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## 6. Troubleshooting

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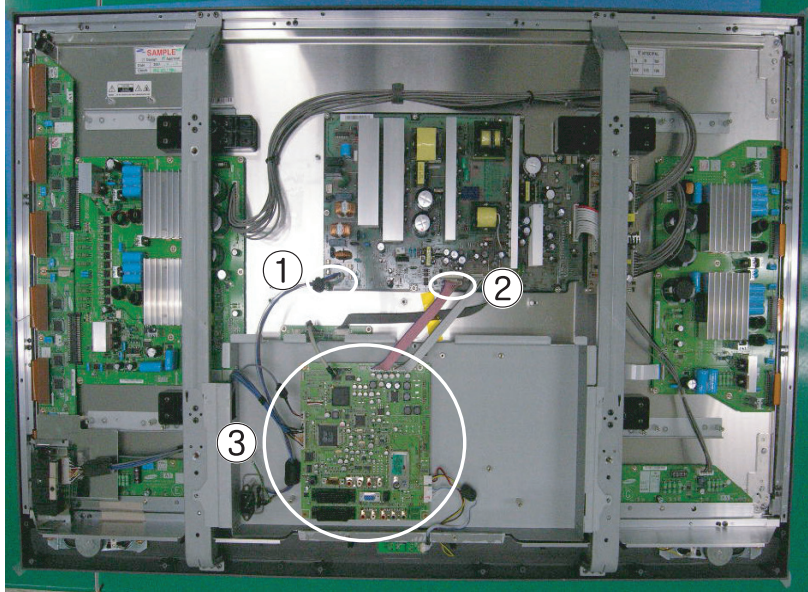
### 6-1 First Checklist for Troubleshooting

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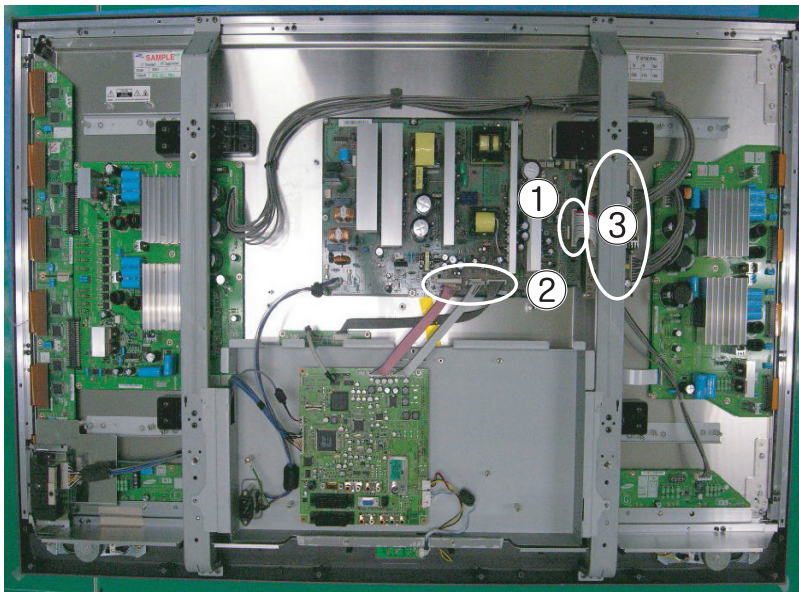
1. Check the various cable connections first.
  - Check to see if there is a burnt or damaged cable.
  - Check to see if there is a disconnected cable connection or a connection is too loose.
  - Check to see if the cables are connected according to the connection diagram.
2. Check the power input to the Main Board.
3. Check the voltage in and out between the SMPS ↔ Main Board, between the SMPS ↔ X, Y Main Board, and between the Logic Boards.

## 6-2 Checkpoints by Error Mode

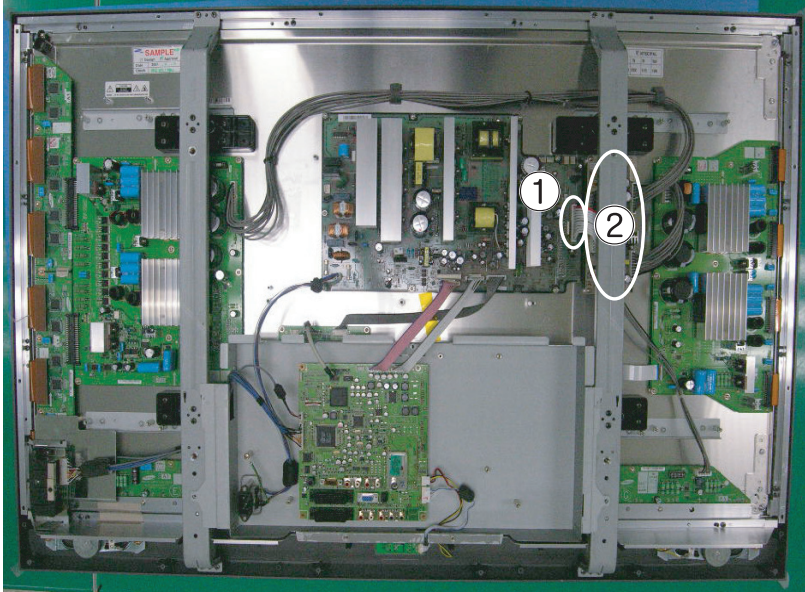
### 6-2-1 No Power

Symptom	<ul style="list-style-type: none"> <li>- The LEDs on the front panel do not work when connecting the power cord.</li> <li>- The SMPS relay does not work when connecting the power cord.</li> <li>- The power of the unit seems to be out of order.</li> </ul>
Major Checklist	<p>The SMPS relay or the LEDs on the front panel do not work when connecting the power cord if the cables are improperly connected or the Main Board or SMPS is out of order. In this case, check the following:</p> <ul style="list-style-type: none"> <li>- Check the internal cable connection status inside the unit.</li> <li>- Check the fuses of each part.</li> <li>- Check the output voltage of SMPS.</li> <li>- Replace the Main Board.</li> </ul>
Troubleshooting Procedures	 <pre> graph TD     Q1["① Are the AC IN socket connector and the Main SMPS CN800 connected?"]     A1["Connect The AC IN socket connector and the Main SMPS CN800"]     Q2["① Is the Fuse (F101) of the Main SMPS Power Input Part blown?"]     A2["Replace the Main SMPS"]     Q3["② Check Main SMPS 804-1 Pin 10 : STB 5V = 5V Pin 8 : PS-ON = 0V"]     A3["Replace the Main SMPS"]     Q4["③ Replace the Main Board"]      Q1 -- No --&gt; A1     Q1 -- Yes --&gt; Q2     Q2 -- No --&gt; A2     Q2 -- Yes --&gt; Q3     Q3 -- No --&gt; A3     Q3 -- Yes --&gt; Q4     </pre>

## 6-2-2 When the unit is repeatedly turned on and off

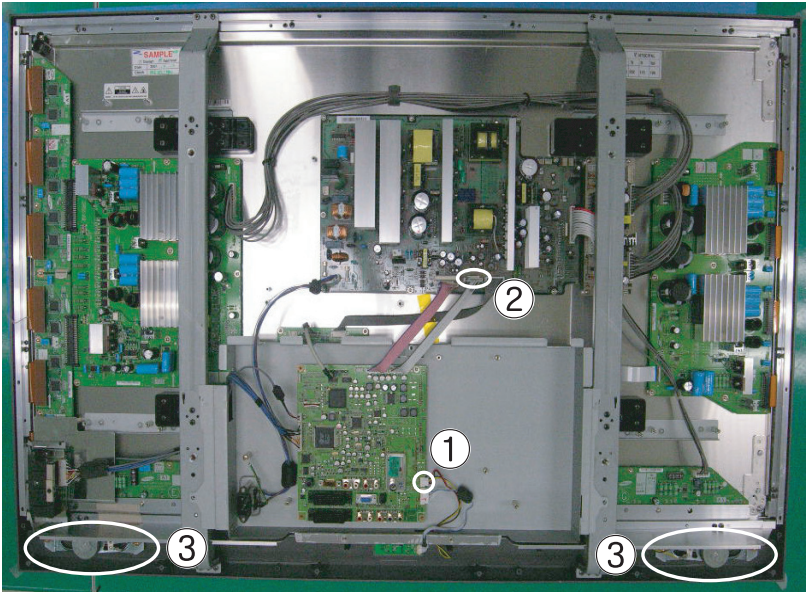
Symptom	- The SMPS relay is repeatedly turned on and off.
Major Checklist	<p>In general, the SMPS relay repeatedly turns on and off by the protection function due to a defect on a board connected to the SMPS.</p> <ul style="list-style-type: none"> <li>- Disconnect all cables from the SMPS, operate the SMPS alone and check if the SMPS works properly and if each voltage output is correct.</li> <li>- If the symptom continues even when SMPS is operated alone, replace the SMPS.</li> <li>- If the symptom is not observed when operating the SMPS alone, find any defective ASSYs by connecting the cables one by one.</li> </ul>
Troubleshooting Procedures	 <pre> graph TD     Q1["① Does the symptom continue after connecting the power and removing CN809 cable from the Main SMPS?"]     Q2["② Does the symptom continue when separating the CN804-1 and CN803 cables from the Main SMPS and shorting pins 4 and 5 of the CN804-2 Connector?"]     Q3a["③ Does the symptom continue when connecting the power after connecting the CN809 cable and removing the CN2, CN4 and CN5 cables from the DC-DC SMPS?"]     Q3b["③ Reconnect all cables. Does the symptom continue when connecting the power after the CN4 cable to the DC-DC SMPS?"]     Q3c["③ Does the symptom continue when connecting the power after CN2 to the DC-DC SMPS?"]     Q3d["② Does the symptom continue when connecting the power after removing CN810 from the Main SMPS?"]     R1["Replace the DC-DC SMPS"]     R2["Replace the X Main Board"]     R3["Replace the Y Main Board"]     R4["Replace the Logic Main Board"]     R5["Replace the Main SMPS"]     R6["Replace the Main Board"]      Q1 -- Yes --&gt; R5     Q1 -- No --&gt; Q3a     Q2 -- Yes --&gt; R5     Q2 -- No --&gt; R6     Q3a -- Yes --&gt; R1     Q3a -- No --&gt; Q3b     Q3b -- Yes --&gt; R2     Q3b -- No --&gt; Q3c     Q3c -- Yes --&gt; R3     Q3c -- No --&gt; Q3d     Q3d -- No --&gt; R4     </pre>
Caution	When separating and connecting the cables such as CN809 of the Main SMPS, CN1, CN2, CN3, CN4 and CN5 of DC-DC SMPS, CN of the X Main Board, and CN of the Y Main Board, a spark may be generated by the electric charge of the high capacity capacitor. Therefore, wait some time after separating the power cord from the unit.

### 6-2-3 No Picture (When audio is normal)

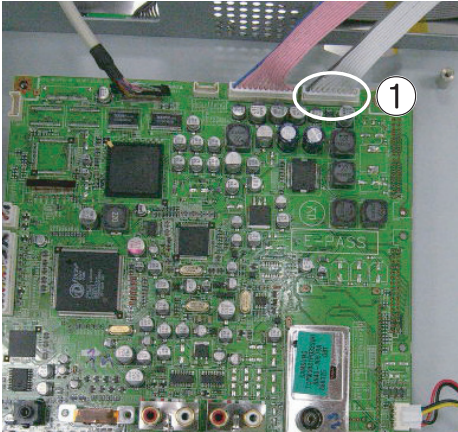
Symptom	- Audio is normal but no picture is displayed on the screen.
Major Checklist	<ul style="list-style-type: none"> <li>- This may happen when the Main Board is normal but the X, Y Main Board, Logic Board, or Y Buffer Boards are out of order.</li> <li>- The output voltage of the Main SMPS or the DC-DC SMPS is out of order.</li> <li>- This may happen when the LVDS cable connecting the Main Board and the Logic Board is disconnected.</li> </ul>
Troubleshooting Procedures	 <pre> graph TD     Q1["① Are the Vs and Va voltages normal after removing the CN809 cable from the Main SMPS?"]     Q2["② Is the output voltage of the DC-DC SMPS normal when reconnecting the CN809 cable and removing the CN2, CN4 and CN5 cables from the DC-DC SMPS?"]     R1["Replace the Main SMPS"]     R2["Replace the DC-DC SMPS"]     R3["Replace the Y Main Board"]     R4["Replace the X Main Board"]     R5["Replace the Logic Main Board"]     R6["Replace the Y SCAN Board"]      Q1 -- No --&gt; R1     Q1 -- Yes --&gt; Q2     Q2 -- No --&gt; R2     Q2 -- Yes --&gt; R3     R3 --&gt; R4     R4 --&gt; R5     R5 --&gt; R6                     </pre>
Caution	When separating and connecting the cables such as CN809 of the Main SMPS, CN1, CN2, CN3, CN4 and CN5 of the DC-DC SMPS, CN of the X Main Board, and CN of the Y Main Board, a spark may be generated by the electric charge of the high capacity capacitor. Therefore, wait some time after separating the power cord from the unit.



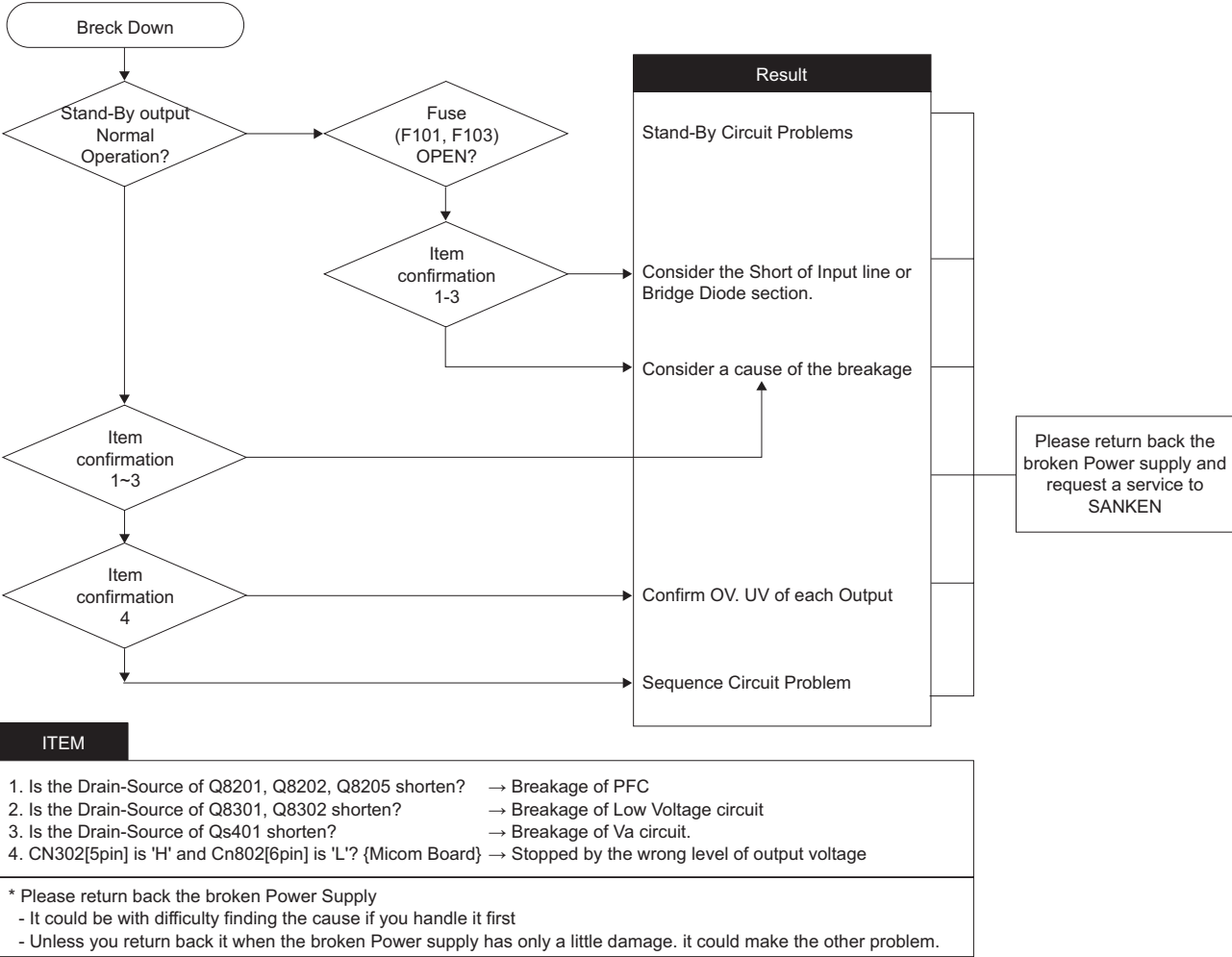
6-2-4 No Sound

Symptom	- Video is normal but there is no sound.
Major Checklist	- When the speaker connectors are disconnected or damaged. - When the sound processing part of the Main Board is out of order. - Speaker defect.
Troubleshooting Procedures	<div></div> <div><div><div>①</div><div>Is the cable connection between the Main Board and the speaker properly connected?</div><div>No</div><div>Connect the cable properly or replace the cable, if necessary.</div><div>Yes</div></div><div><div>②</div><div>Is the output voltage of SMPS normal? (CN803 #5)</div><div>No</div><div>Replace the Main SMPS</div><div>Yes</div></div><div><div>Is the speaker output terminal of the Main Board normal?</div><div>No</div><div>Replace the Main Board</div><div>Yes</div></div><div><div>③</div><div>Replace the Speaker</div></div></div>

## 6-2-5 No Video

Symptom	- A normal/cable network analog broadcast screen is blank or abnormal.
Major Checklist	<ul style="list-style-type: none"> <li>- Check the antenna connection settings (Antenna 1 - Normal/Cable/DTV, Antenna 2 - Only for DTV)</li> <li>- Check the tuner output signal (CVBS).</li> <li>- Check the power input of the Main board.</li> </ul>
Troubleshooting Procedures	 <pre> graph TD     Q1[Is the antenna connection setting properly configured?] -- No --&gt; A1[Configure properly]     Q1 -- Yes --&gt; Q2[1 Check CN101 pin2 for +33V]     Q2 -- No --&gt; A2[Replace the Main SMPS]     Q2 -- Yes --&gt; A3[Replace the Main Board]             </pre> <p>The troubleshooting procedure for 'No Video' involves checking the antenna connection settings. If not properly configured, the user should configure it properly. If the settings are correct, the next step is to check CN101 pin2 for +33V. If this check fails, the Main SMPS should be replaced. If the check is successful, the Main Board should be replaced.</p>

6-2-6 Main SMPS Troubleshooting



## 6-2-7 Drive Board Troubleshooting

### 1) Troubleshooting Summary

Condition Name	Description	Related Board
No Voltage Output	Operating Voltage don't exist	PSU
No Display	Operating Voltage exist, but an Image doesn't exist on screen	Y-MAIN, X-MAIN, Logic Main, Cable
Abnormal Display	Abnormal Image (not open or short) is no screen	Y-MAIN, X-MAIN, Logic Main
Sustain Open	Some horizontal lines don't exist on screen	Scan Buffer, FPC of X/Y
Sustain Short	Some horizontal lines appear to be linked on screen	Scan Buffer, FPC of X/Y
Address Open	Some vertical lines don't exist on screen	Logic Main, Logic Buffer, TCP
Address Short	Some vertical lines appear to be linked on screen	Logic Main, Logic Buffer, TCP

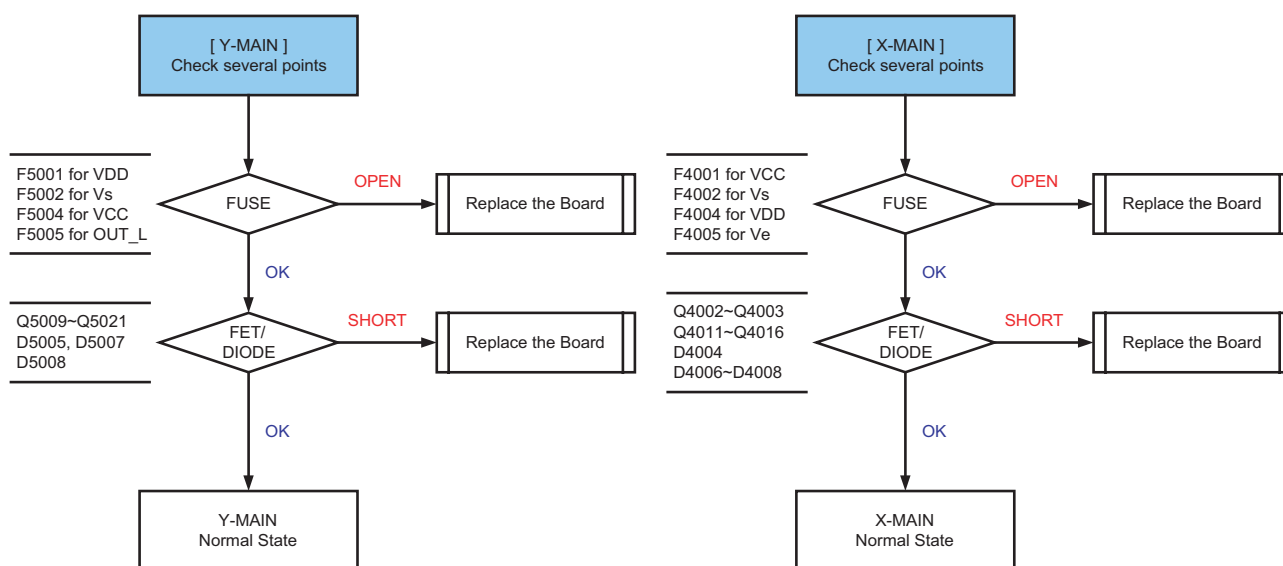
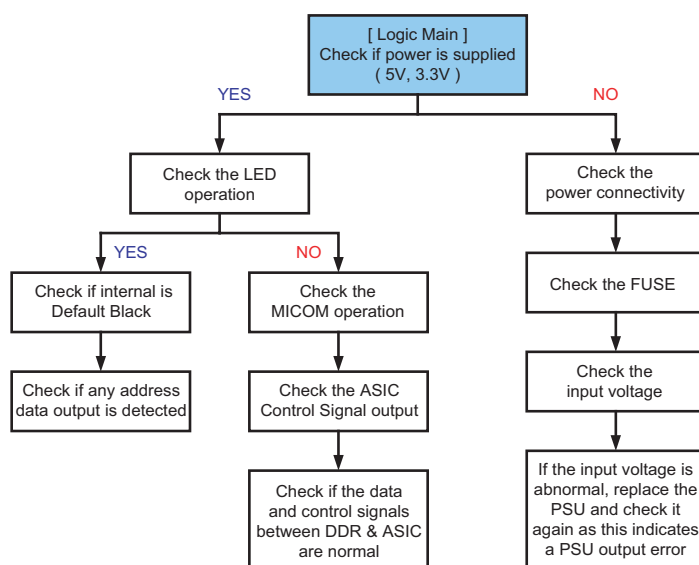
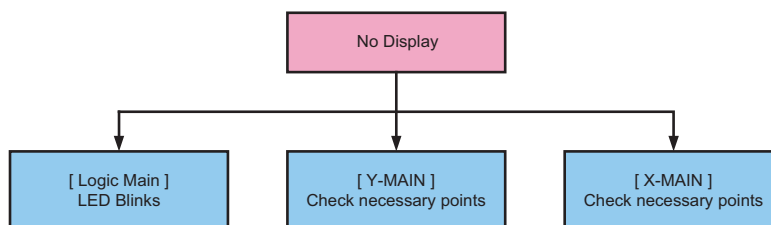


## 2) Troubleshooting Procedure in Abnormal Conditions

### ① No Display (Operating Voltage exist, but an doesn't exist on Screen)

- No Display is related with Y-MAIN, X-MAIN, Logic Main and so on.

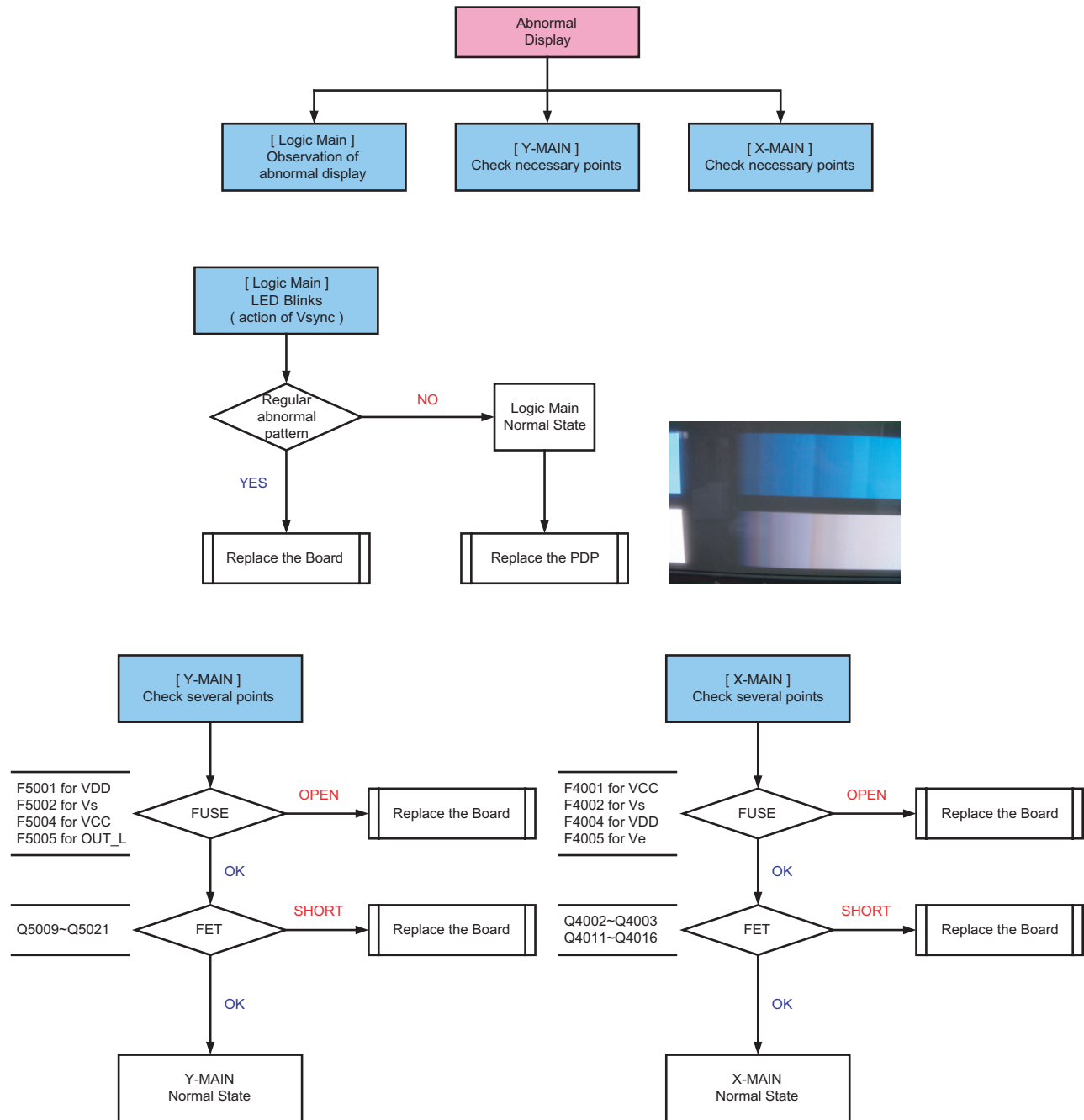
This page shows you how to check the boards, and the following pages show you how to find the defective board.



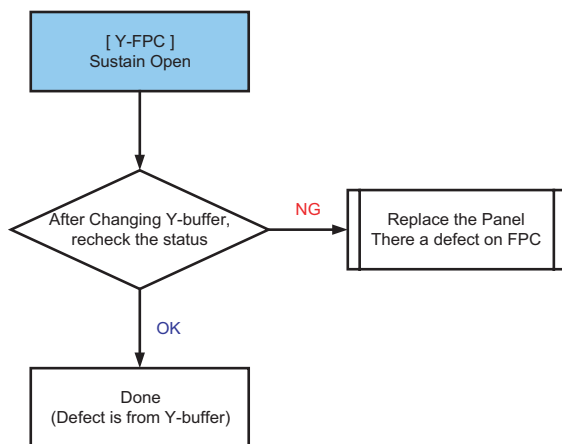
② Abnormal Display(Abnormal Image is on Screen.(except abnormality in Sustain or Address)

- Abnormal Display is related with Y-MAIN, X-MAIN, Logic Main and so on.

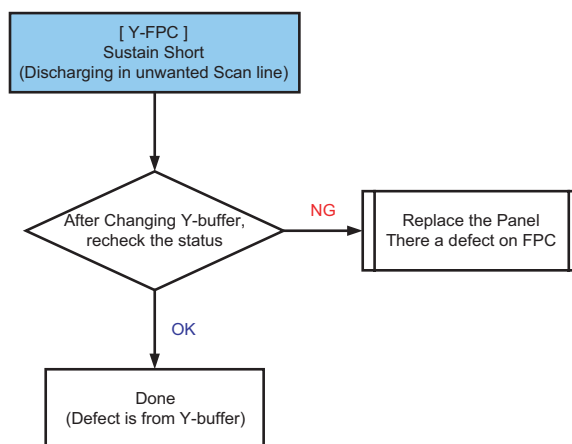
This page shows you how to check the boards, and the following pages show you how to find the defective board.



③ Sustain Open (some horizontal lines don't exist on screen)



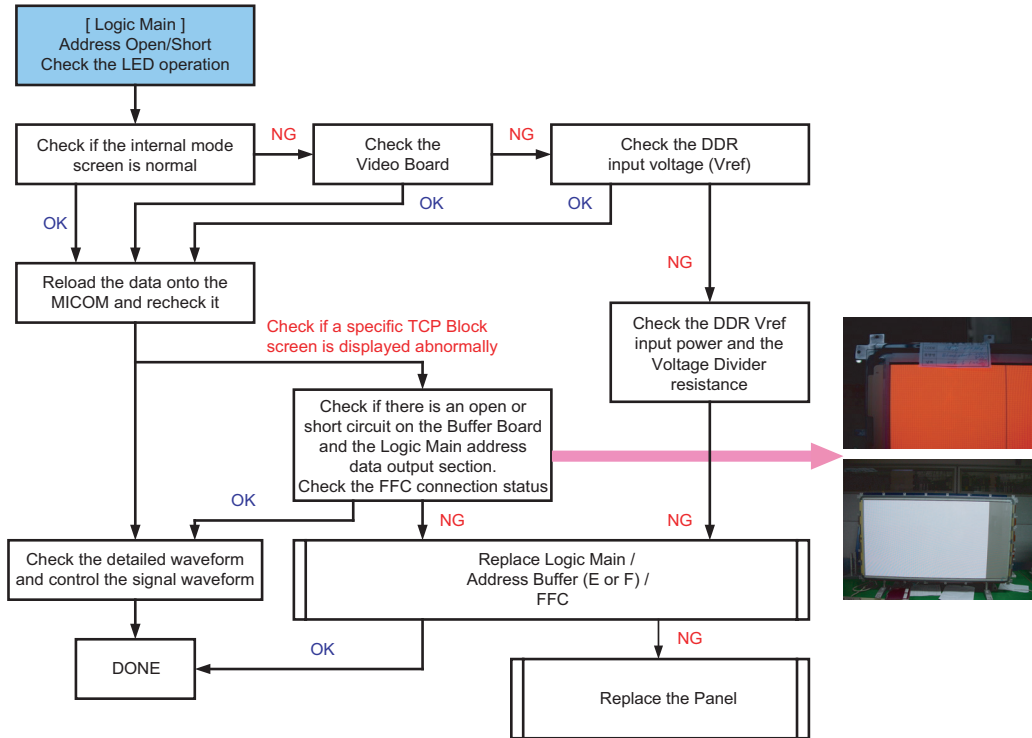
④ Sustain Short (some horizontal lines appear to be linked on Video)



⑤ Address Open, Short(some vertical lines don't exist on screen)

- Address Open and Short is related with Logic Main, Logic Buffer, FFC, TCP film and so on.

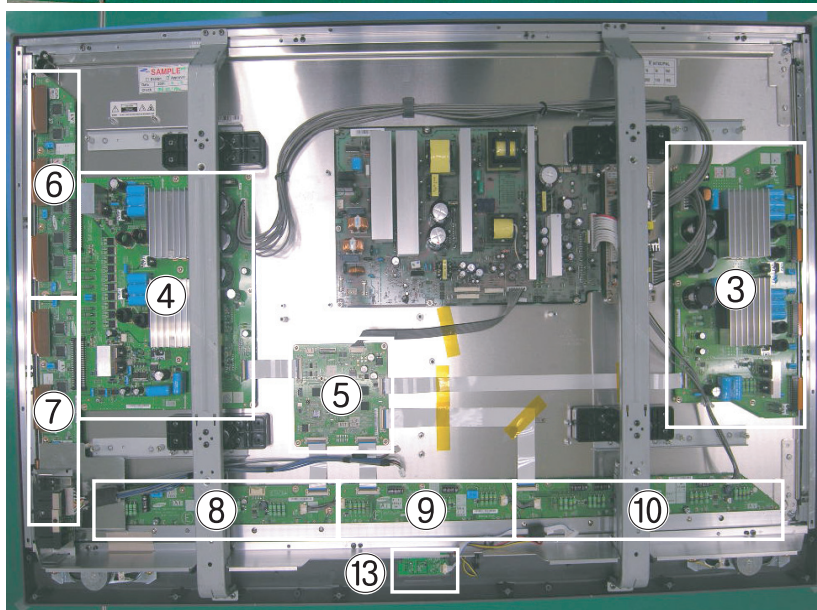
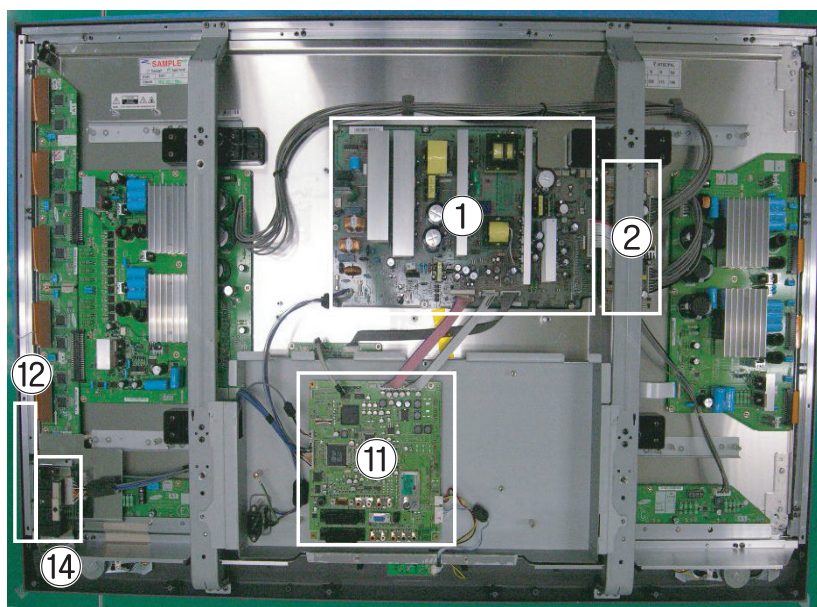
This page shows you how to check the boards, and the following pages show you how to find the defective board.



## 6-3 Troubleshooting Procedures by ASS'Y

※ The ASS'Y code can be changed, see "5 Chapter. Electrical Part List."

No	Assy	Code No.	Description	Major Symptoms
1	ASSY PCB P-SMPS(MAIN)	BN96-03051A	Main SMPS	No power, Blank screen, the Relay repeats On and Off.
2	ASSY PCB P-SMPS(DC-DC)	BN96-01856A	DC-DC SMPS	Blank screen, the Relay repeats On and Off.
3	ASSY PDP P-X MAIN BOARD	BN96-03359A	X Main Board	Blank screen
4	ASSY PDP P-Y MAIN BOARD	BN96-03360A	Y Main Board	Blank screen
5	ASSY PDP MODULE P-LOGIC MAIN BOARD	BN96-03366A	Logic Board	Blank screen, Screen noise
6	ASSY PDP P-Y UPPER SCAN BOARD	BN96-03361A	Y Upper Scan Board	Row Bar screen is blank
7	ASSY PDP P-Y LOWER SCAN BOARD	BN96-03362A	Y Lower Scan Board	Row Bar screen is blank
8	ASSY PDP P-ADDRESS E BUFF BOARD	BN96-03363A	Address E Buffer Board	Corresponding Buffer Board block screen is blank.
9	ASSY PDP P-ADDRESS F BUFF BOARD	BN96-03364A	Address F Buffer Board	Corresponding Buffer Board block screen is blank.
10	ASSY PDP P-ADDRESS G BUFF BOARD	BN96-03365A	Address G Buffer Board	Corresponding Buffer Board block screen is blank.
11	ASSY PCB MISC-MAIN	BN94-00957A	Main Board	No Power, Abnormal screen for each input source, PIP screen trouble, Sound trouble
12	ASSY BOARD P-FUNCTION	BN96-02784B	Function Key Board	The side function key does not work properly
13	ASSY BOARD P-POWER&IR	BN96-03320A	Power Button Board	The remote control does not work properly, the LED does not work properly.
14	ASSY BOARD P-SIDE AV	BN96-03075G	Side AV Board	The AV2 and S-VIDEO2 modes do not work properly



# MEMO