

SERVICE INSTRUCTION

Model No. : B14K

- Please note that this Service Manual is for the Main board version 5.1.

VER 1.2
April 2015

HIMS International Corporation

Contents

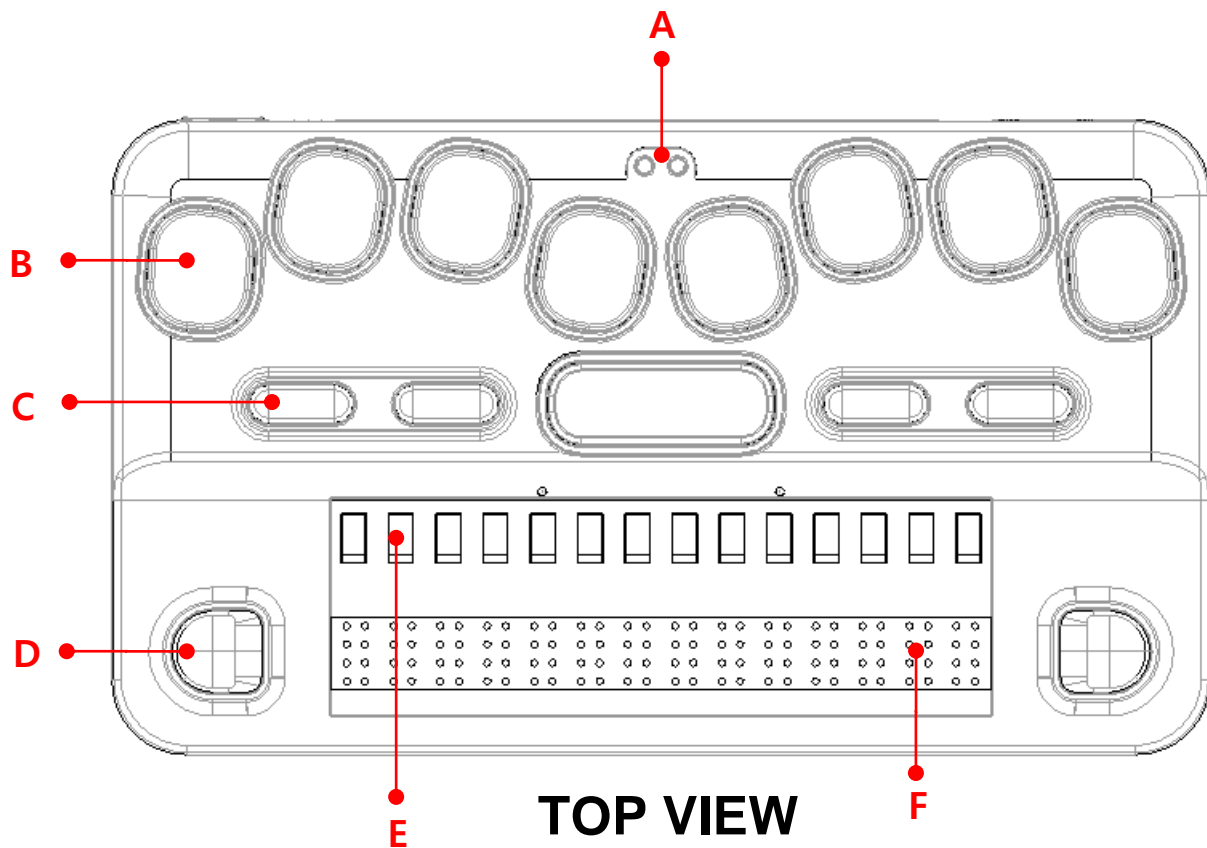
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Before you repair the unit

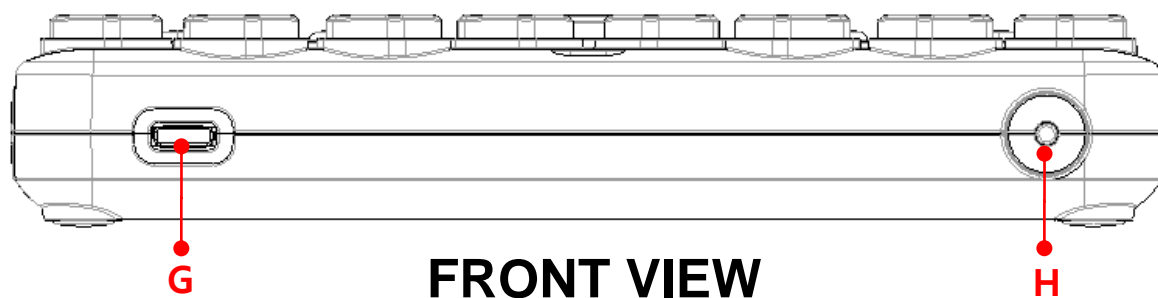
► Please refer to the user manual before you repair the B14K and check the malfunction of the unit under repair.

1. Hardware Structure

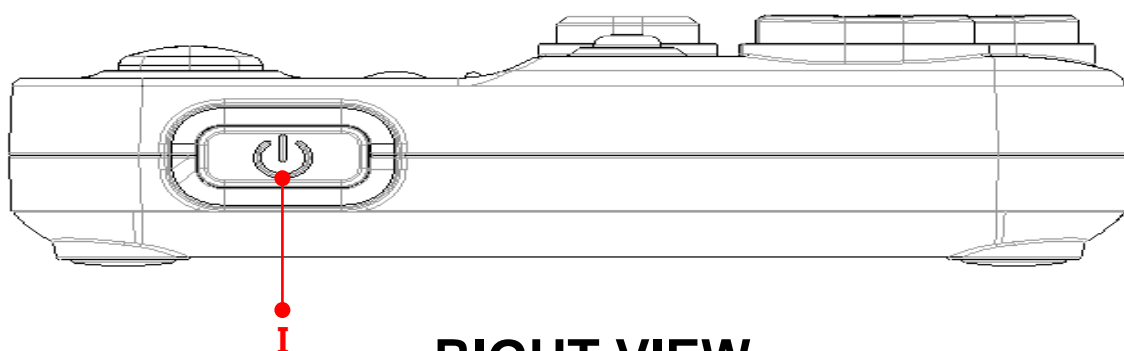
I. External



- A. LED
- B. Braille key : 9 keys (6 Braille keys, Space/Back space/Enter key)
- C. Function key : 4 keys
- D. Scroll key : 2 keys
- E. Cursor key : 14 keys
- F. Braille cell : 14 cells

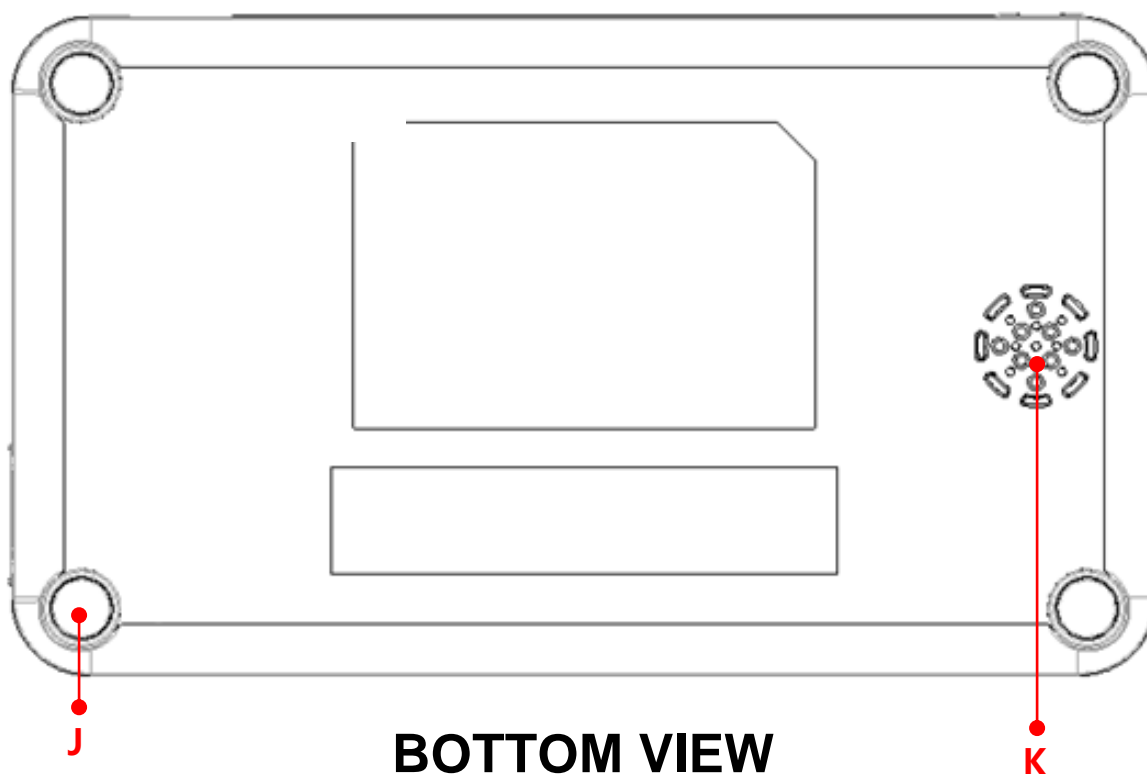


- G. Micro USB jack : 5V, 2A
- H. Reset Key



RIGHT VIEW

I. Power On/Off switch : Push switch

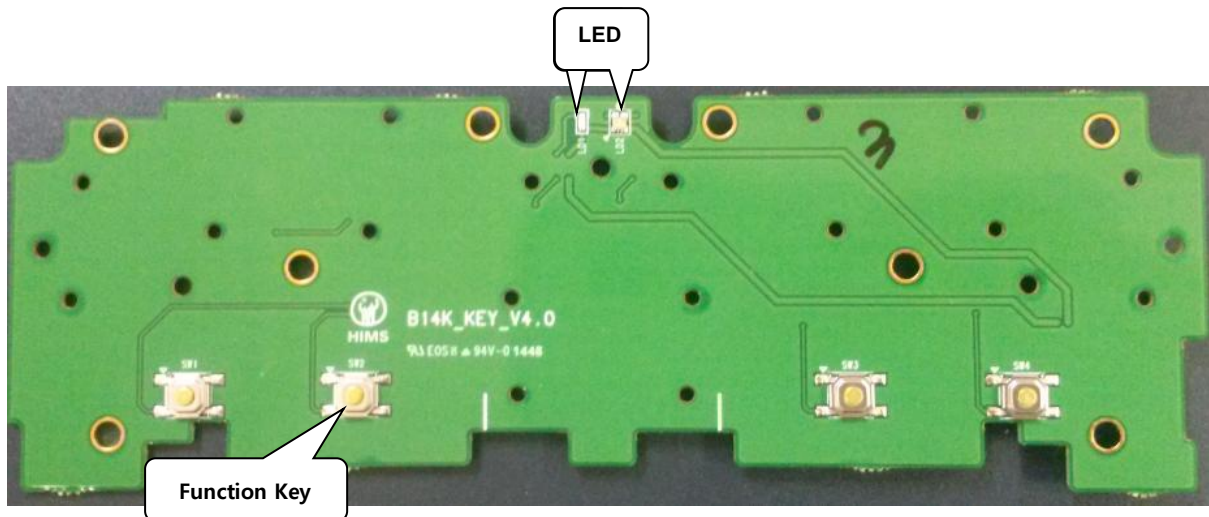


BOTTOM VIEW

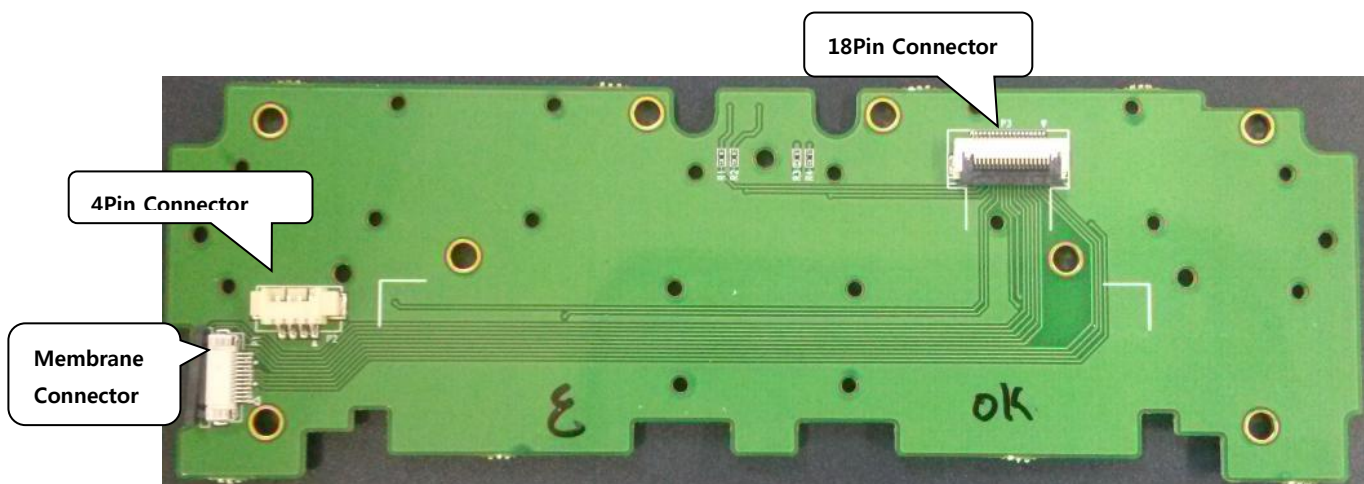
J. Rubber foot
K. Speaker : 0.8W(Mono)

II. Internal

II - I. KEY BOARD

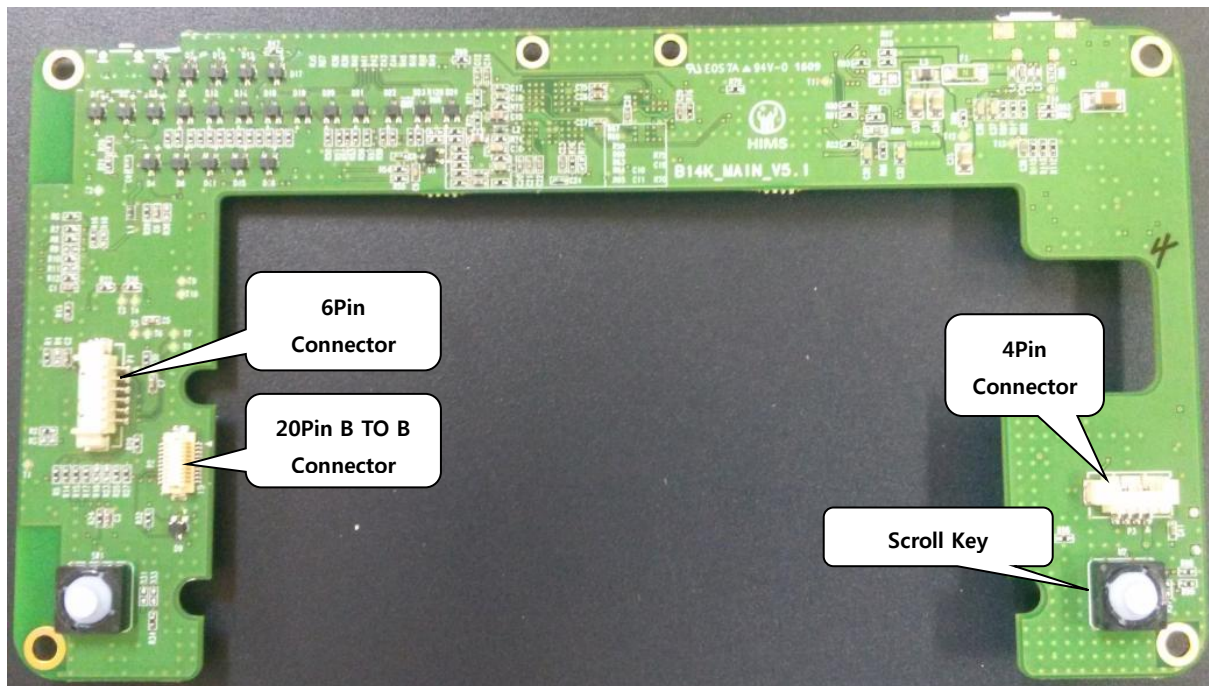


< KEY BOARD TOP SIDE >

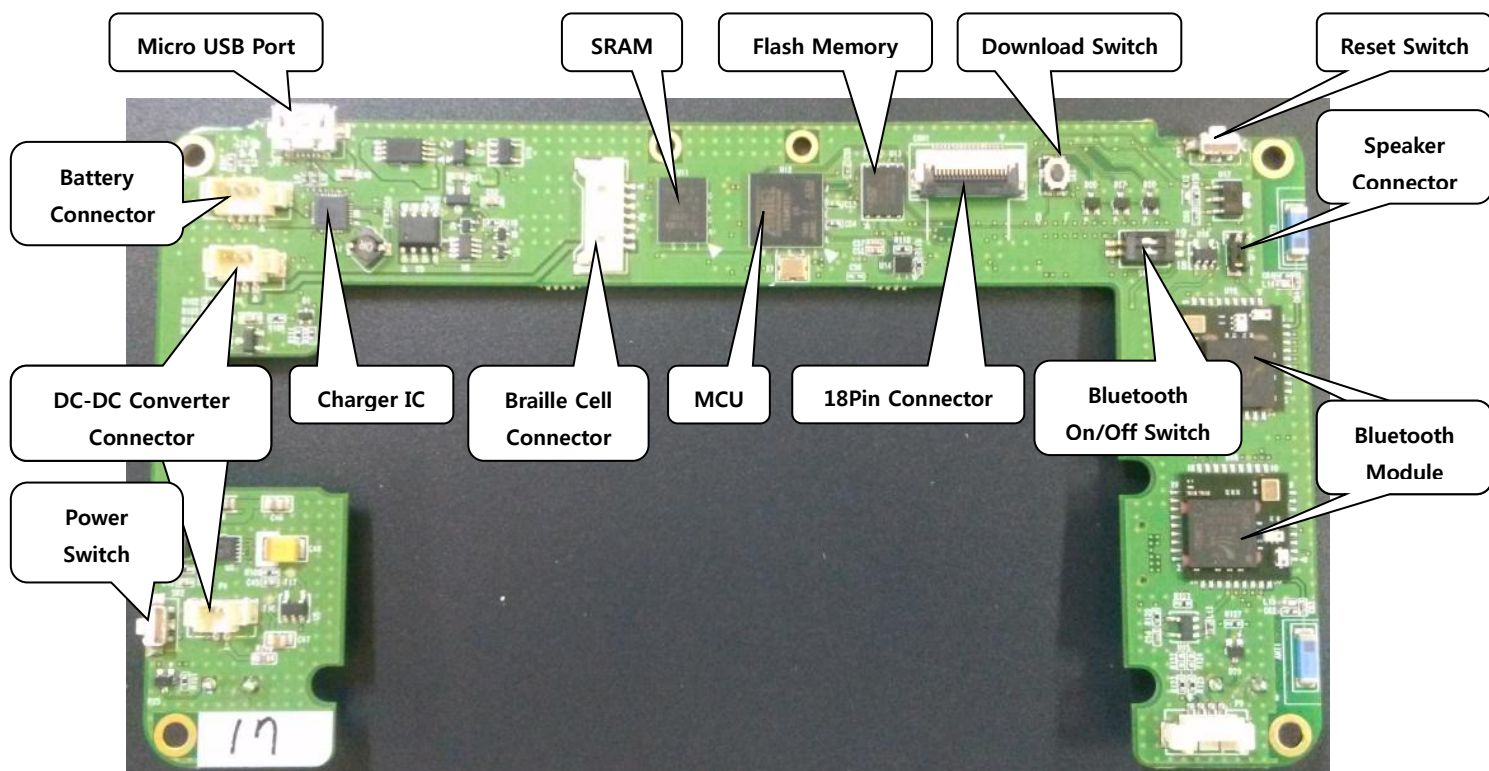


< KEY BOARD BOTTOM SIDE >

II - II. MAIN BOARD



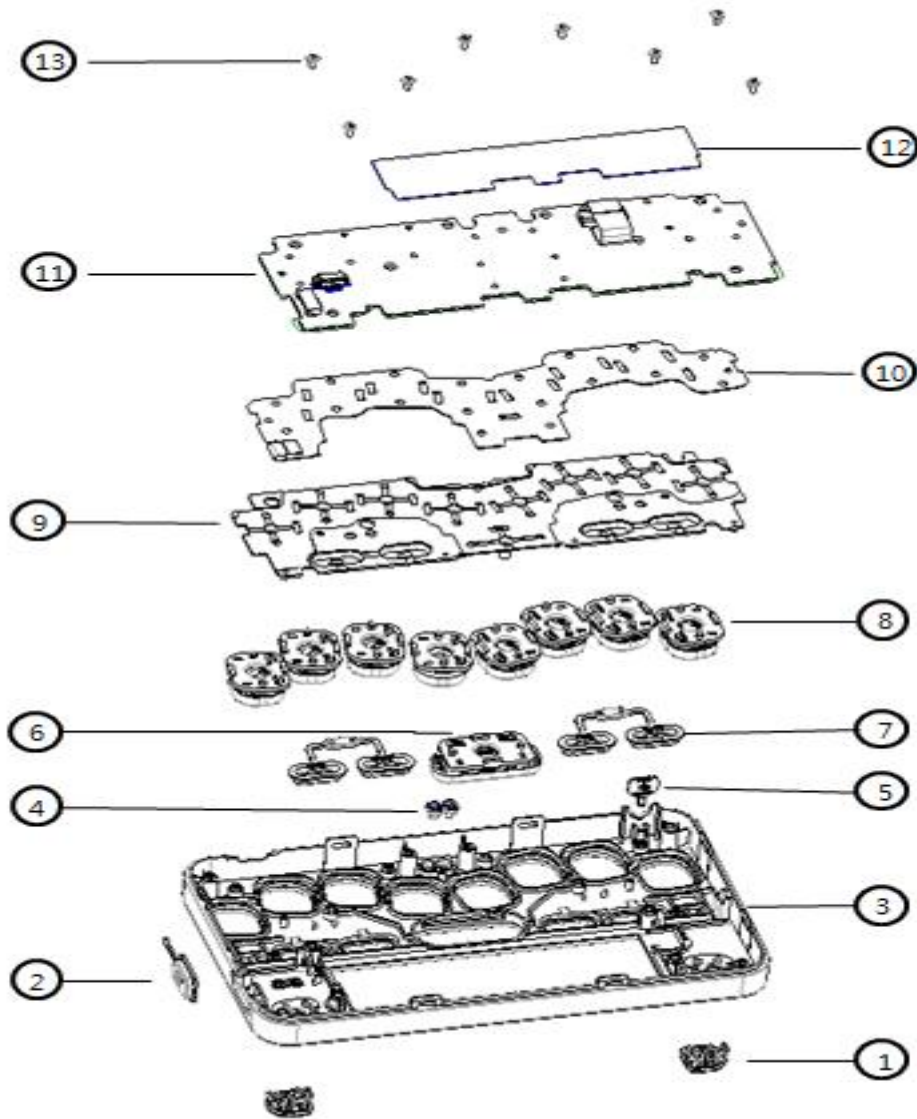
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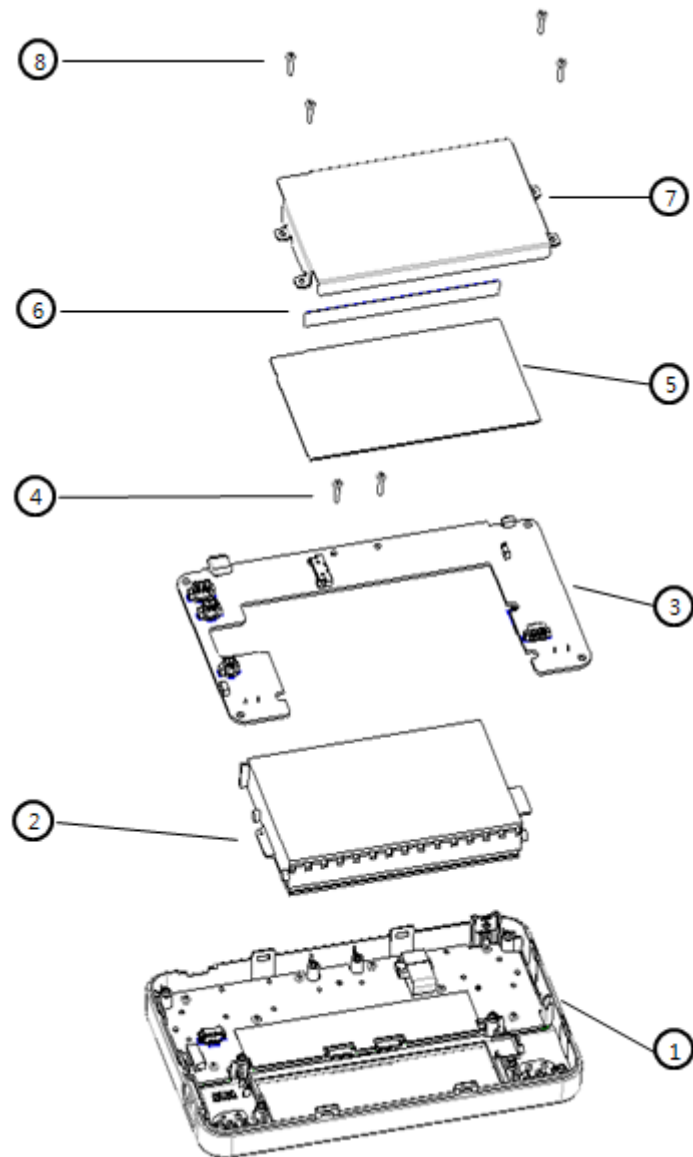
< MAIN BOARD BOTTOM SIDE >

2. Assembly

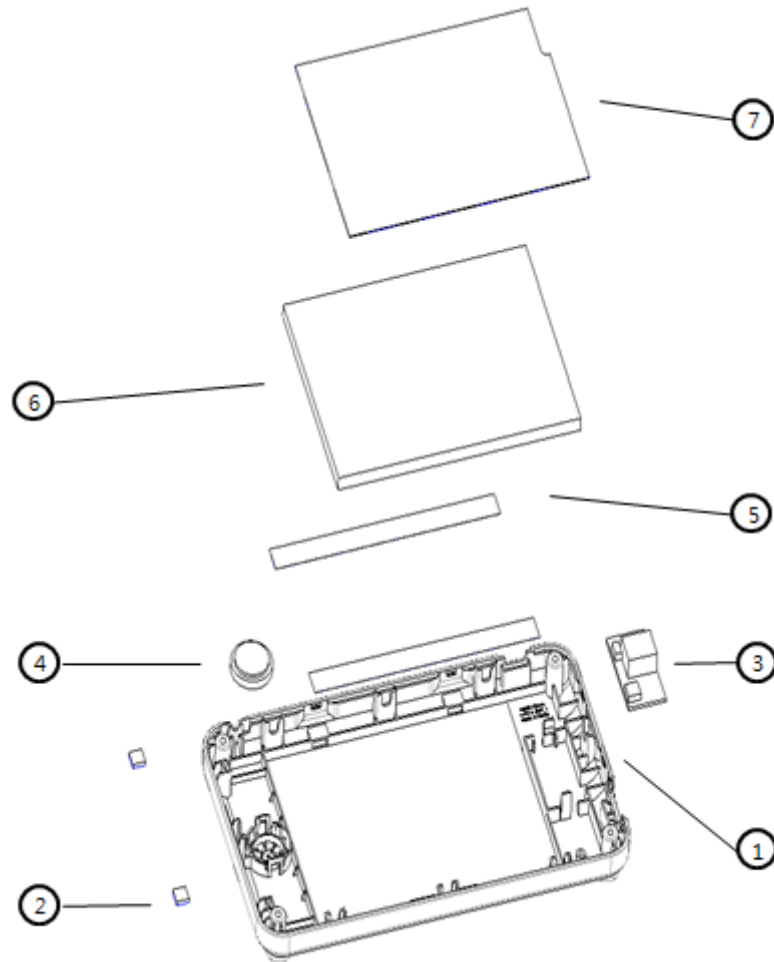
I. Exploded View



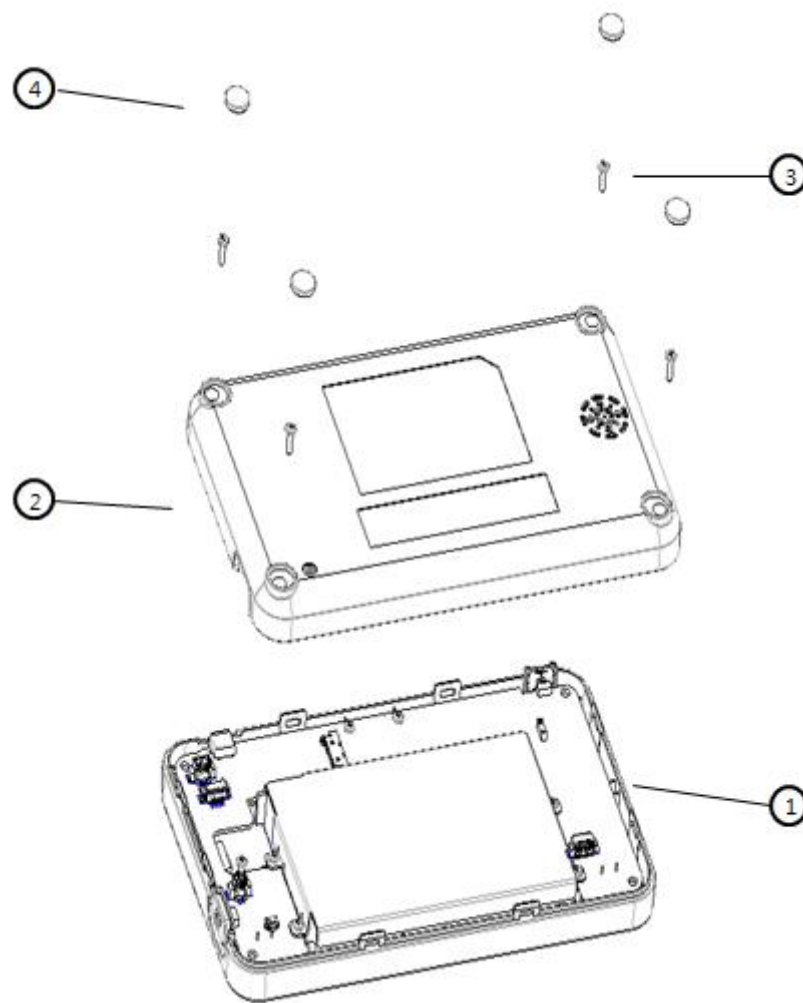
No	Part Name	Material	Q'TY	No	PartName	Material	Q'TY
1	KNOB-SCROLL	PC	2	8	KEY BRAILLE	ASSY	8
2	KNOB-POWER	PC	1	9	RUBBER SWITCH	SILICONE	1
3	CASE UPPER	PC	1	10	MEMBRANE SWITCH	ASSY	1
4	LED-LENS	확산PC	2	11	KEY PCB		1
5	KNOB-RST	PC	1	12	INSULATOR KEY PAD	PET FILM	1
6	KEY BRAILLE SPACE	ASSY	1	13	TAPPING SCREW	M1.7X3	8
7	KNOB FUNTION	PC	2				



No	Part Name	Material	Q'TY	No	Part Name	Material	Q'TY
1	CASE UPPER	ASSAY	1	5	INSULATOR BRK-1	PORON	1
2	BRAILLE CELL		1	6	INSULATOR BRK-2	PET FILEM	1
3	MAIN PCB		1	7	BRACKET-CELL	SUS	1
4	MACHINE SCREW	M1.7 X 6	2	8	MACHINE SCREW	M1.7 X 6	4



No	Part Name	Material	Q'TY	No	PartName	Material	Q'TY
1	CASE LOWER	PC	1	5	TAPE BATTERY	양면 TAPE	2
2	PAD BT ANT	PORON	2	6	BATTERY		1
3	DC DC CONVERTOR		1	7	INSULATOR BATT	PET FILM	1
4	SPEAKER		1				



No	Part Name	Material	Q'TY	No	<u>PartName</u>	Material	Q'TY
1	CASE UPPER	ASSY	1	3	MACHINE SCREW	M1.7X6	4
2	CASE LOWER	ASSY	1	4	RUBBER FOOT	SILICON	4

II. Disassembling

- ① Disassemble the Rubber Foot as shown on the <Picture 1>. And unscrew 4 screws from the Lower Case as shown on the <Picture 2>.

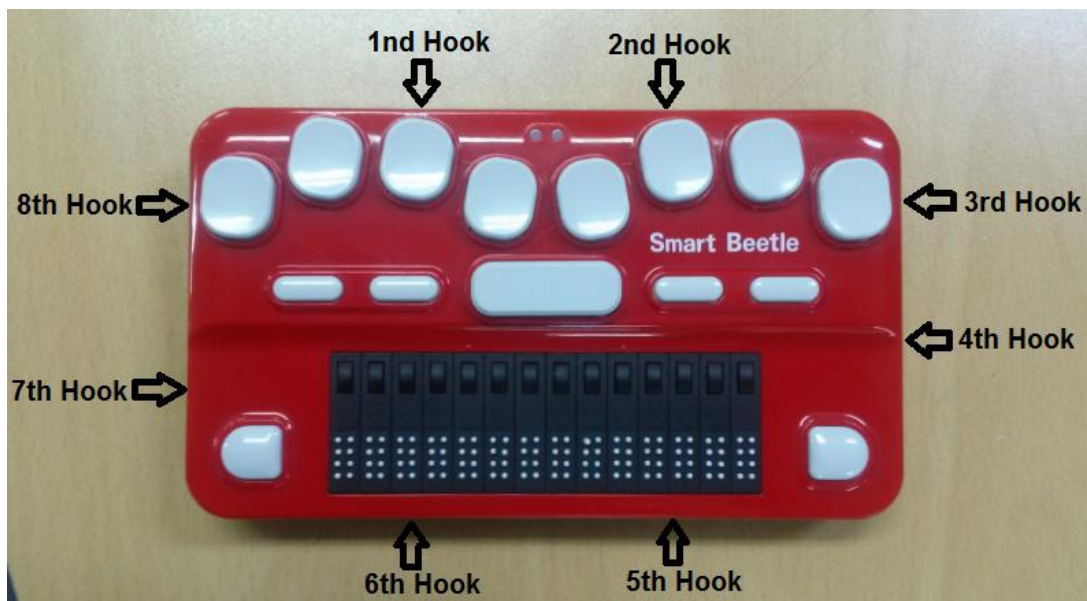


<Picture 1>



<Picture 2>

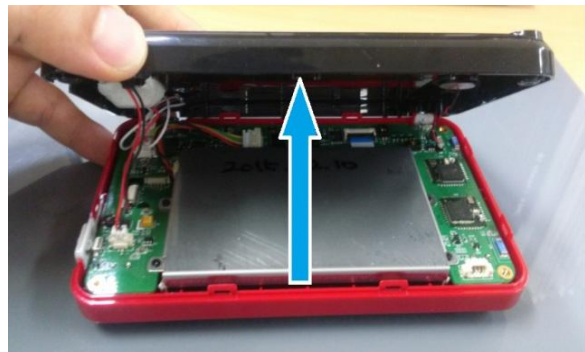
- ② Disassemble the Lower Case.
 - A. There are 8 hooks on the Upper Case <Picture 3>. Detach the Lower Case slowly <Picture 4, 5>.



<Picture 3>



<Picture 4 >

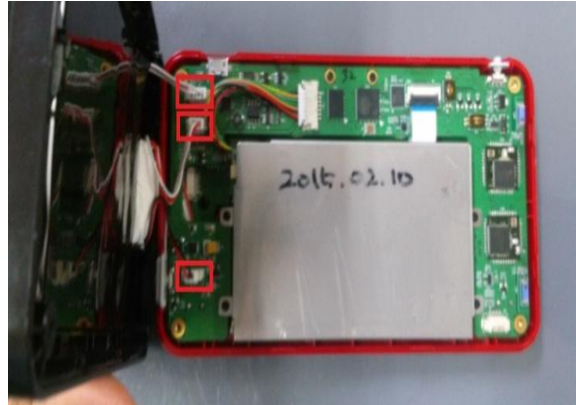


<Picture 5>

- ③ Disconnect the Speaker Cable from the Main Board as shown on the <Picture 6>. You should disconnect connectors of 3point as shown on the <Picture 7>.



<Picture 6>



<Picture 7>



<Picture 8>

- ④ Detach screws in order to disconnect Main PCB from Upper Case.
A. Disassemble the Knob-Power and Knob-RST as shown on the <Picture 9>. Unscrew 6 screws from the Upper Case as shown on the <Picture 10>.

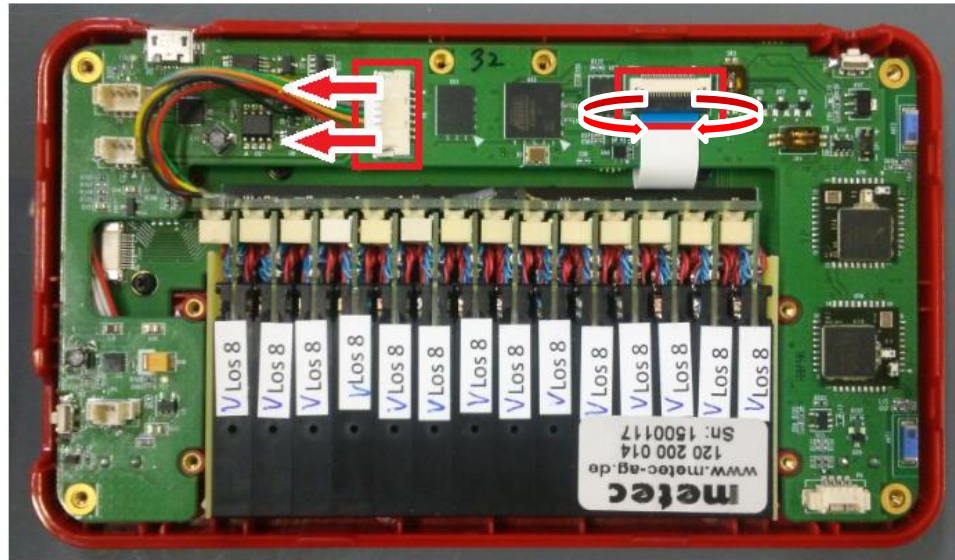


<Picture 9>



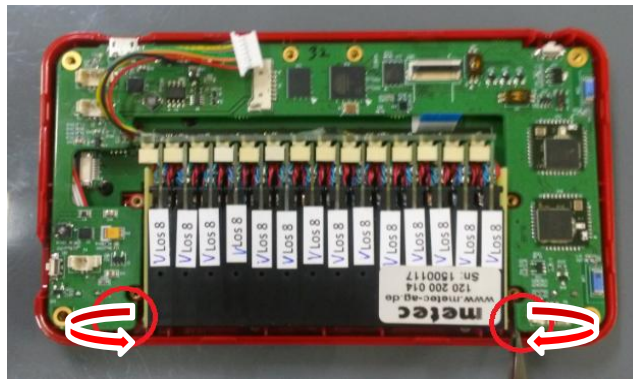
<Picture 10>

- B. Disassemble 7Pin connector as shown on the <Picture 11>. And lift off 18Pin connector cap in the arrow direction and disassemble the FFC cable.

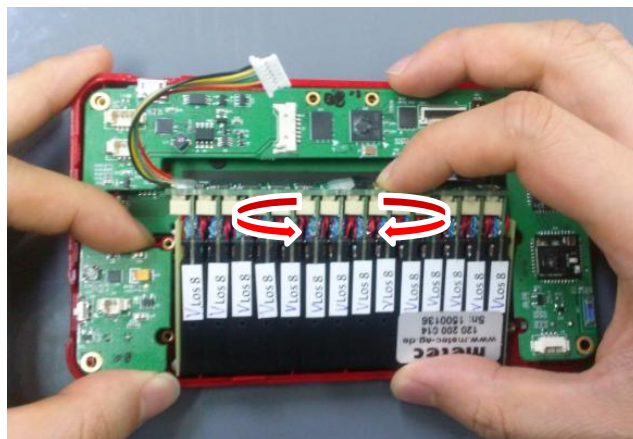


<Picture 11>

- C. Slightly Lift off Main PCB in the arrow direction as shown on the <Picture 12>. Lift off top of Braille Cell in the arrow direction and disassemble the Braille Cell as shown on the <Picture 13>.

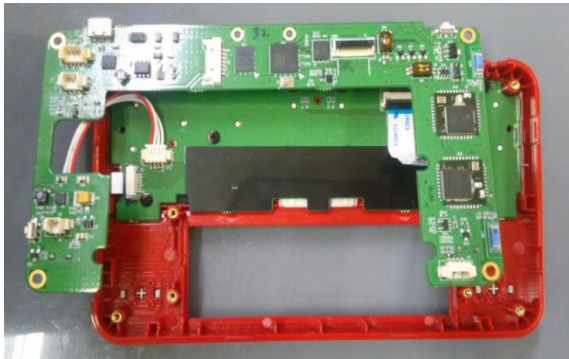


<Picture 12>

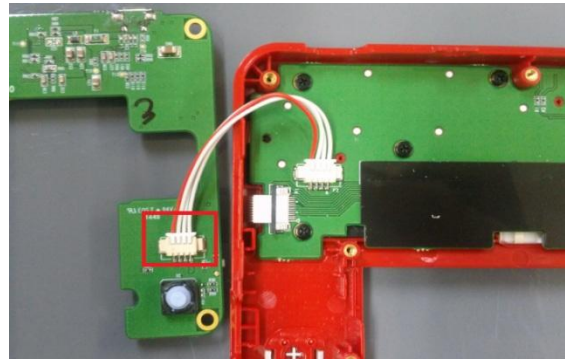


<Picture 13>

D. Disassemble Main board and 4Pin connector as shown on the <Picture 15>.

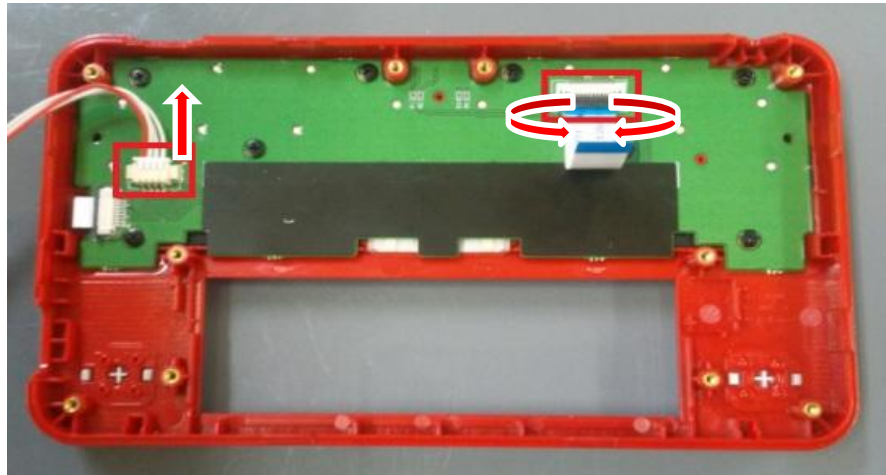


<Picture 14>



<Picture 15>

- ⑤ Detach screws in order to disconnect Key PCB from Upper Case.
A. Disassemble 4Pin Cable. And lift off 18Pin connector cap in the arrow direction and disassemble the FFC Cable as shown on the <Picture 16>.



<Picture 16>

- B. Unscrew 8 screws from the Key PCB as shown on the <Picture 17>.



<Picture 17>

C. Detach Rubber Switch and Braille Keys from Upper Case.



<Picture 18>



<Picture 19>



<Picture 20>

III. Assembling

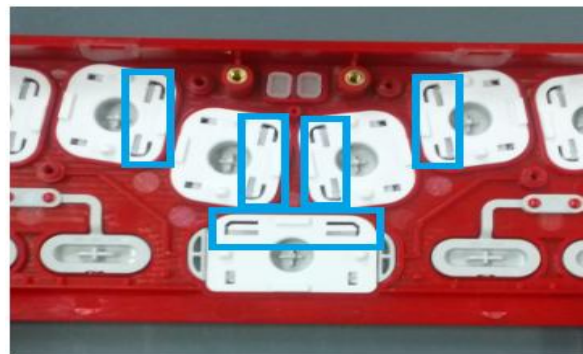
- Assembly is a reverse order of disassembly; the followings are major check points while assembling the unit.

① Assemble the Key PCB.

- A. When you assemble Braille Keys, Braille Key should be positioned blue box as shown on the <Picture 22>. And be careful of the direction when you assemble Braille Keys.



<Picture 21>

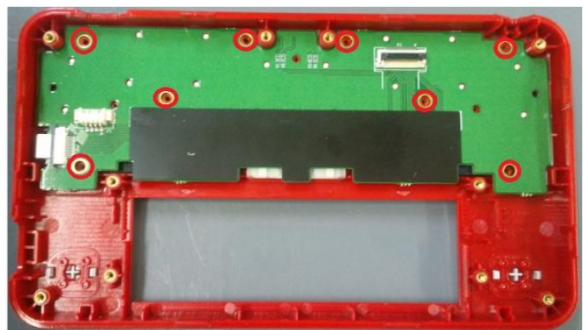


<Picture 22>

- B. Assemble Rubber Switch and Key PCB from Upper case as shown on the <Picture 23, 24>.

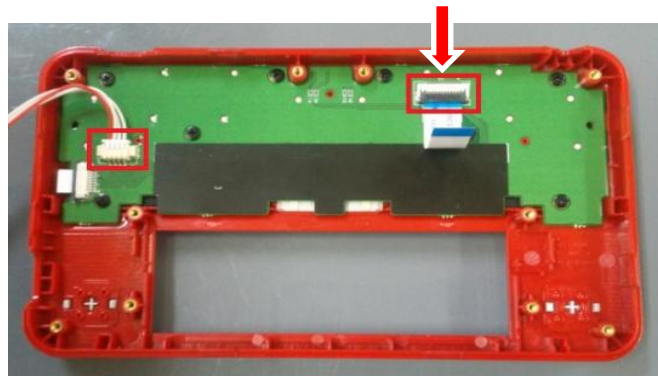


<Picture 23>



<Picture 24>

- C. Assemble the FFC Cable and 4pin connector. And take down Cap of 18pin connector in the arrow direction as shown on the <Picture 25>.



<Picture 25>

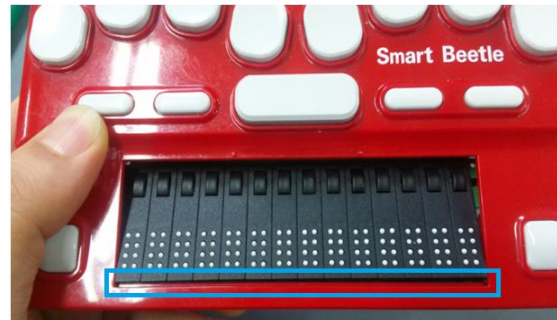
② Assemble the Main PCB and Braille Cell.

A. As below <Picture 26, 27, 28, 29, 30, 31>, assemble the Braille Cell and Upper Case. To Braille Cell Cursor PCB is fixed on Upper Case.

■ **Attention** : To assemble : Place bottom of Braille Cell on Upper Case as shown on the <Picture 27>.



<Picture 26>



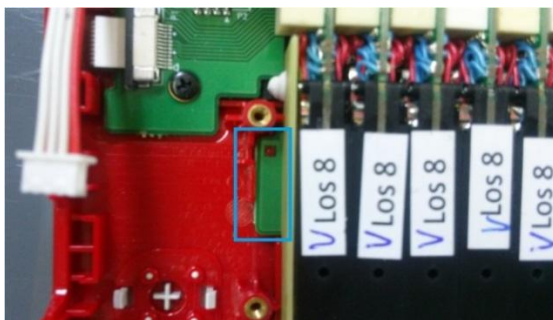
<Picture 27>



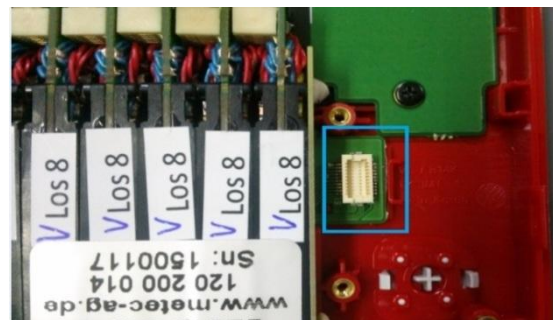
<Picture 28>



<Picture 29>

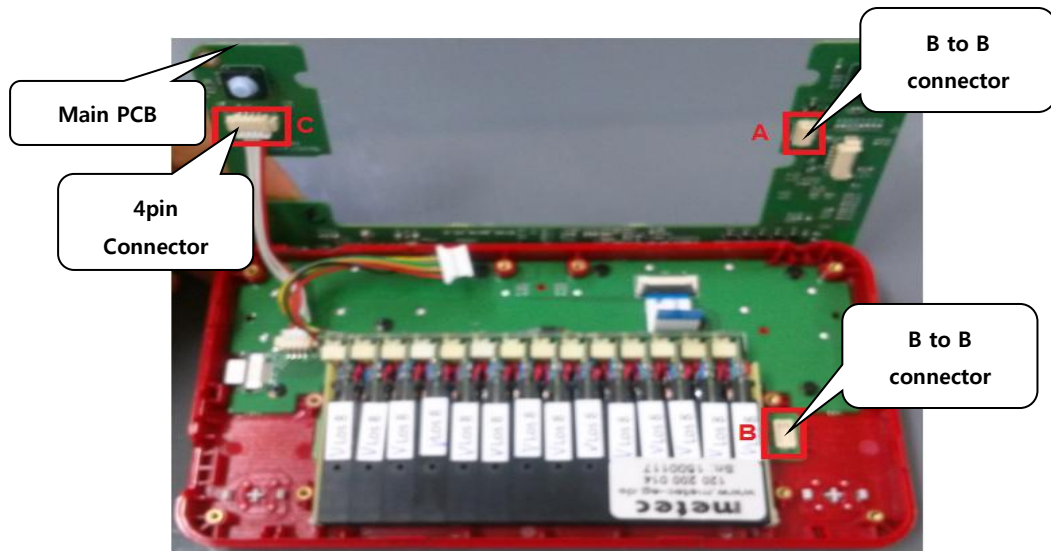


<Picture 30>



<Picture 31>

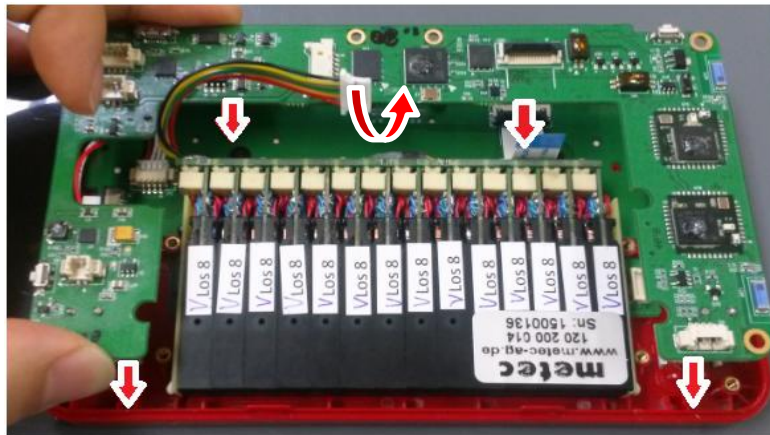
- B. Assemble 4pin connector from Main PCB as shown on the <Picture 32>.



<Picture 32>

- C. Assemble A and B connector of <Picture 32>. As below <picture 33>, Combine Main PCB and Braille Cell with vertical direction.

■ **Attention** : Lift off Braille Cell Cable in the arrow direction and assemble the Main PCB as shown on the <Picture 33>.

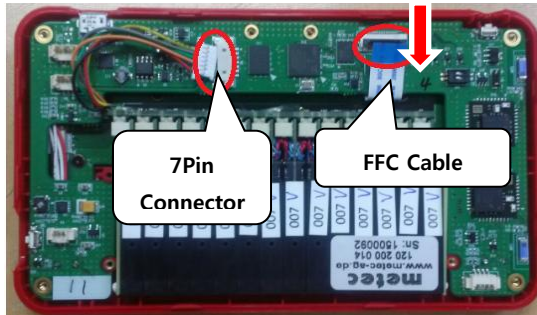


<Picture 33>



<Picture 34>

- D. Assemble the FFC Cable and 7pin connector. And take down Cap of 18pin connector in the arrow direction as shown on the <Picture 35>. And screw 2 screws from the Main PCB as shown on the <Picture 36>.



<Picture35>



<Picture 36>

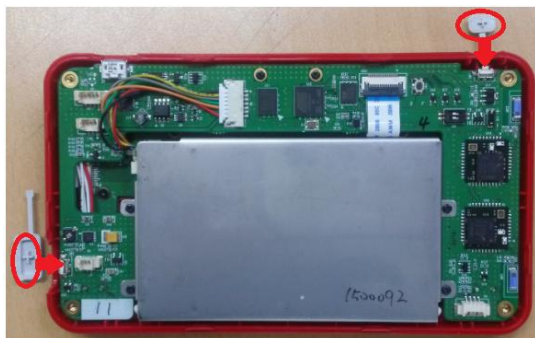
- E. Screw 4screws from the Bracket as shown on the <Picture 37>. And Assemble the Knob-Power and Knob-RST as shown on the <Picture 39, 40>.



<Picture 37>



<Picture 38>



<Picture 39>



<Picture 40>

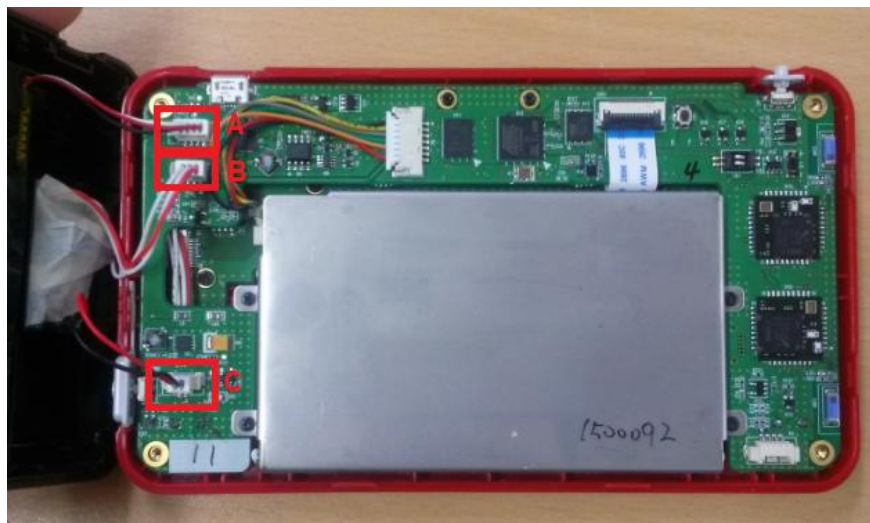
③ Assemble the Upper case.

- A. When you connect Speaker, Speaker Cable should be positioned within the range (θ) of red line as shown on the <Picture 41>



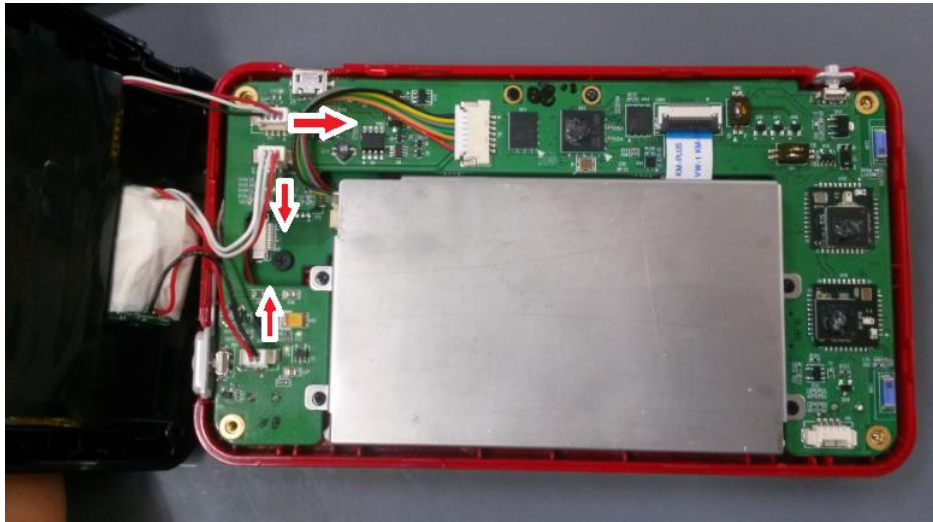
<Picture 41>

- B. <Picture 41> cables are combined in A>B>C order as shown on the <Picture 42>.



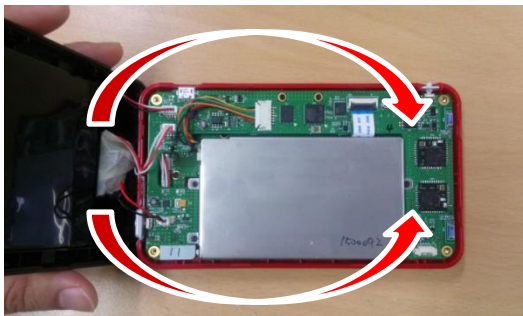
<Picture 42>

C. Please, each cable was fixed in arrow direction.



<Picture 43>

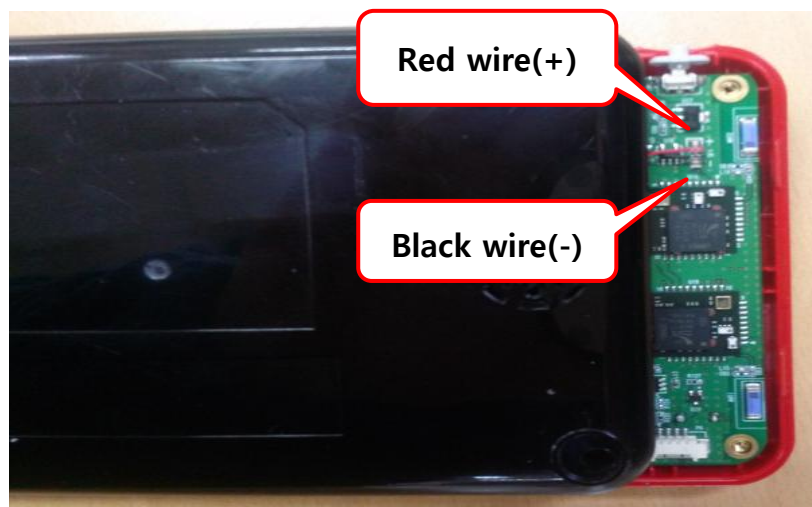
D. Cover with lower case over top of the Upper Case as shown on the <Picture 44>. Assemble the speaker 2pin connector as shown on the <Picture 45>.



<Picture 44>



<Picture 45>



<Picture 46>

- E. There are 8 hooks on the Lower case <Picture 47>. Assemble the Lower case slowly.(That execute sequentially from 1nd Hook to 8nd Hook.)



<Picture 47>

- F. Screw 4 screws from the Lower Case as shown on the <Picture 48>. And assemble the Rubber Foot as shown on the <Picture 49>.



<Picture 48>



<Picture 49>

- G. Assemble complete



<Picture 50>

3. Diagnoses of Troubles

➤ If you cannot repair the unit due to any reason, please do not disassemble the unit and please contact HIMS.

No.	Symptom	Cause and check point	Measure
1	Press the Braille keys but no action	Bad membrane switch	Disassemble the Upper module and replace the Membrane switch with new one
		Bad rubber switch	Disassemble the Upper module and replace the Rubber switch with new one
2	Press the Function keys but no action	Tact switch is damaged	Disassemble the Upper module and replace the Tact switch with new one
3	Press the Cursor keys but no action	Tact switch is damaged	Disassemble the Upper module and replace the Tact switch with new one
4	Press the Scroll keys but no action	Tact switch is damaged	Replace the Tact switch with new one
		Main PCB assembly error	Assembling correctly
5	Press the Reset keys but no action	Tact switch is damaged	Replace the Tact switch with new one
6	Press the Power keys but no action	Tact switch is damaged	Replace the slide switch with new one
7	USB connected but not working	Main board is damaged	Replace Main board with new one
8	The bluetooth doesn't working right	Main board is damaged	Replace Main board with new one
		Bluetooth Module is damaged	Replace Bluetooth Module with new one
9	No sound or Noise sound from the Speaker	Speaker is damaged	Disassemble the Upper module and replace the Speaker with new one
		Speaker pin is inserted improperly	Insert it firmly
10	Braille cell is not working	Braille cell is damaged	Replace Braille cell with new one
		DC-DC Converter is damaged	Replace DC-DC Converter with new one

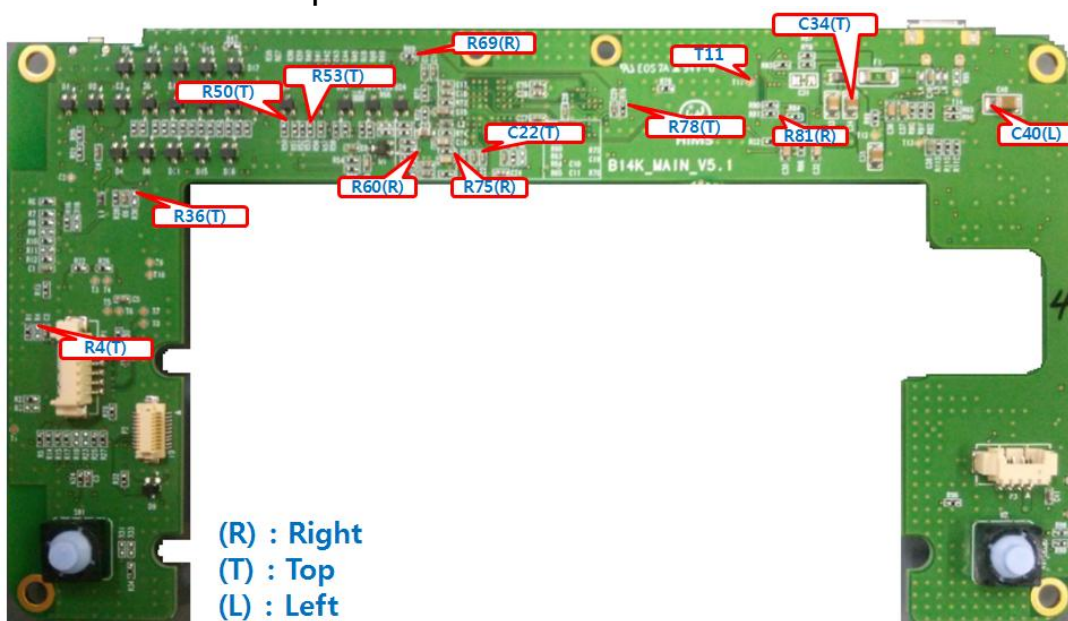
4. Checking Powers on the Main board

Please check powers using the oscilloscope that can measure the DC voltage or DC voltmeters.

Just plug in the AC adapter to the Main board before you measure the power status of the Main board, and then turn on the power. You can measure voltages after booting the Main board.

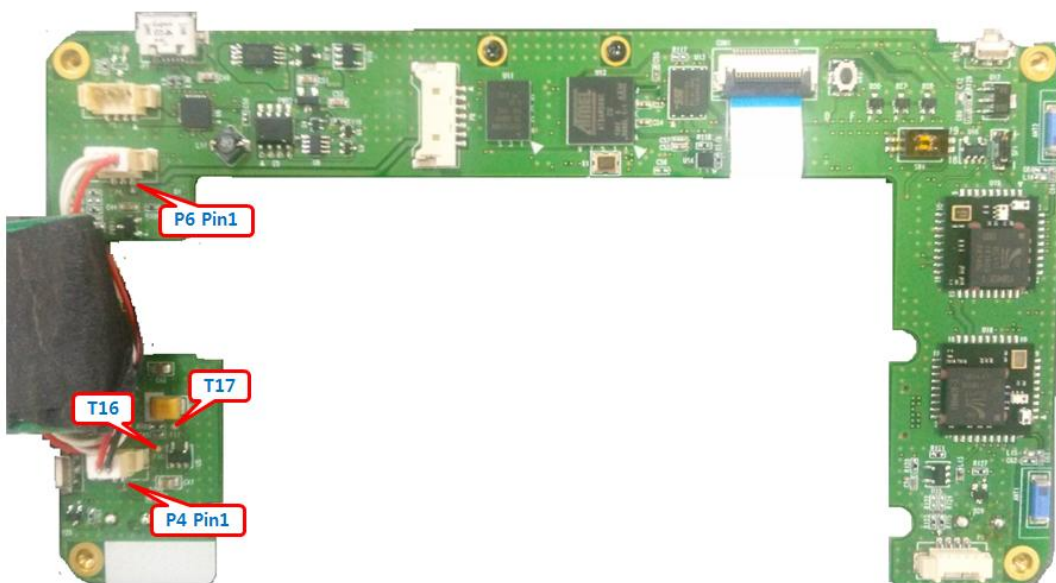
➤ Voltage Checking Points

- Main PCB Top



<Picture 51>

- Main PCB bottom







<Picture 52>

Voltages for power test points

No.	Item	Specification	Checking point
1	VBUS	4.9V ~ 5.1V	C34
2	CHARGER_OUT	4.3V ~ 4.5V	T13
3	VCC_3.3V(LDO_PWR2)	3.2V ~ 3.35V	T11
4	VCC_3.3V(Voltage Detector)	3.2V ~ 3.35V	R81
5	VCC_3.3V(RAM)	3.2V ~ 3.35V	R78
6	VCC_3.3V(Flash Memory)	3.2V ~ 3.35V	R69
7	VCC_3.3V(AMP)	3.2V ~ 3.35V	R60
8	HID_BT3V3(BT)	3.2V ~ 3.35V	R36/DNI
9	SPP_BT3V3(BT)	3.2V ~ 3.35V	R4/DNI
10	Braille Cell Action Voltage_IN	4.9V ~ 5.1V	T17
11	Braille Cell Action Voltage_OUT	4.9V ~ 5.1V	T16
12	VCC_3.3V(Braille Key)	3.2V ~ 3.35V	R50
13	VCC_3.3V(Function Key)	3.2V ~ 3.35V	R53
14	VCC_3.3V(CPU_Main)	3.2V ~ 3.35V	C22
15	VCC_3.3V(CPU_Audio)	3.2V ~ 3.35V	R75
16	CHARGE_LED_3.3V	3.2V ~ 3.4V	R108
17	DC-DC Convertor_IN	4.9V ~ 5.1V	P4 Pin1
18	DC-DC Convertor_OUT	195V ~ 205V	P6 Pin1

5. Screw

NO.	Specification	QTY	Remark
1	M1.7 X 3	8	
2	M1.7 X 6	6	
3	M1.7 X 6	4	
4	M1.7 X 4.5	4	

■ Attention : This screw 4 governs B14K of Japan



<SCREW 1 >



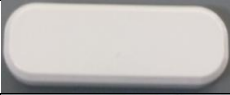




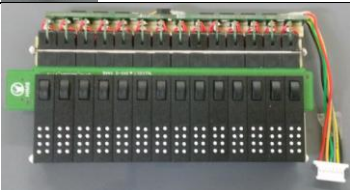











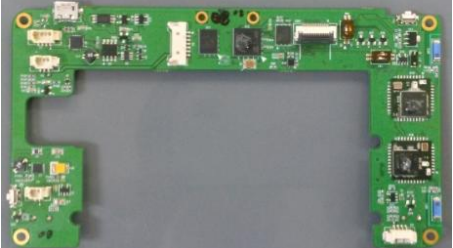
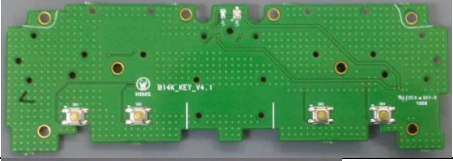



<SCREW 2>






<SCREW 3, 4>

6. Part list

PART NUMBER	PART NAME	QTY	REMARK
B14K_001	UPPER CASE	1	
B14K_002	BRAILLE KNOB	8	
B14K_003	SPACE KNOB	1	
B14K_004	FUNCTION KNOB	2	
B14K_005	SCROLL KNOB	1	
B14K_006	POWER KNOB	1	
B14K_007	RESET KNOB	1	
B14K_008	BRAILLE CELL	1	
B14K_009	CELL BRACKET	1	
B14K_010	RUBBER SWITCH	1	
B14K_011	MEMBRANE SWITCH	1	

B14K_012	LOWER CASE	1	
B14K_013	RUBBER FOOT	4	
B14K_014	SPEAKER	1	
B14K_015	AC ADAPTOR	1	
B14K_016	USB to Micro USB Cable		
B14K_017	DC-DC CONVERTER	1	
B14K_018	MAIN BOARD	1	
B14K_019	KEY BOARD	1	
B14K_020	BATTERY PACK	1	
B14K_021	TACK SWITCH (Reset key)	1	
B14K_022	TACK SWITCH (Power key)	1	

B14K_023	TACK SWITCH (Scroll key)	4		
B14K_024	TACK SWITCH (Function key)	4		
B14K_025	4pin Cable			
B14K_026	18pin FFC Cable		