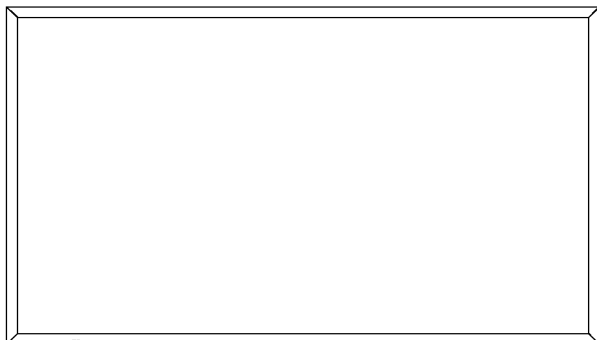


# Service Manual

Touch Screen LCD Display

Model No. **TH-80LFB70E**


LA54 Chassis



## **WARNING**

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

## **IMPORTANT SAFETY NOTICE**

There are special components used in this equipment which are important for safety. These parts are marked by  in the Schematic Diagrams, Circuit Board Diagrams, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire or other hazards. Do not modify the original design without permission of manufacturer.

# TABLE OF CONTENTS

	PAGE	PAGE
<b>1 Safety Precautions</b>	<b>3</b>	
1.1. General Guidelines	3	
1.2. Touch-Current Check	3	
<b>2 Warning</b>	<b>4</b>	
2.1. Prevention of Electrostatic Discharge (ESD) to Electrostatically Sensitive (ES) Devices	4	
2.2. About lead free solder (PbF)	5	
<b>3 Service Navigation</b>	<b>6</b>	
3.1. Service Hint	6	
3.2. Applicable signals	7	
<b>4 Specifications</b>	<b>9</b>	
<b>5 Service Mode</b>	<b>11</b>	
5.1. CAT (Computer Aided Test) mode	11	
5.2. IIC mode structure (following items value is sample data)	16	
<b>6 Troubleshooting Guide</b>	<b>17</b>	
6.1. Self Check	17	
6.2. No Power	19	
6.3. No Picture	19	
6.4. Diagnosis of the image	20	
6.5. Diagnosis of Touch Panel	22	
6.6. Diagnosis of the Wi-Fi dongle	22	
<b>7 Disassembly and Assembly Instructions</b>	<b>23</b>	
7.1. Back Cover and Board	23	
7.2. Preparations	24	
7.3. Replacement of WI-FI Dongle	24	
7.4. Removal of Back Cover	24	
7.5. Replacement of H1-Board	25	
7.6. Replacement of Wire (A-WIFI)	25	
7.7. Replacement of DS-Board	25	
7.8. Replacement of A-Board	26	
7.9. Replacement of Terminal Bracket Metal	28	
7.10. Replacement of HX-Board	28	
7.11. Replacement of P-Board	29	
7.12. Replacement of V2-Board	29	
7.13. Replacement of Control Panel Assy and Power Button	29	
7.14. Replacement of AC Inlet	30	
7.15. Replacement of Speaker (L, R)	30	
7.16. Replacement of Fan	30	
7.17. Replacement of LCD Panel	31	
7.18. Replacement of Front Glass	43	
7.19. Replacement of V1-Board, V PCB Fixing Metal, and DEC LED Panel	46	
7.20. Replacement of Touch Module	47	
7.21. Attachment procedure of Touch Panel Filter	50	
7.22. Replacement of Cabinet	51	
7.23. Replacement of Cab Fixing Metal (T, B, L, R) and Back Cover Blind Metal (T, B, L, R)	52	
<b>8 Block Diagram</b>	<b>55</b>	
8.1. Main Block diagram	55	
8.2. Block (1 of 4) Diagram	56	
8.3. Block (2 of 4) Diagram	57	
8.4. Block (3 of 4) Diagram	58	
8.5. Block (4 of 4) Diagram	59	
<b>9 Wiring Connection Diagram</b>	<b>60</b>	

# 1 Safety Precautions

## 1.1. General Guidelines

1. When conducting repairs and servicing, do not attempt to modify the equipment, its parts or its materials.
2. When wiring units (with cables, flexible cables or lead wires) are supplied as repair parts and only one wire or some of the wires have been broken or disconnected, do not attempt to repair or re-wire the units. Replace the entire wiring unit instead.
3. When conducting repairs and servicing, do not twist the Fasten connectors but plug them straight in or unplug them straight out.
4. When servicing, observe the original lead dress. If a short circuit is found, replace all parts have been overheated or damaged by the short circuit.
5. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed.
6. After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.

## 1.2. Touch-Current Check

1. Plug the AC cord directly into the AC outlet. Do not use an isolation transformer for this check.
2. Connect a measuring network for touch currents between each exposed metallic part on the set and a good earth ground such as a water pipe, as shown in Figure 1.
3. Use Leakage Current Tester (Simpson 228 or equivalent) to measure the potential across the measuring network.
4. Check each exposed metallic part, and measure the voltage at each point.
5. Reserve the AC plug in the AC outlet and repeat each of the above measure.
6. The potential at any point (TOUCH CURRENT) expressed as voltage  $U_1$  and  $U_2$ , does not exceed the following values:

For a. c.:  $U_1 = 35 \text{ V (peak)}$  and  $U_2 = 0.35 \text{ V (peak)}$ ;

For d. c.:  $U_1 = 1.0 \text{ V}$ ,

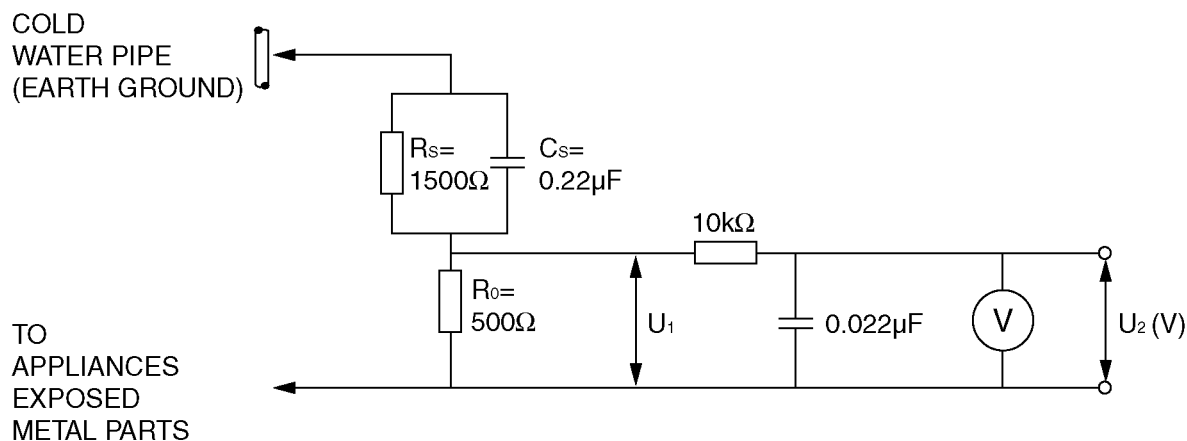
**Note:**

The limit value of  $U_2 = 0.35 \text{ V (peak)}$  for a. c. and  $U_1 = 1.0 \text{ V}$  for d. c. correspond to the values  $0.7 \text{ mA (peak)}$  a. c. and  $2.0 \text{ mA d. c.}$

The limit value  $U_1 = 35 \text{ V (peak)}$  for a. c. correspond to the value  $70 \text{ mA (peak)}$  a. c. for frequencies greater than  $100 \text{ kHz}$ .

7. In case a measurement is out of the limits specified, there is a possibility of a shock hazard, and the equipment should be repaired and rechecked before it is returned to the customer.

### Measuring network for TOUCH CURRENTS



Resistance values in ohms ( $\Omega$ )

V: Voltmeter or oscilloscope  
(r.m.s. or peak reading)

Input resistance:  $\geq 1 \text{ M}\Omega$

Input capacitance:  $\leq 200 \text{ pF}$

Frequency range:  $15 \text{ Hz}$  to  $1 \text{ MHz}$  and d.c. respectively

NOTE - Appropriate measures should be taken to obtain the correct value in case of non-sinusoidal waveforms.

Figure 1

## 2 Warning

### 2.1. Prevention of Electrostatic Discharge (ESD) to Electrostatically Sensitive (ES) Devices

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor “chip” components. The following techniques should be used to help reduce the incidence of component damage caused by electrostatic discharge (ESD).

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any ESD on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging ESD wrist strap, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static solder removal device. Some solder removal devices not classified as “anti-static (ESD protected)” can generate electrical charge sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

**Caution**

Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise ham less motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity (ESD) sufficient to damage an ES device).



## 2.2. About lead free solder (PbF)

**Note:** Lead is listed as (Pb) in the periodic table of elements.

In the information below, Pb will refer to Lead solder, and PbF will refer to Lead Free Solder.

The Lead Free Solder used in our manufacturing process and discussed below is (Sn+Ag+Cu).

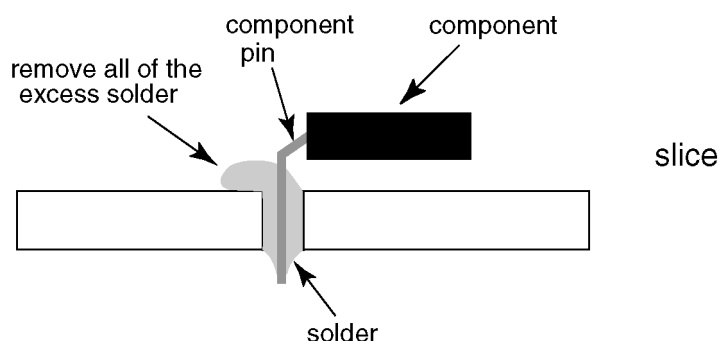
That is Tin (Sn), Silver (Ag) and Copper (Cu) although other types are available.

This model uses Pb Free solder in it's manufacture due to environmental conservation issues. For service and repair work, we'd suggest the use of Pb free solder as well, although Pb solder may be used.

PCBs manufactured using lead free solder will have the PbF within a leaf Symbol **PbF** stamped on the back of PCB.

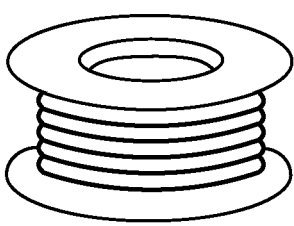
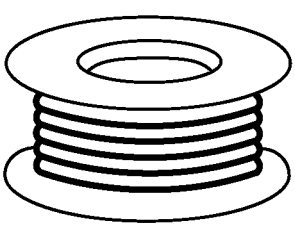
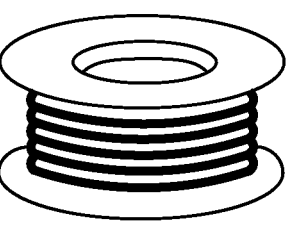
### Caution

- Pb free solder has a higher melting point than standard solder. Typically the melting point is 50 ~ 70 °F (30~40 °C) higher. Please use a high temperature soldering iron and set it to 700 ± 20 °F (370 ± 10 °C).
- Pb free solder will tend to splash when heated too high (about 1100 °F or 600 °C).  
If you must use Pb solder, please completely remove all of the Pb free solder on the pins or solder area before applying Pb solder. If this is not practical, be sure to heat the Pb free solder until it melts, before applying Pb solder.
- After applying PbF solder to double layered boards, please check the component side for excess solder which may flow onto the opposite side. (see figure below)



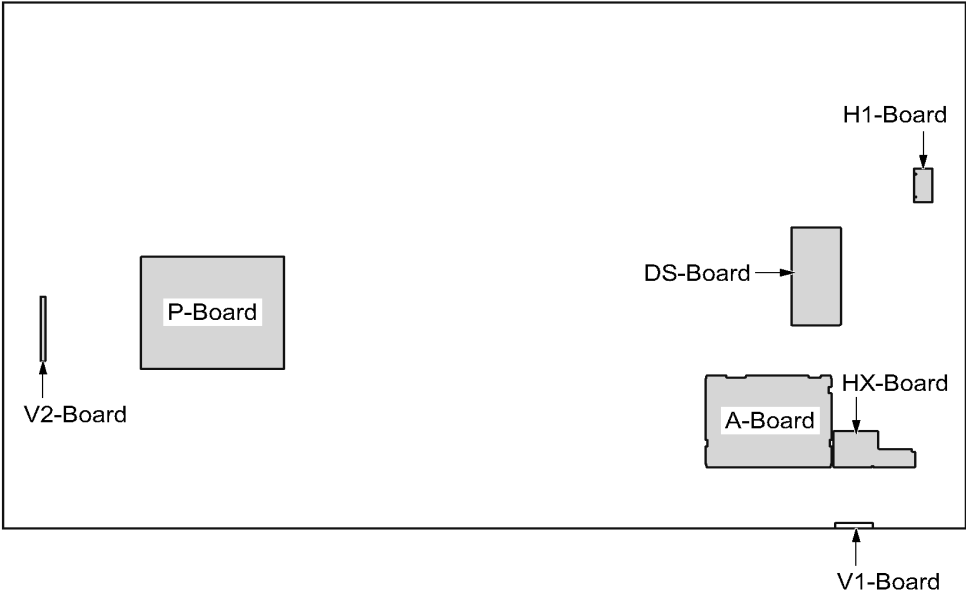
### Suggested Pb free solder

There are several kinds of Pb free solder available for purchase. This product uses Sn+Ag+Cu (tin, silver, copper) solder. However, Sn+Cu (tin, copper), Sn+Zn+Bi (tin, zinc, bismuth) solder can also be used.

0.3mm X 100g	0.6mm X 100g	1.0mm X 100g
		

# 3 Service Navigation

## 3.1. Service Hint



Board Name	Function
P-Board	Power supply Non serviceable. P-Board should be exchanged for service.
A-Board	Digital Signal Processor
DS-Board	Slot Interface
HX-Board	Speaker Terminal, PC OUT/RS232C
H1-Board	USB Terminal
V1-Board	Power LED Remote Receiver, C.A.T.S. Sensor
V2-Board	Control Panel

### 3.2. Applicable signals

\*Mark: Applicable input signal

	Signal name	Horizontal frequency (kHz)	Vertical frequency (Hz)	COMPONENT / RGB IN / PC IN (Dot clock (MHz))	DVI-D IN (Dot clock (MHz))	HDMI1 HDMI2
1	525 (480) / 60i	15.73	59.94	* (13.5)	* (27.0)	*
2	525 (480) / 60p	31.47	59.94	* (27.0) *5	* (27.0)	*
3	625 (575) / 50i	15.63	50.00	* (13.5)		
4	625 (576) / 50i	15.63	50.00		* (27.0)	*
5	625 (575) / 50p	31.25	50.00	* (27.0)		
6	625 (576) / 50p	31.25	50.00		* (27.0)	*
7	750 (720) / 60p	45.00	60.00	* (74.25)	* (74.25)	*
8	750 (720) / 50p	37.50	50.00	* (74.25)	* (74.25)	*
9	1,125 (1,080) / 60p	67.50	60.00	* (148.5) *1	* (148.5)	*
10	1,125 (1,080) / 60i	33.75	60.00	* (74.25) *1	* (74.25)	*
11	1,125 (1,080) / 50p	56.26	50.00	* (148.5) *1	* (148.5)	*
12	1,125 (1,080) / 50i	28.13	50.00	* (74.25) *1	* (74.25)	*
13	1,125 (1,080) / 24psF	27.00	48.00	* (74.25) *2		
14	1,125 (1,080) / 30p	33.75	30.00	* (74.25) *1	* (74.25)	
15	1,125 (1,080) / 25p	28.13	25.00	* (74.25) *1	* (74.25)	
16	1,125 (1,080) / 24p	27.00	24.00	* (74.25) *1	* (74.25)	*
17	1,250 (1,080) / 50i	31.25	50.00	* (74.25) *3		
18	2,048 × 1,080 / 24psF *7	27.00	48.00			
19	2,048 × 1,080 / 24p *7	27.00	24.00			
20	640 × 400 @70 Hz	31.46	70.07	* (25.17)		
21	640 × 480 @60 Hz	31.47	59.94	* (25.18) *6	* (25.18)	*
22	640 × 480 @72 Hz	37.86	72.81	* (31.5)		
23	640 × 480 @75 Hz	37.50	75.00	* (31.5)		
24	640 × 480 @85 Hz	43.27	85.01	* (36.0)		
25	800 × 600 @56 Hz	35.16	56.25	* (36.0)		
26	800 × 600 @60 Hz	37.88	60.32	* (40.0)	* (40.0)	*
27	800 × 600 @72 Hz	48.08	72.19	* (50.0)		
28	800 × 600 @75 Hz	46.88	75.00	* (49.5)		
29	800 × 600 @85 Hz	53.67	85.06	* (56.25)		
30	852 × 480 @60 Hz	31.47	59.94	* (33.54) *6	* (34.24)	*
31	1,024 × 768 @50 Hz	39.55	50.00		* (51.89)	*
32	1,024 × 768 @60 Hz	48.36	60.00	* (65.0)	* (65.0)	*
33	1,024 × 768 @70 Hz	56.48	70.07	* (75.0)		
34	1,024 × 768 @75 Hz	60.02	75.03	* (78.75)		
35	1,024 × 768 @85 Hz	68.68	85.00	* (94.5)		
36	1,066 × 600 @60 Hz	37.64	59.94	* (53.0)	* (53.0)	*
37	1,152 × 864 @60 Hz	53.70	60.00		* (81.62)	*
38	1,152 × 864 @75 Hz	67.50	75.00	* (108.0)		
39	1,280 × 768 @60 Hz	47.70	60.00	* (80.14)		
40	1,280 × 800 @60 Hz (1)	49.31	59.91	* (71.0)	* (71.0)	*
41	1,280 × 800 @60 Hz (2)	49.70	59.81	* (83.5)	* (83.5)	*
42	1,280 × 960 @60 Hz	60.00	60.00	* (108.0)		
43	1,280 × 960 @85 Hz	85.94	85.00	* (148.5)		
44	1,280 × 1,024 @60 Hz	63.98	60.02	* (108.0)	* (108.0)	*
45	1,280 × 1,024 @75 Hz	79.98	75.03	* (135.0)		
46	1,280 × 1,024 @85 Hz	91.15	85.02	* (157.5)		
47	1,366 × 768 @50 Hz	39.55	50.00		* (69.92)	*
48	1,366 × 768 @60 Hz	48.36	60.00	* (86.71)	* (87.44)	*
49	1,400 × 1,050 @60 Hz	65.22	60.00		* (122.61)	*
50	1,440 × 900 @60 Hz (1)	55.47	59.90	* (88.75)	* (88.75)	*
51	1,440 × 900 @60 Hz (2)	55.93	59.89	* (106.5)	* (106.5)	*
52	1,600 × 1,200 @60 Hz	75.00	60.00	* (162.0)	* (162.0)	*
53	1,600 × 1,200 @65 Hz	81.25	65.00	* (175.5)		
54	1,920 × 1,080 @60 Hz	67.50	60.00	* (148.5) *4	* (148.5)	*
55	1,920 × 1,200 @60 Hz	74.04	59.95		* (154.0)	*
56	Macintosh13" (640 × 480)	35.00	66.67	* (30.24)		
57	Macintosh16" (832 × 624)	49.72	74.54	* (57.28)		
58	Macintosh21" (1,152 × 870)	68.68	75.06	* (100.0)		

\*1: Based on SMPTE 274M standard.

\*2: Based on SMPTE RP211 standard.

\*3: Based on SMPTE 295M standard.

\*4: The input signal is recognized as 1,125 (1,080) / 60p.

\*5: When selected the RGB format and 525p signal input to the PC IN terminal, it is recognized as VGA 60Hz signal.

\*6: When inputted VGA 60Hz format signal from the other than PC IN terminal, it is recognized as 525p signal.

\*7: Based on SMPTE 292M and 372M standards. These signals can be received when the Dual Link HD-SDI Terminal Board (TY-FB11DHD) is installed.

**Note:** Signals without above specification may not be displayed properly.

**Video input (VIDEO)**

	Signal name	Horizontal frequency(kHz)	Vertical frequency(Hz)
1	NTSC	15.73	59.94
2	PAL	15.63	50.00
3	PAL60	15.73	59.94
4	SECAM	15.63	50.00
5	Modified NTSC	15.73	59.94

## 4 Specifications

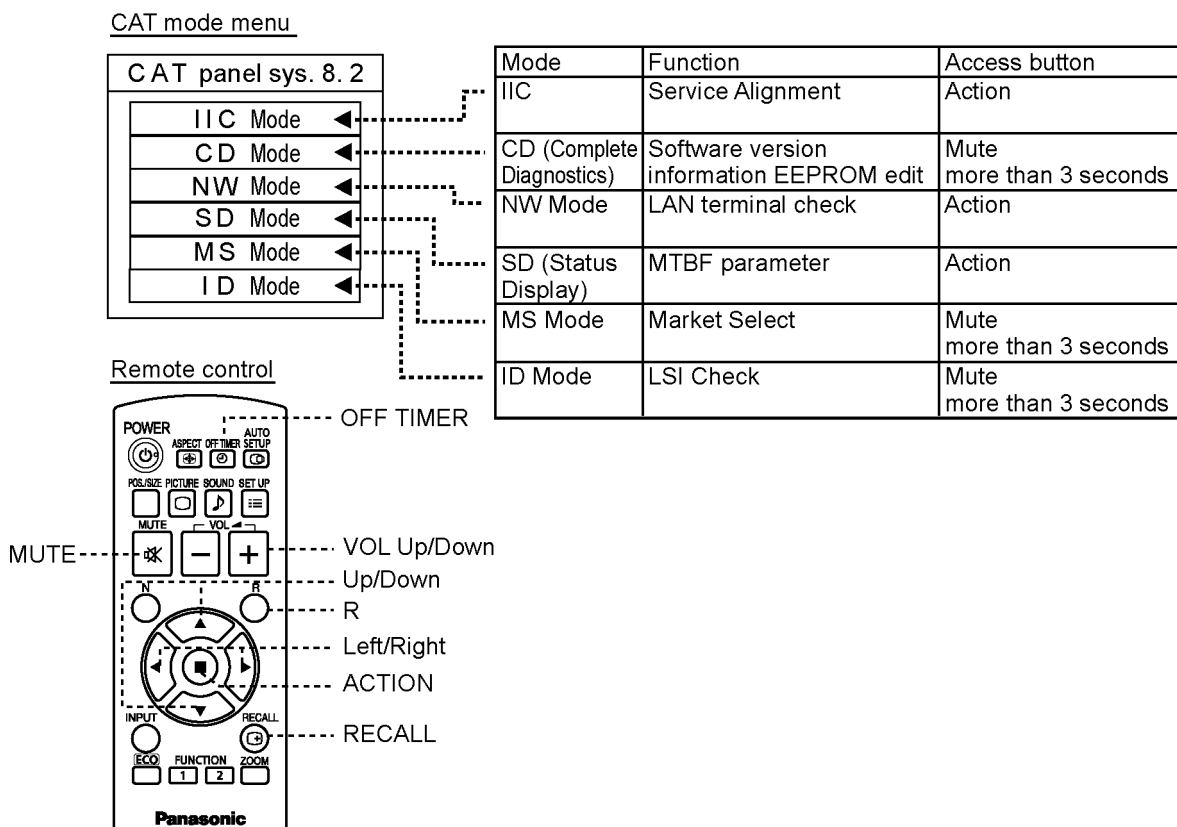
<b>Power Source</b>	220 - 240 V AC, 50/60Hz		
<b>Power Consumption</b>			
Power on	350 W		
Stand-by condition	0.5 W		
Power off condition	0.3 W		
<b>LCD Display panel</b>	80-inch VA panel (LED backlight), 16:9 aspect ratio		
<b>Screen size</b>	1,771 mm (W) × 996 mm (H) × 2,032 mm (diagonal)		
(No. of pixels)	2,073,600 (1,920 (W) × 1,080 (H)) [5,760 × 1,080 dots]		
<b>Operating condition</b>			
Temperature	32 °F - 104 °F (0 °C - 40 °C)		
Humidity	20 % - 80 % (no condensation)		
<b>Applicable signals</b>			
Colour System	NTSC, PAL, PAL60, SECAM, Modified NTSC		
Scanning format	525 (480) / 60i • 60p, 625 (575) / 50i • 50p, 750 (720) / 60p • 50p, 1125 (1080) / 60i • 60p • 50i • 50p • 24p • 25p • 30p • 24psF, 1250 (1080) / 50i		
PC signals	VGA, SVGA, XGA, SXGA UXGA ..... (compressed) Horizontal scanning frequency 15 - 110 kHz Vertical scanning frequency 48 - 120 Hz		
<b>Connection terminals</b>			
AV IN	VIDEO	BNC	1.0 Vp-p (75-ohm)
	AUDIO 1 IN	Stereo mini jack (M3) × 1	0.5 Vrms, Shared with COMPONENT/RGB IN
	HDMI 1	TYPE A Connector × 2	
	HDMI 2		
COMPONENT/RGB IN	Y/G	BNC	with sync 1.0 Vp-p (75-ohm)
	P <sub>B</sub> /C <sub>B</sub> /B	BNC	0.7 Vp-p (75-ohm)
	P <sub>R</sub> /C <sub>R</sub> /R	BNC	0.7 Vp-p (75-ohm)
	AUDIO 1 IN	Stereo mini jack (M3) × 1	0.5 Vrms, Shared with VIDEO
DVI-D IN		DVI-D 24 Pin	Compliance with DVI Revision 1.0
		Content Protection	Compatible with HDCP 1.1
	AUDIO 2 IN	Stereo mini jack (M3) × 1	0.5 Vrms, Shared with PC IN
PC IN		High-Density Mini D-sub 15 Pin	Y or G with sync 1.0 Vp-p (75-ohm) Y or G without sync 0.7 Vp-p (75-ohm) P <sub>B</sub> /C <sub>B</sub> /B: 0.7 Vp-p (75-ohm) P <sub>R</sub> /C <sub>R</sub> /R: 0.7 Vp-p (75-ohm) HD / VD: 1.0 - 5.0 Vp-p (high impedance) 0.5 Vrms, Shared with DVI-D IN
	AUDIO 2 IN	Stereo mini jack (M3) × 1	
SERIAL		External Control Terminal	
		D-sub 9 Pin	RS-232C compatible
PC OUT		R: 0.7 Vp-p (75-ohm) G: 0.7 Vp-p (75-ohm) B: 0.7 Vp-p (75-ohm) HD/VD: 1.0 - 5.0 Vp-p	
USB (VIEWER)		TYPE A USB connector	
USB (TOUCH)		TYPE B USB connector	
DIGITAL LINK / LAN		For RJ45 network and DIGITAL LINK connections, compatible with PLink™ Communication method: RJ45 100BASE-TX	
EXT SP		8-ohm, 20 W [10 W + 10 W] (10 % THD)	
<b>Sound</b>			
Speakers	120 mm × 40 mm × 2 pcs		
Audio Output	20 W [10 W + 10 W] (10 % THD)		
<b>Accessories Supply</b>			
Remote Control Transmitter	N2QAYB000691		
Batteries	R6 (UM3) Size × 2		
Clamper	TMME289 × 1		
Cable tie	TMM17499 × 2		
Ferrite core	J0KG00000014 × 2		
<b>Dimensions (W × H × D)</b>	1,868 mm × 1,093 mm × 104 mm		
<b>Mass (weight)</b>	approx. 84.0 kg net		

**Notes:**

- Design and specifications are subject to change without notice. Mass and dimensions shown are approximate.
- This equipment complies with the EMC standards listed below.  
EN55022, EN55024, EN61000-3-2, EN61000-3-3.

## 5 Service Mode

### 5.1. CAT (Computer Aided Test) mode



#### How to access the CAT mode.

##### Method A Main unit + remote control operation

Press and hold the **▼ button** on the right side of the unit and press the **RECALL button** on the remote control 3 times quickly within 2 second, this will place the unit into the CAT mode.

##### Method B Remote control operation only

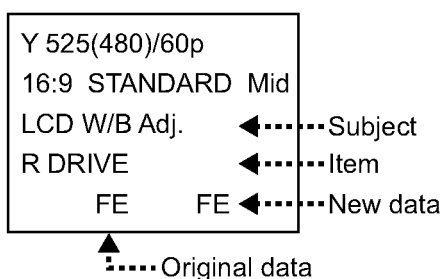
1. Set the OFF timer except for [0] minute by **OFF TIMER button**. (30 minutes, 60minutes, 90 minutes)
2. Set the volume level of sound to 0 by **VOL down button / -button**.
3. Press the **RECALL button** more than 3 seconds before a volume display disappears.

To exit the **CAT mode**, turn the power off by the main unit or a remote control.

#### 5.1.1. IIC mode

Select the IIC mode by **Up/Down button** on the remote control at the front page of CAT mode and then press the **Action button** on the remote control.

#### OSD



#### How to use the IIC mode.

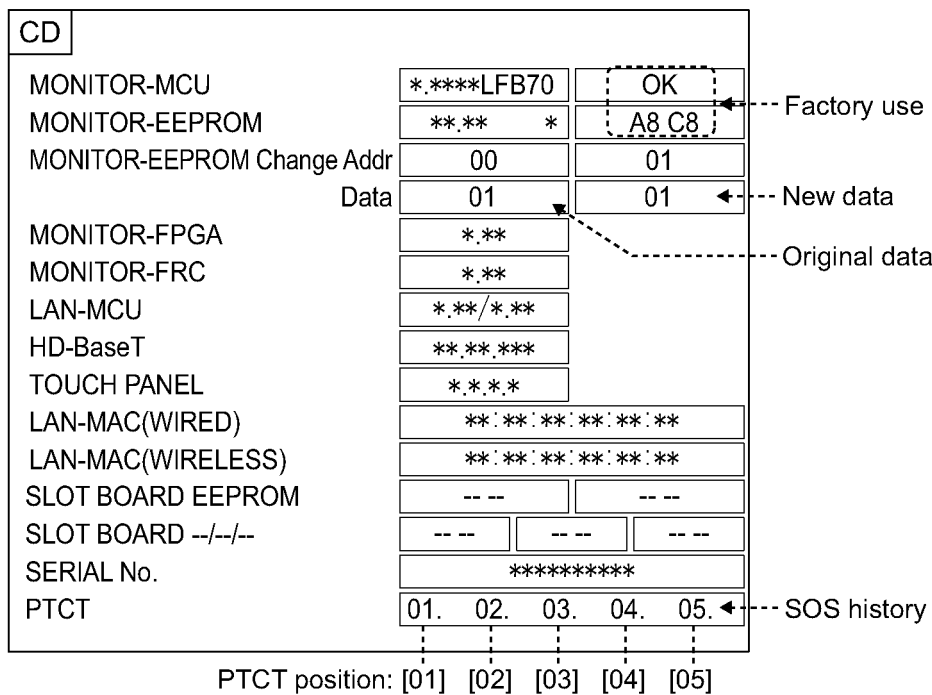
1. Select the alignment **Subject** by **Up/Down buttons** on the remote control.
2. Select the alignment Item by **Left/Right buttons** on the remote control.
3. Adjust **optimum setting** by **Volume Up/Down buttons** on the remote control.
4. The **data is memorized** when press the **R button** on the remote control or change the alignment Subject (or Items).

Subject and item are mentioned on "IIC mode structure".

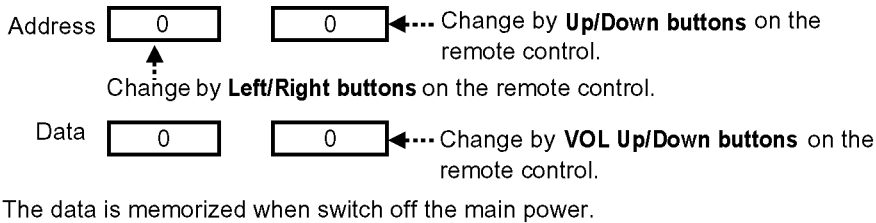
To exit the IIC mode, press the **R button** on the remote control.

5.1.2. CD mode

Select the CD mode by **Up/Down button** on the remote control at the front page of CAT mode and then press the **Mute button** on the remote control more than 3 seconds.



Memory data change



To exit the CD mode, press the **R button** on the remote control.

About the serial number display

- As for the serial number of A-module for repair, a dummy value is displayed.
- \* By the set for which A-module was exchanged, a serial number is displayed as [----].

About the history display of SOS for the power supply system

- This unit adds the history display (5 times) of power supply failure to the CD mode as PTCT.
- By the self check of a signal system, only one history is displayed (After a self check disappears). But PTCT displays 5 times of histories (Abnormality of the latest 3 times, first time and second time after shipment) and after a self check does not disappear. You can see a detailed history of power failure sometimes.
- \* About the display contents of PTCT**
  - PTCT : The position of [05] is the first time after shipment.
  - PTCT : The position of [04] is the second time after shipment.
  - PTCT : The position of [03] is second from last time.
  - PTCT : The position of [02] is last time.
  - PTCT : The position of [01] is the latest.

In [Contents & Check point] of [6.1.2. Power LED Blinking timing chart], the two-digit following PTCT are displayed by a hexadecimal number.

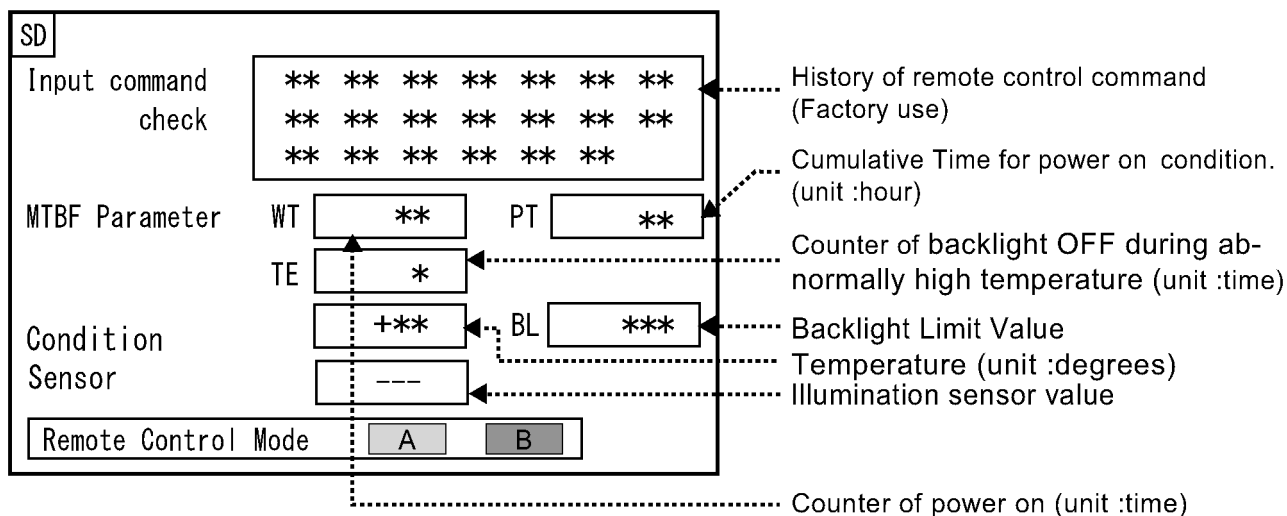
	Blinking times	Contents & Check point	Display contents
ex.1	4 times	PTCT 04 H 09	04
ex.2	8 times	PTCT 08 H09	08



### 5.1.3. SD mode

Select the SD mode by **Up/Down button** on the remote control at the front page of CAT mode and then press the **Action button** on the remote control.

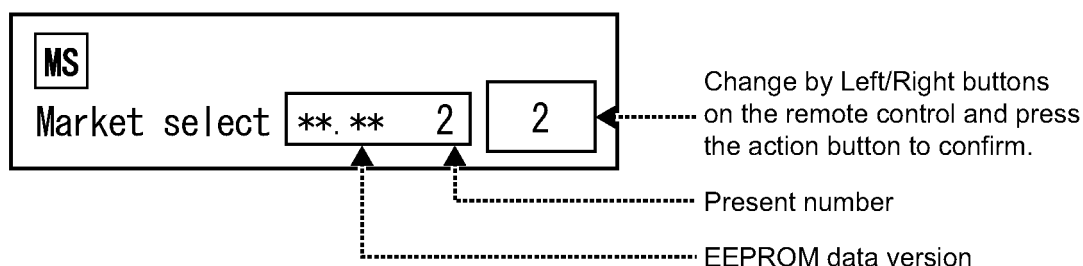
#### OSD



To exit the SD mode, press the **R button** on the remote control.

### 5.1.4. MS mode

Select the MS mode by **Up/Down button** on the remote control at the front page of CAT mode and then press the **Mute button** on the remote control more than 3 seconds.



To exit the MS mode, press the **R button** on the remote control.

#### Caution:

**Market Select should be set after exchange of A-Board.**

#### Destination number

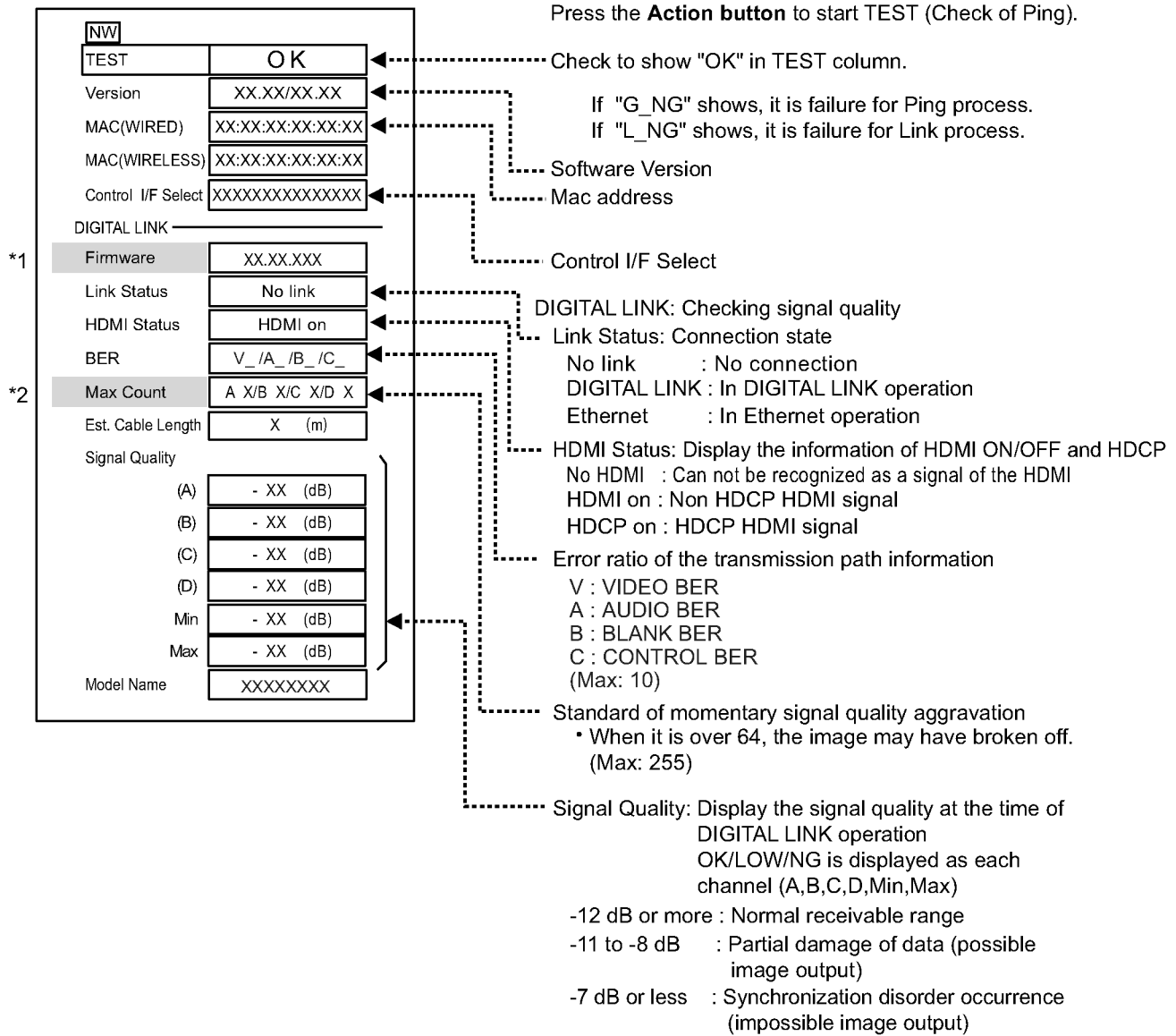
Number	Model (Destination)
0	80LFB70J (Japan)
1	80LFB70U (North America)
2	80LFB70E (Europe)
3	80LFB70W (Asia, Oceania, ME, Africa)
18	80LFB70C (China)

### 5.1.5. NW mode

**Note :**

To use the network function, set each "Network Setup" setting and make sure to set the "Control I/F Select" to "LAN" or "RS232C".

Select the NW mode by **Up/Down button** on the remote control at the front page of CAT mode and then press the **Action button** on the remote control.



\*1: If you move a cursor to "Firmware" and press an **Action button**, "Only receiving side information display" and "Receiving side / Transmitting side information simultaneous display" can be switched.

\*2: The value of "Max Count" is resettable if you move a cursor to "Max Count" and press an **Action button**.

[Example of Receiving / Transmitting side information simultaneous display]

<b>NW</b>	
TEST	OK
Version	XX.XX/XX.XX
MAC(WIRED)	XX:XX:XX:XX:XX:XX
MAC(WIRELESS)	XX:XX:XX:XX:XX:XX
Control I/F Select	XXXXXXXXXXXXXXXX
DIGITAL LINK	
Firmware	XX.XX.XXX / XX.XX.XXX
Link Status	DIGITAL LINK / DIGITAL LINK
HDMI Status	HDMI on / HDMI on
BER	V_ / A_ / B_ / C_ / T_
Max Count	A X/B X/C X/D X
Est. Cable Length	X (m)
Signal Quality	
(A)	- XX (dB)
(B)	- XX (dB)
(C)	- XX (dB)
(D)	- XX (dB)
Min	- XX (dB)
Max	- XX (dB)
Model Name	XXXXXXXX

Transmitting side information is displayed on right-hand side.

T: TOTAL BER (Transmitting side)

To exit the NW mode, press the **R button** on the remote control.

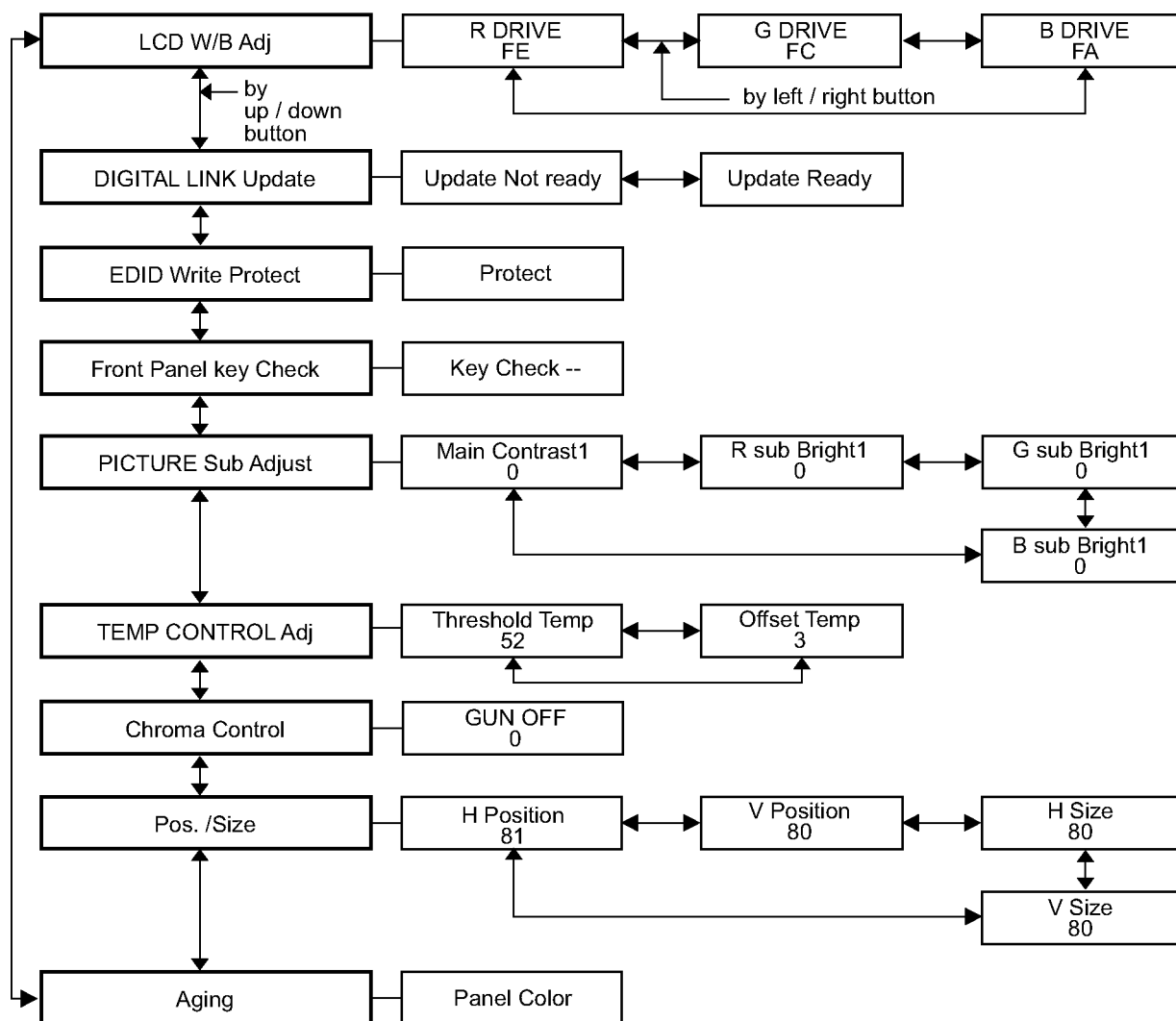
### 5.1.6. ID mode

Select the ID mode by **Up/Down button** on the remote control at the front page of CAT mode and then press the **Mute button** on the remote control more than 3 seconds.

<b>ID</b>	IIC1	IIC2	IIC3	IIC4
A	H90MEM1	OK	DS	H51RTC
	H65AVSW	OK		
	H61ADV	OK		
	H62TEMP	OK		
	H63CPG	OK		
	H66HDMIRX	OK		
	H93LAN	OK		
	H92MEM2	OK		
	H56LVDSRX	OK		
	H67DLK	OK		
	H68FRC	OK		

To exit the ID mode, press the **R button** on the remote control.

## 5.2. IIC mode structure (following items value is sample data)



0 White + Time, Temperature  
 1 WHITE  
 2 RED  
 3 GREEN  
 4 BLUE  
 5 BLACK

6 WHITE Ramp  
 7 RED Ramp  
 8 GREEN Ramp  
 9 BLUE Ramp  
 10 Color Bar  
 11 Scrolling Vertical Window

These are selected by ACTION button of Remote and press the R button to exit.

## 6 Troubleshooting Guide

### 6.1. Self Check

#### 6.1.1. Display Indication

1. Self-check is used to automatically check the bus line controlled circuit of the LCD display.
2. To get into the Self-check mode, press the **volume down** button on the right side of the unit, at the same time pressing the **OFF-TIMER** button on the remote control, and the screen will show.

##### Method A Self-check only (A shipment setup is not carried out).

- Select the ID mode by **Up/Down button** on the remote control at the front page of CAT mode and then press the **Mute button** on the remote control more than 3 seconds.

##### Method B Self-check+Shipment setup

- Press and hold the **▼ button** on the right side of the unit and press the **OFF-TIMER** button on the remote control.

If the IIC ports have been checked and found to be incorrect

Or not located then “ - - ” will appear in place of “ OK ”

“ 01 ” in the line of the “ PTCT ” means the number of blinks of the Power LED is 1. (Reference to 6.1.2)

“ H09 ” in the line of the “ PTCT ” is the error code.

To exit the CAT mode switch off the main power.

##### Note:

The line of the “ PTCT ” displays when you get into the Self-check mode for the first time only after the Power LED blinks.

ID	IIC1	IIC2	IIC3	IIC4
A	H90MEM1	OK		DS H51RTC
	H65AVSW	OK		OK
	H61ADV	OK		
	H62TEMP	OK		
	H63CPG	OK		
	H66HDMIRX	OK		
	H93LAN	OK		
	H92MEM2	OK		
	H56LVDSRX	OK		
	H67DLK	OK		
	H68FRC	OK		
			PTCT	01 H09

### 6.1.2. Power LED Blinking timing chart

#### 1. Subject

Information of LED Blinking timing chart.

#### 2. Contents

When an abnormality has occurred to the unit, the protection circuit operates and resets to the stand by mode. At this time, the defective block can be identified by the number of blinks of the Power LED on the front panel of the unit.

Blinking times	Contents & Check point	Check point
1	(PTCT 01 H09)* PANEL SOS	LCD Panel
2	(PTCT E2 H09)* POWER SOS	P-Board A-Board
	(PTCT F2 H09)* POWER SOS	
4	(PTCT 04 H09)* PANEL 12V SOS	A-Board LCD Panel
8	(PTCT 08 H09)* FRC SOS	A-Board
10	(PTCT 0A H09)* DS SOS	DS-Board SLOT Board
11	(PTCT 0B H09)* FAN SOS	FAN A-Board
13	(PTCT 0D H09)* REGULATOR SOS (A2 SOS)	A-Board
	(PTCT 1D H09)* REGULATOR SOS (5V SOS)	
	(PTCT 2D H09)* REGULATOR SOS (A SOS)	
	(PTCT 4D H09)* AUDIO SOS	

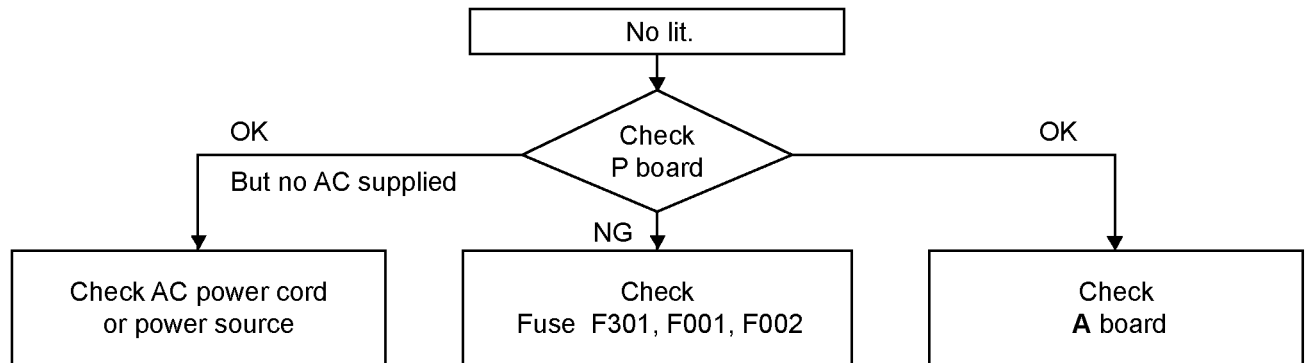
\* Refer to 6.1.1 Display Indication

## 6.2. No Power

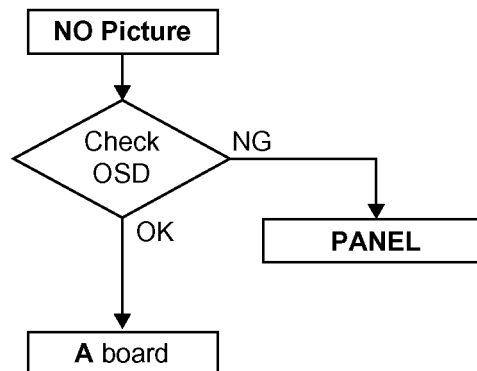
### First check point

There are following 3 states of No Power indication by power LED.

1. No lit.
2. Green is lit then turns red blinking a few seconds later.
3. Only red is lit.



## 6.3. No Picture



## 6.4. Diagnosis of the image

### 6.4.1. LCD Panel test mode

#### ■ The failure-diagnosis by LCD Panel test mode

- To find the possible failure point where in LCD Panel or Printed Circuit Board when the abnormal picture is displayed.

[How to display the test pattern]

#### (1) Main unit + remote control operation

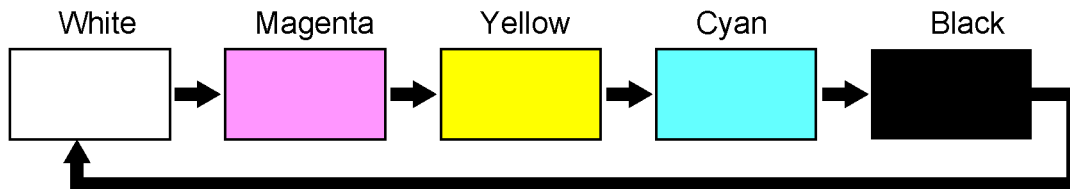
1. While pressing [VOLUME ( - )] button of the main unit, press [R] button of the remote control three times.
  2. Test pattern is displayed and Power LED lights red and orange alternately.
- How to Exit: Turn off the unit.

#### (2) Remote control operation only

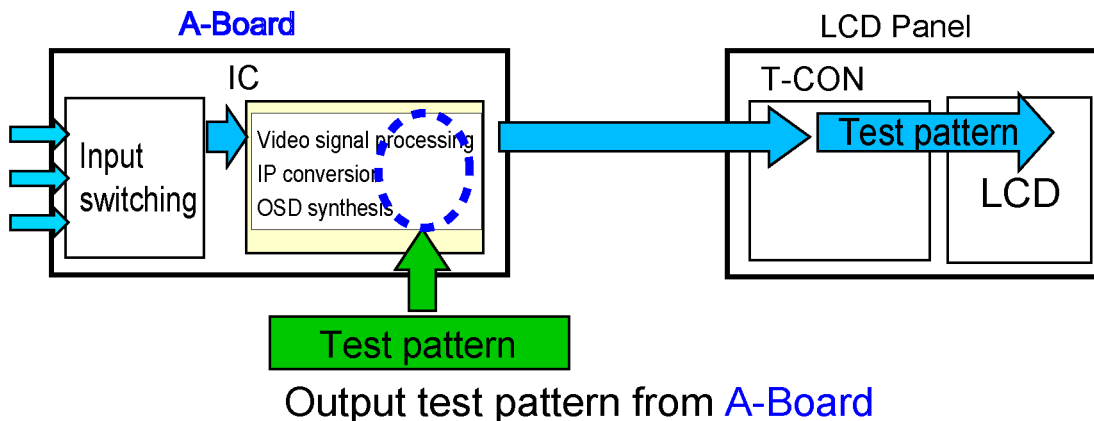
1. Press [Recall] button of the remote control.
  2. Press [R] button of the remote control.
  3. Press [N] button of the remote control for over 3 seconds.
  4. Test pattern is displayed and Power LED lights red and orange alternately.
- How to Exit: The unit automatically turns off after around 10 seconds.

[Display pattern]

※ It is unfixed from which color it starts.

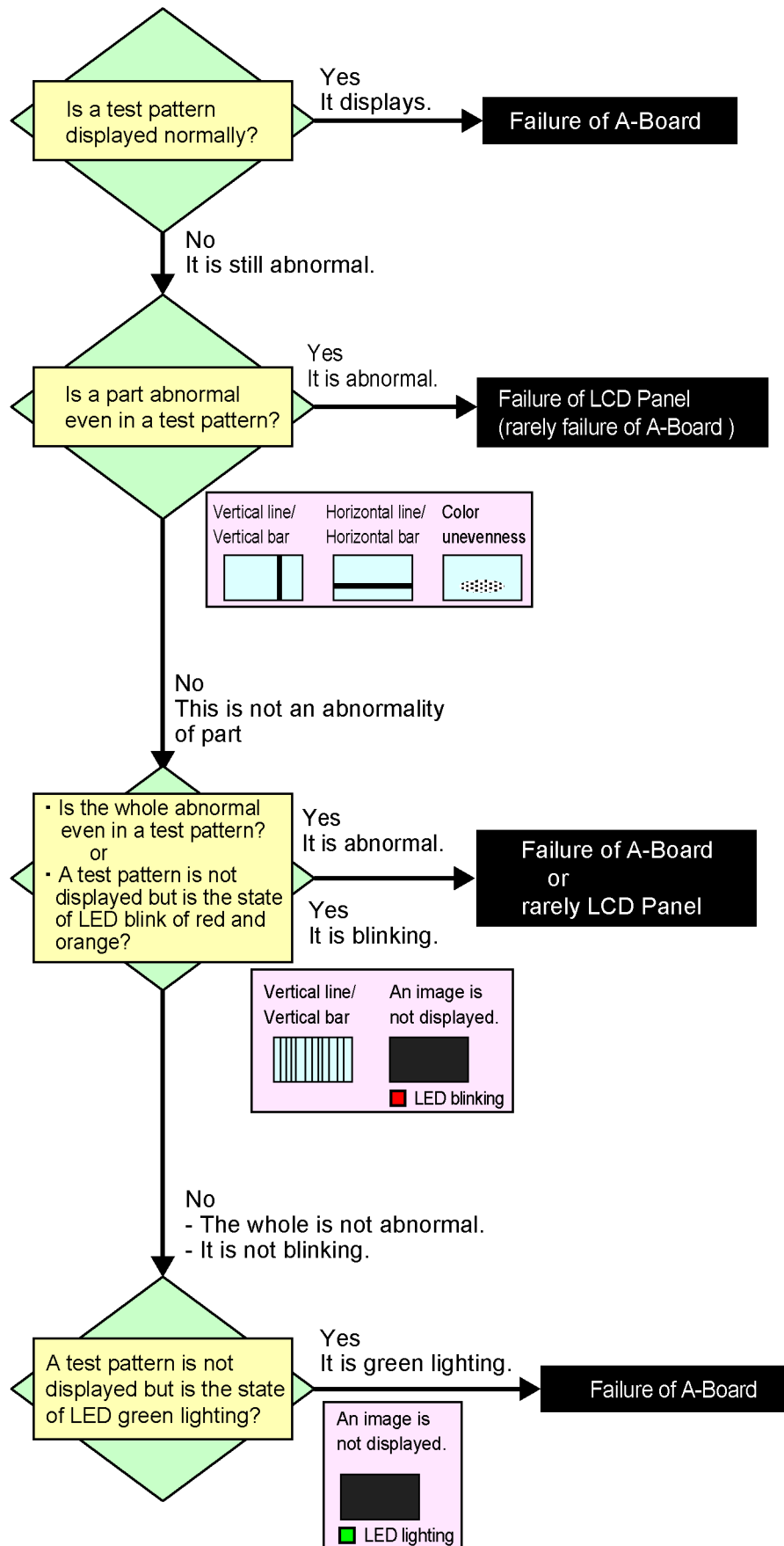


[Test pattern output image]





## [Diagnostic flow chart]



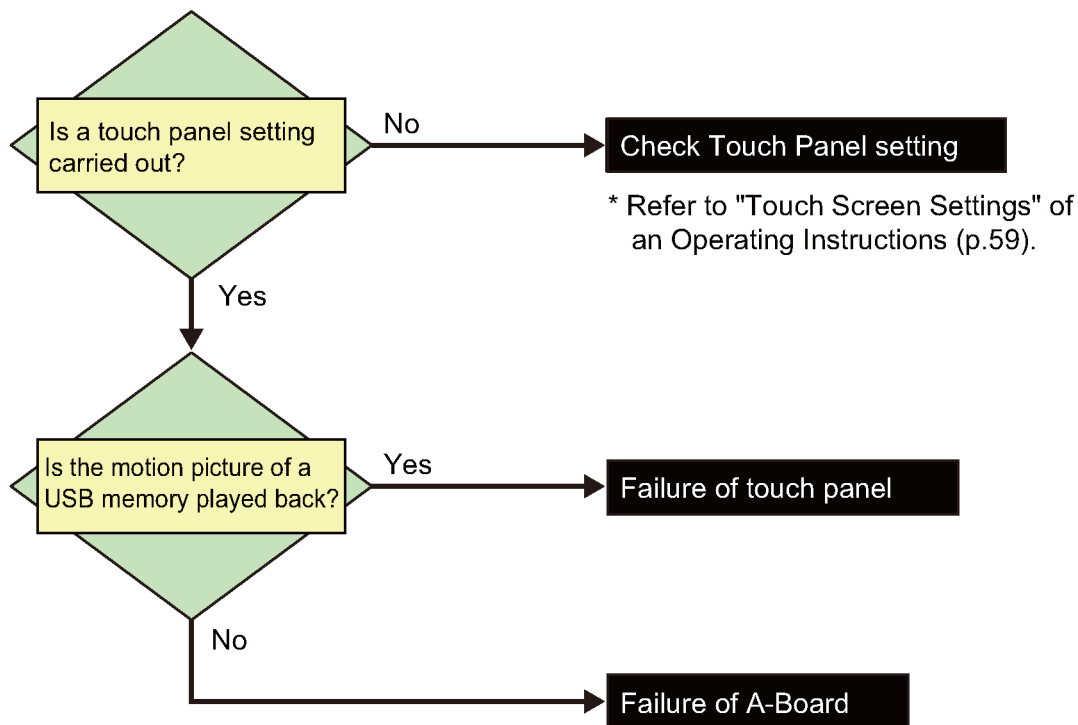
### 6.4.2. How to check when the image does not appear correctly in DIGITAL LINK

- Check whether all of (A), (B), (C), and (D) are "OK" in NW mode.
- Check whether "H67DLK" is "OK" in ID mode.

## 6.5. Diagnosis of Touch Panel

- When a touch panel does not work, narrowing down of the failure part of a setup, and a touch panel or A-Board can be performed.

[Diagnostic flow chart]

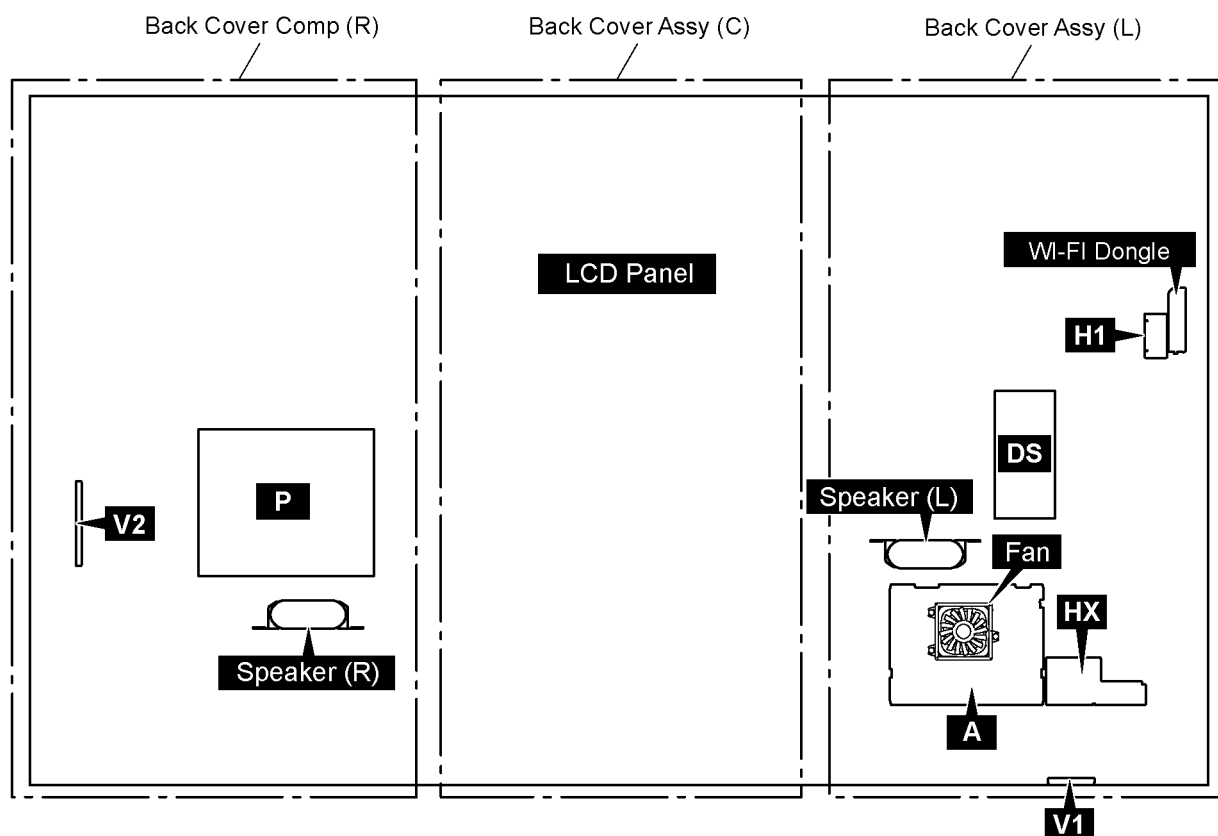


## 6.6. Diagnosis of the Wi-Fi dongle

- Wired LAN works, but the wireless LAN does not work, there is a problem with the dongle side.  
(However, the factor of radio environment is excluded.)

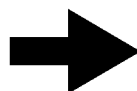
## 7 Disassembly and Assembly Instructions

### 7.1. Back Cover and Board



#### Removal of Back Cover when replacing each board

Board Name	Back Cover
A-Board	L
DS-Board	L
HX-Board	L
Fan	L
P-Board	R
V1-Board	R/L/C
V2-Board	R



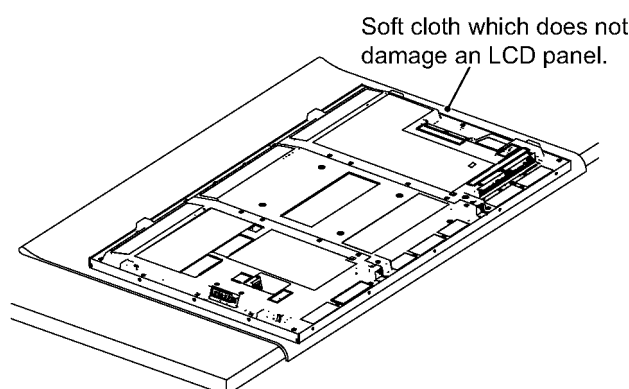
#### Caution when removing Back Cover

- When repairing in an upright position the Display, please remove the screws while holding the Back Cover by hand to prevent the Back Cover from falling down.

※When you replace the LCD Panel and Front Glass, please check whether dust, a fingerprint, etc. are not attached to the LCD Panel and Front Glass.  
If the fingerprint is attached, please attach after wiping with the soft dry cloth (cotton, flannel) lightly.

## 7.2. Preparations

- When you exchange modules or board, in order to make it discharge from an electrolytic condenser, please wait for 1 minute after the power supply end.
- To avoid damaging the LCD panel, lay out a soft cloth or towel and lay down the unit so the front side is facing down.

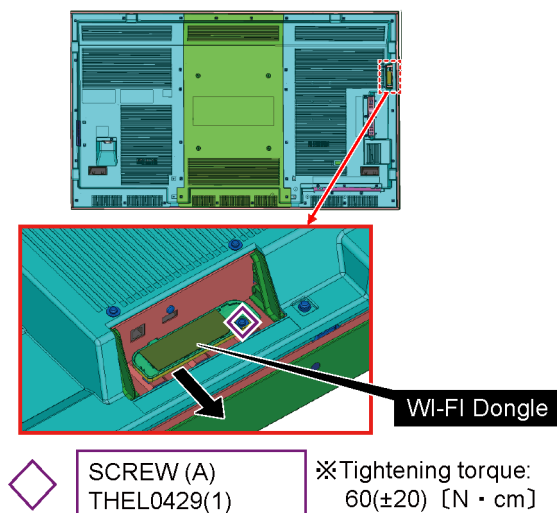


### Precautions when replacing each component

- When you replace each component, please be sure to carry out following procedure as below.
- Be careful not to overtighten the screws when replacing each module.
- Please remove a clumper and a wire processing tape if needed in the repaire.

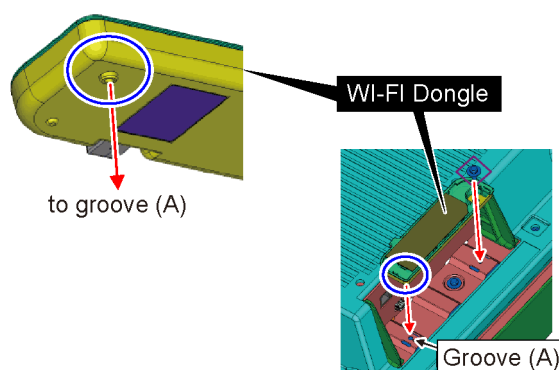
## 7.3. Replacement of WI-FI Dongle

1. Remove the screws and then remove the WI-FI Dongle.



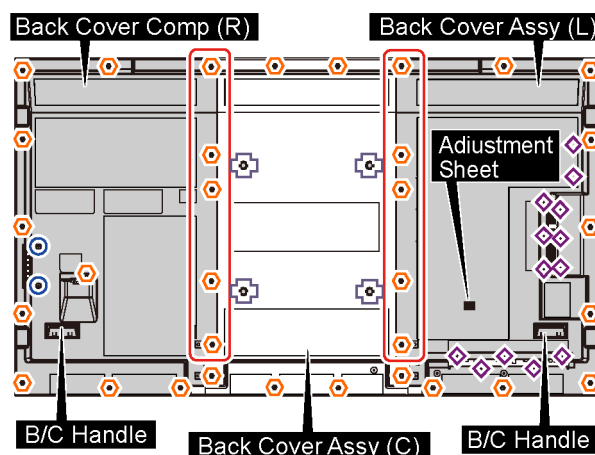
### Caution when attaching WI-FI Dongle

- Please attach the projection on the back side of a WI-FI Dongle to a WI-FI Dongle attachment hole firmly.



## 7.4. Removal of Back Cover

1. Remove the screws.
2. Remove the M8 Caps.
3. Remove the Back Cover Comp (R), Back Cover Assy (L, C) and 2 B/C Handles.



SCREW (B) XYN4+F10FJK(33)	※Tightening torque: 100(±20) [N · cm] area: 80(±20) [N · cm]
SCREW (C) XTV3+12JFJK(2)	※Tightening torque: 40(±20) [N · cm]
SCREW (A) THEL0429(13)	※Tightening torque: 60(±20) [N · cm]
M8 CAP TKKL5493(4)	

**About the Adjustment Sheet**

- When replacing the Back Cover Assy (L), be sure to replace the Adjustment Sheet at the same time.

**Caution when removing Back Cover**

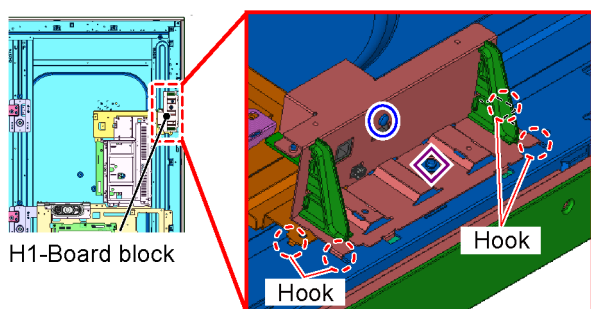
- When repairing in an upright position the Display, please remove the screws while holding the Back Cover by hand to prevent the Back Cover from falling down.

**Caution when attaching Back Cover**

- After attaching the Back Cover Assy (C), attach the Back Cover Assy (L) and Back Cover Comp (R).

**7.5. Replacement of H1-Board**

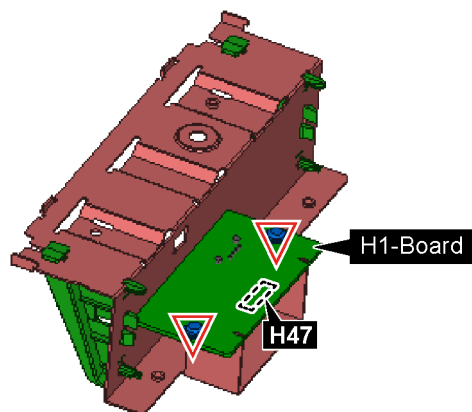
- Remove the WI-FI Dongle.  
(Refer to "7.3. Replacement of WI-FI Dongle")
- Remove the screws and slide the H1-Board block and then remove it from the hooks.



◇ SCREW THEL0429(1) ※Tightening torque: 60(±20) [N · cm]

○ SCREW XTV3+12JFJK(1) ※Tightening torque: 75(±20) [N · cm]

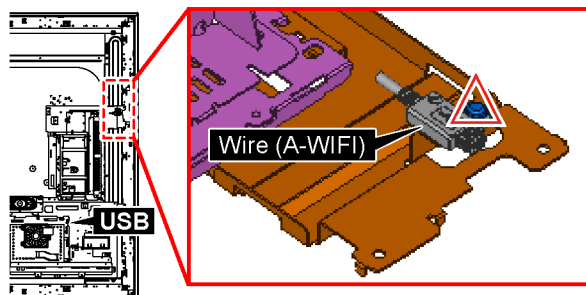
- Disconnect the connectors and remove the screws and then remove the H1-Board.



▽ SCREW XYN3+F6FJ(2) ※Tightening torque: 60(±20) [N · cm]

**7.6. Replacement of Wire (A-WIFI)**

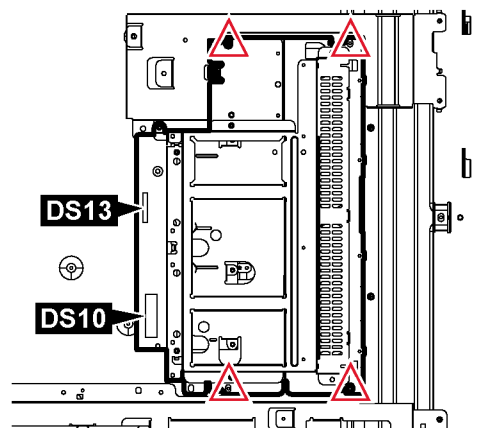
- Remove the H1-Board.  
(Refer to steps 1 to 2 in "7.5. Replacement of H1-Board")
- Disconnect the USB connector and remove the screw and then remove the Wire (A-WIFI).



△ SCREW THEJ036J(1) ※Tightening torque: 60(±20) [N · cm]

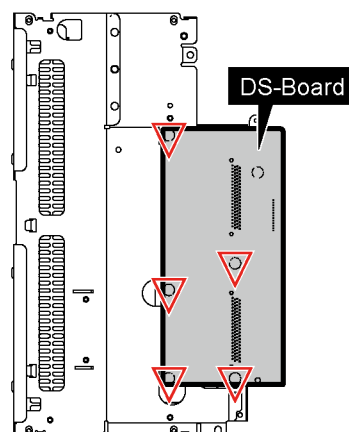
**7.7. Replacement of DS-Board**

- Disconnect the connectors and remove the screws and then remove the Slot Block (with DS-Board).



△ SCREW THEJ036J(4) ※Tightening torque: 60(±20) [N · cm]

- Turn over the Slot Block, and remove the screws and then remove the DS-Board.

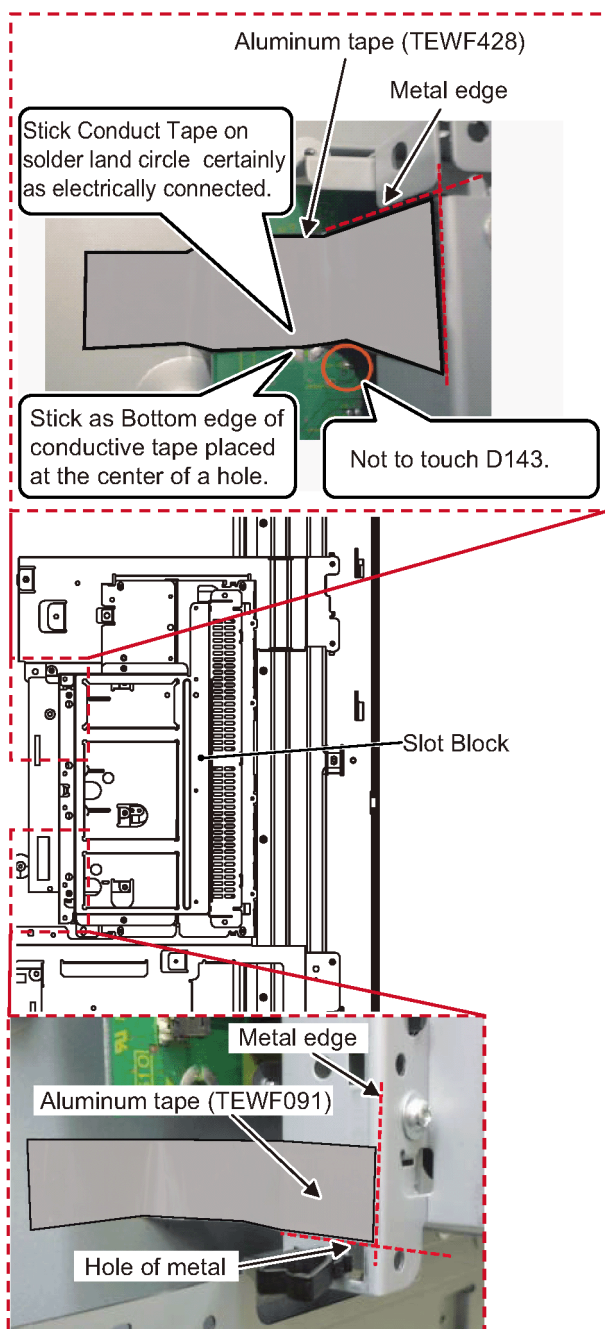


▽ SCREW XYN3+F6FJ(5) ※Tightening torque: 60(±20) [N · cm]

### Replacement of aluminum tape

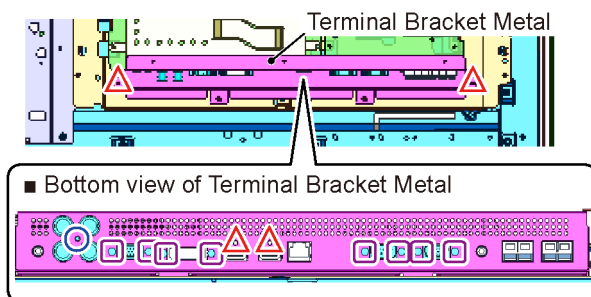
- Be sure to stick the aluminum tape when replacing DS-Board.




### <Sticking specification of the aluminum tape>



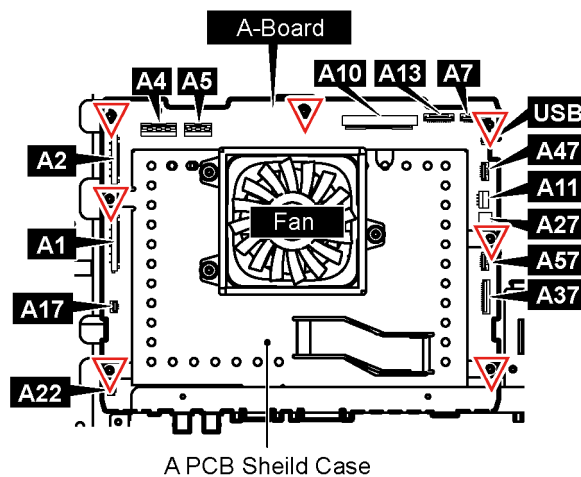
## 7.8. Replacement of A-Board

1. Remove the screws fixing the Terminal Bracket Metal and A-Board and then remove the Terminal Bracket Metal.



- |   |                         |                                       |
|---|-------------------------|---------------------------------------|
|  | SCREW<br>THEJ036J(4)    | ※Tightening torque:<br>60(±20) [N・cm] |
|  | SCREW<br>THEA068N(8)    | ※Tightening torque:<br>60(±20) [N・cm] |
|  | SCREW<br>XTV3+12JFJK(1) | ※Tightening torque:<br>75(±20) [N・cm] |

2. Disconnect the connectors and remove the screws and then remove the A-Board (with shield and Fan).



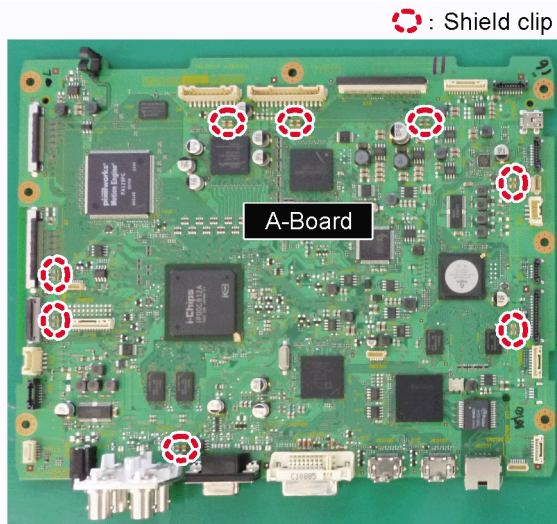
- ▽ SCREW  
XYN3+F6FJ(7) ※Tightening torque:  
60(±20) [N・cm]


3. Remove the shield (with Fan) from A-Board.

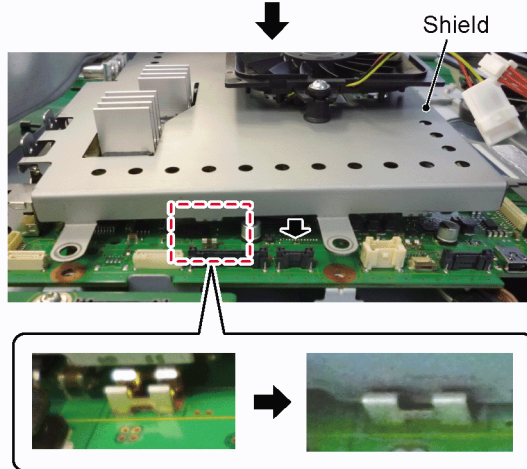


### Attention when replacing A-Board

- The shield is not attached to A-Board for repair.  
Please be sure to remove a shield from A-Board and reuse it.
- When attaching a shield to A-Board, please check whether it is correctly inserted in all the shield clips.  
\* When the shield is not correctly inserted in all the shield clips, fitting of Terminal Bracket Metal and the hexagon screw of a DVI terminal worsens, and it may be unable to attach a hexagon screw.

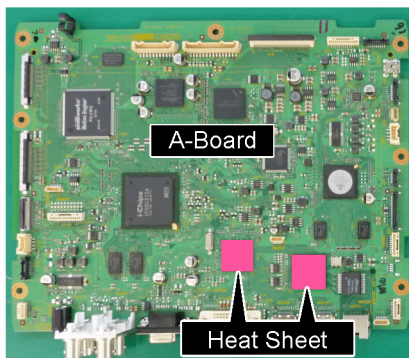


As shown in the following figure, please insert a shield in the shield clip (marked : 8 places) firmly.



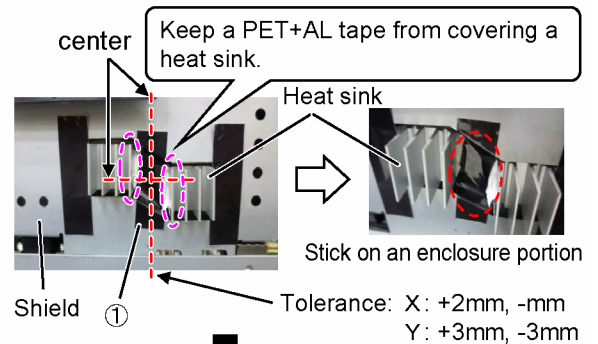
### Caution when replacing A-Board

- When replacing the A-Board, please be sure to restick a Heat Sheet on the original position.



- Please stick PET+AL-tape and Aluminum tape on the position of the following figure after attaching a shield to A-Board.

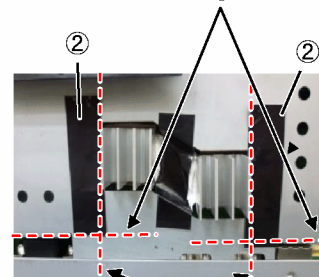
#### ① PET+AL-tape 1pcs



#### ② PET+AL-tape 2pcs (W15×L50)

Tolerance: X: +2mm, -2mm  
Y: +3mm, -3mm

Adjust to edge of shield

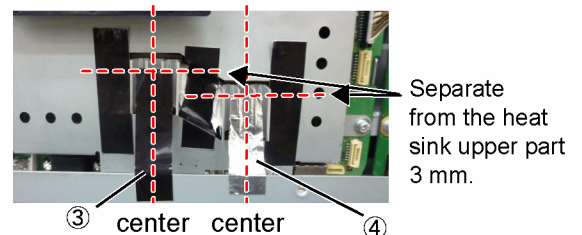


Separate from a heat sink 2 mm.

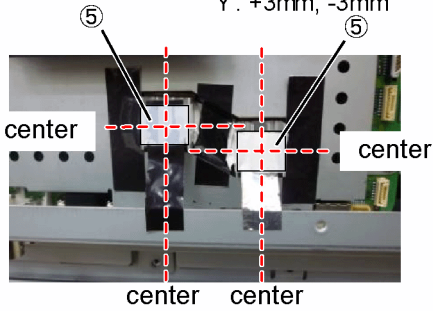
#### ③ PET+AL-tape 1pcs (W15×L50)

#### ④ Aluminum tape 1pcs (W15×L40)

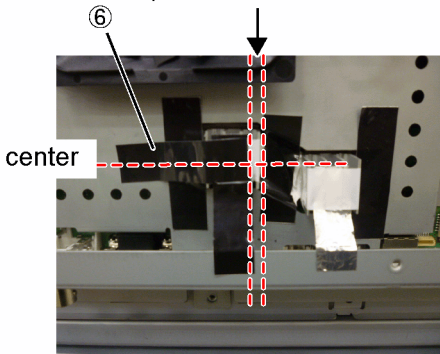
Tolerance: X: +3mm, -3mm  
Y: +3mm, -3mm



- ⑤ PET tape (0.08M) 2pcs (W15×L40)  
Tolerance: X: +3mm, -3mm  
Y: +3mm, -3mm



- ⑥ PET+AL-tape 1pcs (W15×L50)  
Tolerance: X: +3mm, -3mm  
Y: +3mm, -3mm  
Separate from a heat sink 3 mm.

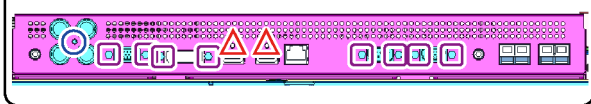


## 7.9. Replacement of Terminal Bracket Metal

1. Remove the screws and then remove the Terminal Bracket Metal.



■ Bottom view of Terminal Bracket Metal



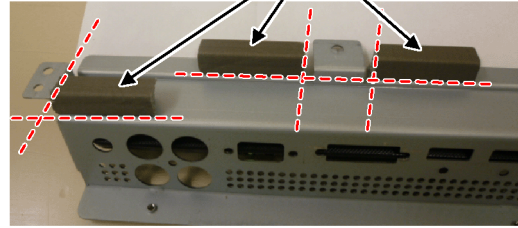
- |   |                         |   |
|---|-------------------------|---|
| △ | SCREW<br>THEJ036J(4)    | ※Tightening torque:<br>60(±20) [N · cm] |
| □ | SCREW<br>THEA068N(8)    | ※Tightening torque:<br>60(±20) [N · cm] |
| ○ | SCREW<br>XTV3+12JFJK(1) | ※Tightening torque:<br>75(±20) [N · cm] |

### Attention when replacing Terminal Bracket Metal

- When replacing Terminal Bracket Metal, please also replace the gaskets at the same time.

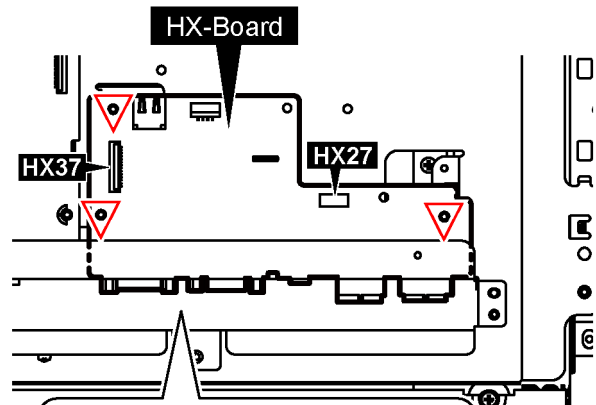
#### ■ Sticking position of gasket

- Tolerance:  
X: +0mm, -3mm  
Y: +0mm, -3mm  
Gasket 3pcs

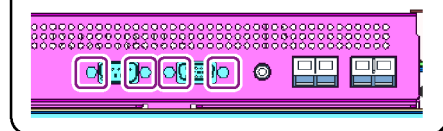


## 7.10. Replacement of HX-Board

1. Disconnect the connectors and remove the screws and then remove the HX-Board.



■ Bottom view of Terminal Bracket Metal

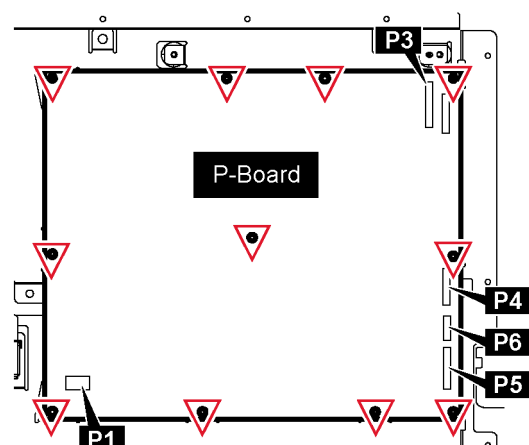


- |   |                       |   |
|---|-----------------------|---|
| ▽ | SCREW<br>XYN3+F6FJ(3) | ※Tightening torque:<br>60(±20) [N · cm] |
| □ | SCREW<br>THEA068N(4)  | ※Tightening torque:<br>60(±20) [N · cm] |



## 7.11. Replacement of P-Board

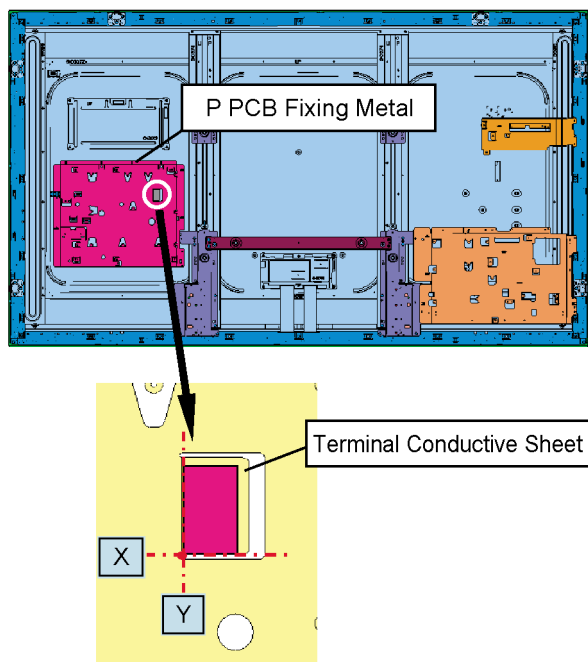
1. Disconnect the connectors and remove the screws and then remove the P-Board.



△ SCREW  
XYN3+F6FJ(11) ※Tightening torque:  
60(±20) [N · cm]

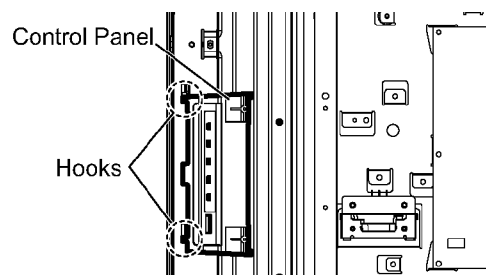
### Caution when replacing P-Board

- The Terminal Conductive Sheet is stuck on the P PCB Fixing Metal.  
Please be sure to check that the Terminal Conductive Sheet is stuck on the P PCB Fixing Metal before P-Board replacement.
- When the Terminal Conductive Sheet is peeling off or separated, please be sure to restick the Terminal Conductive Sheet.

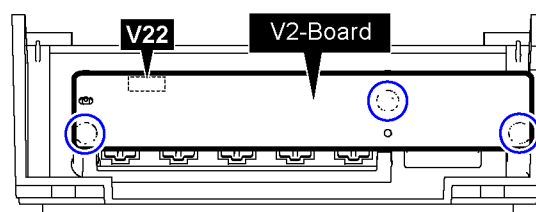


## 7.12. Replacement of V2-Board

1. Remove the Control Panel from hooks and then remove the Control Panel.



2. Disconnect the connector and remove the screws and then remove the V2-Board.



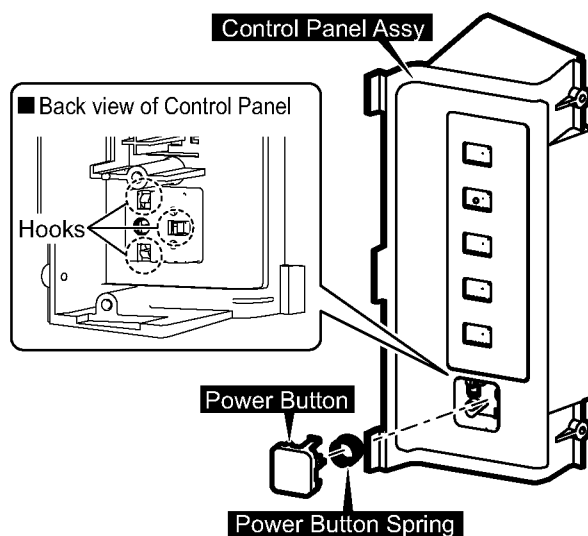
○ SCREW  
XTV3+12JFJK(3) ※Tightening torque:  
50(±10) [N · cm]

### Caution when attaching Control Panel

- After mounting the Control Panel, slide it's hooks and fix it.

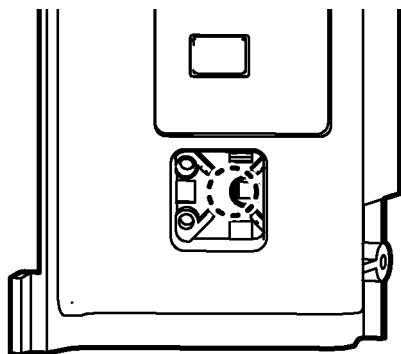
## 7.13. Replacement of Control Panel Assy and Power Button

1. Remove the Control Panel Assy and V2-Board.  
(Refer to "7.12. Replacement of V2-Board")
2. Unhook the power button's hooks (3 places) and remove the Power Button and Spring from the Control Panel Assy.
3. Replace the Control Panel Assy, Power Button or Power Button Spring.

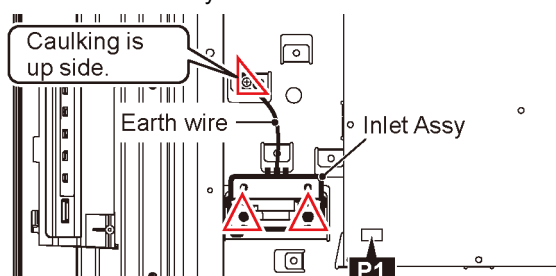


**Caution when attaching Power Button Spring**

- Attach the Power Button Spring within the limits of a dotted line enclosure.

**7.14. Replacement of AC Inlet**

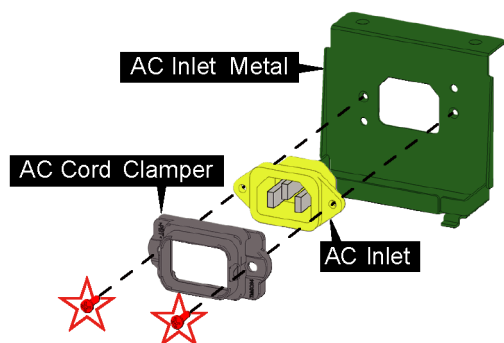
1. Disconnect the connector and remove the screw and then remove the Inlet Assy.



△ SCREW XYN4+E6FJ(1) ※Tightening torque: 100(±20) [N · cm]

△ SCREW THEJ036J(2) ※Tightening torque: 60(±20) [N · cm]

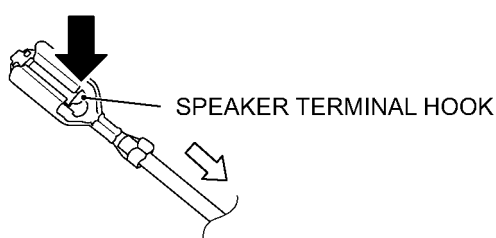
2. Remove the screws and then remove the AC Inlet and AC Cord Clamper.



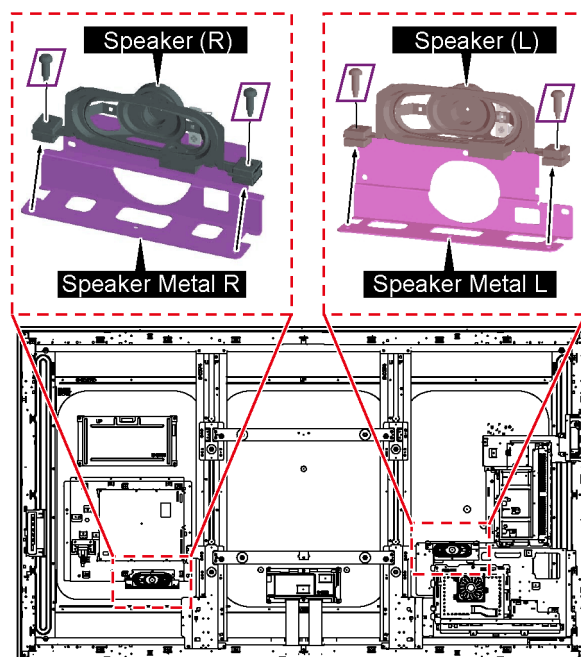
☆ ねじ THEL057J(2) ※:締め付けトルクが 60(±20) [N · cm]

**7.15. Replacement of Speaker (L, R)**

1. Push the speaker terminal hook, and pull out the speaker lead.



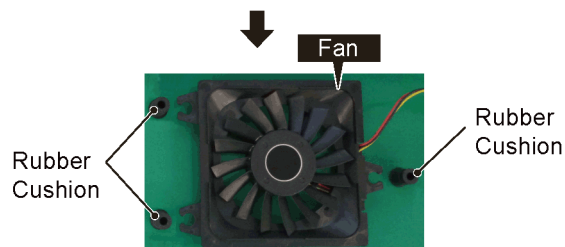
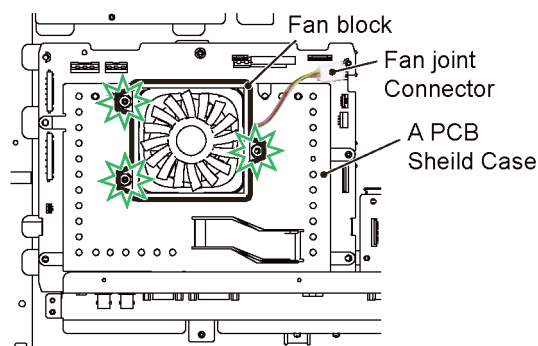
2. Remove the screws and then remove the Speaker (L, R).



□ SCREW THEC215J(4) ※Tightening torque: 100(±20) [N · cm]

**7.16. Replacement of Fan**

1. Disconnect the Fan joint connector and remove the screws.
2. Remove the Rubber Cushion from the Fan.



☆ SCREW THEJ039J(3)

## 7.17. Replacement of LCD Panel

### Attention when removing LCD Panel

- Please work by three or more persons.
- Two persons move a LCD Panel to the stable level place in which it had a LCD Panel and which was covered with soft cloth and sponge. Since the worker who carries becomes a situation where the circumference cannot be seen, in order that he may guide safely, one person needs to do the assistance under movement, and the directions of a place to take down.
- Please work putting a glove.

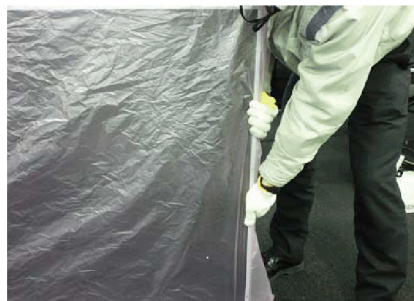
### Caution about LCD Panel

- When replacing the LCD module, please work to be aware of the following.

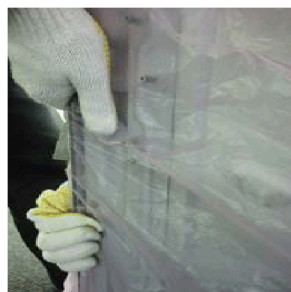
## How to handle LCD Panel

### [Remove from Antistatic Bag]

- Please operate by two or more persons.
- Please pick out LCD Panel from a case slowly.
- Please be careful not to generate static electricity.
- Please have LCD Panel like a photograph.



Please have a bezel.



Please have a place which does not have ornament in the reverse side.

### Bad example



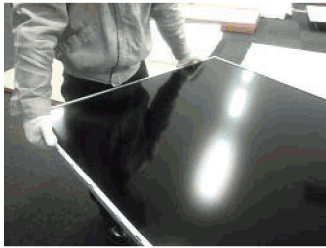
Pressing down screen

- Pick out LCD Panel slowly from bag.

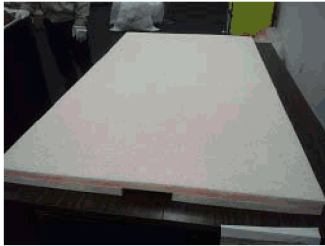


## [Carrying LCD Panel to a working table]

- Please operate by two or more persons.
- Please have LCD Panel like a photograph.

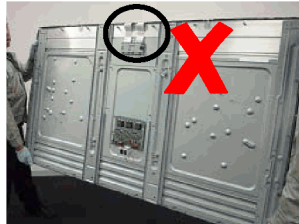


- Please check that there is no obstacle on a working table.



- Please turn the flexible cable side down (a top-and-bottom inversion is a bad example).

Bad example

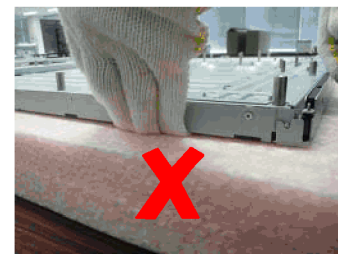
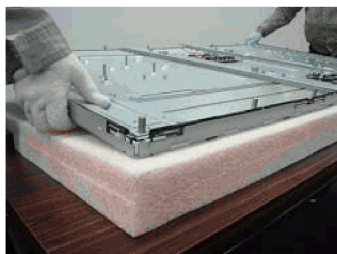
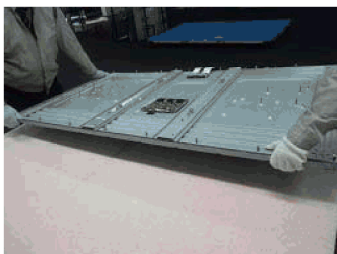


- Please turn the liquid crystal display side downward.

Bad example  
Pressing down screen



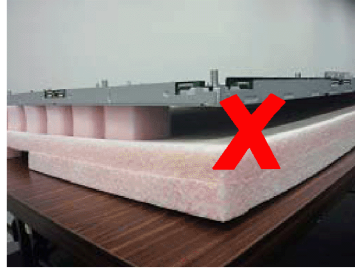
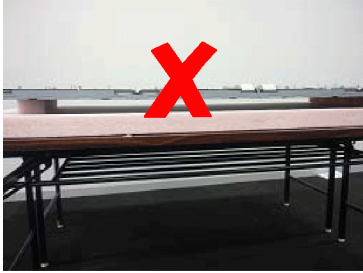
- Please put LCD Panel calmly to an flat field.



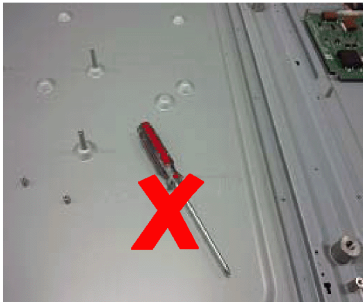
Cautions!  
Please be careful that a  
finger and a foreign  
substance do not get  
caught in.



- Please do not put like a photograph.



It does not support in a field  
(The module is bent by this way to place)

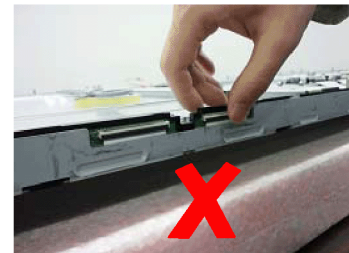


Please place neither a tool nor apparatus on LCD Panel not to damage LCD Panel.

- Please do not touch a connector part.



Bad example



- Please do not adopt the following way of placing which bends the LCD Panel.
- Please do not put LCD Panel against a wall etc. aslant alone.

Bad example



Bad example



Bad example



- When replacing the LCD Panel, please replace the aluminum tape and wiring tape at the same time.
- \* **The specifications of sticking may change without notice and sometimes the parts may remain.**
- \* **Please stick on the same place as original places.**

#### About the wiring tape

- Please use cutting according to the length of the tape stuck on the LCD Panel before replacement.
- Although the color of a tape is different, there is no problem.

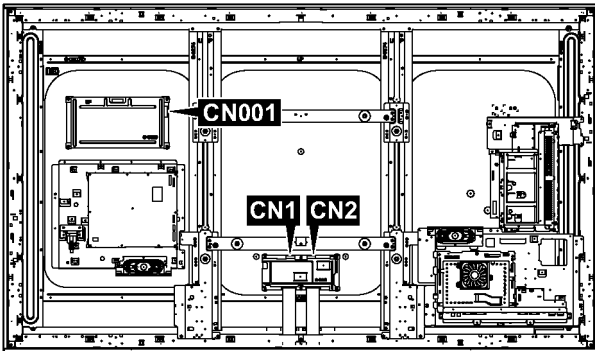
#### Caution when replacing LCD Panel

- Please be sure to remove metal fittings and attach them to the LCD Panel for repair.

#### Caution when replacing/removing lead wire and FFC

- Please insert the lead wire and FFC firmly to the back of connector.
- The shortage of plugs causes failure.
- **A lead wire is removed from a clumper if needed.**

1. Prepare the stable level place covered with the soft cloth and sponge for placing LCD Panel.
2. Remove the H1-Board.  
(Refer to steps 1 to 2 in "7.5. Replacement of H1-Board")
3. Remove the Control Panel (with V2-Board and Power Button).  
(Refer to "7.12. Replacement of V2-Board")
4. Disconnect the connectors on the LCD Panel side.



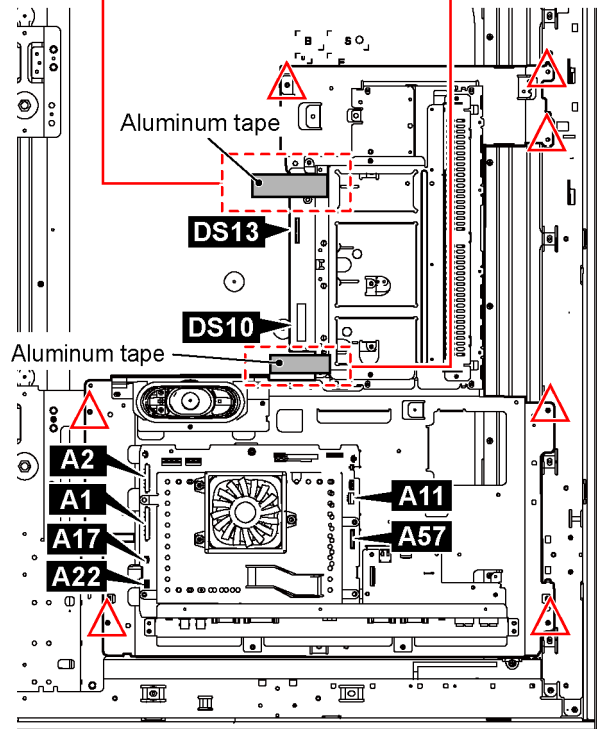
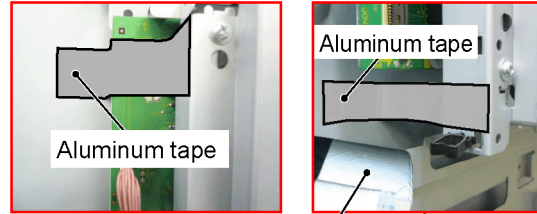
5. Disconnect the connectors and remove the screws, and then remove the Slot Block and A PCB Fixing Metal (with A-Board, HX-Board and Speaker Block (L)) at the same time.

#### Attention when removing Slot Block

- Remove the conductive tape and aluminum tape on the LCD Panel.

※Please remove the aluminum aluminum tape on the LCD Panel.

The aluminum tape is under the FFC which has connected A-Board and DS-Board.

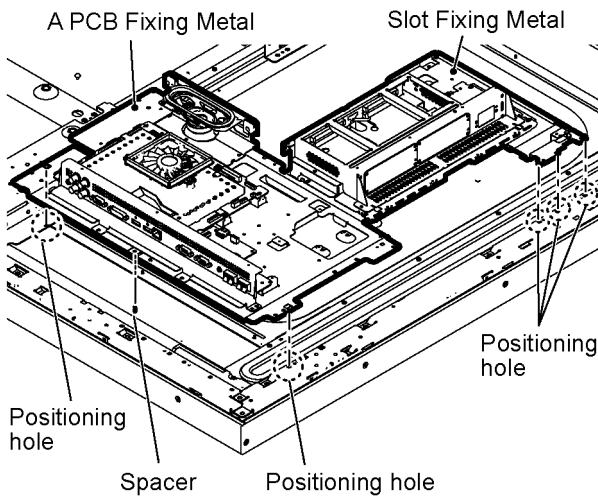


△ SCREW  
THEJ036J(7)

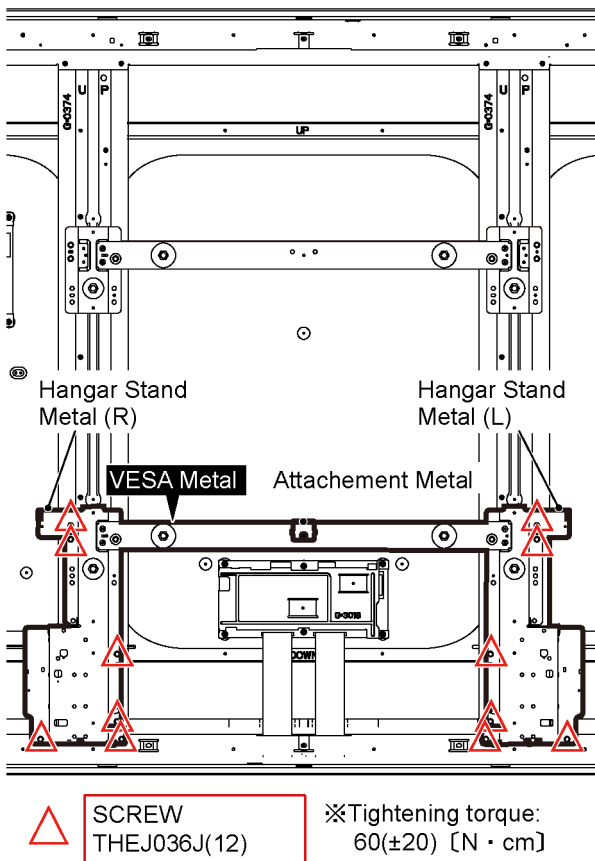
※Tightening torque:  
60(±20) [N · cm]

### Caution when attaching Slot Fixing Metal and A PCB Fixing Metal

- Attach on the basis of mounting holes.

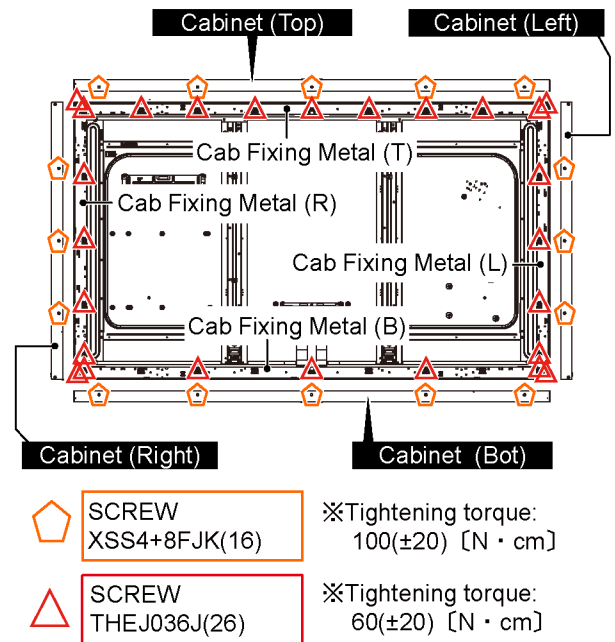


6. Remove the screws and then remove the VESA Metal Up and Hangar Stand Metal (L, R).



7. Remove the screws and remove the Cab Fixing Metal (L,

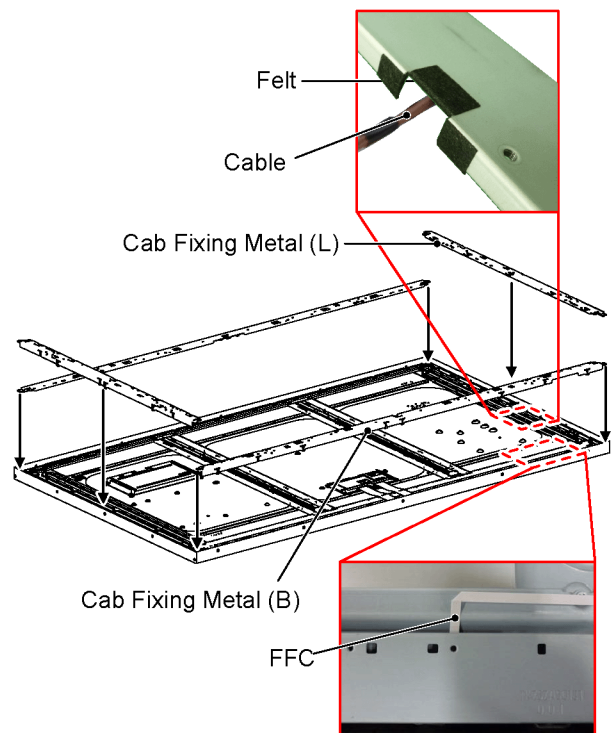
R) first and then remove the Cab Fixing Metal (T, B).



### Caution when attaching Cab Fixing Metal

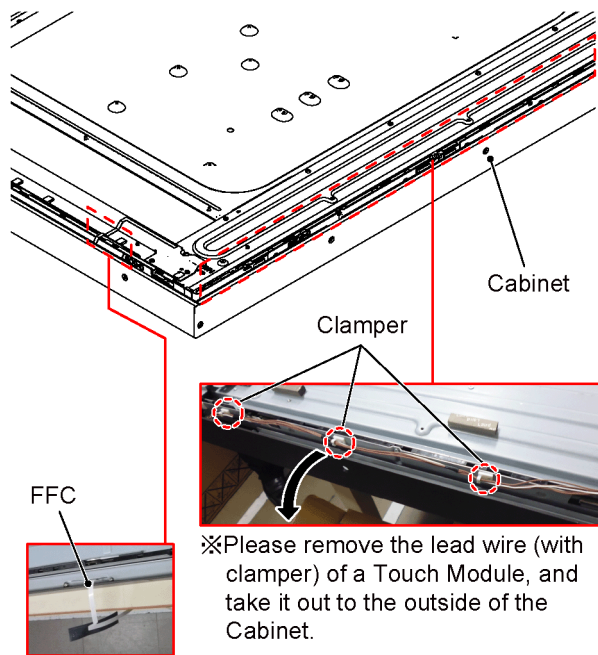
- After attaching the Cab Fixing Metal (T, B), attach the Cab Fixing Metal (R, L).
- Please return FFC inside before attaching the Cab Fixing Metal.
- When attaching the Cab Fixing Metal (L), please take out the FFC inside from the hole where it is stuck on the felt.

※When attaching the Cab Fixing Metal (L), please take out the FFC inside from the hole where it is stuck on the felt.



※Please return FFC inside before attaching the Cab Fixing Metal (B).

8. Take out the FFC (from V1-Board) and the lead wire (from Touch Module) attached to the side of the LCD Panel to the outside of the Cabinet.



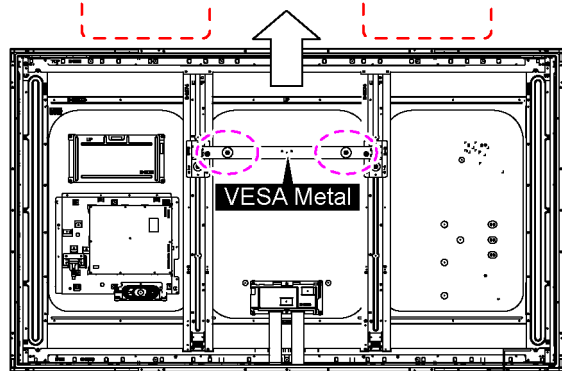
※Please take out the FFC from V1-Board to the outside of a Cabinet.

9. Remove the LCD Panel.

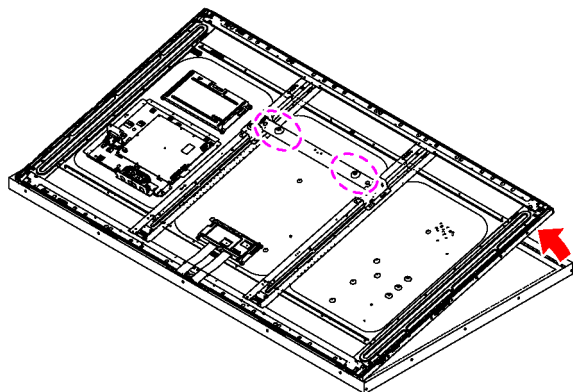
#### Attention when removing LCD Panel

- (1) Put a glove, and hold the VESA Metal and then raise LCD Panel aslant by two persons.

※Two persons stand the neighborhood of the    part and please hold the    part on VESA Metal.

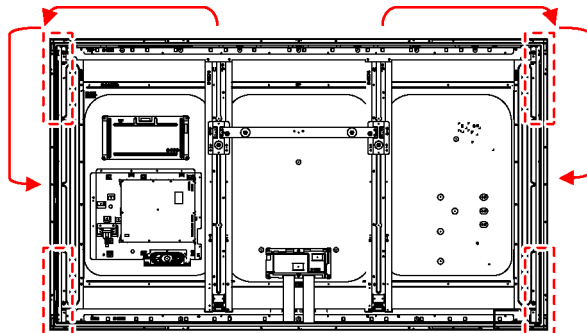


※Please raise aslant.

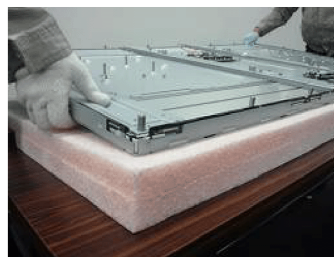


- (2) With LCD Panel held, two persons need to be divided into the left and the right and raise LCD Panel.

※Please turn to right and left of the LCD Panel, hold the    part, and raise the LCD Panel.

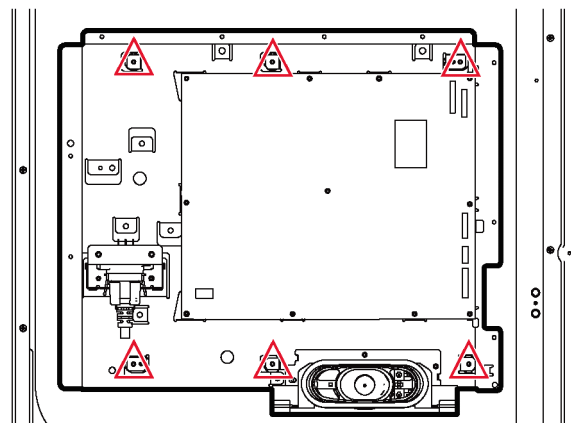


- (3) Put LCD Panel calmly on the stable level place covered with soft cloth and sponge.



※Please put the LCD Panel on the stable level place calmly.

10. Remove the screws and then remove the P PCB Fixing Metal (with P-Board and Speaker Block (R)).



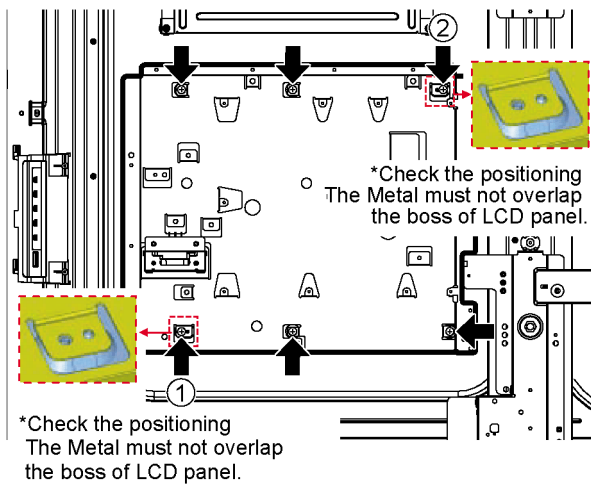
SCREW  
THEJ036J(6)

※Tightening torque:  
60(±20) [N · cm]

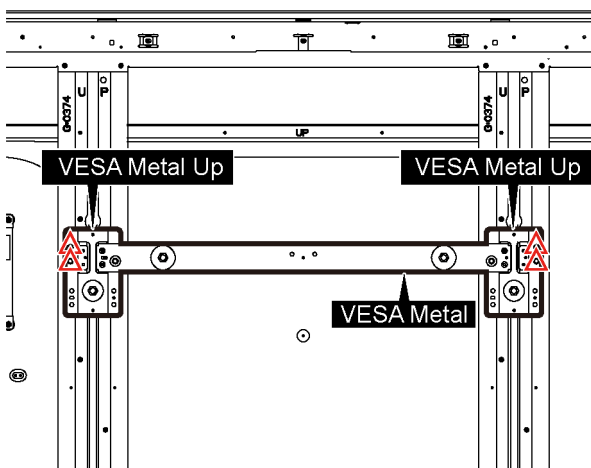


**Caution when attaching P PCB Fixing Metal**

- The Metal must not overlap the boss of LCD Panel.
- Tightened in order of (1-2), the other screws are free.



11. Remove the screws and then remove the VESA Metal Up (with VESA Metal).



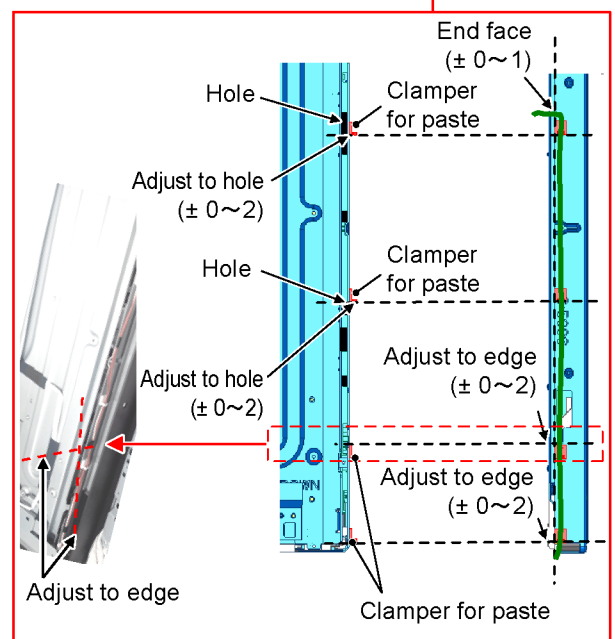
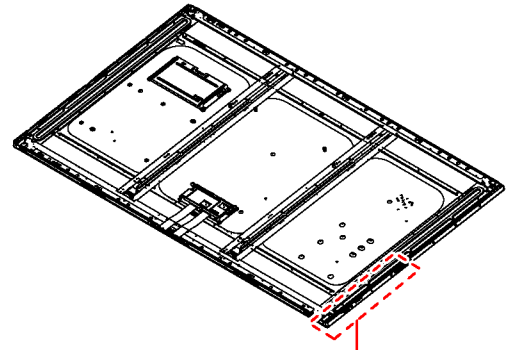
SCREW  
THEJ036J(4)

※Tightening torque:  
60(±20) [N · cm]

**Attention when replacing LCD Panel**

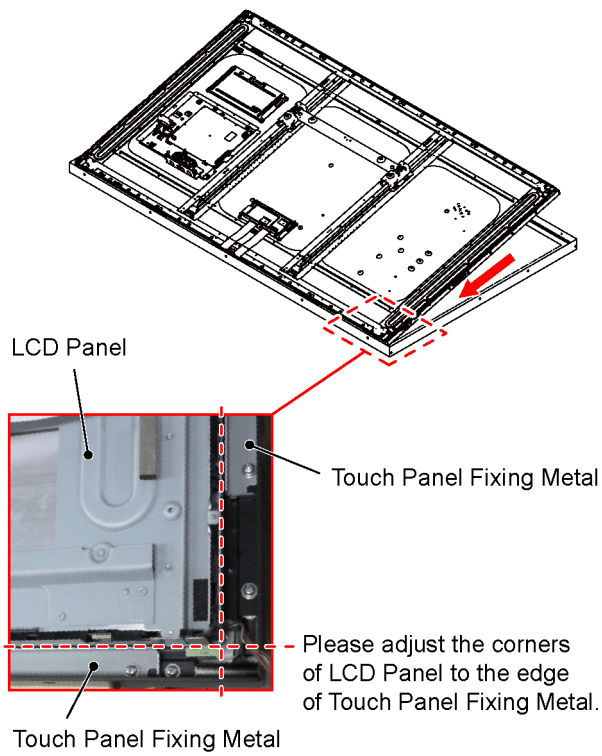
- (1) Attach a VESA Metal Up (with VESA Metal) to the LCD Panel for repair.
- (2) As shown in the following figure, please attach beforehand the Clamper for the LCD Panel.

■ Position of clamper for paste




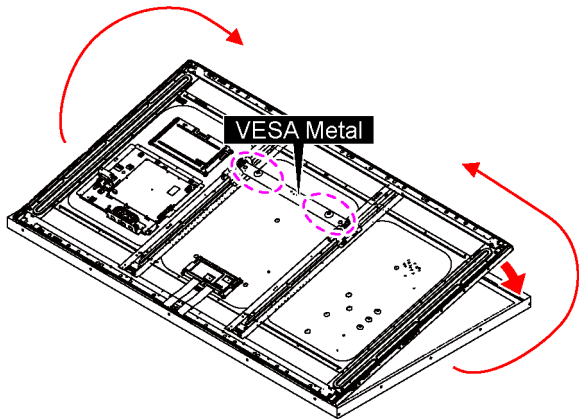
- (3) Check that the FFC (from V1-Board) and the lead wire (from Touch Module) are taken out to the outside of the Cabinet.
- (4) Two person hold the narrow-side of LCD Panel and raise it, and move to the Cabinet. Since the worker who carries becomes a situation where the circumference cannot be seen, in order that he may guide safely, one person needs to do the assistance under movement, and the directions of a place to take down.

- (5) Adjust corner of LCD Panel to the lower right edge of Touch Panel Fixing Metal as shown in the following figure.



- (6) Holding the LCD Panel, turn from right and left, hold the VESA Metal and put calmly on to the Front Glass.

※Holding the LCD Panel, turn from right and left, hold the  part of VESA Metal, and put calmly on to the Front Glass.



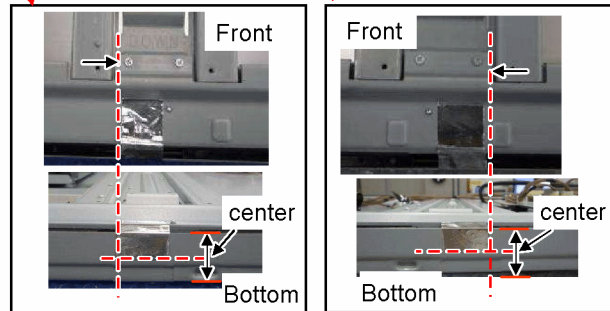
### Caution about the parts stuck on the LCD Panel

- After connecting the flexible cables and the LVDS cable, please stick the tapes and gasket at sticking positions of the LCD Panel.
- \* Specification of sticking may change without notice and sometimes the parts may remain
- \* Please stick the parts to stick at the same position as the previous LCD Panel.

#### ■ Specification of sticking -1

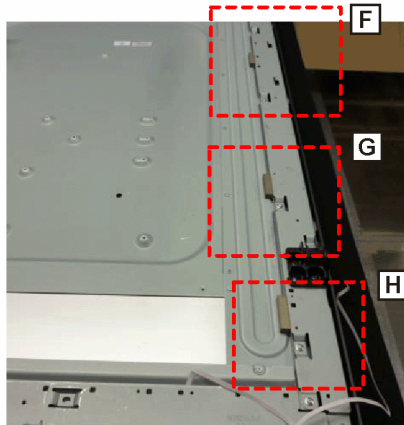
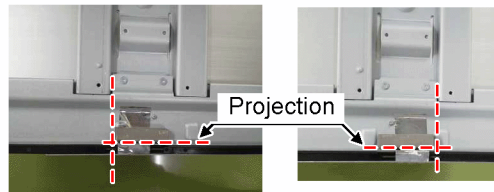
Aluminum tape 2pcs

Tolerance: X: +1mm, -5mm  
Y: +3mm, -3mm



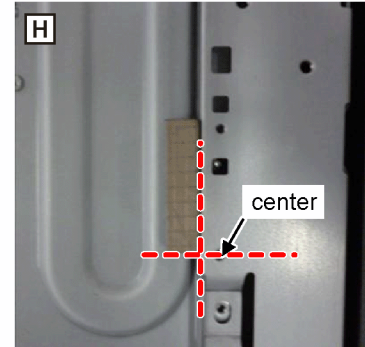
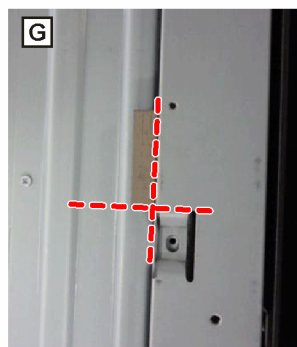
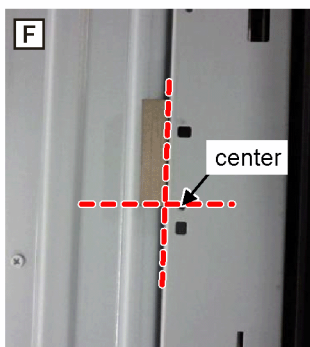
Gasket 2pcs

Tolerance: X: +5mm, -5mm  
Y: +5mm, -2mm



Gasket 3pcs

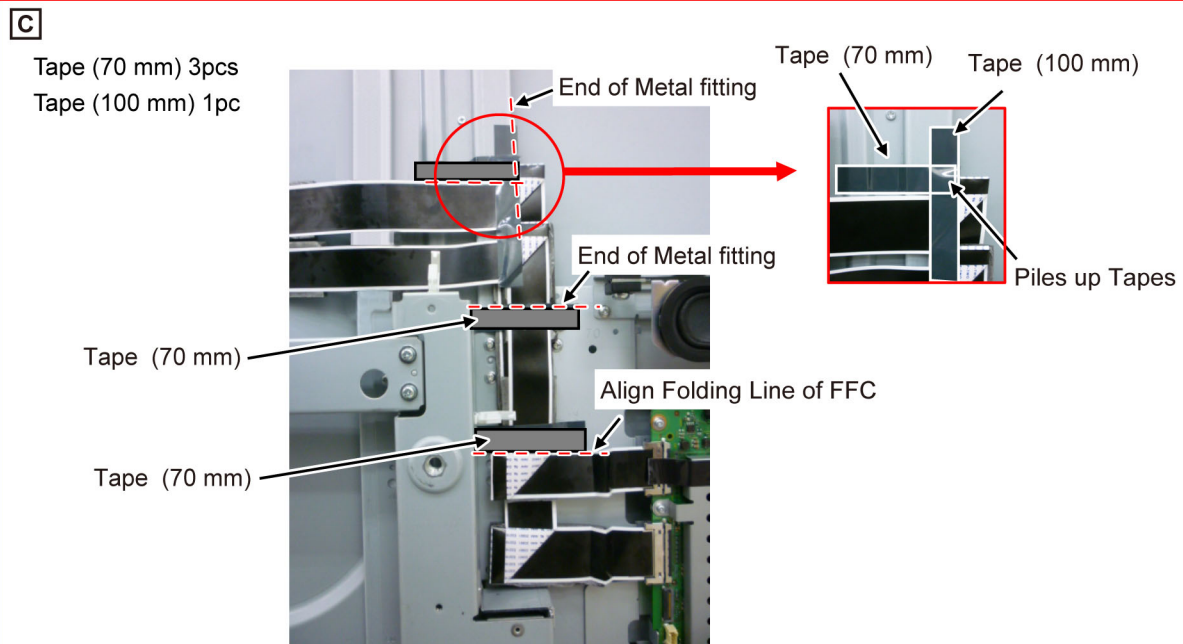
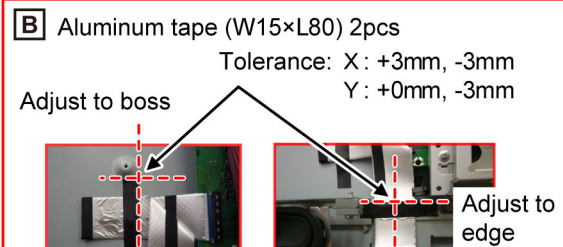
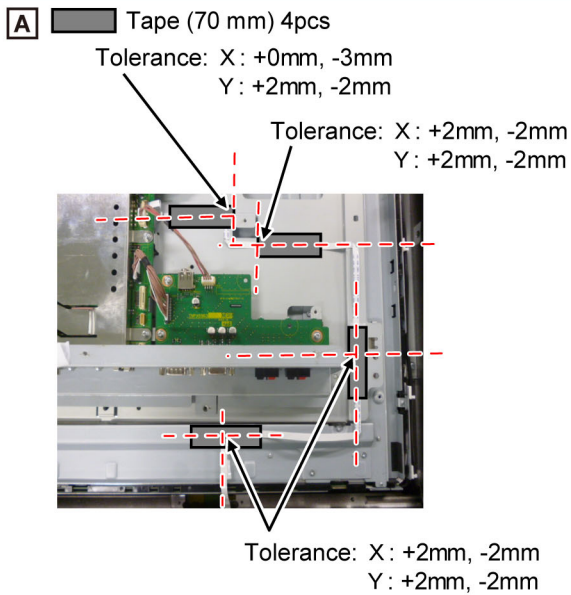
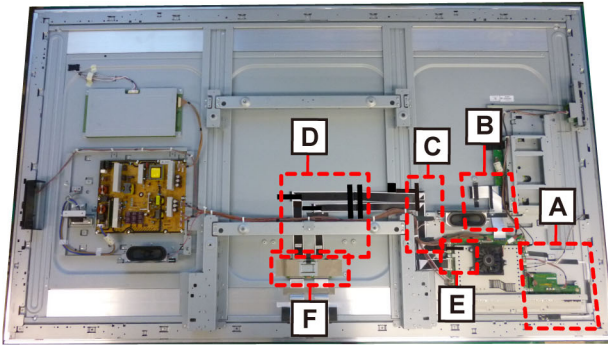
Tolerance: X: +0mm, -3mm  
Y: +3mm, -3mm



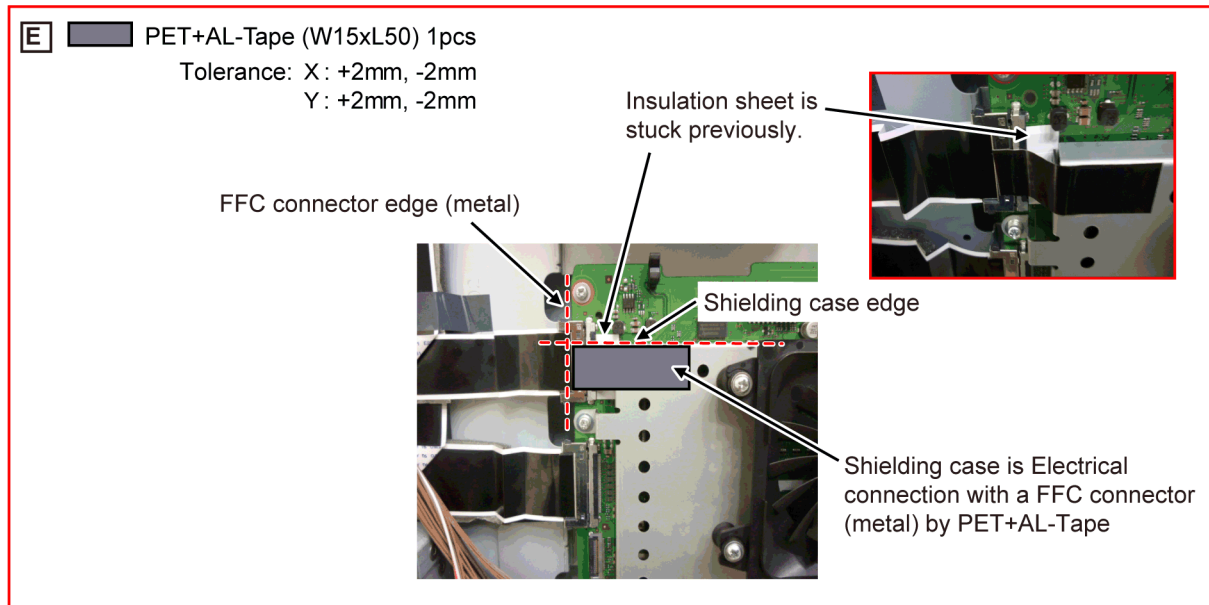
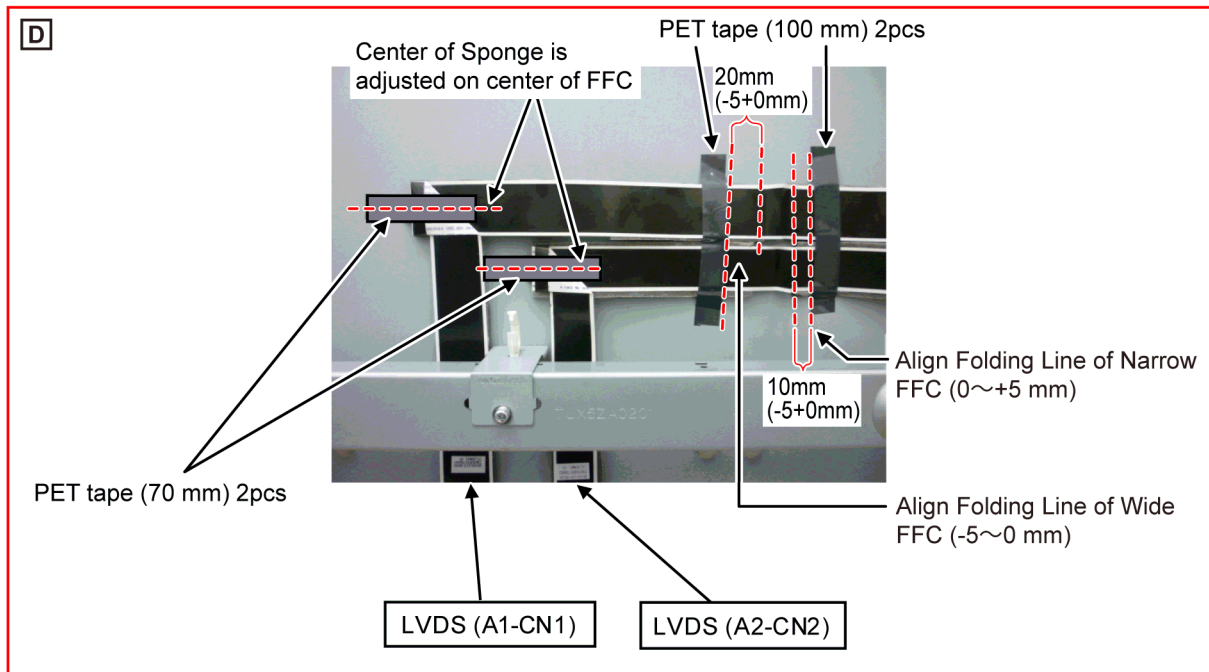
#### ■ About wiring when replacing the LCD Panel

- Refer to "9. Wiring Connection Diagram" about wiring.

## ■ Specification of sticking -2



- About wiring when replacing the LCD Panel
  - Refer to "9. Wiring Connection Diagram" about wiring.

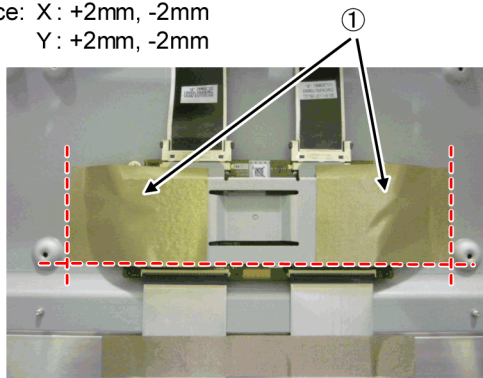


- About wiring when replacing the LCD Panel
  - Refer to "9. Wiring Connection Diagram" about wiring.

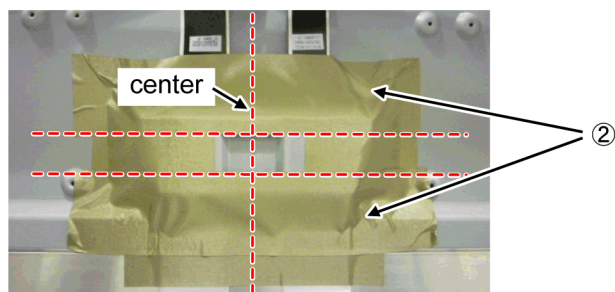


**F**

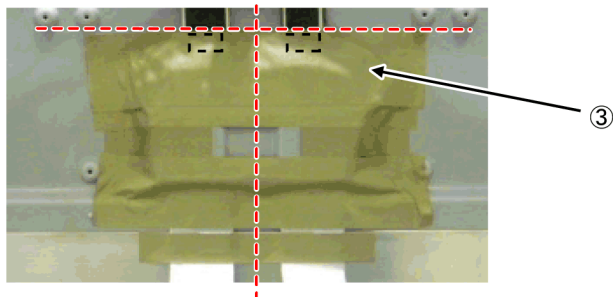
- ① Rubber band (W50xL80) 2pcs  
Tolerance: X: +2mm, -2mm  
Y: +2mm, -2mm



- ② Rubber band (W50xL230) 2pcs  
Tolerance: X: +2mm, -2mm  
Y: +3mm, -0mm

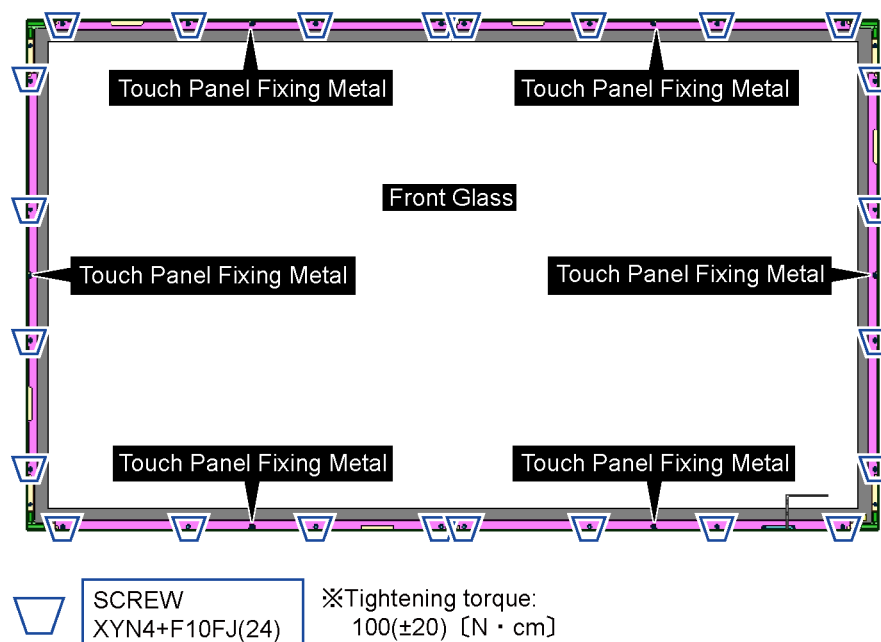


- ③ Rubber band (W50xL230) 2pcs  
Tolerance: X: +2mm, -2mm  
Y: +3mm, -0mm



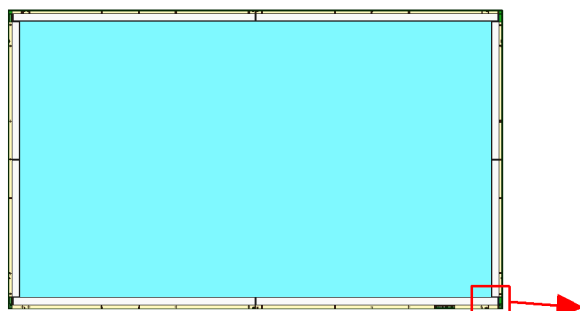
## 7.18. Replacement of Front Glass

1. Remove the LCD Panel from the Cabinet.  
(Refer to steps 1 to 9 in "7.16. Replacement of LCD Panel")
2. Remove the screws and remove the Touch Panel Fixing Metal and then remove the Front Glass from the Cabinet.

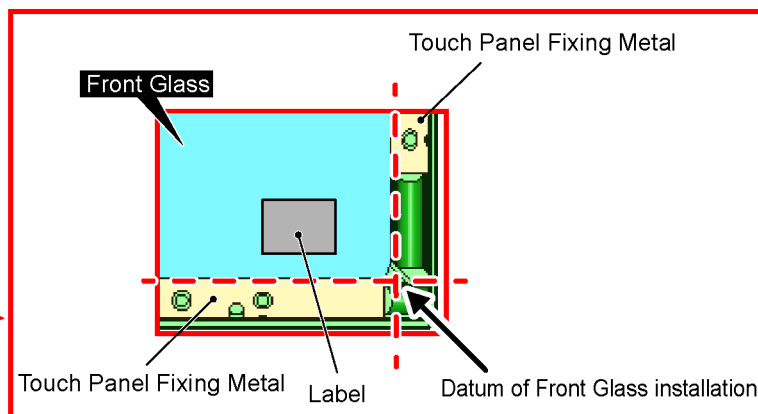


### Attention when replacing Front Glass

- Please wipe with the soft dry cloth (cotton, flannel) lightly, and do work after checking that neither dust nor a fingerprint is attached to glass.
- Please set Front Glass in the installation datum at the lower right of a Cabinet so that a label becomes the lower right.

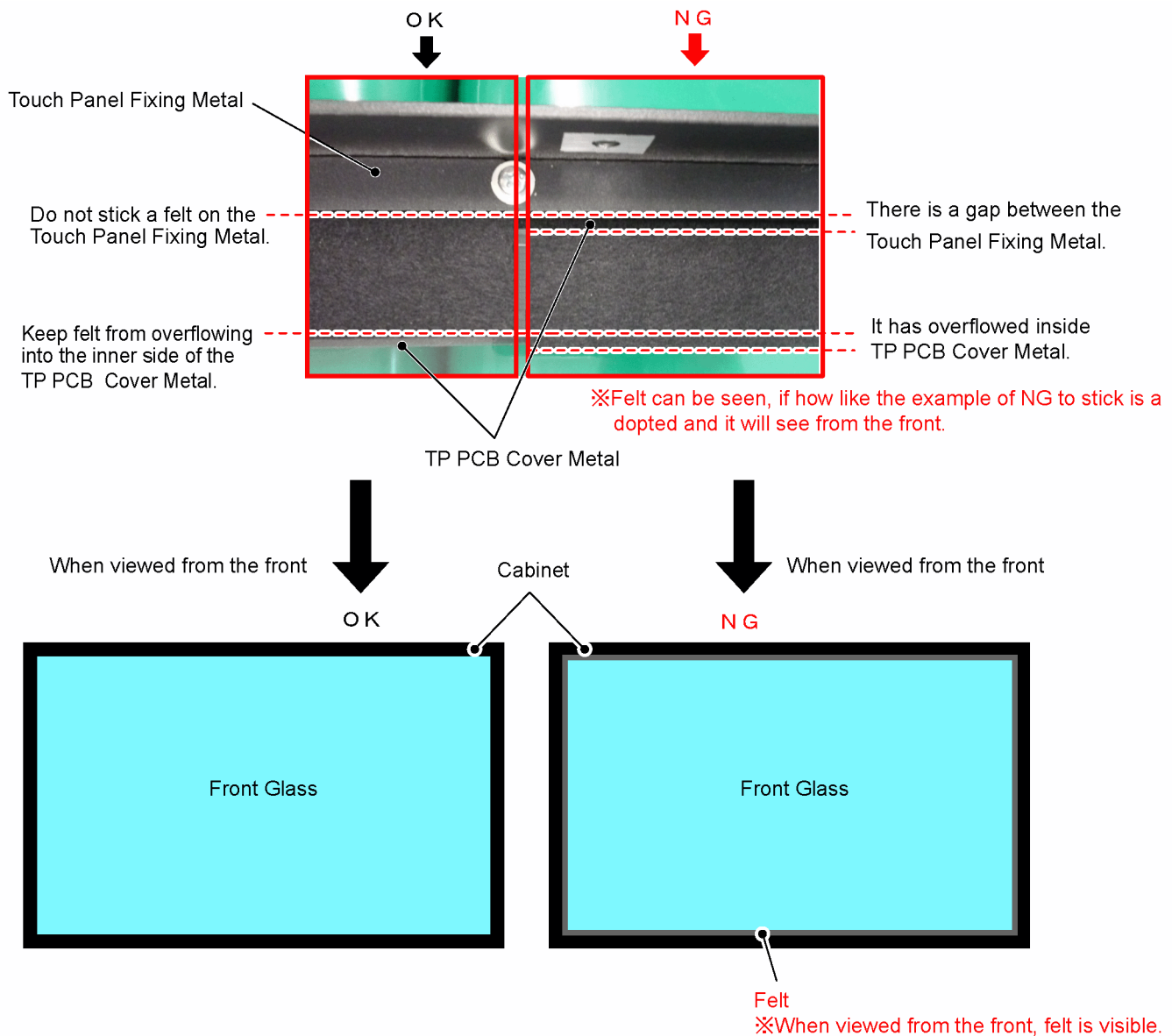


※Please install Front Glass on the datum of a lower right Touch Panel Fixing Metal.



### Quality Criterion of sticking felt

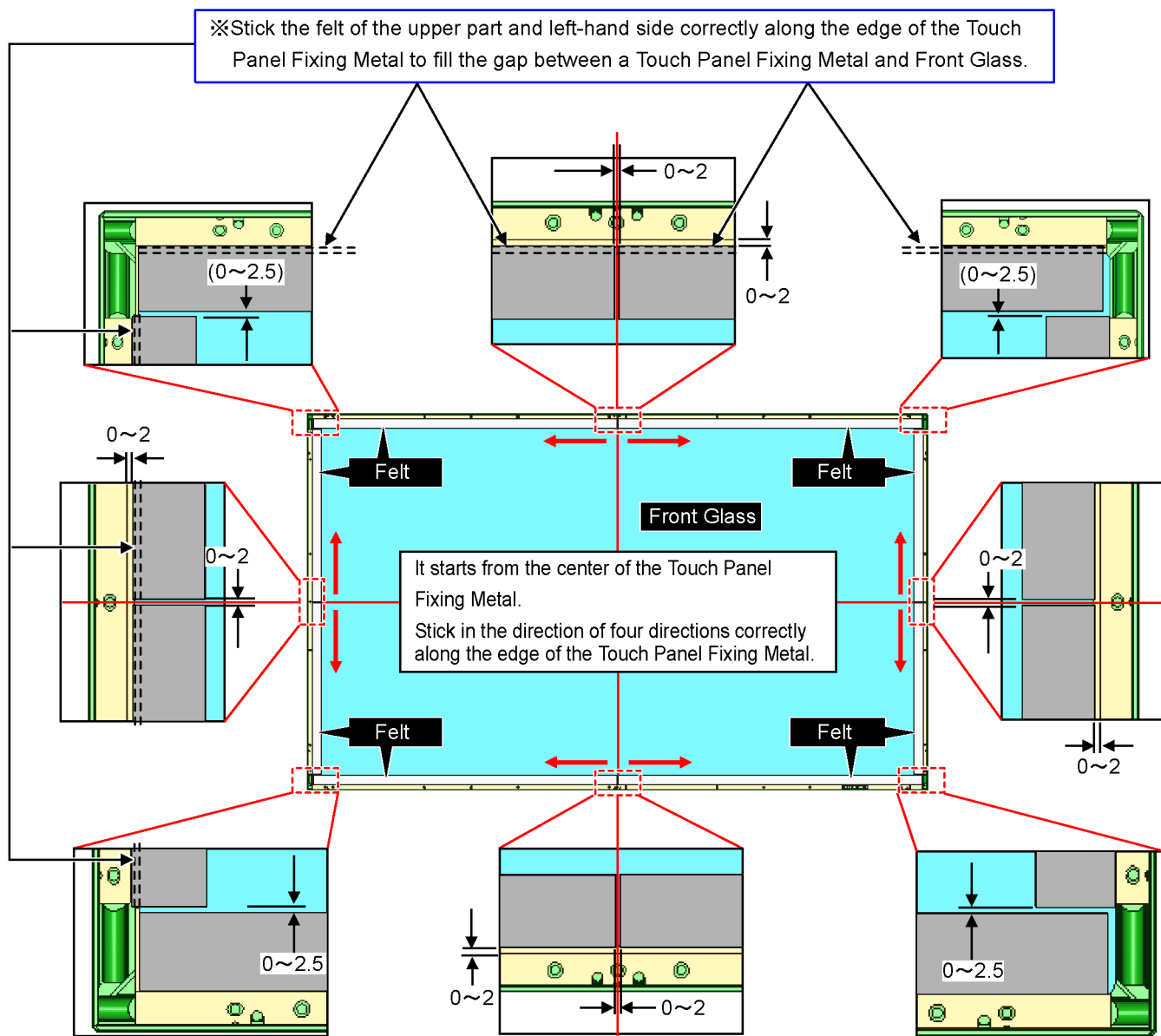
- When sticking felt, please do not stick on a Touch Panel Fixing Metal by any means.
  - When you stick felt, please stick not to overflow into the inner side of TP PCB Cover Metal under Front Glass.
- If it does not stick correctly, felt may be seen from the front.





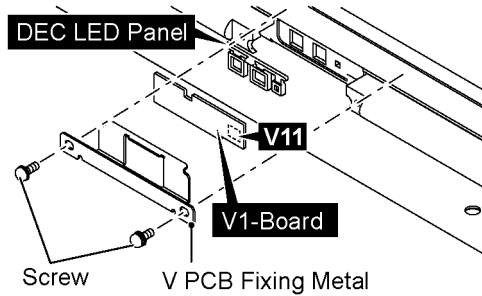
**Sticking position of felt**

- Stick the felt along with a Touch Panel Fixing Metal with the center of a Touch Panel Fixing Metal as the starting point.



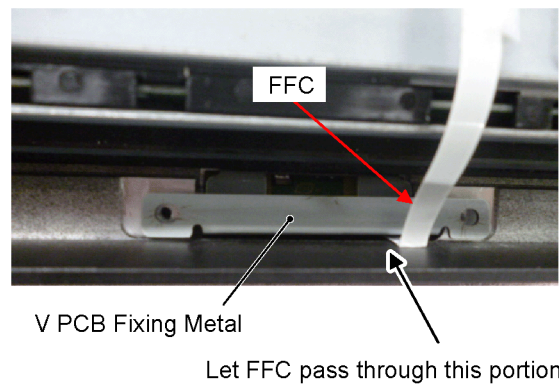
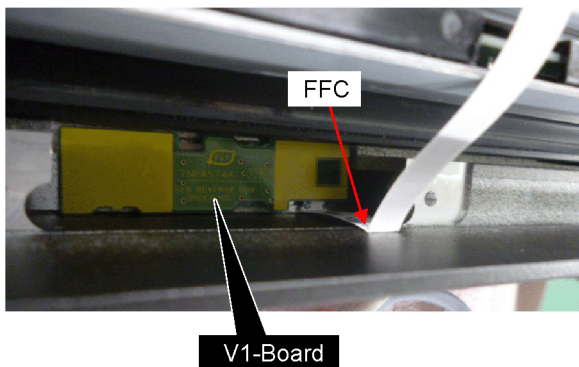
## 7.19. Replacement of V1-Board, V PCB Fixing Metal, and DEC LED Panel

1. Remove the LCD Panel from the Cabinet.  
(Refer to steps 1 to 9 in "7.17. Replacement of LCD Panel")
2. Remove the Front Glass from the Cabinet.  
(Refer to step 2 in "7.18. Replacement of Front Glass")
3. Remove the screws and then remove the V PCB Fixing Metal, V1-Board and DEC LED Panel.
4. Disconnect the FFC from the V1-Board.



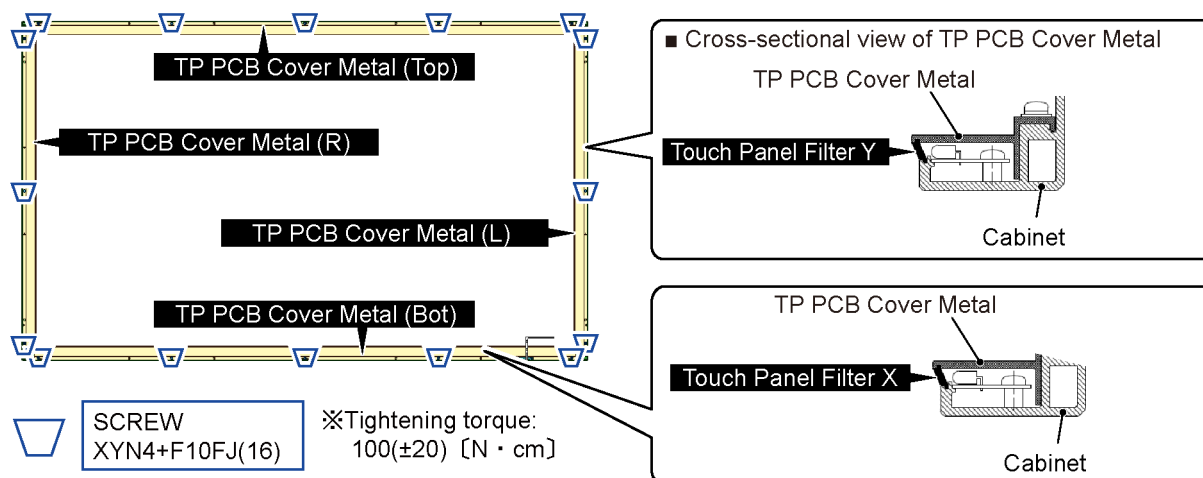
### Caution when attaching V1-Board

- As shown in the following figure, please let the FFC pass.

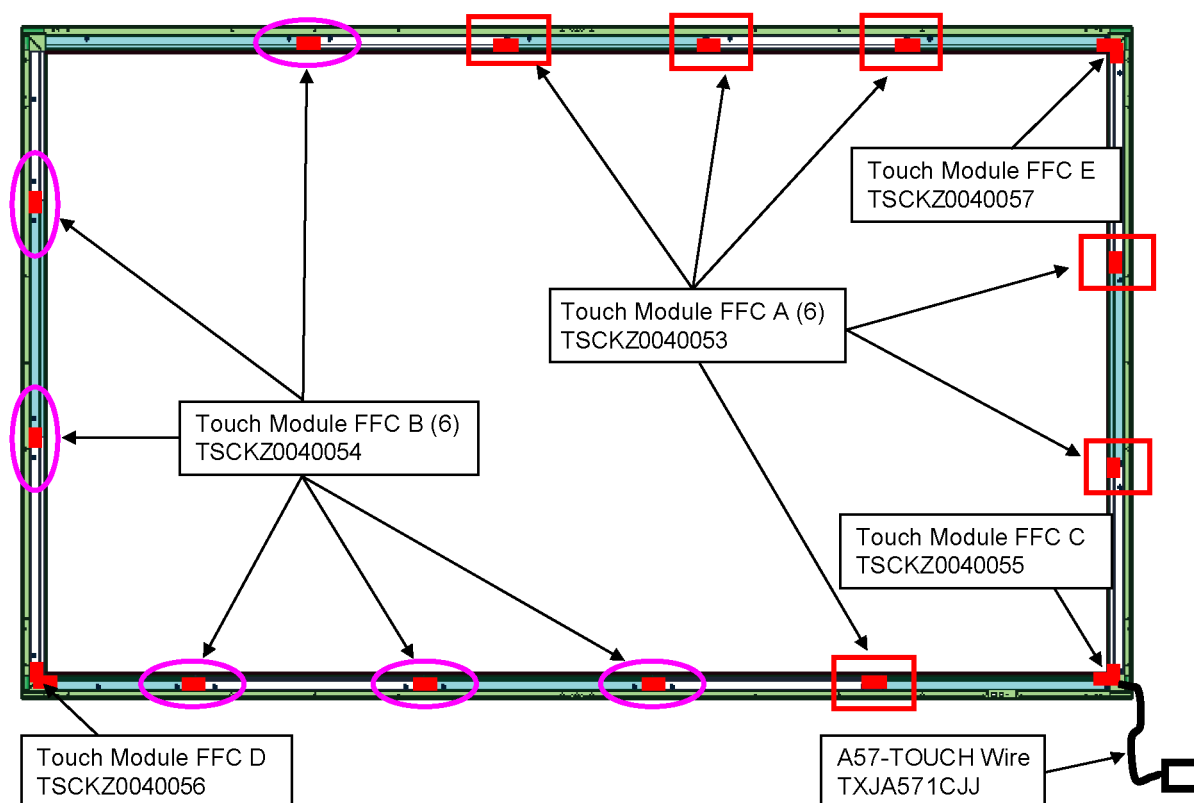




## 7.20. Replacement of Touch Module

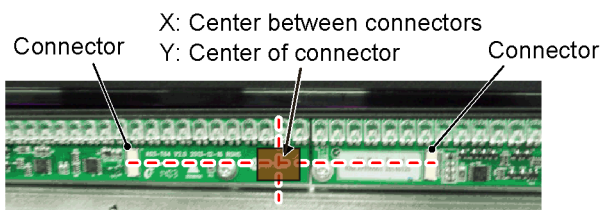
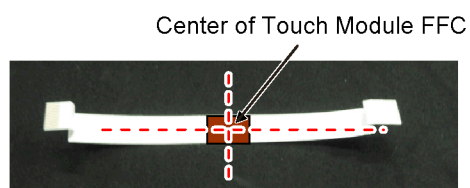
1. Remove the LCD Panel from the Cabinet.  
(Refer to steps 1 to 9 in "7.17. Replacement of LCD Panel")
2. Remove the Front Glass from the Cabinet.  
(Refer to step 2 in "7.18. Replacement of Front Glass")
3. Remove the screws and then remove the TP PCB Cover Metal (Top, Bot, L, R) and Touch Panel Filter (X, Y).



4. Disconnect the connectors and remove the screws and then remove the Touch Module.

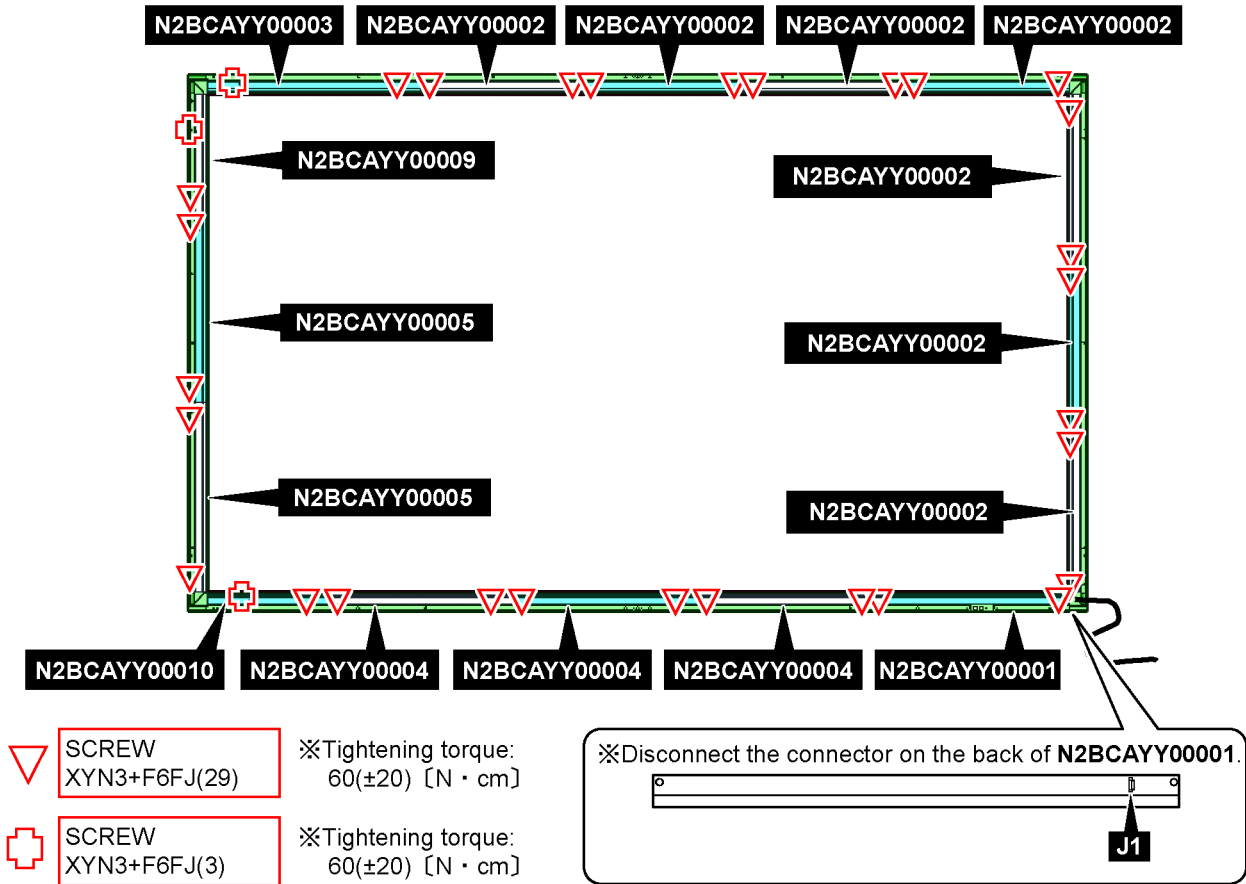



※Sticking position of Adhesive tape on the back of Touch Module FFC (marked  and )

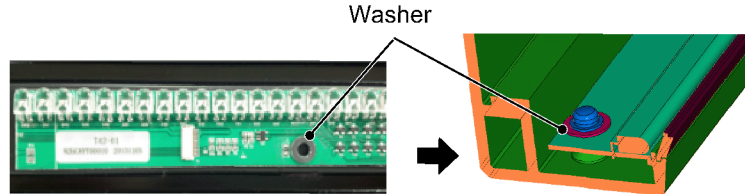


### Caution when attaching FFC of a Touch Module

- Please insert the Touch Module FFC between Touch Modules firmly to the back of a connector.
- When replacing a Touch Panel module or Touch Module FFC, please remove Adhesive tape finely and use a new one.  
\* Performance can not be ensured when using the Adhesive tape on the market. Please order separately from the Adhesive tape for repair.



When attaching the screw (marked ) , please attach a screw after attaching a washer to previous position.

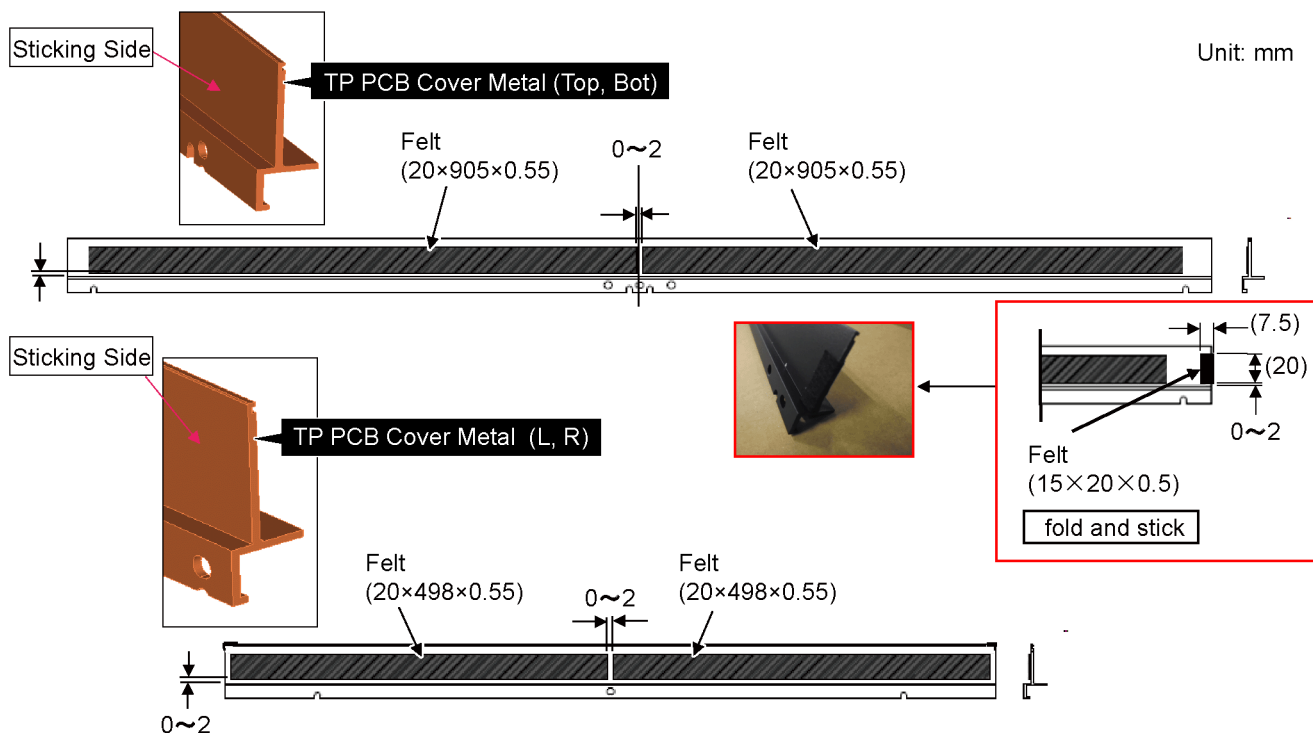


※When replacing Touch Module, please be sure to reattach the washer (TMKZ001) of a touch module fixing screw part (three places) to a new board from the old board, and attach a screw.

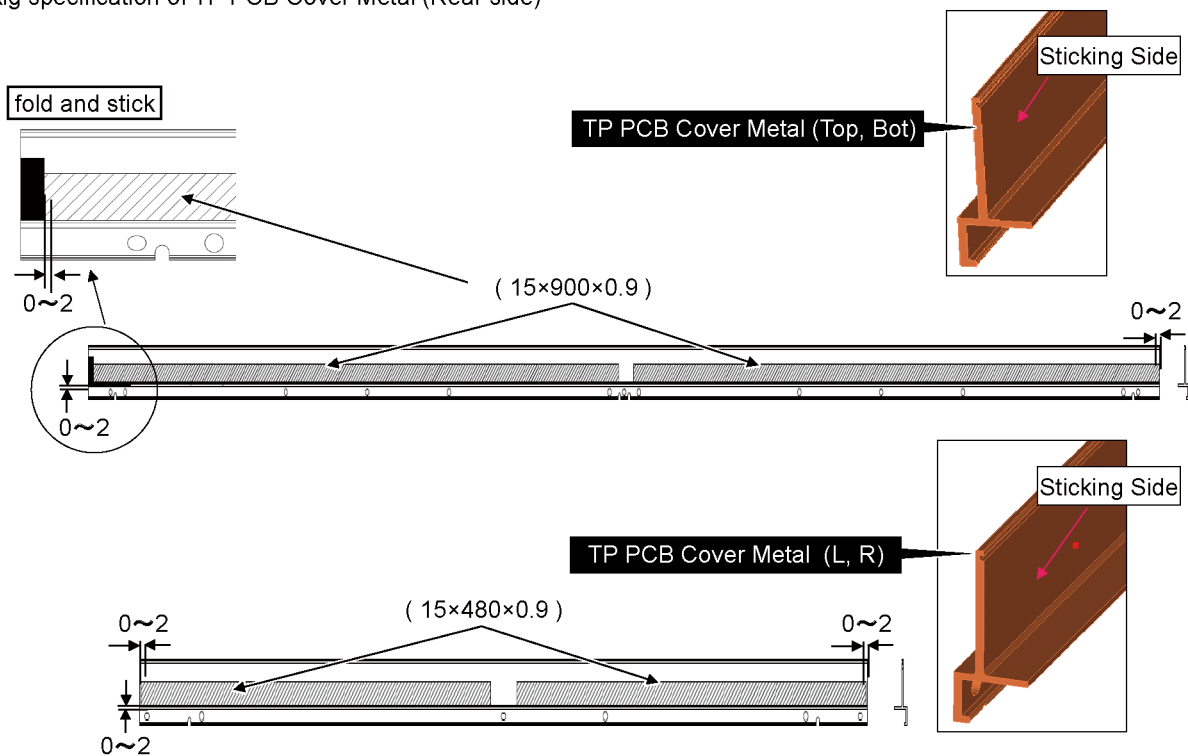
**Sticking position of felt**

- As shown in the following figure, please stick felt on a TP PCB Cover Metal.

■ Stickig specification of TP PCB Cover Metal (Front side)

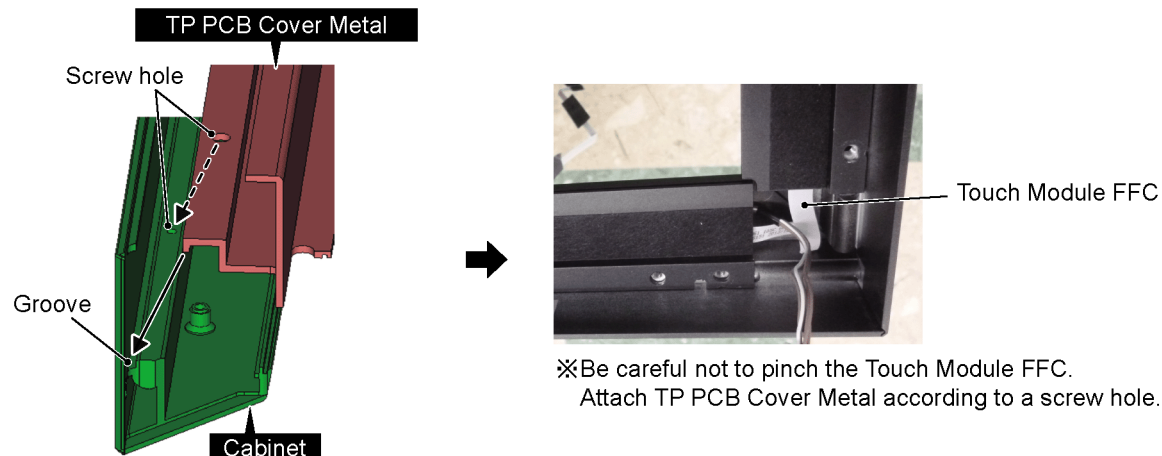


■ Stickig specification of TP PCB Cover Metal (Rear side)



## 7.21. Attachment procedure of Touch Panel Filter

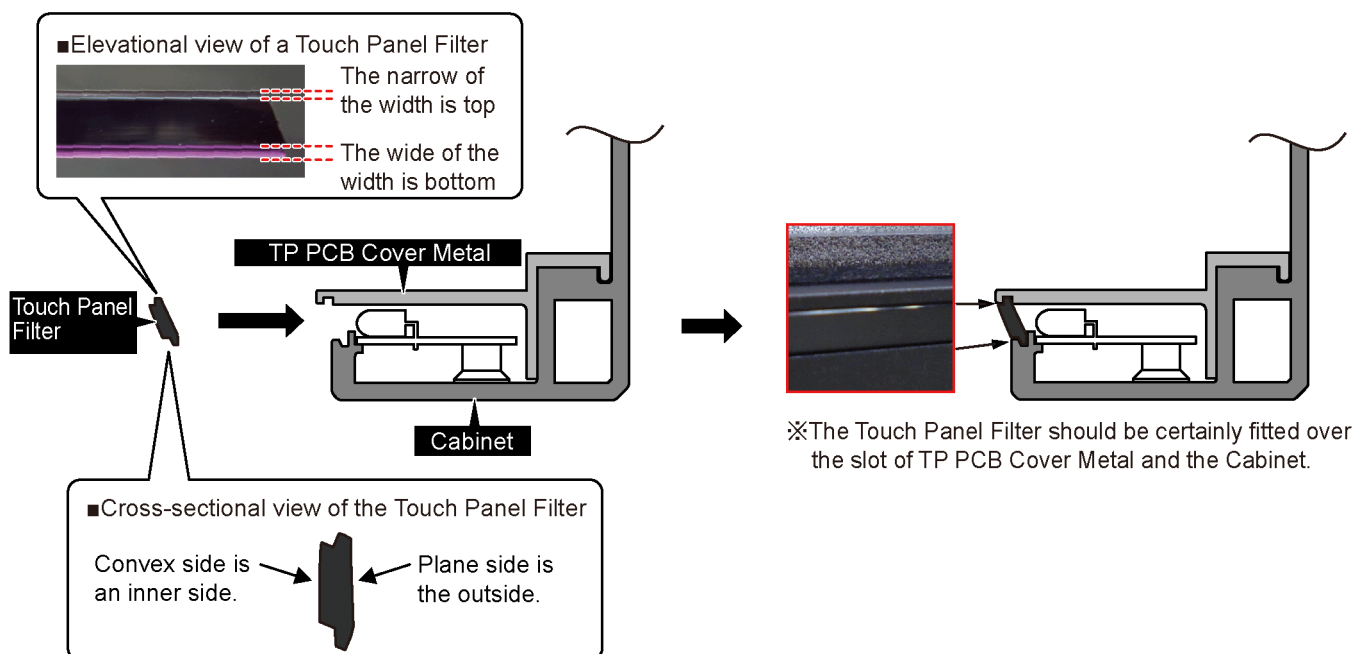
1. Insert the TP PCB Cover Metal in the Cabinet as shown in the following figure.



2. Insert the Touch Panel Filter between TP PCB Cover Metal and the Cabinet as shown in the following figure.

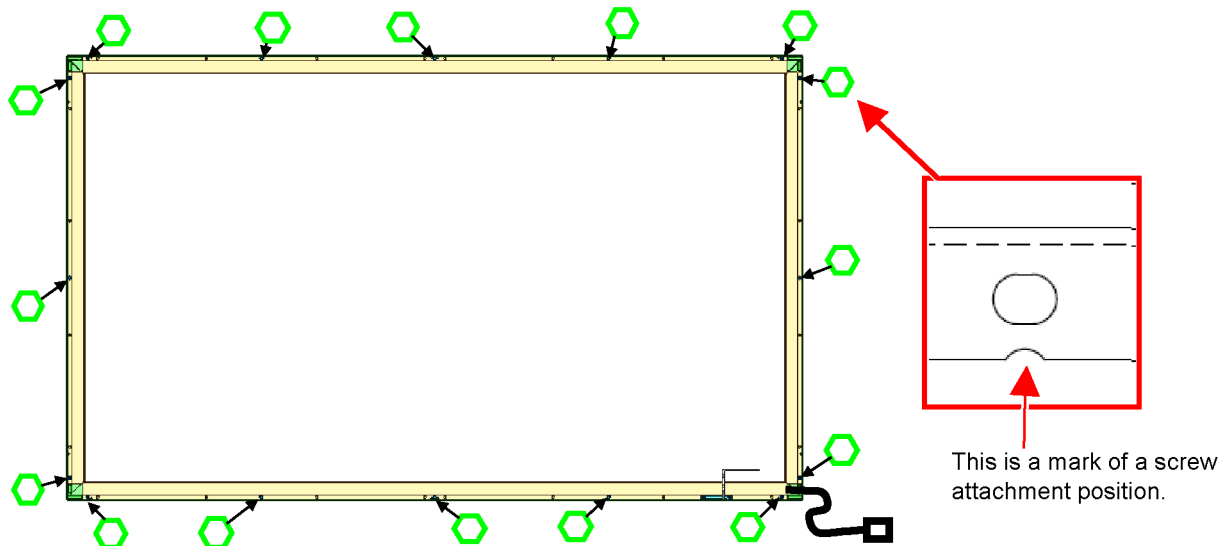
\* Please insert so that the convex side of the Touch Panel Filter (X, Y) becomes inside.

\* If it inserts from the both ends of a Touch Panel Filter, it will become easy to do work.



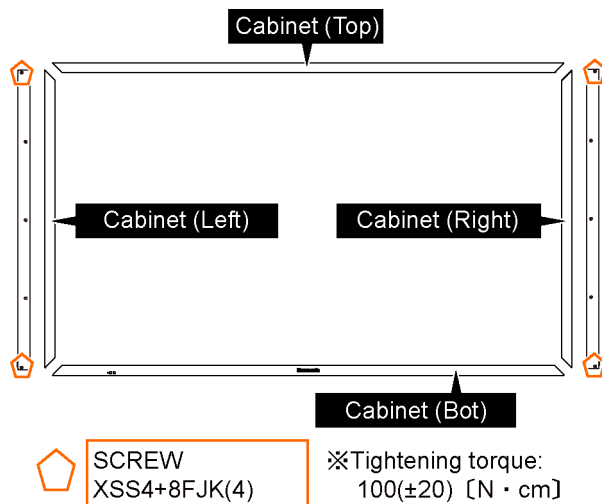
3. Fix the TP PCB Cover Metal with screws.

\* Tighten securely to the screw hole of the mark on the TP PCB Cover Metal.



## 7.22. Replacement of Cabinet

1. Remove the LCD Panel from the Cabinet.  
(Refer to steps 1 to 9 in "7.17. Replacement of LCD Panel")
2. Remove the Front Glass from the Cabinet.  
(Refer to step 2 in "7.18. Replacement of Front Glass")
3. Remove the V1-Board, V PCB Fixing Metal, and DEC LED Panel from the Cabinet.  
(Refer to step 3 in "7.19. Replacement of V1-Board, V PCB Fixing Metal, and DEC LED Panel")
4. Remove the Touch Module from the Cabinet.  
(Refer to steps 3 to 4 in "7.20. Replacement of Touch Module")
5. Remove the screws and remove the Cabinet (Top, Bot) and Cabinet (Left, Right).

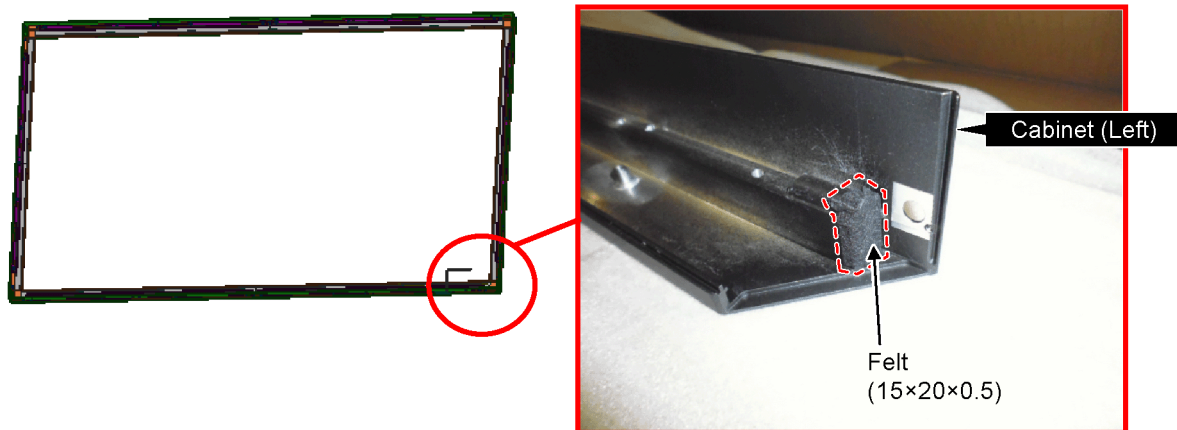


### Caution when attaching Cabinet

- After attaching the Cabinet (Top, Bot), attach the Cabinet (Left, Right).

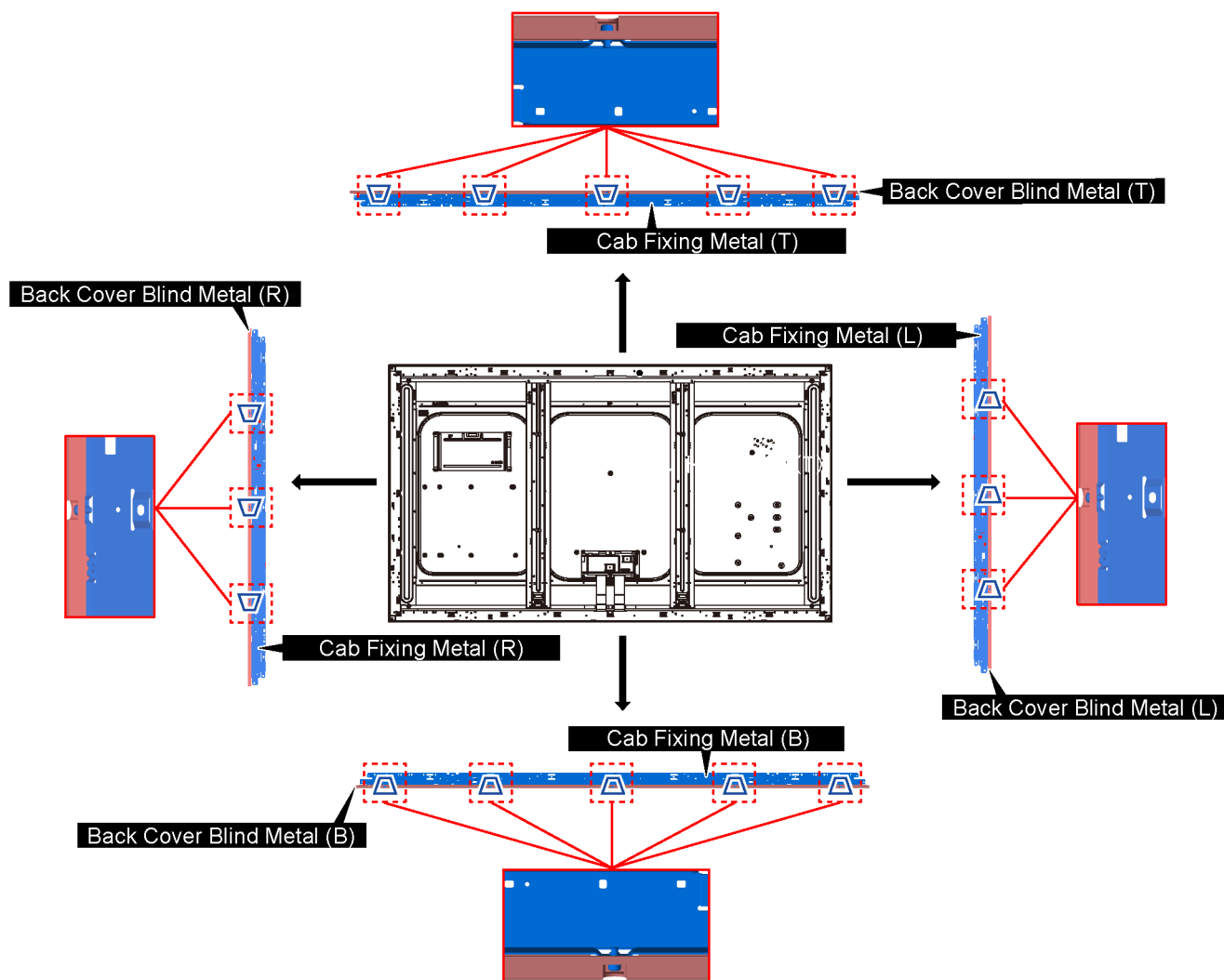
### Attention when replacing Cabinet (Left)

- Please stick felt on the position of the following figure in the case of exchange of a Cabinet (Left).



## 7.23. Replacement of Cab Fixing Metal (T, B, L, R) and Back Cover Blind Metal (T, B, L, R)

1. Remove the Cab Fixing Metal (T, B, L, R) from the LCD Panel.  
(Refer to steps 1 to 7 in "7.17. Replacement of LCD Panel")
2. Remove the screws and then remove the Cab Fixing Metal (T, B, L, R) and Back Cover Blind Metal (T, B, L, R).



SCREW  
XYN4+F10FJ(16)

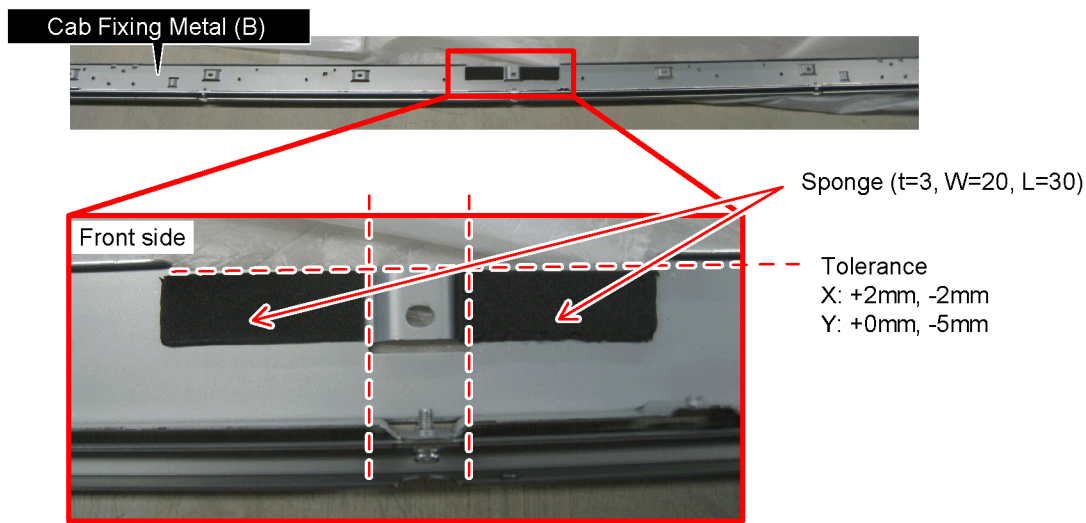
※Tightening torque:  
100(±20) [N · cm]



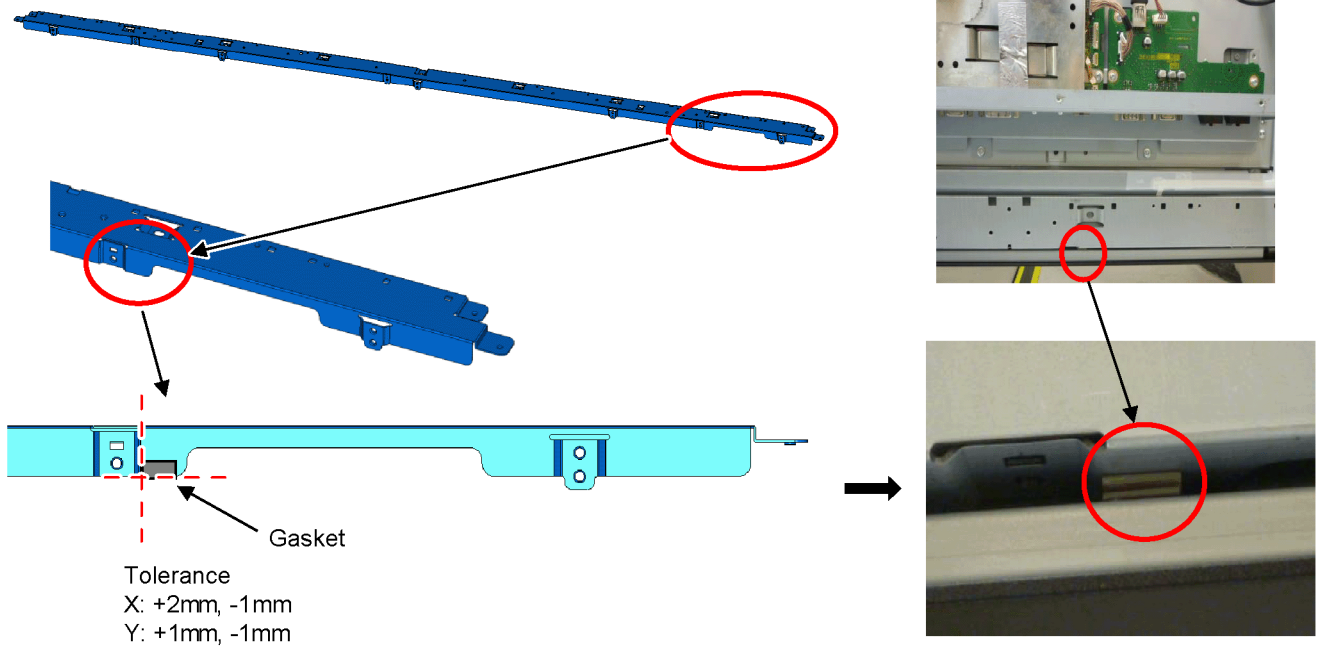
**Attention when replacing Cab Fixing Metal (B, L)**

- In the case of exchange of a Cabinet Fixing Metal (B) and (L), it is a position of the following figure about sponge / gasket / felt.
- Please be alike and stick.

## ■ Sticking position of sponge of Cab Fixing Metal (B)

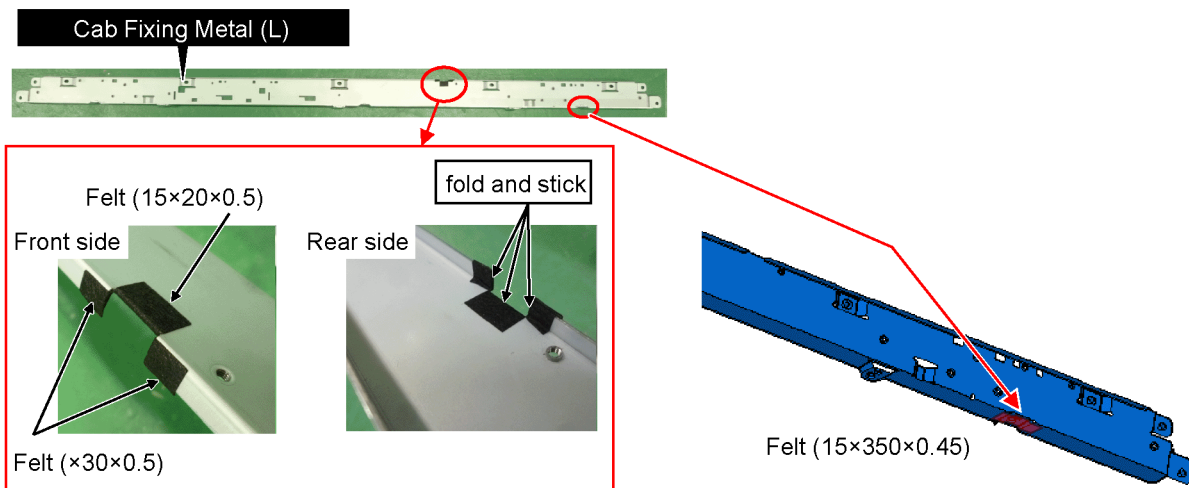


## ■ Sticking position of gasket of Cab Fixing Metal (B)



- The gasket is pressing down the cabinet certainly.

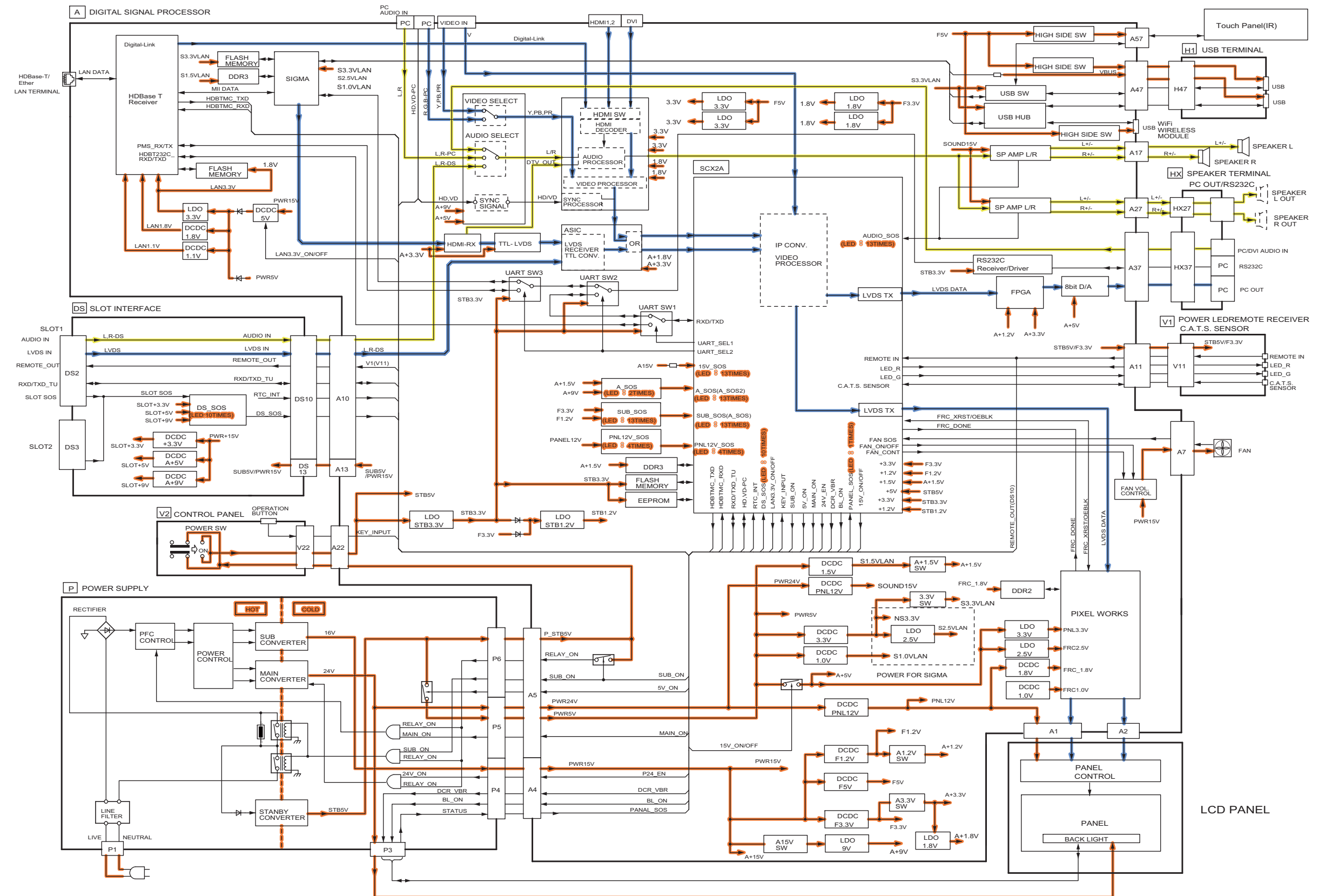
## ■ Sticking position of felt of Cab Fixing Metal (L)



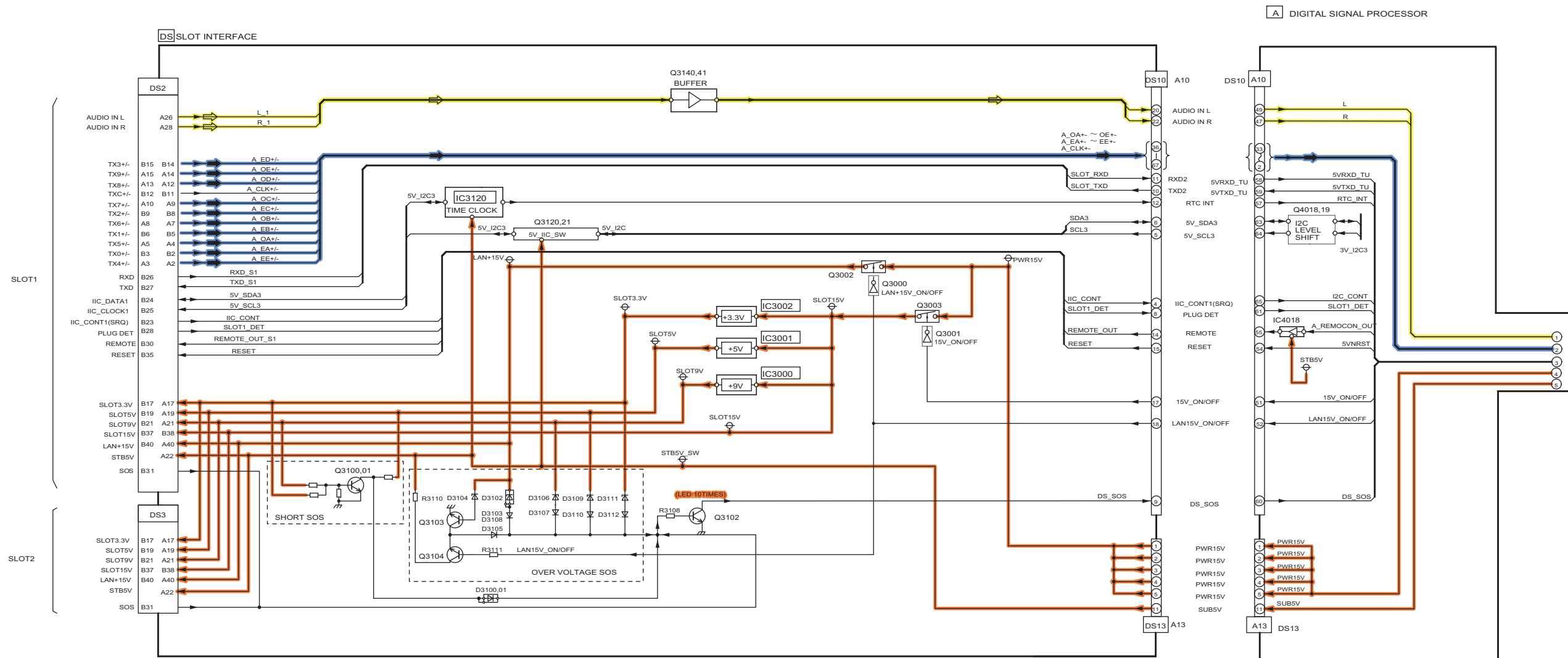


## 8 Block Diagram

### 8.1. Main Block Diagram



8.2. Block (1 of 4) Diagram

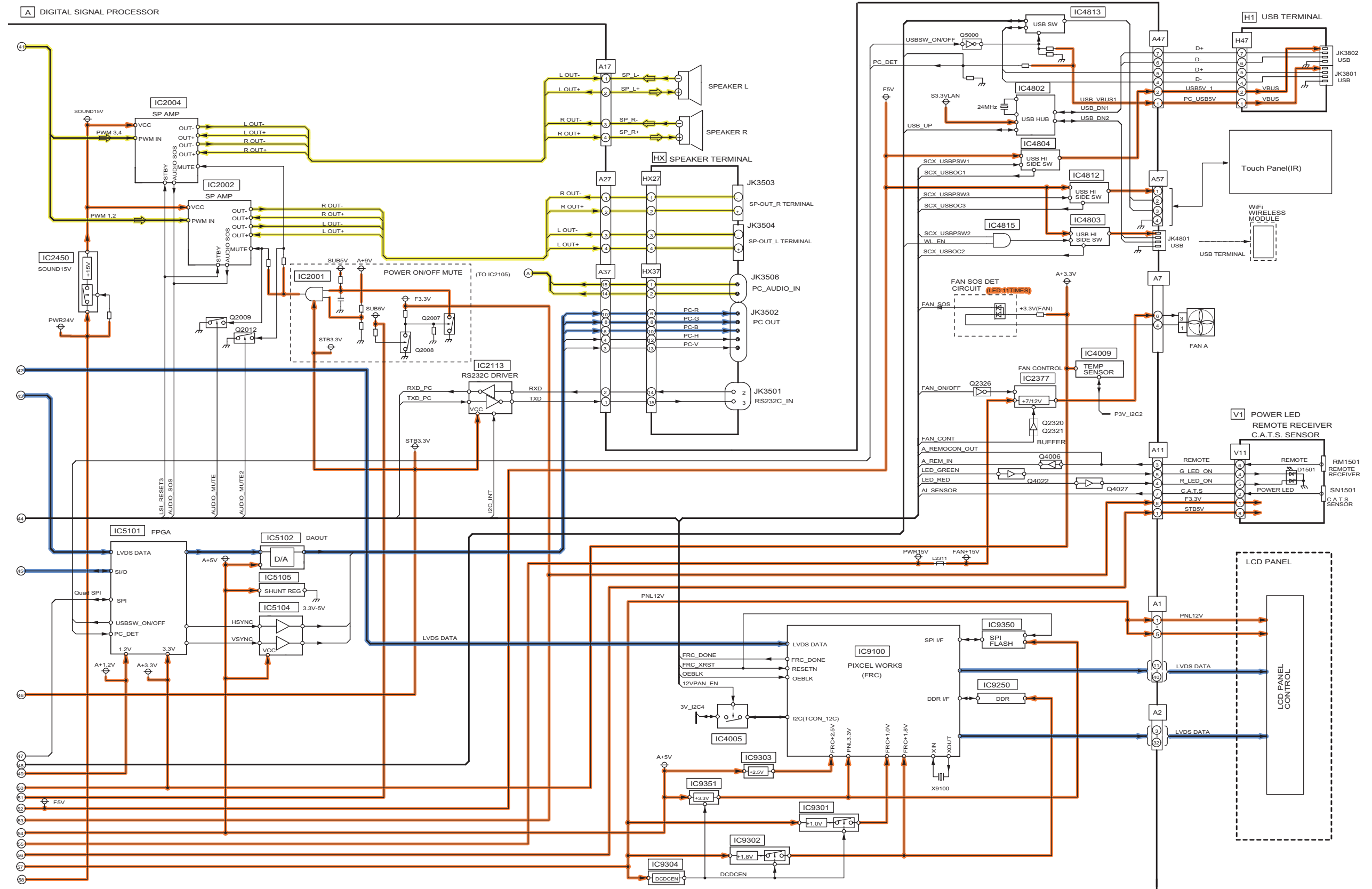




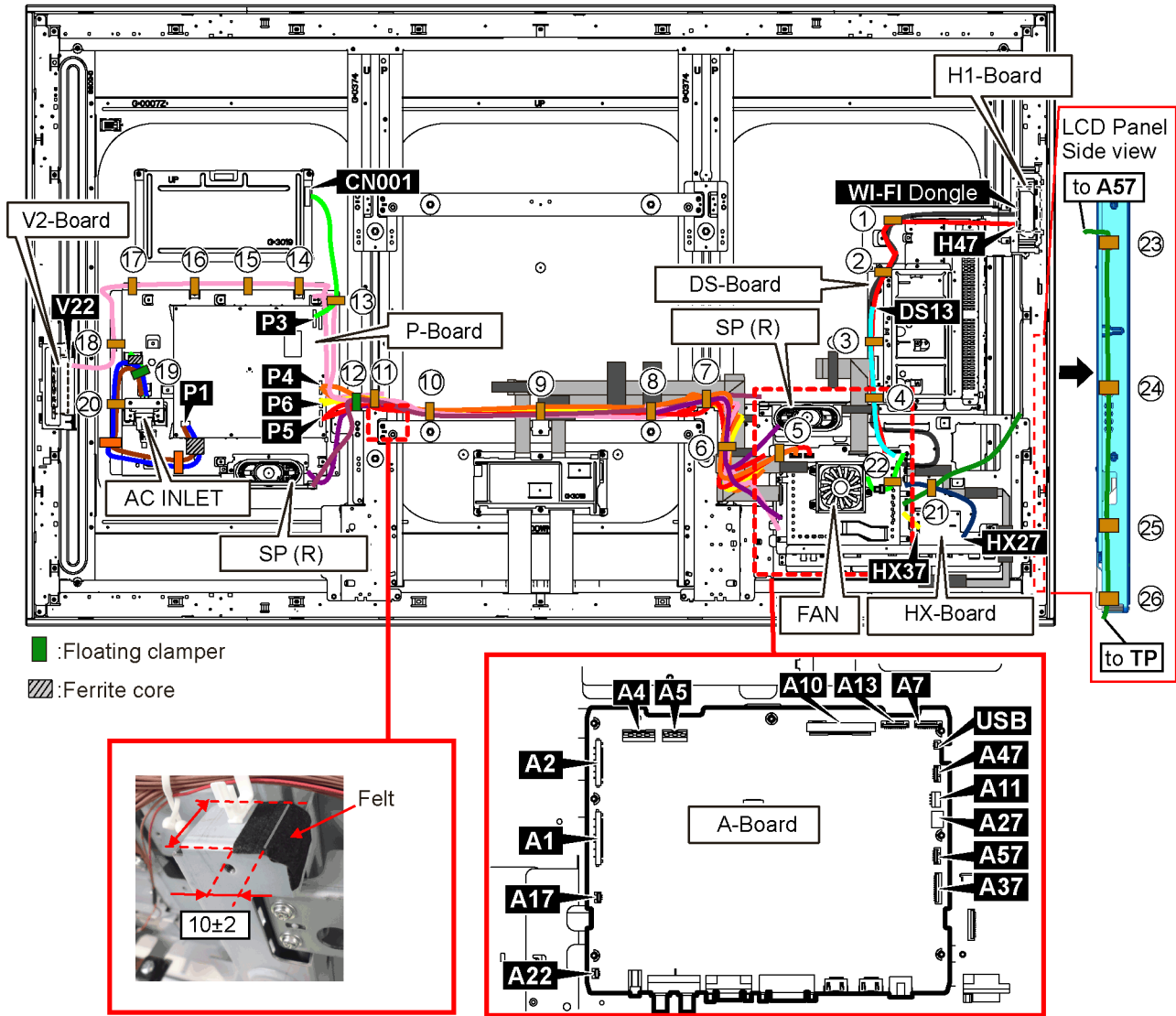




## 8.5. Block (4 of 4) Diagram



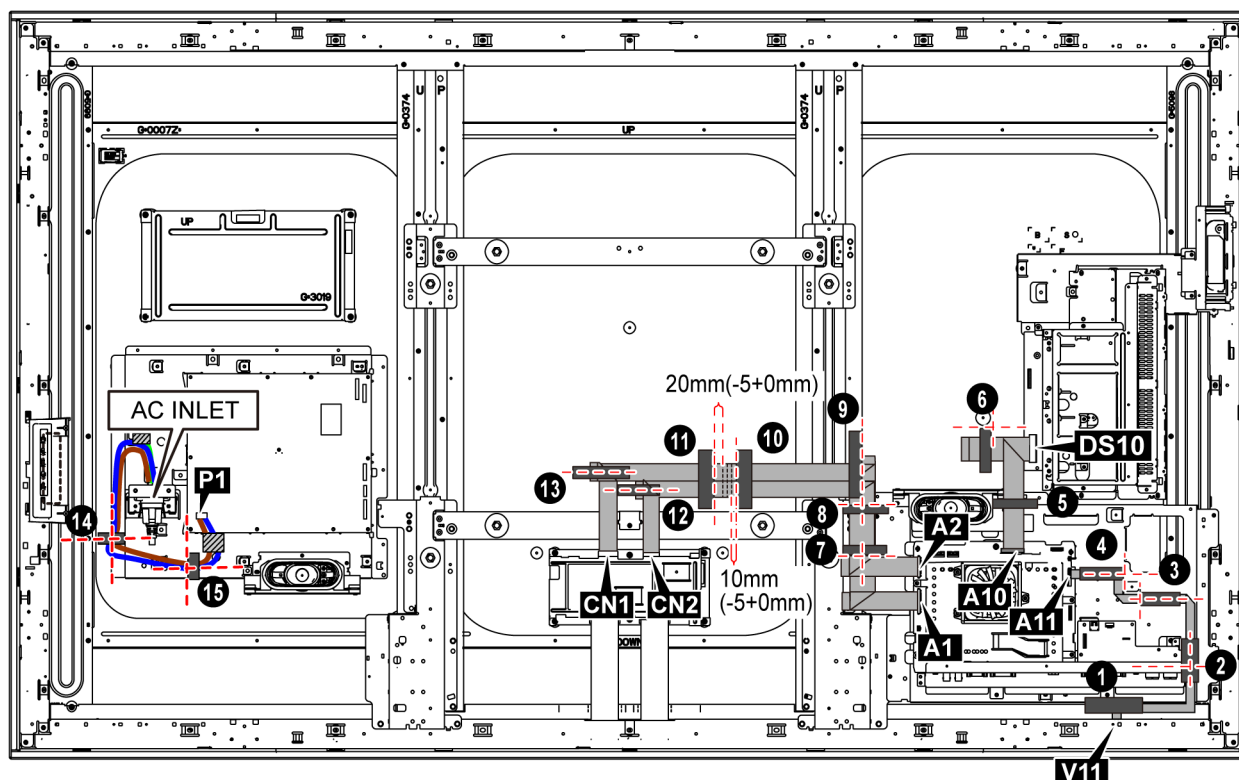
9 Wiring Connection Diagram



Clamp position

CON:No - CON:No	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮	⑯	⑰	⑱	⑲	⑳	㉑	㉒	㉓	㉔	㉕	㉖
A4 — P4					●	●	●	●	●	●	●	●														
A5 — P5					●	●	●	●	●	●	●	●														
A5 — P6					●	●	●	●	●	●	●	●														
A7 — FAN																						●				
A13 — DS13			●	●																						
A17 — SP (R)						●	●	●	●	●	●	●														
A17 — SP (L)						●																				
A22 — V22					●	●	●	●	●	●	●	●	●	●	●	●	●	●								
A27 — HX27																					●					
A37 — HX37	No Clamp																									
A47 — H47	●	●	●	●																						
A57 — TP																					●		●	●	●	●
P1 — AC INLET																			●	●						
P3 — CN001													●													
USB — WI-FI DONGLE	●	●	●	●																						





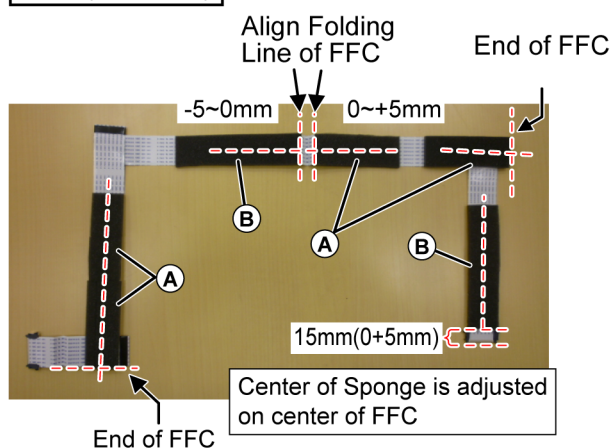
Tape position

CON:No - CON:No	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
A1 - CN1							●	●	●	●	●		●		
A2 - CN2							●	●	●	●	●	●			
A10 - DS10					●	●									
A11 - V11	●	●	●	●											
P1 - AC INLET														●	●

■ Sticking position of Sponge on the FFC

- Ⓐ Sponge (T5xW32xL90)
- Ⓑ Sponge (T5xW32xL130)
- Ⓒ Sponge (T5xW25xL46)

FFC (A1 - CN1)



FFC (A2 - CN2)

