

# TM-L90

with Peeler



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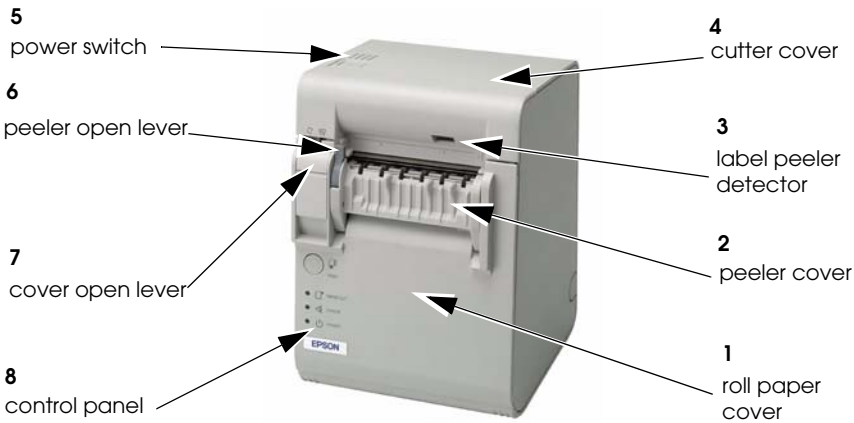
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## Printer Parts



## DIP Switch Tables

### Serial interface (DIP switch 1)

SW	Function	ON	OFF
1-1	Power switch function	Disabled	Enabled
1-2	Interface condition selection	By DIP switch	By memory switch
1-3	Handshaking	XON/XOFF	DTR/DSR
1-4	Data word length	7 bits	8 bits
1-5	Parity check	Enabled	Disabled
1-6	Parity selection	Even	Odd
1-7	Transmission speed (See table below.)		
1-8			

### Transmission speed

Transmission speed (bps)-bits per second	1-7	1-8
2400	ON	ON
4800	OFF	ON
9600	ON	OFF
19200	OFF	OFF

bps: bits per second

### Serial interface (DIP switch 2)

SW	Function	ON	OFF
2-1	Reserved	--	Fixed to OFF

### Parallel interface (DIP switch 1)

SW	Function	ON	OFF
1-1	Power switch function	Disabled	Enabled
1-2	Reserved	Fixed to ON	--
1-3	Reserved	--	Fixed to OFF
1-4	Reserved	--	Fixed to OFF
1-5	Reserved	--	Fixed to OFF
1-6	Reserved	--	Fixed to OFF
1-7	Reserved	--	Fixed to OFF
1-8	Reserved	--	Fixed to OFF

### Parallel interface (DIP switch 2)

SW	Function	ON	OFF
2-1	Reserved	--	Fixed to OFF

## TM-L90 with Peeler Specifications

<b>Print method</b>	Thermal line 8 dots/mm × 8 dots/mm (203 dpi × 203 dpi)	
<b>Print font</b>	Font A: 12 × 24 Font B: 9 × 17, except for Japanese (10 × 24) Font C: 8 × 16 (only for Japanese) Kanji font A: 24 × 24 Kanji font B/C: 20 × 24 / 16 × 16 (Both fonts are only for Japanese)	
<b>Columns</b>	<b>Models except for Japanese</b> 12 × 24 / 9 × 17 / 24 × 24 / 12 × 24 / 12 × 72 / 9 × 51	When paper width is 80 mm: 48 / 64 / 24 / 48 / 64
	<b>Japanese</b> 12 × 24 / 10 × 24 / 8 × 16 / 24 × 24 / 20 × 24 / 16 × 16	When paper width is 80 mm: 48 / 57 / 72 / 24 / 28 / 36
<b>Print width</b>	72 mm, 576 dot positions (receipt roll paper with 80 mm width)	
<b>Character size (W × H)</b>	<b>Models except for Japanese</b>  <b>Normal / double-high / double-width / quadruple</b>	Font A (12 × 24): 1.50 × 3.0 mm / 1.5 × 6.0 mm / 3.0 × 3.0 mm / 3.0 × 6.0 mm Font B (9 × 17): 1.13 × 2.13 mm / 1.13 × 4.25 mm / 2.25 × 2.13 mm / 2.25 × 4.25 mm Kanji font A (24 × 24): 3.0 × 3.0 mm / 3.0 × 6.0 mm / 6.0 × 3.0 mm / 6.0 × 6.0 mm
	<b>Japanese</b>  <b>Normal / double-high / double-width / quadruple</b>	Font A (12 × 24): 1.50 × 3.0 mm / 1.50 × 6.0 mm / 3.0 × 3.0 mm / 3.0 × 6.0 mm Font B (10 × 24): 1.25 × 3.0 mm / 1.25 × 6.0 mm / 2.5 × 3.0 mm / 2.5 × 6.0 mm Font C (8 × 16): 1.0 × 2.0 mm / 1.0 × 4.0 mm / 2.0 × 2.0 mm / 2.0 × 4.0 mm Kanji Font A (24 × 24): 3.0 × 3.0 mm / 3.0 × 6.0 mm / 6.0 × 3.0 mm / 6.0 × 6.0 mm Kanji Font B (20 × 24): 2.5 × 3.0 mm / 2.5 × 6.0 mm / 5.0 × 3.0 mm / 5.0 × 6.0 mm Kanji Font C (16 × 16): 2.0 × 2.0 mm / 2.0 × 4.0 mm / 4.0 × 2.0 mm / 4.0 × 4.0 mm
<b>Character sets</b>	95 alphanumeric, 37 international characters, 128 × 11 graphic Japanese: JIS (JISX0208-1990): 6879 characters, special characters: 845 characters	
<b>Print speed</b>	Normal: Maximum 120 mm/s (120 mm/s or less with the label peeler issuing mode.) High speed: Maximum: 150 mm/s Ladder bar code, two-dimension bar-code printing: Maximum: 90 mm/s Two-color printing: Maximum: 90 mm/s	
<b>Line spacing</b>	3.75 mm	
<b>Paper dimensions</b>	80 mm: 79.5 ± 0.5 × max diameter 90 mm 60 mm: 59.5 ± 0.5 × max diameter 90 mm 58 mm: 57.5 ± 0.5 × max diameter 90 mm	
<b>Thermal paper type</b>	Roll paper: Monochrome: ENTPD, ENTPE, Two-color: ENTPC Label paper: Monochrome: ENTLA series, Two-color: ENTLB series	
<b>Interface (compatible)</b>	RS-232C / IEEE 1284	
<b>Receive data buffer</b>	4 KB/45 bytes	
<b>D.K.D. function</b>	1 drive	
<b>Power supply</b>	+24 VDC ± 7%	
<b>Current consumption</b>	Normal: Approximately 1.7 A	
<b>Temperature</b>	Operating: 5 to 45 °C, Storage: -10 to 50 °C	
<b>Humidity</b>	10 to 90%	
<b>Reliability</b>	MTBF: 360,000 hours, MCBF: 70,000,000 lines	
<b>Overall dimensions</b>	203 × 140 × 148 mm	
<b>Weight (Mass)</b>	Approximately 1.9 kg	

lps: lines per second, dpi: dots per 25.4 mm (dots per inch)



# TM-L90 with Peeler

## User's Manual

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### ***EMC and Safety Standards Applied***

Product Name: TM-L90 with Peeler

Model Name: M165C

The following standards are applied only to the printers that are so labeled. (EMC is tested using the Epson power supplies.)

Europe:	CE marking Safety: EN 60950
North America:	EMI: FCC/ICES-003 Class A Safety: UL 60950 /CSA C22.2 No. 60950
Japan:	EMI: VCCI Class A
Oceania:	EMC: AS/NZS 3548 /CISPR22 Class B

## WARNING

The connection of a non-shielded printer interface cable to this printer will invalidate the EMC standards of this device. You are cautioned that changes or modifications not expressly approved by Seiko Epson Corporation could void your authority to operate the equipment.

### **CE Marking**

The printer conforms to the following Directives and Norms:

Directive 89/336/EEC    EN 55022 Class B  
                                  EN 55024  
                                  IEC 61000-4-2  
                                  IEC 61000-4-3  
                                  IEC 61000-4-4  
                                  IEC 61000-4-5  
                                  IEC 61000-4-6  
                                  IEC 61000-4-11

### **FCC Compliance Statement For American Users**

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

### **For Canadian Users**

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

## **Safety Precautions**

This section presents important information intended to ensure safe and effective use of this product. Please read this section carefully and store it in an accessible location.

### **WARNING:**

*Shut down your equipment immediately if it produces smoke, a strange odor, or unusual noise. Continued use may lead to fire. Immediately unplug the equipment and contact your dealer or a Seiko Epson service center for advice. Never attempt to repair this product yourself. Improper repair work can be dangerous.*

*Never disassemble or modify this product. Tampering with this product may result in injury or fire.*

*Be sure to use the specified power source. Connection to an improper power source may cause fire.*

*Do not allow foreign matter to fall into the equipment. Penetration by foreign objects may lead to fire.*

*If water or other liquid spills into this equipment, unplug the power cord immediately, and then contact your dealer or a Seiko Epson service center for advice. Continued usage may lead to fire.*

** CAUTION:**

*Do not connect cables in ways other than those mentioned in this manual. Different connections may cause equipment damage and burning.*

*Be sure to set this equipment on a firm, stable, horizontal surface. The product may break or cause injury if it falls.*

*Do not use in locations subject to high humidity or dust levels. Excessive humidity and dust may cause equipment damage or fire.*

*Do not place heavy objects on top of this product. Never stand or lean on this product. Equipment may fall or collapse, causing breakage and possible injury. To ensure safety, unplug this product before leaving it unused for an extended period.*

*Do not use aerosol sprayers containing flammable gas inside or around this product. Doing so may cause fire.*

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## **Caution Labels**

** WARNING:**

*Do not connect a telephone line to the drawer kick-out connector; otherwise, the printer and the telephone line may be damaged.*

**  CAUTION:**

*The thermal head is hot.*

** CAUTION:**

*Be careful not to injure your hands on the manual cutter when installing roll paper.*

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## **Control Panel**

### **LEDs and Button**

#### **POWER LED**

Is on when the power is on, and is off when the power is off.

#### **ERROR LED**

Is on when the printer is offline, and is off when the printer is online. It flashes when an error occurs.

#### **PAPER OUT LED**

Comes on when roll paper is used up or not installed. When roll paper is being installed, it starts flashing when the first label comes out after the roll paper cover is closed, and goes off when the PAPER FEED button is pressed. When the printer is issuing labels, it starts flashing when a label is issued and goes off when the issued label is removed from the peeler. It also flashes when the printer is in a wait status for the FEED button to be pressed.

#### **FEED button**

Feeds the roll paper.

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## **Power Switch and Power Switch Cover**

The power switch is on the top left of the printer. Press it to turn on the printer, and press and hold it for more than 3 seconds to turn off the printer.

### **Power Switch Cover**

You can use the enclosed power switch cover to make sure that the power switch is not accidentally pressed. Peel off the backing tape and press the cover into place to install it.

#### **⚠ WARNING:**

*If an accident occurs when the power switch cover (shown to the right) is attached, immediately remove the bottom cover and unplug the power supply cable to avoid a fire hazard.*



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## **Unpacking**

The following items are included for the standard specification printer. If any items are damaged, contact your dealer.

- Printer
- Label roll paper
- Power switch cover
- Roll paper spacer
- Screw for installation of roll paper spacer
- Cover operation label

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## **Downloading Drivers, Utilities, and Manuals**

Drivers, utilities, and manuals can be downloaded from one of the following URLs.

For customers in North America, go to the following web site:

<http://www.epsonexpert.com/> and follow the on-screen instructions.

For customers in other countries, go to the following web site:

<http://www.epson-pos.com/>

Select the product name from the "Select any product" pulldown menu.

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## **Installing the Printer**

Whether you are going to use the printer in the label peeler issuing mode or label continuous issuing mode (not using the peeler), you must install this printer vertically (with the paper exit at the front). See the illustration at the top of page 5. You can install it either on a flat surface, or you can hang it on a wall by using the optional bracket (WH-10).

If the paper exit is blocked by label backing paper accumulating on a table or other surface, a paper jam or other problem may occur. Install the printer in a location, such as at the edge of a counter, where the backing paper will not accumulate near the paper exit.



**⚠ CAUTION:**

Never install the printer in locations that receive direct sunlight. The diffuse reflection from the roll paper may cause the label peeler detector to malfunction. When a malfunction occurs, the PAPER OUT LED starts flashing. Press the FEED button to resume using the printer.

**Note:**

To hang the printer on the wall, see the Wall Hanging Bracket Set Installation Manual provided with the WH-10 for instructions.

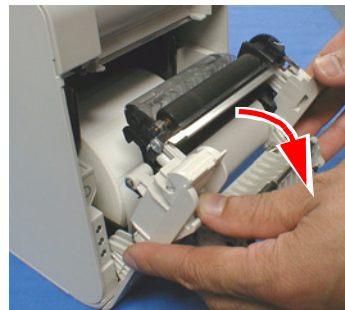


## Installing Roll Paper

**Note:**

Be sure to use roll paper that meets the specifications.

1. Make sure that the power is on.
2. Pull the peeler open lever forward and open the peeler cover. (See the illustration on the left below.)
3. Pull the roll paper cover open lever forward, and open the roll paper cover. (See the illustration on the right below.)



4. Insert the roll paper, as shown below.



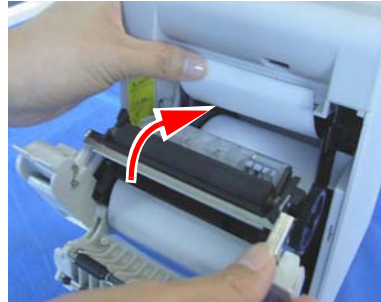
5. Make sure that the mode switch is set to the mode you are going to use. (To the right for the label peeler issuing mode, or to the left for the label continuous issuing mode.)



Left: label continuous issuing mode      Right: label peeler issuing mode



6. Pull out the paper until the end exactly reaches the guideline (indicated with arrows) shown in the illustration below. Eliminate any slack in the roll paper, and then close the roll paper cover.

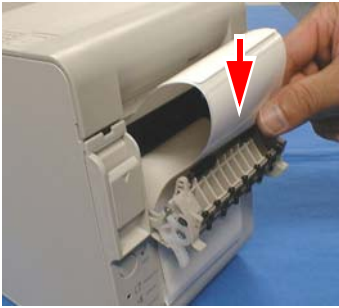


**Note:**

Making sure the paper end is at the guideline reduces the number of labels required for detecting the minimum paper length. The number of labels issued depends on the length of the label, but 2 labels are issued when the length of the label is less than 50 mm {2"}, and 1 label is issued when it is 50 mm {2"} or more.

7. After the paper is automatically fed and the first label comes out, the PAPER OUT LED starts flashing.

- When using the label continuous issuing mode (not using the peeler), close the peeler cover now. When using the peeler (the label peeler issuing mode), pass the paper through the peeler, and close the peeler cover.



label peeler issuing mode



label continuous issuing mode

- Press the PAPER FEED button. The paper is automatically fed backward, and the PAPER OUT LED goes off.

**Note:**

*If you open the roll paper cover with roll paper installed, make sure to open the peeler cover first, and then the roll paper cover. If you open them in the reverse order, the roll paper can get trapped under the roll paper cover when it is closed, causing a possible paper jam. When closing the roll paper cover, make sure to close it firmly, pressing both ends.*

*While a label is being issued, do not touch it until the PAPER OUT LED starts flashing. Pulling it before that may result in the waste of a label.*

*Do not block the label peeler detector with your fingers, or anything else while the label issuing is in progress. This may cause the printer to feed the following label.*



**⚠ CAUTION:**

When installing roll paper, be careful not to injure your hands on the manual cutter.

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## Troubleshooting

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### ERROR LED is on or flashing

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- ❑ Make sure that the roll paper cover is closed and the PAPER OUT LED is not on. Close the cover or replace the paper if necessary.
- ❑ If the printer has been printing a lot and the print head gets too hot, the ERROR LED starts flashing, and printing stops. When its temperature cools down to the normal range, printing resumes automatically.
- ❑ Turn off the printer and then turn it back on. If the LED is still flashing, consult with your supervisor or a service person.

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### PAPER OUT LED is flashing

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If the PAPER OUT LED continues to flash even after the issued label is removed, the label peeler detector may be detecting something. Press the PAPER FEED button once.

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### Paper jam

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Turn off the power, open the peeler cover, and then open the roll paper cover to check for a paper jam. If there is a paper jam, remove the jammed paper and follow the instructions in the Installing Roll Paper section to prepare the printer for printing.

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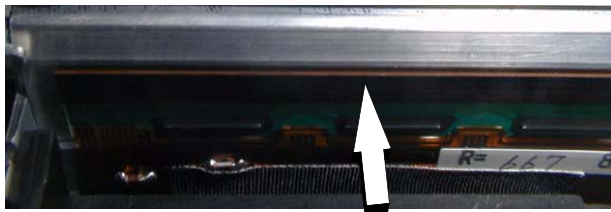
## Cleaning the Thermal Head

**⚠ CAUTION:**

After printing, the thermal head can be very hot. Be careful not to touch it and to let it cool before you clean it. Do not damage the thermal head by touching it with your fingers or any hard object.

Epson recommends cleaning the thermal head periodically (generally every 6 months) to maintain receipt print quality.

1. Turn off the printer, open the peeler cover, and then the roll paper cover.
2. Clean the thermal element of the print head with a cotton swab lightly moistened with an alcohol solvent (ethanol, methanol, or IPA), as shown in the illustration.



3. Close the roll paper cover after the alcohol solvent has dried.

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## ***Cleaning the Platen Roller/Roll Paper End Sensor***

When paper dust accumulates on the platen roller or the roll paper end sensor, follow the steps below to clean them. To maintain good functional capabilities, clean them regularly (every 6 months).

1. Turn off the printer, open the peeler cover, and then the roll paper cover.
2. Clean the platen roller and roll paper end sensor with a cotton swab lightly moistened with water or an alcohol, as shown in the illustration.



3. Close the roll paper cover after the water or alcohol has dried.

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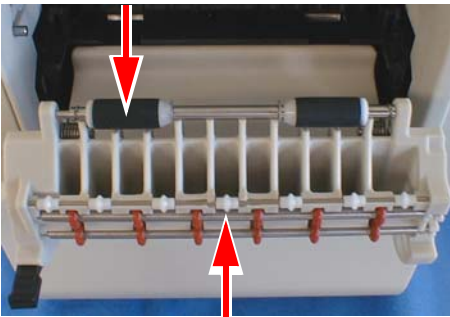
## ***Cleaning the Peeler Unit***

After the peeler is used for a prolonged period of time, the glue from the labels accumulates on the rollers of the peeler unit. If you leave the rollers in such a condition, the glue may stick to issued labels, or a paper jam may occur. To prevent malfunctions and maintain good print quality, clean the rollers regularly (every 100,000 labels).

You can clean them easily if you use a wasted label, as shown in the illustration.

***Note:***

*Do not use any alcohol based solvents for cleaning. Such solvents may enter the roller shaft and cause a malfunction of the peeler.*



## Using Different Paper Widths

Be sure to set the paper width with the memory switch to match printing to the print width. (For detailed information on the memory switch, see the *TM-L90 with Peeler Technical Reference Guide*.)

Also, do not increase the paper width after you have used a narrower width. For example, do not use 60 mm {2.36"} and then change to 80 mm {3.15"}.

The reason not to increase the width setting if the printer has ever been used is that when narrow paper is used, part of the head contacts the platen. Therefore, when a wider setting is used, part of the head or the cutter blade may be worn out, which can cause poor printing.

The TM-L90 accommodates 80 mm wide roll paper with no adjustments. For rolls from 38 mm to 70 mm wide you use the spacer included with the printer. (Rolls from 71 mm to 79 mm cannot be specified.) If the rolls are from 61 to 70 mm wide, you break two tabs off the spacer. See the width note on page 11.

1. Insert the roll paper spacer so that the front edge goes through the notch and down to the shaft, as shown below.



2. Push the roll paper spacer until you feel it click onto the shaft.

**Note:**

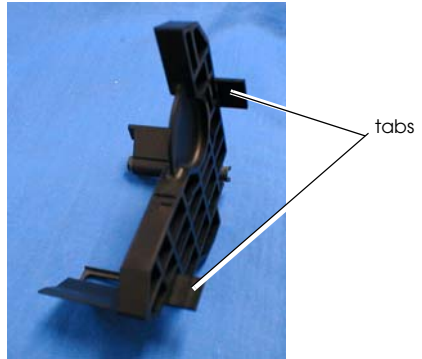
*Check that the roll paper spacer slides smoothly to the left and right.*



- Slide the roll paper spacer to the appropriate width, as shown above. You can use the measurement printed inside the printer, aligning the inside edge of the spacer with the desired measurement.

**Width note:**

*When you want to set the roll paper width from 61 mm to 70 mm, break off by hand the two tabs of the spacer shown in the illustration. (You can still also use widths from 38 mm to 60 mm with the spacer with the tabs broken off.)*



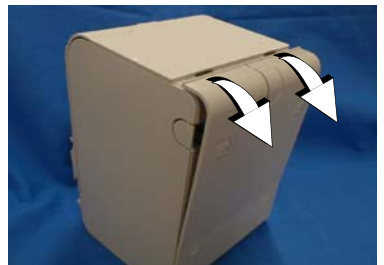
- Insert the screw included with the spacer into the hole indicated in the illustration to the right and tighten it. (Even if you can see two holes, this is the only one to put the screw in.)



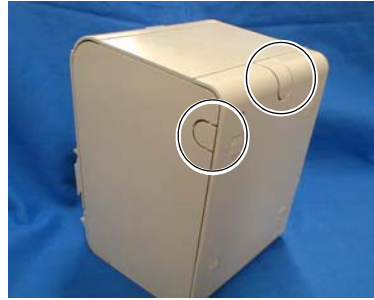
hole for screw

## ***Connecting Cables***

To connect cables, first remove the bottom of the cover as shown in the illustration.



To place cables, first break off by hand any of the three portions indicated by circles in the illustration (the other portion is on the right). Then put the cables through the holes and replace the bottom of the cover.



### ***Cover Operation Label***

If you use the cover operation label included in the package, attach it in one of the following locations:

- a) Side of the operation panel
- b) Beside the power switch
- c) Side of the printer