

# Service Manual

High Definition Plasma Display

Model No. **TH-103PF12E**


GPF12D 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.

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# 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 Faston 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 which 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 (TOUGH 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.:  $U_1 = 1.0 \text{ V}$ ,

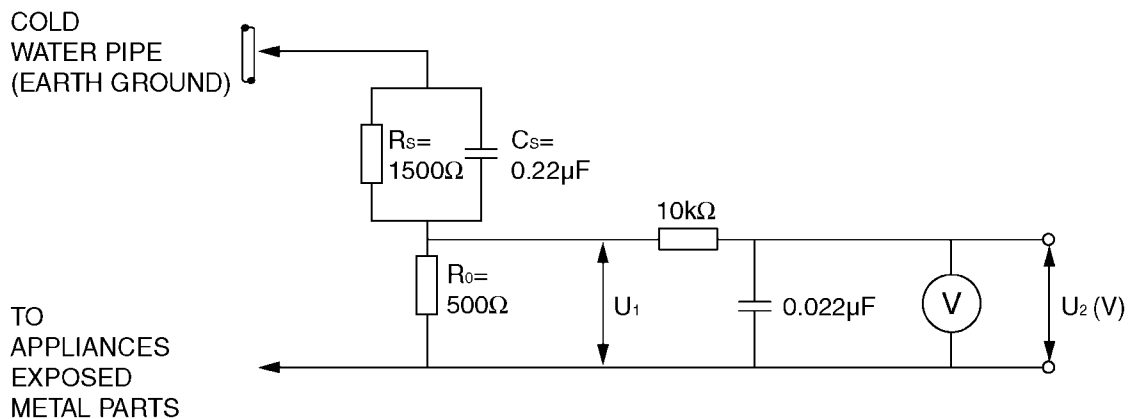
**Note:**

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).

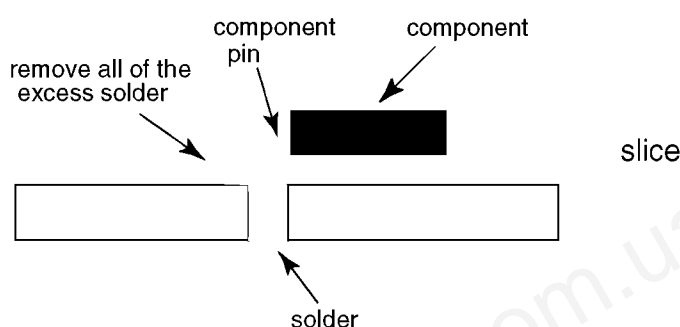
That is Tin (Sn), Silver (Ag) and Copper (Cu) although other types are available.

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

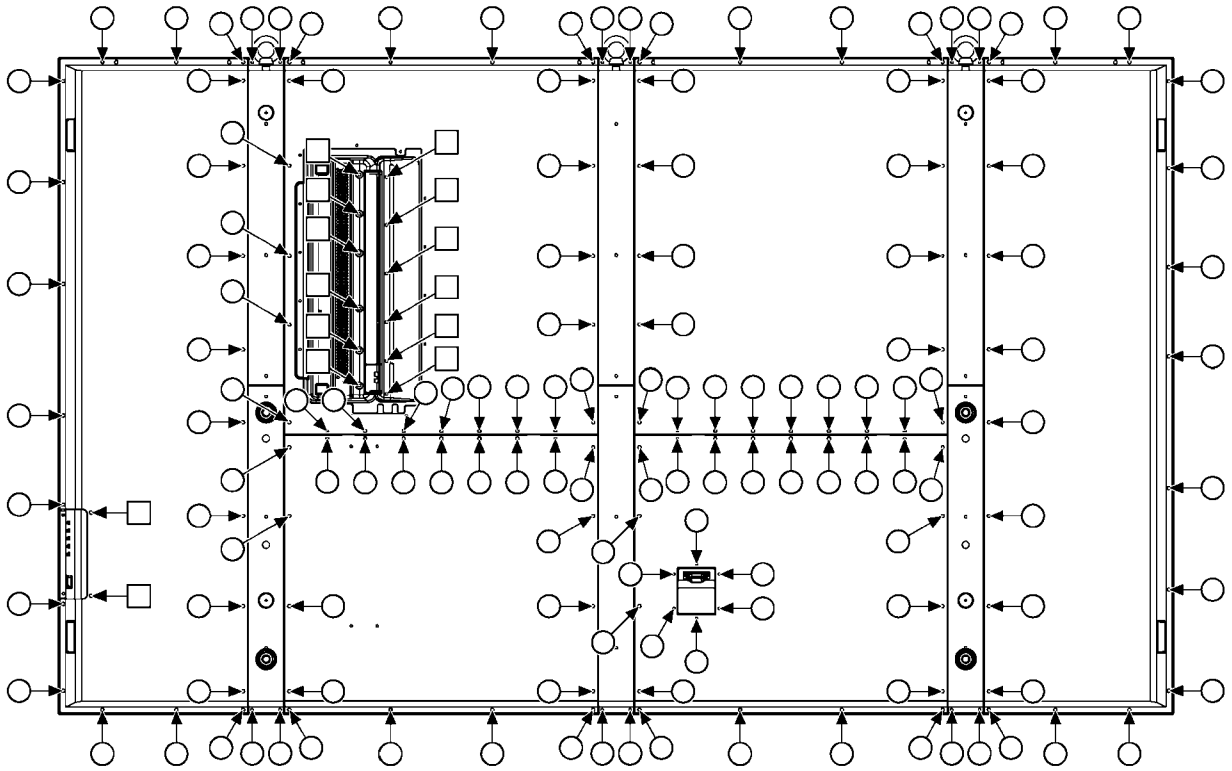
There are several kinds of Pb free solder available for purchase. This product uses Sn+Ag+Cu (tin, silver, copper) solder. However, Sn+Cu (tin, copper), Sn+Zn+Bi (tin, zinc, bismuth) solder can also be used.

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

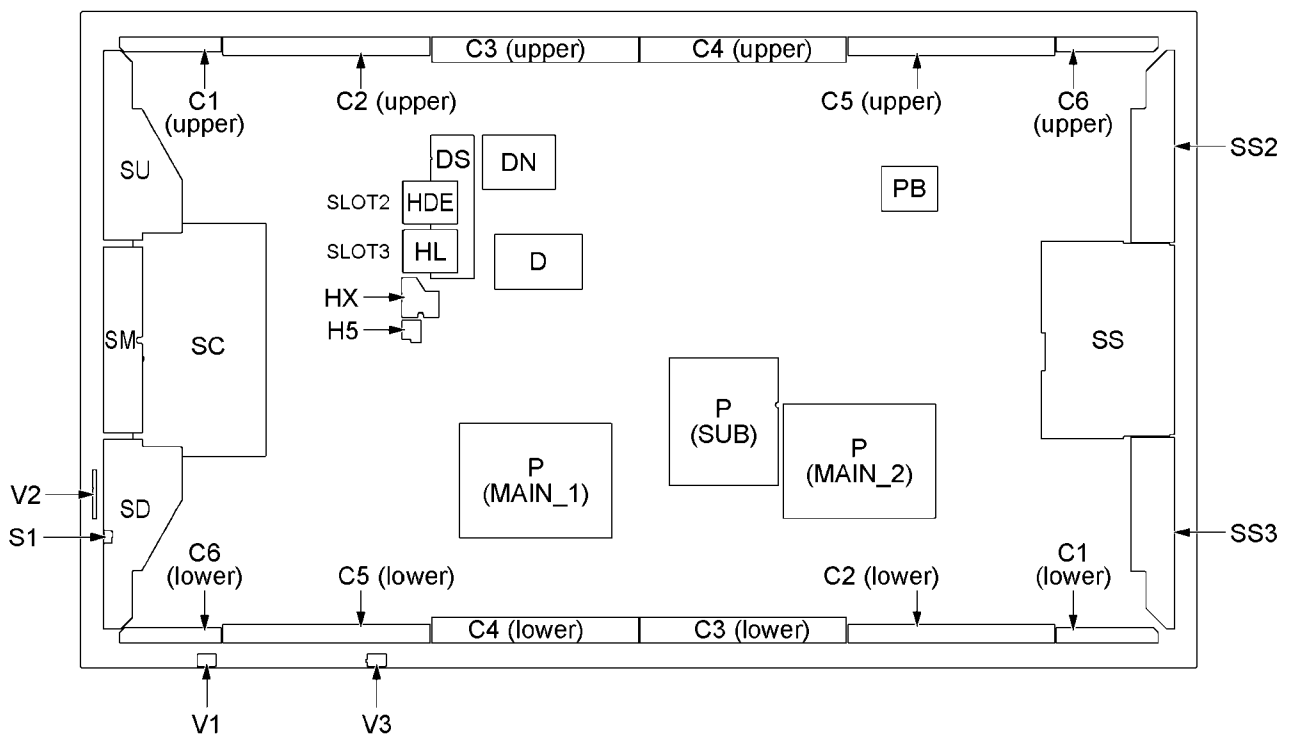
### 3 Service Navigation

#### 3.1. Service Hint

Remove the Rear Cover



Remove : 140 screws (○) XYN4+F10FJK  
14 screws (◻) THEL0429



Board Name	Function	Board Name	Function
DN	Digital Signal Processor, Microcomputer	S1	Power switch
D	Format Converter, Plasma AI Processor Sub-Field Processor	C1 (upper)	Data drive (1) (upper)
		C2 (upper)	Data drive (2) (upper)
DS	Slot Interface (Audio / Video / Sync Input Switch), Sync Processor, Audio Processor, DC-DC Converter	C3 (upper)	Data drive (3) (upper)
		C4 (upper)	Data drive (4) (upper)
SC	Scan drive	C5 (upper)	Data drive (5) (upper)
SU	Scan out (Upper) Non serviceable. SU-Board should be exchanged for service.	C6 (upper)	Data drive (6) (upper)
		C1 (lower)	Data drive (1) (lower)
		C2 (lower)	Data drive (2) (lower)
SM	Scan out (Middle) Non serviceable. SM-Board should be exchanged for service.	C3 (lower)	Data drive (3) (lower)
		C4 (lower)	Data drive (4) (lower)
		C5 (lower)	Data drive (5) (lower)
SD	Scan out (Lower) Non serviceable. SD-Board should be exchanged for service.	C6 (lower)	Data drive (6) (lower)
		P(MAIN_1)	Power supply
		P(MAIN_2)	Power supply
SS	Sustain drive	P(SUB)	Power supply
SS2	Sustain out (Upper)	PB	Fan Control
SS3	Sustain out (Lower)	HX	PC / RS-232C
V1	LED-G, R	H5	Audio Out terminal
V2	Key switch	HDE	DVI-D terminal
V3	Remote receiver	HL	Component Video terminal (BNC), LAN terminal

## 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))
1	525 (480) / 60i	15.73	59.94	* (13.5)	
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 (575) / 50p	31.25	50.00	* (27.0)	
5	625 (576) / 50p	31.25	50.00		* (27.0)
6	750 (720) / 60p	45.00	60.00	* (74.25)	* (74.25)
7	750 (720) / 50p	37.50	50.00	* (74.25)	* (74.25)
8	1,125 (1,080) / 60p	67.50	60.00	* (148.5) *1	* (148.5)
9	1,125 (1,080) / 60i	33.75	60.00	* (74.25) *1	* (74.25)
10	1,125 (1,080) / 50p	56.26	50.00	* (148.5) *1	* (148.5)
11	1,125 (1,080) / 50i	28.13	50.00	* (74.25) *1	* (74.25)
12	1,125 (1,080) / 24sF	27.00	48.00	* (74.25) *2	
13	1,125 (1,080) / 30p	33.75	30.00	* (74.25) *1	* (74.25)
14	1,125 (1,080) / 25p	28.13	25.00	* (74.25) *1	* (74.25)
15	1,125 (1,080) / 24p	27.00	24.00	* (74.25) *1	* (74.25)
16	1,250 (1,080) / 50i	31.25	50.00	* (74.25) *3	
17	2,048 × 1,080 / 24sF *7	27.00	48.00		
18	2,048 × 1,080 / 24p *7	27.00	24.00		
19	640 × 400 @70 Hz	31.46	70.07	* (25.17)	
20	640 × 480 @60 Hz	31.47	59.94	* (25.18) *6	* (25.18)
21	640 × 480 @72 Hz	37.86	72.81	* (31.5)	
22	640 × 480 @75 Hz	37.50	75.00	* (31.5)	
23	640 × 480 @85 Hz	43.27	85.01	* (36.0)	
24	800 × 600 @56 Hz	35.16	56.25	* (36.0)	
25	800 × 600 @60 Hz	37.88	60.32	* (40.0)	* (40.0)
26	800 × 600 @72 Hz	48.08	72.19	* (50.0)	
27	800 × 600 @75 Hz	46.88	75.00	* (49.5)	
28	800 × 600 @85 Hz	53.67	85.06	* (56.25)	
29	852 × 480 @60 Hz	31.47	59.94	* (33.54) *6	* (34.24)
30	1,024 × 768 @50 Hz	39.55	50.00		* (51.89)
31	1,024 × 768 @60 Hz	48.36	60.00	* (65.0)	* (65.0)
32	1,024 × 768 @70 Hz	56.48	70.07	* (75.0)	
33	1,024 × 768 @75 Hz	60.02	75.03	* (78.75)	
34	1,024 × 768 @85 Hz	68.68	85.00	* (94.5)	
35	1,066 × 600 @60 Hz	37.64	59.94	* (53.0)	* (53.0)
36	1,152 × 864 @60 Hz	53.70	60.00		* (81.62)
37	1,152 × 864 @75 Hz	67.50	75.00	* (108.0)	
38	1,280 × 768 @60 Hz	47.70	60.00	* (80.14)	
39	1,280 × 960 @60 Hz	60.00	60.00	* (108.0)	
40	1,280 × 960 @85 Hz	85.94	85.00	* (148.5)	
41	1,280 × 1,024 @60 Hz	63.98	60.02	* (108.0)	* (108.0)
42	1,280 × 1,024 @75 Hz	79.98	75.03	* (135.0)	
43	1,280 × 1,024 @85 Hz	91.15	85.02	* (157.5)	
44	1,366 × 768 @50 Hz	39.55	50.00		* (69.92)
45	1,366 × 768 @60 Hz	48.36	60.00	* (86.71)	* (87.44)
46	1,400 × 1,050 @60 Hz	65.22	60.00		* (122.61)
47	1,600 × 1,200 @60 Hz	75.00	60.00	* (162.0)	* (162.0)
48	1,600 × 1,200 @65 Hz	81.25	65.00	* (175.5)	
49	1,920 × 1,080 @60 Hz	67.50	60.00	* (148.5) *4	* (148.5)
50	1,920 × 1,200 @60 Hz	74.04	59.95		* (154.0)
51	Macintosh13" (640 × 480)	35.00	66.67	* (30.24)	
52	Macintosh16" (832 × 624)	49.72	74.54	* (57.28)	
53	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 Mini D-sub 15P terminal, it is recognized as VGA 60Hz signal.

\*6: When inputted VGA 60Hz format signal from the other than Mini D-sub 15P 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.




## 4 Specifications

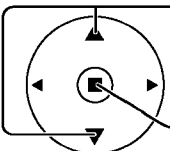
<b>Power Source</b>	220-240 V AC, 50/60Hz	
<b>Power Consumption</b>		
Power on	1450 W	
Stand-by condition	Save OFF 1.2 W, Save ON 0.7 W	
Power off condition	0.4 W	
<b>Plasma Display panel</b>	Drive method: AC type 103-inch, 16:9 aspect ratio	
<b>Screen size</b>	2,269 mm (W) × 1,276 mm (H) × 2,603 mm (diagonal)	
(No. of pixels)	2,073,600 (1,920 (W) × 1,080 (H)) [5,760 × 1,080 dots]	
<b>Operating condition</b>		
Temperature	0 °C - 40 °C	
Humidity	20 % - 80 %	
<b>Applicable signals</b>		
Scanning format	525 (480) / 60i • 60p, 625 (575) / 50i • 50p, 750 (720) / 60p • 50p, 1125 (1080) / 60i • 60p • 50i • 50p • 24p • 25p • 30p • 24sF, 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>		
DVI-D IN	Video Input	DVI-D 24 Pin × 1 compliance with DVI Revision 1.0
	Audio Input	Stereo mini jack (M3) × 1 0.5 Vrms
	Content Protection	Compatible with HDCP 1.1
LAN	RJ45 10BASE-T / 100BASE-TX, compatible with PLink™	
COMPONENT / RGB IN	Y / G (BNC) P <sub>B</sub> /B (BNC), P <sub>R</sub> /R (BNC) Audio Input	with sync 1.0 Vp-p (75-ohm) 0.7 Vp-p (75-ohm) Stereo mini jack (M3) × 1 0.5 Vrms
PC IN	(HIGH-DENSITY Mini-D-SUB 15PIN)	Y or G with sync 1.0 Vp-p (75-ohm) Y or G without sync 0.7 Vp-p (75-ohm) B / P <sub>B</sub> / C <sub>B</sub> : 0.7 Vp-p (75-ohm) R / P <sub>R</sub> / C <sub>R</sub> : 0.7 Vp-p (75-ohm) HD / VD: 1.0 - 5.0 Vp-p (high impedance) with picture 1.0 Vp-p (high impedance) without picture 0.3 Vp-p (high impedance)
	VBS (use HD port)	without picture 0.3 Vp-p (high impedance)
	Audio Input	Stereo mini jack (M3) × 1 0.5 Vrms
SERIAL	EXTERNAL CONTROL TERMINAL (D-SUB 9PIN)	RS-232C COMPATIBLE
AUDIO OUT	RCA PIN JACK × 2 (L / R)	
	OUTPUT LEVEL : VARIABLE (-∞ - 0 dB)	[INPUT 1KHz / 0dB, 10Kohm Load]
<b>Accessories Supplied</b>		
Remote Control Transmitter	EUR7636090R	
Batteries	R6 Size × 2	
Fixing band	TMME203 × 2	
Ferrite core	JOKG00000146 (Set of 2)	
Noise cut filter	TXZDM011MBE	
<b>Dimensions (W × H × D)</b>	2,412 mm × 1,419 mm × 129 mm (141 mm when including protruding portion of slots)	
<b>Mass (weight)</b>	approx. 201.0 kg net	

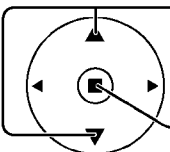
**Note:**

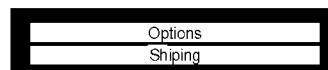
- Design and specifications are subject to change without notice. Mass and dimensions shown are approximate.
- This equipment complies with the EMC standards listed below.  
EN55022, EN55024, EN61000-3-2, EN61000-3-3.

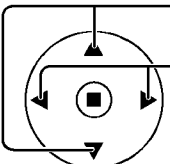
## 5 Operating Instructions

**1**  Press to display the SET UP menu.

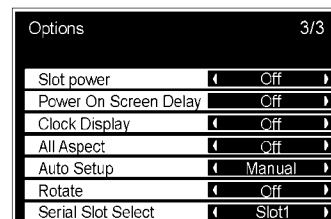
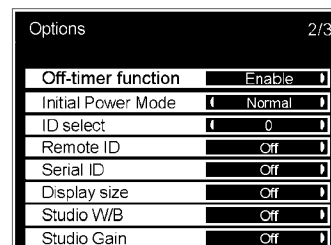
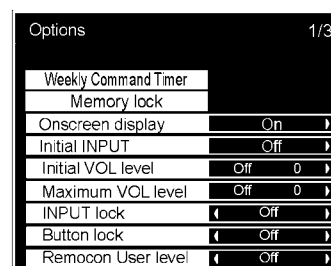
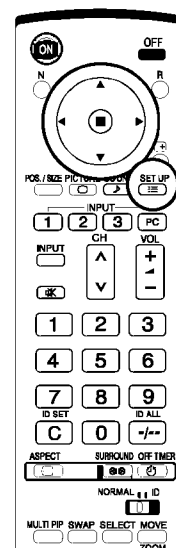
**2**  Press to select "OSD LANGUAGE".  
Press for more than 3 seconds.

**3**  Press to select "Options".  
Press to display the Options menu.



**4**  Press to select your preferred menu.  
Press to adjust the menu.

**5**  Press to exit from Options menu.



## Option Menu for GPF12D series

GPF12D chassis series have special function and operation setting facility called Option Menu. This Option Menu is useful for special function required customers. This should be set at the installation stage.

Option menus	default setting	Contents
Weekly Command Timer	---	Sets Weekly Command Timer.
Onscreen display	On	Enable/Disable to display input mode indication after power on and no signal indication.
Initial INPUT	Off	Sets the initial input mode when the power is turned on. Allow input mode selection while power is on.
Initial VOL level	Off	Sets the initial volume level when the power is turned on. Allow Volume control while power is on.
Maximum VOL Level	Off	Sets the maximum volume to desired level. Volume cannot exceed this level.
INPUT lock	Off	Fixes the input mode to AV, Component/RGB or PC. Can not change input mode by input selection key.
Button lock	Off	Enable/Disable bottom operation buttons (Input, Menu, Enter and/or volume up/down)
Remocon User Level	Off	Remote key invalidation. Off: Valid key is all key of remote. User1: Valid key are only Stand-by (ON/OFF), Input, Direct input, Picture, Surround, Sound mute On/Off, and volume adjustment. User2: Valid key is only Stand-by (ON/OFF). User3: All keys are null and void
Off-timer function	Enable	Off-timer operation Enable/Disable.
Initial Power Mode	Normal	Sets the power mode of the unit for when the power recovers from failure or after plugging off and in again.
ID select	0	Set ID number from 0 to 100.
Remote ID	Off	Remote ID function On/Off. (While the Remote ID on, standard remote function can not control the unit.)
Serial ID	Off	Serial ID function On/Off
Display size	Off	Display size function On/Off
Studio W/B	Off	Studio W/B function On/Off
Studio Gain	Off	Studio Gain function On/Off
Slot power	Off	Sets the slot power mode while the power is turned on. Allow Optional Terminal Board insert Slots while power is on.
Power On Screen Delay	Off	You can set the power-on delay time of the displays to reduce the power load, when you press $\odot/I$ to turn on the multiple displays that are set together, for example, on MULTI DISPLAY system. Set each display's setting individually.
Clock Display	Off	Clock Display function On/Off.
All Aspect	Default	Aspect mode: default/All aspect mode.
Auto Setup	Manual	Sets the operational mode of the automatic position adjustment in the POS./SIZE menu.
Rotate	Off	Rotate function On/Off
Serial Slot Select	Slot1	Selects the slot which communicates serial. <b>Note:</b> The setting of an external command can be set only from the fixed serial terminal.

**Note:**

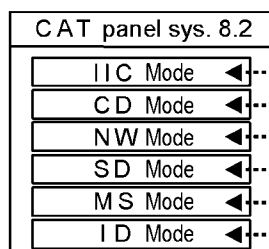
When both main unit buttons and remote control are disabled due to the "Button lock", "Remocon User level" or "Remote ID" adjustments, set all the values "Off" so that all the buttons are enabled again.

Press the "Volume down" button on main unit together with "R" button on the remote control and hold for more than 5 seconds. The "SHIPPING" menu is displayed and the lock is released when it disappears.

## 6 Service Mode

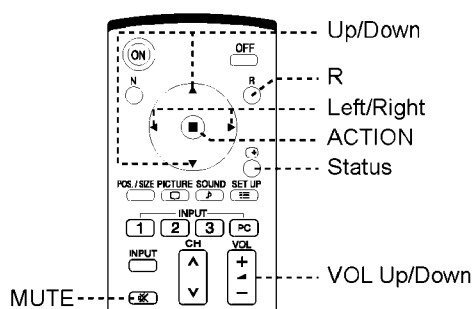
### 6.1. CAT (Computer Aided Test) mode

CAT mode menu



Mode	Function	Access button
IIC	Service Alignment	Action
CD (Complete Diagnostics)	Software version information EEPROM edit	Mute more than 3 seconds
NW Mode	LAN terminal check	Action
SD (Status Display)	MTBF parameter	Action
MS Mode	Market Select	Mute more than 3 seconds
ID Mode	LSI Check	Mute more than 3 seconds

Remote control



How to access the CAT mode.

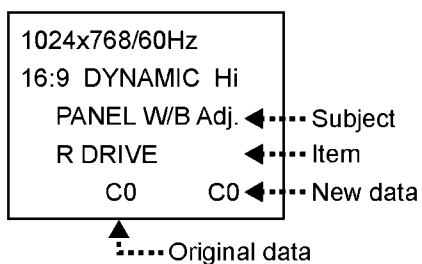
Press and hold the **Volume down / - button** on the front panel of the unit and press the **Status button** on the remote control 3 times quickly within 2 second, this will place the unit into the CAT mode.

To exit the **CAT mode**, access the **ID mode** and switch off the main power.

#### 6.1.1. 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.

### 6.1.2. 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.

CD	
MONITOR-MCU	1.0000F12 OK
MONITOR-EEPROM	53.00 1 16 2B
MONITOR-EEPROM Change Addr	00 01
Data	01 01
PANEL-MCU	1.08
PANEL-EEPROM	30.27
PANEL-FPGA	11.02
PANEL-PDROM	30.09
BOARD EEPROM *****	-- -- -- --
BOARD --/--/--	-- -- -- --
PTCT	00.00.00.00.00.

Factory use

New data

Original data

SOS history

Memory data change

Address   ← Change by **Up/Down buttons** on the remote control.

Change by **Left/Right buttons** on the remote control.

Data   ← Change by **VOL Up/Down buttons** on the remote control.

The data is memorized when switch off the main power.

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

### 6.1.3. 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".

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.

NW	
TEST	OK
Version	XX.XXXX
MAC Address	XX:XX:XX:XX:XX:XX

Press the **Action button** to start TEST (Check of Ping).

Check to show "OK" in TEST column.

If "G\_NG" shows, it is failure for Ping process.

If "L\_NG" shows, it is failure for Link process.

Software Version

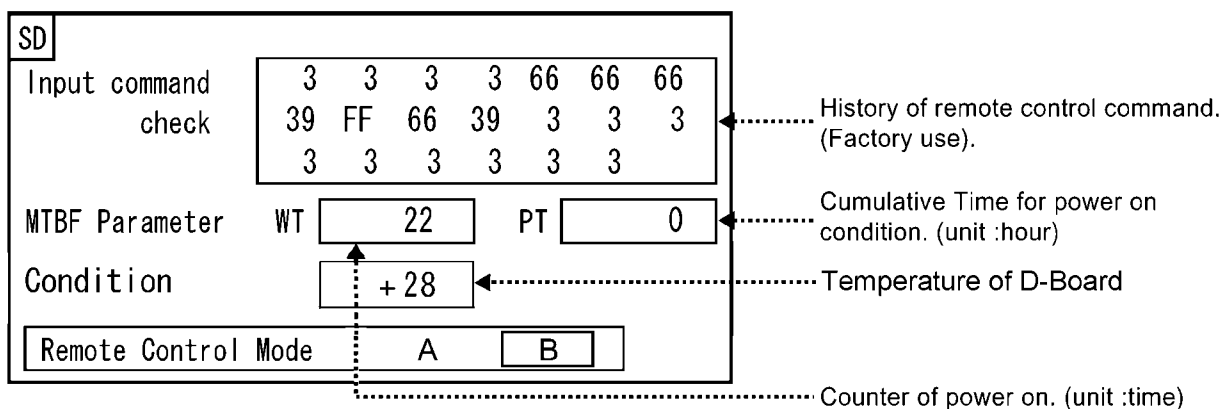
Mac address

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

#### 6.1.4. 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.

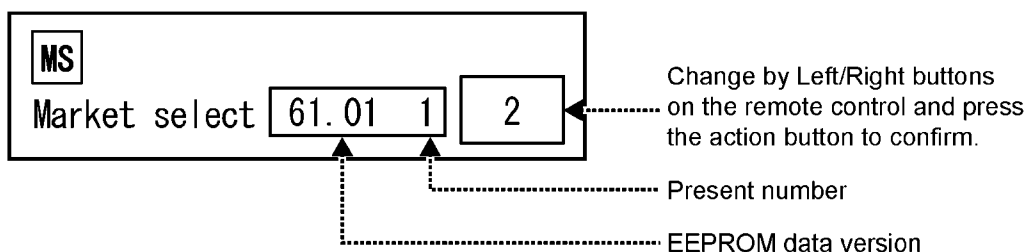
##### OSD



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

#### 6.1.5. 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 DN-Board.

##### Destination number

Number	Destination	Number	Destination
0	Japan	16	--
1	North America	17	--
2	Europe	18	China
3	Others	19	China (Hotel)
4	Britain	20	Russia
5	Taiwan	21	Russia (Hotel)
6	Thailand	22	Hong Kong
7	--	23	--
8	Japan (Hotel)	24	--
9	North America (Hotel)	25	--
10	Europe (Hotel)	26	--
11	--	27	--
12	Britain (Hotel)	28	Middle East/Hong Kong
13	--	29	Middle East/Hong Kong (Hotel)
14	Thailand (Hotel)	30	Australia
15	--	31	Australia (Hotel)

##### Default setting

Number	Destination
1	North America

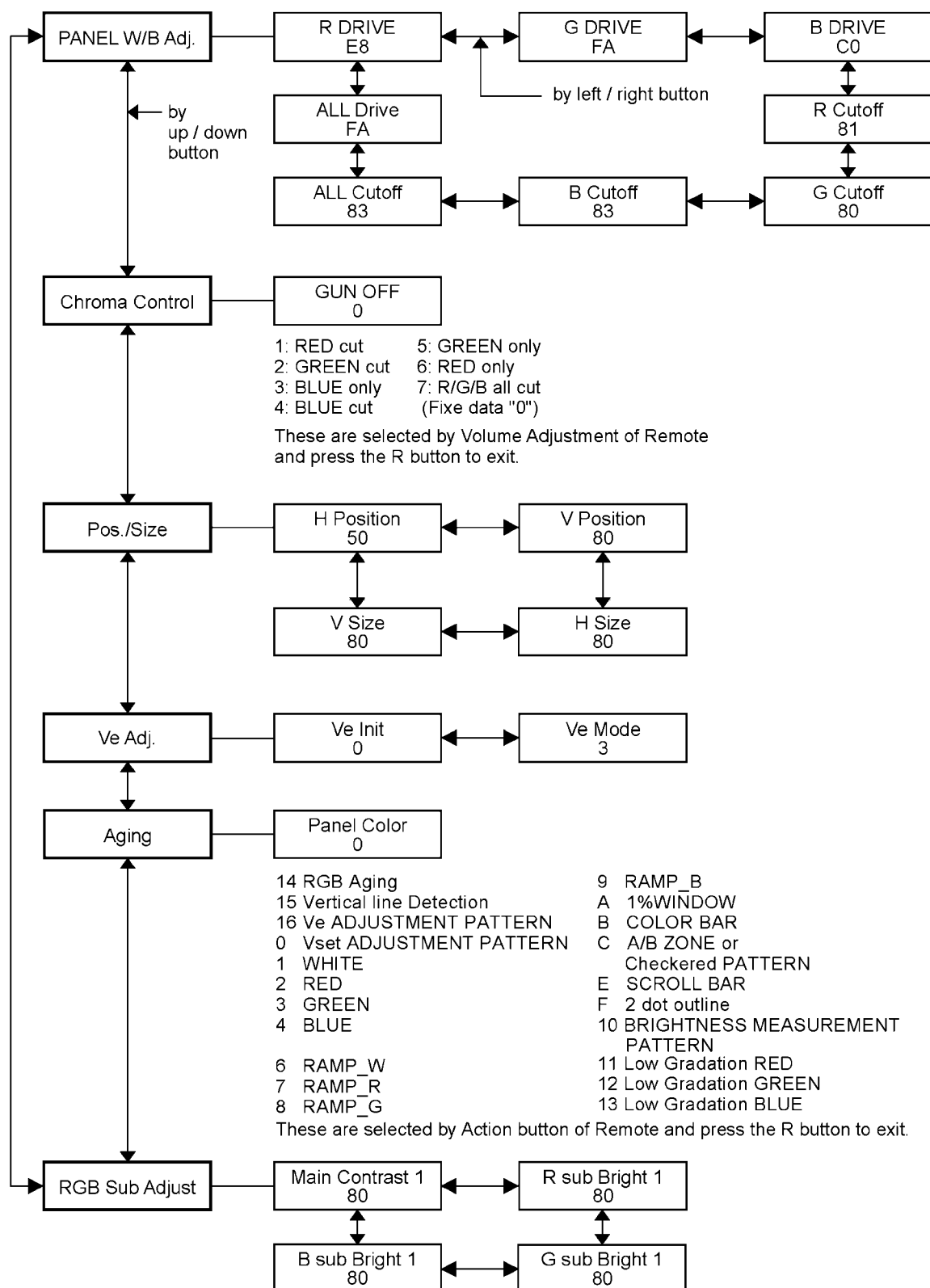
### 6.1.6. ID mode

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.

ID	IIC1	IIC2	IIC3	IIC4	
DN	IC4703	OK H90	DS	IC8181	OK H51
	IC4001	OK H61		IC3001	OK H22
	IC4201	OK H56		IC3005	OK H65
	IC4010	OK H62		IC2303	OK H21
			D	PANEL	OK

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

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





## 7 Troubleshooting Guide

### 7.1. Self Check

#### 7.1.1. Display Indication

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

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 7.1.2)

"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
DN	IC4703	OK H90	DS	IC8181
	IC4001	OK H61		IC3001
	IC4201	OK H56		IC3005
	IC4010	OK H62		IC2303
			D	PANEL
				OK
PTCT	01	H09		

### 7.1.2. Power LED Blinking timing chart

#### 1. Subject

Information of LED Blinking timing chart.

#### 2. Contents

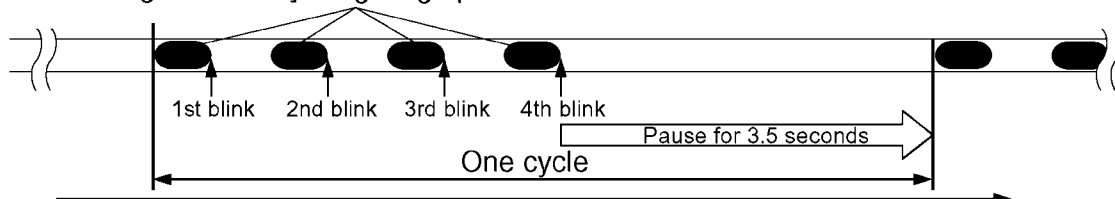
When an abnormality has occurred to the unit, the protection circuit operates and resets to the stand by mode. At this time, the defective block can be identified by the number of blinks of the Power LED on the front panel of the unit.

Blinking times	Blinking timing	Contents & Check point	Check point
1		No particular check point	—
2		(PTCT 02 H09) * 15V SOS	P-Board (Main_1) D-Board
		(PTCT 12 H09) * F15V SOS 15V SOS	DN-Board DS-Board
3		3.3V SOS	D-Board
4		POWER SOS	P-Board (Main_1) P-Board (Main_2)
5		5V SOS	P-Board (Sub) D-Board
6		Driver SOS1	SC-Board
7		Driver SOS2	SC-Board SU-Board SM-Board SD-Board
8		Driver SOS3	SS-Board SS2-Board SS3-Board
9		Communication Error between Panel-MPU and SCW4-MPU	D-Board
10		Terminal Board SOS	Terminal Board DS-Board
11		FAN SOS	FAN PB-Board DN-Board
13		3.3 / 2.5 / 1.8 / 1.2 V SOS	DN-Board

\* Refer to 7.1.1 Display Indication

#### About blinking LED

[When blinking four times] Lighting up

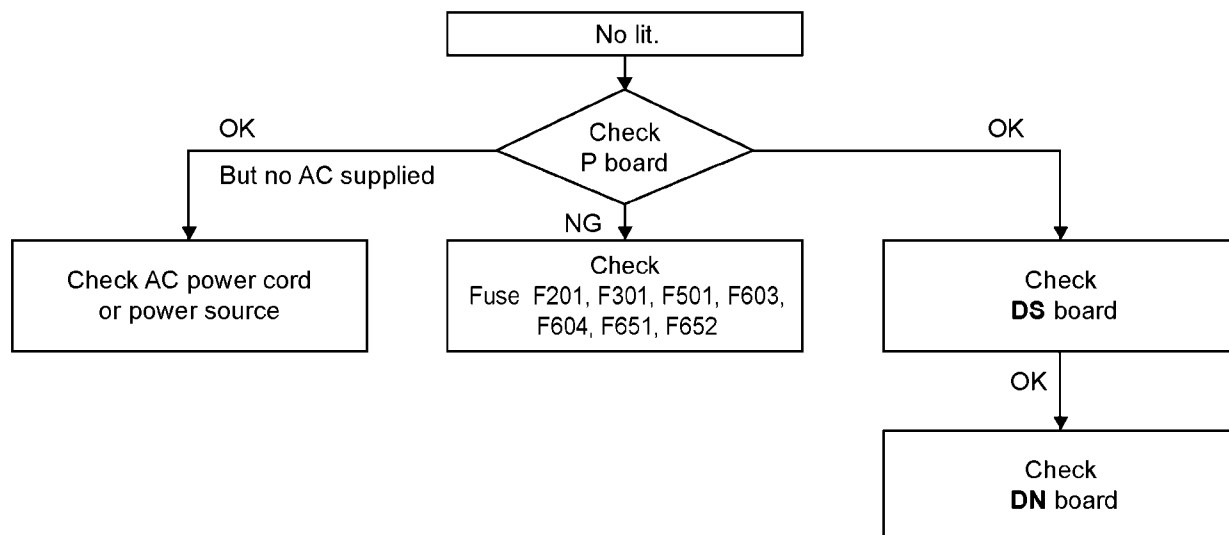


## 7.2. No Power

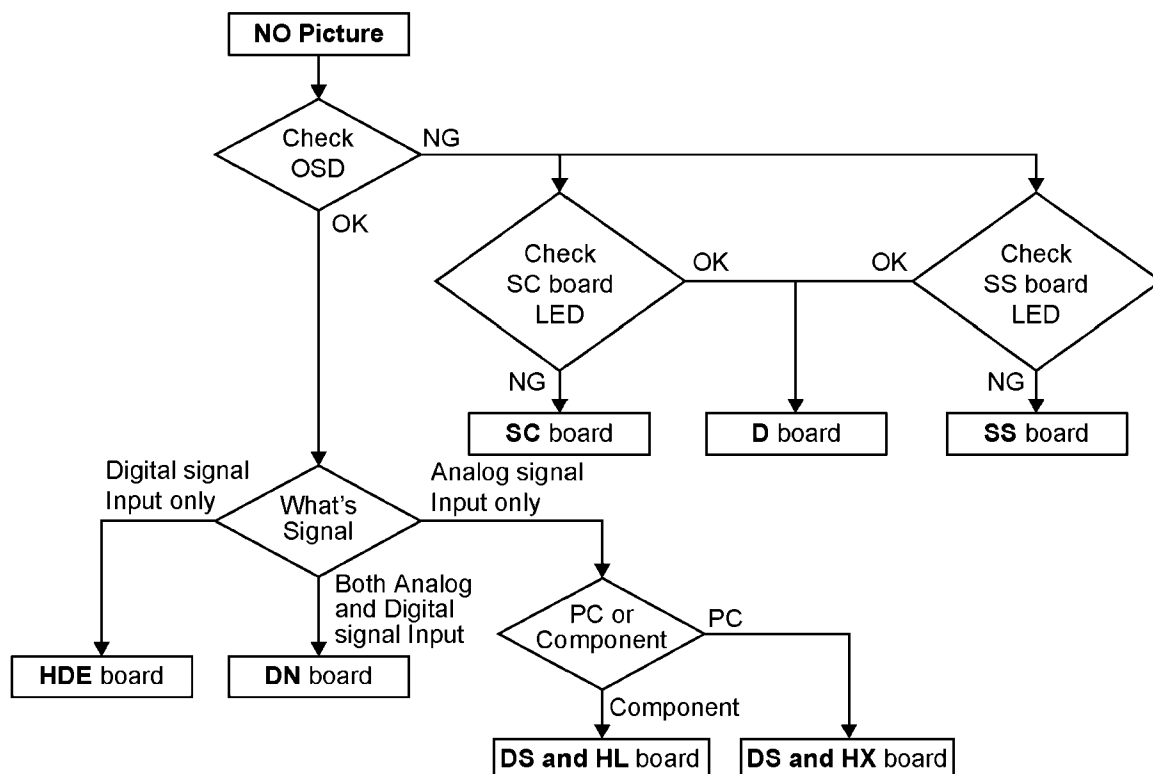
### First check point

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

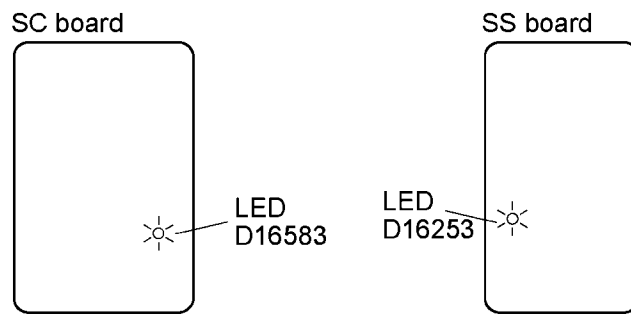
1. No lit.
2. Green is lit then turns red blinking a few seconds later.
3. Only red is lit.



## 7.3. No Picture

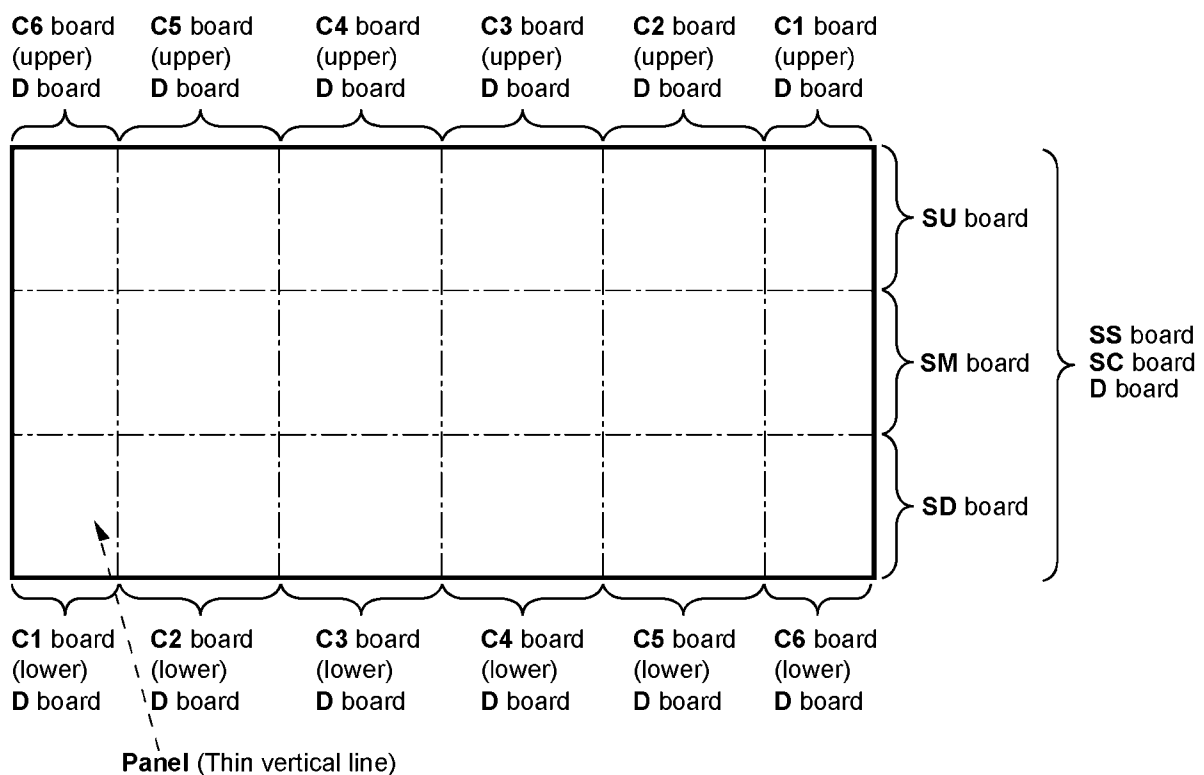


#### Drive circuits LED indicator



### 7.4. Local screen failure

Plasma display may have local area failure on the screen. Fig - 1 is the possible defect P.C.B. for each local area.



<Local screen failure chart>

Fig - 1

## 8 Service Fixture & Tools

### 8.1. SC jig

**Purpose:**

To find the failure board (SC or SU/SM/SD) when the power LED is blinking 7 times.

**SC jig:**

Jumper connector to connect to SC50 connector on SC board

**Part number:**

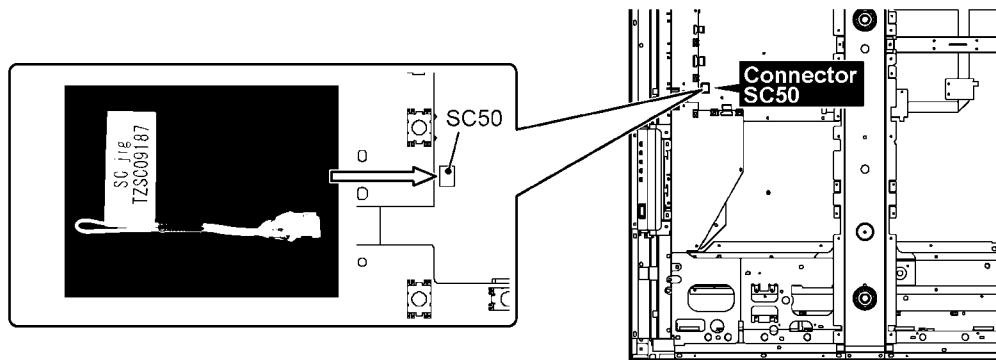
TZSC09187

**How to use:**

**Caution: Remove SC jig from SC board after inspection.**

1. Remove all connector between SC board and SU/SM/SD board to isolate SC board from SU/SM/SD board electrically.  
**Note: The board will be damaged if all connector is not removed (for example; remove connector only for SU board and stay connecting with SM/SD board. The board will be damaged.)**
2. Connect SC jig to connector SC51 at left bottom side of SC board.
3. Turn on the TV/Display Unit and confirm the power LED blinking.  
 LED blinking: Possible cause of failure is in SC board  
 No LED blinking (Lighting or no lighting): Possible cause of failure is in SU, SM or SD board
4. After inspection, turn off the TV/Display Unit and wait a few minutes to discharge.
5. Remove SC jig from SC board.

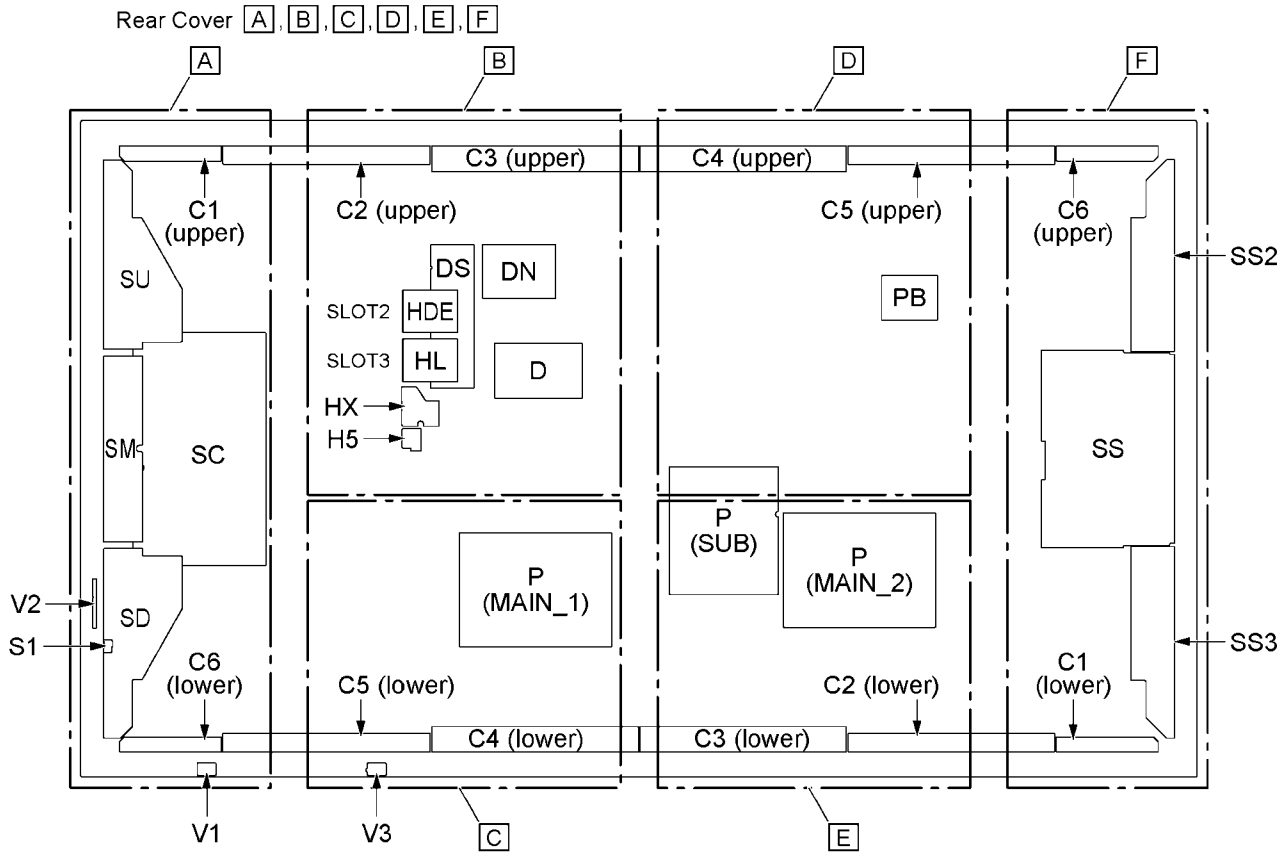
**Remark: This SC jig can be used for all 2009 Plasma TV and Plasma Display.**



## 9 Disassembly and Assembly Instructions

- To disassemble P.C.B., wait for 10 minute after power was off for discharge from electrolysis capacitors.
- ○, □, ▲ and ☆ marks indicate screw positions.

### 9.1. Rear Cover and Board

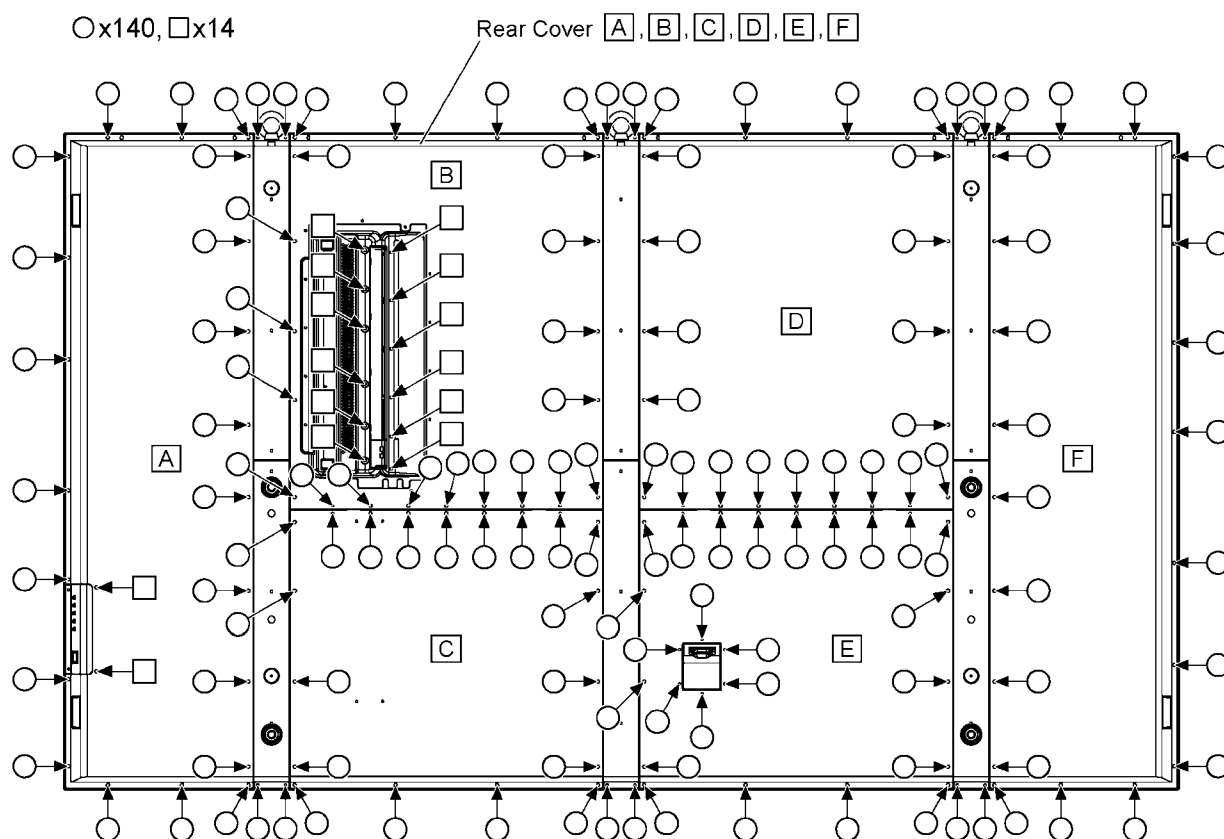


Rear Cover required to remove for each board exchange.

Board Name	Rear Cover
D-Board	B
DS-Board	B
SS-Board	F
SC-Board	A
SU-Board	A
SM-Board	A
SD-Board	A
C1-Board (upper)	A
C2-Board (upper)	A, B
C3-Board (upper)	B, D
C4-Board (upper)	B, D
C5-Board (upper)	D, E
C6-Board (upper)	F
C1-Board (lower)	F
C2-Board (lower)	E, F
C3-Board (lower)	C, E
C4-Board (lower)	C, E
C5-Board (lower)	A, C
C6-Board (lower)	A
H5-Board	B
S1-Board	A
SS2-Board	F
SS3-Board	F
V1-Board	A, B, C, D, E, F
V2-Board	A

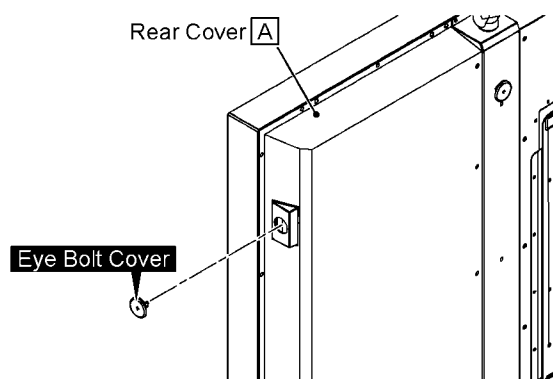
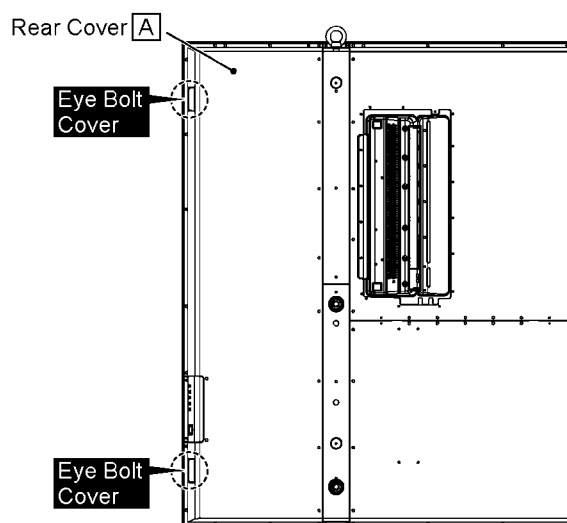
Board Name	Rear Cover
V3-Board	A, B, C, D, E, F
PB-Board	D
P-Board (MAIN_1)	C
P-Board (MAIN_2)	E
P-Board (SUB)	D, E
HX-Board	B
HL-Board	Unnecessary
DN-Board	B
HDE-Board	Unnecessary

## 9.2. Location of Rear Cover screws

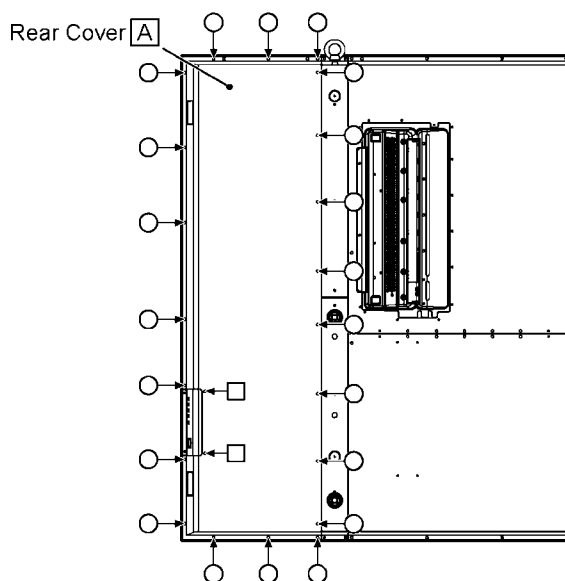


### 9.2.1. Removal of Rear Cover (A)

1. Remove Eye Bolt Covers.

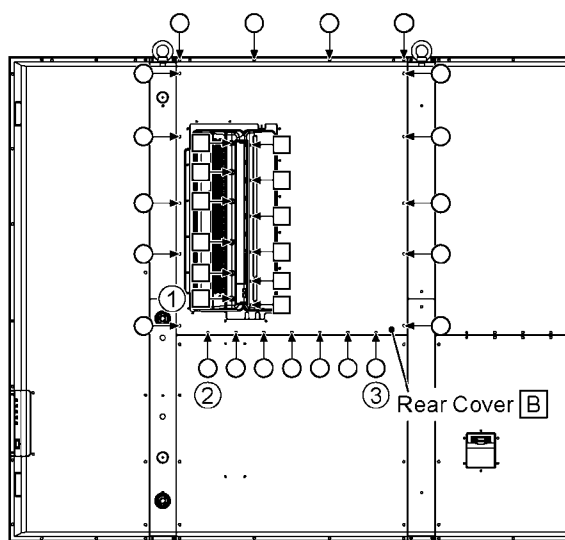


- Remove screws (×21 ○, ×2 □) and then remove the Rear Cover (A).



### 9.2.2. Removal of Rear Cover (B)

- Remove screws (×21 ○, ×12 □) and then remove the Rear Cover (B).

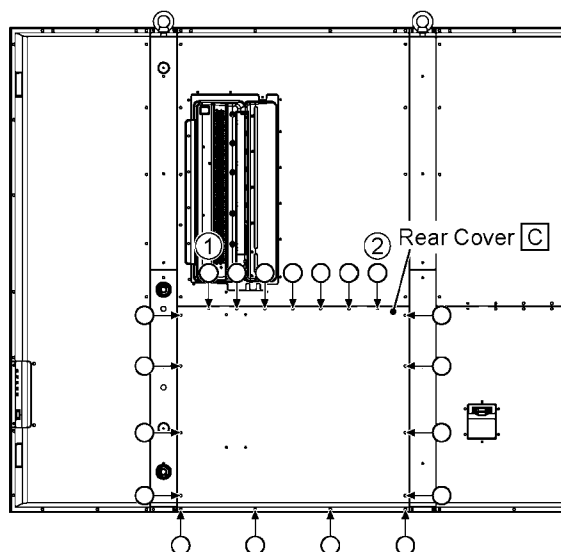


**Note: when fixing Rear Cover (B)**

- Firstly screw on 3 screws (1-3) in order.

### 9.2.3. Removal of Rear Cover (C)

- Remove screws (×19 ○) and then remove the Rear Cover (C).

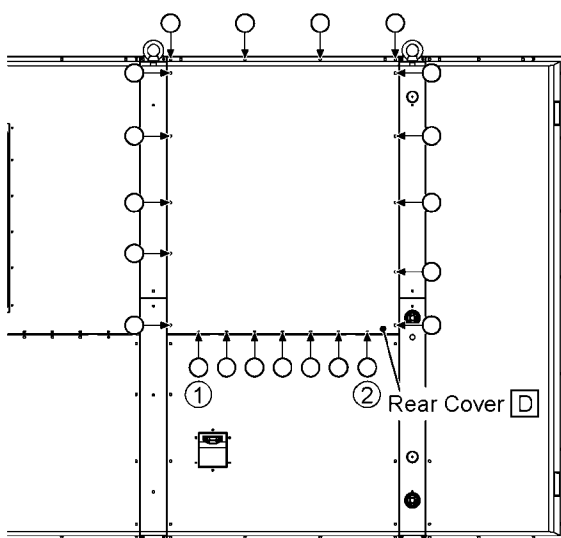


**Note: when fixing Rear Cover (C)**

- Firstly screw on 2 screws (1-2) in order.

### 9.2.4. Removal of Rear Cover (D)

- Remove screws (×21 ○) and then remove the Rear Cover (D).




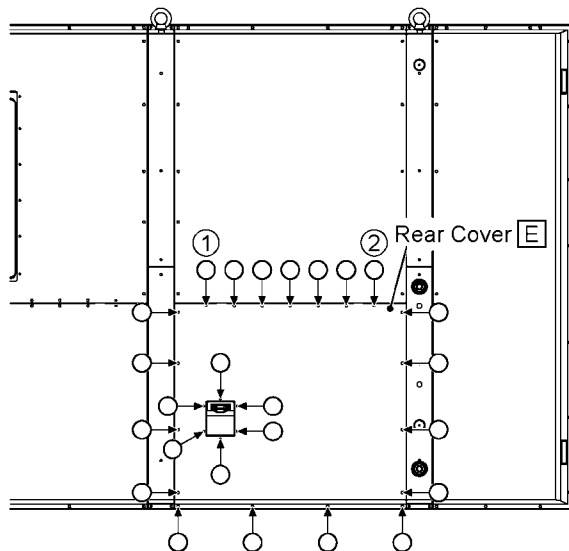
**Note: when fixing Rear Cover (D)**

- Firstly screw on 2 screws (1-2) in order.



### 9.2.5. Removal of Rear Cover (E)

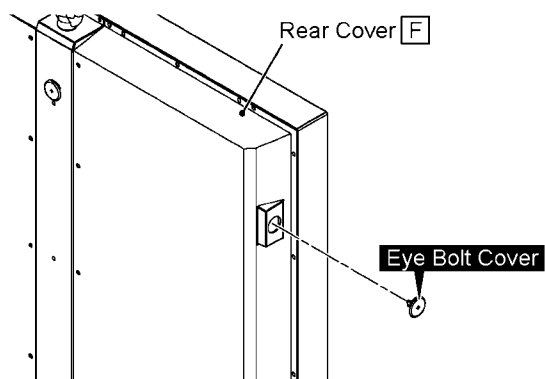
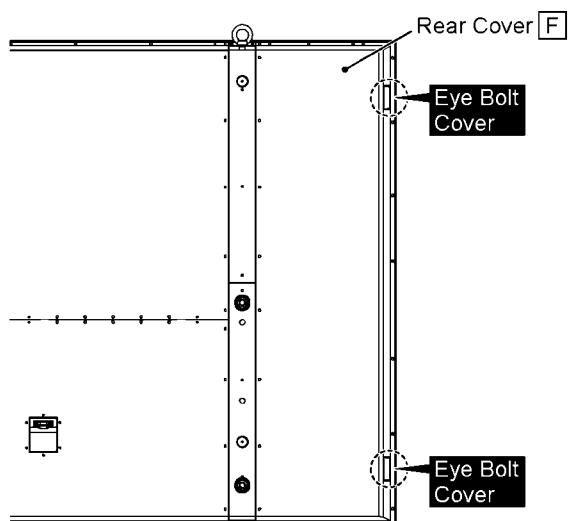
1. Remove screws (×25 ) and then remove the Rear Cover (E).




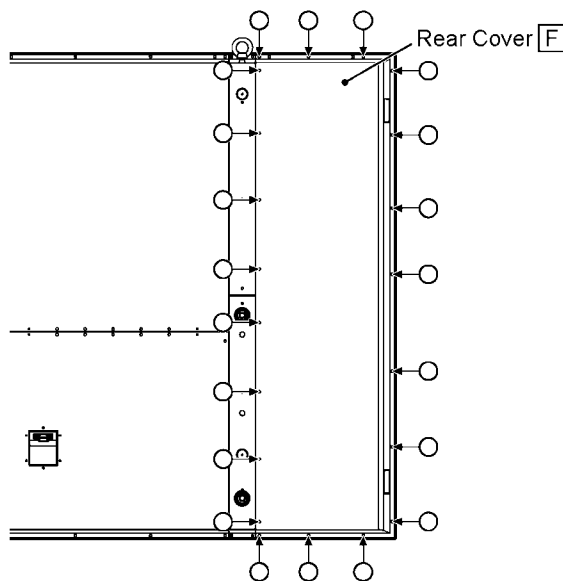
**Note: when fixing Rear Cover (E)**  
 • Firstly screw on 2 screws (1-2) in order.

### 9.2.6. Removal of Rear Cover (E)

1. Remove Eye Bolt Covers.



2. Remove screws (×21 ) and then remove the Rear Cover (E).



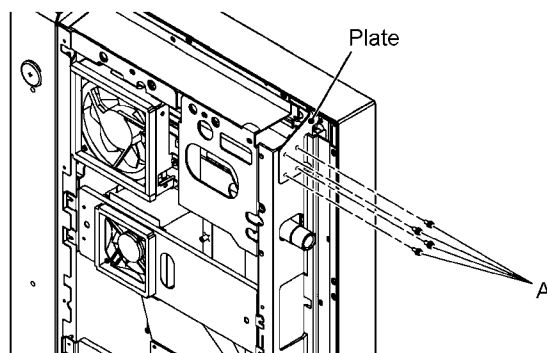
### 9.3. Removal of Side Angle (L), (R)

1. Remove Side Angle (L), (R) beforehand when remove the following Boards.

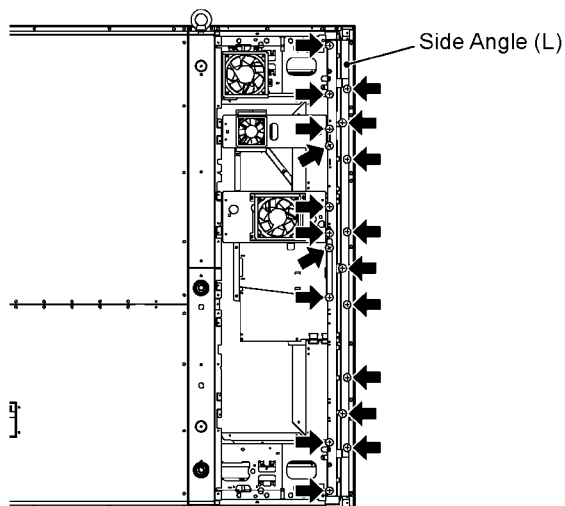
Board name	Side Angle
SU-Board	Side Angle (R)
SM-Board	Side Angle (R)
SD-Board	Side Angle (R)
SC-Board	Side Angle (R)
C1-Board (upper)	Side Angle (R)
C6-Board (lower)	Side Angle (R)
SS2-Board	Side Angle (L)
SS3-Board	Side Angle (L)
SS-Board	Side Angle (L)
C6-Board (upper)	Side Angle (L)
C1-Board (lower)	Side Angle (L)

#### 9.3.1. Removal of Side Angle (L)

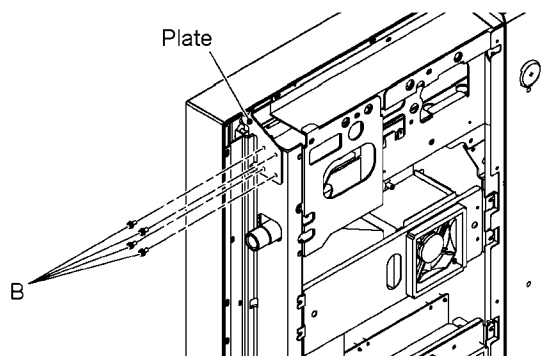
1. Remove 4 screws (A) of the Plate.



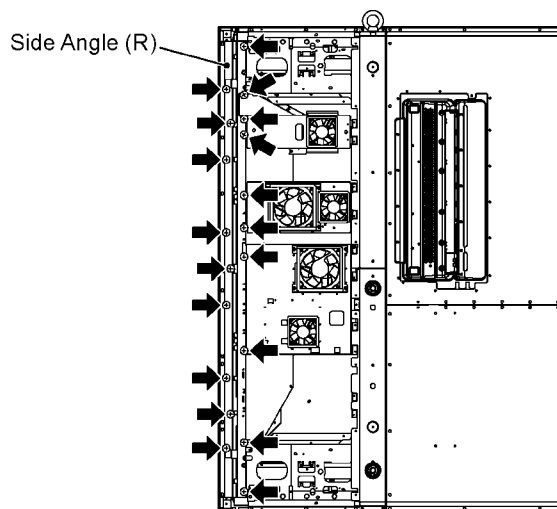
2. Remove 19 screws and then remove the Side Angle (L).



5. Remove 4 screws (B) of the Plate.

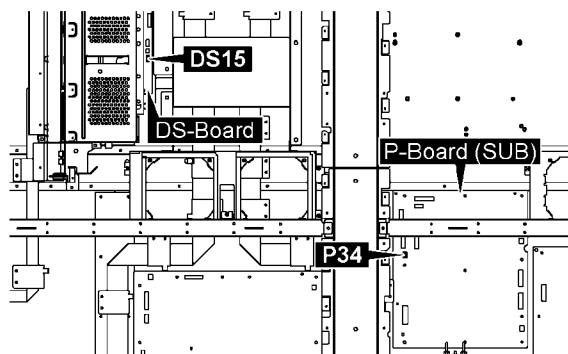


6. Remove 19 screws and then remove the Side Angle (R).

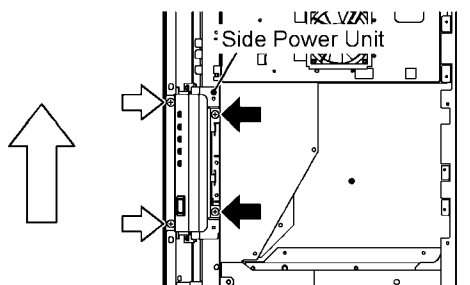


### 9.3.2. Removal of Side Angle (R)

1. Disconnect the connectors (DS15, P34).

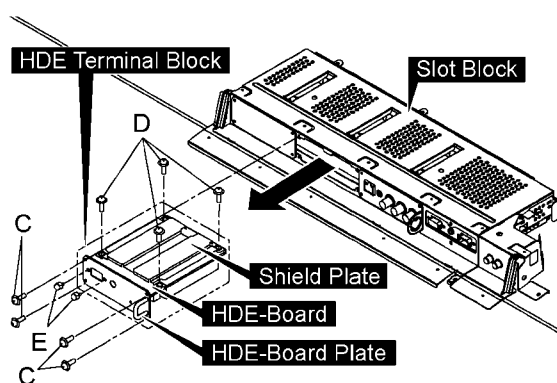


2. Remove 2 screws (▲).
3. Remove 2 screws (⬆) and then slide the Side Power Unit upward.
4. Remove the Side Power Unit.



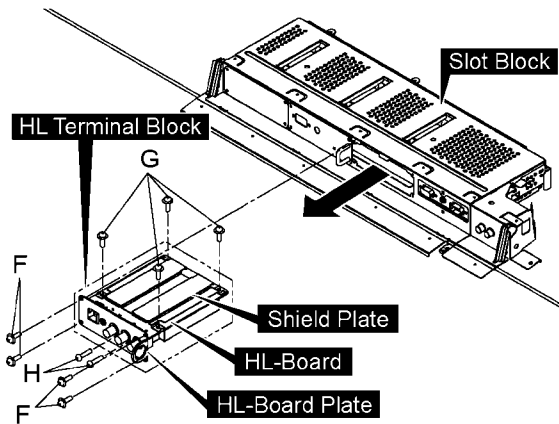
### 9.4. Removal of HDE-Board

1. Remove 4 screws (C) and then remove the HDE Terminal Block.
2. Remove 4 screws (D).
3. Remove 2 screws (E) and then remove HDE-Board.

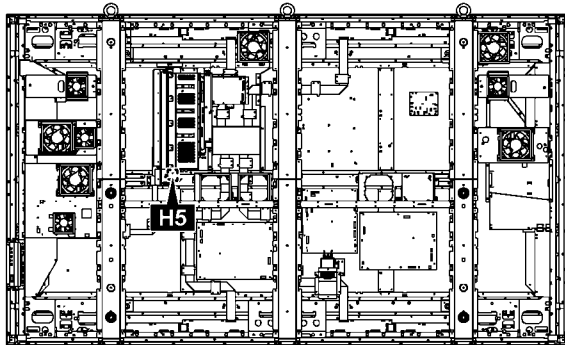


## 9.5. Removal of HL-Board

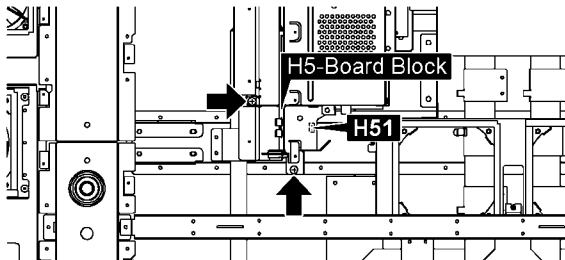
1. Remove 4 screws (F) and then remove the HL Terminal Block.
2. Remove 4 screws (G).
3. Remove 2 screws (H) and then remove HL-Board.



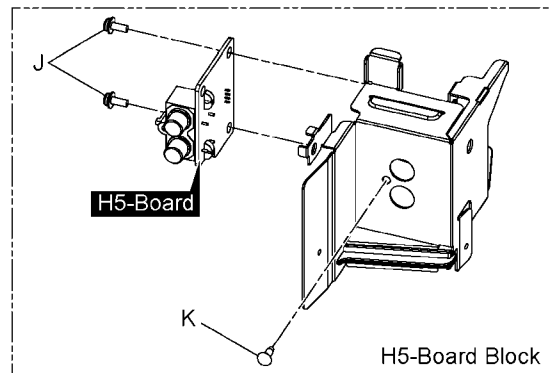
## 9.6. Removal of H5-Board



1. Remove 2 screws and then remove H5-Board Block.
2. Disconnect the connector (H51).



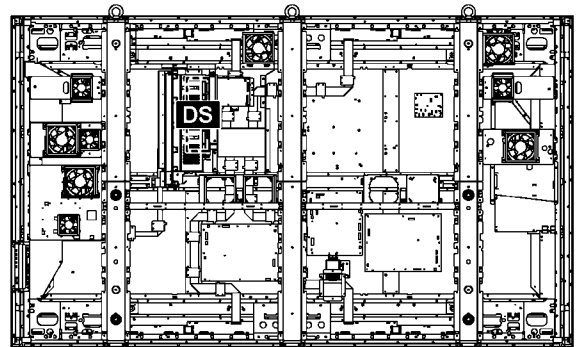
3. Remove 2 screws (J).
4. Remove 1 screw (K) and then remove H5-Board.



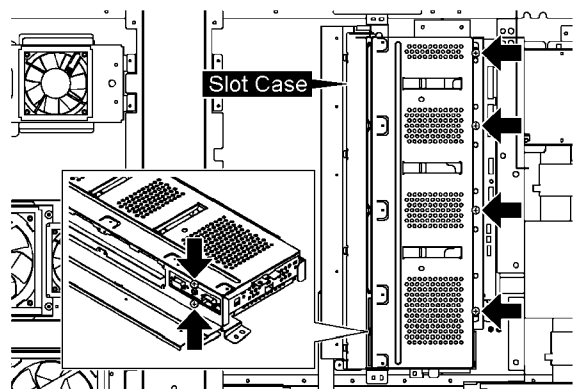
**Note: when fixing H5-Board**

- Screw on 1 screw (K) firstly.

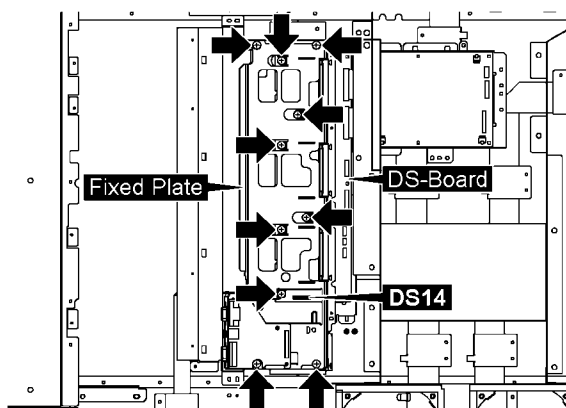
## 9.7. Removal of DS-Board



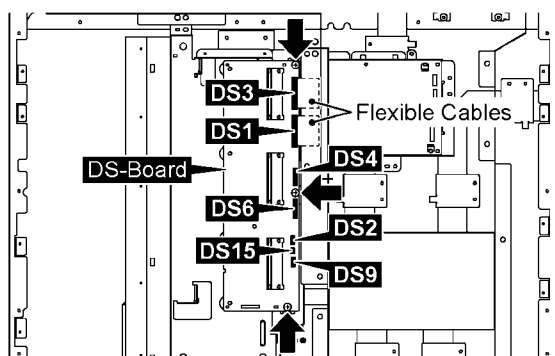
1. Remove the HL Terminal Block and the HDE Terminal Block.  
(Refer to Removal of HL-Board and HDE-Board)
2. Remove H5-Board Block.  
(Refer to Removal of H5-Board)
3. Remove 6 screws and then remove the Slot Case.



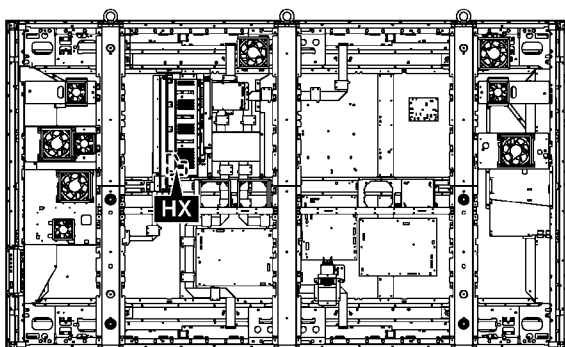
4. Disconnect the connector (DS14).
5. Remove 10 screws and then remove the Fixed Plate



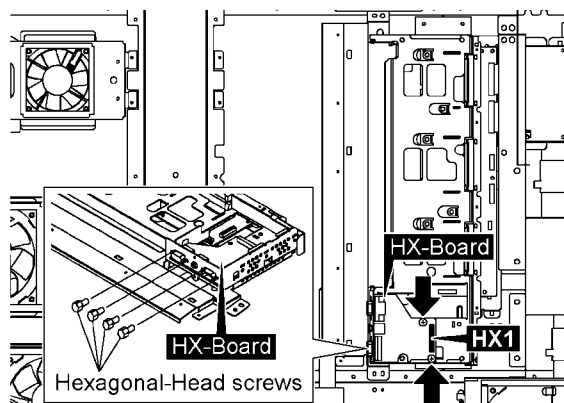
6. Disconnect the connectors (DS2, DS4, DS6, DS9, DS15).
7. Remove the flexible cables from the connectors (DS1, DS3).
8. Remove 3 screws and then remove DS-Board.



## 9.8. Removal of HX-Board

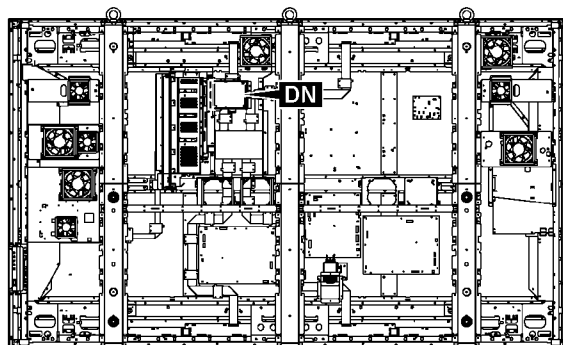


1. Remove the Slot Case.  
(Refer to Removal of DS-Board)
2. Disconnect the connector (HX1).
3. Remove 4 Hexagonal-Head screws and 2 screws and then remove HX-Board.

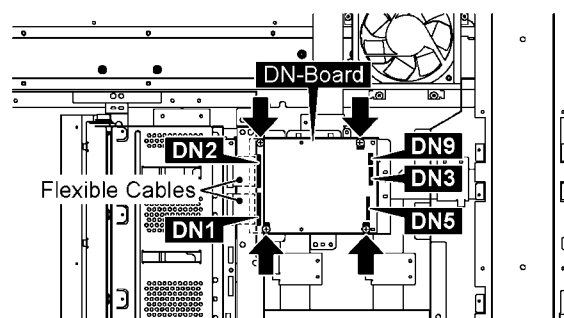


## 9.9. Removal of DN-Board

Check that no bright points appears by Ve Life adjustment after both D and DN board exchange.



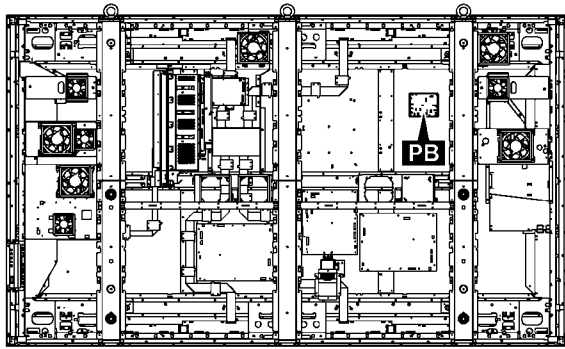
1. Disconnect the connectors (DN3, DN5, DN9).
2. Remove the flexible cables from the connectors (DN1, DN2)
3. Remove 4 screws and then remove DN-Board.



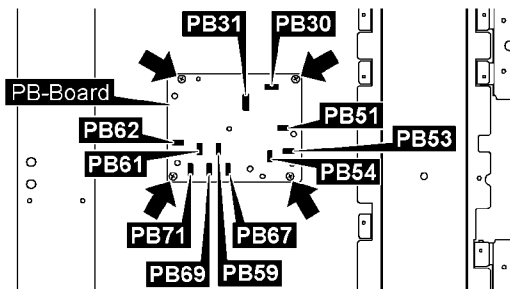
### Note:

A re-setup of the destination is performed by MS mode after DN-Board exchange.

## 9.10. Removal of PB-Board

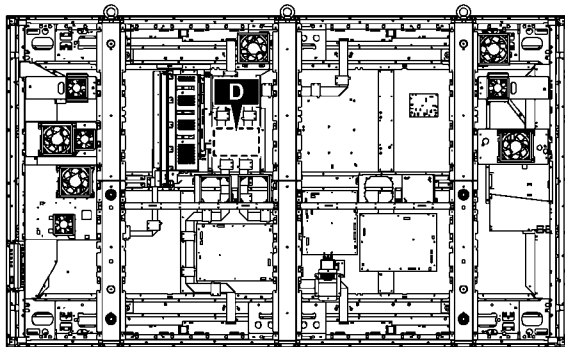


1. Disconnect the connectors (PB30, PB31, PB51, PB53, PB54, PB59, PB61, PB62, PB67, PB69, PB71).
2. Remove 4 screws and then remove PB-Board.

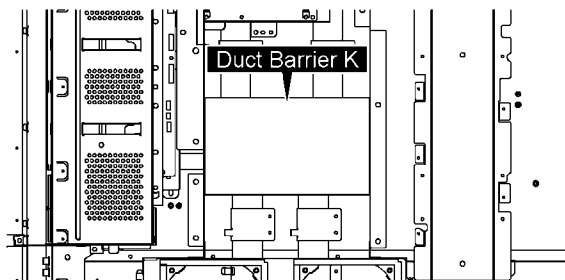


## 9.11. Removal of D-Board

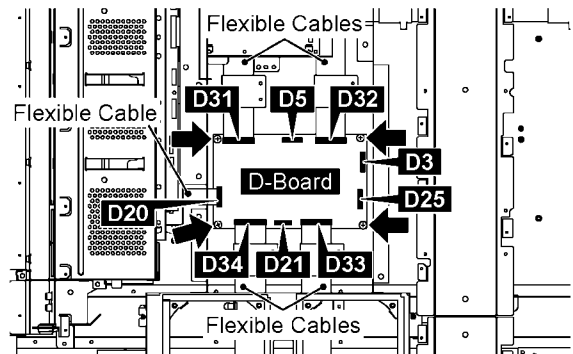
Check that no bright points appears by Ve Life adjustment after both D and DN board exchange.



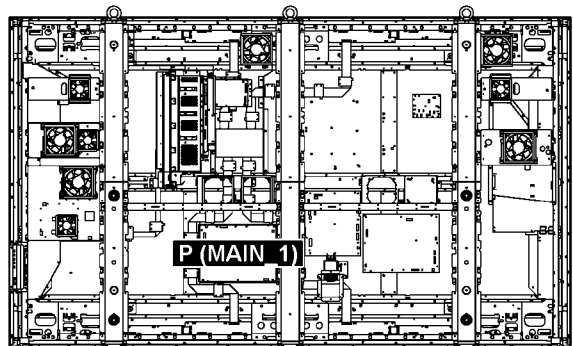
1. Remove Duct Barrier K.



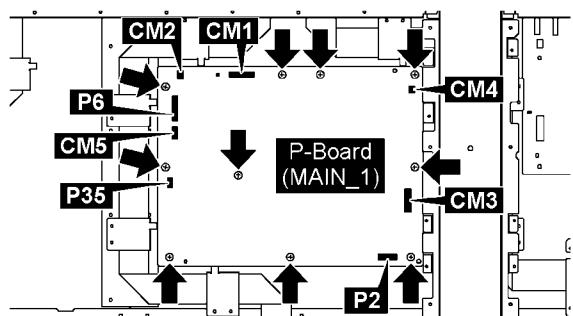
2. Disconnect the connectors (D3, D5, D21, D25).
3. Remove the flexible cables from the connectors (D20, D31, D32, D33, D34).
4. Remove 4 screws and then remove D-Board.



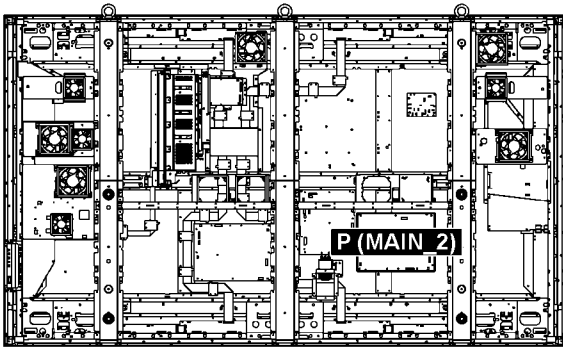
## 9.12. Removal of P-Board (MAIN\_1)



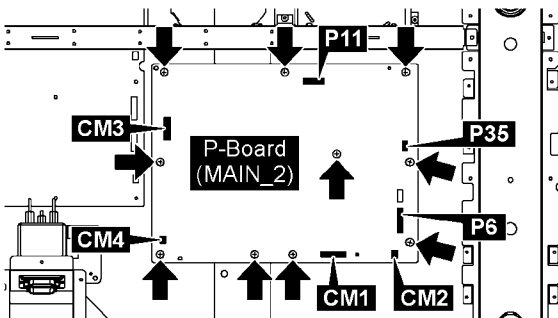
1. Disconnect the connectors (CM1, CM2, CM3, CM4, CM5, P2, P6, P35).
2. Remove 10 screws and then remove P-Board (MAIN\_1).



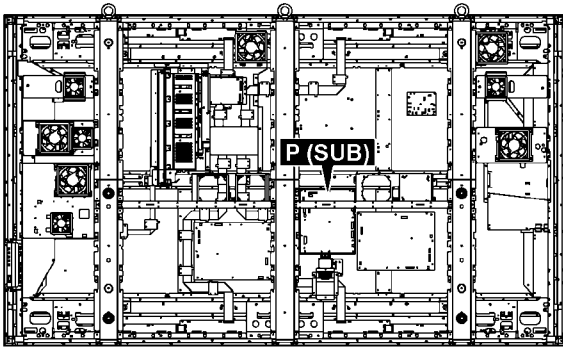
### 9.13. Removal of P-Board (MAIN\_2)



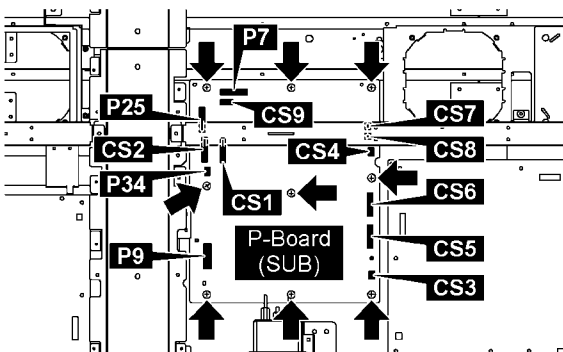
1. Disconnect the connectors (CM1, CM2, CM3, CM4, P6, P11, P35).
2. Remove 10 screws and then remove P-Board (MAIN\_2).



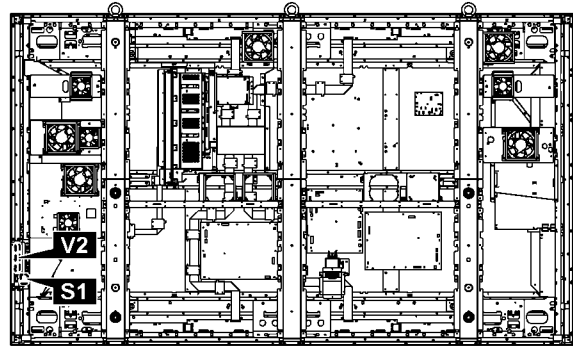
### 9.14. Removal of P-Board (SUB)



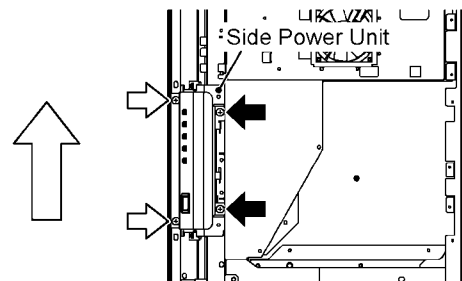
1. Disconnect the connectors (CS1, CS2, CS3, CS4, CS5, CS6, CS7, CS8, CS9, P7, P9, P25, P34).
2. Remove 9 screws and then remove P-Board (SUB).



### 9.15. Removal of S1-Board and V2-Board

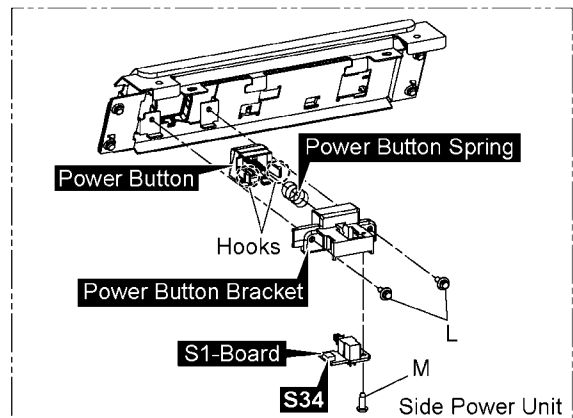


1. Remove 2 screws (↑).
2. Remove 2 screws (↗) and then slide the Side Power Unit upward.
3. Remove the Side Power Unit.



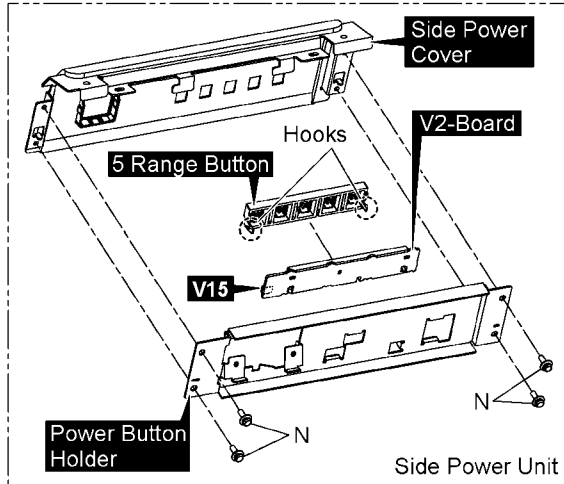
#### 9.15.1. Removal of S1-Board

1. Remove 2 screws (L) and then remove the Power Button Bracket.
2. Remove 1 screw (M).
3. Disconnect the connector (S34) and then remove S1-Board.
4. Remove 2 hooks and then remove the Power Button and Power Button Spring.

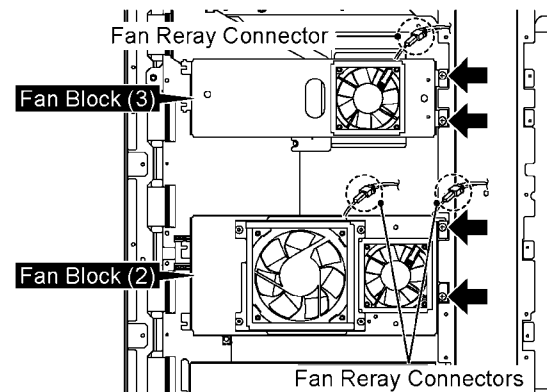


### 9.15.2. Removal of V2-Board

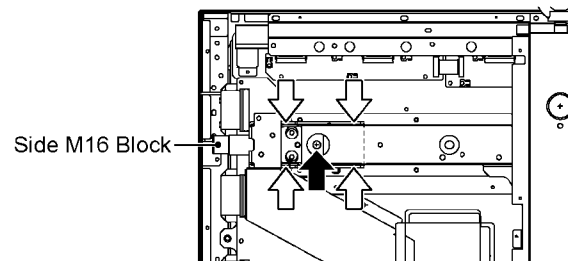
1. Remove 4 screw (N) and then remove the Side Power Cover.
2. Disconnect the connector (V15) and then remove V2-Board.
3. Remove 2 hooks and then remove the 5 Range Button from V2-Board.



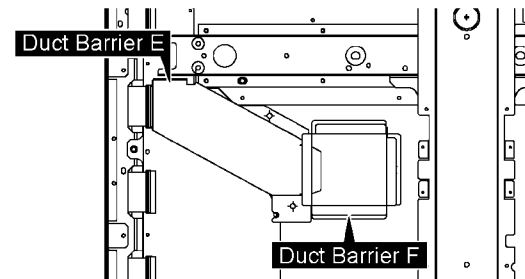
4. Disconnect the Fan relay connectors.
5. Remove 4 screws and then remove the Fan Block (2, 3).



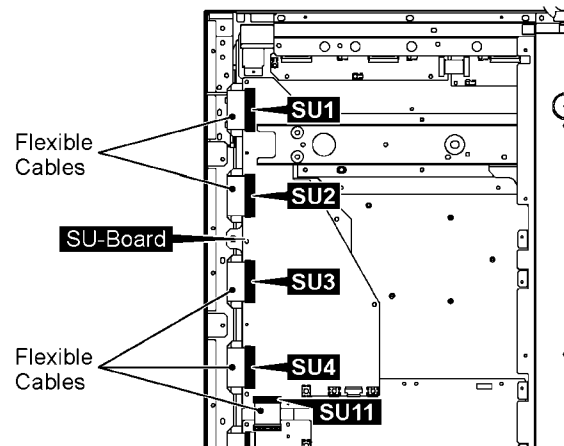
6. Remove 1 screw (↑).
7. Remove 4 screws (⇅) and then remove the Side M16 Block.



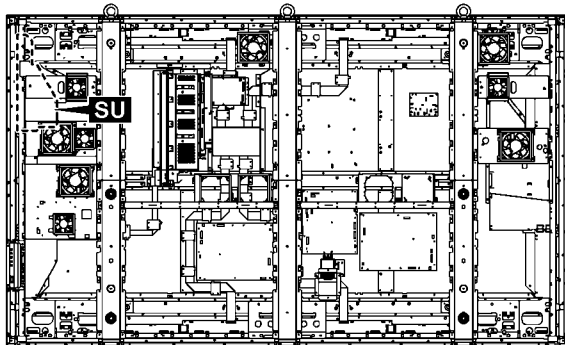
8. Remove the Duct Barrier E and Duct Barrier F.



9. Remove the flexible cables from the connectors (SU1, SU2, SU3, SU4, SU11).

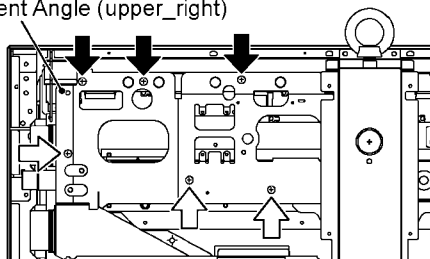


### 9.16. Removal of SU-Board

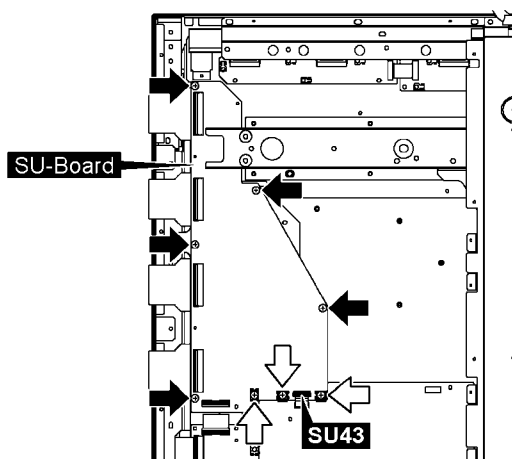


1. Remove the Side Angle (R).  
(Refer to Removal of the Side Angle (R))
2. Remove 3 screws (↑).
3. Remove 3 screws (⇅) and then remove the Reinforcement Angle (upper\_right).

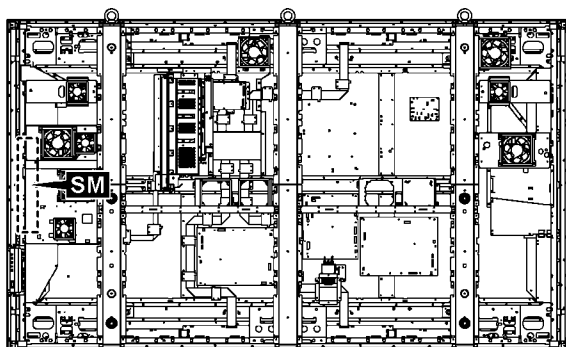
Reinforcement Angle (upper\_right)



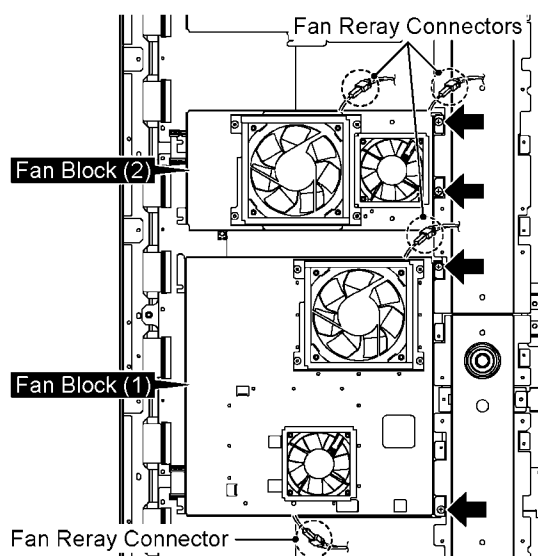
10. Disconnect the connector (SU43).
11. Remove 5 screws (↑).
12. Remove 3 screws (⇅) and then remove SU-Board.



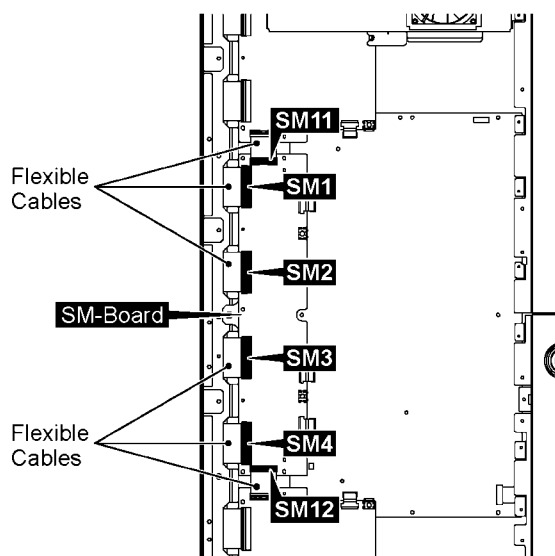
## 9.17. Removal of SM-Board



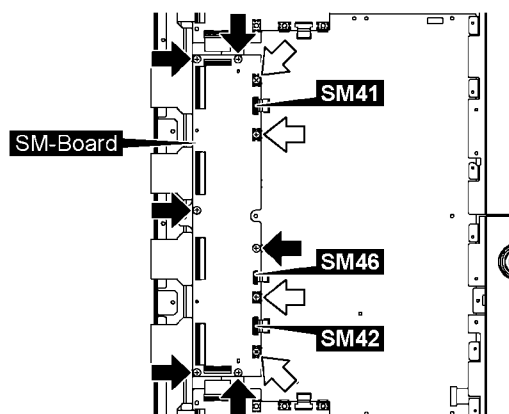
1. Remove the Side Angle (R).  
(Refer to Removal of the Side Angle (R))
2. Disconnect the Fan relay connectors.
3. Remove 4 screws and then remove the Fan Block (1, 2).



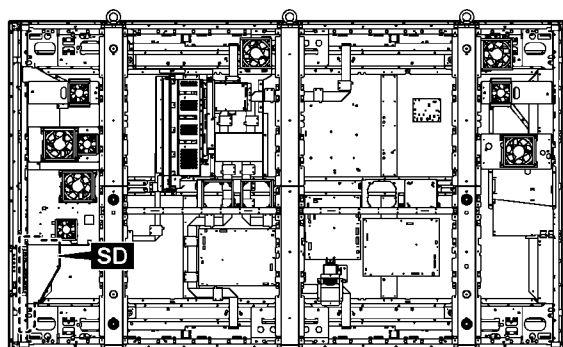
4. Remove the flexible cables from the connectors (SM1, SM2, SM3, SM4, SM11, SM12).



5. Disconnect the connectors (SM41, SM42, SM46)
6. Remove 6 screws (↑).
7. Remove 4 screws (⇅) and then remove SM-Board.

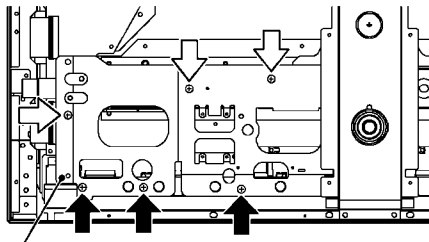


## 9.18. Removal of SD-Board



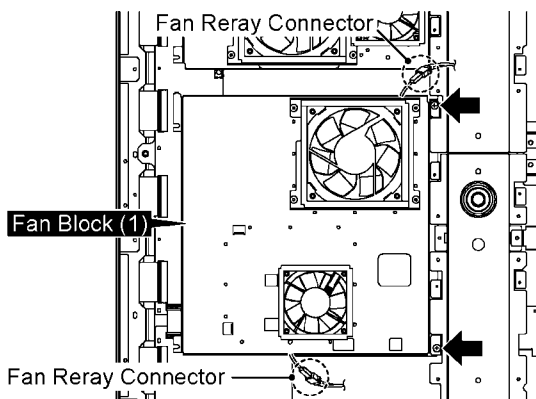


1. Remove the Side Angle (R).  
(Refer to Removal of the Side Angle (R))
2. Remove 3 screws (⬆).
3. Remove 3 screws (⬆) and then remove the Reinforcement Angle (lower\_right).

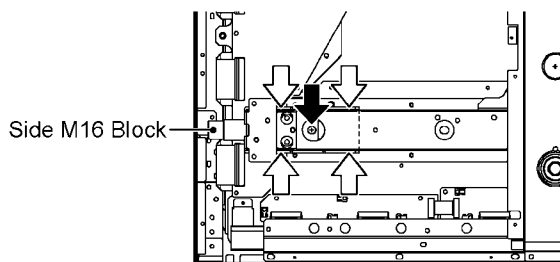


Reinforcement Angle (lower\_right)

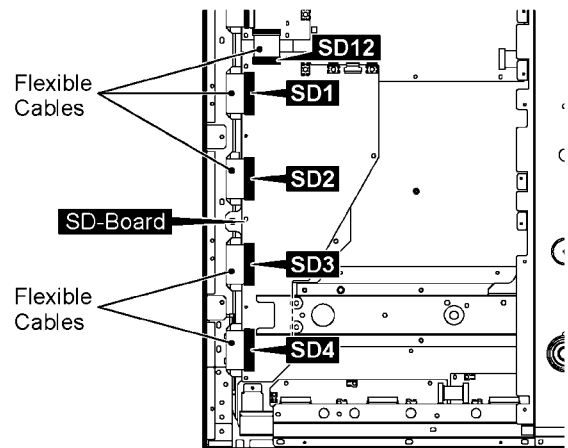
4. Disconnect the Fan relay connectors.
5. Remove 2 screws and then remove the Fan Block (1).



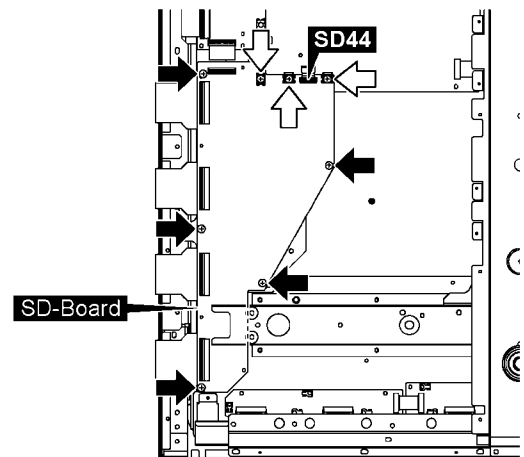
6. Remove 1 screw (⬆).
7. Remove 4 screws (⬆) and then remove the Side M16 Block.



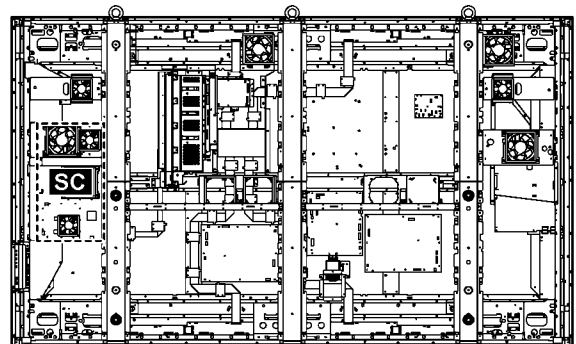
8. Remove the flexible cables from the connectors (SD1, SD2, SD3, SD4, SD12).



9. Disconnect the connector (SD44).
10. Remove 5 screws (⬆).
11. Remove 3 screws (⬆) and then remove SD-Board.



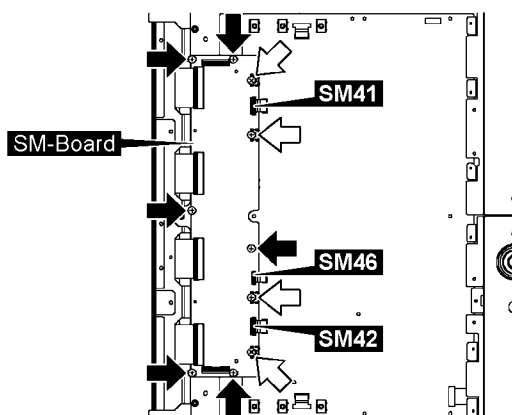
## 9.19. Removal of SC-Board



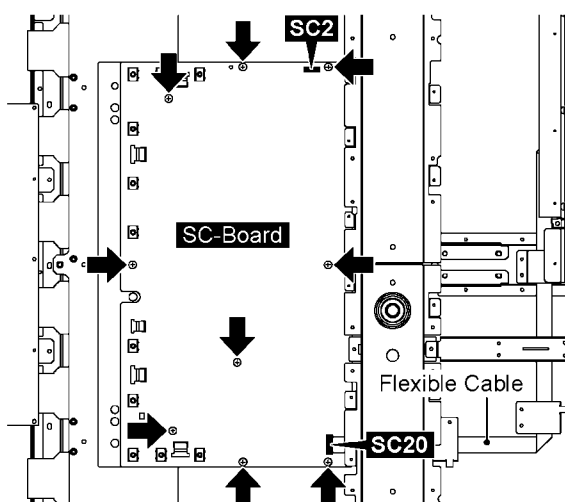
1. Remove SU-Board.  
(Refer to Removal of SU-Board)
2. Remove SD-Board.  
(Refer to Removal of SD-Board)
3. Disconnect the connectors (SM41, SM42, SM46).
4. Remove 6 screws (⬆).
5. Remove 4 screws (⬆) and then turn over SM-Board to the left.

**Note:**

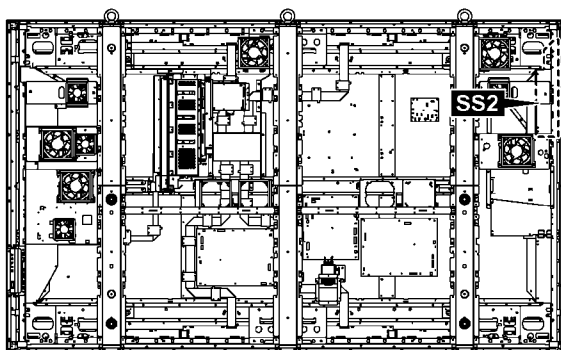
Do not damage the Flexible Cables of SM-Board, and the parts on SC-Board.



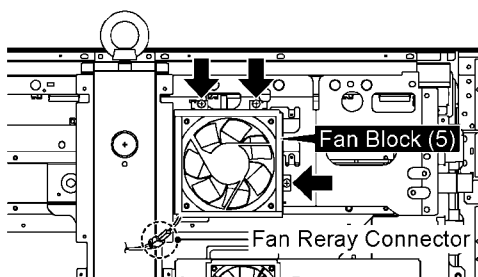
6. Disconnect the connector (SC2).
7. Remove the flexible cable from the connector (SC20).
8. Remove 9 screws and then remove SC-Board.



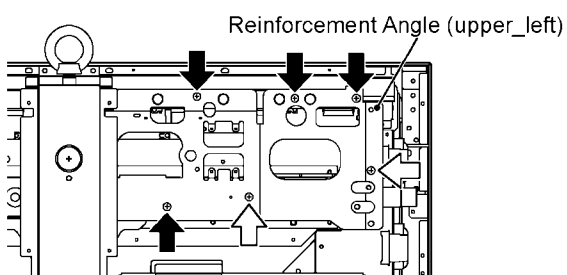
## 9.20. Removal of SS2-Board



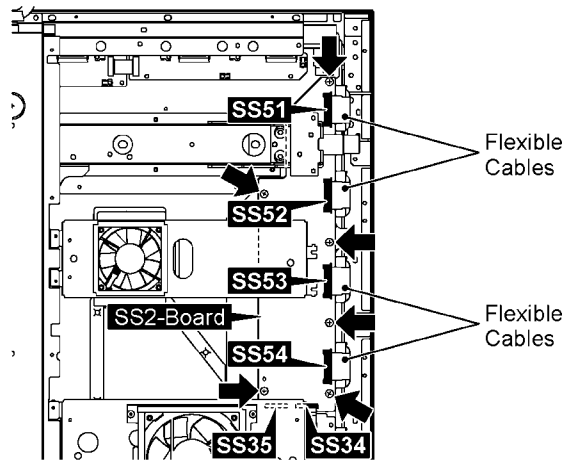
1. Remove the Side Angle (L).  
(Refer to Removal of the Side Angle (L))
2. Disconnect the Fan relay connector.
3. Remove 3 screws and then remove the Fan Block (5).



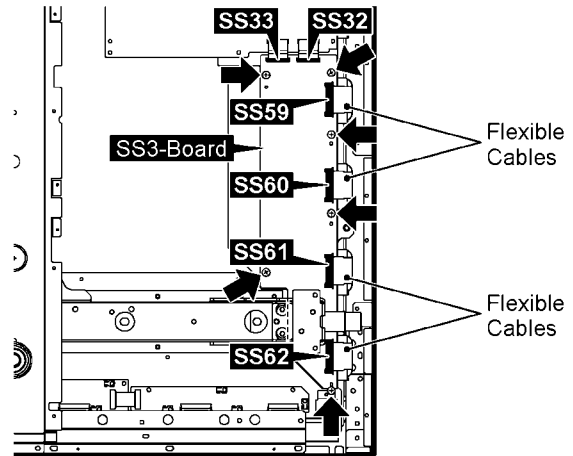
4. Remove 4 screws (⬆).
5. Remove 2 screws (⬆) and then remove the Reinforcement Angle (upper\_left).



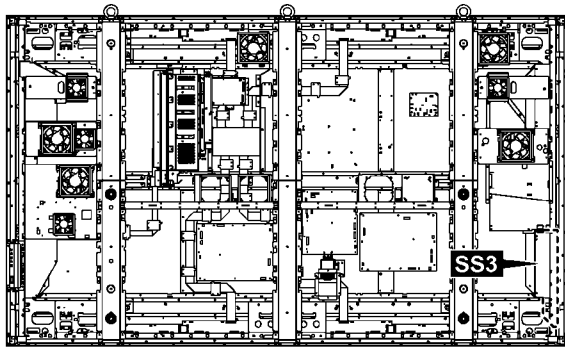
6. Disconnect the connectors (SS34, SS35).
7. Remove the flexible cables from the connectors (SS51, SS52, SS53, SS54).
8. Remove 6 screws and then remove SS2-Board.



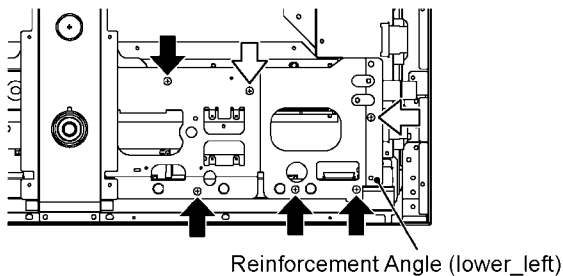
4. Disconnect the connectors (SS32, SS33).
5. Remove the flexible cables from the connectors (SS59, SS60, SS61, SS62).
6. Remove 6 screws and then remove SS3-Board.



## 9.21. Removal of SS3-Board

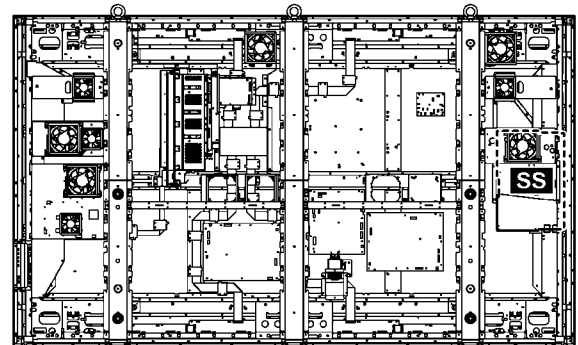


1. Remove the Side Angle (L).  
(Refer to Removal of the Side Angle (L))
2. Remove 4 screws (↑).
3. Remove 2 screws (↗) and then remove the Reinforcement Angle (lower\_left).

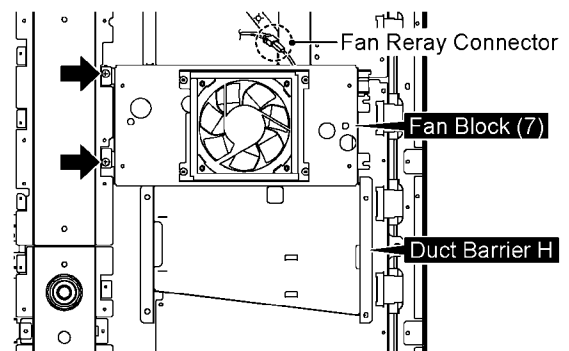


## 9.22. Removal of SS-Board

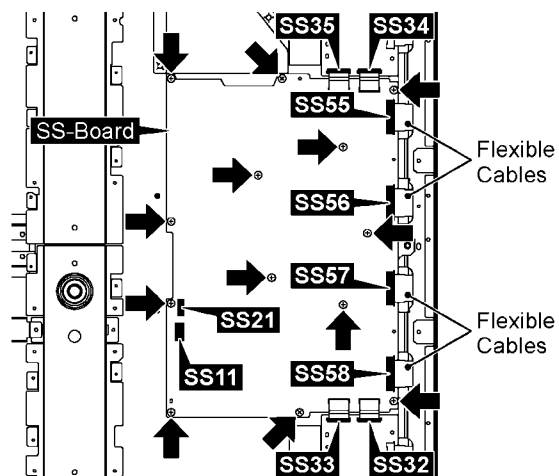
Ve adjustment is performed by IIC mode after SS board exchange.



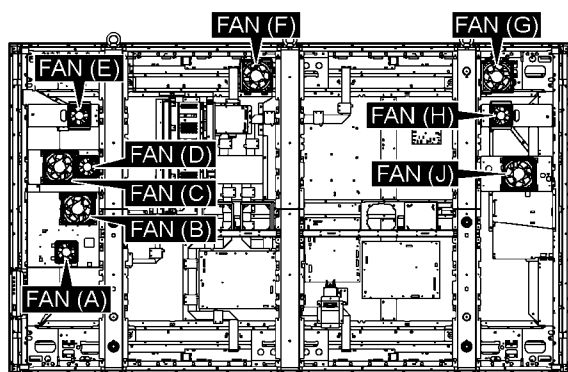
1. Remove the Side Angle (L).  
(Refer to Removal of the Side Angle (L))
2. Disconnect the Fan relay connector.
3. Remove 2 screws and then remove the Fan Block (7).
4. Remove the Duct Barrier H.



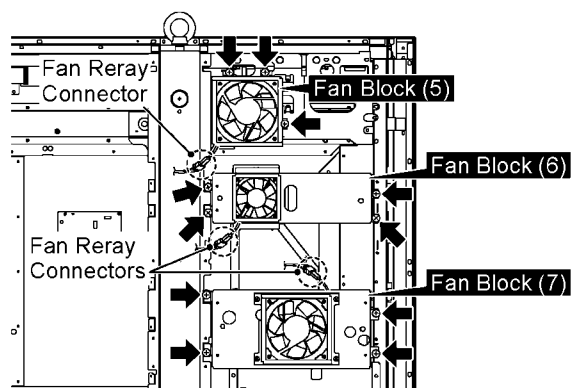
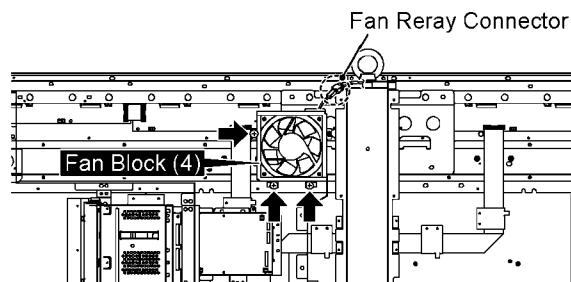
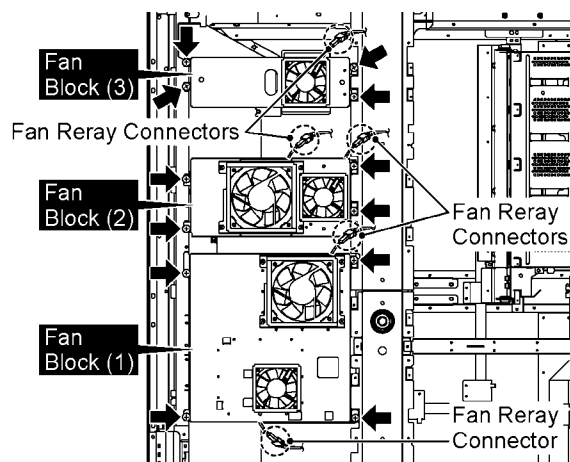
5. Disconnect the connectors (SS11, SS21, SS32, SS33, SS34, SS35).
6. Remove the flexible cables from the connectors (SS55, SS56, SS57, SS58).
7. Remove 13 screws and then remove SS-Board.



## 9.23. Removal of Fan

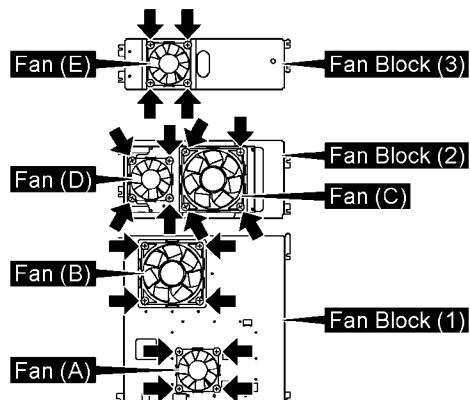


1. Disconnect the Fan Relay Connectors.
2. Remove 26 screws and then remove the Fan Blocks (1, 2, 3, 4, 5, 6, 7).

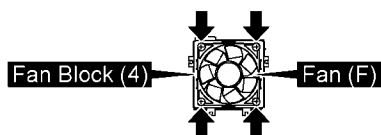


3. Remove each 4 screws and then remove the Fan (A, B, C, D, E, F, G, H, J).

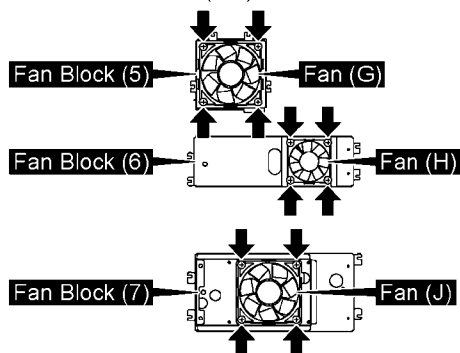
Back Side of Fan Block (1-3)



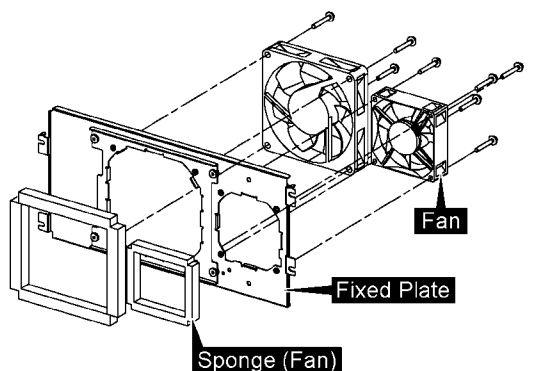
Back Side of Fan Block (4)



Back Side of Fan Block (5-7)



4. Reassemble the Fans in reverse order.
5. Stick the Fan Sponge around the Fan.

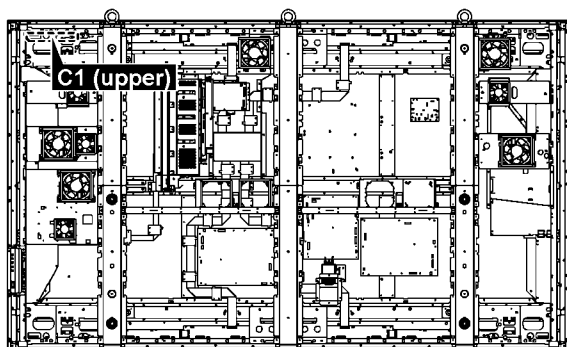


Detail figure of reassembling the Fan

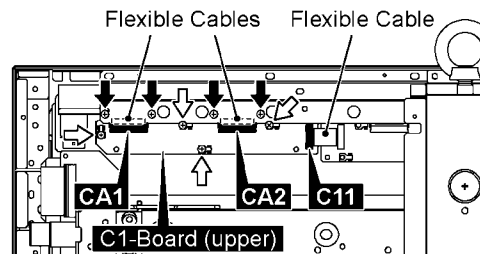
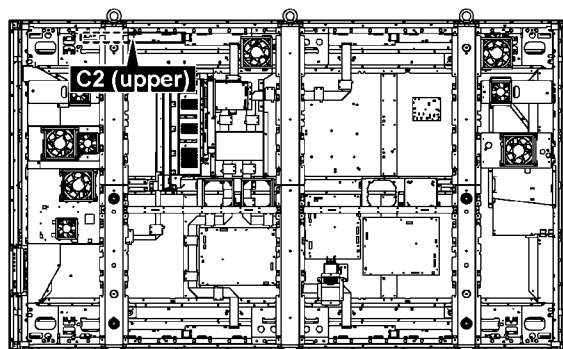
**Note:**

The Fan Sponge is not re-usable.

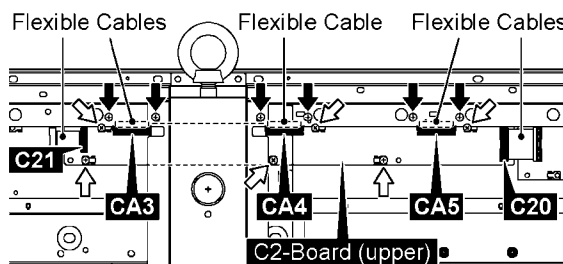
Please use a new one when Fan exchange.

**9.24. Removal of C1-Board (upper)**

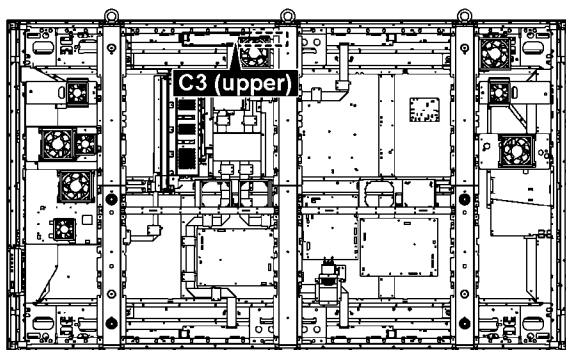
1. Remove the Reinforcement Angle (upper\_right).  
(Refer to Removal of SU-Board)
2. Remove the flexible cable from the connector (C11).
3. Remove 4 screws (⬆) and then remove the flexible cables from the connectors (CA1, CA2).
4. Remove 4 screws (⬆) and then remove C1-Board (upper).

**9.25. Removal of C2-Board (upper)**

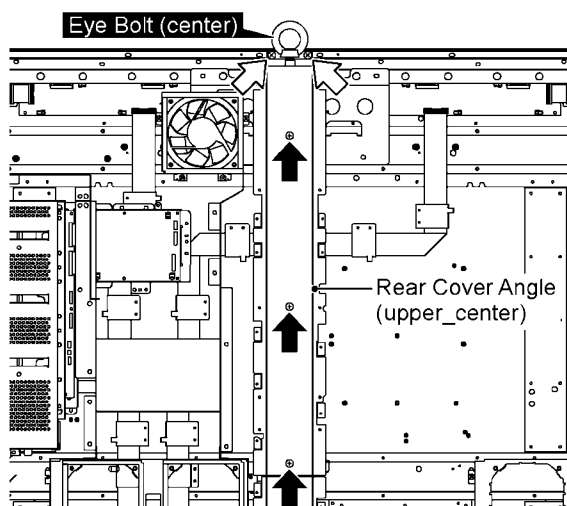
1. Remove the Reinforcement Angle (upper\_right).  
(Refer to Removal of SU-Board)
2. Remove the flexible cables from the connectors (C20, C21).
3. Remove 6 screws (⬆) and then remove the flexible cables from the connectors (CA3, CA4, CA5).
4. Remove 6 screws (⬆) and then remove C2-Board (upper).



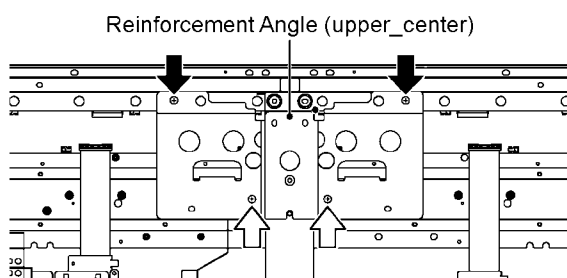
## 9.26. Removal of C3-Board (upper)



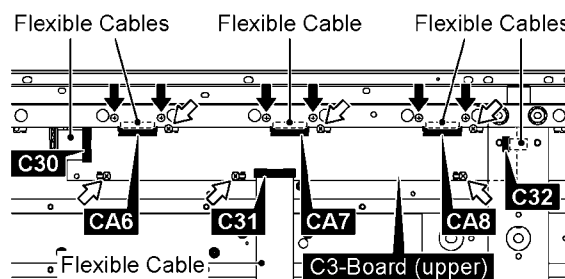
1. Remove the Eye Bolt (center).
2. Remove 3 screws (↑).
3. Remove 2 screws (⇅) and then remove the Rear Cover Angle (upper\_center).



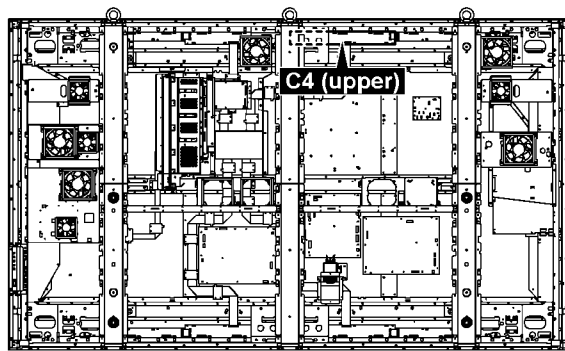
4. Remove the Fan Block (4).  
(Refer to Removal of Fan)
5. Remove 2 screws (↑).
6. Remove 2 screws (⇅) and then remove the Reinforcement Angle (upper\_center).



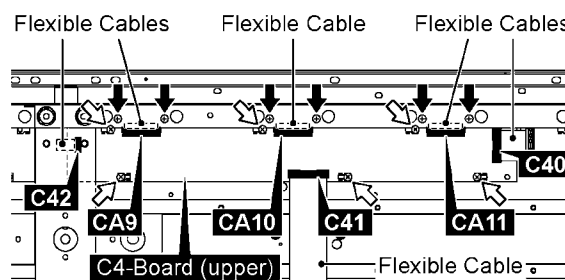
7. Remove the flexible cables from the connectors (C30, C31, C32).
8. Remove 6 screws (↑) and then remove the flexible cables from the connectors (CA6, CA7, CA8).
9. Remove 6 screws (⇅) and then remove C3-Board (upper).



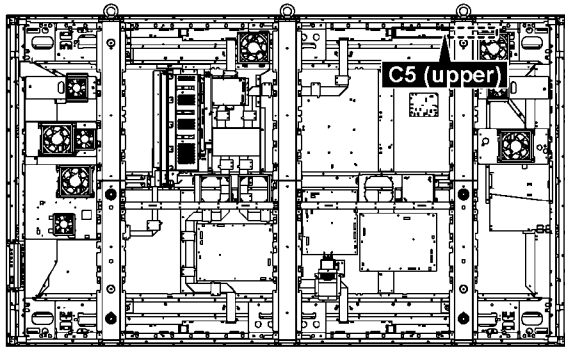
## 9.27. Removal of C4-Board (upper)



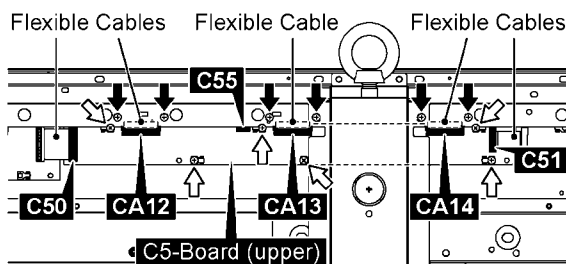
1. Remove the Reinforcement Angle (upper\_center).  
(Refer to Removal of C3-Board (upper))
2. Remove the flexible cables from the connectors (C40, C41, C42).
3. Remove 6 screws (↑) and then remove the flexible cables from the connectors (CA9, CA10, CA11).
4. Remove 6 screws (⇅) and then remove C4-Board (upper).



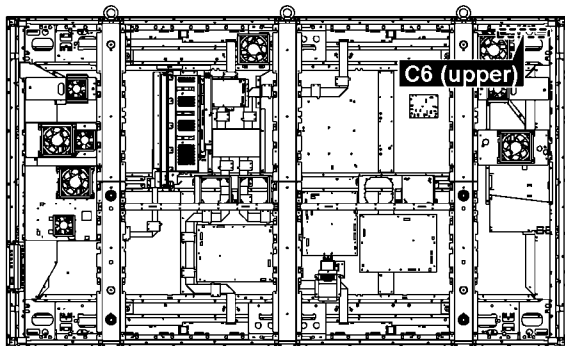
## 9.28. Removal of C5-Board (upper)



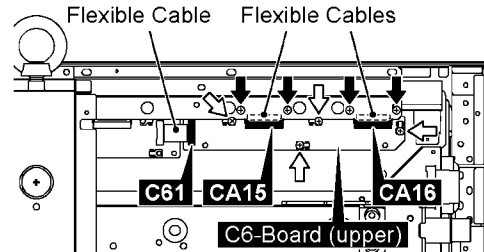
1. Remove the Reinforcement Angle (upper\_left).  
(Refer to Removal of SS2-Board)
2. Disconnect the connector (C55).
3. Remove the flexible cables from the connectors (C50, C51).
4. Remove 6 screws (⬆) and then remove the flexible cables from the connectors (CA12, CA13, CA14).
5. Remove 6 screws (⬇) and then remove C5-Board (upper).



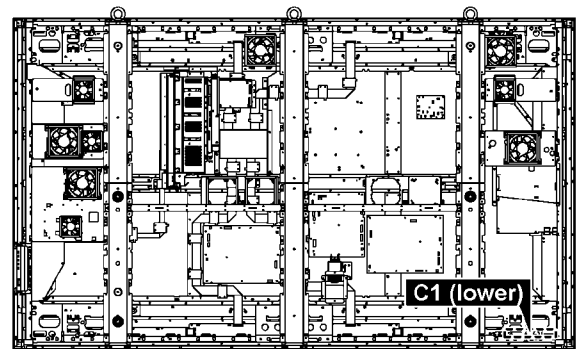
## 9.29. Removal of C6-Board (upper)



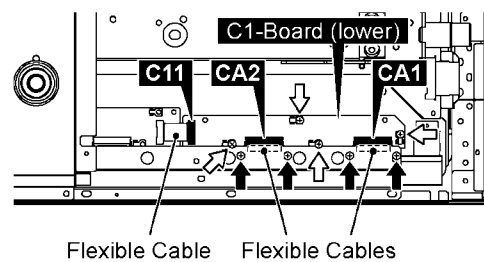
1. Remove the Reinforcement Angle (upper\_left).  
(Refer to Removal of SS2-Board)
2. Remove the flexible cable from the connector (C61).
3. Remove 4 screws (⬆) and then remove the flexible cables from the connectors (CA15, CA16).
4. Remove 4 screws (⬇) and then remove C6-Board (upper).



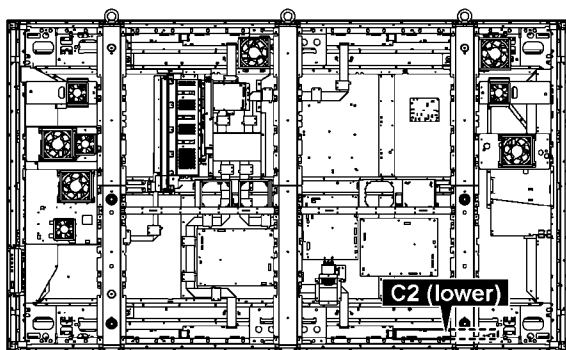
## 9.30. Removal of C1-Board (lower)



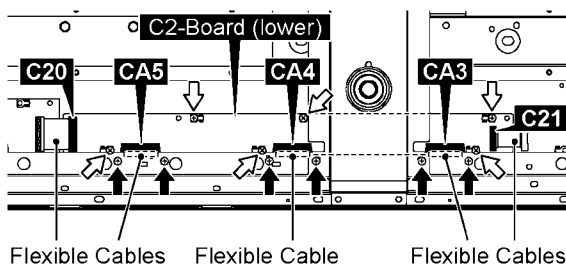
1. Remove the Reinforcement Angle (lower\_left).  
(Refer to Removal of SS3-Board)
2. Remove the flexible cable from the connector (C11).
3. Remove 4 screws (⬆) and then remove the flexible cables from the connectors (CA1, CA2).
4. Remove 4 screws (⬇) and then remove C1-Board (lower).



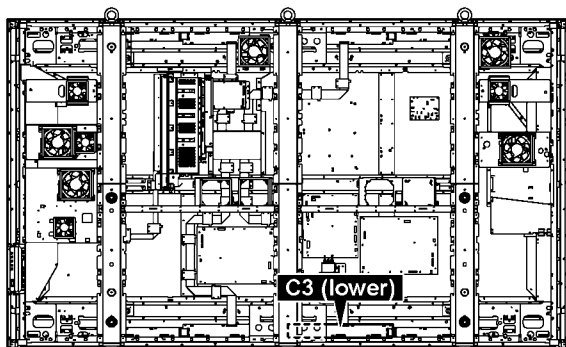
### 9.31. Removal of C2-Board (lower)



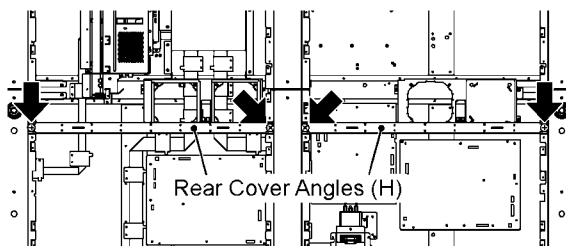
1. Remove the Reinforcement Angle (lower\_left).  
(Refer to Removal of SS3-Board)
2. Remove the flexible cables from the connectors (C20, C21).
3. Remove 6 screws (⬆) and then remove the flexible cables from the connectors (CA3, CA4, CA5).
4. Remove 6 screws (⬆) and then remove C2-Board (lower).



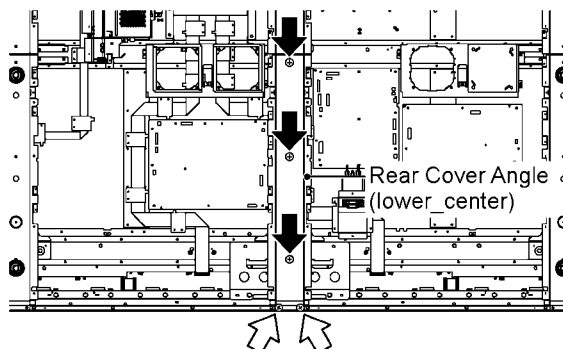
### 9.32. Removal of C3-Board (lower)



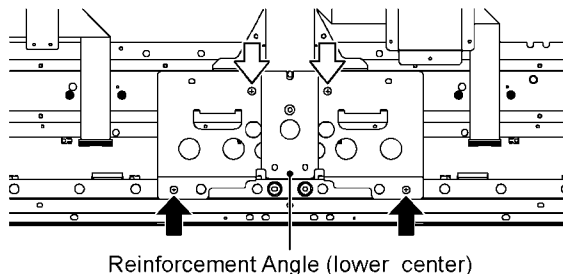
1. Remove 4 screws and then remove the Rear Cover Angles (H).



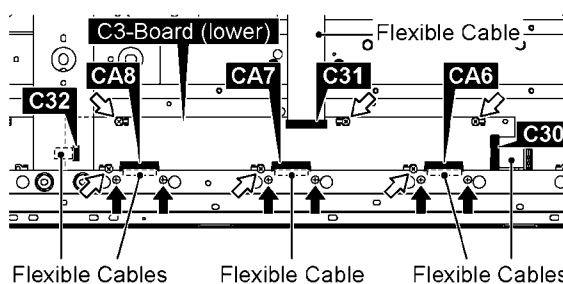
2. Remove 3 screws (⬆).
3. Remove 2 screws (⬆) and then remove the Rear Cover Angle (lower\_center).



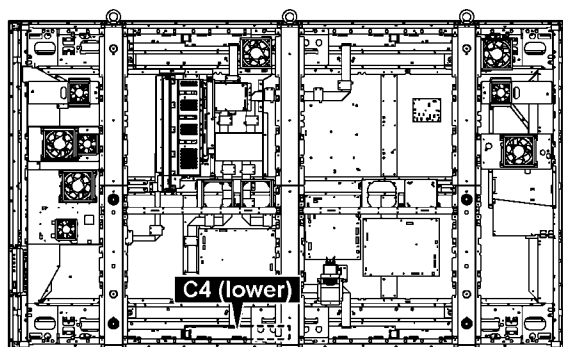
4. Remove 2 screws (⬆).
5. Remove 2 screws (⬆) and then remove the Reinforcement Angle (lower\_center).



6. Remove the flexible cables from the connectors (C30, C31, C32).
7. Remove 6 screws (⬆) and then remove the flexible cables from the connectors (CA6, CA7, CA8).
8. Remove 6 screws (⬆) and then remove C3-Board (lower).

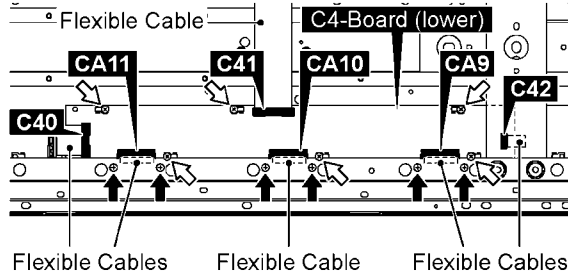


### 9.33. Removal of C4-Board (lower)

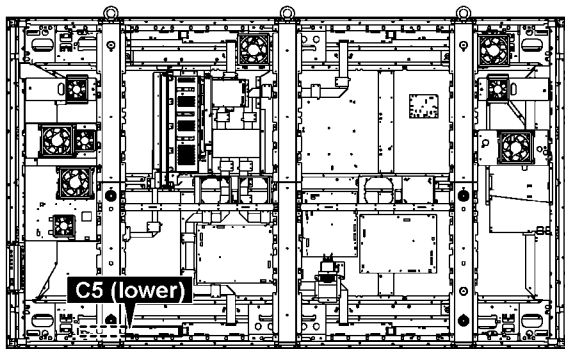




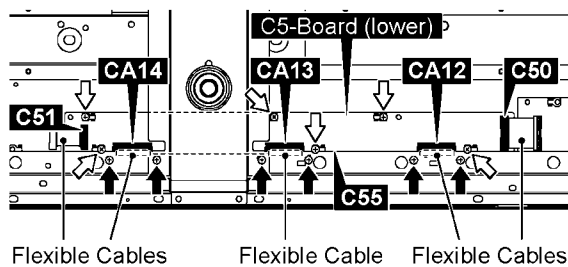
1. Remove the Reinforcement Angle (lower\_center).  
(Refer to Removal of C3-Board (lower))
2. Remove the flexible cables from the connectors (C40, C41, C42).
3. Remove 6 screws (⬆) and then remove the flexible cables from the connectors (CA9, CA10, CA11).
4. Remove 6 screws (⬆) and then remove C4-Board (lower).



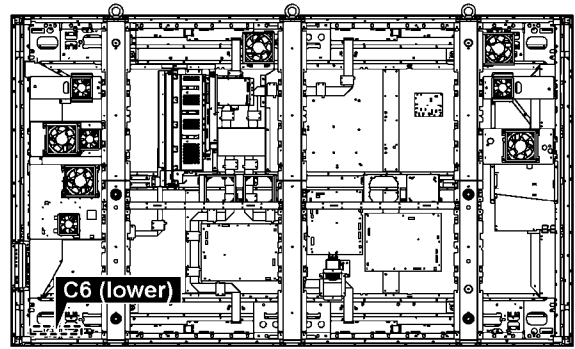
### 9.34. Removal of C5-Board (lower)



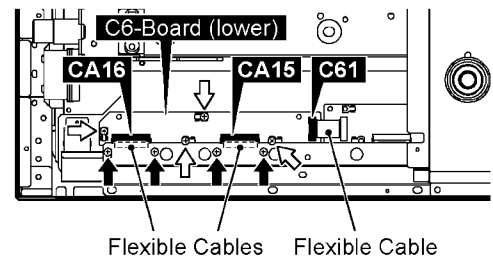
1. Remove the Reinforcement Angle (lower\_right).  
(Refer to Removal of SD-Board)
2. Disconnect the connector (C55).
3. Remove the flexible cables from the connectors (C50, C51).
4. Remove 6 screws (⬆) and then remove the flexible cables from the connectors (CA12, CA13, CA14).
5. Remove 6 screws (⬆) and then remove C5-Board (lower).



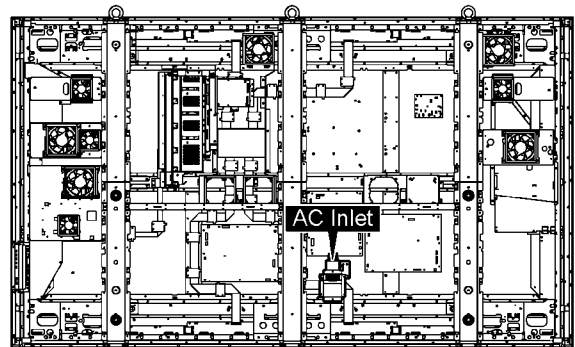
### 9.35. Removal of C6-Board (lower)



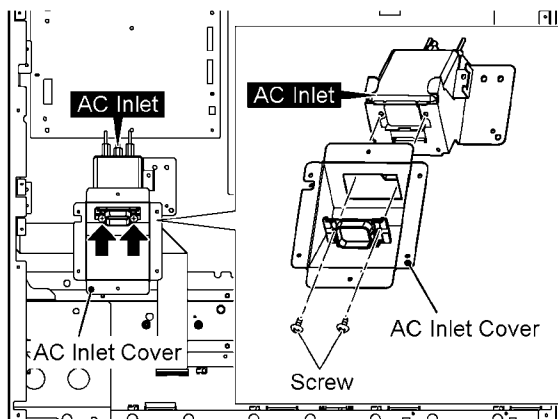
1. Remove the Reinforcement Angle (lower\_right).  
(Refer to Removal of SD-Board)
2. Remove the flexible cable from the connector (C61).
3. Remove 4 screws (⬆) and then remove the flexible cables from the connectors (CA15, CA16).
4. Remove 4 screws (⬆) and then remove C6-Board (lower).



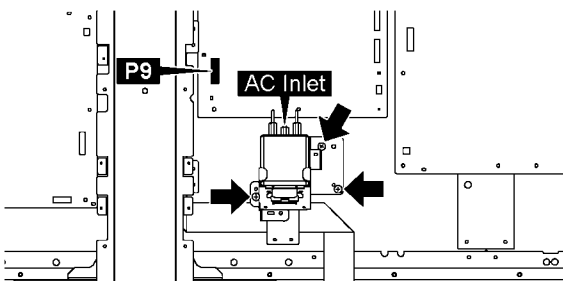
### 9.36. Removal of AC Inlet



1. Remove 2 screws and then remove AC Inlet Cover.

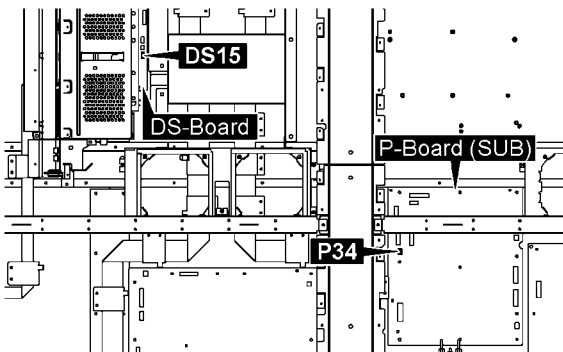


2. Disconnect the connector (P9).
3. Remove 3 screws and then remove the AC Inlet.

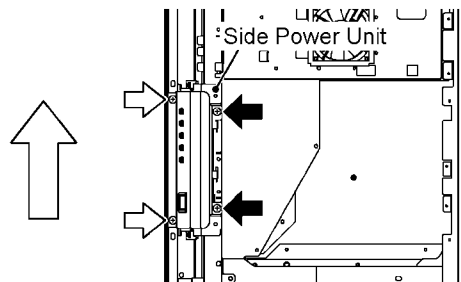


### 9.37. Removal of Front Glass, V1, V3-Board and Cabinet Assy

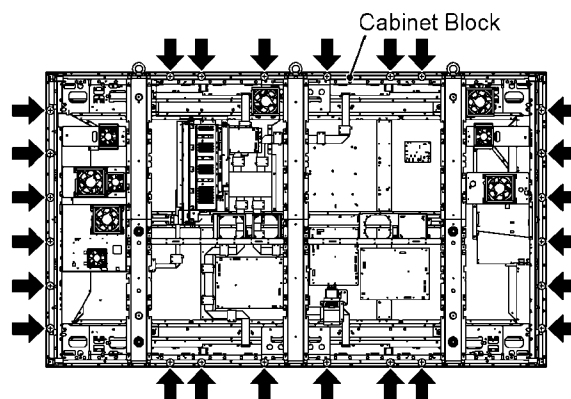
1. Disconnect the connectors (DS15, P34).



2. Remove 2 screws (↑).
3. Remove 2 screws (⇕) and then slide the Side Power Unit upward.
4. Remove the Side Power Unit.

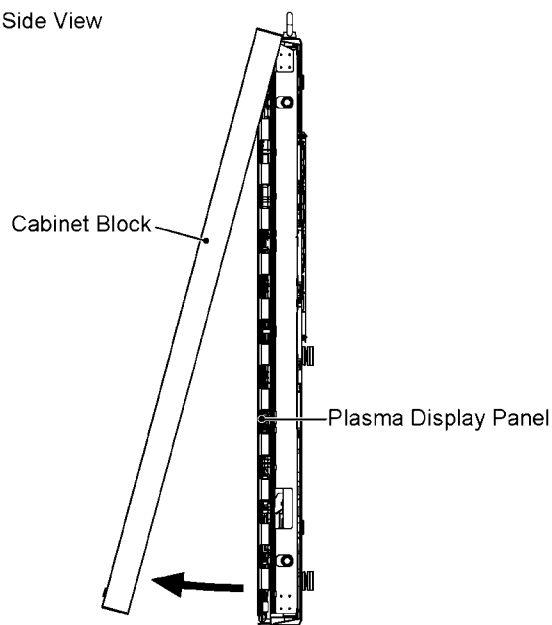


5. Remove 24 screws and then remove Cabinet Block.



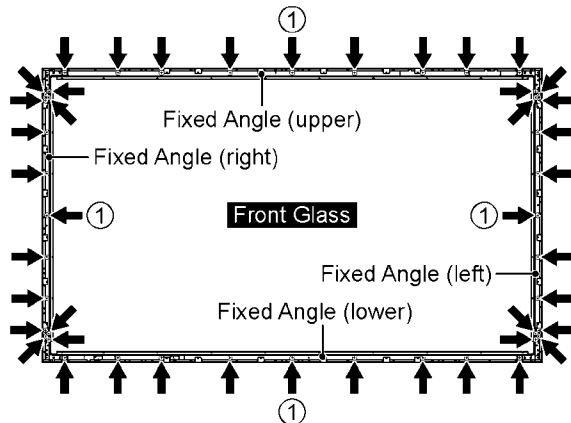
6. Pull the bottom of the Cabinet Block forward and lift.
7. Remove the Cabinet Block.

Side View



### 9.37.1. Removal of Front Glass

1. Remove 44 screws and then remove the Fixed Angles (left, right, upper, lower).
2. Remove the Front Glass.

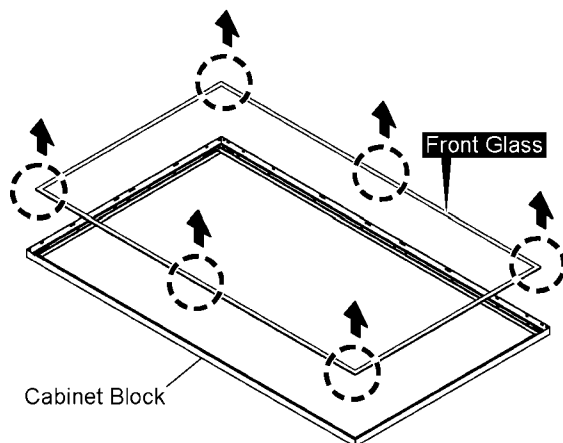


#### Note: when fixing Fixed Angle

- Screw on 4 screws (1) firstly.

#### (Note)

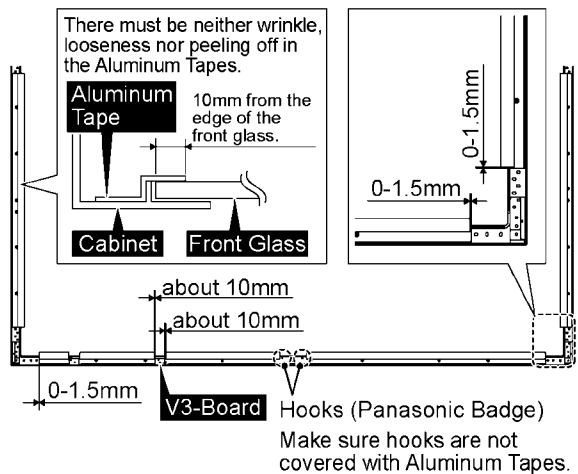
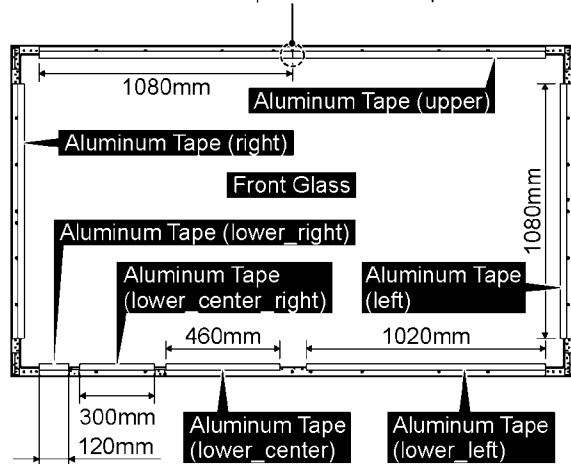
- When removing the Front Glass from Cabinet, there is a risk of the glass center bending damage.
- Be sure to lift the instruction six positions of the figure, when remove the Front Glass.



#### Note: when Cabinet or Front Glass is exchanged

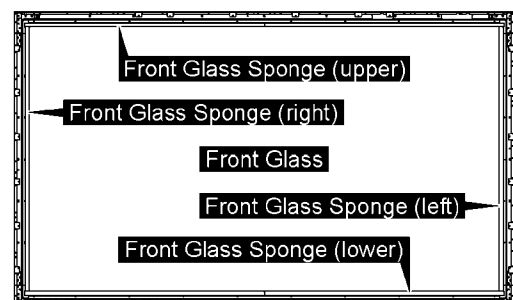
- You need new Aluminum Tape kit when you exchange the Cabinet or Front Glass.

Paste the Aluminum Tapes based on the center.  
Make sure Aluminum Tapes do not overlap each other.



#### Note: when Front Glass is exchanged

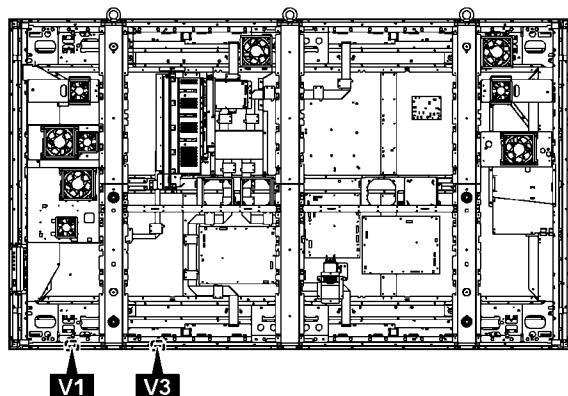
- Paste the Sponges in order along each Fixed Angles (left, right, upper, lower).



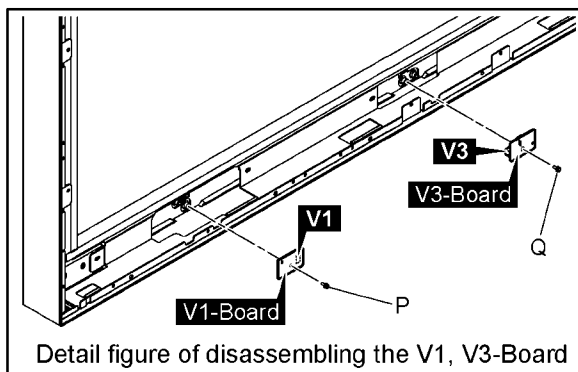
#### Note

- The sponges are parts which cannot be recycled. Please use the new article when you exchange the Front Glass.

### 9.37.2. Removal of V1-Board and V3-Board

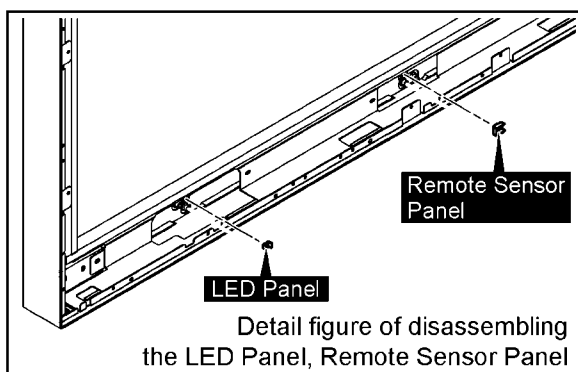


1. Remove 1 screw (P).
2. Disconnect the connector (V1) and then remove V1-Board.
3. Remove 1 screw (Q).
4. Disconnect the connector (V3) and then remove V3-Board.

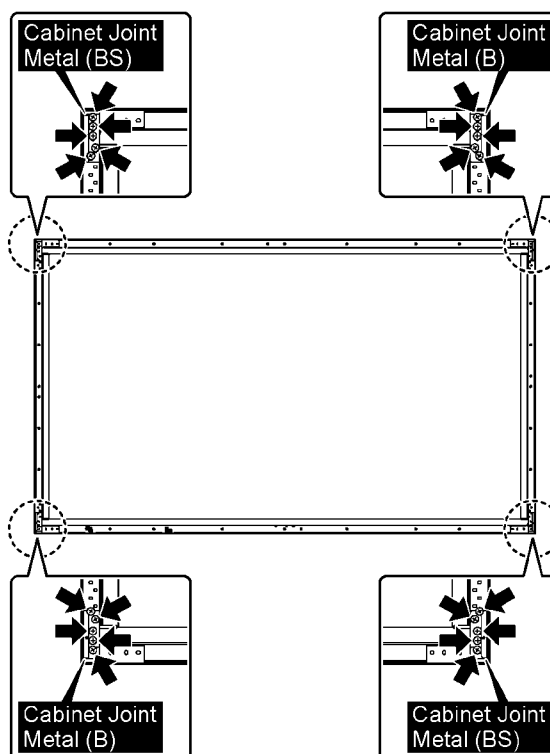


### 9.37.3. Removal of Cabinet Assy

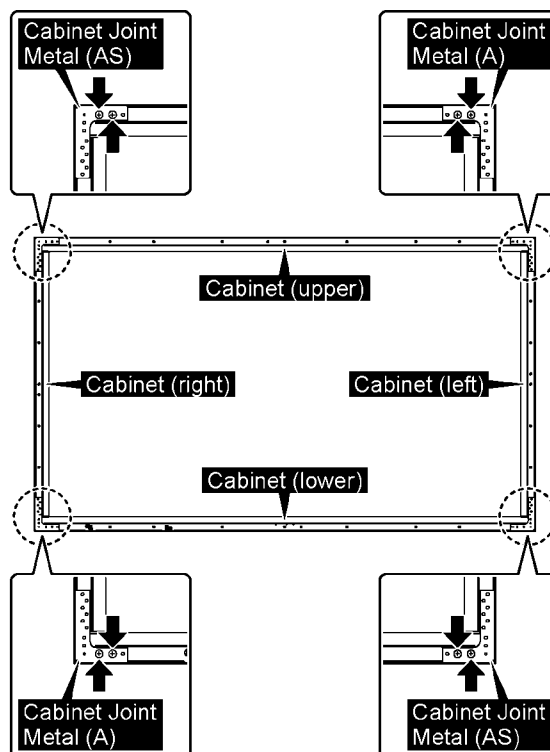
1. Remove the Front Glass.  
(Refer to Removal of Front Glass)
2. Remove V1-Board and V3-Board.  
(Refer to Removal of V1-Board and V3-Board)
3. Remove the LED Panel and Remote Sensor Panel.



4. Remove 20 screws and then remove the Cabinet Joint Metals (B, BS).



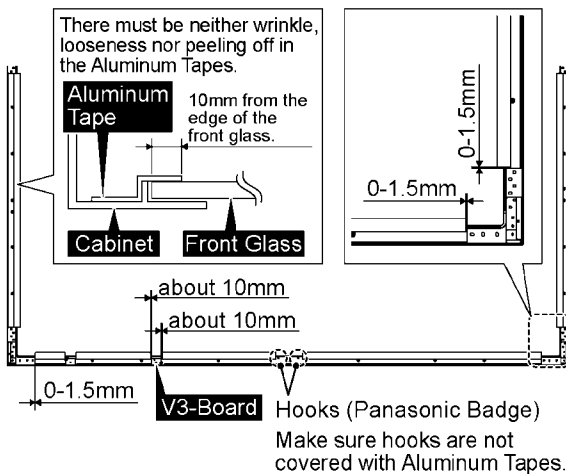
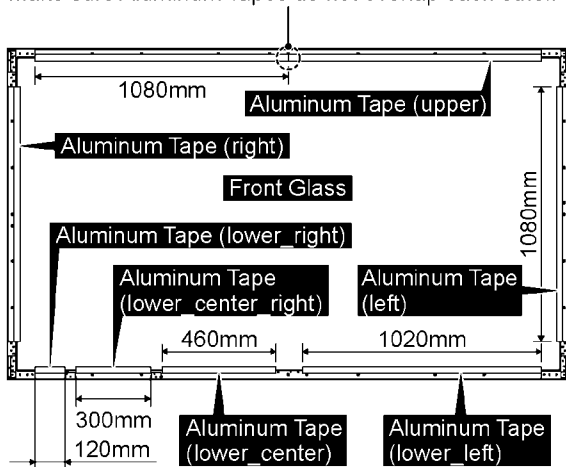
5. Remove 8 screws.
6. Remove the Cabinet Joint Metals (A, AS) and Cabinet (left, right, upper, lower)



**Note: when Cabinet or Front Glass is exchanged**

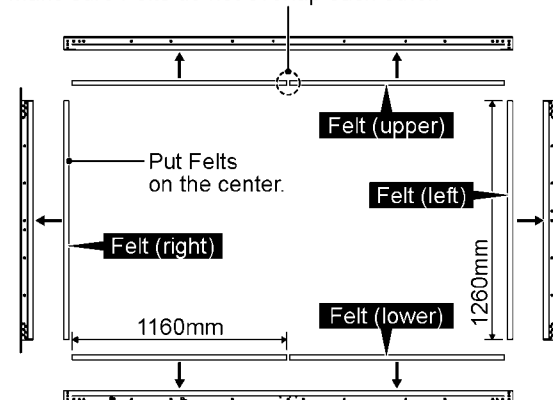
- You need new AL Tape kit when you exchange the Cabinet or Front Glass.

Paste the Aluminum Tapes based on the center.  
Make sure Aluminum Tapes do not overlap each other.

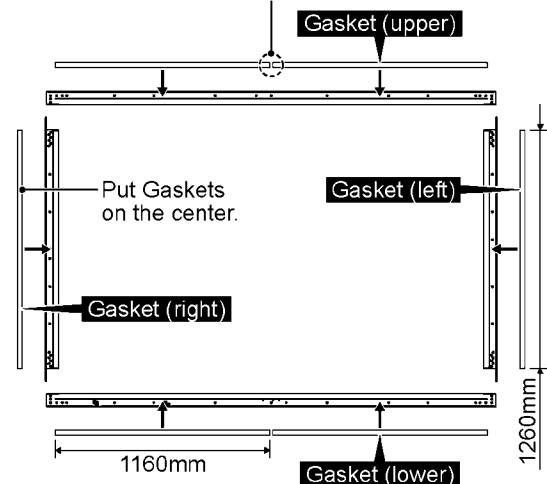
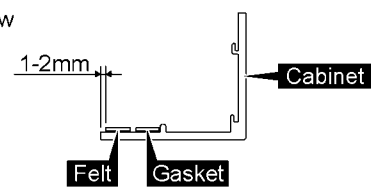
**Note: when Cabinet is exchanged**

- Paste the felts and Gaskets in order along each Fixed Angles (left, right, upper, lower).
- Make sure the felts do not protrude from the edge of the cabinet.

Paste the Felts based on the center.  
Make sure Felts do not overlap each other.



Paste the Gaskets based on the center.

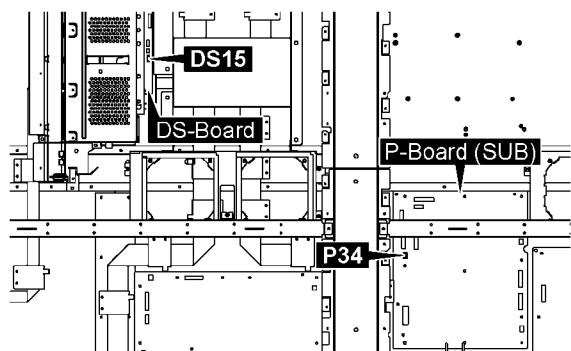
**Side View****Note**

- The felts are parts which cannot be recycled. Please use the new article when you exchange the Cabinet.

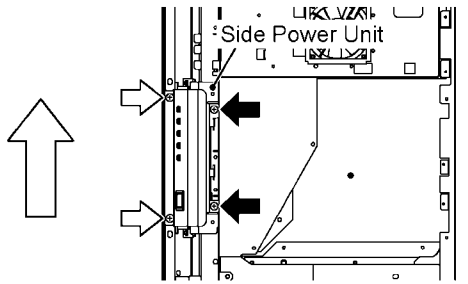
**9.38. Removal of Plasma Display Panel**

The C1 (upper, lower), C2 (upper, lower), C3 (upper, lower), C4 (upper, lower), C5 (upper, lower), C6 (upper, lower), SS, SS2, SS3, SC, SU, SM, SD Boards, and flexible cables between D-C Boards and D-SC Boards, are connected with the Plasma Display Panel for the repair.

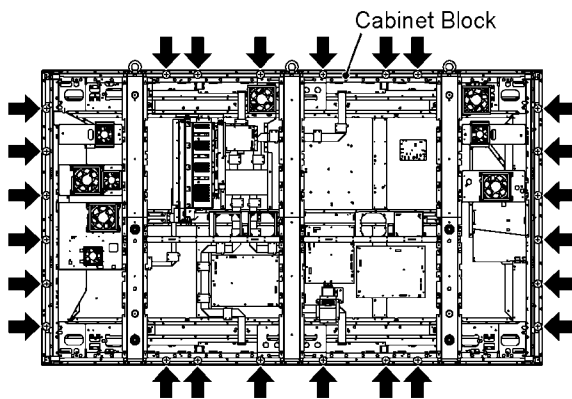
- Remove the Rear Covers.  
(Refer to Removal of Rear Cover)
- Disconnect the connectors (DS15, P34).



3. Remove 2 screws (▲).
4. Remove 2 screws (✚) and then slide the Side Power Unit upward.
5. Remove the Side Power Unit.

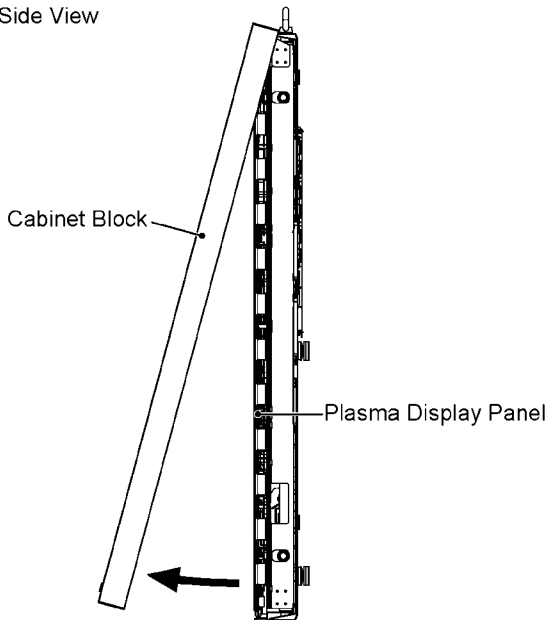


6. Remove 24 screws and then remove Cabinet Block.

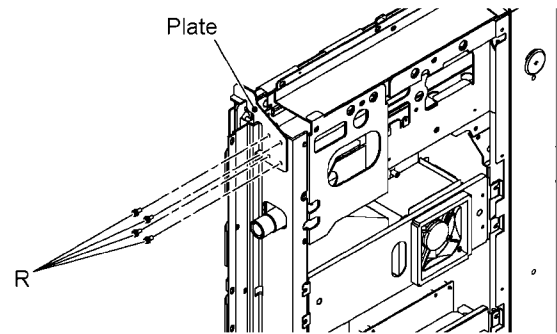
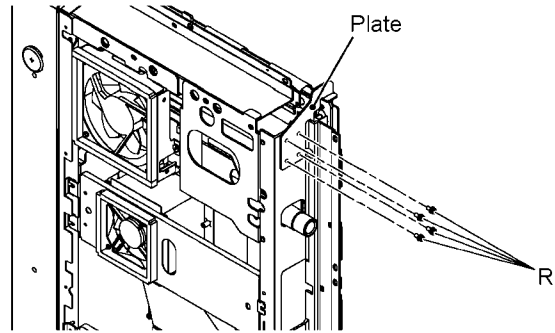


7. Pull the bottom of the Cabinet Block forward and lift.
8. Remove the Cabinet Block.

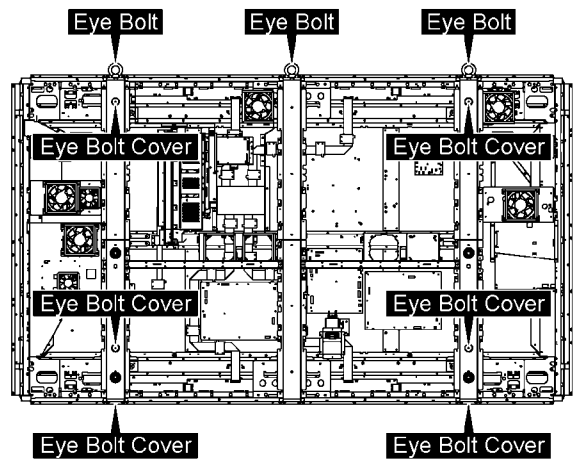
Side View



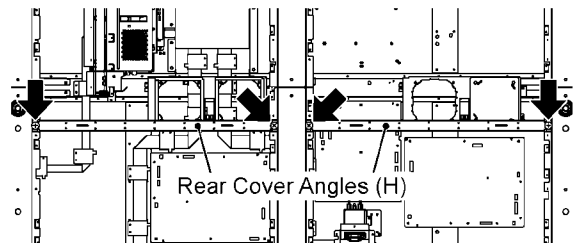
9. Remove each 4 screws (R) of the Plates.



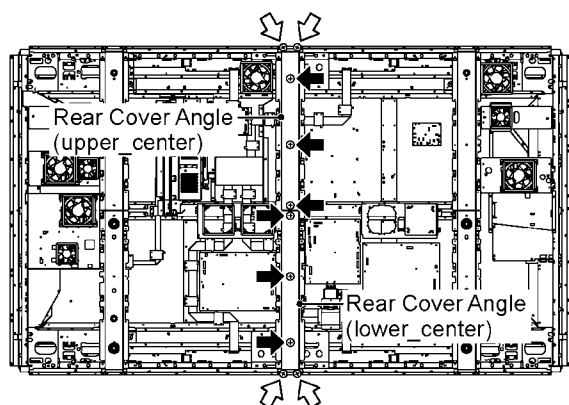
10. Remove 3 Eye Bolts.
11. Remove 6 Eye Bolt Covers.



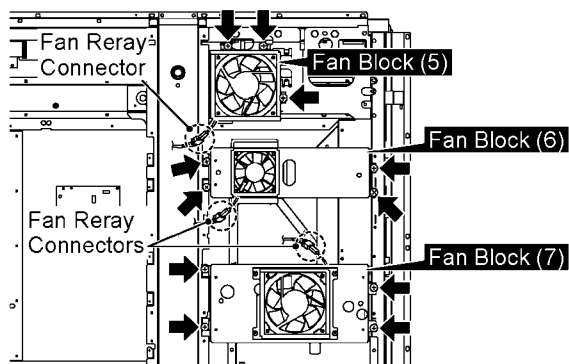
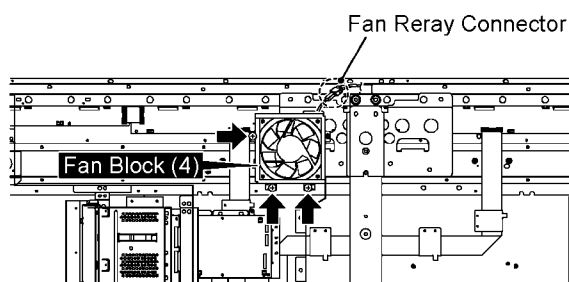
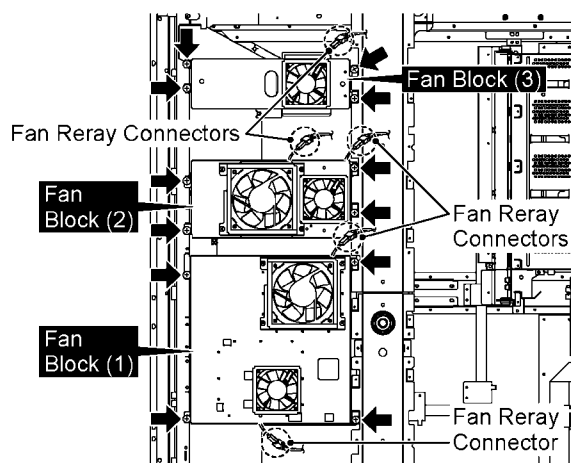
12. Remove 4 screws and then remove the Rear Cover Angles (H).



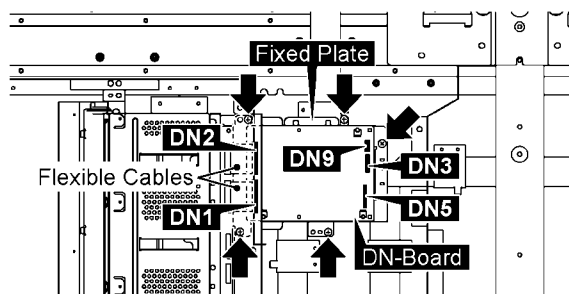
13. Remove 6 screws (▲).
14. Remove 4 screws (✚) and then remove the Rear Cover Angles (upper\_center, lower\_center).



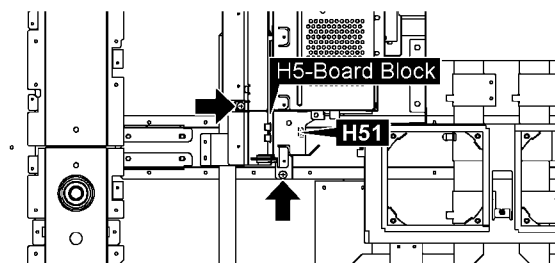
15. Disconnect the Fan Relay Connectors.
16. Remove 26 screws and then remove the Fan Blocks (1, 2, 3, 4, 5, 6, 7).



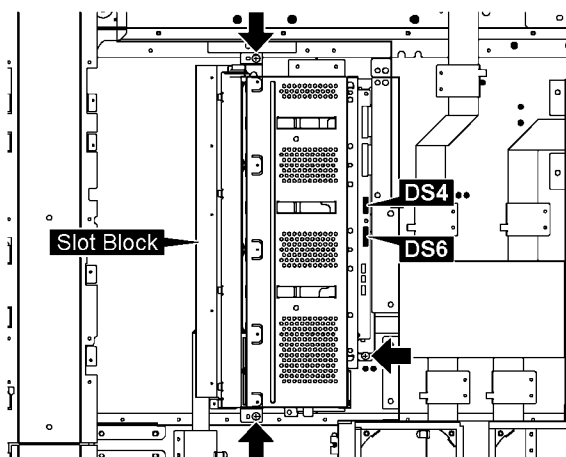
17. Disconnect the connectors (DN3, DN5, DN9).
18. Remove the flexible cables from the connectors (DN1, DN2).
19. Remove 5 screws and then remove the DN-Board and Fixed Plate.



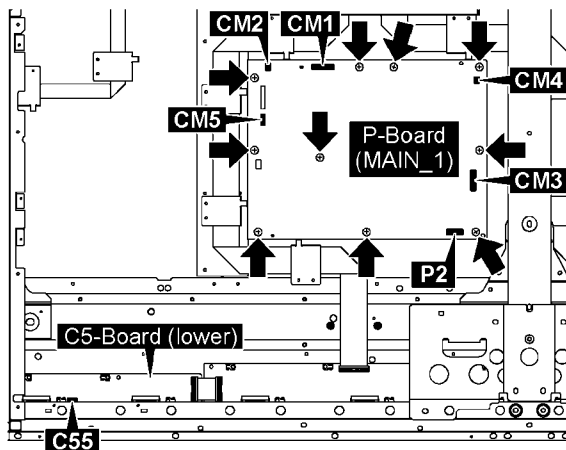
20. Disconnect the connector (H51).
21. Remove 2 screws and then remove H5-Board Block.



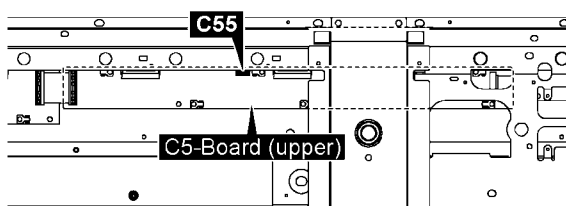
22. Disconnect the connectors (DS4, DS6).
23. Remove 3 screws and then remove the Slot Block.



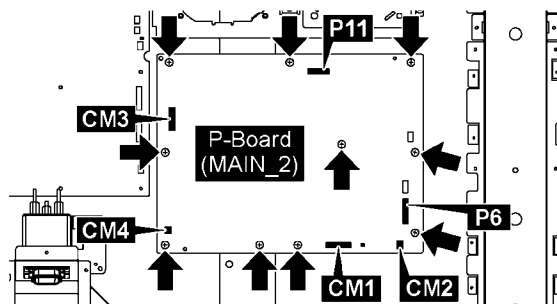
24. Disconnect the connectors of P-Board (Main\_1) (CM1, CM2, CM3, CM4, CM5, P2).
25. Disconnect the connector of C5-Board (lower) (C55).
26. Remove 10 screws and then remove P-Board (MAIN\_1).



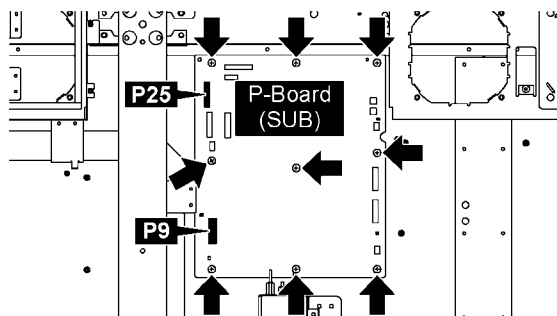
27. Disconnect the connector of C5-Board (upper) (C55).



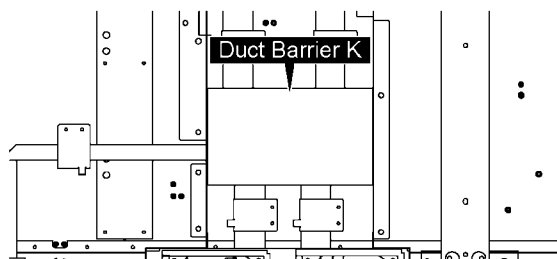
28. Disconnect the connectors of P-Board (Main\_2) (CM1, CM2, CM3, CM4, P6, P11).
29. Remove 10 screws and then remove P-Board (MAIN\_2).



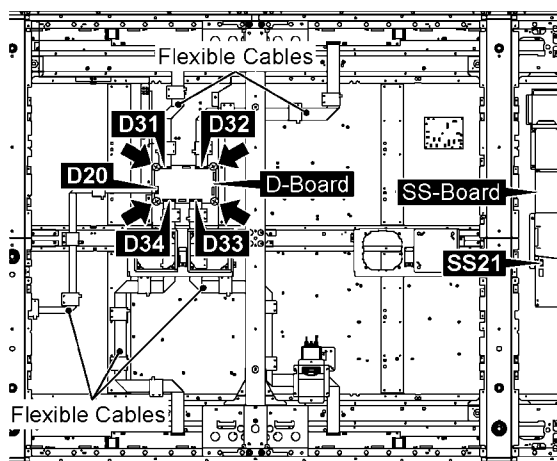
30. Disconnect the connectors (P9, P25).
31. Remove 9 screws and then remove P-Board (SUB).



32. Remove Duct Barrier K.

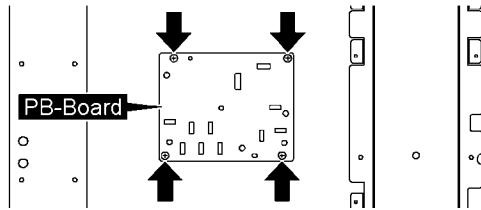


33. Disconnect the connector (SS21).
34. Remove the flexible cables from the connectors (D20, D31, D32, D33, D34).
35. Remove 4 screws and then remove D-Board.

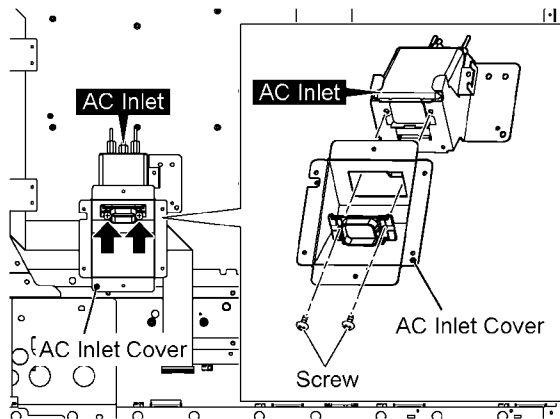




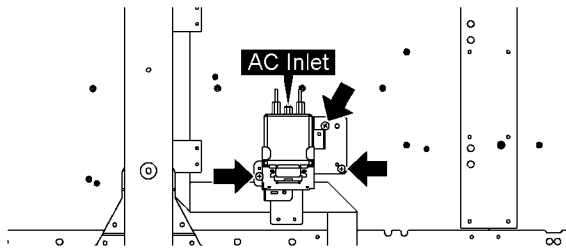
36. Remove 4 screws and then remove PB-Board.



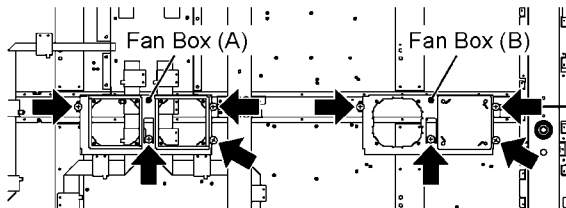
37. Remove 2 screws and then remove AC Inlet Cover.



38. Remove 3 screws and then remove the AC Inlet.

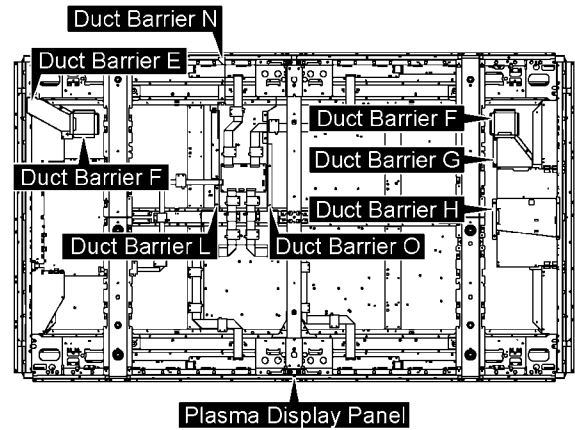


39. Remove 8 screws and then remove the Fan Box (A, B).



40. Remove the Duct Barrier E, Duct Barriers F, Duct Barrier G, Duct Barrier H, Duct Barrier L, Duct Barrier N and Duct Barrier O.

41. Exchange the Plasma Display Panel.



# 10 Measurements and Adjustments

## 10.1. Adjustment Procedure

### 10.1.1. Driver Set-up

#### 10.1.1.1. Item / Preparation

1. Set Aging pattern (white pattern signal) by IIC mode.
2. Set the picture controls as follows.  
Picture menu: Standard  
Picture: +25  
Aspect: Full

#### Caution

1. First perform Vsus adjustment.
2. Confirmation of Vscn voltage should be performed after confirmation of Vad adjustment.  
When Vad=-135V, Voltage of Vscn is +10V ±4V.

#### 10.1.1.2. Adjustments

Adjust driver section voltages. (Refer to the panel data on the Panel Label).

Check or adjust the following voltages with the multimeter.

Name	Test Point	Voltage	Volume	Remarks
Vsus (SC side)	TPVSUS (SC)	Vsus ± 2V	VR251 (P_Main_1)	*
Vsus (SS side)	TPVSUS (SS)	Vsus ± 2V	VR251 (P_Main_2)	*
Ve**	TPVE (SS)	Ve ± 1V	VR16001 (SS)	*
Vda	TP9 (P_Main_1)	70V +1V, -2V	Fixed	
	TP9 (P_Main_2)	70V +1V, -2V	Fixed	
Vad	TPVAD (SC)	-135V ± 1V	VR16600 (SC)	
Vscn	TPVSCN (SC)	Vad_base: +145V±4V GND_base: +10V±6V	Fixed	

\*See the Panel Label.

\*\*See chap. 10.1.6.

Panel Label information

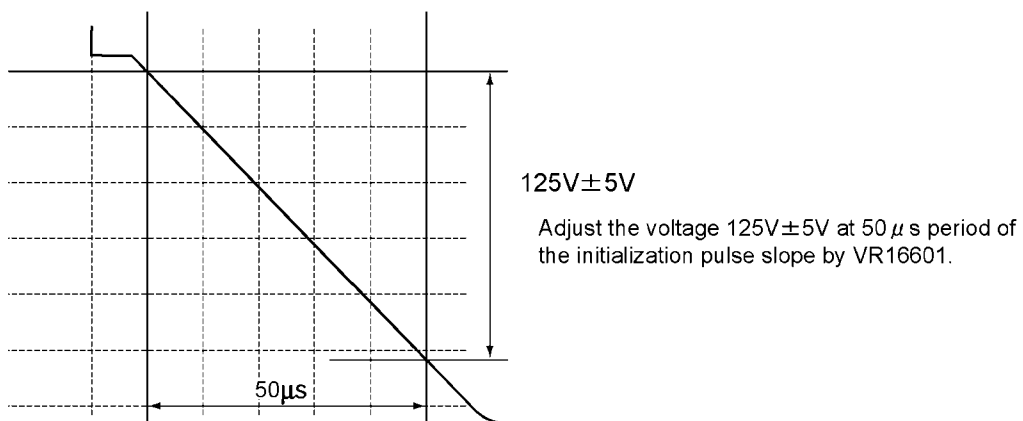
<b>Panasonic</b>	
MC <input type="text"/>	<input type="text"/> 2009
Serial No. <input type="text"/>	
Ve : <input type="text"/> V , Vsus : <input type="text"/> V	← Adjustment voltage
MADE IN JAPAN	TQF <input type="text"/>

### 10.1.2. Initialization Pulse Adjust

1. Set Aging pattern (white pattern signal) by IIC mode.
2. Set the picture controls as follows.  
Picture menu: Standard  
Picture: +25  
Aspect: Full
3. Connect Oscilloscope to TPSC1 and adjust VR16601 for  $125V \pm 5V$ .

Test Point	Volume	Level
TPSC1 (SC)	VR16601 (SC)	$125V \pm 5V$ at $50 \mu s$ period on the down slope.

TPSC1



### 10.1.3. P.C.B. (Print Circuit Board) and Plasma Display Panel exchange

#### 10.1.3.1. Quick adjustment after P.C.B. and Panel exchange

1. To remove P.C.B., wait 10 minute after power was off for discharge from electrolysis capacitors.

#### 10.1.3.2. Quick adjustment after P.C.B. exchange

Adjust the following voltages with the multimeter.

P.C.B.	Name	Test Point	Voltage	Volume	Remarks
P Board (Main_1)	Vsus	TPVSUS (SC)	Vsus $\pm$ 2V	VR251 (P_Main_1)	*
	Vda	TP9 (P_Main_1)	70V +1V, -2V	Fixed	
P Board (Main_2)	Vsus	TPVSUS (SS)	Vsus $\pm$ 2V	VR251 (P_Main_2)	*
	Vda	TP9 (P_Main_2)	70V +1V, -2V	Fixed	
SC Board	Vad	TPVAD (SC)	-135V $\pm$ 1V	VR16600 (SC)	
	Vscn	TPVSCN (SC)	Vad_base: +145V $\pm$ 4V GND_base: +10V $\pm$ 6V	Fixed	
SS Board	Ve**	TPVE (SS)	Ve $\pm$ 1V	VR16001 (SS)	*
D, DS Board	White balance and Sub brightness for NTSC, PAL, HD, PC and 625i signals				
DN Board	Set Market Select Number to correct destination by MS mode. (See chap. 6.1.5)				
D, DN Board	Set Ve Mode until bright points disappears by IIC mode.				

\*See the Panel Label.

\*\*See chap. 10.1.6.

\*\*\*See chap. 10.1.7.1.

#### 10.1.3.3. Quick adjustment after Plasma Display Panel exchange

Adjust the following voltages with the multimeter.

Name	Test Point	Voltage	Volume	Remarks
Vsus (SC Side)	TPVSUS (SC)	Vsus $\pm$ 2V	VR251 (P_Main_1)	*
Vsus(SS Side)	TPVSUS (SS)	Vsus $\pm$ 2V	VR251 (P_Main_2)	*
Ve Life	Check Ve Mode. (See chap. 10.1.7.2.)			

\*See the Panel Label.

#### 10.1.4. Vsus adjustment

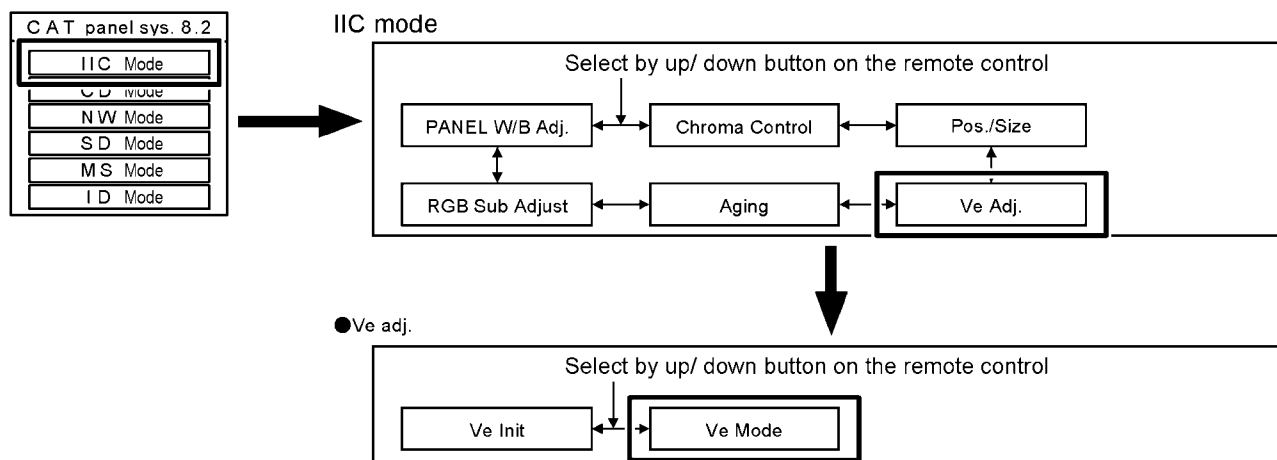
After exchange P board or Plasma Display Panel, see the Panel Label and check TPVSUS and adjust the volume.

#### 10.1.5. Vad adjustment

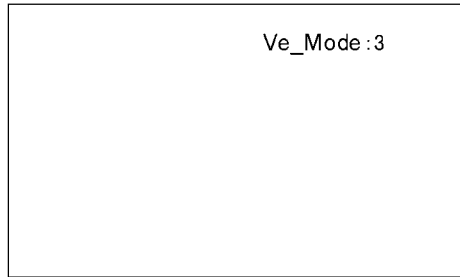
After exchange SC board, check TP9 and adjust the volume.

#### 10.1.6. Ve adjustment

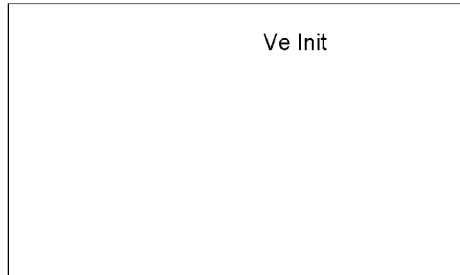
1. After exchange SS board, connect the multimeter to the testpoint TPVE(SS).
2. Select Ve Mode by IIC mode. (See chap. 6.1.1., and 6.2.)



3. Check that the Ve Mode is set to 3.



4. Press R button and then select and display Ve Init.



5. Check TPVE and adjust the volume.
6. Exit the IIC mode.

### 10.1.7. Ve Life adjustment

#### 10.1.7.1. After exchange both D board and DN board

1. Select Ve Mode by IIC mode. (See chap. 10.1.6.)
2. Check that no bright points appears on the display.
3. If bright points appears, change Ve Mode until bright points disappears.
4. Exit the IIC mode.

**Note: If bright/ nolit points still appears, set Ve Mode to 3.**

#### 10.1.7.2. After exchange Plasma Display Panel

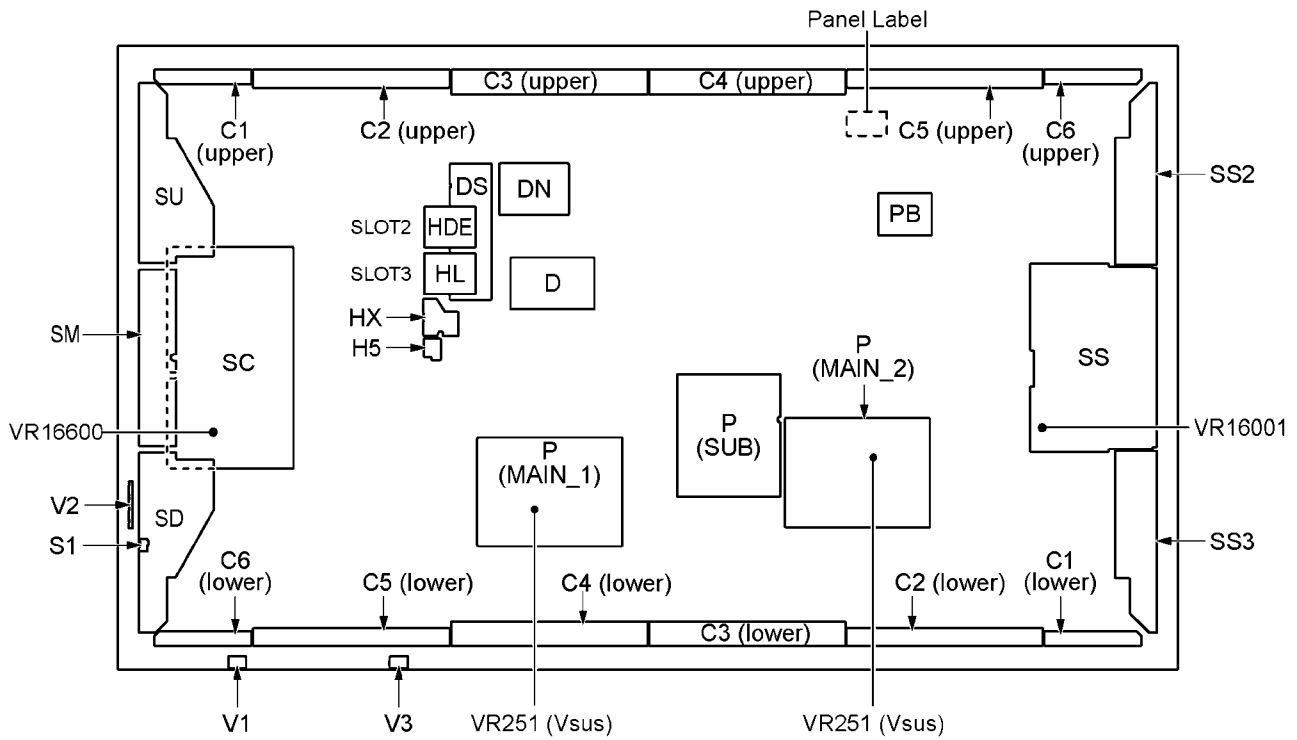
1. Select Ve Mode by IIC mode. (See chap. 10.1.6.)
2. Check that the Ve Mode is set to 3.
3. Check that no bright/nolit points appears on the display.
4. Exit the IIC mode.

### 10.1.8. Bright or Nolit appears on the display

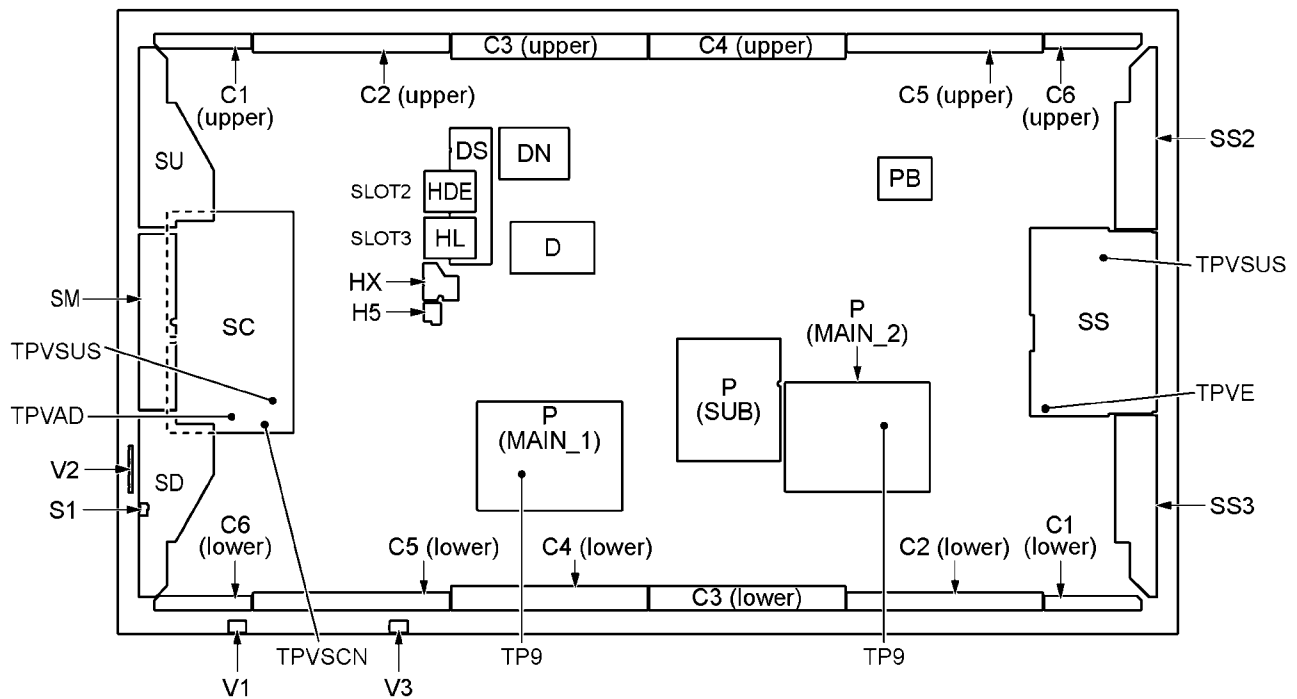
1. Select Ve Mode by IIC mode. (See chap. 10.1.6.)
2. Check and remember the value of Ve Mode.
3. If bright points appears, change Ve Mode lower until bright points disappears.
4. If nolit points appears, change Ve Mode upper until nolit points disappears.
5. Check that no bright/nolit points appears on the display, then exit the IIC mode.

**Note: If bright / nolit points still appears, set back Ve Mode to the value you remembered above.**

### 10.1.9. Adjustment Volume Location



### 10.1.10. Test Point Location



## 10.2. Adjustment

### 10.2.1. RGB white balance adjustment

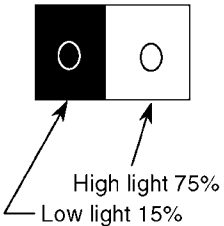
Instrument Name	Connect to	Setting												
<ul style="list-style-type: none"> <li>• RGB VGA60 W / B pattern</li> <li>• Color analyzer (Minolta CA-100 or equivalent)</li> </ul>	PC input Panel surface	User setting: Normal (Picture menu: STANDARD)												
Steps	Remarks													
<p>[Condition]</p> <ul style="list-style-type: none"> <li>• Make sure the front panel to be used on the final set is fitted.</li> <li>• Make sure a color signal is not being shown before adjustment.</li> <li>• Put the color analyzer where there is little color variation.</li> </ul> <p>[Adjustment]</p> <ol style="list-style-type: none"> <li>1. Set COMPONENT / RGB-IN SELECT to RGB.</li> <li>2. Select the IIC mode "PANEL W / B Adj." item.</li> <li>3. Check that the color temperature is "COOL (Hi)".</li> <li>4. Output a white balance pattern.</li> <li>5. Touch the signal receiver of color analyzer to the highlight window's center.</li> <li>6. Fix G drive at E0h and adjust B drive and R drive so x, y become the "Color temperature COOL (Hi)" in the below table.</li> <li>7. Increase R / G / B together so the maximum drive value in R / G / B becomes FCh.</li> <li>8. Set color temperature to "NORMAL (Mid)".</li> <li>9. Fix G drive at E0h and adjust B drive and R drive so the highlight window's x, y becomes the "Color temperature NORMAL (Mid)" in the below table.</li> <li>10. Increase R / G / B together so the maximum drive value in R / G / B becomes FCh.</li> <li>11. Set color temperature to "WARM (Low)".</li> <li>12. Set G drive to E0h and adjust B drive and R drive so the highlight window's x, y become the "Color temperature WARM (Low)" shown in the below table.</li> <li>13. Increase R / G / B together so the maximum drive value in R / G / B becomes FCh.</li> <li>14. Copy the R drive, G drive and B drive data in NTSC, PAL DVI region.</li> </ol> <p>Table 1 W/B adjustment values</p> <table border="1"> <thead> <tr> <th>Color temperature</th><th>x</th><th>y</th></tr> </thead> <tbody> <tr> <td>COOL(Hi)</td><td>0.276</td><td>0.276</td></tr> <tr> <td>NORMAL(Mid)</td><td>0.288</td><td>0.296</td></tr> <tr> <td>WARM(Low)</td><td>0.313</td><td>0.329</td></tr> </tbody> </table> <p>Adjustment target            Hi-light: <math>x \pm 0.003</math> <math>y \pm 0.003</math>            Hi-light is target of the number at drive adjustment in the hi-light windows.            Therefore, it is not target of the hi-light number at after adjustment white balance.</p>	Color temperature	x	y	COOL(Hi)	0.276	0.276	NORMAL(Mid)	0.288	0.296	WARM(Low)	0.313	0.329	<p>Picture Menu: Standard            User setting: Normal            Aspect: Full (16 : 9)            Position and size: Normal</p> <ul style="list-style-type: none"> <li>• "7" key : color temperature select.</li> <li>• "9" key : Picture menu select.</li> <li>• Highlight section Signal amplitude 75%</li> </ul> <p>RGB VGA W/B Pattern</p>  <ul style="list-style-type: none"> <li>• Drive standard G: E0h</li> </ul>	
Color temperature	x	y												
COOL(Hi)	0.276	0.276												
NORMAL(Mid)	0.288	0.296												
WARM(Low)	0.313	0.329												

Table 2 Drive data addresses (PC/RGB)

Color temperature	R	G	B
COOL(Hi)	A0-11AD	A0-11AE	A0-11AF
NORMAL(Mid)	A0-11B0	A0-11B1	A0-11B2
WARM(Low)	A0-11B3	A0-11B4	A0-11B5

Table 3 Drive data addresses (nonuse, dummy)

Color temperature	R	G	B
COOL(Hi)	A0-1180	A0-1181	A0-1182
NORMAL(Mid)	A0-1183	A0-1184	A0-1185
WARM(Low)	A0-1186	A0-1187	A0-1188

Table 4 Drive data addresses (nonuse, dummy)

Color temperature	R	G	B
COOL(Hi)	A0-1189	A0-118A	A0-118B
NORMAL(Mid)	A0-118C	A0-118D	A0-118E
WARM(Low)	A0-118F	A0-1190	A0-1191

Table 5 Drive data addresses (nonuse, dummy)

Color temperature	R	G	B
COOL(Hi)	A0-11B6	A0-11B7	A0-11B8
NORMAL(Mid)	A0-11B9	A0-11BA	A0-11BB
WARM(Low)	A0-11BC	A0-11BD	A0-11BE



## 10.2.2. YUV white balance adjustment

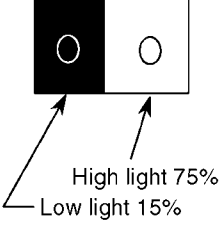
Instrument Name	Connect to	Setting												
<ul style="list-style-type: none"> <li>• HD(1125/60i) W / B pattern (COMPONENT Output)</li> <li>• Color analyzer (Minolta CA-100 or equivalent)</li> </ul>	PC input Panel surface	User setting: Normal (Picture menu: STANDARD)												
Steps	Remarks													
<p>[condition]</p> <ul style="list-style-type: none"> <li>• Make sure the front panel to be used on the final set is fitted.</li> <li>• Make sure a color signal is not being shown before adjustment.</li> <li>• Put the color analyzer where there is little color variation.</li> </ul> <p>[Adjustment]</p> <ol style="list-style-type: none"> <li>1. Set COMPONENT / RGB-IN SELECT to COMPONENT.</li> <li>2. Select the IIC mode "PANEL W / B Adj." item.</li> <li>3. Check that the color temperature is "COOL (Hi)".</li> <li>4. Output a white balance pattern.</li> <li>5. Touch the signal receiver of color analyzer to the highlight window's center.</li> <li>6. Fix G drive at E0h and adjust B drive and R drive so x, y become the "Color temperature COOL (Hi)" in the below table.</li> <li>7. Increase R / G / B together so the maximum drive value in R / G / B becomes FCh.</li> <li>8. Set color temperature to "NORMAL (Mid)".</li> <li>9. Fix G drive at E0h and adjust B drive and R drive so the highlight window's x, y becomes the "Color temperature NORMAL (Mid)" in the below table.</li> <li>10. Increase R / G / B together so the maximum drive value in R / G / B becomes FCh.</li> <li>11. Set color temperature to "WARM (Low)".</li> <li>12. Set G drive to E0h and adjust B drive and R drive so the highlight window's x, y become the "Color temperature WARM (Low)" shown in the below table.</li> <li>13. Increase R / G / B together so the maximum drive value in R / G / B becomes FCh.</li> <li>14. Copy the R drive, G drive and B drive data in YUV1_525ip, YUV3_625ip region.</li> </ol> <p>Table 6 W/B adjustment values</p> <table border="1"> <thead> <tr> <th>Color temperature</th><th>x</th><th>y</th></tr> </thead> <tbody> <tr> <td>COOL(Hi)</td><td>0.276</td><td>0.276</td></tr> <tr> <td>NORMAL(Mid)</td><td>0.288</td><td>0.296</td></tr> <tr> <td>WARM(Low)</td><td>0.313</td><td>0.329</td></tr> </tbody> </table> <p>Adjustment target            Hi-light: <math>x \pm 0.003</math> <math>y \pm 0.003</math>            Hi-light is target of the number at drive adjustment in the hi-light windows.            Therefore, it is not target of the hi-light number at after adjustment white balance.</p>	Color temperature	x	y	COOL(Hi)	0.276	0.276	NORMAL(Mid)	0.288	0.296	WARM(Low)	0.313	0.329	<p>Picture Menu: STANDARD            User setting: Normal            Aspect: Full (16 : 9)            Position and size: Normal</p> <ul style="list-style-type: none"> <li>• "7" key : color temperature select.</li> <li>• "9" key : Picture menu select.</li> </ul> <p>• Highlight section Signal amplitude 75%</p> <div style="text-align: center;"> <p>HD W/B Pattern (COMPONENT Output)</p>  </div> <ul style="list-style-type: none"> <li>• Drive standard G: E0h</li> </ul>	
Color temperature	x	y												
COOL(Hi)	0.276	0.276												
NORMAL(Mid)	0.288	0.296												
WARM(Low)	0.313	0.329												

Table 7 Drive data addresses (YUV2\_HD)

Color temperature	R	G	B
COOL(Hi)	A0-119B	A0-119C	A0-119D
NORMAL(Mid)	A0-119E	A0-119F	A0-11A0
WARM(Low)	A0-11A1	A0-11A2	A0-11A3

Table 8 Drive data addresses (YUV1\_525ip)

Color temperature	R	G	B
COOL(Hi)	A0-1192	A0-1193	A0-1194
NORMAL(Mid)	A0-1195	A0-1196	A0-1197
WARM(Low)	A0-1198	A0-1199	A0-119A







Table 9 Drive data addresses (YUV3\_625ip)

Color temperature	R	G	B
COOL(Hi)	A0-11A4	A0-11A5	A0-11A6
NORMAL(Mid)	A0-11A7	A0-11A8	A0-11A9
WARM(Low)	A0-11AA	A0-11AB	A0-11AC

# 11 Block Diagram

## 11.1. Diagram Notes

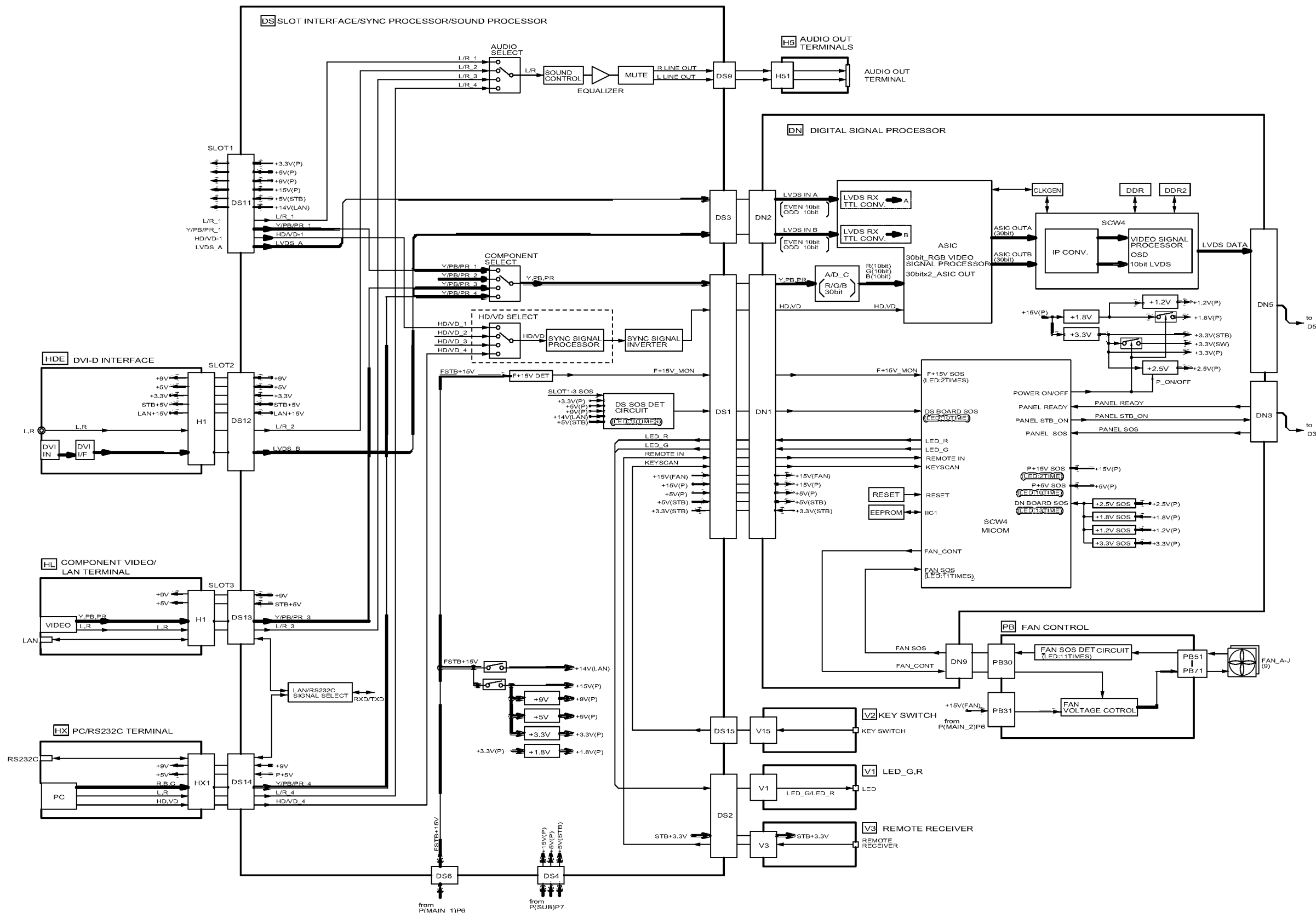
Notes:

- 1. **Resistor**  
Unit of resistance is OHM [ $\Omega$ ] (K=1,000, M=1,000,000).
- 2. **Capacitor**  
Unit of capacitance is  $\mu$ F, unless otherwise noted.
- 3. Coil  
Unit of inductance is H, unless otherwise noted.
- 4. Test Point  
 : Test Point position
- 5. Earth Symbol  
 : Chassis Earth (Cold)       : Line Earth (Hot)
- 6. Voltage Measurement  
Voltage is measured by a DC voltmeter.  
Conditions of the measurement are the following:  
Power Source ..... AC220-240V, 50/60Hz  
Receiving Signal ..... Color Bar signal (RF)  
All customer's controls ..... Maximum positions
- 7. When arrow mark (  ) is found, connection is easily found from the direction of arrow.
- 8. Indicates the major signal flow.      : Video       Audio 
- 9. This block diagram is the latest at the time of printing and subject to change without notice.

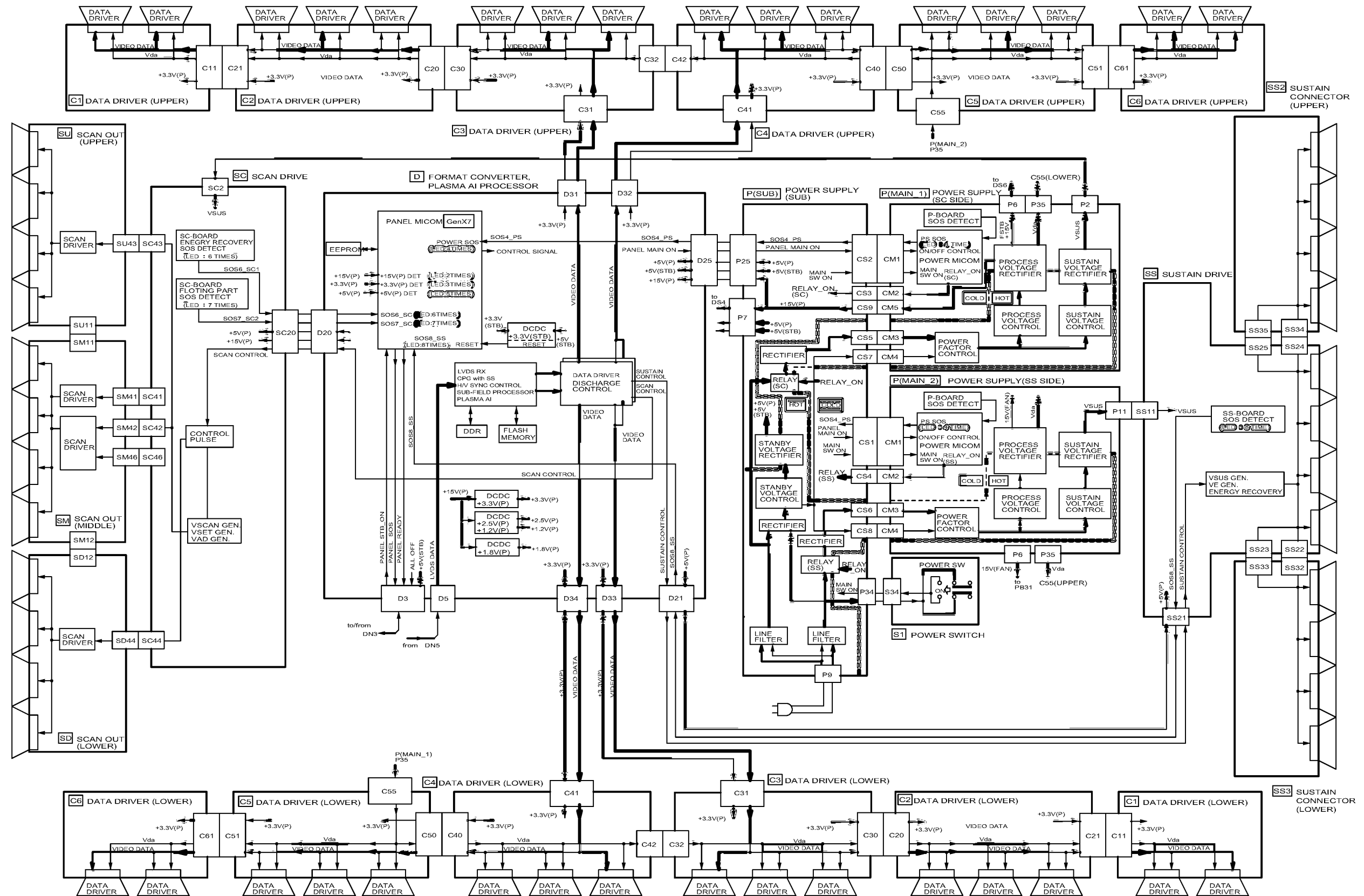
Remarks:

- 1. The Power Circuit contains a circuit area which uses a separate power supply to isolate the earth connection.  
The circuit is defined by HOT and COLD indications in the block diagram. Take the following precautions.  
All circuits, except the Power Circuit, are cold.  
Precautions
  - a. Do not touch the hot part or the hot and cold parts at the same time or you may be shocked.
  - b. Do not short- circuit the hot and cold circuits or a fuse may blow and parts may break.
  - c. Do not connect an instrument, such as an oscilloscope, to the hot and cold circuits simultaneously or a fuse may blow.  
Connect the earth of instruments to the earth connection of the circuit being measured.
  - d. Make sure to disconnect the power plug before removing the chassis.

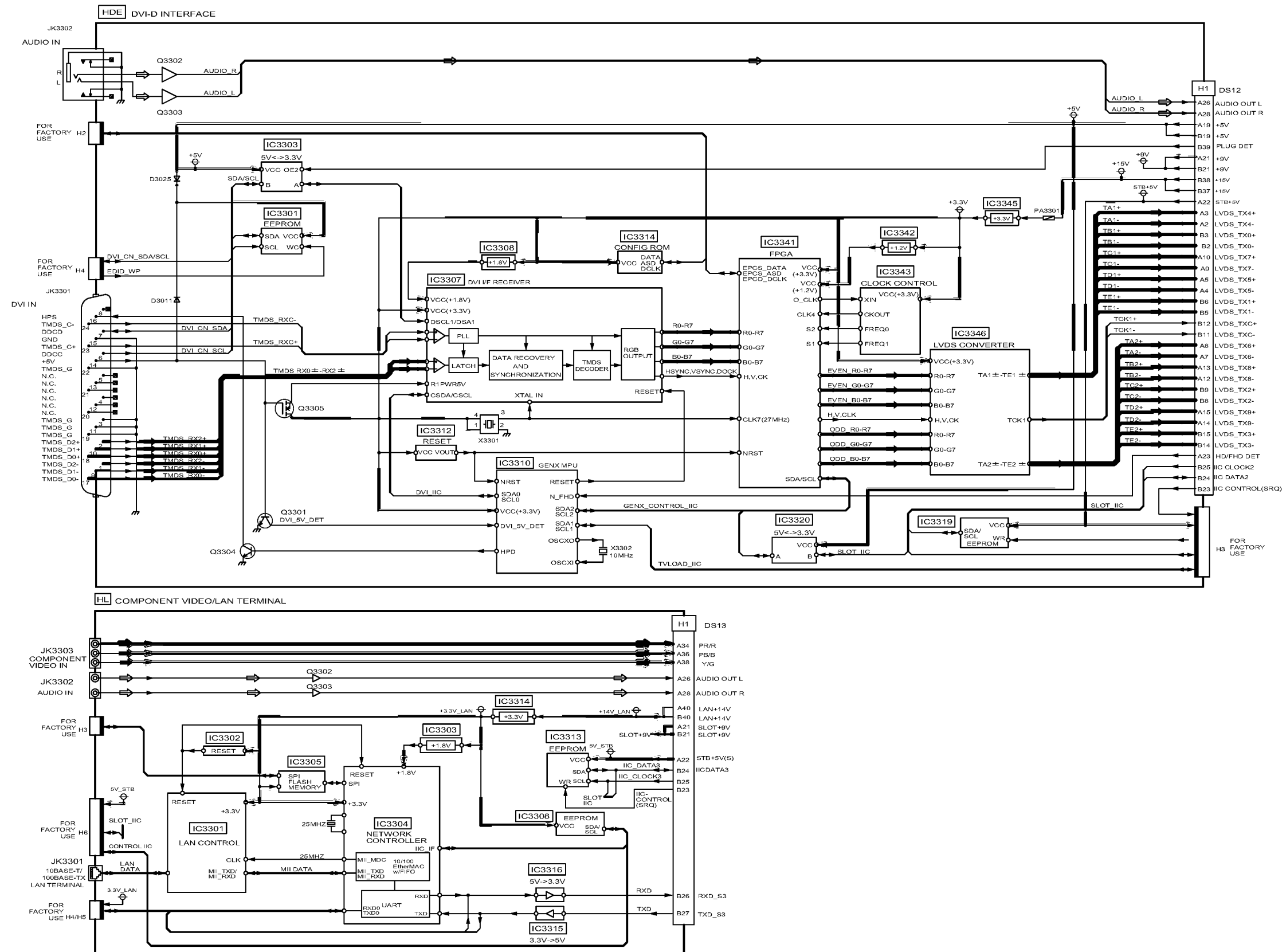
11.2. Main Block (1 of 2) Diagram



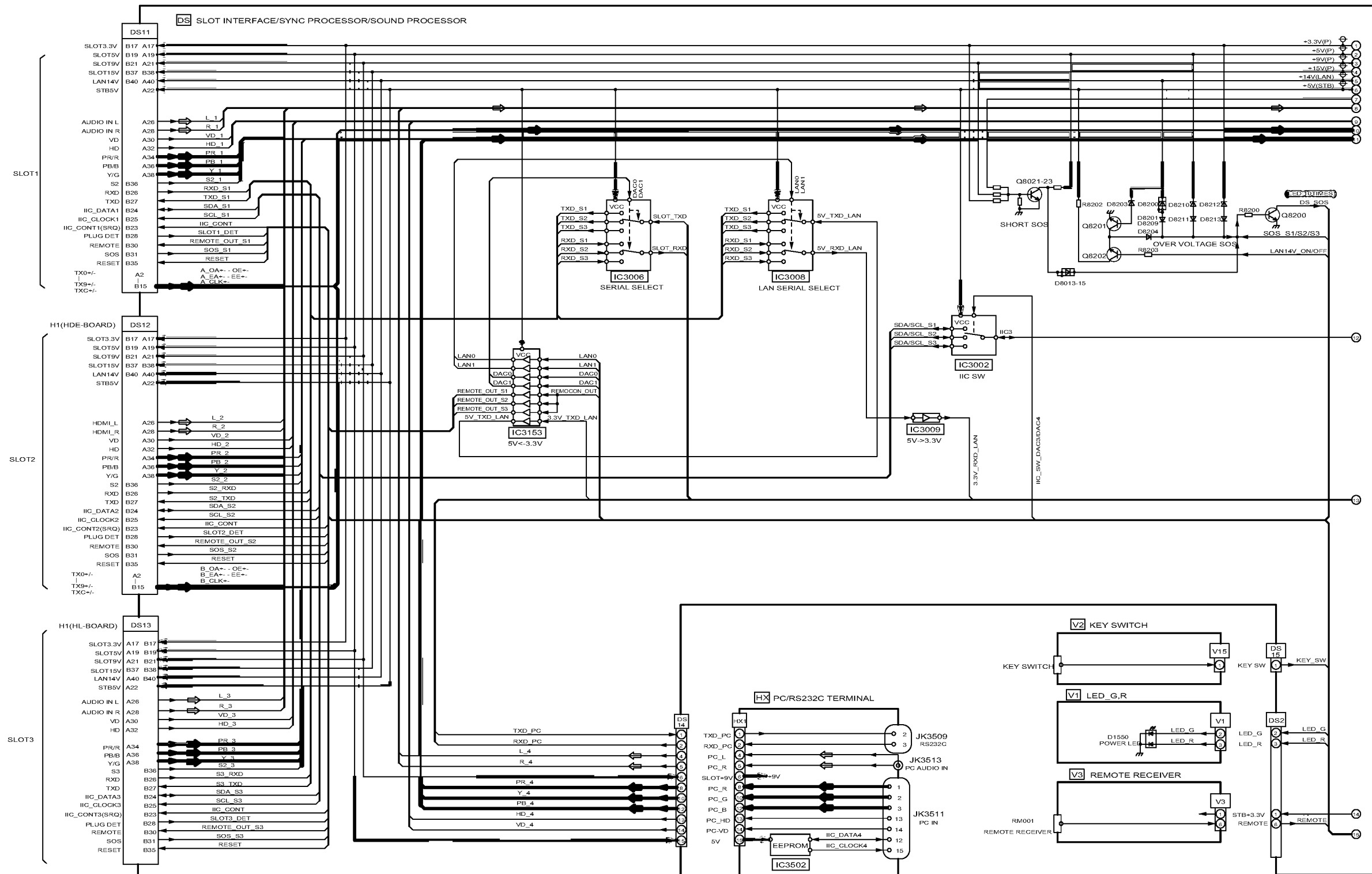
### 11.3. Main Block (2 of 2) Diagram



#### 11.4. Block (1 of 8) Diagram



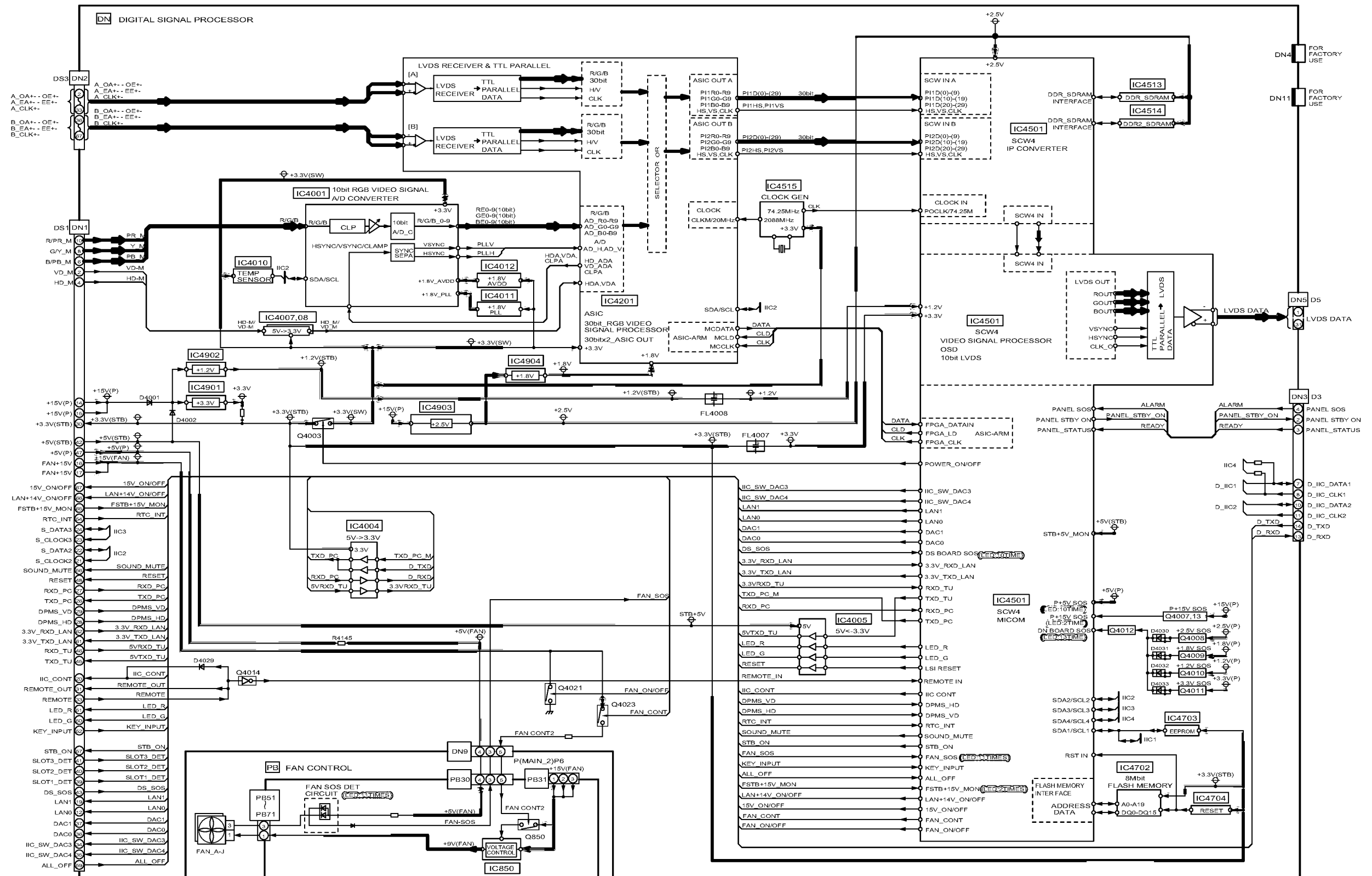
## 11.5. Block (2 of 8) Diagram



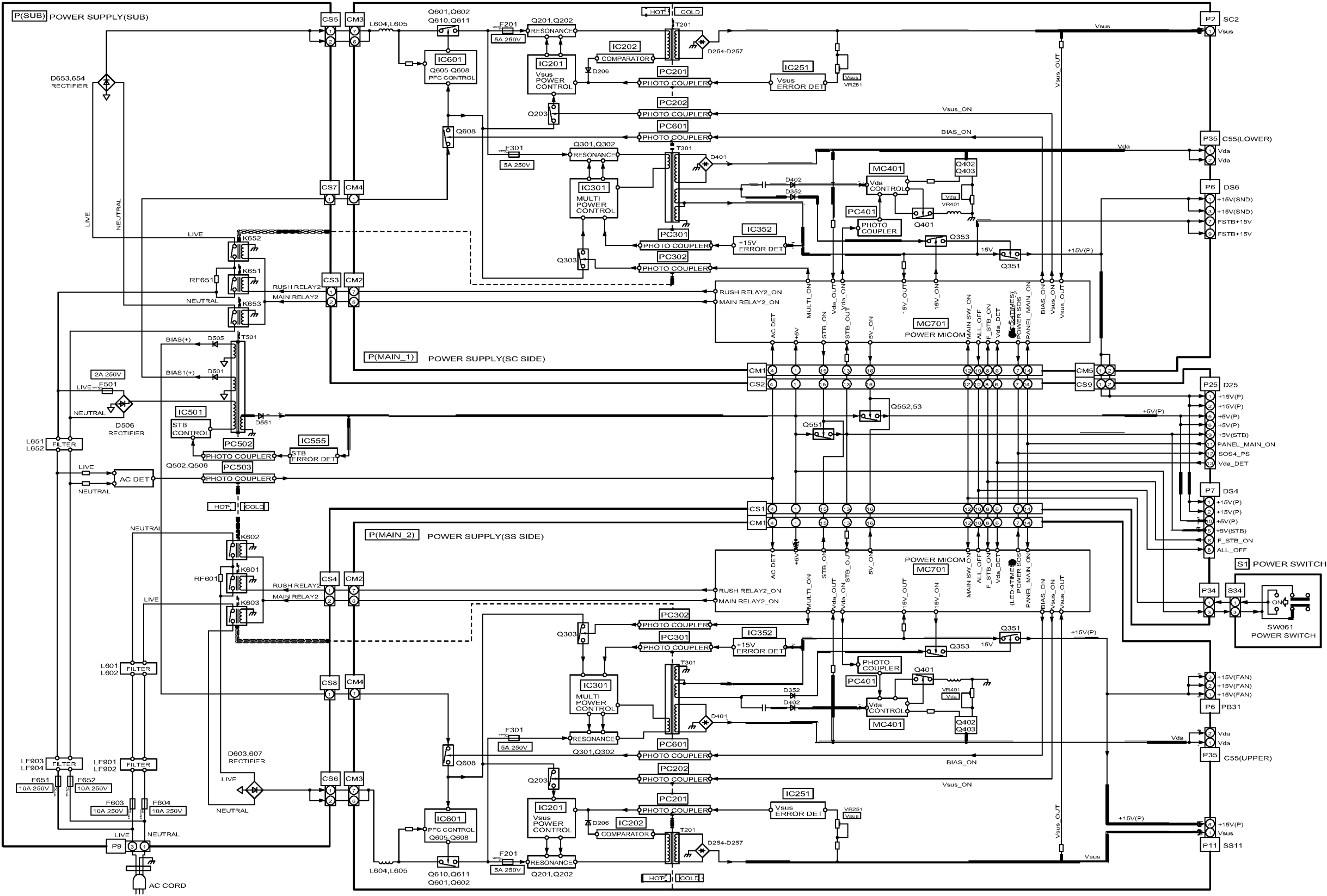




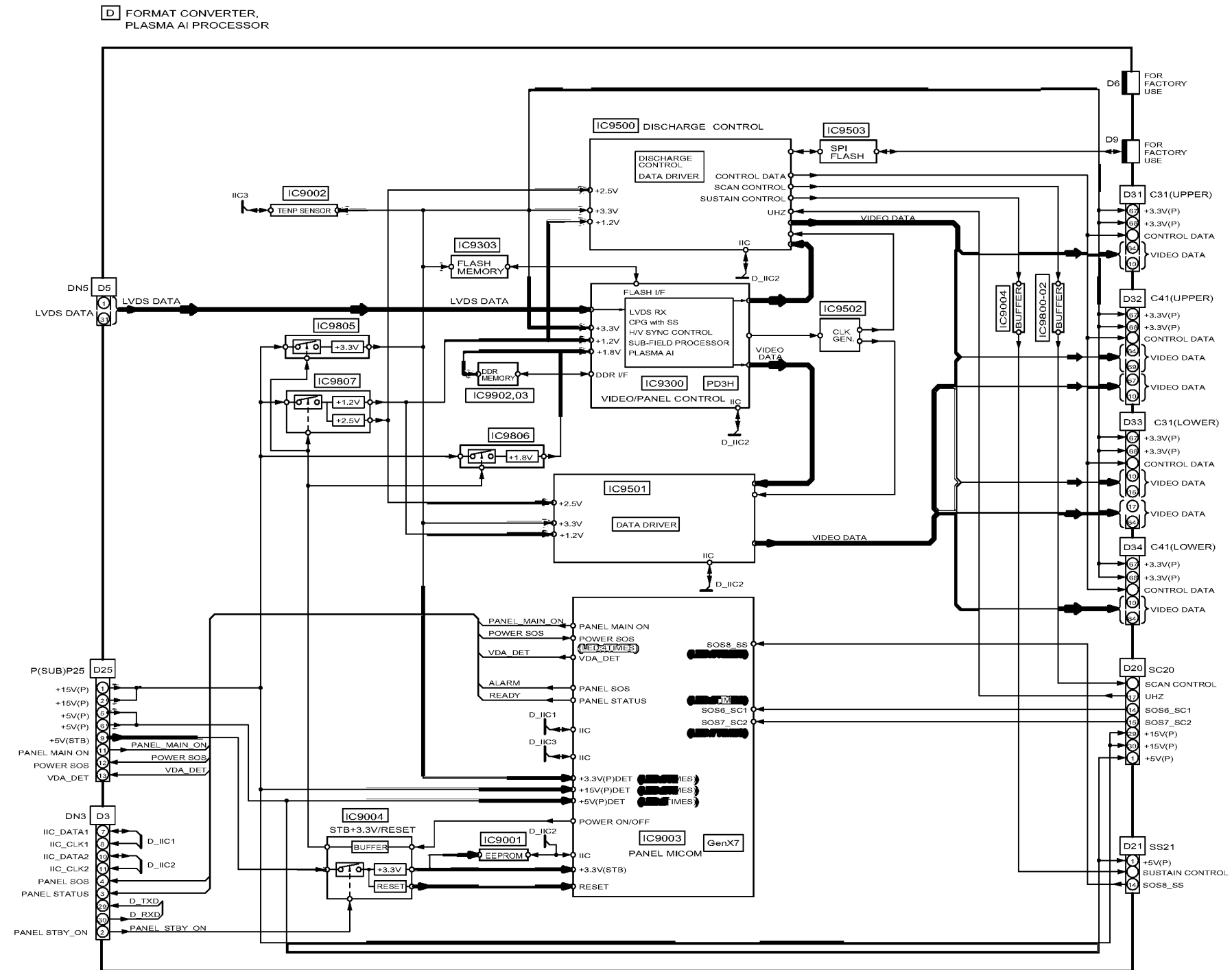
## 11.7. Block (4 of 8) Diagram



11.8. Block (5 of 8) Diagram

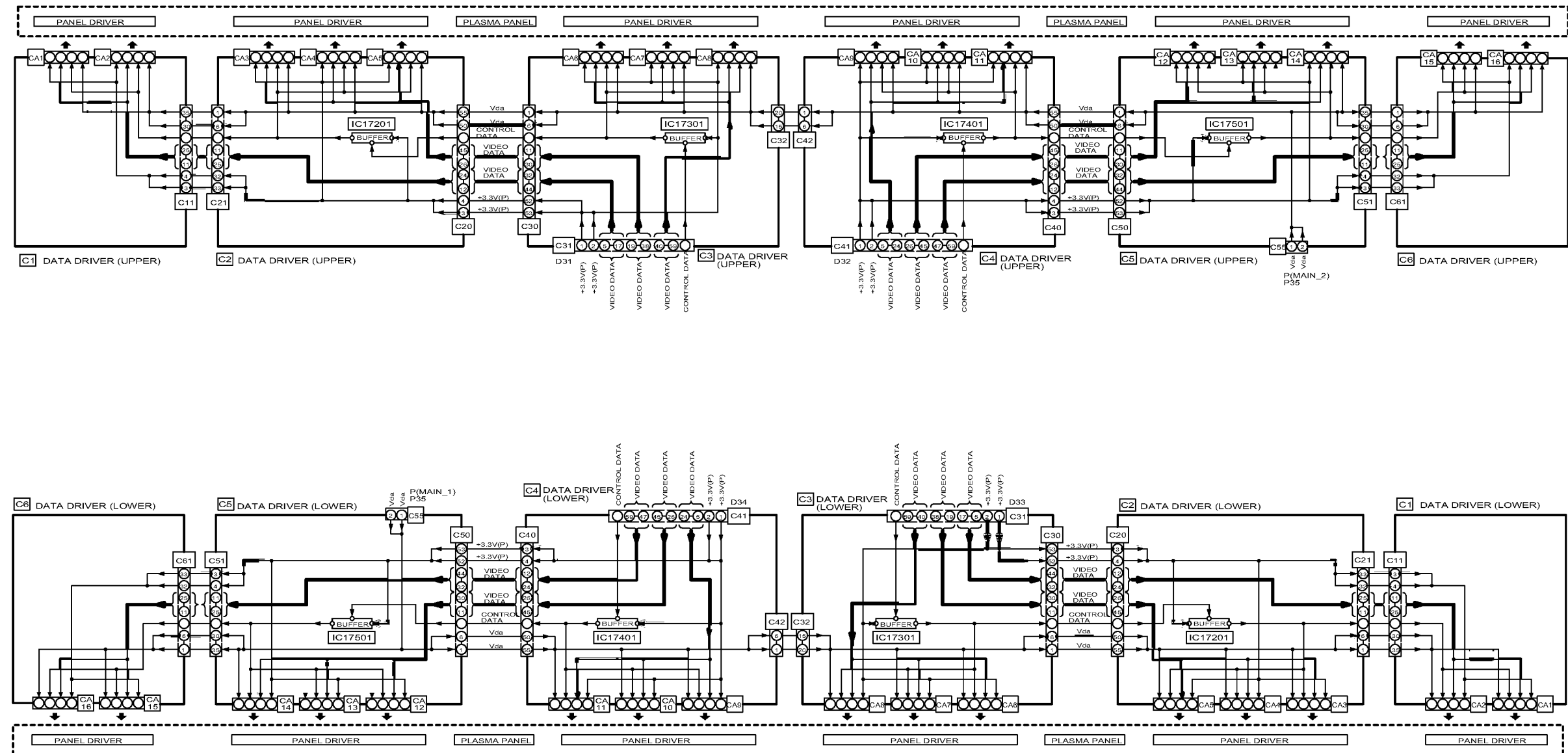


### 11.9. Block (6 of 8) Diagram





## 11.11. Block (8 of 8) Diagram



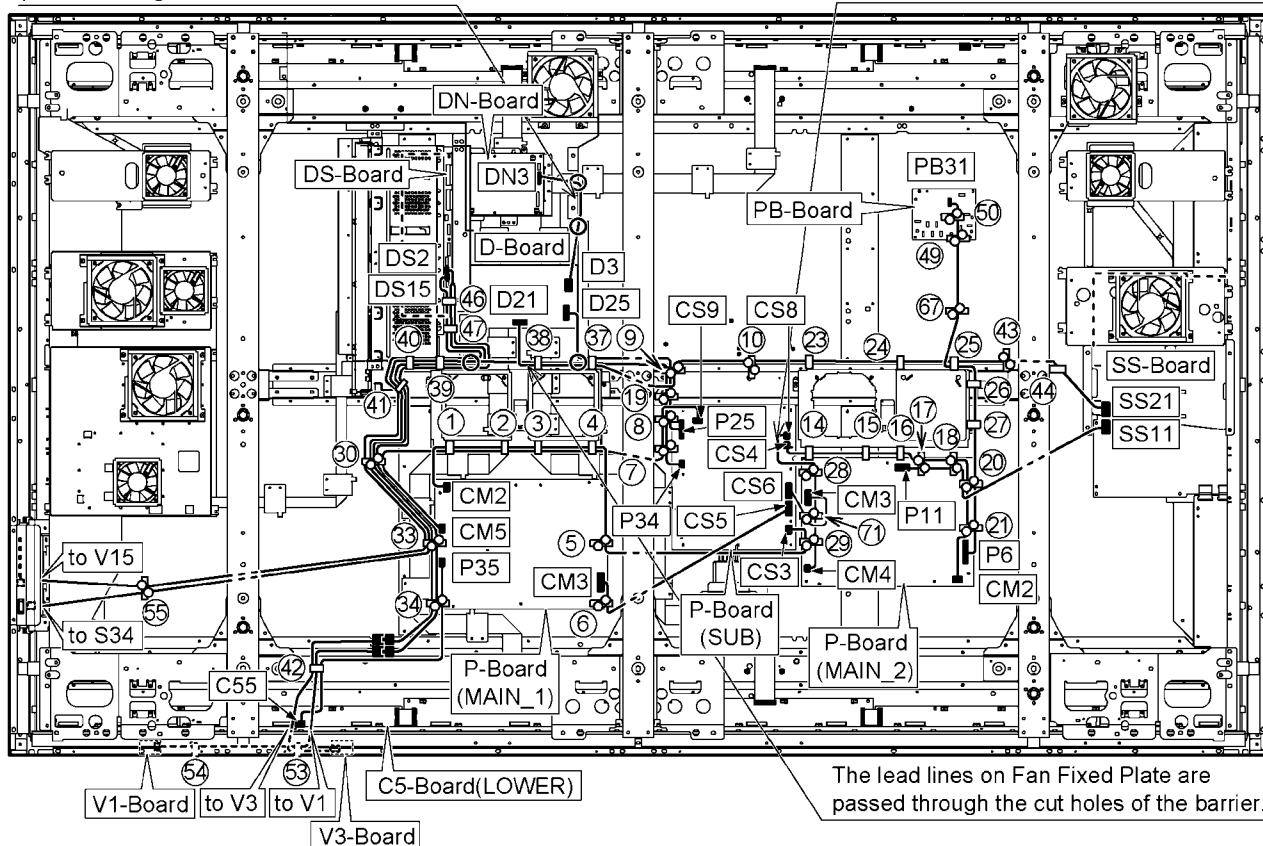


# 12 Wiring Connection Diagram

## 12.1. Wiring (1)

The lead line (DN3-D3) is passed through the cut holes of the barrier.

The lead line (CS8-CM4) is passed left side of the lead line (CS4-CM2).



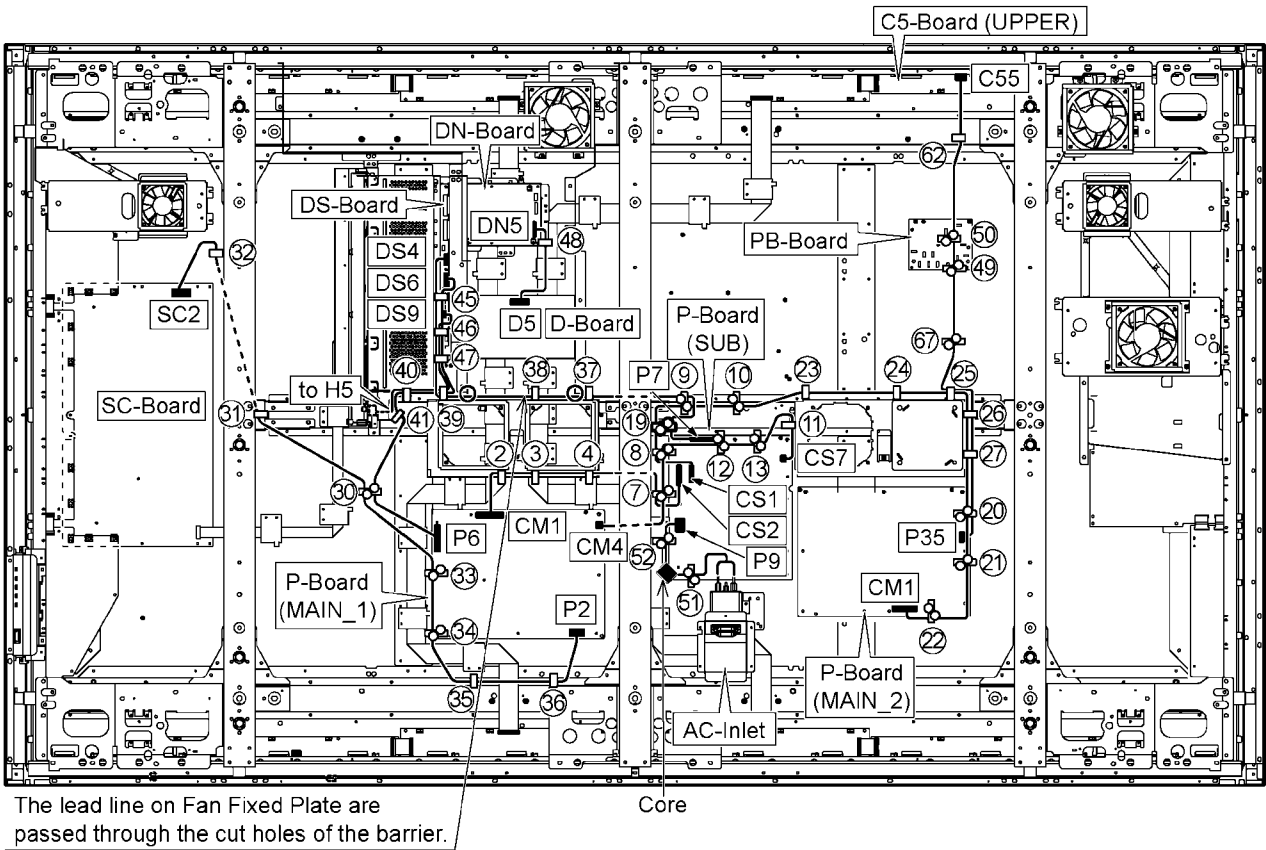
Clamp position

CON:No - CON:No	①	②	③	④	⑦	⑧	⑨	⑰	⑳	㉑	㉔	㉕	㉖	㉗	㉙	㉛	㉜	㉝	㉞	㉟	㊱	㊲	㊳	㊴	㊵	㊶	㊷	㊸	㊹	㊺	㊻	㊼	㊽	㊾	㿿	
CS9 - CM5(P MAIN_1)	●	●	●	●	●	●								●																						
D25 - P25(P SUB)						●	●	●							●																					
P6(P MAIN_2) - PB31									●	●	●	●	●	●												●	●									●
P35(P MAIN_1) - C55(C5 LOWER)																●									●											
S34 - P34					●	●	●	●						●	●		●	●	●	●	●														●	
V1 - DS2														●	●	●				●	●	●	●	●	●	●					●	●				
V3 - DS2														●	●	●				●	●	●	●	●	●	●					●					
V15 - DS15														●	●					●	●	●			●	●								●		
DN3 - D3	No Clamp																																			

No Clamp

CON:No - CON:No	①	②	③	④	⑤	⑥	⑨	⑩	⑭	⑮	⑯	⑰	⑱	⑳	㉑	㉓	㉔	㉕	㉖	㉗	㉘	㉙	㉚	㉛	㉜	㉝	㉞	㉟	㊱	㊲	㊳	㊴	㊵	㊶	㊷	
CS3 - CM2(P MAIN_1)	●	●	●	●	●																															
CS4 - CM2(P MAIN_2)									●	●	●	●	●	●	●																					
CS5 - CM3(P MAIN_1)						●																														
CS6 - CM3(P MAIN_2)																																				●
CS8 - CM4(P MAIN_2)																																				●
D21 - SS21							●	●									●	●	●										●	●						
P11(P MAIN_2) - SS11												●	●	●																						

12.2. Wiring (2)



Clamp position

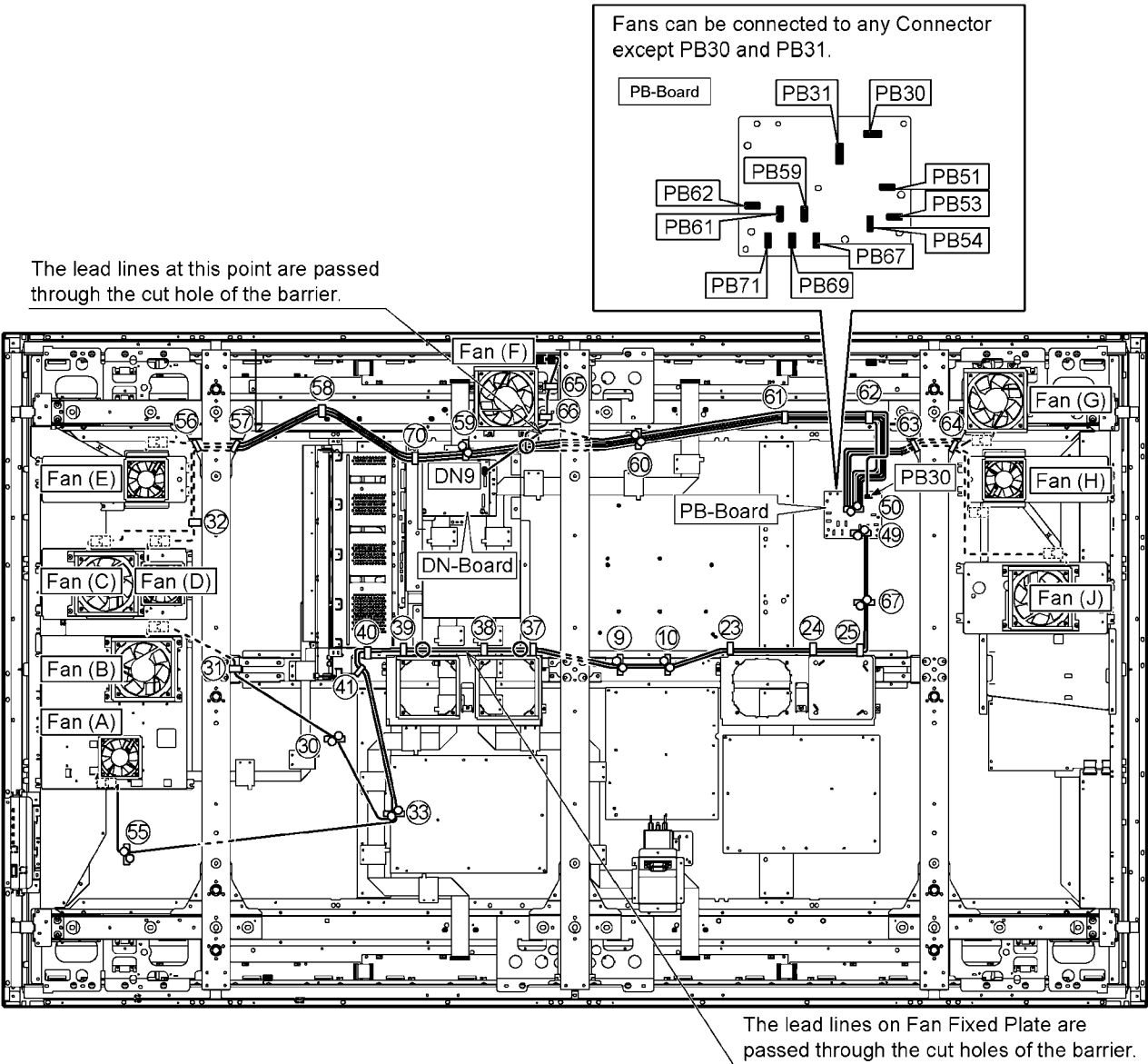
CON:No - CON:No	②	⑧	④	⑦	⑧	⑨	⑪	⑫	⑬	⑰	⑳	㉑	㉒	㉓	㉔	㉕	㉖	㉗	㉘	㉙	㉚	㉛	㉜	㉝	㉞	㉟	㊱	㊲	㊳	㊴	㊵	㊶	㊷	㊸	㊹	㊺
CS2 - CM1(P MAIN_1)	●	●	●	●																																
CS7 - CM4(P MAIN_1)					●	●		●	●	●																										
DS6 - P6(P MAIN_1)																																				
DS9 - H51																																				
DN5 - D5																																				
DS4 - P7(P SUB)							●																													
P2(P MAIN_1) - SC2																																				
AC-Inlet - P9(P SUB)																																				

CON:No - CON:No	⑧	⑨	⑰	⑱	㉒	㉓	㉔	㉕	㉖	㉗	㉘	㉙	㉚	㉛	㉜	㉝	㉞	㉟	㊱	㊲	㊳	㊴	㊵	㊶	㊷	㊸	㊹	㊺
CS1 - CM1(P MAIN_2)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
P35(P MAIN_2) - C55(C5 UPPER)					●																							



12.3. Wiring (3)



Clamp position

CON:No - CON:No	9	10	23	24	25	30	31	32	33	37	38	39	40	41	49	50	55	56	57	58	59	60	61	62	63	64	65	66	67	70
DN9 - PB30																														
Fan(A)-Relay - PB**	●	●	●	●	●	●			●	●	●	●	●	●	●		●													●
Fan(B)-Relay - PB**	●	●	●	●	●	●			●	●	●	●	●	●	●															●
Fan(C)-Relay - PB**								●								●		●	●	●	●	●	●	●	●					●
Fan(D)-Relay - PB**								●										●	●	●	●	●	●	●	●					●
Fan(E)-Relay - PB**																		●	●	●	●	●	●	●	●					●
Fan(F)-Relay - PB**																	●					●	●	●			●	●		
Fan(G)-Relay - PB**																	●								●	●				
Fan(H)-Relay - PB**																	●								●	●				
Fan(J)-Relay - PB**																	●								●	●				

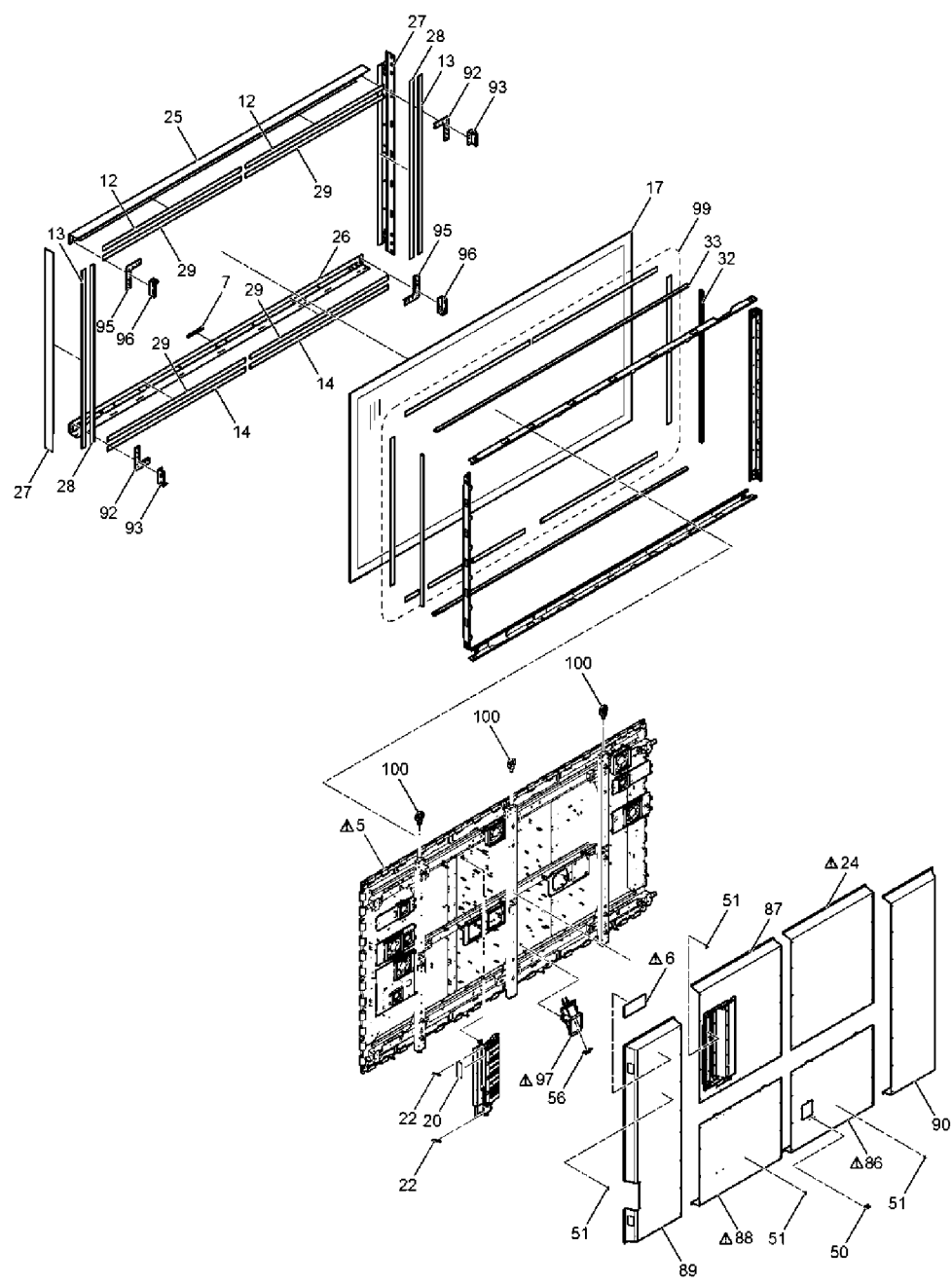
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**Model No. : TH-103PF12E    Important Safety Notice**

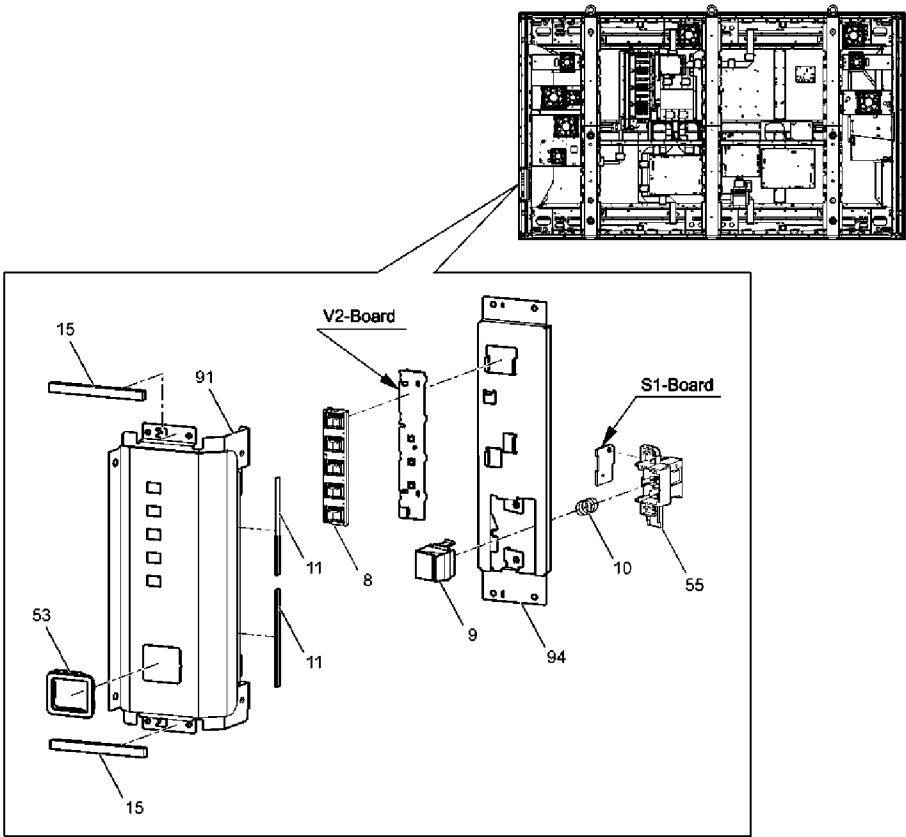
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<p><b>Note:</b> All parts except parts mentioned [PAVCCZ] in the Remarks column are supplied by AVC-CSPC. Parts mentioned [PAVCCZ] are supplied by PAVCCZ.</p>
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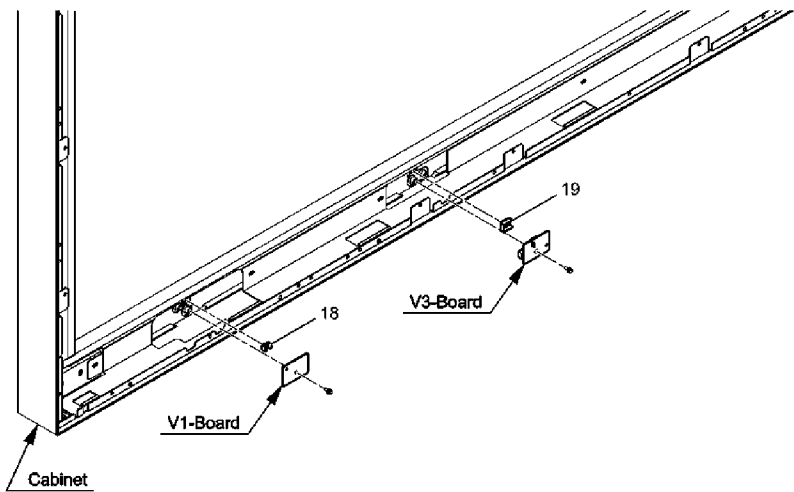
Model No. : TH-103PF12E    Exploded View



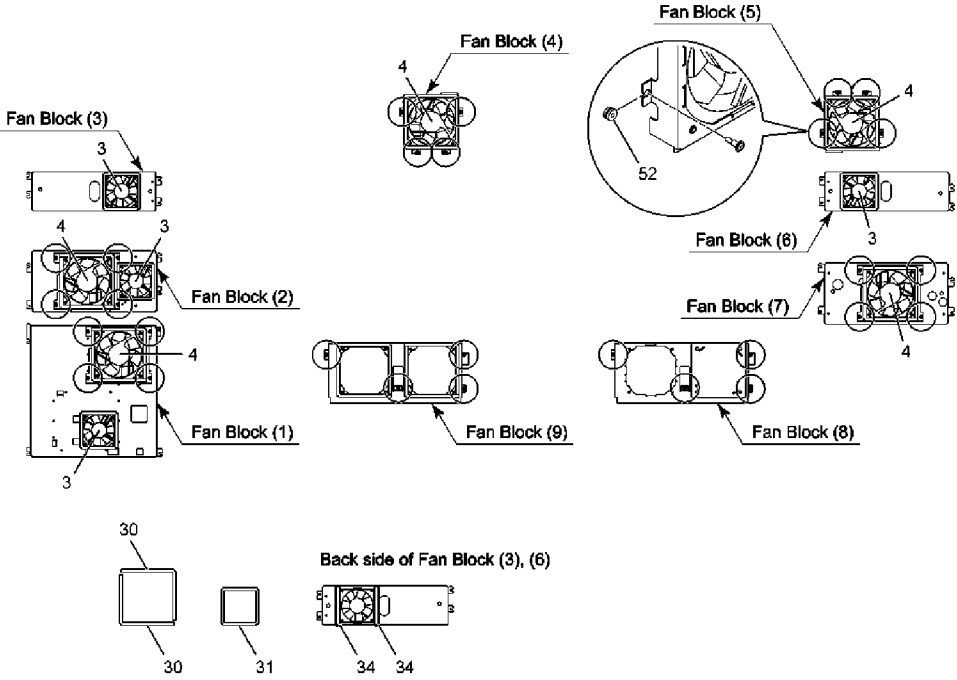
**Model No. : TH-103PF12E    Side Power part location**



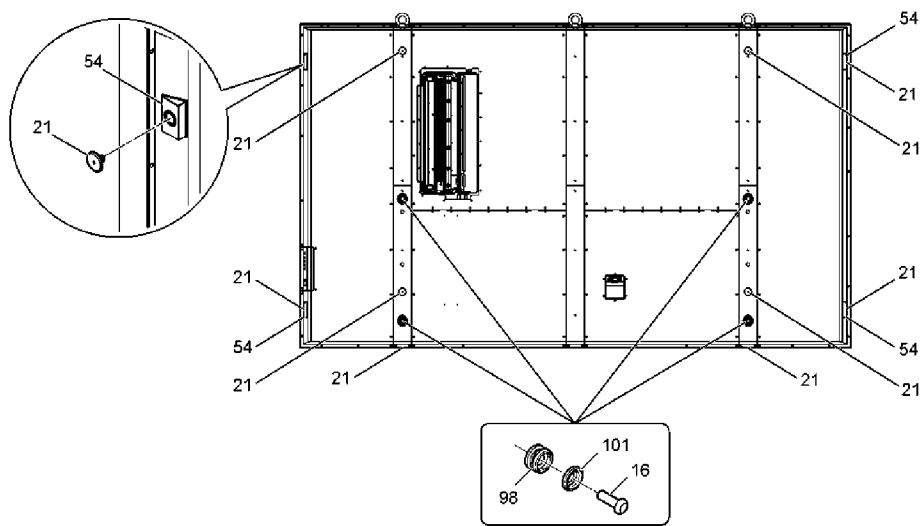
**Model No. : TH-103PF12E    Cabinet part location**



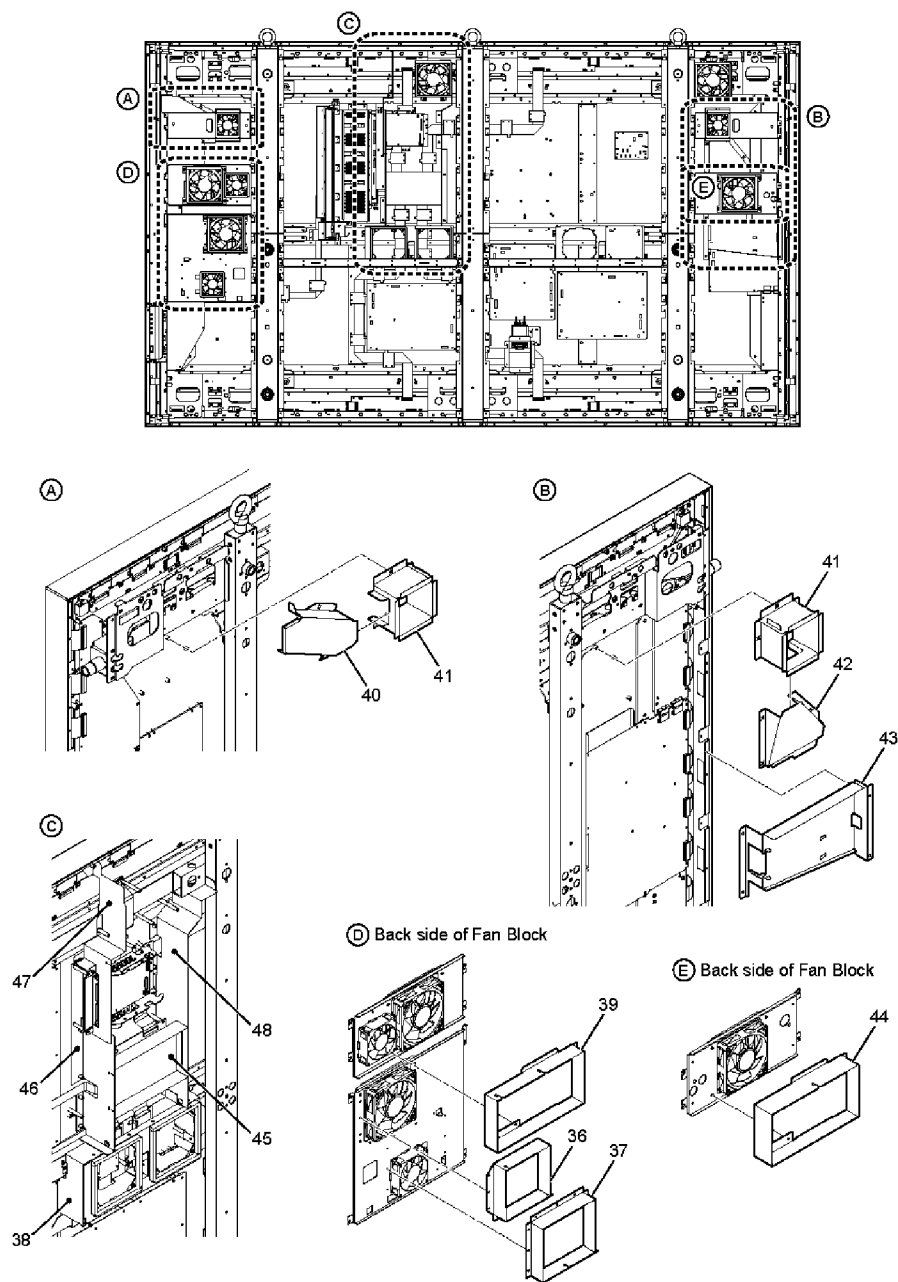
**Model No. : TH-103PF12E    Fan part location**



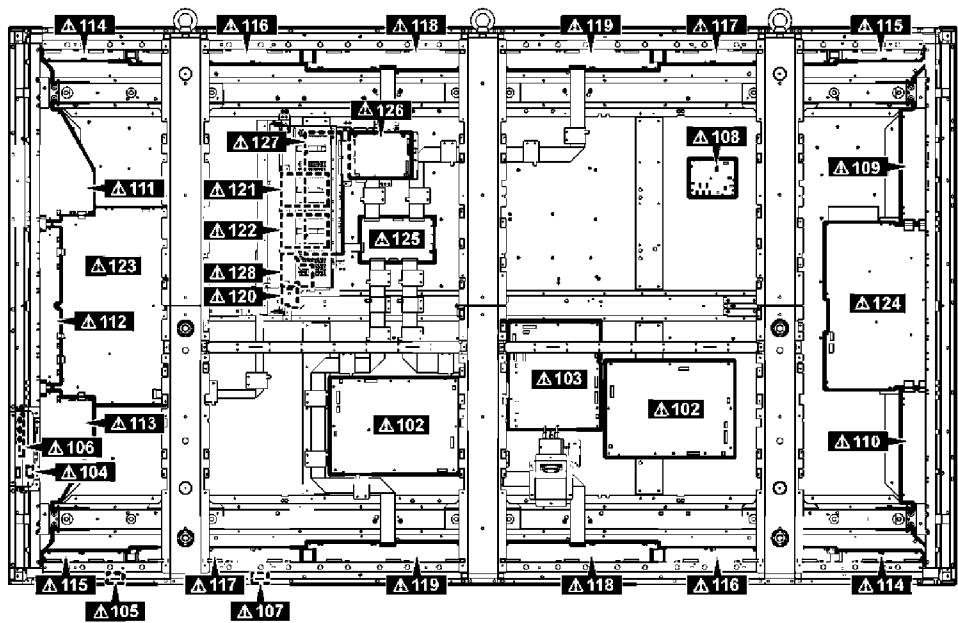
**Model No. : TH-103PF12E    Rear cover location**

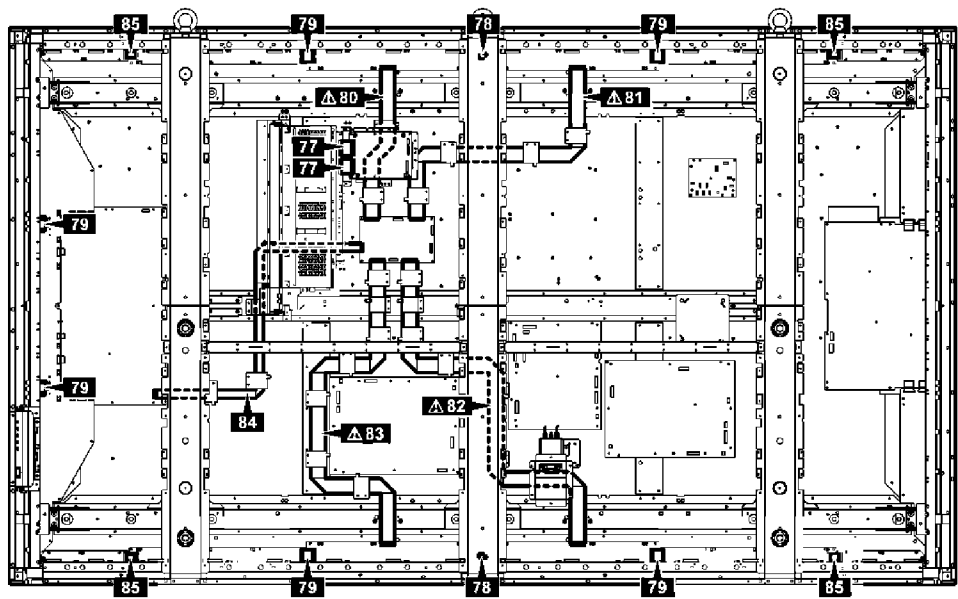


Model No. : TH-103PF12E    Duct Barriers

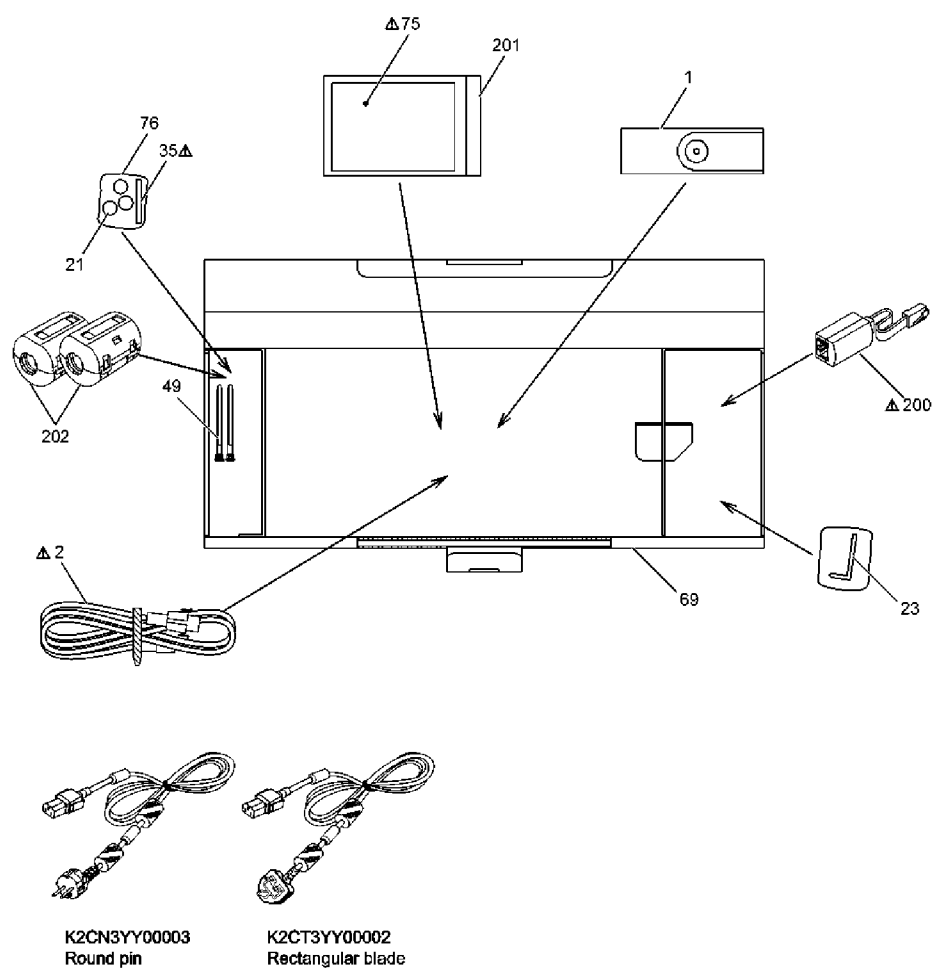


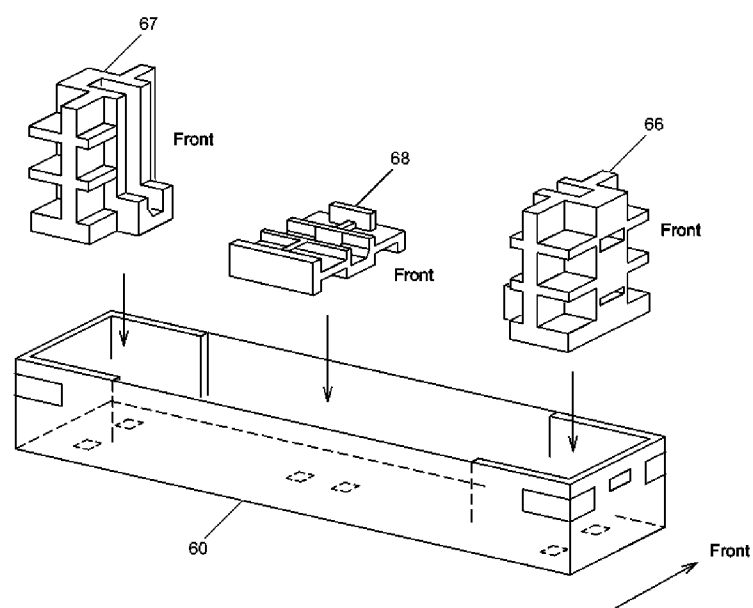


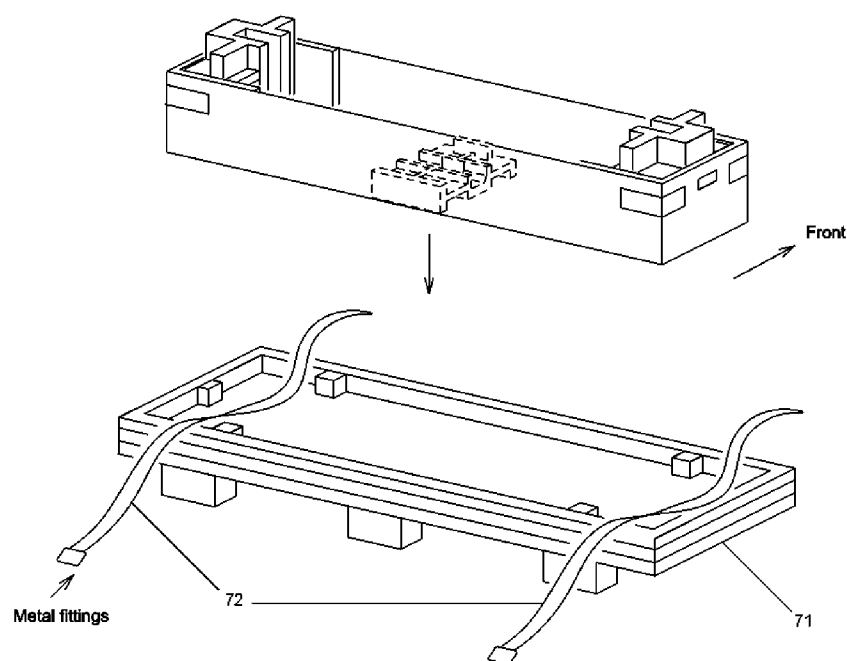


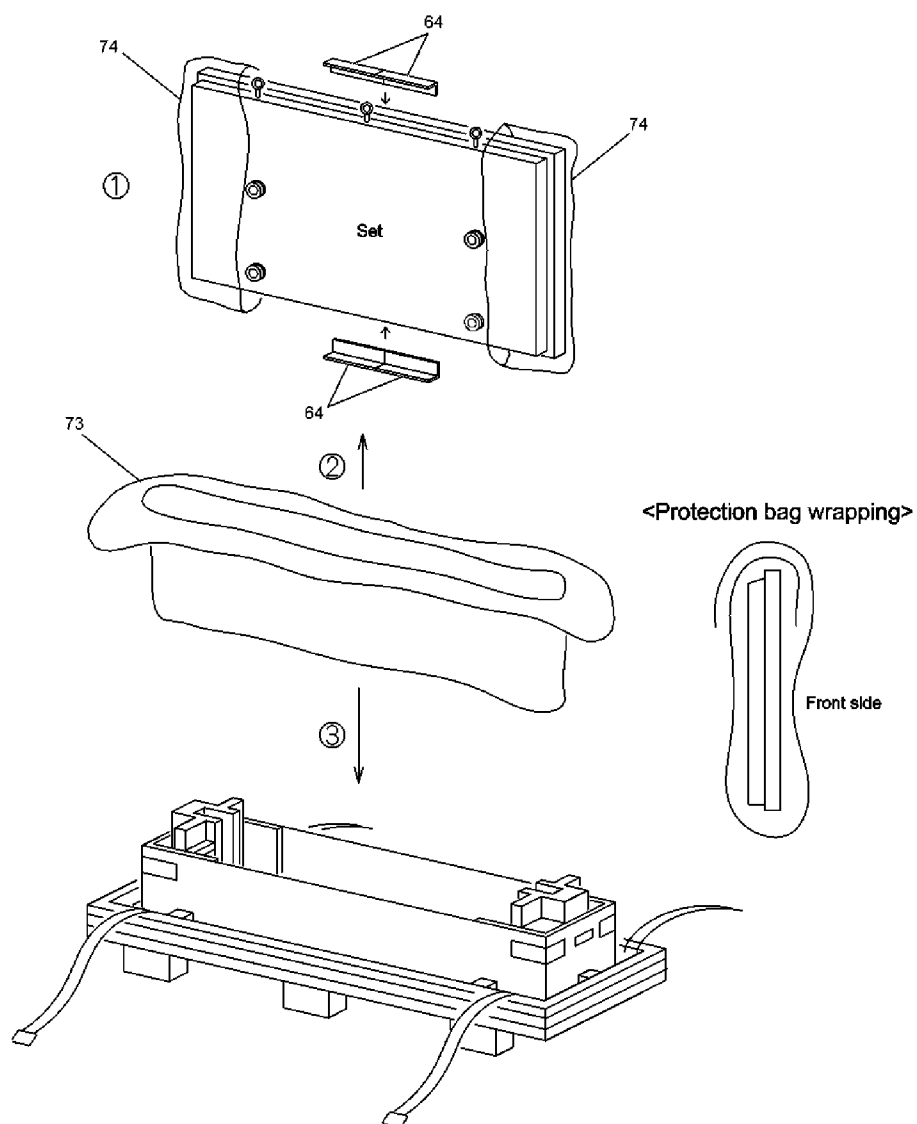


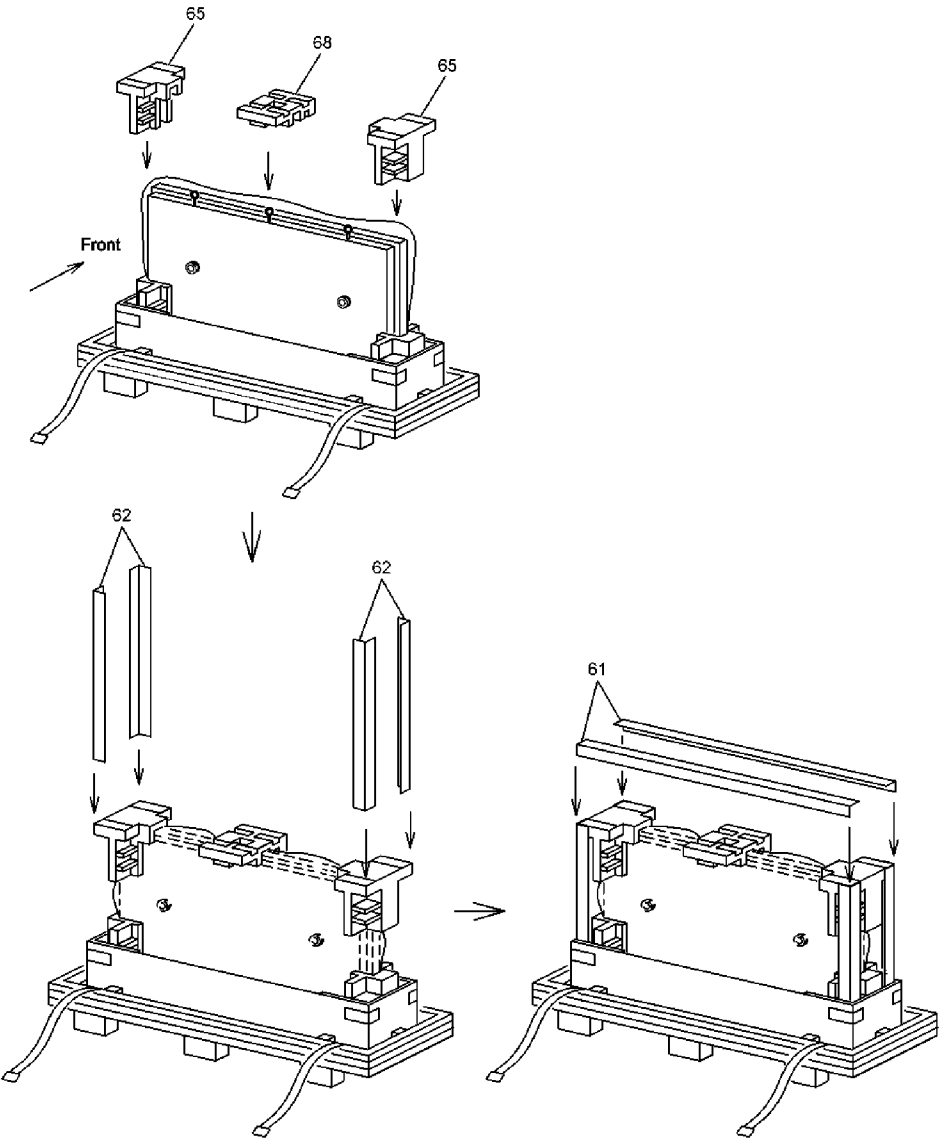
**Model No. : TH-103PF12E    Packing summary (1)**

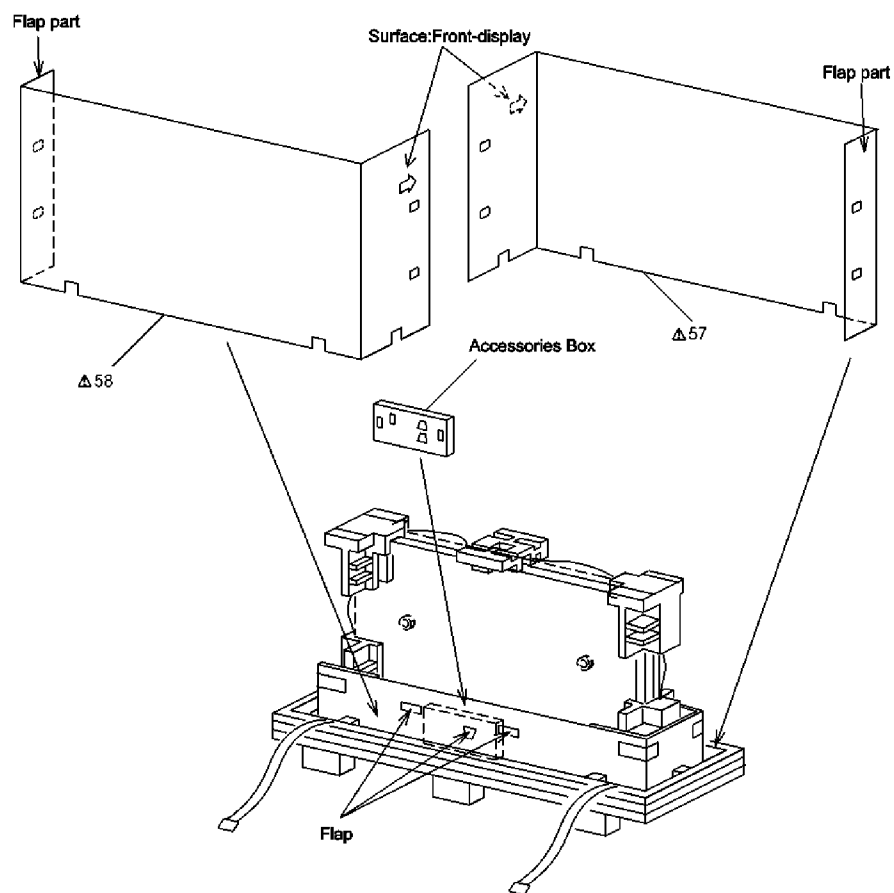




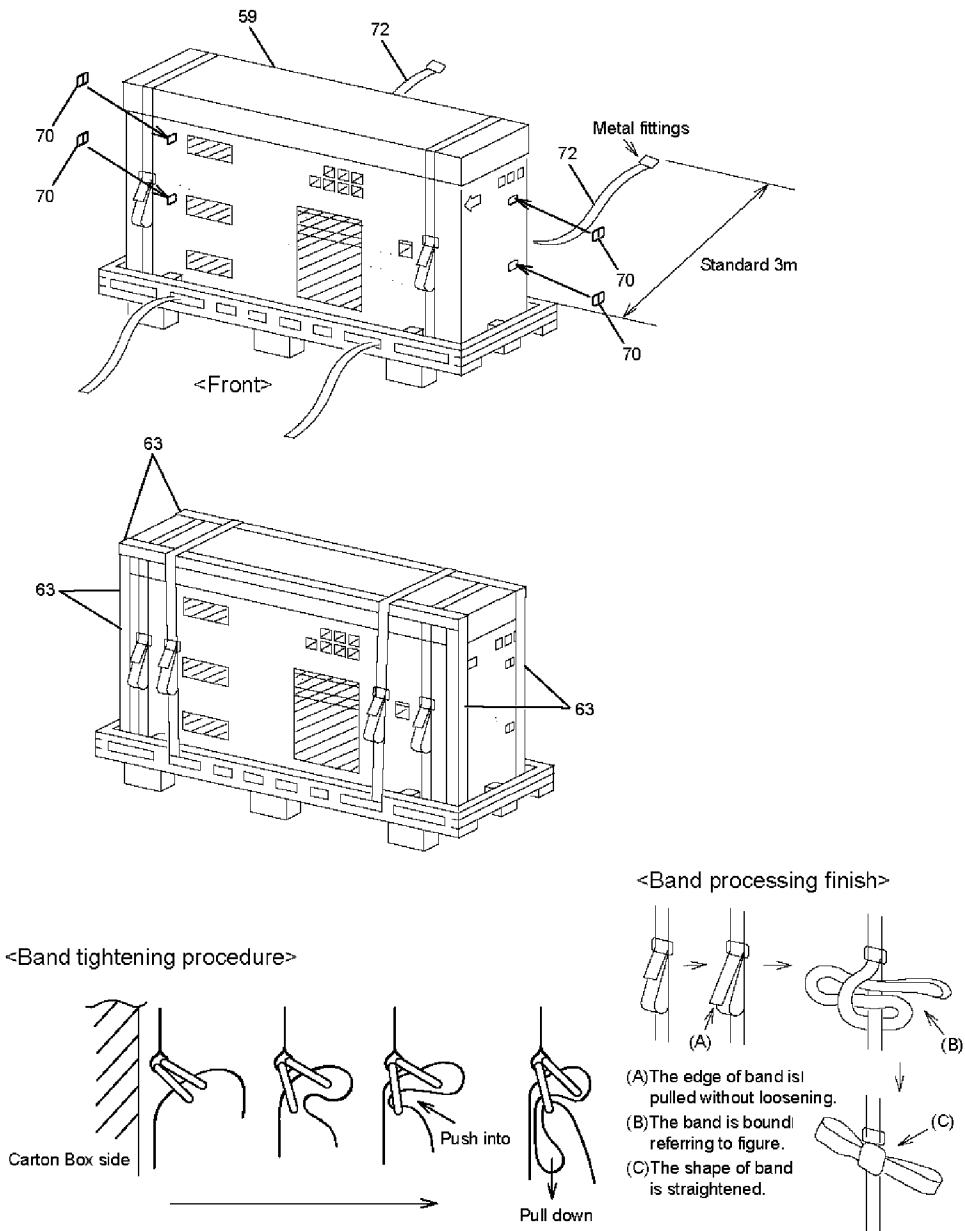













































## Model No. : TH-103PF12E Parts List

Safety	Ref. No.	Part No.	Part Name & Description	Q'ty	Remarks
	1	EUR7636090R	REMOTE CONTROL	1	
	202	J0KF00000021	FILTER	2	
	2	K2CN3YY00003	AC CORD (E)	1	
	2	K2CT3YY00002	AC CORD (B)	1	
	3	L6FAYYYH0030	FAN UNIT (80)	4	
	4	L6FAYYYH0031	FAN UNIT (120)	5	
	5	MD103F12S1J	PLASMA DISPLAY PANEL	1	
	6	TBM0E2057	MODEL NAME PLATE	1	PAVCCZ
	7	TBMA209T	PANASONIC BADGE	1	ENCLOSED TAPE
	8	TBXA46703A	5 RANGE BUTTON	1	
	9	TBXA50001	POWER BUTTON	1	
	10	TESD031	POWER BUTTON SPRING	1	
	11	TEWA950	GASKET(5*85*T1.5)	2	(SIDE POWER COVER)
	12	TEWB572	CABINET GASKET(15*1160*T1)	2	
	13	TEWB573	CABINET GASKET(15*1260*T1)	2	
	14	TEWB574	CABINET GASKET(10*1160*T0.5)	2	
	15	TEWB575	GASKET(7*90*T2.5)	2	(SIDE POWER COVER)
	16	THEA215	M16 BOLT	4	
	17	TKGA5425	FRONT GLASS	1	
	18	TKKC5213-1	LED PANEL	1	
	19	TKKC5276	REMOTE SENSOR PANEL	1	
	20	TKKL5266-1	BLANK PLATE	1	
	21	TKKL5370	EYE BOLT COVER	13	
	22	TKKL5428	SIDE COVER	2	
	23	TKKX0015	HEXAGONAL WRENCH	1	
	24	TKUX11501	REAR COVER (C/L/U)	1	
	25	TKYA41601T	CABINET UPPER	1	ENCLOSED 2 FELT TAPES
	26	TKYA41701T	CABINET BOTTOM	1	ENCLOSED 2 FELT TAPES AND PANASONIC BADGE
	27	TKYA41801T	CABINET SIDE L/R	2	ENCLOSED FELT TAPE
	28	TMKA580	CABINET FELT (LEFT/RIGHT)	2	
	29	TMKA581	CABINET FELT (TOP/BOTTOM)	4	
	30	TMKG405	SPONGE(FAN)	14	
	31	TMKG469-1	SPONGE(FAN)	4	
	32	TMKG732	SPONGE (LEFT/RIGHT)	2	
	33	TMKG733	SPONGE (UPPER/BOTTOM)	4	
	34	TMKG906	SPONGE	4	
		TMKY176	BADGE FIXING TAPE	1	DOUBLE SIDED TAPE FOR PANASONIC BADGE
	35	TMKY893	BLIND SHEET	1	
	36	TMKY902	DUCT BARRIER A	1	
	37	TMKY904	DUCT BARRIER B	1	
	38	TMKY905	DUCT BARRIER C	1	
	39	TMKY906	DUCT BARRIER D	1	
	40	TMKY907	DUCT BARRIER E	1	

## Model No. : TH-103PF12E Parts List

Safety	Ref. No.	Part No.	Part Name & Description	Q'ty	Remarks
	41	TMKY910	DUCT BARRIER F	2	
	42	TMKY911	DUCT BARRIER G	1	
	43	TMKY912	DUCT BARRIER H	1	
	44	TMKY914	DUCT BARRIER J	1	
	45	TMKY915	DUCT BARRIER K	1	
	46	TMKY916	DUCT BARRIER L	1	
	47	TMKY918	DUCT BARRIER N	1	
	48	TMKY919	DUCT BARRIER O	1	
		TMM14490	CLAMPER	3	
		TMM15414-2	CLAMPER	1	
		TMM16473-1	CLAMPER	4	
		TMM17499	CLAMPER	1	
		TMM6428-1	CLAMPER	3	
		TMM6463-1	CLAMPER	2	
		TMM6496-1	CLAMPER	1	
		TMM7464-2	CLAMPER	2	
		TMM7468-1	CLAMPER	7	
		TMME088	CLAMPER	17	
		TMME185	NYLON RIVET	4	
		TMME190	CLAMPER	6	
	49	TMME203	CLAMPER	2	
	50	TMME226	AC CORD CLAMPER	1	
	51	TMME228	BAND HOLDER	4	
		TMME272	CLAMPER	9	
		TMME292	CLAMPER	4	
		TMME307	CLAMPER	2	
		TMME332	CLAMPER	6	
	52	TMMJ068	RUBBER (FAN)	28	
	53	TMMX157	POWER BUTTON EDGE GUARD	1	
	54	TMMX158	M16 EDGE GUARD	4	
	55	TMWC016-1	POWER BUTTON BRACKET	1	
	56	TMXX035	AC CORD CLAMPER A	1	
	57	TPC0E61602	CARTON SIDE A	1	PAVCCZ
	58	TPC0E61802	CARTON SIDE B	1	PAVCCZ
	59	TPCC71901	CARTON BOX TOP	1	
	60	TPCC72001	CARTON BOX BOTTOM	1	
	61	TPD0E4001	PAPER ANGLE H	2	PAVCCZ
	62	TPD0E4002	PAPER ANGLE V	4	PAVCCZ
	63	TPD0E9129	CORNER PAD	6	PAVCCZ
	64	TPDA1038	CUSHION (CENTER)	4	
	65	TPDA1416	CUSHION (TOP)	2	
	66	TPDA1417-1	BOTTOM CUSHION LEFT	1	
	67	TPDA1418-1	BOTTOM CUSHION RIGHT	1	




























## Model No. : TH-103PF12E Parts List

Safety	Ref. No.	Part No.	Part Name & Description	Q'ty	Remarks
	68	TPDA1419	CUSHION (CENTER)	2	
	69	TPDF1746	ACCESSORIES BOX	1	
	70	TPDX0007	JOINT	4	
	71	TPDX0027	BOTTOM SKID	1	
	72	TPDX0041	BAND	4	
	73	TPEH323	PROTECTION BAG	1	
	74	TPEH324	FRONT PROTECTION COVER	2	
	75	TQBOE0896A	INSTRUCTION BOOK (GERMAN)	1	PAVCCZ
	75	TQBOE0896B	INSTRUCTION BOOK (DUTCH)	1	PAVCCZ
	75	TQBOE0896C	INSTRUCTION BOOK (ITALIAN)	1	PAVCCZ
	75	TQBOE0896D	INSTRUCTION BOOK (FRENCH)	1	PAVCCZ
	75	TQBOE0896E	INSTRUCTION BOOK (SPANISH)	1	PAVCCZ
	75	TQBOE0896F	INSTRUCTION BOOK (SWEDISH)	1	PAVCCZ
	75	TQBOE0896G	INSTRUCTION BOOK (NORWEGIAN)	1	PAVCCZ
	75	TQBOE0896H	INSTRUCTION BOOK (FINNISH)	1	PAVCCZ
	75	TQBOE0896I	INSTRUCTION BOOK (LITHUANIAN)	1	PAVCCZ
	75	TQBOE0896J	INSTRUCTION BOOK (PORTUGUESE)	1	PAVCCZ
	75	TQBOE0896K	INSTRUCTION BOOK (DANISH)	1	PAVCCZ
	75	TQBOE0896M	INSTRUCTION BOOK (BULGARIAN)	1	PAVCCZ
	75	TQBOE0896N	INSTRUCTION BOOK (ROMANIAN)	1	PAVCCZ
	75	TQBOE0896O	INSTRUCTION BOOK (LATVIAN)	1	PAVCCZ
	75	TQBOE0896P	INSTRUCTION BOOK (POLISH)	1	PAVCCZ
	75	TQBOE0896Q	INSTRUCTION BOOK (HUNGARIAN)	1	PAVCCZ
	75	TQBOE0896R	INSTRUCTION BOOK (CZECH)	1	PAVCCZ
	75	TQBOE0896S	INSTRUCTION BOOK (GREEK)	1	PAVCCZ
	75	TQBOE0896T	INSTRUCTION BOOK (TURKISH)	1	PAVCCZ
	75	TQBOE0896U	INSTRUCTION BOOK (ENGLISH)	1	PAVCCZ
	75	TQBOE0896W	INSTRUCTION BOOK (SLOVAKIAN)	1	PAVCCZ
	75	TQBOE0896X	INSTRUCTION BOOK (CD-ROM)	1	PAVCCZ
	75	TQBOE0896Z	INSTRUCTION BOOK (ESTONIAN)	1	PAVCCZ
	76	TQEF035	POLY BAG (EYE BOLT COVER ASSY)	1	
	77	TSXL490	CABLE (DS1-DN1/DS3-DN2)	2	
	78	TSXL519	CABLE (C32-C42)	2	
	79	TSXL737	CABLE (C20-C30/C40-C50/SM11-SU11/SM12-SD12)	6	
	80	TSXL865	CABLE (D31-C31)	1	
	81	TSXL866	CABLE (D32-C41)	1	
	82	TSXL867	CABLE (D33-C31)	1	
	83	TSXL868	CABLE (D34-C41)	1	
	84	TSXL869	CABLE (SC20-D20)	1	
	85	TSXL870	CABLE (C11-C21/C51-C61)	4	
	86	TTUOE0675	REAR COVER (C/L/B)	1	PAVCCZ
	87	TTUOE0676	REAR COVER (C/R/U)	1	PAVCCZ
	88	TTUA1520	REAR COVER (C/R/B)	1	

## Model No. : TH-103PF12E Parts List

Safety	Ref. No.	Part No.	Part Name & Description	Q'ty	Remarks
	89	TTUA1779-1	REAR COVER (R) ASSY	1	PAVCCZ
	90	TTUA2317	REAR COVER (L) ASSY	1	
	91	TUWC056	SIDE POWER COVER	1	
	92	TUXJ350	CABINET JOINT METAL (A)	2	(LEFT/TOP RIGHT/BOTTOM)
	93	TUXJ351	CABINET JOINT METAL (B)	2	(LEFT/TOP RIGHT/BOTTOM)
	94	TUXJ356	POWER BUTTON HOLDER	1	
	95	TUXJ370	CABINET JOINT METAL (AS)	2	(RIGHT/TOP LEFT/BOTTOM)
	96	TUXJ371	CABINET JOINT METAL (BS)	2	(RIGHT/TOP LEFT/BOTTOM)
	97	TXAJS011NBE	AC INLET ASSY	1	PAVCCZ
	98	TXFMM0101NB	STAND HOOK ASSY	4	
		TXJDN501NB	LVDS CABLE (DN5-D5)	1	
	200	TXZDM011MBE	EMC FILTER KIT	1	
	99	TZTEW0101NB	ALUMINUM TAPE KIT	1	FOR CABINET & FRONT GLASS
		THEA068N	SCREW	6	
		THEC109J	SCREW	18	
		THEL0239	SCREW	12	
		THEL027N	SCREW	8	
		THEL0429	SCREW	14	
		THEL057J	SCREW	2	
		THTA0419	SCREW	2	
		THTD013N	SCREW	26	
		THTF011N	SCREW	140	
		XTV3+10JFJ	SCREW	1	
		XTV3+8JFJ	SCREW	3	
	100	XVN16FJ	EYE BOLT	3	
	101	XWB16BVJ	M16 SPRING WASHER	4	
		XYN3+F10FJ	SCREW	6	
		XYN3+F8FJ	SCREW	43	
		XYN3+F8FJ	SCREW	2	
		XYN4+E8FJ	SCREW	1	
		XYN4+F10FJ	SCREW	4	
		XYN4+F10FJ	SCREW	4	
		XYN4+F10FJK	SCREW	88	
		XYN4+F10FJK	SCREW	54	
		XYN4+F32FJ	SCREW	36	
		XYN4+F8FJ	SCREW	10	
		XYN4+J10FJ	SCREW	28	
		XYN4+J10FJ	SCREW	44	
		XYN4+J10FJ	SCREW	59	
		XYN5+F15FJ	SCREW	40	
		XYN5+F15FJ	SCREW	16	
		XYN5+F30FJK	SCREW	18	
		XYN8+F20FJK	SCREW	6	

**Model No. : TH-103PF12E    Parts List**

Safety	Ref. No.	Part No.	Part Name & Description	Q'ty	Remarks
	201	XZBT6506	POLY BAG (INSTRUCTION BOOK)	1	
	102	ETX2MM780MG	CIRCUIT BOARD P (MAIN)	2	
	103	ETX2MM780MGA	CIRCUIT BOARD P (SUB)	1	
	104	TNPA4084	CIRCUIT BOARD S1	1	
	105	TNPA4085	CIRCUIT BOARD V1	1	
	106	TNPA4086	CIRCUIT BOARD V2	1	
	107	TNPA4087	CIRCUIT BOARD V3	1	
	108	TNPA4103AC	CIRCUIT BOARD PB	1	
	109	TNPA5021	CIRCUIT BOARD SS2	1	
	110	TNPA5022	CIRCUIT BOARD SS3	1	
	111	TNPA5023	CIRCUIT BOARD SU	1	
	112	TNPA5024	CIRCUIT BOARD SM	1	
	113	TNPA5025	CIRCUIT BOARD SD	1	
	114	TNPA5026	CIRCUIT BOARD C1	2	
	115	TNPA5027	CIRCUIT BOARD C6	2	
	116	TNPA5028	CIRCUIT BOARD C2	2	
	117	TNPA5029	CIRCUIT BOARD C5	2	
	118	TNPA5030	CIRCUIT BOARD C3	2	
	119	TNPA5031	CIRCUIT BOARD C4	2	
	120	TNPA5036	CIRCUIT BOARD H5	1	
	121	TXNHDE10UNT	CIRCUIT BOARD HDE	1	
	122	TXNHL101TC	CIRCUIT BOARD HL	1	
	123	TXNSC101NB	CIRCUIT BOARD SC	1	
	124	TXNSS101NB	CIRCUIT BOARD SS	1	
	125	TZTNP0101NB	CIRCUIT BOARD D	1	
	126	TZTNP0201NB	CIRCUIT BOARD DN	1	
	127	TZTNP0301MB	CIRCUIT BOARD DS	1	
	128	TZTNP0401KB	CIRCUIT BOARD HX	1	