Intermec

User's Guide

EasyCoder PF4i Compact Industrial Printer

(Fingerprint Version)

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FCC Notice (United States of America)

WARNING

This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

DOC Notice (Canada)

Canadian Dept. of Communication

REGULATIONS COMPLIANCE (DOC-A)

This digital apparatus does not exceed the class A limits for radio noise emissions from a digital apparatus as set out in the radio interference regulations of the Canadian Department of Communication.

Ministère des Communications du Canada

CONFORMITE DE REGLEMENTS (DOC-A)

Le présent appareil numérique n'émet pas de bruits radio-électriques dépassant les limites applicables aux appareils numériques de classe A prescrites dans le règlement sur brouillage radioélectrique édicté par le Ministère des Communications du Canada.

GS Notice (Germany)

ALLGEMEINE VORSCHRIFT

Reparaturen oder sonstige Eingriffe, die sich nicht auf normale Bedienung der Maschine beziehen, dürfen ausschließlich nur von einem ausgebildeten, zuständigen Fachmann vorgenommen werden.

EU Standard EN 55022 (The European Union)

WARNING

This is a Class A ITE product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Declaration of Conformity (CE)

We,
Intermec Printer AB
Box 123
S-431 22 Mölndal
Sweden

declare under our sole responsibility[1] that the product

EasyCoder PF4i Compact Industrial

to which this declaration relates is in conformity
with the following standards
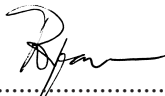
EMC:
EN 61000-6-4:2001
EN 61000-6-2:2001

Electrical Safety:
EN 60 950

following the provisions of Directives

89/336/EEC and 73/23/EEC

Mölndal 2003-03-12

....
Per-Ove Jacobsson

[1]*/. Intermec assumes no responsibility regarding the CE Directive if the printer is handled, modified, or installed in other manners than those described in Intermec's manuals.*

1 Introduction

This chapter introduces the EasyCoder PF4i Compact Industrial printer. The chapter covers the following topics:

- Description of EasyCoder PF4i Compact Industrial

- Safety summary

- Product identification

Description of EasyCoder PF4i Compact Industrial

The EasyCoder PF4i Compact Industrial is a sturdy industrial thermal transfer printer with a printhead resolution of 8 dots/mm = 203.2 dot/inch (standard) or 11.81 dots/mm = 300 dpts/inch (option) and a maximum print width of 104 mm (4.095 inches) or 105.7 mm (4.161 inches) respectively. It offers a large number of useful features, such as:

• 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 extra interface boards including wired and wireless EasyLAN connections

• Keyboard and display with backlight for improved user interface.

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 PF4i Compact Industrial supports the unique and flexible Intermec Fingerprint v8.10 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.

The EasyCoder PF4i Compact Industrial supports 15 scaleable 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 PF4i Compact Industrial, that supports the Intermec Programming Language (IPL), 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 doors are open, so ensure that the doors are closed before you operate the printer.

- Do not open the front/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 7 to 8 kg (15.5 to 17.7 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 PF4i Compact Industrial printer 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 PF4i Compact Industrial printer
  - Two sets of Quick-Load Guides (wide and narrow)
  - Power cord
  - Quality check card
  - Cleaning card
  - Short strip of labels
  - Starter pack of thermal transfer ribbon
  - This User's Guide
  - Supporting software and product information on CD.

• Check that the power cord is appropriate for the local standard. The printer works within 90 to 265 VAC, 50 to 60 Hz.
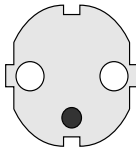
European-type 230 VAC plug   *US/Canadian-type 115 VAC plug*   *GB-type 230 VAC plug*
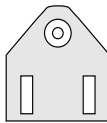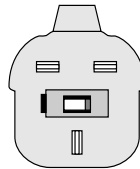
If the printer has been damaged in any way during transportation, complain to the carrier immediately.

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 control lamps, and the keyboard. These features allow the operator to control and set up the printer manually.

The printed labels, tickets, or tags are presented at the front of the print mechanism.

Control lamps

Display window

Keyboard

Print button

Front door

Print mechanism
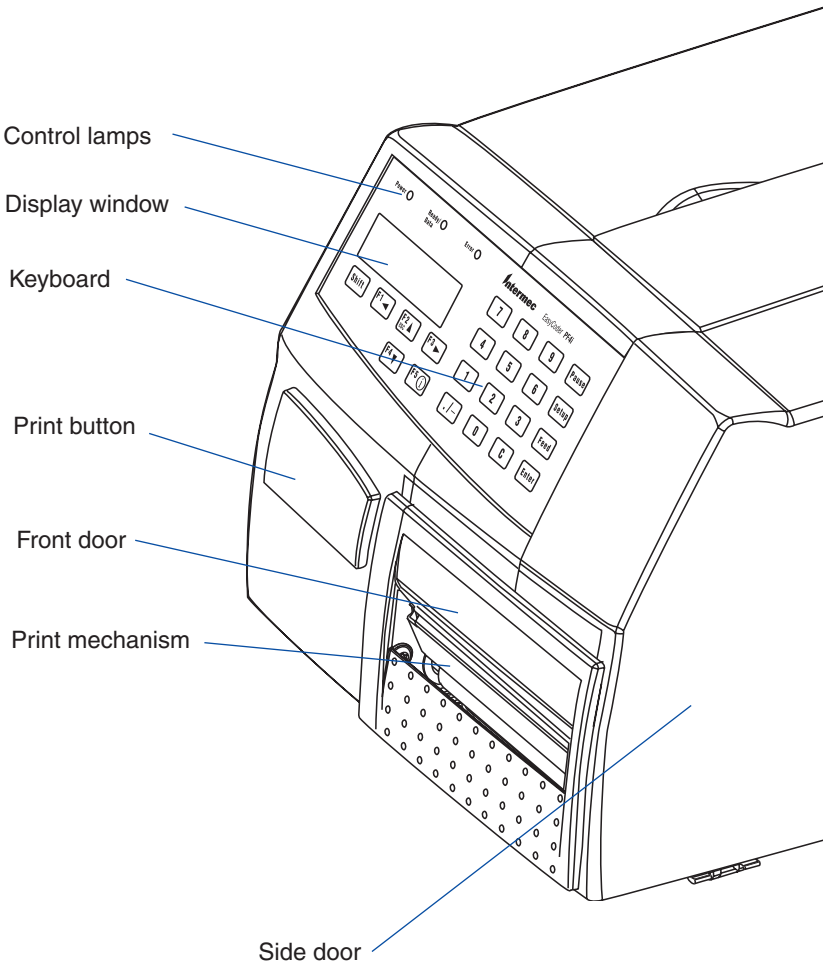
Side door

Rear View

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

Provision for EasyLAN Ethernet connection (option)

Memory card slot

Provision for one optional interface board

On/Off Switch

Bar code wand socket

AC Power cord socket

RS-232 serial interface ("uart1:")

USB Interface ("usb1:")

Machine label
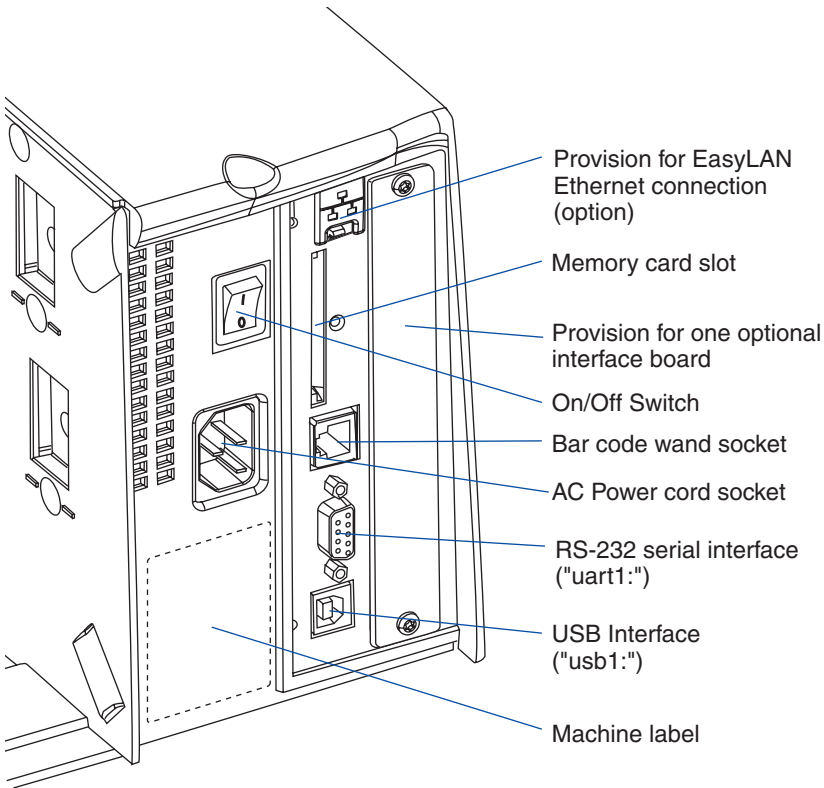
Media Compartment

Description

The media compartment is as standard covered by a long side door that completely encloses the print mechanism and media compartment. (Optionally, the printer can be fitted with a two part "Megatop" that allows a larger media roll to be used.) The door is held by a magnetic lock. It can be opened 180° to provide full access to the media compartment.

The media supply can be from a supply post, or from an external supply of fan folds behind the printer. There is also an optional rotating media supply hub. Also see Chapter 9, "Options."

Thermal transfer mechanism

Media supply roll post with edge guide

Optional integral liner takeup with guide shaft

Front door

Print mechanism

Long side door
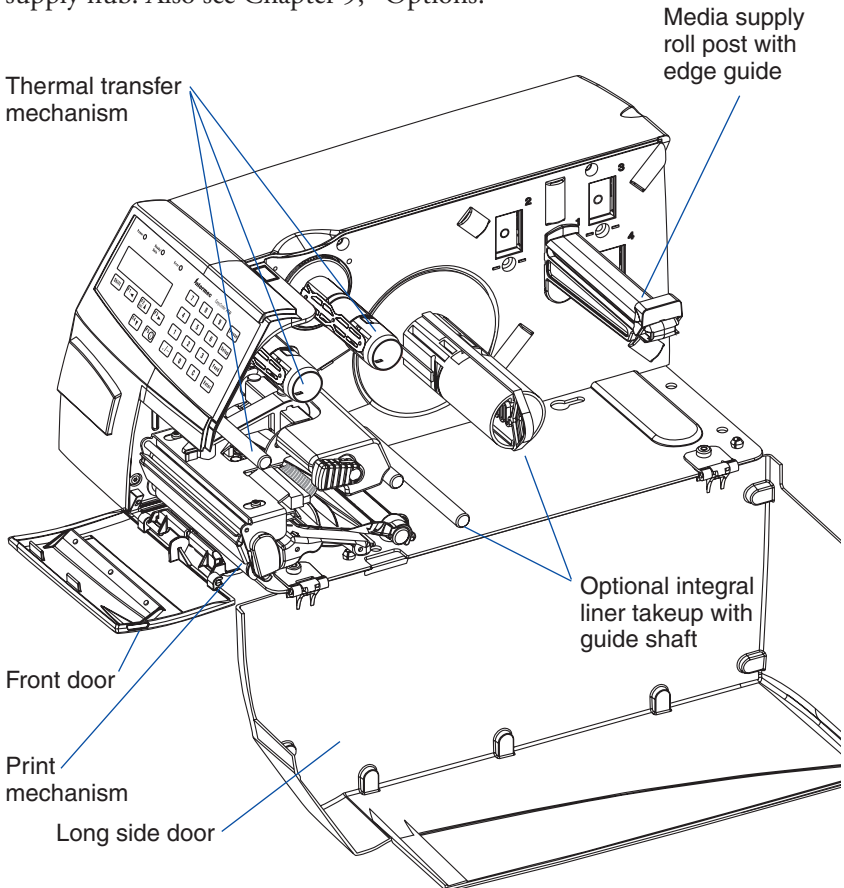
The EasyCoder PF4i Compact Industrial uses a media supply roll post that can be fitted in three different positions inside the media compartment. The position depends on the type of side door and whether the printer is fitted with an integral liner takeup or not. Alternatively, an external media supply (for example a box of fan-folded tickets) behind the printer can be used. A rotating media supply hub is also available as an option, see Chapter 9, "Options."

Media Supply Roll Post

The media supply roll post fits both 38-40 mm (1.5 inches) and 76 mm (3.0 inches) cores since it can be moved vertically in the slot in the center section. The bottom position is intended for small cores and the top position is for large cores. The post is locked by a straight-slot screw and has a moveable edge guide to fit various media widths.
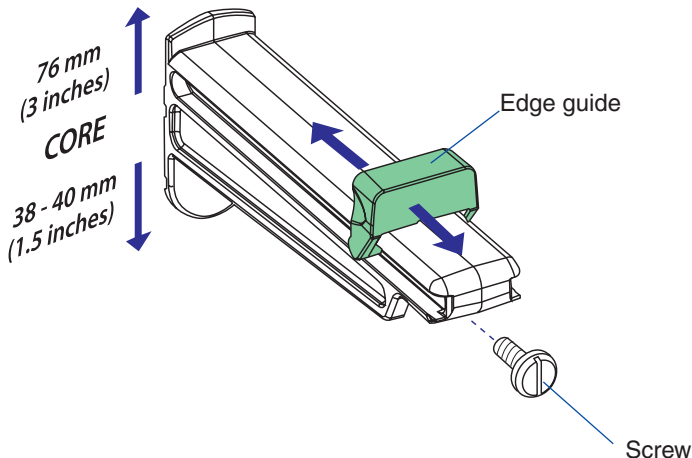
To move the post to a different slot; remove the screw, twist the post a quarter of a turn, and pull it out.

To fit the post; rotate it a quarter of a turn, insert it into the appropriate slot in the center section (see next page), and twist back so the lips engage the cutouts in the sides of the slot. Move it up (large core) or down (small core) as far as it goes and secure it with the screw.

Media Supply Positions

There are four sets of slots and threaded holes in the printer's center section for the media supply roll post or rotating hub (optional). These slots allow the largest possible roll size to fit, given the limitations of any liner takeup unit and/or the full enclosure provided by the long side door or Megatop. The positions are indicated by numbers engraved in the center section.

• Position 1 is used when the media compartment is fully enclosed by a long side door, regardless of the existence of any integral liner takeup unit. Maximum roll size is 152 mm (6 inches).

• Position 2 is not used.

• Position 3 is used when the printer has an integral liner takeup unit and a long side door. This position is also used with the 8-inch Megatop. Maximum roll size is 213 mm (8.38 inches).

• Position 4 is not used.

The printer can also use an external media supply located behind the printer, except when it has an 8-inch Megatop.
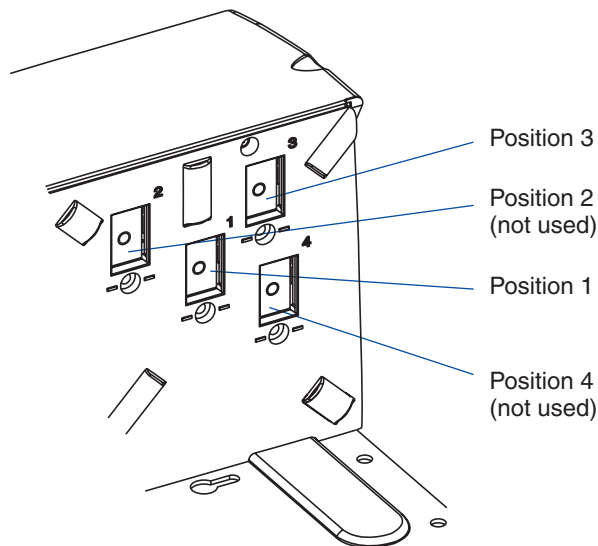
Print Mechanism

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

Ribbon rewind hub

Ribbon supply hub

Thermal printhead

Tear bar (tear upwards)

Pressure arm

Tear bar (tear downwards and peel-off))

Platen roller

Edge guide

Label stop sensor position adjustment (bottom sensor hidden)

Printhead lift lever
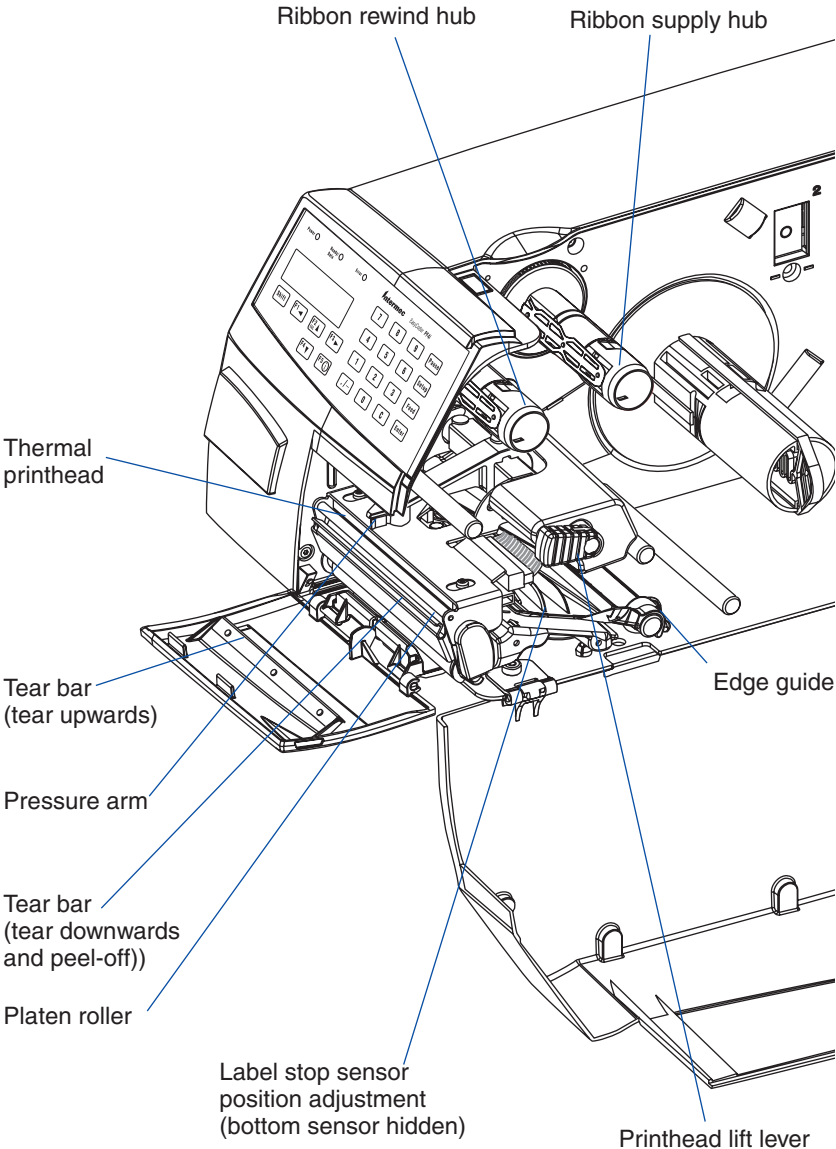
Connections

Power

1 Place the printer on a level surface, near an AC outlet. You should be able to easily access the printer to load media 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 PF4i Compact Industrial 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 Inter-Driver. 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:", "centronics:", or "net1:")

Several types are available (see Chapter 9, "Options"). Refer to Appendix C and the separate documentation delivered with the boards for connection and setup instructions.

The printer can be set to scan all communication ports for incoming data and automatically switch to that port. This facility ("auto") can be selected in Intermec Shell (see Chapter 8) or using the Intermec Fingerprint instruction SETSTDIO, see *Intermec Fingerprint v8.xx, Programmer's Reference Manual*.

Switch off both PC and printer before connecting them together.

Controls and Indicators

The EasyCoder PF4i Compact Industrial has several ways of communicating directly with its operator: three control lamps, a display window, a membrane-switch keyboard with 22 programmable keys, a big programmable "Print" button on the printer's front, and a beeper.
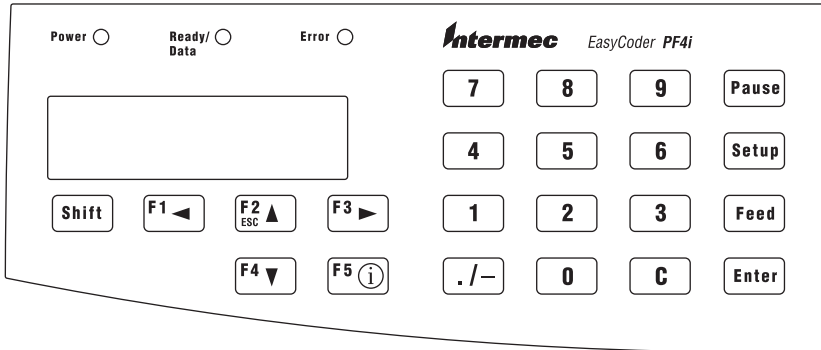
Control Lamps

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

- Power (green) indicates that the power is on.

- Ready (solid green) indicates that the printer is ready for use.
  Data (flashing green) indicates that the printer is communicating.

- Error (red) indicates that some kind of error has occurred. With a serial communication, an error message may be returned to the host computer.

Display

The display window contains an LCD (Liquid Crystal Display) with background illumination and two lines of text, each with 16 characters. It guides the operator through the setup and indicates possible errors during printing.

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. The keyboard is supplemented by a large "Print" button on the printer's front. Some keys have hard-coded functions in the startup and setup modes.

Print button	Feed/Pause a print job. Repeat last printed label.
Pause	Toggle between pause and printing when executing a print job.
Pause + **Shift**	Interrupt a running Fingerprint program.
Setup	Enter the Setup Mode (see Chapter 7).
Feed	Feed out a blank label or the equivalent.
Feed + **Shift**	Perform a Testfeed (feed a blank label, adjust the media feed).
F5 (i)	Display the settings for the active communication channel.
F1 ◄ **F3** ►	Browse between communication channels after having pressed the F5/i key.

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)

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.

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 is also fitted 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 three types of preprogrammed CompactFlash cards:

• 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.

CompactFlash memory card

Protection plate with screw (option)
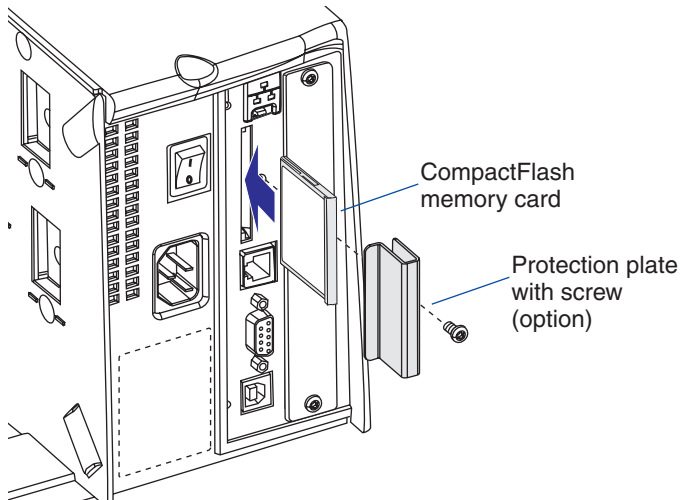
Note: Always switch off the power before inserting or removing a memory card! The card will only fit in one way. A memory card is only detected if it is inserted before the printer is started.

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.8.0
     4 sec.      v.8.0
          3 sec.      v.8.0
               2 sec.      v.8.0
                    1 sec.      v.8.0
```

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, tag, or strips, for the following modes of operation:

• Tear-Off (straight-through)

• Tear-Off with Quick-Load (straight-through)

• Cut-Off

• Peel-Off (self-strip)

• External supply (fan-folds)

Tear-Off (Straight-through)

The EasyCoder PF4i Compact Industrial 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."
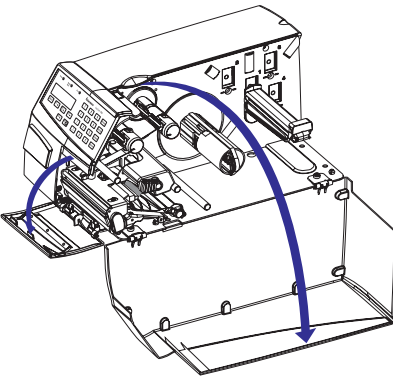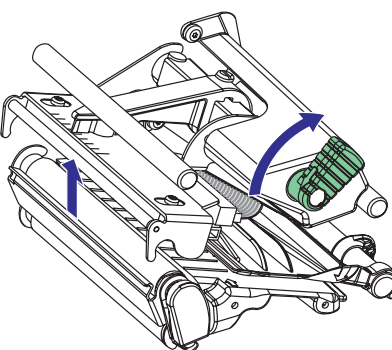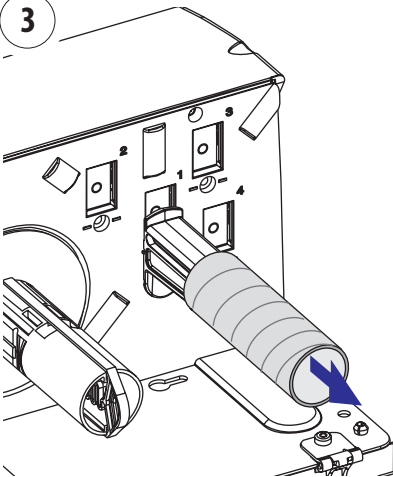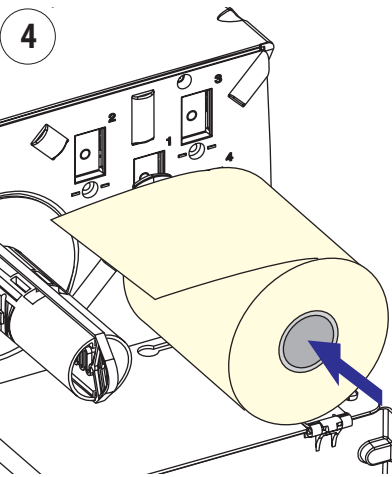
Use the <Feed> key (see figure #10) when loading the same type of media. When switching to a new type of media, or if the printer does not feed out the media properly, simultaneously press the <Shift> and <Feed> keys to perform a "testfeed."

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 clockwise to raise the printhead.

3

If necessary, fold down the edge guide. Remove any empty core from the media supply roll post.

4

Fit a new roll of media on the supply post and adjust the edge guide so the roll becomes flush with the center section.

Tear-Off, cont.

Route the media through the print mechanism. Then push it inwards as far as it will go. Close the edge guide on the media supply post.

This diagram shows the media path.

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

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

Tear-Off, cont.

9

Close the front and side door, making sure that the media runs through the slot in the front door.

10

Feed

Press the Feed key to advance the media and adjust the media feed. Tear off the media by pulling it either upwards or downwards.

Tear-Off with Quick-Load (Straight-through)

In addition to the media load procedure for tear-off (straight-through) operation described earlier in this chapter, the EasyCoder PF4i Compact Industrial can optionally be fitted with a set of Quick-Load guides that makes media load much easier and quicker.

The printer is normally delivered with two different sets of Quick-Load guides: wide and narrow. The wide type generally guides the media better, but the media must be at least 80 mm (3.15 inches) wide. The narrow type allows a media width as narrow as 40 mm (1.57 inches), but it may be less suited for wide and thin media.

Quick-Load cannot be combined with peel-off (self-strip) operation.
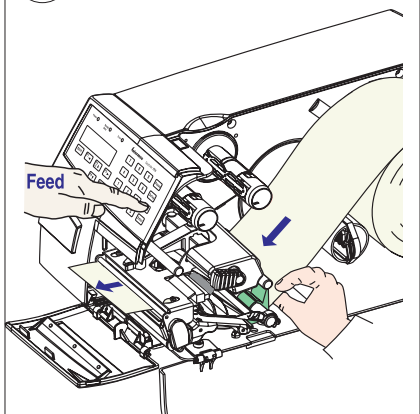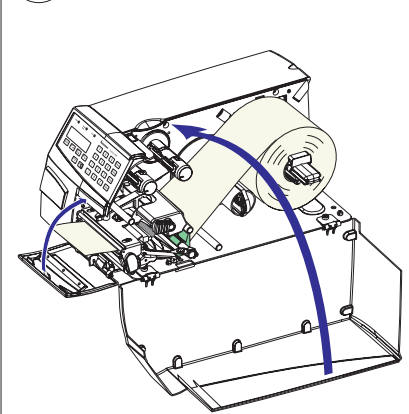
An optional label taken sensor can hold the printing of the next copy in the batch until the present copy has been removed, see Chapter 9, "Options."

Use the <Feed> key (see figure #5) when loading the same type of media. 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." Fully automatic loading, without the operator having to press any key, requires a special set of Intermec Fingerprint instructions in the application program.

Tear-Off with Quick-Load, cont.

1

Lift up the upper media guide and pull out the green edge guide (save it for later use).

2

Narrow Guides

Rail Notch

Wide Guides

Press the wide or narrow Quick-Load guides onto the shaft as illustrated, making sure that the notches fit the rail at the rear of the lower media guide.

3

If necessary, adjust the outer Quick-Load guide to fit the width of the media.

4

Insert the media between the guides and feed it forward until the media reaches the platen roller and cannot be inserted any further.

Tear-Off with Quick-Load, cont.

5	6
Keep pushing the media forward while pressing the Feed key.	*Close the front and side doors, making sure that the media runs through the slot in the front door.*

Cut-Off

The EasyCoder PF4i Compact Industrial 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. 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 μm, whick roughly corresponds to a paper weight of 60 to 175 grams/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.
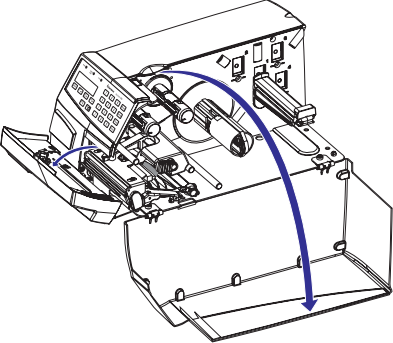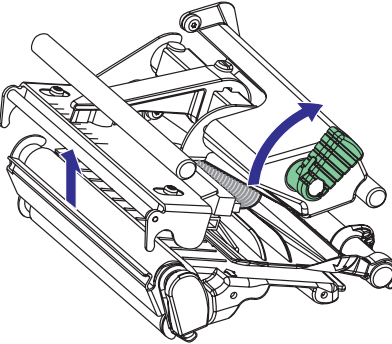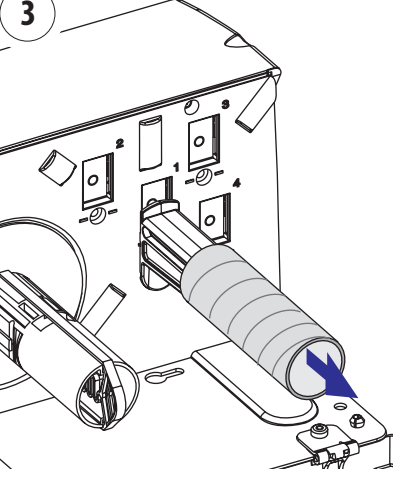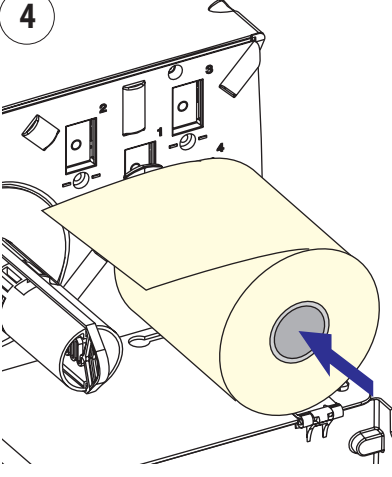
The cutter is held by a snap-lock and can be tilted forward to facilitate media load. A switch prevents the cutter from operating when in open position.

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

The paper cutter can be used with both a standard edge guide and Quick-Load guides and with any type of side door. In this chapter, a printer with a standard edge guide and a long side door is illustrated.

There is no front door when a cutter is installed.

Cut-Off, cont.

1	**2**
Open the cutter and the side door.	*Turn the printhead lift lever clockwise to raise the printhead.*
3	**4**
If necessary, fold down the edge guide. Remove any empty core from the media supply roll post.	*Fit a new roll of media on the supply post and adjust the edge guide so the roll becomes flush with the center section.*

Cut-Off, cont.

Route the media through the print mechanism and cutter. Then push it towards the center section as far as it will go.
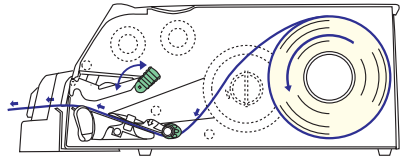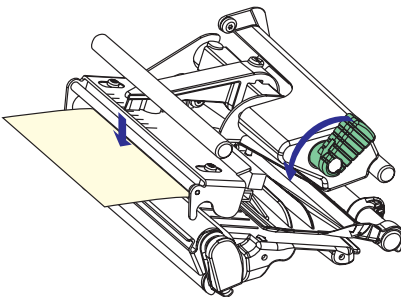
This diagram shows the media path.

Turn the printhead lift lever counterclockwise to engage the printhead.
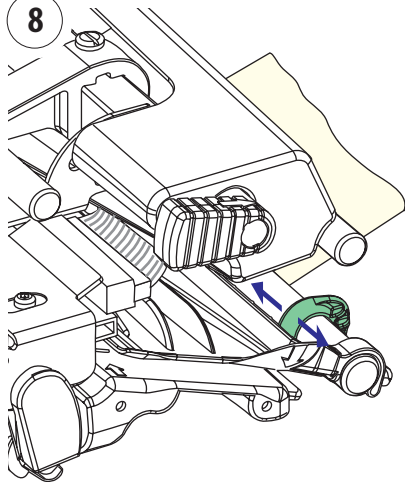
Adjust the position of the green edge guide so the media is guided with a minimum of play.

Cut-Off, cont.

9
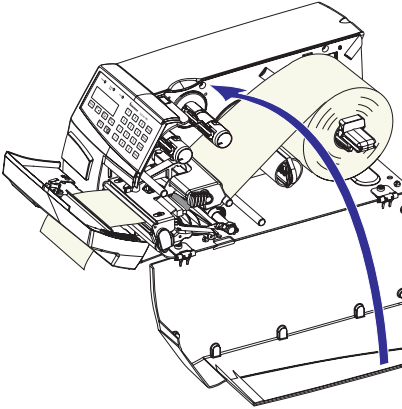
Close the side door.

10
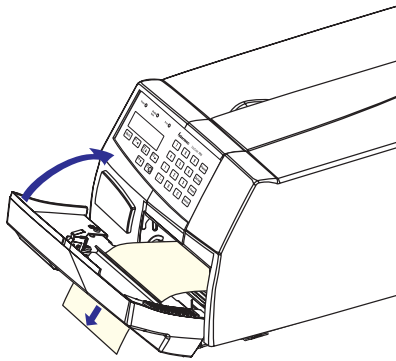
 Close the cutter while pulling at the media.

11
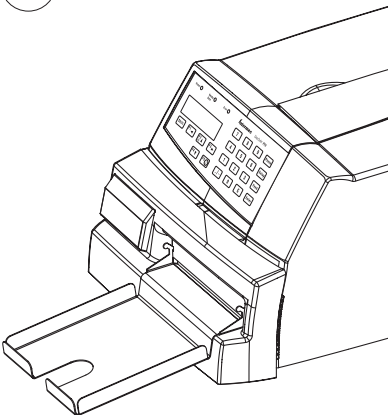
An optional tray can be attached to the cutter to collect the cut off labels, tickets, or tags.

12
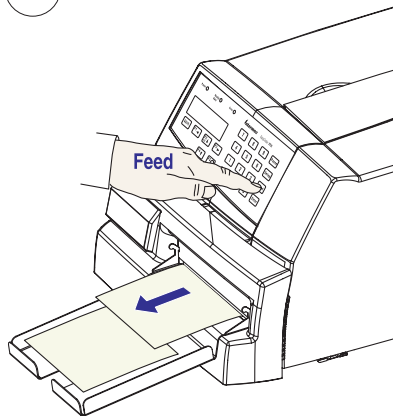
Feed

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

Peel-Off (Self-strip)

The EasyCoder PF4i Compact Industrial 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. The liner is then wound up on an integral liner takeup hub. This is also known as "Self-strip" operation.

Peel-off operation cannot be performed when Quick-Load guides are fitted.

Use the <Feed> key (see figure #13) when loading the same type of media. 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 "testfeeed."
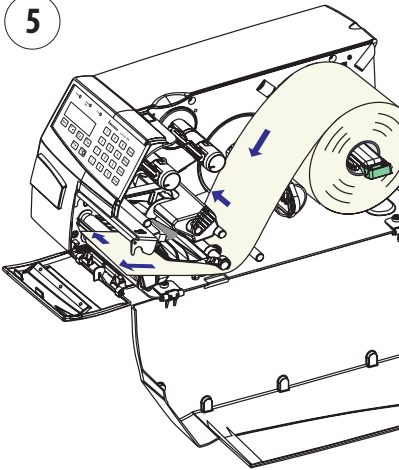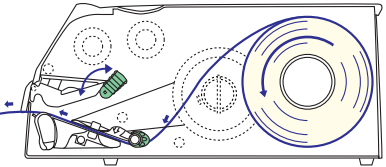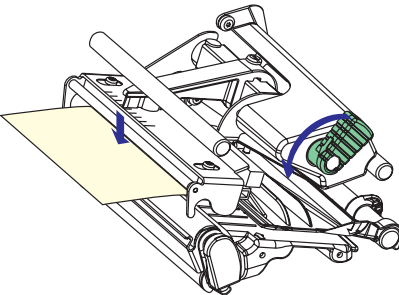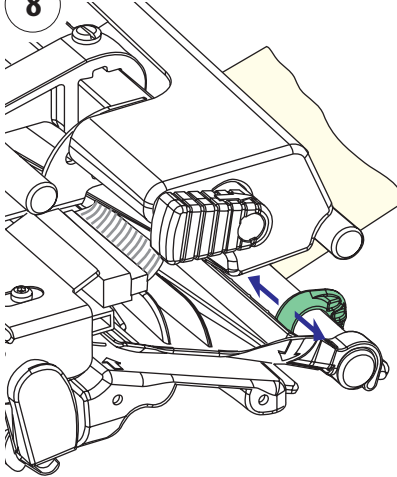
Peel-off can only be used for:

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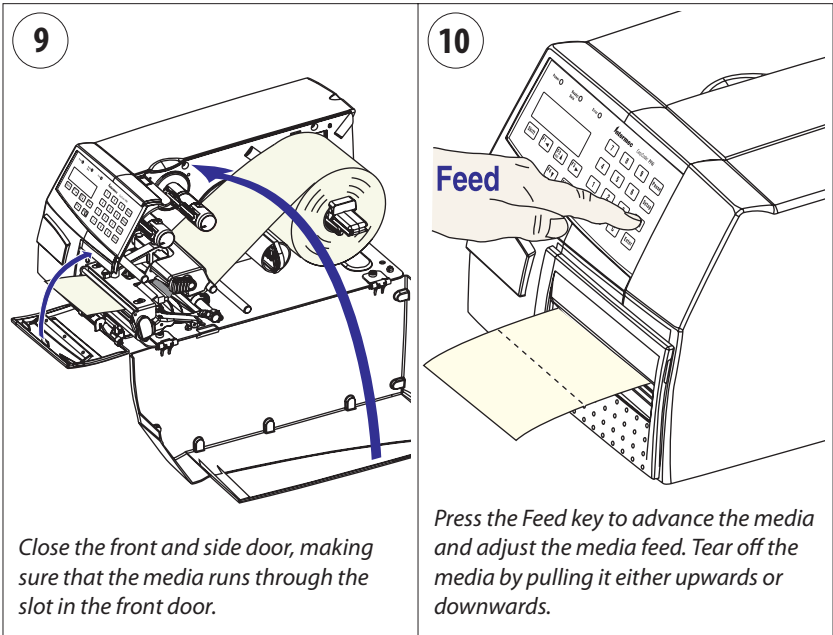
Note: Peel-off operation sets high demands on the media in regard of label stiffness, release characteristics of the adhesive and liner, resistance against electrostatic charging etc., so the labels will be dispensed properly. Consult your media supplier or test the media to ascertain that it is suitable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

Peel-Off, cont.

1 Open the front and side doors.
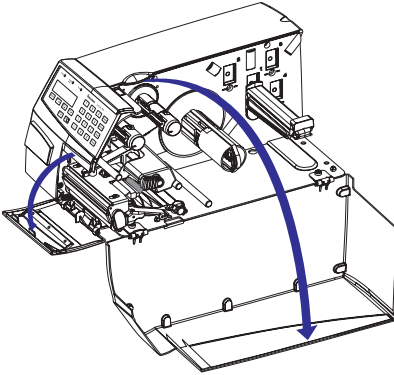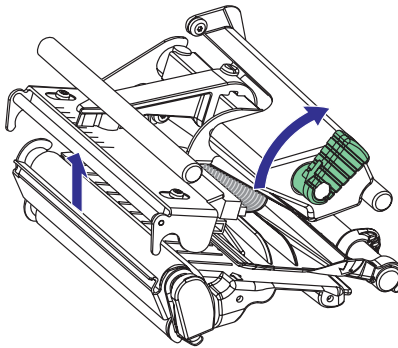
2 Turn the printhead lift lever clockwise to raise the printhead.
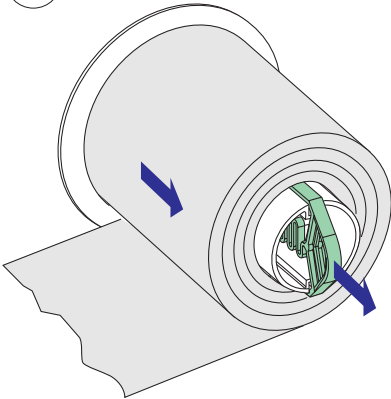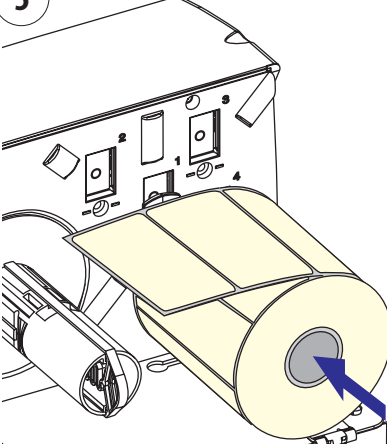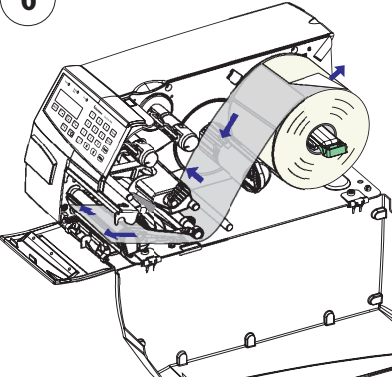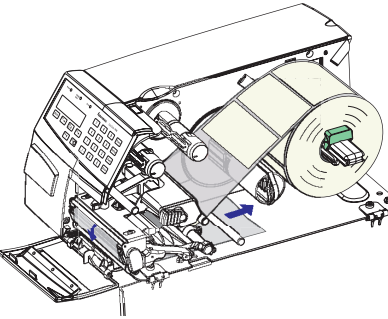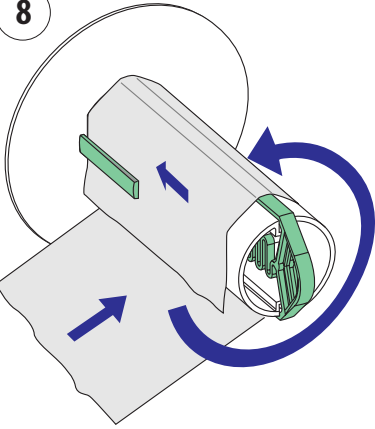
3 Pull out the handle to collapse the takeup hub, then remove any liner.
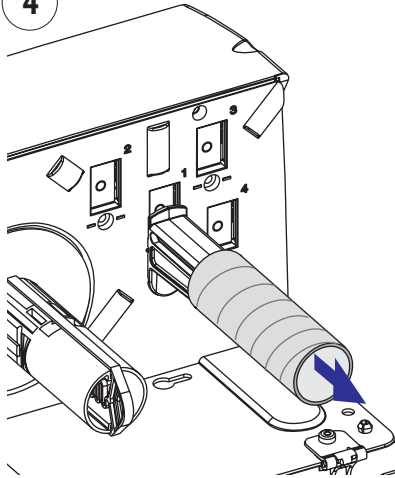
4 If necessary, fold down the edge guide. Remove any empty core from the media supply roll post.

Peel-Off, cont.

Fit a new roll of labels on the supply post.

Remove labels from the first 50 cm (20 inches) of the liner. Route the liner through the print mechanism, push it inwards, and adjust the edge guides so the label path becomes flush with the center section.

Close the edge guide on the supply post. Route the liner around the tear bar and the liner drive roller and back under the print mechanism and guide shaft.

Insert the start of the liner under the lip of the takeup hub, then rotate the hub counterclockwise a few turns to wind up some of the liner.

Peel-Off, cont.
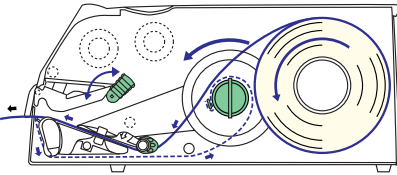
9 *This diagram shows the media and liner paths.*	**10** *Turn the printhead lift lever counter-clockwise to engage the printhead.*
11 *Adjust the position of the green edge guide so the media is guided with a minimum of play.*	**12** *Close the front and side doors.*
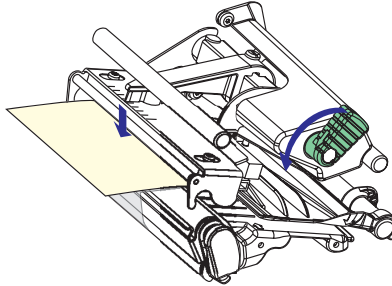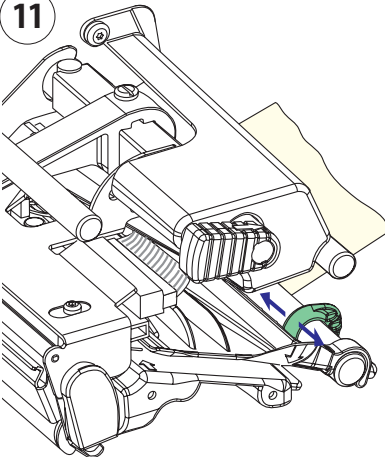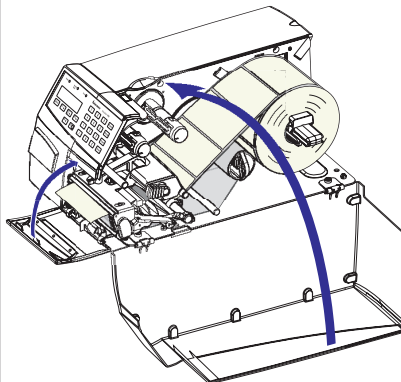
Peel-Off, cont.

Press the Feed key to advance the media and adjust the media feed.
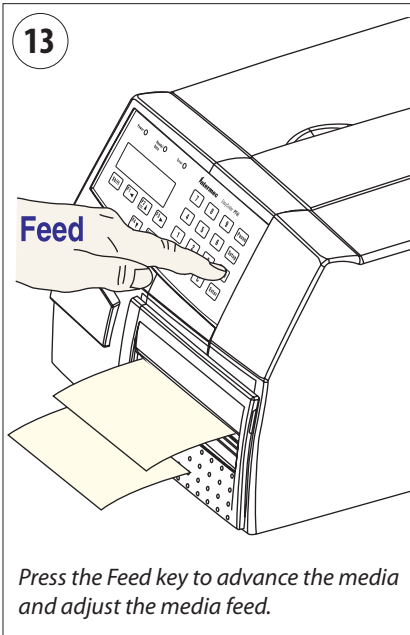
External Supply (Fan-fold)

The EasyCoder PF4i Compact Industrial can print on labels, tickets, tags, and continuous stock in various forms. This section describes the case when the media supply is placed behind the printer, usually in the form of fan-folded tickets or tags. External supply can be used with tear-off (straight-through) printing—preferably with Quick-Load.

External supply can only be used with a long side door, not the megatop. There is no need to remove the media supply roll post.

When using an external media supply, take care to protect the media from dust, dirt or 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. You should protect them accordingly.
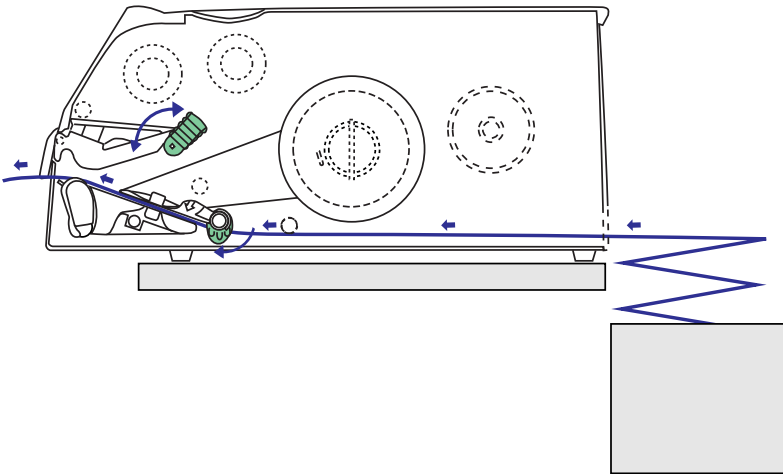
This diagram shows the media path from an external supply. In case of the standard edge guide (as opposed to Quick-Load guides), turn it to vertical position.

5 Thermal Transfer Printing

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

Ribbon Load

The EasyCoder PF4i Compact Industrial 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.
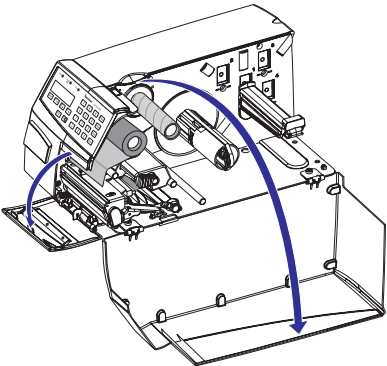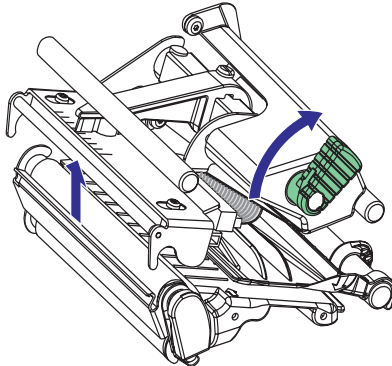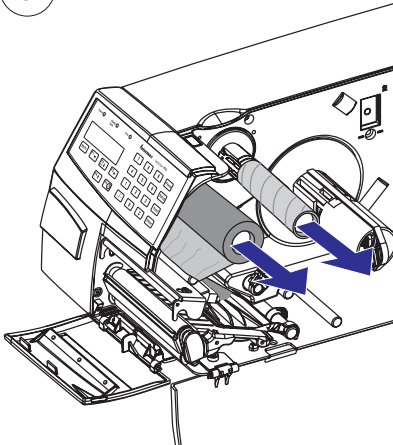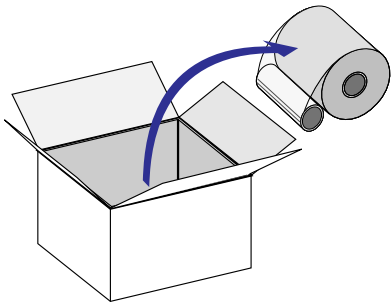
Thermal transfer printing makes it possible to use a wide range of receiving face materials and gives a durable printout less vulnerable to fat, chemicals, heat, sunlight etc. than direct thermal printing. Make sure to select a type of ribbon that matches the type of receiving face material and to set up the printer accordingly.

The EasyCoder PF4i Compact Industrial 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.
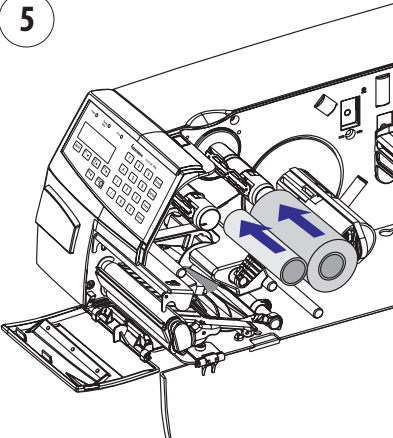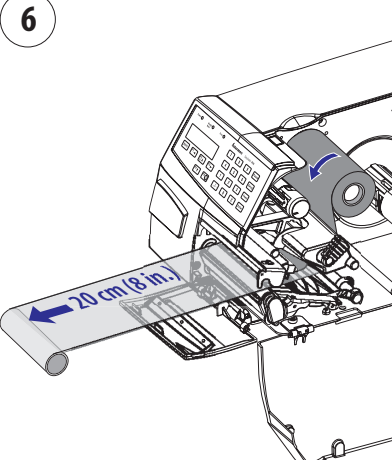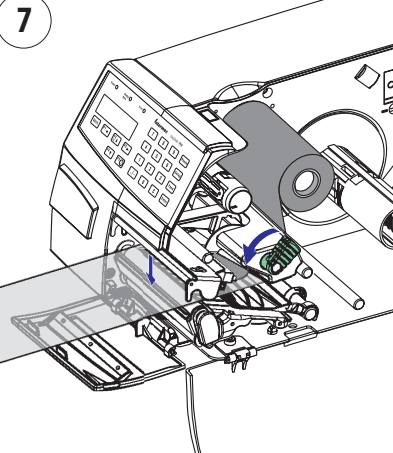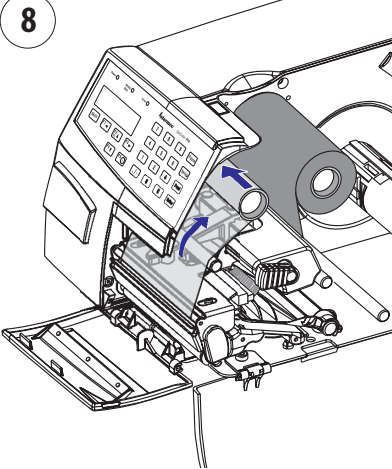
Even if ribbon usually is loaded in connection with media replenishment, no loaded media are shown in the illustrations in this chapter in order to give a clearer view of the ribbon path. Refer to Chapter 4 for media load instructions.

Most transfer ribbons do not smear at room temperature.

Ribbon Load, cont.

① Open the front and side doors.

② Turn the printhead lift lever clockwise to raise the printhead.

③ In case of ribbon reload, remove any used ribbon and empty ribbon core.

④ Unpack a roll of original Intermec thermal transfer ribbon.

Ribbon Load, cont.

Slide the ribbon roll onto the supply hub so the ink-coated side faces down when the ribbon is routed through the print mechanism.

Route the ribbon through the print mechanism and pull out approximately 20 cm (8 inches) of ribbon.

Without releasing the ribbon, turn the printhead lift lever counterclockwise to engage the printhead and lock the ribbon.

Slide the empty cardboard core onto the ribbon rewind hub so the ribbon is wound up when the hub rotates counterclockwise.

Ribbon Load, cont.

9
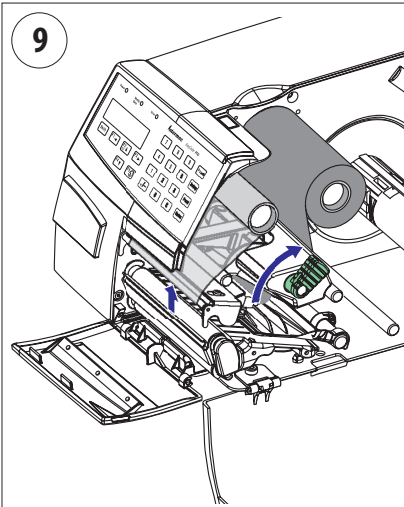
Turn the printhead lift lever clockwise to raise the printhead and release the ribbon.

10
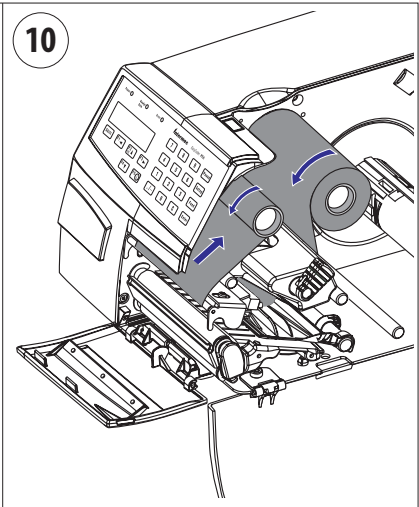
Manually advance the ribbon until all of the transparent leader has passed the printhead and the ribbon becomes tight.

11
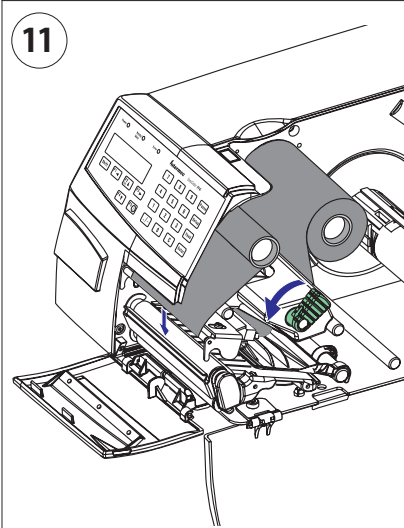
Turn the printhead lift knob counter-clockwise to engage the printhead.

12
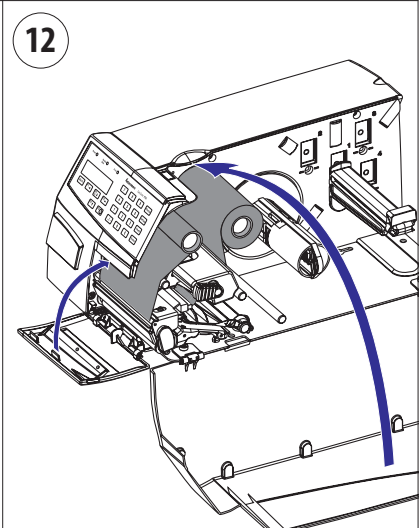
Close the front and side doors.

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.xx* manuals.

Intermec Direct Protocol

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

  See the *Intermec Direct Protocol v8.xx* manuals.

Default Setup

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

Ser-Com "uart1:"	
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
Feedadjust:	
Startadjust	0
Stopadjust	0
Media:	
X-start (8 dots/mm = 203.2 dpi)	24
X-start (11.81 dots/mm = 300 dpi)	36 (option)
Width (8 dots/mm = 203.2 dpi)	832
Width (11.81 dots/mm = 300 dpi)	1248 (option)
Length (8 dots/mm = 203.2 dpi)	1200
Length (11.81 dots/mm = 300 dpi)	1800 (option)
Media type	Label (w Gaps)
Paper type	Thermal transfer
Ribbon constant	90
Ribbon factor	25
Label offset	0
Low diameter	0
Contrast	±0%
Print Defines:	
Print speed	100 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.xx, 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:" and "uart3:". The optional ports require an optional interface board. 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 diagrams 3-5 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 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.xx, 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.

Feedadjust

The Feedadjust 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 w. 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.

Adjustment type	8 dots/mm 203.2 dpi (std)	11.81 dots/mm 300 dpi (option)	Distance in mm	Distance in inches
Tear-Off (Straight-through)				
Start adjust:	-100 dots	-148 dots	12.5	0.49
Stop adjust:	0 dots	0 dots	0	0
Peel-Off (Self-strip)				
Start adjust:	-56 dots	-83 dots	7	0.28
Stop adjust:	-44 dots	-65 dots	5.5	0.22
Cut between labels				
Start adjust:	0 dots	0 dots	0	0
Stop adjust:	+160 dots	+236 dots	20.0	0.78
Cut between labels and print from leading edge of next label				
Start adjust:	-250 dots	-369 dots	31.25	1.23
Stop adjust:	+160 dots	+236 dots	20.0	0.78
Cut variable length strip (No liner allowed!)				
Start adjust:	-250 dots	-369 dots	31.25	1.23
Stop adjust:	+275 dots	+406 dots	34.38	1.35

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 (LSS) 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 an LSS 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.xx, Programmer's Reference Manual.*

Print Window (8 dots/mm standard printhead)
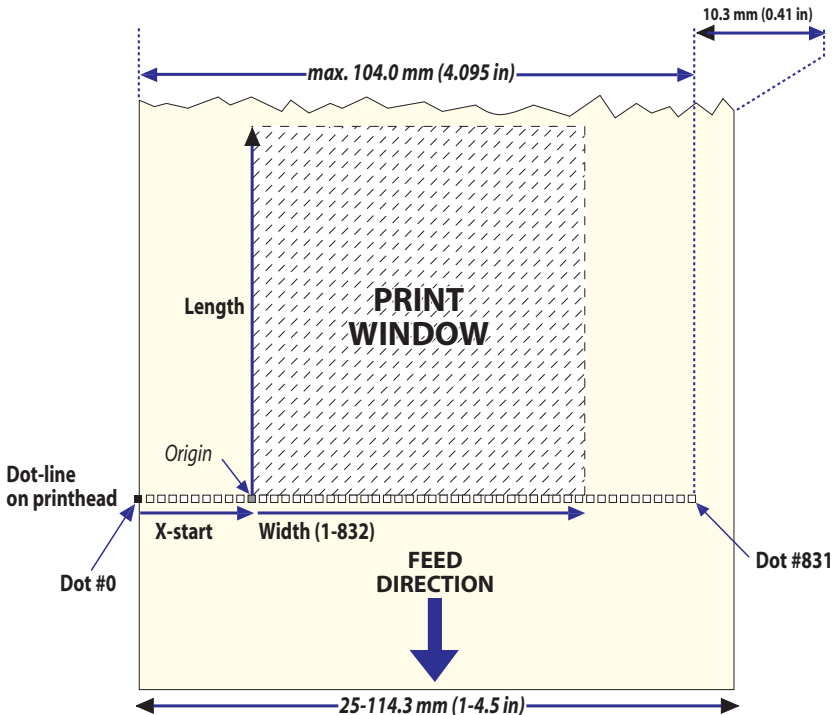
Intermec offers a number of non-standard thermal printheads, see Chapter 8.

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 slits.

- **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 image 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 and set up the printer according to the recommendations from Intermec, see Appendix D.

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. Set the Label Constant to the value listed below and decrease or increase it for lighter or darker images respectively until you are satisfied with the printout quality.

General Paper Type Settings Guide (Direct Thermal)

Sensitivity[1]	Label Constant	Label Factor	Max Print Speed 8 dots/mm	11.81 dots/mm
Low	100	40	100	100
Standard	90	40	125	125
High	80	40	175	150
Ultra high	60	40	200	150

[1]. 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. Set the Ribbon Constant at the value listed 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.

General Paper Type Settings Guide (Thermal Transfer)

Type	Ribbon Constant	Ribbon Factor	Max Print Speed 8 dots/mm	11.81 dots/mm
Wax (Europe)	80	25	150	125
Wax (U.S.A.)	65	25	150	125
Wax/Resin (Europe)	90	25	150-200	125-150
Wax/Resin (U.S.A.)	75	25	150-200	125-150
Resin (Europe)	100	30	200	150
Resin (U.S.A.)	90	30	200	150

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 autoadjust 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 millimetres (1 mm = 0.04 in.) and an accuracy of ±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 (±0) whenever a new paper type is specified, regardless which method has been used.

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 <i> key to find out what is wrong, for example "printhead lifted" or "out-of paper". See next page for examples of test labels.

Test Labels

702 ohms/8 dots

Diamonds

Chess

CODE39   CODE39

1 234567 890128

Bar Codes #1

CODE39

CODE39
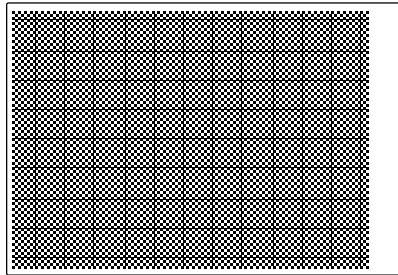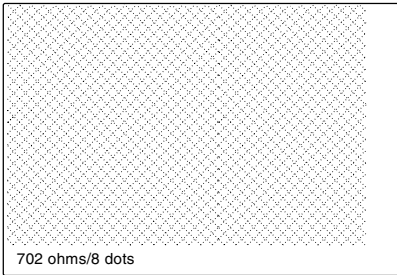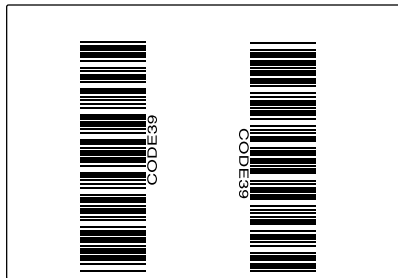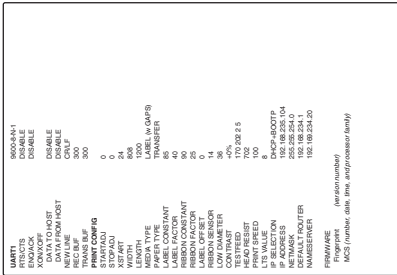
Bar Codes #2
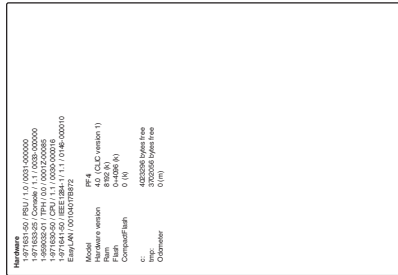
Setup Info

Hardware Info

Print Speed

The print speed is variable between 100 and 200 mm/sec. for printers fitted with an 8 dots/mm (203.2 dpi) printhead and between 100 and 150 mm/sec. for printers with an optional 11.81 dots/mm (300 dpi) printhead. 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 100 mm/sec. (approximately 4 inches/sec.).

⚠ Caution **The combination of a large media roll (>152 mm/6 inches diameter) and/or narrow media width in combination with high print speed (> 150 mm/6 inches per sec.) could cause jerks in the media feed. Such jerks will compress text and spoil the readability of ladder-style bar codes placed close to the front edge of the label. In case of batch printing, only the first label in the batch will be affected. Negative startadjust values tend to increase the jerks.**

- **If the media roll is larger than 152 mm (6 inches), do not use a print speed > 150 mm/sec.**

- **If a negative start adjust is used, do not use a print speed > 125 mm/sec.**

- **Narrow media width may require further restrictions on print speed.**

- **Avoid placing text and ladder-style bar codes close to the front edge of labels.**

LTS (Label Taken Sensor)

The sensitivity of the LTS may need to be adjusted according to ambient light conditions and reflective characteristics of the back side of the media. The LTS setup options are only displayed if an optional label taken sensor is installed in the printer.

LTS Adjust

Press <Enter>. A label is fed out. Remove the label and press <Enter> again. A menu shows the sensitivity automatically selected by the firmware and the range, in which the LTS will work. Press <Enter> again and you will proceed to the LTS Test menu.

LTS Test

Press <Enter>. A label is fed out. Remove the label and a new label should be fed out automatically. Repeat until you are sure the LTS works properly. Then press <Enter> to stop and exit.

LTS Value

Press <Enter>. You can enter a new value in the range indicated in the LTS Adjust menu (see above). Min/max values are in the range 0 to 10.

7 Setup Mode

This chapter describes how to enter the setup mode at installation, explains 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 PF4i Compact Industrial 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 PF4i Compact Industrial 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.

F 1 ◄	Move one menu to the left on the same level or scroll back in a stack of options[1].
F 2 ESC ▲	Move up one level[1].
F 3 ►	Move one menu to the right on the same level or scroll forward in a stack of options[1].
F 4 ▼	Move down one level[1].
F 5 ⓘ	Display error messages at test label printing failure.
0 – **9**	Enter numeric values.
. / —	Specify negative values (leading position).
C	Clear displayed values.
Enter	Acknowledge and move to next menu or perform testfeeds in the Testfeed menu, or print test labels in the Test label menu.
Setup	Exit the Setup Mode. Can be used anywhere in Setup Mode.

[1]/. "Left", "right", "up", and "down" refer to the overviews later in this chapter.

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, a cutter, or an interface board is 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.
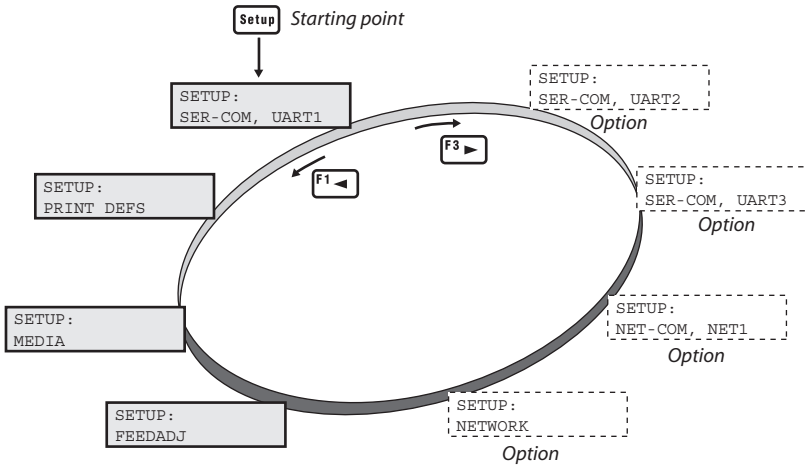
Setup Mode; Serial Communication "uart1:"

(Intermec Fingerprint v8.10)

```
SETUP:              SETUP:              SETUP:              SETUP:              SETUP:              Continued on
SER-COM, UART1      SER-COM, UART2      SER-COM, UART3      NET-COM, NET1       NETWORK             the next page
                    See separate overview   See separate overview   See separate overview   See separate overview

SER-COM, UART1:     SER-COM, UART1:     SER-COM, UART1:     SER-COM, UART1:     SER-COM, UART1:
BAUDRATE            CHAR LENGTH         PARITY              STOP BITS           FLOWCONTROL

BAUDRATE;           CHAR LENGTH         PARITY:             STOP BITS:          FLOW CONTROL:       FLOW CONTROL:
9600                8                   NONE                1                   RTS/CTS             ENQ/ACK
  19200               7                   EVEN                2
    38400                                   ODD                     Scroll forward     RTS/CTS:            ENQ-ACK:
      57500                                   MARK                  Scroll back      DISABLE             DISABLE
        115200                                  SPACE                                 ENABLE              ENABLE
          300
            600                                   Scroll forward                      Scroll forward     Scroll forward
              1200                                Scroll back                         Scroll back        Scroll back
                2400
                  4800

                    Scroll forward
                    Scroll back
```

```
                                            SER-COM, UART1:     SER-COM, UART1:     SER-COM, UART1:
                                            NEW LINE            REC BUF             TRANS BUF

                    FLOW CONTROL:           NEW LINE:           REC BUF:            TRANS BUF:
                    XON/XOFF                CR/LF               [1024]:             [1024]:
                                              LF
                    XON/XOFF:       XON/XOFF:      CR
                    DATA TO HOST    DATA FROM HOST
                                                    Scroll forward
                    DATA TO HOST:   DATA FROM HOST: Scroll back
                    DISABLE         DISABLE
                      ENABLE          ENABLE

                        Scroll forward     Scroll forward
                        Scroll back        Scroll back
```

Legend:

Dotted boxes and lines indicate options.

Thick boxes indicates default options.

Values inside brackets indicate default settings.

Setup Mode; Feed Adjust

(Intermec Fingerprint v8.10)

Continued from the previous page

```
SETUP:
FEEDADJ
```
▶ ──────────────────────────────────── **Continued on the next page**
◀

▼▲

```
FEEDADJ:
STARTADJ
```
▶
◀
```
FEEDADJ:
STOPADJ:
```

▼▲ ▼▲

```
STARTADJ:
[0]:
```
```
STOPADJ:
[0]:
```

Setup Mode; Media

(Intermec Fingerprint v8.10)

Continued from the previous page

```
SETUP:
MEDIA
```

▼▲

Continued on the next page

```
MEDIA:
MEDIA SIZE
```

```
MEDIA:
MEDIA TYPE
```

▼▲

▼▲

```
MEDIA SIZE:
XSTART
```

```
MEDIA SIZE:
WIDTH
```

```
MEDIA SIZE:
LENGTH
```

```
MEDIA TYPE:
LABEL (w GAPS)
TICKET (w MARK)
TICKET (w GAPS)
FIX LENGTH STRIP
VAR LENGTH STRIP
```

▼▲

▼▲

▼▲

```
XSTART:
[24]:
```

```
WIDTH:
[832]:
```

```
LENGTH:
[1200]:
```

▶ **Scroll forward**
◀ **Scroll back**

```
MEDIA:
PAPER TYPE
```

▼▲

Not displayed if a transfer ribbon mechanism is not installed in the printer.

```
PAPER TYPE:
TRANSFER
```

▼▲

```
TRANSFER:
RIBBON CONSTANT
```

```
TRANSFER:
RIBBON FACTOR
```

```
TRANSFER:
LABEL OFFSET
```

```
TRANSFER:
RIBBON SENSOR
```

```
TRANSFER:
LOW DIAMETER
```

▼▲

▼▲

▼▲

▼▲

▼▲

```
RIBBON CONSTANT:
[90]:
```

```
RIBBON FACTOR:
[25]:
```

```
LABEL OFFSET:
[0]:
```

```
RIBBON SENSOR:
[14]:
```

```
LOW DIAMETER:
[0]:
```

```
MEDIA:
CONTRAST
```

```
MEDIA:
TEST FEED
```

▼▲

▼▲

```
PAPER TYPE:
DIRECT THERMAL
```

```
CONTRAST:
+0%
+2%
+4%
+6%
+8%
+10%
-10%
-8%
-6%
-4%
-2%
```

```
TEST FEED:
[26 28 0 10]
```

Press <Enter> to per-form a testfeed. Values are read-only.

▼▲

```
DIRECT THERMAL:
LABEL CONSTANT
```

```
DIRECT THERMAL:
LABEL FACTOR
```

▼▲

▼▲

```
LABEL CONSTANT
[85]:
```

```
LABEL FACTOR:
[40]:
```

▶ **Scroll forward**
◀ **Scroll back**

Setup Mode; Print Defs

(Intermec Fingerprint v8.10)

Continued from the previous page

```
SETUP:
PRINT DEFS
```
▶ ◀ **Return to the start of the Setup Mode loop (SETUP/SER-COM, UART1) or press <Setup> to exit the Setup Mode.**

▼▲

```
PRINT DEFS:
HEAD RESIST
```
◀ ▶
```
PRINT DEFS:
TESTPRINT
```
◀ ▶
```
PRINT DEFS:
PRINT SPEED
```
▶ ◀

▼▲   ▼▲   ▼▲

```
HEAD RESIST:
[nnn]:
```
Read-only

```
TESTPRINT:
DIAMONDS
   CHESS
   BAR CODES #1
   BAR CODES #2
   SETUP INFO
   HARDWARE INFO
   NETWORK INFO
```
Only displayed if an optional EasyLAN board is installed.

```
PRINT SPEED:
[100]:
```

▶ **Scroll forward**
◀ **Scroll back**
<Enter> to print
<?> for error info

```
PRINT DEFS:
LTS
```
Only displayed if an optional LTS (Label Taken Sensor) is installed in the printer.

▼▲

```
LTS:
LTS ADJUST
```
◀ ▶
```
LTS:
LTS TEST
```
◀ ▶
```
LTS:
LTS VALUE
```

▼▲   ▼▲   ▼▲

```
REMOVE LABEL AND
   PRESS ENTER
```
```
REMOVE LABEL
ENTER TO STOP
```
```
LTS VALUE:
[10]:
```

▼▲

```
SENSITIVITY 10
OUT OF 9-10
```

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

(Intermec Fingerprint v8.10)

```
SETUP:SETUP:
SER-COM, UART2
```

These menus will only be displayed when an optional Double Serial or Serial/Industrial interface board is installed.
In case of a Double Serial interface board, also see the overview for Serial Communication, uart3.

▼▲

```
SER-COM, UART2:
BAUDRATE
```
```
SER-COM, UART2:
PROT ADDR
```
```
SER-COM, UART2:
CHAR LENGTH
```
```
SER-COM, UART2:
PARITY
```
```
SER-COM, UART2:
STOP BITS
```
```
SER-COM, UART2:
FLOWCONTROL
```

▼▲

```
BAUDRATE;
9600
  19200
    38400
      57500
        115200
          300
            600
              1200
                2400
                  4800
```
```
PROT ADDR:
DISABLE
  ENABLE
```
Only displayed in case of RS485.

```
CHAR LENGTH
8
  7
```
```
PARITY:
NONE
  EVEN
    ODD
      MARK
        SPACE
```
```
STOP BITS:
1
  2
```
```
FLOW CONTROL:
RTS/CTS
```
▼▲
```
RTS/CTS:
DISABLE
  ENABLE
```

Menus inside this dotted box are not displayed in case of RS485 on "uart2:".

```
SER-COM, UART2:
NEW LINE
```
```
SER-COM, UART2:
REC BUF
```

▼▲

```
FLOW CONTROL:
ENQ/ACK
```
```
FLOW CONTROL:
XON/XOFF
```
```
NEW LINE:
CR/LF
  LF
    CR
```
```
REC BUF:
[1024]:
```

▼▲

```
ENQ-ACK:
DISABLE
  ENABLE
```
```
XON/XOFF:
DATA TO HOST
```
```
XON/XOFF:
DATA FROM HOST
```

▼▲

```
DATA TO HOST:
DISABLE
  ENABLE
```
```
DATA FROM HOST:
DISABLE
  ENABLE
```

```
SER-COM, UART2:
TRANS BUF
```
```
SER-COM, UART2:
CONNECTED HW
```
```
SER-COM, UART2:
PROTOCOL ADDR.
```

▼▲

```
TRANS BUF:
[1024]:
```
```
CONNECTED HW:
RS232
```
Read-only
```
PROTOCOL ADDR.
[1]:
```
Only displayed in case of RS485 on "uart2:".
Enter printer's protocol address (0–31).

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

(Intermec Fingerprint v8.10)

```
SETUP:            These menus will only be displayed when an optional Double Serial interface board is installed,
SER-COM, UART3    also see the overview for Serial Communication, uart2.
```

```
SER-COM, UART3:   ►  SER-COM, UART3:   ►  SER-COM, UART3:   ►  SER-COM, UART3:   ►  SER-COM, UART3:   ►
BAUDRATE             CHAR LENGTH       ◄  PARITY            ◄  STOP BITS         ◄  FLOWCONTROL
  ▼▲                   ▼▲                   ▼▲                   ▼▲                   ▼▲
```

```
BAUDRATE;         CHAR LENGTH        PARITY:            STOP BITS:         FLOW CONTROL:    ►  FLOW CONTROL:    ►
9600              8                  NONE               1                  RTS/CTS          ◄  ENQ/ACK          ◄
  19200             7                  EVEN               2                  ▼▲                 ▼▲
  38400                                ODD
  57500                                MARK                                RTS/CTS:           ENQ-ACK:
  115200                               SPACE                               DISABLE            DISABLE
  300                                                                        ENABLE             ENABLE
  600
  1200
  2400
  4800
```

```
                                      SER-COM, UART3:   ►  SER-COM, UART3:   ►  SER-COM, UART3:   ►
                                      NEW LINE          ◄  REC BUF           ◄  TRANS BUF         ◄
                                        ▼▲                   ▼▲                   ▼▲
```

```
FLOW CONTROL:     NEW LINE:          REC BUF:           TRANS BUF:
XON/XOFF          CR/LF              [1024]:            [1024]:
  ▼▲                LF
                    CR
XON/XOFF:      ►  XON/XOFF:
DATA TO HOST   ◄  DATA FROM HOST
  ▼▲                ▼▲

DATA TO HOST:     DATA FROM HOST:
DISABLE           DISABLE
  ENABLE            ENABLE
```

```
SER-COM, UART3:
CONNECTED HW
  ▼▲
CONNECTED HW:
RS232
```

Read-only

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

(Intermec Fingerprint v8.10)

```
┌──────────────┐   ┌──────────────┐
│ SETUP:       │ ▶ │ SETUP:       │    These menus will only be displayed when an optional EasyLAN interface board is installed.
│ NET-COM, NET1│ ◀ │ NETWORK      │
└──────────────┘   └──────────────┘
      ▼▲                 ▼▲
┌──────────────┐   ┌──────────────┐   ┌──────────────┐   ┌──────────────┐   ┌──────────────┐   ┌──────────────┐
│ NET-COM,NET1:│   │ NETWORK:     │ ▶ │ NETWORK:     │ ▶ │ NETWORK:     │ ▶ │ NETWORK:     │ ▶ │ NETWORK:     │ ▶
│ NEW LINE     │   │ IP SELECTION │ ◀ │ IP ADDRESS   │ ◀ │ NETMASK      │ ◀ │ DEFAULT ROUTER│ ◀ │ NAME SERVER  │ ◀
└──────────────┘   └──────────────┘   └──────────────┘   └──────────────┘   └──────────────┘   └──────────────┘
      ▼▲                 ▼▲                 ▼▲                 ▼▲                 ▼▲                 ▼▲
┌──────────────┐   ┌──────────────┐   ┌──────────────┐   ┌──────────────┐   ┌──────────────┐   ┌──────────────┐
│ NEW LINE     │   │ IP SELECTION:│   │ IP ADDRESS:  │   │ NETMASK:     │   │ DEFAULT ROUTER:│  │ NAME SERVER: │
│ CR/LF        │   │ DHCP+BOOTP   │   │ 192.168.1.79 │   │ 255.255.255.0│   │ 192.168.1.1   │  │ 192.168.1.7  │
└──────────────┘   └──────────────┘   └──────────────┘   └──────────────┘   └──────────────┘   └──────────────┘
   │ LF       │      │ MANUAL     │     Read-only if DCHP
   └──────────┘      └────────────┘     and/or BOOTP
      │ CR       │      │ DHCP     │     is selected.
      └──────────┘      └──────────┘
                           │ BOOTP    │
                           └──────────┘

┌──────────────┐                                                                      ▶ │ NETWORK:     │
│              │                                                                        │ MAC ADDRESS  │ ◀
└──────────────┘                                                                        └──────────────┘
                                                                                              ▼▲
                                                                                        ┌──────────────┐
                                                                                        │ MAC ADDRESS: │
                                                                                        │ 00104017b80e │
                                                                                        └──────────────┘
```

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, which 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.PRG (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 ".PRG" 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.PRG
  - FILELIST.PRG
  - LBLSHTXT.PRG
  - MKAUTO.PRG
  - SHELLXP.PRG
  - WINXP.PRG

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 Compact-Flash 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.8.0
```

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 std I/O channel (see Intermec Fingerprint manuals). When the countdown is completed, you will see these lines in the display:

```
Fingerprint
8.10
```

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 I/O 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.xx, 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 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 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 v8.0 Overview

POWER ON ▶

| ENTER=SHELL | Enter |
| 5 sec.   v.8.0 | |

| ENTER=SHELL | Enter |
| 4 sec.   v.8.0 | |

| ENTER=SHELL | Enter |
| 3 sec.   v.8.0 | |

| ENTER=SHELL | Enter |
| 2 sec.   v.8.0 | |

| ENTER=SHELL | Enter |
| 1 sec.   v.8.0 | |

Last selected application is started
Default:
Fingerprint 8.10 w. std I/O = "auto"

Legend:

◄
Return to previous menu.

►
Proceed to next menu.

Enter
Accept displayed option and proceed, or execute displayed option.

Feed
Perform a Testfeed anywhere in Intermec Shell.

Setup
Enter the Setup Mode from anywhere in Intermec Shell.

SHELL
SEL. APPLICATION

SEL. APPLICATION
CURRENT APPL.

Last selected application is started

SEL. APPLICATION
Fingerprint 8.10

SEL. APPLICATION
Direct Protocol

Note: Dotted channels are only shown if the corresponding optional interface pcb is fitted.

STD I/O CHANNEL
auto

STD I/O CHANNEL
uart1:

STD I/O CHANNEL
uart2:

STD I/O CHANNEL
uart3:

STD I/O CHANNEL
centronics:

STD I/O CHANNEL
net1:

STD I/O CHANNEL
usb1:

Optional application programs

SEL.APPL rom:
LINE_AXP.PRG

The selected application is started

SHELL
SETUP

SETUP:
SER-COM,UART1

See the chapter "Setup Mode" ►

SHELL
PRINT SETUP

Prints a list of current setup values (test label "Setup Info").

SHELL
TESTFEED

Performs a Testfeed (feeds out a number of blank copies while autoadjusting the label stop sensor).

SHELL
TEST LABEL

Prints test labels "Diamonds", "Chess", "Bar Codes #1", and "Bar Codes #2" in a loop. Press Enter for each new label.

SHELL
DEFAULT SETUP

ARE YOU SURE?
YES=ENTER/NO=ESC

DEFAULT SETUP
PERFORMED

SHELL
SOFTWARE UPDATE

UPDATE:
COMPACT FLASH?

TRANSFER FILE
USING ZMODEM

TRANSFER
COMPLETED

SHELL
REBOOT

UPDATE:
FIRMWARE?

TRANSFER FILE
USING ZMODEM

Printer rebooted automatically.

Restarts the printer (same as power off/on)

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 "Ready" control lamp blinks. There is a 0.5 second timeout. 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:
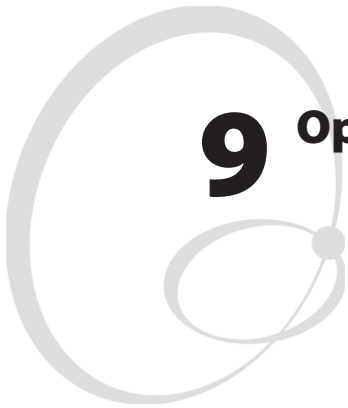
```
Line Analyzer
Sel.port(1-6) 1
```

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:"

If the printer is not fitted with the specified port, an error message appears in the display and you can select another port:
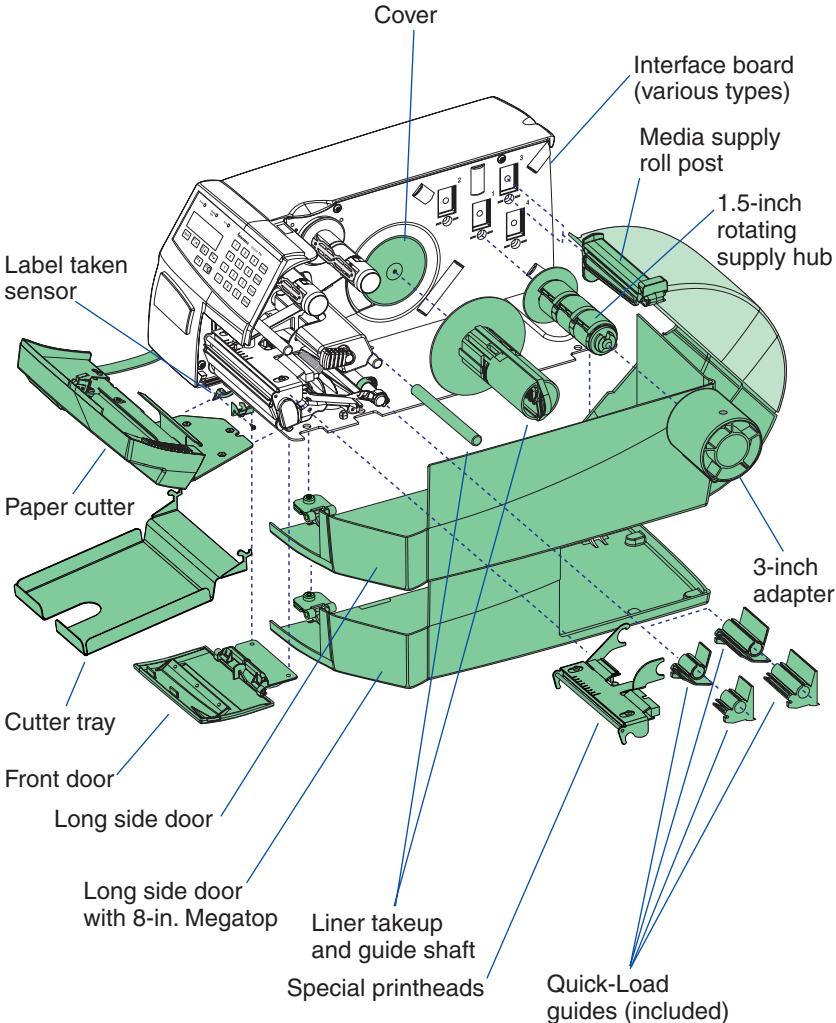
```
Line Analyzer
Error:56
```

9 Options

This chapter describes the options available for the EasyCoder PF4i Compact Industrial 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 PF4i Compact Industrial provides a high degree of flexibility because it has a modular design. By adding options to the basic printer, the EasyCoder PF4i Compact Industrial can be adapted for a variety of applications. Most options can easily be installed by the operator, however a few should be installed by an authorized service technician or are only available as factory-installed options.

Cover

Interface board (various types)

Media supply roll post

1.5-inch rotating supply hub

Label taken sensor

Paper cutter

3-inch adapter

Cutter tray

Front door

Long side door

Long side door with 8-in. Megatop

Liner takeup and guide shaft

Special printheads

Quick-Load guides (included)

Side Doors and Megatop

The EasyCoder PF4i Compact Industrial comes with two types of side door. The standard long door encloses the entire media compartment and allows a media roll with a diameter of 152 mm (6 inches). It also has a slot for external media supply. The 8-inch Megatop has a hinged transparent canopy that encloses a media roll with a diameter of up to 213 mm (8.38 inches). The standard long side door is generally illustrated throughout this manual.

Paper Cutter

The paper cutter is a factory- or field-installable option designed to cut off continuous paper-based stock or liner between labels. The cut-off labels, tickets, or tags can be collected on an optional tray. The paper cutter can be controlled using the instructions CUT, CUT ON, and CUT OFF in Intermec Fingerprint and the Intermec Direct Protocol. Also see Chapter 4, "Media Load, Cut-Off."

Integral Liner Takeup Unit

The integral liner takeup unit is an optional device for peel-off (self-strip) operation, which means the labels are separated from a liner (backing paper) after printing and the liner is wound up on an internal hub. The unit also includes a guide shaft. Peel-off cannot be combined with Quick-Load guides, see below.

Media Supply Hub

The rotating media supply hub is designed to fit media roll cores with an internal diameter of 38-40 mm (1.5 inch). The hub can be fitted in the same positions as the supply roll post, see Chapter 2. Being factory installed, the position of the media supply hub is not intended to be changed by the operator.

3-inch Adapter

The 3-inch/76 mm adapter is used with a rotating media supply hub and makes it possible to use media rolls with 3 inch/76 mm inner diameter cores. The adapter is pressed onto the hub and secured by a screw. Not used with a media supply roll post.

Label Taken Sensor

The Label Taken Sensor (LTS) is a photoelectric sensor that enables the printer's firmware to detect if the latest printed label, ticket, tag, etc. has been removed before printing another copy. The LTS can be enabled or disabled using the instructions LTS& ON and LTS& OFF respectively in Intermec Fingerprint and the Intermec Direct Protocol.

The LTS cannot be used in connection with a paper cutter.

Real Time Clock

The Real Time Clock 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 Chapter 3 for illustration.

Special Printheads

As standard, the printer is fitted with an 8 dots/mm (203.2 dots/inch) thermal printhead. There are also a number of optional printheads for special applications:

8 dots/mm (203.2 dots per inch)

Media Thickness	Standard/Option
Max 175 μm (7 mils)	Standard
170-220 μm (6.6-8.7 mils)	Option

11.81 dots/mm (300 dots per inch)

Media Thickness	Standard/Option
Max 175 μm (7 mils)	Option
170-220 μm (6.6-8.7 mils)	Option

The printhead can easily be replaced by the operator as described in Chapter 11.

Interface Boards

A number of interface boards are available for use with the EasyCoder PF4i Compact Industrial. The interface boards are either factory-fitted or can easily be fitted by an authorized service technician.

The EasyCoder PF4i Compact Industrial can accommodate one EasyLAN interface board plus one other interface board.

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 lists various possible cases of inferior printout quality, describes possible causes, and suggests remedies.

Symptom	Possible Cause	Remedy	Refer to
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 align-ment	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/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

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
	Small core & supply post in upper pos.	Move post to lower pos.	Chapter 2
	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 TEST-FEED	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 media guides	Chapter 11
	Faulty sensors	Replace	☎ Call Service
Compressed text or bar code	Too high print speed for large media roll	Lower print speed	Chapter 6

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 media guides
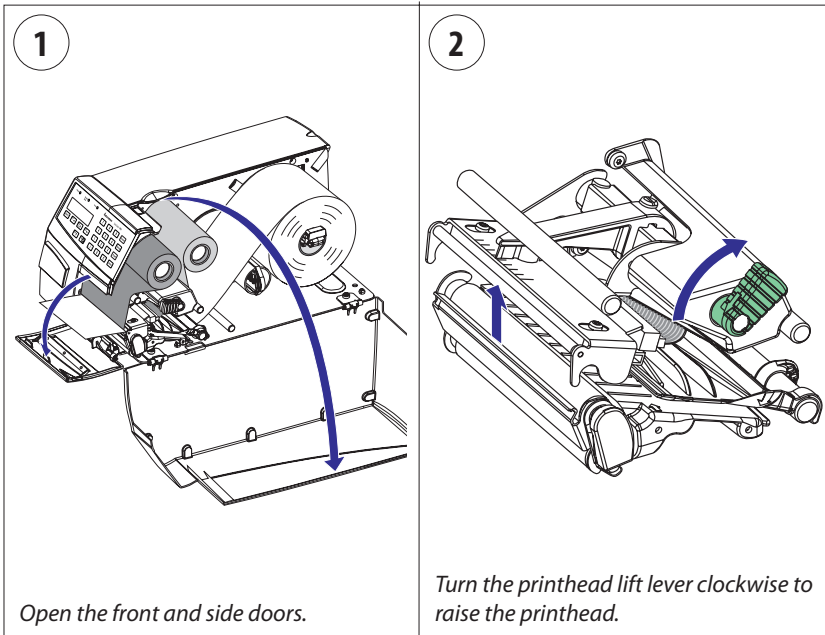
- Printhead replacement

- Media jams

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.
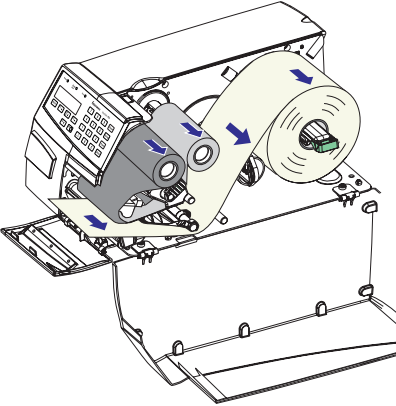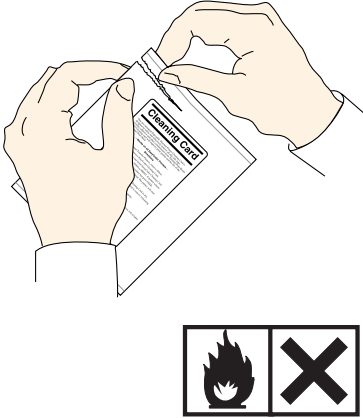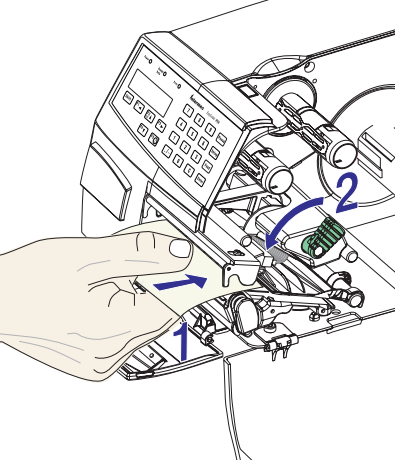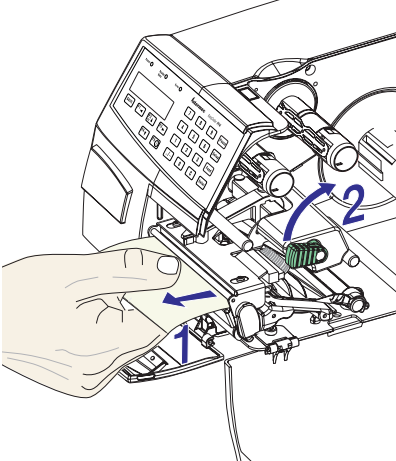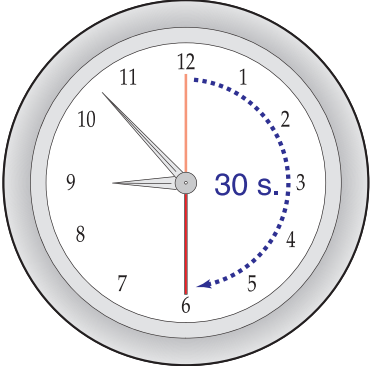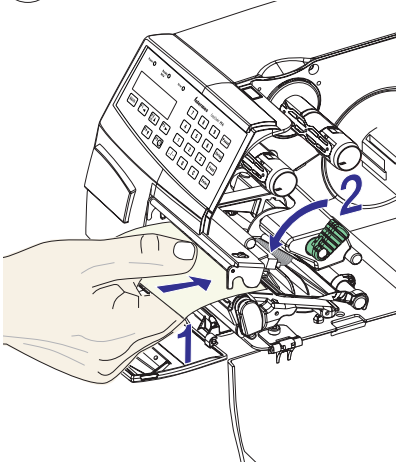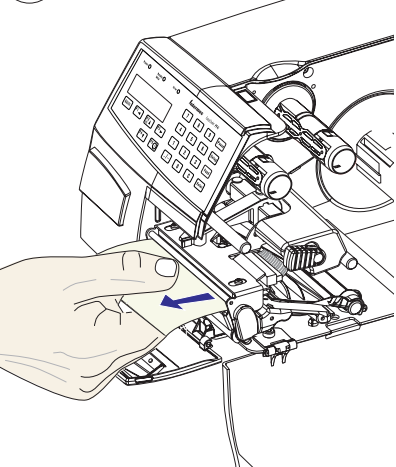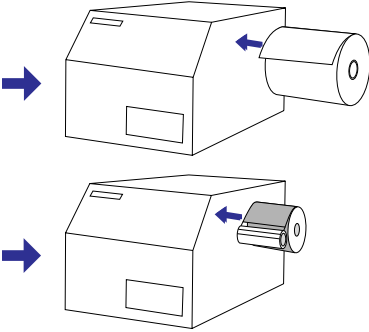
⚠ Warning

Isopropyl alcohol [$(CH_3)_2CHOH$; 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 clockwise to raise the printhead.*
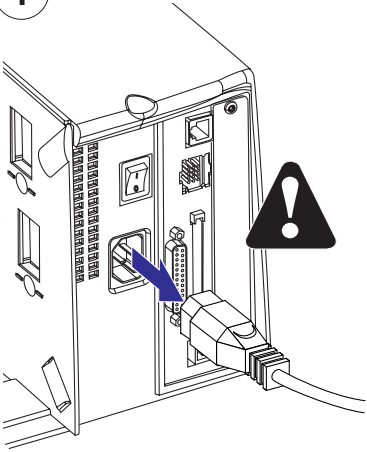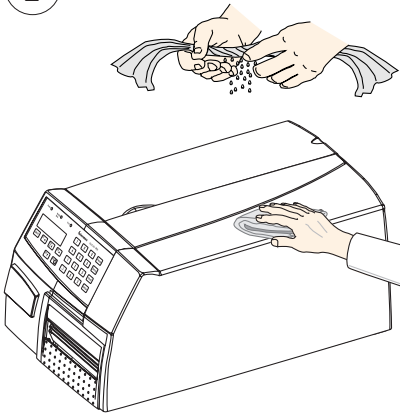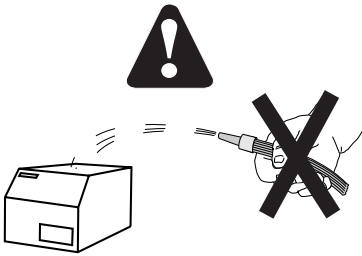
Printhead Cleaning, cont.

3

Remove any media and transfer ribbon.

4

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

5

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

6

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 (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

1

Always remove the power cord before cleaning!

2

Wipe external surfaces with a soft cloth slightly moistened with water or a mild detergent.

3

Never spray the printer. Protect it from water when cleaning the premises.

4

Never use any sharp tools for removing stuck labels. The printhead and rollers are delicate.

Cleaning the Media Guides

Both parts of the label stop sensor, which controls the media feed, are covered by plastic guides. The guides are transparent to allow the light to pass between the two parts of the label stop sensor. These areas (indicated by a shade of gray in illustration #2 below) must be kept clean from dust, stuck labels, and adhesive residue.

If the printer starts to feed out labels in an unexpected way, raise the upper guide as described below and check for any object that may block the beam of light (dust, stuck labels, adhesive residue, etc.). If necessary, clean the guides using a cleaning card or a soft cloth soaked with isopropyl alcohol. Do not use any other type of chemical. Be careful not to scratch the guides.

⚠️ **Warning**

Isopropyl alcohol [$(CH_3)_2CHOH$; CAS 67-63-0] is a highly flammable, moderately toxic, and mildly irritating substance.
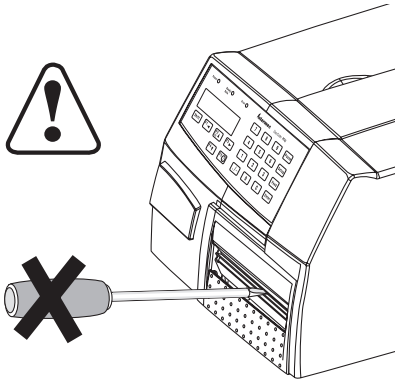
1	2
Lift the inner part of the upper guide and pull it outwards, disengaging it from the lower guide. Take care not to damage the cable.	*Tilt the upper guide upwards and clean the areas marked with gray. After cleaning, re-assemble in reverse order.*
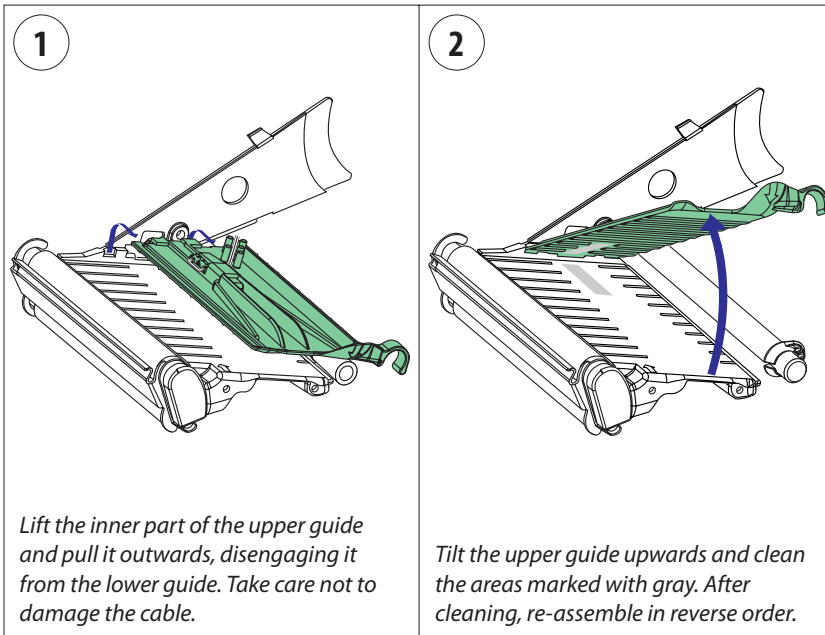
Printhead Replacement

The printhead is subject to wear both from the direct thermal media or 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.

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.

Caution

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

1	2
Open the front and side doors.	*Turn the printhead lift lever clockwise to raise the printhead.*
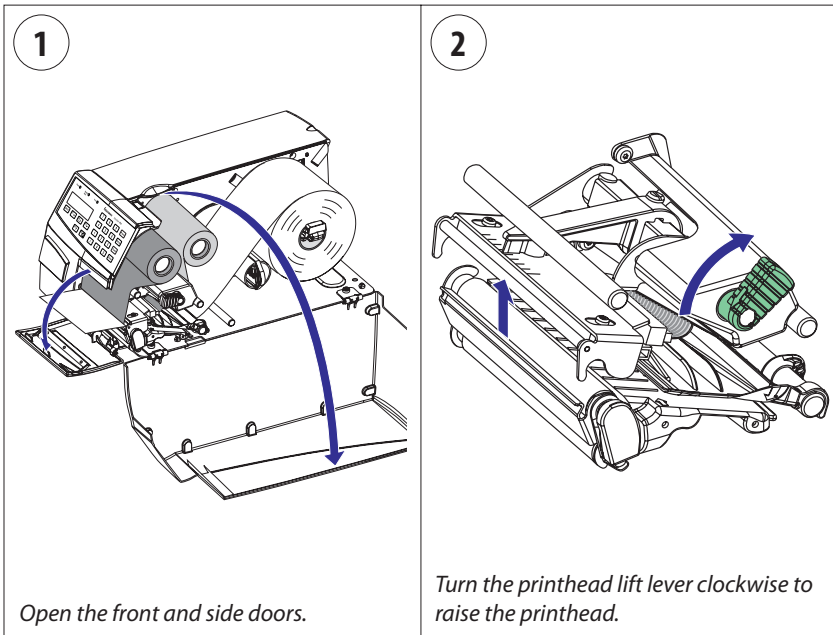
Printhead Replacement, cont.

3
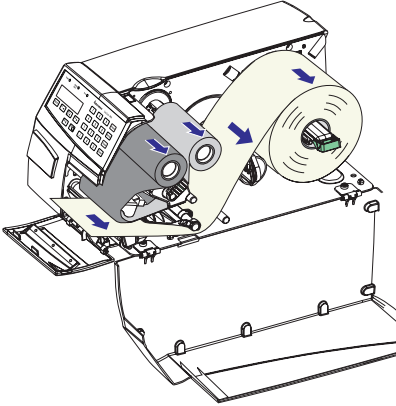
Remove any media and transfer ribbon .

4
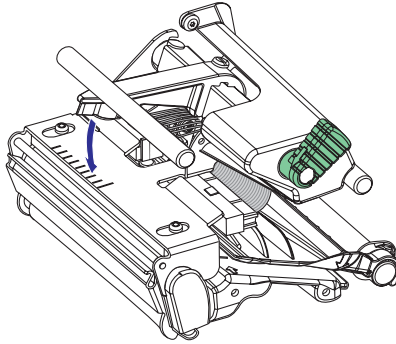
Pull the printhead bracket away from the magnet in the pressure arm.

5
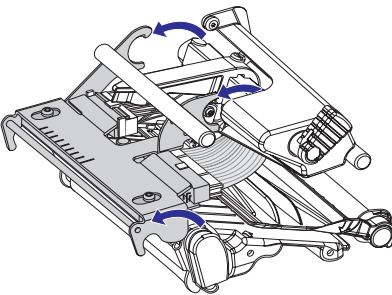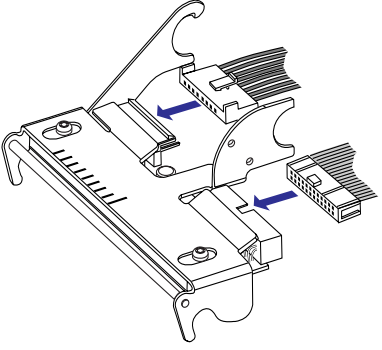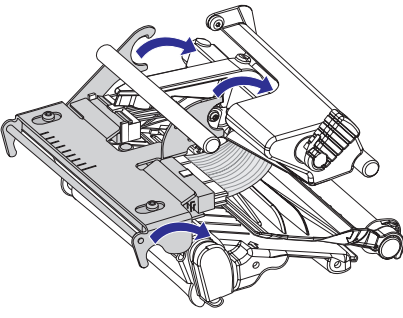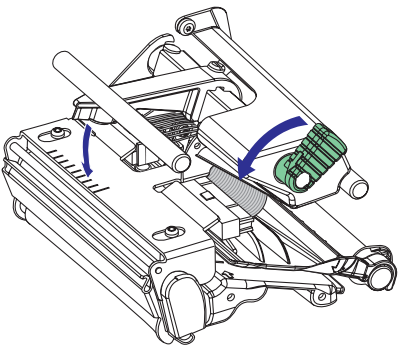
Disconnect the printhead bracket from the print mechanism as indicated by the arrows and pull out the printhead as far as the cables allow.

6
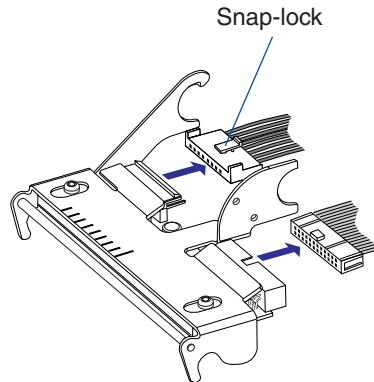
Snap-lock

Disconnect the cables from the print-head. 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

Put back the printhead in reverse order and check that the printhead cables run freely.

9

Turn the printhead lift lever counter-clockwise 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 [$(CH_3)_2CHOH$; CAS 67-63-0] is a highly flammable, moderately toxic, and mildly irritating substance.**

- Reload the media as descibed 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

- Label stop sensor position adjustment

- Printhead pressure adjustment

- Ribbon break shaft adjustment

- Quick-Load guides installation

Narrow Media Adjustment

The printer is factory-adjusted for full-size media width. When using media less than full width, it is recommended that you adjust the position of the pressure arm so it becomes centered with 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:

• Loosen the straight-slot screw 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.

   While moving the arm, push at the part where the screw 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.

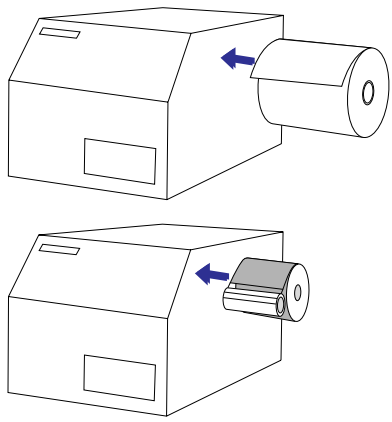• After having centered the arm, lock it by tightening the screw.

Pressure arm

Screw

Center of media
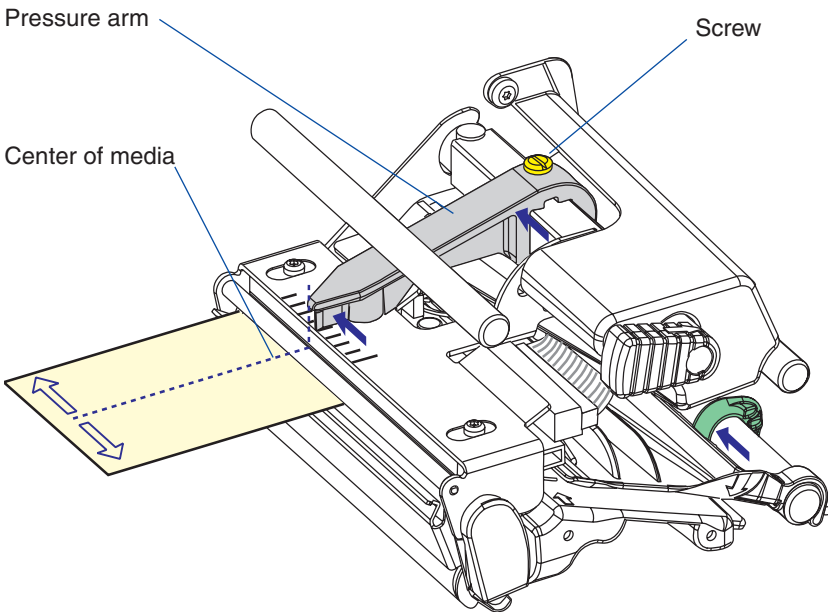
Label Stop Sensor Position Adjustment

The label stop/black mark 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"). An obvious prerequisite is that the LSS must 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 LSS can be moved laterally between 5 fixed positions. There is one part of the sensor on top of the upper media guide and another part underneath the lower guide. These must be adjusted individually to the same position. Using a small screwdriver, push them inwards as far as they go and then pull them out—one at the time—while counting the clicks from the snap-locks. A hole in the bottom plate facilitates adjustment of the lower sensor package.

The various detection points of the sensor in relation to the inner edge of the media are as follows:

One click out	3 mm	.118 inches
Two clicks out	8 mm	.315 inches
Three clicks out	12 mm	.472 inches
Four clicks out	16 mm	.639 inches
Five clicks out	20 mm	.787 inches

One diode +
One sensor
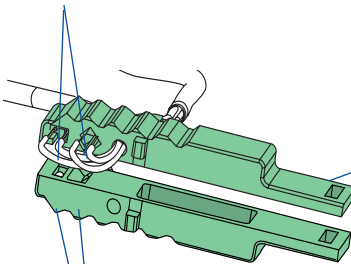
Upper part of LSS

One diode +
One sensor

Lower part of LSS
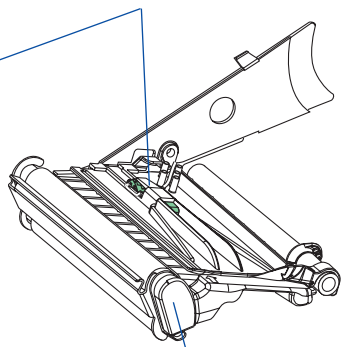
Print mechanism

Printhead Pressure

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

Using a straight-slot screwdriver, turn the adjustment screw clockwise for more 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 return to the factory setting, tighten the screw (+) as far as it goes and then loosen it (-) four full turns.

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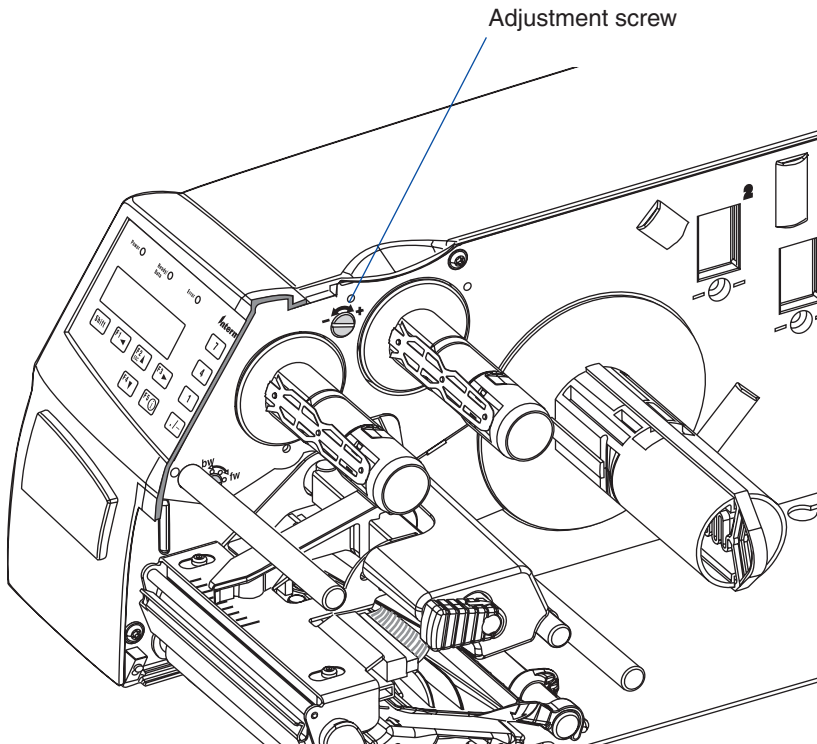
Adjustment screw

Ribbon Break Shaft

If ribbon wrinkling occurs, you may need to adjust the alignment of the front ribbon break shaft so that it runs parallel to the printhead and the ribbon supply and rewind hubs. The adjustment is done using a straight-slot screw that is located immediately behind the front ribbon break shaft.

• If the ribbon tends to slide outwards, turn the screw carefully clockwise (fw) to move the outer end of the break shaft forward.

• If the ribbon tends to slide inwards, turn the screw carefully counter-clockwise (bw) to move the outer end of the break shaft backward.

⚠️ Caution	**Before readjusting the break shaft, make sure that there is no other cause for the wrinkling of the ribbon. (See Chapter 10, "Troubleshooting.")**

Adjustment Screw
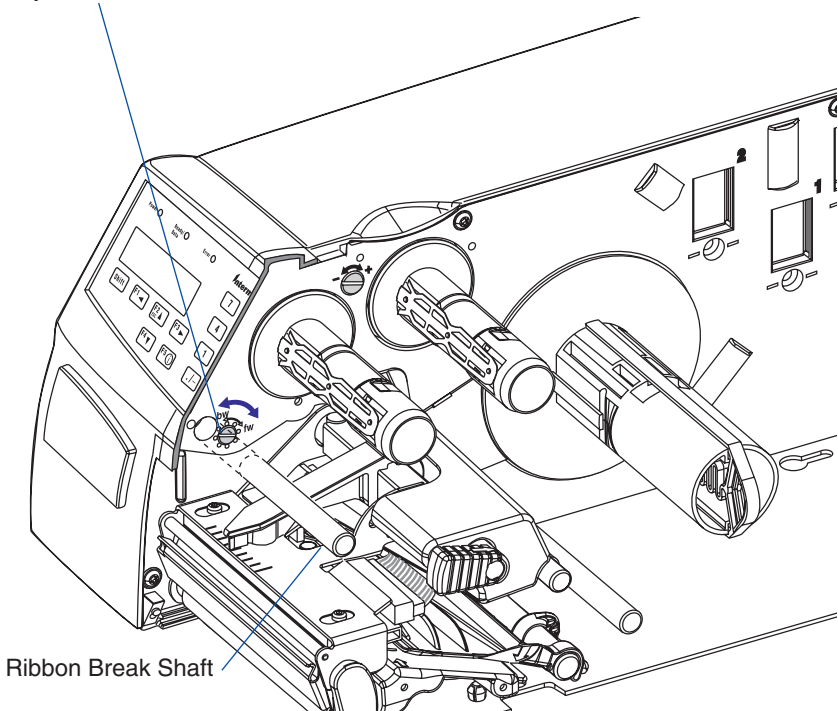
Ribbon Break Shaft

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.

Printing		
Print Technique	Direct Thermal and Thermal Transfer	
Printhead Resolution	8 dots/mm (203.2 dpi)	Option 300 dpi
Print Speed (variable)	100 to 200 mm/sec. (≈ 4 to 8 in./sec.) 100 to 150 mm/sec. (≈ 4 to 6 in./sec.)	8 dots/mm 300 dpi
Print Width (max)	104 mm (4.095 inches) 105.7 mm (4.161 inches)	8 dots/mm 300 dpi
Print Length (max)	32767 dots = 409.5 cm (161.25 in.)[1]	
Media Width (min/max)	25 to 114.3 mm (1 to 4.5 inches)	Standard edge guide
Media Width (min/max)	40/80 to 114.3 mm (1.57/3.15 to 4.5 inches)	Quick-Load guides
Media Roll Diameter (max)	152 mm (6.00 inches) 213 mm (8.38 inches)	Long side door Megatop
Media Roll Core Diameter	38 to 40 mm (1.5 inches) or 76 mm (3 inches)	
Ribbon Width (min/max)	25 to 110 mm (1 to 4.33 inches)	
Ribbon Roll Diameter (outer)	65 mm (2.56 inches) equivalent to 240-300 m (787-985 ft) of ribbon	Depending on ribbon thickness
Ribbon Roll Core Diameter (inner)	25.4 mm (1.00 inches)	
Print Directions	4	
Modes of Operation		
Tear-Off (Straight-through)	Yes	
Cut-Off	Optional	With cutter
Peel-Off (Self-strip)	Optional	With liner takeup unit
Firmware		
Operating System	Intermec Fingerprint v8.10	Incl. Direct Protocol
Smooth Fonts	TrueDoc and TrueType fonts	
Built-in scaleable fonts (std)	15	Unicode fonts[2]
Built-in bar code symbologies (std)	45	
Startup Program (std)	Intermec Shell v8.0	

Physical Measures		
Dimensions (W x L x H)	244 x 405 x 178 mm (9.61 x 15.93 x 7.00 inches)	With long side door
	253 x 447 x 178 mm (9.96 x17.60 x 7.00 inches)	With paper cutter
	244 x 475 x 225 mm (9.61 x 18.70 x 8.86 inches	With 8-in. Megatop
Weight (excluding media)	7 to 8 kg (15.5 to 17.7 pounds)	
Ambient Operating Temperature	+5°C to +40°C (+41°F to +104°F)	
Humidity	20 to 80% non-condensing	
Electronics		
Microprocessor	32 bit RISC	
On-board Flash SIMMs	2 sockets for 4MB or 8MB each	Std. 1 x 4MB
On-board SDRAM SIMM	1 socket for 8MB or 16MB	Std. 8MB
Power Supply		
AC Voltage	90 to 265 VAC, 45 to 65 Hz	
PFC Regulation	IEC 61000-3-2	
Power Consumption	Standby 15W; Peak 300W	
Sensors		
Label Gap/Black Mark/ Out of Media	Yes	5 fixed positions
Printhead Lifted	Yes	
Ribbon End/Ribbon Low	Yes	
Controls		
Control Lamps	3	
Display	2 x 16 character LCD	Background light
Keyboard	22 keys membrane-switch type	
Print button	1	
Beeper	Yes	
Data Interfaces		
Serial	1 x RS-232 + 1 x USB	
Bar Code Wand	Yes	
Connection for Optional Interface Boards	1 EasyLAN + 1 other types	
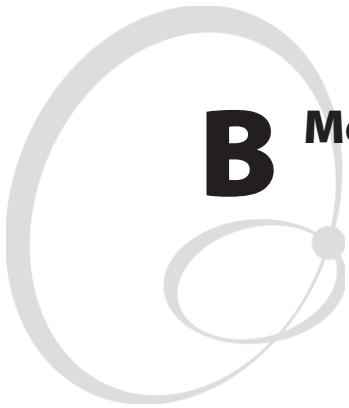
Memory Card Adapter	1	CompactFlash
Accessories and Options		
Special Printheads	8 dots/mm (203.2 dpi): 1 type 11.81 dots/mm (300 dpi): 2 types	See Chapter 9
Integral Self-strip Unit with Liner Takeup	Option	For peel-off operation
Rotating Media Supply Hub	Option	Replaces supply post
3-inch Adapter	Option	
Cutter and Tray	Option	
Long Side Door	Option[3]	
Long Side Door with 8-in. Megatop	Option[3]	
Label Taken Sensor	Option	
Real Time Clock	Option	10+ years life
RS-232 Cable	Option	
Parallel Interface Cable	Option	
Parallel Interface Board	Option	IEEE 1284
Double Serial Interface Board	Option	
Serial/Industrial Interface Board	Option	
EasyLAN Ethernet Interface	Option	
EasyLAN Wireless Interface	Option	
External Alphanumeric Keyboard	Option	
CompactFlash Cards	Option	8MB-1GB
Compact Flash Card Protection Plate	Option	

[1]/. The max. print length is also restricted by the amount of free SDRAM memory.

[2]/. Latin, Greek, and Cyrillic fonts according to Unicode standard are included.

[3]/. Depending on model, the printer may be delivered with either a standard long door or an 8-inch Megatop.

B Media Specifications

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

Media Roll Size
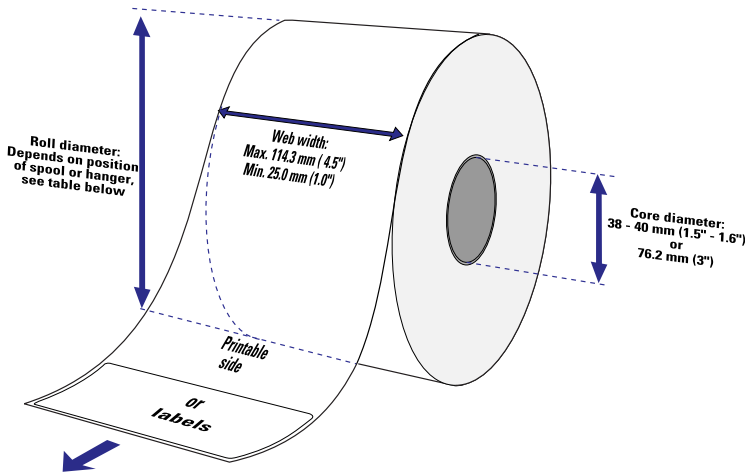
Core

Diameters: 38-40 mm (1.5 inches) or
                     76.2 mm (3 inches)
Width: Must not protrude outside the media.

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

Roll

Max. diameter:
- Position 1   152 mm   (6.00 inches)
- Position 3   213 mm   (8.38 inches)

Max. width: 114.3 mm   (4.50 inches)
Min. width (standard):   25 mm   (1.00 inches)
Min. width (Quick-Load): 40 mm   (1.57 inches)

The maximum recommended media thickness is 175µm (7 mils) with the standard printhead or 220µm (8.7 mils) with a special printhead. 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:	114.3 mm	(4.50 inches)
Minimum (standard):	25.0 mm	(1.00 inches)
Min. (narrow Quick-Load):	40.0 mm	(1.57 inches)
Min. (wide Quick-Load):	80.0 mm	(3.15 inches)

Media Type Setup
- Fix length strip
- Var length strip

Self-Adhesive Strip

⇐ a ⇒ Media Width (including liner)

Maximum:	114.3 mm (4.50 inches)
Minimum (standard):	25.0 mm (1.00 inches)
Min. (narrow Quick-Load):	40.0 mm (1.57 inches)
Min. (wide Quick-Load):	80.0 mm (3.15 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:	112.7 mm (4.43 inches)
Minimum:	23.8 mm (0.94 inches)

Media Type Setup

• Fix length strip
• Var length strip

a

c

SELF-ADHESIVE STRIP

b   b

Self-Adhesive Labels

⇐ a ⇒   Media Width (including liner)

Maximum:	114.3 mm	(4.50 inches)
Minimum (standard):	25.0 mm	(1.00 inches)
Min. (narrow Quick-Load):	40.0 mm	(1.57 inches)
Min. (wide Quick-Load):	80.0 mm	(3.15 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:	112.7 mm	(2.30 inches)
Minimum:	23.8 mm	(0.94 inches)

⇐ d ⇒   Label Length

Maximum:	depends on SDRAM size	
Minimum:	8.0 mm	(0.32 inches)

Under <u>ideal</u> circumstances, a minimum label length of 4 mm (0.16 inches) could be used. It requires the sum of the label length (d) and the label gap (e) to be larger than 7 mm (0.28 inches), that batch printing is used, and that no pull back of the media is performed. Intermec does not guarantee that such short labels will work, but it is up to the user to test this in his unique application.

⇐ e ⇒   Label Gap

Maximum:	21.3 mm	(0.83 inches)
Recommended:	3.0 mm	(0.12 inches)
Minimum:	1.2 mm	(0.05 inches)

The Label Stop Sensor must be able to detect the extreme front edges of the labels. It can be moved between 5 fixed positions (see Chapter 12).

Media Type Setup

• Label (w gaps)

a

c

d

e

**SELF-ADHESIVE
LABELS**

b

b

**FEED
DIRECTION**
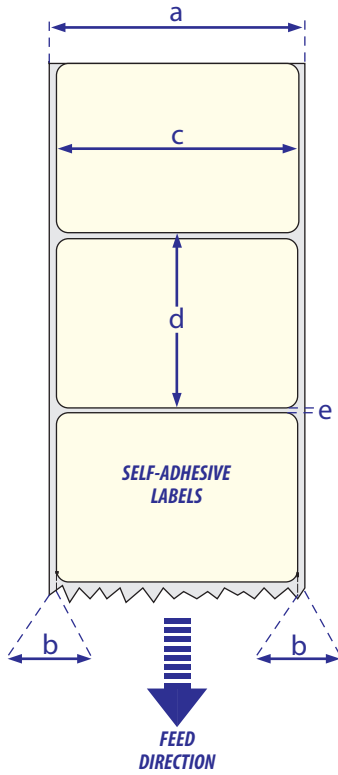
Tickets with Gaps

⇐ a ⇒ Media Width

Maximum:	114.3 mm (4.50 inches)
Minimum (standard):	25.0 mm (1.00 inches)
Min. (narrow Quick-Load):	40.0 mm (1.57 inches)
Min. (wide Quick-Load):	80.0 mm (3.15 inches)

⇐ b ⇒ Copy Length

Max. length between slots:	depends on SDRAM size
Min. length between slots:	8.0 mm (0.32 inches)

Under ideal circumstances, a minimum ticket length of 4 mm (0.16 inches) could be used. It requires the sum of the copy length (b) and the detection slit height (e) to be larger than 7 mm (0.28 inches), that batch printing is used, and that no pull back of the media is performed. Intermec does not guarantee that such short tickets will work, but it is up to the user to test this in his unique application.

⇐ c ⇒ LSS Detection Position
Five fixed positions, 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).
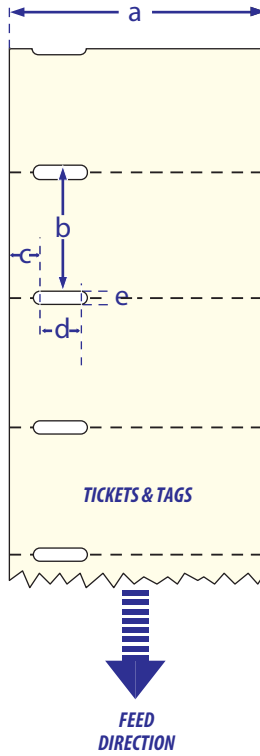
⇐ e ⇒ Detection Slit Height

Maximum:	21.3 mm (0.83 inches)
Recommended:	1.6 mm (0.06 inches)
Minimum:	1.2 mm (0.05 inches)

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.

TICKETS & TAGS

FEED
DIRECTION

Tickets with Black Mark

⇐ a ⇒ Media Width

Maximum:	114.3 mm (4.50 inches)
Minimum (standard):	25.0 mm (1.00 inches)
Min. (narrow Quick-Load):	40.0 mm (1.57 inches)
Min. (wide Quick-Load):	80.0 mm (3.15 inches)

⇐ b ⇒ Copy Length

Minimum:	20.0 mm (0.8 inches)
Maximum:	depends on SDRAM size

⇐ c ⇒ LSS Detection Position
Five fixed positions, see Chapter 12.

⇐ d ⇒ Black Mark Width
The detectable width of the black mark should be at least 5.0 mm (0.2 inches) on either side of the LSS detection point.

⇐ e ⇒ Black Mark Length

Maximum:	21.3 mm (0.83 inches)
Common:	12.5 mm (0.5 inches)
Minimum:	5.0 mm (0.2 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.

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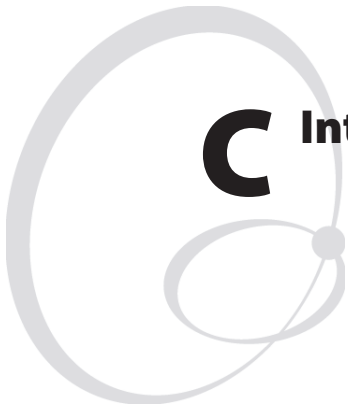
Note: Preprint that may interfere with the detection of the black mark should be avoided. However, the Intermec Fingerprint statement LBLCOND allows the sensor to be temporarily disabled during a specified amount of media feed in order to avoid unintentional detection, see Intermec Fingerprint manuals.

Note: The black mark should be non-reflective carbon black on a whitish background. Do not allow any perforations to break the edge of the media as this may cause the media to split and jam the printer.

TICKETS
WITH MARKS

FEED
DIRECTION
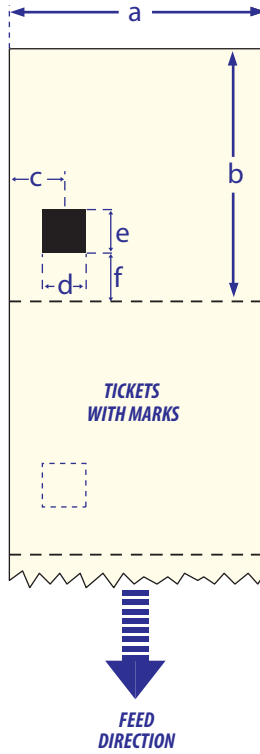
C Interfaces

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 interface boards

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	Recieve 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

RS-232
("uart1:")
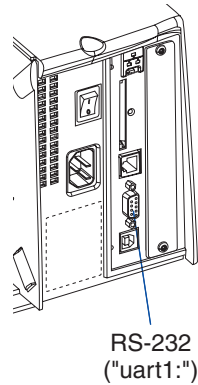
*/. The external +5V is limited to 500 mA and is automatically switched off at overload.

Interface Cable

Computer end:	Depends on computer model
Printer end:	DB-9pin 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.

USB ("usb1:")

USB Class A connector.
Connect to PC or hub.

USB Class B connector.
Connect to USB receptacle on the printer's rear plate.
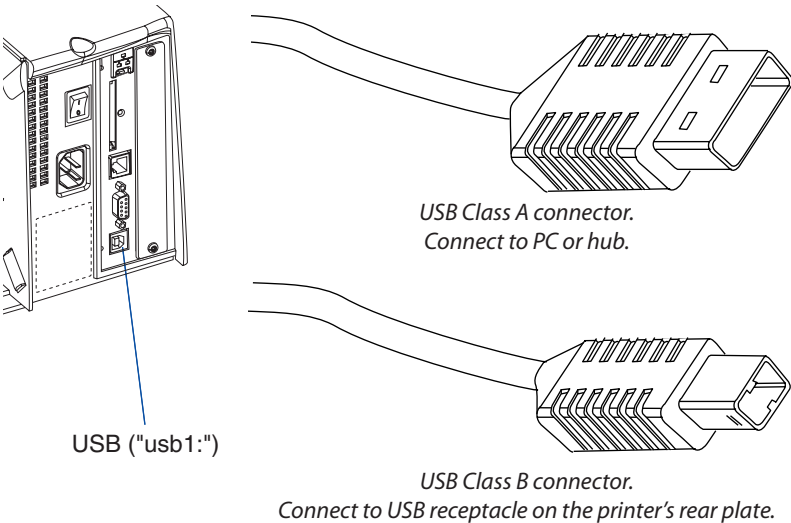
Bar Code Wand Interface

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.

Bar code wand
interface ("wand:")
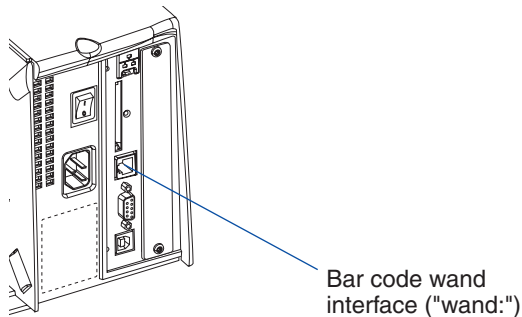
Optional Interfaces

The printer can optionally be fitted with <u>one</u> of the following interface boards at the right-hand side of the printer's rear plate:
• Double Serial Interface Board (device "uart2:" and "uart3:")
• Serial/Industrial Interface Board (device "uart2:")
• IEEE 1284 Parallel Interface Board (device "centronics:")

Regardless of any of the interface board mentioned above is installed, the printer can also be fitted with <u>one</u> of the following EasyLAN interface boards for connection to a Local Area Network (LAN):
• EasyLAN Ethernet Interface (device "net1:")
• EasyLAN Wireless Interface (device "net1:")

Double Serial Interface Board
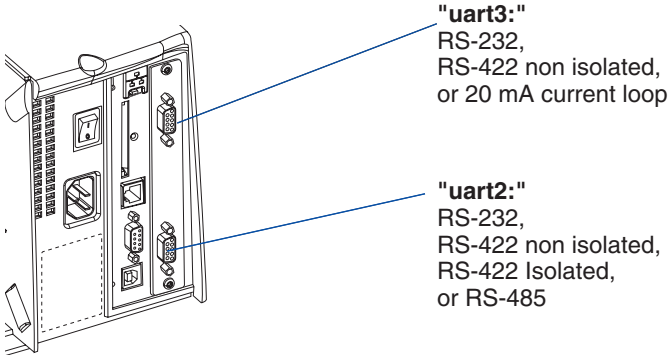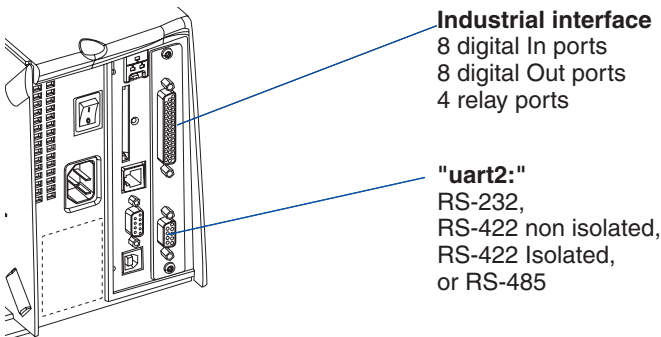
"uart3:"
RS-232,
RS-422 non isolated,
or 20 mA current loop

"uart2:"
RS-232,
RS-422 non isolated,
RS-422 Isolated,
or RS-485

Serial/Industrial Interface Board

Industrial interface
8 digital In ports
8 digital Out ports
4 relay ports

"uart2:"
RS-232,
RS-422 non isolated,
RS-422 Isolated,
or RS-485

IEEE 1284 Parallel Interface Board

"centronics:"

EasyLAN Ethernet Interface

"net1:"

EasyLAN Wireless Interface

"net1:"
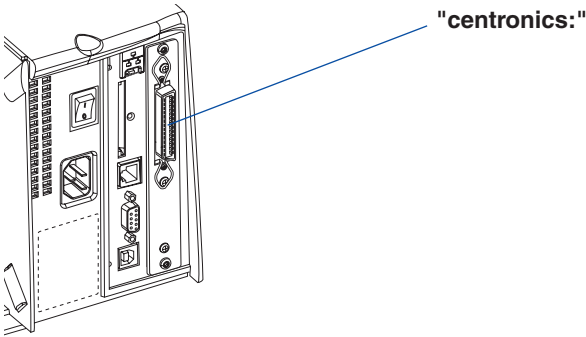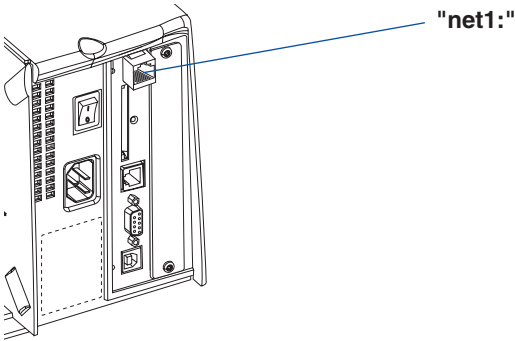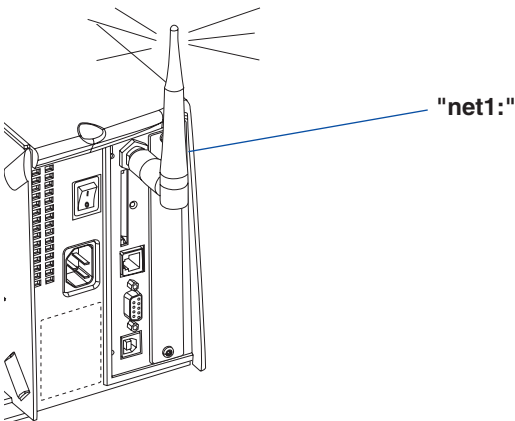
D Intermec Supplies

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, plasticisers, and vegetable oils. Examples:

Europe	North America
Thermal Top Board	Duratherm II
Thermal Top	Duratherm II Tag
Thermal Top High Speed	Duratherm Lightning
	Duratherm Lightning Plus
	Duratherm IR

Economy Quality

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

Europe	North America
Thermal Eco	–
Thermal Eco Board	

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 1500 ribbons. Examples:

Europe	North America
TTR Uncoated	–

Coated Papers

Various coat-weight, smoothness, and gloss. To be used with HP/TMX 2200/TMX 2500 and GP/TMX 1500 ribbons. Examples:

Europe	North America
TTR Coated	Duratran II
TTR Premium	Duratran II Tag
TTR Premium Board	Valeron Tag
TTR High Gloss White	

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 2200/TMX 2500 ribbons. Examples:

Europe	North America
TTR Polyethylene	Kimdura
TTR Gloss Polyethylene	Syntran

Polyesters

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

Europe	North America
TTR High Gloss Polyester	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.
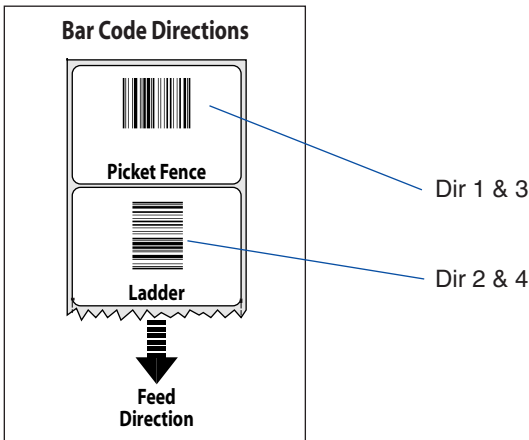
Recommended Paper Type Settings (Europe)

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

Type/Speed	Name	Label Constant	Label Factor	Max Rec. Print Speed[1] Dir 1&3[2]	Dir 2&4[3]
Top Coated/	Thermal Top Board[4]	105	40	100	100
Standard	Thermal Top	100	40	200	150
Non Top Coated/	Thermal Eco	95	40	200	150
Standard	Thermal Eco Board[4]	85	40	200	150
Top Coated/High	Thermal Top High Speed	90	40	200	200

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

Type/Speed	Name	Ribbon Constant	Ribbon Factor	Label Offset	Max Rec. Print Speed[1] Dir 1&3[2]	Dir 2&4[3]
GP02	TTR Uncoated	75	25	0	150	150
	TTR Coated	80	25	0	150	150
	TTR Premium	70	25	0	200	200
HP66	TTR Coated	100	25	0	200	200
	TTR Premium	80	25	0	200	200
	TTR Premium Board[4]	105	25	0	150	150
	TTR High Gloss White	95	25	0	200	200
	TTR Polyethylene	75	25	0	200	150
	TTR Gloss Polyethylene	90	25	0	200	200
HP07	TTR Coated	100	25	0	200	200
	TTR Premium	90	25	0	200	200
	TTR Premium Board[4]	105	25	0	150	150
	TTR Polyethylene	85	25	0	200	200
	TTR Gloss Polyethylene	95	25	0	200	150
HP05	TTR Coated	100	25	0	200	200
	TTR Premium	80	25	0	200	200
	TTR Premium Board[4]	95	25	0	200	200
	TTR High Gloss White	80	25	0	200	200
	TTR Polyethylene	75	25	0	200	150
	TTR Gloss Polyethylene	80	25	0	200	200
HR03	TTR High Gloss Polyester	100	30	0	200	200

[1]/. 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.

[2]/. Applies to printing of text, lines, boxes, images, and picket fence bar codes.

[3]/. Applies to ladder bar codes.

[4]/. 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[1]	
				Dir 1&3[2]	Dir 2&4[3]
Top Coated/	Thermal Top Board[4]	105	40	100	100
Standard	Thermal Top	95	40	150	150
Non Top Coated/	Thermal Eco	90	40	150	150
Standard	Thermal Eco Board[4]	75	40	150	150
Top Coated/High	Thermal Top High Speed	80	40	150	150

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

Type/Speed	Name	Ribbon Constant	Ribbon Factor	Label Offset	Max Rec. Print Speed[1]	
					Dir 1&3[2]	Dir 2&4[3]
GP02	TTR Uncoated	80	25	0	150	125
	TTR Coated	90	25	0	150	125
	TTR Premium	70	25	0	150	125
HP66	TTR Coated	100	25	0	150	150
	TTR Premium	85	25	0	150	150
	TTR Premium Board[4]	105	25	0	100	150
	TTR High Gloss White	95	25	0	150	150
	TTR Polyethylene	90	25	0	150	150
HP07	TTR Coated	105	25	0	150	125
	TTR Premium	95	25	0	150	150
	TTR Premium Board[4]	105	25	0	150	100
	TTR Polyethylene	100	25	0	150	150
	TTR Gloss Polyethylene	100	25	0	150	150
HP05	TTR Coated	100	25	0	150	125
	TTR Premium	85	25	0	150	150
	TTR Premium Board[4]	95	25	0	150	150
	TTR High Gloss White	80	25	0	150	150
	TTR Polyethylene	85	25	0	150	150
	TTR Gloss Polyethylene	80	25	0	150	150
HR03	TTR High Gloss Polyester	100	30	0	150	150

[1]/. 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.

[2]/. Applies to printing of text, lines, boxes, images, and picket fence bar codes.

[3]/. Applies to ladder bar codes.

[4]/. 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 Constant	Label Factor	Max Rec. Print Speed[1] Dir 1&3[2]	Dir 2&4[3]
Top Coated/ Standard	Duratherm II	96	40	200	200
	Duratherm II Tag[4]	115	40	200	100
Top Coated/ High	Duratherm Lightning	92	40	200	200
	Duratherm Ltg. Plus	85	40	200	200
	Duratherm IR	84	40	200	150

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

Type/Speed	Name	Ribbon Constant	Ribbon Factor	Label Offset	Max Rec. Print Speed[1] Dir 1&3[2]	Dir 2&4[3]
TMX 1500	Duratran II	64	25	0	200	200
	Syntran	65	25	0	200	200
	Kimdura	73	25	0	200	200
	Valeron Tag	80	25	0	200	200
	Duratran II Tag	74	25	0	200	200
TMX 2200	Duratran II	64	25	0	200	200
	Kimdura	80	25	0	200	200
	Valeron Tag	83	25	0	200	200
	Duratran II Tag	75	25	0	200	200
TMX 2500	Duratran II	67	25	0	200	200
	Syntran	84	25	0	100	100
	Kimdura	82	25	0	200	200
	Valeron Tag	95	25	0	200	200
	Duratran II Tag	76	25	0	200	200
TMX 3200	PET Gloss	93	30	0	200	200

[1]/. 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.

[2]/. Applies to printing of text, lines, boxes, images, and picket fence bar codes.

[3]/. Applies to ladder bar codes.

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

Type/Speed	Name	Label Constant	Label Factor	Max Rec. Print Speed[1] Dir 1&3[2]	Dir 2&4[3]
Top Coated/ Standard	Duratherm II	93	40	150	150
	Duratherm II Tag[4]	112	40	150	100
Top Coated/ High	Duratherm Lightning	85	40	150	150
	Duratherm Ltg. Plus	80	40	150	150
	Duratherm IR	82	40	150	150

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

Type/Speed	Name	Ribbon Constant	Ribbon Factor	Label Offset	Max Rec. Print Speed[1] Dir 1&3[2]	Dir 2&4[3]
TMX 1500	Duratran II	65	25	0	150	150
	Syntran	65	25	0	150	150
	Kimdura	76	25	0	150	150
	Valeron Tag	80	25	0	150	150
	Duratran II Tag	74	25	0	150	150
TMX 2200	Duratran II	65	25	0	150	150
	Kimdura	80	25	0	150	150
	Valeron Tag	84	25	0	150	150
	Duratran II Tag	75	25	0	150	150
TMX 2500	Duratran II	66	25	0	150	150
	Syntran	85	25	0	150	150
	Kimdura	80	25	0	150	150
	Valeron Tag	105	25	0	150	150
	Duratran II Tag	77	25	0	150	150
TMX 3200	PET Gloss	93	30	0	150	150

[1]/. 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.

[2]/. Applies to printing of text, lines, boxes, images, and picket fence bar codes.

[3]/. Applies to ladder bar codes.

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