

Installation & Operation

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EasyCoder 501 XP Bar Code Label Printer

Intermec

A **UNOVA** Company

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DECLARATION OF CONFORMITY

We,
Intermec Printer AB
Idrottsvägen 10
Box 123
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Sweden

declare under our sole responsibility¹ 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, class B, 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



.....
Hans Lindén
President

¹/. Intermec assumes no responsibility as regards fulfilling the CE Directive if the printer is handled, modified or installed in other manners than those described in Intermec's manuals.

A printout of this Declaration of Conformity is available, in all the official languages of the European Union, free of charge from all local Intermec Sales Units.

Introduction

The EasyCoder 501 XP is a greatly enhanced version of the well-known EasyCoder 501 series of 4-inch thermal printers from Intermec. It features a completely new CPU board, power supply, and print mechanism, which provides an astounding print speed of up to 300 mm/sec (12"/sec) at 300 dpi. It also offers a large number of useful facilities, such as....

- Flash memory SIMMs for firmware, fonts, bar codes and application programs
- Built-in memory card adapter
- Built-in Centronics and RS 232C interfaces
- Provision for one extra interface board
- Bar code wand interface for easy setup
- Improved ribbon-handling system to prevent ribbon wrinkling.
- New keyboard and display with backlight for improved user interface.

The EasyCoder 501 XP works both as a direct thermal printer and thermal transfer printer for tear-off 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 rewind unit for peel-off and internal rewind operation.

The EasyCoder 501 XP supports the unique and flexible Intermec Fingerprint 7.12 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 printer drivers for various versions of Microsoft Windows or with the Intermec Direct Protocol programming language. The Windows drivers allows you to design labels using standard PC applications, e.g. Microsoft Office.

The EasyCoder 501 XP supports 15 scalable Unicode TrueType and TrueDoc fonts as standard. Additional fonts can be downloaded into the printer's Flash memory, or be plugged in using a 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 etc.

Safety Requirements

Intermec assumes no responsibility as regards fulfilling 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 and front covers are open, so ensure that the covers are closed before you operate the printer.
- Do not open the left-hand cover. Dangerous voltage!
- Do not put your fingers inside the print mechanism when the power is on.
- Do not open the optional paper cutter when the power is on.
- Place the printer on an even surface which can support its weight of 13 kgs (29 lbs) plus supplies and possible options.
- Do not spray the printer with water. If 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 Labelling

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

Print a Label

Introduction

Obviously, what you really want to do with your EasyCoder 501 XP is to print a label, ticket or tag. If you are eager to get started, or if you already are familiar with Intermec's range of EasyCoder printers, follow the instructions in this chapter. If you are new to the EasyCoder concept, bypass this chapter for the time being and read the rest of the manual before returning here.

The subject of this chapter is to help you produce a label within minutes from unpacking your Intermec EasyCoder printer and to give you an idea of how the Intermec Direct Protocol and the Intermec Fingerprint programming language makes label design an easy task.

In addition to the Intermec Direct Protocol and the Intermec Fingerprint programming language, Intermec also includes printer drivers for various versions of Microsoft Windows. After having selected the Windows Driver option in Intermec Shell, you can use the EasyCoder 501 XP printer the same way as e.g. a laser printer and produce printouts from any standard program in MS Windows.

Connecting Printer and Host

In the following examples we assume that you use an ASCII terminal or a PC with a terminal program, e.g. Microsoft Terminal and the standard RS 232C interface between the printer and the host.

The printer contains a powerful microprocessor which is controlled by means of the Intermec Fingerprint programming language. The connected PC is only used as a non-intelligent terminal for sending instructions to the printer and to display the responses from the printer on a screen.

Intermec provides communication cables for connecting the printer to most PC computers. Also refer to Appendix 3 for wiring diagrams.

Introduction, cont'd.

Setup

By default, the printer is set up for the following communication protocol:

Baudrate	:	9600
Character length	:	8
Parity	:	none
Stop bits	:	1
Flowcontrol	:	none
New line	:	CR/LF

If you want to change any of these values, please refer to chapter 8 “Setup Mode”.

Set up the terminal or host computer for the same communication protocol as the printer.

Paper Supply

Load the printer with labels on backing paper (liner) with a width of at least 35 mm (1.4") and a length of at least 40 mm (1.6") and a thermal transfer ribbon, see chapters 5 and 6.

If the printout becomes too light or dark, you will need to change the paper type setup, see chapter 8 “Setup Mode”.

Startup and Communications Check

Turn on the printer. Provided the printer is not fitted with any custom-made startup program, after initialization the display will show the Intermec Shell countdown menu:

```

ENTER=SHELL
5 sec.      v.4.2
4 sec.      v.4.2
3 sec.      v.4.2
2 sec.      v.4.2
1 sec.      v.4.2
  
```

Do not take any action. By default, the display window will show the following message when the countdown is completed, e.g.:

```

Fingerprint
7.12
  
```

If the display does not show this message, refer to chapter 9 “Intermec Shell Startup Program” and select the “Fingerprint” application.

Introduction, cont'd.

Check that the printer and your terminal/PC have a working communication by typing the following instruction on the host:

BEEP ↵ (↵ = carriage return)

The printer should respond by returning Ok to the screen of the host and at the same time emit a short beep. If not, check the communication setup of the printer and the host.

The next two steps are included to demonstrate the printer's ability both to feed out the paper and to pull it back. Type:

FORMFEED 300 ↵

The printer will feed out a short piece of the label. Then order the printer to pull back the label to its original position by typing:

FORMFEED -300 ↵

After loading a new supply of labels, the printer should be allowed to adjust itself. Type:

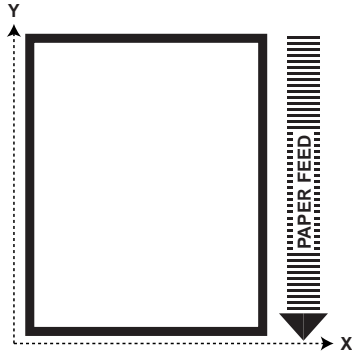
TESTFEED ↵

The printer will feed out at least two labels while adjusting its sensors and paper feed mechanism. You can also perform a testfeed operation by simultaneously pressing the <Shift> and <Feed> keys on the printer's keyboard.

Tear off the labels by grabbing the outer (right) edge and pulling downwards.

Now you are ready to start programming your first label.

Intermec Fingerprint



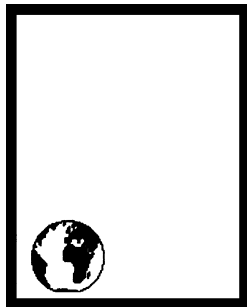
The label we will design in Intermec Fingerprint will contain a box, an image, a bar code, and a line of text. Note that the illustrations are not reproductions of the label, but are merely intended to show the principles of label editing .

Printing a Box

Let us start by printing a box 430 dots high and 340 dots wide with a 15 dot line thickness. The box is inserted at position X=10, Y=10:

```
NEW
10  PRPOS 10, 10 ↵
20  PRBOX 430,340,15 ↵
200 PRINTFEED ↵
300  END ↵
RUN ↵
```

Note: The printer does not execute the program until you have typed RUN ↵.



Printing an Image

Now we add the image "GLOBE.1" after changing the print coordinates to X=30, Y=30.

```
30  PRPOS 30,30 ↵
40  PRIMAGE "GLOBE.1" ↵
RUN ↵
```

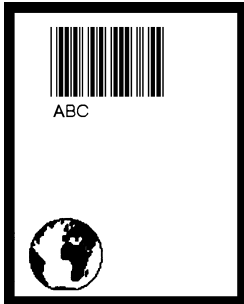


Printing a Bar Code

To print a bar code, you need to choose a bar code type before you print the bar code. Note there is no blank space in the bartype name.

```
50  PRPOS 75,270 ↵
60  BARTYPE "CODE39" ↵
70  PRBAR "ABC" ↵
RUN ↵
```

Intermec Fingerprint, cont'd.



Printing Human Readables

To get human readable text printed under the bar code, add these lines which enables bar code interpretation and selects a font for it:

```
1   BARFONT ON ↵
2   BARFONT "Swiss 721 BT",6 ↵
RUN ↵
```

Printing a Line of Text

Add text at position X=25,Y=220:

```
80   PRPOS 25,220 ↵
90   FONT "Swiss 721 BT", 6 ↵
100  PRTXT "My FIRST Label" ↵
RUN ↵
```

Listing the Program

To view the whole program, type:

```
LIST ↵
```

The lines will be listed in ascending order on your terminal's screen:

```
1   BARFONT ON
2   BARFONT "Swiss 721 BT", 6
10  PRPOS 10,10
20  PRBOX 430,340,15
30  PRPOS 30,30
40  PRIMAGE "GLOBE.1"
50  PRPOS 75,270
60  BARTYPE "CODE39"
70  PRBAR "ABC"
80  PRPOS 25,220
90  FONT "Swiss 721 BT", 6
100 PRTXT "My FIRST label"
200 PRINTFEED
300 END
ok
```

Intermec Fingerprint, cont'd.



Changing a Program Line

If you want to change a program line, simply rewrite the line using the same line number. For example, move the text to the right by rewriting line no. 80 with new coordinates:

```
80    PRPOS 75,220 ↵
RUN  ↵
```

Saving the Program

If you want to save your first attempt, issue the following command.

```
SAVE "LABEL1" ↵
```

Your program will be saved in the printer's permanent memory under the name:

```
LABEL1.PRG
```

Loading the Program

If you want to use this label later, e.g. after having created more programs, type:

```
LOAD "LABEL1.PRG" ↵
RUN  ↵
```

A new copy of the label will be printed.

The Intermec Fingerprint offers a lot of more advanced functions that allows you to created sophisticated application programs or to emulate other printer protocols. For more information on the subject of programming, please refer to the documentation of the Intermec Fingerprint programming language.

Intermec Direct Protocol

The Intermec Direct Protocol can be used in many ways. Here, we will illustrate how to build a layout first and then provide input data to variable fields in that layout, assuming that you have entered the Intermec Direct Protocol via Intermec Shell (see chapter 9). The final result will be the same label as created in the example for Intermec Fingerprint.

First, create a layout:

```
LAYOUT INPUT "tmp:LABEL1" ↵      (start layout recorder)
BF ON ↵                          (enable bar code interpretation)
BF "Swiss 721 BT",6 ↵            (select bar code font)
PP 10,10 ↵                       (insertion point for box field)
PX 430,340,15 ↵                 (create a box)
PP 30,30 ↵                       (insertion point for image field)
PM "GLOBE.1" ↵                  (select image)
PP 75,270 ↵                     (insertion point for bar code field)
BT "CODE39" ↵                   (select bar code type)
PB VAR1$ ↵                      (variable input data to bar code field)
PP 75,220 ↵                     (insertion point for text field)
FT "Swiss 721 BT",6 ↵          (select text font)
PT VAR2$ ↵                      (variable input data to text field)
LAYOUT END ↵                    (save layout)
```

Then add the variable data and a print instruction:

```
LAYOUT RUN "tmp:LABEL1" ↵      (select layout)
<STX>                          (start of input data, ASCII 02 dec)
ABC ↵                          (variable input data to VAR1$)
My FIRST label ↵              (variable input data to VAR2$)
<EOT>                          (end of input data, ASCII 04 dec)
PF ↵                          (print one label)
```

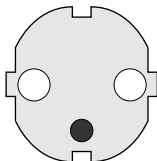


Installation

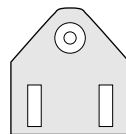
Unpacking

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

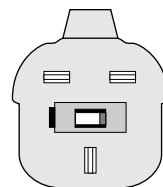
- Open the box and lift the printer out.
- Check that the printer has not been visibly damaged during transportation. Keep the packing materials in case you need to move or reship the printer.
- The label on the printer's rear plate gives the voltage, the part number and the serial number.
- Check that any options you ordered are included.
- Check that all the accessories are included in the delivery. In addition to any separately ordered options, the box should contain:
 - Intermec EasyCoder 501 XP printer
 - Adapter for 3" paper roll core
 - Paper guide for label slack absorber
 - Power cord
 - Quality check card
 - Cleaning card
 - Approx. 2 metres of labels
 - Starter pack of thermal transfer ribbon
 - User's Guide (multilingual)
 - Installation & Operation manual
 - Setup bar codes sheet for EasySet wand
 - Floppy disk with MS Windows printer drivers
- Check that the power cord are appropriate for the local standard. The printer works within 100 – 240 V AC, 50 – 60 Hz.



*European type
230V mains plug*



*US/Canadian type
115V mains plug*



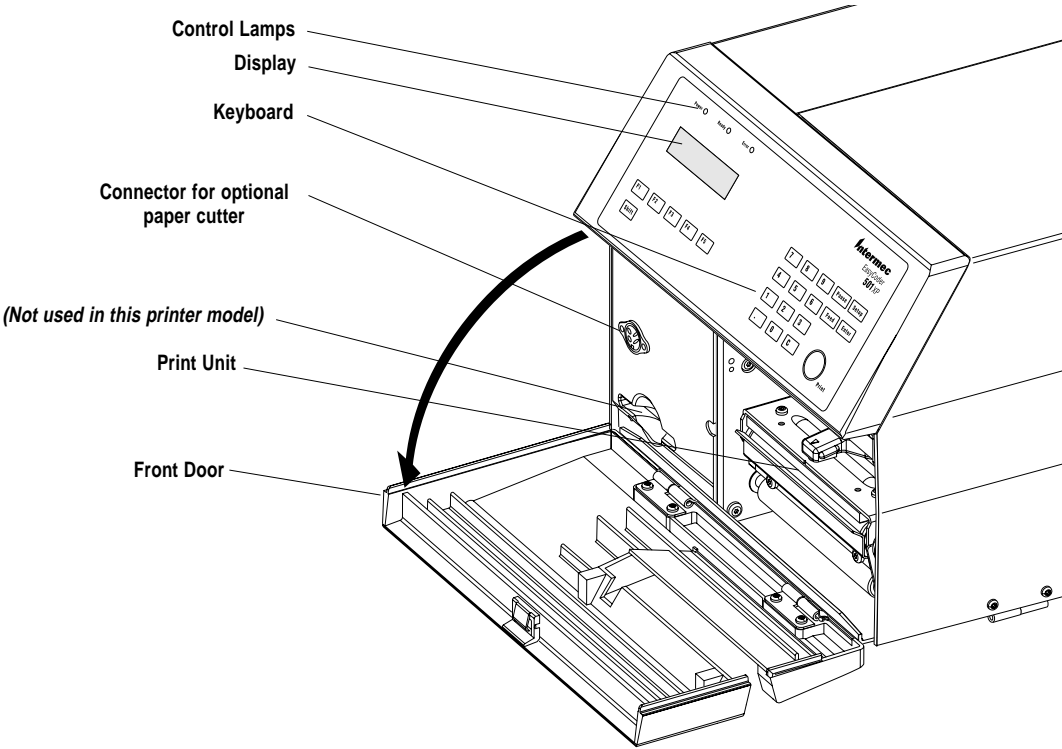
*GB type
230V mains plug*

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

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

Front View

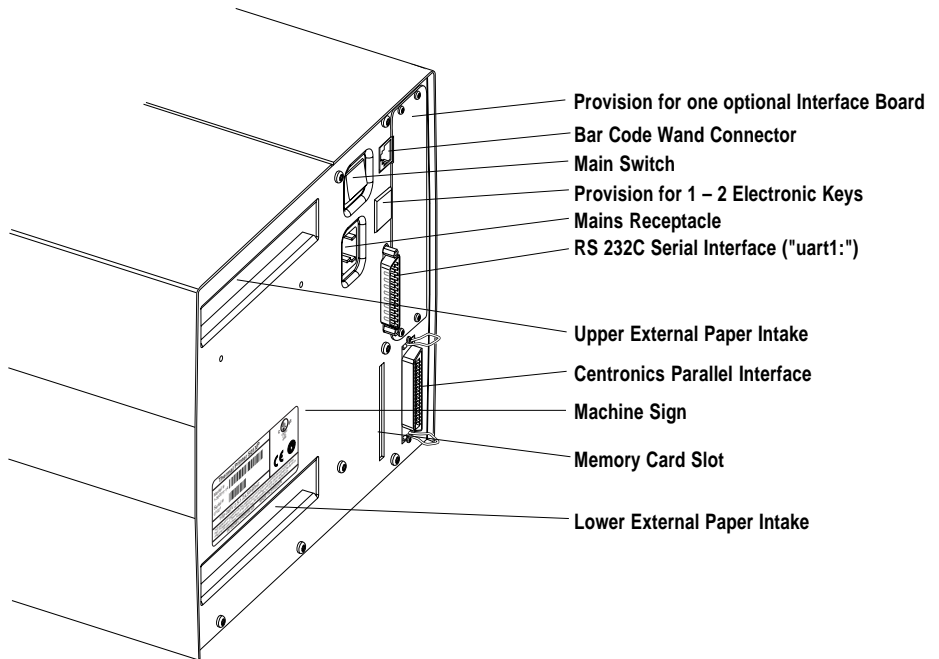
The front door is held by a snap-lock. Open the front door to view the various parts on the printer's front.



Refer to chapter 10 "Options" for information on possible optional devices fitted on the printer's front.

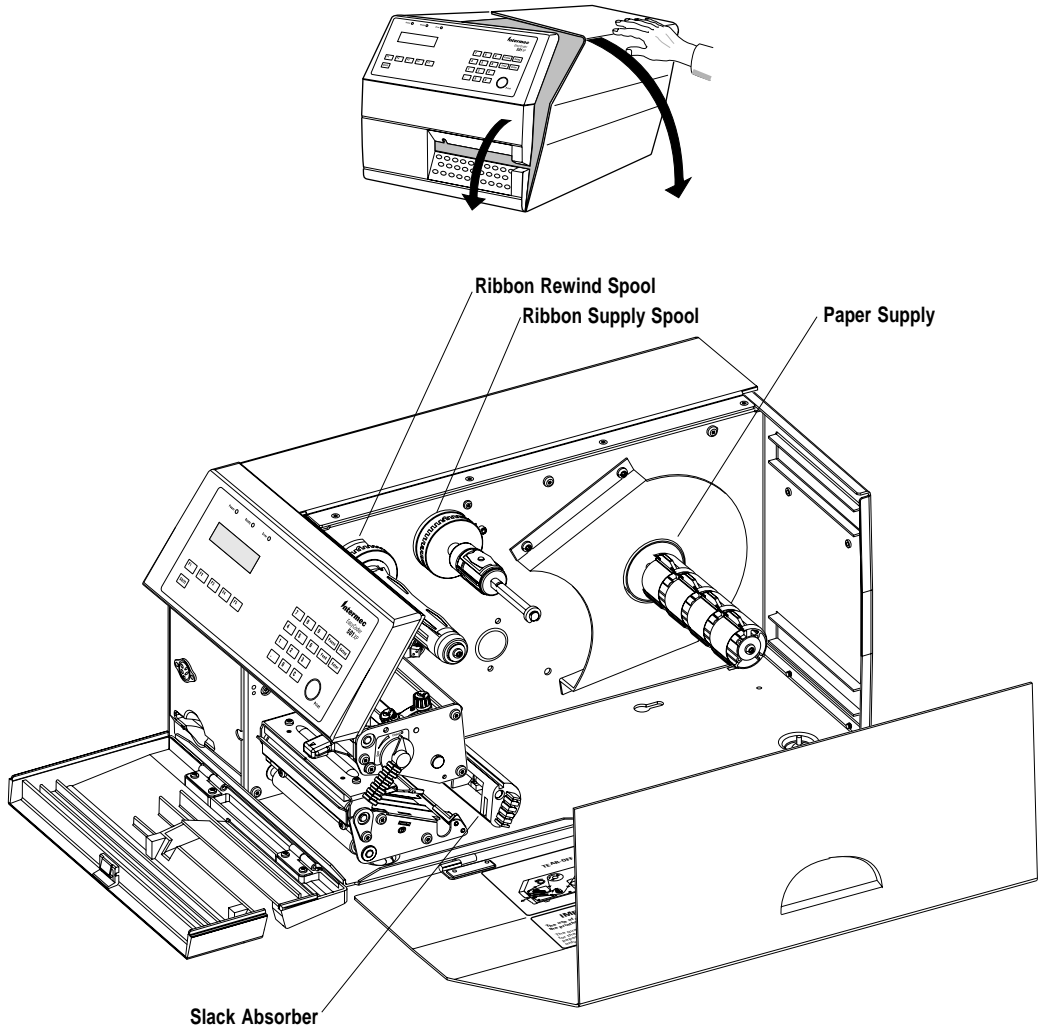
Rear View

The rear plate contains the main switch, the power inlet, and various interface connectors:



Media Compartment

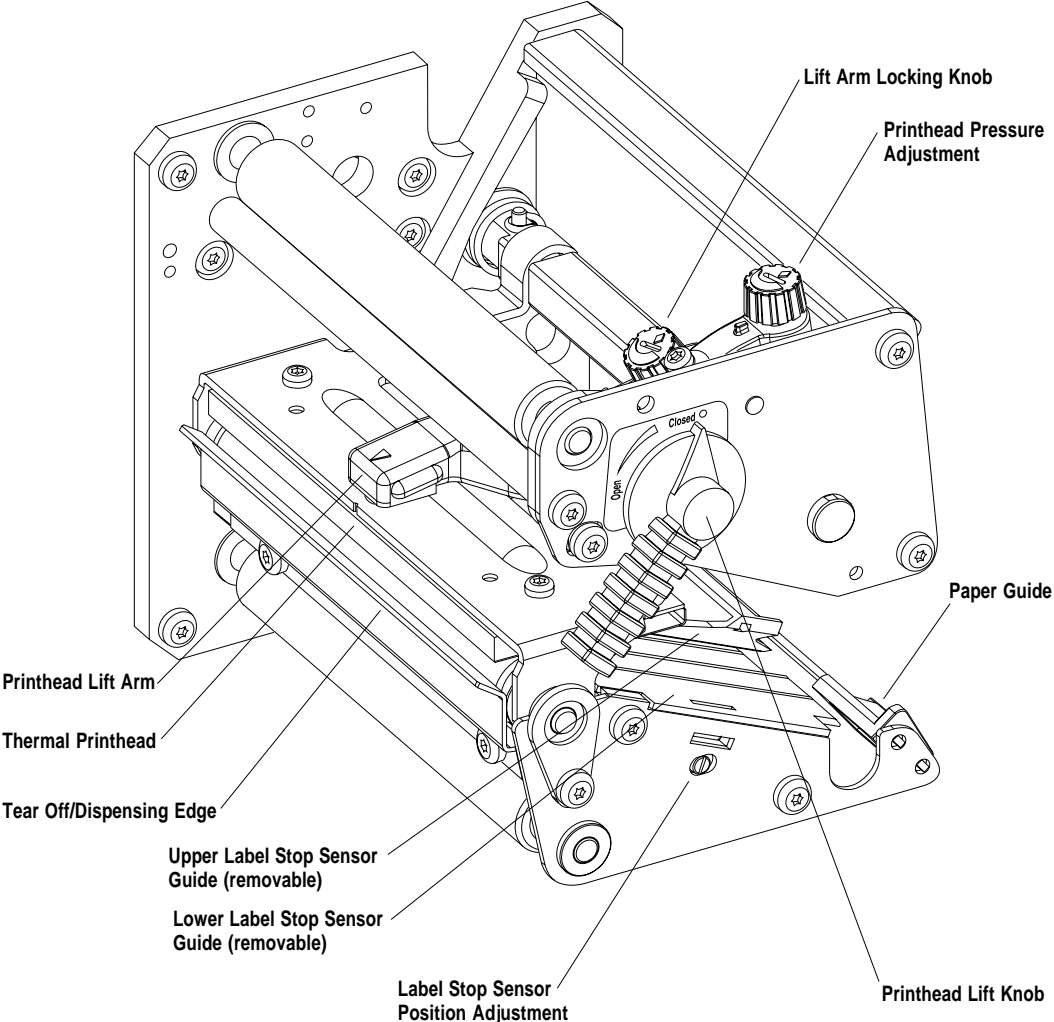
The media compartment becomes accessible when the right-hand door is opened. Being held by a magnetic lock, this door can be pene 180°, or be removed completely by pushing it rearwards.



Refer to chapter 10 "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/mm (≈300 dpi) thermal printhead with quick-mount fittings to facilitate replacement.



Connections

Power

- 1 Place the printer on a level surface, near a mains electrical outlet and with easy access for loading paper and ribbon, and for removing printout.
- 2 Check that the printer is switched off.
- 3 Connect the power cable to the mains receptacle on the rear plate and to the electrical outlet.

Computer

The EasyCoder 501 XP is fitted with a 36 pin female Centronics connector for the parallel interface port and a DB25 male connector for the RS 232 serial interface port (see Appendix 3).

- ***Centronics Parallel Interface***

Use the parallel interface with the Windows driver 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 Direct Protocol or Intermec Fingerprint programming because you can receive error messages from your printer. This is not available using the parallel interface. Before you can use the serial interface, you may need to set up the communication parameters, such as baudrate, parity etc. as described in chapter 7 “Setting Up the Printer”.

- ***Optional Interface Board***

The printer may be fitted with one additional interface board. Refer to separate documentation delivered with the boards for connection and setup instructions.

Switch off both the PC and the EasyCoder 501 XP 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 coloured LEDs (Light Emitting Diodes) and are used for the following purposes:

- *Power* (green) indicates when the power is on.
- *Ready* (green) indicates when the printer is ready for use.
- *Error* (red) indicates when some kind of error has occurred. If using a serial communication, an error message may be returned to the host computer.

Display

The display window contains an LCD (Liquid Crystal Display) with background illumination and 2 lines of text, each with 16 characters. It guides the operator through the setup and informs him or her of possible errors during printing.

The Intermec Fingerprint programming language and the Intermec Direct Protocol allows 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 by means of the Intermec Fingerprint programming language, the keys can be assigned to various functions according to requirements. As one key is assigned as shift key, up to 44 different key combinations are possible. An audible signal, which can be turned off if so desired, acknowledges that a key has been pressed.

Controls and Indicators, cont'd.

Beeper

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

Starting Up

Startup Files

At startup, the behaviour of the printer is decided by the possible existence of a startup file (**autoexec.bat**) somewhere in the printer's memory, i.e. a program that automatically starts running when the printer is turned on. There are two cases:

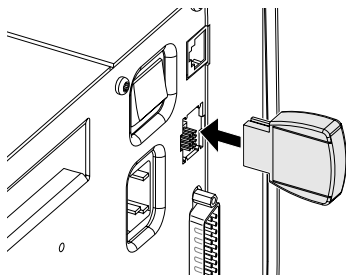
- A** The printer is **only** fitted with the *Intermec Shell* file-managing program, which allows the operator to choose between a variety of applications and functions.
- B** In addition to *Intermec Shell*, the printer is **also** fitted with a *custom-made application program* that is design to perform a specific task, e.g. 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 place, they will be used with the following priority:

1. An **autoexec.bat** file stored in any approved type of memory card, provided it was inserted in the printer before power up.
2. An **autoexec.bat** file stored in the user's part of the printer's permanent memory (device "c:").
3. The **pup.bat** file (Intermec Shell) in the systems part of the printer's permanent memory (device "rom:").

This implies that if you insert a memory card with startup file before you turn on the printer, the startup file of the memory card will be used instead of Intermec Shell.

Electronic Keys



Some applications may require one or two electronic keys to be inserted in the slot in the guide plate.

Remove the plastic cover and insert the key so the flat side faces the centre of the slot. It does not matter if the key is fitted in the right or left position.

In case of two electronic keys, the flat sides should face each other.

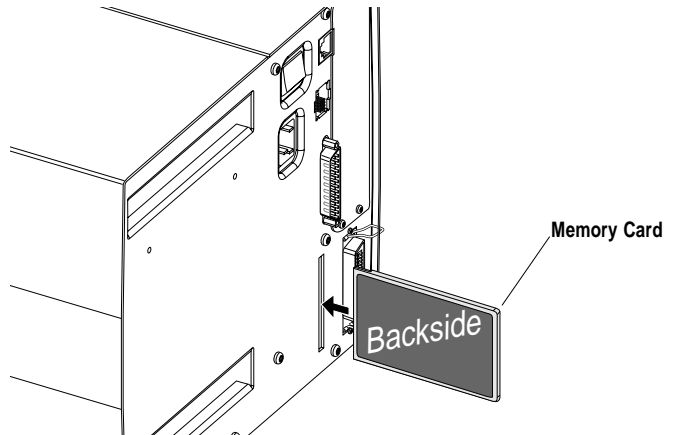
Important!

Always turn off the power before inserting or removing an electronic key.

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 turn on the power. The memory card can be an SRAM card complying with the JEIDA-4 standard or Flash Memory card from Intermec. There are three types of Flash Memory Cards:

- A Font Card provides additional fonts as long as it remains inserted in the printer.
- A Font Install Card permanently installs additional fonts in the printer which can be used even after the card has been removed.
- A Firmware Card automatically replaces the printer's firmware, e.g. with an updated version.



Important!

Always turn off the power before inserting or removing a memory card!

Power On

Do not start the printer before you have made the necessary connections, inserted any memory card you want to use, and checked that the printhead is lowered and the optional cutter is in closed position.

Turn on the power by means of the main switch on the rear plate. The “**Power**” LED 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. If the printer is fitted with a paper cutter, it will rotate to home position. Finally, some kind of message will appear in the display window, depending on startup file.

Display Messages at Startup

When the power is turned on, the printer is initialized. The progress of the initialization is indicated by an increasing number of dots 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 **directly** after initialization.

A. Intermecc Shell Startup Program (standard printers)

```

ENTER=SHELL
5 sec.      v.4.2
 4 sec.      v.4.2
 3 sec.      v.4.2
 2 sec.      v.4.2
 1 sec.      v.4.2
  
```

Refer to chapter 9 for further information on Intermecc Shell. The digits in the lower right corner of the display indicate the version of Intermecc Shell.

B. Custom-made Application Program (non-standard printers)

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

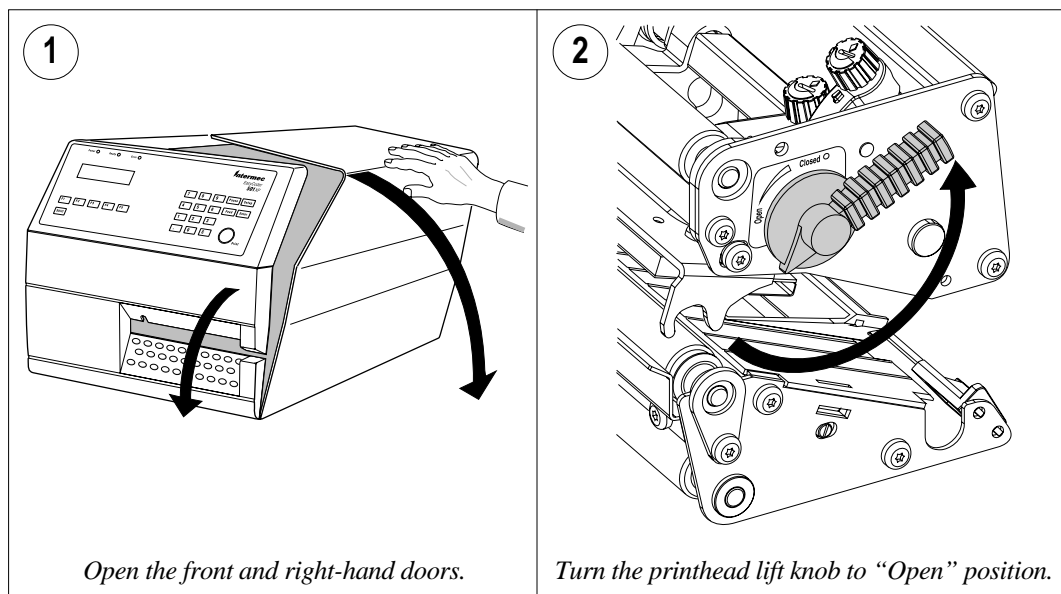
Paper Load

Tear Off

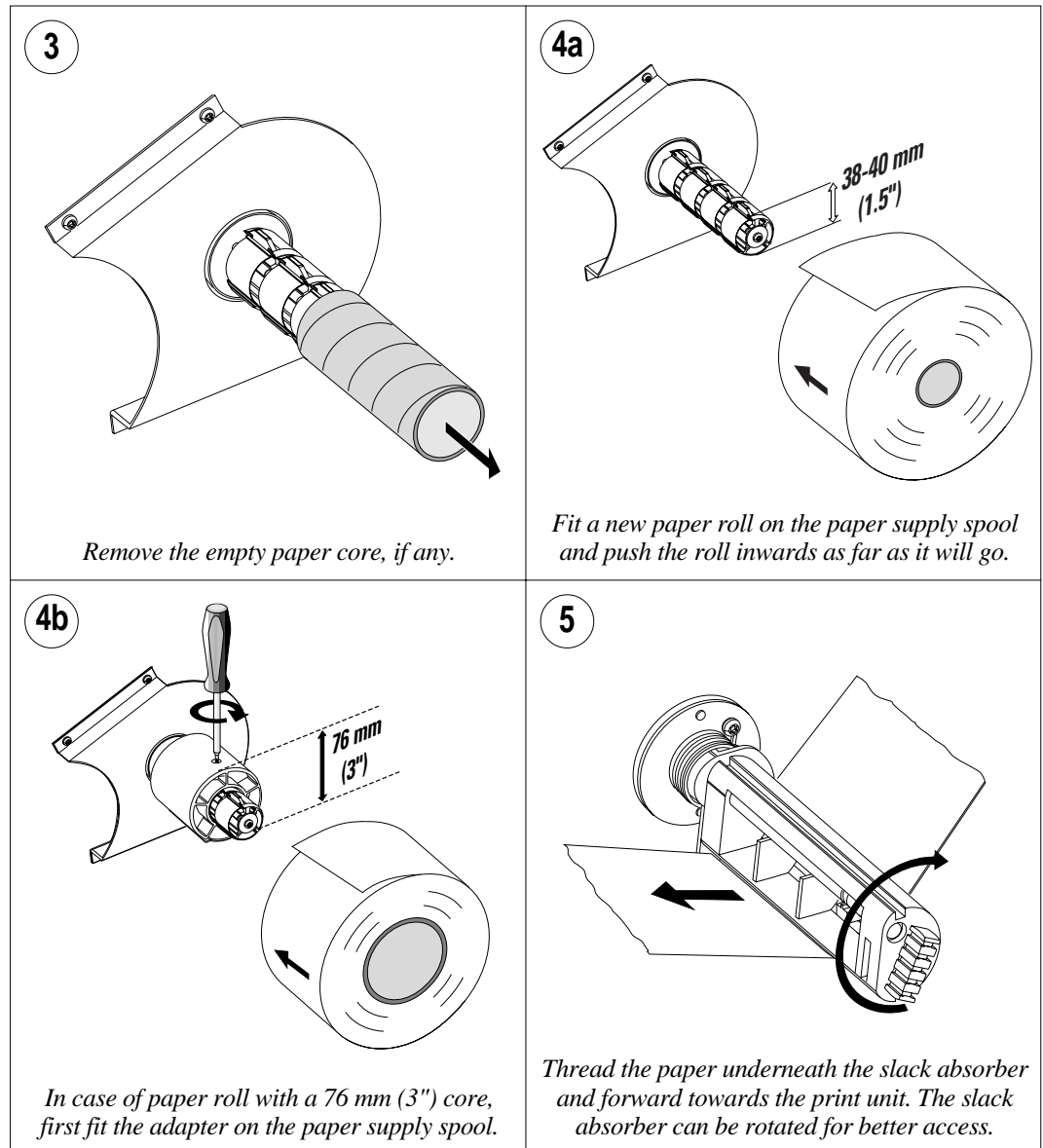
The EasyCoder 501 XP can print on labels, tickets, tags, and paper strip in various forms. This chapter describes the case when the paper strip is to be torn off manually against the printer's tear-off edge.

Tear-off can be used for:

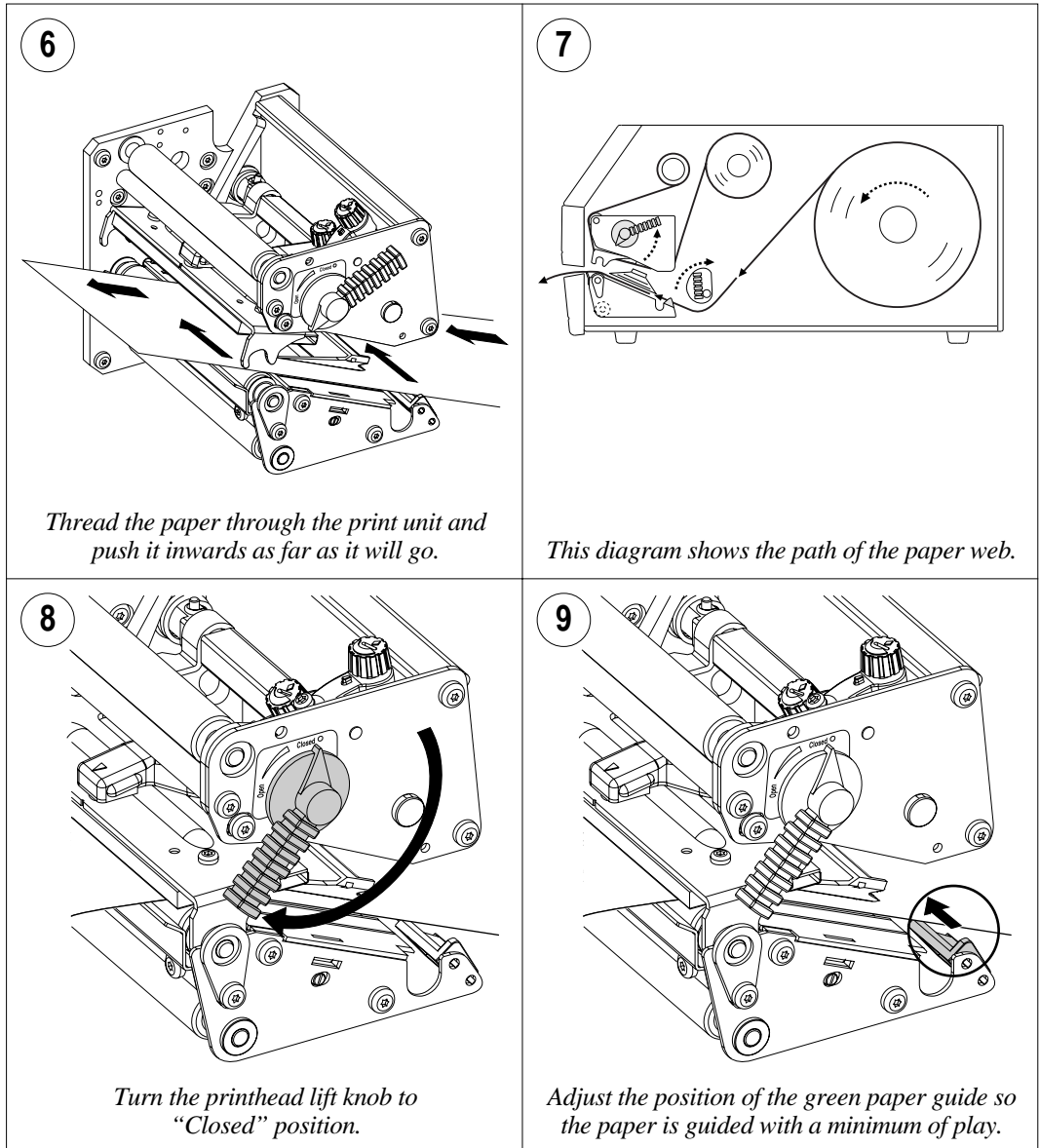
- Non-adhesive continuous paper strip
- Self-adhesive continuous paper strip
- Self-adhesive labels on backing paper
- Tickets with gaps, with or without perforations
- Tickets with marks, with or without perforations



Tear Off, cont'd.

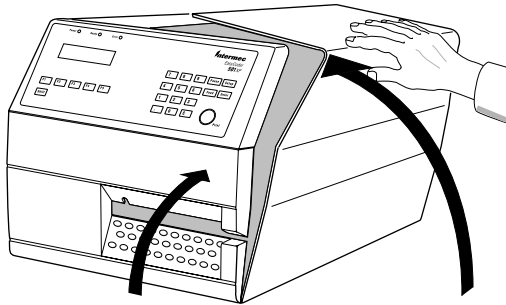


Tear Off, cont'd.



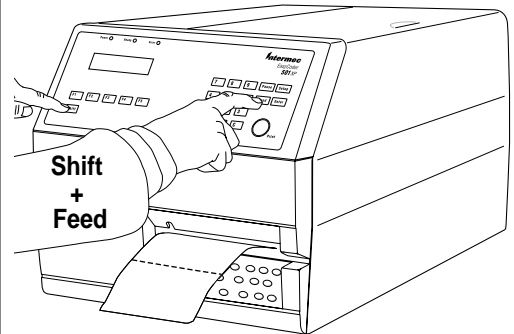
Tear Off, cont'd.

10



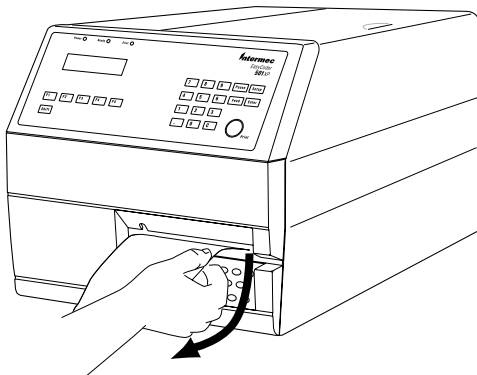
Close the front and right-hand doors.

11



Adjust the paper feed by simultaneously pressing the **Shift** and **Feed** keys.

12



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

Cut Off

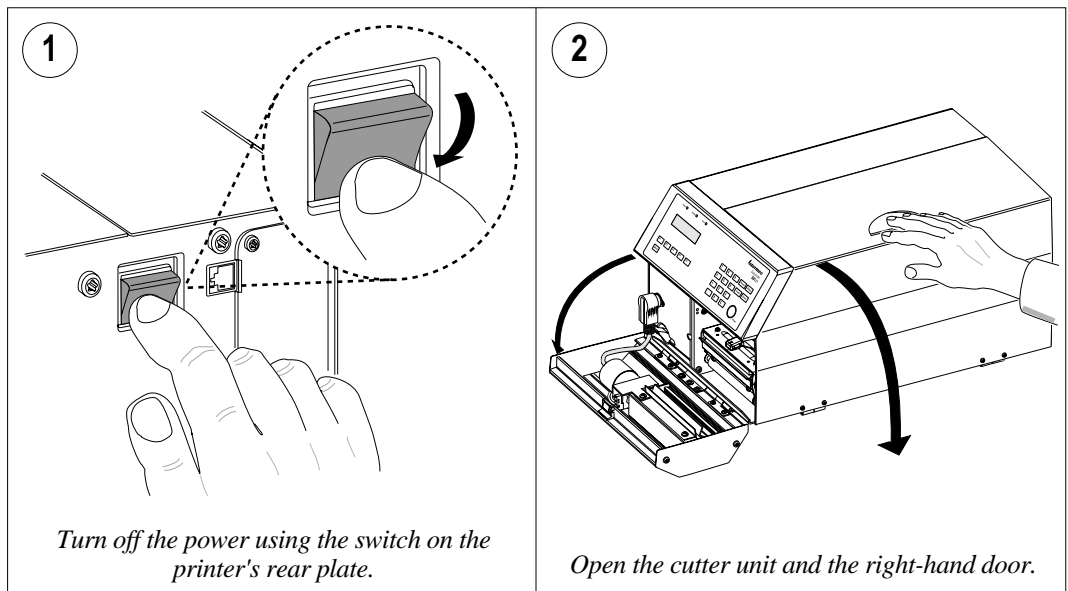
The EasyCoder 501 XP can print on labels, tickets, tags, and paper strip in various forms. This chapter describes the case when the paper strip is automatically cut off after printing by means of an **optional** paper cutter.

Cut-off can be used for:

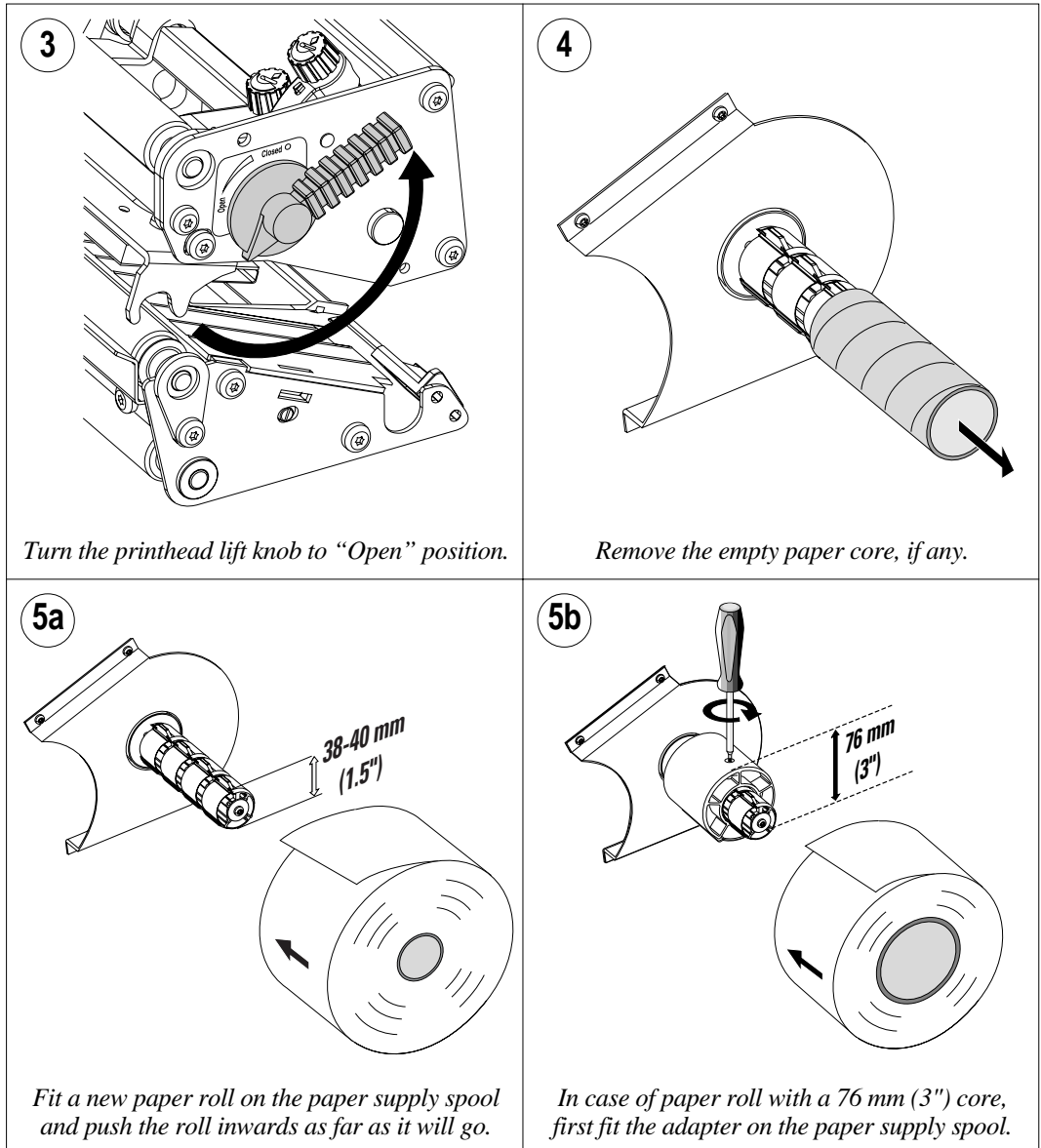
- Non-adhesive continuous paper strip
- Self-adhesive labels on backing paper
*Note that the cutter **must not** cut through the labels – only the backing paper, or the adhesive will stick to the blades and render the cutter inoperable or even damage the cutter's motor!*
- Tickets with gaps without perforations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

CAUTION!

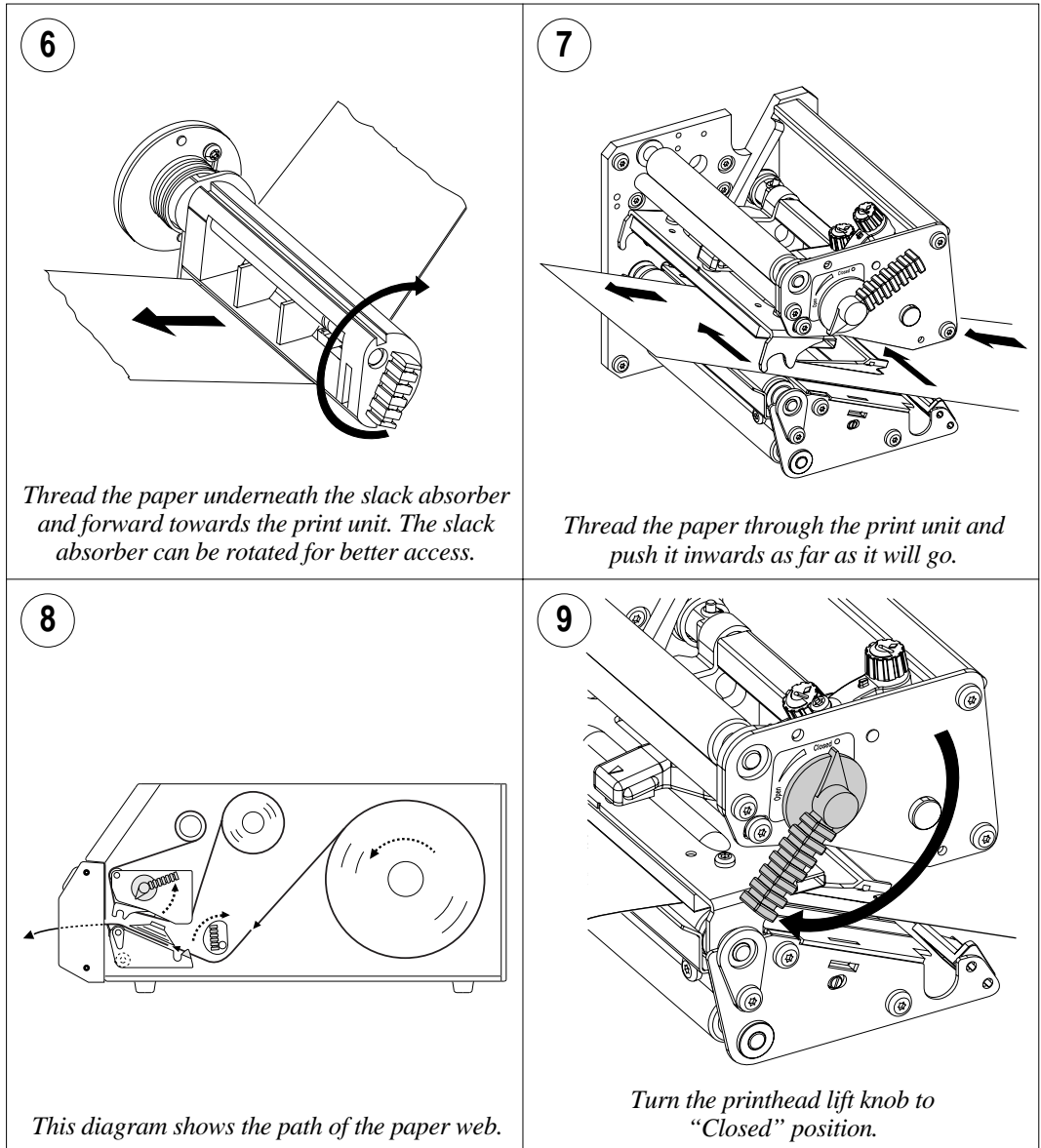
The rotating cutting blade can be accidentally activated even when the cutter is opened. To avoid any risk of injury to fingers, always turn off the power to the printer before opening the cutter unit.



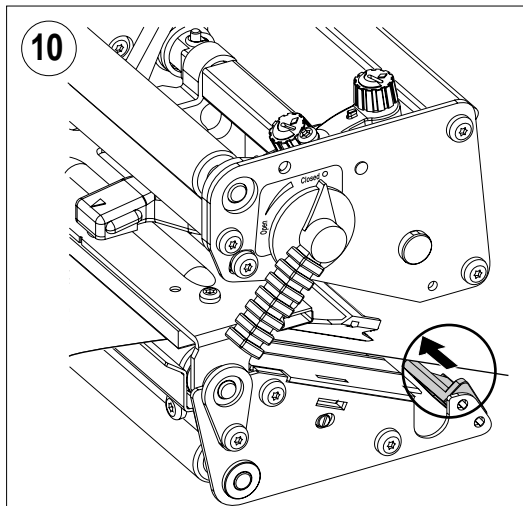
Cut Off, cont'd.



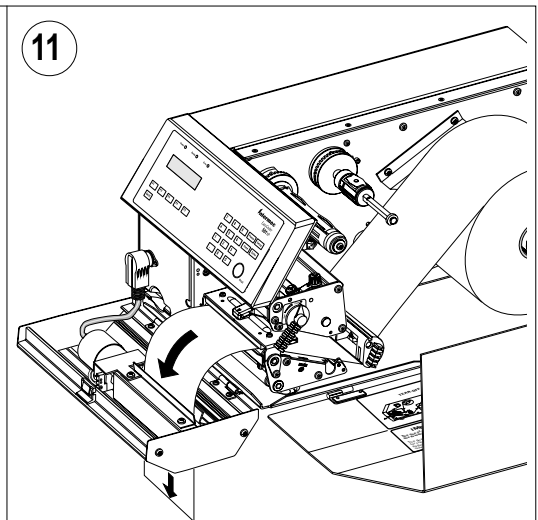
Cut Off, cont'd.



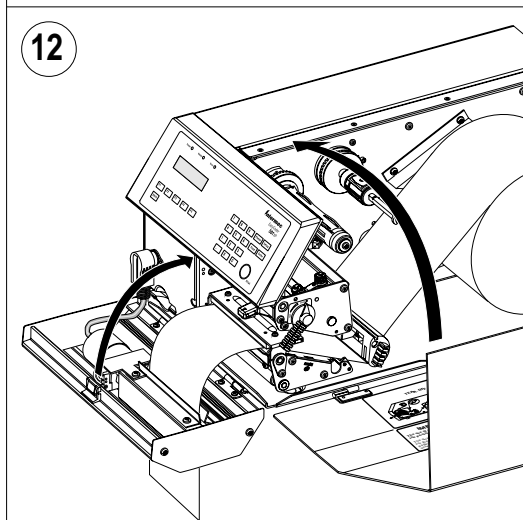
Cut Off, cont'd.



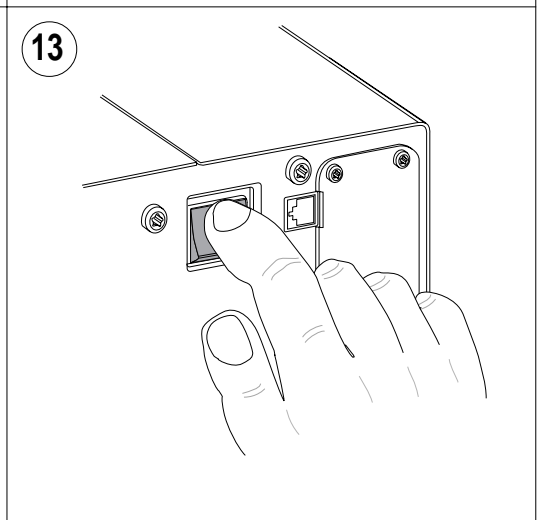
Adjust the position of the green paper guide so the paper is guided with a minimum of play.



Thread the paper through the cutter between the two guide plates.

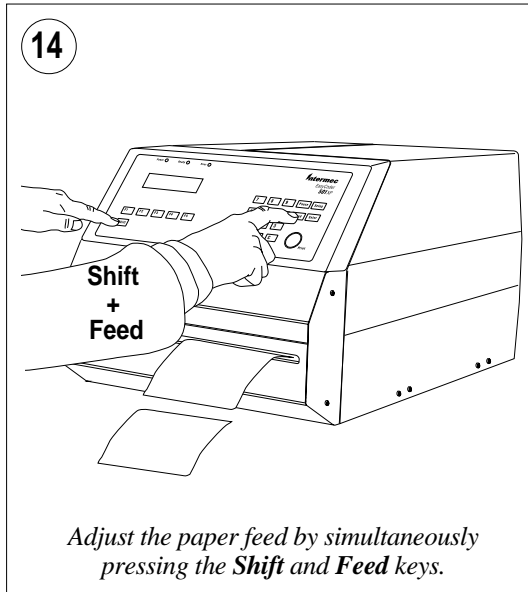


Close the cutter unit while pulling at the end of the paper. Close the right-hand door.



Turn on the power using the switch on the rear plate.

Cut Off, cont'd.

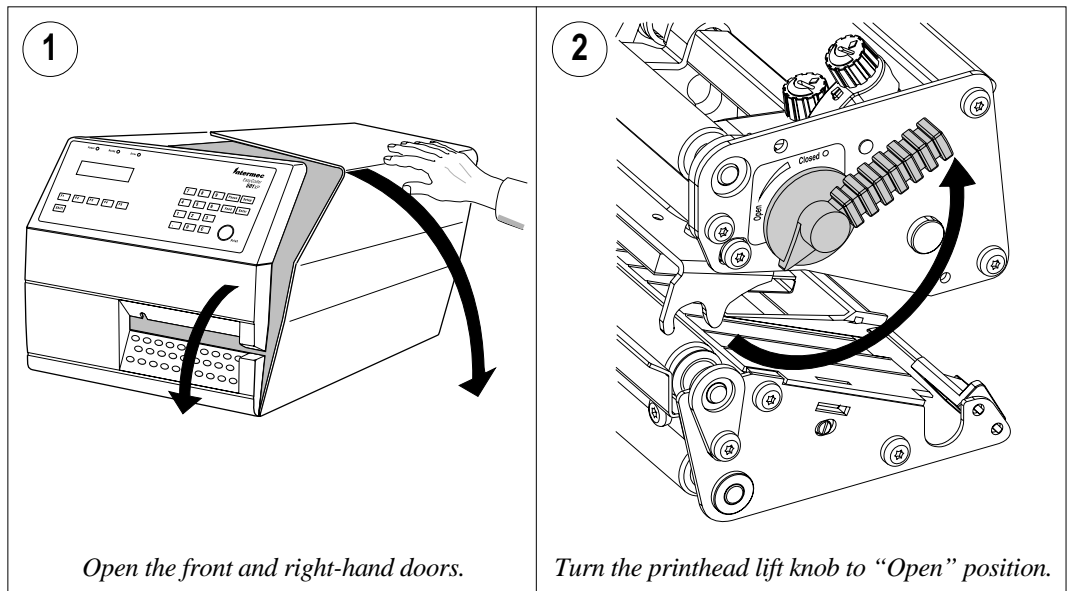


Peel Off

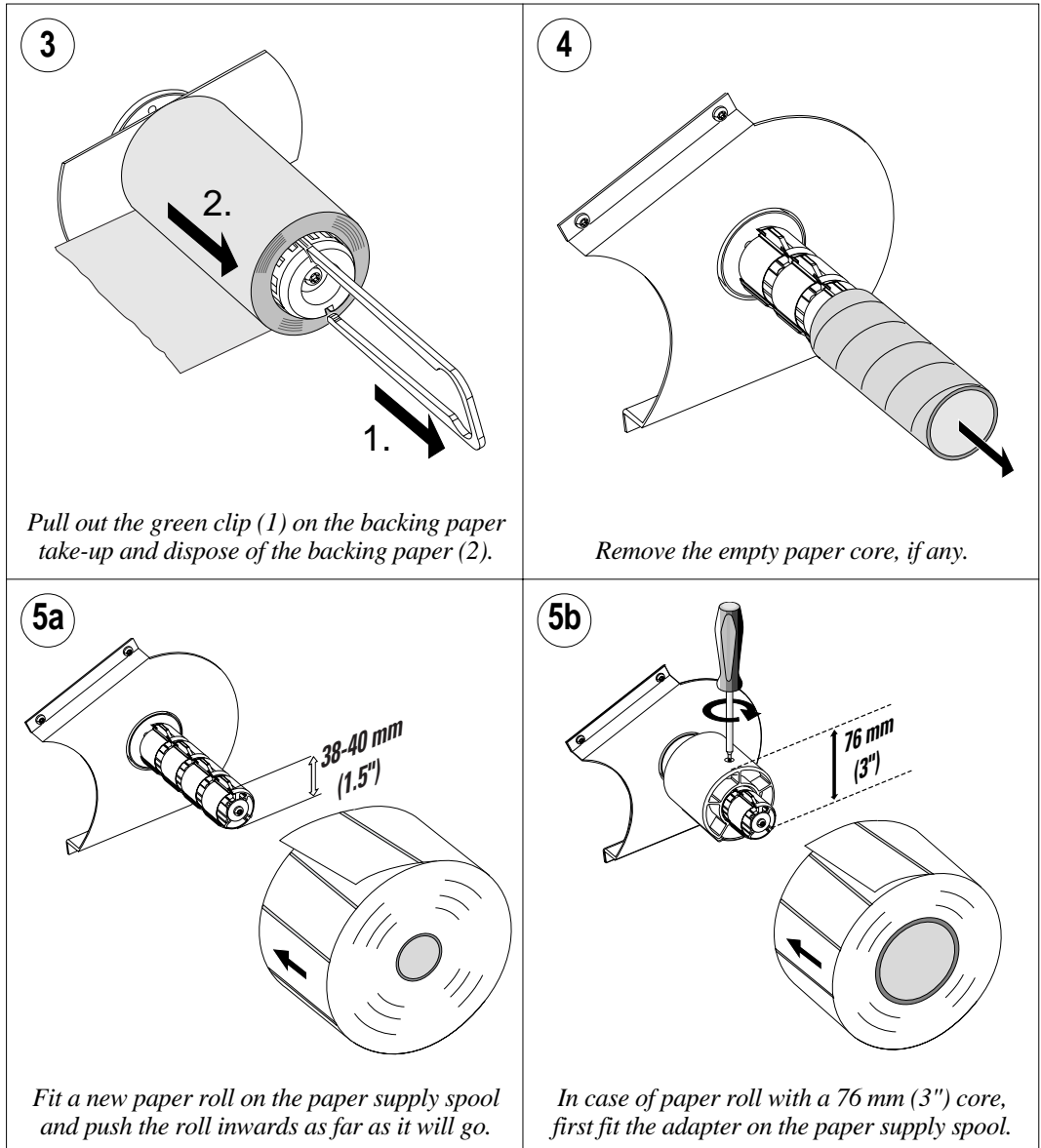
The EasyCoder 501 XP can print on labels, tickets, tags, and paper strip in various forms. This chapter describes the case when precut labels fitted on backing paper (liner) is to be separated from the backing paper after printing. This requires an **optional** internal rewind unit, on which the backing paper is rewound after the labels have been printed and dispensed.

Peel-off can be used for:

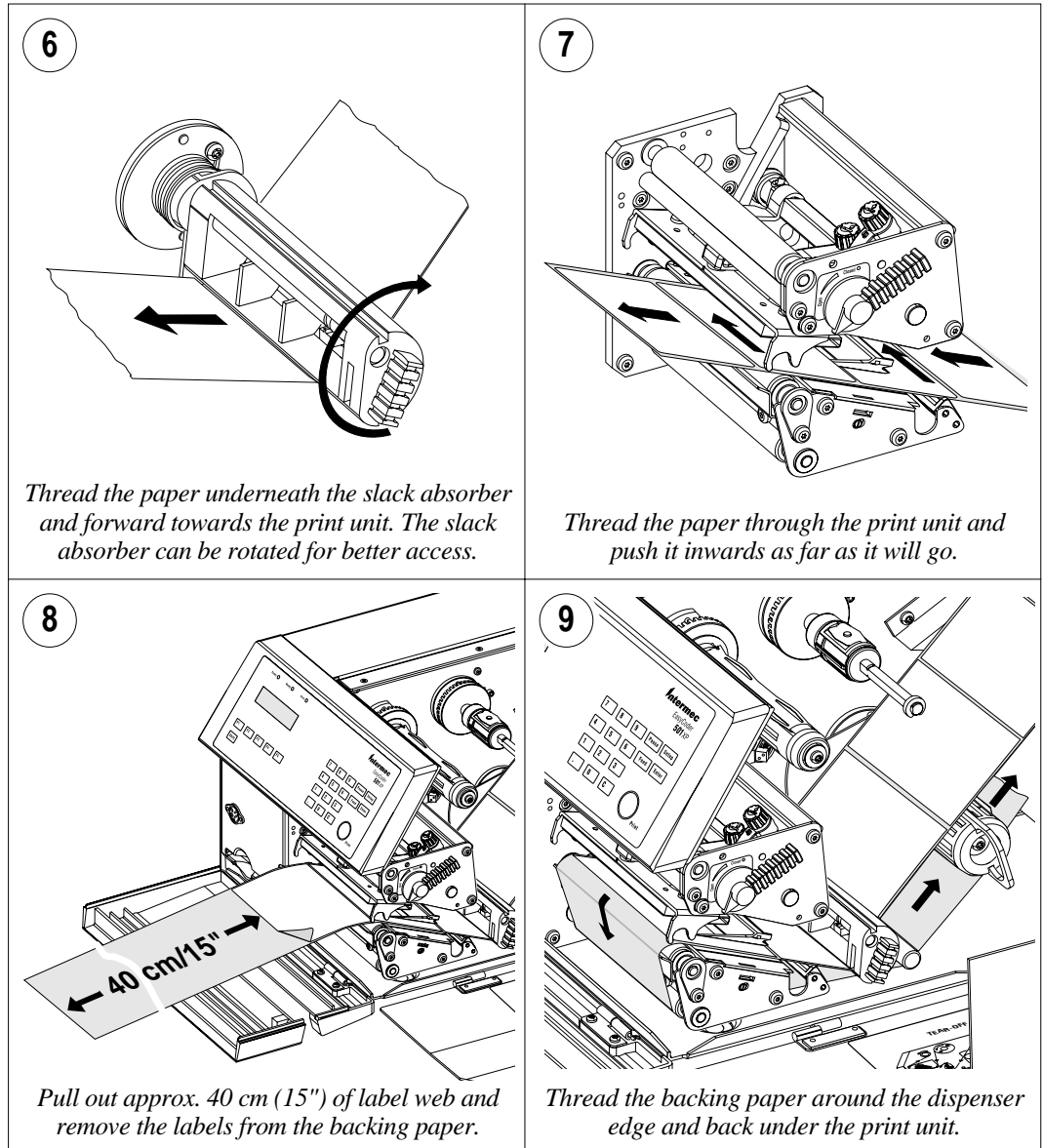
- Self-adhesive labels fitted on backing paper.



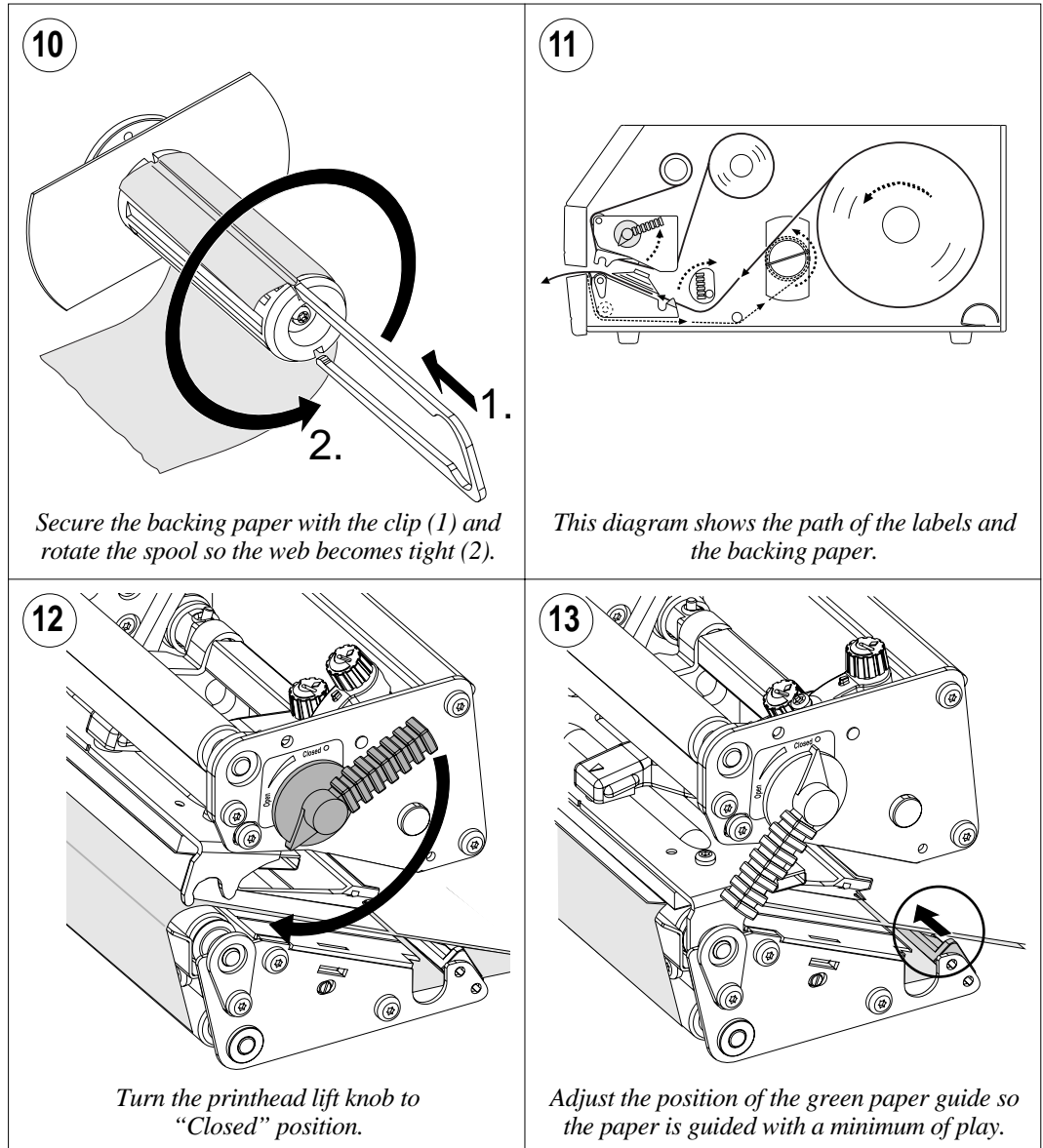
Peel Off, cont'd.



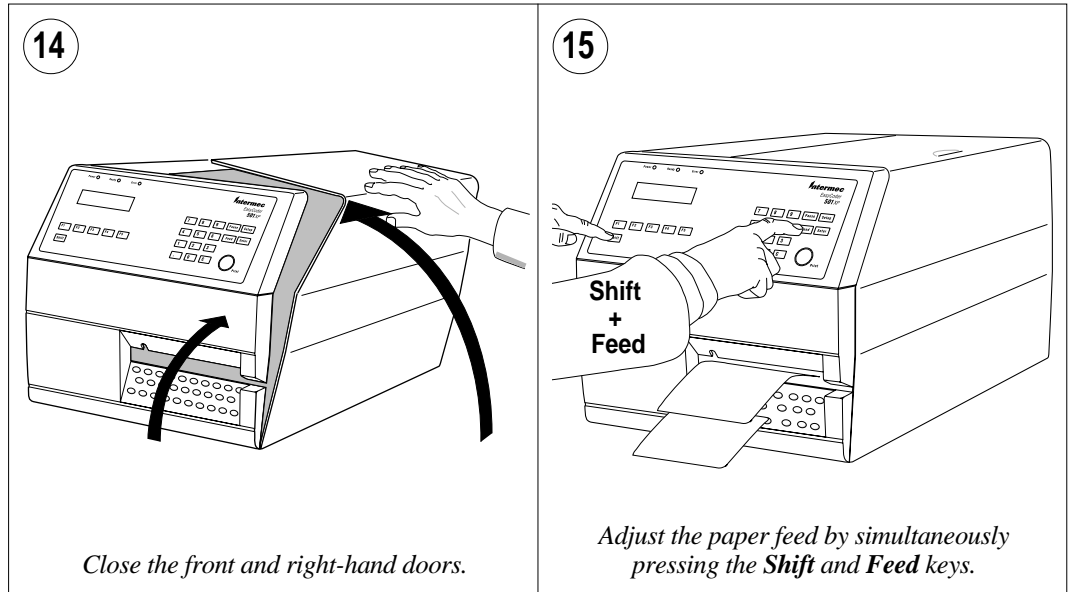
Peel Off, cont'd.



Peel Off, cont'd.



Peel Off, cont'd.



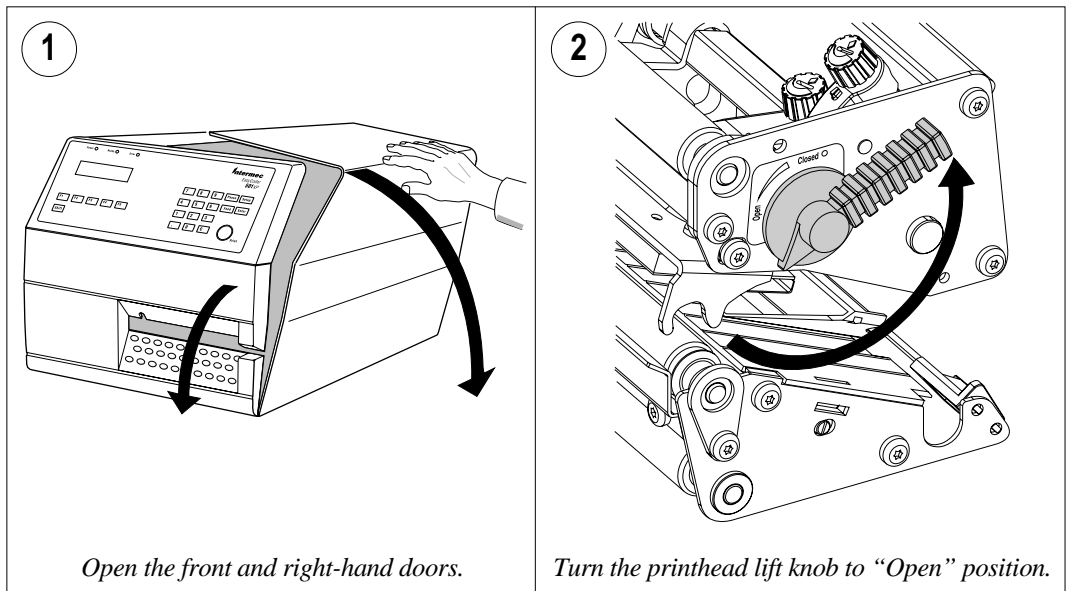
Internal Rewind

The EasyCoder 501 XP can print on labels, tickets, tags, and paper strip in various forms. This chapter describes the case when printed labels fitted on backing paper (liner) or pre-perforated tickets and tags is rewound on a spool inside the printer. The roll of printed labels, tickets or tags can then be removed from the spool and be handled manually. This requires an **optional** internal rewind unit.

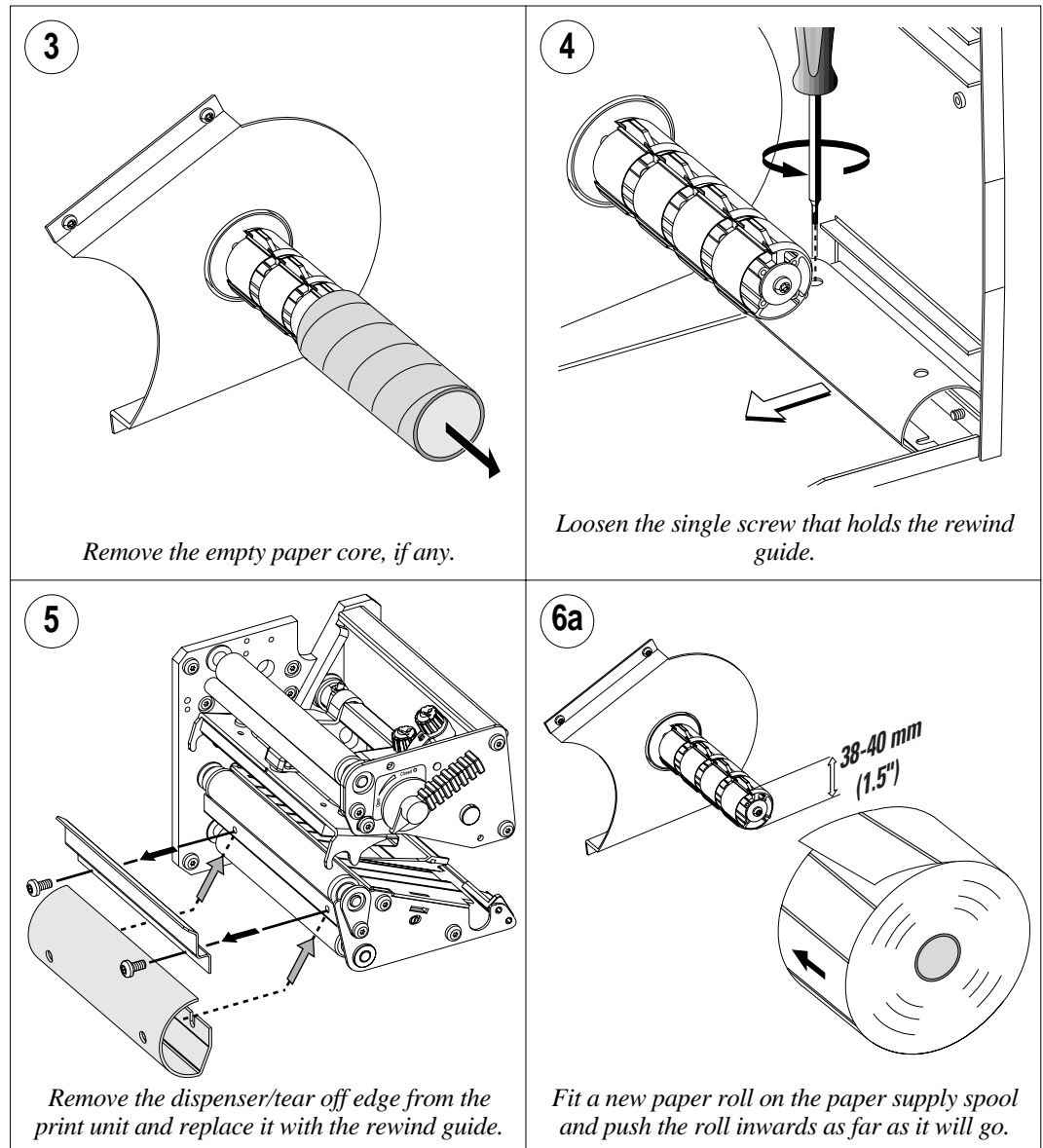
The rewind spool can accommodate $\frac{1}{4}$ to $\frac{1}{3}$ of a full-size paper roll. If larger capacity is required, use an external rewinder.

Rewind can be used for:

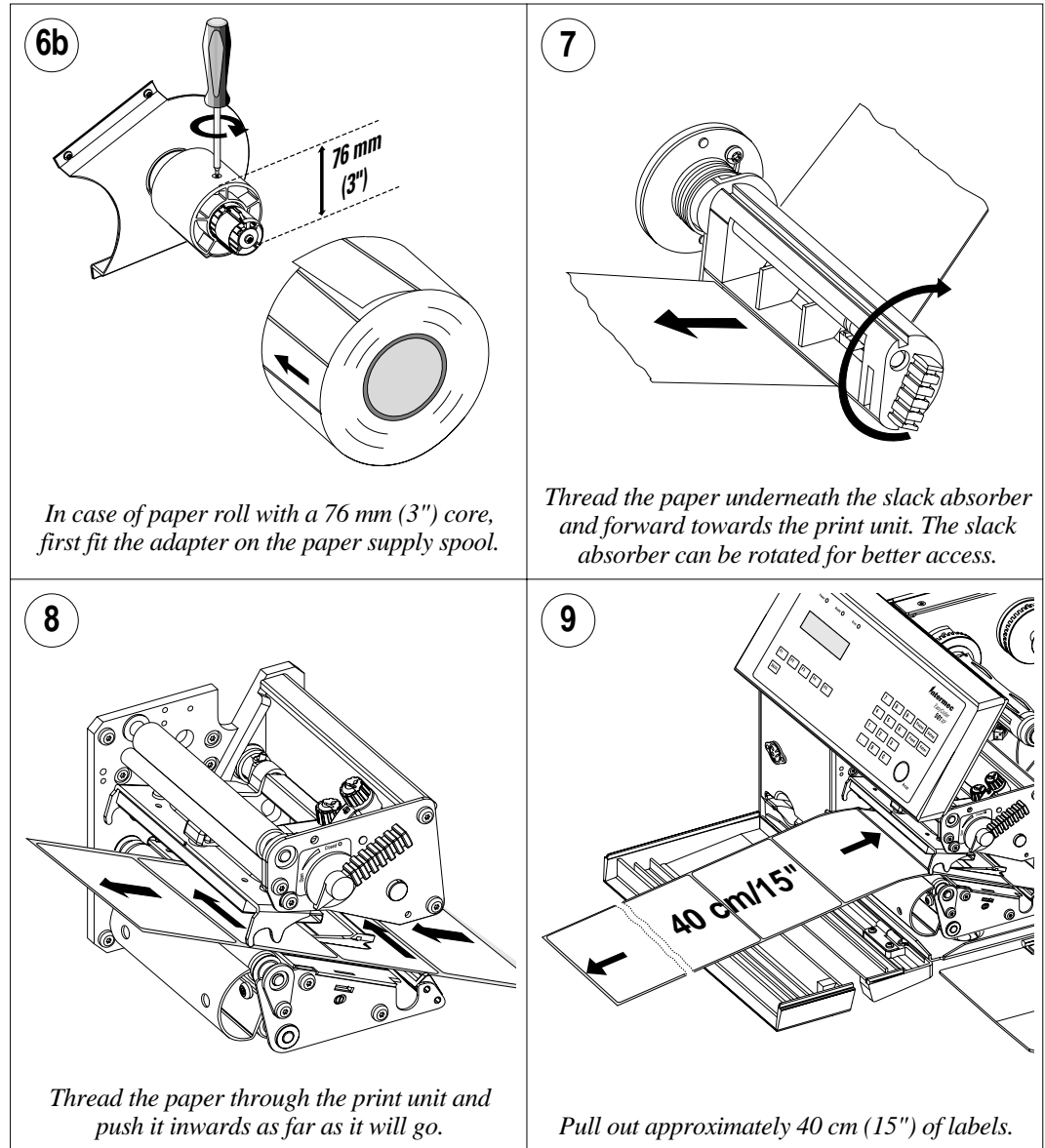
- Self-adhesive labels on backing paper
- Tickets with gaps with perforations
- Tickets with marks with perforations



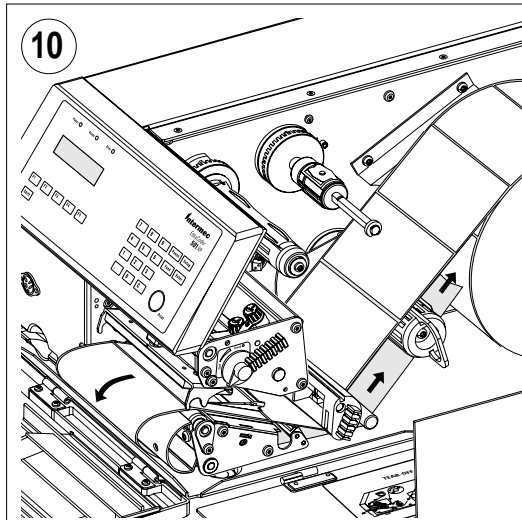
Internal Rewind, cont'd.



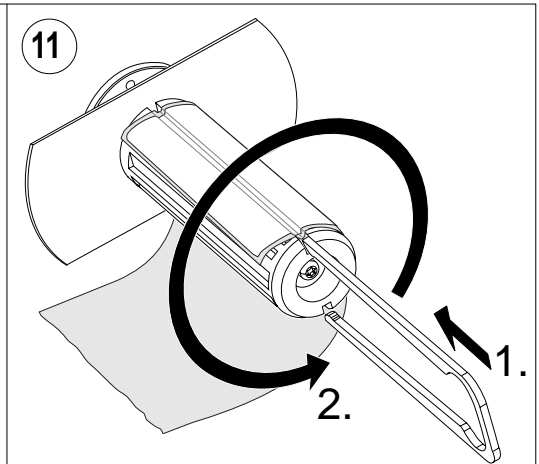
Internal Rewind, cont'd.



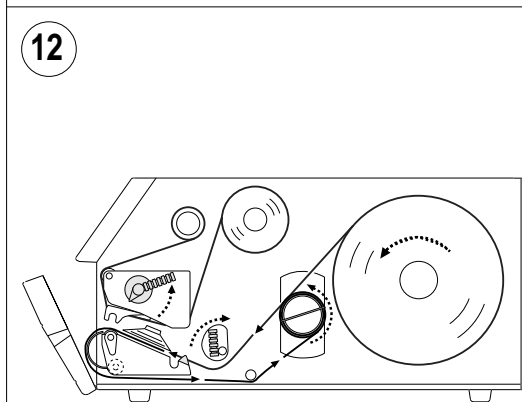
Internal Rewind, cont'd.



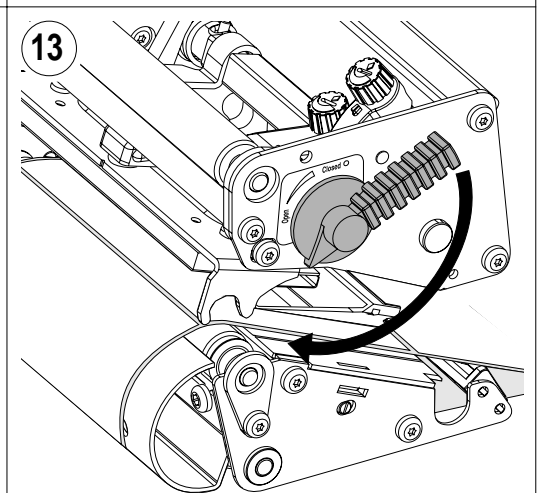
10
Thread the labels around the rewind guide and back under the print unit to the rewind spool



11
Wind up the end of the label web on the rewind spool and secure it with the clip.

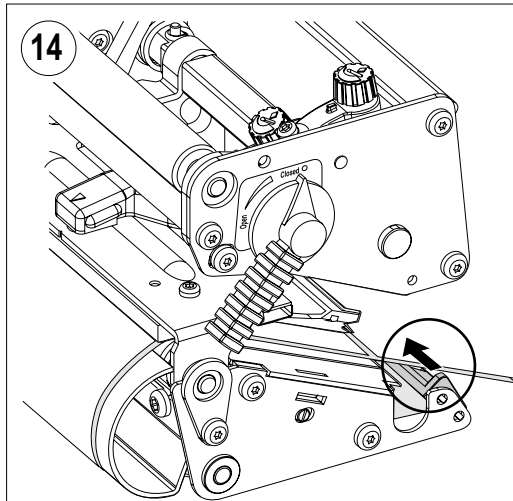


12
This diagram shows the path of the label web.

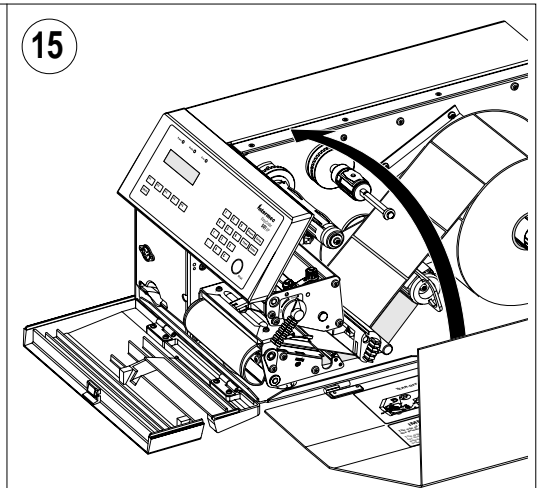


13
Turn the printhead lift knob to "Closed" position.

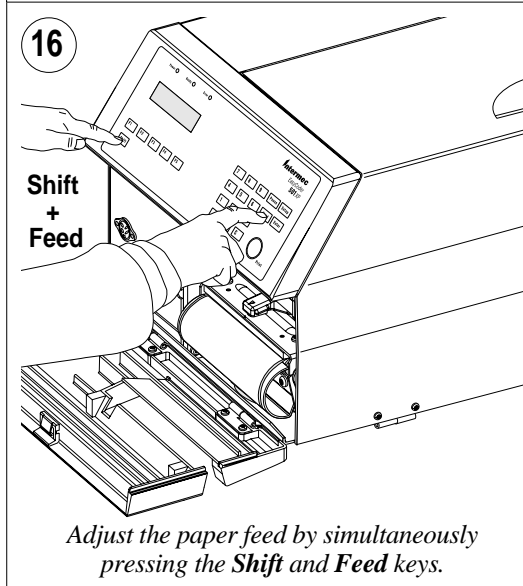
Internal Rewind, cont'd.



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



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



*Adjust the paper feed by simultaneously pressing the **Shift** and **Feed** keys.*

External Supply

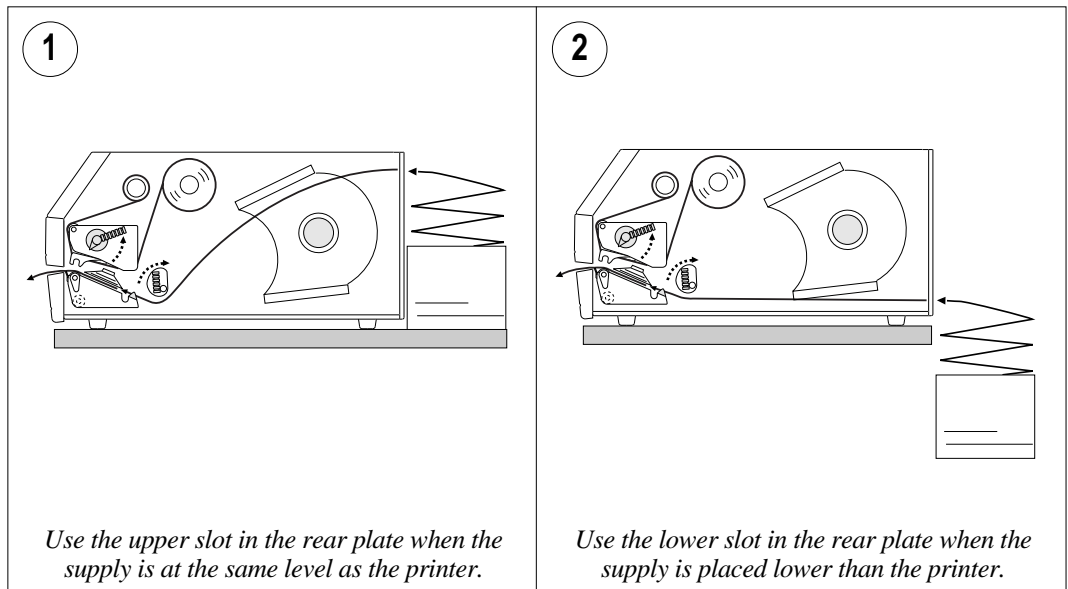
The EasyCoder 501 XP can print on labels, tickets, tags, and paper strip in various forms. This chapter describes the case when an external paper supply is used, e.g. a stack of fan-fold tickets or an external paper roll.

Even if it is possible to simply let the paper enter the printer through either of the two slots in the rear plate, it is recommended to fit the optional Intermec Fan-Fold Kit, which provides better guidance of the paper web using adjustable paper guides fitted to either the upper or lower slot in the rear plate.

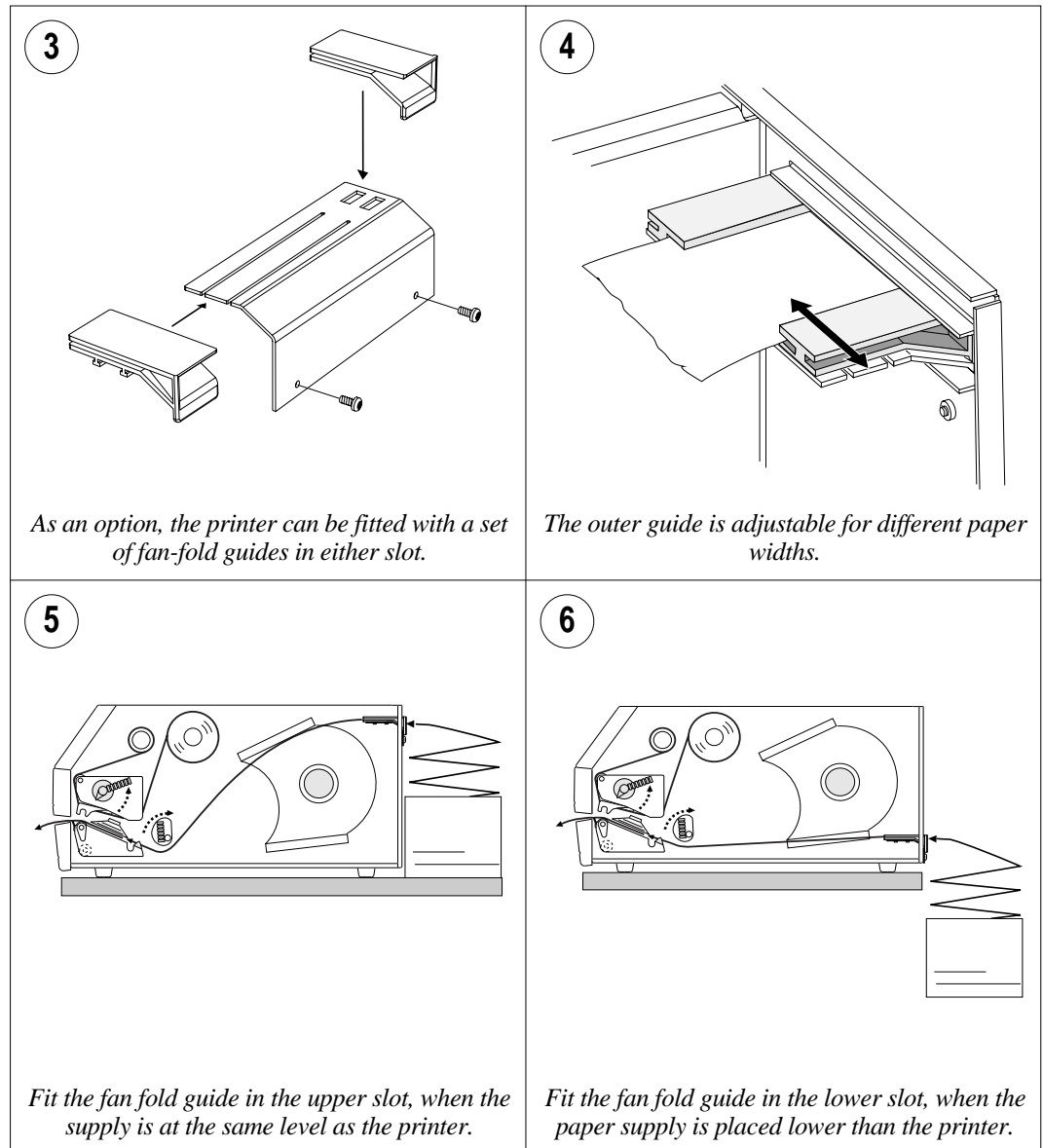
When using an external paper supply, take care to protect the paper from dust, dirt and other foreign particles, that can impair the print-out quality or cause unnecessary wear to the printhead.

External supply can be used for:

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



External Supply, cont'd.



Thermal Transfer Printing

Ribbon Load

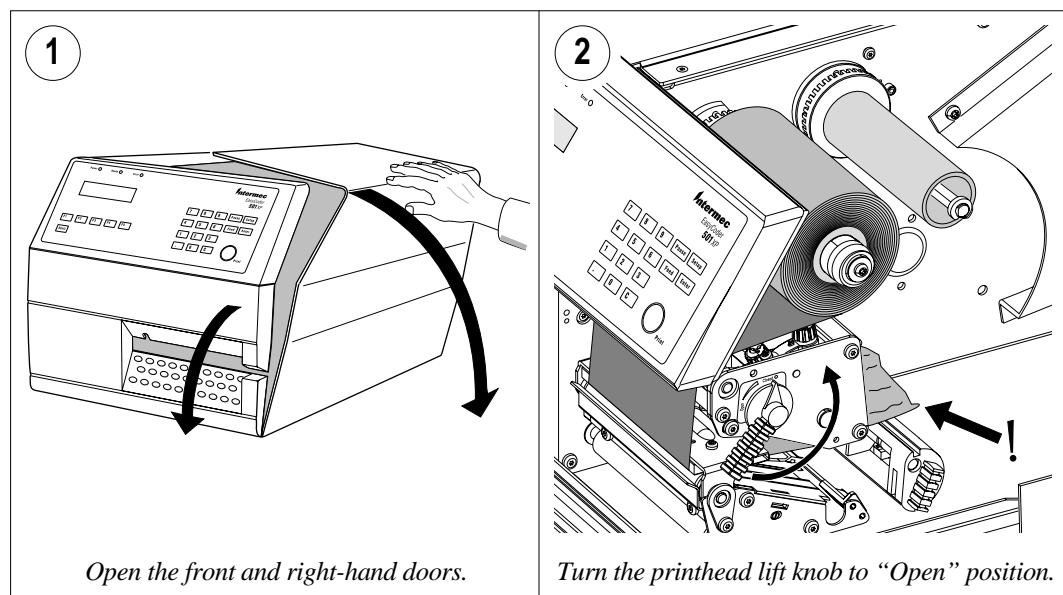
The EasyCoder 501 XP can print labels, tickets, tags etc. using either direct thermal printing on special heat-sensitive paper or thermal transfer printing using a special ink-coated ribbon.

The thermal transfer printing allows a wide range of receiving face materials to be used. Make sure to select a type of transfer ribbon that matches the type of receiving face material to be used (see Appendix 2 “Media Specifications”) and to set up the printer accordingly (see chapter 7 “Setting Up the Printer”).

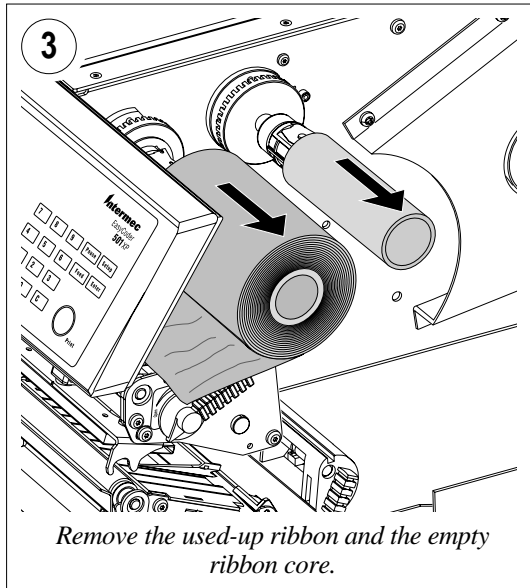
Transfer ribbons do not smear at room temperature.

NOTE!

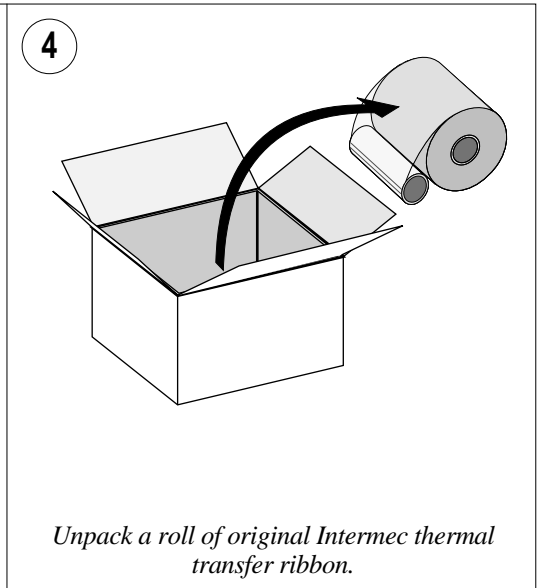
Only original transfer ribbons from Intermec must be used (see Appendix 2), or the printhead warranty will be invalidated.



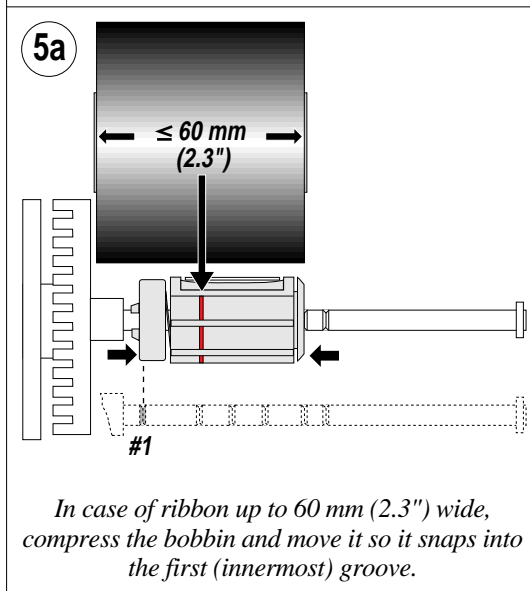
Ribbon Load, cont'd.



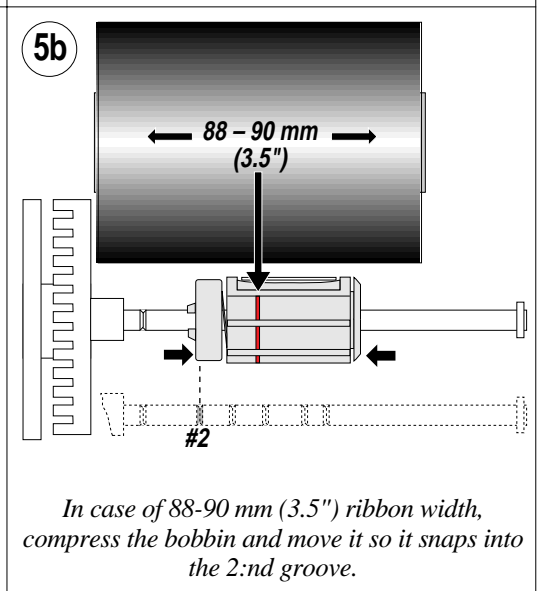
Remove the used-up ribbon and the empty ribbon core.



Unpack a roll of original Intermec thermal transfer ribbon.

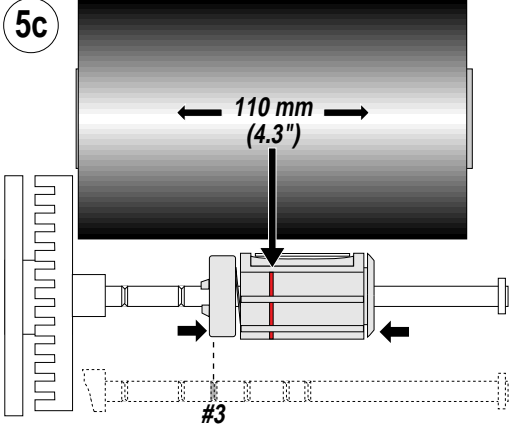
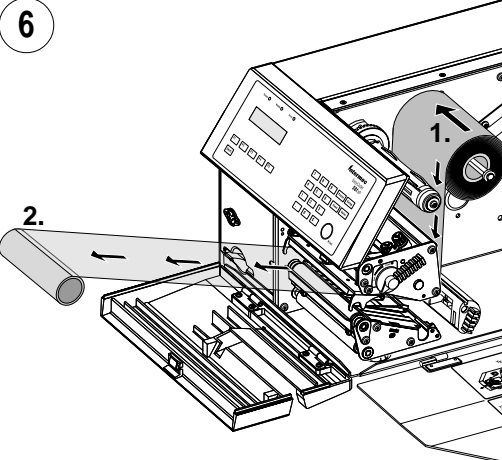
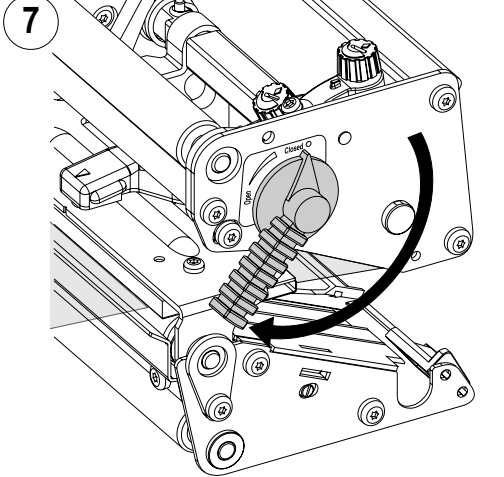
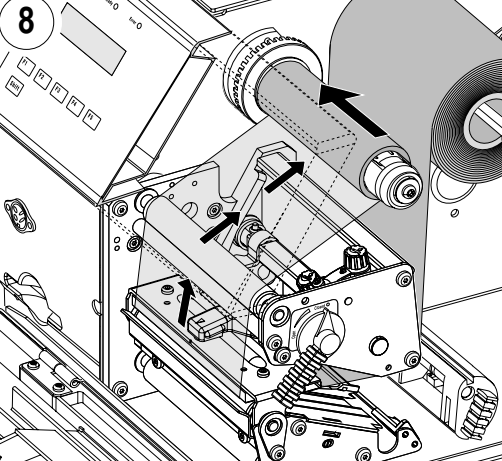


In case of ribbon up to 60 mm (2.3") wide, compress the bobbin and move it so it snaps into the first (innermost) groove.

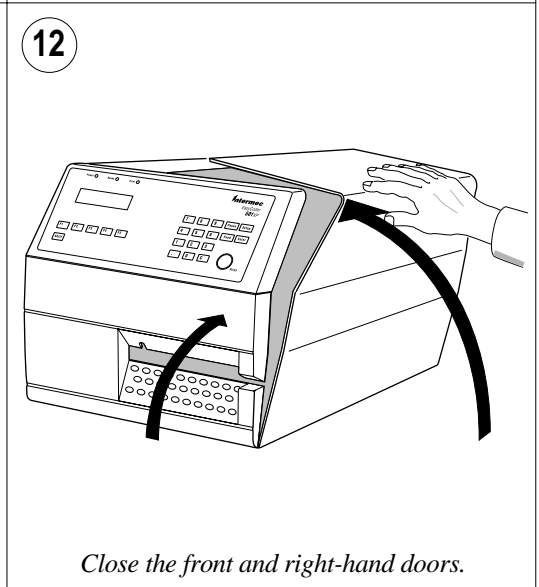
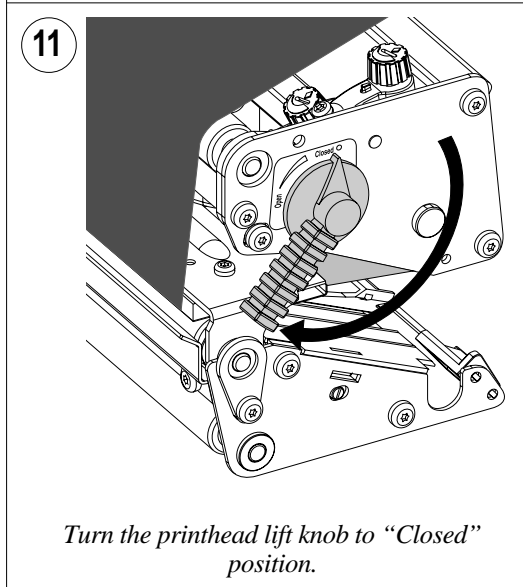
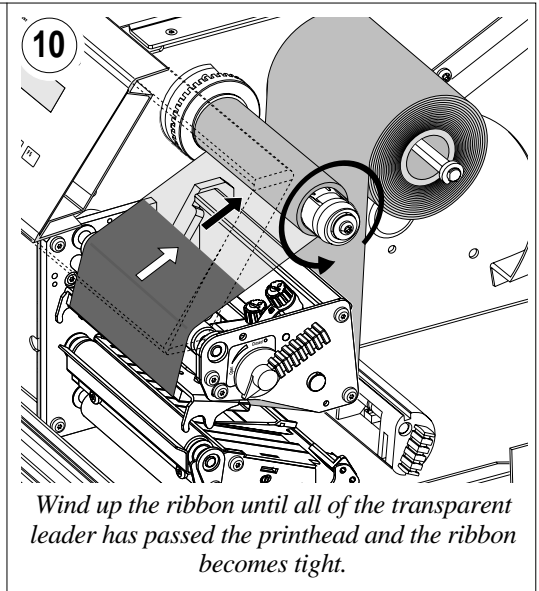
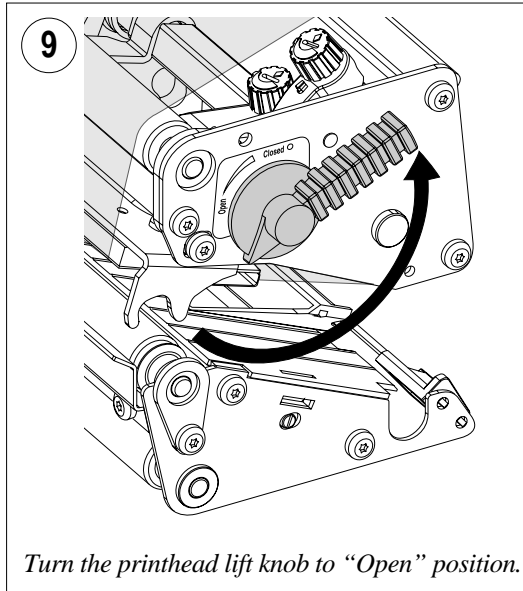


In case of 88-90 mm (3.5") ribbon width, compress the bobbin and move it so it snaps into the 2:nd groove.

Ribbon Load, cont'd.

<p>5c</p>  <p><i>In case of 110 mm (4.3") ribbon width, compress the bobbin and move it so it snaps into the 3:rd groove.</i></p>	<p>6</p>  <p><i>Press the ribbon roll onto the ribbon supply spool (1) and thread the ribbon through the print unit. Pull out approx. 20 cm (8") of ribbon (2).</i></p>
<p>7</p>  <p><i>Without releasing the ribbon, turn the printhead lift knob to "Closed" position to lock the ribbon.</i></p>	<p>8</p>  <p><i>Press the cardboard core at the front end of the ribbon onto the take-up spool. Both spools should rotate counter-clockwise.</i></p>

Ribbon Load, cont'd.



Setting Up the Printer

Description

The setup is used to control the printer in regard of serial communication, paper feed and print speed, and to specify which type of paper and ribbon is loaded in the printer.

Check the list of default setup values below to see if the printer's setup matches your requirements. If not, you will have to change the setup, which can be done manually via the printer's built-in keyboard, remotely from the host computer, or by reading a bar code containing setup data with the optional EasySet bar code wand. The setup may also be changed, partially or completely, by certain application programs.

- ***In the Setup Mode:***

- Press the <Setup> key on the printer's built-in keyboard to enter the Setup Mode.
- Select the Setup option in Intermec Shell to enter the Setup Mode.
- Execute the Intermec Fingerprint SETUP instruction to enter the Setup Mode.

See chapter 8 "Setup Mode" in this manual.

- ***In Intermec Shell:***

- Use Terminal Setup option to change the setup remotely from the host.

Note that Intermec Shell automatically sets up the printer in regard of communication when an application is selected.

See chapter 9 "Intermec Shell" in this manual.

- ***In Intermec Fingerprint:***

- Use Setup strings to change individual setup parameters remotely from the host.
- Use Setup files to create sets of setup parameters remotely from the host.

See SETUP statement in the Intermec Fingerprint 7.12 Reference Manual.

- ***In the Intermec Direct Protocol:***

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

See Intermec Direct Protocol 7.12 Programmer's Guide.

- ***Using the EasySet Bar Code Wand:***

- Read a Code 128 bar code containing the setup parameter i.d. and the desired value or choice.

See separate sheet included in the delivery.

Default Setup

The printer is by default set up according to the list below:

Ser-Com "uart1:"

Baudrate	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	100
Ribbon Factor	25
Label Offset	0
Contrast	±0%

Print Defines:

Print speed:	150 mm/sec.
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The printer's current setup values can be read from the display by browsing through the Setup Mode, or from the host by browsing through the Terminal Setup of Intermec Shell.

You can list the printer's current setup values by printing test label #5 in the Setup Mode or using Intermec Shell.

The current setup values can be returned to the host by means of a **SETUP WRITE "uart1:"** statement (see Intermec Fingerprint 7.12 Reference Manual).

Setup Parameters

Serial Communication

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

The serial communication setup controls the communication between the printer and the connected computer or other devices on the standard serial channel "uart1:" and the optional serial channel "uart2:". The latter channel require an optional interface board to be fitted. The printer's firmware detects if an optional interface board is fitted and presents additional sets of communication setup menus for the extra serial channel "uart2:" after "uart1:".

The serial communication setup has no consequence whatsoever for parallel communication or for the IN and OUT ports on the optional Industrial Interface Board.

For each serial communication channel, 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.

Baudrate

The baudrate is the transmission speed in bits per second. There are 9 options:

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

Character Length

The character length specifies the number of bits in a character. For most purposes 7 bits will be sufficient, but if special characters or characters specific for other languages are to be used, 8 bits are recommended. Refer to the Intermec Fingerprint 7.12 Reference Manual for information on which characters are available in various combinations of character length and character set.

- 7 Characters ASCII 0 – 127 decimal
- 8 Characters ASCII 0 – 255 decimal (default)

Setup Parameters, cont'd.

Serial Communication, cont'd.

Parity

The parity decides how the software 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, e.g. *MS Windows Terminal*, RTS/CTS is designated "Hardware".

RTS/CTS cannot be selected for any kind of RS 422 communication on "uart2:".

- ***ENQ/ACK***

In this protocol, the communication is controlled by the special 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.

Setup Parameters, cont'd.

Serial Communication, cont'd.

- **XON/XOFF**

In this protocol, the communication is controlled by the special 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 by 75%, and the transmission from the host is held up awaiting an XON character. When enough data have been processed that 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 may differ.

By default, XON/XOFF is disabled for data both ways.

New Line

This setup parameter allows you select 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 received on the serial channel before transmission. Default size is 300 bytes.

Connected Hardware ("uart2:" only)

In case of an optional interface board, you can read (but not set) the type of connected hardware as one of the following alternatives:

- RS232
- 422 non isolated
- 422 isolated

Setup Parameters, cont'd.

Feedadjust

- Startadjust
- Stopadjust

The Feedadjust part of the Setup Mode is used to feed out or pull back the paper 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 paper 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 and individual differences between printers.

Peel Off (labels):

Start adjust: -115 (≈ 10 mm)
Stop adjust: -60 (≈ 5 mm)

Tear Off (labels & strip):

Start adjust: -175 (≈ 15 mm)
Stop adjust: 0 (0 mm)

Cut Off (labels & strip):

Start adjust: -425 (≈ 35 mm)
Stop adjust: +250 (≈ 21 mm)

Note that in all three cases, the sum of the start and stop adjustments is 175 dots which approximately equals the distance between dot line and tear off edge.

Start Adjust

The Start Adjust value is given as a positive or negative number of dots (1 dot = 0.083 mm = 3.27mils). Default value is 0, which places the origin ≈ 15 mm (0.60") from the forward edge of the copy (i.e. equal to the distance between the dot line on the printhead and the tear off edge).

- A **positive** start adjustment means that the specified length of paper web will be fed out before the printing starts, i.e. the origin is moved away from the forward edge of the copy.
- A **negative** start adjustment means that the specified length of paper web will be pulled back before the printing starts, i.e. the origin is moved towards the forward edge of the copy. A negative start adjustment is used when you want to print closer to the top (forward edge) of the copy than 15 mm (0.59").

Stop Adjust

The Stop Adjust value is given as a positive or negative number of dots (1 dot = 0.083 mm = 3.27mils). Default value is 0, which stops the paper feed in a position suitable for tear off operation.

- A **positive** stop adjustment means that the normal paper feed after the printing is completed will be increased by the specified value. This case e.g. is suitable for use with a paper cutter where the cutting edge is located ≈ 35 mm (1.4") in front of the dot line.
- A **negative** stop adjustment means that the normal paper feed after the printing is completed will be decreased by the specified value. Typically, this is used for peel off operation, where it is desired that the label is not completely separated from the backing paper, but remains hanging on to it by its rear edge.

Setup Parameters, cont'd.

Media

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

The media setup tells the firmware the characteristics of the of media that will be used, so the printout will be positioned correctly on the paper 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

X-start specifies the position of the origin along the dots on the printhead. By default, X-start is set as 36, which corresponds to a distance of 3 mm (.12") from the inner edge of the paper web.

Number of dots	:	1280
Max. print width (X-start = 36) .	:	103.7 mm (≈ 4.1")
Max. print width (X-start = 0) ...	:	106.6 mm (≈ 4.2")

By setting a value larger than 36 for the X-start parameter, the origin will be moved outwards, away from the inner edge of the web. In other words, the larger X-start value – the wider inner margin and the less available print width. Correspondingly, changing the X-start to less than the default value of 36 will make the inner margin smaller and increase the available print width.

Width

Width specifies the width of the printable area and is defined as a number of dots from the origin. The sum of the X-start value and the width value gives the outer margin of the printable area. The width must not be so large as to allow printing outside the paper web.

Length

Length decides the length of the printable area from origin and along the Y-coordinate as a number of dots by allocating memory space in the printer's temporary memory. Two identical image buffers are created. 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 more or larger DRAM SIMMs on the printer's CPU board as described in the Service Manual.

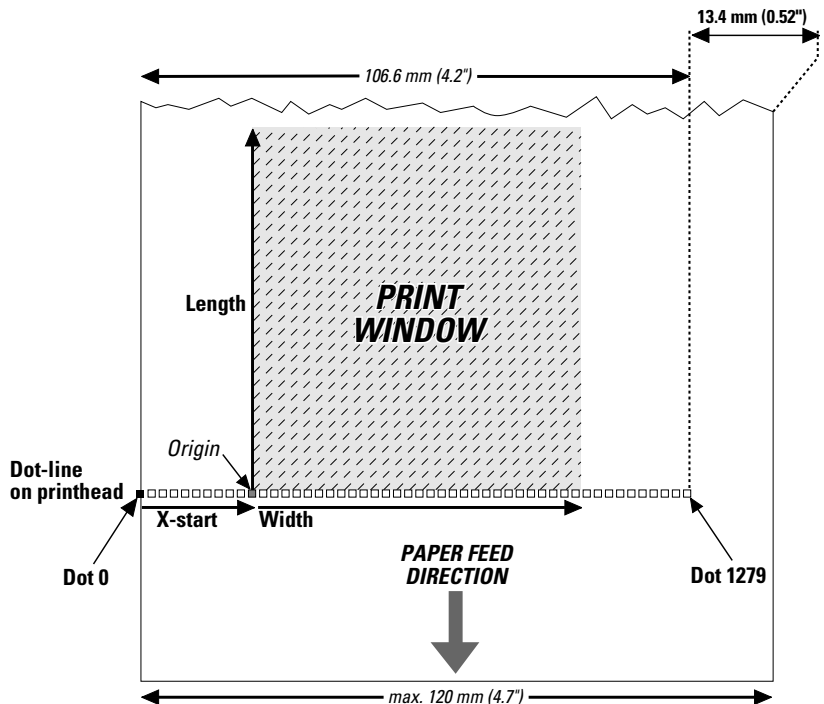
Setup Parameters, cont'd.

Media, cont'd.

Length, cont'd.

- The length setup also decides the amount of paper 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 LSS has not detected a gap or mark within 150% of the set length, the paper feed is automatically stopped to avoid feeding out a whole roll of paper, because of e.g. a blocked or faulty LSS.

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 protruding outside the print window in any direction will cause an error condition (*Error 1003 “Field out of label”*).



Setup Parameters, cont'd.

Media, cont'd.

Media Type

The Media Type setup controls how the LSS and the paper feed work. There are five different media types:

- **Label (w gaps)** is used for adhesive labels mounted on backing paper.
- **Ticket (w mark)** is used for labels, tickets, or strip provided with black marks at the back of the paper web.
- **Ticket (w gaps)** is used for tickets and tags with detection slits.
- **Fix length strip** means that the length of the print window decides the length of strip to be fed out.
- **Var length strip** adds 195 dots of paper 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 strip to be torn off.

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

- *Error 1005 “Out of paper”* indicates that the last ordered copy could not be printed because of an empty paper 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 paper stock.

Paper Type

The Paper Type setup controls the heat emitted from the printhead to the transfer ribbon or direct thermal paper 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

Your choice will decide which parameters to enter and also enable or disable the ribbon end sensor.

Thermal Transfer Printing

This option contains three parameters:

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

Direct Thermal Printing

This option contains two parameters:

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

Setup Parameters, cont'd.

Media, cont'd.

Note:

When printing at ambient temperatures at +15°C (+59°F) or lower, decrease the max. print speed value by 100 mm/s, e.g. from 225 to 125 mm/s.

Recommended Settings

Intermec recommends 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. Use the EasySet bar code wand for easy media setup. Ribbon and label materials are available from Intermec either in standardized types and sizes, or in special materials and sizes on request.

When adjusting the image darkness for individual requirements or new label materials, proceed as follows:

Direct Thermal Printing

Keep the Label Factor at the recommended value for the type of direct thermal paper. Then 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.

Thermal Transfer Printing

Keep the Ribbon Factor for each quality at the recommended value. Then 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.

Thermal Transfer Printing (Europe)

Ribbon Type	Receiving Material	Ribbon Constant	Ribbon Factor	Label Offset	Max Rec. Print Speed (mm/sec)	
					Picket Fence Bar Code	Ladder Bar Code
GP02	Vellum	80	25	0	200	200
	Matte Coated	80	25	0	200	200
	Transfer Premium	70	25	0	250	250
HP07	Premium Tag	105	25	0	100	100
	Matte Coated	100	25	0	225	200
	Transfer Premium	90	25	0	300	225
	Polyethylene Matt	85	25	0	200	200
HP66	Premium Tag	105	25	0	250	200
	Matte Coated	100	25	0	250	200
	High Gloss White	95	25	0	300	225
	Polyethylene Gloss	95	25	0	200	200
	Transfer Premium	90	25	0	300	250
	Polyethylene Matt	85	25	0	225	200
HR03	Polyester Gloss	100	30	0	250	200

Setup Parameters, cont'd.

Media, cont'd.

Thermal Transfer Printing (North America)

Ribbon Type	Receiving Material	Ribbon Constant	Ribbon Factor	Label Offset	Max Rec. Print Speed (mm/sec)	
					Picket Fence Bar Code	Ladder Bar Code
Standard	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
Premium	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
Super Premium	Polyester	90	30	0	150	150

Direct Thermal Printing (Europe)

DT Type/Speed	Paper Designation	Label Constant	Label Factor	Max Rec. Print Speed (mm/sec)	
				Picket Fence Bar Code	Ladder Bar Code
Top Coated/Standard	Top Board	100	40	200	150
	Premium	95	40	200	200
Non Top Coated/Standard	Economy	85	40	200	200
	Eco Board	80	40	200	150
Top Coated/High	Premium High Speed	80	30	250	250

Direct Thermal Printing (North America)

DT Type/Speed	Paper Designation	Label Constant	Label Factor	Max Rec. Print Speed (mm/sec)	
				Picket Fence Bar Code	Ladder Bar Code
Top Coated/Standard	Duratherm II Tag	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

Contrast

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

Setup Parameters, cont'd.

Media, cont'd.

Testfeed

The sensitivity of the label stop sensor (LSS) may need to be adjusted, e.g. when switching from one type of media to another. This is especially the case when using self-adhesive labels fitted on a semi-transparent backing paper (liner). 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 paper feed control can position the paper according to the Feedadjust setup (same as the Intermec Fingerprint statement TESTFEED).

Print Defines

- Head Resistance
- Testprint
- Print Speed

Head Resistance

The printhead resistance is measured automatically at startup and can only be read.

Testprint

A number of test labels can be printed. Test label #1 – 4 are intended for checking the printout quality and facilitate adjustment of the printhead pressure (see chapter 13 “Adjustments”). Test label #5 lists the printer's current setup (an extra label will be printed if the printer is fitted an optional interface board). The test labels are illustrated on next page. If the printer refuses to print a test label, press the <F3> key to find out what is wrong, e.g. printhead lifted or out-of paper.

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 the case when printing bar codes with the bars running across the paper web (“ladder style”), when printing on demanding face materials, and when printing at low ambient temperatures. Refer to the tables on the two previous pages for maximum print speed values. The default setting is 150 mm/sec.

Setup Mode

Entering Setup Mode at Installation

The method of entering the Setup Mode depends on whether the printer is fitted with some kind of startup file, a subject that was more thoroughly discussed in the chapter 4 “Starting Up” earlier in this manual, to which the alphabetic references below refer.

A. EasyCoder 501 XP with Intermecc Shell

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

B. EasyCoder 501 XP with no startup file installed

- Turn on the power.
- In the immediate mode of Intermecc Fingerprint, press the <Setup> key.
- Set up the printer as described in this chapter.
- Exit to the immediate mode of Intermecc Fingerprint by pressing the <Setup> key.

C. EasyCoder 501 XP with a custom-made application program

- Normally, there will be 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 step between setup menus, acknowledge displayed values, select or type new values etc. by means of some of the keys on the printer's keyboard.

Note!

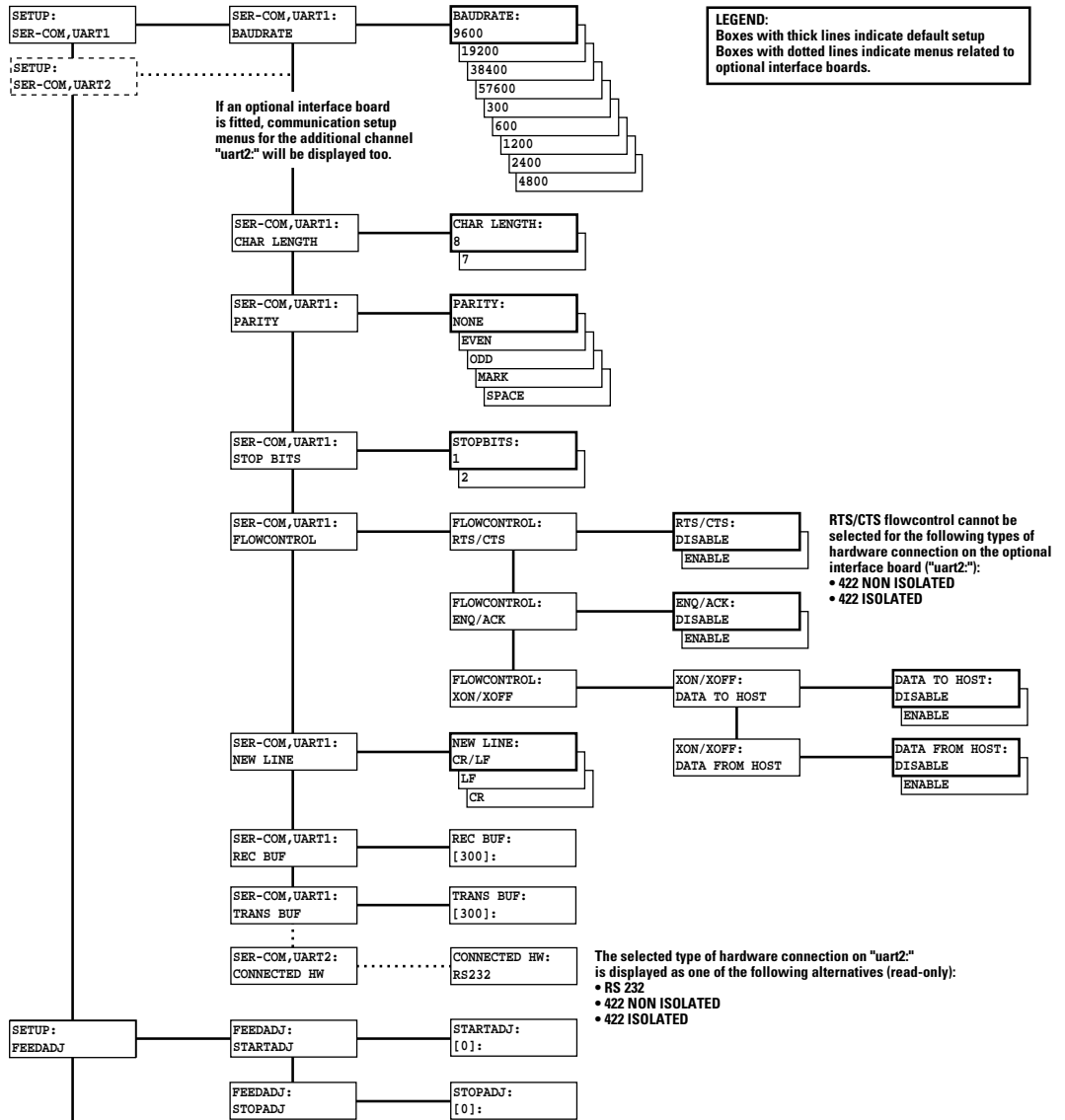
An external keyboard cannot be used inside the Setup Mode.

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 labels 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 the Setup Mode).

^{1/}. "Left", "right", "up", and "down" refer to the diagrams on the following pages.

Setup Mode Overview, Part 1

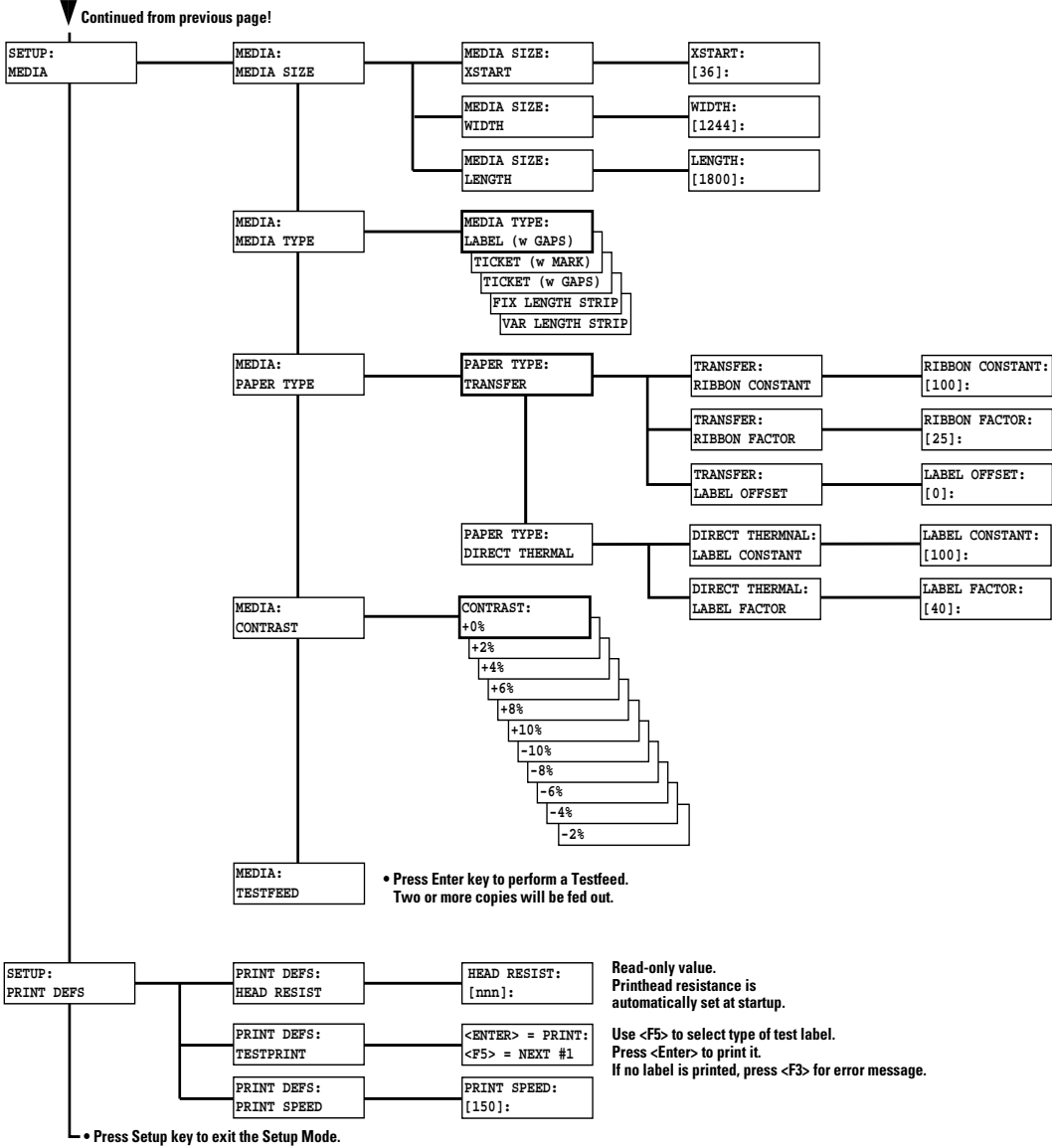
(Intermec Fingerprint 7.12)



Continued on next page!

Setup Mode Overview, Part 2

(Intermec Fingerprint 7.12)



Intermec Shell Startup Program

Introduction

Intermec Shell is a so called startup program (also called “autoexec-file”), i.e. a program that automatically starts running when the printer is turned 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 *(for printing Windows programs)*
- Intermec Fingerprint *(for creating your own programs)*
- Intermec Direct Protocol *(easy-to-use slave protocol)*
- LINE_AXP.PRG *(line analyzer program)*
- LSS-SENSOR.PRG *(LSS troubleshooting program)*
- Other application programs in the printer's memory¹

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 computer to a PC-card inserted 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:"). This implies that if you insert a memory card with another startup file before you turn 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 4; “Startup Files”).

^{1/}. A prerequisite is that the program is provided with the extension “.PRG”. However, some original Intermec utility programs are excluded:

ERRHAND.PRG
FILELIST.PRG
MKAUTO.PRG

Starting Up with Intermec Shell

A few seconds after you have turned 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.4.2
```

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

Provided you have a working two-way communication with a terminal program in a host computer, you may – as an alternative – enter the Terminal Setup by transmitting “**TTT**” or “**ttt**” to the printer. The Terminal Setup is described later in this chapter.

The lower line keeps you informed on 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. This implies that if you use the same application all the time, you will only need to turn on the power, once the application has been selected.

If no other application has been selected yet, the default choice will be displayed when the countdown is completed, e.g.:

```
FINGERPRINT  
7.12
```

This message means that you have entered the immediate mode of Intermec Fingerprint with "uart1:" (the standard RS 232C port) selected as std I/O channel (see Intermec Fingerprint manuals).

If you want to enter another application, just restart the printer and enter Intermec Shell before the countdown is completed.

If 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 three options:

- Go to a stack of menus, where you can select an application program, by pressing <Enter>.
- Go to the Facilities part of Intermec Shell by pressing <F5>.
- Start the Terminal Setup program by transmitting “**TTT**” or “**ttt**” from the host.

Starting Up with Intermec Shell, cont'd.

In Intermec Shell, the options are presented in stacks of menus, organized as infinite loops, where you can select the desired option, as illustrated by the diagram below.

Select Application

The Select application option allows you to enter a stack of menus showing the various application programs in the printer's memory.

- **Current appl.** starts the last selected application (by default Intermec Fingerprint with "uart1:" selected as std I/O channel).
- **Intermec LabelShop** sets up the printer¹ for the various Intermec LabelShop label design programs for Microsoft Windows. This option requires that you also select a std IN/OUT channel, i.e. the channel you want to use for communication between the printer and the computer. Refer to the Intermec LabelShop manuals.
- **Intermec Windows Driver** selects the parallel interface "centronics:" as standard IN/OUT channel and sets up the printer for the various Intermec Windows Drivers, which you can use on a personal computer to produce printouts from almost any program run under Microsoft Windows.
- **Intermec Fingerprint** is used to create, modify or run programs written in the Intermec Fingerprint programming language. This option requires that you also select a standard IN/OUT channel, i.e. the channel you want to use for communication between the printer and the computer (normally "uart1:"). For programming, do **not** use the parallel "centronics:" channel (one-way communication only). Refer to the Intermec Fingerprint manuals.
- **Intermec Direct Protocol** is an easy-to-use printer protocol for down-loading label layouts and variable input data to a printer from a host computer. This option requires that you also select a standard IN/OUT channel, i.e. the channel you want to use for communication between the printer and the host. Normally, select "uart1:". Refer to the Intermec Direct Protocol Programmer's Guide.
- **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 as described later in this chapter.
- **LSS-SENSOR.PRG** is a program that facilitates troubleshooting of the label stop sensor. Refer to the Service Manual.
- **Other Application Programs**
If the printer contains any other application programs – standard or custom-made – these will be presented as additional options.

¹/. When the Intermec Labelshop application is started, the printer's communication setup is changed to the following values:

Baudrate:	57600
Char. Length:	8
Parity:	None
Stopbits:	1
RTS/CTS:	Enable
ENQ/ACK:	Disable
XON/XOFF to host:	Disable
XON/XOFF from host:	Disable
New Line:	CR/LF
Receive buffer:	600
Transmit buffer:	600

If another application is selected later, these setup parameters will still be valid, unless the new application includes instructions to automatically change the setup. The setup could also be changed manually in the Setup Mode.

Starting Up with Intermec Shell, cont'd.

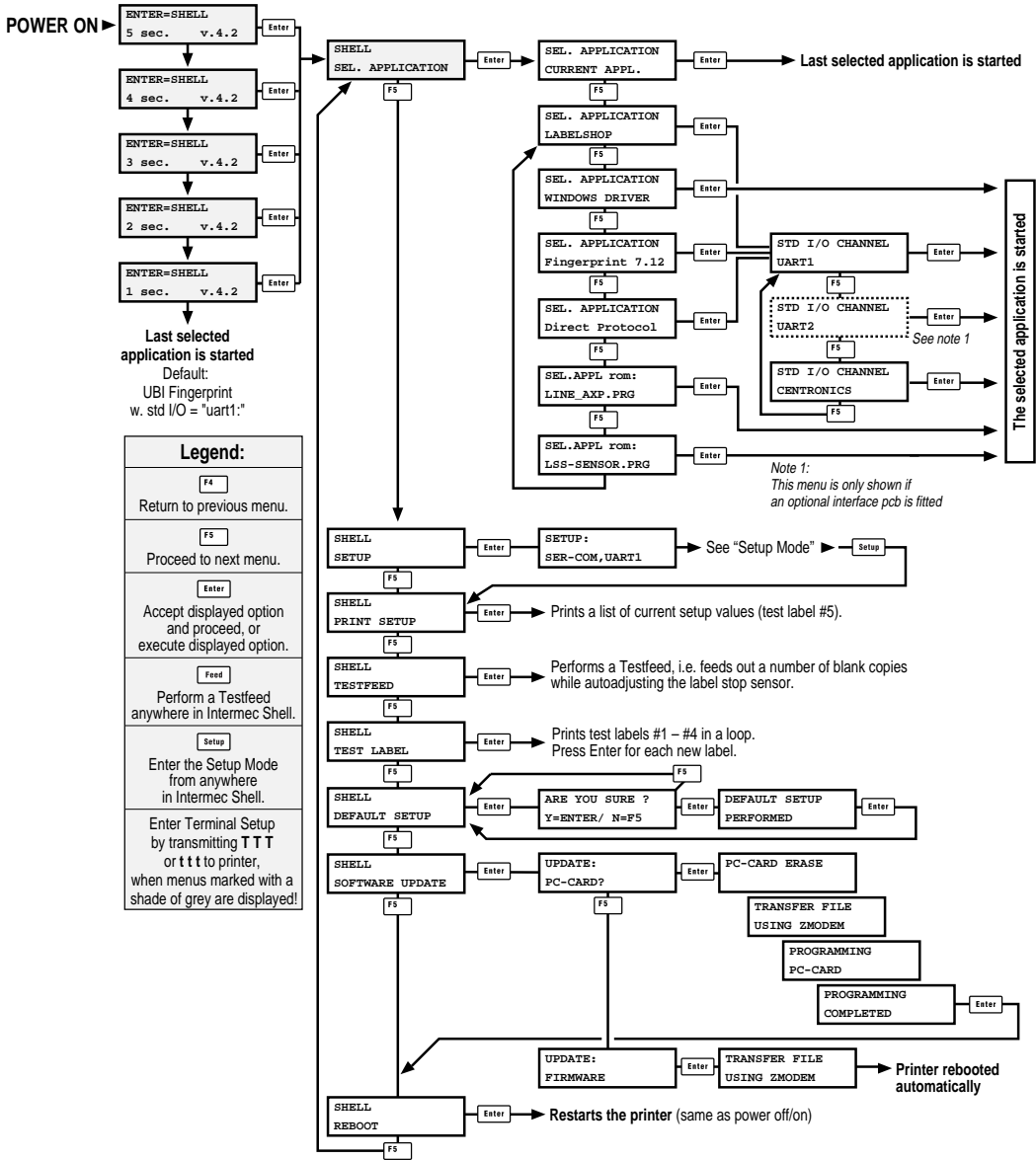
Select Other Facilities

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 to set up the printer by means of its built-in keyboard, see chapter 8 “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 pieces of strip while the printer auto-adjusts its paper feed and label stop sensor or black mark sensor. It is recommended to perform a Testfeed operation each time you load a new roll of labels (or similar).
- **Test Label** allows you to print a series of four test labels (test labels #1 – #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 respective default values, as listed in chapter 7.
- **Software Update** is used for two purposes:
 - **Update PC-card** allows the printer to be used as a Flash PC-card programming device. By means of the Zmodem communication tool, files can be downloaded from a PC to a Flash PC-card¹ inserted in the memory card slot in the printer's rear plate. *Warning! 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 turning off and on the power to the printer. To exit Intermec Shell without having selected any application program, use Reboot or restart the printer. Then wait for the 5 seconds countdown without taking any action, and the last selected application will be opened.

¹/. Only Flash PC-cards from Intermec and approved for the EasyCoder 501 XP/601 XP series can be used.

Intermec Shell Diagram



Terminal Setup

Starting Terminal Setup

The Terminal Setup program in Intermec Shell allows the operator to control the whole Intermec Shell program remotely from a host computer or terminal and also to read or change the printer's setup. Obvious prerequisites are that there must be a working two-way (serial) communication between printer and host, and that the host runs a suitable communication program (e.g. MS Windows Terminal) that can transmit and receive data in ASCII format, i.e. as printable characters. Set up the terminal as VT100.

You can enter Terminal Setup by transmitting three uppercase or lowercase **T** characters (**TTT** or **ttt**) while the printer either shows the Intermec Shell countdown menus or the Select Application menu.

Solving Communication Problems

If this does not work, the communication protocols of the printer and the host probably do not match, or there is some other communication error, e.g. a defect communication cable, wrong port selected on the host, or cable connected to some other port than "uart1:" on the printer¹.

You can check and change the printer's setup in the Setup Mode, which you can enter by pressing the <Setup> key on the printer's built-in keyboard. Proceed as described in chapter 8 "Setup Mode". Among the facilities in Intermec Shell, you will also find a number of options that allow you to read or change the communication setup of the printer:

- **Setup**
This is another way of entering the Setup Mode, where you can browse through the setup parameters and make changes by means of the printer's keyboard.
- **Print Setup**
Here you can print the current setup on one or more labels.
- **Default Setup**
This option allows you to reset the communication parameters for all serial communication channels on the printer to default values.

Change the communication setup of the printer according to the host or vice versa.

Once printer and host has been set up with the same communication parameters, go to the "Select Application" menu and use the triple T (**TTT** or **ttt**) to start Terminal Setup.

¹/. By default, "uart1:" is standard IN/OUT channel and should be used for communication between printer and host, e.g. for running Terminal Setup or for programming. However, other ports could be appointed standard IN and/or OUT channel by means of the Intermec Fingerprint statement SETSTDIO. Refer to the Intermec Fingerprint manuals for further information.

Terminal Setup, cont'd.

Using Terminal Setup

The Terminal Setup program is self-instructing by means of prompts. You can move around in Intermec Shell in the same manner as when you control Intermec Shell manually by means of the printer's display and keyboard.

The Setup part of Terminal Setup follows the same structure as setup files, see later in this chapter. Comprehensive explanations of the various setup parameters can be found in Chapter 7 "Setting Up the Printer".

When you transmit the triple T (**TTT** or **ttt**) to the printer, the following message will appear on printer's display:

```

SETUP FROM
TERMINAL

```

On the screen of the host, another message will appear:

```

-----
Welcome to SHELL v.4.2 in terminal mode
-----

```

Answer **Y** <CR> for Yes, <CR> for No.

```

-----
SHELL
SEL. APPLICATION
-----

```

(Y / N / B):

From here on, you can move around in Intermec Shell according to the diagram in the chapter "Using Intermec Shell" by answering **Y** (=Yes), **N** (=No), or **B** (=Back) to the prompts that successively appear on the screen.

Note that the program also accepts the corresponding lowercase characters, e.g. **y**, **n**, and **b**.

Terminal Setup, cont'd.

Selecting an Application

This example shows how you for example can select the Intermec Fingerprint application:

```
-----  
SHELL  
SEL. APPLICATION  
-----
```

(Y / N / B):Y

```
-----  
SEL. APPLICATION  
CURRENT APPL.  
-----
```

(Y / N / B):N

```
-----  
SEL. APPLICATION  
LABELSHOP  
-----
```

(Y / N / B):N

```
-----  
SEL. APPLICATION  
WINDOWS DRIVER  
-----
```

(Y / N / B):N

```
-----  
SEL. APPLICATION  
Fingerprint 7.12  
-----
```

(Y / N / B):Y

```
-----  
STD I/O CHANNEL  
UART1  
-----
```

(Y / N / B):Y

When you have answered the final prompt, the printer will start the selected application.

Terminal Setup, cont'd.

Changing the Setup

If you want to set up the printer or use any other of the facilities, you should answer **N** (=No) to the “Select Application” prompt. The following example illustrates how to enter the Setup Mode:

```
-----
SHELL
SEL. APPLICATION
-----
```

```
(Y / N / B):N
```

```
-----
SHELL
SETUP
-----
```

```
(Y / N / B):Y
```

```
-----
SETUP:
SER-COM,UART1
```

From here you can navigate through the Setup Mode by means of keys on a VT100 terminal according to the same principles as when using the printer's own keyboard (see overviews in chapter 8):

Key	Action
u	Move one menu to the left on the same level (same as <F1>).
d	Move one menu to the right on the same level (same as <F2>).
e	Display error message at test label printing failure (same as <F3>).
b	Move up one level or scroll back in a stack of menus (same as <F4>).
f	Move down one level or scroll forward in a stack of options (same as <F5>).
x	Exit the setup (same as <Setup>).
0 – 9	Enter numeric values.
.	Specify negative values (same as <. >).
Enter	Acknowledge and move to next menu, perform testfeeds, or print test labels (same as <Enter>).
Backspace	Delete one character to the left of the cursor (same as <C>).

Terminal Setup, cont'd.

Exiting Terminal Setup

To exit the Terminal Setup program, e.g. after having changed the setup, you must select the Reboot option after having stepped through all the facility options, as illustrated below:

```
-----  
SHELL  
PRINT SETUP  
-----
```

(Y / N / B):N

```
-----  
SHELL  
TESTFEED  
-----
```

(Y / N / B):N

```
-----  
SHELL  
TEST LABEL  
-----
```

(Y / N / B):N

```
-----  
SHELL  
DEFAULT SETUP  
-----
```

(Y / N / B):N

```
-----  
SHELL  
SOFTWARE UPDATE  
-----
```

(Y / N / B):N

```
-----  
SHELL  
REBOOT  
-----
```

(Y / N / B):Y

Line Analyzer

The Line Analyzer (LINE_AXP.PRG) is a program written in the Intermec Fingerprint programming language and 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 several labels.

Printable characters are printed in black-on-white, whereas control characters and space characters (ASCII 00–32 dec) are printed in white on a black background.

While the printer is receiving data, the “Ready” control lamp blinks. There is a 0.5 sec timeout. If no more character has been received after 0.5 seconds, 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 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(1-4) 1
```

Enter the desired communication port by means of the numeric keys on the printer's keyboard:

```
1 = "uart1:"
2 = "uart2:"
4 = "centronics:"
```

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

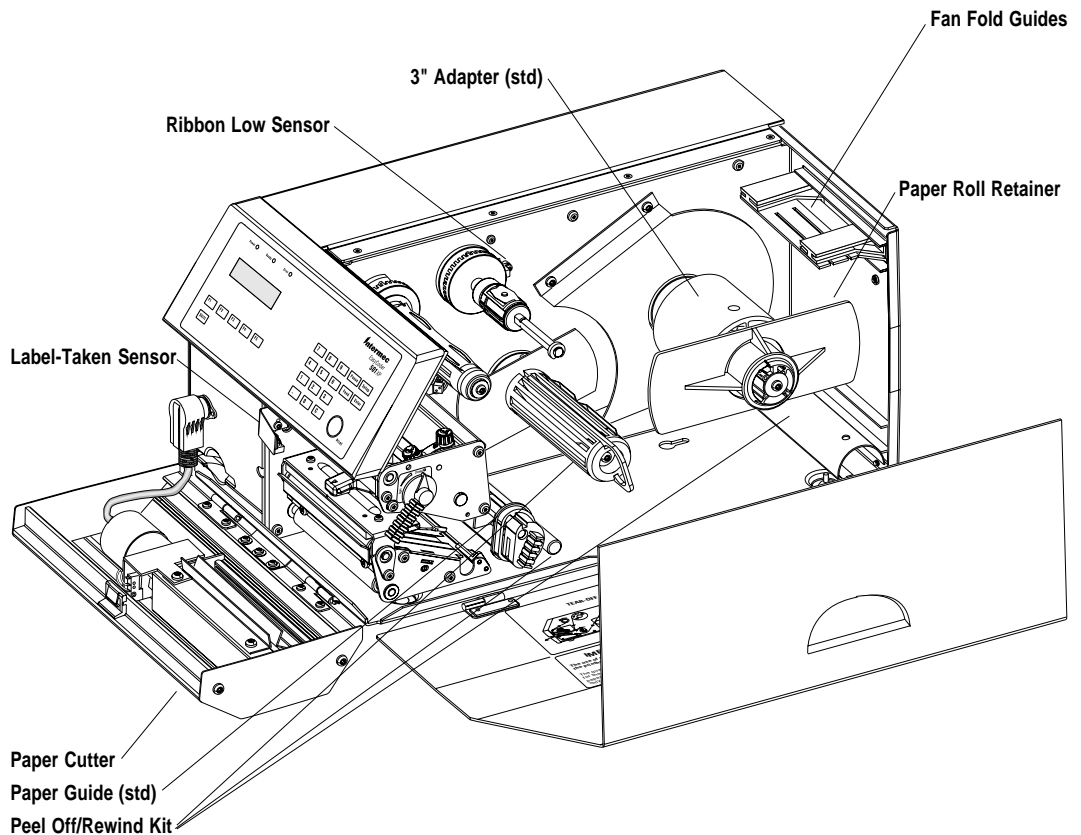
```
Line Analyzer
Error:56
```


Options

Introduction

The EasyCoder 501 XP is designed to provide a high degree of flexibility by means of a modular design. By adding a collection of optional devices to the basic concept, the printer can be adapted for a variety of applications. Most options can easily be installed by the operator whereas some options 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.



Peel Off/Rewind Kit

This is a factory-installed option only and is used to separate labels from the backing paper (liner) and roll up the spent backing paper inside the printer's paper compartment. By fitting a special guide plate to the front of the print unit, labels, tickets, tags etc. can be rewound inside the printer after printing for later use.

The kit consists of a stepper motor that drives the paper return roller in the print unit (fitted as standard) and a rewind shaft in the paper compartment. A guide shaft is fitted to the centre-line wall immediately behind the slack absorber. A guide plate is fitted at the rear of the paper compartment and can be fitted instead of the standard tear off/dispenser edge on the print unit.

Operation and paper load are described in the sections "Peel Off" and "Internal Rewind" of chapter 5 "Paper Load".

Paper Cutter

CAUTION!

The cutting edge will rotate when the power is turned on and when the printer is rebooted. Always keep the cutter in closed position during operation.

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, and 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 strip or through the backing paper between labels. It **must not** be used to cut through any kind of adhesive, which would stick to the cutting parts and rapidly render the cutter inoperable – possibly also causing damage to the electric motor.

Maximum paper thickness is 175 μm (\approx 175 grammes/m²) for normal paper-based materials.

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

The paper cutter can be tilted forward in order to facilitate cleaning and paper load. For paper load instructions, see section "Cut Off" in chapter 5 "Paper Load".

The cutter is activated by CUT or CUT ON instructions, see Intermec Fingerprint manuals or Intermec Direct Protocol Programmer's Guide. The rotating edge will cut through the paper approx. 37 mm (1.5") in front of the printer's dot line. The paper feed should be adjusted accordingly, see chapter 7 "Setting Up the Printer".

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

CAUTION!

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

Fan Fold Guides

The fan fold guides are useful for providing a more exact guiding of the paper, when the paper supply is placed outside the paper compartment, e.g. in the form of a stack of fan-folded tickets. The guides come as a field-installable kit with complete installation instructions.

There are a number of ways to fit the guides, depending on whether the upper or lower slot in the rear plate is going to be used.

Instructions for loading the paper is included in the section “External Supply” in chapter 5 “Paper Load”.

Paper Roll Retainer

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

Paper Guide

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

3" Adapter

The 3 inch/76 mm adapter is included in each delivery of the Easy-Coder 501 XP and makes it possible to use paper rolls with 3 inch/76 mm inner diameter paper cores.

The adapter is pressed onto the paper supply spool and held in place by a screw. When fitting the adapter, make sure that the screw hits a rounded plastic surface, not the metal leaf springs. Illustrations of how to load the paper using the adapter are to be found in chapter 5 “Paper Load”.

Label-Taken Sensor

The Label-Taken Sensor (LTS) is a photoelectric sensor fitted inside the front door, which enables 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 can be 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.

EasySet Bar Code Wand

The EasySet bar code wand is primarily intended to facilitate setup in regard of paper and transfer ribbon types, but can also be used to change all other setup parameters. This is done by scanning a pre-printed CODE 128 bar code composed according to a special standard (FNC3 in the bar code input data specifies a setup parameter). The bar code wand can also be used to read other CODE 128 bar codes as input data to a Intermec Fingerprint program.

For further information on how to compose setup bar codes, see the Intermec Fingerprint 7.12 Reference Manual. A sheet with a collection of printed bar codes for various setup parameters is delivered with the printer.

The bar code wand is connected to the topmost connector on the printer's rear plate, immediately to the right of the main switch.

Interface Boards

A number of different interface boards are or will become available for use with the EasyCoder 501 XP. The interface boards are either factory fitted or can easily be fitted by an authorized service technician. Each board is delivered with installation instructions and complete descriptions of signals and connectors.

The EasyCoder 501 XP can accommodate one such interface board in addition to its standard serial and parallel communication ports.

Troubleshooting

Use this list to correct possible printout troubles or flaws in printout quality, and to decide when assistance from the Service dept. of the nearest Intermec distributor is required. Note that most problems are due to operating errors or normal wear of the printhead.

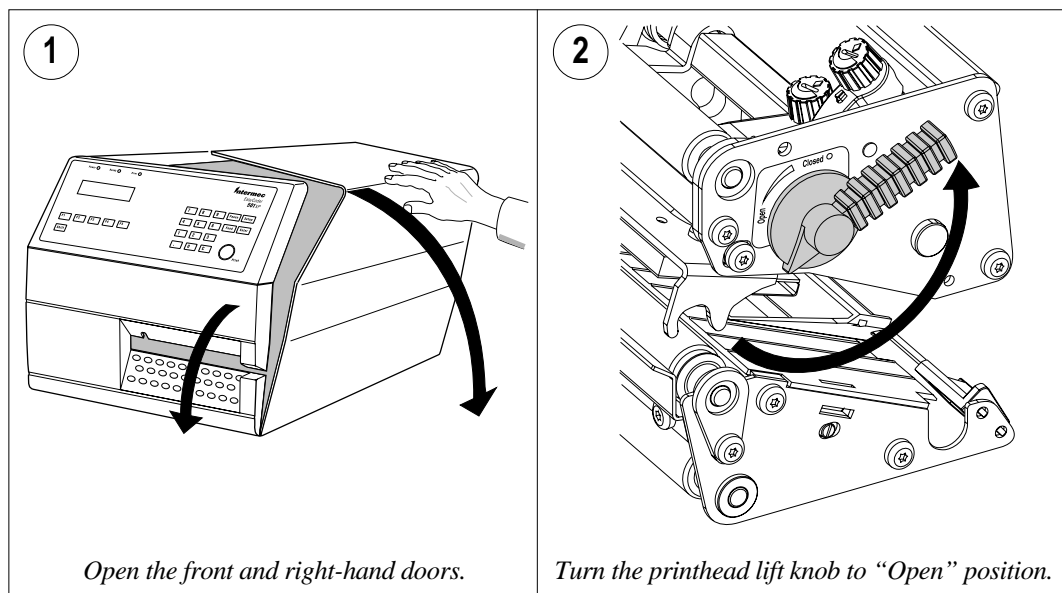
Symptom	Possible Cause	Remedy	Refer to
Overall weak printout	Wrong Paper Type setup Low Contrast setup Printhead pressure too low Worn printhead Wrong printhead voltage	Change setup Change setup Adjust Replace printhead Replace CPU board	Chapter 7 Chapter 7 Chapter 13 Chapter 12 ◆ Call Service
Printout weaker on one side	Uneven printhead pressure	Adjust headlift arm alignment	Chapter 13
Weak spots	Foreign particles on paper/ribbon Paper/ribbon don't match Poor paper or ribbon quality Worn printhead Worn pressing roller	Clean or replace Use other media Use other media Replace printhead Check/replace	Chapters 5 & 6 Chapter 7 Appendix 2 Chapter 12 ◆ Call Service
Overall dark printout	Wrong Paper Type setup Too high Contrast setup value Printhead pressure too high Wrong printhead voltage	Change setup Change setup Adjust Replace CPU board	Chapter 7 Chapter 7 Chapter 13 ◆ Call Service
Excessive bleeding	Wrong Paper Type setup Contrast setup value too high Printhead pressure too high Faulty energy control	Change setup Change setup Adjust Replace CPU board	Chapter 7 Chapter 7 Chapter 13 ◆ Call Service
Transfer ribbon breaks	Ribbon fitted around label stop sensor Wrong Paper Type setup Ribbon unwind unit stuck Bad energy control	Reload ribbon Change setup, then clean printhead Adjust Check CPU board	Chapter 6 Chapter 7 Chapter 12 ◆ Call Service ◆ Call Service
White parts at transfer printing	Transfer ribbon wrinkled	Adjust	See next paragraph
Transfer ribbon wrinkles	Incorrect paper guide adjustment Ribbon obstructed by printhead cable Too strong printhead pressure Unwind bobbin not centre-aligned Faulty ribbon return roller adjustment	Adjust Clear Adjust Adjust Adjust	Chapter 5 n.a. Chapter 13 Chapter 6 ◆ Call Service
Dark lines along paper web	Foreign objects on printhead	Clean printhead	Chapter 12
White lines along paper web	Printhead dirty Missing dots on printhead	Clean printhead Replace printhead	Chapter 12 Chapter 12
Large part of dot line missing	Wrong X-start or Width setup Failing printhead Failing strobe signal	Change setup Replace printhead Check CPU-board	Chapter 7 Chapter 12 ◆ Call Service
Printout missing along inner edge	Bad paper alignment X-start setup value too low	Adjust Increase	Chapter 5 Chapter 7

Maintenance

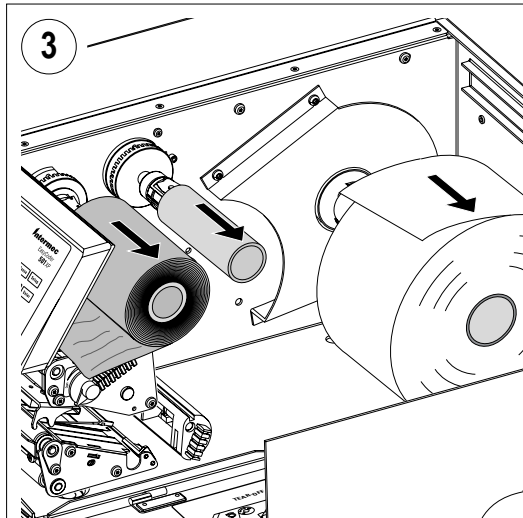
Printhead Cleaning

Cleaning of the printhead on a regular basis, preferably in connection with each ribbon or paper reload, is important for the life of the printhead and for the printout quality. Below is a description on how to clean the printhead by means of Cleaning Cards. If additional cleaning is required, e.g. for removing adhesive residue from the print roller or dispenser edge, use a cotton swab moistened with isopropyl alcohol.

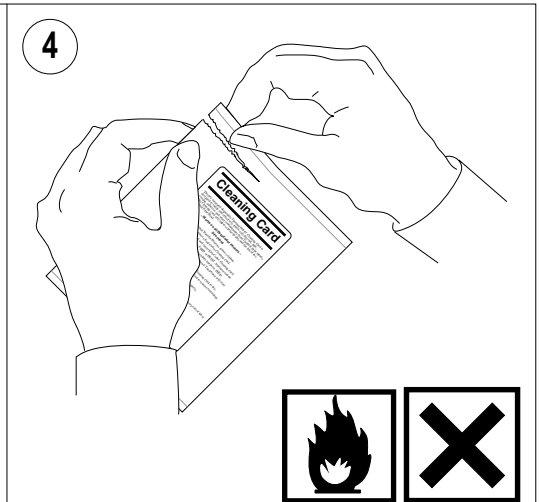
Caution!
Isopropyl alcohol [(CH₃)₂CHOH; CAS 67-63-0] is a highly flammable, moderately toxic and mildly irritating substance.



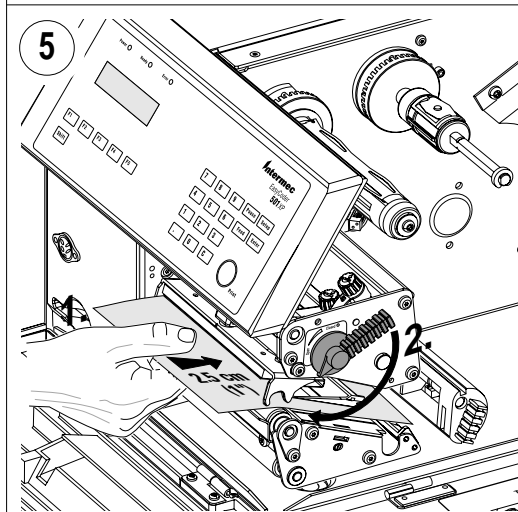
Printhead Cleaning, cont'd.



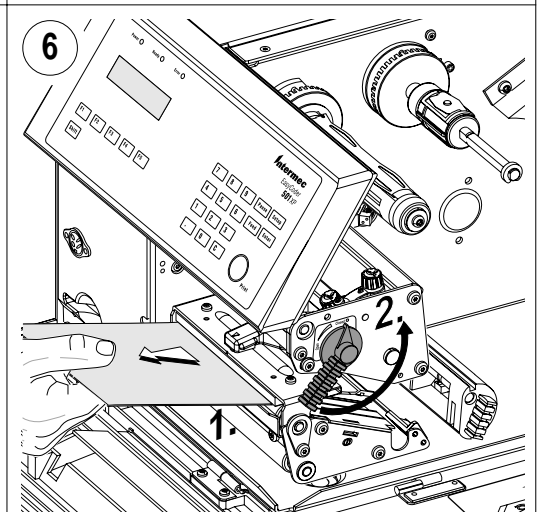
Remove the paper and transfer ribbon, if any.



Open the cleaning card envelope and remove the cleaning card. Read the warning text.

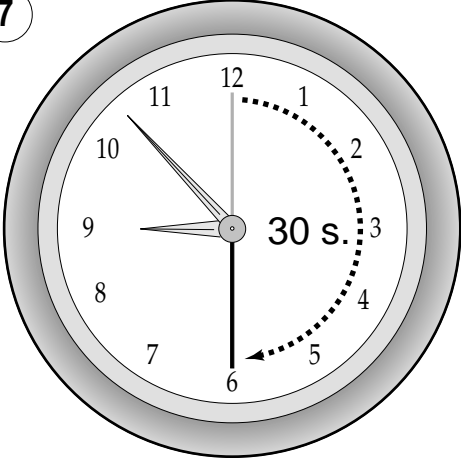
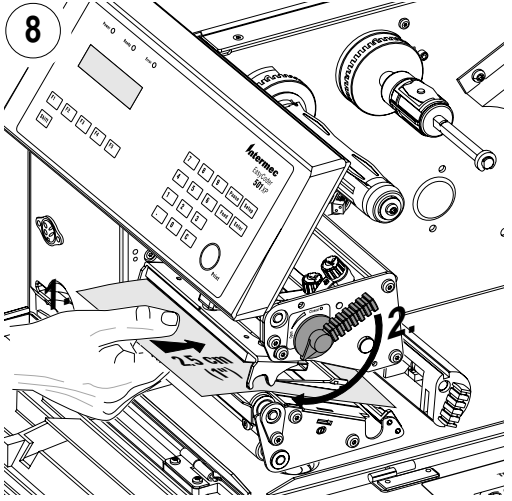
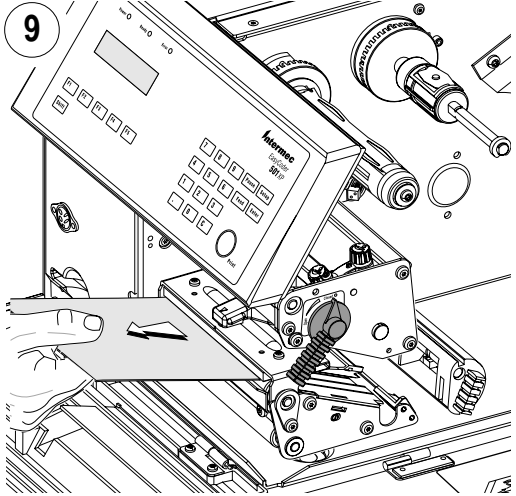
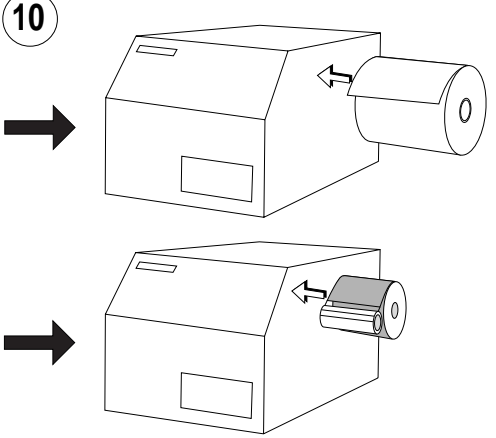


Insert most of the cleaning card under the printhead (1). Close the printhead (2).

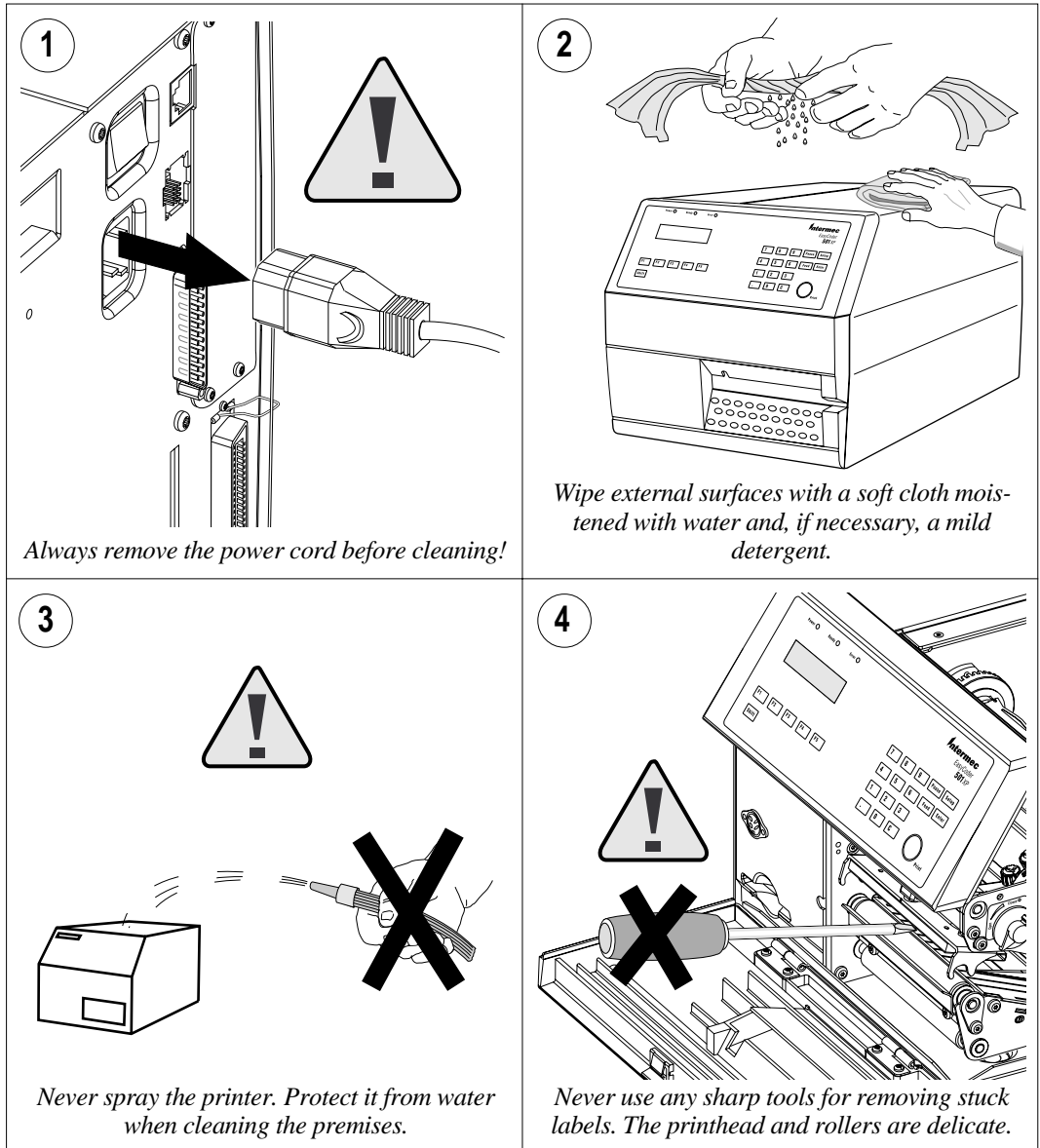


Pull out the cleaning card (1) and open the printhead (2).

Printhead Cleaning, cont'd.

<p>7</p>  <p>Wait for approx. 30 seconds to allow the cleaning fluid to dissolve the residue.</p>	<p>8</p>  <p>Insert most of the cleaning card under the printhead (1) again. Close the printhead (2).</p>
<p>9</p>  <p>Pull out the cleaning card. If necessary, repeat the process with a new cleaning card.</p>	<p>10</p>  <p>Allow the cleaned parts to dry before loading paper and transfer ribbon.</p>

External Cleaning



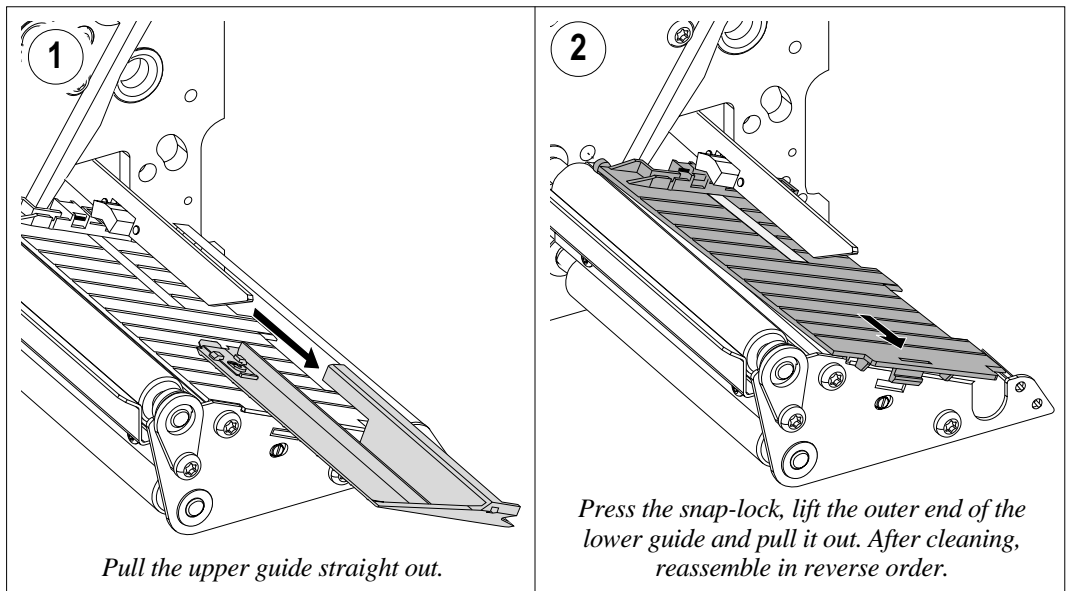
Cleaning the Label Stop Sensor Guides

The label stop sensor, which controls the paper feed, is partially enclosed by two black plastic guides. The guides are provided with transparent windows, through which the light from 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.

Caution!

Isopropyl alcohol [(CH₃)₂CHOH; CAS 67-63-0] is a highly flammable, moderately toxic and mildly irritating substance.



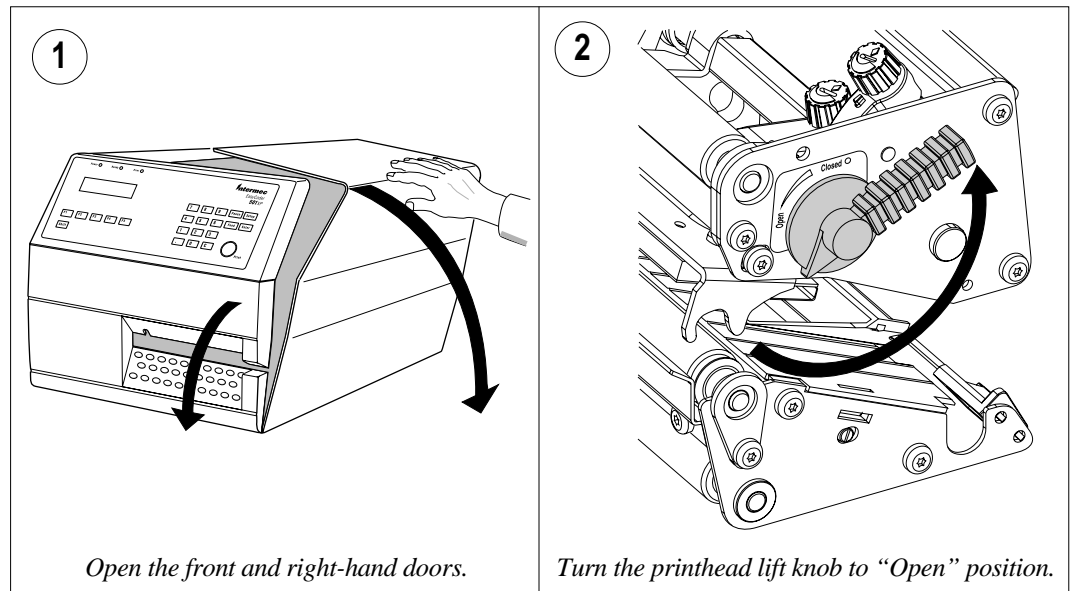
Printhead Replacement

The printhead is subject to wear both from the transfer ribbon or thermal paper and from the rapid heating and cooling processes during printing. Thus, the printhead will require periodical replacement.

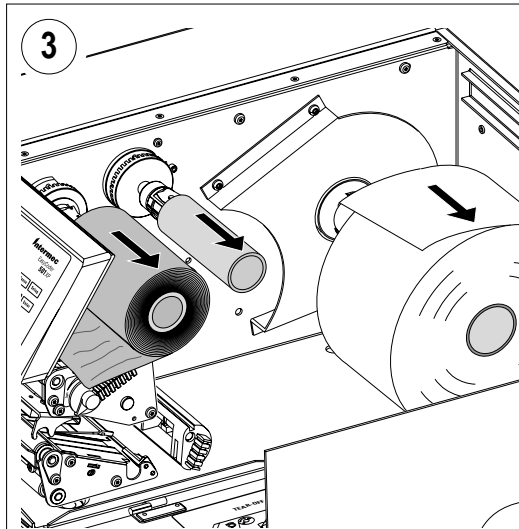
Time between printhead replacements depends on the print images, the type of ribbon or paper in use, the amount of energy to the printhead, and several other factors.

Note!

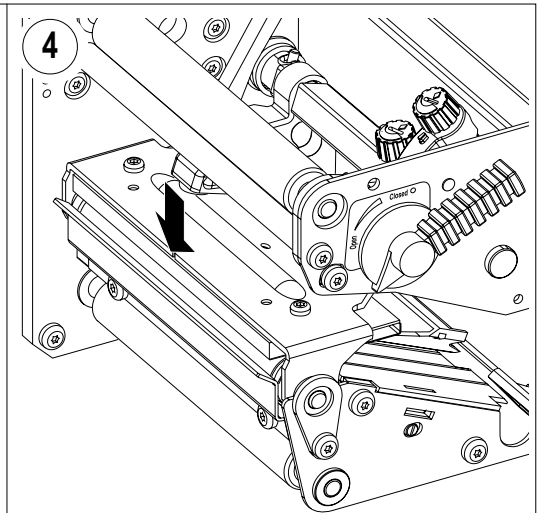
While replacing the printhead, the power should be switched off.



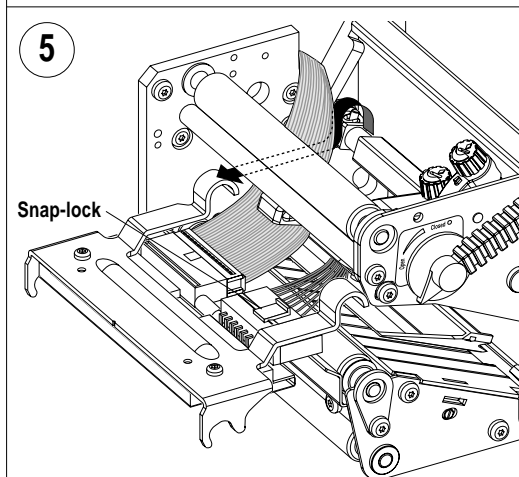
Printhead Replacement, cont'd.



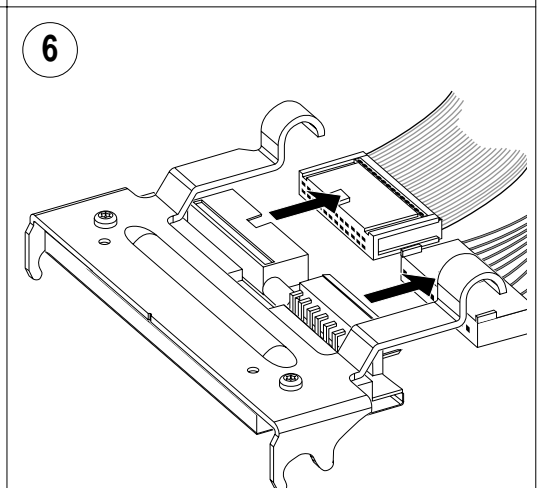
Remove the paper and transfer ribbon, if any.



Pull the printhead bracket away from the magnet in the lift arm

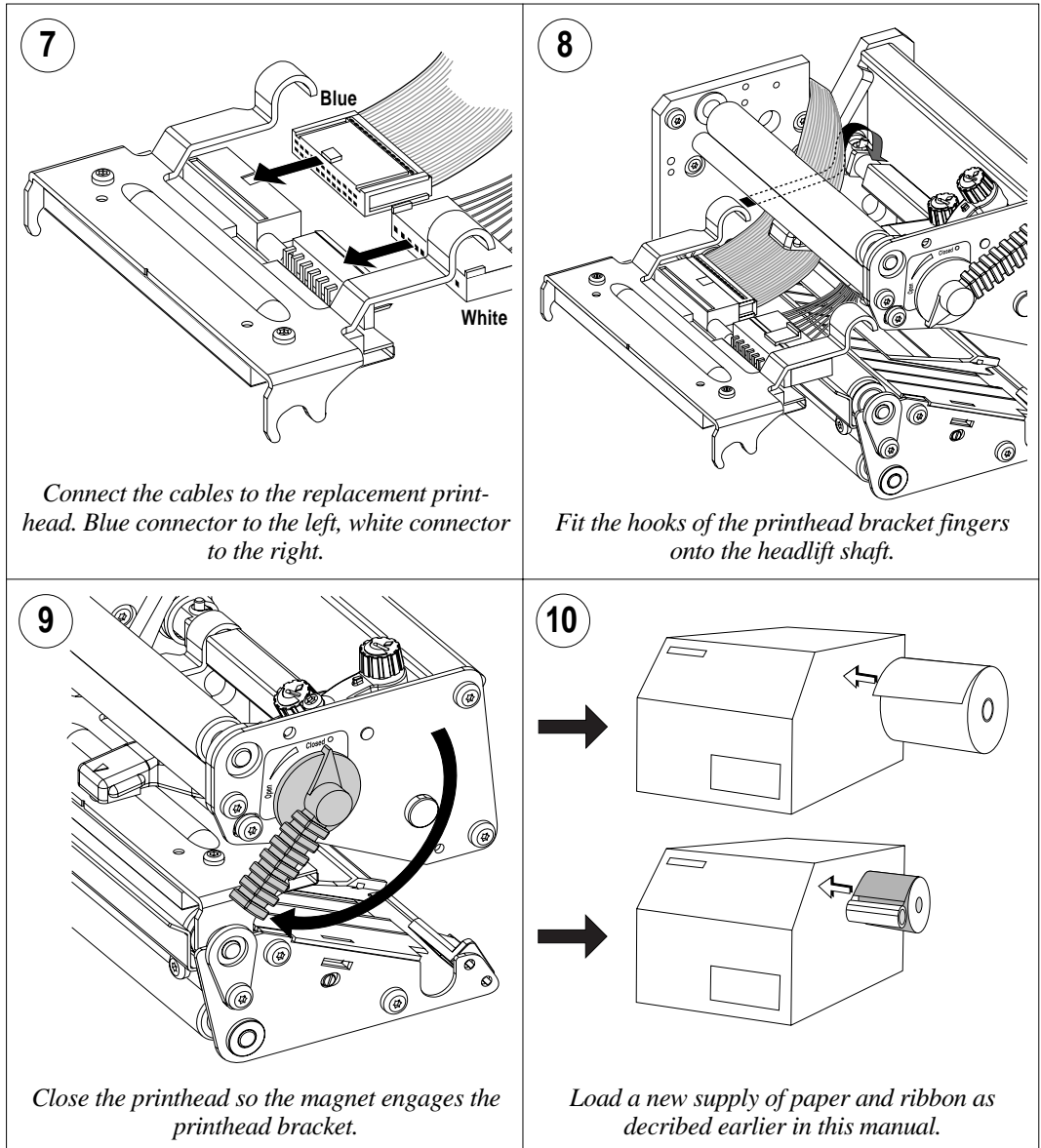


Disconnect the hooked printhead bracket fingers from shaft and pull out the printhead as far as the cables allow.



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

Printhead Replacement, cont'd.



Adjustments

Printhead Pressure

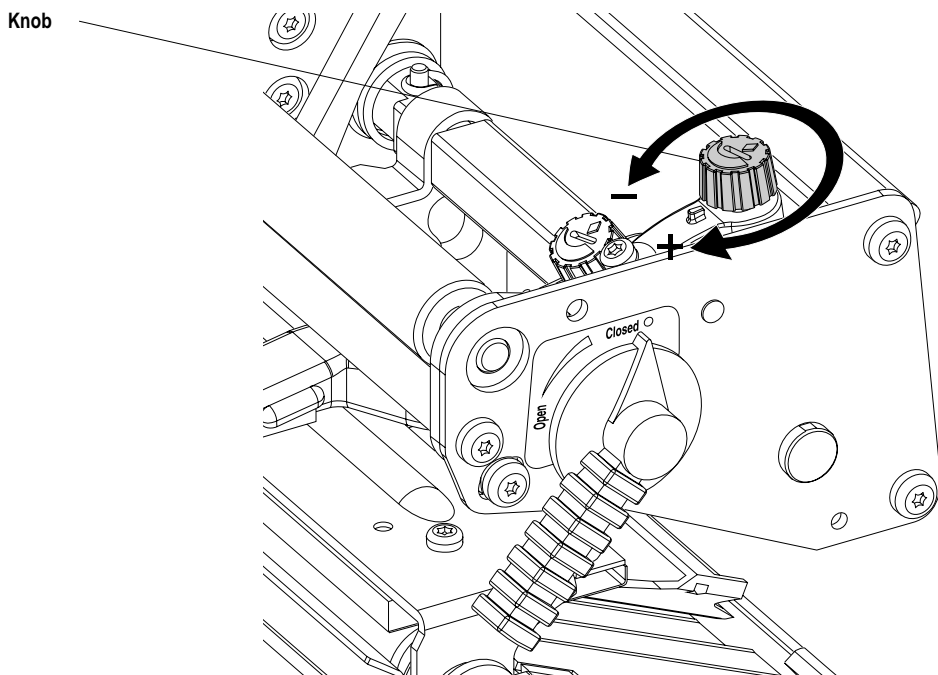
The pressure of the thermal printhead against the ribbon or paper is factory adjusted. However, the use of thicker or thinner paper than normal could require the printhead pressure to be readjusted.

Turn the adjustment knob clockwise for increased pressure, or counter-clockwise for less pressure. Print a few labels, preferably test labels (see chapter 7 “Setting Up the Printer”), and check the print-out. 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 counter-clockwise until there is no pressure left. Test with a piece of paper 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 (3–4) full turns clockwise. Fine-adjust using the trial-and-error method.

NOTE!

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



Narrow Labels Adjustment

The printer is factory-adjusted for full size paper width. When using paper less than full width, it is recommended to adjust the printhead lift arm so it becomes centred on the paper. Thereby, an even pressure across the paper is obtained.

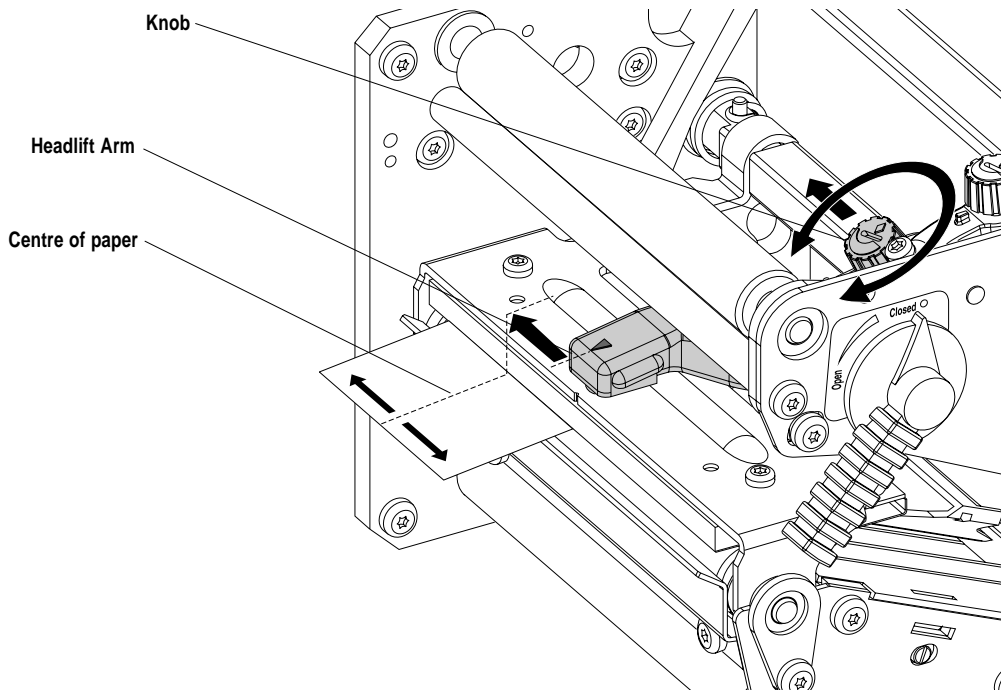
A poorly adjusted lift arm may be detected by a weaker printout on the inner part of a less than full width paper. Similarly, when reverting to a wider paper, the arm should be adjusted, or the printout on the outer part of the paper could be weak.

To adjust the printhead lift arm, proceed as follows:

- Remove the ribbon, if any.
- Loosen the knob that holds the lift arm. Move the arm inwards or outwards until the arrow on the tip of the arm becomes centre-aligned with the paper web.

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 lift arm.

- After having centred the arm, lock it by tightening the knob.
- Reload the ribbon, if any.



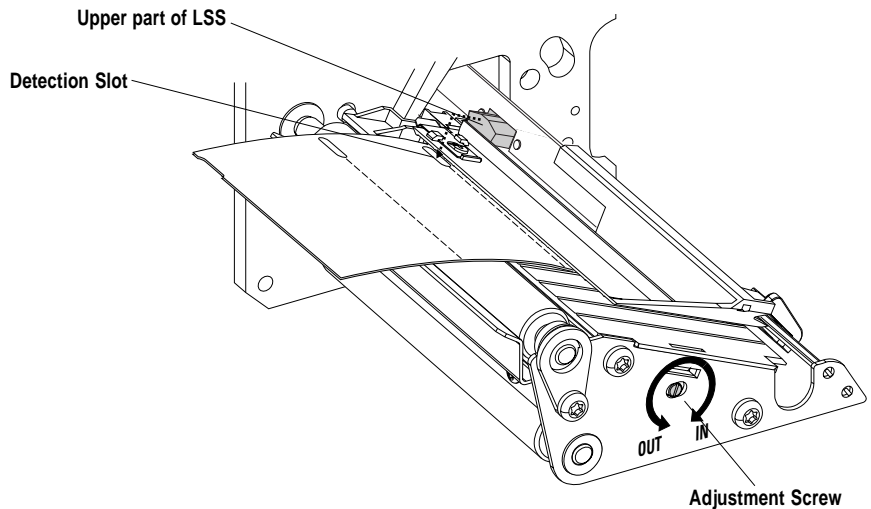
Label Stop Sensor Position

The label stop sensor (LSS) is a photoelectric sensor that controls the printer's paper feed by detecting gaps between labels, slots in paper strip, or black marks, depending on the printer's setup in regard of media type (see chapter 7 "Setting Up the Printer"). A prerequisite is obviously that the LSS is aligned with the slots or black marks.

The label stop/black mark sensor (LSS) can be laterally adjusted within a range of 0 to 50 mm (1.96") from the inner edge of the paper by means of a screw accessible 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 paper is best checked by looking head on into the print unit when the printhead is lifted. Align the centrepoint of the V-shaped upper sensor with the centre 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 as they are spaced with an interval of exactly 1 cm (0.39") from the edge that guides the paper. This method is especially useful for black marks (measure the lateral position of the black marks with a ruler before loading the paper).

If using irregularly shaped labels, align the LSS with the front tips of the labels



Upper part of print unit removed to improve view.

Technical Data

Printing:		
Print Technique	Direct Thermal & Thermal Transfer	
Printhead Resolution	12 dots/mm (304.8 dots/inch)	
Print Speed (variable)	100 – 300 mm/sec (4 – 12"/sec)	
Print Width (max)	106.6 mm (4.20")	
Print Length (max)	depends on DRAM memory size	
Media Width (max/min)	120 mm (4.72")/25.4 mm (1.00")	
Internal Paper Roll Diameter (max)	205 mm (8")	
Paper Roll Core Diameter	38 – 40 mm (1.5"), with adapter 76 mm (3")	
Ribbon Length (max)	450 metres (1475 feet)	
Ribbon Width (max)	110 mm (4.33")	
Print Directions	4	
Modes of Operation		
Tear Off	Yes	
Peel Off	Optional	With internal rewinder
Internal Rewind	Optional	With internal rewinder
Cut Off	Optional	With cutter
Firmware		
Operating System	Intermec Fingerprint 7.12	incl. Direct Protocol
Smooth Fonts	TrueDoc and TrueType fonts	
Built-in scalable fonts (std)	15	Unicode Latin fonts
Built-in bar code symbologies (std)	36	
Startup Program (std)	Intermec Shell 4.2	
Physical Measures		
Dimensions (W x D x H)	275 x 480 x 238 mm (10.8 x 18.9 x 9.4")	
Weight (excluding media & options)	13 kgs (28.7 lbs)	
Ambient Operating Temperature	+5°C – +40° C (+41°F – +104° F)	
Humidity	20 –80% non-condensing	
Electronics		
Microprocessor	32 bit RISC	
On-board Flash SIMMs	1 – 3 (2 Mbytes each)	Std. 1 x 2 Mbytes
On-board DRAM SIMMs	1 – 2 (4 Mbytes each)	Std. 1 x 4 Mbytes
Real-Time Clock	Yes	10+ years life
Power Supply		
Mains Voltage	>90 – <264 V AC, 45 – 65 Hz	
PFC Regulation	IEC 61000-3-2	
Maximum Power Consumption	Continuous 175W; Peek ≈ 350W	

Technical Data, cont'd.

Sensors:		
Label Gap/Black Mark/Out of Paper	Yes	
Out of Ribbon	Yes	
Printhead Lifted	Yes	
Ribbon Low	Option	
Label Taken	Option	
Controls		
Control Lamps	3	
Display	2 x 16 character LCD w. background light	
Keyboard	23 keys membrane switch type	
Beeper	Yes	
Data Interfaces		
Serial	1 x RS 232C	
Parallel	1 x Centronics Parallel	
Cutter	Yes	
Bar Code Wand	Yes	For setup
Electronic Keys	1 – 2	Future option
Connection for Optional Interface Boards	1	
Memory Card Adapter	1	Flash or SRAM cards
Accessories		
MS Windows Printer Drivers (excl. cable)	Yes	For various versions
Automatic Paper Cutter	Option	
Internal Rewind Unit	Option (factory installed only)	For peel-off/rewind
Label Roll Retainer	Option	
Fan-Fold Guides Kit	Option	For external supply
RS 232C Cable	Option	
Centronics Cable	Option	
EasySet Bar Code Wand	Option	For quick setup
Industrial Interface Board	Option	
External Alphanumeric Keyboard	Option	
Flash Memory Cards	Option	
Electronic Keys	Option	

Media Specifications

Direct Thermal Labels

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

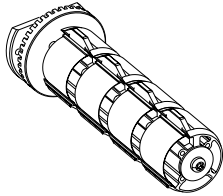
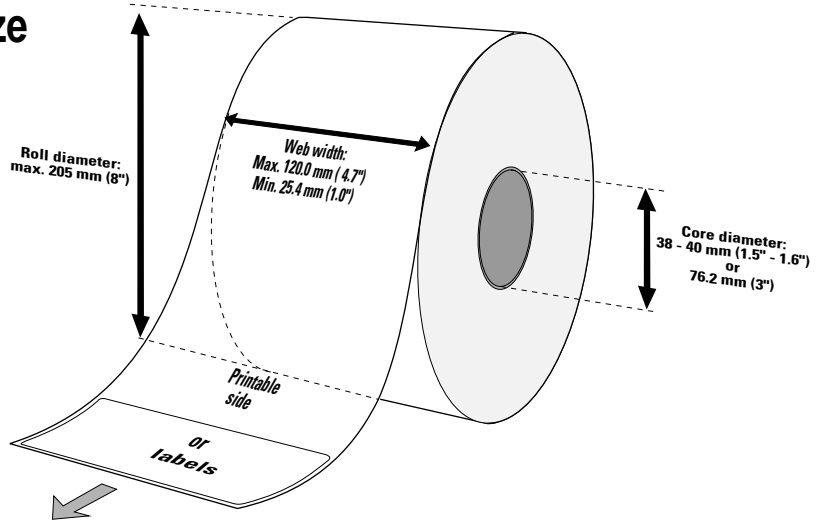
- **Premium Quality:** Top-coated papers with high demands on printout quality and resistance against moisture, plasticisers and vegetable oils. Examples...
 - Top Board
 - Premium
 - Duratherm II,
 - Duratherm II Tag
 - Duratherm Ltg.
 - Duratherm IR
- **Economy Quality:** Non top-coated papers with slightly lower printout quality and less resistance to moisture, plasticisers and vegetable oils. In all other respects, it is equal to *Premium Quality*. Examples...
 - Economy
 - Eco Board

Transfer Labels

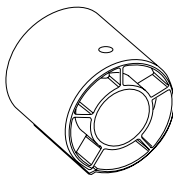
Intermec offers **stock** labels for thermal transfer printing in a wide range of qualities.

- **Uncoated papers** for economical high-volume printing in combination with GP/Standard ribbons. Examples...
 - Vellum
 - Duratran I
- **Coated papers** with various coat-weight, smoothness and gloss to be used with HP/Premium and GP/Standard ribbons. Examples...
 - Matte Coated
 - Transfer Premium
 - Premium Tag
 - High Gloss White
 - Duratran VG
 - Duratran II
 - Duratran II Tag
- **Polyethylene plastics** with better resistance to water and many common chemicals. They can be used outdoors and offer good tear resistance. Most often used in combination with HP/Premium ribbons. Examples...
 - Polyethylene Matt
 - Polyethylene Gloss
 - Kimdura
 - Kimdura Tag
- **Polyesters**, which are the materials of choice in combination with HR/SuperPremium ribbons that give high resistance to chemicals, heat, and mechanical abrasion. Examples...
 - Polyester Gloss

Paper Roll Size



Bobbin (Ø 38 mm/1.5")



Bobbin (Ø 76 mm/3")

The following restrictions apply to paper rolls fitted inside the printer. Only the width and web thickness restrictions apply to external paper supplies.

Core

Diameters: 38 mm (1.5") without adapter
76.2 mm (3") with adapter

Width: Must not protrude outside the web.

The web must be wound up on the core in such a way that the printer can pull the end of the web free. Otherwise the thermal transfer ribbon may be damaged.

Roll

Max. diameter:	205 mm	(8.07")
Max. width:	120 mm	(4.72")
Min. width:	25.4 mm	(1.00")
Max. web thickness:	175 µm	(0.007")

The maximum recommended web thickness is 175µm. A thicker web may be used, but print quality will be reduced. Web stiffness is also important and must be balanced against web thickness to maintain print quality.

Paper rolls fitted inside the printer should be wound with the printable side facing outwards.

An external paper supply must be protected from dust, sand, grit, etc. Any hard particles, however small, can damage the printhead.

Paper

Non-Adhesive Strip



⇐ a ⇒ **Web Width:**

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

Media Type Setup:

- Fix lenght strip
- Var lenght strip

Paper, cont'd.

Self-Adhesive Strip



⇐ a ⇒ **Web Width** (including backing paper):

Maximum : 120.0 mm (4.72")

Minimum : 25.4 mm (1.00")

⇐ b ⇒ **Backing Paper**

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

⇐ c ⇒ **Paper Width** (excluding backing paper):

Maximum : 118.4 mm (4.66")

Minimum : 23.8 mm (0.94")

Media Type Setup:

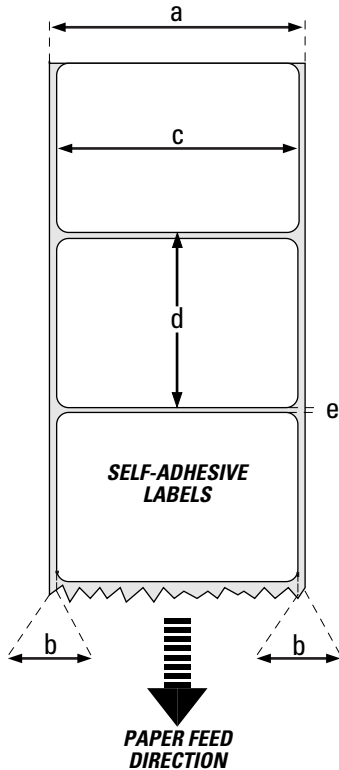
- Fix length strip
- Var length strip

Note!

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

Paper, cont'd.

Self-Adhesive Labels



⇐ a ⇒ **Web Width** (including backing paper):

Maximum	120.0 mm	(4.72")
Minimum	25.4 mm	(1.00")

⇐ b ⇒ **Backing Paper**

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

⇐ c ⇒ **Label Width** (excluding backing paper):

Maximum	118.4 mm	(4.66")
Minimum	23.8 mm	(0.94")

⇐ d ⇒ **Label Length:**

Minimum	8.0 mm	(0.32")
---------------	--------	---------

Max label length : depends on DRAM memory size
Under favourable circumstances, a minimum label length down to 4 mm (0.16") 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"), that batch printing is used, and that no pull back of the paper 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")
Recommended	1.6 mm	(0.06")
Minimum:	1.2 mm	(0.05")

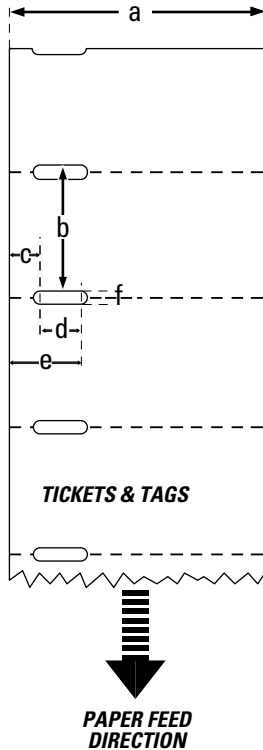
The Label Stop Sensor must be able to detect the extreme front edges of the labels. It can be moved within a range of 0 – 50 mm (1.97") from the inner edge of the paper web.

Media Type Setup:

- Label (w gaps)

Paper, cont'd.

Tickets with Gap



⇐ a ⇒ **Web Width:**

Maximum	120.0 mm	(4.72")
Minimum	25.4 mm	(1.00")

⇐ b ⇒ **Copy Length:**

Min. length between slots .. : 8.0 mm (0.32")
 Max. length between slots .. : depends on DRAM memory size
Under favourable circumstances, a minimum ticket length down to 4 mm (0.16") could be used. It requires the sum of the copy length (b) and the detection slit height (f) to be larger than 7 mm (0.28"), that batch printing is used, and that no pull back of the paper 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 must be observed and the slit must not break the inner edge of the web.

⇐ d ⇒ **Detection Slit Length:**

The length of the detections slit (excluding corner radii) must be:
 Minimum

Minimum	5.0 mm	(0.20")
---------------	--------	---------

⇐ e ⇒ **Detection Slit End:**

Provided the restrictions of the minimum slit length and slit start are observed, the distance from the inner edge of the web to the outer end of the slit (excl. corner radii) may be:
 Maximum

Maximum	50.0 mm	(1.97")
---------------	---------	---------

⇐ f ⇒ **Detection Slit Height:**

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

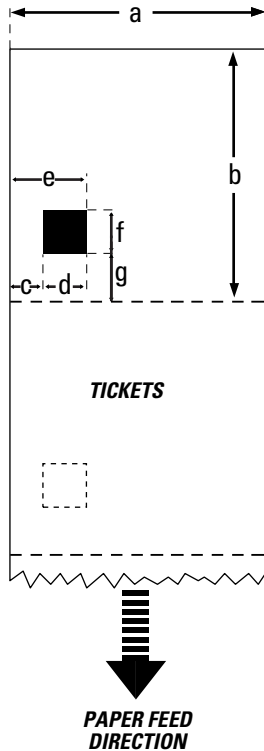
Media Type Setup:

- Ticket (w gaps)

Do not allow any perforation to break the edge of the web, as this may cause the web to split, resulting in a paper jam.

Paper, cont'd.

Tickets with Black Mark



⇐ a ⇒ **Web Width:**

Maximum	120.0 mm	(4.72")
Minimum	25.4 mm	(1.00")

⇐ b ⇒ **Copy Length:**

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

⇐ c ⇒ **Black Mark Offset:**

The distance between the inner edge of the paper web and the inner edge of the black mark must be:

Maximum	40.0 mm	(1.57")
Minimum	0.0 mm	(0.0")

⇐ d ⇒ **Black Mark Width:**

The detectable width of the black mark must be:

Minimum	10.0 mm	(0.4")
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⇐ e ⇒ **Black Mark End:**

No restriction, but the LSS cannot detect the mark more than 50 mm (1.97") from the inner edge of the paper.

⇐ f ⇒ **Black Mark Height:**

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

⇐ 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 paper 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 paper. However, the LBLCOND statement allows the sensor to be temporarily disabled during a specified amount of paper 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 web, as this may cause the web to split, resulting in a paper jam.

Transfer Ribbons

Important!

The use of any thermal transfer ribbons, other than supplied by Intermec, will invalidate the printhead warranty. Intermec thermal transfer ribbons are engineered specifically for the EasyCoder printheads.

Intermec offer three types of thermal transfer ribbons optimised for different purposes:

- **General Purpose (GP)/Standard** transfer ribbons allow high speed printing and gives a good printout, but are somewhat sensitive to smearing. They may be the best choice for uncoated and coated papers.
- **High Performance (HP)/Premium** transfer ribbons allow high speed printing and gives 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)/Super Premium** 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/Super Premium 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.

Communication Cables

Serial Interface

The EasyCoder 501 XP has – as standard – one serial communication interface: RS 232C on "uart1:".

Protocol

Default setup:

Baudrate: 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 serial interface settings, see chapter 7 “Setting Up the Printer”.

Interface Cable

Computer end: DB9 or DB 25 female connector (PC)
 Printer end: DB25 female connector

Host		EasyCoder 501 XP			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 ¹	16		
DSR	6	20	DTR	20	6	DSR
		22	RI	22		

^{1/}. The external +5V is limited to 200 mA and is automatically turned off at overload. It is intended to drive e.g. an external alphanumeric keyboard connected to the RS 232C 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 7.12 Reference Manual:

Standard type Centronics

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 (default)

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 statement². 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, e.g. a Windows driver.

