OLED TV
SERVICE MANUAL

CHASSIS : EA64B

MODEL : OLED55B6P  OLED55B6P-U
OLED65B6P  OLED65B6P-U

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

P/NO : MFL69589301 (1604-REV00)
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SAFETY PRECAUTIONS

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 TV receiver is blown, replace it with the specified.

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

Keep wires away from high voltage or high temperature parts.

Before returning the receiver to the customer,

always perform an AC leakage current check on the exposed metallic parts of the cabinet, such as antennas, terminals, etc., to be sure the set is safe to operate without damage of electrical shock.

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 1 MΩ and 5.2 MΩ. 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 1.5 K / 10 watt resistor in parallel with a 0.15 uF 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 0.5 mA.

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 diagram](image-url)
SERVICING PRECAUTIONS

CAUTION: Before servicing receivers covered by this service manual and its supplements and addenda, read and follow the SAFETY PRECAUTIONS on page 3 of this publication.

NOTE: If unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions on page 3 of this publication, always follow the safety precautions. Remember: Safety First.

General Servicing Precautions
1. Always unplug the receiver AC power cord from the AC power source before;
   a. Removing or reinstalling any component, circuit board module or any other receiver assembly.
   b. Disconnecting or reconnecting any receiver electrical plug or other electrical connection.
   c. Connecting a test substitute in parallel with an electrolytic capacitor in the receiver.
      CAUTION: A wrong part substitution or incorrect polarity installation of electrolytic capacitors may result in an explosion hazard.
2. Test high voltage only by measuring it with an appropriate high voltage meter or other voltage measuring device (DVM, FETVOM, etc) equipped with a suitable high voltage probe. Do not test high voltage by “drawing an arc”.
3. Do not spray chemicals on or near this receiver or any of its assemblies.
4. Unless specified otherwise in this service manual, clean electrical contacts only by applying the following mixture to the contacts with a pipe cleaner, cotton-tipped stick or comparable non-abrasive applicator; 10 % (by volume) Acetone and 90 % (by volume) isopropyl alcohol (90 % - 99 % strength)
      CAUTION: This is a flammable mixture.
      Unless specified otherwise in this service manual, lubrication of contacts in not required.
5. Do not defeat any plug/socket B+ voltage interlocks with which receivers covered by this service manual might be equipped.
6. Do not apply AC power to this instrument and/or any of its electrical assemblies unless all solid-state device heat sinks are correctly installed.
7. Always connect the test receiver ground lead to the receiver chassis ground before connecting the test receiver positive lead. Always remove the test receiver ground lead last.
8. Use with this receiver only the test fixtures specified in this service manual.
      CAUTION: Do not connect the test fixture ground strap to any heat sink in this receiver.

Electrostatically Sensitive (ES) Devices
Some semiconductor (solid-state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor “chip” components. The following techniques should be used to help reduce the incidence of component damage caused by static by static electricity.
1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed to prevent potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static type solder removal device. Some solder removal devices not classified as “anti-static” can generate electrical charges sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.
      CAUTION: Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device.)

General Soldering Guidelines
1. Use a grounded-tip, low-wattage soldering iron and appropriate tip size and shape that will maintain tip temperature within the range or 500 °F to 600 °F.
2. Use an appropriate gauge of RMA resin-core solder composed of 60 parts tin/40 parts lead.
3. Keep the soldering iron tip clean and well tinned.
4. Thoroughly clean the surfaces to be soldered. Use a mall wire-bristle (0.5 inch, or 1.25 cm) brush with a metal handle. Do not use freon-propelled spray-on cleaners.
5. Use the following unsoldering technique
   a. Allow the soldering iron tip to reach normal temperature. (500 °F to 600 °F)
   b. Heat the component lead until the solder melts.
   c. Quickly draw the melted solder with an anti-static, suction-type solder removal device or with solder braid.
      CAUTION: Work quickly to avoid overheating the circuit board printed foil.
6. Use the following soldering technique.
   a. Allow the soldering iron tip to reach a normal temperature (500 °F to 600 °F)
   b. First, hold the soldering iron tip and solder the strand against the component lead until the solder melts.
   c. Quickly move the soldering iron tip to the junction of the component lead and the printed circuit foil, and hold it there only until the solder flows onto and around both the component lead and the foil.
      CAUTION: Work quickly to avoid overheating the circuit board printed foil.
   d. Closely inspect the solder area and remove any excess or splashed solder with a small wire-bristle brush.
IC Remove/Replacement
Some chassis circuit boards have slotted holes (oblong) through which the IC leads are inserted and then bent flat against the circuit foil. When holes are the slotted type, the following technique should be used to remove and replace the IC. When working with boards using the familiar round hole, use the standard technique as outlined in paragraphs 5 and 6 above.

Removal
1. Desolder and straighten each IC lead in one operation by gently prying up on the lead with the soldering iron tip as the solder melts.
2. Draw away the melted solder with an anti-static suction-type solder removal device (or with solder braid) before removing the IC.

Replacement
1. Carefully insert the replacement IC in the circuit board.
2. Carefully bend each IC lead against the circuit foil pad and solder it.
3. Clean the soldered areas with a small wire-bristle brush. (It is not necessary to reapply acrylic coating to the areas).

"Small-Signal" Discrete Transistor Removal/Replacement
1. Remove the defective transistor by clipping its leads as close as possible to the component body.
2. Bend into a "U" shape the end of each of three leads remaining on the circuit board.
3. Bend into a "U" shape the replacement transistor leads.
4. Connect the replacement transistor leads to the corresponding leads extending from the circuit board and crimp the "U" with long nose pliers to insure metal to metal contact then solder each connection.

Power Output, Transistor Device Removal/Replacement
1. Heat and remove all solder from around the transistor leads.
2. Remove the heat sink mounting screw (if so equipped).
3. Carefully remove the transistor from the heat sink of the circuit board.
4. Insert new transistor in the circuit board.
5. Solder each transistor lead, and clip off excess lead.
6. Replace heat sink.

Diode Removal/Replacement
1. Remove defective diode by clipping its leads as close as possible to diode body.
2. Bend the two remaining leads perpendicular to the circuit board.
3. Observing diode polarity, wrap each lead of the new diode around the corresponding lead on the circuit board.
4. Securely crimp each connection and solder it.
5. Inspect (on the circuit board copper side) the solder joints of the two "original" leads. If they are not shiny, reheat them and if necessary, apply additional solder.

Fuse and Conventional Resistor Removal/Replacement
1. Clip each fuse or resistor lead at top of the circuit board hollow stake.
2. Securely crimp the leads of replacement component around notch at stake top.
3. Solder the connections.

CAUTION: Maintain original spacing between the replaced component and adjacent components and the circuit board to prevent excessive component temperatures.

Circuit Board Foil Repair
Excessive heat applied to the copper foil of any printed circuit board will weaken the adhesive that bonds the foil to the circuit board causing the foil to separate from or "lift-off" the board. The following guidelines and procedures should be followed whenever this condition is encountered.

At IC Connections
To repair a defective copper pattern at IC connections use the following procedure to install a jumper wire on the copper pattern side of the circuit board. (Use this technique only on IC connections).

1. Carefully remove the damaged copper pattern with a sharp knife. (Remove only as much copper as absolutely necessary).
2. Carefully scratch away the solder resist and acrylic coating (if used) from the end of the remaining copper pattern.
3. Bend a small "U" in one end of a small gauge jumper wire and carefully crimp it around the IC pin. Solder the IC connection.
4. Route the jumper wire along the path of the out-away copper pattern and let it overlap the previously scraped end of the good copper pattern. Solder the overlapped area and clip off any excess jumper wire.

At Other Connections
Use the following technique to repair the defective copper pattern at connections other than IC Pins. This technique involves the installation of a jumper wire on the component side of the circuit board.

1. Remove the defective copper pattern with a sharp knife. Remove at least 1/4 inch of copper, to ensure that a hazardous condition will not exist if the jumper wire opens.
2. Trace along the copper pattern from both sides of the pattern break and locate the nearest component that is directly connected to the affected copper pattern.
3. Connect insulated 20-gauge jumper wire from the lead of the nearest component on one side of the pattern break to the lead of the nearest component on the other side. Carefully crimp and solder the connections.

CAUTION: Be sure the insulated jumper wire is dressed so the it does not touch components or sharp edges.
SPECIFICATION

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

1. Application range
   This spec sheet is applied to the LED TV used EA64B chassis

2. Test condition
   Each part is tested as below without special notice.
   (1) Temperature : 25 °C ± 5 °C(77±9°F), CST : 40 °C±5 °C
   (2) Relative Humidity: 65 % ± 10 %
   (3) Power Voltage
      Standard input voltage (100~240V@ 50/60Hz)
      * Standard Voltage of each products 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.

3. Test method
   (1) Performance: LGE TV test method followed
   (2) Demanded other specification
      - Safety : UL, CSA, CE, IEC specification
      - EMC : FCC, ICES, CE, IEC specification

4. General Specification
   4.1. Model Specification

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5. External input format

5.1. 2D Mode

5.1.1. Component input(Y, Pb, Pr)

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<th>V-freq.(Hz)</th>
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5.1.2. HDMI Input (PC/DTV)

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<td>When HDMI1,2,3 UHD DEEP COLOUR ON</td>
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</table>
ADJUSTMENT INSTRUCTION

1. Application Range
This spec. sheet applies to EA64B Chassis applied LED TV all models manufactured in TV factory

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, 50/60Hz
(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

   * (Caution) When still image is displayed for a period of 20 minutes or longer (especially where W/B scale is strong. Digital pattern 13ch and/or Cross hatch pattern 09ch), there can some afterimage in the black level area.

3. PCB assembly adjustment method
3.1. MAC Address, ESN Key, Wide-vine Key, HDCP 2.2 Download
   ▪ D/L Program : keydownload.exe

3.1.1. Equipment & Condition
(1) Play file: keydownload.exe
(2) Key Write: Com 1,2,3,4 and 115200 (Baudrate)
(3) Barcode: Com 1,2,3,4 and 9600 (Baudrate)

3.1.2. Download Process
(MAC + WIDEVINE + ESN+HDCP2.2)
(1) Execute “keydownload.exe” on PC
(2) Select the download items.
(3) Mode check : Online only
(4) Check the test process
   - DETECT -> MAC_WRITE -> ESN_WRITE (only Colombia/Panama) -> WIDEVINE_WRITE
(5) Play: START
(6) Check of result: Ready, Test, OK or NG

3.1.3. Inspection : InINSTART menu, check these keys.

3.2. LAN Test(Ping-test)
3.2.1. PING Test(LAN Operating Test)
3.2.1.1. Check PCBA
(1) Connect LAN to PCBA Power On.(Default IP can be set to automatic setting. When power ON, IP can be Automatically be achieved from the router)
(2) Push ADJ key on Adjust remote-controller.
(3) Enter “13. ACAP PING TEST” & check Network.

3.2.1.2. Check Set(Manufacturer)
(1) Connect TV-Set & PC with Cross LAN cable.(PC IP : 12.12.2.3)
(2) Execute “PINT Test program”, Check setting data of program. (TV-Set IP : 12.12.2.2)
(3) Push Power Only key on Adjust remote-controlle.
(4) Click “RUN”, Check “OK” or “NG”
3.3. Main S/W program download

3.3.1. Using the Memory Stick
** USB DOWNLOAD : Service Mode
(1) Insert the USB memory Stick to the USB port
(2) Automatically detect the SW Version.
-> S/W download process is executed automatically.
(3) Show the message “Copy the file from the Memory”
(4) After Finished the Download, Automatically DC Off -> On
(5) If the TV IS Turn On, Check the updated SW Version and Tool Option.

3.4. Input tool option
Adjust tool option refer to the BOM.
• Tool Option Input : PCBA Check Process
• Area Option Input : Set Assembly Process

After Input Tool Option and AC off
Before PCBA check, you have to change the Tool option and have to AC off/on (Plug out and in)
(If missing this process, set can operate abnormally)

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

3.4.2. Equipment
adjustment remote control.

3.4.3. Adjustment method
- The input methods are same as other chassis.(Use ADJ Key on the Adjust Remcoen.)
(If not changed the option, the input menu can differ the model spec.)
Refer to Job Expression of each main chassis ass’y (EBTxxxxxxx) for Option value
(Caution)
Don’t Press “IN-STOP” key after completing the function inspection.

3.5. EDID D/L method
Recommend that don’t connect HDMI and RGB(D-SUB) cable when downloading the EDID.
If not possible, recommend that connect the MSPG equipment.
There are two methods of downloading the edid data

3.5.1. 1st Method
EDID data’s are automatically downloaded when adjusting the Tool Options.
Automatically downloaded when pushing the enter key in the EDID D/L menu.
It takes about 2seconds.

3.5.2. 2nd Method
(Caution)
Must be checked that the tool option is right or not.
If tool option is wrong, HDMI edid data could not be downloaded well.
(1) Press the ADJ key
(2) Move to the 13. EDID D/L and Press the right direction key(►)
(3) Press the right direction key(►) at Start.
(4) After about a few seconds, appear “Waiting..” => “OK”, then complete.

3.5.3. RS-232C command Method
(1) Command : AE 00 10
(Caution)
Don’t connect HDMI and RGB(D-SUB) cable when downloading the EDID.
If the cables are connected, Downloading of edid could be failed.

3.5.4. EDID data

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<td>HDMI 4</td>
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* DTS Checksum (HDMI 1/2/3/4)
- B6 Only @Power Only Mode
- Due to External EEPROM for HDMI3&4, EDID C/S is shown below @ power only mode

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3.6. ADC Calibration

Comp 480i/Comp 1080p/RGB

3.6.1. ADC Calibration : Internal Auto ADC

ADC calibration is not necessary because MAIN SoC (LGExxxx) is already calibrated from IC Maker

3.6.2. Manual ADC Calibration

3.6.2.1. Equipment & Condition

(1) Adjustment Remoccon

(2) 801GF (802B, 802F, 802R) or MSPG925FA Pattern Generator

- Resolution : 480i Comp1 (MSPG-925FA: model-209, pattern-65)
- Resolution : 1080p Comp1 (MSPG-925FA: model-225, pattern-65)
- Resolution : 1080p RGB (MSPG-925FA: model-225, pattern-65)
- Pattern : Horizontal 100% Color Bar Pattern
- Pattern level: 0.7±0.1 Vp-p

3.6.2.2. Adjust method

3.6.2.2.1. ADC 480i/1080p Comp

(1) Check connected condition of Comp cable to the equipment

(2) Give a 480i Mode, Horizontal 100% Color Bar Pattern to Comp1. (MSPG-925FA -> Model: 209, Pattern: 65)

(3) Change input mode as Component1 and picture mode as “Standard”

(4) Press the In-start Key on the ADJ remote after at least 1 min of signal reception. Then, select

(5) External ADC. And Press OK or Right Button for going to sub menu.

(6) Press OK in Comp 480i menu

(7) Give a 1080p Mode, Horizontal 100% Color Bar Pattern to Comp1. (MSPG-925FA -> Model: 225, Pattern: 65)

3.7. Check SW Version

3.7.1. Method

(1) Push In-star key on Adjust remote-controller.

(2) SW Version check

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Only for training and service purposes.
3.8. Camera Port Inspection
(1) Objective: To check PCBA's CAMERA Port.
(2) How-it-works
1) Connect the PCBA like below Picture.
2) Send specific RS-232C Command for displaying Camera Preview.* CAMERA need to be status of Slide up

3) RS-232C Command

<table>
<thead>
<tr>
<th>RS-232C COMMAND</th>
<th>Explanation</th>
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<tr>
<td>Ai 00 23</td>
<td>Camera Function Start.</td>
</tr>
<tr>
<td>Ai 00 24</td>
<td>Camera Function End.</td>
</tr>
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</table>

4. SET assembly adjustment method
4.1. Input Area-Option
4.1.1. Profile
Must be changed the Area option value because being different of each Country's Language and signal Condition.

4.1.2. Equipment
adjustment remote control.

4.1.3. Adjustment method
- The input methods are same as other chassis. (Use IN-START Key on the Adjust Remocon.) Refer to Job Expression of each main chassis ass'y (EBTxxxxx) for Option value.

4.2. Adjustment of White Balance
* 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.
* Purpose: Adjust the color temperature to reduce the deviation of the module color temperature.
* Principle: To adjust the white balance without the saturation, Fix the one of R/G/B gain to 192 (default data) and decrease the others.
* Adjustment mode: Three modes – Cool / Medium / Warm

4.2.1. Adjustment of White Balance (For Automatic Adjustment)
Connecting diagram of equipment for measuring (For Automatic Adjustment)

4.2.1.1. Adj. condition and cautionary items
(1) Lighting condition in surrounding area surrounding lighting should be lower 10 lux. Try to isolate adj. area into dark surrounding.
(2) Probe location: Color Analyzer (CA-210) probe should be within 10cm and perpendicular of the module surface (80°~ 100°)
(3) Aging time
1) After Aging Start, Keep the Power ON status during 5 Minutes.
2) In case of LCD, Back-light on should be checked using no signal or Full-white pattern.

4.2.2. Equipment
(1) Color Analyzer: CA-210 (NCG: CH 9 / WCG: CH12 / LED: CH14)
(2) Adj. Computer (During auto adj., RS-232C protocol is needed)
(3) Adjust Remocon
(4) Video Signal Generator MSPG-925F 720p/216-Gray (Model: 217, Pattern: 78)

* Required Equipment
- Remote controller for adjustment
- Color Analyzer: CA100+ or CA-210 or same product (should be used in the calibrated ch by CS-1000)
  - LCD TV: CH-9
  - PDP TV: CH-10
  - White LED TV: CH-14
  - ALEF: CH-18
  - RGB LED(MNT): CH-16
  - Auto W/B adjustment instrument (only for Auto adjustment)
4.2.3. Adjustment
(1) Set TV in Adj. mode using POWER ON
(2) Zero Calibrate the probe of Color Analyzer, then place it on the center of LCD module within 10cm of the surface.
(3) Press ADJ key -> EZ adjust using adj. R/C -> 6. White-Balance then press the cursor to the right (KEY►). When KEY► is pressed 216 Gray internal pattern will be displayed.
(4) One of R Gain / G Gain / B Gain should be fixed at 192, and the rest will be lowered to meet the desired value.
(5) Adj. is performed in COOL, MEDIUM, WARM 3 modes of color temperature.

- If internal pattern is not available, use RF input. In EZ Adj. menu 6.White Balance, you can select one of 2 Test-pattern: ON, OFF. Default is inner(ON). By selecting OFF, you can adjust using RF signal in 216 Gray pattern.

4.2.3. OLED White balance table
4.2.3.1. Cool Mode
(1) Purpose : To reduce each Panel’s W/B deviation
(2) Principle : When R/G/B gain in the OSD is at 192, it means the panel is at its Full Dynamic Range. In order to prevent saturation of Full Dynamic range and data, one of R/G/B is fixed at 192, and the other two is lowered to find the desired value.
(3) Adjustment mode : normal temperature
   1) Surrounding Temperature: 25 °C ± 5 °C
   2) Warm-up time: About 5 Min
   3) Surrounding Humidity: 20% ~ 80%
   4) Before White balance adjustment, Keep power on status, don’t power off

- Standard color coordinate and temperature when using the CA210 equipment(CH 14)

<table>
<thead>
<tr>
<th>Mode</th>
<th>Coordinate X</th>
<th>Coordinate Y</th>
<th>Temp</th>
<th>△uv</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cool</td>
<td>0.277±0.002</td>
<td>0.278±0.002</td>
<td>11000K</td>
<td>-0.0030</td>
</tr>
<tr>
<td>Medium</td>
<td>0.286±0.002</td>
<td>0.289±0.002</td>
<td>9,300 K</td>
<td>0.000</td>
</tr>
<tr>
<td>Warm</td>
<td>0.313±0.002</td>
<td>0.329±0.002</td>
<td>6,500K</td>
<td>+0.0030</td>
</tr>
</tbody>
</table>

4.2.3.2. Auto WB calibration & 10% window pattern brightness check(HDR)
(1) Set TV in ADJ mode using P-ONLY key (or POWER ON key)
(2) Place optical probe on the center of the display
   - It need to check probe condition of zero calibration before adjustment.
(3) Connect RS-232C Cable
(4) Select mode in ADJ Program and begin a adjustment.
(5) When WB adjustment is completed with OK message, check adjustment status of pre-set mode (Cool, Medium, Warm, 10% window pattern brightness check)
(6) Remove probe and RS-232C cable.

- W/B Adj. must begin as start command “wb 00 00”, and finish as end command “wb 00 ff”, and Adj. offset if need

4.2.4. LED White balance table
4.2.4.1. Cool Mode
(1) Purpose : Especially G-gain fix adjust leads to the luminance enhancement. Adjust the color temperature to reduce the deviation of the module color temperature.
(2) Principle : To adjust the white balance without the saturation, Adjust the G gain more than 172 (If R gain or G gain is more than 255, G gain can adjust less than 172) and change the others (R/B Gain).
(3) Adjustment mode : mode – Cool

<table>
<thead>
<tr>
<th>Mode</th>
<th>Coordinate X</th>
<th>Coordinate Y</th>
<th>Temp</th>
<th>△uv</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cool</td>
<td>0.271±0.002</td>
<td>0.270±0.002</td>
<td>13000K</td>
<td>0.000</td>
</tr>
<tr>
<td>Medium</td>
<td>0.286±0.002</td>
<td>0.285±0.002</td>
<td>9,300 K</td>
<td>0.000</td>
</tr>
<tr>
<td>Warm</td>
<td>0.313±0.002</td>
<td>0.329±0.002</td>
<td>6,500K</td>
<td>0.003</td>
</tr>
</tbody>
</table>

4.2.4.2. Medium / Warm Mode
(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 192 (default data) and decrease the others.
(3) Adjustment mode : Two modes – Medium / Warm

- Standard color coordinate and temperature when using the CA210 equipment(CH 14)
### The Time Table of color coordinates by SET Aging Time

(1) Edge LED Models (UH8/UH9)_nomarl line

<table>
<thead>
<tr>
<th>Aging time (Min)</th>
<th>Cool X</th>
<th>Cool Y</th>
<th>Medium X</th>
<th>Medium Y</th>
<th>Warm X</th>
<th>Warm Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>271</td>
<td>270</td>
<td>286</td>
<td>289</td>
<td>313</td>
<td>329</td>
</tr>
<tr>
<td>2</td>
<td>280</td>
<td>285</td>
<td>297</td>
<td>308</td>
<td>324</td>
<td>348</td>
</tr>
<tr>
<td>3</td>
<td>279</td>
<td>284</td>
<td>294</td>
<td>303</td>
<td>321</td>
<td>343</td>
</tr>
<tr>
<td>4</td>
<td>277</td>
<td>280</td>
<td>292</td>
<td>299</td>
<td>319</td>
<td>339</td>
</tr>
<tr>
<td>5</td>
<td>275</td>
<td>277</td>
<td>290</td>
<td>296</td>
<td>317</td>
<td>336</td>
</tr>
<tr>
<td>6</td>
<td>274</td>
<td>274</td>
<td>289</td>
<td>293</td>
<td>316</td>
<td>333</td>
</tr>
<tr>
<td>7</td>
<td>273</td>
<td>272</td>
<td>288</td>
<td>291</td>
<td>315</td>
<td>331</td>
</tr>
<tr>
<td>8</td>
<td>272</td>
<td>271</td>
<td>287</td>
<td>290</td>
<td>314</td>
<td>330</td>
</tr>
<tr>
<td>9</td>
<td>271</td>
<td>270</td>
<td>286</td>
<td>289</td>
<td>313</td>
<td>329</td>
</tr>
</tbody>
</table>

- In the SET applied LED module (LM9600), cause of the physical characteristics of LED Module, sets are taken a 120 minutes by aging time to stabilize a color coordinates. So White Balance Control equipments have to get the SET Aging Time from the SET and then going to control the W/B by revise color coordinates at each time.

- To check the Coordinates of White Balance, you have to measure at the below conditions.
  - Picture Mode : select Vivid and change
    - Dynamic Contrast : Off
    - Dynamic Colour : Off
    - Clear White : Off
  - > Picture Mode change : Vivid -> Vivid(User)
  - (If you miss the upper condition, the coordinates of W/B can be lower than the spec.)

### 4.4. WIDEVINE Key Inspection

(1) Confirm Key input Data at the “IN START” MENU Mode

### 4.5. Model name & Serial number D/L

#### 4.5.1. Notice

(1) Serial number D/L is using of scan equipment.
(2) Setting of scan equipment operated by Manufacturing Technology Group.
(3) Serial number D/L must be conformed when it is produced in production line, because serial number D/L is mandatory by D-book 4.0
(4) Check the model name In-start menu -> Factory name displayed
(5) Check the Diagnostics (DTV country only) -> Buyer model displayed

#### 4.5.2. Method : Auto

(1) Press “Power on” key of service remocon.(Baud rate : 115200 bps)
(2) Connect RS232 Signal Cable to RS-232 Jack
(3) Write Serial number by use RS-232.
(4) Must check the serial number at Instart menu.

#### 4.5.3. Method : Manual

* If the TV set is downloaded By OTA or Service man, Sometimes model name or serial number is initialized.
  - (Not always) It is impossible to download by bar code scan, so It need Manual download.

(1) Press the ‘instant’ key of ADJ remote controller.
(2) Go to the menu ‘6.Model Number D/L’ like below photo.
(3) Input the Factory model name or Serial number like photo.
4.6. Wi-Fi MAC Address Check
4.6.1. Using RS232 Command

<table>
<thead>
<tr>
<th>Command</th>
<th>Set ACK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transmission</td>
<td>[A][ ][Set ID][ ][20][Cr] [O][K][x] or [N][G]</td>
</tr>
</tbody>
</table>

4.6.2. Check the menu on in-start

4.7. Local Dimming Inspection (Optional)
4.7.1. ALEF models with local dimming
(1) Press ‘TILT” key of the Adj. R/C and check moving patterns. The black bar patterns moves from top left to bottom right.
   If local dimming function does not work, a whole screen shows full white.

4.8. GND and Hi-Pot test
4.8.1. GND & HI-POT auto-check preparation
(1) Check the POWER CABLE and SIGNAL CABE insertion condition

4.8.2. GND & HI-POT auto-check
(1) Pallet moves in the station. (POWER CORD / AV CORD is tightly inserted)
(2) Connect the AV JACK Tester.
(3) Controller (GWS103-4) on.
(4) GND Test (Auto)
   - If Test is failed, Buzzer operates.
   - If Test is passed, execute next process (Hi-pot test).
   (Remove A/V CORD from A/V JACK BOX)
(5) Hi-POT test (Auto)
   - If Test is failed, Buzzer operates.
   - If Test is passed, GOOD Lamp on and move to next process automatically.

4.8.3. Check point
(1) Test voltage
   1) 3 Poles
      - GND: 1.5KVac/min at 100mA
      - SIGNAL: 3KVac/min at 100mA
   (2) TEST time: 1 second
   (3) TEST POINT
      1) 3 Poles
         - GND Test = POWER CORD GND and SIGNAL CABLE GND.
         - Hi-pot Test = POWER CORD GND and LIVE & NEUTRAL.
   (4) LEAKAGE CURRENT: At 0.5mArms

4.9. Motion Remote controller Inspection
(1) Equipment : Motion remote controller for test, IR-KEY-CODE remote controller for test
(2) Process
   1) If you select the ‘start key(wheel)’ on the controller, you can pairing with the TV SET.
   2) You can check the cursor on the TV Screen, when select the ‘Wheel Key’ on the controller
   3) You must remove the pairing with the TV Set by select ‘Back + Home Key’ on the controller

4.10. AUDIO output check

<table>
<thead>
<tr>
<th>No.</th>
<th>Item</th>
<th>Min</th>
<th>Typ</th>
<th>Max</th>
<th>Unit</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Audio practical max Output, L/R (Distortion=10% max Output)</td>
<td>9.0 8.5</td>
<td>10.0 8.10</td>
<td>12.0 9.88</td>
<td>W Vrms</td>
<td>Measurement condition</td>
</tr>
<tr>
<td>2</td>
<td>Speaker (8Ω Impedance)</td>
<td>10.0</td>
<td>15.0</td>
<td>W</td>
<td>Measurement condition</td>
<td></td>
</tr>
</tbody>
</table>

*Measurement condition:
(1) RF input: Mono, 1KHz sine wave signal, 100% Modulation
(2) CVBS, Component: 1KHz sine wave signal (0.4Vrms)
(3) RGB PC: 1KHz sine wave signal (0.7Vrms)
4.11. HDMI ARC Function Inspection

4.11.1. Test equipment
- Optic Receiver Speaker
- MSHG-600 (SW: 1220 ↑)
- HDMI Cable (for 1.4 version)

4.11.2. Test method
(1) Insert the HDMI Cable to the HDMI ARC port from the master equipment (HDMI1)
(2) Check the sound from the TV Set
(3) Check the Sound from the Speaker or using AV & Optic TEST program (It’s connected to MSHG-600)

* Remark: Inspect in Power Only Mode and check SW version in a master equipment

4.12. Camera Port Inspection
(1) Objective : To check how it connects between Camera and PCBA normally, and their Function
(2) Test Method : This Inspection is available only Power-Only Status.
  1) Push Camera Up
  2) Camera’s Preview picture appears on TV Set
  3) Push Camera Down

4.13. PIP/W&R Function Inspection
(1) Objective : To check the connection between sub tuner and PCBA, and their Function
(2) Test Method : This Inspection is available only Power-Only Status.
  2) Check that the SUB TUNER pop up window on the TV Set.
  3) Check that the normal operation (picture, sound) of DTV on the TV Set.

** Appendix **

A. DDC Adjustment Command set

<table>
<thead>
<tr>
<th>Adjustment content</th>
<th>CMD (HEX)</th>
<th>ADR</th>
<th>VALUE</th>
<th>detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Aging</td>
<td>F3</td>
<td>00</td>
<td>FF/00</td>
<td>FF : ON / OO : OFF</td>
</tr>
<tr>
<td>2 Input select</td>
<td>F4</td>
<td>00</td>
<td></td>
<td>0x10 : TV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0x20 : AV1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0x21 : AV2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0x40 : Component1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0x41 : Component2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0x60 : RGB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0x90 : HDMI1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0x91 : HDMI2</td>
</tr>
<tr>
<td>3 R GAIN</td>
<td>16</td>
<td>00</td>
<td>00-C0</td>
<td>Gain Value Adjustment</td>
</tr>
<tr>
<td>4 G GAIN</td>
<td>18</td>
<td>00</td>
<td>00-C0</td>
<td>CSM COOL</td>
</tr>
<tr>
<td>5 B GAIN</td>
<td>1A</td>
<td>00</td>
<td>00-C0</td>
<td>CSM NORMAL</td>
</tr>
<tr>
<td>6 R GAIN</td>
<td>16</td>
<td>01</td>
<td>00-C0</td>
<td>Gain Value Adjustment</td>
</tr>
<tr>
<td>7 G GAIN</td>
<td>18</td>
<td>00</td>
<td>00-C0</td>
<td>CSM WARM</td>
</tr>
<tr>
<td>8 B GAIN</td>
<td>1A</td>
<td>00</td>
<td>00-C0</td>
<td>Gain Value Adjustment</td>
</tr>
<tr>
<td>9 R GAIN</td>
<td>16</td>
<td>02</td>
<td>00-C0</td>
<td>CSM WARM</td>
</tr>
<tr>
<td>10 G GAIN</td>
<td>18</td>
<td>00</td>
<td>00-C0</td>
<td>Gain Value Adjustment</td>
</tr>
<tr>
<td>11 B GAIN</td>
<td>1A</td>
<td>00</td>
<td>00-C0</td>
<td>CSM WARM</td>
</tr>
<tr>
<td>12 CSM mode</td>
<td>F2</td>
<td>00</td>
<td>00</td>
<td>COOL</td>
</tr>
<tr>
<td>13 AUTO ADC</td>
<td>F1</td>
<td>00</td>
<td>0, 1, 2</td>
<td>Offset Value Adjustment</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1: Gain Value Adjustment</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2: Offset and Gain Value</td>
</tr>
<tr>
<td>14 EEPROM Read</td>
<td>E7</td>
<td>00</td>
<td>00</td>
<td>EEPROM read</td>
</tr>
<tr>
<td>15 EEPROM Write</td>
<td>E8</td>
<td>00</td>
<td>data</td>
<td>EEPROM write</td>
</tr>
</tbody>
</table>
B. DDC command protocol

1. Signal TABLE

   START 6E A 50 A 84 A 03 A CMD A ADR A VAL A CS A STOP

2. E²PROM Data Write

   (1) Signal TABLE

   START 6E A 50 A 84+n A 03 A CMD A ADH A ADL A
   Data_1 A ... Data_n A CS A STOP Delay 20

   LEN : 84+h+Bytes
   CMD : E8h
   ADH : E2PROM Slave Address(A0,A2,A4,A6),
   Not 00h(Reserved by BufferToEEPROM)
   ADL : E2PROM Sub Address(00~FF)
   Data : Write data
   Delay : 20ms

   (2) Command Set

<table>
<thead>
<tr>
<th>Adjustment content</th>
<th>CMD(hex)</th>
<th>LEN</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>EEPROM READ</td>
<td>E8h</td>
<td>94h</td>
<td>16-Byte Write</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(84+n)h</td>
<td>n-byte Write</td>
</tr>
</tbody>
</table>

3. E²PROM Data Read

   (1) Command Sequential TABLE

   START 6E A 50 A 84 A 03 A CMD A ADH A ADL A CS A STOP

<table>
<thead>
<tr>
<th>No.</th>
<th>EEPROM READ</th>
<th>CMD (hex)</th>
<th>ADH (hex)</th>
<th>ADL (hex)</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>E7</td>
<td>A0</td>
<td>0</td>
<td>0-Page 0~7F Read</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>A2</td>
<td>80</td>
<td>0</td>
<td>0-Page 80~FF Read</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>A2</td>
<td>0</td>
<td>1-Page 0~7F Read</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>A4</td>
<td>80</td>
<td>0</td>
<td>1-Page 80~FF Read</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>A4</td>
<td>0</td>
<td>2-Page 0~7F Read</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>A6</td>
<td>80</td>
<td>0</td>
<td>2-Page 80~FF Read</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>A6</td>
<td>0</td>
<td>3-Page 0~7F Read</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>A6</td>
<td>80</td>
<td>0</td>
<td>3-Page 80~FF Read</td>
</tr>
</tbody>
</table>

C. RS-232C Command Protocol

<table>
<thead>
<tr>
<th>RS-232C COMMAND</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>wb 00 00</td>
<td>White Balance Adjust Start.</td>
</tr>
<tr>
<td>wb 00 10</td>
<td>Gain Adjust Start (Internal white pattern)</td>
</tr>
<tr>
<td>wb 00 1f</td>
<td>Gain Adjust Stop.</td>
</tr>
<tr>
<td>wb 00 20</td>
<td>Offset Adjust Start. (Internal white pattern)</td>
</tr>
<tr>
<td>wb 00 ff</td>
<td>Offset Adjust Stop.</td>
</tr>
<tr>
<td>wb 00 ff</td>
<td>White Balance Adjust Stop (Internal pattern Exit )</td>
</tr>
</tbody>
</table>

D. Bluetooth S/W Upgrade by using USB drive Input

   (1) Preparation Equipment
   1) USB Memory Stick
   2) New Bluetooth Software

   (2) New Bluetooth Software

   3) Copy New File
   Copy Bluetooth software MCL389x.bin file to memory stick with out folder.
   (Caution) Do not copy the file to the inside folder
3) Copy New File
Copy Bluetooth software MCL389x.bin file to memory stick with out folder.
(Caution) Do not copy the file to the inside folder

(2) Connection
- Plug-in USB Memory stick to the USB input of the set.
(3) USB input -> Automatically loading menu

* The OSD “USB Device loading” is appealed by automatically…

(4) Selecting Window for Bluetooth Software update

• The Pop-up window appears for selecting to update Bluetooth software and information about current Bluetooth software. (Ex : V2.02)
• Select “Yes”

(5) Bluetooth S/W Downloading Process

• Time Process Downloading new Bluetooth software about 10seconds
• Please Wait until finish and do not un-plug power cable

(6) OSD – Bluetooth software updated successfully

• OSD Information Bluetooth software update success
• LCDTV Set will restart by automatically…
• Time Process to restart about 5seconds

(7) Check S/W Version
• Push “IN-START” button on service remote Controller
• Check Information Bluetooth S/W version will appear on OSD Service Menu.
  Example : Bluetooth SW version 2.05
Block Diagram

1. K2L Circuit Block Diagram
2. K2L I2C Block Diagram
3. K2L Power Block
4. Tuner/CI Block Diagram
5. Video/Audio In Block Diagram
6. Audio Out Block Diagram
7. HDMI

- HDMI1.4
- HDMI2.0
- HDMI3 & HDMI4
- HDMI 2.0
- HDMI 2.0 & HDMI ARC

- HDMI_CEC_MICOM
- HDMI_CEC_MICOM (IC3300)

- ST_IO19_H0_SCL
- ST_IO20_H0_SDA
- ST_IO22_H1_SCL
- ST_IO23_H1_SDA
- ST_IO25_H2_SCL
- ST_IO26_H2_SDA

- TMDS Link 8 bits
- TMDS Link 8 bits
- TMDS Link 8 bits
- TMDS Link 8 bits
- TMDS Link 8 bits
- TMDS Link 8 bits

- TMDS DATA 6 bits (DATA0, 1, 2) + TMDS CLK 2 bits

- DDC_SCL_1
- DDC_SDA_1
- DDC_SCL_2
- DDC_SDA_2
- DDC_SCL_3
- DDC_SDA_3
- DDC_SCL_4
- DDC_SDA_4

- K2L

- RENESAS MICOM (IC3300)
- X-Ta(X3000) 3.2768 kHz

* TMDS Link 8 bits = TMDS DATA 6 bits (DATA0, 1, 2) + TMDS CLK 2 bits
8. USB / WIFI / M-REMOTE / UART
EXPLODED VIEW

IMPORTANT SAFETY NOTICE

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 Shock, Fire, or other Hazards. Do not modify the original design without permission of manufacturer.
DISASSEMBLY

(1) Put the set on the flat pad.

(2) Remove Rear Small Cover
- Pull up bottom of Rear Small Cover to remove.

(3) Remove Stand Screw and Stand
- FAB30016103 (M4*12mm), 4EA
  - Remove Screw 4EA first, next remove Stand

(4) Remove Back Cover Screw
- FAB31843216 (M3*5.5mm, Gray) 9EA
  -> Common use 55”/65”
- FAB31843216 (M3*5.5mm, Gray) 1EA
  -> Add only 55”
(5) Remove PowerCord Bracket

- Pull up Power Cord, than remove Bracket, next remove cord from PSU.

(6) Remove Back Cover

- Pull up bottom of Back Cover to remove.
'16 B6 OLED POWER  A13V = 24V  
13V = 12V  

V_{out} = 0.8 \times \frac{1 + R_1}{R_2}

OLED_Power_DET

24V --> 3.48V  
20V --> 3.51V  
12V --> 3.58V  
ST_3.5V --> 3.5V

13V = 12V  
A13V = 24V
**Micom Model Option**

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Model Option 0 (AM0)</th>
<th>Model Option 1 (AM1)</th>
<th>Model Option 2 (AM2)</th>
<th>Model Option 3 (AM3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.72V</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>1.53V</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>2.27V</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>3.0V</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Model Option Notes:**
- Use only specified parts for critical components in the schematic.
- Special features important for protection from x-radiation, fire, and electrical shock hazards.
- Ensure that only specified models are used when servicing.

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THE SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION, FIRE AND ELECTRICAL SHOCK HAZARDS. WHEN SERVICING IT IS ESSENTIAL THAT ONLY MANUFACTURER SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE SYMBOL MARK OF THE SCHEMATIC.
THE SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FIRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFACTURER SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE SYMBOL MARK OF THE SCHEMATIC.
Ethernet Block

The symbol mark of this schematic diagram incorporates special features important for protection from X-radiation, fire, and electrical shock hazards. When servicing the device, it is essential that only manufacturer-specified parts be used for the critical components in the symbol mark of the schematic.
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B-CAS (SMART CARD) INTERFACE

- **+3.3V_NORMAL**
- **+5V_NORMAL**
- **L6300**
- **L6301**
- **C6301**
- **0.1μF 16V JAPAN**
- **C6302**
- **0.1μF 16V JAPAN**
- **C6303**
- **0.1μF 16V JAPAN**
- **C6304**
- **0.1μF 16V JAPAN**
- **C6305**
- **0.1μF 16V JAPAN**
- **R6300 33 JAPAN**
- **R6301 OPT**
- **R6302 OPT**
- **R6303 2.7K JAPAN**
- **R6304 2.7K JAPAN**
- **R6305 2.7K JAPAN**
- **R6306 1.2K JAPAN**
- **R6307 33 JAPAN**
- **R6308 33 JAPAN**
- **R6309 33 JAPAN**
- **R6310 33 JAPAN**
- **R6311 33 JAPAN**
- **R6312 75K JAPAN**
- **R6313 75K JAPAN**
- **R6314 1K JAPAN**
- **R6315 1.2K JAPAN**
- **R6316 1.2K JAPAN**
- **ZD6300**
- **ZD6301**
- **SMARTCARD_DATA**
- **SMARTCARD_CLK**
- **SMARTCARD_RST**
- **SMARTCARD_PWR_SEL**
- **SMARTCARD_DET**
- **IC6300 TDA8024TT JAPAN 35V/3V 2CLKDIV2 4PGND 1CLKDIV1 6VDDP 5S2 7S1 8VUP 9PRES 10PRES 11I/O 12AUX2 13AUX1 14CGND 15 CLK 16 RST 17 VCC 18 PORADJ 19 CMDVCC 20 RSTIN 21 VDD 22 GND 23 OFF 24 XTAL1 25 XTAL2 26 I/OUC 27 AUX1UC 28 AUX2UC**
- **P6300**
- **10057542-1311FLF (B CAS Slot) JAPAN_BCAS_OLD**
- **C1VCC C2RST C3CLK C4RESERVED_1 C5GND C6VPP C7I/O C8RESERVED S1SW1 S2SW2**

Place CLK C3 far from C2, C7, C4 and C8.

**B-CAS (SMART CARD) INTERFACE**

- **INT CMDVCC : STATUS**
- **---------------------------------**
- **HIGH  HIGH  CARD PRESENT  LOW  HIGH  CARD not PRESENT**
- **CLKDIV1  CLKDIV2  : F_CRD_CLK----------------------------- 1 0 0 0 0 0 0**
- **SMARTCARD_VCC**

**75 ohm in I/O is for short circuit Protection**

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DVB-S2 LNB Part Allegro/DMBT

(OPTION: LNB)

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Input trace widths should be sized to conduct at least 3A
Output trace widths should be sized to conduct at least 2A

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C7201~C7216 Close to EPI Wafer!
eMMC I/F

3.3V power delete, 131120

Don’t Connect Power At VDDI
(Just Internal LDO Capacitor)
RS-232C Control INTERFACE

The symbol mark of this schematic diagram incorporates special features important for protection from X-radiation. Fire and electrical shock hazards, when servicing if is essential that only manufacturers specified parts be used for the critical components in the symbol mark of the schematic.
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K2L B6

SMD Bottom 5.5T

4th Layer

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TROUBLE SHOOTING GUIDE
## Contents of Standard Repair Process

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<th>Error symptom (Mid category)</th>
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<td>A. Video error</td>
<td>No video/Normal audio</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>No video/No audio</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>Picture broken/ Freezing</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>4</td>
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<td>Color error</td>
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<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>Vertical/Horizontal bar, residual image, light spot, external device color error</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>B. Power error</td>
<td>No power</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>Off when on, off while viewing, power auto on/off</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>C. Audio error</td>
<td>No audio/Normal video</td>
<td>8</td>
<td></td>
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<tr>
<td>9</td>
<td></td>
<td>Wrecked audio/discontinuation/noise</td>
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<td>13</td>
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<td>External device recognition error</td>
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<td>14</td>
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<tr>
<td>15</td>
<td>F. Exterior error</td>
<td>Exterior defect</td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>

First of all, Check whether there is SVC Bulletin in GSCS System for these model.
First of all, Check whether all of cables between board is inserted properly or not.
(Main B/D ↔ Power B/D, LVDS Cable, Speaker Cable, IR B/D Cable,..)

No video/ Normal audio

Check Back Light On with naked eye

On

Check Power Board 24V, 12V, 3.5V etc.

Normal voltage

Replace T-con/Main Board or module And Adjust VCOM

Repair Power Board or parts

Replace Inverter or module

Normal voltage

Repair Power Board or parts

End

※ Precaution ☞ A4 & A2
Always check & record S/W Version and White Balance value before replacing the Main Board

Replace Main Board

Re-enter White Balance value
## Standard Repair Process

<table>
<thead>
<tr>
<th>OLED TV</th>
<th>Error symptom</th>
<th>A. Video error</th>
<th>Established date</th>
<th>Revised date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No video/ No audio</td>
<td>Normal voltage?</td>
<td></td>
<td>2/16</td>
</tr>
</tbody>
</table>

- **No Video/ No audio**
  - Check various voltages of Power Board (13V or 24V)
  - Normal voltage?
    - **Y**: Check and replace MAIN B/D
    - **N**: Replace Power Board and repair parts
  - End
A. Video error

**OLED TV**

<table>
<thead>
<tr>
<th>Error symptom</th>
<th>Established date</th>
<th>Revised date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Picture broken/ Freezing</td>
<td></td>
<td>3/16</td>
</tr>
</tbody>
</table>

**Standard Repair Process**

1. **Check RF Signal level**
   - By using Digital signal level meter
   - By using Diagnostics menu on OSD
   (All Settings → Channels → Channel Tuning → Manual Tuning → Check the Signal)
   - Signal strength (Normal: over 50%)
   - Signal Quality (Normal: over 50%)

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

3. **Check RF Cable Connection**
   1. Reconnection
   2. Install Booster

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

5. **Check S/W Version**
   - Y: SVC Bulletin?
     - Y: Close
     - N: S/W Upgrade
     - N: Normal Picture?
       - Y: Close
       - N: Replace Main B/D

6. **Check Tuner soldering**
   - Y: Close
   - N: Replace Main B/D
### Standard Repair Process

#### Error symptom

<table>
<thead>
<tr>
<th>OLED TV</th>
<th>A. Video error</th>
<th>Established date</th>
<th>Revised date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Color error</td>
<td></td>
<td>4/16</td>
</tr>
</tbody>
</table>

### A. Video error

- **Check color by input**
  - External Input
  - COMPONENT
  - AV
  - HDMI

- **Check color error**
  - Y: Color error?
  - N: Check error color input mode

- **Check and replace Link Cable (V by one) and contact condition**
  - Y: Replace Main B/D
  - N: N

- **External Input/Component error**
  - Y: Replace Main/T-con B/D
  - N: Request repair for external device/cable

- **HDMI error**
  - Y: Replace Main/T-con B/D
  - N: Check external device and cable

- **External device/Cable normal**
  - Y: Replace Main/T-con B/D
  - N: Check external device and cable
# Standard Repair Process

## OLED TV

<table>
<thead>
<tr>
<th>Error symptom</th>
<th>A. Video error</th>
<th>Established date</th>
<th>Revised date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vertical / Horizontal bar, residual image, light spot, external device color error</td>
<td></td>
<td>5/16</td>
<td></td>
</tr>
</tbody>
</table>

### Vertical/Horizontal bar, residual image, light spot

1. **Screen normal?**
   - **Y**: Check external device connection condition
   - **N**: Replace module

2. **Screen normal?**
   - **Y**: Check and replace Link Cable
   - **N**: Request repair for external device

3. **Screen normal?**
   - **Y**: Replace Main/T-con B/D (adjust VCOM)
   - **N**: Replace Main B/D

#### For LGD panel

#### For other panel

### External device screen error-Color error

1. **Check S/W Version**
   - **N**: S/W Upgrade
   - **Y**: Normal screen?
     - **Y**: End
     - **N**: Normal screen?
       - **Y**: Check screen condition by input
         - External Input
         - Component
         - HDMI/DVI
       - **N**: External Input error
         - **Y**: Component error
           - **Y**: Connect other external device and cable
             (Check normal operation of External Input, Component, RGB and HDMI/DVI by connecting Jig, pattern Generator, Set-top Box etc.)
           - **N**: HDMI/DVI
             - **Y**: Screen normal?
               - **Y**: Replace Main/T-con B/D
               - **N**: Replace Main /T-con B/D
             - **N**: Screen normal?
               - **Y**: Replace Main/T-con B/D
               - **N**: Replace Main B/D
         - **N**: Connect other external device and cable
           (Check normal operation of External Input, Component, RGB and HDMI/DVI by connecting Jig, pattern Generator, Set-top Box etc.)
         - **N**: Screen normal?
           - **Y**: Replace Main/T-con B/D
           - **N**: Replace Main B/D
   - **N**: External Input error
     - **Y**: Component error
       - **Y**: Connect other external device and cable
         (Check normal operation of External Input, Component, RGB and HDMI/DVI by connecting Jig, pattern Generator, Set-top Box etc.)
       - **N**: HDMI/DVI
         - **Y**: Screen normal?
           - **Y**: Replace Main/T-con B/D
           - **N**: Replace Main /T-con B/D
         - **N**: Screen normal?
           - **Y**: Replace Main/T-con B/D
           - **N**: Replace Main B/D
     - **N**: Connect other external device and cable
       (Check normal operation of External Input, Component, RGB and HDMI/DVI by connecting Jig, pattern Generator, Set-top Box etc.)
   - **N**: S/W Version

---

**Established date**: 5/16

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# Standard Repair Process

## OLED TV

<table>
<thead>
<tr>
<th>Error symptom</th>
<th>B. Power error</th>
</tr>
</thead>
<tbody>
<tr>
<td>No power</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Established date</th>
<th>Revised date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6/16</td>
</tr>
</tbody>
</table>

### Error Symptom: No Power

1. **Check Logo LED**
   - 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**
   - Normal?
     - Y: Close
     - N: **Check ST-BY 3.5V**

3. **Check ST-BY 3.5V**
   - Normal voltage?
     - Y: Replace Power B/D
     - N: Replace Power B/D

4. **Normal operation?**
   - Y: Check Power On "High"
   - N: **Measure voltage of each output of Power B/D**

5. **Measure voltage of each output of Power B/D**
   - Normal voltage?
     - Y: Replace Main B/D
     - N: Replace Main B/D

6. **OK?**
   - Y: Replace Power B/D
   - N: Replace Main B/D
### Standard Repair Process

<table>
<thead>
<tr>
<th>B. Power error</th>
<th>Established date</th>
<th>Revised date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Off when on, off while viewing, power auto on/off</td>
<td></td>
<td>7/16</td>
</tr>
</tbody>
</table>

#### Error symptom

- Off when on, off while viewing, power auto on/off

#### Flowchart

1. **Check outlet**
2. **Check A/C cord**
3. **Check for all 3-phase power out**
4. **Fix A/C cord & Outlet and check each 3-phase out**
   - If **Error?**, go to **Check Power Off Mode**.
   - If **Normal?**, go to **End**.

#### Check Power Off Mode

- **CPU Abnormal**
  - Replace Main B/D
  - **Normal?**
    - **Y**: End
    - **N**: Replace Power B/D

- **Abnormal**
  - **1**: Check Power B/D voltage
    - If **Normal?**
      - **Y**: Replace Main B/D
      - **N**: Replace Power B/D

**Caution**

- Check and fix exterior of Power B/D Part

---

### Status

#### Normal

- "POWER_OFF_BY_REMOTE_KEY"
- "POWER_OFF_BY_OFF_TIMER"
- "POWER_OFF_BY_SLEEP_TIMER"
- "POWER_OFF_BY_INSTOP"
- "POWER_OFF_BY_AUTO_OFF"
- "POWER_OFF_BY_ON_TIMER"
- "POWER_OFF_BY_RS232C"
- "POWER_OFF_BY_RESREC"
- "POWER_OFF_BY_RECEND"
- "POWER_OFF_BY_SW_DW"
- "POWER_OFF_BY_UNKNOWN"

- Power off by REMOTE CONTROL
- Power off by OFF TIMER
- Power off by SLEEP TIMER
- Power off by INSTOP KEY
- Power off by AUTO OFF
- Power off by ON TIMER
- Power off by RS232C
- Power off by Reserved Record
- Power off by End of Recording
- Power off by S/W Download
- Power off by unknown status except listed case

#### Abnormal

- "POWER_OFF_BY_CPU_ABN"

- Power off by CPU Abnormal

---

*Please refer to the all cases which can be displayed on power off mode.*
C. Audio error

**Error symptom**: No audio/ Normal video

<table>
<thead>
<tr>
<th>OLED TV</th>
<th>Error symptom</th>
<th>C. Audio error</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Established date</td>
</tr>
</tbody>
</table>

1. **A11**: Check user menu > Speaker off
   - Off
     - N: Cancel OFF
     - Y: Check audio B+ 24V of Power Board

2. **A12+A9**: Normal voltage
   - Y: Replace Power Board and repair parts
   - N: Replace MAIN Board

3. Check Speaker disconnection
   - N: Replace MAIN Board
   - Y: Replace Speaker

End
→ abnormal audio/discontinuation/noise is same after “Check input signal” compared to No audio

<table>
<thead>
<tr>
<th>Error symptom</th>
<th>Established date</th>
<th>Revised date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wrecked audio/ discontinuation/noise</td>
<td>9/16</td>
<td>9/16</td>
</tr>
</tbody>
</table>

### Standard Repair Process

- **Check input signal**
  - RF
  - External Input signal

<table>
<thead>
<tr>
<th>Signal normal?</th>
<th>Check audio B+ Voltage (24V)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>Check and replace speaker and connector</td>
</tr>
<tr>
<td>N</td>
<td>Replace Main B/D</td>
</tr>
</tbody>
</table>

- **Wrecked audio/ Discontinuation/ Noise for all audio**

<table>
<thead>
<tr>
<th>Normal voltage?</th>
<th>Replace Power B/D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>Replace Main B/D</td>
</tr>
<tr>
<td>N</td>
<td>Replace Main B/D</td>
</tr>
</tbody>
</table>

- **Wrecked audio/ Discontinuation/ Noise only for D-TV**

- **Wrecked audio/ Discontinuation/ Noise only for Analog**

- **Wrecked audio/ Discontinuation/ Noise only for External Input**

- **(When RF signal is not received)**
  - Request repair to external cable/ANT provider

- **(In case of External Input signal error)**
  - Check and fix external device

- **Check audio normal?**
  - Y
  - Normal audio?
    - Y
      - Connect and check other external device
      - Check and fix external device
    - N
  - Normal audio?
    - Y
      - Connect and check other external device
      - Check and fix external device
    - N
      - Check audio normal?
1. Remote control (R/C) operating error

- Check R/C itself operation
  - Normal operating?
    - Y: Check & Repair Cable connection, Connector solder
    - N: Replace R/C
  - N: Check R/C Operating When turn off light in room
    - If R/C operate, explain the customer cause is interference from light in room.

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

- Check B+ 3.5V On Main B/D
  - Normal voltage?
    - Y: Check IR Output signal
      - Normal signal?
        - Y: Close
        - N: Check 13v on Power B/D, Replace Power B/D or Replace Main B/D (Power B/D don't have problem)
    - N: Replace Main B/D

- Repair/Replace IR B/D
2. MR15R (Magic Remocon) operating error

- **Check the INSTART menu**
  - RF Receiver ver is "00.00"?
    - Y: Check MR15R itself Operation
    - N: Check & Replace Battery of MR15R
  - RF Receiver ver is "00.00"?
    - Y: Down load the Firmware
      - * INSTART MENU → 12.RF Remocon Test → 3. Firmware download*
    - N: Close

- **Check MR15R itself Operation**
  - Normal operating?
    - Y: Press the wheel
    - Is show ok message?
      - Y: Turn off/on the set and press the wheel
      - N: Close
    - N: Replace MR15R
      - Normal operating?
        - Y: Close
        - N: Press the back key about 5sec
          - Y: Close
          - N: Is show ok message?
            - Y: Turn off/on the set and press the wheel
            - N: Replace MR15R

- **Check & Replace Battery of MR15R**
  - Close

- **Close**
  - If you conduct the loop at 3times, change the MR15R.
3. Wifi operating error

- Check the INSTART menu.
- Wi-Fi Mac value is “NG”? (A15)
  - Y: Check & Repair Wifi cable connection (A4)
  - N: Wi-Fi Mac value is “NG”? (A4)
    - N: Close
    - Y: Change the Wifi assy
- Check the Wifi wafer 1pin (A15)
- Normal Voltage? (A15)
  - Y: Close
  - N: Replace Main B/D
Standard Repair Process

<table>
<thead>
<tr>
<th>OLED TV</th>
<th>Error symptom</th>
<th>D. Function error</th>
<th>Established date</th>
<th>Revised date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>External device recognition error</td>
<td></td>
<td>14/16</td>
</tr>
</tbody>
</table>

1. Check input signal
2. Signal input?
   - Y: Check technical information
     - Fix information
     - S/W Version
   - N: Check and fix external device/cable
3. Technical information?
   - Y: Fix in accordance with technical information
   - N: External Input and Component Recognition error
4. HDMI/ DVI, Optical Recognition error
5. Replace Main B/D
### E. Noise

<table>
<thead>
<tr>
<th>Error symptom</th>
<th>Established date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Circuit noise, mechanical noise</td>
<td>Revised date</td>
</tr>
</tbody>
</table>

- **Identify nose type**
- Circuit noise
- Check location of noise
- Replace PSU
- Mechanical noise
- Check location of noise

※ Mechanical noise is a natural phenomenon, and apply the 1st level description. When the customer does not agree, apply the process by stage.
※ Describe the basis of the description in “Part related to nose” in the Owner’s Manual.

※ When the nose is severe, replace the module (For models with fix information, upgrade the S/W or provide the description)

※ If there is a “Tak Tak” noise from the cabinet, refer to the KMS fix information and then proceed as shown in the solution manual (For models without any fix information, provide the description)
F. Exterior defect

- Zoom part with exterior damage
  - Module damage
    - Replace module
  - Cabinet damage
    - Replace cabinet
  - Remote control damage
    - Replace remote control
  - Stand dent
    - Replace stand

OLED TV

Error symptom

Established date

Revised date 16/16
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</tr>
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<td>OLED TV</td>
<td>Check Vx1 lock LED light with naked eye</td>
<td></td>
<td></td>
<td>A1</td>
</tr>
</tbody>
</table>

After Remove the Rear Cover, turning on the power and check with the naked eye, Whetehr you can see light from locations.
**Entry method**

1. Press the ADJ button on the remote control for adjustment.

2. Enter into White Balance of item 12.

3. After recording the R, G, B (GAIN, Cut) value of Color Temp (Cool/Medium/Warm), re-enter the value after replacing the MAIN BOARD.
**Standard Repair Process Detail Technical Manual**

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<td>A. Video error_Video error, video lag/stop</td>
<td>TUNER input signal strength checking method</td>
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</tr>
</tbody>
</table>

**Error symptom**

- Video error_Video error, video lag/stop

**Content**

- TUNER input signal strength checking method

---

**All Settings ➔ Channels ➔ Channel Tuning**

When the signal is strong, use the attenuator (-10dB, -15dB, -20dB etc.)
### Standard Repair Process Detail Technical Manual

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<tbody>
<tr>
<td>Content</td>
<td>Version checking method</td>
<td></td>
<td>A4</td>
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</tbody>
</table>

#### 1. Checking method for remote control for adjustment

Press the IN-START with the remote control for adjustment
Checking method:
1. Check the signal strength or check whether the screen is normal when the external device is connected.
2. After measuring each voltage from power supply, finally replace the MAIN BOARD.
## Error symptom

<table>
<thead>
<tr>
<th>OLED TV</th>
<th>A. Video error _Vertical/Horizontal bar, residual image, light spot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content</td>
<td>Connection diagram</td>
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</table>

As the part connecting to the external input, check the screen condition by signal
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<table>
<thead>
<tr>
<th>OLED TV</th>
<th>Error symptom</th>
<th>A. Video error_Color error</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Check Link Cable (EPI) reconnection condition</td>
<td></td>
<td></td>
<td>A7</td>
</tr>
</tbody>
</table>

Check the contact condition of the Link Cable, especially dust or mis insertion.
Appendix : Exchange the Module (1)

- Vertical abnormal display
- Brightness difference
- Line Dim
- Crosstalk
- Press damage
- Crosstalk
- Burnt

Un-repairable Cases
In this case please exchange the module.

A – 1/2
Appendix : Exchange the Module (2)

Un-repairable Cases
In this case please exchange the module.

Angle view Color difference

Brightness dot noise

Half dead

Brightness difference

Green Noise on power on/off time

Line Defect

Mura
**B. Power error _No power**

- **Error symptom:**
  - Check front display Logo

---

**Basic Functions**

- **Power On (Press)**
- **Power Off (Press and Hold)**
- **Volume Control**
- **Channels Control**

---

**NOTE**

- When the TV is turned on, place your finger on the power button, press it once for a few seconds, and release it. All running apps will close.

---

**Adjusting the Menu**

When the TV is turned on, press ◁ button one time. You can adjust the Menu items pressing or moving the buttons.

- ◁ Turns the power off.
- □ Accesses the setting menu.
- × Clears on-screen displays and returns to TV viewing.
- ☐ Changes the input source.

---

**Notes**

- You can set the LG Logo Light or power indicator light to on or off by selecting GENERAL in the main menus.
B. Power error _No power

Check the DC 24V, 13V
### Entry method

1. Press the IN-START button of the remote control for adjustment

2. Check the entry into adjustment item 3(power On/Off Status)
## Checking method

1. Press the Setting button on the remote control
2. Select the Sound function of the Menu
3. Select the Sound Out
4. Select TV Speaker
### Standard Repair Process Detail Technical Manual

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<tr>
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<td></td>
<td>Voltage and speaker checking method when there is no audio</td>
<td></td>
<td>A12</td>
</tr>
</tbody>
</table>

#### Checking order when there is no audio

1. **Check the contact condition of or 24V connector of Main Board**

2. **Measure the 24V input voltage supplied from Power Board**
   *(If there is no input voltage, remove and check the connector)*

3. **Connect the tester RX1 to the speaker terminal and if you hear the Chik Chik sound when you touch the GND and output terminal, the speaker is normal.**

### Table: P201

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Signal</th>
<th>Pin No.</th>
<th>Signal</th>
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<tbody>
<tr>
<td>1</td>
<td>POWER_ON</td>
<td>2</td>
<td>DRV_ON</td>
</tr>
<tr>
<td>3</td>
<td>N.C</td>
<td>4</td>
<td>ACD</td>
</tr>
<tr>
<td>5</td>
<td>12VM</td>
<td>6</td>
<td>GND</td>
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<td>7</td>
<td>12VM</td>
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</tr>
<tr>
<td>23</td>
<td>GND</td>
<td>24</td>
<td>GND</td>
</tr>
</tbody>
</table>

1. **SPK_R—FT**
2. **SPK_R+_FT**
3. **SPK_L—FT**
4. **SPK_L+_FT**
5. **SPK_R—TW**
6. **SPK_R+_TW**
7. **SPK_L—TW**
8. **SPK_L+_TW**
### Remote control operation checking method

**OLED TV**

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<tr>
<td>Content</td>
<td>Remote control operation checking method</td>
<td></td>
<td>A13</td>
</tr>
</tbody>
</table>

#### Checking order

1. Check IR cable condition between IR & Main board.
2. Check the st-by 3.5V on the terminal 4.

---

**P4001**

<p>| | |</p>
<table>
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<tbody>
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<td>KEY2</td>
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<td>3.5V_ST</td>
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<tr>
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<td>EYE_SCL</td>
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<tr>
<td>10</td>
<td>EYE_SDA</td>
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</tbody>
</table>
## Checking order

1. Check IR cable condition between IR & Main board.
2. Check WIFI Combo cable condition between WIFI Combo Assy & Main board.
3. Check the st-by 3.5V P4102 on the terminal 4
4. Check the 3.5V_WIFI P4101 on the terminal 8
### Checking order

1. Check Wifi cable condition between Wifi assy & Main board.
2. Check the 3.3V on the terminal 8.