2012 Plasma TV Troubleshooting Guide

2012-Plasma FHD TV – ST Series (15th Generation)

Applies to models:

TC-P50ST50
TC-P50UT50

National Training Department
Panasonic Consumer Marketing
Company Of North America
Important Information

- To avoid the unnecessary replacement of multiple PC boards, please read this before beginning to repair this unit.

- Do not use any service documentation other than the one designed for this particular model.

- Techniques used on previous models may not necessarily apply to the model you are working on.

- For accurate diagnosis during troubleshooting, do not skip or alter the order of steps on the guide.
When an abnormality occurs in the unit, the “SOS Detect” circuit is triggered and the TV shuts down. The power LED on the front panel will flash a pattern indicating the circuit that has failed.

**Cautions:**

If the power LED continues to blink even after the TV is unplugged, press and hold the power switch on the TV for a few seconds until the LED turns off.

Some steps require removal of connectors and sometimes PC boards removal. Do not allow the TV to run for more than 30 seconds while connectors or boards are disconnected.

**NOTE:** When taking voltage reading, place your meter’s probe on the test point or pin indicated before connecting the TV to the AC line. The voltage you intent to measure may only appear for a brief moment.

**Warning:** The Vsus line has large capacitors that hold the charge for some time even after the TV has been turned off and unplugged. When disconnecting P2/SC2 or P11/SS1, bleed the remaining charge of the Vsus before reconnecting the cable. Use a 500 ohms/ 5W (At least) resistor to discharge the Vsus line before reconnecting P2/SC2 or P11/SS11.
<table>
<thead>
<tr>
<th>POWER LED ERROR CODE</th>
<th>CIRCUIT MONITORED</th>
<th>CONDITIONS TRIGGERING THE SHUTDOWN</th>
<th>LIST OF BOARDS POSSIBLY CASUSING THE FAILURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 BLINK</td>
<td>Panel Information SOS</td>
<td>Communication problem</td>
<td>#1 Suspect: A</td>
</tr>
<tr>
<td>2 BLINKS</td>
<td>P15V form the P board</td>
<td>Missing P15V P15V is not been generated by the P board, Wrong diagnostic by the A board</td>
<td>#2: P #3 Occasionally: A</td>
</tr>
<tr>
<td>3 BLINKS</td>
<td>Incomplete or interrupted Boot Program execution of PEAKS IC (IC8000),</td>
<td>Shorted P15V Missing F15V Wrong diagnostic by the A board</td>
<td>#3 Occasionally: P</td>
</tr>
<tr>
<td>4 BLINKS</td>
<td>Power Supply output voltages</td>
<td>Vsus Over Voltage Condition. P15V Shorted while in operation. Wrong diagnostic by the A board</td>
<td>#2: P #4: A</td>
</tr>
<tr>
<td>6 BLINKS</td>
<td>SC Energy Recovery Circuit</td>
<td>An increase or reduction of the Energy Recovery Circuit output (MID). Shorted SUB5V. Wrong diagnostic by the A board.</td>
<td>#3 Occasionally: SC #2: A #4: C</td>
</tr>
<tr>
<td>7 BLINKS</td>
<td>Scan Drive Circuit and Connection between the SC board and the SC board.</td>
<td>Missing or shorted Vsus. Abnormality of the scan circuit output, the 15V_F, the scn_pro, and Vscn circuit. Loose or open Connection between the SC board and the SC board (SC41, SC42, SC46). Open or loose connection between connectors SC2/P2 Wrong diagnostic by the A board Defective panel</td>
<td>#2: SU/SD #3 Occasionally: SC #4: SS A/Panel</td>
</tr>
<tr>
<td>8 BLINKS</td>
<td>Sustain Drive Circuit and Connection between the SS board and the Panel.</td>
<td>Abnormality of the sustain drive circuit. Open or loose connection between the SS/SS2 Boards. and FPCs from the panel (SS52 – SS54 – SS55 – SS57). Open or loose connection between connectors C10/C20 or C26/C36. Wrong diagnostic by the A board</td>
<td>#3 Occasionally: SS #4: A C3 Panel</td>
</tr>
</tbody>
</table>

**Slide 4**
## Power LED Error Code Definition (2 of 2)

<table>
<thead>
<tr>
<th>POWER LED ERROR CODE</th>
<th>CIRCUIT MONITORED</th>
<th>CONDITIONS TRIGGERING THE SHUTDOWN</th>
<th>LIST OF BOARDS POSSIBLY CAUSING THE FAILURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 BLINKS</td>
<td>Discharge Control Circuit DDC (IC9300)</td>
<td>Failure of IC9300&lt;br&gt;Wrong diagnostic by the A board</td>
<td>#1 Suspect&lt;br&gt;Speakers/Subwoofer</td>
</tr>
<tr>
<td>10 BLINKS</td>
<td>SUB3.3V_Sense (OVP)</td>
<td>Over Voltage Condition of SUB5V or SUB3.3V&lt;br&gt;Wrong diagnostic by the A board.</td>
<td>#1 Suspect&lt;br&gt;Speakers/Subwoofer</td>
</tr>
<tr>
<td>12 BLINKS</td>
<td>Audio Amp. Circuit</td>
<td>Defective Speaker/Subwoofer&lt;br&gt;Pinched Speaker Wire&lt;br&gt;Wrong diagnostic by the A board</td>
<td>#1 Suspect&lt;br&gt;Speakers/Subwoofer</td>
</tr>
<tr>
<td>13 BLINKS</td>
<td>IC8000 Internal Communication</td>
<td>Defective A.board</td>
<td>#1 Suspect</td>
</tr>
</tbody>
</table>
Protection Circuit Block Diagram 1 of 2 (TC-P50ST50)

- **P15V**
  - Missing: 2 Blinks
  - Shorted: 3 Blinks

- **SUB3.3V**
  - Missing: 3 Blinks
  - Shorted: At plug-in

- **IC5000**
  - REG (STB3.3V) RESET
  - Normal: all input = “L” (output = “L”)
  - (Analog output) 6 – 9 blinks

- **P15V**
  - Det. Circuit
  - (If no signal, Discharge Reset: 6/8 blinks)

- **P3.3V**
  - Det. Circuit
  - (If no 3.3V in C1/C2-PCB, Discharge Reset: 6/8 blinks)

- **TC-P**
  - ST50/UT50
  - (TNPH0989**)

- **IC8000-1**
  - Peaks LD4
  - Standby uCOM
  - System uCOM

- **SUB3.3V**
  - 3 Blinks
  - At plug-in if SUB3.3 is missing

- **P15V**
  - 2 Blinks if P15 is missing

- **Panasonic ideas for life**
  - Slide 6
Blink Code/Voltage Condition (TC-P50ST50 - TC-P50UT50)

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Condition</th>
<th>TC-P50UT50</th>
<th>TC-P50ST50</th>
</tr>
</thead>
<tbody>
<tr>
<td>P15V</td>
<td>Missing</td>
<td>2 Blinks</td>
<td>2 Blinks</td>
</tr>
<tr>
<td></td>
<td>Shorted</td>
<td>No power. The LED turns on briefly and then it goes off immediately</td>
<td>3 Fast Blinks</td>
</tr>
<tr>
<td>SUB3.3V</td>
<td>Missing</td>
<td>3 Fast Blinks at Plug-in</td>
<td>3 Fast Blinks at Plug-in</td>
</tr>
<tr>
<td></td>
<td>Shorted</td>
<td>3 Fast Blinks at Plug-in</td>
<td>3 Fast Blinks at Plug-in</td>
</tr>
<tr>
<td></td>
<td>Over Voltage</td>
<td>Dead. Power LED never turns on</td>
<td>10 Blinks</td>
</tr>
<tr>
<td>SUB5V</td>
<td>Missing</td>
<td>3 Fast Blinks at Plug-in</td>
<td>3 Fast Blinks at Plug-in</td>
</tr>
<tr>
<td></td>
<td>Shorted</td>
<td>6 Blinks After 11sec.</td>
<td>6 Blinks After 11sec.</td>
</tr>
<tr>
<td></td>
<td>Over Voltage</td>
<td>Dead. Power LED never turns on</td>
<td>10 Blinks</td>
</tr>
</tbody>
</table>
Protection Circuit Block Diagram 2 of 2 (TC-P50ST50)

SUB5V & SUB3.3V OV Det. Circuit

<table>
<thead>
<tr>
<th>SUB5V</th>
<th>Missing</th>
<th>3 Fast blinks at plug-in</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Shorted</td>
<td>6 blinks after 11 sec.</td>
</tr>
<tr>
<td></td>
<td>Over Voltage</td>
<td>10 blinks</td>
</tr>
</tbody>
</table>

Emergency : 13 blinks
IROM error : quickly 3 blinks

TC-P**ST50/UT50 (TNPH0989**)
# Troubleshooting 1 -9 -10 - 13 Blinks Failure

When 1, 9, 10, or 13 blinks occur, replace the A board

<table>
<thead>
<tr>
<th>Blink Code</th>
<th>List of boards likely to cause this symptom</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.1</td>
</tr>
<tr>
<td>1</td>
<td>A Board</td>
</tr>
<tr>
<td>9 Blinks</td>
<td>A Board</td>
</tr>
<tr>
<td>10 Blinks</td>
<td>A Board</td>
</tr>
<tr>
<td>13 Blinks</td>
<td>A Board</td>
</tr>
</tbody>
</table>
Troubleshooting 2 Blinks Failure (TC-P50ST50)

Start Here

Place the positive lead of a voltmeter at pin 13 of connector P6 while the black lead is connected to ground (Chassis ground). Plug in the TV and turn it on.

Does 15V appears momentarily on pin13 of CN P6?

Yes

Replace the A board

No

Replace the P board

List of boards likely to cause this symptom.

<table>
<thead>
<tr>
<th>Blink Code</th>
<th>List of boards likely to cause this symptom</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.1</td>
<td>No.2</td>
</tr>
<tr>
<td>No.3</td>
<td>No.4</td>
</tr>
<tr>
<td>2 Blinks</td>
<td>P</td>
</tr>
<tr>
<td></td>
<td>A</td>
</tr>
</tbody>
</table>

Find information for TC-P50UT50 on the next slide.

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Troubleshooting 2 Blinks Failure (TC-P50UT50)

List of boards likely to cause this symptom:

<table>
<thead>
<tr>
<th>No. 1</th>
<th>No. 2</th>
<th>No. 3</th>
<th>No. 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td>A</td>
<td>Panel/C2</td>
<td></td>
</tr>
</tbody>
</table>

Start Here

Place the positive lead of a voltmeter at pin 13 of connector P6 while the black lead is connected to ground (Chassis ground). Plug in the TV and turn it on.

Does 15V appears momentarily on pin13 of CN P6?

Yes

Replace the P board

No

Is there a short circuit?

Yes

Defective Panel and/or C2 board

No

Replace the A board

Unplug the TV. Check the resistance between TP201 (P3.3V) on the C2 board and chassis ground.

TP201
P3.3V
(SRV P3.3V)

C10
C20
C1
C2

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Find information for TC-P50ST50 on the previous slide)
Troubleshooting 3 Fast Blinks Failure (TC-P50ST50)

<table>
<thead>
<tr>
<th>Blink Code</th>
<th>List of boards likely to cause this symptom</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.1 No.2 No.3 No.4 No.5</td>
<td></td>
</tr>
<tr>
<td>3 Blinks</td>
<td>A P SS/SC Bluetooth Module Panel</td>
</tr>
</tbody>
</table>

**Start Here**

Unplug the TV. Check for short circuit or low resistance between pin 13 of connector P6 and ground (Chassis ground).

---

**Yes**

Is there a short circuit or a resistance lower than 1 Kilo-ohm?

- **Yes**
  - Replace the A board

- **No**
  - With the TV still disconnected, remove connector A6 from the A board and perform the same resistance check on pin 13 of connector P6.

---

**No**

Unplug the blue-tooth module. If the blinking stops, change the blue-tooth module.

---

**Yes**

Is there a short circuit or a resistance lower than 1 Kilo-ohm?

- **Yes**
  - Replace the P board

- **No**

---

**Yes**

Is there a short circuit or a resistance lower than 1 Kilo-ohm?

- **Yes**
  - Replace the SS board

- **No**

---

**Yes**

Is there a short circuit or a resistance lower than 1 Kilo-ohm?

- **Yes**
  - Replace the A board

- **No**
  - Replace the SC board

---

**No**

Is there a short circuit or a resistance lower than 1 Kilo-ohm?

- **Yes**
  - Replace the SC board

- **No**
  - If no short circuit is found on any of the C boards, change the panel
Troubleshooting 3 Fast Blinks Failure At Plug-in (TC-P50UT50)

<table>
<thead>
<tr>
<th>Blink Code</th>
<th>List of boards likely to cause this symptom</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 Blinks</td>
<td>A  P  K Bluetooth Module C3/Panel</td>
</tr>
</tbody>
</table>

Start Here

Unplug the TV. Connect the negative (Black lead) of your DC volt-meter on chassis ground. Place the positive lead on pin 10 of connector P6 on the power supply. While observing the display on your meter, plug-in the TV.

Unplug the TV and remove connector K1 from the A board. Plug in the TV and press the power switch on the TV.

Does the TV turn on and stays on?

Yes

Replace the K board

No

Unplug the TV and reconnect K1. Disconnect connectors A31 and A32 from the A board. Plug-in the TV.

Does 15V appear briefly?

Yes

Replace the K board

No

Unplug the TV and reconnect K1. Disconnect connectors A31 and A32 from the A board. Plug-in the TV.

Is the power LED blinking 3 or 8 times?

8 Times

Replace the A board

3 times

Defective Panel or/and the C3 board.

To time it takes to isolate the C3 board from the panel is approx. 30 minutes.

To isolate the C3 board, reconnect A31 and A32 and remove the metal bracket over the C boards. Disconnect connectors CB12~CB15 from the C3 board and plug-in the TV. If the power LED stops blinking at plug-in, then the Panel is defective. If the LED blinks 3 times, then the C3 board is defective.
Troubleshooting 3 Fast Blinks Failure At Power-On (TC-P50UT50) (1 of 2)

1. Unplug the TV.
2. Remove any residual charge from the Vsus and Vda lines. Use a 5W 500ohms resistor.
3. Measure the resistance between chassis ground and pin 1 of connector P11 on the P board. Also measure the resistance between chassis ground and pin 1 of connector P35 on the P board. (See the picture below for connectors’ location.) **Note:** A dead short or a reading lower than 1K indicates a shorted or partially shorted line.

---

**POWER SUPPLY**

- **Yes**
  - Is there a short circuit of the Vsus or Vda?
  - Replace the A board

- **No**
  - Shorted Vsus
    - Continue on next slide (A)
  - Shorted Vda
    - Continue on next slide (B)
Unplug connectors P2 and P11, on the P board. Measure the resistance between pin 1 of connector P11 and ground (Chassis).

Is there a short circuit?

- Yes: Replace the P board
- No: With P2 and P11 disconnected, measure the resistance between pin 1 of connector SC2 on the SC board and ground (Chassis).

Is there a short circuit?

- Yes: Replace the SS and the SC boards
- No: Replace the SS

Is there a short circuit?

- Yes: Replace the Panel (Check the C boards first for shorted Vda).
- No: Unplug the TV and remove connector P35. Check the resistance between pin 1 of connector P35 on the P board and ground (Chassis).
Troubleshooting 4 Blinks Failure

**List of boards likely to cause this symptom.**

<table>
<thead>
<tr>
<th>Blink Code</th>
<th>List of boards likely to cause this symptom.</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.1</td>
<td>No.2</td>
</tr>
<tr>
<td>No.3</td>
<td>No.4</td>
</tr>
<tr>
<td>4 Blinks</td>
<td>P</td>
</tr>
<tr>
<td></td>
<td>A</td>
</tr>
</tbody>
</table>

### Start Here

Place the positive lead of a voltmeter at pin 4 of connector P6 while the black lead is connected to ground (Chassis ground). Plug in the TV and turn it on.

### Flowchart

1. Is there 2V to 3V (Approx.) momentarily on pin 4 of CN P6?
   - **No**
     - Replace the A board
   - **Yes**
     - Replace the P board

---

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Troubleshooting 6 Blinks Failure

Verify that all the cables on the SC board are properly seated. Also check the ribbon cables and connectors on the A and C boards. Unplug the TV and disconnect connector SC20 on the SC board. Plug in the TV and turn it on.

Did the number of blinks change to 8 blinks?

- No: Replace the A board
- Yes: Replace the SC board

List of boards likely to cause this symptom:

<table>
<thead>
<tr>
<th>Blink Code</th>
<th>List of boards likely to cause this symptom</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 Blinks</td>
<td>SC</td>
</tr>
</tbody>
</table>

Verify that all the cables on the SC board are properly seated. Also check the ribbon cables and connectors on the A and C boards. Unplug the TV and disconnect connector SC20 on the SC board. Plug in the TV and turn it on.

Did the number of blinks change to 8 blinks?

- No: Replace the A board
- Yes: Replace the SC board

List of boards likely to cause this symptom:

<table>
<thead>
<tr>
<th>Blink Code</th>
<th>List of boards likely to cause this symptom</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 Blinks</td>
<td>SC</td>
</tr>
</tbody>
</table>

Verify that all the cables on the SC board are properly seated. Also check the ribbon cables and connectors on the A and C boards. Unplug the TV and disconnect connector SC20 on the SC board. Plug in the TV and turn it on.

Did the number of blinks change to 8 blinks?

- No: Replace the A board
- Yes: Replace the SC board

List of boards likely to cause this symptom:

<table>
<thead>
<tr>
<th>Blink Code</th>
<th>List of boards likely to cause this symptom</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 Blinks</td>
<td>SC</td>
</tr>
</tbody>
</table>

Verify that all the cables on the SC board are properly seated. Also check the ribbon cables and connectors on the A and C boards. Unplug the TV and disconnect connector SC20 on the SC board. Plug in the TV and turn it on.

Did the number of blinks change to 8 blinks?

- No: Replace the A board
- Yes: Replace the SC board

List of boards likely to cause this symptom:

<table>
<thead>
<tr>
<th>Blink Code</th>
<th>List of boards likely to cause this symptom</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 Blinks</td>
<td>SC</td>
</tr>
</tbody>
</table>
Troubleshooting 7 Blinks (SOS 7)

A 7 blinks shutdown can be caused by a failure of any or a combination of the following boards: SU/SD, SC, A, or the Panel. Is also possible for the SS board to cause 7 blinks shutdown on this model.

Note: This page indicates the order in which these boards are likely to fail. This information alone is not enough to diagnose which board is defective. To determine the cause of a 7 blinks failure, follow the troubleshooting procedure on the following pages.
Troubleshooting 7 Blinks Failure (TC-P50ST50)

Is the power LED blinking 7 or 8 times?

7 Times

Unplug the TV and reconnect SS11. Remove SC20 from the SC board. Plug-in the TV and turn it on.

8 Times

Check the wires between connector P2 on the P board and SC2 on the SC board. Make sure they are properly seated. If the problem persists, unplug the TV and remove connector SS11 from the SS board. Plug-in the TV and turn it on.

Is the power LED blinking 7 or 8 times?

7 Times

Replace the A board

8 Times

Replace the SS board

Continue on the page after next
Troubleshooting 7 Blinks Failure (F5V/TPSC Resistance Check)

Disconnect the AC prior to making any disconnection or connection. Wait at least 2 minutes before the removal of any connector.

From before the previous page

Step 1
Using any of the VFG screws (Floating ground screws) as ground, measure the resistance of pin 2 and pin 6 of either SU41/SC41 or SD42/SC42.
If a short circuit is found, proceed with step 2.
If no short circuit is found, isolate the SU and SD boards as illustrated on the next slide.

Step 2
Unplug SU41 and SD42. Using any of the VFG Screws (Floating ground screws) as ground, measure the resistance of pin 2 and pin 6 of both SU41 and SD42.

A short circuit indicates the failure of the board where it was found.

Note: Change the SU and SD boards together even if only one is found to be defective.
Unplug the TV and follow step 2 of the previous slide.

Is there still a short circuit?

Yes

Follow the procedure on the next slide to isolate the SU and SD boards. Plug in the TV and press the power switch.

No

Is there still a short circuit?

Yes

SU/SD are Defective.
To find out if the SC board is also defective, follow the procedure to on the next slide to isolate the SU and SD boards. Plug in the TV and press the power switch.

No

Replace the SC board

Does the TV turn on and stay on? (Black screen)

Yes

Replace the SC, SU, and SD boards

No

Replace both the SU and SD boards

Does the TV turn on and stay on with black screen?

Yes

Replace both the SU and SD boards

No

Replace the SC board
Troubleshooting 7 Blinks Failure (SU/SD Boards Isolation Procedure)

Warning:

When performing this procedure, isolate the SU and SD boards together at the same time. Do not attempt to isolate the SU or the SD boards individually. This could cause further damages to the TV.

Procedure:

1. Remove the 4 VFG screws from the SU and SD boards. (See picture on the left side.)

2. Remove SC41, SC42, and SC46 from the SC board.

3. Install the SC50 Jig or just jump pins 1 and 2 of connector SC50 on the SC board.

Note: Remove the jig or the jumper after completing the isolation procedure.

4. Plug-in the TV and turn it on.
Troubleshooting 7 Blinks Failure (TC-P50UT50)

Is the power LED blinking 7 or 8 times?

7 Times

Replace the A board

8 Times

Unplug the TV and follow step #1 of the next slide.

Check the wires between connector P2 on the P board and SC2 on the SC board. Make sure they are properly seated. If the problem persists, unplug the TV and remove connector SC20 from the SC board. Plug-in the TV and turn it on.

Start Here

Continue on the page after next

List of boards likely to cause this symptom:

<table>
<thead>
<tr>
<th>Blink Code</th>
<th>SU</th>
<th>SC</th>
<th>A</th>
<th>Panel</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 Blinks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Find information for TC-P50ST50 on slides 19~22
Troubleshooting 7 Blinks Failure (F5V/TPSC Resistance Check)

Disconnect the AC prior to making any disconnection or connection. Wait at least 2 minutes before the removal of any connector.

From before the previous page

1. Step
   Using any of the VFG screws (Floating ground screws) as ground, measure the resistance of pin 2 and pin 6 of either SU41/SC41 or SD42/SC42.
   If a short circuit is found, proceed with step 2.
   If no short circuit is found, isolate the SU and SD boards.

2. Step
   Unplug SU41 and SD42. Using any of the VFG Screws (Floating ground screws) as ground, measure the resistance of pin 2 and pin 6 of both SU41 and SD42.
   A short circuit indicates the failure of the board where it was found.

Note: Change the SU and SD boards together even if only one is found to be defective.
Unplug the TV and follow step 2 of the previous slide.

Is there a short circuit?

Yes

Unplug the TV and follow step 2 of the previous slide.

No

Follow the procedure on the next slide to isolate the SU and SD boards. Plug in the TV and press the power switch.

Is there still a short circuit?

Yes

SU/SD are Defective.
To find out if the SC board is also defective, follow the procedure to on the next slide to isolate the SU and SD boards. Plug in the TV and press the power switch.

No

Replace the SC, SU, and SD boards

Does the TV turn on and stay on? (Black screen)

Yes

Replace both the SU and SD boards

No

Replace both the SU and SD boards

Does the TV turn on and stay on with black screen?

Yes

Replace both the SU and SD boards

No

Replace the SC board

Replace the SC board
Troubleshooting 7 Blinks Failure (SU/SD Boards Isolation Procedure)

Warning:
When performing this procedure, isolate the SU and SD boards together at the same time. Do not attempt to isolate the SU or the SD boards individually. This could cause further damages to the TV.

Procedure:
1. Remove the 4 VFG screws from the SU and SD boards. (See picture on the left side.)

2. Remove SC41, SC42, and SC46 from the SC board.

3. Install the SC50 Jig or just jump pins 1 and 2 of connector SC50 on the SC board.

4. Plug-in the TV and turn it on.

Note: Remove the jig or the jumper after completing the isolation procedure.
Troubleshooting 8 Blinks Failure (TC-P50ST50)

List of boards likely to cause this symptom:

<table>
<thead>
<tr>
<th>No. 1</th>
<th>No. 2</th>
<th>No. 3</th>
<th>No. 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS</td>
<td>A</td>
<td>SS2</td>
<td>Panel</td>
</tr>
</tbody>
</table>

Find information for TC-P50UT50 on the next slide.

Start Here

Check all the cables between the SS/SS2 boards (SS52, SS54 ~SS57) and the panel. Make sure they are properly seated in the connectors. Unplug the TV and disconnect SS33 on the SS board. Plug in the TV and turn it on.

Does the TV turn on and stay on?

Yes

Does the TV turn on and stay on?

No

- Unplug the TV. Check for continuity between pins 1 and 2 of connector SS52 on the SS board. Do not plug in the TV.
- Check connections between the SS board and the panel. Check also connections between the SS2 and the SS board and the panel. If ok, then replace the panel.
- Check for continuity between pins 1 and 2 of connectors SS54 ~SS57 on the SS2 board. Do not plug in the TV.

Is continuity ok?

Yes

Replace the SS2 board

No

Is continuity ok in all the connectors?

Yes

Replace the SS2 board

No

If all connections between the SS/SS2 boards are confirmed OK, replace the A board.
Troubleshooting 8 Blinks Failure (TC-P50UT50)

List of boards likely to cause this symptom.

<table>
<thead>
<tr>
<th>Blink Code</th>
<th>No.1</th>
<th>No.2</th>
<th>No.3</th>
<th>No.4</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 Blinks</td>
<td>SS</td>
<td>A</td>
<td>Panel</td>
<td></td>
</tr>
</tbody>
</table>

Start Here

Check all the cables between the SS board (SS52 ~SS57) and the panel. Make sure they are properly seated in the connectors. Unplug the TV and disconnect SS33 on the SS board. Plug in the TV and turn it on.

No

Does the TV turn on and stay on?

Yes

8 Blinks

No

6 Blinks

Replace the A board

Unplug the TV. Check the resistance between TP101 on the C1 board and chassis ground.

Yes

Is there a short circuit?

No

Defective Panel

Replace the A board

Unplug the TV. Check for continuity between pins 1 and 2 of connectors SS52 ~SS57 on the SS board. Do not plug in the TV.

No

Is continuity OK in all the connectors?

Yes

Replace the SS board

Check connections between the SS board and the panel. If ok, then replace the panel

Find information for TC-P50ST50 on the previous slide)
Troubleshooting 12 Blinks Failure

List of boards likely to cause this symptom.

<table>
<thead>
<tr>
<th>Blink Code</th>
<th>List of boards likely to cause this symptom.</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.1</td>
<td>No.2</td>
</tr>
<tr>
<td>No.3</td>
<td>No.4</td>
</tr>
<tr>
<td>12 Blinks</td>
<td>A Speaker/Subwoofer</td>
</tr>
</tbody>
</table>

Start Here

Unplug the TV and remove connector A12 from the A board. Plug in the TV and turn it on

Is the TV still shutting down with 12 blinks?

No

Disconnect the speakers one at a time to determine which one is bad

Yes

Replace the A board
Troubleshooting No Power/Dead Unit (Power LED is Off)

- **Start Here**
  - Make sure the connectors on the P board are properly seated. Plug-in the TV but do not turn the power on.

1. Unplug the TV and place your volt-meter on pin 6 of connector P6. Plug in the TV but do not turn the power on.
   - **NO**
   - Unplug the TV. Place your volt-meter on pin 1 of connector P6. Plug in the TV and press the power switch.
   - **Yes**
     - Does the AC relay clicks after the TV is plugged into the AC line?
       - **NO**
         - Replace the A board.
       - **Yes**
         - Replace the P board (Check the AC Cord).

2. Is there 5V present when the TV is plugged into the AC line?
   - **NO**
     - Unplug the TV and disconnect A1 on the A board. Plug in the TV but do not turn the power on.
   - **Yes**
     - Replace The P board.

3. Does the relay click now?
   - **NO**
     - Replace the A board.
   - **Yes**
     - Replace the K board (Check Wires between A1 and S1).

4. Is the TV turning On?
   - **NO**
     - Replace the A board.
   - **Yes**
     - Is there 2 – 3V present when the power button is pressed?
       - **NO**
         - Replace The P board.
       - **Yes**
         - Replace The P board.

---

Panasonic ideas for life

Slide 30
2012 Plasma TV’s Behavior After Connectors Removal

<table>
<thead>
<tr>
<th>Connector on The SC Board</th>
<th>Connector on The SS Board</th>
<th>TC-P50ST50</th>
<th>TC-P50UT50</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC2</td>
<td>SS11</td>
<td>7 Blinks</td>
<td>7 Blinks</td>
</tr>
<tr>
<td>SC20</td>
<td>SS33</td>
<td>8 Blinks</td>
<td>8 Blinks</td>
</tr>
<tr>
<td>SC20 SC20</td>
<td>SS33</td>
<td>8 Blinks</td>
<td>8 Blinks</td>
</tr>
<tr>
<td>SC20 SS11</td>
<td>SS33</td>
<td>The TV stays on with black screen.</td>
<td>The TV stays on with black screen.</td>
</tr>
<tr>
<td>SC2 SC20</td>
<td>SS33</td>
<td>3 Fast Blinks</td>
<td>7 Blinks</td>
</tr>
<tr>
<td>SC2 SS33</td>
<td>SS33</td>
<td>3 Fast Blinks</td>
<td>7 Blinks</td>
</tr>
<tr>
<td>SC20 SS11</td>
<td>SS33</td>
<td>8 Blinks</td>
<td>8 Blinks</td>
</tr>
<tr>
<td>SC20 SS33</td>
<td>SS33</td>
<td>6 Blinks After 11 Sec. of Being on.</td>
<td>6 Blinks After 11 Sec. of Being on.</td>
</tr>
<tr>
<td>SC20 SS11 SS33</td>
<td>SS33</td>
<td>The TV stays on with black screen.</td>
<td>The TV stays on with black screen.</td>
</tr>
<tr>
<td>SC2 SC20 SS11</td>
<td>SS33</td>
<td>3 Fast Blinks</td>
<td>6 Blinks</td>
</tr>
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<td>SC2 SC20 SS33</td>
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<td>6 Blinks After 11 Sec. of Being on.</td>
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</tr>
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<td>6 Blinks After 11 Sec. of Being on.</td>
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<td>6 Blinks After 11 Sec. of Being on.</td>
</tr>
<tr>
<td>SC2 SS11 SS33</td>
<td>SS33</td>
<td>3 Fast Blinks</td>
<td>7 Blinks</td>
</tr>
</tbody>
</table>

Any Combination of A20 – A31 and A32

8 Blinks
### Behavior Comparison Between 2011 and 2012 Models
When the TV Fails With Shorted Vsus, Vda, or P15V

<table>
<thead>
<tr>
<th>Year</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Series</strong></td>
<td><strong>X – S – ST</strong></td>
<td><strong>GT - VT30</strong></td>
</tr>
<tr>
<td>Vsus</td>
<td>Locked Solid Red LED</td>
<td>7 Blinks</td>
</tr>
<tr>
<td>Vda</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P15</td>
<td>Locked Solid Red LED (14 Blinks, If TV is Turned On After the 2nd Relay Click)</td>
<td>The TV does not turn on. The TV does not shut down. It tries to turn on (the LED briefly turns on), then it goes off.</td>
</tr>
</tbody>
</table>
Video/Lines Troubleshooting
## Troubleshooting Picture Distortions

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Actual symptom</th>
<th>Defective board</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irregular Color</td>
<td><img src="image1" alt="Image" /></td>
<td><img src="image2" alt="Image" /></td>
</tr>
<tr>
<td>All vertical line</td>
<td><img src="image3" alt="Image" /></td>
<td><img src="image4" alt="Image" /></td>
</tr>
<tr>
<td>Abnormal electric discharge</td>
<td><img src="image5" alt="Image" /></td>
<td><img src="image6" alt="Image" /></td>
</tr>
</tbody>
</table>
## Troubleshooting Picture Distortions

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Actual symptom</th>
<th>Defective board</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trouble at Upper or Lower half</td>
<td><img src="" alt="Image" /></td>
<td>Over 46inch : SU / SD 42inch : SN</td>
</tr>
<tr>
<td>Horizontal line (Upper or Lower side)</td>
<td><img src="" alt="Image" /></td>
<td>Over 46inch : SU / SD 42inch : SN or panel</td>
</tr>
<tr>
<td>Trouble at Left or Center or Right part</td>
<td><img src="" alt="Image" /></td>
<td>Over 50inch : C1-C3 46/42 inch : C1,C2</td>
</tr>
<tr>
<td>(46,42inch : Left or Right half)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vertical line (Width is same as FPC)</td>
<td><img src="" alt="Image" /></td>
<td>C or A or PDP panel</td>
</tr>
<tr>
<td>Vertical line (Width is narrower than FPC)</td>
<td><img src="" alt="Image" /></td>
<td>PDP panel</td>
</tr>
<tr>
<td>Regular bar</td>
<td><img src="" alt="Image" /></td>
<td>A</td>
</tr>
</tbody>
</table>
Troubleshooting Horizontal Line Problem

Scan Drive:
- Pulse timing is shifted each horizontal electrode.

Sustain Drive:
- All the lines are same waveform.
- All the lines are connected mutually.

SS board doesn’t cause horizontal line problems. All the electrodes on SS board are common.

If horizontal line is showed, it is possible that defect of one pin of scan drive IC or failure of connection to the panel or damage of electrode on the panel.

When FFC is damaged, it is needed to replace the panel. The FFC is bonded to the panel directly.

- If horizontal line is showed, it is possible that defect of one pin of scan drive IC or failure of connection to the panel or damage of electrode on the panel.
- SS board doesn’t cause horizontal line problems. All the electrodes on SS board are common.

Panasonic ideas for life
Test Patterns

<Symptom>
Picutre Noise, Full Vertical Line, Abnormal color

<How to enter the Test Pattern>
1. Press the "VOLUME -" on the TV set and push "INFO" button of remote controller 3 times at the same time.
2. After this procedure, you can enter "Service Mode" and select "AGING", then "Test pattern" will appear.
3. Push "3" button of Remote Controller to select the test pattern mode to forward.
4. Push "4" button of Remote Controller to select the test pattern mode to reverse.

<Diagnosis>
How to diagnose by using test pattern

<table>
<thead>
<tr>
<th>Abnormal picture (Picture Noise, Full Vertical Line, Abnormal color)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test pattern (1-23)</td>
</tr>
<tr>
<td>Abnormal</td>
</tr>
<tr>
<td>Normal</td>
</tr>
<tr>
<td>No picture</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Test pattern</th>
<th>Defective Block (Board)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No picture</td>
<td>Panel Block (A Board or Panel)</td>
</tr>
<tr>
<td>O.K</td>
<td>Tuner Block (A Board)</td>
</tr>
</tbody>
</table>
Defective Panel Drive IC

PDP panel defective (Data driver IC defective)

Width is narrower than FPC

Data driver IC defect = PDP panel defect

PDP panel

1 line defect

C board

Buffer IC

Data driver IC

PDP panel

About 7.5 - 9.5 cm

C board

Buffer IC

A board

Data driver IC or C or A board defective

Width is same as FPC
The End