



**Intermec**



**User's Guide**



**EasyCoder PX4i  
Bar Code Label  
Printer**  
(Fingerprint Version)





**Intermec**



User's Guide

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**Bar Code Label**  
**Printer**  
(Fingerprint Version)

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## Document Change Record

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# **Before You Begin**

This section provides you with safety information, technical support information, and sources for additional product information.

## **Safety Summary**

Your safety is extremely important. Read and follow all warnings and cautions in this document before handling and operating Intermec equipment. You can be seriously injured, and equipment and data can be damaged if you do not follow the safety warnings and cautions.

### **Do not repair or adjust alone**

Do not repair or adjust energized equipment alone under any circumstances. Someone capable of providing first aid must always be present for your safety.

### **First aid**

Always obtain first aid or medical attention immediately after an injury. Never neglect an injury, no matter how slight it seems.

### **Resuscitation**

Begin resuscitation immediately if someone is injured and stops breathing. Any delay could result in death. To work on or near high voltage, you should be familiar with approved industrial first aid methods.

### **Energized equipment**

Never work on energized equipment unless authorized by a responsible authority. Energized electrical equipment is dangerous. Electrical shock from energized equipment can cause death. If you must perform authorized emergency work on energized equipment, be sure that you comply strictly with approved safety regulations.

## **Safety Icons**

This section explains how to identify and understand dangers, warnings, cautions, and notes that are in this document. You may also see icons that tell you when to follow ESD procedures.



**Warning**

**A warning alerts you of an operating procedure, practice, condition, or statement that must be strictly observed to avoid death or serious injury to the persons working on the equipment.**



**Caution**

**A caution alerts you to an operating procedure, practice, condition, or statement that must be strictly observed to prevent equipment damage or destruction, or corruption or loss of data.**



**Follow ESD  
Procedures**

**This icon appears at the beginning of any procedure in this manual that could cause you to touch components (such as printed circuit boards) that are susceptible to damage from electrostatic discharge (ESD). When you see this icon, you must follow standard ESD guidelines to avoid damaging the equipment you are servicing.**



**Note:** Notes either provide extra information about a topic or contain special instructions for handling a particular condition or set of circumstances.



## **Global Services and Support**

### **Warranty Information**

To understand the warranty for your Intermec product, visit the Intermec web site at <http://www.intermec.com> and click Service & Support. The Intermec Global Sales & Service page appears. From the Service & Support menu, move your pointer over Support, and then click Warranty.

### **Web Support**

Visit the Intermec web site at <http://www.intermec.com> to download our current documents in PDF format. To order printed versions of the Intermec manuals, contact your local Intermec representative or distributor.

Visit the Intermec technical knowledge base (Knowledge Central) at <http://intermec.custhelp.com> to review technical information or to request technical support for your Intermec product.

### **Telephone Support**

Contact your local Intermec representative. To search for your local representative, from the Intermec web site, click **Contact**.

### **Who Should Read This Document?**

This User's Guide provides you with information about the features of the EasyCoder PX4i printer and how to install, configure, operate, maintain, and troubleshoot it.

### **Related Documents**

The Intermec web site at <http://www.intermec.com> contains our current documents that you can download in PDF format. To order printed versions of the Intermec manuals, contact your local Intermec representative or distributor.





# 1 Introduction

This chapter introduces the EasyCoder PX4i printer. The chapter covers the following topics:

- Description of EasyCoder PX4i
- Safety summary
- Product identification

## **Description of EasyCoder PX4i Printer**

The EasyCoder PX4i is an industrial, rugged, high-volume thermal transfer printer with a printhead resolution of 8 dots/mm = 203.2 dots/inch or 11.81 dots/mm = 300 dots/inch and a maximum print width of 112 mm (4.5 inches).

The EasyCoder PX4i offers a large number of useful features, such as:

- High speed printing up to 300 mm/sec. (12 inches/sec.)
- Flash memory SIMMs for firmware, fonts, bar codes, and application programs
- Built-in CompactFlash memory card adapter
- Built-in RS-232 and USB interfaces
- Provision for up to three extra interface boards including wired or wireless EasyLAN connections, parallel interface, double serial interfaces, and serial/industrial interfaces
- Keyboard and display with backlight
- Support for network monitoring through optional software tools

A large number of factory-installed or field-installable options are available, so the printer can be configured for a wide range of applications. See Chapter 9 and Appendix A for more information.

The EasyCoder PX4i supports the unique and flexible Intermec Fingerprint v8.30 programming language, which allows the user or third-party developer to create custom-made application programs and label formats in a BASIC-like environment.

The printer is also designed to work with the Intermec Direct Protocol programming language, the Intermec InterDriver, and Intermec LabelShop. The InterDriver allows you to print labels from standard MS Windows applications, for example Microsoft Office. Intermec LabelShop is a series of label-design programs that work under various versions of MS Windows.

The EasyCoder PX4i supports 15 scalable Unicode TrueType and TrueDoc fonts as standard. Additional fonts can be downloaded into the printer's Flash memory, or be plugged in using a CompactFlash card. The Unicode standard allows the use of special characters for various languages including non-Latin fonts, such as Arabic, Cyrillic, Chinese, Japanese, Korean, Hebrew, and similar.

A version of EasyCoder PX4i, that supports the Intermec Programming Language (IPL) v2.30, is described in a special User's Guide.

## Safety Summary

Intermec assumes no responsibility regarding the CE Directive if the printer is handled, modified, or installed in any way other than that described in Intermec's manuals.

- Read this manual carefully before connecting the printer.
- Moving parts are exposed when the side doors are open, so ensure that the doors are closed before you operate the printer.
- Do not remove the left-hand cover. Dangerous voltage!
- Do not remove the bottom plate. Dangerous voltage!
- Do not put your fingers inside the print mechanism when the power is on.
- Place the printer on an even surface which can support its weight of approximately 13 kg (28.5 pounds) plus supplies.
- Do not spray the printer with water. If you are using a hose to clean the premises in an industrial environment, remove the printer or protect it carefully from spray and moisture.
- Carefully read the warning text on the envelope before using a cleaning card.

## Product Identification

The machine label is attached to the printer's rear plate and contains information on type, model, and serial number as well as AC voltage. It also contains various signs of approval.





# 2 Installation

This chapter explains how to unpack and install the EasyCoder PX4i and also describes the printer's various parts in detail. It covers the following topics:

- Unpacking the printer
- Parts on the printer's front
- Parts on the printer's rear plate
- Parts in the media compartment
- Parts in the print mechanism
- Connecting the printer
- Using the controls and understanding the indicators

## **Unpacking the Printer**

Before you install the printer, examine the package for possible damage or missing parts:

- Open the box and lift the printer out.
- Check that the printer has not been visibly damaged during transportation. Keep the packing materials in case you need to move or reship the printer.
- Check the label on the printer's rear plate, which gives the voltage, the part number, and the serial number.
- Check that any options you ordered are included.
- Check that all the accessories are included. As standard, the box contains:
  - Intermec EasyCoder PX4i printer
  - Adapter for 3-inch media roll core
  - Power cord
  - Quality check card
  - Cleaning card
  - This User's Guide
  - Compact disk (CD) with supporting software, additional manuals, and product information.
- Check that the type of power cord is appropriate for the local standard. The printer works within 90 to 265 VAC, 50 to 60 Hz.

If the printer has been damaged in any way during transportation, complain to the carrier immediately.

If the delivery is incorrect or any parts are missing, report it immediately to the distributor.

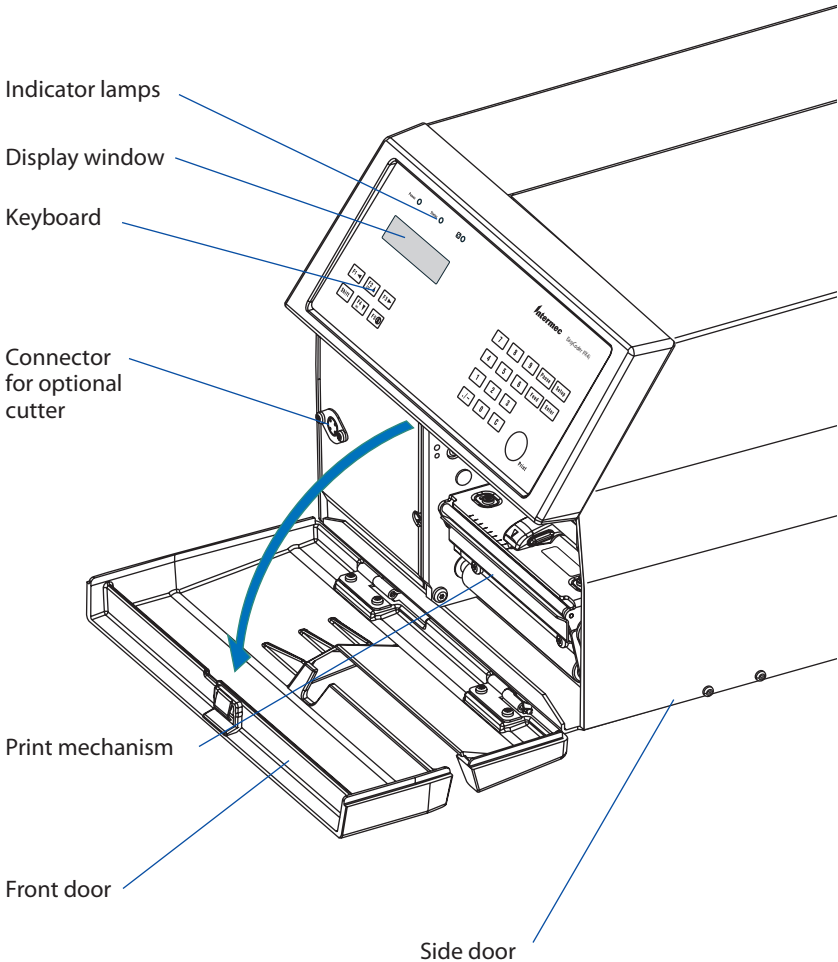


## Front View

At the front of the printer are the display window, the indicator lamps, and the keyboard. These features allow the operator to control and set up the printer manually.

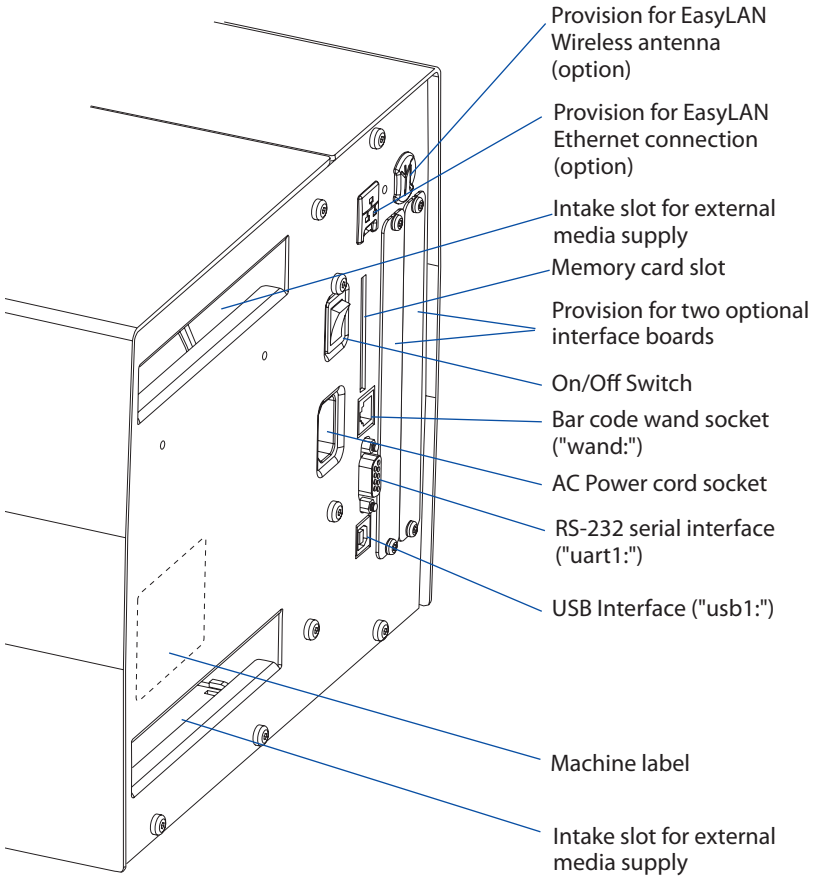
The front door is held by a snap-lock. Open the front door to view the various parts on the printer's front.

Refer to Chapter 9 “Options” for information on possible optional devices fitted on the printer's front.



## Rear View

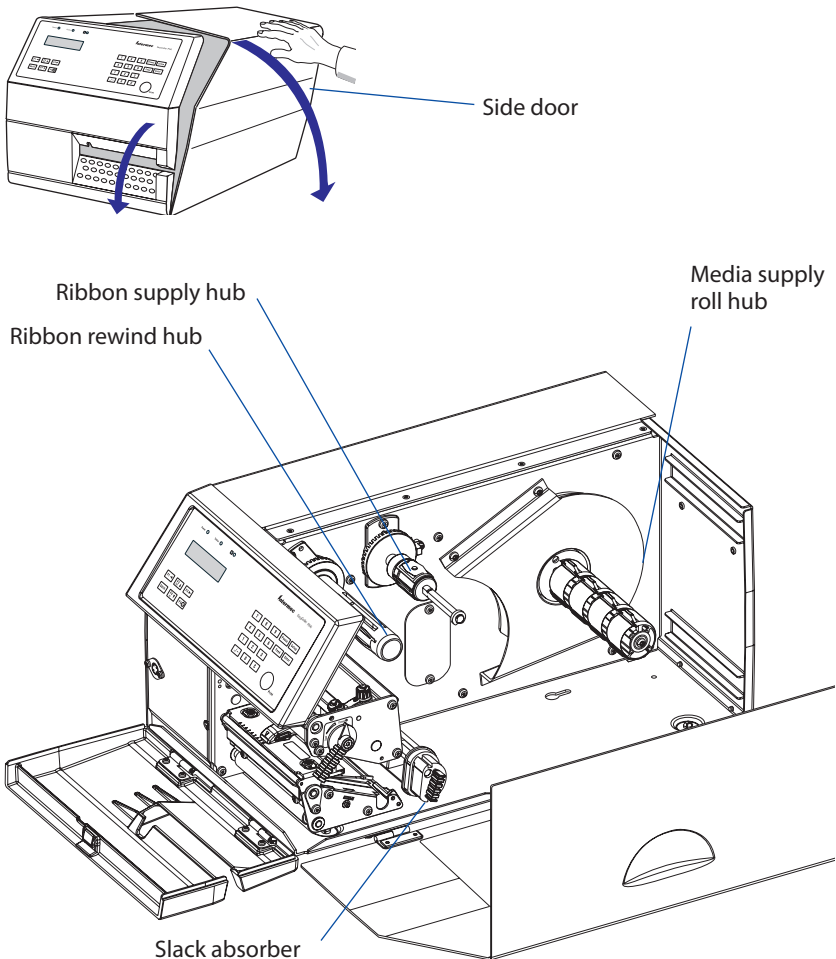
The rear plate contains the On/Off switch, the AC power cord socket, and various interface connectors and slots.



## Media Compartment

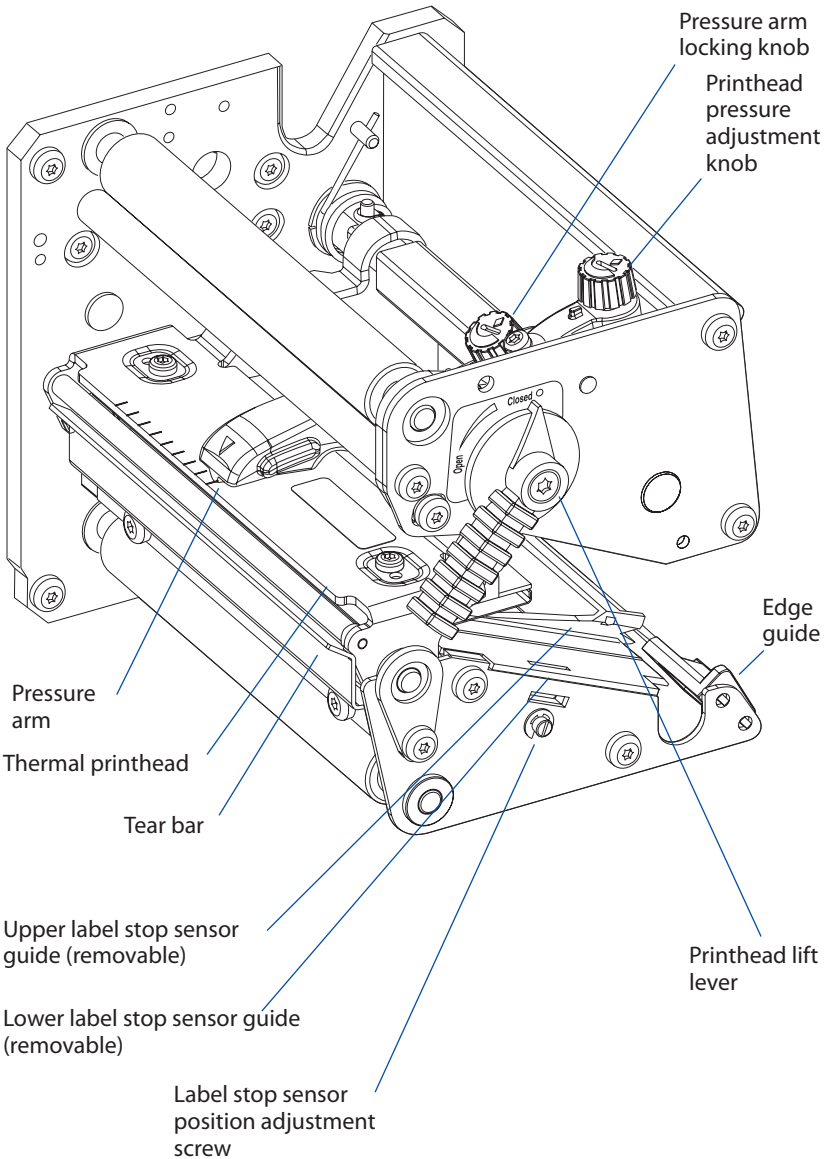
The media compartment is covered by the side door which can be opened 180° downwards to provide full access for media and ribbon load. The door is held in closed position by a magnetic lock. It can be completely removed by pushing it rearwards.

The media can be supplied from a rotating hub or from an external supply of fan folds behind the printer. Also see Chapter 9, “Options.”



# Print Mechanism

The print mechanism features a high-performance thermal printhead with quick-mount fittings to facilitate replacement.



# Connections

## Power

- 1 Place the printer on a level surface, near an AC outlet. You should be able to access the printer to load supplies and to remove the printout.
- 2 Check that the printer is switched off.
- 3 Connect the power cord from the socket on the rear plate to an electrical outlet (90 to 265 VAC).

## Computer

The EasyCoder PX4i is fitted with one 9-pin D-style subminiature (DB9) socket for the RS-232 serial interface port and one class B connector for the USB interface port (see Appendix C).

### RS-232 Serial Interface ("uart1:")

Use the serial interface with Intermec LabelShop or the Intermec InterDriver. Also use it with the Intermec Direct Protocol or the Intermec Fingerprint programming language because you can receive error messages from your printer. Before you can use the serial interface, you may need to set up the communication parameters, such as baud rate, parity, etc. as described in Chapter 6, “Setting Up the Printer.”

### USB Interface ("usb1:")

Use the USB interface with an USB-compatible version of the Intermec InterDriver for printing. The USB interface is not suitable for programming because the host cannot receive error messages from your printer.

### Optional Interface and Network Boards

#### ("uart2:", "uart3:", "uart4:", "uart5:", "centronics:", and "net1:")

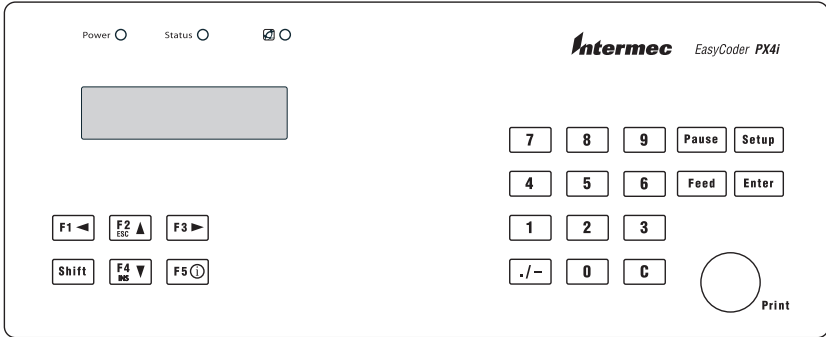
Several types are available (see Chapter 9, “Options”). Refer to Chapter 6, Chapter 7, and Appendix C for connection and setup instructions.

The printer can be set to scan all communication ports. When it detects incoming data on a port, the printer automatically switches to use that port for both input and output. This facility ("auto") can be selected in Intermec Shell (see Chapter 8) or using the Intermec Fingerprint instruction SETSTDIO, see *Intermec Fingerprint v8.3x, Programmer's Reference Manual*. Use the <F5/i> key to get information on the active communication channels.

Switch off both PC and printer before connecting them together.


## Controls and Indicators

The EasyCoder PX4i has several ways of communicating directly with its operator: three colored indicator lamps, a display window, a membrane-switch keyboard with 23 programmable keys and buttons on the printer's front, and a beeper.



### Indicator Lamps

The indicators are colored LEDs (Light Emitting Diodes) and are used for the following purposes:

- Power (solid green) indicates that the power is on.
- Status (solid green) indicates that the printer is ready for use.
- Status (flashing green) indicates that the printer is communicating.
- Status (solid red) indicates an error condition (see Chapter 10).
-  Intermec Readiness Indicator (blue; on, blink, or off).  
Represented by a blue light on Intermec handheld computers, access points, and printers, the Intermec Readiness Indicator is part of an exclusive monitoring system from Intermec. The Intermec Readiness Indicator helps users quickly determine the readiness of the Intermec device individually and as part of a solution. The Intermec Readiness Indicator has three different states: On, Blinking, and Off. When the Indicator is off, the device is not ready to operate individually or as part of a solution. When the Indicator is blinking, the device may be initializing, waiting for external resources, or in need of user attention. And when the Indicator is On, the device is ready for use as part of a solution. Also see Chapter 10.

## Display

The display window contains an LCD (Liquid Crystal Display) with background illumination and two lines of text, each with 16 characters. It provides information on installed firmware or running application, prompts the operator in Intermec Shell and in the Setup Mode, and can show information on possible errors and active communication channels.

The Intermec Fingerprint programming language and the Intermec Direct Protocol allow custom-made messages to be composed and displayed according to the requirements of the application.

## Keyboard

The keyboard is of the membrane-switch type and has 22 keys and a “Print” button. Some keys have hard-coded functions in the startup and setup modes.

<b>Print button</b>	Print/Pause a print job. Repeat last printed label.
<b>Pause</b>	Toggle between pause and printing when executing a print job.
<b>Pause</b> + <b>Shift</b>	Interrupt a running Fingerprint program.
<b>Setup</b>	Enter the Setup Mode (see Chapter 7).
<b>Feed</b>	Feed out a blank label or the equivalent.
<b>Feed</b> + <b>Shift</b>	Perform a Testfeed (feed a blank label, adjust the media feed).
<b>F5</b> ⓘ	Display error messages, IRI status, and communication channel information.
<b>F1</b> ◀ <b>F3</b> ▶	Scroll between various types of information after pressing the <F5/i> key. Possible error messages and information on active communication channels are shown in a loop.

In application programs created using the Intermec Fingerprint programming language, the keys can be assigned to various functions or be disabled individually. Since one key is assigned as shift key, up to 44 different key combinations are possible. An audible signal, which can be turned off if so desired, acknowledges that a key has been pressed.

### **Keyboard Color Code**

Yellow	Operation of the printer (operator level)
Green	Setup or service (site or service technician level)
White	Data input to printer (operator or technician level)

### **Beeper**

The beeper notifies the operator when an error has occurred and acknowledges that a key has been pressed. The Intermec Fingerprint programming language allows the key acknowledge signal to be turned off. The frequency and duration of signals can be specified. Thus, it is possible to create different signals for different conditions or even to make the printer play simple melodies!





## **3 Starting Up**

This chapter explains how to start up the printer after installation or after having been switched off. It covers the following topics:

- Startup files
- Memory cards
- Switching on the printer
- Display messages at startup

## Startup Files

When the printer is switched on, its behavior depends on the existence of a startup file (autoexec.bat) in its memory. There are two cases:

- A** The printer is only fitted with the Intermec Shell file-managing program, which allows the operator to choose between a variety of applications and functions.
- B** In addition to Intermec Shell, the printer may also be provided with a custom-made application program that is design to perform a specific task, for example to print tickets, baggage tags, or product labels for a certain company. Such a program may be initiated by a startup file (autoexec.bat) stored in the printer's permanent memory or in a memory card.

There can be one startup file stored in each of three different parts of the printer's memory. If there are startup files stored in more than one part, only one will be used with the following priority:

- 1** An autoexec.bat file stored in a memory card, provided the card was inserted in the printer before the power was switched on.
- 2** An autoexec.bat file stored in the read/write part of the printer's permanent memory (device "/c").
- 3** The pup.bat file (Intermec Shell) in the read-only part of the printer's permanent memory (device "/rom").



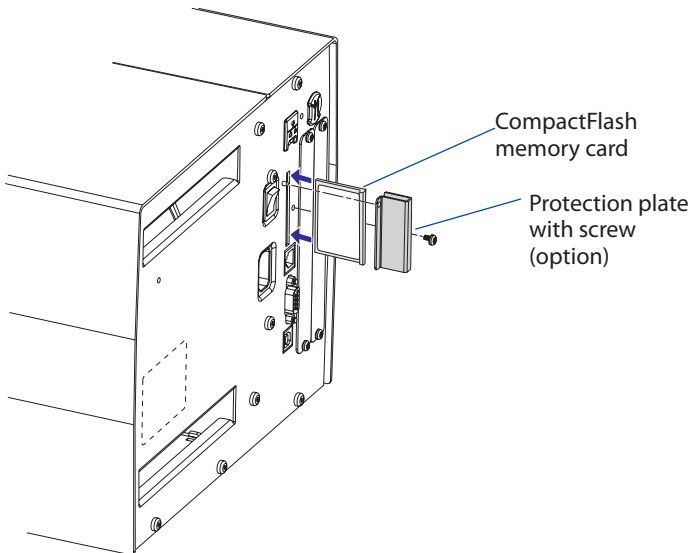
**Note:** If you insert a CompactFlash memory card that contains a startup file before you switch on the printer, this startup file will be used instead of Intermec Shell.

## Memory Card

If you want to use a memory card, you must insert it into the slot in the printer's rear plate before you switch on the power. The memory card must be a CompactFlash card (8MB-1GB). CompactFlash cards marked "CF+" will not work. You can use the CompactFlash card to expand the printer's storage memory ("card1:"). There are also various types of pre programmed CompactFlash cards, for example:

- Font Cards provide additional fonts that can be used as long as the card remains inserted in the printer.
- Font Install Cards permanently install additional fonts in the printer, which can be used even after the card has been removed.
- Firmware Cards automatically replace the printer's firmware, usually with an updated version.

CompactFlash cards are widely used for consumer's computer products like digital cameras. You can get a certain protection from theft by installing an optional plate that covers an inserted CompactFlash card.



**Note:** Always switch off the power before inserting or removing a memory card! The card will only fit in one way. A memory card is only detected if it is inserted before the printer is started.

## Switching On the Printer

Before switching on the printer, make the necessary connections, insert any memory card you want to use, and check that the printhead is engaged.

Switch on the power using the On/Off switch on the rear plate. The “Power” control lamp on the front panel lights up when the power is on. Wait for a few moments, while the printer loads the program and runs some self-diagnostic tests:

```
Starting
■■■■■■■
```

After a short time, the printer is initialized. The progress of the initialization is indicated by an increasing number of colons on the lower line in the display:

```
Initializing
:::
```

The type of startup file running in the printer is indicated by the message shown in the display window immediately after initialization.


### A. Intermec Shell Startup Program

```
ENTER=SHELL
5 sec.      v.8.2
 4 sec.      v.8.2
  3 sec.      v.8.2
   2 sec.      v.8.2
    1 sec.      v.8.2
```

Refer to Chapter 8 for more information on Intermec Shell. The digits in the lower right corner of the display indicate the version of Intermec Shell.

### B. Custom-Made Application Program

Any other display messages than those illustrated above indicates that the printer is running some custom-made, non-standard application program, or that some error has occurred.



# 4 Media Load

This chapter explains how to load the printer with media, that is labels, tickets, tags, or strips, for the following modes of operation:

- Tear-Off (straight-through)
- Cut-Off (requires optional cutter)
- Peel-Off (self-strip), requires optional integral self-strip unit with liner takeup
- Internal Batch Takeup, requires optional integral self-strip unit with liner takeup and rewind guide
- External Supply (fan-folds), fan-fold guide available as option

## **Tear-Off (Straight-through)**

The EasyCoder PX4i can print on labels, tickets, tags, and continuous stock in various forms. This section describes the case when the media is torn off manually against the printer's tear bar. This method is also known as "straight-through printing."

Use the <Feed> key (see figure #11) when loading the same type of media as before. When switching to a new type of media, or if the printer does not feed out the media properly, simultaneously press the <Shift> and <Feed> keys to perform a "testfeed."

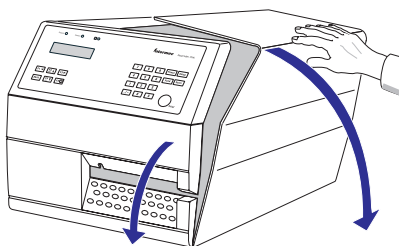
Tear-off can be used for:

- Non-adhesive continuous stock
- Self-adhesive continuous stock with liner
- Self-adhesive labels with liner
- Tickets with gaps, with or without perforations
- Tickets with black marks, with or without perforations

An optional label taken sensor can hold the printing of the next copy in the batch until the present copy has been removed, see Chapter 9, "Options."

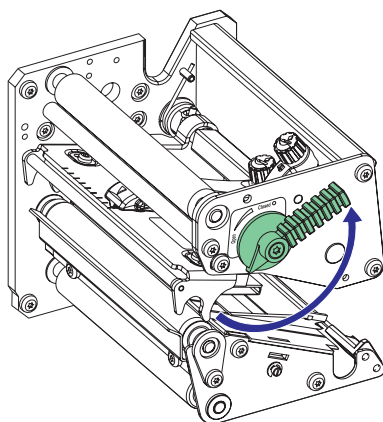
## Tear-Off, cont.

1



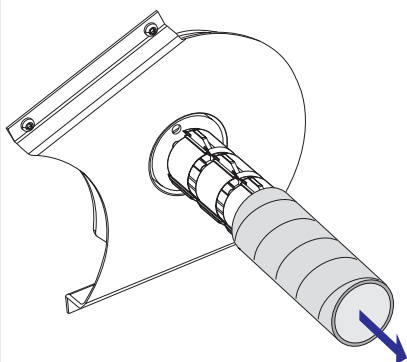
*Open the front and side doors.*

2



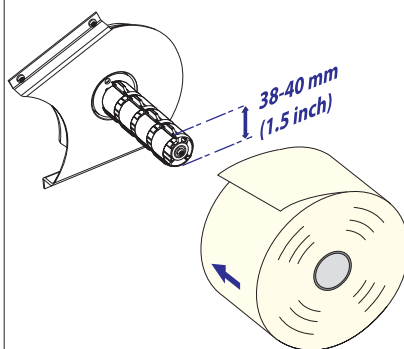
*Turn the printhead lift lever counter-clockwise to raise the printhead.*

3



*Remove any empty core from the media supply hub.*

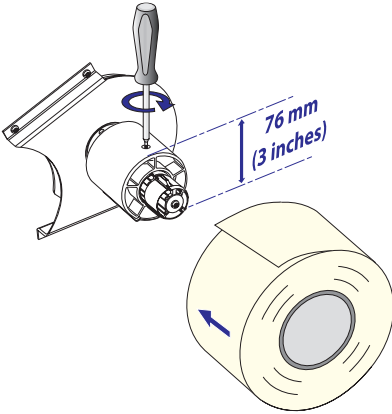
4a



*Fit a new roll of media on the media supply hub and push the roll inwards as far as it will go.*

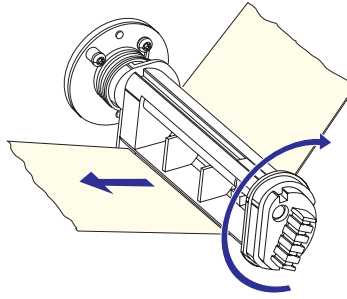
## Tear-Off, cont.

4b



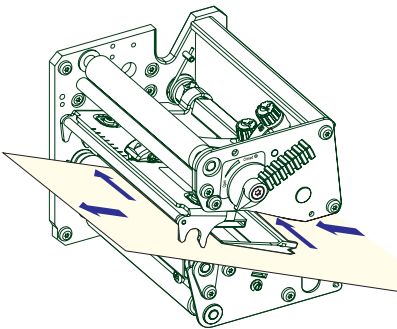
*In case of a media roll with a 76 mm (3-inch) core, first fit an adapter on the media supply hub.*

5



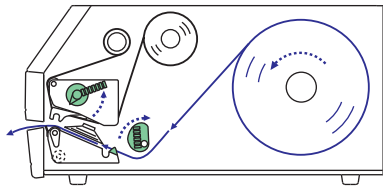
*Route the media underneath the slack absorber and forward towards the print mechanism. The slack absorber can be rotated for better access and snap-locked in open position.*

6



*Route the media through the print unit and push it inwards as far as it will go.*

7

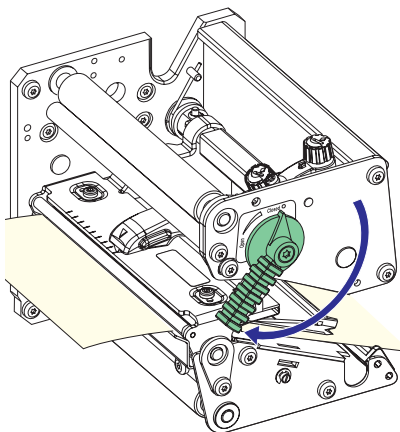


*This diagram shows the media path.*



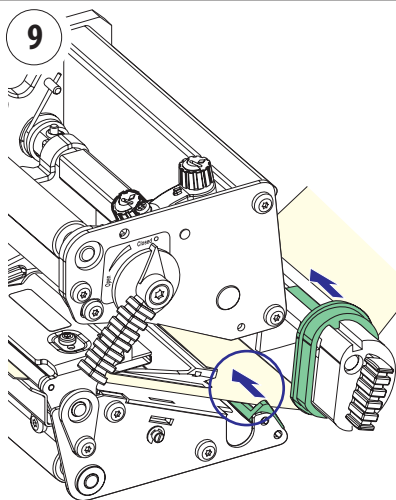
## Tear-Off, cont.

8



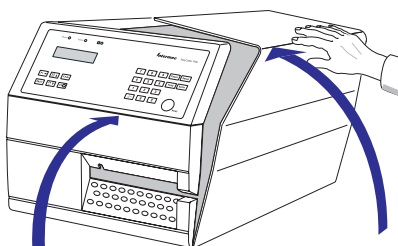
Turn the printhead lift lever to "Closed" position.

9



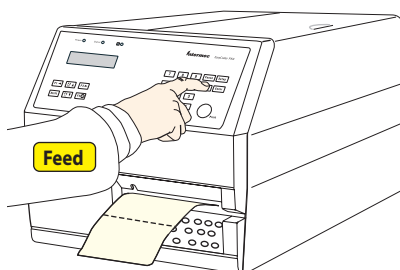
Adjust the position of the green edge guides so the media is guided with a minimum of play.

10



Close the front and side doors.

11



Press the Feed key to advance the media and adjust the media feed. Tear off the media by grabbing the outer edge and pull downwards.

## Cut-Off

The EasyCoder PX4i can print on labels, tickets, tags, and continuous stock in various forms. This section describes the case when the media is to be cut off by an automatic paper cutter (option).

Use the <Feed> key (see figure #12) when loading the same type of media as before. When switching to a new type of media or if the printer does not feed out the media properly, simultaneously press the <Shift> and <Feed> keys to perform a “testfeed.”

Cut-off can be used for:

- Non-adhesive continuous stock
- Self-adhesive labels with liner (cut only liner between labels)

The cutter is designed to cut through paper-based media with a thickness between 60 and 175  $\mu\text{m}$ , which roughly corresponds to a paper weight of 60 to 175 grams/ $\text{m}^2$  (basis weight 40 to 120 lb.). The cutter should not be used to cut through labels, because the adhesive will stick to the shears, which can damage the cutter.

The optional label taken sensor cannot be used with the cutter.

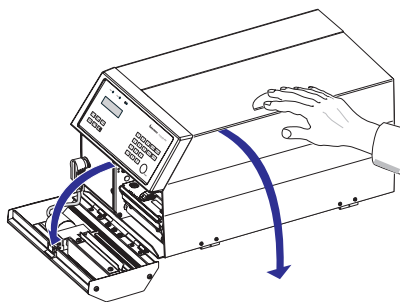


Warning

**The rotating cutting blade can be accidentally activated while the cutter is open. To avoid any risk of injury to fingers, always switch off the power before loading media and/or ribbon in a cutter-equipped printer.**

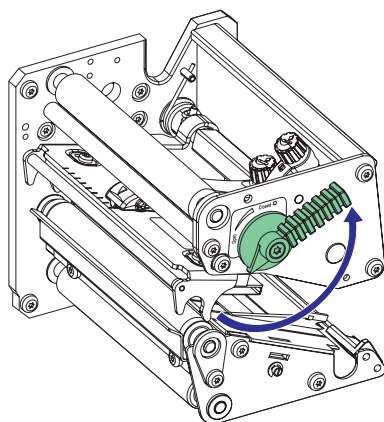
## Cut-Off, cont.

1



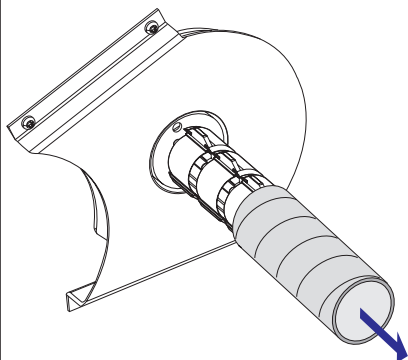
Switch off the power. Open the cutter and the side door.

2



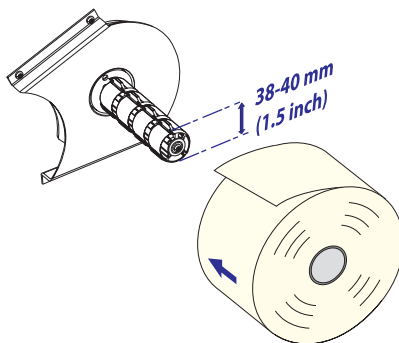
Turn the printhead lift lever counter-clockwise to raise the printhead.

3



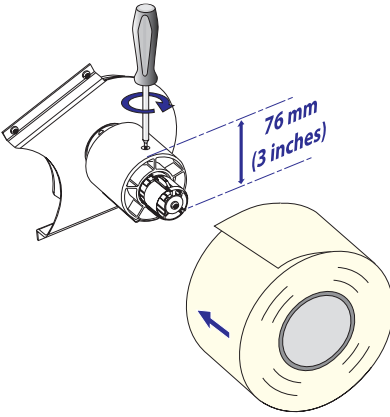
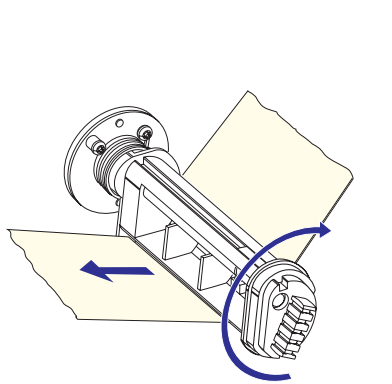
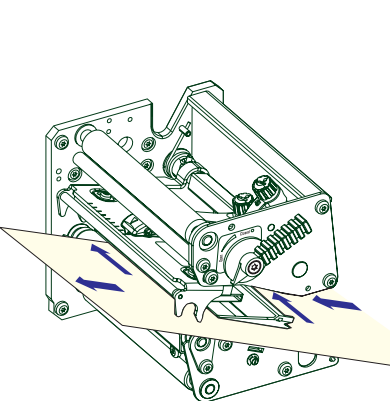
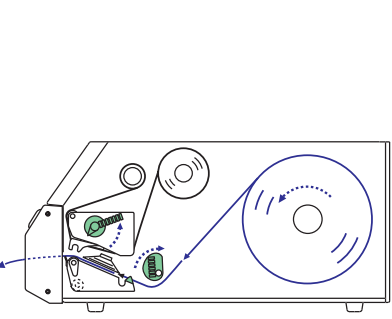
Remove any empty core from the media supply hub.

4a



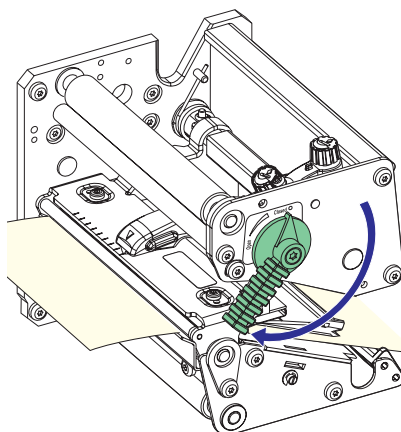
Fit a new roll of media on the media supply hub and push the roll inwards as far as it will go.

# Cut-Off, cont.

<div data-bbox="106 219 159 267">4b</div> <div data-bbox="101 276 494 690"></div> <div data-bbox="106 730 478 820"><p><i>In case of a media roll with a 76 mm (3-inch) core, first fit an adapter on the media supply hub.</i></p></div>	<div data-bbox="526 219 579 267">5</div> <div data-bbox="526 276 920 657"></div> <div data-bbox="526 673 920 820"><p><i>Route the media underneath the slack absorber and forward towards the print mechanism. The slack absorber can be rotated for better access and snap-locked in open position.</i></p></div>
<div data-bbox="106 852 159 901">6</div> <div data-bbox="101 909 494 1307"></div> <div data-bbox="106 1380 478 1445"><p><i>Route the media through the print unit and push it inwards as far as it will go.</i></p></div>	<div data-bbox="526 852 579 901">7</div> <div data-bbox="526 909 920 1226"></div> <div data-bbox="526 1421 920 1453"><p><i>This diagram shows the media path.</i></p></div>

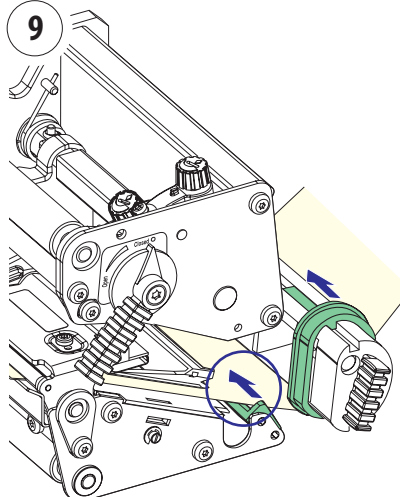
## Cut-Off, cont.

8



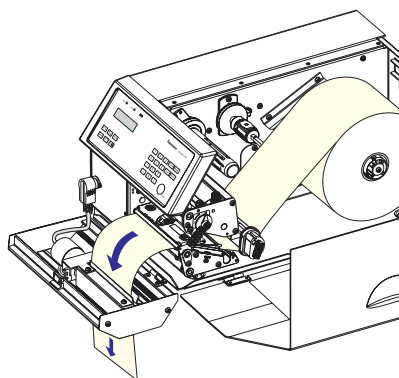
Turn the printhead lift lever to "Closed" position.

9



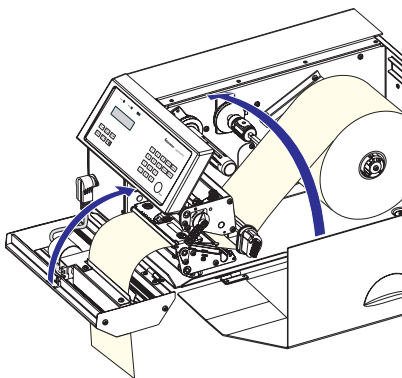
Adjust the position of the green edge guides so the media is guided with a minimum of play.

10



Route the media through the cutter between the two guide plates.

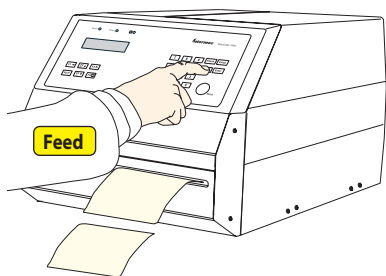
11



Close the cutter unit while pulling at the end of the media. Close the side door and switch on the power.

## Cut-Off, cont.

12



*Press the Feed key to advance the media and adjust the media feed.*

## Peel-Off (Self-strip)

The EasyCoder PX4i can print on labels, tickets, tags, and continuous stock in various forms.

This section describes the case when self-adhesive labels are separated from the liner immediately after printing, which requires an optional internal liner/batch takeup unit, see Chapter 9, “Options.” This is also known as “Self-strip” operation.

Use the <Feed> key (see figure #15) when loading the same type of media as before. When switching to a new type of media, or if the printer does not feed out the media properly, simultaneously press the <Shift> and <Feed> keys to perform a “testfeed.”

Peel-off can only be used for:

- Self-adhesive labels with liner

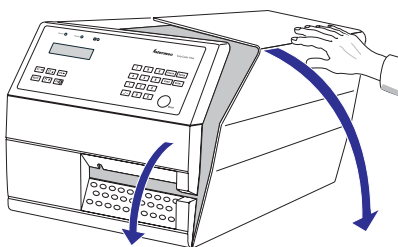
An optional label-taken sensor can hold the printing of the next label in a batch until the present label has been removed, see Chapter 9, “Options.”



**Note:** Peel-off operation sets high demands on the media in regard of label stiffness, release characteristics of the adhesive and liner, resistance against electrostatic charging etc., so the labels will be dispensed properly. Consult your media supplier or test the media to ascertain that it is suitable for your application.

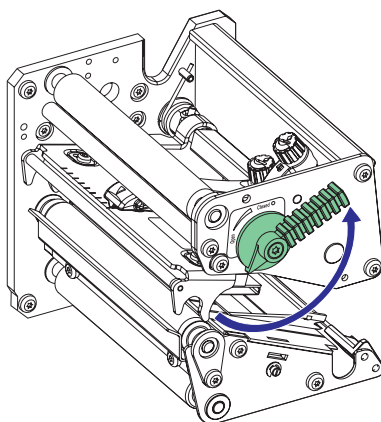
## Peel-Off, cont.

1



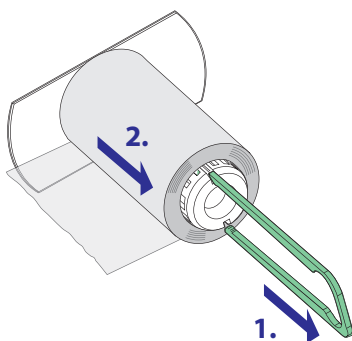
*Open the front and side doors.*

2



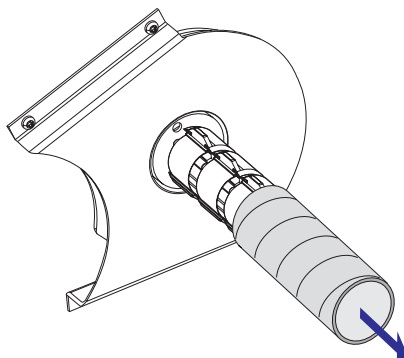
*Turn the printhead lift lever counter-clockwise to raise the printhead.*

3



*Pull out the green clip (1) on the liner takeup hub and dispose of any wound-up liner (2).*

4

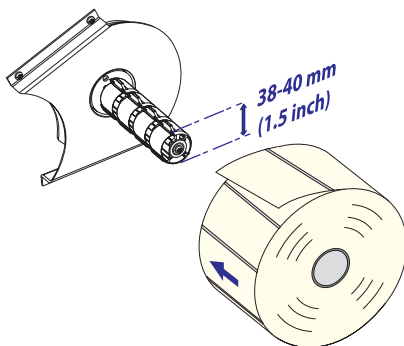


*Remove any empty core from the media supply hub.*



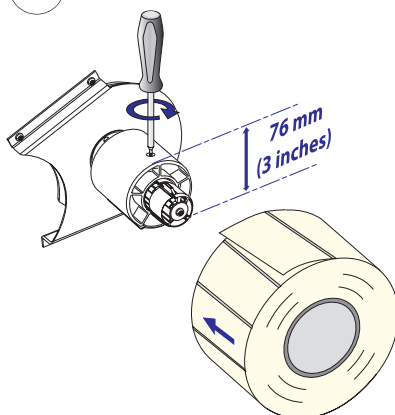
## Peel-Off, cont.

5a



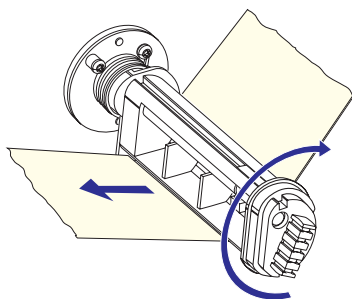
Fit a new roll of media on the media supply hub and push the roll inwards as far as it will go.

5b



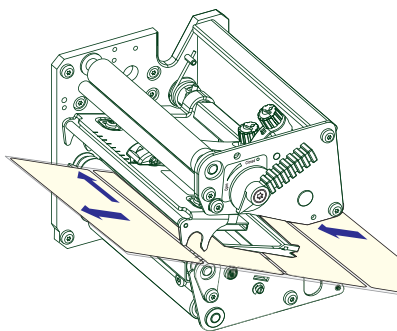
In case of a media roll with a 76 mm (3-inch) core, first fit an adapter on the media supply hub.

6



Route the media underneath the slack absorber and forward towards the print mechanism. The slack absorber can be rotated for better access and snap-locked in open position.

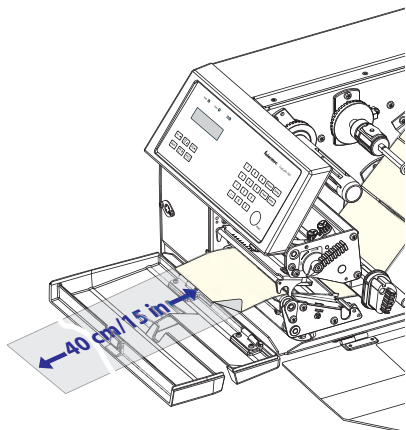
7



Route the media through the print unit and push it inwards as far as it will go.

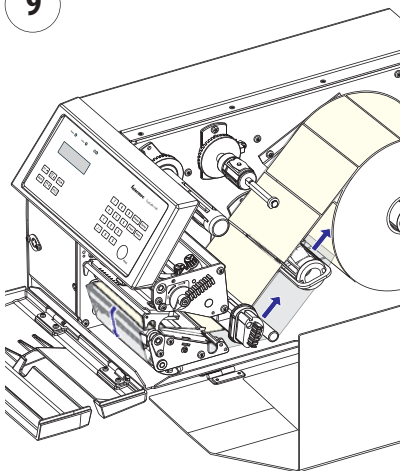
## Peel-Off, cont.

8



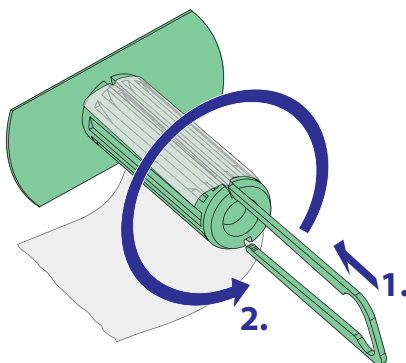
*Pull out approximately 40 cm (15 in) of labels and remove the labels from the liner.*

9



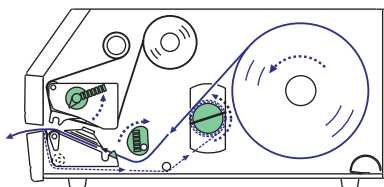
*Route the liner around the tear bar and back under the print unit.*

10



*Secure the liner to the takeup hub with the clip (1) and rotate the hub (2) so the media becomes tight.*

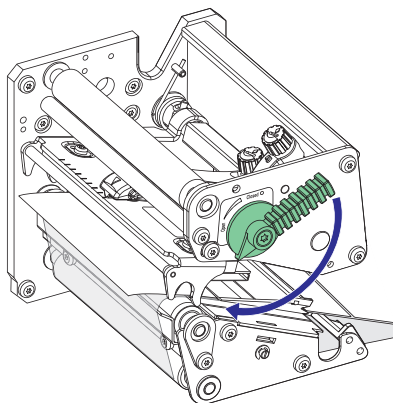
11



*This diagram shows the media and liner paths.*

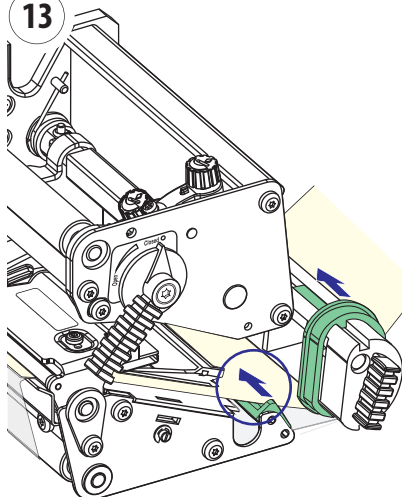
## Peel-Off, cont.

12



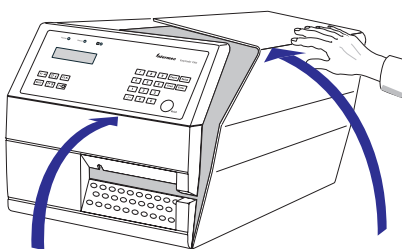
Turn the printhead lift lever to "Closed" position.

13



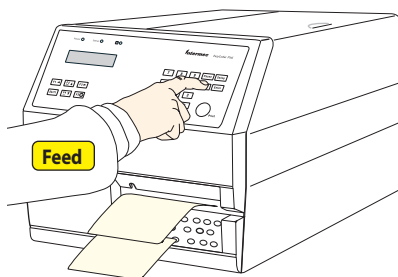
Adjust the position of the green edge guides so the media is guided with a minimum of play.

14



Close the front and side doors.

15



Press the Feed key to advance the media and adjust the media feed.

## **Internal Batch Takeup (Roll-to-roll)**

The EasyCoder PX4i can print on labels, tickets, tags, and continuous stock in various forms. This chapter describes the case when printed labels fitted on liner (backing paper) or pre-perforated tickets and tags are wound up inside the printer. The roll of printed labels, tickets, or tags can then be removed and be handled manually. This requires an optional internal liner/batch takeup unit.

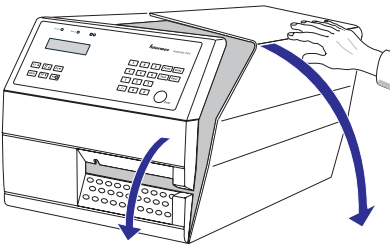
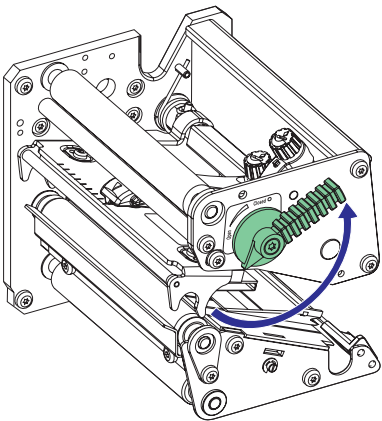
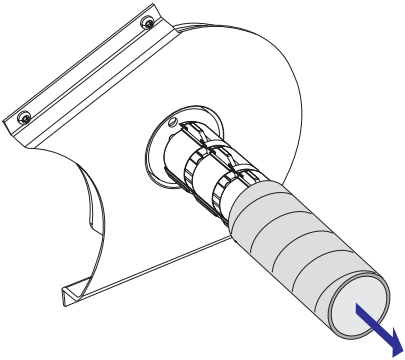
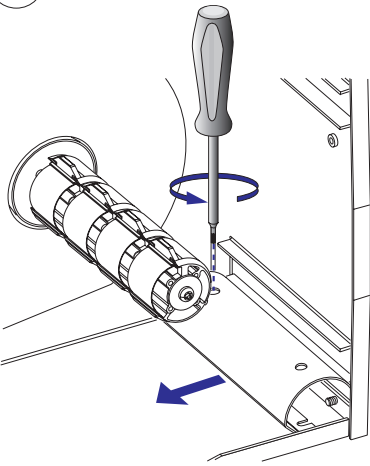
The takeup hub can accommodate 30 to 40% of a full-size media roll.

Use the <Feed> key (see figure #16) when loading the same type of media as before. When switching to a new type of media, or if the printer does not feed out the media properly, simultaneously press the <Shift> and <Feed> keys to perform a “testfeed.”

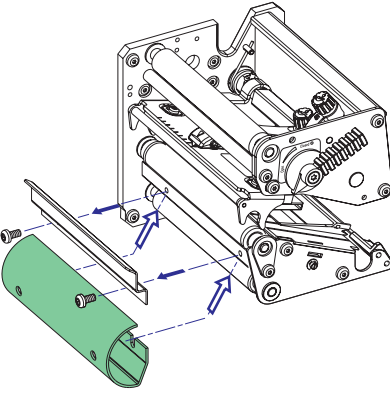
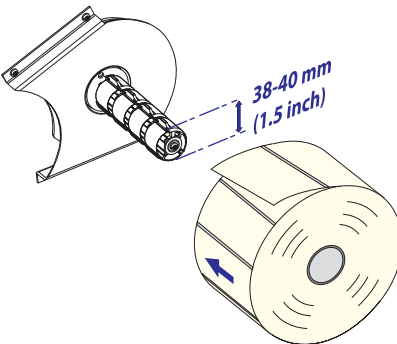
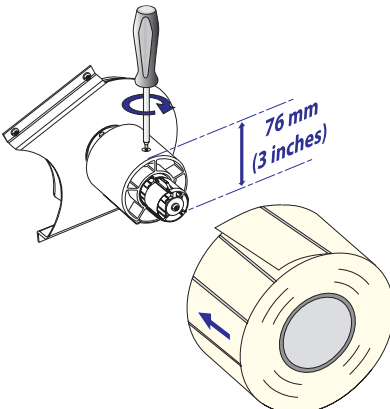
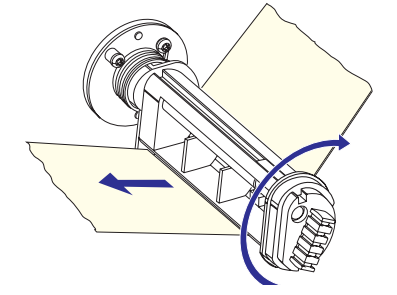
Internal batch takeup can be used for:

- Self-adhesive labels fitted on liner
- Pre-perforated tickets with gaps
- Pre-perforated tickets with marks

## Internal Batch Takeup, cont.

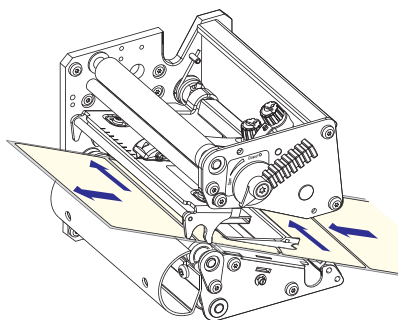
<p>1</p>  <p><i>Open the front and side doors.</i></p>	<p>2</p>  <p><i>Turn the printhead lift lever counter-clockwise to raise the printhead.</i></p>
<p>3</p>  <p><i>Remove any empty core from the media supply hub.</i></p>	<p>4</p>  <p><i>Loosen the single screw that holds the guide plate at the rear of the media compartment.</i></p>

# Internal Batch Takeup, cont.

<div data-bbox="106 219 159 267">5</div> <div data-bbox="101 308 494 698">A technical diagram showing a mechanical assembly. A green guide plate is being moved into position, indicated by blue arrows, to replace a metal tear bar. The assembly includes various rollers and springs.</div> <div data-bbox="106 763 489 820"><p>Remove the tear bar from the print unit and replace it with the guide plate.</p></div>	<div data-bbox="526 219 579 267">6a</div> <div data-bbox="521 332 920 673">A diagram showing a roll of yellow media being placed onto a metal hub. A dimension line indicates the hub diameter is 38-40 mm (1.5 inch). A blue arrow shows the roll being pushed inward.</div> <div data-bbox="526 730 909 820"><p>Fit a new roll of media on the media supply hub and push the roll inwards as far as it will go.</p></div>
<div data-bbox="106 852 159 901">6b</div> <div data-bbox="101 917 494 1323">A diagram showing a screwdriver being used to fit a small adapter onto the media supply hub. A dimension line indicates the core diameter is 76 mm (3 inches). A roll of media is shown below.</div> <div data-bbox="106 1372 489 1453"><p>In case of a media roll with a 76 mm (3-inch) core, first fit an adapter on the media supply hub.</p></div>	<div data-bbox="526 852 579 901">7</div> <div data-bbox="521 982 920 1274">A diagram showing a roll of media being routed under a mechanical slack absorber. A blue arrow indicates the direction of the media path. A curved arrow shows the slack absorber rotating.</div> <div data-bbox="526 1315 909 1453"><p>Route the media underneath the slack absorber and forward towards the print mechanism. The slack absorber can be rotated for better access and snap-locked in open position.</p></div>

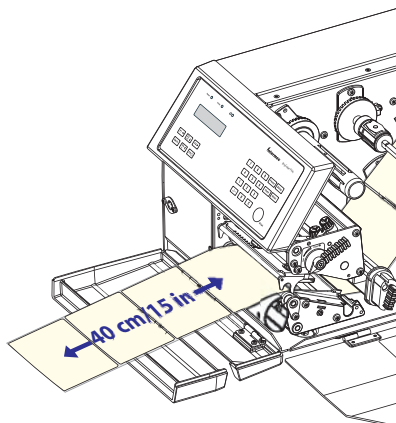
## Internal Batch Takeup, cont.

8



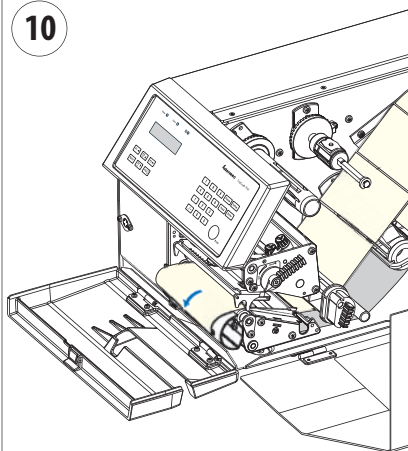
Route the media through the print unit and push it inwards as far as it will go.

9



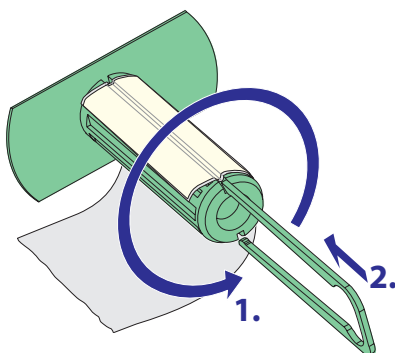
Pull out approximately 40 cm (15 in) of labels.

10



Route the labels around the guide plate and back under the print unit to the takeup hub.

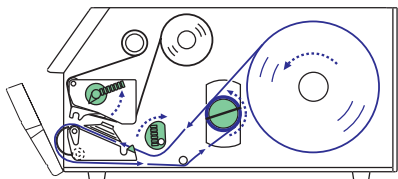
11



Wind up some of the media on the takeup hub (1) and secure it with the clip (2).

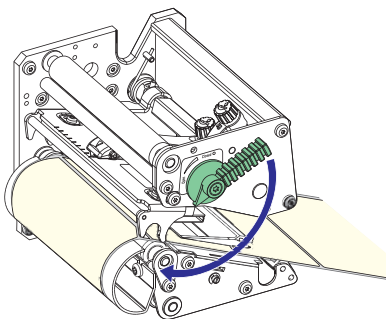
## Internal Batch Takeup, cont.

12



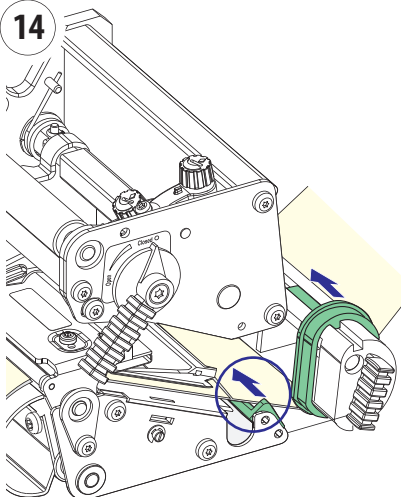
*This diagram shows the media path.*

13



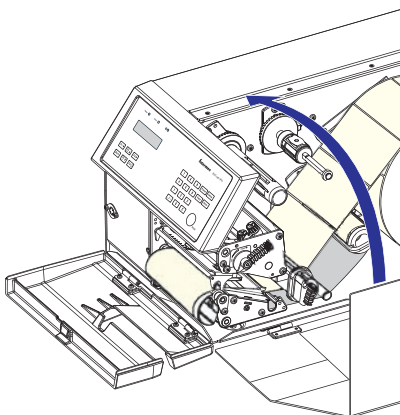
*Turn the printhead lift lever to "Closed" position.*

14



*Adjust the position of the green edge guides so the media is guided with a minimum of play.*

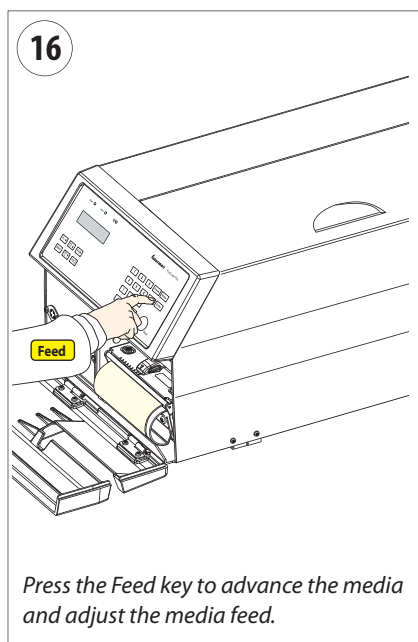
15



*Close the side door but keep the front door open.*



## Internal Batch Takeup, cont.



## **External Supply (Fan-fold)**

This chapter describes the case when an external media supply is used, for example a stack of fan-fold tickets or an external media roll.

It is possible to simply let the media enter the printer through either of the two slots in the rear plate. However, we recommend to fit the optional Intermec Fan-Fold Kit, which provides better guidance of the media using adjustable guides. The kit can be fitted to either the upper or the lower slot in the rear plate.

When using an external media supply, take care to protect the media from dust, dirt, and other foreign particles, that can impair the printout quality or cause unnecessary wear to the printhead.

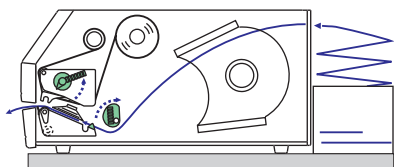
Depending on brand and quality, all direct thermal media are more or less sensitive to heat, direct sunlight, moisture, oil, plasticizers, fat, and other substances. Protect it accordingly.

External supply can be used for:

- Tear-off operation
- Cut-off operation
- Peel-off operation (upper slot only)
- Internal batch takeup operation

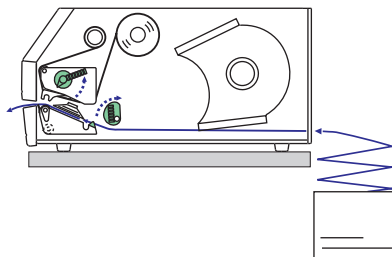
## External Supply (Fan-fold), cont.

1



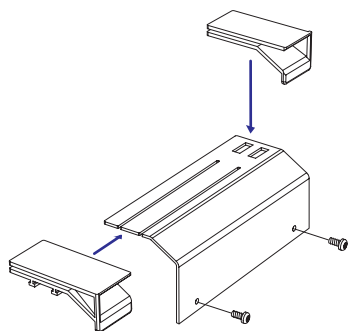
Use the upper slot in the rear plate when the supply is at the same level as the printer and when using peel-off operation.

2



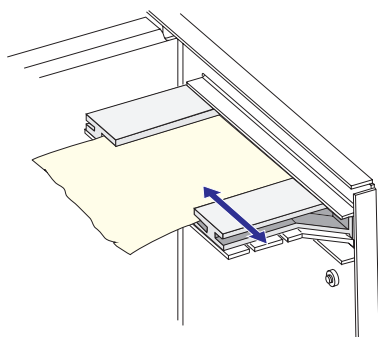
Use the lower slot in the rear plate when the supply is placed lower than the printer.

3



As an option, the printer can be fitted with a set of fan-fold guides in either slot.

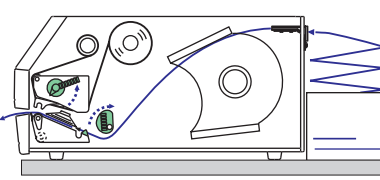
4



The outer guide is adjustable for various media widths (min. 40 mm/1.58 in).

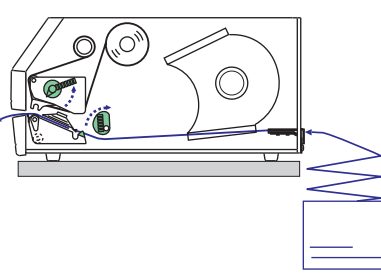
# External Supply (Fan-fold), cont.

5


A side-view diagram of a printer's media loading mechanism. A blue line representing the media path enters from the left, passes through a series of rollers and guides, and exits on the right. A fan-fold guide is shown inserted into the upper slot of the media support. Blue arrows indicate the direction of media flow and the position of the guide.

*Fit the fan-fold guide in the upper slot when the supply is at the same level as the printer and when using peel-off operation.*

6

A side-view diagram of a printer's media loading mechanism, similar to diagram 5. The media path is shown with a blue line. A fan-fold guide is shown inserted into the lower slot of the media support. Blue arrows indicate the direction of media flow and the position of the guide.

*Fit the fan-fold guide in the lower slot when the supply is placed lower than the printer.*



# **5 Thermal Transfer Printing**

This chapter explains how to load the printer with ribbon for thermal transfer printing.

## **Ribbon Load**

The EasyCoder PX4i can print on labels, tickets, tags, and continuous stock using either direct thermal printing on special heat-sensitive media or thermal transfer printing using a special ink-coated ribbon.

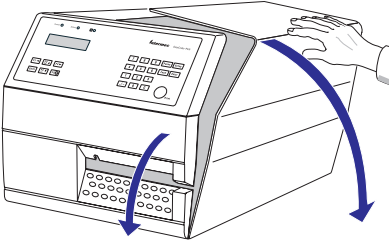
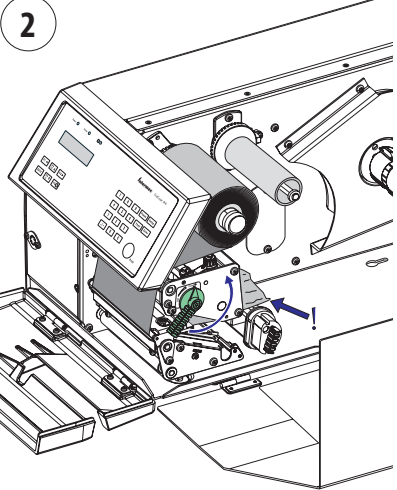
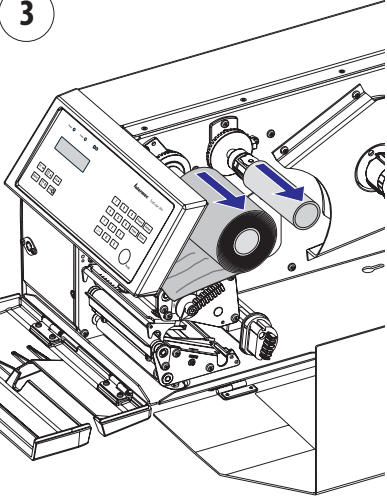
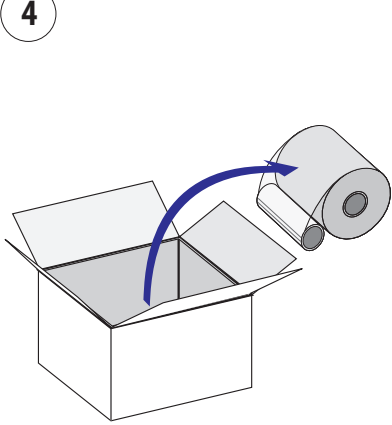
Thermal transfer printing makes it possible to use a wide range of receiving face materials and gives a durable printout less vulnerable to fat, chemicals, heat, sunlight etc. than direct thermal printing. Make sure to select a type of ribbon that matches the type of receiving face material and to set up the printer accordingly.

The EasyCoder PX4i can use transfer ribbon rolls wound with the ink-coated side facing either outward or inward. Illustrations in this manual show the ink-coated side facing inward.

Even if ribbon usually is loaded in connection with media replenishment, no loaded media are shown in the illustrations in this chapter in order to give a clearer view of the ribbon path. Refer to Chapter 4 for media load instructions.

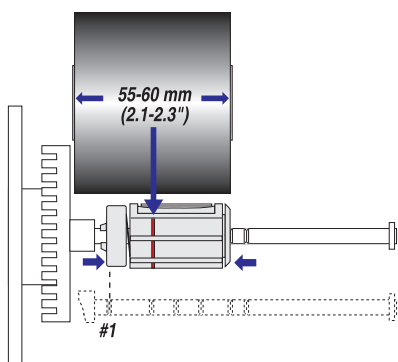
Most transfer ribbons do not smear at room temperature.

## Ribbon Load, cont.

<p>1</p>  <p><i>Open the front and side doors.</i></p>	<p>2</p>  <p><i>Turn the printhead lift lever clockwise to raise the printhead.</i></p>
<p>3</p>  <p><i>In case of ribbon reload, remove any used ribbon and empty ribbon core.</i></p>	<p>4</p>  <p><i>Unpack a roll of original Intermec thermal transfer ribbon.</i></p>

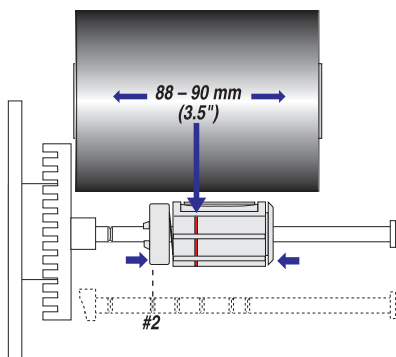
## Ribbon Load, cont.

5a



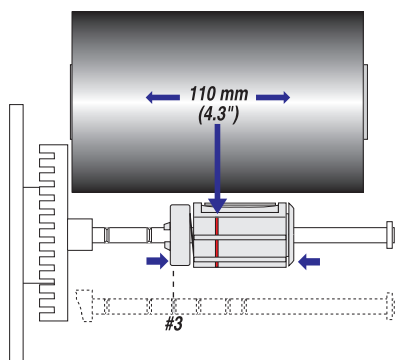
*In case of ribbon 55 to 60 mm (2.16 to 2.3 inches) wide, compress the ribbon supply bobbin and move it so it snaps into the first (innermost) groove.*

5b



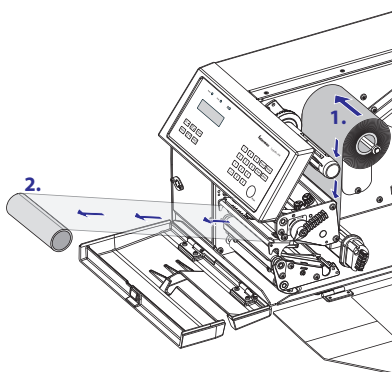
*In case of 88 to 90 mm (3.5 inches) ribbon width, compress the ribbon supply bobbin and move it so it snaps into the second groove.*

5c



*In case of 110 mm (4.3 inches) ribbon width, compress the ribbon supply bobbin and move it so it snaps into the third groove.*

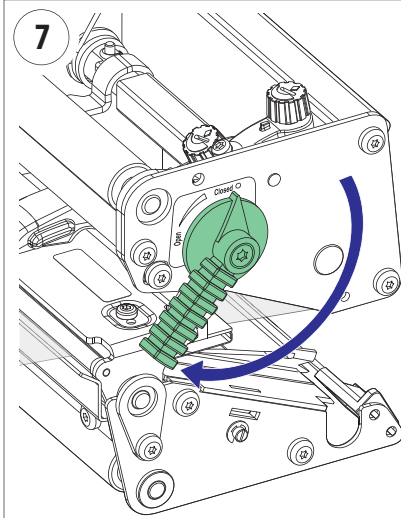
6



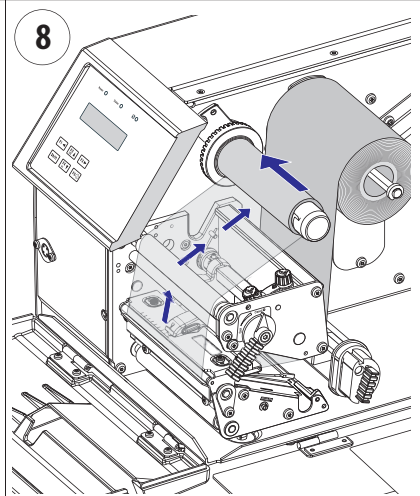
*Press the ribbon roll onto the ribbon supply bobbin (1) and route the ribbon through the print unit. Pull out 20 cm (8 inches) of ribbon.*



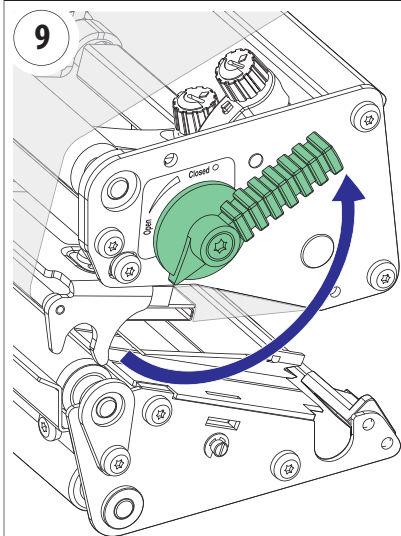
## Ribbon Load, cont.



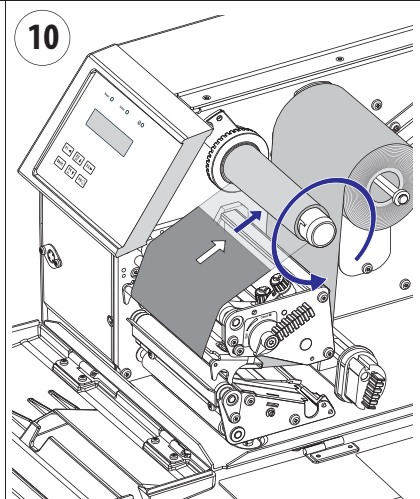
Without releasing the ribbon, turn the printhead lift lever to "Closed" position to lock the ribbon.



Press the cardboard core at the front end of the ribbon onto the rewind hub. During printing, the rewind hub will rotate counterclockwise.



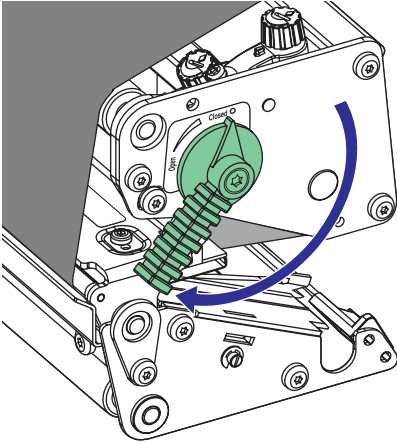
Turn the printhead lift lever to "Open" position.



Wind up the ribbon until all of the transparent leader has passed the printhead and the ribbon becomes tight.

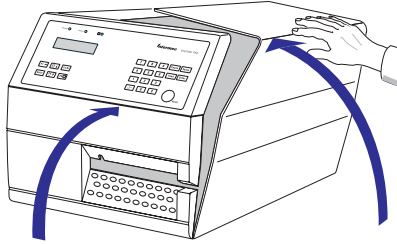
# Ribbon Load, cont.

11



*Turn the printhead lift lever to "Closed" position.*

12



*Close the front and side door.*



## 6 Setting Up the Printer

This chapter describes the various parameters that are used in the Setup Mode (see Chapter 7) or in the various application programs to configure the printer for the user's specific requirements. It covers the following topics:

- Description
- Default setup
- Setup Parameters in regard of communication, feed adjust, media, and print defines.

When measures are specified as “dots”, the actual length in millimeters or inches depends on the printhead density. Convert as follows:

**8 dots/mm (203.2 dots/inch) printhead:**

1 dots = 0.125 mm = 0.0049 inches (4.9 mils)

**11.81 dots/mm (300 dots/inch) printhead:**

1 dot = 0.085 mm = 0.0033 inches (3.3 mils)

## Description

The setup controls the printer in regard of serial communication, media feed, and print speed, and specifies which type of media and (optionally) ribbon is loaded in the printer.

Check the list of the printer's default setup parameters on the next page to see if they match your requirements. If not, you will have to change the setup using one of the methods described below. The setup may also be changed by Intermec PrintSet, InterDriver, and LabelShop, or third-party application programs.

## Setup Mode

- Press the <Setup> key on the printer's built-in keyboard to enter the Setup Mode, or
- select the Setup option in Intermec Shell to enter the Setup Mode, or
- execute the Intermec Fingerprint **SETUP** instruction to enter the Setup Mode, or
- access the Setup Mode via the printer's home (requires an optional EasyLAN interface board).

See Chapter 7, "Setup Mode" in this manual and the EasyLAN documentation.

## Intermec Fingerprint

- Use **setup strings** to change individual setup parameters remotely from the host, or
- use **setup files** to create sets of setup parameters remotely from the host.

See the *Intermec Fingerprint v8.3x* manuals.

## Intermec Direct Protocol

- Use **setup strings** to change individual setup parameters remotely from the host.

See the *Intermec Direct Protocol v8.3x* manuals.

## Default Setup

The printer's default setup is listed below (assuming no options installed):

<b>Ser-Com "uart1:"</b>		
Baud rate		9600 bps
Character length		8 bits
Parity		None
Stop bits		1 bit
RTS/CTS		Disable
ENQ/ACK		Disable
XON/XOFF, data to host		Disable
XON/XOFF, data from host		Disable
New line		CR/LF
Receive buffer		1024 bytes
Transmit buffer		1024 bytes
<b>Feedadjust:</b>		
Startadjust		0 dots
Stopadjust		0 dots
<b>Media:</b>		
X-start	8 dots/mm = 203.2 dpi)	24 dots
	11.81 dots/mm = 300 dpi	36 dots
Width	8 dots/mm = 203.2 dpi	872 dots
	11.81 dots/mm = 300 dpi	1286 dots
Length	8 dots/mm = 203.2	1200 dots
	11.81 dots/mm = 300 dpi	1800 dots
Media type		Label (w Gaps)
Paper type		Thermal transfer
Ribbon constant		90
Ribbon factor		25
Label offset		0
Ribbon sensor (low diameter)		0 mm
Contrast		±0%
Paper sensor (low diameter)		0 mm
<b>Print Defines:</b>		
Print speed		200 mm/sec.

## Reading the Current Setup

The printer's current setup values can be read from the printer's display window by browsing through the Setup Mode.

You can list the printer's current setup values by printing test label "Setup Info" in the Setup Mode or by using Intermec Shell.

The current setup values can be sent to the host via the standard serial communication channel using a **SETUP WRITE "uart1:"** statement (see *Intermec Fingerprint v8.3x, Programmer's Reference Manual*).

# Setup Parameters

## Serial Communication

The serial communication parameters control the communication between the printer and the connected computer or other devices on the standard serial port "uart1:" and the optional serial ports "uart2:", "uart3:", "uart4:", and "uart5:". The optional ports require one or two optional interface boards. The printer's firmware detects if an interface board is installed in the printer and presents additional sets of communication setup menus depending on type of communication (refer to the overviews in Chapter 7, "Setup Mode").



**Note:** The serial communication parameters have no effect on parallel or EasyLAN communications, or on the IN and OUT ports on the optional Serial/Industrial Interface Board.

For the serial communication channel "uart1:", the following parameters can be set. Make sure they match the setup of the connected device or vice versa. If the setup of the printer and the setup of the host do not match, the response from the printer to host will be garbled.

### Baud Rate

The baud rate is the transmission speed in bits per second. There are 10 options:

- 300
- 600
- 1200
- 2400
- 4800
- 9600 (default)
- 19200
- 38400
- 57600
- 115200

## **Character Length**

The character length specifies the number of bits that will define a character. Eight bits are recommended, because that option allows more special characters and characters specific for foreign languages to be used. Refer to the *Intermec Fingerprint v8.3x, Programmer's Reference Manual* for more information.

- 7 Characters ASCII 000 to 127 decimal
- 8 Characters ASCII 000 to 255 decimal (default)

## **Parity**

The parity decides how the firmware will check for transmission errors. There are five options:

- None(default)
- Even
- Odd
- Mark
- Space

## **Stop Bits**

The number of stop bits specifies how many bits will define the end of a character. There are two options:

- 1 (default)
- 2

## **Flow Control**

**RTS/CTS** is a protocol where the communication is controlled by currents through separate lines in the cable being set either to high or low. By default, this option is disabled.

RTS high indicates that the transmitting unit is able to receive characters. RTS low indicates that the receive buffer is filled to 75% (see XON/XOFF).

CTS high indicates that the unit transmitting the CTS signal is ready to receive data. CTS low indicates that the receive buffer is full (see XON/XOFF). In some computer programs, for example MS Windows Terminal, RTS/CTS is designated "Hardware."

**ENQ/ACK** is a protocol where the communication is controlled by the control characters ENQ (ASCII 05 dec.) and ACK (ASCII 06 dec.) being transmitted on the same line as the data. The sending unit transmits ENQ at regular intervals. If the response ACK is not received, the



transmission is held up awaiting an ACK character from the receiving unit. By default, ENQ/ACK is disabled.

**XON/XOFF** is a protocol where the communication is controlled by the control characters XON (ASCII 17 dec.) and XOFF (ASCII 19 dec.) being transmitted on the same line as the data. XON/XOFF can be enabled/disabled separately for data received from the host by the printer (printer sends XON/XOFF) and for data transmitted to the host from the printer (host sends XON/XOFF).

XOFF is sent from the printer when its receive buffer is filled to 75%, and the transmission from the host is held, waiting for an XON character. When enough data have been processed so the receive buffer is filled only to 50%, the printer sends an XON character and the host resumes transmitting data. The same principles apply to XON/XOFF sent by the host, even if the percentage figure may differ. By default, XON/XOFF is disabled for data in both directions.

### **New Line**

Selects the character(s) transmitted from the printer to specify the switching to a new line. There are three options:

- CR/LF      ASCII 13 + 10 dec. (default)
- LF          ASCII 10 dec.
- CR          ASCII 13 dec.

### **Receive Buffer**

The receive buffer stores the input data before processing. Default size is 1024 bytes.

### **Transmit Buffer**

The transmit buffer stores the output data to be transmitted before transmission. Default size is 1024 bytes.

## Feed Adjust

The Feed Adjust part of the Setup Mode controls how much of the media is fed out or pulled back before and/or after the actual printing. These settings are global and will be effected regardless of which program is run.



**Note:** The firmware uses the front edges of labels with gaps, the ends of detection slots, and the forward edges of black marks for detection, all seen in relation to the feed direction.

## Start Adjust

The Start Adjust value is given as a positive or negative number of dots. Default value is 0, which places the origin a certain distance back from the forward edge of the copy.

- A **positive** start adjustment means that the specified length of media will be fed out before the printing starts. Thus, the origin is moved further back from the forward edge of the copy.
- A **negative** start adjustment means that the specified length of media will be pulled back before the printing starts. Thus, the origin is moved towards the forward edge of the copy.

## Stop Adjust

The Stop Adjust value is given as a positive or negative number of dots. Default value is 0, which stops the media feed in a position suitable for tear off operation.

- A **positive** stop adjustment means that the normal media feed after the printing is completed will be increased by the specified value.
- A **negative** stop adjustment means that the normal media feed after the printing is completed will be decreased by the specified value.

## Recommended Feed Adjustments

The following settings allow printing from the top of the label. Minor deviations from the recommended values may be required due to various combinations of media types, roll size, type of media supply device, and individual differences between printers.

<b>Adjustment type</b>	<b>8 dots/mm 203.2 dpi</b>	<b>11.81 dots/mm 300 dpi</b>	<b>Distance in mm</b>	<b>Distance in inches</b>
<b>Tear-Off (Straight-through)</b>				
Start adjust:	-108 dots	-160 dots	13.5	0.54
Stop adjust:	0 dots	0 dots	0	0
<b>Peel-Off (Self-strip)</b>				
Start adjust:	-80 dots	-118 dots	10.0	0.39
Stop adjust:	-40 dots	-60 dots	5.0	0.20
<b>Cut between labels w. gaps</b>				
Start adjust:	-287 dots	-424 dots	35.9	1.41
Stop adjust:	+176 dots	+260 dots	22.0	0.87
<b>Cut fix and variable length strip</b>				
Start adjust:	-294 dots	-434 dots	36.8	1.45
Stop adjust:	+298 dots	+440 dots	37.3	1.47

## Media

The media parameters tell the firmware the characteristics of the media that will be used, so the printout will be positioned correctly and get the best quality possible.

### Media Size

The size of the printable area is defined by three parameters; X-Start, Width, and Length.

#### X-Start

Specifies the position of the origin along the dots on the printhead.

The default X-start value prevents printing outside labels when the liner is slightly wider than the labels. If you want to maximize the print width, reset the X-start value to 0.

By increasing the value for the X-start parameter, the origin will be moved outwards, away from the inner edge of the media path. In other words, the larger X-start value, the wider inner margin and the less available print width.

#### Width

Specifies the width of the printable area in number of dots from the origin. Thus, the sum of the X-start and width values gives the outer margin of the printable area. The width should be set to prevent printing outside the media, which may harm the printhead.

#### Length

Specifies the length of the printable area in number of dots from the origin along the Y-coordinate and allocates memory space for two identical image buffers in the printer's temporary memory.

The size of each buffer can be calculated using this formula:

Buffer size (bits) = [Print length in dots] x [Printhead width in dots]



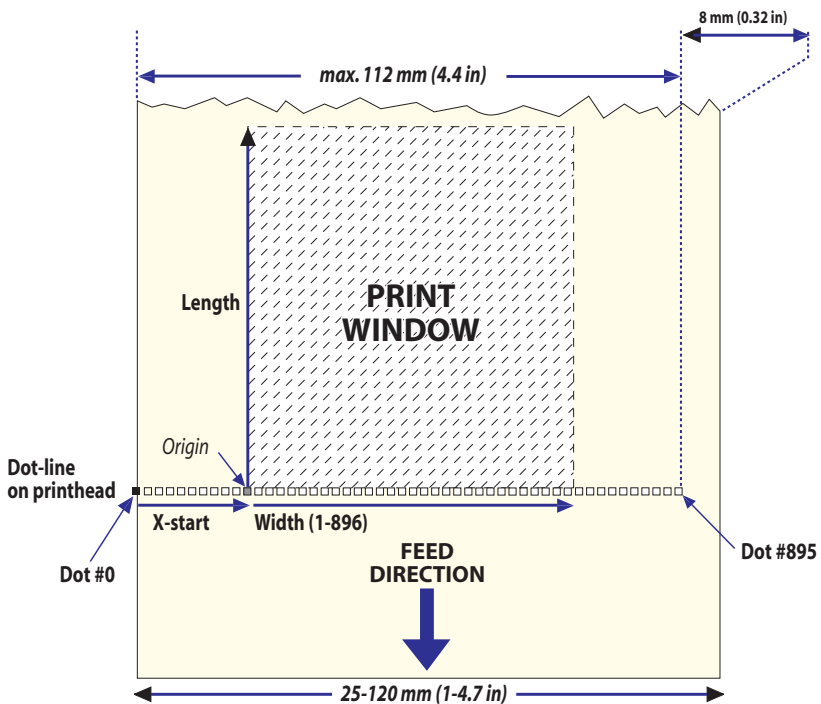
**Note:** The temporary memory has other functions that also require some memory space. To obtain a longer print area, the memory can be increased by fitting a larger SDRAM SIMM on the printer's CPU board as described in the Service Manual.

- The length setup also decides the amount of media feed when using “fix length strip.”

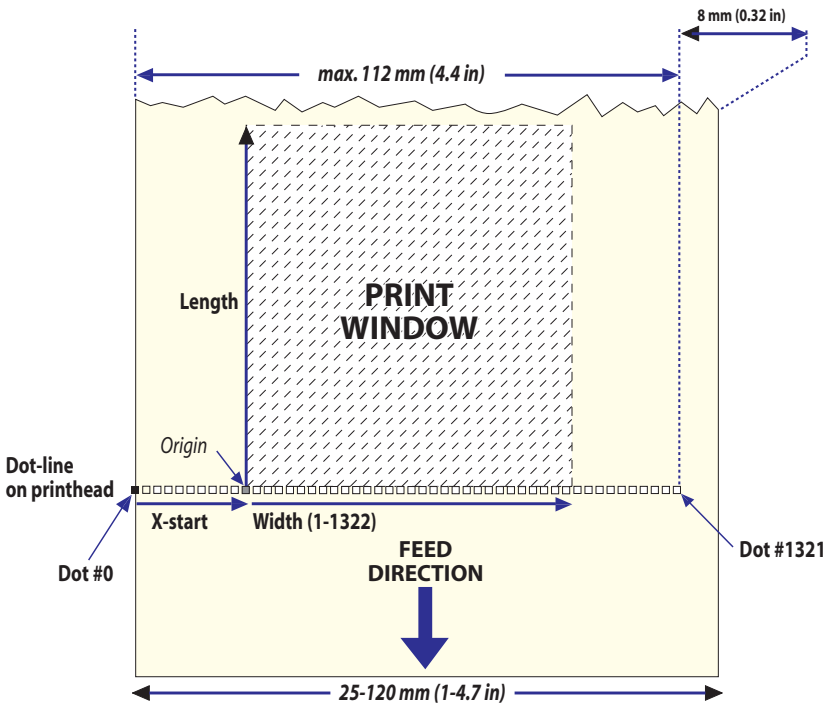
- The length setup creates an emergency stop, which works when the printer is set up for “Label (w gaps)”, “Ticket (w mark)”, or “Ticket (w gaps).” If the label stop sensor has not detected a gap or mark within 150% of the set length, the media feed is automatically stopped to avoid feeding out a whole roll of media, because of a sensor malfunction.

By setting up the X-start, the Width, and the Length, you will create a print window inside which the printing can be performed. Any object or field extending outside the print window in any direction will either be clipped or cause an error condition (Error 1003 “Field out of label”), see *Intermec Fingerprint v8.3x, Programmer’s Reference Manual*.

### Print Window 8 dots/mm (203.2 dpi) printhead



Print Window 11.81 dots/mm 300 dpi) printhead



## Media Type

The Media Type parameters control how the label stop sensor (LSS) and the media feed work. There are five media type options:

- **Label (w gaps)** is used for adhesive labels mounted on liner.
- **Ticket (w mark)** is used for labels, tickets, or continuous stock provided with black marks at the back.
- **Ticket (w gaps)** is used for tickets and tags with detection slots.
- **Fix length strip** is used for continuous stock where the length of the print window decides the length of media to be fed out.
- **Var length strip** is used for continuous stock. The size of the print images decides the length of each copy.

It is important to select the correct media type, so the printer can indicate the following errors.

- Error 1005 “Out of paper” indicates that the last ordered copy could not be printed because of an empty media stock.
- Error 1031 “Next label not found” indicates that the last ordered label or ticket was successfully printed, but no more labels/tickets can be printed because of an empty media stock.

## **Paper Type**

The Paper Type parameters control the heat emitted from the printhead to the direct thermal media or, optionally, the transfer ribbon in order to produce the dots that make up the printout image.

Labels, tickets, tags, strip, and ribbons for various types of application are available from Intermec. For the best printout quality and maximum life of the printhead, use Intermec supplies.

As a general rule, high energy and/or high print speed will shorten the life of the printhead. Never use higher paper type and print speed settings than necessary for obtaining an acceptable printout quality and throughput speed.

If the ambient temperature is lower than +15°C (+59°F), decrease the print speed by 50 mm/sec.

Start by choosing between two alternatives:

- Direct Thermal printing (option)
- Thermal Transfer printing (default)

Your choice will decide which parameters to enter next:

### **Direct Thermal Printing**

- Label Constant (range 50 to 115)
- Label Factor (range 10 to 50)

When adjusting the image darkness for non-Intermec direct thermal media, set the Label Factor to the recommended value for the type of direct thermal media listed in the table below. Then set the Label Constant to the value listed in the table below and decrease or increase it for lighter or darker images respectively until you are satisfied with the printout quality. For Intermec media, refer to Appendix D.

### **General Paper Type Settings Guide (Direct Thermal)**

<b>Sensitivity<sup>1</sup></b>	<b>Label Constant</b>	<b>Label Factor</b>	<b>Max Print Speed</b>
Low	100	40	100
Standard	90	40	200
High	80	40	250
Ultra high	60	40	300

<sup>1</sup>/. Note that preprint and varnish decrease the sensitivity of direct thermal media.



### Thermal Transfer Printing

- Ribbon Constant *(range 50 to 115)*
- Ribbon Factor *(range 10 to 50)*
- Label Offset *(range -50 to 50)*
- Ribbon Sensor *(autoadjustment)*
- Low Diameter *(range 25 to 80 mm)*

When adjusting the image darkness for non-Intermec media and transfer ribbons, set the Ribbon Factor to the recommended value for the type of thermal transfer ribbon in the table below. Then set the Ribbon Constant to the value listed in the table below and decrease or increase it for lighter or darker images respectively until you are satisfied with the printout quality. The Label Offset parameter is presently not used, so keep it at the default value 0. For Intermec media, refer to Appendix D.

### General Paper Type Settings Guide (Thermal Transfer)

Media Performance	Ribbon Constant	Ribbon Factor	Max Print Speed
Low (Europe)	75	25	200
Low (U.S.A.)	70	25	200
Medium (Europe)	90	25	250
Medium (U.S.A.)	75	25	250
High (Europe)	90	25	300
High (U.S.A.)	90	25	300

The Ribbon Sensor parameter is read-only. When performing a Testfeed or when pressing the <Enter> key when the Ribbon Sensor menu is displayed, the printer will feed out some media and auto adjust the sensor. The resulting setting is displayed in the menu.

The Low Diameter parameter specifies the diameter of the ribbon supply roll, where SYSVAR(26) switches from 0 to 1. SYSVAR(26) = 0 means that there is still a sufficient supply of ribbon, whereas SYSVAR(26) = 1 means that it is time to consider replacing the ribbon supply. The diameter is expressed in millimeters (1 mm = 0.04 in.) and an accuracy of  $\pm 3$  mm can be expected. Note that this setting has little effect unless SYSVAR(26) is read by a Fingerprint program. However, Error 1083 “Ribbon Low” is reported at every tenth printing operation. By default, the low diameter is 0, that is, the ribbon low function is disabled.

### Contrast

Use the contrast parameter to make minor adjustments of the blackness in the printout, for example to adapt the printer to variations in quality between different batches of the same media. 11 options are displayed in an endless loop from -10% to +10%. Default value is +0%. The contrast is reset to the default whenever a new paper type is specified, regardless which method has been used.

### Paper Sensor

The Paper Sensor parameter is read-only. By pressing the <Enter> key, the paper sensor is automatically adjusted.

The Low Diameter parameter specifies the diameter of the media supply roll, where SYSVAR(46) switches from 0 to 1. SYSVAR(46) = 0 means that there is still a sufficient supply of media, whereas SYSVAR(46) = 1 initiates error 1084 “Paper low.” The diameter is expressed in millimeters (1 mm = 0.04 in.). Default value is 0 (mm) and the maximum value is 200 (mm).

### Testfeed

The sensitivity of the label stop sensor (LSS) may need to be adjusted when switching from one type of media to another. This is especially the case when using adhesive labels since the transparency of the liner (backing paper) may vary. When the Testfeed menu is displayed, press the <Enter> key. A number of blank copies will be fed out until the firmware has decided the proper setting for the LSS. At the same time, the front edges of the labels, tickets, etc. are detected so the feed control can position the media according to the Feedadjust parameter (same as the Intermec Fingerprint statement TESTFEED). Four values used for troubleshooting the LSS are displayed (read-only information).

## Print Defines

### Head Resistance

The printhead resistance is measured automatically at startup (read-only information).

### Testprint

The test labels "Diamonds", "Chess", "Bar Codes #1", and "Bar Codes #2" are used to check the printout quality and facilitate adjustment of the printhead pressure, see Chapter 12. The test labels "Setup Info" and "Hardware Info" list the printer's current setup and the installed electronic devices. Test label "Network Info" is only printed if the printer has an optional EasyLAN interface board. If the information does not fit on one label, two or more labels will be printed. If the printer refuses to print a test label, press the <F5/i> key to find out what is wrong, for example "printhead lifted" or "out-of paper".

### Print Speed

The print speed is variable between 100 and 300 mm/second. Generally, the lower the speed, the better the printout quality. This is especially true when printing bar codes with the bars running across the media path ("ladder style"), when printing on demanding face materials, and when printing at low ambient temperatures. The default setting is 200 mm/sec. (approx. 8 inches/sec.).

Refer to Appendix D for recommended maximum print speed for various combinations of Intermec media and transfer ribbon.

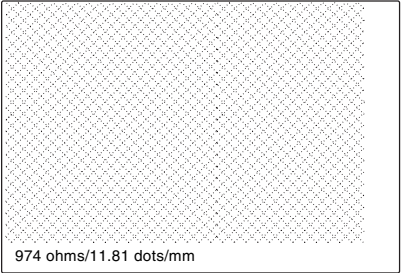
### LSS Test

The function on the label stop sensor (LSS) can be tested automatically or manually as described in Chapter 12 "Adjustments."

### LTS (Label Taken Sensor)

The sensitivity of the LTS can be tested and adjusted as described in Chapter 12 "Adjustments."

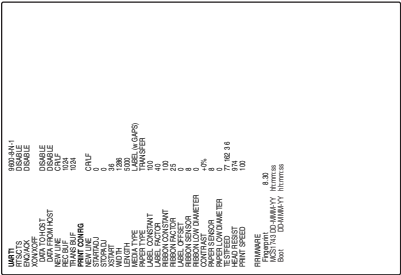
Test Labels (examples)



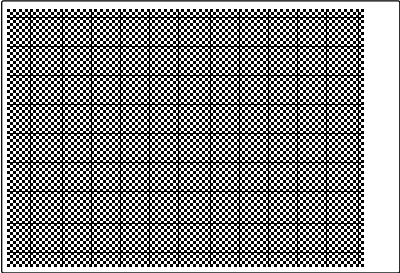
Diamonds



Bar Codes #1



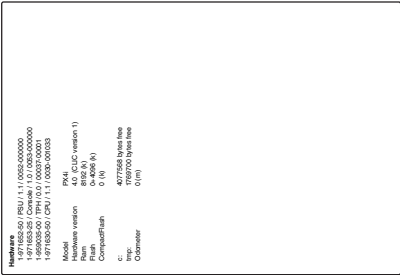
Setup Info



Chess



Bar Codes #2



Hardware Info

## Returning to Factory Default Setup

There are two ways to return to the factory default setup of the printer:

- A** Insert a special CompactFlash memory card and restart the printer.
- B** Using the printer's built-in keyboard.

To reset the printer using the keyboard, do like this:

- 1 Lift the printhead.
- 2 Switch on the power to the printer and press the <⏏/F5> key and wait until the printer beeps.
- 3 Swiftly press the following keys:  
<⏏/F4> → <⏏/F2> → <⏏/F2> → <⏏/F1>
- 4 The following message will be displayed:

**Factory Default?**  
**Enter=Yes ESC=No**

- 5 Within 10 seconds, press <Enter> to reset the printer to factory default. The parameters will be reset and the printer will continue the normal startup.


If you press <Esc/F2> or wait until the 10 seconds time out has passed, the normal startup will continue without any reset being performed.



**Note:** If any of the files "card:NOSHELL.CFG", "rom:NOSHELL.CFG", or "c:NOSHELL.CFG" exists in the printer's memory, no reset to factory default will be performed.

The factory default will remove all files used to store settings. It will not reset settings that already has been read when the files are removed. This means that EasyLAN Wireless settings (SSID, keys, etc.) will retain their values from the previous start. However, the next reboot will reset them to factory default.





# **7 Setup Mode**

This chapter describes how to enter the setup mode at installation, how to navigate in the setup mode, and provides overviews over which parameters and messages are available for the standard printer and with various interface boards.

## **Entering Setup Mode at Installation**

The method of entering the Setup Mode depends on which startup files are stored in the printer's memory, a subject that was more thoroughly discussed in Chapter 3, "Starting Up."

### **EasyCoder PX4i with Intermec Shell**

- Switch on the power.
- When the display shows the message "Enter=Shell; x sec...", press <Enter>.
- Press <Setup> (this facility can be used anywhere within Intermec Shell).
- Set up the printer as described in this chapter.
- Return to Intermec Shell by pressing <Setup>.

### **EasyCoder PX4i with a custom-made application program**

- Normally, there is no need to enter the Setup Mode for custom-made application programs. Necessary provisions for changing the setup, manually or automatically, should be provided by the program.



## Navigating in Setup Mode

While going through the setup procedure, you are guided by texts in the printer's display. You can navigate between setup menus, acknowledge displayed values, select or type new values, etc. by using the keys on the printer's keyboard.



**Note:** An external keyboard cannot be used inside the Setup Mode.

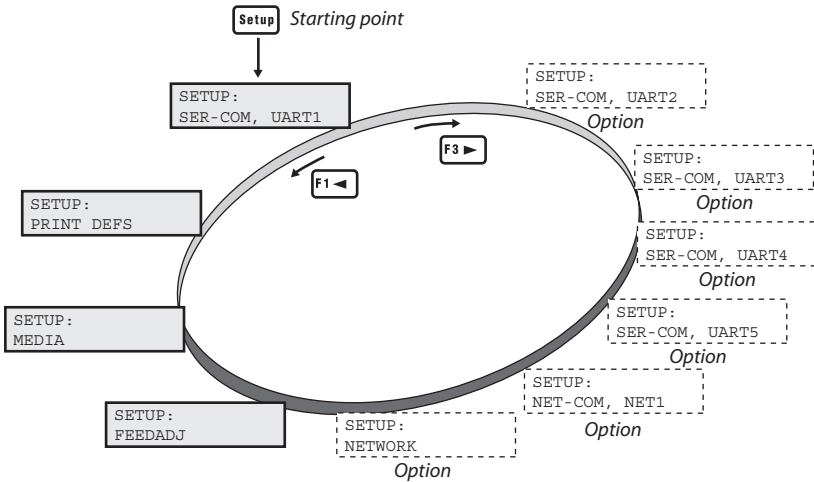
<b>F1</b> ◀	Move one menu to the left on the same level or scroll back in a stack of options <sup>1</sup> .
<b>F2</b> ▲ ESC	Move up one level <sup>1</sup> .
<b>F3</b> ▶	Move one menu to the right on the same level or scroll forward in a stack of options <sup>1</sup> .
<b>F4</b> ▼ INS	Move down one level <sup>1</sup> .
<b>F5</b> ⓘ	Display error messages at test label printing failure.
<b>0</b> - <b>9</b>	Enter numeric values.
<b>.</b> / <b>-</b>	Specify negative values (leading position).
<b>C</b>	Clear displayed values.
<b>Enter</b>	Acknowledge and move to next menu or perform testfeeds in the Testfeed menu, or print test labels in the Test label menu.
<b>Setup</b>	Exit the Setup Mode. Can be used anywhere in Setup Mode.

<sup>1</sup>/. “Left”, “right”, “up”, and “down” refer to the overviews later in this chapter.

## Chapter 7 — Setup Mode

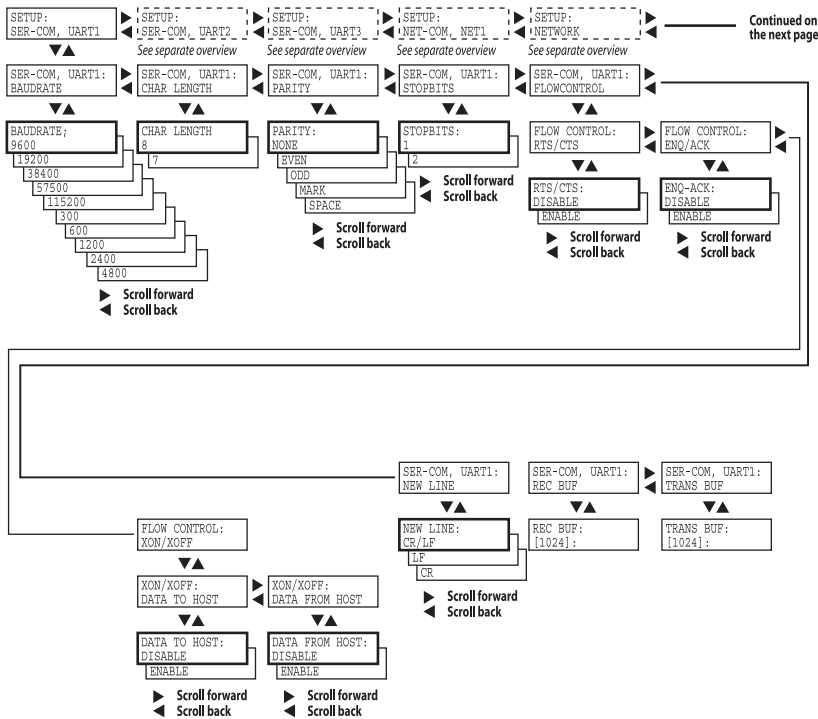
The Setup Mode is organized as an endless loop, from which you can select a number of sub-categories. At startup, the firmware determines if options such as a label taken sensor or an interface board are installed in the printer. Only installed options are shown in the Setup Mode.

The diagram below shows the options in the main loop. Detailed overviews are shown on the pages that follow.



Setup Mode; Serial Communication "uart1:"

(Intermec Fingerprint v8.30)



**Legend:**

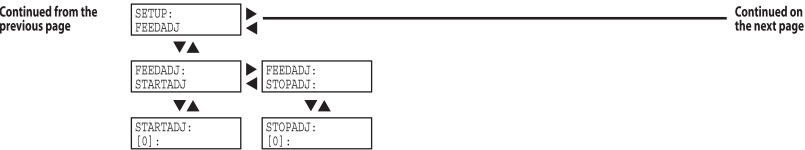
Dotted boxes and lines indicate options.

Thick boxes indicate default options.

Values inside brackets indicate default settings.

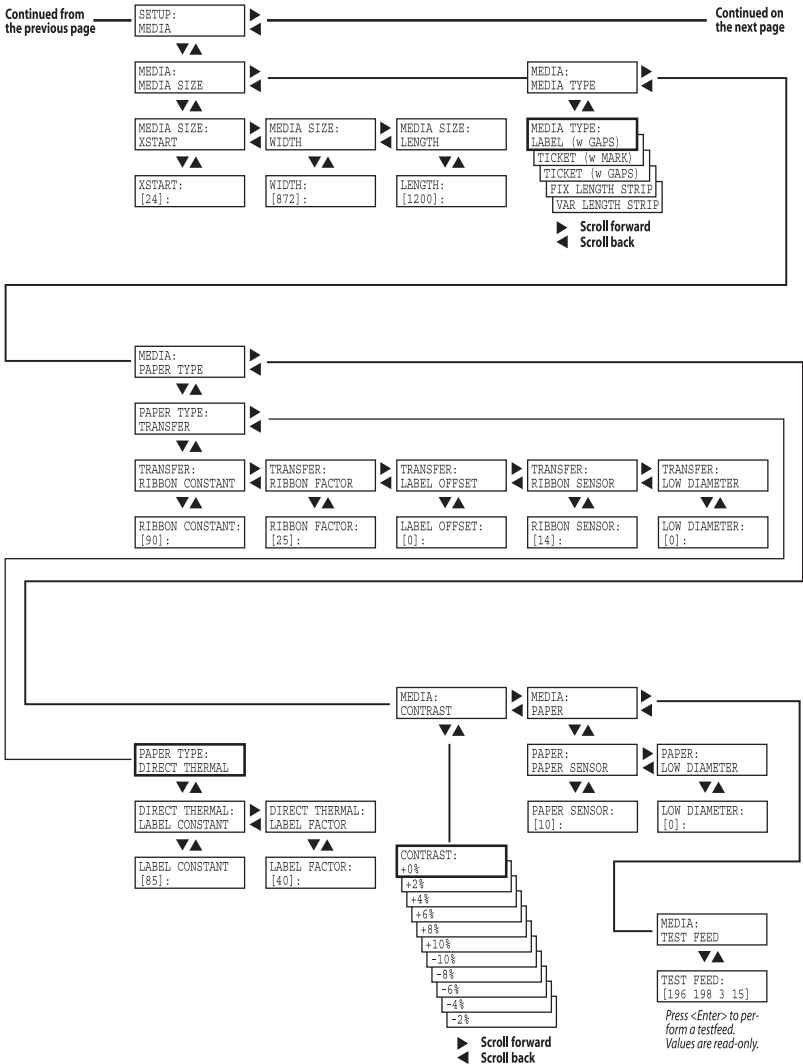
Setup Mode; Feed Adjust

(Intermec Fingerprint v8.30)



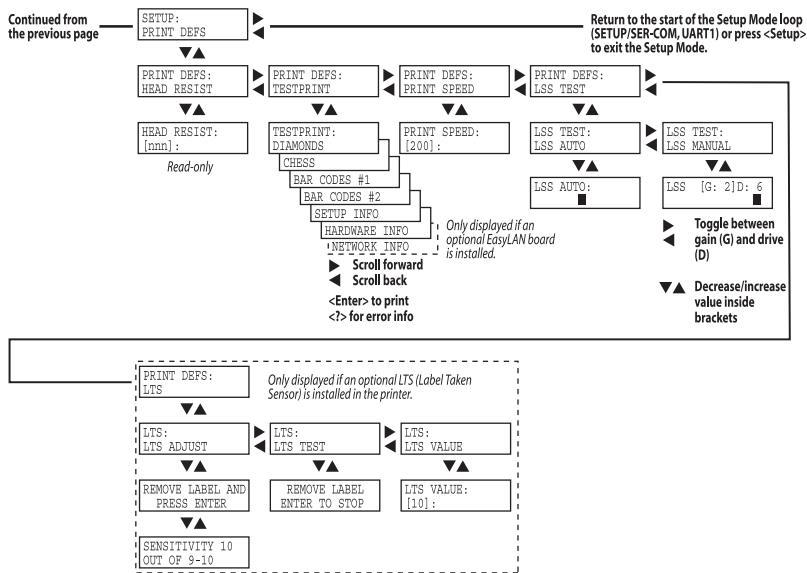
Setup Mode; Media

(Intermec Fingerprint v8.30)



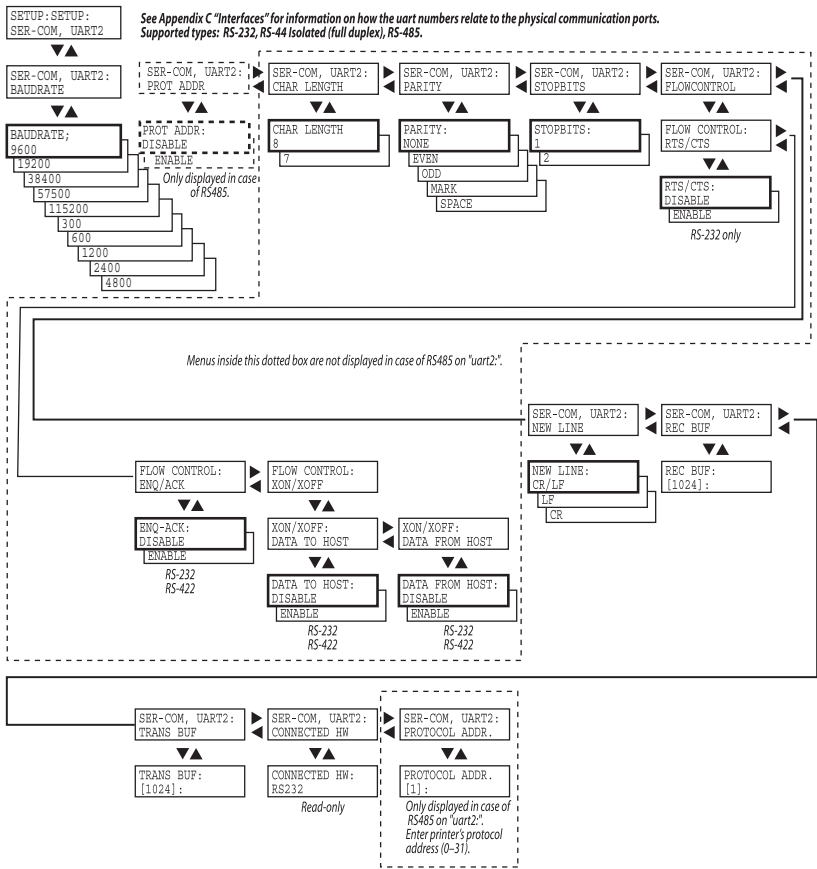
Setup Mode; Print Defs

(Intermec Fingerprint v8.30)



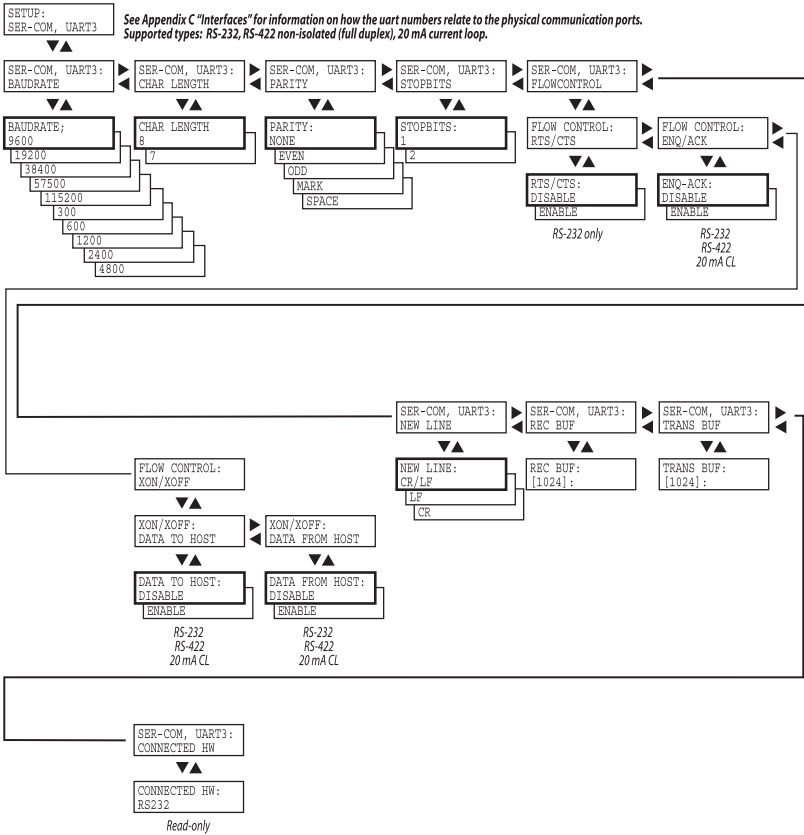
# Setup Mode; Serial Communication "uart2:" (option)

(Intermec Fingerprint v8.30)



# Setup Mode; Serial Communication "uart3:" (option)

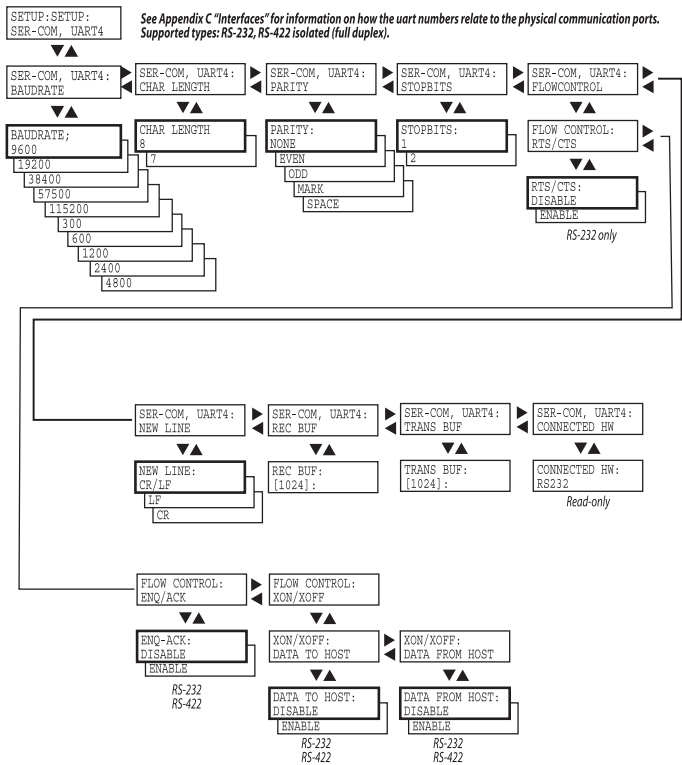
(Intermec Fingerprint v8.30)





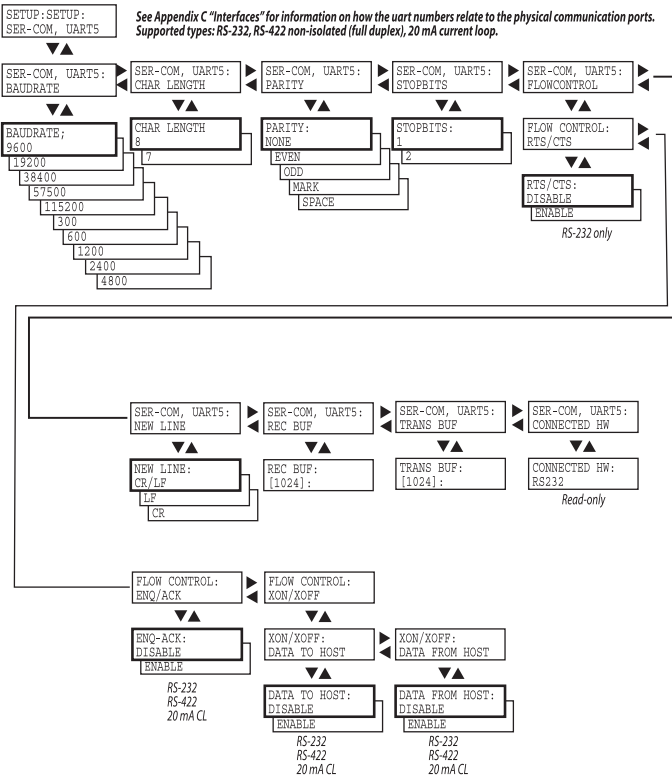
# Setup Mode; Serial Communication "uart4:" (option)

(Intermec Fingerprint v8.30)



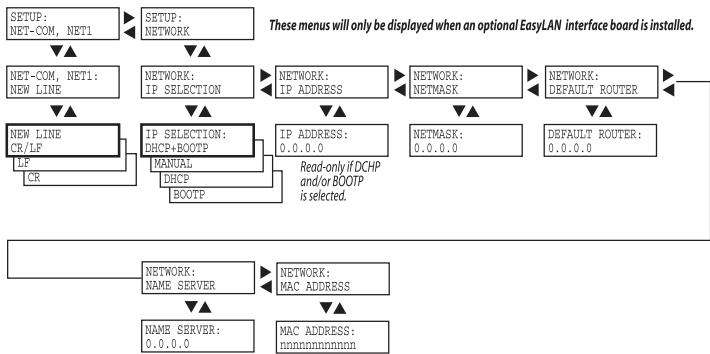
# Setup Mode; Serial Communication "uart5:" (option)

(Intermec Fingerprint v8.30)



# Setup Mode; Network Communication "net1:" (option)

(Intermec Fingerprint v8.30)







## **8 Intermec Shell Startup Program**

This chapter describes the Intermec Shell startup program and covers the following topics:

- Introduction
- Starting with Intermec Shell
- Intermec Shell Overview
- Line Analyzer

## **Introduction**

Intermec Shell is a startup program, that is, a program that automatically starts running when the printer is switched on. Intermec Shell helps the operator to choose between a number of standard or custom-made application programs and to start certain useful facilities, as listed below.

### **Application Programs**

- Intermec Fingerprint (for creating your own programs or to run the Intermec InterDriver)
- Intermec Direct Protocol (easy-to-use slave protocol)
- LINE\_AXP.PRГ (line analyzer program)
- Other application programs in the printer's memory.

A prerequisite for a program to appear as an option in Intermec Shell is that the program is provided with the extension ".PRГ" and is stored in the root of the directory "/c" or "card1:". However, some original Intermec utility programs are excluded as long as they remain stored in "/rom":

- ERRHAND.PRГ
- FILELIST.PRГ
- LBLSHTXT.PRГ
- MKAUTO.PRГ
- SHELLXP.PRГ
- WINXP.PRГ

## Other Facilities

- Setup Mode (manual setup from printer's keyboard)
- Print Setup (printing setup on label)
- Testfeed (formfeeds and auto-adjust of the LSS)
- Test Label (printing of test labels)
- Default setup (resetting all setup parameters to default)
- Software Update (downloading data from a host to a CompactFlash card in the printer, upgrading the printer's firmware from a CompactFlash card, or upgrading the printer's firmware from a file in a PC)
- Reboot (restarting the printer)



**Note:** Intermec Shell is factory-installed in the printer's permanent memory (device `"/rom"`). If you insert a memory card with another startup file before you switch on the printer, or if there is a startup file stored in the printer's permanent memory (device `"/c"`), this startup file will be used instead of Intermec Shell (see Chapter 3, "Startup Files").

## Starting with Intermec Shell

A few seconds after you have switched on the power to the printer and the initialization is completed, the countdown menu of the Intermec Shell program will be displayed:

```
ENTER=SHELL
5 sec.      v.8.2
```

Now you have 5 seconds to enter Intermec Shell by pressing <Enter>.

The lower line tells you how much time you have left. Should the time run out before you have taken any action, the last selected application in Intermec Shell will be opened. If you use the same application all the time, you will only need to switch on the power, once the application has been selected.

If no other application has yet been selected, the current version of Intermec Fingerprint will be opened with "auto" selected as standard IN/OUT channel (see Intermec Fingerprint manuals). When the countdown is completed, you will see these lines in the display:

```
Fingerprint
8.30
```

If you want to select another application, just cycle the power and enter Intermec Shell before the countdown is completed.

When you enter the Intermec Shell from the countdown menus, the Select Application menu will be displayed:

```
SHELL
SEL. APPLICATION
```

In this menu, you can choose between two options:

- Press <Enter> to go to menus where you can select an application program.
- Press <►> to go to the Facilities part of Intermec Shell.



## Selecting an Application

In Intermec Shell, the menus present the options in infinite loops. To see all menus and options, refer to the overview in this chapter. The Select application lets you choose an application program that resides in the printer's memory:

- **Current appl.** starts the last selected application (by default Intermec Fingerprint with "auto" selected as standard IN/OUT channel).
- **Fingerprint** is used to create, modify, or run programs written in the Intermec Fingerprint programming language and to run the Intermec InterDriver. This option requires that you also select a standard IN/OUT channel, which is the channel you want to use for communication between the printer and the computer. Normally, you select "uart1:". Refer to the Intermec Fingerprint manuals.
- **Direct Protocol** is an easy-to-use printer protocol for downloading label formats and variable input data to a printer from a host computer. This option requires that you also select a standard IN/OUT channel, that is the serial channel you want to use for communication between the printer and the host. Normally, you select "uart1:". Refer to the *Intermec Direct Protocol v8.3x, Programmer's Reference Manual*.
- **LINE-AXP.PRg** (Line Analyzer) is a Fingerprint program that captures characters received by the printer on a communication channel and prints them on labels. (See later in this chapter.)
- Other Application Programs will be presented as additional options.



**Note:** When an application program is started, it may automatically change the communication setup. If another application is selected later, this communication setup will remain valid, unless the new application includes instructions that automatically change the setup. The setup could also be changed manually in the Setup Mode.

## **Selecting Other Facilities**

As an alternative to selecting an application, you can step through a number of other useful facilities:

### **Setup**

Set up the printer using its built-in keyboard, see Chapter 7, “Setup Mode.”

### **Print Setup**

Produce a printout of the printer’s current setup values (test label “Setup Info”).

### **Testfeed**

Feed out a number of label, ticket, tag, or portions of continuous stock while the printer auto-adjusts its media feed and label stop/black mark sensor. It is recommended to perform a Testfeed each time you load a roll of labels from a new batch or a different brand.

### **Test Label**

Print a series of four test labels (test labels “Diamonds”, “Chess”, “Bar Codes #1”, and Bar Codes #2”) in order to test the printout quality and printhead alignment. The labels are presented in an infinite loop, so you can print the series over and over again. Press <Enter> for each new label.

### **Default Setup**

Reset all setup parameters to their default values, as listed in Chapter 6, “Setting Up the Printer.”

### **Software Update**

Using the Zmodem communication tool, files can be downloaded from a PC, either to be stored on a standard CompactFlash memory card or to upgrade the printer’s firmware. The following options are available:

- Update CompactFlash card allows the printer to be used as a CompactFlash card programming device. Any files can be downloaded from a PC to a standard CompactFlash card inserted in the memory card slot in the printer’s rear plate.

A typical application is to create a firmware upgrade card from an upgrade file stored in a PC. You can use the card to upgrade the firmware in several printers simply by moving the card from printer to printer. Just insert the card, switch on the power, and wait from the prompts to appear in the printer’s display window.

- Update firmware is used to directly upgrade the firmware of a specific printer from a new firmware version stored as a file in a PC. If the printer is equipped with an EasyLAN Ethernet or Wireless board, the user must have access rights to upgrade the firmware, see the EasyLAN User's Guide.



Caution

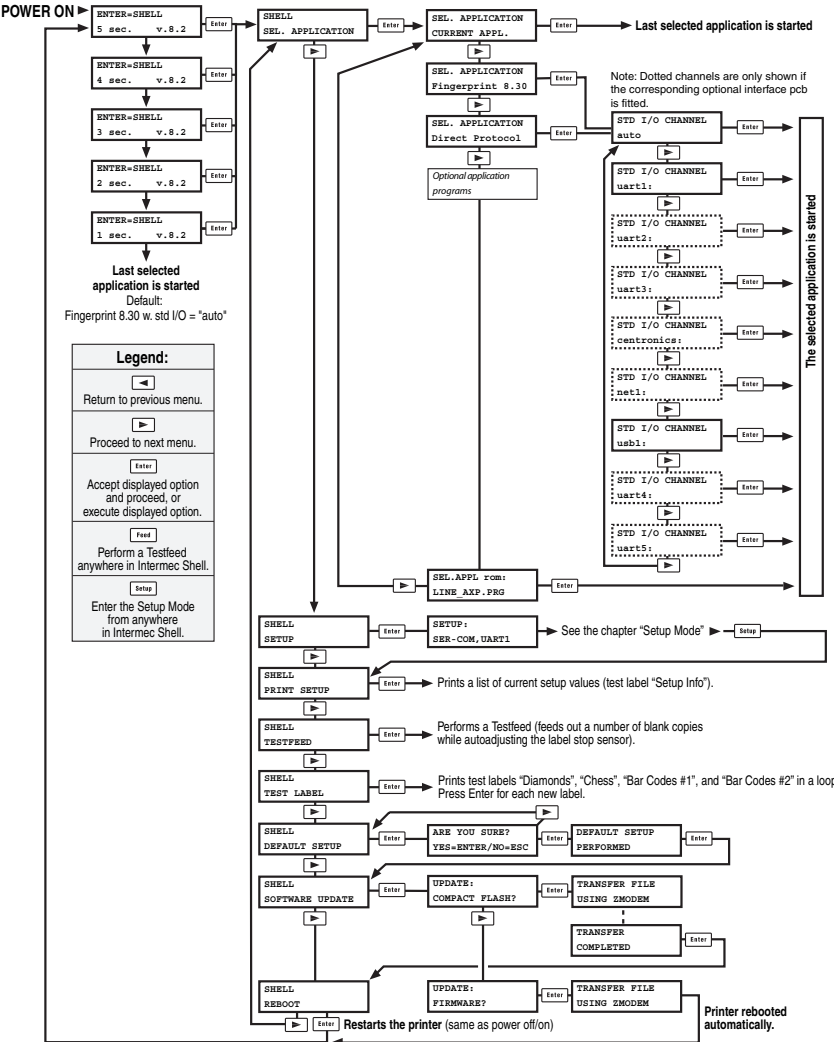
**If the CompactFlash card or upgrade file contains an earlier firmware version than the one in the printer, the printer's firmware will be downgraded without warning.**

Firmware upgrade files can be found on [www.intermec.com](http://www.intermec.com) or be obtained from your local Intermec distributor.

### Reboot

Corresponds to cycling the power to the printer. To exit Intermec Shell without having selected any application, select Reboot. Then wait for the 5 seconds countdown to finish, and the last selected application will be opened.

# Intermec Shell v8.2 Overview



## Line Analyzer

The Line Analyzer (LINE\_AXP.PRG) is a program written in the Intermec Fingerprint programming language and is intended to help solving possible communication problems. As the name implies, the Line Analyzer captures all incoming characters on a specified communication channel and prints them on one or more labels.

Printable characters are printed in black-on-white, whereas control characters and space characters (ASCII 000–032 dec.) are printed in white-on-black.

While the printer is receiving data, the “Status” indicator lamp blinks. There is a 0.5 second time-out. That is, if no more characters have been received after 0.5 second, the program considers the transmission terminated and prints out a label.

As long as a continuous string of characters is being received, the program wraps the lines until the label is full and then starts to print another label. At the bottom of each label, the following information is printed:

- Page number
- Number of characters printed on the label
- Total number of characters received so far

The Line Analyzer is displayed as the option “LINE\_AXP.PRG” under the “SEL. APPLICATION” menu. After the Line Analyzer has been selected and the printer has started up again, the printer feeds out two labels and the following menu is displayed:

**Line Analyzer**  
**Sel.port (1-8) 1**

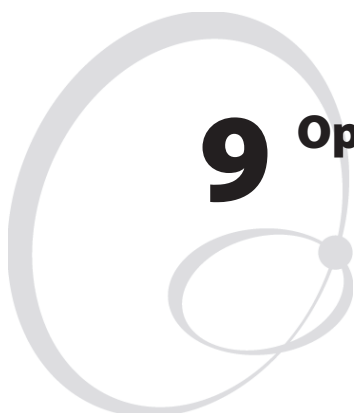
Enter the desired communication port using the numeric keys on the printer’s keyboard:

- 1 = "uart1:"
- 2 = "uart2:"
- 3 = "uart3:"
- 4 = "centronics:"
- 5 = "net1:"
- 6 = "usb1:"
- 7 = "uart4:"
- 8 = "uart5:"

## **Chapter 8 — Intermec Shell Startup Program**

If the printer is not fitted with the specified port, an error message appears in the display and you can select another port:

```
Line Analyzer
Error:56
```

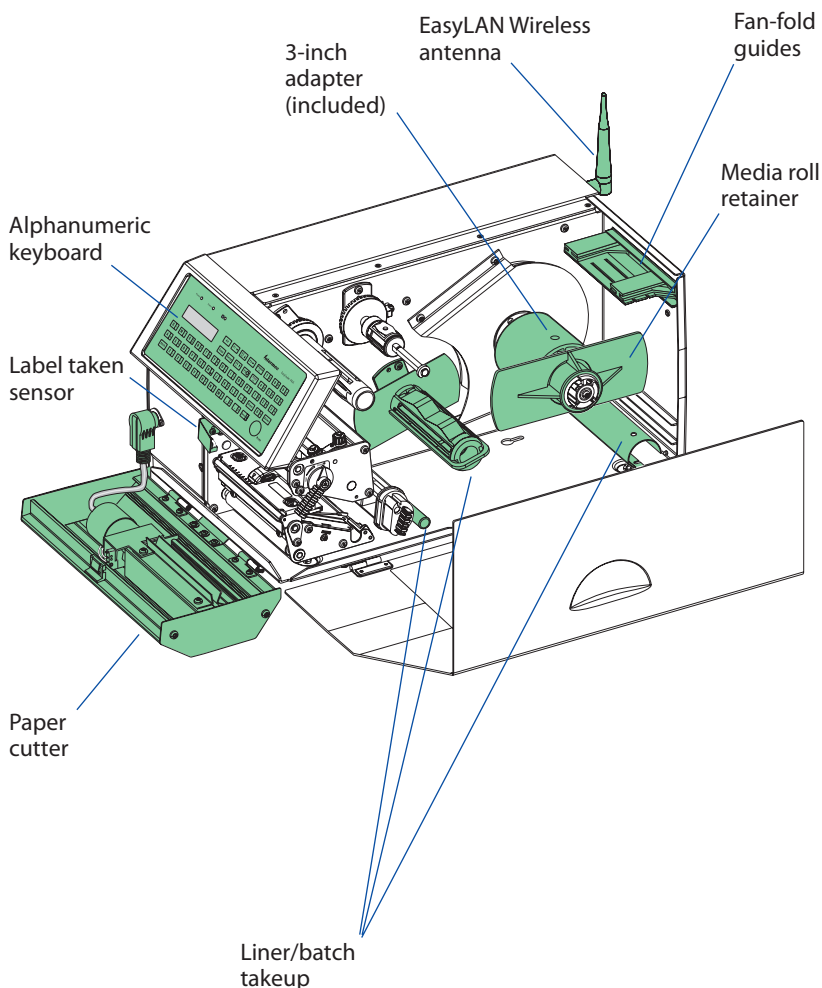


# 9 Options

This chapter describes the options available for the EasyCoder PX4i printer. The options can be factory installed, field-installed by an authorized service technician, or in some cases installed by the operator.

## Introduction

The EasyCoder PX4i provides a high degree of flexibility because it has a modular design. By adding options to the basic printer, the EasyCoder PX4i can be adapted for a variety of applications. Some options should be installed by an authorized service technician or are only available as factory-installed options.





## Liner/Batch Takeup Kit

This is a factory-installed option only and is used to separate labels from the liner and wind up the spent liner inside the printer's media compartment. Labels, tickets, tags, etc. can be wound up inside the media compartment after printing by fitting a special guide to the front of the print unit.

The kit consists of a stepper motor that drives the liner drive roller in the print unit (fitted as standard) and a takeup hub in the media compartment. A guide shaft is fitted to the center section immediately behind the slack absorber. A guide plate is fitted at the rear of the media compartment and can be used to replace the standard tear bar on the print unit for batch takeup operation.

Operation and media load are described in the sections “Peel-Off” and “Internal Batch Takeup” of Chapter 4, “Media Load.”

## Paper Cutter

The EasyCoder PX4i can easily be fitted with an optional paper cutter, provided the printer is not also equipped with a label taken sensor (LTS.) The cutter unit replaces the front door using the same hinges. It is connected by a single cable to the DIN-connector on the printer's front. The paper cutter is available both as a factory-installed option and as a operator-installable kit.

The paper cutter is intended to cut through continuous non-adhesive paper-based media or through the liner between labels. It **must not** cut through any adhesive, which would stick to the cutting parts and rapidly render the cutter inoperable—possibly also causing damage to the electric motor. Maximum thickness for normal paper-based materials is 175  $\mu\text{m}$  ( $\approx 175$  grams/m<sup>2</sup>).

The paper cutter increases the printer's total weight by approx. 1.0 kg (2.2 pounds) and its length by 28 mm (1.1 inches).

The paper cutter can be tilted forward in order to facilitate cleaning and media load. For media load instructions, see section “Cut-Off” in Chapter 4, “Media Load.”

The cutter is activated by CUT or CUT ON instructions, see the *Intermec Fingerprint v8.3x* manuals.

The rotating edge will cut through the media approx. 37 mm (1.5 inches) in front of the printer's dot line. The media feed should be adjusted accordingly, see Chapter 7, "Setting Up the Printer."

Should you inadvertently have cut through self-adhesive labels, you will have to clean the cutting parts. Tilt down the cutter and clean using a piece of tissue moistened with isopropyl alcohol.



Warning

**The cutting edge will rotate when the power is switched on and when the printer is re-booted. Always keep the cutter in closed position during operation. Switch off the power or disconnect the cutter before cleaning. Keep your fingers away from cutting parts!**

## Fan-Fold Guides

The fan fold guides provide a more exact guiding of the media, when the supply is placed outside the media compartment, for example a stack of fan-folded tickets. The guides come as an operator-installable kit with installation instructions. The guides can be fitted in the upper or lower slot in the rear plate.

Instructions for loading the media is included in the section "External Supply" in Chapter 4, "Media Load."

## Media Roll Retainer

The media roll retainer is intended for applications where the media may become misaligned on the media supply hub. The plastic wing-shaped retainer is simply pressed onto the media supply hub outside the media roll. Operator-installed, no tools are required.

## 3-inch Adapter

The 3-inch/76 mm adapter is included in the package and makes it possible to use media rolls with 3 inch/76 mm inner diameter cardboard cores.

The adapter is pressed onto the media supply hub and is held in place by a screw. When fitting the adapters, make sure that the screw hits a rounded plastic surface, not a metal leaf spring. Illustrations of how to load the media using the adapter can be found in Chapter 4.

## **Label Taken Sensor**

The Label Taken Sensor (LTS) is a photoelectric sensor fitted to the center section inside the front door. It allows the printer's firmware to detect if the latest printed label, ticket, tag etc. has been removed before printing another copy.

The label taken sensor is usually factory-fitted, but is also available as a kit for installation by an authorized service technician. It cannot be fitted in combination with a paper cutter.

The LTS can be enabled or disabled by means of the instructions LTS& ON and LTS& OFF respectively in Intermec Fingerprint and the Intermec Direct Protocol.

## **Real Time Clock**

This factory- or field-installed circuit (RTC) relieves the operator or the host from having to set the clock/calendar using the Intermec Fingerprint instructions DATE\$ and TIME\$ after each power up. The RTC has its own backup battery backup that will last 10 years or more.

## **CompactFlash Protection Plate**

The protection plate encloses an inserted CompactFlash card and makes it more difficult to steal, see illustration in Chapter 3. Operator-installed.

## **Alphanumeric Keyboards**

The overlay of the printer's built-in keyboard can be replaced with an alphanumeric overlay. However, such a keyboard requires an application program created using the Intermec Fingerprint programming language.

External alphanumeric keyboards can be connected to the serial port.

## **Interface Boards**

A number of interface boards are available for use with the EasyCoder PX4i printer. The interface boards are either factory-fitted or can easily be fitted by an authorized service technician.

The EasyCoder PX4i can accommodate one EasyLAN interface board plus one or two other interface boards.

## **Chapter 9 — Options**

EasyLAN boards:

- EasyLAN Ethernet interface
- EasyLAN Wireless interface

Other communication boards:

- Parallel Interface Board (IEEE 1284)
- Double Serial Interface Board
- Serial/Industrial Interface Board



# 10 Troubleshooting

This chapter describes how the Intermec Readiness Indicators work. It also lists various possible cases of inferior printout quality, describes possible causes, and suggests remedies.

## Intermec Readiness Indicator

The readiness of the printer, individually or as a part of a solution, is indicated by the blue Intermec Readiness Indicator (IRI).

If the IRI blinks or is switched off, the printer is not ready. Further information can be obtained in the display window by pressing the <F5/i> key. In case of several errors or similar conditions occurring simultaneously, only the most significant error is displayed. Once this error has been cleared, next remaining error is displayed.

The printer will also return error messages to the host, provided there is a working two-way communication. Refer to the *Intermec Fingerprint v8.3x, Programmer's Reference Manual*.

Provided the printer is connected to a network, all conditions that prevents printing are reported to the Easy ADC Console. The Easy ADC Console is a PC-based software which allows a supervisor to monitor all connected devices that have an Intermec Readiness Indicator, including handheld computers, access points, and printers.

**Display Messages and LED Indications**

<b>Error/Event</b>	<b>IRI</b>	<b>Error No.</b>	<b>Comment</b>
Operational	On	0	No error
Out of paper	Blink	1005	
Next label not found	Blink	1031	
Label not taken	Blink		
Out of transfer ribbon	Blink	1027	
Transfer ribbon is installed	Blink	1058	
Head lifted	Blink	1022	
Cutter does not respond	Blink	1059	
Cutter error1	Blink	1701	
Cutter error2	Blink	1702	
Cutter error3	Blink	1703	
Cutter open	Blink	1704	
Lss too high	Blink	1007	
Lss too low	Blink	1008	
Testfeed not done	Blink	1606	
Pause Mode entered	Blink		
Setup Mode entered	Blink		Including interactive setup from Fingerprint/Direct Protocol
IP link error	Blink		See note 1, 2, and 3
IP configuration error	Blink		See note 1, 3, and 4
Generic DP error	Blink		See note 5
Press any key to continue	Blink		See note 6
Application load error	Blink		See note 7
IRI blink by application	Blink		Set by Fingerprint instruction SYSHEALTH
IRI off by application	Off		Set by Fingerprint instruction SYSHEALTH
Application break	Off		See note 8
Printhead not found	Off		
Rebooted	Off		
Initializing	Off		Set at startup until operational
Printer crash	Off		See note 3 and 9

Printer turned off	Off		
Maintenance	Off		Set when upgrading
Power supply Over temperature	Off	1718	
Printhead too hot	Off	1088	See note 10

**Note 1:** This is only applicable for printers equipped with an EasyLAN interface.

**Note 2:** A printer that is equipped with an EasyLAN interface, but is not connected to a network, will have a blinking IRI. To avoid this, the user can set “IP SELECTION” to “MANUAL” and “IP ADDRESS” to “0.0.0.0”. This will indicate that the user does not regard the lack of network connection as an error.

**Note 3:** No trap can be sent when this error/event occurs.

**Note 4:** This error indicates that the printer has not received an IP address. It is only applicable for printers with IP SELECTION set to DHCP and/or BOOTP.

**Note 5:** In the Direct Protocol, the user can enable error handling for specific errors using the ERROR statement. When errors added to the built-in error handling occur, this event will be set. The text included in the snmp trap is the standard text corresponding to the error.

**Note 6:** If an error occurs in the Fingerprint immediate mode, for example “out of paper” when the print key is pressed, this event will be set.

**Note 7:** If an application is started but does not execute, the IRI will blink. This will occur for example if there is a syntax error in the loaded program file.

This is useful when a printer has an AUTOEXEC.BAT file (startup file) that is supposed to run automatically.

**Note 8:** When execution is stopped with user break (SHIFT + PAUSE) or due to a run-time error, the IRI shall be off. It will be set to on if the user changes mode to Direct Protocol or runs an application.

If, however, the application program handles the user break (ON BREAK) or the run-time error (ON ERROR GOTO), the IRI will not be affected. In this case, it is up to the application to set the status.





**Note 9:** At most, but not all, printer crashes, the console is reset. This will make the IRI go off.

**Note 10:** If the printhead temperature raises above 100°C, error 1088 occurs.




In Fingerprint, printing will be aborted. Resuming printing after the printhead has cooled off to 85°C must be handled by the application program.

In the Direct Protocol, the printing is paused but will be automatically resumed when the printhead has cooled off to 85°C. Meanwhile, the printer is able to receive instructions and data until the buffer is filled.



<b>Symptom</b>	<b>Possible Cause</b>	<b>Remedy</b>	<b>Refer to</b>
Overall weak print-out	Wrong Paper Type parameter	Change parameter	Chapter 6
	Contrast value too low	Change parameter	Chapter 6
	Printhead pressure too low	Adjust	Chapter 12
	Worn printhead	Replace printhead	Chapter 11
	Wrong printhead voltage	Replace CPU board	 Call Service
Printout weaker on one side	Uneven printhead pressure	Adjust arm alignment	Chapter 12
Weak spots	Foreign particles on media	Clean or replace	Chapters 4 & 5
	Media/ribbon don't match	Change to matching media	Chapter 6
	Poor media or ribbon quality	Select a better brand of media or ribbon	Chapter 6
	Worn printhead	Replace printhead	Chapter 11
	Worn platen roller	Check/replace	 Call Service
Overall dark print-out	Wrong Paper Type parameter	Change parameter	Chapter 6
	Contrast value too high	Change parameter	Chapter 6
	Printhead pressure too high	Adjust	Chapter 12
	Wrong printhead voltage	Replace CPU board	 Call Service
Excessive bleeding	Wrong Paper Type	Change parameter	Chapter 6
	Contrast value too high	Change parameter	Chapter 6
	Printhead pressure too high	Adjust	Chapter 12
	Faulty energy control	Replace CPU board	 Call Service
Dark lines along media path	Foreign objects on printhead	Clean printhead	Chapter 11

## Chapter 10 — Troubleshooting

White vertical lines	Printhead dirty	Clean printhead	Chapter 11
	Missing printhead dots	Replace printhead	Chapter 11
Large part of dot line missing	Wrong X-start or Width parameter	Change parameter	Chapter 6
	Failing printhead	Replace printhead	Chapter 11
	Failing strobe signal	Check CPU-board	 Call Service
Printout missing along inner edge	Bad media alignment	Adjust	Chapter 4
	X-start parameter value too low	Increase	Chapter 6
Transfer ribbon breaks	Ribbon not fitted correctly	Reload ribbon	Chapter 5
	Wrong paper type parameter	Change parameter, then clean printhead	Chapter 6
	Bad energy control	Adjust	 Call Service
Transfer ribbon wrinkles	Faulty ribbon break shaft adjustment	Adjust	Chapter 12
	Incorrect edge guide adjustment	Adjust	Chapter 4
	Too strong printhead pressure	Adjust	Chapter 12
No thermal transfer printout	Ink-coated side does not face media	Reload ribbon	Chapter 5
Media feed not working properly	Changed media characteristics	Perform a TESTFEED	Chapter 4
	Wrong start- and stop adjust values	Check/change	Chapter 6
	Wrong Media Type parameter	Check/change	Chapter 6
	Wrong LSS position	Check/change	Chapter 12
	Dirty sensors	Clean	Chapter 11
	Faulty sensors	Replace	 Call Service

# 11 Maintenance

This chapter describes how the operator can maintain the printer. Regular maintenance is important for the printout quality and for the life of the printhead. The chapter covers the following topics:

- Printhead cleaning
- External cleaning
- Cleaning the label stop sensor
- Printhead replacement
- Media jams



**Follow ESD  
Procedures**

**When cleaning or replacing the printhead, take ample precautions to avoid electrostatic discharges.**

## Printhead Cleaning

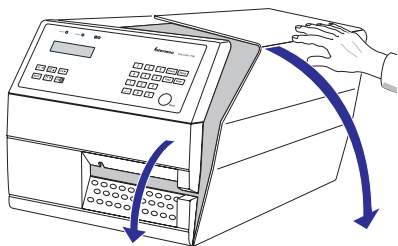
Cleaning the printhead on a regular basis is important for the life of the printhead and for the printout quality. You should clean the printhead each time you replace the media. This section describes how to clean the printhead using cleaning cards. If additional cleaning is required, for example removing adhesive residue from the platen roller or tear bar, use a cotton swab moistened with isopropyl alcohol.



Warning

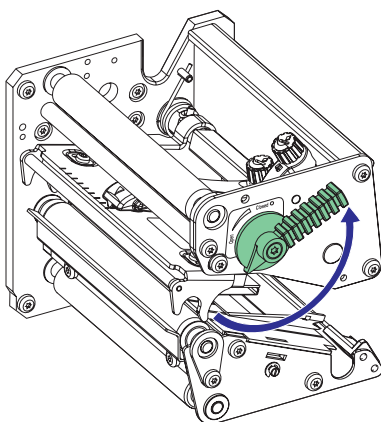
**Isopropyl alcohol** [(CH<sub>3</sub>)<sub>2</sub>CHOH; CAS 67-63-0] is a highly flammable, moderately toxic, and mildly irritating substance.

1



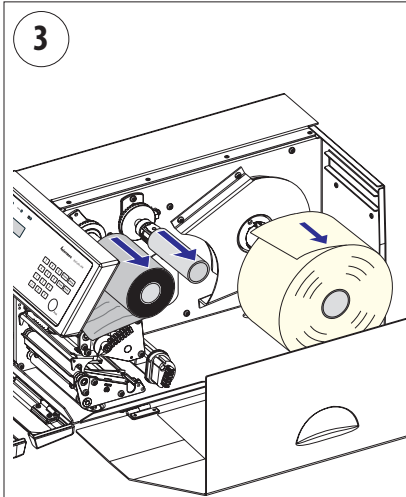
Open the front and side doors.

2

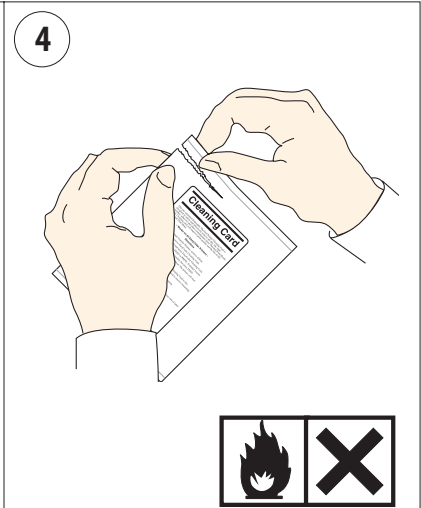


Turn the printhead lift lever counter-clockwise to raise the printhead.

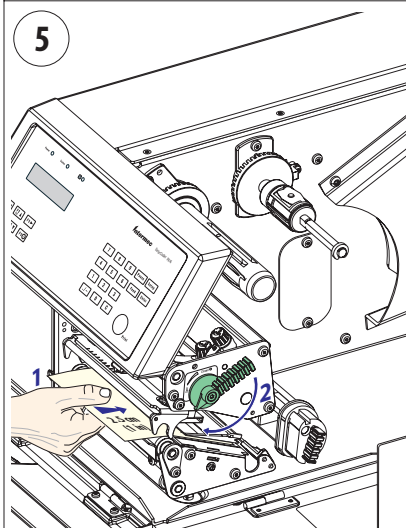
## Printhead Cleaning, cont.



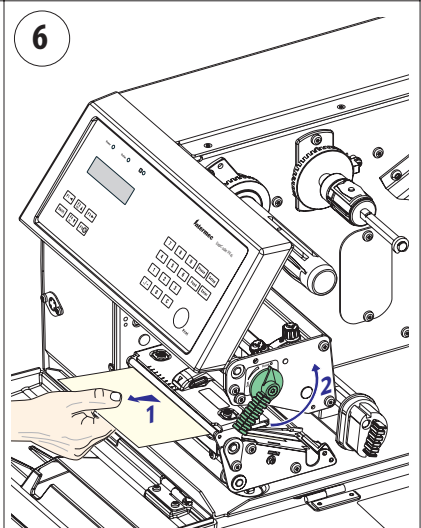
Remove any media and transfer ribbon.



Open the cleaning card envelope and pull out the cleaning card. Read the warning text.



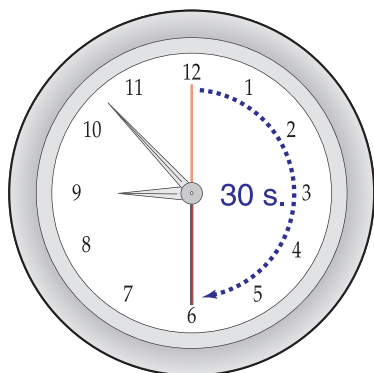
Insert most of the cleaning card under the printhead (1). Engage the printhead (2).



Pull out the cleaning card (1) and raise the printhead (2).

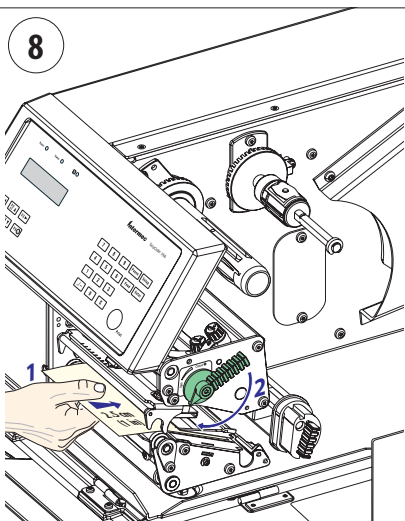
## Printhead Cleaning, cont.

7



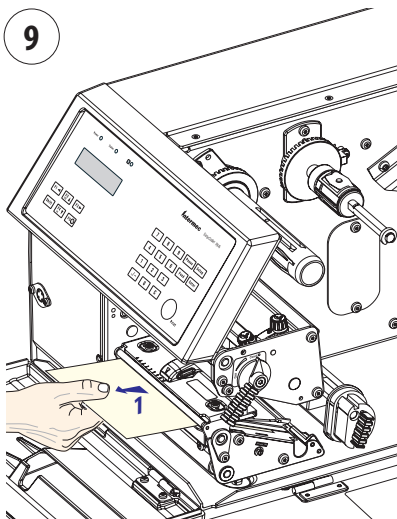
Wait for approx. 30 seconds to allow the cleaning fluid to dissolve the residue.

8



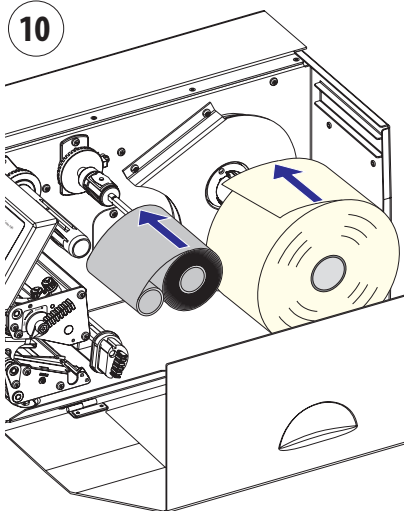
Insert most of the cleaning card under the printhead again (1). Engage the printhead (2).

9



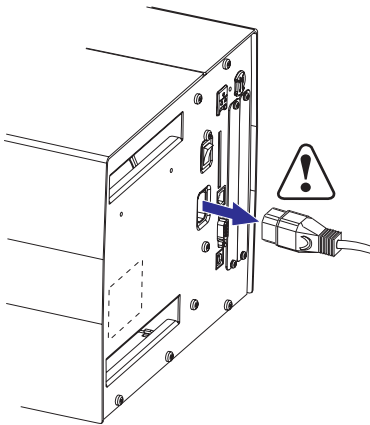
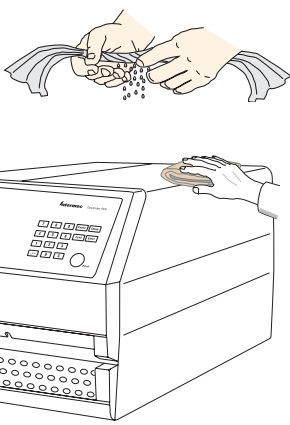
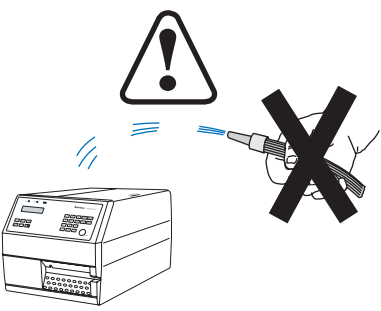
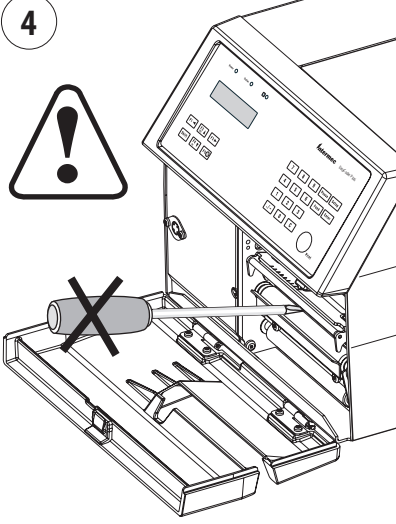
Pull out the cleaning card. If necessary, repeat the process with a fresh cleaning card.

10



Allow the cleaned parts to dry before loading any media and ribbon.

## External Cleaning

<p>1</p>  <p><i>Always remove the power cord before cleaning!</i></p>	<p>2</p>  <p><i>Wipe external surfaces with a soft cloth slightly moistened with water or a mild detergent.</i></p>
<p>3</p>  <p><i>Never spray the printer. Protect it from water when cleaning the premises.</i></p>	<p>4</p>  <p><i>Never use any sharp tools for removing stuck labels. The printhead and rollers are delicate.</i></p>

## Cleaning the Label Stop Sensor

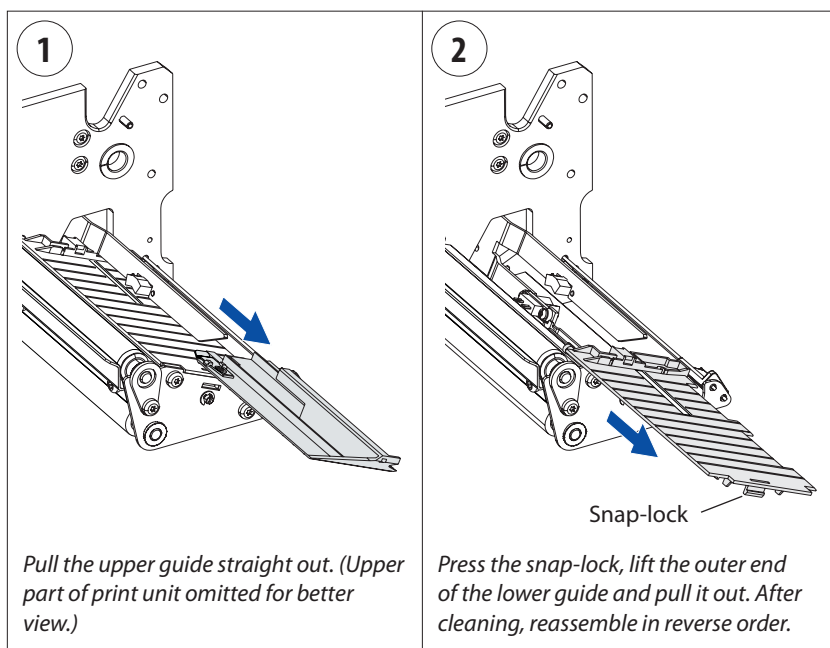
The label stop sensor, which controls the media feed, is partially enclosed by two plastic guides. The guides have slots where the light between the upper and lower part of the label stop sensor can pass. The guides must be kept free from stuck labels and other objects that can block the light.

If the printer starts to feed out labels in an unexpected way, remove the two guides as described below and check for dust on the sensors or anything that may block the beam of light. If necessary, clean the guides using a cleaning card or a soft cloth soaked with isopropyl alcohol. Do not use any other type of chemicals.



Warning

**Isopropyl alcohol** [(CH<sub>3</sub>)<sub>2</sub>CHOH; CAS 67-63-0] is a highly flammable, moderately toxic, and mildly irritating substance.





# Printhead Replacement

The printhead is subject to wear both from the direct thermal media or transfer ribbon and from the rapid heating and cooling process during printing. Thus, the printhead will require periodic replacement.

Time between printhead replacements depends on the print images, the type of direct thermal media or ribbon in use, the amount of energy to the printhead, the print speed, the ambient temperature, and several other factors.

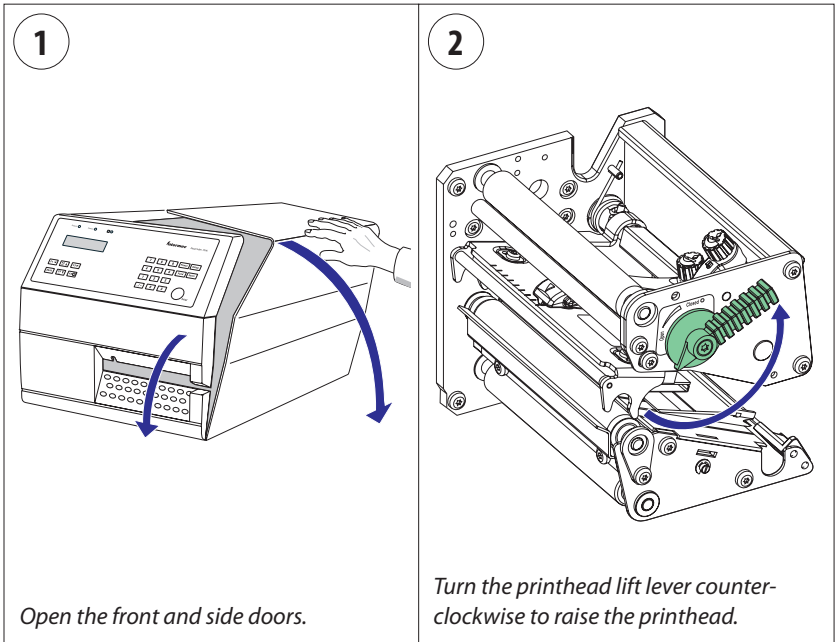


Caution

**While replacing the printhead, the power must be off. The firmware will not detect the new printhead resistance and density until the printer has been restarted.**

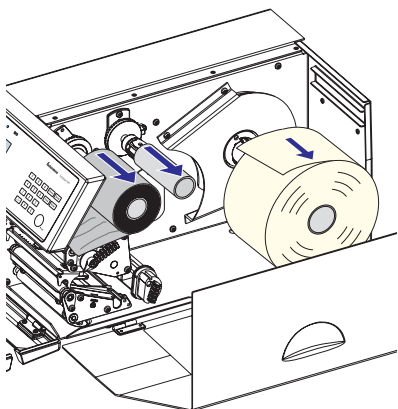


**Note:** Check that the density of the new printhead matches the printhead you are replacing. However, you can switch between densities at will, but be advised that the printout will be affected accordingly.



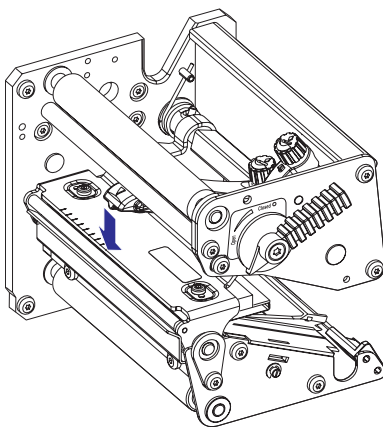
## Printhead Replacement, cont.

3



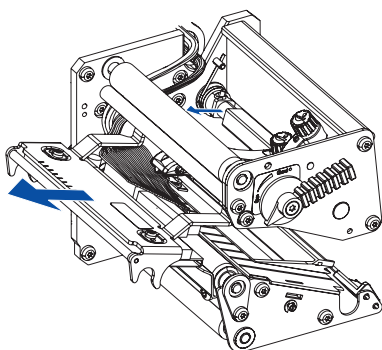
*Remove any media and transfer ribbon.*

4



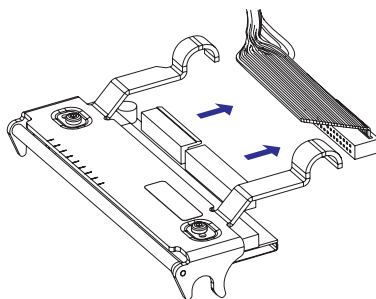
*Pull the printhead bracket away from the magnet in the pressure arm.*

5



*Disconnect the hooked printhead bracket fingers from the shaft and pull out the printhead as far as the cables allow.*

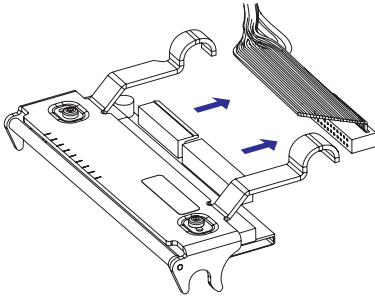
6



*Disconnect the cables from the printhead. Note the snap-lock on the inner connector. Pull at the connectors—not at the cables!*

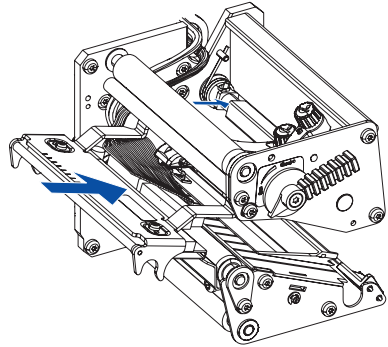
## Printhead Replacement, cont.

7



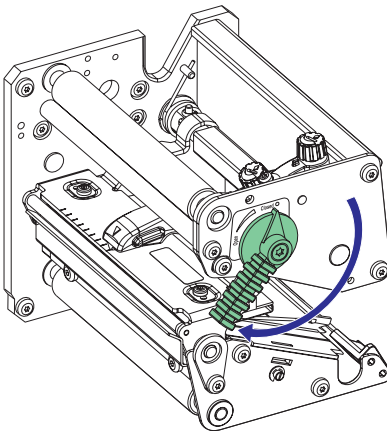
Connect the two cables to the replacement printhead.

8



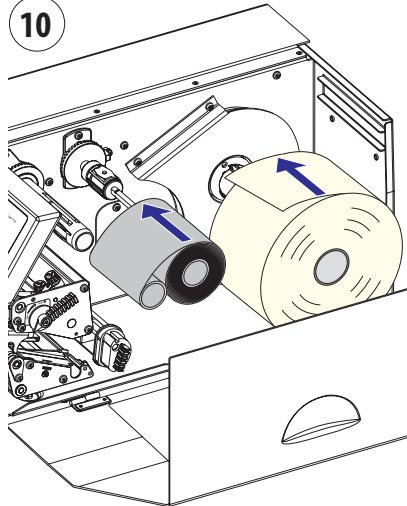
Fit the hooks of the printhead bracket fingers onto the headlift shaft. Make sure that the cables do not prevent the bracket fingers from being properly seated on the headlift shaft.

9



Close the printhead so the magnet engages the printhead bracket.

10



Load a new supply of media and ribbon, as described earlier in this manual.

## Media Jams

Should a media jam occur in the print mechanism, proceed this way to clear it:

- Always switch off the power before starting to clear the jammed media.
- Raise the printhead and pull out the media.
- If the media has been wound up or has stuck on the platen roller, carefully remove it by hand without using any sharp tools that can damage the delicate platen roller or printhead. Avoid rotating the platen roller.



Caution

**If you must pull away the media by force causing the platen roller to rotate, it is very important that the power has been off for a minute or more. If not, the electronics can be damaged beyond repair.**

- Cut off any damaged or wrinkled part.
- Check if there is any adhesive somewhere in the print mechanism, clean using a cleaning card or cotton swab soaked in isopropyl alcohol.



Warning

**Isopropyl alcohol [(CH<sub>3</sub>)<sub>2</sub>CHOH; CAS 67-63-0] is a highly flammable, moderately toxic, and mildly irritating substance.**

- Reload the media as described in Chapter 4.
- Switch on the power.
- Readjust the media feed by pressing the <Feed> key.



# 12 Adjustments

This chapter describes how the operator can adjust the printer. The chapter covers the following topics:

- Narrow media adjustment
- Printhead pressure adjustment
- Label stop sensor adjustment

## Narrow Media

The printer is factory-adjusted for full size media width. When using media less than full width, it is recommended that you adjust the pressure arm so it becomes centered on the media. Thereby, an even pressure across the media is obtained.

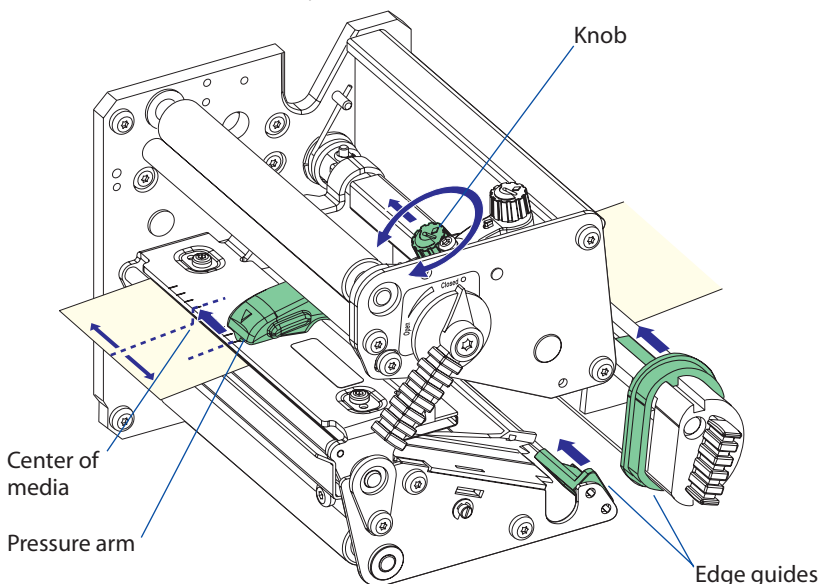
A poorly adjusted pressure arm may be detected by a weaker printout on either side of the media path.

To adjust the pressure arm, proceed as follows:

- Remove the ribbon, if any.
- Loosen the knob that holds the pressure arm. Move the arm inwards or outwards until the arrow on the tip of the arm becomes centered with the media stock.

While moving the arm, push at the part where the knob is situated, not at the tip. If the arm is hard to move, lift the printhead and pull the printhead bracket free from the magnet in the arm.

- After having centered the arm, lock it by tightening the knob.
- Adjust the edge guides.
- Reload the ribbon, if any.



## Printhead Pressure

The pressure of the thermal printhead against the ribbon or direct thermal media is factory adjusted. However, the use of thicker or thinner media than normal could require the printhead pressure to be readjusted.

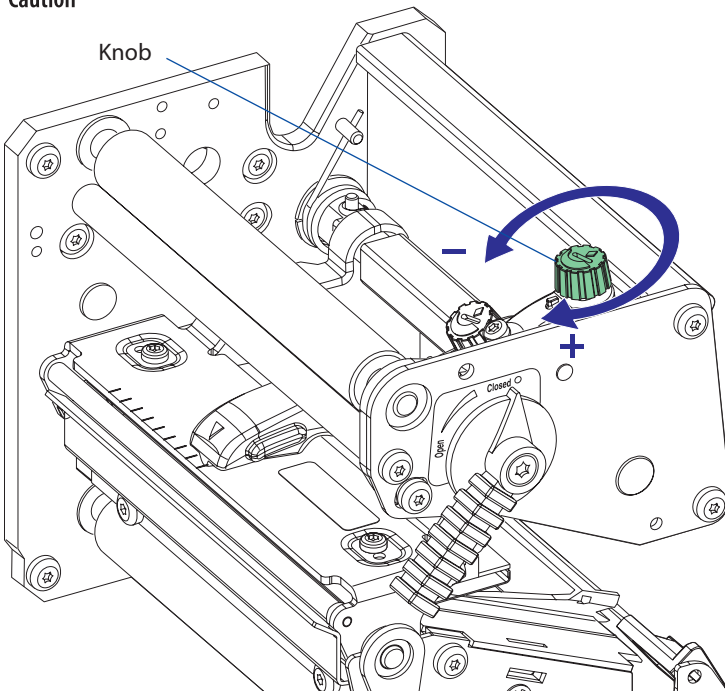
Turn the adjustment knob clockwise for increased pressure, or counterclockwise for less pressure. Print a few labels, preferably test labels (see Chapter 6, “Setting Up the Printer”), and check the printout. Increased pressure generally gives a darker printout and vice versa. Repeat until the desired result is obtained.

To find the basic setting, turn the knob counterclockwise until there is no pressure left. Test with a piece of media under the printhead. You should be able to pull it out without more than just a little resistance. Then turn the knob four full turns clockwise. Fine-adjust using the trial-and-error method.



Caution

**Do not use a higher printhead pressure than necessary, because it may increase the wear of the printhead and shorten its life.**

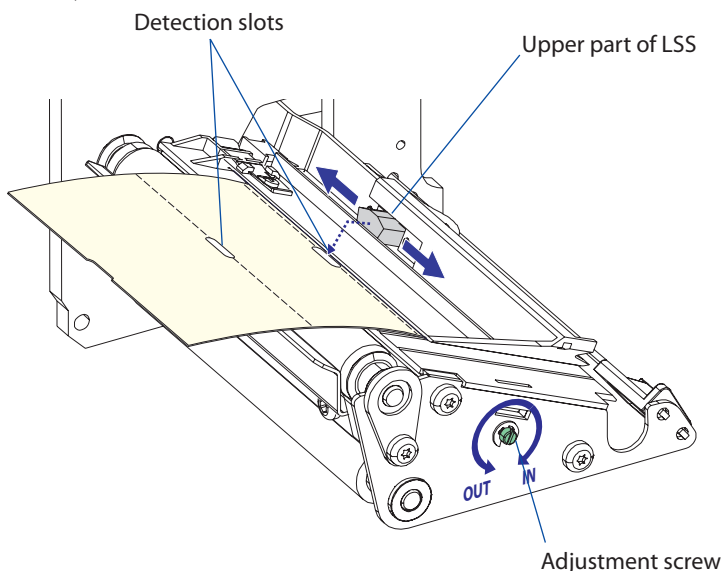


## Label Stop Sensor

The label stop sensor (LSS) is a photoelectric sensor that controls the printer's media feed by detecting gaps between labels or slots or black marks in continuous stock, depending on the printer's setup in regard of media type (see Chapter 6, "Setting Up the Printer"). The LSS should be aligned with the gaps, slots, or black marks. If using irregularly shaped labels, align the LSS with the front tips of the labels.

The label stop/black mark sensor (LSS) can be moved laterally within a range of 0 to 50 mm (0 to 1.96 inches) from the inner edge of the media path. There is a screw running through the outer lower gable. Turning the screw clockwise will move the LSS inwards and vice versa. The position of the LSS in relation to the media is best checked by looking head on into the print unit when the printhead is raised. Align the centerpoint of the V-shaped upper sensor with the center of the slots or marks to be detected.

The linear markings on the lower guide plate can also be used for positioning of the LSS because they are spaced with an interval of exactly 1 cm (0.39 inches.) This method is especially useful for black marks (measure the lateral position of the black marks with a ruler before loading the media).



*Upper part of print unit removed to improve visibility.*



In the Print Defines part of the Setup Mode, you have two ways to test the label stop sensor if you have a detection problem; LSS Auto and LSS Manual.

The menus only provide indications from the label stop sensor unit. The testing menus can determine if the sensor unit is not physically in position, is blocked by dust or stuck labels, or is defective in some way. Furthermore, this is an aid if media has detection complications.



**Note:** There is no way to adjust the LSS-function; the menus only indicate values from the LSS obtained by performing a TESTFEED operation.

**LSS Auto** is the quick and normal way to determine if the label stop sensor works properly and is able to detect gaps, slots, or black marks.

**LSS Manual** shows the actual setting provided by the latest TESTFEED operation. It is also possible to try other settings. LSS Manual is primarily intended for service and is not described in this manual.

### LSS Auto

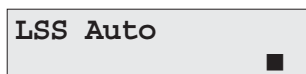
- Check that the printer is set up for the type of media loaded in your printer (Setup Mode/Media/Media type/LABELS (w GAPS);TICKET (w MARK), TICKET (w GAPS), FIX LENGTH STRIP; or VAR LENGTH STRIP.
- Perform a TESTFEED by simultaneously pressing the <Shift> and <Feed> keys on the printer's keyboard.
- Make sure that there is a label—not a gap or mark—at the LSS.
- Check that the media is routed as close to the center section as the guides allow.
- Enter the Setup Mode (see Chapter 7) and go to Setup Mode/Print Defines/LSS Test/LSS Auto.
- The menu should look like this with the cursor placed in the center:

LSS Auto



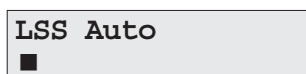
- **Gap or slot detection:**

Lift the printhead and pull out the media slowly. When the LSS detects a gap or a detection slot, the cursor moves to the right.



- **Black mark detection:**

Lift the printhead and pull out the media slowly. When the LSS detects a black mark, the cursor moves to the left.



- It is possible to refresh the centered cursor position by pressing the <▼/F4> key.
- If the cursor behaves as described above, the LSS is working and is properly aligned with the gaps, slots, or black marks.
- If the cursor does not react on a gap, slot, or black mark, check this:
  - Is the LSS laterally aligned with the slots or black marks?
  - Are both the upper and lower part of the LSS aligned with each other?
  - Is the transfer ribbon properly loaded so it does not interfere with the LSS? (See Chapter 5.)
  - Are the label stop sensors free from dust and are the guides free from stuck labels or other objects that may interfere with the light that goes from one part of the LSS to the other? If not, clean as described in Chapter 11.
  - Does the media have some kind of preprint that can disturb the detection?
  - Is there too little difference between the black marks and the surrounding areas?
  - Does the liner have too little transparency?
  - Does the LSS work with another type of media? (Remember to change the Media Type setup and perform a new TESTFEED.)



# **A** **Technical Data**

This appendix lists the technical data for the printer. Please note that Intermec reserves the right to change without prior notice and that this information does not represent a commitment on the part of Intermec.

## Appendix A — Technical Data

Printing		
Print Technique	Direct Thermal and Thermal Transfer	
Printhead Resolution	8 dots/mm (203.2 dpi) or 11.81 dots/mm (300 dpi)	
Print Speed (variable)	100 to 300 mm/sec. (≈ 4 to 12 in./sec.)	
Print Width (max)	112 mm (4.41 in.) 110 mm (4.33 in.)	DT TTR
Print Length (max)	32767 dots = 409.5 cm (161.25 in.) at 203.2 dpi <sup>1</sup> = 277.5 cm (109.23 in.) at 300 dpi <sup>1</sup>	
Media Width (min/max)	25 to 120 mm (1 to 4.72 in.)	
Media Roll Diameter (max)	213 mm (8.38 in.) 205 mm (8.07 in.)	Tear-off Peel-off
Media Roll Core Diameter	38 to 40 mm (1.5 in.) or 76 mm (3 in.) with adapter fitted	
Ribbon Width (min/max)	55 to 110 mm (2.17 to 4.33 in.)	
Ribbon Roll Diameter (outer), max.	80 mm (3.15 in.)	≈ 450 m (1476 ft) of ribbon
Ribbon Roll Core Dia- meter (inner)	25 mm (1.00 inches)	
Print Directions	4	
Modes of Operation		
Tear-Off (Straight-through)	Yes	
Cut-Off	Option	With cutter
Peel-Off (Self-strip)	Option	With rewinder
Internal Batch Takeup	Option	With rewinder
Firmware		
Operating System	Intermec Fingerprint v8.30	Incl. Direct Protocol
Smooth Fonts	TrueDoc and TrueType fonts	
Resident scalable fonts	15	Unicode fonts <sup>2</sup>
Resident bar codes	59	
Startup Program (std)	Intermec Shell v8.2	
Physical Measures		
Dimensions (W × L × H)	275 × 482 × 238 mm (10.8 × 19.0 × 9.4 in)	

Weight (excluding media)	12.85 kg (28.4 pounds)	
Ambient Operating Temperature	+5°C to +40°C (+41°F to +104°F)	
Storage Temperature	-20°C to +70°C (-4°F to +152°F)	
Humidity	10 to 90% non-condensing	
Electronics		
Microprocessor	32 bit RISC	
On-board Flash SIMMs	2 sockets for 4MB or 8MB each	Std. 1 × 4MB
On-board SDRAM SIMM	1 socket for 16MB	Std. 16MB
Power Supply		
AC Voltage	90 to 265 VAC, 45 to 65 Hz	
PFC Regulation	IEC 61000-3-2	
Power Consumption	Minimum 20W; Continuous printing, average 125W; Peak 400W	
Sensors		
Label Gap/Black Mark/Out of Media	Yes	Variable position
Printhead Lifted	Yes	
Ribbon End/Ribbon Low	Yes	
Paper Sensor	Yes	
Controls		
Indicator Lamps	3	
Display	2 × 16 character LCD	Background light
Keyboard	22 keys membrane-switch type	
Print button	1	
Beeper	Yes	
Data Interfaces		
Serial	1 × RS-232 + 1 × USB	
Bar Code Wand	Yes	
Connection for Optional Interface Boards	1 + 2	1 for EasyLAN 2 for other boards
Cutter Interface	1	
Memory Card Adapter	1	CompactFlash cards

## Appendix A — Technical Data

Accessories and Options		
Integral Self-strip Unit with Liner Takeup	Option <sup>3,4</sup>	For peel-off and batch takeup
Media Roll Retainer	Option <sup>5</sup>	
Fan-fold Guide	Option <sup>5</sup>	
Cutter	Option <sup>5</sup>	
Label Taken Sensor	Option <sup>3,4</sup>	
Real Time Clock	Option <sup>3,4</sup>	10+ years life
Parallel Interface Board	Option <sup>3,4</sup>	IEEE 1284
Double Serial Interface Board	Option <sup>3,4</sup>	2 serial ports
Serial/Industrial Interface Board	Option <sup>3,4</sup>	1 serial port + 1 industrial interface port
EasyLAN Ethernet Interface	Option <sup>3,4</sup>	
EasyLAN Wireless Interface	Option <sup>3,4</sup>	
Built-in Alphanumeric Keyboard	Option <sup>3,4</sup>	
External Alphanumeric Keyboard	Option <sup>5</sup>	
CompactFlash Cards for various purposes	Option <sup>5</sup>	8MB-1GB
CompactFlash Protection Plate	Option <sup>5</sup>	

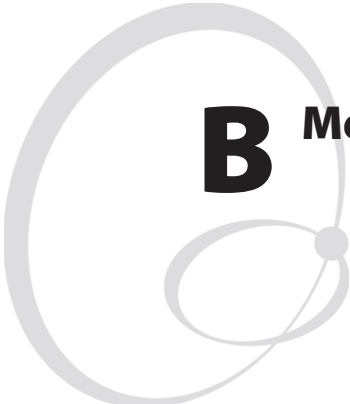
<sup>1</sup>/. The max. print length is also restricted by the amount of free SDRAM memory.

<sup>2</sup>/. Latin, Greek, and Cyrillic fonts according to Unicode standard are included.

<sup>3</sup>/. Factory installed option

<sup>4</sup>/. Field-installable kit. Installation should be performed by a service technician.

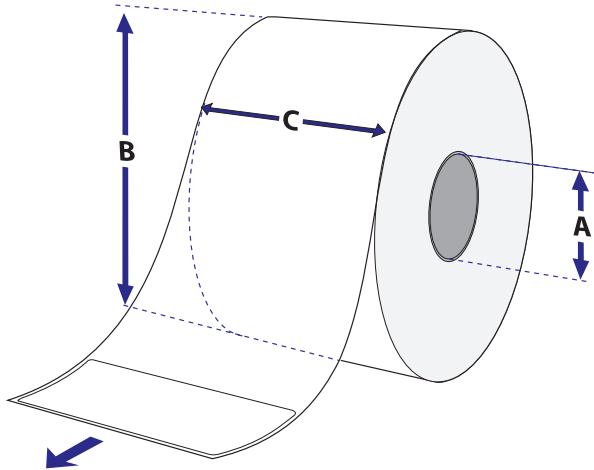
<sup>5</sup>/. Operator-installable option.



# **B Media Specifications**

This appendix specifies the physical measures for various types of media.

# Media Roll Size



## Core

Diameter (A), standard:	38-40 mm	(1.5 inches)
Diameter (A), with adapter:	76.2 mm	(3 inches)
Width: Must not protrude outside the media.		



**The media must be wound up on the core in such a way that the printer can pull the end free.**

## Roll

Max. diameter (B), tear-off and cut-off:	213 mm	(8.38 inches)
Max. diameter (B), peel-off and batch takeup:	205 mm	(8.07 inches)
Max. width (C):	120 mm	(4.72 inches)
Min. width (C):	25 mm	(1.00 inches)

The recommended media thickness is 60 to 170µm (2.4 to 6.7 mils). Thicker media may be used, but print quality will be reduced. The stiffness is also important and must be balanced against thickness to maintain print quality.

Media rolls to be loaded inside the printer should be wound with the printable side facing outwards.

The media supply must not be exposed to dust, sand, grit, etc. Any hard particles, however small, can damage the printhead.



# Media

## Non-Adhesive Strip

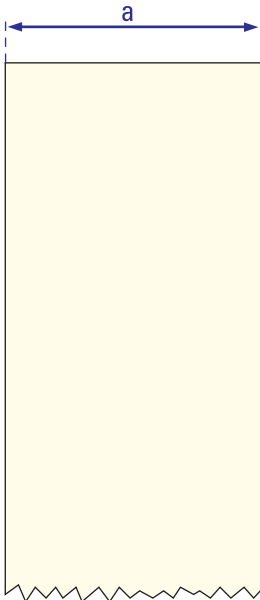
### ⇐ a ⇒ Media Width

Maximum: 120 mm (4.72 inches)

Minimum: 25 mm (1.00 inches)

### Media Type Setup

- Fix length strip
- Var length strip



# Self-Adhesive Strip

⇐ **a** ⇒ **Media Width (including liner)**

Maximum: 120 mm (4.72 inches)

Minimum: 25 mm (1.00 inches)

⇐ **b** ⇒ **Liner**

The liner must not extend more than a total of 1.6 mm (0.06 inches) outside the face material and should protrude equally on both sides.

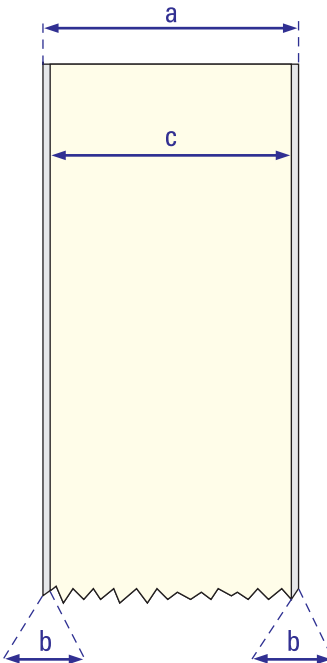
⇐ **c** ⇒ **Media Width (excluding liner)**

Maximum: 118.4 mm (4.66 inches)

Minimum: 23.8 mm (0.94 inches)

## Media Type Setup

- Fix length strip
- Var length strip



## Self-Adhesive Labels

### ⇐ a ⇒ Media Width (including liner)

Maximum:	120 mm (4.72 inches)
Minimum:	25 mm (1.00 inches)

### ⇐ b ⇒ Liner

The backing paper must not extend more than a total of 1.6 mm (0.06 inches) outside the labels and should protrude equally on both side. Recommended minimum transparency: 40% (DIN 53147).

### ⇐ c ⇒ Label Width (excluding liner)

Maximum:	118.4 mm (4.66 inches)
Minimum:	23.8 mm (0.94 inches)

### ⇐ d ⇒ Label Length

Maximum:	
8 dots/mm (203.2 dpi):	6,143 mm (241 inches)
11.81 dots/mm (300 dpi):	4,162 mm (163 inches)
provided there is a sufficient amount of free SDRAM memory	
Minimum (without LTS):	8.0 mm (0.32 inches)
Minimum (with LTS)	12.0 mm (0.47 inches)

### ⇐ e ⇒ Label Gap

Maximum:	25.0 mm (0.98 inches)
Recommended:	3.0 mm (0.12 inches)
Minimum:	1.27 mm (0.05 inches)

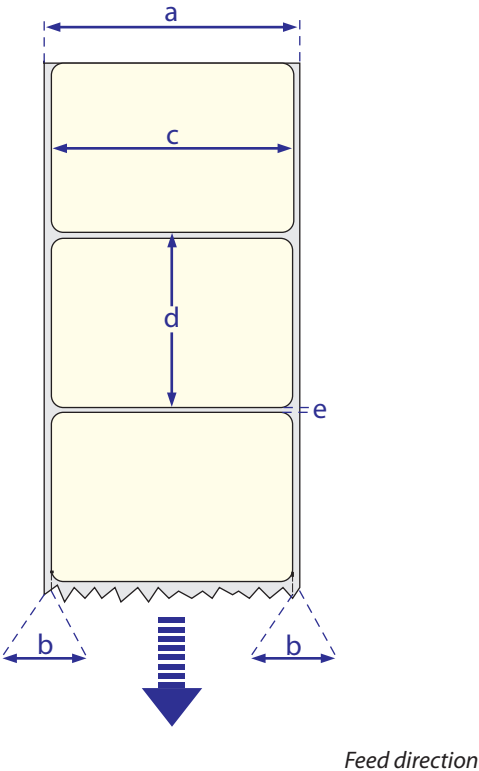
The Label Stop Sensor must be able to detect the extreme front edges of the labels.

## Opacity

The difference between in opacity between label plus liner and liner only should be  $\geq 19\%$  units.  
Maximum liner opacity is 72%.

## Media Type Setup

- Label (w gaps)



## Tickets with Gaps

### ⇐ a ⇒ Media Width

Maximum:	120 mm (4.72 inches)
Minimum:	25 mm (1.00 inches)

### ⇐ b ⇒ Copy Length

Maximum:	
8 dots/mm (203.2 dpi):	6,143 mm (241 inches)
11.81 dots/mm (300 dpi):	4,162 mm (163 inches)
provided there is a sufficient amount of free SDRAM memory	
Minimum (without LTS):	8.0 mm (0.32 inches)
Minimum (with LTS)	12.0 mm (0.47 inches)

### ⇐ c ⇒ LSS Detection Position

Variable, see Chapter 12.

### ⇐ d ⇒ Detection Slit Length

The length of the detection slit (excluding corner radii) must be minimum 2.5 mm (0.10 inches) on either side of the LSS detection position (e).

### ⇐ e ⇒ Detection Slit Height

Maximum:	25.0 mm (0.98 inches)
Recommended:	1.6 mm (0.06 inches)
Minimum:	1.27 mm (0.05 inches)

### Opacity

Max opacity difference:	48%
-------------------------	-----

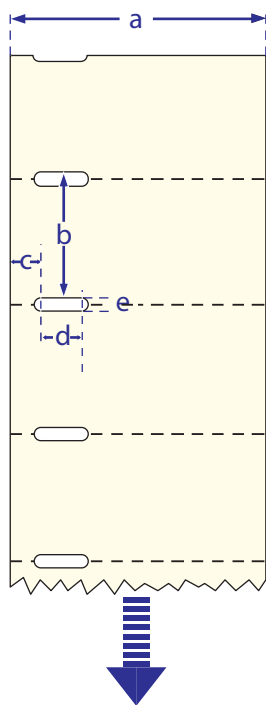
### Media Type Setup

- Ticket (w gaps)



**Note:** Do not allow any perforation to break the edge of the media as this may cause the media to split and jam the printer.

**Appendix B — Media Specifications**



*Feed direction*

## Tickets with Black Mark

### ⇐ a ⇒ Media Width

Maximum:	120 mm (4.72 inches)
Minimum:	25 mm (1.00 inches)

### ⇐ b ⇒ Copy Length

Maximum:	
8 dots/mm (203.2 dpi):	6,143 mm (241 inches)
11.81 dots/mm (300 dpi):	4,162 mm (163 inches)
provided there is a sufficient amount of free SDRAM memory	
Minimum:	20.0 mm (0.8 inches)

### ⇐ c ⇒ LSS Detection Position

Variable, see Chapter 12.

### ⇐ d ⇒ Black Mark Width

Maximum:	Full media width
Recommended:	10.0 mm (0.39 inches)
Minimum:	5.0 mm (0.20 inches)

### ⇐ e ⇒ Black Mark Length

Maximum:	25.0 mm (0.98 inches)
Recommended:	3.2 mm (0.13 inches)
Minimum:	1.27 mm (0.05 inches)

### ⇐ f ⇒ Black Mark Y-Position

It is recommended that you place the black mark as close to the front edge of the ticket as possible and use a negative Stop Adjust value to control the media feed, so the tickets can be properly torn off. The black mark can be placed either on the top or at the back of the media.

### Black Mark Characteristics

Maximum reflectance:	15%, 940 nm
Difference between mark and media:	55%

### Media Type Setup

- Ticket (w mark)

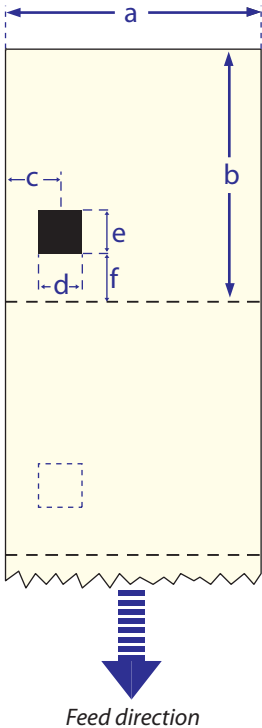
**Appendix B — Media Specifications**




**Note:** Preprint that may interfere with the detection of the black mark should be avoided. However, the Intermec Fingerprint statement LBLCOND allows the sensor to be temporarily disabled during a specified amount of media feed in order to avoid unintentional detection, see Intermec Fingerprint manuals.



**Note:** Do not allow any perforations to break the edge of the media as this may cause the media to split and jam the printer.







# **C Interfaces**

This appendix describes the interface connectors found on the printer's rear plate. It covers the following topics:

- RS-232 interface
- USB Interface
- Bar Code Wand Interface
- Optional interfaces

# RS-232 Interface

## Protocol

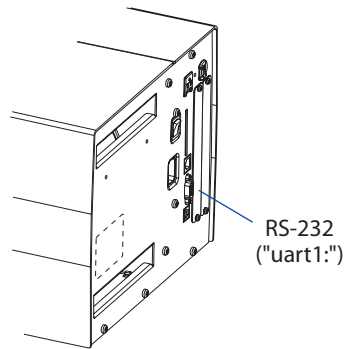
Default setup:

Baud rate:	9600
Char. length	8 bits
Parity:	None
Stop bits:	1
RTS/CTS	Disabled
ENQ/ACK:	Disabled
XON/XOFF:	Disabled (both ways)
New Line:	CR/LF

To change the RS-232 interface settings, see Chapter 6, “Setting Up the Printer.”

Signals on printer’s serial port "uart1:"

DB-9	Signal	Meaning
1		External +5V DC*
2	TXD	Transmit data
3	RXD	Receive data
4	DSR	Data set ready
5	GND	Ground
6	DTR	Data terminal ready
7	CTS	Clear to send
8	RTS	Request to send
9	—	Not used



\*/. The external +5V is limited to 500 mA and is automatically switched off at overload.

## Interface Cable

Computer end:	Depends on computer model
Printer end:	DB-9 plug

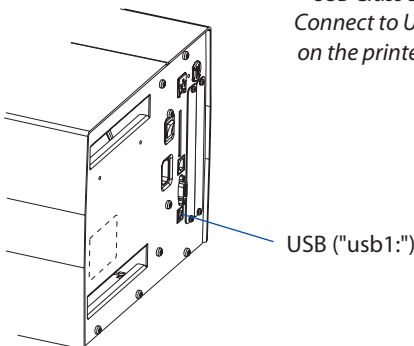
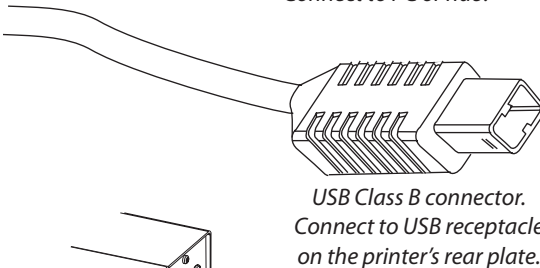
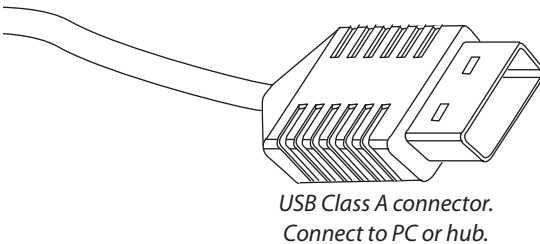
## USB Interface

This printer supports USB v1.1 (also called USB 2.0 full speed). To use the USB interface for printing from a PC, you need a special Intermec USB printer driver installed in your PC.

The printer is a so called “self-powered device.” We recommend that you only connect one printer to each USB port on the host, either directly or via a hub. Other devices, like a keyboard and a mouse, can be connected to the same hub. If you need to connect more than one Intermec USB printer to a host, you should use different USB ports.

Using a USB Class A/B cable, connect the Class A plug to your PC or hub and the Class B plug to your printer.

The USB interface is essentially a one-way communication interface and is thus not recommended for programming. There is no communication setup for the USB port.



## Bar Code Wand Interface

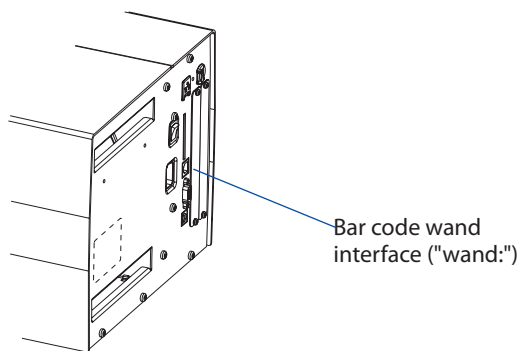
The printer has a socket on the CPU board for connecting a bar code wand or scanner. The socket is accessible through a slot in the printer's rear plate.

If a Code 128 bar code that contains the character FNC3 is read via this port, the data will be treated as a setup string and will change the printer's setup accordingly. A setup bar code may contain a single parameter or a combination of up to 3 or 4 setup parameters. Refer to the *EasySet Bar Code Wand Setup* manual for more information on how to produce setup bar codes.

The printer will acknowledge that a bar code has been successfully read by emitting a short beep signal.

If no FNC3 character is found in the bar code, the data will be stored in a buffer which could be read by specifying the "wand:" device. The buffer is small, so it is recommended to use short bar code data (max. 16 characters) and read the buffer regularly to avoid overflow.

For more demanding applications or for reading bar codes other than Code 128, choose a regular bar code scanner from Intermec's wide product range and connect it to a serial port.



## Optional Interfaces

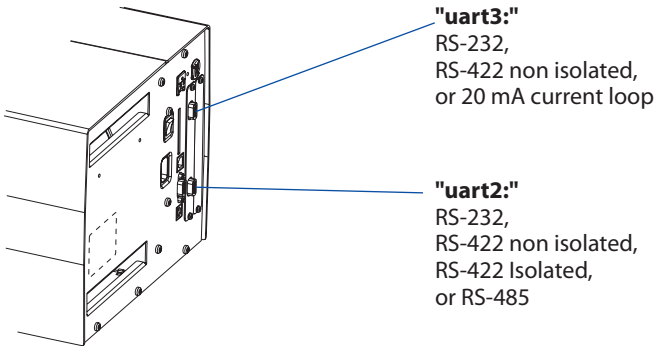
The printer can optionally be fitted with one or two of the following interface boards at the right-hand side of the printer's rear plate:

- Double Serial Interface Board
- Serial/Industrial Interface Board
- IEEE 1284 Parallel Interface Board (only one at a time)

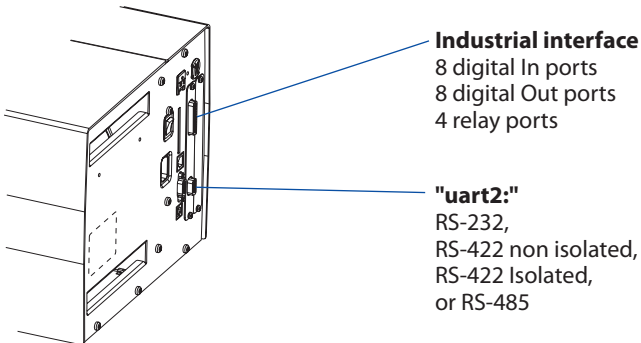
Regardless of any of the interface boards mentioned above are installed, the printer can also be fitted with one of the following EasyLAN interface boards for connection to a Local Area Network (LAN):

- EasyLAN Ethernet Interface
- EasyLAN Wireless Interface

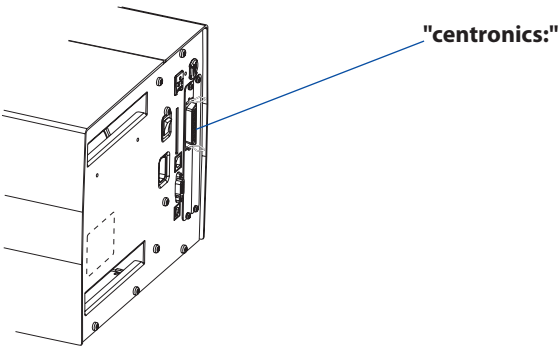
### Double Serial Interface Board



### Serial/Industrial Interface Board



**IEEE 1284 Parallel Interface Board**



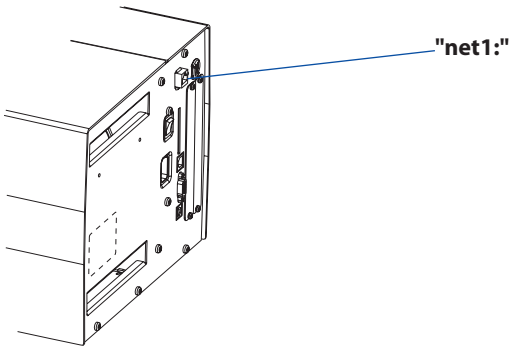
**Allowed interface combinations**

Left-hand slot	Ports	Right-hand slot	Ports
Double Serial	uart2: + uart3:	—	—
Double Serial	uart2: + uart3:	Double Serial	uart4: + uart5:
Double Serial	uart2: + uart3:	Serial/industrial	uart4:
Double Serial	uart2: + uart3:	IEEE 1284	centronics:
Serial/Industrial	uart2:	—	—
Serial/Industrial	uart2:	Serial/Industrial	uart3:
Serial/Industrial	uart2:	Double Serial	uart3: + uart4:
Serial/Industrial	uart2:	IEEE 1284	centronics:
IEEE 1284	centronics:	—	—
IEEE 1284	centronics:	Double Serial	uart2: + uart3:
IEEE 1284	centronics:	Serial/Industrial	uart2:

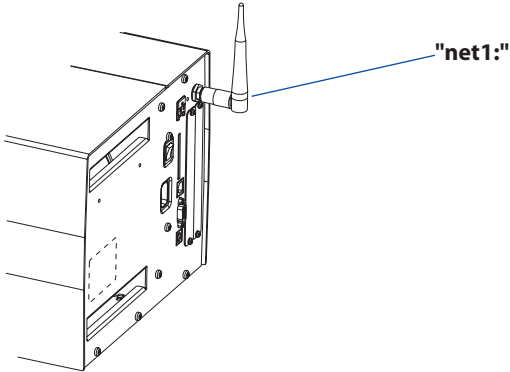
Remarks:

- The left-hand slot is the slot closest to the center section.
- Always start by fitting an interface board in the left-hand slot.
- RS-485 is only supported by "uart2:"

### EasyLAN Ethernet Interface



### EasyLAN Wireless Interface



For information on how to set up, operate, configure, and troubleshoot an EasyLAN interface, please refer to the following manuals that are included in .pdf format on the attached CD-ROM:

- *EasyLAN Interface Kit, Installation Instructions*
- *EasyLAN Wireless Interface Kit, Installation Instructions*
- *EasyLAN, User's Guide*
- *EasyLAN Network Setup, User's Guide*







## **D Intermec Supplies**

This appendix describes the supplies offered by Intermec for use with this printer, that is, direct thermal media, thermal transfer ribbons, and receiving face materials for thermal transfer printing

# Direct Thermal Media

Intermec offers two quality grades of **direct thermal** media for the Easy-Coder printers:

## Premium Quality

Top-coated media with high demands on printout quality and resistance against moisture, plasticizers, and vegetable oils. Examples:

### Europe

Thermal Top Board  
Thermal Top  
Thermal Top High Speed

### North America

Duratherm II  
Duratherm II Tag  
Duratherm Lightning  
Duratherm Lightning Plus  
Duratherm IR

## Economy Quality

Non top-coated media with less resistance to moisture, plasticizers, and vegetable oils. In all other respects, it is equal to Premium Quality. Examples:

### Europe

Thermal Eco  
Thermal Eco Board

### North America

—

## Thermal Transfer Media

Intermec offers stock labels for thermal transfer printing in a wide range of quality grades.

### Uncoated Papers

Economical high-volume printing. To be used with GP/TMX 1100/TMX 1500 ribbons. Examples:

#### Europe

TTR Uncoated

#### North America

—

### Coated Papers

Various coat-weight, smoothness, and gloss. To be used with HP/TMX 2500 and GP/TMX 1100/TMX 1500 ribbons. Examples:

#### Europe

TTR Coated

TTR Premium

TTR Premium Board

TTR High Gloss White

#### North America

Duratron II

Duratron II Tag

Valeron Tag

### Polyethylene Plastics

These media have better resistance to water and many common chemicals than uncoated and coated papers. They can be use outdoors and offer good tear resistance. Most often used with HP/TMX 2500 ribbons. Examples:

#### Europe

TTR Polyethylene

TTR Gloss Polyethylene

#### North America

Kimdura

Syntran

### Polyesters

These media give high resistance to chemicals, heat, and mechanical abrasion with HR/TMX 3200 ribbons. Examples:

#### Europe

TTR High Gloss Polyester

#### North America

PET Gloss

## Transfer Ribbons

Intermec offer three ranges of thermal transfer ribbons optimized for different purposes:

- **General Purpose (GP/TMX 1500)** transfer ribbons allow high speed printing and give a good printout, but are somewhat sensitive to smearing. They may be the best choice for uncoated and coated papers.
- **High Performance (HP/TMX 2200, TMX 2500)** transfer ribbons allow high speed printing and give a highly readable and defined printout on most face materials with smooth surfaces. They have good “smear resistance” and are most suitable for intricate logotypes and images on matte-coated papers and synthetic face materials.
- **High Resistance (HR/TMX 3200)** transfer ribbons give an extremely durable printout, which is resistant to most chemical agents and high temperatures. However, such transfer ribbons set high demands on the receiving face material, which must be very smooth, such as polyesters.

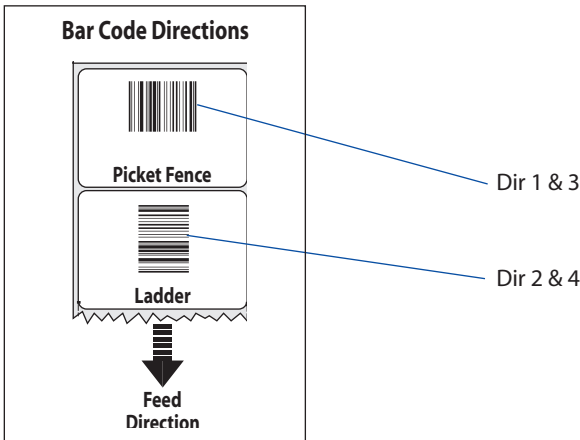
The use of HR/TMX 3200 ribbons requires the print speed and the energy supplied by the printhead to be controlled with great accuracy according to the receiving face material. Custom-made setup options adapted for special applications can also be created. Consult your Intermec distributor.



**Note:** Intermec thermal transfer ribbons are engineered specifically for the EasyCoder printheads.

## Bar Code Directions

In the tables on the pages that follow, different maximum print speeds may be recommended depending on the direction of possible bar codes in the printout. Generally, ladder style bar codes are more demanding and may require a lower print speed, especially in connection with a large media roll and/or negative start adjust values (see “Print Speed” in Chapter 6). The illustration below shows how the two type of bar code directions relate to the media feed direction.



# Recommended Paper Type Settings (Europe)

## Direct Thermal Printing; 8 dots/mm (203.2 dpi)

Type/Speed	Name	Label Constant	Label Factor	Max Rec. Print Speed <sup>1</sup>	
				Dir 1&3 <sup>2</sup>	Dir 2&4 <sup>3</sup>
Top Coated/ Standard	Thermal Top Board <sup>4</sup>	113	40	150	300
	Thermal Top	79	40	250	300
	Thermal IR	98	40	150	300
Non Top Coated/ Standard	Thermal Eco	69	40	300	300
	Thermal Eco Board <sup>4</sup>	65	40	200	300
Top Coated/High	Thermal Top High Speed	85	40	300	300

## Thermal Transfer Printing; 8 dots/mm (203.2 dpi)

Type/Speed	Name	Ribbon Constant	Ribbon Factor	Label Offset	Max Rec. Print Speed <sup>1</sup>	
					Dir 1&3 <sup>2</sup>	Dir 2&4 <sup>3</sup>
GP02	TTR Uncoated	66	25	0	300	300
	TTR Coated	67	25	0	300	300
	TTR Premium	60	25	0	300	300
HP66	TTR Coated	86	25	0	300	300
	TTR Premium	77	25	0	300	300
	TTR Premium Board <sup>4</sup>	97	25	0	300	300
	TTR High Gloss White	96	25	0	300	300
	TTR Polyethylene	74	25	0	300	300
	TTR Gloss Polyethylene	93	25	0	300	300
HP05	TTR Coated	79	25	0	250	250
	TTR Premium	72	25	0	250	250
	TTR Premium Board <sup>4</sup>	86	25	0	250	250
	TTR High Gloss White	85	25	0	250	250
	TTR Polyethylene	68	25	0	250	250
	TTR Gloss Polyethylene	83	25	0	250	250
HR03	TTR High Gloss Polyester	88	25	0	150	225

<sup>1</sup>/. Exceeding the recommended print speed may cause the printhead to wear out prematurely. If the ambient temperature is lower than +15°C (+59°F), decrease print speed by 50 mm/sec.

<sup>2</sup>/. Applies to printing of text, lines, boxes, images, and picket fence bar codes.

<sup>3</sup>/. Applies to ladder bar codes.

<sup>4</sup>/. Requires high printhead pressure (see Chapter 12 “Adjustments, Printhead Pressure”).

### Direct Thermal Printing; 11.81 dots/mm (300 dpi)

Type/Speed	Name	Label Constant	Label Factor	Max Rec. Print Speed <sup>1</sup> Dir 1&3 <sup>2</sup>	Dir 2&4 <sup>3</sup>
Top Coated/ Standard	Thermal Top Board <sup>4</sup>	96	40	300	200
	Thermal Top	92	40	300	200
	Thermal IR	96	40	250	200
Non Top Coated/ Standard	Thermal Eco	74	40	300	300
	Thermal Eco Board <sup>4</sup>	61	40	300	250
Top Coated/High	Thermal Top High Speed	85	40	300	300

### Thermal Transfer Printing; 11.81 dots/mm (300 dpi)

Type/Speed	Name	Ribbon Constant	Ribbon Factor	Label Offset	Max Rec. Print Speed <sup>1</sup> Dir 1&3 <sup>2</sup>	Dir 2&4 <sup>3</sup>
GP02	TTR Uncoated	64	25	0	300	300
	TTR Coated	63	25	0	300	300
	TTR Premium	56	25	0	300	300
HP66	TTR Coated	71	25	0	300	300
	TTR Premium	71	25	0	300	300
	TTR Premium Board <sup>4</sup>	99	25	0	300	300
	TTR High Gloss White	84	25	0	300	300
	TTR Polyethylene	69	25	0	300	300
	TTR Gloss Polyethylene	80	25	0	300	300
HP05	TTR Coated	84	25	0	250	250
	TTR Premium	74	25	0	250	250
	TTR Premium Board <sup>4</sup>	92	25	0	250	250
	TTR High Gloss White	85	25	0	250	250
	TTR Polyethylene	69	25	0	250	250
	TTR Gloss Polyethylene	80	25	0	250	250
HR03	TTR High Gloss Polyester	83	25	0	150	225

<sup>1/</sup>. Exceeding the recommended print speed may cause the printhead to wear out prematurely. If the ambient temperature is lower than +15°C (+59°F), decrease print speed by 50 mm/sec.

<sup>2/</sup>. Applies to printing of text, lines, boxes, images, and picket fence bar codes.

<sup>3/</sup>. Applies to ladder bar codes.

<sup>4/</sup>. Requires high printhead pressure (see Chapter 12 “Adjustments, Printhead Pressure”).

# Recommended Paper Type Settings (North America)

## Direct Thermal Printing; 8 dots/mm (203.2 dpi)

Type/Speed	Name	Label	Label	Max Rec. Print Speed <sup>1</sup>	
		Constant	Factor	Dir 1&3 <sup>2</sup>	Dir 2&4 <sup>3</sup>
Top Coated/	Duratherm II	85	40	300	300
	Duratherm II-2	86	40	250	300
Standard	Duratherm II Tag <sup>4</sup>	68	40	300	300
Top Coated/ High	Duratherm Lightning	62	40	300	300
	Duratherm Lightning Plus	75	40	300	300
	Duratherm Lightning IR	65	40	250	300

## Thermal Transfer Printing; 8 dots/mm (203.2 dpi)

Type/Speed	Name	Ribbon	Ribbon	Label	Max Rec. Print Speed <sup>1</sup>	
		Constant	Factor	Offset	Dir 1&3 <sup>2</sup>	Dir 2&4 <sup>3</sup>
TMX 1500	Duratron II Label	53	25	0	200	200
	Duratron II Syntran	64	25	0	200	200
	Duratron Kimdura	64	25	0	200	200
	Duratron S	63	25	0	200	200
	Duratron II Tag	57	25	0	200	200
TMX 2200	Duratron II Labels	63	25	0	200	200
	Duratron II Syntran	66	25	0	200	200
	Duratron Kimdura	78	25	0	200	200
	Duratron Valeron	79	25	0	200	200
	Duratron S	71	25	0	200	200
TMX 3200	Duratron II Tag	64	25	0	200	200
	Duratron II Gloss Polyester	93	30	0	150	150

<sup>1</sup>/. Exceeding the recommended print speed may cause the printhead to wear out prematurely. If the ambient temperature is lower than +15°C (+59°F), decrease print speed by 50 mm/sec.

<sup>2</sup>/. Applies to printing of text, lines, boxes, images, and picket fence bar codes.

<sup>3</sup>/. Applies to ladder bar codes.

<sup>4</sup>/. Requires high printhead pressure (see Chapter 12 “Adjustments, Printhead Pressure”).



**Direct Thermal Printing; 11.81 dots/mm (300 dpi)**

Type/Speed	Name	Label Constant	Label Factor	Max Rec. Print Speed <sup>1</sup>	
				Dir 1&3 <sup>2</sup>	Dir 2&4 <sup>3</sup>
Top Coated/ Standard	Duratherm II	86	40	300	300
	Duratherm II-2	88	40	300	250
	Duratherm II Tag <sup>4</sup>	68	40	300	300
Top Coated/ High	Duratherm Lightning	69	40	300	300
	Duratherm Lightning Plus	80	40	300	250
	Duratherm Lightning IR	75	40	300	250
	Duratherm Lightn. IR Tag <sup>110</sup>		40	300	150

**Thermal Transfer Printing; 11.81 dots/mm (300 dpi)**

Type/Speed	Name	Ribbon Constant	Ribbon Factor	Label Offset	Max Rec. Print Speed <sup>1</sup>	
					Dir 1&3 <sup>2</sup>	Dir 2&4 <sup>3</sup>
TMX 1500	Duratron II Label	55	25	0	200	200
	Duratron II Syntran	52	25	0	200	200
	Duratron Kimdura	64	25	0	200	200
	Duratron S	53	25	0	200	200
	Duratron II Tag	61	25	0	200	200
TMX 2200	Duratron II Labels	65	25	0	200	200
	Duratron II Syntran	65	25	0	200	200
	Duratron Kimdura	73	25	0	200	200
	Duratron Valeron	80	25	0	200	200
	Duratron S	65	25	0	200	200
	Duratron II Tag	66	25	0	200	200
TMX 3200	Duratron II Gloss Polyester	87	25	0	150	150

<sup>1</sup>/ Exceeding the recommended print speed may cause the printhead to wear out prematurely. If the ambient temperature is lower than +15°C (+59°F), decrease print speed by 50 mm/sec.

<sup>2</sup>/ Applies to printing of text, lines, boxes, images, and picket fence bar codes.

<sup>3</sup>/ Applies to ladder bar codes.

<sup>4</sup>/ Requires high printhead pressure (see Chapter 12 “Adjustments, Printhead Pressure”).







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EasyCoder PX4i User's Guide (Fingerprint version)



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