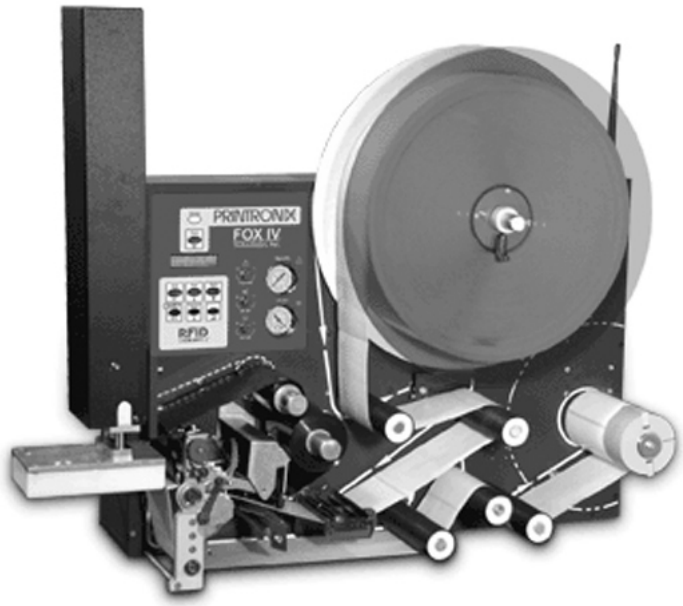
PRINTRONIX®

User's Manual



SLPA7000r Smart Label Printer Applicator
SLPA8000 Smart Label Printer Applicator
LPA8000 Label Printer Applicator

PRINTRONIX®

User's Manual

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IMPORTANT WARRANTY INFORMATION

SLPA (Smart Label Printer Applicator) WARRANTY

Printronix warrants to the purchaser that under normal use and service, this SLPA (excluding the thermal printhead) purchased hereunder shall be free from defects in material and workmanship for a period of ninety (90) days from the date of shipment from Printronix.

Consumable items such as media and ribbons are not covered under this warranty. This warranty does not cover equipment or parts that have been misused, altered, or used for purposes other than those for which they were manufactured. This warranty also does not cover loss, shipping damage, damage resulting from accident or damages resulting from unauthorized service.

THERMAL PRINTHEAD

Printronix warrants the printhead for a period of one hundred eighty (180) days, or 1,000,000 linear inches for direct thermal use, or 2,000,000 linear inches for thermal transfer use, whichever comes first. The warranty does not cover printheads that have been misused, damaged due to improper cleaning, or damaged due to use of improper ribbons or media.

SUPPLIES

For the nearest Printronix full-service distributor that carries Printronix genuine supplies, please call (800) 733-1900 or fax (714) 368-2354. Supplies design, specification, and selection are integral to the development of any computer imaging system. Printronix's extensive manufacturing and research capabilities, along with years of experience in the design of printers and their applications, assures that you will receive the exact materials that you require to maximize the performance of your Printronix SLPA. For more information, call the Printronix Customer Solutions Center at (714) 368-2686 or access the Printronix website at http://www.printronix.com.

ON-SITE MAINTENANCE SERVICE

Printronix offers on-site support services in the United States. Please contact the Printronix Maintenance Contracts Group at (800) 854-6463 for detailed service agreement information.

Model _____ Setup Values

Software Version _____

Touch-Blo Control _____

Print Mode _____

Apply Mode _____

Print Darkness _____

Machine Type _____

Pinch Roller _____

Random Stroke Delay _____

Cycle Time Delay _____

Cylinder Extend Time _____

Vacuum Delay Time _____

CPU Dip Switch Settings _____

SLPA Serial Number _____

Communication Notices

This equipment (see Note 1, next page) has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful 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 or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Unauthorized changes or modifications could void the userís authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any change or modification to this product voids the userís authority to operate it per FCC Part 15 Subpart A Section 15.21 regulations.

This product contains an intentional radiator with the following parameters:
Operating Frequency: 869.525 MHz (AWID 869) or 902 to 928 MHz (AWID 915)
Typical RF Power: 25 to 100 milliwatts
Maximum RF Power: 1 Watt under abnormal conditions

Printronix SLPA8000/7000r

FC Tested To Comply With FCC Standards

FOR HOME OR OFFICE USE

Canada

This Class B digital apparatus (see Note 1, next page) complies with Canadian ICES-003 and RSS 210.

Cet appareil num□rique de la classe B est conforme ‡ la norme NMB-003 du Canada.

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

This device has been designed to operate with the antennas listed below, and having a maximum gain of □18 dBi. Antennas not included in this list or having a gain greater than □18 dBi dB are strictly prohibited for use with this device. The required antenna impedance is 50 ohms.

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that permitted for successful communication.

CE Notice (European Union)

Marking by the CE symbol indicates compliance of this Printronix system (see Note 1 below) to the EMC Directive and the Low Voltage Directive of the European Union. Such marking is indicative that this Printronix system meets the following technical standards:

- EN 300 220-1 (2000), Electromagnetic Compatibility and Radio Spectrum Matters; Short Range Devices; Radio equipment to be used in the 25 MHz to 1000 MHz frequency range with power levels ranging up to 500 mW.
- EN 55022 ó Limits and Methods of Measurement of Radio Interference Characteristics of Information Technology Equipment.î
- EN 50082-1: 1992 ó Electromagnetic compatibilityó Generic immunity standard Part 1: Residential, commercial, and light industry.î
- EN 60950 ó Safety of Information Technology Equipment.î

This SLPA is a Class B product for use in a typical Class B domestic environment.

CE Symbol

CE

Taiwan

乙類

此設備經測試證明符合 BSMI(經濟部標準檢驗局)之乙類數位裝置的限制規定。這些限制的目的是爲了在住宅區安裝時，能防止有害的干擾，提供合理的保護。此設備會產生、使用並散發射頻能量；如果未遵照製造廠商的指導手冊來安裝和使用，可能會干擾無線電通訊。但是，這並不保證在個別的安裝中不會產生干擾。您可以透過關閉和開啓此設備來判斷它是否會對廣播和電視收訊造成干擾；如果確實如此，我們建議您嘗試以下列一種或多種方法來排除干擾：

・重新調整天線的接收方向或重新放置接收天線。
・增加設備與接收器的距離。
・將設備連接至不同的插座，使設備與接收器連接在不同的電路上。
・請向經銷商或有經驗的無線電／電視技術人員查詢，以獲得幫助。

Note 1: Does not apply to All Electric model which is a Class A certified device.

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Code V is a trademark of Quality Micro Systems, Inc.

EIA is a registered service mark of the Electronic Industries Association.

Epson is a registered trademark of Seiko Epson Corporation.

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IPDS is a trademark of International Business Machines Corporation.

LaserJet is a registered trademark of Hewlett-Packard Company.

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PCL is a registered trademark of Hewlett-Packard Company.

PhoenixPage PCL 5 is a registered trademark of Phoenix Technologies Ltd.

PostScript is a registered trademark of Adobe Systems.

Proprinter is a registered trademark of International Business Machines Corporation.

QMS is a registered trademark of Quality Micro Systems, Inc.

TEC is a registered trademark of the Toshiba TEC Corporation.

Zebra is a registered trademark of Zebra Technologies Corporation.

Table Of Contents

1 *Introduction*

Printronix Customer Support Center

IMPORTANT **Please have the following information available prior to calling the Printronix Customer Support Center:**

- Model number
- Serial number (located on the back of the SLPA)
- Installed options (i.e., interface and host type if applicable to the problem)
- Configuration printout (see "Printing A Configuration" on page 87)
- Is the problem with a new install or an existing SLPA?
- Description of the problem (be specific)
- Good and bad samples that clearly show the problem (faxing of these samples may be required)

Americas	(714) 368-2686
Europe, Middle East, and Africa	(31) 24 6489 311
Asia Pacific	(65) 6548 4114

http://www.printronix.com/support.aspx

Printronix Supplies Department

Contact the Printronix Supplies Department for genuine Printronix supplies.

Americas	(800) 733-1900
Europe, Middle East, and Africa	(33) 1 46 25 1900
Asia Pacific	(65) 6548 4116 or (65) 6548 4182

http://www.printronix.com/supplies-parts.aspx

Corporate Offices

Printronix, Inc.
14600 Myford Road
P.O. Box 19559
Irvine, CA 92623-9559
Phone: (714) 368-2300
Fax: (714) 368-2600

Printronix, Inc.
Nederland BV
P.O. Box 163, Nieuweweg 283
NL-6600 Ad Wijchen
The Netherlands
Phone: (31) 24 6489489
Fax: (31) 24 6489499

Printronix Schweiz GmbH
42 Changi South Street 1
Changi South Industrial Estate
Singapore 486763
Phone: (65) 6542 0110
Fax: (65) 6546 1588

Visit the Printronix web site at www.printronix.com

Warnings And Special Information

For your safety and to protect valuable equipment, read and comply with all information highlighted under special headings:

WARNING **Conditions that could harm you and damage the equipment.**

WARNING **Achten Sie auf folgendes, um keine Personen in Gefahr zu bringen bzw. das Ger%t zu besch%digen.**

WARNING **Condiciones que pueden causar da□os a personas y equipos.**

WARNING **Conditions ‡ respecter pour □viter tout danger corporel et dommage mat□riel.**

WARNING **Condizioni che possono arrecare danni alle persone e alle apparecchiature.**

CAUTION **Conditions that could damage the SLPA or related equipment.**

IMPORTANT **Information vital to proper operation of the SLPA.**

NOTE: Information and helpful tips about SLPA operation.

Manual Conventions

- Control panel keys are printed in bold letters.

  Example: Press the **Pause** key to take the SLPA offline.

- Control panel keys are often shown by their symbol or icon (located on the control panel directly below the key).

  Example: Press the ↵ to select it.

- LCD fault messages display the specific fault in uppercase letters on the top line. A corrective action in upper and lowercase letters displays on the bottom line.

  Example: PAPER OUT
  Load Paper

The SLPA8000/7000r Series

The SLPA8000 and 7000r Series are families of Smart label printer applicators (direct thermal and thermal transfer) designed to print, encode, and apply labels and tags from any MS-DOS□, Windows□, or ASCII-based computer.

Printronix Dynamic Print Control provides exceptional print quality. A circuit monitors the data to be printed and automatically adjusts the energy applied to the thermal printhead for maximum performance.

The SLPA can communicate with the host computer via RS-232 and RS-422 serial, Centronics□-compatible parallel, IEEE□ 1284 compliant parallel, and (optionally) coax/twinax, ethernet 10/100Base-T, or wireless ethernet host connections. The interface cable needed to connect the SLPA to the host device is supplied by the user.

Standard Features

- **Emulations:**
  - Printronix LinePrinter Plus (LP+). Provides direct compatibility with Printronix P-series printers.
  - Epson FX-1050, Proprinter IIIXL, and Serial Matrix printers.
  - Printronix IGP/PGL and IGP/VGL. Provides printer system commands for text, barcodes, graphics, lines, and boxes.
  - ZGL, TGL, IGL, STGL, and DGL Interpreters: PPI/ZGL (Zebraô), PPI/TGL (TEC), PPI/IGL (Intermec), PPI/STGL (SATO), and PPI/DGL (Datamax) interpreters are powerful integration tools that allows the SLPA8000/7000r to function in virtually all legacy ZPLô , TEC, IPL, SGL, and DGL application environments without requiring modification to host data stream.
- **Thermal Transfer and Direct Thermal Printing:** On all SLPAs (except -DT models, which print only in direct thermal mode)
- **Bar Codes:** Support for over 20 types of bar codes
- **Resident Fonts:** OCRA, OCRB, Courier, Letter Gothic, and CG Triumvirate Bold Condensed
- **Download:** Forms, fonts, and graphics into SLPA memory
- **High Resolution Printhead:** For sharp graphics and text
- **Tear-Off Mode:** For positioning the label at the peel bar
- **32MB Flash memory**
- **8MB DRAM memory**
- **Auto Label Mapping□:** For compatibility with programs written for Printronix line matrix printers.
- **Ventless System:** For operation in environments with airborne particulate matter without compromising performance

- **Standard interfaces:**
  - Serial: RS-232
  - USB 2.0 Universal Serial Bus
  - Parallel: Centronics®-compatible parallel, IEEE® 1284 compliant parallel

NOTE: The interface cable needed to connect the SLPA to the host device is supplied by the user.

Optional Features

The following options are also available:

- **Fonts:** A selection of fonts can be loaded from the host computer into SLPA memory. Once loaded, these fonts are accessed in the same way as the resident fonts. See Table 15 on page 278 for a list of optional fonts.
- **Memory Expansion (for non-IPDS SLPAs only):**
  - 16MB DRAM SIMM (single in-line memory module): Provides additional memory to accommodate long label formats. Replaces standard 8 MB Flash SIMM.
- **Twinax/Coax Host Interface:** Provides connection to a host computer system using a coaxial or twinaxial interface.
- **Network Interface Card (NIC):** This option allows you to attach the SLPA to a LAN (Local Area Network) rather than attaching it directly to a host computer.

  NIC adapters are available as an internally installed option, mounted inside the SLPA with the 10/100Base-T (UTP) connection only.

NOTE: In this manual, the terms "Network Interface Card" (or "NIC") and "Ethernet" are used interchangeably.

- **Wireless NIC:** This card provides wireless 802.11b connectivity without expensive cabling and reconfigurations required from a wired network.
- **IPDS:** Available for coax/twinax, a NIC, or a combination of both. The SLPA may be ordered with this option installed and the required hardware to support it, or it can be field installed by an authorized service representative at a later date. The SLPA must have a coax/twinax interface or NIC, 300 dpi printhead, 16 MB DRAM, and 10 MB flash memory installed to support this field-installed option.
- **TN5250/TN3270:** Enables your SLPA to communicate with an IBM host through a NIC using the 5250/3270 datastream. This feature allows you to use an application generated for the twinax/coax emulation to be printed through the NIC.
- **RS-422:** Serial interface option.

Thermal Printer Media

Because there are two modes of operation, there are two kinds of thermal printer paper:

- **Direct thermal paper:** This paper is coated with chemicals that act as accelerators, ink, and ink binders. In direct thermal mode, the heat from the thermal printhead contacts the paper and causes a chemical reaction on the surface of the paper.
- **Thermal transfer paper:** This film or synthetic paper substitute is designed to accept transferred images well and to resist scratching. Most thermal transfer papers can be die-cut for easy label applications. Printronix offers a selection of thermal transfer paper sizes and face stocks, which ensures high print quality and long life when used with Printronix ribbons.

Ribbons

Use only Printronix Genuine Thermal Ribbons in this SLPA. Printronix thermal ribbons are engineered to enhance thermal printing capabilities and to prevent premature wear of the printhead.

Thermal Printer Technology

Unlike a dot matrix, laser, or LED printhead printer, a thermal printer has a printhead containing heating elements that are used with paper or a ribbon specially designed for use with a heated printhead. The SLPA uses an inline thermal printhead, which produces high resolution output quickly and efficiently.

The Printing Process

The thermal printhead allows two modes of operation:

- **Direct Thermal Mode:** The thermal printhead selectively heats tiny rectangular dots on its surface. When the heated dots contact specially coated thermal paper, the dyes and developers in the coating react to the heat and develop an image. This mode of printing is often used for short-term labeling applications.
- **Thermal Transfer Mode:** The heated dots contact a thermal ribbon; the thermal ribbon reacts to the heat by bonding the image to the paper. This method is especially suitable for print applications requiring long-term storage, abrasion resistance, durability in extreme environmental conditions, and resistance to tampering. (Models designated -DT do not print in this mode.)

Dynamic Print Control

Print quality in thermal printers depends on how well the thermal ribbon and thermal transfer paper respond to the heat of the thermal printhead. The thermal printhead must reach a specific temperature to print, then must cool down in the shortest possible time after printing. Print quality therefore depends on precise control of the energy supplied to the thermal dots. If uneven print density occurs, it is usually caused by the stored heat from dots printed previously.

The SLPA uses Dynamic Print Control technology to ensure even print density. Dynamic Print Control is printer software that monitors and adjusts printhead temperatures. Based on stored results of previously printed dots, the printer predicts the amount of heat required to print subsequent dots and regulates the electrical energy applied to the printhead. This prevents uneven print density and permits the printing of narrow-ladder bar codes and vertical grid lines that are absolutely straight.

Overview

General Operation

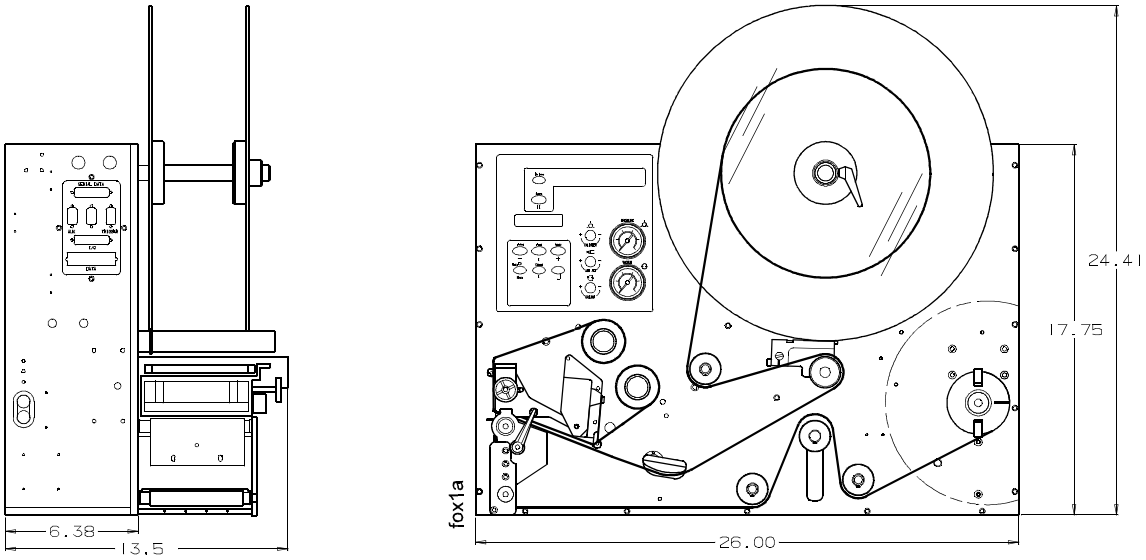


Figure 1. SLPA Dimensions

This document contains information and instructions for the Printronix Smart Label Printer Applicator (SLPA). The SLPA can print label patterns up to 4.1 inches (104 mm) wide and applies them by means of a pneumatic applicator system, although optional methods of applying the label are available by design. The *Userís Manual* contains information on setup, operation, and menu configurations, as well as adjustments and basic maintenance procedures the operator can perform.

The SLPA is both a direct thermal and thermal transfer label printer. The SLPA can be positioned for top, side, or bottom applications and mounted using the mounting holes in either the base or sides.

NOTE: Specify the orientation of the SLPA when ordering. If the system is to be used for bottom applications, custom work may be needed.

The SLPA is an integrated unit composed of the following modules:

- Label printer engine
- Label apply system
- GPIO control system
- Control panel (comprised of air controls, Liquid Crystal Display (LCD), touch keypad/display, and air pressure gauges)
- Label supply
- Backing rewind system

These systems are packaged into a metal frame with an aluminum cover enclosing the rest of the system. The metal frame is used for component mounting, and all system controls are located on this frame.

Operating Specifications

Operating Environment

The SLPA is designed for general use in warehouse and industrial environments. It should not be exposed to liquids or damaging chemical vapors, and will function properly in environments with an ambient temperature between 40^{o} to 100^{o} F (4^{o} to 38^{o} C). Minimizing unnecessary exposure to dirt and dust is also recommended.

NOTE: Optional enclosures may be purchased to protect the products in unusually harsh environments.

Power Requirements

A properly grounded, dedicated line supplying either:
115 VAC $\pm$10%, single phase @ 50 - 60 Hz
or
230 VAC $\pm$10%, single phase @ 50 - 60 Hz.

CAUTION **It is recommended that you isolate the SLPA from its power supply by means of a surge suppressor to minimize any potential damage to the equipment.**

A suppressor which limits voltage to 400V and has a response time of 1-5ns is highly recommended.

Air Supply

The applicator system works with a regulated 80 to 100 psi (550 to 690 kPa) air supply that is dust and oil free. A filter is provided that is equipped with a mist separator to remove any condensation that builds in the line.

CAUTION **The pneumatic supply line should also be dedicated to maintain the appropriate pressure range, thereby providing relief against excess pressure. Providing such protection should prevent the supply pressure from exceeding 135 psi (931 kPA).**

Storage, Shipping, & Handling

Storage

- Store the SLPA in a clean dry area.
- Storage temperatures should be between -40^{o} to 150^{o} F (-40^{o} to 65^{o} C).
- Do not store the SLPA with labels or printing ribbon installed.
- Store the SLPA in its original packaging if possible.

Shipping

- Observe storage conditions when shipping. Retain the shipping materials if the SLPA is intended to be moved from site to site.
- If the original packing is not available, ensure sufficient padding/ protection for the printhead, applicator, label rollers, and rear cover.
- Carefully inspect the SLPA packaging upon receipt. If damage from dropping, crushing, or punctures occurred, contact the carrier directly and specify the nature of the damage.

Handling

- When handling the SLPA, do not rest or pivot it such that pressure may be applied to the printhead assembly.
- Do not lift or pull the SLPA by gripping the applicator pad, the pneumatic tubing, the printhead assembly, or any of the rollers which are located on the front of the it.

NOTE: It is possible to manually position the applicator pad. Ensure that the applicator pad is in the full up position to prevent any damage from occurring when the SLPA is moved.

Safety

Warnings And Cautions

WARNING **Printronix has provided the necessary guards and warnings within the confines of the SLPA, but cannot anticipate each customerís individual installation and operational environments. It is the customerís responsibility to provide in-house safety guards to provide adequate worker safety for their respective production settings.**

WARNING **An input signal from the product sensor activates the SLPA when it is powered on. Make certain that protective guards are properly secured and that materials are clear of the applicator pad/printhead assembly before powering on the SLPA.**

WARNING **This manual includes instructions on basic operation and preventative maintenance only. Only qualified technicians should perform service procedures, i.e, procedures requiring access to the rear compartment or power entry module of the SLPA.**

WARNING **Both surge protection for the electrical supply and pressure relief for the pneumatic supply are strongly recommended. Failure to properly protect against extreme fluctuations in the supply sources could result in operator injury or damage to equipment.**

CAUTION **Power off the SLPA and disconnect both the power source and the air supply prior to doing any maintenance, adjustments, and/or parts replacement which do not require these systems to be powered on.**

CAUTION **Read and become familiar with all of the instructions in this manual before proceeding to operate the SLPA.**

CAUTION **Any external communications cables to be used with the SLPA must be properly shielded and grounded. Failure to provide proper shielding or grounding for these cables could result in malfunctioning or damage to the SLPA.**

CAUTION **When handling the SLPA, do not rest or pivot it such that pressure may be applied to the printhead assembly.**

Operating Precautions

Proper operation of the SLPA depends upon timely maintenance and appropriate operation. Always observe the following precautions:

- Use label stock which is designed for use with the SLPA. Printronix supplied replacement stock is recommended.
- Ensure that a regulated air supply is used for the pneumatic system. Use the appropriate filters for the removal of dirt, oil, and excessive moisture.
- Secure all protective guards, covers, and enclosures prior to operating the SLPA. Ensure proper mounting of the SLPA prior to use.
- Do not attempt to operate an SLPA from a power source other than that for which it was designed. Do not use any of the SLPAís components to power or operate any equipment except those they are intended to operate.
- Use only Printronix replacement parts for maintenance and repair.
- You must have this manual to perform any maintenance. Use only the appropriate tools and ensure that maintenance workers are properly grounded if work is being performed on the circuitry.
- Do not use objects other than a finger to operate buttons on the keypad.
- Sound pressure levels indicated a maximum reading of 81 ±1dB(A).

  Sound levels were determined based on SLPAs of similar design and assembled with a 3 x 4 inch applicator pad. Readings were taken in a low noise environment, at approximately 1.0 meter.

NOTE: Sound levels may vary depending upon the mounting of the SLPA, the surface to which a label is applied, and the environment in which it is used. The size of the applicator pad can also affect sound levels, in that larger pads can produce greater noise when applying labels.

Operational Safety

WARNING **The addition of custom safety guards in the vicinity of the label applicator is essential to the safe operation of the SLPA. Due to the variety of potential assembly line setups, Printronix cannot provide sufficient guarding in a standard package. The addition of such guards is the responsibility of the buyer.**

WARNING **The SLPA should be powered off during any operation in which a worker may be exposed to a hazardous zone. If it is necessary that the SLPA remain powered on, make certain that the Pause button is pressed and the product sensor is disconnected.**

Installing The SLPA

Unpacking Your SLPA

The SLPA has been securely packaged for protection during transportation. Once received, follow the steps outlined below to ensure that the SLPA is not damaged.

1. Remove the top layer of protective paper from the SLPA.
2. Lift the SLPA from the protective bottom layer of the box.

CAUTION **Do not lift or pull the SLPA by gripping the applicator pad, the pneumatic tubing, the printhead assembly or ANY ROLLERS which are located on the front of it.**

3. Save the shipping container and protective layers of paper to ensure proper return shipping to Printronix, if necessary.
4. Organize all items as they are unpacked from their containers. Carefully inspect each item for signs of damage. Make certain that all parts (options) requested are received with the order.
5. Consult the enclosed packing slip for contact information if any item is missing or broken.

Mounting The SLPA

The mounting method for the SLPA allows for side, top, or bottom applications.

NOTE: Specify the orientation of the SLPA when ordering. If the system is to be used for bottom applications, custom work may be needed.

If the bottom base plate is used, the SLPA can easily be mounted to any flat surface using the four 3/8 - 16 UNC holes provided. If the SLPA is mounted using the 0.39 inch diameter holes provided on the side panels, special fixturing may be needed to prevent potential damage to the connectors and cabling in those areas.

To facilitate access to the control panel, the SLPA should be mounted at a height between 2.0 feet (0.6 m) to 6.2 feet (1.9 m) above service level.

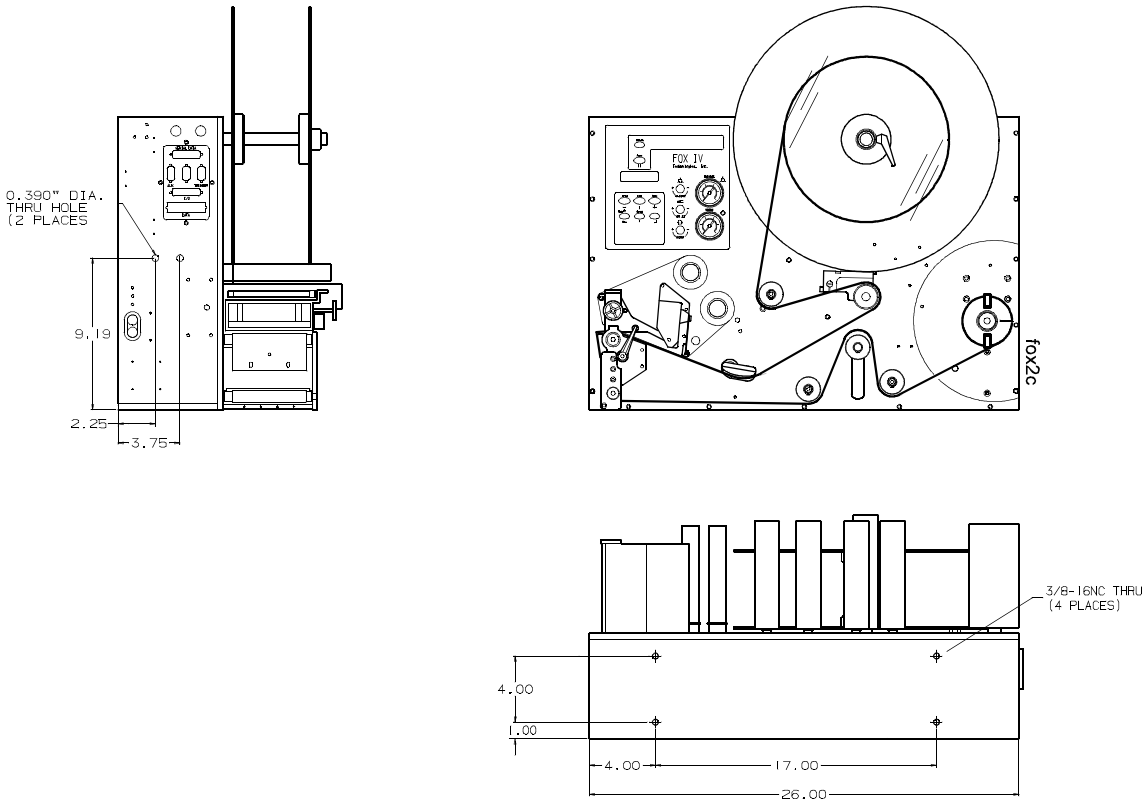


Figure 2. Mounting Hole Configuration

CAUTION **The mounting plates of the SLPA are 0.375 inches (9.25 mm) thick. When mounting the SLPA, use screws that will secure the assembly into place but will not penetrate deeper than 1/2 inch (12.7 mm) in the SLPA.**

IMPORTANT **Retain cap screws in mounting holes that are not to be utilized.**

Optional Mounting Accessories

See "Mounting Accessories" on page 265.

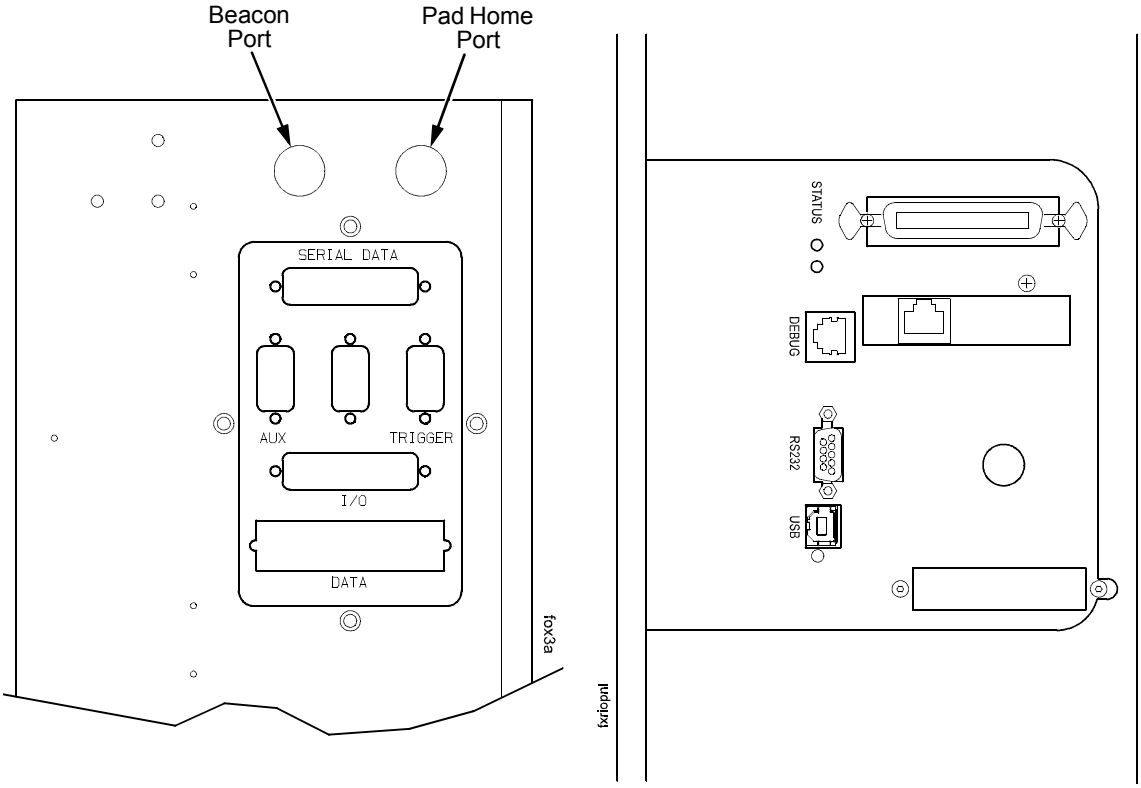
Mounting The Beacon

See "Mounting The Beacon" on page 264.

Air, Power, And Communications Connections

CAUTION **Any external communications cables to be used with the SLPA must be properly shielded and grounded. Failure to provide proper shielding or grounding for these cables could result in malfunctioning or damage to the SLPA.**

After mounting the SLPA, connect the system as follows:



Interface Connections Between the SLPA and External Equipment

Connections to the Controller Board

Figure 3. Interface Panels

1. Connect the pad home sensors mounted on the air cylinder to the pad home port on the interface side panel. (Figure 3.)
2. Connect the interface cable to the serial data port.
3. Connect the opposite end of the interface cable to the serial communications port of the host which will provide data.
4. Connect the product sensor connector to the trigger port.

NOTE: The I/O port is used to communicate with the SLPAís GPIO inputs and outputs if the optional fault/warning applicator control package is installed.

5. If you have the IEEE-1284 parallel communications cable option, attach it to the data port.

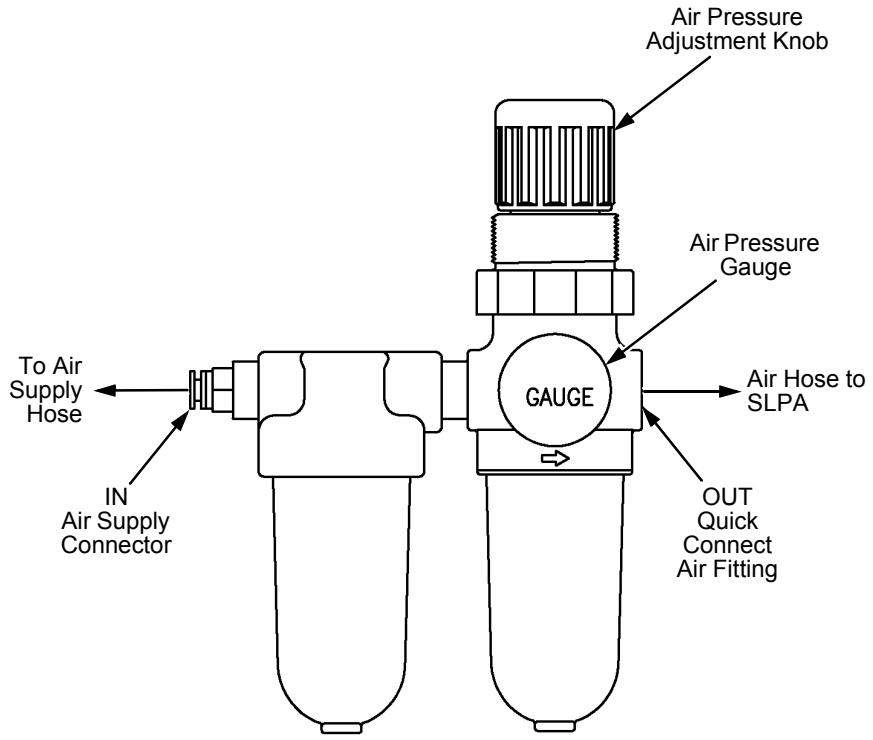


Figure 4. Air Filter

6. If you have a fault warning beacon, connect it to the beacon port. (Figure 3.)

   The fault warning beacon can also be mounted remotely from the SLPA. (An optional 12 feet cable extension is available.)

7. Mount the air filter according to requirements.

NOTE: Customer must provide the necessary mounting for the air filter supplied with the system.

8. Connect the air supply hose to the air supply connector marked IN. (Figure 4.)
9. Connect the air hose to the quick connect air fitting marked OUT.

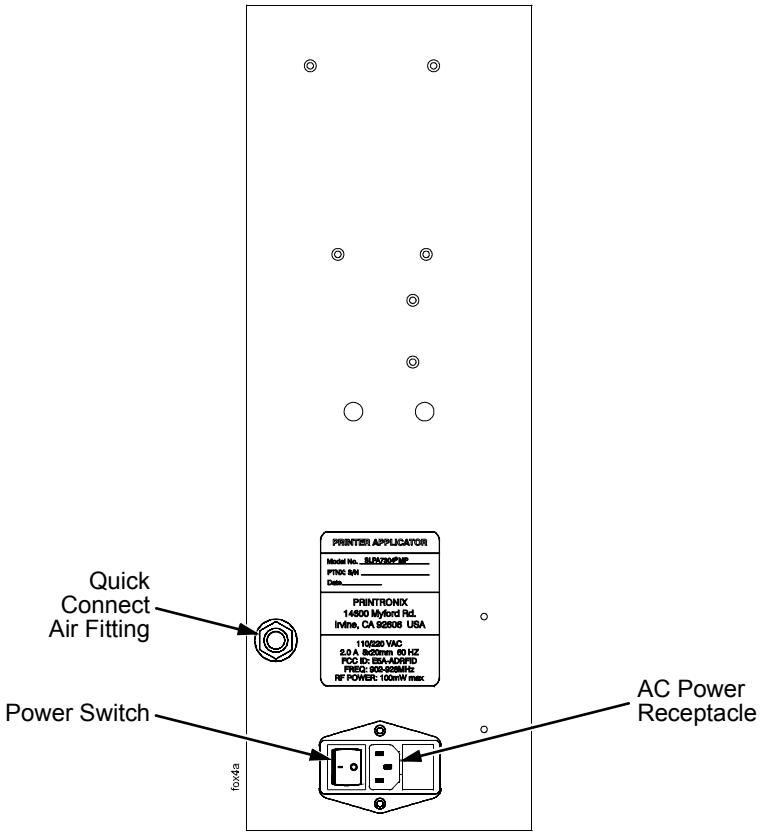


Figure 5. Power Panel

10. Connect the opposite end of the air hose to the quick connect air fitting on the power panel. (Figure 5.)

NOTE: Make certain that all communication port parameters have been configured according to purchase order requirements. Print parameters must be programmed correctly to achieve the best possible print quality. The factory settings are sufficient for most applications. Refer to Configuring The SLPA on page 81 to customize printing setup.

11. Adjust the air pressure to 90 ±10 psi using the air pressure adjustment knob and the air pressure gauge (Figure 4): pull up the knob, then rotate it clockwise to increase pressure or counterclockwise to decrease pressure. Push in the knob when you have set the pressure.
12. If necessary, adjust the voltage (page 32).
13. Plug the AC power cord into the AC power receptacle. (Figure 5.)
14. Plug the SLPA and computer AC power cords into a grounded (three prong) electrical outlet of the proper voltage.
15. Set the power switch to | (On) to power on the SLPA.

Adjusting The Voltage

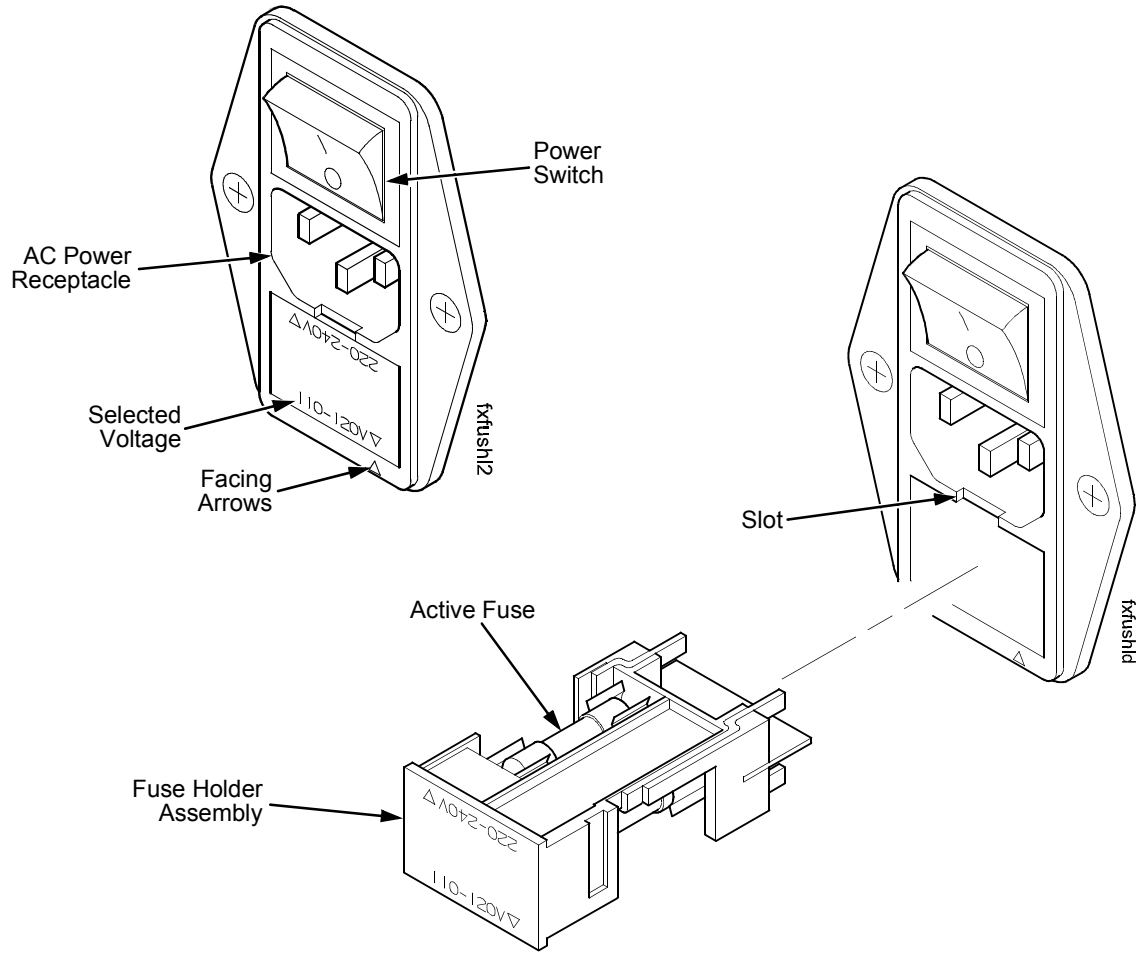


Figure 6. Adjusting the Voltage

The facing arrows indicate the selected voltage setting. (Figure 6.). If the setting is incorrect, adjust the voltage as follows:

1. Set the power switch to O (Off).
2. Insert the tip of a flat tip screwdriver into the slot above the fuse holder assembly, and twist to remove the assembly.
3. Flip over the fuse holder assembly and make sure the fuse is in the active fuse location.

NOTE: Refer to Electrical on page 259 for fuse electrical specifications.

4. Reinsert the fuse holder assembly. Make sure the facing arrows are aligned properly.

Constructing The GPIO Cable Assembly

To ensure reliable operation, construct the GPIO cable assembly using the following guidelines:

- Use double shielded cable.
- Attach the shielding to the metal connector that connects to the SLPA rear panel. Do not attach the shielding to the far end (typically at a control box for a PLC), since ground loops may result.

Example Material

The following example uses a 12 conductor cable attached to a 50 pin D-Sub connector.

Cable: 12 conductor double shielded (for when 12 conductors are required)
Manufacturer: Black Box Part: EMN12A

Connector: 50 pin D-Sub Male
Manufacturer: Amphenol Part: L717DD50P

Housing: Metalized for 50 pin D-Sub with grommet and fasteners
Manufacturer: Black Box Part: FA035-R2

Insulating tape (for wrapping the contacts to the connector)

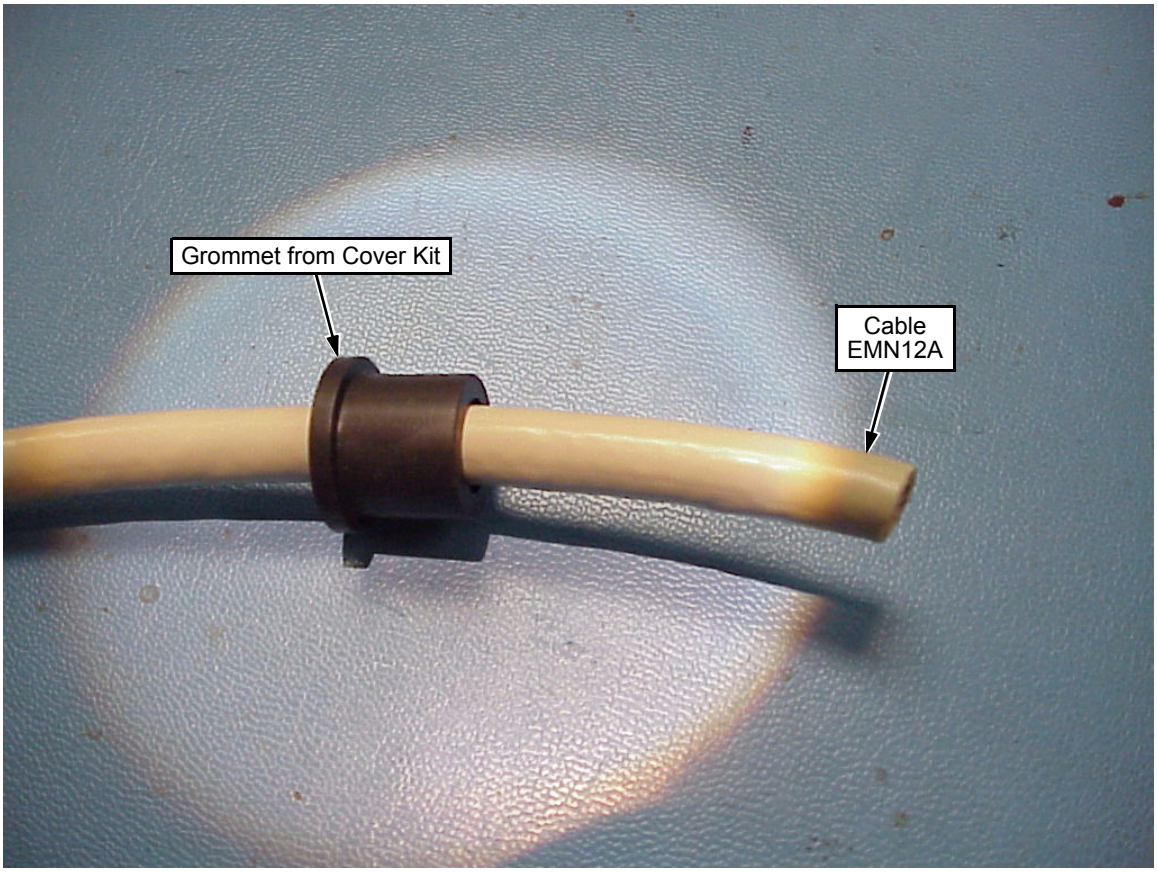


Figure 7. Installing the Grommet

Assembly Procedure

1. Select the grommet from the cover kit that fits snugly on cable EMN12A and install it as shown in Figure 7.

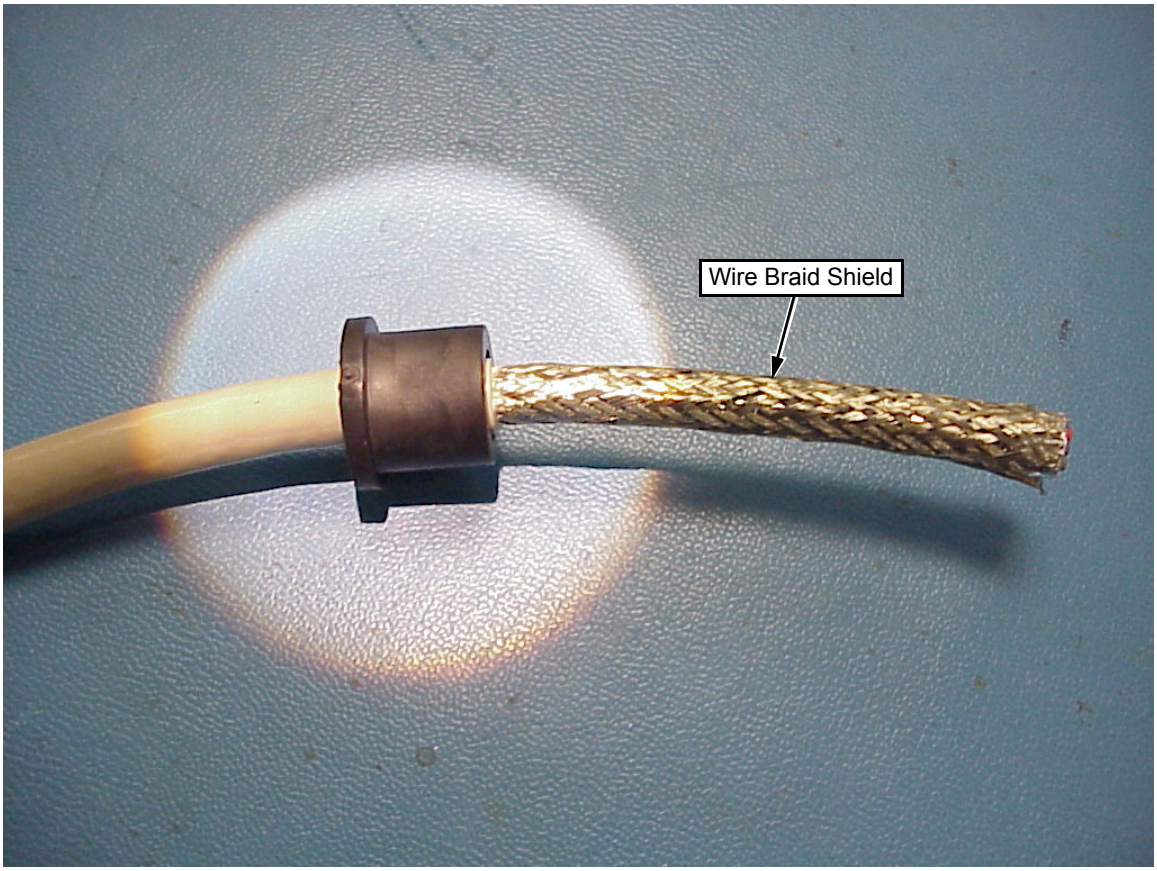


Figure 8. Removing the Outer Cable Sleeving

2. Strip off the outer cable sleeving without damaging the wire braid shield. (Figure 8.)

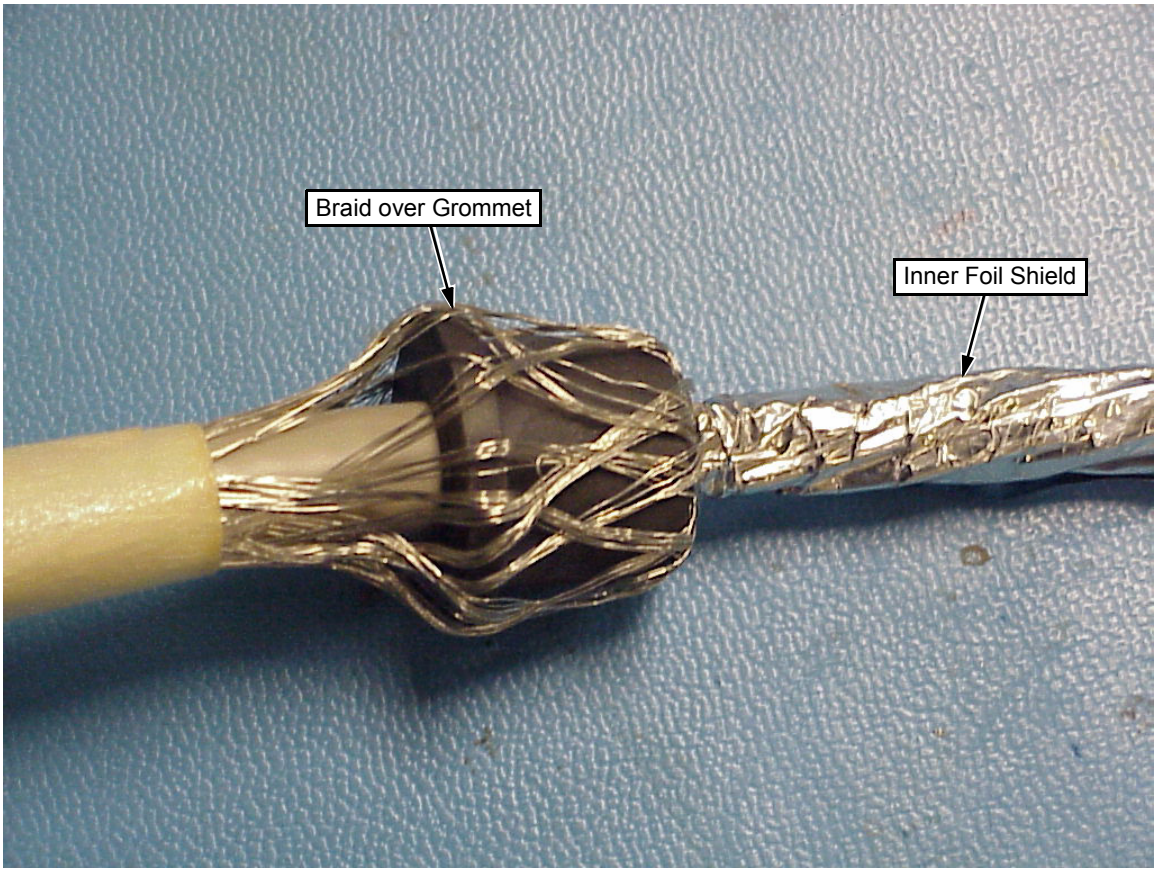


Figure 9. Unbraiding the Wire Shield

3. Unbraid the wire shield and fold it back over the grommet. (Figure 9.)
4. Remove the inner foil shield.

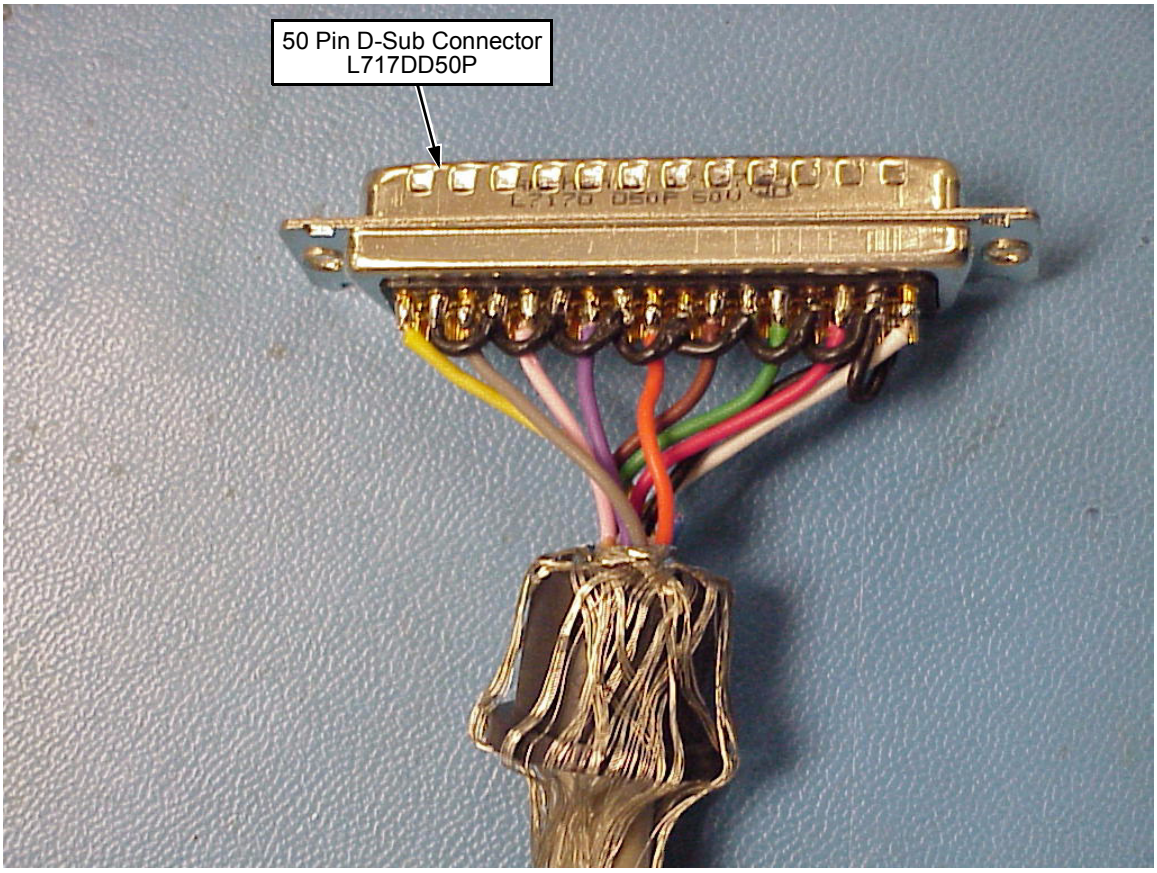


Figure 10. Adding a Connector

5. Add a connector according to your wiring needs. (Figure 10.)

Figure 11. Wrapping the Contacts

6. Wrap the contacts with insulating tape. (Figure 11.)

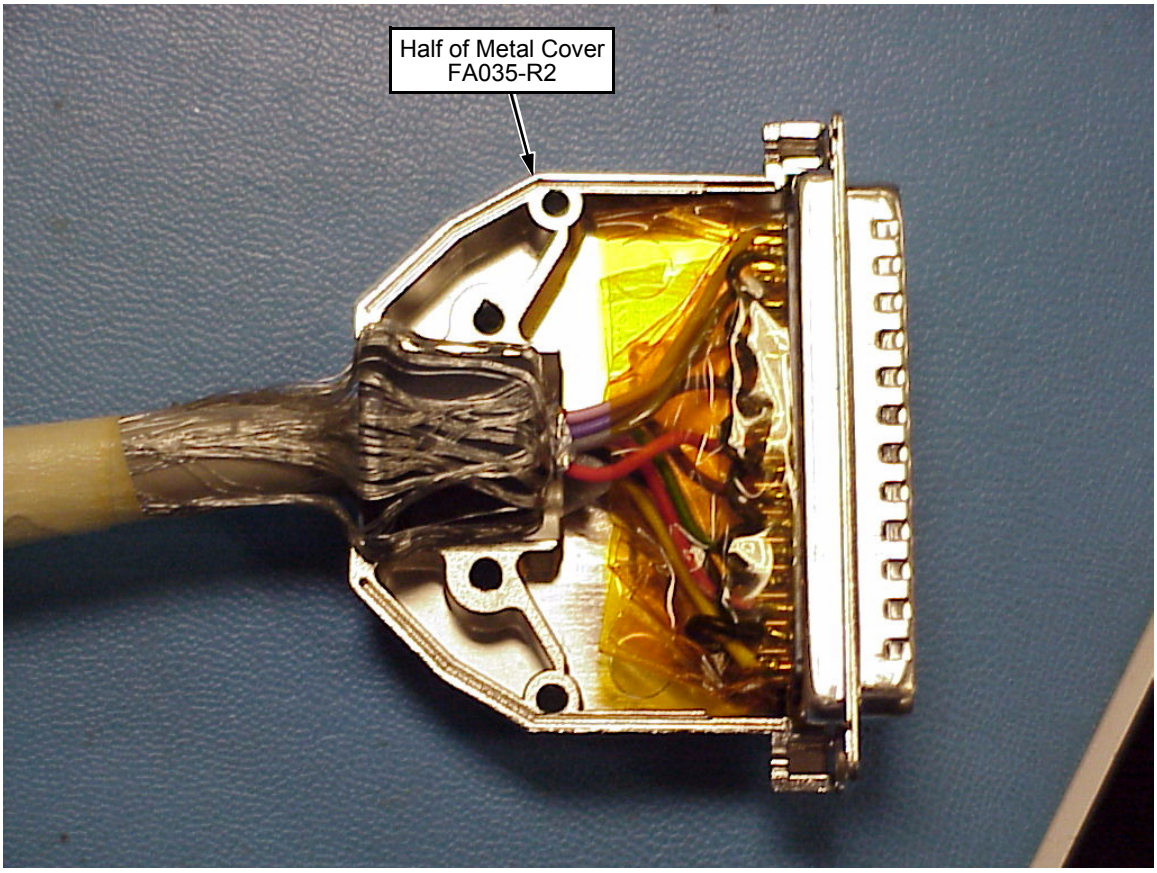


Figure 12. Installing the Cable and Connector

7. Install the cable and connector into one half of the metal cover. (Figure 12.)

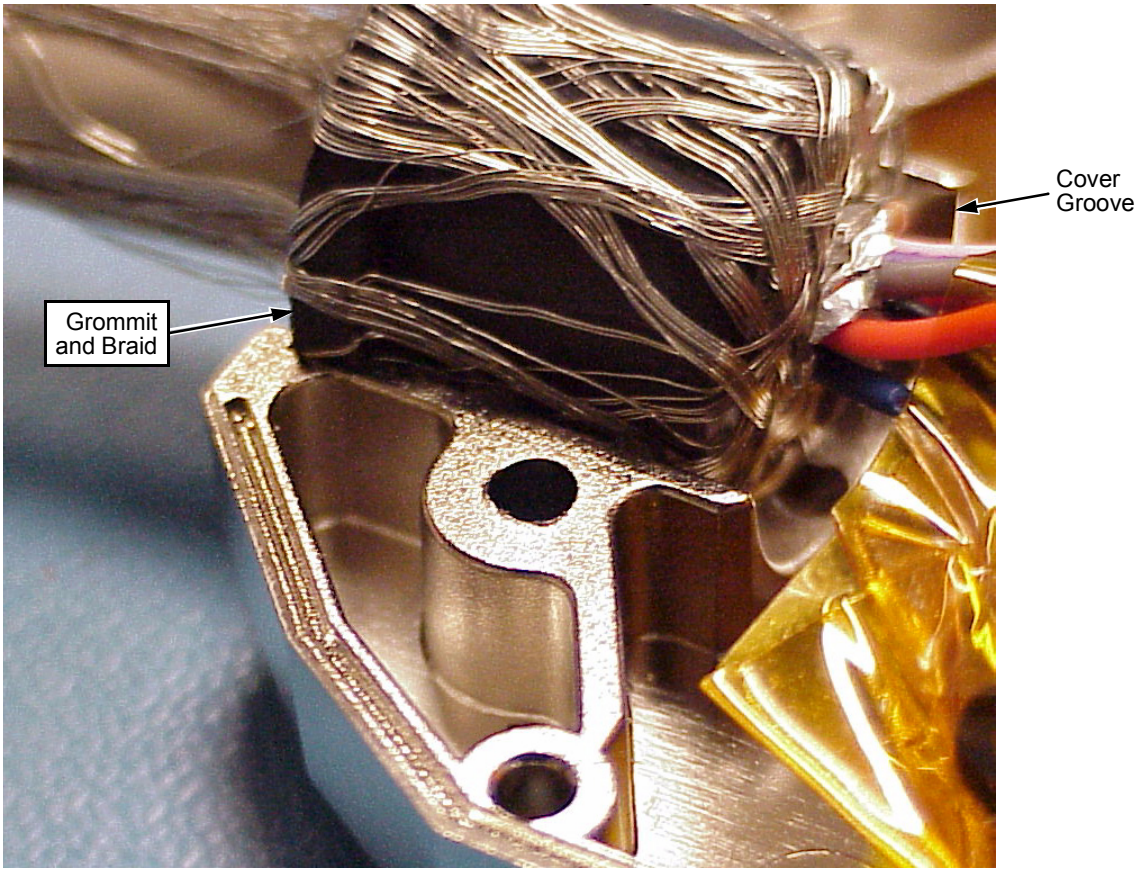


Figure 13. Positioning the Grommet and Braid

8. Position the grommet and braid in the cover groove as shown in Figure 13.

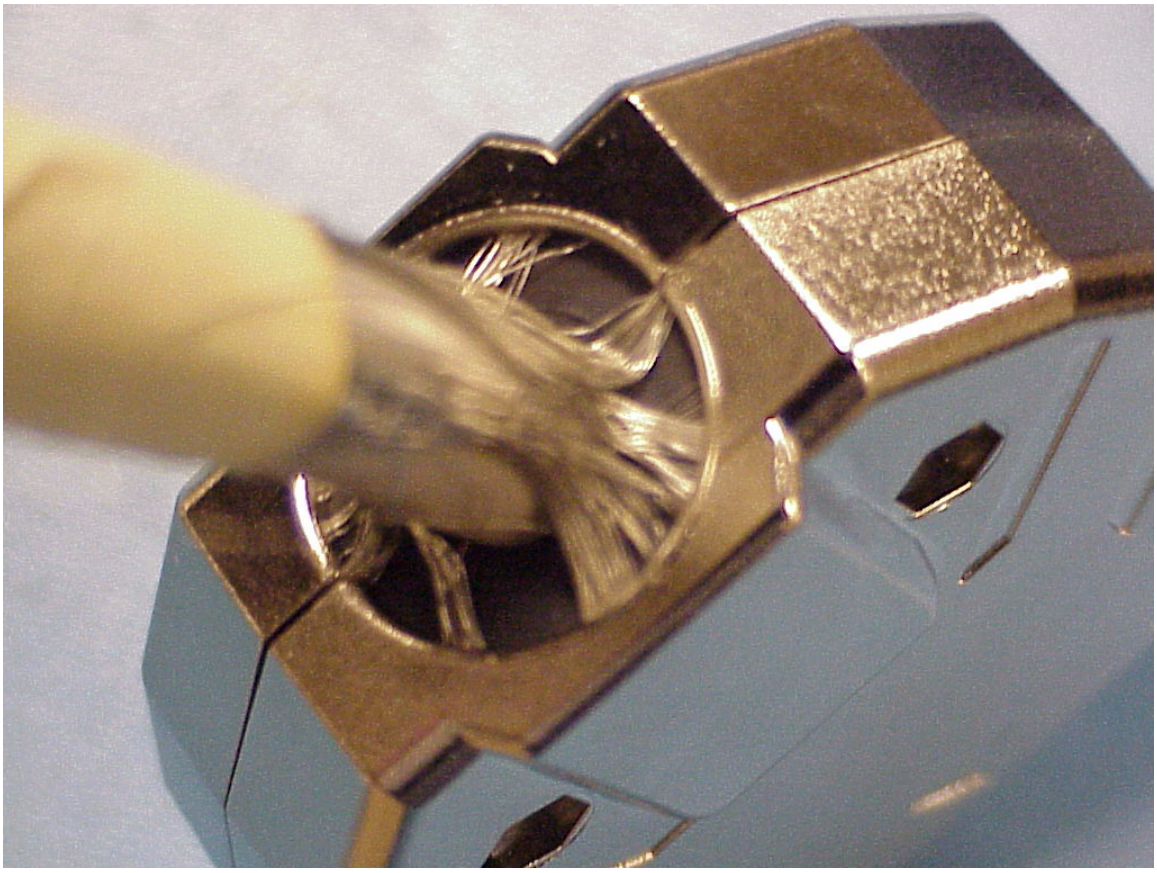


Figure 14. Installing the Second Half of the Metal Cover

9. Place the second half of the metal cover on top of the cable and connector to enclose the grommet and braid. (Figure 14.)
10. Use the provided fasteners to secure the two halves.

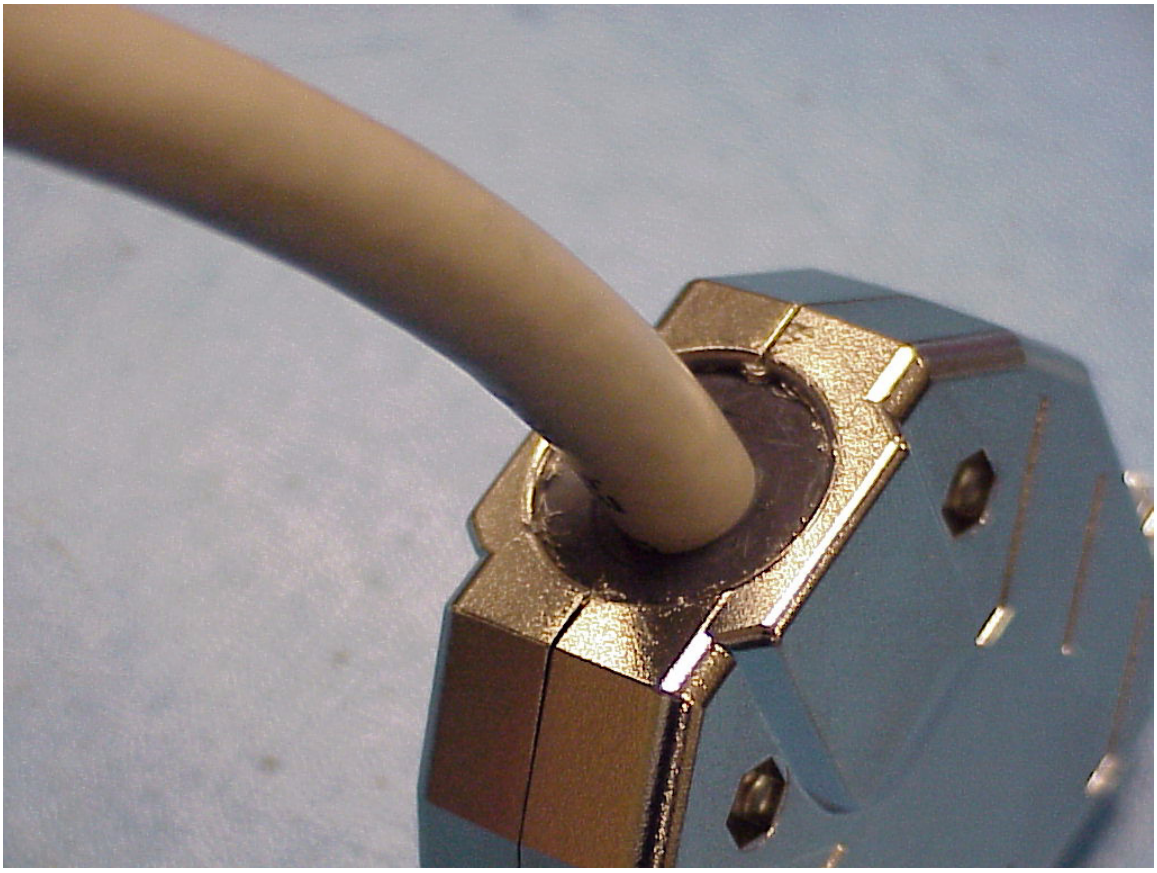


Figure 15. Trimmed Braid

11. Trim the braid. The resulting cable should appear as shown in Figure 15.

2 Operation

Control Panel

The operation and system status of the SLPA are provided on the control panel. Information concerning the SLPA is displayed on the liquid crystal display (LCD), while commands are given to the SLPA through the control panel keypad. Control valves are provided for refined adjustments to the pneumatic system.

IMPORTANT **It is important to become familiar with all of the operations, readouts, and components of the control panel. Inappropriate settings may impair the SLPAís functionality.**

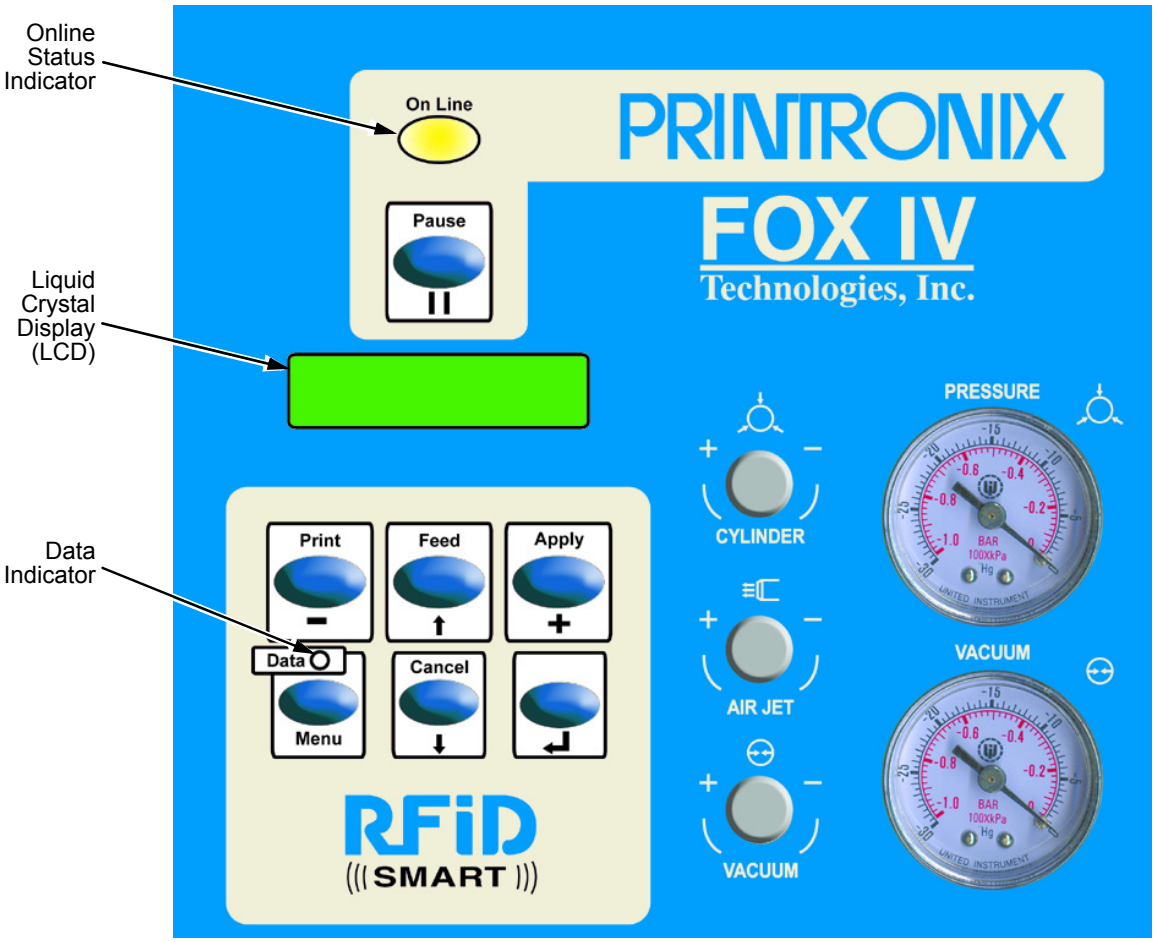


Figure 16. Control Panel

LCD

The LCD is a 2 line by 16 character per line reflective display with a light emitting diode (LED) backlight. The LCD displays system information on the SLPA when performing system set-up procedures, print batch status during operation, and system information in a fault condition.

Keypad

The keypad is used to place the SLPA in operation, to perform calibration or testing, or to modify the systems operating parameters.

The keypad functions as two key groups: SLPA control when the SLPA is online, and menu option setting when the SLPA is offline. The use of one key group will not interfere with the use of the other key group. The function of each indicator and key is defined in Table 1.

Table 1. Control Panel Keys

Indicator or Key	Description	Online Mode	Offline Mode	Menu Mode
Online Status indicator	Indicates when SLPA is online, offline, or in fault condition.	Light is on when online, ready to print, and accept data from host. Flashes during fault condition.	Light is off when SLPA is offline. Flashes during fault condition.	Light is off. Flashes during fault condition.
Liquid Crystal Display (LCD)	A 2 line by 16 character per line reflective display with a light emitting diode (LED) backlight.	Displays ONLINE, the interface type, and emulation in use. During a fault condition, displays specific fault message and required action.	OFFLINE During a fault condition, displays specific fault message and required action.	Displays OFFLINE, a Main menu and submenu, or option. During a fault condition, displays a specific fault message and required action.
Pause key	Switches the SLPA between online and offline modes.	Pressing this key when the SLPA is online takes the SLPA offline.	Pressing this key when the SLPA is offline places the SLPA online.	Takes the SLPA offline.

Table 1. Control Panel Keys

Indicator or Key	Description	Online Mode	Offline Mode	Menu Mode
Print key	Print key □(decrease) key in Menu mode.	Prints the next label in the buffer.	None	Scrolls left through current menu options. Decreases option values in submenus.
Feed key	Feed key ↑ (up arrow) key in Menu mode.	Advances the media one label length.	None	Scrolls current menu selection up one level.
Apply key	Apply key **+** (increase) key in Menu mode.	Manually applies the label.	Selects the Printer Tests menu, and then scrolls through the options.	Scrolls right through current menu options. Increases option values in submenus.
Menu key Data indicator	Menu key Data indicator is green when data is in the system.	Takes the SLPA offline and selects Menu mode.	Enters Menu mode.	Scrolls through the Main menu selections.
Cancel key	Pressing the Cancel key will enable the key and clears all data from the print buffer and prevent printing of that data.[1] ↓ (down arrow) key in Menu mode.	None	Clears all data in the print buffer.	Scrolls the current menu selection down one level.
↵ (Enter) key	Pressing the ↵ (Enter) key in Menu mode selects the displayed option or value.	Selects the Applicator Delay menu (page 190).	When in the Printer Tests menu, runs the selected test.	Selects the current menu value.

[1] Cancel Key must be set to Enable in the PRINTER CONTROL menu to use the Cancel key. The default is Disable.

Key and Indicator Descriptions

For the locations of these keys and indicators, refer to Figure 16 on page 43.

Online Status Indicator

The SLPA is online when the Online status indicator light is on. When the SLPA is offline, the light is off.

Pause Key

When the SLPA is online or in Menu mode, the Pause key takes the SLPA offline (offline mode) and suspends all SLPA operations, but operations do not cease until the current print or apply cycles have been completed. When the SLPA is offline, the operator may make mechanical adjustments to the SLPA, clear assembly line jams, etc., without powering off the system.

When the SLPA is offline, the Pause key places the SLPA back online (online mode).

NOTE: The SLPA may automatically take itself offline in several situations (e.g., out of labels, after recovering from a fault, etc.).

Print Key

When the SLPA is online, the Print key prints a label and feeds it to the applicator pad if there is a label configuration in the SLPAís print buffer. If no label pattern exists in the buffer, it will not function.

In Menu mode, the □ (decrease) key scrolls left through current menu options or decreases option values in submenus.

NOTE: The Print key has no effect when the SLPA is offline.

Feed Key

When the SLPA is online, the Feed key advances the media one label length. if the print buffer is currently empty. If the system is printing labels from the buffer, this key will not function until the batch is done printing.

In Menu mode, the ↑ (up arrow) key scrolls the current menu selection one level up.

NOTE: The Feed key has no effect when the SLPA is offline.

Apply Key

When the SLPA is online, the Apply key cycles the applicator as though the SLPA was triggered by the product sensor. The cylinder extends to place the label and a new label prints and is placed on the pad upon its return to the home position.

In Menu mode, the **+** (increase) key scrolls right through current menu options or increases option values in submenus.

Menu Key and Data Indicator Light

When the SLPA is either online or offline, the Menu key takes the SLPA offline and into Menu mode.

In Menu mode, the Menu key scrolls through the Main menu of the SLPAís operating system. It permits the operator to set or change various operating parameters.

The Data indicator light on the Menu key is green when data is in the system. This data refers to the information printed on the label. If the green light is off, there is no data in the system. There is no manual operation of this indicator.

Cancel Key

NOTE: Cancel Key must be set to Enable in the PRINTER CONTROL menu to use the Cancel key. The default is Disable.

When the SLPA is offline, the Cancel key clears the current print pattern and all printing programs currently in the print buffer.

After clearing the print buffer, the SLPA automatically takes itself offline. The SLPA may then have a new label pattern downloaded to the print buffer. Press the Pause key to place the SLPA back online.

In Menu mode, the ↓ (down arrow) key scrolls the current menu selection one level down.

↵ (Enter Key)

When the SLPA is online, the ↵ (Enter) key selects the Applicator Delay Menu (page 190).

When the SLPA is offline, the ↵ (Enter) key is used to select a menu option, or parameter value within the submenus. Press ↵ to select a menu option or parameter.

In Menu mode, the ↵ (Enter) key selects the current value.

Pneumatic Control Valves And Gauges

Air Cylinder Regulator

NOTE: You may also adjust the cylinder delay time through the Applicator Delay menu. See Applicator Delay Menuî on page 190.

The air cylinder regulator (CYLINDER valve) is used to regulate the air to the applicator cylinder. The regulator setting affects how quickly the applicator pad will extend (apply stroke) and return (return stroke) during the apply cycle. This adjustment determines the force with which the applicator pad will contact the product. If set too high, the applicator pad could contact the product with enough force to cause damage. If set too low, the applicator pad may not contact the product. The air pressure delivered for the apply stroke and the return stroke is equal.

NOTE: Do not exceed 60 psi.

Monitor the setting of the air cylinder regulator using the PRESSURE gauge.

Air Jet Adjustment

The air jet adjustment (AIR JET) controls the air supply to the air jet tube. Air is forced out the air jet tube allowing the labels to properly transfer over the peel bar then to the applicator pad. If the adjustment is too low, the labels will not properly transfer from the printer to the applicator pad. If set too high, the label edge will be incorrectly positioned. The air jet is factory preset. Adjust the air jet pressure by turning the AIR JET control clockwise to increase the flow, counterclockwise to decrease the flow. See Positioning The Air Jetsî on page 60.

Vacuum Adjustment

NOTE: You may also adjust the vacuum delay time through the Applicator Delay Menu. See Applicator Delay Menuî on page 190.

The vacuum adjustment (VACUUM) controls the amount of air flow through the vacuum generator, thus determining the amount of vacuum holding the label onto the applicator pad. A weak vacuum will cause labels to fall off of the applicator pad prematurely. A vacuum that is too strong, however, can cause difficulty when transferring the label onto the applicator pad and the product. Vacuum is increased by rotating the valve clockwise and decreased by rotating the valve counterclockwise.

NOTE: To get a vacuum on every label, every hole on the applicator pad must be covered by the label surface.

Monitor the setting of the vacuum adjustment using the VACUUM gauge. The minimum setting is 20 inches hg.

Setup

Threading The Label Roll

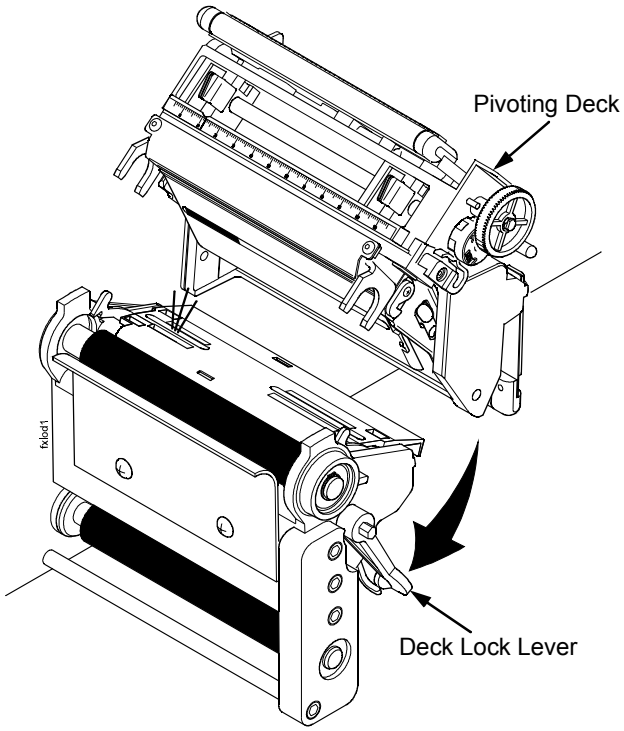


Figure 17. The Printhead Assembly

1. Press the **Pause** key to take the SLPA offline.
2. Open the pivoting deck by rotating the deck lock lever fully clockwise.

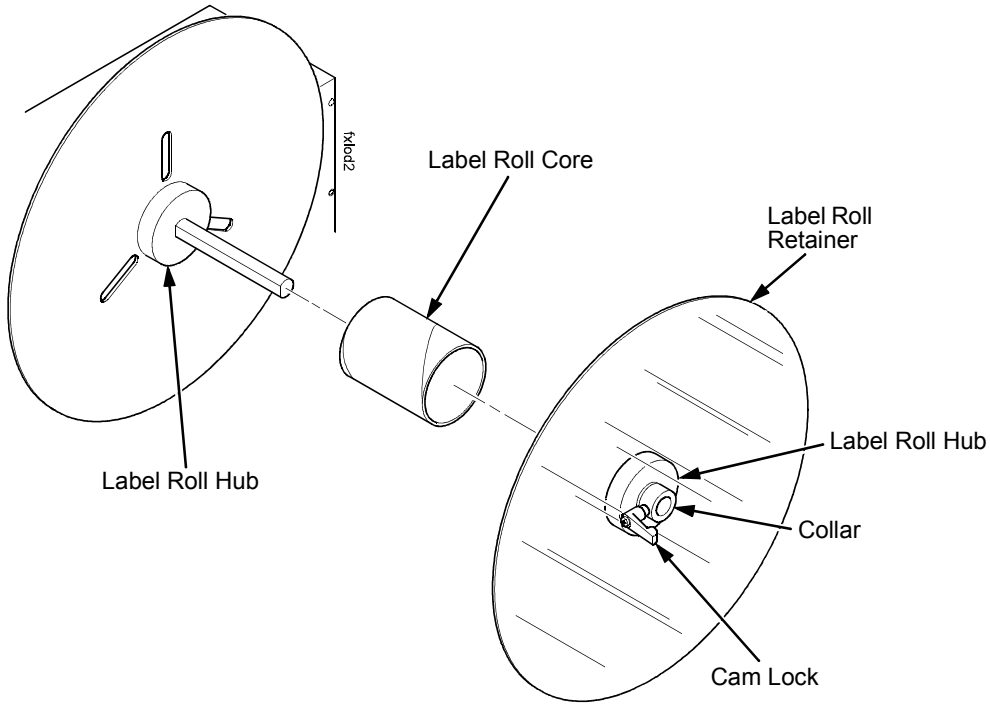


Figure 18. Mounting Label Media

3. Loosen the cam lock located on the collar of the label roll hub.
4. Slide the label roll retainer off the label roll hub.
5. Remove the empty label roll core, if necessary, from the label roll hub.

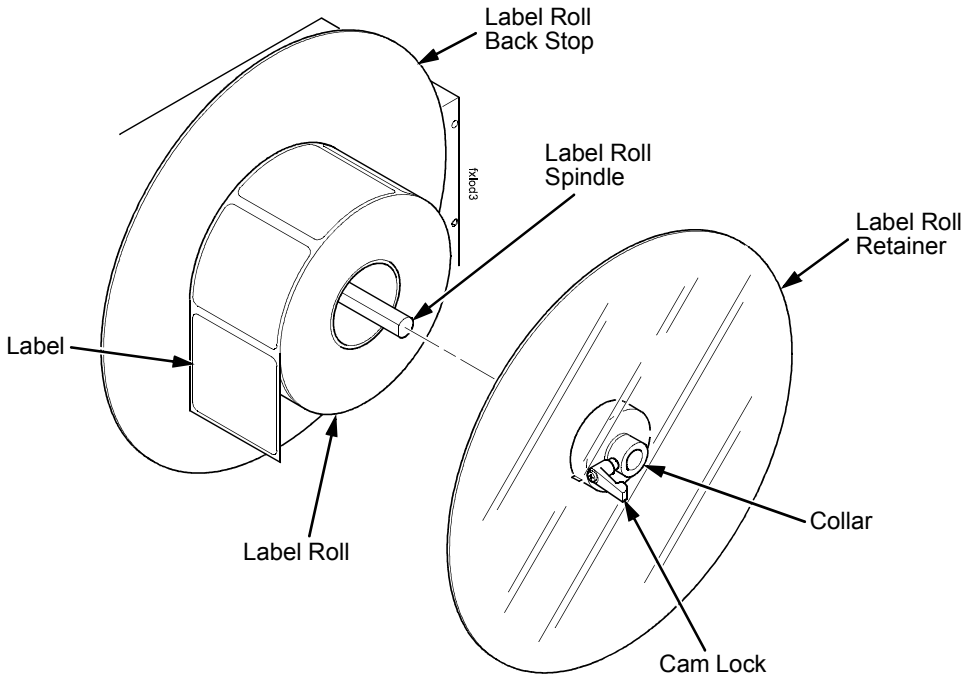


Figure 19. Loading Label Media

6. Slide the new label roll onto the label roll hub (unwinding counterclockwise) and against the label roll back stop.
7. Angle the flat edge of the collar so that it aligns with the flat edge of the label roll spindle.
8. Place the label roll retainer onto the label roll spindle until it is flush with the label roll, then tighten the black cam lock.

NOTE: If necessary, loosen the set screw on the collar and adjust the core blade so that it cuts into the label core.

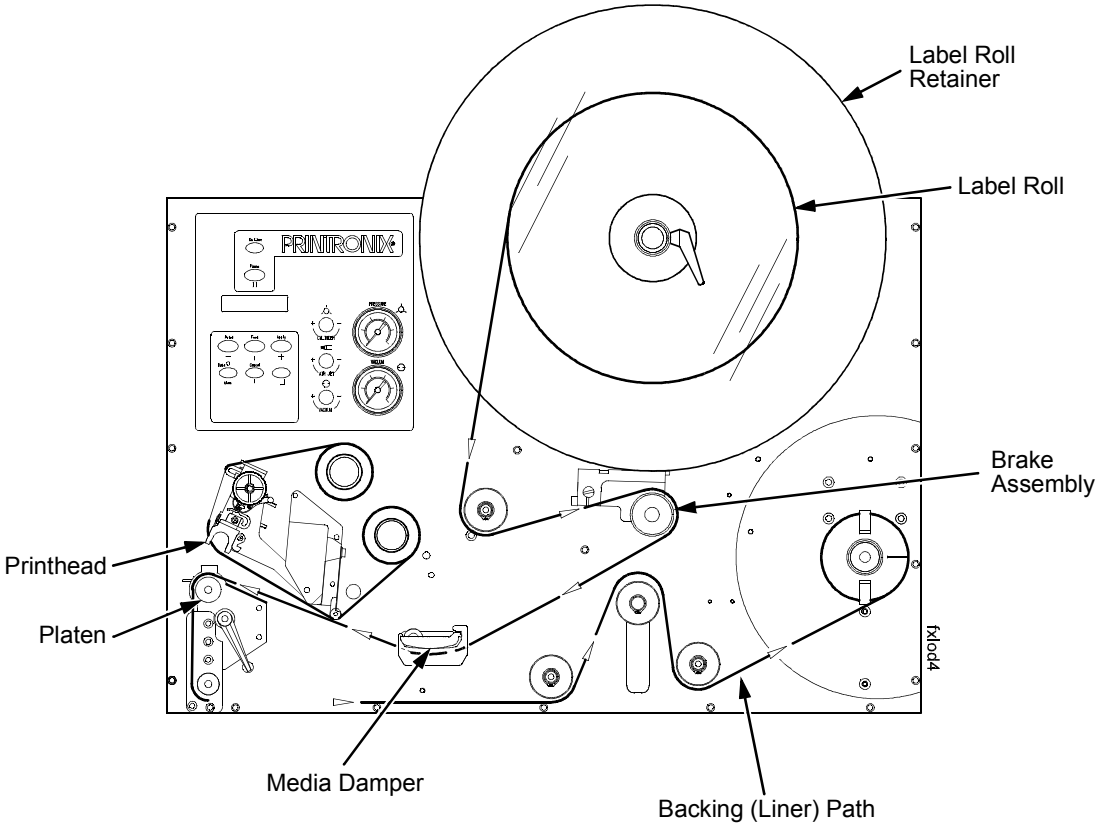


Figure 20. Loading Labels

9. Unwind approximately 3.0 feet (91cm) of media from the label roll. If your label roll does not have a leader, remove the labels from the backing. The empty backing (leader) will act as a leader to thread the media through the SLPA components.
10. Pull the brake assembly away from the label roll back stop (behind the label roll retainer) to release the tension.
11. Thread the leader around the rollers and toward the media damper using the solid white arrow threading diagram etched on the front center wall plate.

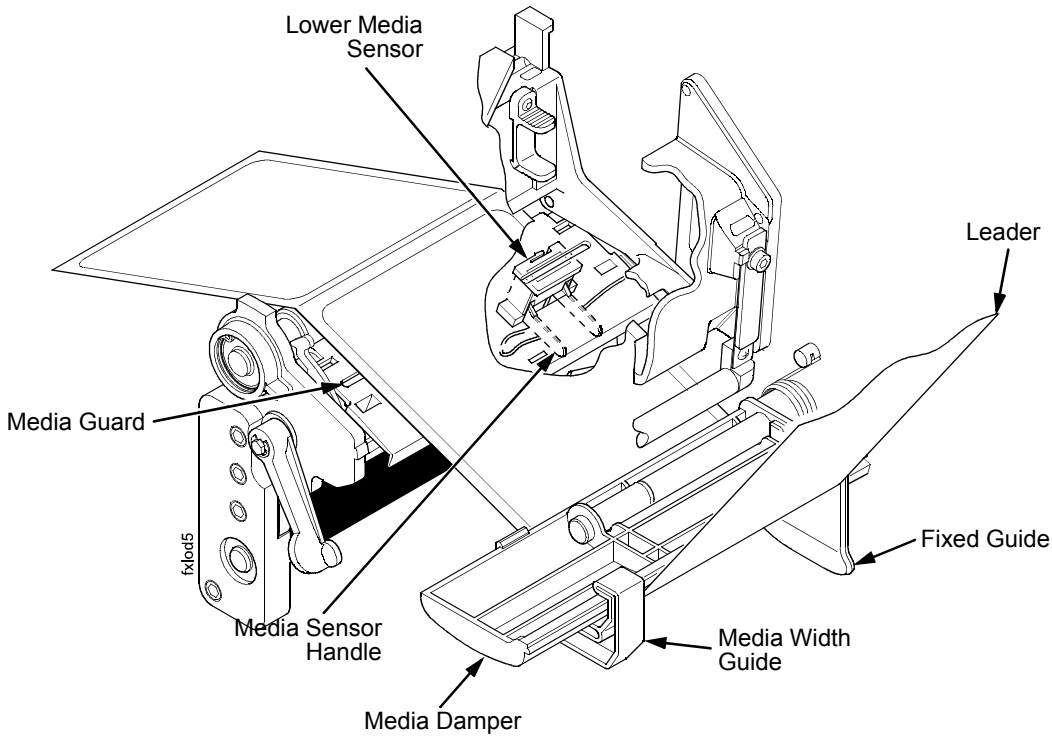


Figure 21. Threading Media Through the Printhead Assembly

12. Slide the media width guide close to the outside end of the media damper.
13. Thread the leader under the media damper and then between the platen (rubber drive roller) and the printhead.
14. Verify that the inside edge of the leader is against the fixed guide on the bottom of the media damper.
15. Push the media width guide in until it is flush with the outer edge of the media.

NOTE: Do not wrinkle the leader by pushing the media width guide too close to the SLPA panel.

16. Check the horizontal position of the lower media sensor (located under the media guard). See Positioning The Media Sensorsî on page 64.

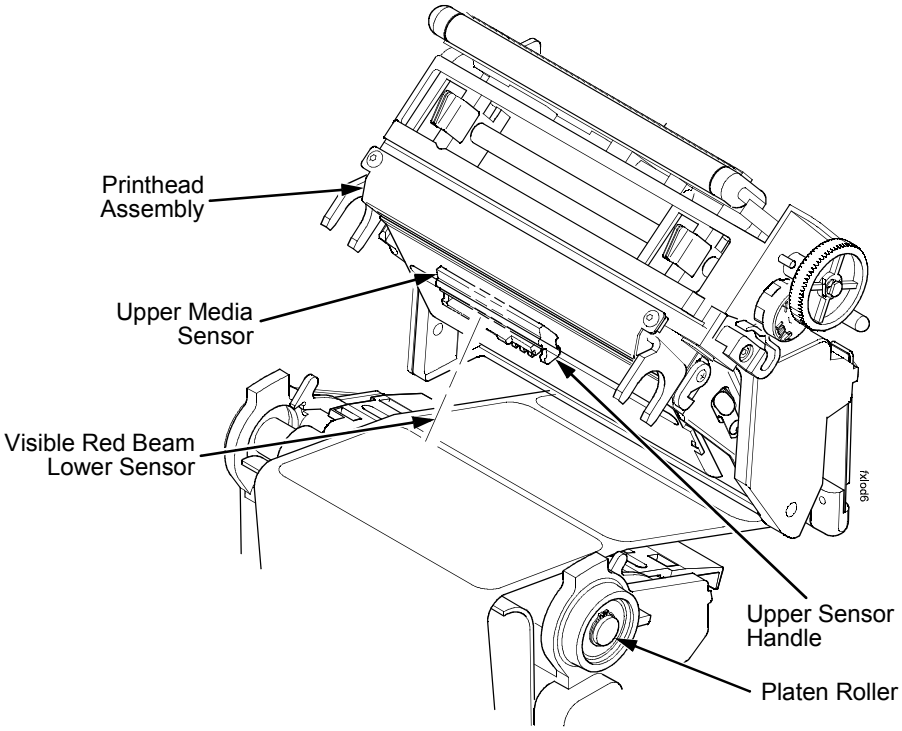


Figure 22. Threading the Leader

17. Slide the upper sensor directly over the lower sensor.
18. Thread the leader between the printhead assembly and across the top of the platen roller.

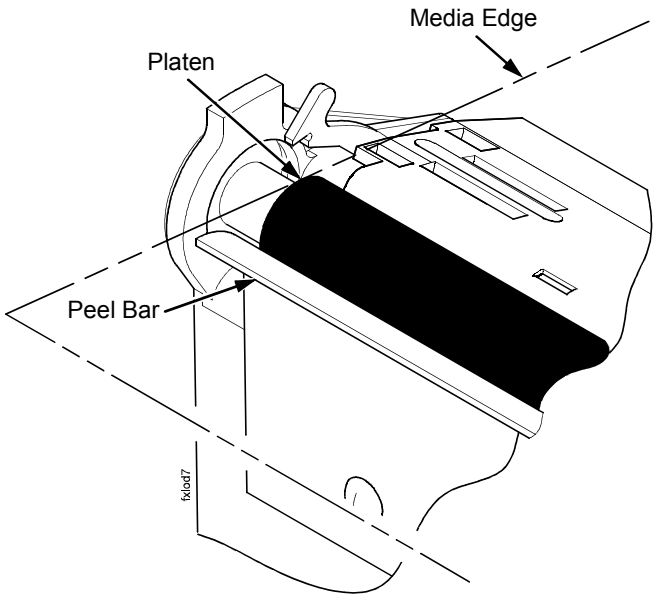


Figure 23. Aligning Media

19. Align the inside edge of the media with the inside edge of the peel bar.
20. Thread the leader over the peel bar, then between the lower platen roller and the air jet.
21. Follow the label guide arrows from the printhead, around the rollers to the media rewind spool.
22. Fold the leading edge of the leader and insert it into the slit on the rewind spool. Make sure the leader lines up closely to the SLPA panel.
23. Manually rotate the spool at least one turn counterclockwise.

NOTE: Hold the leader down while rotating the rewind spool to keep the leader in place.

24. If the SLPA is being used in Thermal Transfer mode, it may be necessary to load ribbon. See "Loading Ribbon" on page 57, otherwise proceed as follows.

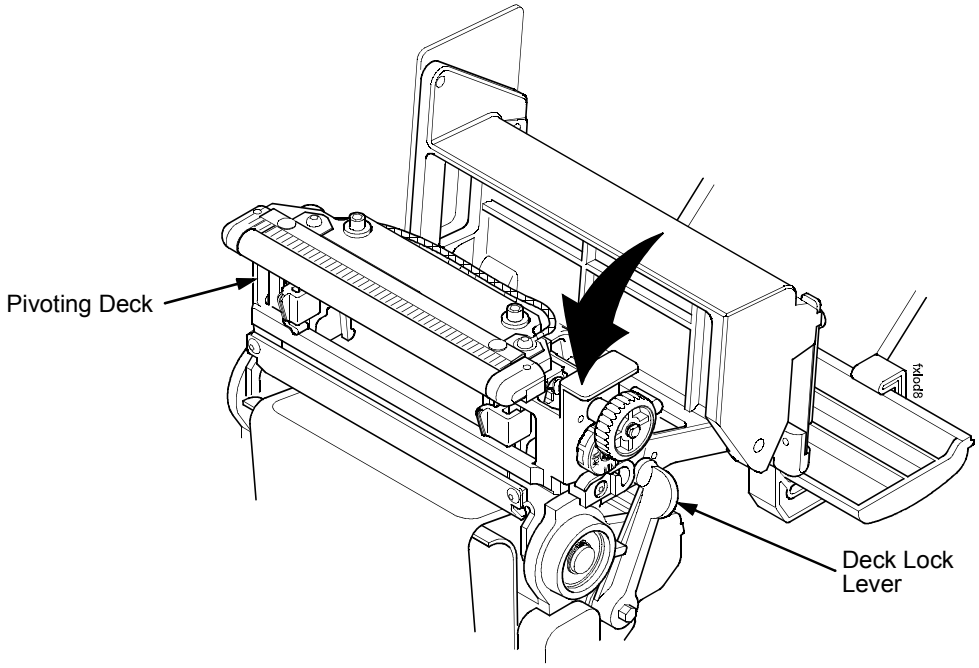


Figure 24. Locking the Pivoting Deck

25. Ensure that the label path is clear of obstructions, then close the pivoting deck and rotate the deck lock lever fully counterclockwise. This locks the pivoting deck and printhead assembly into the printing position.

IMPORTANT **Ensure the pivoting deck is down and locked before attempting to advance media or print. Failure to do so will cause the PRINTHEAD UP fault message to display.**

26. Press the **Pause** key to place the SLPA online, and send a label format via the host.
27. Feed two or three blank labels then place the SLPA online.

Loading Ribbon

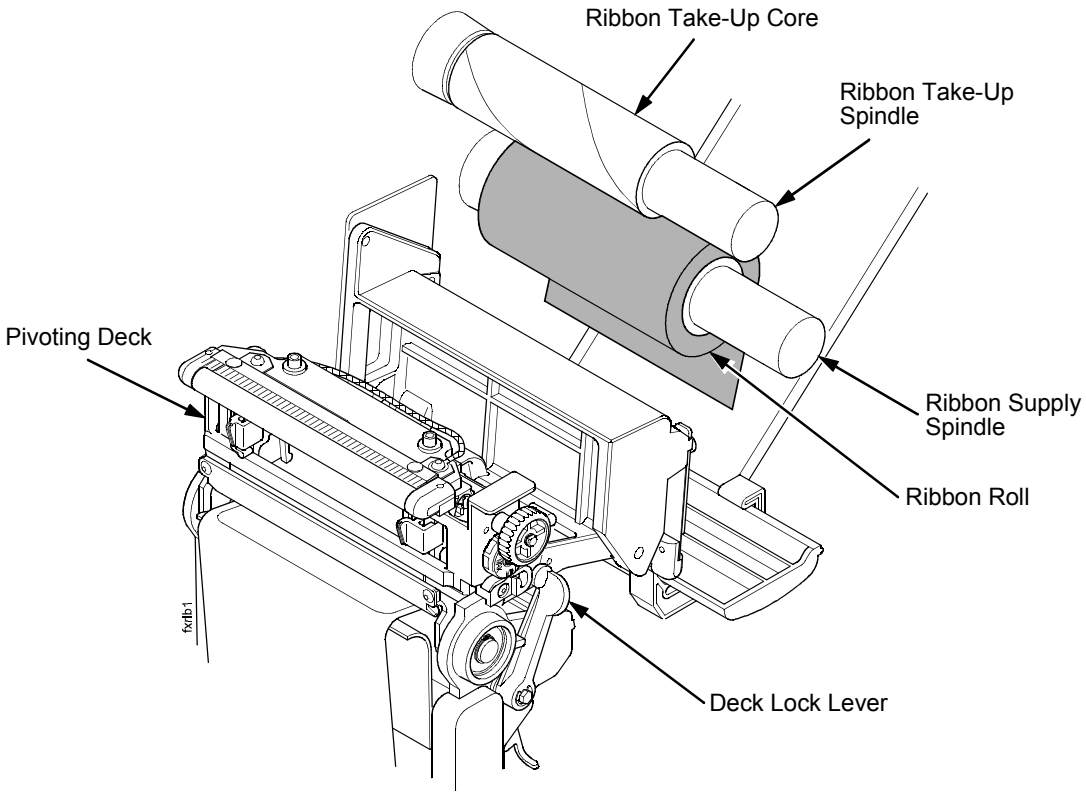


Figure 25. Loading Ribbon

1. Press the **Pause** key to take the SLPA offline.
2. Install the ribbon take-up core on the ribbon take-up spindle.

NOTE: The first ribbon take-up fiberboard core comes with the SLPA. Thereafter, use the fiberboard core from the old (used up) ribbon.

3. Slide the ribbon roll onto the ribbon supply spindle until it stops against the spindle flange.
4. Open the pivoting deck by rotating the deck lock lever fully clockwise until the deck swings upward.

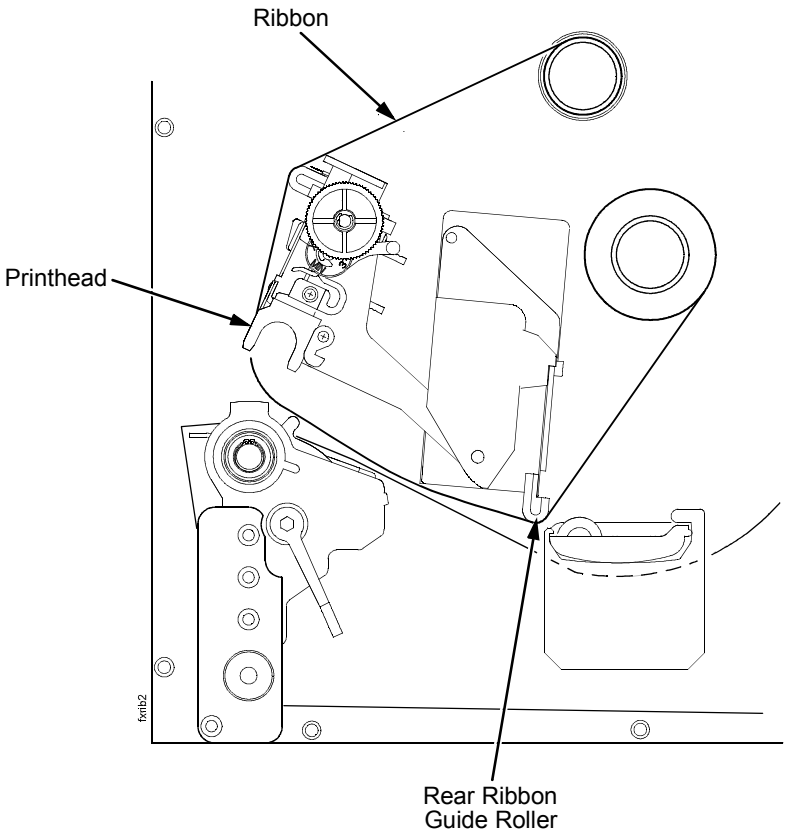


Figure 26. Threading Ribbon Through the Printhead Assembly

5. Thread the end of the ribbon under the rear ribbon guide roller, then between the platen and the printhead using the dotted line etched on the front center wall plate.

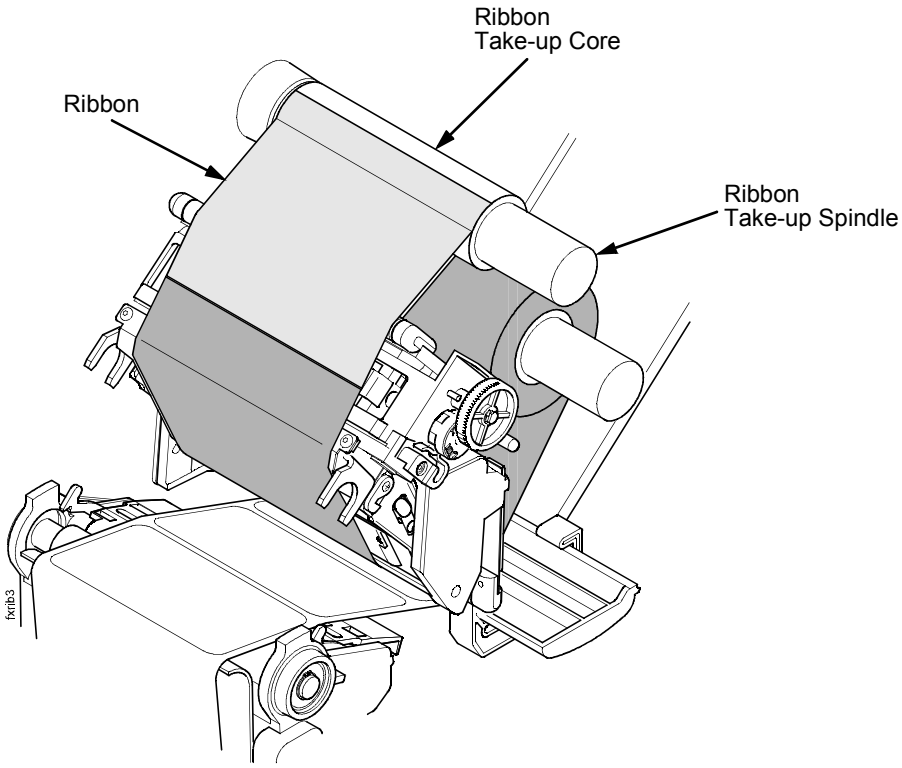


Figure 27. Attaching the Ribbon to the Take-up Core

6. Wrap the ribbon from the front of the printhead assembly to the top of the ribbon take-up spindle. Attach the ribbon to the take-up core on the ribbon take-up spindle with tape.

   When installing a new roll of ribbon, attach the ribbon leader adhesive strip to the ribbon take-up core. Manually rotate the spindle clockwise to feed the unusable portion of the ribbon leader around the take-up spindle.

IMPORTANT **Do not attach the ribbon to the ribbon take-up spindle without a ribbon take-up core installed.**

7. Close the pivoting deck and rotate the deck lock lever fully counterclockwise.
8. Press the **Feed** key once to verify that the media and ribbon advance.
9. Press the **Pause** key to place the SLPA online, then send a label format via the host.

Positioning The Air Jets

When a printed label is being fed from the SLPA onto the applicator pad, it must be held against the pad so that it can be properly positioned. The air jets located on the air jet tube direct air at the label while it is being fed, so that it does not bend or fall from the pad. Once proper positioning is achieved, the vacuum of the applicator pad initiates and holds the label into place until application.

For the air jets to work correctly, they must be directed at an angle specific to the size of the label in use. Angle the air jets to a point which is approximately 1/3 the length of the current label length, as measured from the peel bar. Wider or longer labels may approximate the air jet angle to a point beyond 1/3 the label length, where shorter or narrower labels may target inside the 1/3 length zone. Repeated adjustment may prove necessary for optimum operation.

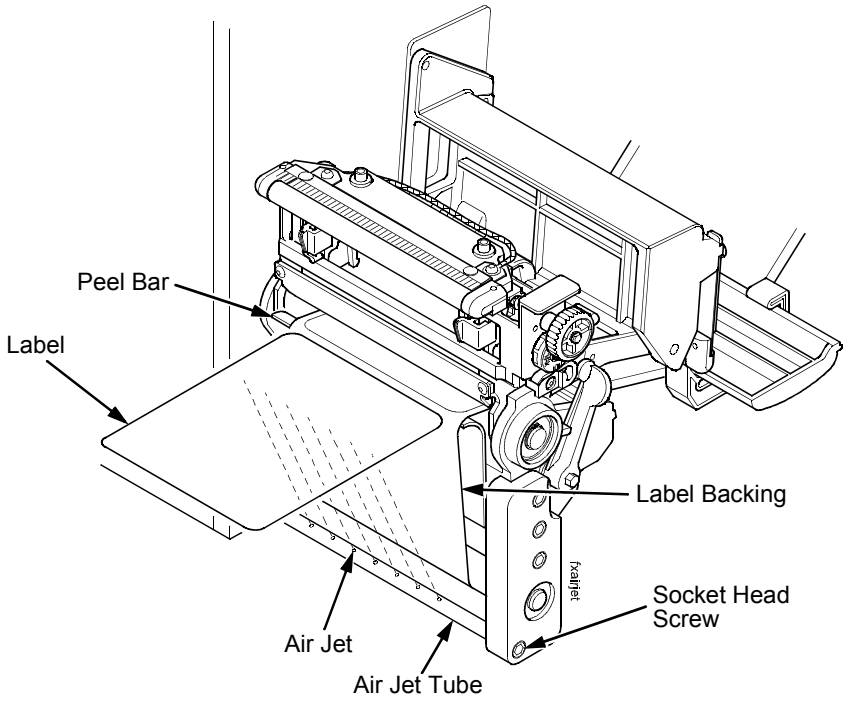


Figure 28. Positioning the Air Jets

The air jet will typically be adjusted for proper operation prior to being shipped, but if further adjustments are necessary, proceed as follows:

1. Loosen the socket head screw holding the air tube into place.
2. Ensure that the proper holes in the air jet are open. The standard tube comes with #6-32NC threaded holes and some of the holes may be plugged with a small set screw. Add or remove set screws as necessary.
3. Turn the air tube adjustment so that the air jets are directed at approximately 1/3 the length of the current label length as measured from the peel bar.
4. Tighten the socket head screw into place to hold this adjustment.

Removing Label Backing

If the media rewind spool needs to be unloaded during operation, proceed as follows:

1. Press the **Pause** key to take the SLPA offline.
2. Tear the label backing near the media rewind hub, then reach around the rewound backing, placing your fingers behind the hub of the media rewind spool.
3. Pull the rewind spool away from the centerwall plate until the rewind release bars collapse toward the center of the hub, then pull off the used label backing. The rewind hub will snap back into position near the centerwall once the used label backing is removed.
4. Feed a few blank labels by inserting the new edge of the label backing into the slit on the rewind spool and manually rotate the spool at least one turn counterclockwise.
5. Press the **Pause** key to place the SLPA online.

SLPA System Configuration Parameters

The following is a list of the system configuration parameters required for the operation of the SLPA as an RFID label printer/applicator.

NOTE: You may need to set or configure other parameters for proper SLPA operation.

Media Handling

This item selects the method of media handling.

1. Press the **Menu** key to take the SLPA offline and into Menu mode.
2. Press ↓ and ↵ at the same time until ENTER SWITCH UNLOCKED displays.
3. Press the **Menu** key until QUICK SETUP displays.
4. Press ↑ or ↓ until Media Handling displays.
5. Press **+** or □ until Tear Off displays.
6. Press ↵ to select Tear Off.

RFID Reader

This enables the RFID Reader.

1. Press the **Menu** key to take the SLPA offline and into Menu mode.
2. Press ↓ and ↵ at the same time until ENTER SWITCH UNLOCKED displays.
3. Press the **Menu** key until RFID CONTROL displays.
4. Press ↑ or ↓ until RFID Reader displays.
5. Press **+** or □ until Enable displays.
6. Press ↵ to select Enable.

GPIO Features

Sets the required GPIO features (select User Defined table, select Main table, enable GPIO Print&Apply).

1. Press the **Menu** key to take the SLPA offline and into Menu mode.
2. Press ↓ and ↵ at the same time until ENTER SWITCH UNLOCKED displays.
3. Press the **Menu** key until GPIO CONTROL displays.
4. Press ↑ or ↓ until GPIO Tables displays.
5. Press **+** or □ until User Defined displays.
6. Press ↵ to select User Defined.
7. Press ↑ or ↓ until GPIO Sel. Table displays.
8. Press **+** or □ until Main displays.
9. Press ↵ to select Main.
10. Press ↑ or ↓ until GPIO Print&Apply displays.

NOTE: Admin User must be set to Enable in the PRINTER CONTROL menu.

11. Press **+** or □ until Enable displays.
12. Press ↵ to select Enable.

System Adjustments

This portion of the manual covers all general aspects of printhead and system adjustment and replacement.

Printhead Pressure Adjustment

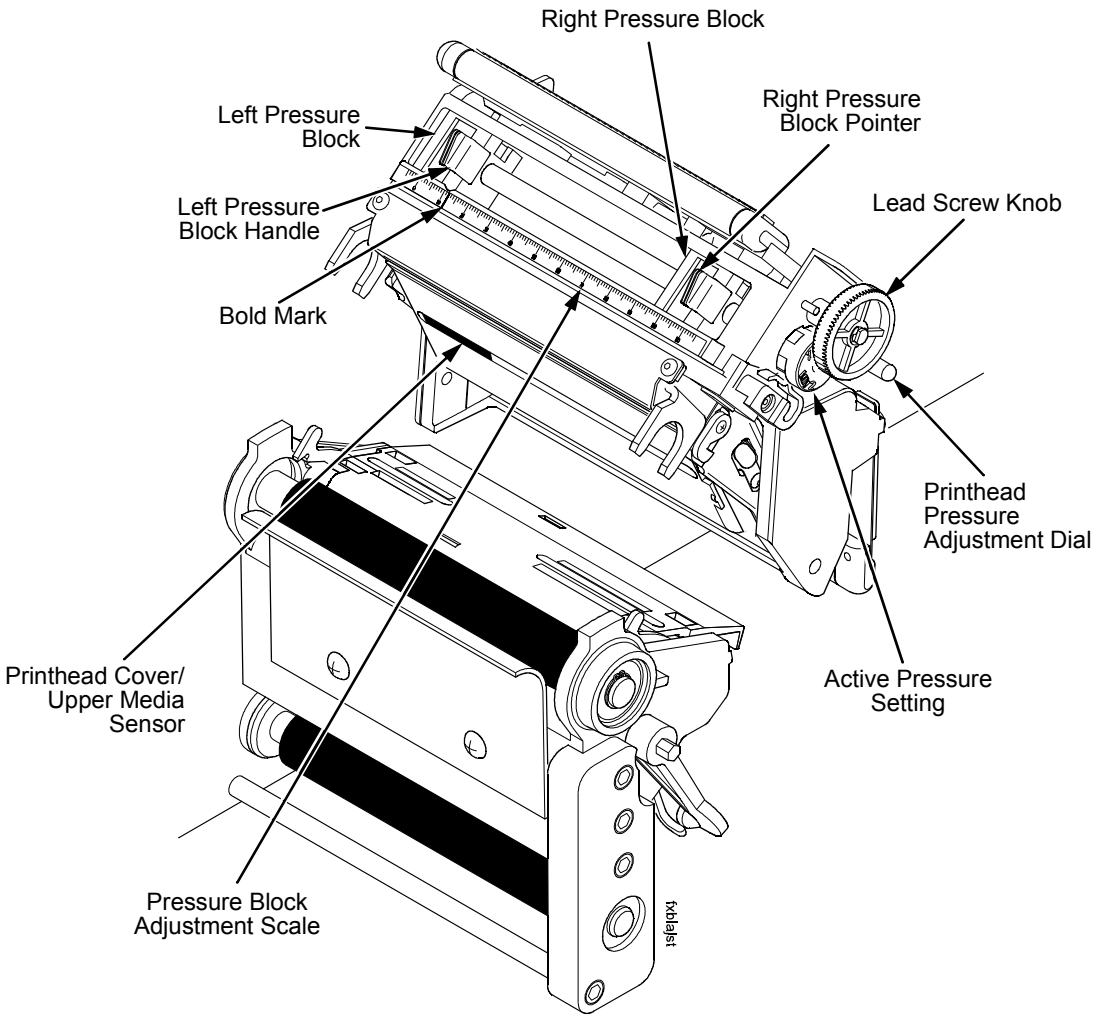


Figure 29. Printhead Pressure Adjustment

Adjust the printhead pressure to the setting of 4. The value shown at the bottom of the dial is the active pressure setting.

Printhead Pressure Block Adjustments

These adjustments to the left and right pressure blocks are typically made when the print quality is not even across the surface of the label, and may be necessary when replacing the printhead.

NOTE: Make no changes or adjustments while the SLPA is in operation.

Left Pressure Block

Manually adjust the left pressure block so its handle is aligned with the bold mark on the pressure block adjustment scale.

Right Pressure Blocks

Use the lead screw knob to position the right pressure block with its pointer near the right edge of the media in use.

Positioning The Media Sensors

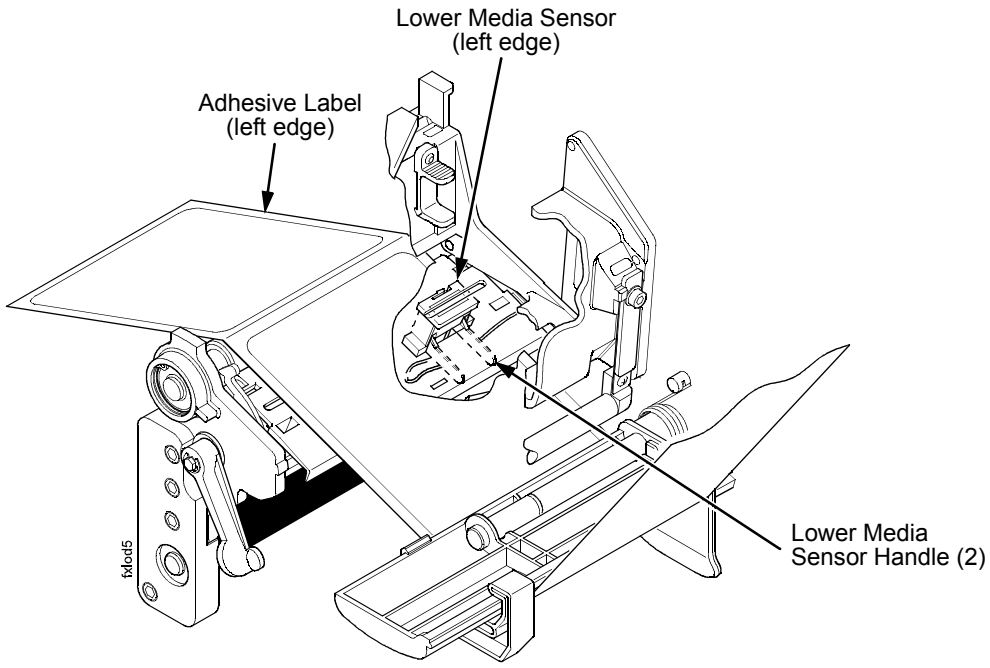


Figure 30. Adjusting the Media Sensors

The SLPA is equipped with upper and lower media sensors that detect the top-of-form position on media with label length indicators (black marks, gaps, notches, or holes). These media sensors also detect Paper Out conditions.

Use the handles on the lower media sensor to horizontally position it so that the left edge of the sensorís visible red LED is aligned under the left edge of the adhesive label of the installed media.

The upper media sensor, located in the slot under the printhead cover (see Figure 29 on page 63), should be located directly over the lower media sensor.

The lower media sensor should not be placed in the path of media features that could cause false gap detection or paper out faults. Such features are dark pre-printing, rounded die cut label corners, and extraneous cut-outs.

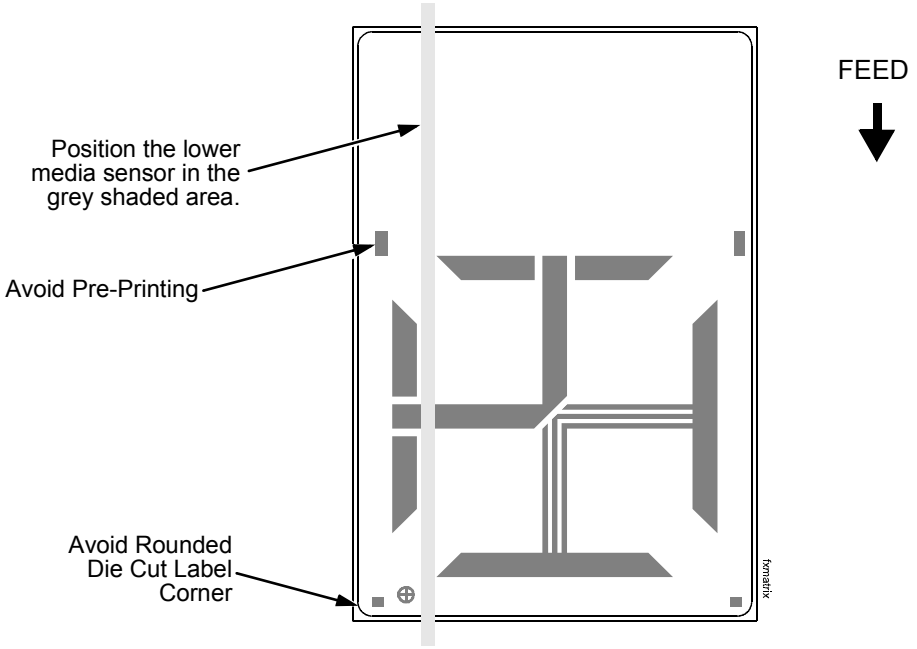


Figure 31. Positioning the Lower Media Sensor in Relation to the Label

Sensing Different Media Types

The SLPAís media sensors can detect the different types of label length indicators on a large variety of media types. This requires changes to the Gap/Mark Sensor menu item in the CALIBRATE CTRL menu:

1. Press the **Menu** key to take the SLPA offline and into Menu mode.
2. Press ↓ and ↵ together until ENTER SWITCH UNLOCKED displays.
3. Press the **Menu** key until CALIBRATE CTRL displays.
4. Press ↓ until Gap/Mark Sensor / Disable* (the currently enabled option) displays.
5. Press **+** or until the option that matches the type of label length indicators on the installed media displays:
   - **Disable**. The default. Select when using media with no label length indicators (no black marks, gaps, notches, or holes) or when you want the SLPA to ignore all existing label length indicators on the installed media. See instructions below.

NOTE: When you select Disable, the length of each label is based on the Label Length value entered in the QUICK SETUP menu or the value sent via host software.

   - **Mark**. Select when using media that has horizontal black marks located on the underside of the label liner or tag stock. See page 67.
   - **Gap**. Select when using media with a liner space between die cut labels or when using tag stock with notches or holes as label length indicators on white background media. See page 68.
   - **Advanced Gap**. Select when using media that has liner gaps between die cut labels with a black background. See page 69.
   - **Advanced Notch**. Select when using media with notches or holes that interrupt a black vertical line on the underside of the media. See page 70.

NOTE: If the SLPA detects a false paper out message when you change from Advanced Gap or Advanced Notch to Gap or Mark sensing or vice versa, press the **Pause** key and run Auto Calibrate (page 71).

6. Press ↵ to enable the displayed option. An asterisk (*) appears next to the selection.
7. Press **Pause** until OFFLINE displays.
8. Review Calibrating The Media Sensorsî on page 71.
9. Perform the Auto Calibrate procedure on page 71.

Sensing Media with Horizontal Black Marks (Mark)

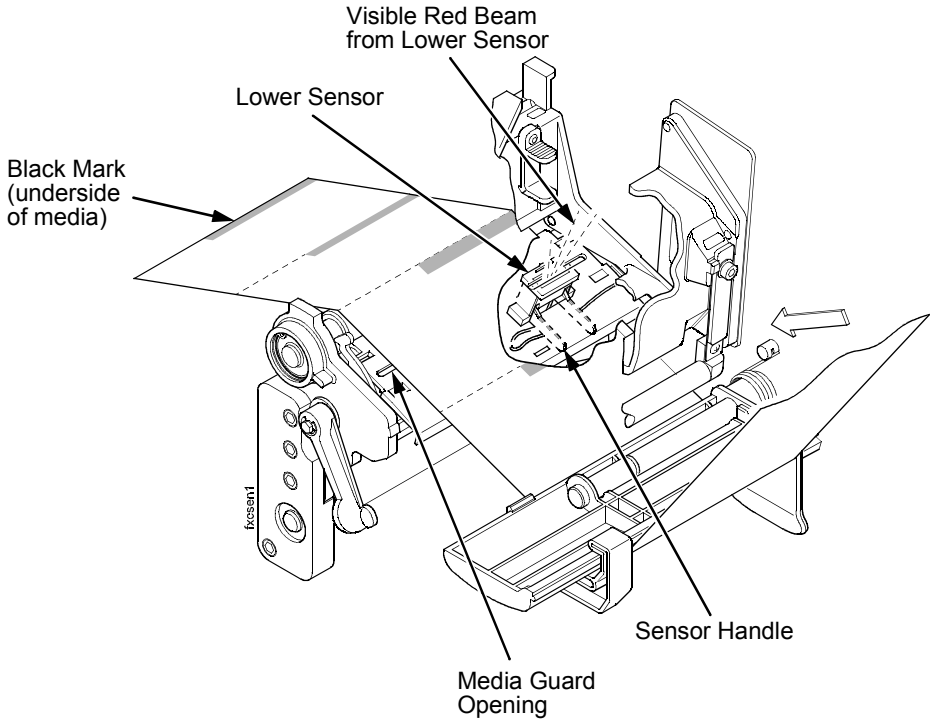


Figure 32. Media with Horizontal Black Marks

Position the lower media sensor for detecting horizontal black marks located on the underside of media.

1. Check the position of the sensor by looking through the long, narrow opening in the media guard. Use the visible red light emitting from the lower sensor as a reference pointer.
2. Use the sensor handle to manually position the sensor as close as possible to the center of the black mark on the media.
3. Set Gap/Mark Sensor to Mark in the CALIBRATE CTRL menu. See "Sensing Different Media Types" on page 66.
4. Perform the Auto Calibrate procedure on page 71.

Sensing Media with Gaps, Notches, or Holes (Gap)

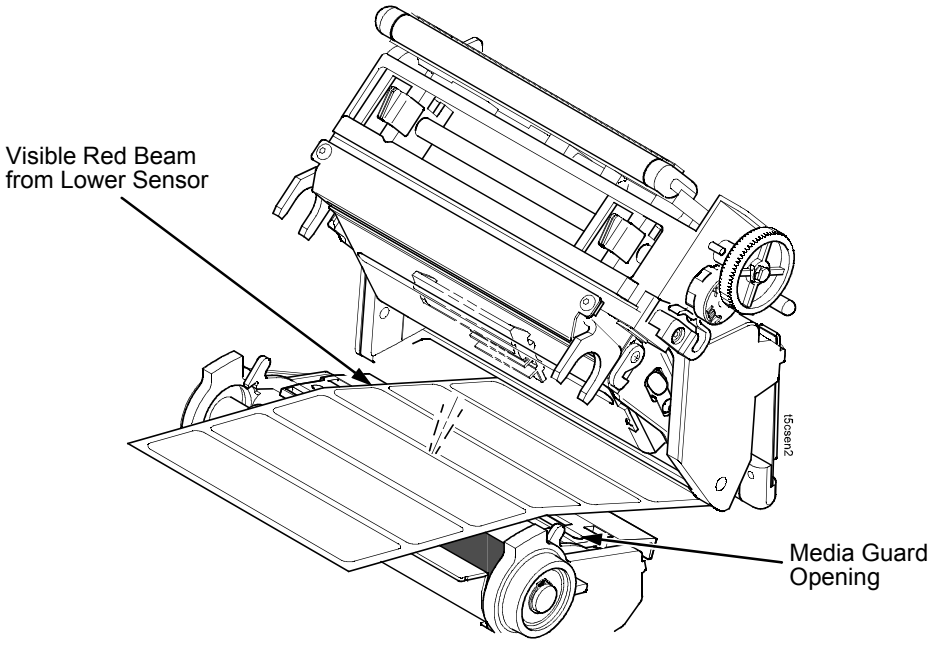


Figure 33. Media with Gaps, Notches, or Holes

Position the lower media sensor for detecting gaps, notches, or holes in media with a white background. Place the upper sensor above the lower sensor to provide a consistent background.

1. Position the lower sensor directly under the center of the gap, notch, or hole.
2. Check the position of the lower sensor by looking through the long, narrow opening in the media guard. Use the visible red light emitting from the lower sensor as a reference pointer.
3. Use the sensor handle to manually position the sensor to the center of the gap, notch, or hole in the media.
4. Set Gap/Mark Sensor to Gap in the CALIBRATE CTRL menu. See Sensing Different Media Typesî on page 66.
5. Perform the Auto Calibrate procedure on page 71.

Sensing Media with Dark Background Labels with Gaps (Advanced Gap)

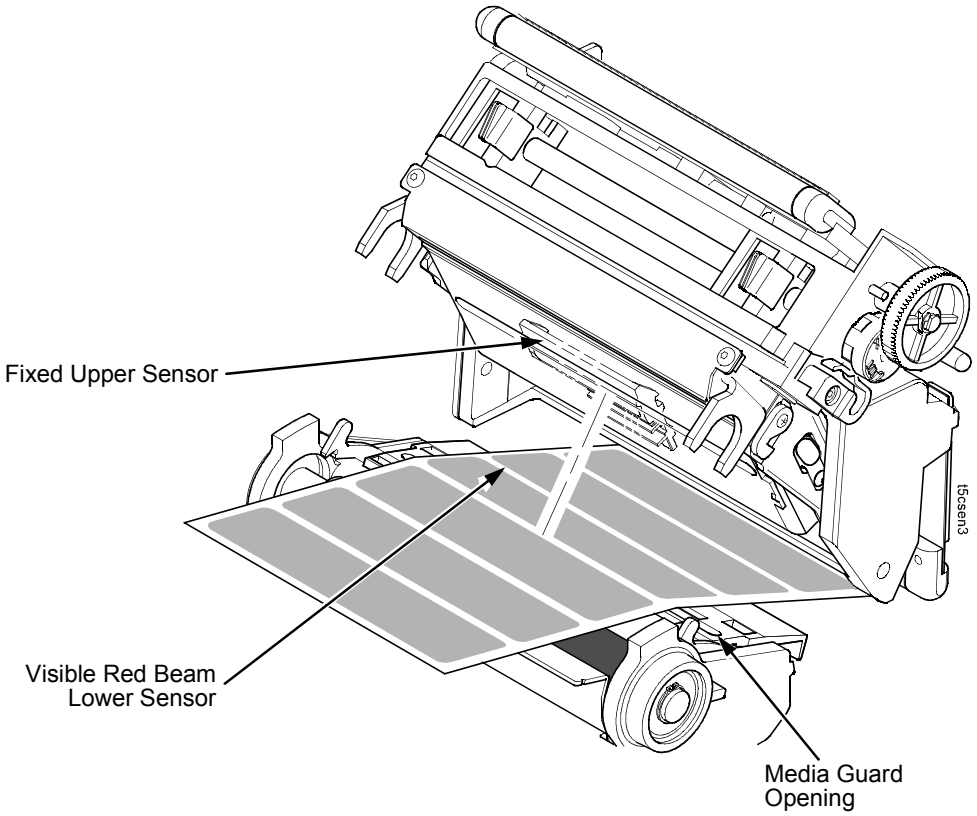


Figure 34. Dark Background Media with Gaps

NOTE: Ribbon is not displayed in this illustration. The upper and lower sensors are designed to function with or without ribbon installed.

The upper sensor and lower sensor are used together to detect liner gaps between die cut labels that have a black or dark background on white or clear liner.

1. Position the lower sensor so that the left edge of the beam is slightly to the right of the left edge of the die cut label directly under the center of the gap.
2. Check the position of the lower sensor by looking through the long, narrow opening in the media guard. Use the visible red light emitting from the lower sensor as a reference pointer.
3. Set Gap/Mark Sensor to Advanced Gap in the CALIBRATE CTRL menu. See Sensing Different Media Typesî on page 66.
4. Perform the Auto Calibrate procedure on page 71.

Sensing Dark Background Media with Notches or Holes (Advanced Notch)

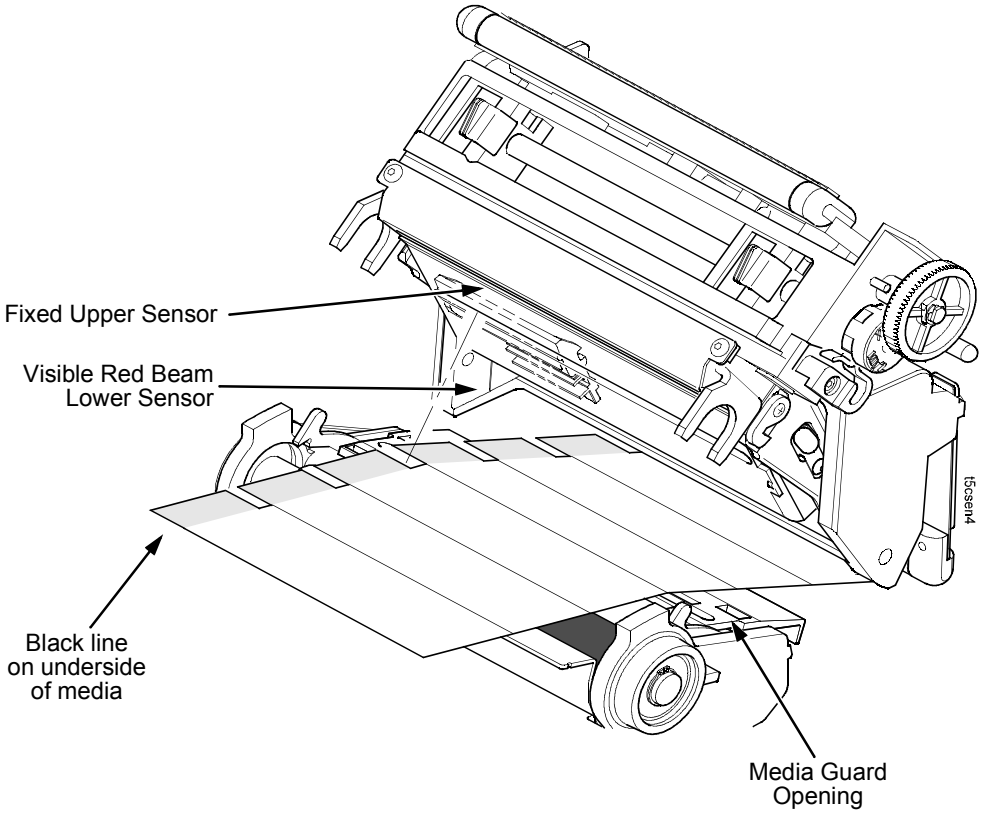


Figure 35. Dark Background Media with Notches or Holes

NOTE: Ribbon is not displayed in this illustration. The upper and lower sensors are designed to function with or without ribbon installed.

The upper sensor and lower sensor are used together to detect notches or holes in media with a black or dark underside. This combination can be found on tag stock that has a black vertical line along one edge on the underside of the label, interrupted by a notch or hole used as the label length indicator.

1. Position the lower sensor so that the left edge of the beam is slightly to the right of the left edge of the die cut label directly under the center of the notch or hole.
2. Check the position of the lower sensor by looking through the long, narrow opening in the media guard. Use the visible red light emitting from the lower sensor as a reference pointer.
3. Set Gap/Mark Sensor to Advanced Notch in the CALIBRATE CTRL menu. See Sensing Different Media Typesî on page 66.
4. Perform the Auto Calibrate procedure on page 71.

Calibrating The Media Sensors

Due to manufacturing differences in media and ribbon, the media sensors may have difficulty differentiating between the label and the liner or the label and the black mark. When this occurs, the SLPA may intermittently skip a label or display a fault message such as GAP NOT DETECTED / See Manual or PAPER OUT / Load Paper.

Media sensor sensitivity and reliability can be improved by changing the Gap/Mark Threshold and/or Paper Out Threshold values. You can change these values automatically by performing the Auto Calibrate or Manual Calibrate procedure in the CALIBRATE CTRL menu or change them manually by entering your own Gap/Mark Threshold or Paper Out Threshold values. (The changes take effect immediately within the current configuration menu.)

Auto or Manual Calibrate is completed successfully when the displayed Sensed Distance value correctly matches that of the installed media. When Gap is selected, the Sensed Distance value should match the length from the trailing edge of one gap to the trailing edge of the next gap (or one label + one gap). When Mark is selected, the Sensed Distance value should match the length from the leading edge of one black mark to the leading edge of the next black mark.

When you have completed Auto or Manual Calibrate, you can verify that the new values are correct by pressing the Feed key several times. Each time you press Feed, media advances one label and stops at the correct Top-of-Form position of the next label.

Once you confirm the correct values, save them to the desired configuration menu before powering off the SLPA. See "Saving A Configuration" on page 83.

Running Auto Calibrate

You can initialize Auto Calibrate via the Apply key (described in detail below) or via the CALIBRATE CTRL or DIAGNOSTIC menus in Menu mode.

NOTE: Verify that the Gap/Mark Sensor option (Disable, Mark, Gap, Advanced Gap, or Advanced Notch) matches the installed media. See "Sensing Different Media Types" on page 66.

Check that the media sensors are horizontally positioned to permit sensing of the label length indicators. See "Positioning The Media Sensors" on page 64.

If you try to do an Auto Calibrate when Peel-Off Media Handling is enabled, the LCD will display CANNOT CALIBRATE / Disable Peel-Off. Before you can do an Auto Calibrate, you must select another media handling mode.

1. Press the **Pause** key until OFFLINE displays on the LCD.
2. Press ↓ and ↵ together until ENTER SWITCH UNLOCKED displays.
3. Press the **Apply** key until Printer Tests / Auto Calibrate displays.
4. Press ↵. Media advances until it can accurately detect the label length indicators and then stops at the Top-of-Form position. The Sensed Distance value will then display for one second.

5. Auto Calibrate is successful when the Sensed Distance value correctly matches that of the installed media:
   - **Gap/Mark Sensor = Gap, Advanced Gap, or Advanced Notch**: The Sensed Distance value is the physical length of one label plus the length of one gap, notch, or hole.
   - **Gap/Mark Sensor = Mark**: The Sensed Distance value is the physical distance from the leading edge of one black mark to the leading edge of the next.
   - **Gap/Mark Sensor = Disable**: Not applicable. If Gap/Mark Sensor is set to Disable, the Sensed Distance value will not be updated.

   If GAP NOT DETECTED displays, run Auto Calibrate again.

   If Auto Calibrate continues to end with an incorrect Sensed Distance value displayed or a fault message displayed, run Manual Calibrate as described on page 74.

NOTE: The amount of media sampled during Auto Calibrate is based on the length of a label and transitions detected, without error, between a label and its label length indicators.

6. Press the **Pause** key until OFFLINE displays.
7. Press the **Feed** key several times. Each time you press Feed, the media advances one label length and stops.

NOTE: After a form feed, the position of the leading edge of the next label depends on the type of Media Handling mode selected under the QUICK SETUP menu. Tear-Off and Tear-Off Strip Media Handling will position the label edge at the peel bar, while Continuous will position the label edge under the printhead.

8. Press the **Pause** key until ONLINE displays.
9. Once the Sensed Distance value is confirmed, save it to the desired configuration (page 83) before powering off the SLPA.

Running Media Profile

The Media Profile printout shows the relationship of the Paper Out Threshold and the Gap/Mark Threshold values, illustrates if and when each label length indicator is detected, and shows the difference between the label length indicators and the label. The profile printout (see Figure 36 on page 74) helps you set the thresholds for difficult media. This includes pre-printed labels and labels with poor gap/media dynamic range.

Once Media Profile is initiated, the SLPA will continue to advance media and print the profile in landscape orientation until you press ↵ to stop printing.

NOTE: Verify the CALIBRATE CTRL menu Gap/Mark Sensor option (Disable, Mark, Gap, Advanced Gap, or Advanced Notch) matches the installed media. See "Sensing Different Media Types" on page 66.

You will need a minimum installed label width of two inches to support the Profile printout.

Ensure the lower media sensor is horizontally positioned to permit sensing of the label length indicators. See "Positioning The Media Sensors" on page 64.

Ensure the Print Mode option selected in the QUICK SETUP menu matches the media installed. Select Direct for heat sensitive media (no ribbon required) or Transfer for thermal transfer media (ribbon required).

1. Press the **Menu** key to take the SLPA offline and into Menu mode.
2. Press ↓ and ↵ together until ENTER SWITCH UNLOCKED displays.
3. Press the **Menu** key until PRINTER CONTROL displays.
4. Press ↑ until Admin User displays.
5. Press **+** until Enable displays.
6. Press ↵ to select Enable. An asterisk (*) appears next to Enable.
7. Press **Menu** until GPIO CTRL displays.
8. Press ↓ until GPIO Print&Apply displays.
9. Press **+** until Disable displays.
10. Press ↵ to select Disable. An asterisk (*) appears next to Disable.
11. Set Continuous Mode in the Media Handling menu.

12. Press **Menu** until CALIBRATE CTRL displays.
13. Press ↓ until Media Profile / Profile Print displays and then press ↵. (The SLPA will continue to print the profile until you press ↵.)

    The SLPA will advance media and continue to print a dynamic profile image depicting the relationship of the label and any label length indicators detected.
14. Press ↵. The SLPA will stop printing.
15. Press **Menu** until GPIO CTRL displays.
16. Press ↓ until GPIO Print&Apply displays.
17. Press **+** until Enable displays.
18. Press ↵ to select Enable. An asterisk (*) appears next to Enable.
19. Press the **Pause** key until OFFLINE displays.

NOTE: The Gap/Mark and Paper Out Threshold values shown on the Profile printout represent the last values determined from a successful Auto or Manual Calibrate or the factory default values if no Auto or Manual Calibrate was performed.

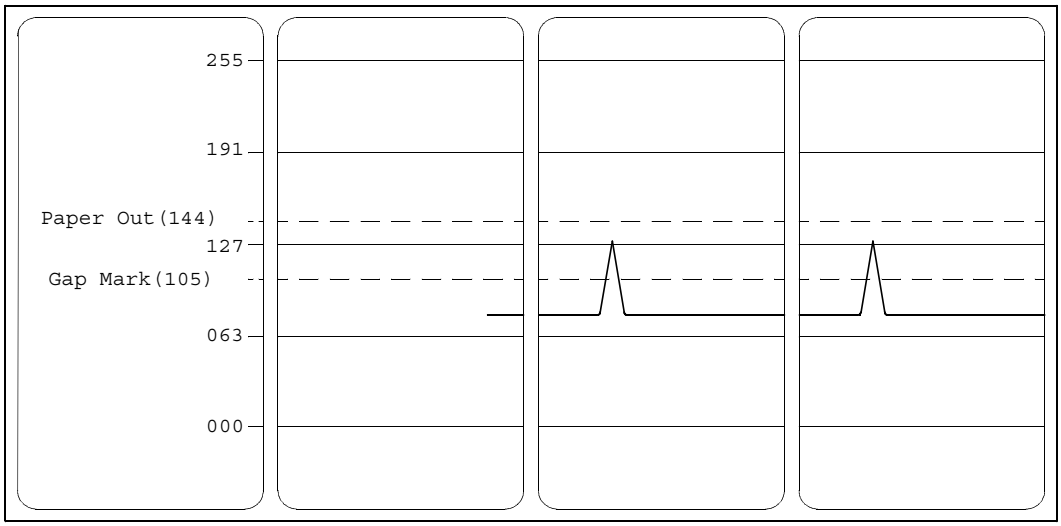


Figure 36. Media Profile Printout

Running Manual Calibrate

Manual Calibrate should be performed only when the values derived from Auto Calibrate fail to improve the media sensorsí ability to sense label length indicators on the installed media. You must first enable Admin User in the PRINTER CONTROL menu before accessing or initializing Manual Calibrate in the CALIBRATE CTRL menu.

NOTE: Verify the Gap/Mark Sensor option (Gap, Mark, Advanced Gap, Advanced Notch, or Disable) matches the installed media. See Sensing Different Media Typesî on page 66.

Ensure the media sensors are horizontally positioned to permit sensing of the label length indicators. See "Positioning The Media Sensors" on page 64.

Ensure the Print Mode option selected in the QUICK SETUP menu matches the media installed. Select Direct for heat sensitive media (no ribbon required) or Transfer for thermal transfer media (ribbon required).

If you try to do a Manual Calibrate when Peel-Off Media Handling is enabled, the LCD will display, CANNOT CALIBRATE / Disable Peel-Off. Before you can do a Manual Calibrate, you must select another media handling mode.

1. Press the **Menu** key to take the SLPA offline and into Menu mode.
2. Press the ↓ and ↵ keys together until ENTER SWITCH UNLOCKED displays.
3. Press the **Menu** key until PRINTER CONTROL displays.
4. Press ↑ until Admin User displays.
5. Press **+** until Enable displays.
6. Press ↵ to select Enable. An asterisk (*) appears next to Enable.
7. Press the **Menu** key until CALIBRATE CTRL displays.
8. Press ↓ until Manual Calibrate / Run Calibrate displays, then press ↵.
9. Follow the instructions displayed on the LCD. Example: REMOVE RBN&MEDIA / Press Enter indicates that you must open the pivoting deck and remove the ribbon and media from under the printhead, close and lock the pivoting deck, and press the ↵ key.

   During the last step of Manual Calibrate, the SLPA will advance the media and attempt to detect the label length indicators and stop at the Top-of-Form position. The Sensed Distance value will then display for one second. The calibrate is successful when the Sensed Distance value correctly matches that of the installed media.

   If CALIBRATION FAIL / See Manual displays, run Manual Calibrate again.

NOTE: The amount of media sampled during Manual Calibrate is based on the length of a label and the transitions detected without error, between a label and its label length indicators.

10. Press the **Pause** key until OFFLINE displays.
11. Press the **Feed** key several times. Each time you press Feed, the media advances one label length and stops.

NOTE: After a form feed, the position of the leading edge of the next label depends on the type of Media Handling mode selected under the QUICK SETUP menu. Tear-Off and Tear-Off Strip Media Handling positions the label edge at the peel bar, while Continuous positions the label edge under the printhead.

12. Once the correct values are confirmed, save them to the desired configuration (page 83) before powering off the SLPA.

Printing And Applying Labels

WARNING **Printronix has provided the necessary guards and warnings within the confines of the SLPA, but cannot anticipate each customerís individual installation and operational environments. It is the customerís responsibility to provide in-house safety guards to provide adequate worker safety for their respective production settings.**

WARNING **An input signal from the product sensor will activate the SLPA when the SLPA is online unless it is taken offline.**

This section provides a brief overview of the print and apply process as well as suggested steps preliminary to printing.

During power-up, the SLPA performs a self-diagnostic test and indicates if the system has any existing fault or warning conditions.

Once the SLPA is online and configured (if necessary) for the desired application, take the SLPA offline before downloading labels from the host into the buffer. This will prevent any chance of having the system cycle before you are prepared to begin print operations.

For information on the proper setup of the SLPA, see Setupî on page 49.

Label Application (Positioning) Adjustments

To apply the labels at the desired location on the product:

1. Mount the product sensor on the side of the conveyor, determining if the sensor should be mounted upstream from the applicator pad (product passes sensor before pad) or downstream from the applicator pad (product passes pad before sensor), depending on the application.

IMPORTANT **Mount the product sensor appropriate to the position where you would like the label to be applied. It is easier to position the label onto the product using the sensor delay when the sensor is mounted upstream from the applicator pad.**

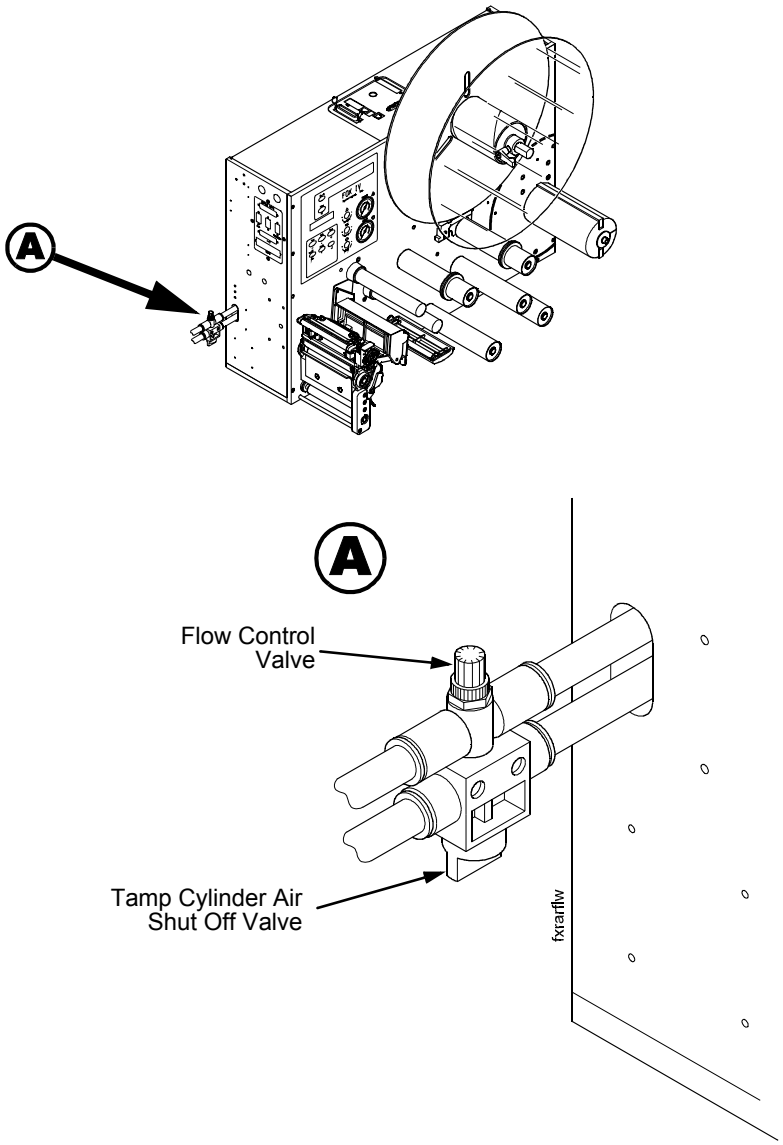


Figure 37. Return Speed Control Valve

2. Set the Cycle Delay time for the product sensor using the Applicator Delay menu. (See Applicator Delay Menuî on page 190.)

NOTE: The Cycle Delay setting determines the amount of delay from the time that the product sensor detects the product to the time that the applicator pad is online. Since the label prints first, be sure to account for printing time. The longer the time entered, the farther back (closer to the trailing edge) the label will be placed onto the product. Conversely, if this value is set to zero, for example, the applicator pad will launch as soon as the label is printed.

Begin by setting the Cylinder Extend time to 10 msec to begin this adjustment procedure. (See Applicator Delay Menuî on page 190.)

3. Place the product sample on the conveyor and allow it move past the SLPA. The label that is applied will be used as a reference point for positioning the rest of the labels.
4. To move the label toward the leading edge of the product, decrease the Cycle Delay time. Begin by decreasing the time in intervals of 10 msec, then fine tune in intervals 1 msec. Repeat this procedure until the label is positioned where desired.
5. To move the label toward the trailing edge of the product, increase the Cycle Delay time. Begin by increasing the time in intervals of 10 msec, then fine tune in intervals 1 msec. Repeat this procedure until the label is positioned where desired.

If the label still cannot be positioned properly, remount the product sensor as follows:

1. To position the label toward the leading edge of the product, move the product sensor upstream.
2. To position the label toward the trailing edge of the product, move the product sensor downstream.
3. Once the label is positioned in the desired location on the product, secure the product sensor onto the conveyor.

If the SLPA cycles when a product is not in position, a background object may be activating the sensor. To correct this problem, reposition the product sensor or adjust the product sensor. See "Product Sensor" on page 268 for more information on product sensor adjustments.

WARNING **Interrupting the signal on the product sensor will activate the SLPA. Make certain that the path of the applicator path is clear.**

Adjusting The Cylinder Extend Time

NOTE: Remember that the supply air pressure to the SLPA should be 80 to 100 psi (550 to 690 kPa). Set the cylinder pressure to 40 psi to start.

1. Set the Cylinder Extend time using the Applicator Delay menu. (See "Applicator Delay Menu" on page 190.)

NOTE: The amount of time the applicator pad is energized through the cylinder extend time, determines how far the pad travels during application of the label. The longer the time entered, the farther the distance the applicator pad travels. If this value is set to zero, for example, the applicator pad will not launch.

Set the Cylinder Extend time to 110 msec to begin this adjustment procedure.

- If the applicator pad does not contact the product (if the stroke time is not long enough):

  Increase the Cylinder Extend time using the Applicator Delay menu. Begin by increasing the time in intervals of 10 msec, then fine tune in increments of 1 msec. A higher setting allows the applicator pad more time to extend toward the product, therefore, increasing the stroke length.

- If the applicator pad remains on the product for too long (if the stroke time is too long):

  Decrease the Cylinder Extend time using the Applicator Delay menu. Begin by increasing the time in intervals of 6 msec, then fine tune in increments of 1 msec. A lower setting decreases the amount of time that the applicator pad is extended (in contact with the product).

2. Use the flow control valve (located on the air cylinder) to adjust the speed of the return stroke. (Figure 37.) Increase the speed by rotating the valve counterclockwise and decrease the speed by rotating the valve clockwise.

The Print And Apply Process

Before labels can be printed and applied:

1. Ensure that the protective guards are properly secured and that materials are clear of the applicator pad and printhead assembly.
2. Ensure that you have input time values for Cycle Delay, Cylinder Extend, and Vacuum Delay (if applicable). (See □Applicator Delay Menuî on page 190.)

NOTE: The applicator will not move unless a value is entered for Cylinder Extend.

3. Press the **Pause** key on the control panel to enable the product sensor, or to allow remote signals received through the interface package option to activate the SLPA.

NOTE: You may wish to cycle several labels onto product samples, to ensure proper operation of the SLPA.

3 *Configuring The SLPA*

IMPORTANT **Changing system parameters can affect SLPA operation and could disable it. Thoroughly review this chapter, as inappropriate settings may impair the SLPAís functionality.**

Overview

This chapter provides information about:

- Setting, saving, modifying, and printing configurations
- Configuration menus

Setting SLPA Configuration Parameters

Configuration parameters are set from the control panel or are retrieved from the SLPAís memory. The parameters define how the SLPA will respond to command and interface signals from the host computer.

The configuration menu structure consists of main menus and the options applicable to each menu.

NOTE: Some configurations refer to SLPA options that may not be present in your SLPA. If you select an option or feature that is not present, no action will be performed by the SLPA or an □OPTION NOT INSTALLEDî message will display on the LCD.

Moving Within The Configuration Menu

You can move through the configuration menus using the appropriate navigation keys. (See □Control Panelî on page 43 for more details on the function of the control panel keys.)

You can select different options and save them as the power on default; however, you can only save them to configuration menus 1 to 8. The factory configuration menu can be altered, but not saved.

When the SLPA is online, the first line of the LCD displays □ONLINEî and the second line lists the active interface port and type of emulation.

To configure the SLPA:

1. Press the **Menu** key to enter take the SLPA offline and enter Menu mode.
2. You can move through configuration main menus in two ways:
    - Press the **Menu** key to move to the right.

- Press the **+** key to move right or the □ key to move left.

NOTE: In menus with numeric ranges of more than 50 numbers, hold down the **+** or □ key for more than 2 seconds to move through the range in increments of 5. To move in increments of 1 again, release your hold on the **+** or □ key.

Selecting A Menu Option

To select an option, you need to press the ↵ key. By default, however, the ↵ key is □lockedî when the SLPA is turned on to prevent accidental changes to the configuration menu. If you press the ↵ key when the key is locked, the message □ENTER SWITCH LOCKEDî displays on the LCD for one second and the value will not be selected.

To unlock the ↵ key, press the ↓ and ↵ keys at the same time. This toggles the ENTER/LOCK function.

- If this function is performed while the ↵ key is locked, the message □ENTER SWITCH UNLOCKEDî displays for one second, and the ↵ key will be unlocked.
- If this function is performed while the ↵ key is unlocked, the message □ENTER SWITCH LOCKEDî displays for one second, and the ↵ key will be locked.

When you press the ↵ key (with the ↵ key unlocked), you select the value or option that displays. An asterisk displays after the value you selected, and the configuration is changed immediately.

IMPORTANT **This change takes effect for all subsequent data and operations for the SLPA as soon as the ↵ key is pressed and the asterisk (*) is displayed. The configuration change(s) stay in effect only while the SLPA is powered on. When the power is turned off, all current configurations will be lost unless changes made to it are saved via the CONFIG. CONTROL menu.**

To save configuration information permanently or to select it as the power-up default, see □Saving A Configurationî on page 83.

Changing SLPA Settings

You can change (or □configureî) SLPA settings, such as print speed or emulations, through the control panel as follows:

1. Press the **Menu** key until the following message displays:

   ```
   MENU MODE
   QUICK SETUP
   ```

2. Press the ↓ key to cycle through these options:
   - Print Intensity
   - Print Speed

- Print Mode
- Media Handling
- Paper Feed Shift
- Label Length
- Label Width
- Ver Image Shift
- Hor Image Shift
- Orientation
- Gap/Mark Sensor
- Auto Calibrate
- Active IGP Emul
- Save Config.
- Power-Up Config.
- SMT: Status (if RFID is installed. Refer to the *RFID Labeling Reference Manual*.)
- PAA: Status (if RFID is not installed)

3. When the desired submenu displays, press the **+** or □ key to scroll through the values or options.
4. Press the ↵ key to select a value. An asterisk (*) displays next to the selected value or option.
5. If there are more submenu values or options you want to change, use the **Menu**, ↑, ↓, +, and □ keys to access the value and the ↵ key to select it. At any time, you may press the **Menu** key to return to the Main menu.
6. At any time, you may press the **Pause** key twice to exit the Configuration menu and place the SLPA online. Once you have finished selecting all your options, save your configuration.

IMPORTANT **If you do not save your configuration, all your new values will be lost when you power off the SLPA.**

Saving A Configuration

You can save up to eight different configurations to meet eight unique print job requirements. These configurations are saved and stored in the SLPA and are not lost when the SLPA is turned off.

NOTE: If the Protect Configs. option is enabled, the new configuration will not be saved until the existing configuration is deleted.

Follow these steps to save a new configuration:

1. Press the **Menu** key until the following message displays:

MENU MODE CONFIG. CONTROL

2. Press the ↓ key until the following message displays:

Save Config. 1*

3. Press the **+** or □ key to cycle through the options (1-8). Note that "Factory" is not listed, because no changes made to the factory configuration can be saved under Factory.
4. When the desired number displays, press the ↵ key to select it. The following message displays briefly:

Saving Configuration

When processing is completed, the display shows:

Save Config. *X**

NOTE: If the configuration number has been previously saved and Protect Configs. = Enabled under CONFIG CONTROL, the following error message displays:

CONFIG. EXISTS Delete First

If the above occurs, see "Modifying A Saved Configuration" on page 85, step 4.

5. Print your configuration and store it in a safe place for future reference. Refer to "Printing A Configuration" on page 87.

Auto Save Configuration

If you make any changes to the factory default configuration menu items, you will be prompted to save the changes to "Config #" when you place the SLPA online. "#" equals the next available unassigned configuration number. When prompted, press one of the following keys:

- **Enter**. Saves to Config 1 or the next available Config, and becomes the power-up config.

NOTE: If all eight Configs are assigned, you will be prompted to select which Config to overwrite.

- **Pause**. Changes will be implemented but saved only temporarily until deliberately saved as a new configuration or until you power off the SLPA. All changes will be lost when you power off the SLPA.

Specifying A Power-Up Configuration

You can specify any one of the nine configurations (1 to 8 or Factory) as the power-up configuration:

1. Press the **Menu** key until the following message displays:

```
MENU MODE
CONFIG. CONTROL
```

2. Press the ↓ key until the following message displays:

```
Power-Up Config.
1*
```

3. Press the **+** or □ key to cycle through the options (1 to 8 and Factory). When the desired number displays, press the ↵ key to select it. The following message displays:

```
Power-Up Config.
X*
```

NOTE: If the configuration number has not been saved previously, the following error message displays:

```
CONFIG. DOES NOT
EXIST/Save First
```

If this error message displays, see □Saving A Configurationî on page 83. Once you have saved a configuration, repeat the steps in this procedure.

Modifying A Saved Configuration

You can change a saved configuration by rewriting over it. For example, you can modify Config. 1, shown below. Suppose you want to keep all the settings but you want to select the parallel Centronics interface instead of the IEEE 1284 interface.

1. Load the configuration to be changed (for example, Config. 1).
   a. Press the ⋮☰ key until the following message displays:

```
MENU MODE
CONFIG. CONTROL
```

b. Press the ↓ key until the following message displays:

```
Load Config.
Factory
```

c. Press the **+** or □ key to cycle through the options: Factory 1 to 8.

d. When the desired number displays, press the ↵ key to select it. The following message displays:

```
Loading Saved
Configuration
```

Then, the following message displays when it is loaded:

```
Load Config.
X*
```

2. Move through the menu and change all the desired values. (In this example, press the **Menu** key until PARALLEL PORT displays. Press the ↓ key until Port Type/IEEE 1284 displays. Press the □ key until Centronics displays.)
3. Press the ↵ key to select each new value. An asterisk (*) displays.
4. Before saving the modified configuration, you must delete the original configuration if the Protect Configs. option is enabled.

a. Press the ↑ or ↓ key until the following message displays:

```
Delete Config.
1*
```

b. Press the **+** or □ key to cycle through the options (1 to 8). When the desired number displays, press the ↵ key to select it. The following message displays:

```
Deleting
Configuration
```

Then, the following displays when it is deleted:

```
Delete Config.
X*
```

5. Save the new configuration as described in the □Saving A Configurationî on page 83. Make sure you select the same number (e.g., Config. 1) when saving the modified configuration. The new configuration writes over the existing one.
6. Print a copy of this newest configuration and store it in a safe place. Refer to □Printing A Configurationî on page 87.

Printing A Configuration

We recommend that you print and store your configurations for future reference. The printout provides a list of the parameters that were set when you configured the SLPA.

To print a configuration:

IMPORTANT **Make sure GPIO Print&Apply is set to Disable in the GPIO CONTROL menu.**

1. Press the **Menu** key until the following message displays:

   ```
   MENU MODE
   CONFIG. CONTROL
   ```

2. Press the ↓ key until the following message displays:

   ```
   Print Config.
   Current*
   ```

3. Press the **+** or □ key to cycle through the following printout options:

   Current*
   Factory
   Power-Up
   All
   1 to 8 customized configurations

4. When the desired option displays, press the ↵ key. The SLPA prints the specified configuration.

NOTE: If the configuration you want to print has not been saved, the following message displays momentarily:

```
CONFIG. DOES NOT
EXIST/Save First
```

This message indicates that no configuration menu has been saved under the configuration value you have selected and therefore cannot be printed. You must either select another configuration to print or load and then save a configuration to that configuration value first.

Loading A Saved Configuration

To use a different configuration:

1. Press the **Pause** key until OFFLINE displays.
2. Press the **Print** key until the desired configuration displays.
3. Press ↵. Loading Saved/Configuration displays.

Main Menu

QUICK SETUP (page 95)	RFID CONTROL [2]	CONFIG. CONTROL (page 103)	MEDIA CONTROL (page 106)
Print Intensity	Refer to the *RFID Labeling Reference Manual.*	**Load Config.**	**Print Intensity**
Print Speed		**Save Config.**	**Print Speed**
Print Mode		**Print Config.**	**Print Mode**
Media Handling		**Delete Config.**	**Media Handling**
Paper Feed Shift		**Power-Up Config.**	**Paper Feed Shift**
Label Length		**Protect Configs.**	**Label Length**
Label Width		**Name Config 1**	**Label Width**
Ver Image Shift		**Name Config 2**	**Ver Image Shift**
Hor Image Shift		**Name Config 3**	**Hor Image Shift**
Orientation		**Name Config 4**	**Orientation**
Gap/Mark Sensor [1]		**Name Config 5**	*Auto Map Select*
Auto Calibrate		**Name Config 6**	*Auto Label Width*
Active IGP Emul		**Name Config 7**	*Num Auto Labels*
Save Config.		**Name Config 8**	*Slew Speed*
Power-Up Config.		**Reset Cfg Names**	*Print Direction*
SMT: Status [2]			*Tear-Strip Time*
PAA: Status [3]			*Pre-Peel Mode*
			Pre-Peel Adjust
			Lbl Missing Flt
			Clip Page
			Error Recover
			Ribbon Width
			Display Ribbon
			Ribbon Low
			Rbn Takeup Full
			Units
			Set Label Length
			Peel-Off Mode
			Continuous Mode
			TOF Detect Fault
			Ticket Save Mode
			TOF Adjust Mode
			TOF Adjust

Press **Menu** to select the next main menu.

Press ↓ or ↑ to move within each main menu.

Press **+** or □ to cycle through each possible option or value.

NOTES:

Italicized items appear only if Admin User is set to Enable (in the PRINTER CONTROL menu).

[1] Gap/Mark Sensor and Paper Out Sensor work in conjunction. If you change the Gap/Mark Sensor or Paper Out Sensor, you must recalibrate the media.

[2] This menu appears only if RFID is installed.

[3] This menu appears only if RFID is not installed.

Gap/Mark Sensor [1]
Auto Calibrate
Media Profile
Sensed Distance
Gap/Mark Thresh
Paper Out Thresh
Paper Out Sensor [1]
Manual Calibrate
Pwr Up Auto-Cal
Online Auto-Cal
Gap Windowing
Gap Length
Cal in Peel Mode
Min Calib Delta
Use Label Length
Threshold Range
Dynamic Sensing

SMT: Status [3]
PAA: Status [4]
LP+ Emulation
CTHI Emulation [2]
Host Interface
Active IGP Emul
Power Saver Time
Pwr Save Control
Display Language
Alarm
Power-up State
Ptx Setup SFCC
Cancel Key
Compatibility
Set Sharing
Del Char frm Fls
Ld Char from Fls
Save Char to Fls
Del Char frm RAM
Ld Char at PwrUp
Del Set frm Flsh
Ld Set from Flsh
Save Set to Flsh
Del Set from RAM
Ld Set at PwrUp

(continued in next column)

Overwrite Files
View File List
Delete Files
Flash Avail.
Optimize&Reboot
Print File List
Auto Locking
Set Lock Key
Ptx Setup Parse
Glob Mem Adjust
Max Font Buffer
Max Cache Memory
Max Cached Char
Standard Chars.
Bold Chars.
Extra Bold Char.
OCR-A Chars.
OCR-B Chars.
Tall Characters
Batch Counter
Admin User

NOTES:

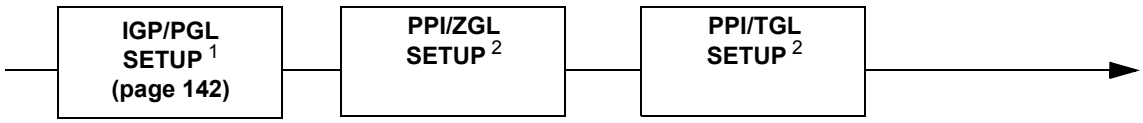
Italicized items appear only if Admin User is set to Enable (in the PRINTER CONTROL menu).

[1] Gap/Mark Sensor and Paper Out Sensor work in conjunction, as shown in Table 4 on page 122. If you change the Gap/Mark Sensor or Paper Out Sensor, you must recalibrate the media.

[2] Appears only if the CTHI option is installed.

[3] Appears only if RFID is installed.

[4] Appears only if RFID is not installed.

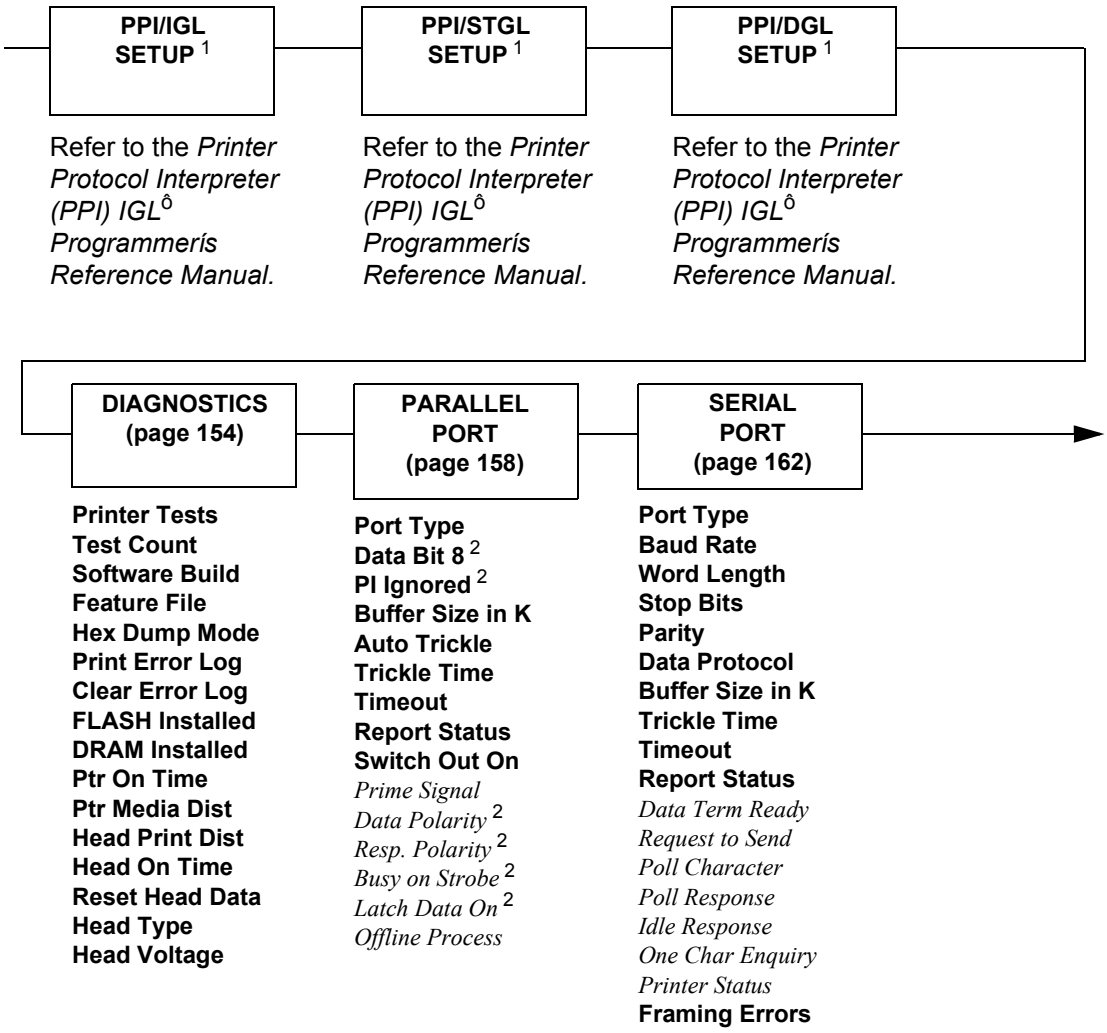


Character Group
Standard Sets
Select LPI
Define CR Code
Define LF Code
Autowrap
Auto Uppercase
Slash 0
Select SFCC
Host Form Length
Var Form Adjust
Var Form Type
Optimized Ratio
PI Slew Range
CR Edit
Skip Cmd Prefix
Ignore Text
Power on IGP/PGL
Ext Execute Copy
Al 00 Spaces
Select SO Char
Ignore Mode
Select Char
Do FF at TOF
IGP100 Compatbl.
Expanded Font
Scalable Size
Forms Handling
PGL Normal
UPC Descenders
I-2/5 Selection
User-Def Ratio
Lead PDF Dist
Trunc Dyn Data
Error Report
Boundary Check
Repeat Form Opt
Preparser Cmd
Preparser Port
Ret Status Port

Refer to the *Printer Protocol Interpreter (PPI) ZGL® Programmerís Reference Manual.*

Refer to the *Printer Protocol Interpreter (PPI) TGL® Programmerís Reference Manual.*

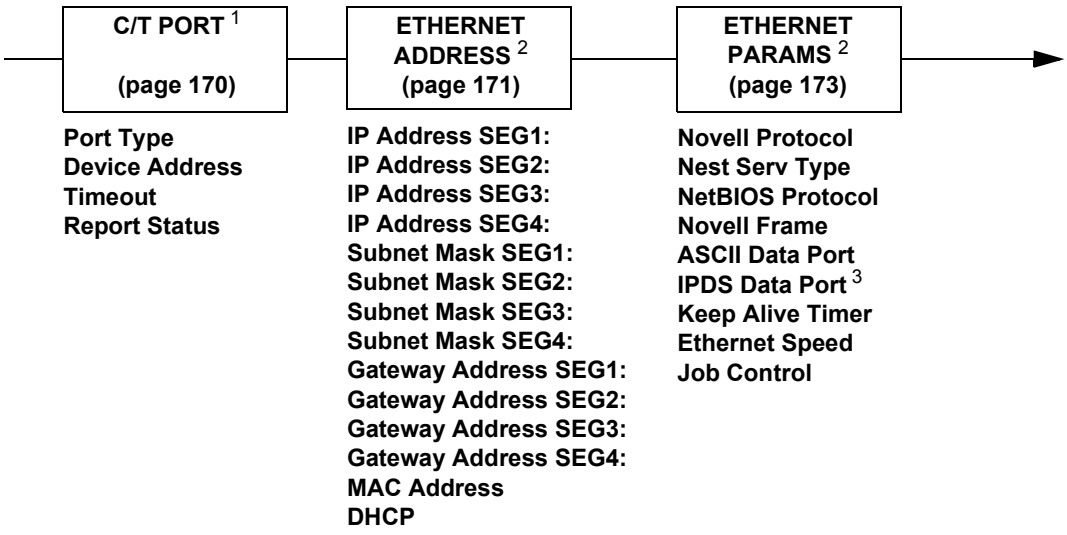
NOTES:
Italicized items appear only if Admin User is set to Enable (in the PRINTER CONTROL menu).
[1] Appears only if Active IGP Emul is set to IGP/PGL (in the Printer Control Menu).
[2] Appears only if Active IGP Emul is set to PPI emulation.



NOTES:

[1] Appears only if Active IGP Emul is set to PPI emulation.

[2] Available only when the Centronics option is set to Enable (in the Port Type submenu of PARALLEL PORT).



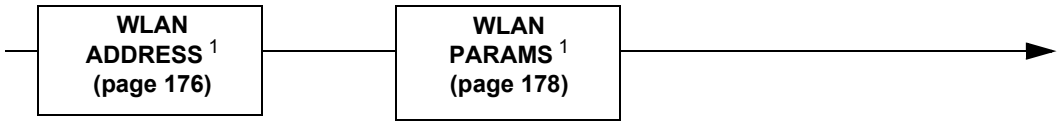
NOTES:

Italicized items are available only when Admin User is set to Enable (in the PRINTER CONTROL menu).

[1] Appears only if the CTHI option is installed.

[2] Appears only if an network interface card (NIC) is installed.

[3] Appears only if the IPDS emulation is installed and the correct security key is used.



IP Address SEG1:
IP Address SEG2:
IP Address SEG3:
IP Address SEG4:
Subnet Mask SEG1:
Subnet Mask SEG2:
Subnet Mask SEG3:
Subnet Mask SEG4:
Gateway Address SEG1:
Gateway Address SEG2:
Gateway Address SEG3:
Gateway Address SEG4:
MAC Address
DHCP

Signal Strength
Operation Mode
SSID Name(01-15)
SSID Name(16-30)
SSID Name(31-32)
Reset SSID Name
Min Xfer Rate
Channel
Ant. Diversity
Preamble
Power Mgmt
Transmit Power
Internat. Mode
Default WEP Key
WEP Key 1 Format
WEP Key 1 Width
WEP Key 1 BYTE1:
WEP Key 1 BYTE2:
WEP Key 1 BYTE3:
WEP Key 1 BYTE4:
WEP Key 1 BYTE5:
WEP Key 1 BYTE6: [2]
WEP Key 1 BYTE7: [2]
WEP Key 1 BYTE8: [2]
WEP Key 1 BYTE9: [2]
WEP Key 1 BYTE10: [2]
WEP Key 1 BYTE11: [2]
WEP Key 1 BYTE12: [2]
WEP Key 1 BYTE13: [2]

(continued in next column)

WEP Key 2 Format
WEP Key 2 Width
WEP Key 2 BYTE1:
WEP Key 2 BYTE2:
WEP Key 2 BYTE3:
WEP Key 2 BYTE4:
WEP Key 2 BYTE5:
WEP Key 2 BYTE6: [3]
WEP Key 2 BYTE7: [3]
WEP Key 2 BYTE8: [3]
WEP Key 2 BYTE9: [3]
WEP Key 2 BYTE10: [3]
WEP Key 2 BYTE11: [3]
WEP Key 2 BYTE12: [3]
WEP Key 2 BYTE13: [3]
WEP Key 3 Format
WEP Key 3 Width
WEP Key 3 BYTE1:
WEP Key 3 BYTE2:
WEP Key 3 BYTE3:
WEP Key 3 BYTE4:
WEP Key 3 BYTE5:
WEP Key 3 BYTE6: [4]
WEP Key 3 BYTE7: [4]
WEP Key 3 BYTE8: [4]
WEP Key 3 BYTE9: [4]
WEP Key 3 BYTE10: [4]
WEP Key 3 BYTE11: [4]
WEP Key 3 BYTE12: [4]
WEP Key 3 BYTE13: [4]
WEP Key 4 Format
WEP Key 4 Width
WEP Key 4 BYTE1:
WEP Key 4 BYTE2:
WEP Key 4 BYTE3:
WEP Key 4 BYTE4:
WEP Key 4 BYTE5:
WEP Key 4 BYTE6: [5]
WEP Key 4 BYTE7: [5]
WEP Key 4 BYTE8: [5]
WEP Key 4 BYTE9: [5]
WEP Key 4 BYTE10: [5]
WEP Key 4 BYTE11: [5]
WEP Key 4 BYTE12: [5]
WEP Key 4 BYTE13: [5]
Reset WEP Keys

NOTES:

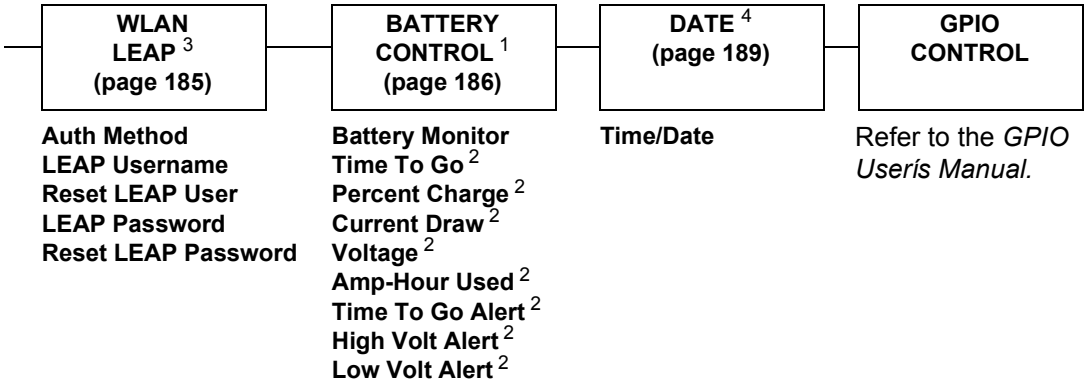
[1] Appears only if a Wireless option is installed.

[2] Appears only if WEP Key 1 Width is set to 128 Bits.

[3] Appears only if WEP Key 2 Width is set to 128 Bits.

[4] Appears only if WEP Key 3 Width is set to 128 Bits.

[5] Appears only if WEP Key 4 Width is set to 128 Bits.



NOTES:

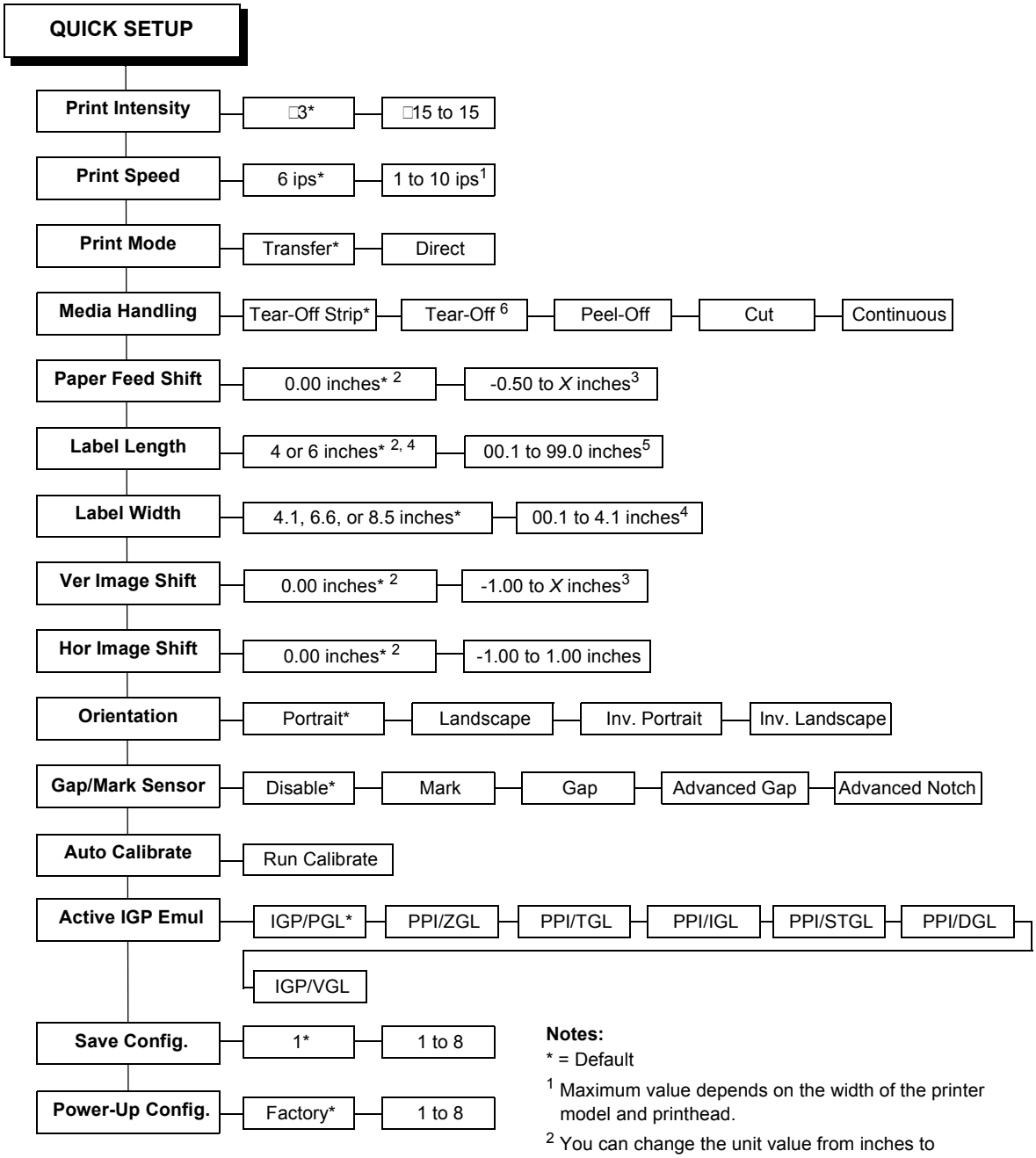
[1] Does not appear if the CTHI option is installed.

[2] Available only when Battery Monitor is set to Enable (in the BATTERY CONTROL menu).

[3] Appears only if a Cisco card is installed.

[4] Appears only if the Real Time Clock option is installed.

QUICK SETUP Menu



(cont. on next page)

Notes:

* = Default

[1] Maximum value depends on the width of the printer model and printhead.

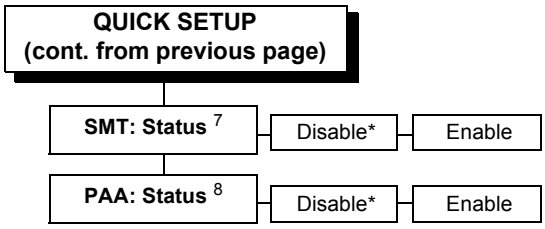
[2] You can change the unit value from inches to millimeters under Units (in MEDIA CONTROL).

[3] Based on the current value setting for Label Length, up to a maximum of 12.80 inches.

[4] Maximum value depends on the width of the printer model.

[5] Maximum value depends on model width and size of DRAM installed.

[6] Required for SLPA operation.



Notes:
* = Default.
[7] Appears only if RFID is installed
[8] Appears only if RFID is not installed.

NOTE: Many QUICK SETUP submenus are available in other main menus.

Changes made in the QUICK SETUP menu are updated in the other main menus, and vice versa.

QUICK SETUP Submenus

Print Intensity

This menu item specifies the level of thermal energy from the printhead to be used for the type of media and ribbon installed.

Large numbers imply more heat (thermal energy) to be applied for each dot. This has a significant effect on print quality. The print intensity and speed must match the media and ribbon type to obtain the best possible print quality and barcode grades.

The range is □15 through +15. The default is □3.

Print Speed

This menu item specifies the speed in inches per second (ips) at which the media passes through the SLPA while printing.

The range is 1 through 10 ips (in increments of 1 ips).

The default is 6 ips.

NOTE: The maximum print speed varies based on maximum printer width and dot per inch (dpi) resolution of the printhead installed (203 or 300 dpi).

Print Mode

This menu item specifies the type of printing to be done.

- **Transfer**. Indicates Thermal Transfer printing (ribbon installed).
- **Direct**. Indicates Direct Thermal printing (no ribbon) and requires special heat sensitive media.

The default is Transfer, unless your printer is shipped as direct thermal only (no ribbon motors installed).

Media Handling

This menu item specifies how the printer will handle the media (labels or tag stock).

- **Tear-Off**. After each label is printed, the printer positions the label gap over the peel bar and waits for the current label to be applied before printing the next label. A □Label Onî message displays to remind you that the label is ready to be applied before the next one can be printed.

Paper Feed Shift

This menu item represents the distance to advance a label (+ shift) or pull back (□ shift) when the Tear-Off option is enabled. The allowable range is □0.50 inches to the current Label Length value setting up to a maximum of 12.80 inches in 0.01 inch increments. Adjust the media so that the middle of the label gap is over the peel bar edge.

The default is 0.00 inches.

Label Length

In most applications, the user-selected Label Length will match the physical label length. Physical label length is the actual label length of the media installed. Following is a list of different media types:

- Die-cut labels: measurable length of the removable label (leading edge to trailing edge). This does not include the liner material or gap.
- Tag stock with notches or holes: measurable length from the trailing edge of one notch or hole to the trailing edge of the next notch or hole.
- Tag stock with black marks on the underside: measurable length from the leading edge of one black mark to the leading edge of the next black mark.
- Continuous media (no label length indicators): measurable length should be within ± 1 to 2% of the Label Length value entered.

Label Width

This menu item specifies the label width. The allowable range in inches is 00.1 to the maximum print width of the printer. The allowable range in millimeters is 2.5 to the maximum width of the printer.

Ver Image Shift

This menu item specifies the amount to shift an image up (□) or down (+) for precise positioning on the label. The actual height of the image is not affected by this parameter. The allowable range is □1.00 inches to the current Label Length value setting, up to a maximum of 12.80 inches, in 0.01 inch increments.

The default value is 0.00 inches.

Hor Image Shift

This menu item specifies the amount to shift an image left (□) or right (+) for precise positioning on the label. The actual width of the image is not affected by this parameter. The allowable range is
□1.00 to +1.00 inches in 0.01 inch increments.

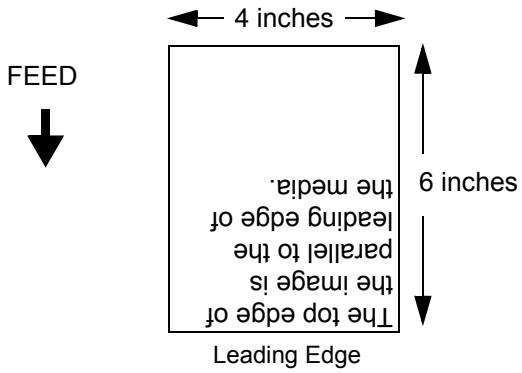
The default value is 0.00 inches.

Orientation

Specifies the image orientation to be used when printing the label.

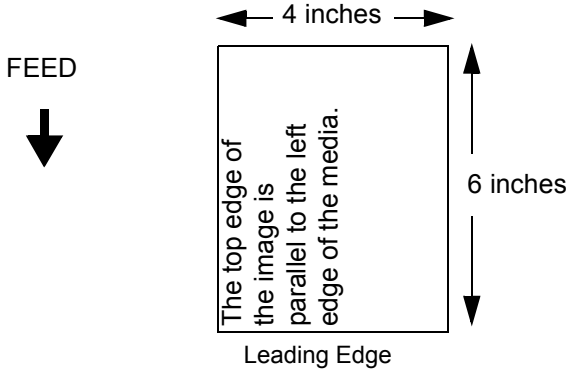
- **Portrait** (the default). Portrait refers to vertical page orientation, where the height of a page is greater than its width. The top edge of the image is parallel to the leading edge of the media. The following example is viewed from the front of the printer.

NOTE: Portrait orientation applies to PGL□ and VGL emulations. This is regarded as Inverse Portrait using PPI1.



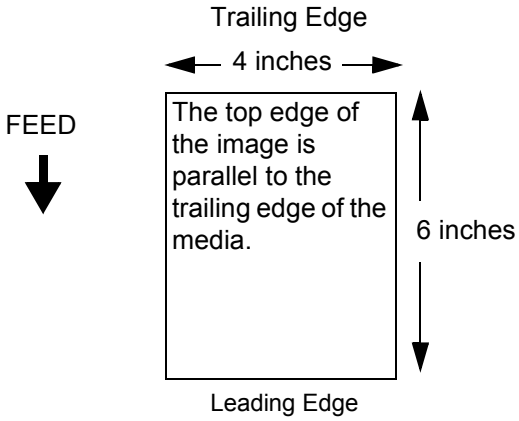
- **Landscape**. Landscape refers to horizontal orientation, where the width of a page is greater than its height. The top edge of the image is parallel to the left edge of the media. The following example is viewed from the front of the printer.

NOTE: Landscape orientation applies to PGL and VGL emulations. This is regarded as Inverse Landscape using PPI1.



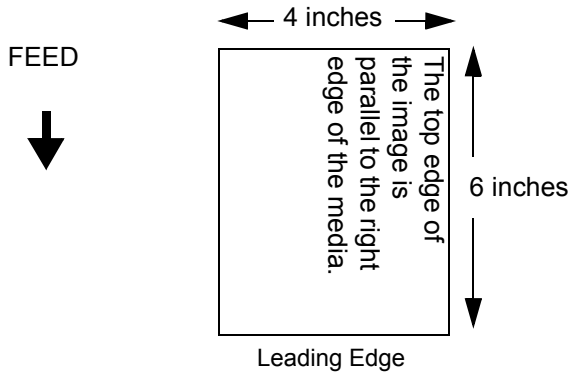
- **Inv. Portrait**. Inverse Portrait refers to vertical page orientation, where the height of a page is greater than its width. The top edge of the image is parallel to the trailing edge of the media. The following example is viewed from the front of the printer.

NOTE: Inverse Portrait orientation applies to PGL and VGL emulations. This is regarded as Portrait using PPI1.



- **Inv. Landscape**. Inverse Landscape refers to horizontal orientation, where the width of a page is greater than its height. The top edge of the image is parallel to the right edge of the media. The following example is viewed from the front of the printer.

NOTE: Inverse Landscape orientation applies to PGL and VGL emulations. This is regarded as Landscape using PPI1.



Gap/Mark Sensor

Specifies the sensor type needed for detecting the top-of-form position on media with label length indicators (gaps, notches, holes, or black marks).

- **Disable** (the default). Select when using media with no label length indicators (no black marks, gaps, notches, or holes), or when you want the printer to ignore all existing label length indicators on the installed media.

NOTE: When you select Disable, the length of each label is based on the Label Length value entered.

- **Mark**. Select when using media that has horizontal black marks located on the underside of the label liner or tag stock. The top-of-form position is the leading edge of the black mark.
- **Gap**. Select when using media with a liner space between die-cut labels or when using tag stock with notches or holes as label length indicators on white background media. The top-of-form position is the leading edge of the die cut label (trailing edge of the gap, notch, or hole).
- **Advanced Gap**. Select when using media that has liner gaps between die cut labels with black background. The top-of-form position is the leading edge of the die cut label (trailing edge of the gap, notch, or hole).
- **Advanced Notch**. Select when using media with notches or holes that interrupt a black vertical line on the underside of the media. The top-of-form position is the leading edge of the die cut label (trailing edge of the gap, notch, or hole).

Gap Sensing for Encoding RFID Tags in Smart Labels

For printers encoding RFID tags in smart labels, access the CALIBRATE CTRL menu and set Gap/Mark Sensor to Advanced Gap and Threshold Range to 70%, depending on the Print Profile. Run the Print Profile before running Auto Calibrate.

Auto Calibrate

This feature is used to improve the sensitivity and reliability of the media sensor in detecting gaps, notches, holes, or black marks on the installed media, as well as a Paper Out condition.

To initiate Auto Calibrate, scroll to the Auto Calibrateî menu and press the ↵ key. The printer will advance media the distance needed to accurately detect the label length indicators, then stop at the top-of-form position and momentarily display the Sensed Distance. This process takes a few seconds and results in an update of the printer values.

Auto Calibrate is completed successfully when the Sensed Distance displayed correctly matches that of the installed media. When you select Gap, the Sensed Distance should match the length from the trailing edge of one gap to the trailing edge of the next gap (one label + one gap). When you select Mark, the Sensed Distance should match the length from the leading edge of one black mark to the leading edge of the next black mark.

Auto Calibrate supports label lengths up to 24 inches.

Active IGP Emul

This function allows you to activate any resident IGP emulation listed in the menu. The number of IGP emulations available is based on the Security Key installed. The default is IGP/PGL.

There are two methods for selecting the desired emulation:

- Select the emulation under the Active IGP Emulation menu option and save it as Power-up Config.
- Send a host command to switch the emulation automatically (see the appropriate *Programmerís Reference Manual* for details).

Save Config.

Allows you to save up to eight unique configurations to meet different print job requirements. This eliminates the need to change the parameter settings for each new job. The configurations are stored in memory and will not be lost if you turn off the printer.

The default is 1.

Power-Up Config.

You can specify the Factory configuration or any one of the eight possible saved configurations as the power-up configuration.

The default is Factory.

SMT: Status

See Software Migration Tools (SMT)î in the *RFID Labeling Reference Manual*.

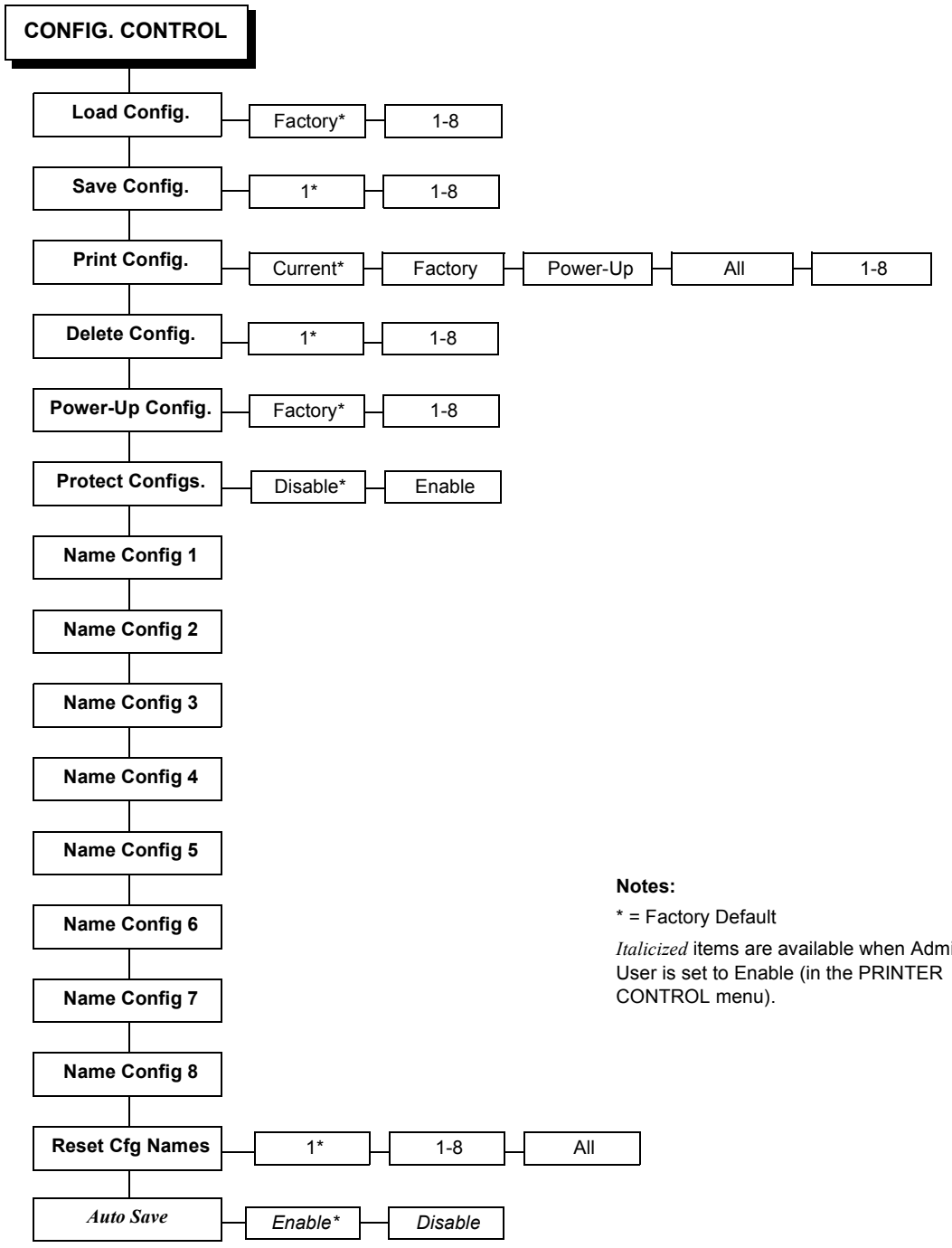
- **Disable** (the default). The printer disables the use of the Software Migration Tools.
- **Enable**. The printer enables the use of the Software Migration Tools.

PAA: Status

See Software Migration Tools (SMT)î in the *RFID Labeling Reference Manual*.

- **Disable** (the default). The printer disables PAA functionality.
- **Enable**. The printer enables PAA functionality.

CONFIG. CONTROL Menu



Notes:

* = Factory Default

Italicized items are available when Admin User is set to Enable (in the PRINTER CONTROL menu).

CONFIG. CONTROL Submenus

Load Config.

The printer can store up to eight configurations in memory. This parameter allows you to select and load a specific configuration.

The factory default is Factory.

Save Config.

This option allows you to save up to eight unique configurations to meet different print job requirements. This eliminates the need to change the parameter settings for each new job. The configurations are stored in memory and will not be lost if you turn off the printer. If the Protect Configs. parameter is enabled, the new configuration will not be saved unless the existing configuration has been deleted first. The factory default configuration cannot be changed. See "Saving A Configuration" on page 83 for details.

The factory default is 1.

Print Config.

This option is used to print a listing of various stored printer configurations. We recommend you store printouts of your configurations in a safe place for quick referral.

The options are Current (the factory default), Factory, Power-Up, and All.

Delete Config.

You can delete one or all of your eight customized configurations. The factory default configuration cannot be deleted.

The factory default is 1.

Power-Up Config.

You can specify any one of nine configurations (1-8 saved custom configurations or Factory) as the power-up configuration.

The factory default is Factory.

Protect Configs.

You can specify whether or not a new configuration should overwrite an existing configuration when you activate the Save Configs. parameter. When disabled (default), the new configuration will overwrite the existing configuration. When enabled, the new configuration will *not* overwrite the existing configuration, and the message "CONFIG. EXISTS / Delete First" displays.

The options are Disable (the factory default) and Enable.

Name Config (1-8)

You may specify a 15-character name which can be used to refer to a configuration. The name you enter for a configuration will be used in the Load Config., Save Config., Print Config., Delete Config., and Power-Up Config. menus. The names can only be cleared by using the Reset Cfg Names menu.

When you move into the Name Configs. menu, the top line of the display shows the current configuration name. The second line of the display is initially the same as the top line. You can modify the second line of the display without affecting the top line until the ↵ key is pressed, which sets the modified name as the current selection.

Press ↑ or ↓ to cycle through the values available for that character at the cursor location. Press + to move to the next character to be modified. Press □ to go back to a character you have already modified. Continue until you have entered the name you want to give to this configuration, then press ↵ to save. The name you entered will now represent this configuration on the printer's front panel. To exit this menu without saving, press any key other than ↵. The configuration name will revert to the last saved value.

The factory default is 1.

Reset Cfg Names

You can reset specific configuration names back to the default value of the configuration number.

The options are 1-8 and All, and the factory default is 1.

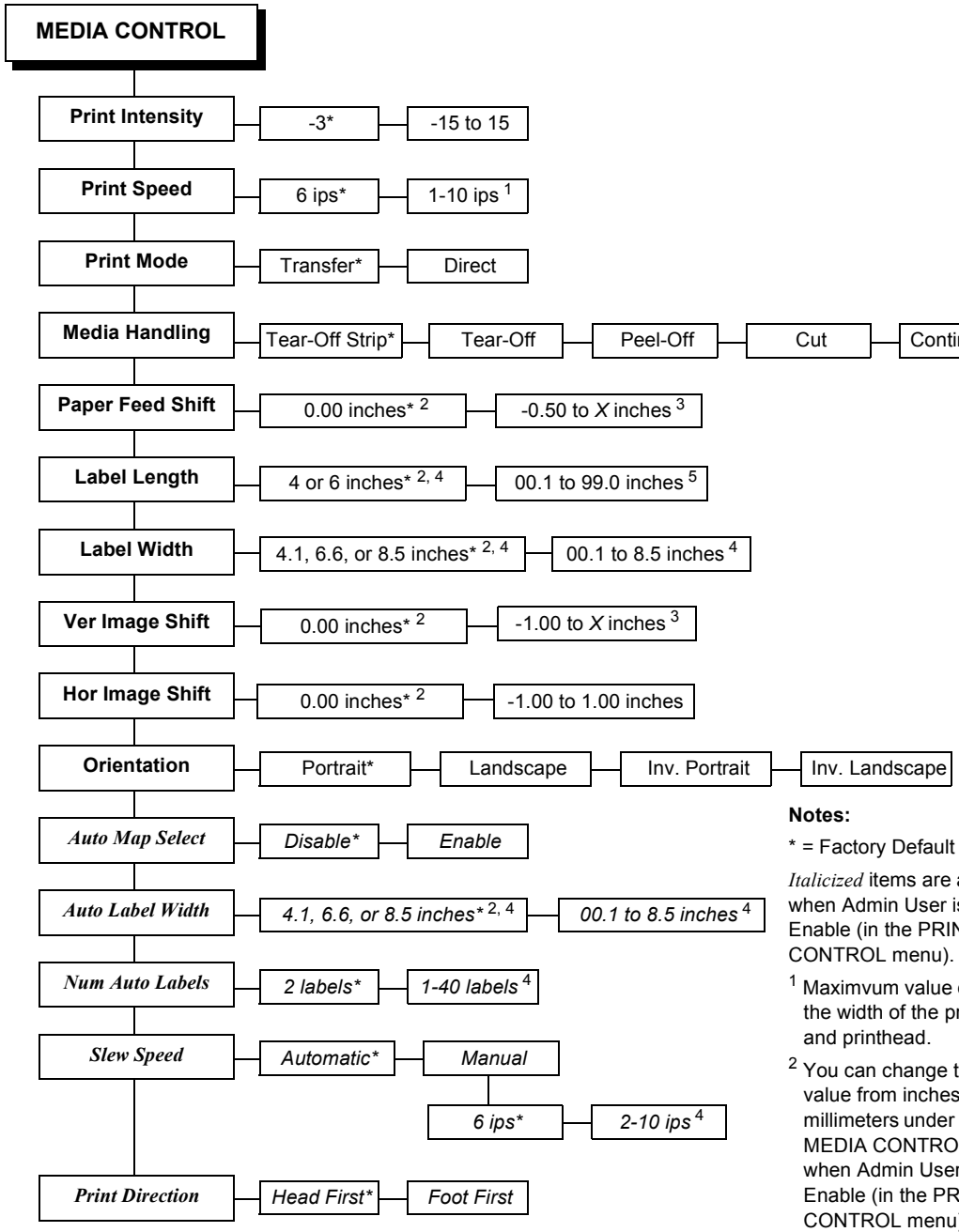
Auto Save

- **Enable** (the default). When a change has been made to a Config. menu, this option automatically prompts the user to save or not save the change to a Config #.

  If you are currently in the Factory Config. menus and make a change, pressing Enter saves to Config 1 or the next available Config. and becomes the Power-Up Config. If the Current Config is Config 1 and a menu change is made, pressing Enter will save the change to Config 1.

- **Disable**. The printer will not prompt you to save any changes made.

MEDIA CONTROL Menu



Continued at the top of next page

Notes:

* = Factory Default

Italicized items are available when Admin User is set to Enable (in the PRINTER CONTROL menu).

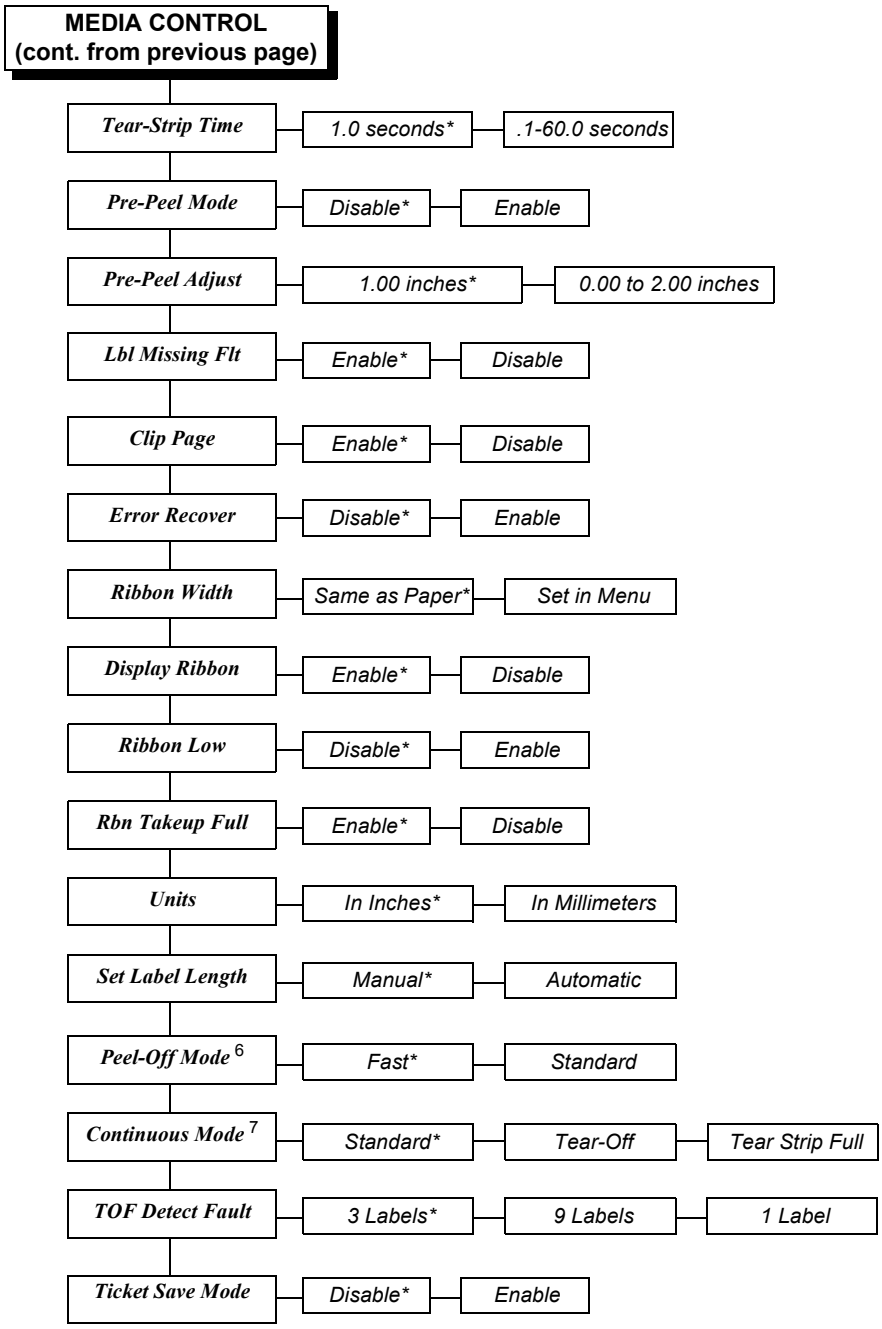
[1] Maximvum value depends on the width of the printer model and printhead.

[2] You can change the unit value from inches to millimeters under Units (in the MEDIA CONTROL menu) when Admin User is set to Enable (in the PRINTER CONTROL menu).

[3] Based on the current value setting for Label Length (in MEDIA CONTROL) up to a maximum of 12.80 inches.

[4] Maximum value depends on the width of the printer model.

[5] Maximum value depends on model width and size of DRAM installed.



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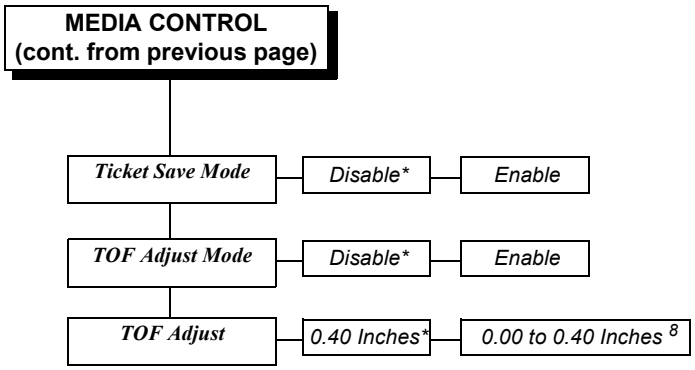
Notes:

* = Factory Default

Italicized items are available only when Admin User is set to Enable (in the PRINTER CONTROL menu).

[6] The Peel-Off option under Media Handling must be enabled for this menu to function.

[7] The Continuous option under Media Handling must be enabled for this menu to function.



Notes:

* = Factory Default

Italicized items are available only when Admin User is set to Enable (in the PRINTER CONTROL menu).

[8] In increments of 0.01 inch.

MEDIA CONTROL Submenus

Print Intensity

This menu item specifies the level of thermal energy from the printhead to be used for the type of media and ribbon installed.

Large numbers imply more heat (thermal energy) to be applied for each dot. This has a significant effect on print quality. The print intensity and speed must match the media and ribbon type to obtain the best possible print quality and barcode grades.

- The range is □15 through +15. The default is □3.

Print Speed

This option specifies the speed in inches per second (ips) at which the media passes through the printer while printing.

The range is 1 to 10 ips (in increments of 1 ips).

The factory default is 6 ips.

NOTE: The maximum print speed varies based on maximum printer width and dot per inch (dpi) resolution of the printhead installed (203 or 300 dpi). See □Printingî on page 256 for print speed specifications.

Print Mode

This option specifies the type of printing to be done.

- **Transfer** (the default). Indicates Thermal Transfer printing (ribbon installed).
- **Direct**. Indicates Direct Thermal printing (no ribbon) and requires special heat sensitive media.

Media Handling

This option specifies how the printer will handle the media (labels or tag stock).

- **Tear-Off**. After each label is printed, the printer positions the label over the tear bar and waits for you to tear off the label before printing the next one (on-demand printing). A "Remove Label" message will display to remind you to remove the label before the next one can be printed.

Paper Feed Shift

This option represents the distance to advance (+ shift) or pull back (- shift) the stop position of a label when Tear-Off Strip, Tear-Off, Peel-Off, or Cut media handling option is enabled. The allowable range is -0.50 inches to the current Label Length value setting, up to a maximum of 12.80 inches, in .01 inch increments.

The factory default is 0.00 inches.

Label Length

This option specifies the user-selected Label Length in inches or millimeters. In most applications, the user-selected Label Length will match the *physical* label length. Physical label length is the actual label length of the media installed.

When setting label length, consider the following:

Label Length can be manually entered via the control panel MEDIA CONTROL menu or sent via host computer using the appropriate software command.

A Host Forms Length (Label Length) value sent from the host computer will override and change the manually entered Label Length value in the MEDIA CONTROL menu.

- **Physical Label Length** is the actual measurable length of the label. The following list of different media types explains how the physical label lengths are determined:
  - Die-cut labels - measurable length of the removable label (leading edge to trailing edge). This does not include the liner material or gap.
  - Tag Stock with notches or holes - measurable length from the trailing edge of one notch or hole to the leading edge of the next notch or hole.

- Tag Stock with black marks on underside □ measurable length from the leading edge of one black mark to the leading edge of the next black mark.
- Continuous media (no label length indicators) □ measurable length should be within ± 1-2% the Label Length value entered in the MEDIA CONTROL menu or the value sent via host software command.

- **Logical Label Length** (Host Forms Length) is the length that a user or programmer bases his printable image on. In most cases this length should be slightly less than the Physical Label Length. This allows the entire image to be printed within the boundaries of the label length indicators (gaps, notches, holes, or black marks).

  When the Logical Label Length is greater than the Physical Label Length and Clip Page = Enable (in the MEDIA CONTROL menu), the printer will clip the bottom portion of the image that exceeds the Physical Label length. In this case, the printable data that was not printed will be lost.

  When the Logical Label Length is greater than the Physical Label Length and Clip Page = Disable, the printer will continue to print the image onto the next physical label and ignore the gap or mark based on the label length value set in the MEDIA CONTROL menu.

  When the Logical Label Length is less than the Physical Label Length, the printer will print the entire image and leave blank space the remaining length of the physical label as it advances to the Top-of-Form of the next label. This is true regardless of the Clip Page setting.

The allowable Label Length range is 00.1 to 99.0 inches (2.5 - 2514.6mm). Maximum Label Length range is dependent on the Label Width value selected, printhead installed (203 or 300 DPI), and the amount of DRAM installed in the printer. See Table 14 on page 258 for media specifications.

NOTE: See □Set Label Lengthî on page 120.

Label Width

This option specifies the physical width of the image to be printed. The value can be specified in inches or millimeters depending on the setting of the Units submenu under the MEDIA CONTROL menu. The allowable range in inches is 00.1 to the maximum print width of the printer. The allowable range in millimeters is 2.5 to the maximum width of the printer.

The default value depends on model width and size of DRAM installed.

Ver Image Shift

This option specifies the amount to shift an image vertically up (-) or down (+) for precise positioning on the label. The actual height of the image is not affected by this parameter. The allowable range is -1.00 inches to the current Label Length value setting, up to a maximum of 12.80 inches, in .01 inch increments.

The factory default value is 0.00 inches.

Hor Image Shift

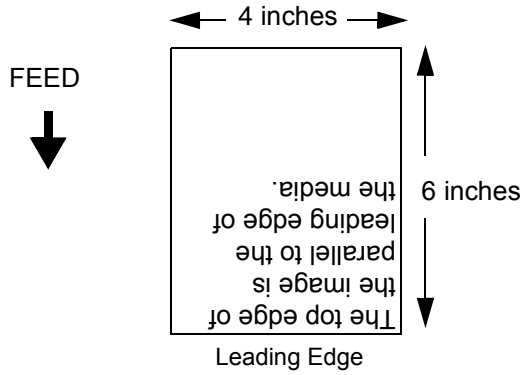
This option specifies the amount to shift an image horizontally left (-) or right (+) for precise positioning on the label. The actual width of the image is not affected by this parameter. The allowable range is -1.00 through +1.00 inches in .01 inch increments, displayed as *xx*/100.

The factory default value is 0.00 inches.

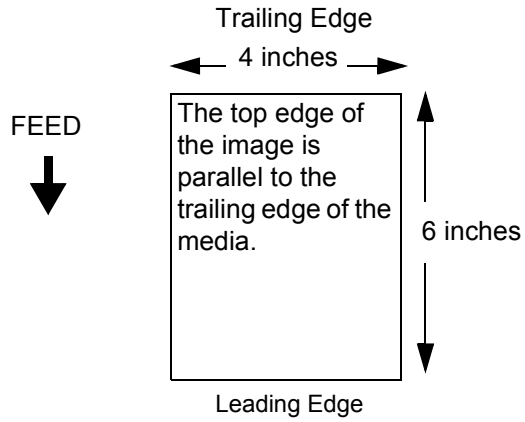
Orientation

This menu item selects the image orientation to be used when printing the label.

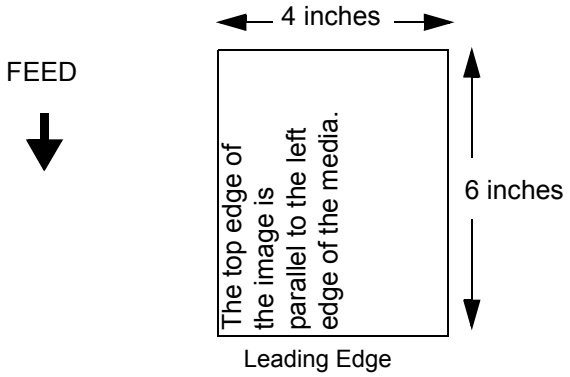
- **Portrait** (the default). Portrait refers to vertical page orientation, where the height of a page is greater than its width. The top edge of the image is parallel to the leading edge of the media. The following illustration is an example, with the operator viewing the front of the printer.



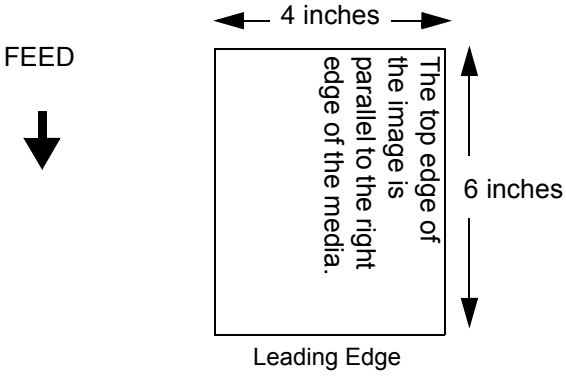
- **Inv. Portrait**. Inverse Portrait refers to vertical page orientation, where the height of a page is greater than its width. The top edge of the image is parallel to the trailing edge of the media. The following illustration is an example, with the operator viewing the front of the printer.



- **Landscape**. Landscape refers to horizontal orientation, where the width of a page is greater than its height. The top edge of the image is the left edge of the media. The following illustration is an example, with the operator viewing the front of the printer.



- **Inv. Landscape**. Inverse Landscape refers to horizontal orientation, where the width of a page is greater than its height. The top edge of the image is the right edge of the media (the left edge of the image is the trailing edge of the media). The following illustration is an example, with the operator viewing the front of the printer.



Auto Map Select

This option specifies the maximum print width to be used by the application. The IGP/Auto Label Mapping feature allows backward compatibility of programs written for P5000 line-matrix printers using the Printronix PGL graphics language. It allows the printer to print two-up (or other multi-up) labels. Instead of printing multiple labels across the printer, it prints the leftmost label and the rightmost label, so the printout will be twice as long but half as wide.

When enabled, the printer will automatically reposition the horizontally adjacent labels to a vertically adjacent position, or a combination of horizontal and vertical positions based on the values selected under the Auto Label Width and Num Auto Labels submenus.

When disabled, excess data in any program sent to the printer with horizontally adjacent labels that exceed the physical page width of the printer will be clipped or wrapped depending upon the setting of the Autowrap menu option.

The options are Disable (the factory default) and Enable.

Examples

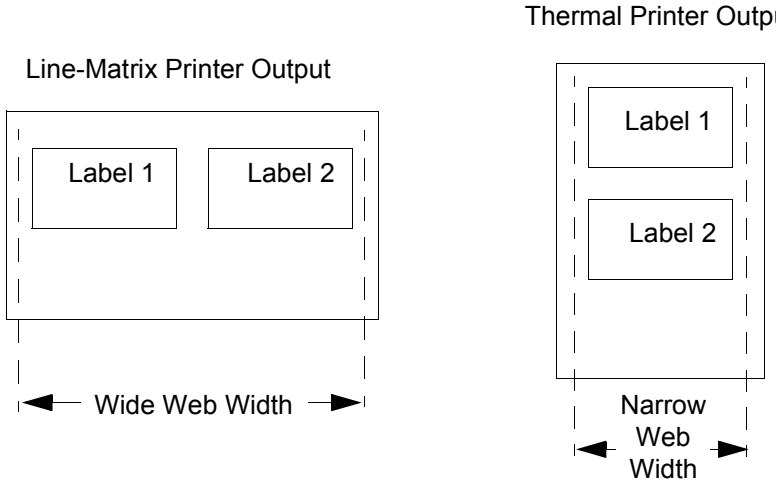
All of the examples below assume that the logical form length is set to the label length.

Example 1: Simple Case

Problem: A file has been constructed with two horizontally adjacent 4î labels for a printer with a physical width of 8î. The user now wants to use this file with a printer that has a 4î physical width.

Solution: The user sets Auto Label Width to 4î (the width of the label), configures the Num Auto Labels to 2, and enables the Auto Label Mapping feature.

Printer Operation: The printer will print the first (leftmost) 4î label first. Once the first label has been completed, the printer will print the second 4î label. These labels will appear vertically adjacent on the form.

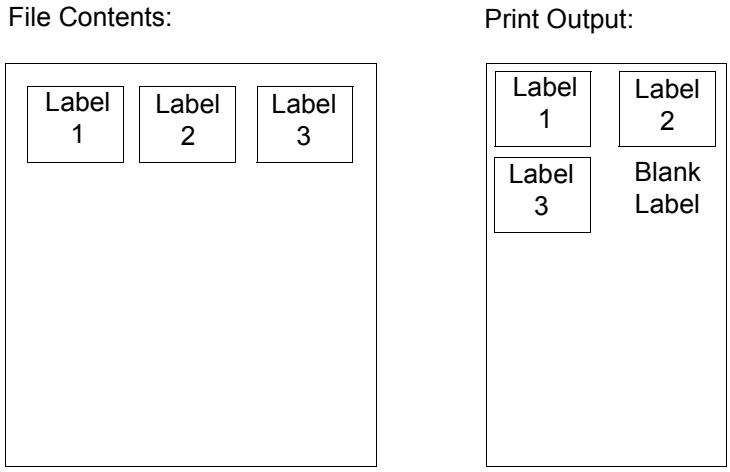


Example 2: Uneven Number Case

Problem: A file has been constructed with three horizontally adjacent 2î labels. The user now desires to use this file with a printer that has a 4î physical width.

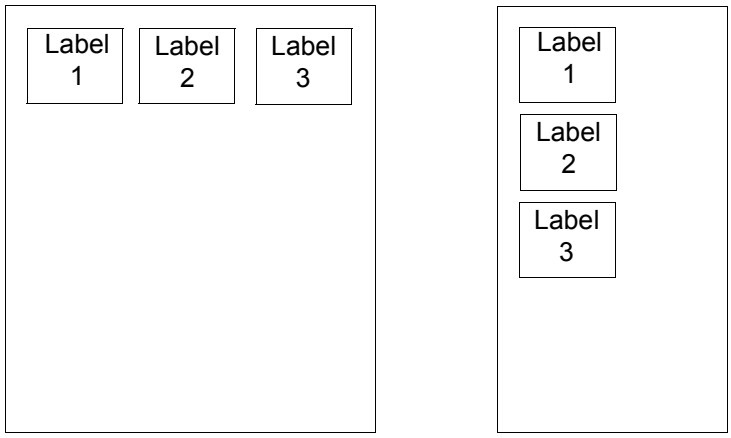
Solution #1: The user sets *Auto Label Width* to 4î (the width of two labels), configures the Num Auto Labels to 2, and enables the Auto Label Mapping feature.

Printer Operation for Solution #1: The printer will print the first two labels at the same time. These first two labels will be horizontally adjacent. Once these labels have been completed, the printer will print the remaining 2î labels along with a blank 2î label.



Solution #2: The user sets *Auto Label Width* to 2î, configures the Num Auto Labels to 3, and enables the Auto Label Mapping feature.

Printer Operation for Solution #2: The printer will print the first 2î label by itself, the second 2î label by itself, and finally, the last 2î label by itself.



Example 3: Past Maximum File Width

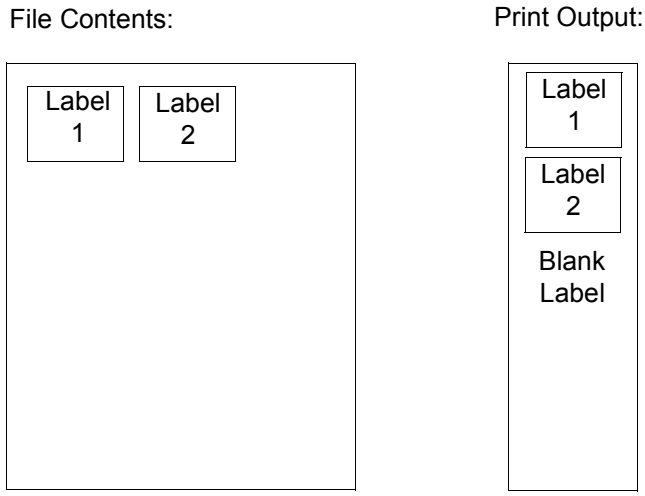
Problem: A file has been constructed with three horizontally adjacent 4î labels. The user now desires to use this file with a printer that has a 8î physical width. The user should have used a solution similar to one of the solutions in the section above, but the user erroneously enters an *Auto Label Width* of 12î and a *Num Auto Labels* of 3.

Printer Operation: *Maximum Num Auto Labels = (20î/12î) = 1.67* rounded up to 2. The printer will automatically reduce the *Num Auto Labels* to 2.

Example 4: Blank Label Case

Problem: A file exists with two horizontally adjacent 4î labels. The user now wants to use this file with a printer that has a 4î physical width. The user decides to set the *Num Labels* to 3 and the *Label Width* to 4î despite the fact that these values are not optimum.

Printer Operation: The maximum *Num Auto Labels = (20î/4î) = 5*. The selected value of 3 is legal. After the file is sent, the printer will begin by printing the first 4î width label. Once that label is complete, it will print the second 4î width label. Finally, once both of those labels have been printed, the printer will print a blank 4î label.



Auto Label Width

The width of a single label to be printed or the maximum width of the media that will be used for the print file. The value is selectable from 00.1 inch through the maximum print width of the printer.

NOTE: The maximum Auto Label Width value will be limited to the current MEDIA CONTROL/Label Width value selected in the configuration menu.

The default value depends on model width and size of DRAM installed.

Num Auto Labels

The desired number of labels to be printed vertically adjacent on the form. The value is selectable with a range of 1 through 40. The factory default is 2.

Slew Speed

The speed at which the printer moves media without actually printing on it.

- **Automatic** (the default). Always the same as the print speed (see "Print Speed" on page 108).
- **Manual**. Allows you to set the slew speed. The maximum speed depends on your printer model. See "Printing" on page 256 for slew speed specifications.

Print Direction

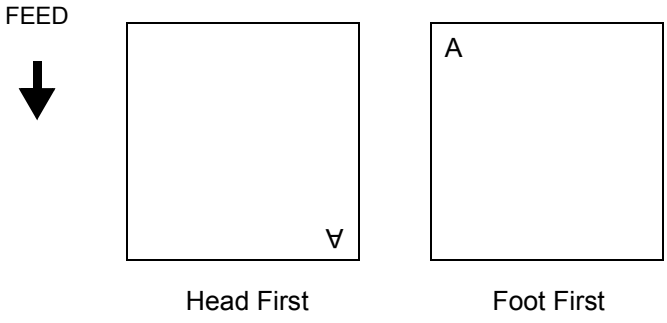
This option determines the basic print image orientation.

NOTE: Print Direction will not change the orientation of any print test patterns in the DIAGNOSTIC menu.

Print Direction has two options:

- Head First (the default)
- Foot First

For example, with Portrait orientation, when you select Head First, the top-of-form will come out of the printer first. Conversely, when you select Foot First, the bottom-of-form will come out first.



Print Direction and Orientation are two independent options that can be combined to produce the following results depending on the Active IGP Emulation:

Table 2. Head First

Print Direction Option	Orientation Option	Result in Active IGP Emulations (IGP/PGL or IGP/VGL)
Head First	Portrait	Portrait
Head First	Landscape	Landscape
Head First	Inv. Portrait	Inv. Portrait
Head First	Inv. Landscape	Inv. Landscape

Table 3. Foot First

Print Direction Option	Orientation Option	Result in Active IGP/PPI1 Emulation
Foot First	Portrait	Portrait
Foot First	Landscape	Inv. Landscape
Foot First	Inv. Portrait	Inv. Portrait
Foot First	Inv. Landscape	Landscape

The factory default is Head First when IGP/PGL or IGP/VGL is enabled.

The factory default is Foot First when PPI/ZGL is enabled.

Tear-Strip Time

When Media Handling is set to Tear-Off Strip or when Media Handling is set to Continuous and Continuous Mode is set to Tear Strip Full, Tear-Strip Time specifies the number of seconds after the buffer is empty that the printer will wait before it advances media to the tear bar position.

The range is .1 to 60.0 seconds, and the factory default is 1.0 second.

Lbl Missing Flt

Allows the Label Taken Sensor to first detect the presence of a label at the tear bar for Peel and Tear Off Media Handling Mode only.

- **Enable** (the default). The printer generates a fault condition if a missing label is encountered.
- **Disable**. The printer does not generate a fault condition if a missing label is encountered.

Clip Page

This option determines how the printer handles images that are too large for one physical page length when using gap or black mark media.

- **Enable** (the default). When the user-selected page length is greater than the physical page length, the printer clips the excess data to fit the physical page. The excess data is lost. The media sensor constantly looks for the gap, notch, hole, or black mark and when detected, uses it as the Top-of-Form position for the next label and clips any remaining data from the label being printed.
- **Disable**. When the user-selected page length (logical length) is greater than the physical page length dictated by the gap, notch, hole, or black mark on media, the printer continues to print the remaining excess data onto the next physical page.

  The media sensor looks for the gap, notch, hole, or black mark only after the media has advanced the distance specified by the Label Length value in the MEDIA CONTROL menu or by the Host Forms Length value sent via the software. Any gaps, notches, holes, or black marks that exist prior to reaching the Label Length or Host Forms Length value are ignored.

  When Clip Page is set to Disable, Mark and Gap media sensing reliability can be improved and the sensor problems described below can be fixed:

  - The image starts to print at an erroneous distance from the top-of-form, especially towards the end of a roll where the media is severely curled or scalloped.
  - The image is incorrectly positioned as a result of the media sensor triggering off of a dark, pre-printed image on the label or multiple gaps within the label.
  - The printer starts to print one label and then another all on the same physical label, especially at the end of a roll where the media is severely curled.
  - An occasional blank label appears within a print job (in between printed labels).

  When Clip Page is set to Disable, the printer ignores any pre-printed dark marks or multiple gaps on a label that could mistakenly be detected as the next top-of-form position based on the specified Label Length value. The Label Length option is in the MEDIA CONTROL menu.

NOTE: When Clip Page = Disable, the correct Label Length value must be entered. If the value is too long, the printer will ignore the actual gap or mark it needs to detect. When using Gap sensing, the Label Length value is equal to the physical length of a die cut or removable label. When using Mark sensing, the Label Length value is the physical distance from the leading edge of one black mark to the leading edge of the next black mark.

Error Recover

This option determines how the printer handles data that was printing when an error occurred.

- **Disable** (the default). The printer will not reprint the label that was printing when the error condition occurred.
- **Enable**. The printer reprints the label that was printing when the error condition occurred.

Ribbon Width

When Same As Paper is selected, the printer automatically adjusts the ribbon operating parameters to match the installed media width. In those cases where the media width is less than the installed ribbon width, the Set In Menu option should be selected. After selection, the ribbon width is set to the proper value by pressing the ↓ key and choosing the actual ribbon width using the + and □ keys. The chosen width is then selected by pressing the ↵ key. The factory default is Same As Paper.

Display Ribbon

When enabled, the remaining length of unused ribbon will display on the LCD (when the printer is online).

The options are Enable (the factory default) and Disable.

Ribbon Low

This item defines the Ribbon Low condition for the ribbon supply spindle. When set to a specific value, a ribbon low message will display along with a flashing ONLINE status indicator to indicate the length of ribbon remaining on the ribbon supply spindle has reached its specified value. The indicator will continue to flash until the ribbon supply is exhausted. When Disabled, no ribbon low condition will be indicated. A Ribbon Low condition will not prevent printing.

The options are Disable (the factory default) and Enable.

Rbn Takeup Full

This enables or disables a fault message to display for a Ribbon Takeup Full condition.

The options are Enable (the factory default) and Disable.

Units

This item selects either millimeters or inches as the unit of measure.

The options are In Inches (the factory default) and In Millimeters.

Set Label Length

This feature selects whether the Sensed Distance value derived from an Auto or Manual Calibrate will be used to set the Label Length value in the MEDIA CONTROL menu (and the QUICK SETUP menu).

- **Manual** (the default). The Sensed Distance value derived from an Auto or Manual Calibrate will not override or change the Label Length value.
- **Automatic**: When an Auto or Manual Calibrate is performed, the Sensed Distance value derived from either calibrate will override and change the Label Length value. If no Auto or Manual Calibrate is performed, the current Label Length value will be used.

NOTE: When Set Label Length = Automatic and Gap/Mark Sensor = Gap, Advanced Gap, or Advanced Notch, the printer will subtract the Gap Length value (in the CALIBRATE CTRL menu) from the Sensed Distance value obtained when the Auto or Manual Calibrate was performed.

Peel-Off Mode

Prints and peels die-cut labels from the liner without assistance. The printer waits for you to take away the label before printing the next one (on-demand printing). When the optional internal rewinder is installed with liner attached, a Remove Labelî message will display to remind you to remove the label before the next one can be printed. The options are Fast (the default) and Standard.

TOF Detect Fault

Allows selection of three different TOF (Top-of-Form) detection faults.

NOTE: The correct Label Length value, equal to the physical length of the installed label, must be entered in the QUICK SETUP or MEDIA CONTROL menu.

- **3 Labels** (the default). The printer displays a Gap Not Detected fault and stops printing when media has advanced a distance equal to three or more times the Label Length value set in menu.
- **9 Labels**
- **1 Label**

Ticket Save Mode

This option determines the action of the media for Continuous (std), Tear-Off, Tear-Off Strip and Cut Media Handling Modes after the printer is first powered up or after the printhead has been opened and then closed. When enabled, this option eliminates wasting label(s) or ticket stock when the printer advances media to search for the next TOF position.

- **Enable**. The printer will assume that media is at the TOF position after cycling power or after the printhead is opened and then closed. When a print job is sent it is printed without advancing media to search for the next TOF position.

NOTE: The user must ensure that media is at the correct TOF position (cross perforation, liner gap, notch or mark at the tear bar edge) before cycling power or before closing and locking the pivoting deck. In addition, media must be calibrated and the correct Media Handling Mode, Label Length and Gap/Mark Sensor selected and saved as the Power-Up Config. Option applies to 2.5 inch or longer label lengths only.

- **Disable** (the default). The printer assumes that the media is not at the correct TOF position after cycling power or after the printhead is opened and then closed and advances media until the next gap, notch or mark is detected by the Media Sensor(s). When print data is sent, printing begins only after the next TOF is detected, resulting in one or more blank labels being advanced.

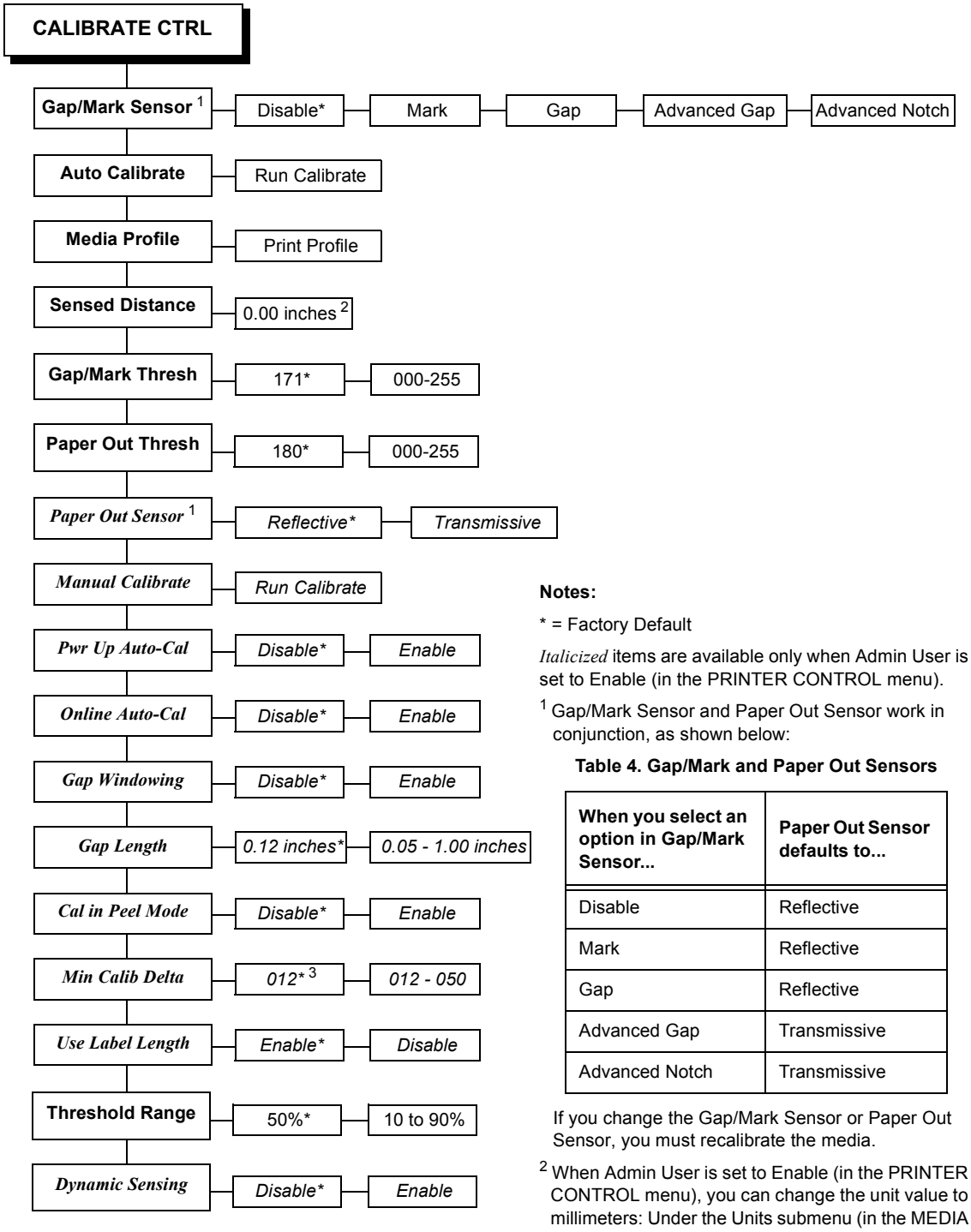
TOF Adjust Mode

- **Enable**. This option enables the "TOF Adjust" distance set using the TOF Adjust menu (see TOF Adjust).
- **Disable** (the default). This option disables the "TOF Adjust" distance set using the TOF Adjust menu (see TOF Adjust).

TOF Adjust

This opton sets the distance from the Top Of Form (TOF) that is left blank (unprinted) after a label has been removed in Tear-Off strip or Tear-Off mode. Normally printing is done starting at TOF, but when this mode is enabled the start position for printing can be adjusted from 0.00 to 0.40 inches from TOF (in increments of 0.01 inch). This adjustment can be helpful if a die cut label sticks to the platen by means of jagged edges created during a poor die cut label removal using the tear bar. By controlling how much blank space there is from TOF, you can control how much the media is called back after it is torn off.

CALIBRATE CTRL Menu



Notes:

* = Factory Default

Italicized items are available only when Admin User is set to Enable (in the PRINTER CONTROL menu).

[1] Gap/Mark Sensor and Paper Out Sensor work in conjunction, as shown below:

Table 4. Gap/Mark and Paper Out Sensors

When you select an option in Gap/Mark Sensor...	Paper Out Sensor defaults to...
Disable	Reflective
Mark	Reflective
Gap	Reflective
Advanced Gap	Transmissive
Advanced Notch	Transmissive

If you change the Gap/Mark Sensor or Paper Out Sensor, you must recalibrate the media.

[2] When Admin User is set to Enable (in the PRINTER CONTROL menu), you can change the unit value to millimeters: Under the Units submenu (in the MEDIA CONTROL menu), enable the "In Millimetersî option.

[3] When Gap/Mark Sensor = Disable, Gap, or Mark, the default is 12. When Gap/Mark Sensor = Advanced Gap or Advanced Notch, the default is 20.

CALIBRATE CTRL Submenus

Gap/Mark Sensor

The available options specify the sensor type needed for detecting the Top-of-Form position on media with label length indicators (gaps, notches, holes, or black marks).

- **Disable** (the default). Select when using media with no label length indicators (no gaps, notches, holes, or black marks), or when you want the printer to ignore all existing label length indicators on the installed media.

NOTE: When you select Disable, the length of each label is based on the Label Length value entered in the MEDIA CONTROL menu or the value sent via host software.

- **Mark**. Select when using media that has horizontal black marks located on the underside of the label liner or tag stock. The Top-of-Form position is the leading edge of the black mark.
- **Gap**. Select when using media with a liner space between die-cut labels or when using tag stock with notches or holes as label length indicators on white background media. The Top-of-Form position is the leading edge of the die cut label (trailing edge of the gap, notch, or hole).
- **Advanced Gap**. Select when using media that has liner gaps between die cut labels with black background. The Top-of-Form position is the leading edge of the die cut label (trailing edge of the gap, notch, or hole).
- **Advanced Notch**. Select when using media with notches or holes that interrupt a black vertical line on the underside of the media. The Top-of-Form position is the leading edge of the die cut label (trailing edge of the gap, notch, or hole).

Auto Calibrate

This feature is used to improve the sensitivity and reliability of the Media Sensor in detecting gaps, notches, holes, or black marks on the installed media, as well as a paper out condition.

You can initiate Auto Calibrate from the CALIBRATE CTRL menu or the DIAGNOSTIC menu. When Auto Calibrateî displays on the LCD, press the ↵ key. The printer advances media the distance needed to accurately detect the label length indicators, then stops at the Top-of-Form position, and momentarily displays the Sensed Distance. This process takes a few seconds to complete and results in changes to the values the printer uses for Gap/Mark Threshold, Paper Out Threshold, and Sensed Distance. These value changes take effect immediately within the current configuration menu.

Auto Calibrate is completed successfully when the Sensed Distance displayed correctly matches that of the installed media. When Gap is selected, the Sensed Distance should match the length from the trailing edge of one gap to the trailing edge of the next gap (one label + one gap). When Mark is selected, the Sensed Distance should match the length from the leading edge of one black mark to the leading edge of the next black mark.

Auto Calibrate supports label lengths up to 24 inches.

Media Profile

This feature provides a graphical printout showing the relationship of the Paper Out Threshold and the Gap/Mark Threshold. The profile printout assists you in setting the thresholds for difficult media. This includes pre-printed labels, and labels with poor gap/media dynamic range.

When selected, the printer will advance media and print the media profile along the length of each label. The printer will continue to print the profile until you press ↵.

The factory default is Print Profile.

Sensed Distance

This value (in inches) represents the distance that was sensed between the TOF of one label to the TOF of the next label. With gapped media installed, the distance equals the physical label length plus one gap, notch, or hole (trailing edge of one gap, notch, or hole to the trailing edge of the next gap, notch, or hole). With black mark media installed, the distance equals the leading edge of one black mark to the leading edge of the next. This value is automatically determined only after successful completion of Auto or Manual Calibrate and cannot be changed manually.

The factory default is 0.00 inches.

Gap/Mark Thresh

This menu item sets a value that, when exceeded by the output of the media sensor, is recognized by the printer as a gap (or black mark). When Auto or Manual Paper Calibrate is performed, the value displayed is equal to the gap/mark threshold value set by this procedure. If running the procedure does not provide a reliable Top-Of-Form detection, e.g., when using unusual media, the Gap/Mark Thresh value can be manually set to the desired value.

The range is 000-255, and the factory default is 171.

Paper Out Thresh

This menu item selects a value that, when exceeded by the output of the media sensor, is recognized by the printer as a paper out condition. When Auto or Manual Calibrate is performed, the value displayed is equal to the paper out threshold value set by this procedure. If running the procedure does not provide a reliable paper out detection, e.g., when using non-standard media, the Paper Out Thresh value can be manually set to the desired value.

The range is 000-255, and the factory default is 180.

Paper Out Sensor

Selects which type of media sensing, Reflective or Transmissive, will be used to detect a paper out condition. The printer automatically selects the type of sensing based on the Gap/Mark sensing selected (see Table 4 on page 122).

NOTE: Whenever you select Transmissive, you must position the upper media sensor directly over the lower media sensor (see Positioning The Media Sensorsî on page 64).

The factory default is Reflective.

Manual Calibrate

Manual Calibrate is another method of improving the printerís media sensing and is only used when Auto Calibrate has failed or the Gap/Mark Threshold or Paper Out Threshold values derived from Auto Calibrate do not improve the media sensorsí gap or mark sensing capability.

To initiate Manual Calibrate, press ↵ when "Manual Calibrateî displays under the CALIBRATE CTRL menu. You will then be prompted for the remaining steps.

Example: "REMOVE RBN&MEDIA/Press Enterî or
"LOAD RBN ONLY/Press Enterî etc.

During the last stage of Manual Calibrate, the printer uses the statically derived values, advances media, stops at the Top-of-Form position, and momentarily displays the Sensed Distance. This process takes longer than Auto Calibrate, and the end result is a change to the Gap/Mark Threshold, Paper Out Threshold, and Sensed Distance values that the printer will use. These value changes take effect immediately within the current configuration menu.

Manual Calibrate is completed successfully when the displayed Sensed Distance correctly matches that of the installed media. When Gap is selected, the Sensed Distance should match the length from the trailing edge of one gap to the trailing edge of the next gap (or one label + one gap). When Mark is selected, the Sensed Distance should match the length from the leading edge of one black mark to the leading edge of the next black mark.

Manual Calibrate supports label lengths up to 24 inches.

Pwr Up Auto-Cal

- **Disable** (the default).
- **Enable**. When the printer is first powered on, it will complete its initialization and self-tests and then perform an Auto Calibrate. Once the Auto Calibrate is complete, the printer will momentarily display the Sensed Distance determined by the Auto Calibrate.

Online Auto-Cal

NOTE: Error Recover (under MEDIA CONTROL) will not function when is enabled (see "Error Recoverî on page 119).

The options for Online Auto-Cal are:

- **Disable** (the default).
- **Enable**. Whenever the printer is brought online, it automatically performs an Auto Calibrate (see "Auto Calibrateî on page 123). Once the Auto Calibrate is complete, the printer momentarily displays the Sensed Distance determined by the Auto Calibrate and then resumes printing any pending jobs.

NOTE: If using the Online Auto-Cal feature, you must first enable it prior to printing any data.

Gap Windowing

This feature compensates for any early falling edges or spurious peaks and troughs that may appear within the gap length in media. These edges or peaks and troughs can cause unreliable detection of the leading edge of the next label (top-of-form). Use Gap Windowing to resolve the following problems:

- Loss of one or more complete (serialized) labels.
- Start of an image printed in the middle of a gap, especially with fanfold, perforated media.
- Top part of an image lost when printing in head-first orientation.

The options for Gap Windowing are Disable and Enable:

- **Disable** (the default). When the leading edge of a gap is detected, the printer continuously looks for the leading edge of the next label and uses it as the TOF position. Perforations or unusual media discrepancies within the gap can cause inaccurate TOF detection.
- **Enable**. When the leading edge of a gap is detected, the printer ignores the first 90% of the gap length value specified in the Gap Length menu option. The result is that cross perforations or unusual media discrepancies within the gap are filtered out, allowing the printer to reliably detect the actual leading edge of the next label and use it as the TOF position.

Gap Length

Gap Length is the actual length (height) of a label gap measured in .01 inch increments. The range is 0.05 to 1.00 inches.

NOTE: You must enter the correct Gap Length. If the Gap Length is too long, the image will shift down from the leading edge (TOF) of the label.

The factory default is 0.12 inches.

Cal In Peel Mode

This option allows you to perform a calibration (Auto Calibrate or Pwr Up Auto-Cal) in Peel-Off Media Handling mode.

- **Disable** (the default). The printer will not permit calibration and a "CANNOT CALIBRATE/Disable Peel-Off" message will briefly display. Additionally, if "Pwr Up Auto-Cal" is enabled, the printer will not perform calibration at power up.
- **Enable**. Auto Calibrate can be performed from the front panel, and if the Pwr Up Auto-Cal option is enabled, calibration will be performed at power up.

NOTE: Calibration in Peel-Off mode does not stop and wait for you to remove peeled labels. Therefore, be prepared to remove the labels as they are automatically peeled.

Min Calib Delta

Minimum Calibrate Delta changes the minimum threshold value the sensor(s) require to detect the difference between the label and a gap, notch, hole or black mark. This allows bolder gaps (such as notches or holes) to be used as the TOF while intermediate gaps (liner) can be ignored. Increasing the Min Calib Delta makes the sensor(s) less sensitive to intermediate gaps and noise. Decreasing the Min Calib Delta makes the sensor(s) more sensitive for detecting gaps on low contrast media, where there is very little difference between the label and the gap (liner).

The range is 012 - 050.

NOTE: When Gap/Mark Sensor = Disable, Gap, or Mark, the default is 12. When Gap/Mark Sensor = Advanced Gap or Advanced Notch, the default is 20.

Use Label Length

Determines whether or not the Label Length value set in the QUICK SETUP or MEDIA CONTROL menu is used during Auto Calibrate.

- **Enable** (the default). The Label Length value set in the QUICK SETUP or MEDIA CONTROL menu is used in the calibrate algorithm. This causes the Auto Calibrate process to advance media the minimum distance required to detect the true gap, notch, hole, or black mark used for TOF (Top-of-Form) sensing. This resolves problems where the sensor(s) may mistake high noise levels or preprinted images within the label as the gap, notch, hole, or black mark that could result in a sensed distance value much shorter than the actual label length. Example: A 0.2 inch calibrated Sensed Distance with a 3.0 inch long label installed.

NOTE: Setting the Label Length value less than half the actual length of the label in use will result in erroneous Sensed Distance values when Auto Calibrate is performed.

- **Disable**. Auto Calibrate relies exclusively in its ability to detect varying transitions between labels and gaps, notches, holes, or black marks while advancing media during the calibrate process to determine Sensed Distance. The amount of media advanced is based on the number of transitions detected.

Threshold Range

This option allows the user to select the optimal threshold range for the label stock in use. The printer defaults to using a threshold range of 50% of the positive going pulse (see Media Profile) that represents each gap, notch or mark detected after doing an Auto or Manual Calibrate. The printer then detects anything within the label with that threshold range as TOF. While this range is ideal for most medias, some labels with a preprinted image, liner gap or inlay can confuse the media sensor(s) causing a false TOF detection. In most cases this can be resolved by selecting a higher threshold range so the printer will only trigger on the true TOF (gap, notch or mark) position.

NOTE: A new threshold range will not take affect until an Auto or Manual Calibrate is successfully performed. A Media Profile should be run after a Calibrate to visually verify that the new range is the best possible selection.

The range is: 10% to 90% in 10% increments

The factory default is 50%.

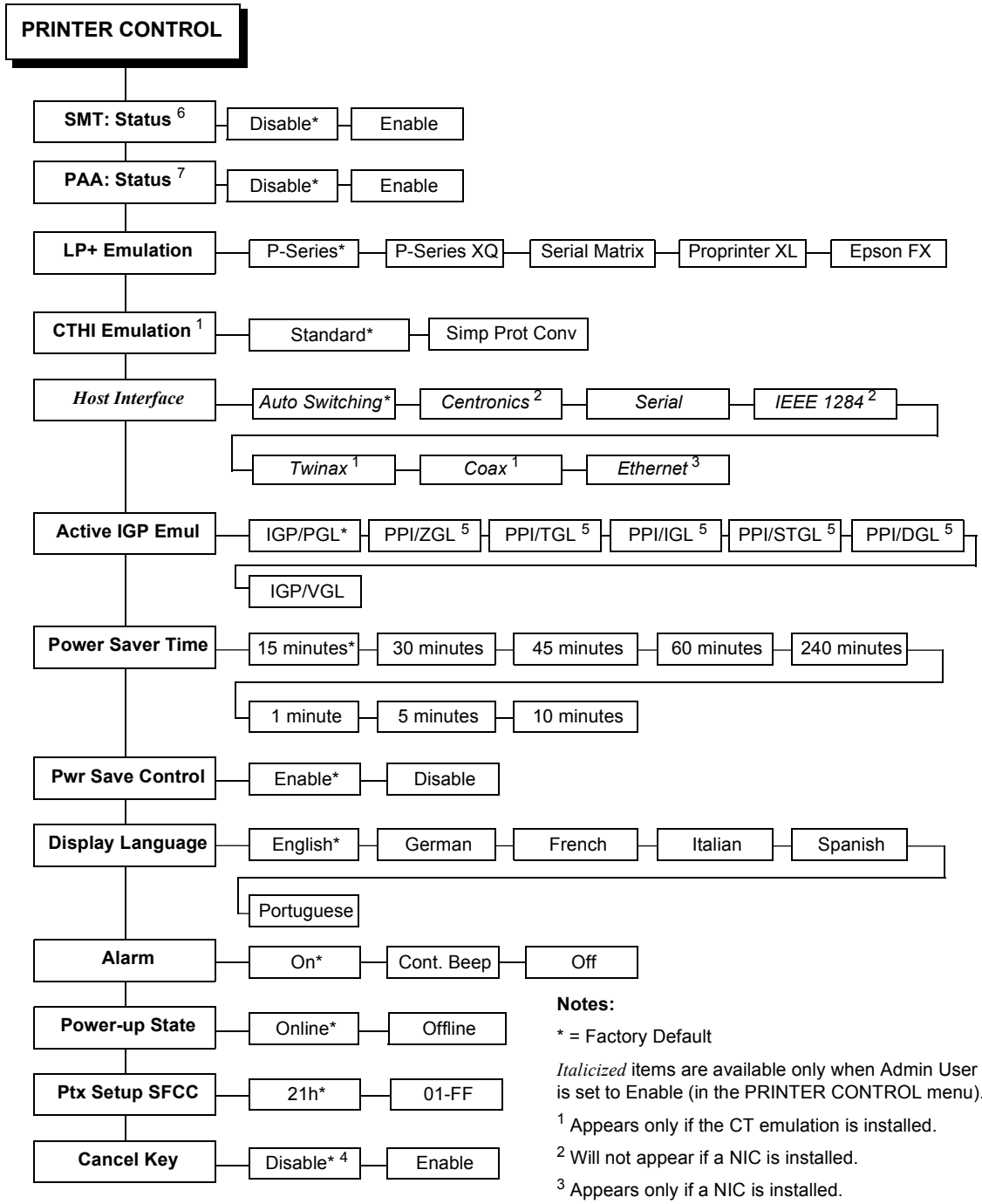
NOTE: RF labels require a setting of 70%.

Dynamic Sensing

Disable (the default). Uses a fixed media sensor threshold.

Enable. Continuously adjusts the media sensor's threshold to compensate for changing environmental factors such as temperature, label/liner contrast, ribbon darkness, etc.

PRINTER CONTROL Menu



Notes:

* = Factory Default

Italicized items are available only when Admin User is set to Enable (in the PRINTER CONTROL menu).

[1] Appears only if the CT emulation is installed.

[2] Will not appear if a NIC is installed.

[3] Appears only if a NIC is installed.

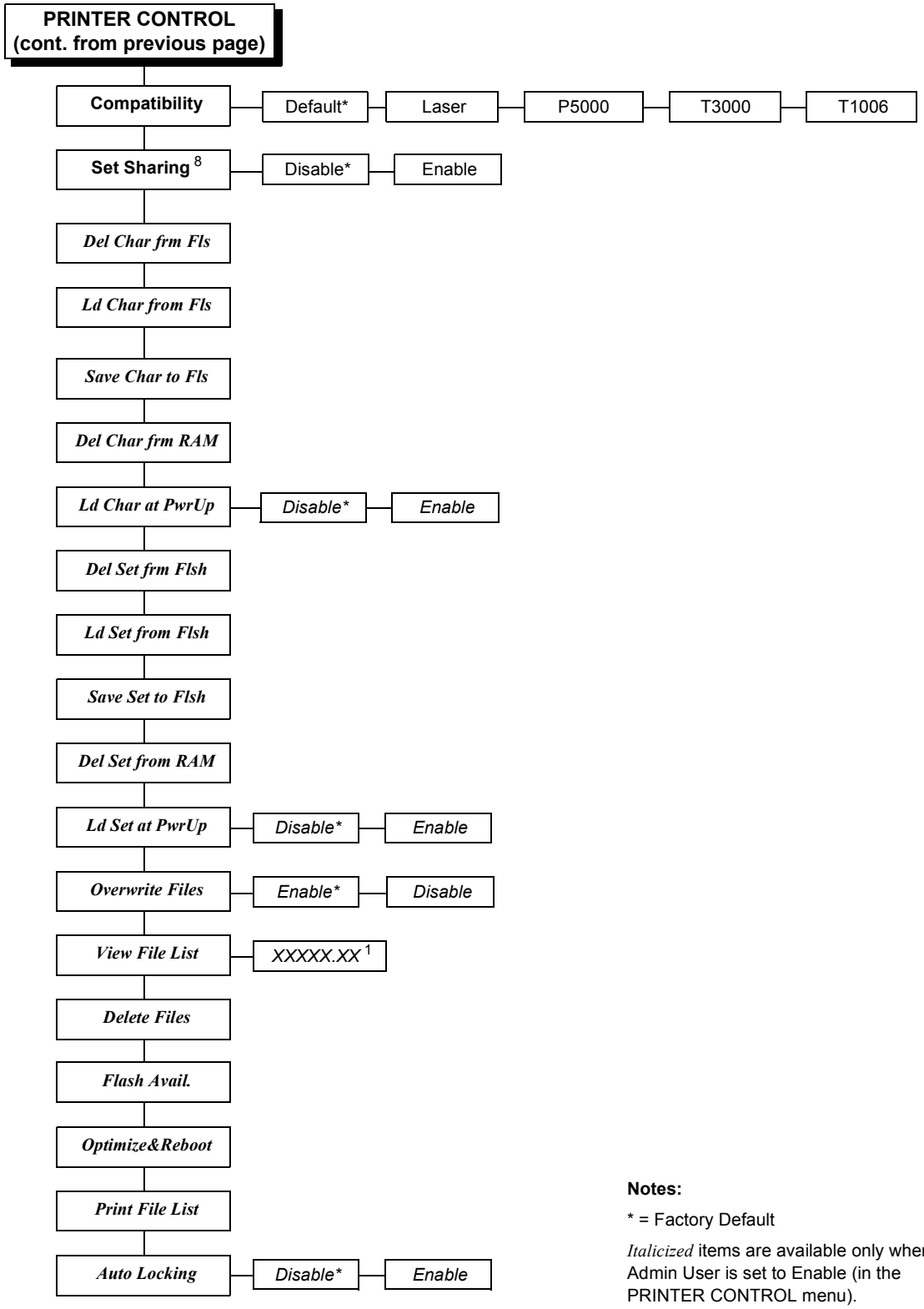
[4] When Coax/Twinax interface is installed, the factory default is Enable.

[5] Appears only if Active IGP Emul is set to PPI emulation.

[6] Appears only if RFID is installed

[7] Appears only if RFID is not installed.

Continued at the top of next page



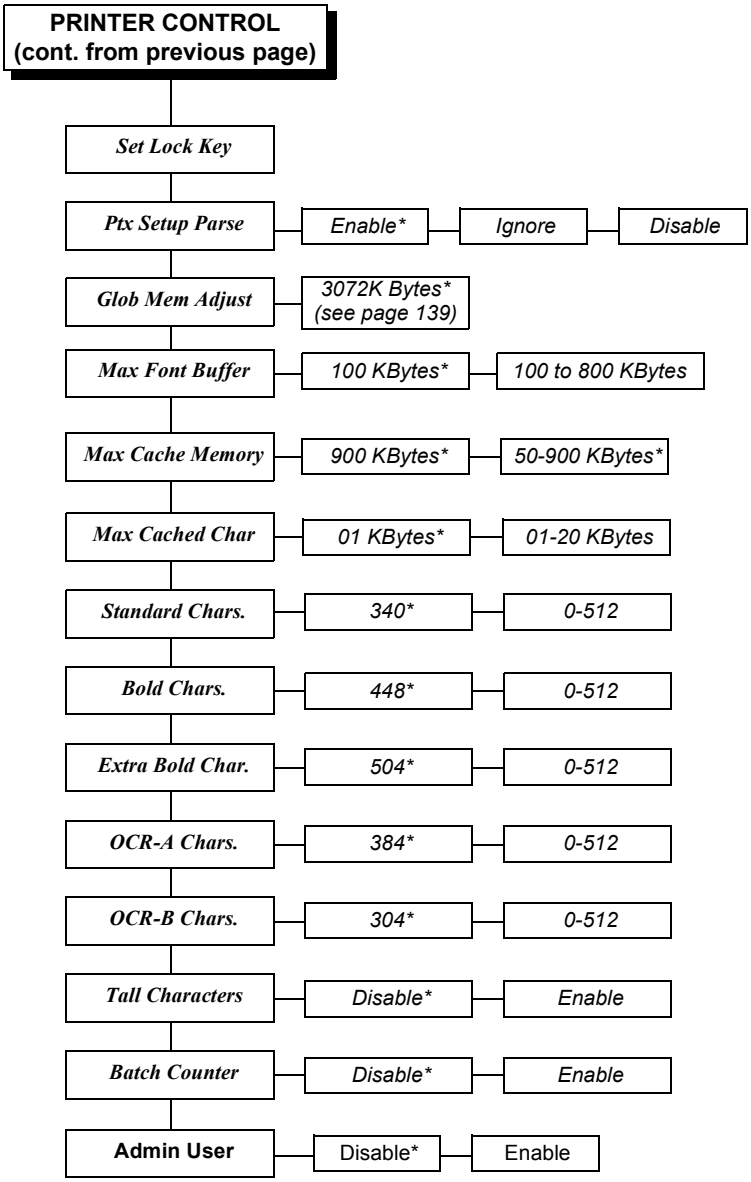
Continued at the top of next page

Notes:

* = Factory Default

Italicized items are available only when Admin User is set to Enable (in the PRINTER CONTROL menu).

[8] Appears only if the PPI/ZGL emulation is installed.



Notes:

* = Factory Default

Italicized items are available only when Admin User is set to Enable (in the PRINTER CONTROL menu).

PRINTER CONTROL Submenus

SMT: Status

See Software Migration Tools (SMT)î in the *RFID Labeling Reference Manual*.

- **Disable** (the default). The printer disables the use of the Software Migration Tools.
- **Enable**. The printer enables the use of the Software Migration Tools.

PAA:Status

See Software Migration Tools (SMT)î in the *RFID Labeling Reference Manual*.

- **Disable** (the default). The printer disables PAA functionality..
- **Enable**. The printer enables PAA functionality..

LP+ Emulation

This item selects the line or dot matrix printer to be emulated by the printer.

- **P-Series** (the default)
- **P-Series XQ**
- **Serial Matrix**
- **Proprinter XL**
- **Epson FX**

CTHI Emulation

This item appears only when the CTHI option is installed.

CTHI Emulation selects the operation of the CTHI option as either a standard or simple protocol converter.

- **Standard** (the default)

  With a standard coax interface, the printer emulates the following IBM coax printer models:

  - 3287 Models 1 and 2
  - 4234 Model 1

  With a standard twinax interface, the printer emulates the following IBM twinax printer models:

  - 4234 Model 2
  - 5225 Models 1, 2, 3, and 4

  The standard Coax/Twinax emulation selection will only be available if Coax or Twinax is selected from the HOST INTERFACE menu.

NOTE: For more information, consult the *Coax/Twinax Programmerís Reference Manual*.

- **Simp Prot Conv (Simple Protocol Converter)**

  The Simple Protocol Converter (SPC) option allows those who use add-on coax or twinax protocol converters to produce the same output on a Printronix thermal printer with the Coax/Twinax (CTHI) capability as done using a non-CT printer with the third party converter interfaces. The SPC gives the printer the operational ability to connect to any PC or network system supporting parallel or serial interfaces, and to three different IBM host systems.

  - System 3x
  - AS/400*
  - 327x Control Units

  The SPC will support the same models for Twinax as the Printronix P7000 printer.

  The printer emulations supported by the SPC are Twinax 5225 and Coax 3287. The SPC also provides a range of interfaces available in your thermal printer: Centronics, serial, coax, and twinax. Also supported are Epson, Proprinter XL, P-Series, Serial Matrix, VGL, and PGL emulations.

  The SPC has the ability to handle multiple print jobs concurrently through coax/twinax and parallel and serial interfaces. This is accomplished through the Auto Switching feature (see .). Because of hardware restrictions, coax and twinax cannot be selected together.

  For more information, refer to the *Coax/Twinax Programmerís Reference Manual* for the Simple Protocol Converter Option.

Host Interface

This option allows you to send print jobs through any interface with auto-switching selected as host interface. It also allows a particular interface from the menu to be selected.

The options are Auto Switching (the default), Centronics, Serial, IEEE 1284, Twinax, Coax, and Ethernet.

NOTE: The Twinax and Coax options appear only if the CT emulation is installed. The Ethernet option appears only if a NIC is installed. The Centronics and IEEE 1284 options do not appear if a NIC is installed.

Active IGP Emul

This function allows you to activate the PGL or VGL emulation. There are two methods for selecting the desired emulation: directly from the printer menu or by sending a host command which will switch the emulation automatically (see the appropriate *Programmerís Reference Manual* for details).

When changing from one IGP emulation to the other, the printer will load the saved configuration. Thus, any setting performed before selecting those interfaces and not saved in NVRAM will be lost.

IMPORTANT **When the ACTIVE IGP EMUL is switched from one IGP emulation to another, the printer will load the settings saved under the Power-Up Config. menu. These settings may not be the current settings in use prior to switching the Active IGP emulation. The Print Mode, Media Sensor, Media Handling, Calibration, Label Length, Label Width, and other settings in use will change to the settings saved under the Power-Up Config. menu. Therefore, insure that all desired settings are saved as the printer Power-Up Config. menu settings *before* you switch the Active IGP emulation.**

The options are IGP/PGL (the default), PPI/ZGL, PPI/TGL, PPI/IGL, PPI/STGL, PPI/DGL, and IGP/VGL.

Power Saver Time

The time interval you specify for this parameter sets the amount of idle time before the printer goes into Power Saver mode.

Pressing any key removes the power saver message from the control panel. Sending a print job to the printer also turns off power saver mode.

The options are 1, 5, 10, 15, 30, 45, 60, and 240 minutes.

The factory default is 15 minutes.

Pwr Save Control

Pwr Save Control allows you to enable and disable Power Saver mode. If enabled, the menu for Power Saver Time is in effect.

The options are Enable (the default) and Disable.

Display Language

This parameter chooses the language that will appear on the LCD: English, German, French, Italian, Spanish, or Portuguese.

The factory default is English.

Alarm

- **On** (the default). An audible alarm sounds (3 beeps) when a fault occurs, such as a paper jam.
- **Cont. Beep**. A continuous audible alarm sounds when a fault occurs, which can be stopped by pressing CLEAR.
- **Off**. No audible alarm sounds.

Power-up State

- **Online** (the default). The printer powers up in the online state.
- **Offline**. The printer powers up in the offline state. This selection must be saved as a power-up configuration to be used.

PTX Setup SFCC

Allows you to choose the hex value of the ASCII character you wish to use as the SFCC for the PTX SETUP command. Valid hex values are 01-FF.

The factory default value is hex 21, which corresponds to the □ character.

Cancel Key

- **Disable** (the default).
- **Enable**. When enabled, the ✘ key may be used in offline mode to clear all data in the print buffer, and deleted data will not be printed.

Compatibility

This parameter allows you to make SLPA series thermal printers compatible with other printers.

When trying to preserve compatibility with respect to barcodes, you may not always be able to make them equal in size. This is due to the various dot-per-inch differences between printer types. When an exact match cannot be made, the barcode is reduced in size so that the form bounds will not be compromised and the barcode will be readable.

- **Default**. Use for optimum performance.
- **Laser**. Forces the output to correspond with the Printronix laser line of printers.
- **P5000**. Forces the output to correspond with the P5000 line of line matrix printers.
- **T3000**. Forces the output to correspond with the T3000 line of thermal printers.
- **T1006**. Forces the output to correspond with the T1006 line of thermal printers.

The factory default is Default.

Set Sharing

This option allows character sets to be shared between the active LP+ protocol and the active emulation. If CT is installed and active, choosing a character set in the CT activates that character set in the active emulation and LP+ protocols. (These changes are not visible on the front panel.) If Set Sharing is not selected, only the LP+ protocol will share the CTís character set.

Del Char frm Fls

This option deletes downloaded character(s) from flash memory.

Ld Char from Fls

This option loads downloaded character(s) from flash memory.

Save Char to Fls

This option saves downloaded character(s) to flash memory.

Del Char frm RAM

This option deletes downloaded character(s) from RAM.

Ld Char at PwrUp

This option loads downloaded character(s) from flash memory at Power Up.

The options are Disable (the default) and Enable.

Del Set frm Flsh

This option deletes downloaded overlay set(s) from flash memory.

Ld Set from Flsh

This option loads downloaded overlay set(s) from flash memory.

Save Set to Flsh

This option saves downloaded overlay set(s) to flash memory.

Del Set from RAM

This option deletes the downloaded overlay set(s) from RAM.

Ld Set at PwrUp

This option loads the downloaded overlay set from flash memory at Power Up.

The options are Disable (the default) and Enable.

Overwrite Files

This allows you to prevent files from being overwritten by disabling the overwrite function.

The options are Enable (the default) and Disable.

View File List

Displays the list of files in the file system. Pressing ↓ displays the file size.

Delete Files

Allows you to delete files in the file list. Contact your administrator for assistance.

Flash Avail.

The amount of flash available for the user to save or download files into flash.

Optimize&Reboot

Reclaims flash space from deleted flash files. After pressing ↵ wait for the printer to reboot.

Print File List

Prints a summary of the files stored in flash memory and several statistics on File System usage.

Auto Locking

- **Disable** (the default). The ↵ (ENTER) key must be locked manually.
- **Enable**. The printer automatically locks the ↵ key five minutes after the last control panel key press.

Set Lock Key

Normally, to lock or unlock the printer menu, the ↓ and ↵ keys are pressed at the same time. The Set Lock Key parameter lets you choose different keys to lock or unlock the printer menu. You may choose almost any group of keys as the new lock and unlock keys. You cannot use the ↵ key or any key combinations which are already used for another function. There is no limit to how many keys can be selected.

To set the new lock key:

1. Go to the PRINTER CONTROL main menu and select "Set Lock Key.î
2. Press ↵. The display reads, "Select a new lock key.î
3. Press the combination of keys that you want to be the new lock key. Make sure you press all keys selected at the same time.
4. If the selection is valid, the display will read, "Enter the new lock key again.î Press the same combination of keys a second time. If the selection is invalid, the display will read, "Invalid key selection.î Return to step 2 and start over.
5. If the new lock key combination is entered again correctly, the display will read, "Lock key has been changed.î If it was entered incorrectly, the display will read, "Validation failed.î Start over at step 1.
6. After entering the new lock combination successfully, press the PAUSE key to put the printer back online.

NOTE: The new lock combination will remain even if the printer is powered off and back on.

Ptx Setup Parse

- **Enable** (the default). Will parse and execute the PTX SETUP commands.
- **Ignore**. Will parse the PTX SETUP commands but not act on them.
- **Disable**. Will not parse the PTX SETUP commands so they will print out as text.

Glob Mem Adjust

This menu allows you to adjust the ratio of global memory allocated to label size versus PGL forms, fonts, and logos. For example, when using short labels, you can allocate more memory to forms, fonts, and logos by increasing the Glob Mem Adjust value. The default settings and adjustment ranges depend upon the amount of installed printer DRAM and are listed below.

NOTE: You can find the amount of installed DRAM in two ways: listed at the top of your configuration printout next to DRAMî or from the control panel via the DIAGNOSTIC menu next to the DRAM Installed option.

DRAM Installed	8 MB	16 MB
Factory Default	0.5 MB	3 MB
Range	0 to 1 MB	0 to 9 MB

Max Font Buffer

The maximum amount of DRAM allocated for downloading fonts (True-Type, Scalable, or Bit Map).

The range is 100 to 800 Kbytes, and the factory default is 100 Kbytes.

Max Cache Memory

The Maximum Cache Memory option specifies the size of the memory block that can be allocated to the font cache. The font cache stores bitmaps that are created on demand from the font outlines stored on the printer flash. The cache allows the printer to print scalable fonts at optimum speed.

To calculate the memory requirement, use this equation:

horizontal resolution x	vertical resolution x	average character height (inches) x	average character width (inches) x	# of characters to be cached
		8		

The allowable range is 50 KBytes through 900 KBytes in 50-KByte increments.

The factory default is 900 KB.

NOTE: For most applications, the default settings for font memory are acceptable. Therefore, do not change the defaults unless your application requires an uncommon memory configuration.

Max Cached Char

The Maximum Cached Characters option specifies the size of the largest character that can be stored in the font cache. To calculate the memory requirement, use this equation:

$$\frac{\text{horizontal resolution} \times \text{vertical resolution} \times \text{average character height (inches)} \times \text{character width (inches)}}{8}$$

For example, with a print head that prints at 203 dpi you would use the following formula:

$$\frac{203 \times 203 \times 1 \times 1}{8} = 5{,}151$$

Therefore, select a value that is equal to or greater than 5,151. The closest available value is 6 KBytes.

The allowable range is 1 KByte through 20 KBytes, in 1-KByte increments.

The factory default is 01 KBytes.

NOTE: For most applications, the default settings for font memory are acceptable. Therefore, do not change the defaults unless your application requires an uncommon memory configuration.

Standard Chars.

This menu entry permits you to adjust the thickness or font weight of standard text fonts.

The range is 0 to 512, and the factory default is 340.

Bold Chars.

This menu entry permits you to adjust the thickness or font weight of bold text fonts. This menu will not take effect unless you save it in a configuration and the printer is powered up with that configuration.

The range is 0 to 512, and the factory default is 448.

Extra Bold Char.

This menu entry permits you to adjust the thickness or font weight of extra bold text fonts.

The range is 0 to 512, and the factory default is 504.

NOTE: For most applications, the default settings for font memory are acceptable. Therefore, do not change the defaults unless your application requires an uncommon memory configuration.

OCR-A Chars.

Character weight adjustment of resident OCR-A characters.

The range is 0 to 512, and the factory default is 384.

OCR-B Chars.

Character weight adjustment of resident OCR-B characters.

The range is 0 to 512, and the factory default is 304.

Tall Characters

Increases the point height of resident Intellifont characters.

- **Disable** (the default). Standard resident font character point height is maintained.
- **Enable**. Increases the point height of resident Intellifont characters approximately 10%.

Batch Counter

Displays the number of pages remaining in a print job.

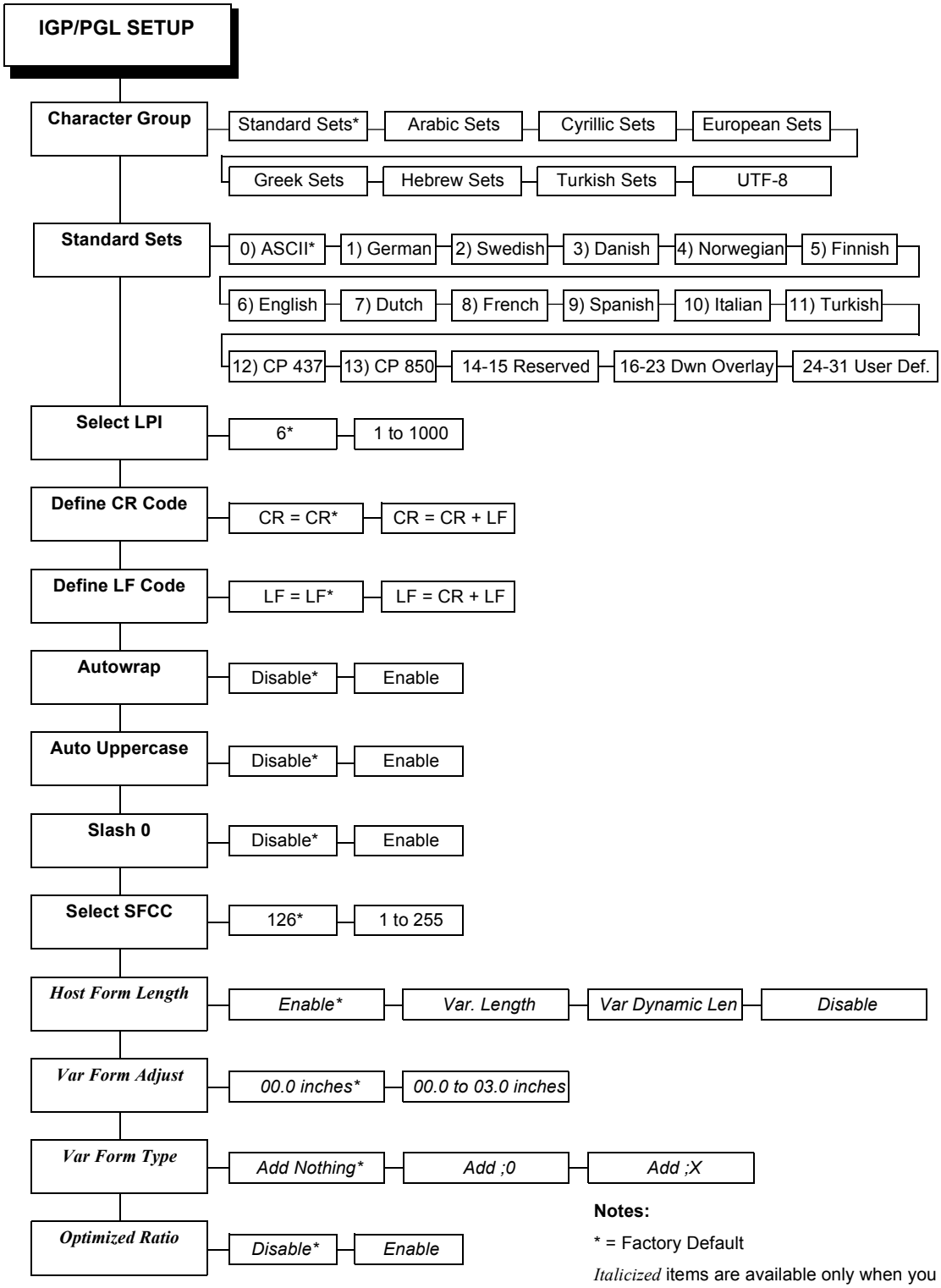
- **Disable** (the default). The # Pages remaining to be printed will not display. Instead, the Active emulation and interface will display on the second line of the control panel LCD.
- **Enable**. The # Pages remaining to be printed will display on the second line of the control panel LCD. This feature is supported in PGL and PPI1 only. The PGL Execute command to support this feature is: ~EXECUTE;NAME;(#Pages). The PPI/ZGL Execute command is: ^PQ(#Pages).

NOTE: If the correct execute command is absent from the print file, □0 Pagesî will continually display on the control panel LCD.

Admin User

- **Disable** (the default).
- **Enable**. When enabled, this function permits access to submenus which would not normally be changed by a typical user.

IGP/PGL SETUP Menu

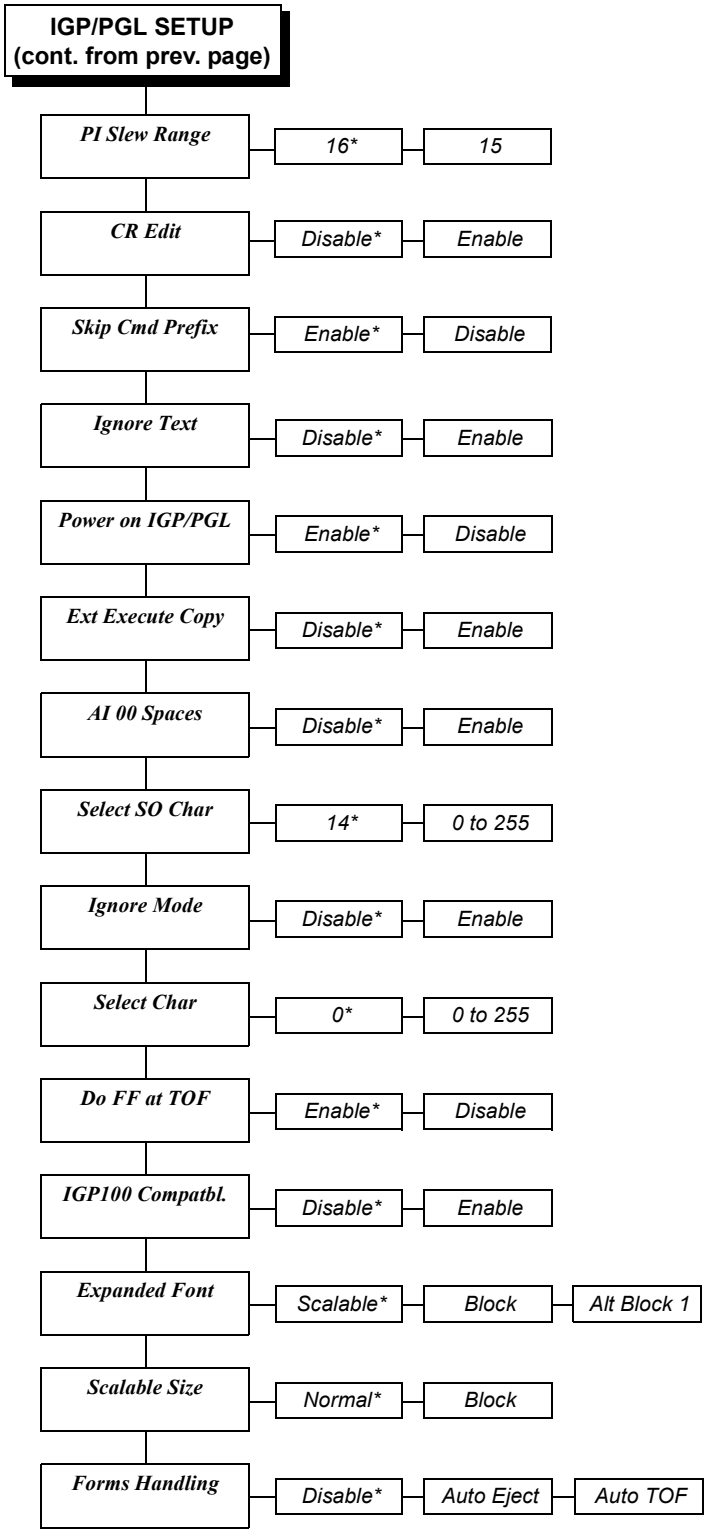


Notes:

* = Factory Default

Italicized items are available only when you enable Admin User (in the PRINTER CONTROL menu).

Continued at the top of next page

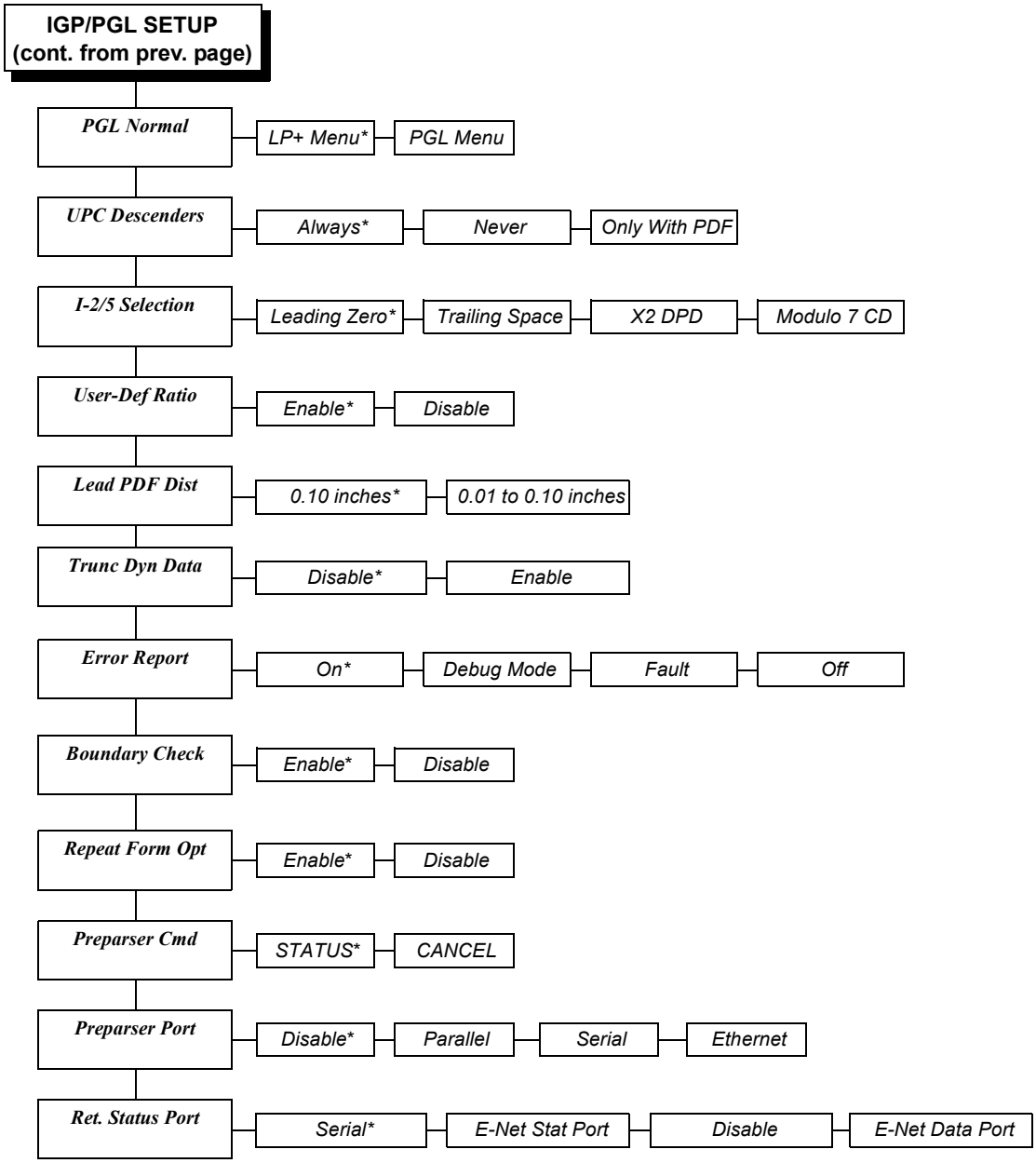


Notes:

* = Factory Default

Italicized items are available only when you enable Admin User (in the PRINTER CONTROL menu).

Continued at the top of next page



Notes:

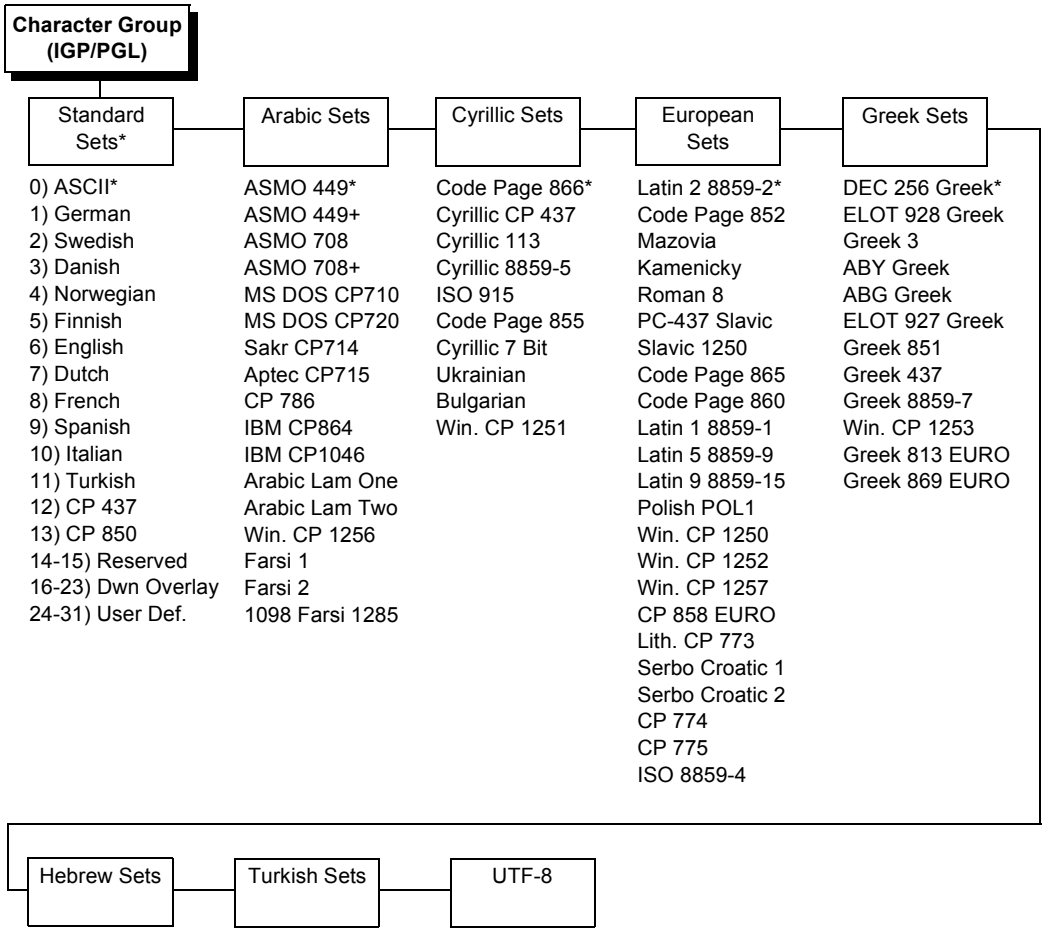
* = Factory Default

Italicized items are available only when you enable Admin User (in the PRINTER CONTROL menu).

IPG/PGL Setup Submenus

Character Group and Character Sets (IGP/PGL)

This menu item selects the character set used by the printer. The available character sets are shown below.



Notes:

* = Factory Default.

To access the desired basic character set, use the + and - keys. To select the set, press the ↵ key. After you have selected the basic set, access the subset selection menu by pressing the ↓ key. Once in the subset menu, access the desired subset by pressing the + and - keys and select it by pressing the ↵ key.

Select LPI

This is the number of lines to be printed per inch. For example, at 6 lpi there is 1/6 inch from the top of one print line to the top of the next print line.

The options are 6.0, 8.0, and 10.3 LPI.

The factory default is 6.0 LPI.

Define CR code

This option controls the action of the printer when it receives a Carriage Return code (0D hex) from the host computer. If this feature is enabled, each time the printer receives a carriage return, it inserts an additional Line Feed code (0A hex) into the data stream. Do not use this feature if the host computer sends line feeds to the printer.

NOTE: For this menu to take effect in PGL, PGL Normal needs to be set to PGL Menu (see page 143).

- **CR = CR** (the default). Does not insert an extra line feed after each carriage return.
- **CR = CR + LF**. Inserts an extra line feed after each carriage return. The next print position will be print position 1 of the next line.

Define LF Code

This parameter forces the printer to insert an automatic Carriage Return code into the data stream whenever a Line Feed code occurs. This can be used in most installations, but it is required if the host computer does not send carriage returns to the printer.

NOTE: For this menu to take effect in PGL, PGL Normal needs to be set to PGL Menu (see page 143).

- **LF = LF** (the default). Does not perform an automatic carriage return. The next print position will be at the current print character position on the next line.
- **LF = CR + LF**. Performs an automatic carriage return. The next print position will be print position 1 of the next line.

Autowrap

This parameter determines if text will wrap to the next line when the line of text exceeds the right margin.

- **Disable** (the default). Truncates the text beyond the right margin until a CR or CR + LF is received.
- **Enable**. Automatically inserts a CR + LF after a full print line.

Auto Uppercase

This parameter enables the printer to print text in all uppercase when using the ALPHA command.

- **Disable** (the default). The printer will print text in upper and lowercase.
- **Enable**. The printer will print text in uppercase only.

Slash 0

This parameter allows you to print the numeral "0" with or without the slash. This option applies to all character sets except OCR A and OCR B.

- **Disable** (the default). Zero is printed without a slash.
- **Enable**. Zero is printed with a slash.

Select SFCC

You can specify which decimal code (1-255) will be used as the Special Function Control Code (SFCC). The SFCC denotes that the following data is a PGL command.

The range is 1-255, and the factory default is 126.

Host Form Length

Determines how the physical label length (see Label Length under the MEDIA CONTROL menu) is affected upon receiving an EXECUTE command.

- **Enable** (the default). The physical label length will change to match the form length (specified in CREATE command). The physical label size remains at the new setting until another EXECUTE command is received, or the PRINTER CONTROL menu settings are changed.
- **Var. Length**. The physical label length is the longest print element plus the setting of "Var Form Adjust."
- **Var Dynamic Len**. The physical label length will change to the longest print element defined in CREATE mode plus the setting of "Var Form Adjust."
- **Disable**. Forms printed in EXECUTE mode do not change the physical label size. Therefore, the size of the form (defined in CREATE mode) must fit within the current label dimensions, or errors may occur.

NOTE: Changing the form length via the EXECUTE command changes the LP+ Emulation logical dimensions.

Var Form Adjust

This specifies an amount (in tenths of inches) to add to the length of variable-length forms. Variable-length forms use a semicolon at the end of the CREATE command: ~CREATE;<FORMNAME>;0.

Typically, variable-length forms are determined by the elements within the form. The longest form element becomes the overall form length. This option allows an additional space to be added to the form length.

The range is 00.0 to 03.0 inches, and the factory default is 00.0 inches.

Var Form Type

- **Add Nothing** (the default). When selected, no action is taken.
- **Add ;0**. When selected, the form length ends at the longest printed element. (Same as ~CREATE;filename;0)
- **Add ;X**. When selected, the form length is the same as the physical page length (the Label Length menu under MEDIA CONTROL). (Same as ~CREATE;filename;X)

Optimized Ratio

This option selects different bar code ratios for certain bar codes including Code 39 and Interleaved 2 of 5. It is included for compatibility with the IGP-X00 printers.

- **Disable** (the default). Use standard bar code ratios.
- **Enable**. Select the alternate bar code ratios.

PI Slew Range

You can specify how many lines the paper will feed.

- **15**. A paper slew of 1-15 will move 1-15 lines. A paper slew of 0 will move 1 line.
- **16** (the default). A paper slew of 0-15 will move 1-16 lines.

CR Edit

This parameter determines if a carriage return will be followed by a line feed.

- **Disable** (the default). The printer ignores all carriage returns that are not followed by line feeds.
- **Enable**. The printer processes all carriage returns, even for those that are not followed by line feeds.

Skip Cmd Prefix

Stands for Skip Command Prefix. This parameter determines if the printer will print any data before a PGL command is received.

- **Enable** (the default). The printer ignores all data before a PGL command.
- **Disable**. The printer will print all data before a PGL command.

Ignore Text

- **Disable** (the default). When disabled, text in normal mode will be printed. Attributes to be printed depend on the PGL Normal menu setting.
- **Enable**. When enabled, any line of text (non-PGL commands) in normal mode will be ignored.

Power on IGP/PGL

You can set the IGP/PGL feature so that it is enabled or disabled when the printer is powered on.

- **Enable** (the default). The IGP/PGL is enabled when the printer is powered on. (The IGP/PGL feature is initialized in the Normal mode.)
- **Disable**. The IGP/PGL is disabled when the printer is powered on. (The IGP/PGL feature is initialized to the Quiet mode.)

Ext Execute Copy

- **Disable** (the default). Dynamic data, overlay data, etc. are not allowed if the optional Form Count parameter (number of forms to print) is specified as part of the Execute command. (This setting is IGP-100 compatible.)
- **Enable**. Dynamic data, overlay data, etc. are allowed within a form where the Form Count parameter is specified in the Execute command. In this case, the same form is printed for whatever the Form Count is. Incremental data is not incremented since the printing page is the same. The overlay data is only printed with the first form and not on subsequent forms, and each form is printed on a separate page.

AI 00 Spaces

This option is designated for EAN/UCC-128 barcodes whose application identifier (AI) is 00.

- **Disable** (the default). The printable data field is printed with the AI enclosed in parentheses. This is the standard EAN/UCC-128 format.
- **Enable**. The printable data field is printed with the UCC fields separated by spaces. This option is IGP-X00 compatible.

Select SO Char

Allows you to specify a decimal code from 0 through 255 to be used in place of SO (Shift Out) as the control code which allows access for the alternate set of control function characters. See the description of the Code 128 barcodes in the *PGL Programmer's Reference Manual* for details.

The range is 0-255, and the factory default is 14.

Ignore Mode

This parameter instructs the IGP to ignore the character selected under the Select Character menu.

- **Disable** (the default). The IGP does not ignore any characters.
- **Enable**. The IGP ignores the character specified in the Select Character menu.

Select Char

Instructs the IGP which decimal character (0-255) to ignore from the host.

The range is 0 to 255, and the factory default is 0.

Do FF at TOF

Determines whether the printer, with media already set at the TOF (Top-of-Form) position, will advance media to the next TOF position upon receipt of an FF command.

- **Enable** (the default). The printer will advance media from the present TOF position to the next TOF position upon receipt of an FF command, causing a blank form.
- **Disable**. The printer will not advance media from the present TOF position to the next TOF position upon receipt of an FF command.

IGP100 Compatibl.

This parameter forces the output to correspond with IGP-100 printer output in cases where there are differences.

The options are Disable (the default) and Enable.

Expanded Font

Expanded font allows you to print characters in different sizes with specified parameters and to select which font face to use.

- **Scalable** (the default). Uses scalable fonts.
- **Block**. Uses block fonts.
- **Alt Block 1**. Uses alternative block fonts with a different character set.

Scalable Size

This option determines whether scalable characters are sized based on normal scaling or based on the size of block characters. If the option Block is set, then the scalable character are made to be the same size as block characters in the old IGP-X00 printers.

The options are Normal (the default) and Block.

Forms Handling

This submenu allows the user to handle the form in the following ways:

- **Disable** (the default). No effect.
- **Auto Eject**. Automatically ejects a page at the end of the job to spill out the last page.
- **Auto TOF**. Automatically does a form feed (FF) at the end of each form to the next top of form.

PGL Normal

This option determines whether PGL passes the text data in Normal mode according to LP+ or whether PGL will print the text data itself.

- **LP+ Menu** (the default). PGL will pass the text data to LP+ only in the default setting state (6 LPI, default character set, and font attribute).
- **PGL Menu**. PGL will always print the text data itself.

UPC Descenders

This parameter allows you to print bar code descenders when human readable data is not presented in the UPC/EAN bar codes.

- **Always** (the default). UPC/EAN bar codes are printed with descenders, even if there is no human readable data.
- **Never**. UPC/EAN bar codes are printed without descenders if the PDF command is present.
- **Only With PDF**. UPC/EAN bar codes are printed with descenders only when the PDF command is presented.

I-2/5 Selection

This option is added to be compatible with a special IGP-X00 customization. Usually, if Interleaved 2/5 bar codes have an odd number of digits, a leading zero is inserted in front of the data. However, this special IGP-X00 customization gives you the option of adding a space character at the end of the bar code instead.

- **Leading Zero** (the default). A leading zero is inserted in front of the data.
- **Trailing Space**. A space is inserted at the end of the data instead of a leading zero.
- **X2 DPD**. When selected, I-2/5 bar code with a magnification X2 will use the specially configured ratios 3:3:6:5 rather than 3:6:9:12 for compatibility issues.
- **Modulo 7 CD**. The I-2/5 bar code uses a modulo 7 check digit instead of the default modulo 10 check digit.

User-Def Ratio

This option allows you to ignore the user-defined barcode ratio and replace it with the default ratio (X1).

- **Enable** (the default). Allows the user-defined barcode ratio.
- **Disable**. The user-defined barcode ratio will be replaced with the default ratio (X1).

Lead PDF Dist

Adjusts the leading and trailing character spacing distance of the PDF for UPC/EAN barcodes.

The range is 0.01- 0.10 inches in 0.01 inch increments, and the factory default is 0.10 inches.

Trunc Dyn Data

This submenu allows the user to truncate the dynamic data up to the maximum data length specified in Create Mode.

- **Disable** (the default). If the dynamic data exceeds the maximum data length, an error will report.
- **Enable**. If the dynamic data exceeds the maximum data length, the data truncates.

Error Report

This item sets the error reporting capability of the printer for PGL forms as follows:

- **On** (the default). Full error checking reported. Any element that falls off the current page is reported as an error.
- **Debug Mode**. Puts the printer in debug mode whenever a form is defined in CREATE mode. Each line of the CREATE form will be printed along with an error if one has occurred.
- **Fault**. Allows you to halt the printer if a PGL error occurs. If you select this option, the PGL error prints on the paper, the message IGP/PGL Errorî displays on the front panel, and the printer goes offline. You must clear the error before the printer can resume normal operation.
- **Off**. There is no error checking whatsoever. Graphic elements such as alpha, line, barcodes, etc. will be clipped if they are beyond the page boundaries.

Boundary Check

This option turns on or off the page boundary check for all print elements.

- **Enable** (the default). When enabled, an out of bound error is reported if the print element is out of the page boundary.
- **Disabled**. When disabled, no out of bound error is reported. The out of bound print element prints over the page boundary.

Repeat Form Opt

- **Enable** (the default). Speeds up the processing of repeated forms for PGL, thereby resulting in increased printer throughput. This option provides no speed benefit for forms that are unrelated to one another and should be disabled under those circumstances.
- **Disable**. Should be selected when subsequent forms are unrelated to one another.

Preparser Cmd

Allows users to select which preparser command to use. Once the command is selected, the command will be executed immediately when it is sent to the printer.

- **Status** (the default). Select (STCC) STATUS command.
- **Cancel**. Select (STCC) CANCEL command.

Preparser Port

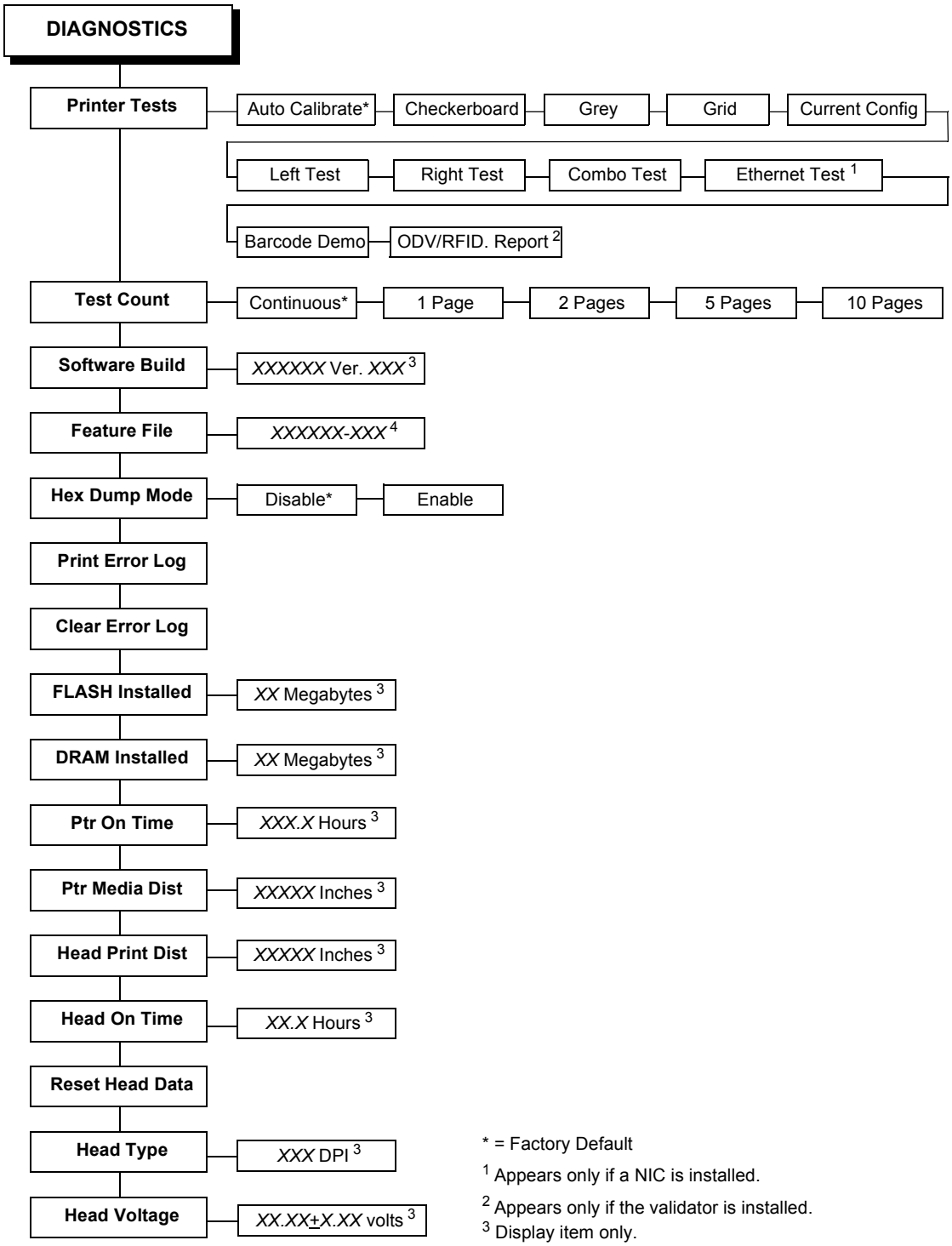
Allows users to select which port to send the Preparser command to the printer.

- **Disable** (the default). Not using the Preparser command.
- **Parallel**. The Parallel port (including attached Ethernet card).
- **Serial**. The Serial port.
- **Ethernet**. The embedded Ethernet port. This option only shows when the embedded ethernet is installed.

Ret. Status Port

This option selects the port for the Return Status Commands (i.e., ~STATUS (PGL) and ~HS (PPI/ZGL)) to send the status data back to the Host. The default is Serial. The remaining options include E-NET Stat Port, E-NET Data Port for Ethernet connection, and Disable.

DIAGNOSTICS Menu



* = Factory Default

[1] Appears only if a NIC is installed.

[2] Appears only if the validator is installed.

[3] Display item only.

[4] A part number appears only if a feature file has been downloaded to the printer.

DIAGNOSTICS Submenus

Printer Tests

The printer tests below allow you to check for proper printer operation and print quality:

- **Auto Calibrate** (the default). Senses paperout, perforation, gap, or mark, and calibrates the printer for the currently installed media.
- **Checkerboard**. This pattern helps identify marginal printhead elements, quality of edge sharpness, and uneven print quality.
- **Grey**. This pattern helps identify burned out printhead elements and uneven print quality.
- **Grid**. This pattern helps identify edge sharpness and uneven print quality.
- **Current Config**. Prints the current printer configuration and helps identify the text print quality.
- **Left Test**. Prints a pattern containing a series of ladder-type bar code symbols, starting with four and decrementing by one symbol on each print until a single symbol prints on the *left* side. This pattern helps identify ribbon wrinkle problems.
- **Right Test**. Prints a pattern containing a series of ladder-type bar code symbols, starting with four and decrementing by one symbol on each print until a single symbol prints on the *right* side. This pattern helps identify ribbon wrinkle problems.
- **Combo Test.** Prints a combined left test and right test.
- **Ethernet Test**. This item appears only if a NIC is installed. Prints the ethernet statistics stored on the NIC.
- **Barcode Demo**. Prints text and barcodes with the barcodes positioned at the left and right margins of the standard label media supplied with the printer. The test automatically produces output for 4, 6, and 8 inch printers at 203 dpi and 300 dpi.
- **ODV/RFID Report**. This item appears only if the validator is installed. Prints a report of the validation statistics since the printer was turned on or since the last data reset.

Once you have selected the desired test pattern, press ↵ to start printing. If the Test Count option (below) is set to Continuous (the default), press ↵ again to stop printing.

Test Count

This item selects the number of times the selected test pattern will be printed.

The options are Continuous (the default), 1 Page, 2 Pages, 5 Pages, and 10 Pages.

Software Build

This is the reference number which includes the program file part number and revision number of the software installed in the printer, e.g., 358186 V1.07G.

Feature File

Displays the part number only when a feature file has been installed.

Hex Dump Mode

- **Disable** (the default).
- **Enable**. The printer prints out data sent from the host in hexadecimal format.

Print Error Log

Prints the current log of errors. Most non-routine faults (RIBBON FAULT, PRINT HEAD HOT) are stored in the error log.

Clear Error Log

Clears entries in the error log.

FLASH Installed

Displays the amount of FLASH memory installed in megabytes.

DRAM Installed

Displays the amount of DRAM installed in megabytes.

Ptr On Time

Displays the cumulative time in hours the printer has been powered on. This value is set to zero at the factory after burn-in testing.

Ptr Media Dist

Displays the cumulative number of inches the printer has moved media. This value is set to zero at the factory after burn-in testing.

Head Print Dist

Displays the length of media actually printed since the last Reset Head Data operation. This value is set to zero at the factory after burn-in testing.

Head On Time

Displays the time that power has been applied to the printhead since the last Reset Head Data operation. This value is set to zero at the factory after burn-in testing.

Reset Head Data

Resets all printhead statistics values (Head Prt Dist and Head On Time) to zero.

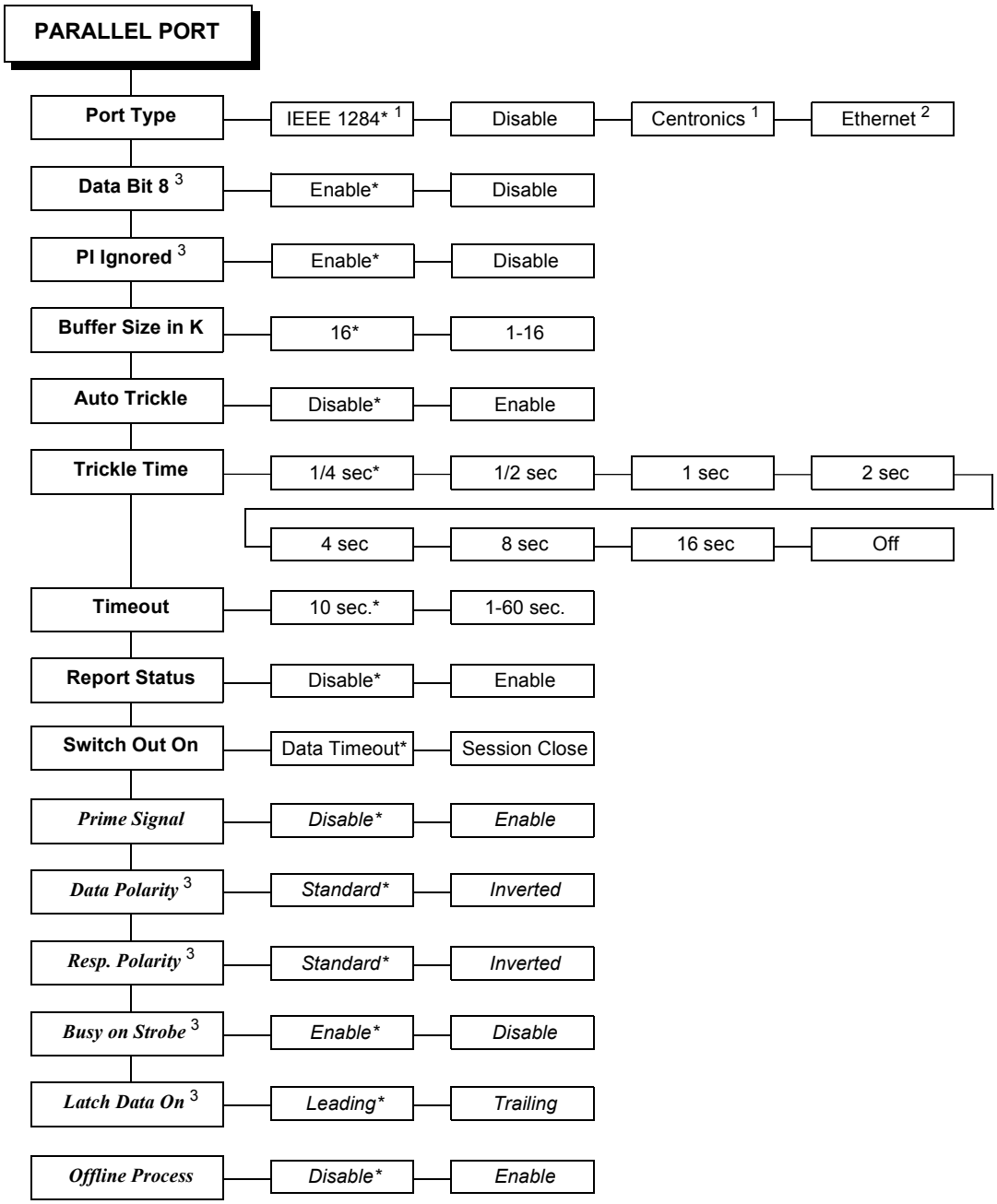
Head Type

Displays the printhead type installed in dots per inch (203 dpi or 300 dpi).

Head Voltage

Displays the applied printhead voltage.

PARALLEL PORT Menu



Notes:

* = Factory Default

Italicized items are available only when Admin User is enabled (in the PRINTER CONTROL menu).

[1] Does not display when Ethernet is installed.

[2] Available only when Ethernet is installed.

[3] Available only when the Centronics option is enabled (in the Port Type submenu of PARALLEL PORT).

PARALLEL PORT Submenus

Port Type

This menu item selects the type of printer parallel port interface to be used with the host.

The options are IEEE 1284 (the default), Disable, Centronics, and Ethernet.

NOTE: The Ethernet option is available only if Ethernet is installed. When Ethernet is installed, the IEEE 1284 and Centronics options do not display.

Data Bit 8

- **Enable** (the default). The PI line is not passed directly from host to printer; all 8 bits are used for data bits, and characters in the hex 80-FF range can be accessed.
- **Disable**. When the host PI line is enabled, data bit 8 internally indicates PI line status. To use the PI line, disable data bit 8, and enable the Host PI configuration option (under the PI Ignored option).

NOTE: Data bit 8 is interpreted as either data bit 8 or PI signal, but never both. When enabled as data bit 8, data bit 8 has priority over the PI signal, and all data above hex 7F is used to access character data and not to interpret PI line data.

Conversely, when data bit 8 is disabled and the PI signal is used, data bit 8 of the data is reserved for use as the PI function, and you cannot access characters in the hex 80-FF range. Therefore, to access characters in the hex 80-FF range, data bit 8 must be enabled.

PI Ignored

The PI (Paper Instruction) signal is used to control vertical paper motion.

- **Enable** (the default). Ignores the PI signal and treats the data as characters or control codes.
- **Disable**. Causes the printer to interpret the eight data lines as VFU commands when the PI signal is true.

Buffer Size in K

This option configures the amount of memory allocated for the Ethernet buffer. The range is 1-16 Kbytes, in 1-Kbyte increments.

The factory default is 16 Kbytes.

Auto Trickle

This feature is used to prevent a host computer from "timing out" because the parallel interface is "busy" for too long.

- **Enable**. When the printer's buffers are almost full, the printer begins to trickle data in from the host (at the rate set in the Trickle Time menu) until the buffers start to empty out.
- **Disable** (the default). The Auto Trickle feature is not used.

Trickle Time

When the printer is printing data from a host and a second print job is received by the printer from a different host, Trickle Time prevents the second host from timing out while it is waiting for its data to be printed. In order to support this feature, the port has to be able to accept data from the host and store it for future use.

For example, if the printer is printing a job from the serial port, and then receives a second print job from the parallel port, the data from the parallel port will "trickle" bit by bit into the printer buffer to prevent a timeout error from being sent back to the host connected to the parallel port.

The selected value is the time that the printer waits before getting the next byte of data from the host. The Trickle Time value should be less than the host time out value, but not too much shorter or else the printer fills up its buffer too fast. This function is not applicable for C/T hotport.

The options are 1/4, 1/2, 1, 2, 4, 8, and 16 seconds and Off.

The factory default is 1/4 second.

Timeout

This is the value used by the printer to time out from the current port and check the other selected port types for data to print. When the printer has not received data from the host after a certain period of time, it needs to time out in order to service the other ports.

The range is 1 to 60 seconds, and the factory default is 10 seconds.

Report Status

- **Disable** (the default). When a fault occurs on the printer, only the active port reports the fault to the host.
- **Enable**. The port will report any fault even when it is not the current active port.

Switch Out On

- **Data Timeout** (the default). Allows Autoswitching when no data has been received for the selected Time Out period.
- **Session Close**. Allows Autoswitching only when the Network Socket is closed. If the Ethernet Adapter is not installed the Network Socket is always reported as closed and this menu option is ignored.

Prime Signal

- **Disable** (the default). The parallel port will not perform a warm start (reboot) if the host asserts the Prime Signal.
- **Enable**. The parallel port will perform a warm start (reboot) if the host asserts the Prime Signal.

Data Polarity

The Data Polarity parameter must be set to match the data polarity of your host computer.

- **Standard** (the default). Does not expect the host computer to invert the data.
- **Inverted**. Expects the data received on the data lines from the host computer to be inverted. Ones become zeros and vice versa.

Resp. Polarity

The Response Polarity parameter must be set to match the response polarity of your host computer.

- **Standard** (the default). Does not invert the response signal.
- **Inverted**. Inverts the response signal sent to the host computer.

Busy on Strobe

- **Enable** (the default). Asserts a busy signal after each character is received.
- **Disable**. Asserts a busy signal only when the print buffers are full.

Latch Data On

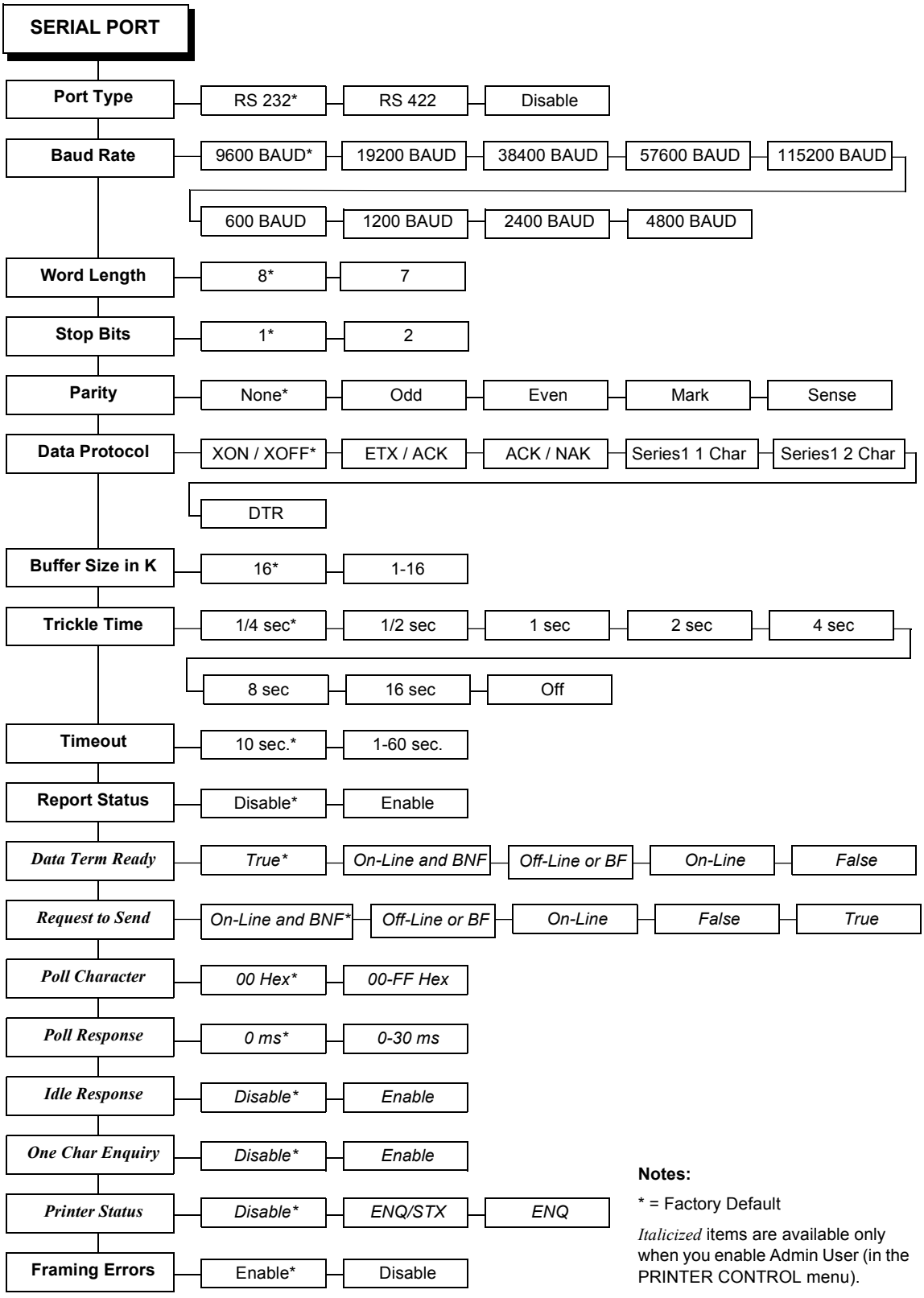
Specifies whether the data is read on the leading or trailing edge of the data strobe signal.

The options are Leading (the default) and Trailing.

Offline Process

- **Disable** (the default). When set to disable, the printer does not process parallel/network data while offline.
- **Enable**. When set to enable, the printer continues to process (but not print) the current network/parallel job while the printer is offline until the printer's buffer is full.

SERIAL PORT Menu



Notes:

* = Factory Default

Italicized items are available only when you enable Admin User (in the PRINTER CONTROL menu).

SERIAL PORT Submenus

Port Type

This item allows you to select the type of printer serial port interface, RS-232 or RS-422, to be used with its host. The serial port can also be disabled.

The factory default is RS 232.

Baud Rate

Sets the baud rate of the serial interface in the printer. Baud rate is the speed at which serial data is transferred between the host computer and the printer. The options for the RS-232 and RS-422 interfaces are 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, and 115200 Baud.

NOTE: If you select a baud rate that is greater than 19200 and you experience data loss, you may need to lower the baud rate or use RS-422. You also may need to increase the Buffer Size in K parameter from the default (1 Kbyte) to improve performance.

The factory default is 9600.

Word Length

Sets the length of the serial data word. The length of the data word can be set to 7 or 8 bits and must match the corresponding data bits setting in the host computer.

The factory default is 8.

Stop Bits

Sets the number of stop bits in the serial data word. Either 1 or 2 stop bits can be selected. The setting must match the corresponding stop bit setting in the host computer.

The factory default is 1.

Parity

The options are Odd, Even, Mark, Sense, or None. The setting must match the corresponding parity setting in the host computer.

The factory default is None.

Data Protocol

You can select one of the following serial interface protocols to meet the host interface requirements.

- **XON / XOFF** (the default). The printer controls the flow of communication from the host by turning the transmission on and off. In some situations, such as when the buffer is full or the timing of signals is too slow or too fast, the printer will tell the host to stop transmission by sending an XOFF character. An XOFF character is sent when the number of empty bytes in the buffer is less than or equal to 25 percent of the buffer size. If the host keeps sending data after an XOFF is sent, the printer firmware will continue to send an XOFF for every 16 characters received. When cleared, the printer will resume receiving data (XON). The data does not have any End of Text codes; XON / XOFF is a non-block protocol.
- **ETX / ACK**. End of Text / Acknowledge. The host controls the flow of communication to the printer by sending a block of data and ending the block with an End of Text (ETX) signal. When the printer receives the ETX signal, it will acknowledge the ETX, thereby acknowledging it has received the entire block of data.
- **ACK / NAK**. ACK means acknowledge; the device acknowledges it has accepted a transmission. NAK means negative acknowledge; the device did not receive the transmission.
- **Series1 1 Char**. The printer controls the flow of communication from the host by turning the transmission on and off using response characters sent to the host. If the number of valid bytes in the buffer reaches 75 percent of the buffer size, the online or offline and buffer full response character is sent. If the buffer is completely full, an online or offline buffer full response is sent every time a character is sent from the host. Whenever the printer state changes to online or offline, the appropriate response character is sent. If the idle response option is enabled, the printer will send a response character every two seconds while the number of valid bytes in the buffer is less than 75 percent of the buffer size. If a poll character is received (configurable from the Poll Character *xx* Hex option on the front panel from hex 0 through FF), the printer will send a response character n milliseconds later (configurable from the Poll Character *xx* MS on the front panel from 0 through 30). This *n* milliseconds is called the poll delay. The poll character will be removed from the input data stream and will not be processed. This may cause problems with the transmission of binary data (e.g., control codes, bit image, etc.). If a poll delay is started due to the receipt of a poll character and another poll character is received, the second poll character has no effect and is removed from the input data stream. If a transition (from buffer full to empty or online to offline) occurs during a poll delay, the new printer state will be sent at the end of the poll delay.

The response characters are described below.

Printer State	Response
Online and Buffer Empty	CR
Online and Buffer Full	3
Offline and Buffer Empty	0
Offline and Buffer Full	2

- **Series1 2 Char.** This protocol behaves exactly the same as the Series 1 Char except there is a two-character response to the host. The response characters are described in the following table:

Printer State	Response
Online and Buffer Empty	1 CR
Online and Buffer Full	3 CR
Offline and Buffer Empty	0 CR
Offline and Buffer Full	2 CR

- **DTR**. The printer controls the data flow by sending this hardware signal to the host. If there is enough room in the printer buffer, the printer will send a high signal; if the buffer is full, the printer will send a low signal. DTR tells the host if it is safe to send more data. (If the host sends data during an unsafe condition, data will be lost.) DTR is not available when RS-422 is selected.

Buffer Size in K

This option configures the amount of memory allocated for the serial port buffer. The range is 1-16 Kbytes, in 1-Kbyte increments.

NOTE: If you select a baud rate that is 19200 or greater, you may need to increase the Buffer Size in K parameter from the default to 16 Kbytes to improve performance.

The factory default is 16.

Trickle Time

When the printer is printing data from a host and a second job is received by the printer from a different host, Trickle Time prevents the second host from timing out while it is waiting for its data to be printed. In order to support this feature, the port has to be able to accept data from the host and store it for future use.

For example, if the printer is printing a job from the serial port and then receives a second print job from the parallel port, the data from the parallel port will ìtrickleî bit by bit into the printer buffer to prevent a timeout error from being sent back to the host connected to the parallel port.

The selected value is the time that the printer waits before getting the next byte of data from the host. The Trickle Time value should be less than the host time out value, but not too much shorter or else the printer fills up its buffer too fast. This function is not applicable for C/T hotport.

The options are 1/4, 1/2, 1, 2, 4, 8, and 16 seconds and Off.

The factory default is 1/4 sec.

Timeout

This is the value used by the printer to time out from the current port and check the other selected Port Types for data to print. When the printer has not received data from the host after a certain period of time, it needs to time out in order to service the other ports.

The range is 1 to 60 seconds, and the factory default is 10 seconds.

Report Status

When a fault condition occurs in the printer, normally only the active port reports the fault to the host. With this menu item enabled, the port will report any fault even when it is not the current, active port.

The options are Disable (the default) and Enable.

Data Term Ready

Stands for Data Terminal Ready. This configuration is part of hardware flow control and determines when the Data Terminal Ready (DTR) signal is generated. This signal indicates if the printer is ready to receive data.

- **True** (the default). Continuously asserts the DTR signal.
- **On-Line and BNF (buffer not full)**. Asserts the DTR signal when the printer is online and the internal serial buffer is not full.
- **Off-Line or BF (buffer full)**. Asserts the DTR signal when the printer is offline or the internal serial buffer is full.
- **On-Line**. Asserts the DTR signal when the printer is online.
- **False**. Never asserts the DTR signal.

Request to Send

This configuration is part of hardware flow control and determines when the Request to Send (RTS) signal is generated. This signal indicates whether or not the printer is ready to receive data.

- **On-Line and BNF** (the default). Asserts the RTS signal when the printer is online and the internal serial buffer is not full.
- **Off-Line or BF**. Asserts the RTS signal when the printer is offline or the internal serial buffer is full.
- **On-Line**. Asserts the RTS signal when the printer is online.
- **False**. Never asserts the RTS signal.
- **True**. Continuously asserts the RTS signal.

Poll Character

This option is for the Series1 protocol. Whenever the printer receives this character, it sends a response to the host indicating the current state of the printer (see Series1 protocol).

The range is 00-FF Hex, and the factory default is 00 Hex.

Poll Response

This option is for the Series1 protocol. After receiving a poll character, the printer will wait the poll response time in milliseconds before sending the response.

The range is 0-30 ms, and the factory default is 0 ms.

Idle Response

This option is for the Series1 protocol.

- **Disable** (the default).
- **Enable**. The printer sends a response character every two seconds while the number of valid bytes in the buffer is less than 75 percent of the buffer size.

One Char Enquiry

The One Char Enquiry mode uses the Poll Character to detect a request from the host and sends a response back to the host. This option also allows you to turn on and off this feature.

Table 5. One Char Enquiry Response Characters

Printer State	Response (hex)
Online and Buffer Not Full	22
Online and Buffer Full	23
Offline and Buffer Not Full	20
Offline and Buffer Full	21

The Poll Character is removed from the data stream. If the Data Protocol is set to ETX/ACK, ACK/NAK, or Series1, One Char Enquiry is automatically disabled.

The options are Disable (the default) and Enable.

Printer Status

- **Disable**. Printer status ignored.
- **ENQ/STX** (see Table 6).
- **ENQ** (see Table 7).

When enabled, the printer will respond to an ENQ character by sending a status byte to the host. The type of status byte is determined by a Front Panel Menu selection. The selections allowed are ENQ/STX and ENQ. The ENQ is removed from the data stream.

Table 6. ENQ/STX Status Byte

Bit	Printer Status
0	Set when the printer is not online or the buffer is full.
1	Set when the printer is offline.
2	Clear during a paper out or RibbonMinder fault.
3	Always set.
4	Set during a Head Open fault.
5	Set during a buffer overflow fault.
6	Set during a parity or framing error fault.
7	Always clear.

Table 7. ENQ Status Byte

Bit	Printer Status
0	Set when the label has printed.
1	Set when the label is presented.
2	Set while the printer is online.
3	Always set.
4	Set printing in the batch mode.
5	Set during a Ribbon fault.
6	Set during a Paper Out fault.
7	Set during a Head Open fault.

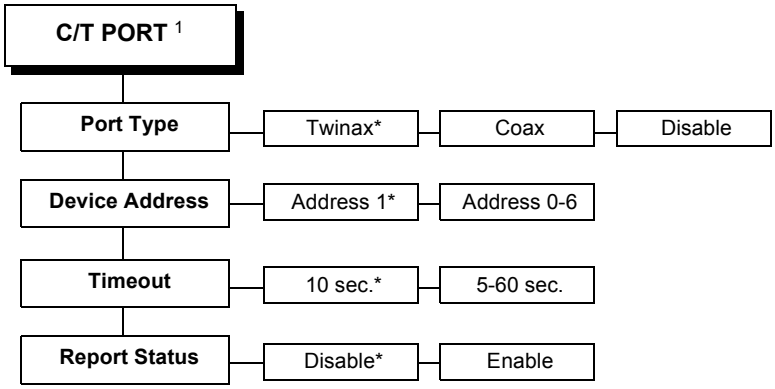
The factory default is Disable.

Framing Errors

These are possible errors that can occur when serial interface settings of the printer do not match those of the host computer.

- **Enable** (the default). If a framing error occurs, a fault message will display on the control panel.
- **Disable**. If a framing error occurs, a fault message will not display on the control panel.

C/T PORT Menu



Notes:

* = Factory Default

[1] Appears only if the CTHI option is installed.

C/T PORT Submenus

Port Type

This item selects the desired active CTHI interface and appears only when the CTHI option is installed.

The factory default is Twinax.

Device Address

Allows you to set the device address from 0 through 6. The host directs data and commands on the twinax line to a specific device based on its unique device address. After the address has been changed, a Power On Reset (POR) status is sent to the host.

The factory default is Address 1.

Timeout

This item allows you to set the time that the printer, when it has not received data from its host, will begin to service all other host ports looking for data to print.

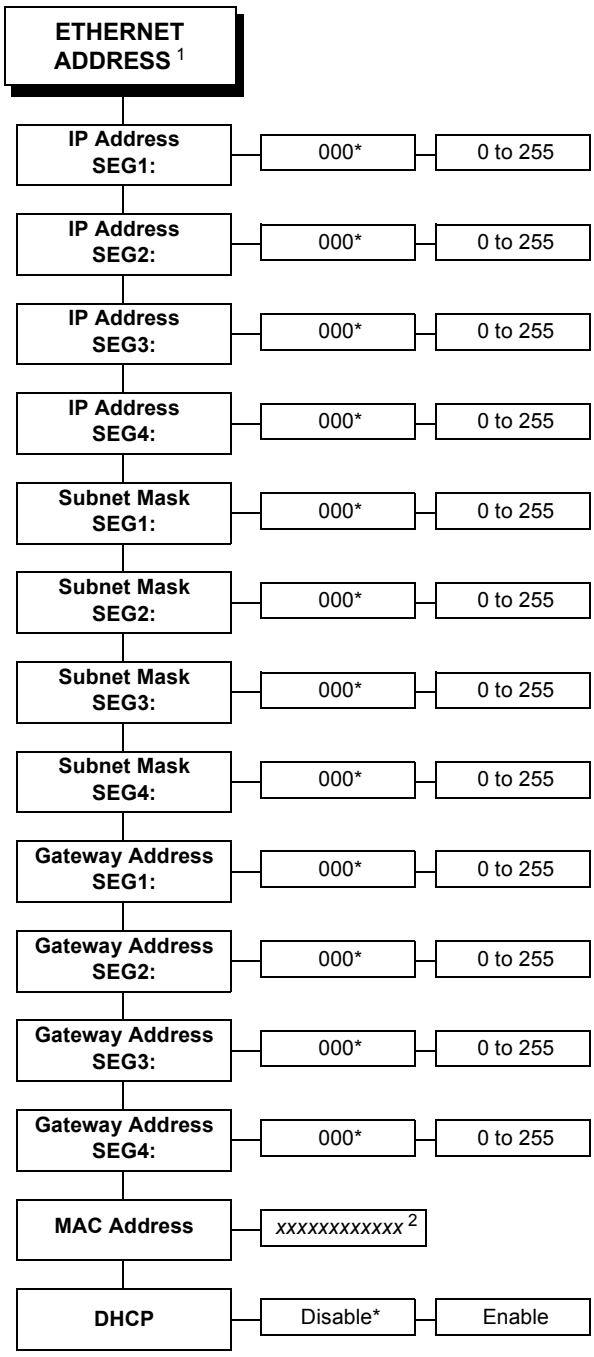
The range is 5 to 60 seconds, and the factory default is 10 seconds.

Report Status

When a fault condition occurs in the printer, normally only the active port reports the fault to the host. With this item enabled, the port will report any fault even when it is not the current, active port.

The options are Disable (the default) and Enable.

ETHERNET ADDRESS Menu



Notes:

* = Factory Default

[1] Appears only if a NIC is installed.

[2] Display item only.

ETHERNET ADDRESS Submenus

IP Address

This item allows you to set the IP Address for the TCP/IP protocol in four three-digit segments (SEG1 through SEG4). If the IP Address is assigned by Bootp, ARP or DHCP, it is dynamic and read-only.

The factory defaults for the SEG1 through SEG4 are 000, 000, 000, and 000.

NOTE: When changing the IP Address, the printer resets the NIC (network interface card) when the printer is placed online. When the printer resets the NIC, the LCD displays DO NOT POWER OFF. After the NIC has completed its initialization, the LCD displays E-NET INIT to signal that the NIC and printer are in the initialization process. When both the NIC and printer have completed initialization, the LCD displays E-NET READY.

Subnet Mask

This item allows you to set the Subnet Mask for the TCP/IP protocol in four three-digit segments (SEG1 through SEG4). If the Subnet Mask is assigned by Bootp, Arp or DHCP, it is dynamic and read-only.

The factory defaults for the SEG1 through SEG4 are 000, 000, 000, and 000.

NOTE: When changing the Subnet Mask, the printer resets the NIC when the printer is placed online. When the printer resets the NIC, the LCD displays DO NOT POWER OFF. After the NIC has completed its initialization, the LCD displays E-NET INIT to signal that the NIC and printer are in the initialization process. When both the NIC and printer have completed initialization, the LCD displays E-NET READY.

Gateway Address

This item allows you to set the Gateway Address for the TCP/IP protocol in four three-digit segments (SEG1 through SEG4). If the Gateway Address is assigned by Bootp, ARP or DHCP, it is dynamic and read-only.

The factory defaults for the SEG1 through SEG4 are 000, 000, 000, and 000.

NOTE: When changing the Gateway Address, the printer resets the NIC when the printer is placed online. When the printer resets the NIC, the LCD displays DO NOT POWER OFF. After the NIC has completed its initialization, the LCD displays E-NET INIT to signal that the NIC and printer are in the initialization process. When both the NIC and printer have completed initialization, the LCD displays E-NET READY.

MAC Address

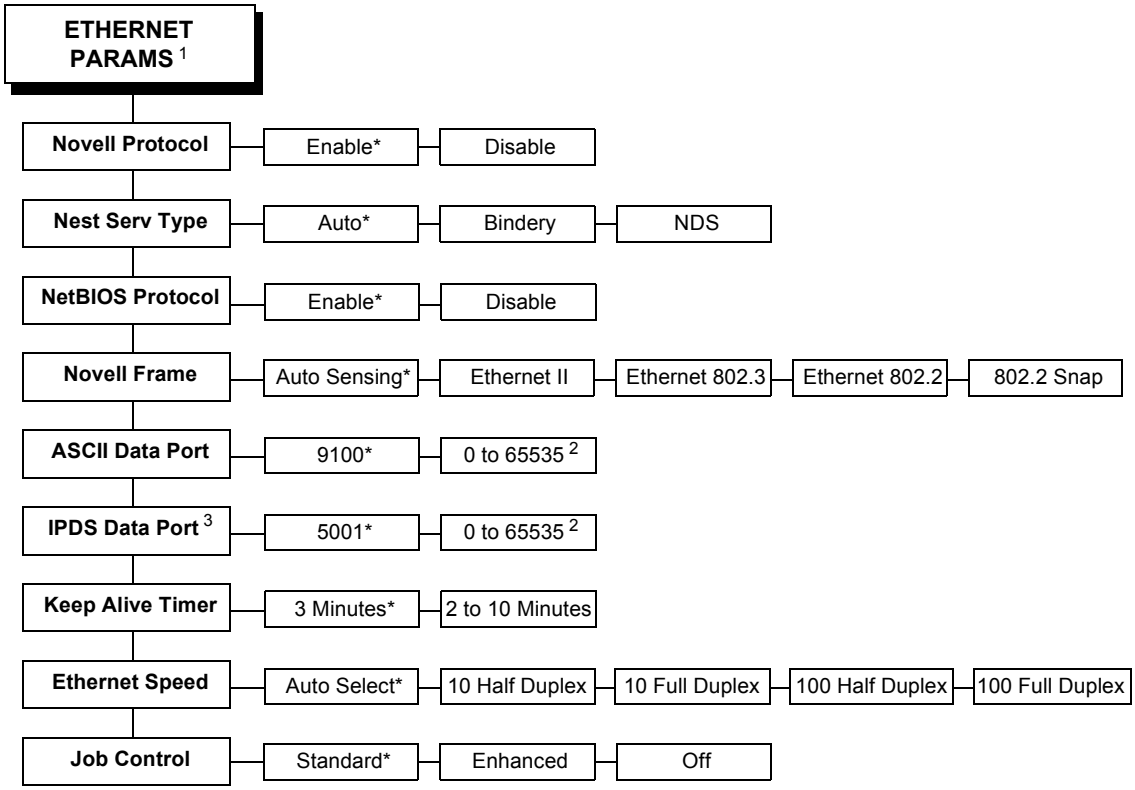
This item is the Manufacturerís Assigned Number, and is unique for each NIC. It is read-only.

DHCP

You can enable/disable the DHCP protocol using this option, but consult your administrator for the appropriate setting.

The options are Disable (the factory default) and Enable.

ETHERNET PARAMS Menu



Notes:

* = Factory Default

1 Appears only if a NIC is installed.

2 Set the port number that works with your host system.

3 Appears only if the IPDS emulation is installed.

ETHERNET PARAMS Submenus

Novell Protocol

- **Enable** (the default). The NIC will respond to the Novell protocol.
- **Disable**. The NIC does not recognize the Novell protocol.

The factory default is Enable.

Nest Serv Type

You can change the Nest Server using this option, but consult your administrator for the appropriate setting.

The options are Auto (the default), Bindery, and NDS.

NetBIOS Protocol

- **Enable** (the default). The NIC will respond to the NetBIOS protocol.
- **Disable**. The NIC does not recognize the NetBIOS protocol.

Novell Frame

This menu option provides selection of the frame type for the Novell protocol. For the definition of each frame type, refer to the appropriate Novell-authorized documents.

The factory default is Auto Sensing.

ASCII Data Port

This option allows you to set the port number for ASCII print jobs. The data port number needs to match your host system setting.

The range is 0 to 65535, and the factory default is 9100.

IPDS Data Port (IPDS emulation only)

This option allows you to set the port number for IPDS print jobs.

The range is 0 to 65536, and the factory default is 5001.

Keep Alive Timer

This is the time that the Keep Alive Timer will run. Keep in mind that with the Keep Alive Timer on, the tcp connection will stay connected even after the print job has terminated.

The range is 2 to 10 minutes, and the default is 3 minutes.

Ethernet Speed

This menu appears only if a 10/100Base-T NIC (network interface card) is installed.

The Ethernet Speed menu has five different speed modes to allow compatibility with different systems and networks:

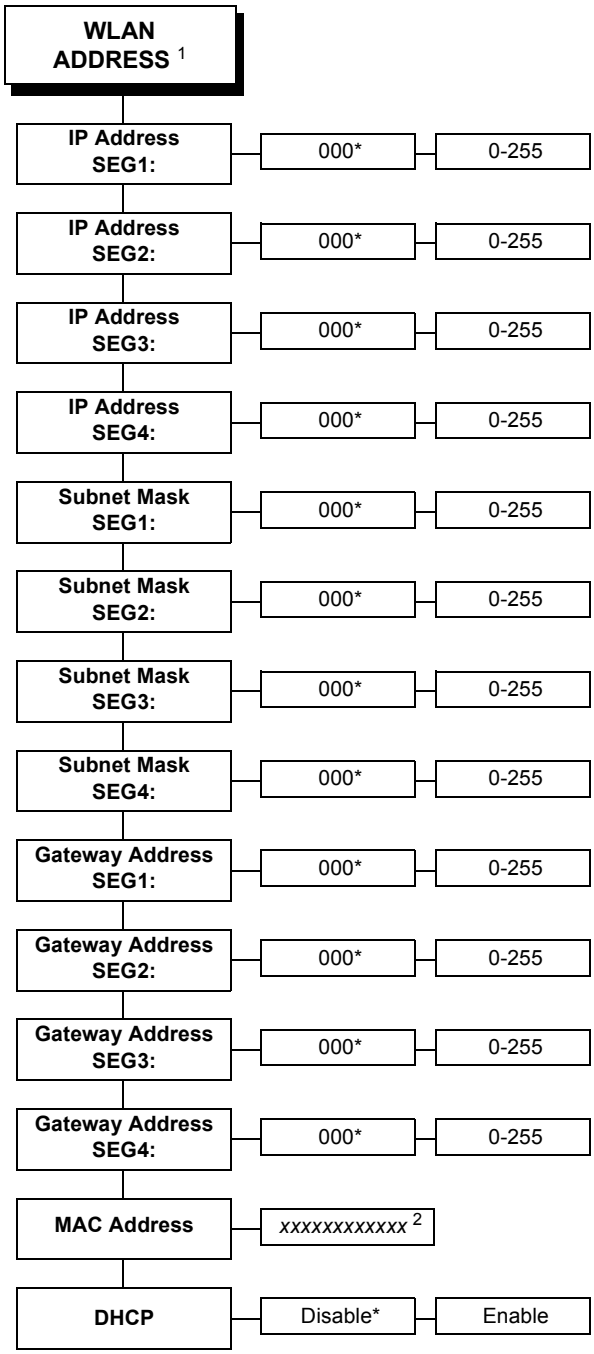
- **Auto Select** (the default). Tells the 10/100Base-T NIC to perform an auto detection scheme and configure itself to be 10 Half Duplex, 10 Full Duplex, 100 Half Duplex, or 100 Full Duplex.
- **10 Half Duplex**. Tells the 10/100Base-T NIC to communicate at 10 Megabits per second using half duplex.
- **10 Full Duplex**. Tells the 10/100Base-T NIC to communicate at 10 Megabits per second using full duplex.
- **100 Half Duplex**. Tells the 10/100Base-T NIC to communicate at 100 Megabits per second using half duplex.
- **100 Full Duplex**. Tells the 10/100Base-T NIC to communicate at 100 Megabits per second using full duplex.

Job Control

- **Standard** (the default). The NIC waits for the entire job to be *received* before it indicates the job is done.
- **Enhanced**. The NIC waits for the entire job to be *printed* before it indicates the job is done.
- **Off**. There is no synchronization between the NIC and the printer.

NOTE: For detailed information about using the NIC, refer to the *Network Interface Card Userís Manual*.

WLAN ADDRESS Menu



Notes:

* = Factory Default

1 Appears only if a Wireless Option is installed.

2 You cannot change this value; it is a display only item.

WLAN ADDRESS Submenus

IP Address

This item allows you to set the IP Address for the TCP/IP protocol in four three-digit segments (SEG1 through SEG4). If the IP Address is assigned by Bootp, ARP or DHCP, it is dynamic and read-only.

The factory defaults for the SEG1 through SEG4 are 000, 000, 000, and 000.

When changing the IP Address, the printer resets the Network Interface Card (NIC) when the printer is placed online. When the printer resets the NIC, the LCD displays DO NOT POWER OFF. After the NIC has completed its initialization, the LCD displays E-NET INIT to signal that the NIC and printer are in the initialization process. When both the NIC and printer have completed initialization, the LCD displays E-NET READY.

Subnet Mask

This item allows you to set the Subnet Mask for the TCP/IP protocol in four three-digit segments (SEG1 through SEG4). If the Subnet Mask is assigned by Bootp, Arp or DHCP, it is dynamic and read-only.

The factory defaults for the SEG1 through SEG4 are 000, 000, 000, and 000.

When changing the Subnet Mask, the printer resets the NIC when the printer is placed online. When the printer resets the NIC, the LCD displays DO NOT POWER OFF. After the NIC has completed its initialization, the LCD displays E-NET INIT to signal that the NIC and printer are in the initialization process. When both the NIC and printer have completed initialization, the LCD displays E-NET READY.

Gateway Address

This item allows you to set the Gateway Address for the TCP/IP protocol in four three-digit segments (SEG1 through SEG4). If the Gateway Address is assigned by Bootp, ARP or DHCP, it is dynamic and read-only.

The factory defaults for the SEG1 through SEG4 are 000, 000, 000, and 000.

When changing the Gateway Address, the printer resets the NIC when the printer is placed online. When the printer resets the NIC, the LCD displays DO NOT POWER OFF. After the NIC has completed its initialization, the LCD displays E-NET INIT to signal that the NIC and printer are in the initialization process. When both the NIC and printer have completed initialization, the LCD displays E-NET READY.

MAC Address

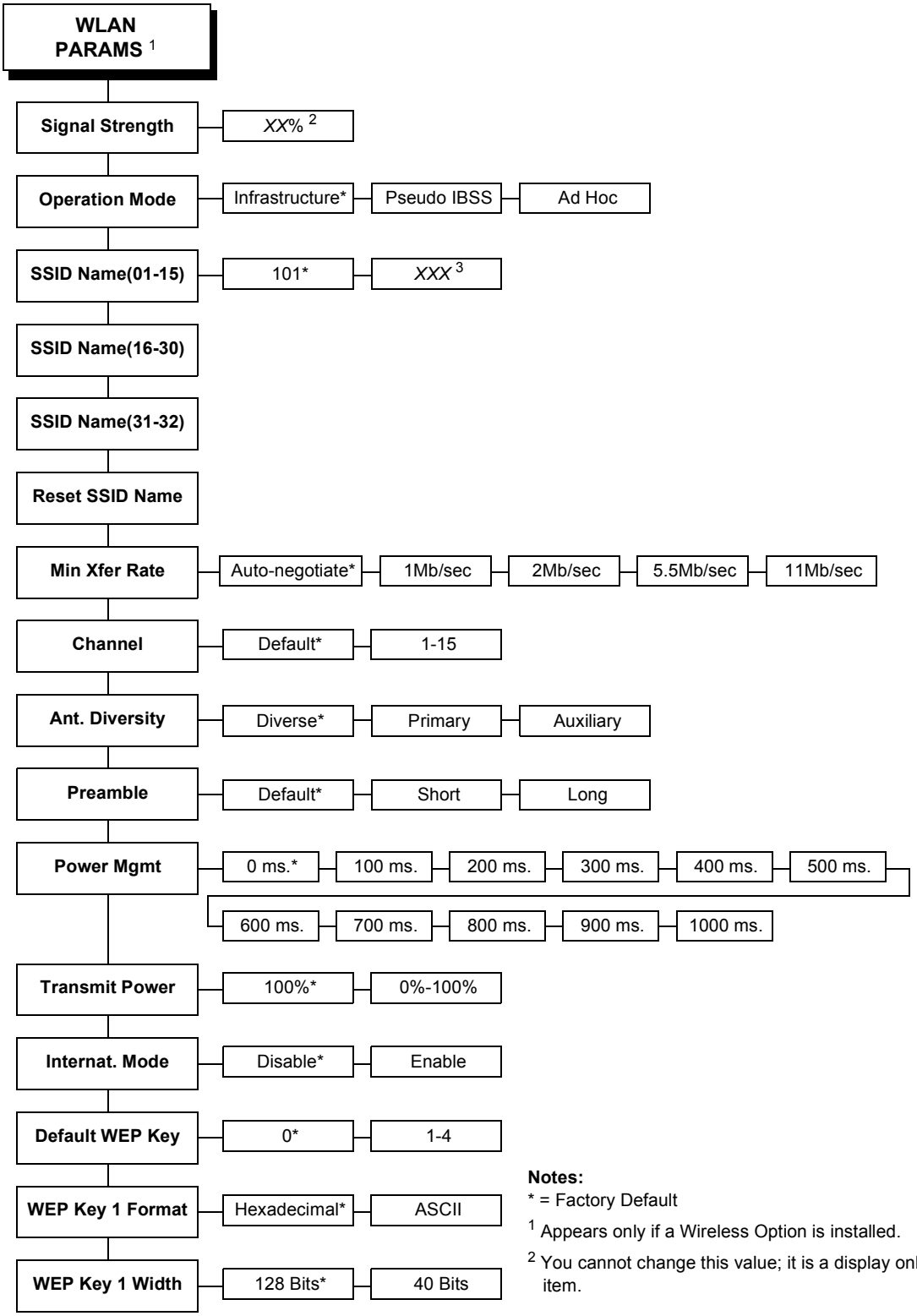
This item is the Manufacturerís Assigned Number, and is unique for the NIC and the Wireless option. It is read-only.

DHCP

You can enable/disable the DHCP protocol using this option, but consult your administrator for the appropriate setting.

The options are Disable (the factory default) and Enable.

WLAN PARAMS Menu



Notes:

* = Factory Default

[1] Appears only if a Wireless Option is installed.

[2] You cannot change this value; it is a display only item.

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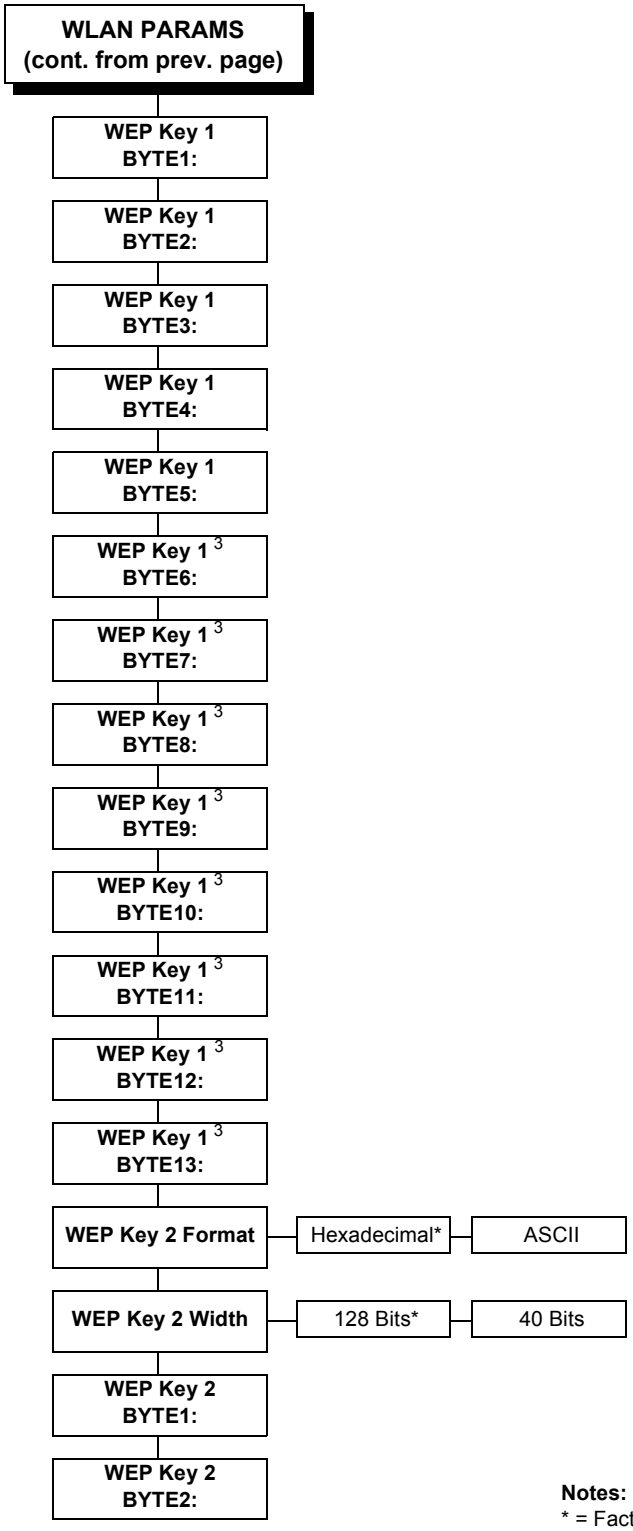

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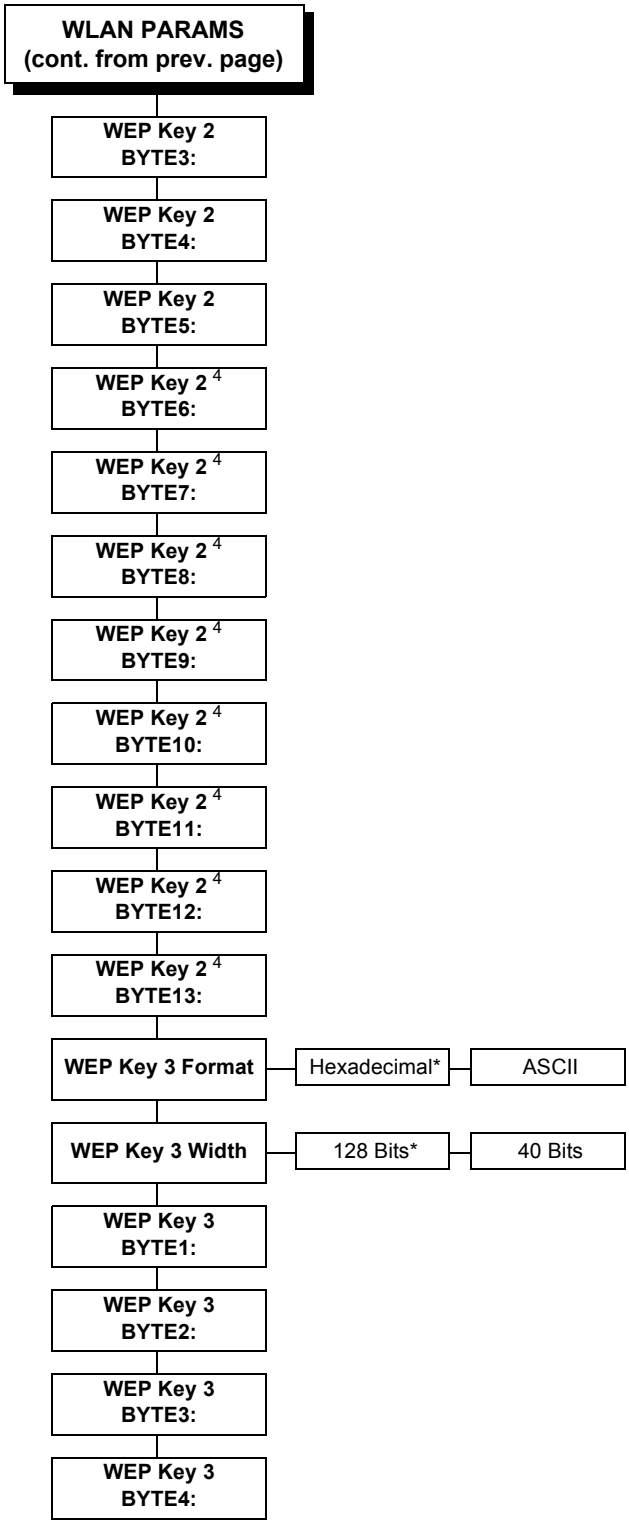
Notes:
* = Factory Default

[3] Appears only if "WEP Key 1 Width" is set to 128 Bits.



Notes:

* = Factory Default

[4] Appears only if "WEP Key 2 Width" is set to 128 Bits.

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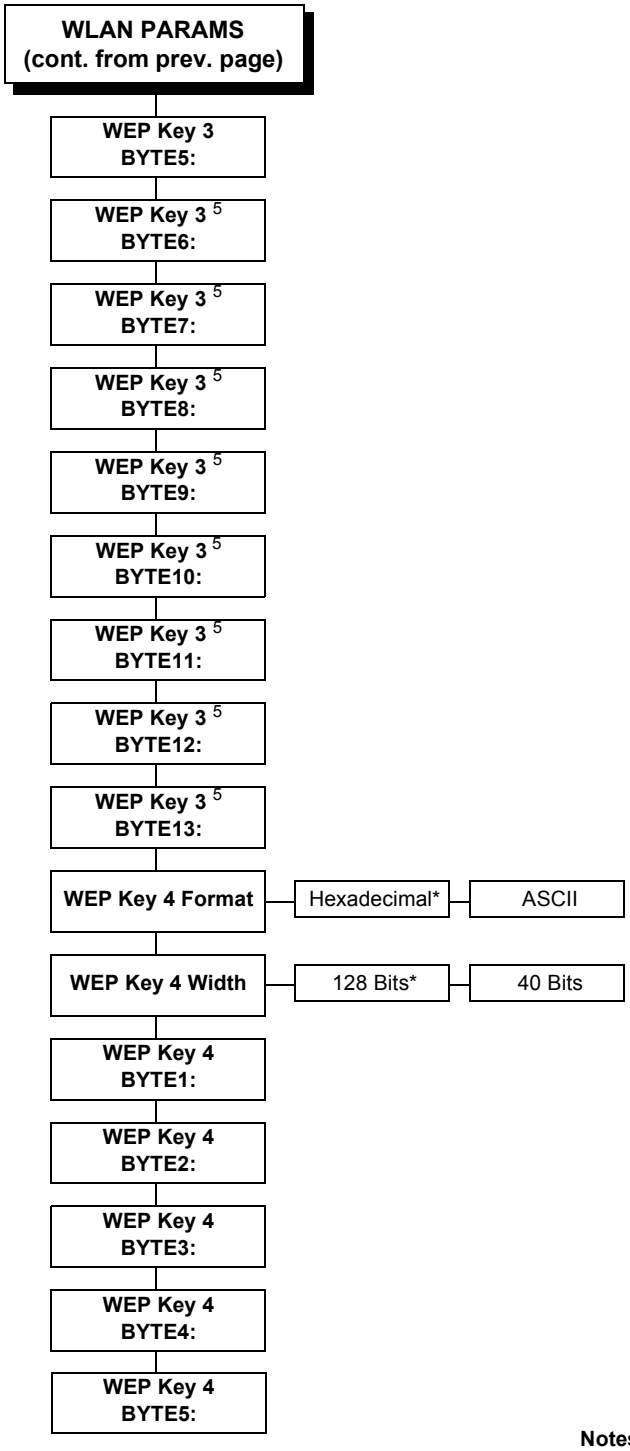

Notes:
* = Factory Default

[5] Appears only if "WEP Key 3 Width" is set to 128 Bits.

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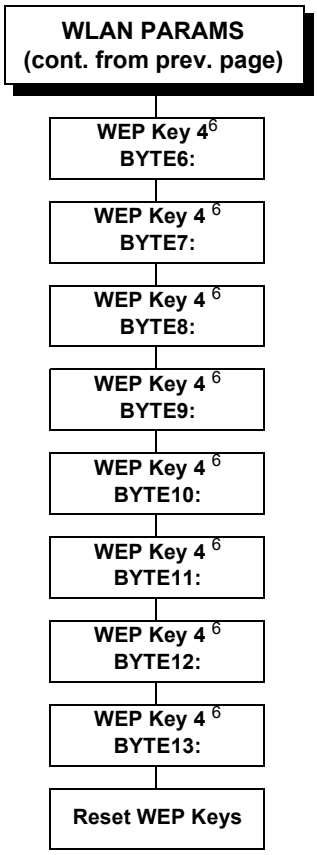


Notes:

[6] Appears only if "WEP Key 4 Width" is set to 128 Bits.

WLAN PARAMS Submenus

Signal Strength

This menu displays the strength of the wireless signal.

NOTE: This is a display value only and cannot be changed.

Operation Mode

Allows you to select the way the Wireless option communicates:

- **Infrastructure** (the default). The Wireless option must go through an Access Point.
- **Pseudo IBSS**. Proprietary, peer-to-peer communication (without an Access Point). The two peers must be specific to one manufacturer.
- **Ad Hoc**. Standard, peer-to-peer communication (without an Access Point). The two peers can be from different manufacturers.

SSID Name

A 1-32 character, case-sensitive string that identifies the Extended Service Set Identification (ESS_ID) network the unit is part of. (ESS_ID is also called NET_ID.) These characters can be alphanumeric, symbols, or spaces.

Reset SSID Name

Allows you to reset the SSID name.

Min Xfer Rate

Allows you to set the minimum speed at which the Wireless Option will accept a connection (in millions bits per second). The options are Auto-negotiate, 1Mb/sec., 2Mb/sec., 5.5Mb/sec., and 11Mb/sec.

The factory default is Auto-negotiate.

Channel

Allows you to select the RF channel.

The options are Default (the factory default) and 1-15.

Ant. Diversity

The type of antenna used:

- **Diverse** (the default). Select when you want to use the antenna with the best reception.
- **Primary**. Select when you want to use the Primary antenna on the server.
- **Auxiliary**. Select when you want to use the Auxiliary antenna on the server.

Preamble

The length of the preamble in transmit packets.

- **Default** (the default). The Wireless option automatically determines the length.
- **Short**. For newer printers which can handle higher transfer rate speeds.
- **Long**. For older printers, which cannot handle higher transfer rate speeds.

Power Mgmt

This allows you to set power-save mode and sleep time. A value specifying the sleep time in milliseconds will be provided. If set to zero, power-save mode will be disabled.

The range is 0 to 1000 ms., and the factory default is 0 ms.

Transmit Power

The power level as a percentage of full power.

The range is 0% to 100%, and the factory default is 100%.

Internat. Mode

When enabled, the Wireless option adapts to international frequency requirements in Europe.

The options are Disable (the default) and Enable.

Default WEP Key

This feature enables you to encrypt (scramble) information for security purposes. With this feature, you can set up to four encryption keys, in either ASCII or hexadecimal format, and in either 40 or 128 bits. (The more bits you choose, the more difficult it will be to decode the information.)

NOTE: None of the WEP Key Configuration menus display on the configuration printout.

WEP Key Format

Allows you to format the WEP keys in ASCII or hexadecimal code.

The factory default is Hexadecimal.

WEP Key Width

This is the encryption strength. The options are 40 Bits and 128 Bits; 40 bits are weaker and 128 bits are stronger.

NOTE: If you select 40 bits, the WEP Key BYTE6 through WEP Key BYTE13 menus will not display.

The factory default is 128 bits.

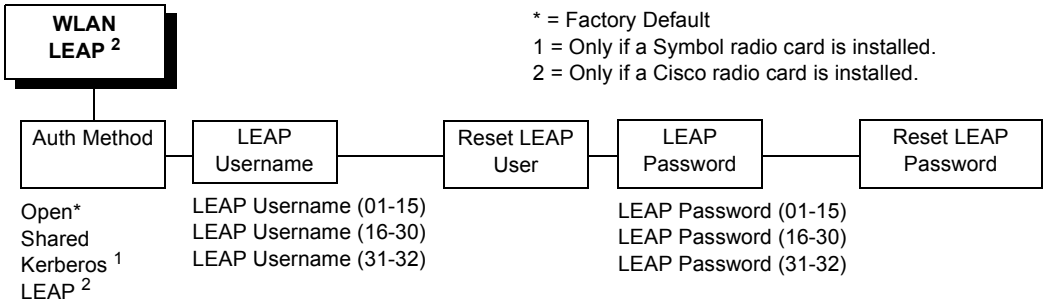
WEP Key 1 through WEP Key 13

These are the individual characters of the encryption key.

Reset WEP Keys

Allows you to reset all four WEP keys (WEP Key 1 through WEP Key 4) at one time.

WLAN LEAP Menu



WLAN LEAP Submenus

Auth Method

This feature allows the user to select the authentication method used for the wireless network interface.

- **Open** (the default). Selects open authentication.
- **Shared**. Selects shared key authentication.
- **Kerberos**. Selects Kerberos authentication (for use when a Symbol RF card is installed).
- **LEAP**. Selects LEAP authentication (for use with a Cisco RF card installed).

LEAP Username

- **LEAP Username (01-15)**. The first 15 characters of the LEAP user name (maximum number of characters is 32).
- **LEAP Username (16-30)**. Characters 16 to 30 of the LEAP user name (maximum number of characters is 32).
- **LEAP User (31-32)**. Characters 31 to 32 of the LEAP user name (maximum number of characters is 32).

Reset LEAP User

Resets the LEAP user name to an empty string.

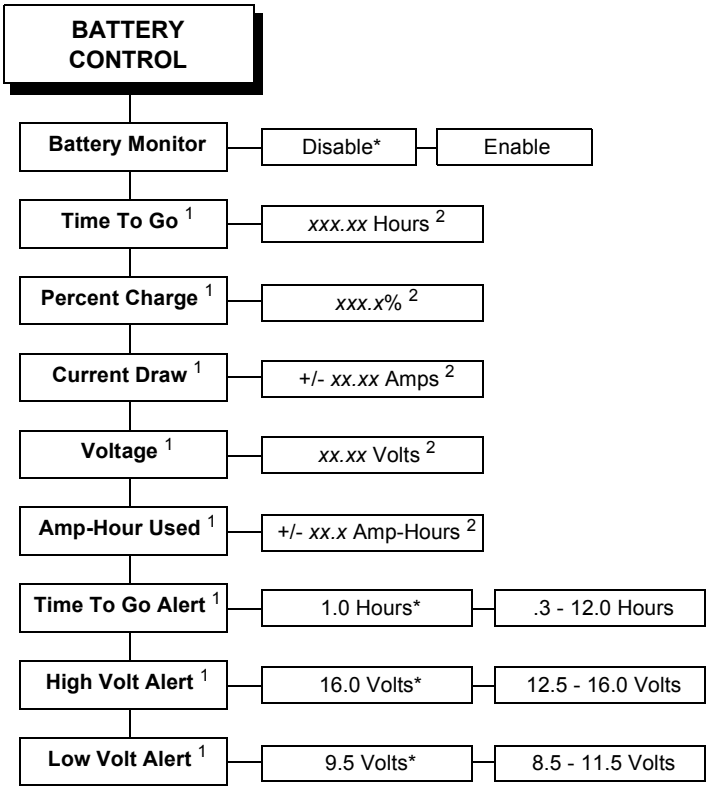
LEAP Password

- **LEAP Password (01-15)**. The first 15 characters of the LEAP password (maximum number of characters is 32).
- **LEAP Password (16-30)**. Characters 16 to 30 of the LEAP password (maximum number of characters is 32).
- **LEAP Password (31-32)**. Characters 31 to 32 of the LEAP password (maximum number of characters is 32).

Reset LEAP Password

Resets the LEAP password to an empty string.

BATTERY CONTROL



Notes:
* = Factory Default

[1] Available only when you select Enableî in the Battery Monitor submenu (in the BATTERY CONTROL menu).

[2] You cannot change this value; it is a display only item.

BATTERY CONTROL Submenus

Battery Monitor

- **Disable** (the default). When set to Disable, the other Battery Control menus do not display. The Serial Port is restored to normal use, and the Serial Port menu displays.
- **Enable**. When set to Enable, the other Battery Control menus display. The Serial Port is reserved for monitoring the power cart, and the Serial Port menu does not display.

  When Battery Monitoring has been enabled and the printer is online, the second line of the LCD message displays the time remaining as "Batt *xxx.xx* Hrs."

Time To Go

This displays the Time to Go status on the LCD in hundredths of an hour.

NOTE: This menu is available only when you select "Enable" in the Battery Monitor submenu. When the power cart charger is connected to an AC outlet, the Time To Go will be 0.00 Hours. This message updates approximately every two minutes.

Percent Charge

This displays the Charge Percentage in tenths of a percent.

NOTE: This menu is available only when you select "Enable" in the Battery Monitor submenu.

Current Draw

This displays the Current Draw in hundredths of an amp.

NOTE: This menu is available only when you select "Enable" in the Battery Monitor submenu.

Voltage

This displays the Voltage in hundredths of a volt.

NOTE: This menu is available only when you select "Enable" in the Battery Monitor submenu.

Amp-Hour Used

This displays the Amp-Hour Used in tenths of an amp hour.

NOTE: This menu is available only when you select "Enable" in the Battery Monitor submenu.

Time To Go Alert

This allows you to set the minimum Time to Go value for determining when a "RECHARGE BATTERY" warning occurs. When the printer receives a status from the battery that is less than the value of the Time To Go menu, the "RECHARGE BATTERY" warning displays on the LCD.

The range is .3 - 12.0, and the factory default is 1.0 Hours.

NOTE: This menu is available only when you select "Enable" in the Battery Monitor submenu.

High Volt Alert

This allows you to set the maximum voltage for determining when a "BATT HIGH VOLT" warning occurs. When the printer receives a status from the battery that is greater than the value of the High Volt menu, the "BATT HIGH VOLT" warning displays on the LCD.

The range is 12.5 - 16.0 Volts, and the factory default is 16.0 Volts.

NOTE: This menu is available only when you select "Enable" in the Battery Monitor submenu.

Low Volt Alert

This allows you to set the minimum voltage for determining when a "BATT LOW VOLT" warning displays on the LCD. When the printer receives a status from the battery that is less than the value of the Low Volt menu, the "BATT LOW VOLT" warning displays on the LCD.

The range is 8.5 - 11.5 Volts, and the factory default is 9.5 Volts.

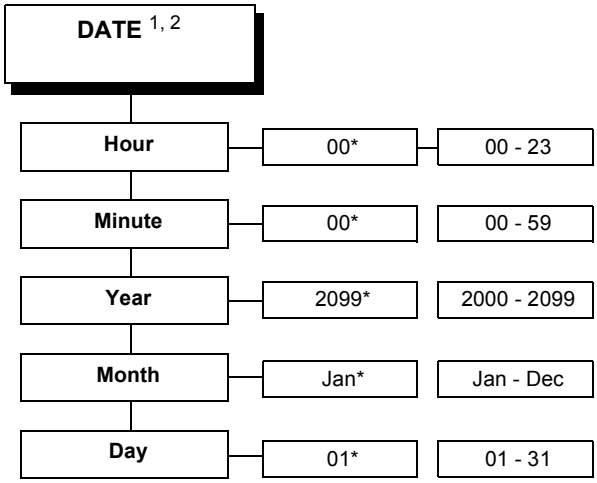
Low Volt Fault

A Low Voltage Fault occurs when the printer receives a status from the battery that is 1.0 VDC less than the value of the Low Volt menu. In addition to the "BATT LOW VOLT" warning, the Online Status Indicator flashes, the printer sounds a beeping alarm, stops printing, and goes offline.

The operator can press the PAUSE key to attempt to clear the fault, but printing cannot continue unless the battery is recharged.

NOTE: This menu is available only when you select "Enable" in the Battery Monitor submenu.

DATE Menu



Notes:
* = Factory Default

[1] Appears only if the real time clock option is installed.

[2] Updates the set parameters only if the real time clock NOVRAM option is installed.

DATE Submenus

This menu allows you to set the date and time. The options include:

Hour

The hour ranges from 00 to 23, the factory default is 00.

Minute

The minute ranges from 00 to 59, and the factory default is 00.

Year

The year ranges from 2000 to 2099, and the factory default is 2099.

Month

The month ranges from January to December, and the factory default is January.

Day

The day ranges from 01 to 31, and the factory default is 01.

Applicator Delay Menu

With the SLPA online, press the ↵ key to enter the Applicator Delay menu.

Press ↑ or ↓ to scroll through the submenus: Cycle Delay, Cylinder Extend, and Vacuum Delay. Press **+** or □ to adjust the values. Press ↵ to set a new value.

Press the **Menu** key to place the SLPA back online. SAVING / DELAY TIMES will display briefly.

Cycle Delay

Sets the length of time the product sensor detects the product until it applies the label.

Cylinder Extend

Sets the length of elapsed time from the beginning of the cylinder extension to its retraction.

Vacuum Delay

Sets the length of time the vacuum holds the label before releasing the label onto the product.

Early Print Delay

Sets the length of time from when the label is applied to when the next label will start printing.

4 *Interfaces*

Overview

This chapter describes the host interfaces provided with the printer. The printer interface is the point where the data line from the host computer plugs into the printer. The interface processes all communications signals and data to and from the host computer. Plus, with the Auto Switching feature, you can configure the printer to accept several interfaces at the same time.

In addition to descriptions for the multi-line interfaces, this chapter also provides instructions for configuration of terminating resistors for the parallel interfaces.

Auto Switching

This feature gives the printer the ability to handle multiple data streams sequentially. With Auto Switching, the printer can service hosts attached to the serial, parallel, USB, coax and twinax ports as if they were the only interface connected.

For example, if the host computer sends one print job to the RS-232 serial port and a separate print job to the IEEE 1284 parallel port, the printerís Auto Switching is able to handle both jobs, in the order they were received, without the user having to reconfigure the selected interface between jobs.

Standard Host Interfaces

- IEEE 1284 parallel bidirectional
- Serial Port (RS-232)
- USB 2.0 Universal Serial Bus

Optional Host Interfaces

- Ethernet 10/100Base-T
- Wireless NIC

IEEE 1284 Parallel Interface

The IEEE 1284 supports three operating modes, which are determined by negotiation between the printer and the host.

Compatibility Mode

This mode provides compatibility with Centronics-like host I/O (see Table 8w). Data is transferred from the host to the printer in 8-bit bytes over the data lines.

Compatibility Mode can be combined with Nibble and Byte Modes to provide bidirectional communication.

Nibble Mode

Eight bits equals one byte. When a byte of data is sent to the printer, the eight bits are sent over eight data lines.

Some devices cannot send data over their eight data lines. To bypass this, the IEEE 1284 permits data to be sent as half a byte over four status lines. (Half a byte equals one nibble.) Two sequential four-bit nibbles are sent over the lines.

Data is transferred from printer to host in four-bit nibbles over the status lines, and the host controls the transmission.

Byte Mode

The printer and host send data to each other along eight data lines (one bit per line).

If bidirectional communication is supported by the printer and the host, the host will take control of the data transfer.

Signals

Table 8 lists each of the signals associated with the corresponding pins on the IEEE 1284 interface. Descriptions of the signals follow.

Table 8. IEEE 1284 Signals

Pin	Source of Data	Type of Mode		
		Compatible	Nibble	Byte
1	Host	nStrobe	HostClk	Host/Clk
2	Host/Printer	Data 1 (LSB)		
3	Host/Printer	Data 2		
4	Host/Printer	Data 3		
5	Host/Printer	Data 4		
6	Host/Printer	Data 5		
7	Host/Printer	Data 6		
8	Host/Printer	Data 7		

Table 8. IEEE 1284 Signals

Pin	Source of Data	Type of Mode		
		Compatible	Nibble	Byte
9	Host/Printer	Data 8 (MSB)		
10	Printer	nAck	PtrClk	PtrClk
11	Printer	Busy	PtrBusy	PtrBusy
12	Printer	PError	AckDataReq	AckDataReq
13	Printer	Select	Xflag	Xflag
14	Host	nAutoFd	Host Busy	HostAck
15		Not Defined		
16		Logic Grid		
17		Chassis Grid		
18	Printer	Peripheral Logic High		
19		Signal Ground (nStrobe)		
20		Signal Ground (Data 1)		
21		Signal Ground (Data 2)		
22		Signal Ground (Data 3)		
23		Signal Ground (Data 4)		
24		Signal Ground (Data 5)		
25		Signal Ground (Data 6)		
26		Signal Ground (Data 7)		
27		Signal Ground (Data 8)		
28		Signal Ground (PError, Select, nAck)		
29		Signal Ground (Busy, nFault)		
30		Signal Ground (nAutoFd, nSelectIn, nInit)		
31	Host	nInit		
32	Printer	NFault	nDataAvail	aDataAvail
33		Not Defined		
34		Not Defined		
35		Not Defined		
36	Host	nSelectIn	1284 Active	1284 Active

NOTE: The length of the data cable from the host computer to the printer should not exceed 32 feet (10 meters).

Host Clock / nWrite. Driven by the host. Data is transferred from the host to the printer. When the printer sends data, two types are available. If it is Nibble Mode, the signal is set high. If it is Byte Mode, the signal is set low.

Data 1 through Data 8. These pins are host-driven in Compatibility Mode and bidirectional in Byte Mode. They are not used in Nibble Mode. Data 1 is the least significant bit; Data 8 is the most significant bit.

Printer Clock / Peripheral Clock / Interrupt. Driven by the printer. A signal from the printer indicating the character or function code has been received and the printer is ready for the next data transfer.

Printer Busy / Peripheral Acknowledge / nWait. Driven by the printer. Indicates the printer cannot receive data. (Data bits 4 and 8 in Nibble Mode.)

Acknowledge Data Request / nAcknowledge Reverse. Driven by the printer. Indicates the printer is in a fault condition. (Data bits 3 and 7 in Nibble Mode.)

Xflag. Driven by the printer. A high true level indicating the printer is ready for data transfer and the printer is online. (Data bits 2 and 6 in Nibble Mode.)

Host Busy / Host Acknowledge / NDStrobe. Driven by the host. Activates auto-line feed mode.

Peripheral Logic High. Driven by the printer. When the line is high, the printer indicates all of its signals are in a valid state. When the line is low, the printer indicates its power is off or its signals are in an invalid state.

nReverse Request. Driven by the host. Resets the interface and forces a return to Compatibility Mode idle phase.

nData Available / nPeripheral Request. Driven by the printer. Indicates the printer has encountered an error. (Data bits 1 and 5 in Nibble Mode.)

1284 Active / nAStrobe. Driven by the host. A peripheral device is selected.

Host Logic High. Driven by the host. When set to high, the host indicates all of its signals are in a valid state. When set to low, the host indicates its power is off or its signals are in an invalid state.

nInit. Resets init interface from the host.

Terminating Resistor Configurations

The factory equips the printer with terminating resistors that are used for parallel interface configurations suitable for most applications. The 1K ohm pull-down resistor pack is located at RP1 and the 470 ohm pull-up resistor pack is located at RP2 on the Controller PCBA.

If the values of these terminating resistors are not compatible with the particular interface driver requirements of your host computer, call your printer service representative.

RS-232 Serial Interface

NOTE: The RS-232 serial interface circuit characteristics are compatible with the Electronic Industry Association Specifications EIA-232-E and EIA-422-B.

The RS-232 serial interface enables the printer to operate with bit serial devices that are compatible with an RS-232 controller. The input serial data transfer rate (in baud) is selectable from the printerís control panel. Baud rates of 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, and 115200 are available.

NOTE: If you select a baud rate that is greater than 19200, you may need to increase the Buffer Size in K parameter from the default (1 Kbyte) to improve performance.

The length of the data cable from the host computer to the printer must not exceed 50 feet (15 meters).

Table 9. RS-232 Serial Interface Connector (9 Pin) Assignments

Input Signals		Output Signals		Miscellaneous	
Signal	**Pin**	**Signal**	**Pin**	**Signal**	**Pin**
Receive Data (RXD)	2	Transmit Status & Control Data (TXD)	3	Chassis/Signal Ground	5
Clear To Send (CTS)	8	Request To Send (RTS)	7		
Data Set Ready (DSR)	6	Data Terminal Ready (DTR)	4		
Data Carrier Detect (DCD)	1				

Received Data (RXD). Serial data stream to the printer.

Transmitted Data (TXD). Serial data stream from the printer for transmitting status and control information to the host. Subject to protocol selection.

Request To Send (RTS). Control signal from the printer. Subject to configuration.

Clear To Send (CTS). Status signal to the printer indicating the host is ready to receive data/status signals from the printer.

Data Set Ready (DSR). Status signal to the printer indicating the host is in a ready condition.

Data Carrier Detect (DCD). Status signal to the printer. The ON condition is required for the printer to receive data.

Data Terminal Ready (DTR). Control signal from the printer. Subject to configuration.

USB

Menus

The Universal Serial Bus (USB) port is part of Auto Switching and is active when the Host Interface menu is set to Auto Switching. It can also be selected as the only Host Interface under the Host Interface menu by selecting USB. The Host Interface menu is only available when the Admin User menu is enabled.

A top level USB Port menu with two submenus is also available:

- **Buffer Size in K** - the input buffer size used by the USB port. The range is from 1 to 16. The default is 16.
- **Timeout** - the Hotport Timeout value used to determine when the port is inactive. The range is from 1 to 60 seconds. The default is 10 seconds.

Program Download

Normally the Host communicates with the printerís USB port with a Windows Driver. The Windows Driver cannot be used to transfer binary data to the printer, such as the data contained in a Program Download. To do a Program Download through the USB Port perform the following steps:

1. Make the printer sharable on the Host PC. This is done through the Printer Setting Window on the PC. Make note of the Printers Shared name.
2. Open a Dos Window on the PC. At the command prompt type:

   ```
   NET USE LPT1\\COMP_NAME\Printers_Shared_Name /Persistent:YES
   ```

   This command should be all on the same line. It redirects output on LPT1 to the shared printer.

   COMP_NAME is the computer name found on the system settings.

   Printers_Shared_Name is the shared name found in the printer Properties\Sharing tab.
3. To check status of connection type:

   ```
   Net View \\COMP_NAME
   ```

   COMP_NAME is the computer name found on the system settings.

   Now the printer is ready.
4. Use the COPY command to send the program file to the printer. Type:

   ```
   COPY /b <File Name> lpt1:
   ```
5. To stop using LPT1 for USB, type:

   ```
   NET USE LPT1 /DELETE
   ```

5 Preventive Maintenance

WARNING **Prior to any maintenance procedures, be sure to power off the SLPA and disconnect the power cord and air supply hoses unless otherwise indicated.**

WARNING **Maintenance operation should only be performed by a trained and qualified technician.**

Cleaning

General Cleaning

During normal operation, media debris may accumulate around the printer mechanism. Clean the printhead area with the Printronix cleaning kit. Use a soft bristle brush or vacuum cleaner to dust the interior.

CAUTION **Never use metallic tools to clean the interior of the SLPA.**

Dust the exterior of the SLPA regularly. It is preferable to use a Printronix cleaning kit to clean the exterior of the SLPA, or a soft cloth dampened with isopropyl alcohol.

CAUTION **Do not use abrasive cleaners or solvents to clean either the exterior or interior of the SLPA.**

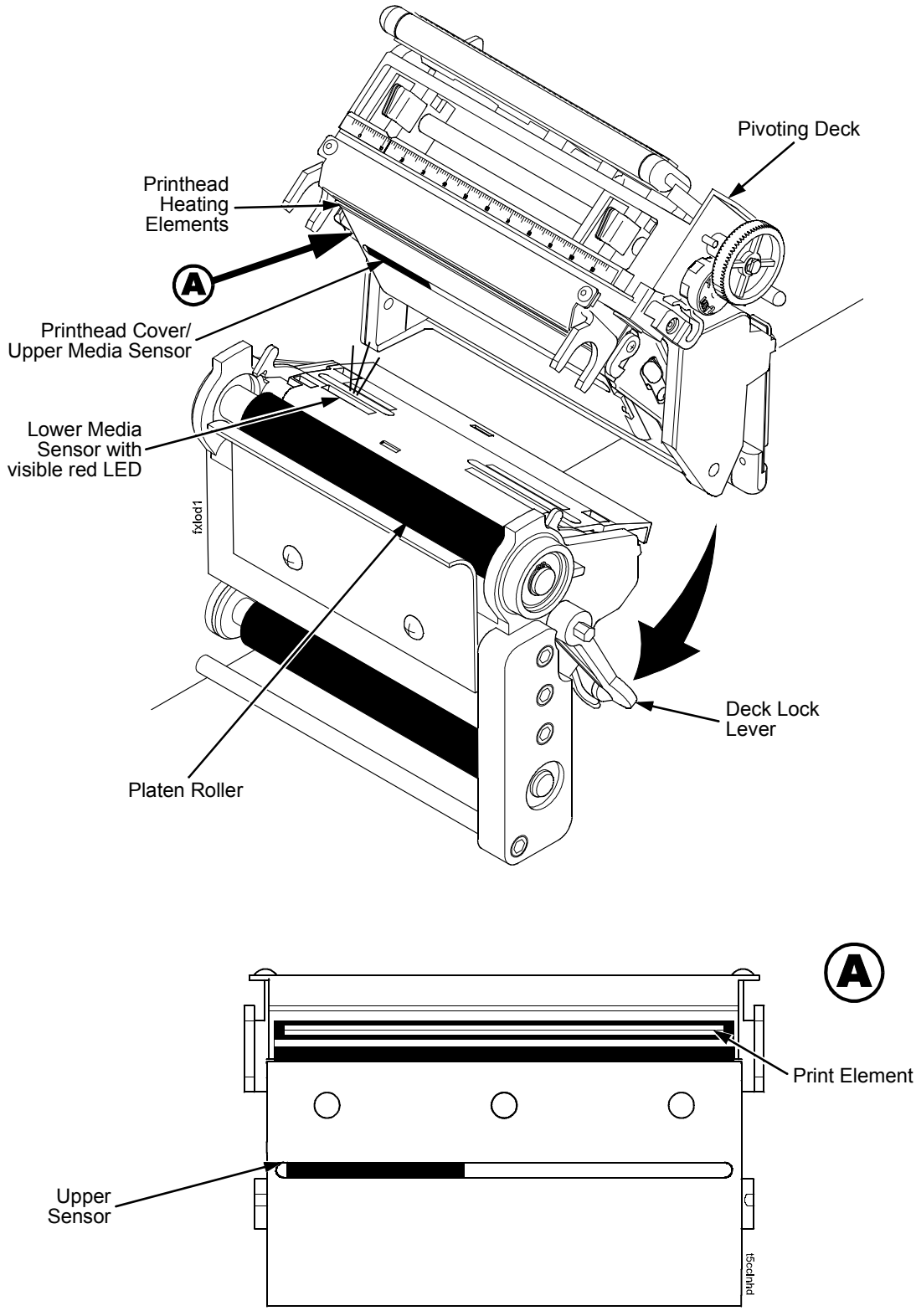


Figure 38. Cleaning the Printhead

Cleaning The Printhead, Platen Roller And Media Sensors

Printhead Cleaning

As you use your SLPA, the printhead may become dirty which can result in poor print quality. Clean the printhead each time you install new ribbon (thermal transfer print mode) or install new media (direct thermal print mode). Clean the printhead with the cleaning pen supplied with the SLPA or with a cotton swab moistened with alcohol.

By keeping your printhead clean, you will help maintain its life.

Platen Roller Cleaning

Media dust and adhesive residue on the platen roller can degrade print quality and cause voids in your label image. Clean the platen roller at the same time as the printhead.

Use a small amount of isopropyl alcohol on a cloth to clean the platen roller. With the pivoting deck up the platen roller can be rotated forward by hand to access and clean its entire surface area.

IMPORTANT **Do not use sharp objects such as a knife or screwdriver to remove stuck labels.**

Media Sensor Cleaning

The Upper and Lower Media Sensors should be cleaned to ensure reliable TOF and paper out sensing. Clean the media sensors at the same time as the printhead.

The Upper Media Sensor (located in the horizontal slot of the printhead cover) can be wiped clean using a soft cloth. The Lower Media Sensor, easily seen by its visible red light, is located in the horizontal slot of the media guard. Remove media dust by vacuuming or blowing air across the lens cover.

Cleaning Procedure

1. Set the power switch to O (Off) and let the SLPA cool for 5 minutes.
2. Rotate the deck lock lever clockwise to open the pivoting deck and remove any media and ribbon (if loaded) to gain access to the printhead assembly heating element area.
3. Gently rub the felt tip of the cleaning pen or a cotton swab moistened with isopropyl alcohol across the printhead heating elements (light brown area).
4. Allow the printhead to dry for one minute before reloading the media and ribbon.
5. Clean the platen roller.
6. Clean the upper and lower media sensors.

CAUTION **Do not use sharp objects on the print surface of the printhead. Be aware that the edges of the printhead may be sharp. Keep fingers away from the edges.**

Cleaning The Applicator Pad

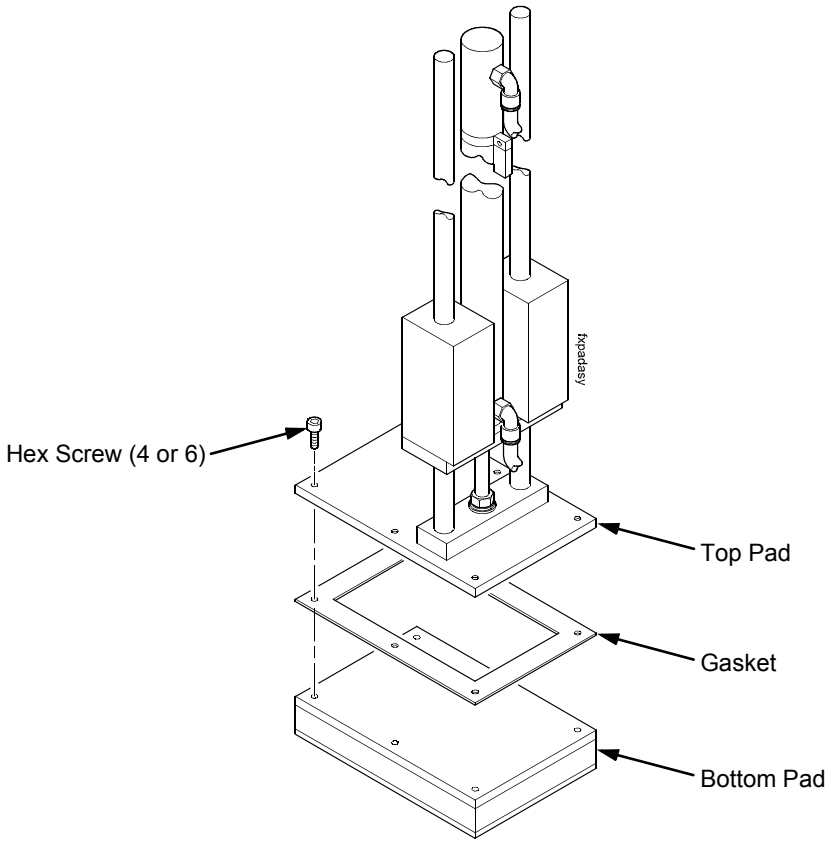


Figure 39. The Applicator Pad Assembly

The applicator pad must be clean to ensure that labels will properly dispense. Use isopropyl alcohol and a clean soft cloth. No other cleaning agent should be used to clean the applicator pad.

Perform a maintenance check of the applicator pad vacuum chamber approximately every three months, at minimum, using the following procedures:

1. Remove the four (or six) hex screws found at the top of the applicator pad, allowing the bottom pad to drop downward.
2. Check the holes of the applicator pad to make certain that there are no large particles of dirt or dust clogging any of the holes.
3. Reassemble, making certain that the gasket (foam tape) is seated properly before replacing the bottom pad.

4. Check for leaks by covering all the holes in the applicator pad with a piece of paper. If there is a leak, the vacuum will not retain the paper on underside of the applicator. Sealing compound may be used to isolate leaks, but must dry thoroughly before the applicator may be used.

Cleaning/Replacing The Vacuum Generator

Air flow through the vacuum generator creates the vacuum for the applicator pad, allowing the label to be held in place. If the label is not retained on the pad and the pad has already been inspected for leaks, then the vacuum generator should be cleaned as follows.

1. Locate the vacuum generator inside the electrical enclosure, on the applicator side of the SLPA (see Figure 40). The vacuum generator housing will mark the pressure connection with a P and the vacuum connection with a V. Label the respective tubes before disconnecting them, to ensure proper reassembly.

NOTE: The vacuum generator should develop a minimum of 20 inches hg with the hose to tamp pad blocked.

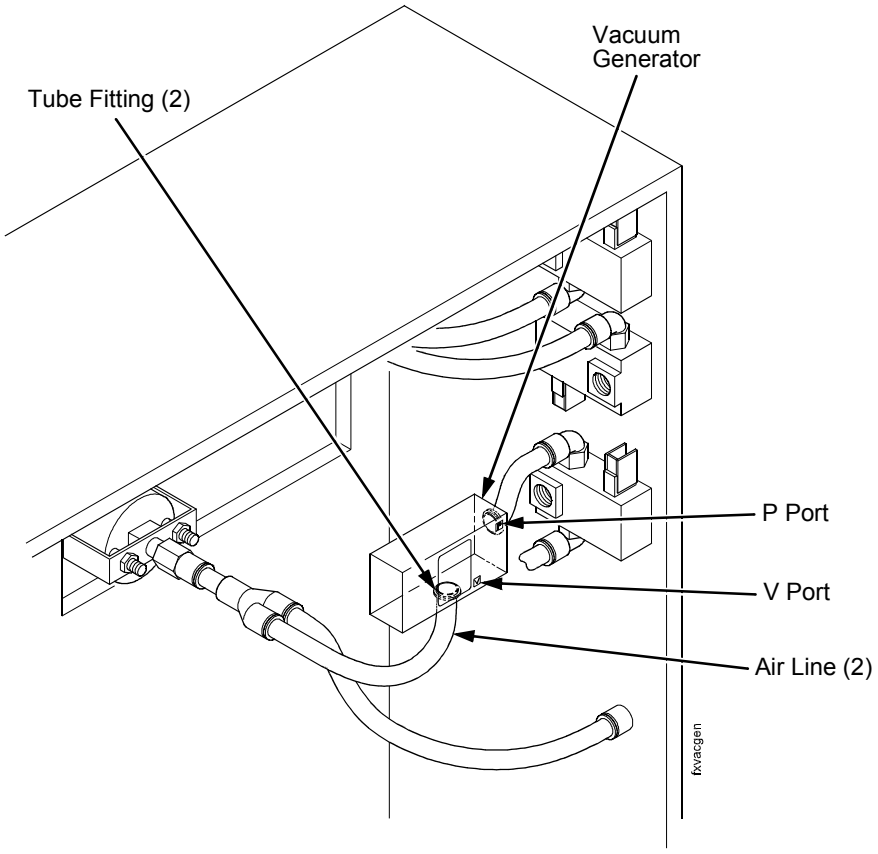


Figure 40. Vacuum Generator

2. Remove the two air lines attached to the vacuum generator by pushing in on the tube fitting (red collar) to release tension on the flexible tubing. Hold the tube fitting down while pulling the tube free.

3. Carefully wipe inside the tube fittings, using a small cotton swab moistened with alcohol.
4. Using a low pressure air nozzle (90 psi. max. pressure) blow air through the V port, then the P port using three - 2 second bursts.
5. Reconnect the vacuum generator and test the applicator padís vacuum as outlined in Cleaning The Applicator Padî on page 200.
6. If the vacuum has not improved and all pneumatic assemblies and tubing are secure, replace the vacuum generator being careful to connect the air lines to the proper fitting.

Cleaning Schedule

WARNING **All cleaning of printer/applicator parts should be done with isopropyl alcohol and a non-metallic tool. Using any metallic tools can damage machine parts, particularly the printhead and surrounding parts.**

What follows is a guide for general day-to-day cleaning of the SLPA parts. To keep the machine running smoothly, adhere to the following guidelines:

Table 10. General Cleaning Schedule

Items To Be Serviced	Frequency	How To Clean
Platen Rollers	8 Hours	Wipe with soft, lint-free cloth moistened with isopropyl alcohol.
Applicator Pad Surface	8 Hours	Wipe with soft, lint-free cloth moistened with isopropyl alcohol.
Dynamic Brake	8 Hours	Wipe with soft, lint-free cloth moistened with isopropyl alcohol.
Air Jets	Daily	Blow tube clear with filtering air if needed. Wipe with soft, lint-free cloth moistened with isopropyl alcohol. See Positioning The Air Jetsî on page 60.
Air Filter/Regulator	Check daily or as needed	Replace filter. Wipe parts with clean cloth moistened with isopropyl alcohol.
Printhead Elements	Weekly or as needed	Wipe with a Printronix printhead cleaning pen or a cotton swab moistened with isopropyl alcohol. See Figure 38 on page 198. Printhead cleaning needs depend upon the print mode which is being used.

6 *Troubleshooting*

Introduction

This chapter lists fault messages and symptoms, and gives procedures for troubleshooting printer malfunctions.

You must operate the printer to check its performance and you may have to reconfigure it.

What You Should Know About Print Quality

The print quality of a thermal printer is affected most by the amount of heat applied by the printhead to the media and by the location of the printhead in relation to the print media.

Low-cost direct thermal media often have very high reaction temperatures, which means that it takes a great deal of heat to make a clear image. Resin ribbons and film media may also require higher print intensity for a quality image.

You can increase the heat applied by the printhead in three ways:

1. Set the **Print Intensity** configuration parameter to a higher numerical value with a command from the host computer or by accessing the **MEDIA CONTROL** menu with the control panel. (See Configuring The SLPAî on page 81.) This causes more heat to be transferred to the print media, thus generating a darker image.
2. Run the printer slower.
3. Do both 1 and 2.

IMPORTANT **Keep the printhead clean. Foreign material on the printhead interferes with heat transfer. If smears, voids, or white lines appear on printed forms, clean the printhead (page 199).**

How To Maximize Printhead Life

1. Remind the customer to clean the printhead with a cleaning pen after each roll of ribbon (thermal transfer) or media roll (direct thermal). The cleaning pen (P/N 203502-001) will last for eight printhead cleanings. See "Cleaning" on page 197.
2. Avoid excessive printhead pressure, usually indicated by white wear spots on the printhead element. Reduce the pressure until you see print quality problems, then increase the pressure slightly until you have good print quality.
3. Avoid excessively high Intensity settings. Intensity is the burn temperature that the printhead operates at. Lower temperatures will increase the life of printheads. Reduce the Intensity setting until you see print quality problems, then increase the setting slightly until you have good print quality.
4. Clean and inspect the platen roller for excessive wear (light print) and gouges (repeating voids).
5. Customer responsibilities: configuration, printhead installation, and preventative maintenance.

Troubleshooting At A Glance

How To Troubleshoot

You will be more successful in troubleshooting printer problems if you use standard fault isolation techniques, which are summarized below:

1. Ask the operator to describe the problem.
2. Verify the fault by running a diagnostic printer test or by replicating the conditions reported by the user.
3. Look for a matching message or symptom in Table 11 on page 208 or Table 12 on page 236. If you find a match, follow the troubleshooting instructions.
4. If you cannot find the symptom in either troubleshooting table, use the Half-Split Method to find the malfunction:
   a. Start at a general level and work down to details.
   b. Isolate faults to half the remaining system at a time, until the final half is a field-replaceable part or assembly.

WARNING **ALWAYS disconnect the AC power cord from the printer or the power outlet before doing any maintenance procedure. Failure to remove power could result in injury to you or damage to equipment. If you must apply power during maintenance, you will be instructed to do so in the maintenance procedure.**

5. Replace the defective part or assembly. Do not attempt field repairs of electronic components or assemblies. Most electronic problems are corrected by replacing the printed circuit board assembly, sensor, or cable that causes the fault indication.
6. Test printer operation after every corrective action. (See Printer Testsî on page 206.)
7. Install any parts you replaced earlier that did not solve the problem.
8. Stop troubleshooting and return the printer to normal operation when the reported symptoms disappear.

Printer Tests

This section lists SLPA printer tests which may be performed to check or confirm the proper operation of the SLPA with regard to print quality. The default is Auto Calibrate. The SLPA will display the last test displayed before going online.

NOTE: Label test printing places the SLPA in an alternate mode of operation which requires the operator to follow the test procedure very closely. Deviations in this process may cause the SLPA to function erratically, requiring the operator to cycle power to recover the SLPA.

To Print A Test Label

CAUTION **Printing a test label clears all data from the print buffer, and may require the operator to cycle power to recover the SLPA. Do not print test labels when the SLPA is online.**

IMPORTANT **Make sure GPIO Print&Apply is set to Disable in the GPIO CONTROL menu. Also, make sure Media Handling is set to Tear-Off Strip or Continuous in the QUICK SETUP menu.**

1. Press the **Pause** key to take the SLPA offline.
2. Press the **Apply** key to enter the Printer Tests menu.
3. Press the **Apply** key until the desired test displays and then press the ↵ (**Enter**) key to begin printing. If you pass the desired test, continue to press **Apply** until the test displays again.
4. If you are printing the Grey or Grid test, press ↵ to stop printing.
5. If the Test Count option in the DIAGNOSTICS menu is set to Continuous (the default), press ↵ to stop printing.

Auto Calibrate

Calibrates the SLPA for the currently installed media based on the Gap/Mark Sensor selected in the CALIBRATE CTRL menu.

IMPORTANT **Do not press Apply during the Checkerboard, Grey, or Grid test, or the ↵ (Enter) key will not stop printing the test. In this case, press Apply until the corresponding test displays again, then press ↵ to stop printing.**

Checkerboard

This pattern helps identify marginal printhead elements and uneven print quality.

Grey

This pattern helps identify burned out printhead elements and uneven print quality.

Grid

This pattern helps identify edge sharpness and uneven print quality.

Current Configuration

Prints the current SLPA configuration and helps identify the text print quality.

Left Test

Prints a pattern containing a series of ladder-type bar code symbols, starting with four and decreasing by one symbol on each print until a single symbol prints on the left side.This pattern helps identify ribbon wrinkle problems.

Right Test

Prints a pattern containing a series of ladder-type bar code symbols, starting with four and decreasing by one symbol on each print until a single symbol prints on the right side.This pattern helps identify ribbon wrinkle problems.

E-Net Test Page

This prints the ethernet statistics stored on the NIC (network interface card).

Barcode Demo

Prints text and barcodes with the barcodes positioned at the left and right margins of the standard label media supplied with the SLPA.

NOTE: To print a complete version of self-test labels, the label stock must be at least 4.65 inches wide x 3.00 inches long. If the label stock is smaller, the SLPA will print onto multiple labels until the label is complete.

Troubleshooting Display Messages

The printer uses built-in test equipment to monitor its operation and the condition of the print media. Various messages display indicating the status of the printer and media stock levels. Three kinds of messages can appear on the LCD:

- Status messages
- Configuration menus and menu options
- Fault messages

Most fault messages are cleared from the LCD by correcting the fault condition and then pressing the PAUSE key. Fault messages that can only be cleared by shutting down and restarting the printer are indicated by an asterisk (*) appended to the message.

When printer logic detects a fault condition, three things happen:

- The status indicator on top of the printer flashes on and off.
- The audible alarm beeps if it has been enabled in the PRINTER COUNTROL menu. Press **PAUSE** to silence the alarm.
- The control panel LCD displays a fault message.

List Of Messages

Find the message in the **Message List** below and follow the suggested procedure.

After correcting an error, press the **PAUSE** key to erase the message and put the printer in the offline mode. If an error is not cleared, the printer will try to print again but will display the error message until the error is cleared.

Table 11. LCD Message Troubleshooting

Displayed Message	Can User Correct?	Explanation	Solution
06 HOST REQUEST	Yes	Status message: in CT emulation, the host computer or printer controller requires attention.	Not a printer problem.
08 HOLD PRINT TIMEOUT	Yes	Status message: in CT emulation, the printer was offline more than 10 minutes and the "Intervention Required" parameter is set to "Send to Host."	Press PAUSE to put the printer online.
15 COMM CHECK	Yes/No	Communication Check: a message that appears in the CT emulation meaning the line is not active on a twinax interface.	1. Check your network for proper operation. 2. Try a different cable from a known good device. 3. If the problem persists, contact your authorized customer service representative.
22 INVALID ADDR	Yes	Invalid Address: poll time-out on the twinax interface indicating the unit address is not recognized by printer.	Have the system administrator make sure the printer address is correct.

Table 11. LCD Message Troubleshooting (continued)

Displayed Message	Can User Correct?	Explanation	Solution
27 CU TIMED OUT	Yes	Controller Unit Timed Out: the printer was not enabled for one minute or more on a coax interface.	Check the cable connection and host system. (Refer to the line problem determination procedures, as recommended by the host system.)
28 CU NOT ENAB	Yes	Controller Unit Not Enabled. Poll time-out-error. The printer was not polled for one minute across a coax interface.	Check the cable connection and host system. (Refer to the line problem determination procedures, as recommended by the host system.)
33 HEAD OPEN TIMEOUT	Yes	Status message in the CT emulation: The printer was offline more than 10 minutes, and the "Intervention Required" parameter is set to "Send to Host."	Close and latch the printhead. Press PAUSE to put the printer online.
40V POWER FAIL	Yes	+40 VDC: an internal power failure.	Power off the printer for 15 seconds, then power back on. If the problem persists, contact your authorized customer service representative.
203 DPI Head Installed	Yes	Normal power-up message. The printer is running its initialization routine and indicating DPI resolution of the installed printhead.	No action required.
300 DPI Head Installed	Yes	Normal power-up message. The printer is running its initialization routine and indicating DPI resolution of the installed printhead.	No action required.

Table 11. LCD Message Troubleshooting (continued)

Displayed Message	Can User Correct?	Explanation	Solution
Ambient light Validator failure	Yes	Ambient light is compromising proper scanning. **NOTE:** The Validator scanning laser cannot work properly in a room with excessive ambient light, including direct sunlight.	1. Minimize the ambient light around the validator. This may require moving the printer to a darker area of the room. 2. Press the PAUSE key to clear the fault message.
BAD VFU CHANNEL	Yes	The user tried to use an undefined VFU channel.	Use defined channels.
BAR CODE IMPROPER Data Format	Yes	Data validation error: improper data format.	Fix application so it sends data in the correct bar code format.
BAR CODE QUIET Zone too small	Yes	Data validation error: Quiet Zone error.	1. Fix application. 2. Disable Quiet Zone Error reports.
BATT HIGH VOLT	Yes	This is the High Volt Alert that can be set by the user (factory default = 16.0 Volts). This fault detection is only supported when the ICP (Intelligent Control Panel) option is connected to the printer serial port and Battery Monitor = Enable in the BATTERY CONTROL menu.	1. Raise the value in the High Volt Alert option in the BATTERY CONTROL menu. 2. If High Volt Alert = 16.0 Volts and the fault message remains, call your authorized service center.

Table 11. LCD Message Troubleshooting (continued)

Displayed Message	Can User Correct?	Explanation	Solution
BATT LOW VOLT	Yes	This is the Low Volt Alert that can be set by the user (factory default = 8.5 Volts). This fault detection is only supported when the ICP (Intelligent Control Panel) option is connected to the printer serial port and Battery Monitor = Enable in the BATTERY CONTROL menu.	1. Plug the power cart cable into an AC receptacle to recharge the battery. 2. If recharging the battery fails to clear the fault, replace the battery or batteries.
BUFFER OVERFLOW	Yes	Host sent data after the printer buffer was full (serial interface).	1. Make a configuration printout. 2. Verify that the printer matches the host serial interface configuration settings for Data Protocol, Baud Rate, Data Bits, Stop Bits, Parity, Data Terminal Ready, and Request to Send. 7. Set printer serial interface parameters to match those of the host.
BUFFER OVERRUN	Yes	Receive overrun (serial interface).	1. Make a configuration printout. 2. Verify that the printer matches the host serial interface configuration settings for Data Protocol, Baud Rate, Data Bits, Stop Bits, Parity, Data Terminal Ready, and Request to Send. 3. Set the printer serial interface parameter to match those of the host.

Table 11. LCD Message Troubleshooting (continued)

Displayed Message	Can User Correct?	Explanation	Solution
Calibration warning	Yes	The validator has detected that it needs calibration. This is a reminder message and does not halt printing.	Press the PAUSE key to clear the message. Perform the calibration procedure described in the *Validator Userís Manual*.
CALIBRATION FAIL See Manual	Yes	Calibration values derived from Manual Calibrate were not acceptable.	Run Manual Calibrate again.
CANNOT CALIBRATE Disable Peel-Off	Yes	Run Calibrate was attempted with Peel-Off Media Handling selected. **NOTE:** You can perform Auto Calibrate in Peel-Off mode if Cal in Peel Mode = Enable. Be prepared to catch labels during Auto Calibrate.	1. Select another Media Handling option in the QUICK SETUP or MEDIA CONTROL menu. 2. Enable Cal in Peel Mode in the CALIBRATE CTRL menu. **NOTE:** Admin User must = Enable.
Checksum Failure	Yes	The validator detected that the barcode fails checksum or is missing the checksum digit.	Verify that the checksum digit exists in the barcode and that it is the correct value.
CLEARING PROGRAM FROM FLASH	Yes	Emulation software successfully loaded into printer RAM and the checksum matched. The old program is now being deleted from flash memory.	No action required.
CONTRAST TOO LOW Check media	Yes	Data validation error: symbol contrast.	1. Adjust heat or change media. 2. Disable symbol contrast error reports.

Table 11. LCD Message Troubleshooting (continued)

Displayed Message	Can User Correct?	Explanation	Solution
CUTTER FAULT Jam or Cut Fail	Yes	1. Cutter assembly is not in the closed position. 2. Cutter option was not able to complete a full cut cycle due to a jam. 3. Cutter PCBA detected current overload and opened circuit breaker on cutter PCBA.	1. Place the cutter assembly in the closed (up) position. 2. Clear obstruction from the cutter assembly. 3. Insure media thickness is within specification. Wait a few minutes for the cutter circuit breaker to automatically reset. Press PAUSE to clear the fault message and resume printing.
DEACTIVATING HOST SERIAL	Yes	Normal message that displays when you set Battery Monitor = Enable in the BATTERY CONTROL menu.	No action required.
DIAGNOSTICS PASSED	Yes	The printer passed its memory and hardware initialization tests.	No action required.
DIRECT THERMAL Remove Ribbon	Yes	This is the normal reminder message when you change the Print Mode setting from Transfer to Direct in the QUICK SETUP or MEDIA CONTROL menu.	1. Remove ribbon from the ribbon supply and ribbon take-up spindles in the printer. 2. If ribbon is required for printing, change the Print Mode back to Transfer.
DO NOT POWER OFF	No	This is a standard warning message that displays while the printer is downloading software.	Do not power off the printer until downloading is complete.

Table 11. LCD Message Troubleshooting (continued)

Displayed Message	Can User Correct?	Explanation	Solution
DOWNLOADING TO VALIDATOR	Yes	Normal message when the printer is downloading emulation software with a validator option installed. **NOTE:** Many software builds contain updates to the Validator option.	No action required. **NOTE:** The validator software update can be verified in the F/W Revision menu option of the VALIDATOR menu. Shown as: Example X326
E00 EXE @ ADDR0 See User Manual	Yes	An illegal or unsupported instruction was attempted in the application program.	1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility.
E01A TYPE 0x40 See User Manual	Yes	An illegal or unsupported instruction was attempted in the application program.	1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility.
E01B TYPE 0x60 See User Manual	Yes	An illegal or unsupported instruction was attempted in the application program.	1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility.

Table 11. LCD Message Troubleshooting (continued)

Displayed Message	Can User Correct?	Explanation	Solution
E02 MACHINE CHK See User Manual	Yes	An illegal or unsupported instruction was attempted in the application program.	1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility.
E03A DSI HASH L See User Manual	Yes	An illegal or unsupported instruction was attempted in the application program.	1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility.
E03B DSI HASH S See User Manual	Yes	An illegal or unsupported instruction was attempted in the application program.	1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility.
E03C DSI BAT PL See User Manual	Yes	An illegal or unsupported instruction was attempted in the application program.	1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility.

Table 11. LCD Message Troubleshooting (continued)

Displayed Message	Can User Correct?	Explanation	Solution
E03D DSI BAT PS See User Manual	Yes	An illegal or unsupported instruction was attempted in the application program.	1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility.
E03E DSI CXIWX See User Manual	Yes	An illegal or unsupported instruction was attempted in the application program.	1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility.
E03F DSI CXOWX See User Manual	Yes	An illegal or unsupported instruction was attempted in the application program.	1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility.
E03G DSI ECXIWX See User Manual	Yes	An illegal or unsupported instruction was attempted in the application program.	1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility.

Table 11. LCD Message Troubleshooting (continued)

Displayed Message	Can User Correct?	Explanation	Solution
E03H DSI ECXOWX See User Manual	Yes	An illegal or unsupported instruction was attempted in the application program.	1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility.
E04A ISI NO TRA See User Manual	Yes	An illegal or unsupported instruction was attempted in the application program.	1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility.
E04B ISI DIRECT See User Manual	Yes	An illegal or unsupported instruction was attempted in the application program.	1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility.
E04C ISI PROTEC See User Manual	Yes	An illegal or unsupported instruction was attempted in the application program.	1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility.

Table 11. LCD Message Troubleshooting (continued)

Displayed Message	Can User Correct?	Explanation	Solution
E06 NOT ALIGNED See User Manual	Yes	An illegal or unsupported instruction was attempted in the application program.	1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility.
E07 ILLEGAL INS See User Manual	Yes	An illegal or unsupported instruction was attempted in the application program.	1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility.
E08 FLOATINGPNT See User Manual	Yes	An illegal or unsupported instruction was attempted in the application program.	1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility.
E-NET INIT	Yes	Ethernet is initializing.	No action required.
E-NET READY	Yes	Ethernet has finished initializing.	No action required.
E-NET RESET	Yes	Ethernet interface is being reset.	No action required.
EC SOFTWARE FAIL See Manual	Yes/No	Engine control software failure.	Power off the printer for 15 seconds, then power back on. If the problem persists, contact your authorized customer service representative.

Table 11. LCD Message Troubleshooting (continued)

Displayed Message	Can User Correct?	Explanation	Solution
ENTER to Stop	Yes	Normal message when a test print pattern that will run continuously has been enabled.	Press the ENTER key to stop printing the test pattern.
ERROR: DC PROGRAM NOT VALID	Yes/No	The printer cannot find the data controller program or the validation checksum is corrupt.	Power off the printer for 15 seconds, then power back on. If the problem persists, contact your authorized customer service representative.
ERROR: DRAM AT ADDRESS XXXXXXXX	Yes/No	The printer found a defective memory location.	Power off the printer for 15 seconds, then power back on. If the problem persists, contact your authorized customer service representative.
ERROR: FLASH DID NOT PROGRAM	Yes/No	The printer encountered an error trying to program flash memory.	Power off the printer for 15 seconds, then power back on. If the problem persists, contact your authorized customer service representative.
ERROR: IPDS needs 300 DPI Head	Yes	The printer has detected a 203 DPI printhead installed with IPDS software downloaded. IPDS software only supports the 300 DPI printhead.	Power off the printer and replace the 203 DPI printhead with a 300 DPI printhead.
ERROR: NO DRAM DETECTED	Yes/No	The printer could not find any DRAM.	Power off the printer for 15 seconds, then power back on. If the problem persists, contact your authorized customer service representative.
ERROR: PROGRAM NEEDS MORE DRAM	Yes/No	The program exceeds the memory limitations of the printer.	Download a smaller program.
ERROR: PROGRAM NEEDS MORE FLASH	Yes/No	The printer requires more flash memory in order to run the downloaded program.	Power off the printer for 15 seconds, then power back on. If the problem persists, contact your authorized customer service representative.

Table 11. LCD Message Troubleshooting (continued)

Displayed Message	Can User Correct?	Explanation	Solution
ERROR: PROGRAM NOT COMPATIBLE	Yes	The printer is not compatible with the downloaded program.	Power off the printer for 15 seconds, then power back on. If the problem persists, contact your authorized customer service representative.
ERROR: PROGRAM NOT VALID	Yes	The printer does not see a program in flash memory.	Power off the printer for 15 seconds, then power back on. If the problem persists, contact your authorized customer service representative.
ERROR: SECURITY KEY NOT DETECTED	Yes/No	The security key is not present or has failed.	Power off the printer for 15 seconds, then power back on. If the problem persists, contact your authorized customer service representative.
ERROR: SHORT AT ADDRESS XXXX	Yes/No	Hardware failure in DRAM or Main PCBA controller circuitry.	Power off the printer for 15 seconds, then power back on. If the problem persists, contact your authorized customer service representative.
ERROR: WRITING TO FLASH	Yes/No	Hardware or software fault in flash memory.	Power off the printer for 15 seconds, then power back on. If the problem persists, contact your authorized customer service representative.
ERROR: WRONG CHECKSUM	Yes/No	The printer received the complete program but the checksum did not match. The data may have been corrupted during download.	Power off the printer for 15 seconds, then power back on. If the problem persists, contact your authorized customer service representative.
ERROR OCCURRED FLUSHING QUEUES	Yes	An interim message displays while the printer discards host data it cannot use because a fault condition exists. While this message displays, the asterisk (*) rotates.	Wait. When the asterisk (*) stops rotating, a different fault message will appear; troubleshoot the final message.

Table 11. LCD Message Troubleshooting (continued)

Displayed Message	Can User Correct?	Explanation	Solution
FAN WARNING	Yes	The printer detected that the power supply fan did not rotate for at least 45 seconds when it is was supposed to. **NOTE:** This is a warning message and will not halt printing. When too high of internal temperature is detected, based on its source, the printer will stop printing and display a PWR SUPPLY HOT, PRINTER HOT or PRINT HEAD HOT message.	1. Verify that the fan rotates when the printer is first powered up and when the printer moves media or prints. 2. Call your authorized service representative.
FILE EXISTS Enable Overwrite	Yes	The printer operator tried to save a file using the name of an existing stored file.	Enter the PRINTER CONTROL menu and enable the Overwrite Files feature to overwrite the existing file.
FILE SYS FULL Add Flash	Yes/No	Insufficient flash memory available to store file.	Install a larger flash memory SIMM. For additional flash, contact your authorized service representative.
FILE SYS FULL Delete Files	Yes	Insufficient flash memory available to store file.	Enter the PRINTER CONTROL menu. Use Delete Files to delete unwanted files.
FILE SYS FULL Optimize & Reboot	Yes	Insufficient flash memory available to store file.	Enter the PRINTER CONTROL menu and use the Optimize & Reboot feature.
FILE SYS INVALID Optimize&Reboot	Yes/No	File system not detected or flash was corrupted.	Enter the PRINTER CONTROL menu and use the Optimize & Reboot feature.
FILE SYS WRITE Check Flash	Yes/No	Problem writing to flash memory.	Power off the printer for 15 seconds, then power back on. If the problem persists, contact your authorized customer service representative.

Table 11. LCD Message Troubleshooting (continued)

Displayed Message	Can User Correct?	Explanation	Solution
FPGA FILE NOT FOUND	Yes/No	The program file was not downloaded successfully.	1. Download the program file again. 2. If the message reappears, contact your authorized customer service representative.
FRAMING ERROR	Yes	Serial framing error over a serial interface.	Match the serial interface settings of the printer to those of the host computer.
GAP NOT DETECTED See Manual	Yes	The printer is set for Gap or Mark sensing, but a gap, notch, or black mark is not being detected. The lower media sensor is not positioned correctly. When Advanced Gap or Advanced Notch is selected, the upper media sensor is not positioned above the lower media sensor. Gap/Mark Threshold is set too high or Paper Out Threshold is set too low.	1. Check that the setting of the Gap/Mark Sensor in the CALIBRATE CTRL menu matches the installed media. 2. Check the position of the lower and upper media sensors. (See Positioning The Media Sensorsî on page 64.) 3. Clean the sensor assembly and paper path. 4. Run Auto Calibrate to improve the sensorís ability to detect the media in use. 5. Run the Media Profile printout in the CALIBRATE CTRL menu. 6. Run Manual Calibrate. (See Running Manual Calibrateî on page 74.) 7. Manually change the Gap/Mark Threshold and/or Paper Out Threshold values.
GRF CHK ERROR PRESS PAUSE	Yes	In the CT emulation over a twinax interface, the printer received a non-printable character.	Press the PAUSE key twice.

Table 11. LCD Message Troubleshooting (continued)

Displayed Message	Can User Correct?	Explanation	Solution
H00: PCI SLOT ? See User Manual	No	The controller board is not communicating with a PCI card. This could indicate a bad PCI card, poor connection, or problem in the PCI bus.	Call your authorized service representative.
H01: PCI J24	No	The controller board is not communicating with the PCI card in PCI slot J12. This could indicate a bad PCI card, poor connection, or problem in the PCI bus.	Call your authorized service representative.
H02: PCI J25	No	The controller board is not communicating with the PCI card in PCI slot J12. This could indicate a bad PCI card, poor connection, or problem in the PCI bus.	Call your authorized service representative.
Half Speed Mode	Yes	The printhead or power supply is approaching a hot state. Half Speed Mode helps the cooling process and should permit completion of print jobs. Half Speed Mode helps prevent a PRINT HEAD HOT or PWR SUPPLY HOT fault, which will stop the printer.	1. Allow printer to continue printing. Full speed will resume automatically when a lower printhead or power supply temperature is achieved. 2. Let the printer cool down. Full speed will be restored when printing is resumed. 3. Lower Print Intensity and Print Speed to reduce frequency of Half Speed Mode.
HEAD POWER FAIL	Yes/No	Printhead lost power.	1. Replace the printhead. 2. Power off the printer for 15 seconds, then power back on again. If the problem persists, contact your authorized customer service representative.

Table 11. LCD Message Troubleshooting (continued)

Displayed Message	Can User Correct?	Explanation	Solution
IGP/PGL ERROR	Yes	Appears when the "Fault" option is selected from Error Report in the front panel.	Deselect "Fault" from Error Report on the front control panel.
INSUFFICIENT RAM Reboot/Add RAM	Yes/No	Not enough RAM memory available for a printer function.	1. Power off the printer for 15 seconds, then power back on again. 2. If the message reappears, increase the Glob Mem Adjust size in the PRINTER CONTROL menu and reboot the printer. 3. If the message reappears, replace the controller PCBA. Write down the message and return it with the defective board.
LABEL MISSING Check Paper Path	Yes	The Label Taken Sensor did not detect the label present over the tear bar with Tear-Off or Peel-Off Media Handling mode enabled. • The label was removed before the printer stopped printing or before the LCD "Remove Label" message displayed. • The label slipped behind the platen roller. • The label wrapped around the platen roller. • Tear-Off or Peel-Off Media Handling mode was mistakenly selected.	1. Press the PAUSE key to continue printing and then wait for the LCD "Remove Label" message before removing the label. 2. Open the pivoting deck, reinstall the label, close the deck, press the PAUSE key, and continue printing. 3. Open the pivoting deck and remove wrapped labels from the platen. Clean all adhesive from the platen. Reinstall labels, close the deck, press the PAUSE key, and continue printing. 4. Select the correct Media Handling mode in the QUICK SETUP menu.

Table 11. LCD Message Troubleshooting (continued)

Displayed Message	Can User Correct?	Explanation	Solution
LOADING PROGRAM FROM PORT XX%	Yes	The new emulation program is loading into printer RAM. XX% indicates how much of the program has loaded.	No action required.
LOADING PROGRAM INTO FLASH	Yes	A program is getting loaded into flash.	No action required.
MENU MODE QUICK SETUP	Yes	Normal message that displays when you first press the MENU key to place tje printer in Menu mode when no validator option is installed.	No action required.
INCOMPATIBLE WITH CUTTER	Yes	Tear-Off or Peel-Off Media Handling selection was attempted with the cutter option still installed. These modes require that the front door assembly be installed to use the Label Taken Sensor.	1. Select a different Media Handling Mode. 2. Power off the printer and remove the cutter option, install the front door assembly, power on the printer and select Tear-Off or Peel-Off Mode.

Table 11. LCD Message Troubleshooting (continued)

Displayed Message	Can User Correct?	Explanation	Solution
NON VOLATILE MEMORY FAILED	Yes/No	The printer assigns a certain amount of simulated NVRAM for storage of saved configurations. Large emulations reduce the amount of space available for saving configurations, which means that sometimes fewer than eight configurations can be saved. If this message appears when saving a configuration, it means the printer is out of memory. Previously saved configurations will still be available, but the one that was savedî when the message appeared is not in memory. If this message appears at power-up, it means the flash memory is defective.	1. If the message appears at power-up, call your authorized customer service representative. 2. If the message appears while saving a configuration, the printer is out of memory and will not save that or subsequent configurations. (Previously saved configurations are still okay.) 3. Limit the number of saved configurations to seven.
OPTION NOT INSTALLED	Yes	If the printer is powered on with the cutter enabled in the Media Handling menu, but the cutter itself is open (in the down position, or the cutter upper enclosure is removed) the printer cannot detect the cutter. When using the cutter, the printer must be powered on with the cutter in the up position and the cutter upper enclosure installed.	1. Check that the cutter option is installed, connected in the up position and the upper enclosure installed before powering on the printer. 2. Install the cutter option or change to the correct Media Handling option in the QUICK SETUP menu. 3. If the error persists, contact your authorized customer service representative.

Table 11. LCD Message Troubleshooting (continued)

Displayed Message	Can User Correct?	Explanation	Solution
PAPER OUT Load Paper	Yes	The printer does not sense media: • Media was not installed or has run out. • A break in media has occurred. • Media was not routed or installed correctly. • The media sensor is not positioned correctly. • Media is installed correctly, but the sensor is not detecting it. • Gap/Mark Threshold value may be set too high and/or Paper Out Threshold may be set too low. • The printer detected a false PAPER OUT when changing from Advanced Gap or Advanced Notch to Gap or Mark sensing or vice-versa.	1. Install media. If a break occurred, reinstall the media. Press the PAUSE key to clear the fault message. Check the media installation procedures on page 49. 2. Verify the lower media sensor is properly positioned under the media. If Advanced Gap or Advanced Notch is selected, verify the upper media sensor is positioned above the lower media sensor. Run Auto Calibrate to improve the ability of the sensor to detect the installed media. 3. Check if the Gap/Mark Threshold is too high or the Paper Out Threshold is too low. Lower the Gap/Mark Threshold or raise the Paper Out Threshold value. 4. If using media with no gaps or black marks, perform Auto Calibrate to establish a valid Paper Out Threshold. 5. If the printer detected a false PAPER OUT when changing from Advanced Gap or Advanced Notch to Gap or Mark sensing or vice-versa, press the PAUSE key and run Auto Calibrate.

Table 11. LCD Message Troubleshooting (continued)

Displayed Message	Can User Correct?	Explanation	Solution
PAPER OUT TIMEOUT	Yes	In the CT emulation with a coax interface, a time-out message is sent to the host if paper is not loaded within 10 minutes after PAUSE was pressed to clear a paper out fault.	Load media and run a print test. If the message persists, contact your authorized service representative.
PARITY ERROR	Yes	Parity error (serial interface).	Check your serial host interface parameter settings. If necessary, change them so they match the settings of the attached host.
POOR SCANNING Check Head&Heat	Yes	Data validation failure: The ratio between bar code elements is too small.	Adjust heat/speed/pressure.
POOR SCANNING Check media	Yes	Data validation failure: The bar code is only good in small bands that are difficult to scan.	Check for ribbon wrinkle. Roll wrinkled area onto take-up spindle.
POOR SCANNING Inspect head	Yes/No	Data validation failure: Defects failure; blemishes with the bar code are detected.	1. Check paper and ribbon to make sure they are clean, unwrinkled, and installed properly. 2. Clean printhead. 3. If message persists, replace the printhead.
POWER SAVER MODE	Yes	This is a status message. The printer is in low-energy idle state, the fan and higher voltages are off, and only +5Vdc logic circuits are active.	No action required.

Table 11. LCD Message Troubleshooting (continued)

Displayed Message	Can User Correct?	Explanation	Solution
PRINT HEAD COLD See Manual	Yes	Printer is in a cold environment or connector P401 has become dislodged from the back of the printhead.	1. Reseat P401 on printhead. 2. Change the printhead. 3. Place printer in a warmer location. 4. If problem persists, contact your authorized service representative.
PRINT HEAD HOT See Manual	Yes/No	The printhead has become overheated.	1. Allow the printhead to cool down for 5 minutes, then press PAUSE. Resume printing. 2. If possible, reduce print intensity. 3. If problem persists, contact your authorized service representative.
PRINT HEAD UP Close Print Head	Yes	Printhead is not closed and completely latched.	Close and latch the printhead pivoting deck.
PRINTER HOT See Manual	Yes/No	The printer has detected higher than usual temperatures on the controller PCBA.	1. Determine that the fan is operating and that all air vents are unobstructed. 2. Power off the printer for 15 seconds, then power the printer back on. 3. Move the printer to a cooler location. 4. If the problem persists after moving the printer to a cooler location, contact your authorized customer service representative.
PRINTER UNDER REMOTE CONTROL	Yes	Indicates that remote management software has control of the printer.	Press any key on the printer.

Table 11. LCD Message Troubleshooting (continued)

Displayed Message	Can User Correct?	Explanation	Solution
PWR SUPPLY HOT See Manual	Yes	Power supply is hot.	1. Determine that the fan is operating and that all air vents are unobstructed. 2. Move the printer to a cooler area. 3. If the problem persists, contact your authorized customer service representative.
RBN TAKEUP FULL Remove Used Rbn	Yes	The ribbon takeup spool is full.	1. Empty the takeup spool. 2. If the takeup spool is not full, try re-threading the ribbon. 3. Disable Rbn Takeup Full in the MEDIA CONTROL menu.
REACTIVATING HOST SERIAL	Yes	Normal message that displays when you set Validator Funct. = Disable in the VALIDATOR menu or Battery Monitor = Disable in the BATTERY CONTROL menu.	No action required.
RECHARGE BATTERY	Yes	This is the Time To Go Alert you can set (factory default = 1.0 Hour). This fault detection is only supported when the ICP (Intelligent Control Panel) option is connected to the printer serial port and Battery Monitor = Enable in the BATTERY CONTROL menu.	1. Plug the power cart cable into an AC receptacle to recharge the battery. 2. If recharging the battery fails to clear the fault, replace the battery or batteries.

Table 11. LCD Message Troubleshooting (continued)

Displayed Message	Can User Correct?	Explanation	Solution
Remove Label	Yes	• A label was detected at the front of the printer by the Label Taken Sensor. This is the normal reminder message when Peel-Off or Tear-Off Media Handling has been selected. • A label was removed, but the "Remove Label" message remained. • The incorrect Media Handling mode was selected.	1. Remove the label from the front of the printer to allow the next label to print. 2. Verify that a front door assembly is installed on the printer and that it is properly closed. Ensure that no debris is obstructing the door mirror or the Label Taken Sensor. 3. In the QUICK SETUP or MEDIA CONTROL menu, change Media Handling to the correct selection.
RESETTING PLEASE WAIT	Yes	Printer finished loading the program into flash memory and is automatically resetting itself.	No action required.
RESTORING BOOT CODE	Yes	Normal download initialization message.	No action required.
RFID TAG FAILED:Check Media	Yes	Failed tag. Error displays in STOP mode, causing printer to halt.	Initiate reprint of the label from the host. When the error is cleared, the label with the failed tag moves forward to the next TOF position.
RFID MAX RETRY:Check System	Yes	Failed tag. Error displays in OVERSTRIKE mode. Each failed label prints with the OVERSTRIKE pattern; the form retries until the label retry count is exhausted.	Clear the error. When the error is cleared, the label with the failed tag moves forward such that the next label is in position.
RIBBON BROKEN Reload Ribbon	Yes	Ribbon is broken between the ribbon take up spindle and the printhead.	Reattach ribbon.

Table 11. LCD Message Troubleshooting (continued)

Displayed Message	Can User Correct?	Explanation	Solution
RIBBON FAULT Timeout	Yes	In the CT emulation with a coax interface, the ribbon has not moved for 10 minutes after PAUSE was pressed to clear a ribbon fault.	1. Clean the printer. 2. Power off, wait 15 seconds, then power back on again. If the message persists, contact your authorized customer service representative.
RIBBON LOAD BAD Reload Ribbon	Yes	Ribbon was incorrectly loaded on the take-up or supply spindle.	1. Reload the ribbon correctly. For ribbon loading instructions, see page 57.
Ribbon Low	Yes	1. The supply spool is getting low. 2. If there is a large amount of ribbon still on the supply spool, then the Ribbon Low message is being displayed falsely.	1. Replace ribbon. 2. Disable Ribbon Low in the MEDIA CONTROL menu.
RIBBON OUT Load Ribbon	Yes	1. The ribbon supply spool is empty. 2. The ribbon has broken.	1. Replace ribbon. 2. Reinstall ribbon.
SECURITY CODE VIOLATION	Yes	The software being used is not correct for the printer.	1. Load the correct software. 2. Power off the printer for 15 seconds, then power back on again. If the problem persists, contact your authorized customer service representative.
SIGNAL Clipping	Yes/No	Data validation error: The validator cannot read clearly because either the ambient light is too bright or there is a hardware failure inside the validator itself.	1. Dim ambient lighting. 2. Replace the validator.

Table 11. LCD Message Troubleshooting (continued)

Displayed Message	Can User Correct?	Explanation	Solution
SOFTWARE ERROR* Recycle Power	Yes/No	1. Application software tried to perform an illegal printer function. 2. There are damaged logic circuits on the controller PCBA.	1. Recycle the printer power. If possible, print a job that has previously worked. 2. If the problem persists, contact your authorized service representative.
Speed Exceeds Validator Limit	Yes	The Print Speed or Slew Speed value is above 6 IPS as the power-up default with the validator option installed, or the user attempted to increase Print Speed or Slew Speed above 6 IPS.	Change the Print Speed or Slew Speed value in the MEDIA CONTROL menu to 6 IPS or less when using the validator option, and save the new value as the power-up default.
TESTING HARDWARE PLEASE WAIT	Yes	Normal power-up message. Printer is running its initialization routine.	1. No action required. 2. If the printer does not complete initialization and continues displaying this message when the CT emulation is installed, the expansion CT board may not be connected to the controller PCBA.
Unscannable Code Check media	Yes	Data validation error: missing barcode.	Check the paper and ribbon for cleanliness, wrinkles, etc., or an obstructed validator beam. If there is no validator beam at all, or if the LED is not flashing as barcodes pass through the validator beam, recycle validator power. If the problem persists, contact your service representative.
Validator not communicating	Yes	The Validator Funct. = Enable in the VALIDATOR menu, but when the printer was first powered up it could not communicate with the validator.	Check that the validator signal cable is securely connected to the validator unit.

Table 11. LCD Message Troubleshooting (continued)

Displayed Message	Can User Correct?	Explanation	Solution
WAITING FOR PROGRAM DOWNLOAD	Yes	Normal message when the printer is powered up while holding down both the MENU key and the DOWN arrow key in preparation to download software to the printer.	1. Complete the downloading software procedure. See "Downloading Software" on page 271. 2. Exit this procedure by cycling printer power.
WIRELESS ADAPTER NOT COMPATIBLE	No	The type of wireless card is incompatible with the printer software.	The PCMCIA radio card that you installed may be incompatible with the dual NIC interface in the printer. Verify the approved brand and model number of the radio card with your printer service provider and install the correct version. If using the correct radio card does not resolve this problem, call your service provider for further support.

Troubleshooting Other Symptoms

Use standard fault isolation techniques to troubleshoot malfunctions not indicated by display messages. These techniques are summarized below:

1. Ask the operator to describe the problem.
2. Verify the fault by running a diagnostic printer test or by replicating conditions reported by the user.
3. Look for a match in the **General Symptom List** below. If you find a match, follow the instructions.
4. If you cannot find the symptom in the **General Symptom List**, use the Half-Split Method to find the malfunction:
   a. Start at a general level and work down to details.
   b. Isolate faults to half the remaining system at a time, until the final half is a field-replaceable part or assembly.

WARNING **Always disconnect the AC power cord from the printer or the power outlet before doing a maintenance procedure. Failure to remove power could result in injury to you or damage to equipment. If you must apply power during maintenance, you will be instructed to do so in the maintenance procedure.**

5. Replace the defective part or assembly. Do not attempt field repairs of electronic components or assemblies. Most electronic problems are corrected by replacing the circuit board, sensor, or cable that causes the fault indication.
6. Test printer operation after every corrective action.
7. Reinstall any parts you replaced earlier that did not solve the problem.
8. Stop troubleshooting and return the printer to normal operation when the reported symptoms disappear.

General Symptom List

Table 12, beginning on page 236, is a list of possible printer problems that are not indicated by messages on the LCD. Troubleshooting procedures are included with each symptom.

If you encounter a problem that is not listed in Table 12, troubleshoot using the Half-Split Method described above.

Table 12. General Symptom List

Symptom	Solution
CONTROL PANEL	
Communications failures.	1. Check the interface cable. 2. Check the configuration to ensure the correct interface is enabled. 3. Verify the printer is receiving data by viewing the Data indicator on the control panel.
Black squares on the control panel display.	1. Install the Flash SIMM. 2. If the message reappears, replace the Flash SIMM with a Flash SIMM that has working boot code. 3. Redownload software (page 271).
Control panel keys do not work after attempting to print a configuration or test label.	1. Cycle power. 2. Set GPIO Print&Apply to Disable in the GPIO CONTROL menu.
Control panel keys do not work, but printer prints in ONLINE mode.	A wire is broken or a pin is not making contact in the control panel cable assembly. Replace the control panel cable assembly.
LCD message display is illuminated and the printer appears to be working, but nothing is printed.	1. Verify that the labels are the correct type (direct thermal). 2. Check that the media is loaded with the direct thermal side facing up. 3. Check that the transfer ribbon is correctly routed. Route transfer ribbon with ink side out. 4. Check that the printhead assembly is properly closed by pressing down on both sides of the pivoting deck. Make sure the latches on each side of the pivoting deck are locked. 5. Verify that the ribbon and media are compatible; incompatibility can cause extremely light printing. Match the ribbon to the type of media being used. 6. Check that the Print Intensity is correct. Set the Print Intensity in the QUICK SETUP or MEDIA CONTROL menu. 7. Check that the Label Width parameter value does not exceed the width of the media installed. Set the Label Width in the QUICK SETUP or MEDIA CONTROL menu.
LCD is backlit, no messages display, and a faint horizontal line appears on the display.	A wire is broken or a pin is not making contact in the control panel cable assembly. Replace the control panel cable assembly.

Table 12. General Symptom List

Symptom	Solution
LCD is not backlit and control panel keys do not work.	A wire is broken or a pin is not making contact in the control panel cable assembly. Replace the control panel cable assembly.
ONLINE status indicator is flashing.	1. Check for Out-of-Media condition or missing labels in the middle of a roll. Load correct media. 2. Check that the ribbon and label stock are correctly routed. Load ribbon and label stock correctly. 3. Make sure the Print Mode settings (Direct or Transfer) are correctly selected in the QUICK SETUP or MEDIA CONTROL menu.

Table 12. General Symptom List

Symptom	Solution
POWER FAILURES	
Printer fails to turn on, the display is not backlit, and the fan is not running. **NOTE:** The power supply delivers +24VDC and +40VDC. The controller PCBA uses the +24VDC to develop +5VDC and +3.3VDC for its logic circuits.	1. Check that printer AC power cord is correctly attached to the printer and to the AC power outlet. 2. Test AC wall outlet for correct power range. Place the printer in an area that has the correct power range. 3. Test the AC power cord for continuity. Replace a damaged AC power cord or one that fails continuity test. 4. Make sure the power supply cable is connected to J17 on the controller PCBA. 5. Using a voltmeter, test between TP2 +24VDC (+22 to +26VDC) and TP4 GND on the controller board. If voltage is not in tolerance, replace the power supply assembly. 6. If +24VDC is good, check TP1 for +40VDC (+35 to +45VDC). If voltage is not in tolerance, replace the power supply assembly. 7. If +24VDC and +40VDC are good, test at TP3 VCC for +5VDC (+4.75 to +5.25VDC). If voltage is not in tolerance replace the controller PCBA. 8. If all voltages are good so far, test for +3.3VDC (+3.14 to +3.47VDC) on the center lead of U23 on the controller PCBA. If voltage is not in tolerance, replace the controller PCBA. 9. If all voltages are good, replace the Flash SIMM.
Printer does not initialize, the display is backlit and a faint horizontal bar appears on the top line. No message displays. The power supply fan runs constantly.	1. The Flash SIMM at J38 on the controller PCBA has a poor connection or is not installed. Reseat or install the Flash SIMM as required. 2. Using a voltmeter, test for +3.3VDC (+3.14 to +3.47VDC) between the center lead on U23 and TP4 GND on the controller board. If voltage is not in tolerance, check for +5VDC (+4.75 to +5.25VDC) between the top lead of U23 and TP4 GND or between TP3 VCC and TP4 GND. If +5VDC is in tolerance and +3.3VDC is not, replace the controller PCBA. 3. If +5VDC is not in tolerance, test for +24VDC (+22 to +26VDC) between TP2 +24VDC and TP4 GND. If +24VDC is in tolerance, replace the controller PCBA.

Table 12. General Symptom List

Symptom	Solution
PRINT QUALITY	
• Label(s) did not get printed within a multi label print job. • A portion of the printed image was clipped off and the beginning of the next label was printed on the same physical label.	1. If the serial interface is being used, verify that the correct data protocol is selected to match the host interface protocol. 2. If Clip Page = Enable in the MEDIA CONTROL menu, the printer may have falsely detected a gap, hole, or black mark and then clipped (discarded) the remaining printable data for the label. To fix this: a. Perform Auto Calibrate. See "Running Auto Calibrate" on page 71. b. Decrease Gap Threshold value by 2 or 3 increments. See "Gap/Mark Sensor" on page 100. c. Set Clip Page to Disable. Set Label Length to correct physical length value. See "Clip Page" on page 118.
Short printhead life.	See "How To Maximize Printhead Life" on page 204.
Media moves, but no image prints in ONLINE mode.	1. Print a checkerboard diagnostic test pattern (page 206). If the pattern prints, there is a communication problem between the host computer and the printer. 2. Make sure the J402 power supply cable has a good connection to the right side of the printhead.
Media moves, but no image prints in Direct Thermal mode.	1. Print a checkerboard diagnostic test pattern (page 206). Check the print quality. 2. Media is not the type for Direct Thermal printing. Install Direct Thermal media. 3. Direct Thermal media is installed with the wrong side up. Reinstall media. 4. Check that the Label Width value in the QUICK SETUP or MEDIA CONTROL menu does not exceed the media width installed. 5. Check that the Print Intensity value is not set too high in the QUICK SETUP or MEDIA CONTROL menu. 6. Check that the printhead assembly is properly closed by pressing down on both sides of the pivoting deck. Make sure the latches on each side of the pivoting deck are locked. 7. The head pressure adjustment dial may be set too low. Readjust. 8. The printhead pressure blocks are not positioned correctly (horizontally). See "Printhead Pressure Block Adjustments" on page 64.

Table 12. General Symptom List

Symptom	Solution
Media and ribbon move, but no image prints in Thermal Transfer mode.	1. Print a checkerboard diagnostic test pattern (page 206) and check if the image appears on the used portion of the ribbon. If the image is on the ribbon, the ribbon may be installed with the transfer side against the printhead, instead of against the media. Reinstall the ribbon. 2. The ribbon may be designed for another model printer. 3. Verify that the ribbon and media are compatible; incompatibility can cause extremely light printing. Match the ribbon to the type of media being used. 4. Check that the transfer ribbon is correctly routed. Route the transfer ribbon with the ink side out. 5. Check that the printhead assembly is properly closed by pressing down on both sides of the pivoting deck. Make sure the latches on each side of the pivoting deck are locked. 6. Check that the Label Width parameter value does not exceed the width of the media installed. Set the Label Width in the QUICK SETUP or MEDIA CONTROL menu. 7. The head pressure adjustment dial may be set too low. Readjust. 8. The Print Intensity value is set too low in the QUICK SETUP or MEDIA CONTROL menu or by host software. 9. The printhead pressure blocks are not positioned correctly (horizontally). See "Printhead Pressure Block Adjustments" on page 64.
When narrow media is installed, the media moves but no image prints.	Verify that the Label Width value in the QUICK SETUP or MEDIA CONTROL menu agrees with the width of the installed media. Too large a value will start the image too far to the right and off the media.
Printing is faded or poor in quality.	1. Clean the printhead. 2. Check that the pivoting deck is closed and latched. Close the printhead by pressing down on both sides of the pivoting deck and rotating the deck lock lever fully counterclockwise. 3. Verify that the head pressure adjustment dial is properly set. 4. Verify that the QUICK SETUP or MEDIA CONTROL menu Print Speed and Print Intensity values are correct. Adjust Print Speed and Intensity in the QUICK SETUP or MEDIA CONTROL menu or via the host software. 5. Refer to "Thermal Printer Media" and "Thermal Printer Technology" on page 20.

Table 12. General Symptom List

Symptom	Solution
Print is light on the left or right side of the label.	Check to see if the pressure blocks are set for the width of the media being used. Set each block near the edge of the media.
Prints strange characters instead of the correct label format.	1. If the printer serial interface is being used, check that the printer serial baud rate setting matches the baud rate of the host computer. Reset the printer via software, or cycle power. 2. Check if the printer serial host interface is set for 8 data bits but the transmitting device is set for 7 data bits (or vice versa). Check the current setting by viewing it on the LCD and use the SERIAL PORT menu to adjust the settings if necessary. 3. If the printer parallel interface is being used, make sure the parallel interface terminating resistors are correct for the host computer drivers.
Peel-Off or Tear-Off Media Handling is selected, but the printer does not pause after each label is printed. The entire file prints, not allowing peel-off or tear-off operation.	1. Verify that Peel-Off or Tear-Off Media Handling is enabled in the QUICK SETUP or MEDIA CONTROL menu. Print a diagnostic test pattern using Peel-Off or Tear-Off mode to verify operation. 2. Peel-Off or Tear-Off mode was selected at the control panel, but a host software command might have changed the selection to another mode. Do step 1.
Peel-Off or Tear-Off Media Handling is selected, but diagnostic test patterns will not print.	1. The ↵ (ENTER) key was not pressed to start the test pattern printout. The ↵ key starts and stops all test prints. Press ↵. 2. Disable Print and Apply mode.

Table 12. General Symptom List

Symptom	Solution
• Start of image is printed an erroneous distance from the top-of-form. • The printer starts to print one label and then another, all within the same physical label.	1. In the MEDIA CONTROL menu, set Clip Page to Disable. 2. Make sure the Label Length value matches the actual physical length of the label installed. 3. In the QUICK SETUP or MEDIA CONTROL menu, set Ver Image Shift to a (□) negative value to bring the image closer to the leading edge of the label or to a (+) positive value to move the image further down the label away from the leading edge. These symptoms could be caused by: • severely curled labels near the end of a media roll • the media sensor triggering off of a dark, preprinted image on the label • multiple gaps within the physical label.
• Loss of one or more serialized labels within a print job. • Start of image is printed in the middle of the gap. • The top part of the image is lost when printing with Head First orientation selected.	4. In the CALIBRATE CTRL menu, set Gap Windowing to Enable. 5. Set Gap Length to equal the physical gap length of the media installed. The range is 0.05 to 1.00 inches. The likely cause of these symptoms is that Clip Page = Enable and a cross-perforation, radical fold or flaw in the liner gap has caused the media sensor to detect this as the leading edge (TOF) of the new label or end of label (EOF), or both.

Table 12. General Symptom List

Symptom	Solution
Smears or voids in printed image.	1. Dust on label stock from shipping, storage, or the core can cause print voids. Clean the labels with compressed air, a vacuum cleaner, or use static tinsel. 2. Atmospheric dust from long-term storage can also cause print voids. Remove a few feet of label stock, exposing the clean inner surface. When storing labels, cover them or place them in plastic. 3. Skin oils can adhere to the surface of label stock, causing fingerprints which inhibit thermal transfer. Wipe label stock with a cloth or remove a few feet of labels to expose a clean area. Handle labels by the edges. 4. Labels with a rough or uncoated surface can also print with voids. Use smooth (coated) label stock or use a soft wax for printing. 5. Oozing adhesive can cause print voids. This sometimes happens with old label stock. Use new label stock. 6. Power off the printer and thoroughly clean the printhead with a cleaning pen or isopropyl alcohol and a cotton swab. 7. Print the checkerboard and grey diagnostic test patterns (page 206). 8. Verify that the head pressure blocks are positioned to match the width of the media being used. (See "Printhead Pressure Block Adjustments" on page 64.) 9. Make sure the head pressure adjustment dial is set properly for the media thickness installed. 10. Make sure the printhead temperature (Print Intensity) is not too high. Use software control to adjust the heat setting. Change the Print Intensity value in the QUICK SETUP or MEDIA CONTROL menu. (See "Print Intensity" on page 108.) 11. Check that the media has not been installed inside out. Surfaces on both sides may look identical, but can produce big differences in print quality. 12. Make sure the correct ribbon and media combination are being used; install a new roll of ribbon and media and repeat step 7. Use the correct ribbon type. Genuine Printronix Supplies are highly recommended to ensure the best possible print quality. (See "Printronix Supplies Department" on page 15.) 13. Check the ribbon for creases or folds across its surface. Smooth out the ribbon to remove any creases.

Table 12. General Symptom List

Symptom	Solution
Smears or voids in printed image (continued).	14. Reduce the Print Speed value through the QUICK SETUP or MEDIA CONTROL menu or via host software. 15. Power off the printer. Remove the printhead and inspect it for contamination (adhesive material, ribbon and media residue line buildup), wear, or damage. A worn printhead will show obvious impressions or indentations in the light brown heating element area where ribbon or media made contact. A damaged printhead may have nicks, scratches, grooves, or cracks. If no problem is visible, install the printhead and repeat step 7. 16. Install an alternate printhead if one is available and repeat step 7. 17. If possible, install the questionable printhead in another printer and repeat step 7. 18. If the void areas in test print patterns remain in the same location, replace the printhead.
Vertical line through printed image.	1. Power off the printer and thoroughly clean the printhead with a cleaning pen or isopropyl alcohol and a cotton swab. 2. If problem persists after cleaning the printhead, inspect the printhead for damage and replace it if necessary.

Table 12. General Symptom List

Symptom	Solution
PRINTER OPERATION	
"*** 053 Insufficient memory to create the LOGOî printed on the media.	Install more DRAM.
"*** 055 LOGO call not previously definedî printed on the media.	Install more DRAM.
The printer loses its values for Sensed Distance, Gap/Mark Threshold, and Paper Out Threshold after the printer is powered on reset or reset by the host system. This will manifest itself as a loss in print format registration or possible PAPER OUT errors.	After performing a media calibration procedure, save the current configuration under the Config. Control menu. If the customer loads a different type of media, perform a calibration for the new media, or load a saved custom configuration for the specific media. Up to 8 custom configurations can be created for different type of media and print jobs. Also, make sure the Power-Up Config. is not set to Factory. (See "Power-Up Config.î on page 101.)
Advances several labels when FEED key is pressed.	1. Check that labels are loaded correctly. (See "Threading The Label Rollî on page 49.) 2. Check that the Label Length selected under the QUICK SETUP or MEDIA CONTROL menu or the Label Length software command sent by the host computer agrees with the length of the media installed. (Even though gapped or black mark forms are used to establish top-of-form position, a larger label length will override the gap or mark and skip a label or labels if Clip Page = Disable in the MEDIA CONTROL menu.) In the QUICK SETUP or MEDIA CONTROL menu, set the Label Length to match the actual length of media being used. 3. Enable the Clip Page menu option in the MEDIA CONTROL menu. This will force the printer to constantly look for the gap or black stripe and halt at the top-of-form position. 4. Check that the printer is optimized to detect the type of media installed. Perform the Run Calibrate procedure for transmissive and reflective media. (See "Calibrating The Media Sensorsî on page 71.) 5. Adjust the media sensor horizontally to detect the gap, holes, notches, or narrow width black stripe. (See "Positioning The Media Sensorsî on page 64.) 6. If problem persists, replace the media sensor.

Table 12. General Symptom List

Symptom	Solution
• Print quality is good, but the printer skips every other label. • An occasional blank label occurs within a print job, but no labels are lost.	1. Make sure that the image is not formatted too close to the top edge of the label. Leave white space equal to eight dot rows at the top of the label. 300 dpi = 0.0264 inches. 203 dpi = 0.04 inches. 2. Check that Clip Page = Enable in the MEDIA CONTROL menu. Clip Page = Enable causes any printable data to be clipped off and lost once the next TOF position (gap, notch, hole, or black mark) is detected. Clip Page = Disable allows the printer to ignore a gap or mark. The printer looks for the gap or mark after the specified Label Length is first reached. 3. In the QUICK SETUP menu, use a negative Ver Image Shift value to move the image toward the leading edge of the label.
One or more labels did not print in multiple-label print job. ó OR ó A portion of the printed image was clipped off and the beginning of the next label was printed on that same label.	1. If the serial interface is being used, verify that the selected data protocol for the printer matches that of the host computer. 2. If Clip Page = Enable in the MEDIA CONTROL menu, the printer may have falsely detected a gap, hole, or black mark, and then clipped (i.e., discarded) the remaining printable data for the label. a. Do the Run Calibrate procedure. See Auto Calibrateî on page 123. b. Increase the Gap Threshold value by two or three increments in the CALIBRATE CTRL menu. c. Change Clip Page to Disable and set Label Length to the correct physical value in the MEDIA CONTROL menu.
Print quality difference noticed between printing with a 203 dpi printhead versus a 300 dpi printhead.	There is a known noticeable difference in print quality regarding the formatting between a printer with a 203 dpi printhead versus a 300 dpi printhead. There is no fix for thisó this is how the printer is designed to work. If the customer changes the printhead, they also need to redesign their jobs or use drivers that match the new printhead resolution.

Table 12. General Symptom List

Symptom	Solution
Bar code print jobs print as control codes for IGP or Code V bar code jobs.	1. Make sure the correct microcode to support IGP or Code V emulation is loaded in the printer. 2. Verify the printer configuration has the correct active graphics emulation selected as IGP or Code V in the PRINTER CONTROL menu. 3. Make sure the SFCC character is set to what is being used by the job. You can put the printer into hex-dump mode if it is a non-IPDS printer to find what the SFCC character is. 4. If the printer also has IPDS microcode installed, ensure the customer is not using an IPDS device profile to send the IGP or Code V print job to the printer. If the printer is defined as an IPDS device on the host, the customer will then need to create another device profile that is NOT IPDS. Refer the customer to the *Coax/Twinax Programmerís Reference Manual* or the *Network Interface Card Userís Manual* for instruction on correctly creating a different device profile that can utilize IGP or Code V datastreams.

Table 12. General Symptom List

Symptom	Solution
RIBBON	
Printer advances media, but ribbon does not advance.	1. Make sure the ribbon is installed correctly. 2. A poor ribbon/media combination can cause insufficient friction between media and ribbon. Verify that the correct ribbon and media are being used. 3. The printhead pressure may not be set high enough. Set the head pressure adjustment dial higher. 4. There may be adhesive on the printhead. Clean the printhead.
Ribbon take-up spindle is not rewinding the used ribbon.	1. In the QUICK SETUP or MEDIA CONTROL menu, verify that Print Mode is set to Transfer. 2. Power off the printer and verify that the take-up spindle rotates freely with no binding. 3. If binding exists, remove the side cover and check the gear train. 4. Verify that the ribbon take-up motor is connected to J8 on the controller board. 5. Replace the ribbon take-up motor.
Printer cuts (melts) through the transfer ribbon.	1. Verify that the printing heat setting (Print Intensity) is set to the proper level. In the QUICK SETUP or MEDIA CONTROL menu, set Print Intensity to the correct level. 2. Verify that Print Speed is not too low. In the QUICK SETUP or MEDIA CONTROL menu, set Print Speed higher. 3. Verify that the correct ribbon is installed. The melting point for thermal transfer varies significantly among ribbon types.
Printing stops and ONLINE status indicator flashes.	1. Check the LCD for a fault message. Press **PAUSE** to display the fault message again. 2. Inspect for a jammed label. Remove jammed label. 3. Check that the transfer ribbon and label stock are routed correctly.
Narrow width ribbon breaks frequently.	The Ribbon Width value in the MEDIA CONTROL menu is set too large, causing too great a ribbon take-up and ribbon supply spindle torque. Reduce the Ribbon Width value to decrease the torque on the ribbon spindles. The Ribbon Width value should be very close to the Label Width value. To reduce the torque further, set Ribbon Length (in the MEDIA CONTROL menu) from Save As Paper to Set In Menu. Then set a value less than the installed ribbon width.

Table 12. General Symptom List

Symptom	Solution
After closing the printhead, the printer continuously moves the media back and forth and briefly flashes the message RBN TAKEUP FULL.	1. Power off the printer and verify that the take-up spindle rotates freely with no binding. 2. If binding exists, remove the side cover and check the gear train. 3. Verify that the ribbon take-up motor is connected to J8 on the controller board. 4. Replace the ribbon take-up motor.
Wide width ribbon does not take up properly. The ribbon moves past the platen assembly with the media.	The Ribbon Width value in the MEDIA CONTROL menu is set too narrow for the ribbon installed. Set the Ribbon Width value to match the width of the ribbon installed. This will increase the torque on the ribbon take-up spindle.
The printer loses data from the print job when an end of ribbon condition occurs while printing, even when Error Recover is set to Enable.	Use a Printronix ribbon. **NOTE:** Some ribbons use a **trailer**: foil or mylar material at the end of a ribbon roll that is attached to the fiber core. In order for the printer to detect a ribbon out properly and then reprint an incomplete label, the ribbon supply spindle must first spin freely after the ribbon parts from it. The printer can print with a trailer of up to 6 inches long (the distance from the supply spindle to the printhead). If the trailer is more than 6 inches, the printer will continue to print over the trailer, with no image being transferred to the label. A Ribbon Out fault will then be detected when the trailer has parted from the ribbon supply spindle, but may not reprint the last label.

Table 13. Applicator Troubleshooting Chart

Sympton	Diagnosis	Solution
Cylinder will not cycle after the label is encoded/ printed.	1. Check for faults on the display.	1. Correct or clear any faults on the LCD.
	2. Check the photocell operation or apply signal.	2. Replace photocell if defective. Test photocell or apply signal input from the interface board to the GPIO port.
	3. Check input air pressure and cylinder pressure.	3. Input air pressure should be set to 80 psi. The cylinder pressure should be approximately 40 to 60 psi on the control panel.
	4. Check that the air hose to the cylinder is not obstructed.	4. Repair chinked air lines or broken and leaking fittings.
	5. Check cylinder valve operation.	5. Check air input and output from the valve. Also check 24 volts to the valve. If not 24 volts, check the 24vdc power supply output. If OK, check for mechanical sticking of the valve. Push manual valve pilot located on top of the valve.
	6. Check for mechanical binding of the air cylinder or leaking seal on the cylinder shaft.	6. Remove air lines to the cylinder and manually slide up and down to check for binding. Adjust cylinder or replace cylinder assembly.
Label running into tamp pad.	1. Check tamp alignment to peel bar.	1. Loosen four allen screws and slide the tamp pad assembly to .050 inches in front of the peel bar.
	2. Check the air jet pressure and air jet angle.	2. Lower pressure on the control panel, or increase angle adjustment of the air jet.
	3. Check tamp pad for wear on the edges.	3. Replace the lower pad assembly if worn.

Table 13. Applicator Troubleshooting Chart

Sympton	Diagnosis	Solution
No repeat label after cylinder is cycled.	1. Printer buffer is empty or the quantity of one was sent to the print buffer. 2. Check pad home sensor LED. LED should be on when tamp is in the return position. 3. Check for printer faults. 4. Check tamp shut off valve. See Figure 37 on page 77.	1. Send new quantity of labels to the buffer. 2. Adjust sensor mount on the cylinder and tighten or replace if defective. 3. Correct and clear all faults on the LCD. 4. Open tamp shut off valve.
Cylinder extension too short or too long.	Check cylinder extend time and cylinder pressure.	Change Cylinder Extend time value in the Applicator Delay menu between 40 - 60.
Labels not peeling off onto the tamp pad assembly.	1. Check label tension around the peel plate. 2. Verify that the labels are not expired or defective. 3. Verify that the labels are loaded properly and the backing motor is operating correctly.	1. Correct the brake adjustment on the label supply roll. Replace dancer spring if worn. Check peel plate for wear and proper alignment. 2. Store labels in an area 60 to 80 degrees F at 50 to 60% humidity. If defective, order new labels from Printronix. 3. Make sure the labels are loaded correctly (page 49). Check motor belt and gear for wear. Verify that the dancer proximity is energizing the 24V relay and turning on the rewind motor control circuit. 4. Make sure the air jet is turned on.

Table 13. Applicator Troubleshooting Chart

Sympton	Diagnosis	Solution
Label falling off the tamp pad after being dispensed.	1. Check air jet pressure and angle adjustment.	1. Adjust air jet regulator clockwise and position the air jet to blow onto the first 1/3 of the label. If no air jet stream, check the valve air input and 24V to valve. If still no air jet stream, check the connector. Check the air solenoid valve is connected to the vacuum generator.
	2. Check vacuum setting and that all the holes on the pad are covered.	2. Adjust vacuum valve clockwise for 20 in. hg. Check for obstruction in the vacuum holes. Check for clogged vacuum carb. Check the vacuum filter.
	3. Check for defective or old label supplies that are curling.	3. Order new labels from Printronix. 4. Check for 20 inches hg at the hose.
Labels buckling while feeding onto the tamp pad assembly.	1. Clean any debris on the tamp pad surface. 2. Check for a worn tamp pad.	1. Clean the tamp pad surface. 2. Replace worn tamp pad assembly. 3. Increase the vacuum delay time.

Table 13. Applicator Troubleshooting Chart

Sympton	Diagnosis	Solution
Label advances but the backing rewind motor is not turning.	1. Check that the labels are loaded properly. 2. Check dancer spring assembly. 3. Check dancer proximity switch. 4. Check that the relay contact is closing when the proximity LED is on. 5. Check for a worn or broken motor rewind belt or gear. 6. Check voltage to the rewind motor. 7. Place the system online.	1. Make sure the labels are loaded correctly (page 49). 2. Verify that the dancer spring is attached. Replace the dancer spring if worn. 3. The LED should be on when the dancer roller is in the up position. If not, check the connections and the 24vdc power supply or replace the proximity switch. 4. If not, check the wiring connections or replace the 24vdc relay. 5. Replace broken or worn parts. 6. When the proximity LED is on the relay contact should close and the motor will turn on. If not, measure the voltage across the motor leads. This should read 18.5 to 19 VDC or 82 to 84 rpm. Adjust the main pot on the motor control board.

A Specifications

Applicator Orientation

The SLPA may be mounted for top, bottom, or side applications.

Product Distance Variation

The relationship between the SLPA and the product is adjustable by moving the entire machine on the mounting stand. The applicator effective stroke length is adjustable by setting the cylinder apply pressure along with the cylinder extend time. The maximum stroke from the bottom of the SLPA is equal to the length of the cylinder stroke minus 4.50 inches (114.3 mm).

Application Rate

The maximum application rate depends upon the label size and the mode of operation. The actual applicator cycle time must be totaled with the printing time, data download, and formatting time (if in Unique mode), to determine maximum cycle rate for a particular application and label size.

The following factors below can significantly effect or reduce the total product speed within a target environment:

- Label Size/Print Speed

  The longer the label and/or slower it prints, the longer the print time.

- Gap (liner only) Size

  When more than 1 inch of gap is available between labels, reverse paper motion can be eliminated, therefore reducing total label cycle time.

- Tag Type

  Gen1 tags take longer to encode than Gen2. While differing much less, these timing variations for encoding different Gen2 tags.

- Application Method

  Applying a label to a box takes longer when using different methods. For example, Tamp/Blow takes longer than standard tamp.

- Tamp Surface

  Irregular (e.g. non-flat) surfaces often have to be hit with less force. Less force is achieved by using less speed on the tamp, therefore increasing time needed to tamp.

- Product/Case Weight

  Depending on the weight on a case, tamping may have to use less force or even a different application method to safely apply labels.

- Data Availability

  SLPA parallel processing requires that data for multiple labels be in the printer at all times. If data comes in less frequent, some of the internal processes will be left idle, wasting time and increasing total label time.

- RFID Operation Requirements

  Optimum application rates assume that RFID encoding is the only function being performed. Adding an RFID read and/or verify will add time to a total label cycle.

- Consistency and Timing of Product Arrival

  All SLPA performance statistics require some degree of consistency in product arrival rates. There has to be some minimum times between apply signals. The number of cases that pass the applicator in a minute does not determine the case rate of a system. Instead the rate is determined as a function of minimum time elapsed between the arrivals of two adjacent cartons.

- Tamp Distance

  For maximum performance, products should be justified to the edge of the conveyor nearest the SLPA. The further away the boxes are, the longer the tamp time. As tamp time increases, SLPA cpm performance decreases.

Printing

Print Speed	2.0 inches (50.8 mm) to 10 inches (254 mm) per sec {7204 SLPA} 2.0 inches (50.8 mm) to 8 inches (203 mm) per sec {7304 SLPA}
Slew Speed	2.0 inches (50.8 mm) to 10 inches (254 mm) per sec {7204 SLPA} 2.0 inches (50.8 mm) to 8 inches (203 mm) per sec {7304 SLPA}
Dot Size	0.005 inch (0.127 mm) dots per inch {7204 SLPA} 0.003 inch (0.076 mm) dots per inch {7304 SLPA}
Dot Density	300 dots/inch (11.8 dots/mm) {7304 SLPA} 203 dots/inch (8 dots/mm) {7204 SLPA}

Media

Maximum Roll OD	12 inches	305 mm
Minimum Roll ID	3 inches	76 mm
Roll Length	2400 feet	732 meters
Printing Width	3.0 to 4.1 inches	75 to 104 mm
Printing Length	2.0 to 10 inches *	50.8 to 254 mm
Gap for 100% Printing	0.10 inches	2.54 mm
Thickness	0.0025 to 0.0100 inches	0.0635 to 0.254 mm

* For labels longer than 8.0 inches custom work is needed.
Contact your Printronix service representative for details.

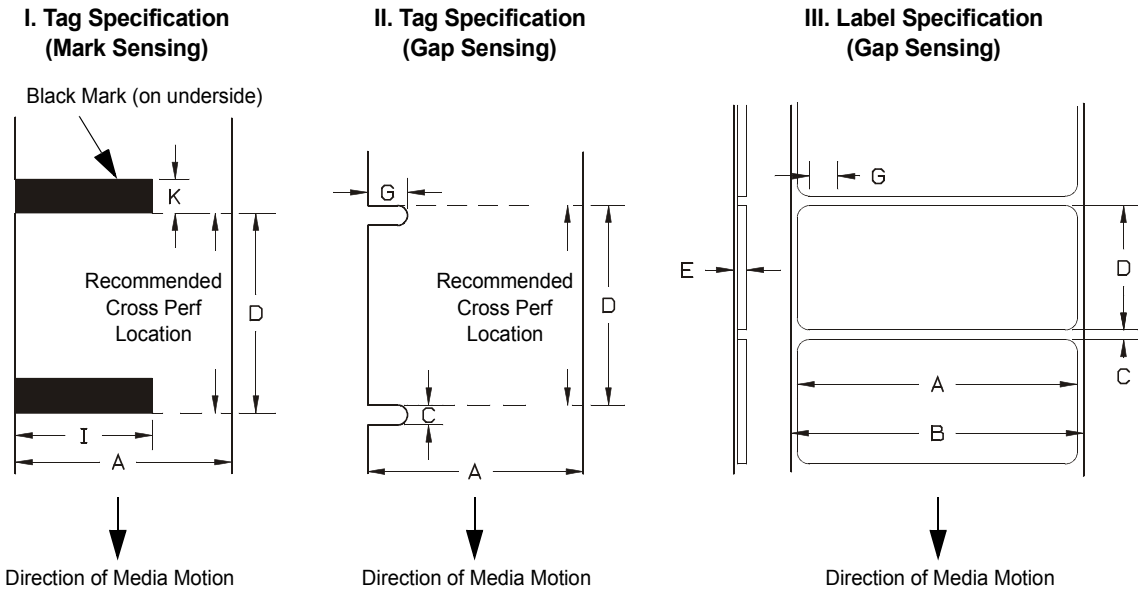


Figure 41. Media Dimensions

Table 14. Media Specifications

A	Label Width Range	0.75 -4.5 in. 19.1-114.3 mm
B	Backing Width Range	0.75-4.5 in. 19.1-114.3 mm
C	Min. Gap/Hole/Notch Height	0.10 in. 2.54 mm
K	Min. Refl. Mark Height	0.10 in. 2.54 mm
I	Min Refl. Mark Width	0.5 in. 12.7 mm
E	Media Thickness Range	.0025-.010 in. .0635-.254 mm
G	Width of Inter-label gap/hole	0.25-0.50 in. 6.35-12.7 mm
D	Media Length Range	2 in. - 8 in.
	These figures are approximate and depend upon the active emulation and application.	

Ribbon

Roll OD	3.0 inches	76 mm
Roll ID	1.0 inches	25.4 mm
Std Length **Max Length**	1476 feet 2050 feet	450 meters 625 meters
Thickness	4.5 micron	4.5 micron

Electrical

Input Voltage	115 VAC ±10%, single phase @ 50 to 60 Hz 230 VAC ±10%, single phase @ 50 to 60 Hz
Power Entry Module	One 2.0 Amp, 250 V Slo-Blo fuse

WARNING **The SLPA must be connected to a properly grounded receptacle free of power surges and fluctuations. Proper operation/protection of the SLPA can only be guaranteed if its power supply is maintained within the electrical supply specifications given above.**

The power supply cord used with the SLPA must be a 2 conductor plus ground type with minimum 0.75 mm square conductors. This connector must incorporate a standard IEC appliance coupler on one end and a main plug on the other end, which is suitable for use and application of the product and is approved for use in the country of application.

Pneumatic

Supply Pressure	Recommended setting for regulated air supply is 80 to 100 psi (550 to 690 kPa)
Apply Cylinder Pressure	Recommended setting for internal apply pressure is 40 to 60 psi (140 to 275 kPA)
Air Flow Rates	3 to 5 scfm (85 to 142 sclm)
Connection	1/4 inch NPT
Vacuum	20 inch hg minimum recommended.

Environmental

Operating Temperature **Storage Temperature**	40□to 104□F (5□to 40□C)* -23□to 140□F (-5□to 60□C)* *The SLPA can be operated outside these conditions with its environmental enclosure.
Operating Humidity **Storage Humidity**	20 to 85% non-condensing 5 to 85% non-condensing
Liquids	Free of direct fluid contact
Solids	Minimize unnecessary exposure to dirt, dust, and other debris; non-conducting, non-corrosive
Chemicals	Free of caustic or corrosive exposure
Ventilation	Free air movement around the SLPA
EM Immunity	Operating area must be free of emissions in the 250 to 300 MHz range.

Physical

Length	29.0625 inches	738 mm
Height	24.5 inches	622 mm
Width	17.0 inches	432 mm
Weight	96 pounds	43.6 Kg

NOTE: Dimensions DO NOT include mounting bar, warning/fault beacons, or labels. Allow at least 8 inches (203.2 mm) additional space for power supply, cables, and air lines.

Connections

RS-232C Serial Port

One serial port (COM 1) is provided on the SLPA as a connection for host devices. This female DB25, RS-232C serial port has the following connections:

Pin 2	Transmit Data
Pin 3	Receive Data
Pin 7	Signal Ground

The serial ports must be configured for the correct baud rate, parity, and stop bits.

Communications Interface

Standard interfaces include RS-232 (only if RFID is disabled), and IEEE-1284 Centronics parallel. Optional interfaces are ethernet and Wireless 802.11B. If using ethernet, parallel is no longer available.

B *Options*

Beacon Package Options

Optional remote indication and/or system control is possible through these options. Both types of optional equipment use a PLC expansion module with additional cabling, sensors and/or additional components.

The specifications for the PLC expansion module are:

Relay Output Voltage	DC Current Rating @ 45^{O} C	Max. Current Rating (All Terminals)	Response Time Off to On/On to Off
24 VDC	1A	1A	10 msec./8 msec.

Fault/Warning Beacon Package

This option provides a blue and an amber beacon tower that is connected to the SLPA. The blue/amber lights are used to convey fault/warning information in this package, as follows:

- **Fault**: An illuminated blue beacon signals a fault situation. Fault conditions (such as Out of Label) signal a state where operation is suspended until the condition is cleared.
- **Warning**: An illuminated amber beacon signals a low label situation. This signal state allows operation to continue, but the operator is prompted to check the systemís status.

Label On Pad Sensor

The sensor detects whether or not a label is present on the pad. Typically the sensor is set to 15 inches of pulling vacuum. If the sensor detects less than 15 inches of pulling vacuum, it tells the system that the label is not on the pad. If the sensor detects more than 15 inches of pulling vacuum, it tells the system that the label is on the pad. Once the sensor detects that a label is on the pad, the system goes into the label application stage. The vacuum generator should be set to a minimum of 20 inches when the label is on the pad.

Mounting The Beacon

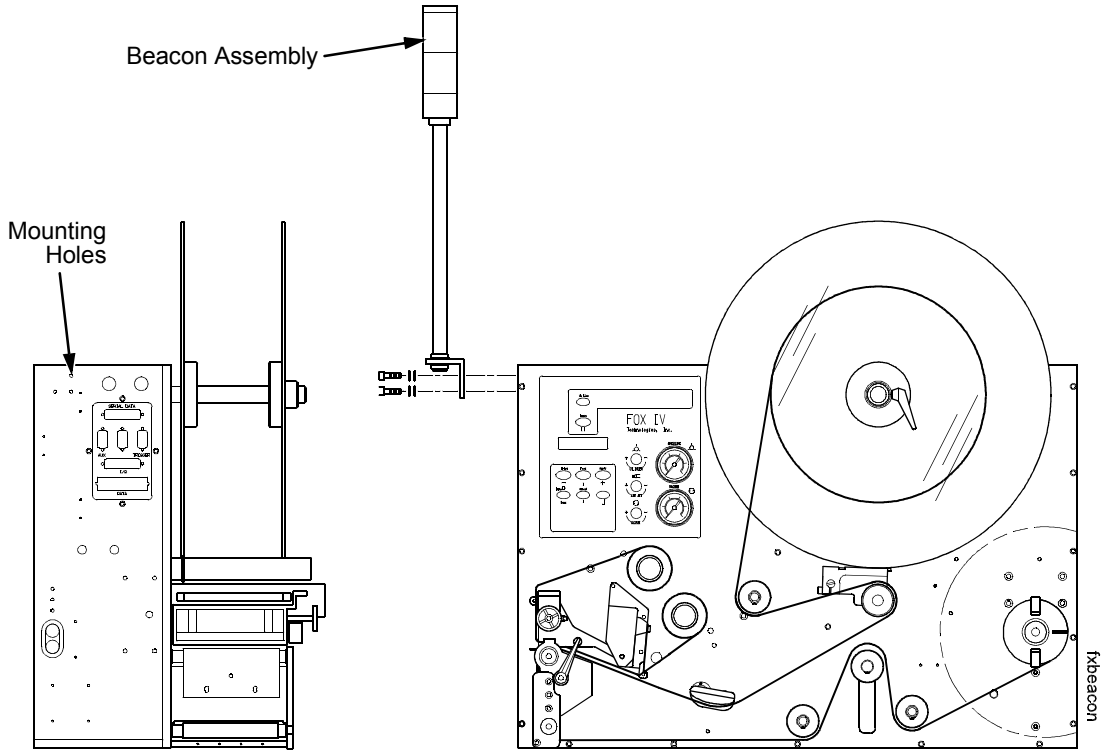


Figure 42. Beacon Mounting

If a beacon option was ordered with the system, it is advisable to mount it before mounting the SLPA to the conveyor line. To mount the beacon post:

1. Orient the mounting holes of the beacon to the holes on the side panel of the SLPA and secure into place using the provided screws.
2. Connect the 5-pin connector assembly of the beacon to the 5-pin plug located on the side panel of the SLPA (Power Panel).

Mounting Accessories

U-Arm And Accessories

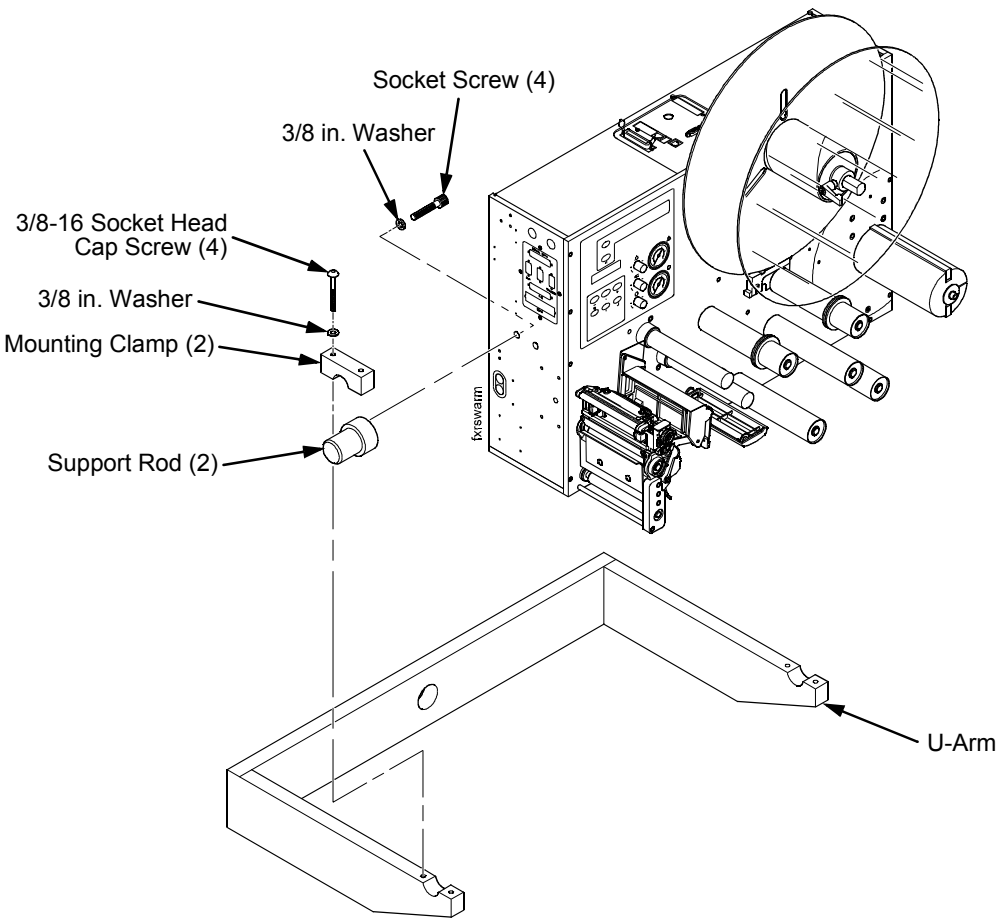


Figure 43. U-Arm and Offset Arms

The SLPA is designed so that it can be mounted to a stand, or other fixturing device, using button head socket screws and U-arm. The offset arms are provided to adapt the SLPA for mounting to the U-arm.

NOTE: The optional mounting stand that can be purchased with the SLPA utilizes the U-arm configuration.

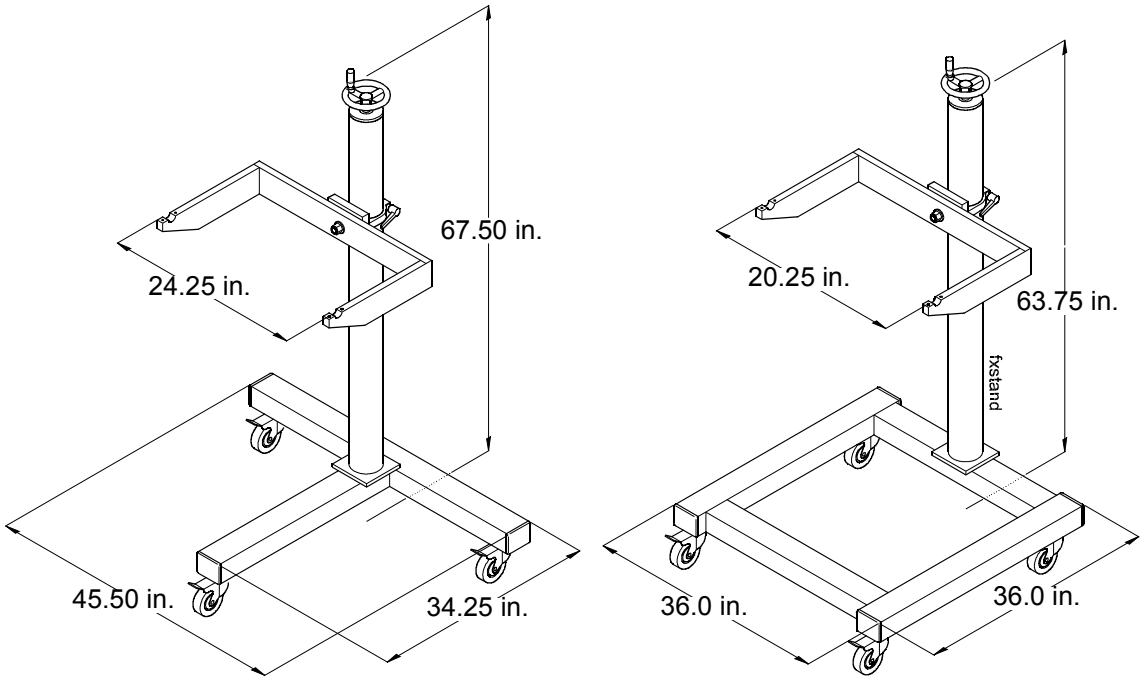
1. Secure the support rod to the side plates of the SLPA using the two washers and four socket screws provided. (If the U-arm was purchased with your SLPA, this may already be done.)
2. Secure the U-arm to the stand, or other mounting device using the two mounting clamps, two 3/8 inch washers, and four 3/8-16 socket head cap screws provided.
3. Insert the support rods of the offset arms into the recessed section of the U-arm and hold into place.

4. Secure the SLPA into place using the 3/8-16 socket head cap screws provided with the two U-arm clamps. Torque the bolts to 36 ft-lbs in increments of 6 ft-lbs for each bolt.

CAUTION **Use extreme caution when lowering the SLPA onto the U-arm. The SLPA is a heavy unit and may be difficult to lift by one individual. Once the SLPA is supported by the U-arm, it must be held in place until it is secured with the U-arm clamps. The weight distribution of the SLPA is not balanced, therefore, it would tend to pivot on the support rods. The U-arm clamps will supply enough pressure to hold the SLPA into place.**

Mounting Stand

An optional mounting stand can be purchased with the SLPA that utilizes a standard U-arm configuration. Offset arms are provided with all stands, that mount directly to the sides of the SLPA, for easy assembly to the U-arm. Once mounted on the stand, the SLPA can be rotated and locked into various positions for printing.



T Base Stand **H Base Stand**

Figure 44. Mounting Stand

Low Label Sensor

The low label sensor activates the warning beacon to alert the operator of a low label situation. The low label indication can come from the optional fault warning beacon (light tower), message to the LCD or message to the host computer. The low label sensor is typically not adjusted after manufacturing as it is located behind the media unwind assembly. Its position may be moved to allow more or less media stock on the unwind roll before signal activation. Proceed as follows:

1. Remove the front label roll retainer and the label roll back stop.
2. Remove the two #6-32 screws, relocate the sensor in one of the three possible sensor location holes, and replace the #6-32 anchoring screws.
3. Replace the front label roll retainer and the label roll back stop.

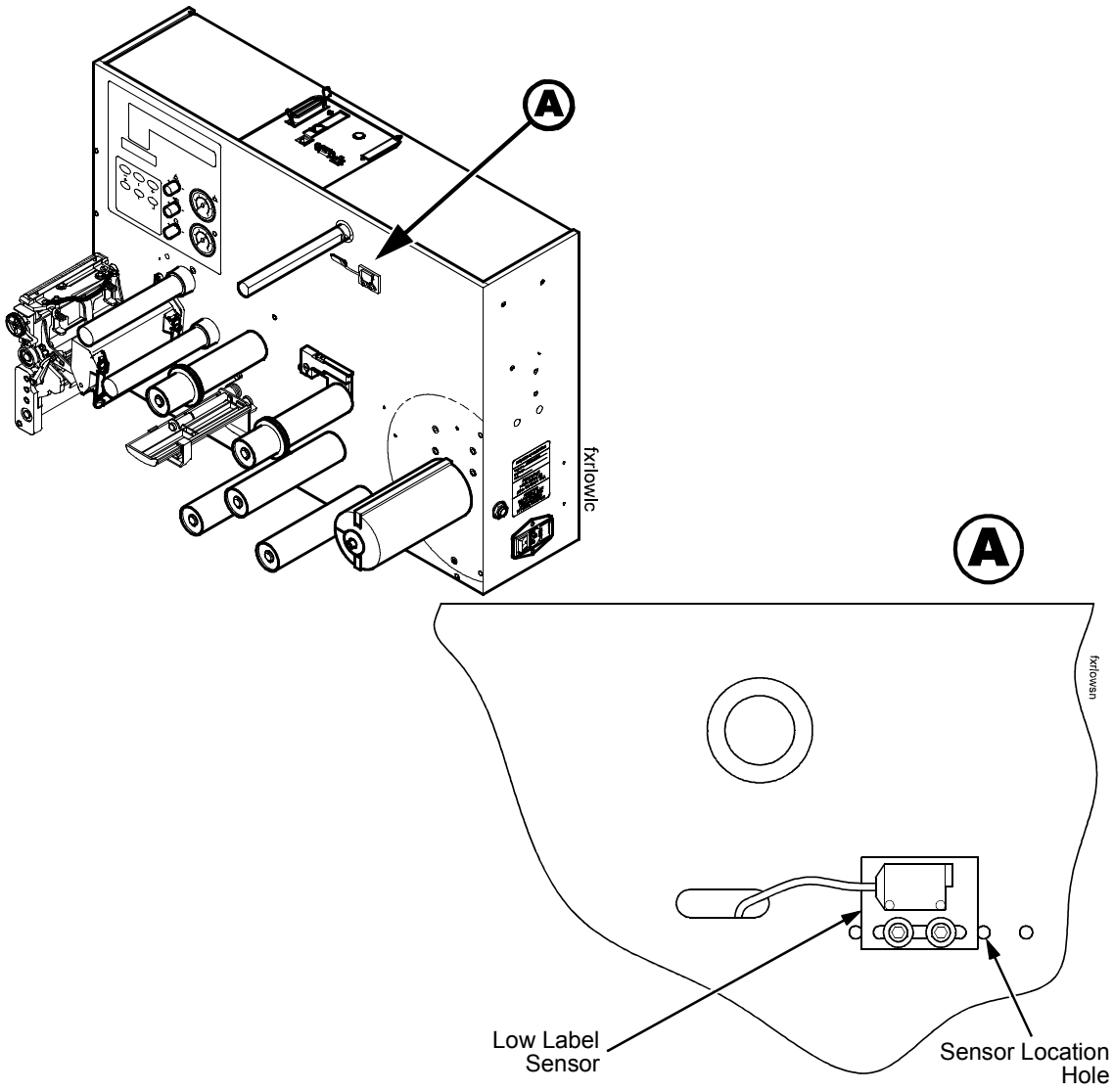


Figure 45. Low Label Sensor Adjustment

When the label stock is running low, the low label signal state should be **ON**. To test the label low input:

1. Remove the label stock from the label roll hub while monitoring this signal state.
2. Turn the label roll hub so that the sensor is not visible through one of the slots in the label roll back stop.
3. Clear the fault condition by feeding label/ribbon stock through the printhead as noted by the display instructions.
4. Once the error is cleared, rotate the label roll back stop until the low label sensor visibly aligns with one of the open slots in the plate. If the signal state does not change, the sensor and itís wiring may need maintenance.

Product Sensor

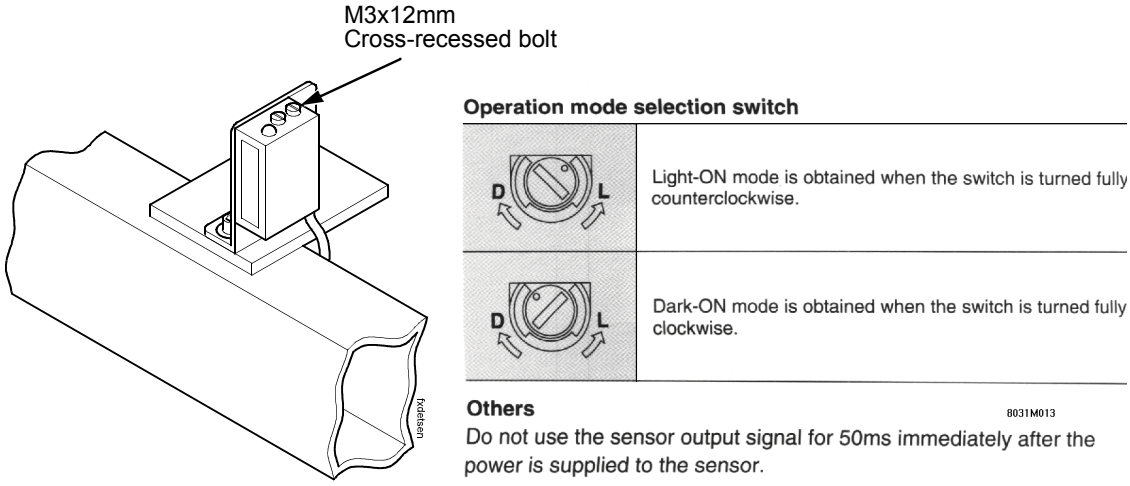


Figure 46. Product Sensor Adjustment

The product sensor mounts on the side of the conveyor and detects the presence of the product and activates the tamp cycle and next print cycle. The print cycle begins by printing a label and feeding it to the applicator. The system then waits the designated Delay Time, after which the applicator extends to place the label, then returns to await the beginning of the next print command. The mounting position of the product sensor determines the rough placement of the label on the product (see Label Application (Positioning) Adjustmentsî on page 76). The DB9 Connector located on the back of the SLPA connects the product sensor to the SLPA.

Product sensors of the following type may be used:

Type	Pin Number	Pin Description
12 - 24 VDC Photo eye (Provided)	1	100mA max current allowed
	2	GND
	6	Signal
Device using NPN Transistor with open collector output SINK 50 ma	2	GND
	6	Signal
Mechanical Switch	2	GND
	6	Signal

CAUTION **The internal signal is pulled up to +24VDC.**

Use shielding cables which should be grounded at the SLPA end. It is also recommended that a 200 Ω ferrite be attached to the cable for adequate EMI shielding.

The product sensor supplied by Printronix has a range of 12 inches (300mm) and has a sensitivity adjustment for different sensing levels. This sensor has two modes of operation, Light Operate and Dark Operate. When an object is in front of the product sensor, the LED, located on the back of the sensor is lit. When in Light Operate mode, the factory preset mode, the sensor will trigger when the LED turns on (is lit). This mode would therefore apply a label when the leading edge of the product is detected by the sensor. When in Dark Operate mode, however, the sensor will trigger when the LED turns off (is not lit). This mode would therefore apply a label when the trailing edge of the product is detected by the sensor.

NOTE: For a standard SLPA, the sensor should be set to Light Operate mode. If the Dark Operator mode is required, custom work is needed and must therefore be specified prior to order placement.

If the sensor is set to Dark Operator mode for a standard SLPA, the cylinder will always cycle one time on power-up.

To adjust the product sensor delay to the correct time for the size of the product:

1. Adjust the sensitivity by turning the gain on the top of the product sensor. The red LED located on the top of the product sensor is provided to help set the sensitivity.

   To adjust to a lower sensitivity, turn the gain counterclockwise. To adjust to a higher sensitivity, turn the gain clockwise.

NOTE: The product sensor should be set to a lower sensitivity if it is being triggered by background objects. If the product sensor does not trigger when the product passes in front of the sensor, it should be set to a higher sensitivity.

Application Options

NOTE: The following application options require custom work and must therefore be specified prior to order placement.

Cylinder Stroke Lengths

To customize the SLPA to meet individual application requirements, applicators are available in the following cylinder stroke lengths:

- 8.0 inches (203 mm)
- 14.0 inches (357 mm) - standard
- 20.0 inches (508 mm)

NOTE: The lengths specified above do not reflect the actual distance that the SLPA can be positioned from the product. The applicator pad must travel 4.75 inches (120.65 mm) from the peel point (point at which the label is applied) before reaching the bottom of the SLPA. Therefore, an SLPA that has a cylinder length of 14 inches, for example, can be positioned no more than 11.50 inches (292 mm) from the product to make contact.

Soft Pad

For applications requiring cushioned application, a soft applicator pad is available. This pad is manufactured from foam rubber rather than hard plastic, as the standard applicator pad. This option is useful for applying labels to fragile products or products that have irregular surfaces.

Random Stroke Sensor

The random stroke regulator controls the trip point at which the applicator will return to its home position, once it makes contact with the product. This allows products of different sizes to be marked without concern of the applicator crushing objects which require a shorter stroke of the applicator.

There are several sensor types which may be used with the random stroke function, depending upon the customerís application. Regardless of the type of sensor used, all random stroke sensors will interface with the SLPA via the auxiliary connection on the interface panel.

C Downloading Software

Loading Flash Memory

Flash memory is contained in a SIMM (single in-line memory module) located on the controller PCBA. SLPA control languages (the "emulations") and SLPA operating system software are loaded into flash memory at the factory, but there are occasions when you may have to load this software:

- You have replaced the controller PCBA
- You have replaced flash memory
- The customer needs to upgrade SLPA software
- The customer needs different emulation software
- The customer buys the PGL or VGL graphics language, the CT option, the IPDS option, or the ethernet NIC (network interface card) option after the SLPA is installed

Emulation and operating system software are included as files on a CD-ROM that comes with the SLPA. You will copy the appropriate file from the CD-ROM to a computer's hard disk, then download the file from the computer into SLPA memory.

IMPORTANT **When downloading emulation and operating system software to the SLPA, all other optional fonts, customer-supplied logos, setup files, feature files, and TIFF files will be erased. You will then need to reload those files. Before starting a download procedure, be sure that you have all the necessary files on hand.**

You can load software through the serial, parallel, or ethernet port of the SLPA, and you can do it three ways:

- If your computer can run Java® programs, you can load software through any SLPA port by using the Firmware Download Utility included on the CD that comes with the SLPA. (See below.)
- You can use DOS commands to load software through the parallel port or serial port. (See page 273.)
- If the SLPA has the ethernet NIC (network interface card) installed, you can load software through the ethernet port. (See page 276.)

Loading Software With The Firmware Download Utility

The Firmware Download Utility (FDU) allows you to load program files into the SLPA with an easy to use graphical interface. The FDU is a utility program included on the CD that comes with the SLPA. It can be used on computers running the Windows or UNIX (such as Linux or Solarisô) operating systems. With the FDU, you can choose the SLPA port through which to load software (all are supported), configure the port, and initiate the download.

The FDU is a Java-based program, so you need the Java 2 Platform, Standard Edition (J2SEô) Java Runtime Environment (JRE) installed on your computer. The Windows version of the J2SE JRE is included on the CD that comes with the SLPA in the form of an executable file: **j2re-1_4_2_10-windows-i586-p.exe**. Copy this file to your computer and double-click it; it will self-extract and install the J2SE JRE on your computer.

NOTE: If you have a Linux or Solaris system, you can download the J2SE JRE for your system from **http://java.sun.com/j2se**.

If you have another UNIX system, see your system administrator.

Conditions for use of the included Java Software are set forth in the Sun Microsystems Binary Code License Agreement (**http://java.com/en/download/license.jsp**). In the event of any conflicting terms, the Binary Code License Agreement controls.

1. Make a configuration printout of all saved configurations. (See Printing A Configurationî on page 87.)
2. Set the SLPA power switch to O (Off).
3. Disconnect the data (signal) cable(s) from the SLPA interface connectors.
4. Connect a SLPA data cable to the parallel, serial, or ethernet port of the computer you will use to download the software.
5. Connect the SLPA data cable to the appropriate I/O port of the SLPA.
6. On the SLPA control panel, press and hold down the ☰ and ↓ keys. Without releasing the keys, power the SLPA on. When you see B01: STATUSî on the on the LCD, release the keys.
7. Wait until you see PROGRAM DOWNLOADî on the LCD before doing the next step. This can take about a minute to appear, depending on the emulations and interfaces installed in the SLPA.
8. On your computer, create a directory named **download** at the root level of the hard drive (e.g., **C:\download** on a Windows computer).
9. Insert the SLPA emulation software CD into your computerís CD-ROM drive.
10. Copy the **FDU.jar** file from the CD-ROM to your computer.

11. Open the **readme.txt** file on the CD-ROM. There are two emulation sets with corresponding part number files from which to choose:
    CT / IPDS / IGP / ZGL / TGL / IGL / STGL
    TN / IGP / ZGL / TGL / IGL / STGL
    Both emulations include the LP+ emulation. They are offered in two file formats: .exe and .prg. You can use either format with the FDU.
12. Identify which emulation set you want to load into the SLPA and note the filename that corresponds to that emulation. The filename is a six digit number plus **.exe** or **.prg**. For example: 123456.exe or 123456.prg
    This is the file you will download into the SLPA.
13. Copy the file to the **download** directory you created in step 8.
14. Double-click the **FDU.jar** file (for command line prompt users, type `java -jar fdu.jar`<Enter>). It will launch in its own window. Use the FDU to enter the emulation part number, to select the I/O connection and its corresponding settings, and to initiate the download.

IMPORTANT **Do not interrupt the downloading process once it has started. Interrupting a download will leave the flash memory on the controller PCBA incompletely loaded, and the SLPA may not boot up.**

15. When the new software has successfully loaded into flash memory and the SLPA has reset itself, set the SLPA power switch to O (Off).
16. Remove the CD-ROM from your computer and store it with the SLPA.
17. If required, reconnect the data input cable(s) to the SLPA.
18. Set the SLPA power switch to | (On).
19. Using the configuration printout(s) you made in step 1, page 272, restore the SLPA configurations. (See "Loading A Saved Configuration" on page 87.)

Loading Through The Parallel Or Serial Port Using DOS

1. Make a configuration printout of all saved configurations. (See "Printing A Configuration" on page 87.)
2. Set the SLPA power switch to O (Off).
3. Disconnect the data (signal) cable(s) from the SLPA interface connectors.
4. Connect a parallel data SLPA cable to the LPT1 port or a serial data SLPA cable to the COM1 port of an IBM-compatible computer running the Windows (95, 98, Me, NT, 2000, or XP) operating system.

NOTE: You can connect the cable to the LPT2 port if the LPT1 port is in use. The load command is different if you use this port, so make sure you use the LPT2 commands in step 15.

Software loads at 9600 baud if you load through the serial port with a DOS command. This can take a long time. Software loads much faster through the parallel port.

5. Connect the data cable to the appropriate I/O port of the SLPA.

6. On the SLPA control panel, press and hold down the ☰ and ↓ keys. Without releasing the keys, power the SLPA on. When you see "B01: STATUS" on the on the LCD, release the keys.
7. Wait until you see "PROGRAM DOWNLOAD" on the LCD before doing the next step. This can take about a minute to appear, depending on the emulations and interfaces installed in the SLPA.
8. Using Windows Explorer, create a directory named **download** at the root level of your C: hard drive (**C:\download**).
9. Insert the SLPA emulation software CD-ROM into your computer's CD-ROM drive.
10. Open the readme.txt file on the CD-ROM. There are two emulation sets with corresponding part number files from which to choose:
    CT / IPDS / IGP / ZGL / TGL / IGL / STGL
    TN / IGP / ZGL / TGL / IGL / STGL
    Both emulations include the LP+ emulation. They are offered in two file formats: .exe and .prg. **Use .exe files to download through the parallel or serial port.**
11. Identify which emulation set you want to load into the SLPA and note the filename that corresponds to that emulation. The filename is a six digit number plus **.exe**. For example: 123456.exe
    This is the file you will download into the SLPA.
12. Copy the file to the **download** directory you created in step 8.
13. Start a command prompt session. (The Start Menu icon is usually labeled **MS-DOS® Prompt** or **Command Prompt**.)
14. At the command prompt type:
    `C:`<Enter>
    `cd \download`<Enter>
15. To load the file through the **LPT1 parallel port** on the computer, type the following at the command prompt on the computer:
    ***`filename`*`.exe -pb`**<Enter>
    where *filename*.exe is the file name you noted in step 11. This command decompresses the file on the hard drive and copies it as a binary file into the flash memory on the SLPA controller board.

    To load the file through the **LPT2 parallel port** on the computer, enter the following command:
    ***`filename`*`.exe -pb2`** <Enter>

    To load the file through the **serial port**, enter the following commands:
    `mode COM1:9600,N,8,1,P`<Enter>
    ***`filename`*`.exe -pbc1`**<Enter>

NOTE: Software loads at 9600 baud if you load through the serial port with a DOS command. This can take a long time. Software loads much faster through the parallel port.

When you power up in download mode (step 6) the SLPA is ready to accept data from all ports. When the SLPA receives data from one of the ports (based on the load command you give) the other ports shut down.

IMPORTANT **Do not interrupt the downloading process once it has started. Interrupting a download will leave the flash memory on the controller PCBA incompletely loaded, and the SLPA may not boot up.**

While the file is copied into memory, the SLPA LCD informs you of the load process and status.

16. When the new software has successfully loaded into flash memory and the SLPA has reset itself, set the SLPA power switch to O (Off).
17. Remove the CD-ROM from the host computer and store it with the SLPA.
18. If required, reconnect the data input cable(s) to the SLPA.
19. Set the SLPA power switch to | (On).
20. Using the configuration printout(s) you made in step 1 on page 273, restore the SLPA configurations. (See "Loading A Saved Configuration" on page 87.)

Loading Software If Flash Contains Only Boot Code

If the flash memory contains only boot code (e.g., if it is new), or if a download was interrupted (e.g., by a power outage), you must download software through the SLPAís parallel port using the three-key initialization sequence covered in this section.

1. Make sure the SLPAís parallel port is available. In some configurations, you may have to re-install the Centronics® I/O cable and connector in order to load basic software into the SLPA.
2. Set the SLPA power switch to O (Off).
3. Disconnect the data (signal) cable(s) from the SLPA interface connectors.
4. Connect a parallel data SLPA cable to the LPT1 port or LPT2 port of an IBM-compatible computer running the Windows (95, 98, Me, NT, 2000, or XP) operating system.
5. Connect the data cable to the Centronics port of the SLPA.
6. On the SLPA control panel, press and hold down the ☰, ↓, and ↵ keys. Without releasing the keys, power the SLPA on. When you see "B20: STATUS 00% / DOWNLOAD MODE" on the LCD, release the keys.
7. Using Windows Explorer, create a directory named **download** at the root level of your C: hard drive. (**C:\download**)
8. Insert the SLPA emulation software CD-ROM into your computerís CD-ROM drive.
9. Open the readme.txt file on the CD-ROM. There are two emulation sets with corresponding part number files from which to choose:
   CT / IPDS / IGP / ZGL / TGL / IGL / STGL
   TN / IGP / ZGL / TGL / IGL / STGL
   Both emulations include the LP+ emulation. They are offered in two file formats: .exe and .prg. **Use .exe files to download through the parallel port.**
10. Identify which emulation set you want to load into the SLPA and note the filename that corresponds to that emulation. The filename is a six digit

number plus **.exe**. For example: 123456.exe
This is the file you will download into the SLPA.

11. Copy the file to the **download** directory you created in step 7.
12. Start a command prompt session. (The Start Menu icon is usually labeled **MS-DOS Prompt** or **Command Prompt**.)
13. At the command prompt type:
    `C:`<Enter>
    `cd \download`<Enter>
14. To load the file through the LPT1 parallel port on the computer, type the following at the command prompt on the computer:
    ***`filename`*`.exe -pb`**<Enter>
    where *filename*.exe is the file name you noted in step 11. This command decompresses the file on the hard drive and copies it as a binary file into the flash memory on the SLPA controller board.

    To load the file through the LPT2 parallel port on the computer, enter the following command:
    ***`filename`*`.exe -pb2`** <Enter>
15. When the software has successfully loaded into flash memory and the SLPA has reset itself, set the SLPA power switch to O (Off).
16. Starting at step 6, page 274, repeat the "Loading Through The Parallel Or Serial Port Using DOS" procedure. (In other words, use the two-key method to load software again.) This ensures that all necessary code is loaded into SLPA memory.

Loading Software Through The NIC

IMPORTANT **To load software through the NIC, you need the IP Address of the SLPA and the flash memory must contain basic SLPA code. If the flash memory was replaced, or if a download was interrupted (e.g., by a power outage), you must load software through the parallel port. (See "Loading Software If Flash Contains Only Boot Code" on page 275.)**

1. Make a configuration printout of all saved configurations. (See "Printing A Configuration" on page 87.)
2. Set the SLPA power switch to O (Off).
3. Connect the ethernet cable to the SLPA interface.
4. On the SLPA control panel, press and hold down the ☰ and ↓ keys. Without releasing the keys, power the SLPA on. When you see "B01: STATUS" on the on the LCD, release the keys.
5. Wait until you see "WAITING FOR DOWNLOAD" on the LCD before proceeding. This can take about a minute to appear, depending on the emulations and interfaces installed in the SLPA.
6. Using Windows Explorer, create a directory named **download** at the root level of your C: hard drive. (C:\download)
7. Insert the SLPA emulation software CD-ROM into your computer's CD-ROM drive.

8. Open the readme.txt file on the CD-ROM. There are two emulation sets with corresponding part number files from which to choose:
   CT / IPDS / IGP / ZGL / TGL / IGL / STGL
   TN / IGP / ZGL / TGL / IGL / STGL
   Both emulations include the LP+ emulation. They are offered in two file formats: .exe and .prg. **Use .prg files to download through the NIC.**
9. Identify which emulation set you want to load into the SLPA and note the filename that corresponds to that emulation. The filename is a six digit number plus **.prg**. For example: 123456.prg
   This is the file you will download into the NIC.
10. Copy the file to the **download** directory you created in step 6.
11. Start a command prompt session in Windows. (The Start Menu icon is usually labeled **MS-DOS Prompt** or **Command Prompt**.)
12. At the command prompt type:

    C:<Enter>
    cd \download<Enter>
13. Start the FTP (file transfer protocol) program by typing:

    ftp *xxx.xxx.xxx.xxx*<Enter>
    (where *xxx.xxx.xxx.xxx* is the IP Address of the SLPA.)
14. Log in to the SLPA by typing:

    root<Enter>

    You are given a password prompt.

NOTE: The default is no password. If the FTP program requires a password, contact the system administrator.

15. At the password prompt, press <Enter>.
16. Once logged in, type the following sequence at the command prompt to download the *filename*.prg file to the SLPA:

    cd dest<Enter>
    cd d1prn<Enter>
    bin<Enter>
    put *filename*.prg<Enter>
    (where *filename*.prg is the file name you noted in step 9)

IMPORTANT **Do not interrupt the downloading process once it has started. Interrupting a download will leave the flash memory on the controller PCBA and NIC incompletely loaded, and the SLPA may not boot up.**

17. When the download is complete, exit the FTP program by typing:

    quit<Enter>
18. When the new software has successfully loaded into flash memory and the SLPA has reset itself, set the SLPA power switch to O (Off).
19. Remove the CD-ROM from the host computer and store it with the SLPA.
20. If required, reconnect the data input cable(s) to the SLPA.
21. Set the SLPA power switch to | (On).
22. Using the configuration printout(s) you made in step 1, page 276, restore the SLPA configurations. (See Loading A Saved Configuration on page 87.)

Downloading Optional Fonts To Flash Memory

Optional fonts are stored on a 3.5 inch floppy diskette that contains file names comprised of a part number with a **.dwn** extension. You will insert this diskette in your IBM-compatible computer and use either the parallel or serial port to download the desired font(s) to the SLPAís flash memory.

See Table 15 for a list of optional fonts and their corresponding part numbers.

Table 15. Optional Fonts

Font Name	Part Number
Antique Olive	706612-001
Avante Garde	706617-001
Baskerville	706606-001
Caslon	706613-001
CG Bodoni	706610-001
CG Century	706598-001
CG Times	706597-001
CG Times International	706614-001
CG Triumvirate	706596-001
CG Triumvirate Condensed	706607-001
Chart	706601-001
Decorative 1	706611-001
Decorative 2	706618-001
Decorative 3	706615-001
Decorative 5	706616-001
Desktop	706603-001
Futura II	706605-001
Garamond	706604-001
Gill Sans	706595-001
ITC Galliard	706608-001
ITC Century	706609-001
Label #1	706599-001
Label #2	706600-001
Office	706602-001
Univers	706594-001

1. Set the SLPA power switch to O (Off).
2. Connect a parallel data cable to the LPT1 port or a serial cable to the COM1 port of an IBM-compatible computer running the Windows (95, 98, Me, NT, 2000, or XP) operating system.

NOTE: You can connect the cable to the LPT2 port on the computer if the LPT1 port is already in use. The load commands are different if you use this port, as described in the notes after step 13.

3. Verify that the data cable is connected to the appropriate I/O port on the SLPA and to the host computer.
4. Power on the computer and allow it to boot up.
5. On the SLPA control panel, press and hold down the ☰ and ↓ keys. Without releasing the keys, power the SLPA on. Continue holding down the ☰ and ↓ keys.
6. When you see B01 STATUSî on the LCD, release the ☰ and ↓ keys.
7. Wait until you see PROGRAM DOWNLOADî on the LCD before proceeding. This can take about a minute to appear, depending on the emulations and interfaces installed in the SLPA.
8. Insert the optional font diskette into diskette drive A (or B) of the computer.
9. Start a command prompt session. (The Start Menu icon is usually labeled **MS-DOS Prompt** or **Command Prompt**.)
10. Make the diskette drive the active drive by typing:

    `A:`<Enter> (if the diskette is in drive B, type **`B:`**<Enter>)

11. List the contents of the diskette at the command prompt by typing the following:

    `dir`<Enter>

    You will see a directory listing containing files with a **.dwn** extension, e.g., 94021.dwn, 94022.dwn, 94023.dwn.

12. Make note of the file name with the **.dwn** extension of each file you want to download to the SLPA.

NOTE: The numeric portion of the file name will match the numbers of the font typefaces listed in Appendix F of the *PGL Programmerís Reference Manual* and provide you with a description and print sample of the typeface.

13. At the command prompt type:

    `copy /b `*`filename`*`.dwn LPT1`<Enter>
    (where *filename*.dwn is file name you noted in step 12.)

NOTE: If you are loading the file using the LPT2 port on the computer, type the following command:

`copy /b `*`filename`*`.dwn LPT2`<Enter>
(where *filename*.dwn is a file you noted in step 12.)

If you are loading the file using the serial port on the computer, type the following commands:

mode COM1:9600,N,8,1,P<Enter>
copy /b *filename*.dwn COM1<Enter>
(where *filename*.dwn is a file you noted in step 12.)

The 9600 baud rate is the only selection some systems can use. The baud rate information entered in the above commands must match the Baud Rate setting (in the SERIAL PORT menu) saved in the Power-Up Config.

You can download the optional fonts one at a time by entering one file name per the **copy** command or you can copy multiple files in one **copy** command.

To download one file at a time, enter the following at the command prompt:

copy /b *filename*.dwn LPT1<Enter>

To download multiple files, enter the following at the command prompt, for example:

copy /b *filename1*.dwn+*filename2*.dwn+...LPT1<Enter>

14. While the font file is copied into flash memory, the SLPA LCD informs you of the load process and status. When the new file is successfully loaded into memory, the SLPA will reset itself and go online.
15. To verify that the optional fonts have been downloaded:

NOTE: Admin User must be set to Enable in the PRINTER CONTROL menu. See PRINTER CONTROL Submenusî on page 132.

a. Perform a configuration printout.

ó OR ó

b. Select **PRINTER CONTROL ▸ View File List**. The new file names will appear with the same part number file name you downloaded, but with an **.sf** extension.

NOTE: The optional font typefaces cannot be selected via the SLPA control panel. They can only be selected via a software command from the host.

16. Press the **PAUSE** key to place the SLPA online and return the SLPA to normal operation.

Downloading TrueType Fonts

There are several ways to download TrueType fonts to your SLPA. Once a TrueType font is downloaded, it will be stored in the Flash file system as a resident font. Regardless of SLPA power cycles, the downloaded font will stay in the SLPA until the user deletes it. The user can find the list of all SLPA resident fonts under PRINTER CONTROL -> View File List after enabling Admin User in the PRINTER CONTROL menu. To delete a downloaded font from the Flash file system, the user should select the font under PRINTER CONTROL -> Delete File List and then select Optimize & Reboot.

Printronix Windows Driver

A TrueType font can be downloaded from a PC through the Printronix Windows Driver.

1. Load the Printronix Windows driver provided with your SLPA on the Manuals and Utilities CD on Windows 2000/NT/XP.
2. Once the SLPA driver is installed on the PC, right click the SLPA driver and select Properties.
3. Click the "TT Font Downloadî tab to access all the available system TrueType fonts.
4. Select the TrueType font(s) from the "Available System TrueType fontsî you want to download.
5. Click the "Downloadî button to download font(s) to the SLPA while it is online.

Create And Send Download File "Online (PGL Only)

A TrueType font can be loaded by creating a file that appends a PGL command to the font and then sending that file to the SLPA. Use the PGL FONTLOAD command:

~FONTLOAD;FontName;FontSize;DISK
where

FontName - TrueType font name, e.g. arial.ttf
FontSize - TrueType font size, e.g. file size for arial.ttf
DISK - Specify the download location to Flash

For example:

~FONTLOAD;arial.ttf;60548;DISK
Insert binary data of arial.ttf here...
END

After the file is created, it can be copied to the appropriate I/O port of the SLPA while the SLPA is online, just like any other print file (for example: copy/b filename.ext 1pt1).

Create And Send Download File Download Mode

A TrueType font can be converted to a downloadable format by appending a header to the font file using the cnvt2fls.exe utility.

1. Start a MS-DOS prompt window.
2. Copy cnvt2fls.exe and addtthdr.bat from your startup CD to your working directory.
3. In your working directory, include the TrueType font file in .ttf format, (e.g. arial.ttf).
4. Convert the TrueType font file .ttf to a downloadable format .dwn with the following command: addtthdr (filename without extension).
5. Put the SLPA in download mode as described in the Downloading Optional Font Files To Flash Memoryî section.
6. Send the downloadable font file (e.g. arial.dwn) to the SLPA through the appropriate I/O port of the SLPA.

Using PTX_SETUP

PTX_SETUP can be used to load TrueType fonts into the file system. Please see the PTX_SETUP chapter in the PGL Programmerís Reference Manual for details.

Example:

!*PTX_SETUP*
FILE_IO-CAPTURE; ARIAL.TTFî .
PTX_END

Arial TrueType font binary data

NOTE: Do not add any LF/FF at the end of the binary data

!PTX_SETUP
FILE_IO-CAPTURE;îî .
PTX_END

Labeling Applications

A TrueType font can be downloaded through several labeling applications, such as Codesoft, Loftware, and Bartender. Please contact the appropriate company for more details.

Using Downloaded TrueType Fonts

After downloading the TrueType font using any of the above methods, the user can access the downloaded TrueType fot by using the FONT;NAME command as described in the PGL Programmerís Reference Manual.

For Example:

```
~CREATE;FORM
FONT;NAME ARIAL.TTF
ALPHA
10;10;2;2;$01234$
STOP
END
~EXECUTE;FORM;1
```

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