Intermec

User's Guide

EasyCoder 501 XP Bar Code Label Printer

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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.

Declaration of Conformity (CE)

We,

Intermec Printer AB
Idrottsvägen 10
Box 123
S-431 22 Mölndal
Sweden

declare under our sole responsibility[1] that the product

EasyCoder 501 XP

to which this declaration relates is in conformity with the following standards

Electrical Safety: EN 60950

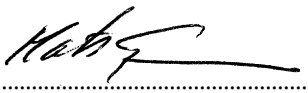
EMC Emissions: EN 50081-1:92
(EN 55022:94, EN 61000-3-2:95)

EMC Immunity: EN 50082-2:95
(EN 61000-4-2:95; EN 61000-4-3:96; ENV 50204:95;
EN 61000-4-4:95; EN 61000-4-6:96)

following the provisions of Directives

89/336/EEC and **73/23/EEC**

Mölndal 1998-09-01



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Mats Gunnarsson
President

[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.

Introduction

EasyCoder 501 XP

The EasyCoder 501 XP is a high-volume 4-inch thermal printer, which provides an astounding print speed of up to 300 mm/sec (12 inches/sec) at 300 dots per inch (dpi.) It also offers a large number of useful features, such as:

- Flash memory SIMMs for firmware, fonts, bar codes, and application programs
- Built-in memory card adapter
- Built-in Centronics and RS-232 interfaces
- Provision for extra interface boards
- Advanced ribbon-handling system to prevent ribbon wrinkling
- Built-in keyboard and display with backlight

The EasyCoder 501 XP works both as a direct thermal printer and thermal transfer printer for tear-off (straight-through) operation. An automatic paper cutter is available as an option and can be fitted by the user without any tools in a few seconds. There is also an optional factory-installed liner takeup unit for peel-off (self-strip) operation and internal takeup of printed batches of labels.

The EasyCoder 501 XP supports the unique and flexible Intermec Fingerprint v7.61 programming language, which allows the user to create custom-made application programs and label layouts in a BASIC-like environment. It is also designed to work with the Intermec Direct Protocol programming language and with the Intermec InterDriver. The InterDriver allows you to design labels using standard PC applications, for example Microsoft Office.

The EasyCoder 501 XP 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 memory card. The Unicode standard allows the use of special characters for various languages including non-Latin fonts, such as Cyrillic, Chinese, Japanese, Korean, Hebrew, and similar.

Safety

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.

Caution

- Read this manual carefully before connecting the printer.
- Moving parts are exposed when the side door is open, so ensure that the covers are closed before you operate the printer.
- Do not open the front/left-hand cover. Dangerous voltage!
- Do not remove the left-hand cover. Dangerous voltage!
- Do not put your fingers inside the print mechanism when the power is on.
- Place the printer on an even surface which can support its weight of approximately 13 kg (29 pounds) plus supplies and possible options.
- 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 Labeling

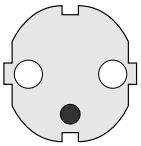
The machine label is attached to the printer's rear plate and contains information on type, model, and serial number as well as AC voltage. It also contains various signs of approval.

Installation

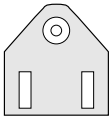
Unpacking

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

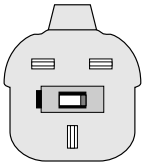
- Open the box and lift the printer out.
- Check that the printer has not been visibly damaged during transportation. Keep the packing materials in case you need to move or reship the printer.
- Check the label on the printer's rear plate, which gives the voltage, the part number, and the serial number.
- Check that any options you ordered are included.
- Check that all the accessories are included. As standard, the box contains:
  - Intermec EasyCoder 501 XP printer
  - Adapter for 3-inch media roll core
  - Edge guide for the label slack absorber
  - Power cord (at least one depending on model)
  - Quality check card
  - Cleaning card
  - Short strip of labels[1]
  - Starter pack of thermal transfer ribbon (thermal transfer models only)[1]
  - 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 100 to 240 VAC, 50 to 60 Hz.



European-type 230 VAC plug



US/Canadian-type 115 VAC plug



GB-type 230 VAC plug

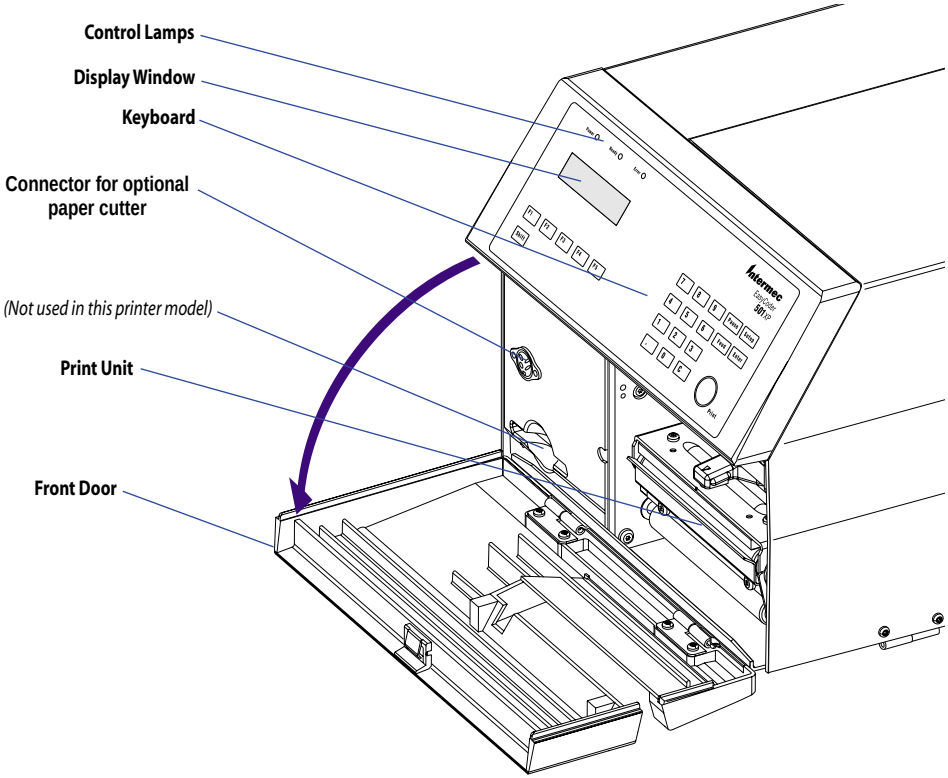
If the printer has been damaged in any way during transportation, complain to the carrier immediately.

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

[1]/. Type and quantity may vary, or labels/ribbon may be omitted completely, depending on area of distribution.

Front View

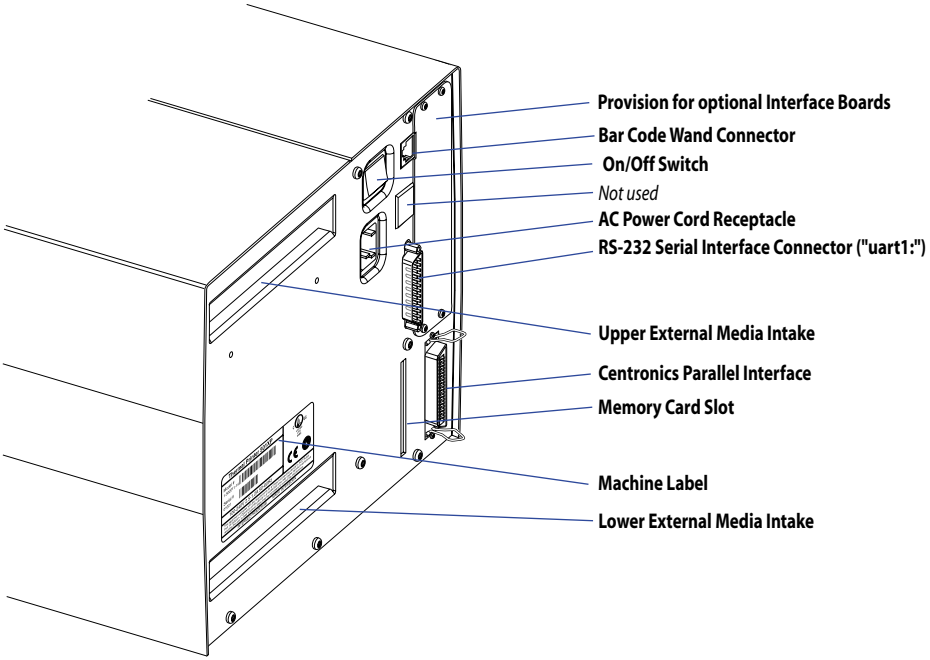
The front door is held by a snap-lock. Open the front door to view the various parts on the printer's front.



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

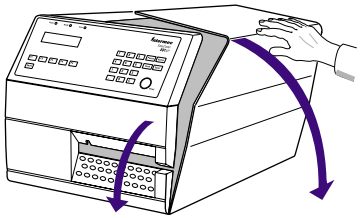
Rear View

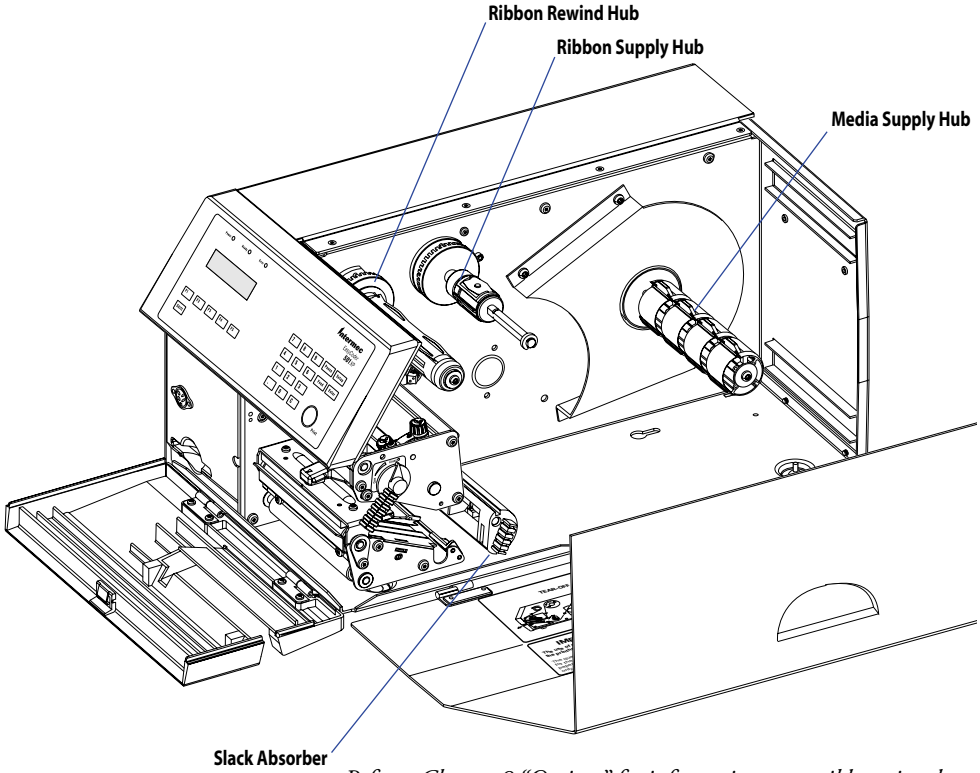
The rear plate contains the On/Off switch, the AC power cord receptacle, and various interface connectors and slots.



Media Compartment

The media compartment becomes accessible when the right-hand door is opened. The door is held by a magnetic lock and can be opened 180°, or be removed completely by pushing it rearwards.

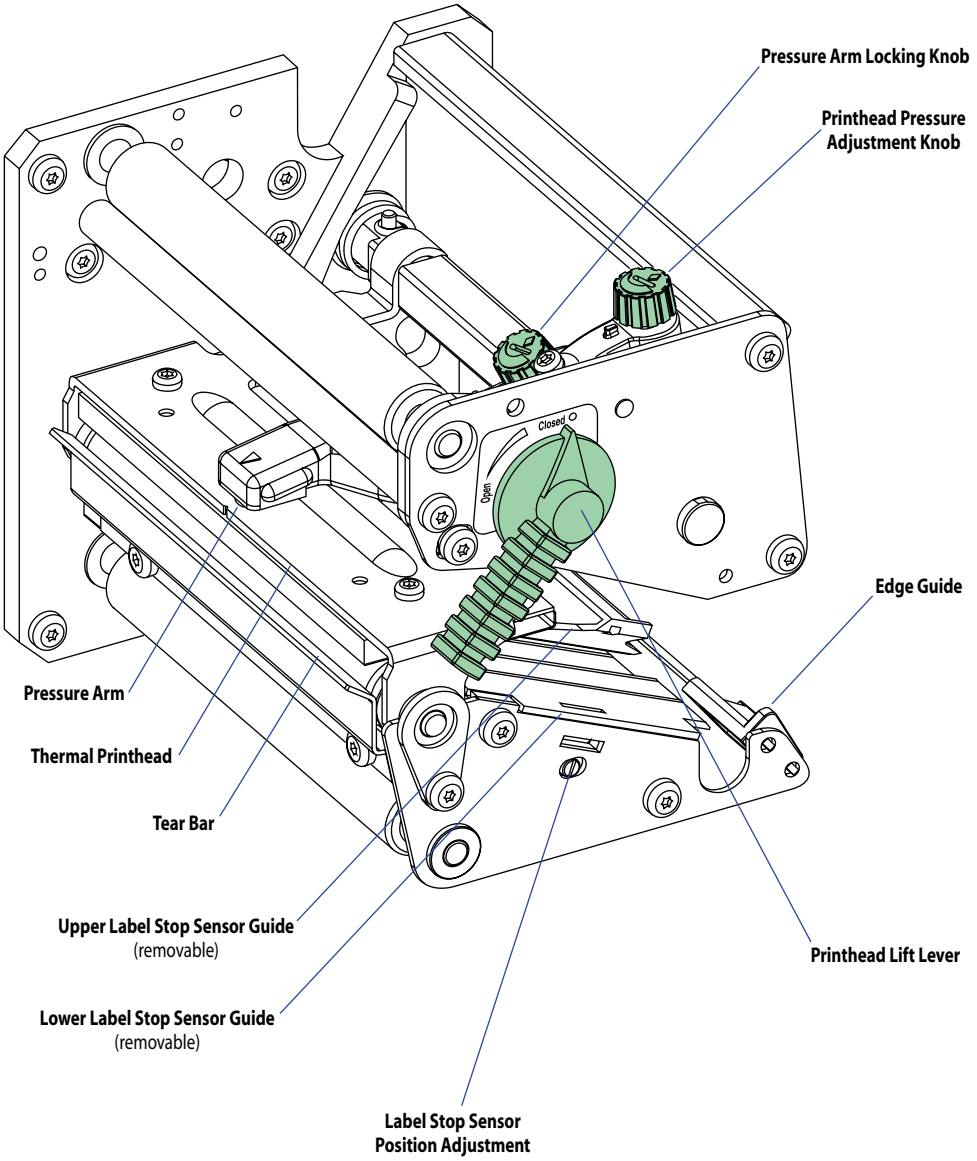




Refer to Chapter 9 "Options" for information on possible optional devices fitted inside the printer's media compartment.

Print Unit

The print unit features a high-performance 12 dots-per-mm (≈300 dots-per-inch) thermal printhead with quick-mount fittings to facilitate replacement.



Connections

Power

1. Place the printer on a level surface near an AC outlet. You should be able to easily access the printer to load media, to load ribbon, and to remove the printout.
2. Check that the printer is switched off.
3. Connect the power cord to the receptacle on the rear plate and to an electrical outlet (>90 to <264 VAC.)

Computer

The Easycoder 501 XP is fitted with one 36-pin female Centronics connector for the parallel interface port and a 25-pin D-style subminiature (DB-25) male connector for the RS-232 serial interface port (see Appendix 3, "Interfaces").

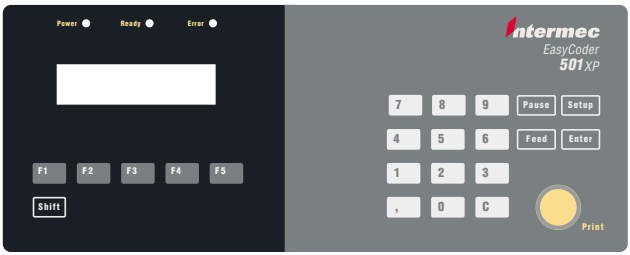
- ***Centronics Parallel Interface***
  Use the parallel interface with the Intermec InterDriver (for Windows) because it is faster than the serial interface. There is no communication setup for the parallel interface.
- ***RS-232 Serial Interface***
  Use the serial interface with Intermec Direct Protocol or Intermec Fingerprint programming language because you can receive error messages from your printer (as opposed to the parallel interface.) 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."
- ***Optional Interface Board***
  Several types are available (see Chapter 9, "Options.)" Refer to Appendix 3 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 7) or using the Intermec Fingerprint instruction SETSTDIO, see *Intermec Fingerprint v7.61, Programmer's Reference Manual*.

Switch off both PC and printer before connecting them together.

Controls and Indicators

The EasyCoder 501 XP has several ways of communicating directly with its operator: three control lamps, a display window, a membrane-switch keyboard with 23 programmable keys, 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* (green) indicates that the printer is ready for use.
- *Error* (red) indicates that some kind of error has occurred. If serial communication is used, 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 membrane-switch type and has a self-adhesive overlay that easily can be replaced for special applications. It has 23 keys with hardcoded functions in the startup and setup modes.

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

Controls and Indicators, cont.

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 switched off. The frequency and duration of the signal can be specified. Thus, it is possible create different signals for different conditions or even to make the printer play simple melodies!

Starting Up

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:

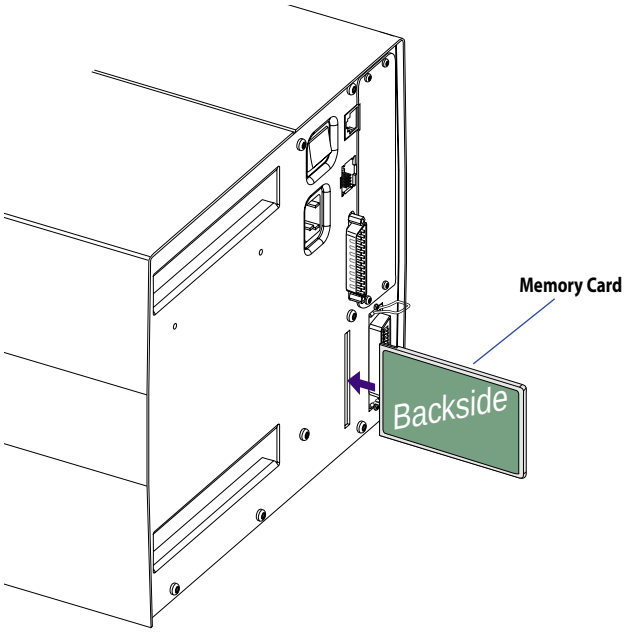
1. An **`autoexec.bat`** file stored in a memory card, provided the card was inserted in the printer before power up.
2. An **`autoexec.bat`** file stored in the read/write part of the printer's permanent memory (device "c:").
3. The **`pup.bat`** file (Intermec Shell) in the read-only part of the printer's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

If you insert a 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 can be an SRAM card complying with the JEIDA-4 standard or a Flash Memory card from Intermec. Maximum size in both cases is 64Mbit (8MB). There are three types of Flash Memory 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.



Important!

Always switch off the power before inserting or removing a memory card! The manufacturer's logotype should face right when viewing the card as in the illustration above.

Switching On the Printer

Warning!
During startup, an optional paper cutter will rotate to home position. Always keep the cutter closed when the power is on.

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

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. Then some kind of message will appear in the display window, depending on the startup file.

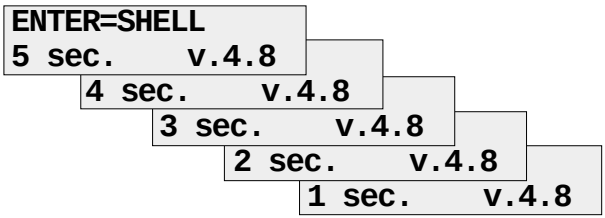
Display Messages at Startup

When the power is switched on, 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 (standard printers)



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 (non-standard printers)

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.

Media Load

Tear-Off (Straight-through)

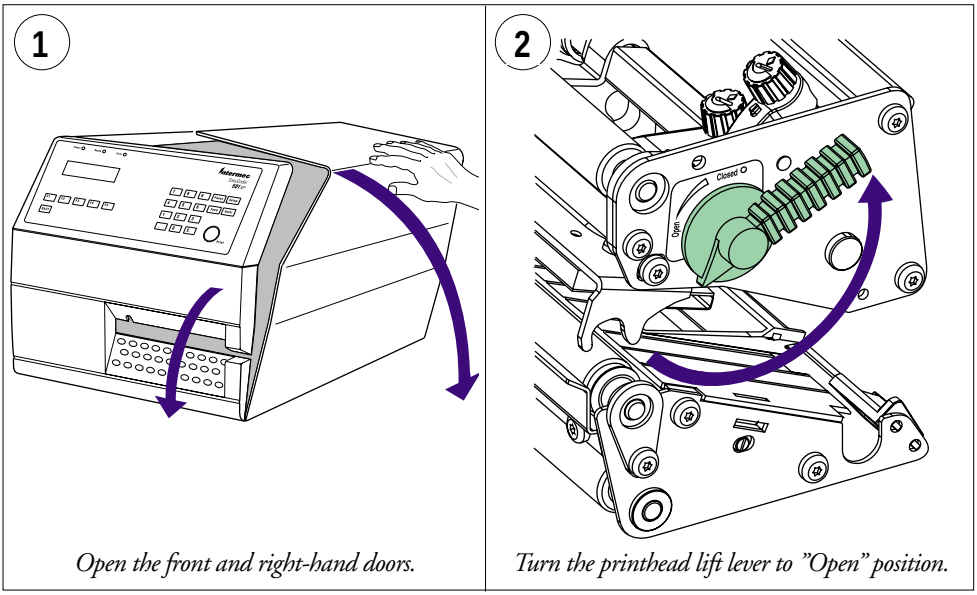
The EasyCoder 501 XP can print on labels, tickets, tags, and continuous stock in various forms. This section describes the case when the media is torn off manually against the printer's tear bar. This method is also known as "straight-through printing."

Use the <**Feed**> key (see figure #11) when loading the same type of media. 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."

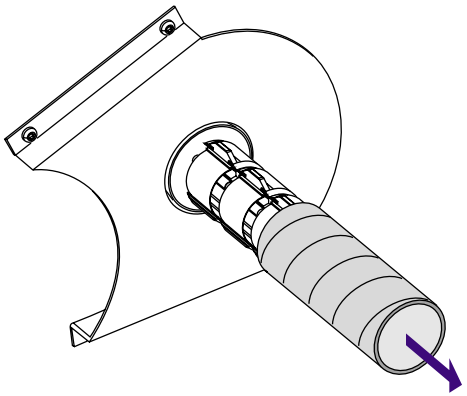


Open the front and right-hand doors.

Turn the printhead lift lever to "Open" position.

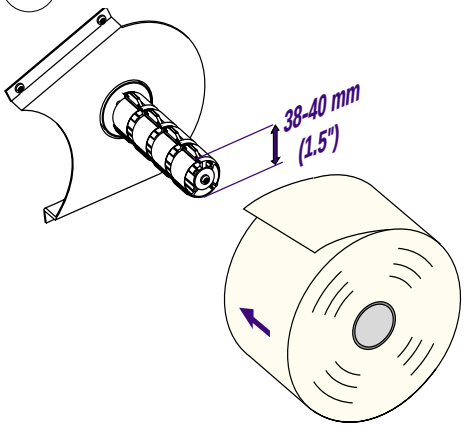
Tear-Off, cont.

3



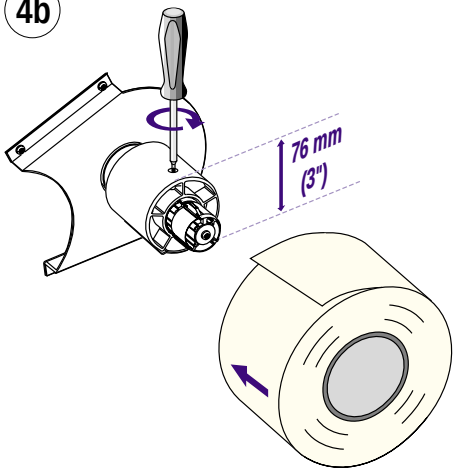
Remove any core from the media supply hub.

4a



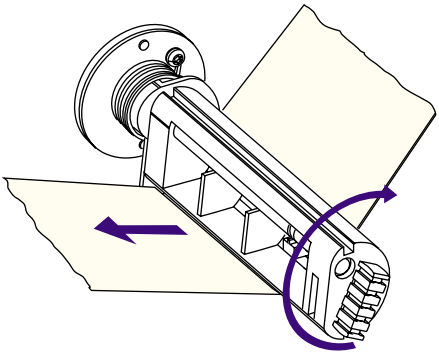
Fit a new roll of media on the media supply hub and push the roll inwards as far as it will go.

4b



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

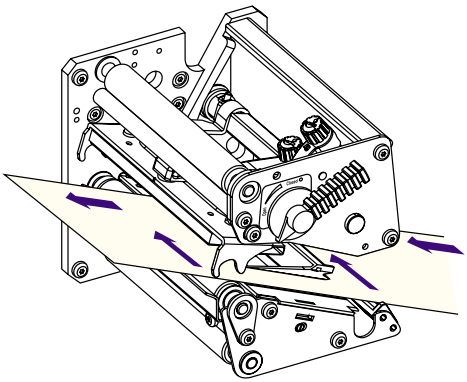
5



Route the media underneath the slack absorber and forward towards the print unit. The slack absorber can be rotated for better access.

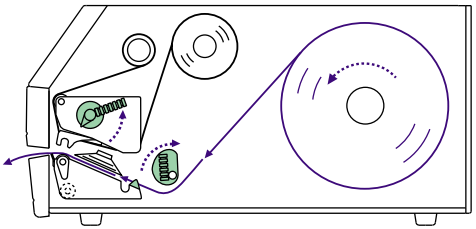
Tear-Off, cont.

6



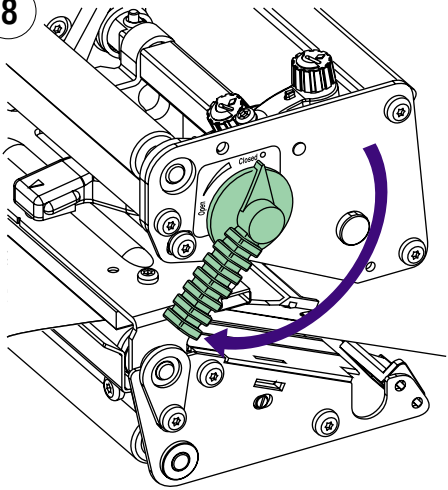
Route the media through the print unit and push it inwards as far as it will go.

7



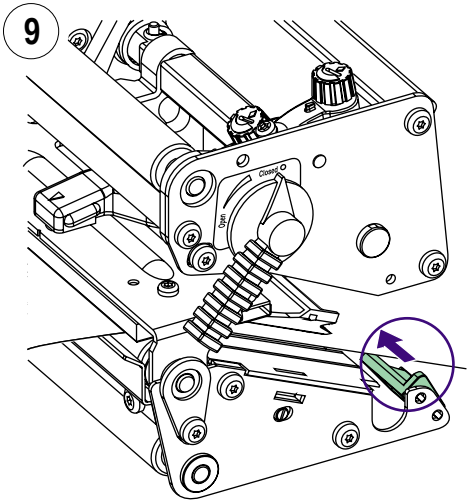
This diagram shows the media path.

8



Turn the printhead lift lever to "Closed" position.

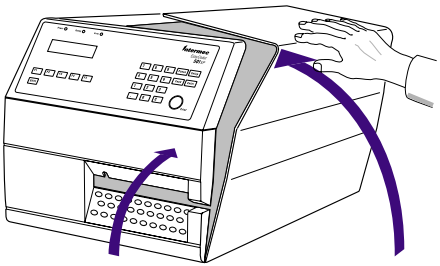
9



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

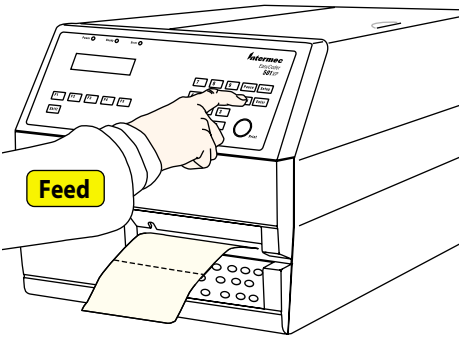
Tear-Off, cont.

10



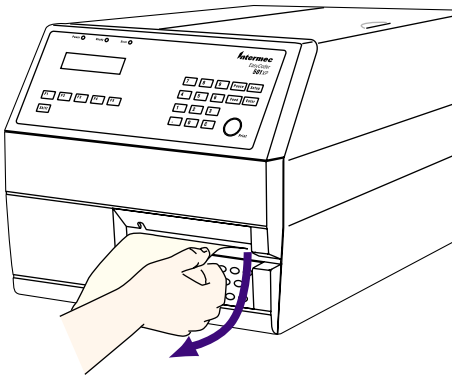
Close the front and right-hand doors.

11



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

12



*To tear off the media, grab the outer edge and pull **downwards**.*

Cut-Off

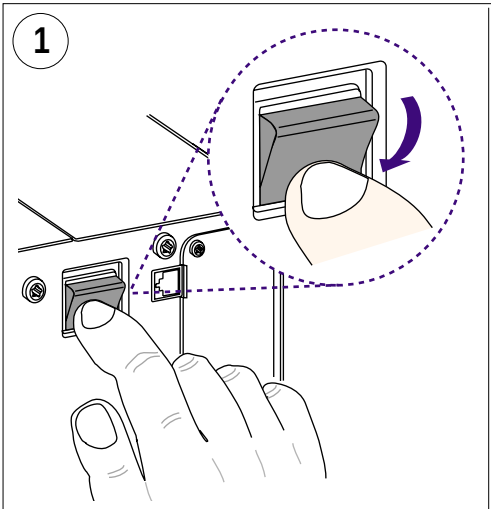
The EasyCoder 501 XP can print on labels, tickets, tags, and continuous stock in various forms. This chapter describes the case when the media is automatically cut off after printing using an **optional** paper cutter.

Use the <**Feed**> key (see figure #14) when loading the same type of media as before. When switching to a new type of media, or if the printer does not feed out the media properly, simultaneously press the <**Shift**> and <**Feed**> keys to perform a "testfeed."

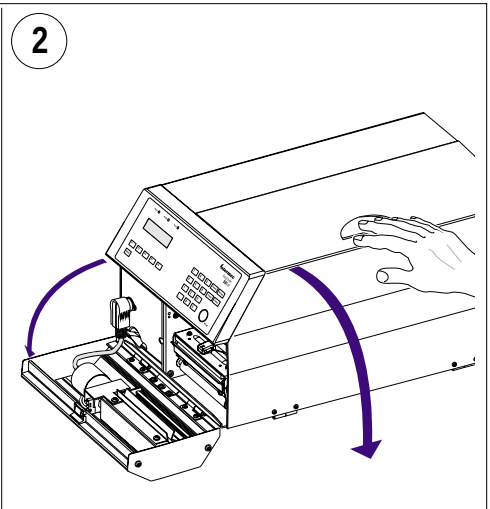
Cut-off can be used for:

- Non-adhesive continuous stock
- Self-adhesive labels with liner
  *Note that the cutter **must not** cut through the labels–only the liner–or the adhesive will stick to the blades and render the cutter inoperable or even damage the cutter's motor!*
- Tickets with gaps without perforations
- Tickets with marks without perforations

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

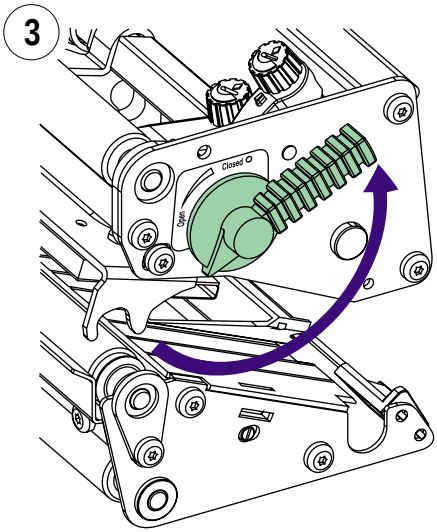


Switch off the power using the On/Off switch on the printer's rear plate.

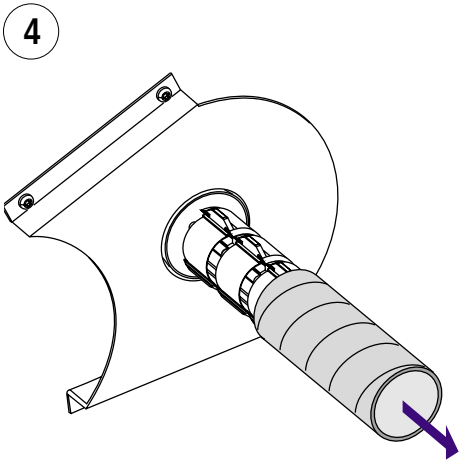


Open the cutter unit and the right-hand door.

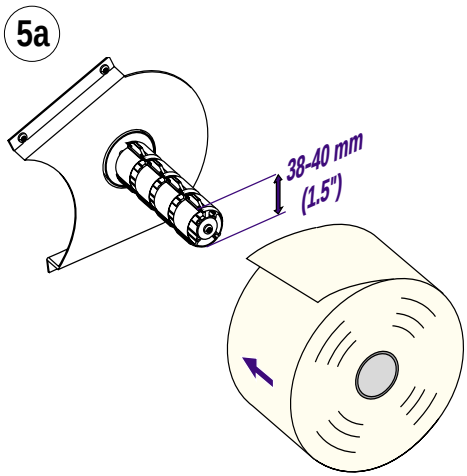
Cut-Off, cont.



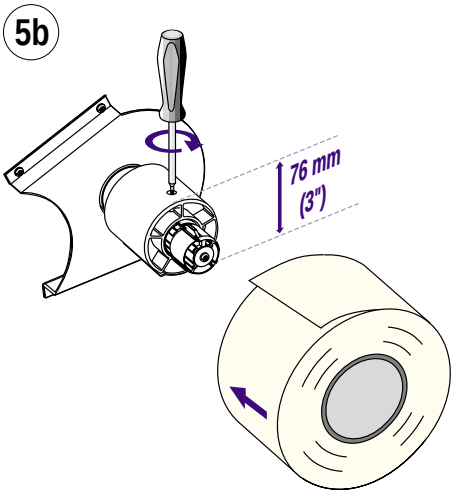
Turn the printhead lift lever to "Open" position.



Remove any core from the media supply hub.



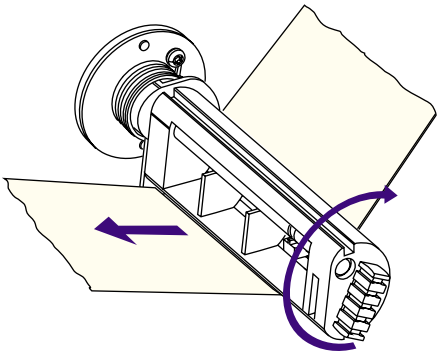
Fit a new roll of media on the media supply hub and push the roll inwards as far as it will go.



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

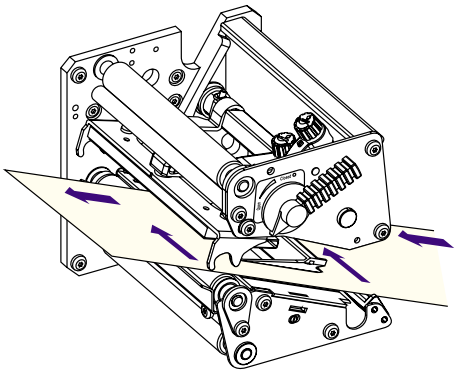
Cut-Off, cont.

6



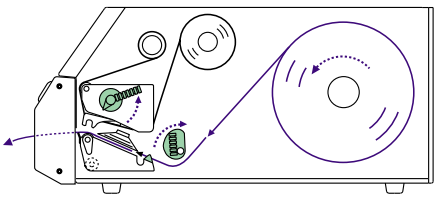
Route the media underneath the slack absorber and forward towards the print unit. The slack absorber can be rotated for better access.

7



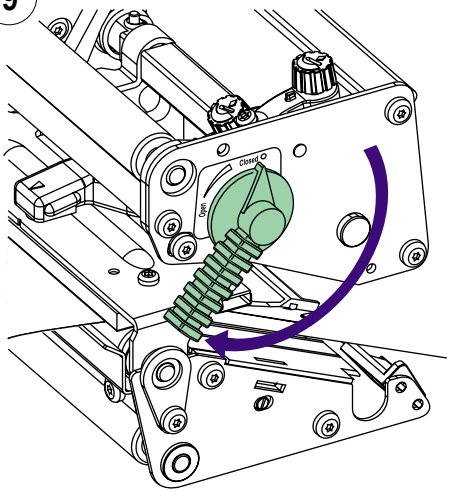
Route the media through the print unit and push it inwards as far as it will go.

8



This diagram shows the media path.

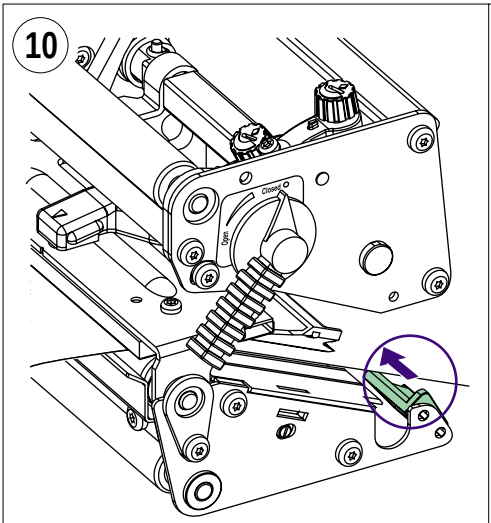
9



Turn the printhead lift lever to "Closed" position.

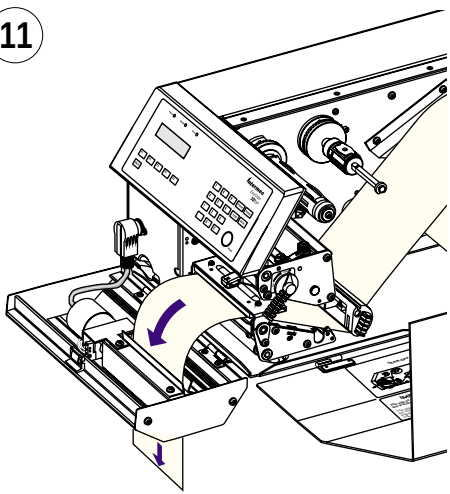
Cut-Off, cont.

10



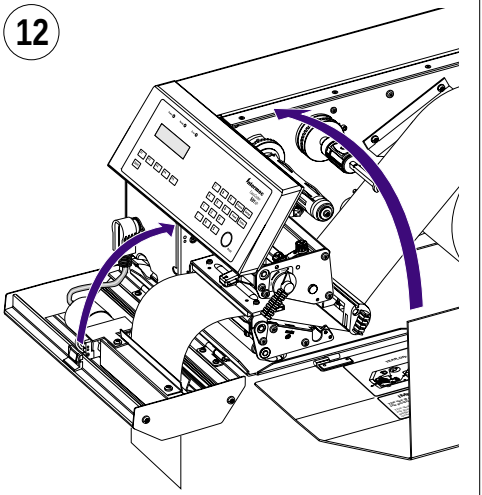
Adjust the position of the green edge guide so the media is guided with a minimum of play.

11



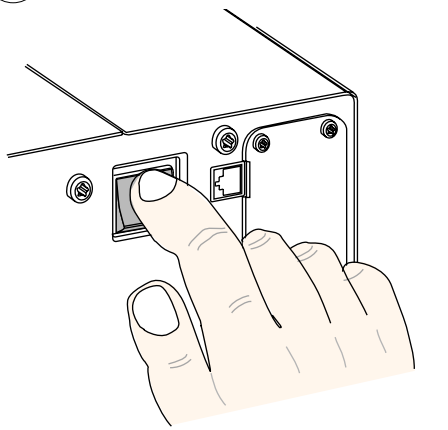
Route the media through the cutter between the two guide plates.

12



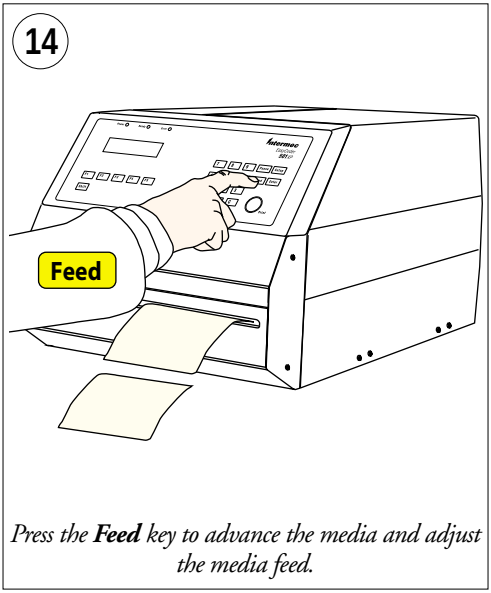
Close the cutter unit while pulling at the end of the media. Close the right-hand door.

13



Switch on the power using the On/Off switch on the rear plate.

Cut-Off, cont.



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

Peel-Off (Self-strip)

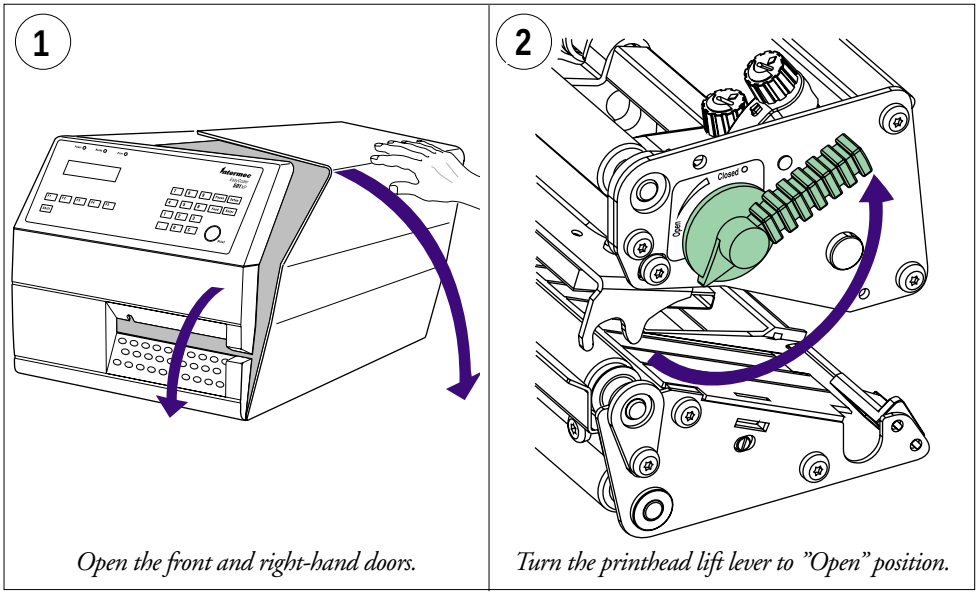
The EasyCoder 501 XP can print on labels, tickets, tags, and continuous stock in various forms. This chapter describes the case when precut labels fitted on liner (backing paper) are to be separated from the liner immediately after printing. This requires an **optional** internal liner/batch takeup unit, on which the liner is wound up after the labels have been printed and dispensed. This is also known as "Self-strip" operation.

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

Peel-off can be used for:

- Self-adhesive labels fitted on liner.

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

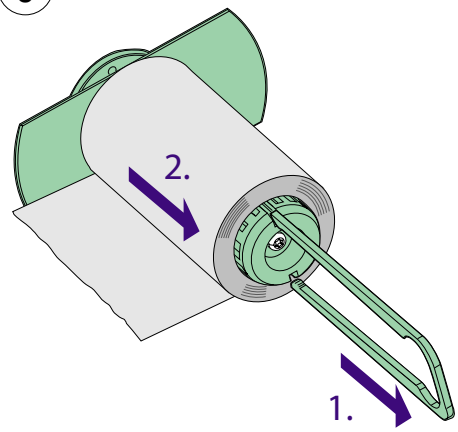


Open the front and right-hand doors.

Turn the printhead lift lever to "Open" position.

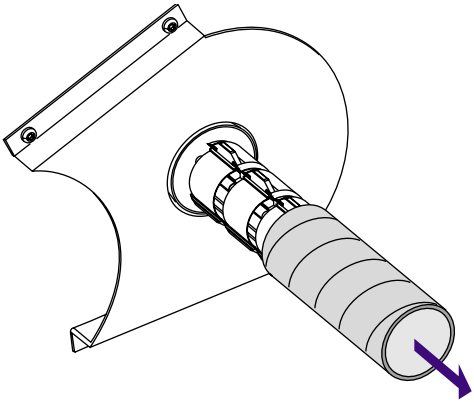
Peel-Off, cont.

3



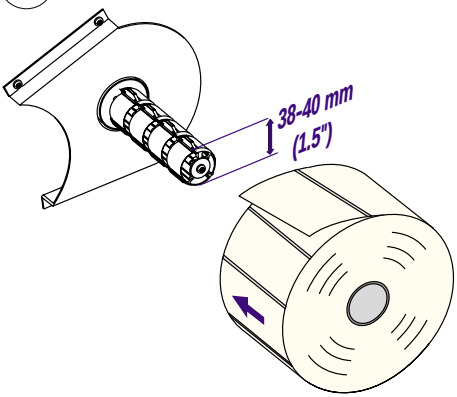
Pull out the green clip (1) on the liner takeup hub and dispose of any wound-up liner (2.)

4



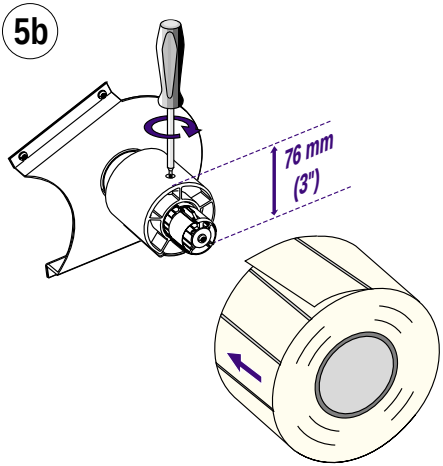
Remove any core from the media supply hub.

5a



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

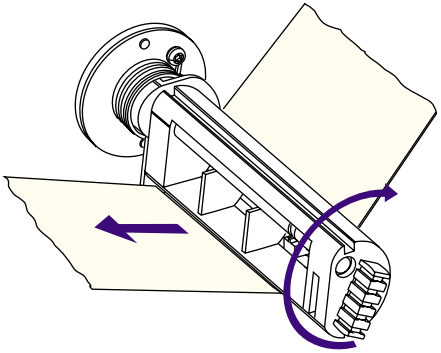
5b



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

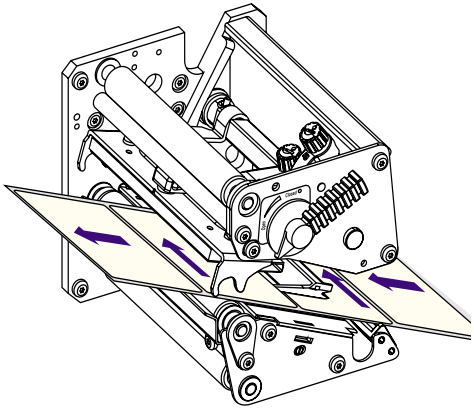
Peel-Off, cont.

6



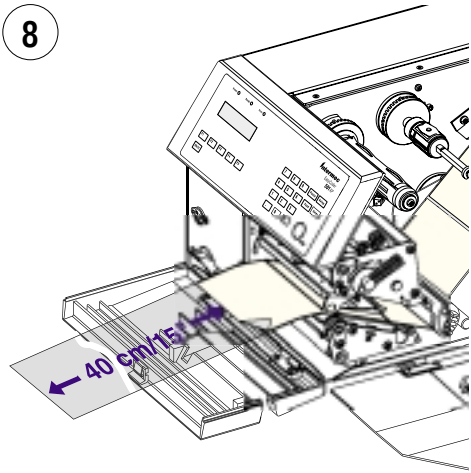
Route the media underneath the slack absorber and forward towards the print unit. The slack absorber can be rotated for better access.

7



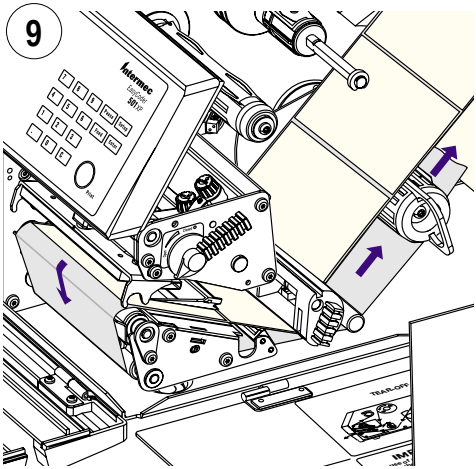
Route the media through the print unit and push it inwards as far as it will go.

8



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

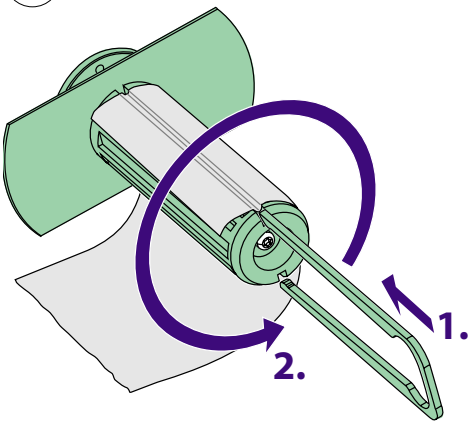
9



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

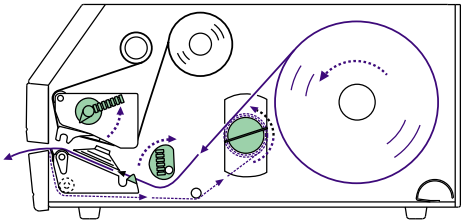
Peel-Off, cont.

10



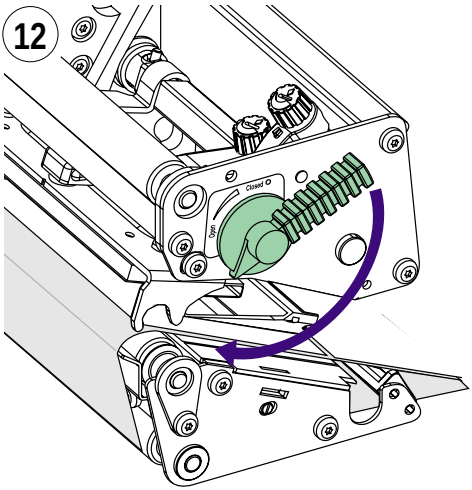
Secure the liner with the clip (1) and rotate the hub so the media becomes tight (2.)

11



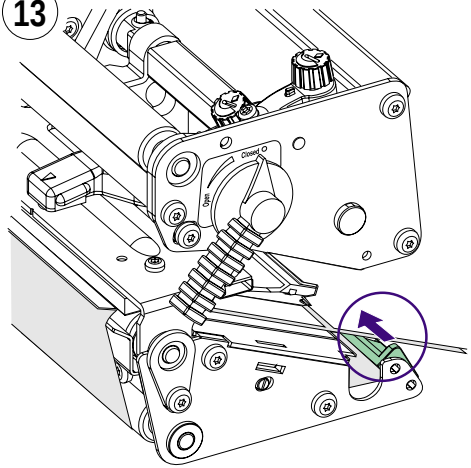
This diagram shows the paths of the labels and the liner.

12



Turn the printhead lift lever to "Closed" position.

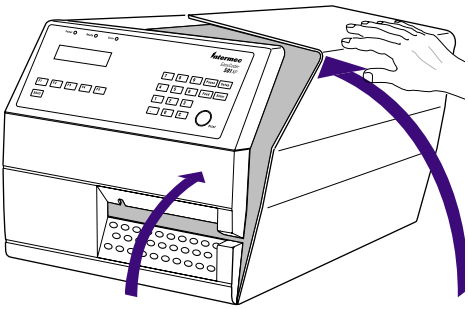
13



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

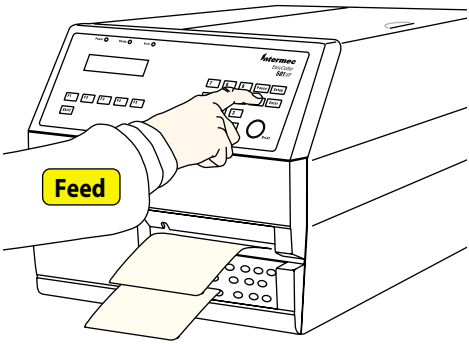
Peel-Off, cont.

14



Close the front and right-hand doors.

15



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

Internal Batch Takeup

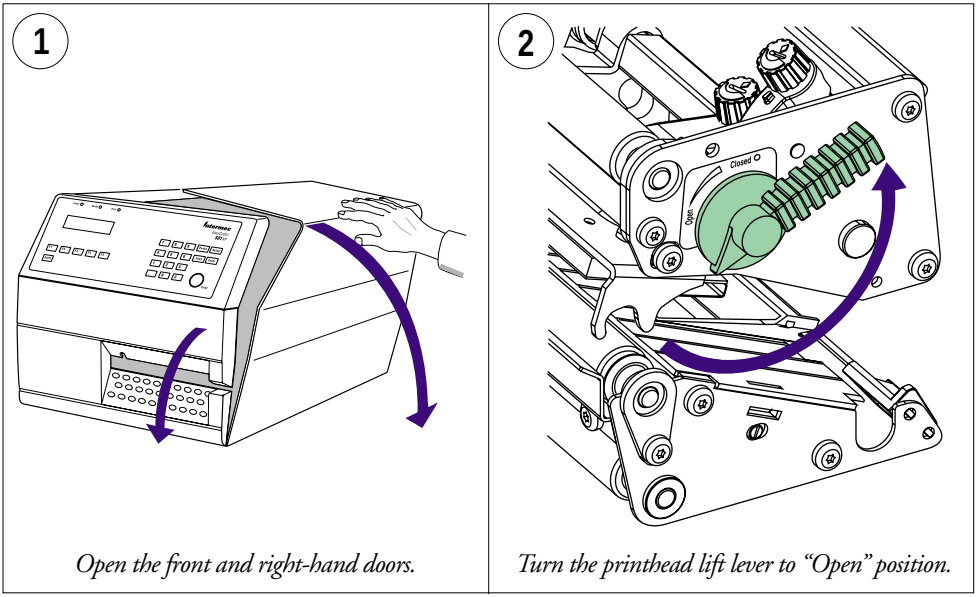
The EasyCoder 501 XP can print on labels, tickets, tags, and continuous stock in various forms. This chapter describes the case when printed labels fitted on liner (backing paper) or pre-perforated tickets and tags are wound up inside the printer. The roll of printed labels, tickets, or tags can then be removed and be handled manually. This requires an optional internal liner/batch takeup unit.

The takeup hub can accommodate 1/4 to 1/3 of a full-size media roll.

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

Internal batch takeup can be used for:

- Self-adhesive labels fitted on liner
- Preperforated tickets with gaps
- Preperforated tickets with marks

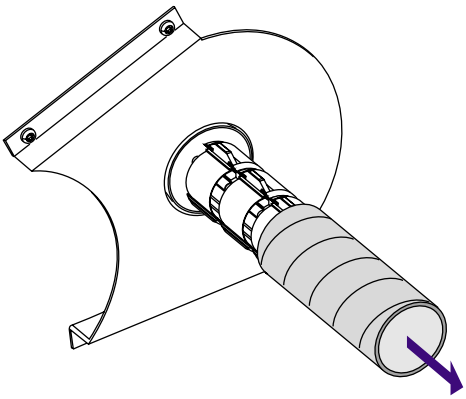


Open the front and right-hand doors.

Turn the printhead lift lever to "Open" position.

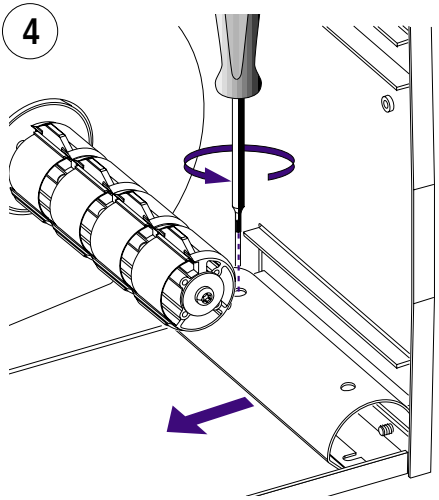
Internal Batch Takeup, cont.

3



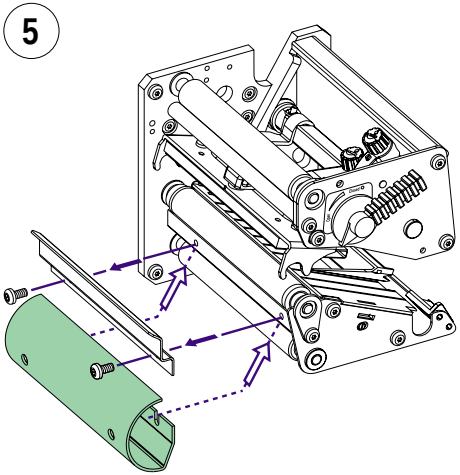
Remove any core from the media supply hub.

4



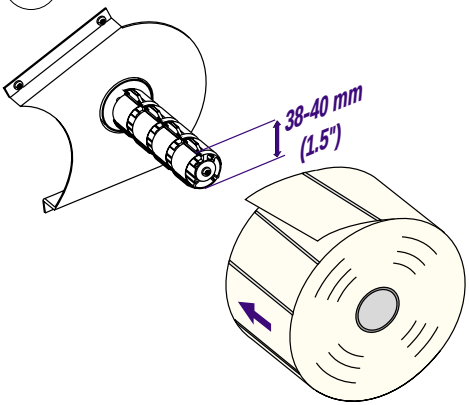
Loosen the single screw that holds the guide plate at the rear of the media compartment.

5



Remove the tear bar from the print unit and replace it with the guide plate.

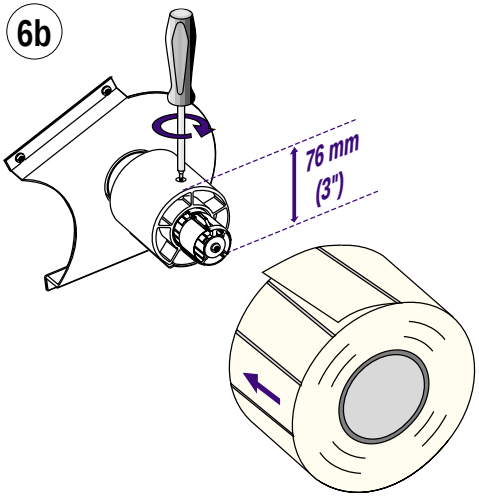
6a



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

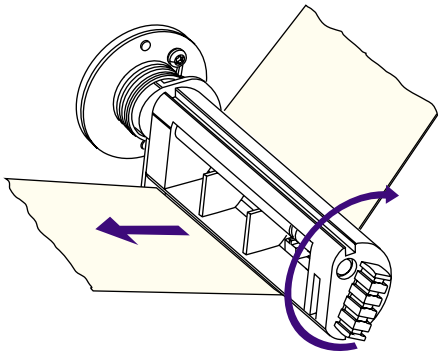
Internal Batch Takeup, cont.

6b



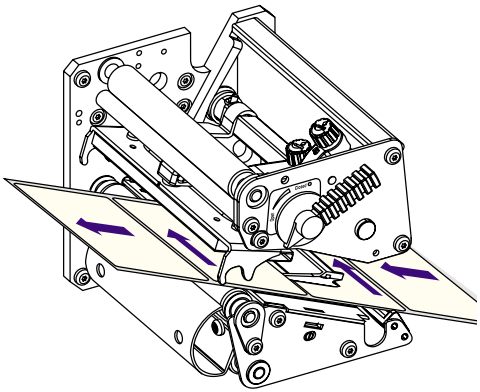
In case of media roll with a 76 mm (3-inch) core, first fit an adapter on the media supply hub.

7



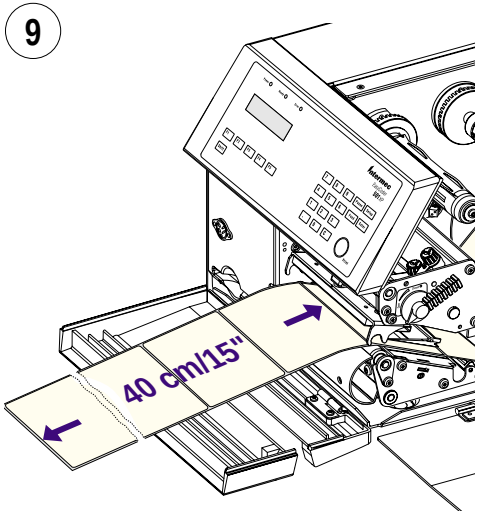
Route the media underneath the slack absorber and forward towards the print unit. The slack absorber can be rotated for better access.

8



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

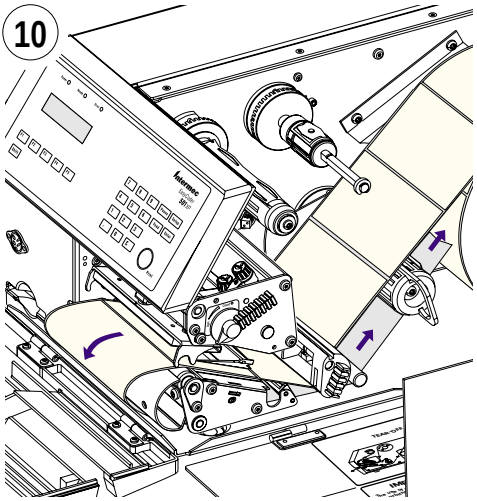
9



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

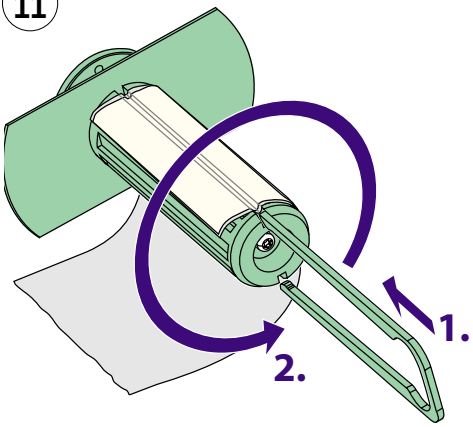
Internal Batch Takeup, cont.

10



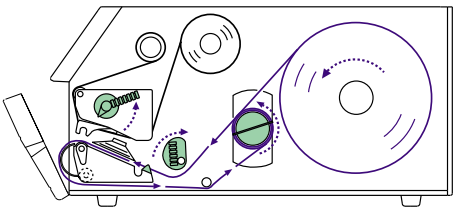
Route the labels around the guide plate and back under the print unit to the takeup hub.

11



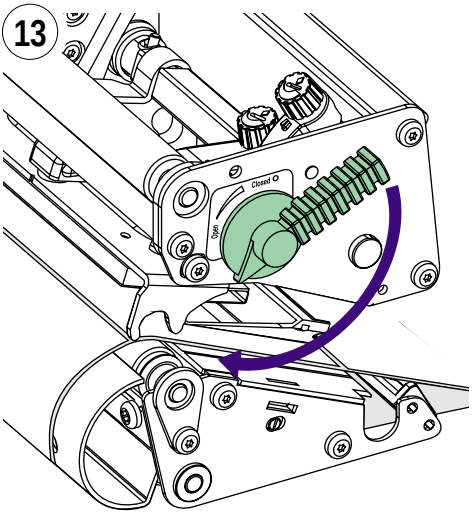
Wind up some of the media on the takeup hub and secure it with the clip.

12



This diagram shows the media path.

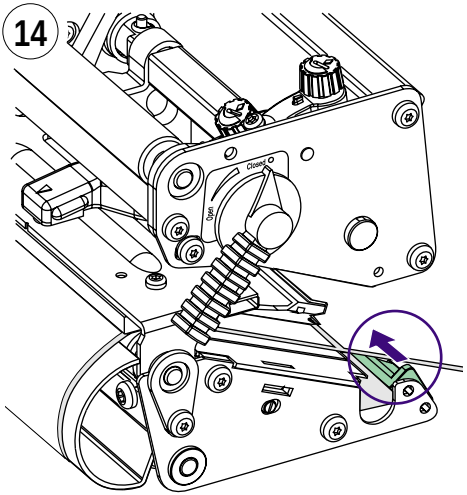
13



Turn the printhead lift lever to "Closed" position.

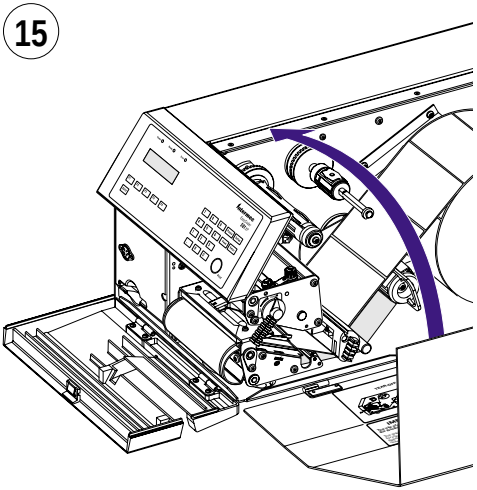
Internal Batch Takeup, cont.

14



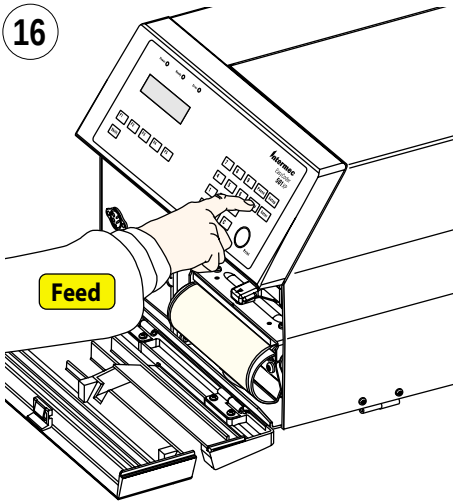
Adjust the position of the green edge guide so the media is guided with a minimum of play.

15



Close the right-hand door but keep the front door open.

16



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

External Supply (Fan-fold)

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

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

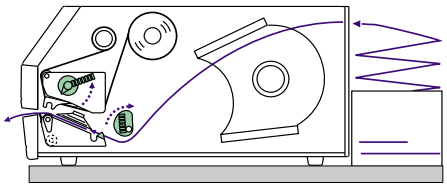
When using an external media supply, take care to protect the media from dust, dirt, and other foreign particles, that can impair the printout quality or cause unneccessary wear to the printhead.

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

External supply can be used for:

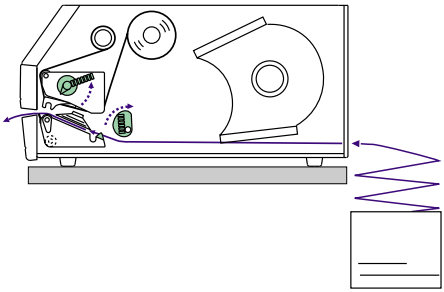
- Tear-off operation
- Cut-off operation
- Peel -off operation (upper slot only)
- Internal batch takeup operation

1



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

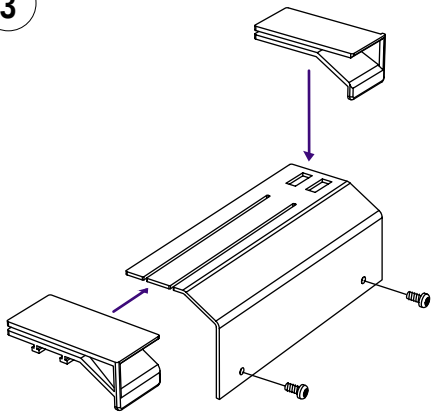
2



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

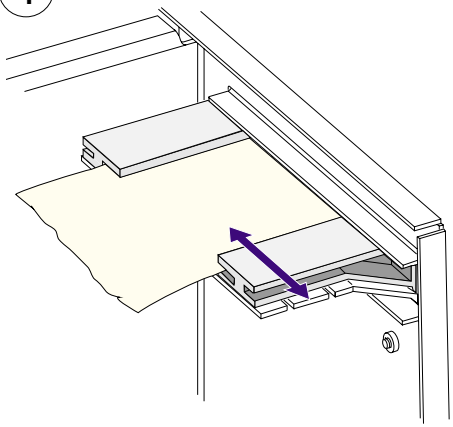
External Supply, cont.

3



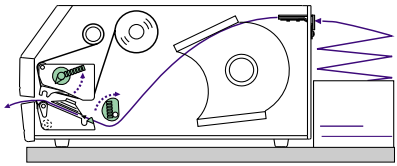
As an option, the printer can be fitted with a set of fan-fold guides in either slot.

4



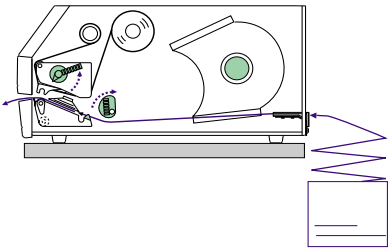
The outer guide is adjustable for media widths from 40 mm (1.575 in.) to 120 mm (4.7 in.).

5



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

6



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

Thermal Transfer Printing

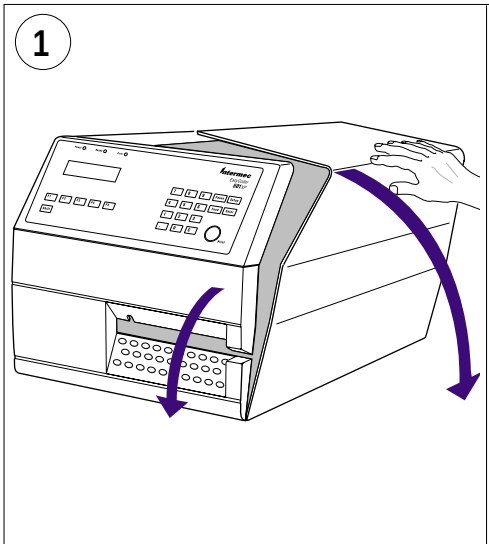
Ribbon Load

The EasyCoder 501 XP can print 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.

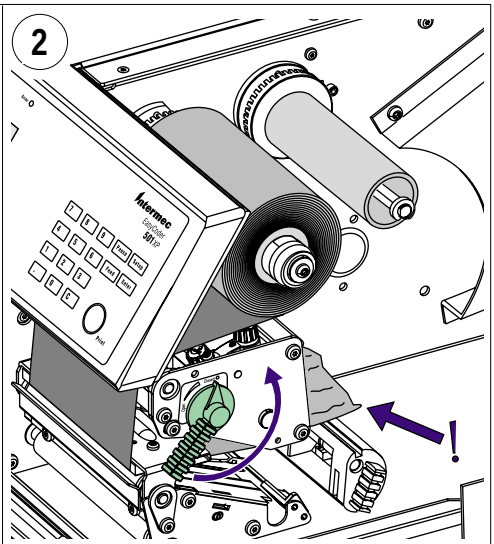
Thermal transfer printing makes it possible to use a wide range of receiving face material. Make sure to select a type of transfer ribbon that matches the type of receiving face material (see Appendix 2, "Media Specifications") and to set up the printer properly (see Chapter 6, "Setting Up the Printer.")

The EasyCoder 501 XP can only use transfer ribbon rolls wound with the ink-coated side facing inwards.

Most transfer ribbons do not smear at room temperature.



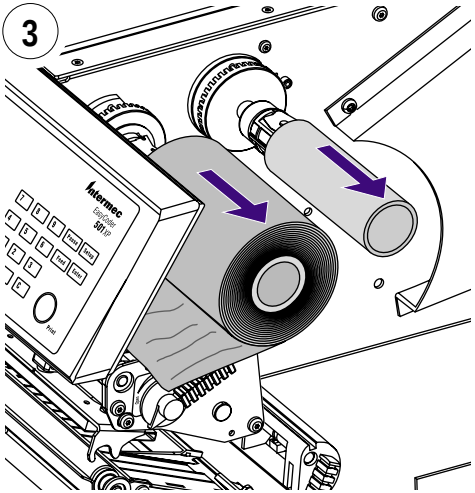
Open the front and right-hand doors.



Turn the printhead lift lever to "Open" position.

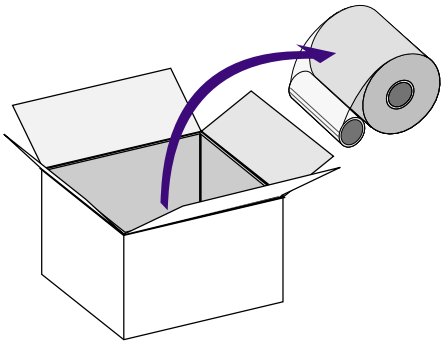
Ribbon Load, cont.

3



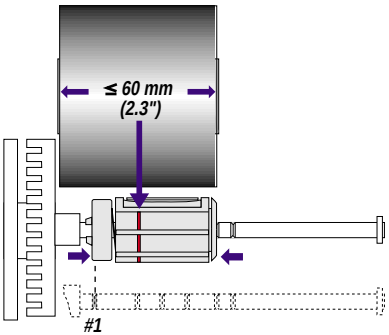
In case of ribbon reload, remove any used ribbon and empty ribbon core.

4



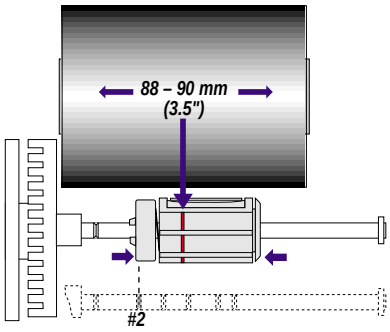
Unpack a roll of original Intermec thermal transfer ribbon.

5a



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

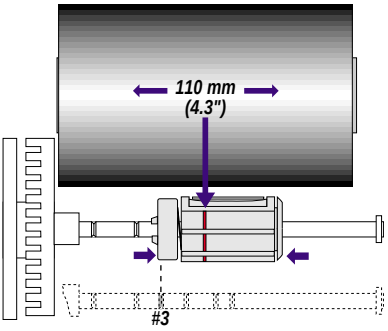
5b



In case of 88 to 90 mm (3.5 inches) ribbon width, compress the ribbon supply bobbin and move it so it snaps into the 2:nd groove.

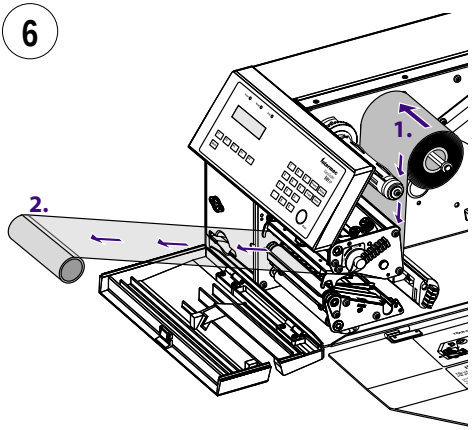
Ribbon Load, cont.

5c



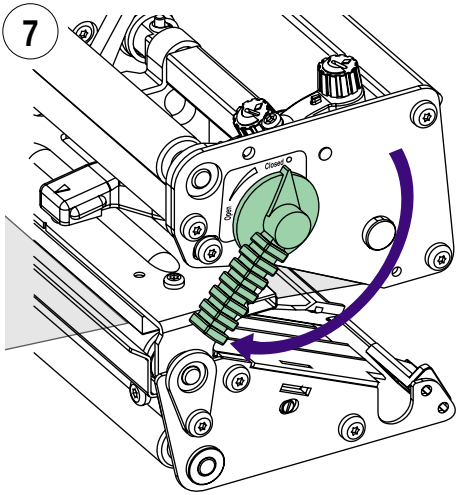
In case of 110 mm (4.3 inches) ribbon width, compress the ribbon supply bobbin and move it so it snaps into the 3:rd groove.

6



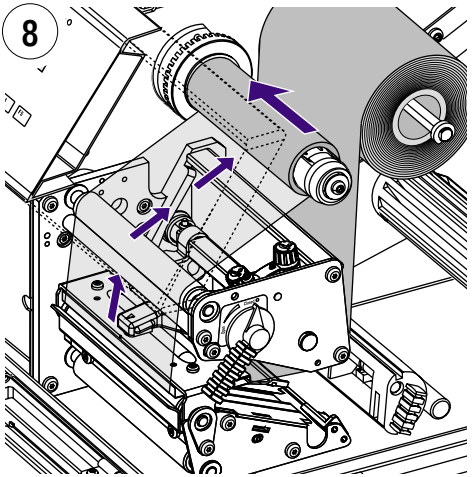
Press the ribbon roll onto the ribbon supply bobbin (1) and route the ribbon through the print unit. Pull out 20 cm (8 inches) of ribbon (2.)

7



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

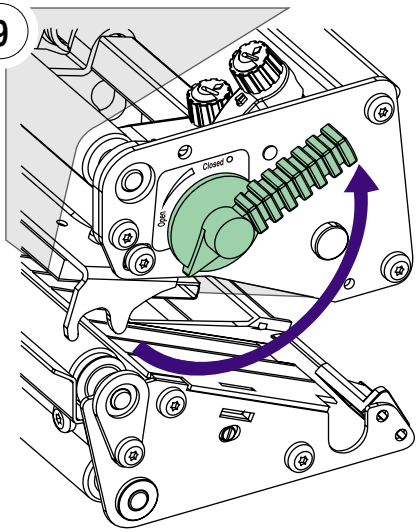
8



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

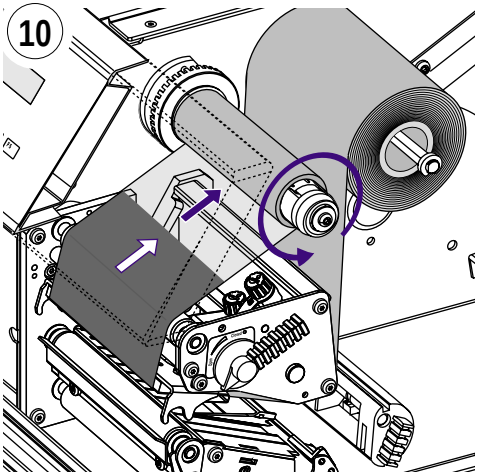
Ribbon Load, cont.

9



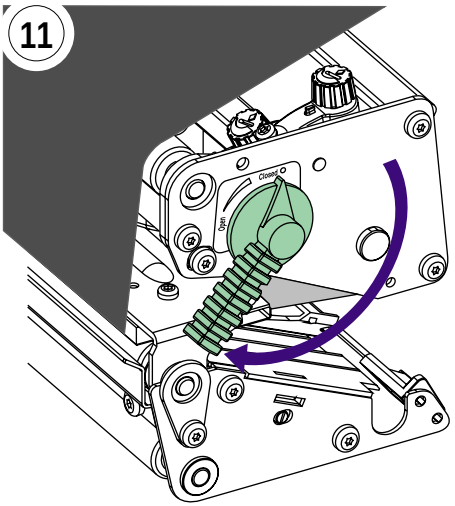
Turn the printhead lift lever to "Open" position.

10



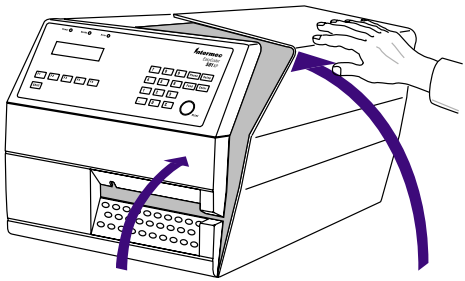
Wind up the ribbon until all of the transparent leader has passed the printhead and the ribbon becomes tight.

11



Turn the printhead lift lever to "Closed" position.

12



Close the front and right-hand doors.

Setting Up the Printer

Description

The setup controls the printer in regard of serial communication, media feed, and print speed, and specifies which type of media and ribbon are 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, manually or automatically, by Intermec PrintSet, InterDriver, and LabelShop, or by 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 page using an optional EasyLAN 100i interface board.

  See Chapter 7, "Setup Mode" in this manual and the documentation of the EasyLAN 100i interface board.
- **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 v7.61 manuals.
- **Intermec Direct Protocol**
  - Use *setup strings* to change individual setup parameters remotely from the host.

  See the Intermec Direct Protocol manuals.

Default Setup

The printer's default setup is listed below:

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	300 bytes
Transmit buffer	300 bytes

Feedadjust:

Startadjust	0
Stopadjust	0

Media:

X-start	36
Width	1244
Length	1800
Media type	Label (w Gaps)
Paper type	Thermal transfer
Ribbon constant	90
Ribbon factor	25
Label offset	0
Low diameter	36
Contrast	±0%

Print Defines:

Print speed	150 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 #5 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 v7.61, Programmer's Reference Manual).*

Setup Parameters

Serial Communication

- Baud Rate
- Character Length
- Parity
- Stop Bits
- Flow Control
- New Line
- Receive Buffer
- Transmit Buffer

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").

The serial communication parameters have no effect on parallel communications, on Ethernet 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 9 options:

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

Setup Parameters, cont.

Serial Communication, cont.

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 v7.61, Programmer's Reference Manual* for information on which characters are available in various combinations of character length and character set.

- 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***

  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."

Setup Parameters, cont.

Serial Communication, cont.

- ***ENQ/ACK***
  In this protocol, 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***
  In this protocol, 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 both ways.

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

Receive Buffer

The receive buffer stores the input data received on the serial channel before processing. Default size is 300 bytes.

Transmit Buffer

The transmit buffer stores the output data to be transmitted on the serial channel before transmission. Default size is 300 bytes.

Setup Parameters, cont.

Feedadjust

- Startadjust
- Stopadjust

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 that 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.

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.

Tear-Off:
Start adjust: -175 dots
Stop adjust: 0 dots

Cut between labels:
Start adjust: -441 dots
Stop adjust: 270 dots

Cut variable length strip:
Start adjust: -441 dots
Stop adjust: 375 dots

Peel-Off:
Start adjust: -115 dots
Stop adjust: -60 dots

Start Adjust

The Start Adjust value is given as a positive or negative number of dots (1 dot = 0.125 mm = 4.9 mils). 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 (1 dot = 0.125 mm = 4.9 mils). 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.

Setup Parameters, cont.

Media

- Media Size
- Media Type
- Paper Type
- Testfeed
- Contrast

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.

By default, X-start is 36 dots, which places the inner margin of the print area 3 mm (0.118 inches) from the inner edge of the media and gives a maximum print width of 1244 dots (103.7 mm/4.1 inches). This prevents printing outside labels when the liner is slightly wider than the labels.

If you want to use the entire media width, reset the X-start value to 0 which gives a maximum print width of 1280 dots (106.6 mm/4.2 inches).

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 that 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 DRAM SIMM on the printer's CPU board as described in the Service Manual.

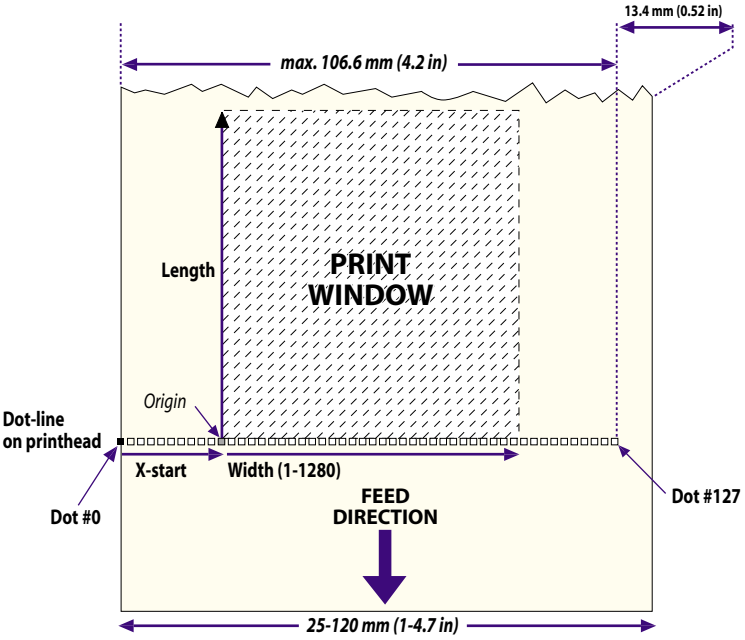
Setup Parameters, cont.

Media, cont.

Length, cont.

- 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 v7.61, Programmer's Reference Manual*.



Setup Parameters, cont.

Media, cont.

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 and adds 115 dots of media feed after the last printable dot (may even be a blank space character or a "white dot" in an image or character cell) to allow the media to be properly torn off.

It is important to select the correct media type, so the printer can indicate possible errors. Two error conditions may occur:

- *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.

Setup Parameters, cont.

Media, cont.

Paper Type

The Paper Type parameters control the heat emitted from the printhead to the direct thermal media or the transfer ribbon in order to produce the dots that make up the printout image. Start by choosing between two alternatives:

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

Your choice will decide which parameters to enter next:

Thermal Transfer Printing *(option)*

This option contains four parameters:

- Ribbon Constant *(range 50 to 115)*
- Ribbon Factor *(range 10 to 50)*
- Label Offset *(range -50 to 50)*

Direct Thermal Printing

This option contains two parameters:

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

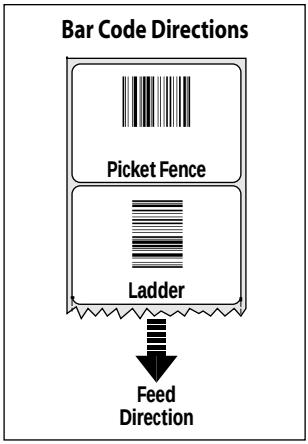
Setup Parameters, cont.

Media, cont.

Thermal Transfer Printing
Keep the Ribbon Factor for each ribbon type at the recommended value. Decrease or increase the Ribbon Constant for lighter or darker images respectively. For a new label material, start with an average Ribbon Constant value for the ribbon quality in question.

Direct Thermal Printing
Intermec recommends that you use the paper type and print speed settings listed below to produce the highest possible print quality under normal conditions and to ensure maximum lifetime of the printhead. Label materials are available from Intermec either in standard types and sizes, or in special materials and sizes.

When adjusting the image darkness for individual requirements or new label materials, keep the Label Factor at the recommended value for the type of direct thermal media. Decrease or increase the Label Constant for lighter or darker images respectively, depending on the requirements of the images or of the new label material.



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" later in this chapter). The illustration to the left shows how the two type of bar code directions relate to the media feed direction.

Setup Parameters, cont.

Media, cont.

Direct Thermal Printing (Europe)

DT Type/ Speed	Media Designation	Label Constant	Label Factor	Max Rec. Print Speed (mm/sec)[1] Picket Fence Bar Code[2]	Ladder Bar Code
Top Coated/ Standard	Thermal Top Board[3]	100	40	200	150
	Thermal Top	95	40	200	200
Non Top Coated/ Standard	Thermal Eco	85	40	200	200
	Thermal Eco Board[3]	80	40	200	150
Top Coated/High	Thermal Top High Speed	80	30	250	250

Thermal Transfer Printing (Europe)

Ribbon Type	Receiving Material	Ribbon Constant	Ribbon Factor	Label Offset	Max Rec. Print Speed (mm/sec)[1] Picket Fence Bar Code[2]	Ladder Bar Code
GP02	TTR Uncoated	80	25	0	200	200
	TTR Coated	80	25	0	200	200
	TTR Premium	70	25	0	250	250
HP07	TTR Coated	100	25	0	225	200
	TTR Premium	90	25	0	300	225
	TTR Premium Board[3]	105	25	0	100	100
	TTR Polyethylene	85	25	0	200	200
HP66	TTR Coated	100	25	0	250	200
	TTR Premium	90	25	0	300	250
	TTR Premium Board[3]	105	25	0	250	200
	TTR Polyethylene	85	25	0	225	200
	TTR Gloss Polyethylene	90	25	0	200	200
HR03	TTR High Gloss Polyester	100	30	0	250	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 100 mm/sec.
[2]/. Also applies to printing of text, images, lines, and boxes.
[3]/. Requires high printhead pressure (see Chapter 12 "Adjustments, Printhead Pressure").

Setup Parameters, cont.

Media, cont.

Direct Thermal Printing (North America)

DT Type/ Speed	Media Designation	Label Constant	Label Factor	Max Rec. Print Speed (mm/sec)[1] Picket Fence Bar Code[2]	Ladder Bar Code
Top Coated/ Standard	Duratherm II Tag[3]	112	40	100	100
	Duratherm II	110	40	100	100
Top Coated/ High	Duratherm Ltg	92	40	175	175
	Duratherm IR	82	40	150	150

Thermal Transfer Printing (North America)

Ribbon Type	Receiving Material	Ribbon Constant	Ribbon Factor	Label Offset	Max Rec. Print Speed (mm/sec)[1] Picket Fence Bar Code[2]	Ladder Bar Code
TMX 1500	Duratran I	65	25	2	200	200
	Duratran VG	65	25	15	250	250
	Duratran II	65	25	0	250	250
	Duratran II Tag	65	25	4	250	250
	Kimdura	65	25	20	250	250
	Kimdura Tag	65	25	15	250	250
TMX 2500	Duratran II	60	25	0	300	300
	Duratran II Tag	60	25	4	225	225
	Kimdura	60	25	20	300	300
	Kimdura Tag	60	25	15	300	300
TMX 3200	Polyester	90	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 100 mm/sec.
[2]/. Also applies to printing of text, images, lines, and boxes.
[3]/. Requires high printhead pressure (see Chapter 12 "Adjustments, Printhead Pressure"),

Setup Parameters, cont.

Media, cont.

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. Adjusting the LSS entails feeding out a number of blank copies 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). The comparator and amplifier values of the LSS are displayed (read-only information).

Print Defines

- Head Resistance
- Testprint
- Print Speed

Head Resistance

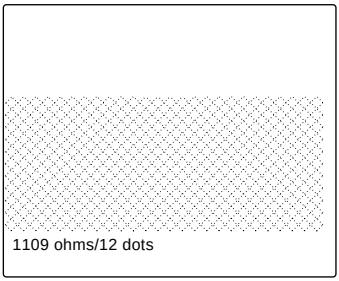
The printhead resistance is measured automatically at startup (read-only information).

Testprint

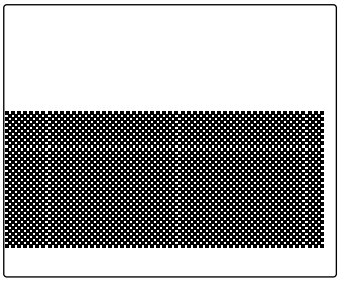
Test label #1 to #4 check the printout quality and facilitate adjustment of the printhead pressure, see Chapter 12, "Adjustments." Test label #5 lists the printer's current setup (extra labels may be printed if the printer is fitted an optional interface board). Test label #6 is only printed if the printer has an optional EasyLAN 100i interface board. Test labels #1 to #5 are illustrated on the next page. If the printer refuses to print a test label, press the <**F3**> key to find out what is wrong, for example printhead lifted or out-of paper.

Setup Parameters, cont.

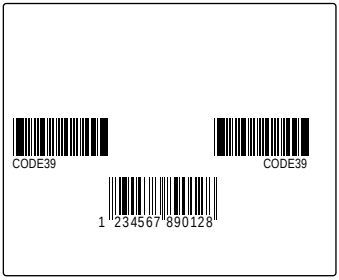
Print Defines, cont.



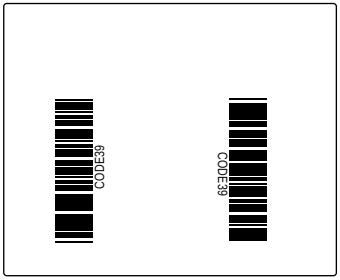
Test Label #1



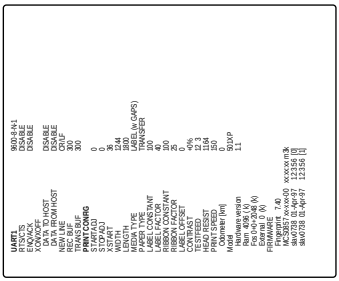
Test Label #2



Test Label #3



Test Label #4



Test Label #5

Setup Parameters, cont.

Print Defines, cont.

Print Speed

The print speed is variable between 100 and 300 mm/sec. 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. Refer to the tables under "Media" earlier in this chapter for maximum print speed values. The default setting is 150 mm/sec. (≈ 6 inches/sec.).

Setup Mode

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 501 XP 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 501 XP 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

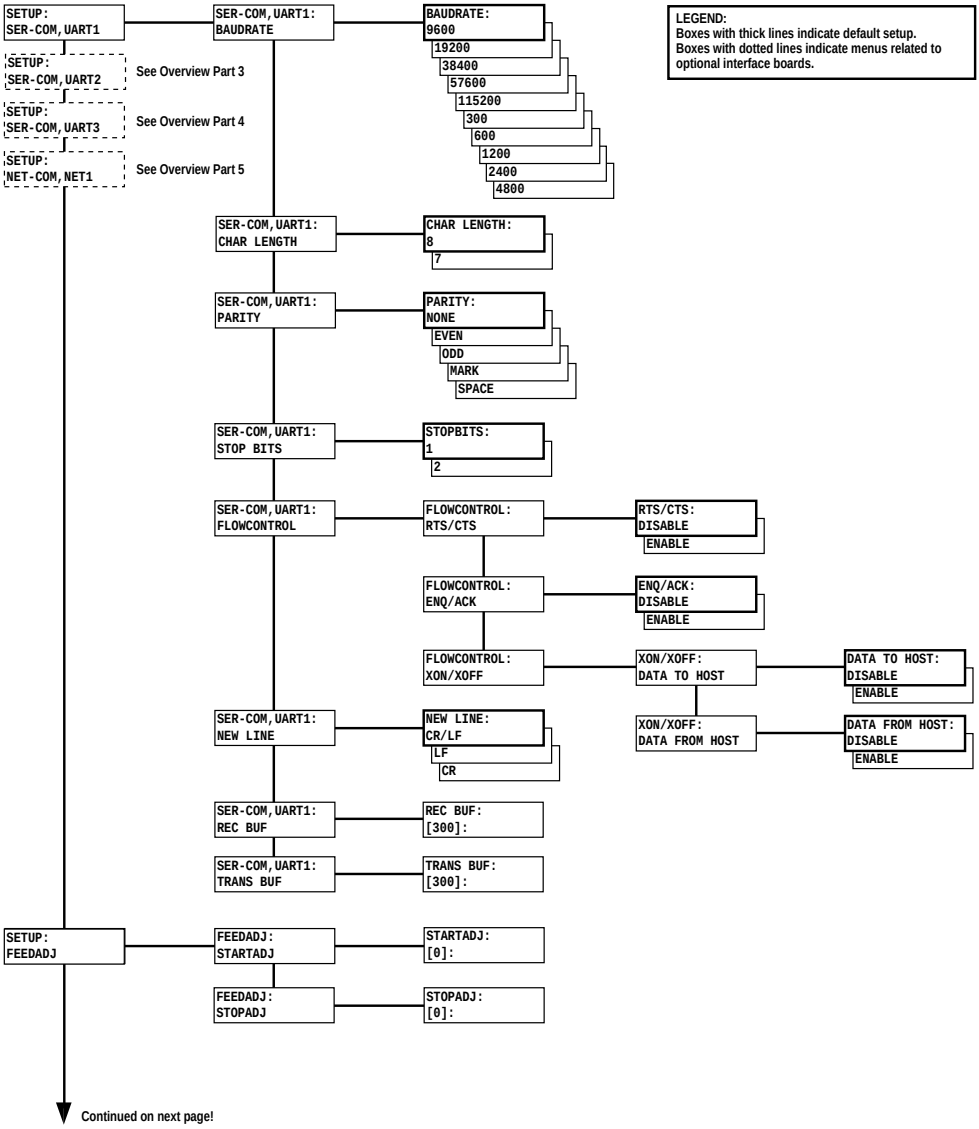
While going through the setup procedure, you are guided by texts in the printer's display. You can navigate between setup menus, acknowledge displayed values, select or type new values, etc. by using the keys on the printer's keyboard.

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

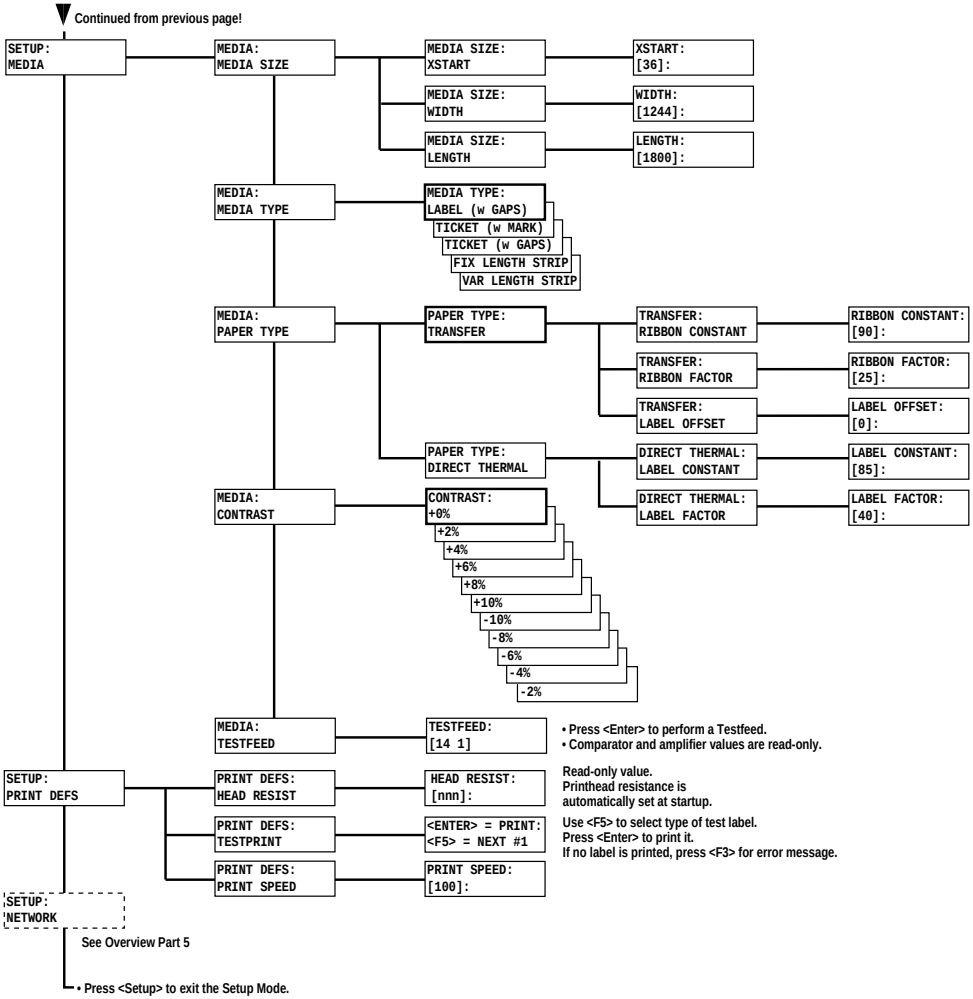
F1	Move one menu to the left on the same level[1].
F2	Move one menu to the right on the same level[1].
F3	Display error message at test label printing failure.
F4	Move up one level or scroll back in a stack of options[1].
F5	Move down one level or scroll forward in a stack of options[1].
0 – 9	Enter numeric values.
.	Specify negative values (leading position).
C	Clear erroneously entered values.
Enter	Acknowledge and move to next menu. Perform testfeeds in the Testfeed menu. 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.

Setup Mode Overview, Part 1
(Intermec Fingerprint v7.61)

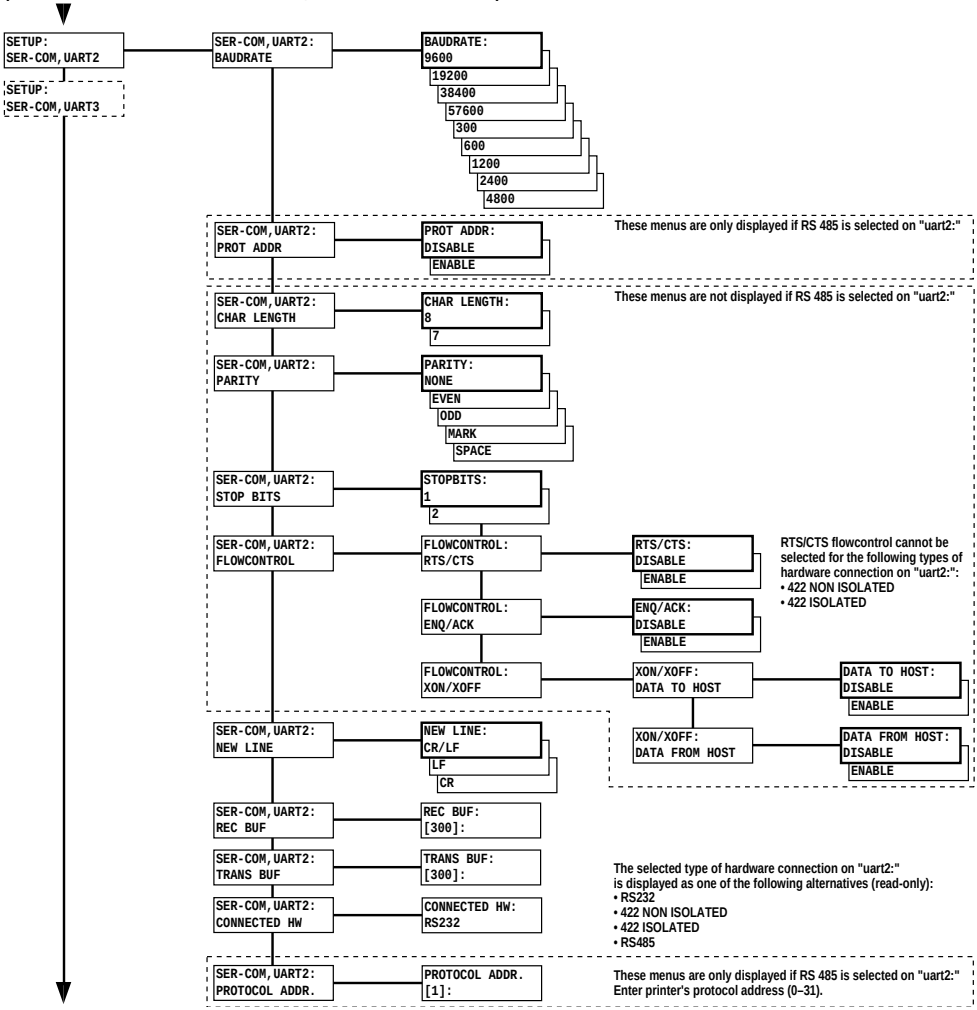


Setup Mode Overview, Part 2
(Intermec Fingerprint v7.61)



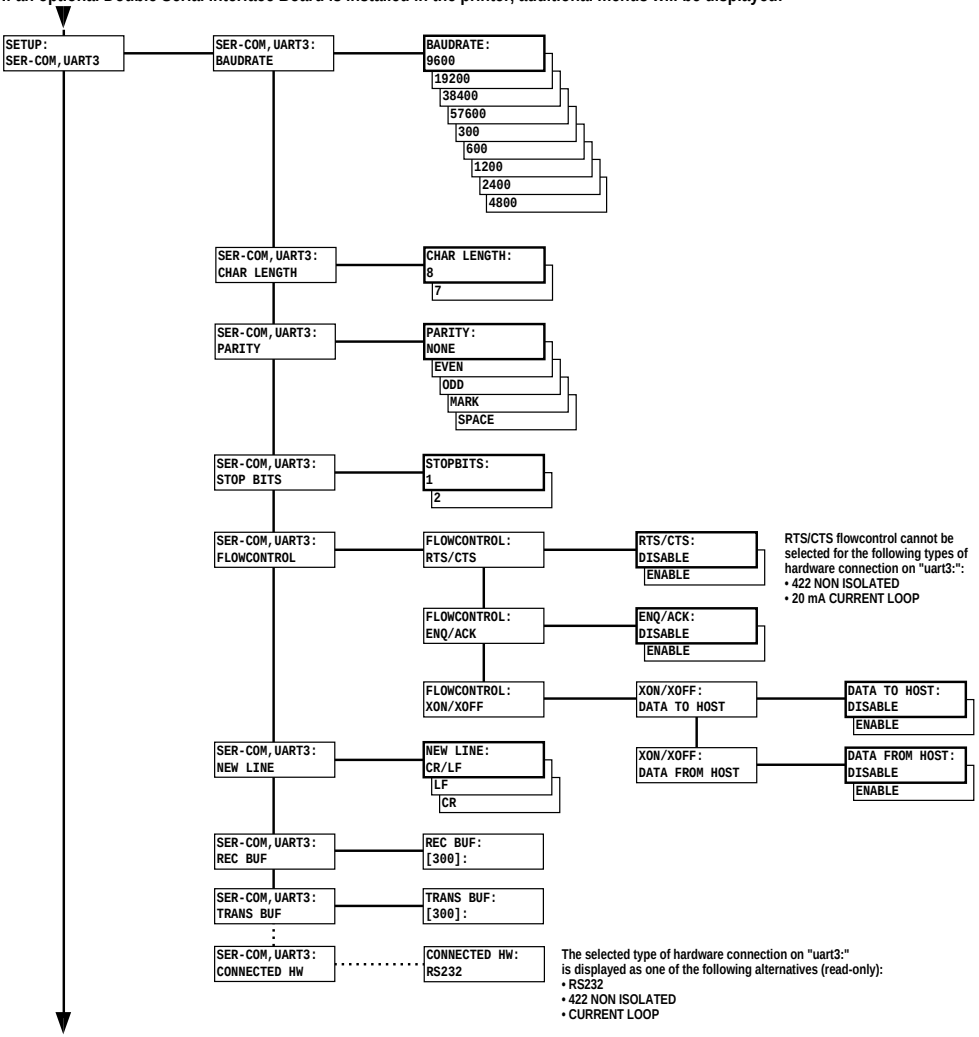
Setup Mode Overview, Part 3
(Intermec Fingerprint v7.61)

If an optional Double Serial or Industrial Interface Board is installed in the printer, additional menus will be displayed (in case of Double Serial Interface Board, also see Overview Part 4):



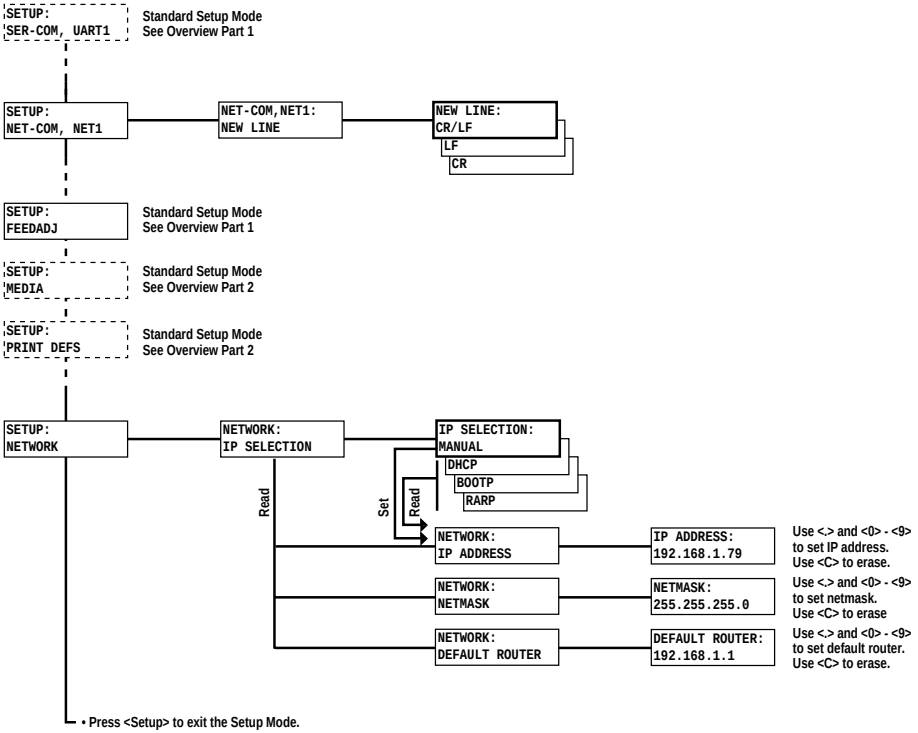
Setup Mode Overview, Part 4
(Intermec Fingerprint v7.61)

If an optional Double Serial Interface Board is installed in the printer, additional menus will be displayed:



Setup Mode Overview, Part 5
(Intermec Fingerprint v7.61)

If an optional an EasyLAN 100i interface board is installed in the printer, additional menus will be displayed.



Intermec Shell Startup Program

Introduction

Intermec Shell is a startup program (also called “autoexec-file”), 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 LabelShop *(WYSIWYG label design program)*
- Intermec Windows Driver *(do not use)*
- 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 is that the program is provided with the extension “.PRG”. 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 + auto-adjust of the LSS)*
- Test Label *(printing of test labels)*
- Default setup *(resetting all setup parameters to default)*
- Update PC card *(downloading data from a host to a PC card in the printer, or upgrading the printer’s firmware from a PC card)*
- Reboot *(restarting the printer)*

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.4.8
```

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 to enter Intermec Shell, 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 the standard RS-232 port "uart1:" selected as std I/O channel (see Intermec Fingerprint manuals). When the countdown is completed, you will see these lines in the display:

```
FINGERPRINT
7.61
```

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 <**F5**> to go to the Facilities part of Intermec Shell.

Starting with Intermec Shell, cont.

Select Application

In Intermec Shell, the menus present the option 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 "uart1:" selected as standard I/O channel).
- **LabelShop** sets up the printer[1] for the various Intermec LabelShop label formatting programs for Microsoft Windows. 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. Refer to the Intermec LabelShop manuals.
- **Windows Driver** selects the "centronics:" interface as standard IN channel. Use the Intermec Windows Driver to print from most programs run under Microsoft Window. (To run the Intermec InterDriver, use the ***Fingerprint*** option).
- **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 v7.xx* manual.
- **LINE-ALY.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**
  If the printer contains any other application programs, these will presented as additional options.

[1]. When an application program is started, it may automatically change the communication setup. For example, Intermec LabelShop changes the setup to the following values:

Baud rate:	*57600*
Char. length:	*8*
Parity:	*None*
Stopbits:	*1*
RTS/CTS:	*Enable*
ENQ/ACK:	*Disable*
XON/XOFF:	*Disable*
New line:	*CR/LF*
Receive buffer:	*600*
Transmit buffer:	*600*

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.

Starting with Intermec Shell, cont.

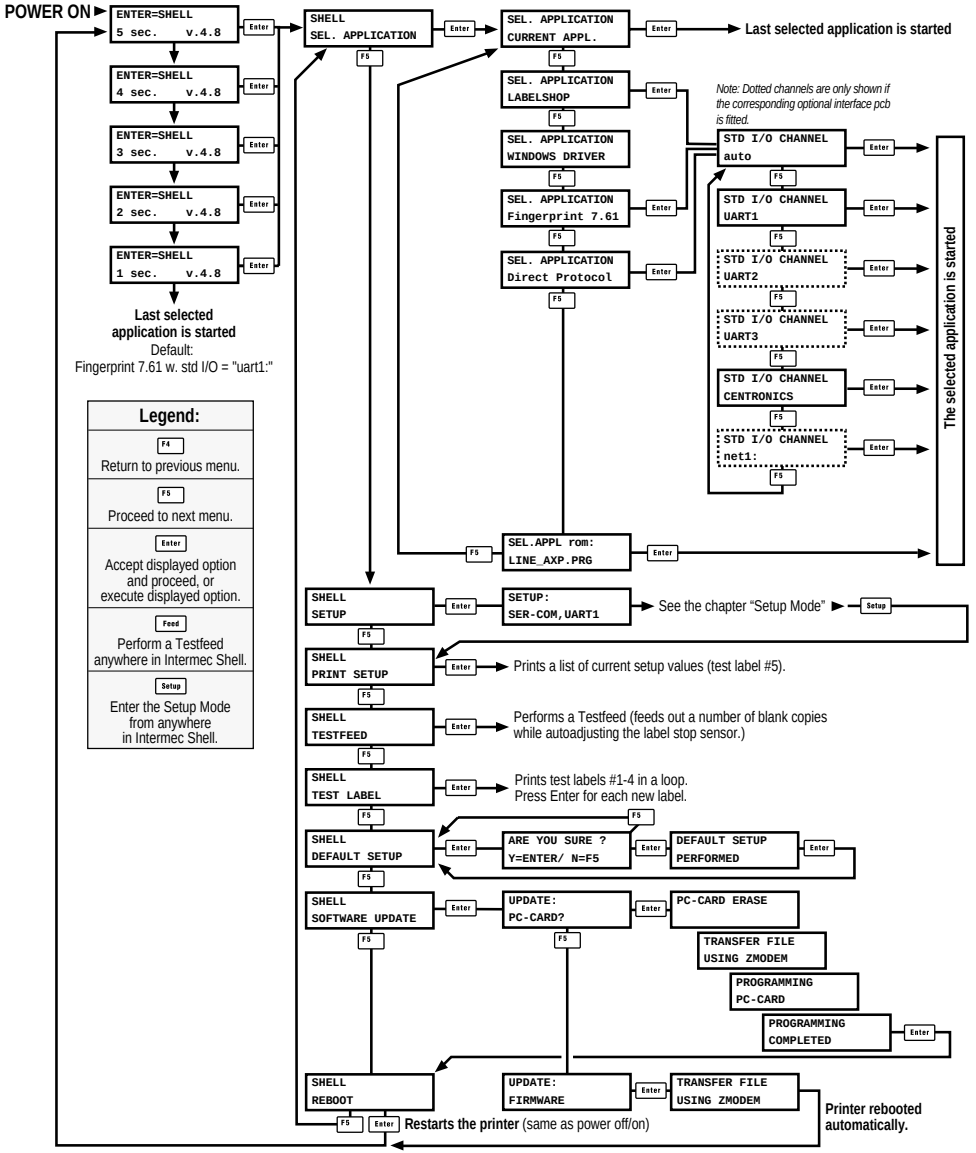
Select Other Facilities

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

- **Setup** allows you to enter the Setup Mode where you can set up the printer by means of its built-in keyboard, see Chapter 7, "Setup Mode."
- **Print Setup** allows you to produce a printout of the printer's current setup values (test label #5).
- **Testfeed** allows you to 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** allows you to print a series of four test labels (test labels #1 to #4) 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** allows you to reset all setup parameters to their default values, as listed in Chapter 6, "Setting Up the Printer."
- **Software Update** is used for two purposes:
  - ***Update PC card*** allows the printer to be used as a Flash PC card programming device. Using the Zmodem communication tool, files can be downloaded from a PC to a Flash PC card[1] inserted in the memory card slot in the printer's rear plate.
    Caution! If the Flash PC card contains an earlier firmware version than the one in the printer, the printer's firmware will be downgraded without warning.
  - ***Update firmware*** is used to upgrade the printer's firmware from a new firmware version stored as a file in a PC.
- **Reboot** has the same effect as 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.

[1]/. Only Flash PC cards approved by Intermec can be used.

Intermec Shell v4.8 Diagram



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_ALY.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(1-5) 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:"

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
```

Line Analyzer, cont.

Once you have sent as string to the printer, you can either return it on any communication channel or save it in the printer's memory ("temp:").

Returning the string

Select the port on which you want to return the string as described on the previous page. Then simultaneously press <**Shift**> and <**F5**> on the printer's front panel.

Saving the string

Simultaneously press <**Shift**> and <**F4**> on the printer's front panel. The data will be saved on device "**temp:**" as "**linedump.txt**". Any existing file with the same name will be overwritten. Max. file size is 64K.

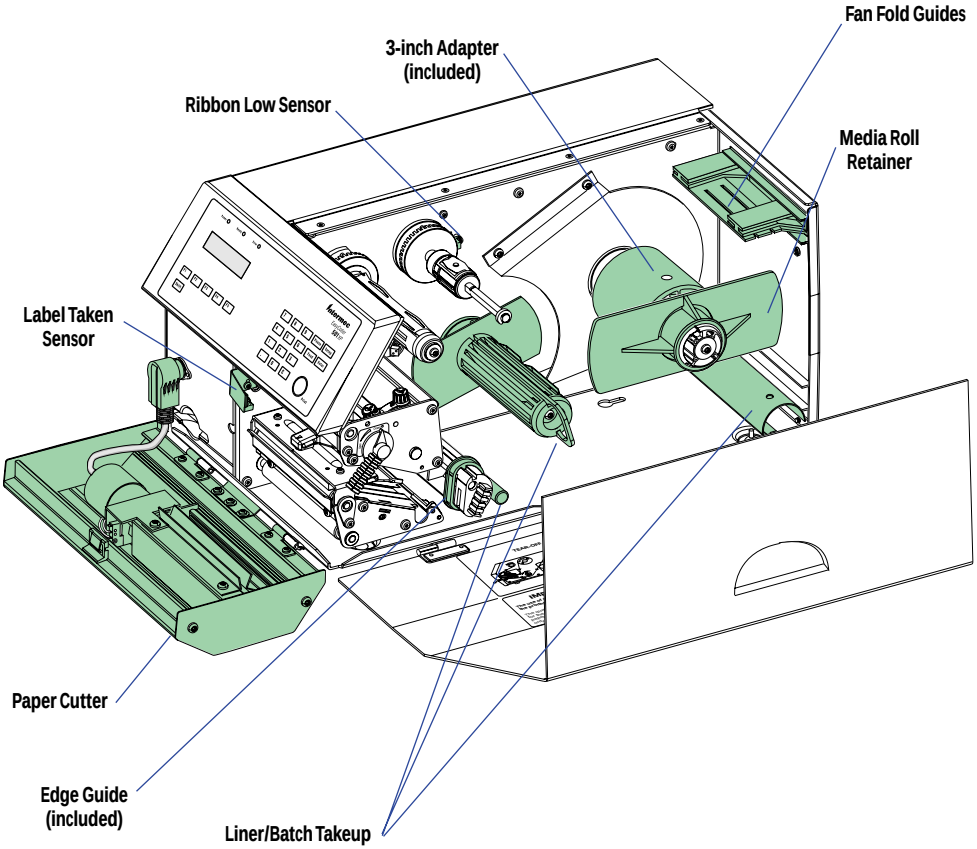
To reach the file, break the program using <**Shift**> and <**Pause**>. Then send the instruction **`FILES "tmp:"`** to check that the file has been stored in "temp:" with the file name "linedump.txt". The file can be sent to the host or be copied to "c:" for later analyzing.

Options

Introduction

The EasyCoder 501 XP is designed to provide a high degree of flexibility because it has a modular design. By adding options to the basic printer, the EasyCoder 501 XP 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.

Below is a description of some of the many options available for EasyCoder 501 XP.



Liner/Batch Takeup Kit

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

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

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

Paper Cutter

The EasyCoder 501 XP can easily be fitted with an optional paper cutter, provided the printer is not also equipped with a label taken sensor (LTS.) The cutter unit is fitted on the same hinges as the front door, which it replaces. It is connected by a single cable to the DIN-connector on the printer's front. The paper cutter is available both as a factory-installed option and as a field-installable kit.

The paper cutter is intended to cut through continuous non-adhesive paper-based media or through the liner between labels. It **must not** cut through any adhesive, which would stick to the cutting parts and rapidly render the cutter inoperable–possibly also causing damage to the electric motor. Maximum thickness for normal paper-based materials is 175 µm (≈175 grammes/m^2).

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

Warnings!
The cutting edge will rotate when the power is switched on and when the printer is re-booted. Always keep the cutter in closed position during operation.

Switch off the power or disconnect the cutter before cleaning. Keep your fingers away from cutting parts!

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

The cutter is activated by CUT or CUT ON instructions, see the *Intermec Fingerprint v7.xx* manuals. The rotating edge will cut through the media approx. 37 mm (1.5 inches) in front of the printer's dot line. The media feed should be adjusted accordingly, see Chapter 7, "Setting Up the Printer."

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

Fan Fold Guides

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

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

Media Roll Retainer

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

Edge Guide

For demanding applications, the edge guide at the rear part of the print unit can be supplemented with a second edge guide fitted on the slack absorber. This guide is included in the package.

3-inch Adapter

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

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

Label Taken Sensor

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

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

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

Ribbon Low Sensor

The ribbon low sensor is used to detect when the ribbon supply starts getting low (as opposed to the standard ribbon end detector.)

It is available a factory-installed option or a kit for installation by an authorized service technician.

The ribbon low sensor requires a dedicated Intermec Fingerprint program to work.

Interface Boards

A number of optional interface boards are available for use with the EasyCoder 501 XP. The interface boards are either factory-fitted or can easily be installed by an authorized service technician.

The EasyCoder 501 XP can usually accommodate one interface board.

The interface boards for EasyCoder 501 XP are:

- Double Serial Interface Board
- Industrial/Serial Interface Board
- EasyLAN 100i Interface Board
- Industrial Interface Board *(for combination with EasyLAN 100i interface board)*

Refer to Appendix 3, "Interfaces" for more information on interface boards.

Troubleshooting

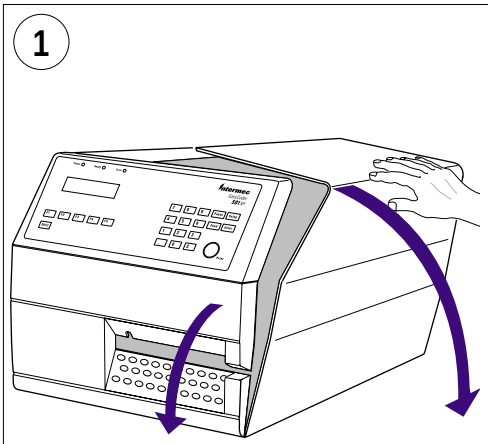
Symptom	Possible Cause	Remedy	Refer to
Overall weak printout	Wrong Paper Type parameter Contrast value too low Printhead pressure too low Worn printhead Wrong printhead voltage	Change parameter Change parameter Adjust Replace printhead Replace CPU board	Chapter 6 Chapter 6 Chapter 12 Chapter 11 Call Service
Printout weaker on one side	Uneven printhead pressure	Adjust arm alignment	Chapter 12
Weak spots	Foreign particles on media Media/ribbon don't match Poor media or ribbon quality Worn printhead Worn platen roller	Clean or replace Change to matching media Use Intermec media/ribbon Replace printhead Check/replace	Chapters 4 & 5 Chapter 6 Appendix 2 Chapter 11 Call Service
Overall dark printout	Wrong Paper Type parameter Contrast value too high Printhead pressure too high Wrong printhead voltage	Change parameter Change parameter Adjust Replace CPU board	Chapter 6 Chapter 6 Chapter 12 Call Service
Excessive bleeding	Wrong Paper Type Contrast value too high Printhead pressure too high Faulty energy control	Change parameter Change parameter Adjust Replace CPU board	Chapter 6 Chapter 6 Chapter 12 Call Service
Dark lines along media path	Foreign objects on printhead	Clean printhead	Chapter 11
White lines along media path	Printhead dirty Missing dots on printhead	Clean printhead Replace printhead	Chapter 11 Chapter 11
Large part of dot line missing	Wrong X-start or Width parameter Failing printhead Failing strobe signal	Change parameter Replace printhead Check CPU-board	Chapter 6 Chapter 11 Call Service
Printout missing along inner edge	Bad media alignment X-start parameter value too low	Adjust Increase	Chapter 4 Chapter 6
Transfer ribbon breaks	Ribbon not fitted correctly Wrong paper type parameter (too much energy) Ribbon supply hub stuck Bad energy control	Reload ribbon Change parameter, then clean printhead Adjust Check CPU board	Chapter 5 Chapter 6 Chapter 12 Call Service Call Service
Transfer ribbon wrinkles	Faulty ribbon break shaft adjustment Incorrect edge guide adjustment Too strong printhead pressure	Adjust Adjust Adjust	Chapter 12 Chapter 4 Chapter 12
No thermal transfer printout	Ink-coated side does not face media	Reload ribbon	Chapter 5
White parts at transfer printing	Transfer ribbon wrinkled	Adjust	See below
Transfer ribbon wrinkles	Incorrect edge guide adjustment Ribbon obstructed by printhead cable Too strong printhead pressure Ribbon supply hub not centered Faulty ribbon assist roller adjustment	Adjust Clear Adjust Adjust Adjust	Chapter 4 n.a. Chapter 12 Chapter 5 Call Service

Maintenance

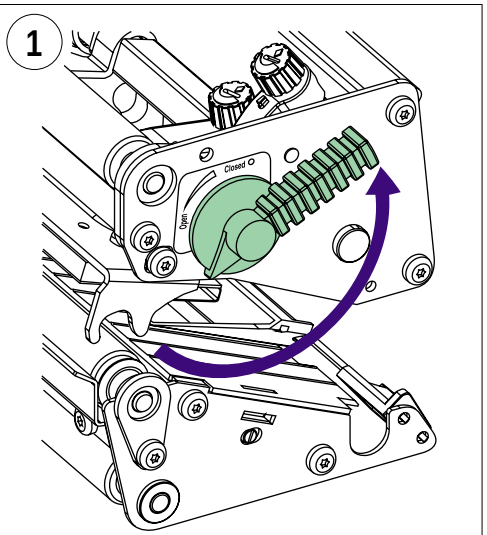
Printhead Cleaning

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.

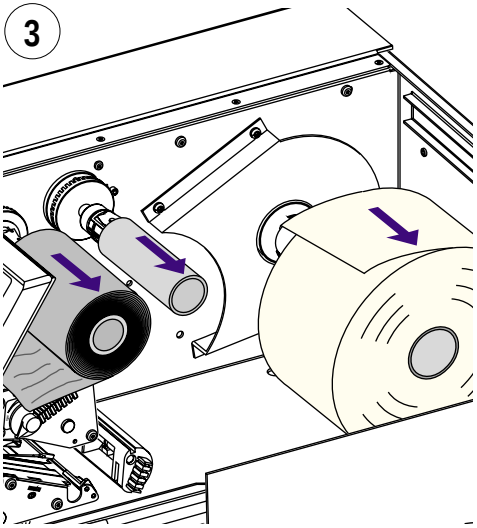


Open the front and right-hand doors.

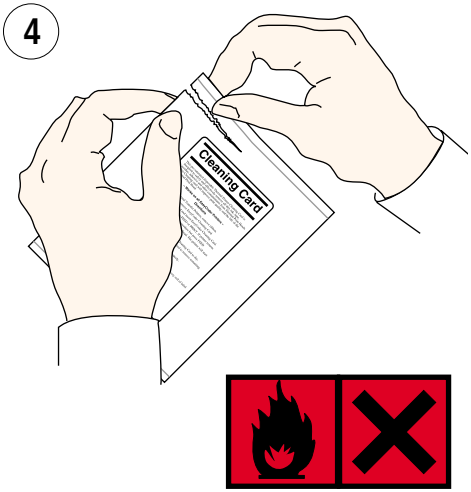


Turn the printhead lift lever to "Open" position.

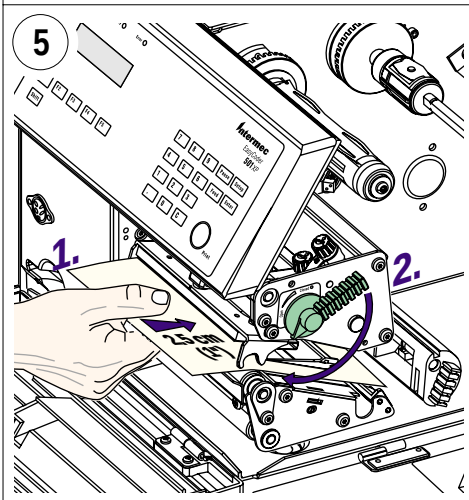
Printhead Cleaning, cont.



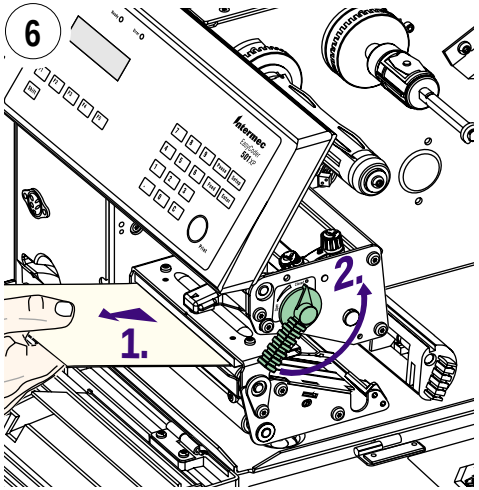
Remove any media and transfer ribbon.



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



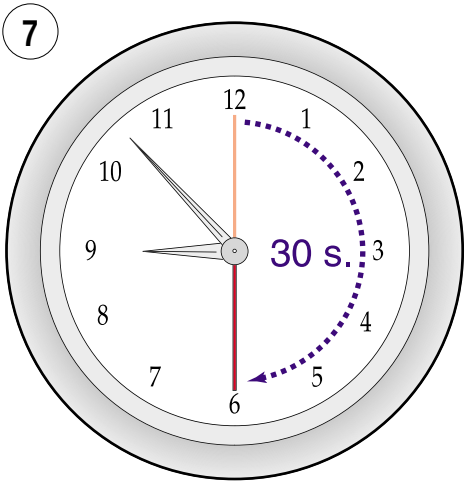
Insert most of the cleaning card under the printhead (1). Close the printhead (2).



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

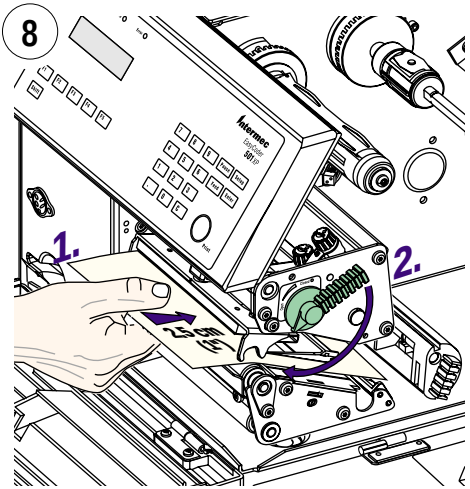
Printhead Cleaning, cont.

7



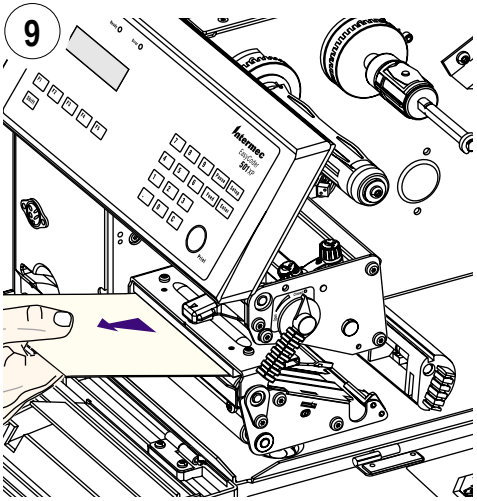
Wait for approx. 30 seconds to allow the cleaning fluid to dissolve the residue.

8



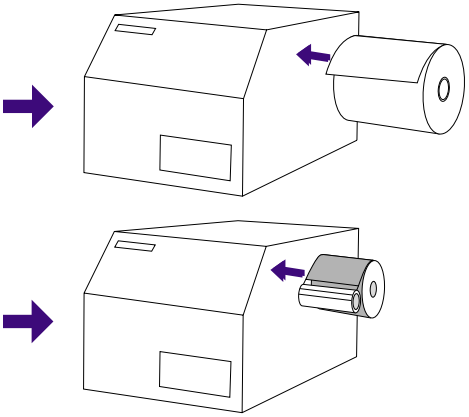
Insert most of the cleaning card under the printhead (1) again. Close the printhead (2).

9



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

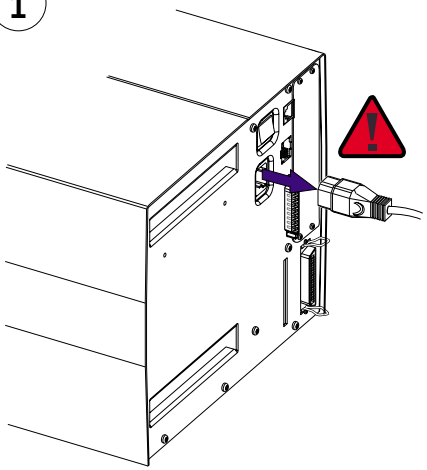
10



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

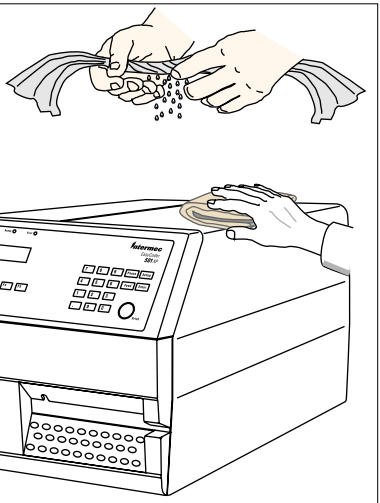
External Cleaning

1



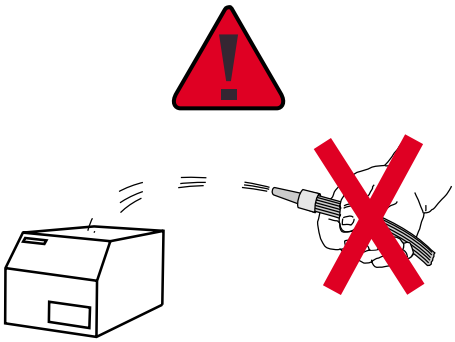
Always remove the power cord before cleaning!

2



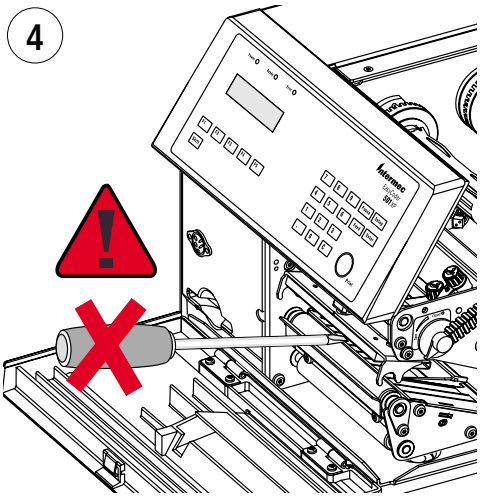
Wipe external surfaces with a soft cloth slightly moistened with water or a mild detergent.

3



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

4



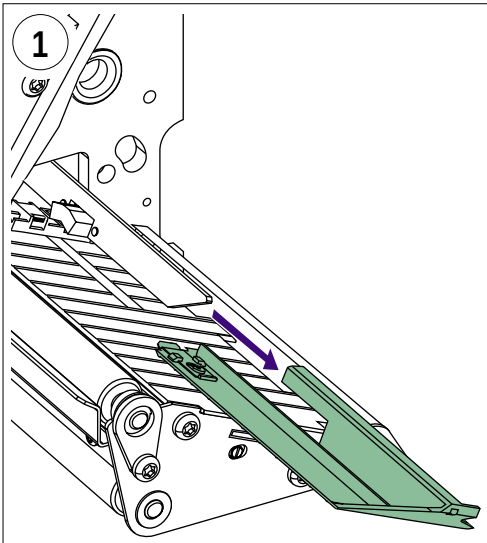
Never use any sharp tools for removing stuck labels. The printhead and rollers are delicate.

Cleaning the Media Guides

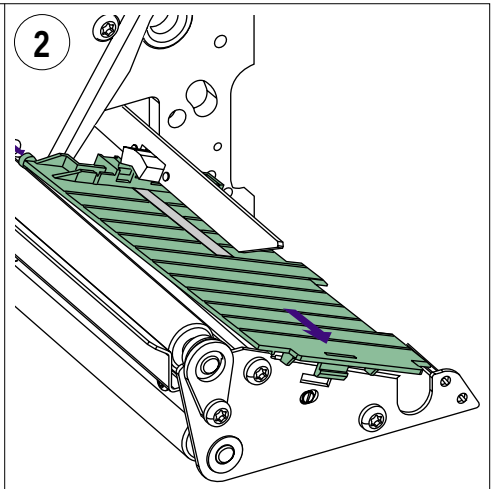
The label stop sensor, which controls the media feed, is partially enclosed by two black plastic guides. The guides are provided with transparent windows, through which the light between the two parts of the label stop sensor is transmitted. These windows must be kept clean from dust, stuck labels, and adhesive residue.

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

Warning!
Isopropyl alcohol [$(CH_3)_2CHOH$; CAS 67-63-0] is a highly flammable, moderately toxic, and mildly irritating substance.



Pull the upper guide straight out.



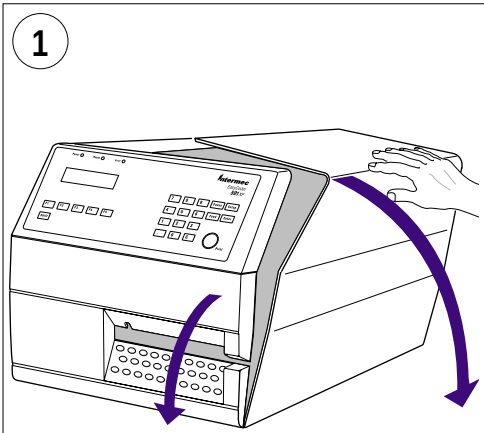
Press the snap-lock, lift the outer end of the lower guide and pull it out. After cleaning, reassemble in reverse order.

Printhead Replacement

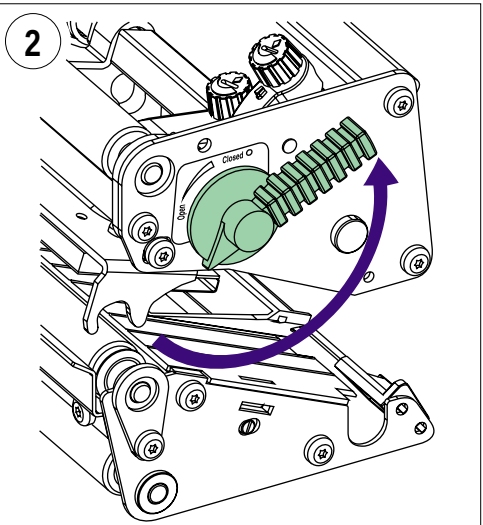
The printhead is subject to wear both from the thermal transfer ribbon or the direct thermal media and from the rapid heating and cooling process during printing. Thus, the printhead will require periodic replacement.

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

Caution!
While replacing the printhead, the power should be off.



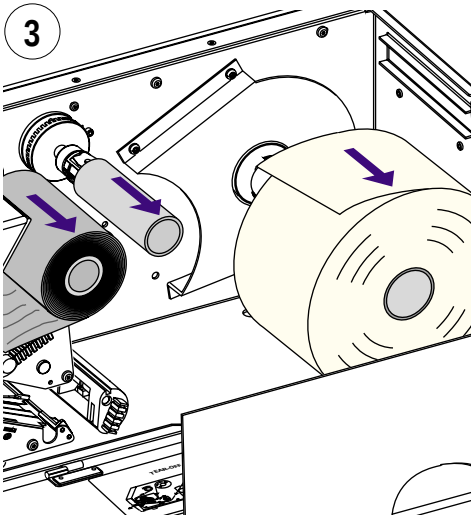
Open the front and right-hand doors.



Turn the printhead lift lever to "Open" position.

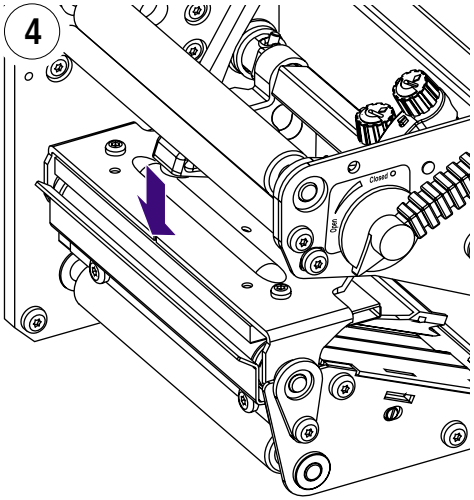
Printhead Replacement, cont.

3



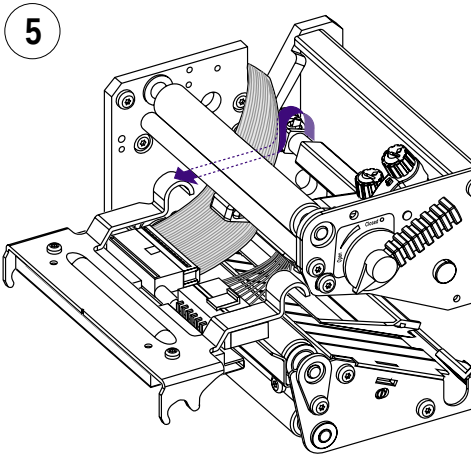
Remove the media and transfer ribbon.

4



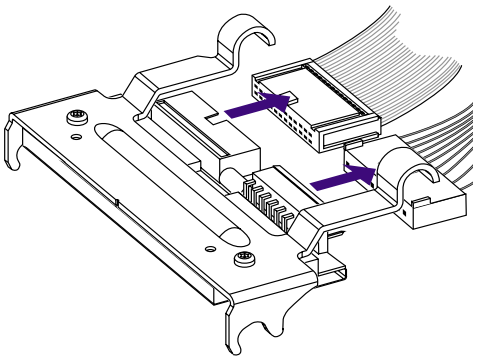
Pull the printhead bracket away from the magnet in the pressure arm.

5



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

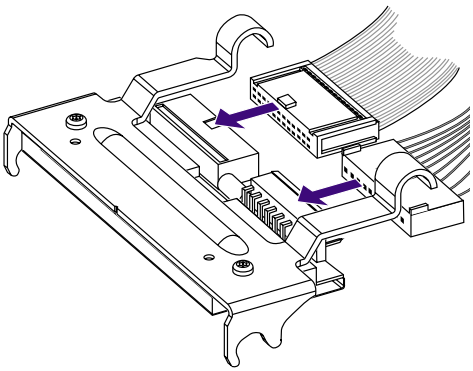
6



Disconnect the two cables from the printhead. Note the snap-lock on the outer connector. Pull at the connectors–not at the cables!

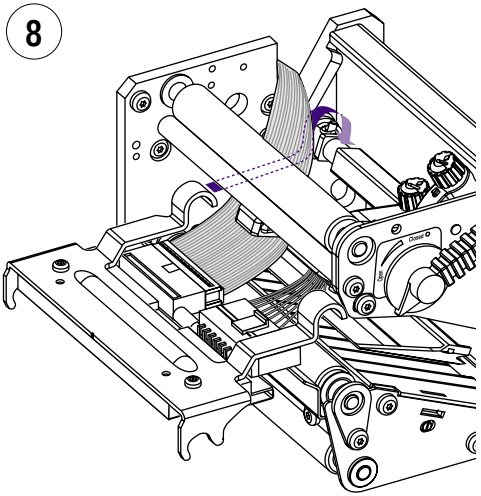
Printhead Replacement, cont.

7



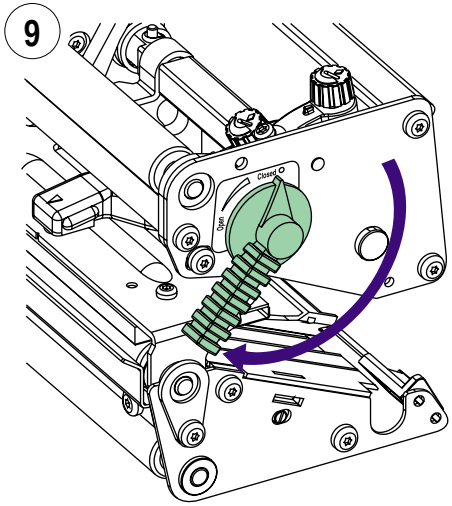
Connect the two cables to the replacement printhead.

8



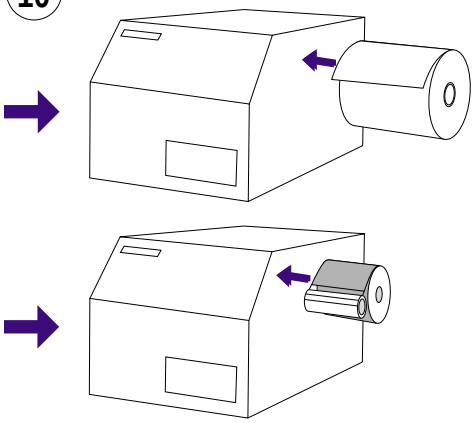
Fit the hooks of the printhead bracket fingers onto the headlift shaft.

9



Close the printhead so the magnet engages the printhead bracket.

10



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

Adjustments

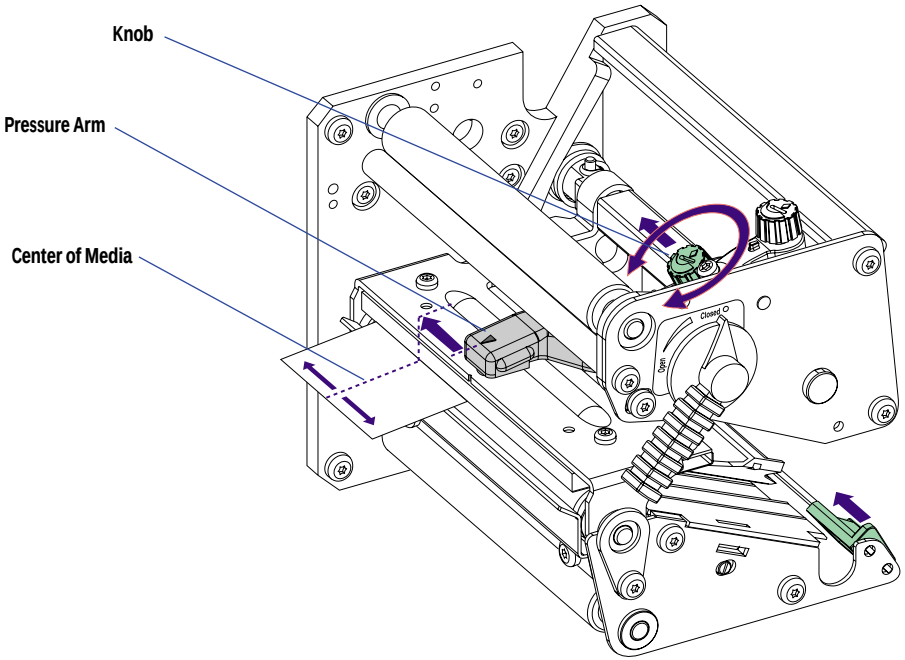
Narrow Media

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

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

To adjust the pressure arm, proceed as follows:

- Remove the ribbon, if any.
- Loosen the knob that holds the pressure arm. Move the arm inwards or outwards until the arrow on the tip of the arm becomes centered with the media stock.
  While moving the arm, push at the part where the knob is situated, not at the tip. If the arm is hard to move, lift the printhead and pull the printhead bracket free from the magnet in the arm.
- After having centered the arm, lock it by tightening the knob.
- Reload the ribbon, if any.



Printhead Pressure

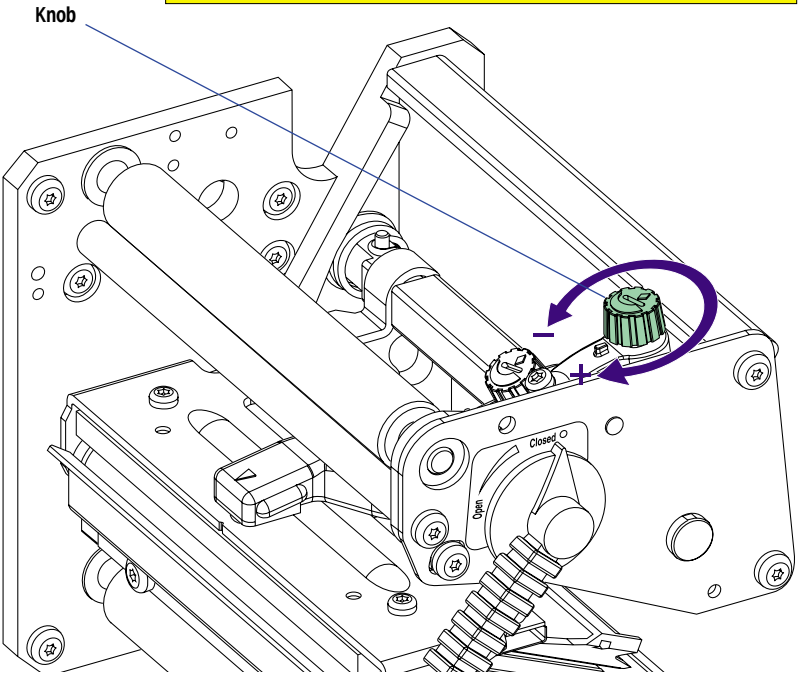
The pressure of the thermal printhead against the ribbon or direct thermal media is factory adjusted. However, the use of thicker or thinner media than normal could require the printhead pressure to be readjusted.

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

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

Caution!

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

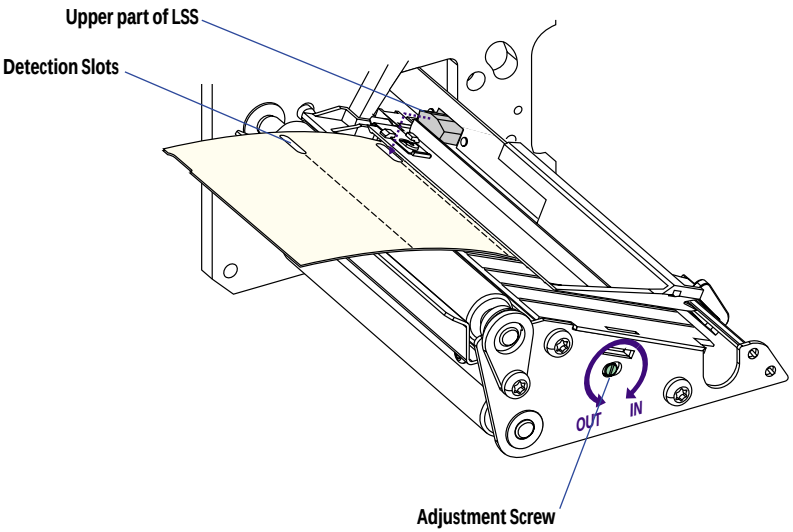


Label Stop Sensor

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

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

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



Upper part of print unit removed to improve visibility.

Technical Data

Printing		
Print Technique	Thermal Transfer and Direct Thermal	
Printhead Resolution	12 dots/mm (304.8 dpi)	
Print Speed (variable)	100 to 300 mm/sec. (≈ 4 to 12 inches/sec.)	
Print Width (max)	106.6 mm (4.20 inches)	
Media Width (min/max)	25 to 120 mm (1 to 4.72 inches)	
Print Length (max)	32767 dots = 2,730 mm(107.5 inches)[1]	
Media Roll Diameter (max)	205 mm (8 inches)	
Media Roll Core Diameter	38 to 40 mm (1.5 inches) or 76 mm (3 inches)	
Ribbon Width	25 to 110 mm (1 to 4.33 inches)	
Ribbon Length (max)	450 metres (1,475 ft)	
Print Directions	4	
Modes of Operation		
Tear-Off (Straight-through)	Yes	
Peel-Off (Self-strip)	Optional	With liner takeup unit
Internal Batch Takeup	Optional	With liner takeup unit
Cut-Off	Optional	With paper cutter
Firmware		
Operating System	Intermec Fingerprint v7.61	Incl. Direct Protocol
Smooth Fonts	TrueDoc and TrueType fonts	
Built-in scalable fonts (std)	15	Unicode fonts[2]
Built-in bar code symbologies (std)	38	
Startup Program (std)	Intermec Shell v4.8	
Physical Measures		
Dimensions (W x L x H)	275 x 480 x 238 mm (10.8 x 18.9 x 9.4 inches)	
Weight (excluding media and options)	13 kg (28.7 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	3 sockets for 2 or 4MB each	Std. 1 x 2MB
On-board DRAM SIMM	2 sockets for 4 – 32 MB	Std. 1 x 4MB
Real-Time Clock	Yes	10+ years life
Power Supply		
AC Voltage	>90 to <264 VAC, 45 to 65 Hz	
PFC Regulation	IEC 61000-3-2	
Maximum Power Consumption	Continuous 175W; Peek ≈ 400W	

Technical Data, cont.

Sensors		
Label Gap/Black Mark/Out of Media	Yes	
Out of ribbon	Yes	
Printhead Lifted	Yes	
Ribbon Low	Option	
Label Taken	Option	
Controls		
Control Lamps	3	
Display	2 x 16 character LCD with background light	
Keyboard	23 keys membrane-switch type	
Beeper	Yes	
Data Interfaces		
Serial	1 x RS-232	
Parallel	1 x Centronics	
Bar Code Wand	Yes	
Electronic Keys	2	Not used
Connection for Optional Interface Boards	1–2	
Memory Card Adapter	1	Flash or SRAM cards
Accessories and Options		
Automatic Paper Cutter	Option	
Liner/Batch Takeup Unit	Option	Factory-installed only
Label Roll Retainer	Option	
Fan-Fold Guides	Option	For external supplies
RS-232 Cable	Option	
Parallel Interface Cable	Option	
Parallel Interface Board	Option	IEEE 1284
Double Serial Interface Board	Option	
Industrial/Serial Interface Board	Option	
EasyLAN 100i Interface Board	Option	Ethernet
Industrial Interface Board	Option	
External Alphanumeric Keyboard	Option	
MobileLAN®access 2102 Mounting Kit	Option	
Flash Memory Cards	Option	≤ 64Mbit (8MB)
[1]/. The max. print length is also restricted by the amount of free DRAM memory.		
[2]/. Latin, Greek, and Cyrillic fonts according to Unicode standard are included.		

Media Specifications

Direct Thermal Media

Intermec offers two quality grades of **direct thermal** media for the EasyCoder printers:

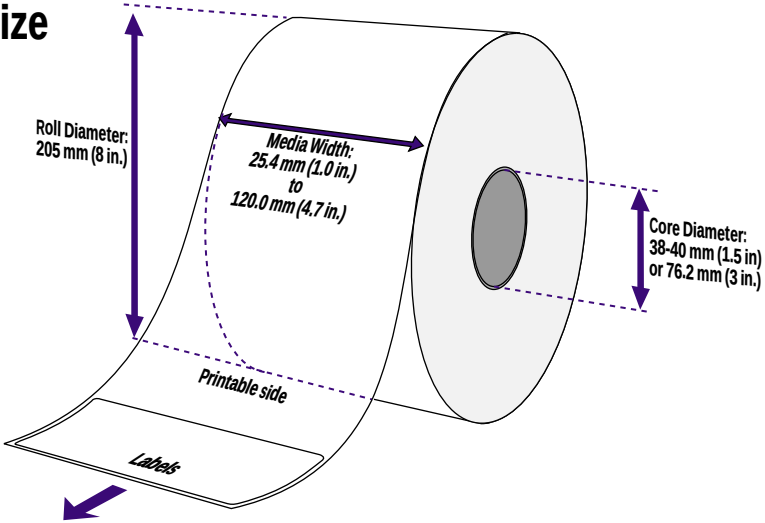
- ***Premium Quality***: Top-coated media with high demands on printout quality and resistance against moisture, plasticisers, and vegetable oils. Examples:
  - Thermal Top Board
  - Thermal Top
  - Thermal Top High Speed
  - Duratherm II,
  - Duratherm II Tag
  - Duratherm Ltg.
  - Duratherm IR
- ***Economy 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:
  - 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*** for economical high-volume printing to be used with GP/TMX 1500 ribbons. Examples:
  - TTR Uncoated
- ***Coated papers*** with various coat-weight, smoothness, and gloss to be used with HP/TMX 2500 and GP/TMX 1500 ribbons. Examples:
  - TTR Coated
  - TTR Premium
  - TTR Premium Board
  - Duratran II
  - Duratran II Tag
- ***Polyethylene plastics*** with better resistance to water and many common chemicals than uncoated and coated papers. They can be use outdoors and offer good tear resistance. Most often used with HP/TMX 2500 ribbons. Examples:
  - TTR Polyethylene
  - TTR Gloss Polyethylene
  - Kimdura
  - Kimdura Tag
  - Syntran
- ***Polyesters*** give high resistance to chemicals, heat, and mechanical abrasion with HR/TMX 3200 ribbons. Examples:
  - TTR High Gloss Polyester
  - Polyester

Media Roll Size



Core

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

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

Roll

Max. diameter:	205 mm	(8.07 inches)
Max. width:	120 mm	(4.72 inches)
Min. width:	25 mm	(1.00 inches)

The maximum recommended media thickness is 175µm (0.007 inches). Thicker media may be used, but print quality will be reduced. The stiffness is also important and must be balanced against thickness to maintain print quality.

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

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

Media

Non-Adhesive Strip

⇐ a ⇒ Media Width:

Maximum:	120.0 mm	(4.72 inches)
Minimum:	25.4 mm	(1.00 inches)

Media Type Setup:

- Fix length strip
- Var length strip

Media, cont.

Self-Adhesive Strip

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

Maximum:	120.0 mm	(4.72 inches)
Minimum:	25.4 mm	(1.00 inches)

⇐ **b** ⇒ **Liner**

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

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

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

Media Type Setup:

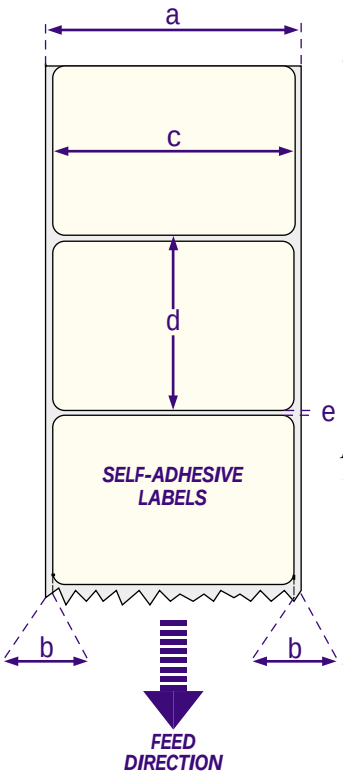
- Fix length strip
- Var length strip

Caution!

This type of media is not suitable for use with a paper cutter.

Media, cont.

Self-Adhesive Labels



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

Maximum:	120.0 mm	(4.72 inches)
Minimum:	25.4 mm	(1.00 inches)

⇐ **b** ⇒ **Liner**

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

⇐ **c** ⇒ **Label Width** (excluding liner):

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

⇐ **d** ⇒ **Label Length:**

Minimum:	8.0 mm	(0.32 inches)
Max label length:	depends on DRAM size	

*Under ideal 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:	1.6 mm	(0.06 inches)
Minimum:	1.2 mm	(0.05 inches)

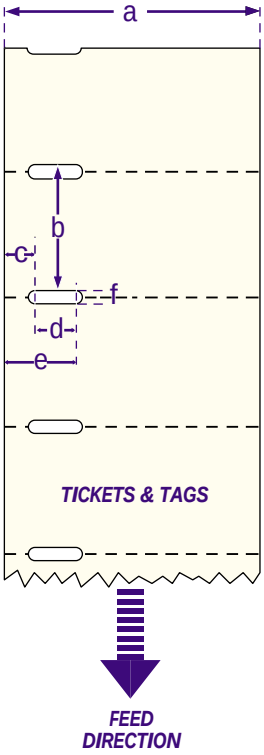
The Label Stop Sensor must be able to detect the extreme front edges of the labels. It can be moved within a range of 0 to 50 mm (0 to 1.97 inches) from the inner edge of the media.

Media Type Setup:

• Label (w gaps)

Media, cont.

Tickets with Gap



⇐ a ⇒ Media Width:

Maximum:	120.0 mm	(4.72 inches)
Minimum:	25.4 mm	(1.00 inches)

⇐ b ⇒ Copy Length:

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

*Under ideal 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.*

⇐ c ⇒ Detection Slit Start:
The restriction of the minimum detection slit length (d) must be observed and the slit must not break the inner edge of the media.

⇐ d ⇒ Detection Slit Length:
The length of the detection slit (excluding corner radii) must be:
Minimum: 5 mm (0.20 inches)

⇐ e ⇒ Detection Slit End:
Provided the restrictions of the minimum slit length (d) and slit start (c) are observed, the distance from the inner edge of the media to the outer end of the slit (excluding corner radii) may be:
Maximum: 50 mm (1.97 inches)

⇐ f ⇒ Detection Slit Height:

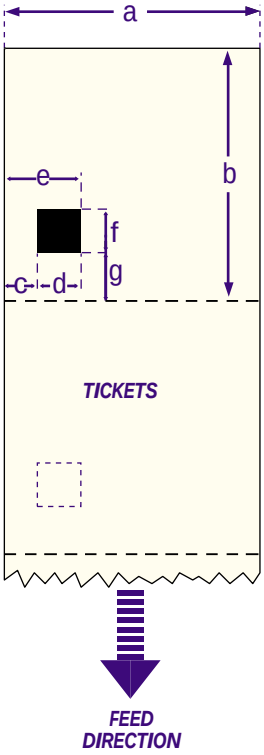
Maximum:	21.3 mm	(0.83 inches)
Recommended:	1.6 mm	(0.06 inches)
Minimum:	1.2 mm	(0.05 inches)

Media Type Setup:
• Ticket (w gaps)

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

Media, cont.

Tickets with Black Mark



⇐ a ⇒ Media Width:

Maximum:	120.0 mm	(4.72 inches)
Minimum:	25.4 mm	(1.00 inches)

⇐ b ⇒ Copy Length:

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

⇐ c ⇒ Black Mark Offset:
The distance between the inner edge of the media and the inner edge of the black mark must be:

Maximum:	40.0 mm	(1.57 inches)
Minimum:	0.0 mm	(0.0 inches)

⇐ d ⇒ Black Mark Width:
The detectable width of the black mark must be:

Minimum:	10.0 mm	(0.4 inches)

⇐ e ⇒ Black Mark End:
No restriction, but the LSS cannot detect the mark more than 50 mm (1.97 inches) from the inner edge of the media.

⇐ f ⇒ Black Mark Height:

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

⇐ g ⇒ Black Mark Y-Position:
It is recommended to 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 or cut off.

Media Type Setup:
• Ticket (w mark)

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

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.

Transfer Ribbons

Important!
Intermec thermal transfer ribbons are engineered specifically for the EasyCoder printheads.

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 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.

Interfaces

RS-232 Interface

The EasyCoder 501 XP has, as standard, three communication interfaces: RS-232, Centronics, and Bar Code Wand.

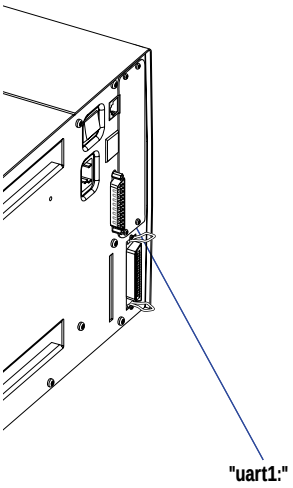
Protocol

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."

Interface Cable

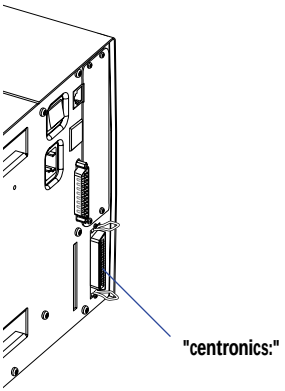
Computer end:	DB-9pin or DB-25pin female connector (PC)
Printer end:	DB-25pin male connector



Host		Printer			Host	
Signal	DB-9	DB-25	Signal	DB-25	DB-25	Signal
	1	1		1	1	Shield
RXD	2	2	TXD	2	3	RXD
TXD	3	3	RXD	3	2	TXD
CTS	8	4	RTS	4	5	CTS
RTS	7	5	CTS	5	4	RTS
		6	DSR	6	20	DTR
GND	5	7	Signal GND	7	7	GND
		16	+5V*	16		
DSR	6	20	DTR	20	6	DSR
		22	RI	22		

**/. The external +5V is limited to 200 mA and is automatically switched off at overload. It is intended to drive for example an external alphanumeric keyboard connected to the RS-232 port.*

Parallel Interface



The EasyCoder 501 XP has, as standard, one parallel Centronics communication port. Three different types of Centronics devices can be selected for this port in the **compatible mode**[1] using the Intermec Fingerprint instruction SYSVAR(25), see *Intermec Fingerprint v7.61, Programmer's Reference Manual*:

Standard type Centronics (default)
Predefined timing for the ACK and BUSY signals when responding to host data is:
500 ns ACK, BUSY inactivated after ACK finishes.

IBM/Epson type Centronics
Predefined timing for the ACK and BUSY signals when responding to host data is:
2500 ns ACK, BUSY inactivated as soon as ACK pulse starts.

Classic type Centronics
Predefined timing for the ACK and BUSY signals when responding to host data is:
BUSY deactivated, wait 2500 ns, then give 2500 ns pulse on ACK.

Select the desired device as standard IN channel by means of a SETSTDIO statement[2]. By default, "uart1:" is STD I/O.

Interface Cable Connectors

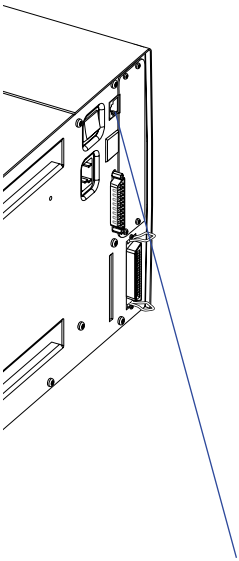
Computer end:	Depends on type of host computer.
Printer end:	36-pin female IEEE 1284B Centronics.

Pin	Signal
1	DStrobe
2–9	Data 0–7
10	Ack
11	Busy
12	PE
13	Select
14	AF
15	
16–17	GND
18	
19–30	GND
31	Init
32	Error
33-35	GND
36	Selectin

[1]/. Nibble, byte, ECP, and EPP are presently not supported.

[2]/. Intermec Shell automatically sets the correct STD I/O when an application is selected, for example a Windows driver, or prompts you to select one, see Chapter 8.

Bar Code Wand Interface



Bar Code Wand Interface

The printer was originally designed for connection of a bar code wand or scanner via a connector on the CPU board accessible through a slot in the printer's rear plate.

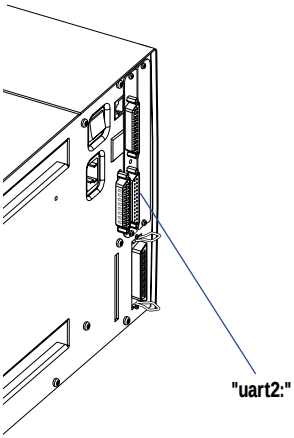
If the Code 128 bar code contains FNC3, the data will be treated as a setup string and will change the printer's setup accordingly. A setup bar code may contain a single parameter or a combination of up to 3 or 4 setup parameters. Refer to the *EasySet Bar Code Wand Setup* manual for more information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

Double Serial Interface Board



The EasyCoder 501 XP can optionally be fitted with a double serial interface board, which provides the printer with two more serial ports: "uart2:" and "uart3:". These ports can be configured for various types of serial communication according to the customer's request. Use the Intermec Fingerprint instruction SETSTDIO to select standard IN and OUT ports (by default "uart1:" is both standard IN and OUT port)[1].

"uart2:"	**"uart3:"**
RS-232	RS-232
RS-422 Non-isolated	RS-422 Non-isolated
RS-422 Isolated	20 mA Current Loop
RS-485	

"uart2:" Serial Port

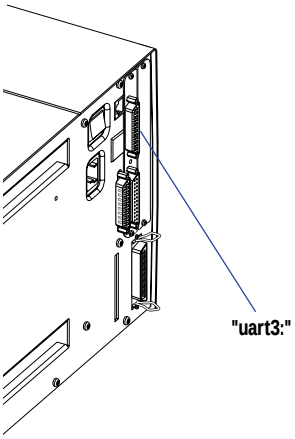
Communication port "uart2:" uses a DB-25pin female connector.

Pin	Signal Name	Description
1		Not connected
2	TxD	RS-232 Transmitter
3	RxD	RS-232 Receiver
4	RTS	RS-232 Request To Send
5	CTS	RS-232 Clear To Send
6	DSR	RS-232 Data Set Ready
7	GND	Ground
8–14		Not connected
15	+RS422I	+RS-422 Recieve
16	+5V	5 Volt for external use (max.200 mA)[1]
17	-RS422I	-RS-422 Receive
18		Not connected
19	+RS422O/+RS485	+RS-422 Transmit/+RS 485
20	DTR	RS-232 Data Terminal Ready
21	-RS422O/-RS485	-RS-422 Transmit/-RS 485
22	RI	RS-232 Ring Indicator
23	Shield	Optional shield for RS-422 and RS 485
24–25		Not connected

[1]/. The external 5V is automatically switched off at overload.

[1]/. Intermec Shell either automatically sets the correct standard IN and OUT port when an application is selected or prompts you to select one, see Chapter 8.

Double Serial Interface Board, cont.



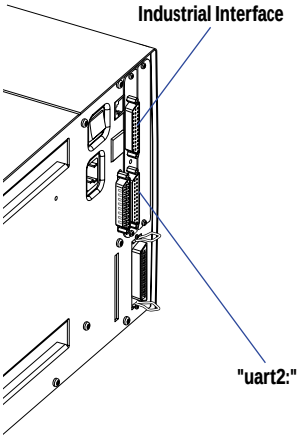
"uart3:" Serial Port

Communication port "uart3:" uses a DB-25pin male connector.

Pin	Signal Name	Description
1		Not connected
2	TxD	RS-232 Transmitter
3	RxD	RS-232 Receiver
4	RTS	RS-232 Request To Send
5	CTS	RS-232 Clear To Send
6	DSR	RS-232 Data Set Ready
7	GND	Ground
8		Not connected
9	+20M1	+20 mA current loop
10	-20M1	-20 mA current loop
11	+TXD	+TXD 20 mA current loop
12	-TXD	-TXD 20 mA current loop
13	+20M2	+20 mA current loop (printer active receiver)
14	-20M2	-20 mA current loop (printer active receiver)
15	+RS422I	+RS-422 Receive
16	+5V	5 Volt for external use (max.200 mA)[1]
17	-RS422I	-RS-422 Receive
18	+RxD	+TXD 20 mA current loop
19	+RS422O	+RS -422 Transmit
20	DTR	RS-232 Data Terminal Ready
21	-RS422O	-RS-422 Transmit
22	RI	RS-232 Ring Indicator
23	Shield	Optional shield for RS-422
24		Not connected
25	-RxD	-TXD 20 mA current loop

[1]/. The external 5V is automatically switched off at overload.

Industrial/Serial Interface Board



The EasyCoder 501 XP can optionally be fitted with an Industrial/Serial Interface Board, which provides the printer with one extra serial communication port ("uart2:"). This port can be configured for one of these options:

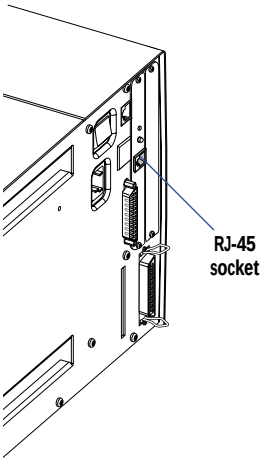
RS-232
RS-422 Non-isolated
RS-422 Isolated
RS-485

This port is identical to "uart2:" on the double serial interface board, see earlier in Appendix 3.

The Industrial Interface Board also has a DB-44pin female connector with:
8 digital IN ports with optocouplers
8 digital OUT ports with optocouplers
4 OUT ports with relays

Refer to the installation instructions for the Industrial Interface Board for further information.

EasyLAN 100i Interface Board



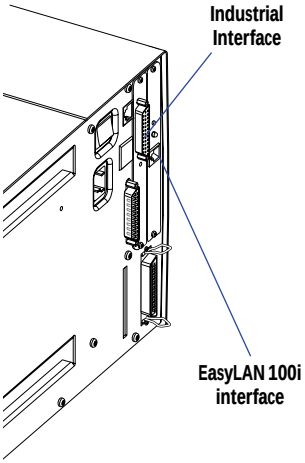
The Intermec EasyLAN 100i Ethernet interface board provides the printer with a 10BaseT Ethernet or 100BaseTX Fast Ethernet network connection. You can communicate with the printer via a LAN (Local Area Network) or provide the printer with its own home page, so you can reach the printer using a Web browser.

EasyLAN 100i supports most major computer systems and environments. You can assign passwords to restrict both login and printer access. The internal EasyLAN 100i Web pages allow you to continuously monitor printer status and to upgrade the flash memory of the printer when new firmware becomes available.

EasyLAN 100i supports SNMP for remote monitoring.

When an EasyLAN 100i interface board is installed in the printer, some extra menus will be added to the Setup Mode (see Chapter 7, “Setup Mode”). The Ethernet port is addressed as device "net1:" (communication channel 5).

Industrial Interface Board



The Industrial Interface Board is an optional interface board that makes it possible to install an EasyLAN 100i interface board while still having an industrial interface. (This is essentially an Industrial/Serial interface board, where the serial interface has been omitted in favor of the ability to connect an EasyLAN 100i interface board.)

This is presently the only case when two interface boards can be installed in the same EasyCoder 501 XP.

Intermec Printer AB
Idrottsvägen 10, P.O. Box 123
S-431 22 Mölndal, Sweden
tel +46 31 869500
fax +46 31 869595
www.intermec.com

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