

Kroy K4500

THERMAL TRANSFER / DIRECT THERMAL  
BAR CODE PRINTER

USER'S  
MANUAL

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# 1. PRODUCT INTRODUCTION

Thank you very much for purchasing KROY K4500 bar code printer. K4500 comes with rugged steel construction and durable metal mechanism ensuring the ability to work under extreme industrial applications.

K4500 is equipped with a 32-bit RISC processor, which offers up to 254 mm/sec (10"/sec) print speed. With back-lit LCD display, printer status can be managed easier and operated more user friendly. The moveable sensor design can meet wide range of label media.

All of the most frequently used bar code formats are available in K4500. Fonts and bar codes can be printed in any one of the four directions. This printer provides a choice of five different sizes of alphanumeric font, OCR-A, OCR-B and one true type font.

K4500 is the most cost-effective and high performance in its class!

## 1.1 Compliances

CE, FCC, UL, CUL, TÜV-GS, BSMI

## 1.2 Specification

### 1.2.1 Printer

Item	Specification
Printing Mode	Thermal transfer and direct thermal
Resolution	203 DPI
Max. Print Length	999 mm
Max. Print Width	104 mm
Print Speed	Selectable speed of 4,6,8,10 inch per second

## 1.2.2 Environment

Operating Environment	
Temperature	5 ~40 °C
Humidity	30 ~ 85 %
Storage Environment	
Temperature	-10 ~ 60 °C
Humidity	20 ~ 95 %
Ventilation	Free air environment

## 1.2.3 Hardware

Sensors	Label gap (256-level), ribbon end (16-level), black mark (256-level), Carriage open, biboon near end
Memory	Flash Memory 2MB, DRAM 4MB and optional Flash Memory 8MB
Interface	RS-232C 56000bps ( Max.), Centronics
Cutter	116 mm width (Paper thickness up to 0.28 mm)
Power	100 VAC to 120 VAC, 200 VAC to 240 VAC Switching mode power supply. Input Frequency : 47Hz to 63Hz Input Current : 5.0 Amps at max. Inrush Current :40 Amps max. (cold start) at 115 Vac input line voltage. 80 Amps max. (cold start) at 230 Vac input line voltage.

## 1.2.4 Bar Code

Code 39, Code 39C, Code 93, Code128UCC, Code128 subsets A.B.C, Code 11, Codabar, Interleave 2 of 5, EAN-8, EAN-13, EAN-128, UPC-A, UPC-E, EAN and UPC 2(5) digits add-on, CPOST, MSI, PLESSEY, POSTNET,EAN 14, ITF14, PDF-417, Maxicode, DataMatrix

### 1.3 Optional Items

- Cutter module
- Ribbon near end sensor
- Peel-off sensor
- Internal rewinder
- Portable LCD keyboard
- Memory module

### 1.4 Supplies

#### 1.4.1 Label Specification

Item	Specification
Type	Label (Continuous, die-cut, fan-fold, ticket, Tag etc.)
Label Width	19 ~ 118 mm ( 0.7" ~ 4.65" )
Label Length	10 ~ 999 mm ( 0.4" ~ 39.33" )
Label Thickness	0.06 ~ 0.25 mm
Label Roll Diameter	203 mm
Roll Up Method	Print surface wound outside as standard.
Paper Core ID	25.7±0.3 mm
Paper Weight	Less than 280 g/m <sup>2</sup>
Rewinder Roll diameter	138 mm (Max.) with 1" core
Label Roll Diameter without Rewinder	254 mm (Max.) with 3" core
Roll Core Diameter	25 ~ 77 mm
Black Mark Height	1.5 mm ( Min.)
Black Mark Width	3 mm ( Min.)

### 1.4.2 Ribbon Specification

Item	Specification
Ribbon Width	25.4 114.3 mm
Ribbon Length	600 m
Diameter	Less than 3.5" ( 89 mm)

## **2. GETTING STARTED**

### **2.1 Unpacking and Inspection**

After receiving the bar code printer, carefully inspect the device and its packaging. The printer is specially packaged to withstand damage in shipping. In case of evident damage, contact the carrier directly to specify the nature and extent of damage. Please retain the packaging materials in case you need to reship the printer.

### **2.2 Equipment Checklist**

- K4500 printer unit
- Ribbon paper core
- Quick installation guide
- Power cord
- Centronics interface cable
- 3" paper core adapter
- Software CD disc

Separately purchased items may also be included. These additional items may include:

- Cutter module
- Ribbon near end sensor
- Peel-off sensor
- Internal rewinder
- Portable LCD keyboard
- Memory module

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

### 2.3 Printer Parts

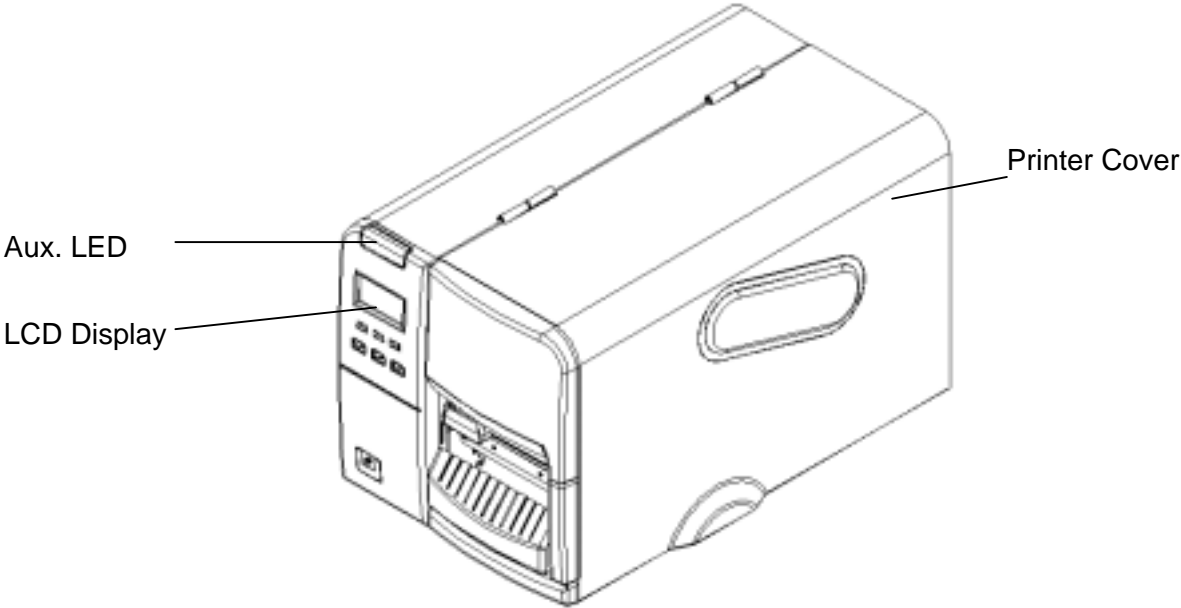


Figure 1. Top front view

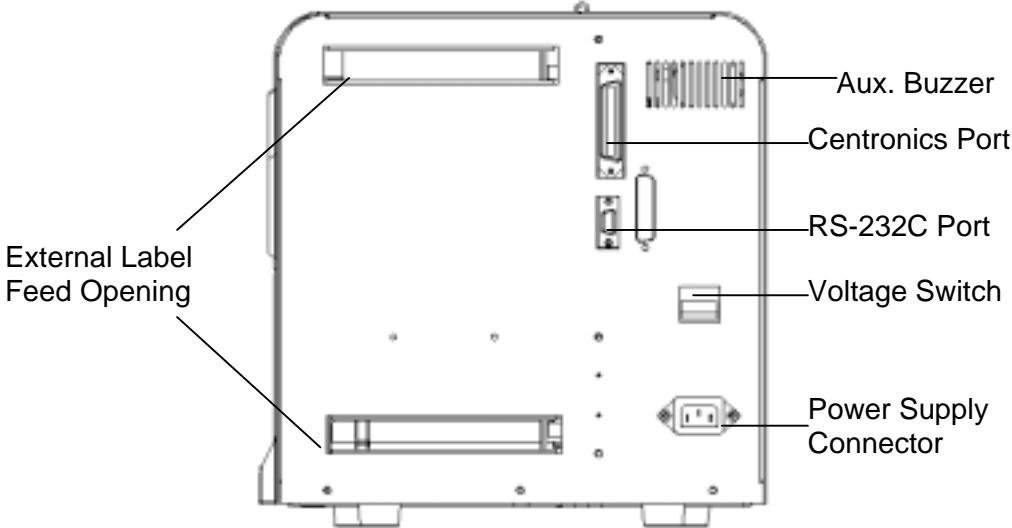
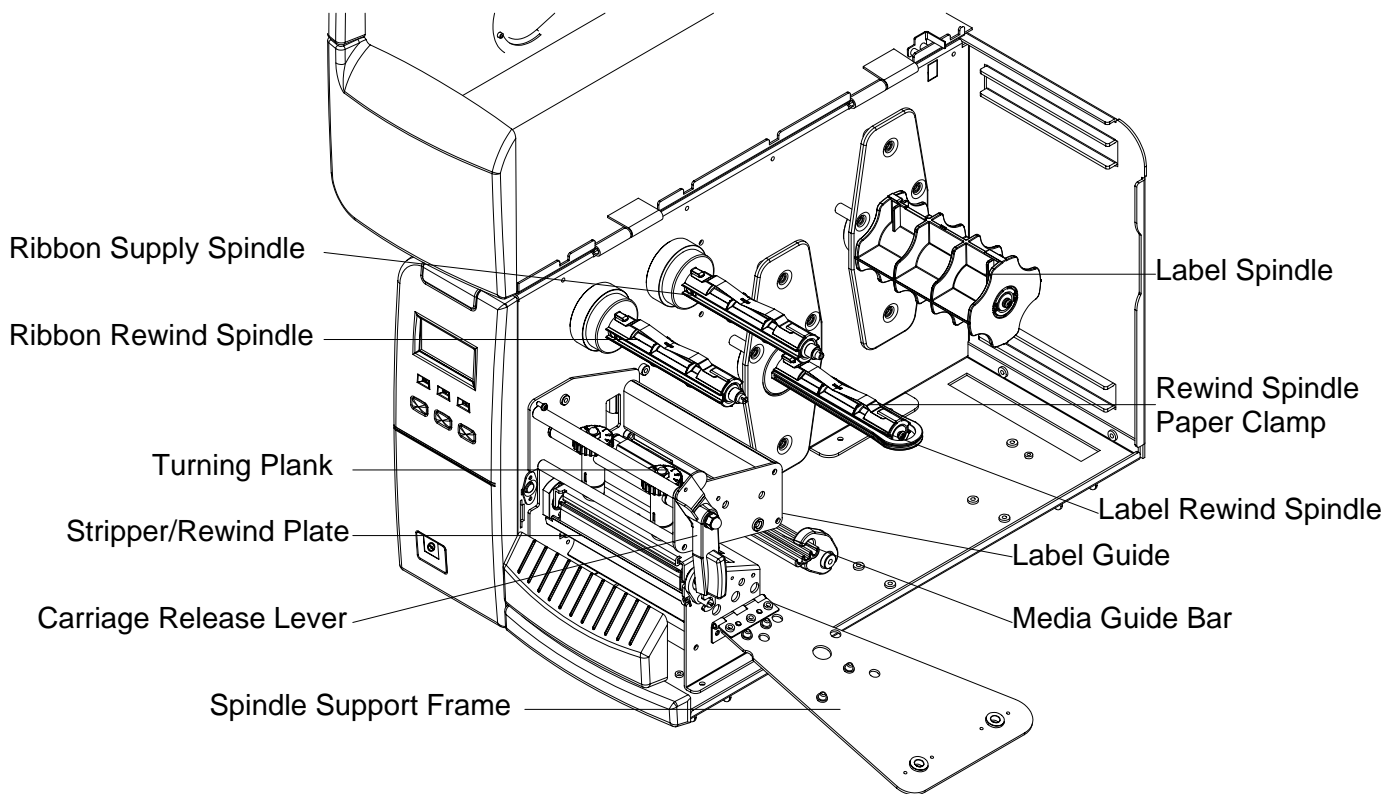


Figure 2. Printer rear view





**Figure 3. Printer interior view**

## 2.4 Buttons and Indicators

### Power Indicator

When the printer is in the power-on condition, the **Power** indicator is lit on.

### On-Line Indicator

This green **On-Line** indicator is lit on when the printer is ready; the **On-Line** indicator blinks when pressing **PAUSE** button.

### Error Indicator

The red **Error** indicator illuminates in the event of a printer error, such as memory full, carriage open, cutter error and so forth.

### MENU/SELECT Button

Provided with a built-in menu, the printer allows the user to directly set printing parameters or view printer status on the LCD display.

Press the **MENU** button to enter printer setup mode. Press the **MENU** button again to proceed the cursor to the next item.

The setup is comprised of these major items: Printer Setup, Sensor Setup, System Setup, File Setup and Printer Test. For more information, please refer to Appendix for the structure and operation logic of the menu.

### **PAUSE/EXE/INC Button**

This button combines three functions:

1. **PAUSE** button if the printer is in the Ready status. By pressing the **PAUSE** button: (1) the printer stops at the completion of printing of the current label,(2) the **On-Line** LED flashes, and (3) the printer holds all data in memory. This allows for trouble-free replacement of label stock and thermal transfer ribbon. A second depression of the **PAUSE** button will restart the printer.
2. **EXE/INC** button if in the setup mode. Press **EXE/INC** button to increase the value of parameters, or execute the selected item.

### **FEED/DEC Button**

This button also has dual functions: Feed one label and decrease the value of parameters.

Press the **FEED** button, the printer will advance one label.

Press the **DEC** button to change parameter settings or exit the submenu.

### **Stripper/Rewind Plate**

The stripper/rewind plate can be used for strip and label rewind mode. Please refer to the instruction of the sticker on the stripper/rewind plate to install this plate.

### **Carriage Release Lever**

When opening the **Carriage Release Lever**, **On-Line** LED is lit off, the LCD display shows "Carriage Open". After engage the carriage release lever, press the **FEED** button, printer will re-register the label and then shows READY on the LCD display, and the screen will return to ready condition.

### **Print Head Pressure Adjustment Knob**

**Print Head Pressure Adjustment Knob** is used to adjust the pressure of the printhead. Please adjust the Knob to the proper setting to get best print quality.

## 3. Set Up

### 3.1 Setting Up the Printer

Place the printer on a flat, secure surface.

Make sure the POWER switch is off.

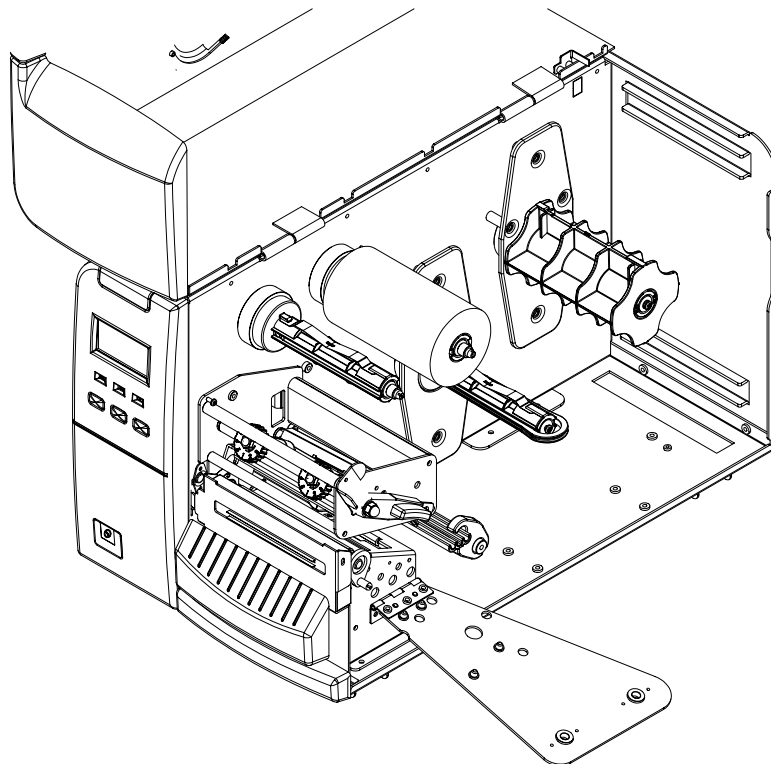
Connect the printer to the computer with the provided RS-232C or Centronics cable.

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 power outlet.

### 3.2 Ribbon Installation

1. Open the printer right side cover and lower front panel.
2. Open the turning plank and spindle support frame.
3. Disengage the printer carriage.
4. Install a new ribbon roll onto the ribbon supply spindle.

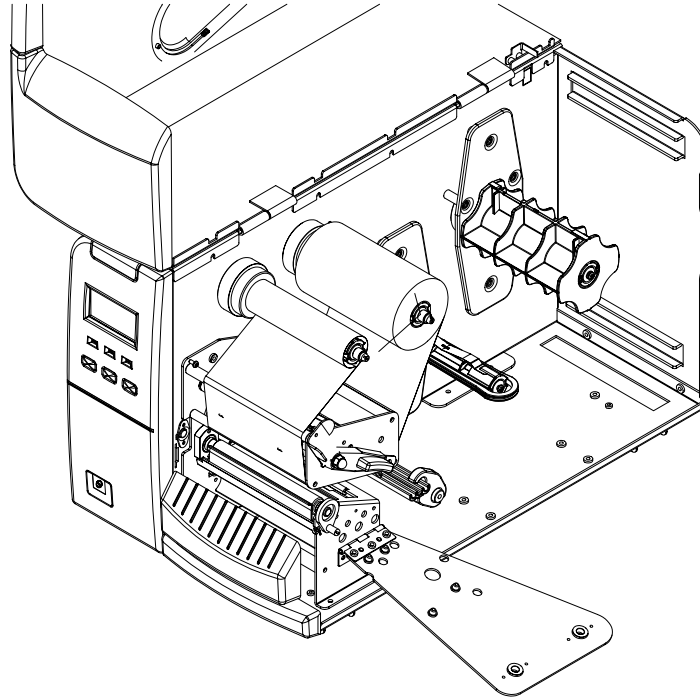
It is to be noticed that ribbon should be placed to the left end of spindle.



**Figure 4. Ribbon installation**

5. Place an empty paper core onto the ribbon rewind roll. (The diameter of empty paper core must be larger than 34 mm)

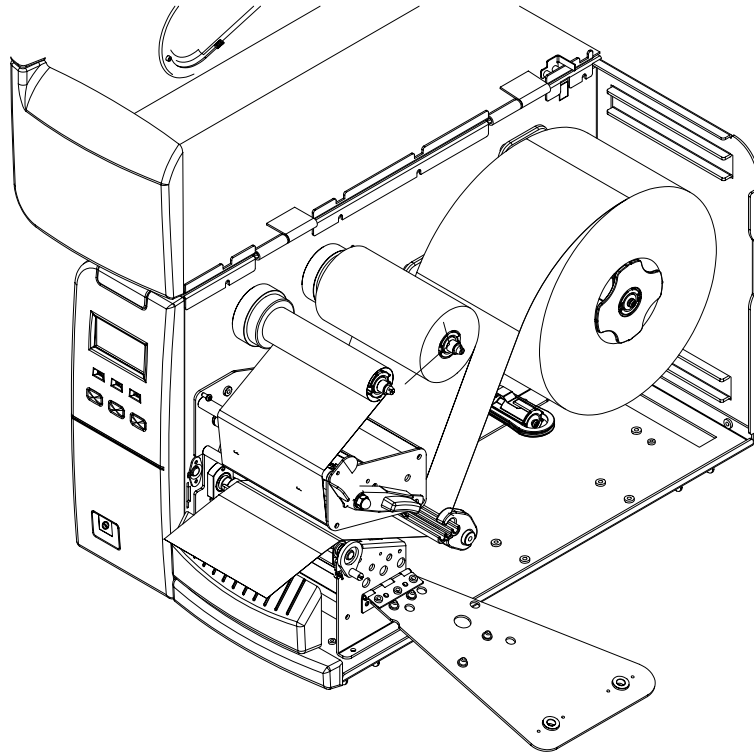
6. Pull the ribbon roll leading edge forward through the ribbon sensor. Attach the ribbon leading edge (with a tape) to the empty paper core.
7. Manually rotate the ribbon rewind roll until the ribbon overlaps the ribbon leading edge and stretches tight.



**Figure 5. Installation of ribbon.**

### **3.3 Label Roll Installation**

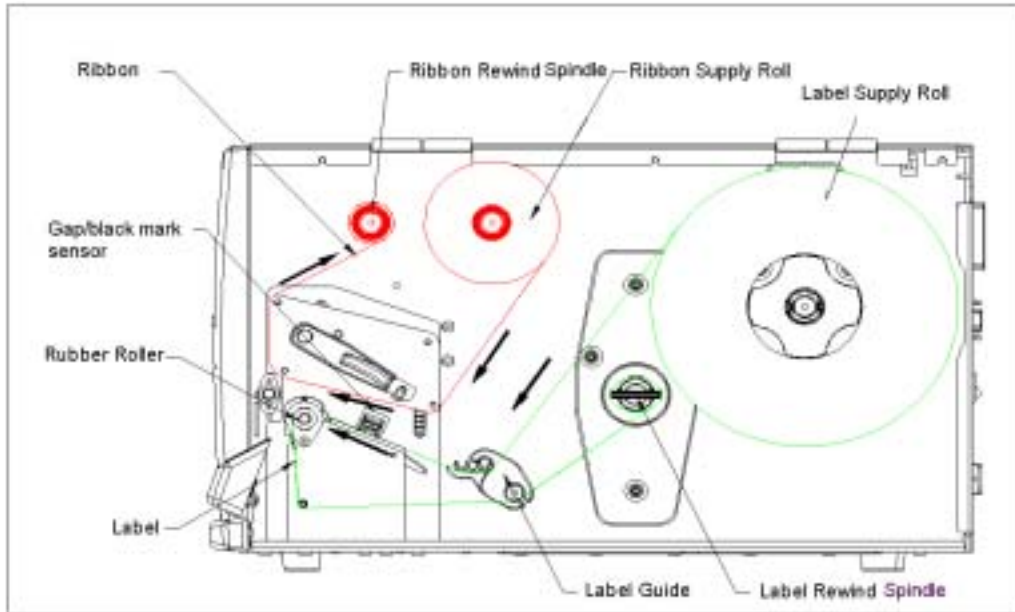
1. Insert the label supply roll into the label spindle.
2. Pull the label roll leading edge forward through the black media guide bar, gap/black mark sensor and place the label leading edge onto the platen roller.
3. Adjust the label guide to meet the width of the label, and buckle it onto the black media guide bar.
4. Engage the carriage release lever.
5. Close spindle support frame and turning frame.
6. Close the printer cover.
7. Switch on the power. Now, the printer is ready to print.



**Figure 6. Insert label supply roll into label spindle.**

### **3.4 Self-peeling Function**

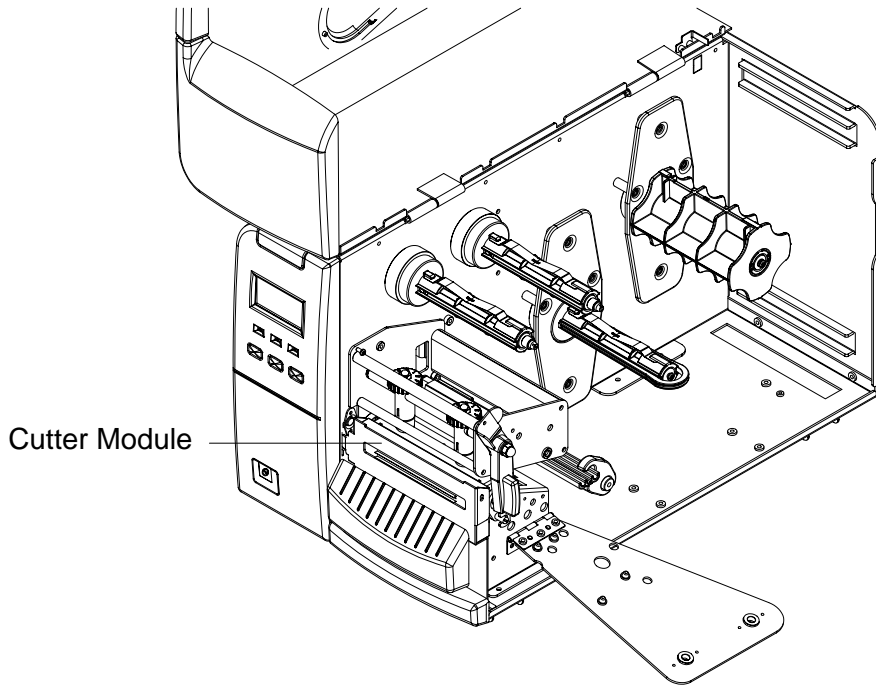
1. Remove the cutter module (if installed) and the stripper/rewind plate.
2. Install the stripper/rewind plate in the direction with the sticker “The side of plate is used with tear-off mode, cutter mode and peel-off mode” faced outside.
3. Wind back the label leading edge and attach it onto rewind label spindle.
4. Clip the label on the rewind label spindle by the paper clamp.



**Figure 7. Feed path for the printer media.**

### **3.5 Cutter Module Installation**

1. Uninstall the peel-off sensor.
2. Plug the mini DIN cable into the socket under the platen.
3. It is to be noted that the cutter module bracket should be mounted into the slots, which are on the base of the printer.
4. Fix the cutter module on the printer with a screw.



**Figure 8. Cutter module installation**

### **3.6 Self-test**

To initiate the self-test mode, depress the **MENU** button. Press MENU button to scroll the cursor to Printer test. Press EXE button to enter the submenu and press MENU button to “Printer Config”. item. Press EXE button to print printer internal setting. In self-test, a check pattern is used to check the performance of the thermal print head. Following the check pattern, the printer prints internal settings as listed below:

1. Printer model and firmware version
2. Check sum
3. Serial port setting
4. Code page setting
5. Country code setting
6. Print speed setting
7. Print density setting
8. Label size setting
9. Gap (Blind) width and offset setting
10. Backing paper transparenence
11. File list
12. Memory available

```

PRINTER INFO.
*****
K4500 V0.12B
CHECKSUM:22581
MILAGE(m):50
SERIAL PORT:19200,N,8,1
CODE PAGE:USA
COUNTRY CODE:001
SPEED:6
DENSITY:15
SIZE:4.00,5.99
GAP:0.11,0.00
TRANSPARENCE:53
*****
DRAM FILE: 0 FILE(S)

FLASH FILE: 0 FILE(S)

TOTAL DRAM: 512 KBYTES
AVAIL DRAM: 512 KBYTES
TOTAL FLASH: 1000KBYTES
AVAIL FLASH: 1000KBYTES
*****

```

Figure 9. Printout of self-test

### 3.7 Dump Mode

To enter dump mode, please press MENU button to scroll the cursor to “Printer Test” then Press EXE button to enter the submenu. Press MENU button to scroll dump mode. Press EXE button to select line dump mode or page dump mode. Press MENU button to select EXIT to enter dump mode. In this mode, any characters sent from the host computer will be printed in two columns, as shown in Figure 11. The characters received will be printed in two columns as below: on the left side of the paper are the characters received and on the right side are the corresponding hexadecimal values. This is very helpful to users for the verification of programming commands or debugging of printer programs. Reset the printer by pressing the **FEED** button.



```

DENSITY 8 S 44 45 4E 53 49 54 59 20 38 0D 0A 53
ET COUNTER @ 45 54 20 43 4F 55 4E 54 45 52 20 40
1 1 @1="000 31 20 31 0D 0A 40 31 3D 22 30 30 30
1" SPEED 6 31 22 0D 0A 53 50 45 45 44 20 36 0D
SIZE 101 mm 0A 53 49 5A 45 20 31 30 31 20 6D 6D
.76 mm GAP 2C 37 36 20 6D 6D 0D 0A 47 41 50 20
0.12,0 DIRE 30 2E 31 32 2C 30 0D 0A 44 49 52 45
CTION 0 CLS 43 54 49 4F 4E 20 30 0D 0A 43 4C 53
BAR 20,20, 0D 0A 42 41 52 20 32 30 2C 32 30 2C
770,250 TEX 37 37 30 2C 32 35 30 0D 0A 54 45 58
T 350,300,"3 54 20 33 35 30 2C 33 30 30 2C 22 33
".0,1,1,@1 22 2C 30 2C 31 2C 31 2C 40 31 0D 0A
TEXT 350,330 54 45 58 54 20 33 35 30 2C 33 33 30
."3".0,1,1." 2C 22 33 22 2C 30 2C 31 2C 31 2C 22
L=4 R=4" 4C 3D 34 20 20 20 52 3D 34 22 0D 0A
PRINT 1,1 C 50 52 49 4E 54 20 31 2C 31 0D 0A 43
LS BAR 20,2 4C 53 0D 0A 42 41 52 20 32 30 2C 32
0,270,560 T 30 2C 32 37 30 2C 35 36 30 0D 0A 54
EXT 350,300, 45 58 54 20 33 35 30 2C 33 30 30 2C
"3".0,1,1,@1 22 33 22 2C 30 2C 31 2C 31 2C 40 31
TEXT 350,3 0D 0A 54 45 58 54 20 33 35 30 2C 33
30,"3".0,1,1 33 30 2C 22 33 22 2C 30 2C 31 2C 31
."L=4 R=4" 2C 22 4C 3D 34 20 20 52 3D 34 22
PRINT 1,1 0D 0A 50 52 49 4E 54 20 31 2C 31 0D

```

Figure 10. Printout of dump mode

## 4. USING K4500

### 4.1 Power-on Utilities

There are two power-on utilities to calibrate sensor and initialize K4500 hardware. These utilities are activated by pressing the **PAUSE** button, **PAUSE** and **FEED** buttons and turning on the printer power simultaneously. The utilities are listed as below:

1. Gap/black mark sensor calibration
2. Printer initialization

#### 4.1.1 Gap/Black Mark Sensor Calibration Utility

This utility is used to calibrate the sensitivity of the gap/black mark sensor. The gap/black mark sensor must be calibrated whenever **changing the label media** or **executing printer initialization**.

**Please follow the steps below to calibrate the gap sensor.**

1. Install the ribbon and label roll as the above-mentioned procedures, and engage the carriage release lever.
2. Turn off printer power.
3. Press **PAUSE** key and then turning on printer power. Release the **PAUSE** key when "GAP/BLINE sensor calibrating...." Message is shown on the LCD display. The printer will calibrate the gap/black mark sensor automatically.

## 4.1.2 Printer Initialization

Printer Initialization will restore printer settings to defaults.  
Default settings are listed as below.

Item	Default Value	Cleared by Initialization	Property Saved when Turning off Power
Mileage	N/A	No	Yes
Check Sum	N/A	No	Yes
Serial Port	19200,n,8,1	Yes	Yes
Code Page	437	Yes	Yes
Country Code	001	Yes	Yes
Tear Mode	On	Yes	Yes
Peel Mode	Off	Yes	Yes
Cutter Mode	Off	Yes	Yes
Offset	0	Yes	Yes
Reference Point	0,0	Yes	Yes
Print Direction	1	Yes	Yes
Speed	6"/sec	Yes	Yes
Density	07	Yes	Yes
Label Size	4 x 2.5"	Yes	Yes
Gap/Blind Sensor	Gap Sensor	Yes	Yes
Gap(Blind)	0.12" (3 mm)	Yes	Yes
Transparency	142	Yes	Yes
Ribbon Sensor Sensitivity	5	Yes	Yes
LCD Language	English	Yes	Yes
Aux. LED	Off	Yes	Yes
Aux. Buzzer	Off	Yes	Yes
Download Files	N/A	No	Yes
RTC	N/A	No	No

Please follow the steps below to initialize the printer:

1. Turn off the printer power.
2. Hold down the **PAUSE** and **FEED** buttons and turn on the printer power.
3. Do not release the buttons until the three LEDs flash in turn.

**Note<sup>1</sup>: Printing method (thermal transfer or thermal direct printing ) will be set automatically at the activation of printer power.**

**Note<sup>2</sup>: When printer initialization is done, please calibrate the gap sensor again.**

## 4.2 Troubleshooting Guide

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

Phenomenon	Reasons	Solutions
<b>No ribbon</b>	<ol style="list-style-type: none"> <li>1. Running out of ribbon</li> <li>2. The ribbon is installed incorrectly.</li> <li>3. The ribbon sensor is not been well calibrated.</li> </ol>	<ol style="list-style-type: none"> <li>1. Supply a new ribbon roll.</li> <li>2. Please refer to the steps in section <b>3.2 Ribbon Installation</b> to reinstall the ribbon.</li> <li>3. Please calibrate the ribbon sensor</li> </ol>
<b>No paper</b>	<ol style="list-style-type: none"> <li>1. Running out of label</li> <li>2. The label is installed incorrectly.</li> <li>3. The moveable gap/black mark sensor is not placed in the proper location.</li> </ol>	<ol style="list-style-type: none"> <li>1. Supply a new label roll.</li> <li>2. Please refer to the steps in section <b>3.3 Label Roll Installation</b> to reinstall the label roll.</li> <li>3. Please move the sensor to the proper location.</li> </ol>
<b>Poor printing quality</b>	<ol style="list-style-type: none"> <li>1. Dirt is accumulated on the printhead.</li> <li>2. The density setting is not set properly</li> <li>3. Ribbon and media are incompatible.</li> <li>4. The pressure of printhead is not set properly</li> </ol>	<ol style="list-style-type: none"> <li>1. Please refer to the steps in the section <b>5.1 Printhead Cleaning</b> to clear the printhead.</li> <li>2. Adjust the print density and speed.</li> <li>3. Change proper ribbon or proper label roll.</li> <li>4. Adjust the printhead pressure adjustment knob.</li> </ol>
<b>Power indicator does not illuminate</b>	<ol style="list-style-type: none"> <li>1. The power cord is not properly connected.</li> <li>2. The voltage setting of power supply in the rear of printer is set incorrectly.</li> </ol>	<ol style="list-style-type: none"> <li>1. Please check whether the power cord is well connected between printer and outlet.</li> <li>2. Please set the voltage setting of power supply at the rear of printer to the proper voltage.</li> </ol>
<b>Paper jam</b>	<ol style="list-style-type: none"> <li>1. The label size is not set properly.</li> <li>2. Labels may be stuck in side print mechanism.</li> </ol>	<ol style="list-style-type: none"> <li>1. <ol style="list-style-type: none"> <li>a. Reset the label size.</li> <li>b. Re-calibrate the gap/black mark sensor.</li> </ol> </li> <li>2. Remove the stuck label.</li> </ol>
<b>Carriage open</b>	The printer carriage is open.	Please close the print carriage.

<b>Memory full ( FLASH / DRAM )</b>	The space of FLASH/DRAM is full.	Delete unused files in the FLASH/DRAM.
<b>No printout printing through serial port</b>	<ol style="list-style-type: none"> <li>1. The serial port setting is not consistent between host and printer.</li> <li>2. The serial port cable pin configuration is not pin to pin assignment.</li> </ol>	<ol style="list-style-type: none"> <li>1. Please reset the serial port setting.</li> <li>2. Please replace the cable with pin to pin assignment</li> </ol>
<b>On-Line indicator is off, error indicator is on</b>	<ol style="list-style-type: none"> <li>1. Out of paper or out of ribbon.</li> <li>2. The gap/black mark sensor or ribbon sensor are not calibrated.</li> <li>3. The ribbon rewind spindle paper core is not been installed.</li> <li>4. The diameter of rewind spindle paper core is less than 34 mm.</li> </ol>	<ol style="list-style-type: none"> <li>1. (1) Please check the feed path of label or ribbon. (2) Please supply a new label roll or ribbon roll.</li> <li>2. (1) Calibrate gap/black mark sensor. (2) Calibrate ribbon sensor.</li> <li>3. Install a paper core onto the ribbon rewind spindle. (The diameter of the paper core should be larger than 34 mm )</li> <li>4. Please change the paper core which diameter is larger than 34 mm.</li> </ol>

## 5. PRINTER CLEANING

The printer should be cleaned regularly to retain high quality and optimum performance.

### 5.1 Print Head Cleaning

1. Switch off and unplug the printer.
2. Open the printer cover.
3. Remove the screw by the side of the carriage release lever.
4. Open the printer carriage release lever.
5. Remove the media and ribbon (If loaded).
6. Using a swab soaked in the dilute alcohol, wipe along the printhead carefully.
7. Do not close the printhead until the alcohol volatilizing.
8. Close the printer cover.

### 5.2 Printer Cover Cleaning

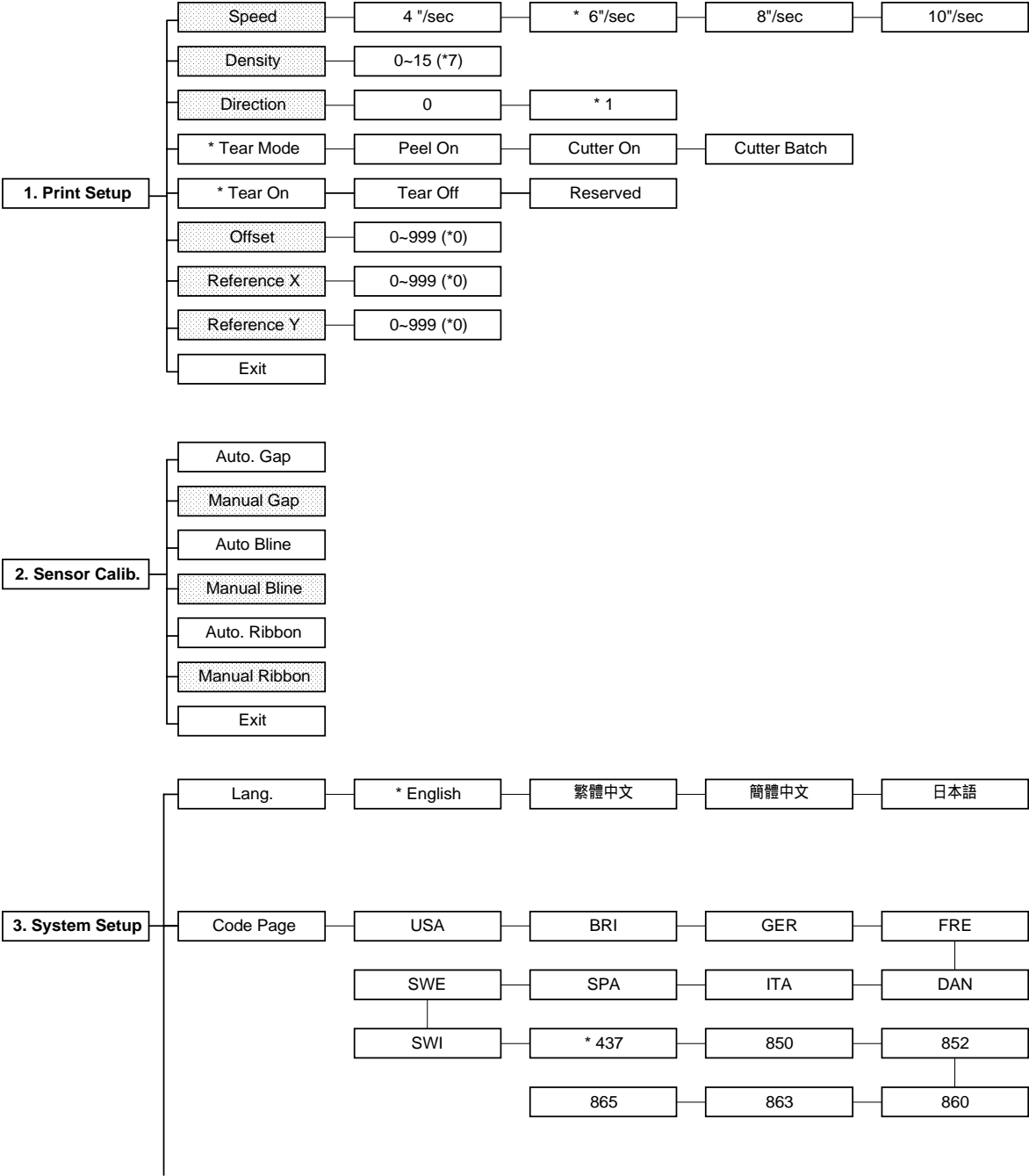
1. Switch off and unplug the printer.
2. Using a lint-free cloth soaked in the water or mild detergent, wipe the printer cover light.

**Do not use harsh or abrasive cloth and solvent.**

### 5.3 Internal Parts Cleaning

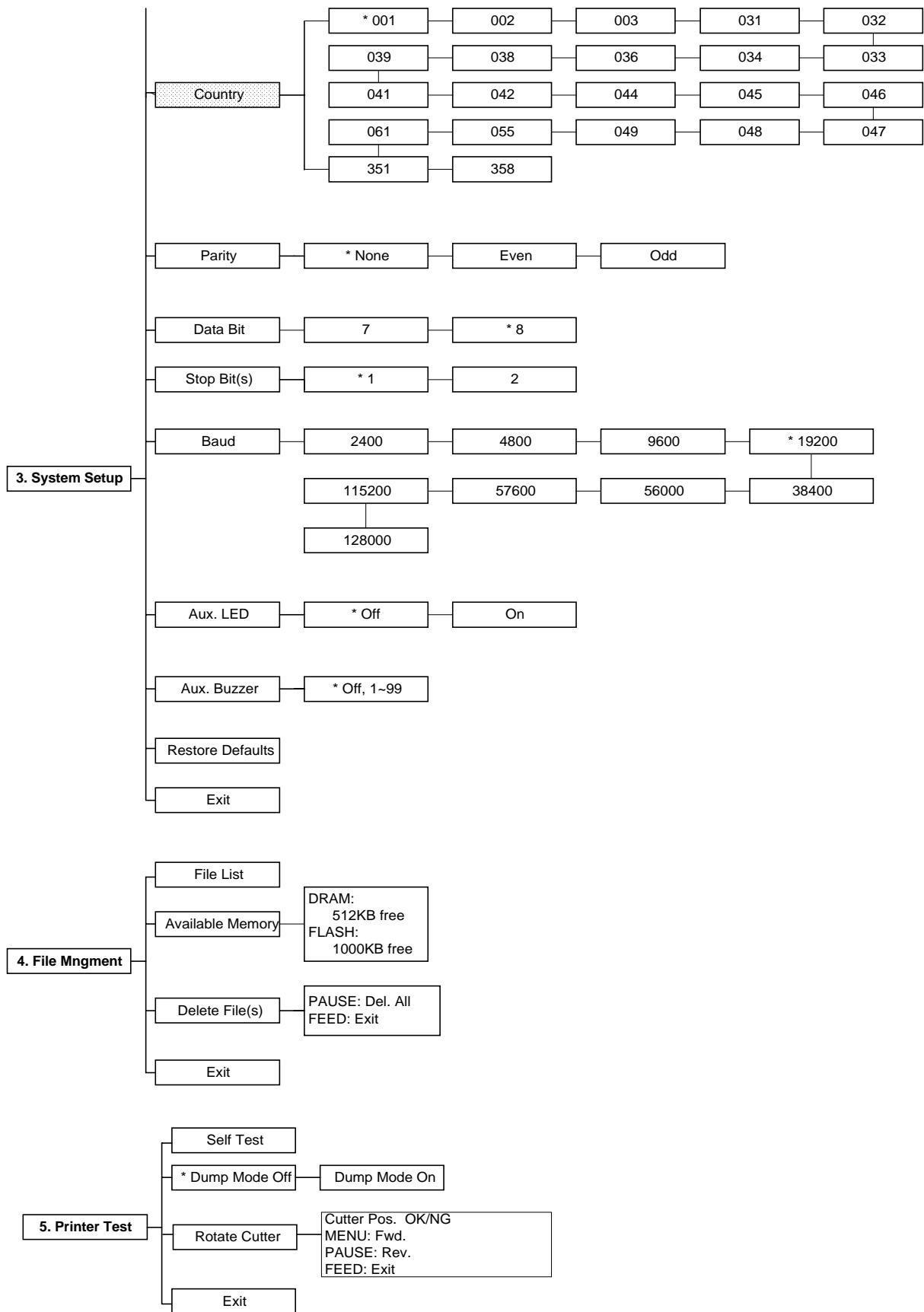
1. Switch off and unplug the printer.
2. Open the printer cover.
3. Remove the media and ribbon (If loaded).
4. Open the printer carriage release lever.
5. Using a soft cloth soaked in the alcohol or mild detergent to wipe the internal parts.
6. The rubber roller should be clean by cloth soaked in water.
7. Install the ribbon and label, close the carriage release lever.
8. Close the printer cover.

# APPENDIX LCD Control Panel Operation Map



- Note:
1. Defaults are marked with asterisk (\*)
  2. The parameter of shaded area can be accessed by pressing the INC. or DEC. key to set the value.









REV. A