

Installation & Operation

*P/N 1-960414-01
Edition 2
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EasyCoder 91 Bar Code Label Printer

 **ntermec**

A **UNOVA** Company

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*Intermec EasyCoder 91
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International Notices

FCC Notice (United States of America)

WARNING:

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

DOC Notice (Canada)

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REGULATIONS COMPLIANCE (DOC-A)**

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



**Ministère des Communications du Canada
CONFORMITE DE REGLEMENTS (DOC-A)**

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Windows is a trademark of Microsoft Corporation.

Introduction

Intermec EasyCoder 91 is a series of dedicated direct thermal and combined thermal transfer/direct thermal printers with a printhead density of 8 or 11.81 dots per mm (203.2 or 300 dpi), which all come in two main models:

- The *Intermec EasyCoder 91 Tear-Off* model is intended for printing on self-adhesive labels fitted on backing paper (liner), or on a paper strip with stamped detection slots and possibly some kind of perforation. The labels and tags are torn off by hand. Self-adhesive labels will remain attached to the backing paper and must be manually removed.
- The *Intermec EasyCoder 91 Peel-Off* model is designed for printing on self-adhesive labels fitted on backing paper (liner) and features a peel-off device, which automatically separates the labels from the backing paper, and a label taken sensor, which holds the printing until the previous label has been removed.

The *EasyCoder 91* printers are fitted with both a parallel Centronics port and a serial RS 232C port.

All *EasyCoder 91* printers are delivered with printer drivers for *Microsoft Windows 3.1x*, *Windows 95*, *Windows NT 3.51*, and *Windows NT 4.0*. The drivers makes it possible to produce printouts from most standard programs run under *MS Windows*.

Label design becomes an easy task with *Intermec Label-Shop*, a series of “what-you-see-is-what-you-get” PC label-editing programs and compatible with the full range of *Intermec EasyCoder* printers, including *EasyCoder 91*.

EasyCoder 91 can also be run by means of special control commands described in a separate *Programming Manual*. These control commands use short lines of ASCII characters to format the labels, enter text and bar codes and control the printing, making it possible to use a terminal or personal computer, that does not operate under *MS Windows*.

An optional battery pack allows use in mobile applications. By means of an optional Keyboard/Display Unit, they can also be provided with a stand-alone capacity, i.e. be operated disconnected from any computer.

For comprehensive technical data, refer to Appendix 1.

Installation

Unpacking

CAUTION!

The discharge of electrostatic energy accumulated on the surface of the human body or other surfaces can damage or destroy the printhead or electronic components used in this printer. Avoid touching the electrical connectors while unpacking and setting up the printer.

Before starting the installation, carefully examine the delivery for possible damage or missing parts:

1. Open the box and lift up the power supply unit, the plastic bag containing manuals and floppy disk, and other parts.
2. Remove the upper foam-plastic shock absorber and lift up the printer. Check that no visible damage has occurred during the transportation. Keep the packing material in case you need to move or reshipe the printer.
3. Check to make sure any options ordered are included.
4. Check the accessories included in the delivery. In addition to possible options, the box should contain:
 - Intermec EasyCoder 91 printer
 - Power Supply unit w. separate power cord
 - One empty ribbon core (thermal transfer printers)
 - One paper unwind spool
 - One roll of direct thermal labels
 - One set of manuals
 - One 3.5" floppy disk containing EasyCoder 91 Windows Drivers.

Note that no cable for printer-to-computer connection is included, unless ordered separately.

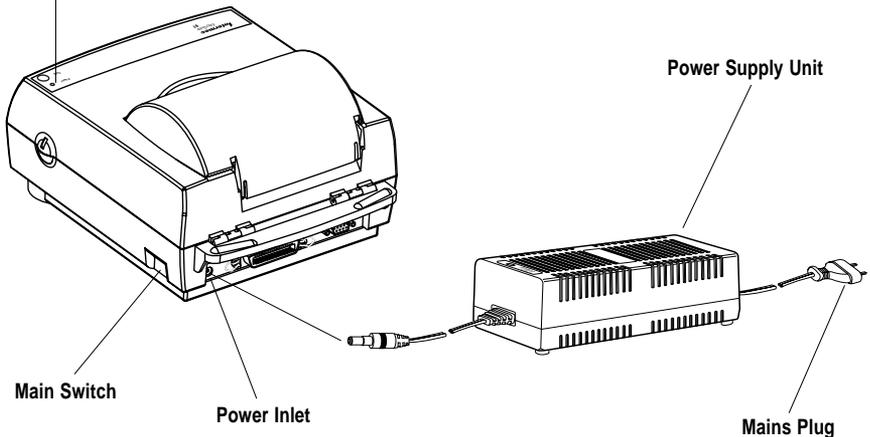
Should any kind of damage have occurred during transportation, immediately make a complaint to the carrier. Any incorrect delivery or missing parts should be reported to the distributor.

Mains Connection

WARNING!
The printer and power supply unit must never be operated in a location where they can get wet. Personal injury could result!

1. Place the printer in a suitable location that allows easy access to printed labels and preferably also easy reload of paper stock and transfer ribbon. The printer should never be operated while resting on its side or upside down.
2. Place the power supply in a suitable location between the printer and an electrical outlet, e.g. on the floor. The power supply can be used for 100–240 V AC, 50–60 Hz. The configuration of the mains plug differs according to national standards.
3. Check that the printer's power switch is off (O).
4. First, fit the round connector into the power inlet on the printer's rear plate. Then connect the mains cord between the power supply and an electrical outlet.
5. The power can be turned on/off by means of the main switch situated on the right side of the printer. The "Power" control lamp on the printer lights green, red, or orange to indicate that the power is on.

Control Lamp	
Dark:	Power off
Red:	Power on – Out of paper or ribbon
Green:	Power on – Ready to print
Orange:	Error. See chapter 5 "Troubleshooting"



Memory Cartridge

WARNING!

When fitting or removing a memory cartridge, the power to the printer must be off!

Before using an optional memory cartridge time, or changing to a different memory size, the printer's memory may need to be reformatted.

Refer to the M command in the *EasyCoder 91* Programming Manual.

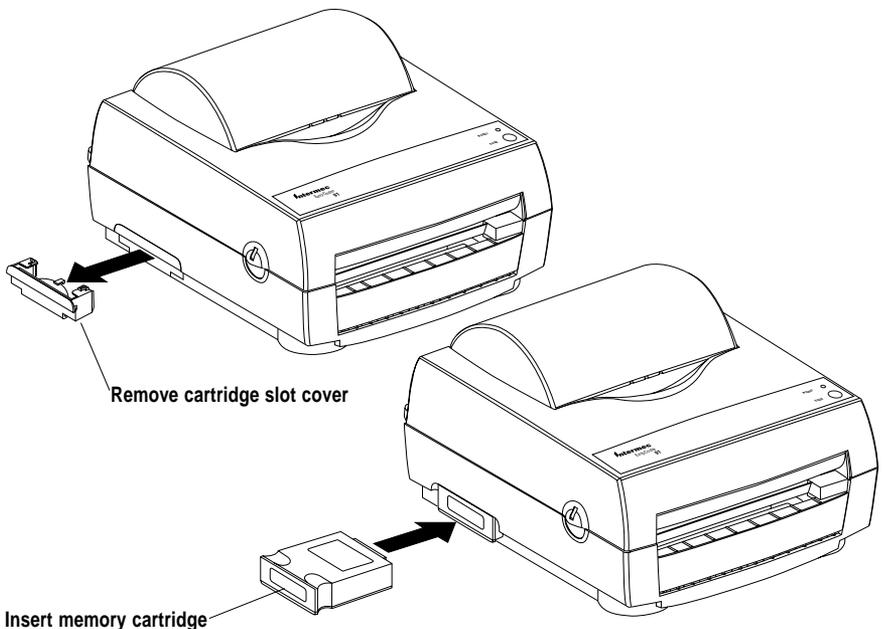
The *EasyCoder 91* is fitted with a built-in working memory (RAM) of 128 kbytes.

The 11.81 dots/mm (300 dpi) version of *EasyCoder 91* is as standard fitted with a memory cartridge that contains 128 kbyte RAM plus a real-time clock circuit (RTC), which gives a total working memory of 256 kbytes. This memory cartridge could easily be replaced by a cartridge containing 384 kbytes RAM plus an RTC, which gives a total of 512 kbytes RAM in the printer.

The 8 dots/mm (203.2 dpi) version of *EasyCoder 91* is not fitted with any memory cartridge as standard, but 128 kbyte or 384 kbyte memory cartridges with RTC are available as options.

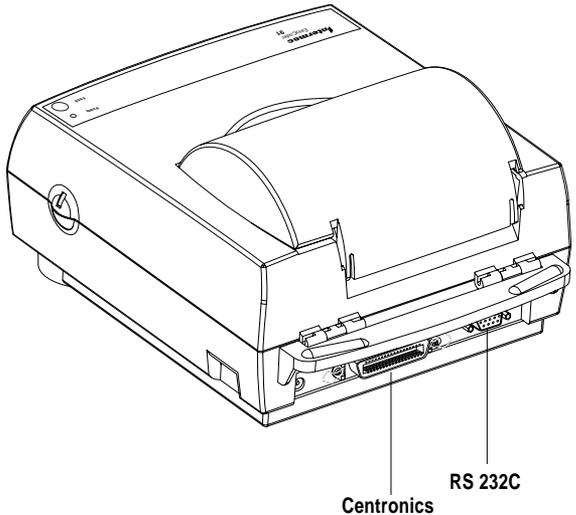
Installation of Memory Cartridge

1. Ensure that the power switch on the printer is off (0).
2. Remove the cartridge slot cover located on the left side of the printer.
3. Insert the memory cartridge – label side up – into the cartridge slot. Push firmly to seat the cartridge.
4. Turn on the printer.



Computer Connection

All *EasyCoder 91* models are fitted with a 36-p female Centronics connector for the parallel interface port and a DB9 female connector for the RS 232C serial interface port. You can have cables connected to both of these ports simultaneously, but only one can be used at a time.



Centronics Parallel Interface

If you intend to use any of the *Windows Drivers* (see chapter 2), choose the parallel Centronics interface.

The parallel interface can also be used for programming the printer by means of the protocol described in the *EasyCoder 91 Programming Manual*. However, prompts and other information from printer to host cannot be transmitted, since the parallel interface is one-way only.

Note:

No communication cables are included in the delivery unless specifically ordered.

For pinout specifications, please refer to Appendix 3.

Computer Connection, cont'd.

Serial RS 232C Interface

The serial RS 232C channel is intended for running the protocol described in the *EasyCoder 91* Programming Manual, or to connect e.g. a scanner or the optional Keyboard/Display Unit, but is not suited for the *Windows Driver*.

The RS 232C communication setup is variable by means of the **Y** command (see *EasyCoder 91* Programming Manual).

Use the Test Mode to check the printer's present setup (bold letters indicate default setup).

Baud rate : 1200, 2400, **9600**, or 19200

Parity: **None**, Odd, or None

Data bits: 7 or **8**

Stop bits: **1** or 2

Flow control: XON/XOFF and DSR/CTS

Note:

No communication cables are included in the delivery unless specifically ordered.

For pinout specifications, please refer to Appendix 3.

Windows Drivers

Installation Disk

^{1/}. The exact printhead densities are:
 8 dots/mm = 203.2 dots/inch
 11.81 dots/mm = 300 dots/inch

With the printer delivery comes a DOS-formatted 3.5" HD floppy disk, that contain printer drivers for *EasyCoder 71* and *EasyCoder 91* (the latter with either 8 dots/mm or 12 dots/mm printhead density^{1/}). The drivers are available for *Microsoft Windows 3.1x* and *Windows 95* operating systems.

Using these printer drivers, you can print labels from almost any *Windows* application and from the various versions of *Intermec LabelShop* label-design program.

The floppy disk also contains *Winbar 2.5*, a freeware program from *Stellar Technologies*, that can generate bar codes to the Windows Clipboard.

On the floppy disk, there are four directories:

- **A:\win3xx** *Windows 3.1x* printer drivers for:
 - *EasyCoder 71* 8 dots/mm
 - *EasyCoder 91* 8 dots/mm
 - *EasyCoder 91* 12 dots/mm
- **A:\win95** *Windows 95* printer drivers for:
 - *EasyCoder 71* 8 dots/mm
 - *EasyCoder 91* 8 dots/mm
 - *EasyCoder 91* 12 dots/mm
- **A:\nt351** *Windows NT 3.51* printer drivers for:
 - *EasyCoder 71* 8 dots/mm
 - *EasyCoder 91* 8 dots/mm
 - *EasyCoder 91* 12 dots/mm
- **A:\nt40** *Windows NT 4.0* printer drivers for:
 - *EasyCoder 71* 8 dots/mm
 - *EasyCoder 91* 8 dots/mm
 - *EasyCoder 91* 12 dots/mm

Note that the Windows drivers do not work with Windows 3.0 or earlier versions.

Installation

Install the *Intermec Windows Driver* in *Microsoft Windows 3.1x* or *Windows 95* according to the standard procedure for printer driver installation (also see *Microsoft Windows* manuals).

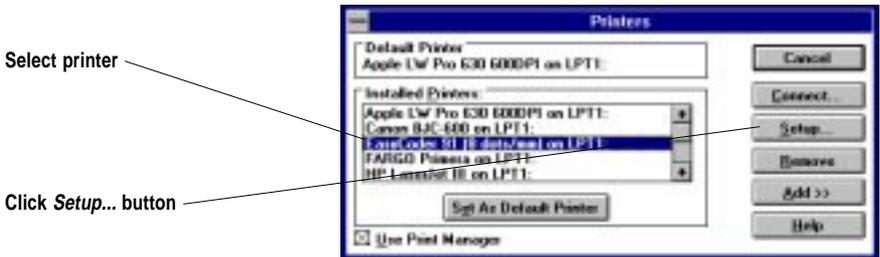
Windows for Workgroup Users:

If you during installation receive a warning stating "The currently installed UNIDRV.DLL is newer...", click the "No" button (default).

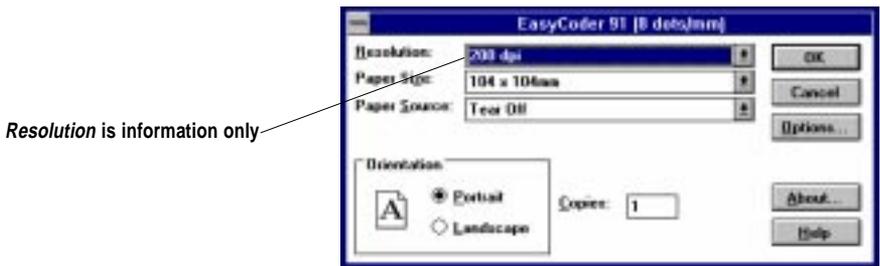
Windows 3.1x Setup

You can set up the *Windows 3.1x* printer driver either directly after installation or change the setup later when needed.

- In the **Program Manager**, open the **Control Panel** by double-clicking its icon.
- In the **Control Panel** window, double-click the **Printers** icon.
- The **Printers** dialogue box shows all presently installed printer drivers in a scroll box.



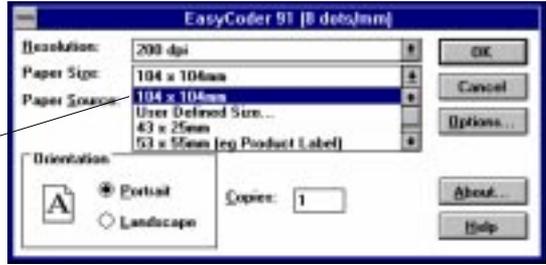
- Select the **EasyCoder 91** driver and click the **Setup...** button.
- A dialogue box, that allows you to specify various printing characteristics of your *EasyCoder 91*, will be displayed:



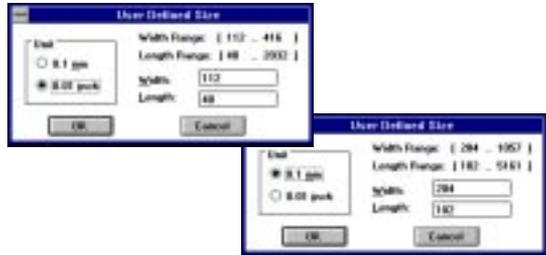
- **Resolution** (printhead density) is set to a **fixed** value of 200 dpi (8 dots/mm) or 300 dpi (12 dots/mm) depending on which type of *EasyCoder 91* printer you have selected.
- The **Paper Size** scroll box contains a number of predefined label sizes, as well as a **User Defined Size** option:

Windows 3.1x Setup, cont'd.

Select *Paper Size*



Custom sized tags and labels can be specified in a special dialogue box, which appears when the *User Defined Size* option is selected. The size can be specified in inches ($1/100$) or millimetres ($1/10$). Select *Unit*, enter the desired *Width* and *Length* values within the specified ranges, and click the *OK* button.



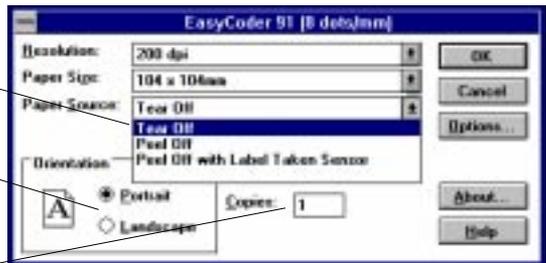
- The *Paper Source* scroll box allows you to choose between three types of operation:
 - Tear off
 - Peel off
 - Peel off with label taken sensor

The last two options can only be used with the “Peel Off” model of *EasyCoder 91*, see chapter 3 “*Operation; Paper Load*”.

Select type of operation

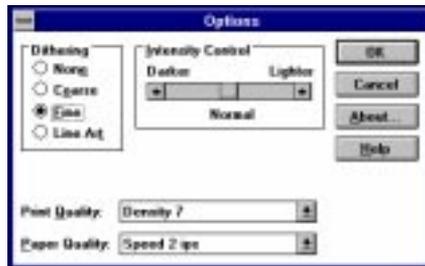
Select *Orientation*

Select number of copies

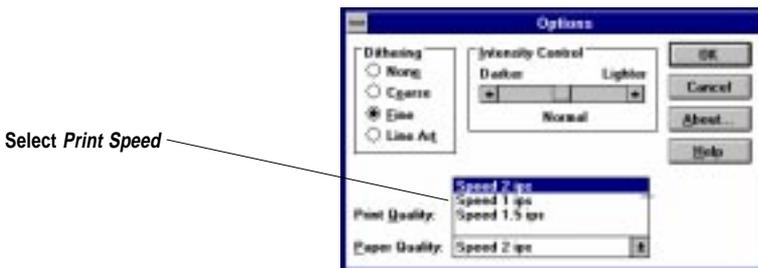


Windows 3.1x Setup, cont'd.

- In the **Orientation** box, you can decide the direction of the print image when printed on the paper by clicking the appropriate radio button:
 - **Portrait** means e.g. that a line of text is printed across the label, upside down from right to left.
 - **Landscape** means e.g. that a line of text is printed along the web, starting with the first character in the line.
- The **Copies** box allows you to print a batch of labels or tags. If you have selected **Peel off with Label Taken Sensor**, the printing of a new label is put on hold until the previous one has been removed.
- Click the **Options** button. A new dialogue box will be displayed.



- **Intensity Control** and **Dithering** have no consequences for text and bar codes, but can be used to improve the printing of images.
- In the **Paper Quality** scroll box, select the desired print speed:
 - 1 inch/sec. (≈ 25 mm/sec.)
 - 1.5 inch/sec. (≈ 38 mm/sec.)
 - 2 inches/sec. (≈ 50 mm/sec.)



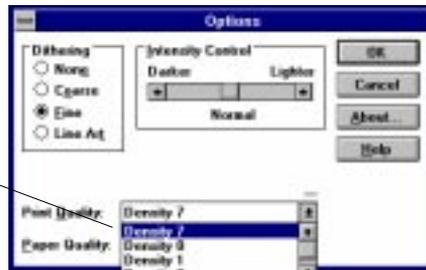
Windows 3.1x Setup, cont'd.

- The **Print Quality** scroll box allows you to control the general darkness of the printout, which depends on type of printing (DT/TT), print speed and print media. The density can be set to a value between 0 and 15, where 0 is the lightest and 15 is the darkest. We recommend initially selecting the density according to the list below.

Small corrections may be required after testing depending on print speed, condition of the printhead, and the characteristic of the thermal paper or combination between transfer ribbon and receiving face material.

Click the appropriate value in the **Print Quality** scroll box.

Select Density



- Recommended Print Quality settings at 2"/sec:**

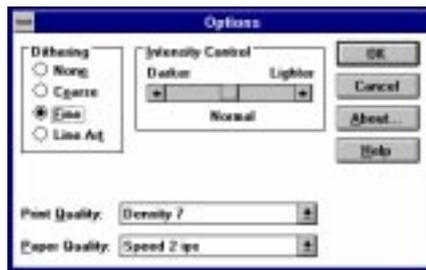
Direct Thermal Printing:		Density
Intermec Economy		9
Intermec Premium		9
Thermal Transfer Printing (Europe):		
GP91 ribbon	Intermec Vellum paper	4
GP91 ribbon	Intermec Matte coated paper	4
HP91 ribbon	Intermec Matte coated paper	7 (default)
HP91 ribbon	Semi gloss paper	6
HR91 ribbon	Synthetic gloss	8
Thermal Transfer Printing (USA):		
GP92 ribbon	Bond paper	3
GP92 ribbon	Matte coated paper	0
HP92 ribbon	Matte coated paper	4
HP92 ribbon	Semi gloss paper	8
HR91 ribbon	Synthetic gloss	8

Windows 3.1x Setup, cont'd.

- Clicking the *About...* button displays a box with information on the version number of the printer driver, e.g.:

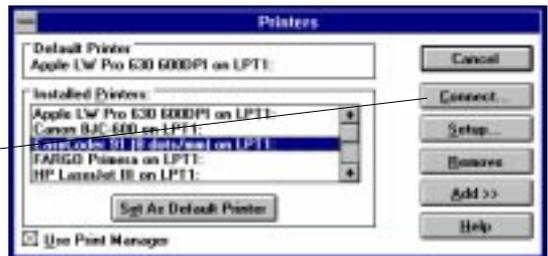


- Click the *OK* button to return to the *Options* box.



- In the *Options* dialogue box, click the *OK* button to accept the new settings and return to the *Printers* box.
- In the *Printers* dialogue box, click the *Connect...* button.

Click *Connect...*

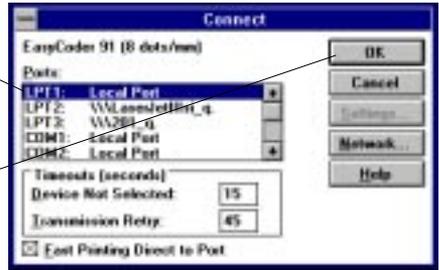


Windows 3.1x Setup, cont'd.

- In the **Ports** scroll box, select the parallel port of your PC to which you intend to connect your *EasyCoder 91* (normally "LPT1:", see *Microsoft Windows User's Guide*), and click the **OK** button.

Select a parallel port

Click **OK**



- Close the **Printers** dialogue box by clicking the **Close** button.
- The *Intermec Windows Driver* requires that a parallel communication cable is fitted between the 36-p Centronics connector on the printer and the selected parallel port on your PC, see page 7.

IMPORTANT!

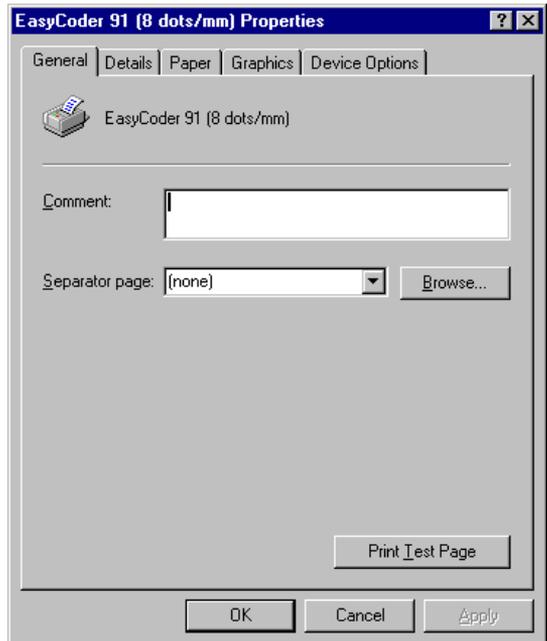
Also read the Application Notes on page 22.

Windows 95 Setup

You can set up the *Windows 95* printer driver either directly after installation or change the setup later when needed.

- Open *Windows 95* in your PC.
- Click the **Start** button in the **Task bar**.
- In the menu, that is displayed, click the **Settings** option. In the submenu that appears to the right, click the **Printers** option.
- In the **Printers** box, select your *EasyCoder 91* printer and open the **File** menu. In the **File** menu, click the **Properties** option.
- **Properties** consists of 5 boxes in which you can set up the printer driver in regard various parameters:
- **General:**

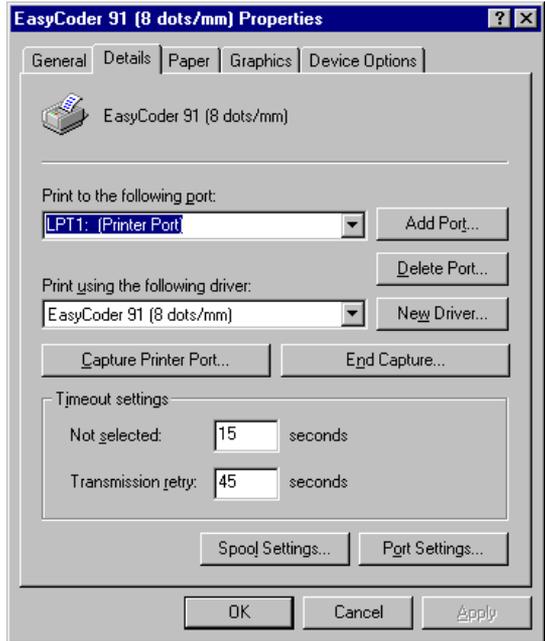
All options are standard *Windows 95* features. Please refer to the *Windows 95* manual or on-line help.



Windows 95 Setup, cont'd.

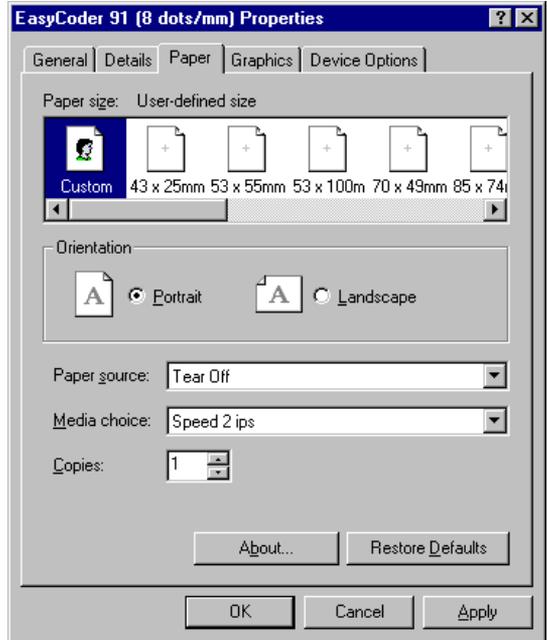
- *Details:*

All options are standard *Windows 95* features. Please refer to the *Windows 95* manual or on-line help. Always use a parallel port for communication with your *EasyCoder 91* (normally “LPT1:”).



Windows 95 Setup, cont'd.

- **Paper:**
This box contains dedicated *EasyCoder 91* features.



Paper Size

Select a predefined paper size from the scroll box or specify a user-defined size by clicking *Custom*. In the latter case, one of the following boxes will be displayed depending on which unit of measure has been selected (default: mm).



Windows 95 Setup, cont'd.

- **Paper, cont'd:**
Orientation allows you to decide the direction of the print image when printed on the paper by clicking the appropriate radio button:
 - **Portrait** means e.g. that a line of text is printed across the label, upside down from right to left.
 - **Landscape** means e.g. that a line of text is printed along the web, starting with the first character in the line.

Paper source allows you to select between:

- Tear off
- Peel off
- Peel off with label taken sensor

The last two options can only be used with the “*Peel Off*” model of *EasyCoder 91*, see chapter 3 “*Operation; Paper Load*”.

Media choice allows you to choose between three different print speeds:

- 1 inch/sec. (≈ 25 mm/sec.)
- 1.5 inch/sec. (≈ 38 mm/sec.)
- 2 inches/sec. (≈ 50 mm/sec.)

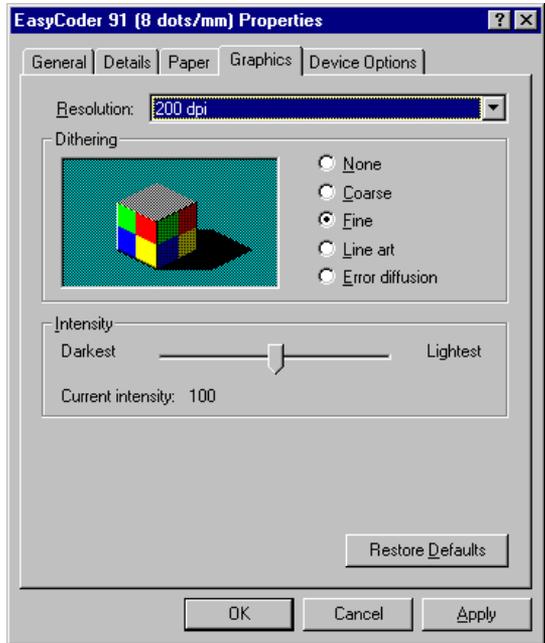
Copies allows you to print a batch of labels or tags. If you have selected **Peel off with Label Taken Sensor**, the printing of a new label put on hold until the previous one has been removed.

The **About** button displays a box that shows the version of the printer driver:



Windows 95 Setup, cont'd.

- *Graphics:*

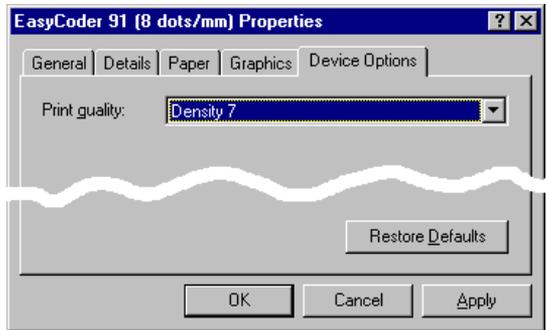


Resolution is fixed and is either 200 dpi or 300 dpi (dots per inch) depending on which printer driver has been installed (*EasyCoder 8 dots/mm* or *EasyCoder 12 dots/mm* respectively).

Dithering and **Intensity Control** have no consequences for text and bar codes, but can be used to improve the printing of images.

Windows 95 Setup, cont'd.

- **Device Options:**
This is a dedicated *EasyCoder 91* feature.



Print Quality allows you to control the general darkness of the printout, which depends on type of printing (DT/TT), print speed and print media. The density can be set to a value between 0 and 15, where 0 is the lightest and 15 is the darkest. We recommend initially selecting the density according to the list below.

Small corrections may be required after testing depending on print speed, condition of the printhead, and the characteristic of the thermal paper or combination between transfer ribbon and receiving face material.

Recommended Print Quality settings at 2"/sec:

Direct Thermal Printing:		Density
Intermec Economy		9
Intermec Premium		9
Thermal Transfer Printing (Europe):		
GP91 ribbon	Intermec Vellum paper	4
GP91 ribbon	Intermec Matte coated paper	4
HP91 ribbon	Intermec Matte coated paper	7 (default)
HP91 ribbon	Semi gloss paper	6
HR91 ribbon	Synthetic gloss	8
Thermal Transfer Printing (USA):		
GP92 ribbon	Bond paper	3
GP92 ribbon	Matte coated paper	0
HP92 ribbon	Matte coated paper	4
HP92 ribbon	Semi gloss paper	8
HR91 ribbon	Synthetic gloss	8

IMPORTANT!

Also read the Application Notes on page 22.

Application Notes

With a few exceptions due to the limited physical size of the label or tag, your *EasyCoder 91* will work like any matrix or laser printer operating under *Windows 3.1x* or *Windows 95*. However, before starting, please read the following information.

Margins (left, right, top, and bottom)

It is important to set the margins in your application. These should normally be set to zero to allow for printing on the entire full-width label.

Narrow Labels and Left Margin

The printer will start printing at the extreme left edge of the label path (compare matrix or laser printers). However, labels in *EasyCoder 91* are centred to the middle. Thus, to print on a narrow label it will be necessary to set the left margin, i.e., move the print to the right.

In *Intermec LabelShop*, you will have to specify a full width label and design the layout considering the actual width of the narrow label.

Label Length Autoadjust

The *EasyCoder 91* is automatically measuring the label length by feeding two blank labels the first time a form is sent to the printer from a *Windows* application after a power-up. This value remains stored in memory as long as the power is on.

Memory Restrictions

If the print image is too large to fit in the printer's memory, the "Power" control lamp on the printer will turn orange and an error message will appear on the screen. If this happens, turn printer back "on-line" by pressing the **Feed** key on the printer. When the "Power" lamp turns green, the printer is ready.

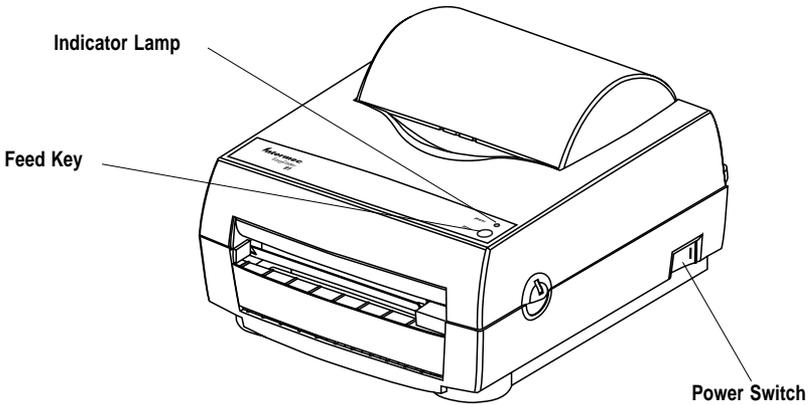
To avoid memory overflow, reduce the amount of data sent to the printer by limiting the label size. Do not design your label with a frame that prints along the edges of the label, or too far to the right side of the label.

To manage long labels, you can also increase the size of the image buffer by changing the memory allocation (see **M** command in the *EasyCoder 91* Programming Manual), possibly in combination with installation of a memory cartridge (see page 6).

Operation

Controls and Indicators

The EasyCoder 91 is controlled by the operator by means of a power switch, a “Feed” key and a multi-colour indicator lamp.



Power Switch

The power switch is located on the right side of the printer.

Indicator Lamp

When the power to the printer is switched on, the indicator lamp will glow green if the printer is loaded with paper and – in case of thermal transfer printing – ribbon. If the printer is out of paper and/or ribbon, the indicator lamp will glow **red**.

Any error condition, such as label stop sensor problems, paper jams or software errors, will be indicated by the lamp changing to orange.

If the indicator lamp fails to work as described above, please refer to chapter 5 “*Troubleshooting*”.

Colour	Meaning
Green	Power on Paper loaded Ribbon loaded ¹
Red	Power on Out of paper, or Out of ribbon ¹
Orange	Power on Error detected
Dark	Power Off
¹ / TT printing only	

Controls and Indicators, cont'd.

Feed Key

The Feed key can be used in two ways:

- Tapping
- Holding

When power is first applied and the printer is loaded with paper (and ribbon), **tapping** the Feed key will initiate a form feed, i.e. paper will be fed out to the top of next label or tag.

When power is first applied with no labels loaded, **holding** the Feed key will cause the paper to be continuously fed out until the key is released. This mode is useful when loading a new paper supply.

After the paper has been threaded through the printer, **tapping** the Feed key 3 more times (for a total of 4 taps) will cause a form feed.

Paper Load

IMPORTANT!

If the printer runs out of paper while printing, do **not** turn off the power during reload, or data will be lost!

Introduction

The *EasyCoder 91* can print on heat-sensitive direct thermal paper and – in case of thermal transfer models – on non heat-sensitive receiving face materials, in the form of self-adhesive labels or non-adhesive tag. In case of non heat-sensitive face materials, a suitable thermal transfer ribbon must be used.

The paper stock can be accommodated inside the printer in the form of a roll, or be placed behind the printer and inserted through a slot in the cover (e.g. fan-folded tickets or tags).

Two models for different types of operation are available, *Tear-Off* and *Peel-Off*:

- **Tear-Off Model**

Tear-off means that the paper is fed straight out from the front of the printer and can be torn-off manually by pulling it against a metal edge. Tear-off mode can e.g. be used for tearing off tags at the perforation, or tearing off the backing paper between labels.

- **Peel-Off Model**

The Peel-off model can perform the same tasks as the tear-off model, but is also capable of peel-off operation. Peel-off means that self-adhesive labels are separated from the backing paper (liner) after printing. The labels are fed straight out from the printer, while the backing paper is fed out separately from a slot further down on the printer's front, from where it can be lead to e.g. a waste basket.

Be careful when loading self-adhesive labels. If labels are not flat on the backing paper, the exposed edges can stick to your printer and cause problems.

A built-in Label Taken Sensor (LTS) holds the printing until the previous label (or similar) has been removed from the printer's outfeed slot. As long as the sensor detects a label, the printer will be BUSY and cannot receive data from host.

If using the protocol described in the *EasyCoder 91* Programming Manual, note the following:

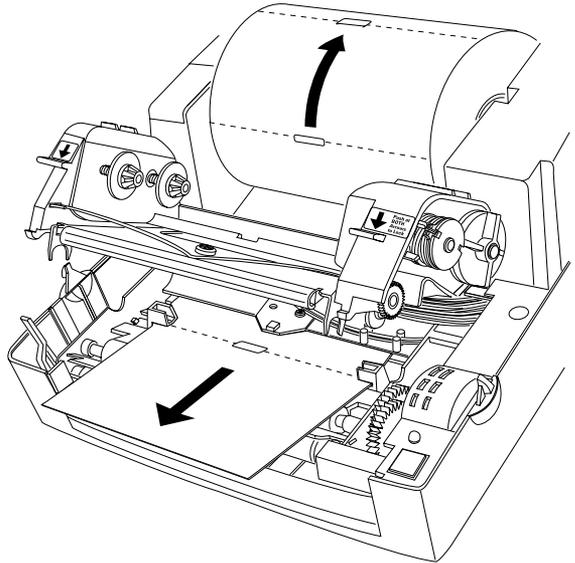
- The LTS can be disabled by an **O** command.
- When switching between peel-off and tear-off operation, the paper feed must be readjusted by means of a **j** command.

Windows Driver

The *EasyCoder 91* Windows Drivers contains options for selecting the following modes of operation without any **j** or **O** commands having to be entered by the operator:

- Tear-off
- Peel-off with LTS enabled
- Peel-off with LTS disabled

Paper Load, cont'd.



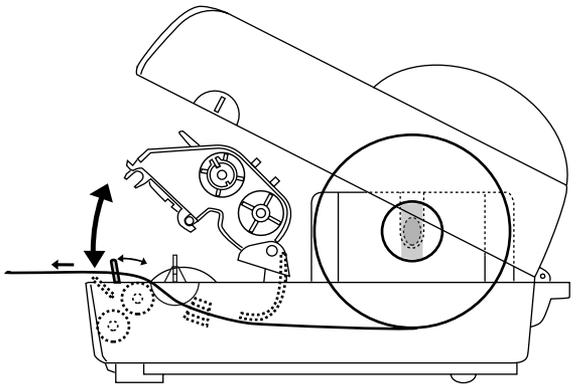
Tear-Off Operation – Tickets and Tags

- 1 Open the printer's top cover by pressing the two cover locks on either side and folding the cover upwards/rearwards.
- 2 Pull the green carriage release lever, at the left side of the print mechanism, forward and lift the print carriage to open position.
- 3 Remove possible remaining paper or empty paper core.
- 4 Place the spindle into the core of a fresh paper roll.
- 5 Place the paper roll and spindle in the open cover.
- 6 If loading paper for the first time after installation, or if changing to a different paper width, use the green wheel at the left side of the print mechanism to adjust the paper guides so their positions correspond to the width of the paper.
- 7 From the rear, insert the paper below the rounded rear wall of the print mechanism and between the paper guides until it protrudes in front of the tear-off edge.
- 8 Move the paper roll and spindle to the paper stock compartment and let the spindle rest in the slots on either side.

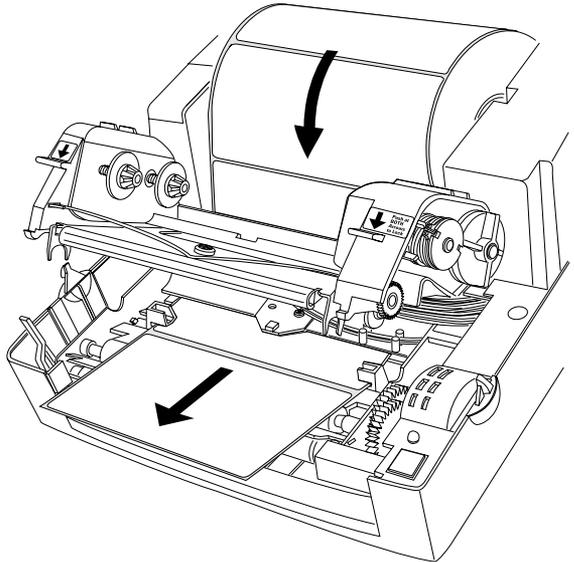
Paper Load, cont'd.

Tear-Off Operation – Tickets and Tags, cont'd.

- 9 Check that the paper guides allow the paper to run smoothly without causing it to bulge, yet keep it firmly centre-aligned. If necessary, use the green wheel on the left side to fine-adjust.
- 10 If required, load a fresh supply of thermal transfer ribbon according to the instructions in the chapter “*Ribbon Load*”.
- 11 Close the print carriage by pressing it firmly down simultaneously on both sides. A load click indicates locked position.
- 12 Close the printer's top cover.
- 13 Tap the **Feed** key 4 times or until the indicator lamp glows green.
- 14 If the printer did run out of paper while printing, the printing will automatically be resumed. Else, tear off excessive paper by pulling it down against the tear-off edge.



Paper Load, cont'd.



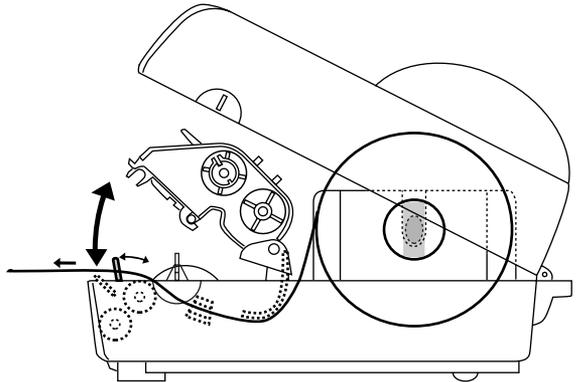
Tear-Off Operation – Labels

- 1 Open the printer's top cover by pressing the two cover locks on either side and folding the cover upwards/rearwards.
- 2 Pull the green carriage release lever, at the left side of the print mechanism, forward and lift the print carriage to open position.
- 3 Remove possible remaining paper or empty paper core.
- 4 Place the spindle into the core of a fresh paper roll.
- 5 Place the paper roll and spindle in the open cover.
- 6 If loading paper for the first time after installation, or if changing to a different paper width, use the green wheel at the left side of the print mechanism to adjust the paper guides so their positions correspond to the width of the paper.
- 7 From the rear, insert the paper below the rounded rear wall of the print mechanism and between the paper guides until it protrudes in front of the tear-off edge.
- 8 Move the paper roll and spindle to the paper stock compartment and let the spindle rest in the slots on either side.

Paper Load, cont'd.

Tear-Off Operation – Labels, cont'd.

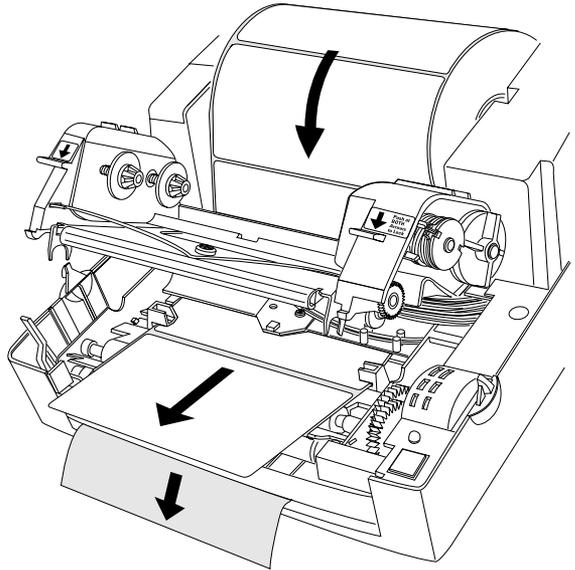
- 9 Check that the paper guides allow the paper to run smoothly without causing it to bulge, yet keep it firmly centre-aligned. If necessary, use the green wheel on the left side to fine-adjust.
- 10 If required, load a fresh supply of thermal transfer ribbon according to the instructions in the chapter “*Ribbon Load*”.
- 11 Close the print carriage by pressing it firmly down simultaneously on both sides. A load click indicates locked position.
- 12 Close the printer's top cover.
- 13 Tap the **Feed** key 4 times or until the indicator lamp glows green.
- 14 If the printer did run out of paper while printing, the printing will automatically be resumed. Else, tear off excessive paper by pulling it down against the tear-off edge.



HINT:

If you use the same paper width, you could reload the paper supply by just opening the transparent cover and insert the paper, while pressing the Feed key.

Paper Load, cont'd.



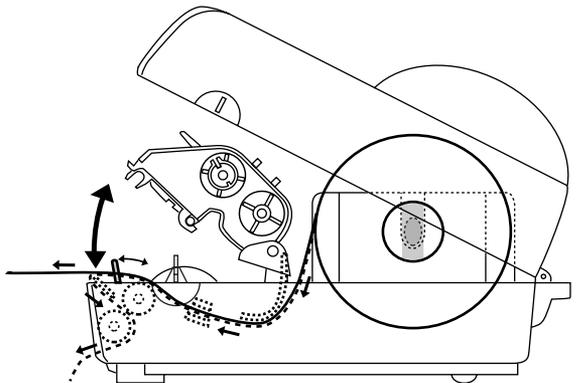
Peel-Off Operation – Labels

- 1 Open the printer's top cover by pressing the two cover locks on either side and folding the cover upwards/rearwards.
- 2 Pull the green carriage release lever, at the left side of the print mechanism, forward as far as it goes and check that it stays there. Lift the print carriage to open position.
- 3 Remove possible remaining paper or empty paper core.
- 4 Place the spindle into the core of a fresh paper roll.
- 5 Place the paper roll and spindle in the open cover.
- 6 If loading paper for the first time after installation, or if changing to a different paper width, use the green wheel at the left side of the print mechanism to adjust the paper guides so their positions correspond to the width of the paper.
- 7 From the rear, insert the paper below the rounded rear wall of the print mechanism and between the paper guides until it protrudes in front of the tear-off edge.

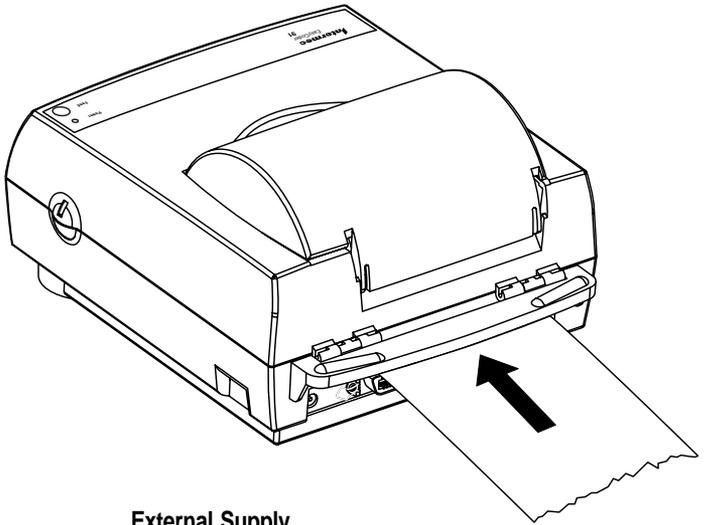
Paper Load, cont'd.

Peel-Off Operation – Labels, cont'd.

- 8 Move the paper roll and spindle to the paper stock compartment and let the spindle rest in the slots on either side.
- 9 Check that the paper guides allow the paper to run smoothly without causing it to bulge, yet keep it firmly centre-aligned. If necessary, use the green wheel on the left side to fine-adjust.
- 10 If required, load a fresh supply of thermal transfer ribbon according to the instructions in the chapter “*Ribbon Load*”.
- 11 Pull out at least 15 cm (6") of label web and remove the labels from the backing paper.
- 12 Thread the backing paper around the tear-off edge and insert it between the black rubber roller and the white plastic roller. Push until it comes out through the slot at the bottom of the printer's front.
- 13 Hold the label web while pulling at the backing paper, so it becomes tight. Then push the carriage release lever rearwards as to press the rollers together.
- 14 Close the print carriage by pressing it firmly down simultaneously on both sides. A load click indicates locked position.
- 15 Close the printer's top cover.
- 16 Tap the **Feed** key 4 times or until the indicator lamp glows green.
- 17 If the printer did run out of labels while printing, the printing will automatically be resumed.



Paper Load, cont'd.



External Supply

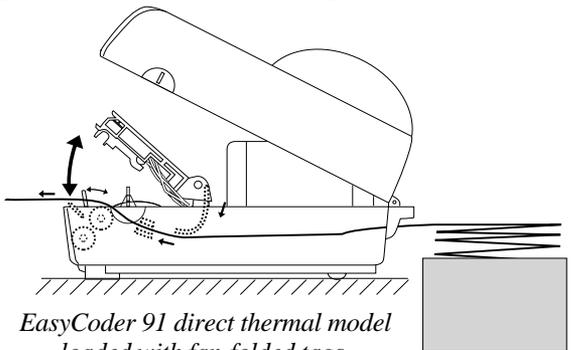
Regardless of model and type of operation, direct thermal paper or receiving face material (in the form of tags, or labels) can be provided from an external supply, e.g. a stack of fan-folded tags.

Follow the loading instructions for the type of operation in question, but ignore all paragraphs concerning the internal spindle. Instead, insert the paper through the slot below the hinges for the upper cover (see illustrations).

Be careful to protect any external paper supply from dirt, grit, dust, water and direct sunlight.

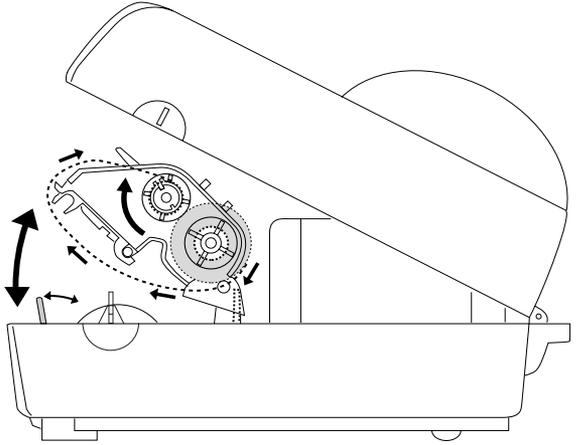
Note:

Because of the printer's low weight, it may have difficulties in handling the start momentum of a large paper roll.



*EasyCoder 91 direct thermal model
loaded with fan-folded tags.*

Ribbon Load



Thermal transfer ribbons are only required when printing on non heat-sensitive receiving face materials. The type of transfer ribbon should match the face materials, as to obtain the best durability and printout quality.

Loading a Fresh Ribbon Roll

- 1 Open the printer's top cover by pressing the two cover locks on either side and folding the cover upwards/rearwards.
- 2 Pull the green carriage release lever, at the left side of the print mechanism, forward and lift the print carriage to open position.
- 3 Remove front core with the used-up ribbon and the empty core at the rear. Keep the empty core!
- 4 Unpack a fresh roll of transfer ribbon and guide the ribbon leader down in front of the wall, that separates the print carriage from the paper compartment, so the ribbon will feed from the top of the roll with the ink-covered side facing rearwards.
- 5 Install the ribbon roll onto the rear spindle by placing one end over the left spindle and pushing to the left. Then align the right end with the right spindle and engage.
- 6 Similarly, install an empty core onto the front (take-up) ribbon spool.

Ribbon Load, cont'd.

Loading a Fresh Ribbon Roll, cont'd.

- 7 Guide the end of the transfer ribbon forward under the print carriage and up in front of it. Using the tape fitted at the end of the ribbon leader, affix the leader to the top of the take-up core. Be careful to centre-align the leader with the core.
- 8 Turn the front wheel on the right side clockwise to wind up the leader onto the take-up core until the black ink-coated ribbon becomes visible. Remove any slack.
- 9 If so required, also load a fresh supply of receiving face material, e.g. paper, according to the instructions earlier in this chapter.
- 10 Close the print carriage by pressing it firmly down simultaneously on both sides. A load click indicates locked position.
- 11 Close the printer's top cover.
- 12 Tap the **Feed** key until the indicator lamp becomes green.

Removing a Partially Used Ribbon

When switching between direct thermal and thermal transfer printing, or when switching between different types of transfer ribbon, a partially used transfer ribbon can be removed and saved for later use:

- 1 Open the printer's top cover by pressing the two cover locks on either side and folding the cover upwards/rearwards.
- 2 Pull the green carriage release lever, at the left side of the print mechanism, forward and lift the print carriage to open position.
- 3 Using a pair of scissors, cut the transfer ribbon just below the take-up roll.
- 4 Rewind the unused ribbon onto the supply roll. Remove the roll by pushing to the left until the right end disengages and then lifting the roll up. Fasten the loose end with a piece of tape or label, to prevent the roll from unwrapping.
- 5 Remove the take-up roll by pushing to the left and lifting up. **Keep the core!** You will need it later to use as a take-up roll. Remove the used ribbon by unwinding it into a waste basket.

Note:

One roll of thermal transfer ribbon roughly corresponds to two rolls of tags or labels.

Label Gap Sensor Adjustment

The *EasyCoder 91* printer is fitted with a label gap sensor that detects slots between tickets and tags, or gaps between labels, as the paper is fed past the sensor during printing. Thus the software can determine the length of the tags or labels and control the paper feed motor accordingly.

The label gap sensor is a photoelectric sensor that measures the light that passes through the paper web. The transparency of the backing paper (liner) of label supply may differ between batches, making it difficult for the sensor to discriminate between labels and backing paper. When this occurs, the indicator lamp will switch from green to orange, indicating that sensor should be adjusted by entering the Test Mode, as described below.

Test Mode

The Test Mode is used for three main purposes:

- To adjust the Label Gap Sensor.
- To enter the Dump Mode.
- To print a Test Label with a test pattern and a list of the printer's current setup.

Enter the Test Mode this way:

- 1 After having loaded the printer with full width labels, switch off the power to the printer.
- 2 Press and hold down the **Feed** key while switching on the power.
- 3 Release the **Feed** key when the printer starts feeding labels.
- 4 The indicator lamp will turn off and then switch to green while the adjustment is performed. The printer will feed out 3–4 labels before the adjustment is completed. In case of peel-off operation, remove the labels as they are fed out.
- 5 When the adjustment is finished, a Test Label will be printed and the printer will be placed in the Dump Mode (see *EasyCoder 91* Programming Manual).
- 6 Tap the **Feed** key once to switch back to normal operation.

Refer to the EasyCoder 91 Programming Manual for illustration and explanation of the test label.

Maintenance

The Intermec EasyCoder 91 printers are manufactured and tested under a strict quality management program. Only high quality components and materials are used in the printers. Although only minimal maintenance is required, following these simple maintenance procedures will ensure longer life with quality printing performance.

External Cleaning

Keep your *EasyCoder 91* clean by periodically wiping it with a soft cloth dampened with water. Do not use abrasive cleaners or solvents as they will scratch the surface.

Printhead Cleaning



We recommend using the special *Cleaning Card* (part number 1-110071-00) and the procedures below to clean the printhead before loading each new roll of labels or tags.

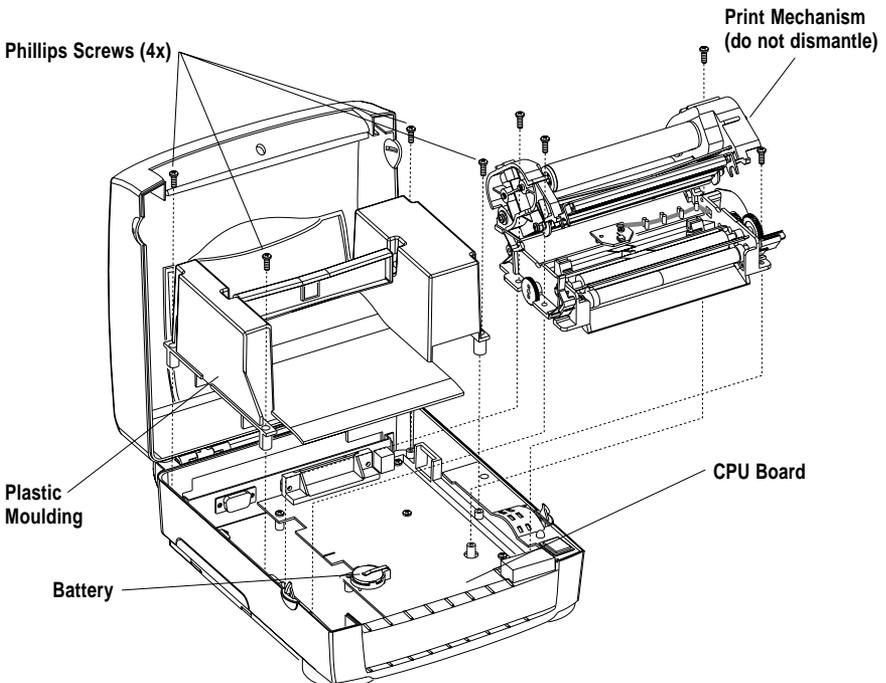
- 1 Turn off the power to the printer.
- 2 Unload the paper stock.
- 3 In case of thermal transfer printing, also remove the transfer ribbon.
- 4 Open the pouch and pull out the cleaning card. Be careful not to tear the card inside!
- 5 Insert the cleaning card into the print mechanism the same way as when loading the paper. Allow approximately 2–3 cm (1") of the cleaning card to extend in front of the printhead.
- 6 Lower the thermal printhead to operating position.
- 7 Use one hand to hold the printer and the other hand to pull the cleaning card forward, until the entire card has been pulled free.
- 8 Repeat steps 5 – 7 a second time.
- 9 Dispose properly of the used cleaning card and reload the paper and ribbon stocks.

Battery Replacement

CPU Board Battery

The printer's built-in RAM memory is battery backed-up by means of a 3V coin-type lithium battery (CR2032) fitted on the CPU board. If you store valuable data in the printer's memory, we recommend replacing the battery at least once a year, to be on the safe side. Proceed as follows:

- 1 Turn off the printer.
- 2 Open the top cover and remove the paper roll.
- 3 Remove the four Phillips screws that hold the plastic moulding to the rear of the print mechanism.
- 4 Carefully manipulate the moulding out from under the print mechanism so the CPU board becomes visible.
- 5 Quickly replace the battery. The RAM package will keep its contents for 5 minutes without any current from the battery.
- 6 Reassemble in reverse order and turn on the printer.

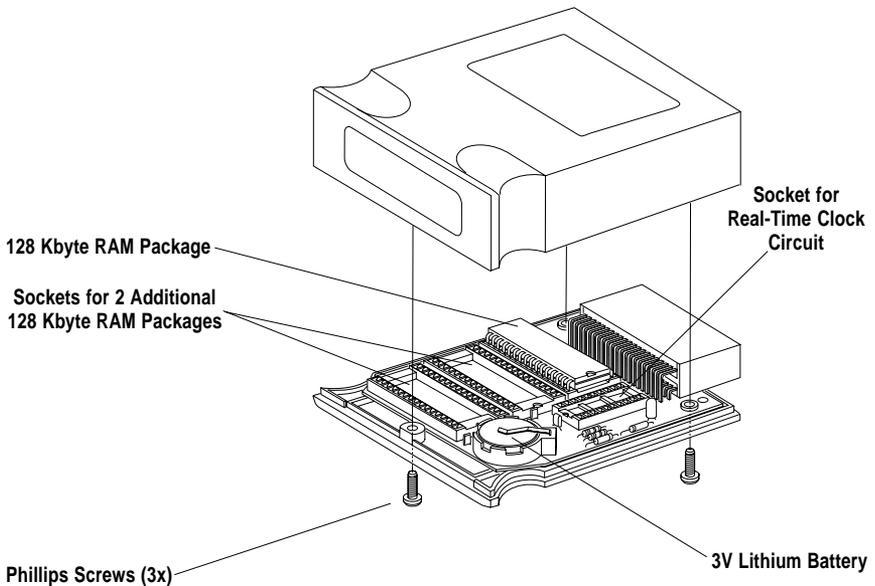


Battery Replacement, cont'd.

Memory Cartridge Battery

The RAM packages and the Real-Time Clock Circuit in the memory cartridges are battery backed-up by means of a 3V coin-type lithium battery (CR2032) fitted inside the cartridge. If you store valuable data in the memory cartridge, we recommend replacing the battery at least once a year, to be on the safe side. Proceed as follows:

- 1 Turn off the printer.
- 2 Pull the cartridge straight out.
- 3 Turn the cartridge upside down and remove the three Phillips screws that hold the cartridge together. Then turn the cartridge back to label up position.
- 4 Separate the two parts of the cartridge cover by lifting away the top part (i.e. the one with the label on). Take precautions so as to protect the circuit board from electro-static shock.
- 5 Quickly replace the battery. The RAM packages will keep their contents for 5 minutes without any current from the battery.
- 6 Reassemble in reverse order and turn on the printer.



Printhead Replacement

The thermal printhead is subject to wear both from the paper or transfer ribbon fed past the heat-producing resistors (dots) and from the rapid heating and cooling as the dot pattern is formed. Thus, the printhead will require to be replaced after a certain amount of printing. How often depends on application, print media and printing conditions.

The printhead is easy to replace:

- 1 Open the printer's top cover by pressing the two cover locks on either side and folding the cover upwards/rearwards.
- 2 Pull the green carriage release lever, at the left side of the print mechanism, forward and lift the print carriage to open position.
- 3 In case of thermal transfer printing, remove front core with the used-up ribbon and leave it in front of the printer.
- 4 Turn off the printer.
- 5 Remove the single Phillips screw at the centre of the printhead bracket.
- 6 Carefully manipulate the printhead out of the bracket and disconnect the cable.
- 7 Fit the replacement printhead in reverse order.

Troubleshooting

Problem	Solution or Reason
<i>Power indicator does not light green when power is switched on.</i>	<ul style="list-style-type: none"> • Make sure connectors on power supply are securely plugged into the socket on the printer's rear panel, and to an AC outlet.
<i>Power indicator lights green but printer will not feed.</i>	<ul style="list-style-type: none"> • Label taken sensor active, label not removed. • Make sure correct type of interface cable is securely plugged into both printer and computer.
<i>Printer seems to be working but nothing is printed.</i>	<ul style="list-style-type: none"> • <i>Direct Thermal Printing:</i> Verify that the paper is intended for direct thermal printing by testing if the paper is blackened by the heat from a hot object (+ 70° C/160° F or more). Check that the heat-sensitive side faces the printhead. • <i>Thermal Transfer Printing:</i> Verify that the printer is loaded with thermal transfer ribbon and that the ink-coated sided faces the paper.
<i>Printing is faded.</i>	<ul style="list-style-type: none"> • Clean the printhead with the cleaning card. • If printing is still faded, increase the density setup.
<i>Prints only partial label.</i>	<ul style="list-style-type: none"> • Printhead mechanism not completely locked. • Label caught on printhead. Remove and clean.
<i>Printer keeps printing or feeding when it should not.</i>	<ul style="list-style-type: none"> • Label caught on label gap sensor inside print mechanism. Remove and clean. • Possible software problem.
<i>Printing stops and indicator lamp lights orange.</i>	<ul style="list-style-type: none"> • Possible problem with label gap sensor. Perform autoadjust in the Test Mode. • Possible paper jam. • Possible software problem.
<i>Memory lost.</i>	<ul style="list-style-type: none"> • Replace batteries on CPU board and/or in memory cartridge (if any).
<i>Label stuck on roller.</i>	<ul style="list-style-type: none"> • Grab the flat tab at the left side of the front hatch and push it carefully to the right so as to disengage the snap-lock. Then pull front hatch straight up. Remove tear-off edge. Use fingers to peel off stuck label. Do not use any sharp tools! Clean using a cleaning card or a cotton swab moistened with isopropyl alcohol.
<i>Label taken sensor does not hold printing until label/tag has been removed.</i>	<ul style="list-style-type: none"> • Label/tag bent down due to excessive length and/or too thin or soft paper. • Label/tag too short (less than 16 mm/.63"). • Label taken sensor or cable defective.

Technical Data

Intermec reserves the right to change the specifications without prior notice.

General	Direct thermal or direct thermal/thermal transfer printing on self-adhesive labels or non-adhesive tags. Two printhead densities. Internal paper roll or external fan-fold supply. Tear-off or peel-off operation. Built-in label taken sensor (LTS) in Peel-Off model.
Dimensions	Length: 256 mm (10.08") Width: 212 mm (8.35") Height: 141 mm (5.55")
Net Weight	Printer only, excl. power supply, paper roll, transfer ribbon, and options: 1.55 kgs (3.42 lbs.)
Mains	Separate power supply unit; Input: 100 – 240 VAC/50 – 60 Hz, 2.0 A Output: 20 V DC, 2.5 A (Peak: 5A)
Interfaces	1 × RS 232C serial (DB-9) plus 1 × Centronics parallel
Serial Communication	Variable; XON/XOFF and DSR/CTS protocols
Ambient Temperature	Operation: +5°C to +40°C (+40°F to +104°F) Storage: -40°C to +60°C (-40°F to +140°F)
Humidity	10 – 90% RH, non-condensing. Ventilation: Free air
Printhead Densities	8 dots/mm (203.2 dots/inch) 11.81 dots/mm (300 dots/inch)
Printable Area	Width: 8 dots/mm: Max. 104.0 mm (4.09") 11.81 dots/mm: Max. 105.6 mm (4.16") Length: Depends on image buffer size
Direct Thermal Paper/ Receiving Face Materials	Roll Diameter: Max. 96.5 mm (3.80") Core Diameter: Min. 38.1 mm (1.5") Paper Width: Max. 118.1 mm (4.65") Min. 28.6 mm (1.12") Label Length: Max. depends on image buffer size Min. 22.0 mm (.87") w. LTS Min. 9.7 mm (.38") w/o LTS Thickness: 0.06 – .25 mm (.003 – .010")
Thermal Transfer Ribbons	Intermec transfer ribbons only (wax, hybrid, and resin) in widths of 60, 90, and 110 mm (2.36, 3.54, and 4.33").
Printing Speed	Selectable between 25, 38, or 50 mm/sec. (1, 1.5, or 2 "/sec.)
Noise Level	≈ 45 dB (A)

Technical Data, cont'd.

Print Directions	Text, bar codes, and graphics can be printed in four directions
Fonts	5 resident alphanumeric fonts, which can be magnified up to 8 times horizontally and 9 times vertically
Standard Bar Codes	Code 39 std. or extended Code 39 w. check digit Code 93 Code 128UCC case code Code 128 A, B, C Codabar EAN 8 std, 2 digit add-on, or 5 digit add-on EAN 13 std, 2 digit add-on, or 5 digit add-on German Postcode Interleaved 2 of 5 Interleaved 2 of 5 w. check digit Interleaved 2 of 5 w. human readable check digit Postnet 5, 6, 8 & 11 digit UCC/EAN 128 UPC A std, 2 digit add-on, or 5 digit add-on UPC E std, 2 digit add-on, or 5 digit add-on UPC Interleaved 2 of 5
Two-Dimensional Codes	PDF-417 MaxiCode
Formatting	Print formats can be preprogrammed in RAM
Firmware Memory	256 kbyte EPROM
Working Memory	8 dots/mm (203.2 dpi): Standard 128 kbyte RAM Expandable to 256 or 512 kbyte (see "options") 11.81 dots/mm (300 dpi) models: Standard 256 kbyte RAM (128 kbyte internal; 128 kbyte in memory cartridge). Expandable to 512 kbyte (see "options")
Keyboard	One "Feed" button
Display	1 multi-colour LED indicator
Options	Memory Cartridge (128 or 384 kbyte) w. real-time clock Battery Pack Keyboard/Display Unit Serial Communication Cable (RS 232C) Parallel Communication Cable (Centronics) Black Mark Sensor (factory installed option only)

Media Specifications

Direct Thermal Labels

Intermec has specified two quality grades of **direct thermal** paper:

- **Premium Quality**, which sets high demands on printout quality and resistance against moisture, high temperature, UV-light, plasticisers and oil.
- **Economy Quality**, which gives slightly lower printout quality and is less resistant to moisture, plasticisers and vegetable oil. In all other respects, it is equal to *Premium Quality*.

Transfer Ribbons

Intermec offers three types of thermal transfer ribbon, designed for different types of receiving face materials:

- **General Purpose (GP)** is a wax-based ribbon suited for coarse non-coated paper like vellum or bond paper.

GP91 is recommended for European Vellum receiving paper, whereas GP92 is suited for US bond paper.

- **High Performance (HP)** is a two-layer wax and resin (hybrid) ribbon optimized for matt coated and glossy papers. Recommended for ladder-style bar codes.

HP91 is offered in Europe and HP92 in U.S.A.

- **High Resistance (HR)** is a resin-based ribbon, which has a good resistance against mechanical wear, high temperatures and chemicals. It is intended for demanding applications and the use of synthetic receiving face materials.

There is only one type, which is offered for both the European and US markets, called HR91.

Paper Roll Size

Core:

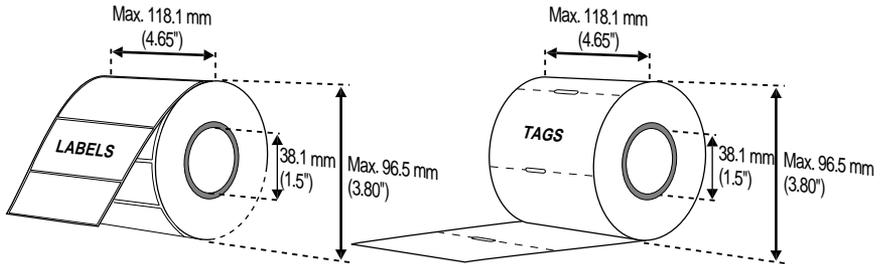
Diameter	: 38.1 mm	(1.5")
Max. width	: 118.1 mm	(4.65")

Roll:

Max. diameter	: 96.5 mm	(3.80")
Max. media width	: 118.1 mm	(4.65")
Min. media width	: 28.6 mm	(1.12")
Max. media thickness ¹	: 0.25 mm	(0.010")
Min. media thickness	: 0.06 mm	(0.003")
Typical media length ²	: ≈ 41 m	(1,600")

¹/. This is the recommended maximum thickness. Thicker web may be used at the possible expense of an impaired printout quality. However, the stiffness is also important. A stiff web limits the maximum thickness and vice versa.

²/. Max. roll size and 0.15 mm/.006" media thickness.



Labels should be wound with the labels facing *outwards* and unroll from the *top* of the roll.

Tags and Paper Strip should be wound with the side intended for printing facing *inwards* and unroll from the *bottom* of the roll.

Important!

Protect the paper stock against sand, grit, and other hard particles during printing and storage. Keep the transparent cover closed. Even very small but hard foreign particles may cause severe harm to the delicate printhead.

Tags

← a → **Tag width:**

Maximum : 118.1 mm (4.65")

Minimum : 28.6 mm (1.12")

← b → **Tag length:**

Maximum : depends on image
buffer size

Minimum (w/o LTS) : 9.7 mm (.38")

Minimum (w. LTS) : 22.0 mm (.87")

← c → **Detection slot length:**

Minimum : 6 mm (.24")

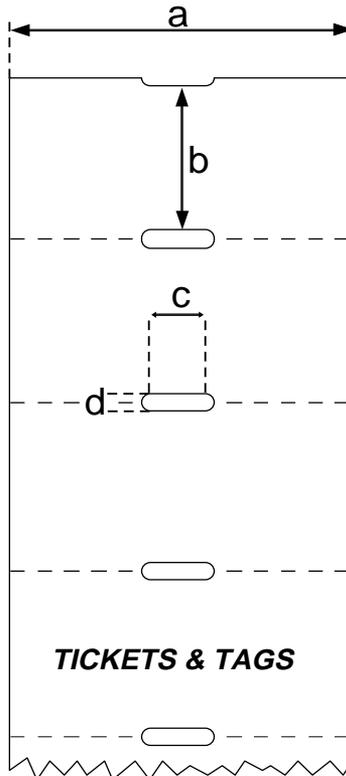
← d → **Detection slot height:**

Maximum : 13 mm (.51")

Recommended : 3 mm (.125")

Minimum : 2 mm (.08")

The detection slot should be centred on the web.



Communication Cables

Parallel Interface (Centronics)

Handshake: DSTB to printer and BUSY to host.
 Computer end: Depends on type of host computer
 (*IBM-PC: DB25 male connector*).
 Printer end: 36-p male Centronics connector.

Pin	Function	Transmitter
1	-Strobe	Host
2–9	Data 0–7	Host
10–11	Busy	Printer
12	Paper empty	Printer
13	Select	Printer
14–15	N/C	
16	Signal ground	
17	Chassis ground	
18	N/C	
19–30	Signal ground	
31	-Init	
32	-Fault	Printer
33	Signal ground	
34–36	N/C	

Serial Interface (RS 232C)

Computer end: Depends on type of host computer.
IBM-XT: DB25 female connector.
IBM-PS2: DB25 female connector.
IBM-AT: DB9 female connector

Printer end: DB9 male connector.

Host		EasyCoder 91			Host	
Signal	DB-9	DB-9	Signal	DB9	DB-25	Signal
		1	+5V	1		
RXD	2	2	TXD	2	3	RXD
TXD	3	3	RXD	3	2	TXD
DTR	4	4	–	4	20	DTR
GND	5	5	GND	5	7	GND
DSR	6	6	RDY	6	6	DSR
RTS	7	7	–	7	4	RTS
CTS	8	8	RDY	8	5	CTS
		9	–	9		