

Mobile Barcode Printer

RE310 Series

Direct Thermal

Series Models RE310

Service Manual

www.tscprinters.com

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1 Introduction

1.1 Main Components

Front View



- 1. Power on/ off button
- **2.** Type C USB interface/ Power jack
- 3. Interface cover
- 4. Feed/ Pause button
- 5. LCD screen
- 6. Media cover release button
- 7. Tear edge
- 8. Media cover / Media window



- 1. Tear edge
- **2.** Media sensor (printhead side)
- 3. Printhead
- **4.** Media sensor (roller side)
- 5. Platen roller
- 6. Media holder

Bottom View



- 1. Battery latch
- 2. Belt clip installation bar
- **3.** Shoulder strap installation bar
- 4. Battery
- 5. NFC

2 Electronics

2.1 Main Board Connectors





- **1.** USB Type C connector
- 2. Head Open Sensor Connector
- 3. Black Mark Sensor Connector (roller side)
- 4. Black Mark Sensor Connector (printhead side)
- 5. Step Motor Connector
- 6. Printhead Connector
- 7. Keypad Connector
- 8. Battery Spring Connector

| No. | | Descri | ption | Remark | | Remark |
|-----|------------------------------------------------------------------------------------------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------------------------------------------------------------------------------------------------------------|--------|
| 1 | USB Type C connector B1/A12 B4/A9 B5 A8 B6 A7 A6 B7 A5 B8 A4/B9 A1/B12 | | Pin Definition B1/B12 GND B4/A9 PVCC B5 CC1 A8 SBU1-2 B6 DP A7 DN A6 DP B7 DN A5 CC2 B8 SUB1-2 A1/B12 GND | CON12 | Definition GND PVCC CC1 SBU1-2 DP DN DP DN CC2 SUB1-2 SUB1-2 PVCC GND | 12 |
| 2 | Head open sensor connector | Pin 1 2 | Definition SW GND | SW1 | Definition SW GND | |
| 3 | Black mark sensor connector (roller side) | Pin 1 2 3 4 5 | Definition ADCGAP GND VBM2 ADCBM2_R GND | CON9 | DefinitionADCGAPGNDVBM2ADCBM2_RGND | 9 |

| No. | | Descriptio | n | | Remark |
|-----|-----------------------------------------------|------------|------------|------|--------|
| | Black mark sensor connector (printhead side) | | | | |
| | Black mark sensor connector (printinead side) | No. | Definition | | |
| | | 1 | GND | | |
| 4 | | 2 | VBM1 | | 000144 |
| 4 | | 3 | ADCBM1 | | CONT |
| | | 4 | VBM1 | | |
| | 1 3 5 | 5 | VGAP | | |
| | Step motor connector | | | | |
| | | No. | Definition | | |
| | | 1 | MTNA | | |
| | | 2 | ΜΤΛ | | |
| 5 | | 2 | MIA | | CON3 |
| | | 3 | MTNB | | |
| | | 4 | МТВ | | |
| | Printhead Connector | | | | |
| | | No. | Definition | | |
| | | 1 | VP | | |
| | | 2 | VP | | |
| 6 | | 3 | NC | | |
| | 1 3 5 7 9 11 13 15 17 19 21 | 4 | PRT-CS | | |
| | | | GND | CON1 | 60NI1 |
| | | | GND | | CONT |
| | | | GND | | |
| | 2 4 6 8 10 12 14 16 18 20 | 8 | GND | | |
| | | | STB1 | | |
| | | 10 | STB2 | | |
| | | 11 | ADCTEMP | | |
| | | 12 | VCC | | |

| No. | | Description | | Remark |
|-----|------------------|-------------|------------|--------|
| | | 13 | STB3 | |
| | | 14 | STB4 | |
| | | 15 | STB5 | |
| | | 16 | GND | |
| | | 17 | GND | |
| | | 18 | PRT-CLK | |
| | | 19 | PRT-MOSI | |
| | | 20 | VP | |
| | | 21 | VP | |
| | Keypad Connector | No. | Definition | |
| | | 1 | | |
| | | 2 | | |
| | | 3 | | |
| | | 5 | | |
| | | 6 | BT-CTS | |
| | | 7 | BT-BTS | |
| | | 8 | BT-RXD | |
| | 4 8 12 16 20 | 9 | BT-TXD | |
| _ | 2 6 10 14 18 22 | 10 | DCDCEN | |
| 7 | | 11 | GND | CON5 |
| | | 12 | GND | |
| | 3 7 11 15 19 | 13 | OLED-RES | |
| | | 14 | OLED-SCL | |
| | | 15 | OLED-SDA | |
| | | 16 | GND | |
| | | 17 | GND | |
| | | 18 | PAPERKEY | |
| | | 19 | POWKEY | |
| | | 20 | RF_3P3 | |
| | | 21 | RF_3P3 | |
| | | 22 | VCC | |
| | | | | |

| No. | | Descrip | otion | Remark |
|-----|--------------------------|----------------------|------------|--------------|
| | Battery Spring Connector | | | |
| | | Pin | Definition | |
| | | Left side co | pnnector | |
| | 1 2 3 4 1 2 3 4 | 1 | GND | |
| | | 2 | GND | |
| o | | 3 | NC | Left : CON13 |
| 8 | | 4 | NC | Right: CON14 |
| | | Right side connector | | |
| | | 1 | NTC | |
| | | 2 | NTC | |
| | | 3 | VBAT | |
| | | 4 | VBAT | |
| | | | | |

3 Replacing the Parts

3.1 Before You Begin

WARNING: To avoid the risk of personal injury from electrical shock, before performing any replacement procedures, unplug the power cord from the printer or power outlet to ensure that power is removed.

To prepare the printer for the replacement or installation:

- 1. Protect yourself from ESD and wear protective gloves.
- 2. Place the printer on a flat surface.
- 3. Turn off the printer.
- 4. Push the battery latch as indicated to release the battery from the bottom side of the printer.





- 5. Disconnect all interface cables from the printer.
- 6. Remove the media from the printer.
- 7. Read through the maintenance procedures.

3.2 Replacing the Media Cover Assembly

- 1. Follow the steps in Before You Begin to prepare the printer.
- 2. Use the #1 Phillips screwdriver to remove two screws on the underside of printer lower cover.



3. Open the media cover. Remove two screws on lower inner cover.



4. Lift the top cover upwards. Disconnect two flat cables from the connectors on the main board.





5. Remove the top cover assembly.



6. Carefully detach the flat cable from the top cover assembly.



7. Pull the shaft out after pushing it out of the chassis with a tool.



8. Remove/ Replace the media cover assembly.



9. Reassemble the parts in the reverse order.

3.3 Replacing the Media Holder & Top Cover Assembly (with wireless module)

- 1. Follow the steps in Before You Begin to prepare the printer.
- 2. Refer to the Replacing the Media Cover Assembly to remove the top cover assembly.



3. Loosen one spring.



4. Use the #1 Phillips screwdriver to remove two screws on the gear bars for media holder.



5. Use the #0 Phillips screwdriver to remove one screw. Remove/ Replace the media holder assembly.



6. Remove/ Replace the wireless module assembly (Bluetooth/ or Wi-Fi module assembly).



7. Refer to the Replacing the Main Board & Lower Cover to replace the new NFC tag onto the lower cover.



8. Reassemble the parts in the reverse order.

3.4 Replacing the Print Mechanism

- 1. Follow the steps in Before You Begin to prepare the printer.
- 2. Refer to the Replacing the Media Cover Assembly to take out the lower cover assembly.



Lower cover assembly

3. Remove two screws as shown.



4. Disconnect two flat cables and two connectors from the main board.



5. Hold the print mechanism and carefully lift it up from the lower cover assembly.



6. Reassemble the parts in the reverse order.

3.5 Replacing the Main Board & Lower Cover

- 1. Follow the steps in Before You Begin to prepare the printer.
- 2. Remove the print mechanism. For how to remove the print mechanism, please refer to Replacing the Print Mechanism.
- 3. Remove four screws securing the main board in place and then remove/ replace the main board (or lower cover).



Note:

- For replacing the lower cover, please note that stick the NFC tag onto the new lower cover.
- There are two leaf springs between the screws and the main board, please put them back in place when installing a new main board.



4. Reassemble the parts in the reverse order.

4 Troubleshooting

This section provides troubleshooting procedures.

| Problem | Possible Cause | Recovery Procedure | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Power indicator or display does not illuminate. | The battery is not properly installed.No power. | Re-install the battery.Recharge or replace battery as necessary. | |
| "Carriage Open" appears on the display. | The media cover is open. | Close the media cover. | |
| "Out of Paper" appears on the display. | Media is used up. The media roll is not properly installed. Black mark sensor is not calibrated. | Install a new media roll. Re-install the media roll. Calibrate the black mark sensor. | |
| "Paper Jam" appears on the display. | Gap sensor or black mark sensor is not correctly configured. Media size is not correct. Labels may be stuck in the printhead mechanism. | Calibrate the black mark sensor. Check if the media in use is applicable. Check if the printhead mechanism is clear of labels. | |
| I cannot download files to printer's memory (FLASH / SD card). | The FLASH memory or SD card is full. The SD card is damaged. SD card is not correctly inserted. | Delete files you do not need from the FLASH memory or SD card. Eject and insert the SD card again. Try another SD card. Check if the SD card is in supported format and capacity. | |
| Media is not loaded correctly. Dust or adhesive accumulation or printhead. Print density is not properly config Media type is not compatible. Printhead element is damaged. | | Reload the media. Clean the printhead and platen roller. Adjust the print density and print speed. Run printer self-test and check the printhead test pattern if there is dot missing in the pattern. Use proper media type. | |

| Problem | Possible Cause | Recovery Procedure |
|-----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Missing printing on the left or right side of label | Wrong label size configuration | Set the correct label size. |
| Gray line on the blank label | The printhead is dirty.The platen roller is dirty. | Clean the printhead.Clean the platen roller. |
| Irregular printing | The printer is in Hex Dump mode. | Turn off and on the printer to skip the dump mode. |
| Label feeding is not stable (skew) when printing | The media guides do not touch the edge of the media. | If the label is moving to the right side, please move the label guide to left. If the label is moving to the left side, please move the label guide to right. |
| Skip labels when printing | Label size is not specified properly. Sensor sensitivity is not set properly. The media sensor is covered with dust. | Check if label size is setup correctly. Calibrate the sensor by Auto Gap or Manual Gap options. Clear the Gap/Black mark sensor by blower. |
| Wrinkle problem | Printhead pressure is incorrect. Media installation is incorrect. Print density is incorrect. Media feeding is incorrect. | Please set the suitable density to have good print quality. Make sure the label guides touch the edge of the media guide. |
| The left side printout position is incorrect | Wrong label size setup. The parameter Shift X in printer is incorrect. | Set the correct label size. |

| Problem | Possible Cause | Recovery Procedure |
|---------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The printing position of small label is incorrect | Media sensor sensitivity is not set properly. Label size is incorrect. The parameter Shift Y is incorrect. The vertical offset setting in the driver is incorrect. | Calibrate the sensor sensitivity again. Set the correct label size and gap size. Use TSC Console to fine tune the parameter of Shift Y. If using the software BarTender, please set the vertical offset in the driver. |

5 Maintenance

This session presents the clean tools and methods to maintain the printer.

For Cleaning

Depending on the media used, the printer may accumulate residues (media dust, adhesives, etc.) as a by-product of normal printing. To maintain the best printing quality, you should remove these residues by cleaning the printer periodically. Regularly clean the printhead and supply sensors once change a new media to keep the printer at the optimized performance and extend printer life.

For Disinfecting

Sanitize your printer to protect yourself and others and can help prevent the spread of viruses.

Important

- Set the printer power switch to O (Off) prior to performing any cleaning or disinfecting tasks. Leave the power cord connected to keep the printer grounded and to reduce the risk of electrostatic damage.
- Do not wear rings or other metallic objects while cleaning any interior area of the printer.
- Use only the cleaning agents recommended in this document. Use of other agents may damage the printer and void its warranty.
- Do not spray or drip liquid cleaning solutions directly into the printer. Apply the solution on a clean lint-free cloth and then apply the dampened cloth to the printer.
- Do not use canned air in the interior of the printer as it can blow dust and debris onto sensors and other critical components.
- Only use a vacuum cleaner with a nozzle and hose that are conductive and grounded to drain off static build up.
- All reference in these procedures for use of isopropyl alcohol requires that a 99% or greater isopropyl alcohol content be used to reduce the risk of moisture corrosion to the printhead.
- Do not touch printhead by hand. If you touch it careless, please use 99% Isopropyl alcohol to clean it.
- Always taking personal precaution when using any cleaning agent.

5.1 Cleaning Tools

- Cotton swab
- Lint-free cloth
- Brush with soft non-metallic bristles
- Vacuum cleaner
- 75% Ethanol (for disinfecting)
- 99% Isopropyl alcohol (for printhead and platen roller cleaning)
- Genuine printhead cleaning pen
- Mild detergent (without chlorine)

5.2 Cleaning Procedures

| Printer Part | Method | Frequency |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|
| Printhead | Power off the printer before cleaning the printhead. Leave the printhead to cool down for at least one minute. Wet a cotton swab with the 99% Isopropyl alcohol and then wipe across the printhead head. You can also use the genuine printhead cleaning pen to clean the printhead. | Clean the printhead when you load new media. |
| Platen Roller | Power off the printer. Use a piece of 99% Isopropyl alcohol saturated lint-free cloth to wipe the platen roller while rotating the platen roller. | Clean the platen roller when you load new media. |
| Peel Bar | Use a piece of 99% Isopropyl alcohol saturated lint-free cloth to wipe the peel bar. | Clean as needed. |
| Sensor | Use the brush with soft and non-metallic bristles or vacuum cleaner to remove the dust or particles in order to optimize the print quality or sensor calibration. | Clean the sensor monthly. |
| Exterior | Use a piece of water-dampened lint-free cloth to wipe the surface. If necessary, you can apply the chlorine free detergent. After finishing cleaning, use the 75% ethanol to disinfect the surface. | Clean as needed. |
| Interior | Use the brush with soft and non-metallic bristles or vacuum cleaner to remove the dust or particles. After finishing cleaning, use the 75% ethanol to disinfect the interior. | Clean as needed. |

Revision History

| Date | Description | Editor |
|-----------|------------------|-------------|
| 2024/5/14 | Official release | Camille Pao |
| | | |



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