



OLED TV

SERVICE MANUAL

CHASSIS : E*31C

MODEL : OLED42C3***

CAUTION

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



P/NO : MFL71991221 (2212-REV00)

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SAFETY PRECAUTIONS

IMPORTANT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These parts are identified by Δ in the 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.

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 $1\text{ M}\Omega$ and $5.2\text{ M}\Omega$.

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.

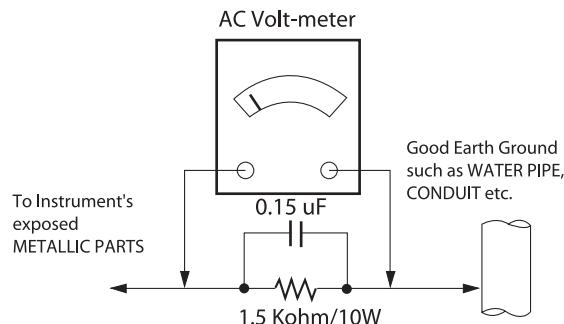
Connect 1.5 K / 10 watt resistor in parallel with a 0.15 uF capacitor between a known good earth ground (Water Pipe, Conduit, etc.) and the exposed metallic parts.

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 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



When 25A is impressed between Earth and 2nd Ground for 1 second, Resistance must be less than $0.1\ \Omega$

*Base on Adjustment standard

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 is 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 of 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 small 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 specification is applied to the LED TV used E*31C chassis.

2. Requirement for Test

Each part is tested as below without special notice.

- (1) Temperature: $25^{\circ}\text{C} \pm 5^{\circ}\text{C}$ ($77^{\circ}\text{F} \pm 9^{\circ}\text{F}$), CST: $40^{\circ}\text{C} \pm 2^{\circ}\text{C}$
- (2) Relative Humidity: $60\% \pm 10\%$
- (3) Power Voltage
 - : Standard input voltage (AC 100-240 V~, 50/60 Hz)
 - * 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.

4. Model General Specification

(1) EU / CIS / AFRICA / OCEANIA / ASIA / CHINA / HONGKONG / PHILIPPINES

No.	Item	Specification	Remarks
1	Market	1) EU/CIS/AFRICA 2) OCEANIA/ASIA 3) CHINA/HONGKONG 4) PHILIPPINES	
2	Broadcasting system	1) EU/CIS/AFRICA <ul style="list-style-type: none">- Digital TV : DVB-T/T2, DVB-C, DVB-S/S2,- Analogue TV : PAL B/B, PAL B/G, PAL D/K, PAL-I, SECAM B/G, SECAM D/K, NTSC-M 2) OCEANIA/ASIA <ul style="list-style-type: none">- Digital TV : DVB-T/T2, DVB-C, DVB-S/S2(New Zealand only)- Analogue TV : PAL B/B, PAL B/G, PAL D/K, PAL-I, SECAM B/G, SECAM D/K, NTSC-M 3) China/Hongkong <ul style="list-style-type: none">- Digital TV : DTMB (China/Hongkong), DVB-C (China)- Analogue TV : PAL D/K,I, NTSC-M (China/Hongkong) 4) Phillipine <ul style="list-style-type: none">- Digital TV : ISDB-T- Analogue TV : NTSC-M	Depending on country

No.	Item	Specification	Remarks
3	Program coverage	<p># FOR EU/CIS/AFRICA/OCEANIA/ASIA</p> <p>1) Digital TV -DVB-T / DVB-T2* -VHF III : 174 ~ 230 MHz -UHF IV : 470 ~ 606 MHz -UHF V : 606 ~ 862 MHz -S Band II : 230 ~ 300 MHz -S Band III : 300 ~ 470 MHz -DVB-S/S2* (950 ~ 2150 MHz) -DVB-C* (46 ~ 890 MHz)</p> <p>2) Analogue TV (46 ~ 862 MHz)</p> <p># FOR CHINA</p> <p>1) PAL-DK:VHF/UHF 1~62, Cable:1~41 2) PAL-I: VHF/UHF 1~69, Cable:1~47 3) NTSC M: VHF/UHF 2~78, Cable:1~71 4) DTMB:1~62 5) DVB-C:52.5MHz~866MHz</p> <p># FOR HONGKONG</p> <p>1) PAL-DK:VHF/UHF 1~69, Cable:1~47 2) PAL-I: VHF/UHF 1~69, Cable:1~47 3) NTSC M: VHF/UHF 2~78, Cable:1~71 4) DTMB:21~69</p> <p># FOR Philippine</p> <p>1) ISDB-T: UHF : 2~69 2) NTSC M: VHF/UHF : 2~69, CATV: 1~135</p>	<p># EU/CIS : Depending on models. # AFRICA : Depending on countrys. # OCEANIA/ASIA : Only DVB-T2/C/S2 support model only. # China/Hongkong/Philippine separate marketing</p>
4	Receiving system	<p># EU/CIS/AFRICA/OCEANIA/ASIA</p> <p>Analog : Upper Heterodyne Digital : COFDM(DVB-T) Only DVB-T Model Digital : COFDM(DVB-T/T2) Only DVB-T2 Model Digital : QAM</p> <p># China/Hongkong</p> <p>Analog : Upper Heterodyne Digital : COFDM, QAM</p>	<p># EU/CIS/AFRICA/OCEANIA/ASIA</p> <p>► DVB-T</p> <ul style="list-style-type: none"> - Guard Interval(Bitrate_Mbit/s): 1/4, 1/8, 1/16, 1/32 - Modulation: Code Rate <ul style="list-style-type: none"> QPSK : 1/2, 2/3, 3/4, 5/6, 7/8 16-QAM : 1/2, 2/3, 3/4, 5/6, 7/8 64-QAM : 1/2, 2/3, 3/4, 5/6, 7/8 <p>► DVB-T2</p> <ul style="list-style-type: none"> - Guard Interval(Bitrate_Mbit/s) <ul style="list-style-type: none"> 1/4, 1/8, 1/16, 1/32, 1/128, 19/128, 19/256, - Modulation : Code Rate <ul style="list-style-type: none"> QPSK : 1/2, 2/5, 2/3, 3/4, 5/6 16-QAM : 1/2, 2/5, 2/3, 3/4, 5/6 64-QAM : 1/2, 2/5, 2/3, 3/4, 5/6 256-QAM : 1/2, 2/5, 2/3, 3/4, 5/6 <p>► DVB-C</p> <ul style="list-style-type: none"> - Symbolrate: 4.0Msymbols/s to 7.2Msymbols/s - Modulation: 16QAM, 64-QAM, 128-QAM and 256-QAM <p>► DVB-S/S2(Except Asia)</p> <ul style="list-style-type: none"> - Symbolrate <ul style="list-style-type: none"> DVB-S2 (8PSK / QPSK) : 2 ~ 45Msymbol/s DVB-S (QPSK) : 2 ~ 45Msymbol/s - Viterbi <ul style="list-style-type: none"> DVB-S mode : 1/2, 2/3, 3/4, 5/6, 7/8 DVB-S2 mode: 1/2, 2/3, 3/4, 3/5, 4/5, 5/6, 8/9, 9/10 <p>#China/Hongkong</p> <p>► DTMB (Carrier, Code Rate, Constellation, Frame Header, Interleaving)</p> <ul style="list-style-type: none"> * China <ul style="list-style-type: none"> - MODE1 : 3780, 0.4, 16QAM, PN945/VARIABLE, 720 - MODE2 : 1, 0.8, 4QAM, PN595, 720 - MODE3 : 3780, 0.6, 16QAM, PN945/VARIABLE, 720 - MODE4 : 1, 0.8, 16QAM, PN595, 720 - MODE5 : 3780, 0.8, 16QAM, PN420/VARIABLE, 720 - MODE6 : 3780, 0.6, 64QAM, PN420/VARIABLE, 720 - MODE7 : 1, 0.8, 32QAM, PN595, 720 - MODE8 : 3780, 0.8, 16QAM, PN945/VARIABLE, 720 - MODE9 : 3780, 0.6, 64QAM, PN945/VARIABLE, 720 - MODE10 : 3780, 0.8, 64QAM, PN420/VARIABLE, 720 * Hong Kong - 3780, 0.4/0.6, 4/16/64QAM, PN945, 720 <p>► DVB-C</p> <ul style="list-style-type: none"> - Symbolrate : 4.0Msymbols/s to 7.2Msymbols/s - Modulation : 16QAM, 64-QAM, 128-QAM and 256-QAM

No.	Item	Specification	Remarks
5	Head Phone out	Antenna, HDMI1, HDMI2, HDMI3, HDMI4 USB1, USB2, USB3, AV	Depending on country
6	HDMI Input	HDMI1 HDMI2 HDMI3 HDMI4 PC / DTV Format	Support HDMI2.1
7	Video Input RCA	PAL, SECAM, NTSC	4 System : PAL, SECAM, NTSC, PAL60
8	Audio Input	DVI Audio, Component, AV	
9	SPDIF out (1 EA)	Optical Audio out	
10	USB Input (3 EA)	EMF, For SVC (download)	
11	Ethernet Connect (1EA)		STP cable
12	PCMCIA Card slot (1EA)	PCMCIA Slot	only EU/CIS

(2) North America / Central and South America / Colombia / Taiwan / Mexico

No.	Item	Specification	Remarks
1	Market	North America / Central and South America / Colombia / Taiwan / Japan / Mexico	
2	Broadcasting system	ATSC / NTSC-M, 64 & 256 QAM Digital : SBTVD (ISDBT) Analog : NTSC / PAL-M / PAL-N Digital : DVB-T / T2 Analog : NTSC / PAL-M / PAL-N Digital : ATSC, 64 & 256 QAM Analog : NTSC-M Digital : DVB-T Analog : NTSC-M	North America Central and South America Colombia / Panama Mexico Taiwan
3	Available Channel	VHF 2 ~ 13 UHF 14 ~ 69 DTV 2 ~ 69 CATV 1 ~ 135 CABTV 1 ~ 135 VHF 2 ~ 13 UHF 14 ~ 69 DTV 2 ~ 69 CATV 1 ~ 135 VHF 2 ~ 13 UHF 14 ~ 69 DTV 2 ~ 69 CATV 1 ~ 125	North America / Mexico Central and South America Colombia / Panama / Taiwan

No.	Item	Specification	Remarks
4	Receiving system	Digital : ATSC, 64 & 256 QAM Analog : NTSC-M	for North America / Mexico model
		Digital : SBTVD (ISDBT) Analog : NTSC / PAL-M / PAL-N	for Central and South America model
		Digital : DVB-T Analog : NTSC / PAL-M / PAL-N	for Panama and Taiwan ► DVB-T - Guard Interval(Bitrate_Mbit/s) 1/4, 1/8, 1/16, 1/32 - Modulation : Code Rate QPSK/16-QAM/64-QAM - Code Rate 1/2, 2/3, 3/4, 5/6, 7/8
		Digital : DVB-T2 Analog : NTSC / PAL-M / PAL-N	for Colombia ► DVB-T2 - Guard Interval(Bitrate_Mbit/s) 1/4, 19/256, 1/8, 1/16, 1/32, 1/128 - Modulation QPSK, 16-QAM, 64-QAM, 256QAM - Code Rate 1/2, 3/5, 2/3, 3/4, 4/5, 5/6
5	HDMI Input	HDMI 1 HDMI 2 HDMI 3 HDMI 4	PC / DTV Format
6	Audio out	SPDIF(1EA) HeadPhone(1EA)	Optical Audio out HeadPhone out
7	USB Input (3EA)	EMF, DivX HD, For SVC (download)	JPEG, MP3, DivX HD
8	Ethernet Connect (1EA)	Ethernet Connect	

5. External Input Support Format

5.1. HDMI input(DTV)

No.	Resolution	H-freq.(kHz)	V-freq.(kHz)	Pixel clock(MHz)	Proposed	Remarks
1	640*480	31.46	59.94	25.125	SDTV 480P	
2	640*480	31.50	60.00	25.125	SDTV 480P	
3	720*480	15.73	59.94	13.500	SDTV, DVD 480I(525I)	Spec. out but display
4	720*480	15.75	60.00	13.514	SDTV, DVD 480I(525I)	
5	720*576	15.62	50.00	13.500	SDTV, DVD 576I(625I) 50Hz	
6	720*480	31.47	59.94	27	SDTV 480P	
7	720*480	31.50	60.00	27.027	SDTV 480P	
8	720*576	31.25	50.00	27	SDTV 576P	
9	1280*720	37.5	50.00	74.25	HDTV 720P	
10	1280*720	44.96	59.94	74.176	HDTV 720P	
11	1280*720	45.00	60.00	74.25	HDTV 720P	
12	1920*1080	33.72	59.94	74.176	HDTV 1080I	
13	1920*1080	33.75	60.00	74.25	HDTV 1080I	
14	1920*1080	28.12	50.00	74.25	HDTV 1080I	
15	1920*1080	26.97	23.97	63.296	HDTV 1080P	
16	1920*1080	27.00	24.00	63.36	HDTV 1080P	
17	1920*1080	33.71	29.97	79.120	HDTV 1080P	
18	1920*1080	33.75	30.00	79.20	HDTV 1080P	
19	1920*1080	56.25	50.00	148.5	HDTV 1080P	
20	1920*1080	67.43	59.94	148.350	HDTV 1080P	
21	1920*1080	67.50	60.00	148.50	HDTV 1080P	
22	1920*1080	135.00	120.00		HDTV 1080P	
23	1920*1080	134.86	119.88		HDTV 1080P	
24	1920*1080	112.50	100.00		HDTV 1080P	
25	3840*2160	53.95	23.98	296.703	UDTV 2160P	
26	3840*2160	54.00	24.00	297.00	UDTV 2160P	
27	3840*2160	56.25	25.00	297.00	UDTV 2160P	
28	3840*2160	61.43	29.97	296.703	UDTV 2160P	
29	3840*2160	67.50	30.00	297.00	UDTV 2160P	
30	3840*2160	112.5	50.00	594	UDTV 2160P	When HDMI UHD DEEP COLOUR ON
31	3840*2160	134.86	59.94	593.407	UDTV 2160P	When HDMI UHD DEEP COLOUR ON
32	3840*2160	135.00	60.00	594	UDTV 2160P	When HDMI UHD DEEP COLOUR ON
33	4096*2160	53.95	23.98	296.703	UDTV 2160P	
34	4096*2160	54.00	24.00	297	UDTV 2160P	
35	4096*2160	56.25	25.00	297	UDTV 2160P	
36	4096*2160	61.43	29.97	296.703	UDTV 2160P	
37	4096*2160	67.50	30.00	297	UDTV 2160P	
38	4096*2160	112.50	50.00	594	UDTV 2160P	When HDMI UHD DEEP COLOUR ON
39	4096*2160	134.86	59.94	593.407	UDTV 2160P	When HDMI UHD DEEP COLOUR ON
40	4096*2160	135.00	60.00	594	UDTV 2160P	When HDMI UHD DEEP COLOUR ON

5.2. HDMI Input (PC)

No.	Resolution	H-freq(kHz)	V-freq.(kHz)	Pixel clock(MHz)	Proposed	Remarks
1	640*350	31.46	70.09	25.17	EGA	
2	720*400	31.46	70.08	28.32	DOS	
3	640*480	31.46	59.94	25.17	VESA(VGA)	
4	800*600	37.87	60.31	40	VESA(SVGA)	
5	1024*768	48.36	60.00	65	VESA(XGA)	
6	1152*864	54.34	60.05	80	VESA	
7	1360*768	47.71	60.01	84.75	VESA(WXGA)	
8	1280*1024	63.98	60.02	109.00	SXGA	Support to HDMI-PC
9	1920*1080	67.50	60.00	158.40	WUXGA(Reduced Blanking)	
10	1920*1080	135	120			
11	3840*2160	54	24.00	297.00	UDTV 2160P	
12	3840*2160	56.25	25.00	297.00	UDTV 2160P	
13	3840*2160	67.5	30.00	297.00	UDTV 2160P	
14	4096*2160	53.95	23.97	296.703	UDTV 2160P	
15	4096*2160	54	24	297	UDTV 2160P	

SOFTWARE UPDATE

1. USB DOWNLOAD

- (1) Plug in the USB to the TV
- (2) If there are update-able files in the USB, the TV would ask that the user want to process the SW upper version update.



- (3) Click "Yes" button : Start Update



- (4) Click "Check Now" : Go to SW Update menu for monitoring
- (5) TV has been starting SW update



- (6) After finishing the update, it will show a pop-up below the picture.



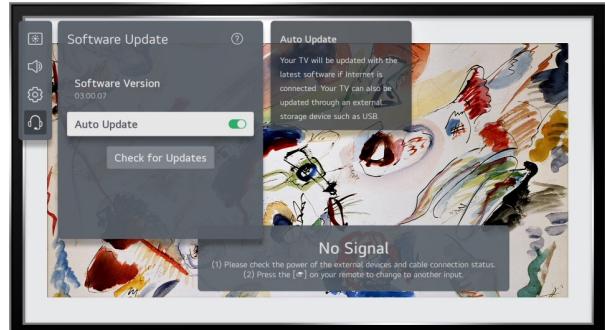
- (7) Click "Yes" : Tv will be turn off and on itself

2. NSU DOWNLOAD

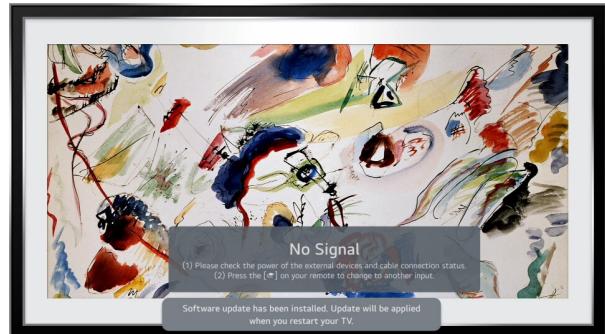
(This Function is needed to connect to the internet.)

Case 1) Auto Update On

- (1) Go to Menu → All Settings → Support → Software Update, then check Auto update is turned on.



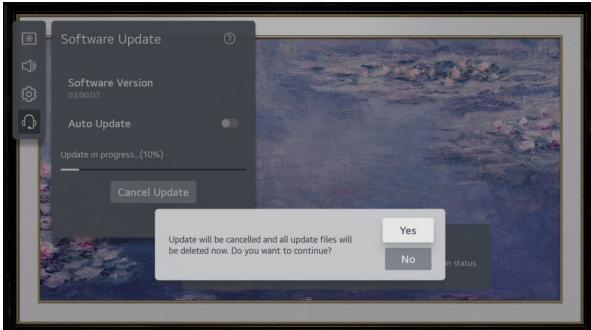
- (2) After the update complete, the user can check a pop-up below the picture, which indicated update is complete and the new version will be applied after the TV turn off and on.



- (3) If the user want to check the process of updating
[Menu → All Settings → Support → Software Update]



(4) If it needs to cancel the update, click "cancel update" button



(5) ["No"] : update continue
["Yes"] : update cancel

Case 2) NOT Allow Automatic Updates Toggle Item

(1) Go to Menu → All Settings → Support → Software Update



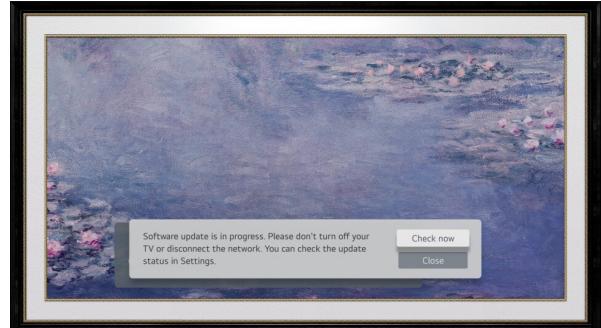
(2) If it found upper version SW than the TV SW version, TV would show a pop-up like below the picture.

"The latest version of the SW is available for your TV. Do you want to update now?"



(3) [Yes] : update starts.
[No] : Close the pop-up, check out later

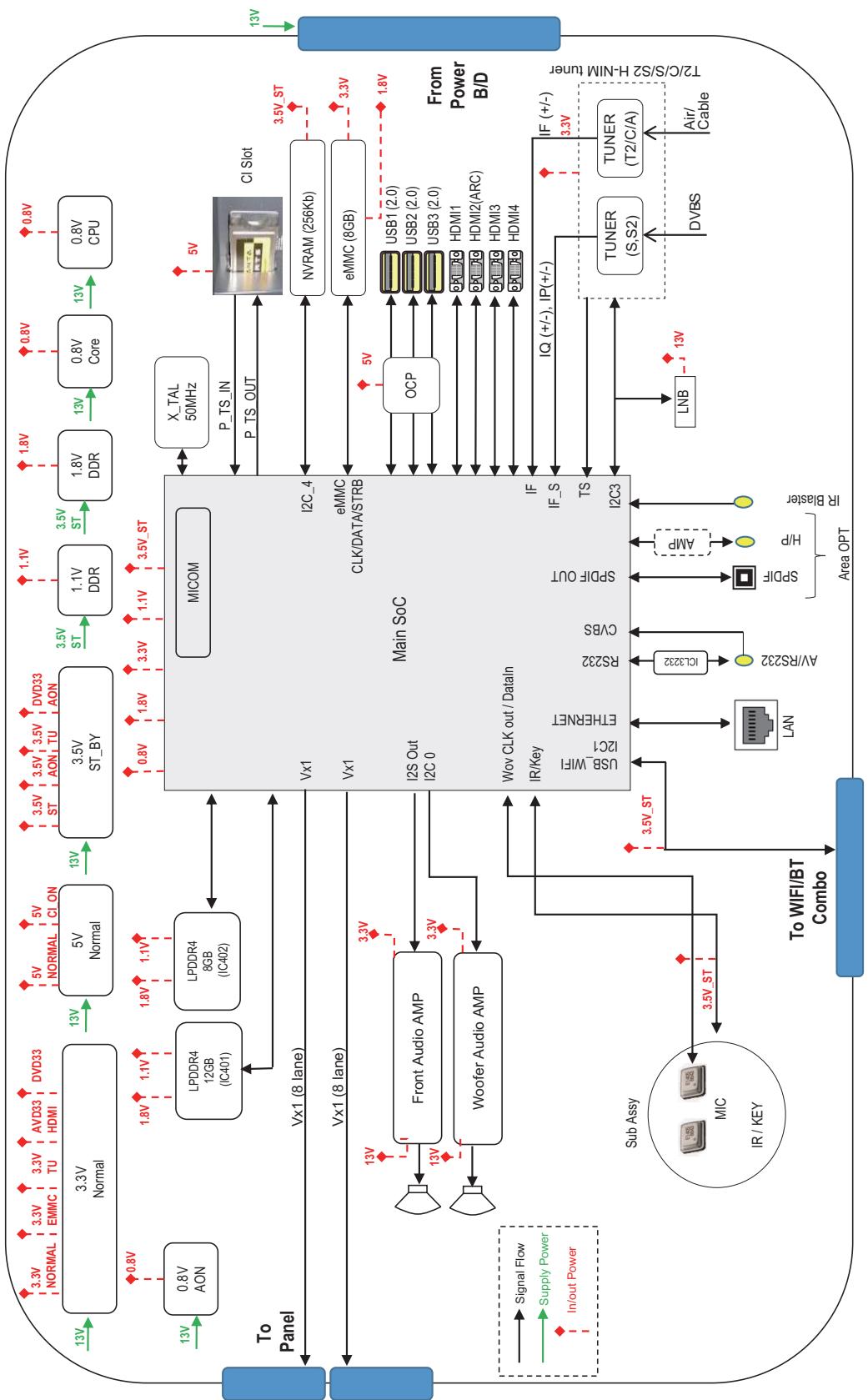
(4) If the user started the update, the TV shows a pop-up below the picture.



(5) [CHECK NOW] : Just start the update
[Close] : Close the pop-up



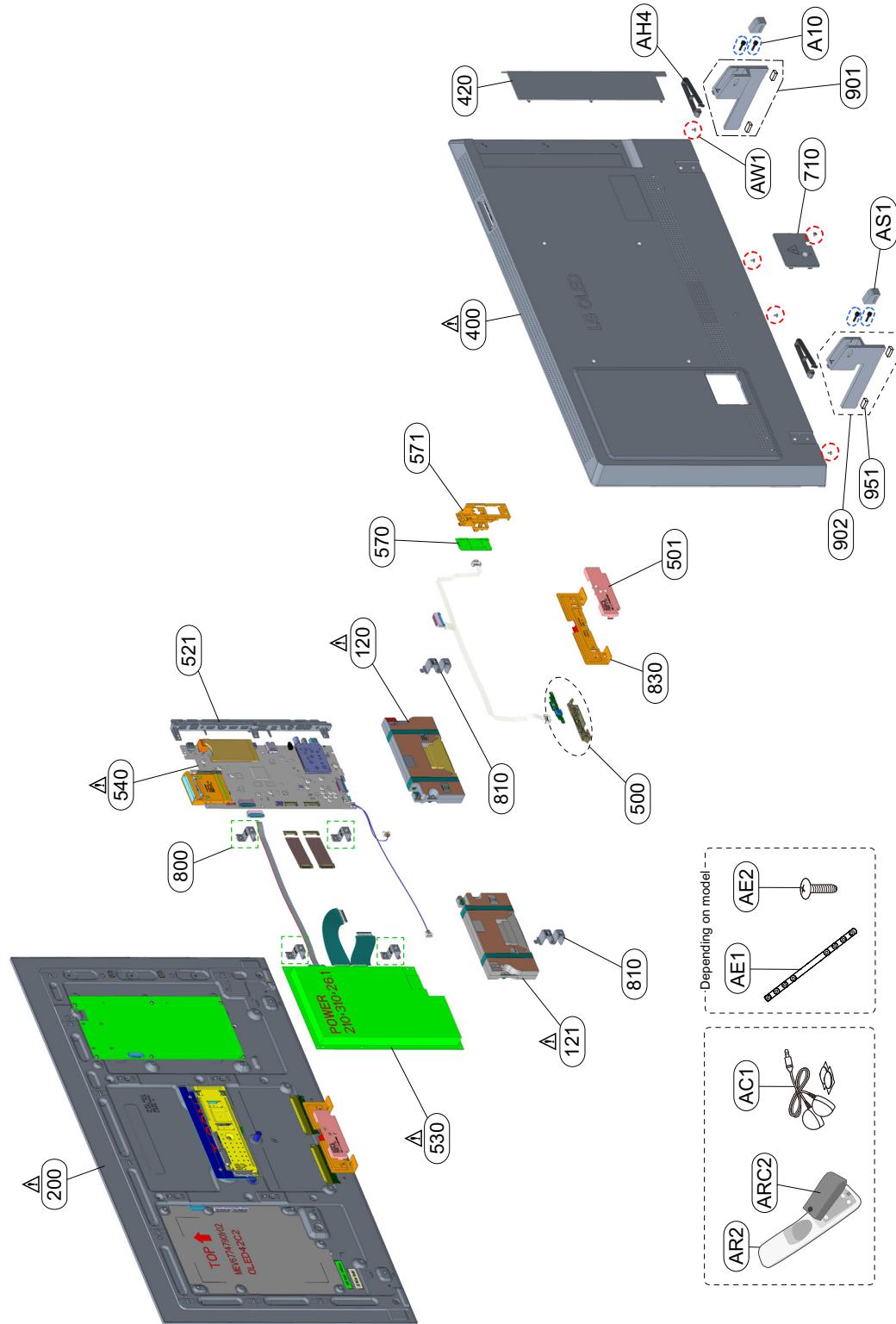
BLOCK DIAGRAM



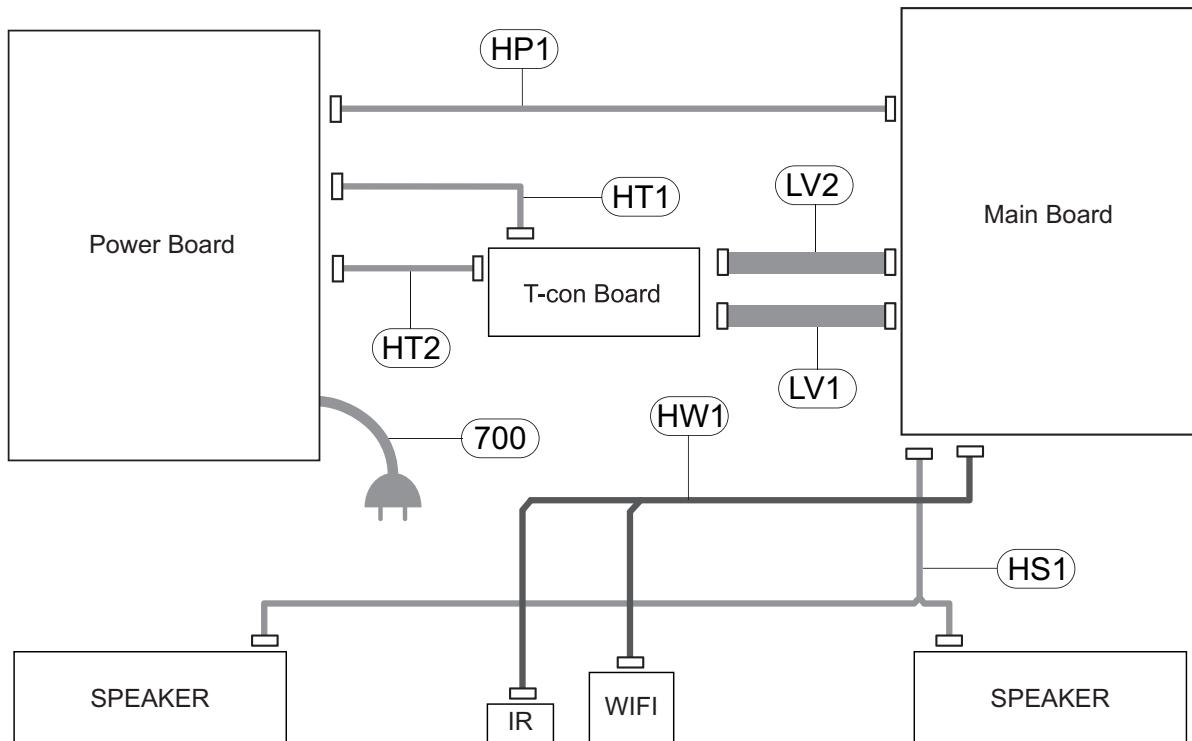
EXPLODED VIEW

IMPORTANT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These parts are identified by \triangle in the 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.



WIRING DIAGRAM



(HP1)



(LV1) (LV2)



(HS1)



(HT1)



(HW1)



(HT2)



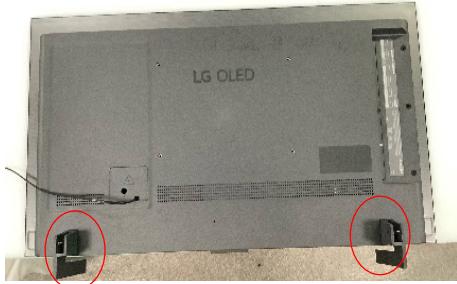
ASSEMBLY / DISASSEMBLY GUIDE

1. Rear Cover Disassembly Guide

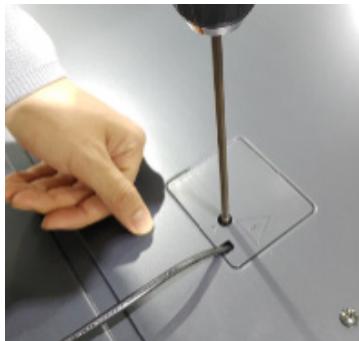
(1) Pre-Work : Stand , Power Cord Cover Disassembly

1) Stand Disassemble

* Remove 2 Screws at each stand

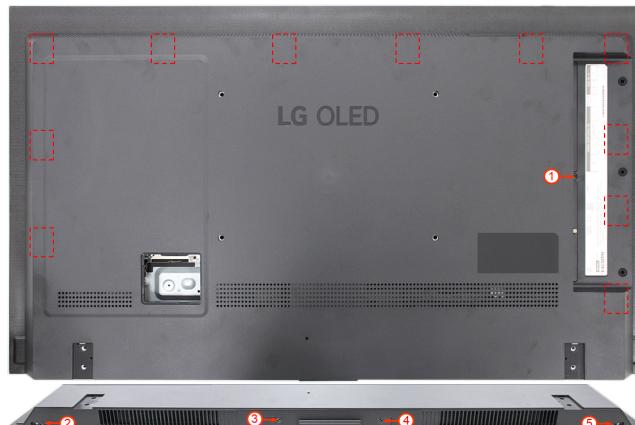


2) Power Cord Cover Disassemble Remove 1 screw and Separate POWER Cord



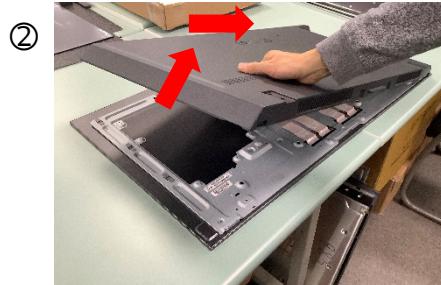
(2) Firstly, remove 5 Screws and Follow Guide to separate rear cover from set,

- 1) Grab the Edge of Hole where the Power Cord Bracket places.
- 2) Pull the Rear Cover from your left to the right until the Rear cover separate from Module.



① Screw : 5ea

② Latch: 11ea



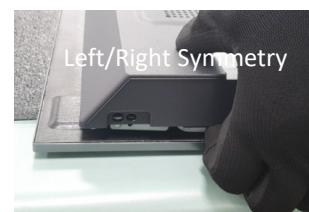
* Reference (when it's difficult to disassemble back cover)



Push up IR position to upward



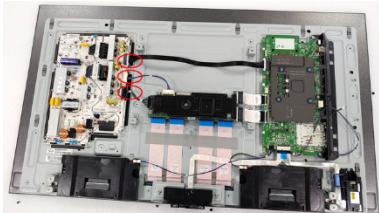
Disassemble B/C with separating fixed shapes in the left/right bottom



(3) Remove the internal power supply.

- You can remove the internal power supply after removing back cover and stand

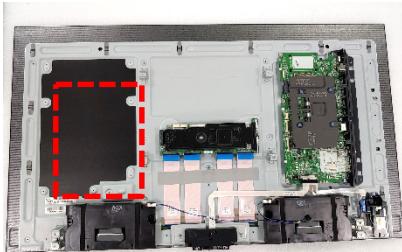
- 1) Remove 3 connectors to remove internal power supply. (with snap fit)



- 2) Remove 7 screws around internal power supply.(Using the same Screw driver with "+" tip. As before)

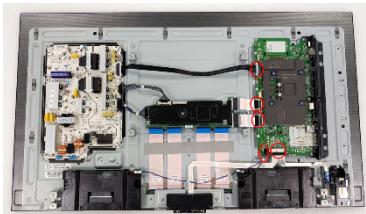


- 3) Remove the internal power supply.



(4) Remove the main PCB.

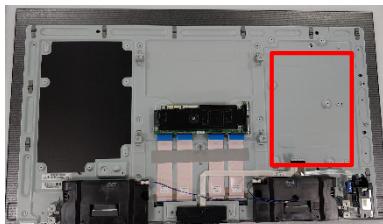
- 1) Remove 5 connectors to remove the main PCB. (with snap fit)



- 2) Remove 6 screws around the main PCB.(Using the same Screw driver with "+" tip. As before)



3) Remove the main PCB.



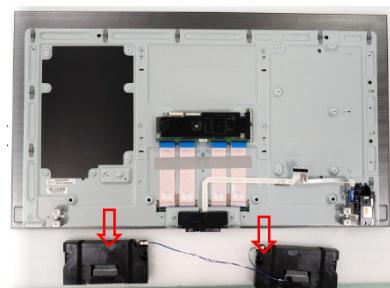
(5) Remove the speaker, Supporter, EMI sponge

- You can remove the display module after removing B/C, stand, power PCB, main PCB, speaker, WIFI-BT module, IR module, Bottom B/C, Supporter and EMI sponge.

1) Remove screws and separate the VESA supporter(4ea) .(Using the same Screw driver with "+" tip. As before)



2) Remove the 2 speaker units.(Connectors are already pulled-out when we remove the main PCB, so we can remove them at once without any connectors.)

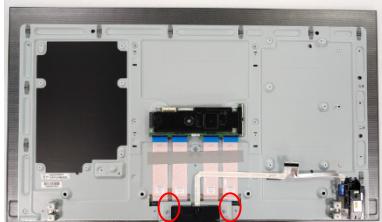


3) Remove 1 screw and remove the stand supporter.
(Using the same Screw driver with "+" tip. As before)

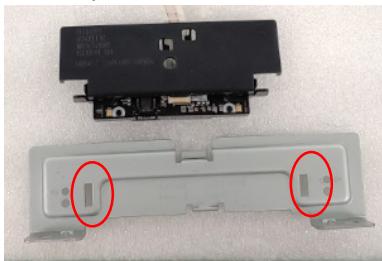


(6) Remove WIFI-BT module, IR module

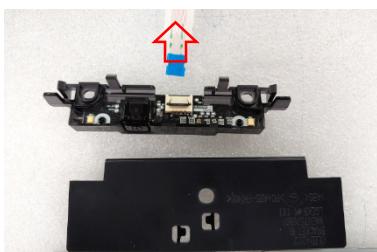
- 1) Remove screws to separate the IR Module Sub-set.(Using the same Screw driver with "+" tip. As before)



- 2) Separate IR module from IR Bracket by loosen the snap fit.



- 3) Remove the cable from the IR Module.

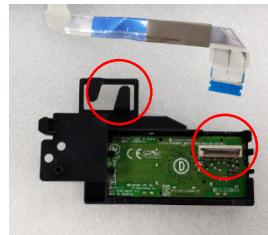


- 4) Remove screws to separate the WiFi Module Subset.(Using the same Screw driver with "+" tip. As before)



- 5) Remove the cable from the WiFi Module.

*Precaution : Separate Cable from WiFi Bracket by loosen the snap fit.

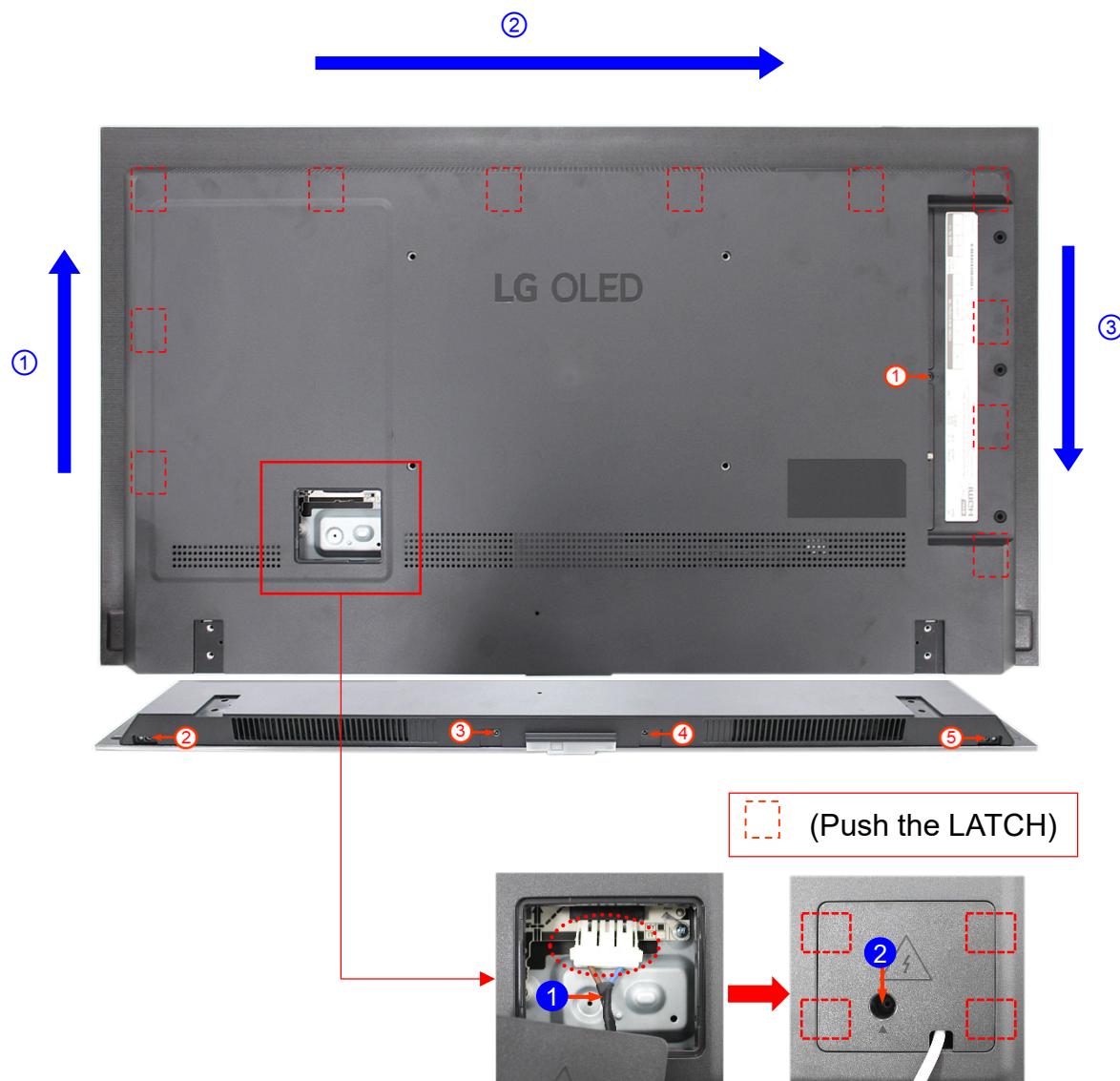


- 6) Disassemble complete as shown Picture.



2. Back Cover Assembly Guide

- (1) Place the B/C on top of the module and assemble the Latch position by hand.
(Rub softly in the direction of arrow.) ①→②→③
- (2) Check the gap of upper/left/right sides of the latch for proper assembly.
→ When assembling a latch, it makes clicking sound and if the latch is not assembled, it is easily recognized by the back cover is opened.
- (3) Screw ①, ②, ③, ④, ⑤
- (4) POWER Cord Cover assembly
 - ① Insert POWER Cord.
 - ② Push Latches and Screw.



TROUBLE SHOOTING GUIDE

Contents of Standard Repair Process

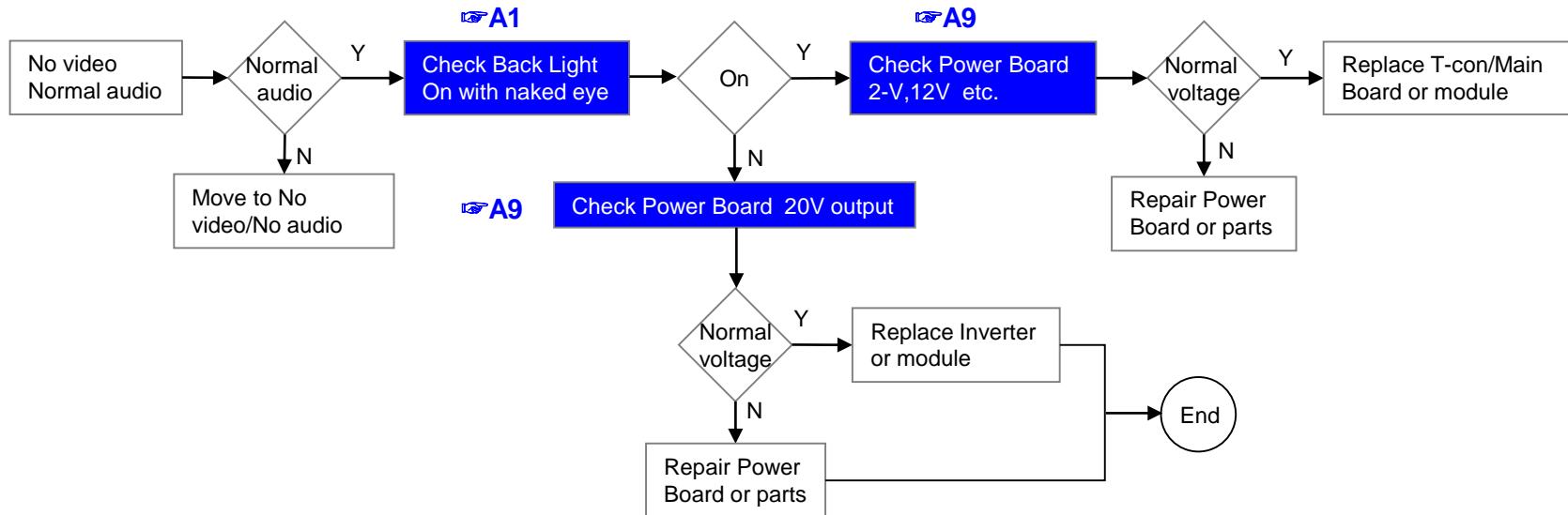
No.	Error symptom (High category)	Error symptom (Mid category)	Page	Remarks
1	A. Video error	No video/Normal audio	1	
2		No video/No audio	2	
3		Picture broken/ Freezing	3	
4		Color error	4	
5		Vertical/Horizontal bar, residual image, light spot, external device color error	5	
6	B. Power error	No power	6	
7		Off when on, off while viewing, power auto on/off	7	
8		Off when on, off while viewing, power auto on/off	8	
9	C. Audio error	No audio/Normal video	9	
10		Wrecked audio/discontinuation/noise	10	
11	D. Function error	Remote control & Local switch checking	11	
12		MR23 operating checking	12	
13		Wifi operating checking	13	
14		External device recognition error	14	
15	E. Noise	Circuit noise, mechanical noise	15	
16	F. Exterior error	Exterior defect	16	

First of all, Check whether there is SVC Bulletin in GSCS System for these model.

Standard Repair Process

Error symptom	A. Video error	Established date		
	No video/ Normal audio	Revised date		

First of all, Check whether all of cables between board is inserted properly or not.
(Main B/D↔ Power B/D, LVDS or EPI Cable, Speaker Cable, IR B/D Cable,,)



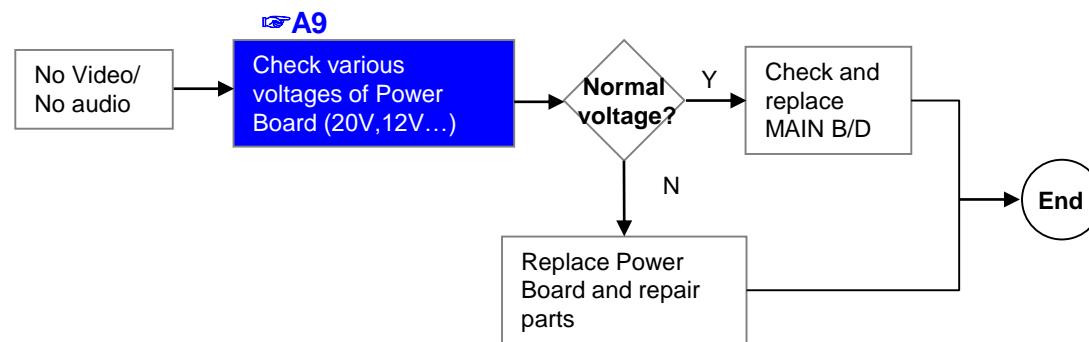
※Precaution A4 & A2

Always check & record S/W Version and White Balance value before replacing the Main Board



Standard Repair Process

Error symptom	A. Video error	Established date		
	No video/ No audio	Revised date		



Standard Repair Process

	Error symptom	A. Video error	Established date		
		Picture broken/ Freezing	Revised date		

☞ A3

Check RF Signal level

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

Normal Signal?
Y

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

N

Check RF Cable Connection
1. Reconnection
2. Install Booster

Normal Picture?
Y

☞ A4
Check S/W Version

N

Normal Picture?
N

Contact with signal distributor or broadcaster (Cable or Air)

Y

3

Close

SVC Bulletin?
N

S/W Upgrade

Normal Picture?
Y

Close

Check Tuner soldering
Y

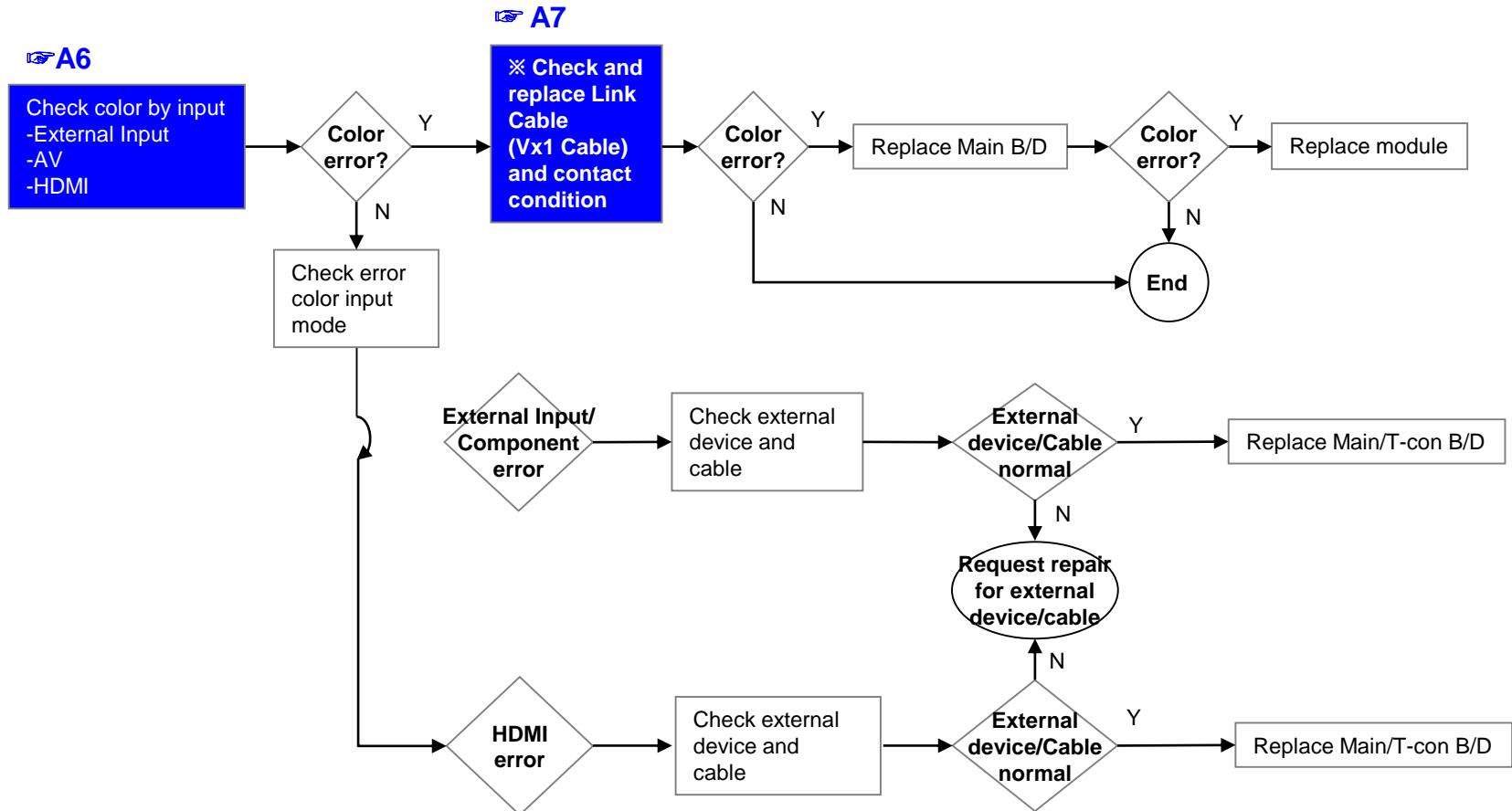
Close

N

Replace Main B/D

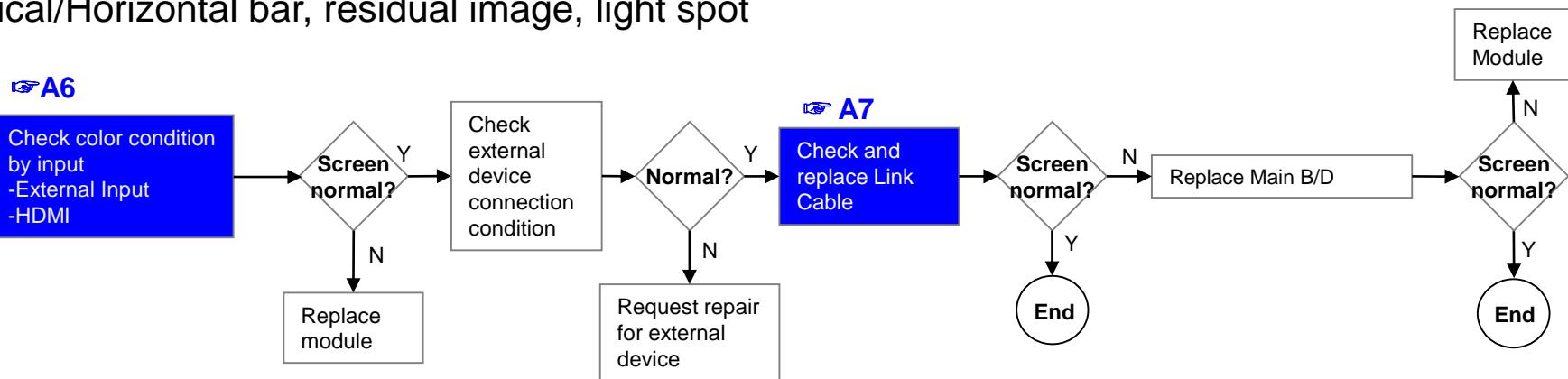
Standard Repair Process

	Error symptom	A. Video error	Established date		
		Color error	Revised date		

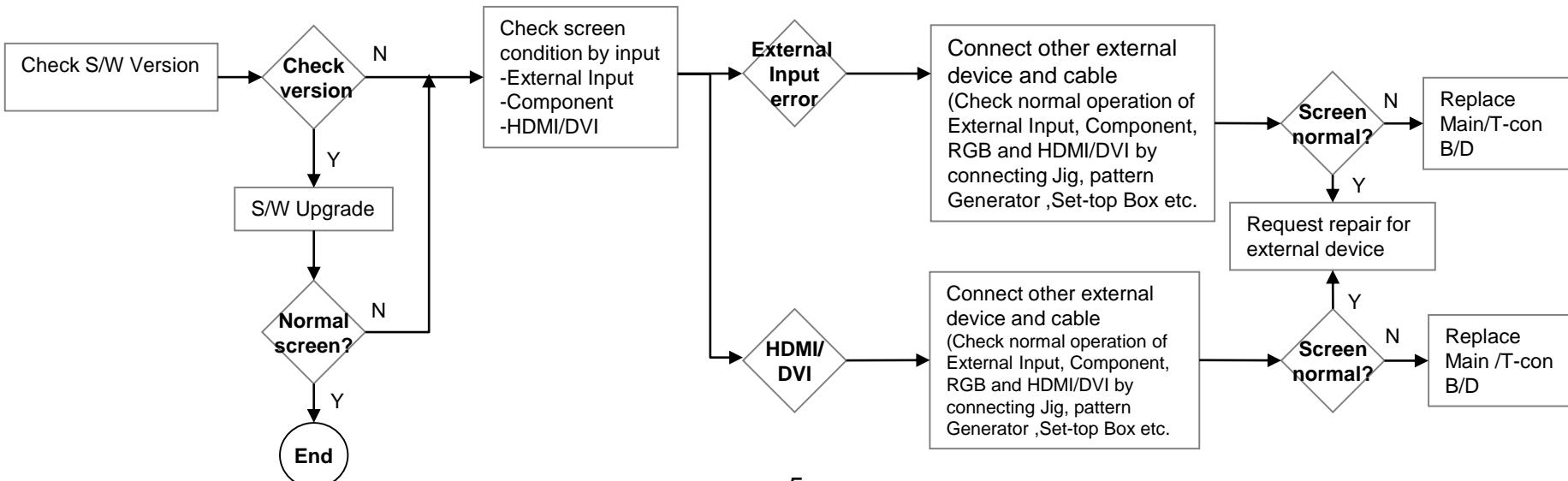


	Error symptom	A. Video error	Established date		
		Vertical / Horizontal bar, residual image, light spot, external device color error	Revised date		

Vertical/Horizontal bar, residual image, light spot

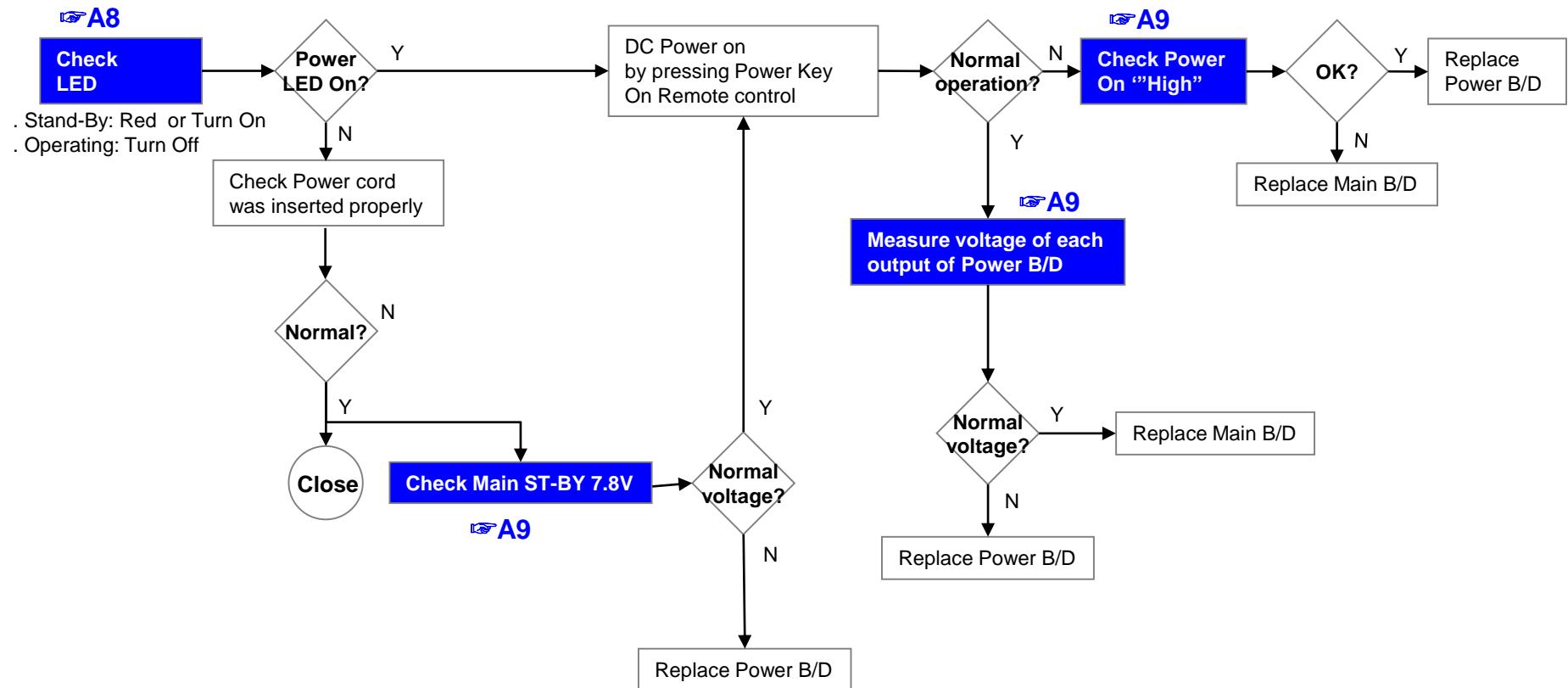


External device screen error-Color error



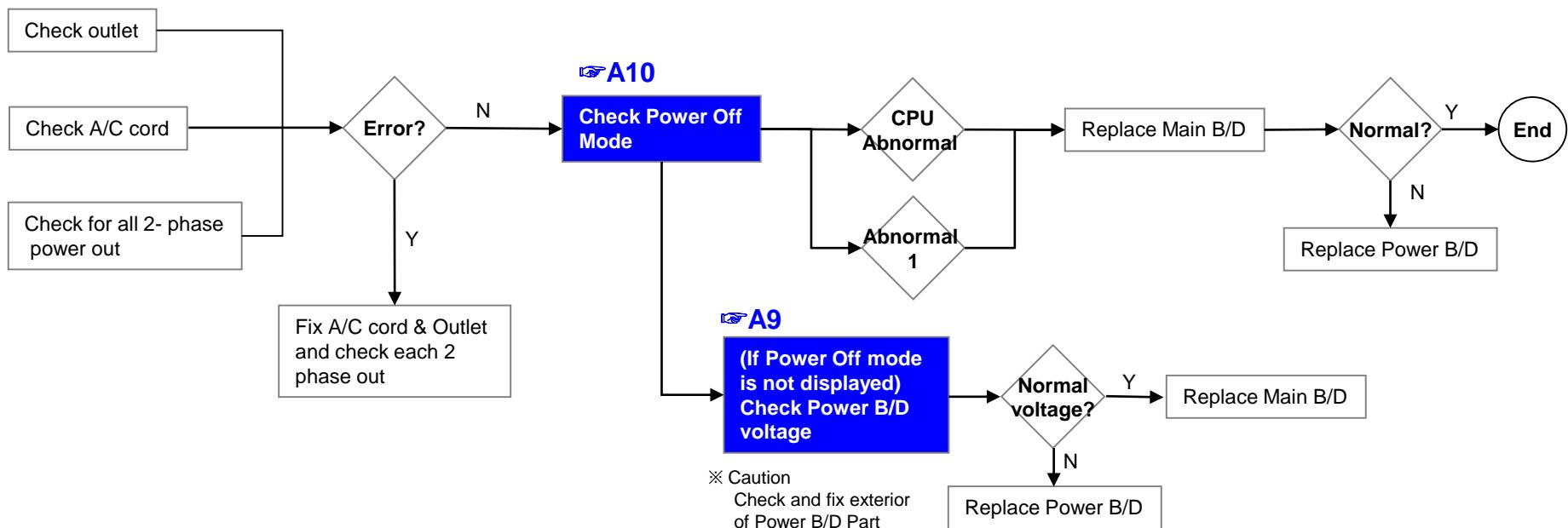
Standard Repair Process

Error symptom	B. Power error	Established date		
	No power	Revised date		



Standard Repair Process

	Error symptom	B. Power error	Established date		
		Off when on, off while viewing, power auto on/off	Revised date		



Standard Repair Process

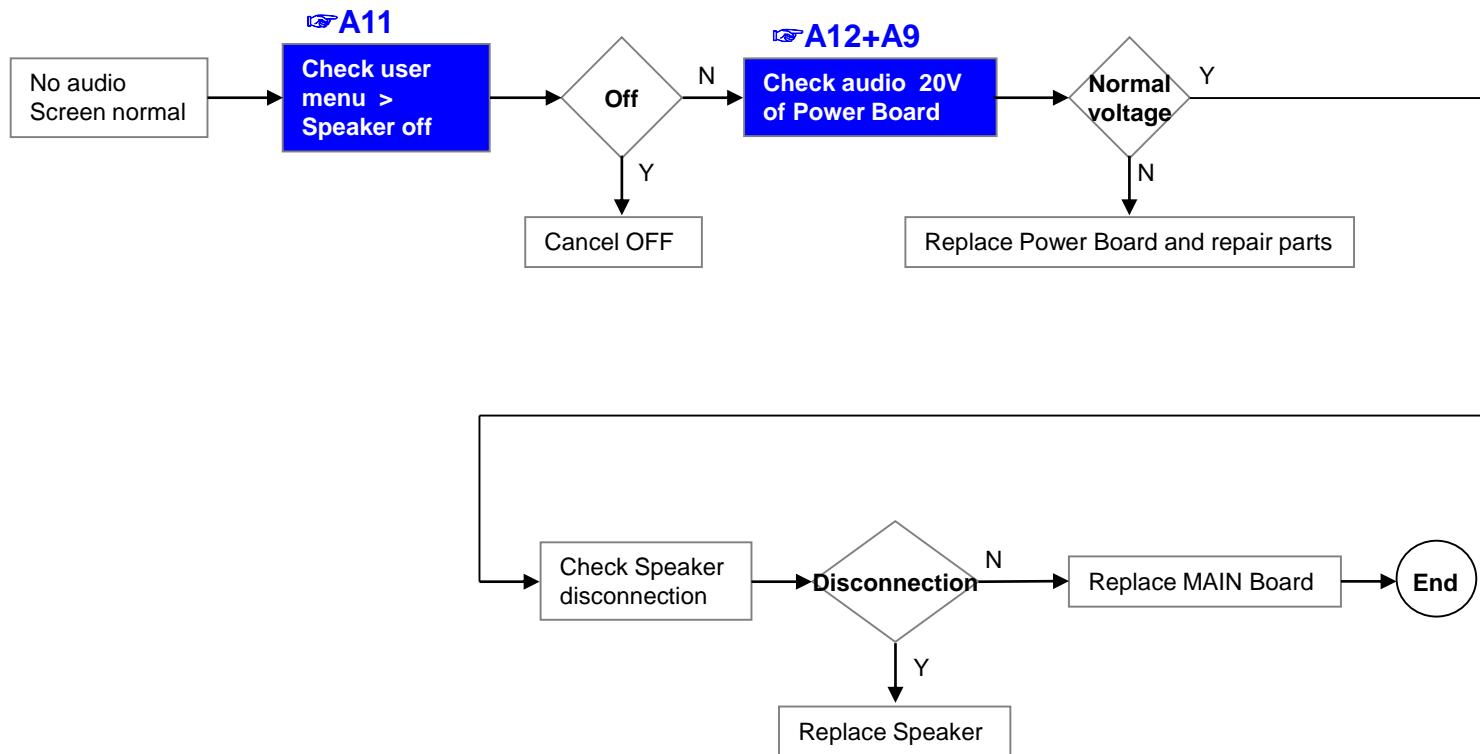
	Error symptom	B. Power error	Established date		
		Off when on, off while viewing, power auto on/off	Revised date		

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

Power off history	contents	Explanation	Action contents
00 ~ 0F	Normal Status	Normal Power On/Off (ex. Remote_Key, Local_Key Etc)	Normal Code
10 ~ 1F	Check Power	Need to check the Power condition (ex. AC_DET)	Check the Power & Power B/D
20 ~ 2F	External device /Network	Control by External device /Network (ex. HDMI CEC, WiFi/Lan/BT)	Normal Code – Check the Settop Box CEC - HDMI Setting > Check the Simplelink Menu - Check the "TV On With Mobile" Menu
30 ~ 3F	User Scene	Power on/off by User Scene (ex. Timer On/Off , No Signal Off)	Normal Code - Check the "Power On(Off) Timer" Menu - Check the Input Signal (No Signal >auto power off after 15min)
40 ~ 4F	App/CP	App Button by Remote (ex. Netflix, Disney)	Normal Code
50 ~ 5F	SW Update	S/Ware Update	Normal Code
60 ~ 6F	System Error	System Abnormal(Need to check Main & SW)	Need to Check SW version(Last version) & Main B/D
70 ~ 7F	AR/AOD	AR Mode, AOD Mode	Normal Code
80 ~ 8F	WOW	Power on by Voice	Normal Code – Check the Voice Recognition Settings
90 ~ 9F	Special Country	Special Country only (ex. Satellite, Disaster)	N/A
B0 ~ BF	OLED(BDP)	OLED Models only - Panel	Check the OLED Module (BDP)
C0 ~ CF	OLED(Pixel)	OLED Models only - Pixel Cleaning	Check the OLED Module (Without BDP)
D0 ~ D5	OLED(Etc)	OLED Models only (ex. Fan, FPC Cable)	Check the FFC Cable (T-con to Main) Check the Fan & Heat Plate
L0 ~ LF	Life Style Model	Life Style Model only	N/A
R0 ~ RF	A+	Rollabe only	N/A
M0 ~ MF	Wireless Model	Wireless Model only	N/A
F0 ~ FF	Factory/SVC	Factory /SVC (ex. in-stop, Power Only, etc)	Normal Code - N/A
XX	Reserved		Normal Code

Standard Repair Process

	Error symptom	C. Audio error	Established date		
		No audio/ Normal video	Revised date		



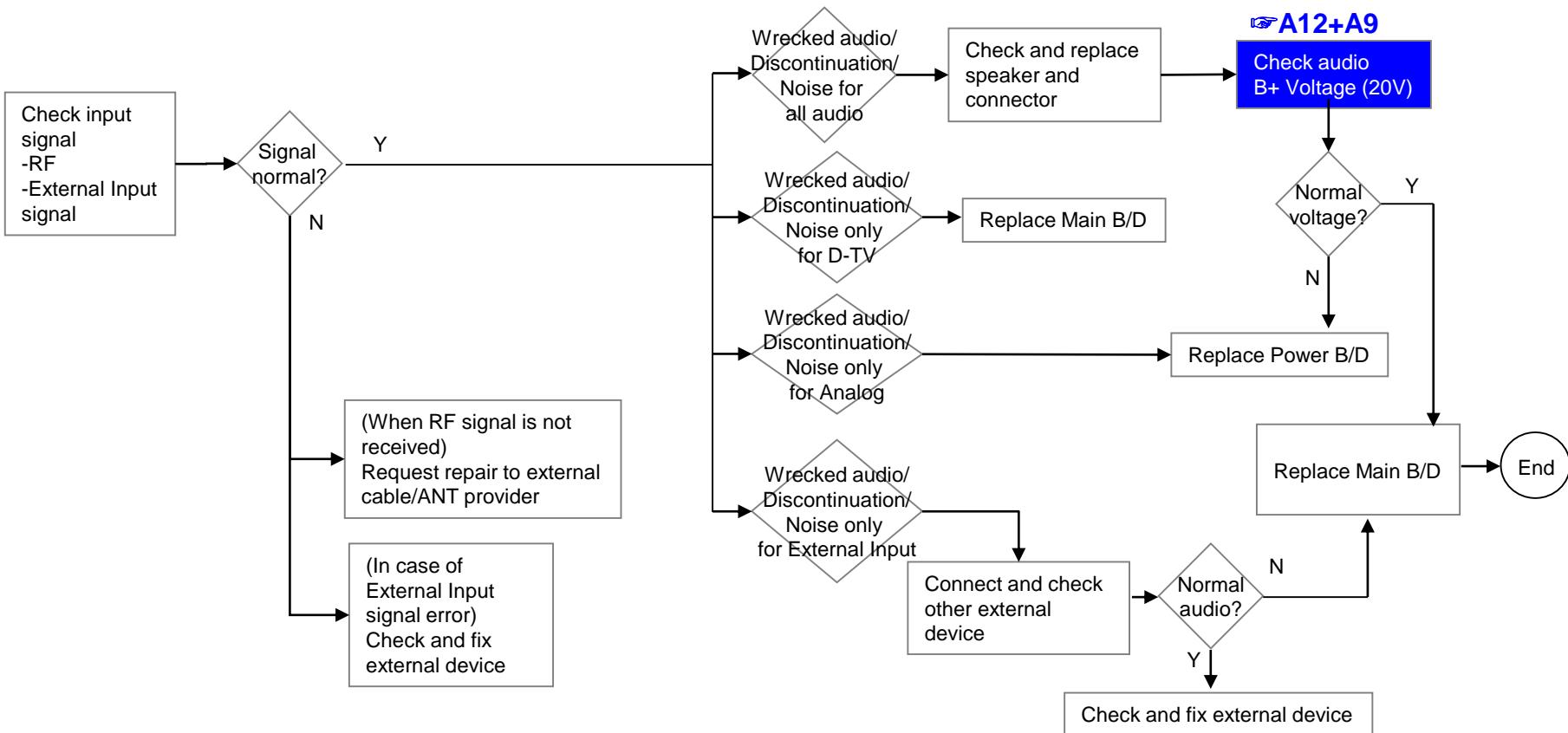
Error
symptom**C. Audio error**

Wrecked audio/ discontinuation/noise

Established
date

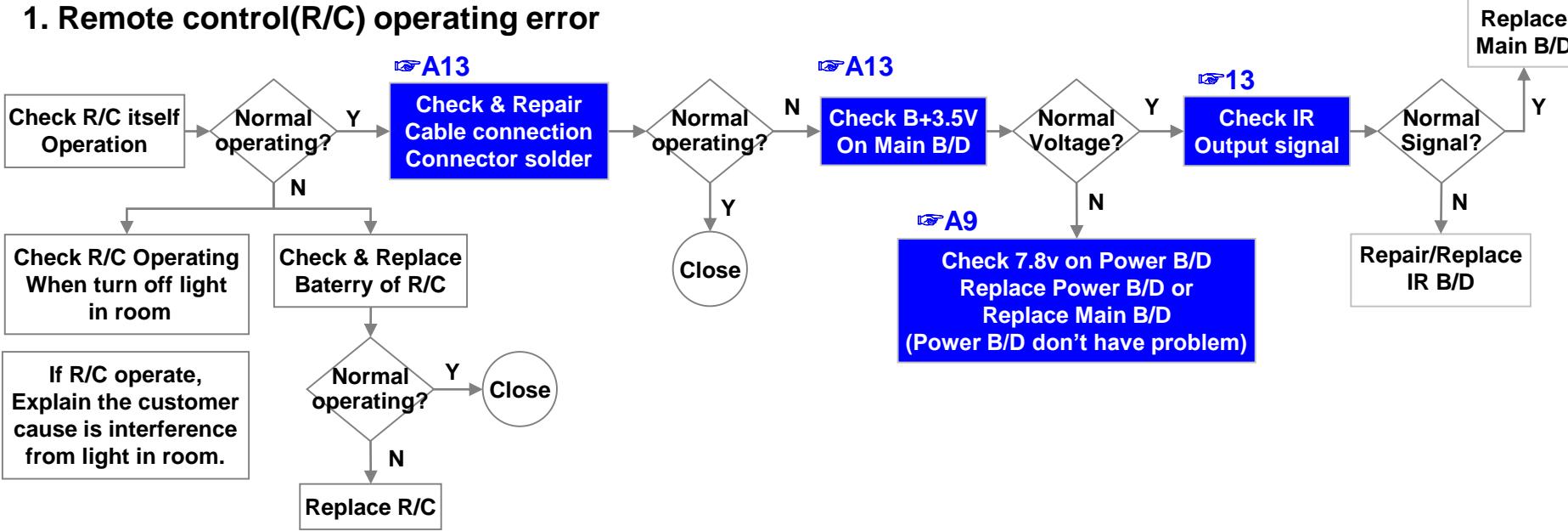
Revised date

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



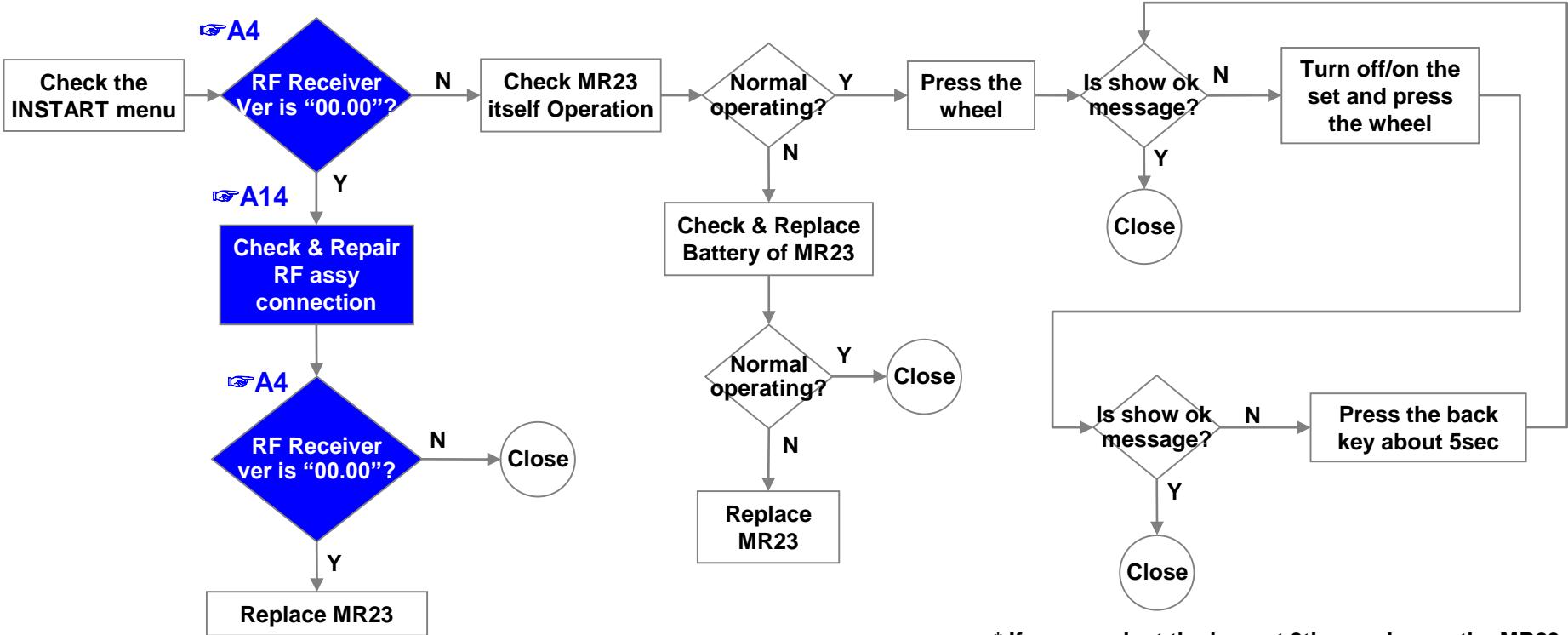
	Error symptom	D. Function error	Established date	
		Remote control & Local switch checking	Revised date	

1. Remote control(R/C) operating error



	Error symptom	D. Function error	Established date		
		Magic remote operating checking	Revised date		

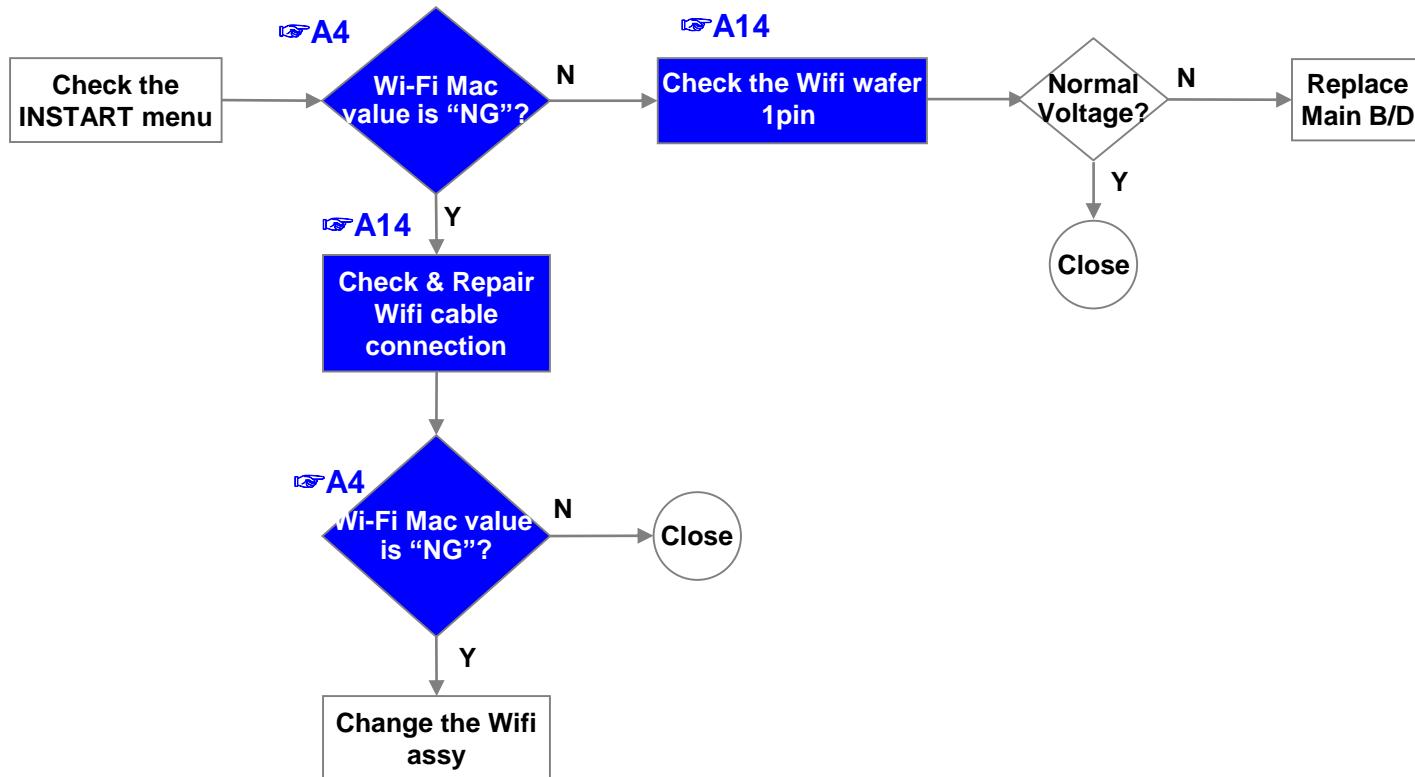
2. MR23(Magic Remote control) operating error



* If you conduct the loop at 3times, change the MR23.

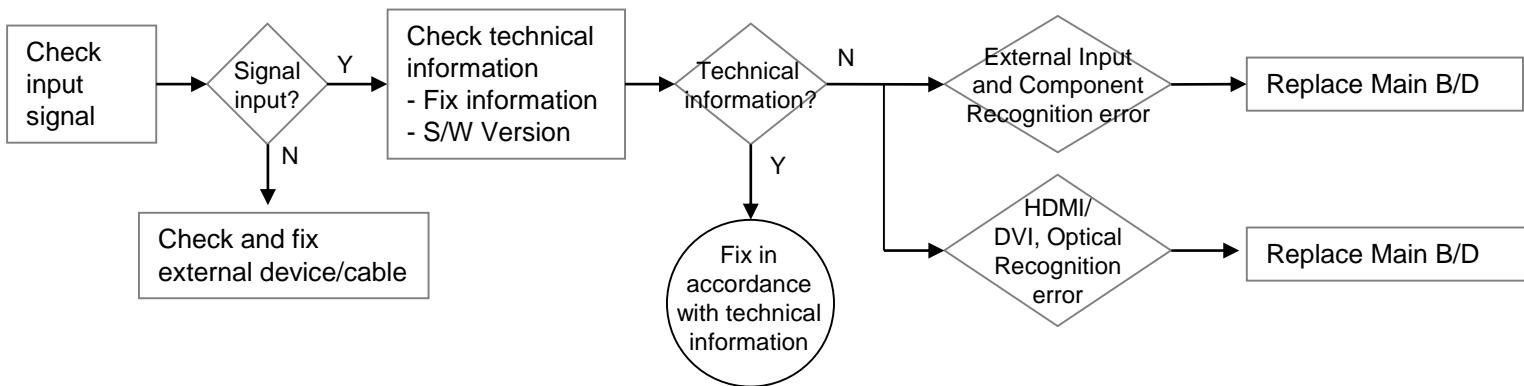
	Error symptom	D. Function error	Established date		
		Wifi operating checking	Revised date		

3.Wifi operating error

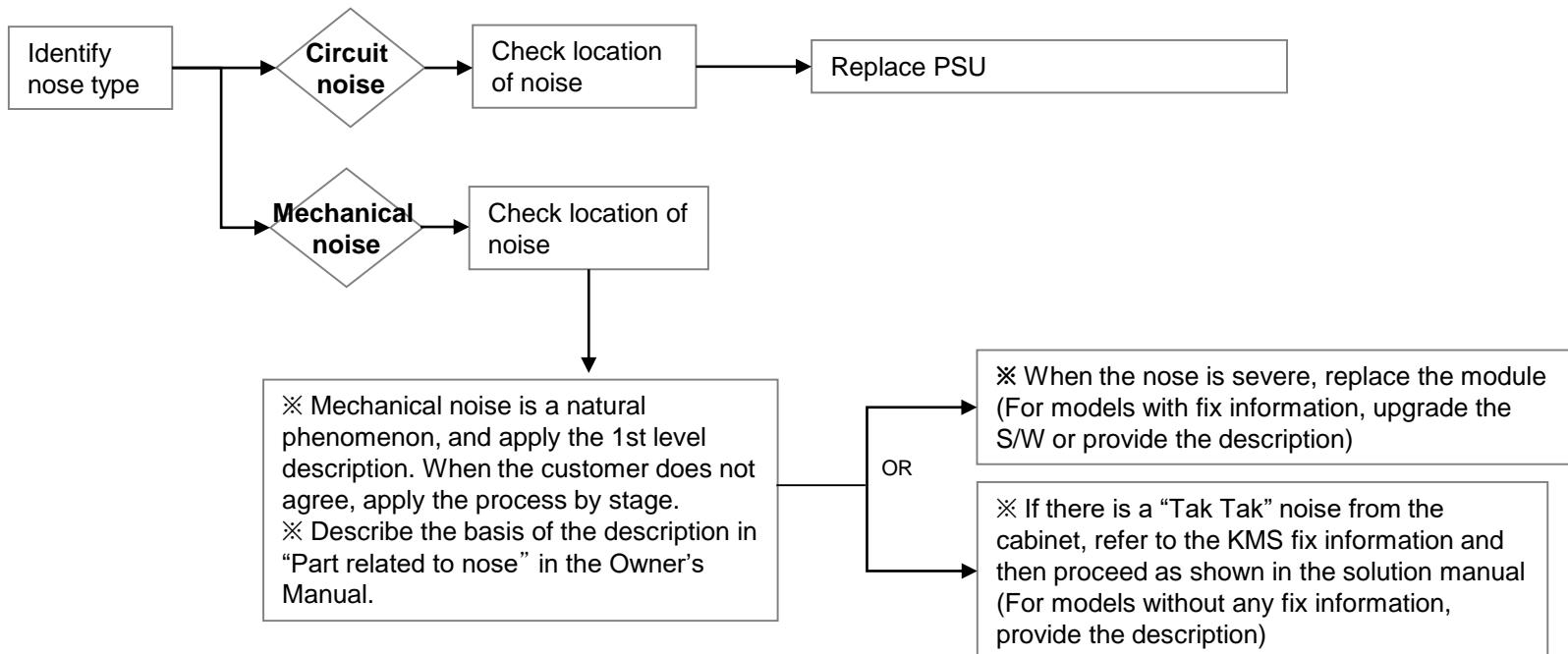


Standard Repair Process

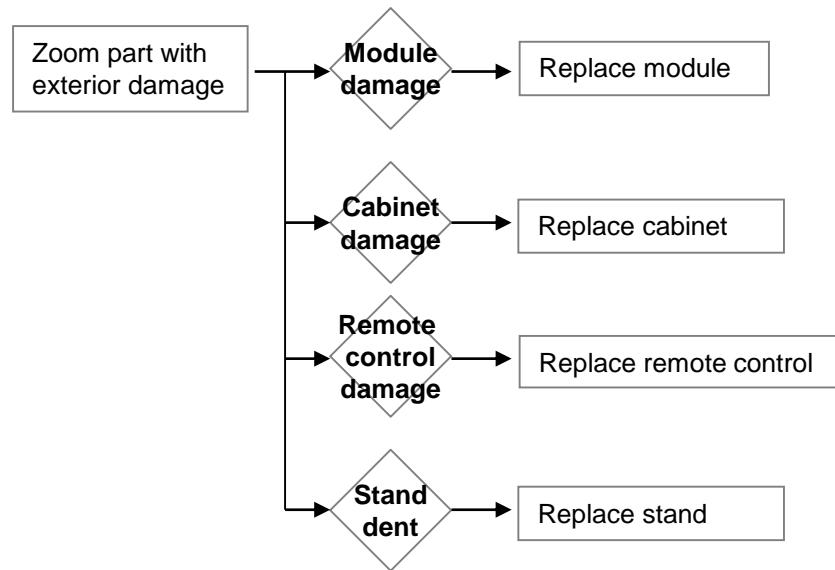
Error symptom	D. Function error	Established date		
	External device recognition error	Revised date		



	Error symptom	E. Noise	Established date		
		Circuit noise, mechanical noise	Revised date		



	Error symptom	F. Exterior defect	Established date		
		Exterior defect	Revised date		



Contents of Standard Repair Process Detail Technical Manual

No.	Error symptom	Content	Page	Remarks
1	A. Video error_ No video/Normal audio	Check Vx1 lock	A1	
2	A. Video error_ video error /Video lag/stop	TUNER input signal strength checking method	A3	
3		Version checking method	A4	
4		Tuner Checking Part	A5	
5	A. Video error _Vertical/Horizontal bar, residual image, light spot	Connection diagram	A6	
6	A. Video error_ Color error	Check Link Cable (Vx1/EPI) reconnection condition	A7	
7	<Appendix> Defected Type caused by T-Con/ Inverter/ Module	Check Cable (1) ~ (2)	A-1/11 A-2/11	
		Exchange Main Board (1) ~ (3)	A-3/11 ~ A-5/11	
		Exchange Module (1) ~ (3)	A-6/11 ~ A-8/11	
		Exchange T-Con (1) ~ (2)	A-9/11 ~ A-10/11	
		Exchange Power Board(PSU)	A-11/11	

Continue to the next page

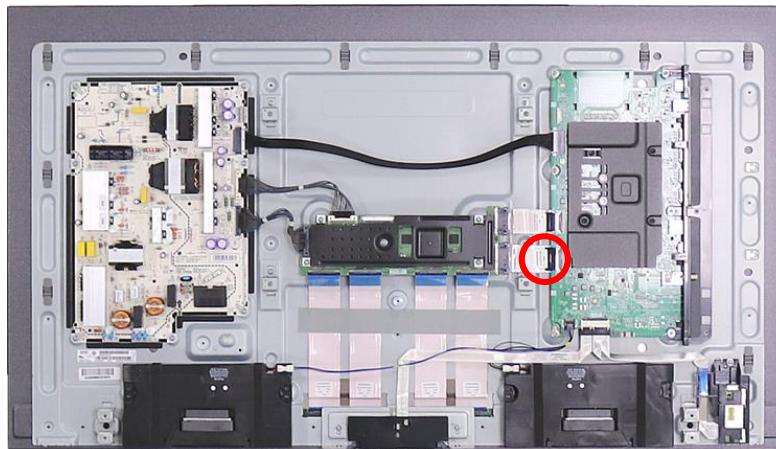
Contents of Standard Repair Process Detail Technical Manual

Continued from previous page

No.	Error symptom	Content	Page	Remarks
8	B. Power error_ No power	Check front display LED	A8	
9		Check power input Voltage & Main ST-BY 3.5V	A9	
10	B. Power error_Off (when on/off, while viewing)	POWER OFF MODE checking method	A10	
11	C. Audio error_ No audio/Normal video	Checking method in menu when there is no audio	A11	
12		Voltage and speaker checking method when there is no audio	A12	
13	D. Function error	Remote control operation checking method	A13	
14		Motion Remote operation checking method	A14	
15	E. Etc	How to use the Service remote control	A15-A17	
16		Check items after Main B/D replacement	A18	

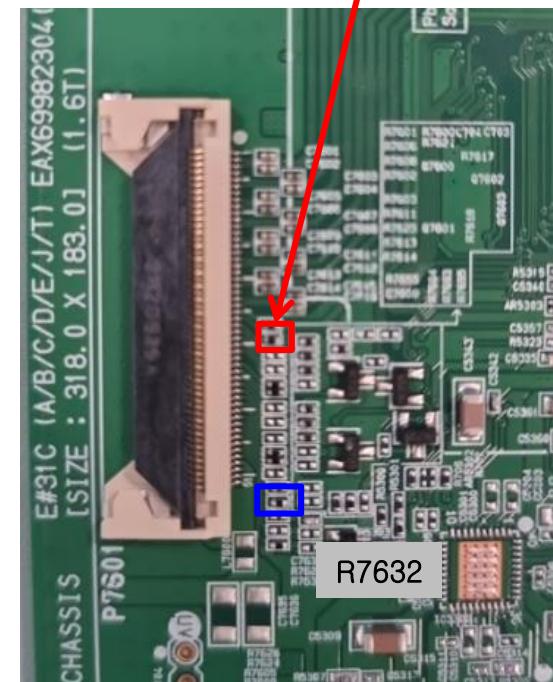
Standard Repair Process Detail Technical Manual

	Error symptom	A. Video error _No video/Normal audio	Established date		
	Content	Check Vx1 lock	Revised date		A1



Check a voltage of R7624 (Red) after turn on the TV.
If the voltage is low, Vx1 is locked.(OK)

R7624: TV On -> Low(0V), Vx1 : OK

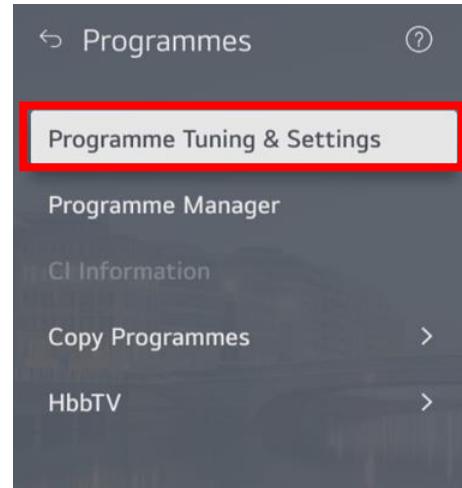
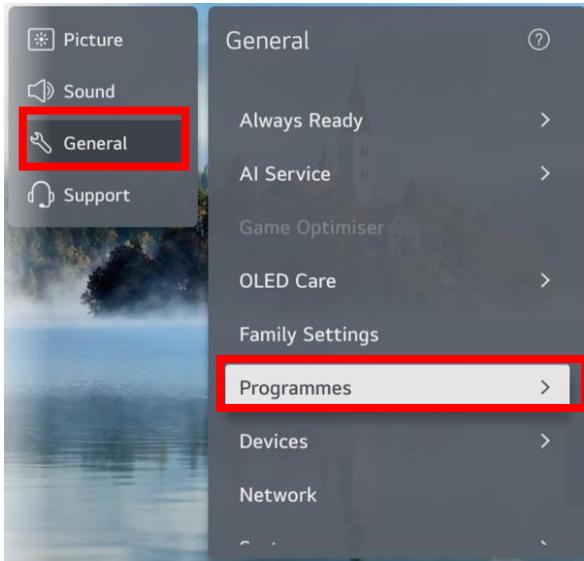


※ Reference: Burnt Detect Measurement Point
Check the voltage of R7632 (Blue) while turning on TV power
Low (0V) : Normal, High (3.3V) : Burnt Detect

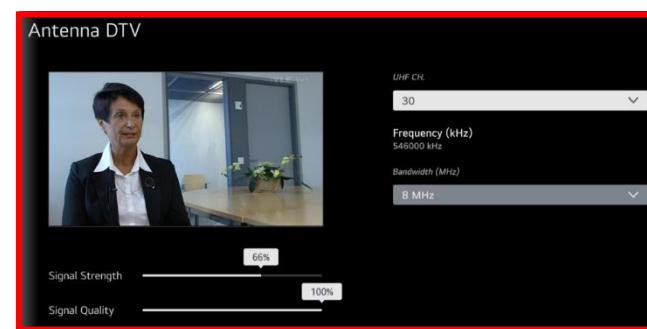
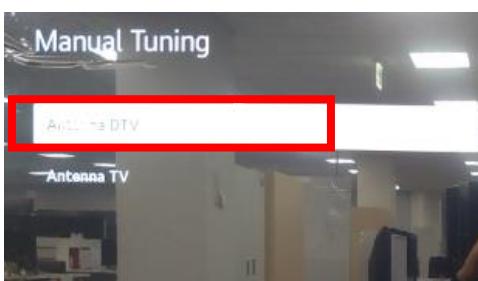
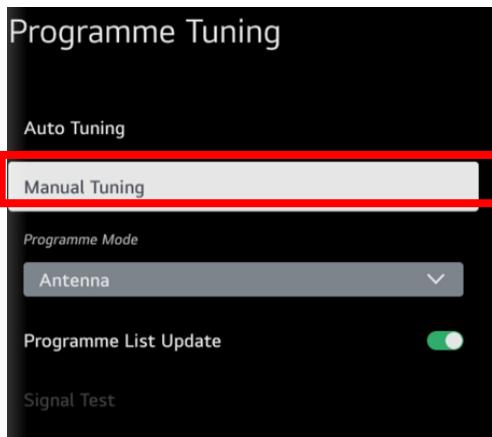
A1

Standard Repair Process Detail Technical Manual

	Error symptom	A. Video error_Video error, video lag/stop	Established date		
	Content	TUNER input signal strength checking method	Revised date		A3



All settings → General → Programmes
→ Programme Tuning & settings →
Manual Tuning



When the signal is strong,
use the attenuator
(-10dB, -15dB, -20dB etc.)

A3



Standard Repair Process Detail Technical Manual

	Error symptom	A. Video error_Video error, video lag/stop	Established date		
	Content	Version checking method	Revised date		A4

1. Checking method for remote control for adjustment

Version

TV Information		HDMI Information	Power On/Off Status		
Model Name :	OLED55G36LA		1. 13(0)	21. F2(0)	41. 01(0)
Serial Number :	136KCIVGK1E32		2. 11(N/A)	22. F3(0)	42. F1(0)
S/W Version :	03.00.19.01		3. 01(0)	23. 13(0)	43. F2(2)
Micom Version :	V3.03.1		4. F1(0)	24. 11(N/A)	44. F3(2)
WIFI Channel/Speed :	N/A/USB 2.0		5. 13(0)	25. 13(0)	45. 13(2)
MAC Address :	AC:5A:F0:8B:D0:AC		6. 11(N/A)	26. 11(N/A)	46. 11(N/A)
RF Receiver Version :	15:28:22:09		7. 03(0)	27. 3H(0)	47. 13(0)
T-Con FW Version :	C.07.01.07.0		8. CF(0)	28. 3J(0)	48. 11(N/A)
UTT :	0		9. 0F(0)	29. 3H(0)	49. 13(0)
OffRS/JB(C,T) :	(0,0)/(0,0)		10. 02(0)	30. 3J(0)	50. 11(N/A)
Country Group :	EU		11. 13(0)	31. 01(0)	51. 01(0)
ToolOPT1_Product :	2187470		12. 11(N/A)	32. 0F(0)	52. F1(0)
ToolOPT2_Power :	1310739		13. 3H(0)	33. 02(0)	53. F2(0)
ToolOPT3_PQ/Sound :	1706450		14. 3J(0)	34. 13(0)	54. 59(0)
ToolOPT4_Etc :	84033		15. 3H(0)	35. 11(N/A)	55. F2(0)
ToolOPT5_JackID/Key :	108717619		16. 3J(0)	36. 13(0)	56. F3(0)
ToolOPT6_Energy/Country :	1913837067		17. 01(0)	37. 11(N/A)	57. 13(0)
		Not Programmed	OK		
		EDID	HDMI1	OK(0x6E,0xA1)	
			HDMI2	OK(0x6E,0x91)	
			HDMI3	OK(0x6E,0x81)	
			HDMI4	OK(0x6E,0x71)	



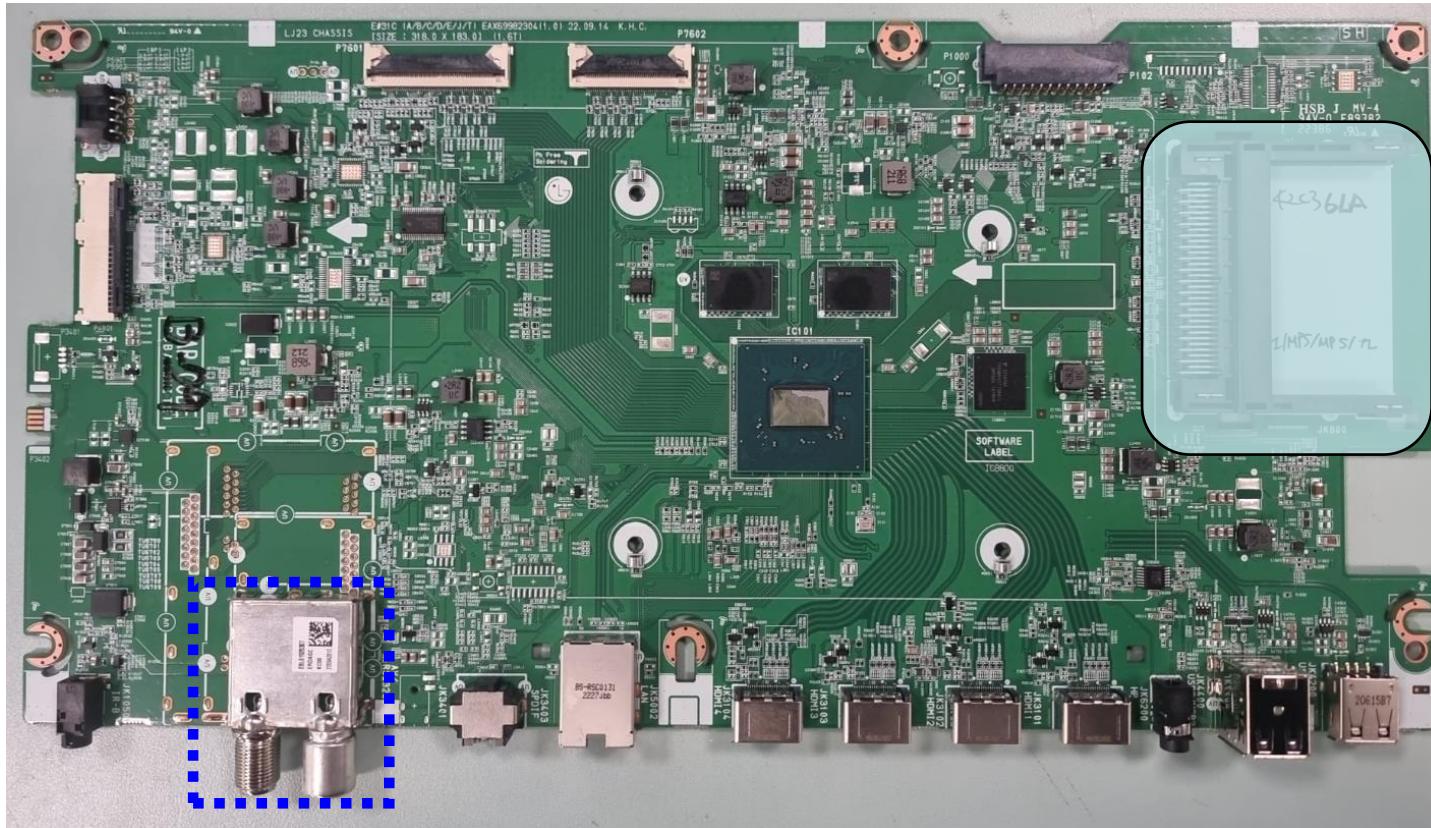
Press the IN-START with the remote control for adjustment

A4



Standard Repair Process Detail Technical Manual

Error symptom	A. Video error_Video error, video lag/stop	Established date		
Content	TUNER checking part	Revised date		A5



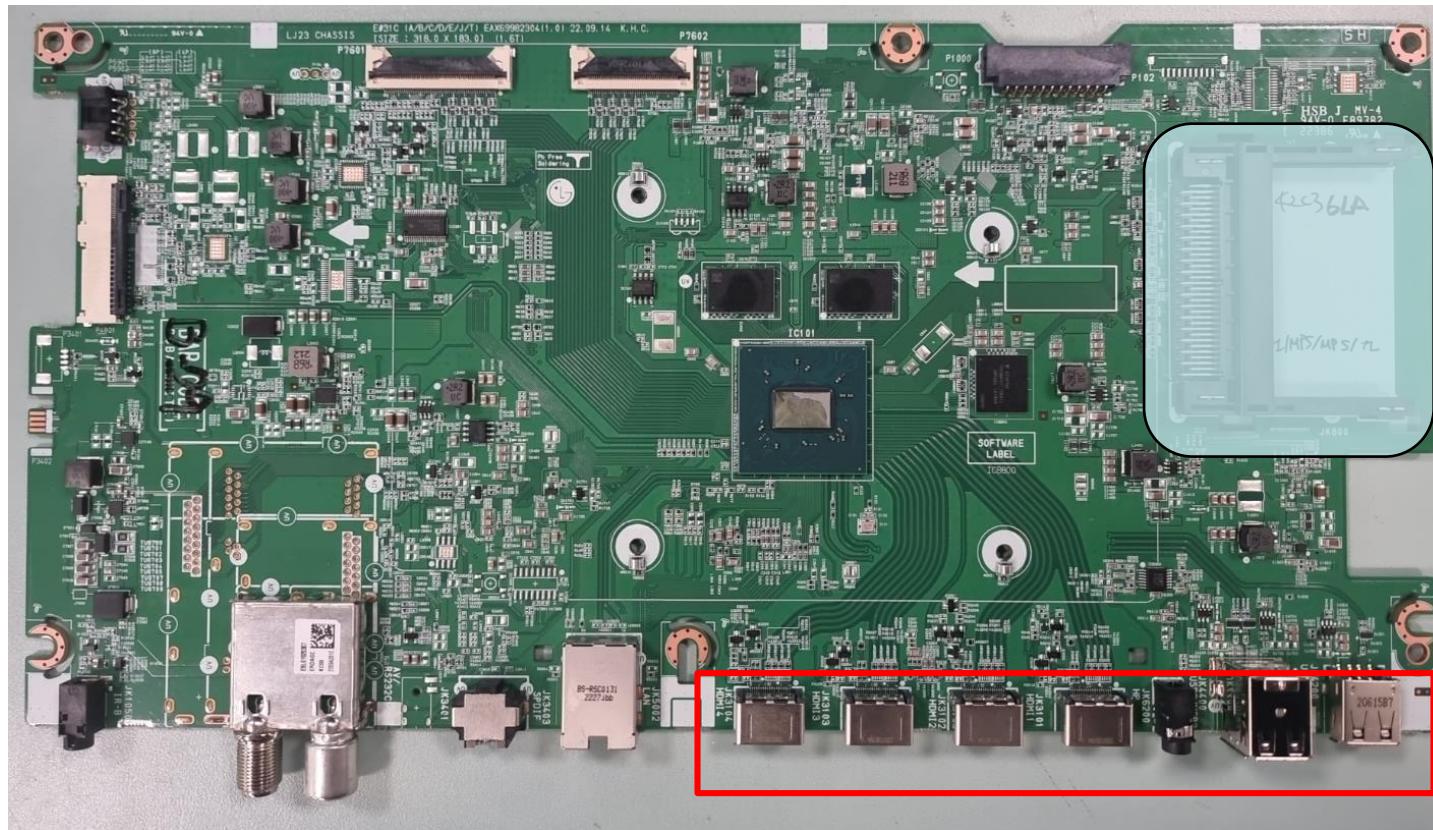
Checking method:

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.

A5

Standard Repair Process Detail Technical Manual

	Error symptom	A. Video error _Vertical/Horizontal bar, residual image, light spot	Established date		
	Content	connection diagram	Revised date		A6



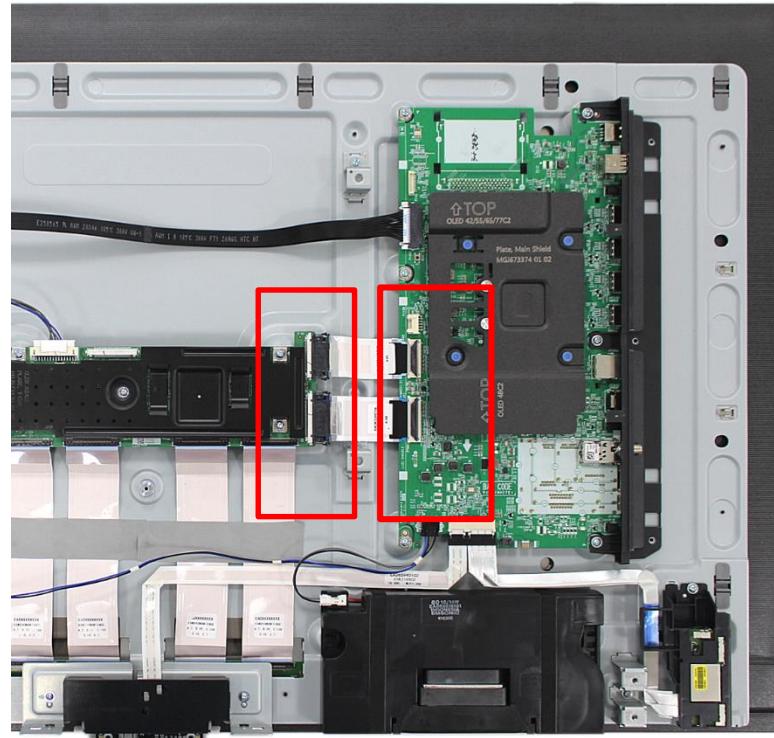
As the part connecting to the external input, check the screen condition by signal

A6



Standard Repair Process Detail Technical Manual

	Error symptom	A. Video error_Color error	Established date		
	Content	Check Link Cable(VX1) reconnection condition	Revised date		A7



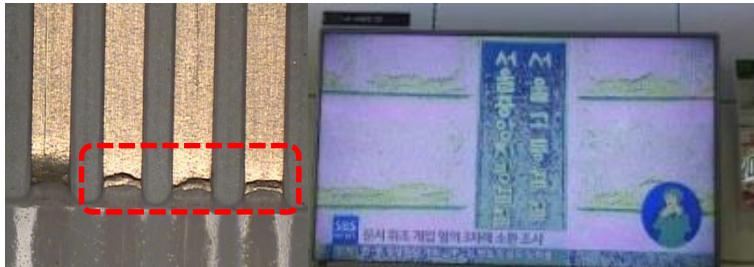
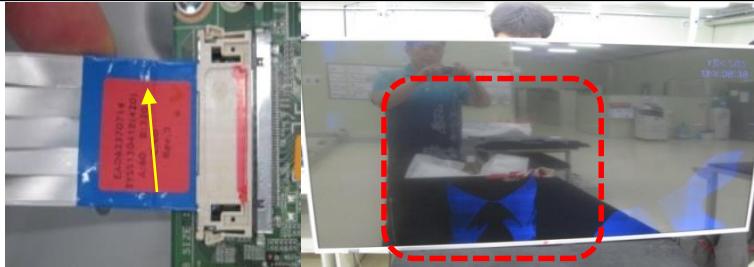
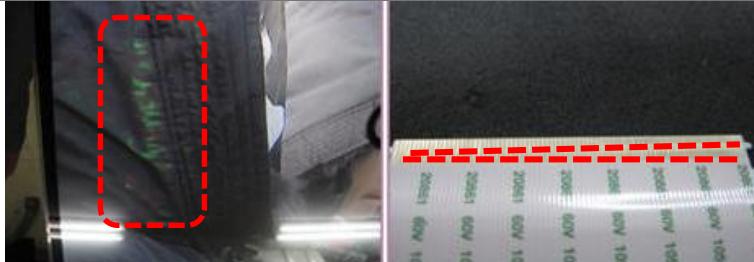
Check the contact condition of the Link Cable, especially dust or mis insertion.

A7



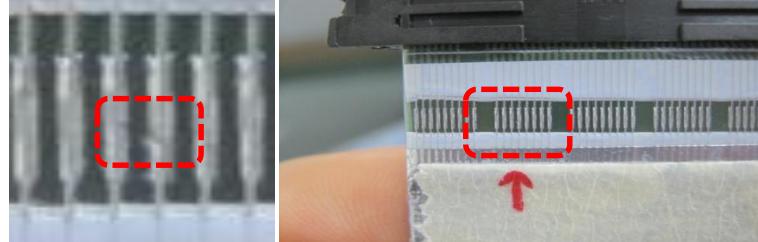
Appendix. Examples of Symptoms(Image error)

Check for poor cable contact

Item	Symptom Name	Cause	Symptom Image
CABLE	Color smear	Poor broken pin of FFC cable	
CABLE	R Color Excessive	Color is Excessive due to FFC Cable Contact.	
CABLE	Screen darkness	screen is dark due to poor contact due to disconnection of the FFC cable pin.	
CABLE	G Color Excessive	G color transient due to poor FFC cable connection	

Appendix. Examples of Symptoms(Image error)

Check for poor cable contact

Item	Symptom Name	Cause	Symptom Image
CABLE	Color spread	LVDS cable connection problem	
CABLE	Color spread	LVDS cable connection problem	
CABLE	Color spread	LVDS cable connection problem	
CABLE	Screen stop	Due to foreign substance withi nLVDS cable PIN	

Appendix. Examples of Symptoms(Main)

Check parts by symptom

Item	Symptom Name	Cause	Symptom Image
Main	Screen noise	Bit noise from horizontal screen	
Main	Screen noise	Broken screen due to Main IC problem	
Main	Dark picture	Dark left-side screen	
Main	Broken picture	Top/bottom screen part Picture problem due to tuner Inner side quality problem	

Appendix. Examples of Symptoms(Main)

Check parts by symptom

Item	Symptom Name	Cause	Symptom Image
Main	Broken screen	Broken screen in a horizontal manner	
Main	Screen spread	Screen corner appears blurry	
Main	Color Spread	Color spread on the screen	
Main	Blurry Screen	Blurry picture on the screen	

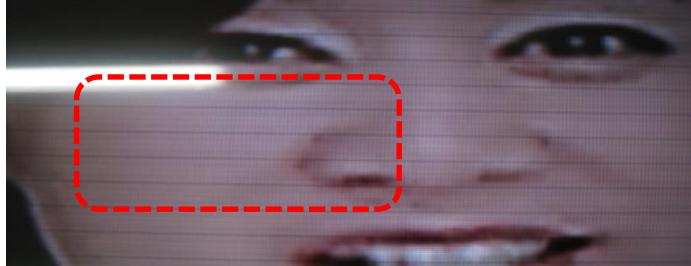
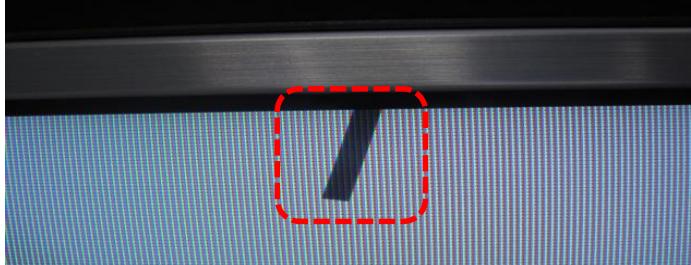
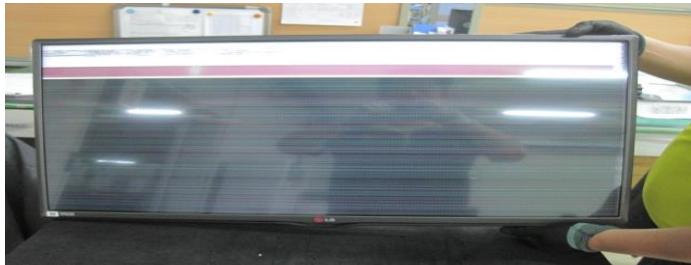
Appendix. Examples of Symptoms(Main)

Check parts by symptom

Item	Symptom Name	Cause	Symptom Image
Main	Broken picture	No problem at the initial stage, G-color spread after 10 minutes	
Main	Right-side Screen problem	Right-side screen problem	
Main	LG logo Screen problem	Screen picture spread problem	
Main	Right-side picture problem	No problem at the initial stage. During Heat run, right-side picture problem	

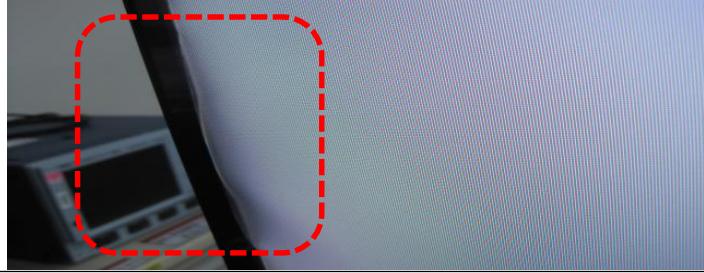
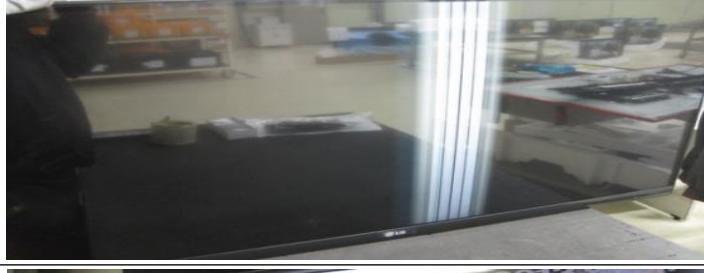
Appendix. Examples of Symptoms(Module)

Check parts by symptom

Item	Symptom Name	Cause	Symptom Image
MODULE	Isometric Horizontal Bar	Isometric horizontal bars occur throughout the screen	
MODULE	Internal matter	BLU internal foreign matter inflow	
MODULE	Image broken	6 block image broken	
MODULE	Image broken	Screen sync signal broken	

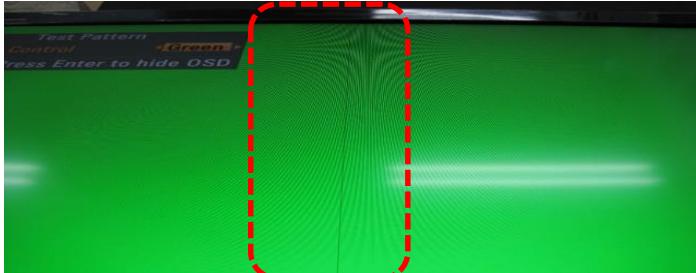
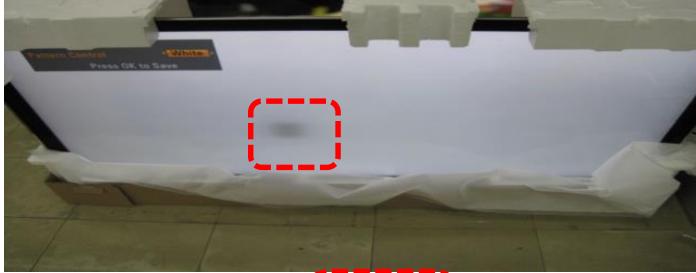
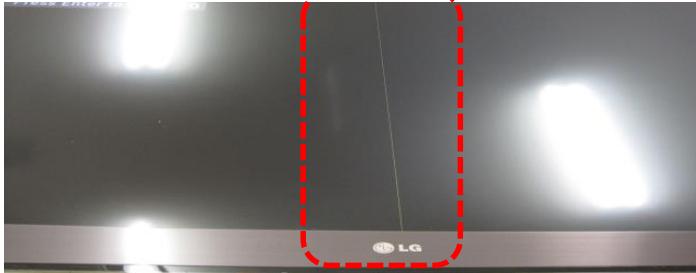
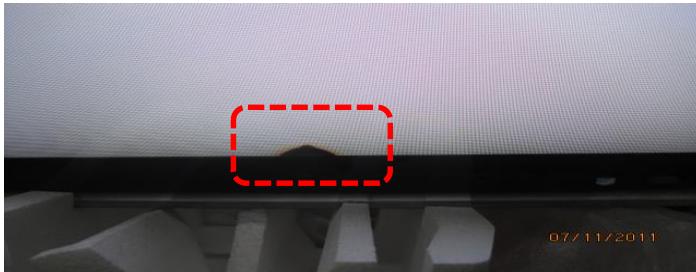
Appendix. Examples of Symptoms(Module)

Check parts by symptom

Item	Symptom Name	Cause	Symptom Image
MODULE	Image broken	Internal damage and image breakage due to external impact	
MODULE	Bend on the screen	Bending due to lateral external impact and internal bending of BLU	
MODULE	Vertical smear	Vertical spreading on cube screen in no signal	
MODULE	Over color	Screen contour part brightly Over color	

Appendix. Examples of Symptoms(Module)

Check parts by symptom

Item	Symptom Name	Cause	Symptom Image
MODULE	Vertical bar	Center Vertical Bar	
MODULE	Screen darkness	Center of the screen 1 block dark	
MODULE	Vertical bar	Center Vertical Bar	
MODULE	Darkness at the bottom of the screen	MODULE internal BLU breakage	

Appendix. Examples of Symptoms(T-Con)

Check parts by symptom

Item	Symptom Name	Cause	Symptom Image
T-CON	screen lower image broken	T-Con is defective and the picture below the screen is broken	
T-CON	screen lower image broken	T-Con is defective and the picture below the screen is broken	
T-CON	screen lower image broken	T-Con is defective and the picture below the screen is broken	
T-CON	screen lower image broken	T-Con is defective and the picture below the screen is broken	

Appendix. Examples of Symptoms(T-Con)

Check parts by symptom

Item	Symptom Name	Cause	Symptom Image
T-CON	Image Broken	T-CON Wafer Locking The strength is weak and cable contact failure occurs	
T-CON	Darkness at the top of the screen	Initial normal operation, upper darkness during heat run	
T-CON	Image Broken	The entire screen is dark and bit noise occurs	
T-CON	Image Broken	The entire screen is dark and bit noise occurs	

Appendix : Exchange Power Board (PSU)



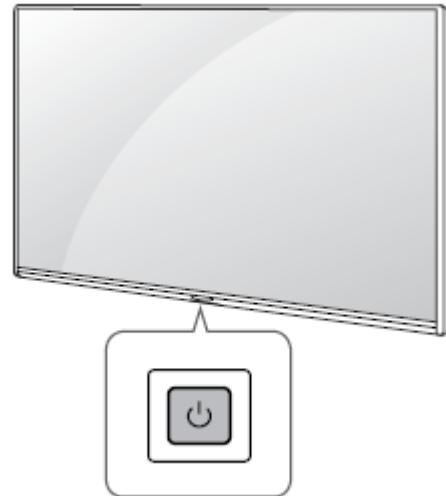
No Light



No picture/Sound Ok

Standard Repair Process Detail Technical Manual

	Error symptom	B. Power error _No power	Established date		
	Content	Check front Power Indicator	Revised date		A8



ST-BY condition: On or Off
Power ON condition: Turn Off

Basic functions



- Power On (Press)
- Power Off¹ (Press and Hold)
- Menu Control (Press²)
- Menu Selection (Press and Hold³)

- 1 All running apps will close, and any recording in progress will stop.
(Depending on country)
- 2 You can access and adjust the menu by pressing the button when TV is on.
- 3 You can use the function when you access menu control.

Adjusting the menu

When the TV is turned on, press the button one time. You can adjust the Menu items using the button.

	Turns the power off.
	Changes the input source.
	Adjusts the volume level.
	Scrolls through the saved programmes.



Standard Repair Process Detail Technical Manual

	Error symptom	B. Power error _No power	Established date	
	Content	Check power input voltage and ST-BY 7.8V	Revised date	A9

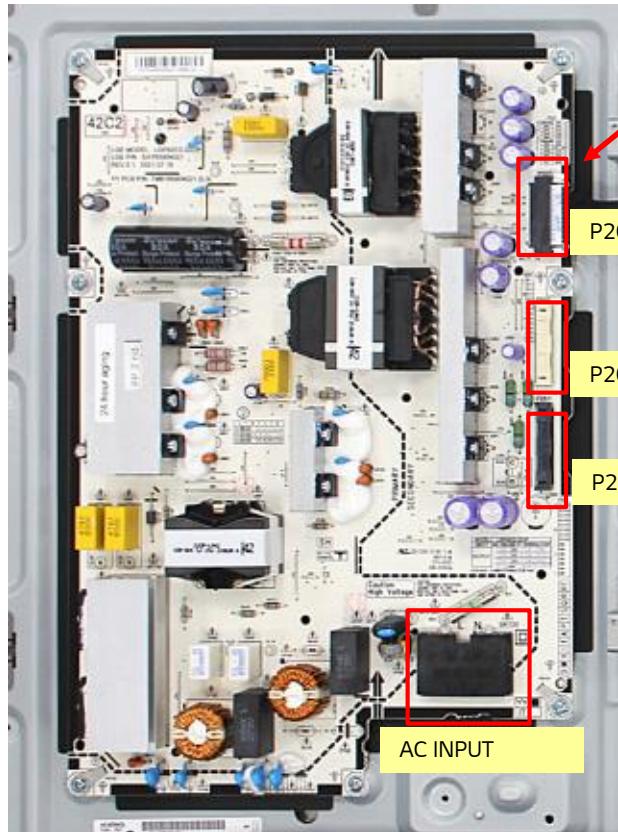
SET Model	Power P/N, Name
OLED42C3	EAY65904044, LGP42C3-23OP

Output	Voltage Variable range [V]	Rated Current (Min, Max) [Amean]	Voltage Regulation [V]	Ripple Voltage [mVp_p]	Remark
12V(12VM)	11.4V ~ 12.6V	2.5A (0.1 ~ 2.5A)	± 5%	350 mVp_p	-
12V(12VT)	11.4V ~ 12.6V	2.5A (0.1 ~ 2.5A)	± 5%	350 mVp_p	-
20V(20VS)	18.6V ~ 21.4V	2.0A (0 ~ 2.0A)	± 7%	500 mVp_p	-
22V(22VD)	20.9V ~ 23.1V 19.0V ~ 21.0V	10.71A (0 ~ 11.9A)	± 5% ± 5%	500 mVp_p	DPC Off Condition DPC On Condition

DC 12VM Line Check (ST-BY : 7.8V, Normal : 12V)

Power Check Sequence

1. AC input Check : 100~240Vac
2. PWR-ON Check : P201
 - SET On : above 3V
 - SET St-by : 0V
3. 12V Level Check : P201
 - SET On : 12V
 - SET St-by : 7.8V (swing between 7V to 10V)
4. DRV_ON Check : P201
 - SET On : above 2.5V
 - SET St-by : 0V
5. T-CON 22V Check : P251
 - SET On : above 22V
 - SET St-by : 0V
6. T-CON 12V Check : P202
 - SET On : above 12V
 - SET St-by : 0V



P201			
Type	SMAW200-H24S5K (BLACK) Maker : YEON-HO		
Pin No.	Signal	Pin No.	Signal
1	N.C	2	20VS
3	20VS	4	20VS
5	GND	6	GND
7	12VM	8	12VM
9	GND	10	12VT_ON
11	GND	12	GND
13	PWR_ON	14	ACD
15	GND	16	12VM
17	12VM	18	12VM
19	20VS	20	20VS
21	GND	22	GND
23	DRV_ON	24	DPC

P202		
Type	20022WR-H14BD2 (WHITE) Maker : YEONHO	
Signal		
1	GND	
2	GND	
3	GND	
4	GND	
5	GND	
6	GND	
7	12VT	
8	12VT	
9	12VT	
10	12VT	
11	12VT	
12	12VT	
13	N.C	
14	GND	

P251		
Type	20022WR-H15BD2 (BLACK) Maker : YEONHO	
Signal		
1	GND	
2	GND	
3	GND	
4	GND	
5	GND	
6	GND	
7	GND	
8	22VD	
9	22VD	
10	22VD	
11	22VD	
12	22VD	
13	22VD	
14	22VD	
15	22VD	

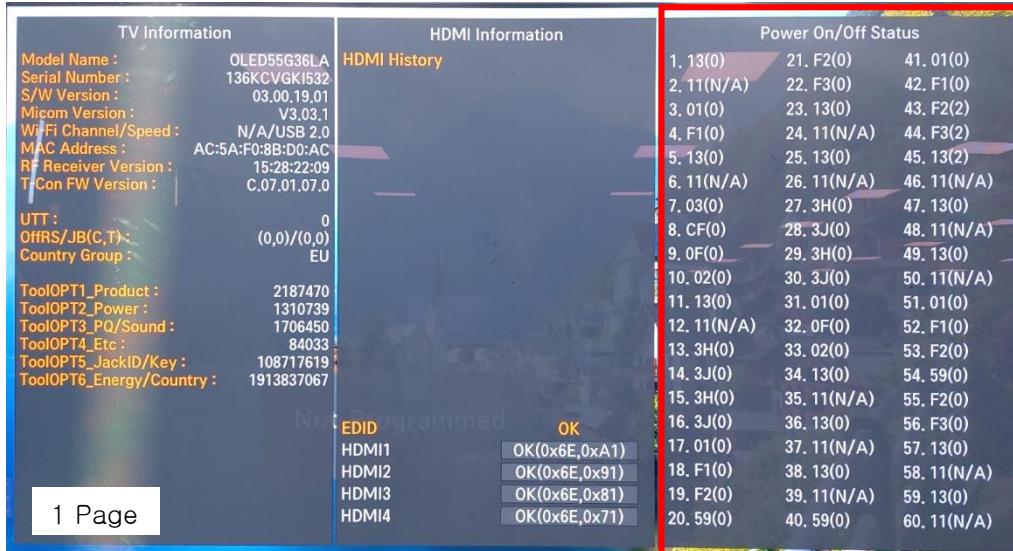
All condition meets, Power Board OK.

A9

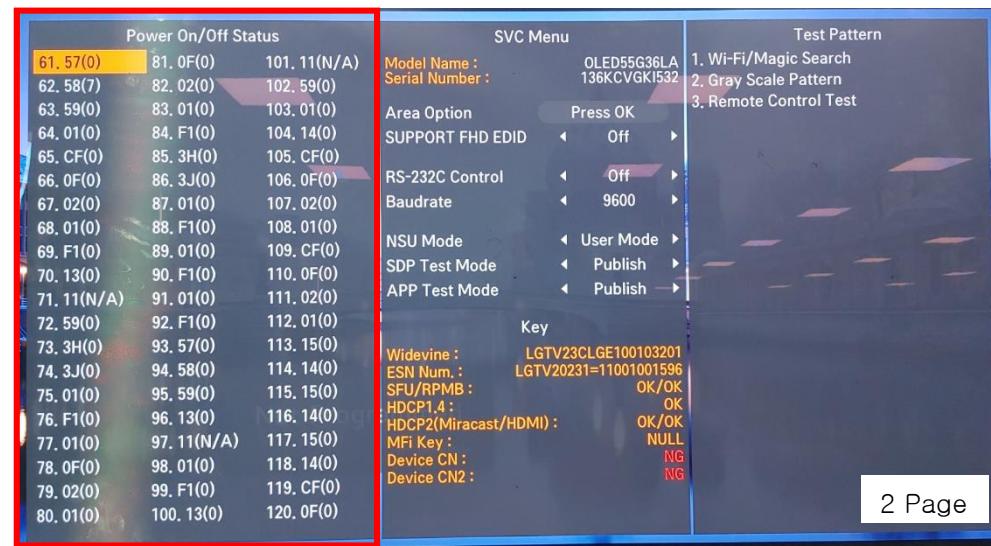
Standard Repair Process Detail Technical Manual

	Error symptom	B. Power error _Off when on, off whiling viewing	Established date		
	Content	POWER OFF MODE checking method	Revised date		A10

<ALL MODELS>



1 Page



2 Page

Entry method

1. Press the IN-START button of the remote control for adjustment.
2. Press the navigation key(Right) 3 times, entry into SVC menu 2 page.

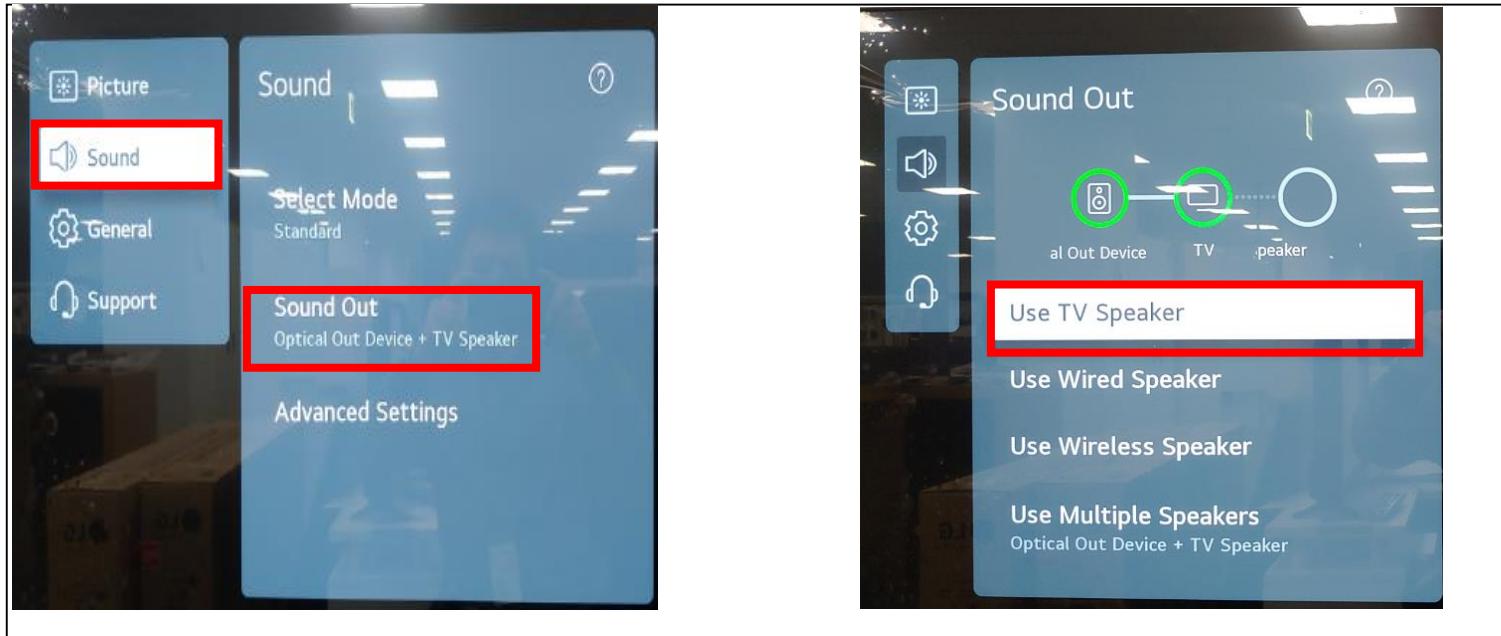
A10



Standard Repair Process Detail Technical Manual

	Error symptom	C. Audio error_No audio/Normal video	Established date		
	Content	Checking method in menu when there is no audio	Revised date		A11

<ALL MODELS>



Checking method

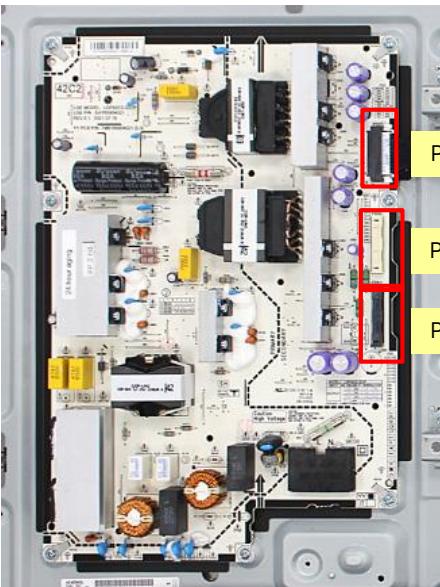
1. Press the Setting button on the remote control.
2. Select the Sound function of the Menu.
3. Select the Sound Out.
4. Select TV Speaker.

A11

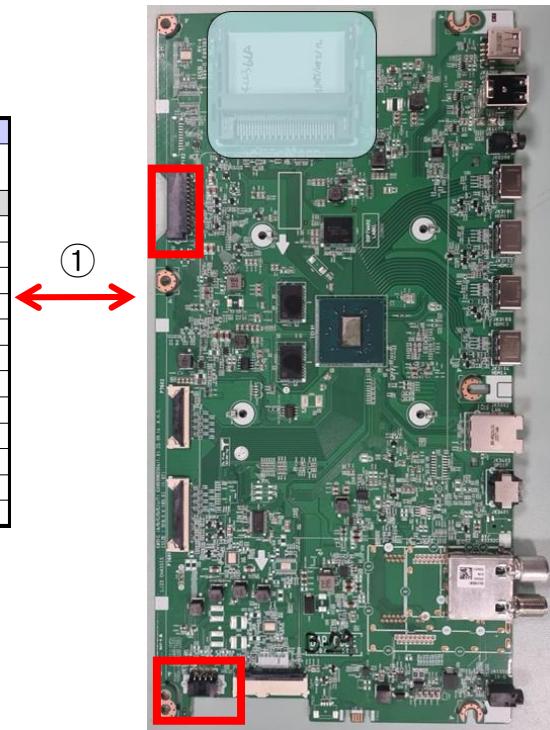


Standard Repair Process Detail Technical Manual

	Error symptom	C. Audio error_No audio/Normal video	Established date		
	Content	Voltage and speaker checking method when there is no audio	Revised date		A12



P201			
Type : SMW200-H24S5K Maker : YEON-HO			
Pin No.	Signal	Pin No.	Signal
1	NC	2	20VS
3	20VS	4	20VS
5	GND	6	GND
7	12VM	8	12VM
9	GND	10	12VT_ON
11	GND	12	GND
13	PWR_ON	14	ACD
15	GND	16	12VM
17	12VM	18	12VM
19	20VS	20	20VS
21	GND	22	GND
23	DRV_ON	24	DPC



Checking order when there is no audio

1. Check the contact condition of or 20V connector of Main Board.
2. Measure the 20V input voltage supplied from Power Board.
(If there is no input voltage, remove and check the connector.)
3. Connect the tester P5400 to the speaker terminal and if you hear the 'Chik~ Chik~' sound when you touch the GND and output terminal, the speaker is normal.

A12



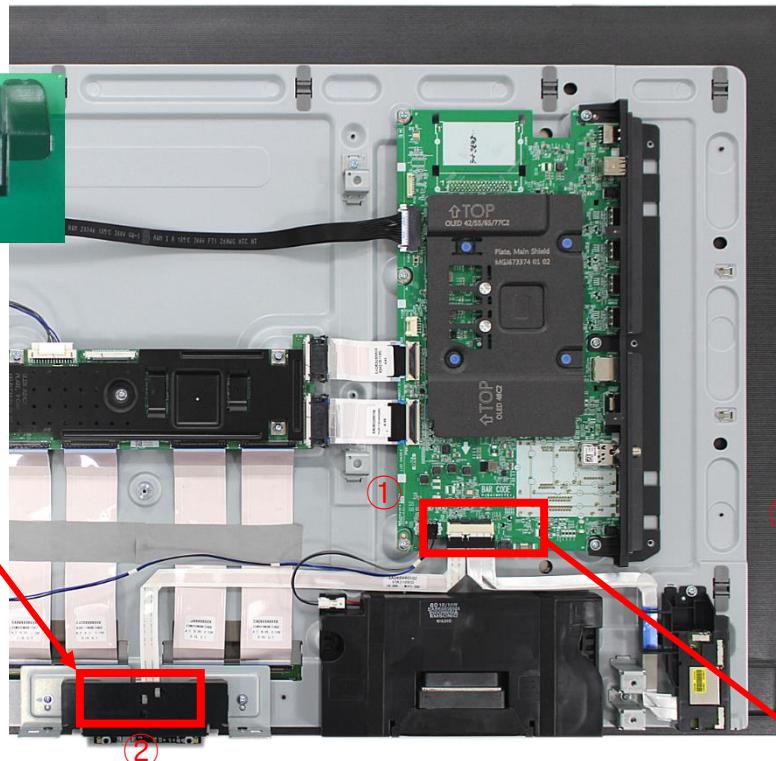
Standard Repair Process Detail Technical Manual

	Error symptom	D. Function error	Established date		
	Content	Remote control operation checking method	Revised date		A13

IR & EYE Sensor



LED Eye



Checking order to check remote control

Checking order

1. Check IR cable condition between IR & Main board.(Check picture number① and ②.)
2. Check the Main standby 3.5V on the terminal. (③)
3. AS checking the Pre-Amp(IR LED light) , the power is in ON condition, an Analog Tester needle should move slowly, otherwise, it's defective.

Pin	Pin name
1	+3.5V_WIFI
2	WIFI_DM
3	WIFI_DP
4	GND
5	WOL/WIFI_PWR_ON
6	+3.5V_WIFI
7	WIFI_SUSPEND/RESUME
8	GND
9	COMBO_RESET
10	BT_WAKE_UP_HOST
11	GND
12	+3.5V_WIFI
13	EYE_SDA
14	EYE_SCL
15	GND
16	GND
17	IR
18	LED_R
19	GND
20	GND
21	+3.5V_ST
22	+3.5V_ST
23	+3.5V_ST
24	KEY2
25	WOV_PDMO_DATAIN
26	WOV_PDM_CLKOUT

A13



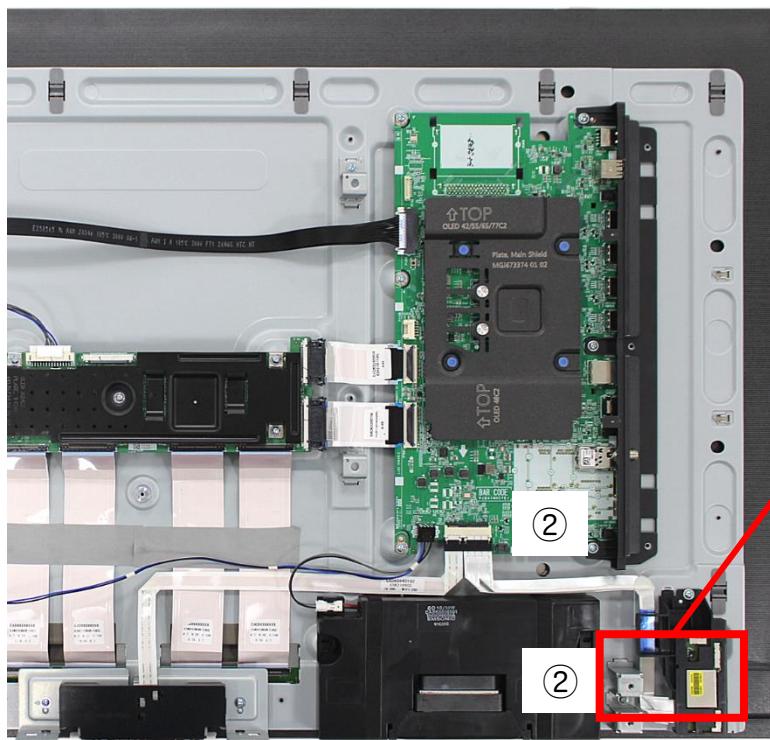
Standard Repair Process Detail Technical Manual

	Error symptom	D. Function error	Established date		
	Content	Magic Remote/WiFi operation checking method	Revised date		A14

① Wifi & BT Front



Wifi & BT Rear



Pin	Pin name
1	+3.5V_WIFI
2	WIFI_DM
3	WIFI_DP
4	GND
5	WOL/WIFI_PWR_ON
6	+3.5V_WIFI
7	WIFI_SUSPEND/RESUME
8	GND
9	COMBO_RESET
10	BT_WAKE_UP_HOST
11	GND
12	+3.5V_WIFI
13	EYE_SDA
14	EYE_SCL
15	GND
16	GND
17	IR
18	LED_R
19	GND
20	GND
21	+3.5V_ST
22	+3.5V_ST
23	+3.5V_ST
24	KEY2
25	WOV_PDMO_DATAIN
26	WOV_PDM_CLKOUT

Checking order to check motion remote/wifi

Checking order

1. Check BT/Wifi cable condition between BT/Wifi assy & Main board.
2. Check the Main 3.5V on the terminal 1 pin

A14



Standard Repair Process Detail Technical Manual

	Error symptom	E. Etc	Established date		
	Content	How to use the Service remote control	Revised date		A15

1. How to access the remote control



TV Information		HDMI Information		Power On/Off Status	
Model Name :	KEY0000103E	KEY0000103E	HDMI History	1. 13(35)	21, OF(30) 41, XX(N/A)
Serial Number :	FF			2, 11(N/A)	22, C8(30) 42, XX(N/A)
S/W Version :	03.00.13.01			3, 13(35)	23, 13(30) 43, XX(N/A)
Microm Version :	V3.01.1			4, 11(N/A)	24, 11(N/A) 44, XX(N/A)
Wi-Fi Channel/Speed 13(2472MHz)/USB 2.0				5, 13(35)	25, 3H(30) 45, XX(N/A)
MAC Address :	7C:64:EC:00:6F:5A			6, 11(N/A)	26, 3J(30) 46, XX(N/A)
RF Receiver Version :	57:13:07:07			7, 57(35)	27, 3H(30) 47, XX(N/A)
T-Con FW Version :	2.06.04.00.00			8, 5B(0)	28, 3J(30) 48, XX(N/A)
UTT :	35			9, 59(35)	29, XX(N/A) 49, XX(N/A)
OffRS/JB(C,T) :	(1,30)/(0,0)			10, 01(32)	30, XX(N/A) 50, XX(N/A)
Country Group :	KR			11, CF(32)	31, XX(N/A) 51, XX(N/A)
ToolOPT1_Product :	2187537			12, OF(32)	32, XX(N/A) 52, XX(N/A)
ToolOPT2_Power :	1310739			13, 3E(32)	33, XX(N/A) 53, XX(N/A)
ToolOPT3_PU/Sound :	1706322			14, 13(32)	34, XX(N/A) 54, XX(N/A)
ToolOPT4_Etc :	2129			15, 11(N/A)	35, XX(N/A) 55, XX(N/A)
ToolOPT5_JackID/Key :	12117555			16, 01(31)	36, XX(N/A) 56, XX(N/A)
ToolOPT6_Energy/Country :	1915804427			17, CF(31)	37, XX(N/A) 57, XX(N/A)
EDID		OK		HDMI1	
HDMI2		OK(0x6E,0xB3)		18, 0F(31)	
HDMI3		OK(0x6E,0xA3)		19, 3E(31)	
HDMI4		OK(0x9D,0x69)		20, C1(30)	
1 page					



Press the button 3times.

Power On/Off Status			SVC Menu		Test Pattern
61, XX(N/A)	81, XX(N/A)	101, XX(N/A)	Model Name :	KEY0000103E	1. Wi-Fi/Magic Search
62, XX(N/A)	82, XX(N/A)	102, XX(N/A)	Serial Number :	FF	2. Gray Scale Pattern
63, XX(N/A)	83, XX(N/A)	103, XX(N/A)	Area Option	Press OK	3. Remote Control Test
64, XX(N/A)	84, XX(N/A)	104, XX(N/A)	SUPPORT FHD EDID	Off	
65, XX(N/A)	85, XX(N/A)	105, XX(N/A)	RS-232C Control	Off	
66, XX(N/A)	86, XX(N/A)	106, XX(N/A)	Baudrate	115200	
67, XX(N/A)	87, XX(N/A)	107, XX(N/A)	NSU Mode	User Mode	
68, XX(N/A)	88, XX(N/A)	108, XX(N/A)	SDP Test Mode	Testing	
69, XX(N/A)	89, XX(N/A)	109, XX(N/A)	APP Test Mode	Testing	
70, XX(N/A)	90, XX(N/A)	110, XX(N/A)	Key		
71, XX(N/A)	91, XX(N/A)	111, XX(N/A)	Widevine :	LGTV23CLGE100104801	
72, XX(N/A)	92, XX(N/A)	112, XX(N/A)	ESN Num. :	LGTV20231=1100102466	
73, XX(N/A)	93, XX(N/A)	113, XX(N/A)	SFU/RPMB :	OK	
74, XX(N/A)	94, XX(N/A)	114, XX(N/A)	HDCP1.4 :	OK	
75, XX(N/A)	95, XX(N/A)	115, XX(N/A)	HDCP2(Miracast/HDMI) :	OK/OK	
76, XX(N/A)	96, XX(N/A)	116, XX(N/A)	MFI Key :	NULL	
77, XX(N/A)	97, XX(N/A)	117, XX(N/A)	ATSC3.0 (KR) :	OK(3615)	
78, XX(N/A)			2 page		
79, XX(N/A)					
80, XX(N/A)					

Standard Repair Process Detail Technical Manual

	Error symptom	E. Etc	Established date		
	Content	How to use the Service remote control	Revised date		A16

2. Remote control part definition



POWER	Power On/Off
ETC (Added Function)	[ETC] Each time pressing the KEY button, Mode gets changed to ETC and P-ONLY each time All KEY function [PIP PR-][PIP PR+][SWAP] [PIP INPUT][DVI] KEY Function
P-ONLY (Added Function)	Changed to factory mode All KEY function &[INFO][STILL][HDMI HOT][USB HOT][HDMI4] KEY Action
INPUT	Change to the external device mode
ARC	Change in the order of 16:9=>Zoom1=>Zoom2=>Cinema Zoom=>Auto Screen=>4:3=>16:9
PSM	Changes in the order of Bright Picture=>Easy Picture=>Cinema=>Sports=>Game=> Custom Picture1=>Custom Picture2=>Bright Picture
SSM (Added Function)	Standard(user)=>music=>cinema=>sports=>game=>standard(user)
PIP	Picture In Picture is activated
TEXT	Access to the Power Only mode
CAP	Broadcasting caption(on/off)
MPX	Stereo mode (mono, stereo, foreign language) access
	Used when in factory mode
Simplink (Added Function)	Access to the Simplink-connected device
EYE	Digital EYE function ON/OFF For some Model, access to the Test Pattern
TILT	Used for screen tilting change (Access to the old PDP control mode)

Standard Repair Process Detail Technical Manual

	Error symptom	E. Etc	Established date		
	Content	How to use the Service remote control	Revised date		A17



B-TOOTH (Added function)	Connected to Blue-Tooth
IN-START	Model Nam ex) 42PG60D-NA Current Model Name S/W Version ex) V03.11.0 Current S/W version MICOM Version ex) V3.05.0 current Mi-Com version UTT ex) User TV total usage time
ADJ	POWER OFF STATUS ex) Shows power-off status Test Pattern (Off=>White=>Red=>Green=>Blue=>Black=>Pattern=>Off) Change
X-STUDIO (Added function)	HDD,USB, external device's HDD screen is activated
MENU	User function gets activated
EXIT	Exit from the current mode
TIME SHIFT (Added function)	Moves forward/backward of recorded contents
MUTE	Mute function (0 Volume)
IN-STOP	SET to factory mode
VOL + -	Volume Up/Down
CH + -	Channel Up/Down
AV1,2,3 (Added function)	Connects to external input 1,2,3
COMP1,2 (Added function)	Connects to Component 1,2
HDMI1,2,3,4 (Add function)	Connects to HDMI 1,2,3,4
DVI (Add function)	Connects to DVI

Standard Repair Process Detail Technical Manual

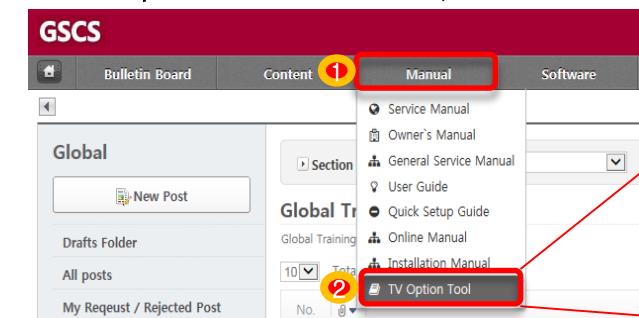
	Error symptom	E. Etc	Established date		
	Content	How to use the Service remote control	Revised date		A18

Check items after Main B/D (Model, Serial Number, Tool option D/L)

1. Change tool option data

1) Download tool option data from GSSC system to USB(Storage device)

Download path: GSCS → Manual → TV option Tool



2) Unzip the file(USB Device) "LG_SVC_DTV.zip"

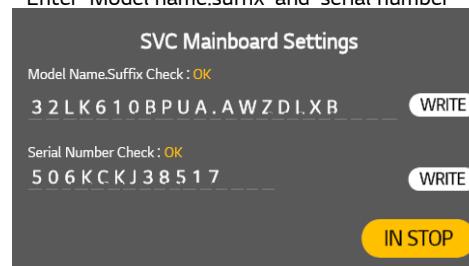
TV Option Tool

TYPE	File Name	File Size	Regist Date	APPLY REGION
KIC	LG_SVC_DTV.zip	424 KB	2018-08-31	Asia(India, Australia, Southeast Asia, South Africa), China, Hong Kong, Japan, South Korea, ...
AIC	LG_SVC_DTV.zip	347 KB	2018-08-31	South America(Brazil, Chile, Ecuador, Costa Rica, Argentina, Honduras, Peru), Taiwan, Colum...
RIC	LG_SVC_DTV.zip	59 KB	2018-08-31	CIS (Russia, Kazakhstan, Ukraine)
EIC	LG_SVC_DTV.zip	530 KB	2018-08-31	Cuba, Europe, Israel, Middle East, Africa(UAE, Egypt)

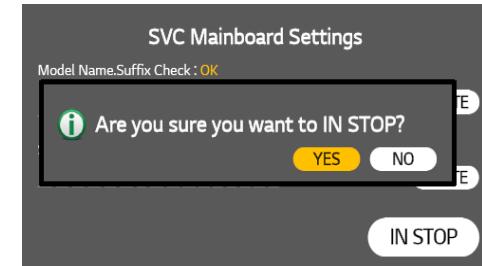
3) Insert USB(tool option data)



4) When connected via USB, the setting menu is displayed.
Enter 'Model name.suffix' and 'serial number'



5) Press IN STOP→ YES



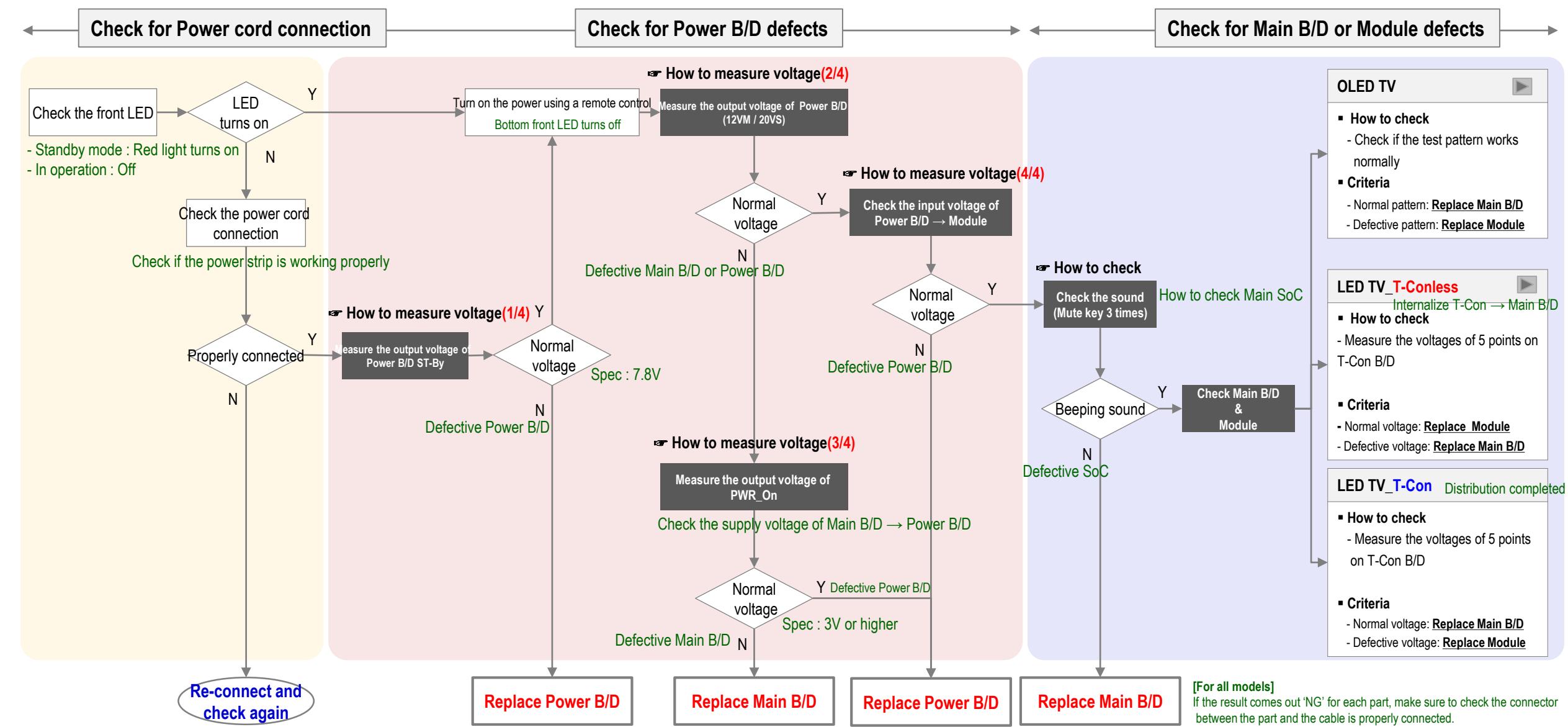
2. Problem solution

If the TV Screen is a white pattern and the pop-up window does not appear when connecting USB.
Press the "BACK" or "EXIT" on the remote controller for 3 seconds to switch to White noise screen.



Guide to inspecting parts for symptoms of no power / no screen

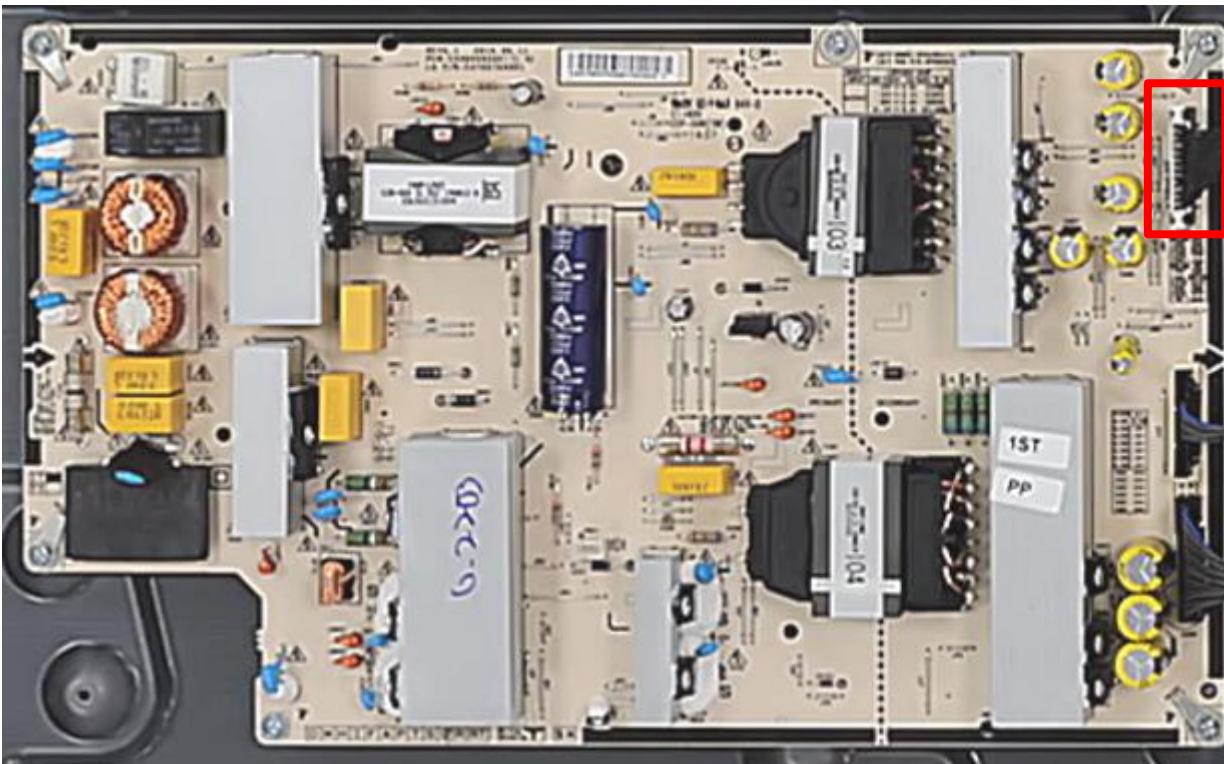
LG TV



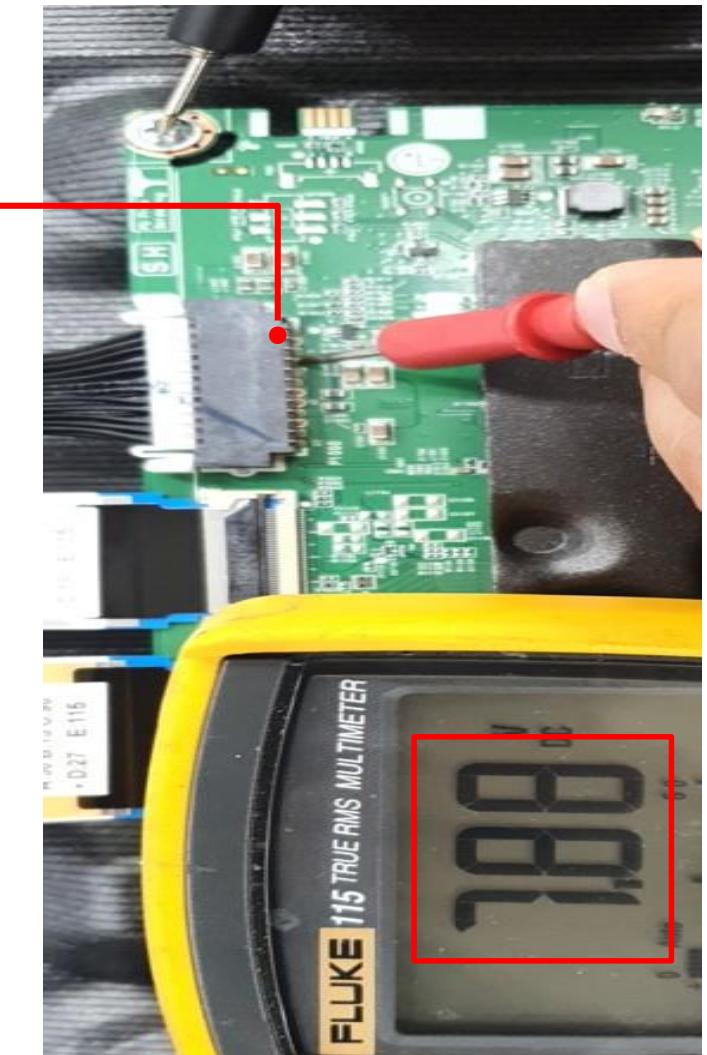
Note 1. How to measure ST-by

1. Measure the 12VM of Power B/D and Main B/D connector
2. When measuring 12VM, it is considered normal if ST-by is 7.8V and Normal is 12.
3. If the result comes out 'NG', replace Power Board

The ST-by voltage for each model may be different, so refer to the Appendix A9 page in Service Manual.
(Some models launched before 2017 may have 5V / 3.5V)

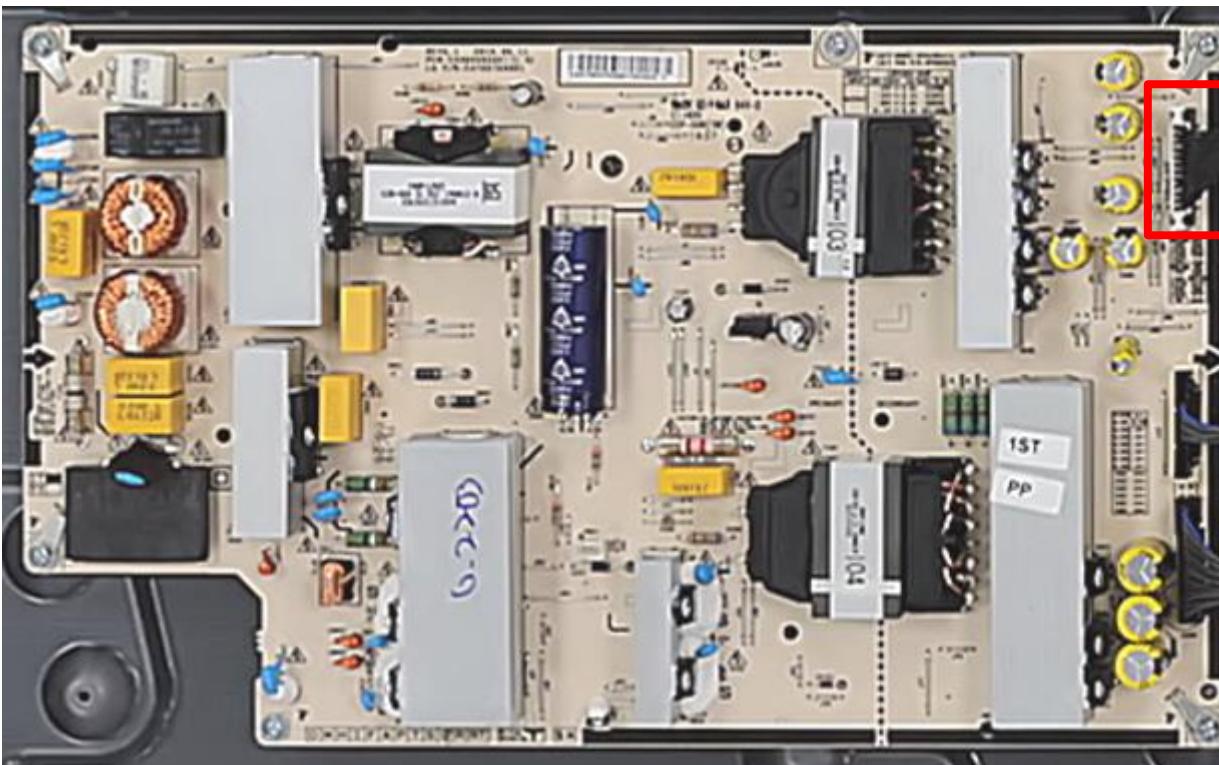


DRV_ON	DPC
GND	GND
20VS	20VS
12VM	12VM
GND	12VM
PWR_ON	ACD
GND	GND
GND	12VT_ON
12VM	12VM
GND	GND
20VS	20VS
NC	20VS

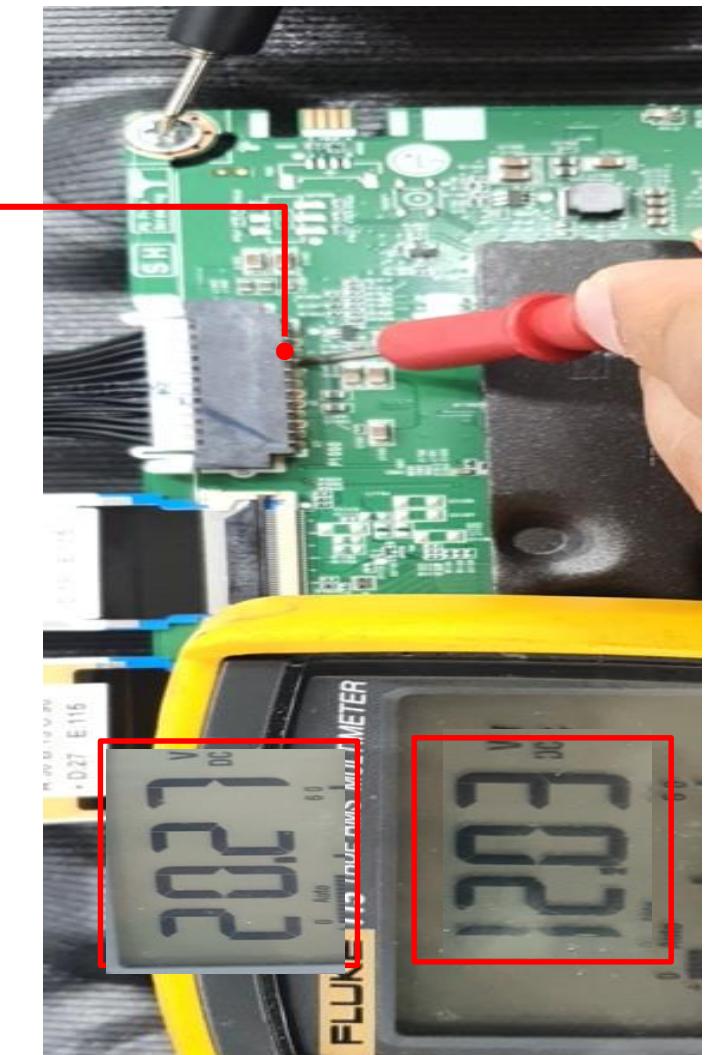


Note 2. How to measure the output voltage of Power B/D

1. Check the output voltage of Power B/D and Main B/D connector
2. Check the output voltage of 20VS and 12VM
3. If the result comes out 'NG', check the voltage of PWR_ON



DRV_ON	DPC
GND	GND
20VS	20VS
12VM	12VM
GND	12VM
PWR_ON	ACD
GND	GND
GND	12VT_ON
12VM	12VM
GND	GND
20VS	20VS
NC	20VS

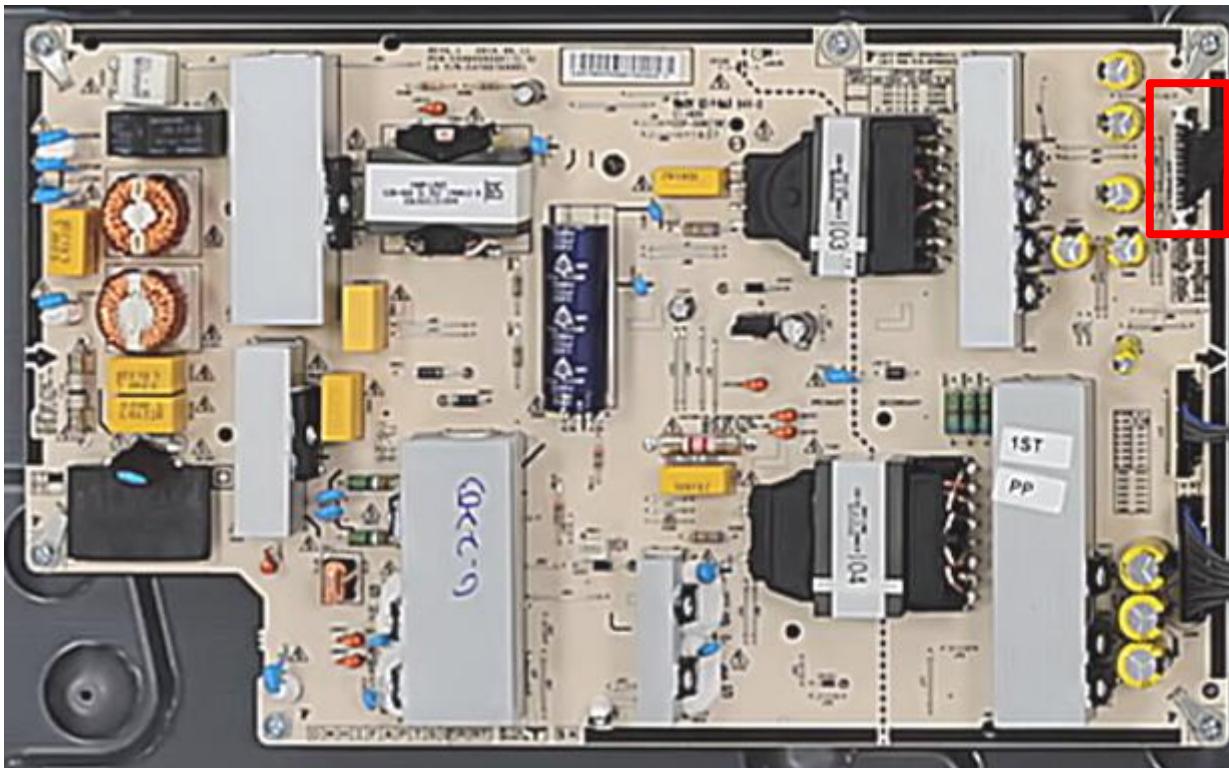


Note. 2 / 4

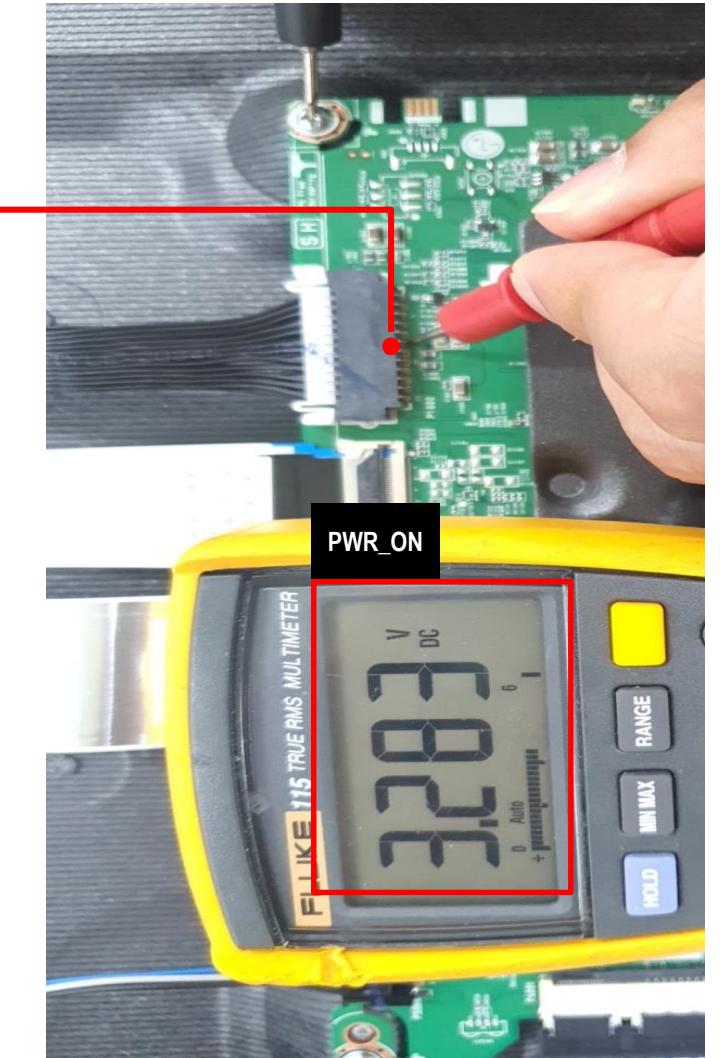


Note 3. How to measure PWR On

1. Check the PWR_ON voltage of Power B/D and Main B/D connector
2. The normal power supply voltage from Main B/D to Power B/D is 3V or higher
3. If the result comes out 'NG', replace Main Board. If it comes out 'OK', replace Power B/D
4. The normal power supply from MAIN to POWER is 3V or higher



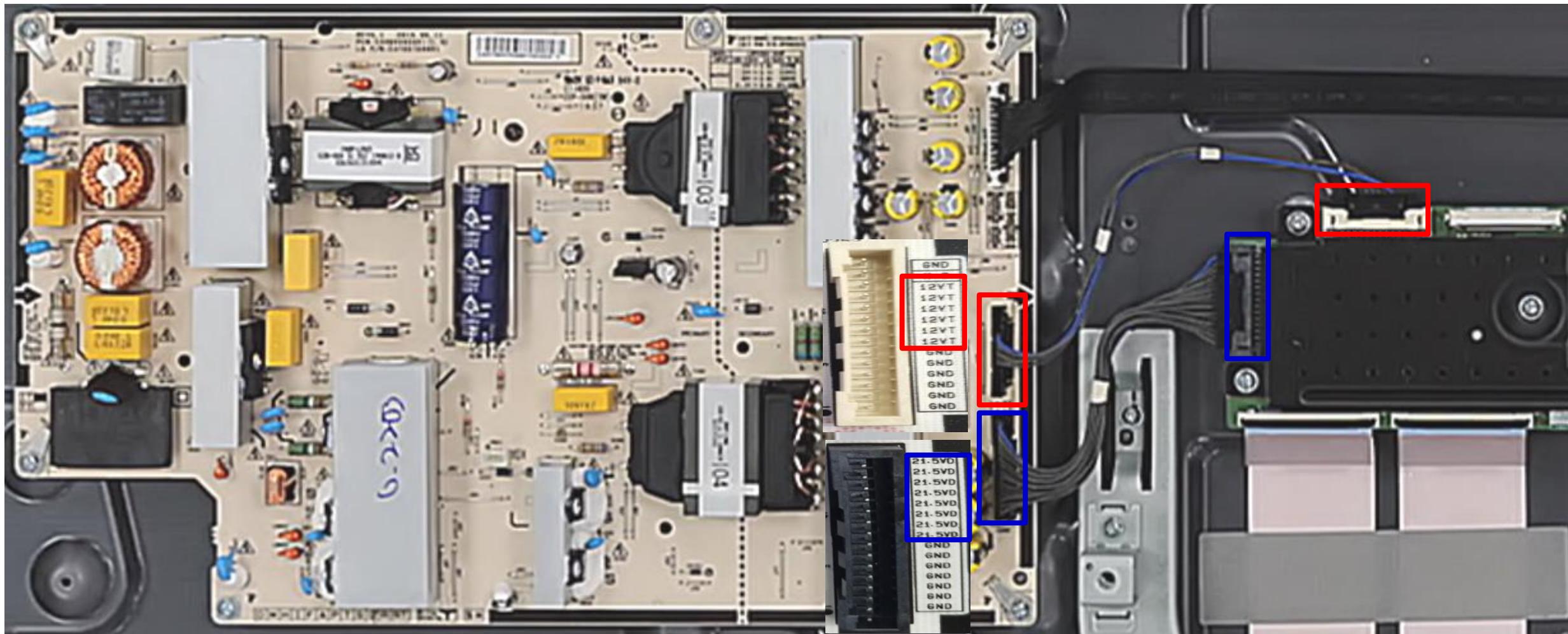
DRV_ON	DPC
GND	GND
20VS	20VS
12VM	12VM
GND	12VM
PWR_ON	ACD
GND	GND
GND	12VT_ON
12VM	12VM
GND	GND
20VS	20VS
NC	20VS



Note. 3 / 4

Note 4. How to measure Power B/D Module

1. Check the 21.5V and 12V voltage of Power B/D and T-Con B/D connector
2. If the result comes out 'NG', replace Power B/D. If it comes out 'OK', check if Main B/D and Module operate

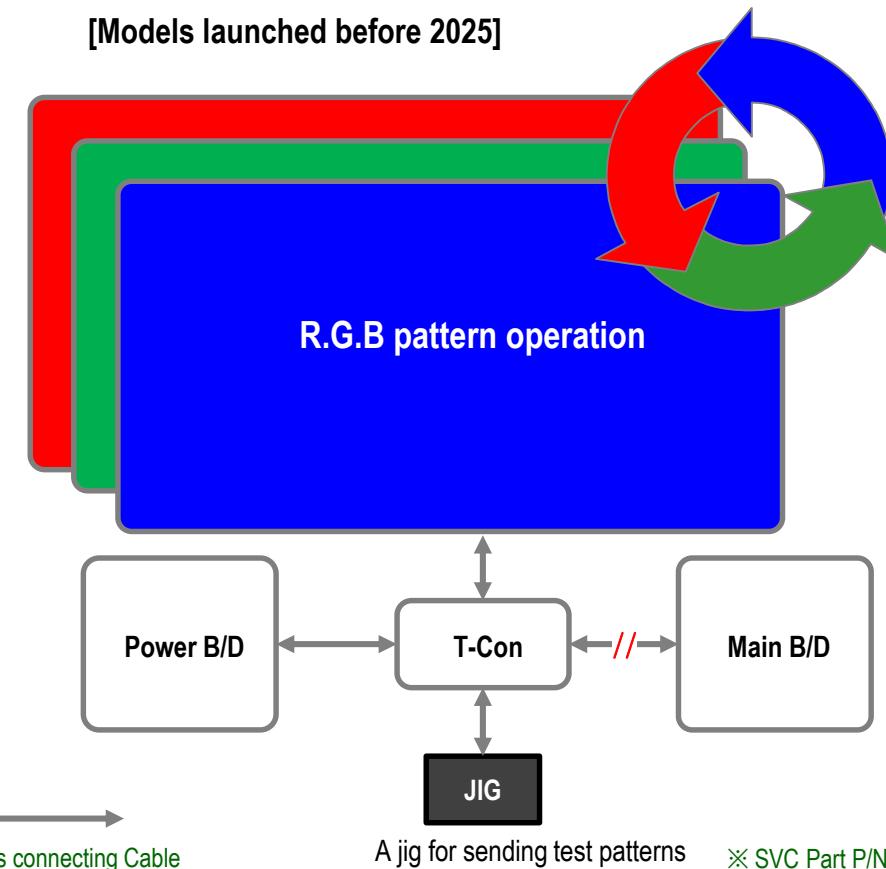


Appendix. How to check for OLED TV module defects

OLED TV

1. Disassemble the back cover to disconnect the Main B/D
2. Check if the test pattern is working on the screen
3. If the pattern appears, it means the Main B/D is defective (need to replace it)
4. If the pattern doesn't appear, (keep showing no screen), it means the Module is defective(need to replace it)

[Models launched before 2025]



Series	Size	Model Name	V17	V18	V19	V20	V21	V22	V23
A	48	OLED48A*					0	0	0
	55	OLED55A*					0	0	0
	65	OLED65A*					0	0	0
	77	OLED77A*					0	0	0
B	55	OLED55B*	0	0	0	0	0	0	0
	65	OLED65B*	0	0	0	0	0	0	0
	77	OLED77B*		0	0	0	0	0	0
C	42	OLED42C*						0	0
	48	OLED48C*					0	0	0
	55	OLED55C*	0	0	0	0	0	0	0
	65	OLED65C*	0	0	0	0	0	0	0
	77	OLED77C*		0	0	0	0	0	0
E	83	OLED83C*					0	0	0
	55	OLED55E*	0	0	0				
G	65	OLED65E*	0	0	0				
	55	OLED55G*				0	0	0	0
G	65	OLED65G*	0	0	0	0	0	0	0
	77	OLED77G*	0	0	0	0	0	0	0
	83	OLED83G*							
	97	OLED97G*					0		
W	65	OLED65W*		0	0	0			
	77	OLED77W*		0	0	0			

[Connecting the power cable, T-Con FFC cable to the Jig]



Connect the powerboard-mainboard cable with the powerboard-JIG



Connect the T-Con ~ motherboard FFC cable to the Jig



