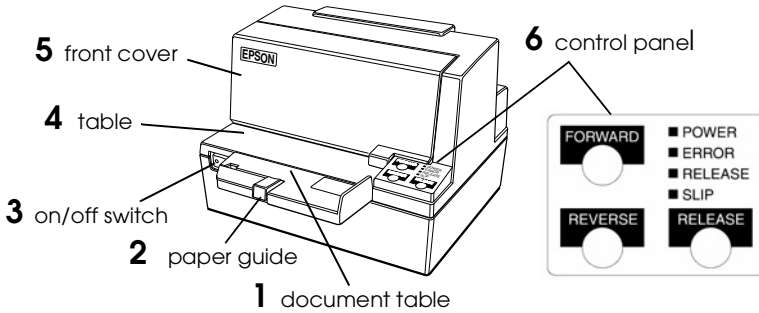


# **TM-U590/TM-U590P**

**User's Manual / Bedienungsanleitung  
Gebruikershandleiding / Manuel d'utilisation  
Manual do utilizador / Manual del usuario  
Manuale dell'utente**

## Printer Parts



## DIP Switch Tables

### Serial

SW	Function	ON	OFF
1-1	Data receive error	Ignored	Prints "?"
1-2	Receive buffer	69 bytes	4 KB
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	See "Transmission speed" table.		
1-8			

SW	Function	ON	OFF
2-1	Handshaking (BUSY condition)	Buffer full	Offline or buffer full
2-2	Customer display	Connected	Not connected
2-3, 2-4	Undefined	—	—
2-5, 2-6	Internal use. Do not change. Fixed to OFF.		
2-7	I/F Pin 6 reset	Enabled	Disabled
2-8	I/F Pin 25 reset	Enabled	Disabled

### Parallel

SW	Function	ON	OFF
1-1	Auto line feed	Enabled	Disabled
1-2	Receive buffer	69 bytes	4 KB
1-3 ~ 1-8	Undefined	—	—

SW	Function	ON	OFF
2-1	Handshaking (BUSY condition)	<input type="checkbox"/> Buffer full <input type="checkbox"/> Reading data	<input type="checkbox"/> Offline <input type="checkbox"/> Buffer full <input type="checkbox"/> Reading data
2-2	Reserved. Fixed to OFF. Do not change.		
2-3, 2-4	Undefined	—	—
2-5 ~ 2-7	Reserved. Fixed to OFF. Do not change.		
2-8	I/F Pin 31 reset	Fixed to ON. Do not change.	

### Transmission speed (bps: bits per second)

1-7	1-8	Speed
ON	ON	2400 bps
OFF	ON	4800 bps
ON	OFF	9600 bps
OFF	OFF	19200 bps

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## **EMC and Safety Standards Applied**

Product Name: TM-U590/TM-U590P  
Model Name: M128B

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

Europe:	CE marking Safety: EN 60950
North America:	EMI: FCC/ICES-003 Class A Safety: UL 1950/CSA C22.2 No. 950
Oceania:	EMC: AS/NZS 3548

### **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 61000-4-8 IEC 61000-4-11
Directive 90/384/EEC	EN 45501

### **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.

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## **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 or the display module connector; otherwise, the printer and the telephone line may be damaged.*



**CAUTION:**

*The print head is hot.*

## ***Unpacking***

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

- Printer
- Power switch cover
- Ribbon cassette
- Hexagonal lock screws (2 pcs) (only for the serial interface)

**Note:**

*When you lift the printer, be sure to hold the bottom of the printer to prevent damage.*

## ***Control Panel***

### **FORWARD button**

Press to feed slip paper forward one line; hold down to feed slip paper forward continuously.

### **REVERSE button**

Press to feed slip paper in reverse one line; hold down to feed slip paper in reverse continuously.

### **RELEASE button**

Press to release slip paper.

### **POWER LED**

Lights when the printer is on.

### **ERROR LED**

Lights to indicate that the printer is offline, except when feeding paper using the FORWARD or REVERSE buttons, and during a self test. Flashes to indicate an error.

### **RELEASE LED**

Lights to indicate that you can insert slip paper.

### **SLIP LED**

Lights after power on. Flashes while waiting for slip insertion and removal. Off while the printer is ejecting a slip.

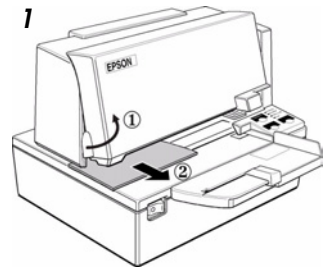
## Removing the Damper

The printer is protected for shipping by a transportation damper that you must remove before you turn on the printer.

Open the printer by pulling the tab on the front cover, and remove the damper shown in illustration 1.

**Note:**

*Reinstall the damper before shipping.*



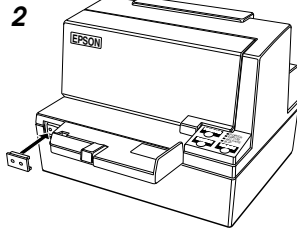
## Using the Power Switch Cover



**WARNING:**

*If an accident occurs with the power switch cover attached, unplug the power cord immediately. Continued use may cause fire.*

The enclosed power switch cover keeps the power switch from being pressed accidentally. To use the cover, install it as shown in illustration 2.



## Installing the Ribbon Cassette

Use the EPSON ERC-31 ribbon cassette. The use of any ribbon cassettes other than those approved by EPSON may damage the printer and will void the warranty.

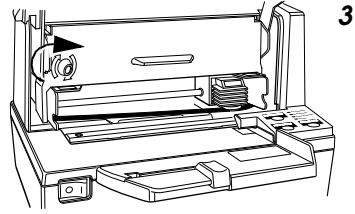


**CAUTION:**

*Never turn the ribbon cassette's feed knob in the opposite direction of the arrow marked on the cassette; otherwise the ribbon cassette may be damaged.*

1. Turn the printer on, and open the front cover by pulling up the tab on the left side.
2. Be sure the print head is on the right side.
3. If a ribbon is already installed, remove it by grasping the end of the tab and removing it from the printer.

4. Turn the cassette knob on the cartridge in the direction of the arrow 2 or 3 times to remove any slack.
5. Insert the ribbon, and rotate the cassette knob 2 or 3 more times, as shown in illustration 3.
6. Make sure the ribbon has no wrinkles or creases and is installed below the print head as shown on the label inside the printer.

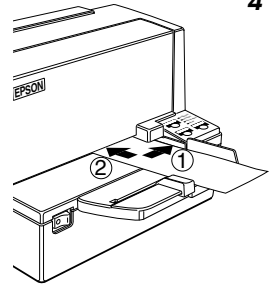


## Inserting Slip Paper

### Note:

Use only slip paper that matches the specification.  
Do not use wrinkled or curled paper.

1. When the SLIP LED flashes, insert slip paper, using the right edge of the slip paper inlet as a guide (see illustration 4).
2. When you insert the slip into the inlet as far as it will go, the sensor detects the slip, the SLIP LED changes from flashing to on, and the printer draws the paper in and prints it.
3. After printing is complete, the SLIP LED goes off, and you can remove the slip.



## Troubleshooting

### No lights on the control panel

Check that power supply cables are plugged into the printer, the power unit, and power outlet correctly.

### The printer sounds like it is printing, but nothing is printing

Check that the ribbon cassette is installed correctly.  
Replace the ribbon cassette.

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## The **ERROR** light is flashing, and nothing is printing

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Turn the printer off, and check for a paper jam.

If the printer has been printing for awhile, the print head may be too hot. This corrects itself when the print head cools down.

Turn the printer off, and after 10 seconds, turn it back on. If there is still a problem, contact a qualified servicer.

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## A line of dots is missing in the printout

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The print head may be damaged. Contact a qualified service person for repair.

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## *Removing Jammed Paper*



### **CAUTION:**

*Do not touch the print head because it can be very hot after printing.  
Do not move the print head carriage.*

1. Turn the printer off and open the front cover.
2. Open the front cover and remove the jammed paper.



## TM-U590/TM-U590P specifications

<b>Printing method</b>	Serial impact dot matrix, 9-pin vertical line, wire pitch 0.353 mm {1/72"}}
<b>Printing direction</b>	Bidirectional, minimum distance printing
<b>Characters per line (default)</b>	9 × 9 font: 66; 7 × 9 font: 88; 5 × 9 font: 66
<b>Character structure</b>	Font A: 9 × 9, 3-dot spacing (half dots) Font B: 7 × 9, 2-dot spacing (half dots) Font C: 5 × 9, 1-dot spacing (normal dots)
<b>Character size</b>	Font A: (9 × 9) 1.6 × 3.1 mm {0.06 × 0.12"} Font B: (7 × 9) 1.3 × 3.1 mm {0.05 × 0.12"} Font C: (5 × 9) 1.6 × 3.1 mm {0.06 × 0.12"}}
<b>Number of characters</b>	Alphanumeric characters: 95; International characters: 32; Extended graphics: 128 × 10 (with one space page)
<b>Print speed</b>	Font A: (9 × 9) = 233 characters/second Font B: (7 × 9) = 311 characters/second Font C: (5 × 9) = 233 characters/second
<b>Paper feed speed</b>	Approximately 60.3 ms/line, 4.23 mm {1/6"} feed; 86.4 mm/s. (approximately 3.4"/s) (continuous feeding)
<b>Line spacing (default)</b>	4.23 mm {1/6"}}
<b>Paper specifications</b>	Paper types: Normal, carbon-copy, and pressure-sensitive Paper sizes: 70 × 70 mm to 210 × 297 mm {2.76 × 2.76" to 8.27 × 11.69"}}
<b>Paper thickness</b>	Single-ply: 0.09 to 0.2 mm {0.0035 to 0.0079"} Copy paper: Maximum 5 sheets (original + 4 copies) Backing paper: 0.06 to 0.15 mm {0.0023 to 0.0059"} Copy and original: 0.04 to 0.07 mm {0.0015 to 0.0028"} Carbon paper: Approximately 0.035 mm {0.0014"} Total thickness: 0.30 mm {0.0118"} or less (for any combination from a single original to an original + 3 copies); 0.36 mm {0.0141"} or less (for any combination from a single original to an original + 4 copies) Pressure-sensitive paper: Maximum 5 sheets (original + 4 copies) Backing paper: 0.06 to 0.15 mm {0.0023 to 0.0059"} Copy and original: 0.06 to 0.075 mm {0.0023 to 0.003"} Total thickness: 0.24 mm {0.0094"} or less (original to original + 3 copies); 0.30 mm {0.0118"} or less (original + 4 copies)
<b>Number of copies</b>	Original + 4 copies at 20 to 45°C {68 to 113°F} Original + 1 to 3 copies at 5 to 45°C (41 to 113°F)
<b>Ribbon cassettes</b>	ERC-31
<b>Interfaces (compatible)</b>	RS-232 serial or IEEE 1284 parallel, RS-485 (dealer option)
<b>Receive buffer</b>	69 bytes or 4 KB
<b>DKD function</b>	2 drives
<b>Power supply</b>	+ 24 VDC ± 10%
<b>Current consumption (at 24V)</b>	Operating: Mean: Approximately 1.9 A Peak: Approximately 8 A Standby: Mean: Approximately 0.3 A
<b>MTBF</b>	180,000 hours
<b>MCBF</b>	29 million lines
<b>Temperature</b>	Operating: 5 to 45°C {41 to 113°F} Storage: -10 to 50°C {14 to 122°F}, except paper
<b>Humidity</b>	Operating: 10 to 90% RH Storage: 10 to 90% RH, except paper
<b>Overall dimensions</b>	185 × 252 × 266 (including a document table) mm {7.28 × 9.92 × 10.47"} (H × W × D)
<b>Weight (mass)</b>	Approximately 5 kg {11 lb}

