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SAFETY PRECAUTIONS

IMPORTANT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These parts are identified by △ in the Schematic Diagram and Exploded View. It is essential that these special safety parts should be replaced with the same components as recommended in this manual to prevent X-RADIATION, Shock, Fire, or other Hazards. Do not modify the original design without permission of manufacturer.

General Guidance

An isolation Transformer should always be used during the servicing of a receiver whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injury from electrical shocks.

It will also protect the receiver and it’s components from being damaged by accidental shorts of the circuitry that may be inadvertently introduced during the service operation.

If any fuse (or Fusible Resistor) in this monitor is blown, replace it with the specified.

When replacing a high wattage resistor (Oxide Metal Film Resistor, over 1W), keep the resistor 10mm away from PCB.

Keep wires away from high voltage or high temperature parts.

Due to high vacuum and large surface area of picture tube, extreme care should be used in handling the Picture Tube. Do not lift the Picture tube by it’s Neck.

Leakage Current Hot Check (See below Figure)

Plug the AC cord directly into the AC outlet. Do not use a line Isolation Transformer during this check. Connect 1.5K/10watt resistor in parallel with a 0.15uF capacitor between a known good earth ground (Water Pipe, Conduit, etc.) and the exposed metallic parts. Measure the AC voltage across the resistor using AC voltmeter with 1000 ohms/volt or more sensitivity. Reverse plug the AC cord into the AC outlet and repeat AC voltage measurements for each exposed metallic part. Any voltage measured must not exceed 0.75 volt RMS which is corresponds to 0.5mA. In case any measurement is out of the limits specified, there is possibility of shock hazard and the set must be checked and repaired before it is returned to the customer.

Leakage Current Hot Check circuit

Leakage Current Cold Check(Antenna Cold Check)

With the instrument AC plug removed from AC source, connect an electrical jumper across the two AC plug prongs. Place the AC switch in the on position, connect one lead of ohm-meter to the AC plug prongs tied together and touch other ohm-meter lead in turn to each exposed metallic parts such as antenna terminals, phone jacks, etc. If the exposed metallic part has a return path to the chassis, the measured resistance should be between 1MΩ and 5.2MΩ. When the exposed metal has no return path to the chassis the reading must be infinite. An other abnormality exists that must be corrected before the receiver is returned to the customer.
NOTE: Specifications and others are subject to change without notice for improvement.

**v Application Range**
This spec is applied to the PLASMA TV used PD91A Chassis.

<table>
<thead>
<tr>
<th>Chassis</th>
<th>Model Name</th>
<th>Market</th>
<th>Brand</th>
</tr>
</thead>
<tbody>
<tr>
<td>PD91A</td>
<td>50PS7000/60PS7000</td>
<td>Albania, Austria, Belgium, Bosnia, Bulgaria, Coratia, Czech, Denmark,</td>
<td>LG</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy,</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Kazakhstan, Latvia, Lithuania, Luxembourg, Morocco, Netherlands,</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Norway, Poland, Portugal, Romania, Russia, Serbia, Slovenia, Spain,</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sweden, Slovakia, Switzerland, Turkey, Ukraine, UK</td>
<td></td>
</tr>
<tr>
<td></td>
<td>50PS8000/60PS8000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**v Specification**
Each part is tested as below without special appointment.
1) Temperature : 25±5°C (77±9°F), CST : 40±5
2) Relative Humidity: 65±10%
3) Power Voltage: Standard Input voltage (100-240V~, 50/60Hz)
   * Standard Voltage of each product is marked by models.
4) Specification and performance of each parts are followed each drawing and specification by part number in accordance with BOM.
5) The receiver must be operated for about 20 minutes prior to the adjustment.

**v Test Method**
1) Performance : LGE TV test method followed.
2) Demanded other specification
   Safety : CE, IEC specification
   EMC : CE, IEC

<table>
<thead>
<tr>
<th>Model</th>
<th>Market</th>
<th>Appliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>50PS7000/60PS7000</td>
<td>Albania, Austria, Belgium, Bosnia, Bulgaria, Coratia, Czech, Denmark,</td>
<td>Safety : IEC/EN60065</td>
</tr>
<tr>
<td></td>
<td>Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy,</td>
<td>EMI : EN55013</td>
</tr>
<tr>
<td></td>
<td>Kazakhstan, Latvia, Lithuania, Luxembourg, Morocco, Netherlands,</td>
<td>EMS : EN55020</td>
</tr>
<tr>
<td>50PS8000/60PS8000</td>
<td>Norway, Poland, Portugal, Romania, Russia, Serbia, Slovenia, Spain,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sweden, Slovakia, Switzerland, Turkey, Ukraine, UK</td>
<td></td>
</tr>
</tbody>
</table>
## Module Specification

### (1) 50" FHD

<table>
<thead>
<tr>
<th>No</th>
<th>Item</th>
<th>Specification</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Display Screen Device</td>
<td>50 inch Wide Color Display Module</td>
<td>PDP</td>
</tr>
<tr>
<td>2</td>
<td>Aspect Ratio</td>
<td>16:9</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>PDP Module</td>
<td>PDP50H3####, RGB Closed(Well) Type, Glass Filter(38%)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Operating Environment</td>
<td>1) Temp. : 0 ~ 40deg</td>
<td>LGE SPEC.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2) Humidity : 20 ~ 80%</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Storage Environment</td>
<td>3) Temp. : -20 ~ 60deg</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4) Humidity : 10 ~ 90%</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Input Voltage</td>
<td>AC100-240V~, 50/60Hz</td>
<td>Maker LG</td>
</tr>
</tbody>
</table>

### (2) 60" FHD

<table>
<thead>
<tr>
<th>No</th>
<th>Item</th>
<th>Specification</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Display Screen Device</td>
<td>60 inch Wide Color Display Module</td>
<td>PDP</td>
</tr>
<tr>
<td>2</td>
<td>Aspect Ratio</td>
<td>16:9</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>PDP Module</td>
<td>PDP60H3####, RGB Closed(Well) Type, Glass Filter(38%)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Operating Environment</td>
<td>1) Temp. : 0 ~ 40deg</td>
<td>LGE SPEC.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2) Humidity : 20 ~ 80%</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Storage Environment</td>
<td>3) Temp. : -20 ~ 60deg</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4) Humidity : 10 ~ 90%</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Input Voltage</td>
<td>AC100-240V~, 50/60Hz</td>
<td>Maker LG</td>
</tr>
</tbody>
</table>
### Model General Specification

<table>
<thead>
<tr>
<th>No</th>
<th>Item</th>
<th>Specification</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Market</td>
<td>Albania, Austria, Belgium, Bosnia, Bulgaria, Coratia, Czech, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Kazakhstan, Latvia, Lithuania, Luxembourg, Morocco, Netherlands, Norway, Poland, Portugal, Romania, Russia, Serbia, Slovenia, Spain, Sweden, Slovakia, Switzerland, Turkey, Ukraine, UK</td>
<td>36 Country</td>
</tr>
<tr>
<td>2</td>
<td>Broadcasting system</td>
<td>1) PAL/SECAM BG 2) PAL/SECAM DK 3) PAL I/II 4) SECAM L/L’ 5) DVB T 6) DVB C</td>
<td>EU(PAL Market) DVB C(only Sweden, Finland)</td>
</tr>
<tr>
<td>3</td>
<td>Receiving system</td>
<td>Analog: Upper Heterodyne Digital: COFDM</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Scart Jack (2EA)</td>
<td>PAL, SECAM</td>
<td>Scart 1 Jack is Full scart and support RF-OUT(Analog) Scart 2 Jack is Half scart and support MNT-OUT</td>
</tr>
<tr>
<td>5</td>
<td>Video Input (1EA)</td>
<td>PAL, SECAM, NTSC</td>
<td>Side AV</td>
</tr>
<tr>
<td>6</td>
<td>S-Video Input (1EA)</td>
<td>PAL, SECAM, NTSC</td>
<td>Side AV</td>
</tr>
<tr>
<td>7</td>
<td>Component Input (1EA)</td>
<td>Y/Cb/Cr, Y/ Pb/Pr</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>RGB Input</td>
<td>RGB-PC</td>
<td>Analog (D-Sub 15Pin)</td>
</tr>
<tr>
<td>9</td>
<td>HDMI Input (4EA)</td>
<td>HDMI-PC HDMI-DTV</td>
<td>HDMI1/DVI1, HDMI2, HDMI3, HDMI4</td>
</tr>
<tr>
<td>10</td>
<td>Audio Input (3 EA)</td>
<td>RGB/DVI Audio, Component, AV</td>
<td>L/R Input</td>
</tr>
<tr>
<td>11</td>
<td>SPDIF Out(1 EA)</td>
<td>SPDIF Out</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>USB</td>
<td>For SVC, S/W Download, X-Studio, DivX</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Bluetooth</td>
<td>Bluetooth Phone(JPEG, MP3), Bluetooth Headset(mono, stereo)</td>
<td>Profile : A2DP, BIP, FTP, GAVDP, HSP, OPP</td>
</tr>
</tbody>
</table>
ADJUSTMENT INSTRUCTION

1. Application
   This spec. sheet is applied to all of the PD91A chassis.

2. Specification
   [Caution: The module keeping condition]
   1. The module keeping condition: The normal temperature condition (more than 15°C)
      --> Immediately the line supply.
   2. The module keeping condition: 0°C
      --> The module must be kept for more than 2 hours at the normal temperature.
   3. The module keeping condition: -20°C
      --> The module must be kept for more than 3 hours at the normal temperature.
   4. The case of Gu-mi factory at the winter season.
      --> The module must be kept for more than 5 minutes at the heating zone (40°C~45°C).

   (1) The adjustment is according to the order which is designated and which must be followed, according to the plan which can be changed only on agreeing.
   (2) If there is no specific designation, the adjustment must be performed in the circumstance of 25±5°C of temperature and 65±10% of relative humidity.
   (3) The input voltage of the set must keep 100~240V, 50/60Hz.
   (4) Input signal Unit: Product Specification Standard.
   (5) The set must be operated for about 5 minutes prior to the adjustment.

   o After turning on RGB Full Window pattern in HEAT-RUN Mode, the receiver must be operated.
   o Enter into HEAT-RUN MODE
     1) Press the ‘POWER ON’ button on R/C for adjustment.
     2) Press the ‘ADJ’ button on R/C and enter EZ ADJUST
        Select “7. Test Pattern” by using D/E (CH +/-) and press ENTER(v )
        Select “White” by using F/G (VOL +/-) and press ENTER(v )

   - Set heat run should be activated without a signal generator.
   - Single color patterns (RED / BLUE / GREEN) of HEAT RUN MODE are used to check a plasma panel.
   - Caution: If you turn on a still screen more than 20 minutes (Especially digital pattern, cross hatch pattern), an after image may be made in the black level part of the screen.

3. Update S/W using Auto Download through the USB
   Caution: S/W version of USB file (xxx.epk) must be bigger than one which is downloaded previously.
   (1) Insert the USB stick to the USB socket
   (2) A downloaded file in USB stick will be detected automatically.
   (3) If S/W version of USB file (xxx.epk) is bigger than one which is downloaded previously, the message, “Copying files from memory”, will appear.
   (4) If an update procedure was completed, TV set will be turned off and on automatically.
   (5) If TV set is turned on, check an updated version.
   * If a downloaded version is more bigger than one of which TV set had, TV set can lost channel data. In this case, you have to scan channels again.

4. After Downloading S/W, Adjust TOOL OPTION
   (1) Push “IN-START” button on a service R/C.
   (2) Select “Tool Option 1” and Push “OK” button.
   (3) Put the number of a below table in order of a suffix of the “Tool Option(X)”. (Each model has a different number.)

<table>
<thead>
<tr>
<th>Model</th>
<th>Tool Option1</th>
<th>Tool Option2</th>
<th>Tool Option3</th>
<th>Tool Option4</th>
</tr>
</thead>
<tbody>
<tr>
<td>50PS7000-ZA</td>
<td>37184</td>
<td>3126</td>
<td>56816</td>
<td>3328</td>
</tr>
<tr>
<td>50PS8000-ZA</td>
<td>37248</td>
<td>3126</td>
<td>56816</td>
<td>11520</td>
</tr>
<tr>
<td>60PS7000-ZA</td>
<td>49742</td>
<td>3126</td>
<td>56816</td>
<td>3328</td>
</tr>
<tr>
<td>60PS8000-ZA</td>
<td>49536</td>
<td>3126</td>
<td>56816</td>
<td>11520</td>
</tr>
</tbody>
</table>
5. ADC Calibration Procedure

(1) Input the component (480i/Horizontal Color Bar) signal to a TV set.
   1) Input Signal Timing : Component 480i
      (Other external connection is unnecessary except the component before executing ADC calibration.)
   2) Input Signal Pattern

   @ MODEL: 209 in Pattern Generator(480i Mode)
   @ PATTERN : 65 in Pattern Generator(MSPG-925 SERISE)

(2) Push “ADJ” button on a service R/C.
(3) Enter internal ADC mode by selecting ‘5. ADC Calibration’.
(4) If you select ‘Start’ on a dialog box of the screen, ADC calibration will be begun.

   Caution: Don’t connect any external input cable except the component input(480i/Horizontal_Color_Bar) to adjust ADC calibration

   Auto ADC Calibration Map(RS-232C)

<table>
<thead>
<tr>
<th>NO</th>
<th>Item</th>
<th>CMD1</th>
<th>CMD2</th>
<th>Data0</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Enter/Mode</td>
<td>A</td>
<td>A</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>Adjust/Mode</td>
<td>A</td>
<td>A</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>ADC Adjust</td>
<td>A</td>
<td>D</td>
<td>1</td>
</tr>
</tbody>
</table>

   # Adjust Sequence
   - aa 00 00 [Enter Adjust Mode]
   - xb 00 40 [Component1 Input (480i)]
   - ad 00 10 [Adjust 480i Comp1]
   - xb 00 60 [RGB Input (1024*768)]
   - ad 00 10 [Adjust 1024*768 RGB]
   - aa 00 90 End Adjust mode

6. EDID Download Procedure

(1) Push “ADJ” button on a service R/C.
(2) Enter EDID auto download mode by selecting ‘8. EDID D/L’.
(3) If you select ‘Start’ on a dialog box of the screen, EDID download will be begun automatically.

(4) Press ‘EXIT’ button on a service R/C.

(5) EDID Data
   1) HDMI (256 bytes)
   2) RGB (128 bytes)

   EDID Data detailing ( breeze, wind, mountain, sky )
Product ID

<table>
<thead>
<tr>
<th>MODEL</th>
<th>EDID MODEL</th>
<th>PRODUCT_ID</th>
<th>FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>50PS7000-ZA</td>
<td>LG TV</td>
<td>0001(0x10, 0x00)</td>
<td>Digital</td>
</tr>
<tr>
<td>50PS7000-ZA</td>
<td>LG TV</td>
<td>0001(0x10, 0x00)</td>
<td>Analog</td>
</tr>
<tr>
<td>50PS8000-ZA</td>
<td>LG TV</td>
<td>0001(0x10, 0x00)</td>
<td>Digital</td>
</tr>
<tr>
<td>50PS8000-ZA</td>
<td>LG TV</td>
<td>0001(0x10, 0x00)</td>
<td>Analog</td>
</tr>
<tr>
<td>60PS7000-ZA</td>
<td>LG TV</td>
<td>0001(0x10, 0x00)</td>
<td>Digital</td>
</tr>
<tr>
<td>60PS8000-ZA</td>
<td>LG TV</td>
<td>0001(0x10, 0x00)</td>
<td>Analog</td>
</tr>
<tr>
<td>60PS8000-ZA</td>
<td>LG TV</td>
<td>0001(0x10, 0x00)</td>
<td>Analog</td>
</tr>
</tbody>
</table>

Serial No
- Controlled on production line

Month, Year
- Controlled on production line:

Model Name

<table>
<thead>
<tr>
<th>MODEL_NAME</th>
<th>MODEL NAME (HEX)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LG TV</td>
<td>0x4C, 0x47, 0x20, 0x54, 0x56</td>
</tr>
</tbody>
</table>

Checksum
- Changeable by total EDID data

HDMI Port No.

Auto EDID Download Map (RS-232C)

<table>
<thead>
<tr>
<th>NO</th>
<th>Item</th>
<th>CMD1</th>
<th>CMD2</th>
<th>Data0</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Enter download MODE</td>
<td>Download 'Mode In'</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>EDID data and Model option download</td>
<td>Download</td>
<td>A</td>
<td>E</td>
</tr>
</tbody>
</table>

7. PCMCIA CARD Check
- You must adjust DTV 29 Channel and insert PCMCIA CARD to socket.
  - If PCMCIA CARD works normally, video signals will appear on screen.
  - But it works abnormally, “No CA module” will appear on screen.
- Caution: Set up “RF mode” before launching products.

8. POWER Supply Unit PCB Ass’y

Caution: Both Vs and Va voltage adjustment are necessary.

8-1. Model name:
50PS7000-ZA, 60PS7000-ZA, 50PS8000-ZA, 60PS8000-ZA

8-2. Va/Vs Adjustment Procedure
1. Connect positive(+) terminal of DMM to Vs/Va pin, connect negative(-) terminal to GND.
2. Turning ‘Vs/Va Adjust’ and adjust Vs/Va voltages to a value which is written on a right/top label of a module.
   (deviation ; ±0.5V)

[Caution]
- Each Power Supply Unit PCB assembly must be checked by check JIG set. (Because power PCB Ass’y damages to PDP Module, especially be careful)
- Set up “RF mode(noise)” before a voltage adjustment.
- Test equipment: DMM 1EA

9. White Balance Adjustment

Caution: Press the POWER ON KEY on R/C before W/B adjustment.

- Test Equipment
  Color Analyzer (CS-1000, CA-100+(CH.10), CA-210(CH.10))

- Please adjust CA-100+ / CA-210 by CS-1000 before measuring
  You should use Channel 10 which is Matrix compensated (White, Red, Green, Blue revised) by CS-1000 and adjust in accordance with White balance adjustment coordinate.

9-1. Color Temperature Standards According to CSM and Module

<table>
<thead>
<tr>
<th>CSM</th>
<th>PLASMA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cool</td>
<td>11000K</td>
</tr>
<tr>
<td>Medium</td>
<td>9300K</td>
</tr>
<tr>
<td>Warm</td>
<td>6500K</td>
</tr>
</tbody>
</table>

Copyright©2008 LG Electronics. Inc. All right reserved.
Only for training and service purposes
9-2. Change Target Luminance and Range of the Auto Adjustment W/B Equipment
- 50PS7000-ZA(50H3)
- 50PS8000-ZA(50H3)
- 60PS7000-ZA(60H3)
- 60PS8000-ZA(60H3)

<table>
<thead>
<tr>
<th>Target luminance</th>
<th>50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>20</td>
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</tbody>
</table>

9-3. White Balance Adjustment Coordinate and Color Temperature

<table>
<thead>
<tr>
<th>Cool</th>
<th>CS-1000</th>
<th>CA-100+ (CH1.10)</th>
<th>CA-210 (CH1.10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>x</td>
<td>0.276</td>
<td>0.276±0.002</td>
<td>0.276±0.002</td>
</tr>
<tr>
<td>y</td>
<td>0.283</td>
<td>0.283±0.002</td>
<td>0.283±0.002</td>
</tr>
<tr>
<td>Δuv</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Medium</th>
<th>CS-1000</th>
<th>CA-100+ (CH1.10)</th>
<th>CA-210 (CH1.10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>x</td>
<td>0.285</td>
<td>0.285±0.002</td>
<td>0.285±0.002</td>
</tr>
<tr>
<td>y</td>
<td>0.293</td>
<td>0.293±0.002</td>
<td>0.293±0.002</td>
</tr>
<tr>
<td>Δuv</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Warm</th>
<th>CS-1000</th>
<th>CA-100+ (CH1.10)</th>
<th>CA-210 (CH1.10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>x</td>
<td>0.313</td>
<td>0.313±0.002</td>
<td>0.313±0.002</td>
</tr>
<tr>
<td>y</td>
<td>0.329</td>
<td>0.329±0.002</td>
<td>0.329±0.002</td>
</tr>
<tr>
<td>Δuv</td>
<td>0.003</td>
<td>0.003</td>
<td>0.003</td>
</tr>
</tbody>
</table>

9-4. Automatic W/B Adjustment
(1) Internal PATTERN should be used when W/B is adjusted. Connect to auto controller like below.

(2) Start White-Balance adjustment, then the full white window pattern will appear on the screen.
(3) Adjust in the place where the influx of light like floodlight around is blocked. (illumination is less than 10ux).
(4) Measure and adjust after sticking the Color Analyzer (CA-100+, CA210) to the side of the module.

9-5. Manual W/B Adjustment
(1) Execute the zero calibration of CA-100+ / CA-210.
(2) Press the ‘ADJ’ button on a service R/C and enter EZ ASJUST by selecting ‘6. White Balance’.
(3) Then, 216 gray pattern will appear on the screen.
(4) Change the R/G/B-Gain as passing in 3 color coordinates and temperatures, COOL, MEDIUM and WARM.

- Temperature: COOL
  - R-Cut / G-Cut / B-Cut is set to 64
  - Control R-Gain and G-Gain.
  - Each gain is limited to 192

- Temperature: MEDIUM
  - R-Cut / G-Cut / B-Cut is set to 64
  - Control R-Gain and G-Gain.
  - Each gain is limited to 192

- Temperature: WARM
  - R-Cut / G-Cut / B-Cut is set to 64
  - Control G-Gain and B-Gain.
  - Each gain is limited to 192

(5) Press ‘EXIT’ button on a service R/C.
**<Notice> Module Heat-Run Condition for W/B**

1. The adjustment must be performed in the circumstance of 25±5°C of temperature and 65±10% of relative humidity if there is no any specifics.

2. Before an W/B adjustment, the module which will be used should be placed in the circumstance of 15°C~25°C for above 2 hours.

3. If a module was placed in the circumstance of below 15°C, it should be placed in the circumstance of 15°C~25°C for above 2 hours or be run for above 5 minutes in an aging environment of 60°C.

4. Before an W/B adjustment, TV set should be run for 5 minutes at least.

**10. Serial Number Download**

**10-1. Download Procedure**

1. Press “Power on” button of a service R/C.(Baud rate : 115200 bps)
2. Connect RS232-C Signal Cable.
3. Write Serial number through RS-232C.
4. Check the serial number at the Diagnostics of ‘SETUP’ menu. (Refer to below).

**10-2. Signal TABLE**

<table>
<thead>
<tr>
<th>CMD</th>
<th>LENGTH</th>
<th>ADH</th>
<th>ADL</th>
<th>DATA_1</th>
<th>...</th>
<th>Data_n</th>
<th>CS</th>
<th>DELAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMD</td>
<td>LENGTH</td>
<td>ADH</td>
<td>ADL</td>
<td>DATA_1</td>
<td>...</td>
<td>Data_n</td>
<td>CS</td>
<td>DELAY</td>
</tr>
<tr>
<td>CMD : A0h</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LENGTH : 85<del>94h (1</del>16 bytes)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADH : EEPROM Sub Address high (00~1F)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADL : EEPROM Sub Address low (00~FF)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data : Write data</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS : CMD + LENGTH + ADH + ADL + Data_1 + ... + Data_n</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delay : 20ms</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**10-3. Command Set**

<table>
<thead>
<tr>
<th>No.</th>
<th>Adjust mode</th>
<th>CMD(hex)</th>
<th>LENGTH(hex)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>EEPROM WRITE</td>
<td>A0h</td>
<td>84h~n</td>
<td>n-bytes Write (n = 1~16)</td>
</tr>
</tbody>
</table>

[Description]
- FOS Default write : <7mode data> write
- Vtotal, V_Frequency, Sync_Polarity, Htotal, Hstart, Vstart, 0, Phase
- Data write : Model Name and Serial Number write in EEPROM,

**11. Check Information** (Serial No. & Model name)

1. Push the menu button in DTV mode.
2. Select the SETUP -> Diagnostics -> To set
3. Check the Serial Number

Copyright©2008 LG Electronics. Inc. All right reserved. Only for training and service purposes
1. Power Board
1-1. The whole flowchart which it follows in voltage output state

Start check

Doesn't the screen whole come out?
Yes → Is it similar with power off condition?
Yes → 1. Check the Power off condition
No → Is the bootbase signal operated?
Yes → 2. Check the interface signal condition
No →

Doesn't the low pressure output come out?
Yes → Doesn't the standby 5V signal come out?
Yes →
No → Doesn't the VSC signal come out?
Yes →
No → Doesn't the VSC AL_ON signal come out?
Yes →
No → Doesn't the VSC low pressure output come out?

No →

Doesn't the high tension output come out?
Yes → Doesn't the VSC signal Vs-ON come out?
Yes →
No → Doesn't the Vs-VA voltage output come out?
Yes →
No →

No →

High tension output Voltage drop it occurs?
Yes → When remove the Y/Z/B/O Module input connector, Power Board high tension output voltage drop is occurs?
Yes →
No →

No →

Manufacture enterprise meaning of a passage

3. Check the VSC Vs-ON signal
4. Check the 5V Monitor signal circuit
5. Check the VSC AL_ON signal
6. Check the VSC low pressure output
7. Check the Vs-VA voltage output circuit
8. Check the Vs-VB voltage output circuit
9. Check the power board output high tension circuit
10. Check the Z/B/O Module output circuit
11. Check the Y/B/O Module output circuit
2). Input/Output pin assignment

**AC Inlet**

<table>
<thead>
<tr>
<th>SC101</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>AC(N)</td>
</tr>
<tr>
<td>2</td>
<td>NC</td>
</tr>
<tr>
<td>3</td>
<td>AC(L)</td>
</tr>
<tr>
<td>Wafer</td>
<td>SMW-600-03B1</td>
</tr>
</tbody>
</table>

**PSU <==> PDP Module**

<table>
<thead>
<tr>
<th>Pin</th>
<th>50FHD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>P811</td>
</tr>
<tr>
<td>1</td>
<td>Vs</td>
</tr>
<tr>
<td>2</td>
<td>Vs</td>
</tr>
<tr>
<td>3</td>
<td>NC</td>
</tr>
<tr>
<td>4</td>
<td>GND</td>
</tr>
<tr>
<td>5</td>
<td>GND</td>
</tr>
<tr>
<td>6</td>
<td>Va</td>
</tr>
<tr>
<td>7</td>
<td>Va</td>
</tr>
<tr>
<td>8</td>
<td>GND</td>
</tr>
<tr>
<td>9</td>
<td>M5V</td>
</tr>
<tr>
<td>10</td>
<td>M5V</td>
</tr>
<tr>
<td>Wafer</td>
<td>YW396-10V</td>
</tr>
</tbody>
</table>

**PSU <==> VSC Board**

<table>
<thead>
<tr>
<th>Pin</th>
<th>P814</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>17V</td>
</tr>
<tr>
<td>3</td>
<td>GND</td>
</tr>
<tr>
<td>5</td>
<td>12V</td>
</tr>
<tr>
<td>7</td>
<td>GND</td>
</tr>
<tr>
<td>9</td>
<td>5V</td>
</tr>
<tr>
<td>11</td>
<td>5Vst</td>
</tr>
<tr>
<td>13</td>
<td>GND</td>
</tr>
<tr>
<td>15</td>
<td>GND</td>
</tr>
<tr>
<td>17</td>
<td>5V DET</td>
</tr>
<tr>
<td>19</td>
<td>RL-ON</td>
</tr>
<tr>
<td>21</td>
<td>M5V-ON</td>
</tr>
<tr>
<td>23</td>
<td>5Vst</td>
</tr>
<tr>
<td>Wafer</td>
<td></td>
</tr>
</tbody>
</table>
2. No Power

- Symptom
  1) Doesn't minute discharge at module.
  2) Non does not come in into the front LED.

- Check the followings

  A power cord is plugged into a TV set?
  Yes
  No
  Plug the power cord.

  AC-INLET is connected with the power board?
  Yes
  No
  Connect the AC-INLET.

  Are the fuses(F101) normal on the power board?
  Yes
  No
  Replace the fuses.

  Is the power board connected with VSC Board though a cable?
  Yes
  No
  Connect a cable.

  Measure output voltages(17V, 12V, 5V) on the power board.
  If the measured values is not normal, replace power board.
3. Protect Mode

- **Symptom**
  1. After once shining, it does not discharge minutely from module.
  2. The Rely falls (The sound is audible "click")
  3. If you push key on remote controller or local key, the front LED is blinking with white.

- **Check the followings**

  1. **Is normal the Power Board?**
     - Yes
     - No
       - **Is output the normality Low/High voltage except Stand-by 5V?**
         - Yes
         - No
           - **Replace Power Board.**
           - **Replace connector.**
           - **Is normal the Y- Board?**
             - Yes
             - No
               - **Is normal the Fuse (FS302) on Y-B/D? (In case of open is replace)**
                 - Yes
                 - No
                   - **Replace Y-Board.**
                   - **Is normal the Z- Board?**
                     - Yes
                     - No
                       - **Is normal the Fuse (FS102) on Z-B/D? (In case of open is replace)**
                         - Yes
                         - No
                           - **Replace Z-Board.**
                           - **Is normal the X- Board?**
                             - Yes
                             - No
                               - **Is normal the output voltage after remove P121 connector of X-B/D?**
                                 - Yes
                                 - No
                                   - **Replace Right X-B/D**
                                   - **Is normal the Ctrl Board?**
                                     - Yes
                                     - No
                                       - **Is normal the output voltage after remove P2, P200 connector of Ctrl-B/D?**
                                         - Yes
                                         - No
                                           - **Replace Ctrl-B/D**
                                           - **Is normal the VSC Board?**
                                             - Yes
                                             - No
                                               - **Is normal the output voltage after remove P800 of VSC Board?**
                                                 - Yes
                                                 - No
                                                   - **After remove P800 normal operation:**
                                                     - **Replace VSC Board**
                                                     - **Is normal the COF of X,Y,Z?**
                                                       - Yes
                                                       - No
                                                         - **After crisis COF of each board, check the normality operates If in case normality operates, correspondence COF Fail is replace the module.**

4. No Raster

- **Symptom**
  1) No OSD and image occur at screen.
  2) If you push key on remote controller or local key, the front LED is blinking with white.

- **Check the followings**

  - **Does minute discharge At Module?**
    - No
    - Yes

  - **Is the VaVs normal?**
    - No
    - Yes
    - Check the PDP Module

  - **Is output the normality Low/High voulage except stand-by 5V?**
    - No
    - Yes
    - Replace the Power board.

  - **Is the LVDS cable connect well from Ctrl Board to VSC Board?**
    - No
    - Yes
    - Reconnect the LVDS cable

  - **Is normal the VSC Board?**
    - No
    - Yes
    - Operates the MSD3369GV-LF(IC100)?
      1. Check the Monitor OUT by SCART2: Connect the another TV SET
      2. Check the LVDS clock(R437, R430) on the VSC Board by Oscilloscope?
    - No
      - Replace MSD3369GV-LF IC(IC100).
5. In case of occur strange screen into specific mode

1) In case of does not display the OSD

- Symptom
  1) If you push key on remote controller or local key, the front LED is blinking with white.
  2) The minute discharge continuously becomes accomplished from module.

- Check the followings

```
Is normal the VSC Board?

Yes

1. Replace cable
2. LVDS Cable connect well from Ctrl Board to VSC Board

No

Operates the MSD3369GV-LF IC(IC100)?
1. Check the Monitor OUT by SCART2 : Connect the another TV SET
2. Check the LVDS clock (R430, R437) on the VSC Board by Oscilloscope?

Yes

Replace VSC B/D

No

Replace MSD3369GV-LF IC(IC100).

Is normal the Ctrl Board of Module?
1. Check the LED on the Ctrl Board
2. Check the 5V_ON on the Power Board by the DMM.

Yes

No

Replace Ctrl B/D.
```
2) In case of doesn't display the screen into specific mode

- **Symptom**
  1) The screen does not become the display from specific input mode (RF, AV, Component, RGB, DVI/HDMI).

- **Check the followings**
  1) Check the all input mode should become normality display.

- **In case of unusual display for RF mode.**

   Is normal the Tuner?
   - No: Is the RF Cable connected well? (1. Check the another TV set.)
     - Yes: Is normal the Input voltage, IIC Communication?
       1. Check the Input Voltage 1.2V(L1112), 3.3V(L1113), 1.8V(L1101)
       2. Check the Analog/Digital IIC(A:R1150,R1155 D:R1114, R1136)
     - No: Replace Tuner IC(A:IC1104, D:1103)
   - Yes: Cable inserts well or Change the RF Cable

   Block A

   Operates the MSD3369GV-LF IC(IC100)?
   1. Check the Monitor OUT by SCART2: Connect the another TV SET
   2. Check the LVDS clock(R430, R437) on the VSC Board by Oscilloscope?
   3. Check the each Input Source. ATV (Tuner_CVBS : R1156), DTV(R1144),
      S Mode( SIDE_Y_IN : R935), AV Mode (SIDE_CVBS_IN : R938), Component (R958), RGB (R1018)
      SCART(SC1/2_CVBS_IN : R915, R945) , HDMI (R612, R613, R614, R636)
      on the VSC Board by Oscilloscope.

   No: Replace MSD3369GV-LF (IC100).
- In the case of unusual display for side **S-video / AV mode**.

  ![Diagram](image.png)

- In the case of unusual display for **Component, RGB mode**.

  ![Diagram](image.png)

- In the case of unusual display for **HDMI mode**.

  ![Diagram](image.png)

- In the case of unusual display for **SCART mode**.

  ![Diagram](image.png)
6. In case of no sound

- **Symptom**
  1) Screen display but sound is not output

- **Check follow**

```plaintext
All input (mode) is no sound?  Yes
  | No
  | Only HDMI is No sound? No
  | ONLY
  | Only RF is no sound? Yes
  | Only AV/component/PC input is no sound? No

Check the Input Sound IN/OUT
AV1(R:C229, L:C230)
AV2(R:C2008, L:C2009)
AV3(R:C2011, L:C2012)
PC(R:C2015, L:C2016)
Component (R:C2013, L:C2014)

Is the speaker On it menu? No
  | Set on speaker in menu.
  | (TV Speaker OFF A ON)
  | Yes
  | Is the speaker Cable normal?
  | 1. Isn’t damage in the Speaker Cable?
  | 2. Is the Speaker cable connect well form VSC B/D to Speaker.

IC701(Audio AMP) operates Normal? No
  | Change or Reconnect the Speaker Cable.
  | Yes
  | Replace VSC BD

Replace VSC BD
```

Replace Audio AMP IC (IC701)
7. In case of no tuning

● Symptom
   1) Not working remote control.
   2) Not working local Key.

● Check follow(1)

  Battery of Remote control is good condition?
  → Yes
  → Check L405 of VSC board
      Check the IR signal when pressed the Remote control button
  → No
  → Change the battery
  → No
  → Change Remote control

  → Yes
  → Change the IC100

  → No
  → Change IR Board.
  → No
  → Change IR to VSC board Cable

● Check follow(2)

  Is good local key box?
  → Yes
  → Check L403, L404 of VSC board
      Check the key signal when pressed the Local Key button
  → No
  → Change the Local Key box
  → No
  → Change Remote control

  → Yes
  → Change the IC100

  → No
  → Change Local Key Board.
  → No
  → Change local Key to VSC board Cable
EP5 Tuner, CI slot and NAND flash

Saturn 6
MSD3368EV (SC100)

Chip Tuner
XCS000

Demodulator
DRX3913K

[SI][Video]

Butterfly

FE_SHIF
FE_YMAIN

FE_TS_SYN
FE_TS_CLK
FE_TS_VBL
FE_TS_VBR
FE_TS_SERIAL

BUF_TS_SYN
BUF_TS_CLK
BUF_TS_VBL
BUF_TS_VBR
BUF_TS_SERIAL

CI_TS_SYN
CI_TS_CLK
CI_TS_VBL
CI_TS_VBR

CI_MD[7:0]

CI_CD
CI_OE
X_WS
CI_OBD
CI_SW
CI_REG

PCM_RST
PCM_WAIT
PCM_CD

CI_ADDR[16:8]

CI_ADDR[7:0]

PCM[4:0]

[PWM3] CI_PWM

NAND Flash

[PCMD0/CI_D0-7]

[F_RBL]
[PP_OE]
[PP_CE0]
[PP_CE1]
[PP_ALE]
[PP_WE]
EP5 Power Block (1/4) 2번 보드 (Video, DTV HD)
EP5 Power Block (2/4) - (Video, DTV HD)
EP5 Power Block (4/4) - (standby mode)
EP5 Reset, Power board Interface, others IC

Saturn 6
MSD3368EV (IC100)

RC reset network -- S5_Reset [HWRESET]
EXPLODED VIEW

IMPORTANT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These parts are identified by in the Schematic Diagram and EXPLODED VIEW. It is essential that these special safety parts should be replaced with the same components as recommended in this manual to prevent X-RADIATION, Shock, Fire, or other Hazards. Do not modify the original design without permission of manufacturer.
HW Power On Sequence (LGE3369A)

1. HWRESET: Chip Reset; High Reset (Level)
   - This pin is suggested to connect to AVDD_MPLL as in Figure-1.
   - The VIH is 2V (Typ) +/- 10% (1.8V~3.8V); the VIL is 1.2V (Typ) +/- 10% (1.08V~1.32V).
   - The power sequence is as shown in Figure-2.

![Figure-1 Reset Application Circuit](image)

- External 3.3V LDO + external 1.8V LDO, the timing is as Figure-2.
- The RST waveform must satisfy Figure-2 with parameter as Table1.

![Figure-2 Correct Power Sequence for External 3.3V LDO + External 1.2V LDO](image)
# PDP TV Repair Process Index

- Trouble shooting by worst symptom

<table>
<thead>
<tr>
<th>No.</th>
<th>Symptom (L)</th>
<th>Symptom (M)</th>
<th>Page</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1. No Picture/Sound OK</td>
<td>No Picture/Sound OK</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>2. No Picture/No sound</td>
<td>No Picture/No sound</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>4. Picture broken/Freezing</td>
<td>Picture broken/Freezing</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>5. Vertical bar/ Horizontal Bar</td>
<td>Vertical bar/ Horizontal Bar</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>B. Power Problem</td>
<td>6. No Power (Not turn on)</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>7. Turn off (Instant, under watching)</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>C. Sound Problem</td>
<td>8. No sound/ Sound distortion</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>E. General function Problem</td>
<td>9. Remote control &amp; Local switch checking</td>
<td>9</td>
<td></td>
</tr>
</tbody>
</table>

First of all, Check whether there is SVC Bulletin in GCSC System for these model.
First of all, Check whether all of cable between board was inserted properly or not.
(Main B/D↔ Power B/D, Power B/D↔ Y-sus B/D,Y-Sus B/D ↔ Z-Sus B/D, LVDS Cable, Speaker Cable, IR B/D Cable,..)

Check Module pattern by using "TILT" key on SVC R/C.

<svc R/C & Pattern>
A. Picture Problem

No Picture/No Sound

1. Check IR operation
   - Power LED ON?
     - Y: Latest SW update from GCSC (Firmware Management)
     - N: Check Module pattern by using “TILT” key on SVC R/C
       - N: Replace Main B/D
       - Y: OSD appears?
         - Y: Repair/Replace IR B/D
         - N: Replace Main B/D
     - N: Check Sound
       - Y: Check Input signal, RF Cable connection, SCART Cable connection, HDMI Cable connection...
       - N: Replace Main B/D

2. Move Section
   - Normal: Check IR operation
   - No Picture/ Sound Ok: Close

3. Check LVDS Cable
   - Normal: Close
   - Replace Main B/D

Check input signal: RF Cable connection
Check SCART Cable connection
Check Component Cable...
A. Picture Problem

PDP TV  Symptom  Mal-discharge/Noise/dark picture  Making  2009. 2 . 1  Revision  3/9

**Repair Process**

- **Mal-discharge**
  - Dot type
  - Check CTRL ROM Ver. and Rom Upgrade
  - Normal Picture?
    - Y  Close
    - N  Replace Control board
    - Y  Close
    - N  Replace Module

- **Scan Type**
  - Check voltage
    - ~Vy / Vsc (Y-Sus B/D)
  - Normal Picture?
    - Y  Check Y Drive B/D & Replace B/D
    - N  Replace Y-Sus B/D
  - Normal Picture?
    - Y  Close
    - N  Replace Module

- **Picture Noise**
  - Check RF Cable Connection
  - Normal Picture?
    - Y  Check Tuner & Replace
    - N  Close

- **Dark Picture**
  - Check Picture mode setting
  - Normal Picture?
    - Y  Close
    - N  1. Check Z-Sus Board 2. Replace Board
  - Normal Picture?
    - Y  Close
    - N  Replace Module

*Check Discharge resistance (10Q 2~3ea) on Power B/D before replace Y Drive B/D*
**A. Picture Problem**

### PDP TV

#### Symptom
Picture broken/Freezing

<table>
<thead>
<tr>
<th>Date</th>
<th>Revision</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009.2.1</td>
<td>4/9</td>
</tr>
</tbody>
</table>

#### Repair Process

- **Check RF Signal level**
  - By using Digital signal level meter
  - By using Diagnostics menu on OSD
    - Signal strength (Normal: over 50%)
    - Signal Quality (Normal: over 50%)

- **Check RF Cable Connection 1. Reconnection**
  - Check whether other equipments have problem or not. (By connecting RF Cable at other equipment)
    - DVD Player, Set-Top-Box, Different maker TV etc

- **Check Picture**
  - Y: Normal Picture?
  - N: Contact with signal distributor or broadcaster (Cable or Air)

- **Normal Picture?**
  - Y: Close
  - N: Check S/W Version

- **Check S/W Version**
  - Y: SVC Bulletin?
  - N: S/W Upgrade

- **SVC Bulletin?**
  - Y: Normal Picture?
  - N: Replace Main B/D

- **Normal Picture?**
  - Y: Close
  - N: Check Tuner soldering

- **Check Tuner soldering**
  - Y: Close
  - N: Replace Main B/D

---

*’09 years new model apply chip tuner so, chip tuner is soldered on main PCB [Chip Tuner: IC1104(XC5000)]*
**A. Picture Problem**

**PDP TV**  
**Symptom**  
**Vertical bar/ Horizontal Bar**  
**Making**  
2009. 2 . 1  
**Revision**  
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**Repair Process**

1. **Check defect type**  
   - Regular Vertical Line / Bar
     - Check Module pattern by using “TILT” key on SVC R/C
     - Normal Pattern?
       - Y Replace Module
       - N
         - Normal Pattern?
           - Y 1.Check CTRL B/D 2.Replace Board
             - Y Close
             - N Normal Pattern?
               - Y 1.Check CTRL B/D 2.Replace Board
                 - N Check Main B/D Replace Module (If Main B/D doesn’t cause)

2. **Vertical Line/Bar**  
   - Irregular Vertical Line / Bar
     - Check connection of Connector (COF,TCP) on CTRL B/D , X B/D
     - Normal Y 1.Check CTRL B/D 2.Replace Board
       - N 1. Connector re-connection 2.Eliminate foreign material on Connector

3. **Half No picture**  
   - 1.Check X B/D 2.Replace Board
     - Normal Picture?
       - Y Replace Module
       - N Y Close

4. **Horizontal Line/Bar**  
   - Check connection of Connector (FPC) on Y Drive B/D
     - Normal Y 1. Check Y Drive B/D 2. Replace Board
       - N 1. Connector re-connection 2.Eliminate foreign material on FPC
         - Normal Picture?
           - Y 1.Check CTRL B/D 2.Replace Board
             - N Close

---

*CTRL B/D: Control board

※ H-Line’s Cause is rare CTRL B/D
**B. Power Problem**

**Symptom:** No Power (Not turn on)

**Repair Process**

1. **Check Power LED ON?**
   - **Y:** DC Power on by pressing Power Key on Remote control
   - **N:** Check Power cord was inserted properly

2. **Check Power cord was inserted properly**
   - **Y:** Check & Repair Mechanical Power switch on Local control of TV
   - **N:** Check ST-BY 5V on Power Board

3. **Check ST-BY 5V on Power Board**
   - **Y:** Check AC DET Signal on Power B/D
   - **N:** Replace Power B/D

4. **Check AC DET Signal on Power B/D**
   - **Y:** Check RL_ON Signal on Power B/D
   - **N:** Replace Power B/D

5. **Check RL_ON Signal on Power B/D**
   - **Y:** Check the other pin's Output voltage on Power B/D
   - **N:** Replace Power B/D

6. **Check the other pin's Output voltage on Power B/D**
   - **Y:** Replace Power B/D
   - **N:** Replace Main B/D

---

- **Stand-By:** Red
- **Operating:** Green

---

※ '09 years new model apply mechanical power switch to reduce power consumption in stand-by status.
If mechanical power switch off
- Doesn't turn on by remote control
- Doesn't appear LED light

---

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**B. Power Problem**

**Turn off (Instant, under watching)**

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<tr>
<td>Turn off (Instant, under watching)</td>
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### Repair Process

1. **To check Power B/D Protection**
   - Instant
   - Turn off

2. Turn on after pull out connector between Power B/D & Y-Sus

3. Power LED Green?
   - Y
     - 1. Check Y-Sus/ Z-Sus Board (especially Short or Open)
     - 2. Replace defective B/D
   - N
     - Check Power B/D
     - Replace Power B/D

4. **Turn off**
   - Under watching

5. “Off Timer” Set?
   - Y
     - “Off timer” Function off
   - N
     - Check Power Off History

6. Remote Key
   - ACDET
   - AUTO_Off
   - SW_DW

7. Don’t appear
   - Power Off History

8. Move
   - No Power problem Section

### Notes
- This is not problem
  - Normal operation
C. Sound Problem

1. No sound (If HDMI Input only have no sound, upload EDID data)

   - Check "Speaker ON/Off" setting in OSD Menu
     - Y: Normal Sound? Close
     - N: Check Speaker jack connection & Speaker Cable open
       - Y: Normal Sound? Close
       - N: SVC Bulletin?
         - Y: Apply SVC Bulletin (S/W Upgrade etc)
         - N: Check Power B/D Replace Power B/D

2. Sound distortion & sound drop

   - Check Input signal → Cable connection → Cable open - RF & external (HDMI, SCART,..)
     - Y: Normal Sound? Close
     - N: Check AVL off/on Clear voice off/on
       - Y: Normal Sound? Close
       - N: Problem in all input
         - Y: Problem in only DTV (Case 1)
         - N: Problem in external input (Case 2) (SCART, HDMI,..)

   - Check whether Problem happen in same output of other equipments or not. (By connecting same output cable of other equipment) → DVD Player, Set-Top-Box, different maker TV etc
     - Y: Normal Sound? SVC Bulletin?
       - Y: Apply SVC Bulletin (S/W Upgrade etc)
       - N: Check Audio IC Short Replace Main B/D
     - N: Normal Sound? Close

   Explain customer that
   - Cause is RF Signal’s problem (Case 1)
   - Cause is Equipment’s problem (case 2)

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1. Remote controller (R/C) operating error

Check R/C itself Operation

- Normal operating?
  - Y: Check & Repair Cable connection Connector solder
  - N: Check R/C Operating When turn off light in room

Check R/C Operating When turn off light in room

- Normal operating?
  - Y: Check Battery of R/C
  - N: Replace R/C

Check Battery of R/C

- Normal operating?
  - Y: Check B+ 5V On Main B/D
  - N: Check IR Output signal

Check B+ 5V On Main B/D

- Normal Voltage?
  - Y: Check IR Output signal
  - N: Check 5v on Power B/D

Check IR Output signal

- Normal Signal?
  - Y: Replace Main B/D
  - N: Repair/Replace IR B/D

Check 5v on Power B/D

- If R/C operate, Explain the customer cause is interference from light in room.

- Replace Main B/D

2. Local (Mechanical) switch operating error

Check R/C Operation

- Normal operating?
  - Y: Check & Repair Cable connection Connector solder
  - N: Move Power problem Section

Check & Repair Cable connection Connector solder

- Normal operating?
  - Y: Check & Replace Assembly status (Key PCB + tool)
  - N: Check Key Output signal

Check & Replace Assembly status (Key PCB + tool)

- Normal operating?
  - Y: Normal Signal?
  - N: Repair/Replace Local switch B/D

Check Key Output signal

- Normal Signal?
  - Y: Replace Main B/D
  - N: Replace Main B/D

Check Key Output signal

- Normal Signal?
  - Y: Replace Main B/D
  - N: Replace Main B/D
### PDP TV Repair Process Index

- Trouble shooting by input block (Component level check)

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PDP TV  
Symptom  
Power-Up Boot Fail  
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- Doesn’t the screen whole come out?
  - No
  - Yes  
  1) Check the Power off condition

- Doesn’t the low pressure output come out?
  - No
  - Yes
  3) Check the ST_BY 5V signal circuit

- Doesn’t the high tension output come out?
  - No
  - Yes
  7) Check the VSC Vs_ON signal

- High tension output Voltage drop it occurs?
  - Yes
  - No
  9) Check the power board output high tension circuit

- When remove the Input connector of Y/Z-Sus Board, Does it occur Power Board high tension output voltage drop?
  - Yes
  - No

- When remove the Input connector of Y-Sus Board, Does it occur output voltage drop?
  - Yes
  - No

- Manufacture enterprise meaning of a passage

- When remove the Input connector of Z-Sus Board, Does it occur output voltage drop?
  - Yes

- When remove the Input connector of Y-B/D Module, Does it occur output voltage drop?
  - Yes

- 10) Check the Z B/D Module output circuit

- 11) Check the Y B/D Module output circuit
### Digital TV Video Problem

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<th>Replace IC1103 or IC1104</th>
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<th>Replace IC1103 or IC1104</th>
</tr>
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<tr>
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<td>Replace IC1103 or IC1104</td>
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<td>N</td>
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<table>
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<td>Y</td>
<td>Replace IC1103 or IC1104</td>
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<td>Replace IC1103 or IC1104</td>
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<td>Replace it X1102</td>
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<td>Replace Mstar(IC100) has problems</td>
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<td>N</td>
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<th>Check PDP Module Control board Refer to Module CAS</th>
<th>Replace Mstar(IC100) has problems</th>
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<tbody>
<tr>
<td>Y</td>
<td>Replace Mstar(IC100) has problems</td>
</tr>
<tr>
<td>N</td>
<td>Replace Mstar(IC100) has problems</td>
</tr>
</tbody>
</table>

**Notes:**
- **Check RF Cable**
- **Check 3.3V and 1.8V and 1.2V Voltage on IC1103, IC1104(Chip Tuner)**
- **Check TP Clock, Data, Sync**
- **Check Demodulator Input Clock X1102 (31.875MHz)**
- **Check P403 Clock data :PIN(16, 17, 32, 33)**
- **Check PDP Module Control board Refer to Module CAS**
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</tbody>
</table>

- **Check RF Cable**
  - Y

- **Check 3.3V and 1.8V and 1.2V Voltage on IC1103, IC1104 (Chiptuner)**
  - Y

- **Check CVBS signal IC1104 #16 Pin**
  - N → **Replace IC1103 or IC1104**
  - Y

- **Replace Mstar (IC100)**

- **Replace Tuner (IC1104)**

- **< CVBS waveform – sample >**
  - Defend on the input signal.

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### Component Video Problem

<table>
<thead>
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<th>Input Block</th>
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</table>
|        |              | **Check input signal format**
|        |              | Is it supported? |
|        |              | **Y** |
|        |              | **Check Component Cable** |
|        |              | **Y** |
|        |              | **Check signal on C214, C215, C216** |
|        |              | **N**
|        |              | **Check the damage of JK701 And Replace Connector** |
|        |              | **Y** |
|        |              | **Replace Mstar(IC100)** |

- Measured signals depend on the input signal.

---

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Check input signal format
Is it supported?

Y

Check RGB Cable conductors for damage

Y

Check JK1001

N
Replace connector (JK1001).

Y

Check signal, Hsync, Vsync R245, R246

N
Replace R245, R246

Y

Check signal R218, R219, R220

N
Replace R218, R219, R220

Y

Replace Mstar(IC100)

※ Measured signals depend on the input signal.
Check input signal format
Is it supported?

Y

Check AV Cable / S-Video Cable for
damage or open conductors

Y

N

Check AV port of JK902, JK906

Replace or reconnect cable

Y

Check signal
C210 (SCART1 AV), C211 (SCART2 AV),
C217 (Side AV), C219(S-Video)

N

Replace capacitor

Y

Replace Mstar(IC100)

※ Measured signals depend on the input signal.
Making 2009. 2. 1
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Check input signal format
Is it supported?

Y

Check HDMI Cable for damage or open conductors

Y

Check JK600, JK601, JK602, JK603 for proper connection or damage

N

Replace the Jack

Y

Check EDID EEPROM (IC600, 601, 602, 603)
→ Power(#8) & I2C Signal (#5, #6)

N

Replace IC600, 601, 602, 603

Y

Check HDCP (IC107)
→ Power(#8) & I2C Signal (#5, #6)

N

Replace IC107

Y

Check Mstar(IC100)

N

Replace Mstar(IC100)
PDP TV | Input Block | All Input Audio Problem | Making | 2009. 2 . 1 | Revision | 8/14

Make sure you can’t hear any audio

- Y
  - Check Mstar I2S Output
    - R231, 232, 233, 234
    - N
      - Replace IC100.
    - Y
      - Check IC701 Power
        - 17V(C721), 3.3V(R718)
        - N
          - Check 17V (P800 #1,2), 3.3V (IC701 #21, 36)
        - Y
          - Check IC701 Status
            - Reset(#31) is High?
            - N
              - Check
                - Reset (R724)
                - They must be High (3.3V)
              - Y
                - Replace R1235, 1236
          - Y
            - Replace IC701
            - N
              - Check speaker for damage.
              - N
                - Replace the Speaker

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### Digital TV

- **Check video output**
  - Y: Follow procedure digital TV video trouble shooting
  - N: Follow procedure All source audio trouble shooting

- **Follow procedure All source audio trouble shooting**
  - N: Replace Mstar IC (IC100)

### HDMI

- **Check EDID EEPROM (IC600, 601, 602, 603)**
  - Power(#8) & I2C Signal (#5, #6)

- **Follow procedure All source audio trouble shooting**
  - Y: Re-download EDID data or Replace IC

  - N: Re-download EDID data or Replace IC
### PDP TV

#### Input Block

#### Analog TV Audio Problem

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<td>Y</td>
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<td></td>
<td>Y</td>
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<td>Y</td>
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#### Diagram

![SIF waveform – sample](image)

- Defend on the input signal.

---

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Check Connector and cables
JK901 (Component)
JK900, JK903 (SCART)
JK1001 (RGB)
JK902 (Side AV)

Y
N
Replace connector or cable if found damaged

Check signal
R953 / R954 (Component)
R1030 / R1031 (RGB)
R906 / R911, R940 / R941 (SCART)
R930 / R933 (AV Side)

Y
N
Replace the Resistor

Check IC100 signal
C2013 / C2014 (Component)
C2015 / C2016 (RGB)
C229 / C230, C2008 / C2009 (SCART)
C2011 / C2012 (AV Side)

Y
N
Replace Capacitor

Follow procedure
All source audio trouble shooting

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Check SPIDF signal (R230) → Replace Mstar IC100

Y →

Check Signal (JK904 #3) → Replace JK904

< SPDIF waveform – sample >
- Defend on the input signal.
### Exception
- USB power could be disabled by inrushing current
- In this case, remove the device and try to reboot the TV (AC power off/on)
It should satisfy the Pixel Clock on CAS.