

 **IntelliBar**  
Label Printer

User's Guide  
For All Series Printers



*Changing the way the world prints labels...*

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# Preface

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This IntelliBar User Guide contains the information necessary to set up and maintain the IntelliBar Models 48, 412, and 88 bar code printers.\*

The manual is organized as follows:

A list of the abbreviations used in this manual follows the preface.

**Section 1 General Information** provides an overview of the IntelliBar printers. This chapter explains the main features of the printers and their options. This section also lists printer specifications.

**Section 2 Setup** describes how to set up the printer.

**Section 3 Unit Operation** describes control panel buttons, status messages, menus, and memory settings for the printer.

**Section 4 Options** provides information on the various IntelliBar user and dealer installable options, including installation procedures.

**Section 5 Cleaning and Adjustments** contains instructions for cleaning and adjusting the printer.

**Section 6 Troubleshooting** provides troubleshooting aids that include error codes, test samples, and troubleshooting procedures. This section also contains information on **getting service and support** and **printer warranty** terms and limitations.

**Appendix A Packing** provides packing information.

The **Glossary** at the end of this manual provides a list of IntelliBar and bar code printing terms and briefly defines each one.

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## Abbreviations

A	ampere	FAX	facsimile transmission
AC	alternating current	FCC	Federal Communications Commission
ACK	acknowledge	FG	frame ground
ASCII	American Standard Code for Information Interchange	FRU	field-replaceable unit
BIOS	basic input/output system	GB	gigabyte
bit	binary digit	GND	ground
bpi	bits per inch	HEX	hexadecimal
bps	bits per second	HMI	horizontal motion index
C	centigrade	HP	Hewlett Packard
CD	carrier detect	Hz	hertz
CLK	clock	IC	integrated circuit
cm	centimeter	ID	identification
CMOS	complementary metal oxide semiconductor	in.	inch
COM	communication	IPB	illustrated parts breakdown
CPU	central processing unit	I/O	input/output
cpi	characters per inch	ips	inches per second
CTS	clear to send	IRQ	interrupt request
DACK	DMA acknowledge	ISO	International Standards Organization
DC	direct current	K	kilo (1024)
DIP	dual in-line package	k	kilo (1000)
DMA	direct memory access	KB	kilobyte
dpi	dots per inch	kg	kilogram
DRAM	dynamic RAM	kHz	kilohertz
DSR	data set ready	LAN	local area network
DT	direct thermal application	lb	pound
DTE	data terminal equipment	LCD	liquid crystal display
DTR	data terminal ready	LED	light-emitting diode
EPROM	erasable programmable read-only memory	lpi	lines per inch
EEPROM	electrically erasable programmable read-only memory	LSB	least-significant bit
ETX	end-of-text	M	mega
F	Fahrenheit	mA	milliamps
		max	maximum
		MB	megabyte
		MHz	megahertz

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mm	millimeter	W	write
ms	millisecond		
MSB	most-significant bit		
NC	not connected		
NMI	non-maskable interrupt		
ns	nanosecond		
PC	personal computer		
PCB	printed circuit board		
PCL	printer control language		
PDL	page description language		
pixel	picture element		
p-p	peak-to-peak		
PROM	programmable ROM		
P.S.	power supply		
RAM	random-access memory		
ROM	read-only memory		
rpm	revolutions per minute		
R	read		
RD	received data		
RTS	request to send		
R/W	read/write		
S	slave		
SD	send data		
SG	signal ground		
SIMM	single inline memory module		
STB	strobe		
SW	switch		
TD	transmit data		
TG	tag stock application		
TSC	Technical Support Center		
TT	thermal transfer application		
TTL	transistor/transistor logic		
tpi	tracks per inch		
V	volt		
Vdc	volts, direct current		
VRAM	virtual RAM		
W	watt		

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## Section 1

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# General Information

The IntelliBar is a thermal label printer that uses industry-standard printer command languages to produce high-resolution fonts, graphics, and bar codes on thermal transfer or direct thermal paper or synthetic rolls of labels or tag stock.

The IntelliBar printer family consists of four series differentiated by the printer command language, emulation, and connectivity as listed in Table 1-1.

**Table 1-1 IntelliBar Printer Product Line**

Series Name	Printer Command Language	Emulation	Connectivity
IntelliBar Standard Series	Hewlett Packard Printer Control Language 5 (HP PCL5)	LaserJet III	IEEE 1284 parallel, RS-232/RS422C serial
IntelliBar AS Series	AFP/IPDS, HP PCL5	IBM 4028	IEEE 1284 parallel, RS-232/RS422C serial, 10BaseT Twinax or Coax
IntelliBar ax Series	SCS, HP PCL5	IBM 5020	10BaseT Twinax or Coax, IEEE 1284 parallel, RS-232/RS422C serial
IntelliBar LPR Series	IGP/PGL, IGP/VGL Magnum Code V, HP PCL5	Printronix, Centronics, QMS	10BaseT Twinax or Coax, IEEE 1284 parallel, RS-232/RS422C serial

Each series consists of three models: Model 48, Model 412 and Model 88. All models print using either the thermal transfer or direct thermal printing method described later in this section. As standard features, all printers have 300 x 300 dots per inch (dpi) print resolution, parallel and serial communication ports, and label peel-off capability. The IntelliBar AS, ax, and LPR Series have the additional standard feature of twinax and coax connectivity. Each model also features a control panel and LCD display for simple printer installation and use (see “Control Panel” in this section).

The Model 48 and Model 412 print labels up to a maximum width of 4.37 inches (111 mm). The Model 88 prints labels up to a maximum width of 8.65 inches (220 mm). Label length is model and memory dependent. In the Model 48 and Model 412, memory can be expanded to increase label length, overall printer performance, and data throughput. The IntelliBar automatically senses label length at power-on and provides a backfeeding capability used with tear-off, peel-off, or cut-off printing modes.

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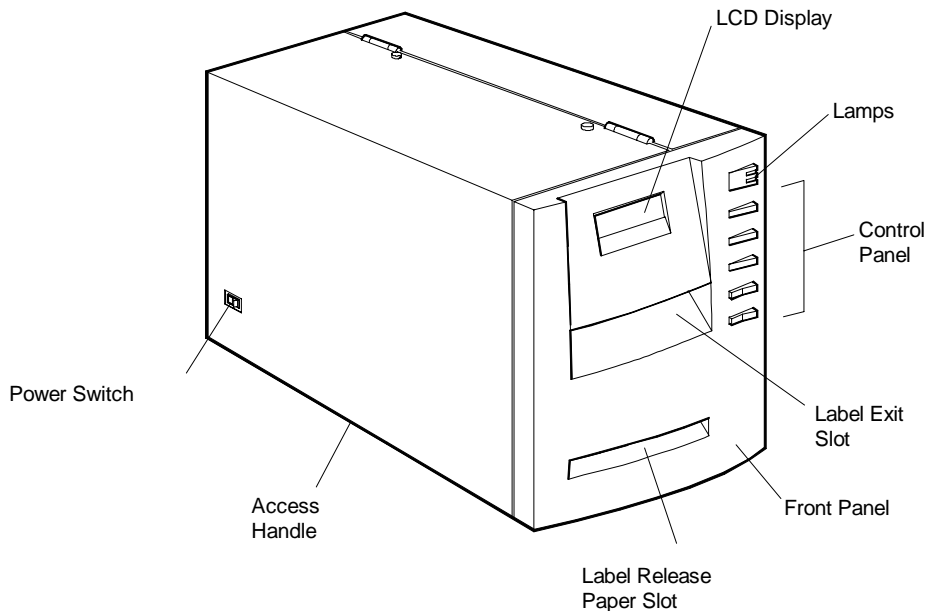
Print output can include text and graphics in addition to high-density bar codes, extending the IntelliBar printer's versatility for any label printing need.

Depending on the IntelliBar model and the main board revision, other features include:

- an operating speed of up to 8 inches per second (ips) for the Model 48 and Model 88, and 12 ips for the Model 412.
- HP PCL 5 compatibility and LaserJet III printer command set emulation with 14 bitmap and eight outline fonts (in addition to specific printer command languages for the various IntelliBar printer series as described in Table 1-1). Support includes all PCL 5 commands and functions with several additional command extensions to deal with special printer features that are not available in the HP LaserJet (see the *IntelliBar Programmer's Reference Guide* for more information).
- a minimum of 2 MB of random-access memory (RAM) expandable (in the Model 48 and Model 412) using SIMM option installation (see "Memory Expansion" in this section).

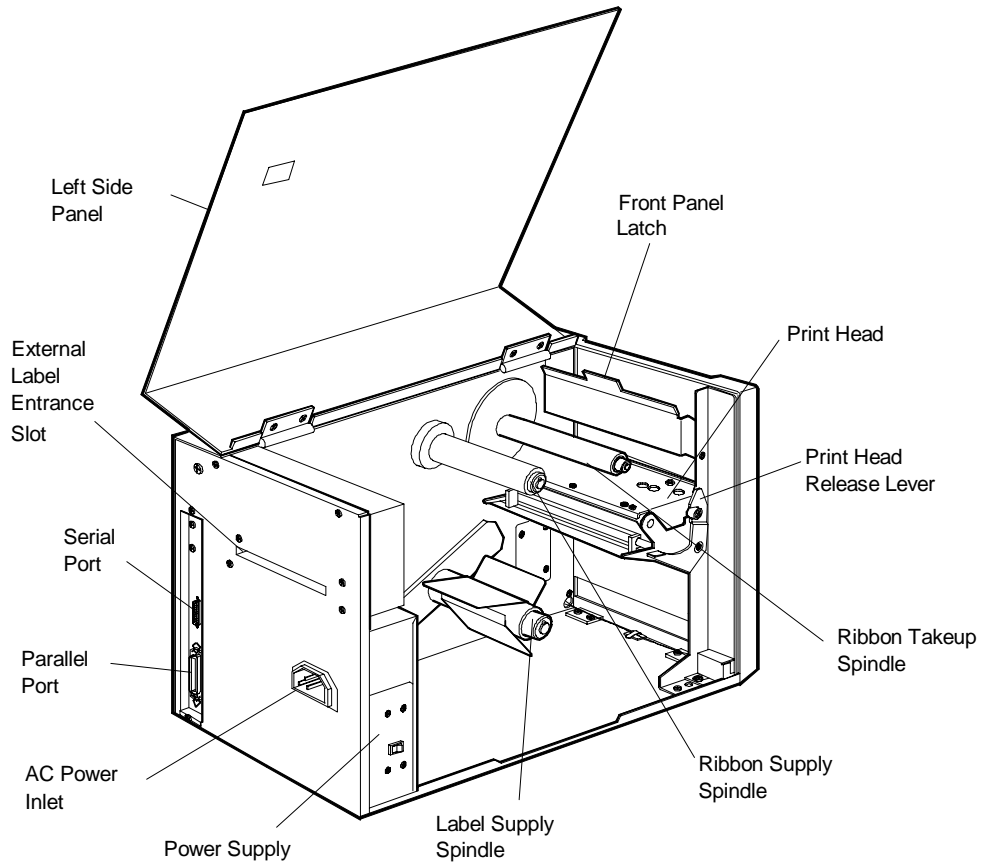
## MODELS 48 AND 412

Features common to Models 48 and 412 are shown in Figure 1-1 and Figure 1-2 and described in the following subsections. For printer specifications, see "Specifications" in this section.



**Figure 1-1 Model 48 and Model 412 Features (Front and Left Side View)**

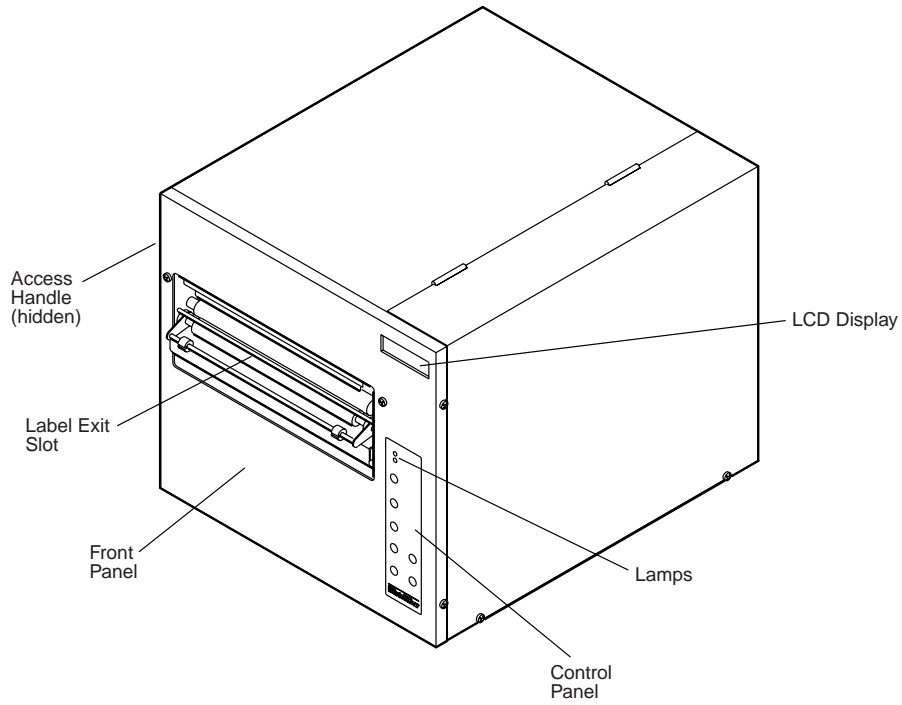
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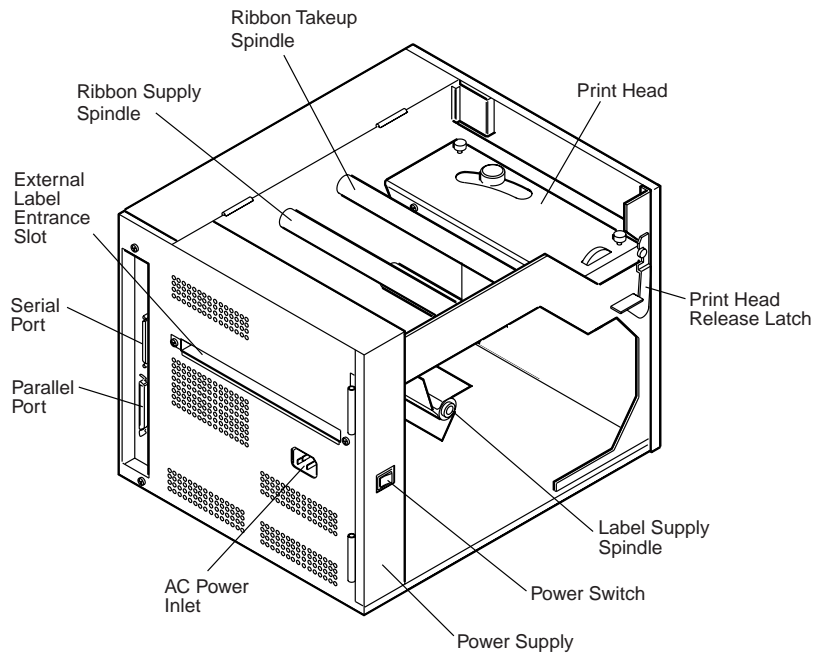
**Figure 1-2 Model 48 and Model 412 Features (Rear and Left Side View)**

## MODEL 88

The features of the Model 88 are shown in Figure 1-3 and Figure 1-4 and described in the following subsections. For printer specifications, see “Specifications” in this section.



**Figure 1-3 Model 88 Features (Front and Right Side View)**



**Figure 1-4 Model 88 Features (Rear and Left Side View)**

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## HARDWARE DESCRIPTION

Printer operations are coordinated by control panel settings and the main board components under DC voltage from the power supply. The following subsections describe how printing is carried out.

- power supply
- control panel
- main board
- ribbon and paper feed mechanisms
- print mechanism (printer engine)

### Power Supply

Alternating current (AC) is fed directly into the power supply and converted into the various DC voltages that drive and control printer operation (+5 V, +12 V, -12 V, +18 V, +24 V). The power supply contains one replaceable fuse.

### Control Panel

The control panel contains the LCD display, power and alert indicators, and buttons that allow you to control and monitor printer operation. The 2-line display provides printer status and error messages and the printer settings menu tree. The power indicator shows whether the printer is turned on or off, while the alert indicator shows whether the printer has a fault or error condition that may affect operation. The control panel buttons allow you to view or change the printer settings (user parameters) via the menu tree.

For more information, see Section 3, “Unit Operation.”

### Main Board

The main board (located behind the right side panel) controls communications between the computer and printer engine and coordinates the printer’s logic and mechanical functions. The printing process begins when the computer sends data to the main board through either the serial or parallel interface. The main board receives and interprets the data (HP LaserJet emulation and HP PCL language), develops the data in RAM, transmits the data to the print head for thermal transference, and coordinates the paper and ribbon feeding mechanisms.

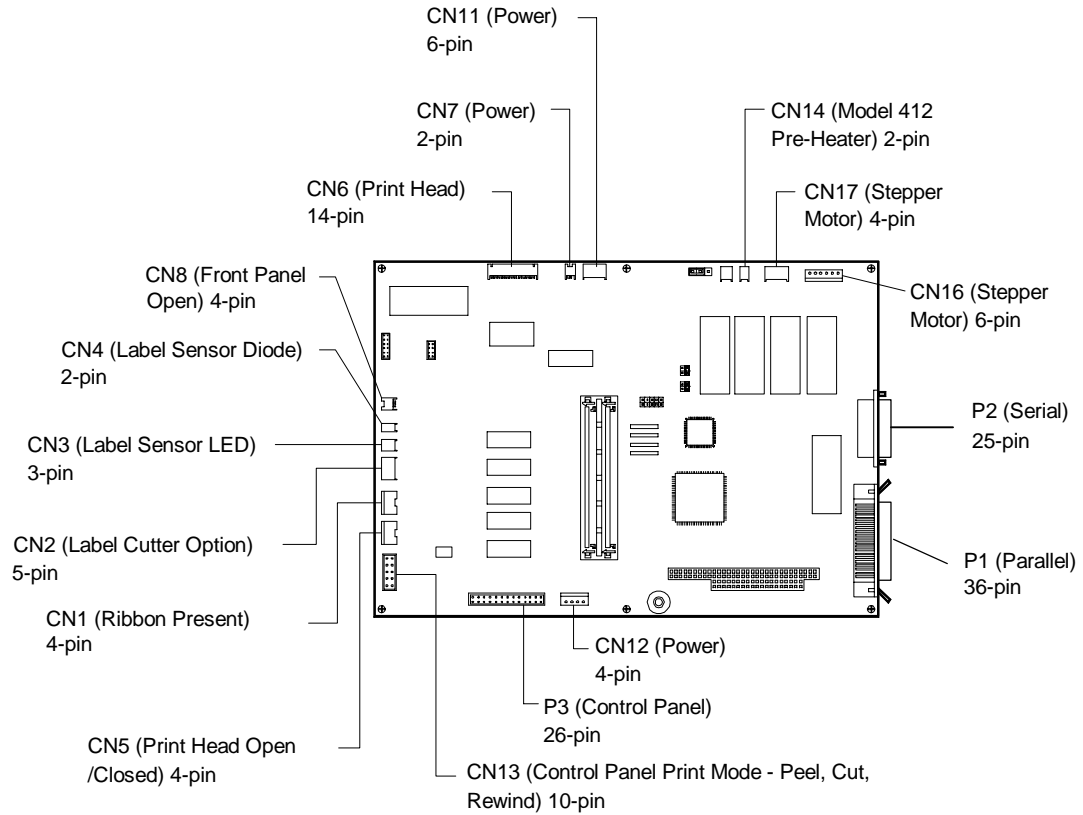
The main board is functionally divided into two areas: the main or control area for image (video) processing and the sub area for engine control and print processing.

Figure 1-5 and Figure 1-6 show the locations of the connectors on each main board revision.

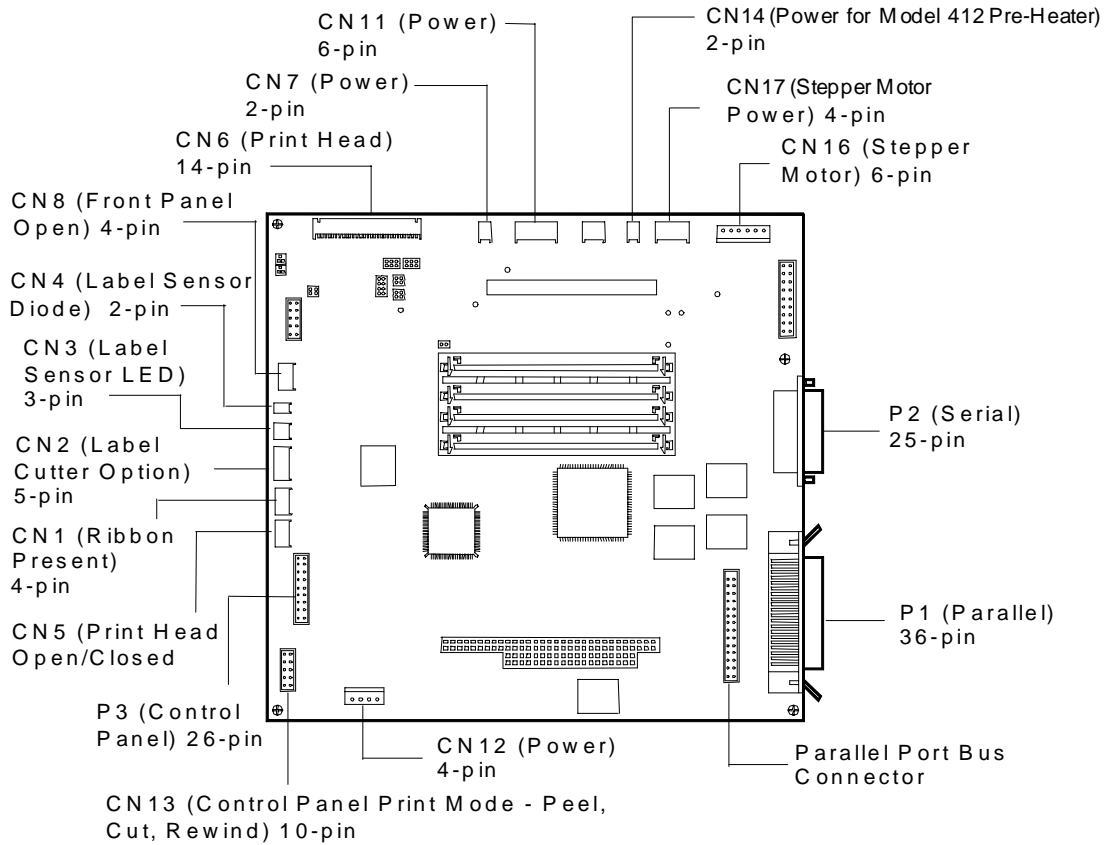
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## 1-6 General Information

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**Figure 1-5 Main Board Revision 12, 13, or 14 Connector Locations**



**Figure 1-6 Main Board Revision 15 and 16 Connector Locations**

## Ribbon and Label Feed Mechanisms

This section describes the thermal transfer printing process carried out by the ribbon and label feed mechanisms.

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**NOTE:** Direct thermal printing, where no ribbon is required and heat sensitive labels or tag stock are printed on directly, is not described in this section.

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During the thermal transfer process, the ribbon and label feed mechanisms move the ribbon and labels between the platen and thermal print head. This confined space causes the ribbon to press against the label. Ink from the ribbon is applied to the label each time it crosses the print head by the heating of individual print head elements (resistors). The combination of heat from the resistors and pressure between the ribbon and label lays down the printed image.

The ribbon is fed by the stepper motor and is controlled by the main board and LED sensor settings (ribbon end sensor).

During the printing process, the label feed mechanism moves the label from the supply roller to the thermal print head and platen. Labels are fed by the stepper motor and by friction with the ribbon. Label feeding is coordinated by the main board, sensor settings (label sensor), and the control panel (see Section 3 for control panel settings that affect label feeding).

Figure 1-7 shows a simplified view of how thermal transference works. A cut-away diagram of the ribbon and label feed mechanism subassemblies for the Model 48 and 412 printers is provided in Figure 1-8.

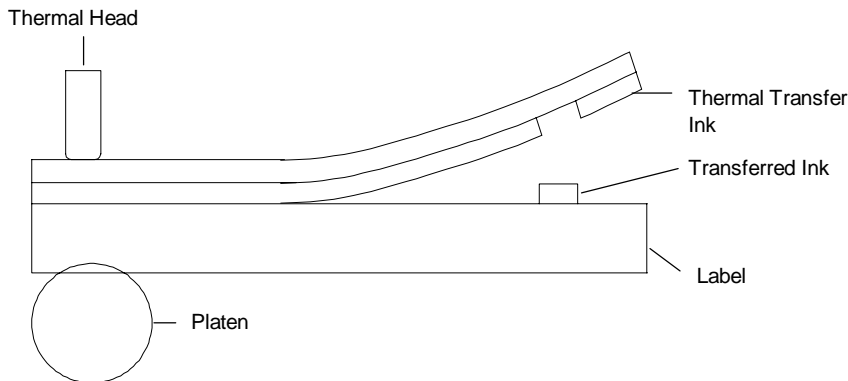
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**NOTE:** The ribbon and label feed subassemblies in the Model 88 printer differ in appearance from the Model 48 and 412, but the theory of operation is essentially identical as described below.

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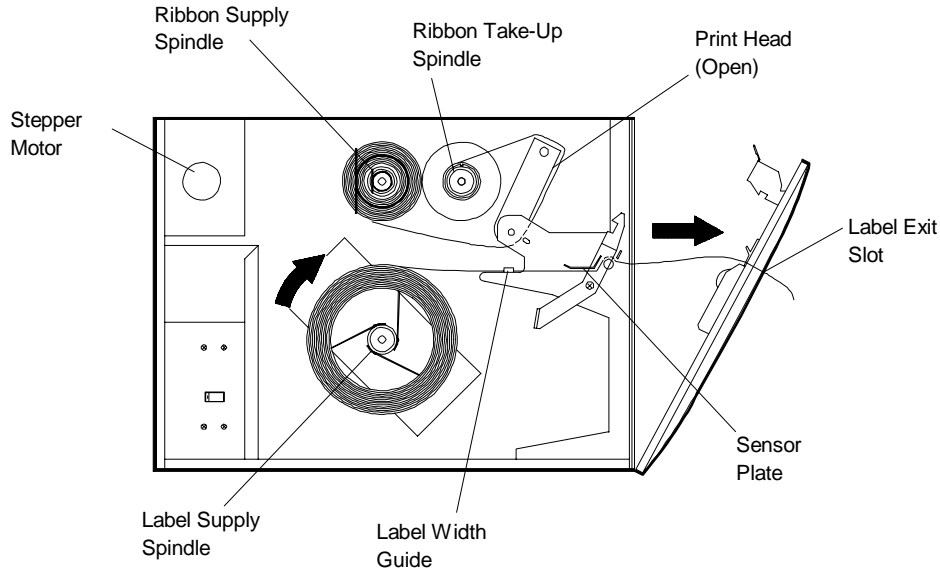
When the label and ribbon are fed between the platen and thermal print head, the label sensor detects the location of the 0.08-inch (2 mm) minimum gap between the labels on the paper roll and thus determines the position of the first print line on the label. A print command is then sent to the thermal print head by the engine control processor on the main board (see “Print Mechanism”).

Simultaneously, heat builds up in the thermal head heater, which contains a bank of resistors that selectively heat up, forming a printable image. The heat transfers ink on the ribbon to areas on the label surface that correspond to the heated resistors. This process fuses the image to the label.



**Figure 1-7 Thermal Transference**

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**Figure 1-8 Ribbon and Label Feed Mechanisms (Model 48 and 412)**

## Print Mechanism

Printer engine functions are controlled by the engine control processor on the main board sub-area. The engine control processor sends control signals in response to commands and data received from the computer via the PC/AT core. The control and data signals heat the thermal print head elements (resistors) as previously described in “Ribbon and Paper Feed Mechanisms.” Control and data signals from the engine control processor also drive the stepper motor for feeding the ribbon and labels through the printer. When the label or ribbon sensors detect that the printer has run out of labels or ribbon (or when label jams occur), the information is relayed from the engine control processor, and the appropriate message appears on the control panel LCD (see Section 3 for display messages).

Depending on print speed, a specified “high” or “low” voltage is sent from the power supply to the heater inside the thermal print head. During normal speed printing (2.4 ips to 12 ips) typically used with wax ribbons, the power supply provides a “high” voltage of approximately 24V. This voltage can be changed using the control panel menu buttons (see “Print Head Voltage Adjustment” in Section 5).

During low speed printing (0.6 ips to 1.6 ips) typically used with resin ribbons, a “low” voltage of approximately 12V is used. This voltage can also be changed using the control panel menu buttons (see “Print Head Voltage Adjustment” in Section 5).

Print speed is controlled by sending the appropriate strobe (STB) pulse (STB1 or STB2 applied pulse) according to the temperature information sent from the print head thermistor. For high speed printing (10 ips to 12 ips), the print head is pre-heated to an optimum head temperature of 50° C per resistor. If the head temperature exceeds 70° C, printing stops and a head temperature message is reported on the control panel (see Section 2 for display messages).

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**NOTE:** During printing, the actual temperature of a resistor can exceed 200° C for a few milliseconds.

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### MEMORY EXPANSION

Depending on the main board revision installed in the printer, memory expansion can be done in the IntelliBar Model 48 and 412 through the purchase of industry-standard, user-installable, SIMM memory modules made for Apple or PC products. SIMM modules are available from retail or mail order computer hardware suppliers. These modules install in pairs in two expansion slots on the main board and increase the printer's standard memory capacity from the standard 2 MB to a maximum of 10 MB.

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**NOTE:** The Model 88 contains a total of 10 MB of standard printer memory which is not expandable.

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See Table 4-1 and Table 4-2 in Section 4 for memory installation guidelines and procedures.

### OPTIONS

*IntelliTech* International, Inc. options for the IntelliBar printer are divided into two categories: user-installable and factory-installable. Each category is described below. Section 4 provides additional information on *IntelliTech* International, Inc. printer options (including installation procedures and dealer order numbers).

#### User-Installable Options

User installable options for the IntelliBar Models 48 and 412 include the following.

- Label Cutter (Model 2401) — Lets you quickly print and process labels for immediate application. This user-installable option fits in the front panel in place of the standard peel-off assembly. You must also remove the tear bar from above the platen roller (see Section 3 for label cutter installation procedures).
-

The cutter is designed for users who require on-demand label printing (usually one label at a time) and the convenience of a label pre-cut and ready to apply. The printer can be programmed to print a number of labels (up to 32,767) and then perform the cut function.

The cutter is designed to cut only paper or synthetic label backing (liner) and can also cut continuous media that contains no rubber based adhesives.

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**NOTE:** The maximum thickness of labels used with the cutter option is 0.005 in. (0.127 mm).

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- External Rewinder (Model 2402) — Mounts in front of the printer and rewinds labels. Allows you to output labels that can be conveniently spooled for storage or shipment to another location.

### Factory-Installable Options

Factory-installable options for the IntelliBar Models 48 and 412 include the following.

- Internal Rewinder (Model 2405) — This option mounts inside the IntelliBar and can be used to spool printed media (labels and backing paper) for convenient storage or transportation of labels in volume quantity. You can also use the rewinder option to spool only the backing paper in peel-off print mode.
  - Reflective Label Sensor (Model 2404) — This field- or dealer-installable option replaces the printer's standard, transmissive (see-through) label sensor. This option reflects light off the black stripe when tag or ticket stock is fed through the printer and thereby detects the label's home position (used for determining the first print line on the label). This option can also be used on butt-cut or specialty die-cut labels.
-

## SPECIFICATIONS

Table 1-2 lists printer specifications for the IntelliBar Standard series. Specifications for the IntelliBar AS Series, ax Series, and LPR Series are the same except as differentiated in Table 1-1 for the printer command language, emulation, and connectivity.

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**Table 1-2 IntelliBar Standard Series Specifications**

Feature	Model 48, 48E	Model 412, 412E	Model 88, 88E
Print method	Thermal transfer or direct thermal		
Resolution	300 x 300 dots per inch (11.81 dots per mm)		
Print widths	4.37" (111 mm) maximum		8.65 in. (220 mm) maximum
Print length (standard)*	14 in. (356 mm)	28 in. (711.2 mm)	14 in. (356 mm)
Print length (maximum)*	99 in. (2,515 mm)	99 in. (2,515 mm)	99 in. (2,515 mm)
Print speed	.6 in. up to 8 in. per second	.6 in. up to 12 in. per second	.6 in. up to 8 in. per second
Memory	2 MB standard, 10 MB maximum	2 MB standard, 10 MB maximum	10 MB standard (not expandable)
Dimensions	12.4 in. H x 9.4 in. W x 16 in. D (315 H mm x 239 mm W x 406 mm D)		13.2 in. H x 14.4 in. W x 17 in. D (335 mm H x 366 mm W x 432 mm D)
Control Panel	LCD, 16 character, 2 line status and error display		
Interface	IEEE 1284 (parallel) and RS-232C/RS-422C (serial) Baud rate: 1200 - 38,400 bps		
Emulation	Hewlett Packard LaserJet III (HP PCL 5, HP GL/2)		
Fonts	14 bit map fonts, 8 AGFA IntelliFont scalable typefaces (CG Times, Univers Bold)		
Bar codes	UPC-A, UPC-E, EAN/JAN-13, EAN/JAN-8, UPC/EAN extension (2 of 5 digit supplemental), 3 of 9 (Code 39), Extended 3 of 9, Interleaved 2 of 5, Code 128, Codebar, Zip +4, Postnet, MSI Plessey, Code 93, Extended 93, UCC-128, HIBC, PDF417		
Electrical	115 VAC $\pm$ 10%, 50/60 Hz. 230 VAC $\pm$ 10% 50/60 Hz IEEE 1284 compliant cable required		

\* See Section 2 for print media specifications.

**Table 1-2 IntelliBar Standard Series Specifications**

Feature	Model 48, 48E	Model 412, 412E	Model 88, 88E
Operating environment	41° F – 104° F (5° C – 40 C); below 85% non-condensing humidity		
Agency certifications	UL-1950, C-UL, FCC Class A (115 VAC); TUV EN69050, CE mark (230 VAC)		
User-installable options	Label Backing Cutter: Model No. 2401** External Label Rewinder: Model No. 2402		Label Cutter: 240X
Factory-installed options	Reflective Sensor (Model 2404) Internal Rewinder (Model 2405)		Reflective Sensor 240X Internal Rewinder 240X
Warranty (U.S)	One-year limited warranty; printhead warranted for 90 days or 500,000 linear inches, whichever comes first		
Media	Die cut and continuous paper stocks, synthetic stocks, tag stock, ticket stock		
Label finishing	Standard: Continuous, tear off and on-demand peel off (self strip). Cut off: optional		
Label specifications	Label print width: .75 in. min. to 4.37 in. max. (19 mm to 111 mm)		4.37 in. minimum to 8.65 in. maximum (111 mm to 222 mm)
	Label print length: .5 in. minimum. to 99 in. maximum*** (13 mm to 2,515 mm)		
	Minimum. label gap: .125 in. (3.2 mm)		
	Maximum label thickness: .01 in. (.245 mm)		
	Maximum roll diameter: 8 in. (203 mm); 7 in.(178 mm) with Internal Rewinder installed		8 in. (203 mm)
	Inner core diameter: 3 in. (76.2 mm)		
	Label web width: .75 in. min. to 4.56 in. max. (19 mm to 116 mm)		4.56 in. min. to 9.5 in. max. (116 mm to 241 mm)
Ribbon types	Express Wax for high-speed printing up to 12 inches per second Dura Wax for economical printing Rugged Resin for durability and smudge resistance Dura Resin Plus for chemical, heat and scratch resistance Dura Wax/Resin for monochromatic color printing		
Ribbon length	Wax Ribbons: 1,475 feet (450 meters); Resin Ribbons: 984 feet (300 meters)		
Ribbon widths	1.06 in., 2.12 in., 3.27 in., 4.37 in. (27 mm, 54 mm, 83 mm, 111 mm)		4.37 in., 7 in., 8.65 in. (111 mm, 178 mm, 222 mm)

\*\* Not intended for use with rubber-based adhesives.

\*\*\* With additional optional memory installed and page protect turned off.

## INTERFACE

This section describes IntelliBar interfaces for communicating with the host computer or network computer. The printer is equipped with two interface communication ports:

- 36-pin IEEE 1284 parallel (connector P1)
- 25-pin RS-232C serial/RS-422 serial (connector P2)

To select the interface, use the control panel menu tree as described in Section 3.

### Parallel Interface

This section describes the IntelliBar parallel port interface.

The IEEE 1284 parallel input allows no parameters. It always accepts 8-bit data with no parity. For communication functions, it reserves the same set of characters reserved by the serial port, with the exception of X-ON and X-OFF characters.

Note that the IEEE 1284 parallel interface is essentially an input-only channel. The parallel port communicates in one direction, which is from the host computer to the printer.

#### ***IEEE 1284 Cable Requirements***

The cable connected to the parallel interface port must be fully shielded and fitted with the proper connector shell. Keep parallel cables as short as possible (8 ft. maximum) and do not route or connect them near electrical conduits or high-voltage power lines.

To ensure the cable meets IEEE 1284 specifications, a cable labeled *IEEE-1284 compliant* is required and is a simple way to guarantee good cable design. A cable with this label contains the IEEE 1284-standard of 36 twisted-pair wires and is properly shielded.

### Serial Interface

This section describes the IntelliBar serial interface. IntelliBar serial communications meets the following specifications:

- asynchronous
- 8 data bits per character
- no parity
- one start bit
- one stop bit

Three parameters are used to control serial communication: channel, baud rate, and options.

---

The baud rate is given as an integer (such as 1200 or 9600), and the maximum supported baud rate is 38,400 bits per second (bps). Standard baud rates supported by the IntelliBar are as follows.

- 300
- 600
- 1200
- 2400
- 4800
- 9600
- 19,200
- 38,400

### ***Data Transmission***

The printer uses Robust X-ON/X-OFF protocol to control transmitted and received character flow.

At power-on, the serial controller carries out communication as soon as the hardware and software are initialized. Hence, the first character sent in X-ON/X-OFF mode will be X-ON (rather than X-OFF).

Available in Menu Mode using the control panel menu buttons, Robust X-ON/X-OFF flow control determines if additional X-ONs should be transmitted.

If Robust X-ON/X-ON is set to ON (the default), additional X-ONs will be transmitted at one second intervals until data is received. If it is set to OFF using the control panel (see Section 3), no additional X-ONs are sent.

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**NOTE:** The information in this section is subject to change without notice. This information is provided "as is" without either express or implied warranty. *IntelliTech* International, Inc. disclaims any and all warranties with regard to this information. *IntelliTech* shall not be liable in any event for any special, indirect or consequential damages or any damages whatsoever resulting from loss of data, profits or use, for any reason or in any action, arising out of or in connection with the use or performance of this information.

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## Section 2

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# Setup

This section provides printer setup information, which includes instructions on connecting power and interface cables, replacing the thermal ribbon, and replacing the label roll. See Section 3 for instructions on installing memory and printer options.

In addition, this section includes instructions on printing test labels to check printer operation before performing service or as a check after performing service.

This section also provides information on using the printer's control panel buttons to affect operation. Control panel LED indicators, status messages, menu descriptions, and factory settings of printer operating parameters are described. The 2-line by 16-character liquid crystal display (LCD) on the control panel shows the printer's operational status, error codes, and parameter values. The LCD also displays the menus used to change printer parameters.

### UNIT SETUP

Printer operation and print quality are affected by the environment in which the printer is placed. When setting up the printer or doing any service procedure, always be sure the printer meets the environmental specifications listed below and the media specifications in Section 1 of this manual. If the printer has not yet been unpacked (or to repack it for shipping), see Appendix A for unpacking/packing procedures.

The IntelliBar is designed to function reliably even under harsh conditions, such as those that might be present in manufacturing or warehouse environments.

Optimum print quality is achieved under the following conditions:

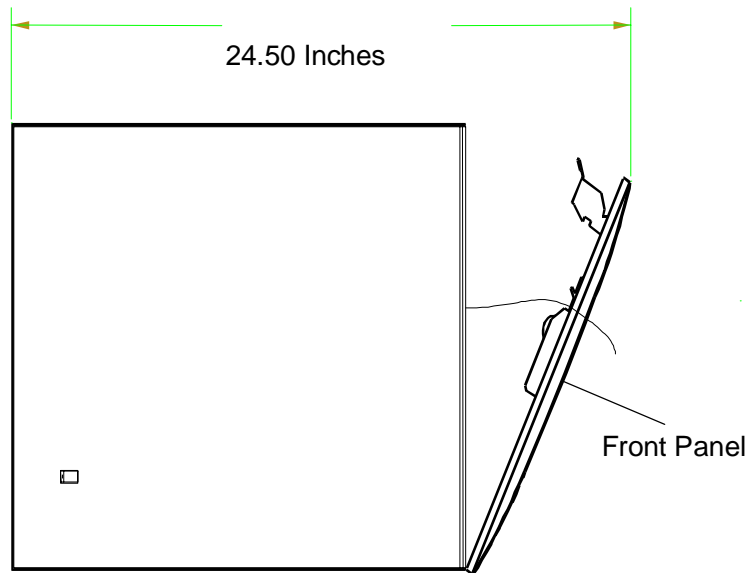
- Temperature: 41° to 104° F (5° to 40° C)
- Relative humidity: 15 to 85%

To maintain the best conditions for trouble-free operation, observe the following environmental standards.

- Place the printer in a well-ventilated area. Adequate clearance should be provided on all sides of the unit to allow heat to dissipate.
  - A minimum of 14 inches of clearance is needed above the Model 48 and 412 printers to open the hinged access door on the left side of the unit. For the Model 88, a minimum of 11 inches is needed to open the top cover.
-

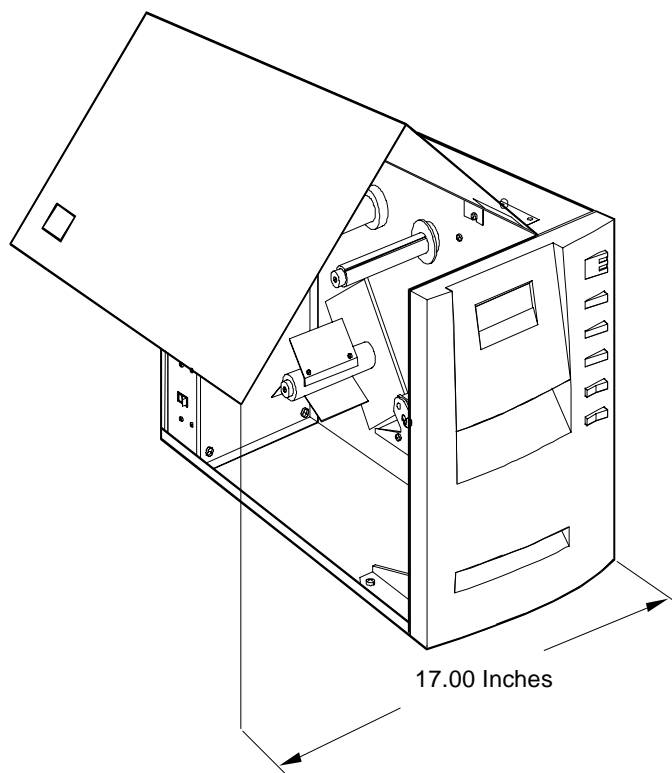
Note the printer dimensions and the clearance guidelines shown in the following figures.

With the front panel open on the Model 48 and 412, the distance from the front of the printer to the back (printer depth) is 24.5 inches



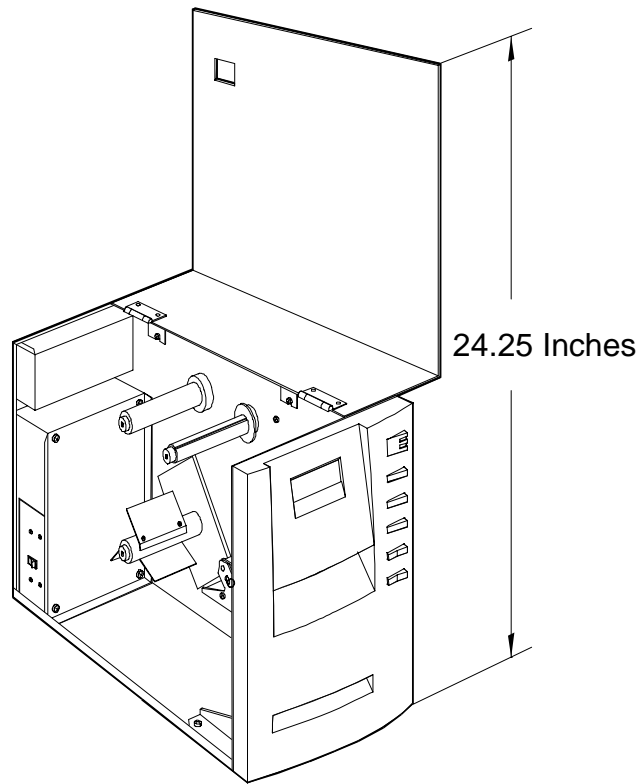
**Figure 2-1 Printer Depth (Model 48 and 412)**

With the left side cover open, the distance from the left side of the Model 48 and Model 412 to the right side (printer width) is 17 inches.



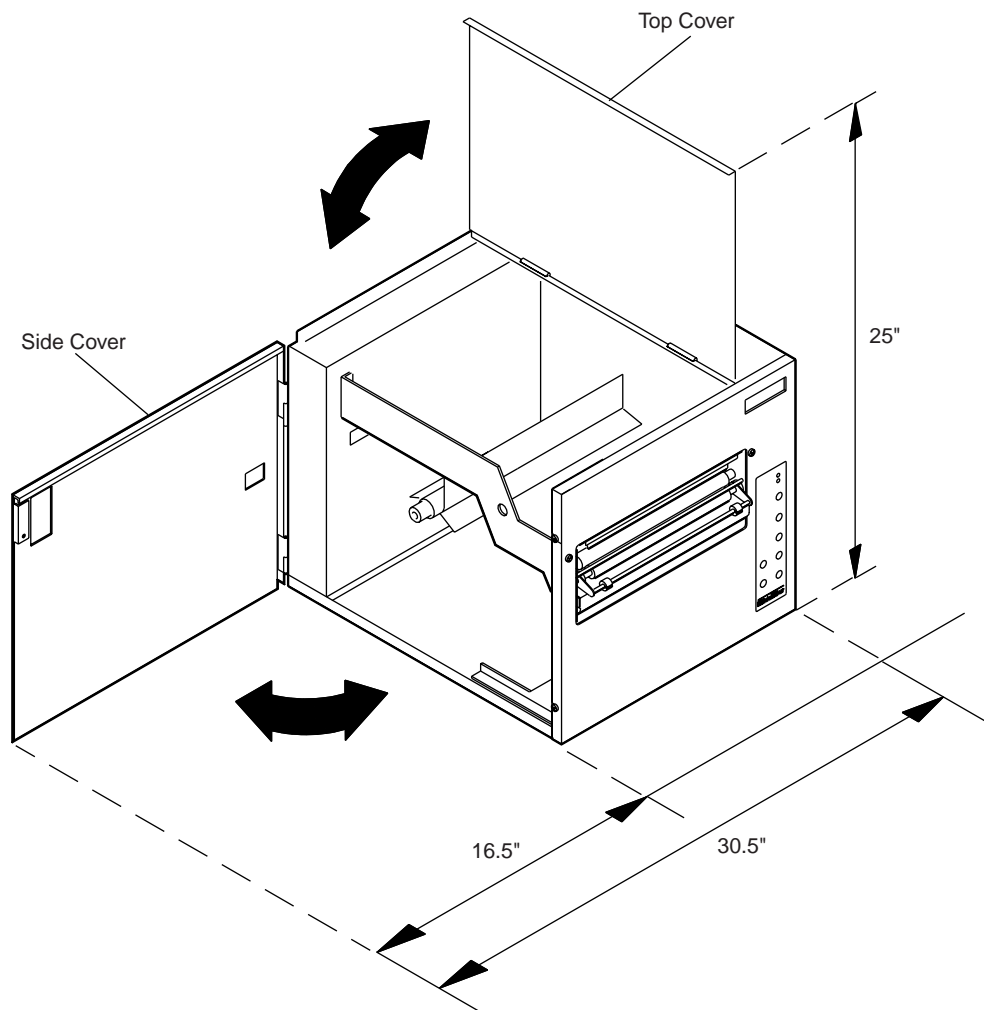
**Figure 2-2 Printer Width (Model 48 and 412)**

With the left side cover completely open, the distance from the bottom of the Model 48 and Model 412 to the top (printer height) is 24.25 inches.



**Figure 2-3 Printer Height (Model 48 and 412)**

The following figure shows the width and height specifications for the Model 88 printer with the top and side covers open.



**Figure 2-4 Printer Clearances (Model 88)**

- Keep the printer away from direct sunlight.
- Do not expose the printer to extreme changes in temperature, as might occur near a heating or air conditioning unit.
- Place the printer away from devices that generate strong magnetic fields such as electric motors or transformers.

### Connecting the Power Cord

The power cord supplied with the printer plugs into the ac inlet connector on the back of the printer. The other (male) end of the power cord plugs into a properly grounded, three-prong wall receptacle or other grounded power outlet. Always ensure the power switch is in the OFF position before plugging in the cord. Figure 2-5 shows the location of the power cord inlet connector and power switch and explains the power switch markings.

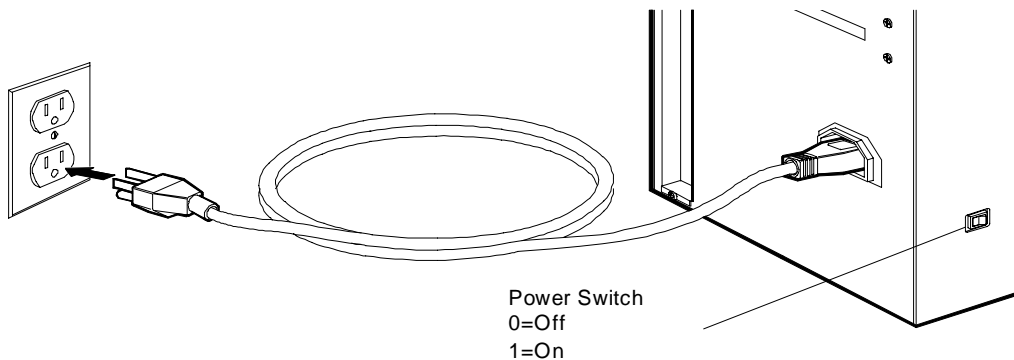
The power source for the IntelliBar is either 110Vac  $\pm 10\%$ , 50/60Hz or 220Vac  $\pm 10\%$ , 50/60Hz (for “E” Versions). Voltage higher or lower than specified can cause printer malfunctions.

The electric power line should be free from electric noise caused by other machines. A dedicated power line for the IntelliBar, separate from noise producing equipment, is recommended and must be in close proximity to the printer. If a separate line (for example, a different wall receptacle) is not available, use a noise filter (purchasable from an electrical supplies dealer).

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**CAUTION:** Turn off the printer before plugging in the power cord, and always use a properly-grounded power outlet.

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**Figure 2-5 Connecting Power**

## Connecting the Communications Interface Cables

The following subsections describe how to install the communications interface cable in the IntelliBar standard, AS Series, and ax Series printers.

### **Standard IntelliBar Communications Interface**

The back of the printer has one RS-232C/RS-422 serial interface port and one Centronics parallel interface port.

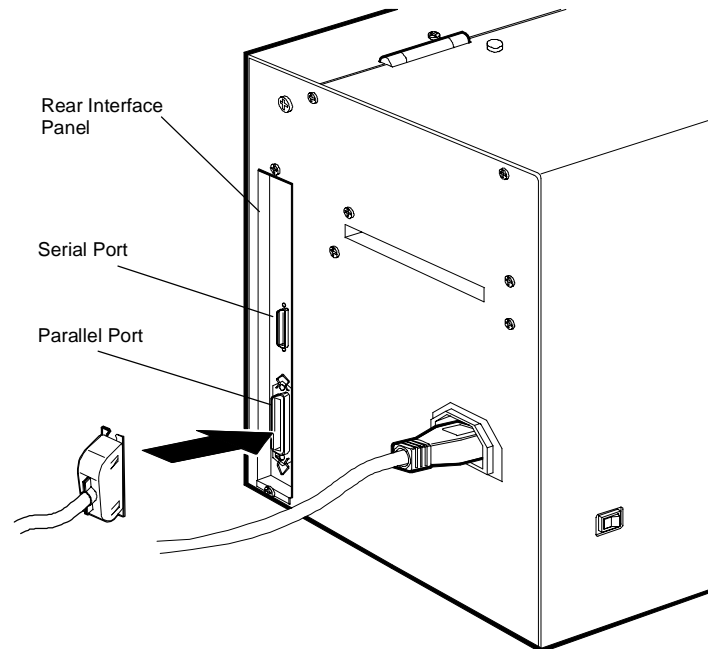
Figure 2-6 identifies the interface ports.

When plugging in the interface cable, observe the alignment shape of the connectors to ensure proper connection.

---

**CAUTION:** Turn off the computer and printer before installing or removing any interface cable.

---



**Figure 2-6 Interface Ports (Standard IntelliBar Series)**

Use the correct type of interface cable when connecting the printer to the computer. A description of each interface type is provided in Section 1 (see “Interface”). Attach the interface cable as follows.

1. Make sure the power to the printer is turned off.
2. Connect the interface cable to the appropriate standard IntelliBar Series interface port (see Figure 2-6).
3. Secure the cable with the indicated screws or clips.

For example, the RS-232C serial cable has two screws attached to the cable connector.

4. If a grounding wire is attached to the interface cable, secure the wire to the one of the screws on the printer’s rear interface panel (see Figure 2-6).
5. Connect the other end of the interface cable to the computer according to the manufacturer’s instructions.

**IntelliBar AS Series and ax Series Communication Interfaces**

For IBM AS/400 and System 3X computers, set up the IntelliBar printer to operate in an AFP/IPDS (AS Series) or SCS/EBCDIC (ax Series) configuration as follows:

1. Attach the twinax or coax cable adapter to the 15-pin port on the interface board (see Figure 2-7).
2. If connecting to a twinax host, set the I/O address on the four-segment switch bank to the correct value for your configuration (see Table 2-1). Obtain information about your configuration's address from your system administrator.

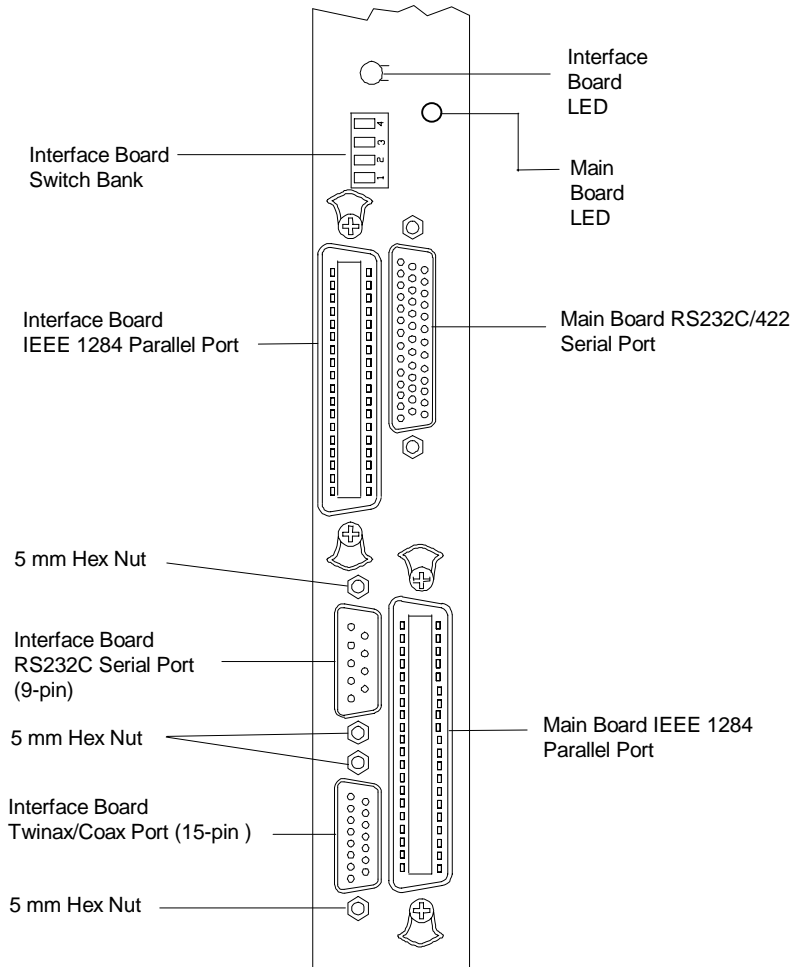
If connecting to a coax host, set all the switches to OFF.

**Table 2-1 IntelliBar AS Series I/O Address  
Switch Settings (Twinax Connection)**

<b>Twinax Address</b>	<b>Switch Segment 1</b>	<b>Switch Segment 2</b>	<b>Switch Segment 3</b>	<b>Switch Segment 4</b>
0	Off	Off	Off	Off
1	On	Off	Off	Off
2	Off	On	Off	Off
3	On	On	Off	Off
4	Off	Off	On	Off
5	On	Off	On	Off
6	Off	On	On	Off

Figure 2-7 shows a close-up view of the rear of the printer with the interface board installed.

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**Figure 2-7 Interface Board Connector, LED, and Switch Locations**

4. Turn on the printer and the host computer. After approximately 8 to 10 seconds, the LED on the interface board lights green, indicating that the host has established communication with the printer.
5. Check the status of the printer at the host. The host automatically configures the printer for AFP/IPDS (AS interface board installed) or SCS (ax interface board installed).

After auto configuration, the printer is ready to receive print jobs.

## Label and Ribbon Requirements

Print quality depends on factors such as the type of ribbon and labels being used. Label thickness and abrasion levels and the resistance of ribbons and labels to extreme temperatures all play an important role in maintaining the life of the print head and ensuring print quality.

For best results, use high-quality labels (die-cut, butt-cut, or continuous forms) that meet the specifications listed in Table 2-2.

**Table 2-2 Label Specifications**

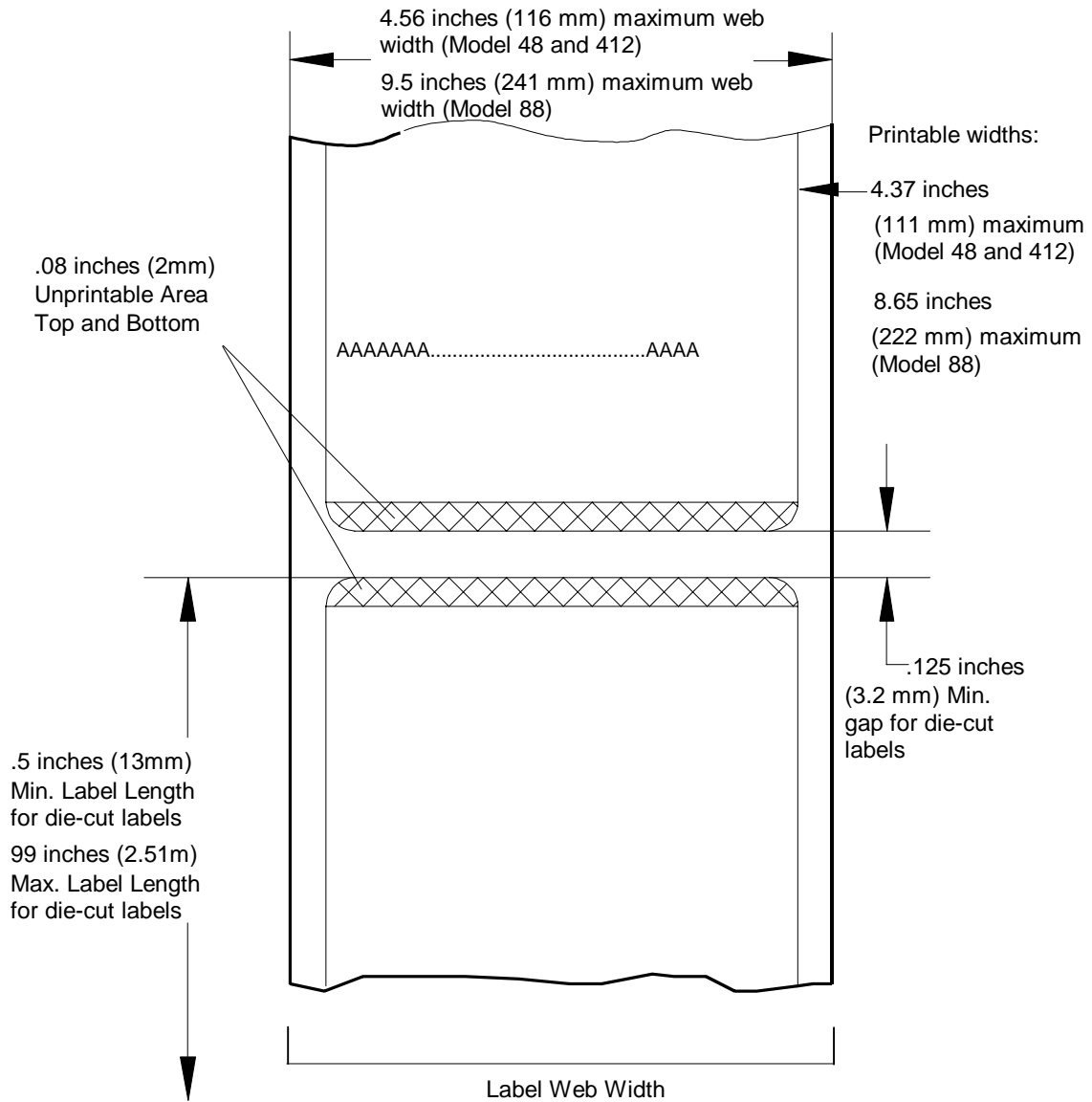
Measurement	Minimum Specification	Maximum Specification
Width*	Model 48, 412: 0.75 in. (19 mm)	Model 48, 412: 4.56 in. (116 mm) maximum
	Model 48, 412: 4.56 in. (116 mm)	Model 88: 9.5 in. (241 mm) maximum
Length	0.51 in. (13 mm)	99 in. (2.51 m); requires additional memory
Thickness	0.0025 in. (0.0635 mm)	0.01 in. (0.245 mm)
Gap	0.125 in. (3.2 mm)	1.5 x length of label

\*Label specifications depend on the label stock. Maximum width of adhesive label stock (including backing paper) or tag stock is 4.56 in. (116 mm) for the Model 48 and Model 412 and 9.5 in (241 mm) for the Model 88. Figure 2-8 provides label specifications for die-cut labels only. Maximum width of the print line (printable width) on the label is 4.37 in. (111 mm) for the Model 48 and Model 412 and 8.65 in. (220 mm) for the Model 88.

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**NOTE:** For updates on IntelliBar label specifications and other information about labels orderable through *IntelliTech* International, Inc., visit our Web site at <http://www.intellibar.com>.

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**Figure 2-8 Paper Specifications**

### ***IntelliBar Ribbons***

IntelliTech International, Inc. offers three categories of thermal transfer ribbons:

- wax (IntelliTech Express Wax™ and IntelliTech Dura Wax™)
- wax/resin (IntelliTech Dura Wax/Resin™)
- resin (IntelliTech Rugged Resin™ and Dura Resin Plus™).

Each category is manufactured with high quality materials to the following specifications to fit particular operating conditions and purposes:

- thickness – 5 microns
- ribbon backing material – polyester film
- ink material
  - Express Wax, black
  - Dura Wax, black
  - Dura Wax/Resin, colors (see Table 2-4)
  - Rugged Resin, black
  - Dura Resin Plus, black
- ribbon length – 990 ft. (300 m) for resin type; 1485 ft. (450 m) for wax type
- ribbon widths –

	Model 48 and 412	Model 88
	1.06 in. (27 mm)	6.64 in. (165.0 mm)
	2.13 in. (54 mm)	8.65 in. (220.0 mm)
	3.27 in. (83 mm)	
	4.37 in. (111 mm)	

The following tables list IntelliTech order numbers for IntelliBar black and color ribbons.

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**Table 2-3 IntelliBar Black Ribbons\***

<b>Description</b>	<b>Width</b>	<b>Length</b>	<b>Order Number</b>
Express Wax	1.08 inches (27 mm)	450 meters (1,475 feet)	50-101
	2.20 inches (54 mm)	450 meters (1,475 feet)	50-102
	3.32 inches (83 mm)	450 meters (1,475 feet)	50-103
	4.44 inches (111 mm)	450 meters (1,475 feet)	50-104
	6.64 inches (165 mm)	450 meters (1475 feet)	50-201
	8.88 inches (222 mm)	450 meters (1,475 feet)	50-202
Dura Wax	1.08 inches (27 mm)	450 meters (1,475 feet)	50-101
	2.20 inches (54 mm)	450 meters (1,475 feet)	50-102
	3.32 inches (83 mm)	450 meters (1,475 feet)	50-103
	4.44 inches (111 mm)	450 meters (1,475 feet)	50-104
	6.64 inches (165 mm)	450 meters (1475 feet)	50-203
	8.88 inches (222 mm)	450 meters (1,475 feet)	50-204
Rugged Resin	1.08 inches (27 mm)	300 meters (990 feet)	50-109
	2.20 inches (54 mm)	300 meters (990 feet)	50-110
	3.32 inches (83 mm)	300 meters (990 feet)	50-111
	4.44 inches (111 mm)	300 meters (990 feet)	50-112
	6.64 inches (165 mm)	300 meters (990 feet)	50-205
	8.88 inches (222 mm)	300 meters (990 feet)	50-206
Dura Resin Plus	1.08 inches (27 mm)	300 meters (990 feet)	50-113
	2.20 inches (54 mm)	300 meters (990 feet)	50-114
	3.32 inches (83 mm)	300 meters (990 feet)	50-115
	4.44 inches (111 mm)	300 meters (990 feet)	50-116
	6.64 inches (165 mm)	300 meters (990 feet)	50-207
	8.88 inches (222 mm)	300 meters (990 feet)	50-208

\* This page was prepared September 1999. For an up-to-date listing of IntelliBar ribbons, please call *IntelliTech* at 800-694-3034.

**Table 2-4 IntelliBar Color Ribbons\***

<b>Description</b>	<b>Color</b>	<b>Width</b>	<b>Length</b>	<b>Order Number</b>
Dura Wax/Resin	White	1.08 inches (27 mm)	300 meters (990 feet)	50-501
	White	2.20 inches (54 mm)	300 meters (990 feet)	50-502
	White	3.32 inches (83 mm)	300 meters (990 feet)	50-503
	White	4.44 inches (111 mm)	300 meters (990 feet)	50-504
	White	6.64 inches (165 mm)	300 meters (990 feet)	50-505
	White	8.88 inches (222 mm)	300 meters (990 feet)	50-506
	Process cyan	1.08 inches (27 mm)	300 meters (990 feet)	50-508
	Process cyan	2.20 inches (54 mm)	300 meters (990 feet)	50-509
	Process cyan	3.32 inches (83 mm)	300 meters (990 feet)	50-510
	Process cyan	4.44 inches (111 mm)	300 meters (990 feet)	50-511
	Process cyan	6.64 inches (165 mm)	300 meters (990 feet)	50-512
	Process cyan	8.88 inches (222 mm)	300 meters (990 feet)	50-513
	Process magenta	1.08 inches (27 mm)	300 meters (990 feet)	50-515
	Process magenta	2.20 inches (54 mm)	300 meters (990 feet)	50-516
	Process magenta	3.32 inches (83 mm)	300 meters (990 feet)	50-517
	Process magenta	4.44 inches (111 mm)	300 meters (990 feet)	50-518
	Process magenta	6.64 inches (165 mm)	300 meters (990 feet)	50-519
	Process magenta	8.88 inches (222 mm)	300 meters (990 feet)	50-520
	Process yellow	1.08 inches (27 mm)	300 meters (990 feet)	50-522
	Process yellow	2.20 inches (54 mm)	300 meters (990 feet)	50-523

\* This page was prepared July 1999. For an up-to-date listing of IntelliBar ribbons, please call *IntelliTech* at 800-694-3034.

**Table 2-4 IntelliBar Color Ribbons\***

<b>Description</b>	<b>Color</b>	<b>Width</b>	<b>Length</b>	<b>Order Number</b>
Dura Wax/Resin	Process yellow	3.32 inches (83 mm)	300 meters (990 feet)	50-524
	Process yellow	4.44 inches (111 mm)	300 meters (990 feet)	50-525
	Process yellow	6.64 inches (165 mm)	300 meters (990 feet)	50-526
	Process yellow	8.88 inches (222 mm)	300 meters (990 feet)	50-527
	Lemon yellow	1.08 inches (27 mm)	300 meters (990 feet)	50-529
	Lemon yellow	2.20 inches (54 mm)	300 meters (990 feet)	50-530
	Lemon yellow	3.32 inches (83 mm)	300 meters (990 feet)	50-531
	Lemon yellow	4.44 inches (111 mm)	300 meters (990 feet)	50-532
	Process cyan	6.64 inches (165 mm)	300 meters (990 feet)	50-533
	Lemon yellow	8.88 inches (222 mm)	300 meters (990 feet)	50-534
	Orange	1.08 inches (27 mm)	300 meters (990 feet)	50-536
	Orange	2.20 inches (54 mm)	300 meters (990 feet)	50-537
	Orange	3.32 inches (83 mm)	300 meters (990 feet)	50-538
	Orange	4.44 inches (111 mm)	300 meters (990 feet)	50-539
	Orange	6.64 inches (165 mm)	300 meters (990 feet)	50-540
	Orange	8.88 inches (222 mm)	300 meters (990 feet)	50-541
	Dark orange	1.08 inches (27 mm)	300 meters (990 feet)	50-543
	Dark orange	2.20 inches (54 mm)	300 meters (990 feet)	50-544
	Dark orange	3.32 inches (83 mm)	300 meters (990 feet)	50-545
	Dark orange	4.44 inches (111 mm)	300 meters (990 feet)	50-546

\* This page was prepared July 1999. For an up-to-date listing of IntelliBar ribbons, please call *IntelliTech* at 800-694-3034.

**Table 2-4 IntelliBar Color Ribbons\***

<b>Description</b>	<b>Color</b>	<b>Width</b>	<b>Length</b>	<b>Order Number</b>
Dura Wax/Resin	Dark orange	6.64 inches (165 mm)	300 meters (990 feet)	50-547
	Dark orange	8.88 inches (222 mm)	300 meters (990 feet)	50-548
	Red	1.08 inches (27 mm)	300 meters (990 feet)	50-550
	Red	2.20 inches (54 mm)	300 meters (990 feet)	50-551
	Red	3.32 inches (83 mm)	300 meters (990 feet)	50-552
	Red	4.44 inches (111 mm)	300 meters (990 feet)	50-553
	Red	6.64 inches (165 mm)	300 meters (990 feet)	50-554
	Red	8.88 inches (222 mm)	300 meters (990 feet)	50-555
	Burgundy	1.08 inches (27 mm)	300 meters (990 feet)	50-557
	Burgundy	2.20 inches (54 mm)	300 meters (990 feet)	50-558
	Burgundy	3.32 inches (83 mm)	300 meters (990 feet)	50-559
	Burgundy	4.44 inches (111 mm)	300 meters (990 feet)	50-560
	Burgundy	6.64 inches (165 mm)	300 meters (990 feet)	50-561
	Burgundy	8.88 inches (222 mm)	300 meters (990 feet)	50-562
	Shamrock Green	1.08 inches (27 mm)	300 meters (990 feet)	50-564
	Shamrock Green	2.20 inches (54 mm)	300 meters (990 feet)	50-565
	Shamrock Green	3.32 inches (83 mm)	300 meters (990 feet)	50-566
	Shamrock Green	4.44 inches (111 mm)	300 meters (990 feet)	50-567
	Shamrock Green	6.64 inches (165 mm)	300 meters (990 feet)	50-568
	Shamrock Green	8.88 inches (222 mm)	300 meters (990 feet)	50-569
	Forrest Green	1.08 inches (27 mm)	300 meters (990 feet)	50-571
	Forrest Green	2.20 inches (54 mm)	300 meters (990 feet)	50-572

\* This page was prepared July 1999. For an up-to-date listing of IntelliBar ribbons, please call *IntelliTech* at 800-694-3034.

**Table 2-4 IntelliBar Color Ribbons\***

<b>Description</b>	<b>Color</b>	<b>Width</b>	<b>Length</b>	<b>Order Number</b>
Dura Wax/Resin	Forrest Green	3.32 inches (83 mm)	300 meters (990 feet)	50-573
	Forrest Green	4.44 inches (111 mm)	300 meters (990 feet)	50-574
	Forrest Green	6.64 inches (165 mm)	300 meters (990 feet)	50-575
	Forrest Green	8.88 inches (222 mm)	300 meters (990 feet)	50-576
	Royal Blue	1.08 inches (27 mm)	300 meters (990 feet)	50-578
	Royal Blue	2.20 inches (54 mm)	300 meters (990 feet)	50-579
	Royal Blue	3.32 inches (83 mm)	300 meters (990 feet)	50-580
	Royal Blue	4.44 inches (111 mm)	300 meters (990 feet)	50-581
	Royal Blue	6.64 inches (165 mm)	300 meters (990 feet)	50-582
	Royal Blue	8.88 inches (222 mm)	300 meters (990 feet)	50-583
	Midnight Blue	1.08 inches (27 mm)	300 meters (990 feet)	50-585
	Midnight Blue	2.20 inches (54 mm)	300 meters (990 feet)	50-586
	Midnight Blue	3.32 inches (83 mm)	300 meters (990 feet)	50-587
	Midnight Blue	4.44 inches (111 mm)	300 meters (990 feet)	50-588
	Midnight Blue	6.64 inches (165 mm)	300 meters (990 feet)	50-589
	Midnight Blue	8.88 inches (222 mm)	300 meters (990 feet)	50-590
	Brown	1.08 inches (27 mm)	300 meters (990 feet)	50-592
	Brown	2.20 inches (54 mm)	300 meters (990 feet)	50-593
	Brown	3.32 inches (83 mm)	300 meters (990 feet)	50-594
	Brown	4.44 inches (111 mm)	300 meters (990 feet)	50-595
	Brown	6.64 inches (165 mm)	300 meters (990 feet)	50-596
	Brown	8.88 inches (222 mm)	300 meters (990 feet)	50-597

\* This page was prepared July 1999. For an up-to-date listing of IntelliBar ribbons, please call *IntelliTech* at 800-694-3034.

## Ribbon/Label Combination

Refer to Table 2-5 for general guidelines in selecting the ribbon/label combination best suited for the application and environmental variables that affect print quality.

**Table 2-5 Ribbon/Label Selection Matrix**

Application	Ribbon Description	Label Description
For economical high to medium speed printing.	Express Wax	Coated or uncoated paper stock only.
For economical yet more durable medium speed printing. Used in environments that require some smudge and scratch resistant capability.	Dura Wax	Coated label and tag stock only. Also for use with smooth uncoated stocks. Economical labels for many applications.
Used in harsh environments needing smudge and scratch resistant materials. For medium speeds.	Rugged Resin	Excellent on synthetic label stock and coated paper. Not recommended for uncoated paper stock.
For low speed printing. Permanent bar codes. Suitable for harsh environments. Smudge and super scratch proof. Solvent, heat, and wash proof.	Dura Resin Plus	Excellent on synthetic label stock. Not recommended for coated or uncoated paper stock.
For color printing.	Dura Wax Resin	Good all around, versatile use on many paper and synthetic stocks.

To help you further identify the ribbon/label combination that meets your needs, Table 2-6 provides information about average ink-to-label transfer and smudge characteristics. This information should only be used as a guideline, since ribbon/label performance is also dependent on print speeds, print head energy levels, print head position, and other factors.

---

**CAUTION:** To avoid undue wear on the print head and reduce repair costs, use ribbons that are **the same width or slightly wider** than the labels.

---

**Table 2-6 Ribbon and Label Type Performance Guidelines**

	Uncoated Paper		Coated Paper		Polypropylene		Polyester	
	Print Quality	Smudge & Scratch Resistance	Print Quality	Smudge & Scratch Resistance	Print Quality	Smudge & Scratch Resistance	Print Quality	Smudge & Scratch Resistance
Express Wax	☆☆☆	☆☆	☆☆☆☆	☆☆	☆☆☆	☆	☆☆☆	NR
Dura Wax	☆☆	☆☆☆	☆☆☆☆	☆☆☆	☆☆☆	☆☆☆	☆☆☆	☆☆
Rugged Resin	☆☆	☆	☆☆☆☆	☆☆☆	☆☆☆☆	☆☆☆	☆☆☆☆	☆☆
Dura Resin Plus	NR	NR	☆	☆☆	☆☆☆	☆☆☆☆	☆☆☆☆	☆☆☆☆
Dura Wax/Resin	☆☆	☆☆☆	☆☆☆☆	☆☆☆	☆☆☆	☆☆	☆☆☆	☆☆

Rating	Print Quality	Smudge & Scratch Resistance
☆☆☆☆	Excellent	No change to printed image
☆☆☆	Good	Slight effect to printed image
☆☆	Fair	Some effect to printed image
☆	Marginal	Noticeable effect to printed image
NR	Not recommended	Not recommended

## Loading Labels

To load a label roll, proceed as follows depending on your IntelliBar model and whether you are operating the printer in standard, tear-off, cut-off, or peel-off print modes. For information on selecting the print mode for your printer through the control panel menu button, see Section 3, “Unit Operation.”

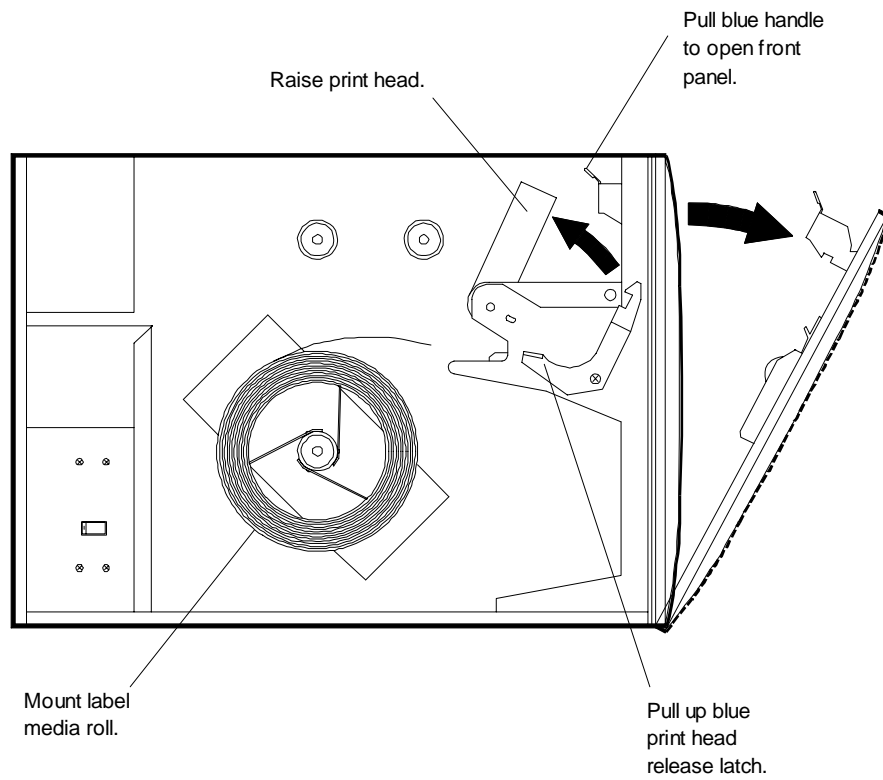
### Models 48 and 412

The following subsection describes how to load labels for the IntelliBar Models 48 and 412. See “Model 88” later in this section to load labels in the IntelliBar Model 88 printer.

#### Standard Mode, Tear-Off Mode, Cut-Off Mode (Models 48 and 412)

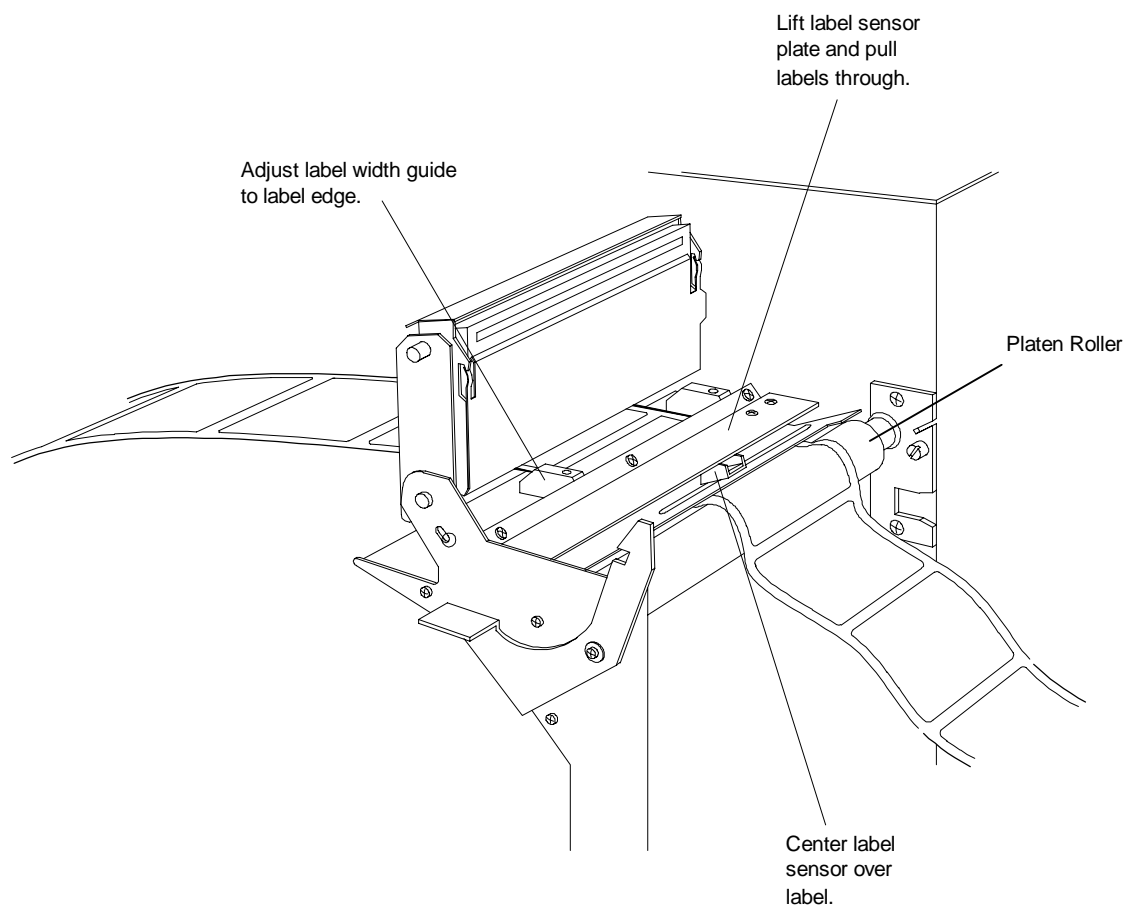
If the printer is operating in standard, tear-off, or cut-off mode, follow these steps to load labels.

1. Open the printer’s left side cover. Open and lower the front panel by pressing the front panel release latch (see Figure 2-9).
2. Place the label roll on the label supply spindle, label side up, so the roll unwinds in the clockwise direction.
3. Pull up the print head release latch and raise the print head.



**Figure 2-9 Mounting the Label Roll (Model 48 and 412)**

4. Raise the label sensor plate and gently route the label backing paper (liner) between the white teflon label width guides, under the label sensor plate, and over the platen roller (see Figure 2-10).

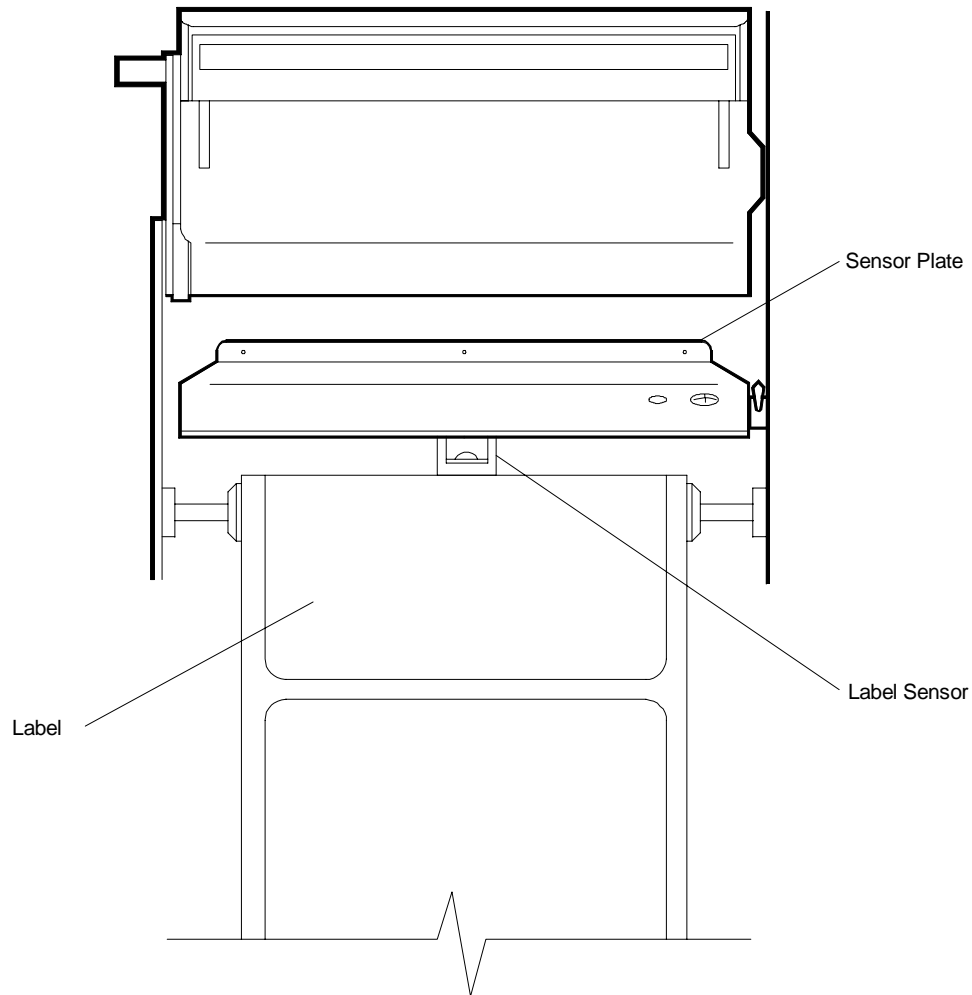


**Figure 2-10 Installing Labels (Model 48 and 412)**

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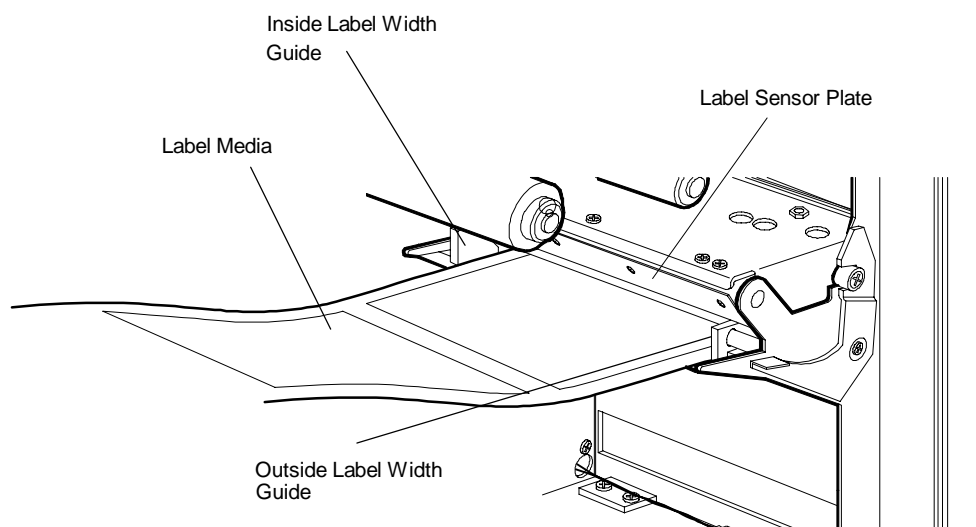
**NOTE:** Make sure the label sensor mounted on the sensor plate is positioned in the center of the label and is not over a label gap. If it is not centered, slide the sensor assembly to the left or right as required (see Figure 2-11).

---



**Figure 2-11 Label Sensor Location (Model 48 and 412)**

5. Route the label liner through the exit slot in the front panel.
6. Close and latch the print head assembly, making sure the print head is securely latched.
7. Make sure the inside edge of the label backing paper is touching the inside label width guide (see Figure 2-12). (If it is not, open the print head, realign the label media, and close the print head). Slide the outside label width guide up to the edge of the label backing paper to prevent liner mistracking (skew).



**Figure 2-12 Label Width Guides (Model 48 and 412)**

8. Close the front panel and left side cover.
9. Turn on the printer and wait for it to initialize (“OFFLINE, INITIALIZE” appears in the 2-line control panel LCD display). During initialization, several labels will feed consecutively and exit the label exit slot as the printer automatically measures the label gap and label length.

After the printer has measured the label gap and label length, feeding stops. “ONLINE, READY” appears in the 2-line control panel LCD display.

10. From the control panel, select the desired “PRINT MENU, PRINT MODE,” parameter (see Section 3 for information on using the control panel menu button and menu tree to set the standard, tear-off, or cut-off print mode parameter).

---

**NOTE:** If you want to operate in standard mode, you do **not** need to set the print mode parameter if you are loading labels for the first time after taking the printer out of the box. The “STANDARD” print mode parameter is the default that is set at the factory.

---

## Peel-Off Mode (Models 48 and 412)

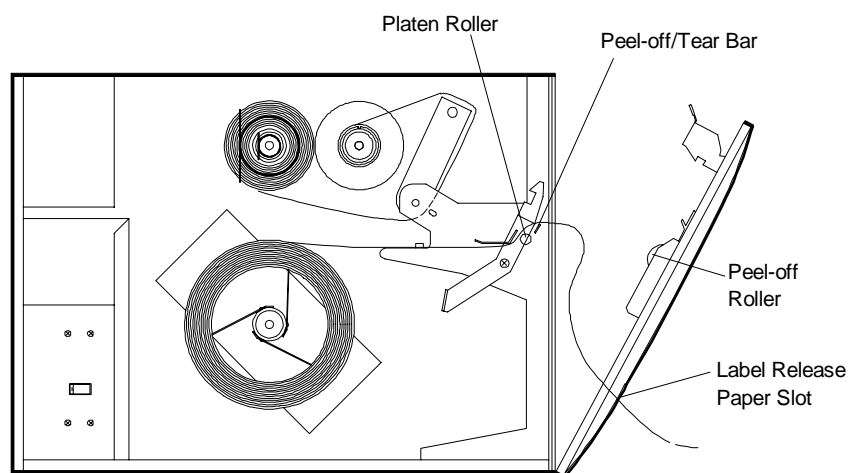
If the printer operates in peel-off mode (with no cutter option installed), follow these steps to load labels.

1. Load labels as described in steps 1 through 9 in the previous subsection.
2. From the control panel, select the “LABEL MENU, LABEL MEASURE, FIXED” parameter as follows (see also “Menu Tree” later in this section).
  - Press the **Menu** button (“MAIN MENU”, “PRINT MENU” appears in the LCD display).
  - Press **Next** (“MAIN MENU”, “LABEL MENU” appears in the LCD display).
  - Press **Select** (“LABEL MENU”, “LABEL TYPE” appears in the LCD display).
  - Press **Next** (“LABEL MENU”, “MEASURE LABEL” appears in the LCD display).
  - Press **Select** (“MEASURE LABEL”, “AUTOMATIC” appears in the LCD display).
  - Press **Next** (“MEASURE LABEL”, “FIXED” appears in the LCD display).
  - Press **Select** (“MEASURE LABEL”, “FIXED” appears with an asterisk).
  - Press the **Online** button (“ONLINE, READY” appears in the control panel LCD).

This setting ensures that no more than one label advances during subsequent power-on initialization routines, avoiding possible label jams at the label exit slot.

3. From the control panel, select the “PRINT MENU, PRINT MODE, PEEL-OFF” parameter as follows (see also “Menu Tree” later in this section).
    - Press the **Online** button (OFF LINE, PAUSE appears in the 2-line control panel LCD display).
    - Press the **Menu** button (“MAIN MENU”, “PRINT MENU” appears in the LCD display).
    - Press **Select** (“PRINT MENU”, “PRINT METHOD” appears in the LCD display).
    - Press **Next** (“PRINT MENU”, “PRINT MODE” appears in the LCD display).
    - Press **Select**. One of the print modes other than peel off appears in the LCD display (“STANDARD”, “TEAR OFF”, or “CUT OFF”) depending on the print mode that you previously selected (“STANDARD” is the factory default).
-

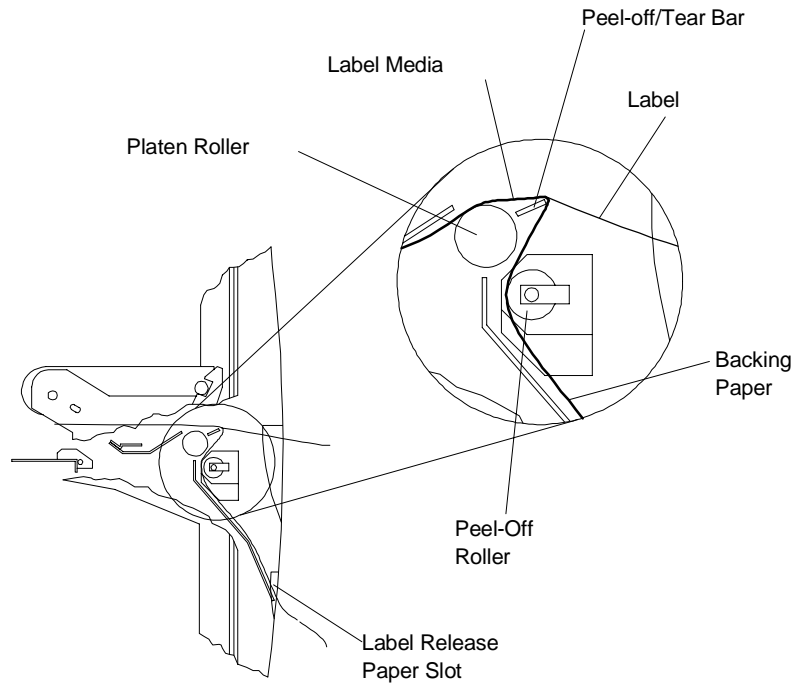
- Press **Next** until “PEEL OFF” appears.
  - Press **Select** (“PRINT MODE”, “PEEL OFF” appears with an asterisk).
4. Open the front panel and print head.
  5. Reroute the label strip downward past the peel-off roller and through the label release paper slot (see Figure 2-13).



**Figure 2-13 Peel-Off Mode Label Routing (Model 48 and 412)**

6. While gently pulling the liner downward, close and latch the print head assembly, making sure the print head is securely latched. Then close and latch the front panel.

Figure 2-14 shows a cut-away view of the label routing path for peel-off mode.



**Figure 2-14 Model 48 and 412 Peel-Off Mode Label Routing – Cut-Away View**

7. Press **Online**. Two labels will feed consecutively. The first label will feed and separate (peel) from the backing paper (liner) and exit the label exit slot. (The liner exits through the label release paper slot.) After the first label feeds, manually remove this label from the label exit slot and then wait for the second label to finish feeding.

When the second label has fed, the printer pauses. “PEEL OFF LABEL” appears in the control panel LCD display.

8. Remove the label from the exit slot. When you have removed the label, the label roll will automatically back up so that the next label is in position for printing. “ONLINE, READY” will appear in the control panel LCD.

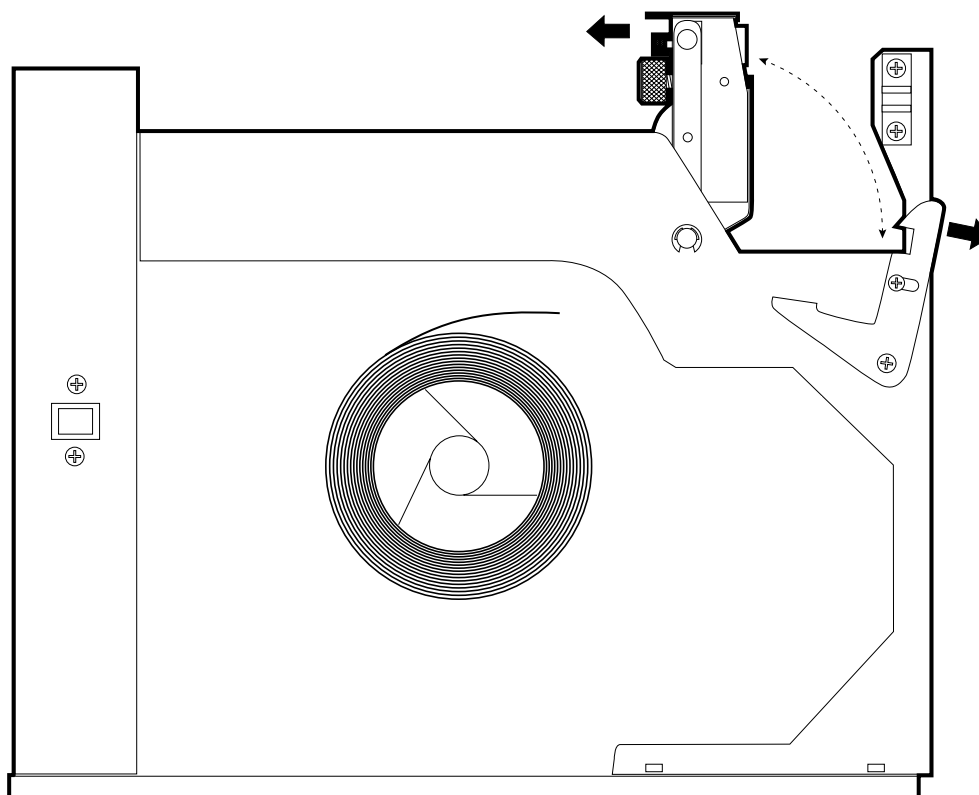
**Model 88**

The following subsection describes how to load labels for the IntelliBar Model 88. See “Models 48 and 412” earlier in this section to load labels in the IntelliBar Model 48 and 412 printers.

**Standard Mode, Tear-Off Mode, Cut-Off Mode (Models 88)**

If the printer is operating in standard, tear-off, or cut-off mode, follow these steps to load labels.

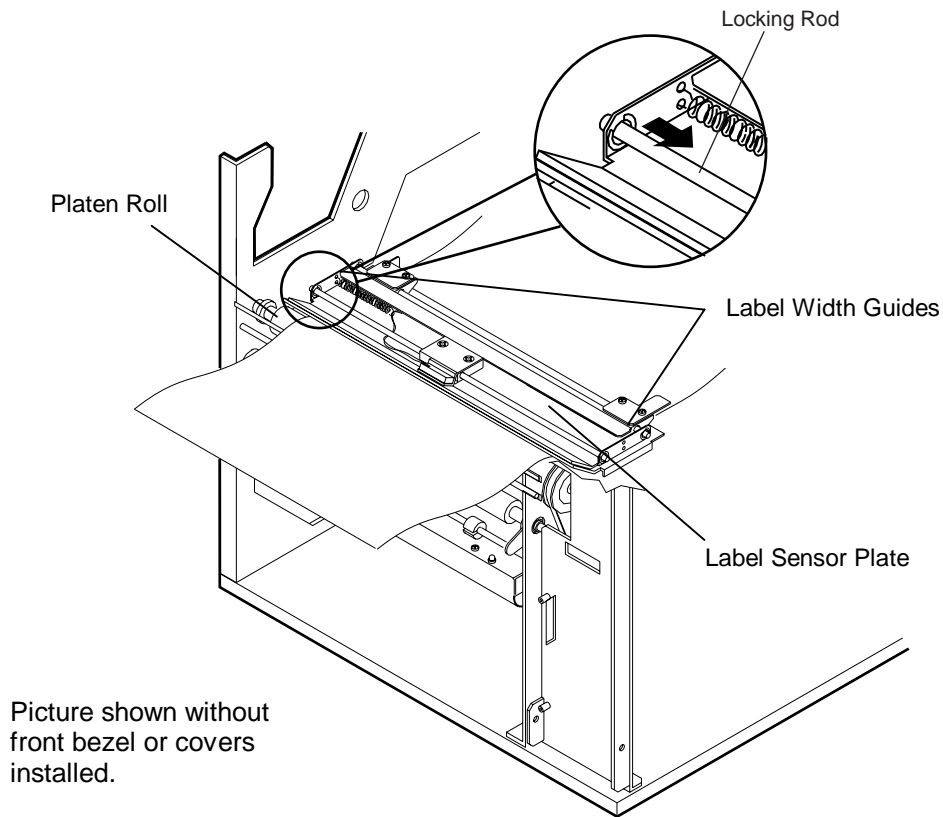
1. Open the printer's left side cover and top cover.
2. Place the label roll on the label supply spindle, label side up, so the roll unwinds in the clockwise direction (see the following figure).
3. Pull up the print head release latch and raise the print head (see Figure 2-15).



**Figure 2-15 Mounting the Label Roll (Model 88)**

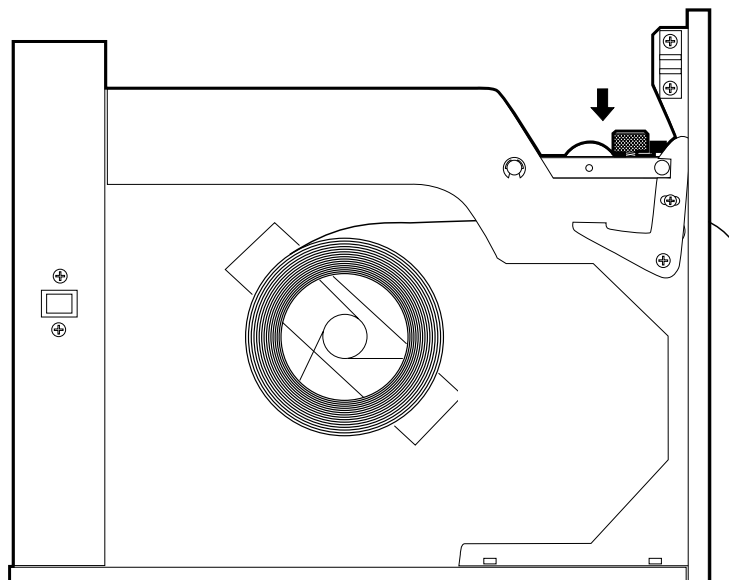
4. Grasp the locking rod firmly with two fingers and push the rod toward the inside of the printer. Lift up the label sensor plate when the rod slips out of the retaining hole (see the following figure).

5. Carefully route the label backing paper (liner) between the metal label width guides, under the label sensor plate, and over the platen roller (see Figure 2-16).



**Figure 2-16 Installing Labels (Model 88)**

6. Lower the label sensor plate and slide the locking rod toward the left side of the printer so the rod fits into the hole and secures the sensor plate.
  7. Close and securely lock the print head with the latch lever.
-



**Figure 2-17 Locking the Print Head (Model 88)**

8. Close the top cover and left side cover.

#### Peel-Off Mode (Model 88)

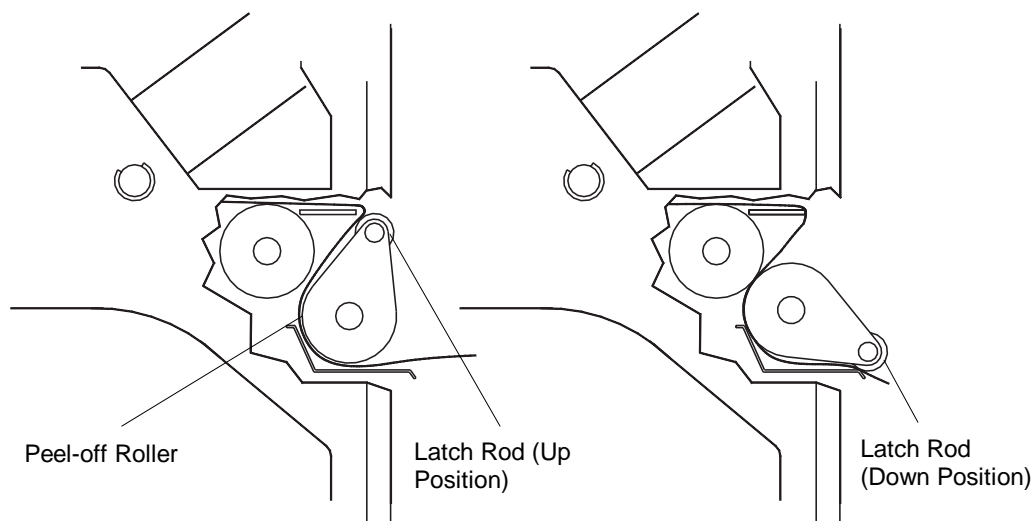
If the printer operates in peel-off mode, follow these steps to load labels.

1. From the control panel, select the “LABEL MENU, LABEL MEASURE, FIXED” parameter as follows (see also “Menu Tree” later in this section).
  - Press the **Menu** button (“MAIN MENU”, “PRINT MENU” appears in the LCD display).
  - Press **Next** (“MAIN MENU”, “LABEL MENU” appears in the LCD display).
  - Press **Select** (“LABEL MENU”, “LABEL TYPE” appears in the LCD display).
  - Press **Next** (“LABEL MENU”, “MEASURE LABEL” appears in the LCD display).
  - Press **Select** (“MEASURE LABEL”, “AUTOMATIC” appears in the LCD display).
  - Press **Next** (“MEASURE LABEL”, “FIXED” appears in the LCD display).
  - Press **Select** (“MEASURE LABEL, “FIXED” appears with an asterisk).

- Press the **Online** button (“ONLINE, READY” appears in the control panel LCD).

This setting ensures that no more than one label advances during subsequent power-on initialization routines, avoiding possible label jams at the label exit slot.

2. From the control panel, select the “PRINT MENU, PRINT MODE, PEEL-OFF” parameter as follows (see also “Menu Tree” later in this section).
    - Press the **Online** button (OFF LINE, PAUSE appears in the 2-line control panel LCD display).
    - Press the **Menu** button (“MAIN MENU”, “PRINT MENU” appears in the LCD display).
    - Press **Select** (“PRINT MENU”, “PRINT METHOD” appears in the LCD display).
    - Press **Next** (“PRINT MENU”, “PRINT MODE” appears in the LCD display).
    - Press **Select**. One of the print modes other than peel off appears in the LCD display (“STANDARD”, “TEAR OFF”, or “CUT OFF”) depending on the print mode that you previously selected (“STANDARD” is the factory default).
    - Press **Next** until “PEEL OFF” appears.
    - Press **Select** (“PRINT MODE , “PEEL OFF” appears with an asterisk).
  3. Load labels as described in steps 1 through 5 in the previous subsection.
  4. Thread approximately two feet of media through the print head to the front of the printer.
  5. Lower the label sensor plate and slide the locking rod toward the left side of the printer so the rod fits into the hole and secures the sensor plate.
  6. Close and securely lock the print head with the latch lever.
  7. Lift up the peel-of roller latch rod and route the label media around the back of the peel-off roller and out the front of the printer (see Figure 2-18). Make sure the media exits the printer under the peel off roller and above the media exit guide plate.
  8. Firmly push the peel off roller latch rod down to engage the peel-off roller.
-



**Figure 2-18 Model 88 Peel-Off Mode Label Routing – Cut-Away View**

9. Press **Online**. Two labels will feed consecutively. The first label will feed and separate (peel) from the backing paper (liner) and exit the label exit slot. (The liner exits through the label release paper slot.) After the first label feeds, manually remove this label from the label exit slot and then wait for the second label to finish feeding.

When the second label has fed, the printer pauses. “PEEL OFF LABEL” appears in the control panel LCD display.

10. Remove the label from the exit slot. When you have removed the label, the label roll will automatically back up so that the next label is in position for printing. “ONLINE, READY” will appear in the control panel LCD.

## Installing the Thermal Ribbon

The printer comes with a start-up thermal ribbon roll that is approximately 50 meters long. An unopened ribbon roll package has a shelf life of about 2 1/2 years.

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**NOTE:** Open ribbon roll wrappers carefully to prevent the ribbon material from ripping.

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For best results, store ribbons in an environment that meets the following conditions.

- Temperature: 4° F to 86° F (-20° C to 30° C)
- Humidity: 20 to 80% (non-condensing)

### **Model 48 or 412**

To install a ribbon in the Model 48 or 412 printer, proceed as follows. If you are installing a ribbon in the Model 88, see “Model 88” later in this section.

---

**NOTE:** IntelliTech International Inc. recommends that you use a ribbon that is **the same width or slightly wider** than the label liner (backing paper) to protect the print head from unnecessary wear.

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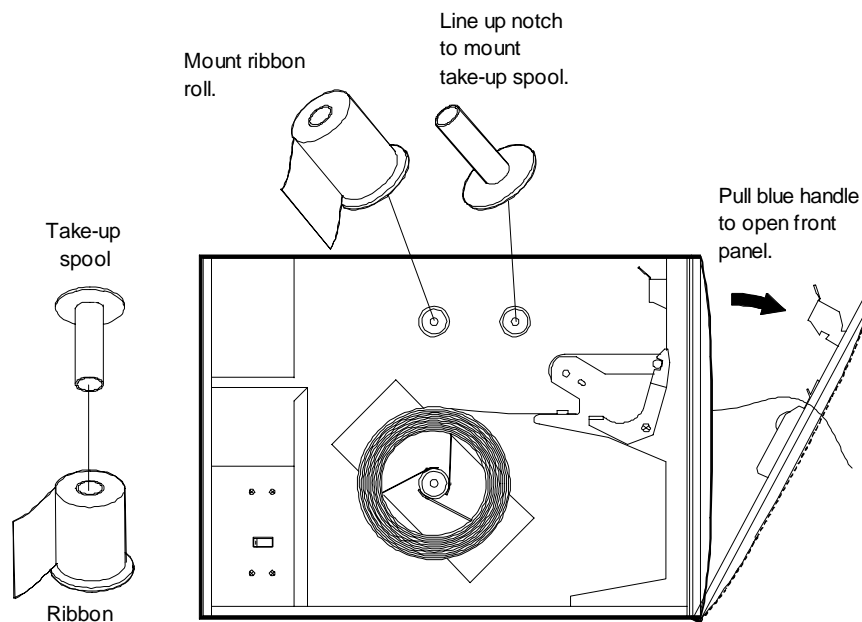
1. Open the printer’s left side cover. Open the front panel by pressing the front panel release latch (see Figure 2-19).
2. Remove the ribbon and take-up spool from the shipping bag.

---

**NOTE:** The take-up spool is mounted inside the ribbon spool. Grasp both ends of the ribbon spool and gently pull them apart to separate the take-up spool from the ribbon roll.

---

3. Holding the black plastic flange away from you, align and slide the ribbon roll onto the supply spindle so the ribbon unwinds in the counterclockwise direction from the bottom of the spool.
  4. Holding the black plastic flange away from you, align and slide the take-up spool onto the take-up spindle, being careful to align the notches.
-



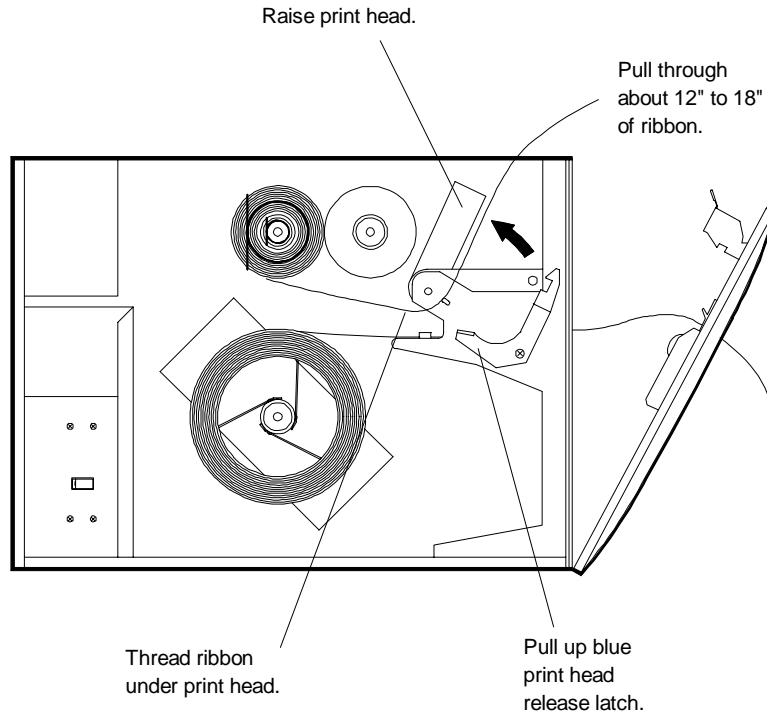
**Figure 2-19 Mounting the Ribbon Supply and Take-up Spools (Model 48 and 412)**

5. Open the print head assembly by pulling up the print head latch lever. Raise the print head and gently thread the ribbon over the white teflon guides and under the print head (see Figure 2-20).

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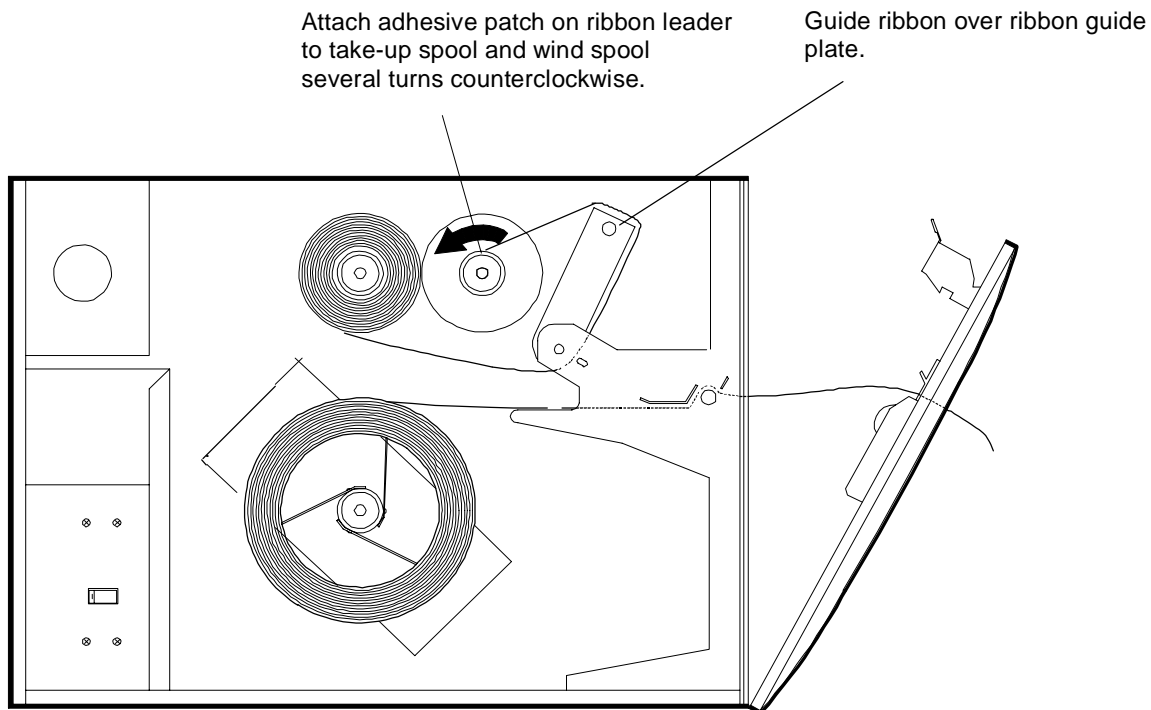
**NOTE:** Be careful to remove any wrinkles or creases while threading ribbon under the print head.

---



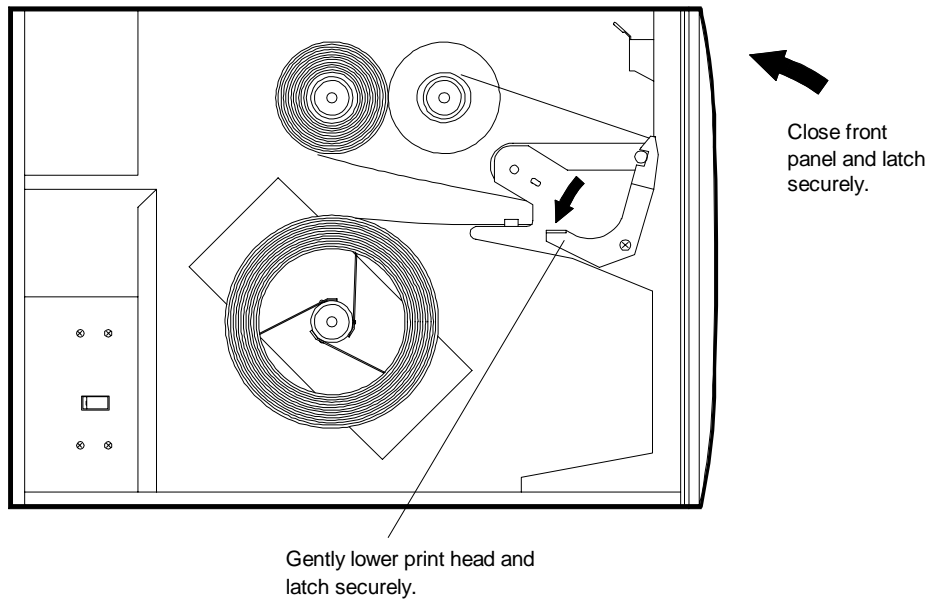
**Figure 2-20 Threading the Ribbon (Model 48 and 412)**

6. Guide the ribbon over the ribbon guide plate and then back toward the take-up spool (see Figure 2-21).
7. Attach the ribbon to the take-up spool with the adhesive patch on the ribbon leader and turn the spool several turns in the counterclockwise direction to take up any slack in the ribbon (see Figure 2-21).



**Figure 2-21 Attaching the Ribbon (Model 48 and 412)**

8. Close and securely latch the print head (see Figure 2-22). Close and securely latch the front panel. Then lower the left side cover.



**Figure 2-22 Securing the Print Head and Front Panel (Model 48 and 412)**

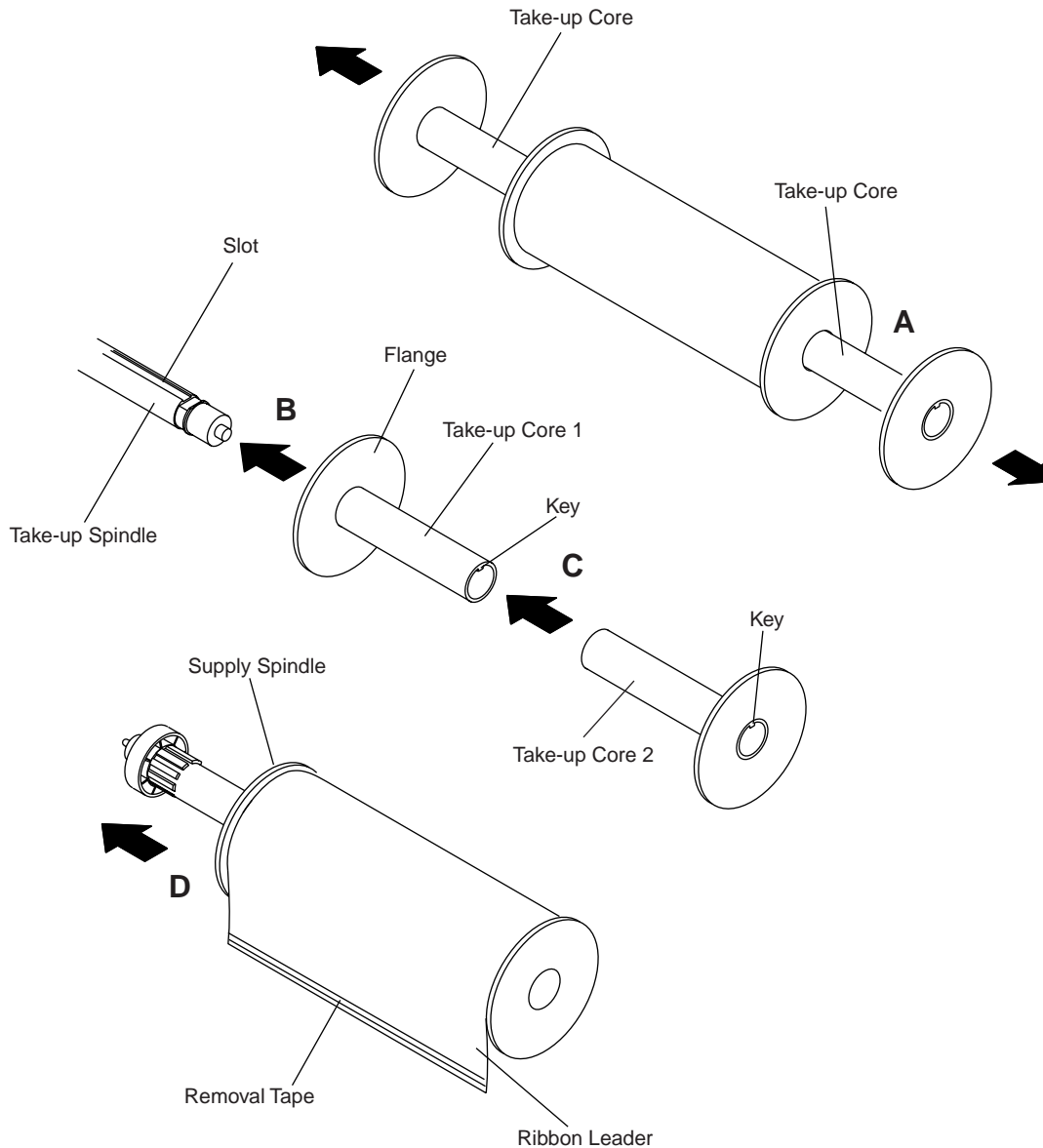
**Model 88**

To install a ribbon the Model 88 printer, proceed as follows. If you are installing a ribbon in the Model 48 or 412, see “Model 48 or 412” earlier in this section.

1. Open the printer’s left side cover and top cover.
2. Remove the ribbon and the two take-up cores from the shipping bag as shown in Figure 2-23, step A.
3. Remove the ribbon supply and take-up spindles from the printer by lifting the spindles out of the mounting slots on the outside of the printer and sliding the spindles out of the holes on the side of the printer frame (see Figure 2-24).
4. Align the key inside take-up core 1 with the slot on the take-up spindle. Leading with the plastic flange, slide core 1 onto the take-up spindle (see Figure 2-23, step B).
5. Align the key inside take-up core 2 with the key on core 1. With the plastic flange trailing, slide take-up core 2 onto the take-up spindle (see Figure 2-23, step C).

Both cores should lock firmly in place on the take-up spindle.

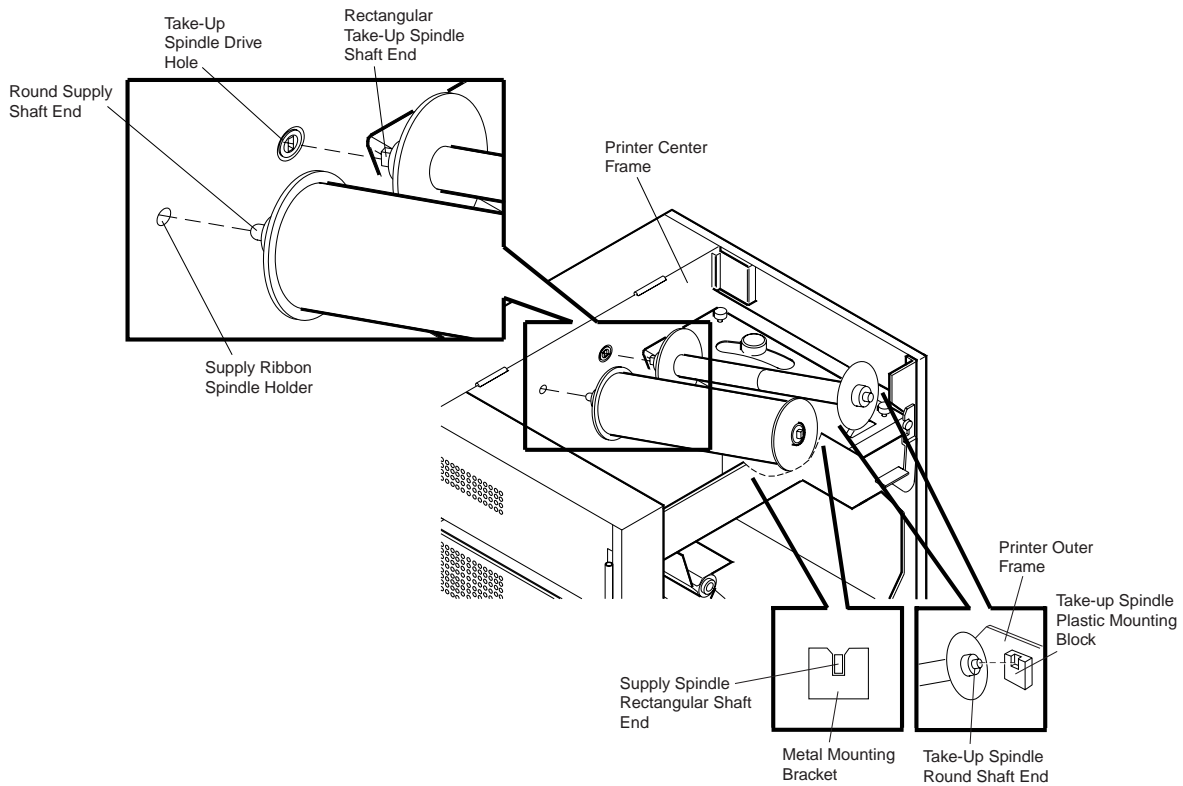
---



**Figure 2-23 Assembling the Ribbon Supply and Take-up Cores (Model 88)**

6. With the take-up cores in place, fit the rectangular shaft of the take-up spindle into the rectangular hole in the side of the center printer frame (see Figure 2-24).
7. Lower the rounded shaft of the take-up spindle into the plastic mounting block on the outer printer frame as shown in Figure 2-24.
8. Slide the ribbon roll onto the supply ribbon spindle (see Figure 2-23, step D) and fit the rounded end of the supply ribbon spindle into the round hole on the side of the center printer frame (see Figure 2-24).

9. Lower the rectangular shaft of the ribbon supply spindle into the metal mounting bracket on the printer frame as shown in Figure 2-24.



**Figure 2-24 Mounting the Ribbon Supply and Take-up Cores (Model 88)**

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**NOTE:** When properly installed, the ribbon should unwind in a counterclockwise direction.

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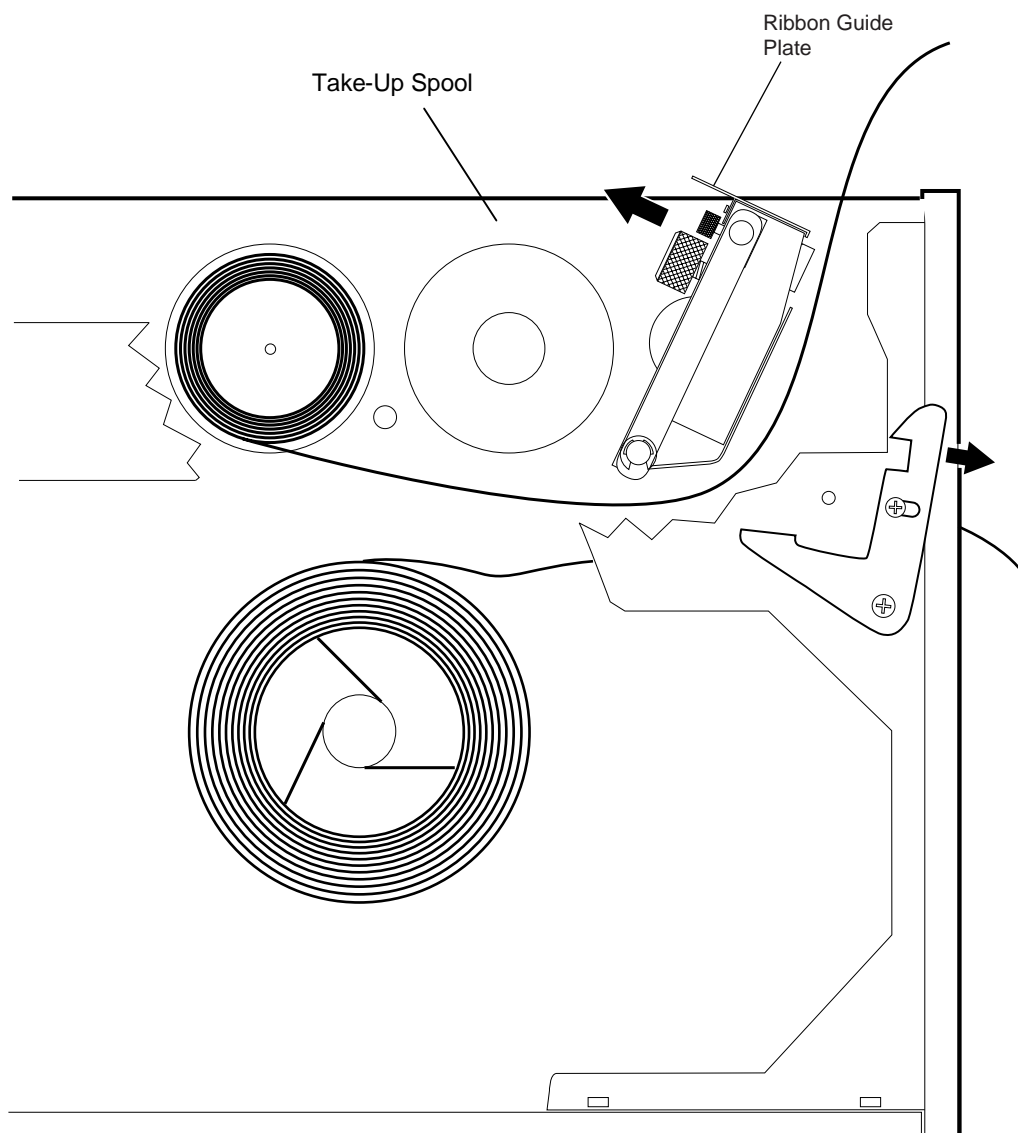
10. Open the print head assembly by pulling up the print head latch lever. Raise the print head and gently thread the ribbon under the print head (see Figure 2-25).

---

**NOTE:** Be careful to remove any wrinkles or creases while threading ribbon under the print head.

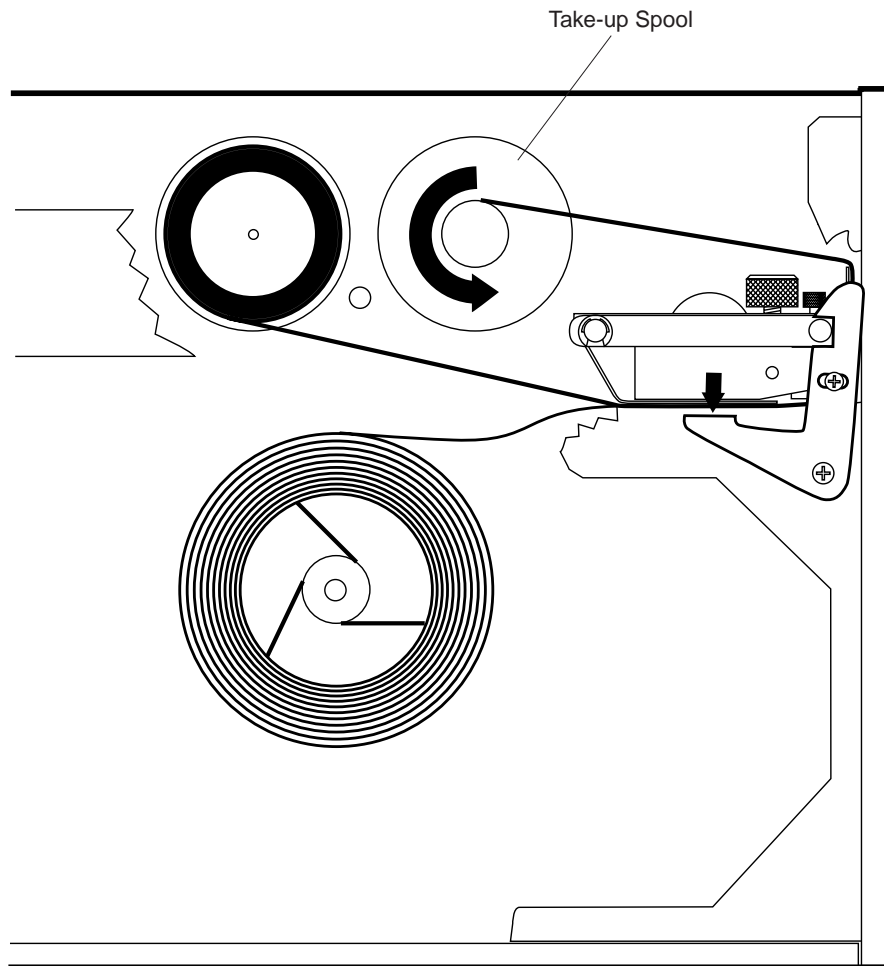
---

11. Guide the ribbon over the ribbon guide plate and then back toward the take-up spool (see Figure 2-25). Pull through at least 18 inches of ribbon. The ribbon leader (see Figure 2-23, step D) must clear the print head.



**Figure 2-25 Threading the Ribbon (Model 88)**

- 12.** Attach the ribbon to the take-up spool with the adhesive tape on the ribbon leader (see Figure 2-23, step D) and turn the spool several turns in the counterclockwise direction to take up any slack in the ribbon (see Figure 2-26).
- 13.** Close and securely latch the print head (see Figure 2-26). Then close the top cover and left side panel.



**Figure 2-26 Securing the Print Head (Model 88)**

## PRINT HEAD REMOVAL AND INSTALLATION

This section provides procedures for removing a print head from inside the IntelliBar printer and installing a new one.

If you have a problem removing or installing the IntelliBar print head or need answers to technical questions, call 800-694-3034 (or 978-568-0370 for international calls).

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**CAUTION:** Turn off and unplug the printer before removing or installing the print head or any other IntelliBar hardware. Voltage is present inside the printer even when the power is turned off. All voltage is removed only when the printer is unplugged.

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## Print Head Removal

To remove the print head, proceed as follows depending on the IntelliBar printer model.

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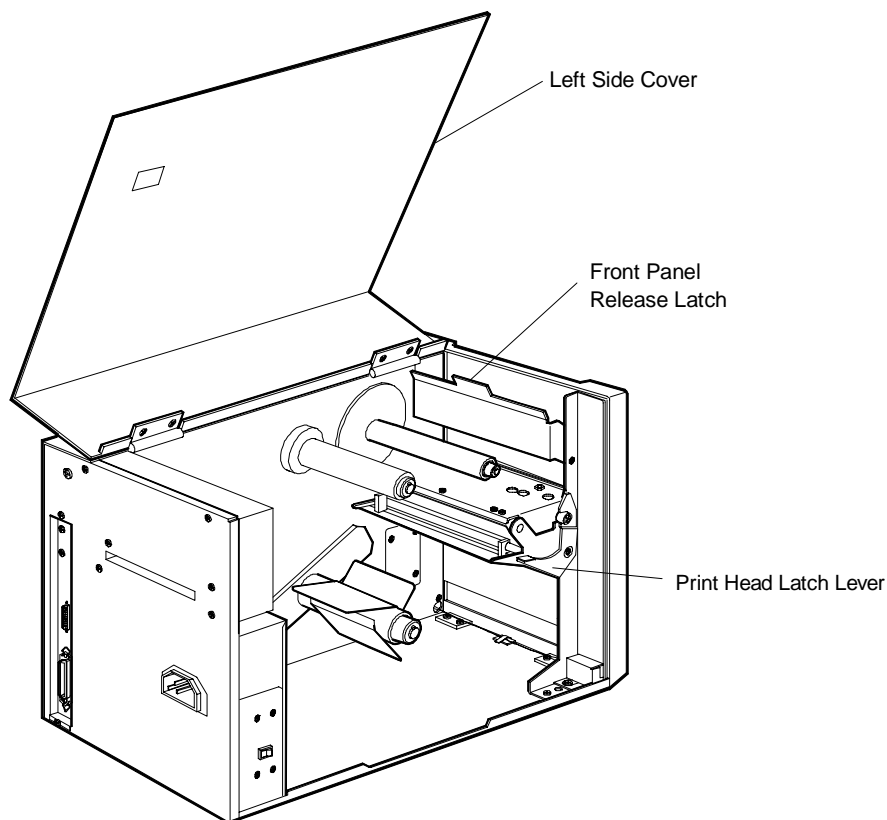
**NOTE:** To install the print head, reverse the removal procedures (except where indicated below).

---

### **Model 48 and Model 412**

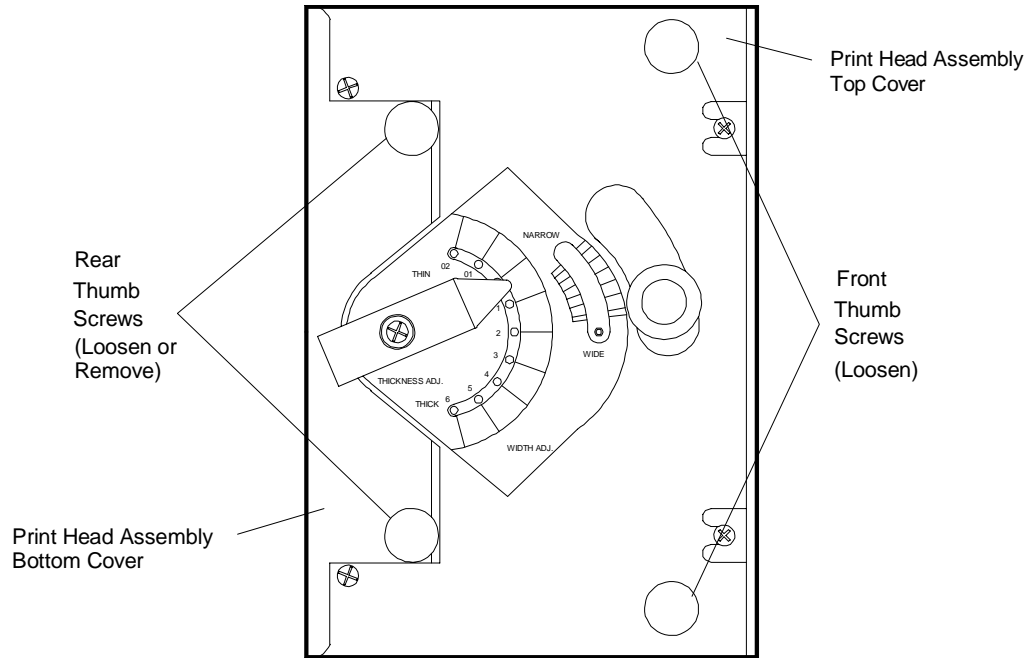
To remove the print head in the Model 48 or 412 printer, proceed as follows. If you are removing the print head in the Model 88, see “Model 88” later in this subsection.

1. Turn off and unplug the printer.
2. Raise the left side cover and lower the front panel by pressing the front panel release latch (see Figure 2-27).
3. Open the print head assembly by pulling the print head latch lever (see Figure 2-27).



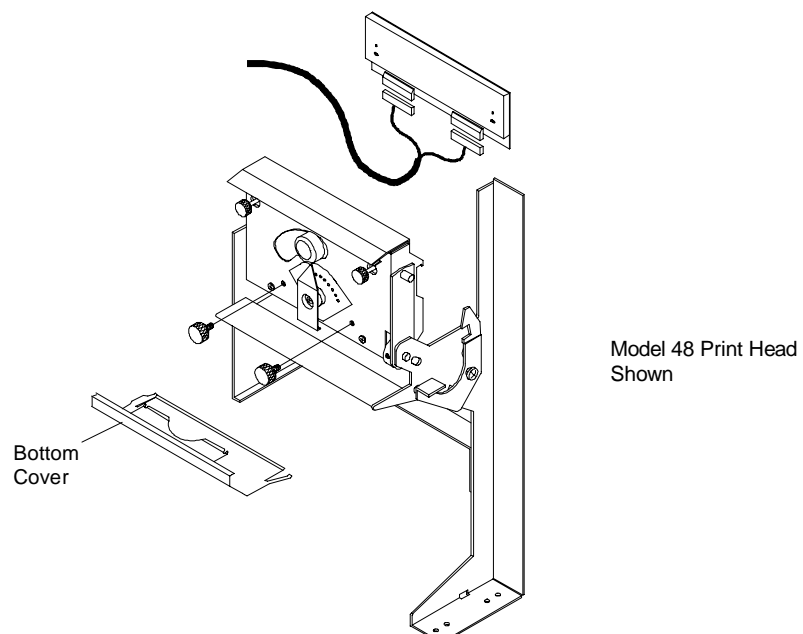
**Figure 2-27** Left Side Cover, Front Panel, and Print Head Release Latches (Model 48 and 412)

4. Loosen (completely) the two front thumb screws on the print head assembly top cover (see Figure 2-28).
5. Loosen or remove the two rear thumb screws.
6. Raise the print head assembly.



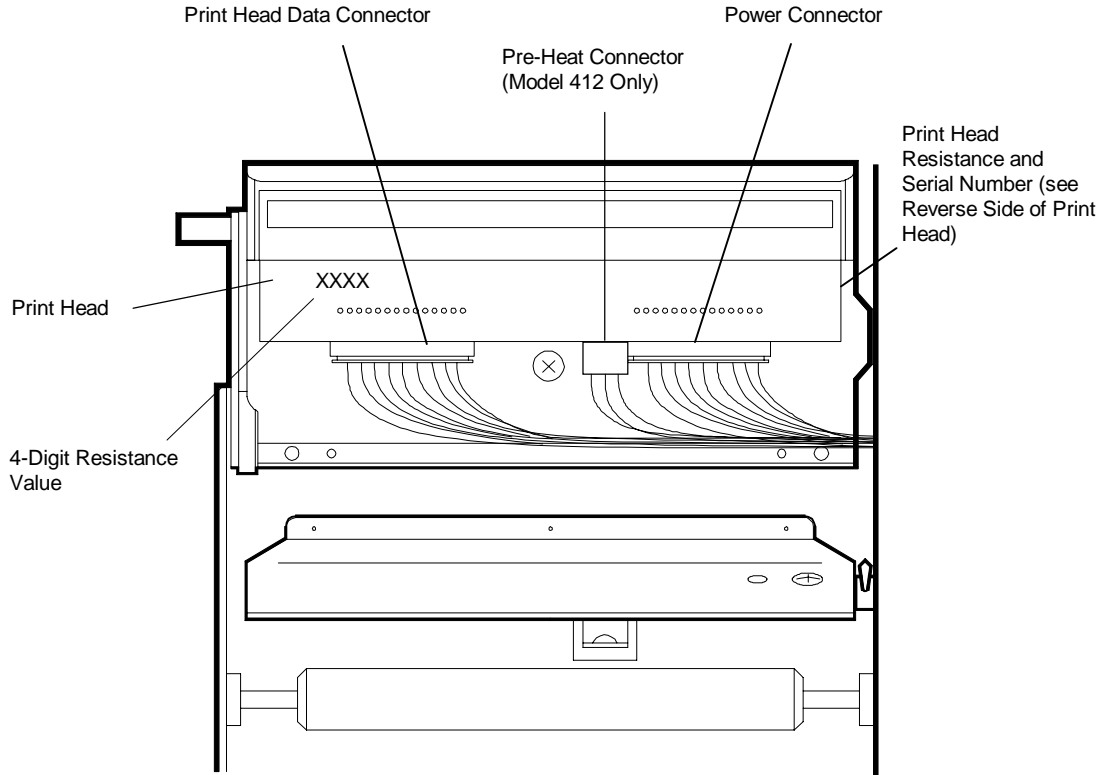
**Figure 2-28 Print Head Top Cover (Model 48 and 412)**

7. Pull back and remove the print head assembly bottom cover. As shown in Figure 2-29, free the print head from under the top cover. Figure 2-29 shows the print head for the Model 48. The Model 412 print head contains one additional connector described in the next step.



**Figure 2-29 Print Head Removal (Model 48 and 412)**

8. Turn over the print head and disconnect the data and power connectors (see Figure 2-30). In addition, for the Model 412 only, disconnect the pre-heat connector from the print head.



**Figure 2-30 Print Head Cable Connectors (Model 48 and 412)**

9. Remove the print head.

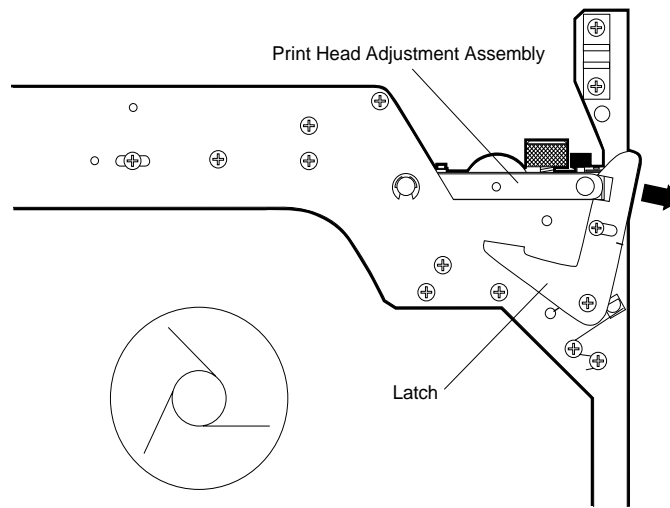
### **Model 88**

To remove the print head in the Model 88 printer, proceed as follows. If you are removing the print head in the Model 48 or Model 412, see “Model 48 and 412” earlier in this subsection.

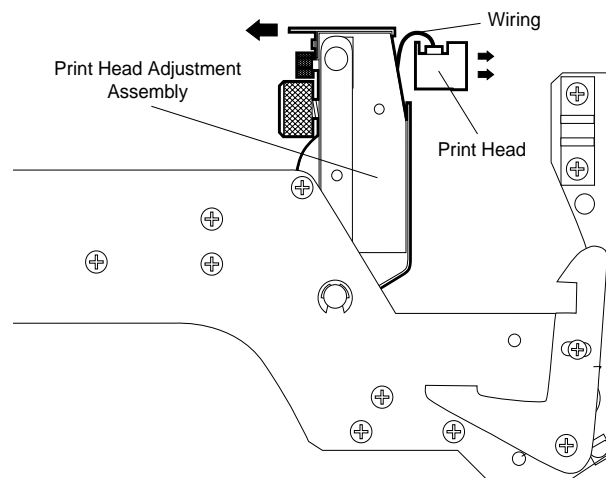
1. Turn off and unplug the printer.
2. Open the left side cover and top cover.
3. Pull the print head latch lever (see Figure 2-31) and raise the print head (see Figure 2-32).
4. Loosen the two thumb screws on the front of the print head adjustment assembly (see Figure 2-33).

The print head will drop down out of the print head adjustment assembly.

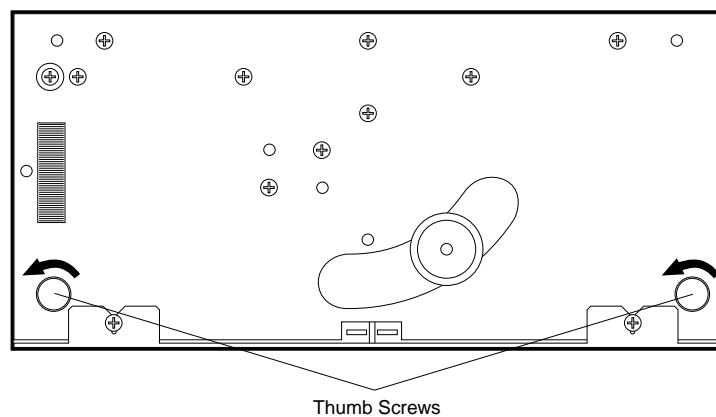
5. Disconnect the two wiring connectors from the print head (see Figure 2-34).



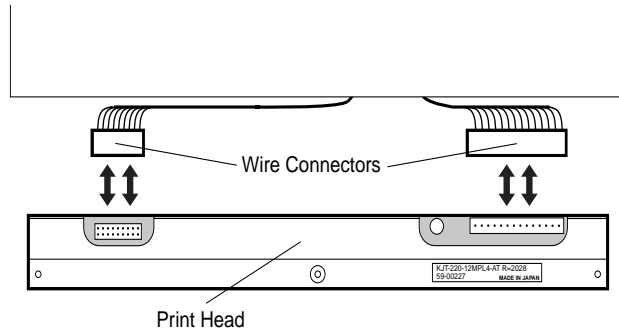
**Figure 2-31 Print Head Release Latch (Model 88)**



**Figure 2-32 Print Head Adjustment Assembly (Model 88)**



**Figure 2-33 Print Head Thumb Screws (Model 88)**



**Figure 2-34 Print Head Connectors (Model 88)**

## Print Head Installation

To install a new print head after removing the old one, proceed as follows, depending on your IntelliBar printer model.

### **Model 48 and 412**

To install the print head in the Model 48 or 412 printer, proceed as follows. If you are installing the print head in the Model 88, see “Model 88” later in this subsection.

1. Locate the 4-digit resistance tag on the new print head (see Figure 2-30). Record the resistance value.

---

**NOTE:** Both the resistance value and print head serial number are located on the print head heat sink (located on the reverse side of the print head). This information should be written down for reference when adjusting the print head voltage as described in the next section.

---

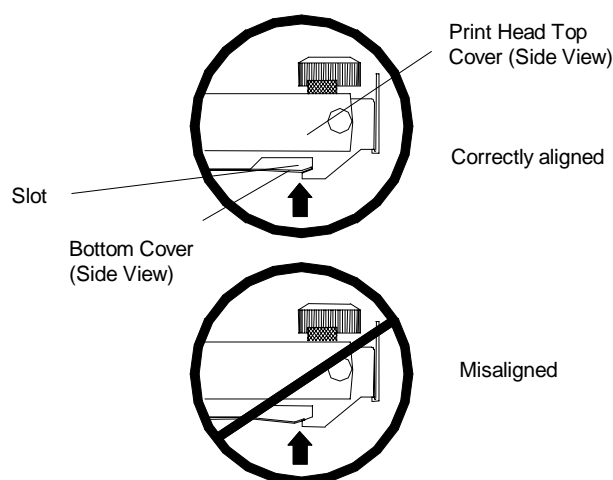
2. Connect the power and data cables to the new print head (see Figure 2-30). In addition, for the Model 412 only, connect the pre-heat cable to the pre-heat connector on the print head (see Figure 2-30).
3. Align the two dimples in the print head top cover with the holes in the print head.
4. Finger tighten the two front thumb screws (see Figure 2-28).
5. Align the bottom cover in the top cover slots (see Figure 2-35), and finger tighten the two rear thumb screws (see Figure 2-28).

---

**NOTE:** The four thumb screws should be moderately tightened. Do not overtighten.

Make sure to align the bottom cover as shown below. Misalignment of the bottom cover (see detail) results in impaired printer output.

---



**Figure 2-35** *Print Head Bottom Cover Replacement – Side View*

6. Close and securely latch the print head assembly.

---

**NOTE:** After replacing the print head, see “Print Head Voltage Adjustment” for information about adjusting the print head voltage.

---

7. Close and securely latch the front panel.
8. Close the left side cover.

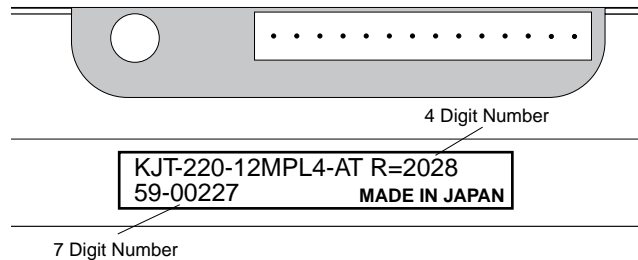
### **Model 88**

To install the print head in the Model 88 printer, proceed as follows. If you are installing the print head in the Model 48 or Model 412, see “Model 48 and Model 412” earlier in this subsection.

1. Locate the 4-digit resistance tag on the new print head (see Figure 2-36). Record the resistance value.
-

**NOTE:** Both the resistance value and print head serial number are located on the print head heat sink (located on the reverse side of the print head). This information should be written down for reference when adjusting the print head voltage as described in the next section.

---



**Figure 2-36 Model 88 Print Head Serial Number and Resistance Values**

2. Connect the two print head wire connectors (see Figure 2-34).
3. Install the print head in the print head adjustment assembly.
4. Tighten the two thumb screws.
5. Close and securely latch the print head adjustment assembly.

**NOTE:** After replacing the print head, see “Print Head Voltage Adjustment” for information about adjusting the print head voltage.

---

6. Close the top cover and left side cover.

## Print Head Voltage Adjustment

After you have installed the new print head, you must set the print head voltage and/or enter the print head serial number using the following procedure and the flowcharts in Figure 2-37 through Figure 2-39.

1. Turn on the printer. When the words “ONLINE” and “INITIALIZING” appear in the LCD display, press and hold down the **Menu** button.
-

The words “MAINTENANCE MENU” and “DISPLAY COUNTERS” appear.

2. Press the **Next** button once.
3. Press the **Next** button again.

The words “MAINTENANCE MENU” and “HEAD VOLTAGE ADJUSTMENT” appear in the LCD display.

4. Press the **Select** button once.  
“REPLACING HEAD?” and “NO” appear.
5. Press the **Previous** button to choose “YES.”
6. Press the **Select** button once.  
“ENTER HEAD S/N” appears.
7. Enter the first two characters of the head serial number by pressing the **Next** button until you get to the first two digits of the serial number.
8. Press the **Select** button once to enter the characters in printer memory.
9. Repeat the procedure in steps 6 through 8 to enter the second half of the serial number.
10. Press **Select** to enter the digits in printer memory and move you to the next selection.

The words “ENTER HEAD OHMS” appear in the LCD display.

11. Enter the number for the print head by pressing the **Previous** or **Next** buttons until the correct ohms value appears.
12. Press the **Select** button to save the setting.

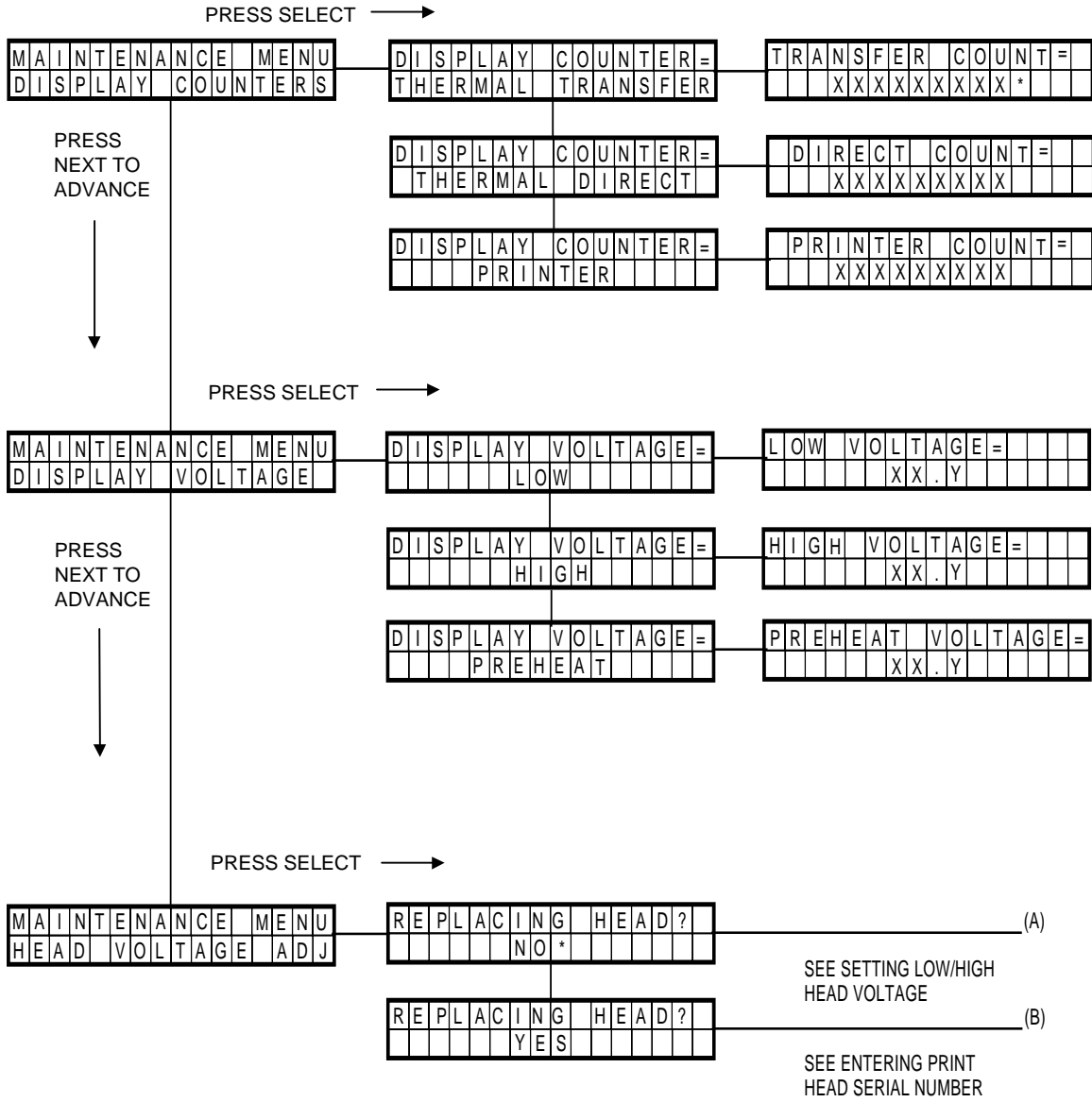
The printer automatically configures the correct voltage settings for the print head.

13. Turn off the printer to exit the Maintenance Menu.
14. Turn the printer on to resume normal operation.

The following menus show the procedure described in steps 1 through 14 above.

---

# MAINTENANCE MENU



\* DEFAULT SETTING

**NOTE:** TO EXIT THE MAINTENANCE MENU, TURN OFF THE PRINTER, THEN TURN IT BACK ON.

**Figure 2-37 Maintenance Menu Tree**

# ENTERING PRINT HEAD SERIAL NUMBER

FROM MAINTENANCE MENU

(B) YES

E	N	T	E	R	H	E	A	D	S	/	N		
			0	0	-	0	0	0	0				

1. SERVICE PERSON PRESSES "NEXT" OR "PREVIOUS" WHICH CHANGES THE VALUE OF THE FIRST TWO POSITIONS (0 THROUGH 9 ARE VALID FOR THE FIRST POSITION) (0 THROUGH 9 AND XYZ ARE VALID FOR THE SECOND POSITION)

2. PRESS "SELECT" TO ENTER THE FIRST TWO ALPHA- NUMERIC VALUES

E	N	T	E	R	H	E	A	D	S	/	N		
			3	Y	-	0	0	0	0				

1. SERVICE PERSON PRESSES "NEXT" OR "PREVIOUS" WHICH CHANGES THE VALUE OF THE RIGHT MOST FIVE POSITIONS (0 THROUGH 99999 ARE VALID)

2. PRESS "SELECT" TO ENTER THE FIVE DIGIT NUMERIC VALUE

E	N	T	E	R	H	E	A	D	S	/	N		
			3	Y	-	6	3	7	9	2			

THE PROCESS MOVES ON TO THE ENTER HEAD OHMS DISPLAY

TO ABORT OR RESTART AT THE BEGINNING, PRESS "MENU"

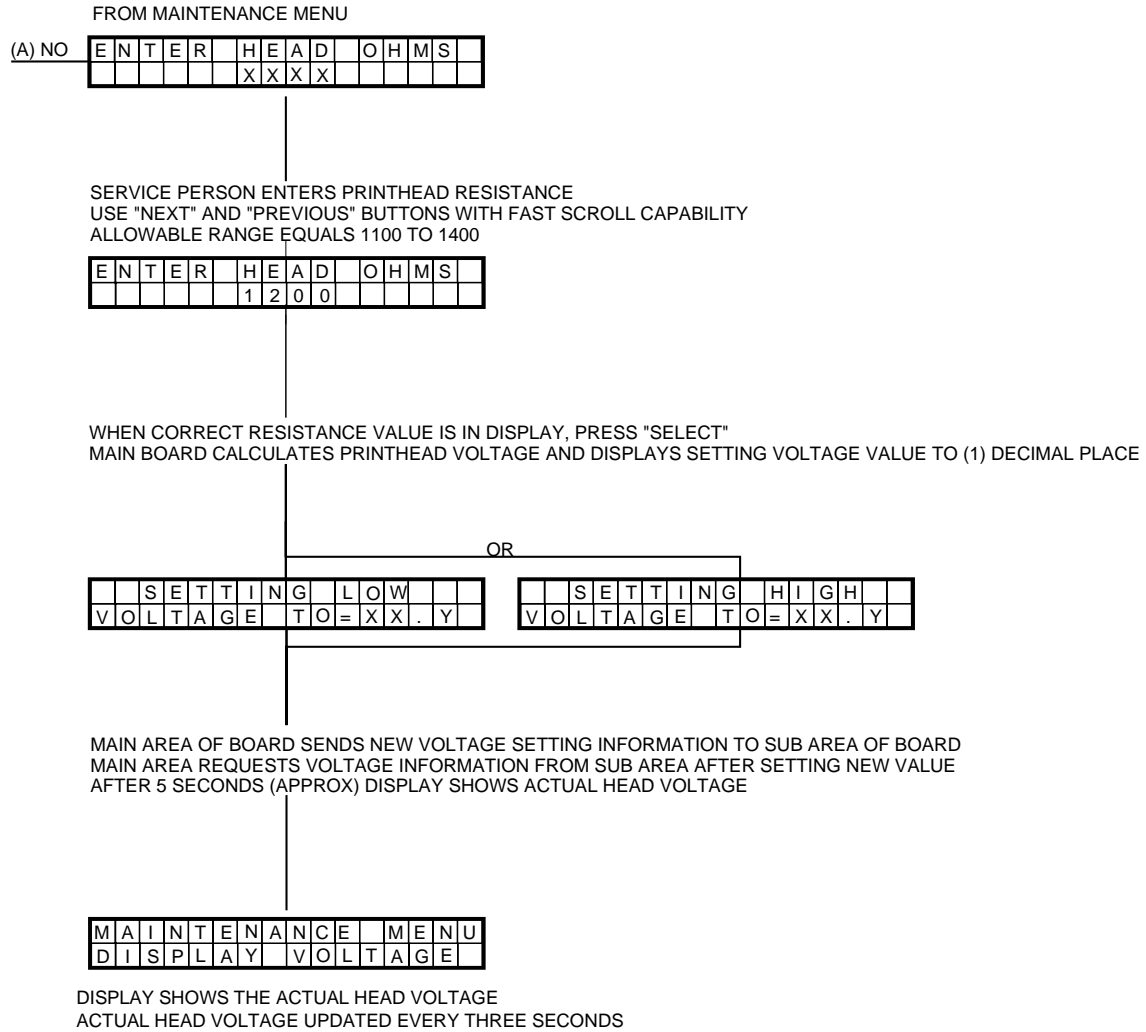
E	N	T	E	R	H	E	A	D	O	H	M	S	
					X	X	X	X					

(A)

SEE SETTING LOW/HIGH HEAD VOLTAGE

**Figure 2-38 Print Head Serial Number Menu Tree**

## SETTING LOW/HIGH HEAD VOLTAGE



**Figure 2-39** Print Head Voltage Menu

**NOTE:** Turn off the printer to exit the maintenance menu. Turn the printer on to resume normal operation.

---

**NOTE:** The information in this section is subject to change without notice. This information is provided "as is" without either express or implied warranty. *IntelliTech* International, Inc. disclaims any and all warranties with regard to this information. *IntelliTech* shall not be liable in any event for any special, indirect or consequential damages or any damages whatsoever resulting from loss of data, profits or use, for any reason or in any action, arising out of or in connection with the use or performance of this information.

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## Section 3

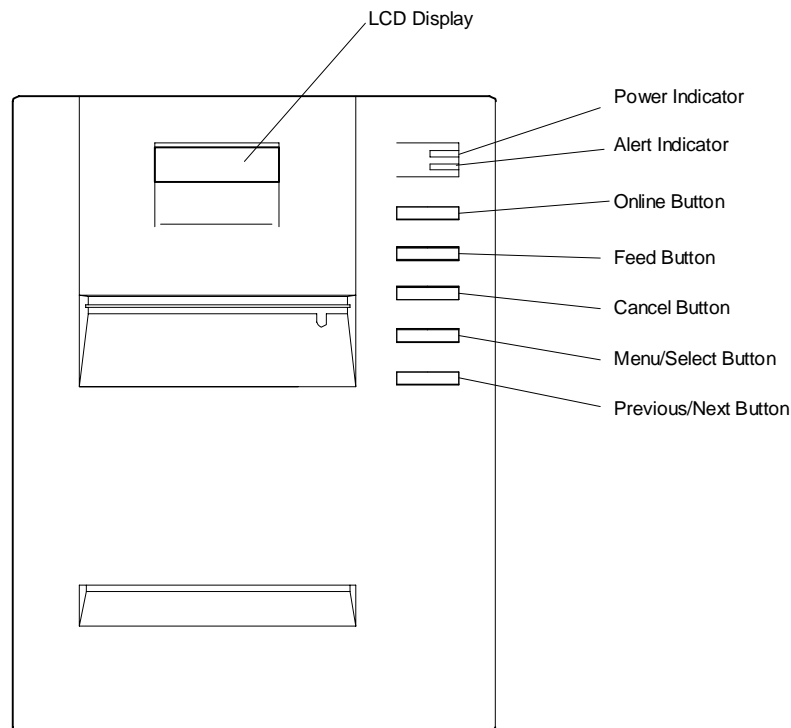
---

# Unit Operation

The following subsections provide operating procedures for the printer, including information on using the printer's control panel menu to configure parameters.

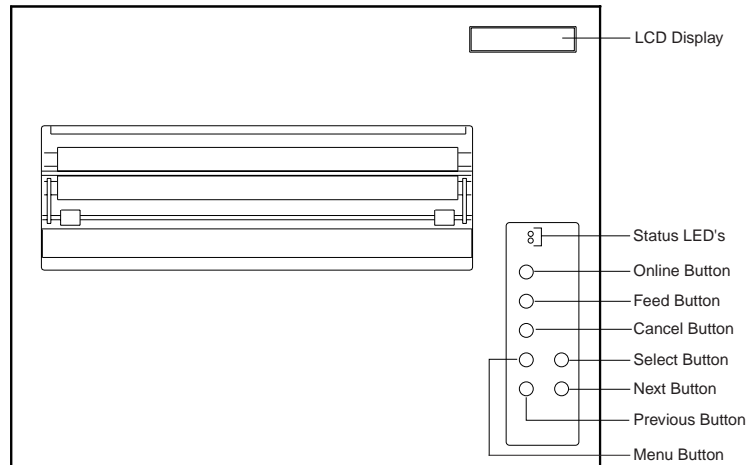
### Controls and Indicators

Figure 3-1 shows the control panel for the Model 48 and 412 printer. Figure 3-2 shows the control panel for the Model 88 printer. The control panel contains the LCD display, power and alert indicators, and buttons that allow you to control and monitor printer operation. Explanations for each button and indicator are listed in Table 3-1. The subsections that follow provide printer default settings configured using the control panel, menu button explanations, and control panel status messages that indicate the operating condition of the printer.



**Figure 3-1 Control Panel (Model 48 and 412)**

---



**Figure 3-2 Control Panel (Model 88)**

**NOTE:** With the exception of the Feed button, the control panel buttons will not work unless the printer is offline. The Feed button works in both offline and online modes. The printer must be online before it will print any data.

**Table 3-1 Control Panel Explanations**

Buttons/Indicators	Explanation
Power indicator	Lit whenever printer power is ON.
Alert indicator	Lit when the printer has a problem needing attention, such as replacing ribbons or labels. The lamp blinks if a service related error occurs.
Online button	The Online button switches the printer between online mode when it can receive data and offline mode when operation pauses so you can change menu items or cancel an operation.
Feed button	Advances labels through the print head. One label at a time is fed each time the button is pushed. Works in both offline and online modes.

**Table 3-1 Control Panel Explanations**

<b>Buttons/Indicators</b>	<b>Explanation</b>
Cancel button	<p>Performs the following functions:</p> <ul style="list-style-type: none"> <li>• Quits the current job.</li> <li>• Resets the printer parameters to the default settings (when Cancel is pressed and held for at least five seconds while the printer is in offline mode).</li> <li>• Clears all data in the print buffer.</li> <li>• Resets printer engine errors.</li> <li>• Cancels the alarm sound.</li> <li>• Cancels the pre-heating sequence for the Model 412 when "OPEN PRINT HEAD" appears in the control panel LCD.</li> <li>• Cancels the "LABEL SENSOR ADJ" parameter setting when the control panel LCD displays "SET LABEL, NOT GAP, UNDER HEAD".</li> </ul>
Menu/Select button	<p>Used when the printer is in offline mode. Pressing the button to the right selects the menu item and category displayed on the LCD. Pressing the button to the left enters the menu listings.</p>
Previous/Next button	<p>Moves you forward and backwards through the menu categories and selections.</p>
Display	<p>Allows you to monitor the current state of printer by providing a two-line screen for messages. Messages include</p> <ul style="list-style-type: none"> <li>• operator messages requiring you to perform a task such as replacing the label supply or ribbon so the printer can resume printing.</li> <li>• status messages that let you know the printer's current condition. The standard status message reads "READY", meaning the printer is online and ready for use.</li> <li>• error messages that let you know when the printer has a problem that needs service.</li> <li>• menu selections for printer configuration.</li> </ul>

## Self-Test

Follow the printer self-test procedure in this subsection to verify that the printer is set up correctly. The three self-tests exercise all the print head elements so you can also verify that the print head is adjusted correctly.

Before running the self-test, load the label and ribbon rolls (see “Installing the Thermal Ribbon” and “Installing Labels” in Section 2). Do not run the self-test without properly installing a label and ribbon. The ribbon and label must be a minimum of 4.25 in. (108 mm) wide. Running the self-test with narrower ribbons or labels can damage the print head or platen roller.

---

**NOTE:** Check that the label sensor is centered over the label and is not over the label gap. When you turn on the printer as described below, the label sensor automatically detects the label gap.

---

To run the self-test, proceed as follows.

1. Turn on the printer and wait for it to initialize.

---

**NOTE:** At power-on, the green power and red alert LEDs light and an audible alarm sounds. Then “OFF LINE, INITIALIZE” appears in the 2-line, control panel LCD, followed by “ONLINE, READY.”

---

The printer feeds several labels under the print head and out the label exit slot as it automatically measures label length.

2. Press the **Online** button to take the printer offline (“OFF LINE, PAUSE” appears in the 2-line LCD).
  3. Press the **Menu** button to access the printer menu listings (“MAIN MENU, PRINT MENU” appears).
  4. Press **Next** four times to advance to the Configuration submenu (“MAIN MENU, CONFIGURE MENU” appears).
  5. Press **Select** to access the available selections (“TEST PAGE, BAR CODE, FONT LIST”).
-

- **TEST PAGE** — Prints a preformatted test label listing the standard default settings (see Figure 3-3).

---

**NOTE:** TEST PAGE output includes the label count used for determining print head life. The label count is measured in linear inches.

---

- **BAR CODE** — Prints a preformatted bar code label used for adjusting print quality (see Figure 3-4).
  - **FONT LIST** — Lists the resident fonts and their assigned number.
6. Press **Next** to advance to the desired self-test selection. (If running TEST PAGE, you do not have to press **Next**).
  7. Press **Select** to select the self-test.
  8. Press **Select** again to start the test.

The printer will run the self-test and output a label. The examples in Figures 3-3 and 3-4 show the TEST PAGE and BAR CODE self-tests. To stop the test, press the **Online** button.

9. Examine the printout carefully for signs of uneven print quality between the left and right sides of the label (or the top and bottom). Examine the top and bottom edges of the label to make sure the horizontal print line is straight. In addition, look carefully for blank areas in the label.


If print quality is uneven, not straight, or if blank areas appear, these are signs that the print head pressure, position, and/or alignment need adjustment (see “Mechanical Adjustments” in Section 5) or that the ribbon is wrinkled as it passes under the print head.

10. Examine the print sample for overall print quality, making sure the output is crisp and sharp with optimum black and white contrast between text and graphics and the label surface.

If the printed image is too light, or if the image is too dark, use the control panel menu to adjust the print density and head voltage so that the desired print quality is obtained (see “Menu Tree” in the next subsection).

---

**Test Page**

**IntelliTech**   
INTERNATIONAL **IntelliBar**

Print Menu:  
Print method = TRANSFER  
Print mode = STANDARD  
Print speed = 4 ips

Label Menu:  
Label type = DIE CUT  
Measurement = AUTOMATIC

LJ3 Setup Menu:  
Font source = INTERNAL  
Font number = 6  
Symbol set = ROMAN-8  
Copies = 1  
Page rotation = 0  
Line spacing = 8/48  
Top/bot margin = IGNORE

Configuration Menu:  
Page protect = YES  
Panel language = ENGLISH  
Interface = HOT PORTS

Ram size: 1 Mbytes  
Firmware revision: 2.7B1  
Font revision: 5.791  
Distance count:  
transfer = 174  
direct = 0

**Figure 3-3 Self-Test Sample Printout (All Models)**

---

## **Bar Code**



**Figure 3-4 Bar Code Sample Printout (All Models)**

## **Menu Tree**

You can control the operation of the printer through software commands from the host computer or through the printer's control panel menu button. Information on software commands is provided in the Programmer's Reference Guide. To configure the printer to meet unique job requirements, use the control panel menu tree described below to select new default parameters.

The menu consists of parameter listings with a variety of setting selections. These listings control printer features and configurations. For nearly all printing jobs, the default factory settings do not have to be changed.

### **Default Factory Settings**

Table 3-2 lists the default printer settings.

---

**Table 3-2 IntelliBar Default Printer Settings**

Main Menu	Printer Default
<b>PRINT MENU</b>	
Print method	Thermal transfer
Print mode	Standard
Ribbon type	Express wax
Print speed	4, 8, or 12 in. per second (ips) maximum (depending on model)
<b>LABEL MENU</b>	
Label type	Die cut
Measure label	Automatic
Set label length*	—
Set gap length*	—
<b>ADJUSTMENTS MENU</b>	
Print density	0
Print position	0
Cut position	0
Label sensor adj**	—
<b>LJIII SETUP MENU</b>	
Font source	Internal
Font number	6 (Courier 10)
Point size	xx
Symbol set	Roman-8
Number of copies	Copies=1
Page rotation	0
Line spacing	1/48
Top/bottom margin	Ignore
<b>CONFIGURATION MENU</b>	
Test print	Test page
Hex dump	Off
Page protect	Yes
Panel language	English
Interface	Parallel
<b>MAINTENANCE MENU***</b>	
Display counters	xxxx
Display head voltage	xx.xxxx
Adj head voltage	xxxx

\*Does not appear when "Measure Label" is set.

\*\*Sensor adjusts automatically to liner opacity.

\*\*\* Not available from main menu. Accessed by turning the printer off and then on again. When "Initialize" appears in the LCD display, push and hold down the Menu button until "Maintenance Menu" appears in the LCD display.

### **Changing Settings**

To configure the printer to meet unique job requirements, refer to the detailed menu tree in Figure 3-5. Change the printer's default settings from the control panel as follows.

1. Turn the printer ON.
2. Press **Online** to take the printer offline. The 2-line display will read "OFF LINE, PAUSE."
3. Press **Menu**. The 2-line display will change to "MAIN MENU, PRINT MENU."
  - Press **Prev** to go to the previous item in the menu structure.
  - Press **Next** to go to the next item in the menu structure.
  - Press **Select** to choose the displayed setting.

---

**NOTE:** Once the selections have been made, press **Online** to exit the menu, save the selections, and put the printer online ("READY" appears in the display). The selections are not lost when you turn the printer off.

---

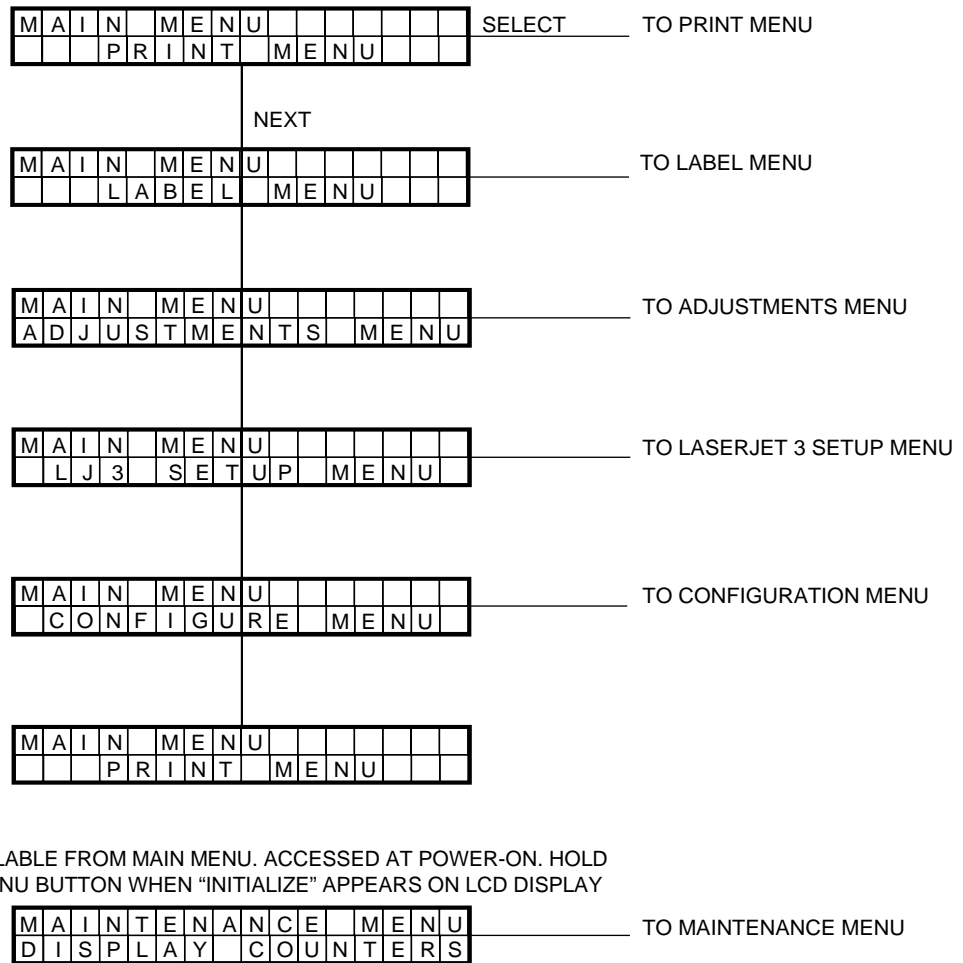
You can restore the factory default setting with the following steps.

1. Press **Online** to take the printer offline. The 2-line display will read "OFF LINE, PAUSE."
2. Press and hold down **Select** for at least 5 seconds.

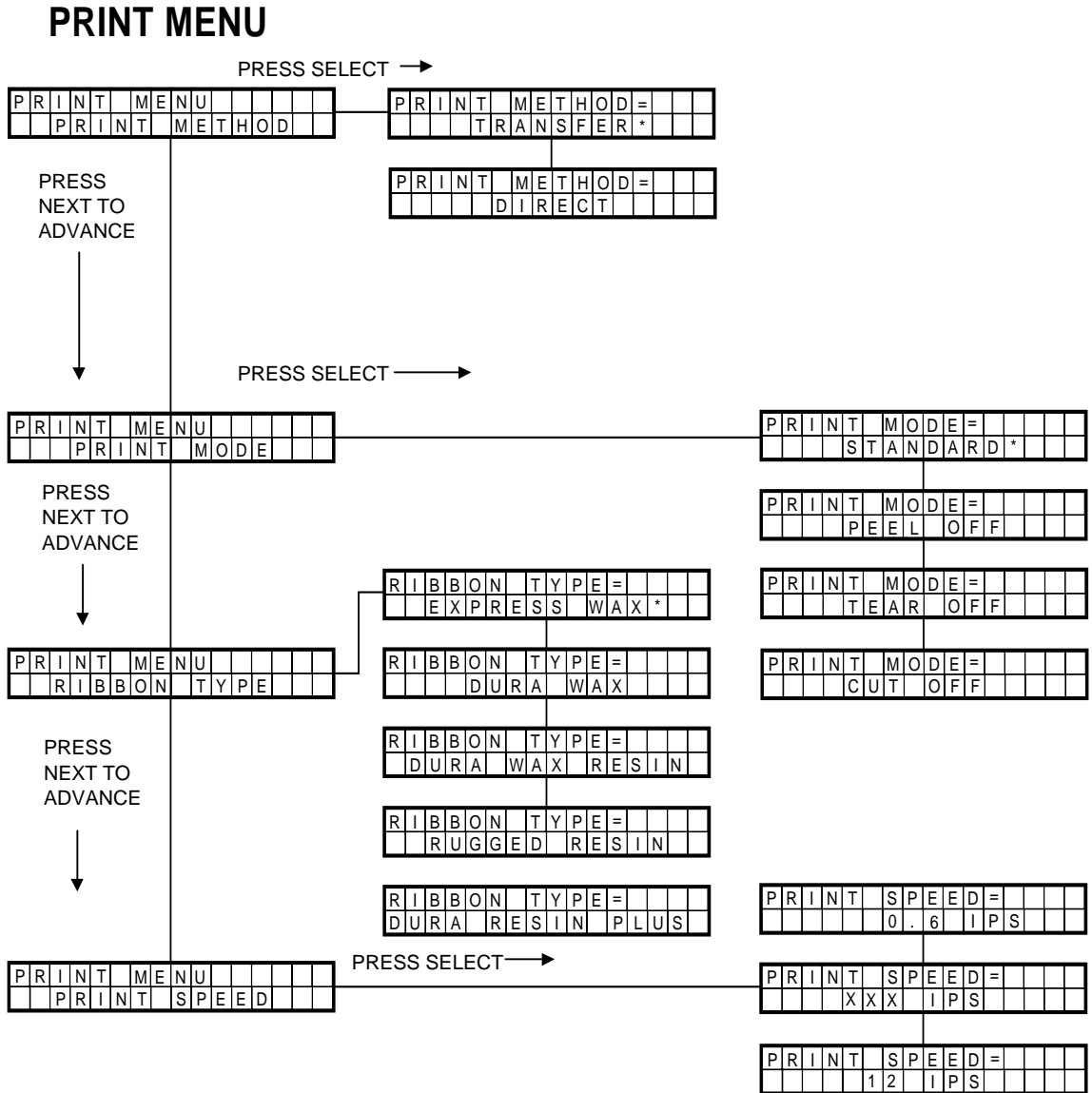
The printer parameters will reset to their factory default settings except for:

- Page protect
  - Panel language
  - Interface
  - Unit of measure
-

## MAIN MENU

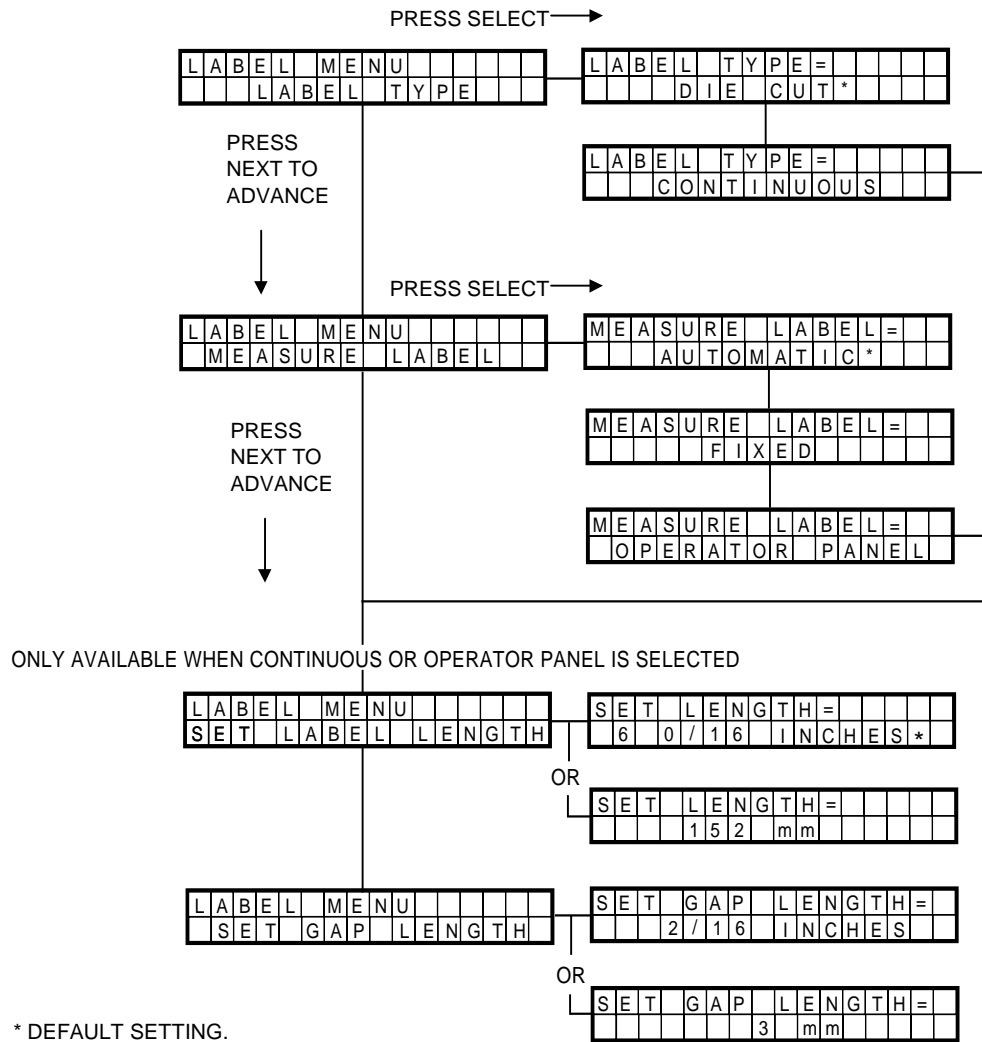


**Figure 3-5 Menu Tree**



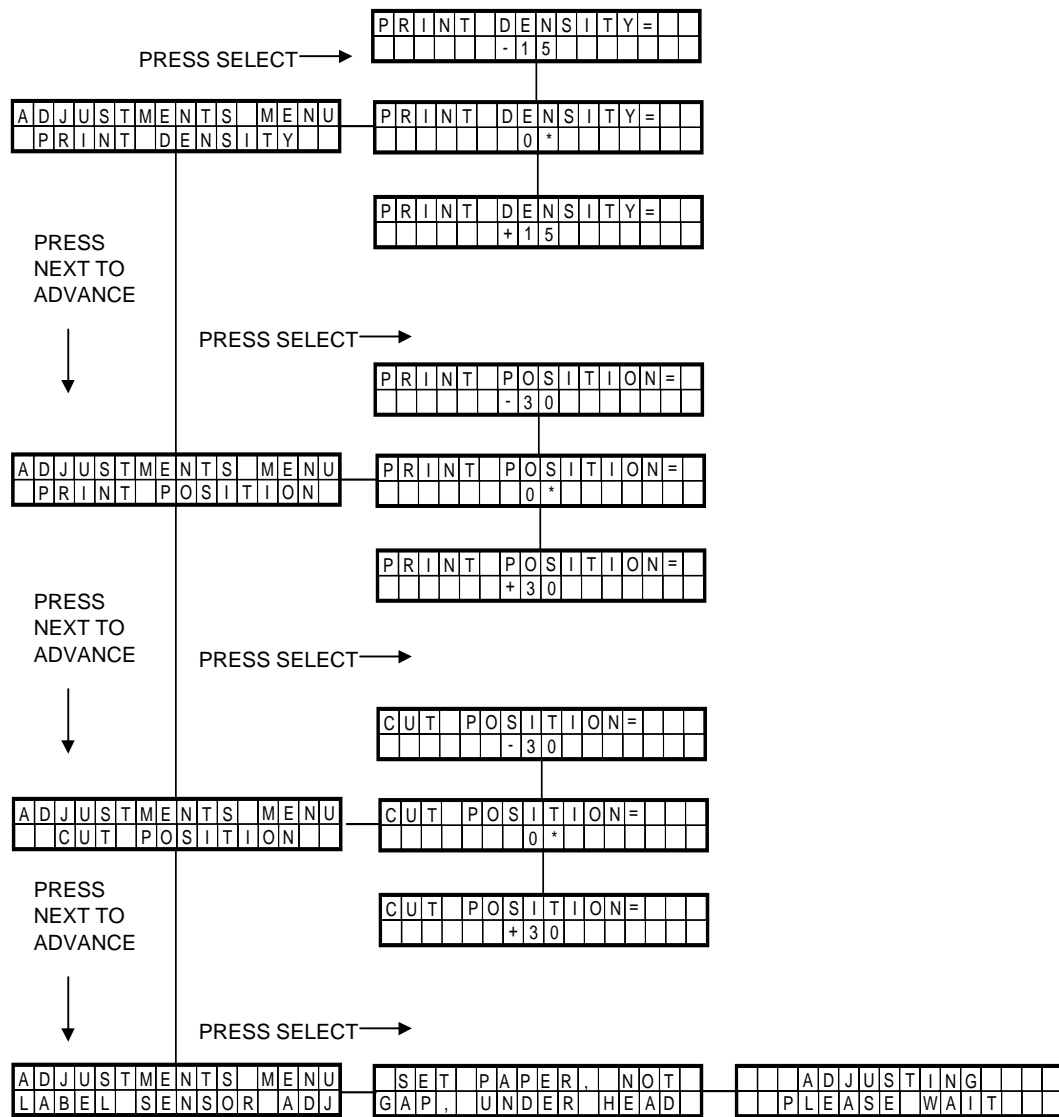
**Figure 3-5 Menu Tree (cont'd)**

# LABEL MENU



**Figure 3-5 Menu Tree (cont'd)**

# ADJUSTMENTS MENU

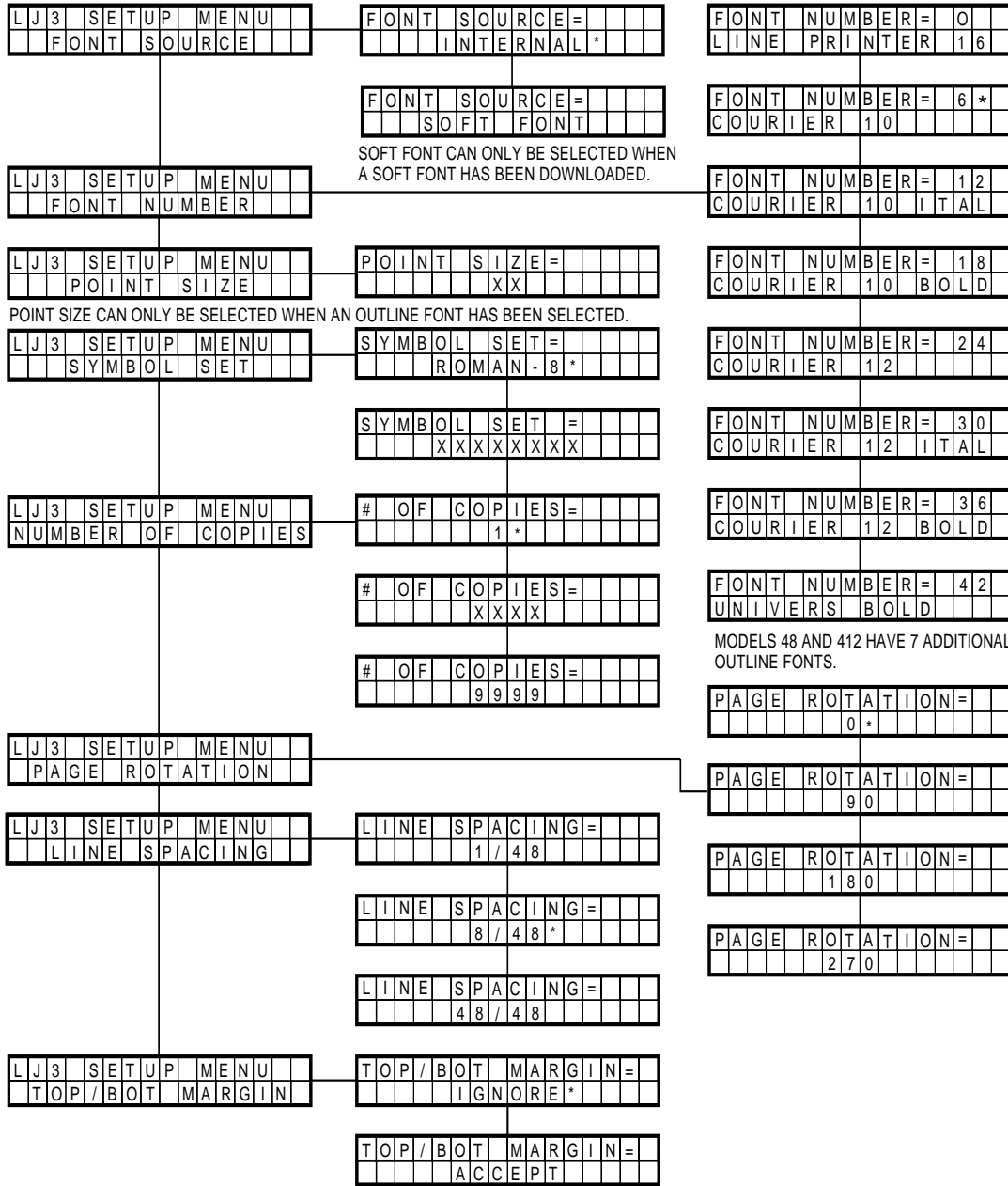


\* DEFAULT SETTING.

THIS MESSAGE LASTS FOR APPROXIMATELY 5 SECONDS AND THEN RETURNS TO THE ADJUSTMENTS MENU

Figure 3-5 Menu Tree (cont'd)

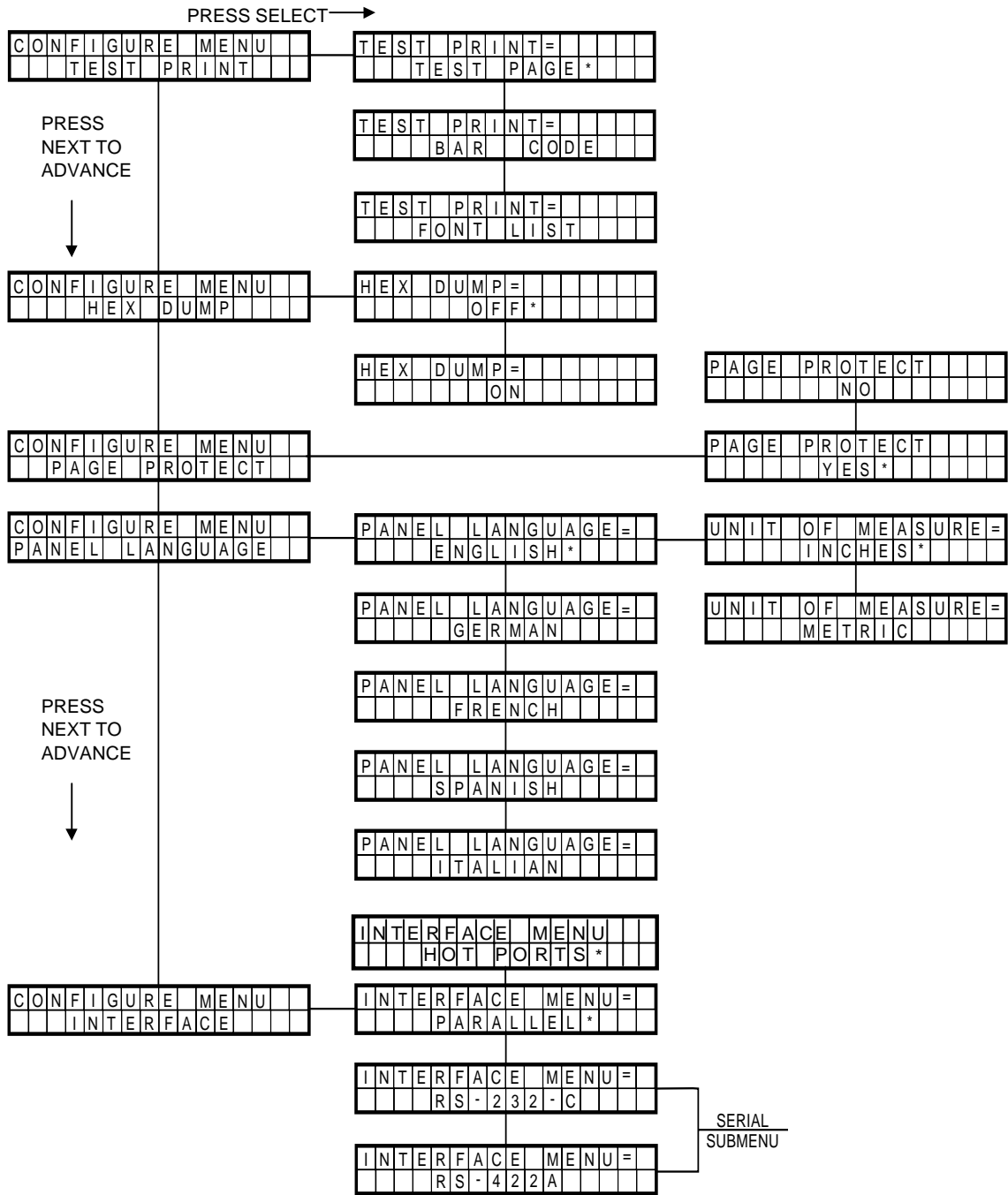
## LJ3 SETUP MENU



\* DEFAULT SETTING

Figure 3-5 Menu Tree (cont'd)

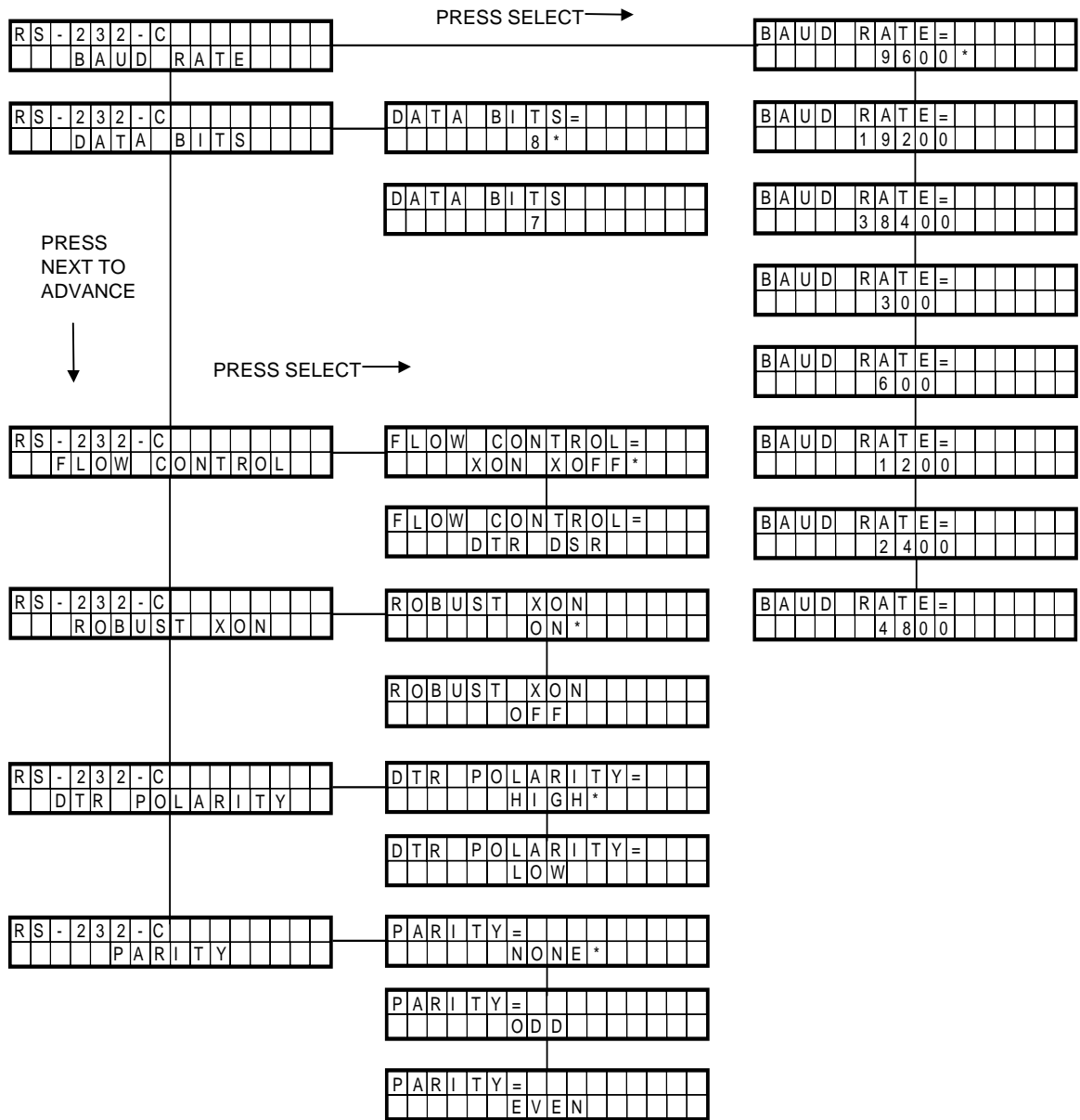
## CONFIGURATION MENU



\* DEFAULT SETTING

**Figure 3-5 Menu Tree (cont'd)**

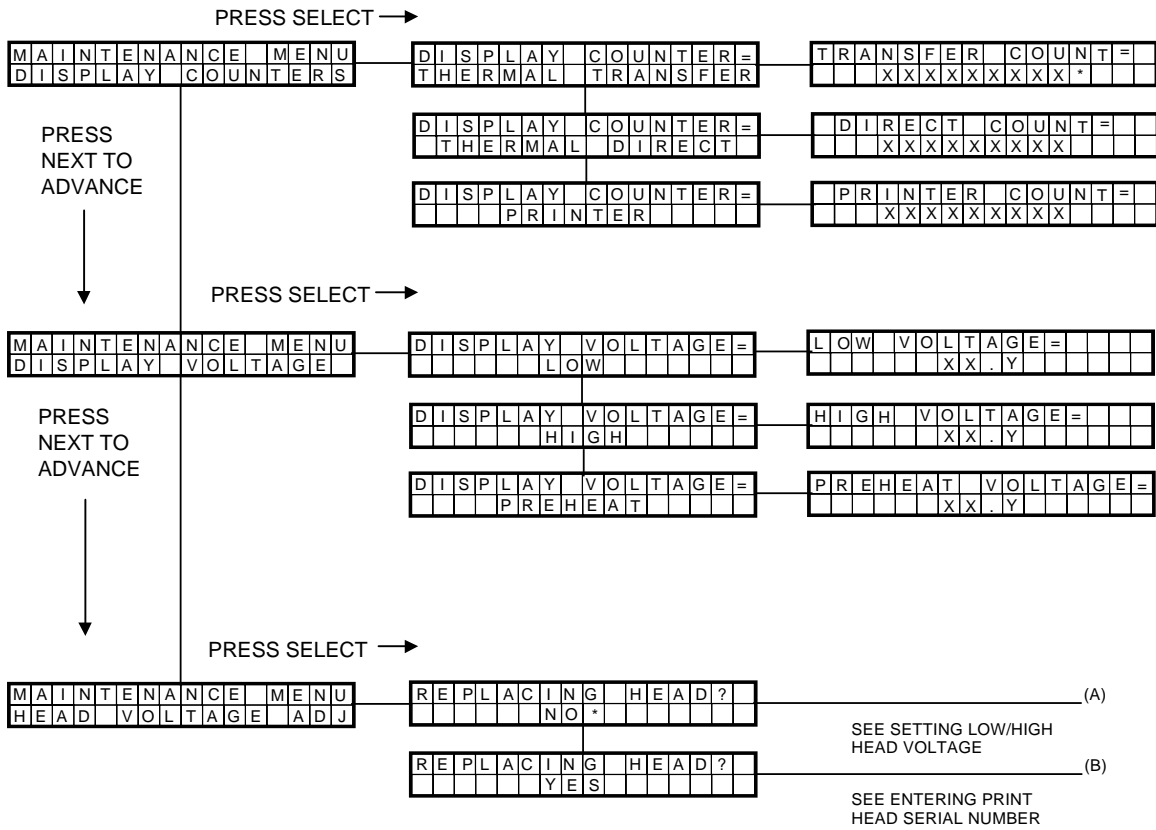
## SERIAL SUBMENU



\* DEFAULT SETTING

Figure 3-5 Menu Tree (cont'd)

# MAINTENANCE MENU

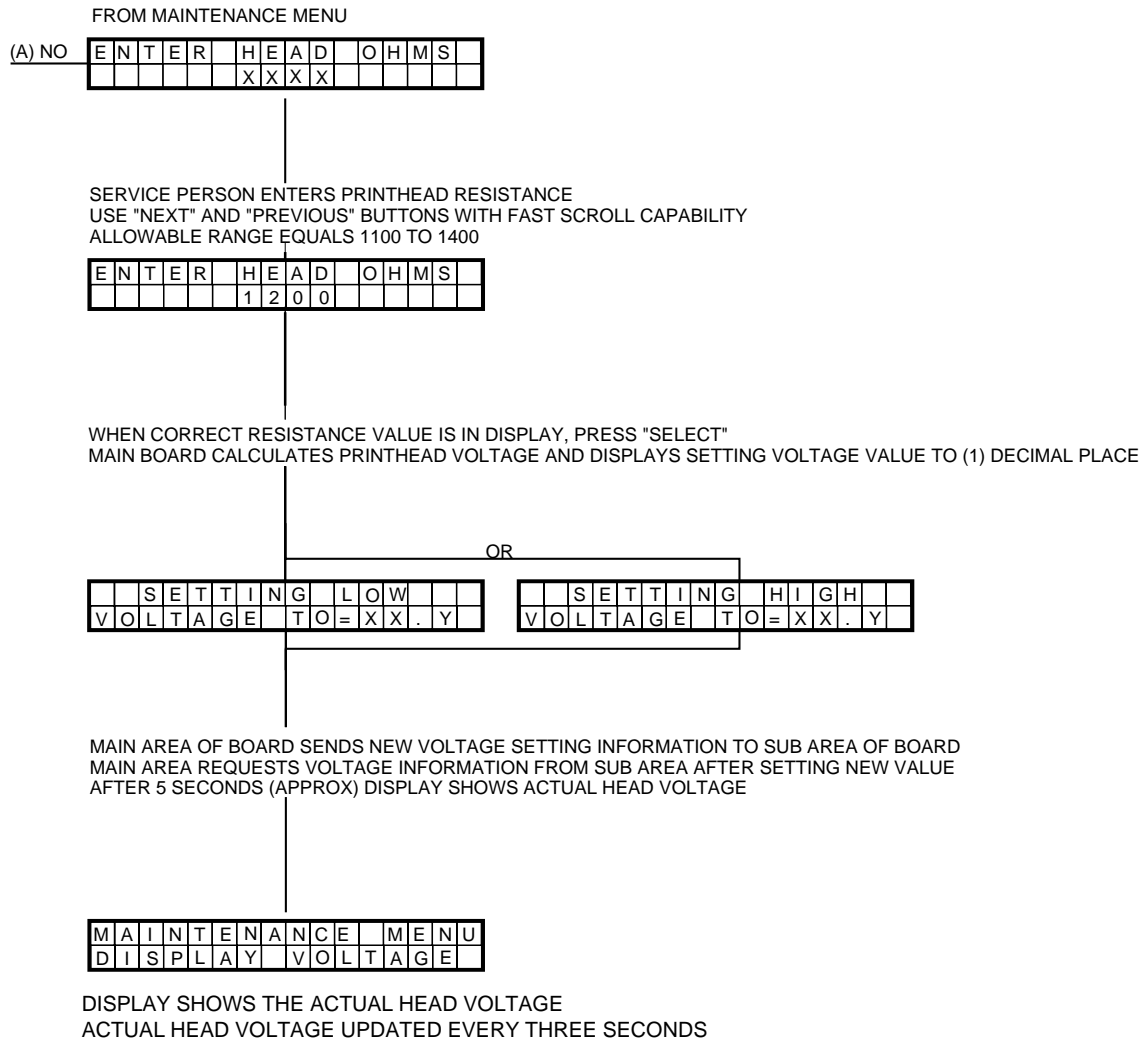


\* DEFAULT SETTING

**NOTE:** TO EXIT THE MAINTENANCE MENU, TURN OFF THE PRINTER, THEN TURN IT BACK ON.

**Figure 3-5 Menu Tree (cont'd)**

## SETTING LOW/HIGH HEAD VOLTAGE



**Figure 3-5 Menu Tree (cont'd)**

# ENTERING PRINT HEAD SERIAL NUMBER

FROM MAINTENANCE MENU

(B) YES

E	N	T	E	R	H	E	A	D	S	/	N		
			0	0	-	0	0	0	0				

- 1. SERVICE PERSON PRESSES "NEXT" OR "PREVIOUS" WHICH CHANGES THE VALUE OF THE FIRST TWO POSITIONS (0 THROUGH 9 ARE VALID FOR THE FIRST POSITION) (0 THROUGH 9 AND XYZ ARE VALID FOR THE SECOND POSITION)

- 2. PRESS "SELECT" TO ENTER THE FIRST TWO ALPHA-NUMERIC VALUES

E	N	T	E	R	H	E	A	D	S	/	N		
			3	Y	-	0	0	0	0				

- 1. SERVICE PERSON PRESSES "NEXT" OR "PREVIOUS" WHICH CHANGES THE VALUE OF THE RIGHT MOST FIVE POSITIONS (0 THROUGH 99999 ARE VALID)

- 2. PRESS "SELECT" TO ENTER THE FIVE DIGIT NUMERIC VALUE

E	N	T	E	R	H	E	A	D	S	/	N		
			3	Y	-	6	3	7	9	2			

THE PROCESS MOVES ON TO THE ENTER HEAD OHMS DISPLAY

TO ABORT OR RESTART AT THE BEGINNING, PRESS "MENU"

E	N	T	E	R	H	E	A	D	O	H	M	S	
					X	X	X	X					

(A)  
SEE SETTING LOW/HIGH  
HEAD VOLTAGE

Figure 3-5 Menu Tree (cont'd)

**Controlling the Printer**

Table 3-3 explains the settings and functions of menu choices.

**Table 3-3 Controlling the Printer**

Menu Selection	Description
<b>Print Menu</b>	
PRINT METHOD Transfer	Selects thermal transfer printing and enables the ribbon sensor. Thermal transfer printing requires less print head energy and therefore increases print head life.
Direct	Selects direct thermal printing (no ribbon required). Disables the ribbon sensor and automatically increases print head energy. Higher energy requirements and direct contact between the print head and label surface shortens print head life.
PRINT MODE Standard	Printing is continuous. Normally selected when using either the internal or external rewinder or when printing long strips of labels.
Peel off	Use for printing one label at a time while automatically separating the label from the liner (backing paper).
Tear off	Use for printing one label at a time and positioning for easy tear-off.
Cut off	When the optional Label Cutter is installed, allows automatic cut-after-print of die cut labels. Intended for cutting backing paper.
RIBBON TYPE	Use to match ribbon type with label application. Not all ribbons perform equally at the same print speed and print density settings. By selecting the correct ribbon for the application, the printer automatically adjusts the print speed and print density to predetermined average values.
PRINT SPEED	Use to match the print speed with the application. The type of ribbon and label media (along with the level of print quality desired) are also critical factors when choosing the correct print speed.

NOTE: Peel-off, Tear-off, and Cut-off modes feature automatic backup prior to printing the next label so that printing begins at the beginning of the label.

**Table 3-3 Controlling the Printer (cont'd)**

Menu Selection	Description
<b>Label Menu</b>	
LABEL TYPE	
Die cut	Use to select die-cut labels and enable the printer's label sensor, which detects the beginning of a label. Die-cut labels must have a minimum label gap of 0.125 in. (3 mm).
Continuous	Use to select continuous media (labels with no gaps) and disable the label sensor. Requires setting of label and gap length (see "Operator Panel" below).
MEASURE LABEL	
Automatic	Automatically measures die-cut label length at power on by advancing a predetermined number of blank labels.
Fixed	Disables automatic label measurement. The last label length measured during automatic measuring is stored in memory, and this value is used at power on. Use this feature when the label media remains constant (no change in size).
Operator panel	Select this feature to print on continuous labels or die-cut labels that are less than 0.95 in. (24 mm) long. You must set label length and gap length. Minimum label length is 0.51 in. (13 mm) and minimum gap length is 0.125 in. (3 mm).
Set label length	Used to enter label length information when continuous media is selected or operator panel is selected. Length can be set in increments of 1/16 in (1.6 mm).
Set gap length	Used to enter gap length information when continuous media is selected or operator panel is selected. Length can be set in increments of 1/16 in (1.6 mm).

**Table 3-3 Controlling the Printer (cont'd)**

Menu Selection	Description
<b>Adjustment Menu</b>	
PRINT DENSITY	Used to increase or decrease print head temperature resulting in darker or lighter print. Allowable range is +15 to -15. Increasing the number by pressing the NEXT button causes the printed areas to get darker; decreasing the number by pressing PREVIOUS causes the printed areas to get lighter.
PRINT POSITION	Used to establish the first print line relative to the leading edge of the label. Adjustable range is 0.12 in. (3 mm) forward or backward in 0.004 in. (0.1 mm) steps. Increasing the number by pressing the NEXT button moves the first line of print back on the label; decreasing the number by pressing PREVIOUS moves the first print line closer to the front edge of the label.  For details, see "Print Position Adjustment" in Section 4.
CUT POSITION	Adjusts the cut or tear position when advancing labels using tear-off and cut-off print modes. For tear-off mode, use this adjustment to ensure that the label perforations or the center of the label gap is directly above the edge of the tear bar. For cut-off mode, use this adjustment to ensure that cutting occurs in the center of the label gap. Allowable range is +30 to -30. Adjustable range is 0.12 in. (3 mm) forward or backward in 0.004 in. (0.1 mm) steps. Increasing the number by pressing the NEXT button causes the cut position to move forward; decreasing the number by pressing PREVIOUS moves the position backward.
LABEL SENSOR ADJ	Automatically calibrates sensitivity of label sensor to the opaqueness level of the label and liner.

**Table 3-3 Controlling the Printer (cont'd)**

Menu Selection	Description
<b>LJIII Setup</b>	
FONT SOURCE Internal  Soft font	Selects the printer's internal resident fonts.  Selects the downloaded (soft) fonts as default fonts. Not selectable if soft font is not loaded.
FONT NUMBER	Used to select the type face. Every font (resident or soft) is assigned a font number that is used to select a specific type face. See TEST PRINT below for information on printing out a font list, which lists the resident fonts and their numbers.
POINT SIZE	Used to select a specific size for outline fonts. One point equals 1/72 in. Not selectable if selected font is not an outline font.
SYMBOL SET	Used to select a specific character set for international use.
NUMBER OF COPIES	Used to print from 1 to 9999 copies of the same label.
PAGE ROTATION	Used to rotate the contents of the label in four different orientations: 0 = portrait 90 = landscape 180 = reverse portrait 270 = reverse landscape
LINE SPACING	Used to set the line spacing in 1/48 in. increments.
TOP/BOTTOM MARGIN Ignore	Activates an additional 35 scan lines of print area on each of the top and bottom page margins compared to standard PCL. The result is an unprintable area of 15 scan lines top and bottom (1/20-in). 1 scan line equals 1/300 in.
Accept	Accepts standard PCL unprintable page margins of 50 scan lines top and bottom.

**Table 3-3 Controlling the Printer (cont'd)**

<b>Menu Selection</b>	<b>Description</b>
<b>Configuration</b>	
TEST PRINT Test page	Prints a preformatted test label listing the standard default settings.
Bar code	Prints a preformatted bar code used for adjusting print quality.
Font list	Lists the resident fonts and their assigned number.
HEX DUMP	Used for problem isolation. Causes the printer to print out host data in hexadecimal format.
PAGE PROTECT	
On	Reserves enough memory to image an entire label to prevent possible loss of data (default setting for Models 48 and 412).
Off	Selects banded printing.
PANEL LANGUAGE	Selects 1 of 5 languages for use in the 32-character LCD display. Also allows selection of metric measurement when English is selected.
INTERFACE	
Parallel	Selects the Centronics parallel port for communications.
RS-232C	Selects asynchronous serial port for communications.
RS-422A	Selects RS-422A as serial communications interface.
Baud rate	Selects communication speed in bits per second.
Data bits	Selects either 7 or 8 data bits.

**Table 3-3 Controlling the Printer (cont'd)**

Menu Selection	Description
Flow control DTR	Selects Data Terminal Ready (DTR) to control communications from the host to the printer.
X-ON	Selects X-ON or X-OFF to control communications from the host to the printer. The printer sends an X-ON character to the host when it is ready to receive data.
Robust X-ON	Same as X-ON except that the printer sends multiple X-ON characters to the host when it is ready to receive data.
DTR polarity	Can be set either high or low depending on the host's requirements.
Parity	Selects whether the parity bit is used or unused, depending on the host's requirements.

## LCD Display Messages

Table 3-4 lists in alphabetical order the error messages that appear on the control panel LCD. Table 3-5 lists the control panel LCD status messages that indicate the operating condition of the printer.

**Table 3-4 Error Messages**

Error Message	Definition
BREAK INTERRUPT	Host system has broken or is holding communications open. Check the host protocol.
CUTTER ERROR	Cutter option failed to cut or blade is jammed. Clear the jam or replace the cutter option.
ENGINECOMM ERROR	Image processor (main) side of main board receives status or command that it cannot interpret.
FATAL ERROR	No fonts on main board or PCL failure. (Replace main board.)
FRAMING ERROR	Printer received an invalid stop bit for a character. Check the host protocol or the serial cable connections.
FRONT DOOR OPEN	Front panel is not fully closed and latched.
HEAD OVERHEAT	Print head has overheated. The printer stops printing. It will resume printing when the print head cools down. Reset the printer.
HEAD POWER LOAD	Print head and/or power supply problem. Drawing too much current. Reset the printer by turning it off and then on.
INSUF. MEMORY FOR PAGE PROTECT	Add additional SIMM memory to enable page protection (see Section 4 for SIMM memory installation procedures).
LABEL OUT	<p>Label sensor detects no label.</p> <ul style="list-style-type: none"> <li>• A new label roll needs to be installed. See "Loading Labels" in Section 2 for label installation procedures.</li> <li>• Label media improperly loaded (the label media should be under the label sensor).</li> <li>• Label sensor needs adjusting (call <i>IntelliTech</i> for service information at 800-694-3034).</li> <li>• More than one label missing from release paper (liner).</li> </ul>

**Table 3-4 Error Messages (cont'd)**

Status Message	Definition
MEDIA JAM	<p data-bbox="824 331 1365 363">IntelliBar cannot measure label length or gap.</p> <ul data-bbox="824 394 1398 909" style="list-style-type: none"> <li data-bbox="824 394 1398 485">• Sensitivity of label sensor needs adjustment (call <i>IntelliTech</i> for service information at 800-694-3034).</li> <li data-bbox="824 489 1398 579">• Wrong media in use; change to label type that matches sensitivity setting of label sensor.</li> <li data-bbox="824 583 1398 730">• If the “MEASURE LABEL, FIXED” parameter is set from the control panel and the value is 6 in. (for example), a media jam occurs if you load labels of another size.</li> <li data-bbox="824 735 1398 909">• If “MEASURE LABEL, AUTOMATIC” is set from the control panel with 6 in. labels loaded (for example), a media jam will occur if you load labels of another size. You must do another auto measure, i.e., turn printer off and then on.</li> </ul> <p data-bbox="824 957 1117 989">Mechanical interference:</p> <p data-bbox="824 1020 1382 1199">Label sticking or slipping due to improper label installation or the build up of label residue, dirt, or foreign material under the print head or on the platen roller. See “Loading Labels” in Section 2 for label installation procedures; see Section 5 for cleaning procedures.</p> <p data-bbox="824 1245 1365 1304">Mechanical failure (call <i>IntelliTech</i> for service information at 800-694-3034).</p> <ul data-bbox="824 1335 1206 1425" style="list-style-type: none"> <li data-bbox="824 1335 1206 1367">• Bad stepper motor (replace)</li> <li data-bbox="824 1371 1109 1402">• Bad driver (replace)</li> <li data-bbox="824 1407 1117 1425">• Bad sensor (replace)</li> </ul>
OUT OF MEMORY	<p data-bbox="824 1449 1360 1566">Print job requires more memory than is available. Add additional SIMM memory (see Section 4 for SIMM memory installation procedures).</p>
OVERRUN ERROR	<p data-bbox="824 1591 1393 1644">Printer could not keep up with host. Use a lower baud rate.</p>

**Table 3-4 Error Messages (cont'd)**

<b>Status Message</b>	<b>Definition</b>
PARITY ERROR	Printer received the wrong parity bit from the host. Check the host protocol or the serial cable connections.
PRINT HEAD OPEN	Appears when printer is online or offline and the print head is not closed and latched. When it occurs, printer automatically goes offline. Close and latch print head, and press <b>Online</b> button. "READY" appears in control panel display.
RIBBON OUT	Ribbon sensor detects no ribbon. <ul style="list-style-type: none"><li>• A new ribbon roll needs to be installed. See "Installing the Thermal Ribbon" in Section 2 for ribbon installation procedures.</li><li>• The label roll is not installed correctly under the print head, blocking ribbon detection. Install the label roll properly, making sure to feed the label liner under the label sensor plate. See "Loading Labels" in Section 2 for label installation procedures.</li><li>• Ribbon sensor needs adjustment or replacement (call <i>IntelliTech</i> for service information at 800-694-3034).</li><li>• Ribbon leader is under ribbon sensor.</li></ul>
SERIAL OVERFLOW	Host system continues to send data after the printer has signaled that it cannot accept more data. Check the host protocol.
SUB RAM ERROR	Main board controller requires service (call <i>IntelliTech</i> for service information at 800-694-3034).

**Table 3-5 Status Messages**

<b>Status Message</b>	<b>Definition</b>
BUFFER CLEAR	The print buffer contains no data.
DATA IN BUFFER	Data remains in the print buffer. Press <b>Feed</b> to print the last label.
CANCEL=NOREPRINT	If a recoverable error occurs, press <b>Cancel</b> and the last label will not reprint.
INITIALIZE	Operating parameters are loading into the printer's memory, making it ready to print.
OFFLINE PAUSE	Printer is not ready to accept computer data.
ONLINE READY	Printer is ready to accept data from the computer.
ONLINE=REPRINT	If a recoverable error occurs, press <b>Online</b> to reprint the last label.
PEEL OFF LABEL	Tells you when to peel off the label.
PRESS SELECT	Press <b>Select</b> button.
PREHEATING	Model 412 print head is pre-heating for high-speed printing.
CLOSE HEAD	When pre-heating completes, close the print head (Model 412 only).
LIFT HEAD	During pre-heating (Model 412 only), open the print head.
TEAR OFF LABEL	Tells you when to tear off the label.

## PRINTING MODES

The IntelliBar can operate in any of the following modes: Standard, Peel-off, Tear-off, and Cut-off.

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**NOTE:** Peel-off, Tear-off, and Cut-off modes are intended for print speeds of 6 ips or less.

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### Standard Mode

Standard Mode, sometimes called strip printing, is recommended for higher speed printing applications, such as normal batch or volume printing.

In Standard mode, the application prints one label after another, and the print head maintains a relatively constant temperature. When the last label is printed, the label gap is positioned behind the tearbar, making it difficult to remove the last label unless you advance one label using the FEED button.

Standard Mode is the only selection possible when winding printed labels on the internal or external rewinder option.

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**NOTE:** When printing at high speeds (10 ips or higher), Express Wax ribbons are recommended. For the best print quality at print speeds of 10 ips or higher, media specially formulated for high-speed thermal transfer printing is recommended.

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### Peel-Off Mode

Peel-off Mode is intended for on-demand applications, where you print and take off one label at a time and set the printer to automatically strip the label from the backing material (liner). The internal rewinder option can be used to rewind the backing material. When peel-off mode is set through the Print Menu, the printer

- receives data from the host
- prints the label
- instructs you (through the LCD display) to remove the label. After you remove the label, the liner backs up and printing resumes at the beginning of the next label.

Since Peel-off Mode automatically strips the label from the liner, change the MEASURE LABEL selection in the Label Menu from automatic (the default) to fixed. This ensures that no more than one label advances during power-on initialization. If left in the Automatic mode, more than one label advances, which may result in a media jam at the label exit slot.

---

## Tear-Off Mode

Like Peel-off Mode, Tear-off Mode is commonly used in on-demand, one-label-at-a-time printing applications. The printer instructs you to tear off the label after automatically positioning the label stock so that the label gap is above the tear bar, making the tearing operation easier.

After you tear off the label, the label automatically backs up so that printing resumes at the beginning of the next label. While this eliminates waste, printing is discontinuous, and it is therefore recommended that Tear-off Mode be used at slower print speeds (less than 6 ips).

## Cut-Off Mode

Cut-off Mode is available when you install the Cutter option (Model 2401) as described in Section 3. Designed for on-demand, one-label-at-a-time printing, Cut-off Mode provides the convenience of a label that is automatically cut and ready to apply. The printer can also be programmed to print a number of labels (up to 32,767) and then perform the cut function. The cutter is designed to cut paper or synthetic liners, and can also cut continuous label media that does not contain rubber-based adhesives..

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**NOTE:** If Cut-off Mode is used to cut through the entire label material, frequent cleaning of the cutter blade may be required to remove adhesive residue that could adversely affect the operation of the device.

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## Section 4

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# Options

This section provides an overview, specifications, settings, and installation information on the IntelliBar Model 48 and 412 options. This section also lists *IntelliTech* International, Inc. and dealer order numbers for the available options.

Users can purchase and install industry-standard memory expansion SIMM modules to improve data throughput and overall performance for the IntelliBar Model 48, Model 412, and Model 88 printers.

In addition, *IntelliTech* options for the Model 48 and 412 printers are listed below.

User-installable options:

- Label Cutter (Model 2401)
- External rewinder (Model 2402)

Factory-installable options:

- Internal rewinder (Model 2405)
- Reflective label sensor (Model 2404)

## MEMORY EXPANSION

Depending on the main board, IntelliBar memory expansion can be done in the IntelliBar Model 48 and 412 through the purchase of industry-standard, user-installable, SIMM memory modules made for Apple or PC products and available from retail or mail order computer hardware suppliers. These modules install in pairs in two slots on the main board and increase the printer's standard memory capacity as shown in Table 4-1 and Table 4-2.

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**NOTE:** 70 SIMMs are required on printers with Revision 12, 13, or 14 main boards, while 60 ns, 9-chip SIMMs are required for printers with Rev. 15 or 16 main boards.

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**Table 4-1 Memory Expansion Upgrade Path, Main Board Rev. 12, 13, or 14**

Model	Standard RAM	Expansion RAM									
		1 MB		2.5 MB		4 MB		8.5 MB		10 MB	
		Socket 1	Socket 2	Socket 1	Socket 2	Socket 1	Socket 2	Socket 1	Socket 2	Socket 1	Socket 2
48	1 MB*	—	—	1MB**	1MB**	Not supported		4MB**	4MB**	Not supported	
88	2 MB***	—	—	Not supported		Not supported		Not supported		4MB	4MB
412	2 MB***	—	—	Not supported		1MB	1MB	Not supported		4MB	4MB

\* = The Model 48 contains 1 MB of standard RAM in total: 512 KB of RAM soldered on the main board and two 256-KB SIMMs pre-installed in the memory expansion slots.

\*\* = Requires removal of SIMMs already installed.

\*\*\* = The Model 412 and Model 88 contain 2 MB of standard RAM soldered on the main board. The Model 88 comes with 10 MB of standard memory and no expandability.

NOTE: Revision 12, 13, and 14 main boards require 70 ns SIMMs.

**Table 4-2 Memory Expansion Upgrade Path, Main Board Rev. 15 or 16 (for All Models and Series)**

Soldered on Main Board	1	2	SIMM Slot 3	4	Total RAM
2 MB	1 MB	1 MB	None	None	4 MB
2 MB	4 MB	4 MB	None	None	10 MB

NOTE: Revision 15 and 16 main boards require 60 ns SIMMs.

Adding memory to the IntelliBar increases the length of labels that can be output and improves the printer's overall performance.

To avoid corrosion between different metals, use only tin-plated SIMM modules. For memory module installation instructions, see "Memory Expansion Module Installation (All Models)" later in this section.

## INTELLIBAR OPTIONS

IntelliBar options are divided into two categories: user-installable and factory-installable. The following subsection describes these options.

### User-Installable Options

- **Label Cutter (Model 2401)** — Lets you quickly print and process labels for immediate application. This user-installable option fits in the front panel in place of the standard peel-off assembly. You must also remove the tear bar from above the platen roller (see “Label Cutter Installation Procedure Overview (Model 48 and 412)” later in this section for installation procedures).

The cutter is designed for users who require on-demand label printing (usually one label at a time) and the convenience of a label precut and ready to apply. The printer can be programmed to print a number of labels (up to 32,767) and then perform the cut function.

The cutter is designed to cut paper or synthetic label backing (liner) and can also cut continuous media.

- **External rewinder (Model 2402)** — Mounts on front of printer and rewinds paper through the front slot. Allows you to prepare labels that can be conveniently spooled for storage or shipment to another location.

### Factory-Installable Options

- **Internal rewinder (Model 2405)** — This option mounts inside the IntelliBar and can be used to spool printed media (labels and backing paper) for convenient storage or transportation of labels in volume quantity. You can also use the rewinder option to spool only the backing paper in peel-off print mode. For label loading instructions, see “Internal Rewinder (Model 48 and 412)” later in this section.
  - **Reflective label sensor (Model 2404)** — This option replaces the printer’s standard, transmissive (see-through) label sensor. This option reflects light off the black stripe when tag or ticket stock is fed through the printer and thereby detects the label’s home position (used for determining the first print line on the label). Can also be used on butt-cut or specialty die-cut labels.
-

## MEMORY EXPANSION MODULE INSTALLATION (ALL MODELS)

This subsection describes how to install industry-standard SIMM memory modules for increasing printer random access memory.

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**NOTE:** The SIMM modules must have a speed of 70 ns or faster on Rev. 12, 13, or 14 main boards; for Rev. 15 or 16 main boards, the SIMM modules must have a speed of 60 ns or faster. Slower SIMMs are not supported. To avoid corrosion between different metals, use only tin-plated SIMM modules.

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The two memory modules must be installed in tandem (both SIMM expansion sockets must be populated with the SIMMs for the printer to operate properly). To install the modules, proceed as follows:

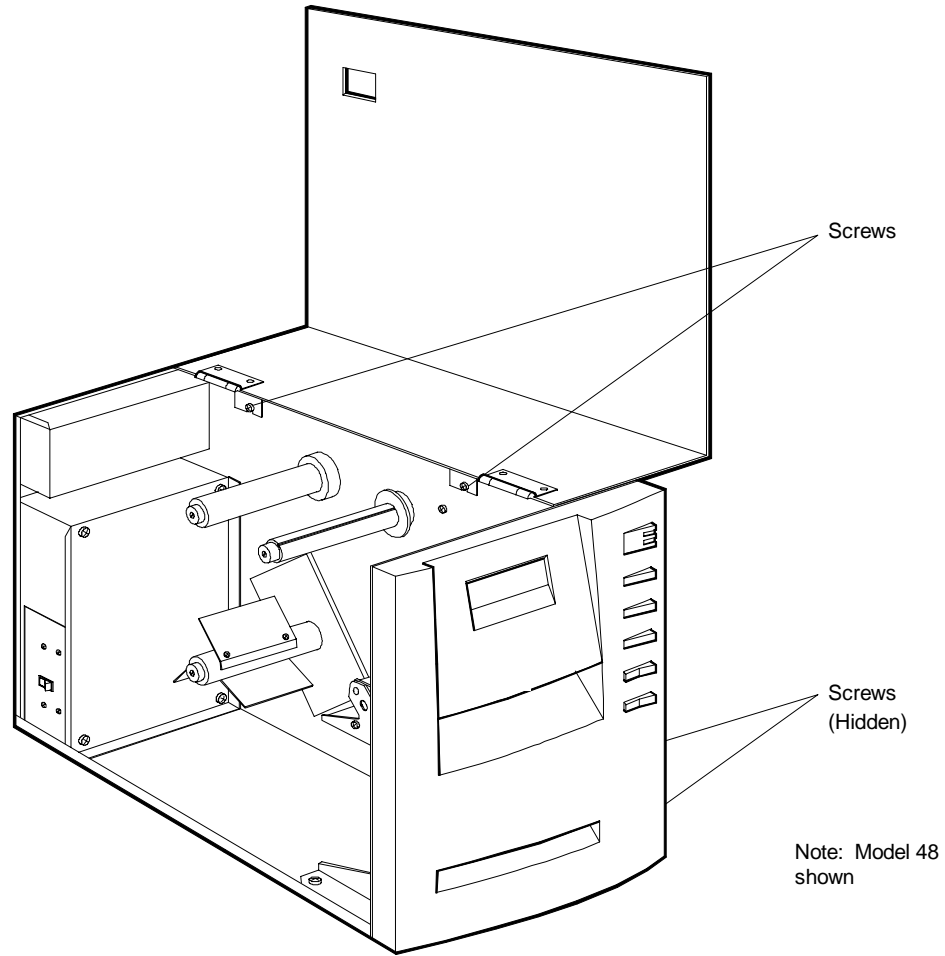
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**CAUTION:** Before handling a SIMM, discharge any static electricity by touching a grounded metal object, such as the metal frame inside the printer.

Always hold a SIMM by its edges. Avoid touching the components on the SIMM.

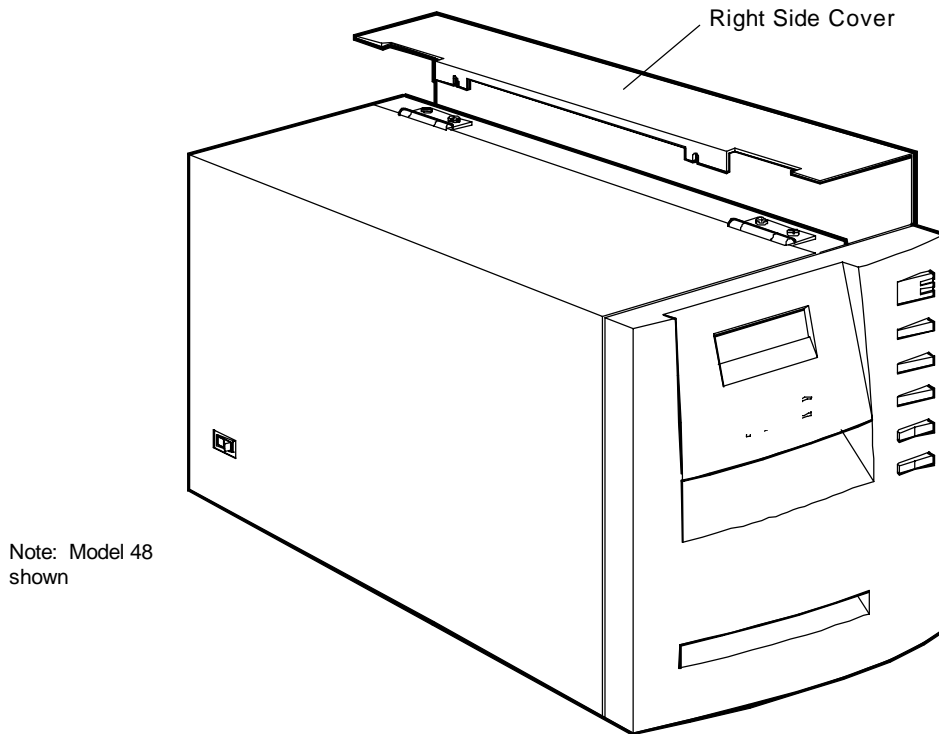
---

1. Turn off and unplug the printer.
  2. Open the left side cover.
  3. Loosen the four cover screws (two on the inside and two on the outside) holding the right side cover in place (see Figure 4-1).
  4. Close the left side cover.
-



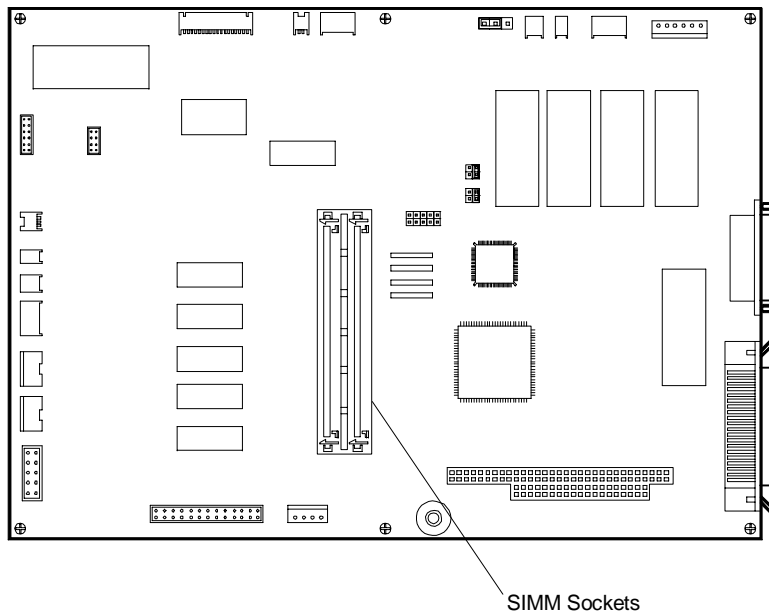
**Figure 4-1 Right Side Cover Screws**

5. Lift the right side cover up and away from the printer (see Figure 4-2).



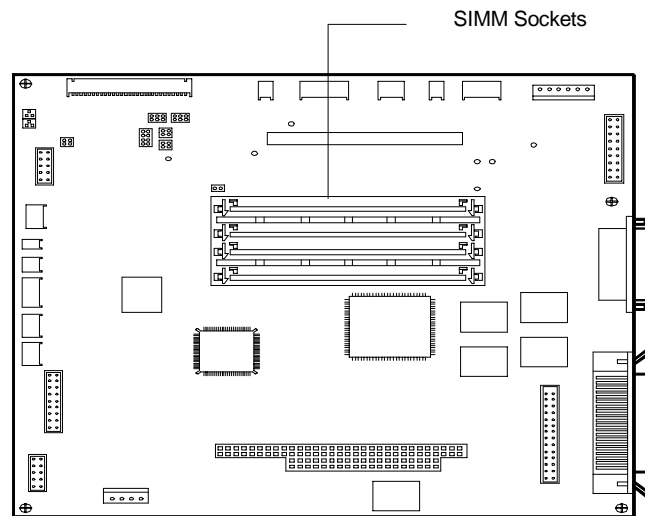
**Figure 4-2 Right Side Cover Removal**

6. Depending on the main board installed in the printer, locate the two SIMM sockets on the main board (see Figure 4-3 or Figure 4-4).



**Figure 4-3 SIMM Sockets (Rev. 12, 13, or 14 Main Board)**

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**Figure 4-4 SIMM Sockets (Rev. 15 or Rev. 16 Main Board)**

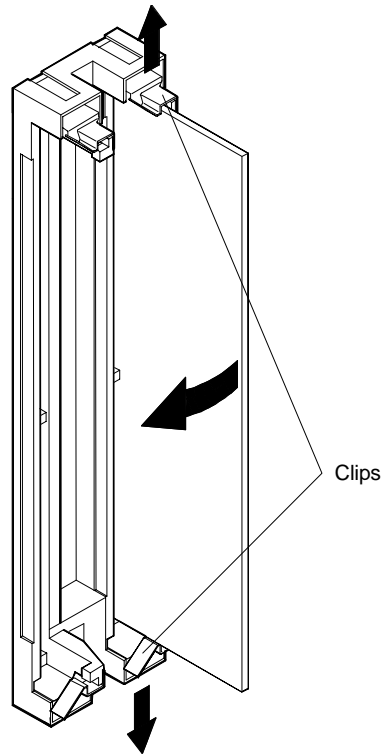
### **Adding Expanded Memory**

Use the following procedure to install SIMM modules in the main board SIMM sockets.

#### ***Removing an Installed SIMM***

If you need to replace a SIMM that is presently installed with a different SIMM configuration, remove the installed SIMM as follows (see Figure 4-5).

1. Press the plastic clips at the outer edges of the socket away from the SIMM.
2. Push the SIMM away from the locking tabs and remove it from the socket.

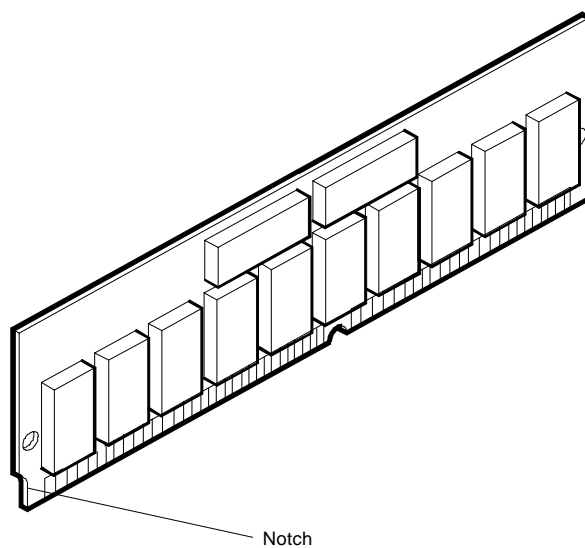


**Figure 4-5 Removing a SIMM**

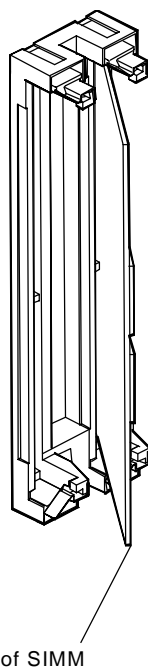
### ***Installing a SIMM***

Install a SIMM as follows.

1. Align the notched end of the SIMM (see Figure 4-6) with the bottom end of the left or right SIMM socket (see Figure 4-7).

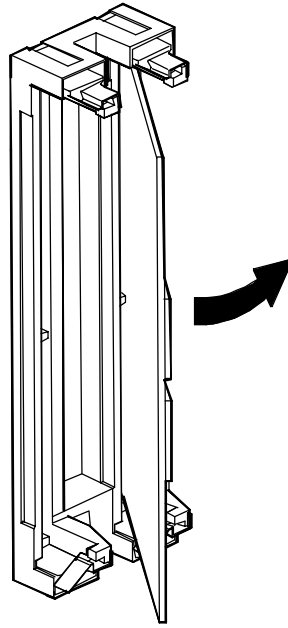


**Figure 4-6 Notched End of SIMM**



**Figure 4-7 Aligning the SIMM**

2. Insert the SIMM at an angle into the left or right socket.
  3. Carefully tilt the SIMM toward the locking tabs (see Figure 4-8).
-



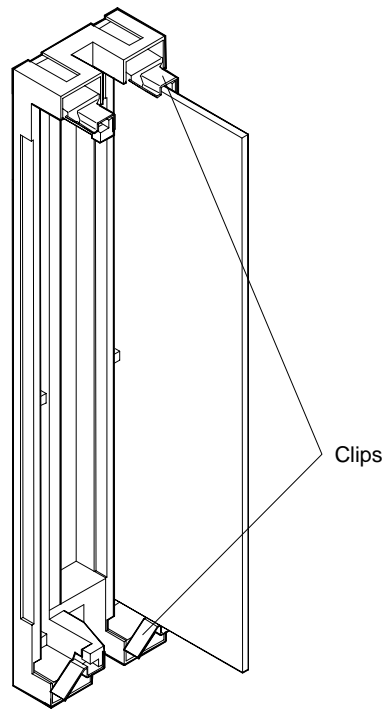
**Figure 4-8** *Inserting the SIMM*

4. Using equal pressure at the ends of the SIMM, push the SIMM until it locks into the locking tabs on the ends of the socket (see Figure 4-9).
5. Repeat the installation procedure for the other SIMM.

---

**NOTE:** Be careful when handling the SIMM; the SIMM and socket tabs are fragile.

---



**Figure 4-9 Securing the SIMM**

## **LABEL CUTTER INSTALLATION PROCEDURE OVERVIEW (MODEL 48 AND 412)**

To install the Model 2401 Label Cutter option, you must do the following:

- A. remove the standard peel-off assembly from the printer.
- B. install the cutter option.
- C. configure the printer to use the cutter option using the control panel menu buttons.

**A. Remove the Standard Peel-Off Assembly (Model 48 and 412)**

To remove the peel-off assembly from the printer, proceed as follows.

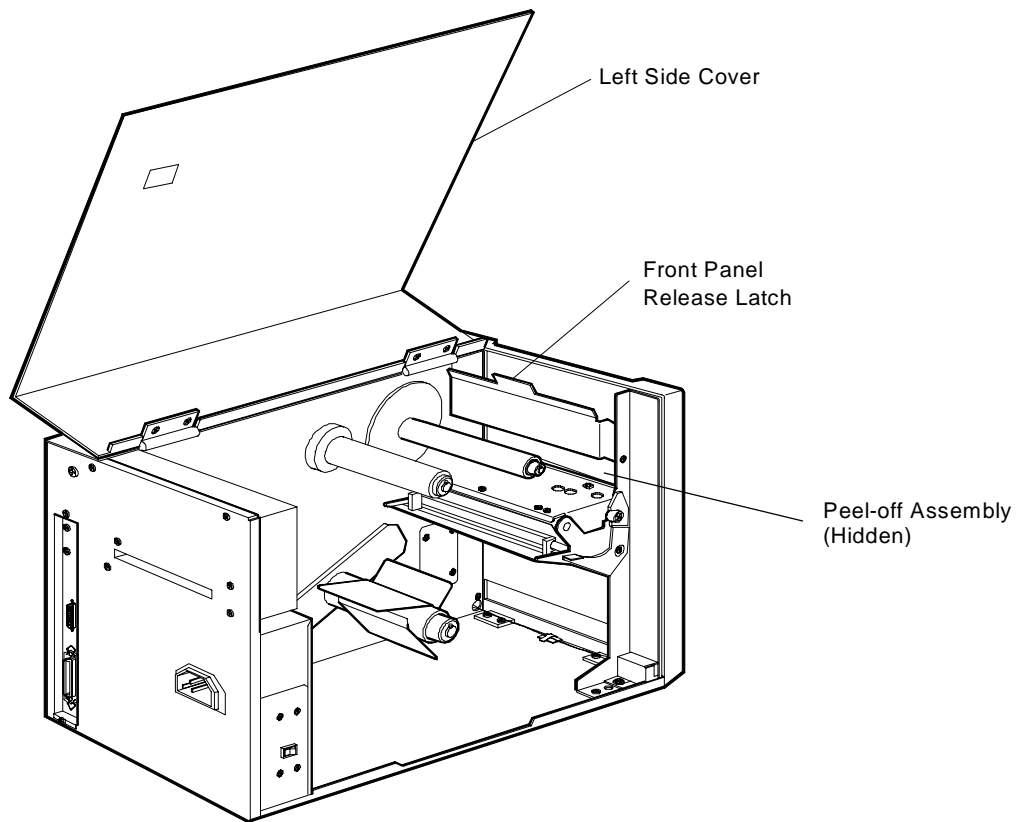
1. Turn off and unplug the printer.
2. Open the left side cover (see Figure 4-10).
3. Press the front panel release latch and gently lower the front panel.

The peel-off assembly is located on the inside of the front panel.

---

**NOTE:** By lifting up the front panel stopper, you can lower the front panel so it is flat on the work table, allowing better access. Figure 4-11 in this section shows the location of the stopper.

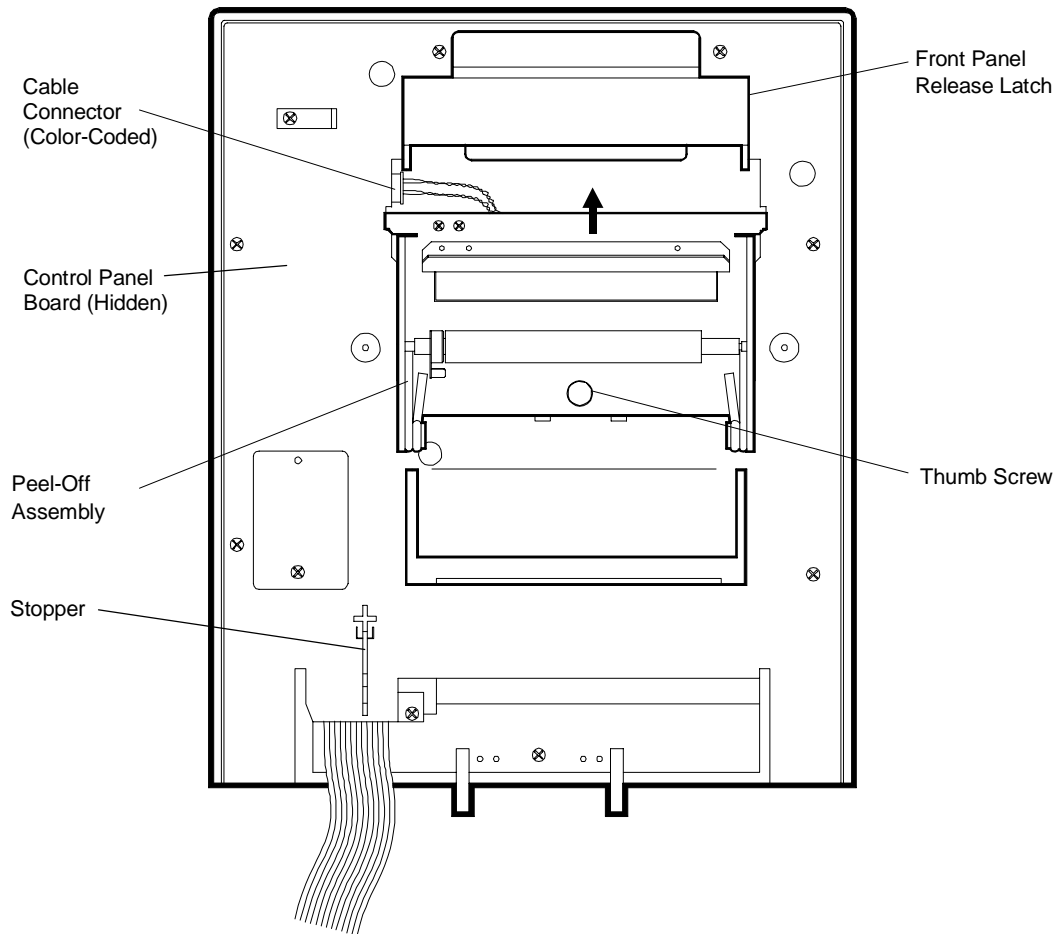
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**Figure 4-10 Left Side Cover and Front Panel Release Latch**

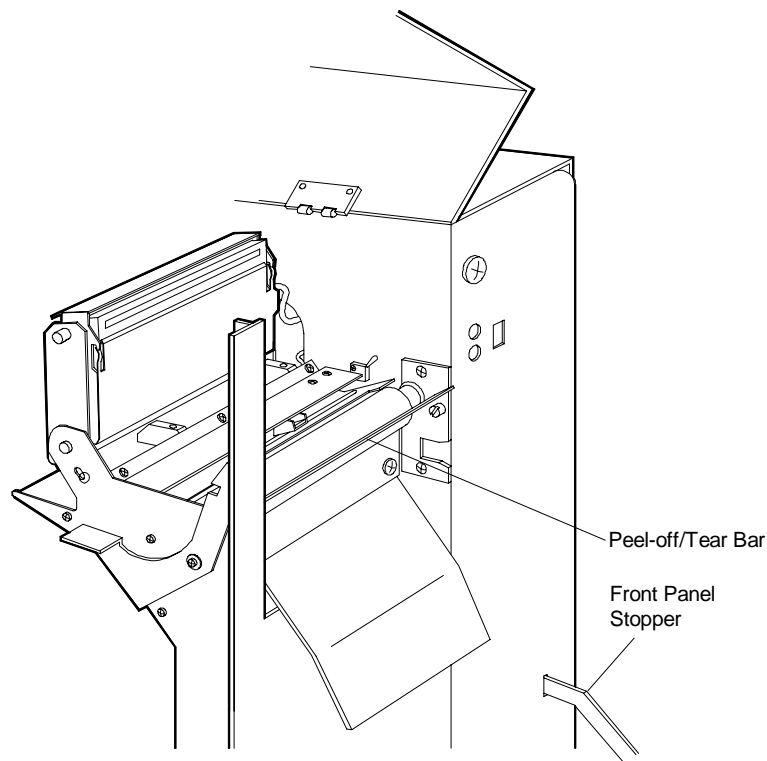
4. Loosen the peel-off assembly thumb screw by turning it counterclockwise (see Figure 4-11).

5. Slide the peel-off assembly upward and out of the notches in the front panel and lift off the assembly.
6. Disconnect the peel-off assembly cable connector from the control panel board.



**Figure 4-11 Model 48 and 412 Peel-Off Assembly Removal  
(Inside Front Panel View)**

7. Remove the peel-off/tear bar from the printer by sliding it out of the slots (see Figure 4-12).



**Figure 4-12 Peel-off/Tear Bar Removal (Model 48 and 412)**

**B. Install the Cutter Option (Model 48 and 412)**

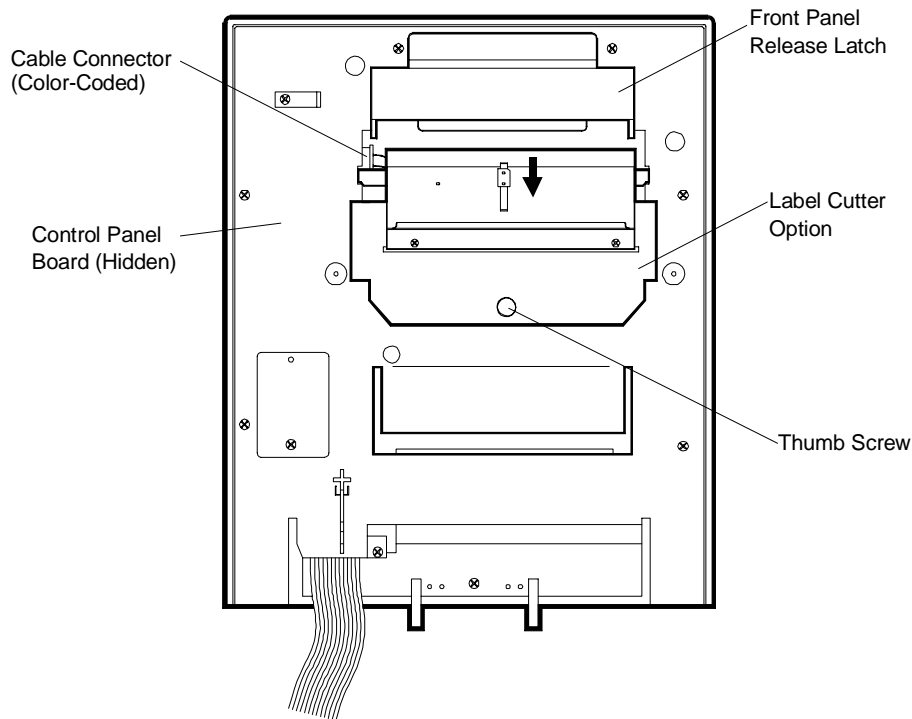
To install the label cutter, follow the removal procedure for the peel-off assembly in reverse order.

---

**NOTE:** Do not reinstall the peel-off/tear bar.

---

1. Connect the label cutter cable connector to the lower, six-pin control panel board connector.
2. Slide the label cutter option into the notches on the front panel.
3. Secure the label cutter option to the front panel by turning the thumb screw clockwise (see Figure 4-13).
4. Close and securely latch the front panel.



**Figure 4-13 Label Cutter Installation (Model 48 and 412)**

### **C. Configure the Printer to Use the Cutter (Model 48 and 412)**

After you have installed the label cutter, use the control panel menu buttons to configure the print mode parameter for operating the label cutter option. See “Controls and Indicators” in Section 2 for information on the following set up procedure.

1. Plug in and turn on the printer. Wait for “READY” to appear in the 2-line LCD display.
2. Press **Online** to take the printer off line. The 2-line display will read “OFF LINE, PAUSE.”
3. Press **Menu**. The 2-line display will change to “MAIN MENU, PRINT MENU.”
4. Press **Select**. The 2-line display will change to “PRINT MENU, PRINT METHOD.”
5. Press **Next**. The 2-line display will change to “PRINT MENU, PRINT MODE.”
6. Press **Select**. The 2-line display will change to “PRINT MODE=, STANDARD.”
7. Press **Next** until “PRINT MODE=, CUT OFF” appears in the display.
8. Press **Select**.

9. Press **Online**. This saves your menu selections, puts the printer online (“READY” appears in the control panel display) and sets up the printer to operate the label cutter after every label.

## **INTERNAL REWINDER (MODEL 48 AND 412)**

This subsection describes how to load labels for the Model 2405 Internal Rewinder option.

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**NOTE:** This option must be installed by *IntelliTech International, Inc.* service representatives and authorized dealers.

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### **Loading Labels**

The internal rewinder can operate in one of two ways. You can rewind labels *and* backing paper (liner) onto the take-up spindle when the printer is in standard print mode. Alternatively, you can rewind only the backing paper when the printer is set to peel-off mode using the control panel menu buttons (see Section 3 for instructions on using the control panel to put the printer in peel-off mode).

The rewinding method you use determines the remaining parts removal and installation procedures for the internal rewinder option.

To load labels, proceed as follows, depending on how you are using the internal rewinder to rewind the label media.

#### ***Loading Labels in Standard Mode***

To rewind both labels and liner with the printer in standard mode, follow the steps below. (If you are rewinding only the backing paper, see the following subsection, “Loading Labels in Peel-Off Mode.”)

1. With the front panel open, remove the peel-off assembly as follows. (The peel-off assembly is located on the inside of the front panel.)

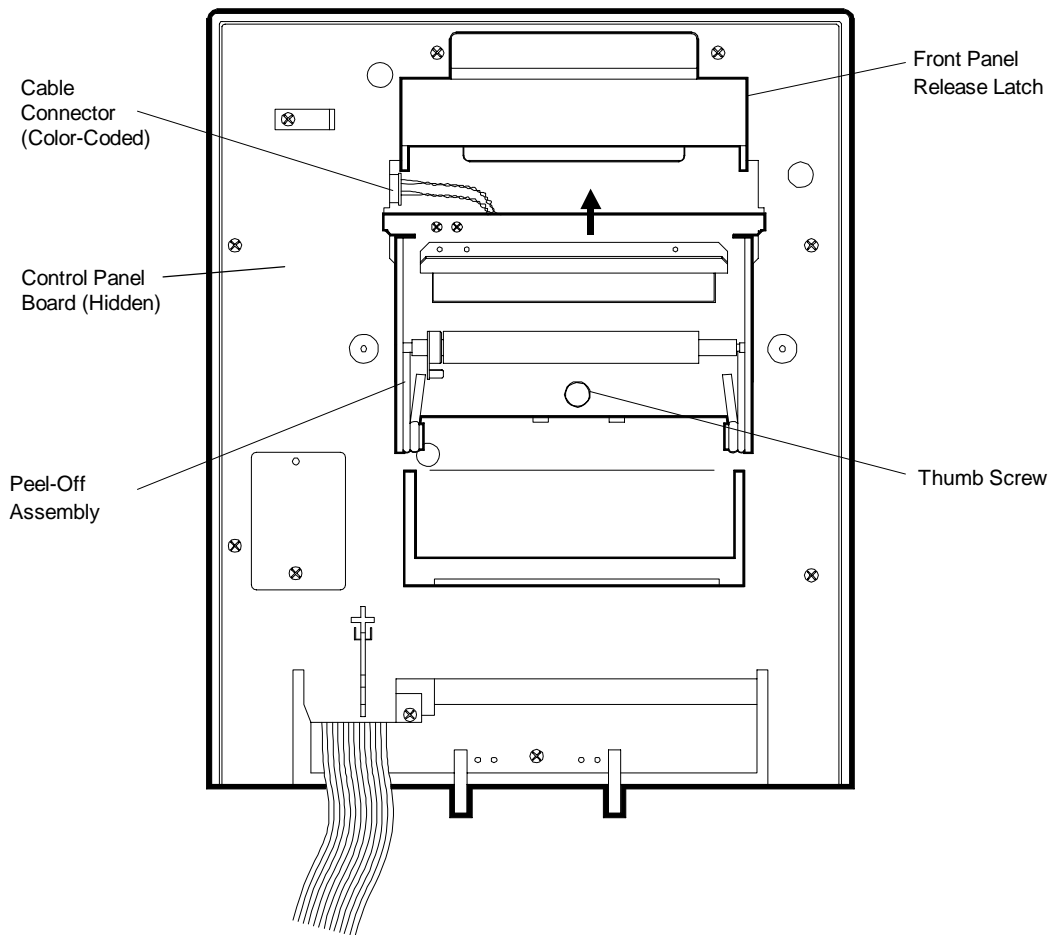
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**NOTE:** By lifting up the front panel stopper, you can lower the front panel so it is flat on the work table, allowing better access. Figure 4-14 in this section shows the location of the stopper.

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- Loosen the peel-off assembly thumb screw by turning it counterclockwise (see Figure 4-14).
  - Slide the peel-off assembly upward and out of the notches in the front panel and lift off the assembly.
-

- Disconnect the peel-off assembly cable connector from the control panel board.



**Figure 4-14 Model 48 and 412 Peel-Off Assembly Removal  
(Inside Front Panel View)**

2. Remove the peel-off/tear bar by sliding it out of the notches (see Figure 4-15).
3. Mount the front panel inside cover supplied with the internal rewinder option kit onto the front panel. To install the inside cover, reverse the peel-off assembly removal procedure described in step 1.
  - Slide the inside cover into the notches on the front panel.
  - Secure the inside cover to the front panel by turning the thumb screw clockwise.

---

**NOTE:** No cable connection is required for the front panel inside cover.

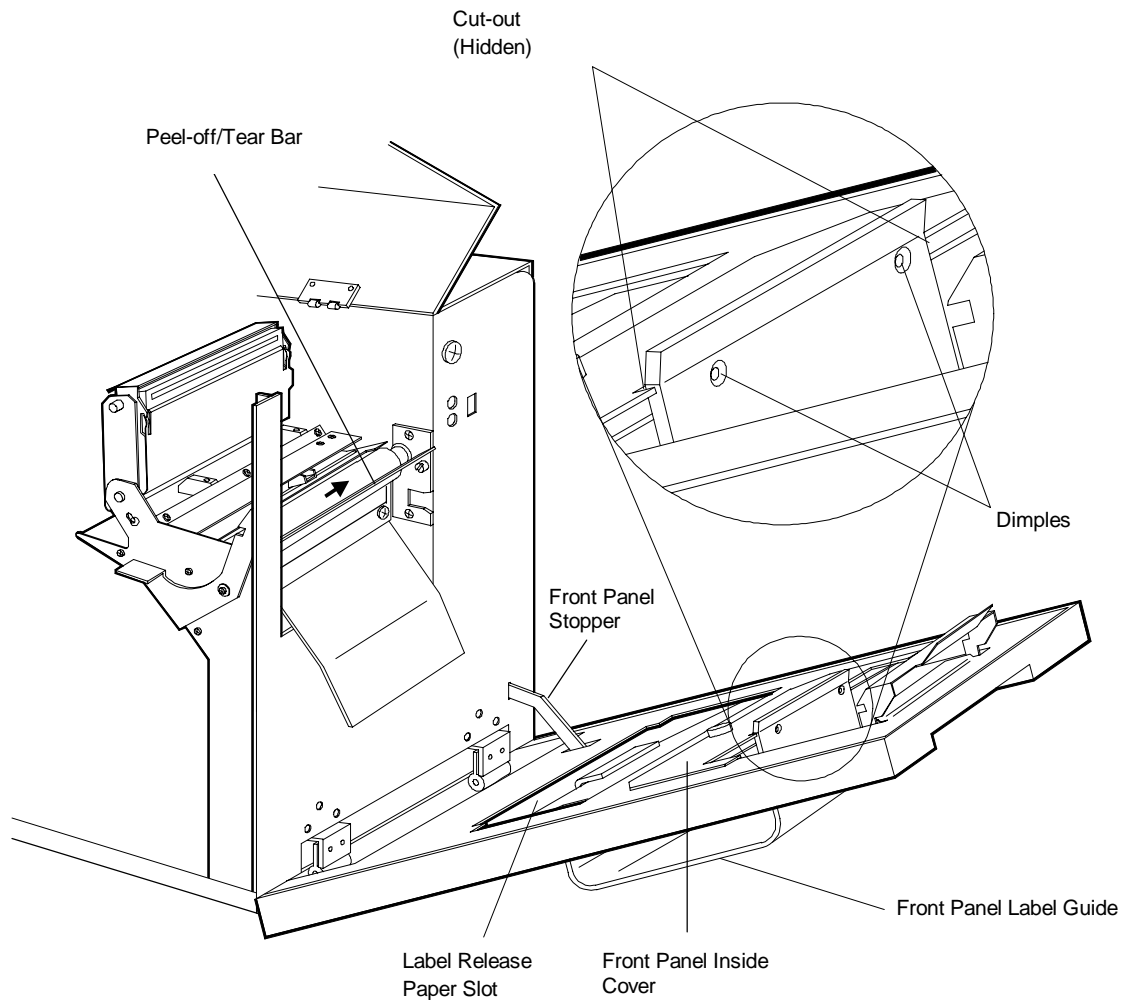
---

4. Insert the front panel label guide supplied with the internal rewinder option kit so that the dimples on the guide's top lip lock in place in the label exit slot on the front panel (see Figure 4-15). Be sure the bottom lip on the label guide is positioned in the label release paper slot as shown in Figure 4-15.

---

**NOTE:** When properly positioned, the top lip of the label guide plate should fit into the cut-out on the front panel inside cover (with the dimples secured in the label exit slot).

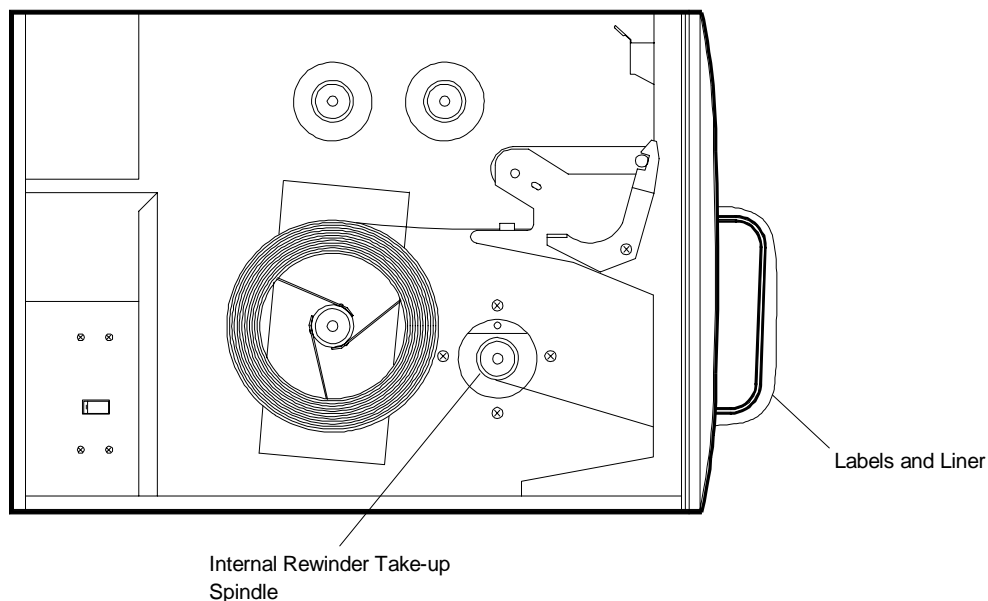
---



**Figure 4-15 Front Panel Label Guide and Inside Cover**

5. Follow the label loading instructions in Section 2 (see “Standard Mode, Tear-Off Mode, Cut-Off Mode), and, in addition, proceed as follows to load labels for the internal rewinder option.
-

- Route the leading edge of the label strip downward from the label exit slot, past the front panel label guide, into the label release paper slot (see Figure 4-16), and between the bar and plate in the lower media guide.
- Guide the label strip away from the lower media guide and thread it onto the internal rewinder take-up spindle.
- Wind the spindle several turns in the clockwise direction to take up any slack in the label roll.
- Adjust the white teflon guides on the lower media guide for the label width.
- Close and securely latch the front panel.



**Figure 4-16 Loading Labels for the Internal Rewinder in Standard Print Mode**

### **Loading Labels in Peel-Off Mode**

To rewind only the liner with the printer set to peel-off mode, proceed as follows. (If you are rewinding both the labels and liner, see the previous subsection, “Loading Labels in Standard Mode.”)

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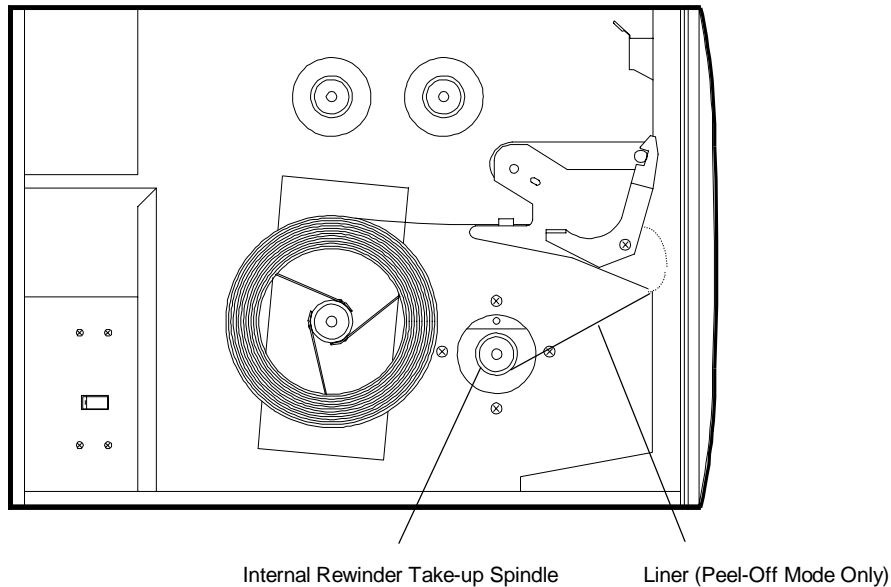
**NOTE:** The peel-off assembly and peel-off/tear bar must be installed to use peel-off mode.

---

1. Follow the label loading instructions in Section 2 (see “Peel-Off Mode”), and, in addition, proceed as follows to load labels for the internal rewinder option.

- Route the label strip downward from the tear bar, around the platen roller, and through the slot in the backing paper guide (see Figure 4-17).
- Guide the label strip from the slot in the backing paper guide onto the take-up spindle (see Figure 4-17).
- Wind the spindle several turns in the clockwise direction to take up any slack in the label roll.

2. Close and securely latch the front panel.



**Figure 4-17 Loading Labels for the Internal Rewinder in Peel-Off Print Mode**

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## Section 5

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# Cleaning and Adjustments

This section contains information for maintaining the printer in top condition for continuous, error-free, high-quality performance. Included in this section are procedures for external and internal cleaning and printer adjustments.

After completing any procedure in this section, print out a test label as outlined in Section 2 to verify operation.

### CLEANING

Printer cleaning materials include a cotton-tipped applicator or cotton swabs dipped in isopropyl alcohol (90%), and a soft, lint free cloth. Clean the printer's external and internal surfaces as follows.

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**CAUTION:** Before starting any cleaning procedure, turn OFF and unplug the printer. Do not use benzine, paint thinner, or other chemicals or abrasives to clean the printer's plastic surfaces. Such cleaning materials may dissolve the plastic or cause discoloration.

---

Do not use water to clean the print head.

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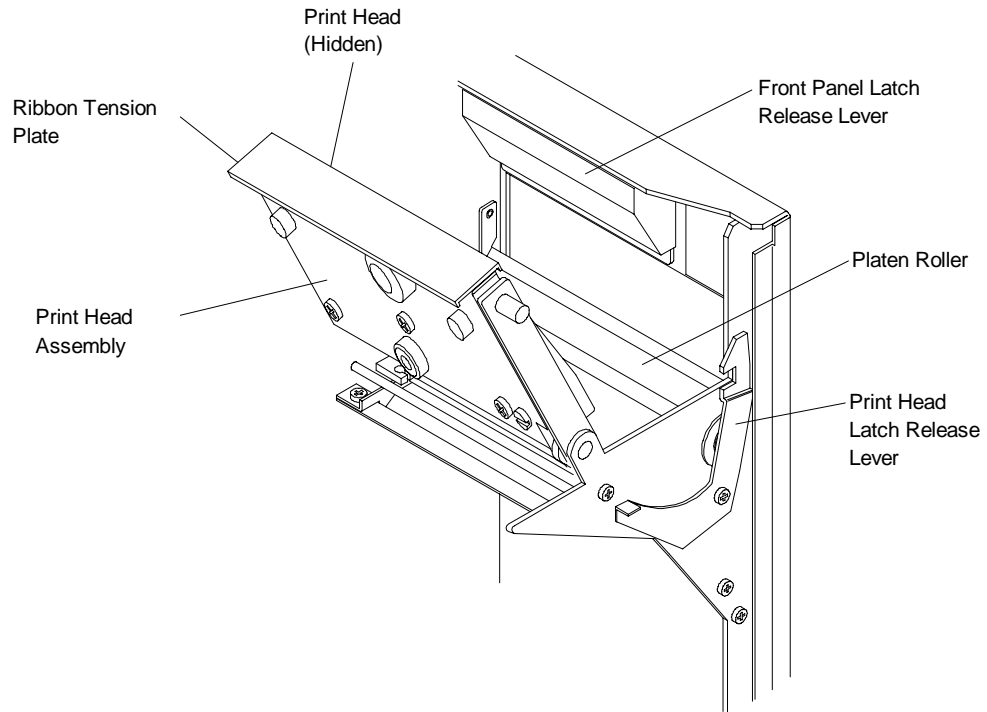
### External Cleaning

Whenever necessary, clean the printer's plastic front panel and the metal side and rear covers with a soft cloth dampened in water and a mild detergent.

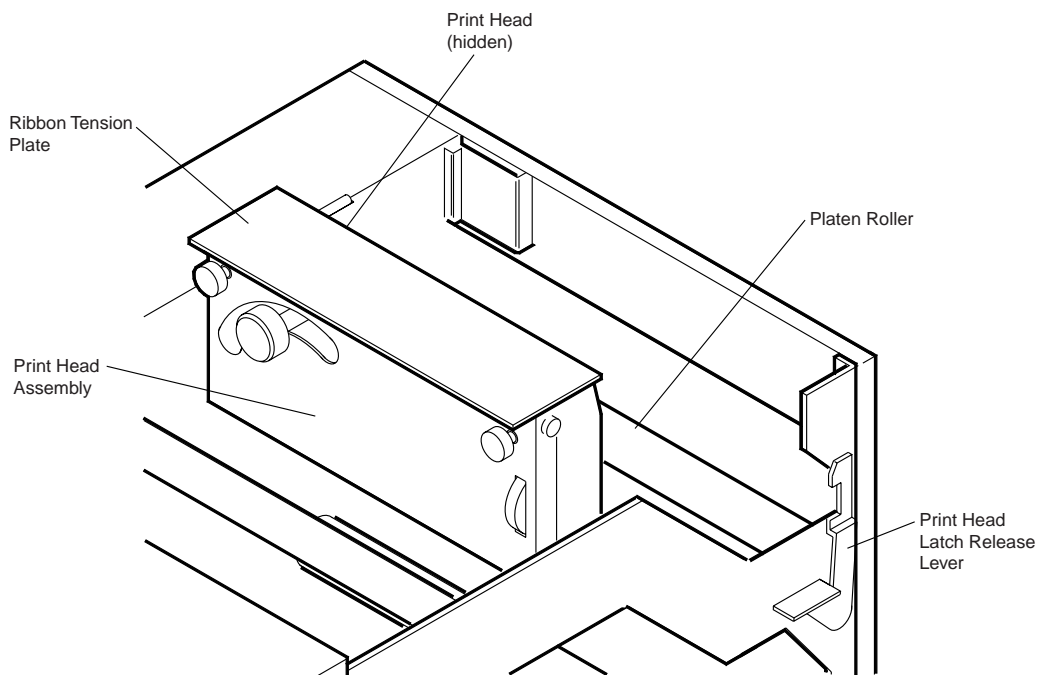
### Internal Cleaning

To clean the inside of the printer, follow these preliminary steps (see Figure 5-1 or 5-2).

1. Pull the front panel latch release lever and gently lower the front panel to a 45° angle (Model 48 and 412 only).
  2. Push the print head latch release lever and gently raise the print head all the way up.
  3. Remove the ribbon and paper from under the print head.
  4. Clean the print head, platen roller, and sensors as described in the following subsections.
-



**Figure 5-1 Printer Interior (Model 48 and 412)**



**Figure 5-2 Printer Interior (Model 88)**

---

## Print Head

Clean the print head after every ribbon change or when inconsistent print quality (such as faded or broken lines or blank areas) appears on labels. To clean the print head (see Figure 5-3), gently wipe the bank of print head resistors with a cotton swab dipped in 90% isopropyl alcohol.

### ***Print Head Life***

The print head service life is dependent on printing materials, operating environment, and duty cycle (the amount of time the printer is in operation). Print quality deteriorates when the print head wears out.

Observe the following guidelines to prolong print head life.

- Do not rotate the platen roller without having ribbon and label media loaded in the printer and passing under the printer head.
- Clean the print head whenever you replace the ribbon.
- Use only specified, *IntelliTech* ribbons and labels to maintain long print head life and ensure premium print quality (see Section 2 for information about *IntelliTech* labels and ribbons).
- Keep dust and dirt from getting inside the printer.
- Keep the print head surface clear of debris such as plastic or metal shavings.

## Other Parts

Operating environment and duty cycle also affect other parts such as the platen roller and peel-off roller. These parts require service by a qualified service representative.

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**NOTE:** See “Getting Service and Support” in Section 6 for information about the service and support options for your printer.

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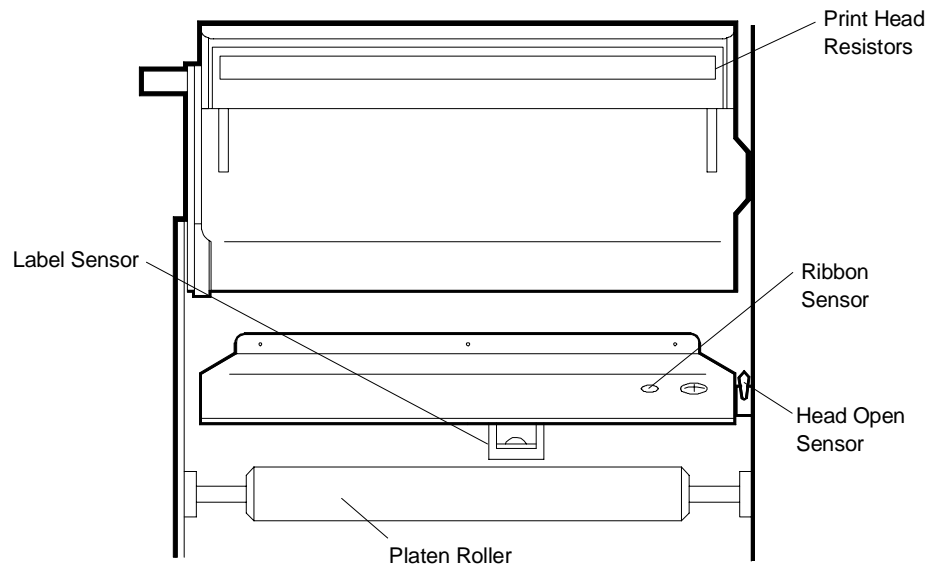
### ***Platen Roller***

The platen roller presses the paper and ribbon against the print head. It also guides the paper and ribbon away from the print head and therefore picks up ink and paper residue during operation. To clean the platen roller (see Figure 5-3), proceed as follows.

1. Manually remove any label or foreign material from the platen roller.
  2. Gently wipe the platen roller with a lint-free cloth dipped in 90% isopropyl alcohol. This should be done every three months or when the need arises.
-

### **Sensors**

Once a month (or whenever dust or dirt has accumulated and affected operation), the head open, ribbon end, and label sensors should be wiped with a cotton-tipped applicator dipped in 90% isopropyl alcohol. See Figure 5-3 for the location of the sensors.

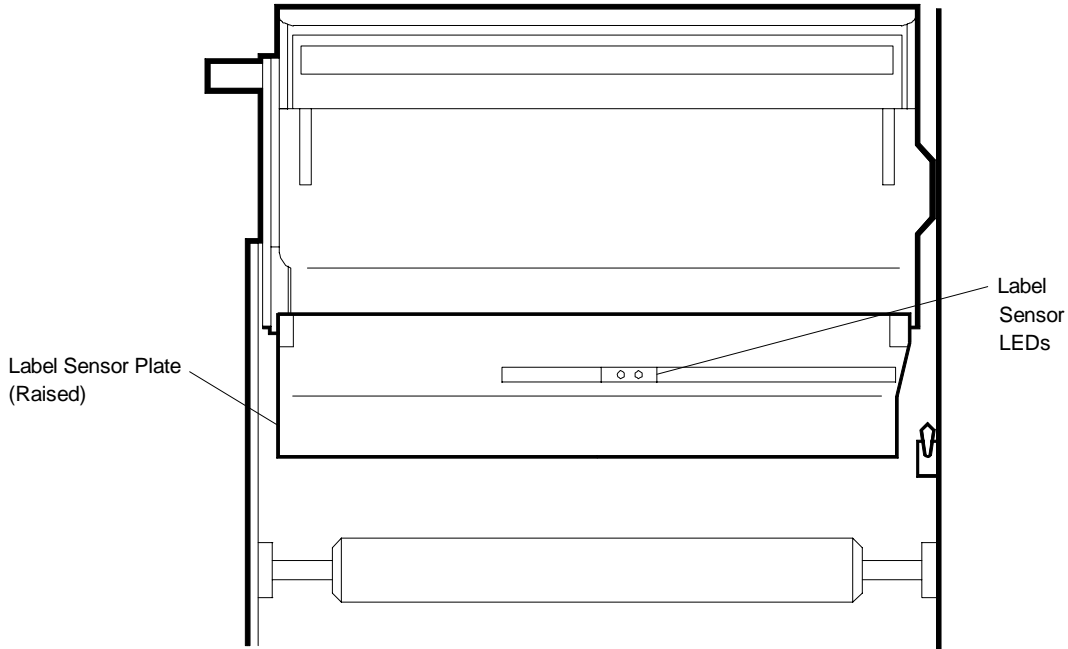


**Figure 5-3** *Cleaning the Print Head, Rollers, and Sensors*

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**NOTE:** Raise the label sensor plate to clean the LEDs on the underside of the sensor assembly (see Figure 5-4).

---



**Figure 5-4 Label Sensor LED Location**

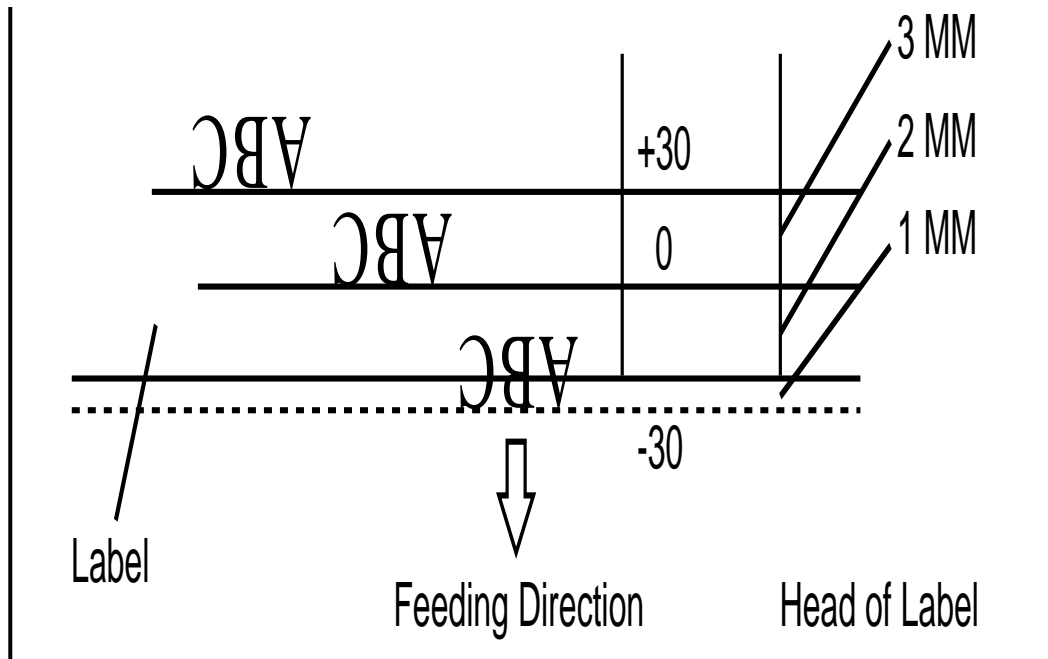
## PRINT POSITION ADJUSTMENT

Using the control panel, you can select the desired “ADJUSTMENT MENU, PRINT POSITION” parameter (see “Controls and Indicators” in Section 2 for information on using the control panel).

This setting adjusts the position of the first print line relative to the leading edge of the label. The adjustable range is .12 in. (3 mm) forward or backward in 0.004 in. (1.0 mm) steps (see Figure 5-5). Using the control panel display, the allowable range is +30 to -30.

In Figure 5-5, the print head is positioned at the front edge of the label (1 mm from the perforation) and the first possible print line is 2 mm from the edge of the label (ramp up area).

If you set the range to -30 steps (3 mm), the print head is positioned in front of the edge of the label (2 mm in front of the perforation) and the first possible print line is 1 mm in front of the edge of the label. In this case, you would clip the first 1 mm of the character.



**Figure 5-5 Print Position**

## PRINT HEAD VOLTAGE ADJUSTMENT

If you have replaced the print head, you must set the print head voltage and/or enter the print head serial number.

For print head removal and installation procedures, see “Print Head Removal and Installation” in Section 2.

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**NOTE:** Be sure to see the print head removal and installation procedure appropriate for your IntelliBar printer model.

---

For instructions on setting the print head voltage and/or entering the print head serial number, see “Print Head Voltage Adjustment” in Section 2.

## CORRECTING POOR PRINT QUALITY

This subsection describes common printer problems that affect print quality. Knowing the causes of poor print quality can help you to avoid potential problems (and solve problems when they arise). See “Mechanical Adjustments” later in this section for adjustment procedures that prevent or fix common problems.

Some contributing factors to poor print quality are:

- Print head not properly adjusted to label width
- Mismatch or improper media being used
- Density setting is too high or low for media type
- Print head resistance not properly set
- Print head latch is too loose or tight
- Print speed too fast or slow
- Improperly adjusted ribbon guide plate
- Bad print head

Any one or combination of the above could produce poor print quality. Below is a brief explanation why this can occur.

### **Print Head Adjustments**

When the print head is not adjusted properly, wrinkling, light or faded print, skewing of the ribbon or label, or missing print can occur. Print head adjustments will be described in more detail later on in this section (see “Mechanical Adjustments”).

### **Media Mismatch**

A mismatch of media occurs when a ribbon that is designed for fast application is used with a coated label stock that requires slower print speeds. An example of this would be if you used an Express Wax ribbon with a polyester label stock. This combination would produce poor print quality, a resin based ribbon at slower speeds would perform better in this case.

### **Density**

Density settings are important to overall print quality as well. In instances where you are using a material such as polyester, the print head may have to burn hotter to imprint the image onto the material. In most applications the default setting of “0” is sufficient.

### **Resistance Value**

When the firmware, main board, or print head is replaced you must reset the print head resistance value. Each print head has its own resistance value and must be matched with the other components of the printer. This is done through the control panels maintenance menu. If this is not done, the printer defaults to “1000” Ohms and the correct voltage will not be set for use with the print head causing less than perfect print quality.

---

## Print Head Latch

When the print head latch is too loose it produces a very light or no print. A simple test to tell if your latch may be the cause of your problem is to press down on the print head with your hand while printing. If your print improves dramatically, this may be the source of the problem. If the print head latch is too tight, it may cause wrinkling of the ribbon.

---

**WARNING:** Do not wear loose clothing, long sleeves, or loose jewelry when doing this test.

---

## Print Speed

Print speed is very important to perfecting the quality of your print. Although some models of IntelliBar printers can reach speeds of up to 12 inches per second (ips), you may have to lower the speed of the printer to produce good quality on the media you have chosen to use. Some ribbon and label combinations perform better under slower speeds, and some perform better at faster speeds. At slower speeds, the print head will have more time to transfer the ribbon onto the media.

## Ribbon Guide Plate

The ribbon guide plate (also referred to as the ribbon tension plate) is used to adjust ribbon tracking to correct ribbon wrinkling. The guide plate is located on the front of the print head housing and is connected by two Phillips head screws. This plate provides tensioning to the ribbon to keep it from wrinkling under the print head. Once the ribbon has passed the print head, you may see some wrinkling at the take up spool, which is normal. Printing an all black page will show the wrinkle area clearer and help you adjust it properly.

## Bad Print Head

Generally a print head will not produce fading when it fails. Print heads that fail will produce missing text, clipped characters, or straight white lines across the page.

When a print head fails, one or more elements (resistors) can fail and produce the white lines.

---

## MECHANICAL ADJUSTMENTS

To maintain normal operation, the following conditions must be met.

- labels must feed straight under the print head without skewing to the left or right (label alignment)
- the ribbon must be free of wrinkles or creases as it passes under the print head resistors
- the printer must be able to sense the presence or absence of labels and ribbon
- the print head must be aligned horizontally so that the print line outputs straight across the width of the label (horizontal print head alignment)
- the print head must be set according to label width and thickness so that ink transfers properly from the ribbon to the label (print head balance and pressure)
- the print head elements (resistors) must be positioned over the platen roller to ensure the highest print quality (print head position)
- the stepper motor belt tension must be maintained so that ribbons and labels feed properly

To meet the above conditions, the following subsections describe routine mechanical adjustments that will keep your printer operating normally. These adjustments should be done whenever necessary to maintain normal operation.

---

**NOTE:** If a problem occurs and you cannot restore normal operation by following these procedures, a service call may be needed. For more information, call *IntelliTech* International, Inc. at 800-694-3034.

You may also fill out and fax the service request form provided at the end of Section 6.

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## Model 48 and 412

The following mechanical adjustments to the Model 48 and 412 must be done periodically:

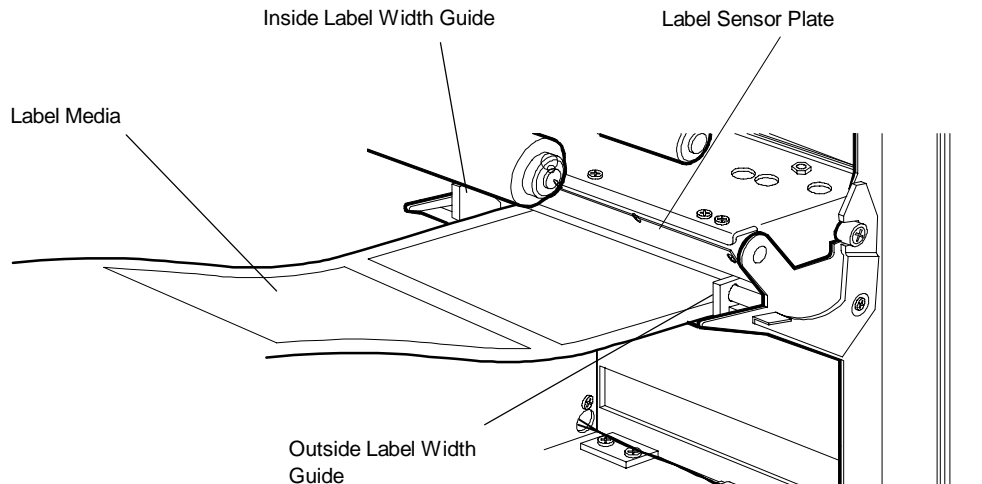
- label width guide adjustment
- horizontal print head alignment
- print head pressure knob adjustment for label thickness
- print head balance lever adjustment for label width
- print head position dial adjustment for label thickness
- ribbon guide plate tension adjustment for wrinkling
- timing belt tension adjustment

### ***Label Width Guides (Model 48 and 412)***

The two white teflon label width guides are located under the print head cover (see Figure 5-6). The guides align the paper so it feeds straight under the print head and onto the platen roller.

In addition, the inside guide lines up the inside edge of the label with the first print element on the print head. As viewed from the front panel, the specification is to set the outside edge of this guide 0.16 in. (4 mm) from the first print element.

When the inside label width guide is within specification, slide the outside label width guide up to the edge of the backing paper (liner).



***Figure 5-6 Label Width Guides (Model 48 and 412)***

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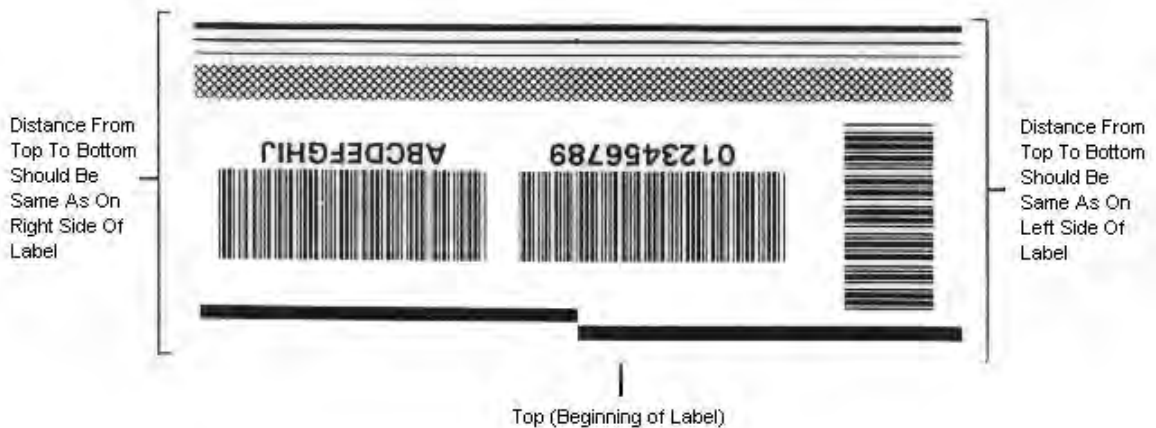
**Horizontal Print Head Alignment (Model 48 and 412)**

The print head alignment adjustment (print head skew) should be done to adjust the label's horizontal print line and to help prevent the ribbon from wrinkling as it feeds under the print head resistors.

1. Load ribbon at least 4.25-in. (108.9 mm) wide. Load labels at least 4.25-in. (108.9 mm) wide and 1.5-in. (38.1 mm) long. This is necessary to adjust the full horizontal position of the print head elements so they are parallel with the label edge.
2. Output a self-test bar code label from the control panel to see if the bottom line of print on the left side of the label is exactly the same distance from the label top as it is on the right side of the label (see Figure 5-7).

**NOTE:** See Section 3 for information on the bar code self-test procedure.

Verify the alignment by using a ruler to measure the distance, on both sides, from the bottom line of the bar code label to the leading edge (top) of the label. The distance on each side should be equal, ensuring a full horizontal print line and minimizing the chance of the ribbon skewing and wrinkling as it feeds under the print head.

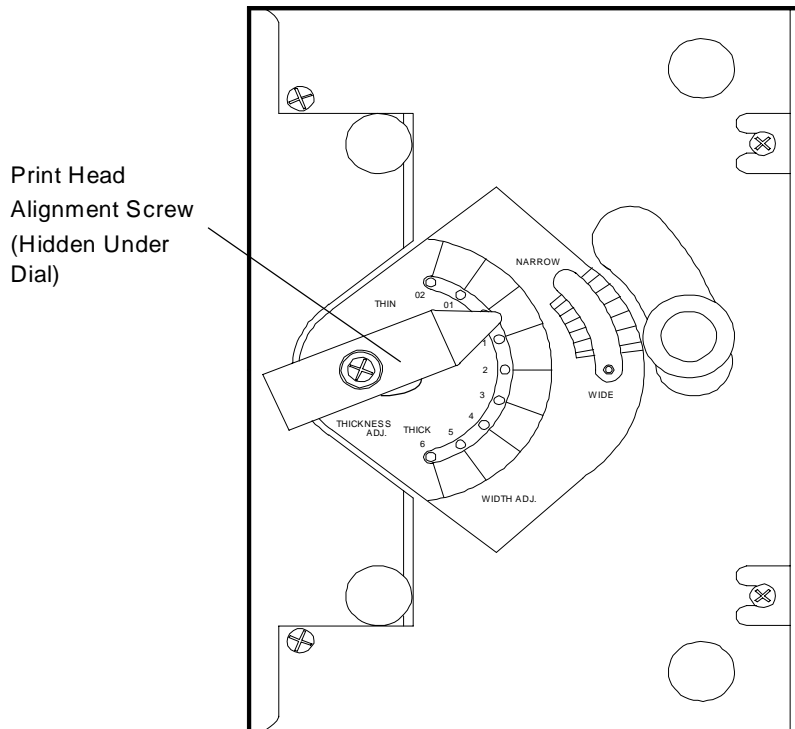


**Figure 5-7 Bar Code Self-Test**

If the bottom line of print on the left side of the label is not exactly the same distance from the label top as it is on the right side of the label, proceed as follows.

3. Open the left side cover and front panel.

4. Check that the perforation on the label liner (backing paper tear line) lines up with the peel-off/tear bar, using the bar as a straight edge. If the perforation does not align, unlatch and open the print head and reload the labels (at least 4.25-in. (108.9 mm) wide and 1.5-in. (38.1 mm) long).
5. With the print head closed and securely latched, locate the Phillips head screw under the print head position dial (see Figure 5-8).
6. Turn the Phillips head screw 45° (1/8 of a complete revolution) in either direction.
7. Run the self-test again (see “Self-Test” Section 3), printing a minimum of three bar code labels.
8. Verify the measurement on the third label to make sure the proper alignment has been achieved. If it has not, repeat step 4, readjusting the Phillips head screw as required to obtain the proper alignment.



**Figure 5-8 Print Head Alignment Screw (Model 48 and 412)**

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**Print Head Pressure Knob for Label Thickness (Model 48 and 412)**

The print head pressure knob is factory set to off (turned completely counterclockwise), which works for most label thicknesses (such as the sample labels supplied with the printer). However, thicker labels may be less pliable and require increased pressure. To improve print quality, turn the print head pressure knob clockwise to increase pressure and better mold thick labels around the print head elements (resistors).

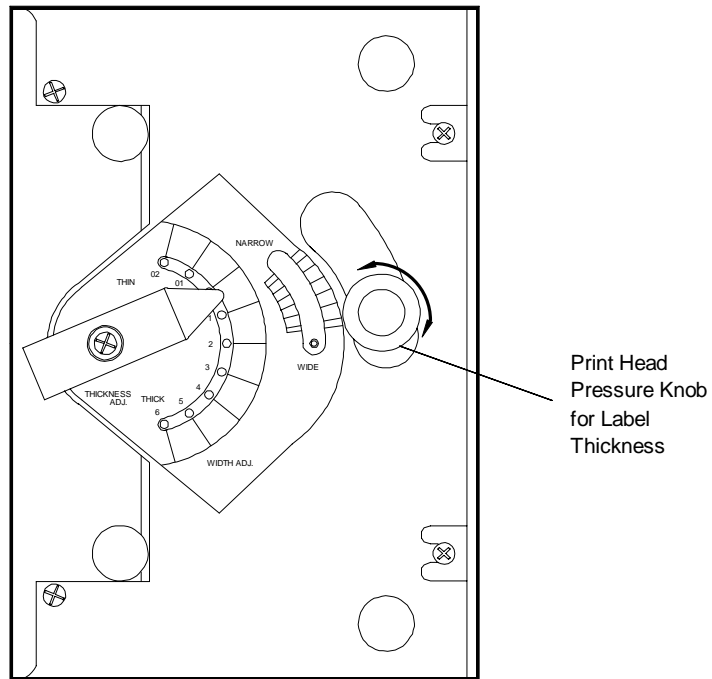
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**CAUTION:** In thermal transfer applications, too much pressure can result in reduced print quality (a “ghosting” affect).

---

This adjustment is best made prior to loading ribbon. Turn the knob clockwise (see Figure 5-9) for thick, spongy, or stiff paper (increasing head pressure), allowing thicker print media such as tag stock to feed through the print head mechanism without causing undue wear on the print head elements. For thinner or more flexible media, turn the knob counterclockwise (lighter head pressure).

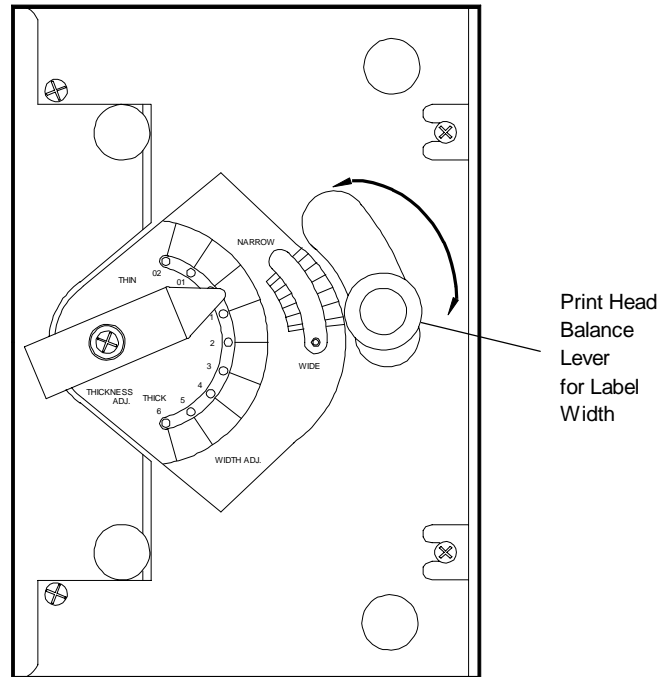
This adjustment must be made on a trial-and-error basis using the control panel to print out self-test samples and readjusting the knob as necessary until the correct print quality is obtained. The test sample should exhibit optimum print density (black/white contrast), with output that is neither too dark or muddy in appearance nor too light or faded.



**Figure 5-9 Print Head Pressure Knob (Model 48 and 412)**

### ***Print Head Balance Lever for Label Width Adjustment (Model 48 and 412)***

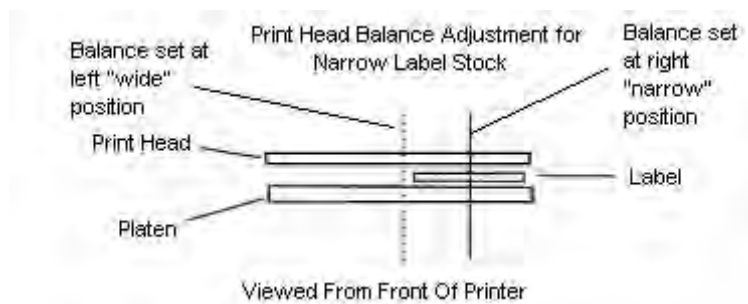
This lever (see Figure 5-10) balances the print head so there is equal pressure along the label stock calibrated to the label width. This ensures that the label feeds straight through the print head mechanism without skewing to the left (which may cause the rightmost printing on the label to be lost and possibly cause the label liner to creep over the label width guides, eventually leading to paper jams).



***Figure 5-10 Print Head Balance Lever (Model 48 and 412)***

Print head balance is factory set all the way to left (to **Wide**), which is the setting for the sample labels supplied with the printer.

This adjustment also reduces wear on the print head, since less pressure is put on the platen roller when the head is properly balanced according to label width. For narrower labels, this adjustment puts force on the top of the label rather than the platen (see below).



***Figure 5-11 Print Head Balance Adjustment for Narrow Label Stock***

Slide the print head balance lever all the way to the left (as viewed from the front panel) for maximum-width labels (4.25 inches or 108 mm). To adjust for narrower labels, slide the lever to the right. Each division on the scale in front of the lever represents a label width increment of approximately 0.75 in (19 mm).

This adjustment must be made on a trial-and-error basis using the control panel to print out self-test samples and readjusting the lever as necessary until the correct print quality is obtained.

If the print head balance adjustment is set too narrow, the output will resemble the sample in Figure 5-12.



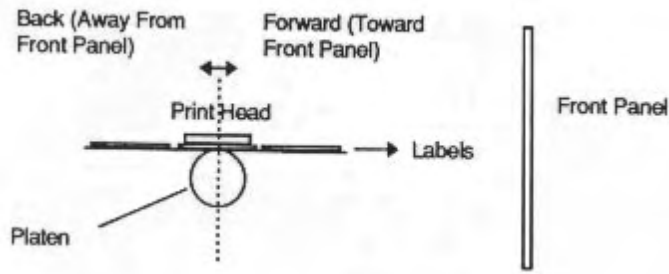
**Figure 5-12 Sample of Incorrect Print Head Balance**

The test sample should exhibit the same uniform print quality on the left and right sides of the label as it does in the middle. See Section 3 for self-test procedures.

***Print Head Position Dial for Label Thickness Adjustment (Model 48 and 412)***

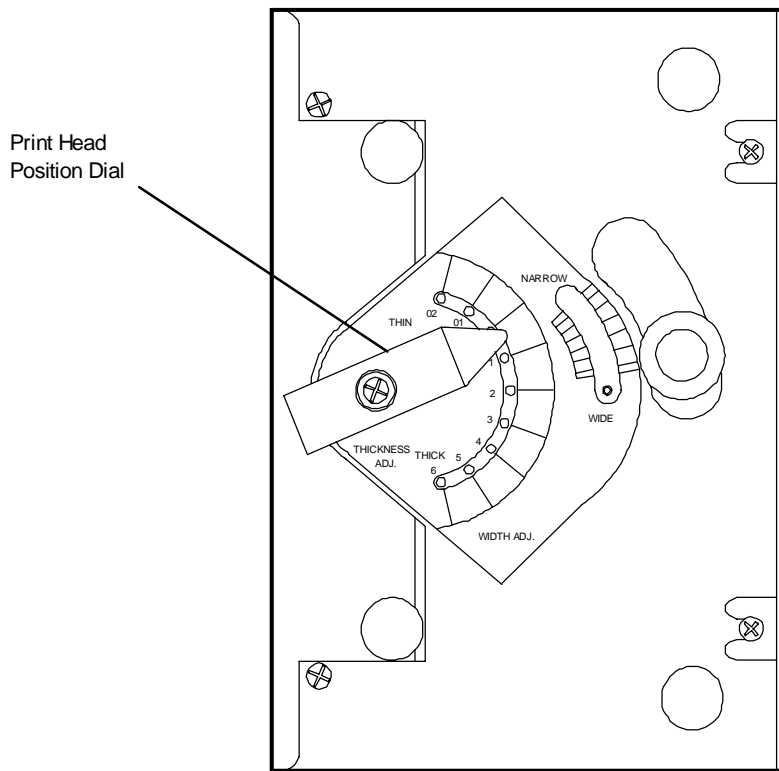
The print head position dial is factory set to 0, which works well for most labels (including the sample labels supplied with the printer).

This adjustment positions the print head elements (resistors) over the platen roller. At the 0 setting, the elements are over or just slightly in front of the top-center of the platen (see the following figure).



**Figure 5-13 Print Head Movement for Label Thickness Adjustment**

Turning the head position lever (see Figure 5-14) clockwise (to increment 1, 2, 3, etc.) brings the print head forward (for printing on thicker labels, such as those used in the thermal transfer printing method). Turning the head position lever counterclockwise (to increment 01, 02) moves the print head back (for thinner labels, such as those used in the direct thermal printing method). The print head moves backwards to maximize the heat and pressure on the label media.



**Figure 5-14 Print Head Position Dial for Label Thickness Adjustment**

---

Do this adjustment and then run the self-test (see Section 3 for self-test procedures).

If the print head position dial is incorrectly set, output may resemble the sample in Figure 5-15.



**Figure 5-15 Samples of Incorrect Print Head Position Setting**

The print head elements are properly positioned when optimum print density is obtained and bar code lines are crisp and sharp. The default is to set the lever on the third notch (0 position) for normal or thinner label stock.

***Ribbon Guide Plate (Model 48 and 412)***

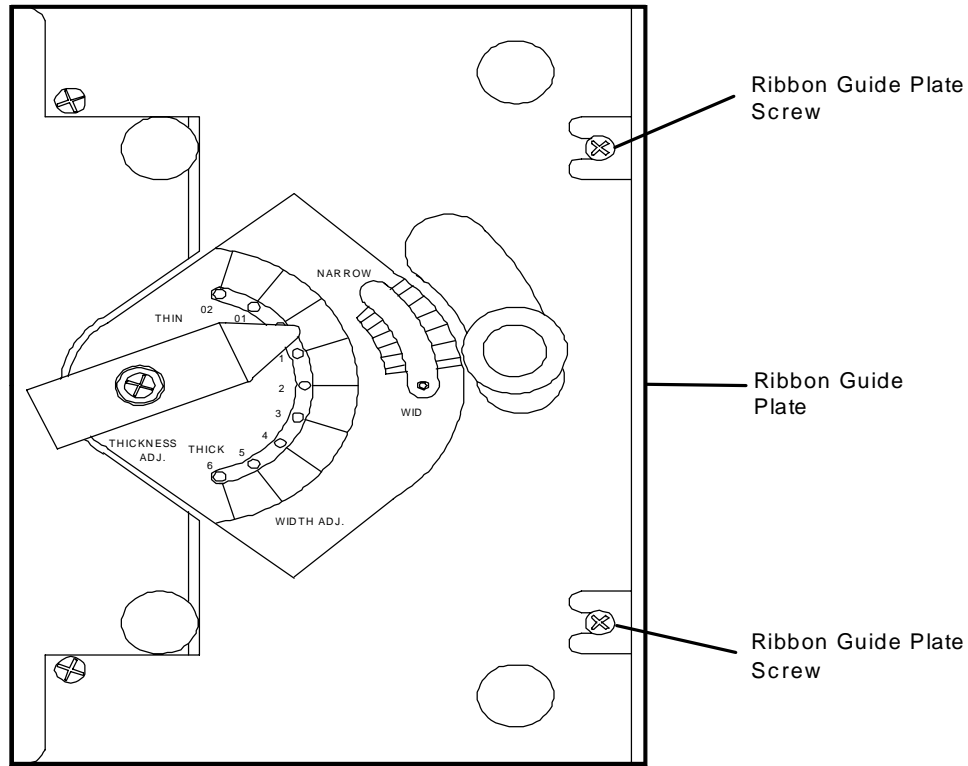
The ribbon guide plate must be properly adjusted to keep the ribbon flat on the label and prevent ribbon mistracking (wrinkling or tearing). Ribbon wrinkling is indicated by white space and voids on printed labels (see Figure 5-16) and can be eliminated by increasing the tension exerted on the ribbon by the plate. Decrease the tension to eliminate ribbon tearing.



***Figure 5-16 Sample of Ribbon Wrinkling***

To stop ribbon wrinkling or tearing, proceed as follows.

1. Feed a fresh section of ribbon under the print head and wind it onto the ribbon take-up spool. Make sure the ribbon feeds straight under the print head and is properly positioned over the label with no folds or creases.
2. Loosen the two ribbon guide plate screws (see Figure 5-17) and move the ribbon guide plate toward the front panel to increase tension on the ribbon or toward the rear panel to decrease tension (whichever is needed).



**Figure 5-17 Ribbon Guide Plate**

**Sample Adjustment**

To adjust the print when using standard, smooth, thermal transfer printing labels, use the following sample procedure.

1. Turn the print head pressure knob fully counterclockwise (see Figure 5-9).
2. Turn the print head position dial to the “0” position (see Figure 5-14).
3. Set the printer to print at 4 ips.
4. Set the print density to -15 (see “Print Density Adjustment”).
5. Output several labels using the self test (see Section 3).
6. Look for uniform print quality across the width of the label.
7. If the print quality appears normal, turn the print head position dial to the “1” position (see Figure 5-14) and run the self test again.
8. As print quality declines (breaks up), turn the print head pressure knob clockwise until the broken characters have the same density across the width of the label (as seen on the self-test). This ensures that the print head is properly balanced over the entire label. Verify by watching the label move straight through the label feeding path without skewing.

9. Readjust the print head pressure to obtain the best possible print quality within its range.
10. Readjust the print density to obtain the best print quality within its range.

---

**NOTE:** If you change the print speed, you may need to readjust the print density.

---

To adjust the print head for thick or stiff labels, turn the pressure knob clockwise to increase pressure and then follows steps 1 through 10.

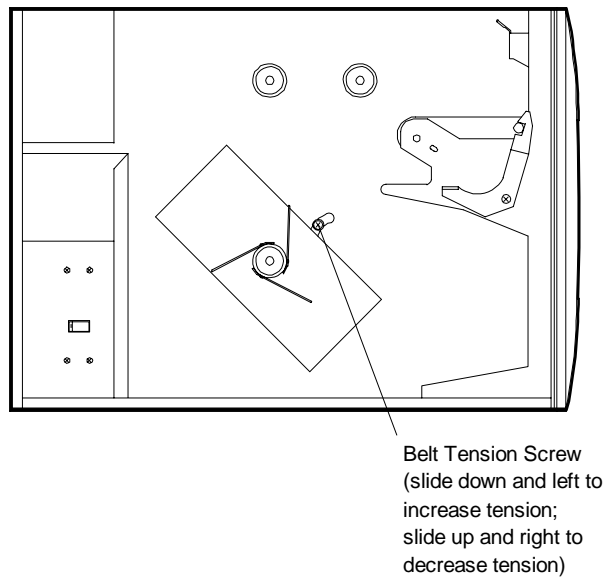
### ***Timing Belt Tension Adjustment (Model 48 and 412)***

During normal printer operation, the timing belt tension gradually loosens over time and affects ribbon feeding. As the belt wears and stretches, it causes the ribbon to be wound more and more loosely onto the ribbon take-up roller, and you end up with a larger than necessary, cumbersome take-up roll that occupies space inside the printer and may interfere with operation. Finally, when the timing belt becomes too loose, the ribbon feeds out the label exit slot along with the label (instead of being wound onto the ribbon take-up roller).

To adjust the timing belt so there is enough tension to drive the ribbon correctly and wind it more tightly onto the spool (or if you replace the belt during maintenance), proceed as follows.

1. Open the left side cover and remove the label roll.
2. Locate the belt tension pulley screw next to the label supply spindle (see Figure 5-18).
3. To increase belt tension, loosen the tension screw and move it downward in the slot (Model 48 and 412 only).

To decrease tension, loosen the tension screw and move it up in the slot.



**Figure 5-18 Timing Belt Tension Screw**

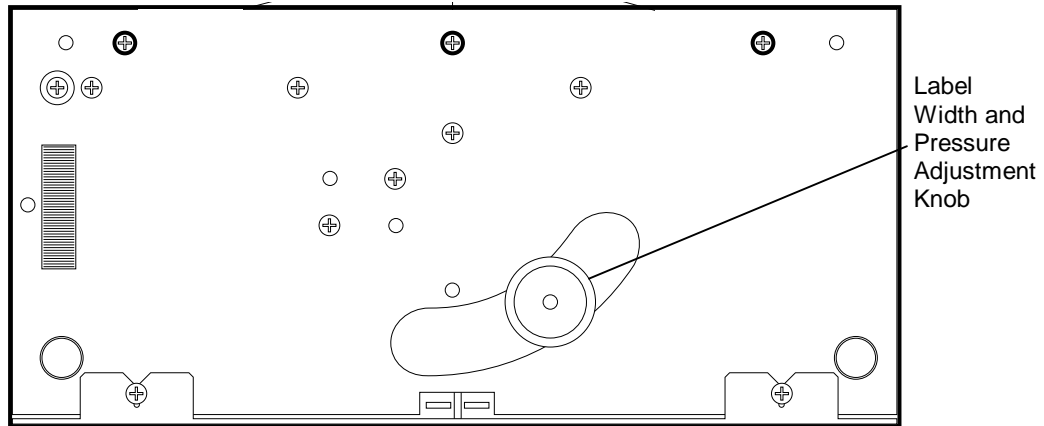
## **Model 88**

The following mechanical adjustments to the Model 88 may have to be done periodically.

- label width and pressure adjustment
- print head position dial for label thickness
- ribbon guide plate adjustment

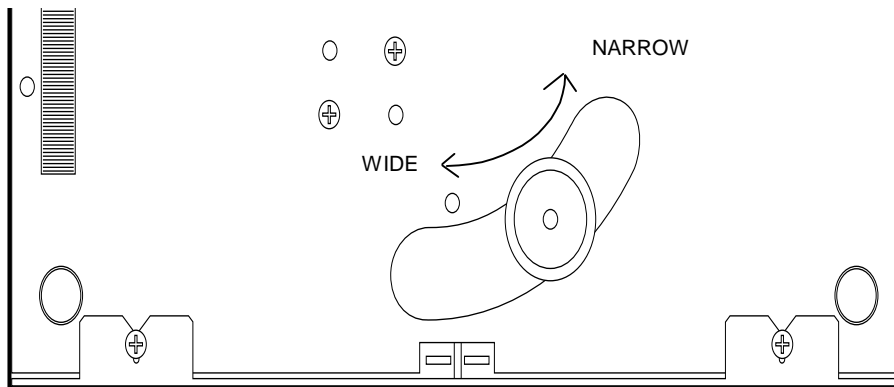
### ***Label Width and Pressure Adjustment (Model 88)***

The label width adjustment and label pressure adjustment are dual functions of the same print head mechanism. To adjust the label width for a size less than eight inches, slide the circular knob (see Figure 5-19) toward the inside of the printer.



**Figure 5-19 Label Width and Pressure Adjustment (Model 88)**

When adjusted at the factory, the print head is set for the widest possible position (toward “WIDE”). Incorrect print head adjustment can cause problems such as ribbon wrinkling, poor quality, and media jam errors.

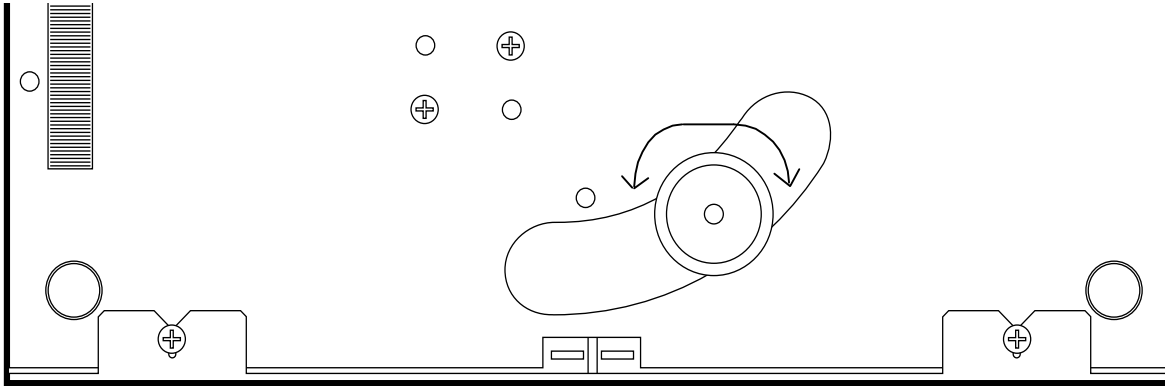


**Figure 5-20 Label Width Knob (Model 88)**

The label pressure is adjustable for use with thicker media such as polyester or card stock materials. These materials are less pliable and may require additional pressure to mold them around the print head.

The label pressure is set at the factory to work with most media materials. To adjust for thicker materials, turn the circular knob clockwise (this increases the amount of pressure) or counterclockwise (to decrease pressure). See the following figure.

---

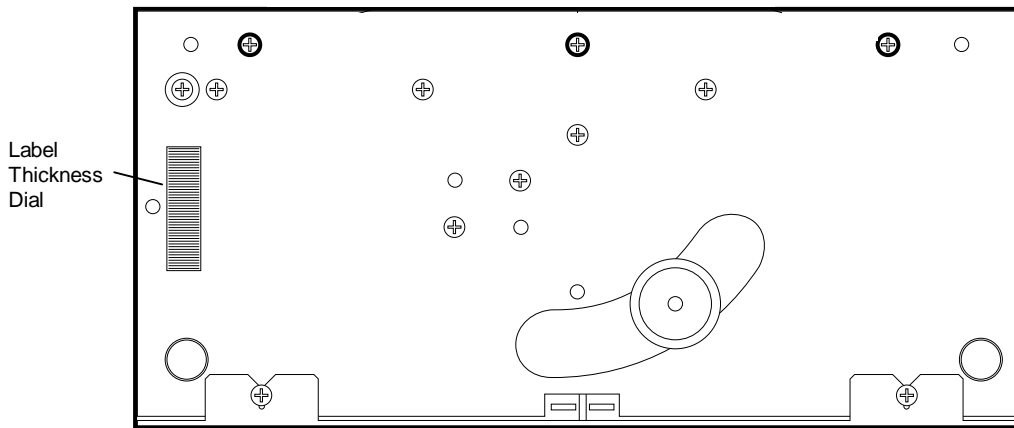


**Figure 5-21 Label Pressure Adjustment Knob (Model 88)**

**CAUTION:** Too much pressure can cause poor print quality.

**Label Thickness Dial (Model 88)**

The label thickness dial (see Figure 5-22) moves the print head forward or backward relative to the center of the platen. The label thickness is set at the factory for the best possible adjustment for label stock. At the factory setting, the print head elements are positioned over or slightly in front of the top center of the platen.



**Figure 5-22 Label Thickness Dial (Model 88)**

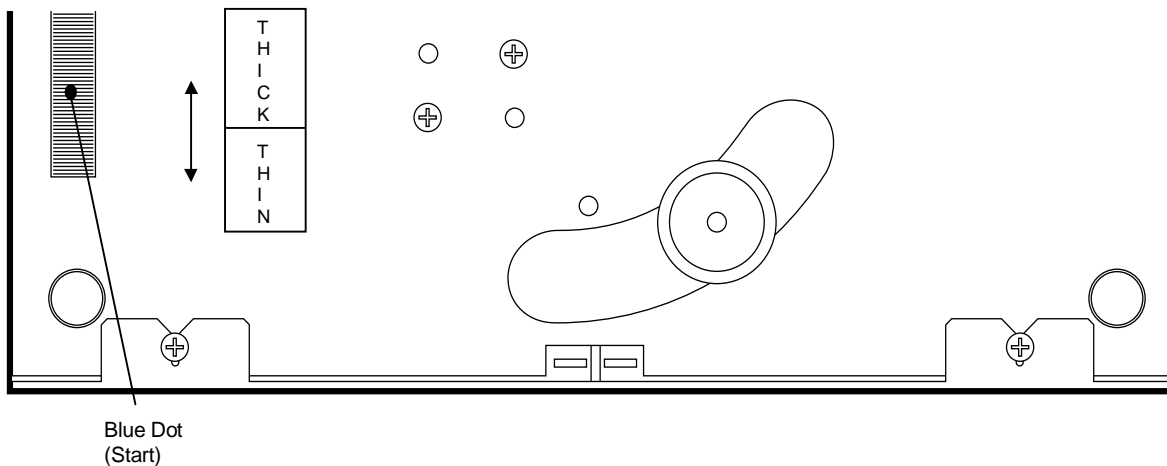
The label thickness dial is conveniently marked for adjustment (see Figure 5-23). The single blue dot on top of the dial indicates the starting position. To adjust, turn the dial toward the desired setting.

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**NOTE:** Before moving the dial, loosen the 2 mm hex screw located next to the dial. Tighten the hex screw after making the necessary adjustment.

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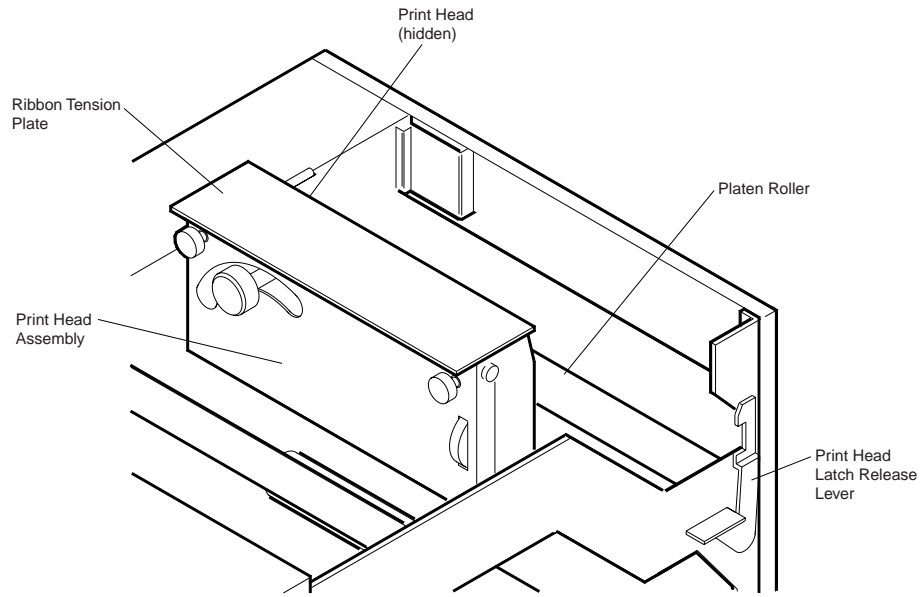
Turning the dial 180° displays the two red dots that indicate that you have reached the full adjustment for that direction, and the adjustment will reverse direction from that point on.



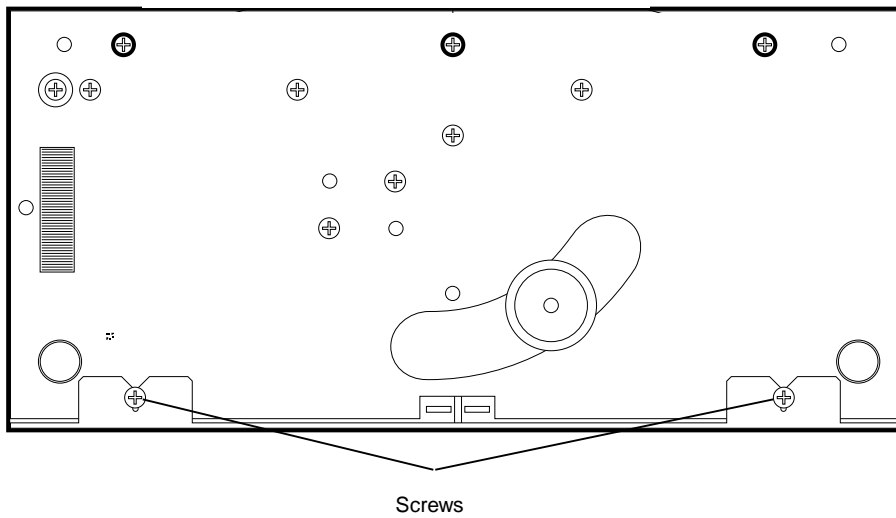
**Figure 5-23 Label Thickness Dial Adjustment (Model 88)**

### ***Ribbon Tension Plate (Model 88)***

Adjust the ribbon tension plate to eliminate ribbon wrinkling. To adjust the plate (see the following figure), loosen one (or both) screws as shown in Figure 5-25. Position the plate so that the ribbon is tight across the length of the guide plate. Rotate the ribbon take-up spool a few turns (while the printer is turned off) to make sure the ribbon is tight across the guide plate. Then tighten the screw(s).



**Figure 5-24 Ribbon Tension Plate (Model 88)**



**Figure 5-25 Ribbon Tension Plate Screws (Model 88)**

## PRINT DENSITY ADJUSTMENT

The print density adjustment (from the control panel) is used to fine tune print quality. If all your prior adjustments have not produced the quality of output you require, try adjusting the print density. See Section 3 for instructions on using the control panel.

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**NOTE:** Print density and print speed go hand in hand and should be adjusted together from the control panel.

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**CAUTION:** Print density can adversely affect rotated (vertical bar codes).

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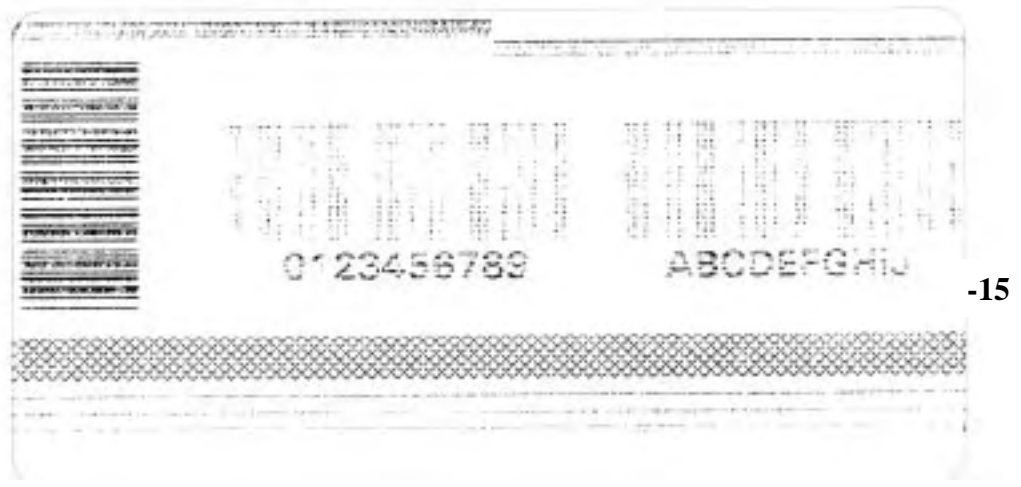
If printed output is too dense or filling in, try reducing print density. If that doesn't help, try increasing the print speed. If output is too light or breaking up, try increasing print density and/or reducing print speed.

Print density can be adjusted from -15 to +15 with "0" as the default setting. The following examples show the differences in that range.

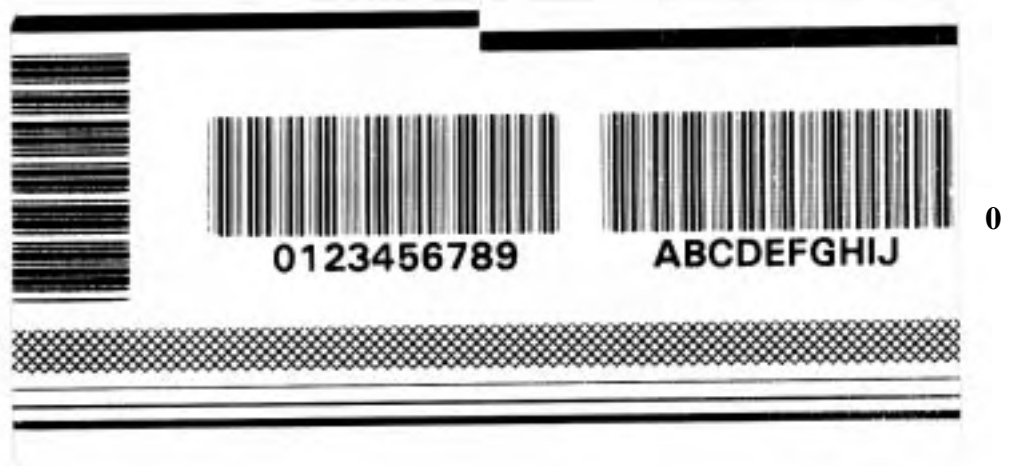
---

**NOTE:** The actual size of the printouts is smaller than shown.

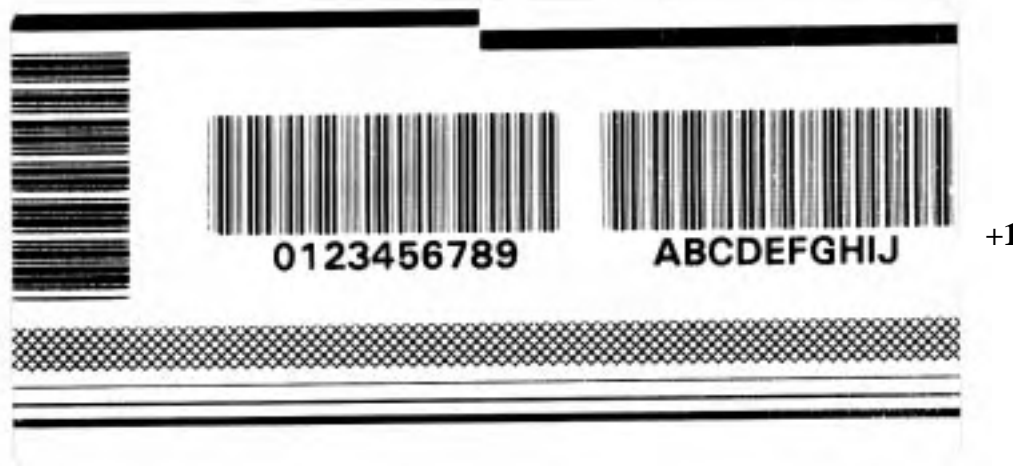
---



-15



0



+15

Figure 5-26 Print Density Samples

Table 5-1 lists the print speeds supported for each IntelliBar model. Use this list as a reference when adjusting the print speed and density from the control panel.

**Table 5-1 IntelliBar Print Speeds**

<b>Print Speed (in./sec. (mm/sec.))</b>	<b>Model 88</b>	<b>Model 48</b>	<b>Model 412</b>
0.6 (15)	X	X	X
0.8 (20)	X	X	X
1.2 (30)	X	X	X
1.6 (40)	X	X	X
2.4 (60)	X	X	X
3 (80)	X	X	X
4 (100)	X	X	X
5 (120)	X	X	X
6 (150)	X	X	X
7 (200)	X	X	X
8 (250)	X	X	X
12 (300)			X

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**NOTE:** The information in this section is subject to change without notice. This information is provided "as is" without either express or implied warranty. *IntelliTech* International, Inc. disclaims any and all warranties with regard to this information. *IntelliTech* shall not be liable in any event for any special, indirect or consequential damages or any damages whatsoever resulting from loss of data, profits or use, for any reason or in any action, arising out of or in connection with the use or performance of this information.

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## Section 6

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# Troubleshooting

[Jump to Section 5](#)

This section contains troubleshooting information for isolating problems in the printer to a field-replaceable consumable item (paper and ribbon) or printer assembly.

Primary troubleshooting aids include the alert LED on the control panel and control panel LCD display messages. Troubleshooting procedures include eliminating paper jams and diagnosing mechanical and electrical malfunctions.

### TROUBLESHOOTING THE PROBLEM

Diagnosing a print quality problem can sometimes be difficult and time consuming, especially if you are doing it over the phone. Here are some tips to determining the origin of the problem. A sample question form is available later in this section.

1. Gather as much information as you can on what type of media (ribbon and label material) is being used. This information should include:
  - Size of label material.
  - Material type (i.e. polyester, paper, card stock).
  - Size of ribbon and type of ribbon.
  - Whether the label is die-cut or continuous stock.
2. Gather information on the printer setup. This information should include:
  - Print speed used.
  - Density settings.
  - Print head settings.

See “Menu Tree” in Section 3 for information on how to use the control panel to determine the printer setup.

3. Print a copy of all test pages and examine them closely. See “Self-Test” in Section 3 for a description of the available test pages for the printer.
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**NOTE:** Always perform the self tests to ensure that the machine is operating correctly.

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4. Make sure the media is within specification and that the print head settings are correct for the media. See “Label and Ribbon Requirements” in Section 2 for media specifications.
5. Check the print speed to see if an adjustment is needed in speed to correct the problem. Table 5-1 in Section 5 lists IntelliBar print speeds.
6. Make sure the print head is securely mounted to the housing.
7. Enter the maintenance menu and check that the print head resistance value matches the print head. See “Menu Tree” in Section 3 for information on how to use the control panel to enter the maintenance menu.
8. If the print output exhibits light or dark print, check the print density level. See “Print Density Adjustment” in Section 5 for more information.
9. Examine the ribbon for wrinkle during printer operation. If wrinkling occurs, adjust the ribbon guide plate (see “Mechanical Adjustments” in Section 5 for information on how to adjust the guide plate for your printer).
10. Place pressure on the print head housing and look for dramatic improvement in print quality.
11. Reset to the factory defaults. See “Menu Tree” in Section 3 for information on how to use the control panel to restore the printer default settings.

## USING LCD DISPLAY ERROR MESSAGES

Table 6-1 lists simple troubleshooting procedures for the LCD display error messages.

**Table 6-1 LCD Display Error Messages**

Status Message	Corrective Action
<b>Engine Errors</b>	
RIBBON OUT	<p>Ribbon sensor detects no ribbon.</p> <ul style="list-style-type: none"> <li>• A new ribbon roll needs to be installed. See Section 2 for installation steps.</li> <li>• The label roll is not installed correctly under the print head, blocking ribbon detection. Install the label roll properly, making sure to feed the label liner under the label sensor plate. See Section 2 for installation procedures.</li> </ul>

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<ul style="list-style-type: none"> <li>• Ribbon leader is under ribbon sensor, blocking ribbon detection. Rotate take-up spindle to move leader away from sensor.</li> <li>• Replace faulty ribbon sensor (for more information, call <i>IntelliTech</i> International, Inc. at 800-694-3034).</li> </ul>
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**Table 6-1 LCD Display Error Messages (cont'd)**

Status Message	Corrective Action
<b>Engine Errors (cont'd)</b>	
CUTTER ERROR	<p>The controller senses an error in cutter operation.</p> <ul style="list-style-type: none"> <li>• The printer is configured in “Cut-Off” mode without having the cutter option installed.</li> <li>• The cutter cable is not properly connected to the control panel board.</li> <li>• The cutter blade is jammed or the cutter is faulty. Clear the jam or replace the cutter (for more information, call <i>IntelliTech</i> International, Inc. at 800-694-3034).</li> </ul>
LABEL OUT	<p>Label sensor detects no label.</p> <ul style="list-style-type: none"> <li>• A new label roll needs to be installed (see Section 2).</li> <li>• Label media improperly loaded (the label media should be under label sensor).</li> <li>• Label sensor needs adjusting (for more information, call <i>IntelliTech</i> International, Inc. at 800-694-3034).</li> <li>• More than one label missing from release paper (liner).</li> </ul>
MEDIA JAM	<p>IntelliBar cannot measure label length or gap.</p> <ul style="list-style-type: none"> <li>• Sensitivity of label sensor needs adjustment (for more information, call <i>IntelliTech</i> International, Inc. at 800-694-3034).</li> <li>• Wrong media in use; change to label type that matches sensitivity setting of label sensor.</li> <li>• If the “MEASURE LABEL, FIXED” parameter is set from the control panel and the value is set for a specified length, a media jam occurs if you load labels of a different length.</li> <li>• If “MEASURE LABEL, AUTOMATIC” is set from the control panel with 6 in. labels loaded (for example), a media jam will occur if you load labels of another size. You must do another auto measure, i.e., turn</li> </ul>

printer off and then on.

**Table 6-1 LCD Display Error Messages (cont'd)**

Status Message	Corrective Action
<b>Engine Errors (cont'd)</b>	
MEDIA JAM (cont'd)	<p>Label sticking or slipping due to improper label installation or the build up of label residue, dirt, or foreign material under the print head or on the platen roller. See "Loading Labels" in Section 2 for label installation procedures; see "Cleaning" in Section 5 for cleaning procedures.</p> <p>Mechanical failure:</p> <ul style="list-style-type: none"> <li>• Replace stepper motor (for more information, call <i>IntelliTech</i> International, Inc. at 800-694-3034).</li> <li>• Bad driver</li> <li>• Bad label sensor</li> </ul>
PRINT HEAD OPEN	<p>Appears when printer is online or offline and the print head is not closed and latched. When it occurs, printer automatically goes offline. Close and latch print head, and press <b>Online</b> button. "READY" appears in the control panel display.</p>
SUB RAM ERROR	<p>Cutter option failed to cut or blade is jammed. Clear the jam or replace the cutter option.</p>
HEAD POWER LOAD	<p>Main board controller requires service (for more information, call <i>IntelliTech</i> International, Inc. at 800-694-3034).</p> <p>Print head and/or power supply problem. Drawing too much current. Reset the printer by turning it off and then on.</p>
HEAD OVERHEAT	<p>Print head has overheated. The printer stops printing. It will resume printing when the print head cools down. Reset the printer.</p>
FRONT DOOR OPEN	<p>Front panel is not fully closed and latched.</p>

**Table 6-1 LCD Display Error Messages (cont'd)**

Status Message	Corrective Action
<b>Engine Errors (cont'd)</b>	
<b>PCL Errors</b>	
FATAL ERROR	No fonts on main board or PCL failure. Replace main board (call <i>IntelliTech</i> International, Inc. at 800-694-3034 for more information).
OUT OF MEMORY	Job requires more memory than is available.
ENGINECOMM ERROR	Image processor (main) side of main board receives status or command that it cannot interpret. Replace main board (call <i>IntelliTech</i> International, Inc. at 800-694-3034 for more information).
INSUF. MEMORY FOR PAGE PROTECT	Add additional SIMM memory to enable page protection (see Section 4 for SIMM memory installation procedures).
<b>Serial Interface Errors</b>	
OVERRUN ERROR	Printer could not keep up with host. Use a lower baud rate.
PARITY ERROR	Printer received the wrong parity bit from the host. Check the host protocol or the serial cable connections.
FRAMING ERROR	Printer received an invalid stop bit for a character. Check the host protocol or the serial cable connections.
BREAK INTERRUPT	Host system has broken or is holding communications open. Check the host protocol.
SERIAL OVERFLOW	Host system continues to send data after the printer has signaled that it cannot accept more data. Check the host protocol.

## CORRECTING PRINT QUALITY

Table 6-2 lists print quality troubleshooting procedures.

**Table 6-2 Print Quality Problem Solving**

Problem	Corrective Action
Print quality too light	<ul style="list-style-type: none"><li data-bbox="824 489 1393 611">• Wrong ink on media; for example, wax ribbon on synthetic label stock. Ensure that you have the correct combination of ribbon and label material (see Section 2).  If necessary, use a different ribbon or label stock.</li><li data-bbox="824 753 1393 940">• Adjust the print head balance lever and/or pressure knob, depending on the label material being used (see “Print Head Balance Lever for Label Width” and “Print Head Pressure Knob for Label Thickness” in Section 5).  See also “Sample Adjustment” in Section 5.</li><li data-bbox="824 1031 1393 1121">• Increase print density using control panel menu until quality is acceptable (see “Print Density Adjustment” in Section 5).  The factory default level is 0. If application software controls print density, the LCD display will not change from the factory default. If this is the case, use the software command (as described in the <i>Programmer’s Reference Guide</i>) and run the self-test to check print density.</li><li data-bbox="824 1398 1276 1425">• Use different ribbon or paper stock.</li></ul>

**Table 6-2 Print Quality Problem Solving (cont'd)**

Problem	Corrective Action
Dark print	<p>Too much print head energy can cause printed characters (especially serifs) to spread or blossom (character fill-in).</p> <ul style="list-style-type: none"> <li>• Reduce print density using the control panel (see “Print Density Adjustment” in Section 5) or software (see the <i>Programmer’s Reference Guide</i>).</li> <li>• Increase the print speed using the control panel or software and recheck print density (see “Print Density Adjustment” in Section 5).</li> </ul>
Uneven density (light or dark print only on one side or in middle of label)	<ul style="list-style-type: none"> <li>• Adjust print head balance (see “Print Head Balance Lever for Label Width” in Section 5 ).</li> <li>• A label or foreign material may be wrapped around platen roller. Check platen roller, remove foreign material, and clean platen as necessary (see “Cleaning” in Section 5).</li> </ul>
Label mistracking (label rides over the label guides)	<ul style="list-style-type: none"> <li>• Check the position of the label width guides (see “Label Width Guides” in Section 5).</li> <li>• Adjust print head balance lever for print head balance across width of label (see “Print Head Balance Lever for Label Width” in Section 5).</li> </ul>

**Table 6-2 Print Quality Problem Solving (cont'd)**

Problem	Corrective Action
Ribbon wrinkle	<p data-bbox="824 338 1383 489">Reload the ribbon (see Section 2). Ensure that the supply ribbon spool is firmly seated to the ribbon supply spindle. Check that the ribbon film is tracking squarely through the print head with no creases or wrinkles.</p> <p data-bbox="824 541 1383 758">Reduce the print density using the control panel menu (see “Print Density Adjustment” in Section 5) or software (see the <i>IntelliBar Programmer’s Reference Guide</i>). Excessive print density causes the ribbon to stick to the label facestock during printing, adversely affecting ribbon tracking.</p> <p data-bbox="824 810 1354 863">Adjust ribbon tension plate (see “Ribbon Guide Plate” or “Ribbon Tension Plate” in Section 5).</p> <p data-bbox="824 915 1354 1003">Adjust print head balance lever for print head balance across width of label (see “Print Head Balance Lever for Label Width” in Section 5).</p> <p data-bbox="824 1056 1383 1272">Turn the print head position dial clockwise (see “Print Head Position Dial for Label Thickness” in Section 5); also, decrease the print head pressure by turning the print head pressure knob counterclockwise (see “Print Head Pressure Knob for Label Thickness” in Section 5).</p>
Print too dark; bar codes bleed together	<p data-bbox="824 1293 1333 1346">Reduce print density using the control panel menu (see Section 3).</p> <p data-bbox="824 1377 1333 1409">Poor match between label and ribbon media.</p> <p data-bbox="824 1430 1383 1518">Decrease the print head pressure by turning the print head pressure knob counterclockwise (see “Print Head Pressure Knob for Label Thickness”).</p>
Data sent to printer, but no label prints	<ul data-bbox="824 1545 1341 1650" style="list-style-type: none"> <li data-bbox="824 1545 1341 1598">• Check data cable for loose connection to interface port (see Section 2) or defect.</li> <li data-bbox="824 1619 1203 1650">• Reboot computer and printer.</li> </ul>

## TOP-LEVEL PROBLEM SOLVING

Table 6-3 lists top-level troubleshooting procedures for isolating a problem to a field-replaceable printer assembly.

**NOTE:** To have a printer repaired, place a service call to *IntelliTech* International, Inc. at 800-694-3034.

You will be required to fill out and fax the service request form provided at the end of this section.

**Table 6-3 Top-Level Problem Solving**

Problem	Corrective Action
Control panel POWER indicator OFF.	<ul style="list-style-type: none"> <li>• Verify that the power cord is connected to a live, properly grounded AC power outlet.</li> <li>• Check that the power switch is turned on.</li> <li>• Check cable connections from power supply to main board.</li> <li>• Check that power supply jumper is set to match 110 volt or 220 volt power source (call 800-694-3034 for service).</li> <li>• Check power supply fuse and replace as necessary (call 800-694-3034 for service).</li> <li>• Replace power supply (call for service).</li> </ul>
Ribbon and paper do not feed. Control panel POWER indicator ON.	<ul style="list-style-type: none"> <li>• Is printer online? Press <b>Online</b> button.</li> <li>• Is Alert LED on and does message appear in control panel LCD? See Table 6-1 and take corrective action.</li> <li>• Check cable connections between main board and ribbon and paper empty sensors.</li> <li>• Check cable connections between stepper motor and main board.</li> <li>• Check cable connections between print head and power supply.</li> <li>• Check cable connections between power supply and main board.</li> <li>• Replace stepper motor (call for service).</li> <li>• Replace main board (call for service).</li> </ul>

## GETTING SERVICE AND SUPPORT

This section provides information on getting service and support for your IntelliBar printer. In addition, this section contains warranty information that you should read.

If you have a problem with your printer, first review Section 5, Cleaning and Adjustments. If you still have a problem, continue with the suggestions that follow.

### Maintenance Programs

*IntelliTech* International, Inc. offers three maintenance choices in addition to standard printer warranties: on-site service, extended factory warranty, and factory repair.

#### ***On-Site Service***

On-site printer service for IntelliBar printers is provided by the IBM Printing System Company. IBM Printing Systems services printers exclusively. As a result, they deliver an unequaled degree of expertise and skill in printer technical knowledge and repair. *IntelliTech*'s on-site program offers prompt and professional printer repair service at your location in the United States, Canada and Puerto Rico.

On-site service provides Monday through Friday, 8:00 AM to 5:00 PM, coverage. Response time from your call to arrival of an IBM customer engineer is four hours within a fifty mile radius of an IBM Printing System office. On-site service costs \$468 per printer, per year (U.S. and Puerto Rico only, Canada slightly higher).

#### ***Extended Factory Warranty***

*IntelliTech* offers a return direct to factory, extended warranty program for our printers. The extended warranty lengthens *IntelliTech*'s standard warranty in yearly increments. *IntelliTech* will repair your printer at our depot within two business days of our receipt and ship it back to you via UPS ground delivery service. Federal Express, next day air, is also available for an additional charge. (Customers are responsible for freight in and insurance costs.) The *IntelliTech* extended warranty cost is \$350 per year, per printer, payable in advance.

#### ***Post Warranty Factory Repair Program***

*IntelliTech* offers factory depot repair for out of warranty printers. Post-warranty repair service is charged on a time and material basis. Labor is currently charged at \$75/hour. Materials are charged at the prevailing rate of the IntelliBar Repair Components Price List. Estimates are available, if requested in advance and incur a minimum of an one hour labor charge if repairs are not performed. After receipt of your printer, *IntelliTech* will ship the repaired printer back to you within five business days via UPS ground.

For additional information on the above programs, or to purchase an extended factory warranty or an on-site service program, please call *IntelliTech* at **1-800-694-3034**.

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**NOTE:** All pricing is subject to change without notice. If an *IntelliTech* Customer Care Service representative determines that a technical problem cannot be resolved via telephone, a product return authorization will be issued. The customer is responsible for proper packaging of the product for shipment, freight costs, and insurance costs.

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## WARRANTY AND SERVICE PROGRAMS

The following *IntelliTech* International, Inc. **Limited Warranty** policy and procedures are described in this subsection:

- IntelliBar Printer Warranty
- IntelliBar Printer Option Warranty
- IntelliBar Printer Ribbon Warranty
- IntelliBar Replacement Parts
- Non-Warranty Service and Repair

*IntelliTech* International, Inc. products are warranted in accordance with the terms of this **LIMITED WARRANTY**. Users are cautioned that product performance is affected by system configuration, software, the application, customer data, and operator control of the system, among other factors. Products are considered to be compatible with many systems; the specific functional implementation by the consumer of the Product may vary; therefore, the suitability of a product for a specific purpose or application must be determined by the consumer and is not warranted by *IntelliTech* International, Inc.

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**NOTE:** Warranty varies from product to product for all *IntelliTech* International, Inc. products. Please contact *IntelliTech* International, Inc. to receive warranty information on any products in question.

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## **IntelliBar Printer Warranties**

IntelliBar printers are warranted to be free from defects in material and workmanship, and *IntelliTech* International, Inc. agrees to repair or replace any part of the unit which proves defective under these terms and conditions:

- Warranty period
- Who is protected
- What is not covered
- What *IntelliTech* will pay for and what we will not pay for
- How to get Warranty Service
- Warranty Return Procedure
- Limitation of Damages and Implied Warranties

### ***Warranty Period***

Printer Parts and Labor are warranted for one (1) year from the date of the first consumer purchase provided the customer can show proof of purchase. The print head is a consumable item and is warranted for ninety (90) days from date of the first consumer purchase or 500,000 linear printed inches, whichever occurs first.

### ***Who is Protected***

This warranty may be enforced only by the first end-user-purchaser, and it is not transferable.

### ***Who is Not Covered***

The above warranty is contingent upon the proper use of the Products and will not apply to Products on which the original identification marks have been removed or altered. In addition, this warranty shall not apply to defects or failures due to:

1. Accident, neglect or misuse, fire, water, lightning or other acts of nature, improper storage, unauthorized modification, or failure to follow instructions supplied with the Printer.
  2. Failure or defect of electrical power, external electrical circuitry, air-conditioning or humidity control.
  3. The use of items not provided by *IntelliTech* International, Inc.
  4. Unusual stress.
-

5. Modification or alteration of the printer by any party other than *IntelliTech International, Inc.*
6. Misadjustment, repair or attempted repair or service of the printer by any party other than *IntelliTech International* or an authorized representative.
7. Damage caused by shipment of the printer (claims must be submitted to the carrier).
8. Installation or removal of the Printer.
9. Any other cause which does not relate to a printer defect. Cartons or any accessories used in conjunction with the Printer.
10. Cartons or any accessories used in conjunction with the Printer.

***What IntelliTech International, Inc. Will Pay for and What We Will Not Pay For***

*IntelliTech International, Inc.* will pay labor and material expenses for covered items. Also we will cover the cost of prepaid return freight to the end user. But we will not pay for the following:

1. Removal or installation charges.
2. Costs of initial technical adjustments (setups) including adjustment of user controls. Shipping insurance charges.
3. Insurance is the responsibility of the end user. *IntelliTech International* will prepay insurance and bill the end user for return shipment of repaired printers at the end user's request.
4. Freight costs to return the printer to *IntelliTech International, Inc.* for repair.

***How to Get Warranty Service***

Customers should call the *IntelliTech International* Customer Service and Support line at 800-694-3034. Please have the following information ready for the Customer Service Representative:

- Model number
- Serial number
- Date of purchase

To obtain a warranty repair Return Material Authorization (RMA) number, a Service Request Form (SRF) must be filled out and returned to *IntelliTech International*. See “Fax Form” later in this section for a copy of the Service Request Form (or you may obtain an SRF from *IntelliTech International* by calling our technical support staff at (800) 694-3034. The customer MUST submit a completed SRF along with a dated copy of the sales receipt or other dated proof of purchase in order to receive *IntelliTech International's* warranty repair service.

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### ***Warranty Return Procedure***

Printers returned under warranty must follow *IntelliTech* International's RMA procedures. Printers must be returned directly to an *IntelliTech* International repair depot for warranty service. *IntelliTech* International, Inc. will either repair your printer or replace it with a printer that will be, at *IntelliTech* International's option, new or like new, and meets all of the specifications of the replaced printer. The repaired or replaced printer will be shipped to you at *IntelliTech* International's expense within the United States or Canada.

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**NOTE:** All Products returned for service **MUST** be issued an RMA # from *IntelliTech* International prior to return shipment. An RMA may be obtained by calling the *IntelliTech* International Customer Service department. Products returned to *IntelliTech* International without an RMA Number will be refused and returned to the sender at the sender's expense. To receive the warranty services, it is the sender's obligation and expense to ship the Product, freight prepaid, or to deliver it to the *IntelliTech* International repair depot in either the original package or a similar package affording an equal degree of protection. Ribbon and Label Stock ***must be removed*** from the printer prior to shipment and removable spindles must be properly packaged and secured or the printer will suffer shipping damage.

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Product damage suffered during shipment is the responsibility of the sender. Obtaining freight insurance and payment for insurance charges are the responsibility of the Customer.

### ***Limitation of Damages and Implied Warranties***

*IntelliTech* International's sole liability for any defective Product is limited to the repair or replacement of the Product at our option. *IntelliTech* International, Inc. shall not be liable for:

1. Damage to other property caused by any defects in this Product, damages based upon inconvenience, loss of use of the Product, loss of time or data, commercial loss.
  2. Any other damages, whether incidental, consequential or otherwise.
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THIS WARRANTY IS IN LIEU OF ANY OTHER WARRANTY EITHER EXPRESSED OR IMPLIED. INTELLITECH INTERNATIONAL, INC. MAKES NO OTHER WARRANTIES, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. INTELLITECH INTERNATIONAL, INC., SHALL NOT BE LIABLE FOR ANY DAMAGES, WHETHER INCIDENTAL, CONSEQUENTIAL OR OTHERWISE RESULTING FROM DEFECTIVE PRODUCTS. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU. This warranty gives you specific legal rights, and you may also have other rights that vary from state to state.

### **IntelliBar Printer Option Warranty**

*IntelliTech* International, Inc. warrants its IntelliBar printer options to be free from manufacturing defects in materials and workmanship for a period of ninety (90) days after date of purchase by the ultimate end user. Any defective Product will be replaced at no charge if it is returned to the authorized *IntelliTech* Reseller from which it was purchased within the warranty period. (Authorized *IntelliTech* International Resellers must follow the *IntelliTech* International, Inc. RMA policy when returning defective options when they are under warranty.)

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### **IntelliBar Printer Ribbon Warranty**

*IntelliTech* International, Inc. warrants its IntelliBar ribbons to be free from manufacturing defects in materials and workmanship for a period of one (1) year after date of purchase by the ultimate consumer. Any defective Product will be replaced at no charge if it is returned to the *IntelliTech* Reseller from which it was purchased within the warranty period. (Authorized *IntelliTech* International Resellers must follow the *IntelliTech* International, Inc. RMA policy when returning defective ribbons when they are under warranty.)

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### **IntelliBar Replacement Parts Warranty**

*IntelliTech* International, Inc. warrants its IntelliBar replacement parts to be free from manufacturing defects in materials and workmanship for a period of ninety (90) days after date of purchase by the ultimate consumer. Any defective Product will be replaced at no charge if it is returned to the *IntelliTech* reseller from which it was purchased within the warranty period. (Authorized *IntelliTech* International Resellers must follow the *IntelliTech* International, Inc. MRA policy when returning defective replacement parts when they are under warranty.)

THIS WARRANTY IS IN LIEU OF ANY OTHER WARRANTY EITHER EXPRESSED OR IMPLIED. INTELLITECH INTERNATIONAL, INC. MAKES NO OTHER WARRANTIES, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. INTELLITECH INTERNATIONAL, INC. SHALL NOT BE LIABLE FOR ANY DAMAGES, WHETHER INCIDENTAL, CONSEQUENTIAL OR OTHERWISE, RESULTING FROM DEFECTIVE PRODUCTS. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU. This warranty gives you specific legal rights, and you may also have other rights that vary from state to state.

### **Non-Warranty Service and Repair**

Non-warranty service and repair will be performed by *IntelliTech* International, Inc. at the prevailing factory repair rate for IntelliBar printers. Post warranty repair service is charged on a time and material basis. Labor is charged at the prevailing rate. Materials are charged at the prevailing rate of the IntelliBar Repair Components Price List. Estimates are available, if requested in advance and incur a minimum of one-hour labor charge if repairs are not performed. After receipt of the printer, *IntelliTech* International, Inc. will ship the repaired printer back to you within five business days via UPS ground.

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Repairs performed under this policy are warranted for parts and labor for 90 days. Print heads are warranted for 270 days with no limited mileage.

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**NOTE:** All Products returned for service **MUST** be issued an RMA # from *IntelliTech* International prior to return shipment. An RMA may be obtained by calling the *IntelliTech* International Customer Service department. Products returned to *IntelliTech* International without an RMA Number will be refused and returned to the sender at the sender's expense. To receive the warranty services, it is the sender's obligation and expense to ship the Product, freight prepaid, or to deliver it to the *IntelliTech* International repair depot in either the original package or a similar package affording an equal degree of protection. Ribbon and Label Stock *must be removed* from the printer prior to shipment and removable spindles must be properly packaged and secured or the printer will suffer possible shipping damage.

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Product damage suffered during shipment is the responsibility of the sender. Insurance charges are the responsibility of the Customer.

## COMMON QUESTIONS AND ANSWERS

Some of the most commonly asked questions about the IntelliBar printers are listed below. You will also find this information helpful when troubleshooting a particular problem.

**Q. What number do I call for IntelliBar Support ?**

**A.** The following numbers should be used for IntelliBar support:

For technical questions, problems, or service calls, dial 800-694-3034 x209.

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**NOTE:** When calling in a problem, it is very important that you fill out all the required information on the fax form (see "Fax Form" in the next subsection).

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The *IntelliTech* International, Inc. Web site is located at <http://www.intellitech-intl.com>.

**Q. When I change my label stock from a smaller to a larger length I get a media jam error.**

- A. When you change lengths or widths of label stock you must do the following two things.
- Make sure the *label present sensor* is over the label.
  - Reinitialize the printer as follows so the sensor will automatically adjust for label length.
    1. Take the printer off line by pressing the Online button
    2. Hold down the Cancel button for five seconds until the LCD display reads “INITIALIZE”. After initialization completes, place the printer on line by pressing the Online button.

**Q. Can I connect an IntelliBar printer to an AS/400 ?**

- A. Yes, by using IntelliBar AS series printers. The IntelliBar AS Series provides an AFP/IPDS logical controller and twinax or coax connectivity, in addition to RS232 and Centronics interfaces.

For non-IPDS systems, third party connectivity products may be required to connect standard IntelliBar series printers to an AS/400 system. There are several manufacturers of products that allow you to connect the IntelliBar printer to the AS/400. Depending on the specific system network configuration and the printing language used in the system, different connectivity products may be needed.

To connect a standard IntelliBar printer to an AS/400 system, see “Connecting the Communications Interface Cables” in Section 2 and call *IntelliTech* technical support at 800-694-3034.

**Q. Can I connect my IntelliBar to a network ?**

- A. There are different third party manufacturers of after-market network connectivity devices that allow you to connect the IntelliBar printer to a network.
-

These network connectivity products are widely available from vendors of personal computer (PC) products.

**Q. What Windows driver do I use for the IntelliBar printer ?**

- A.** IntelliTech's Windows driver disk includes the drivers for all three IntelliBar models and allows you to address certain functions of the printer through software.

If you do not have the driver disk or you are not using Windows, you can use the HP LJIII driver for the Model 48 and Model 412.

**Q. How do I print multiple copies of the same label ?**

- A.** You can print multiple copies of the same label by utilizing the PCL command for multiple copies. A typical PCL driver may not always send a copy command to the printer when multiple copies are requested. In this case, multiple copies can be selected through the printer's Menu mode.

**Q. My printout is shifting the data sideways.**

- A.** Turn Page Protect on (found in the Configuration menu ) and add additional memory.

**Q. What is an error 7 ?**

- A.** There are certain circumstances where the imaging of data and the printing cycle become unsynchronized. This situation only occurs when Page Protect is OFF. The error can be cleared by turning the printer off and then on again. Turning Page Protect ON from the Configuration menu and adding additional memory should solve the problem.

**Q. My ribbon is moving and wrinkling.**

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- A. Make sure you have the correct print head settings for your application. If this does not solve the problem, adjust the ribbon tension plate.

**Q. When I turned on my printer, the display went blank or the Power and Alert lights flash.**

- A. Check the revision level of your U1 chip on the main board. If it is below revision 2.10, you need to upgrade. A free upgrade chip will be sent out to you as soon as you call the technical support line and give the required information.

**Q. Does the IntelliBar have internal bar code generation capability ?**

- A. The IntelliBar Models 48, 412, and 88 have internal bar code generation capability. Bar codes and fonts are created by ESC codes that are provided in the *IntelliBar Programmer's Reference Guide*.

*IntelliTech* can provide you with a chip set and ESC codes for your printer if you do not have the current firmware.

*IntelliTech* recommends that you be familiar with PCL programming before attempting to access the printers commands. Call 800-694-3034 to request this chip set.

**Q. I am using the HP LJ drivers and cannot get close to the edge of the label.**

- A. All HP LaserJet drivers have a default top and bottom, left and right edge margin of approximately 1/4-inch. This default margin is a result of mechanical considerations for the LaserJet printers. The IntelliBar has a 2 mm (.078 in.) top and bottom margin and can print closer to the edge of the label by using the *IntelliTech* Windows drivers.
-

When using a standard LaserJet driver, the first print position will be 2 mm plus 1/4” from the top edge of the label. In order to override the default Laserjet 1/4” margin, the driver must be modified. Customers using the IntelliBar Windows driver can print within 2 mm of the top edge. By using the Print Position function in the Adjustments Menu, the first print line can be further adjusted by plus or minus 3 mm (refer to “Print Position Adjustment”).

**Q. When I set the printer for page rotation, it doesn't work right.**

A. The software overrides the printer's control panel settings. The printer control panel commands will only work for host based machines, not for application driven print jobs.

**Q. I get a constant media jam error upon initialization and can't find a jam.**

A. The Label Sensor may be dirty or out of calibration. Clean the label sensors by following the procedure on page 5-3 of this guide.

If you still have media jam problems after cleaning the sensor, call the *IntelliTech* technical support line at 800-694-3034 for assistance.

**Q. Can I use the IntelliBar with a Macintosh PC ?**

A. Yes. There are several applications that will provide you with the necessary connectivity and label design and print capability (see Table 6-4 and Table 6-5).

**Table 6-4 Macintosh Connectivity Products**

Connectivity Products	Contact Information	Comments
Power Print Networks	IntelliTech International, Inc. 800-694-3034 x202, x207	Power Print Pro provides a complete solution that lets your Macintosh use virtually any PC-compatible printer. Using the HP Laser Jet II driver allows Macintosh users to print to IntelliBar HP PCL5 printers via ethernet.

T-Script	TeleTypesetting 311 Harvard Street Brookline, MA 02146 800-717-4478 Tscript@teletype.com	T-Script for the Macintosh is a postscript to HP PCL protocol translation application that enables IntelliBar printers to interpret Postscript.
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**Table 6-5 Macintosh Label Design and Print Products**

Label Design and Print Products	Contact Information	Comments
Bar Code Pro Filemaster	SNX 692 10 <sup>th</sup> Street Brooklyn, NY 11215 718-499-6293	Bar Code Pro Filemaster for the Macintosh allows users to customize their own database, add bar codes, graphics, video images, text or numbers and print any sort of label imaginable on IntelliBar printers.

**Q. I am using PowerPrint with a Macintosh, and when I print I get white spaces where data should be.**

**A.** This combination of application packages requires you to add more memory to your IntelliBar. *IntelliTech* recommends increasing your memory to a minimum of 2 MB.

**Q. Where can I purchase supplies for my IntelliBar printer?**

**A.** The dealer where you purchased your *IntelliTech* IntelliBar printer can provide you with the necessary supplies. You may also call 800-694-3034 for availability information.

**Q. Where do I buy memory for my IntelliBar?**

- A. You can use 8- or 9-bit, 30-pin, 70-nanosecond (ns) or faster SIMMs with tin connectors on Rev. 12, 13, or 14 main boards. You can use 8- or 9-bit, 30-pin, 60-ns or faster SIMMs on Rev. 15 or Rev. 16 main boards. These are industry-standard memory packages that are widely available from PC vendors.

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**NOTE:** SIMMs must be installed in pairs of the same value. These SIMMs can be found in most PC stores that sell Macintosh computers. See “Memory Expansion” in Section 4 for suggested SIMM upgrades.

**CAUTION:** Illegal combinations of SIMMs (SIMM stick size not listed for Model type) will cause failures or error messages.

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**Q. Where do I buy spare parts such as print heads?**

- A. Your dealer will be able to provide you with the necessary parts or you can call *IntelliTech* at 800-694-3034.

**Q. Why does the printer feed four labels on initialization?**

- A. If the Label Measure mode is set to Automatic (found in the Label Menu), the printer advances a preset number of labels in order to accurately measure the length of the label and gap. This function sets the label length so that the controller can format data for the label. If the same length label will always be used, the Label Measure mode can be set to Fixed. This will eliminate the automatic advancing of labels at power on. If the label length changes while in the Fixed mode, a Media Jam will occur and either Automatic or Operator Panel will have to be selected from the menu in order to enter the new label length.

**Q. My label seems to be missing data, like it has been clipped off.**

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A. HP PCL printers perform pixel-level clipping. When printing characters or graphics, if any portion of the character cell or graphic is outside the printable area, only that portion outside the printable area is clipped. The fix is to make sure you are within the printable area of your application.

**Q. *My label stock gets pulled backwards into the printer. Why?***

A. In non-peel-off or tear-off mode, this can occur if the label stock has been changed without a re-measure of the new stock. To create a re-measure of the label stock, you must turn the power off, load the new label stock, and then turn the power back on. The printer, if set for automatic mode, will do an automatic measure of the stock.

If tear-off or peel-off mode is used, check the Label Present Sensor adjustment (VR5).

**Q. *My Model 412 feeds the label and then retracts it approximately 1/4 inch. Why?***

A. Due to the speed at which the Model 412 prints, it cannot stop within the normal label gap range, so it must stop and then retract the label stock to the first print position of the next label. If you are using a larger label gap, you may not experience this occurrence.

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**NOTE:** The information in this section is subject to change without notice. This information is provided "as is" without either express or implied warranty. *IntelliTech* International, Inc. disclaims any and all warranties with regard to this information. *IntelliTech* shall not be liable in any event for any special, indirect or consequential damages or any damages whatsoever resulting from loss of data, profits or use, for any reason or in any action, arising out of or in connection with the use or performance of this information.

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## **Fax Form**

When calling in a problem or requesting service, please fill out all the required information on the following fax form or fill out your request online at [IntelliTech International - Online Service Request Form](#)

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**IntelliTech International, Inc.**

**RMA#** \_\_\_\_\_

577 Main Street

Hudson, MA 01749

Tel: 800-694-3034 (or 978 568-0370) x209 or x213

FAX: 978-568-9591

Web: [www.intellitech-intl.com](http://www.intellitech-intl.com)

Email: [support@intellitech-intl.com](mailto:support@intellitech-intl.com)

*Advancing the way the world prints labels...*

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**Service Request Form**

In order for us to better fulfill your request for service, we ask that the following questions be answered. Please complete all questions to the best of your knowledge and fax the completed form to the fax number listed above. Service cannot be started until this information is returned to *IntelliTech*. Once the information is received, you will be contacted with a return material authorization (RMA) number. *You must ship the products back to IntelliTech in their original packaging or equivalent, prepay shipping charges, and you must insure the shipment or accept the risk of loss or damage during shipment. IntelliTech pays freight charges on warranty units only when shipping directly back to you, the customer. (Note\*: if you wish to insure return shipment, you must request in writing and you will also be responsible for the return charge.)*

Do not ship the printer back with labels and ribbons loaded on printer. Doing so will cause damage to the printer that you will be held responsible for. Please package labels and ribbons separately if you need to send them.

Estimates are available, if requested in advance, and incur a minimum one-hour labor charge of \$75.00 if repairs are not performed.

Company Information:

Company Name:

\_\_\_\_\_

Shipping Address (no P.O. Box please):

\_\_\_\_\_

\_\_\_\_\_

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Telephone: \_\_\_\_\_ Fax: \_\_\_\_\_

\*I authorize *IntelliTech* to insure the shipment of my repaired property upon its return to my location. \_\_\_\_  
(If blank is left unchecked, the property will not insured.)

Who should we contact regarding the problem:

\_\_\_\_\_

Contact Tel: \_\_\_\_\_ Contact Fax: \_\_\_\_\_

Contact e-mail address: \_\_\_\_\_

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Who sold you the printer? \_\_\_\_\_

**Printer Information:**

Model No. (on back of printer): \_\_\_\_\_ Serial No.: \_\_\_\_\_

Error Message on display:  
\_\_\_\_\_

Type of Ribbon (Express Wax, Dura Wax, Dura Wax/Resin, Rugged Resin, Dura Resin Plus): \_\_\_\_\_

Width of ribbon stock being used (1 inch, 2 inch, etc.): \_\_\_\_\_

Type of label stock (thermal paper, polyester, tag, other): \_\_\_\_\_

Is label stock continuous or die cut:  
\_\_\_\_\_

Are any options installed (cutter, internal rewinder, reflective sensor): \_\_\_\_\_

If so, which: \_\_\_\_\_ Who installed it:  
\_\_\_\_\_

Are you using the printer with a PC, Mac, AS400, or other network: \_\_\_\_\_

What software are you using: \_\_\_\_\_ Rev: \_\_\_\_\_

What drivers are you using:  
\_\_\_\_\_

If you are using a PC, are you using DOS or WINDOWS: \_\_\_\_\_

**\*If under warranty, please provide a copy of bill of sale.**

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**Problem Information:**

Please provide a detailed description of your problem:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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If the printer is operational, please provide a copy of the test page from the configuration menu and place it on a separate piece of paper.

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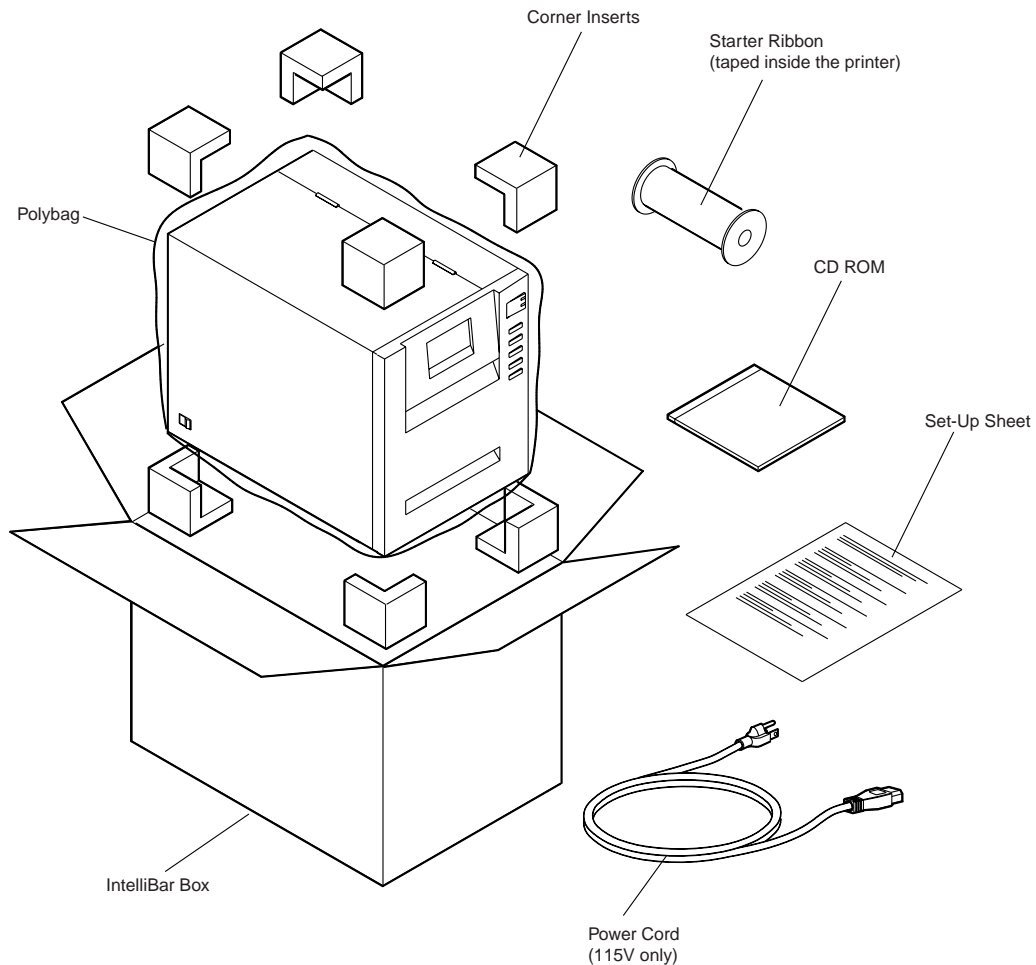
## Appendix A

# Packing

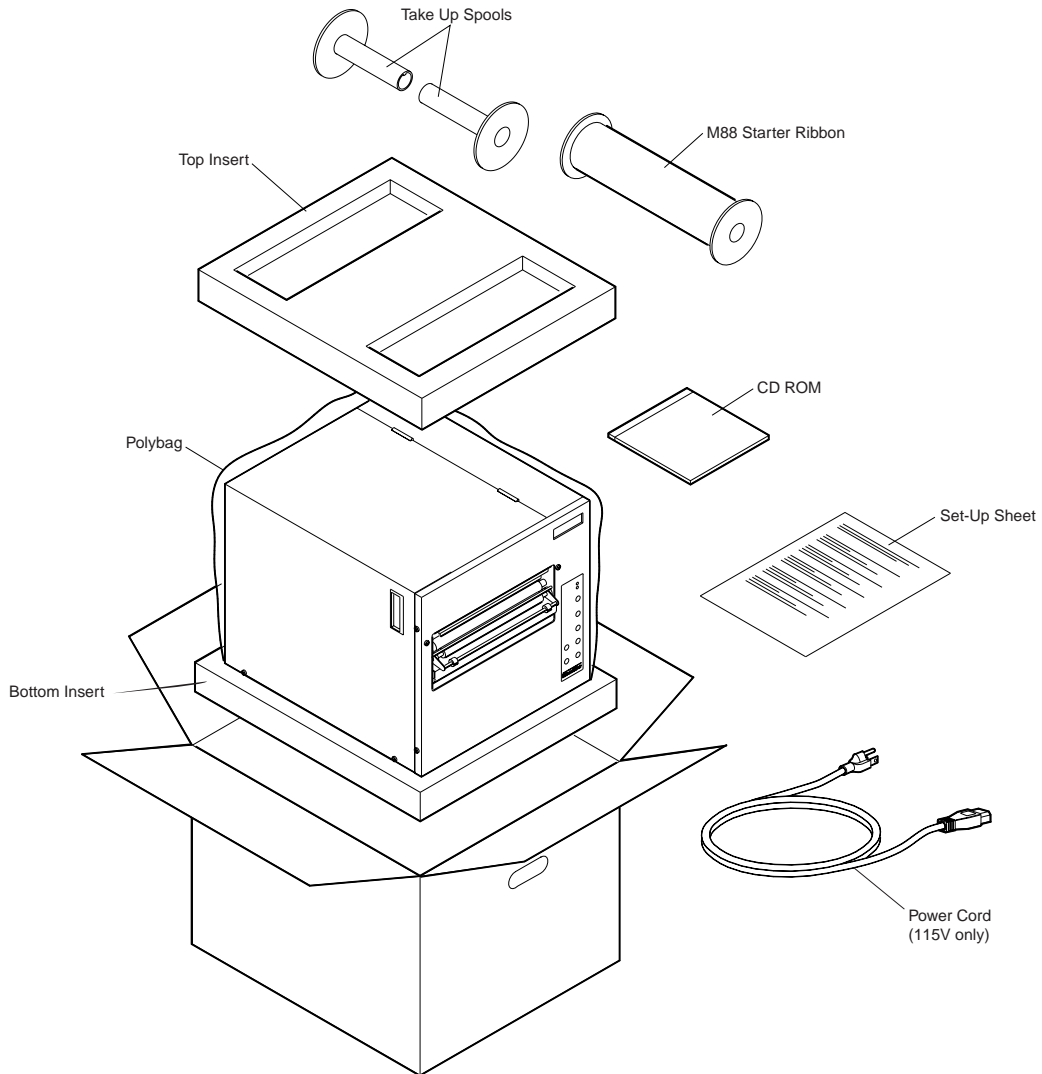
When packing the IntelliBar printer for shipping or moving, reuse the original shipping carton and packing materials. Reverse the unpacking instructions found in the carton.\*

Repack as follows.

1. Remove the label and ribbon rolls from the printer.
2. Make sure the print head is closed and securely latched.
3. Tape the front and left side panels so they stay securely shut during shipment.
4. Pack the printer using the shipping carton and packing material. Figure A-1 and Figure A-2 show the configurations for repacking the Model 48, Model 412, and Model 88 printers in the carton.



**Figure A-1 Packing Configuration (Model 48 and Model 412)**



**Figure A-2 Packing Configuration (Model 88)**

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# Glossary

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**abrasion** -- a scraped spot or area. The result of rubbing or scraping.

**abrasion resistant** -- the ability to withstand scrapes.

**adhesion** -- the bond established on contact between two surfaces.

**adhesive** -- a substance capable of holding materials together by surface attachment.

**aggressive adhesive** -- a tenacious adhesive.

**application temperature** -- the environmental temperature at which the label will be applied.

**backing** -- the liner of pressure-sensitive label stock. Functions as a carrier.

**bar code** -- a binary coding system consisting of vertical marks or bars that, when read by an optical scanner, can be converted into machine language. An automatic identification technology that encodes information into an array of adjacent varying width parallel rectangular bars and spaces.

**bar code character** -- a single group of bars and spaces that represent a specific number, letter, punctuation mark or other symbol. This is the smallest subset of a bar code symbol that contains data.

**bar code density** -- the number of data characters that can be represented in a linear unit of measure. Bar code density is often expressed in characters per inch.

**bar code reader** -- a device used to read a bar code symbol, usually connected to a CRT or personal computer.

**butt cut labels** -- rectangular labels in continuous form, separated by a horizontal face cut.

**coated paper/tag** -- paper or tag stock which has one or both surfaces covered with a substance to produce certain desired properties for use in specific printing processes.

**coatings** -- a layer of material covering the facestock usually to provide a smoother finish.

**continuous** -- labels feeding directly one after another in quantity rather than one at a time.

**deposit buildup** -- the residue accumulated from constant activity in a certain spot.

**die cut** -- the severance line between a pressure-sensitive label and its matrix or adjoining label, made by the cutting edge of a die.

**direct thermal** -- a printing system using heat sensitive paper. Heated areas of the paper turn dark.

**environment** -- the combination of external physical conditions that affect and influence an object.

---

**facestock** -- any paper, film or foil material that can be converted into labels. Retains the printed image.

**fanfold** -- labels with perforations in the release liner so they can be folded into stacks.

**font** -- the appearance (typeface, style, pitch, etc.) of printed characters on a page.

**general purpose permanents** -- permanent adhesives for a wide variety of surfaces and environments.

**high tack** -- a high degree of stickiness to the adhesive.

**infrared** -- the band of light wavelengths too long to be seen by the human eye. Represented by waves that are between 750 and 4 million nanometers.

**ladder** -- vertical bar code -- a bar code or symbol presented in such a manner that its overall length dimension is perpendicular to the horizon. The bars are presented in an array which look like a ladder.

**lamine** -- web of material formed by bonding two or more materials together. In labels, the liner, adhesive and facestock.

**laser scanner** -- an optical bar code reading device using a low energy laser light beam as its source of illumination.

**light pen** -- in a bar code system, a hand held scanning wand that is used as a contact bar code reader held in the hand (wand scanner).

**liner** -- material used as a label carrier which enables the labels to be released.

**media** -- the label or tag stock used as the receptor for the printed image.

**perforations** -- a series of holes used to separate labels on a roll for easy tear off.

**permanent adhesive** -- adhesive capable of long-lasting bond strength to a wide variety of surfaces.

**picket fence** -- horizontal bar code -- a bar code or symbol presented in such a manner that its overall length dimension is parallel to the horizon. The bars are presented in an array which look like a picket fence.

**pin feed** -- round holes in label stock that help maintain the labels proper alignment during printing.

**polyesters** -- strong film that resists moisture, oils and many chemical solvents.

**polyimids** -- a synthetic polymeric resin resistant to high temperatures, wear and corrosion.

**polypropylenes** -- any of a group of durable, thermoplastic resins.

**preprinted** -- printed in advance of use.

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**pressure sensitive label** -- label material with adhesive backing and protective silicone-coated release liner to permit it to adhere instantly to most surfaces with the application of slight pressure.

**print head energy levels** -- the amount of energy (heat) at the point of contact on the print head.

**print quality** -- the measure of compliance of a bar code symbol to the requirements of dimensional tolerance, edge roughness, spots, voids, reflectance, print contrast, quiet zone, and encodation.

**processing temperature** -- the temperature a label would be expected to withstand as its normal environment.

**quiet zone** -- a clear space, containing no machine readable marks, which precedes the start character of a bar code symbol and follows the stop characters.

**reflectance** -- the light which is reflected back from the white spaces of a bar code during scanning. This light is converted to an electrical signal, amplified and transmitted to a data entry terminal.

**removable adhesives** -- pressure sensitive adhesive that offers low ultimate adhesion to a variety of surfaces for easy removal.

**repositionable adhesive** -- pressure sensitive adhesive that can be removed cleanly and repositioned on a variety of surfaces.

**resolution** -- in a bar code system, the narrowest element dimension which can be distinguished by a particular reading device or printed with a particular device or method.

**ribbon leader** -- paper strip that attaches to the beginning of a new ribbon and whose other end has an adhesive patch used to attach the ribbon to the take-up spindle.

**scanner** -- an electronic device that electro-optically converts optical information into electrical signals.

**scratch resistant** -- the ability of an image to withstand abrasion.

**smudge** -- the tendency of an image to smear or streak onto an adjacent area when rubbed. involves the redistribution of abraded material.

**smudge resistant** -- the ability of an image to withstand smudging.

**static** -- electrostatic discharge caused by two surfaces coming together.

**substrate** -- the surface on which a bar code symbol is printed.

**synthetic label** -- a manmade compound or material, usually a plastic film.

**tack** -- the amount of stickiness of an adhesive.

**tag** -- a paperboard card or synthetic material considerably stiffer and heavier than label facestock.

---

**thermal transfer** -- a printing system where dots are selectively heated against a ribbon and common paper is used as a substrate. Usually produces the highest print quality and eliminates the problems of fading or changing color inherent in direct thermal.

**UL recognized label** -- Underwriters Laboratory tested and approved device rating labels.

**UPC** -- Universal Product Code -- the standard bar code symbol for retail food packages in the United States.

**ultraviolet** -- high frequency light present in sunlight, which causes fading of printed characters especially direct thermal images.

**UV varnish** -- ultraviolet light-cured coating applied to label surfaces for a protective finish.

**visible light** -- used in some hand laser scanners to project a beam of light visible to the human eye, simplifying the scanning process.

**wand scanner** -- in a bar code system, a wand that is used to scan bar codes.