S500 DT Plus Series

Direct Thermal Barcode Printer

User's Guide

Doc #120547

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1. Introduction

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

This printer provides direct thermal printing at user selectable speeds of: 2.0, 3.0, 4.0 or 5.0 inches per second. It accepts roll feed, die-cut, and fan-fold labels for printing media. 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

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

2.3.1 Front View

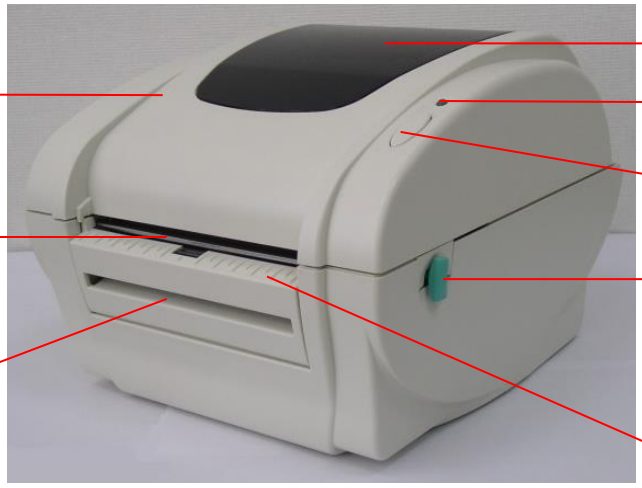
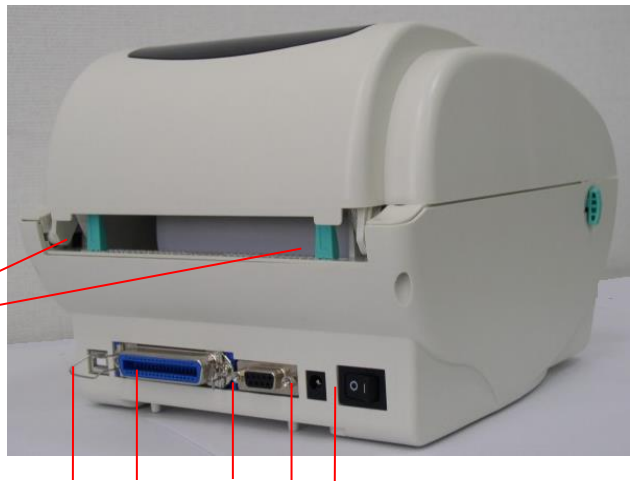


Fig.1 Top Front View

2.3.2 Rear View



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

Fig.2 Rear View

3 Setup

3.1 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 DC power cord into the power jack at the rear of the printer, and then plug the AC power cord into a properly grounded receptacle.

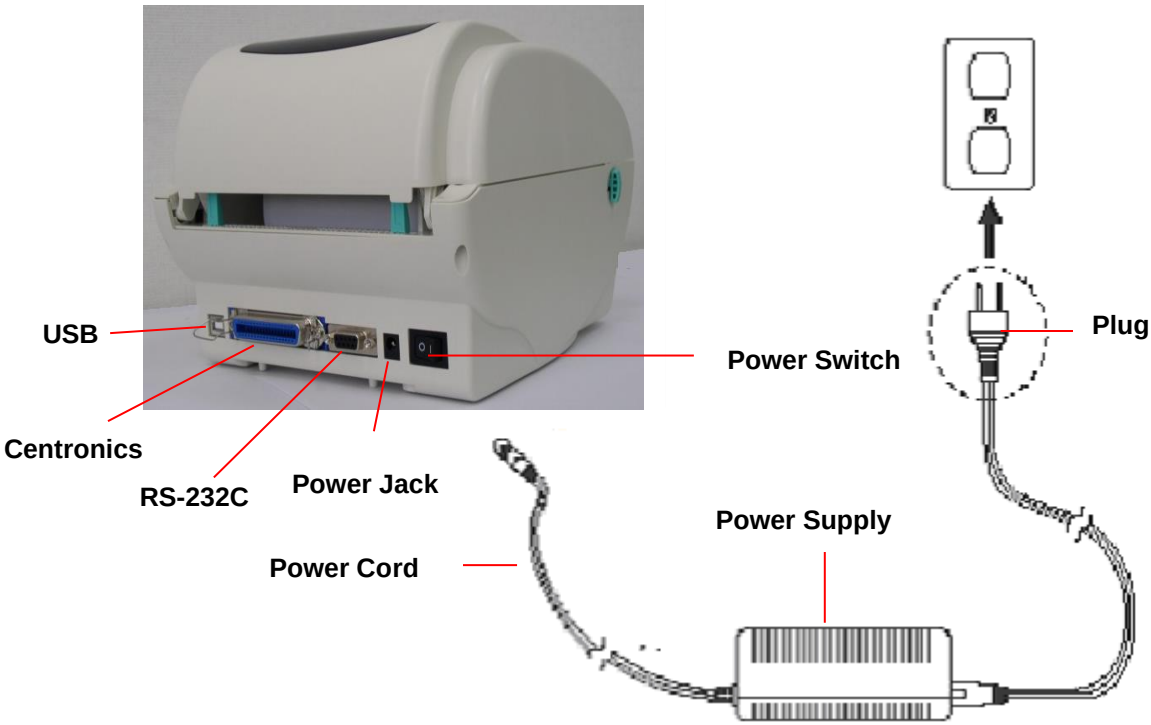


Fig. 5 Attach a power supply to a printer

3.2 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).

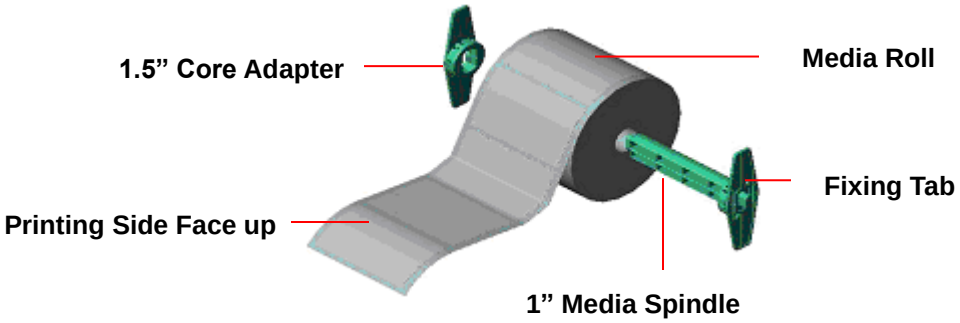


Fig 6 Media roll installation (I)

2. Open the printer’s top cover by releasing the green levers located on each side of the printer and lifting the top cover.
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 #7.
5. Adjust the black center-biased **media guides** in or out by turning the adjustment knob so they are slightly touching the edges of the media/backing.

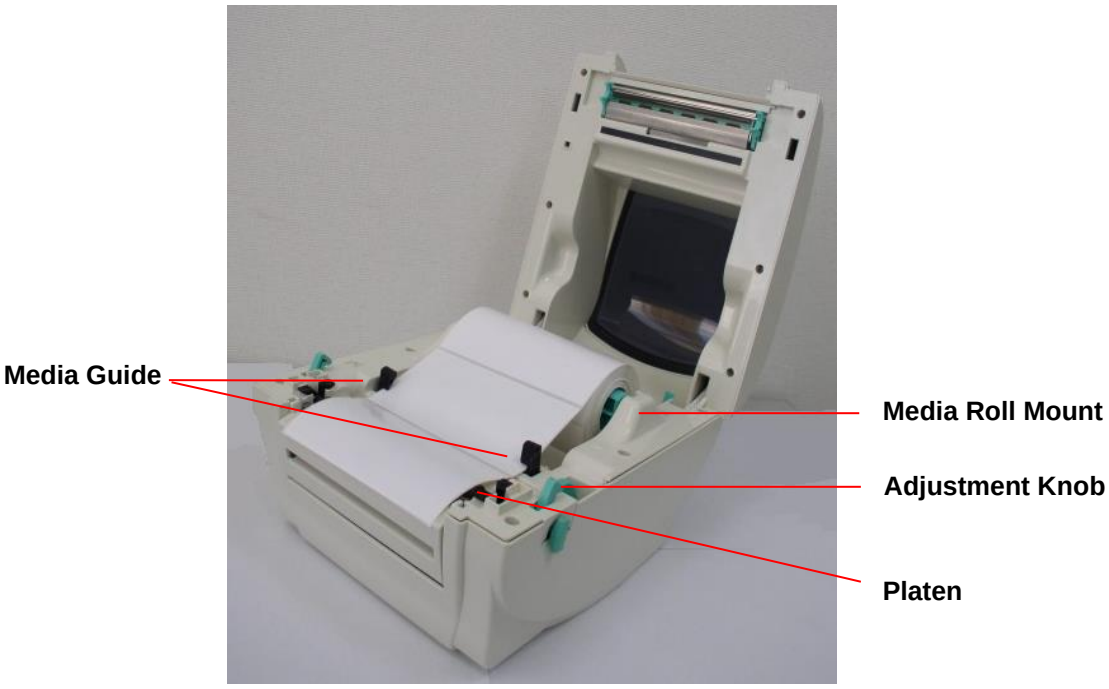


Fig. 7 Media roll installation (II)

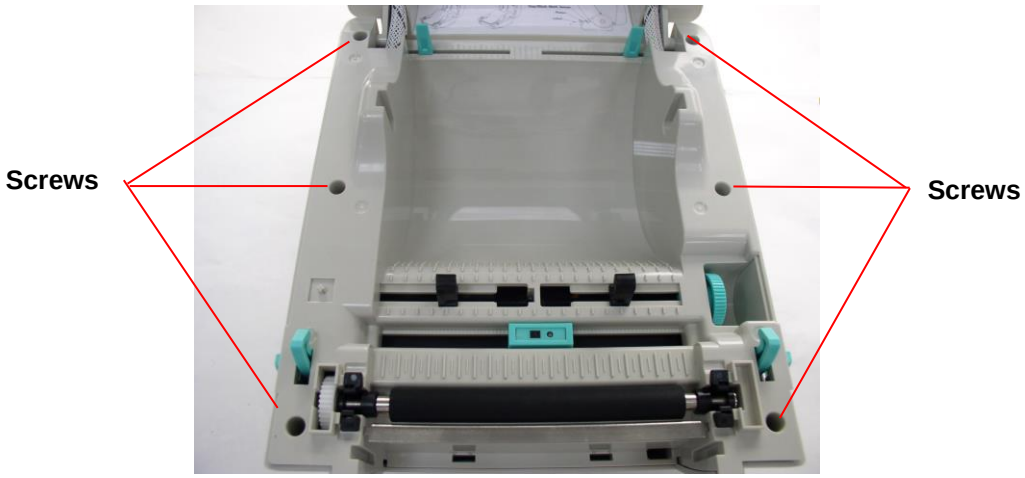
6. Close the printer top cover slowly and make sure the cover locks securely.

Note: Failure to securely close and lock the cover will result in poor print quality.

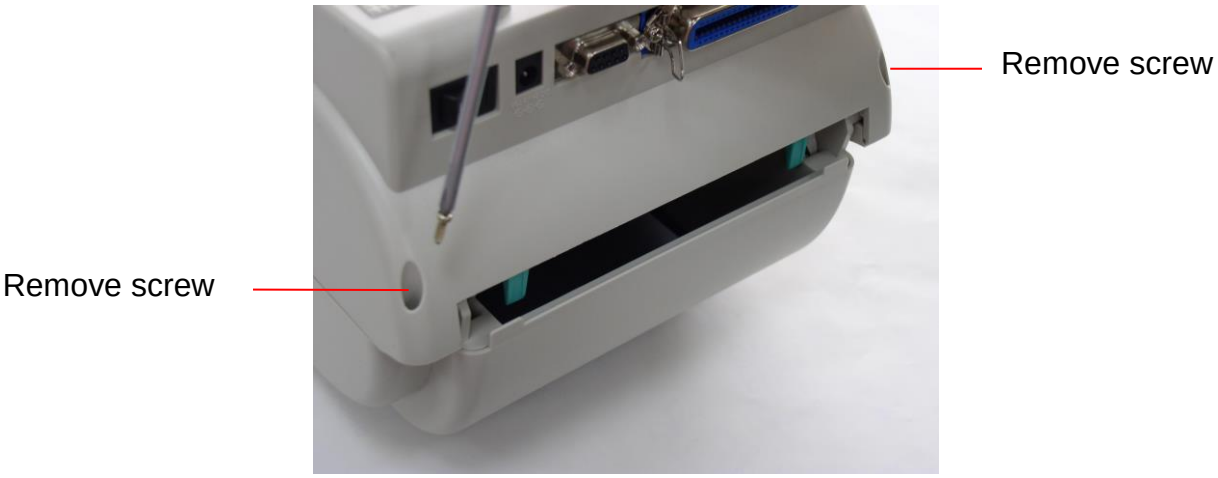
Fig. 8 Close the top cover completely

3.3 Peel-Off Module Installation (Option)

1. Open the top cover.
2. Remove the 6 screws in the lower inner cover.

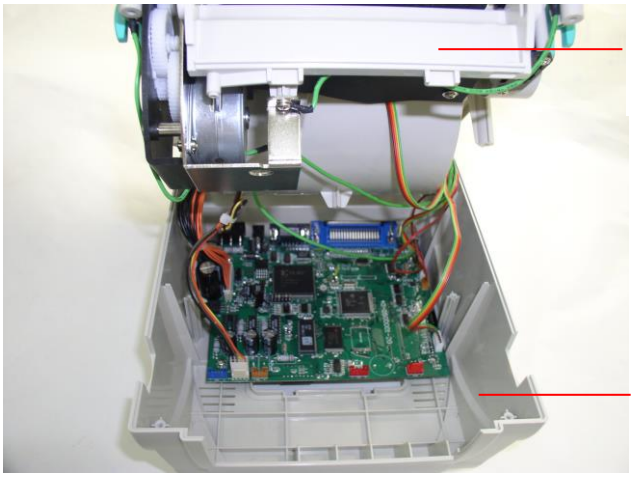


3. Turn over the printer.
4. Remove two screws located near the top cover hinge.



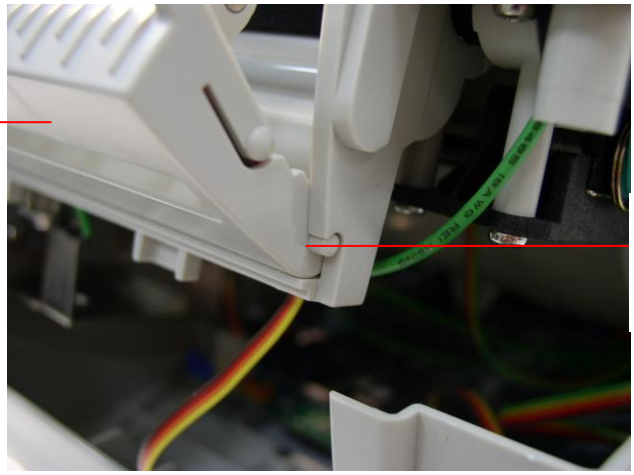
5. Remove the screw at memory card cover.

6. Separate the top, inner, and the lower cover.



7. Thread the cable red connector through the inner cover opening located near the front of the printer. Insert the red cable connector into location JP17 (S500 DT) / JP19 (S500 DT *PLUS*) on the main board. Install the peel-off module onto the lower inner cover slot.

Peel-off module assembly



Install (2-places) one side at a time.

8. Gently push the peel-off panel to lock onto the lower inner cover.
9. Reassemble parts in reverse procedures after installing the module.

3.4 Loading Labels for Peel-off Mode (Option)

1. Open the peel-off module by pulling it forward.

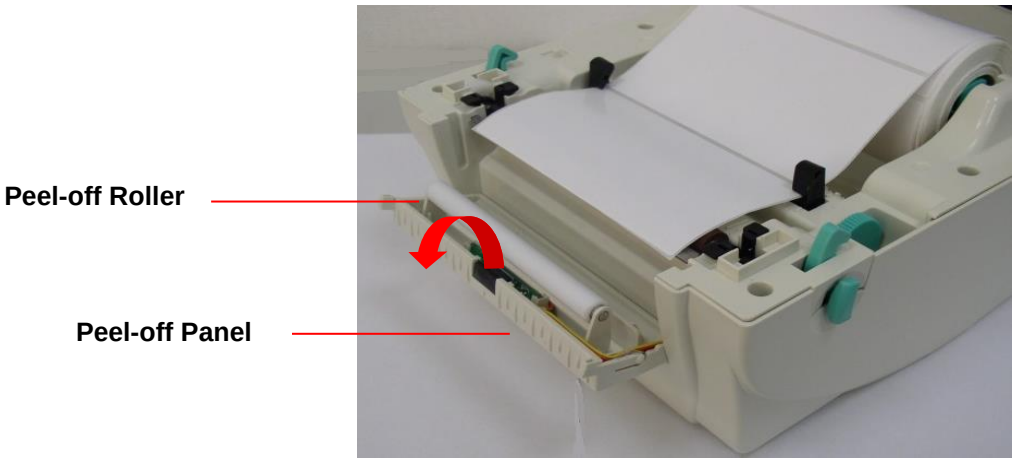


Fig. 9 Open the peel-off panel

2. Thread the label, printing side facing up, through the support guides.
3. Thread the label through the **liner opening**, which is beneath the **roller**.
4. Adjust the black center-biased media guides by turning the **adjustment knob** to fit the edge of the label/backing.

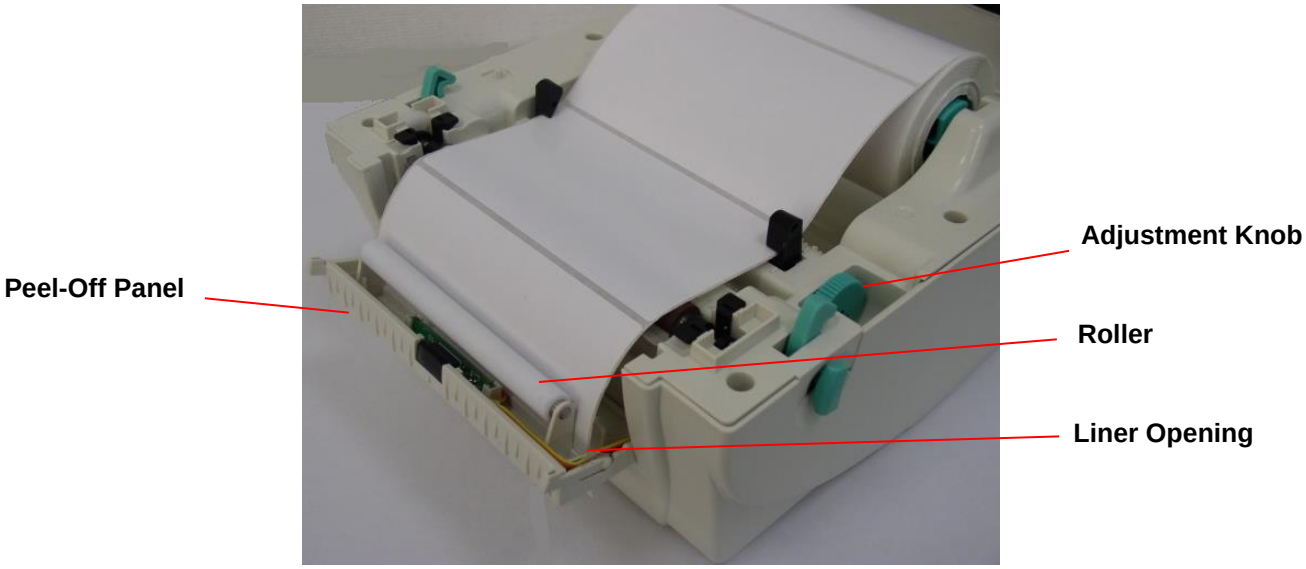


Fig. 10 Loading Labels for peel-off mode

5. Lift the peel-off panel up and back into the closed position.

6. Close the top cover.

Fig. 11 Label loaded completely in peel-off mode

3.5 External Media Roll Mount Installation (Option)

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

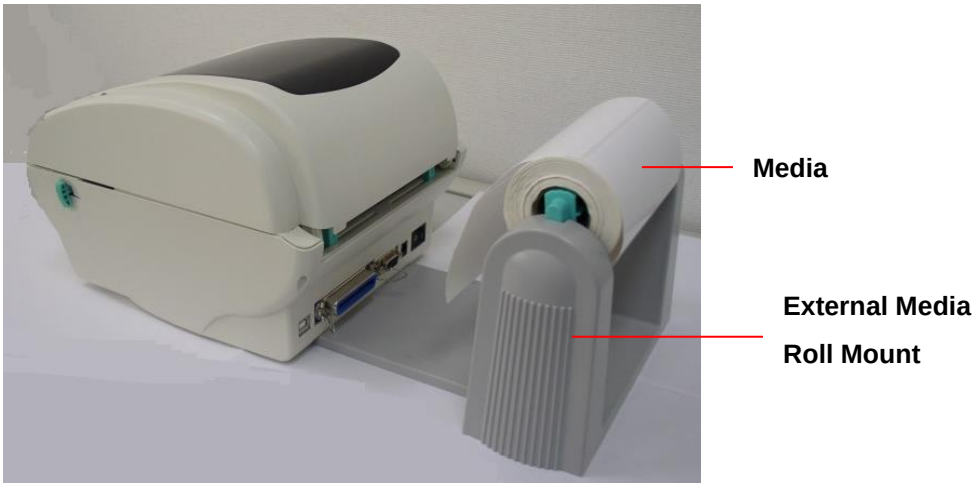


Fig. 12 External media roll mount installation (I)

3. Feed the media (printing side face up) into the external opening located at the rear of the printer and then through the media guides.

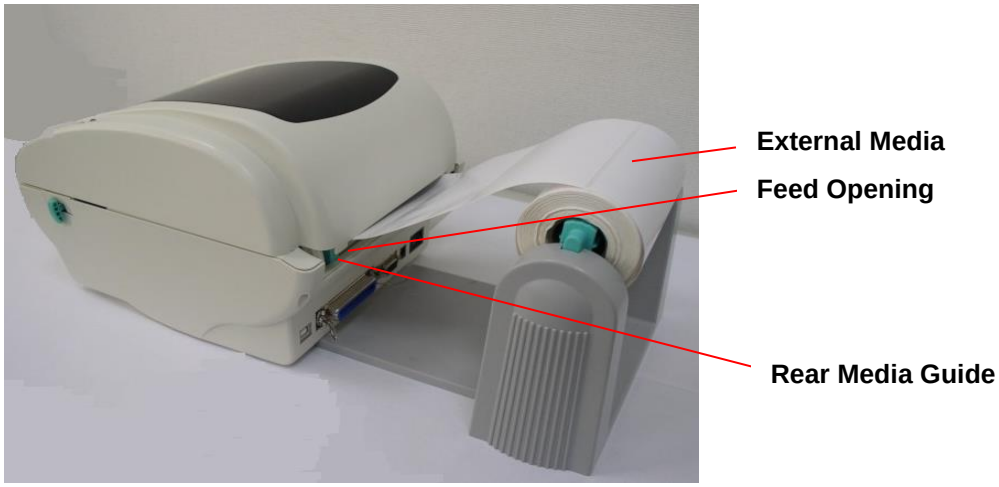


Fig. 13 External label roll mount installation (II)

4. Open the printer top cover by pulling the top cover open levers.
5. Continue feeding the media through the internal printer guides and place it on top of the platen.
6. Adjust the media guides by turning adjustment knob to fit the edge of the media/backing.
7. Close the printer top cover.

3.6 Cutter Module Installation (Option)

1. Pull the top cover levers to open the top cover.
2. Remove the front panel from the lower cover. Pull straight up to remove.
3. Use a screwdriver to remove 6 screws on the lower inner cover.

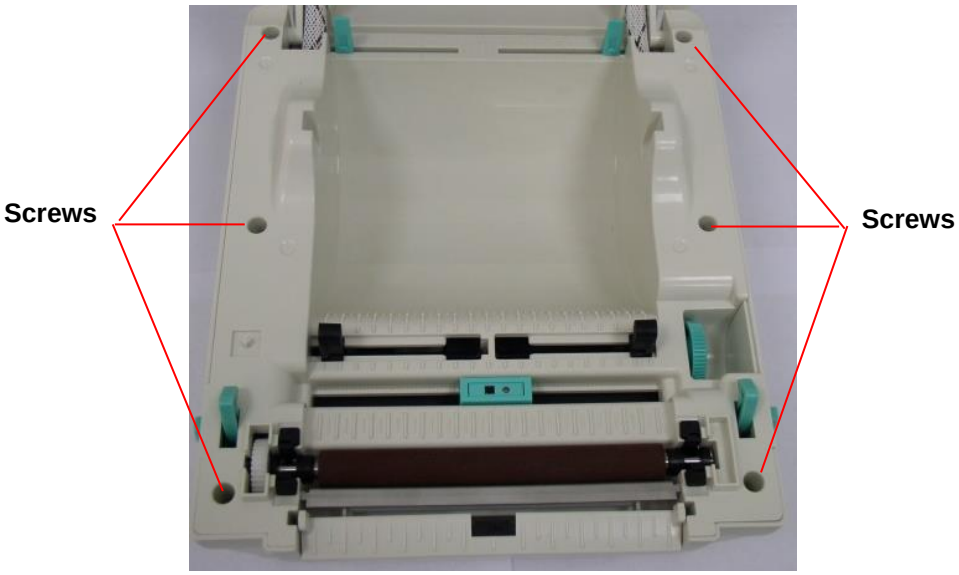
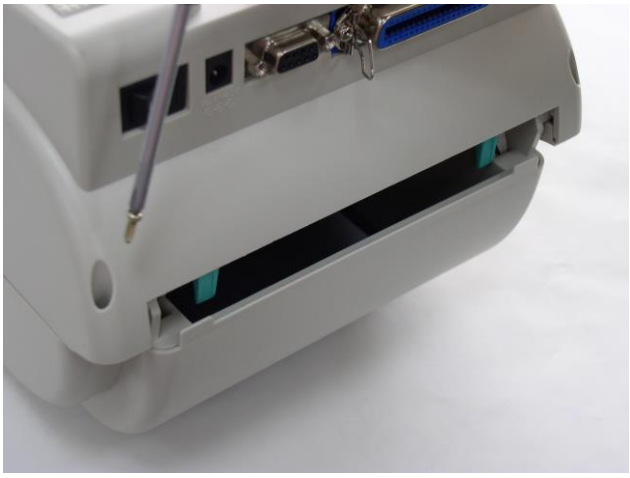


Fig. 14 Remove 6 screws from lower inner cover

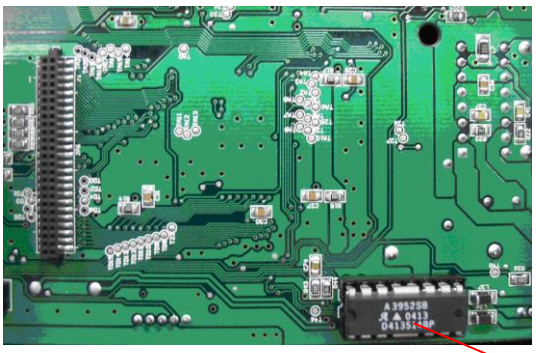
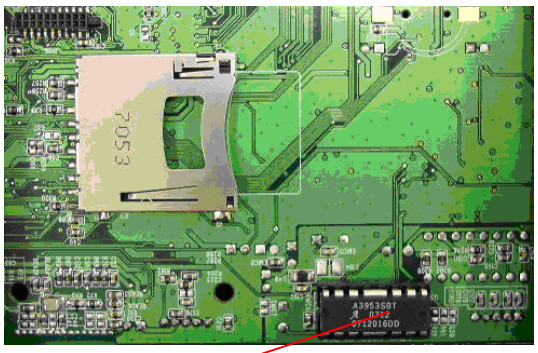
4. Turn over the printer.
5. Remove two screws located near the top cover hinge.



6. Remove the screw from the memory card cover, and left the cover off.

Memory Card Cover Screw

7. Plug in the Cutter Driver IC at U14 (S500 DT) / U30 (S500 DT PLUS) socket on the main board.

S500 DT Model	S500 DT PLUS Model
	

Note:
For Non-RoHS PCB, use cutter driver IC A3952SB
For RoHS PCB, use cutter driver IC A3953SB

8. Hold the lower cover and lift up the lower inner cover.
9. Thread the cutter module cable through the bezel.
10. Connect the cutter module cable to the 4-pin socket on printer PCB.

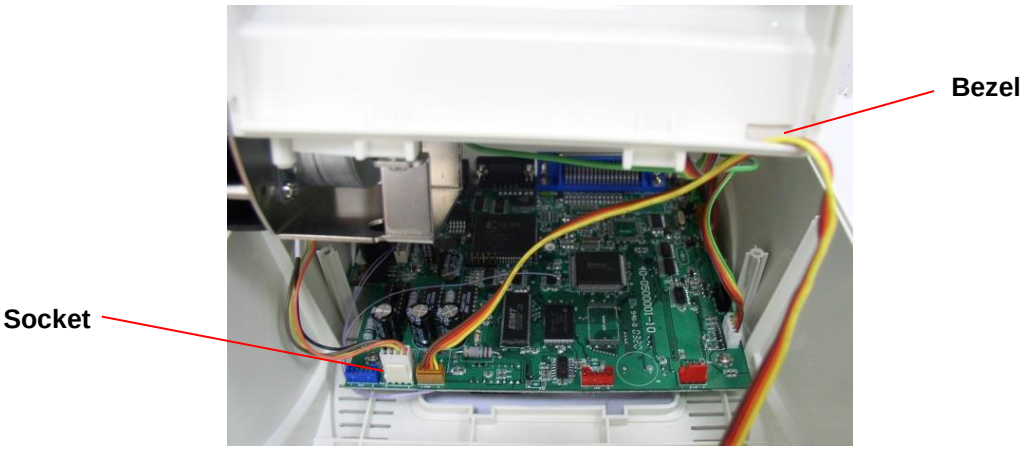


Fig. 16 Cutter module harness arrangement

11. Reassemble the lower inner cover back onto the lower cover.
12. Install the cutter module into the slots of the printer.

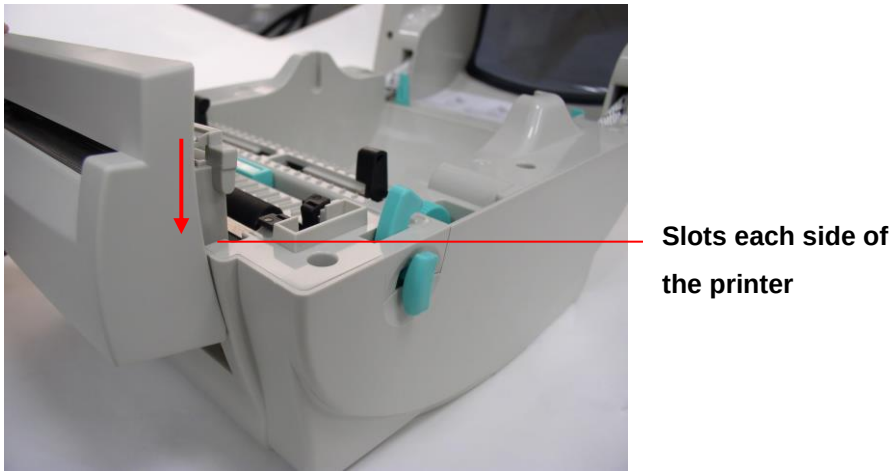


Fig. 17 Cutter module installation

13. Reassemble the parts in the reverse order.
14. Close the top cover.

3.7 Loading Media in Cutter Mode

1. Open the printer top cover.
2. Insert the spindle into the media roll.
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.

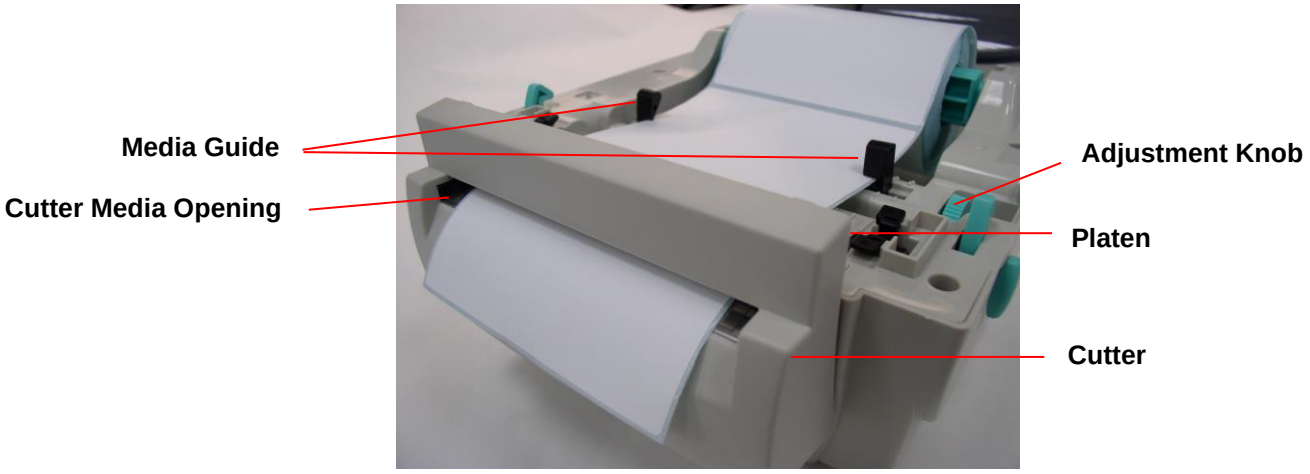


Fig. 18 Media installation in cutter mode

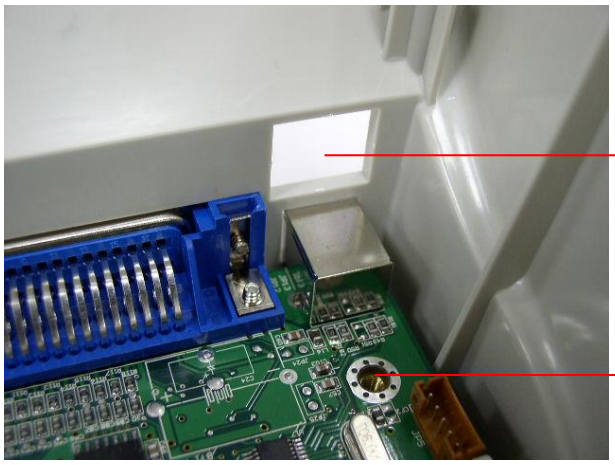
5. Adjust the black center-biased guides to fit edge of the media/backing.
6. Close the top cover

.

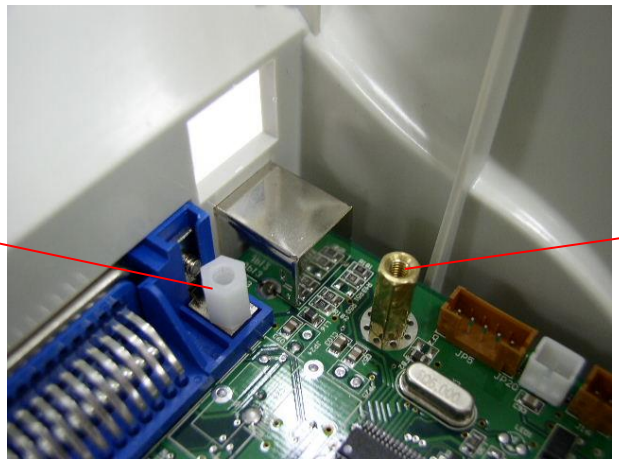
Fig. 19 Media installation in cutter mode completed

3.8 Internal Ethernet Print Server Module Installation (Option)

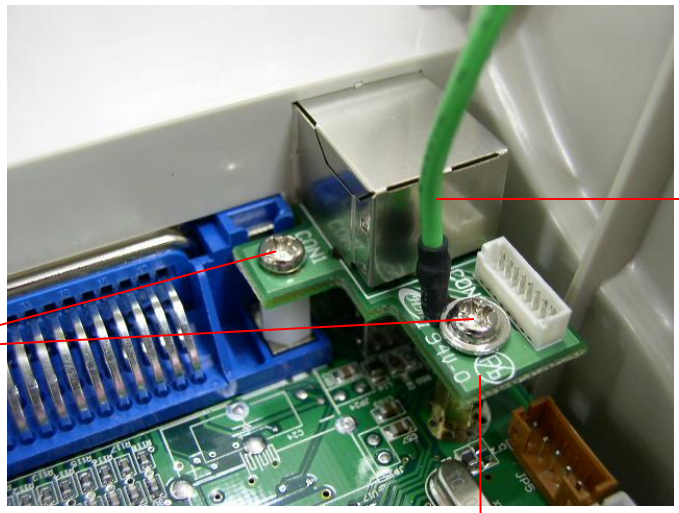
1. Break through the plastic partially connected at the rear side of lower cover RJ45 interface opening.



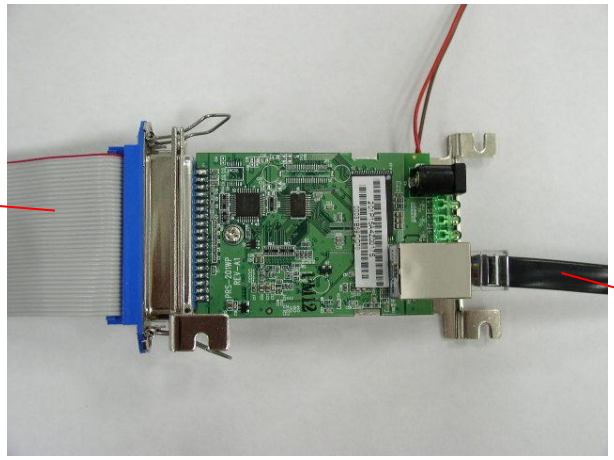
2. Remove the screw from the main board. Fasten the metal and plastic standoff.



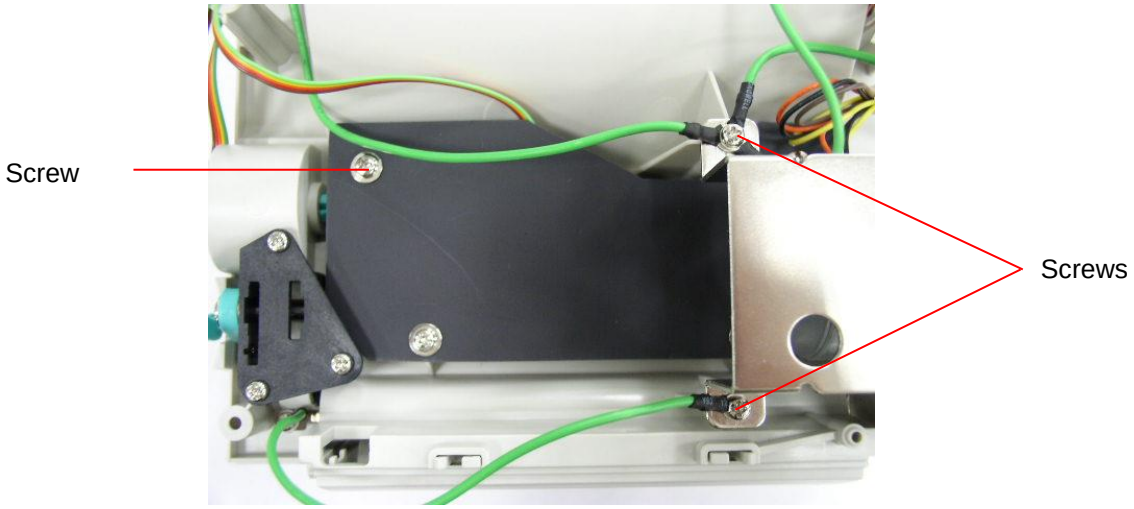
3. Fasten the RJ45 connector daughter board on the plastic and metal standoff. The ground wire from the mechanism must be screwed on the daughter board with metal standoff.



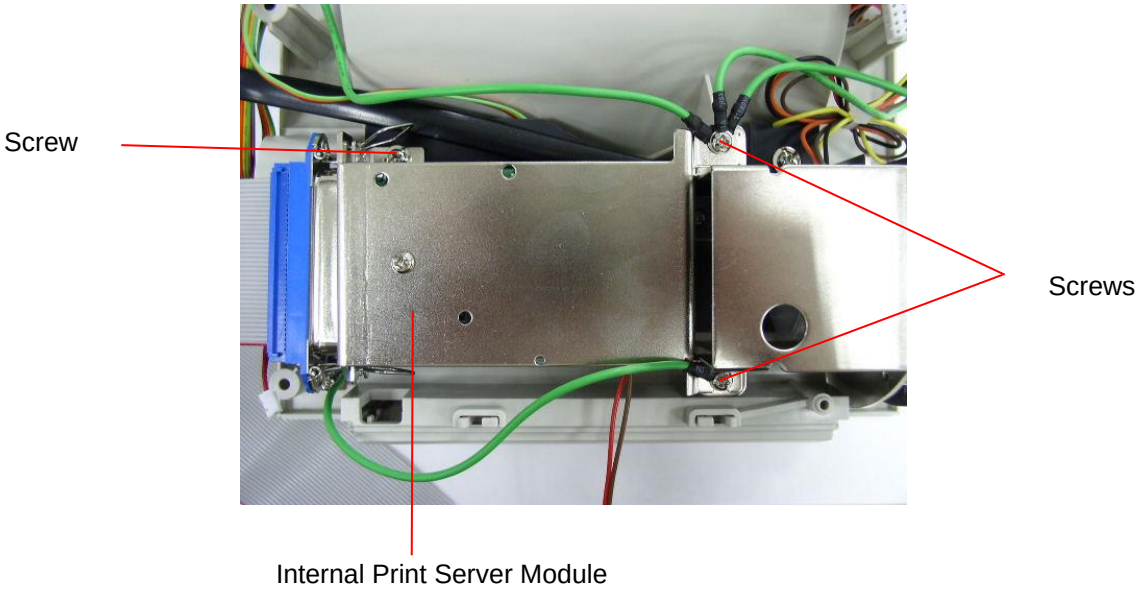
4. Connect the print server module interface cable (36PIN) and RJ45 interface cable to print server module.



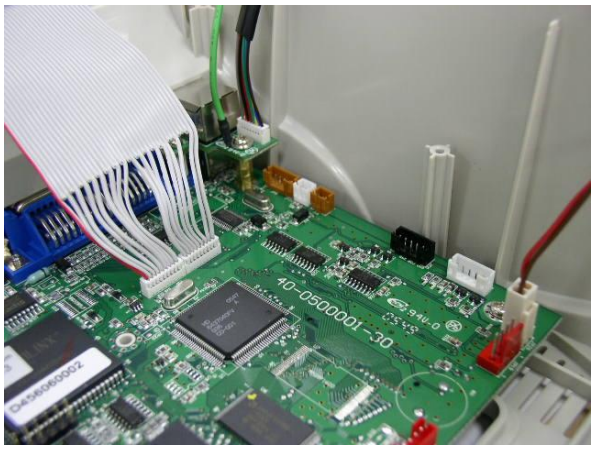
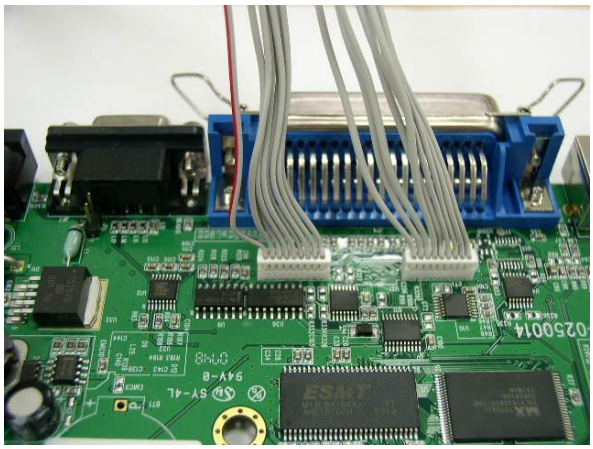
5. Remove the 2 screws from the motor bracket and 1 screw in the lower inner cover to install the internal print server.



6. Install the print server module in printer lower inner cover with 3 screws.



7. Plug the RJ45 white connector to the RJ45 daughter board connector.
8. Plug the print server module interface cable to connector J1A and J1B on the PCB, the left side harness (with red wire at the left side) is for J1A, the right side harness location is for J1B.

S500 DT Model	S500 DT *PLUS* Model
	

9. Plug the 2 PIN connector on PCB JP26 (S500 DT) / JP22 (S500 DT *PLUS*) connector for 5V DC power.

3.9 Diagnostic Tool

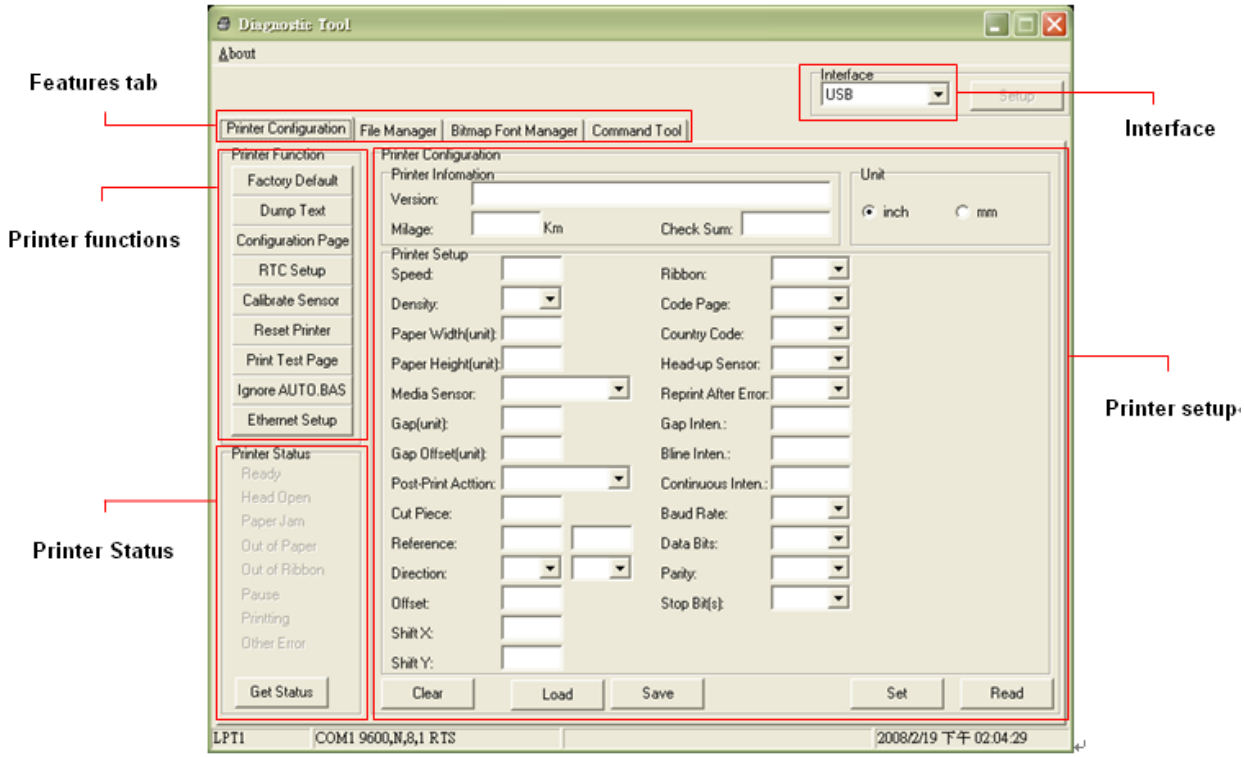
The Diagnostic Utility is a tool that allows users to explore the printer's settings and status; change printer settings; download graphics, fonts, and firmware; create printer bitmap fonts; and to send additional commands to the printer. Using this convenient tool, you can explore the printer status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

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

3.9.1 Start the Diagnostic Tool

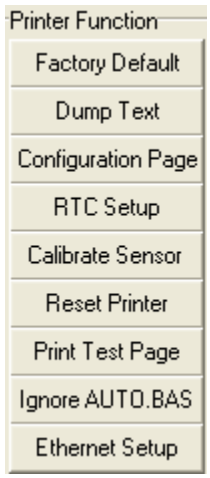
1. Double click on the Diagnostic tool icon 

to start the software.
2. There are four features (Printer Configuration, File Manager, Bitmap Font Manager, Command Tool) included in the Diagnostic utility.



3.9.2 Printer Function (Calibrate, Ethernet setup, 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.



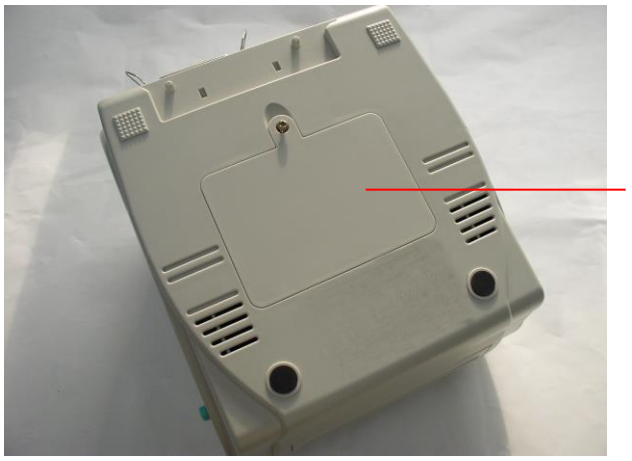
Function	Description
Factory Default	Initialize the printer and restore the settings to factory default.
Dump Text	To activate the printer dump mode.
Configuration Page	Print printer configuration.
RTC Setup	Synchronize printer Real Time Clock with PC.
Calibrate Sensor	Calibrate the sensor specified 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.

3.10. Install Memory Card

1. Turn the printer over.
2. Remove 1 screw and open the memory card cover.



3. Plug in the memory card on main board.

S500 DT Model (Option)	S500 DT *PLUS* Model (SD card)
	

4. Reinstall the memory card cover.

* Recommended SD card specification.

SD V 1.0, V 1.1	SD V 2.0 (SDHC)
✓ 128MB ✓ 256MB ✓ 512MB ✓ 1GB	✓ 4GB class 6
-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. Gap/Black Mark sensor calibration
2. Gap/black mark sensor calibration, Self-test and Dump mode
3. Printer initialization
4. Black mark sensor calibration
5. Gap sensor calibration
6. Skip AUTO.BAS

4.1 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 gap/black 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 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
- It calibrates the sensor and measures the label length.

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.

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

While calibrate the gap/black mark sensor, printer will measure the label length, print the internal configuration (self-test) and then enter the dump mode.

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 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:

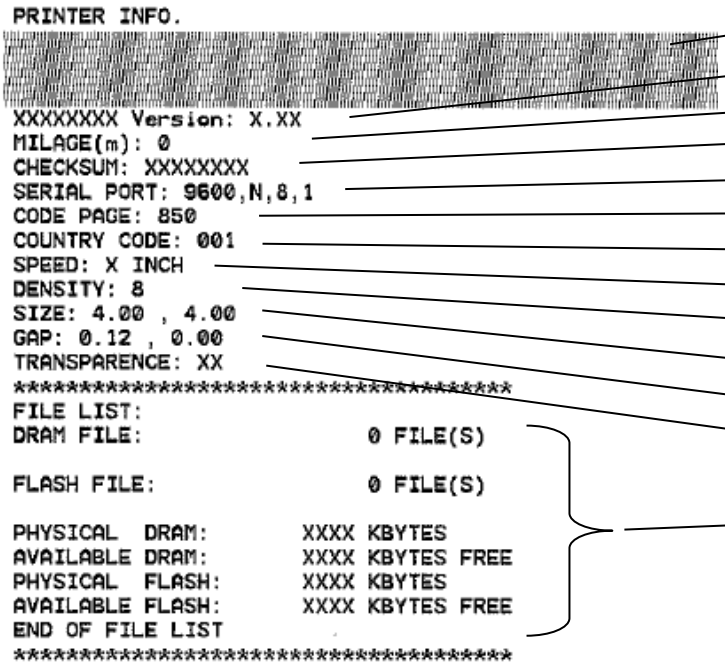
Please select gap or black mark sensor by Diagnostic Tool or by GAP or BLINE command prior to calibrate the sensor.

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



- 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 DT Model) / 8MB SDRAM (S500 DT *PLUS* Model)**
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 DT Model)**
   System occupies 7936 KB in SDRAM so total SDRAM memory space for user downloading is 256 KB (S500 DT *PLUS* Model)

Dump mode

Printer will enter dump mode after printing 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.

```
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
```

Dump mode printout

Note: Turn off and on the power switch to reset the printer for 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 as 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	127 mm/sec (5 ips)
Density	8
Label Width	4” (101.6 mm)
Label Height	4” (101.6 mm)
Media 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 Calibration

Set black mark sensor as media sensor and calibrate the black mark sensor.
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 Calibration

Set gap sensor as media sensor and calibrate the gap sensor.
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 as following:
     Amber → red (5 blinks) → amber (5 blinks) → green (5 blinks) → green/amber (5 blinks) → **red/amber (5 blinks)** → solid green

4.6 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 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 PAL application program.

5. Maintenance

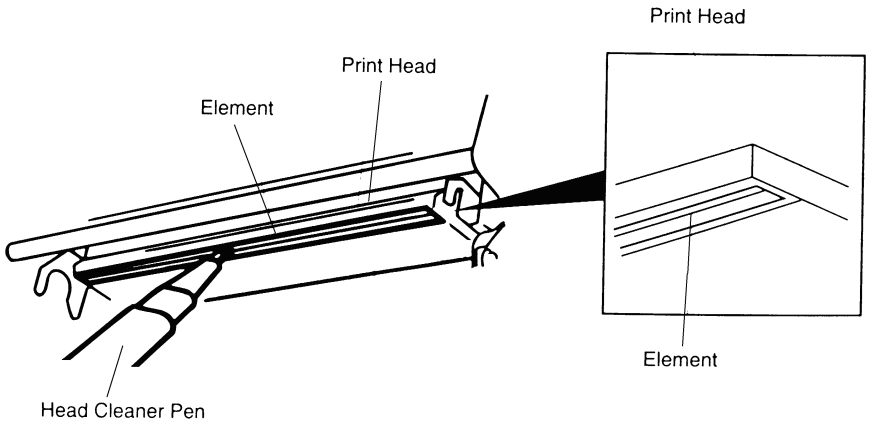
5.1 Cleaning

This session presents the clean 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% ethanol and a cotton swab, or lint-free cloth.	Clean the platen roller when changing a new label roll

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 printer head by hand. If you touch it careless, please use ethanol to clean it.
- Use 100% Ethanol. DO NOT use medical alcohol, which may damage the printer head.
- Regularly clean the print head and supply sensors once change a new ribbon to keep printer performance and extend printer life.

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 the printer setting is not correct	1. Out of label * Load a roll of label and follow the instructions in loading the media 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 loaded not correctly.	Follow the instructions in loading the media.
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.
	Media are incompatible.	Change the 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, 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.
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 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 ■ It calibrates the sensor and measures the label length. **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 ● Always perform **gap/black mark sensor calibration** after printer initialization.
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 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

Gap 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 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.