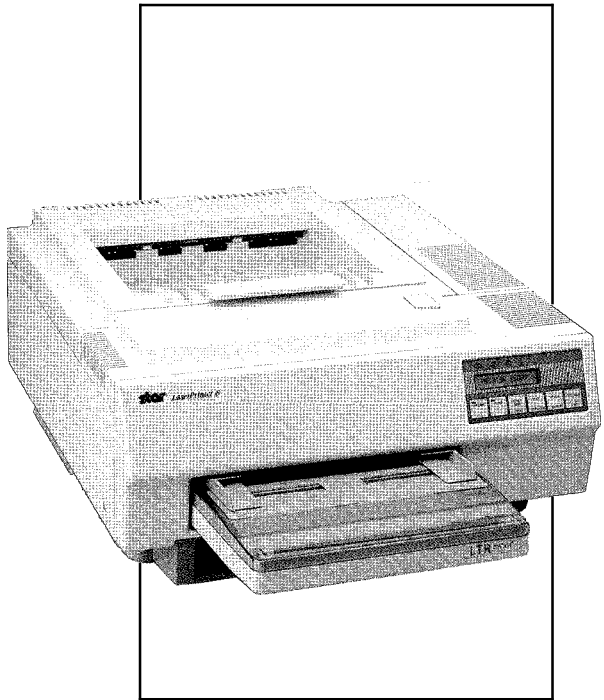




# *L A S E R P R I N T E R 8*



Operators Manual

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## Safety Notices

This printer is certified as a Class 1 laser product under the U.S. Department of Health and Human Services (DHHS) Radiation Performance Standard according to the Radiation Control for Health and Safety Act of 1968. This means that the printer does not produce hazardous laser radiation.

Since radiation emitted *inside the printer is completely confined within protective housings and external covers*, the laser beam cannot escape from the machine during any phase of user operation.

The Center for Devices and Radiological Health (CDRH) of the U.S. Food and Drug Administration implemented regulations for laser products on August 2, 1976. These regulations apply to laser products manufactured from August 1, 1976. Compliance is mandatory for products marketed in the United States. The label on the bottom of the printer indicates compliance with the CDRH regulations and must be attached to laser products marketed in the United States.

## Federal Communications Commission Radio Frequency Interference Statement

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

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

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet, prepared by the Federal Communications Commission helpful:

"How to Identify and Resolve Radio-TV Interference Problems."

This booklet is available from the U.S. Government Printing Office, Washington, D.C., 20402, Stock No. 004-000-00345-4.

For compliance with the Federal Noise Interference Standard, this equipment requires a shielded cable.

*The above statements apply only to printers marketed in the U.S.A.*

## Self Declaration

Radio interference regarding this equipment has been eliminated according to Vfg 1046/1984 announced by the DBP.

DBP has been informed of the introduction of this special equipment and has been granted the right to examine the whole series.

It is the user's responsibility to see that his own assembled system is in accordance with the technical regulations under Vfg 1046/1984.

To conform to FTZ-regulations it is necessary to make all connections to the printer with shielded cable.

The equipment may only be opened by qualified service representatives.

*The above statement applies only to printers marketed in West Germany.*

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## Trademark Acknowledgements

**LaserPrinter 8:** Star Micronics Co., Ltd.

**Diablo 630, Ventura Publisher:** Xerox Corporation

**EX-800:** Seiko Epson Corporation

**HP LaserJet Plus:** Hewlett Packard Company

**IBM PC/XT, IBM Proprinter:** International Business Machines Corporation

**Lotus 1-2-3:** Lotus Development Corporation

**Microsoft Word, Microsoft Windows:** Microsoft Corporation

**PageMaker:** Aldus Corporation

**WordPerfect:** WordPerfect, Inc.

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- The contents of this manual are subject to change without notice.
- All efforts have been made to ensure the accuracy of the contents of this manual at the time of press. However, should any errors be detected, STAR would greatly appreciate being informed of them.
- The above notwithstanding, STAR can assume no responsibility for any errors in this manual.

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# C H A P T E R

# 1

## *How to Use This Manual*

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Welcome to the world of laser printing! And congratulations on purchasing a Star LaserPrinter 8. You will be delighted with both the quality of the printed images and the ease of operation. With your computer and this printer, you can create professional-looking documents ranging from office correspondence and research material to desktop publishing.

This Operations Manual is one of two that explore the entire range of printing possibilities of the Star LaserPrinter 8. This manual is for beginners and for those who plan to concentrate on the basics of laser printing. Advanced users and those interested in programming should refer to the Applications Manual.

Chapter 2 begins with an overview of the manual and of the Star Laser printer. This chapter explains how to unpack your new printer and prepare it for initial operation. Chapter 3 explains how to operate the printer's front operating panel and display screen.

Some people like to skip the preliminary explanations and begin using the printer immediately. Chapter 4 provides the information for such a fast start. If you begin with Chapter 4, at some later time you should read the rest of the book, in chapter sequence, for a more complete picture of your printer and its operations.

Chapter 5 explains how to set up a page, while Chapter 6 describes the type characteristics and printer operations that will enable you to give your printed pages that professional look.

---

The Star LaserPrinter 8 emulates the operation of four widely used printers:

- **HP Laserjet Plus**, a laser printer
- **Diablo 630**, a daisy wheel printer
- **Epson EX-800**, a dot matrix printer
- **IBM Proprinter**, a dot matrix printer

With this capability, the Star LaserPrinter 8 will operate with a wide range of applications programs on the market, both old and new. Chapter 7 in this manual provides the character codes that will allow your Star Laser to emulate each of these printers (for detailed instruction on using this information, please refer to the Applications Manual). Chapter 8 provides the information that will allow you to use your printer with four popular applications programs: *Lotus 1-2-3*, *WordPerfect*, *Microsoft Word*, and *Microsoft Windows*.

Chapters 9 and 10 describe the maintenance and troubleshooting operations to keep your Star Laser working in “like new” condition.

## LASER PRINTING

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Before you begin learning about your new Star LaserPrinter 8, you may find it helpful to know something about laser printing itself.

A laser is actually a beam of light of just one wavelength (*Laser* is an acronym for *Light Amplification by Stimulated Emission of Radiation*). Such a beam of light, described as intense or “highly coherent,” can be focused very sharply. Lasers, generated by gases, liquids, or semiconductors, are widely used in applications ranging from surgery to the visual arts.

Laser printing is a process that uses a laser beam — in this case, generated by a semiconductor — to activate portions of an electrically charged surface. These activated parts represent the words, numbers, or graphics being sent from the computer for printing. Other parts of the printer transfer this image to paper, then clean the surface and prepare it to receive more information to be printed.





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In other words, this process is a type of laser-activated temporary engraving.

In the Star LaserPrinter 8, two interconnected units produce the complete printing process: the toner cartridge and the printer body.

The toner cartridge (Fig. 1-1) contains the drum, which is the rotating surface. In the darkness of the toner cartridge, the drum holds a negative charge placed on it by the primary corona wire in the printer (Fig. 1-2). Shutters on the bottom of the toner cartridge assure that no unwanted light penetrates its interior.

When text or graphics are sent by the computer to the printer, a laser beam is generated by the semiconductor laser diode. This beam is focused by special scanning mirrors that turn the light beam into a tool that "writes" or "paints" on the surface of the drum. The areas of the drum touched by the laser beam lose their *negative charge* and contain a reverse image of the information sent from the computer. As the drum rotates, it passes a developer unit that is also rotating, but in the opposite direction. The surface of the developer unit is covered with toner ("ink") which has a negative charge. The neutralized portions of the drum, containing the information to be printed, pick up negatively charged toner from the developer unit.

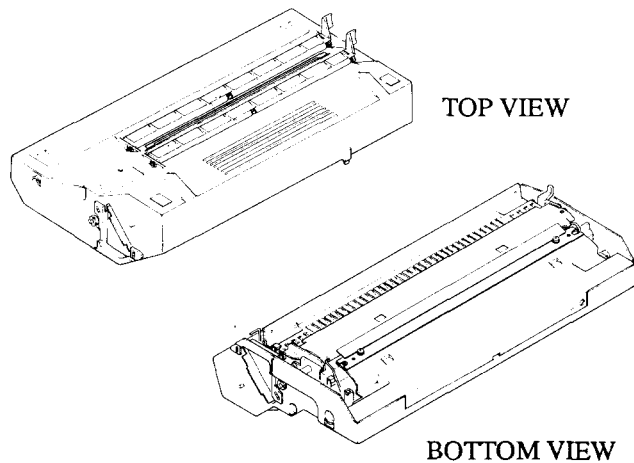
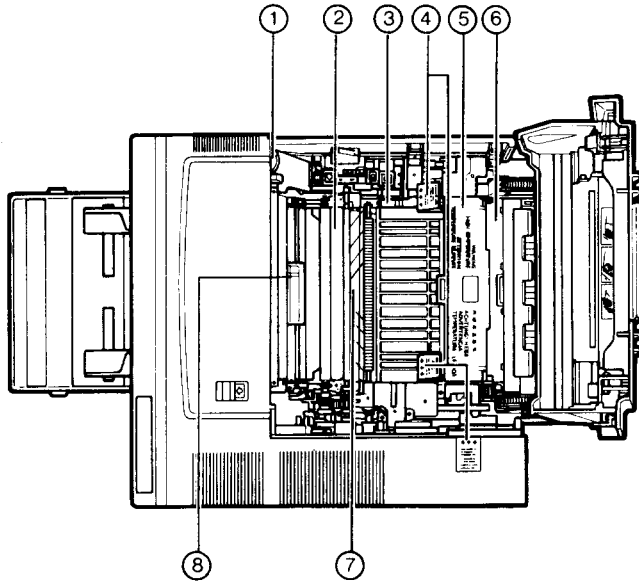


Fig. 1-1



- |                                 |                               |
|---------------------------------|-------------------------------|
| ① Print Density Adjustment Dial | ⑤ Upper Fixing Assembly Cover |
| ② Transfer Guide                | ⑥ Rear Fixing Assembly Cover  |
| ③ Wire Cleaner                  | ⑦ Transfer Corona Wires       |
| ④ Spacers                       | ⑧ Transfer Paper Guide        |

Fig. 1-2

At this point, paper fed from the paper cassette moves through the transfer unit, from which it receives a positive charge. As the drum rotates, the negatively charged particles of toner are attracted to the positively charged surface of the paper.

A combination of heat and pressure fuse the image to the paper. The paper is then ejected from the printer.

Finally, a cleaning mechanism in the toner cartridge cleans excess toner from the drum, and a special light beam neutralizes its entire surface. Then the entire process can begin again.

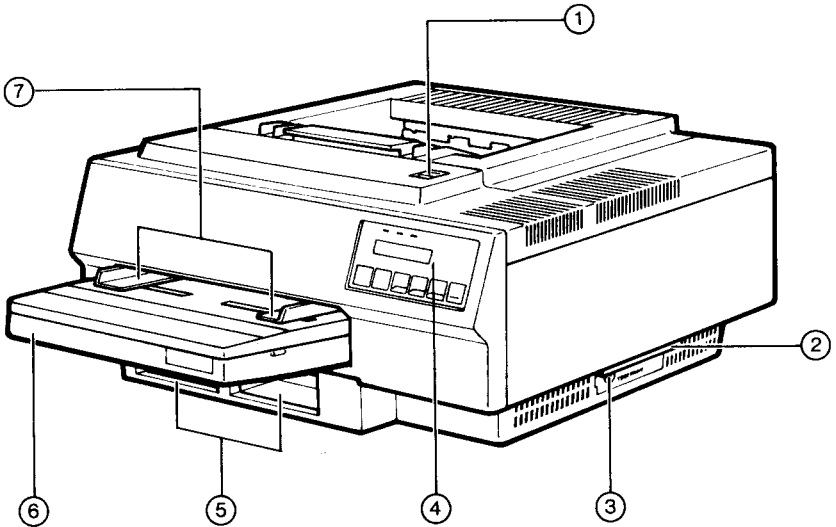
# THE STAR LASERPRINTER 8 —

## AN INTRODUCTION

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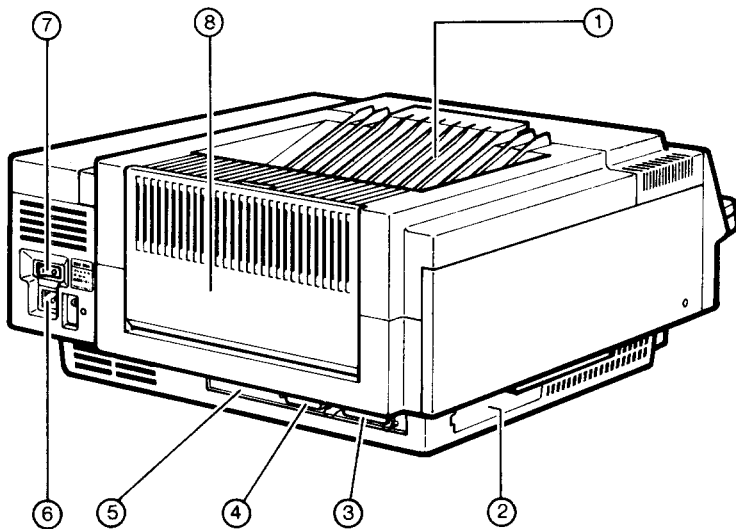
---

You will meet each portion of your Star LaserPrinter 8 as you read this manual. But a brief introduction is in order here. Figure 1-3 shows the printer from the front. Figure 1-4 shows the printer from the rear. You can eject paper face up when the paper tray is folded out as shown in Figure 1-5.



- |                              |                                       |
|------------------------------|---------------------------------------|
| ① Upper Cover Release Button | ⑤ Font Cartridge Slots                |
| ② Carrying Grip Plate        | ⑥ Paper Cassette                      |
| ③ Hole for Test Print Button | ⑦ Paper Set Guides for Manual Feeding |
| ④ Control Panel              |                                       |

Fig. 1-3



- |                                      |   |
|--------------------------------------|---|
| ① Face-down Print Delivery Tray      | ⑤ Interface Expansion Board Slot (covered/reserved) |
| ② RAM Expansion Board Slot (covered) | ⑥ Power Cord Connector                              |
| ③ Parallel Interface Connector       | ⑦ Power Switch                                      |
| ④ Serial Interface Connector         | ⑧ Face-up Print Delivery Tray (folded up)           |

Fig. 1-4

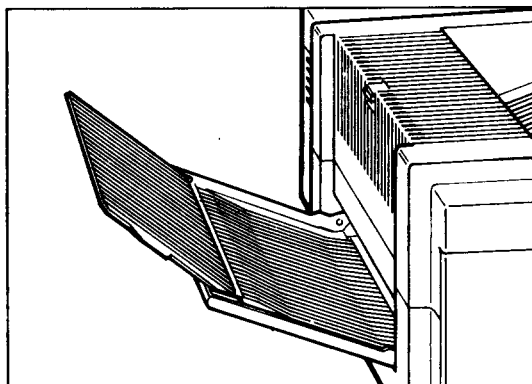


Fig. 1-5

## Setting Up the Star LaserPrinter 8

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The fact that you're now reading this manual shows that you've gotten at least as far as opening the carton containing your new Star LaserPrinter 8. Most likely, it's sitting in the middle of the floor, and you're eager to get it unpacked, set up, and running. This chapter will help you do just that.

First, though, you should make some preparations. You may already have decided on the printer's new location. Whether you have or have not, run through this checklist of requirements:

- **environmental control** - The printer and toner cartridge should never be exposed to strong sunshine or other direct heat sources. It should also be located away from *air conditioning ducts, dust, and fumes*. Excessive moisture should be avoided, such as *humidity* in excess of 80% or less than 20%. If it is comfortable for you, then it will be comfortable for your printer.
- **a large, strong table or stand** - The printer weighs 45 lbs. (20 kg), and must be firmly supported. Also, the printer will need more room than it takes up in the shipping carton, because the paper cartridge will extend forward from the front, and an auxiliary paper tray will unfold from the rear; so plan for a space at least 3 x 4 ft. (1 m<sup>2</sup>). Because the top of the printer must open, be sure there is at least 24 in. of headroom above the table/stand.
- **a three-pronged outlet** - The outlet should be no more than 5 feet (1.5 m) from the printer (the length of the power cord), preferably

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one shielded from power fluctuations. In any case, no motor-driven appliance should be connected to the same outlet, to avoid interference with the printer's operations.

- **access to the computer/work station/network** - If you will be using a serial connection, the printer should be a maximum of 50 feet away, with a parallel connection, no more than 6 feet.
- **a fresh toner cartridge** (product # EP-S).
- **paper** - A package of 16 - 20 lb (60 - 135 g/m<sup>2</sup>) photocopier paper is best to start with; however, the printer can use thicker paper, as well as special media, such as envelopes, mailing labels, and transparent sheets.
- **someone to help you lift the printer from the carton to its new location.**

## UNPACKING

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The shipping carton contains two layers of material. On top is a Styrofoam tray containing the paper cartridge, power cord, ground wire, and the users' manual.

Remove the tray with its contents and set it aside — NOT on the table where the printer will go. On the bottom, you will see the printer in a plastic bag, resting in its own Styrofoam nest.

Summon your lifting partner and prepare to remove the printer. Since it is tightly cradled in the shipping carton, it may be necessary to tip the carton slightly to get a firm grip. Lifting handles are located half-way back on each underside of the printer, but they will be difficult to use, because of the plastic bag. Lift the printer from the Styrofoam and place it on the table or stand, plastic bag and all. Now slide the bag off by slightly lifting the printer gently.

To stabilize the printer during shipment, it contains several kinds of protective materials. The front of the printer (Fig. 2-1) has three slots, one about 9 in. wide and two narrower slots below it. The wide slot is packed with a paper package of silica gel (to absorb moisture during shipping) and a brick of Styrofoam. Remove both of these and save them for use if you must move or ship the printer over long distances.

There are also packing materials inside the printer. Near the right front of the printer's top you will see a postage-stamp sized, rectangular button (Figs. 2-2 & 2-3).

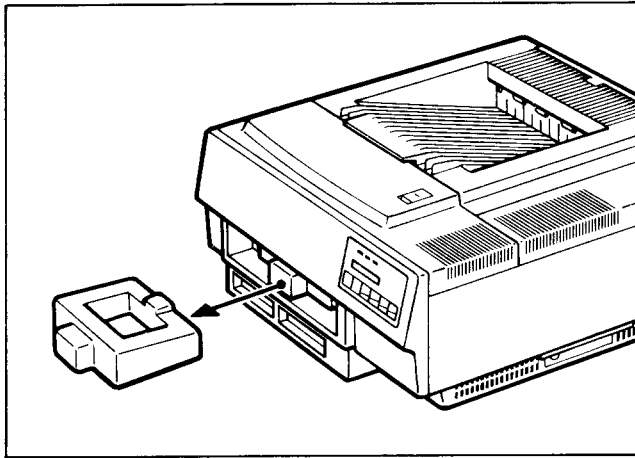


Fig. 2-1

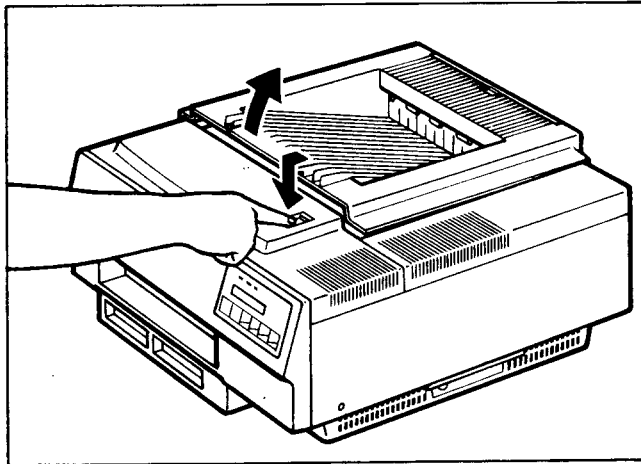
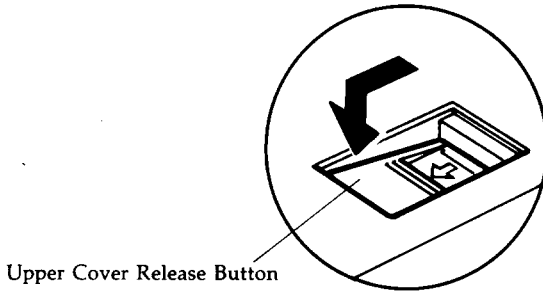


Fig. 2-2



Upper Cover Release Button

Fig. 2-3

Place your finger on the arrow and slide the button forward, then press down on it. The top of the printer will pop open slightly, just like the hood of an automobile. The top has two open positions, one at about 90 degrees and the other fully open. Lift the top to its fully open position, so you can see the interior of the printer (Fig. 2-4).

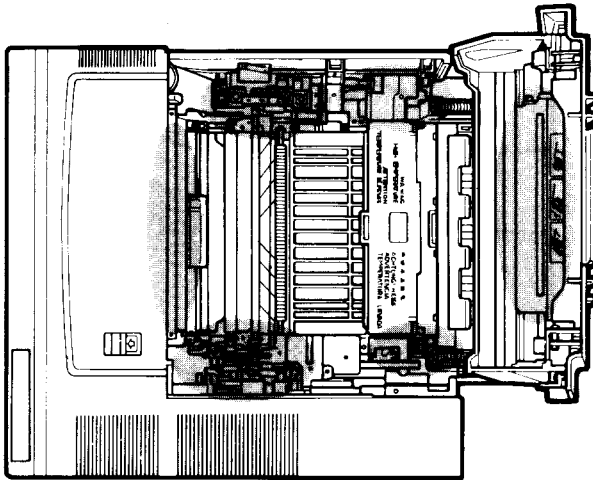


Fig. 2-4



You must remove several pieces of packing material. The largest, a large wedge of Styrofoam is at the center front of the interior (Fig. 2-5). Lift this out and save it for future repacking.

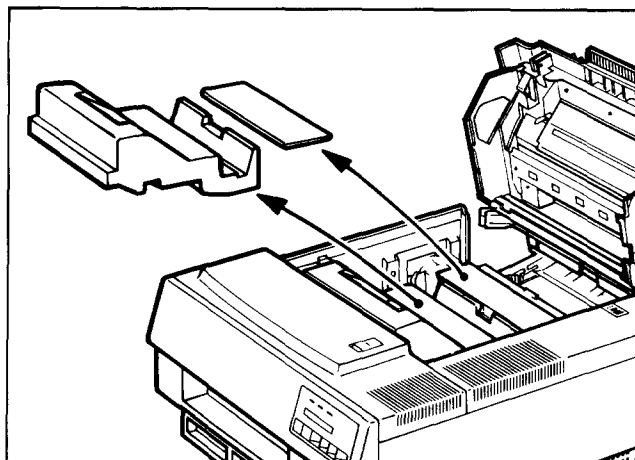


Fig. 2-5

Toward the back of the interior you will see a green lid with a warning label in red lettering. On the left and right sides of this area are orange stabilizers (Fig. 2-6). Each stabilizer bears a tag with black lettering, telling you (in several languages) to remove them. Grasp one of these and pull it down, then forward in the direction of the arrows on the tag. Remove the second one the same way. Save the stabilizers for future repacking.

After you remove all the packaging material, leave the printer top open, so that you can insert the toner cartridge, which contains the "ink" that will print your documents.

## INSERTING THE TONER CARTRIDGE (OPTION)

The toner cartridge comes in a separate sealed carton. Open this and remove a foil package, contained within Styrofoam bolsters. Also

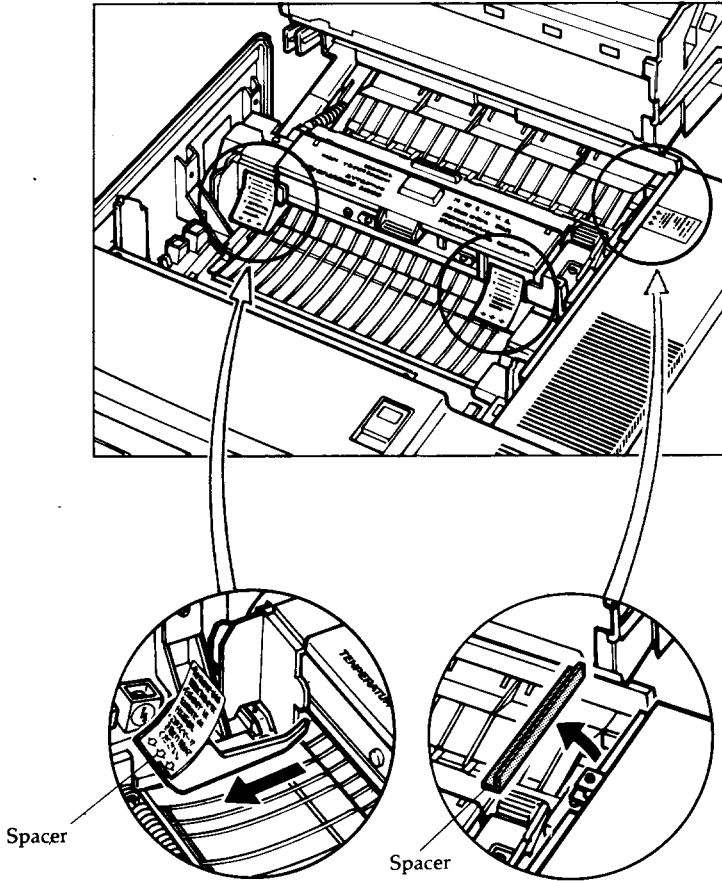


Fig. 2-6

packed is a small plastic bag containing cleaning material, some of which you will install inside the printer, and an installation sheet (Fig. 2-7).

After separating the two packages from the Styrofoam, pick up the smaller one and open it. In this package is a green and black 8-inch long rod and a cotton swab. The rod is a fixing roller cleaner, with cleaning pad attached to one end. Open the green lid to the upper fixing assembly (Fig. 2-8) and insert the cleaning pad end of the roller cleaner

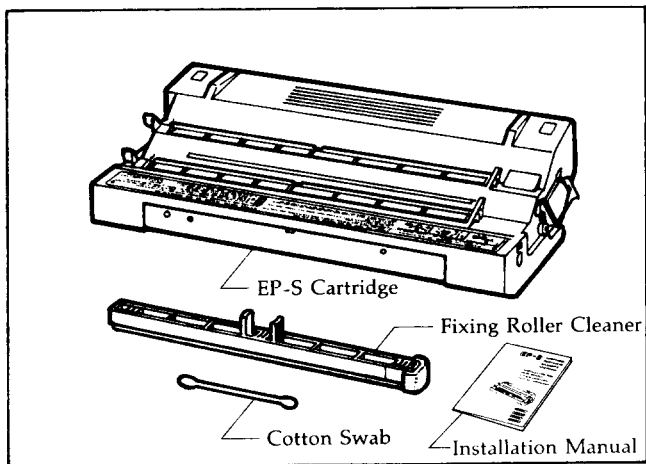


Fig. 2-7

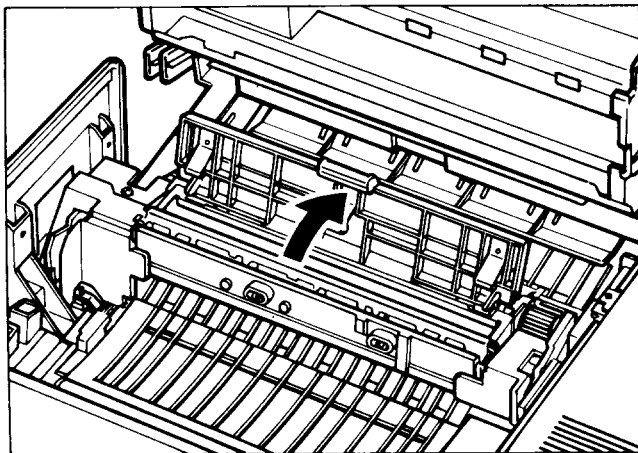


Fig. 2-8

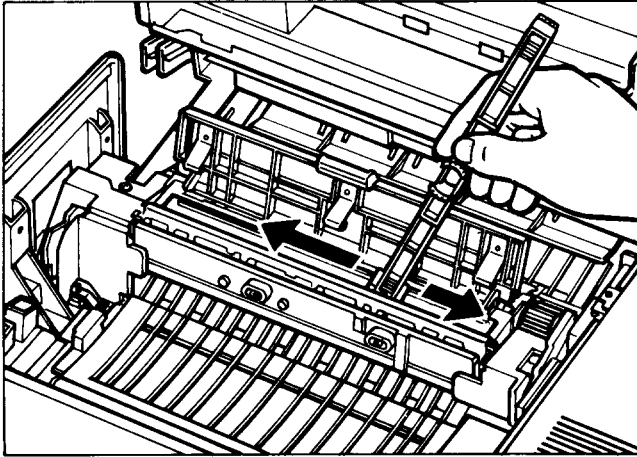


Fig. 2-9

into the slot (Fig. 2-9). Slide the cleaning pad back and forth several times.

Move the cleaner from the slot. Peel off the cleaning pad (Fig. 2-10) and discard it.

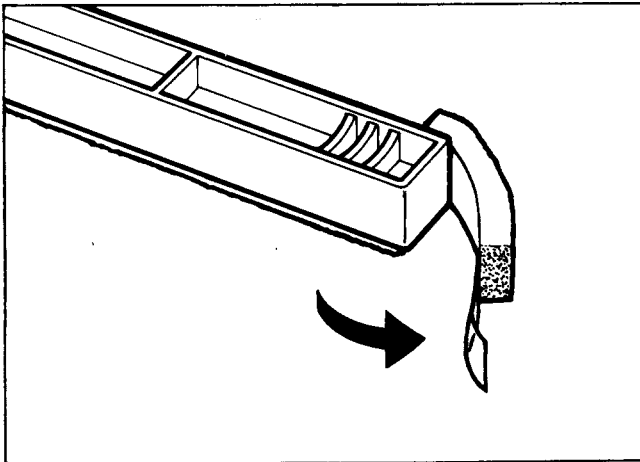


Fig. 2-10

Now grasp the fixing roller cleaner by the two prongs in the center and install it in the slot you have just cleaned (Fig. 2-11).

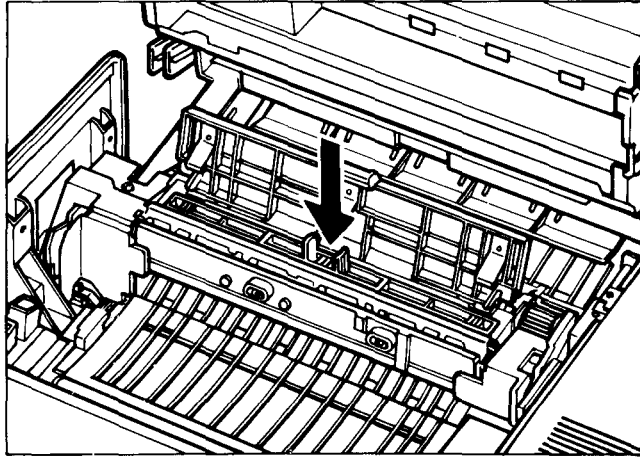


Fig. 2-11

Finally, close the green lid. It will not close tightly, but don't force it down.

You have three more small cleaning tasks to perform before inserting the toner cartridge. First, take a soft, moistened cloth (not provided) and clean the metallic plate toward the front of the printer's interior, known as the transfer guide (Fig. 2-12).

Just forward of the transfer guide you will see four thin wires. These are the transfer corona wires, and must be cleaned also, if the printer is to provide a good image. Take the cotton swab that came in the cleaner package and gently clean these wires (Fig. 2-13). Discard the used swab.

The final cleaning task is with a small wire cleaner stored inside the printer. You will see its green handle at the left center of the interior (Fig. 2-14).

Insert the brush in the slot below the transfer corona wires and slide it back and forth to clean dirt from the discharging pins (Figs. 2-15 & 2-16). Be careful not to damage the transfer corona wires. When you are finished, return the brush to its storage space.

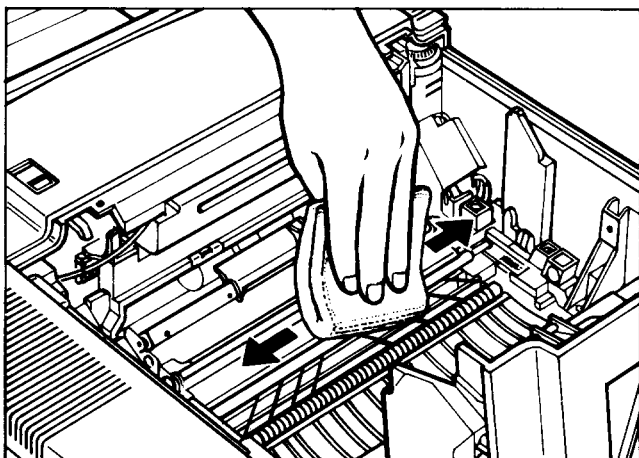


Fig. 2-12

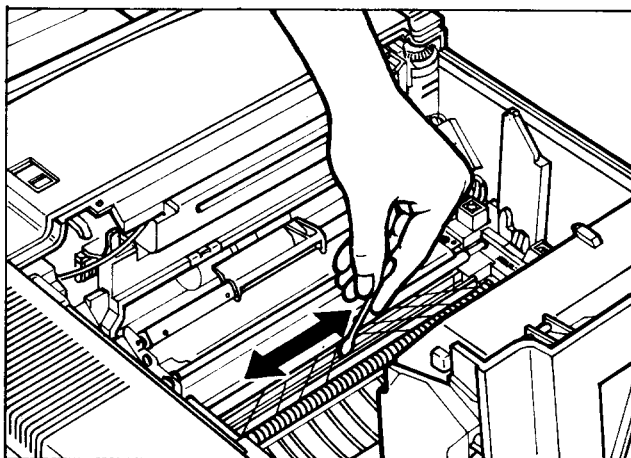


Fig. 2-13

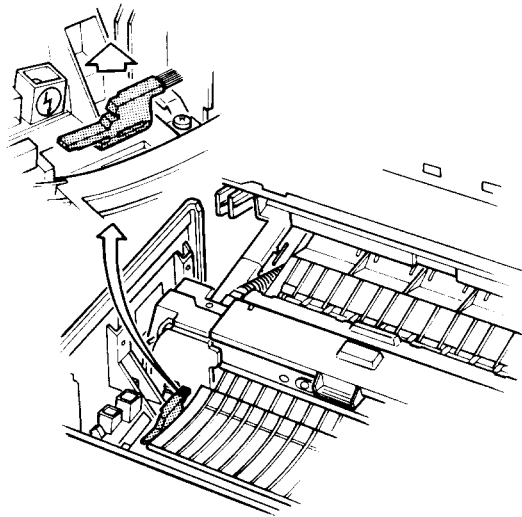


Fig. 2-14

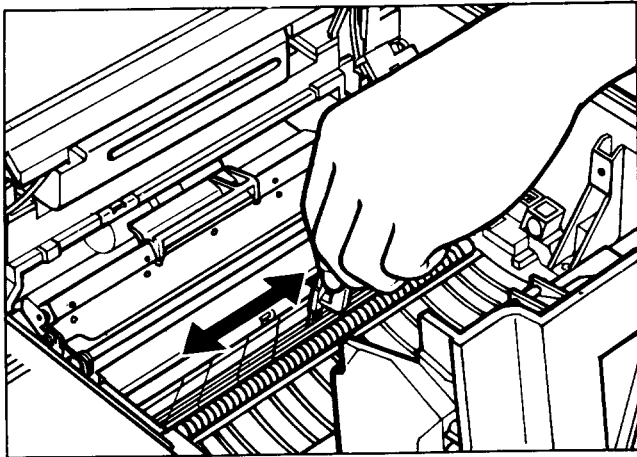


Fig. 2-15

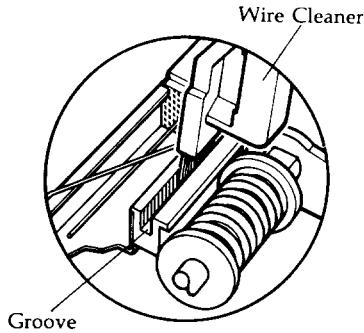


Fig. 2-16

*You should perform this cleaning sequence every time you change your toner cartridge.*

Now, at last, it is time to install the toner cartridge. Pick up the sealed package that contains it. You will see the letters *EP-S* stamped on one end. This is at the bottom of the cartridge, so turn it over, and snip open the foil. Be careful to grasp the cartridge only at the instruction panel (Fig. 2-17) and the other long end, not in the middle (Fig. 2-18). This is to prevent disruption of its moving parts.

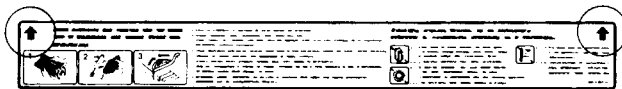


Fig. 2-17

Holding the cartridge with two hands, rock it back and forth 5 or 6 times, as shown in Fig. 2-19, so that it moves through about 90 degrees.

Now lower the printer lid to its halfway position (Fig. 2-20) and insert the cartridge in the direction of the arrows on its instruction panel. Push gently but firmly, until it is seated at the back of its container.



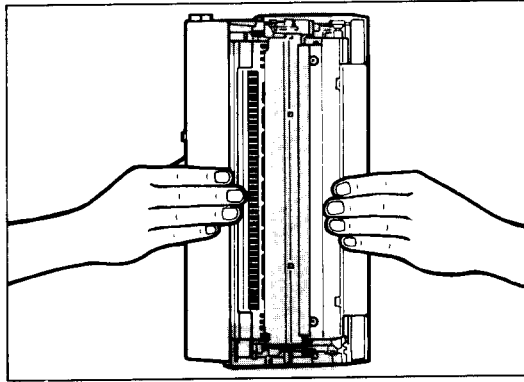


Fig. 2-18

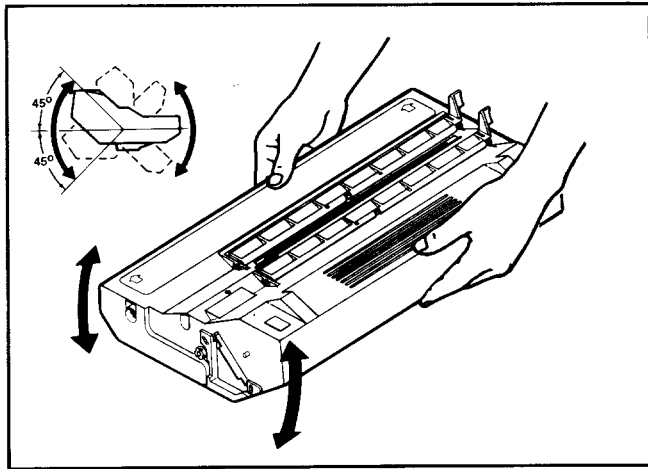


Fig. 2-19

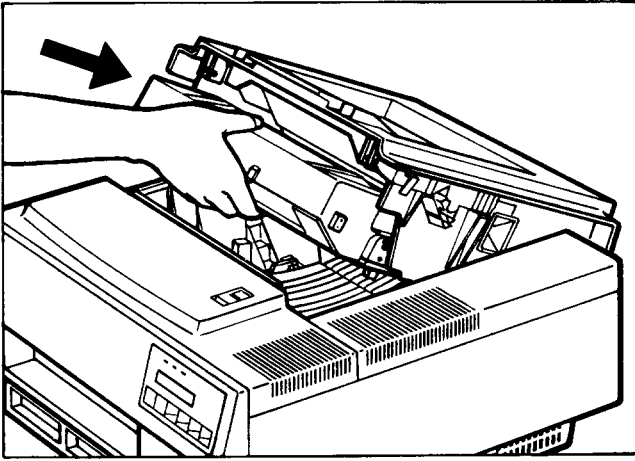


Fig. 2-20

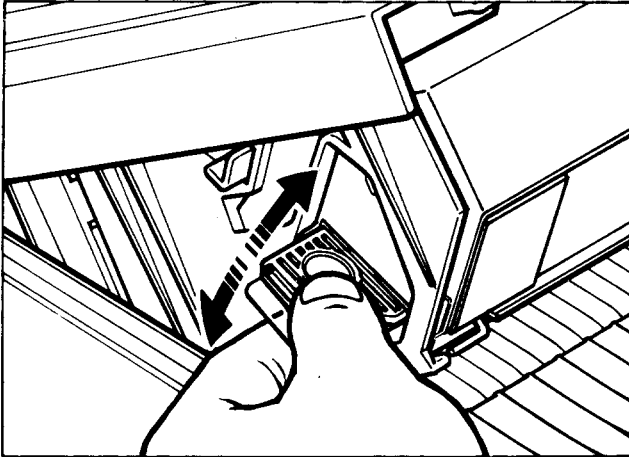


Fig. 2-21

---

As you look at the left front side of the toner cartridge, you will see a small plastic tab with a circle on it (Fig. 2-21). Pull down on this tab and wiggle it up and down a few times, until it snaps off. Attached to the tab is a long strip of plastic that must be completely removed. Hold the tab and pull it straight out, applying firm, even pressure. Keep pulling until the end of the long plastic strip emerges from the cartridge.

The final step is to close the printer top, pushing down gently until it latches.

## PAPER TYPES AND PAPER LOADING

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You may load paper into the printer automatically or manually. Either way you will need the cassette, which is in the Styrofoam tray that you set aside after first opening the printer packing case. The paper cassette comes in two parts, the paper tray and the cover.

The paper tray contains two pieces of packing material (Fig. 2-22). Remove and discard them.

### ***Automatic Paper Feed:***

For automatic paper feed, paper must be placed within the paper cassette.

Each size of paper requires a different paper cassette. The Star LaserPrinter 8 uses cassettes for five paper sizes:

LTR (letter)	8 1/2 x 11 in.
LGL (legal)	8 1/2 x 14 in.
A4 (standard metric)	210 x 297 mm
B5 (metric)	182 x 257 mm
Executive	7 1/4 x 10 1/2 in.

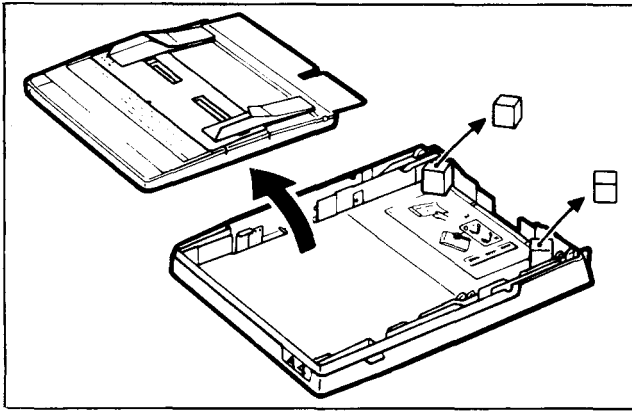


Fig. 2-22

The cassette packed with your printer is for 8 1/2 x 11 in. paper or for A4 paper. Consult your Star LaserPrinter 8 dealer about additional cassettes for different sized paper.

Your Star LaserPrinter 8 can print on automatically-fed paper whose weight is between 16 and 36 lb. It should be between 3.7 and 7.5 mils in thickness, with a moisture content of 4-6% by weight. Its smoothness should be 100-300 Sheffield, with a minimum pH of 5.5, and an ash content of not more than 10%. It must be able to withstand heat of 200 C for 0.1 second. It should be long grain paper, with cut edges showing no visible fray. There should be no curl toward the printing side. It should be packaged in reams in moisture-proof poly laminate. Avoid coated and extremely smooth papers, and those that are wrinkled or contain staples. Do not use carbonless paper or multipart forms. The type of paper used for photocopying and the newer paper designed specifically for laser printers are suitable, including Canon NP, Xerox 4024, Gilbert Neu-Tech and Neenah NP. However, Star Micronics does not recommend any particular brand, since it has no control over the content and quality. Selecting suitable paper is your responsibility.

Envelopes, mailing labels, and transparencies require manual feed. Among the suitable brands of labels are Avery Lasergraphic and HP LaserJet series II. Be sure to select labels that cover the entire backing sheet during printing. For transparencies, a satisfactory brand is that with the Hewlett Packard trade name. When printing envelopes and

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transparencies, use the rear output tray. Paper over 20 lb. in weight may be fed manually.

You may place up to 200 sheets of paper in the paper cassette. Do not overload the cassette, and do not fan the paper before inserting it in the cassette. Placing the cassette in front of you so that the paper size is facing you (Fig. 2-23), slide the paper in so that it comes to rest against the notch with three arrows on it (Fig. 2-24) and beneath the adjacent lip.

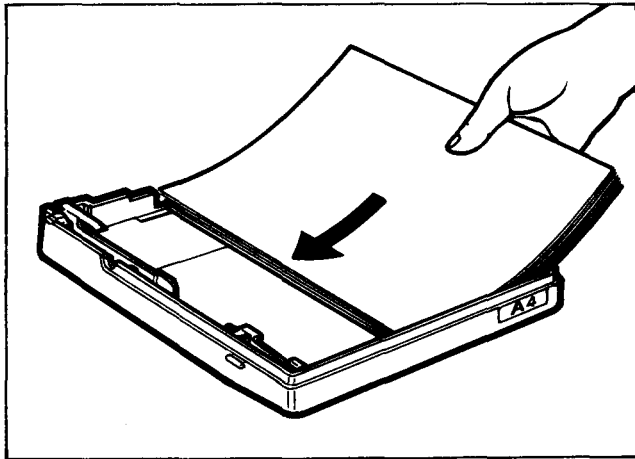


Fig. 2-23

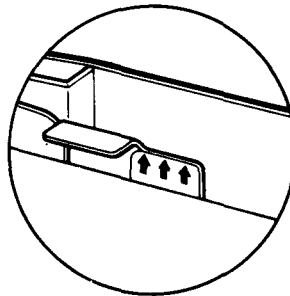


Fig. 2-24

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Now press down on each corner of the paper stack, to make sure it is seated flat on the bottom of the cassette (Fig. 2-25). Finally replace the cover, so that the beveled edge is at the front of the tray and the notched edge points to the rear (Fig. 2-26).

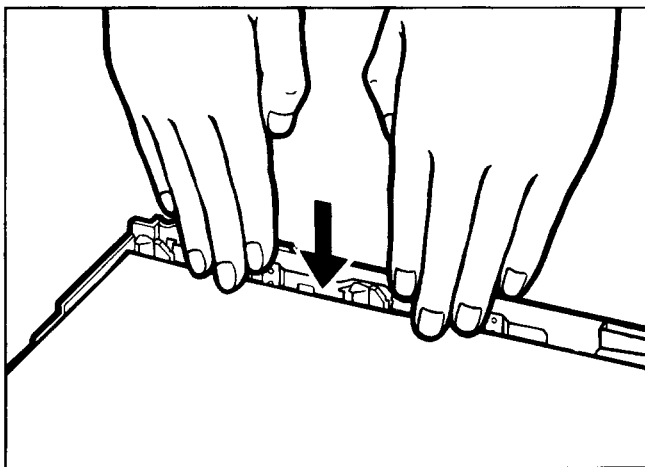


Fig. 2-25

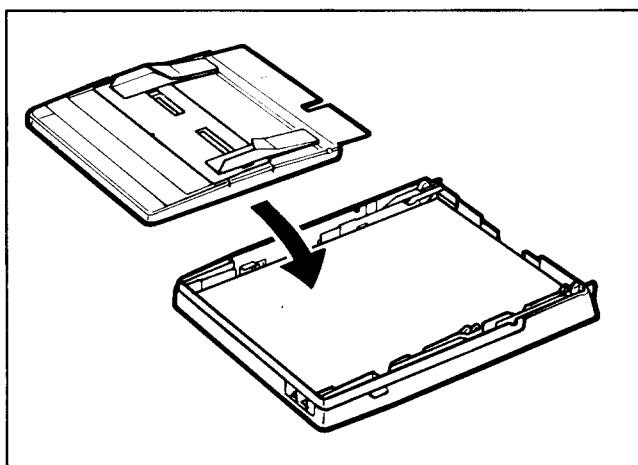


Fig. 2-26

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The cassette must be inserted in the large slot at the front of the printer (Fig. 2-27). Holding the cassette so that the front is near you, guide it into the slot and push back until it cannot go any further. A portion of the cassette will protrude from the front of the slot.

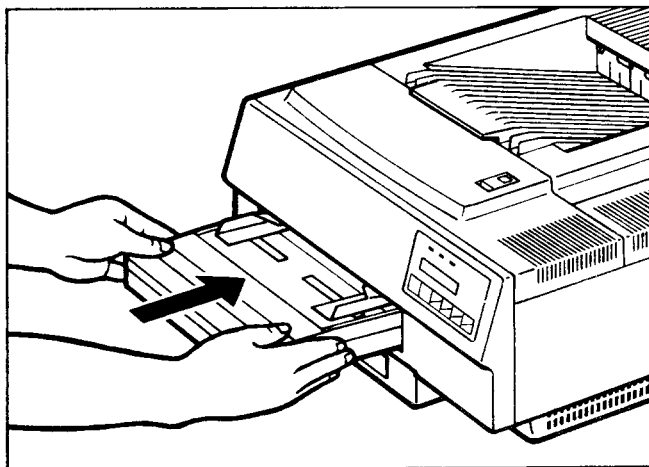


Fig. 2-27

### **Manual Paper Feed**

Hand feeding of paper into the printer is accomplished from an adjustable slot on the cassette cover (Figs. 2-28& 2-29).

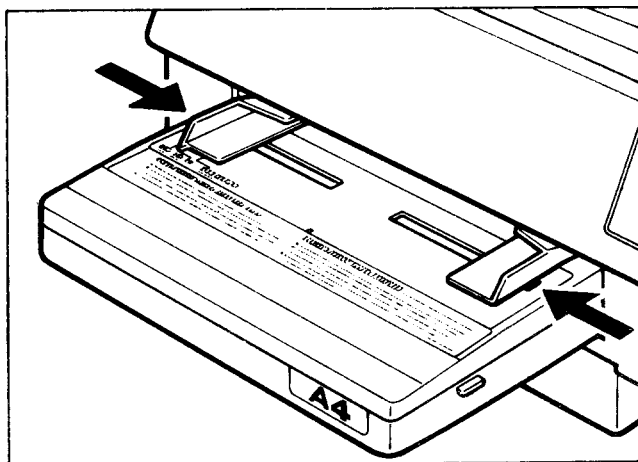


Fig. 2-28

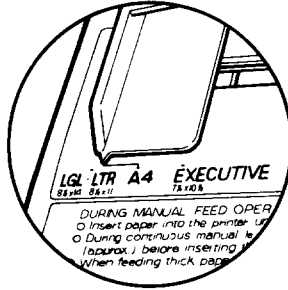


Fig. 2-29

The Star LaserPrinter 8 can print on paper or other media sized from 3.9 x 7.5 in. (100 x 190 mm) to 8 1/2 x 14 in. (216 x 356 mm).

For manual feeding, you must first adjust the slot for the width of the paper. Manual feeding also requires changing the printer's operating instructions by programming at the front panel. This will be explained in the chapter "Quick Start With the Star LaserPrinter8: A Tutorial."

Note that gauges for the five standard paper sizes are printed on the cover below the left-hand slot guide (Fig. 2-29). If you plan to hand feed paper of one of these sizes, adjust the guides accordingly. For envelopes, labels, transparencies, or paper other than 8 1/2 x 11 inch paper, place a sample sheet on the feed slot and adjust the guides until they hold the sheet snugly.



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## OPTIONAL RAM EXPANSION BOARD

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The optional expansion board provides 1 megabyte of additional RAM, and permits full page bit-map mode operation (Fig. 2-30). To tell whether such a board is already installed in your printer, watch the screen during powering up. If there is no board, the display will read

Memory Test 1 MB

If the board is already installed, the screen will say

Memory Test 2 MB

The board is easily installed in a slot located at the left rear of the printer frame (Fig. 2-31). The only tool required is a Phillips screwdriver.

Before beginning the installation, *turn off the printer and unplug it*. The plate covering the slot is secured by one screw (Fig. 2-32). Remove the screw and lift the cover plate out. Notice the lip on the left side of the cover plate. The interior of the slot contains a pin hole receptacle (Fig. 2-33).

The RAM expansion board has two plastic insertion tabs at one end, with a pin connector underneath. Hold the card by the two tabs so that the memory chips face upward (Fig. 2-34). Insert the opposite end into the slot, pressing firmly with your thumbs against the plastic tabs, until the pins are completely seated in the pin hole receptacle (Fig. 2-35). During insertion, do not wiggle the board back and forth, as this may damage the pins.

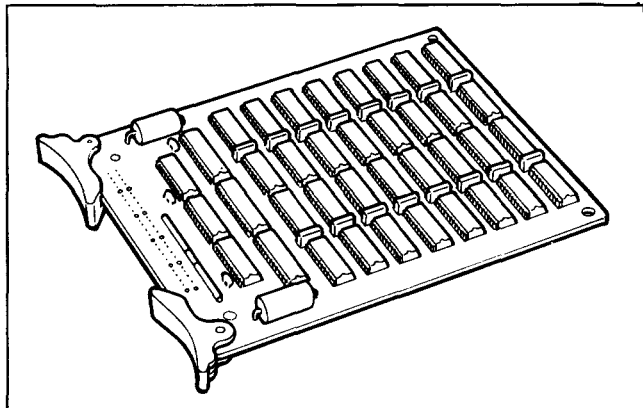


Fig. 2-30

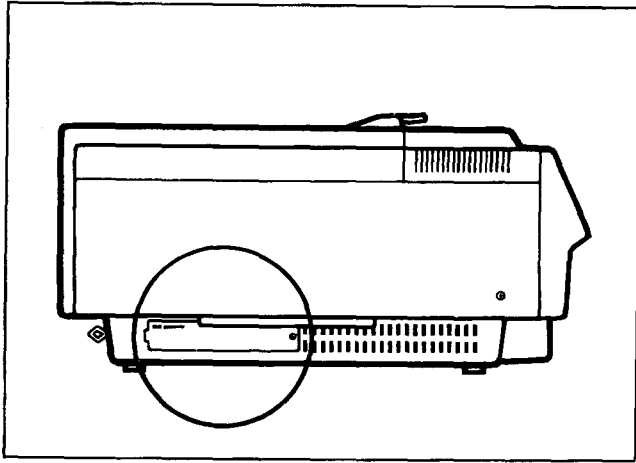


Fig. 2-31

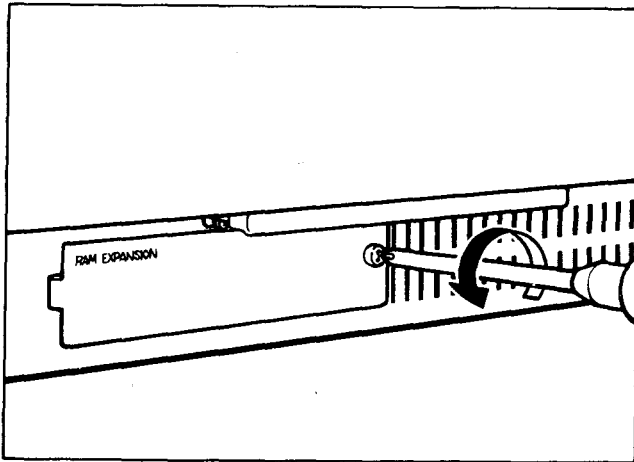


Fig. 2-32

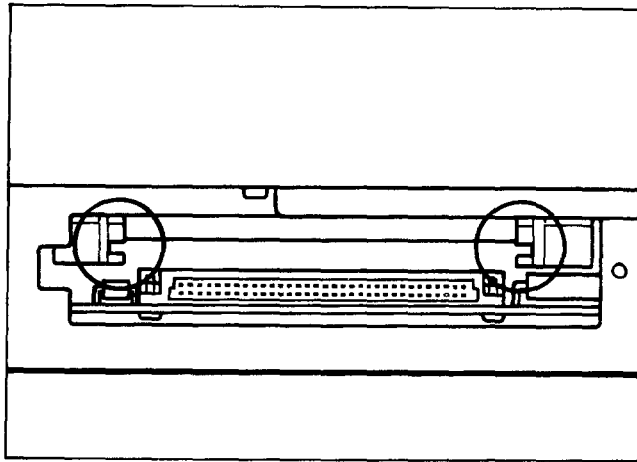


Fig. 2-33

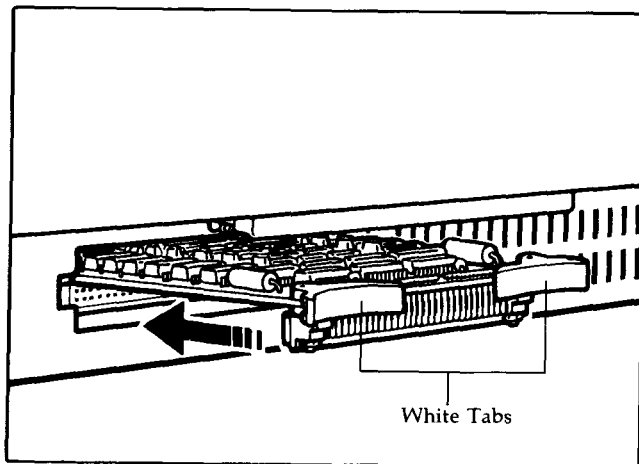


Fig. 2-34

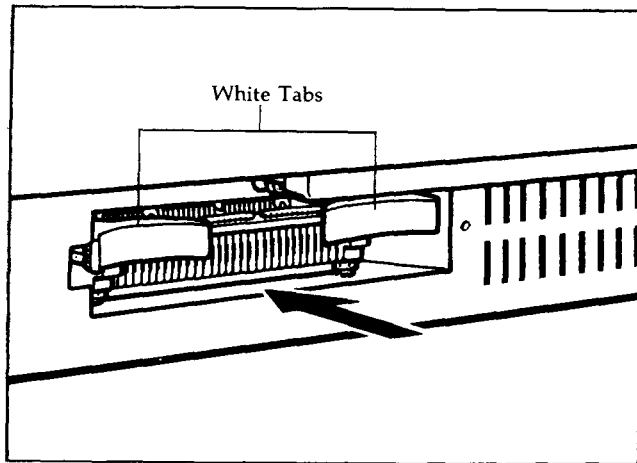


Fig. 2-35

When the board is completely seated, it will be entirely inside the slot. Finally, replace the cover plate. Fit the lip behind the printer frame at the left end of the slot. Then visually line up the hole in the cover with that in the frame. Hold the right edge of the cover plate away from the printer frame and reinsert the screw. Slide the cover back into position until the screw enters the hole in the frame. Tighten the screw with the screwdriver (Fig. 2-36).

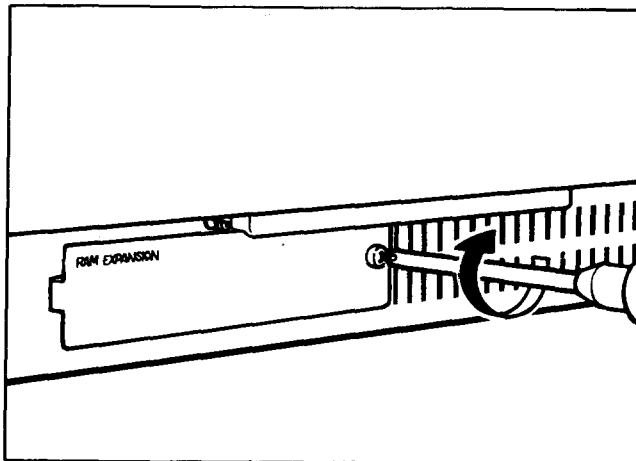


Fig. 2-36

If you want to remove the expansion board, unscrew the slot's cover plate. Grasp the plastic tabs with two hands and pull evenly on them until the board comes unplugged. Do not wiggle the board back and forth as you pull, to avoid damaging the pins (Fig. 2-37).

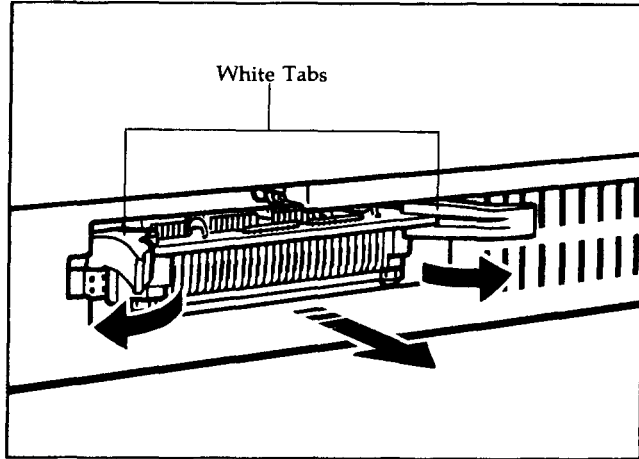


Fig. 2-37

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## POWER SUPPLY

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All connections for the Star LaserPrinter 8 are located on the rear panel (Fig. 2-38). These include a receptacle for the power cord, as well as parallel and serial connectors.

The Star Laser's three-pin power cord comes packed on the top tray, along with the paper cassette. Attach this cord to the receptacle at the left side of the rear panel (Fig. 2-39), aligning the cord pins with the holes before inserting. **Make sure that the printer is turned off.** Then plug the now-attached cord into a three-hole wall socket, or into a surge-protected power strip.

The printer's on-off power switch is located just above the power cord receptacle. The power switch is marked with two international symbols: **I** for on and **O** for off (Fig. 2-40). To turn the printer on, press the end of the switch marked with **I**. To turn it off, press **O**.

**Be sure the switch is at the off position before plugging in the power cord.**

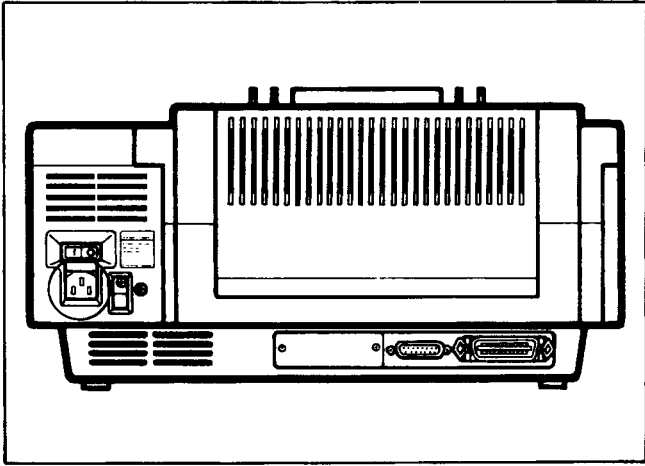


Fig. 2-38

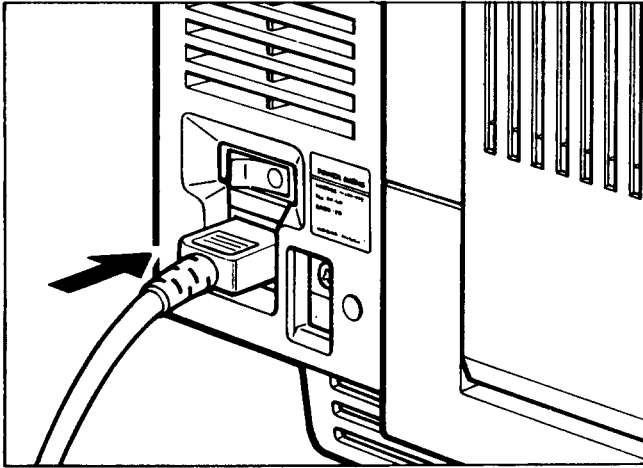


Fig. 2-39

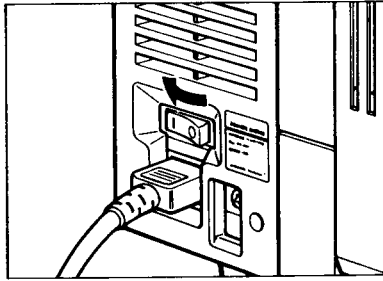


Fig. 2-40

## CONNECTING TO A COMPUTER

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The Star LaserPrinter 8 comes equipped with both a parallel and a serial connector (Fig. 2-41) to receive text and information from a computer. Selection of either a parallel or a serial connection is accomplished from the control panel (see the chapter on Initial Operation).

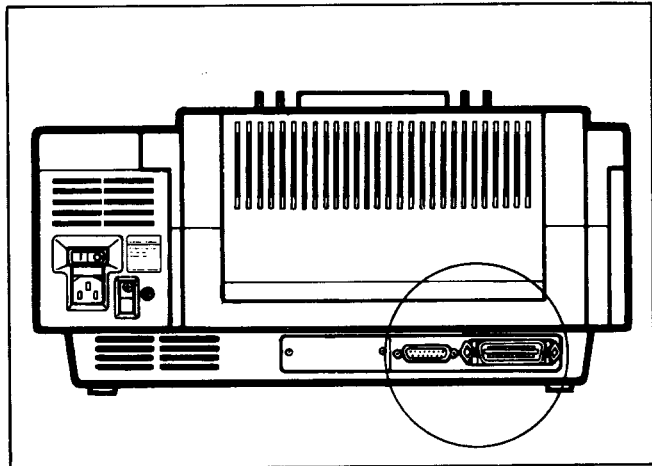


Fig. 2-41

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Both a parallel and a serial cable can be attached to the printer at the same time, but only one can be active. Before attaching any cable, be sure the power supply is off on both the printer and any computer to which the cable is attached.

**Parallel:**

When you face the front of the printer, the parallel connector is on the rear left. This is a standard 36 pin, Centronics connection. To attach a cable to the parallel connector, match the wedge shape of the cable end to the shape of the connector, and insert the cable firmly. Secure it with the lock clips (Fig. 2-42).

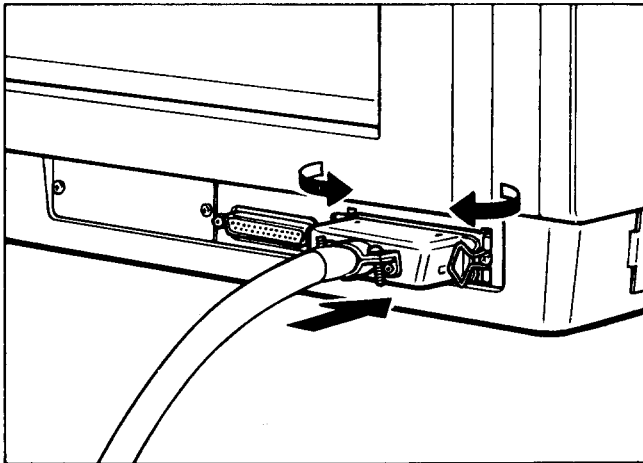


Fig. 2-42

The functions of the parallel interface pins are given in the Appendix. Your Star LaserPrinter 8 is pre-set at the factory to use a parallel connector to the computer. You may change the settings from the front panel as explained in the chapter "Quick Start with the Star LaserPrinter 8: A Tutorial."

**Serial — RS-232 :**

The serial connector, to the left of the parallel connector, can be used for a standard RS-232 configuration. It is a standard 25 pin DB



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connector. To attach a serial cable to the printer, match the wedge shape of the cable end to that of the printer's connector and insert firmly. Then use a screwdriver to secure it with the two screws on the cable end.

Many applications programs provide a special menu that makes it easy for you to use a serial printer with them. If you wish to make the connection between your IBM compatible computer and the Star Laser through DOS, you must enter TWO commands at the prompt.

In the first command, for example, if you want to set the options at 2400 baud, no parity, 8 data bits, 2 stop bits, and pause for a full buffer, enter

```
MODE COM1:24,N,8,2,P <ENTER>
```

Then

```
MODE LPT1: = COM1: <ENTER>
```

To include these commands in an AUTOEXEC.BAT file, type

```
COPY CON: AUTOEXEC.BAT <ENTER>
```

```
MODE COM1:24,N,8,2,P <ENTER>
```

```
MODE LPT1: = COM1: <ENTER>
```

Then press <FUNCTION KEY 6> and <ENTER>.

For more information on this, consult the manual supplied with your computer.

The functions of the serial interface pins are given in the Appendix.

Your Star LaserPrinter 8 is set at the factory as a parallel printer, unless you instruct it differently. This is done from the front panel, and will be explained in the chapter "Quick Start with the Star LaserPrinter 8: A Tutorial."



## *Initial Operation*

### FRONT PANEL

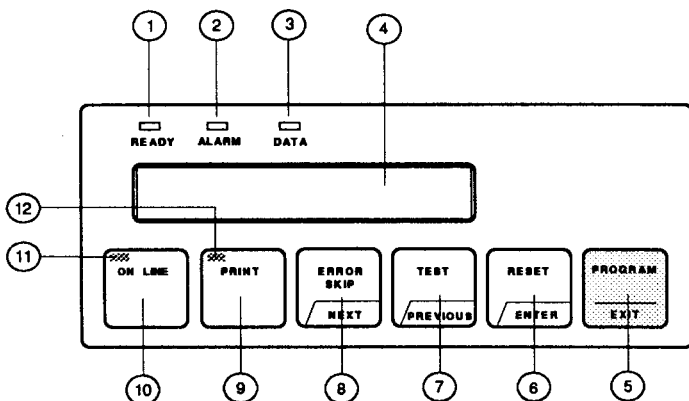
The front panel of the Star LaserPrinter 8 is a combination control board and interactive message center. The panel (Fig. 3-1) consists of:

- a 1 line, 16 character LCD display screen
- 5 LED lights, 1 green and 4 amber
- 6 touch sensitive buttons

The six touch sensitive buttons permit you to send instructions to the printer. In turn, the printer uses the display screen and the light indicators to convey information to you.

The screen display is the primary way the printer communicates with the operator. It informs the operator about the machine's state, the printer's status, and alarm conditions that require some action by the operator. The LEDs provide an "at a glance" summary of the printer's status.

This information may be about the printer's operating status — the screen may say TONER LOW, or an amber light may indicate "data to be printed". The screen also informs you of the next option for setting your printing instructions and confirms that you have made a selection, such as selecting the RS-232 interface.



- |                    |                      |
|--------------------|----------------------|
| ① READY light      | ⑦ TEST/PREVIOUS key  |
| ② ALARM light      | ⑧ ERRORSKIP/NEXT key |
| ③ DATA light       | ⑨ PRINT key          |
| ④ Display Screen   | ⑩ ON LINE key        |
| ⑤ PROGRAM/EXIT key | ⑪ ON LINE light      |
| ⑥ RESET/ENTER key  | ⑫ PRINT light        |

Fig. 3-1

The printer operates in two main modes when the printer is off line:

1. Front Panel Mode (grey buttons)—performs functions labeled on the button

2. Program Mode (yellow buttons)—press the [PROGRAM] button to enter menu selections.

The meaning and use of the panel buttons depends on the mode in which the printer is operating.

### Powering Up:

Your first interaction with the panel will come when you turn on the power. Now is the time to begin using the printer and operating its front panel. First turn on the power, pressing the I position on the switch, located at the rear of the printer (Fig. 3-2). (The O position turns the power *off*.)

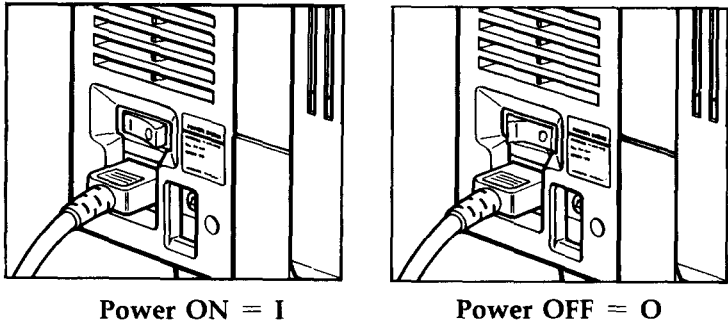


Fig. 3-2

As soon as you press the I end of the power switch on the rear of the printer, five lights on the panel will come on — 1 green and 4 amber (Fig. 3-3).

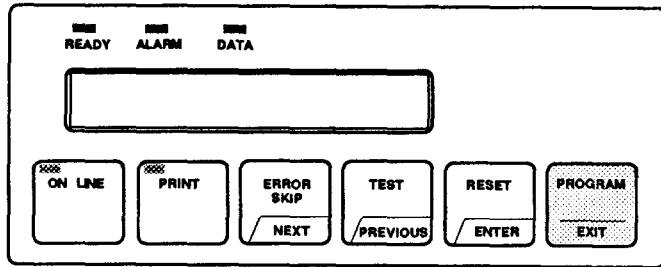


Fig. 3-3

The printer will begin its internal diagnostics and warming up, displaying a series of messages on the screen (Fig. 3-4).

The first message is

LaserPrinter 8

followed immediately by a flashing message

#### Memory Test 1 MB

meaning that the Star LaserPrinter 8 is putting itself through a test series of its engine and all its circuits and functions. When an optional RAM board is installed, the message will display

#### Memory Test 2 MB

When the tests have been completed satisfactorily, the screen will display the phrase

#### NV RAM LOAD DONE

This means that the printer is activating various formatting values that it will use in printing information. (You can reprogram these from the front panel, if you desire.) When this is completed the screen will display

#### PRINTER WARMUP

and the two lights at the left side of the panel — the READY light, which flashes, and the ON LINE light, which will show steadily. The others will be *off* (Fig. 3-4).

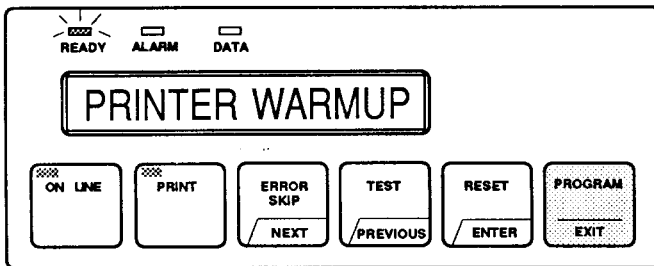


Fig. 3-4

Finally the screen will say

#### PRINTER READY

The READY Light and the ON LINE light will show steadily; the others will remain off. This means you can instruct your computer to send it information that it will print.

If at any point during the test period the printer detects a problem, one of a variety of messages will flash on the screen. The chapter on

“Troubleshooting” explains the meaning of these messages and suggests ways for you to respond to them.

Then the screen will display

PRINTER READY

and the READY light will go *on*. The ON LINE light will also be *on* (Fig. 3-5).

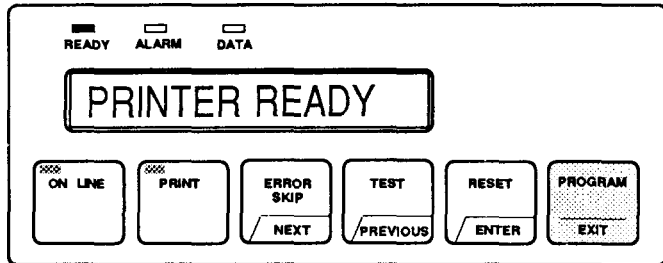


Fig. 3-5

### **The Buttons:**

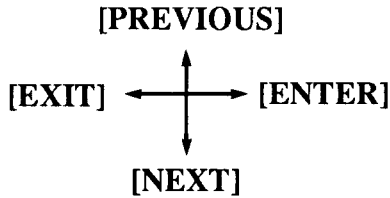
This section explains the various meanings and uses of the buttons, including their light indicators, where present. Keep in mind that the buttons' functions depend on the mode the printer is in: the Front Panel Mode, using the grey buttons to perform the labelled functions, and the Program Mode, using the yellow buttons to enter menu selections after pressing the [PROGRAM] button.

For the Program Mode, you will use the buttons to move in four directions through the hierarchy of selections. You [ENTER] or [EXIT] a Level to select the [PREVIOUS] or [NEXT] Item within a Group. For example, Baud Rate is the first Item in Level 3 within the Interface Group:

Level Number:	1	2	3	4
		(Item 1)		
		(Item 2)		
Interface	Parallel			
	Serial	Baud Rate		
		Parity		

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The following diagram should help you as you program:



[ON LINE]



Fig. 3-6

With this button you control whether the printer is On Line or Off Line. On Line means that the printer is able to receive information from the computer and to print it. All other buttons are inactive when the printer is On Line. Off Line means that the printer is unable to receive information and print, but can be programmed; in other words by entering the Program Mode.

When the printer is On Line, the amber light is *on*.

When the printer is Off Line, the amber light is *off*.

[PRINT]



Fig. 3-7



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When the printer is Off Line, the operator uses this button to print whatever is in the printer's memory. When printing is in operation, the amber light is *on*.

This button has no function when the printer is in the Program mode.

**[ERROR SKIP/NEXT]**



Fig. 3-8

When the printer is On Line, this key is called **[ERROR SKIP]**. Any time the printer stops because of an internal error condition, the operator has two choices. You may press this key to override the error or you may correct the error. If the error is minor, printing may continue. If the error is major, pressing the key will result in confirmation by the printer that the error is continuing. When this happens, consult the display screen for further information.

When the printer is in the Program mode, this key is called **[NEXT]**. During programming, pressing this key displays the various items under a category for the operator to select next in the sequence.

**[TEST/PREVIOUS]**



Fig. 3-9

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This key has two functions when the printer is Off Line.

- If the operator is holding the button as [TEST], it acts as a form feed command, telling the printer to print whatever information is in memory. It then tells the printer to compose a sample print. This is a summary of the printer's present settings. The [TEST] button will:

1. print whatever is in memory

2. display

HOLD FOR TEST

3. display

STATUS SHEET

If you release the button, the sheet will begin printing.

4. display

TEST PRINT MODE

Therefore, there are two tests under a category for the operator to select from.

- In the Program Mode, pressing the button as [PREVIOUS] presents the available items in reverse sequence.

[RESET/ENTER]

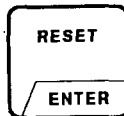


Fig. 3-10

When the printer is Off Line, holding [RESET] tells the printer to discard any information that has not yet been printed and to restart the printer by loading Initial RAM settings into Current RAM (the memory the printer is always working from) The action will be confirmed by the message "REINITIALIZE" on the display screen. Before this takes effect, any printing already in process will be completed.

When the printer is in the Program mode, [ENTER] has two functions. First, it displays items in the next higher level. Second, if there is no higher level, it selects the value with an @.

[PROGRAM/EXIT]

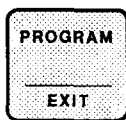


Fig. 3-11

To start using the Program mode, you must first take the printer Off Line, that is, press the [ON LINE] button so that the amber light is *off*. Then press [PROGRAM]. The printer will then display on the screen PROGRAM MODE, the first of the available programming choices for the operator to make.

Within a programming sequence, pressing [EXIT] takes the programming Menu to the next higher level. If the sequence is already at the highest level, pressing [EXIT] causes the control panel to leave the Program mode and display PRINTER READY.

#### **Light Indicators:**

When the printer is first turned on, all five of the LED indicators will go *on*. Then ALARM, DATA, and PRINT will then go *off*, to be activated only to indicate specific functions or the printer's status. For

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instance, if the paper cassette is empty or removed, ALARM sounds, the ALARM light stays lit, and READY blinks.

- **The green READY light** - This light will blink when the printer is warming up. It will be *on* steadily when the printer is On Line and ready to receive information from the computer. If the printer is operational, the READY light will also be *on* continuously when the printer is Off Line.
- **The amber ON LINE light** - This light will be *on* when the printer is On Line. When the operator takes the printer Off Line, or when an error condition occurs, the printer automatically goes Off Line and the light goes *off*.
- **The amber PRINT light** - This light will be *on* when information is being printed. Otherwise it will be *off*.
- **The amber ALARM light** - This light will not be lit unless there is an error that requires action by the operator, such as the paper cassette needing to be refilled. When the light goes *on*, the printer's alarm bell will sound for 5 seconds.
- **The amber DATA light** - This light will be *on* whenever the printer's memory contains information to be printed. This is to notify the operator that resetting the printer or turning it *off* will result in data loss.

If the printer is in the process of composing a page or printing, this light will be *on continuously*.

If the printer is waiting for more information, the light will *blink*.

The light will be *off* when the printer prints all the information it has received.

### **Hex Dump:**

The Star LaserPrinter 8 also operates in hexadecimal mode. This means that it will print information sent to it in its equivalent hexadecimal notation (to base 16 numbers). This mode is useful in correcting communication incompatibilities between some computers and the Star LaserPrinter 8, that can result in incorrect text or formatting. For information on performing a Hex Dump, see the Chapter "Troubleshooting."

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## SELF TEST

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The Star LaserPrinter 8's test print provides a complete summary of what it is currently capable of doing for you. It shows the quality of the printing of text. It summarizes the printer's configuration, including amount of memory and which fonts are installed or available. It explains how the printed page will look at the current settings. This includes paper size, page orientation, and whether the text is centered on the page or offset for left and right pages. It tells whether the parallel or serial interface is active, and what the settings are for serial communication, should it become active.

There are three stages to the self test, shown in Fig.3-12,13, and 14.

1. Hold [TEST] until the screen displays

HOLD FOR TEST

then

STATUS SHEET

Releasing the button will print the 4 page status sheet in Fig.3-12.

2. Hold [TEST] until the screen displays

HOLD FOR TEST

then

STATUS SHEET

then

TEST PRINT MODE

When you release the button, the printer will produce the multipage "barber pole" shown in Fig.3-13.

3. Pressing the test button on the right side of the printer with a pointed object causes the printer to print the sheet of vertical lines shown in Fig.3-14.



Fonts in Cartridge 1:  
No font found

Fonts in Cartridge 2:  
No font found

Downloaded Fonts:  
No font found

Error History  
No Errors

Fig.3-12(B)

LASERPRINTER -8- Status and Setup Report

PAGE 3

	Selected Setup Options			
	Current set	Init set	Power-up set	Factory set
<b>COMMAND GROUP:</b>				
Emulation	HP LaserJet+	HP LaserJet+	HP LaserJet+	HP LaserJet+
Number of Copies	1	1	1	1
Macro Overlay	Disable	Disable	Disable	Disable
FF on Rotate	Yes	Yes	Yes	Yes
Hex Dump	Hex Dump Off	Hex Dump Off	Hex Dump Off	Hex Dump Off
LCD Intensity	3	3	3	3
Bell	Enable	Enable	Enable	Enable
Warning Alarm	Enable	Enable	Enable	Enable
<b>LAYOUT GROUP:</b>				
Orientation	Portrait	Portrait	Portrait	Portrait
Margins	DEFAULT MARGINS	DEFAULT MARGINS	DEFAULT MARGINS	DEFAULT MARGINS
Left Margin	0	0	0	0
Right Margin	1	1	1	0
Top Margin	3	3	3	0
Text Length	64	64	64	63
VMI	8/48	8/48	8/48	8/48
HMI	auto	auto	auto	auto
Offset:				
Vertical	0	0	0	0
Horizontal	0	0	0	0
<b>PAPER FEED GROUP:</b>				
Feeder	Cassette	Cassette	Cassette	Cassette
Paper Size	Letter	Letter	Letter	Letter
Auto Parameters	Emul. DfIt On	Emul. DfIt On	Emul. DfIt On	Emul. DfIt On
Auto CR	Auto CR Off	Auto CR Off	Auto CR Off	Auto CR Off
Auto LF	Auto LF Off	Auto LF Off	Auto LF Off	Auto LF Off
Auto FF	Auto FF Off	Auto FF Off	Auto FF Off	Auto FF Off
Auto Wrap	Auto Wrap Off	Auto Wrap Off	Auto Wrap Off	Auto Wrap Off
<b>INTERFACE GROUP:</b>				
Interface Type	PARALLEL IBM	PARALLEL IBM	PARALLEL IBM	PARALLEL IBM
Serial Parameters:				
Baud Rate	9600 baud	9600 baud	9600 baud	9600 baud
Data Bits	8	8	8	8
Parity	None	None	None	None
Stop Bits	1	1	1	1
Protocol	XON/XOFF	XON/XOFF	XON/XOFF	XON/XOFF

Fig.3-12(C)





LASERPRINTER - 8 - Status and Setup Report

PAGE 4

CHARACTER GROUP:	Selected Setup Options			
	Current set	Init set	Power-up set	Factory set
<b>HP Laser Jet</b>				
<b>PRIMARY FONT</b>	Roman-8	Roman-8	Roman-8	Roman-8
Symbol Set	Stndrd Default	Stndrd Default	Stndrd Default	Stndrd Default
Font Attributes	Monospaced	Monospaced	Monospaced	Monospaced
Spacing	10 CPI	10 CPI	10 CPI	10 CPI
Pitch	12 Point	12 Point	12 Point	12 Point
Point Size	Upright	Upright	Upright	Upright
Style	Medium 0	Medium 0	Medium 0	Medium 0
Stroke Weight	Courier	Courier	Courier	Courier
Typeface				
<b>SECONDARY FONT</b>				
Symbol Set	Roman-8	Roman-8	Roman-8	Roman-8
Font Attributes	Stndrd Default	Stndrd Default	Stndrd Default	Stndrd Default
Spacing	Monospaced	Monospaced	Monospaced	Monospaced
Pitch	10 CPI	10 CPI	10 CPI	10 CPI
Point Size	12 Point	12 Point	12 Point	12 Point
Style	Upright	Upright	Upright	Upright
Stroke Weight	Medium 0	Medium 0	Medium 0	Medium 0
Typeface	Courier	Courier	Courier	Courier
<b>IBM Proprinter</b>				
<b>FONT</b>	IBM GP Set 1	IBM GP Set 1	IBM GP Set 1	IBM GP Set 1
Character Set	Stndrd Default	Stndrd Default	Stndrd Default	Stndrd Default
Font Attributes	Monospaced	Monospaced	Monospaced	Monospaced
Spacing	10 CPI	10 CPI	10 CPI	10 CPI
Pitch	12 Point	12 Point	12 Point	12 Point
Point Size	Upright	Upright	Upright	Upright
Style	Medium 0	Medium 0	Medium 0	Medium 0
Stroke Weight	Courier	Courier	Courier	Courier
Typeface				
<b>Epson EX-800</b>				
<b>FONT</b>	Epson Std USA	Epson Std USA	Epson Std USA	Epson Std USA
Character Set	Stndrd Default	Stndrd Default	Stndrd Default	Stndrd Default
Font Attributes	Monospaced	Monospaced	Monospaced	Monospaced
Spacing	10 CPI	10 CPI	10 CPI	10 CPI
Pitch	12 Point	12 Point	12 Point	12 Point
Point Size	Upright	Upright	Upright	Upright
Style	Medium 0	Medium 0	Medium 0	Medium 0
Stroke Weight	Courier	Courier	Courier	Courier
Typeface				
<b>SETUP PARAMETERS</b>				
Prop Space Enable	PropDisabled	PropDisabled	PropDisabled	PropDisabled
Italic/Graphics	Italic Enable	Italic Enable	Italic Enable	Italic Enable
Boldface	Bold Off	Bold Off	Bold Off	Bold Off
<b>Diablo 630</b>				
<b>FONT</b>	Roman-8	Roman-8	Roman-8	Roman-8
Character Set	Stndrd Default	Stndrd Default	Stndrd Default	Stndrd Default
Font Attributes	Monospaced	Monospaced	Monospaced	Monospaced
Spacing	10 CPI	10 CPI	10 CPI	10 CPI
Pitch	12 Point	12 Point	12 Point	12 Point
Point Size	Upright	Upright	Upright	Upright
Style	Medium 0	Medium 0	Medium 0	Medium 0
Stroke Weight	Courier	Courier	Courier	Courier
Typeface				
<b>SETUP PARAMETERS</b>				
Prop Space	PropDisabled	PropDisabled	PropDisabled	PropDisabled
Boldface	Bold Off	Bold Off	Bold Off	Bold Off

END OF STATUS AND SETUP REPORT

Fig.3-12(D)



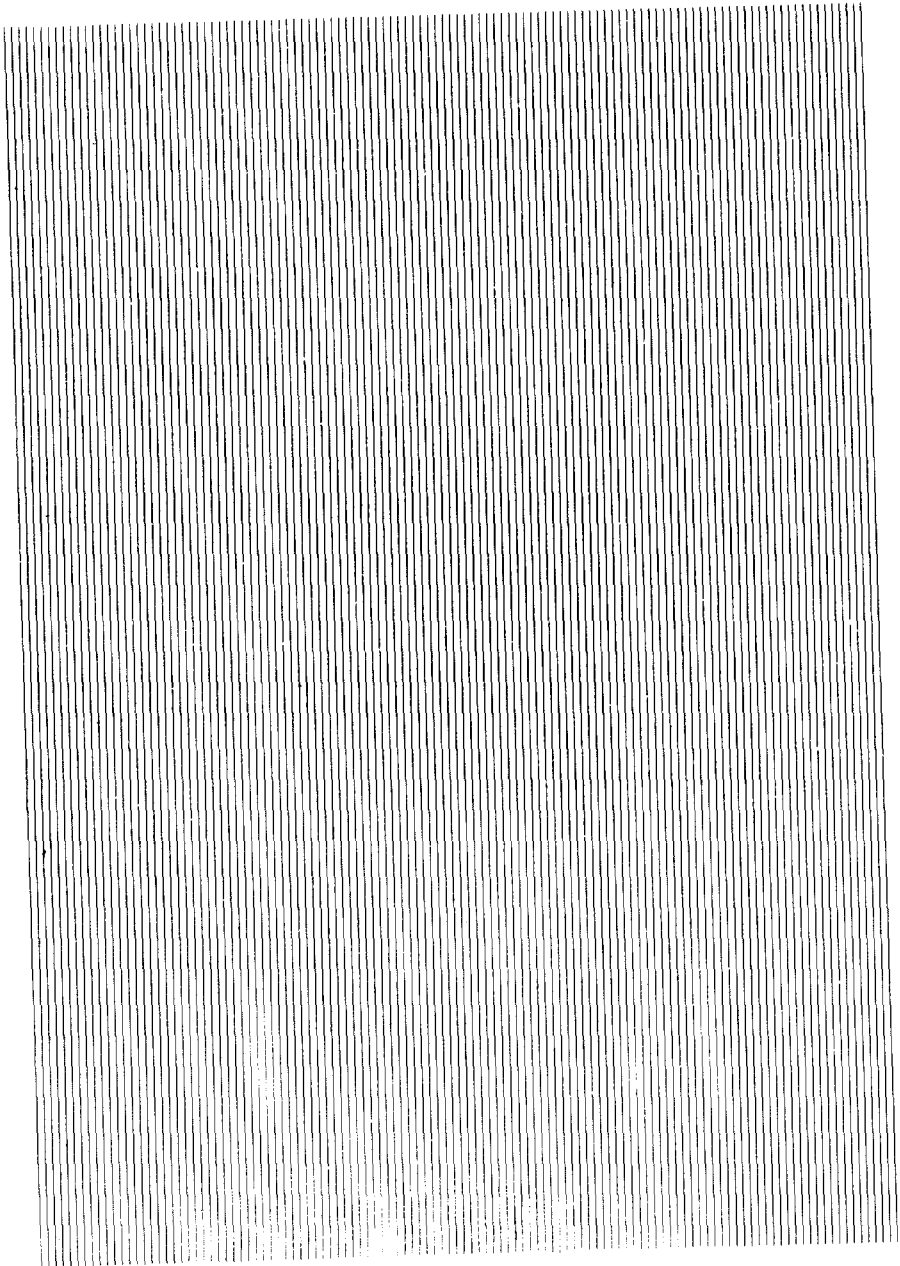


Fig.3-14

---

### **Printing the Self Test Status Sheets:**

Now you will use the front panel to print a *status sheet*, which is a sample printout of the Star LaserPrinter 8's available type fonts and information about its settings.

Press the [ON LINE] button (Fig. 3-15) so that the light goes *off*.



Fig. 3-15



Fig. 3-16

Now press and hold the button labeled [TEST/PREVIOUS] (Fig. 3-16).

The display screen will read

STATUS SHEET

Release the button. The DATA light will go *on*, and in a few seconds the sample prints will start being ejected from the printer. The DATA light will then go *out*.

### **Status Sheet Description:**

You can tell several things about the printer's settings by just looking at the print, without reading any of it. First (and obviously) the printer is operating, which is often especially comforting news to a first-time user. Second, the page is printed in the *portrait* orientation. That is, the printing runs on the page the way portraits are usually painted, higher than they are wide. When the printed area is wider than it is high, the orientation is referred to as *landscape*. If the printer is set for landscape orientation, the sample is printed that way.

---

**First Two Pages:** The first part of the four status sheet pages is divided into three sections. The top section summarizes your printer's basic configuration, identifying the version of its operating system and specifying the amount of total RAM (random access memory) and the amount of RAM available for your use. If your printer has an optional RAM expansion board, its memory size will also be listed here.

The middle portion of the page summarizes the type fonts available and gives samples of each. First it lists the fonts that come with the printer, giving the name of the typeface, such as

Courier

its width (pitch)

10.0

height (point)

12.0

and darkness as printed (weight)

Medium

After identifying the font, for instance

8U

it gives a sample of its upper and lower case letters, symbols, and numbers

ABCDEFGHIIabcdefghi^%\$~12

If you have installed optional font cartridges, the same information will be given for each one.

The bottom part of the page lists any errors that were found during the powering up and test procedure.

---

**Second Page:** Pages 3 and 4 of the status report provide information on the options for formatting and printer operation that are currently active, in the order you are most likely to need the information. You can change any of these by programming from the front panel.

Four sets of selected (or default) options are listed:

- **Current** — the settings the printer will respond to when it receives a command.
- **Initial** — the settings that were selected when the printer was first turned on.
- **Power-up** — the settings that are stored in NV RAM (see Glossary)
- **Factory set** — the settings originally selected at the factory as default values (ROM)

The COMMAND GROUP includes these functions:

**Emulation** — the printer whose functions the Star LaserPrinter 8 is set to mimic

**Number of Copies** — the number of copies of each page to be printed

**Macro Overlay** — whether special instructions are preprogrammed.

**FF on Rotate** — whether the printer will issue a form feed command if the orientation (portrait or landscape) of the printing is switched within a page

**Hex Dump** — whether the text will be printed in ASCII symbols or in hexadecimal

**LCD Intensity** — how bright the panel lights shine

**Bell** — whether the printer's bell will sound if you need to take action during printing, such as a pause to change fonts

**Warning Alarm** — whether there will be an audible warning in case of a printer malfunction

---

The functions of the LAYOUT GROUP are:

**Orientation** — portrait or landscape

**Margin settings** — left, right, and top in relation to the available page area, and page (text) length in number of lines

**VMI and HMI** — Vertical Motion Index, Horizontal Motion Index. VMI refers to the smallest increment that can be made in the vertical or y axis. Line spacing is a multiple of VMI. HMI refers to the smallest increment that can be made in the horizontal or x axis. Dot spacing is a multiple of HMI.

**Vertical and Horizontal Offset** — text/graphic position is oriented away from the center of the printed page, for special layouts, such as left and right pages of a book or magazine

The PAPER FEED GROUP includes:

**Feeder** — whether the paper will be fed from the cassette or manually

**Paper size** — the dimensions of the paper cassette now in use

**Automatic parameters** — whether there is an automatic carriage return (CR) at a paragraph break, an automatic line feed (LF) at the end of each line, a form feed (FF) after each page, and an auto wrap feature

The INTERFACE GROUP functions include:

**Interface type** — parallel or serial

What the communication settings would be if serial communication were activated, including baud rate (rate of data transmission), data bits (number of information bits per byte), parity (error checking mode), and communication protocol.

---

**Page Four:** The fourth page of the status report presents information about the fonts available for each of the four printer emulations, HP Laser Jet Plus (primary and secondary fonts), IBM Proprinter, Epson EX-800, and Diablo 630. HP emulation displays a *symbol set*. Diablo, Epson, and IBM Proprinter emulations display *character sets*. These include the selection of letters, numbers, and symbols, such as

Roman-8

It specifies the typeface, such as

Courier

and tells whether the letters in the font are proportional (vary in width from one letter to another, such as a narrow *i* or a wide *w*) or whether all letters are the same width. It also tells how many characters to the horizontal inch (pitch), font height (point), whether it will print in italics or upright (sometimes called roman), how dark the printing is (stroke weight — light, medium, or bold).

## PROGRAMMING FROM THE FRONT PANEL

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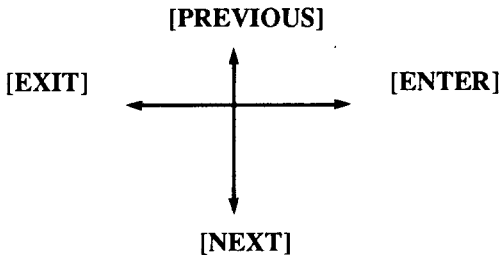
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As the status report indicates, the various functions that you can select from the front panel are arranged in an outline form, or a hierarchy. This means there are main groups and several levels within each one.

Remember: You [ENTER] or [EXIT] a Level to select the [PREVIOUS] or [NEXT] Item within a Group.





---

To get into the Program Mode, you must perform two actions:

- Press [ON LINE] until the light goes *off*, then
- Press [PROGRAM]

The screen will respond by displaying the phrase

PROGRAM MODE

The order of the main categories within Program Mode is:

CHARACTER

LAYOUT

PAPER FEED

COMMAND

INTERFACE

SET INIT. VALUES

SET POWER-UP

LOAD FACTORY SET

You move from one item to the next in this level by pressing [NEXT]. Pressing [ENTER] displays the next item of the next higher level. If no such item exists, [ENTER] displays the value that is to be selected with @ added. [ON LINE] ends the program mode. Pressing [PREVIOUS] returns the display to the last item at the same level you are currently in. Pressing [EXIT] displays the last item at the next lower level.

Here's how this works in real life, using a portion of the COMMAND group hierarchy. Take the printer off line and press [PROGRAM] so the display reads

PROGRAM MODE

Press [NEXT] until the display reads

COMMAND

Then press [ENTER] until the display reads

EMULATION

Pressing [ENTER] will display one of the following:

---

HP LaserJet +  
IBM Proprinter  
Epson EX-800  
Diablo 630  
Cartridge 1  
Cartridge 2

Pressing [NEXT] continuously will list all the available emulations.

Suppose you want to select Epson EX-800 as the emulation.

First get into the Program Mode,

- Press [ON LINE], so the light is *off*
- Press [PROGRAM], after which the screen displays  
PROGRAM MODE
- Now press [NEXT]. The screen responds with  
CHARACTER
- Pressing [NEXT] three times displays, in order,  
LAYOUT  
PAPER FEED  
COMMAND
- Now press [ENTER]. The screen responds with  
EMULATION
- Pressing [ENTER] here displays  
HP LaserJet +  
as the default emulation. You want to stay in this level of the  
hierarchy, so this time
- Press [NEXT], giving you  
IBM Proprinter
- Pressing [NEXT] again displays  
Epson EX-800

---

which is the emulation you want. To select it,

- Press [ENTER], which displays  
Epson EX-800 @
- To leave this level, press [EXIT], which displays  
EMULATION

This time when you press [ENTER], the screen will display as the default

Epson EX-800 @

To summarize:

PROGRAM MODE [NEXT]  
CHARACTER [NEXT]  
LAYOUT [NEXT]  
PAPER FEED [NEXT]  
COMMAND [ENTER]  
EMULATION [ENTER]  
HP LaserJet + [NEXT]  
IBM Proprinter [NEXT]  
Epson EX-800 [ENTER, EXIT]

The entire hierarchy is shown in the Chapter 7, “Emulating Other Printers.” Chapter 4, “Quick Start with the Star LaserPrinter 8 — A Tutorial” presents programming sequences for selecting serial and parallel interfaces, saving settings, returning to factory settings, activating manual paper feed, printing in landscape orientation, changing the character set, and changing fonts during printing. Chapter 6, “Printing,” shows the default settings for each of the four emulations.

For more on programming, please see the Applications Manual.



# CHAPTER

# 4

## *Quick Start with the Star LaserPrinter 8: A Tutorial*

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This chapter is designed for dual use, since most computer users fall into one of two categories. Some people like to read the documentation through from beginning to end. Others like to plunge right into the hands-on mode, using documentation as a quick reference, at most.

This chapter is for both groups. It can be read in sequence with the rest of the book. Or it can be used as a stand-alone aid.

### PRELIMINARIES

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Your Star LaserPrinter 8 comes in three basic parts:

- the printer body
- the paper cassette
- the toner cartridge

When you place your printer for use with your computer, be sure that:

- it sits on a strong, stable table
- there is circulation on all sides, including the bottom

- 
- **there is sufficient room for the paper cassette**, which protrudes from the front, and for the pullout paper tray for face-up paper ejection, located at the rear of the printer

The printer is heavy, so use the grip handles located halfway back on either side. And don't try to lift it by yourself — have someone help you.

Be sure to remove all the packing material before you use the printer.

If you are just setting up your Star LaserPrinter 8, and have not read the material in Chapter 2, please take the time to read the section on installing the toner cartridge. It is very vital that you handle and install this component precisely, because it contains important laser printing devices, as well as the toner (“ink”) that actually prints on the paper.

Ordinary office-weight paper of standard sizes can be automatically fed into the printer from the paper cassette. A different cassette is required for each size. For heavier-than-normal paper, envelopes, mailing labels, and transparencies, use the manual feed slot, located on the top of the paper cassette's cover.

The printer's on-off switch is located at the rear.

## THE FRONT PANEL

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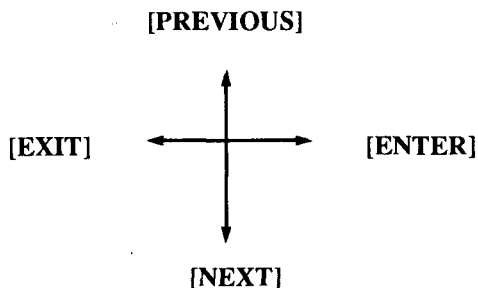
The front panel of the printer (Fig. 4-1) provides information about the printer's internal and operating status. It also allows you to program it for your (and your computer's) specific needs. The Star Laser Printer 8 works in two basic modes when the printer is off line:

Front panel mode—using the grey buttons

Program mode—using the yellow buttons

The six buttons have different functions in each mode:

BUTTON	FRONT PANEL MODE (GREY BUTTONS)	PROGRAM MODE (YELLOW BUTTONS)
[ON LINE]	When light is on printer can print. When light is off all other buttons are enabled	Fast exit (termination) of Program Mode (returns to Printer Ready)
[PRINT]	Prints information in <i>memory</i>	No function
[ERROR SKIP/NEXT]	Continue printing or display error code	Displays next item within current level of menu selections programming sequence
[TEST/PREVIOUS]	Initiate tests	Displays previous item within current level of menu selections
[RESET/ENTER]	Discards information	Displays next level within current item of menu selection. When in last level of current item, executes function
[PROGRAM/EXIT]	Enters program mode	Displays previous level within current item of menu selection



Remember: you [ENTER] or [EXIT] a LEVEL to select the [PREVIOUS] or [NEXT] ITEM within a GROUP.

The front panel also has five lights. When lit they mean:

READY (green) — the printer is ready for printing or for programming

ALARM (amber) — an error condition exists and the printer is Off Line

DATA (amber) — information received, not yet printed

ON LINE (amber) — the printer is ready for printing

PRINT (amber) — the printer is printing information

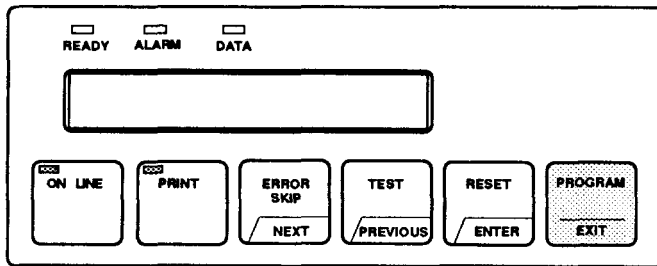


Fig. 4-1

## BASIC OPERATIONS

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There are four basic operations performed from the panel:

- **On Line and Off Line**- The printer can receive information from the computer and print it only when it is On Line. When the printer is On Line, the light on the [ON LINE] button will be lit. For all other functions, the printer must be Off Line. This is accomplished by pressing the [ON LINE] button until its light is *out*.
- **Form feed**.- The printer may have unprinted information in its memory. This is indicated by the lighted DATA light. To clear it from the printer, take the printer Off Line. Then press [PRINT]. When all the remaining information is printed, the paper will be ejected and the DATA light will go *out*.
- **Error Skip** - In case of an error, the printer will go Off Line and stop printing. If the error is minor, it is possible to continue printing. To do this, press [ERROR SKIP], then [ON LINE] until its light is *on*.



If the error was minor, printing will resume. If the error was more serious, the panel will provide information on how to handle it.

- **Reset** - To clear the printer memory and restore settings to emulation defaults, press [RESET].

Before you begin printing, at any time, but especially when you are new to the process, it is a good idea to run a test or sample print. To do this, take the printer Off Line. Then press and hold [TEST] until the display reads Status Sheet. The printer will provide a series of 4 sheets showing.

- its configuration
- the quality of its text printing, and
- a summary of its settings — current, initial, power-up, and factory pre-set

## CONNECTING THE PRINTER TO THE COMPUTER

The Star LaserPrinter 8 comes equipped with both a standard Centronics parallel interface and an RS-232 serial interface. Both can be connected to computers, though only one can be active at any one time.

The printer comes from the factory pre-set with the Centronics parallel interface active. You can confirm this by looking at the Interface Group portion of the sample print (Fig. 4-2):

Feeder		Cassette
Paper Size		Letter
Auto Parameters	Emul. Dflt On	Emul. Dflt On
Auto CR	Auto CR Off	Auto CR Off
Auto LF	Auto LF Off	Auto LF Off
Auto FF	Auto FF Off	Auto FF Off
Auto Wrap	Auto Wrap Off	Auto Wrap Off
<b>INTERFACE GROUP:</b>		
Interface Type	PARALLEL IBM	PARALLEL IBM
Serial Parameters:		
Baud Rate	9600 baud	9600 baud
Data Bits	8	8
Parity	None	None
Stop Bits	1	1
Protocol	XON/XOFF	XON/XOFF

Fig. 4-2

---

This means that the Centronics parallel interface is active. If the serial port were active, that line would state RS-232.

If you are going to use a Centronics interface, you don't need to make any changes. If you want to use an RS-232 interface, you must perform a programming sequence. Programming will involve pressing various panel keys and following the information provided on the display screen. The front panel indicates the selected function with the @ symbol following the function displayed.

**Note:** Changing the interface type requires two steps after front panel programming.

1. Save the new interface setting in NV RAM by pressing

[PROGRAM]

then pressing

[NEXT]

until the screen displays

Set Power-up

Press

[ENTER]

to store the new selections

2. Turn the printer's power off, then on again to activate the new interface.

#### **Selecting the Serial Interface:**

Note that when you have completed the selection sequence, the settings must be stored in NV RAM (see Saving Settings), then activated by turning the printer's power off, then on again.

- Take the printer Off Line by pressing the [ON LINE] button until the button's light is *off*
- Then press [PROGRAM].
- Press [NEXT] until the display screen reads

INTERFACE

- 
- Press [ENTER]. Now the screen will read  
PARALLEL IBM
  - Now press [NEXT] two times. The screen will change to  
SERIAL
  - Press [EXIT] which returns the screen to  
INTERFACE

Congratulations! You have just successfully completed a sequence of programming. The next step is to set the transmission rate, in baud.

- With the display reading SERIAL, this time press [ENTER]. The screen will show

BAUD RATE

- Pressing [ENTER] now displays  
9600 BAUD
- Press [NEXT] to display a series of options, from 300 to 19200. Keep pressing until the one you want appears on the screen.
- Pressing [ENTER] now displays  
9600 BAUD @
- Then press [EXIT] displays BAUD RATE. Pressing [NEXT] displays these options:

DATA BIT

PARITY

STOP BIT

PROTOCOL

The settings from the factory for these options are:

8 bit

no parity

1 stop bit

Xon/Xoff

If you do not want to change them,

- 
- Press [ON LINE]. This takes you out of Program mode, and makes the Star LaserPrinter 8 ready to print.

Whenever you want to change the serial parameters, follow the same sequence as for selecting baud rate. For example, to change the data bit, at SERIAL press [ENTER] then [NEXT] until DATA BIT is displayed on the screen. Pressing [ENTER] will display the first option, and [NEXT] will give the rest of them. Press [ENTER] when your choice appears on the screen. Finally, press [ON LINE], which readies the Star LaserPrinter 8 for printing.

If your applications program requires a DTR handshake (“hard” rather than Xon/Xoff “soft”), set it from the SERIAL menu by

- Pressing [ENTER] then [NEXT] until you see  
    PROTOCOL
- Pressing [ENTER] displays  
    Xon/Xoff
- Pressing [NEXT] displays DTR. Press [ENTER] to execute.
- Press [EXIT] 3 times to display  
    Interface
- Press [NEXT] 2 times to display  
    Set Power-up
- Press [ENTER] to store current settings into NV RAM. Turn power off, then on to activate.
- Press [ON LINE], which allows the Star LaserPrinter 8 to begin printing through the serial interface.

#### *Activating the Parallel Interface:*

To return to a parallel interface, do this:

- Press [EXIT] until the screen displays  
    INTERFACE
- Press [ENTER], which displays  
    SERIAL
- Press [NEXT] which gives  
    PARALLEL IBM

- 
- Press [ENTER] to select parallel.
  - Press [EXIT] once to display  
INTERFACE
  - Press [NEXT] 2 times to display  
Set Power-up
  - Press [ENTER] to store current settings into NV RAM. Turn power off, then on to activate.
  - Pressing [ON LINE] will allow the Star LaserPrinter 8 to begin printing through the parallel interface.

### ***Saving the Setting;***

The new setting will remain in the printer's RAM memory until it is turned *off*. To understand why, you should realize that there are four different types of settings stored in the printer's memories.

- The FACTORY SETTINGS, which are those put into the printer's unchangable ROM memory at the factory.
- The POWER-UP SETTINGS, which the user can create, then store in a permanent memory called NV RAM, even when the power is turned off at the end of the session in which they are created. These settings can then override the Factory Settings, being activated when the printer is turned off, then on again.
- The INITIAL SETTINGS, which the user can create and use as long as the printer is not turned off. These are stored in temporary or volatile RAM memory. They override the Power-up Settings.
- The CURRENT SETTINGS, which are those stored in temporary RAM memory. These may be issued by software commands that override all other settings.

To make the setting permanent, you must save it in NV RAM! Perform this programming sequence, after taking the printer Off Line.

- Press [PROGRAM].
- Press [NEXT] until the screen displays  
SET POWER-UP
- Press [ENTER], after which the screen will display  
NV RAM LOAD DONE

- 
- Finally, press [ON LINE]. Your new settings are now saved, and you can continue with other printing, if desired.

***Returning to Factory Settings:***

If for some reason you want to start from the beginning, with the original factory settings, follow this procedure:

- In the Program mode, press [NEXT] until the screen reads  
LOAD FACTORY SET
- Press [ENTER]. The screen will display briefly  
LOAD FROM ROM

then

REINITIALIZE

The factory settings are now restored, and you can go On Line for other activities.

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## MANUAL FEED

As the sample print shows, the Star LaserPrinter 8 comes set for automatic paper feeding from the cassette. If you want to sheet feed manually, you must first instruct the printer. After going Off Line and pressing [PROGRAM]:

- Press [NEXT] until the screen reads  
PAPER FEED
- Press [ENTER], which will display  
FEEDER
- Press [ENTER], which will display  
CASSETTE
- Pressing [NEXT] displays  
MANUAL FEED
- Press [ENTER] to display  
LETTER
- Press [NEXT] to select paper size

- 
- Pressing [ENTER] confirms the change.
  - Finally, press [ON LINE], which readies the Star LaserPrinter 8 for printing.

The Star LaserPrinter 8 is now ready to receive sheets fed through the slot on top of the paper cassette's cover.

Before you start printing, adjust the slot to fit your material. Below the slot are settings for various standard sized papers. If you are going to use one of these, simply adjust the slot accordingly. If you are planning to use sheets of other sizes, place a sample in the slot, and adjust the slot until it holds the sheet securely without bending it.

Note that it is better to do this before you actually start printing, than to trust luck during the process.

If during either manual or automatic feed, you get a paper jam, refer to the chapter on "Troubleshooting," for ways to clear the machine.

## PRINTING IN LANDSCAPE ORIENTATION

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If you want to change from portrait to landscape orientation for your printed page, follow this procedure, after going Off Line and pressing [PROGRAM]:

- Press [NEXT] until you get  
LAYOUT
- Press [ENTER], which will display  
Orientation
- Press [ENTER] for  
Portrait
- Pressing [NEXT] gives  
Landscape
- Pressing [ENTER] selects Landscape.

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## CHANGING CHARACTER SET

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If you want to use a character set other than that provided at the factory, follow this procedure:

- After going Off Line and pressing [PROGRAM]

- Press [NEXT] until you see  
CHARACTER

- Press [ENTER], which displays  
FONT

(preceded by primary or secondary, if the printer is in the HP Laser Jet Plus emulation)

- Press [ENTER], which gives  
CHARACTER or SYMBOL SET

depending on the emulation.

- Pressing [ENTER] again presents the various options.
- Press [NEXT] until you see the desired one.
- Then press [ENTER].
- Press [ON LINE].

---

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## CHANGING FONT ATTRIBUTES

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Attributes are those characteristics of a type font that make it distinct from all others. These include spacing of characters, either proportional or monospaced (uniform); pitch, measured in characters per inch; height or point size; style, either upright (roman) or italic; stroke weight, bold, medium, or light; and typeface. Typefaces available with the Star Laser Printer 8 include courier, helvet, tms romn, gothic, script, prestige, caslon, orator, line printer, pica, and elite. All these attributes can be selected from the front panel with the printer in Program Mode.

- To change font attributes, take the printer off line and press [PROGRAM], to enter Program Mode. Then press [NEXT], so that the display reads

CHARACTER



- 
- Press [ENTER], so the display shows

FONT

- Pressing [ENTER] again, displays

SET

- Press [NEXT] to display

FONT ATTRIBUTES

and [ENTER] for

STANDARD DEFAULT

- To change any of the attributes, press [NEXT], so the screen reads

SPECIFY FONT

Now you can select individual attributes.

- Pressing [ENTER] will display

SPACING

- And pressing [NEXT] repeatedly will list the remaining attributes,

PITCH

POINT SIZE

STYLE

STROKE WEIGHT

TYPEFACE

If you want to change any of attribute, when its name appears on the screen, press [ENTER], then [NEXT] for the choices available. For example, if you want to change point size, when that attribute appears on the screen, pressing [ENTER] will list

6 point

and pressing [NEXT] several times will list the other choices,

7 point

8.5 point

10 point

12 point

14 point

16 point

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18 point  
24 point  
36 point

When the size you want appears on the screen, pressing [ENTER] will select it.

If you want to change pitch, use the same procedure to select among 6.5, 8.1, 10, 12, or 16.66 characters per inch. For stroke weight, your options are for bold (+1 through +7), medium (0), and light (-1 through -7). In each case, select your choice by pressing [ENTER].

If you are in either Epson or Diablo emulation, you may also select other parameters by pressing [PREVIOUS] until the screen displays

CHARACTER

- Now press [ENTER], then [NEXT] so the screen reads

SETUP PARAMETERS

The choices here are

Proportional spacing on or off

Enabling italics or graphics

Enabling boldface

- Again, when the parameter you want to change appears on the screen, press [ENTER], then [NEXT] to see your choices. When you see the one you want, press [ENTER] to select it.

## PROGRAMMING ON YOUR OWN

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Now that you have successfully programmed some basic information into your Star LaserPrinter 8, you may want to continue on your own. The choices you can make are arranged in a hierarchy. They represent the options common to all the emulations available with the printer, and include a selection of the specific emulation:

**HP Laser Jet Plus**

**Diablo 630**

**Epson EX-800**

**IBM Proprinter**

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To customize your printing beyond that will require programming from the computer. For that, refer to the Applications Manual.

There are several settings that cannot be changed, regardless of emulation. They are:

**Form size** - which will always default to the maximum value for the paper size, depending on orientation

**Top of form** - always defaults to the top of the sheet. However, you can select the top margin of the printed page.

**Perforation skip** - always defaults to 0 lines.

**Special word processing features** - of other printers is ignored.

**Text/graphics mode** - defaults to text mode.

**Slashed zero** - the style of the zero depends on the selected font.

**On-line** - The printer is always On Line after being turned on or powered up.

The highest rank in the hierarchy available for programming through the printer's front panel is as follows:

- PROGRAM MODE
- \* CHARACTER
- \* LAYOUT
- \* PAPER FEED
- \* COMMAND
- \* INTERFACE
- SET INIT. VALUES
- SET POWER-UP
- LOAD FACTORY SET

The functions marked with an asterisk are summarized on the status sheet.

Always start your programming by going Off Line (press [ON LINE]) so that its light goes *off*. Then press [PROGRAM].

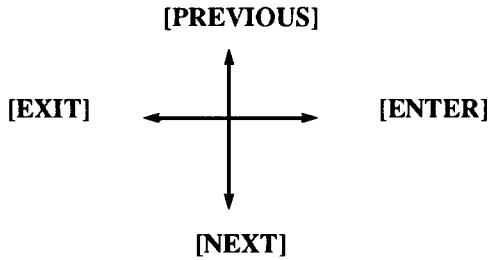
As you have already found, you move from one to the next item in the same level by pressing [NEXT]. [PREVIOUS] returns the display to the last item at the current level. [EXIT] displays the last item at the next higher level. [ENTER] displays the first item of the next lower

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level. If no such item exists, [ENTER] displays the value that is to be selected with @ added. [EXIT] or [ON LINE] ends the program mode.

The complete hierarchy is shown in the Chapters "Printing" and "Emulations."

Movement within the LaserPrinter 8 hierarchy is shown below:



## *Setting Up A Page*

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As the sample print shows, your Star LaserPrinter 8 can fill a sheet of paper with text and/or graphics to within 3/16 - 1/2 in. of the margins. Some of the choices are made for you by the printer. But most of them are under your control, either from the front panel of the printer, or through your computer and the application software you are using on it.

Some of the choices may be limited. Printer emulation and the page orientation are examples. Your application software may not support an available command, or it may not permit a change in page orientation. Whether you are printing business letters, charts or other graphics, or brochures and newsletters, you should keep these choices and their limitations in mind.

What follows is a list of the elements that go into a printed page. They may be selected through the front panel of the Star LaserPrinter 8 or through your application software.

### **Star LaserPrinter 8 and software programmable**

#### ***Format:***

- Orientation
- Form size
- Text length
- Margins
- Line spacing

#### ***Text:***

- Character set/symbol set
- Type face
- Character spacing
- Pitch
- Point size
- Style
- Stroke weight

If you are a beginner, you may want to limit the amount of computer programming you do for page set-up. Remember: you can print a very nice looking page with very little manipulation, by relying on the default settings in your printer and application program. By using the programming available from the front panel of the printer, you have a wide variety of options.

The next chapter outlines your choices, both for Star LaserPrinter 8 programming and for making choices from the computer.

# CHAPTER

# 6

## Printing

### FONTS

The style of printing that appears in your finished work consists of five elements:

- **the symbol/character set** — the letters, numbers, and symbols available for use
- **the fonts present in the Star LaserPrinter 8** — some fonts come as standard equipment, while others are available in cartridges that are installed in the front slots of the printer; you may also purchase fonts on a disk and load them down (downloading) from the computer to the Star LaserPrinter 8's RAM (for more information consult a software dealer)
- **font attributes** — consisting of character spacing, pitch, point size, style, stroke weight, and typeface
- **the printer you select to emulate** — the Star LaserPrinter 8 can emulate four widely available printers, the *Hewlett Packard LaserJet Plus* (a laser printer), *Diablo 630* (a daisy wheel printer), *Epson EX-800*, or *IBM Proprinter* (both dot matrix printers).
- **the capabilities of your applications software.**

The Star LaserPrinter 8 comes equipped with four families of fonts. Any one of them can be selected from the front panel for use as the base font in any emulation.

### RESIDENT FONTS

<i>Font No.</i>	<i>Typeface</i>	<i>Symbol Set</i>	<i>Pitch</i>	<i>Point</i>	<i>Style</i>	<i>Stroke Weight</i>
1	Courier	Rom-8	10	12	Upright	Medium
2	Courier	IBM PC	10	12	Upright	Medium
3	Courier	legal	10	12	Upright	Medium
4	Lineprinter	Roman-8	16.66	8.5	Upright	Medium
5	Lineprinter	IBM PC	16.66	8.5	Upright	Medium
6	Lineprinter	ECMA	16.66	8.5	Upright	Medium
7	Prestige	Roman-8	12	10	Upright	Medium
8	Prestige	legal	12	10	Upright	Medium
9	Prestige	math-8	12	10	Upright	Medium
10	Prestige	math-7	12	10	Upright	Medium
11	Prestige	pi-font	12	10	Upright	Medium
12	Tms Romn	Roman-8	Prop	10	Upright	Medium
13	Tms Romn	ECMA7-bit	Prop	10	Upright	Medium
14	Tms Romn	math-8	Prop	10	Upright	Medium
15	Tms Romn	math-7	Prop	10	Upright	Medium
16	Tms Romn	pi-font	Prop	10	Upright	Medium

Samples of the four resident fonts follow.





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## HEWLETT PACKARD LASER JET PLUS

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### *Default Values, primary and secondary fonts:*

Symbol set:	Roman-8
Spacing:	Monospace
Pitch:	10 cpi
Point size:	12 point
Style:	Upright
Stroke Weight:	Medium 0
Typeface:	Courier

### *Available Values, primary and secondary fonts:*

Symbol set:	US ASCII
	UK
	France
	Germany
	Sweden/Finland
	Italy
	Denmark/Norway
	Spain
	Roman-8*
	IBM PC Set
Spacing:	Proportional
	Monospace*
Pitch:	6.5 cpi
	8.1 cpi
	10 cpi*
	12 cpi
	16.66 cpi

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Point size:	6 point
	7 point
	8.5 point
	10 point
	12 point*
	14 point
	16 point
	18 point
	24 point
	36 point
Style:	Upright*
	Italics
Stroke Weight:	-7 to -1 Light
	Medium 0*
	+1 to +7 Bold
Std Typeface:	Line Printer
	Courier*
	Tms Romn
	Prestige

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## DIABLO 630

### *Default Values:*

Symbol set:	Roman-8
Spacing:	Monospace
Pitch:	10 cpi
Point size:	12 point
Style:	Upright
Stroke Weight:	Medium 0
Typeface:	Courier

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Proportional Spacing: Disabled

Boldface: Off

**Available Values:**

Symbol set: US ASCII  
UK  
France  
Germany  
Sweden/Finland  
Italy  
Denmark/Norway  
Spain  
Roman-8\*  
IBM PC Set

Spacing: Proportional  
Monospace\*

Pitch: 6.5 cpi  
8.1 cpi  
10 cpi\*  
12 cpi  
16.66 cpi

Point size: 6 point  
7 point  
8.5 point  
10 point  
12 point\*  
14 point  
16 point  
18 point

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	24 point
	36 point
Style:	Upright*
	Italics
Stroke Weight:	-7 to -1 Light
	Medium 0*
	+1 to +7 Bold
Std Typeface:	Line Printer
	Courier*
	Tms Romn
	Prestige

## EPSON EX-800

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### **Default Values:**

Symbol set:	Epson Std USA
Spacing:	Monospace
Pitch:	10 cpi
Point size:	12 point
Style:	Upright
Stroke Weight:	Medium 0
Typeface:	Courier
Proportional Spacing:	Disabled
Italic:	Enabled
Bold:	Off

### **Available Values:**

Symbol set:	Epson Std USA*
	Epson Std France
	Epson Std Germany
	Epson Std UK

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	Epson Std Denmark1
	Epson Std Sweden
	Epson Std Italy
	Epson Std Spain 1
	Epson Std Japan
	Epson Std Norway
	Epson Std Denmark 2
	Epson Std Spain 2
	Epson Std Latin America
Spacing:	Proportional
	Monospace*
Pitch:	6.5 cpi
	8.1 cpi
	10 cpi*
	12 cpi
	16.66 cpi
Point size:	6 point
	7 point
	8.5 point
	10 point
	12 point*
	14 point
	16 point
	18 point
	24 point
	36 point
Style:	Upright*
	Italics

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Stroke Weight:	-7 to -1 Light Medium 0* +1 to +7 Bold
Std Typeface:	Line Printer Courier* Times Roman Prestige

## IBM PROPRINTER

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### *Default Values:*

Symbol set:	IBM GP Set 1
Spacing:	Monospace
Pitch:	10 cpi
Point size:	12 point
Style:	Upright
Stroke Weight:	Medium 0
Typeface:	Courier

### *Available Values:*

Symbol set:	IBM GP Set 1* IBM GP Set 2
Spacing:	Proportional Monospace*
Pitch:	6.5 cpi 8.1 cpi 10 cpi* 12 cpi 16.66 cpi
Point size:	6 point

	7 point
	8.5 point
	10 point
	12 point*
	14 point
	16 point
	18 point
	24 point
	36 point
Style:	Upright*
	Italics
Stroke Weight:	-7 to -1 Light
	Medium 0*
	+1 to +7 Bold
Std Typeface:	Line Printer
	Courier*
	Tms Romn
	Prestige

## INSTALLING OPTIONAL FONT CARTRIDGES

You may install two optional font cartridges in the slots beneath the paper cassette, at the front of the Star LaserPrinter 8 (referred to as slot #1 and slot #2). If the power is off, simply hold one of the cartridges at its label end, label facing up, and insert it into the slot, pushing it as far back as it will go. Part of the label end will protrude from the printer's frame. (See Fig. 6-1)

If you want to change a cartridge while the power is on, do this:

- Make sure the printer is Off Line. If necessary, press the [ON LINE] button until the light is *off*.
- Be sure the DATA light is *off*. If the light is *on*, this means the printer contains material in its memory that has not yet been printed. Press the [PRINT] button, to print this material. When



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printing of all the material in memory is completed, the DATA light will go off.

- Make the desired cartridge changes.
- Press [ON LINE], so that the light is on, and continue your printing as desired.

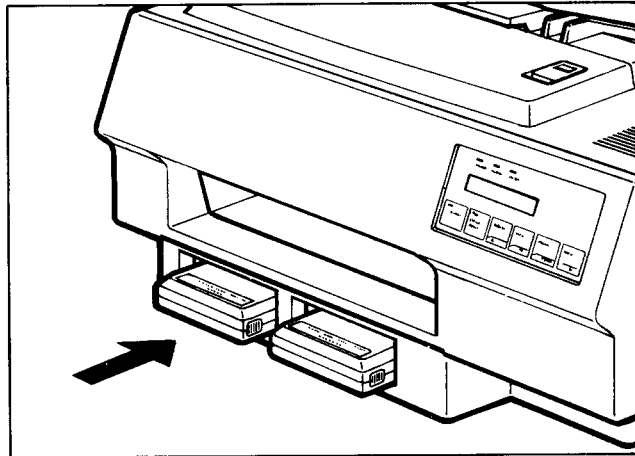


Fig. 6-1

**Note:** If you attempt to change a cartridge while the printer is in On Line, the printer will go Off Line. The screen will attempt to display the message CHECK CARTRIDGE and the slot number. Replace the cartridge and press [ERROR SKIP], then [ON LINE], which may allow you to continue. If this doesn't work, turn the power off, then on again. For more on this subject, see "Font/Emulation Cartridge Problems" in Chapter 10 "Troubleshooting."

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## ADJUSTING PRINT QUALITY

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At some time you may find that the quality of the printing is not what you want. You may run test prints and then make the printing lighter or darker, as desired.

Begin by running an engine test print, which consists of a pattern of vertical lines. To do this, make sure there is paper in the paper cassette and turn the printer on, if necessary. Now look on the right hand side of the printer about halfway back. You will see a small hole (Fig. 6-2).

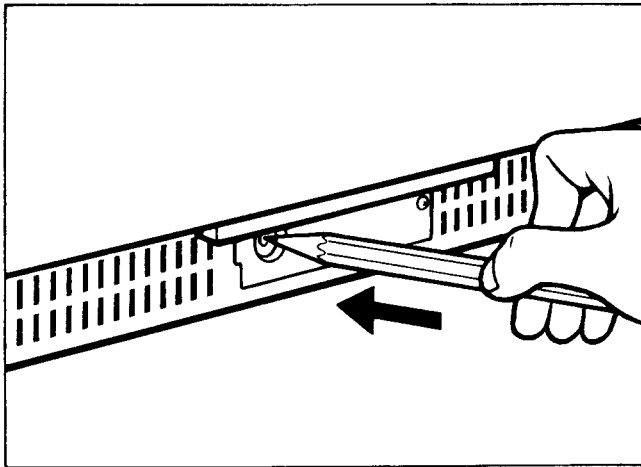


Fig. 6-2

Take a pointed pencil and gently press it into the hole. The alarm will sound and the screen will display

ENGINE TEST.

Examine the printed sheet (Fig. 6-3) that comes from the printer to determine whether the density of the print (dark or light) is satisfactory. Also be sure that the density is uniform throughout the printed page.

If you want to adjust the print density, follow this procedure:

- Open the printer.
- At the left front you will see a green knurled dial (Fig. 6-4), bearing the odd numbers 1 through 9.

- To make the printing darker, turn the dial clockwise (Fig. 6-5) to a higher number.
- To make the printing lighter, turn the dial counterclockwise to a lower number.

For more on improving the quality of your prints, see “Streaky Prints” in the chapter “Troubleshooting.”

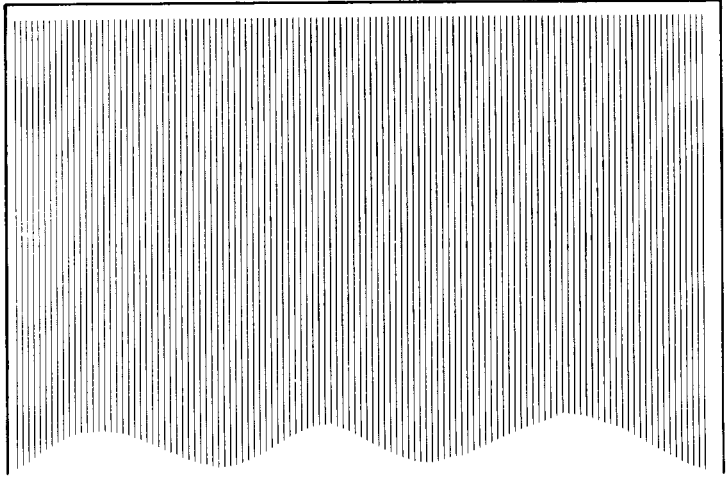


Fig. 6-3

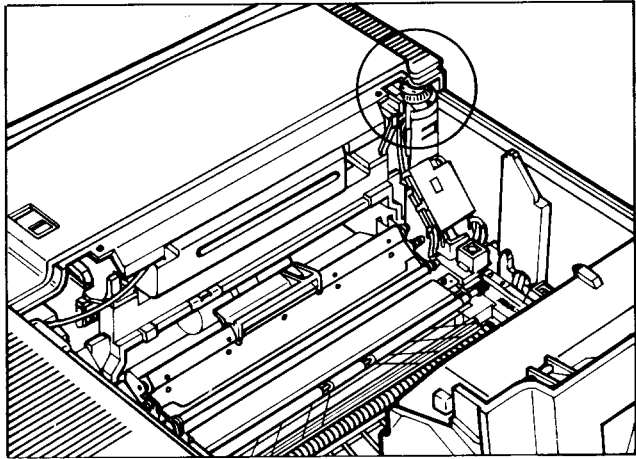


Fig. 6-4

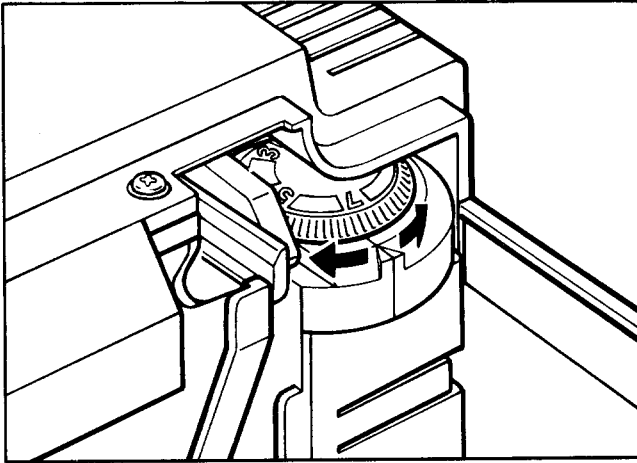


Fig 6-5

## *Emulating Other Printers*

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If this were the best of all possible computer worlds, every software application would run automatically on the Star LaserPrinter 8 or any other printer. The fact is that software applications — word processing, spreadsheets, databases, or others — are designed to work with a specific printer or a limited group of printers.

Some very popular software applications were written before laser printers became office fixtures, and require a dot matrix or daisy wheel printer. Some software is linked to a particular brand of computer and printer. And some can be used on one brand of laser printer.

You can program your Star LaserPrinter 8 to work like any of four widely-available printers: the Hewlett Packard Laser Jet Plus, Diablo 630, Epson EX-800, or IBM Proprinter. (Chapter 8 will tell you how to make your Star LaserPrinter 8 work with four of the most popular software applications.) Programming of the printer is best done by people who have some experience in computer programming. For more on programming the printer, please refer to the Applications Manual.

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## EMULATIONS

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Most of the settings provided with the Star LaserPrinter 8 can be changed to match those of the four printers it can emulate.

Some settings, however, cannot be changed:

- **Form size** - will always default to the maximum value for the paper size depending on orientation.
- **Top of form** - always defaults to the top of the sheet. However, you can select the top margin of the printed page.
- **Perforation skip** - always defaults to 0 lines.
- **Special word processing features** - of other printers is ignored.
- **Text/graphics mode** - defaults to text mode.
- **Slashed zero** - the style of the zero depends on the selected font.
- **On Line** - the printer is always On Line after being turned *on* or powered up.

### ***Superset Commands:***

A superset command is a command that applies to all emulated printers and can be selected from the host through software. The Star LaserPrinter 8 has a superset command set, common to all emulations, that permits:

- **change of emulation**
- **change of orientation**

### ***Change of emulation:***

Command: ESC [E(*n*)                      HEX: 1b 5b 45 (*n*)

where

*n* = ASCII 0 (30H) for HP Laserjet Plus emulation

*n* = ASCII 1 (31H) for Diablo 630 emulation

*n* = ASCII 2 (32H) for Epson EX-800 emulation

$n = \text{ASCII } 3 \text{ (33H)}$  for IBM Proprinter emulation

$n = \text{ASCII } 4 \text{ (34H)}$  for cartridge  $n1$  emulation

$n = \text{ASCII } 5 \text{ (35H)}$  for cartridge  $n2$  emulation

**Note:** if this command is issued in the middle of a page, a form feed and carriage return are issued. All emulation parameters are returned to their initial settings.

**Change of orientation:**

Command: ESC [O( $n$ )                      HEX: 1b 5b 4f ( $n$ )

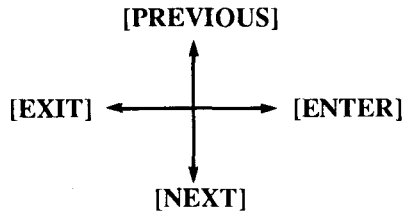
where

$n = \text{ASCII } 0 \text{ (30H)}$  for portrait orientation

$n = \text{ASCII } 1 \text{ (31H)}$  for landscape orientation

**Note:** Each command will reset margins to the printable limits and put the cursor at the upper left corner of the paper for a portrait page and at the lower right corner for a landscape page.

Keep in mind the front panel programming hierarchy:



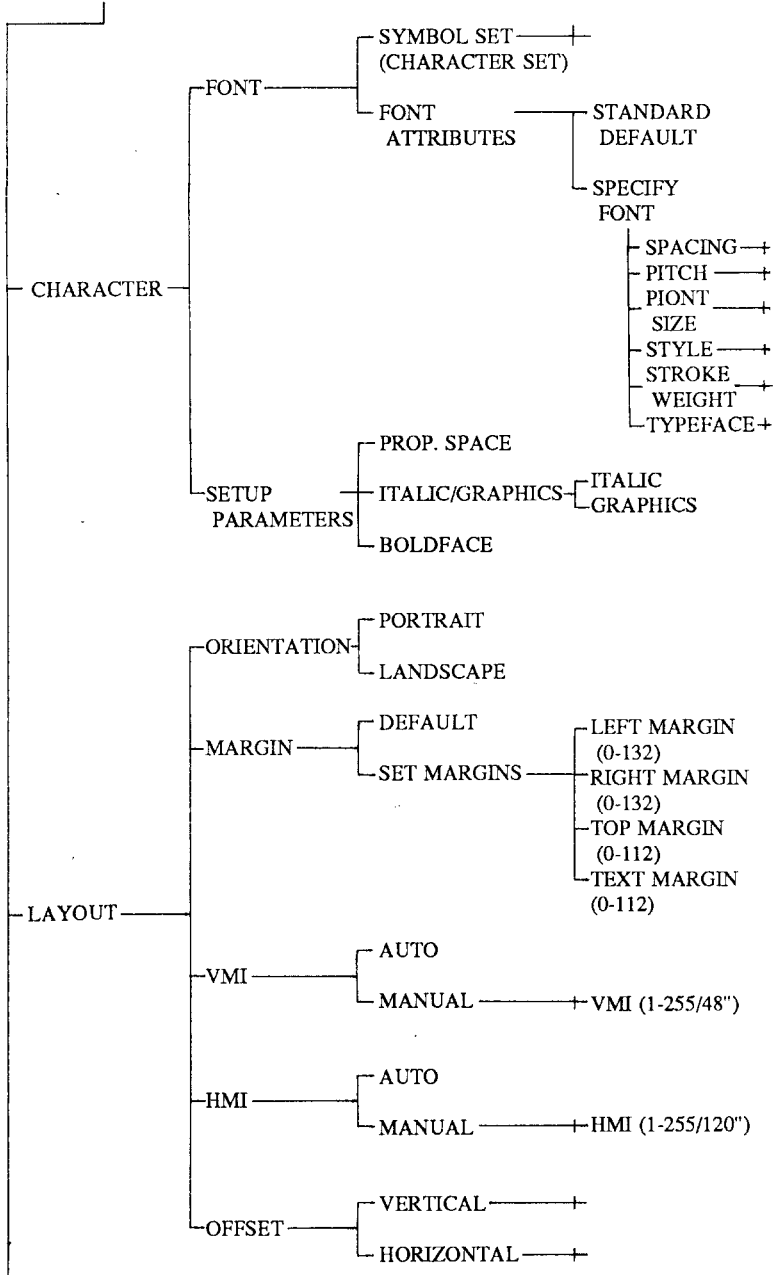
The hierarchy for commonly used commands is shown in Figs 7-1 and 7-2. Items that are not common to all emulations are so noted.

**Options Common to All Emulations:**

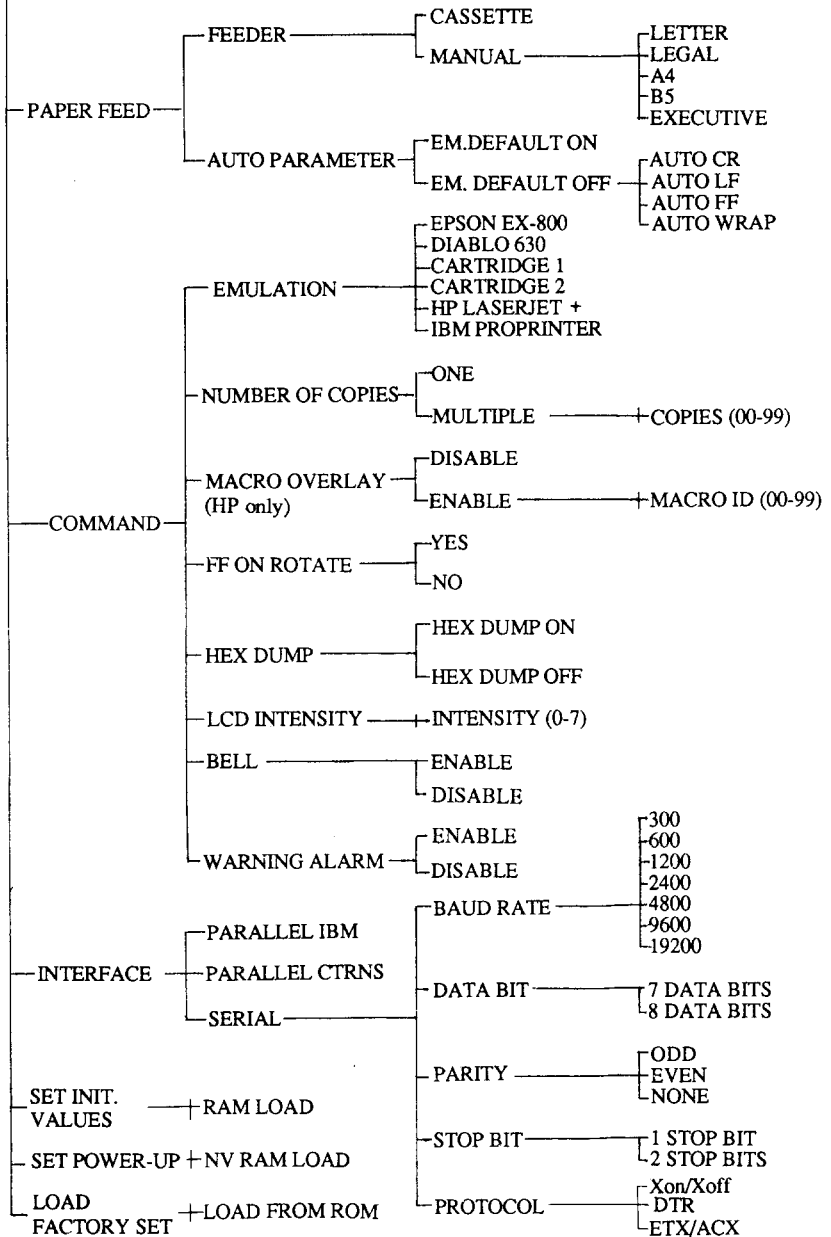
Factory settings are indicated by an \*.

The number at the top of each column indicates its level in the menu structure — 1 is highest, followed by 2, 3, 4, and 5. The command [NEXT] advances the display to the next item at the same level. [PREVIOUS] returns the display to the last item at the same level. [EXIT] returns to the last item at the next higher level. [ENTER] displays the first item of the next lower level. If no such item exists, [ENTER] displays the value that is to be selected with @ added. [ON LINE] ends the program mode.

PROGRAM MODE







1	2	3	4
Character:	(Primary or Secondary -HPonly) Font:	Symbol or Character Sel:	(Epson) (HP,Diablo)
			USA* France Germany UK Denmark1 Sweden Italy Spain1 Japan Norway Denmark2 Spain2 Latin America
			(IBM/P)
			GP Set1* GP Set2
		Font Attributes:	Standard Default*
		Specify Font:	Spacing Pitch Point size Style Stroke weight Typeface

1	2	3	4	5
Layout:	Orientation:	Portrait* Landscape		
	Margins:	Default* (appropriate to emulation)		
		Set:	Left: 0* to 132 Right: 0* to 132 Top: 0* to 112 Text length : 0* to 112	
	VMI:	Auto* Manual:	1/48 to 255/48	
	HMI:	Auto* Manual:	1/120 to 255/120	
	Offset:	Vertical:	-100 to +100(0*)	
		Horizontal:	-150 to +150 (0*)	
Paper feed: Feeder:		Cassette* Manual:	Letter* Legal A4 B5 Executive	
	Auto parameters:	Emulation default on*		
		Emulation default off:	Auto CR: on off Auto LF: on off* Auto FF: on off* Auto wrap: on off*	

1	2	3	4	5
Command:	Emulation:	HP Laserjet Plus* IBM Proprinter Epson EX-800 Diablo 630 Cartridge 1 Cartridge 2		
	Number of copies:	one* multiple:	1 to 99	
	Macro overlay (HP only):	disable* enable:	00 to 99	
	FF on rotate:	yes* no		
	Hex dump:	on off*		
	LCD intensity:	0 to 7 (4*)		
	Bell:	enable* disable		
	Warning alarm:	enable* disable		
Interface:	parallell IBM* parallell centronics serial:	baud rate:	300 baud 600 baud 1200 baud 2400 baud 4800 baud 9600 baud* 19200 baud	
		data bits:	7 data bits 8 data bits*	

1	2	3	4	5
		parity:	odd even none*	
		stop bits:	1 stop bit* 2 stop bits	
		protocol:	Xon/Xoff* DTR ETX/ACK	

### Set initial values:

(ENTER at this point causes the current values to be entered into the Initial Setting version in RAM. When this is done, the message RAM LOAD DONE is displayed, followed by SET INITIAL VALUES.) Loads initial values into current values.

### Set power up:

(ENTER at this point causes the current values to be entered into the Power-Up Setting version in NV RAM. When this is done, the message NV RAM LOAD DONE is displayed, followed by POWER SET-UP.) Loads NV RAM settings into current settings.

### Load factory set:

(ENTER at this point causes the Factory Setting stored in ROM to be entered into the current Setting memory, replacing the previous setting. When this is done, the message LOAD FROM ROM OK is displayed, followed by LOAD FACTORY SET.) Loads factory settings into current settings.

### Specific Emulations

This chapter will provide specific information for emulating each of the four printers, including page orientation; font attributes, such as pitch and typeface. It also includes actions to control the printer through the application, such as carriage return and line spacing.

Each of these characteristics and actions is initiated by a *command set*. Where there are alternative choices, the *values* for each are also given.

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**HEWLETT PACKARD LASER JET PLUS**

<b>ACTION</b>	<b>COMMAND</b>	<b>VALUES</b>
Self-test	<u>ESC</u> z	
Number of copies to be printed	<u>ESC</u> &1#X	# = 1 to 99
Paper input control	<u>ESC</u> &1#H	#0 eject current page #1 feed paper from cassette #2 feed paper manually #3 feed envelope manually
Initialize printer	<u>ESC</u> E	
Select page length	<u>ESC</u> &1#P	# specifies page length in no. of lines
Set left margin	<u>ESC</u> &a#L	# specifies column number
Set right margin	<u>ESC</u> &a#M	# specifies column number
Clear side margins	<u>ESC</u> 9	Sets left and right margins to original defaults
Set top margin	<u>ESC</u> &1#E	# specifies number of lines to skip from top of page
Set text length	<u>ESC</u> &1#F	# specifies number of lines per page
Perforation skip mode	<u>ESC</u> &1#L	#0 - perforation skip is off #1 - perforation skip is on
Setting lines per inch	<u>ESC</u> &1#D	# specifies number of lines per inch
Horizontal motion index (HMI) increments	<u>ESC</u> &k#H	# = 0 to 126, indicating the number of 1/120 inch
Setting vertical motion index	<u>ESC</u> &1#C	# specifies number of 1/48 in. increments per line
Position horizontal cursor	<u>ESC</u> &a#C	# specifies new horizontal position in HMI



<b>ACTION</b>	<b>COMMAND</b>	<b>VALUES</b>
Position horizontal cursor	<u>ESC</u> &a#H	# defines new horizontal position in decipoints
Position horizontal cursor	<u>ESC</u> *p#X	# specifies new horizontal position in engine resolution elements
Position vertical cursor	<u>ESC</u> &a#R	# specifies new vertical position in number of correct lines
Position vertical cursor	<u>ESC</u> &a#V	# defines new vertical position in decipoints
Position vertical cursor	<u>ESC</u> *p#Y	# specifies new vertical position in engine resolution elements
Backspace	<u>BS</u>	
Carriage return	<u>CR</u>	
Line feed	<u>LF</u>	
Half line feed	<u>ESC</u> =	
Form Feed	<u>FF</u>	
Line termination	<u>ESC</u> &k#G	#0 CR=>CR; LF=>LF; FF=>FF #1 CR=>CR+LF; LF=>LF; FF=>FF #2 CR=>CR; LF=>CR+LF; FF=>CR+FF #3 CR=>CR+LF; LF=>CR+LF; FF=>CR+FF
End-of-line wrap	<u>ESC</u> &s#C	#0 Enable wrap-around mode #1 Disable wrap-around mode
Save and recall cursor position	<u>ESC</u> &f#S	#0 current position is stored #1 last saved cursor position is restored

<b>ACTION</b>	<b>COMMAND</b>	<b>VALUES</b>
Primary font symbol set	<u>ESC</u> (#	0U = US-ASCII 1E = United Kingdom 0F = France 0G = Germany 0S = Sweden/Finland 0I = Italy 0D = Denmark/Norway 1S = Spain 8U = Roman-8 0E = Roman Extension
Secondary font symbol set	<u>ESC</u> )#	0U = US-ASCII 1E = United Kingdom 0F = France 0G = Germany 0S = Sweden/Finland 0I = Italy 0D = Denmark/Norway 1S = Spain 8U = Roman-8 0E = Roman Extension
Select primary font	<u>SI</u>	
Select secondary font	<u>SO</u>	
Specify font ID	<u>ESC</u> *c#D	# is font ID number
Designate downloaded font as primary	<u>ESC</u> (#X	Specified by ID number in value field (#)
Designate downloaded font as secondary	<u>ESC</u> )#X	Specified by ID number in value field (#)
Page orientation	<u>ESC</u> &1#O	#0 - portrait mode #1 - landscape mode
Primary font default	<u>ESC</u> (#@	Performs functions on the primary functions on the primary font default symbol set according to value field #





<b>ACTION</b>	<b>COMMAND</b>	<b>VALUES</b>
Secondary font default	<u>ESC</u> )#@	Performs functions on the secondary functions on the secondary font default symbol set according to value field #
Select proportional spacing primary font	<u>ESC</u> (s#P	#0 - monospacing #1 - proportional spacing
Select proportional spacing secondary font	<u>ESC</u> )s#P	#0 - monospacing #1 - proportional spacing
Primary font pitch	<u>ESC</u> (s#H	# = CPI: 6.5 CPI 8.1 CPI 10 CPI 12 CPI 16.66 CPI
Secondary font pitch	<u>ESC</u> )s#H	# = CPI: 6.5 CPI 8.1 CPI 10 CPI 12 CPI 16.66 CPI
Standard or condensed pitch for both primary and secondary fonts	<u>ESC</u> &k#S	#0 = 10 CPI #2 = 16.66 CPI
Primary font height	<u>ESC</u> (s#V	# = height in points: 6 point 7 point 8.5 point 10 point 12 point 14 point 16 point 18 point 24 point 36 point

<b>ACTION</b>	<b>COMMAND</b>	<b>VALUES</b>	
Secondary font height	<u>ESC</u> )s#V	# = height in points: 6 point 7 point 8.5 point 10 point 12 point 14 point 16 point 18 point 24 point 36 point	
Primary font upright/italics	<u>ESC</u> )s#S	#0 upright #1 italic	
Secondary font upright/italics	<u>ESC</u> )s#S	#0 upright #1 italic	
Primary font stroke weight	<u>ESC</u> )s#B	#-7 to -1 #0 #+1 to +7	Light Medium Bold
Secondary font stroke weight	<u>ESC</u> )s#B	#-7 to -1 #0 #+1 to +7	Light Medium Bold
Primary font typeface	<u>ESC</u> )s#T	#0 Line printer #1 Pica #2 Elite #3 Courier #4 Helvet #5 Tms Romn #6 Gothic #7 Script #8 Prestige #9 Caslon #10 Orator	
Secondary font typeface	<u>ESC</u> )s#T	#0 Line printer #1 Pica #2 Elite	



<b>ACTION</b>	<b>COMMAND</b>	<b>VALUES</b>
		#3 Courier #4 Helvet #5 Tms Romn #6 Gothic #7 Script #8 Prestige #9 Caslon #10 Orator
Enable underline	<u>ESC</u> &dD	
Disable underline	<u>ESC</u> &d@	
Transparent print data	<u>ESC</u> &p#X	# = bytes to follow
Turn on display functions mode	<u>ESC</u> Y	
Turn off display functions mode	<u>ESC</u> Z	
Font and character control	<u>ESC</u> *c#F	#0 delete all fonts #1 delete temporary fonts #2 delete last specified font #3 delete last specified character code #4 make last specified font temporary #5 make last specified font permanent #6 copy/assign current font
Create font	<u>ESC</u> )s#W	Value field (#) specifies number of bytes in font descriptor
Specify character code	<u>ESC</u> *c#E	# = ASCII decimal character code
Download character	<u>ESC</u> (s#W	# field specifies number of bytes to follow W, escape sequence terminator

<b>ACTION</b>	<b>COMMAND</b>	<b>VALUES</b>
Raster graphics resolution	<u>ESC</u> *t#R	# specifies resolution in specified engine resolution elements
Start raster graphics	<u>ESC</u> *r#A	# specifies left graphic margin
Transfer raster graphics	<u>ESC</u> *b#W	# defines number of data bytes defining following row of Pels
End raster graphics	<u>ESC</u> *rB	Terminates raster graphics mode
Horizontal rule	<u>ESC</u> *c#A	# specifies horizontal size in number of 1/300 inch engine resolution elements
Horizontal rule	<u>ESC</u> *c#H	# specifies horizontal size in decipoints
Vertical rule	<u>ESC</u> *c#B	# specifies vertical size in number of 1/300 inch engine resolution elements
Vertical rule	<u>ESC</u> *c#V	# specifies vertical size in decipoints
Pattern ID	<u>ESC</u> *c#G	# specifies pattern to be used with pattern rule
Print rule	<u>ESC</u> *c#P	# specifies whether rule, gray scale pattern, or standard pattern is to be printed
Macro control	<u>ESC</u> &f#X	# specifies macro function control according to # in value field
Macro ID	<u>ESC</u> &f#Y	# = ID number



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**DIABLO 630**

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<b>ACTION</b>	<b>COMMAND</b>	<b>VALUES</b>
Initialize printer	<u>ESC SUB I</u>	Acted upon immediately after receipt
Initiate remote reset	<u>ESC CR P</u>	Acted upon in queue
Set horizontal motion to ( <i>N</i> - 1)	<u>ESC US n</u>	<i>n</i> = number of 1/120 in. increments
Return HMI control to default width in the font	<u>ESC S</u>	
Set vertical motion index	<u>ESC RS n</u>	<i>n</i> = 1 to 126
Set lines per page	<u>ESC FF n</u>	<i>n</i> = 1 to 126 lines
Set top page margin at current carriage position	<u>ESC T</u>	
Set bottom page margin at current paper position	<u>ESC L</u>	
Clear top and bottom margins	<u>ESC C</u>	
Set left margin at current carriage position	<u>ESC 9</u>	
Set right margin at current carriage position	<u>ESC 0</u>	
Enable auto centering mode	<u>ESC =</u>	
Auto-justify ON	<u>ESC M</u>	
Cancel WP modes except proportional space	<u>ESC X</u>	
Backspace	<u>BS</u>	
1/120 inch backspace	<u>ESC BS</u>	
Carriage return	<u>CR</u>	

<b><i>ACTION</i></b>	<b><i>COMMAND</i></b>	<b><i>VALUES</i></b>
Disable auto CR mode	<u>ESC</u> !	
Enable auto CR mode	<u>ESC</u> ?	
Line feed	<u>LF</u>	
Half line feed	<u>ESC</u> U	
Negative line feed	<u>ESC</u> LF	
Negative half line feed	<u>ESC</u> D	
Form feed	<u>FF</u>	
Enable backward printing mode	<u>ESC</u> 6	
Enable forward printing mode	<u>ESC</u> 5	
Enable reverse printing mode	<u>ESC</u> <	
Disable reverse printing mode	<u>ESC</u> >	
Set horizontal tab stop at current carriage position	<u>ESC</u> 1	
Horizontal tab	<u>HT</u>	
Clear horizontal tab stop at current carriage position	<u>ESC</u> 8	
Set vertical tab stop at current carriage position	<u>ESC</u> -	
Clear all horizontal and vertical tabs	<u>ESC</u> 2	
Vertical tab	<u>VT</u>	



<b>ACTION</b>	<b>COMMAND</b>	<b>VALUES</b>
Initiate absolute horizontal tab	<u>ESC HT</u> <i>n</i>	<i>n</i> = 1 to 126
Initiate absolute vertical tab	<u>ESC VT</u> <i>n</i>	<i>n</i> = 1 to 126
Operate ECS mode	<u>SO</u>	
Exit from ECS mode	<u>SI</u>	
Access supplementary character set	<u>EM</u>	
Print the character under ASCII code 7F hex	<u>ESC Z</u>	
Print the character under ASCII code 20 hex	<u>ESC Y</u>	
Enable proportional space printing	<u>ESC P</u>	
Disable proportional space printing	<u>ESC Q</u>	
Set offset to <i>n</i>	<u>ESC DC1</u> <i>n</i>	<i>n</i> = number of 1/120 in. increments
Bold print on	<u>ESC O</u>	
Shadow print on	<u>ESC W</u>	
Bold/shadow print-off	<u>ESC &amp;</u>	
Auto underline on	<u>ESC E</u>	
Auto underline off	<u>ESC R</u>	
Enable print suppression	<u>ESC 7</u>	
Enable graphics mode	<u>ESC 3</u>	
Disable graphics mode	<u>ESC 4</u>	

<b>ACTION</b>	<b>COMMAND</b>	<b>VALUES</b>
Absolute Hyplot on	<u>ESC</u> G	Begin with a motion
Absolute Hyplot on	<u>ESC</u> G <u>BEL</u>	Begin with a vector
Change plot character to "character"	<u>ESC</u> . ( <i>char</i> )	Default character is "."
Relative Hyplot on	<u>ESC</u> V	Begin with a motion
Relative Hyplot on	<u>ESC</u> V <u>BEL</u>	Begin with a vector
Set plot precision	<u>ESC</u> , <i>h v</i>	Select horizontal and vertical resolution increments vertical = 0 to 31 horizontal = 1/120 x h



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**EPSON EX-800**

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<b>ACTION</b>	<b>COMMAND</b>	<b>VALUES</b>
De-select printer	<u>DC3</u>	
Selects printer	<u>DC1</u>	
Initialize printer	<u>ESC @</u>	
Bell	<u>BEL</u>	
Set page length in inches	<u>ESC C NUL</u> <i>n</i>	<i>n</i> is between 1 and 22
Set page length in lines	<u>ESC C</u> <i>n</i>	<i>n</i> is between 1 and 127
Set skip over performance	<u>ESC N</u> <i>n</i>	<i>n</i> is an 8-bit binary coded value, <i>n</i> is between 1 and 127
Cancel skip over perfora- tion	<u>ESC O</u>	
Set left margin	<u>ESC l</u> <i>n</i>	<i>n</i> is units of current character spacing
Set right margin	<u>ESC Q</u> <i>n</i>	<i>n</i> is units of current character spacing
Select justification	<u>ESC a</u> <i>n</i>	<i>n</i> = 0 left justification <i>n</i> = 1 centering <i>n</i> = 2 right justification <i>n</i> = 3 full justification
Set 1/8 inch line spacing	<u>ESC 0</u>	
Set 7/72 inch line spacing	<u>ESC 1</u>	
Set 1/6 inch line spacing	<u>ESC 2</u>	
Set <i>n</i> /216 inch line spacing	<u>ESC 3</u> <i>n</i>	<i>n</i> is between 1 and 255
Set <i>n</i> /72 inch line spacing	<u>ESC A</u> <i>n</i>	<i>n</i> is between 1 and 85
Backspace	<u>BS</u>	

<b>ACTION</b>	<b>COMMAND</b>	<b>VALUES</b>
Carriage return	<u>CR</u>	
Linefeed	<u>LF</u>	
Tentative $n/216$ inch line spacing	<u>ESC J n</u>	$n$ is between 1 and 255
Execute reverse feed	<u>ESC j n</u>	$n$ is between 1 and 255
Form feed	<u>FF</u>	
One-line unidirectional printing	<u>ESC &lt;</u>	Positions print cursor to left margin
Move cursor to absolute dot position	<u>ESC \$ n1 n2</u>	Moves cursor absolute to $n1 + n2 \times 256$ dots measuring 1/60 inch
Move cursor to relative dot position	<u>ESC \ n1 n2</u>	Moves cursor to left or right relative to present position $n1 + n2 \times 256$ dots measuring 1/120 in.
Set horizontal tabs	<u>ESC D n1 ... n64</u> <u>NUL</u>	$n =$ tab positions where the value of the tab unit is the current HMI
Clear horizontal tabs	<u>ESC D NUL</u>	
Horizontal tab	<u>HT</u>	
Set vertical tabs	<u>ESC B n1 ... n64</u> <u>NUL</u>	$n =$ tab positions at lines (between 1 and 254)
Clear vertical tabs	<u>ESC B NUL</u>	
Vertical tab	<u>VT</u>	
Set vertical format unit position	<u>ESC b u n1 ... n64</u> <u>NUL</u>	$u =$ VFU $n =$ tab positions
Select VFU channel	<u>ESC / n</u>	$n =$ VFU channel number



<b>ACTION</b>	<b>COMMAND</b>	<b>VALUES</b>
Set character table	<u>ESC</u> t <i>n</i>	<i>n</i> = 0 select italics <i>n</i> = 1 select Epson Character Graphics
Select international character set	<u>ESC</u> R <i>n</i>	<i>n</i> = 0 US (ASCII) <i>n</i> = 1 France <i>n</i> = 2 Germany <i>n</i> = 3 England <i>n</i> = 4 Denmark I <i>n</i> = 5 Sweden <i>n</i> = 6 Italy <i>n</i> = 7 Spain I <i>n</i> = 8 Japan <i>n</i> = 9 Norway <i>n</i> = 10 Denmark II <i>n</i> = 11 Spain II <i>n</i> = 12 Latin America
Set Most Significant Bit of received codes to be 1	<u>ESC</u> >	
Set Most Significant Bit of received codes to be 0	<u>ESC</u> =	
Cancel Most Significant Bit set by <u>ESC</u> = or <u>ESC</u> >	<u>ESC</u> #	
Select proportional spacing mode	<u>ESC</u> p <i>n</i>	<i>n</i> = odd ASCII code start mode <i>n</i> = even ASCII code stop mode
Set amount of space added to right of each character	<u>ESC</u> SP <i>n</i>	<i>n</i> = 1/120 in. 0 < <i>n</i> < 127
Set elite-sized characters	<u>ESC</u> M	
Cancel elite-sized characters	<u>ESC</u> P	
Sets condensed print mode	<u>SI</u>	
Set condensed print mode	<u>ESC</u> <u>SI</u>	Same as <u>SI</u>

<b>ACTION</b>	<b>COMMAND</b>	<b>VALUES</b>
Cancel condensed print mode	<u>DC2</u>	
Set enlarged print mode	<u>SO</u>	
Set enlarged print mode	<u>ESC SO</u>	Same as <u>SO</u>
Enable/cancel enlarged print mode	<u>ESC W n</u>	<i>n</i> = odd ON <i>n</i> = even OFF
Cancel enlarged print mode	<u>DC4</u>	
Select upright characters	<u>ESC 5</u>	
Select italic characters	<u>ESC 4</u>	
Enable emphasized mode	<u>ESC E</u>	
Cancel emphasized mode	<u>ESC F</u>	
Enable double-strike print mode	<u>ESC G</u>	
Cancel double-strike print mode	<u>ESC H</u>	
Underlined print mode	<u>ESC - n</u>	<i>n</i> = odd 8-bit value ON <i>n</i> = even 8-bit value OFF
Print mode select	<u>ESC ! n</u>	<i>n</i> = 8 bit binary number with: 10xxxx01 elite spacing xxxxxx10 proportional 10xx0100 condensed 10xx1x10 emphasized 00xx1x1x double-strike 001xxx1x enlarged 01xxxxxx italics 11xxxxxx underline where x = either 0 or 1



<b>ACTION</b>	<b>COMMAND</b>	<b>VALUES</b>
Set superscript- subscript mode	<u>ESC</u> S <i>n</i>	<i>n</i> = any even binary value, superscript <i>n</i> = any odd binary value, subscript
Cancel superscript- subscript mode	<u>ESC</u> T	
Cancel	<u>CAN</u>	
Cancel last printable data	<u>DEL</u>	
Expand printable code area	<u>ESC</u> 6	
Cancel expansion of printable code area	<u>ESC</u> 7	
Select control codes or printable characters	<u>ESC</u> I <i>n</i>	<i>n</i> = odd print characters <i>n</i> = even recognize control codes
Normal density bit image mode	<u>ESC</u> K <i>n1 n2</i>	Print next ( <i>n1</i> + <i>n2</i> x 256) dots with 60 dots/inch horizontal spacing
Dual-density bit image mode	<u>ESC</u> L <i>n1 n2</i>	Print next ( <i>n1</i> + <i>n2</i> x 256) dots with 120 dots/inch horizontal spacing
Double-speed dual-density bit image mode	<u>ESC</u> Y <i>n1 n2</i>	Print next ( <i>n1</i> + <i>n2</i> x 256) dots with 120 dots/inch horizontal spacing
Quadruple-density bit-image mode	<u>ESC</u> Z <i>n1 n2</i>	Print next ( <i>n1</i> + <i>n2</i> x 256) dots with 240 dots/inch horizontal spacing
Select bit image mode	<u>ESC</u> * <i>m n1 n2</i>	<i>m</i> is graphis mode <i>m</i> =0 normal density, 60 dots/in. <i>m</i> =1 dual density, 120 dots/in. <i>m</i> =2 double speed, dual density <i>m</i> =3 quad density, 240 dots/in. <i>m</i> =4 CRT graphis, 80 dots/in. <i>m</i> =5 plotter graphics, 72 dots/in. <i>m</i> =6 CRT graphics II, 90 dots/in. 0<= <i>n1</i> <=255      0<= <i>n2</i> <=2

<b>ACTION</b>	<b>COMMAND</b>	<b>VALUES</b>
Assign bit image mode	<u>ESC</u> ? <i>n m</i>	<i>m</i> is graphis mode where: <i>m</i> =0 normal density, 60 dots/in. <i>m</i> =1 dual density, 120 dots/in. <i>m</i> =2 double speed, dual density <i>m</i> =3 quad density, 240 dots/in. <i>m</i> =4 CRT graphis, 80 dots/in. <i>m</i> =5 plotter graphics, 72 dots/in. <i>m</i> =6 CRT graphics II, 90 dots/in.
Set 9-pin bit image mode	<u>ESC</u> ^ <i>a n1 n2</i>	if <i>a</i> = even, 60 dots/in. if <i>a</i> = odd, 120 dots/in. <i>n1</i> and <i>n2</i> indicate number of data bytes in sequence to be [ <i>n1</i> - <i>n2</i> (256)] where 0 <= <i>n1</i> <=255      0 <= <i>n2</i> <=4

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## IBM PROPRINTER

<b>ACTION</b>	<b>COMMAND</b>	<b>VALUES</b>
Automatic line feed	<u>ESC</u> 5 <i>n</i>	<i>n</i> = odd 8-bit value ON <i>n</i> = even 8-bit value OFF
Backspace	<u>BS</u>	
Bell	<u>BEL</u>	
Cancel	<u>CAN</u>	
Carriage return	<u>CR</u>	
Select 10 characters per inch printing	<u>DC2</u>	
Select 12 characters per inch printing	<u>ESC</u> :	

<b>ACTION</b>	<b>COMMAND</b>	<b>VALUES</b>
Select character set 1	<u>ESC</u> 7	
Select character set 2	<u>ESC</u> 6	
Compressed character printing off	<u>DC2</u>	
Compressed character	<u>SI</u>	
Cancel double strike mode	<u>ESC</u> H	
Enable double strike mode	<u>ESC</u> G	
Cancel emphasized mode	<u>ESC</u> F	
Enable emphasized mode	<u>ESC</u> E	
Cancel expanded width	<u>DC4</u>	
Double width mode	<u>ESC</u> W <i>n</i>	<i>n</i> = odd 8-bit value expanded <i>n</i> = even 8-bit value cancel expanded
Double width, one line	<u>SO</u>	
Form feed	<u>FF</u>	
Set page length (inches)	<u>ESC</u> C <u>NUL</u> <i>n</i>	1 <= <i>n</i> <= 22
Set page length (lines)	<u>ESC</u> C <i>n</i>	1 <= <i>n</i> <= 127
Set top of form to current position	<u>ESC</u> 4	
960-bit-image graphics mode	<u>ESC</u> L <i>m1 m2</i>	<i>m</i> = number of bytes
960-bit-image graphics mode normal speed	<u>ESC</u> Y <i>m1 m2</i>	<i>m</i> = number of bytes
480-bit-image graphics mode	<u>ESC</u> K <i>m1 m2</i>	<i>m</i> = number of bytes
1920-bit-image graphics mode	<u>ESC</u> Z <i>m1 m2</i>	<i>m</i> = number of bytes

<b>ACTION</b>	<b>COMMAND</b>	<b>VALUES</b>
Home head	<u>ESC</u> <	
Variable line feed 0.12 mm	<u>ESC</u> J <i>n</i>	<i>n</i> = <i>n</i> /216 line spacing where <i>n</i> = 1 <= <i>n</i> <=255
Line feed	<u>LF</u>	
Set 7/72 inch line spacing	<u>ESC</u> 1	
Start variable line feed	<u>ESC</u> 2	
Graphics line spacing	<u>ESC</u> 3 <i>n</i>	<i>n</i> = <i>n</i> /216 line spacing where <i>n</i> = 1 <= <i>n</i> <=255
Set 1/8 inch line spacing	<u>ESC</u> 0	
Variable line feed 0.35 mm	<u>ESC</u> A <i>n</i>	<i>n</i> = <i>n</i> /72 line spacing where <i>n</i> = 1 <= <i>n</i> <=255
Continuous overscore	<u>ESC</u> _ <i>n</i>	<i>n</i> = odd 8-bit value ON <i>n</i> = even 8-bit value OFF
Print continuously according to identification code	<u>ESC</u> \ <i>n</i> 1 <i>n</i> 2	<i>n</i> = code
Print next received character according to identification code	<u>ESC</u> ^	
Cancel skip perforation	<u>ESC</u> O	
Set skip perforation	<u>ESC</u> N <i>n</i>	<i>n</i> is lines at bottom of form where (between 1 and 127)
Subscript-superscript off	<u>ESC</u> T	
Subscript-superscript on	<u>ESC</u> S <i>n</i>	<i>n</i> = even superscript <i>n</i> = odd subscript
Horizontal tab	<u>HT</u>	





<b>ACTION</b>	<b>COMMAND</b>	<b>VALUES</b>
Set horizontal tab stops	<u>ESC</u> D <i>n1</i> ... <i>n64</i> <u>NUL</u>	<i>n</i> = tab positions where value of tab unit is current CPI
Set all tab stops to power on default settings	<u>ESC</u> R	
Set vertical tab stops	<u>ESC</u> B <i>n1</i> ... <i>n64</i> <u>NUL</u>	<i>n</i> = tab positions in absolute values at lines between 1 and 254
Vertical tab	<u>VT</u>	
Underline	<u>ESC</u> - <i>n</i>	<i>n</i> = odd 8-bit value ON <i>n</i> = even 8-bit value OFF



# C H A P T E R

# 8

## *Interfacing With Applications Programs*

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As you have read, some of the commands needed for printing are resident in the Star LaserPrinter 8. Some can be programmed from the front panel. And some must be issued by the computer, from within a program. Some applications programs allow the user to specify a printer or printers, either by name or by type. Once the selection is made, it becomes part of the program file. As a result, printing usually requires nothing more than issuing a one or two keystroke command.

In this chapter you will learn how to specify the Star LaserPrinter 8 in four of the most popular applications programs for IBM compatible computers: Lotus 1-2-3, WordPerfect, Microsoft Word, and Microsoft Windows. The Star LaserPrinter 8 will print graphics as well as words and numbers, emulating Hewlett Packard graphics, all densities of the Epson dot matrix printers, and the IBM Proprinter semigraphics. It can also be used with the two popular desktop publishing programs, PageMaker and Ventura Publisher, which uses the GEM desktop environment. Both are compatible with the HP Laser Jet Plus. For further information consult the Applications Manual.

Before you begin printing, be sure your Star LaserPrinter 8 is correctly configured for your computer by having either the parallel or serial

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interface selected and the correct cabling. Prior to printing, make sure that you have selected the same emulation from the front panel as the one you specified in the application.

## LOTUS 1-2-3

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### *Original Version:*

The original version of Lotus 1-2-3 is perhaps the most widely used applications program. It also predates the popularity of laser printers. However, Lotus can readily be used with dot matrix printers. This makes it easy to use with the Star LaserPrinter 8, because it emulates two dot matrix printers, the Epson EX-800 and the IBM Proprinter. Lotus can also be used with the Star LaserPrinter 8's Diablo 630 daisy wheel printer emulation: however, it does not produce graphics.

There are two ways to make Lotus compatible with a printer:

- **permanently**, in a startup configuration file through the /Worksheet Menu, and
- **temporarily**, through the Print/Printer Menu.

The more straightforward of the two choices is to make the choice permanent and automatic upon startup. Doing this saves the printer setup in the file *123.CNI* on the Lotus system disk. Here is how to do this:

At the opening screen and Menu, select **Worksheet** by typing

**/W**

In the next Menu, select **Global** by typing

**G**

and then, at the Global Menu, select **Default** by typing

**D**

In the Default Menu, type

**P**

for **Printer**. Now you are ready to make some selections about the configuration of your Star LaserPrinter 8.

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The first of these is telling Lotus whether your printer will use a parallel or serial interface.

For parallel, type

1

For serial, type

2

You will now see a series of options. If you have a parallel interface, make these selections next:

• **Automatic line feed** — type

N

for No. If you look at your sample print under Paper Feed Group, you will see that the matching command is *off*.

• **Pitch** — If you are using a standard font, you do not need to make a selection here. However, if you are using Diablo emulation and a 15 pitch daisy wheel, enter the escape sequence

ESC US 9

Now you are through with the parallel configuration. To save these new values, in the Default Menu type

U

for Update. Finally, type

Q

for Quit, and Lotus is ready to use with the Star Laser Printer 8.

For a serial interface, type 2 to select it. Choices following this are:

• **Data transmission rate** - type

6

for 9600 baud.

• **Automatic line feed** - type

N

for No. If you look at your sample print under Paper Feed Group, you will see that the matching command is *off*.

- 
- **Pitch** — If you are using a standard font, you do not need to make a selection here. However, if you are using Diablo emulations and a 15 pitch daisy wheel, enter the escape sequence

ESC US 9

Now you are through with the serial configuration. To save these new values, in the Default Menu type

U

for Update. Finally, type

Q

for Quit, and Lotus is ready to use with the Star LaserPrinter 8.

If you are interested in customizing your Lotus files' communication with the Star LaserPrinter 8, you should consult the section in the Lotus Manual entitled "Printer Control Codes."

With the Star LaserPrinter 8, you can use Lotus 1-2-3's PrintGraph feature to reproduce charts and graphs, in the Epson emulation. To do this you must select options that configure PrintGraph for this emulation.

If you are in Lotus, save your worksheet with File and Save,

/FS

and your graph with Graph and Save,

/GS

Access PrintGraph and insert the PrintGraph program disk in Drive A and the font disk in Drive B. From the menu make these selections:

Configurable Device — Epson FX-80 (either single, double, or quad density—Star LaserPrinter 8 supports them all), using the arrow keys to position the pointer, and

Enter

Page — type width and length values for the size of paper; this should match the printer paper cassette used in the printer

Interface — if your printer will use a parallel connection, highlight

---

1

and

Enter

With a serial connection, select a baud rate of 9600, which is rate choice number 8.

To make these changes permanent, save them by typing

/S

and choosing

Replace

Now select

Quit

to return to the main PrintGraph menu. PrintGraph is now ready to use with the Star LaserPrinter 8.

**Lotus Release 2:**

In this newer version of Lotus, all equipment selections are saved in a single driver file, called *123.SET*. Select your printer from the Install program, through the option called

Change Selected Equipment.

On this Menu, select

Text Printer

and press <ENTER>. From the list of printers, choose

HP Laser Jet Plus

and then select

Save Changes

to record your choice.

From the main Lotus Menu, you can specify your default printer by selecting

/Worksheet Global Default Printer Name

You can also use the Star LaserPrinter 8's Epson EX-800 and IBM Proprinter emulations, following the same routine from the Lotus

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Menus. Diablo 630 emulation may also be used, but will not produce graphics.

For graphics, place the PrintGraph disk in Drive A. Select

PrintGraph

from the Lotus 1-2-3 menu. Or from DOS type

pgraph

and

Enter.

Put the configuration menu on the screen by selecting

Settings

To specify the printer connection, either parallel or serial, select

Hardware

and

Interface

For printer type, from the Hardware menu, choose

Printer

and designate

HP Laser Jet Plus.

From the configuration menu you can also choose fonts, paper size (be sure to select the same size paper cassette for the printer), and actions such as whether the printer should pause or eject the paper after each graph is printed.

When you have finished, make your selections permanent by choosing

Save

from the configuration menu. When you quit PrintGraph, you are ready to use your Star LaserPrinter 8.



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## WORDPERFECT

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WordPerfect must be installed before you can select a printer. Once this is done, display the Printer Control Menu by pressing

[SHIFT] and Function Key 7

From the list of options that appears on the screen, type the number

4

for Printer Control. Of the three options that now appear, choose Select Printers by typing

3

From the list of defined printers, select either HP Laserjet Plus, Epson EX-800, IBM Proprinter, or Diablo 630, and call it Printer No. 1.

Now you must specify the interface connection. If you are using a parallel interface, for LPT 1, type

0

For a serial interface, for COM1, type

4

You must now specify the serial parameters, including baud rate, parity, stop bits, and character length. Be sure that you specify the same values in WordPerfect as you do for the Star LaserPrinter 8. Consult the sample print under Interface Group for the printer's default values. To save your WordPerfect selections, EXIT the program.

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## MICROSOFT WORD

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In Microsoft Word, you can make your printer selections through the Print Menu. At the text screen, press [ESC]. Then select PRINTER by typing

P

In the resulting Menu, select OPTIONS by typing

O

A list of available printers appears at the top of the screen. Each of these

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printers is the subject of a Printer Description (PRD) File, which is found on the Printer Disk or the Utilities Disk.

Depending on which release of Word you have, you can select either the HP LaserJet Plus or the Diablo 630 ECS. You should copy the PRD file for the printer you want to use to the main Word disk, or to a hard disk. Once you do this, the printer will appear in the Menu for selection at time of printing.

For the HP LaserJet Plus, you need three PRD files:

- **HPLASLAN.PRD** — for all landscape fonts in cartridges, including Courier 12, LetterGothic 12, Lineprinter 8.5, Prestige 7 and 10, and Times Roman 10.
- **HPDWNSFP.PRD** — for all portrait fonts available in downloadable fonts.
- **HPDOWNSFL.PRD** — for all landscape fonts available in downloadable fonts.

For the Epson, copy these files:

- **EPSONFXQ.PRD** — which uses graphics mode during justification
- **EPSONFX.PRD** — which uses full width spaces for justification, and is faster than the method used in EPSONFXQ.PRD.

For IBM Proprinter emulation, copy:

- **IBMPRO.PRD**

For the Diablo 630 ECS, copy the PRD file

## MICROSOFT WINDOWS

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- **D630ECS.PRD**

Microsoft Windows is a program that coordinates the use of various programs that might not otherwise be compatible on the screen. Windows can be configured for your printer, but you should also be aware that any applications program that you use may have its own printer requirements, which must be taken into consideration.

To choose a printer for Windows, at the initial Menu select  
CONTROL PANEL.

---

From the resulting Menu, select the  
INSTALLATION

Menu, then  
ADD A PRINTER.

The screen will display a box that reads:

Add printer  
Insert the disk with the printer file  
you wish to add into drive A, or choose  
an alternative drive/directory:

A:\\_\_\_\_\_

OK      CANCEL

Insert the Utilities disk in drive A and press

OK

Now the screen displays this box:

Available Printers      Printer File: \_\_\_\_\_

Epson FX-80

NEC 3550

HP LaserJet

HP LaserJet Plus

HP 7470A

Add      Cancel

Highlight HP LaserJet Plus or Epson and select

ADD

Another box appears in response:

Copy associated printer file HPLASERP.DRV  
to drive/directory:

C:\Windows (if you have a hard disk)

Yes      No      Cancel

---

Selecting YES confirms your printer choice and returns you to the CONTROL PANEL Menu

If you are just starting with Windows, you should select SETUP from the CONTROL PANEL Menu. This will present a Menu with three options.

You should first select PRINTER and from the list choose the printer you wish to use.

Next, from SETUP select CONNECTIONS. This will let you designate the parallel or serial port for the printer, clicking OK to confirm it.

If you are using a serial printer, go to SETUP once again, and select COMMUNICATIONS

After you indicate the active port you have already chosen, Windows will present a series of settings options. Type in the desired baud rate and “push the button” for your selection of word (bit) length, parity, stop bits, handshake, and port.

Select HARDWARE handshake and 1 stop bit.

Be sure that the other selections match the printer settings shown under Interface Group on the Star LaserPrinter 8's sample print.



## *Maintaining the Star LaserPrinter 8*

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The Star LaserPrinter 8 is a sophisticated piece of equipment. But its routine maintenance is simple, and requires only a soft cloth, a cotton swab, and mild detergent.

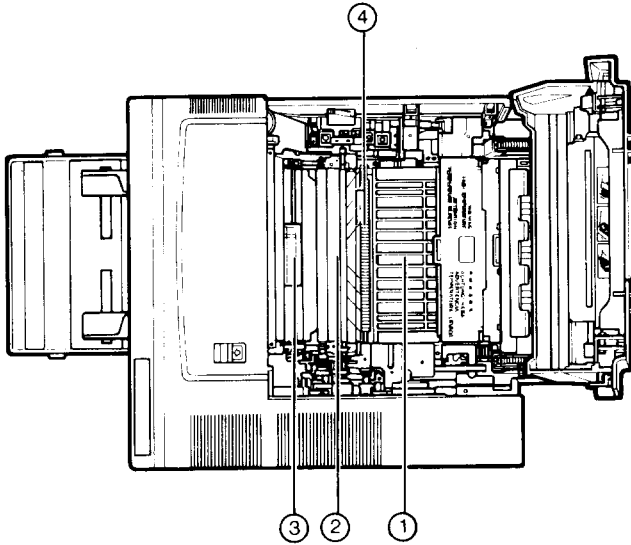
Portions of the interior of the printer require periodic cleaning. This should occur at the time you change the toner cartridge. But they should be a part of routine maintenance, as well.

To prevent paper dust from interfering with the operation of the printer, each day you should wipe three interior areas with a moistened soft cloth (Fig. 9-1):

- **paper feed guide area** (Fig. 9-2); use caution, since this area may be hot
- **transfer guide** (Fig. 9-3)
- **transfer paper guide** (Fig. 9-4)

Each day you should also gently clean off the transfer corona wires, using a cotton swab (Figs. 9-5, 9-6 & 9-7).

Periodically you should use the wire brush contained within the printer to clean the groove near the transfer corona wires (Figs. 9-8 & 9-9). Be careful not to damage the wires.



- ① Paper feed guide area
- ③ Transfer paper guide
- ② Transfer guide
- ④ Transfer corona wires and groove beside them

Fig. 9-1

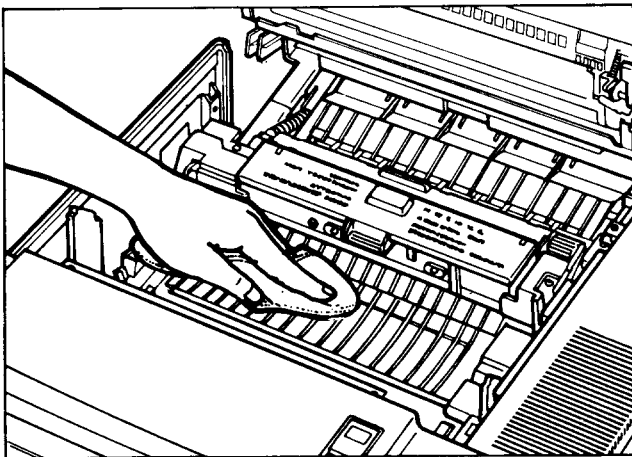


Fig. 9-2

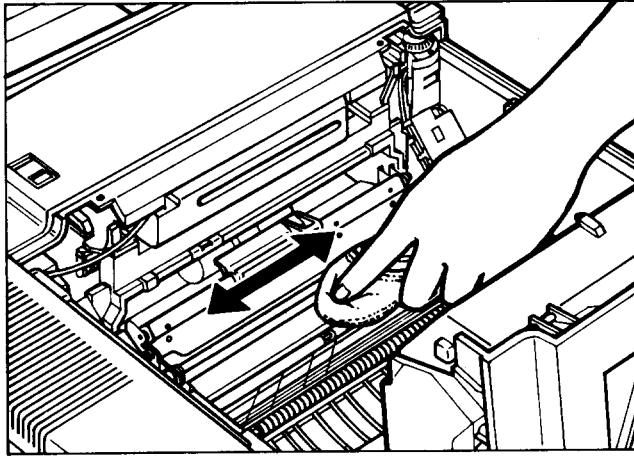


Fig. 9-3

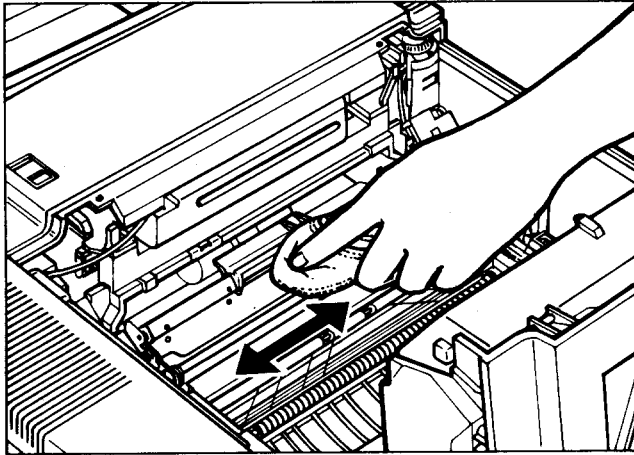


Fig. 9-4

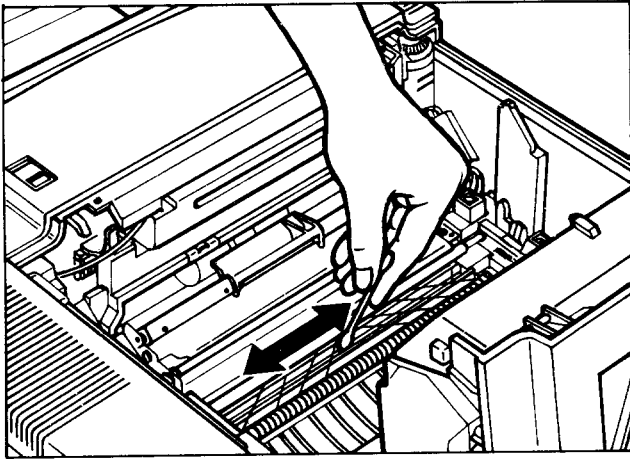


Fig. 9-5

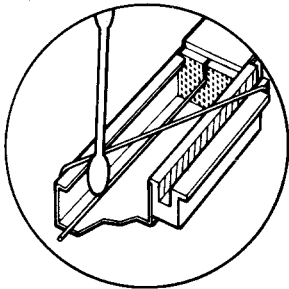


Fig. 9-6

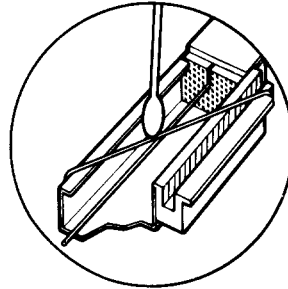


Fig. 9-7



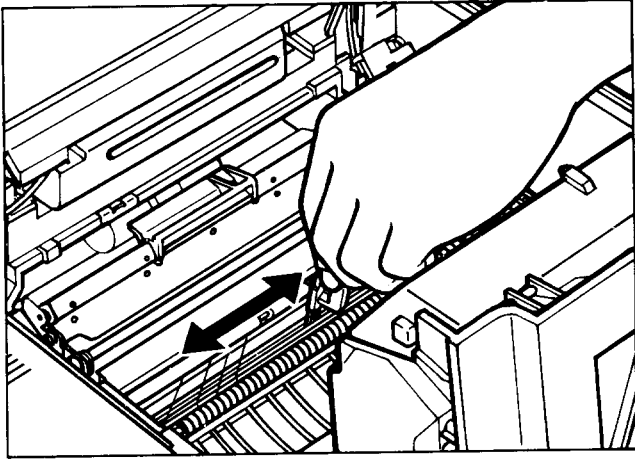


Fig. 9-8

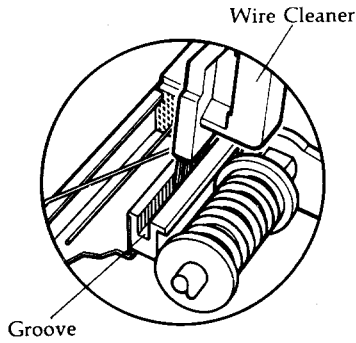


Fig. 9-9

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Finally, you can clean the exterior of the printer with a mild detergent and a soft cloth (Fig. 9-10). Before you begin, be sure to unplug the printer, and remove the paper cassette and any font cartridges.

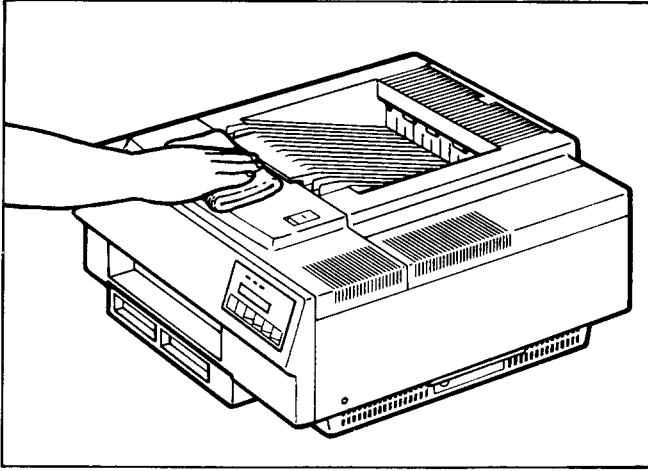


Fig. 9-10

# CHAPTER

# 10

## Trouble Shooting

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An important key to reliable operation of your Star LaserPrinter 8 is knowing how to respond when trouble occurs. Some problem conditions can be handled on the spot by the printer operator. Others require servicing by trained personnel. This chapter will explain when to do what. It will also help you deal with the jamming of paper and other operational problems.

### ERROR MESSAGES DISPLAYED ON THE SCREEN

The front panel screen may display a variety of messages during the course of operation of the Star LaserPrinter 8. You are already familiar with the display sequence during power-up, and when programming the printer. Some messages provide information about the paper supply in the cassette or the condition of the toner cartridge. Others have to do with fonts or emulations.

Another way of considering errors is that some of them result from failures in hardware or software. Other errors are functional, meaning that either the printer operator or the host computer has commanded the controller to perform an operation that is beyond its designed capabilities.

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If the printer malfunctions for some reason, warning messages will appear on the screen, recommending what action you should take. The most serious are messages that tell you to call for repair service. Some messages concern less serious conditions that can be handled by the printer operator. Information messages relate a communication problem with the host computer, but do not affect the printer's operation. These messages are summarized here.

## SERVICE CALL MESSAGES

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### *Engine service call messages:*

Engine service call messages are related to the interface with the engine. They can result from either a communication failure, or a halt in the engine's ready level.

## STREAKY PRINTS

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<b>MESSAGE</b>	<b>MEANING</b>	<b>RESULT</b>
CALL SERVICE 01	improper communication	processing stops; alarm beeps; press [ERROR SKIP] to reset engine and recheck
CALL SERVICE 02	laser synchronization problem	processing stops; alarm beeps; press [ERROR SKIP] to reset engine and recheck
CALL SERVICE 03	scanner motor malfunction	processing stops; alarm beeps; press [ERROR SKIP] to reset engine and recheck
CALL SERVICE 04	improper communication	processing stops; alarm beeps; press [ERROR SKIP] to reset engine and recheck

Controller error messages result from failure in either hardware or software. Some controller error messages occur during startup tests. The messages mean that the controller is malfunctioning, but is still able to display the error message. Certain conditions can also be detected during controller reset, on insertion of a cartridge, and at other times after the completion of power-up initialization. An error stops the test sequence, the unit goes off line, and the alarm sounds. The controller will attempt to recover, if possible. If the problem is not found during initialization, but recurs during operation, most likely the fault is in the hardware.

<b>MESSAGE</b>	<b>MEANING</b>	<b>RESULT</b>
CALL SERVICE 05	CRC error in controller main ROM program	program halts; fatal
CALL SERVICE 06	CRC error in resident font ROM	program halts; fatal
CALL SERVICE 07	read/write test error in on-board RAM	program halts; fatal
CALL SERVICE 08	read/write test error in expansion RAM (if present)	program halts; fatal
CARTRIDGE 1 BAD	CRC error in Cartridge 1 (if present)	sequence stops; alarm beeps; shut off power and fix problem; or depress [ERROR SKIP] to continue, in which case Cartridge 1 is ignored
CARTRIDGE 2 BAD	CRC error in Cartridge 2 (if present)	sequence stops; alarm beeps; shut off power and fix problem; or depress [ERROR SKIP] to continue, in which case Cartridge 2 is ignored

CALL SERVICE 10	CRC error in NV RAM	sequence stops; alarm beeps; shut off power and fix problem; or depress [ERROR SKIP] to continue, in which case program uses factory settings as power-up settings
NO FONT PRESENT	no font present	program halts; fatal
FATAL RAM ERROR	RAM error on main board	program or expansion board halts; fatal
PROG ROM ERROR	ROM error on main board	program halts; fatal
TIMER ERROR	counter-timer error	program halts; fatal

## OPERATOR CALL MESSAGES

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Whenever the screen displays operator call messages, the printer goes off line and the alarm sounds. The problem is one that the operator should be able to resolve. After making the correction, you should press [ERROR SKIP], to recheck status. If the error message does not recur, you may press [ON LINE], to continue operation.

### ***Engine Problems:***

These are mechanical problems that prevent the engine from remaining ready to print.

<b>MESSAGE</b>	<b>MEANING</b>	<b>ACTION</b>
REFILL CASSETTE	out of paper	printing stops; refill according to procedure in Chapter 2.
SET EPS CART.	no toner cartridge	insert or reposition toner cartridge



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### ***Change Paper Size:***

Certain emulations permit paper size to be specified by the host computer. Also, paper size may be selected from the menu. If a change in paper size is required, the screen will display a message to that effect. The alarm will beep, but the printer will not go off line. You may have the printer ignore such a message by pressing [ERROR SKIP]. If you remove the present paper cassette, the printer goes off line. After inserting the correct paper cassette, you should press [ERROR SKIP], for verification. You may then press [ON LINE].

<b>MESSAGE</b>	<b>MEANING</b>	<b>ACTION</b>
CHANGE A4	A4 paper cassette needed	follow procedure above
CHANGE LETTER	Letter paper cassette needed	follow procedure above
CHANGE LEGAL	Legal paper cassette needed	follow procedure above
CHANGE EXEC.	Exec. paper cassette needed	follow procedure above
CHANGE B5	B5 paper cassette needed	follow procedure above

### ***Manual Paper Feed:***

Certain emulations permit specifying manual paper feed from the host computer. Also, you may select manual feed from the Menu. The following messages tell you to hand feed paper of a specific size. The alarm beeps, but the printer does not go Off Line. When you feed the appropriate paper through the manual feed slot, the message will be turned *off* and printing will continue.



<b>MESSAGE</b>	<b>MEANING</b>	<b>ACTION</b>
M-FEED A4	A4 paper to be hand fed	follow procedure above
M-FEED LETTER	Letter paper to be hand fed	follow procedure above
M-FEED LEGAL	Legal paper to be hand fed	follow procedure above
M-FEED EXEC.	Exec. paper to be hand fed	follow procedure above
M-FEED B5	B5 paper to be hand fed	follow procedure above

## **OPERATOR INFORMATION MESSAGES**

These messages provide information, but do not halt the printing process. The alarm sounds, and if necessary, the printer uses a default value. You may remove the message by pressing [ERROR SKIP]. Note that if there are multiple errors, the last one detected is displayed.

### **Host Communication Problems:**

<b>MESSAGE</b>	<b>MEANING</b>	<b>ACTION/STATUS</b>
LINE ERROR	parity error in host data	follow procedure above
INPUT OVERFLOW	input buffer overflow	follow procedure above
BAD FONT DATA	downloaded font bad	downloaded font ignored
BAD FONT CODE	downloaded font in error	downloaded font ignored
BAD CHARACTER CODE	loaded character	downloaded outside of indices font ignored

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***Function or Size Incompatibility:***

These are problems that occur when the host computer requests a function not provided or a function that requires more memory than is available.

<b>MESSAGE</b>	<b>MEANING</b>	<b>STATUS</b>
PAGE OVERFLOW	page buffer memory overflow	partial page currently composed is printed and ejected; remaining data for page is printed on next sheet
CANNOT ROTATE	insufficient memory to rotate font	font rotation aborted; printing continues using closest available font
CANNOT DOWNLOAD	insufficient memory to font download	download font aborted; printing continues using closest available font
CHAR NOT IN FONT	received character not in currently selected font	blank space is printed for that character
TOO MANY FONTS	too many fonts for font	excess fonts table are discarded
CANNOT DOWNLOAD	glyph exceeds buffer size	glyph storage is aborted
NO MEM FOR FORM	no room for form download	macro download is aborted



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## STATUS MESSAGES

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Status messages are low priority messages that either indicate normal conditions or provide warnings that need not be acted upon immediately. These conditions should not occur when the printer is On Line. If they do, however, the alarm will beep and the printer will go Off Line. For some conditions however, there is the possibility of a condition occurring when the printer is On Line. If it does, the alarm will not sound and the printer will remain On Line.

<i>MESSAGE</i>	<i>MEANING</i>	<i>ACTION/STATUS</i>
PRINTER WARMUP	printer is warming up but service call not necessary	—
ENGINE TEST	operator has initiated a test of the printing	test in progress
ENGINE RESET	engine is being reset	—
REINITIALIZE	controller soft initialization	may occur when printer is On Line if emulation is changed from host
STATUS SHEET (n)	status sheet (n) printout	—
REPRINT LOST PGS	retransmission of lost sheets	—
ROTATING FONT	wait for font rotation	may occur when On Line
TONER LOW	toner cassette may need replacing	may occur when On Line
PRINTER READY	all conditions normal and proper; no unused data in controller or pages in printing	—
PRINTER ACTIVE	all conditions normal and proper; unused data in controller or pages in printing	—

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## PAPER JAMMING

As paper travels from the cassette through the printing area and is ejected, it can jam in one of four places: (1) as it leaves the cassette, (2) within the printing area, (3) near the fixing assembly, and (4) where the paper is ejected (Fig 10-1).

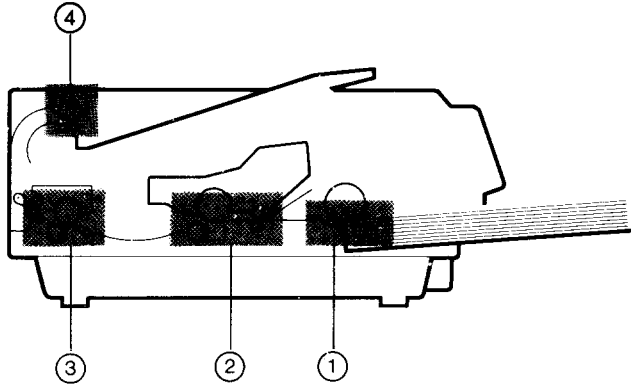


Fig. 10-1

When the paper does not move freely through any of these places, the printer screen will display the message

### PAPER JAMMING

and the printer will go Off Line. First open the printer and see where the paper is jammed. If the paper is stuck as it comes from the cassette (Fig. 10-2), open the transfer paper guide. Then grasp the paper and pull up on it. If this does not work, you should remove the paper cassette, then repeat the operation, which should now be successful.

If the paper jams within the printing area (Fig. 10-3), open the transfer paper guide. Then grasp the paper and pull upward on it.

If the paper jam occurs near the fixing assembly, first lift the fixing assembly cover (Fig. 10-4), your next step depends on how the paper is stuck. Either grasp the end of the paper near the front of the printer and pull it toward you (Fig. 10-5), or grasp the end near the rear of the printer and pull the paper straight up (Fig. 10-6).

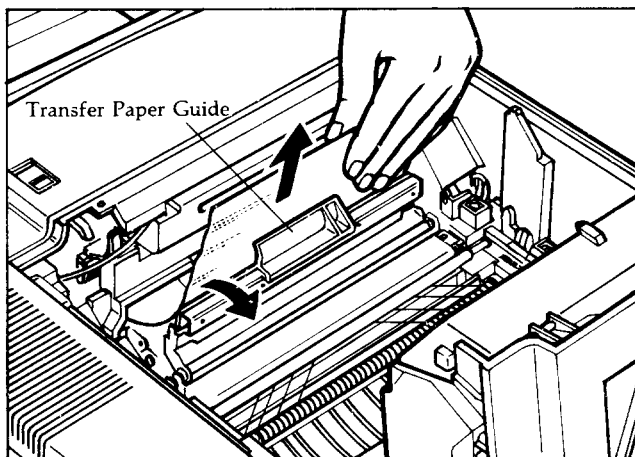


Fig. 10-2

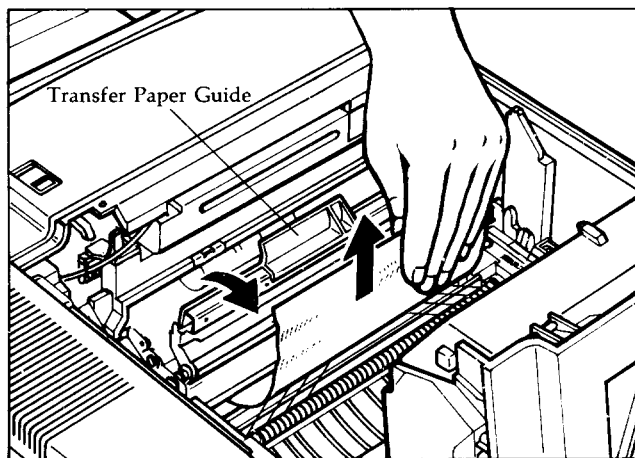


Fig. 10-3

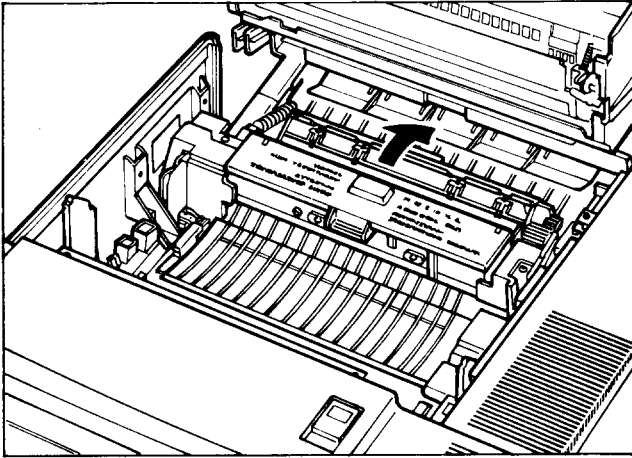


Fig. 10-4

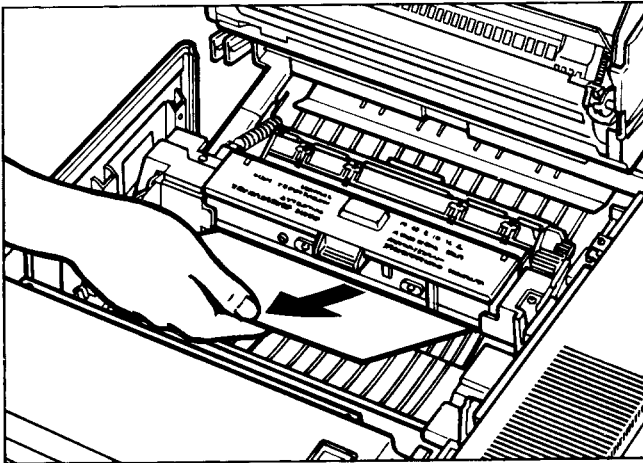


Fig. 10-5

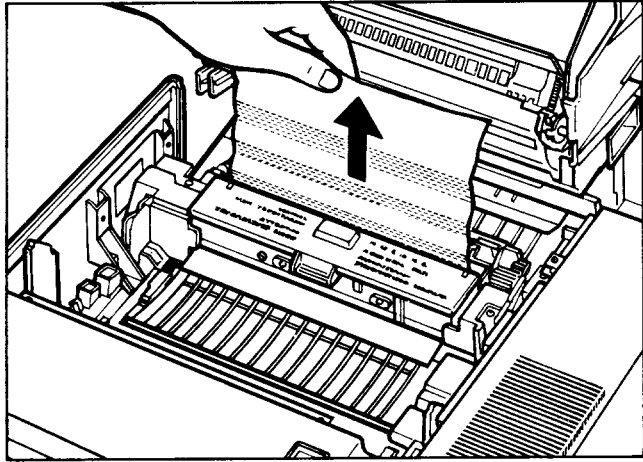


Fig. 10-6

**Note:** Use caution in touching this portion of the printer, as it becomes hot during operation. If you get toner on your hands, wash them immediately.

With paper jams that occur where the printed copy is ejected in the face-down position, you also have two options. With the printer cover open (Fig. 10-7), grasp the paper and pull it toward you.

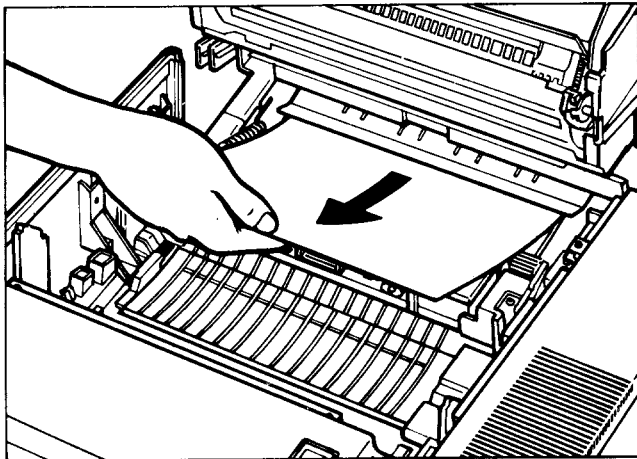


Fig. 10-7

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If the paper is partially ejected, close the cover of the printer, grasp the paper, and pull it toward you (Fig. 10-8). Take care in handling the paper, as it might be hot.

After clearing a paper jam, close the printer cover, if necessary. To resume printing, press [ON LINE].

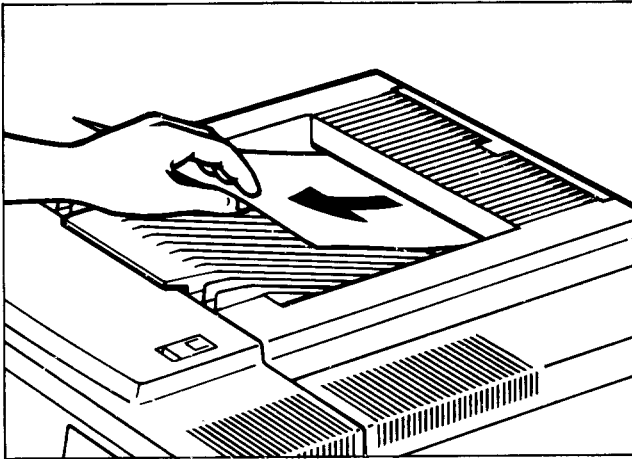


Fig. 10-8

## ADJUSTING PRINT QUALITY

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At some time you may find that the quality of the printing is not what you want. You may run test prints and then make the printing lighter or darker, as desired.

Begin by running an engine test print, which consists of a pattern of vertical lines. To do this, make sure there is paper in the paper cassette and turn the printer on, if necessary. Now look on the right hand side of the printer about halfway back. You will see a small hole (Fig. 10-9).



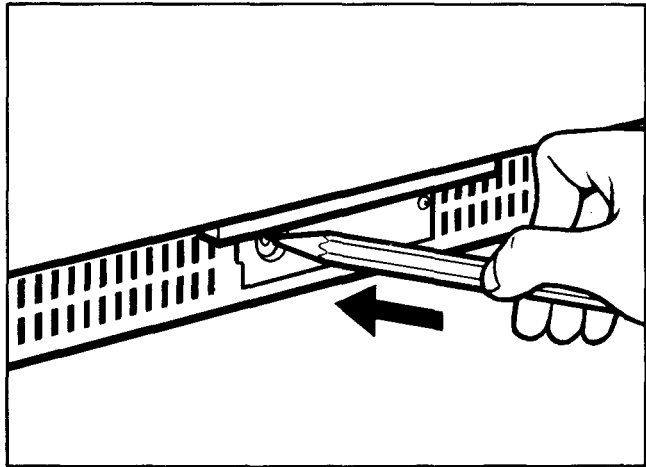


Fig. 10-9

Take a pointed pencil and gently press it into the hole. The alarm will sound and the screen will display

#### ENGINE TEST

Examine the printed sheet (Fig. 10-10) that comes from the printer to determine whether the density of the print (dark or light) is satisfactory. Also be sure that the density is uniform throughout the printed page.

If you want to adjust the print density, follow this procedure:

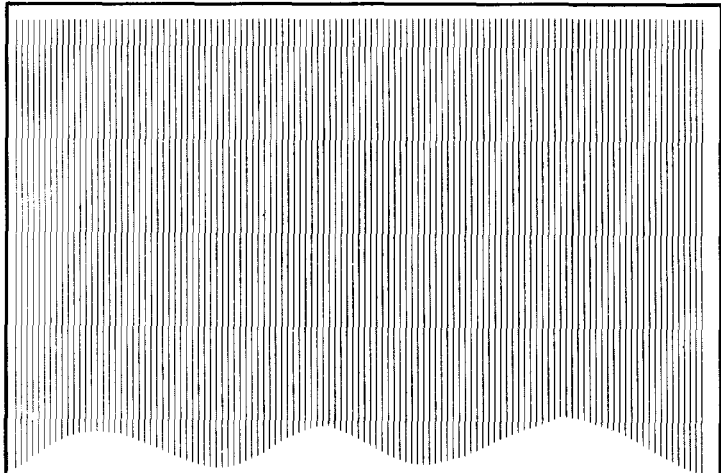


Fig. 10-10

- Open the printer.
- At the left front you will see a green knurled dial (Fig. 10-11), bearing the odd numbers 1 through 9.
- To make the printing darker, turn the dial clockwise (Fig. 10-12) to a higher number.
- To make the printing lighter, turn the dial counterclockwise to a lower number.

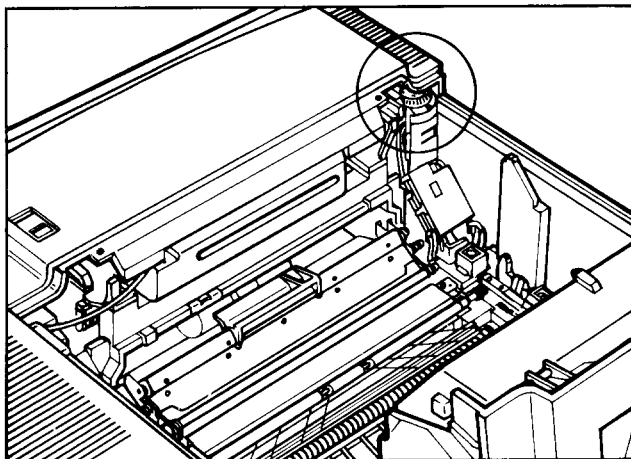


Fig. 10-11

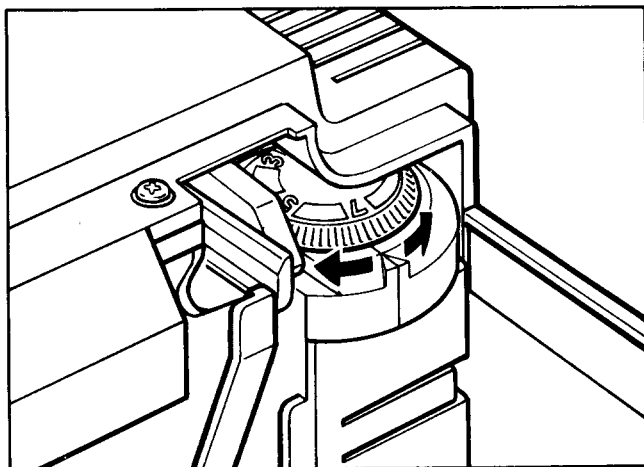


Fig. 10-12

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## STREAKY PRINTS

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You may see unevenly printed pages with white streaks or areas, or with dark streaks or areas.

### **White Streaks:**

There are several possible causes of light areas on the printed page:

- **Low toner** - Check to see if the status message

TONER LOW

is displayed on the screen. If so, follow the procedure described in the chapter "Setting Up the Star LaserPrinter 8."

1. Unplug the printer and open the printer cover. Remove the toner cartridge and throw it away.
2. Open the upper fixing assembly cover, remove the used fixing roller cleaner, and throw it away. Note: This area may be hot, so use caution when working near it.
3. Open a fresh toner cartridge package. Clean the fixing roller with the cleaning pad that comes with the new fixing roller cleaner. Remove the cleaning pad (throw it away) and install the new fixing roller cleaner in the fixing assembly. Close the fixing assembly cover.
4. Clean the transfer guide with a moistened cloth.
5. Use the cotton swab to clean the transfer corona wires. Discard the used swab.
6. Use the wire cleaner stored within the printer to brush off the discharging pins. Replace the wire cleaner in its holder.
7. Rock the new EP-S toner cartridge back and forth several times, then install it. Close the printer cover.
8. Plug the power cord back into the wall socket and restart the printer. Make several test prints, to examine print quality.

- **Unevenly distributed toner** - If the TONER LOW message does not appear, you may have to redistribute the toner in the cartridge:

1. Unplug the printer. Open the printer cover half way and remove the toner cartridge.

2. Rock the cartridge back and forth several times, as you did before initial installation. Be careful not to rock it too vigorously, to avoid toner discoloration of future prints.
3. Return the cartridge to the printer, and close the lid.
4. Plug the printer back into the wall socket and restart the printer. Then make several test prints to examine print quality.

***Dark Streaks or Stains:***

Dark areas on a printed page indicate that several areas of the printer need cleaning. Before starting these procedures, unplug the printer. Open the printer cover and remove the toner cartridge. As always, use caution near the fixing assembly, as it may be hot.

• **Primary corona wire** - This is located within the toner cartridge (Fig. 10-13). Take the wire cleaner stored inside the printer (Fig. 10-14, 10-15), and insert it in one end of the slot, making sure it goes in as far as possible (Fig. 10-16). Move it back and forth the length of the slot (Fig. 10-17).

Remove the brush and set the toner cartridge carefully aside.

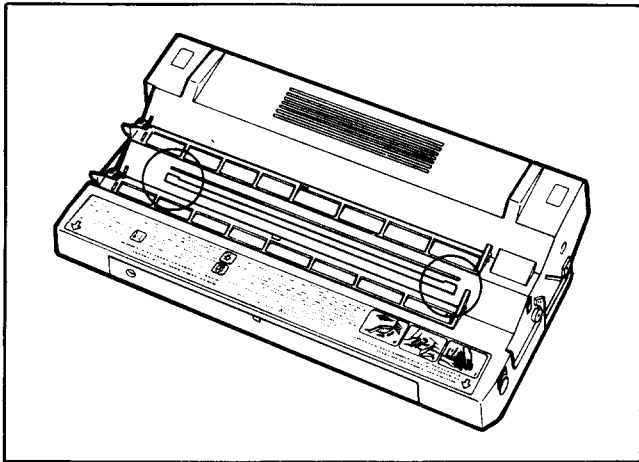


Fig. 10-13

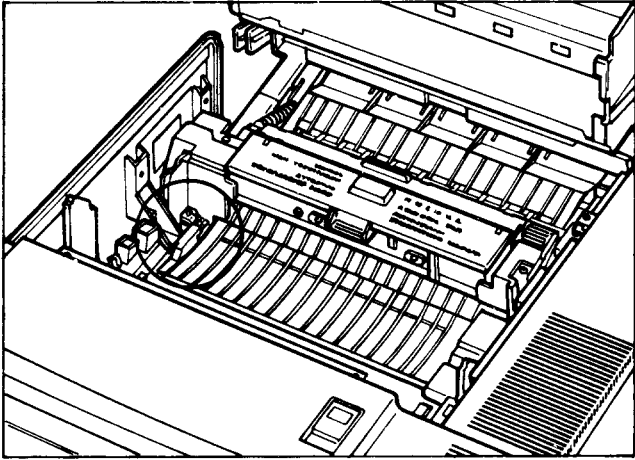
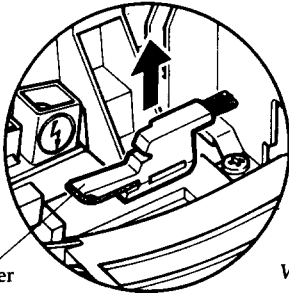
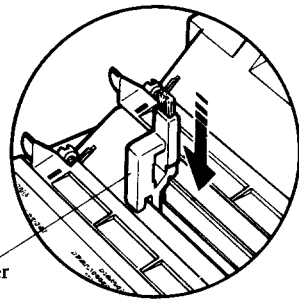


Fig. 10-14



Wire Cleaner

Fig. 10-15



Wire Cleaner

Fig. 10-16

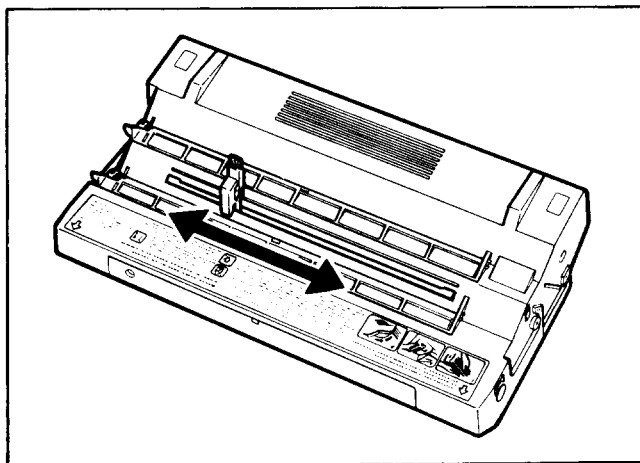


Fig. 10-17

- **Discharging pins** - Use the wire brush to clean the discharging pins (Figs. 10-18 & 10-19), taking care not to damage the transfer corona wires. Return the brush to its holder inside the printer (Fig 10-20).

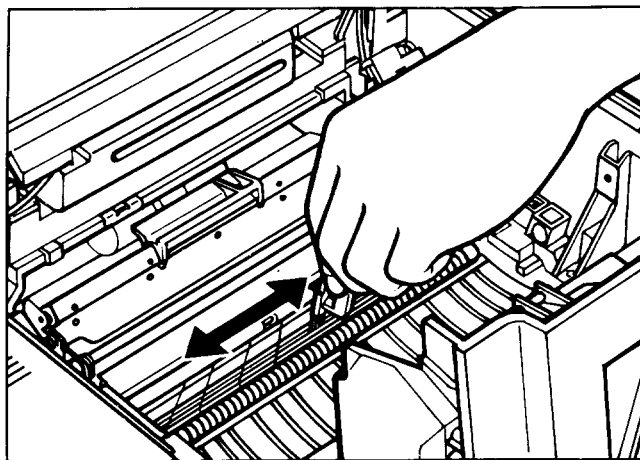


Fig. 10-18

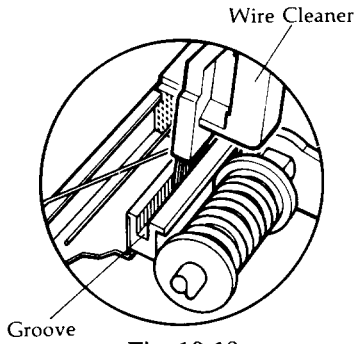


Fig. 10-19

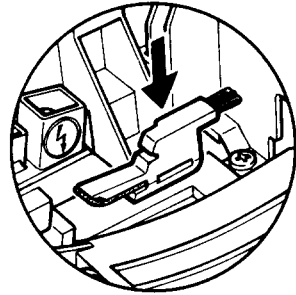


Fig. 10-20

• **Transfer corona wires** - Take a cotton swab and carefully wipe off the wires (Fig. 10-21, 10-22 & 10-23). Discard the swab.

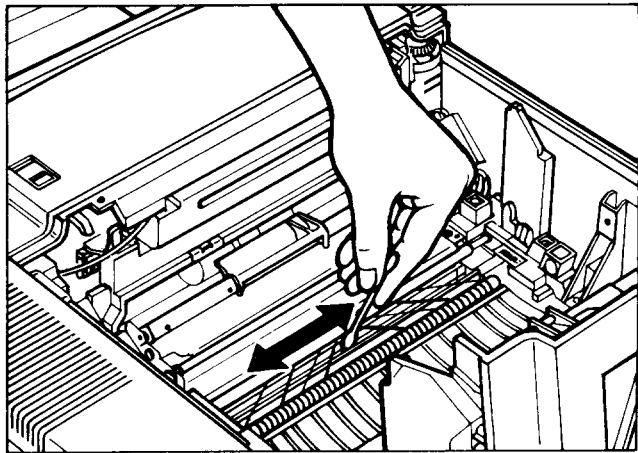


Fig. 10-21

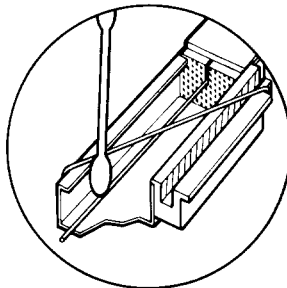


Fig. 10-22

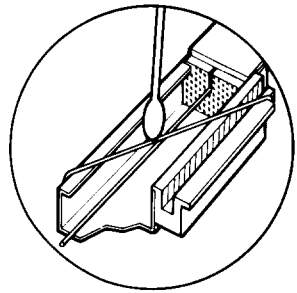


Fig. 10-23

- 
- **Transfer guide** - Moisten a cloth and wipe off the the transfer guide (Fig. 10-24).

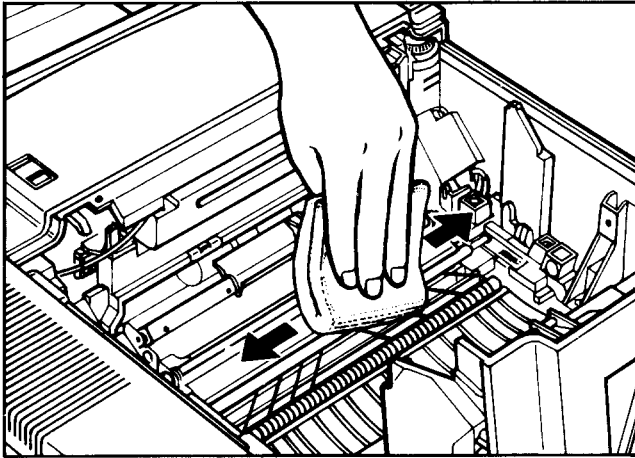


Fig. 10-24

After completing these cleaning operations, return the toner cartridge to the printer and close the cover. Plug the printer back into the wall socket. Restart it and make several test prints, to examine print quality.

## GARBLED TEXT OR FORMATS/HEX DUMP --- --- ---

If the text as printed is not what you have sent from the computer, there may be a compatibility problem involving the command set. To see exactly what the printer is receiving, you may want to print text in hexadecimal, rather than conventional ASCII text. This is what is called a hex dump, and can be enabled from the printer's front panel.

In Program mode, press [NEXT] until the screen displays

COMMAND

- Press [ENTER]
- Press [NEXT] until the screen reads

HEX DUMP



- 
- Pressing [ENTER] shows

Hex Dump Off

- Press [NEXT] so that the screen moves to

Hex Dump On

- Press [ENTER] to select it.

For further information on using the hex dump to modify your software or hardware, please consult an experienced programmer or other expert on your system.



# APPENDIX

## A

### Specifications

#### Star Micronics Star LaserPrinter 8

##### Basic Specifications:

- Type

Laser beam page printer

- Engine

Model: Canon LBP-SX

Resolution: 300 x 300 dots per inch

Speed: 8 pages per minute

First Print: 21 seconds (letter or A4 size, delivered face down)

Warm up: under 1 minute (at 68°F or 20°C)

- Emulation

Resident: HP Laser Jet Plus

Diablo 630 ECS

IBM Proprinter

Epson EX-800



- 
- RAM
    - Resident: 1 megabyte
    - Option: 1 megabyte RAM Expansion Board
  
  - Host Interface (Standard)
    - Serial: RS-232, 150—19200 baud
    - Parallel: Centronics
  
  - Selection of Interface
    - RS-232 or
    - Serial or
    - Parallel: via Operator Panel
    - Serial
    - baud rate: via Operator Panel
  
  - Default Values
    - Setting: via Operator Panel
    - Store: in NV RAM
  
  - Fonts
    - Resident: Courier
    - Prestige
    - Tms Romn
    - Line Printer
    - Option: Font cartridges
  
  - Paper
    - Cassette feed: approx. 200 sheets of 20 lb (80 g/m<sup>2</sup>) paper;  
maximum stacking height: 20 mm (.78 in.)
    - Manual feed: 3.9 x 7.5 in. — 8.5 x 14 in.  
100 x 190 mm — 216 x 356 mm
    - Output: face down: approx. 100 sheets  
face up: approx. 20 sheets
  
  - Printing Area: top, bottom, and right margins: 5 mm (0.2 in.)  
left margin: 4 mm (0.16 in.)

---

## Image Characteristics

Sheet sizes	Scan Size	Image	Feed Size	Image
legal	8.5 in.	2442 pel	14 in.	4080 lines
letter	8.5 in.	2442 pel	11 in.	3180 lines
A4	210 mm	2372 pel	297 mm	3387 lines
B5	182 mm	2041 pel	257 mm	2915 lines
executive	7.25 in.	2067 pel	10.5 in.	3030 lines

- Acoustic noise:      standby:      max. 43 dBA  
                                 printing:      max. 53 dBA

- Environment

Operation: 50°F ~ 90.5°F (10°C ~ 32.5°C)  
20 - 80% relative humidity

Storage: 32°F ~ 95°F (0°C ~ 35°C)  
10 - 80% relative humidity

- Power Source:      100V (50/60 Hz)  
                                 115V (60 Hz)  
                                 220-240V (50 Hz)

- Weight: 45 lbs (20 kg)

Dimensions:

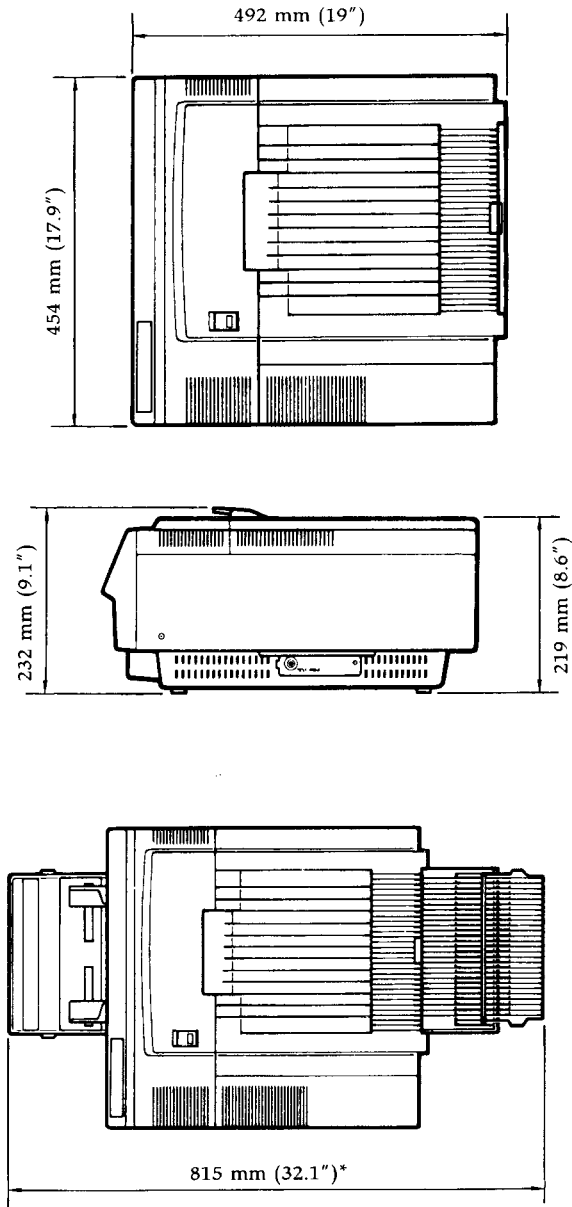


Fig. A-1

---

Reliability:

- Suggested monthly print volume

500 — 3000 prints

- Definition of failure

Any loss of operation that requires calling a service person. Operator errors and installation failures are not included.

- Product life

Five years or 300,000 prints, whichever comes first.

- Mean time between failures/ mean prints between failures

3,000 hours or 30,000 prints

- Mean time to repair

30 minutes or less

- Paper feed reliability

Type	Frequency
Jam	1/2000
Multifeed	1/1000
Others	1/2000

- Cartridge durability and reliability

Approx. 4000 prints

Period of validity: 2.5 years from date of production

- Periodic maintenance time, by operator

10 minutes or less

## Pin Functions on Interfaces

- Parallel interface

Pin No.	Signal Name	Direction	Function
1	STROBE	IN	Goes from High to Low (for at least 0.5 microseconds) when data are valid.
2	DATA1	IN	Eight-bit character data. DATA8 is the most significant bit; DATA1 is the least significant bit. High is logic 1 and Low is logic 0.
3	DATA2	IN	
4	DATA3	IN	
5	DATA4	IN	
6	DATA5	IN	
7	DATA6	IN	
8	DATA7	IN	
9	DATA8	IN	
10	ACK	OUT	A low pulse acknowledges receipt of data.
11	BUSY	OUT	Low when the printer is ready to accept data.
12	PAPER OUT	OUT	Goes High if the printer runs out of paper.
13	SELECTED	OUT	High when the printer is online
14-15	N/C		Unused
16	SIGNAL GND		Signal ground.
17	CHASSIS GND		Printer's chassis ground, isolated from signal ground.
18	+5VDC	OUT	External supply of + 5VDC
19-30	GND		Twisted pair return signal ground level.
31	RESET	IN	Low input resets the printer to its power-on condition.
32	ERROR	OUT	Goes Low to signal that the printer cannot print due to an error condition.
33	EXT GND		External ground.
34-36	N/C		Unused





---

• Serial interface

Pin No.	Signal Name	Direction	Function
1	GND	—	Chassis ground.
2	TXD	OUT	Carries data from the printer.
3	RXD	IN	Carries data to the printer.
4	RTS	OUT	ON when the printer is ready to receive data.
5-6	N/C		Unused.
7	GND	—	Signal ground.
8-19	N/C		Unused.
20	DTR	OUT	ON when the printer is ready to receive data.
21-25	N/C		Unused.



# APPENDIX

## B

### *ASCII Character Code Table*

---

This appendix gives tables of the printer's typical character sets for each emulation.

The decimal character code of each character is shown in an inset to the lower right of the character.

The hexadecimal code can be found by reading the entries at the top and left edges of the table. For example, the character "A" is in column 4 and row 1, so its hexadecimal character code is 41.

This is equivalent ( $4 \times 16 + 1 = 65$ ) to decimal 65, the number in the inset.

Control codes recognized by each emulation are indicated by abbreviations with underline.

# HEWLETT PACKARD LASER JET PLUS

	0	1	2	3	4	5	6	7
0	NUL 0	16	32	48	64	80	96	112
1	1	17	33	49	65	81	97	113
2	2	18	34	50	66	82	98	114
3	3	19	35	51	67	83	99	115
4	4	20	36	52	68	84	100	116
5	5	21	37	53	69	85	101	117
6	6	22	38	54	70	86	102	118
7	7	23	39	55	71	87	103	119
8	BS 8	24	40	56	72	88	104	120
9	9	25	41	57	73	89	105	121
A	LF 10	26	42	58	74	90	106	122
B	ESC 11	27	43	59	75	91	107	123
C	FF 12	28	44	60	76	92	108	124
D	CR 13	29	45	61	77	93	109	125
E	SO 14	30	46	62	78	94	110	126
F	SI 15	31	47	63	79	95	111	127



	8	9	A	B	C	D	E	F
0	128	144	160	176	192	208	224	240
1	129	145	À	Á	Â	Ã	Ä	Å
2	130	146	Ä	Å	Ö	Ø	ä	•
3	131	147	È	É	Ê	Ë	Ð	µ
4	132	148	Ê	Ç	á	â	ð	¶
5	133	149	Ë	Ç	é	í	Í	¿
6	134	150	Î	Ñ	ó	ø	Ì	-
7	135	151	Ï	ñ	ú	æ	Ó	‡
8	136	152	ˆ	i	à	Ä	Ò	‡
9	137	153	˘	ç	è	ì	Õ	ª
A	138	154	˜	α	ò	Ö	Ö	º
B	139	155	˙	ε	ù	Û	Š	«
C	140	156	˚	¥	ä	É	š	■
D	141	157	Û	§	ë	ï	Ú	»
E	142	158	Ü	f	ö	β	ÿ	±
F	143	159	£	¢	ü	Ô	ÿ	

DIABLO 630

	0	1	2	3	4	5	6	7
0	NUL 0	16	32	48	64	80	96	112
1		DC1 1	!	1	A	Q	a	q
2			"	2	B	R	b	r
3			#	3	C	S	c	s
4			\$	4	D	T	d	t
5			%	5	E	U	e	u
6			&	6	F	V	f	v
7	BEL 7		'	7	G	W	g	w
8	BS 8		(	8	H	X	h	x
9	HT 9		)	9	I	Y	i	y
A	LF 10	SUB 26	*	:	J	Z	j	z
B	VT 11	ESC 27	+	;	K	[	k	{
C	FF 12		,	<	L	\	l	
D	CR 13		-	=	M	]	m	}
E		RS 30	.	>	N	^	n	~
F		US 31	/	?	O	-	o	DEL 127



	8	9	A	B	C	D	E	F
0	128	144	160	176	192	208	224	240
1	129	145	À	Á	ê	î	Ë	ë
2	130	146	Â	Ã	ô	ø	ä	•
3	131	147	È	É	û	Æ	Ð	μ
4	132	148	Ê	Ç	á	à	ð	¶
5	133	149	Ë	Ç	é	í	Í	‡
6	134	150	Î	Ñ	ó	ø	Ì	-
7	135	151	Ï	ñ	ú	æ	Ó	‡
8	136	152	ˆ	ı	à	Ä	Ò	‡
9	137	153	˘	ı	è	ì	Ï	ª
A	138	154	˘	ı	ò	Ö	õ	º
B	139	155	˘	ı	ù	Ü	Š	«
C	140	156	˘	ı	ä	É	š	■
D	141	157	Û	Ş	ë	ï	Ú	»
E	142	158	Û	f	ö	β	ÿ	±
F	143	159	£	¢	ü	Ô	ÿ	



EPSON EX-800

	0	1	2	3	4	5	6	7
0	NUL 0	16	32	48	@	P	'	p
1	1	DC1 17	33	49	A	Q	a	q
2	2	DC2 18	34	50	B	R	b	r
3	3	DC3 19	35	51	C	S	c	s
4	4	DC4 20	36	52	D	T	d	t
5	5	21	37	53	E	U	e	u
6	6	22	38	54	F	V	f	v
7	BEL 7	23	39	55	G	W	g	w
8	BS 8	CAN 24	40	56	H	X	h	x
9	HT 9	25	41	57	I	Y	i	y
A	LF 10	26	42	58	J	Z	j	z
B	VT 11	ESC 27	43	59	K	[	k	{
C	FF 12	28	44	60	L	\	l	
D	CR 13	29	45	61	M	]	m	}
E	SO 14	30	46	62	N	^	n	~
F	SI 15	31	47	63	O	_	o	DEL 127





	8	9	A	B	C	D	E	F
0	128	144	160	176	192	208	224	240
1	DC1	!	1	A	Q	a	q	
2	DC2	"	2	B	R	b	r	
3	DC3	#	3	C	S	c	s	
4	DC4	\$	4	D	T	d	t	
5		%	5	E	U	e	u	
6		&	6	F	V	f	v	
7	BEL	'	7	G	W	g	w	
8	BS	CAN	(	8	H	X	h	x
9	HT	)	9	I	Y	i	y	
A	LP	*	:	J	Z	j	z	
B	VT	ESC	+	;	K	[	k	{
C	PF	,	<	L	\	l	'	
D	CR	-	=	M	]	m	}	
E	SO	.	>	N	^	n	~	
F	SI	/	?	O	_	o		

Character Set 1

	0	1	2	3	4	5	6	7
0	NUL 0	16	32	0	@	P	'	p
1	1	DC1 17	33	1	A	Q	a	q
2	2	DC2 18	34	2	B	R	b	r
3	3	DC3 19	35	3	C	S	c	s
4	4	DC4 20	36	4	D	T	d	t
5	5	21	37	5	E	U	e	u
6	6	22	38	6	F	V	f	v
7	BEL 7	23	39	7	G	W	g	w
8	BS 8	CAN 24	40	8	H	X	h	x
9	HT 9	25	41	9	I	Y	i	y
A	LF 10	26	42	:	J	Z	j	z
B	VT 11	ESC 27	43	;	K	[	k	{
C	FF 12	28	44	<	L	\	l	
D	CR 13	29	45	=	M	]	m	}
E	SO 14	30	46	>	N	^	n	~
F	SI 15	31	47	?	O	_	o	



	8	9	A	B	C	D	E	F
0	128	144	á		⊥	⊥	α	≡
1	DC1	129	145	í		⊥	β	±
2	DC2	130	146	ó		⊥	Γ	≥
3	DC3	131	147	ú		⊥	π	≤
4	DC4	132	148	ñ		⊥	Σ	↑
5		133	149	Ñ		⊥	σ	↓
6		134	150	á		⊥	μ	+
7	BEL	135	151	º		⊥	τ	≈
8	BS	CAN	136	152	¿		Φ	°
9	HT		137	153	¡		Θ	•
A	LF		138	154	¬		Ω	•
B	VT	ESC	139	155	½		δ	√
C	PF		140	156	¼		∞	n
D	CR		141	157	i		φ	²
E	SO		142	158	«		€	•
F	SI		143	159	»		∩	



Character Set 2

	0	1	2	3	4	5	6	7
0	NUL 0	16	32	48	@	P	'	p
1	1	DC1	!	1	A	Q	a	q
2	2	DC2	"	2	B	R	b	r
3	♥	DC3	#	3	C	S	c	s
4	♦	DC4	\$	4	D	T	d	t
5	♣	§	%	5	E	U	e	u
6	♠	6	&	6	F	V	f	v
7	BEL	7	'	7	G	W	g	w
8	BS	CAN	(	8	H	X	h	x
9	HT	9	)	9	I	Y	i	y
A	LF	A	*	:	J	Z	j	z
B	VT	ESC	+	;	K	[	k	{
C	FF	C	,	<	L	\	l	!
D	CR	D	-	=	M	]	m	}
E	SO	E	.	>	N	^	n	~
F	SI	F	/	?	O	_	o	
	15	31	47	63	79	95	111	127

	8	9	A	B	C	D	E	F
0	Ç 128	É 144	á 160		Ł 192	⋈ 208	α 224	■ 240
1	ü 129	æ 145	í 161	■	⋈ 193	⋈ 209	β 225	± 241
2	é 130	Æ 146	ó 162	■	⋈ 194	⋈ 210	Γ 226	≥ 242
3	ã 131	ô 147	ú 163		⋈ 195	⋈ 211	π 227	≤ 243
4	ä 132	ö 148	ñ 164	⋈	⋈ 196	⋈ 212	Σ 228	⋈ 244
5	à 133	ò 149	Ñ 165	⋈	⋈ 197	⋈ 213	σ 229	⋈ 245
6	á 134	û 150	ª 166	⋈	⋈ 198	⋈ 214	μ 230	+ 246
7	ç 135	ù 151	º 167	⋈	⋈ 199	⋈ 215	τ 231	≈ 247
8	ê 136	ÿ 152	¿ 168	⋈	⋈ 200	⋈ 216	Φ 232	° 248
9	ë 137	ÿ 153	⋈ 169	⋈	⋈ 201	⋈ 217	⊖ 233	• 249
A	è 138	ÿ 154	⋈ 170	⋈	⋈ 202	⋈ 218	Ω 234	• 250
B	ï 139	ϕ 155	‡ 171	⋈	⋈ 203	⋈ 219	δ 235	√ 251
C	î 140	£ 156	‡ 172	⋈	⋈ 204	⋈ 220	∞ 236	ⁿ 252
D	ì 141	¥ 157	ì 173	⋈	⋈ 205	⋈ 221	∅ 237	² 253
E	Ä 142	Ɔ 158	« 174	⋈	⋈ 206	⋈ 222	€ 238	▪ 254
F	Å 143	f 159	» 175	⋈	⋈ 207	⋈ 223	∩ 239	

All Character Set

	0	1	2	3	4	5	6	7
0	0	▶	¢	0	@	P	'	p
1	☺	◀	!	1	A	Q	a	q
2	●	↑	"	2	B	R	b	r
3	♥	!!	#	3	C	S	c	s
4	♦	¶	\$	4	D	T	d	t
5	♣	§	%	5	E	U	e	u
6	♠	-	&	6	F	V	f	v
7	•	‡	'	7	G	W	g	w
8	■	†	(	8	H	X	h	x
9	○	↓	)	9	I	Y	i	y
A	●	→	*	:	J	Z	j	z
B	♂	←	+	;	K	[	k	{
C	♀	-	,	<	L	\	l	
D	♪	↔	-	=	M	]	m	}
E	♫	▲	.	>	N	^	n	~
F	✳	▼	/	?	O	-	o	☒
	15	31	47	63	79	95	111	127



	8	9	A	B	C	D	E	F
0	Ç 128	Ě 144	á 160	▒ 176	Ł 192	⋈ 208	α 224	■ 240
1	ü 129	æ 145	í 161	▒ 177	⊥ 193	⋈ 209	β 225	≠ 241
2	é 130	Æ 146	ó 162	▒ 178	⊥ 194	⋈ 210	Γ 226	≥ 242
3	â 131	ô 147	ú 163	 179	⊥ 195	⋈ 211	π 227	≤ 243
4	ä 132	ö 148	ñ 164	⊥ 180	— 196	⋈ 212	Σ 228	⊥ 244
5	à 133	ò 149	Ñ 165	⊥ 181	⊥ 197	⋈ 213	σ 229	⋈ 245
6	â 134	û 150	ã 166	⊥ 182	⊥ 198	⋈ 214	μ 230	+ 246
7	ç 135	ù 151	º 167	⋈ 183	⊥ 199	⊥ 215	τ 231	≈ 247
8	ê 136	ÿ 152	¿ 168	⋈ 184	⋈ 200	⊥ 216	Φ 232	° 248
9	ë 137	Ö 153	⊥ 169	⊥ 185	⋈ 201	⋈ 217	Θ 233	• 249
A	è 138	Ü 154	⊥ 170	⋈ 186	⊥ 202	⋈ 218	Ω 234	• 250
B	ï 139	Ɔ 155	‡ 171	⋈ 187	⋈ 203	▒ 219	δ 235	∫ 251
C	î 140	Ɛ 156	‡ 172	⋈ 188	⊥ 204	▒ 220	∞ 236	ⁿ 252
D	ï 141	Ʒ 157	ı 173	⋈ 189	= 205	▒ 221	φ 237	² 253
E	Ä 142	Ɔ 158	« 174	⋈ 190	⊥ 206	▒ 222	€ 238	• 254
F	Å 143	f 159	» 175	⋈ 191	⊥ 207	▒ 223	∩ 239	



---

# Glossary

**ASCII** (*az' kee*)— a standardized and commonly accepted numerical code that represents letters, numbers, and symbols, as well as command sets. ASCII stands for *American Standard Code for Information Exchange*.

**Baud**— a measure of the speed at which information is transmitted. The baud rate, which is set for serial transmissions, is approximately the number of characters transmitted per second multiplied by 10.

**Byte**— a series of 8 bits that represents one character.

**Centronics interface**— a standard wiring configuration for parallel data transmission. *Centronics* is often used as a synonym for the parallel standard developed by Centronics Inc.

**Character Set**— the complete set of characters available in a font.

**Data Bits**— the number of bits in a transmitted byte that actually contains data.

**Emulation**— behaving like something else. The Star LaserPrinter 8 can emulate, or behave like four other printers, Diablo 630 daisy wheel, the Epson EX-800 and IBM Proprinter dot matrix printers, and the HP Laser Jet Plus laser printer.





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**Font** — a set of letters, numbers, and symbols of the same typeface design.

**Glyph** — a graphic symbol that conveys information.

**Handshaking** — in data communication, the automatic acknowledging by the receiving device of information that has been sent to it, either by signals and the interface (“hard”) or by software control (“soft”).

**Hex dump** — conversion by the printer of ASCII symbols into their hexadecimal (base 16) equivalent. This is useful for programmers or other users who want to troubleshoot the communications between the computer and the printer.

**HMI (Horizontal Motion Index)** — Refers to dot spacing in the smallest increment that can be made in the horizontal or *x* axis.

**Interface** — a hardware plug that allows cable connections of two devices. For instance, a cable from a computer parallel port to a printers parallel port.

**Landscape** — printing on paper across its wider dimension, such as a spreadsheet that is 11 in. wide and 8 1/2 in. high; landscape pictures are usually wider than they are tall.

**NV RAM** — N V Random Access Memory is the permanent storage by the Star LaserPrinter 8 of settings programmed from the front panel, even when the power is turned off. When the printer is turned on again, these settings become the current settings.

**Parallel** — a communications interface that sends or receives 8 bits of information plus control signals at a time.

**Parity** — a bit in a serial information that allows a computer and printer to automatically check for errors in transmission.

**Pitch** — the width of a typeface measured in characters per inch.

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**Point** — the height of a type font, measured in points, or 1/72 of an inch.

**Portrait** — printing on paper across its narrower dimension, such as a letter on paper that is 8 1/2 in. wide and 11 in. high; portrait pictures are usually taller than they are wide.

**Proportional type** — a typeface in which some letters take up more room on a printed line than others, such as *W* taking more space than *I*. The spacing of the letters is also intended to enhance the esthetic quality of the printed page.

**RAM** — Random Access Memory, or memory that can be used to store information temporarily, such as text or printing configurations. RAM-stored information is erased when the power is turned off.

**ROM** — Read Only Memory, or memory in which information can be stored permanently, whether the power is on or off.

**RS-232** — a wiring configuration for sending and receiving serial transmissions, including data and acknowledgments between sending and receiving equipment (“handshaking”).

**Serial** — a communications interface that sends or receives 1 bit of information at a time at a specified baud rate.

**Stop Bit** — 1 or 2 bits used by the computer for the timing of a transmission of information.

**Stroke weight** — the intensity of a printed character, such as *light*, *medium*, or *bold*. Normal printing is medium weight.

**Symbol Set** — The entire list of ASCII letters, numbers, and symbols used with a particular language, such as English or Spanish.

**VMI (Vertical Motion Index)** —Refers to line spacing, the smallest increment that can be made in the vertical or y axis

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## ***Consumer Response***

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PRINTED IN JAPAN