PLASMA TV
SERVICE MANUAL

CHASSIS : PP11K
MODEL : 42PT350R 42PT350R-TD
        42PT351R 42PT351R-TC

CAUTION
BEFORE SERVICING THE CHASSIS,
READ THE SAFETY PRECAUTIONS IN THIS MANUAL.
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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 its 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 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.

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 Hot Check circuit](image-url)
SPECIFICATION

NOTE: Specifications and others are subject to change without notice for improvement.

■ Application Range
This spec is applied to PDP TV used PP11K Chassis.

<table>
<thead>
<tr>
<th>Model Name</th>
<th>Market Place</th>
<th>Brand</th>
</tr>
</thead>
<tbody>
<tr>
<td>42PT350R-TA</td>
<td>NON-EU</td>
<td>LG</td>
</tr>
<tr>
<td>42PT351R-TC</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

■ Specification
Each part is tested as below without special appointment.
(1) Temperature: 25 °C ± 5 °C (77 °F ± 9 °F), CST: 40 ± 5
(2) Relative Humidity: 65 % ± 10 %
(3) Power Voltage: Standard Input voltage (100 V - 240 V ~, 50 / 60 Hz)
  * 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 SBOM.
(5) The receiver must be operated for about 20 minutes prior to the adjustment.

■ 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 Name</th>
<th>Market</th>
<th>Remark</th>
<th>Appliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>42PT350R-TA</td>
<td>NON-EU</td>
<td>Safety: IEC/ EN60065, EMI: CISPR13</td>
<td>TEST</td>
</tr>
<tr>
<td>42PT351R-TC</td>
<td></td>
<td></td>
<td></td>
</tr>
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</table>

■ Module Specification
(1) 42”-2D HD

<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>106 cm (42 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>PDP42T3####, RGB Closed (Well) Type, Glass Filter (38%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pixel Format: 1024 horiz. By 768 ver</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Operating Environment</td>
<td>1) Temp.: 0 deg ~ 40 deg</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 deg ~ 60 deg</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>AC 100 V ~ 240 V, 50 / 60 Hz</td>
<td>Maker LG</td>
</tr>
</tbody>
</table>

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## Model General Specification

(1) NON-EU Spec. (TA)

<table>
<thead>
<tr>
<th>No</th>
<th>Item</th>
<th>Specification</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Market</td>
<td>NON EU</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Broadcasting system</td>
<td>PAL/SECAM-BG/II/DK, NTSC-M</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Available Channel</td>
<td><strong>Band</strong></td>
<td><strong>PAL</strong></td>
</tr>
<tr>
<td></td>
<td>VHF/UHF</td>
<td>E2 ~ C69</td>
<td>2~78</td>
</tr>
<tr>
<td></td>
<td>CATV</td>
<td>S21 ~ S41</td>
<td>1~71</td>
</tr>
<tr>
<td>4.</td>
<td>Receiving system</td>
<td>Upper Heterodyne</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Video Input (2EA)</td>
<td>PAL, SECAM, NTSC</td>
<td>Rear 1EA, Side 1EA</td>
</tr>
<tr>
<td>6.</td>
<td>Component Input (2EA)</td>
<td>Y/Cb/Cr, Y/Pb/Pr</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>RGB Input (1EA)</td>
<td>RGB-PC</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>HDMI Input</td>
<td>2ea</td>
<td><strong>HDMI-DTV, Only PCM MODE</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Side HDMI(1), Rear HDMI(1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>: 42/50PT250R-TA only</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3ea</td>
<td>Side HDMI(1), Rear HDMI(2)</td>
</tr>
<tr>
<td>9.</td>
<td>Audio Input (5EA)</td>
<td>L/R Input(PC 1EA, Component 2EA, Rear 1EA, Side 1EA)</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>RS-232C (1EA)</td>
<td>Remote control</td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>USB Input (1EA)</td>
<td>SD DivX, MP3, JPEG,</td>
<td></td>
</tr>
</tbody>
</table>
ADJUSTMENT INSTRUCTION

1. Application Range
   This spec sheet is applied to all of the PP11K chassis.

2. Specification
   (1) Because this is not a hot chassis, it is not necessary to use an isolation transformer. However, the use of isolation transformer will help protect test instrument.
   (2) Adjustment must be done in the correct order.
   (3) The adjustment must be performed in the circumstance of 25 °C ± 5 °C of temperature and 65 % ± 10 % of relative humidity if there is no specific designation.
   (4) The input voltage of the receiver must keep 100 V ~ 240 V, 50 / 60 Hz.
   (5) The receiver must be operated for about 5 minutes prior to the adjustment when module is in the circumstance of over 15 °C
     - In case of keeping module is in the circumstance of 0 °C, it should be placed in the circumstance of above 15 °C for 2 hours
     - In case of keeping module is in the circumstance of below -20 °C, it should be placed in the circumstance of above 15 °C for 3 hours..

3. S/W Program Download

3-1. Profile
   This is for downloading the s/w to the flash memory of the IC402

3-2. Equipment
   (1) PC
   (2) ISP_tool program
   (3) Download jig

3-3. Connection Structure

3-4. Connection Condition
   (1) IC name and circuit number : Flash Memory and IC402
   (2) Use voltage : 3.3V (5 pin)
   (3) SCL : 15 pin
   (4) SDA : 12 pin
   (5) Tact time : about 2min and 30seconds

3-5. Download Method (By using MSTAR JIG)
   - Preliminary Steps
     (1) Download method (PCB Ass'y)
     - HD
   1) Connect the download jig to D-sub jack
   2) Connect the PC to USB jack
   (2) Download Steps
     1) Execute ‘ISP Tool’ program in PC, then a main window will be opened
     2) Click the connect button and confirm “Dialog Box”

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Only for training and service purposes
3) Click the Config button and Change speed
   E2PROM Device setting : over the 350Khz

4) Read and write bin file
   Click "(1)Read" tab, and then load download file(XXXX.bin) by clicking “Read”.

5) Click “Auto(2)” tab and set as below
6) Click “Run(3)”.
7) After downloading, check “OK(4)” message.

3-6. Download Method (By using USB Memory Stick)

* Caution
- Using ‘power on’ button of the control R/C, power on TV.
- USB file (EPK) version must be bigger than downloaded version of main B/D.
- It should be only one SW binary file in USB Stick

(1) Using ‘Power ON’ button of the control R/C, Power on TV.
(2) Insert the USB memory stick to the SET.
(3) Display USB loading message then, push the ‘Exit’ Key of control R/C
(4) Push the ‘MENU’ Key and move the cursor ‘OPTION’ of OSD ( Fig. 1)
   * Caution : Don’t push the ‘OK’ key. Just cursor is on the ‘OPTION’ menu.

(5) Push the “7” key of control R/C continuously.
   Then, Display “TV Software Update” Pop-up menu. (Fig. 2)

(6) Select SW file (XXXX.bin) you want, push the “OK” Key.
(7) S/W download process is executed automatically.
4. PCB Assembly Adjustment Method

4-1. Option Adjustment Following BOM

Tool Option
Area Option
Option 1
Option 2
Option 3 (Available for EU & Non EU model)

* Profile: Must be changed the option value because being different with some setting value depend on module, inch and market
* Equipment: Adjustment Remote Controller

(1) Push the IN-START key in the Adjust R/C.
(2) Enter Password number. The value of Password is “0 0 0 0”.

(3) Input the Option Number that was specified in the BOM, into the Shipping area.
(4) Select “Tool Option” by using ▲▼ (CH+/-) key, and press the number key(0~9) consecutively
   ex) If the value of Tool Option1 is 4, input the data using number key “4” (Fig. 3)
(5) If it is EU model (such as 42/50PJ**R-ZA), select “Area option” by using ▲▼ (CH+/-) key, and press the number key(0~9) consecutively.
   ex) If the value of Area Option is 40, input the data using number key “40” (Fig. 3)

Caution
- Don’t Push “IN-STOP” key after PCB assembly adjustment.

* PP01A/B/C Tool option

<table>
<thead>
<tr>
<th>Model</th>
<th>Tool option</th>
<th>Area Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>42PT250R-TA</td>
<td>13</td>
<td>1</td>
</tr>
</tbody>
</table>

(6) EDID D/L Method
- After software D/L or PCBA manufacturing, you can download EDID Data.
- When you adjust Tool Option, H6 Model EDID download process is executed automatically
* If the model don’t have HDMI 3, HDMI 3 will be disappeared at OSD Window.

[Caution] - When you adjust tool option, don’t connect HDMI or D-sub cable.
- If you connect some cable, EDID D/L process will be failed.

(7) Adjustment method
Before PCBA check, have to change the Tool option and Area option
* About PDP
After done all adjustments, Press IN-START button and compare Tool option and Area option value with its BOM, if it is correctly same then Change “RF mode” and then unplug the AC cable.
If it is not same, then correct it same with BOM and unplug AC cable.
For correct it to the model’s module from factory JIG model.
* Don’t push The IN-STOP KEY after completing the function inspection.

5. EDID (The Extended Display Identification Data)

Caution
- Never Use the cable (HDMI or D-sub cable) for EDID Writing.
- Automatically PP01A/B/C Model EDID download process is executed when you adjust Tool Option.

<table>
<thead>
<tr>
<th>Inch</th>
<th>Tool</th>
<th>SIDE AV</th>
<th>HDMI</th>
<th>Side HDMI</th>
<th>COMP2</th>
<th>RGB</th>
<th>RS232C</th>
<th>Local Key</th>
<th>LED TYPE</th>
<th>USB TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>0/1</td>
<td>0/1</td>
<td>0/1/2/3</td>
<td>0/1</td>
<td>0/1</td>
<td>0/1</td>
<td>0 (7KEY) / 1 (8KEY)</td>
<td>0 (RED) / 1 (RED/White) / 2 (Reserve)</td>
<td>0 (NONE) / 1 (PHOTO, MUSIC) / 2 (PHOTO, MUSIC, DivX)</td>
</tr>
</tbody>
</table>
5-1. EDID Data

<table>
<thead>
<tr>
<th>NO</th>
<th>Item</th>
<th>Condition</th>
<th>Hex Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Manufacturer ID</td>
<td>GSM</td>
<td>1E6D</td>
</tr>
<tr>
<td>2</td>
<td>Version</td>
<td>Digital : 1</td>
<td>01</td>
</tr>
<tr>
<td>3</td>
<td>Revision</td>
<td>Digital : 3</td>
<td>03</td>
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</table>

- XGA EDID DATA ( 42 inch)

<Analog(RGB) : 128bytes>

<table>
<thead>
<tr>
<th>Addr</th>
<th>00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F</th>
</tr>
</thead>
<tbody>
<tr>
<td>0000</td>
<td>00 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF</td>
</tr>
<tr>
<td>0100</td>
<td>01 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF</td>
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<tr>
<td>0200</td>
<td>02 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF</td>
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<tr>
<td>0300</td>
<td>03 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF</td>
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<td>0400</td>
<td>04 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF</td>
</tr>
<tr>
<td>0500</td>
<td>05 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF</td>
</tr>
<tr>
<td>0600</td>
<td>06 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF</td>
</tr>
<tr>
<td>0700</td>
<td>07 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF</td>
</tr>
</tbody>
</table>

<HDMI 1 : 256bytes>

<table>
<thead>
<tr>
<th>Addr</th>
<th>00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F</th>
</tr>
</thead>
<tbody>
<tr>
<td>0000</td>
<td>00 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF</td>
</tr>
<tr>
<td>0100</td>
<td>01 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF</td>
</tr>
<tr>
<td>0200</td>
<td>02 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF</td>
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<td>03 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF</td>
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</tr>
<tr>
<td>0600</td>
<td>06 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF</td>
</tr>
<tr>
<td>0700</td>
<td>07 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF</td>
</tr>
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</table>

<HDMI 2 : 256bytes>

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<tr>
<th>Addr</th>
<th>00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F</th>
</tr>
</thead>
<tbody>
<tr>
<td>0000</td>
<td>00 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF</td>
</tr>
<tr>
<td>0100</td>
<td>01 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF</td>
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<tr>
<td>0200</td>
<td>02 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF</td>
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<tr>
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<td>0400</td>
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<td>0500</td>
<td>05 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF</td>
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<td>06 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF</td>
</tr>
<tr>
<td>0700</td>
<td>07 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF</td>
</tr>
</tbody>
</table>

6. HDCP(High-Bandwidth Digital Contents Protection) Download

HDCP download process is deleted in PP01A/B/C Chassis. In PP01A/B/C Chassis, it is using the EEPROM masking HDCP Key.

7. Manual ADC Adjustment (Component 1, RGB)

Caution
- Do not connect external input cable
- Adjustment result is applied to SET On/Off later.

* Adjustment is done using internal ADC, so input signal is not necessary.
7-1. COMPONENT input ADC (SD / HD), RGB input ADC
(1) Press ADJ key on R/C for adjustment. Need not convert input mode.
(2) Enter Password number. The value of Password is “0 0 0 0”.
(3) Select “0. ADC calibration” by using ▲▼(CH +/-) and press ENTER(●).
(4) Start ADC adjustment by using ◄►(VOL +/-) or press ENTER(●).
(5) Both component and RGB ADC adjustment are executed automatically

When ADC adjustment is finished, this OSD appear.

Notice : After All mode check, set the Speaker Volume “0”.
Caution : Don’t Press the Power Key on Remote Controller. Just AC Power Off. ( Not DC off )
Notice : From this sentence, All working is mass production.

8. POWER PCB Assy Voltage Adjustment
(Vs voltage Adjustment)

8-1. Test Equipment: D.M.M 1EA

8-2. Connection Diagram for Measuring
Refer to (Fig. 4)

8-3. Adjustment Method
(1) Vs Adjustment
1) Connect + terminal of D. M..M. to Vs pin of P811, connect -terminal to GND pin of P811.
2) After turning VR901, voltage of D.M.M adjustment as same as Vs voltage which on label of panel right/top ( deviation ; ±0.5V)
(2) Va Adjustment
1) Connect + terminal of D. M..M. to Va pin of P811, connect -terminal to GND pin of P811.
2) After turning VR502, voltage of D.M.M adjustment as same as Va voltage which on label of panel right/top ( deviation ; ± 0.5 V)

8-4. Adjustment of Area option.
(1) Area Option Adjustment following BOM
(Including SKD models )
Tool Option
Area Option
Option 1
Option 2
Option 3 ( Available for EU & Non EU model )

* Profile : Must be changed the option value because being different with some setting value depend on module, inch and market
* Equipment : Adjustment Remote Controller

1) Push the IN-START key in the Adjust R/C.
2) Enter Password number. The value of Password is “0 0 0 0”.

3) Input the Area Option Number that was specified in the BOM, into the Shipping area.
4) Select “Area Option” by using ▲▼(CH +/-) key, and press the number key(0~9) consecutively
   ex) If the value of Area Option 40, input the data using number key “40” (Fig. 3)

Caution:
- Although it is SKD model, adjust area option in SET assembly process.
- Don’t Push “IN-STOP” key after PCB assembly adjustment.

9. Adjustment of White Balance

9-1. Required Equipment
(1) Remote controller for adjustment
(2) Color Analyzer ( CS-1000, CA-100,100+,CA-210 or same produc : CH 10 (PDP)
   lease adjust CA-210, CA-100+ by CS-1000 before measuring
(3) Auto W/B adjustment instrument(only for Auto adjustment)

Before Adjust of White Balance, Please press POWER ONLY key.

Adjust Process will start by execute RS232C Command.

- CS-1000/CA-100+/CA-210(CH 10) White balance adjustment coordinates and color temperature.

<table>
<thead>
<tr>
<th>CSM</th>
<th>Color Coordinate</th>
<th>Temp</th>
<th>Color Coordinate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>x</td>
<td>y</td>
<td></td>
</tr>
<tr>
<td>Cool</td>
<td>0.276</td>
<td>0.283</td>
<td>11000K</td>
</tr>
<tr>
<td>Medium</td>
<td>0.285</td>
<td>0.293</td>
<td>9300K</td>
</tr>
<tr>
<td>Warm</td>
<td>0.313</td>
<td>0.329</td>
<td>6500K</td>
</tr>
</tbody>
</table>


1. Enter ‘PICTURE RESET’ on Picture Mode, then turn off Fresh Contrast and Fresh colour in Advanced Control.
2. After enter Service Mode by pushing “ADJ” key.
3. Enter White Pattern off of service mode, and change off -> on.
4. Enter “W/B ADJUST” by pushing “G” key at “3. W/B ADJUST”.
5. Adjust W/B DATA, for all CSM, choose ‘COPY ALL’

Gain Max Value is 192. So, Never make any Gain Value over 192 and please fix one Value on 192, between R, G and B.

<table>
<thead>
<tr>
<th>No.</th>
<th>Adjustment content</th>
<th>CMD(HEX)</th>
<th>ADR</th>
<th>VALUE</th>
<th>detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Aging On/Off</td>
<td>F3</td>
<td>00</td>
<td>FF/00</td>
<td>Off</td>
</tr>
<tr>
<td>2</td>
<td>Input select</td>
<td>F4</td>
<td>00</td>
<td></td>
<td>On</td>
</tr>
</tbody>
</table>

3. R GAIN 16 00 00 PE
4. G GAIN 18 00 00 PE
5. B GAIN 1A 00 PE
6. R GAIN 16 01 00 PE
7. G GAIN 18 00 00 PE
8. B GAIN 1A 00 PE

- Auto-control interface and directions
  1. Adjust in the place where the influx of light like floodlight around is blocked. (Illumination is less than 10ux).
  2. Measure and adjust after sticking the Color Analyzer (CA-100+, CA210) to the side of the module.
  3. Aging time
     After aging start, keep the Power on (no suspension of power supply) and heat-run over 5 minutes.

* Above optical characteristics are should be measured by following condition.

<table>
<thead>
<tr>
<th>Measured Mode</th>
<th>Picture Mode</th>
<th>Vivid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fresh Contrast</td>
<td>Off</td>
<td></td>
</tr>
<tr>
<td>Fresh Color</td>
<td>Off</td>
<td></td>
</tr>
<tr>
<td>Smart Power Saving</td>
<td>Off</td>
<td></td>
</tr>
</tbody>
</table>

10. Default Value in Adjustment mode

10-1. White Balance

(Default values maybe modified the module condition)

<table>
<thead>
<tr>
<th>Mode</th>
<th>TEMPERATURE</th>
<th>R-Gain</th>
<th>G-Gain</th>
<th>B-Gain</th>
<th>R-Offset</th>
<th>G-Offset</th>
<th>B-Offset</th>
</tr>
</thead>
<tbody>
<tr>
<td>TV</td>
<td>Medium</td>
<td>192</td>
<td>192</td>
<td>192</td>
<td>128</td>
<td>128</td>
<td>128</td>
</tr>
</tbody>
</table>

10-2. System control condition

1. AC on time on only one after assembled automatically
Many electrical and mechanical parts in this chassis have special safety-related characteristics. These parts are identified by \( \Delta \) 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.
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

Check Sound

Check voltage

B+ Voltage on Power Board / Control Board / Check B+(5V)

Check B+ Voltage on Power Board

Check Y-Sus/ Z-Sus Board

Check voltage

1. Check Control Board
   . LED on
   . Crystal(X400)
   . 1.8V, 3.3V, 1.2V 5V FET
   . Rom update
2. Replace Control B/D

※Refer to the Module label for each voltage
Repair Process

PDP TV | Symptom | A. Picture Problem | Making |
---|---|---|---|
 | | No Picture/No Sound | Revision |

**A. Picture Problem**

1. **Check IR operation**
   - Normal: Y
   - N: Move No Picture/ Sound Ok Section

2. **Check Sound**
   - Sound OK: Y
   - N: Check IR operation

3. **Check LVDS Cable**
   - Normal: Y
   - N: Replace Main B/D

4. **Power LED ON?**
   - Y: OSD appear?
     - Y: Latest S/W update from GCSC (Firmware Management)
     - N: Replace Main B/D
   - N: Close

5. **Check Input signal. RF Cable connection. SCART Cable connection. HDMI Cable connection. Component Cable**
   - Normal: Y
   - N: Repair/Replace IR B/D

**Repair Process**

Check Module pattern by using “TILT” key on SVC R/C

Check Input signal
- RF Cable connection
- SCART Cable connection
- HDMI Cable connection
- Component Cable...
# A. Picture Problem

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Making</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mal-discharge/Noise/dark picture</td>
<td>Revision</td>
</tr>
</tbody>
</table>

## Repair Process

### Mal-discharge

1. Check Picture problem Type
   - Dot type
     - Check CTRL ROM Ver. and Rom Upgrade
       - Normal Picture? Y: Close
       - N: Replace Control board
       - Replace Y-Sus B/D

2. Scan Type
   - Check voltage \(-V_Y/ Vsc\) (Y-Sus B/D)
     - Normal Picture? Y: Close
     - N: Replace Y-Sus B/D

### Dot type

- Replace Control board
- Replace Module

### Picture Noise

1. Check RF Cable Connection
   - Normal Picture? Y: Close
   - N: Check Tuner & Replace

### Dark Picture

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

2. Replace Module
### PDP TV

#### A. Picture Problem

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Making</th>
<th>Revision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Picture broken/Freezing</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Repair Process

1. **Check RF Signal level**
   - By using signal level meter
     - Signal strength (Normal: over 50%)
     - Signal Quality (Normal: over 50%)

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

3. **Normal Picture?**
   - Y: Check S/W Version
   - N: Normal Picture?
     - N: Contact with signal distributor or broadcaster (Cable or Air)
     - Y: Normal Picture?
       - Y: Close
       - N: S/W Upgrade

4. **S/W Bulletin?**
   - Y: Check Tuner soldering
   - N: N

5. **Normal Picture?**
   - Y: Close
   - N: Replace Main B/D

By using signal level meter
- Signal strength (Normal: over 50%)
- Signal Quality (Normal: over 50%)
**A. Picture Problem**

**Vertical bar/ Horizontal Bar**

<table>
<thead>
<tr>
<th>PDP TV</th>
<th>Symptom</th>
<th>Making</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Revision</td>
</tr>
</tbody>
</table>

**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: 1. Check CTRL B/D 2. Replace Board

2. **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: Normal Picture?
       - Y: Check Main B/D Replace Module (If Main B/D doesn’t cause)
       - N: Close
   - Irregular
     - Half No picture
       - 1. Check X B/D 2. Replace Board
         - Normal Picture?
           - Y: Close
           - N: Replace Module
     - No picture
       - 1. Check Y Drive B/D
         - Normal
           - Y: 1. Check Y Drive B/D 2. Replace Board
           - N: Normal Picture?
             - Y: Replace Module
             - N: Close
         - Normal
           - Y: 1. Check CTRL B/D 2. Replace Board
           - N: Normal Picture?
             - Y: Replace Module
             - N: Close

3. **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: Normal Picture?
       - Y: Replace Module
       - N: Close
   - Half No picture
     - 1. Check X B/D 2. Replace Board
       - Normal Picture?
         - Y: Close
         - N: Replace Module
   - No picture
     - 1. Connector re-connection
       - 2. Eliminate foreign material on Connector

※ H-Line’s Cause is rare CTRL B/D
### Repair Process

**PDP TV**

<table>
<thead>
<tr>
<th>Symptom</th>
<th>B. Power Problem</th>
<th>Making</th>
<th>Revision</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Power (Not turn on)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Power Problem

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

- **Check ST-BY 3.5V on Power Board**
  - **Normal:**
    - **Y:** Close
    - **N:**

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

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

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

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

<table>
<thead>
<tr>
<th>PDP TV</th>
<th>Symptom</th>
<th>B. Power Problem</th>
<th>Making</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Repair Process**

1. **Check Y-Sus/ Z-Sus Board** (especially Short or Open)
2. Replace defective B/D

**To check Power B/D Protection**

- **Instant Turn off**
- **Turn on after pull out connector between Power B/D & Y-Sus**
- **Power LED Green?**
  - **Y**: 1. Check Y-Sus/ Z-Sus Board (especially Short or Open)
  - **N**: 2. Replace defective B/D

**Check Power B/D Replace Power B/D**

- **Turn off Under watching**
- **“Off Timer” Set?**
  - **Y**: “Off timer” Function off
  - **N**: Check Power Off History
    - **RCU Off**
    - **KEY Off**
    - **2HOUR Off**
    - **NO Signal Off**
    - **Don’t appear Power Off History**
      - Move No Power problem Section

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

### No sound/ Sound distortion

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Making</th>
<th>Revision</th>
</tr>
</thead>
<tbody>
<tr>
<td>No sound/ Sound distortion</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**1. No sound**

- If HDMI Input only have no sound, upload EDID data.

**Repair Process**

1. **Check “Speaker ON/Off” setting in OSD Menu**
   - Normal Sound? Yes → Close
   - Normal Sound? No → Check Speaker jack connection & Speaker Cable open

2. **Check Speaker jack connection & Speaker Cable open**
   - Normal Sound? Yes → Close
   - Normal Sound? No → Check 17V (Audio IC B+) on Power B/D

3. **Check 17V (Audio IC B+) on Power B/D**
   - Normal voltage? Yes → Check Power B/D Replace Power B/D
   - Normal voltage? No → Normal Sound?

4. **Apply SVC Bulletin (S/W Upgrade etc)**
   - SVC Bulletin? Yes → Normal Sound?
   - SVC Bulletin? No → Normal Sound?

5. **Check Audio IC Replace Main B/D**
   - Normal Sound? Yes → Close
   - Normal Sound? No → Explain customer that Cause is RF Signal’s problem (Case 1)
     → Cause is Equipment’s problem (case 2)

### Problem in all input

- Problem in external input (Case 2)
  - SCART, HDMI, etc.

### Problem in external input (Case 2)

- DVD Player, Set-Top-Box, different maker TV etc

**2. Sound distortion & sound drop**

- Check Input signal → Cable connection → Cable open - RF & external (HDMI, SCART, etc.)

- Normal Sound? Yes → Check AVL off/on Clear voice II off/on
  - Normal Sound? Yes → Close
  - Normal Sound? No → Problem in external input (Case 2)

- Problem in all input

- 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

- Normal Sound? Yes → SVC Bulletin?
  - SVC Bulletin? Yes → Apply SVC Bulletin (S/W Upgrade etc)
    - SVC Bulletin? No → Normal Sound?

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

- Check Audio IC Replace Main B/D

- Normal Sound? Yes → Close
- Normal Sound? No → SVC Bulletin?
### 1. Remote control (R/C) operating error

- **Check R/C itself Operation**
  - Normal operating? (Y/N)
  - Replace R/C if N
- **Check R/C Operating When turn off light in room**
- **Check & Replace Battery of R/C**
  - Normal operating? (Y/N)
  - Replace R/C if N
- **Check & Repair Cable connection Connector solder**
- **Check B+ 5V On Main B/D**
  - Normal voltage? (Y/N)
  - Replace Power B/D or Replace Main B/D (Power B/D don’t have problem) if N
- **Check IR Output signal**
  - Normal signal? (Y/N)
  - Repair/Replace IR B/D if N

If R/C operate, Explain the customer cause is interference from light in room.
You can see 20 types patterns by using TILT Key on SVC Remote controller (except Old model) < CHECK Item >

5. In case of no picture, you can judge defect cause (Module or Main B/D)
   - If patterns appear, defect cause is Main B/D
MAKING
 Revision

### A. Picture Problem

#### Control Board Checking Method (42G2/50G2)

#### Checking Method

1. Check input voltage (5V of P101) on Control B/D
2. Check LED On
3. If LED light doesn’t appear, check Crystal X101 output
4. Check 3.3V, 5V, 1.8V FET
5. Check MCM at VS_DA by using Multi meter

#### Check Crystal (X101)

- Check oscillation of Crystal (Normal: 100 MHZ, 1.6v)

#### Check MCM

- MCM Check point (+) VS_DA / (-) GND (Normal: 3.3V)
A. Picture Problem

PDP Module Rom Ver. Checking method

- Check by using Rom Label on control board

- Check by using SVC Remocon
  Press “In-start” → Press “0000” → Select Panel option → Pop up Module Rom ver.

※ Refer to the Module Rom upgrade manual for Rom upgrade.

USB Type Jig
First of all, Check whether all of cable between board was inserted properly or not. Next, Check whether there is foreign material on connector.

<table>
<thead>
<tr>
<th>Symptom picture</th>
<th>defects description</th>
<th>To action</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Regular vertical lines" /></td>
<td>Regular vertical lines</td>
<td>1. Check connection (CTRL B/D, X B/D) 2. Check CTRL B/D 3. Replace CTRL B/D</td>
</tr>
<tr>
<td><img src="image2.png" alt="Vertical lines or Bar" /></td>
<td>Vertical lines or Bar</td>
<td>1. Check connection (CTRL B/D, X B/D) 2. Check CTRL B/D 3. Replace CTRL B/D</td>
</tr>
<tr>
<td><img src="image3.png" alt="Many irregular vertical lines" /></td>
<td>Many irregular vertical lines</td>
<td>1. Check connection (CTRL B/D, X B/D) 2. Check CTRL B/D 3. Replace CTRL B/D</td>
</tr>
<tr>
<td><img src="image4.png" alt="Horizontal Line or Bar" /></td>
<td>Horizontal Line or Bar</td>
<td>1. Check connection (Y-Sus B/D ← Panel) 2. Check Y-Sus B/D 3. Replace Y-Sus B/D</td>
</tr>
</tbody>
</table>
### Repair Process-Reference data

<table>
<thead>
<tr>
<th>PDP TV</th>
<th>Symptom</th>
<th>A. Picture Problem</th>
<th>Making</th>
<th>Revision</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Connector Type on PDP Module</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### COF Type

- 96 Out Put
- Defect symptom
- 1. Check foreign & Connection status
- 2. Check bad soldering on Chip resistance

#### TCP Type

- 192 Out Put
- TCP (Tape Carrier Package) is film for IC connect with Electrode pattern (Direct Bonding) on X B/D

#### FPC Type

- Connector to connect between Electrode PAD Of PANEL and Y Drive B/D, Z-Sus B/D
## Repair Process - Reference data

<table>
<thead>
<tr>
<th>PDP TV</th>
<th>Symptom</th>
<th>B. Power Problem</th>
<th>Making</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Check voltage on Power board</td>
<td>Revision</td>
</tr>
</tbody>
</table>

### B. Power Problem

#### Check voltage on Power board

**Pin Map**

Power B/D→Main B/D  
(P813) → (P1100)

<table>
<thead>
<tr>
<th>No.</th>
<th>Checking Point</th>
<th>Spec</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>STBY 5V</td>
<td>5V</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>STBY 5V</td>
<td></td>
<td></td>
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<tr>
<td>3</td>
<td>STBY</td>
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<td>4</td>
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<td></td>
</tr>
<tr>
<td>20</td>
<td>STBY</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Checking Order

- **Check the other pin's output**