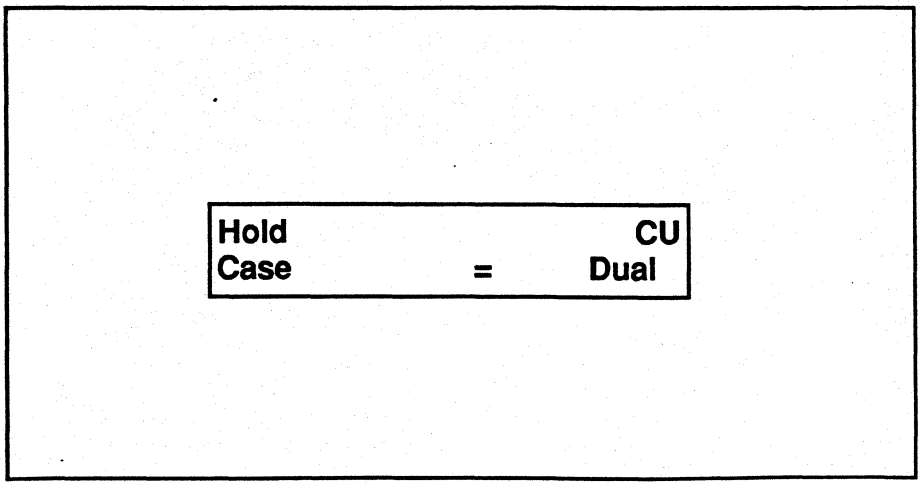
### The Laser 8 Driver LCD (Lower)

The Laser Driver LCD is used to display the printer status of "Ready" or "Hold" and to allow the operator access to the second function options and second function keys.

When the Laser 8 unit is in primary function mode, the first line displays a short description of the status. The second line displays the selected LPI, Case, CPI, Orientation, and Style. If a status code such as "Paper Out" or "Test Mode", is present, it will be displayed on the second line.

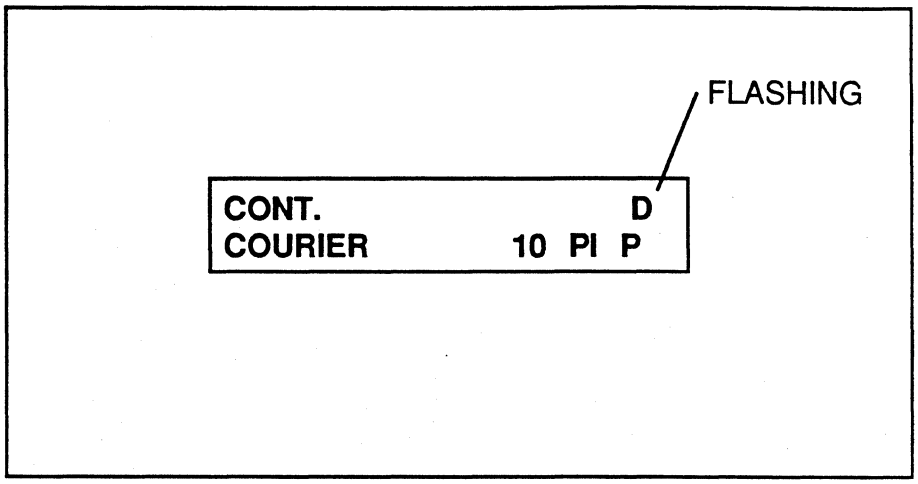



When operating in second function mode, the first line displays the status description, and the second line displays the selected function and current value of the selected parameter.



**The Laser 8 LCD (Upper)**

The only messages that are significant on the Laser 8 are a flashing D, which means that there is data in the buffer, and messages which help in maintaining the printer such as "Toner Low". The Laser 8 LCD will also display the printer's status, error messages, and printing parameters. These messages repeat what is displayed on the Laser Driver, thus they are not necessary and should be ignored.



## *Using the Laser 8 (Upper) Keys*

**There are four keys located on the Laser 8 (upper) control panel. These keys will be used for limited functions while in 3270 mode. They will, however, be the only keys used while in parallel mode, see *Appendix* for more information on parallel programming. The Laser 8 keys are defined as follows.**

**❑Warning**

**Only use these keys when instructed or when the Laser 8 is being used with a personal computer. If these keys are used while operating in 3270 mode, they will disrupt operation of the unit.**

**FONT SET**

- Press FONT SET to select a resident or cartridge font. There are four resident fonts and various optional font cartridges available. A resident font is built into the Laser 8's memory. A cartridge font is an optional font cartridge which must be inserted into the Laser 8 before it is operational.
- Press FONT SET after an error message displays, to isolate the problem.

**FEED MANUAL**

- Press MANUAL FEED while in "PAUSE" to select manual paper feed. No data can be in the page buffer. Then press PAUSE/CONTINUE to activate manual feed.
- When an optional second hopper is installed, press manual feed while in "PAUSE" to select second hopper operation. Then press PAUSE/CONTINUE again to activate second hopper operation.

**FORMS OVERRIDE**

- Press FORMS OVERRIDE with PAUSE/CONTINUE to perform a self-test. See *"Running a Laser 8 Self-Test"* for details.
- When an error condition occurs, press after pressing PAUSE/CONTINUE. This will print all data remaining in the page buffer.

**PAUSE CONTINUE**

PAUSE/CONTINUE will be the most used Laser 8 key. The printer must be in "PAUSE" to activate the other three Laser 8 keys.

- Press to continue printing after a paper out or paper jam.
- Press to alternate between pause and continue states.
- Press with FORMS OVERRIDE to start a self test before the printer is connected to a controller. Press the key again to stop the test.

**There are two types of functions on the Laser 8 Driver; primary functions and secondary functions. The primary or main function of each key is printed in white and is the function you will use the most. The secondary functions, printed in red, are used to change the various printing options such as paper size, characters per inch, and lines per inch. This section gives a brief description of each key function.**

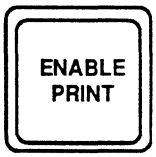
## Primary Functions

This first group consists of the primary functions which allow you to perform a variety of functions if the printer is in HOLD PRINT mode and if there are no errors. If errors are present refer to *"Solving Printer Problems"* for assistance.

Interrupts printing and **activates all keys**. If the printer is in OPTION mode, pressing this key will cause the printer to return to HOLD without altering the indicated function. It will also return you to the beginning of the second function option menu.

**✣NOTE**

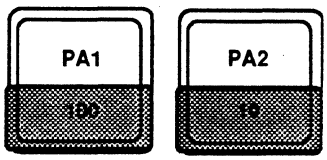
**The HOLD PRINT key must be pressed before using any other keys. All of the keys on the control panel are active only when the printer is in HOLD PRINT.**




Returns printer to normal (on line) operation. All errors must be cleared before this key can function. See *"Solving Printer Problems"* to correct the error. If ENABLE PRINT is pressed before a fault is corrected the alarm will sound and the fault message will continue to be displayed.

Inserts one blank line. If the position goes beyond the bottom of the page as defined by the forms length parameter, one page will be fed in the printer.*

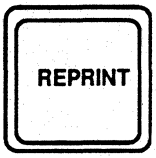
Advances current sheet of paper for removal. *




These keys are referred to as Program Attention Keys. If the SCS (SNA Character String) feature is operational on your Laser 8 unit, these Program Attention keys can be selected while in SCS mode to transfer printing control to the application program.

You can only use this key if your system supports SNA-SCS character strings. If the printer is in SCS mode, press CANCEL while in hold to stop all printing and eliminate all unprinted data.

* For some programs, using these keys may produce undesirable results in the final printed copy.




Prints the contents of the print buffer. This feature is useful if the printer must be turned off before a print job is completed (ie. for a paper jam). REPRINT must be selected before selecting ENABLE PRINT after printing has been interrupted, otherwise, data in the print buffer may be lost. If the printer can execute the command, the contents of the buffer is printed from the beginning, after ENABLE PRINT is pressed. If the printer has finished the current job, however, the buffer reprint has no effect.

✣NOTE

**REPRINT is only active in SCS mode if the Host is configured to support it. Check with your system manager if you're not sure. If it is active it will perform a "Reprint" as described above.**

Runs the currently selected test. Some tests which need to perform repeatedly may continue until this key is pressed again. See *"Running Laser 8 Driver Self-Tests"* on page 65 for details. Tests 1-10 are available and can be accessed using the OPTION key function.

Enters the printer into second function mode activating all second functions and second function options. Read the following section for specific instructions on using this key.

●EXAMPLE

**To use the primary function keys you would perform the following steps.**

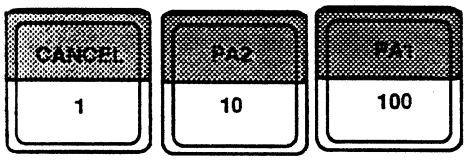
1. **Press HOLD PRINT to interrupt the printing and activate all keys.**
2. **Press any primary function key described in this section.**
3. **Press ENABLE PRINT to resume printing.**

## Second Functions

This section consists of a variety of functions which are made operational by placing the printer in second function mode. To enter second function mode, press HOLD PRINT then OPTION. Whenever the Laser 8 unit is in this mode the name and the current value of a selected function is displayed in the LCD. While in second function mode the following keys, printed in red, are active.

Advances the LCD to the next available second function option. The selected function and its current value will be displayed in the LCD.

Displays the next value choice available for a specific function. The NEXT VALUE key should be used with the following functions: Case, Spacing, LPI, CPI, Page Size, Orientation, and Hopper .




Increments numbers to the desired setting for: MPL, MPP, Test, Style, Timeout, and Margin.

Tells the printer to perform the selected function and returns the printer to HOLD. If a new value for a parameter has been set, that value takes effect when EXECUTE is pressed. The new value will not remain in the printer's memory after the printer is powered off.

### ●EXAMPLE

**To change the LPI setting from 6 LPI to 8 LPI you would:**

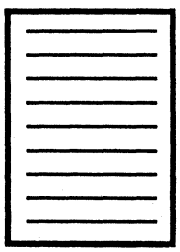
**1. Press HOLD PRINT, then OPTION.**
**2. Press the NEXT FUNCTION key until Lines/IN is displayed in the LCD.**
**3. Then press NEXT VALUE to increment to the 8 LPI setting. (Or you may return to primary mode without altering the current setting by pressing HOLD.)**
**4. Press EXECUTE and ENABLE PRINT to resume printing and use the new settings temporarily. To set permanently, see *"Saving New Settings"* for instructions.**

**The following second function options are accessed by placing the printer in second function mode as explained in the previous paragraphs. These options are listed in the order they will appear when using the NEXT FUNCTION key. Specific applications and examples for these options follow.**

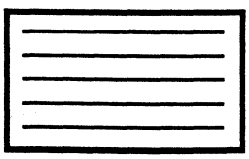
**Summary of Second Function Options**

| Option | Selections | Default |
|---|---|---|
| Case | Dual Case<br>Mono Case | Dual Case |
| Spacing | Single<br>Double | Single |
| Lines/In (LPI) | 6 (3 for double space)<br>8 (4 for double space) | 6 LPI |
| Page Size | Letter<br>Legal<br>A4 (European)<br>Letter Exact<br>Legal Exact<br>A4 Exact | Letter |
| MPL | 1 to 112 | 66 |
| Char/In (CPI) | 10,11, 12, 13, 15, 16.67 | 10 |
| MPP | 1 to 135 (at 10 CPI)<br>1 to 162 (at 12 CPI<br>1 to 202 (at 15 CPI)<br>1 to 225 (at 16.67 CPI) | 132 |
| Orient (Orientation) | Portrait<br>Landscape (Courier 12 only) | Portrait |
| Style (Fonts) | **Portrait**<br>1 = Courier 10 pitch<br>2 = Courier Italic10 pitch<br>5 = Courier Symbol 10 pitch<br>**Landscape**<br>1 = Courier 12 pitch<br>(Available range 1-127) | 1 = Courier 10 pitch portrait |
| Margin | 25 to 275 (100th's of an inch) | Left margin 25 |
| Top Margin | 25 to 250 (100th's of an inch) | 25 |
| Hopper | 1 and 2 (with optional second hopper) | 1 |
| Setup | reserved | |
| Test# | ID/Status<br>ID/Status<br>Status<br>Dump All<br>Dump RAM<br>DEV char<br>NOP<br>NOP<br>Auto dump<br>Testline<br>HHHHHHHHH<br>Blanks | ID/Status |
| Timeout | 1 to 240 seconds | 0 |
| Save SU (Setup) | Sets permanent memory | ---- |
| Reset | Resets check conditions | ---- |

| | |
|---|---|
| Case = Dual | Displays and allows the operator to modify the setting of the Dual/Mono Case parameter. Dual case is both upper and lower case printing. Mono case is all upper case printing. The factory default setting is dual case printing. |
| Spacing Single | Displays and allows the operator to modify the setting of the Single/Double line Spacing Parameter. The factory default setting is single spacing. |
| Lines/In = 6 | Displays and allows the operator to select the number of lines to print per inch, 6 or 8 (3 or 4 respectively when using double spacing). The factory default setting is 6 LPI. |
| PageSizeletter | Displays and allows the operator to select the desired page size. Legal (exact), Letter (exact), or A4 (exact). See *"Setting Page Size"* on page 52 for details. |
| MPL = 66 | The Maximum Page Length setting displays and allows the operator to modify the setting of the forms length parameter in the range of 1 to 112. The factory default setting is 66. |
| Char/In = 10 | The Characters Per Inch setting allows the operator to display and modify the CPI setting. The available settings are: 10, 11, 12, 13, 15, and 16.67. The factory default setting is 10 CPI. The 11 CPI value is built-in so 132 characters will print accurately on one line of letter size paper using Courier 10 pitch landscape. The 13 CPI value is built-in so 80 characters will print accurately on one line of A4 paper using Courier 10 pitch portrait. All other CPI settings print as expected. |
| MPP = 132 | The Maximum Presentation Position setting displays and allows the operator to modify the setting of the line length in the range of 1 to 220. The MPP is the rightmost position on any given line. The factory default setting is 132. See, *"Selecting MPP (line length)"* on page 56 for details. |
| Orient = Portrait | The Orientation setting displays and allows the operator to switch between Landscape and Portrait printing. Landscape indicates lengthwise printing and Portrait indicates widthwise printing. |



Portrait



Landscape

| | |
|---|---|
| Style = 1 | Displays and allows the operator to modify the type style or font setting. The available fonts are:<br>**Portrait**<br>1 = Courier 10 pitch<br>2 = Courier Italic 10 pitch<br>5 = Courier Symbol 10 pitch<br>**Landscape**<br>1 = Courier 12 pitch<br><br>See page 59 *"Selecting Type Style (Fonts)"* for details. |
| Margin = 25 | Displays and allows the operator to modify the margin settings. The margins are set in 100ths of an inch (i.e. 50 = 1/2"). Available margins are in a range of 25 to 275. The left margin is automatically set at 25 (actual size .32 in). See *Appendix* for actual printable area on the page. |
| Top Mar = 25 | Displays and allows the operator to modify the top margin setting. The margin is set in hundredths of an inch (i.e. 25 = 1/4"). Available settings are in a range of 25 to 250. The top margin default setting is 25. |
| Hopper = 1 | Displays and allows the operator to select which hopper to feed paper from, 1 or 2. Hopper 2 can only be selected if the optional second hopper is installed. Hopper 1 is the factory default. See *"Selecting Hoppers"* on page 61 for more information. |
| Setup 6 D 10P1 | Reserved |
| Test = ID/Stat | Displays and selects the different tests to be performed when the TEST key is pressed. Test 1 through 10 are available. See *"Running Laser 8 Driver Self-Tests"* on page 65 for details. |
| Time out = 0 | Allows the operator to set a time, 1 to 240 seconds, within which the printer must receive the next print job. If the printer receives no new information, it will eject any partially completed page. Set to 0 to disable the function. |
| Save SU 6 D 10P1 | Save Setup causes the current operating parameters to be saved as default values. See *"Saving New Settings"* on page 62 for details. |
| Reset 6 D 10P1 | Resets check conditions and sends a power on reset message to the control unit. |

## *Selecting LPI (line density)*

**The LPI second function option determines the number of lines per inch to print, 6 or 8.**

---

**✣NOTE**

**When changing LPI, it is assumed that you are at top of form.**

To change the LPI setting you would:

1. Press HOLD PRINT then OPTION.
2. Press NEXT FUNCTION until "Lines/In" is displayed.
3. Press NEXT VALUE to select the desired LPI setting.
4. Press EXECUTE and ENABLE PRINT to resume printing and use the

## *Selecting Page Size (One Hopper Installed)*

**Each time you load paper or transparencies in your Laser unit you should be sure the correct page size has been selected. This section will tell you how to select page size when only one hopper is being used.**

When only one hopper is attached, you must be check the page size option setting, and switch #3 in SW1. To check or change the page size second function option setting do the following.

1. Press HOLD PRINT then OPTION.

2.. Press NEXT FUNCTION until "Page Size" and the current setting is displayed.

3. To resume printing without altering the current setting, press HOLD PRINT then ENABLE PRINT. To change the setting, press NEXT VALUE until the desired setting is displayed. See page ?? for page size selections

4. Place switch #3 in SW1 in the correct position.

5. Next, press EXECUTE and ENABLE PRINT to resume printing using the new setting.

**●EXAMPLE**

**To change from letter to legal size paper you would:**
**1. Remove all letter size paper from the hopper.**
**2. Load legal size paper into the hopper.**
**3. Set switch #3 in SW1 to Legal (down setting).**
**4. Press HOLD PRINT, then OPTION.**
**5. Press NEXT FUNCTION until "Page Size letter" is displayed**
**6. Press NEXT VALUE until "Paper Size legal" is displayed.**
**7. Next, press EXECUTE and ENABLE PRINT to resume printing using the new setting. To save this setting permanently see pg.62.**

**With the second hopper attached you may feed one or two types of paper in the Laser 8. Each time you load paper or transparencies in your Laser 8 you should be sure the correct page size or sizes have been selected.**

## Checking/Changing Page Size

When using two hoppers there are four areas that must be checked: the page size option setting, switch #3 in SW1 (upper unit), the paper select switch on on the right side of the second hopper, and additional front panel selections as needed. Page size may also be selected through the data stream (see Appendix). Please note that legal size paper can only be fed from hopper 2 when loading two different types of paper . The Laser 8 will automatically sense the A4 setting when the hopper is adjusted to that size paper.

The hoppers may be set three different ways:

| | Hopper 1 | Hopper 2 |
|---|---|---|
| 1. | Letter or Letter exact | Letter or Letter exact |
| 2. | Legal or Legal exact | Legal or Legal exact |
| 3. | Letter or Letter exact | Legal or Legal exact |

## Setting Page Size (Examples)

The following examples demonstrate how each setting is performed. These settings are temporary and will not remain once the printer is powered off. To set them permanently see *"Saving New Settings"* on page 62 for details.

### Example 1

**Hopper 1**
Letter or Letter exact

1. Press HOLD PRINT then OPTION.
2. Press NEXT FUNCTION until "Hopper" and the current setting is displayed.
3. If "Hopper 1" is displayed, continue to step 4. If "Hopper 2" is displayed, press NEXT VALUE until hopper 1 is selected.
4. Press EXECUTE to store the hopper selection.
5. Now, press NEXT FUNCTION until "Page Size" is displayed.
6. Press NEXT VALUE until the Letter setting is selected.
7. Next press EXECUTE to store the new setting.
8. Set switch 3 in SW1 to letter (up setting).
9. Press ENABLE PRINT to resume printing.

**Hopper 2**
Letter or Letter exact

1. Press HOLD PRINT then OPTION.
2. Press NEXT FUNCTION until "Hopper 1" is displayed.
3. Press NEXT VALUE until "Hopper 2" is selected.
4. Press EXECUTE to store the hopper selection.
5. Now, press NEXT FUNCTION until "Page Size" size is displayed.
6. Press NEXT VALUE until the Letter setting is selected.
7. Next press EXECUTE to store the new setting.
8. Set switch 3 in SW1 to letter (up setting).
9. Press ENABLE PRINT to resume printing.

**Example 2**

**Hopper 1**
Legal or Legal exact

1. Press HOLD PRINT then OPTION.
2. Press NEXT FUNCTION until "Hopper" and the current setting is displayed.
3. If "Hopper 1" is displayed, continue to step 4. If "Hopper 2" is displayed, press NEXT VALUE until hopper 1 is selected.
4. Press EXECUTE to store the hopper selection.
5. Now, press NEXT FUNCTION until "Page Size" is displayed.
6. Press NEXT VALUE until the Legal setting is selected.
7. Next press EXECUTE to store the new setting.
8. Set switch 3 in SW1 to legal (down setting).

**Hopper 2**
Legal or Legal exact

1. Press HOLD PRINT then OPTION.
2. Press NEXT FUNCTION until"Hopper 1" is displayed.
3. Press NEXT VALUE until "Hopper 2" is selected.
4. Press EXECUTE to store the hopper selection.
5. Now, press NEXT FUNCTION until "Page Size" size is displayed.
6. Press NEXT VALUE until the Legal setting is selected.
7. Next, press EXECUTE to store the new setting.
8. Set the paper select switch on the second hopper to letter.
9. Press ENABLE PRINT to resume printing using the new setting.

**Example 3**

**Hopper 1**
Letter or Letter exact

1. Press HOLD PRINT then OPTION.
2. Press NEXT FUNCTION until "Hopper" and the current setting is displayed.
3. If "Hopper 1" is displayed, continue to step 4. If "Hopper 2" is displayed, press NEXT VALUE until hopper 1 is selected.
4. Press EXECUTE to store the hopper selection.
5. Now, press NEXT FUNCTION until "Page Size" is displayed.
6. Press NEXT VALUE until the Letter setting is selected.
7. Next press EXECUTE to store the new setting.
8. Set switch 3 in SW1 to letter (up setting).

**Hopper 2**
Legal or Legal exact

1. Press HOLD PRINT then OPTION.
2. Press NEXT FUNCTION until "Hopper 1" is displayed.
3. Press NEXT VALUE until "Hopper 2" is selected.
4. Press EXECUTE to store the hopper selection.
5. Now, press NEXT FUNCTION until "Page Size" size is displayed.
6. Press NEXT VALUE until the Legal setting is selected.
7. Next, press EXECUTE to store the new setting.
8. Set the paper select switch on the second hopper to legal.
9. Press ENABLE PRINT to resume printing using the new setting.

**Summary of Page Size Selections**

There are six different page sizes available. The "exact" setting means that the line spacing is *exactly* as requested (3, 4, 6, or 8 LPI). Any data that does not fit at this setting will overprint at the bottom of the page. The non-exact, or regular setting such as letter or legal will automatically adjust the line spacing to fit evenly on the page.

| SUMMARY OF PAGE SIZE SELECTIONS | |
|---|---|
| Letter | ltr exact (letter exact) |
| Legal | lgl exact (legal exact) |
| A4 (European) | A4 exact |

See Appendix for maximum number of lines that will print exact for each LPI setting.

## *Selecting MPL (forms length)*

**You can select a three digit page length of 001 to 112. The factory default setting is 66. The MPL setting is variable and should be changed to correspond with the current line spacing.**

### Determining Line Count for New MPL

To determine the number of lines to select for your new forms length, you must consider three things:

- the length of the form in inches
- the number of lines you want printed per inch (6 or 8 -- 3 or 4 respectively, for double spacing)
- the line spacing you want (single or double)

Once you determine these values, multiply the paper length by the desired LPI.

**●EXAMPLE**

**In this example the forms length is 11 inches (279.4 mm), the LPI setting is 6, and the spacing is single. Multiply the forms length by the LPI to get the new MPL value of 66 (i.e. 11 x 6 = 66.). For double spacing, multiply the paper length by 3 (i.e. 11 x 3 = 33).**

### Checking the Current Setting

To view the current MPL setting:

1. Press HOLD PRINT then OPTION.

2. Then press NEXT FUNCTION until "MPL" and the current lines per page setting are displayed.

To return to READY without altering the current setting press HOLD PRINT then ENABLE PRINT.

### Selecting a New MPL

To select a new forms length follow these steps.

1. Perform steps 1 and 2 in "Checking the Current Setting".

2. Press the appropriate digit keys, 1, 10, or 100, to select a new forms length in the range of 001 to 112.

3. Press EXECUTE to tell the printer to begin using this new forms length.

4. Press ENABLE PRINT to resume printing. This value is temporary and will not remain once the printer is powered off. To save this setting permanently, see *"Saving New Settings"* on page 62.

**●EXAMPLE**

**To select a new MPL setting of 088, we will assume that the physical form length is 11 inches (279.4 mm), and that 8 LPI and single spacing is already set. To select this setting:**

**1. First press HOLD PRINT and OPTION.**
**2. Press NEXT FUNCTION until "MPL" displays in the LCD.**
**3. Enter the page length value as a three digit number by using the appropriate digit keys. Your entry (088) will be displayed in the LCD.**
**4. Press EXECUTE to tell the printer to use the new setting.**
**5. Press ENABLE PRINT to resume printing at the new setting.**

**The printer is back in primary function mode and will select the value you have just set. This value is temporary and will not remain once the printer has been powered off. To save the setting permanently see *"Saving New Settings"* on page 62.**

## *Selecting MPP (line length)*

**The MPP sets the point at which the printer will "break" a very long line and continue it on the next line. The MPP or maximum presentation position is 132 character positions (including spaces) for 10 characters per inch. This setting is variable and should be changed to correspond with the current CPI setting.**

### Checking the Current Setting

To view the current MPP setting:

1. Place the printer in second function mode by pressing HOLD PRINT then OPTION.

2. Then press NEXT FUNCTION until "MPP" is displayed. The LCD displays the current characters per line as a three digit number.

### Selecting a New MPP

To select a new MPP setting perform the following steps.

1. Perform steps 1 and 2 of "Checking the Current Setting" above.

2. Select a new MPP using the appropriate digit keys 1, 10, or 100. (You may also return to ready mode without altering the current setting by pressing HOLD PRINT.) The various MPP's which correspond with the available CPI settings are listed below:

- 1 to 135 at 10 CPI
- 1 to 162 at 12 CPI
- 1 to 202 at 15 CPI
- 1 to 225 at 16.67 CPI

You can check your selection by viewing the new parameters on the LCD.

3. To exit the second function mode and select the value you have just set, press EXECUTE. (You may also press HOLD PRINT to exit without altering the current settting and return to the top of the menu.) This value is temporary and will not remain once the printer has been powered off. To set this value permanently see *"Saving New Settings"* on page 62.

4. Press ENABLE PRINT to resume printing.

**✣NOTE**

**The MPP is greater than the maximum printable column number. Data which exceeds the printable area but is less than the MPP will pile up on the right margin.**

**The Laser 8 comes equipped with four resident fonts and two ports for optional font cartridges. The resident fonts are built-in fonts which can be accessed by using the "Style" second function option. The font cartridges are inserted in the Laser 8 to add one or more extra fonts. Both resident and optional fonts may also be selected through the data stream, see the Appendix for details.**

## Resident Fonts

To check the current font style setting simply power the printer on. The current font will be displayed as the last digit in the Laser 8 Driver LCD (lower LCD). Resident fonts are selected and displayed in the LCD in this order.

| **Portrait** | **Landscape** |
|---|---|
| 1 = Courier 10 pitch | 1 = Courier 12 pitch |
| 2 = Courier Italic 10 pitch | |
| 5 = Courier Symbol 10 pitch | |

To select a new style font:

1. Press HOLD PRINT and OPTION.

2. Press NEXT FUNCTION until "Orient" is displayed. Be sure the desired orientation is selected, Portrait or Landscape. If the desired setting is selected, continue to #3. If it is not at the desired setting, press NEXT VALUE to select the desired setting, then EXECUTE to store the setting temporarily.

3. Next, press NEXT FUNCTION until "Style" is displayed.

4. Then, press the number keys until the desired style setting is displayed.

5. Finally press EXECUTE and ENABLE PRINT to resume printing and use the new setting.

## Optional Font Cartridges

Contact the factory for available font cartridges. Before an optional font can be operational on the Laser 8, the appropriate font cartridge must be inserted. To insert a font cartridge:

## Inserting Cartridges

1. Turn the power off both the Laser 8 and Laser 8 Driver.

**❑WARNING**

**NEVER insert or remove a font cartridge when the printer is on.**

2. Insert one or two font cartridges into the slot(s) in the front of the printer. Use slot one when inserting only one cartridge.

3. Turn the power on.

4. Perform steps 1 through 3 of the previous procedure to select the font(s).

5. Enter the style number listed on the end of the cartridge by using the digit key.

**✣NOTE**

**The front panel does not display leading zeroes. For example, the number one is displayed as "1" not "01".**

The optional fonts are selected and displayed in this order.

- Font cartridge in slot 1.
- Font cartridge in slot 2.

Fonts can also be selected through the data stream. See the Appendix on page 103 for details on escape sequences.

**Whenever the optional second hopper is installed, you must select the hopper you will be using. This is done through the "Hopper" second function option. It is also possible to feed forms from both hoppers. This must be done through the data stream (see Appendix A for details).**

---

**✣NOTE**

**Always load paper or transparencies before selecting the hopper.**

1. Perform the power on procedure listed on page 21. The printer is now ready to feed and print sheets from the default hopper when data is received from the host computer. (The factory default hopper is hopper 1. We will assume this is the default hopper for this example.)

2. To select the second hopper, press HOLD PRINT.

3. Next press OPTION and NEXT FUNCTION until "Hopper 1" is displayed in the LCD.

4. Then, press NEXT VALUE and EXECUTE to select the new setting.

5. Finally press ENABLE PRINT to resume printing using the new setting. This setting is only temporary and will not remain once the printer is powered off. To set permanently see, *"Saving New Settings"*on page 62.

To reselect the first hopper you must repeat the above procedure for hopper one.

## *Saving New Settings*

**Each time you change a setting, you may change it temporarily for your specific job by using the EXECUTE key, or you can change it permanently for use at power on by using the Save SU (Setup) function. If you do not change any of the default settings by using the Save SU function, the settings listed on page 24 will be in effect at power on.**

### Saving New Settings Temporarily

Pressing EXECUTE temporarily stores values for all the second functions. Functions set temporarily will not be saved after the printer is powered off. To select a new setting:

1. Press HOLD PRINT, then OPTION.
2. Press NEXT FUNCTION to increment to the desired option.
3. Press NEXT VALUE to select a new value.
4. Press EXECUTE to store the new value.
5. Finally, press HOLD PRINT, then ENABLE PRINT to return to primary function mode.

**●EXAMPLE**

**To store a new case setting:**

**1. Press HOLD PRINT, then OPTION.**
**2. Press NEXT FUNCTION to increment to "Case".**
**3. Press NEXT VALUE to select a new case setting.**
**4. Finally, press EXECUTE to store the new value temporarily and return to primary function mode.**

### Saving New Settings Permanently

While in the second function mode, Save SU allows you to set chosen parameters permanently. Values set permanently will stay in the printer's memory and are ready for use at power on.

**✣NOTE**

**Save SU is to be used in specialized applications only. It is not recommended for printers used for a variety of printing functions, because it is possible to use up the NVRAM space after repeated use.**

Any of the second functions can be set permanently by using Save SU. To set these features, follow the instructions below.

1. Make all of the desired second function option setting changes.
2. Then press OPTION.
3. Press NEXT FUNCTION to increment to the Save SU option.

4. Press EXECUTE to store this information.

5. Finally, press ENABLE PRINT to resume printing.

The new setting will be ready for use at the next power on.

**●EXAMPLE**

**To save a new case setting permanently:**
**1. Press HOLD PRINT, then OPTION.**
**2. Set the new case setting, then store it by using the EXECUTE key.**
**3. Press OPTION.**
**4. Press NEXT FUNCTION to increment to the Save SU function.**
**5. Finally, press EXECUTE followed by ENABLE PRINT to save the setting and resume printing.**

**The new case setting will be the new power on value. Please note that all second function options, Case, LPI, Spacing, etc. are also saved at this time.**

## *Running a Laser 8 Self- Test*

**BEFORE you connect the Laser 8 to the controller, you may use the built-in font test to check the printer's performance and print quality. The font test prints out ten pages of the currently selected font. This test can be performed for each resident font and installed font cartridge . Before you begin, make sure the sheet guide is attached and enough paper is loaded.**

1. Power on the Laser 8 only. (The Laser 8 Driver is not needed for this test.) The printer will perform the initialization procedure listed in the "Power On" section.

2. When "CONT." appears on the LCD, press the PAUSE/CONTINUE key. "PAUSE" appears on the LCD.

3. Press and hold the FORMS OVERRIDE. Then press the PAUSE/CONTINUE key.

4. Release both buttons at the same time to begin the self-test.
   - "TEST PRINT" and a flashing "D" appear on the first line of the LCD.
   - The font name appears on the second line. ("D" means that there is unprinted data in the buffer.)
   - The test begins.

5. To stop the test press PAUSE/CONTINUE once. Approximately three more pages will print out. Press PAUSE/CONTINUE again to return to HOLD.

**In the event of a printer error the following procedure should be followed to perform a self-test. These tests may not mean much to you, but will be helpful when talking with service personnel. Eleven tests are available.**

To run a self-test:

1. Press HOLD PRINT then OPTION.

2. Press the NEXT FUNCTION key until "Test" and the current setting is displayed in the LCD.

3. If you wish to change the test at this time, press NEXT VALUE until you arrive at the desired test. (See below for a list of available tests.)

4. Push the EXECUTE key to temporarily store the test in the printer's memory, then press ENABLE PRINT and the TEST key to run the test.

5. When the test is over, the printer returns to primary mode.

6. To run another test, press HOLD PRINT and OPTION again and repeat steps 2 through 4.

7. To re-run the same test, press TEST.

NOTE: AutoDump, is run in READY mode. To stop the test push HOLD PRINT.

| SELF TEST DIAGNOSTICS | |
|---|---|
| **Test** | **Function** |
| ID/Stat | version and status |
| ID/Stat | version, model, ROM checksum, status |
| Status | print status<br>X - identifies the next 6 characters as a status code.<br>xx 80 - non-SCS Query command received<br>40 - SCS LPS command received<br>20 - LTT order received<br>10 - RESET command received<br>08 - LU3 LPS order received<br>04 - PRINT order received<br>02 - ABORT order received<br>01 - SSA order received<br>y F - printer is busy<br>0 - printer is not busy |

(Continued)

| Test | Function | |
|---|---|---|
| | z | F - printer is ENABLED and may alter adapter RAM<br>0 - printer is DISABLED |
| | a | 0 - no order received (or an illegal, 0, order was last)<br>1 - last received order was ABORT<br>2 - last received order was SSA<br>3 - last received order was Print<br>4 - last received order was Load Programmed Symbols<br>5 - last received order was load translate table<br>6 - last received order was non-SCS query command<br>7-F these last values are illegal at this time |
| | b | 0 - last command received was DISABLE<br>1 - last command received was ENABLE<br>2 - last command received was RESET<br>3 - last command received was SOP |
| Dump All | dump print buffer and variable RAM (Random Access Memory) | |
| Dump Ram | dump variable RAM only | |
| DEV char | device dependent test (character dump print) | |
| NOP | not defined | |
| NOP | not defined | |
| Atuo Dump | Auto dumpat the end of print | |
| Testline | print test (repeats until stopped) | |
| HHHHHH | prints lines of "H's" at 10 CPI until stopped | |
| Blanks | prints spaces without advancing form | |

# Chapter 4

Maintaining Your Printer

This chapter will tell you the procedures necessary for maintaining the Laser 8's high quality output. By the end of this chapter you will be able to clean, replace, and replenish various items such as toner, PC cartridge, and separator belt and cleaning pad.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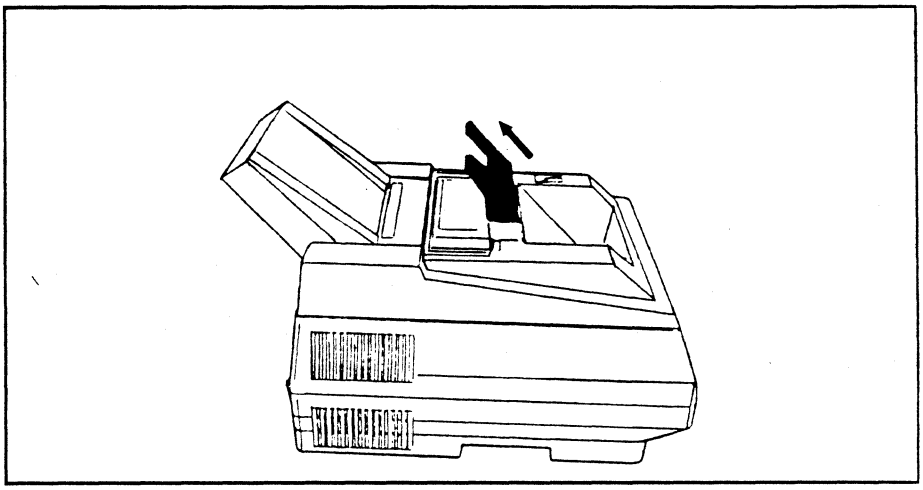
**The disposable toner cartridge will last for approximately 2,500 pages. When the toner supply begins to decrease, "TONER NEAR END" displays on the upper LCD panel to warn you that about 250 more pages will be printed before the toner runs out. When the toner is depleted, "TONER EMPTY" displays and printing stops. Follow these steps to add toner.**

## Preparing the Printer and Toner

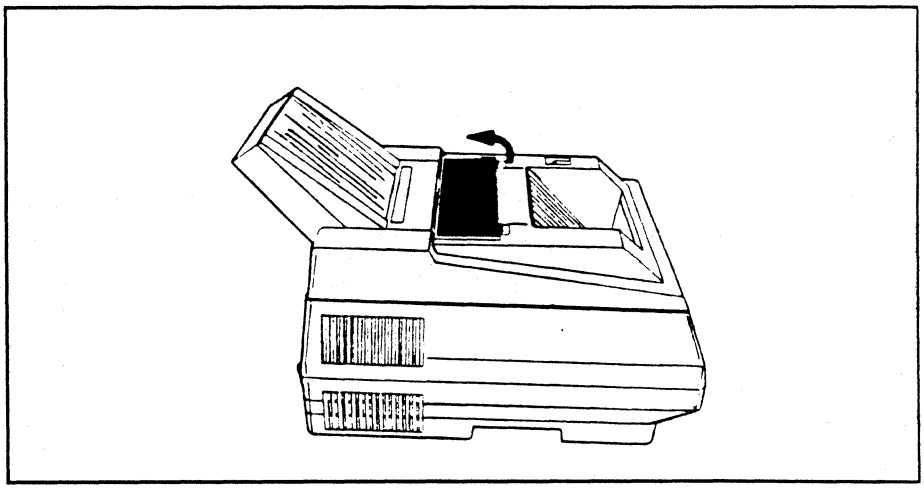
1. Press PAUSE/CONTINUE on the Laser 8 and HOLD on the Laser Driver.

2. Remove any paper from the face-down bin.

3. Press the tabs and pull up to remove the sheet guide.



4. Press the toner cover tabs and lift to open the toner cover.



5. Shake the toner cartridge up and down several times.

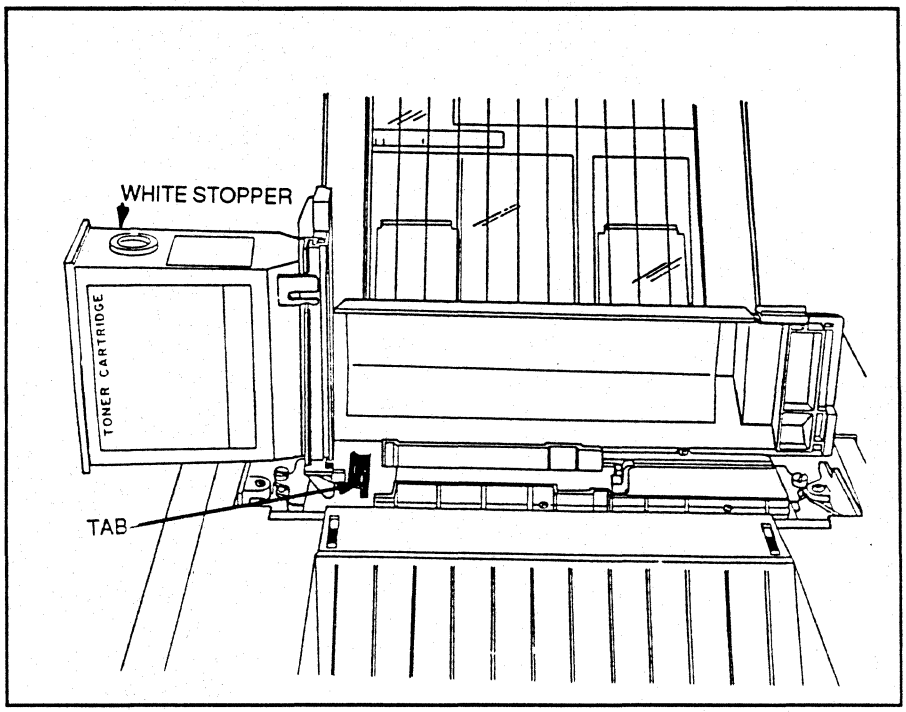
**✣NOTE**

**If toner is spilled in the printer do not attempt to clean it yourself. Call your service representative for assistance. Continued operation after a spill will result in damage.**

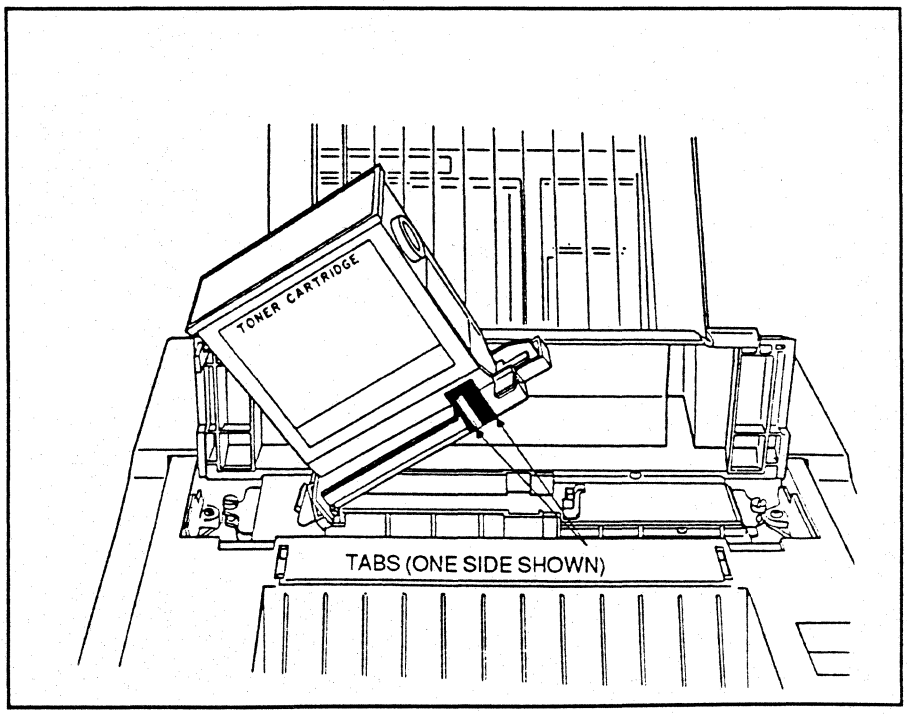
## Adding Toner Powder

1. Hold the toner cartridge so the white stopper is on the right when you stand in front of the printer.

2. Tip the cartridge on its left side and slide it snuggly under the tab on top of the developer station.

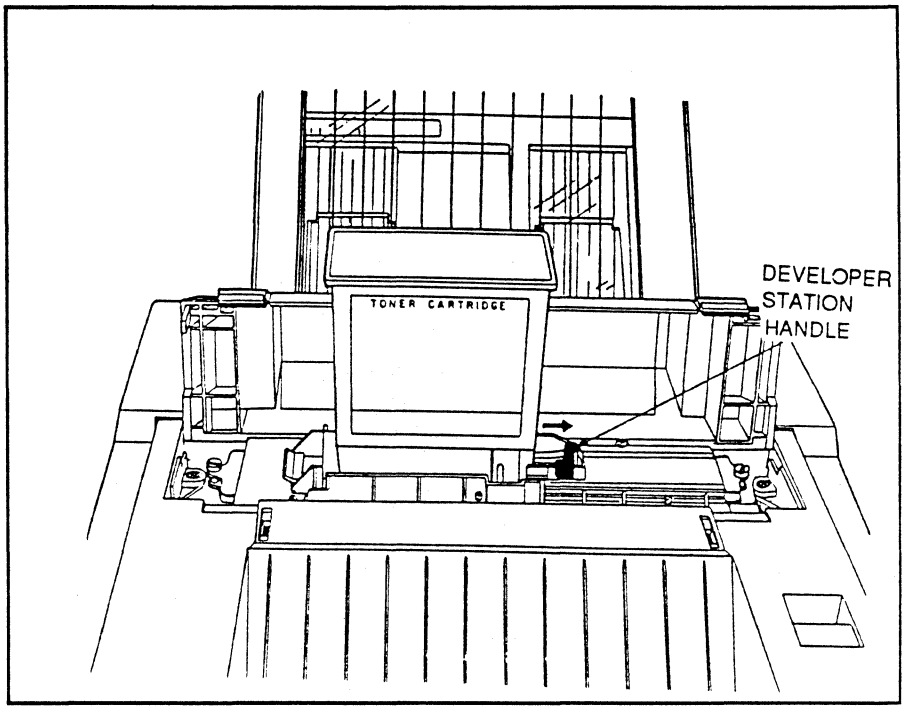



3. While pressing in the tabs on either side of the cartridge, move the cartridge to an upright, locked position on the developer station.



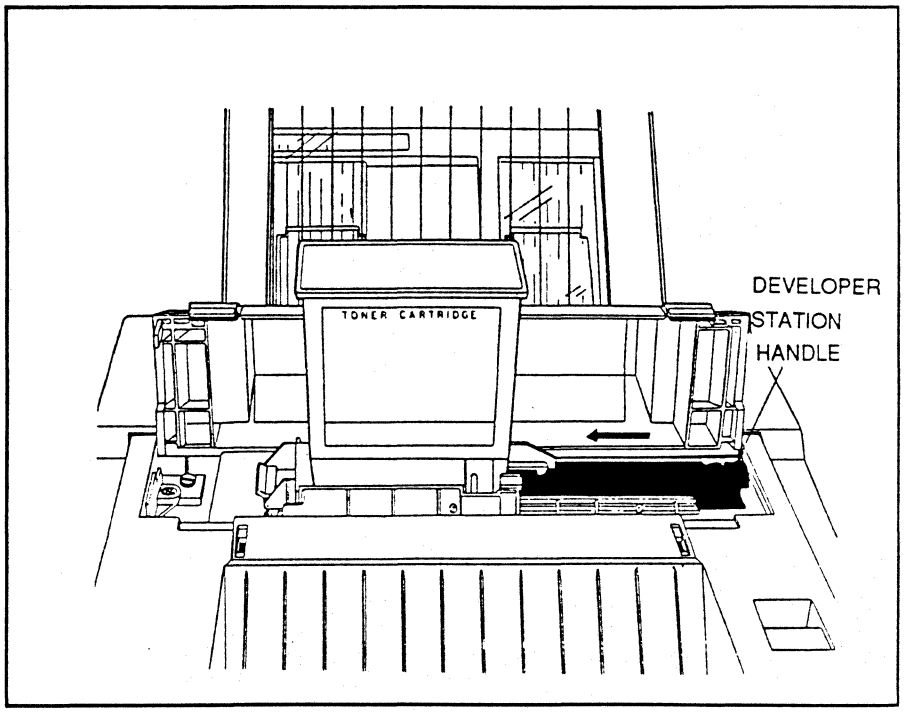
4. Pull the developer station handle all the way out to the right side of the printer. The toner powder empties into the developer station.

5. Tap the top of the cartridge several times to allow toner to flow easily into the developer station.

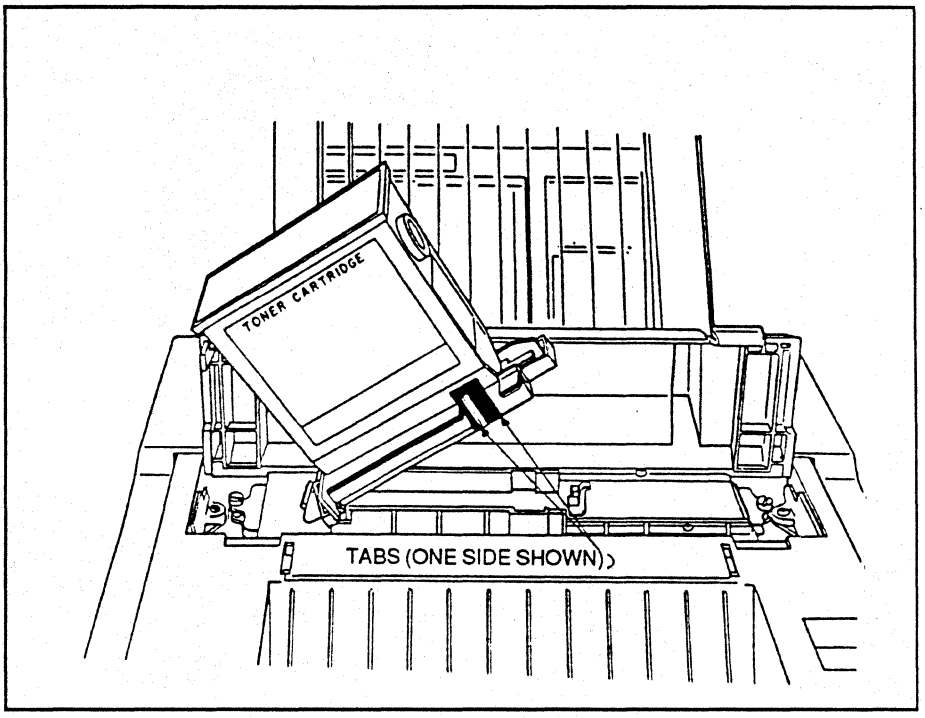



## Removing the Cartridge

1. Push the developer station handle all the way in, back to its original position

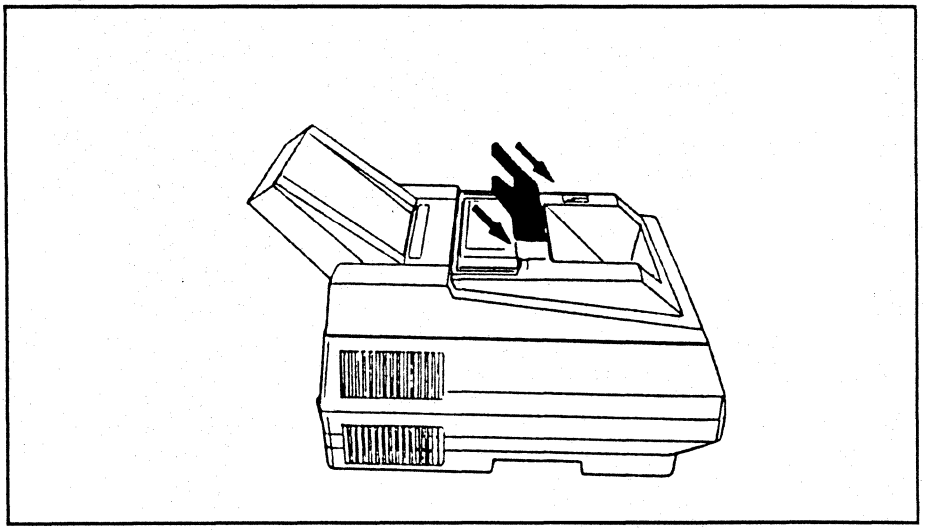


2. While pressing in the tabs on either side of the cartridge, lift the empty toner cartridge off the developer station and discard it.




3. Close the toner cover.

4. Replace the sheet guide.



5. Press PAUSE/CONTINUE on the Laser 8 to continue printing, and press ENABLE PRINT on the Laser 8 Driver.

**✣NOTE**

**If you need to move the printer, you will need to remove the developer station (which holds the toner). See *Appendix* for repacking details.**

**The PC cartridge shipped with your printer lasts for approximately 5,000 pages. When the PC cartridge begins to run low, "PC NEAR END" displays to warn you that only 100 more sheets will be printed with the present PC cartridge installed. Once the cartridge is completely depleted, the printer stops and "PC LIFE" displays.**

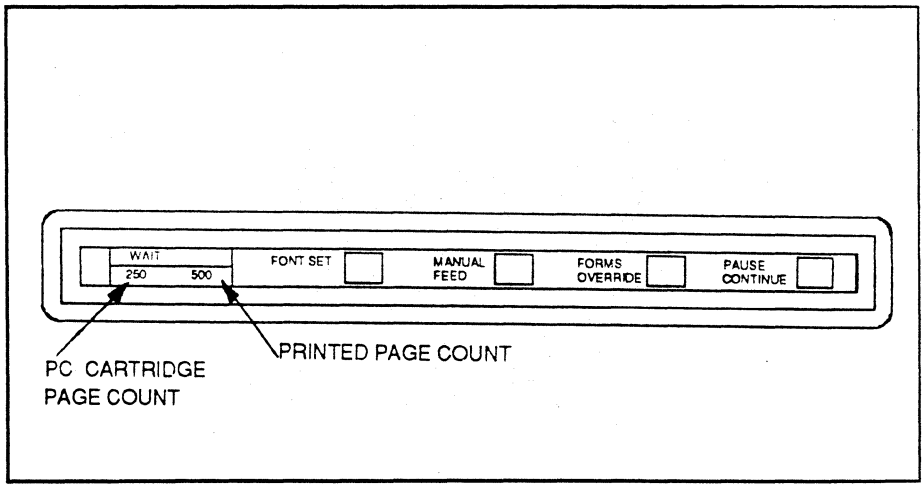
**✣NOTE**

**To avoid data loss and maintain consistent print quality, observe the "PC NEAR END" warning. Replace the PC cartridge before "PC LIFE" displays and the printer stops.**

## Using the Page Count Display

Follow these steps to display the PC cartridge page count (up to 7,000 pages) on the lower left side of the Laser 8 LCD panel and the printed page count (up to 1,000,000 pages) on the lower right of the same display.

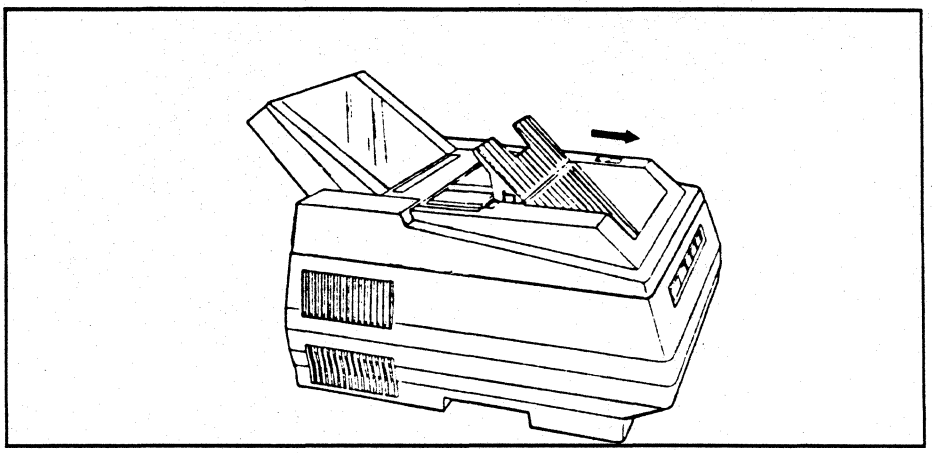
1. With one hand, press and hold FONT SET and MANUAL FEED.
2. With the other hand, turn the power on.
3. Release FONT SET and MANUAL FEED. "WAIT" displays on the upper half of the LCD panel while the PC cartridge page count and the printed page count display on the lower half of the LCD panel.



## Removing the Old Cartridge

Follow these steps to remove the old PC cartridge and install a new one.

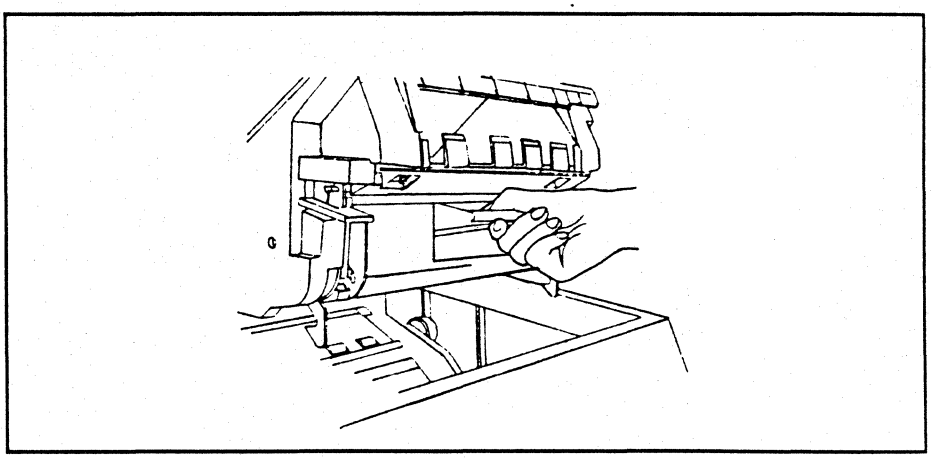
1. Make sure power is on.
2. Pull the green release lever forward to open the upper unit.



3. Push and hold up the green PC cartridge release lever.
4. While holding up the green PC cartridge release lever, pull the handle to slide the PC cartridge out of the printer.
5. Discard the PC Cartridge.

**✣NOTE**

**The disposable PC cartridge is not hazardous to your health or to the environment.**

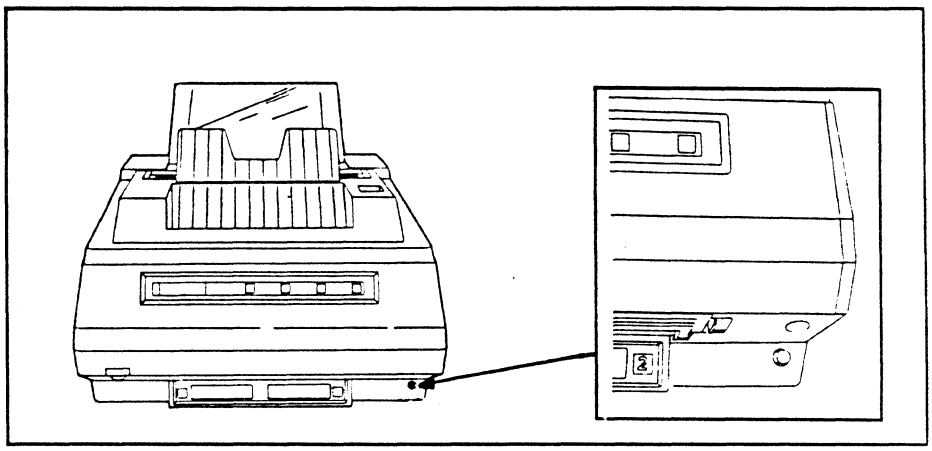


### Using the PC Reset Button

1. Press the white PC reset button on the lower right front of the printer to reset the copy count to zero.

**✣NOTE**

**The copy count can only be reset when the PC cartridge is removed from the printer.**

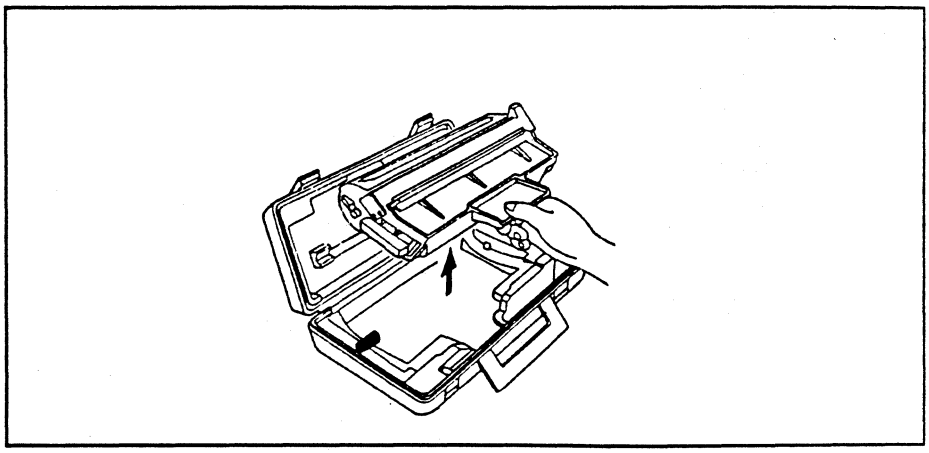


### Installing the New PC Cartridge

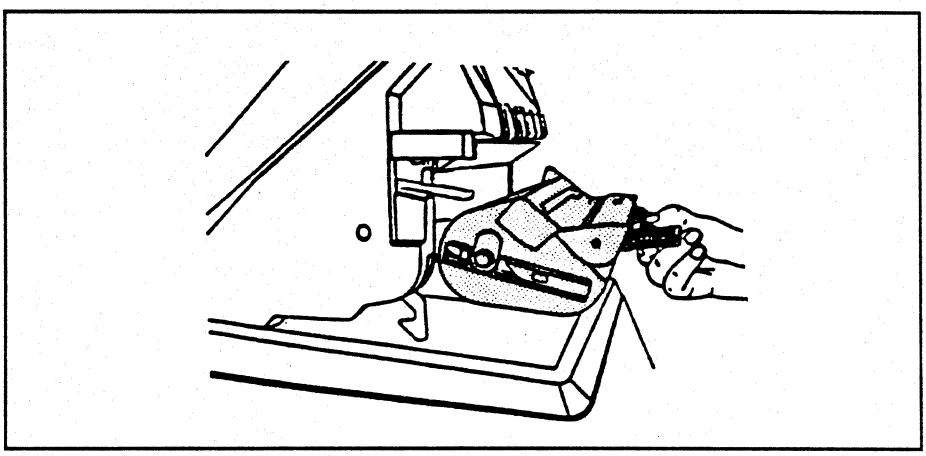
1. Remove the new PC from its case.

**❑WARNING**

**Keep the PC cartridge case closed until you are ready to install the cartridge in the printer. Do not touch the blue PC drum or expose it to light for more than 60 seconds at a time.**



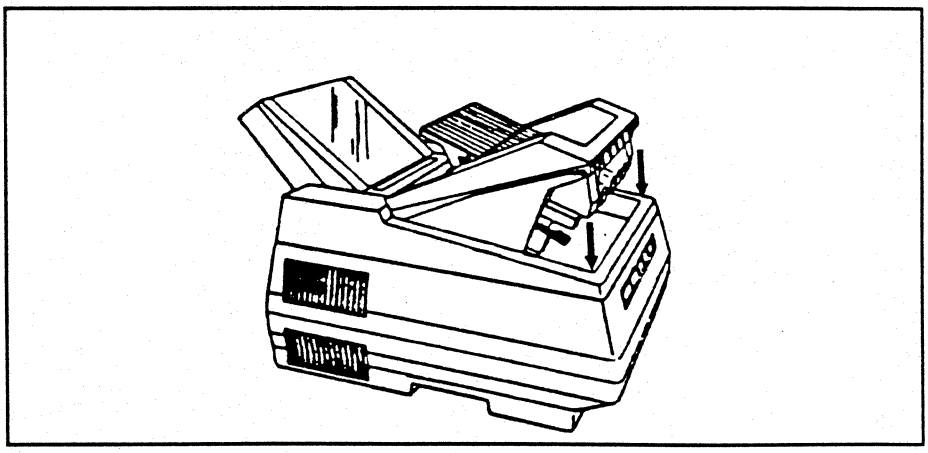
2. Slide the PC cartridge along the guides inside the upper unit until you hear both sides lock firmly in place.



3. Close the upper unit immediately to protect the PC drum from light exposure.

**✣NOTE**

**Save the PC cartridge case and its contents. If you need to move the printer, remove the PC cartridge and store it in the cartridge case before packing the printer.**



## *Replacing the Developer Station*

**The developer station inside your printer operates smoothly for approximately 100,00 pages. Once 99,500 copies have been printed, a message will be displayed on the LCD panel indicating that it is time to call your service representative for a printer check up. A service call is not mandatory, however, you may replace the developer station yourself.**

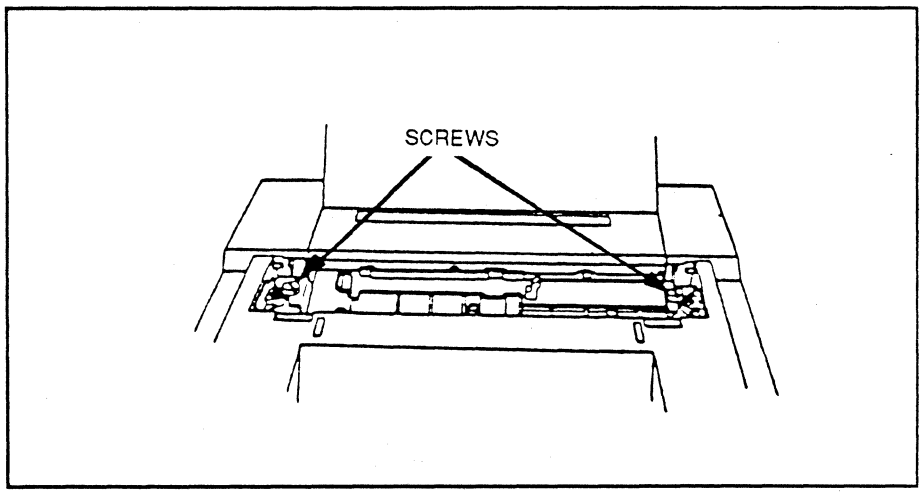
The total number of pages printed can be displayed as described in "Replacing the PC Cartridge".

### Preparing for Developer Station Removal:

1. Turn off and unplug the Laser 8 (upper unit).
2. Remove and place the PC cartridge in the protective case.
3. Close the upper unit.
4. Remove the sheet guide.

### Removing the Developer Station

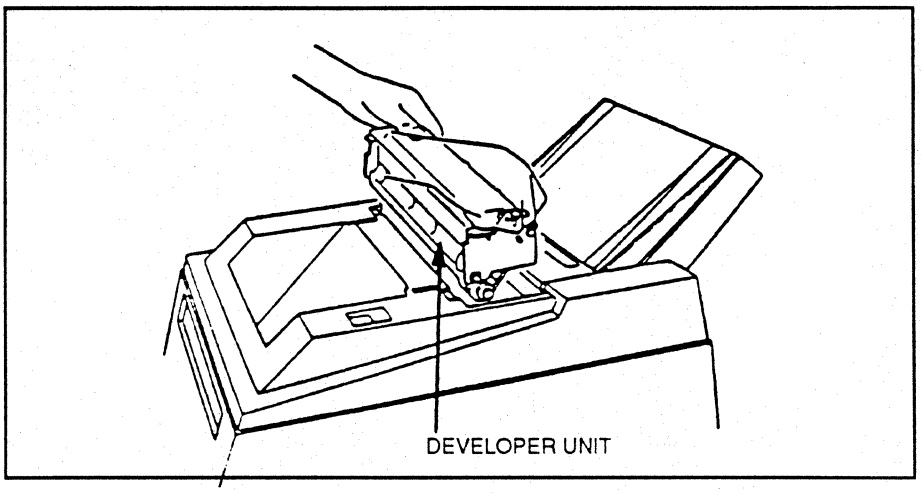
1. Open the toner cover and pull up to remove it.
2. Loosen the right and left thumb screws fastened to the developer unit.



3. Carefully lift the developer unit out of the printer.

**❑WARNING**

**There is some toner left in the developer unit. Do not turn the sleeve or the toner will come out. Do not touch the surface of the sleeve directly.**



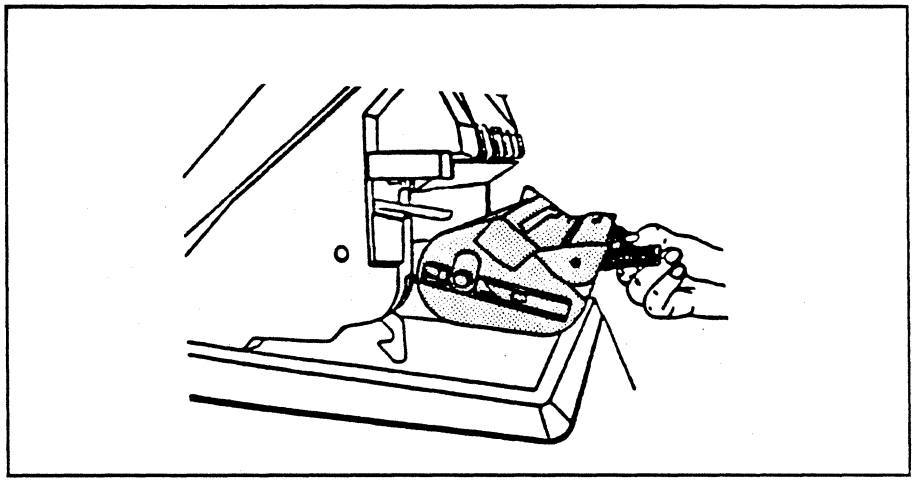

## Installing a New Developer Station

Reverse the procedures listed above.

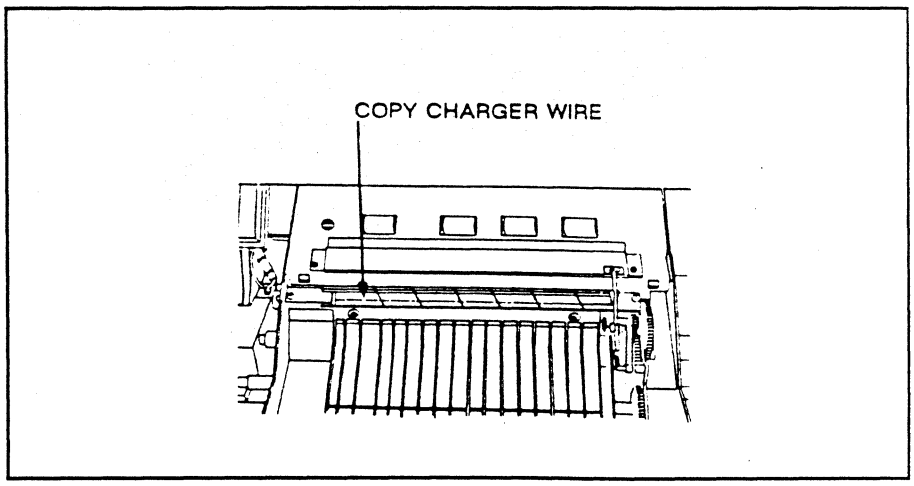
**Clean the transfer charger wire, transfer charger guide plate, paper guide rib, rollers, and LED head, as directed when smudges or lines begin to appear on printed sheets.**

1. Turn off and unplug the printer.

2. Remove the PC cartridge (see *"Replacing the PC Cartridge" pg. 73*) and leave the upper unit open.



3. Dip the cotton swab, provided in the PC cartridge case, in alcohol. Rub it over the transfer charger wire.




4. Use a soft cloth to clean all other items listed above.

If smudges and streaks persist after cleaning, see the next section.

## *Replacing the Felt Cleaning Pad and Separator Belt*

**An extra felt cleaning pad and separator belt are provided in the original PC cartridge case shipped with the printer. Change both items if print quality is unacceptable after cleaning.**

### Removing the Old Felt Cleaning Pad

1. Turn off the power, and unplug the power cord from the rear of the printer.

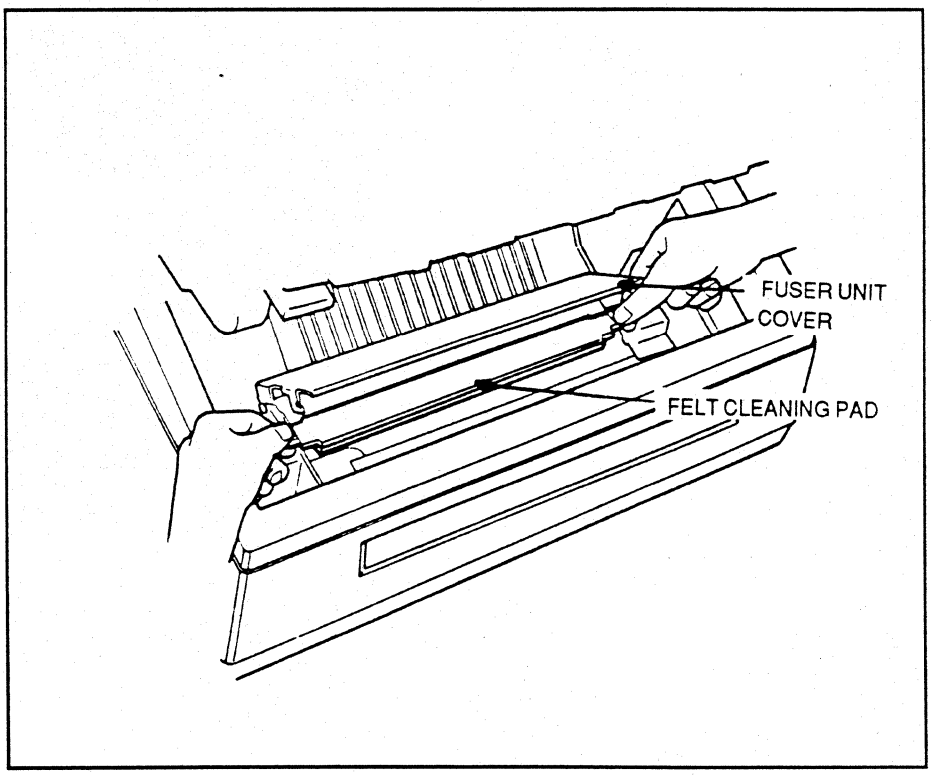
2. Remove the PC cartridge and place it in the protective case (see *"Replacing the PC Cartridge pg 72*). Leave the upper unit open.

3. Open the fuser unit's cover.

4. Grasp the *ends* of the old felt cleaning pad and lift up and out of the printer.

**❑WARNING**

**The heat roller under the felt cleaning pad is very hot. Never touch it, even when power is off.**




### Inserting the New Felt Cleaning Pad

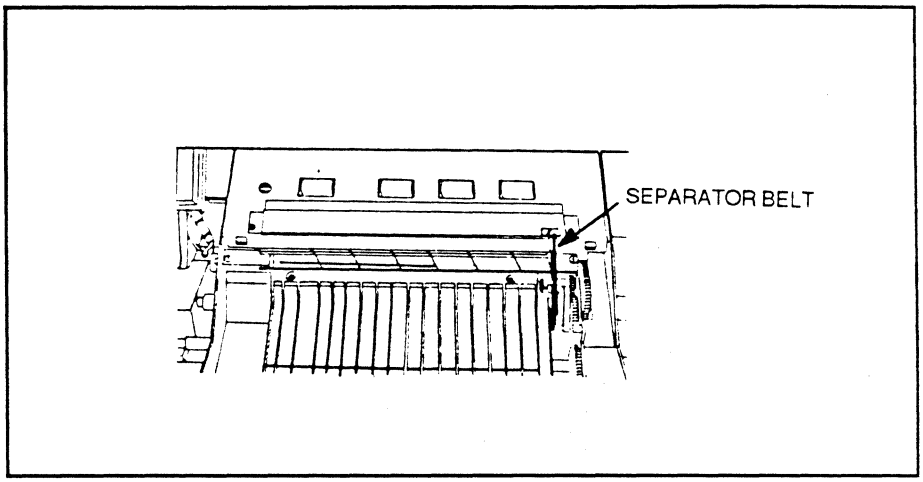
1. Insert the new felt cleaning pad.

2. Close the fuser unit's cover.

3. Change the separator belt (see the following section).

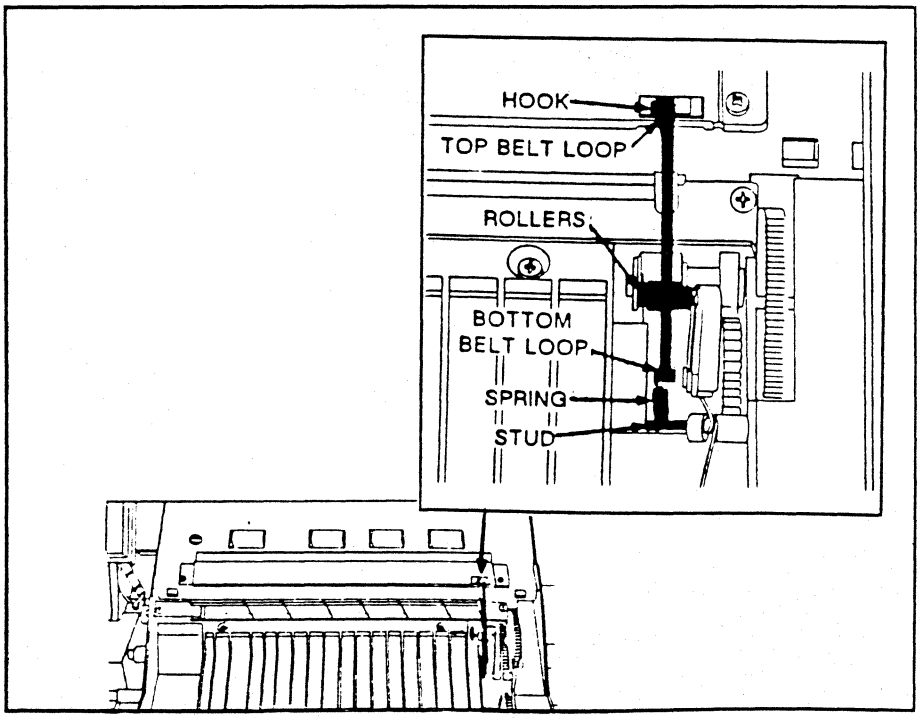
### Removing the Old Separator Belt

1. Slide the bottom separator belt loop off the hooked end of the spring.
2. Carefully remove the separator belt from under the rollers.
3. Slide the top separator belt loop off the hook.
4. Lift the separator belt out of the printer.
5. Discard the old belt, or clean it with a soft cloth.

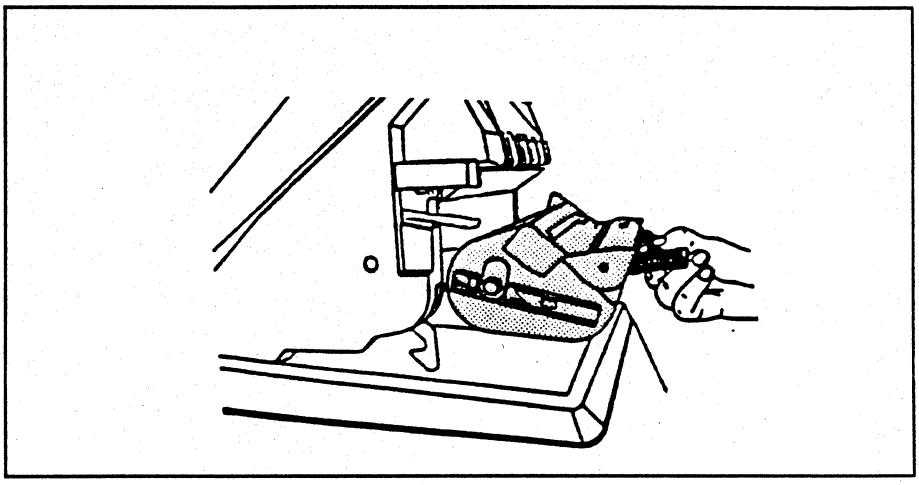



### Replacing the Separator Belt

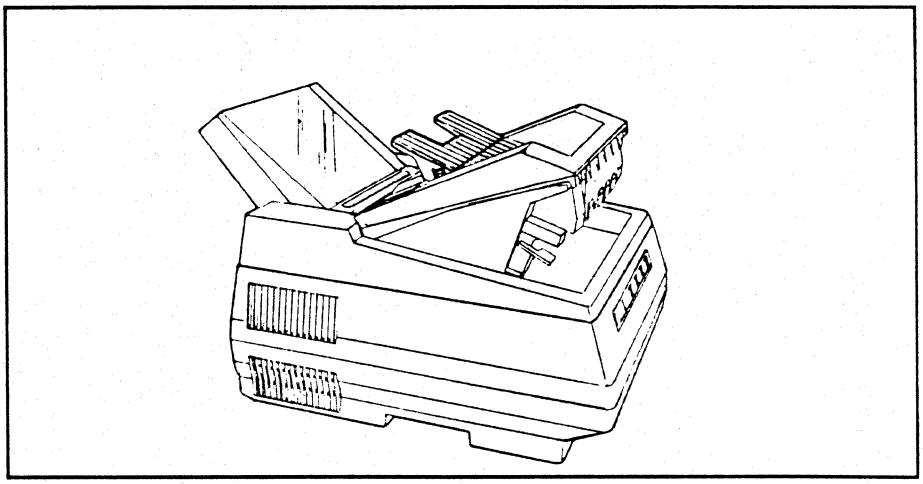
1. Slide the top separator belt loop onto the hook.
2. Slip the separator belt under the rollers.
3. Slide the hooked end of the spring through the bottom separator belt loop.



4. Insert the PC cartridge in the printer.



5. Close the upper unit.



**Here are some suggestions for maintaining the highest print quality from your printer.**

- Immediately replace the PC cartridge or toner cartridge when the LCD panel indicates that replacement is necessary.
- Use high-quality paper or transparencies to obtain sharp, crisp characters and maximum contrast. See *Appendix* for paper specifications.

# Chapter 5

## Solving Problems

**Although your printer is highly reliable, simple problems can occur. The printer's LCD panel aids you in detecting and solving these problems. This chapter will discuss common problems and their solutions.**


| | Page |
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| Paper Transfer Stations in Developer Station | 86 |
| Fuser Unit (Fuser Unit and Heat Roller) | 87 |
| Face-down Bin | 89 |
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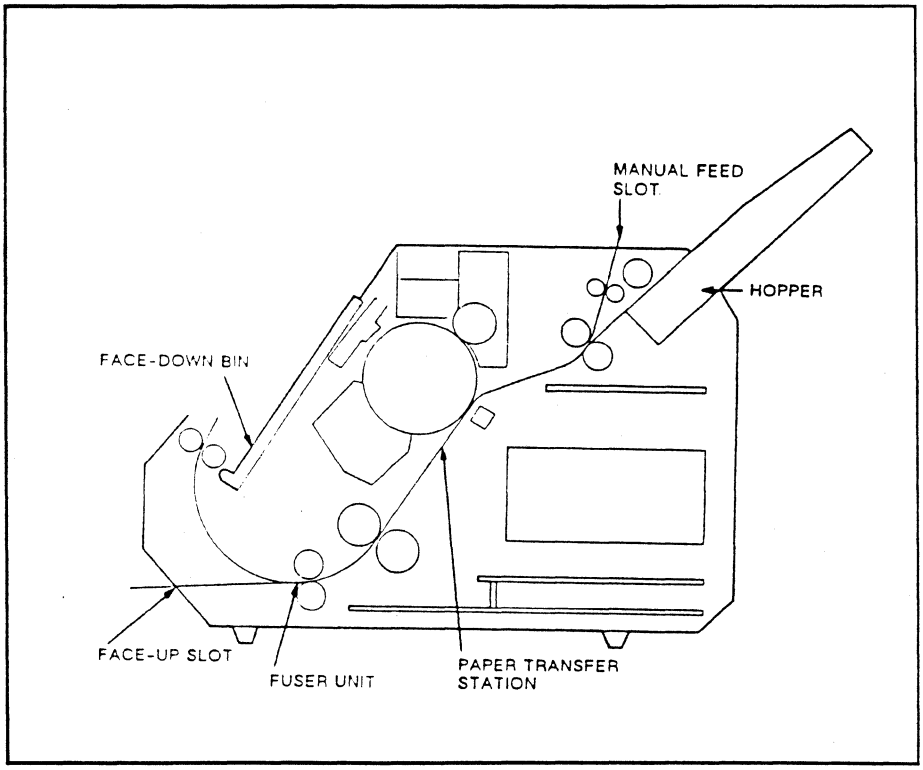
| *Operator Messages* | 93 |
| *Error Messages* | 95 |

**A paper jam is one of the most common problems that can occur in any printer. "PAPER JAM" displays on the upper LCD panel and "Fault" displays on the lower LCD panel when paper jams. The locations of potential paper jam areas are shown below. Explanations on how to remove paper from the paper jam locations follow.**

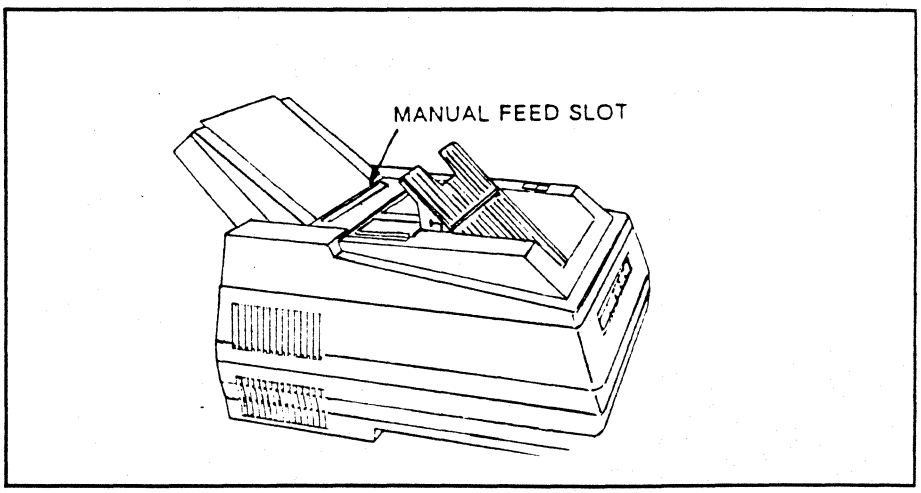
## Paper Jam Locations

Follow these steps in sequence to check each area for jammed paper. Once a jam inside the printer is cleared, be sure to insert the PC cartridge and close the upper unit. Then press PAUSE/ CONTINUE on the upper unit and HOLD PRINT on the lower unit.

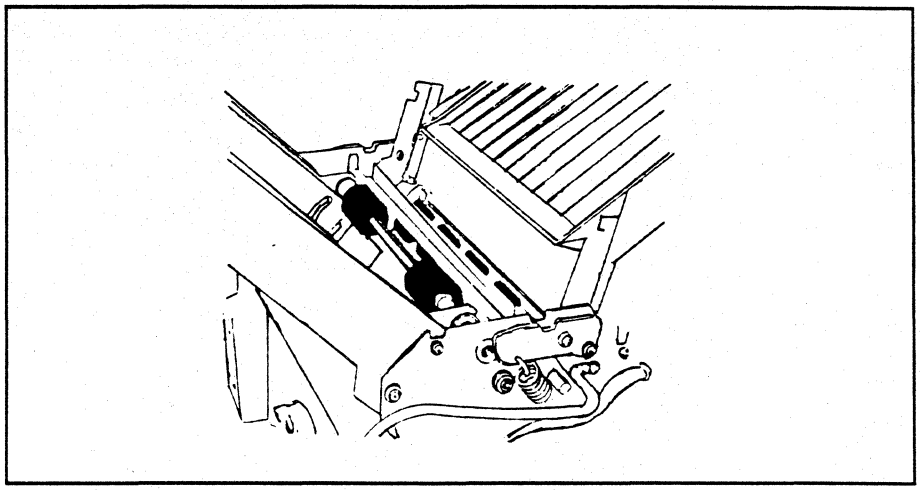



## Manual Feed Slot

1 Pull up to remove jammed paper from the manual feed slot.



2. Open the hopper cover to remove jammed paper from around the manual feed roller.

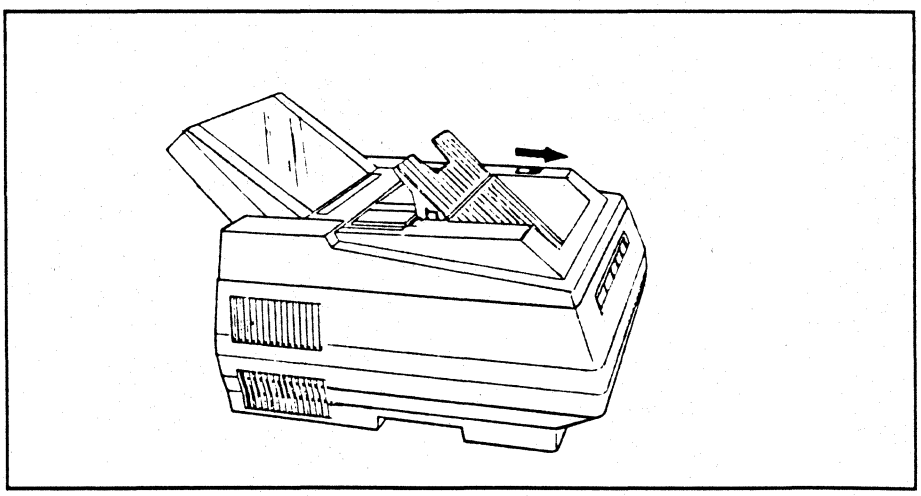


**✣NOTE**

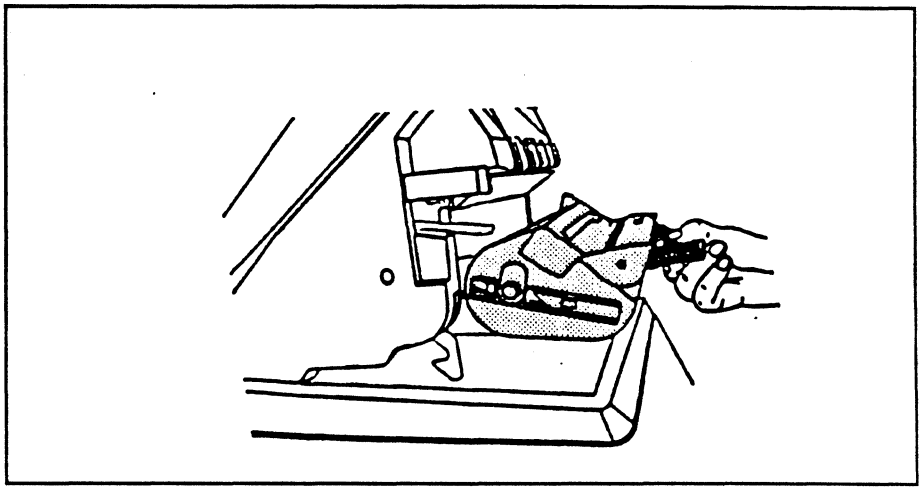
**Press HOLD PRINT on the Laser 8 Driver, and turn power off the Laser 8 to safely complete the remaining steps.**

### Paper Transfer Station in Developer Station

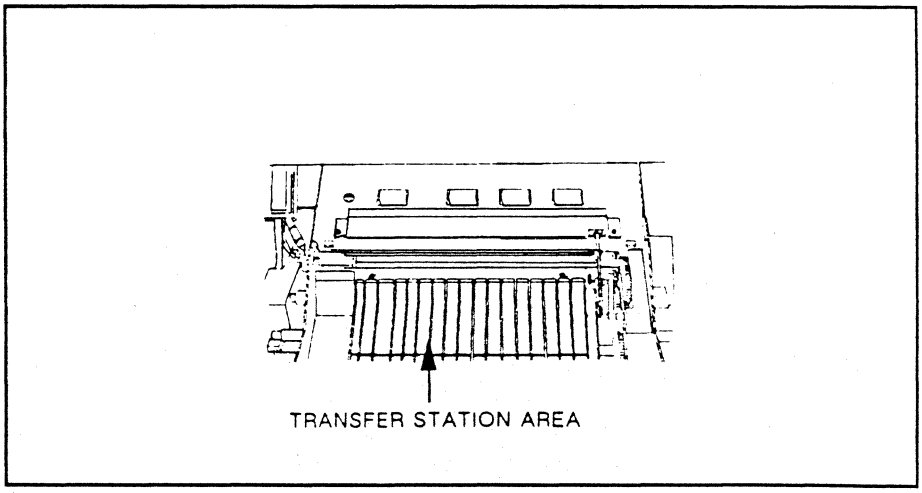
1. Pull the green release lever forward to open the upper unit.



2. While holding the green release lever up, remove the PC cartridge and immediately place it in the protective case.

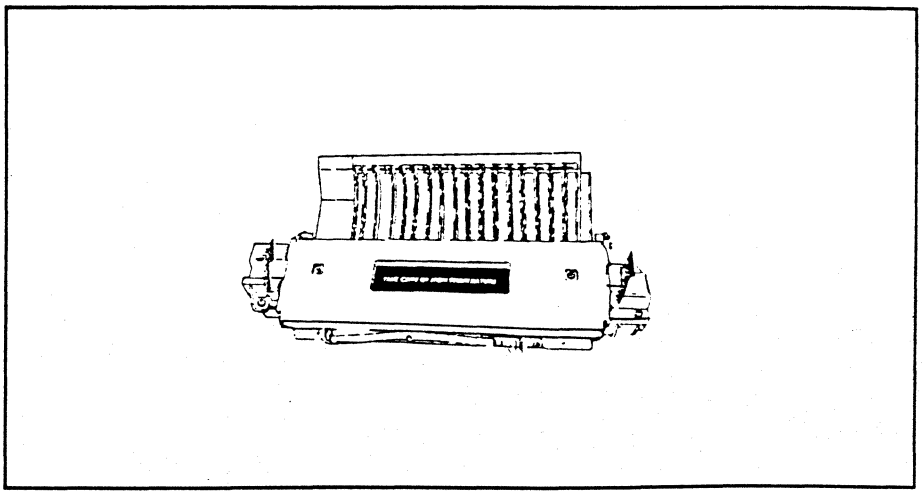


3. Remove jammed paper from the transfer station.

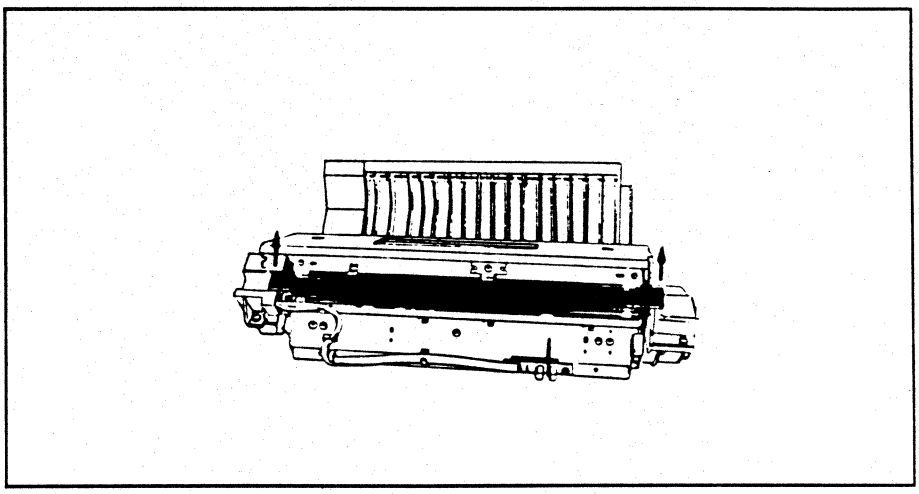



**Fuser Unit (fuser unit and heat roller)**

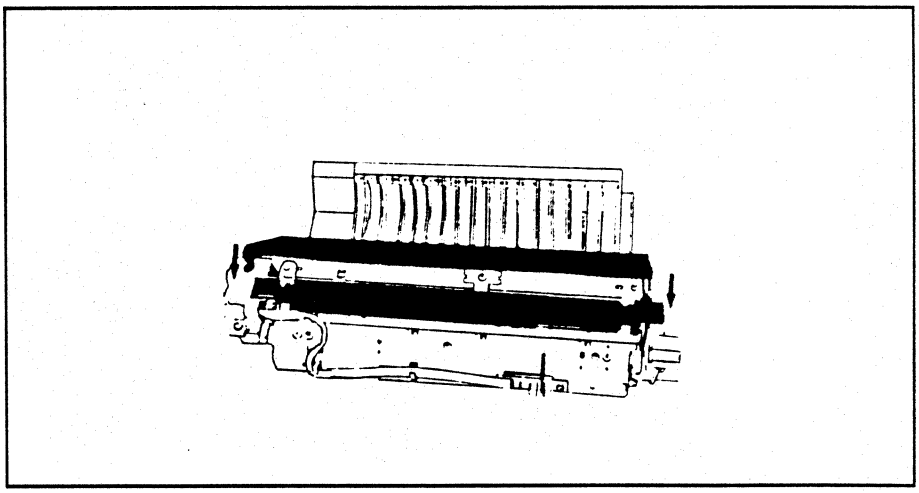
1. Open the fuser unit cover.



2. Lift the felt cleaning pad and remove jammed paper from around the heat roller.



3. Replace the cleaning pad and close the fuser unit's cover.



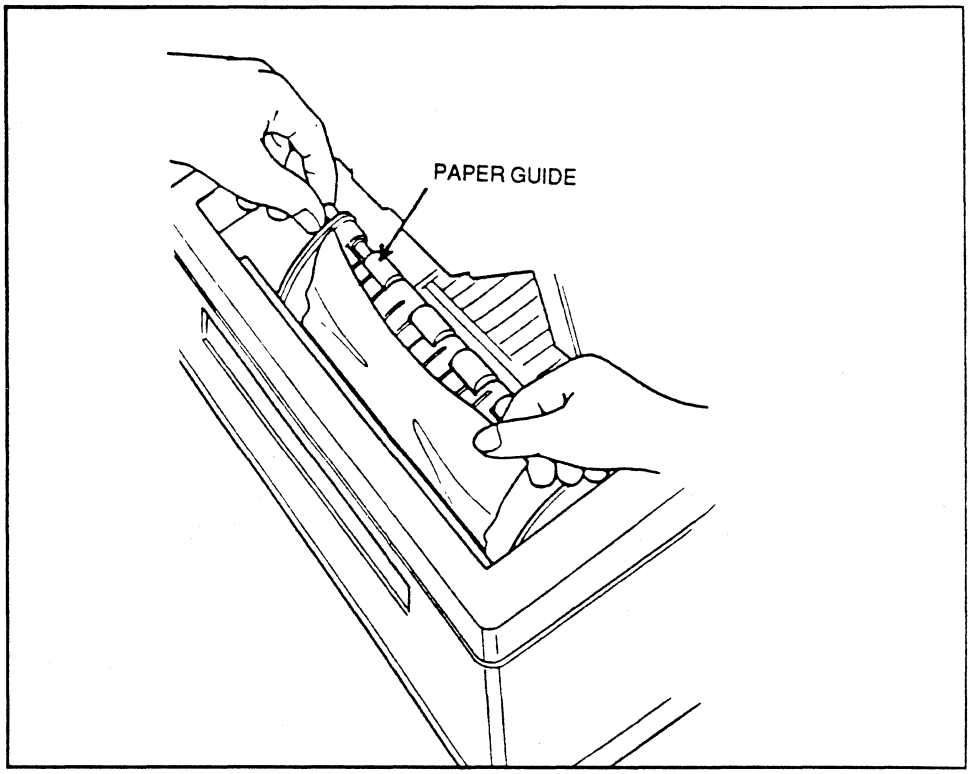
**✣NOTE**

**If paper jams repeatedly in the fuser unit, call your service representative.**

**Face-down Bin**

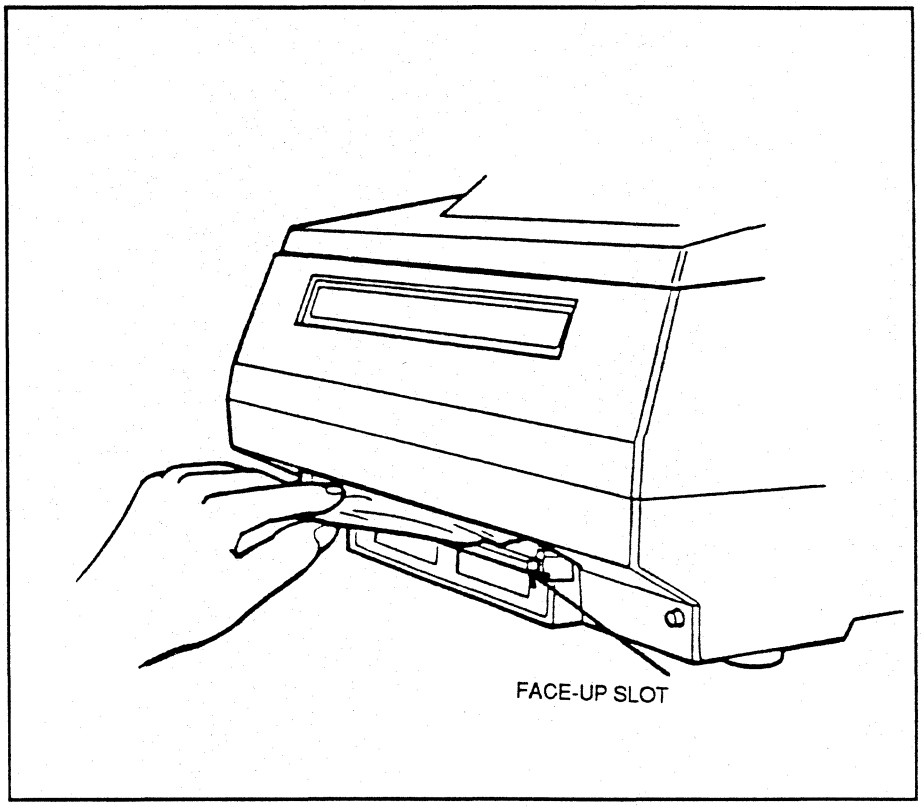
1. Push the paper guide toward the rear of the printer and remove any paper that is jammed at the top or behind it.

2. Pull the paper guide toward the front of the printer, back to its original position.



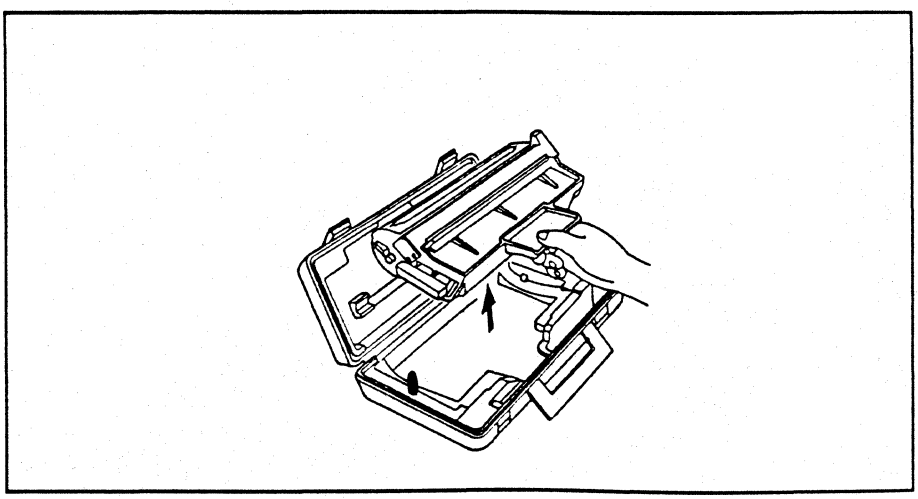
## Face-up Slot

1. Remove any paper that may be jammed as it exits the printer through the face-up slot.
2. Be sure the face-up slot is completely opened or completely closed.
3. Never open the face-up slot while printing is in progress.




## Replacing the PC Cartridge

After all the cleaning and/or maintenance procedures are completed, replace the PC cartridge, remove the PC cartridge from its case, insert it in the printer, and close the upper unit.



**The table below gives solutions to simple print quality problems.**

## PROBLEM SOLVING

| Problem | Possible Cause | Solution |
|---|---|---|
| Printing is too light. | The print density dial is set too far to the right. | Move the print density dial to the left. |
| | The transfer charger wire is dirty. | Clean the transfer charger wire. |
| | Toner has spilled on the lens of the LED head. | Clean the LED head with a soft cloth. |
| | The PC cartridge has been exposed to light for over one minute. | Replace the PC cartridge. |
| Characters are faded or clipped | Using unsuitable paper or trans-parencies | Use recommended paper or transparencies. |
| | The PC drum is malfunctioning. | Replace the PC cartridge. |
| | The transfer charger wire is dirty. | Clean the transfer charger wire. |
| Background is blurry. | The PC cartridge has been exposed to light for over one minute. | Replace the PC cartridge. |
| Page is dirty. | Toner has spilled or built up. | Perform cleaning procedures. |
| | The surface of the PC drum is damaged. | Replace the PC cartridge. |
| Characters are shifted | The hopper guide is set narrower than the paper width. | Set the hopper guide vertically. slightly wider than the paper width. |
| Print rubs off. | Using unsuitable paper or trans parencies. | Use recommended paper or transparencies. |
| Stain or black stripe on left side of the paper. | Toner leaked onto the feed roller or separator belt. | Clean the feed roller or separator belt. |
| | The separator rollers are dirty. | Wipe the separator rollers with a cotton swab dipped in alcohol. |

(Continued)

| Problem | Possible Cause | Solution |
|---|---|---|
| Dirt on reverse side of paper. | Toner leaked into the manual feed slot. | Wipe toner off the manual feed slot with a soft cloth. |
| | Toner leaked onto the transfer charger wire. | Wipe toner off the transfer charger wire with a soft cloth. |
| | Toner leaked onto the feed roller or separator belt. | Wipe the toner off the feed roller or separator belt with a soft cloth. |
| | The felt cleaning pad is dirty. | Wipe the toner off the cleaning pad in the fuser unit. |

Some of these conditions will cause the "Check" indication on the lower panel. Press HOLD to prevent an error indication being returned to the host. When the error condition is removed, press ENABLE to resume operation.

**The table below lists error messages that may be displayed on the upper LCD panel along with the corrective action. A "Fault" will display in the lower panel. Press HOLD PRINT to silence the alarm.**

## OPERATOR MESSAGES

| Message | Solution |
|---|---|
| OP MESSAGE<br>PAPER EMPTY | Load paper and press PAUSE/CONTINUE, then press ENABLE PRINT on lower unit.<br><br>Or, press MANUAL FEED to switch from automatic paper feed to manual paper feed. Insert one sheet of paper in manual feed slot. |
| OP MESSAGE<br>PAPER JAM | 1. Remove jammed paper from the hopper or manual feed slot.<br>2. Turn power off.<br>3. Remove the PC cartridge and put it in its case.<br>4. Remove jammed paper from inside the printer.<br>5. Insert the PC cartridge in the printer. |
| OP MESSAGE<br>COVER OPEN | 1. Close toner cover and/or upper unit.<br>2. Press PAUSE/CONTINUE on upper unit and ENABLE PRINT on lower unit. |
| OP MESSAGE<br>TONER LOW | Be prepared to add toner.1.<br>"TONER LOW" is displayed to warn you that there are only 100 pages left to print out before toner runs out. |
| OP MESSAGE<br>TONER EMPTY | 1. Add toner.<br>2. Press PAUSE/CONTINUE on upper unit, then press ENABLE PRINT on lower unit. |
| OP MESSAGE<br>PC LOW | Be prepared to replace the PC cartridge.<br>"PC LIFE" will be displayed after 100 more pages print out. |
| OP MESSAGE<br>PC LIFE | 1. Open the upper unit and remove the old PC cartridge.<br>2. Press the white copy counter button.<br>3. Install a new PC cartridge and close the upper unit.<br>4. Press PAUSE/CONTINUE on upper unit, and ENABLE PRINT on lower unit. |
| OP MESSAGE<br>PAPER SIZE | 1. Load recommended paper.<br>2. Adjust the left hopper guide to snugly fit the width of the paper. Push the green lock lever backward.<br>3. Set switch 1-3 ON (down) for legal size paper or OFF (up) for letter size paper. If using second hopper, set paper select switch to correct paper size. |

| Message | Solution |
|---|---|
| OP MESSAGE<br>OVERRUN PRINT | 1. Press PAUSE/CONTINUE on upper unit and ENABLE PRINT on lower unit.<br>2. Check the font cartridge for proper insertion.<br>3. If the font cartridge is inserted correctly, call your service representative. |
| OP MESSAGE<br><br>INVALID DATA | 1. Press PAUSE/CONTINUE on upper unit and ENABLE PRINT on lower unit.<br>2. Be sure that each page contains only 256 lines of data. |
| OP MESSAGE<br>PC SENSE | Install the PC cartridge. |
| OP MESSAGE<br>OVERFLOW | 1. Press PAUSE/CONTINUE on upper unit and ENABLE DATA PRINT on lower.<br>2. Be sure that no more than 80 bytes of data are downloaded from the host computer. |

**The table below lists error messages that may display on the upper unit, along with corrective actions. The lower LCD panel will display "Fault Busy". Press HOLD PRINT to silence alarm until error is corrected, then press ENABLE PRINT. For messages not listed, see your technical reference guide for further information or call your service representative.**

**ERROR MESSAGES**

| Message | Solution |
|---|---|
| ERROR<br>CASSETTE 1 | 1. Turn the printer off.<br>2. Insert the font cartridge correctly.<br>3. Turn the printer on. |
| ERROR<br>CASSETTE 2 | Same as "ERROR CASSETTE 1." |
| ERROR<br>FUSER TEMP | Turn off printer. Call your service representative. |
| ERROR<br>LED HEAD | Turn off printer. Call your service representative. |
| ERROR<br>FAN | Turn off printer. Call your service representative. |
| ERROR<br>INTERFACE | 1. Press FONT SET to display the type of interface error.<br>2. Call your service representative. |
| ERROR<br>CPU A | 1. Turn the printer off.<br>2. Call your service representative. |
| ERROR<br>CPU B | 1. Turn the printer off.<br>2. Check font cartridge for proper insertion.<br>3. If the font cartridge is inserted correctly, call your service representative. |
| ERROR<br>CPU C | 1. Turn the printer off.<br>2. Call your service representative. |

# Appendix

**This section will tell you printing and physical specifications for paper and transparencies, as well as escape sequences for programming and repacking instructions. You will also find a detailed listing of the Laser 8 and Laser 8 Driver dip switch settings.**


| | Page |
|---|---|
| *Specifications for Paper and Transparencies* | 101 |
| Physical Specifications | 101 |
| Printable Area | 101 |
| Print Line (columns) | 102 |
| *Escape Sequences* | 106 |
| *Laser 8 Dip Switch Settings* | 109 |
| *Laser 8 Driver Dip Switch Settings* | 109 |
| Language Select Switch Settings | 110 |
| IBM Model Select Switch Settings | 110 |
| Special Function Switch Settings | 110 |
| *Repacking Instructions* | 111 |
| Preparing for Repacking | 111 |
| Repacking the Laser 8 | 112 |
| Repacking the Laser 8 Driver | 112 |

## Physical Specifications

Recommended paper weight:

16 lb. to 20 lb. for automatic feed
16 lb. to 24 lb. for the manual feed slot

Use any of the following paper or transparency sizes when loading the input hopper .

**Letter:** 8.5 in. x 11 in. (216 mm x 279 mm)
**Legal:** 8.5 in. x 14 in. (216 mm x 356 mm)
**A4:** 8.27 in. x 11.69 in.(210 mm x 297 mm)

When inserting sheets in the manual feed slot, use paper or transparency sizes within the following ranges.

**Width:** 5.5 in. to 8.5 in.(140 mm x 216 mm)
**Length:** 5.8 in. to 14 in. (148 mm x 356)

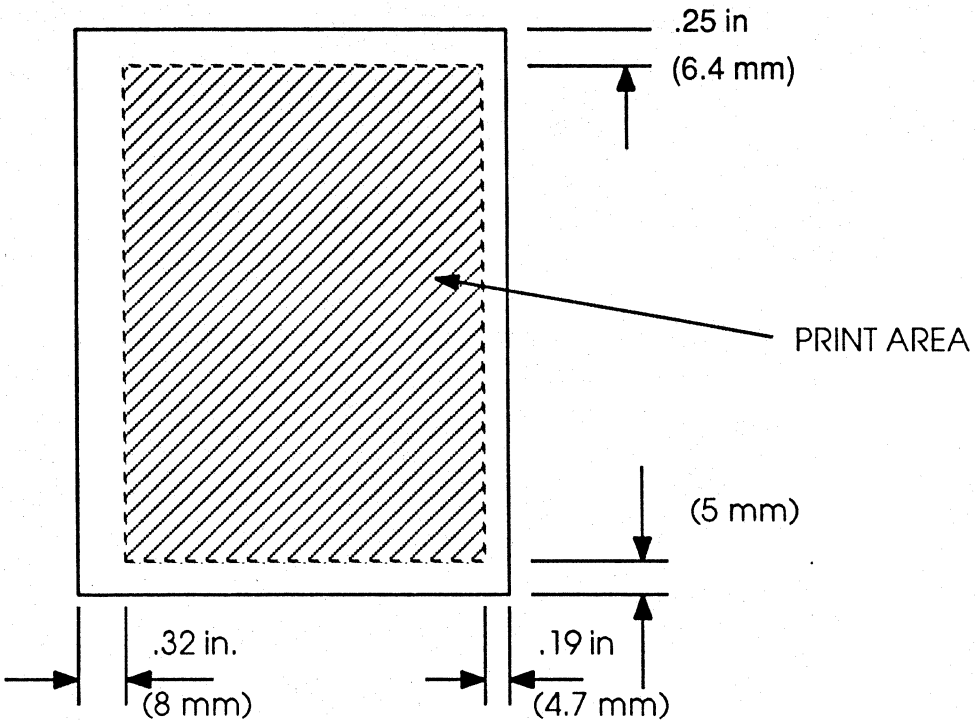
## Printable Area

| | | Letter | Legal | A4 |
|---|---|---|---|---|
| **Width** | **(in.)** | 8 | 8 | 7.8 |
| | **(mm.)** | 203.2 | 203.2 | 198 |
| **Length** | **(in.)** | 10.6 | 13.6 | 11.3 |
| | **(mm)** | 269 | 345 | 287 |

## Print Line (columns)

| | | Letter | Legal | A4 |
|---|---|---|---|---|
| **10 CPI** | **(Portrait)** | 80 | 80 | 77 |
| | **(Landscape)** | 106 | 135 | 112 |
| **12 CPI** | **(Portrait)** | 96 | 90 | 93 |
| | **(Landscape)** | 127 | 163 | 135 |
| **15 CPI** | **(Portrait)** | 120 | 120 | 117 |
| | **(Landscape)** | 159 | 204 | 169.5 |
| **16.67 CPI** | **(Portrait)** | 133.36 | 133.36 | 130.03 |
| | **(Landscape)** | 176.70 | 266.71 | 188.37 |

## Print Specification -Print Area



**The laser unit can be programmed to perform special printing functions while in 3270 mode, by sending escape sequences through the data stream. The available escape sequences and their functions are listed below.**

Follow the instructions outlined in the following sections under the function you wish to control through programming.

SUMMARY OF AVAILABLE ESCAPE SEQUENCES

| ESCAPE SEQUENCES | FUNCTION SELECTED |
|---|---|
| & % H n | Specifies the input hopper to be selected. |
| & % I nn | Style (font) selection |
| & % L xx | Page Length (MPL) |
| & % O n | Orientation/mode |
| & % Q n | Character Density (CPI) |
| & % 0 E | Enter Expanded Print Mode |
| & % 1 4 | Leave Expanded Print Mode |
| & % x x | Transmit Byte |
| & % S dd | Set Left Margin |
| & % & % | Print & % |
| & % 1 B & % 45 | Bold on |
| & % 1 B & % 46 | Bold off |
| & % 1 B & % 47 | Shadow on |
| & % 1 B & % 48 | Shadow off |
| & % 1 B & % 2D | Underline on |
| & % 1 B & % 27 | Underline off |

| Code | Function | Description |
|---|---|---|
| &%Hn | Input Hopper | (1 <= n <= 9; 1, 2 valid) Causes the specified input hopper to be selected on the page following the one on which it appears. It is necessary to issue a form feed(s) after sending this code to select a new hopper in order to pass a previously selected sheet from the current hopper. The rear hopper is number 1; the front hopper is number 2. A select for hopper 2 requires two form feeds to activate the selection. |
| &%Inn | Style (font) | (0 < = n < = 9; 0-7F are valid in landscape and portrait mode, with appropriate font installed).<br>01 = Courier 10<br>02 = Courier 10 italic<br>05 = Courier 10 symbolic<br>02 = Courier 12 landscape<br>Optional fonts, contact the factory for available font cartridges. To enter style, use number listed on the cartridge.<br><br>The printer controller will issue the command to the print engine regardless of whether a specified "font" is installed. The print engine selects the highest numbered font present less than or equal to the specified number. Note that code zero in portrait mode makes no change to the font selection. Orientation ***must*** be selected to correspond with the selected style. |
| &%Lxx | Page Length | (00<= xx < = FF)<br><br>When "xx" specifies the page length from 1 to 255 lines. If this sequence occurs when the printer is not at the top of page, the current page is ejected before the sequence takes effect. "xx" is a hexadecimal representation of the number. |
| &%On | Orientation/ /mode | (o <= n <= 9; 0, 1, 2, 3, 4, valid<br>0 = form feed only<br>1 = portrait<br>2 = landscape<br>3 = adjustable<br>4 = exact<br><br>Code 0 is reserved for setting the orientation and mode to default value. It is not yet implemented. All valid codes cause the print position to be at the top of page -- a form feed is issued to force top-of-page if it is not already there. |
| &%Qn | Character Density | (0<= n <=9; 0 to 6 valid)<br>0 = standard, 10 CPI<br>1 = NLQ,* 10 CPI<br>2 = standard, 16.67 CPI<br>3 = standard, 12 CPI<br>4 = NLQ, * 12 CPI<br>5 = standard, 15 CPI<br>6 = NLQ,* 15 CPI<br>7 = 10.33 CPI<br>8 = 12.77 CPI<br>See page 49 for details on when to use these CPI values.<br><br>*Since this printer's normal printing is of very high quality, it does not have a Near Letter Quality (NLQ) mode. These values of 'Q' are retained for compatiblity with other ISI printers. |
| &%0E | Enter Expanded Print Mode. | Causes the print controller to print characters on twice the center to center value specified by the printer density. This mode is cleared by receipt of '&%14' or the next vertical motion. |
| &%14 | Leave Expanded Print Mode | Causes the print controller to cease putting double space between characters. |

| Code | Function | Description |
|---|---|---|
| &%xx | Transmit Byte | (00 <= xx <=FF; xx = 0E, 14). The byte specified by the value 'xx' is transmitted to the print engine. The byte values '0E' and '14' are valid escape sequences, and therefore, are not transmitted; they select and deselect expanded print mode. |
| &%Sdd | Set Left Margin | (00 <=dd <=FF; base 10). The left margin is set to the specified value in hundredths of an inch. This is in addition to the interpreted as decimal, the hex characters A...F, having values of 10...15 respectively, are allowed. This gives a maximum value of 1.65 inches. For example, C5 (12 x 10 + 5) and BF (11 x 10 + 15) both give 1.25 inches. |
| &%&% | Print '&%' | This sequence causes the two characters '&%' to be printed. It is used when "&%" in the data stream is followed by another code which makes the sequence appear as a valid escape sequence. |

| Code | Description |
|---|---|
| &%1B&%45 | This sequence selects the bold print mode on the Laser 8. |
| &%1B&%46 | This sequence deselects the bold print mode on the Laser 8. |
| &%1B&%47 | This sequence selects and deselects the shadow print mode on the Laser 8. |
| &%1B&%48 | This sequence deselects the shadow print mode on the Laser 8. |
| &%1B&%2D | This sequence selects the underline print mode on the Laser 8. |
| &%1B&%27 | This sequence deselects the underline print mode on the Laser 8. |

## ●EXAMPLE

**To use the bold escape, place the Bold on escape at the beginning of the text that you want to print as bold, and place the Bold off escape at the end of the bold text.**

**1. Line of text using the bold escape code.**

**This line will not be bold. &%1B&%45 This line will be bold print.&%1B&%46 This line will not be bold.**

**2. Result**

This line will not be bold. **This line will be bold print.** This line will not be bold.

## *Laser 8 Dip Switch Settings*

**The following charts contain the switch settings for the Laser 8 dip switches located on the rear of the Laser 8. These settings should only be used if you are using the Laser 8 for normal ASCII operation Please note that the switches must be in the factory default settings in order for the Laser 8 and the Laser 8 Driver to work together.**

| SWITCH (SW1) | FUNCTION | SETTING | FUNCTION |
|---|---|---|---|
| 1 | Interface selection | OFF: | Invalid* |
| 2 | Spec Selection | ON:<br>OFF: | Proprinter Emulation<br>3550 Emulation |
| 3 | Paper Size Selection | ON:<br>OFF: | Legal<br>Letter |
| 4 | Pitch Selection Mode Setting | ON:<br>OFF: | Non pitch selection mode<br>Pitch selection mode |
| 5 | Code Selection | ON:<br>OFF: | 7 bit code mode<br>8 bit code mode |
| 6 | Select Line Setting | ON:<br><br>OFF: | Select signal OFF when "PAUSE" Switch is pressed.<br>No connection |
| 7 | Reserved | | |
| 8 | CAN | ON:<br>OFF: | Perform buffer clean when receiving CAN code.<br>CAN code is ignored. |
| 9 | DEL | ON:<br>OFF: | Perform buffer clean when receiving DEL code.<br>DEL code is ignored. |
| 10 | Auto RET | ON:<br>OFF: | Auto return at the right margin<br>No auto return at the right margin. |

*No port selection is necessary when operating in RS232, or parallel mode. The port selection is automatic when the cable is attached.

| SWITCH (SW2) | FUNCTION | SETTING | FUNCTION |
|---|---|---|---|
| 1 | Local CR | ON:<br>OFF: | LF and CR<br>LF only |
| 2 | Language Select | Not available | |
| 3 | Local LF | ON:<br>OFF: | CR and LF with CR code<br>Only CR with CR code |
| 4 | TEST (for RS-232C use only) | ON:<br>OFF: | Loop test<br>Test print |
| 5 | Receive Buffer Length (for RS-232C use only) | ON:<br>OFF: | 2048 bytes acceptable<br>256 bytes acceptable |
| 6 | Break Inhibit (for RS-232C use only) | ON:<br>OFF: | Doesn't send break signal at error state.<br>Sending break signal at error state |
| 7 | DTR | ON:<br>OFF: | Sends the reverse channel to the DTR signal line (OFF in BUSY)<br>Separates reverse channel and DTR |
| 8 | CAN | ON:<br>OFF: | Perform buffer clean when receiving CAN code.<br>CAN code is ignored. |
| 9 | DEL | ON:<br>OFF: | Perform buffer clean when receiving DEL code.<br>DEL code is ignored. |
| 10 | Auto RET | ON:<br>OFF: | Auto return at the right margin<br>No auto return at the right margin. |

<table>
<tr><th>SWITCH (SW3)</th><th>FUNCTION</th><th>SETTING</th><th>FUNCTION</th></tr>
<tr><td>1</td><td>DR.CS.CD<br>This holds the interface signal of DR.CS and CD at ON level.</td><td>ON:<br><br>OFF:</td><td>This holds DR.CS and CD signal at ON level.<br>This detects DR CS and CD signal</td></tr>
<tr><td>2</td><td>SCA<br>This changes the polarity of SCA (reverse channel)</td><td>ON:<br>OFF:</td><td>+12V at BUSY<br>-12v at BUSY</td></tr>
<tr><td>3</td><td>PROTOCOL<br>Protocol changing<br>Sending Receiving</td><td>ON:<br>OFF:<br><table><tr><th>SW 3 - 4</th><th>SW 3 - 5</th></tr><tr><td>-</td><td>OFF:</td></tr><tr><td>OFF:</td><td>ON:</td></tr><tr><td>ON:</td><td>ON:</td></tr></table></td><td>X-ON/X-OFF<br>ETX/ACK</td></tr>
<tr><td>4,5</td><td>PARITY<br>Setting the parity sending/receiving</td><td></td><td><table><tr><td>Making State</td><td>No parity check</td></tr><tr><td>Adding of ODD parity</td><td>ODD parity check</td></tr><tr><td>Adding of Even parity</td><td>Even parity check</td></tr></table></td></tr>
<tr><td>6,7,8</td><td></td><td><table><tr><th>8</th><th>7</th><th>6</th></tr><tr><td>OFF</td><td>OFF</td><td>OFF</td></tr><tr><td>OFF</td><td>OFF</td><td>ON</td></tr><tr><td>OFF</td><td>ON</td><td>OFF</td></tr><tr><td>OFF</td><td>ON</td><td>ON</td></tr><tr><td>ON</td><td>OFF</td><td>OFF</td></tr><tr><td>ON</td><td>ON</td><td>OFF</td></tr><tr><td>ON</td><td>OFF</td><td>OFF</td></tr><tr><td>ON</td><td>ON</td><td>ON</td></tr></table></td><td>Speed150 BPS<br>300 BPS<br>600 BPS<br>1200 BPS<br>2400 BPS<br>4800 BPS<br>9600 BPS<br>19200 BPS</td></tr>
<tr><td>9</td><td>Auto Feed XT<br>Effective/Ineffective of Auto feed XT</td><td>ON:<br><br>OFF:</td><td>Effective (according to the status of signal line.)<br>Ineffective (fixed internally)</td></tr>
<tr><td>10</td><td>Select IN<br>Changing of Low/High level of SELECT IN signal</td><td>ON:<br>OFF:</td><td>SELECT IN signal Low<br>SELECT IN signal High</td></tr>
</table>

## *Laser 8 Driver Dip Switch Settings*

**The two switch packs, E2 and E19 are located on the inside of the Laser 8 Driver. E2 switches control language and IBM model selection and E19 switches provide access to special printing functions. These switches should not be changed by the operator. Call your Sales or Service representative for more information on changing these switch settings.**

Switches 1 through 5 on switch pack E2 specify the different language settings. Switches 6 through 8 specify the IBM Model buffer size to be used. The default settings are shown below.

### The Language Select Switch Settings

The following chart specifies the settings of switches 1 through 5 on E2 for each language supported by the Laser 8. English, U.S. is the default setting.

| Switch 1 2 3 4 5 | Language |
|---|---|
| 0 0 0 0 0 | English, U.S. |
| 0 0 0 0 1 | Austrian/German |
| 0 0 0 1 0 | Austrian/German Alt. |
| 0 0 1 0 0 | Danish/Norwegian |
| 0 0 0 1 1 | Danish/Norwegian Alt. |
| 0 0 1 0 1 | Finnish/Swedish |
| 0 0 1 1 0 | Finnish/Swedish Alt. |
| 0 0 1 1 1 | French |
| 0 1 0 0 0 | Italian |
| 0 1 0 0 1 | Portugese Alt. |
| 0 1 0 1 0 | Spanish |
| 0 1 0 1 1 | English, U.K. |
| 0 1 1 0 0 | Belgian |
| 0 1 1 0 1 | International |
| 0 1 1 1 0 | Japanese/English |
| 0 1 1 1 1 | Canadian/French |
| 1 0 0 0 0 | Brazilian |
| 1 0 0 0 1 | Canadian Bi-lingual |
| 1 0 0 1 0 | Katakana* |
| 1 0 1 0 0 | Reserved |
| 1 0 1 0 1 | Reserved |
| 1 0 1 1 0 | Reserved |
| 1 0 1 1 1 | Reserved |

The following sets enable the right-to-left printing mode:

| Switch 1 2 3 4 5 | Language |
|---|---|
| 1 1 0 0 0 | English |
| 1 1 0 0 1 | Hebrew, A* |
| 1 1 0 1 0 | Hebrew, B* |
| 1 1 0 1 1 | English |
| 1 1 1 0 0 | " |
| 1 1 1 0 1 | " |
| 1 1 1 1 0 | " |
| 1 1 1 1 1 | " |

Switch in DOWN position = Open  Switch in UP position = Closed

## IBM Model Select Switch Settings

| SWITCH E2<br>6 7 8 | IBM .<br>MODEL NO | BUFFER SIZE<br>(SCREEN SIZE) |
|---|---|---|
| 0 0 0 | 2 | 1920 characters<br>2K (24 lines x 80 characters) |
| 0 0 1 | 1 | 960 characters<br>2K (12 lines x 80 characters) |
| 0 1 0 | 2 | 1920 characters<br>2K (24 lines x 80 characters) |
| 0 1 1 | 3 | 2560 characters<br>4K (32 lines x 80 characters) |
| 1 0 0 | 4 | 3440 characters<br>4K (43 lines x 80 characters) |
| 1 0 1 | 5 | 3564 characters<br>4K (27 lines x132 characters) |
| 1 1 0 | 2 | 1920 characters<br>4K (24 lines x 80 characters) |
| 1 1 1 | 4 | 3440 characters<br>4K (43 lines x 80 characters) |

(1 = closed 0 = open)

## Special Function Switch Settings

Switches 1 through 8 on switch pack E19 control the selection of special printing functions offered by the Laser Unit These functions and their required switch settings are outlined and illustrated in the diagram and the chart below:

| Switch # | Function For Closed Setting | Function For Open Setting |
|---|---|---|
| 1 | Selects "standard" default settings at power up. | Selects settings made permanent by SAVE SU. |
| 2-4 | Reserved | Reserved |
| 5 | Print form feed on end of job. | Do not print form feed on end of job. |
| 6 | No Second hopper attached. | Second hopper attached. |
| 7 | Print null lines. | Do not print null lines. |
| 8 | Print form feed on local copy | Do not print form feed on local copy |

Default settings are listed on page 24.

**This section includes repacking instructions using the original materials your printer was shipped in. If you did not save your original shipping materials, you should attempt to duplicate them as closely as possible.**

---

If you saved the original shipping materials you will have:

- 1 plastic cover
- 2 molded foam end caps
- 3 small boxes
- 1 large shipping container

You will also need:

- bubble wrap
- plastic bag which will fit over the developer station.
- twist-tie
- shipping box which will fit the developer station.

**❑WARNING**

**You are responsible for packing the printer properly. Shipping companies will not pay for damage to an improperly packed printer.**

## Preparing for Repacking

Before repacking your printer for shipment, you must perform the following steps to avoid damage to the printer and its parts.

1. Disconnect the power cord and parallel cable. Wind up the power cord. secure with a twist tie, and place in the small long flat box.

2. Remove the sheet guide and place in box with the power cord.

3. Remove the PC cartridge and place in protective case (see page 73 for instructions) . Place protective case in larger white box.

4. Remove the developer station (see page 75 for instructions). Wrap the developer station securely in bubble wrap and then place in a plastic bag and seal tightly. Place the sealed bag in a separate box which should be shipped separate from the printer.

**❑WARNING**

**If the developer station is not packed as instructed the printer could be damaged, and the customer will be charged for all damages and cleaning.**

## Repacking the Laser 8

After you have followed steps 1 through 4 above, you may proceed with the repacking procedure. (Refer to illustration on facing page.)

1. Place the plastic cover over the Laser 8.

2. Be sure the bottom molded foam end cap is in the bottom of the shipping container, then set the Laser 8 in the box and on top of the end cap.

3. Place the top end cap over the printer making sure it is secure.

4. Place the PC cartridge box and the sheet guide and power cord box in the appropriate slots on the top of the end cap.

5. Close the flaps of the shipping container and seal with strong shipping tape.

## Repacking the Laser 8 Driver

If you save the original shipping materials, you will have:

- 2 molded foam end caps
- 1 shipping container

To repack:

1. Disconnect the power cord and parallel cable. Wind the power cord and secure with a twist-tie.

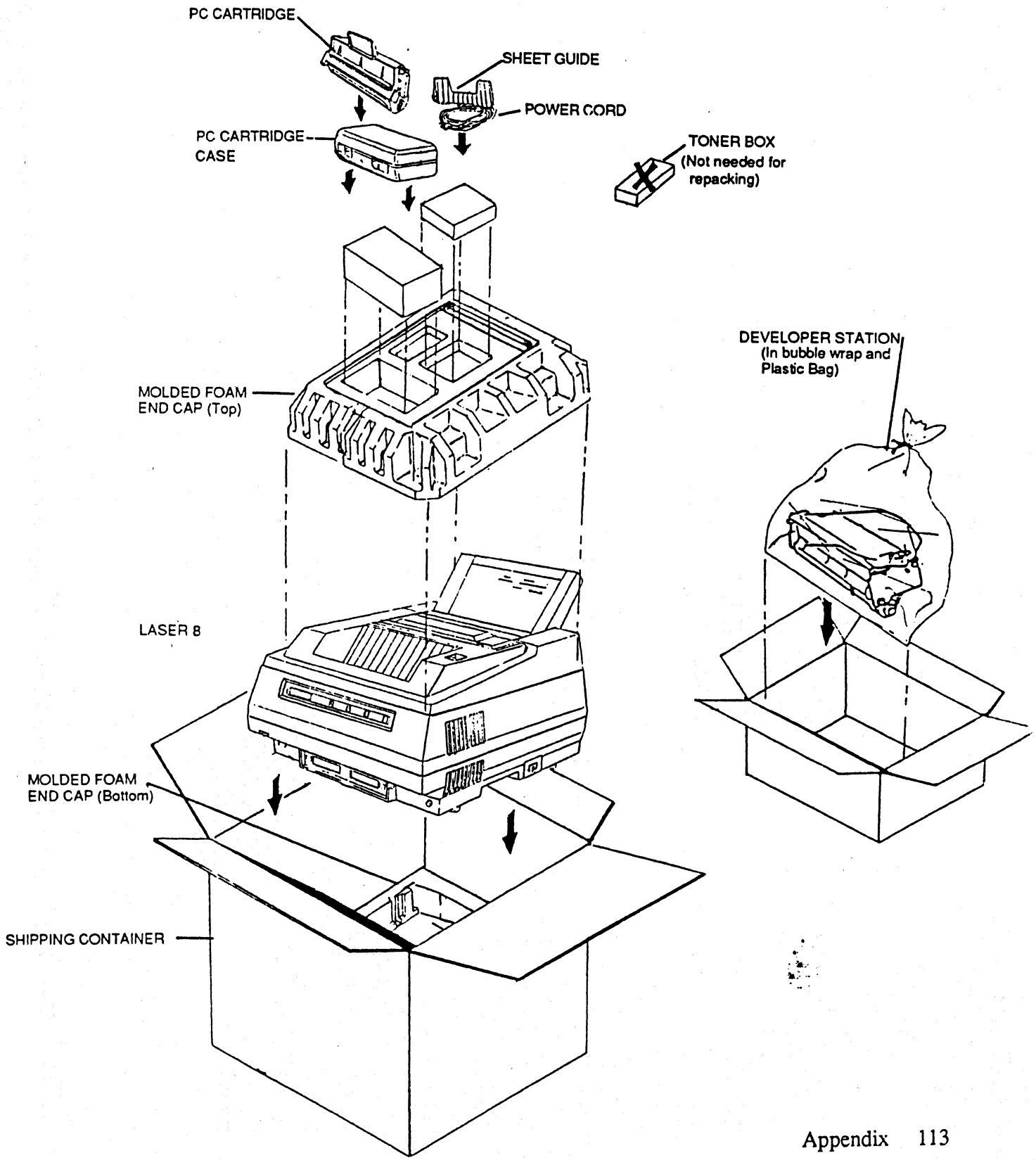
2. Place the end caps on the left and right ends of the Laser 8 Driver.

3. Place the Laser 8 Driver in the shipping container.

4. Place the power cord and parallel cable in the shipping container.

5. Close the flaps and seal with strong shipping tape.

## REPACKING INSTRUCTIONS



# Revisions

| Description | Page | Ver | Rev |
|---|---|---|---|
| Preliminary | | | |
| Second Draft - revision of entire manual | manual | 10/2/86 | 3/20/87 |
| Added Top Margin menu item and description. Also added both menu and &%Qn character densities and note on hopper escape. | 48-50,102, 104 | 4/7/87 | 4/15/87 |
| Minor revisions of the copy were made. These revisions included the left margin "actual size" of .32 in. (not 1/4"). The "down" switch setting in example three (pg. 54) was changed to "up". On page 53 the wording in the "Checking/Changing..." paragraph was changed slightly. | 50, 53, 54, | 4/7/87 | 4/22/87 |
| Changed the order of the page size selection procedure. All selections are now made before pressing ENABLE PRINT. ENABLE PRINT is now pressed at the very end of the procedure. | 53, 54 | 4/7/87 | 4/30/87 |
| Added information on optional font selection. Also added minor revisions and additions on various pages. | 59, 60, 103, 104, 106, 110 | 5/14/87 | 5/25/87 |
| Revised escape code information on the font selection. Also changed the switch setting and added a note concerning RS232 and parallel selection | 104, 106 | 5/14/87 | 6/11/87 |