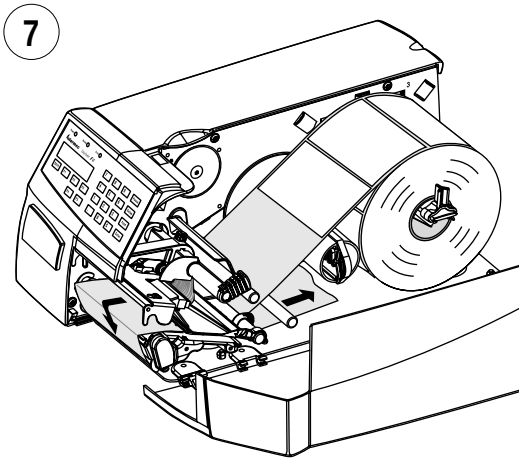
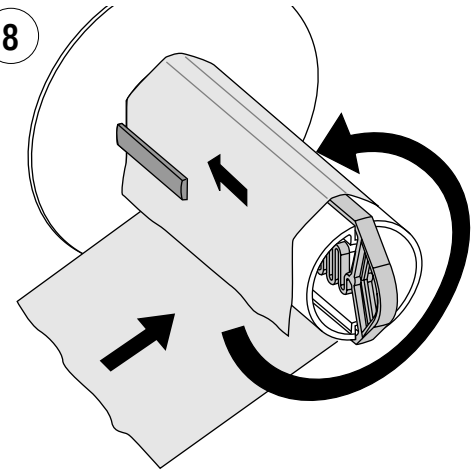
Peel-Off, cont'd.

7



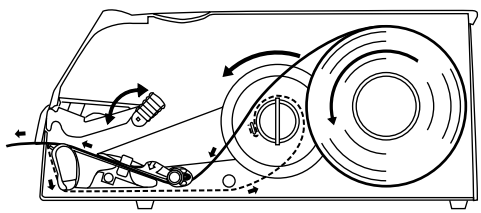
Thread the backing paper around the tear-off edge and back under the print mechanism and guide shaft.

8



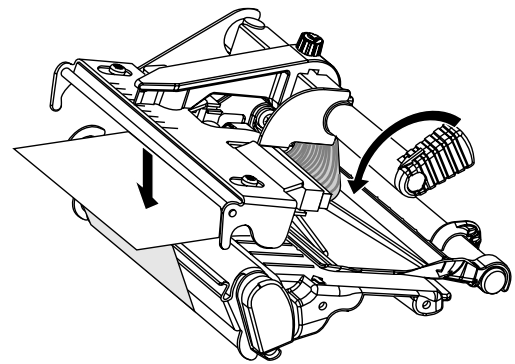
Insert the end of the backing paper under the lip of the rewinder, then rotate the rewinder counter-clockwise a few turns.

9



This diagram shows the path of the label web.

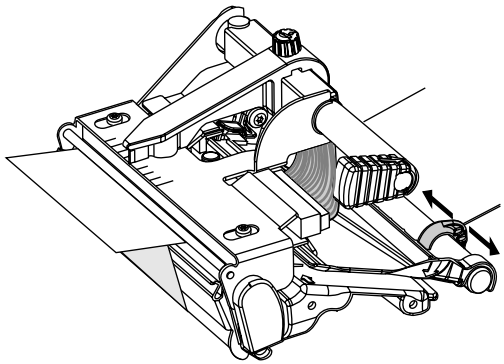
10



Turn the printhead lift knob counter-clockwise to lower the printhead

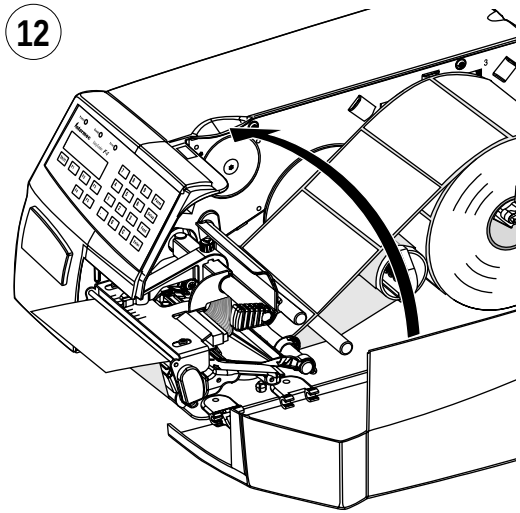
Peel-Off, cont'd.

11



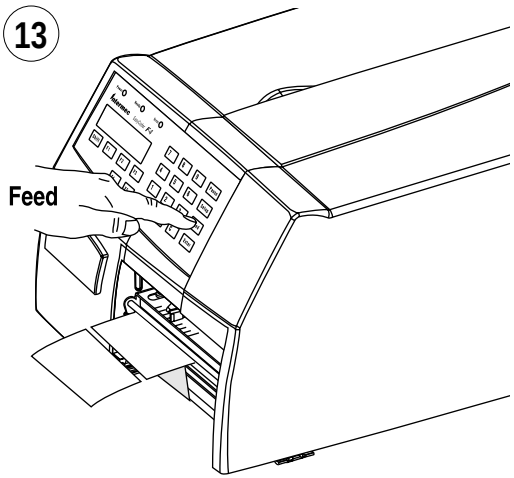
Adjust the position of the green paper guide so the paper is guided with a minimum of play.

12



Close the side door.

13



*Adjust the paper feed by pressing the **Feed** key.*

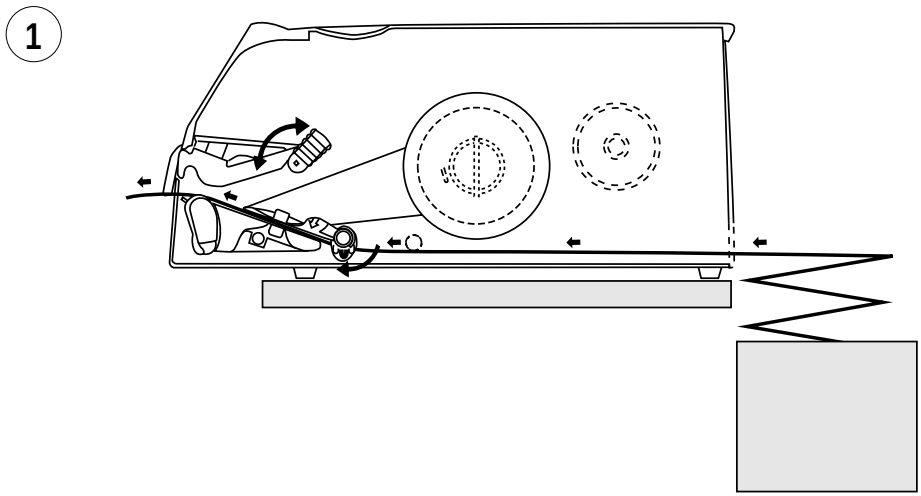
External Supply

The EasyCoder F4 can print on labels, tickets, tags, and paper strip in various forms. This chapter describes the case the paper supply is placed behind the printer, usually in the form of fan-folded tickets and tags. External supply can be used in connection with tear-off operation – preferably with Quick-Load.

External supply can be used with both short and long side doors and there is no need to remove the paper roll hanger.

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

Direct thermal paper is more or less sensitive to heat, direct sunlight, moisture, oil, plasticizers, fat, and other substances, depending on brand and quality and should be protected accordingly.



This diagram shows the path of the paper web from an external supply. In case of the standard paper guide ring, it is recommended to turn it to vertical position for better guiding of the web.

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 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 7 "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 8 "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.xx Reference Manual.
- ***In the Intermec Direct Protocol:***
  - Use Setup strings to change individual setup parameters remotely from the host.

  See Intermec Direct Protocol 7.xx Programmer's Guide.
- ***Using the EasySet Bar Code Wand:***
  - Read a Code 128 bar code containing the setup parameter id. and the desired value or choice. See Appendix 4.

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:	24
Width:	832
Length:	1200
Media Type:	Label (w Gaps)
Label Constant:	85
Label Factor:	40
Contrast:	±0%

Print Defines:

Print speed:	100 mm/sec.

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.xx 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 channels "uart2:" and "uart3:". The latter channels 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 depending on type of communication (refer to diagrams #3 – 5 in chapter 7 “Setup Mode”).

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

Baudrate

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

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

Setup Parameters, cont'd.

Serial Communication, cont'd.

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.xx 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)

Parity

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

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

Stop Bits

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

- 1 (default)
- 2

Flow Control

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

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

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

Setup Parameters, cont'd.

Serial Communication, cont'd.

- ***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.
- ***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

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

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

Receive Buffer

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

Transmit Buffer

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

Setup Parameters, cont'd.

Net Communication
• **New Line**

New Line

Only shown if an optional EasyLAN 100i interface board is fitted and used to 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.

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 types, roll size, type of media supply device, and individual differences between printers.

Tear-Off:		
Start adjust:	-100	(-12.5 mm)
Stop adjust:	0	(0 mm)
Peel-Off:		
Start adjust:	-56	(-7.0 mm)
Stop adjust:	-44	(-5.5 mm)

Start Adjust

The Start Adjust value is given as a positive or negative number of dots (1 dot = 0.125 mm = 4.9 mils). Default value is 0, which places the origin a certain distance back from the forward edge of the copy.

- A **positive** start adjustment means that the specified length of paper web will be fed out before the printing starts, i.e. the origin is moved further back 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.

Stop Adjust

The Stop Adjust value is given as a positive or negative number of dots (1 dot = 0.125 mm = 4.9 mils). Default value is 0, which stops the 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.
- A negative stop adjustment means that the normal paper feed after the printing is completed will be decreased by the specified value.

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 24 dots, which places the inner margin of the print area 3 mm (0.118") from the inner edge of the paper and gives a maximum print width of 808 dots (101 mm/3.976").

If you want to make use of the entire paper width, reset the X-start value to 0 which gives a maximum print width of 832 dots (104 mm/4.095").

By increasing the value 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.

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 and must not exceed 832.

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

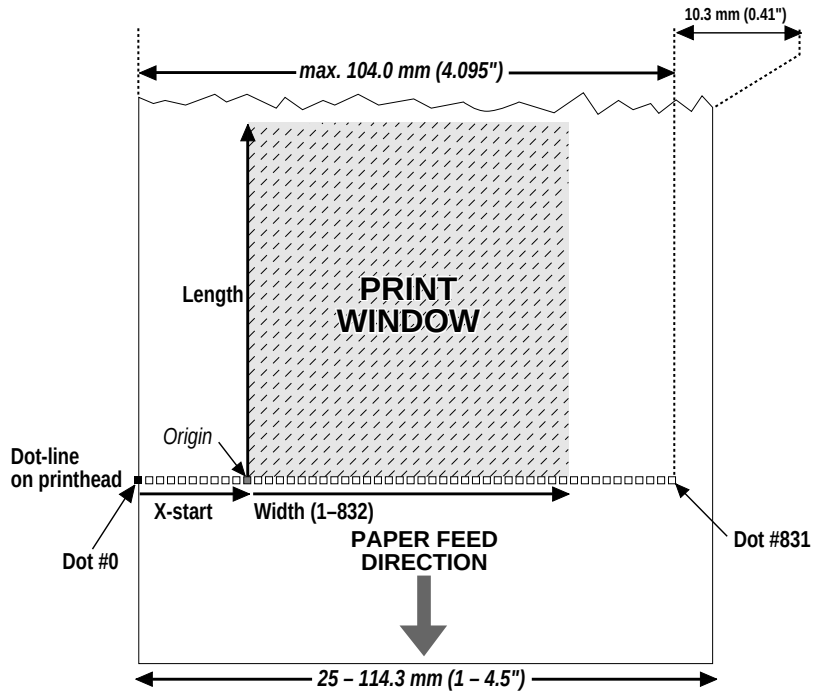
Setup Parameters, cont'd.

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 115 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 properly 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. Two parameters must be set:

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

See the list on next page for recommended settings for various types of standard Intermec direct thermal media.

Setup Parameters, cont'd.

Media, cont'd.

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. 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:

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.

General Paper Type Settings Guide

Sensitivity[1]	Label Constant	Label Factor	Max. Speed[3]
Low	100 – 115	40	100
Standard	86 – 99	40	125
High	70 – 85	40	175
Ultra high	50 – 69	40	200

Direct Thermal Papers (Europe)

DT Type/ Speed	Paper Designation	Label Constant	Label Factor	Max Rec. Print Speed (mm/sec)[3] Picket Fence Bar Code	Ladder Bar Code
Top Coated/ Standard	Top Board[2]	100	40	100	100
	Premium	95	40	125	125
Non Top Coated/ Standard	Economy	85	40	125	125
	Eco Board[2]	80	40	175	175
Top Coated/High	Premium High Speed	85	40	175	175

Direct Thermal Papers (North America)

DT Type/ Speed	Paper Designation	Label Constant	Label Factor	Max Rec. Print Speed (mm/sec)[3] Picket Fence Bar Code	Ladder Bar Code
Top Coated/ Standard	Duratherm II Tag[2]	112	40	100	100
	Duratherm II	95	40	100	100
Top Coated/ High	Duratherm Ltg	92	40	175	175
	Duratherm IR	82	40	150	150

[1]/. Please note that preprint and varnish decrease the sensitivity of the direct thermal paper.
[2]/. May require increased printhead pressure (see chapter 12 “Adjustments; Printhead Pressure”).
[3]/. Exceeding the recommended print speed may, even in case of plain text printing, cause premature wear-out of the printhead

Setup Parameters, cont'd.

Media, cont'd.

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.

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). The comparator and amplifier values of the LSS are displayed (read-only).

Print Defines

- Head Resistance
- Testprint
- Print Speed
- LTS (optional)

Head Resistance

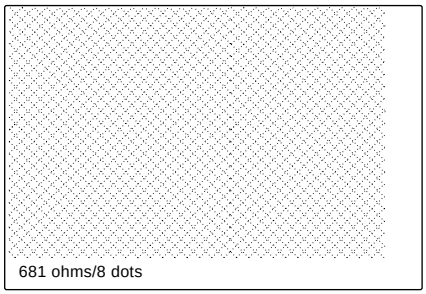
The printhead resistance is measured automatically at startup and displayed (read-only).

Testprint

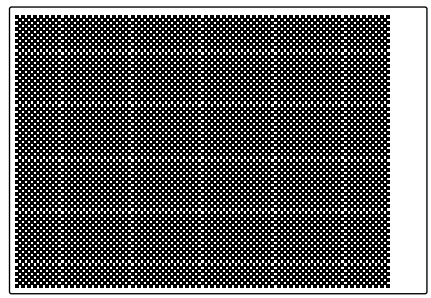
Test label #1 – 4 are intended for checking the printout quality and facilitate adjustment of the printhead pressure (see chapter 13“Adjustments”). Test label #5 lists the printer's current setup (extra labels may be printed if the printer is fitted an optional interface board). Test label #6 is only printed in connection with the optional EasyLAN 100i interface board. The test labels #1 – 5 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.

Setup Parameters, cont'd.

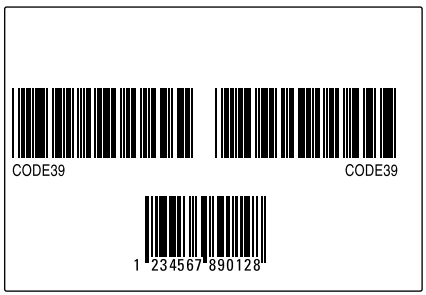
Print Defines, cont'd.



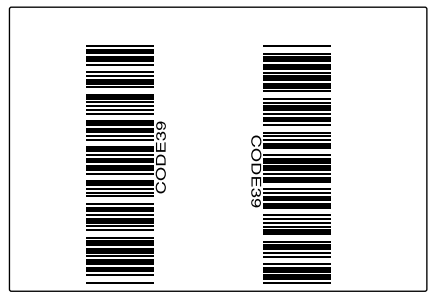
Test Label #1



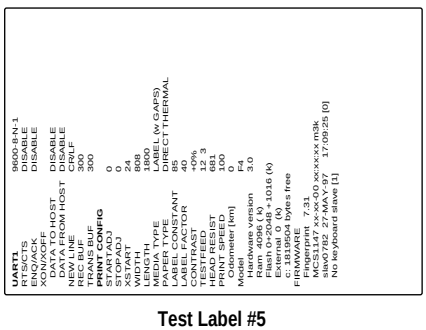
Test Label #2



Test Label #3



Test Label #4



Test Label #5

Setup Parameters, cont'd.

Print Defines, cont'd.

Print Speed

The print speed is variable between 100 and 200 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 under "Media" earlier in this chapter for maximum print speed values. The default setting is 100 mm/sec.

LTS (Label-Taken Sensor)

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

- **LTS Adjust:**
  Press <**Enter**>. A label is feed out. Remove the label and press <**Enter**> again. A menu shows the sensitivity automatically selected by the firmware and the range, in which the LTS will work. Press <**Enter**> again and you will proceed to the LTS Test menu.
- **LTS Test:**
  Press <**Enter**>. A label is fed out. Remove the label and a new label should be fed out automatically. Repeat until you are sure the LTS works properly. Then press <**Enter**> to stop and exit.
- **LTS Value:**
  Press <**Enter**>. You can enter a new value in the range indicated in the LTS Adjust menu (see above). Min/max values are in the range 0–10.

Network

- IP Selection
- IP Address
- Netmask
- Default router

If an optional EasyLAN 100i interface board is fitted, a number of additional setup menus will be displayed. These menus are used for setting up the IP address, the netmask, and the default router for the EasyLAN 100i board, as described in separate manuals delivered with the board.

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 F4 with Intermec 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 Intermec Shell).
- Set up the printer as described in this chapter.
- Return to Intermec Shell by pressing the <**Setup**> key.

B. EasyCoder F4 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

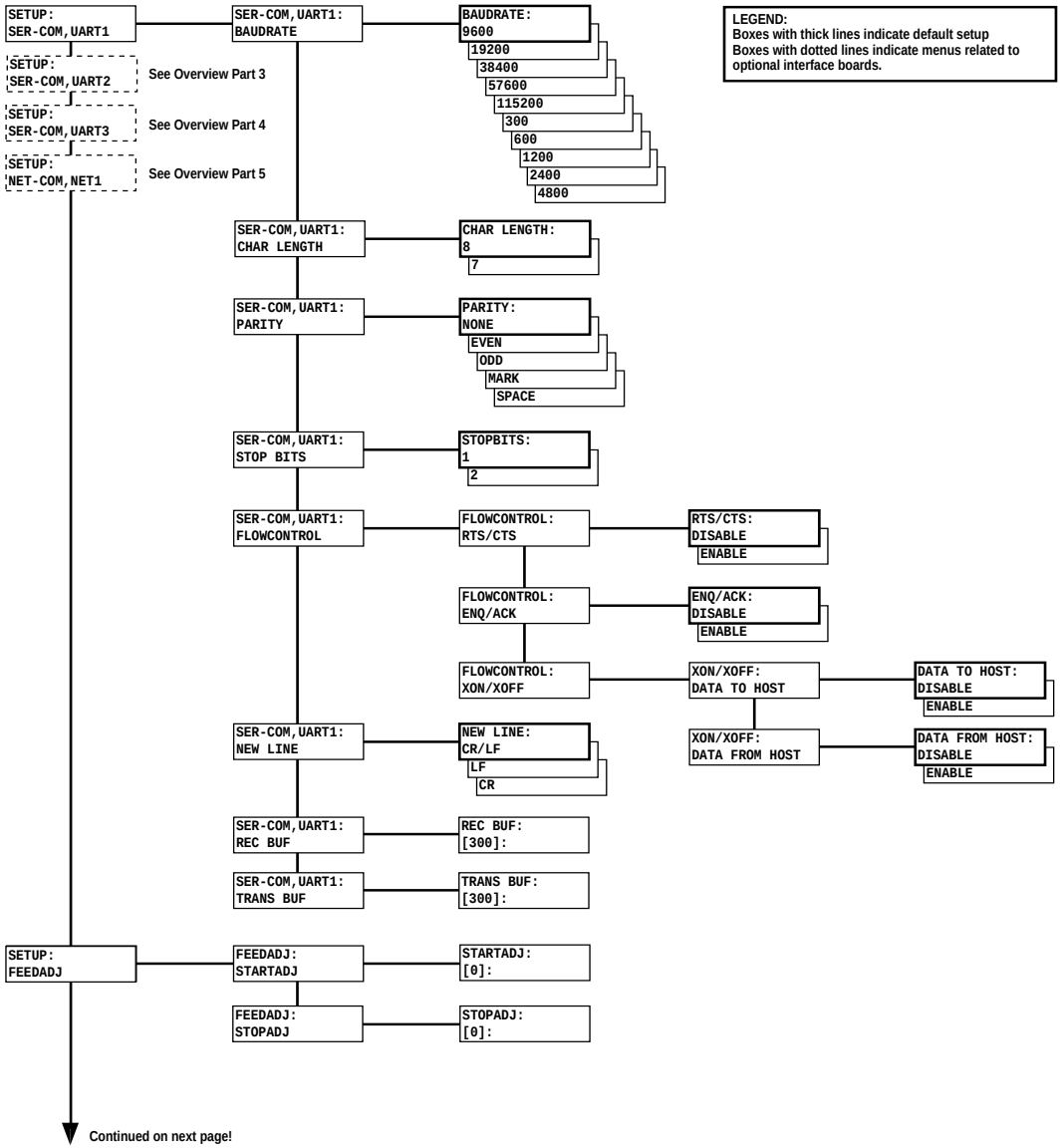
While going through the setup procedure, you are guided by texts in the printer's display. You can step between setup menus, acknowledge displayed values, select or type new values etc. by means of some of the keys on the printer's keyboard.

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

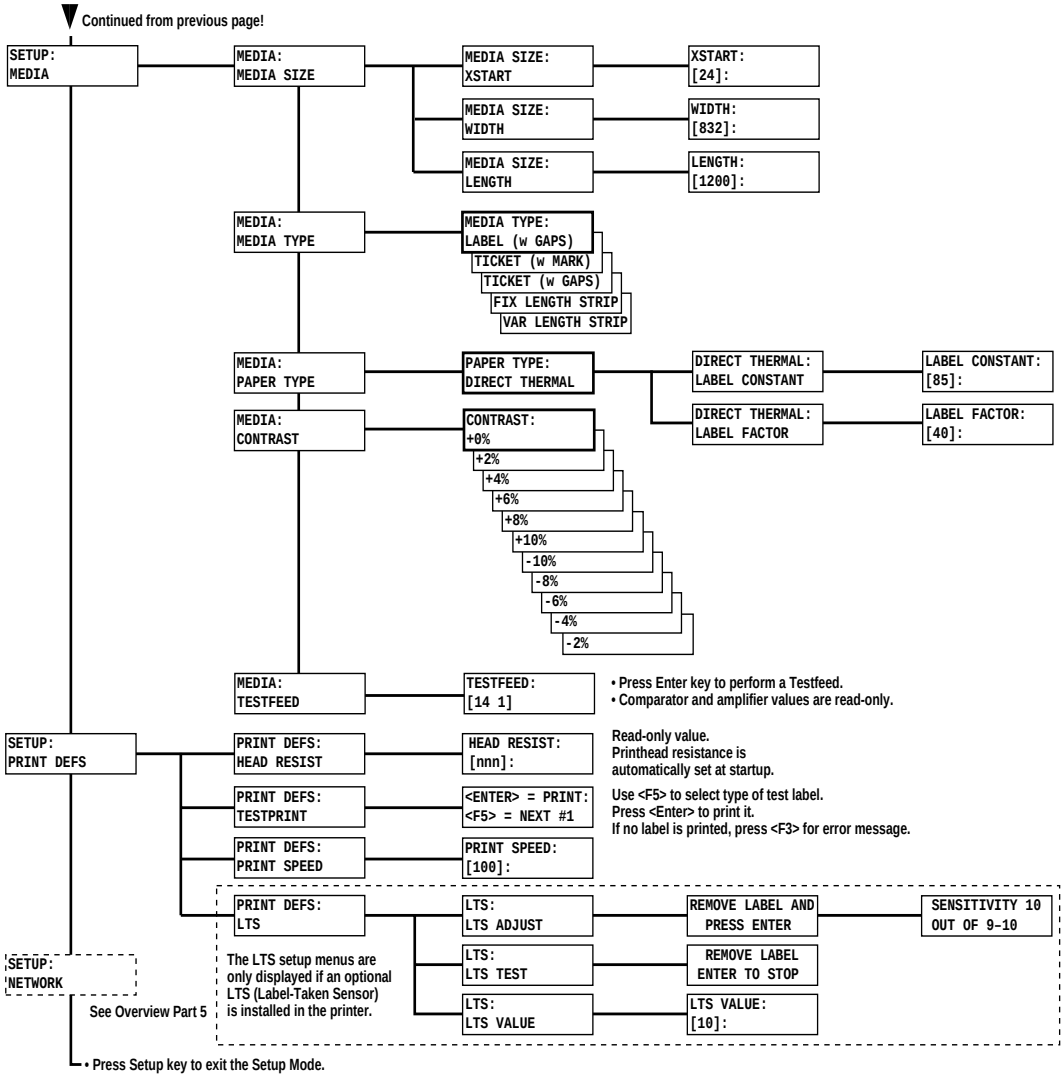
F1	Move one menu to the left on the same level[1].
F2	Move one menu to the right on the same level[1].
F3	Display error message at test labels printing failure.
F4	Move up one level or scroll back in a stack of options[1].
F5	Move down one level or scroll forward in a stack of options[1].
0 – 9	Enter 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 7.31)

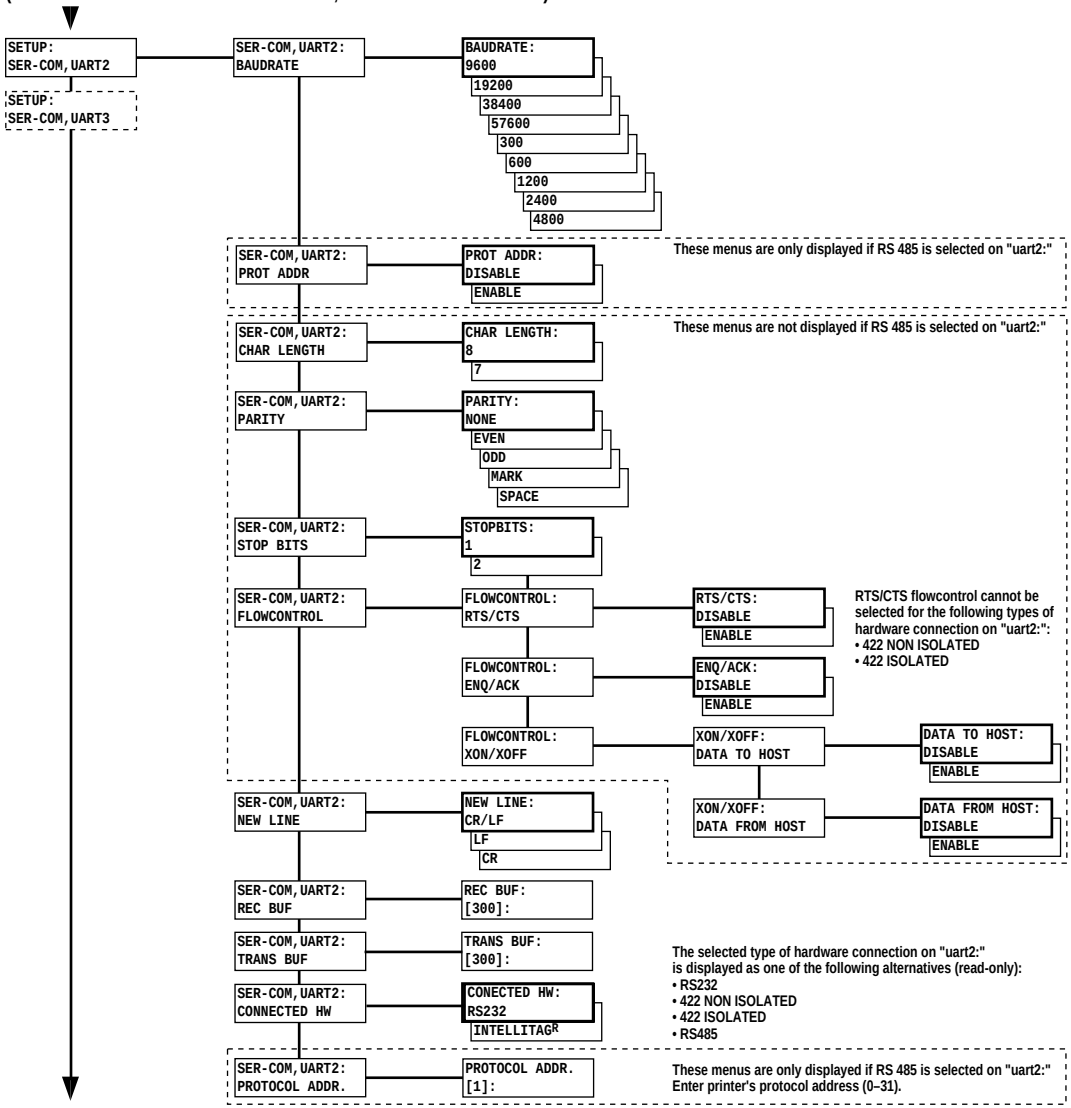


Setup Mode Overview, Part 2
(Intermec Fingerprint 7.31)



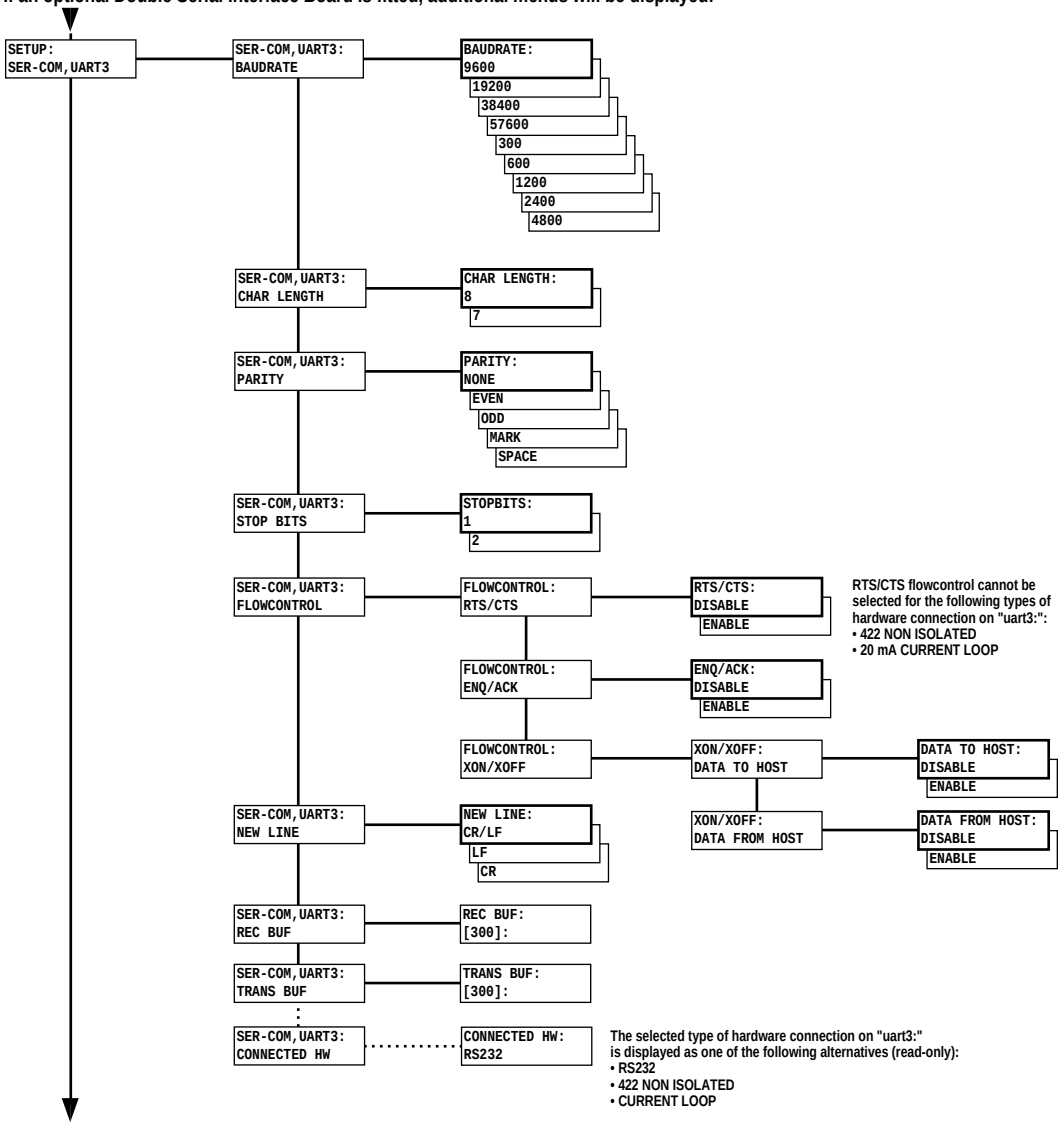
Setup Mode Overview, Part 3
(Intermec Fingerprint 7.31)

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



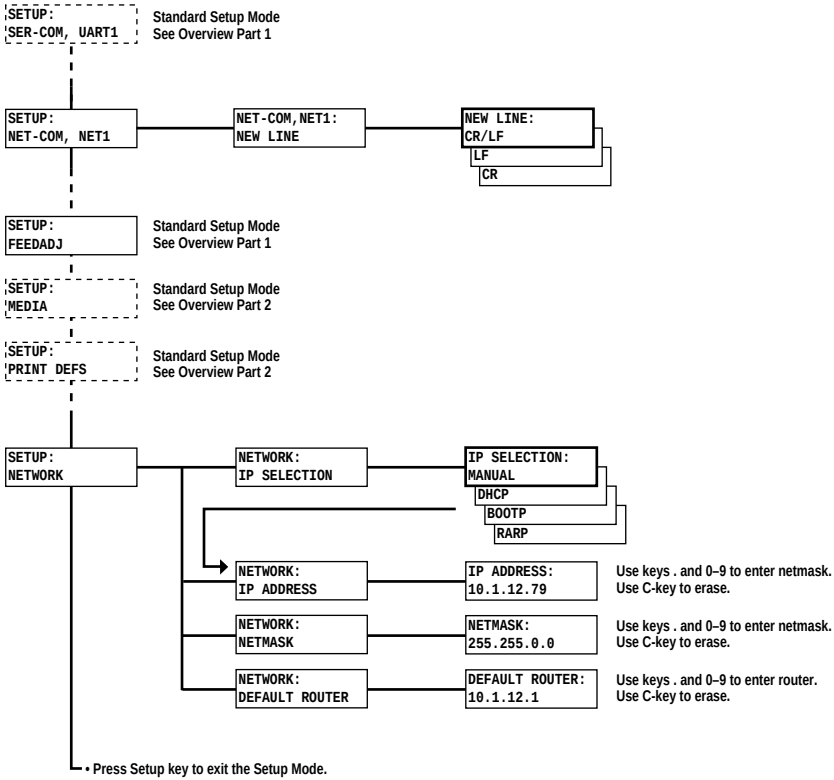
Setup Mode Overview, Part 4
(Intermec Fingerprint 7.31)

If an optional Double Serial Interface Board is fitted, additional menus will be displayed:



Setup Mode Overview, Part 5
(Intermec Fingerprint 7.31)

If an optional an EasyLAN 100i interface board is fitted, additional menus will be displayed.



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)*
- Other application programs in the printer's memory[1]

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
LBLSHTXT.PRG
MKAUTO.PRG
LSS-SENSOR.PRG
SHELLXP.PRG
WINXP.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.4.4
```

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
7.31
```

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 printer[1] 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 "centronics:" parallel interface as standard IN 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. The Windows Driver requires an optional Centronics interface board to be fitted in the printer.
- **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:"). 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 serial 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.
- **Other Application Programs**
  If the printer contains any other application programs – standard or custom-made – these will 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.

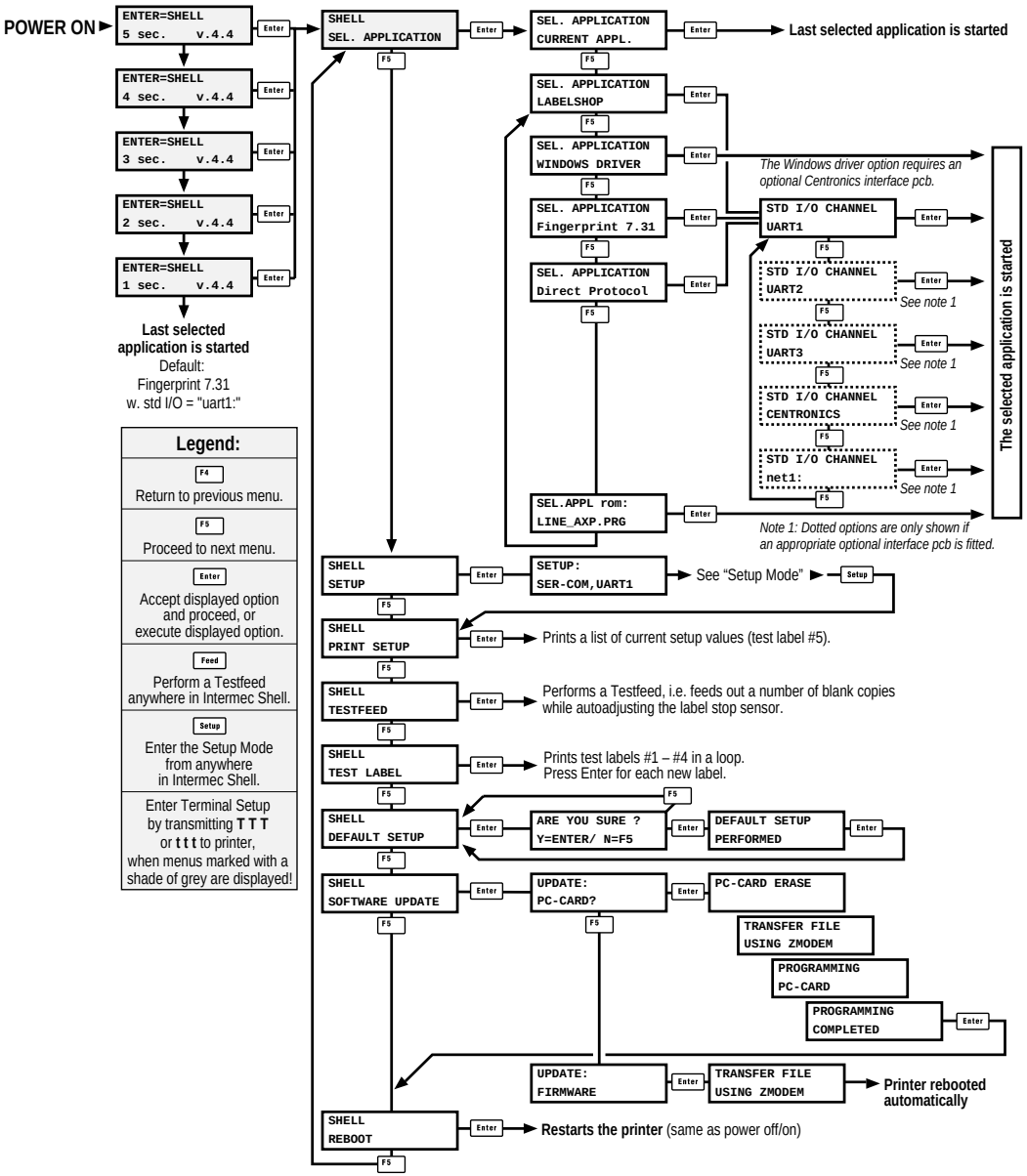
Select Other Facilities

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 7 “Setup Mode”.
- **Print Setup** allows you to produce a printout of the printer's current setup values (test label #5).
- **Testfeed** allows you to feed out a number of label, ticket, tag or 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 6.
- **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 commun-ication tool, files can be downloaded from a PC to a Flash PC-card[1] inserted in the memory card slot in the printer's rear plate.
    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 approved by Intermec can be used.

Intermec Shell 4.4 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.

Enter Terminal Setup by transmitting three upper- 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 printer[1].

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.4.4 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, i.e. **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 7.31
----------

(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

To set up the printer or use any other of the facilities, 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 7):

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:"
3 = "uart3:"
4 = "centronics:"
5 = "net1:"

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

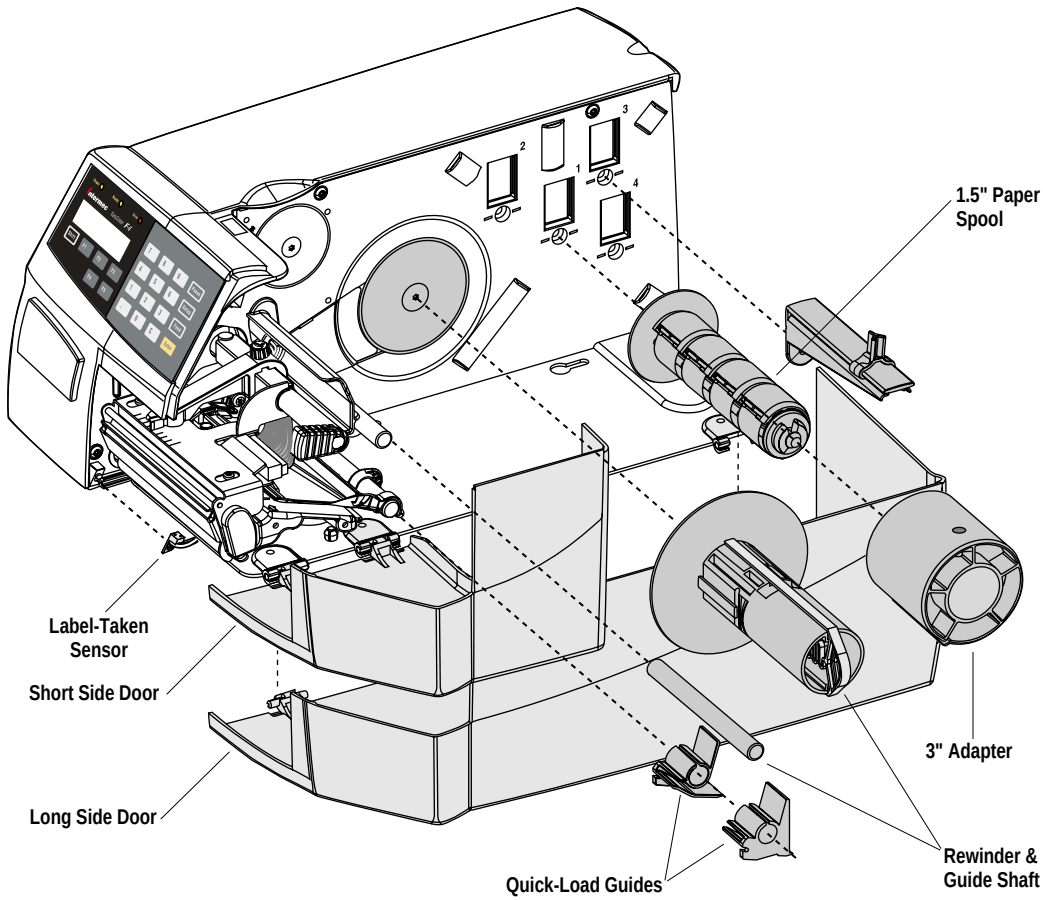
```
Line Analyzer
Error:56
```

Options

Introduction

The EasyCoder F4 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 F4.



Side Doors

The EasyCoder F4 comes with either a short side door, that only covers the print unit, or with a long side door, that encloses the entire paper compartment. The long side door has a slot for external paper supply. The long side door is generally illustrated throughout this manual, but pictures of the short side door can be found at the start of this chapter and in chapter 5 “Paper Load/Quick-Load”.

Rewind Unit

The rewind unit is an optional device for peel-off operation, i.e. the labels are separated from a backing paper (liner) after printing and the backing paper is wound up on an internal spool. The rewind kit also includes a guide shaft.

Peel-off cannot be combined with quick-load guides, see below.

Paper Supply Spool

The rotating paper supply spool is designed to fit paper roll cores with an internal diameter of 38 – 40 mm (1.5"). The spool can be fitted in the same positions as the paper hanger (see chapter 3 “Installation”). Being factory installed, the position of the paper supply spool is not intended to be changed by the operator.

the combination of high print speed and the momentum of large and heavy paper roll (may cause slacks and jerks in the paper web that may impair the printout quality, especially when printing ladder style bar codes (i.e. with bars running across the web). Thus, in case of print speed exceeding 150 mm/sec. (6"/sec,) in combination with a full width paper roll and a paper roll diameter of 200 mm (8") or more, we do not recommend the use of a rotating paper supply spool.

3" Adapter

The 3 inch/76 mm adapter is used in connection with a rotating paper supply spool and makes it possible to use paper rolls with 3 inch/76 mm inner diameter paper cores. The 3" adapter cannot be used in connection with a paper hanger.

The adapter is pressed onto the paper supply spool and held in place by a screw

Quick-Load Guides

For Quick-Load operation (see chapter 5 “Paper Load”), a set of paper guides is fitted at the rear of the print unit instead of the standard guide ring. The outer guide is adjustable for different paper widths. The quick-load guides are included as standard in the delivery (either factory-fitted or loose). They can easily be fitted by the operator:

1. *Open the upper paper guide (see illustration in chapter 11 “Maintenance/Cleaning the Paper Guides”).*
2. *Pull out the standard guide ring from the shaft.*
3. *Fit the quick-load guides onto the shaft as illustrated on the first page of this chapter.*

Label-Taken Sensor

The Label-Taken Sensor (LTS) is a photoelectric sensor, which enables the printer's firmware to detect if the latest printed label, ticket, tag etc. has been removed before printing another copy.

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

EasySet Bar Code Wand

The EasySet bar code wand is primarily intended to facilitate setup in regard of paper type, 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.

A selection of setup bar codes is provided in Appendix 4. For further information on how to compose setup bar codes, see the Intermec Fingerprint 7.xx Reference Manual.

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

Real-Time Clock

The Real-Time Clock circuit (RTC) relieves the operator or the overhead computer system from having to set the clock/calendar by means of the Intermec Fingerprint instructions DATE$ and TIME$ after each power up. The RTC has its own battery backup with a life of 10 years or more.

Interface Boards

A number of different interface boards are available for use with the EasyCoder F4. The interface boards are either factory fitted or can easily be fitted by an authorized service technician.

The EasyCoder F4 can accommodate one such interface board.

The interface boards for the EasyCoder F4 are presently:

- Parallel Interface Board (IEEE 1284)
- Double Serial Interface Board
- Industrial Interface Board
- EasyLAN 100i Interface Board (Ethernet)

Refer to Appendix 3 “Interfaces” for more information on interface boards.

RFID Option

RFID (radio frequency identification) option modules are available for use with the EasyCoder F4. The RFID option modules are either factory fitted or fitted by an authorized service technician.

The EasyCoder F4 can accommodate only one option module. The

RFID option module occupies the same chassis slot as other interface boards listed in Chapter 9, and cannot be used in conjunction with, or in addition to, any of the optional interface boards listed.

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.

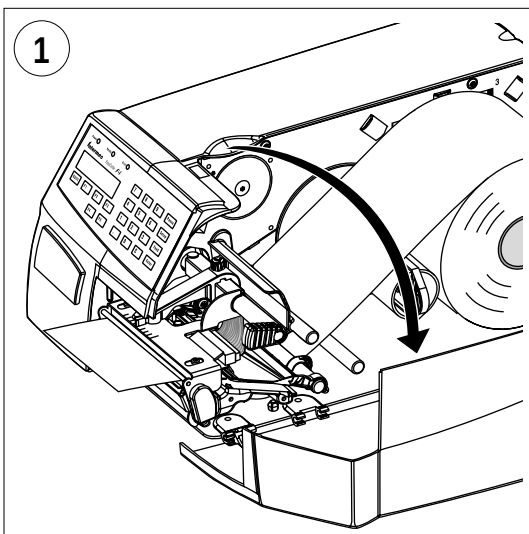
Symptom	Possible Cause	Remedy	Refer to
Overall weak printout	Wrong Paper Type setup Low Contrast setup Printhead pressure too low Worn printhead Wrong printhead voltage	Change setup Change setup Adjust Replace printhead Replace CPU board	Chapter 6 Chapter 6 Chapter 12 Chapter 11 ✎ Call Service
Printout weaker on one side	Uneven printhead pressure	Adjust arm alignment	Chapter 13
Weak spots	Foreign particles on paper Poor paper quality Worn printhead Worn platen roller	Clean or replace Use Intermec paper Replace printhead Check/replace	Chapters 5 Appendix 2 Chapter 11 ✎ 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 6 Chapter 6 Chapter 12 ✎ 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 6 Chapter 6 Chapter 12 ✎ Call Service
Dark lines along paper web	Foreign objects on printhead	Clean printhead	Chapter 11
White lines along paper web	Printhead dirty Missing dots on printhead	Clean printhead Replace printhead	Chapter 11 Chapter 11
Large part of dot line missing	Wrong X-start or Width setup Failing printhead Failing strobe signal	Change setup Replace printhead Check CPU-board	Chapter 6 Chapter 11 ✎ Call Service
Printout missing along inner edge	Bad paper alignment Small core and hanger in upper position X-start setup value too low	Adjust Move hanger to lower pos. Increase	Chapter 5 Chapter 3 Chapter 6
Paper feed not working properly	Changed media characteristics Wrong start- and stop adjust values Wrong Media Type setup Wrong sensor position Dirty or blocked sensors Faulty sensors	Perform a TESTFEED Check/change Check/change Check/change Clean paper guides Replace	Chapter 5 Chapter 6 Chapter 6 Chapter 12 Chapter 11 ✎ Call Service

Maintenance

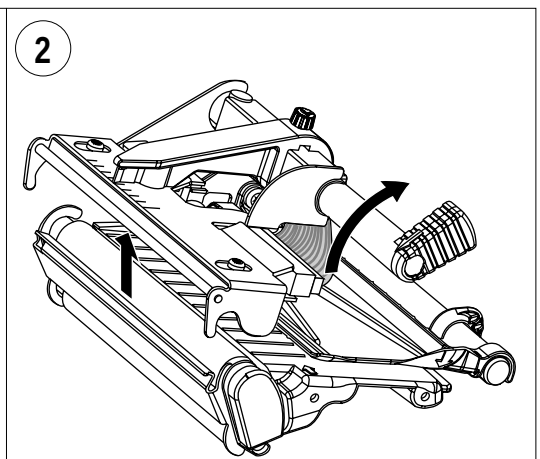
Printhead Cleaning

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

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



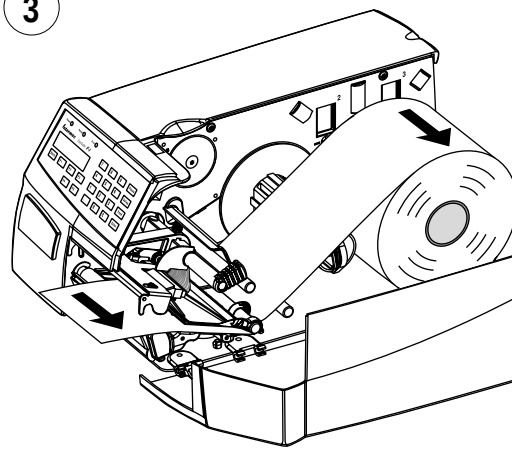
Open the side door.



Turn the printhead lift knob clockwise to lift the printhead.

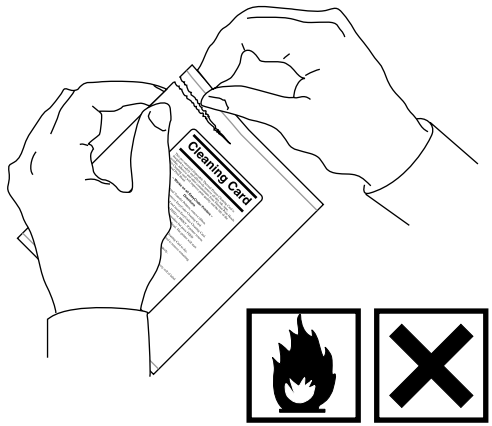
Printhead Cleaning, cont'd.

3



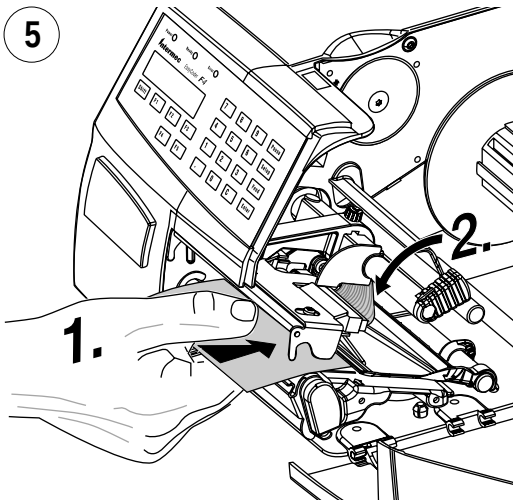
Remove the paper, if any.

4



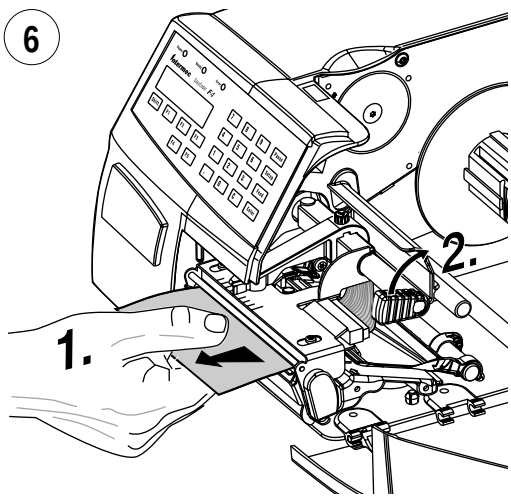
Open the cleaning card envelope and pull out the cleaning card. Read the warning text.

5



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

6



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