

# **SERVICE INSTRUCTION**

**– BRAILLE EDGE 40 –**

**Model No: B40K**

- Please note that this Service Manual is for Main board version 4.0.

**VER 1.0  
March 2012**

**HIMS International Corp.**

# **Contents**

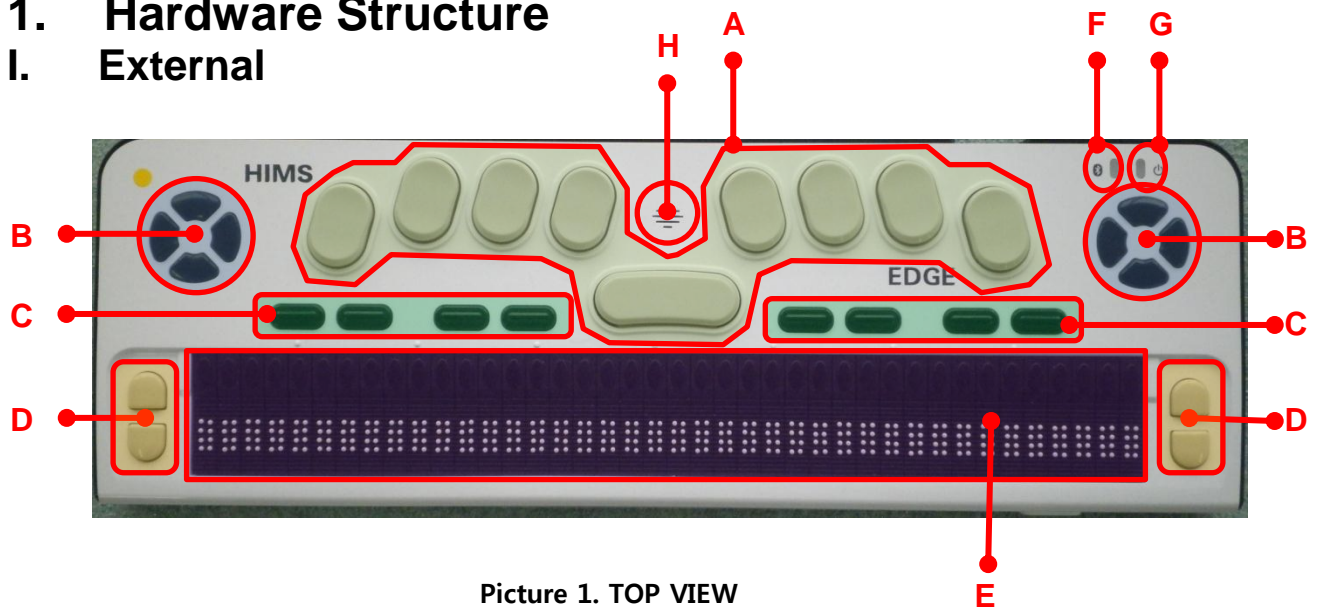
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## **Before you repair the unit**

- Please refer to the user manual before you repair the B40K and check the malfunction of the unit under repair.
- Please disconnect AC adapter from the B40K, turn power off the device before disassembling the unit.

# 1. Hardware Structure

## I. External



Picture 1. TOP VIEW

- A. Braille key: Membrane switch
- B. Navigation Key: Tact switch
- C. Function Key: Tact switch
- D. Scroll Key: Internal soft tact switches and knobs
- E. Braille cell: 40 cell
- F. Bluetooth Indicator: Blue LED
- G. Power Indicator: RED + GREEN LEDs
- H. Speaker: 0.8W Mono



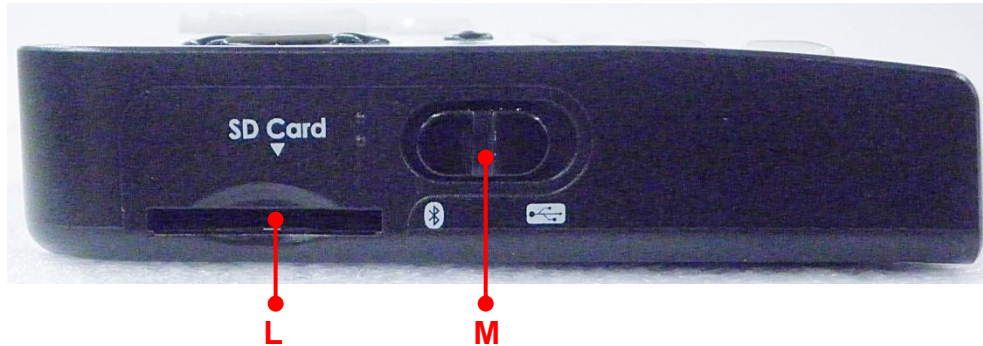
Picture 2. FRONT VIEW

## I. Power Switch: Tact switch



Picture 3. RIGHT VIEW

- J. USB\_OTG: Mini USB 5pin female AB type
- K. AC adapter jack: 3.5  $\varphi$



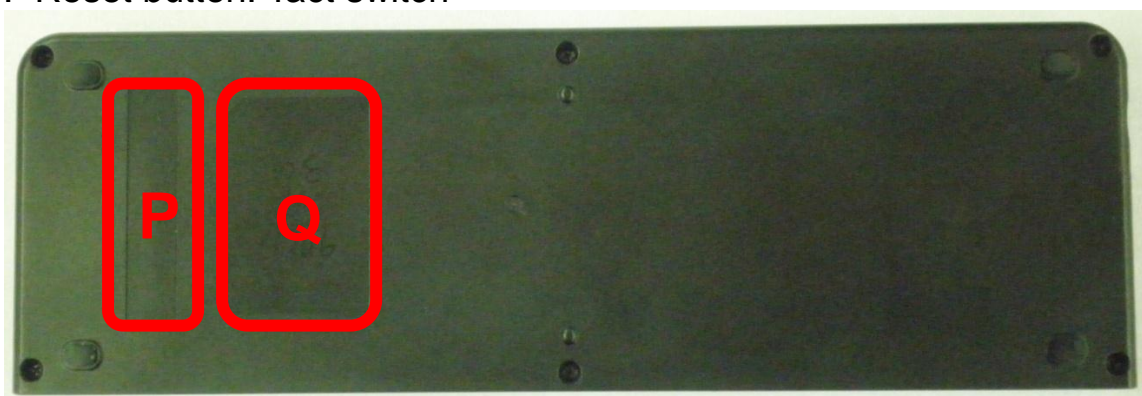
Picture 4. LEFT VIEW

- L. SD slot: SD(Secure Digital) memory card slot
- M. Mode switch: 2position, slide switch



Picture 5. BACK VIEW

- N. Shut down button: Tact switch
- O. Reset button: Tact switch



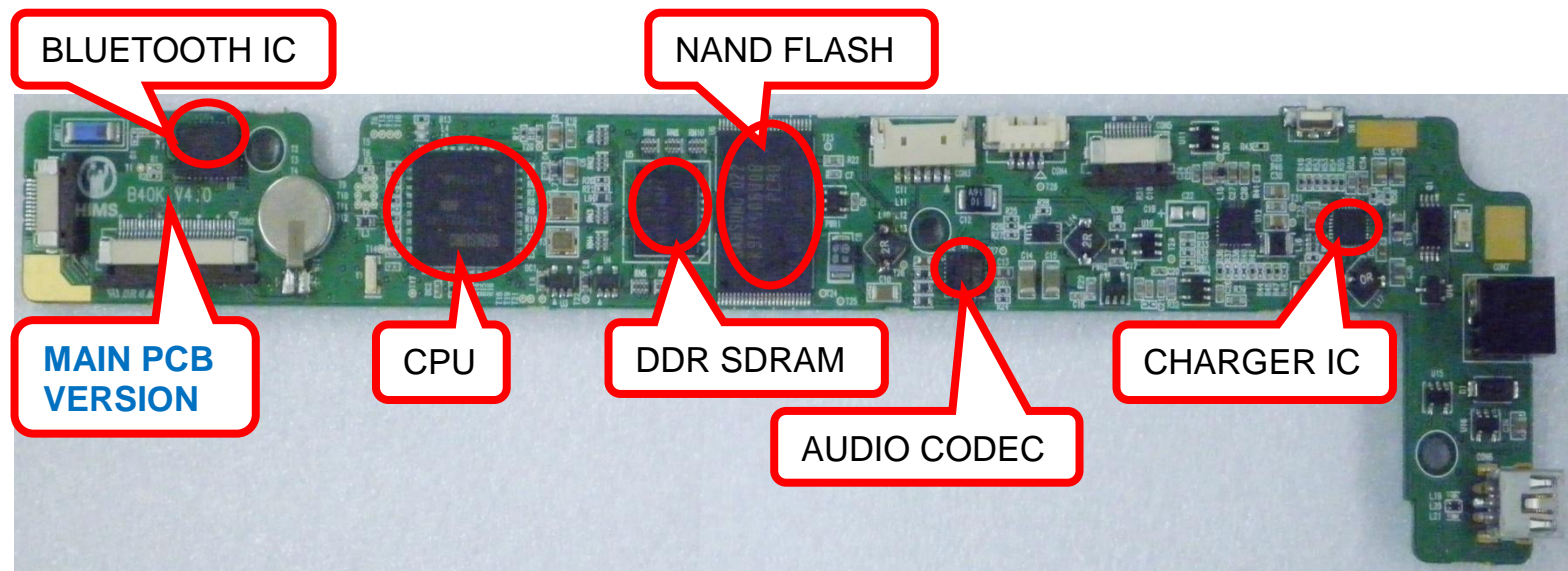
Picture 6. BOTTOM VIEW

- P. Braille label
- Q. Serial label

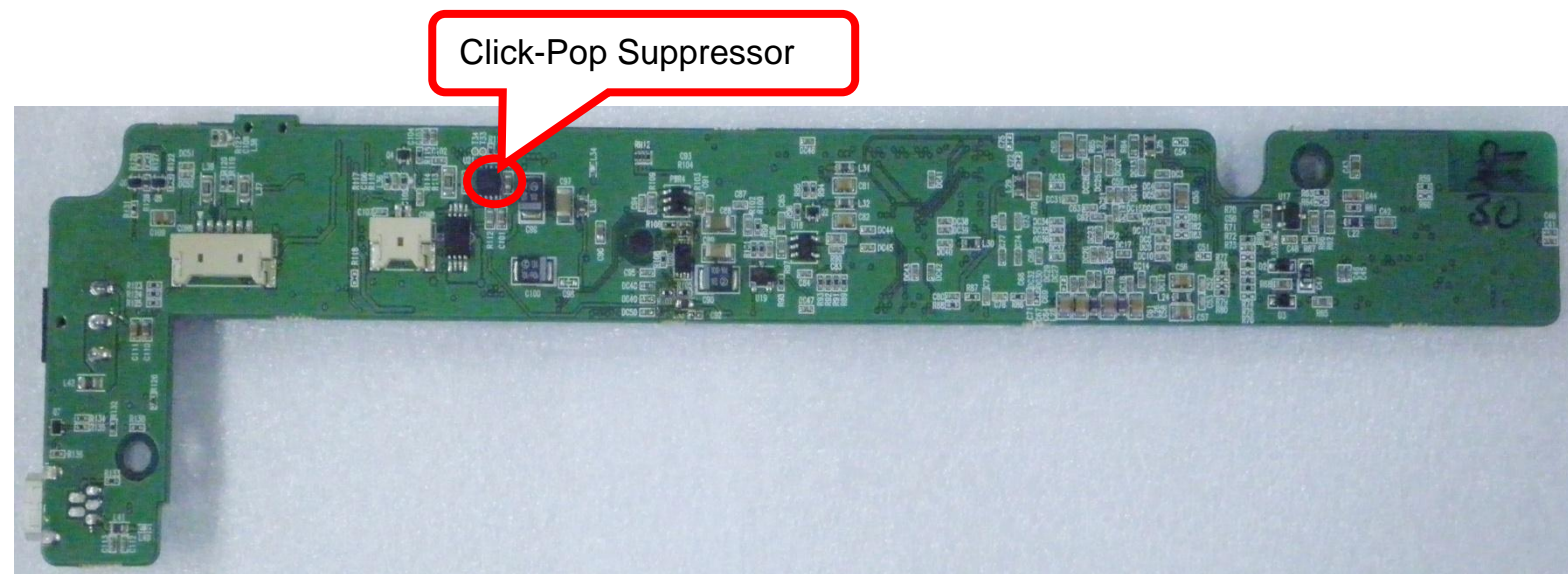


## II. Internal

- *Main components*
- A. Main PCB



< TOP >

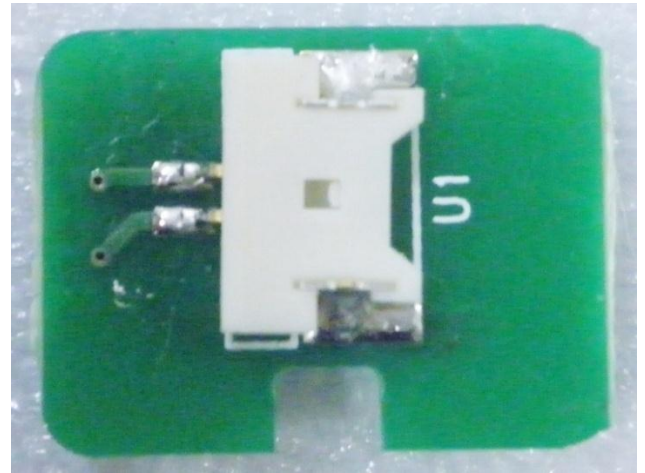


< BOTTOM >

## B. Power Switch PCB

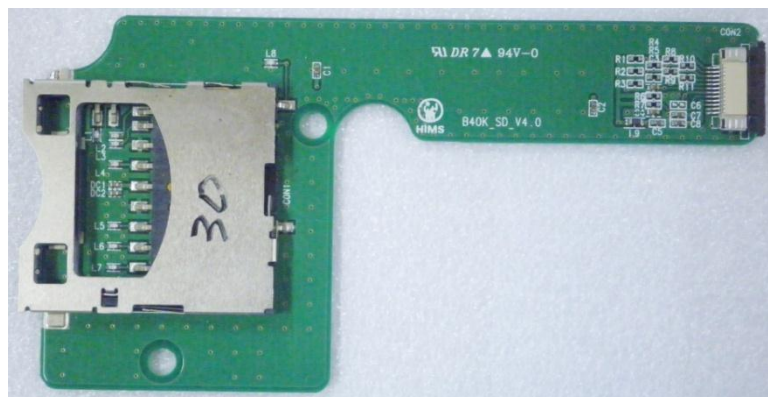


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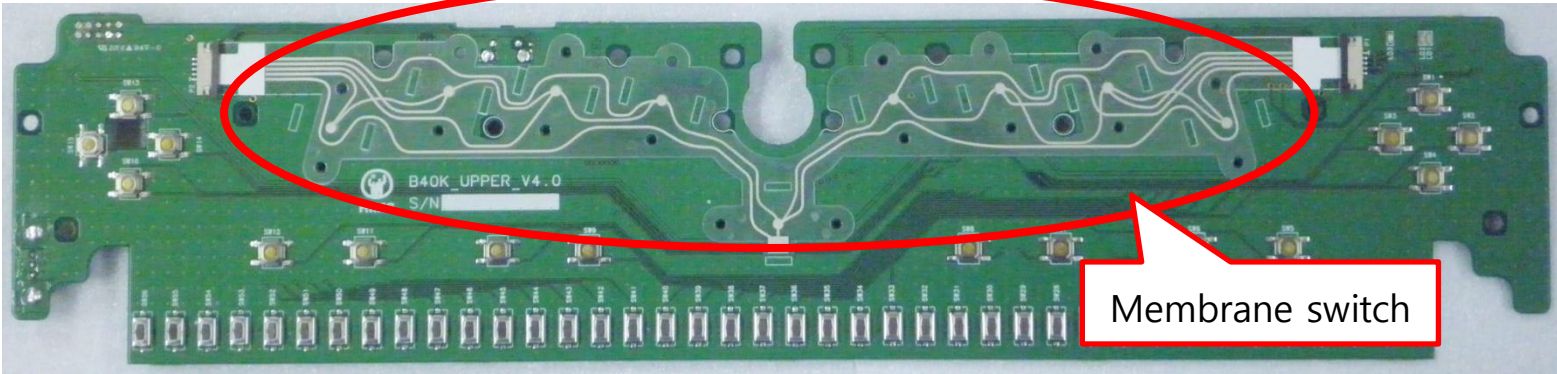
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## C. SD Socket PCB

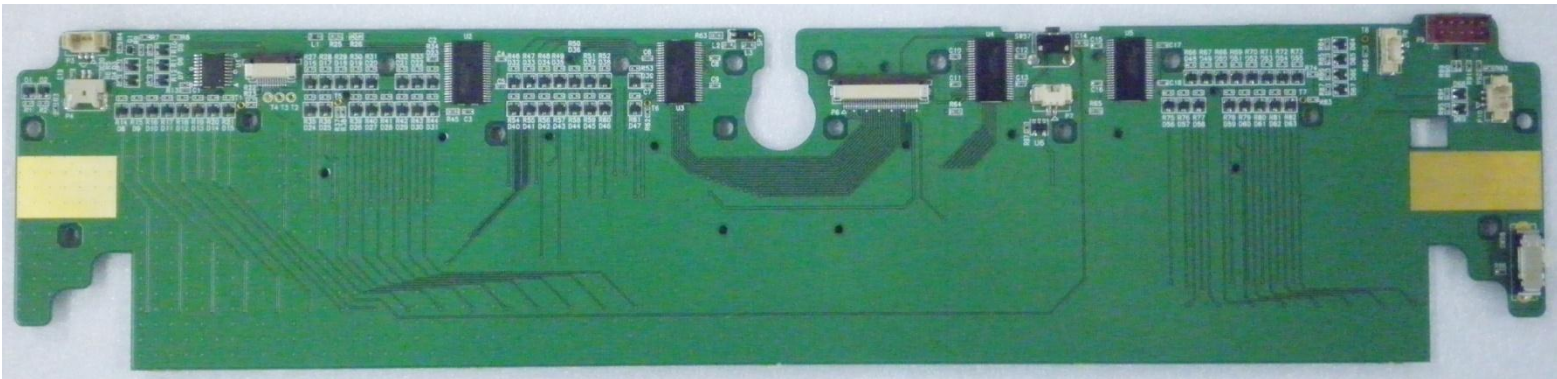




#### D. Upper PCB



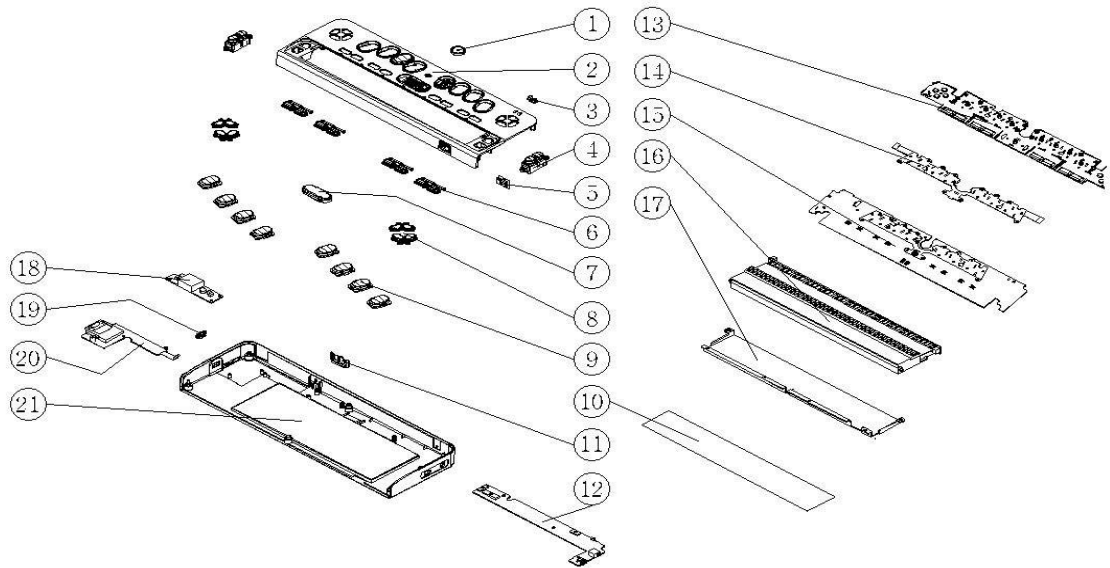
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## 2. Disassembly and assembly

### I. Exploded View

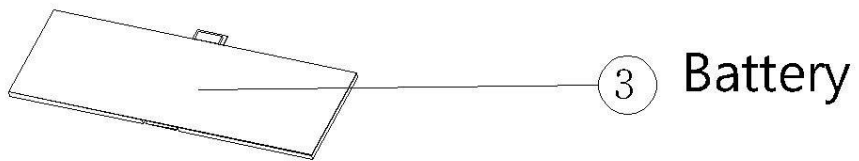
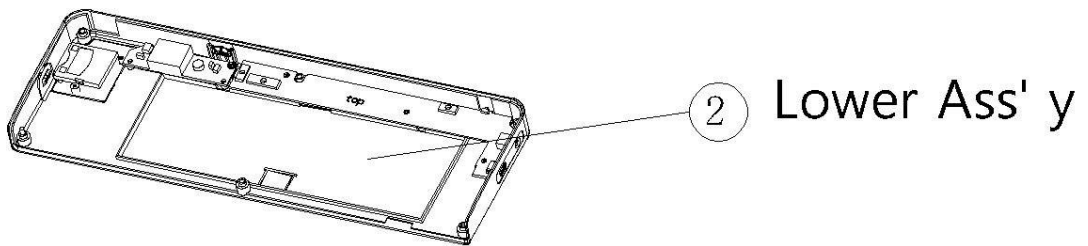
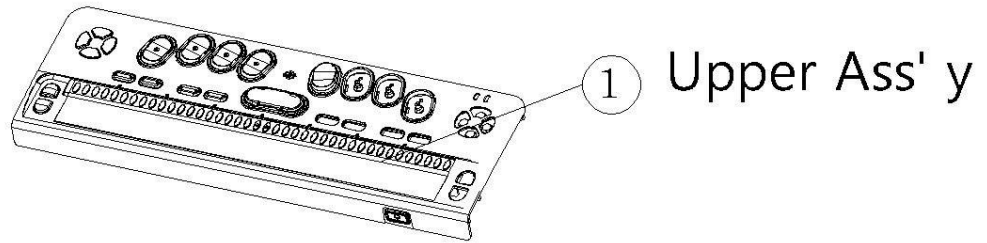


1. Speaker
2. Upper Case
3. Indicator
4. Scroll Key
5. Power Knob
6. Fuction Knob
7. Space Knob
8. Navi Knob

9. Braille Key
10. Cell Sheet
11. Reset Knob
12. Main Board
13. Rubber Switch
14. Membraine Switch
15. upper Board
16. 40 Cell

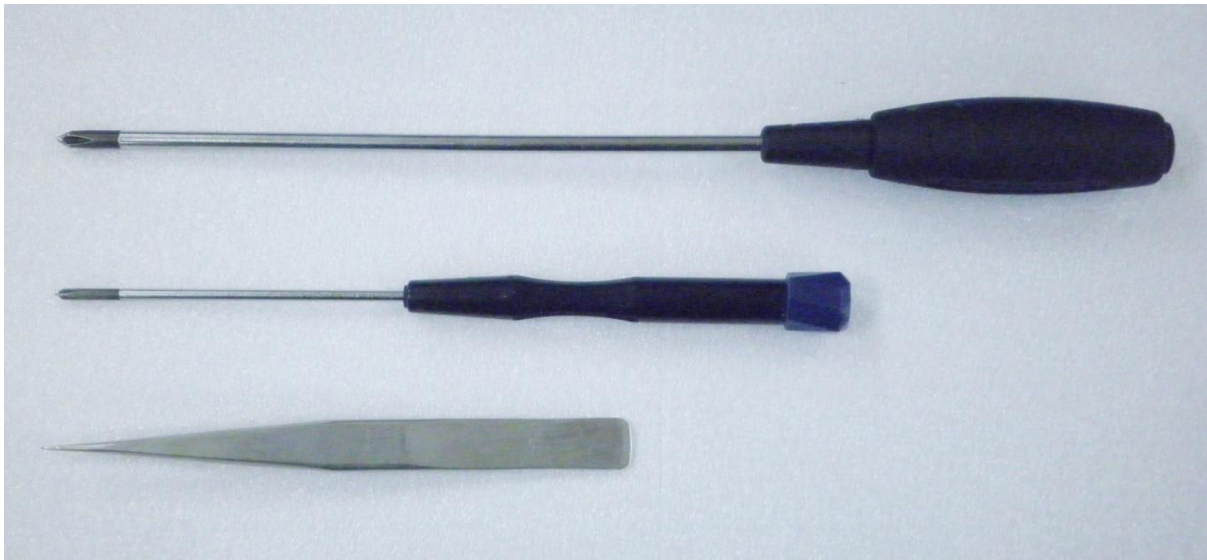
17. Cell Bracket
18. DcDc Converter
19. Mode Knob
20. SD Board
21. Lower Case





## II. Disassembling

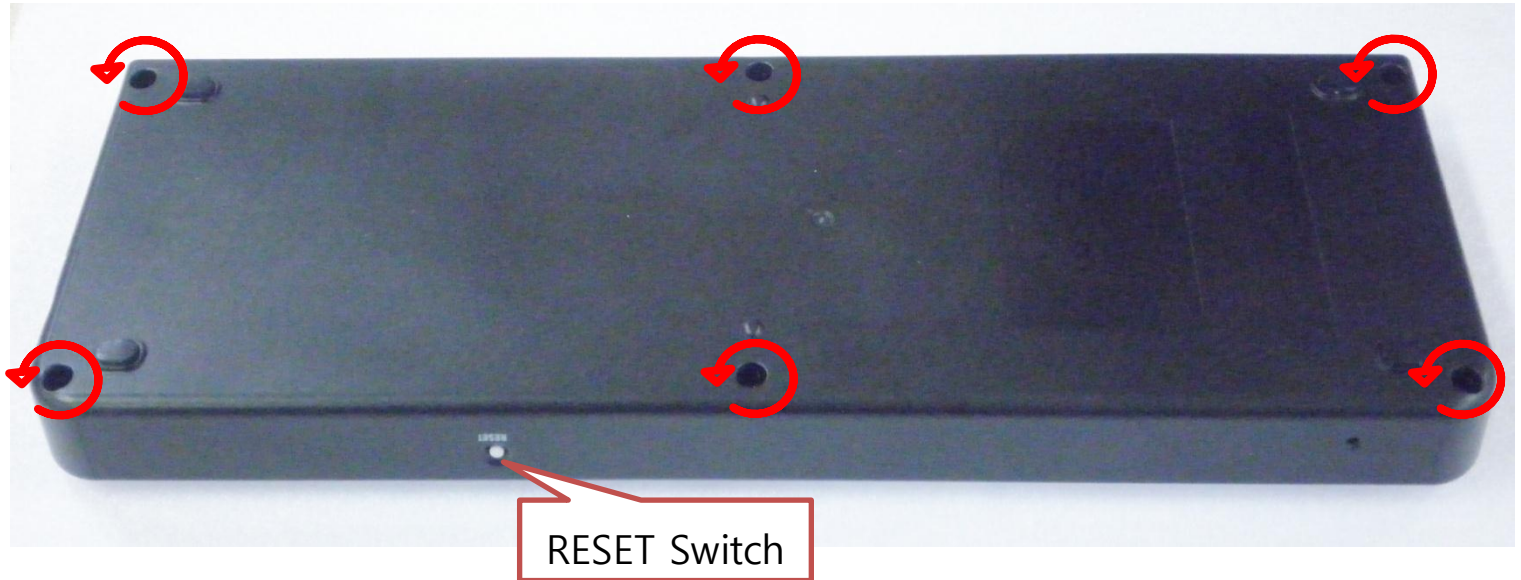
- Caution! Please disconnect AC adapter from the B40K, turn power off the device before disassembling the unit.
- As shown below to prepare the necessary tools in the process of disassembly.



- A 4φ(pi) phillips screwdriver
- A 3φ(pi) phillips screwdriver
- A tweezers

### A. CASE Separation

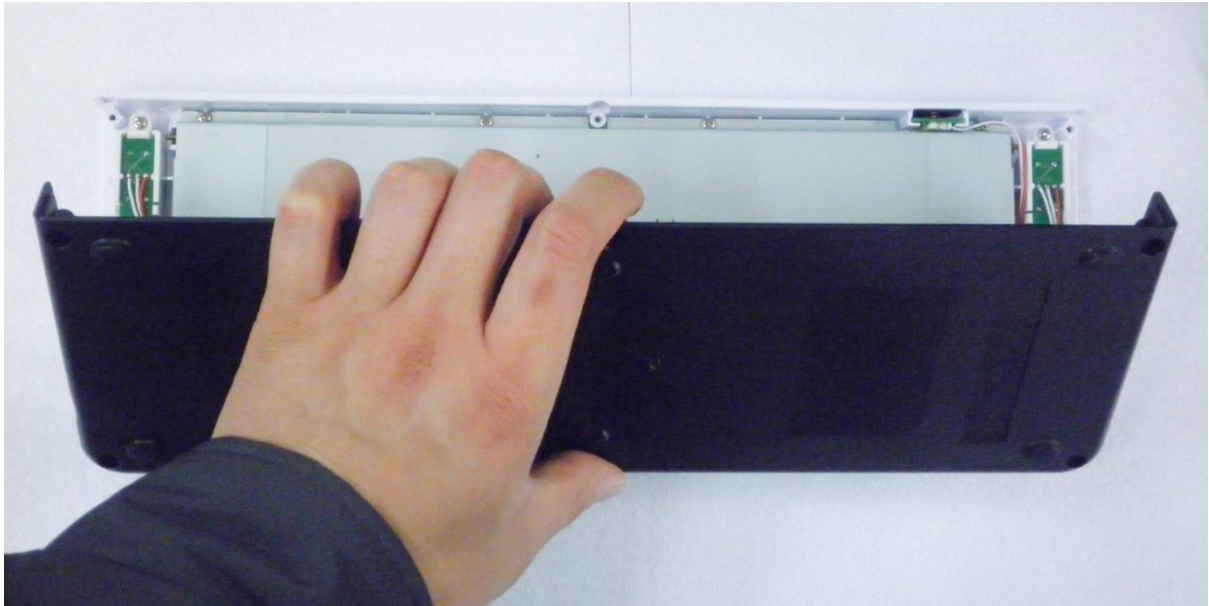
1. Products placed in the direction shown by reset key and unscrew 6 screws from the case.



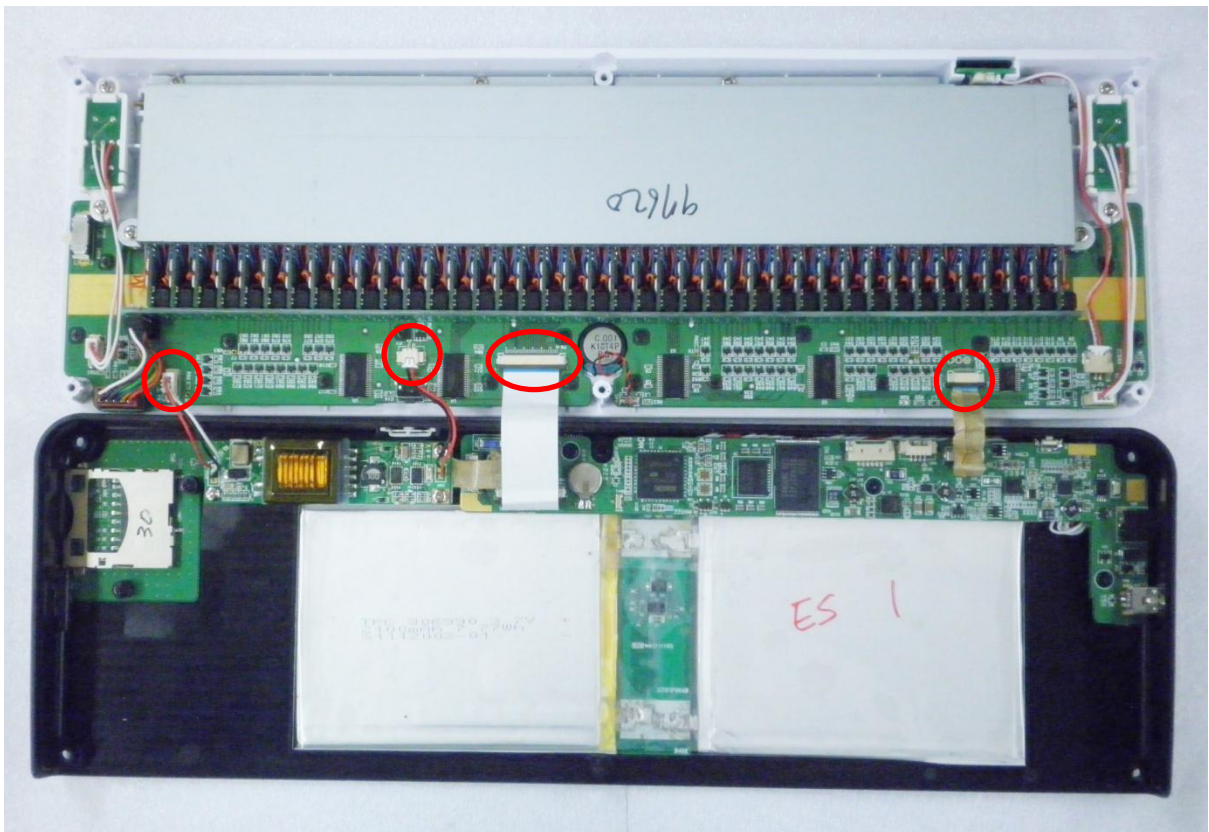
2. 4mm rear side of the tweezers put on the product and tweezers gives twist.



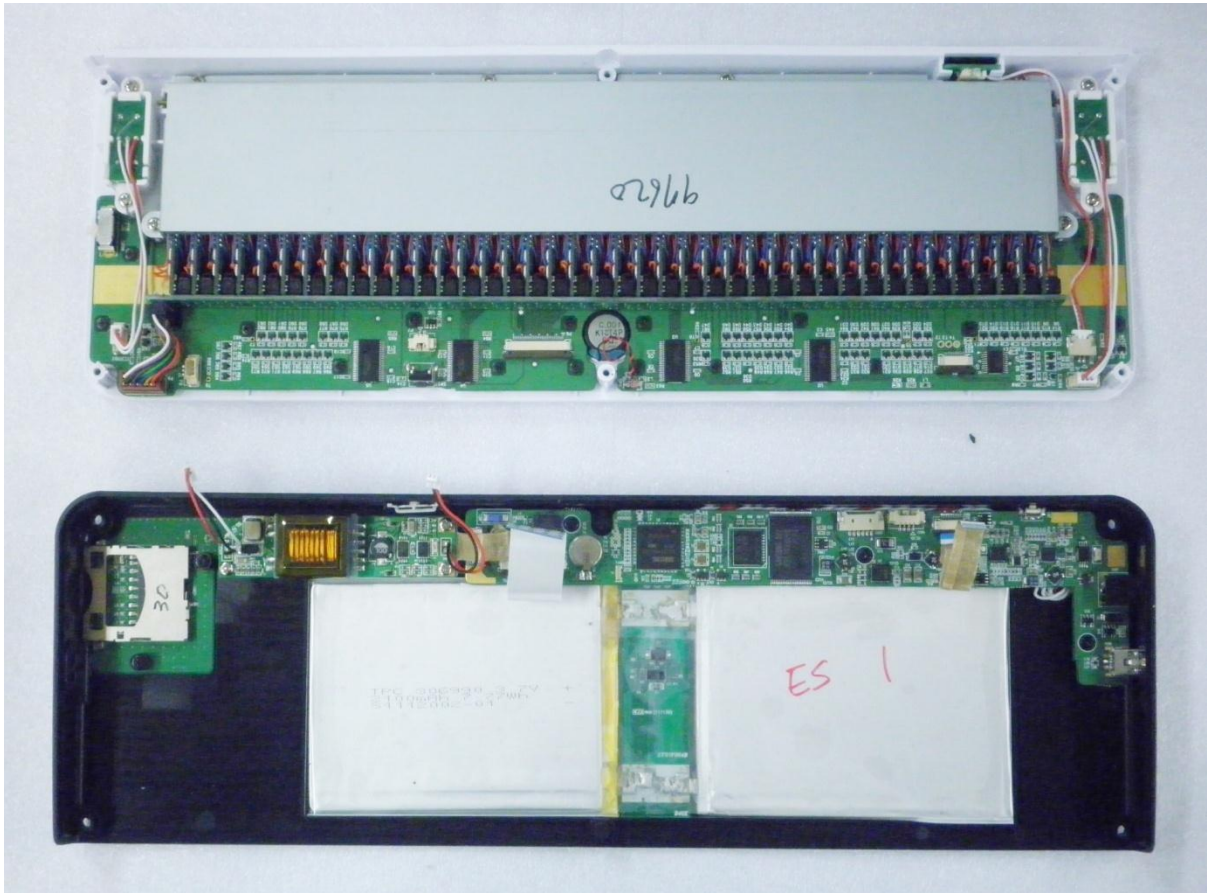
3. Hold the Lower case and opens towards me.  
※ Be careful the connector on the back side of the product.



4. Disconnect 4 connectors which are connected from Upper case.

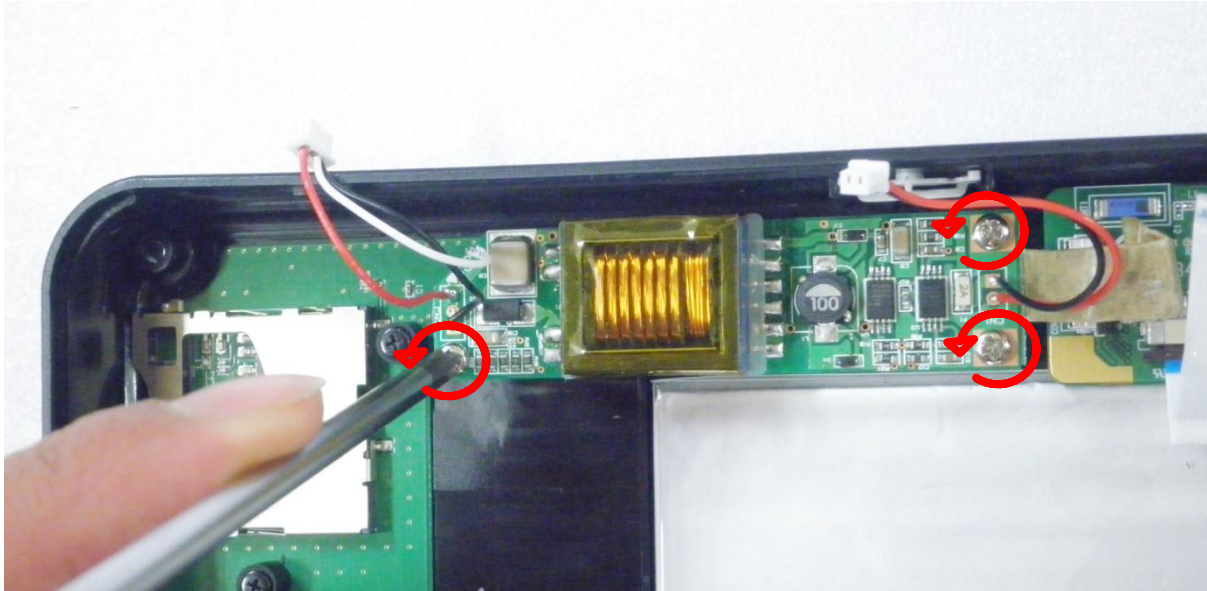






## B. CASE LOWER Disassembly

1. Unscrew 3 screws from the DC-DC converter and detach DC-DC converter.

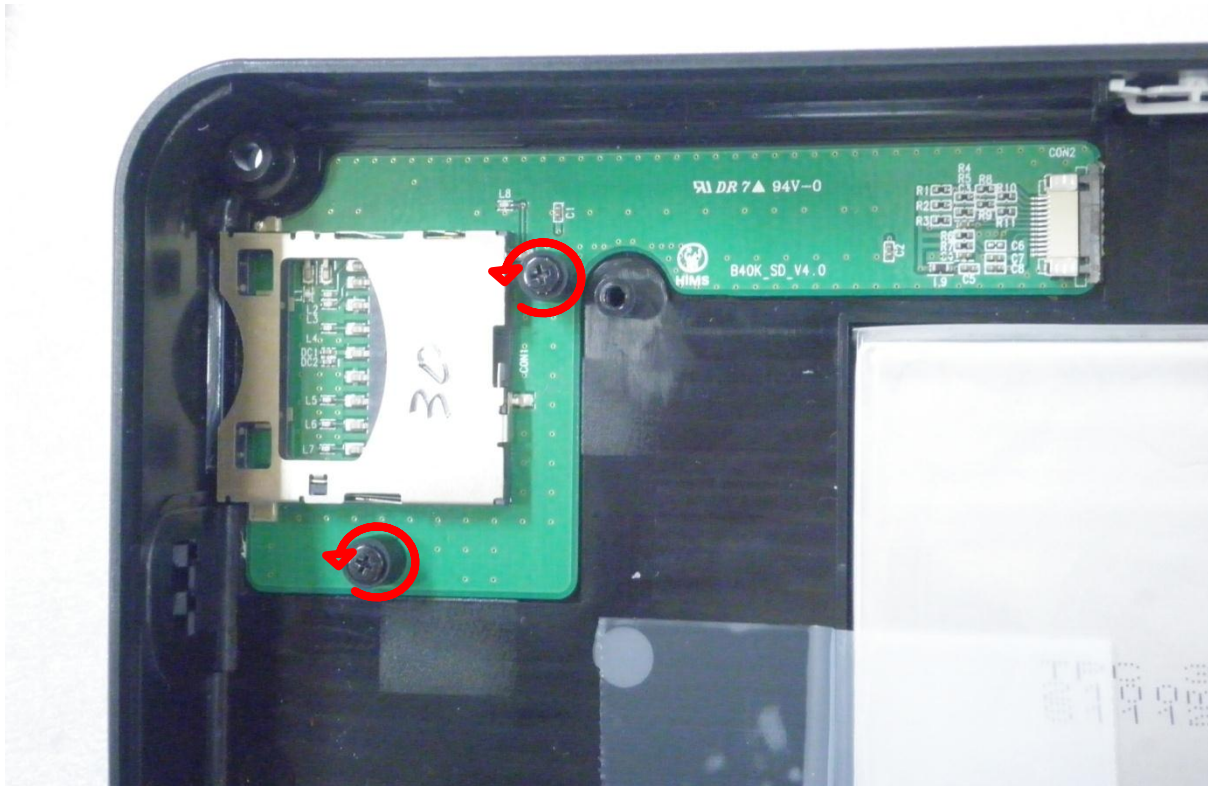


2. Disconnect a cable which is connected to SD slot PCB from MAIN PCB.

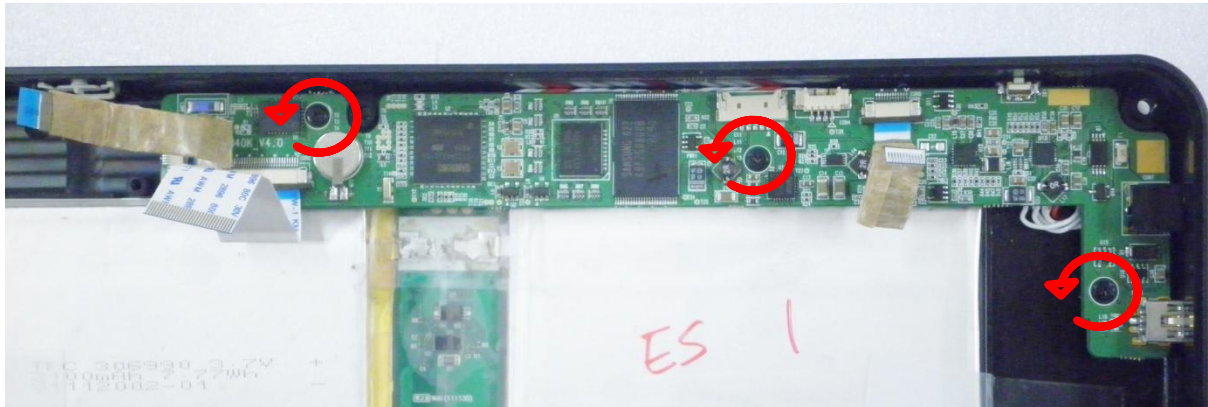




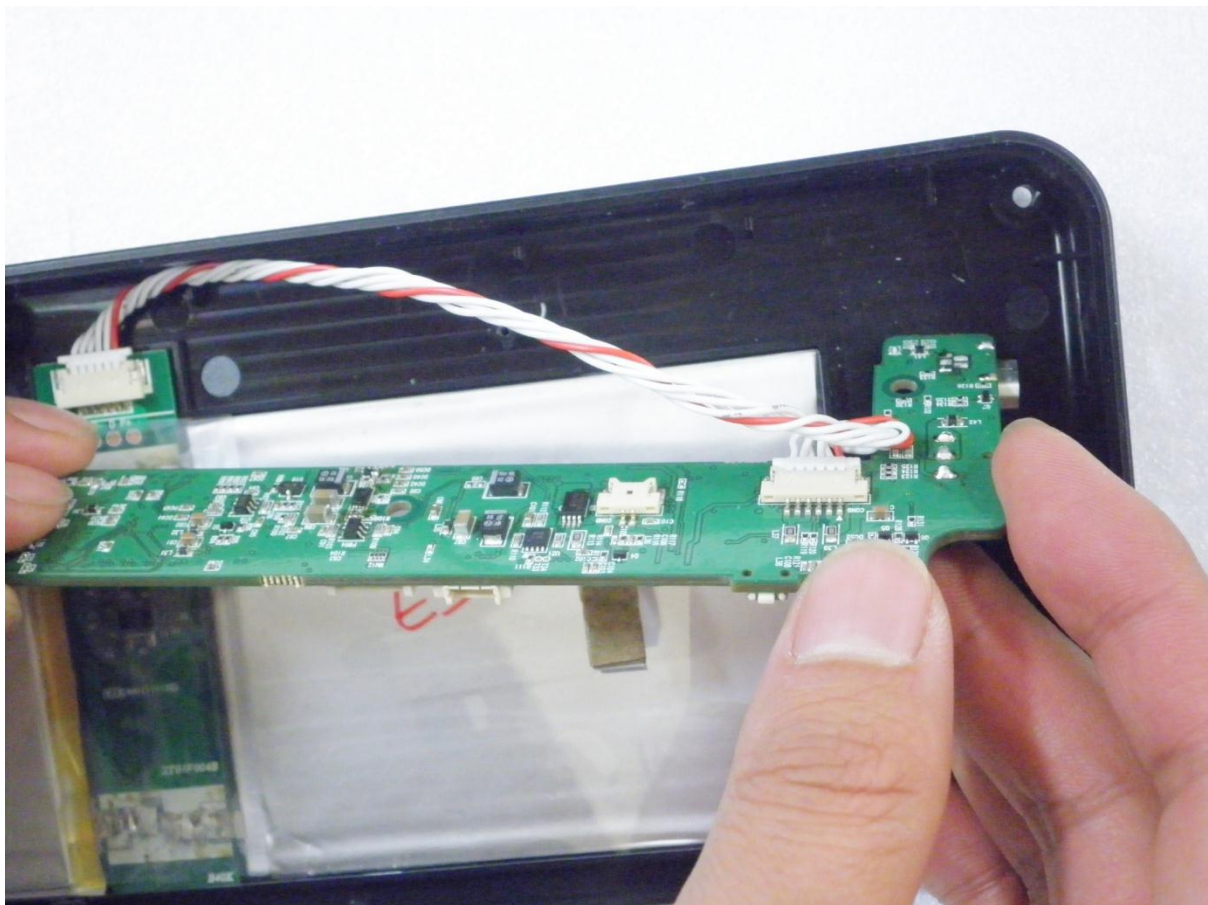
4. Unscrew 2 screws from SD PCB. And detach SD PCB to tweezers put on between SD slot from Lower case.



5. Unscrew 3 screws from Main PCB. Next, PCB carefully lift as much as 5cm and gives the horizontal axis flips.  
※ The connector is connected to the battery on the right rear of MAIN PCB, so be careful.

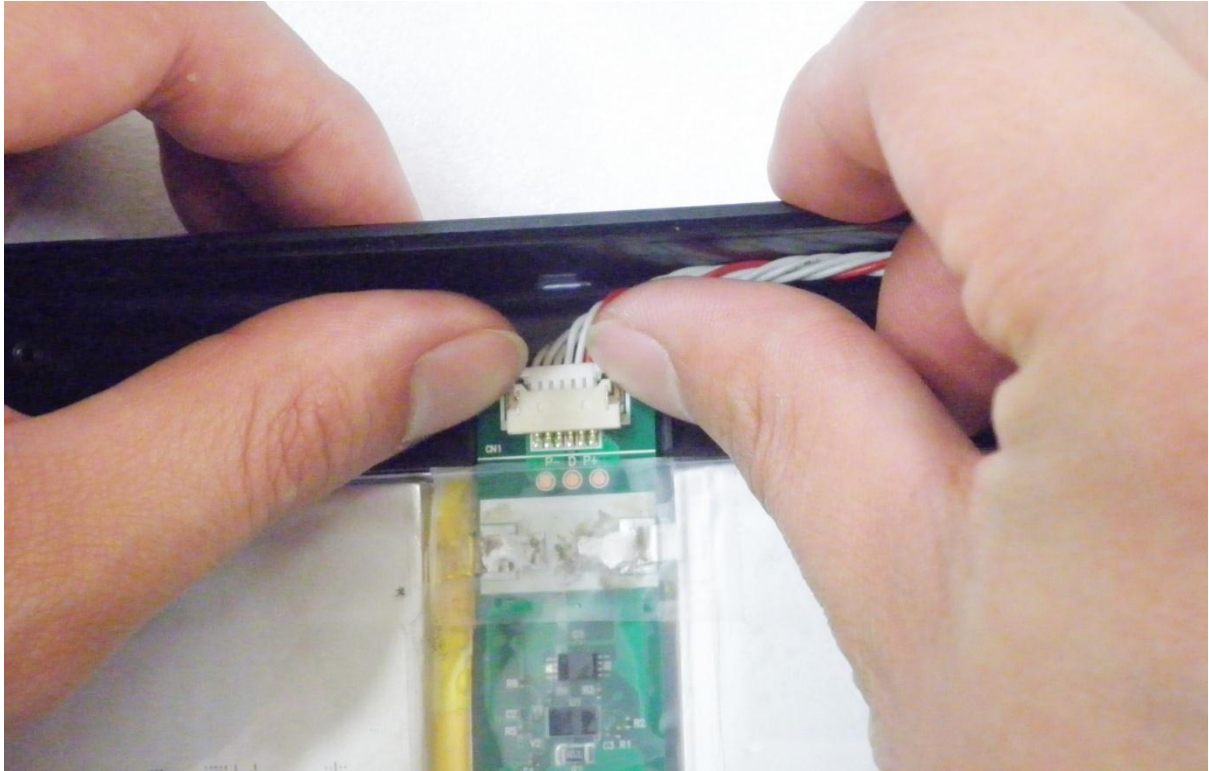


6. Disconnect a connector which is connected to battery from MAIN PCB.



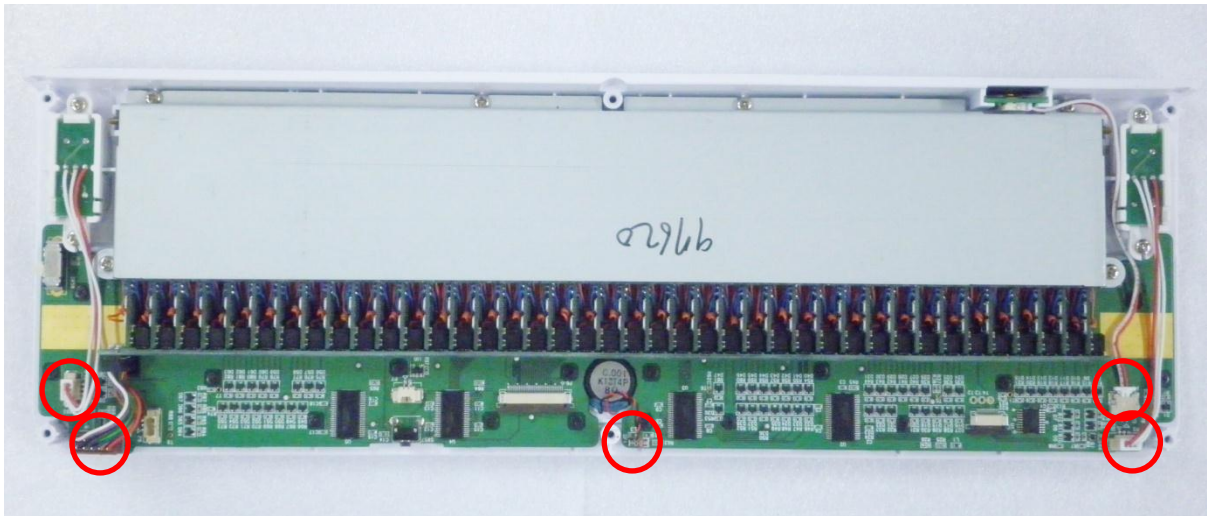


7. Disconnect a connector which is connected to battery PCM.

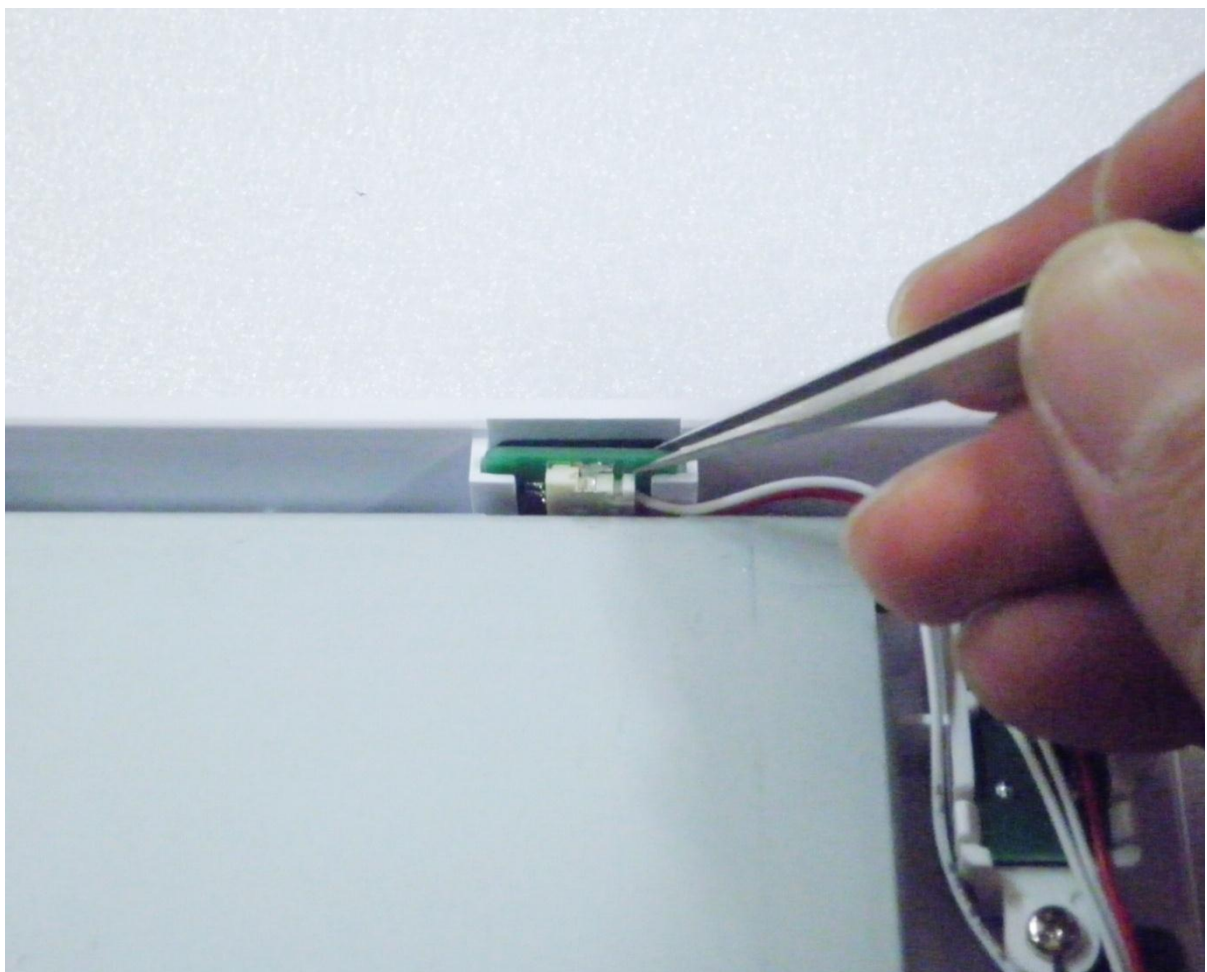


### C. UPPER CASE Disassembly

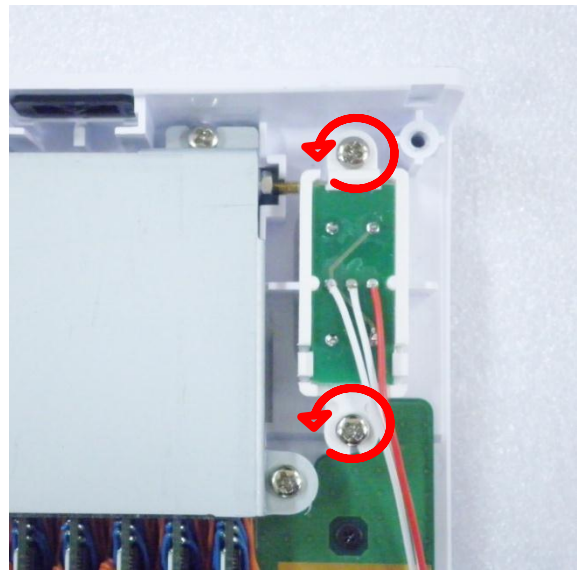
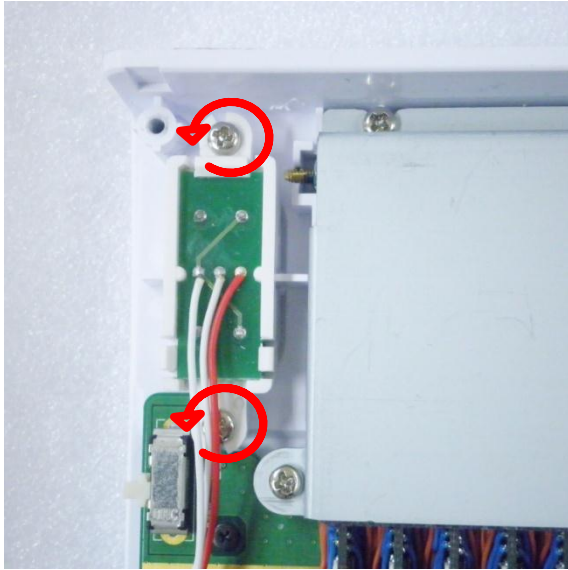
1. Disconnect 5 connectors which are connected to UPPER PCB.



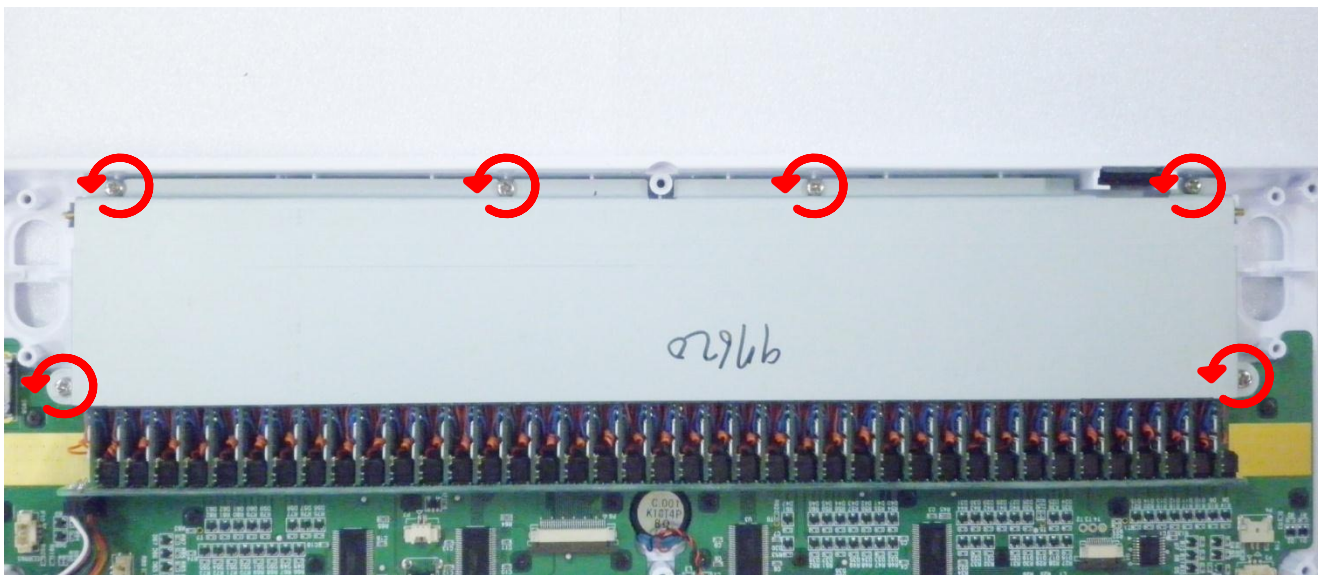
2. PS(Power Switch) PCB is separated by raising upward with tweezers.



3. Unscrew 4 screws of the both sides of Scroll assembly and detach.

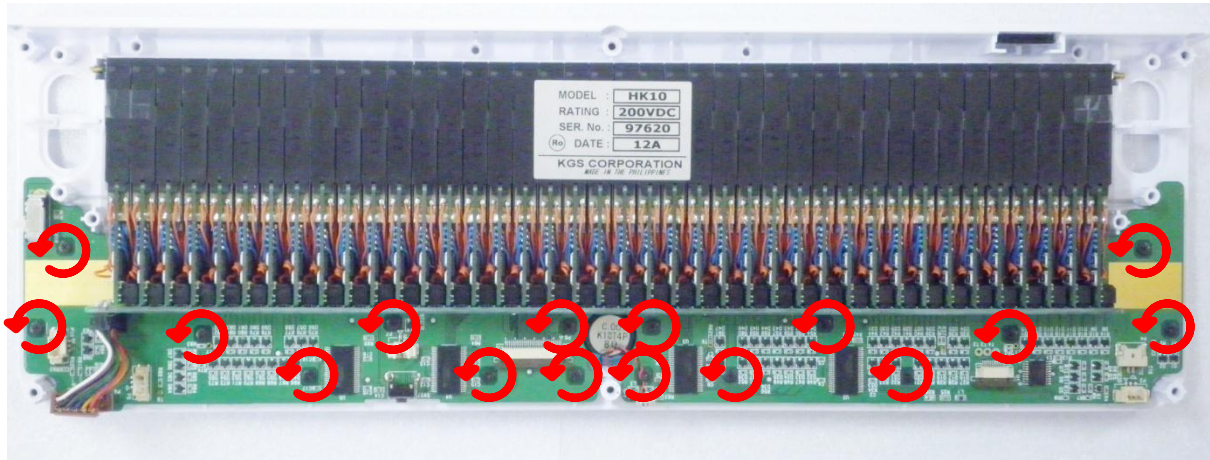


4. Unscrew 6 screws from the Cell Bracket and detach.

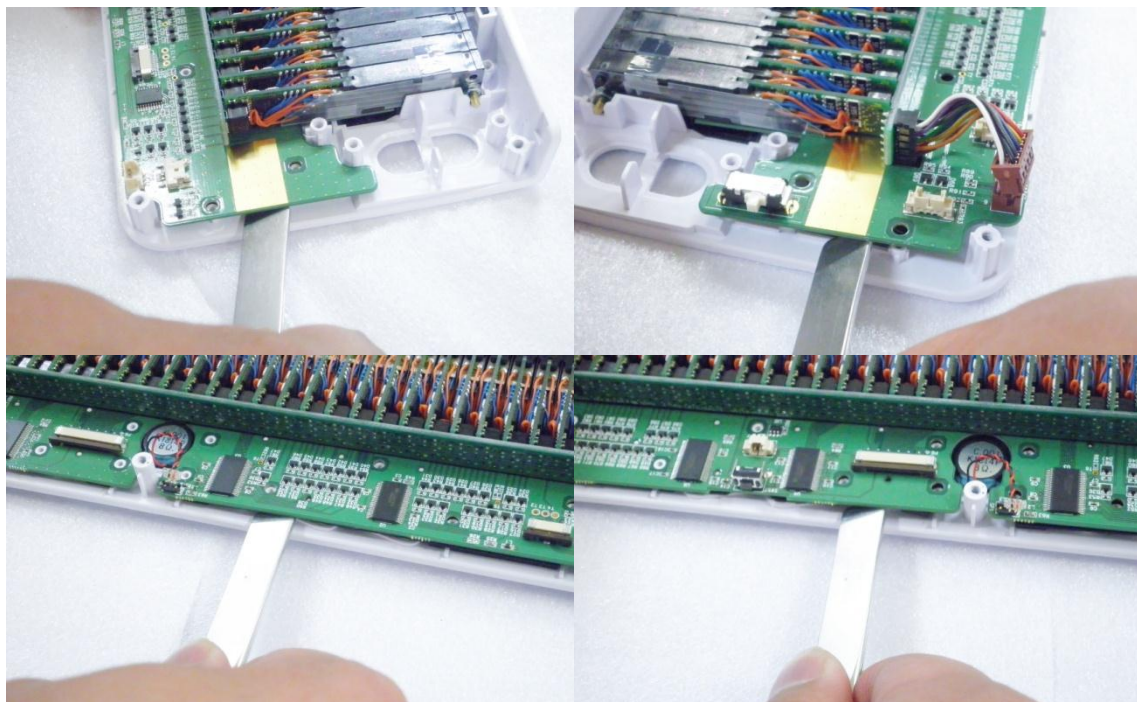




5. Unscrew 16 screws from the UPPER PCB.

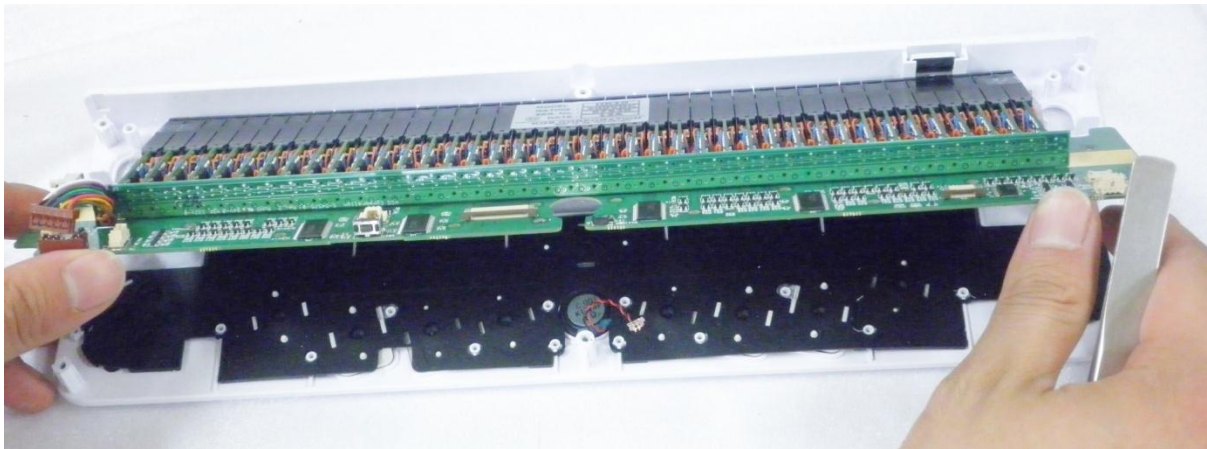


6. Rear side of the tweezers put about 5mm and tweezers gives twist for the separate UPPER PCB and screw hole as shown in the figure below.

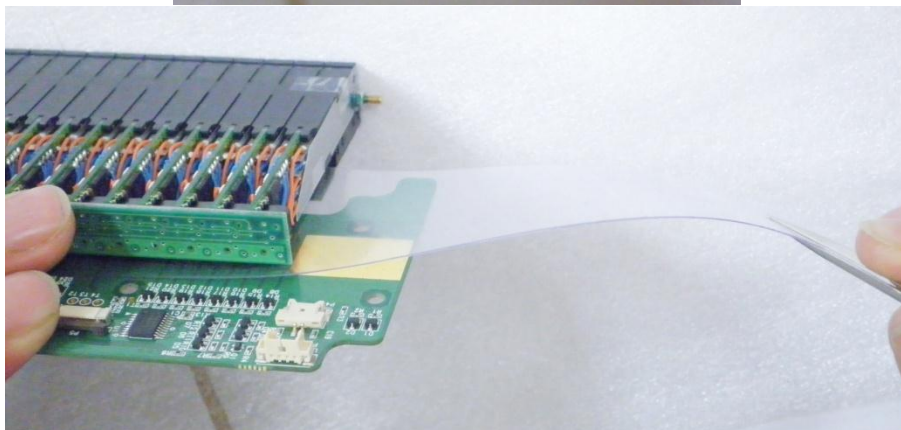
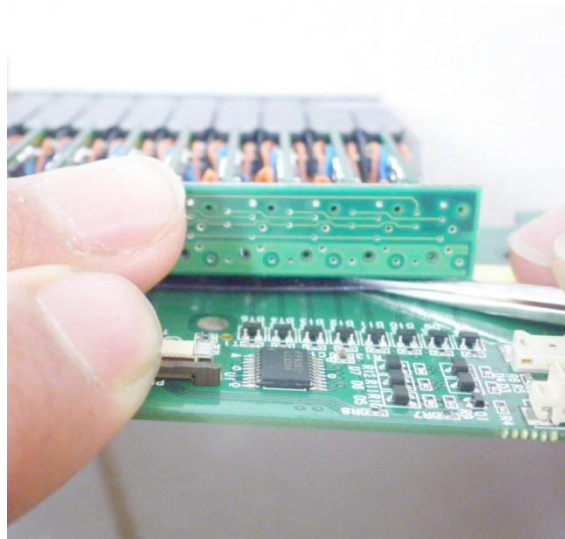




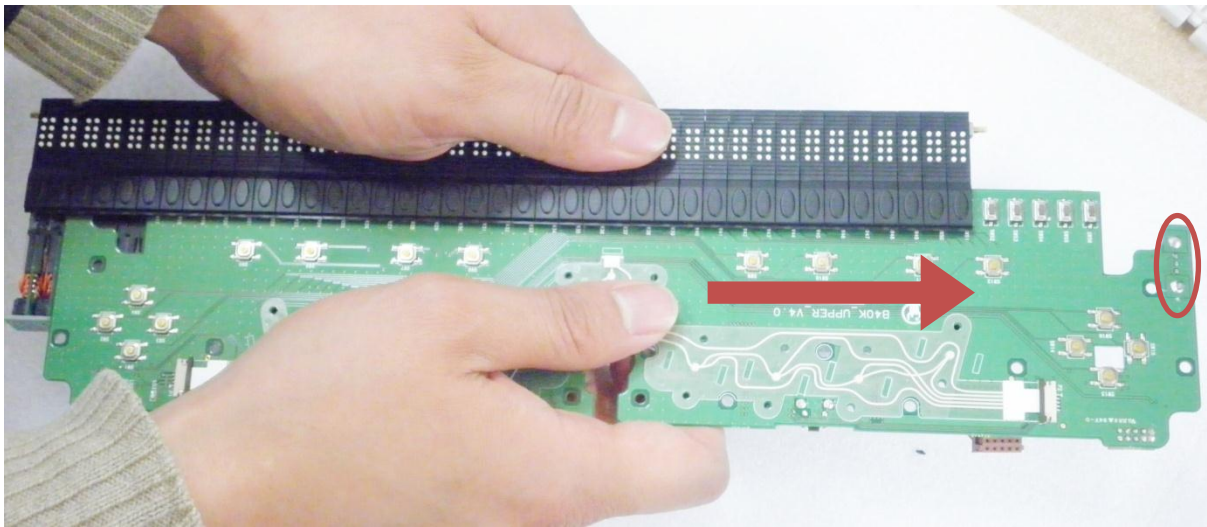
7. Detach Cell with UPPER PCB from Upper case before lift UPPER PCB 30 degrees as shown in the figure below.



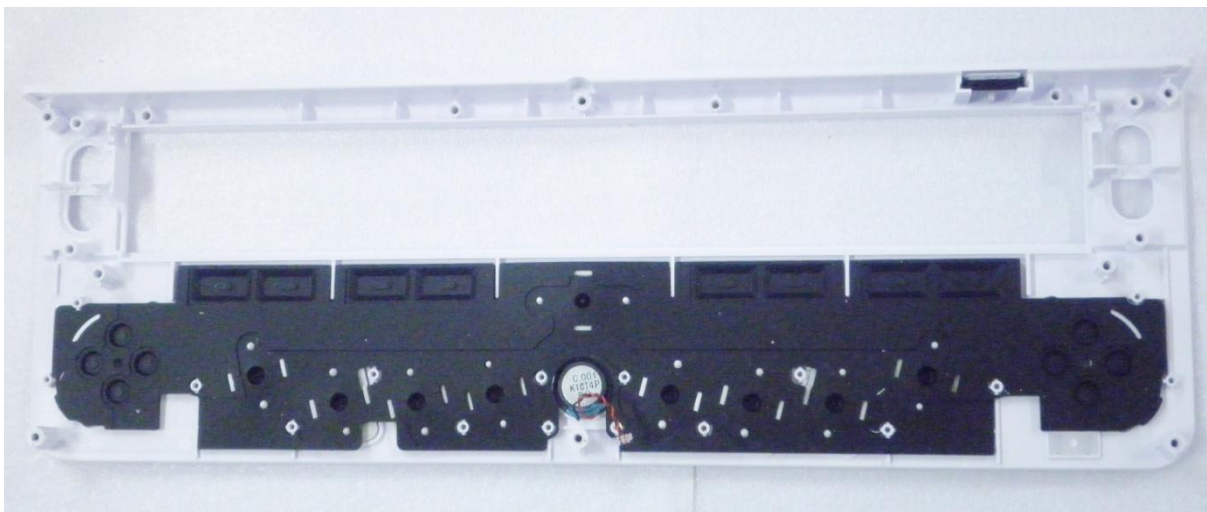
8. UPPER PCB and Braille cell Separation
  - a. Widen the gap between Cell and UPPER PCB about 5mm then there is the film. Next, as shown in the figure below it pulls out with tweezers.



- b. The left hand holding Cell and the right hand holding UPPER PCB. Next, the left hand fixed and push the UPPER PCB lightly with right hand.
- ※ You should be separated as shown in the figure below because there is Mode switch where indicated.
  - ※ Be wary when handling with Braille cell because it is expensive and easily damaged.



9. Separate the Rubber switch from the Upper case
- a. Appearance before the Rubber switch is separated from the Upper case.
- ※ Plastic bosses and screw holes has between rubber switch. Be careful when assembling.



- a. Appearance after the Rubber switch is separated from the Upper case.
- ※ Be careful of the direction when you assemble Braille keys.



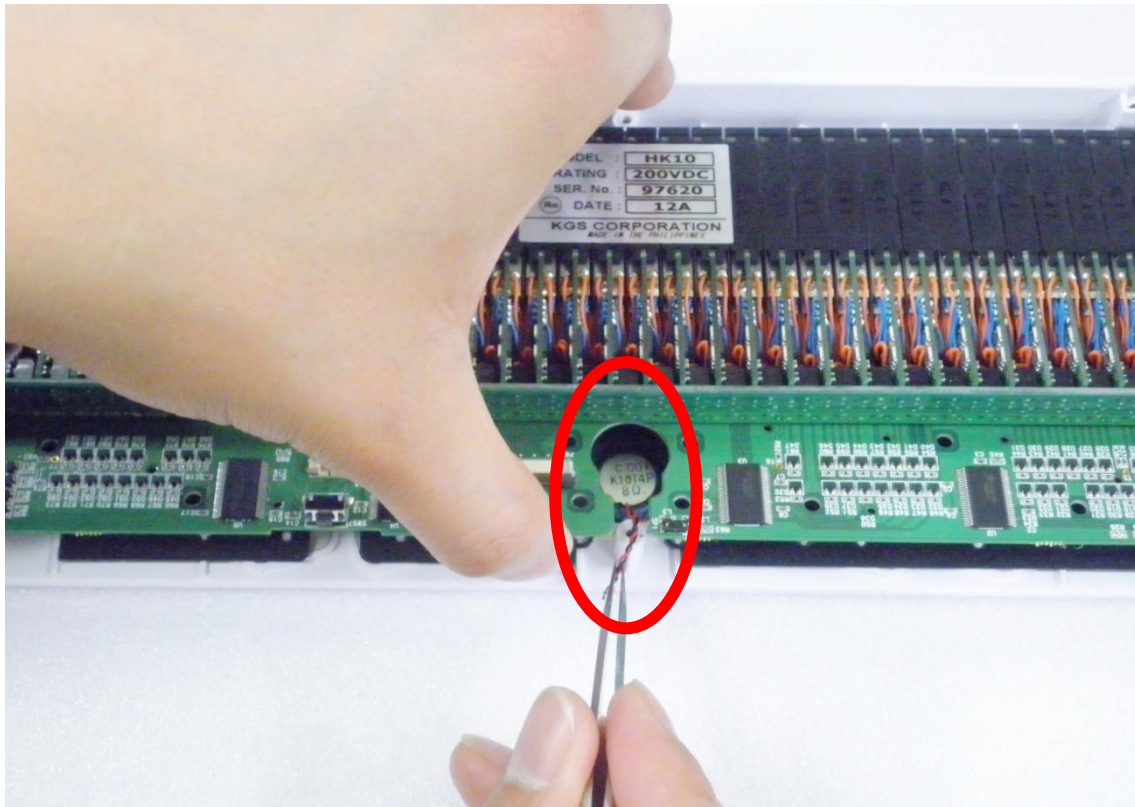


### III. Assembling

- Assembly is a reverse order of disassembly; the following are major check points while assembling the unit.

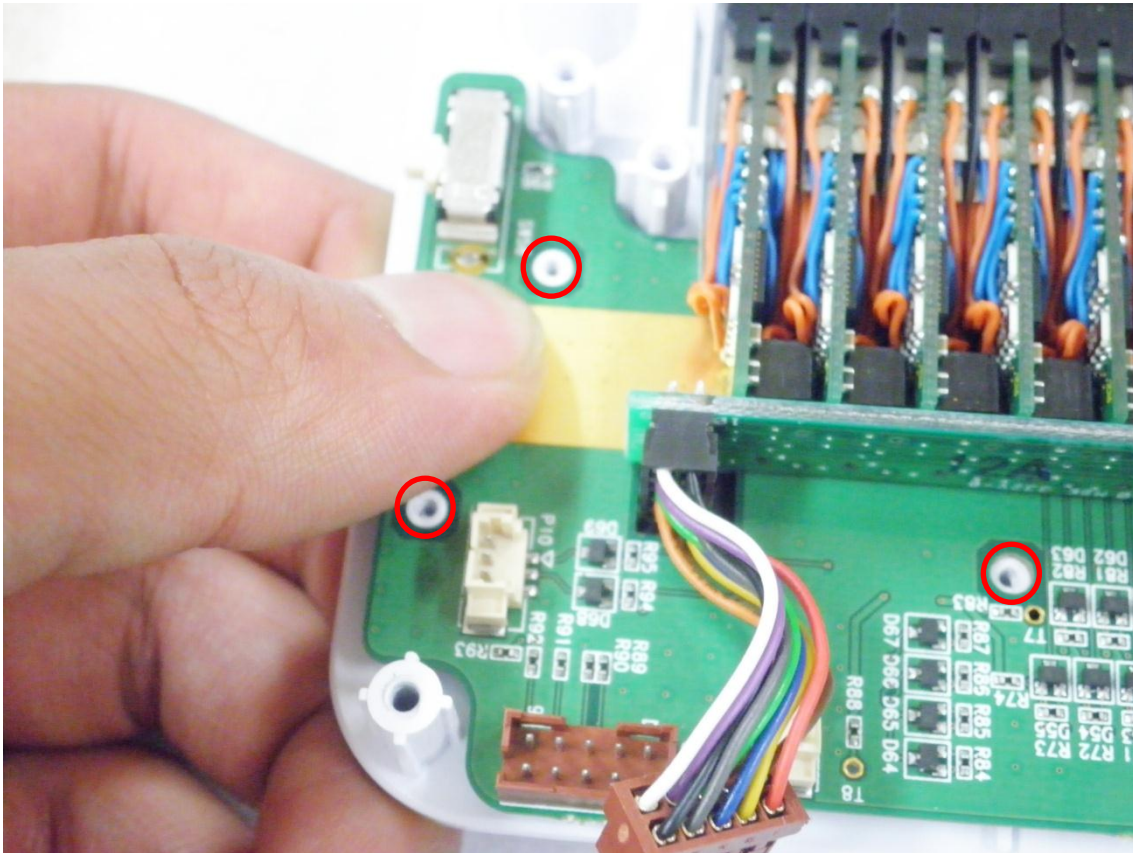
#### A. CASE UPPER Assembly

1. Holding the Speaker wire and assembled the UPPER PCB. Because the wire should come out between the PCB and Upper case.

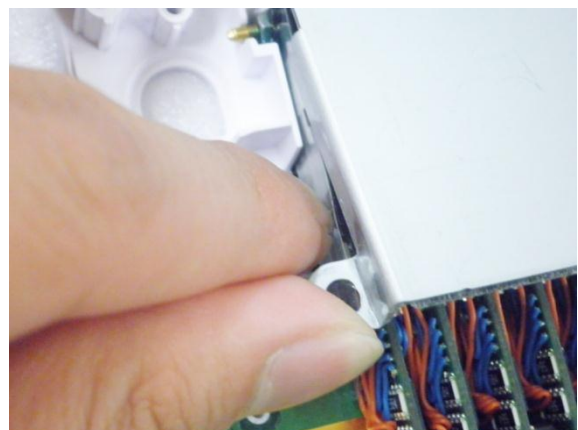
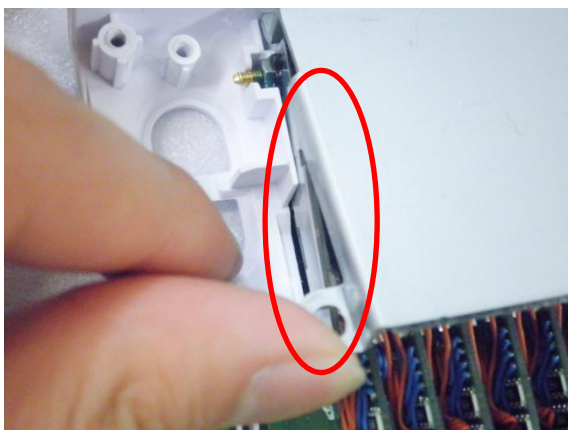




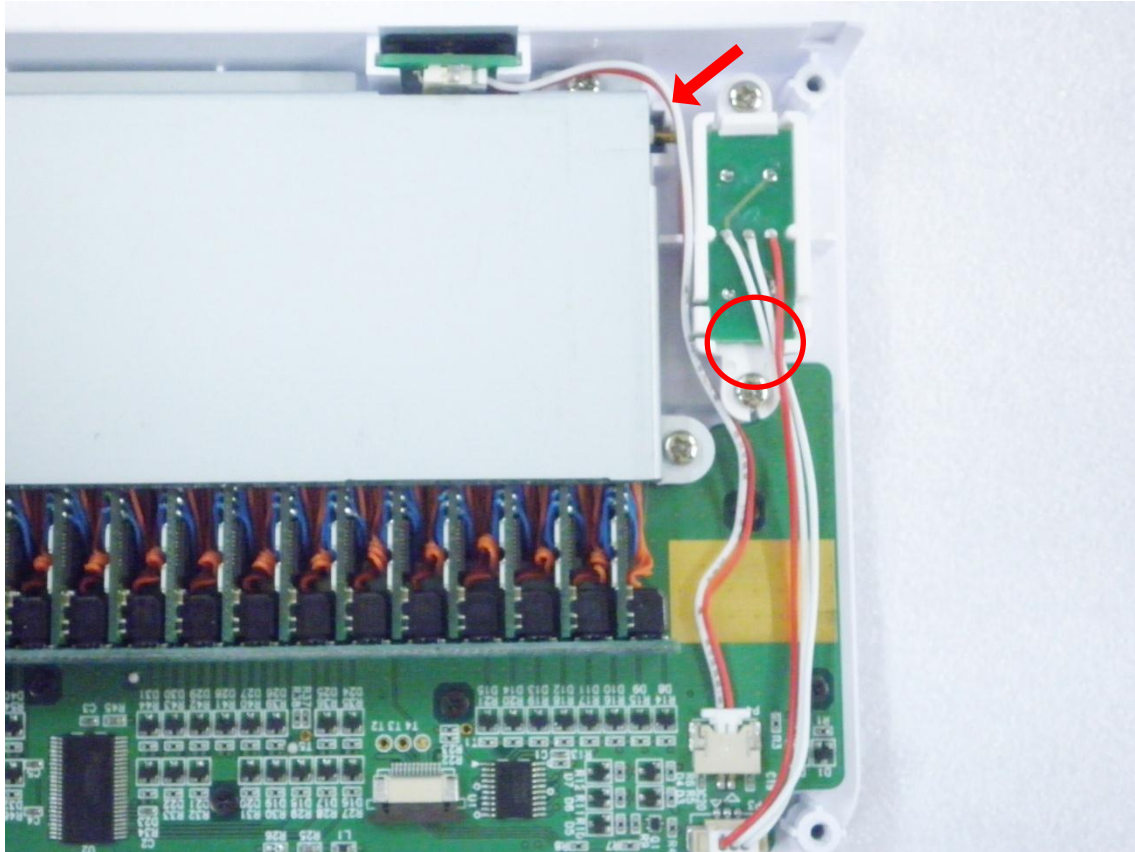
2. Press to close all the screw holes and PCB holes.



3. Press left and right sides of the Braille cell and assemble the Cell bracket. Because to prevent the film on the side of Braille cell is distorted by the Cell bracket.



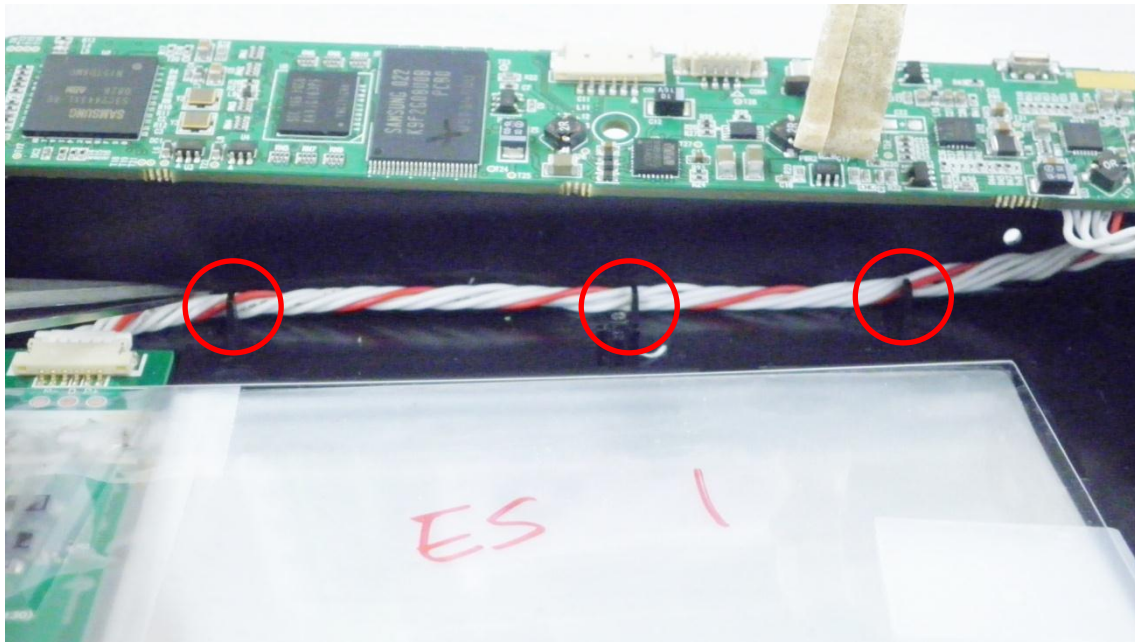
4. Wire of PS PCB does not interfere with the surrounding parts and make sure the wire neatly. Also wire of Scroll assembly does not interfere with case and make sure the wire neatly.



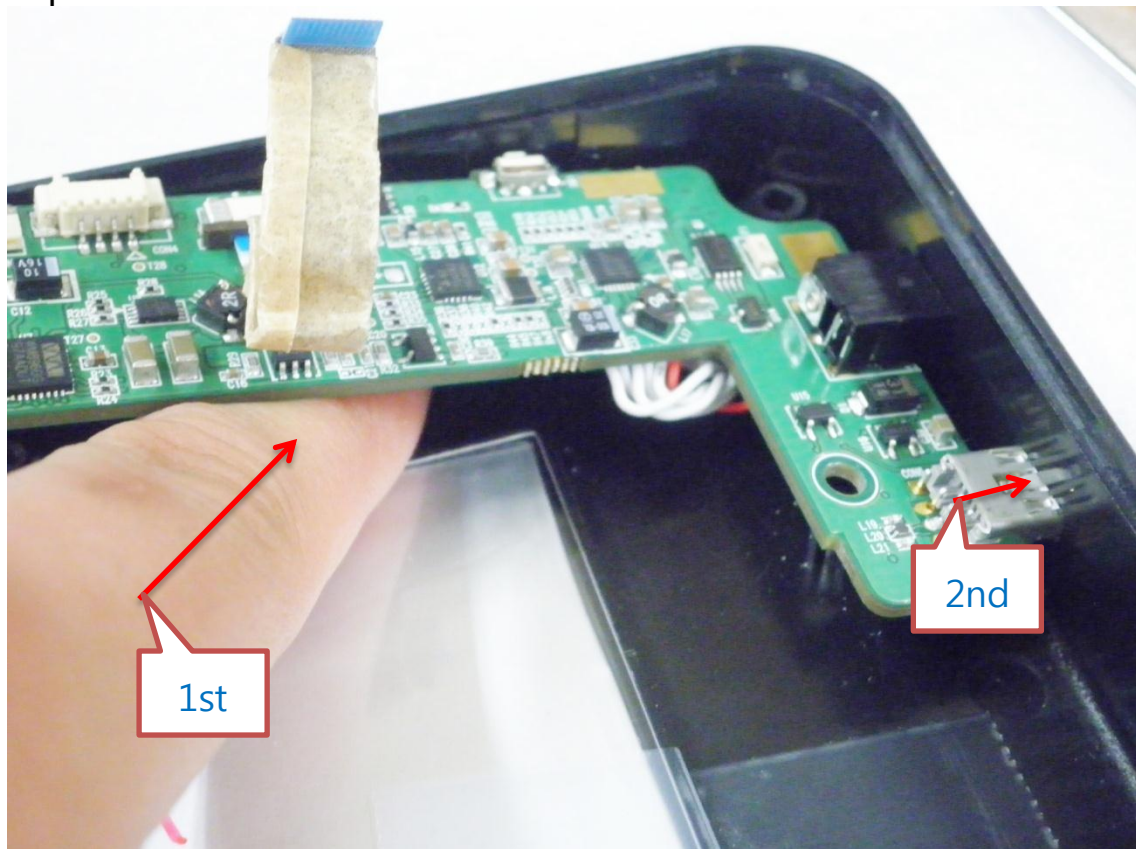


## B. CASE LOWER Assembly

1. Wire of battery should be placed as shown in the figure below.



2. Fixed battery wire with your finger and USB\_OTG of MAIN PCB is placed in the Lower case.





3. MAIN PCB is placed in the screw holes to fit and assemble the PCB.

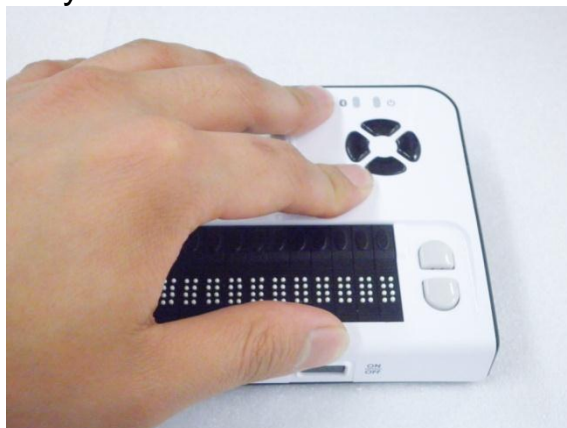
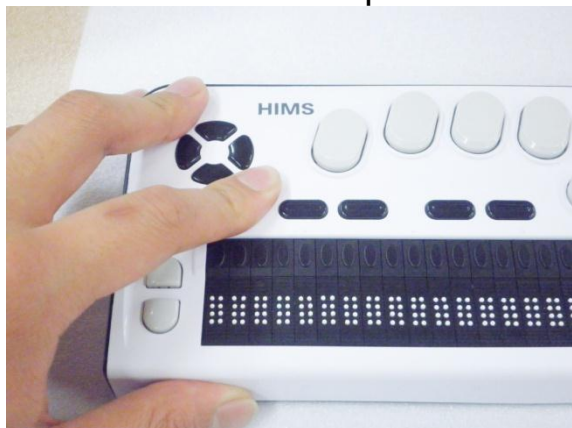


### C. MAIN Assembly

1. Lower case put down When you assemble the Case. And you should check whether Mode switch is inserted into Mode switch knob.



2. Align the position of Case and press both sides of the product. Next, turn back and complete the assembly.



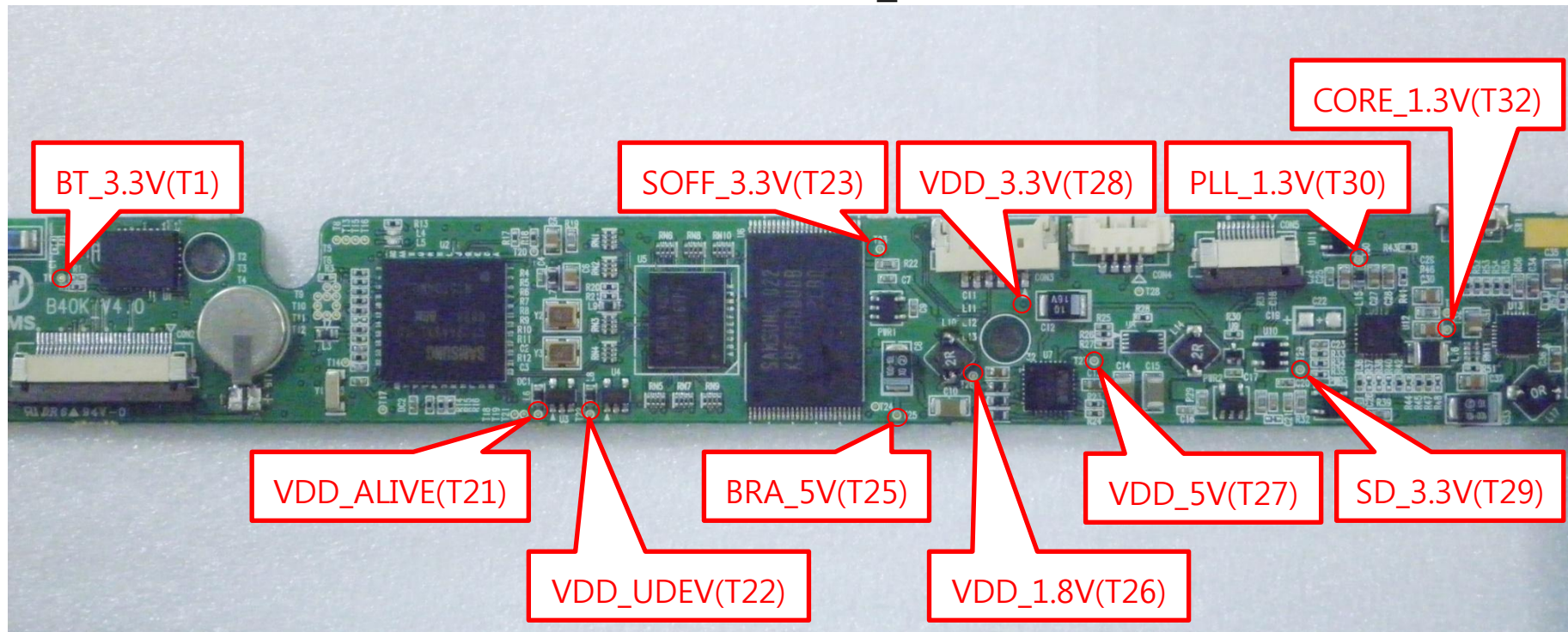
### 3. Checking Powers on the MAIN PCB

- Please check powers using the oscilloscope that can measure the DC voltage or DC voltmeters.
- Plug in the AC adapter to the MAIN PCB before you measure the power status of the MAIN PCB. You can measure voltages the MAIN PCB In compliance with the following.
  - First, connect 30 pin and 12 pin FFC cable from MAIN PCB to Upper Assembly. Next, power Switch has pressed for more than 4 seconds to turn on the product.
    - ◆ Now, you can measure voltages of VDD\_ALIVE, VDD\_UDEV, VDD\_1.8V, PLL\_1.3V, CORE\_1.3V, VDD\_3.3V, SOFF\_3.3V, SD\_3.3V and BRA\_3.3V, except VDD\_5V and BT\_3.3V.
  - You can measure voltages of VDD\_5V and BT\_3.3V In compliance with the following.
    - ◆ VDD\_5V: Voltage can be measured when USB\_OTG must be connected to the terminals by gender.
    - ◆ BT\_3.3V: To measure the voltages, flip the Mode switch to the Bluetooth mode position.



## I. Voltage Checking Points

< MAIN\_PCB\_TOP >



## II. Voltages for power test points

Item	Specification	Checking point
VDD_ALIVE	$1.2V \pm 100mV$	T21
VDD_UDEV	$1.2V \pm 100mV$	T22
VDD_1.8V	$1.8V \pm 100mV$	T26
PLL_1.3V	$1.3V \pm 100mV$	T30
CORE_1.3V	$1.3V \pm 100mV$	T32
VDD_5V	$5.2V \pm 100mV$	T27
VDD_3.3V	$3.3V \pm 100mV$	T28
BT_3.3V	$3.3V \pm 100mV$	T1
SOFF_3.3V	$3.3 \pm 100mV$	T23
SD_3.3V	$3.3 \pm 100mV$	T29
BRA_5V	$5.2V \pm 100mV$	T25

## 4. Diagnoses of Troubles

- If you cannot repair the unit due to any reason, please do not disassemble the unit and please contact HIMS
- Please disconnect AC adapter and battery from the B40K before soldering.
- If we find Troubles that must be added, we will make revisions.

### I. Voltage Fault


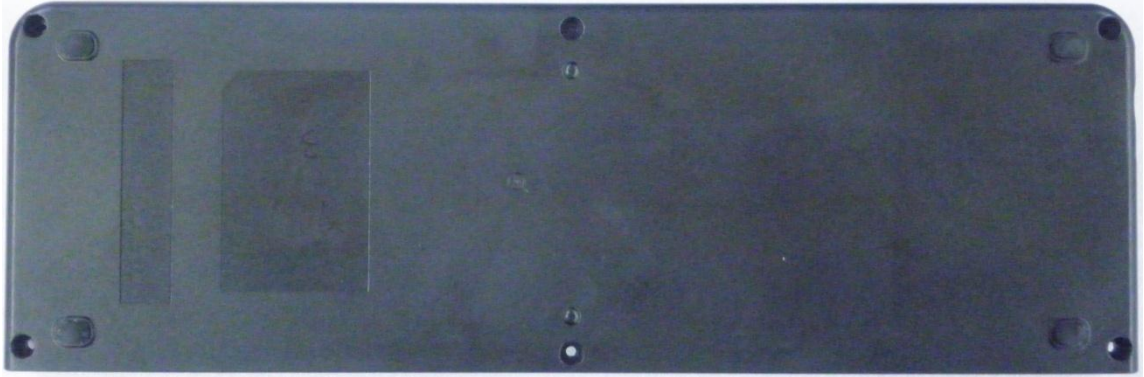
No.	Symptom	Cause	Check point	Measure
1				

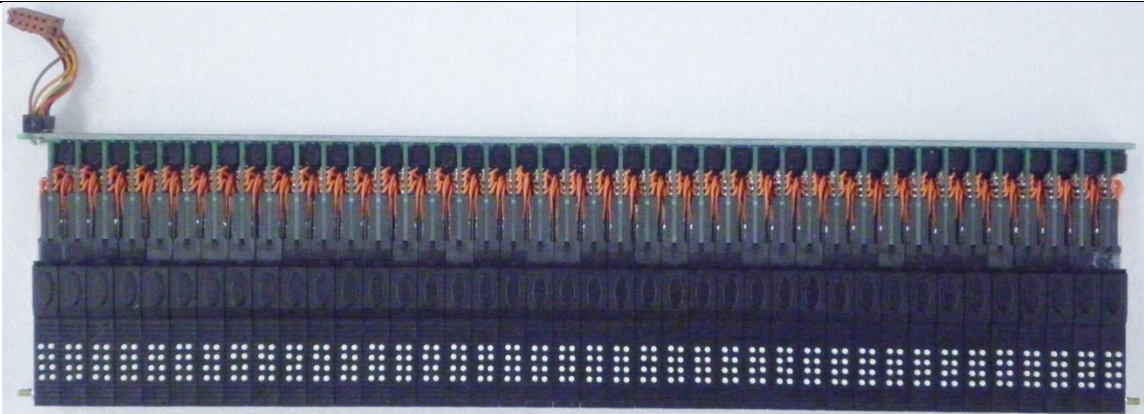
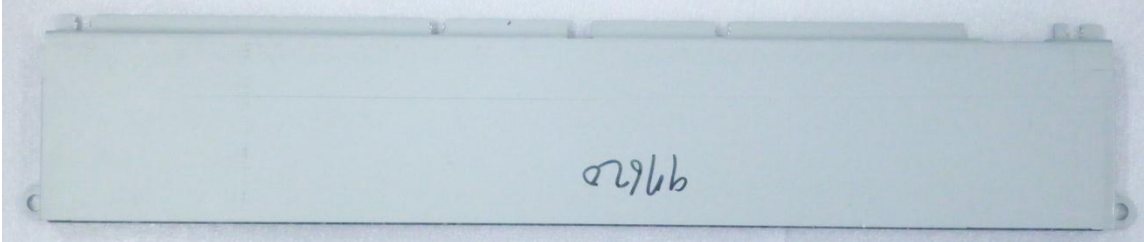

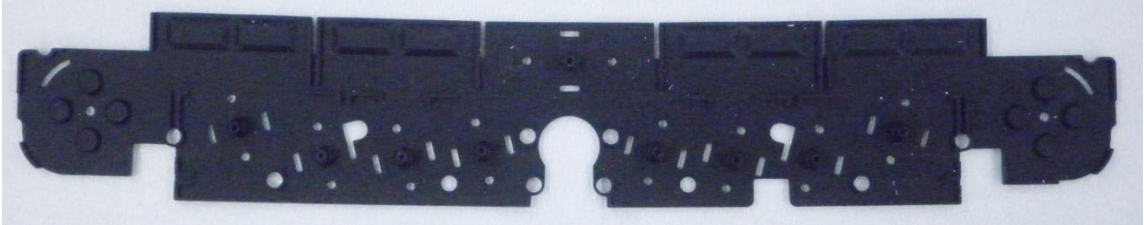
### II. Malfunction




No.	Symptom	Cause	Check point	Measure
1				






5. Part list

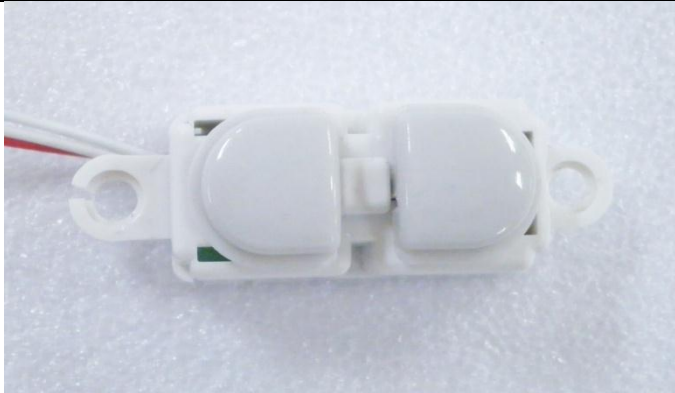


PART NUMBER	PART NAME	QTY	REMARK
B40K_001	CASE UPPER	1	
B40K_002	CASE LOWER	1	




B40K_003	BRAILLE CELL	1	
B40K_004	CELL BRACKET	1	
B40K_005	FILM	1	
B40K_006	RUBER SWITCH	1	

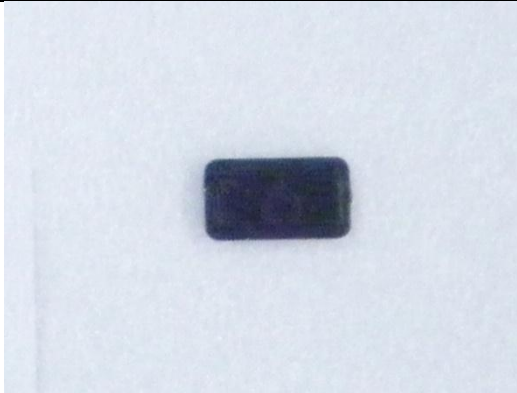

B40K_007	SPEAKER	1		
B40K_008	SCREW Upper PCB	16		<1.66 mm X 3.45 mm>
B40K_009	SCREW SD PCB	2		<1.66 mm X 4.6 mm>
B40K_010	SCREW MAIN PCB	3		



B40K _011	SCREW MAIN	6	 <p>&lt;2.6mm X 8mm&gt;</p>
B40K _012	SCREW Cell Bracket	6	 <p>&lt; 2.5mm X 5mm &gt;</p>
B40K _013	SCREW Scroll Assembly	4	
B40K _014	SCREW DC-DC converter	3	
B40K _015	SCREW GUIDE SD PCB	2	

B40K_016	SCROLL ASSEMBLY	2		
B40K_017	LINK BRAILLE	8		
B40K_018	LINK BRAILLE SPACE	1		

B40K_019	KNOB FUNCTION	4		
B40K_020	KNOB MODE	1		
B40K_021	KNOB NAVIGATION	4		

B40K_022	KNOB POWER	1		
B40K_023	KNOB RESET	1		
B40K_024	DC-DC Converter	1	