PLASMA TV
SERVICE MANUAL

CHASSIS : PP91C
MODEL : 42PQ10R  42PQ10R-MB

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

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

■ Application Range
This spec is applied to PDP TV used PP91C Chassis.

<table>
<thead>
<tr>
<th>Chassis</th>
<th>Model Name</th>
<th>Market</th>
<th>Brand</th>
</tr>
</thead>
<tbody>
<tr>
<td>PP91C</td>
<td>42PQ10R-MB</td>
<td>Central and South America</td>
<td>LG</td>
</tr>
</tbody>
</table>

■ 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 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>42PQ10R-MB</td>
<td>Central and South America</td>
<td>Safety : IEC/ EN60065, EMI : CISPR13</td>
<td>TEST</td>
</tr>
</tbody>
</table>

■ Module Specification
(1) 42” XGA

<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>42 inch 16: 9 Color Plasma 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>PDP42G2###, RGB Closed Type</td>
<td>Glass Filter</td>
</tr>
<tr>
<td>4</td>
<td>Operating Environment</td>
<td>1) Temp. : 0 ~ 60deg</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 : LGIT</td>
</tr>
</tbody>
</table>

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Only for training and service purposes
## Model General Specification

### (1) Central and South America

<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>Central and South America</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Broadcasting system</td>
<td>NTSC, PAL-M, PAL-N</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Available Channel</td>
<td>BAND NTSC</td>
<td></td>
</tr>
<tr>
<td></td>
<td>VHF</td>
<td>2 ~ 13</td>
<td></td>
</tr>
<tr>
<td></td>
<td>UHF</td>
<td>14 ~ 69</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CATV</td>
<td>1 ~ 125</td>
<td></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>NTSC, PAL-M/N</td>
<td>Rear 1EA, Side 1EA</td>
</tr>
<tr>
<td></td>
<td>Video Input (1EA)</td>
<td>PQ10R rear 1EA</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>AV Output (1EA)</td>
<td>NTSC, PAL-M/N</td>
<td>Rear 1EA (You can select Variable OUT or MNT OUT)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PQ10R Not support</td>
</tr>
<tr>
<td>7.</td>
<td>Component Input (2EA)</td>
<td>Y/Cb/Cr, Y/ Pb/Pr</td>
<td>PQ10R rear 1EA</td>
</tr>
<tr>
<td></td>
<td>Component Input (1EA)</td>
<td>PQ10R rear 1EA</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>RGB Input (1EA)</td>
<td>RGB-PC</td>
<td>PQ10R Not support</td>
</tr>
<tr>
<td>9.</td>
<td>HDMI Input (2EA)</td>
<td>HDMI-DTV, Only PCM MODE</td>
<td>Rear HDMI(1) : Only for PQ10R</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Rear HDMI(2) : Only for PQ30R</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Side HDMI(1), Rear HDMI(2)</td>
</tr>
<tr>
<td>10.</td>
<td>Audio Input (2EA)</td>
<td>AV (1EA), Component (1EA)</td>
<td>PQ10R (Rear AV 1ea, Rear Component 1EA)</td>
</tr>
<tr>
<td></td>
<td>Audio Input (5EA)</td>
<td>PC Audio, Component (2EA), AV (2EA)</td>
<td>L/R Input(PC 1EA, Component 2EA, Rear 1EA, Side 1EA)</td>
</tr>
<tr>
<td>11.</td>
<td>RS-232C (1EA)</td>
<td>Remote control</td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>USB Input (1EA)</td>
<td>DivX, MP3, JPEG,</td>
<td>SIDE USB 1EA, Rear USB 1EA(10R Models)</td>
</tr>
</tbody>
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### Chroma & Brightness (Optical)

(1) (With 38% Filter) 42” G2A module

<table>
<thead>
<tr>
<th>No</th>
<th>Item</th>
<th>Min</th>
<th>Typ</th>
<th>Max</th>
<th>Unit</th>
<th>Remark</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>White peak Brightness</td>
<td>60Hz : 315</td>
<td>60Hz : 378</td>
<td>-</td>
<td>cd/ m²</td>
<td>(*) Special Peak Brightness Mode</td>
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<tr>
<td></td>
<td></td>
<td>50Hz : 315</td>
<td>50Hz : 362</td>
<td></td>
<td></td>
<td>- 1/ 100 ~ 3/ 100 white window Pattern</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(typically 1% window size)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- Picture Mode : Vivid</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- Mode : HDMI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- Resolution : 1920 x 1080 60H</td>
</tr>
<tr>
<td></td>
<td></td>
<td>60Hz : 173</td>
<td>60Hz : 195</td>
<td>-</td>
<td>cd/ m²</td>
<td>(*) Normal Mode</td>
</tr>
<tr>
<td></td>
<td></td>
<td>50Hz : 161</td>
<td>50Hz : 183</td>
<td></td>
<td></td>
<td>- 25/ 100 white window pattern</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- Picture Mode : Vivid</td>
</tr>
<tr>
<td>2</td>
<td>White average brightness</td>
<td>60Hz : 50</td>
<td>60Hz : 57</td>
<td>-</td>
<td>cd/ m²</td>
<td>- Full White Pattern</td>
</tr>
<tr>
<td></td>
<td></td>
<td>50Hz : 47</td>
<td>50Hz : 54</td>
<td></td>
<td></td>
<td>- Picture Mode : Vivid</td>
</tr>
<tr>
<td>3</td>
<td>Brightness uniformity</td>
<td>-10</td>
<td>0</td>
<td>+10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- 85IRE Full White Pattern</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- Picture Mode: Vivid</td>
</tr>
<tr>
<td>4</td>
<td>Color coordinate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>White</td>
<td>X 0.270</td>
<td>0.285</td>
<td>0.300</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Y 0.278</td>
<td>0.293</td>
<td>0.308</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Red</td>
<td>X 0.635</td>
<td>0.640</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Y 0.318</td>
<td>0.330</td>
<td>0.340</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Green</td>
<td>X 0.242</td>
<td>0.300</td>
<td>0.305</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Y 0.595</td>
<td>0.600</td>
<td>-</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Blue</td>
<td>X -</td>
<td>0.150</td>
<td>0.158</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Y -</td>
<td>0.060</td>
<td>0.070</td>
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<td></td>
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<tr>
<td>5</td>
<td>Contrast ratio at dark room</td>
<td>100,000: 1</td>
<td>1,000,000 :1</td>
<td></td>
<td></td>
<td>- White : 1/ 100 White Window Pattern</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>( Peak Mode )</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- Black : Full Black</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- Picture Mode : Vivid</td>
</tr>
<tr>
<td>6</td>
<td>Color coordinate uniformity</td>
<td>-0.01</td>
<td>Average</td>
<td>+0.01</td>
<td></td>
<td>- 85IRE Full White Pattern</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- Picture Mode : Vivid</td>
</tr>
<tr>
<td>7</td>
<td>Colour Temperature</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Cool</td>
<td>X 0.261</td>
<td>0.276</td>
<td>0.291</td>
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<td></td>
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<td>Y 0.268</td>
<td>0.283</td>
<td>0.298</td>
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<tr>
<td></td>
<td>Medium</td>
<td>X 0.270</td>
<td>0.285</td>
<td>0.300</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Y 0.278</td>
<td>0.293</td>
<td>0.308</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Warm</td>
<td>X 0.298</td>
<td>0.313</td>
<td>0.328</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Y 0.314</td>
<td>0.329</td>
<td>0.344</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Colorpull in Range</td>
<td>PAL -450</td>
<td>+450</td>
<td>Hz</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>NTSC -450</td>
<td>+450</td>
<td>Hz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Color killer Sensitivity</td>
<td>-80</td>
<td></td>
<td>dBM</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
ADJUSTMENT INSTRUCTION

1. Application Range
This spec sheet is applied to all of the PP91C 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±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 100~240V, 50/60Hz.
(5) The receiver must be operated for about 5 minutes prior to the adjustment when module is in the circumstance of over 15°.
   - 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 IC603

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 IC603
(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)
(1) Preliminary Steps

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

Double click
2) Click the connect button and confirm “Dialog Box”.

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.

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/ Area Option” by using D/E(CH+/−) key, and press the number key(0~9) consecutively.
   - ex) If the value of Tool Option 1 is 4, input the data using number key “4” (Fig. 3)

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

5. 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

   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.

6. 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)  
Originally H6(PP91A/B) Model EDID download process is executed when you adjust Tool Option.

* Caution
  - Use the proper signal cable for EDID Download
  - Never connect HDMI & D-SUB Cable at the same time.
  - Use the proper cables below for EDID Writing

5-1. Profile: To be possible for plug and play

5-2. Equipment
(1) Adjusting PC with S/W for writing EDID Data.(S/W: EDID TESTER Ver.2.5)
(2) A Jig for EDID Download
(3) Cable : Serial(9Pin or USB) to D-sub 15Pin cable, D-sub 15Pin cable, DVI to HDMI cable.

5-3. Connection Structure

Connection Diagram of EDID

Caution: Never connect HDMI & D-SUB Cable at the same time.

5-4. EDID Data

<table>
<thead>
<tr>
<th>NO</th>
<th>Item</th>
<th>Condition</th>
<th>16 1 Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Manufacturer ID</td>
<td>OEM</td>
<td></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>
</tr>
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</table>

Analog(RGB) : 128bytes

<Analog(RGB) : 128bytes>

<HD1 : 256bytes>

<HD1 : 256bytes>

<HD2 : 256bytes>

<HD3 : Side HDMI(HDMI 3) 256bytes>

<HD3 : Side HDMI(HDMI 3) 256bytes>

<HD4 : Side HDMI(HDMI 3) 256bytes>

<HD4 : Side HDMI(HDMI 3) 256bytes>
6. HDCP (High-Bandwidth Digital Contents Protection) Download
HDCP download process is deleted in H6 models.
In H6 models, 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.

<table>
<thead>
<tr>
<th>RF input</th>
<th>AV / Component / RGB input</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO SIGNAL or White noise</td>
<td>NO SIGNAL</td>
</tr>
</tbody>
</table>

* Adjustment is done using internal ADC, so input signal is not necessary.

7-1. COMPONENT ADC (SD / HD)
1. Convert to Component1 input source.
2. Press ADJ key on R/C for adjustment.
3. Enter Password number. The value of Password is “0 0 0 0”.
4. Select “0. ADC calibration” by using D/E(CH +/-) and press ENTER(v).
5. Start ADC adjustment by using F/G(VOL +/-) or press ENTER(v).
6. ADC adjustment is executed automatically.

When ADC adjustment is finished, this OSD appear.

7-2. RGB input ADC
Auto RGB Gain/Offset Adjustment
1. Convert to PC in Input-source
2. Press ADJ key on R/C for adjustment.
3. Enter Password number. The value of Password is “0 0 0 0”.
4. Select “0. ADC calibration” by using D/E(CH +/-) and press ENTER(v).
5. Start ADC adjustment by using F/G(VOL +/-) or press ENTER(v).
6. ADC adjustment is 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 )

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 P702, connect -terminal to GND pin of P702.
   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)

   (Fig. 4)

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 )

   MODEL : XXXXXX  Module : XXXX
   S/W Ver. : XX ROM : XXXXXXXX
   UTT : X Temp : XXXXX : Celsius
   ADC CAL :
   RGB : OK
   Component SD : OK
   Component HD : OK
   EDID : RGB(OK) HDMI1(OK) HDMI2(OK) HDMI3(OK)
   Tool Option
   Area Option
   Option 1
   Option 2

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

* 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/Area Option” by using D/E(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)

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

9. Adjustment of White Balance

9-1. Purpose and Principle for Adjustment of the Color Temperature
(1) Purpose: Adjust the color temperature to reduce the deviation of the module color temperature.
(2) Principle: To adjust the white balance without the saturation, Fix the one of R/G/B gain to C0 and decrease the others.
(3) Adjustment mode: Two modes of Cool, Warm and Medium

9-2. Required Equipment
(1) Remote controller for adjustment
(2) Color Analyzer: CA-100+ or CA-210 or same product - PLASMA TV(ch: 10)
(3) Auto W/B adjustment instrument (only for Auto adjustment) - Do the white balance adjustment under the 10LUX
* Notice: When using the Color Analyzer with PDP, recommend the CA-100 more than CA-210.
If CA-100 can not available, it is also good to use the CA-210.

(4) PC (for communication through RGB)
(5) Pattern Generator (MSPG-925FA etc.)
- Before white balance, press the ADJ key and select third row like (Fig. 5)
- To enter White-balance mode, Enter Password Number “0 0 0 0” and select third row.
* Caution: System control Host should be “DDC” for adjustment.

(6) Adjust W/B DATA, for all CSM, choose ‘COPY ALL’

9-3. Connecting Diagram of Equipment for Measuring (For Automatic Adjustment)
(Method 2, using RS-232C, You connect RS-232C Cable)

(1) Enter the adjustment mode of the white balance
- Enter the white balance adjustment mode at the same time heat-run mode when pushing the power on by power only key
- Maintain the white balance adjustment mode with same condition of Heat-run
- Maintain after AC off/on in status of Heat-run pattern display

(2) Release the white balance adjustment mode
- Release the adjust mode after AC off/on or std-by off/on in status of finishing the Heat-run mode
- Release the Adjust mode when receiving the aging off command(F3 00 00) from adjustment equipment

(3) Enter the adjust mode of white balance
- Enter the white balance adjustment mode with aging command(F3, 00, FF)
Adjustment mode: Three modes of Cool, Medium(Vivid) and Warm

- Equipment
1) Color analyzer(CA100+, CA210) should be used in the calibrated ch by CS-1000(PDP : CH10)
2) Adjustment remocon

- For manual adjustment, it is also possible by the following sequence.
  Operate the zero-calibration of the CA-100+ or CA-210, then stick sensor to the module when adjusting.

  (1) Select white pattern of heat-run by pressing “POWER ON” key on remote control for adjustment then operate heat run longer than 5 minutes. (recommend)
  (If not executed this step, the condition for W/B will be different)
  (2) Changing to the AV mode by remote control.(Push front-AV)
  (3) Input external pattern(85% white pattern).
  (4) Stick sensor to center of the screen and select each items (Red/Green/Blue Gain and Offset) using D/E(CH +/-) key on R/C.
  (5) Adjust R/ G/ B Gain using F/G(VOL +/-) key on R/C.
  (6) Adjust three modes of Cool, Medium(Vivid) and Warm as below figure.
  (Fix the one of R/G/B and change the others)
  - Push the “VOL +“ key : Cool, Medium, Warm

* Refer to the below case to know what value is fixed.

[CASE]
First adjust the coordinate much away from the target value(x, y).
1. x, y > target
   1) Decrease the R, G.
2. x, y < target
   1) First decrease the B gain,
   2) Decrease the one of the others.
      - In case of decreasing the x, decreasing the R : fix G
      - In case of decreasing the y , decreasing the G : fix R
3. x > target , y < target
   1) First decrease B, so make y a little more than the target.
   2) Adjust x value by decreasing the R
4. x < target , y > target
   1) First decrease B, so make x a little more than the target.
   2) Adjust x value by decreasing the G

(7) When adjustment is completed, Exit adjustment mode using EXIT key on R/C.

9-5. Connecting diagram of Equipment for Measuring (For Automatic Adjustment)
(method 1, using IIC, You connect RGB Cable)

(1) Enter the adjustment mode of the white balance
  - Enter the white balance adjustment mode at the same time heat-run mode when pushing the power on by power only key
  - Maintain the white balance adjustment mode with same condition of Heat-run
  - Maintain after AC off/on in status of Heat-run pattern display

(2) Release the white balance adjustment mode
  - Release the adjust mode after AC off/on or std-by off/on in status of finishing the Hear-run mode
  - push the “power on” key(IIC Mode) on Adjust remote-controller.
  - Release the Adjust mode when receiving the aging off command(F3 00 00) from adjustment equipment)

(3) Enter the adjust mode of white balance
  - Enter the white balance adjustment mode with aging command(F3, 00, FF)

o Color Temperature & Color Coordinates Setting
  - When adjusting the Color Temperature, Color Analyzer CA-210(Matrix should be corrected through CH10 of CS-1000) should be used. When CA-210 have used, it don’t need to fit the CH10.
  - Adjust the Color Temperature based below adjustment color coordinates.

o Target Value CA-210(LCD : CH 9, PDP : CH10), CA-100(PDP)
(Standard color coordinate and temperature when using the CA-100+ or CA210 equipment)
  - Above optical characteristics are should be measured by following condition
### DDC Adjustment Command Set

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<th>No.</th>
<th>Adjustment content</th>
<th>CMD(HEX)</th>
<th>ADR.</th>
<th>VALUE</th>
<th>detail</th>
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<tr>
<td>1</td>
<td>Aging On/Off</td>
<td>F3</td>
<td>00</td>
<td>FF/00</td>
<td>CO: OFF&lt;br&gt;01: ON&lt;br&gt;FF: WB Ready</td>
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<td>2</td>
<td>Input select</td>
<td>F4</td>
<td>00</td>
<td></td>
<td>0x10: TV&lt;br&gt;0x20: AV1&lt;br&gt;0x21: AV2&lt;br&gt;0x23: AV3&lt;br&gt;0x40: Component1&lt;br&gt;0x41: Component2&lt;br&gt;0x60: RGB PC&lt;br&gt;0x90: HDMI1&lt;br&gt;0x91: HDMI2&lt;br&gt;0x92: HDMI3</td>
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<tr>
<td>3</td>
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<td>1A</td>
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<td>00 - FE</td>
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<td>00</td>
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<td>EB</td>
<td>00</td>
<td>data</td>
<td>EEPROM write</td>
</tr>
</tbody>
</table>

[R/G/B GAIN max value : C0]
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.
IR & KEY for 517

LVDS
#9. DDR2