ISG

Identification Systems Group

ISG S500 TT *PLUS* Series

Thermal Transfer Barcode Printer

User's Guide

Contents

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Compliances

CE Class B:

    EN55022: 1998+A1: 2000+A2: 2003

    EN55024: 1998+A1: 2001+A2: 2003 IEC 61000-4 Series

    EN61000-3-2: 2006 & EN61000-3-3: 1995+A1: 2001

FCC Part 15, Class B

UL, CUL

C-Tick:

    CFR 47, Part 15/CISPR 22 3rd Edition: 1997, Class B

    ANSI C63.4: 2003

    Canadian ICES-003

TÜV-GS: EN60950: 2000

Wichtige Sicherheits-Hinweise

1. Bitte lesen Sie Diese Hinweis sorgfältig durch

2. Heben Sie diese Anleitung fűr den späteren Gebrauch auf.

3. Vor jedem Reinigen ist das Gerät vom Stromentz zu trennen. Verwenden Sie Keine Flűssig-oder Aerosolreiniger. Am besten eignet sich ein angefeuchtetes Tuch zur Reinigung.

4. Die Netzanschlußsteckdose soll nahe dem Gerät angebraucht und leicht zugänglich sein.

5. Das Gerät ist vor Feuchtigkeit zu schűtzen.

6. Bei der Aufstellung des Gerätes ist auf sicheren Stand zu achten. Ein Kippen oder Fallen könnte Beschädigungen hervorrufen.

7. Beáchten Sie beim Anschluß an das stromnetz die Anschlußwerte.

8. Dieses das Gerät kann bis zu einer Außentemperatur von maximal 40℃ betieben werden.

1. Introduction

Thank you for purchasing the ISG S500 *PLUS* series Thermal Transfer and Direct Thermal Bar Code Printers. Although the printer takes only a small amount of space, it delivers reliable, superior performance.

This printer provides both thermal transfer and direct thermal printing at user selectable speeds of: 2.0, 3.0, 4.0 or 5.0 inches per second (ips), for 203dots per inch (dpi) resolution. And 2.0 or 3.0 ips for 300dpi resolution. It accepts roll feed, die-cut, and fan-fold labels for both thermal transfer and direct thermal printing. All common bar codes formats are available. Fonts and bar codes can be printed in 4 directions, 8 different alphanumeric bitmap fonts and a build-in true type font capability. You will enjoy high throughput for printing labels with this printer.

2. Getting Started

2.1 Unpacking and Inspection

This printer has been specially packaged to withstand damage during shipping. Please carefully inspect the packaging and printer upon opening and prior to installation. Please retain the packaging materials in case you need to reship the printer.

2.2 Equipment Checklist

- Printer
- User CD Disk (BarTender Ultralite, Printer User Manuals & Diagnostic Software)
- Quick start guide
- USB port cable
- External universal switching power supply
- Power Cord
- Label Spindle, fixing tab x2, 1.5" core adapter x2
- Ribbon spindle x2
- Ribbon rewind spindle paper core

    If any parts are missing, please contact the Customer Service Department of your purchased reseller or distributor.

Optional Configurations

- Peel off module assembly.
- Guillotine cutter
  Full cut:
  Paper thickness: 0.06~ 0.19mm, 500,000 cuts
  Partial cut:
  Paper thickness: 0.06~0.12mm, 500,000 cuts
  Paper thickness: 0.19mm 200,000 cuts
- Main board integrated with internal Ethernet
- Internal Ethernet print server module

Accessories

- KP-200
- KU-007 plus
- External Ethernet print server
- External wireless (802.11b/g) print server
- External roll mount, media OD. 214 mm (8.4") with 3" core label spindle
- Contact CCD contact scanner
- Long range linear image bar code scanner

2.3 Printer Parts

Clear Window

Ribbon Access Cover

LED Indicator

Feed Button

Printer Top Cover

Top Cover Open Lever

Fig. 1 Top front view

1. **USB Interface**
2. **Centronics Interface**
3. **RS-232C DB-9 Interface**
4. **Power Jack**
5. **Power Switch**
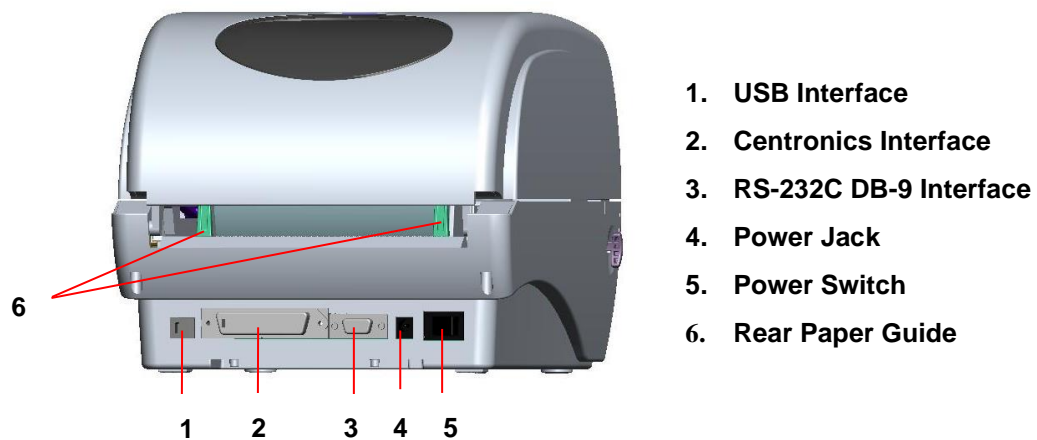6. **Rear Paper Guide**

6

1   2   3   4   5

Fig. 2 Rear view

3. Setup

3.1 Instructions to Top Cover Operation

Please take care when opening or closing the printer's top cover by carefully following these instructions.

To Open:

1. When facing the front of the printer pull the cover release levers on both sides of printer towards you.
2. Lift up the top gradually.
   There are two stop positions for the top cover. Position 1 and 2 are indicated on the label below.
   Note: To hold the cover open at position 1, you must lift the cover higher than the stopping point at position 1 and gently lower the cover to stop position 1. ***DO NOT free fall the top cover!***

3. Fully open the top cover and gently lower it to stop position 2.
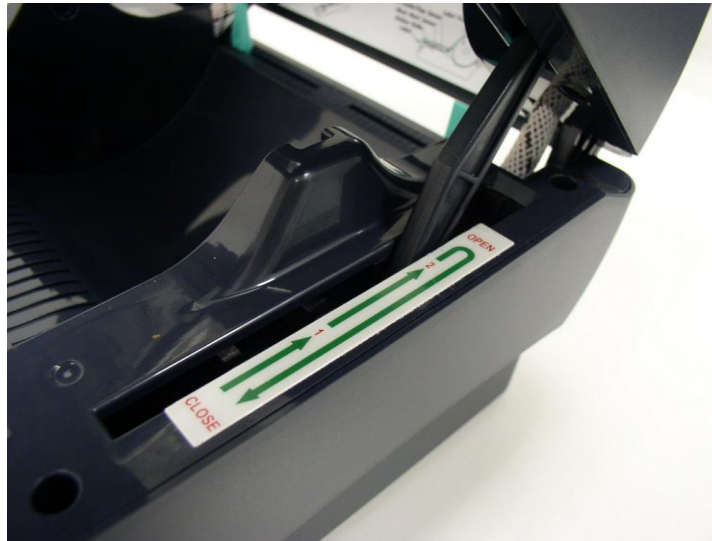
Top cover support is fixed at position 2

4. To close the cover, lift up to the maximum angle and release. The cover will be kept at a stop position between 1 and 2 for a while. Use both hands to gently push down the top cover to close and make sure the cover is latched on both sides.

Note: DO NOT place your hands or fingers between the top and lower cover while closing!

Top cover is fully open and ready to close

Use both hands to close the top cover

5. ***Do not force the cover!***   If you are not sure if the top cover is fixed at the stop position, please do not force the cover to close. Doing so may damage the cover and support arm.

Please open the top cover to the maximum angle and close again. Use both hands to gently press the cover close.

3.2 Setting Up the Printer

1. Place the printer on a flat, secure surface.

2. Make sure the power switch is off.

3. Connect the printer to the computer with the Centronics or USB cable.

4. Plug the power cord into the power supply connector at the rear of the printer, and then plug the power cord into a properly grounded receptacle.
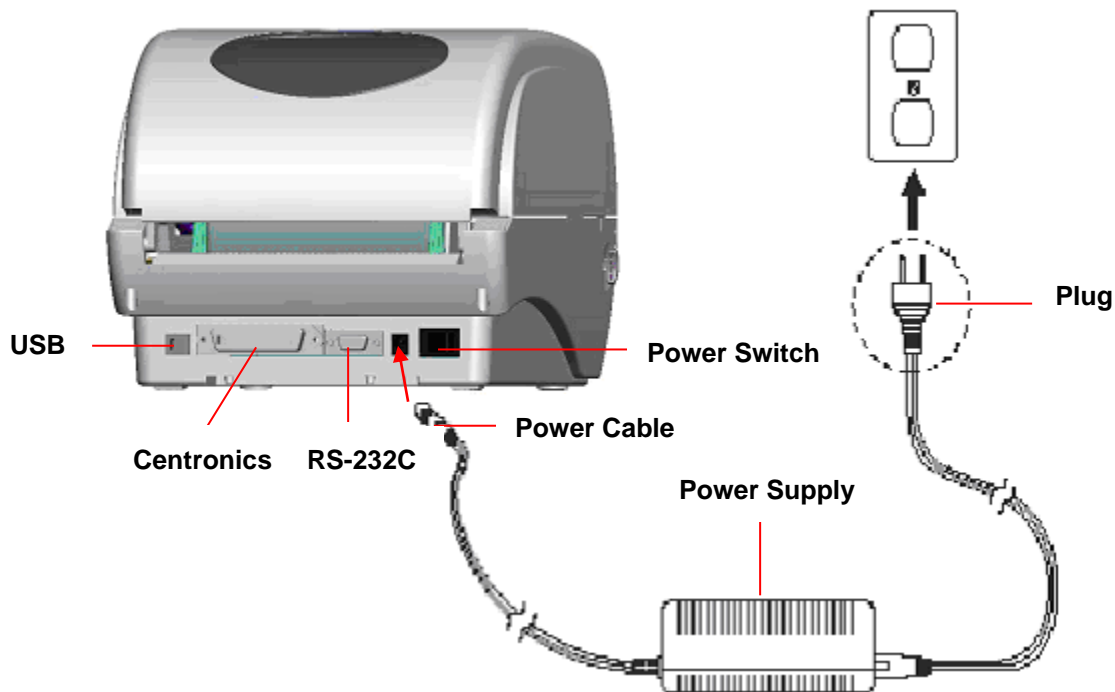

Fig. 3 Attach power supply to printer

3.3 Loading the Ribbon

The printer will detect if the ribbon is installed after turning the power on and it will set printing mode to thermal transfer or direct thermal printing mode automatically. If the printer does not detect the ribbon, the ribbon take up motor will be turned off.

Make sure the printer top cover is engaged properly at both sides prior to powering up the printer.

Please follow the steps below to install the ribbon into printer.
1. Push down on the ribbon access window to unlatch and open the cover.
2. Place a paper core onto the ribbon rewind spindle.
3. Mount the ribbon rewind paper core on the front hubs.
4. Install a ribbon on the ribbon supply spindle.
5. Mount the ribbon supply spindle on the rear hubs.
6. Thread the ribbon leader downward pass the print head.
7. Attach the ribbon leader to the ribbon rewind paper core by a piece of tape.
8. Rotate the ribbon rewind paper core until the ribbon leader is thoroughly encompassed by the black section of the ribbon.
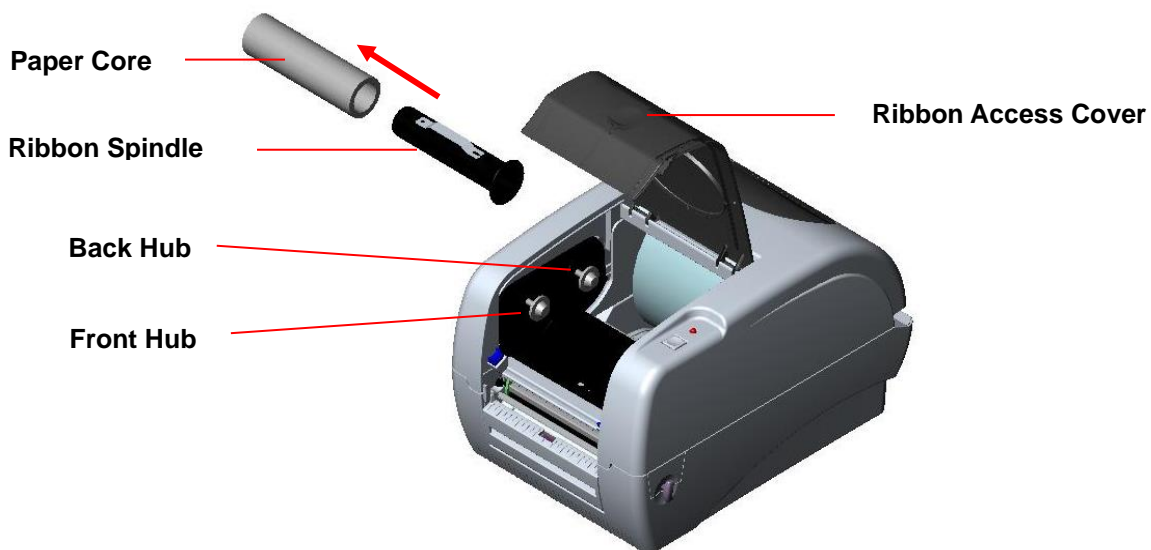9. Close the ribbon access window.

Paper Core

Ribbon Spindle

Back Hub

Front Hub

Ribbon Access Cover

Fig. 4 Ribbon installation (I)

Ribbon supply spindle

**Ribbon
Leader**

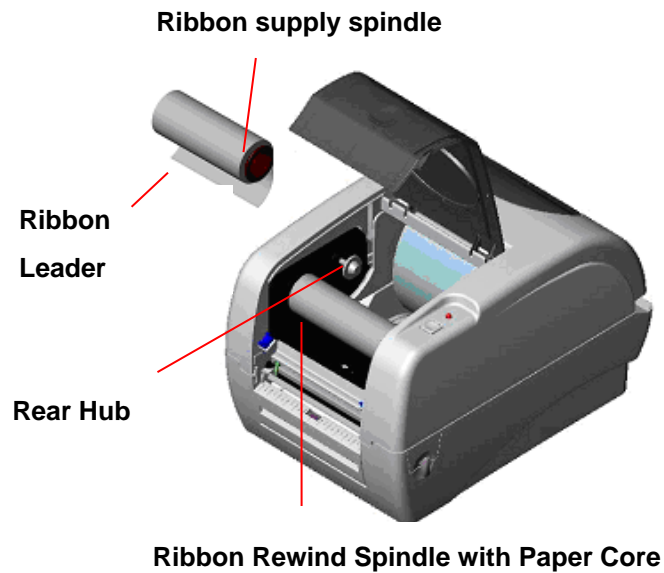**Rear Hub**

Ribbon Rewind Spindle with Paper Core

Fig. 5 Ribbon installation (II)

3.4 Loading Media Stock

1. Insert spindle into a media roll (If your media core is 1 inch, remove the 1.5 inch core adapter from the fixing tab). If label width is 4 inch wide, two fixing tabs are not required).
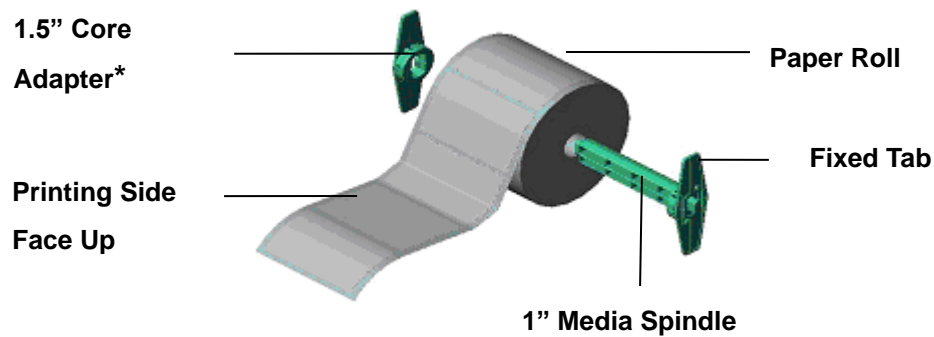
**1.5" Core
Adapter***

**Printing Side
Face Up**

Paper Roll

Fixed Tab

1" Media Spindle

Fig. 6 Label Roll installation (I)

2. Open the printer's top cover by releasing the green levers located on each side of the printer and lifting the top cover. A top cover support at the rear of the printer will hold the cover open.
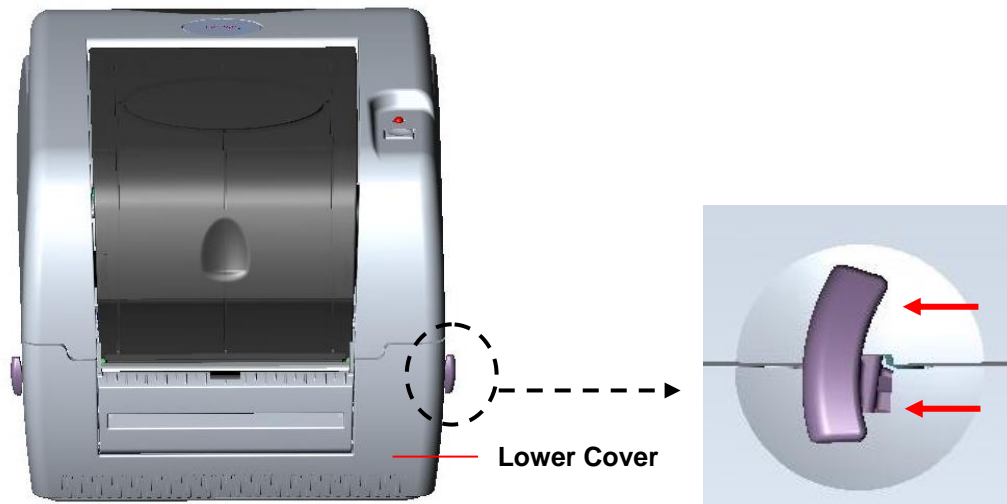

Lower Cover

Fig. 7 Pull the lever to open the cover

3. Place a roll of media onto the internal **Media Spindle**.
4. Feed the media (printing side face up) under the Teflon bar and through the support guides. The media should come to rest outside the printer. Refer to Fig #8.
5. Adjust the green center-biased media guides to slightly touch the edges of the media/backing.
6. To close the printer top cover, lift the cover to the maximum open angle then use both hands to close the cover gently. Close the printer top cover slowly and make sure the cover latches securely.

   Note:
   1. *Make sure your hands or fingers are not placed between printer top and lower cover when closing.*
   2. *Do not free fall the top cover.*
   3. *Failure to securely close and lock the cover will result in poor print quality.*
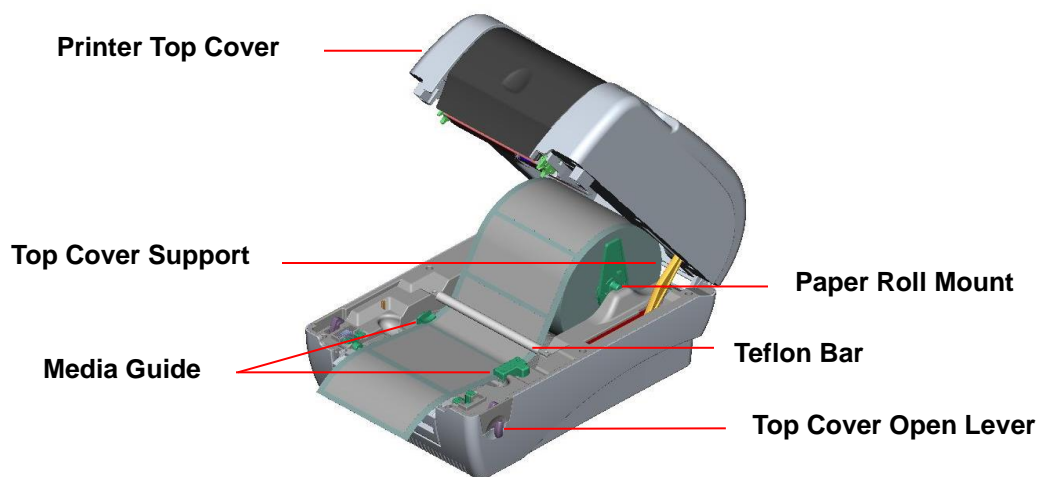
Fig. 8 Media installation (II)

3.5 External Media Roll Mount Installation (Option)

1. Attach an external media roll mount on the bottom of the printer.

Fig. 9 Attach the external roll mount to the printer

2. Open the printer top cover by releasing the top cover open levers. The top cover support will hold the cover open.
3. Install a roll of media on the external roll mount.
4. Feed the media (printing side face up) into the external opening located at the rear of the printer and then through the media guides.

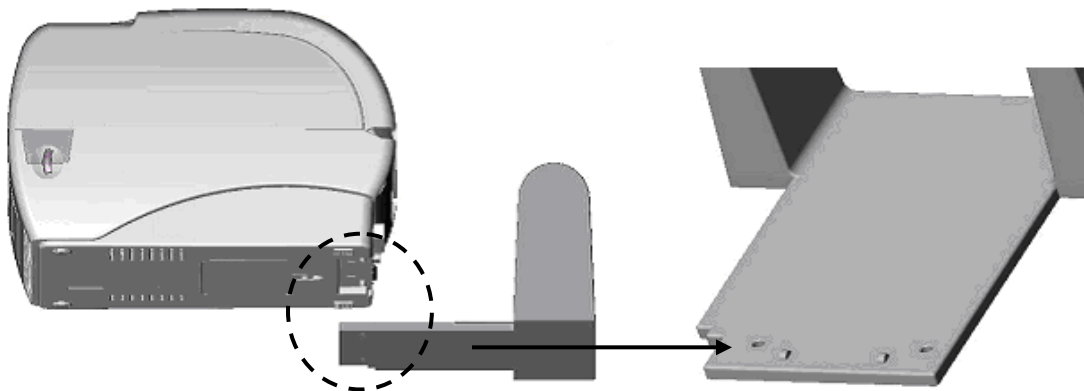**External Paper Roll Mount**

External Media Feed
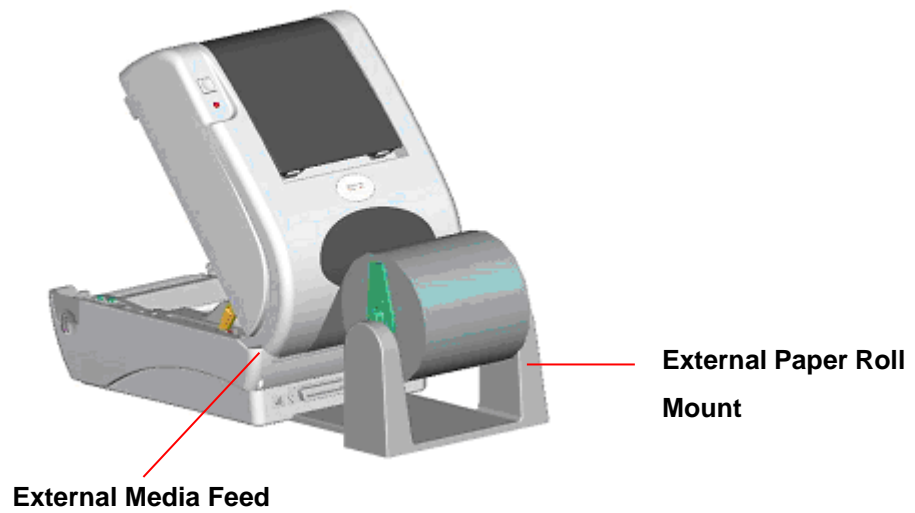
Fig. 10 External roll mount media installation (I)

5. Continue feeding the media through the internal printer guides and place it on top of the platen.
6. Adjust the media guides to fit the appropriate width.
7. Close the printer top cover by lifting to the maximum open angle then push down the top cover gently.

Rear Media Guide

Media Guide

Platen

Top Cover Support Arm
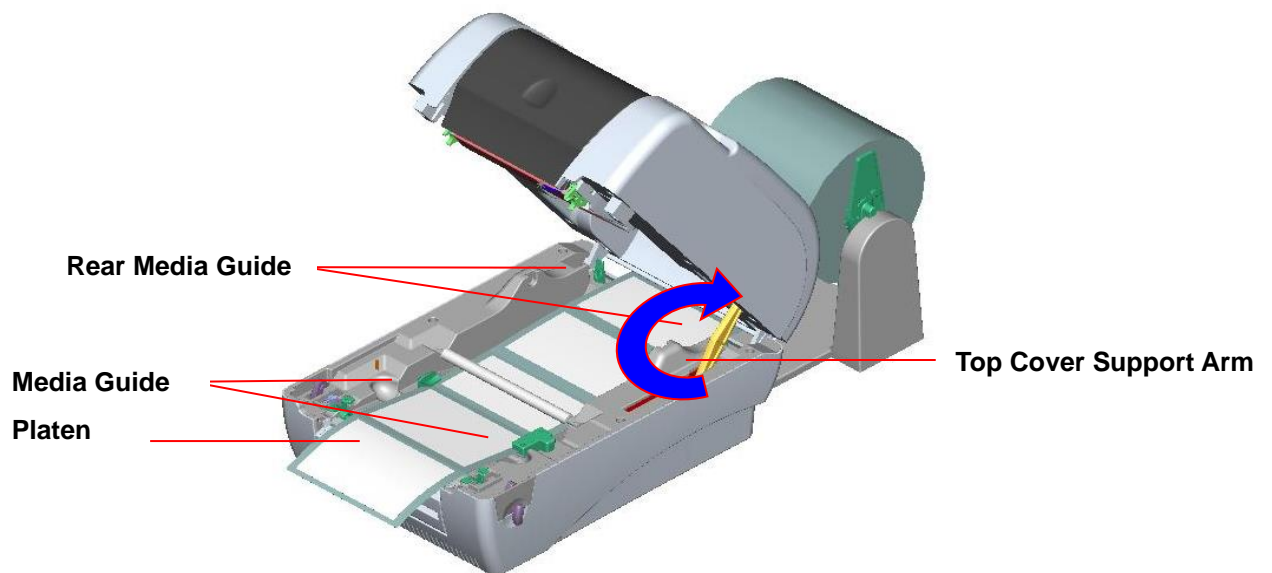
Fig. 11 External roll mount media installation (II)

3.6 Peel-off Module Installation (Option)

1. Open the top cover and remove the front panel from the printer.
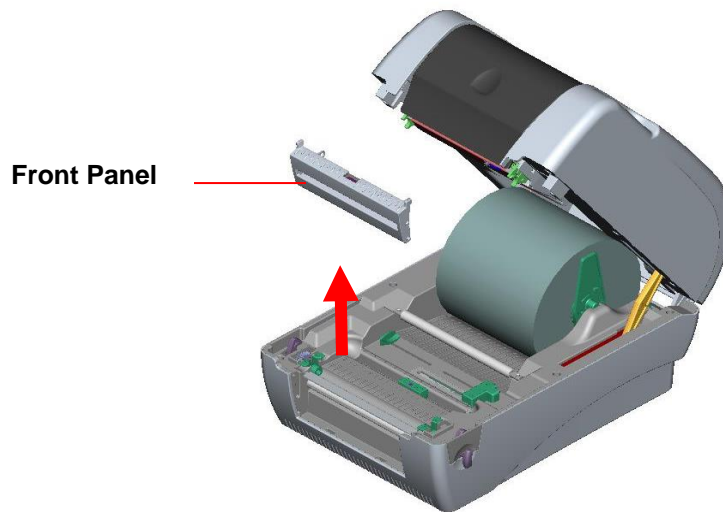
Front Panel

Fig. 12 Remove the front panel

2. Lift and hold the top cover while pushing down and sliding the cover support arm backwards to release.
3. Use a screwdriver to remove 6 screws on the lower inner cover.

Top Cover

Top Cover Support Arm

Screws

Flute

Lower Inner Cover
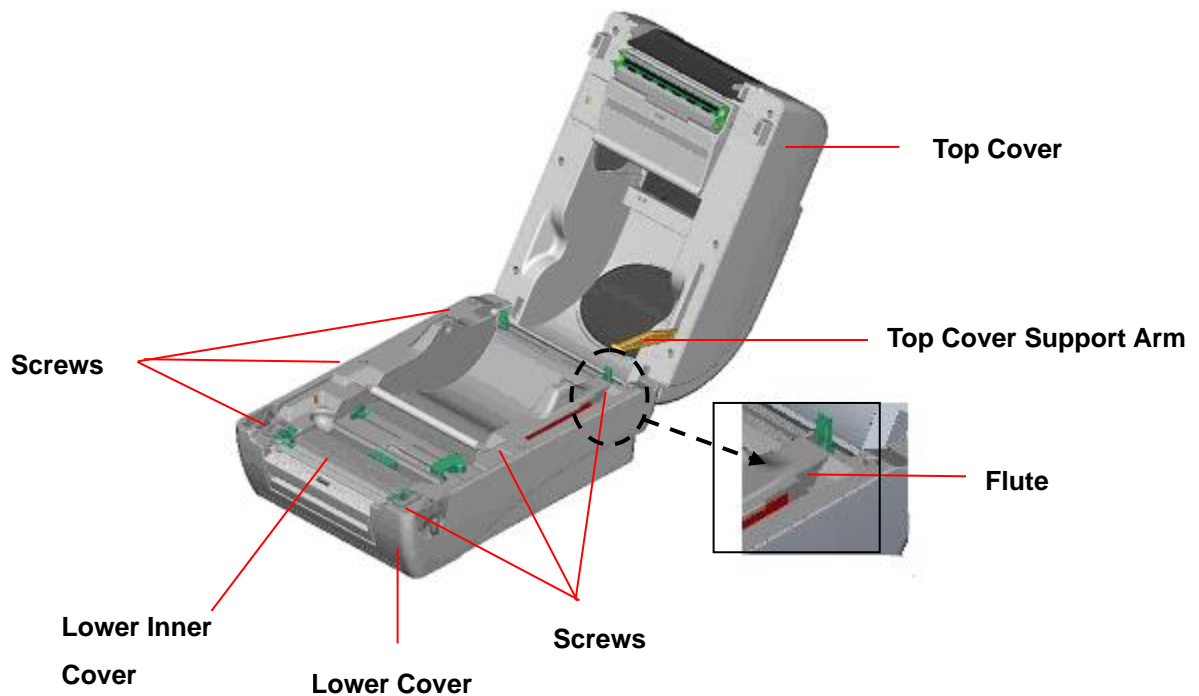
Lower Cover

Screws

Fig. 13 Remove 6 screws from lower inner cover

4. Turn over the printer. Remove two screws located near the top cover hinge, and remove one screw at memory card cover.
5. Separate the top, inner, and the lower cover.
6. Thread the sensor cable through the bezel. Connect the peel-off panel cable to the 5-pin socket on printer PCB.
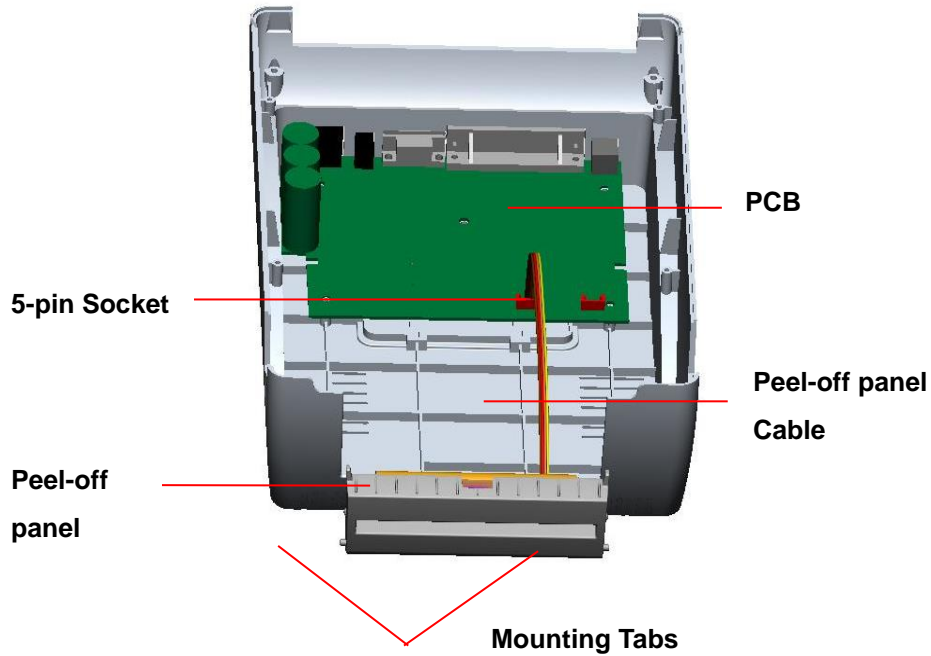
Fig. 14 Connect peel-off sensor cable to main board
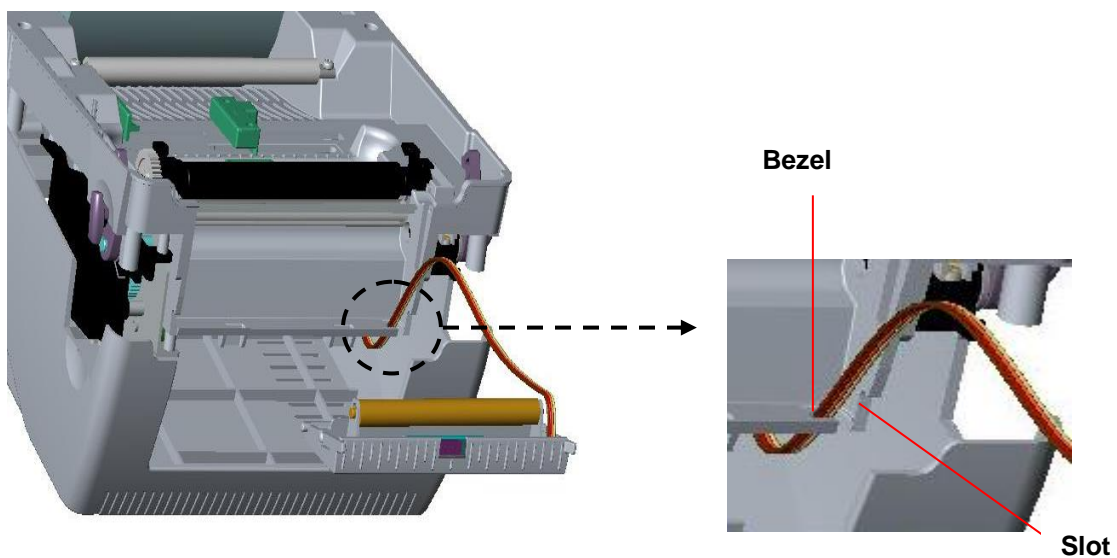
Fig. 15 Peel-off sensor cable installation

7. Insert the peel-off assembly tabs into the lower inner cover hinge holes until they snap into place.

Lower Inner Cover

Lower Cover

Roller

Peel Off Assembly Tab

Inner Hinge Holes
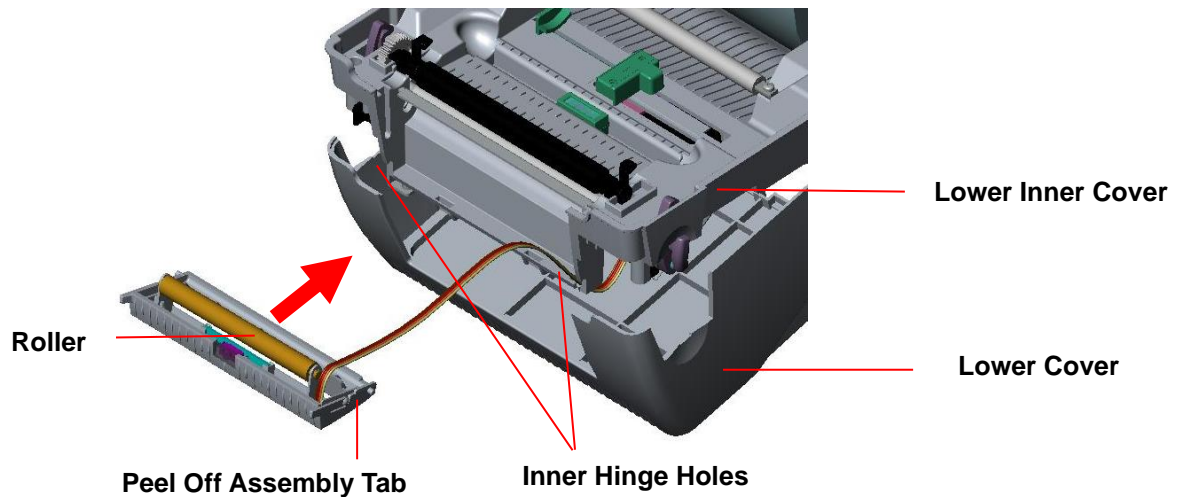
Fig. 16 Peel-off panel installation (I)

8. Reassemble parts in reverse procedures after installing the module.

Peel-off panel

Roller
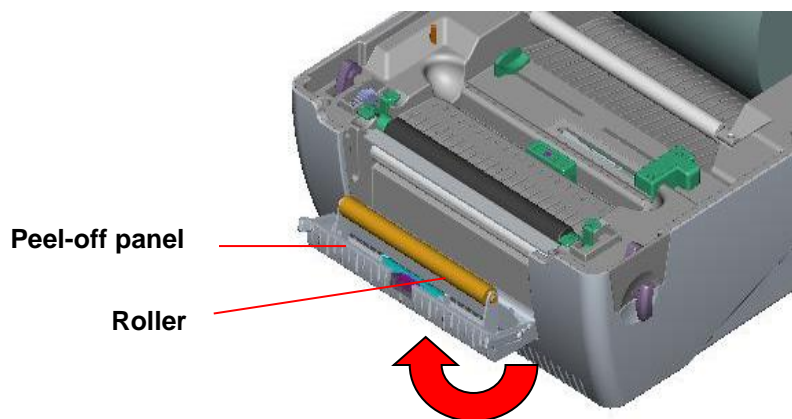
Fig. 17 Peel-off panel installation (II)

9. Lift up the peel-off panel and snap into place to close.
10. Use a screwdriver to secure enclosure cover screws (9-places).
11. Close the top cover by placing the support arm back into the flute and then push down the top cover gently.

3.6.1 Loading Labels into Peel-off Module

***Note: Both thermal paper and plain paper labels apply for peel-off
function, neither PVC nor vinyl work with peel-off function.***

1. Insert a 1" label spindle into a label roll.
2. Open the printer top cover by pulling the top cover open levers. The top cover support will hold the printer top cover.

Peel-off panel

Backing paper
Opening

Top Cover Open Lever

Fig. 18 Open the top cover

3. Install the label roll onto the paper roll mount.
4. Open the peel-off panel by pulling it forward.
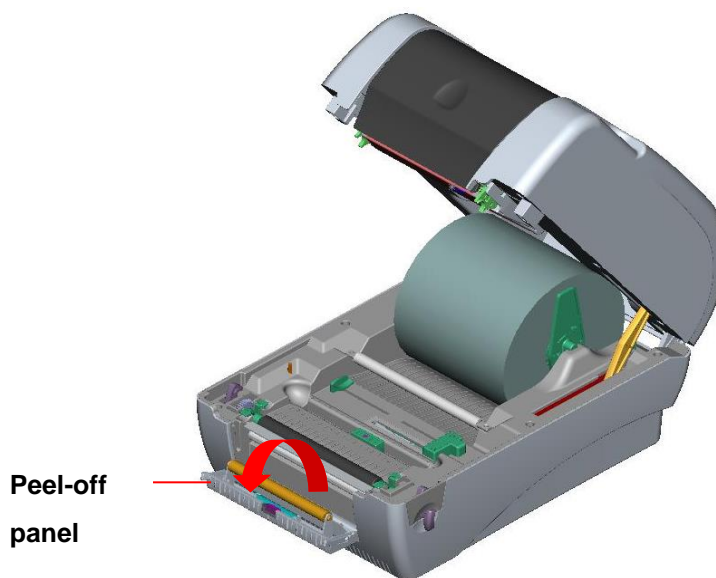
Peel-off
panel

Fig. 19 Open the peel-off panel

5. Feed the label, printing side facing up, through the paper guides and place it on top of the platen.
6. Thread the label through the **liner opening**, which is beneath the **roller** and tear off one piece of the label.
7. Adjust the paper guides by moving left or right to fit the label/backing width.
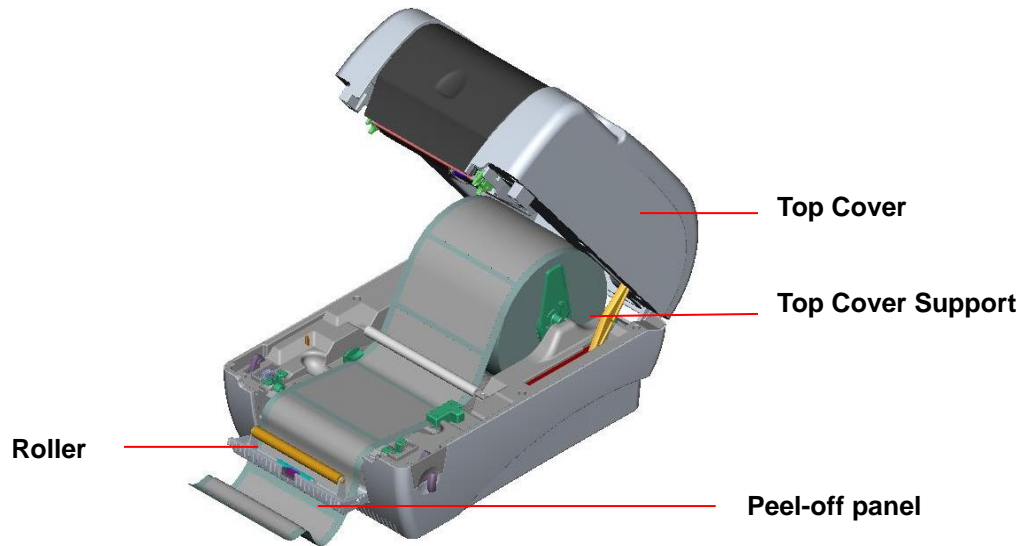
Fig. 20 Load label into peeler roller assembly

8. Lift the peel-off panel up and back into the closed position.
9. Close the top cover by lifting up the top cover support and close the top cover slowly.

Note: Pull the label outward removing slack after closing the top cover.

Fig. 21 Complete label installation for peel-off mode

3.7 Cutter Module Installation (Option)

1. Pull the top cover open levers to open the top cover.
2. Remove the front panel from the lower cover.
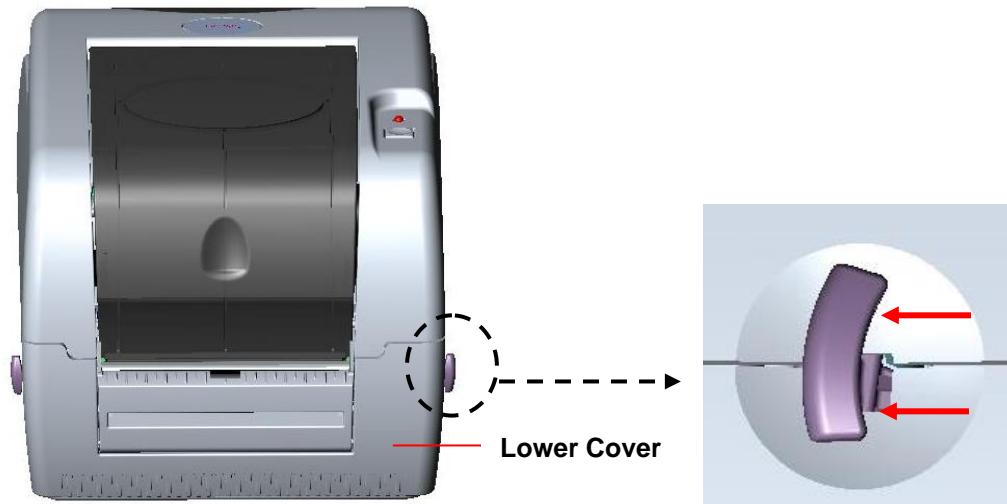
Lower Cover

Fig. 22 Pull the lever to open the cover

3. Lift and hold the top cover while pushing down and sliding the cover support arm backwards to release.
4. Use a screwdriver to remove 6 screws on the lower inner cover.

Top Cover

Top Cover Support

Screws

Flute

Front Panel

Lower Inner Cover　**Lower Cover**　**Screws**
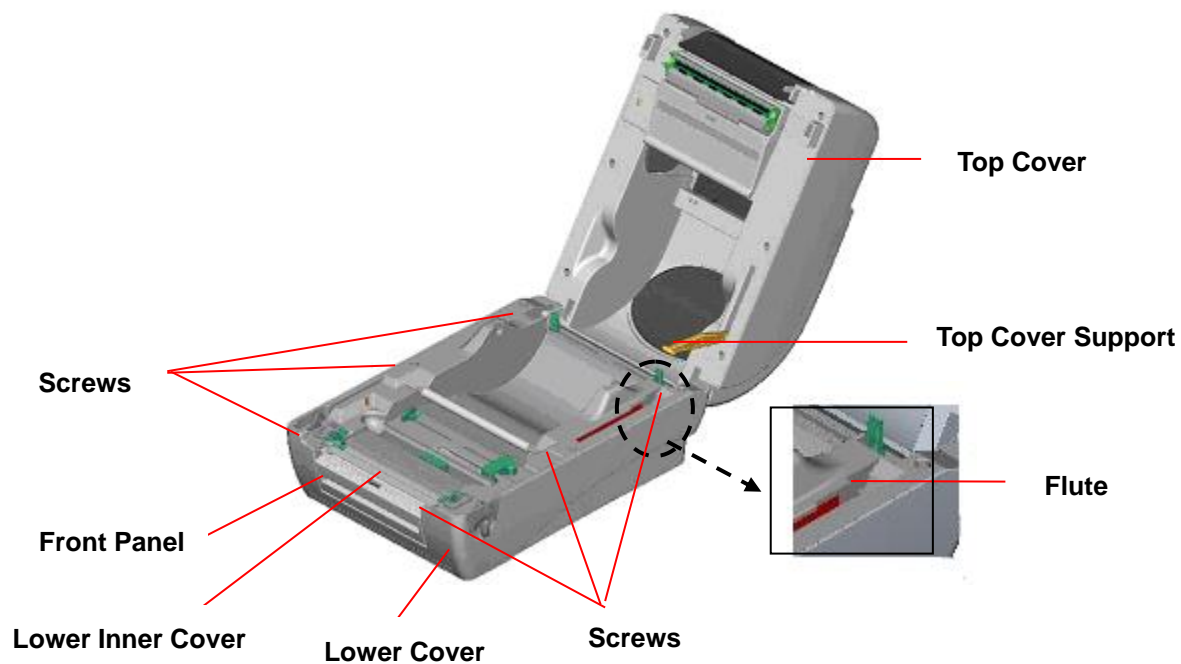
Fig. 23 Remove 6 screws from lower inner cover

5. Turn over the printer. Remove two screws located near the top cover hinge.
6. Remove the screw from the memory card cover, and left the cover off. Plug in the cutter driver IC at U14 (S500 series) / U30 (S500 *PLUS* series) socket on the main board.
7. Use both thumbs to hold the lower cover and index fingers to lift up the top cover open levers to separate the lower inner cover and the lower cover.
8. Thread the cable through the bezel. Connect the cutter module cable to the 4-pin socket on printer PCB.

PCB

4-pin Socket

Cutter Cable

Cutter

Fig. 24 Cutter module installation
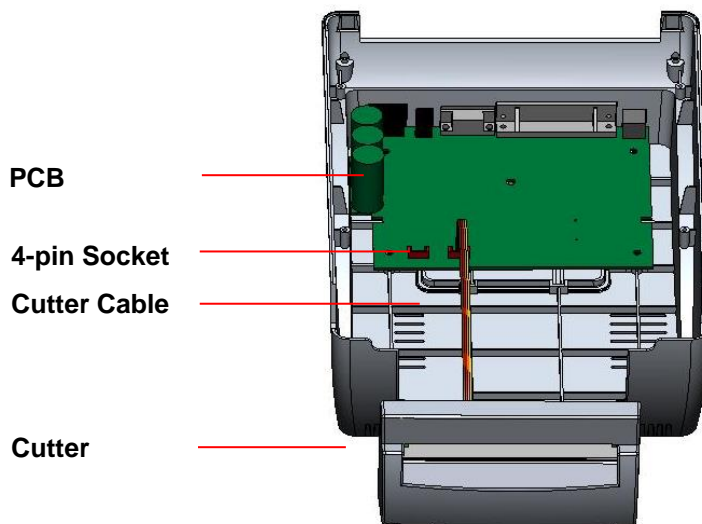
Lower Inner Cover

Cutter Cable   Lower Cover   Bezel
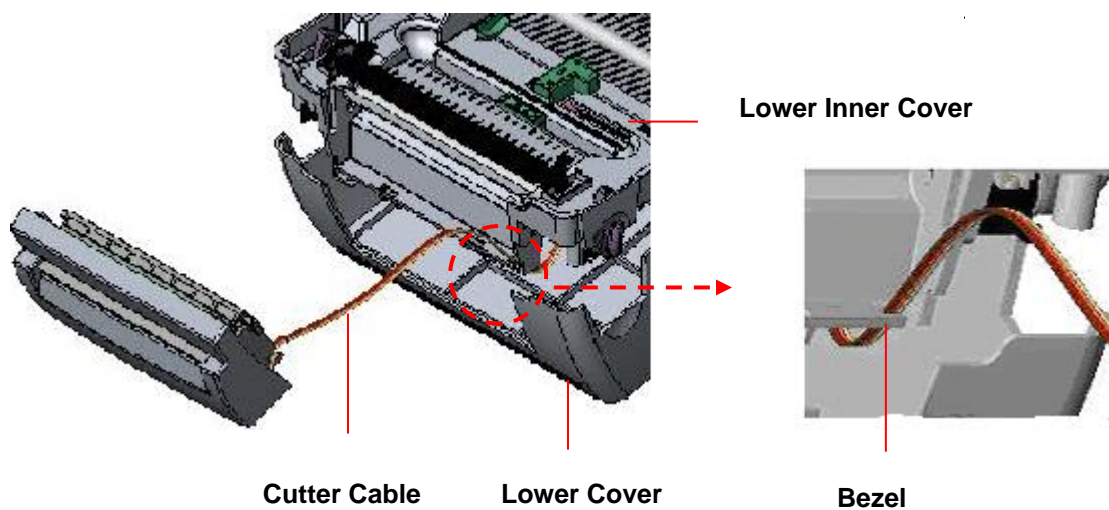
Fig. 25 Cutter module cable arrangement

9. Assemble the lower inner cover back onto the lower cover.
10. Install the cutter into the slots of the printer inner cover.
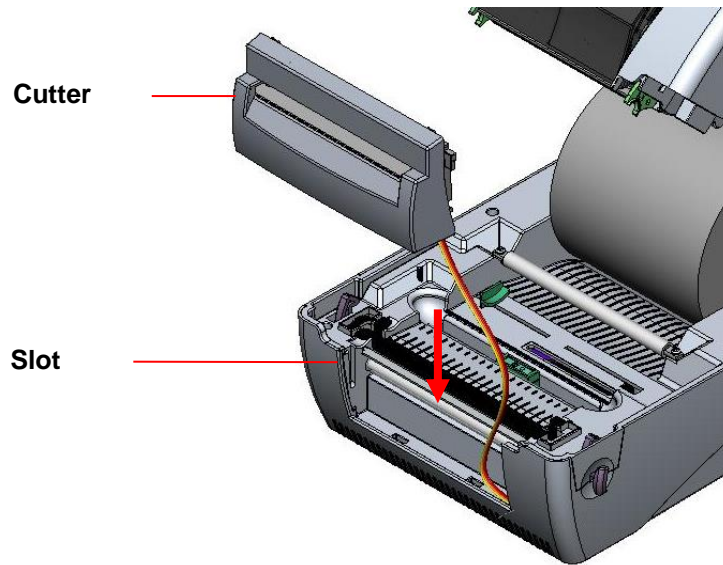
Fig. 26 Cutter module installation

11. Use a screwdriver to secure enclosure cover screws (9-places).
12. Close the top cover by placing the top cover support arm back into the flute and push it forward, then close the top cover slowly.

3.7.1 Loading Media in Cutter Mode

1. Insert media spindle into a roll.
2. Open the printer top.
3. Install a media roll onto the roll mount.
4. Thread the media, printing side face up, through the guides, platen and cutter module outlet.
5. Lead the media through the cutter front opening.
6. Adjust the media guides by moving left or right to fit the media/backing width.

Top Cover

Top Cover Support Arm

Paper Guide

Platen
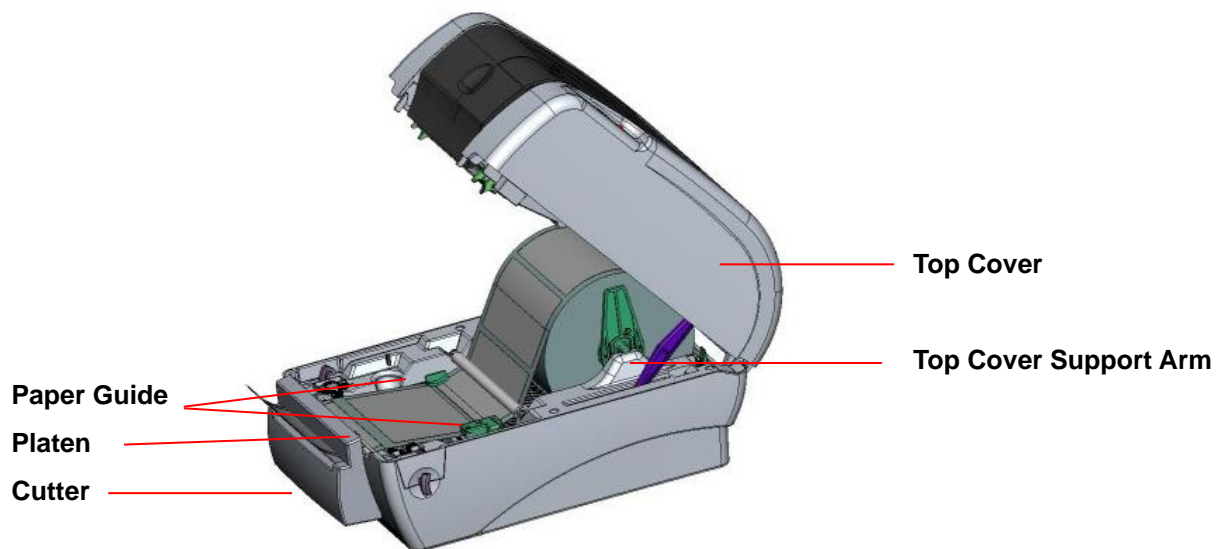
Cutter

Fig. 27 Media installation in cutter mode

7. Close the top cover by lifting upward to the maximum open position, then close slowly.
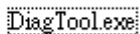
Fig. 28 Complete media installation in cutter mode

3.8 Diagnostic Tool

The Diagnostic Utility is a toolbox that allows users to explore the printer's settings and status; change printer settings; download graphics, fonts, and firmware; create printer bitmap fonts; and to send additional commands to the printer. Using this convenient tool, you can explore the printer status and settings and troubleshoot the printer.

Note: This utility works with printer firmware V6.00 and later versions.

3.8.1 Start the Diagnostic Tool

1. Double click on the Diagnostic tool icon ![DiagTool.exe] to start the software.
2. There are four features (Printer Configuration, File Manager, Bitmap Font Manager, Command Tool) included in the Diagnostic utility.
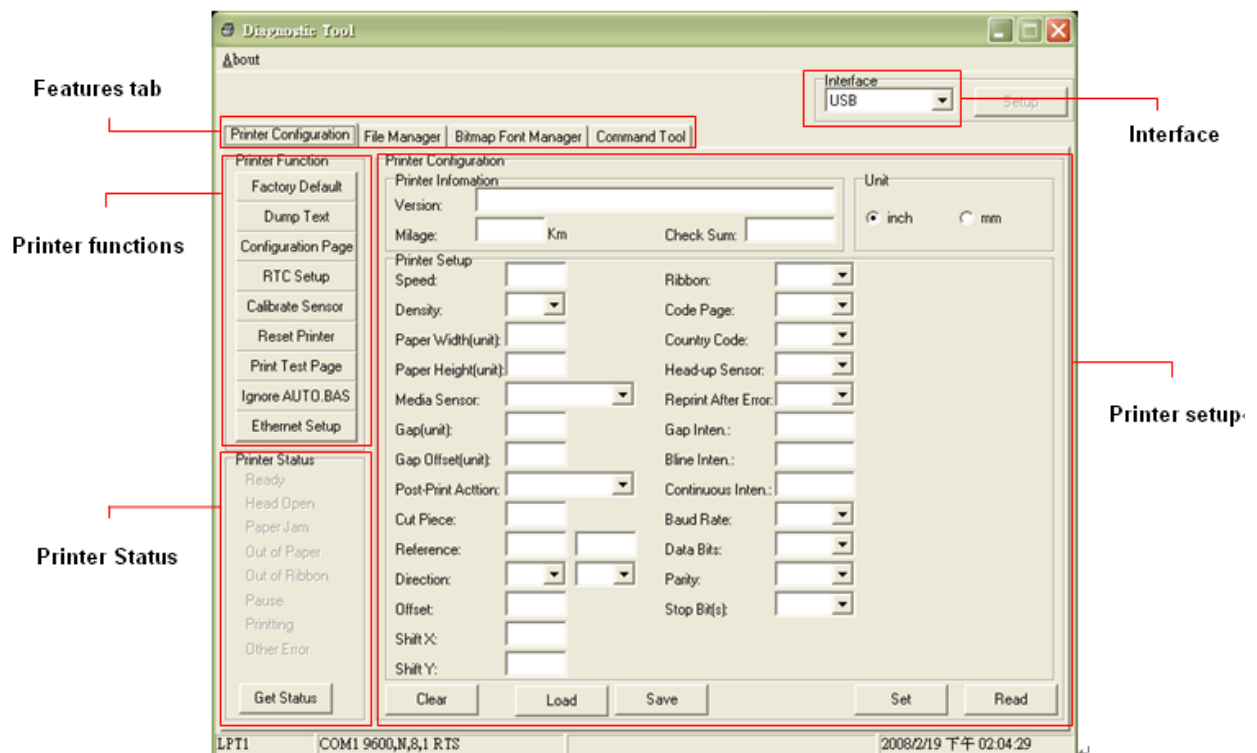
3.8.2 Printer Function (Calibrate, Ethernet, RTC setup…)

    1. Select the PC interface connected with bar code printer.

    2. Click the "Function" button to setting.

    3. The detail functions in the Printer Function Group are listed as below.

Function	Description
Factory Default	Initialize the printer and restore the settings to factory default.
Dump Text	To activate the printer dump mode.
Configuration Page	Print printer configuration.
RTC Setup	Synchronize printer Real Time Clock with PC.
Calibrate Sensor	Calibrate the sensor specified in the Printer Setup group media sensor field.
Reset Printer	Reboot the printer.
Print Test Page	Print a test page.
Ignore AUTO.BAS	Ignore the downloaded AUTO.BAS program.
Ethernet Setup	Setup the IP address, subnet mask, gateway for the on board Ethernet.

Note:

For more information about Diagnostic Tool, please refer to the diagnostic utility quick start guide in the CD disk \ Utilities directory.

3.9 Install Memory Card

1. Turn the printer upside down.
2. Remove the screw that fixes the **memory card cover**.
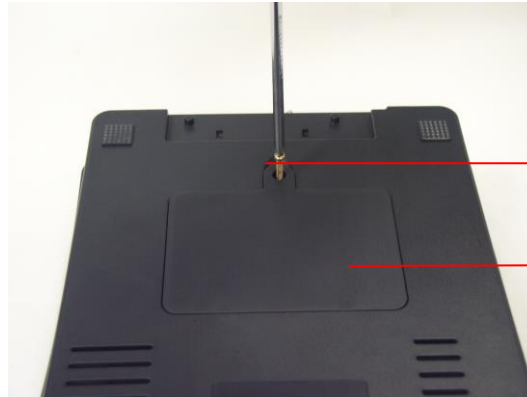
Screw

Memory Card Cover

3. Plug in the memory card on main board.

S500 Series Model (Option)	S500 *PLUS* Series Model (SD Card)

4. Close the memory card cover.

* Recommended SD card specification.

SD V 1.0, V 1.1	SD V 2.0 (SDHC)
✓ 128MB	✓ 4GB class 6
✓ 256MB	
✓ 512MB	
✓ 1GB	
-Supported DOS FAT file system.	
-Folders stored on the SD card should be in the 8.3 filename format.	
-Approved SD card manufacturer: SanDisk, Transcend.	

4. Power on Utilities

There are six power-on utilities to set up and test printer hardware. These utilities are activated by pressing FEED button and by turning on the printer power simultaneously. The utilities are listed as below:

1. Ribbon sensor calibration and Gap or black mark sensor calibration
2. Gap/black mark sensor calibration, Self-test and dump mode
3. Printer initialization
4. Set black mark sensor as media sensor and calibrate the black mark sensor
5. Set gap sensor as media sensor and calibrate the gap sensor
6. Skip AUTO.BAS

4.1 Ribbon and Gap/Black Mark Sensor Calibration

Gap/black mark sensor sensitivity should be calibrated at the following conditions:
1. A brand new printer
2. Change label stock.
3. Printer initialization.

Please follow the steps below to calibrate the ribbon and gap/black mark sensor.
1. Turn off the power switch.
2. Hold on the button then turn on the power switch.
3 Release the button when LED becomes **red** and blinking. (Any red will do during the 5 blinks).

- It will calibrate the ribbon sensor and gap/black mark sensor sensitivity.
- The LED color will be changed in the following order：
  Amber → **red (5 blinks)** → amber (5 blinks) → green (5 blinks) → green/amber (5 blinks) → red/amber (5 blinks) → solid green

Note:
Please select gap or black mark sensor by sending GAP or BLINE command to printer prior to calibrate the sensor.

For more information about GAP and BLINE command, please refer to programming manual.

4.2 Gap/Black Mark Calibration, Self-test and Dump

Mode

While calibrate the gap/black mark sensor, printer will measure the label length, print the internal configuration (self-test) on label and then enter the dump mode. To calibrate gap or black mark sensor, depends on the sensor setting in the last print job.

Please follow the steps below to calibrate the sensor.
1.Turn off the power switch.
2. Hold on the button then turn on the power switch.
3. Release the button when LED becomes **amber** and blinking. (Any amber will do during the 5 blinks).
   - The LED color will be changed in the following order.
     Amber → red (5 blinks) → **amber (5 blinks)** → green (5 blinks) → green/amber (5 blinks) → red/amber (5 blinks) → solid green
4. It calibrates the sensor and measures the label length and prints internal settings then enter the dump mode.

Note:
Please select gap or black mark sensor by Diagnostic tool or by GAP or BLINE command prior to calibrate the sensor.

For more information about GAP and BLINE command, please refer to programming manual.

Self-test

Printer will print the printer configuration after gap/black mark sensor calibration. Self-test printout can be used to check if there is any dot damage on the heater element, printer configurations and available memory space.

Self-test printout

```
PRINTER INFO.


XXXXXXXX Version: X.XX
MILAGE(m): 0
CHECKSUM: XXXXXXXX
SERIAL PORT: 9600,N,8,1
CODE PAGE: 850
COUNTRY CODE: 001
SPEED: X INCH
DENSITY: 8
SIZE: 4.00 , 4.00
GAP: 0.12 , 0.00
TRANSPARENCE: XX
************************************
FILE LIST:
DRAM FILE:              0 FILE(S)

FLASH FILE:             0 FILE(S)

PHYSICAL  DRAM:     XXXX KBYTES
AVAILABLE DRAM:     XXXX KBYTES FREE
PHYSICAL  FLASH:    XXXX KBYTES
AVAILABLE FLASH:    XXXX KBYTES FREE
END OF FILE LIST
************************************
```

- Print head check pattern
- Model name and F/W version
- Printed mileage (meter)
- Firmware checksum
- Serial port configuration
- Code page
- Country code
- Print speed (inch/sec)
- Print darkness
- Label size (inch)
- Gap distance (inch)
- Gap/black mark sensor sensitivity

- Numbers of download files
- Total & available memory space

Note:

1. The physical flash memory for RoHS compliant version is 2MB Flash and 2MB DRAM (S500 series) / 8MB SDRAM (S500 *PLUS* series)

2. System occupies 960 KB in Flash memory so total flash memory space for user downloading is 1088 KB

3. System occupies 1792 KB in DRAM so total DRAM memory space for user downloading is 256 KB (S500 series)

4. System occupies 7936 KB in SDRAM so total SDRAM memory space for user downloading is 256 KB (S500 *PLUS* series)

Dump mode

The printer will enter dump mode after printing the printer configuration. In the dump mode, all characters will be printed in 2 columns as following. The left side characters are received from your system and right side data are the corresponding hexadecimal value of the characters. It allows users or engineers to verify and debug the program.

ASCII Data

Hex decimal data related to left column of ASCII data

```
SPEED 2.0    53 50 45 45 44 20 32 2E 30 0D
 DENSITY 8   0A 44 45 4E 53 49 54 59 20 38
  SET PEEL   0D 0A 53 45 54 20 50 45 45 4C
 OFF  DIRE   20 4F 46 46 0D 0A 44 49 52 45
CTION 0  G   43 54 49 4F 4E 20 30 0D 0A 47
AP 3.00 mm   41 50 20 33 2E 30 30 20 6D 6D
,0.00 mm     2C 30 2E 30 30 20 6D 6D 0D 0A
REFERENCE    52 45 46 45 52 45 4E 43 45 20
0,0  SET C   30 2C 30 0D 0A 53 45 54 20 43
UTTER OFF    55 54 54 45 52 20 4F 46 46 0D
 SIZE 100.   0A 53 49 5A 45 20 31 30 30 2E
02 mm,65.0   30 32 20 6D 6D 2C 36 35 2E 30
4 mm  CLS    34 20 6D 6D 0D 0A 43 4C 53 0D
 BARCODE 1   0A 42 41 52 43 4F 44 45 20 31
44,149,"39   34 34 2C 31 34 39 2C 22 33 39
",120,1,0,   22 2C 31 32 30 2C 31 2C 30 2C
2,6,"57114   32 2C 36 2C 22 35 37 31 31 34
38T"  PRIN   33 38 54 22 0D 0A 50 52 49 4E
T 1,1  SPE   54 20 31 2C 31 0D 0A 53 50 45
ED 2.0  DE   45 44 20 32 2E 30 0D 0A 44 45
NSITY 8  S   4E 53 49 54 59 20 38 0D 0A 53

ET PEEL OF   45 54 20 50 45 45 4C 20 4F 46
F  DIRECTI   46 0D 0A 44 49 52 45 43 54 49
ON 0  GAP    4F 4E 20 30 0D 0A 47 41 50 20
3.00 mm,0.   33 2E 30 30 20 6D 6D 2C 30 2E
00 mm  REF   30 30 20 6D 6D 0D 0A 52 45 46
ERENCE 0,0   45 52 45 4E 43 45 20 30 2C 30
  SET CUTT   0D 0A 53 45 54 20 43 55 54 54
ER OFF  SI   45 52 20 4F 46 46 0D 0A 53 49
ZE 100.02    5A 45 20 31 30 30 2E 30 32 20
mm,65.04 m   6D 6D 2C 36 35 2E 30 34 20 6D
m  CLS  BA   6D 0D 0A 43 4C 53 0D 0A 42 41
RCODE 144,   52 43 4F 44 45 20 31 34 34 2C
149,"39",1   31 34 39 2C 22 33 39 22 2C 31
20,1,0,2,6   32 30 2C 31 2C 30 2C 32 2C 36
,"5711438T   2C 22 35 37 31 31 34 33 38 54
"  PRINT 1   22 0D 0A 50 52 49 4E 54 20 31
,1           2C 31 0D 0A
```

Fig. 30 Dump mode printout

Note:

Turn the printer power OFF and back ON to resume normal printing.

4.3 Printer Initialization

Printer initialization is used to clear DRAM and restore printer settings to defaults. The only one exception is ribbon sensitivity, which will note be restored to default.

Printer initialization is activated by the following procedures.

1. Turn off the power switch.
2. Hold on the button then turn on the power switch.
3. Release the button when LED turns **green** after 5 amber blinks. (Any green will do during the 5 blinks).
   - ◼ The LED color will be changed in the following:
     Amber → red (5 blinks) → amber (5 blinks) → **green (5 blinks)** → green/amber (5 blinks) → red/amber (5 blinks) → solid green

Printer configuration will be restore to defaults as below after initialization.

Parameter	Default setting
Speed	203DPI :127 mm/sec (5 ips)
	300DPI: 76 mm/sec (3 ips)
Density	8
Label Width	4" (101.6 mm)
Label Height	4" (101.6 mm)
Sensor Type	Gap sensor
Gap Setting	0.12" (3.0 mm)
Print Direction	0
Reference Point	0,0 (upper left corner)
Offset	0
Tear Mode	On
Peel off Mode	Off
Cutter Mode	Off
Serial Port Settings	9600 bps, none parity, 8 data bits, 1 stop bit
Code Page	850
Country Code	001
Clear Flash Memory	No
IP Address	DHCP

Note: Always perform gap/black mark sensor calibration after printer initialization.

4.4 Black Mark Sensor Setting and Calibration

Please follow the steps as below.
1. Turn off the power switch.
2. Hold on the button then turn on the power switch.
3. Release the button when LED turns **green**/**amber** after 5 green blinks. (Any green/amber will do during the 5 blinks).
   - The LED color will be changed as following:
     Amber → red (5 blinks) → amber (5 blinks) → green (5 blinks) → **green**/**amber** **(5 blinks)** → red/amber (5 blinks) → solid green

4.5 Gap Sensor Setting and Calibration

Please follow the steps as below.
1. Turn off the power switch.
2. Hold on the button then turn on the power switch.
3. Release the button when LED turns **red**/**amber** after 5 green/amber blinks. (Any red/amber will do during the 5 blinks).
   - The LED color will be changed in the following:
     Amber → red (5 blinks) → amber (5 blinks) → green (5 blinks) → green/amber (5 blinks) → **red**/**amber** **(5 blinks)** → solid green

4.6 Skip PAL application program

PAL programming language allows user to download an auto execution file to flash memory. The printer will run the PAL application program immediately when turning on printer power. The PAL application program can be interrupted by the power-on utility.

Please follow the procedures below to skip a PAL application program:
1. Turn off printer power.
2. Press the FEED button and then turn on power.

3. Release the FEED button when LED becomes **solid green**.

- The LED color will be changed in the following:

  Amber → red (5 blinks) → amber (5 blinks) → green (5 blinks) →

  green/amber (5 blinks) → red/amber (5 blinks) → **solid green**

4. Printer will be interrupted to run the PAL application program.
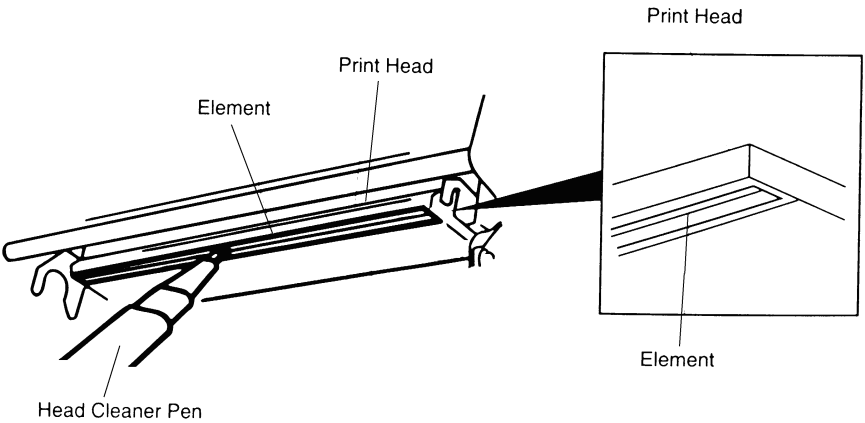
5. Maintenance

5.1 Cleaning

This session presents the cleaning tools and methods to maintain your printer.

1. Please use one of following material to clean the printer.

- Cotton swab (Head cleaner pen)
- Lint-free cloth
- Vacuum / Blower brush
- 100% ethanol

2. The cleaning process is described as following

Printer Part	Method	Interval
Print Head	1. Always turn off the printer before cleaning the print head. 2. Allow the print head to cool for a minimum of one minute. 3. Use a cotton swab (Head cleaner pen) and 100% ethanol to clean the print head surface. 	Clean the print head when changing a new label roll
Platen Roller	1. Turn the power off. 2. Rotate the platen roller and wipe it thoroughly with 100%	Clean the platen roller when changing a new label roll

	ethanol and a cotton swab, or lint-free cloth.	
Tear Bar/Peel Bar	Use the lint-free cloth with 100% ethanol to wipe it.	As needed
Sensor	Compressed air or vacuum	Monthly
Exterior	Wipe it with water-dampened cloth	As needed
Interior	Brush or vacuum	As needed

Note:
- Do not touch print head by hand. Should it be touch accidentally, please use ethanol to clean it.
- Please use 100% Ethanol. DO NOT use medical alcohol, which may damage the printer head.
- Regularly clean the print head and supply sensors to maintain printer performance and extend print life (suggest cleaning when installing a new ribbon).

6. Troubleshooting

The following guide lists the most common problems that may be encountered when operating this bar code printer. If the printer still does not function after all suggested solutions have been invoked, please contact the Customer Service Department of your purchased reseller or distributor for assistance.

6.1 LED Status

This section lists the common problems that according to the LED status and other problems you may encounter when operating the printer. Also, it provides solutions.

LED Status / Color	Printer Status	Possible Cause	Recovery Procedure
OFF	No response	No power	* Turn on the power switch. * Check if the green LED is lit on power supply. If it is not lit on, power supply is broken. * Check both power connections from

			the power cord to the power supply and from the power supply to the printer power jack if they are connected securely.
Solid Green	ON	The printer is ready to use	* No action necessary.
Green with blinking	Pause	The printer is paused	* Press the FEED button to resume for printing.
Red with blinking	Error	The out of label or ribbon or the printer setting is not correct	1. Out of label or ribbon * Load a roll of label and follow the instructions in loading the media then press the FEED button to resume for printing. * Load a roll of ribbon and follow the instructions in loading the ribbon then press the FEED button to resume for printing. 2. Printer setting is not correct * Initialize the printer by instructions in "Power on Utility" or "Diagnostic Tool".

Note:

Printer status can be easily shown on the Diagnostic Tool. For more information about the Diagnostic Tool, please refer to the instruction in the software CD disk.

6.2 Print Quality

Problem	Possible Cause	Recovery Procedure
Not Printing	Check if interface cable is well connected to the interface connector.	Re-connect cable to interface.
	The serial port cable pin configuration is not pin to pin connected.	Please replace the cable with pin to pin connected.
	The serial port setting is not consistent between host and printer.	Please reset the serial port setting.

	The port specified in the Windows driver is not correct.	Select the correct printer port in the driver.
	The Ethernet IP, subnet mask, gateway is not configured properly.	Configure the IP, subnet mask and gateway.
No print on the label	Label or ribbon loaded not correctly.	Follow the instructions in loading the media or loading the ribbon.
	Ribbon run out.	Loading the ribbon.
Continuous feeding labels	The printer setting may go wrong.	Please do the initialization and gap/black mark calibration.
Paper Jam	Gap/black mark sensor sensitivity is not set properly (sensor sensitivity is not enough)	Calibrate the gap/black mark sensor.
	Make sure label size is set properly.	Set label size exactly as installed paper in the labeling software or program.
	Labels may be stuck inside the printer mechanism near the sensor area.	Remove the stuck label.
Poor Print Quality	Top cover is not closed properly.	Close the top cover completely and make sure the right side and left side levers are latched properly
	Check if supply is loaded correctly.	Reload the supply.
	Ribbon and media are incompatible.	Change the ribbon or label combination.
	Check if dust or adhesives are accumulated on the print head.	Clean the print head.
	Check if print density is set properly.	Adjust the print density and print speed.
	Check print head test pattern if head element is damaged.	Run printer self-test and check the print head test pattern if there is dot missing in the pattern.

7. LED and Button Operation

7.1 LED

LED Color	Description
Green/ Solid	This illuminates that the power is on and the device is ready to use.
Green/ Flash	This illuminates that the system is downloading data from PC to memory and the printer is paused.
Amber	This illuminates that the system is clearing data from printer.
Red / Solid	This illuminates printer head open, cutter error.
Red / Flash	This illuminates a printing error, such as head open, paper empty, paper jam, ribbon empty, or memory error etc.

7.2 Button Operation

Feed	● Press the button when the LED is green. ■ It feeds the label to the beginning of the next label.
Pause	● Press the feed button during printing ■ The printing job is suspended.

Ribbon Sensor and Gap/Black Mark Sensor Calibration	1. Turn off the power switch.
	2. Hold on the button then turn on the power switch.
	3 Release the button when LED becomes **red** and blinking. (Any red will do during the 5 blinks).
	   ■ It will calibrate the ribbon sensor and gap/black mark sensor sensitivity.
	   ■ The LED color will be changed as following order：Amber → **red (5 blinks)** → amber (5 blinks) → green (5 blinks) → green/amber (5 blinks) → red/amber (5 blinks) → solid green
	Note:
	Please select gap or black mark sensor by GAP or BLINE command prior to calibrate the sensor.
	For more information about GAP and BLINE command, please refer to programming manual.

Gap/Black Mark Sensor Calibratio, Label Length Measurement, Self Test and enter Dump Mode	1.Turn off the power switch.
	2. Hold on the button then turn on the power switch.
	3. Release the button when LED becomes **amber** and blinking. (Any amber will do during the 5 blinks).
	   ■ The LED color will be changed as following order. Amber → red (5 blinks) → **amber (5 blinks)** → green (5 blinks) → green/amber (5 blinks) → red/amber (5 blinks) → solid green
	   ■ It calibrates the sensor and measures the label length and prints internal settings then enter the dump mode.
	Note:
	Please select gap or black mark sensor by GAP or BLINE command prior to calibrate the sensor.
	For more information about GAP and BLINE command, please refer to programming manual.

Printer Initialization	1. Turn off the power switch.
	2. Hold on the button then turn on the power switch.
	3. Release the button when LED turns **green** after 5 amber blinks. (Any green will do during the 5 blinks).
	  ■ The LED color will be changed as following:
	     Amber → red (5 blinks) → amber (5 blinks) → **green (5 blinks)** → green/amber (5 blinks) → red/amber (5 blinks) → solid green
	Note:
	Always do gap/black mark sensor calibration after printer initialization.

Set Black Mark Sensor as Media Sensor and Calibrate the Black Mark Sensor	1. Turn off the power switch.
	2. Hold on the button then turn on the power switch.
	3. Release the button when LED turns **green**/**amber** after 5 green blinks. (Any green/amber will do during the 5 blinks).
	  ■ The LED color will be changed as following:
	     Amber → red (5 blinks) → amber (5 blinks) → green (5 blinks) → **green**/**amber** **(5 blinks)** → red/amber (5 blinks) → solid green

Set Gap Sensor as Media Sensor and Calibrate the Gap Sensor	1. Turn off the power switch.
	2. Hold on the button then turn on the power switch.
	3. Release the button when LED turns **red**/**amber** after 5 green/amber blinks. (Any red/amber will do during the 5 blinks).
	  ■ The LED color will be changed as following:
	     Amber → red (5 blinks) → amber (5 blinks) → green (5 blinks) → green/amber (5 blinks) → **red**/**amber** **(5 blinks)** → solid green

Skip AUTO.BAS	1. Turn off printer power.
	2. Press the FEED button and then turn on power.
	3. Release the FEED button when LED becomes **solid green**.
	    ■ The LED color will be changed as following:
	        Amber → red (5 blinks) → amber (5 blinks) → green (5 blinks) → green/amber (5 blinks) → red/amber (5 blinks) → **solid green**
	4. Printer will be interrupted to run the AUTO.BAS program.

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