



LG
Life's Good

LED TV

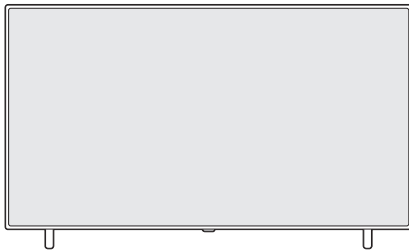
SERVICE MANUAL

CHASSIS : UA22A

MODEL : 86UQ7590PUD
86UQ7070ZUD

CAUTION

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



P/NO : MFL71906613 (2205-REV01)

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CONTENTS

CONTENTS	2
SAFETY PRECAUTIONS	3
SERVICING PRECAUTIONS.....	4
SPECIFICATION	6
SOFTWARE UPDATE	9
BLOCK DIAGRAM.....	11
EXPLODED VIEW	12
ASSEMBLY / DISASSEMBLY GUIDE	13
TROUBLE SHOOTING GUIDE	APPENDIX
webOS22 new features & Usability	APPENDIX

SAFETY PRECAUTIONS

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.

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 M Ω and 5.2 M Ω .

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.

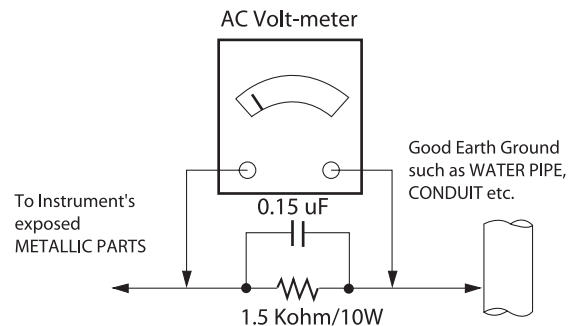
Connect 1.5 K / 10 watt resistor in parallel with a 0.15 uF capacitor between a known good earth ground (Water Pipe, Conduit, etc.) and the exposed metallic parts.

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 Ω

*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, FET-VOM, 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 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 y 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 UA22A chassis.

3. Test method

- (1) Performance: LGE TV test method followed
- (2) Demanded other specification
 - Safety : CE, IEC specification
 - EMC : CE, IEC

2. Test condition

Each part is tested as below without special appointment.

- (1) Temperature: 25 °C ± 5 °C, CST: 40 °C ± 2 °C
- (2) Relative Humidity: 65 % ± 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 5 minutes prior to the adjustment.

4. General Specification

No	Item			Specification	Remark
1	Market			North America	
2	Broadcasting system			ATSC / NTSC-M, 64 & 256 QAM	
3	Available Channel			VHF : 02~13	
				UHF : 14~69	
				DTV : 02-69	
				CATV : 01~135	
				CADTV : 01~135	
4	Receiving system			Digital : ATSC, 64 & 256 QAM Analog : NTSC-M	
5	HDMI Input	UHD	HDMI 1	PC / DTV format	Support 6Gbps
			HDMI 2	PC / DTV format	Support 6Gbps
			HDMI 3	PC / DTV format	Support 6Gbps, Support ARC
			HDMI 4	PC / DTV format	Support 6Gbps
6	Audio Input			AV Audio / DVI Audio	AV and DVI use same jack ;
7	SPDIF out			Optical Audio out	Rear
8	USB Input			EMF, DivX HD, For SVC (download)	JPEG, MP3, DivX HD

5. External Input Format

5.1. HDMI

(1) DTV mode

No.	Resolution	H-freq(kHz)	V-freq(kHz)	Pixel clock(MHz)	Proposed	Remarks
1	640*480	31.46	59.94	25.12	SDTV 480P	
2	640*480	31.5	60	25.12	SDTV 480P	
3	720*480	31.47	59.94	27	SDTV 480P	
4	720*480	31.5	60	27.02	SDTV 480P	
5	720*576	31.25	50	27	SDTV 576P	
6	1280*720	44.96	59.94	74.17	HDTV 720P	
7	1280*720	45	60	74.25	HDTV 720P	
8	1280*720	37.5	50	74.25	HDTV 720P	
9	1920*1080	28.12	50	74.25	HDTV 1080I	
10	1920*1080	33.72	59.94	74.17	HDTV 1080I	
11	1920*1080	33.75	60	74.25	HDTV 1080I	
12	1920*1080	26.97	23.97	63.29	HDTV 1080P	
13	1920*1080	27	24	63.36	HDTV 1080P	
14	1920*1080	33.71	29.97	79.12	HDTV 1080P	
15	1920*1080	33.75	30	79.2	HDTV 1080P	
16	1920*1080	56.25	50	148.5	HDTV 1080P	
17	1920*1080	67.43	59.94	148.35	HDTV 1080P	
18	1920*1080	67.5	60	148.5	HDTV 1080P	
19	1920*1080	112.5	100	297	UDTV 2160P	Not Support for FHD.
20	1920*1080	134.86	119.88	296.7	UDTV 2160P	
21	1920*1080	135	120	297	UDTV 2160P	
22	3840*2160	53.95	23.98	296.7	UDTV 2160P	
23	3840*2160	54	24	297	UDTV 2160P	
24	3840*2160	56.25	25	297	UDTV 2160P	
25	3840*2160	61.43	29.97	296.7	UDTV 2160P	
26	3840*2160	67.5	30	297	UDTV 2160P	
27	3840*2160	112.5	50	594	UDTV 2160P	
28	3840*2160	134.86	59.94	593.4	UDTV 2160P	
29	3840*2160	135	60	594	UDTV 2160P	4K120 model (K6Hp HDMI port, O20) or 8K model
30	3840*2160	225	100	1188	UDTV 2160P	
31	3840*2160	269.73	119.88	1186.8	UDTV 2160P	
32	3840*2160	270	120	1188	UDTV 2160P	Not Support for FHD.
33	4096*2160	53.95	23.98	296.7	UDTV 2160P	
34	4096*2160	54	24	297	UDTV 2160P	
35	4096*2160	56.25	25	297	UDTV 2160P	
36	4096*2160	61.43	29.97	296.7	UDTV 2160P	
37	4096*2160	67.5	30	297	UDTV 2160P	
38	4096*2160	112.5	50	594	UDTV 2160P	
39	4096*2160	134.86	59.94	593.4	UDTV 2160P	
40	4096*2160	135	60	594	UDTV 2160P	4K120 model (K6Hp HDMI port, O20) or 8K model
41	4096*2160	225	100	1188	UDTV 2160P	
42	4096*2160	269.73	119.88	1186.8	UDTV 2160P	
43	4096*2160	270	120	1188	UDTV 2160P	8K Model Only.
44	7680*4320	107.89	23.98	1188	8K	
45	7680*4320	108	24	1188	8K	
46	7680*4320	110	25	1188	8K	
47	7680*4320	131.87	29.97	1188	8K	
48	7680*4320	132	30	1188	8K	
49	7680*4320	220	50	2376	8K	
50	7680*4320	263.74	59.94	2376	8K	
51	7680*4320	264	60	2376	8K	

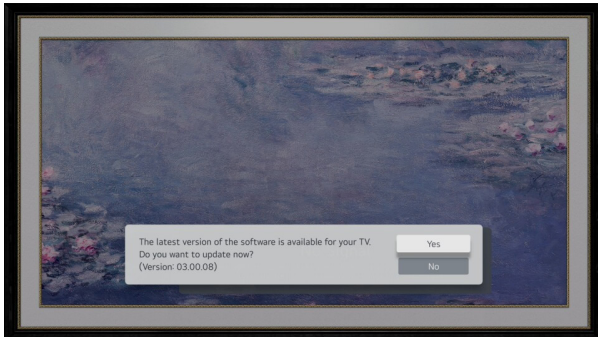
(2) PC mode

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	65	VESA(XGA)	
6	1360*768	47.71	60.01	84.75	VESA(WXGA)	
7	1152*864	54.34	60.05	80	VESA	
8	1280*1024	63.98	60.02	109	SXGA	Support to HDMI-PC Not Support for FHD.
9	1920*1080	67.5	60	158.4	WUXGA (Reduced Blanking)	
10	1920*1080	134.86	119.88	296.7	UDTV 2160P	Not Support for FHD.
11	1920*1080	135	120	297	UDTV 2160P	
12	3840*2160	53.95	23.98	296.7	UDTV 2160P	
13	3840*2160	54	24	297	UDTV 2160P	
14	3840*2160	56.25	25	297	UDTV 2160P	
15	3840*2160	61.43	29.97	296.7	UDTV 2160P	
16	3840*2160	67.5	30	297	UDTV 2160P	
17	3840*2160	112.5	50	594	UDTV 2160P	
18	3840*2160	134.86	59.94	593.4	UDTV 2160P	
19	3840*2160	135	60	594	UDTV 2160P	
20	4096*2160	53.95	23.98	296.7	UDTV 2160P	
21	4096*2160	54	24	297	UDTV 2160P	
22	4096*2160	56.25	25	297	UDTV 2160P	
23	4096*2160	61.43	29.97	296.7	UDTV 2160P	
24	4096*2160	67.5	30	297	UDTV 2160P	
25	4096*2160	112.5	50	594	UDTV 2160P	
26	4096*2160	134.86	59.94	593.4	UDTV 2160P	
27	4096*2160	135	60	594	UDTV 2160P	
28	2560*1440	88.78	59.95	241.5	3K	(UHD 60Hz models only), Support only when UHD DeepColor is On
29	2560*1440	182.99	119.99	497.7	3K	(UHD, 8K 120Hz models only), Support only when UHD DeepColor is On

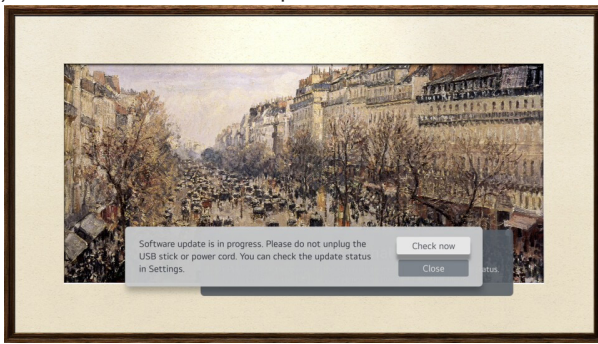
SOFTWARE UPDATE

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.



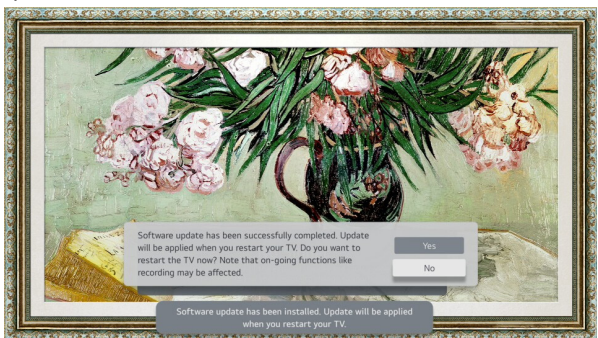
- (3) Click "Yes" button : Start Update



- (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.



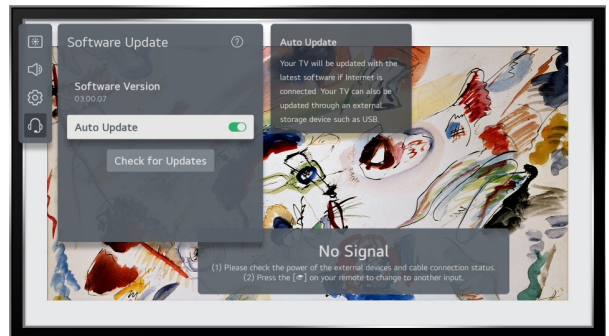
- (7) Click "Yes" : Tv will be turn off and on itself

2. NSU DOWNLOAD

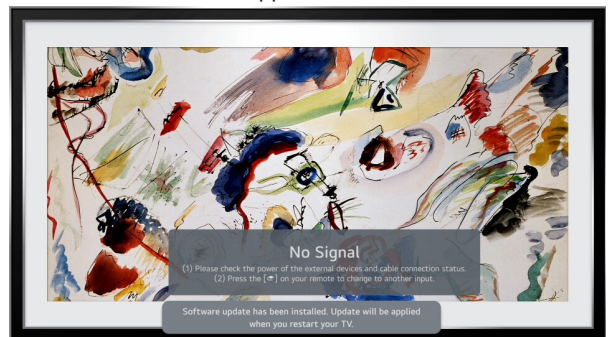
(This Function is needed to connect to the internet.)

Case 1) Auto Update On

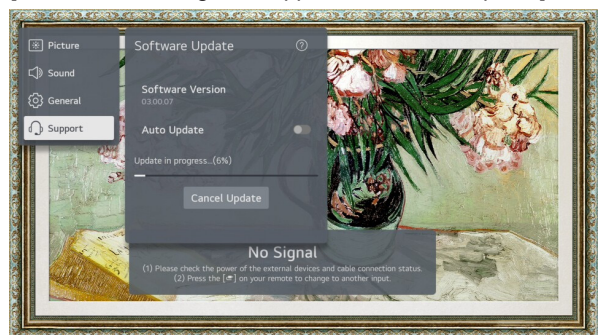
- (1) Go to Menu → All Settings → Support → Software Update, then check Auto update is turned on.



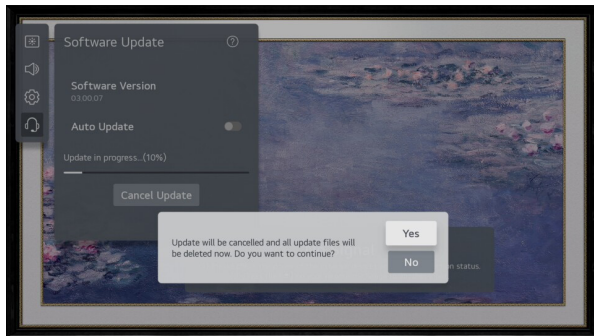
- (2) After the update complete, the user can check a pop-up below the picture, which indicated update is complete and the new version will be applied after the TV turn off and on.



- (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



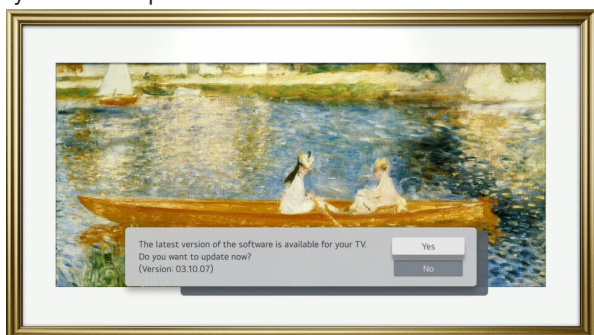
- (5) [“No”] : update continue
[“Yes”] : update cancel

Case 2) NOT Allow Automatic Updates Toggle Item

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

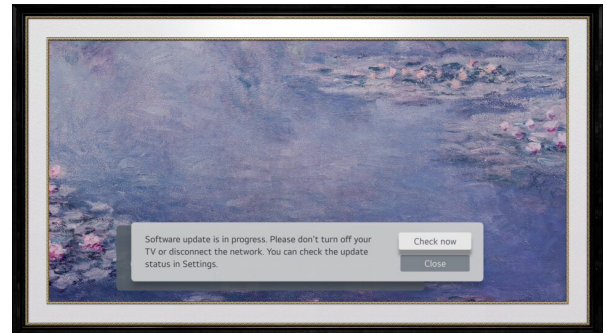


- (2) If it found upper version SW than the TV SW version, TV would show a pop-up like below the picture.
“The latest version of the SW is available for your TV. Do you want to update now?”



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

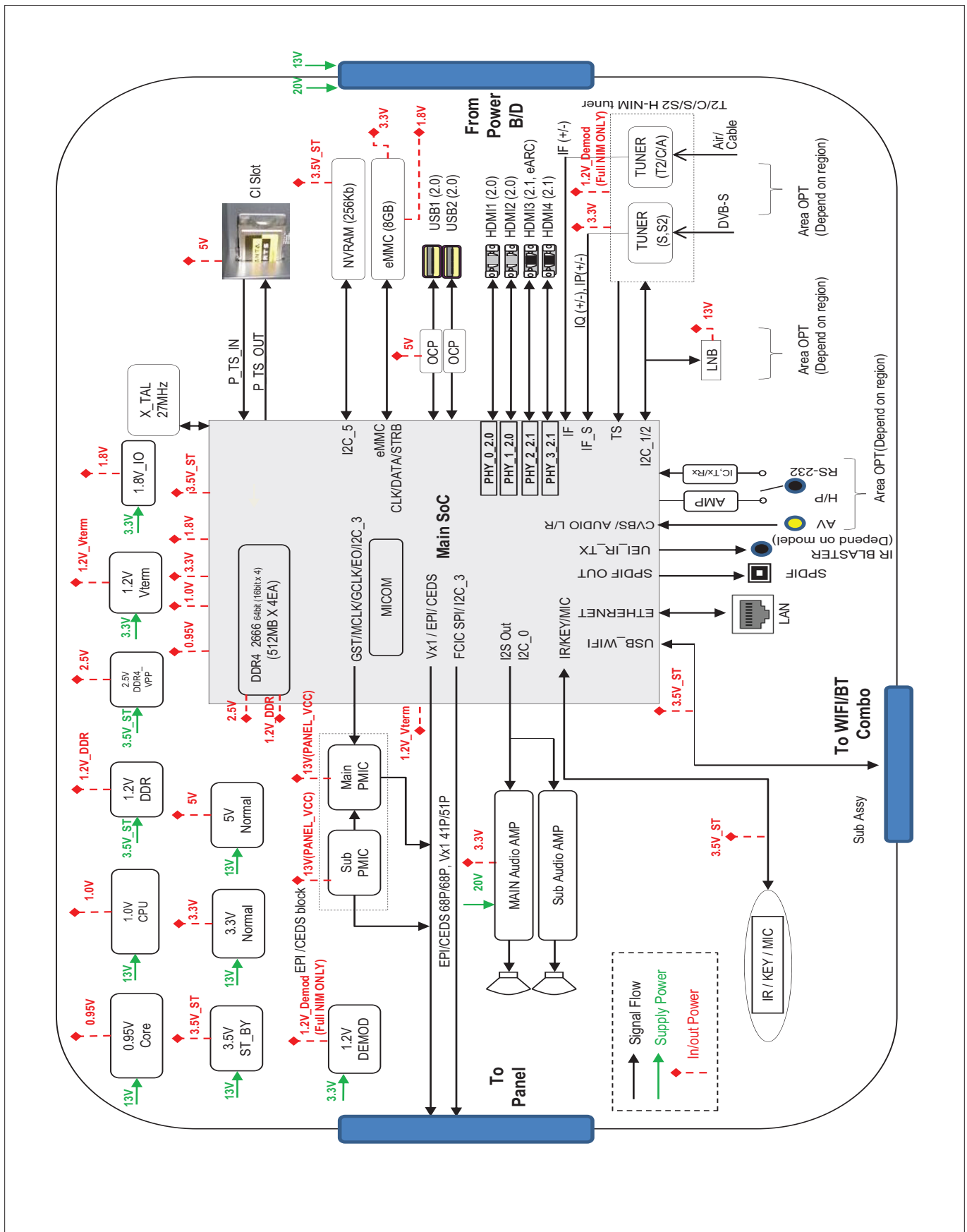
- (4) If the user started the update, the TV shows a pop-up below the picture.



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



BLOCK DIAGRAM



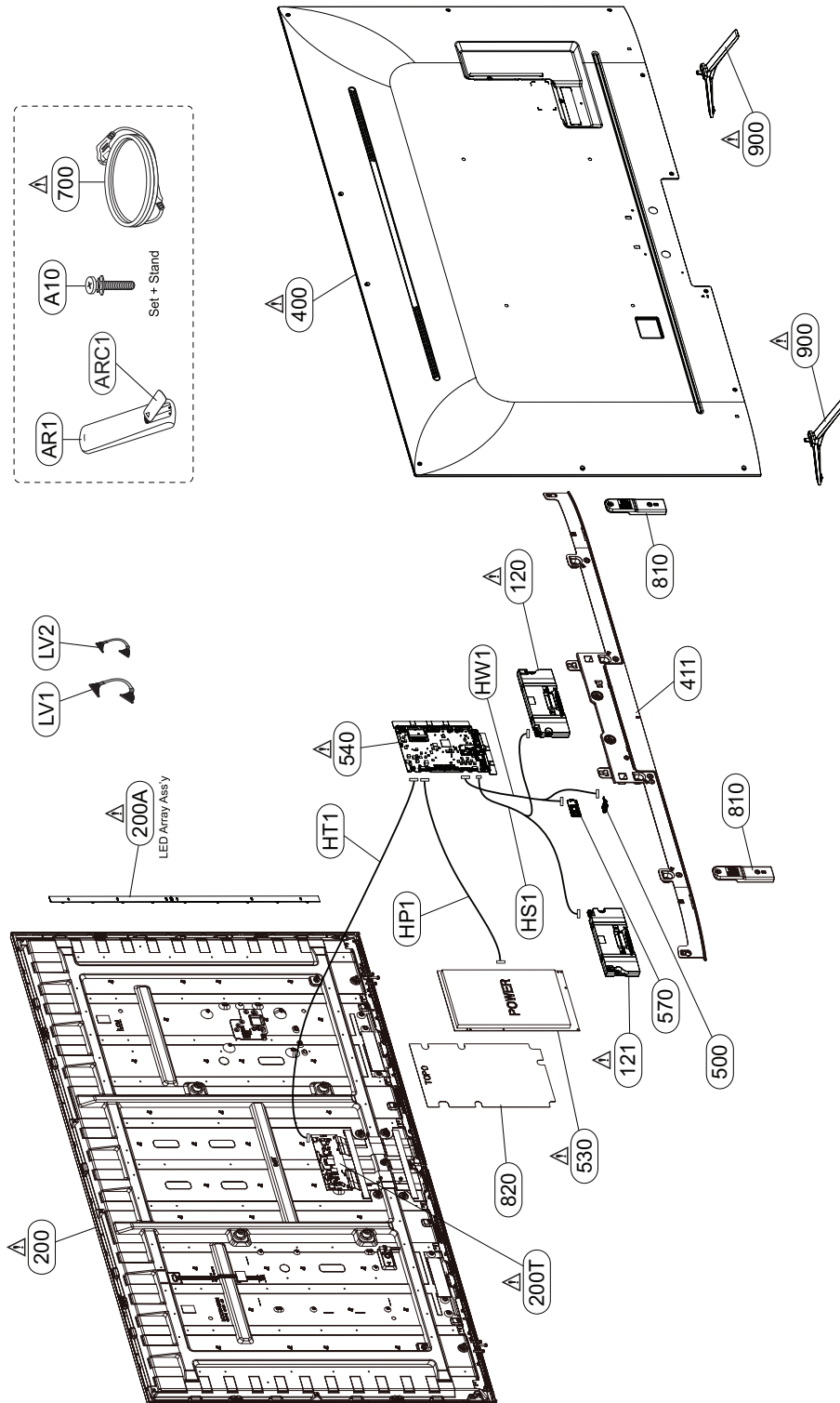
EXPLODED VIEW

— IMPORTANT SAFETY NOTICE

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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.



ASSEMBLY / DISASSEMBLY GUIDE (SET)

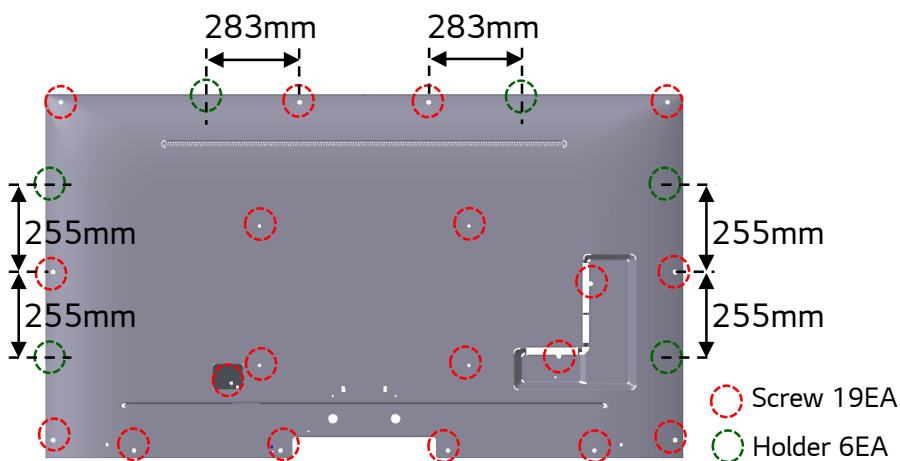
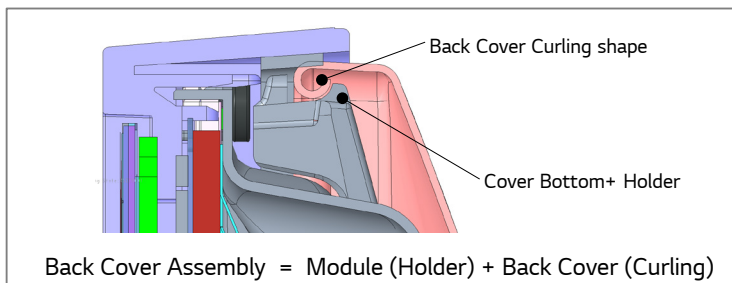
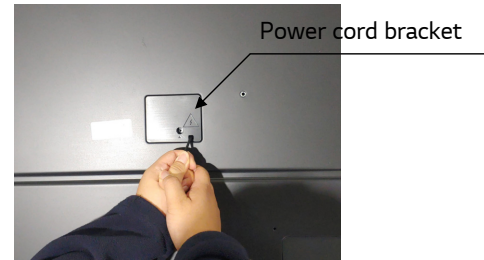
1. Back Cover Disassembly Guide

- (1) Lay the set on a flat Pad. And then remove screw and Power Cord Bracket.
- (2) Check the Back Cover Latch Points and ready remove Back Cover.

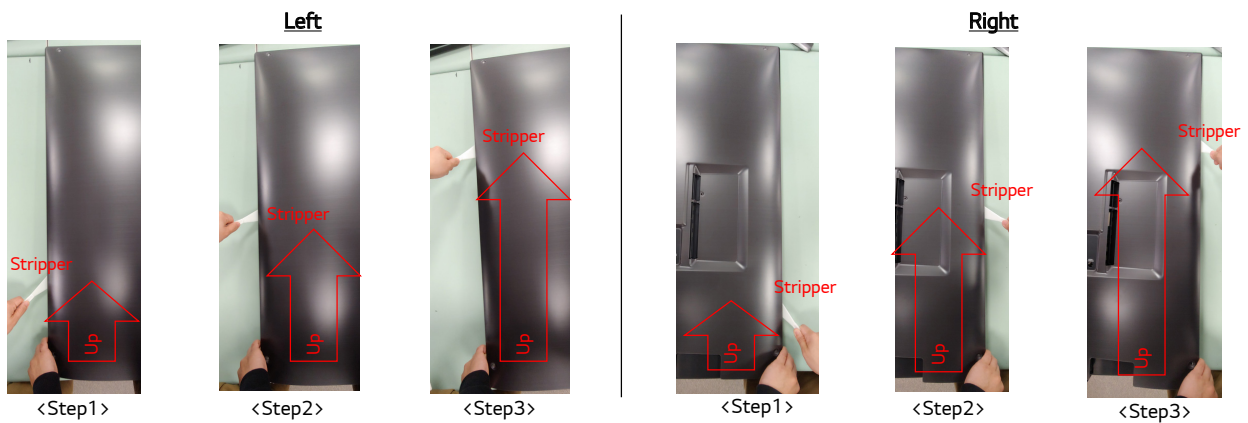


[86UP80]

- M3xL5.5 (Machine screw) : 11EA
- M4xL10 (Taptitle screw) : 4EA
- M8xL10 (Machine screw) VESA : 4EA
- Latch 2 EA

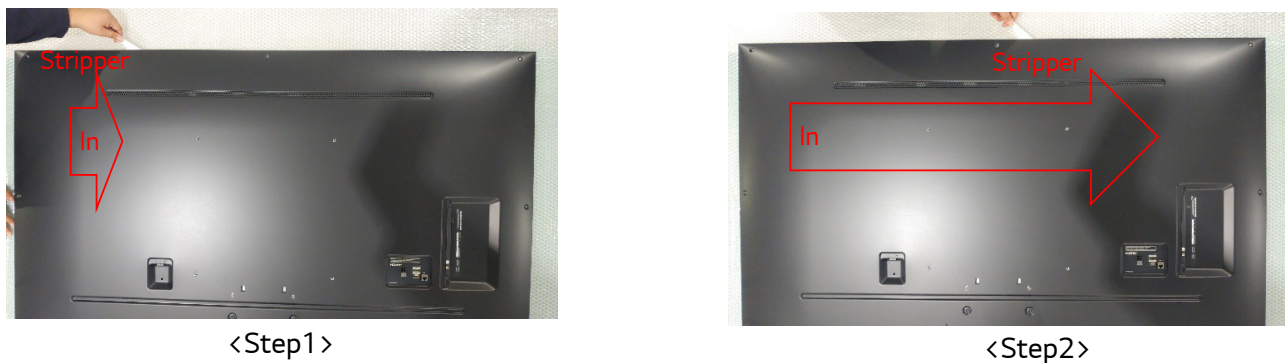


- (3) Lift the Back Cover with Stripper to make space between Back Cover and Module. Disassemble the back cover and module while moving the stripper in the direction of the arrow. (from bottom to top)
 * Stripper direction to remove : from bottom to top

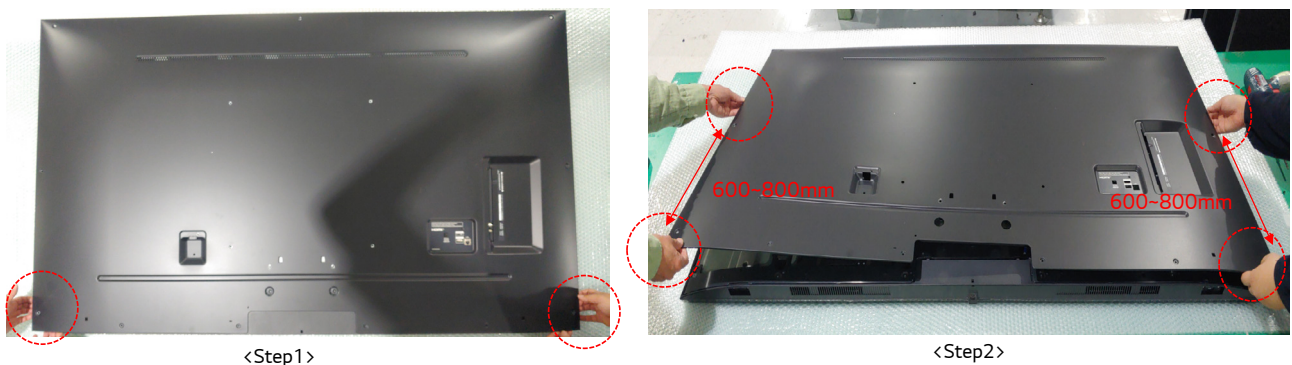


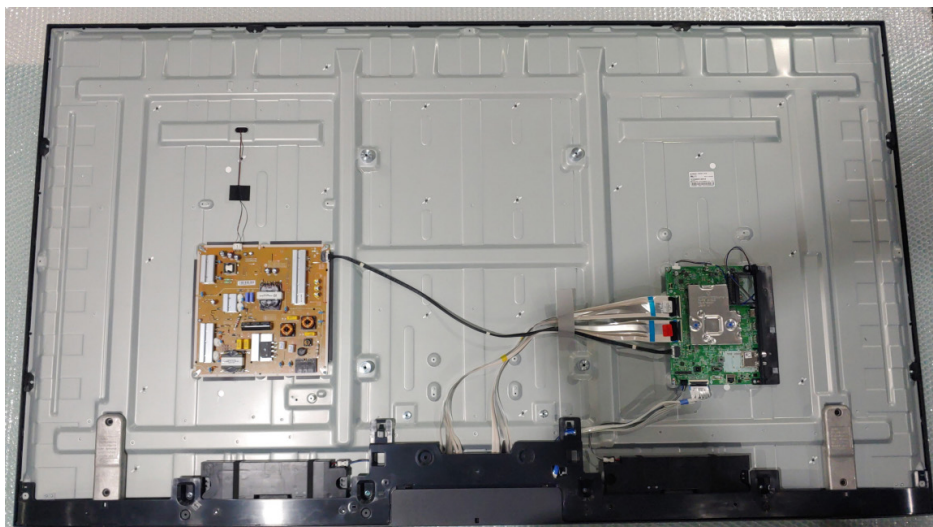
- (4) Lift the Back Cover with Stripper to make space between Back Cover and Module. Disassemble the back cover and module while moving the stripper in the direction of the arrow. (from Left to Right)
 * Stripper direction to remove direction : from bottom to top

Top (Stripper direction Left → Right)



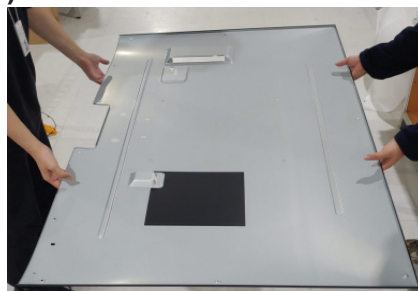
- (5) Two people grasp Back Cover and remove Back Cover. - Grasp position : 600~800mm
 (6) Back Cover handling is refer to 'Back cover handling guide'.





2. Back Cover Handling Guide

▪ Two people handling Guide (OK)

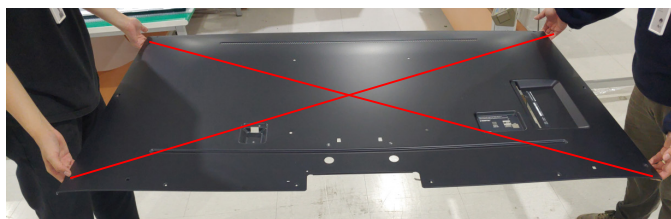
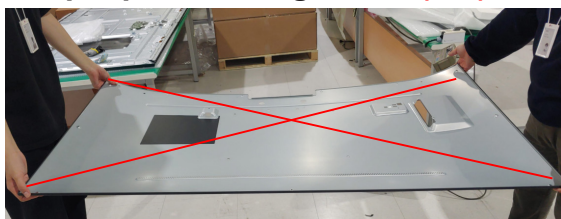


→ 2 People Grasp : Long side shoulder width 600~800mm



→ 2 people set up : 4-corner Handling

▪ Two people handling Guide (NG)



3. Back Cover Latch Assemble Guide

(1) After put the Back Cover on the module, push latch point in Back Cover curved area. (refer. Picture)

- Push slope direction of Back cover for preventing faulty appearance

(2) Confirm Latch Assemble part (If Latch is not assemble, Gap and lifting are made.)



NG



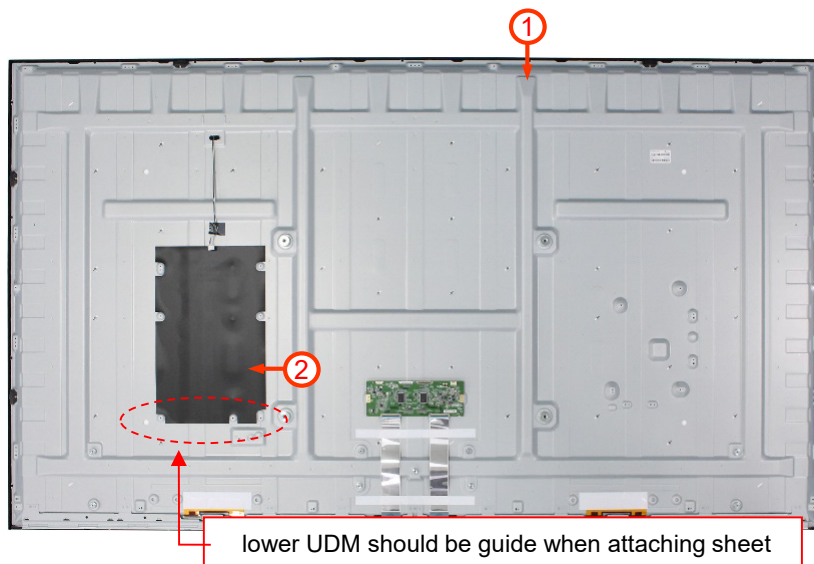
OK



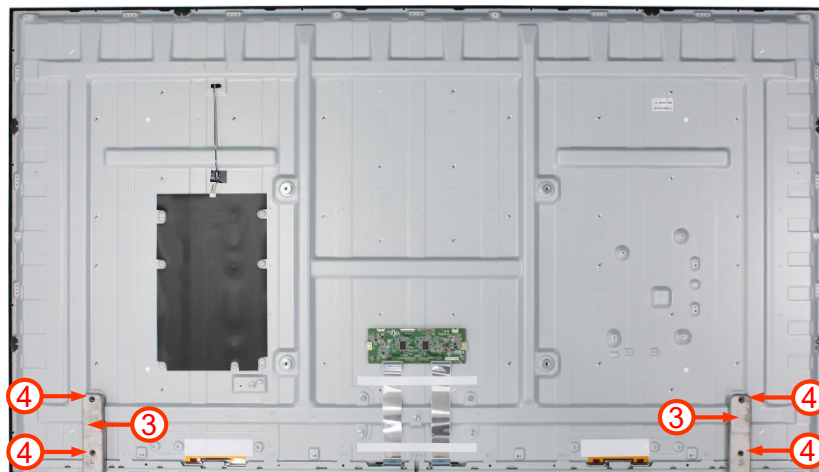
OK

4. Assemble Guide

(1) Attach the INSULATOR.



(2) Assemble/Fix the SUPPORTER + MODULE



No	P/N	Description	Q'ty
1	EAJ656877**	LCD, Module	1
2	MEV677000**	Insulator	1
3	MAZ674550**	Stand Supporter	2
4	FAB30016103	Screw	4

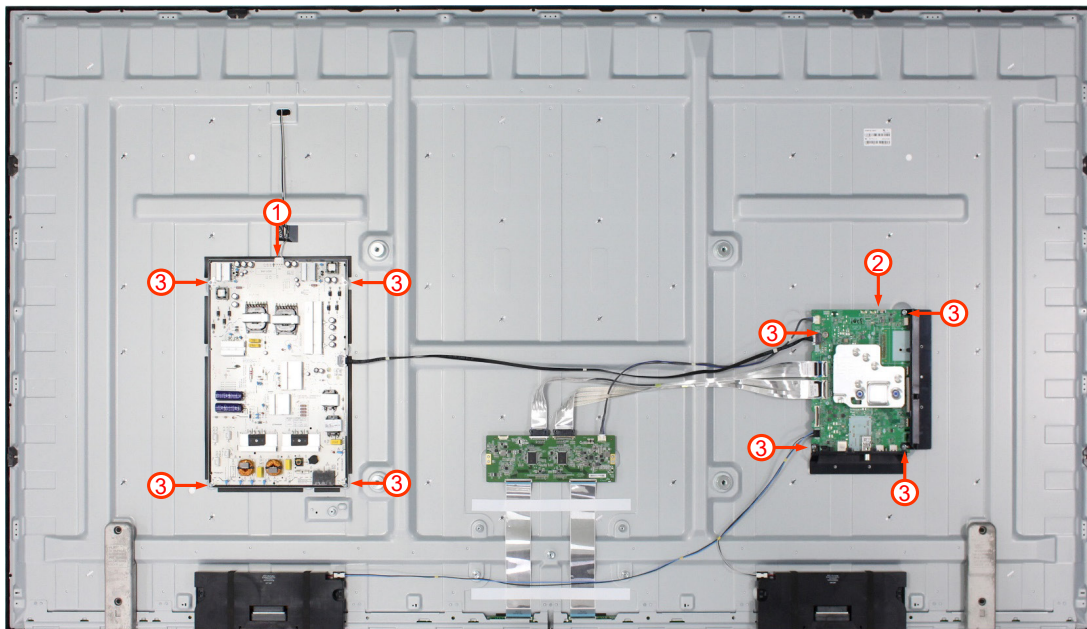
(3) Assemble SPEAKER + MODULE.



Press the edge of mark rubbing it using palm to insert Speaker Rubber

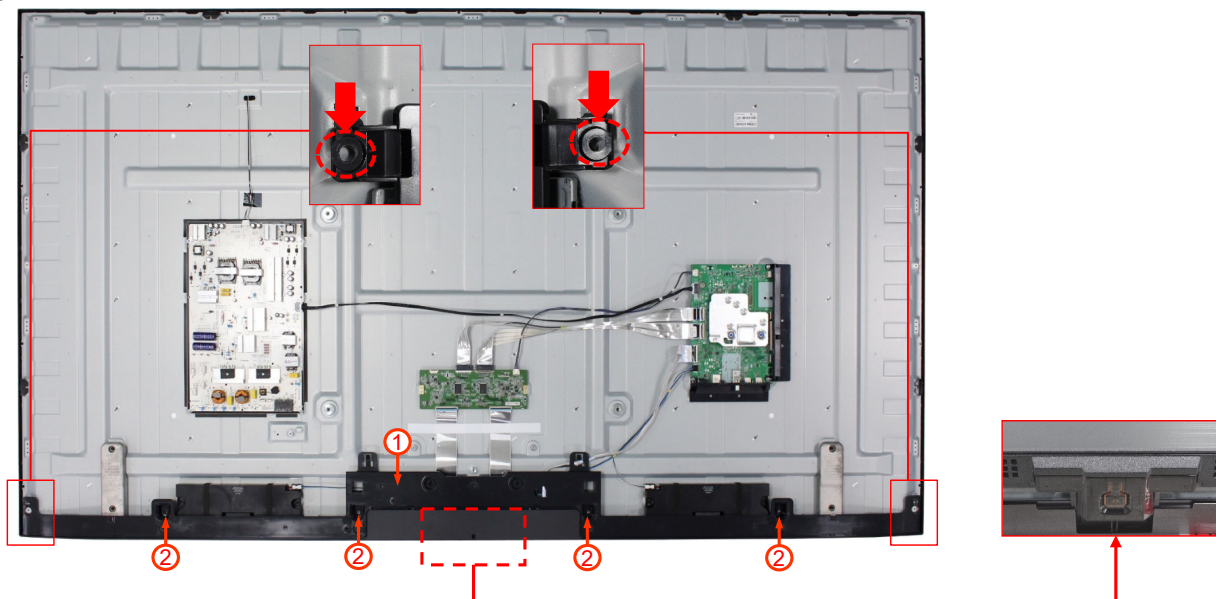
No	P/N	Description	Q'ty
1	EAB658162**	Speaker, Assembly	1
2	EAB658162**	Speaker, Assembly	1

(4) Assemble/Fix the POWER / MAIN PCB + MODULE.



No	P/N	Description	Q'ty
1	EAY658955**	Power Supply Assy	1
2	EBT666034**	Chassis Assy	1
3	FAB32418704	Screw	8

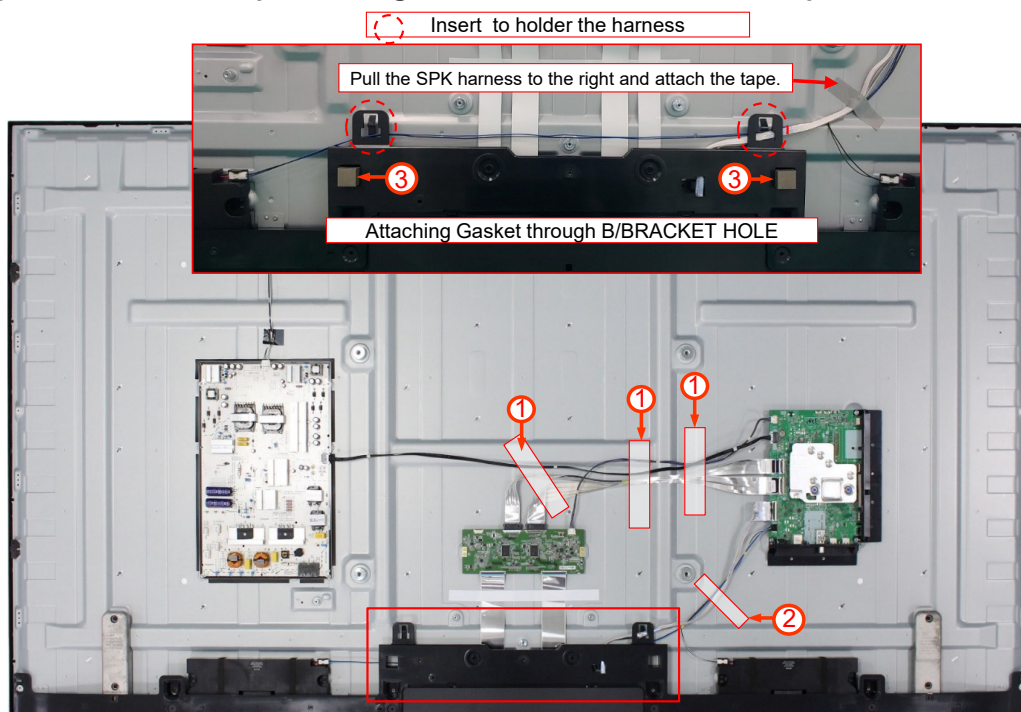
(5) Assemble /Fix the BOTTOM REAR COVER + MODULE.



No	P/N	Description	Q'ty
1	ACQ302152**	Cover Assy, Rear Bottom	1
2	FAB32418704	Screw	4

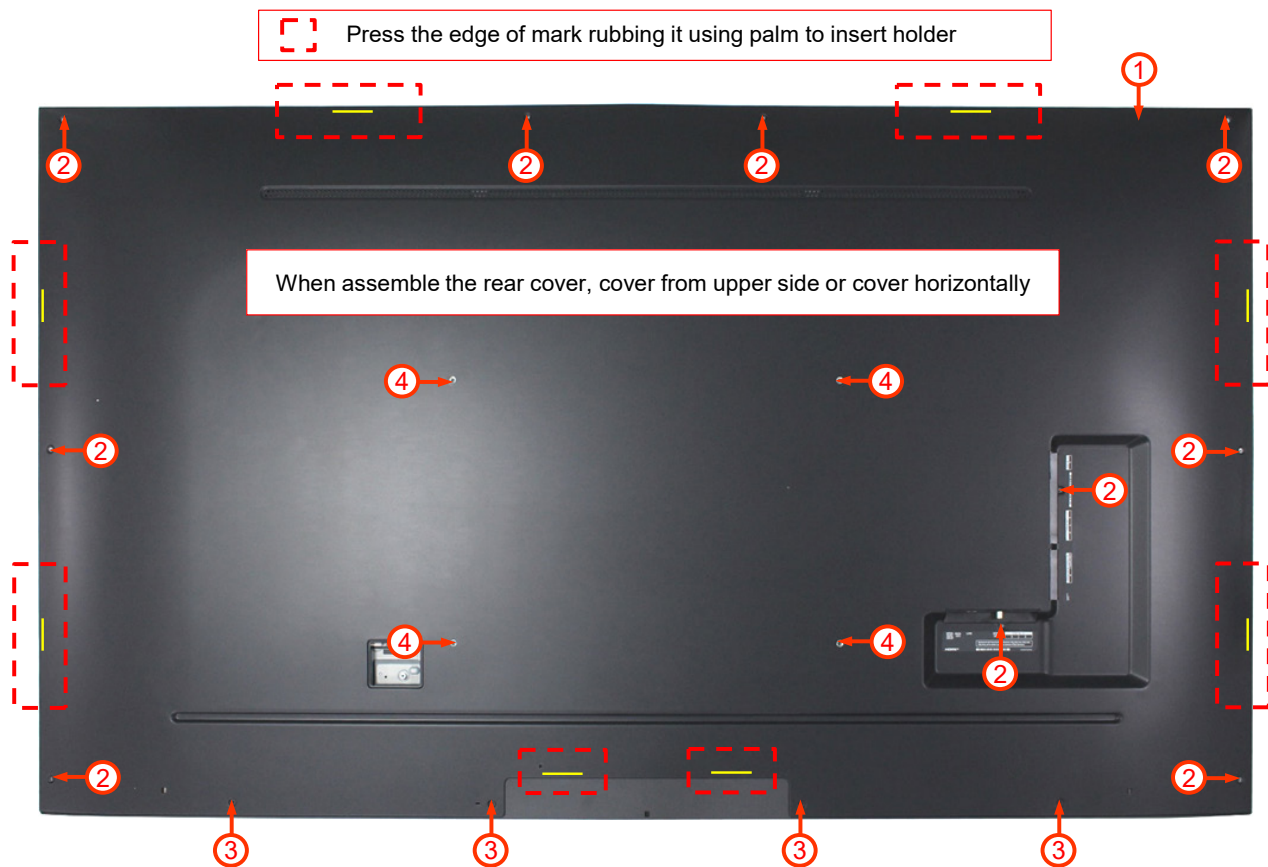
(6) Arrange the harness.

(7) When Attach the tape for fixing Harness at Module, Rub the tape 2~3 times for adhering totally.



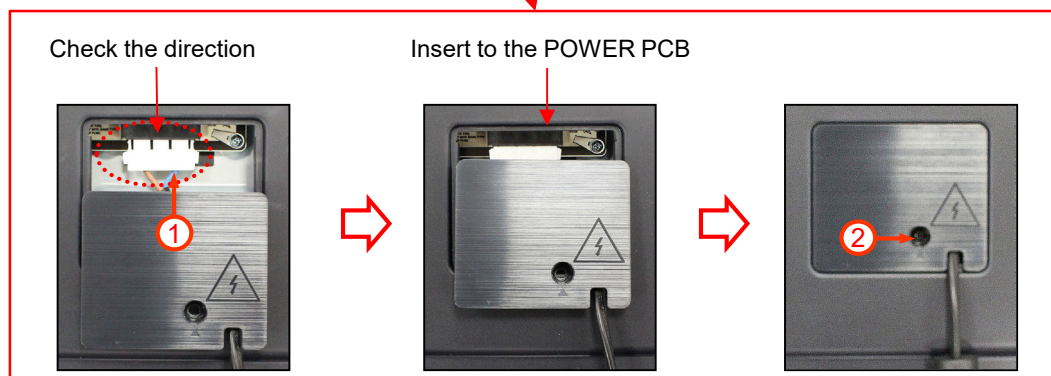
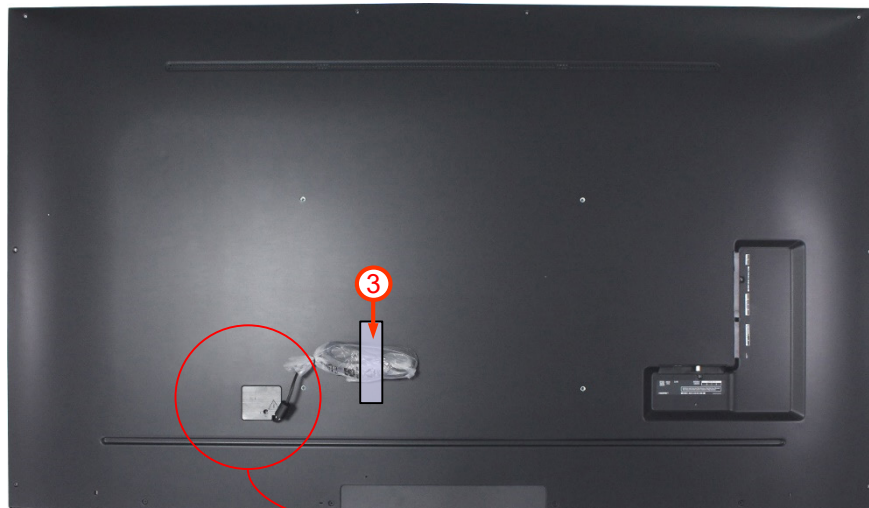
No	P/N	Description	Q'ty
1	RAB33632803	Tape	3
2	RAB33632804	Tape	1
3	MDS64952652	GASKET	2

(8) Assemble/Fix the REAR COVER + MODULE.



No	P/N	Description	Q'ty
1	ACQ302143**	Cover Assy Rear Top	1
2	FAB31843211	Screw	10
3	FAB31639801	Screw	4
4	FAB32838809	Screw	4

- (9) Insert the HARNESS. (POWER CORD + POWER PCB)
- (10) Assemble COVER on the REAR COVER.
- (11) Fix the POWER CORD + BACK COVER with SCREW.
- (12) Attach the TAPE.

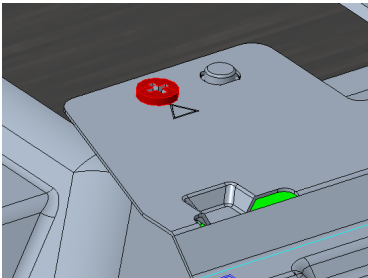
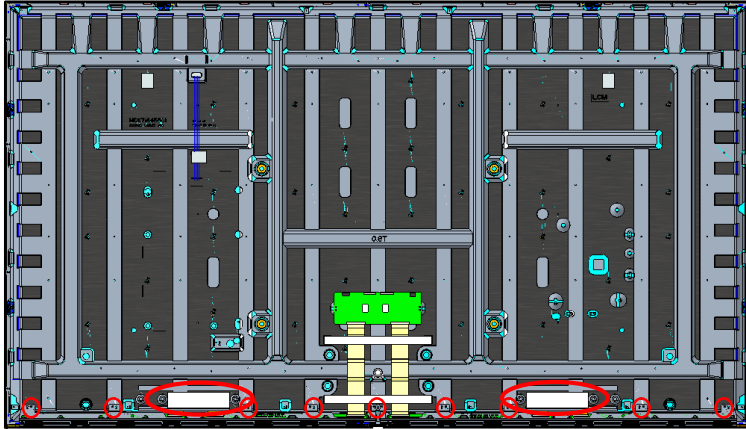


No	P/N	Description	Q'ty
1	EBT*	Power Cord Assy	1
2	FAB31843211	Screw	1
3	RAB34969902	Tape	1

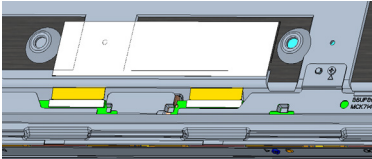
ASSEMBLY / DISASSEMBLY GUIDE (MODULE)

■ The Guide of Module disassemble

1. Disassemble of Cover Shield L,R

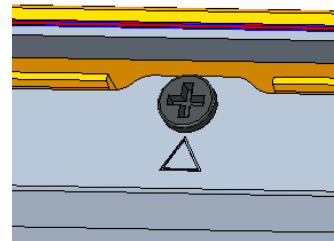
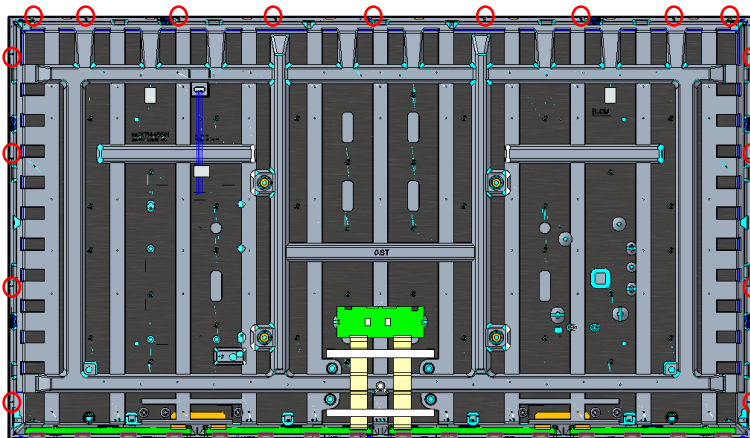


* Disassemble the Screws.
(Right 4 EA / Center 1 EA / Left 4 EA).



* Disassemble the source PCB from the guide.
(Remove bridge FFC tape 2 EA before disassembly)

2. Disassemble of Guide panel screw



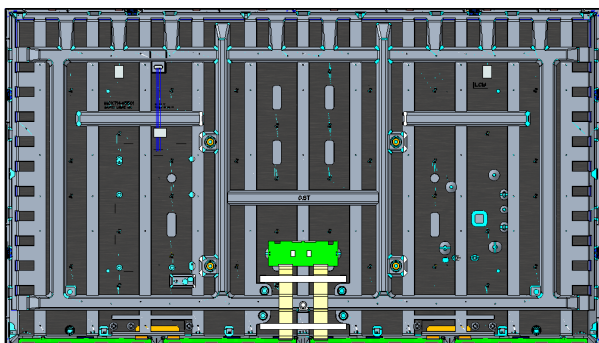
* Disassemble the Screws(Up 9 EA / L 4 EA / R 4 EA)

3. Disassemble of Case Top screws.



*Bottom Side Screws 11ea.

4. Reverse the module



* Two people should hold the left/right each side and reverse it.



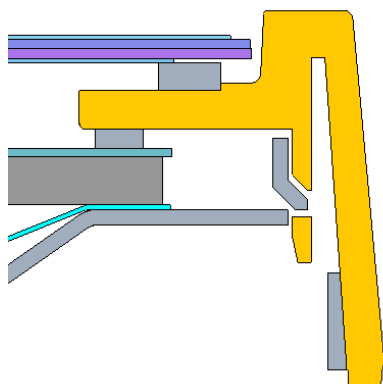
* Fix the S-PCB to Panel(use the tape).

5. Disassemble of down Hooks.

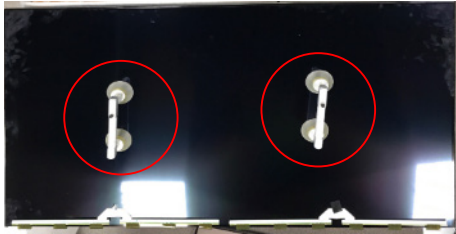


* Disassemble Hooks with flat stick.

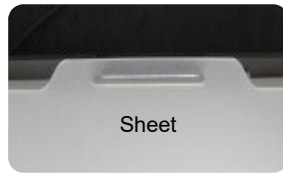
6. Disassemble of Up / Right /Left side Hooks.



7. Panel and Guide Panel disassembly (Use adsorber)

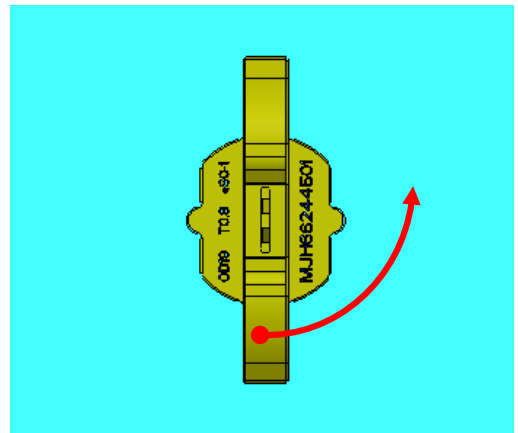
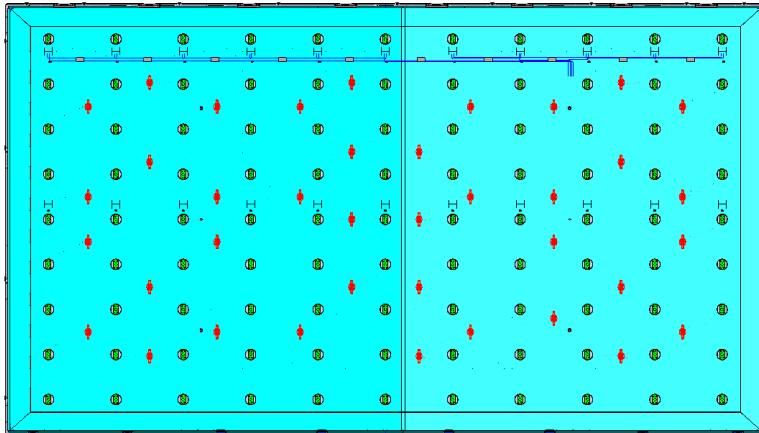


8. Removal of Sheet and DP

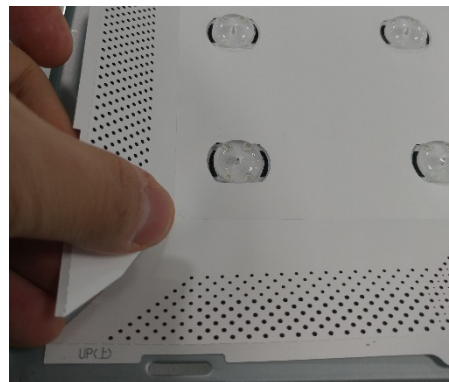
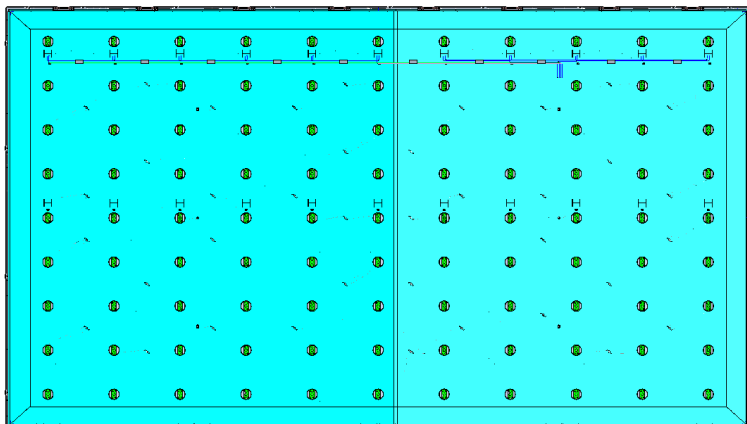


* Sheet 1 EA, DP 1 EA

9. Removal of DPS(38 EA)

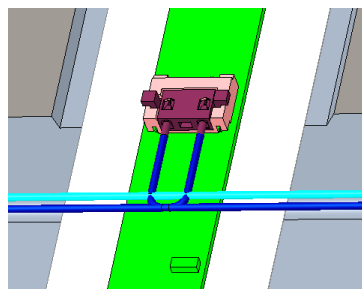
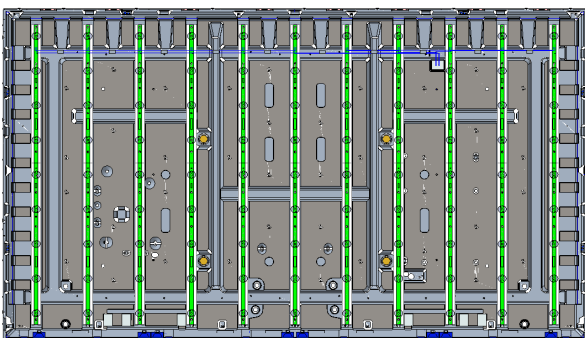


10. Removal of Reflector(L/R)



* Be careful not to damage the reflector sheet

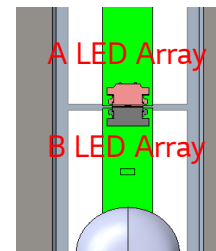
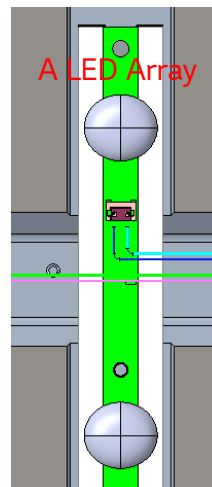
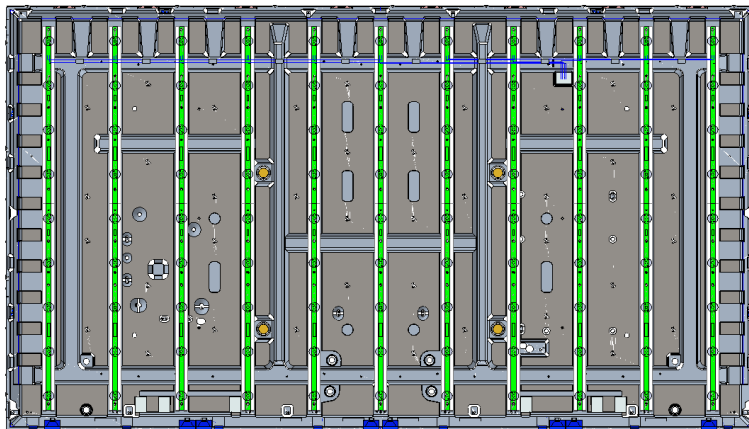
11. Removal of Wire and LED Array



* Disconnect the wire CNT first and remove the LED array from both ends.

■ The Guide of Module assemble

1. Assemble the LED Array

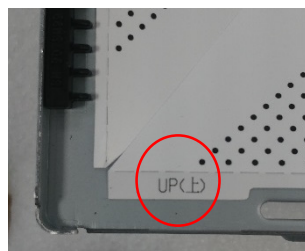
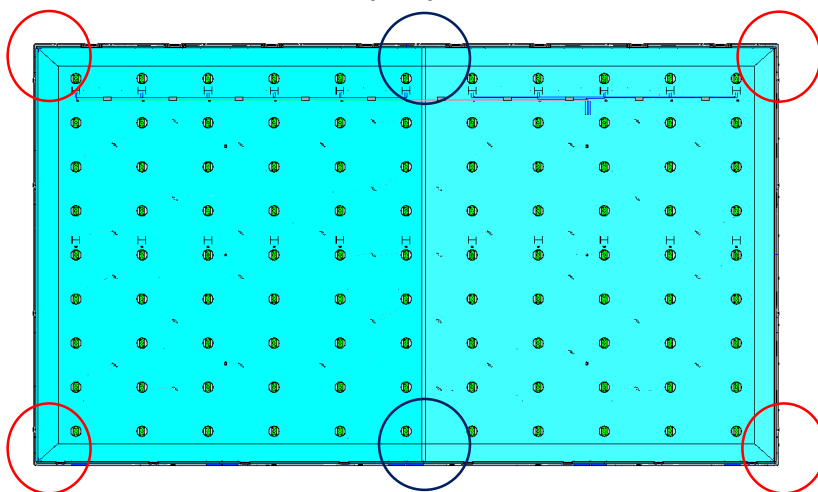


* Assemble the A LED array to the top Embo.

* Insert the connector of the B LED array into the A LED array connector and assemble it.

* Press LED Array to cover bottom

2. Assemble the Reflector(L/R).

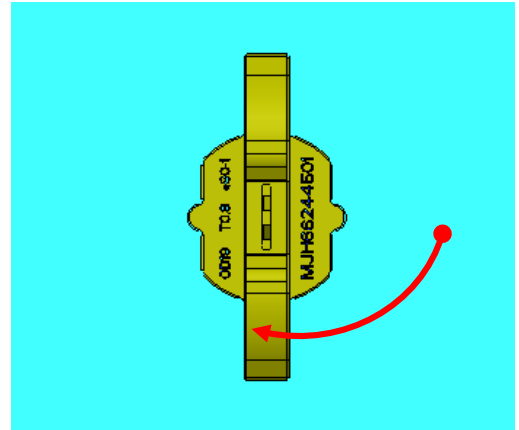
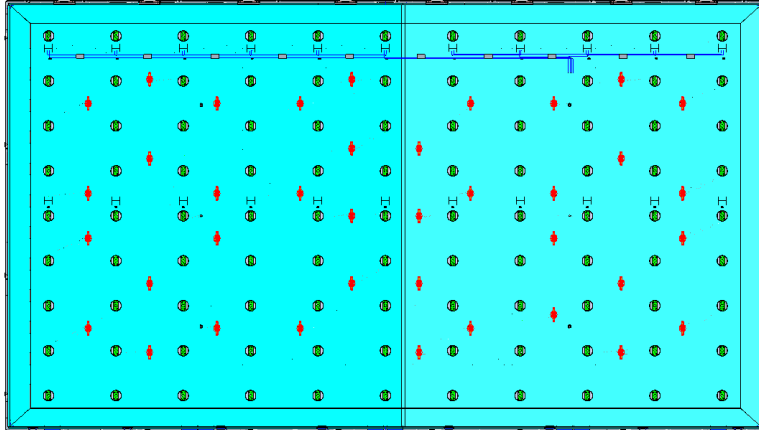


* Assemble according to Guide embo

* Assemble the reflector sheet below the lens with your fingers

* In the case of corner and center, place the side marked UP on top.

3. Assemble the DPS(38 EA).

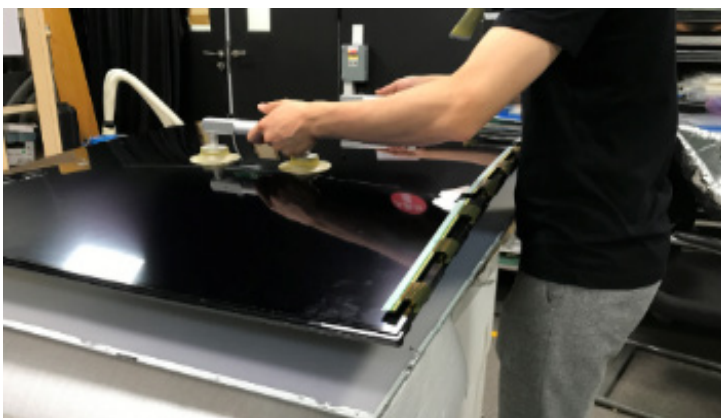


4. Assemble the DP and sheet.



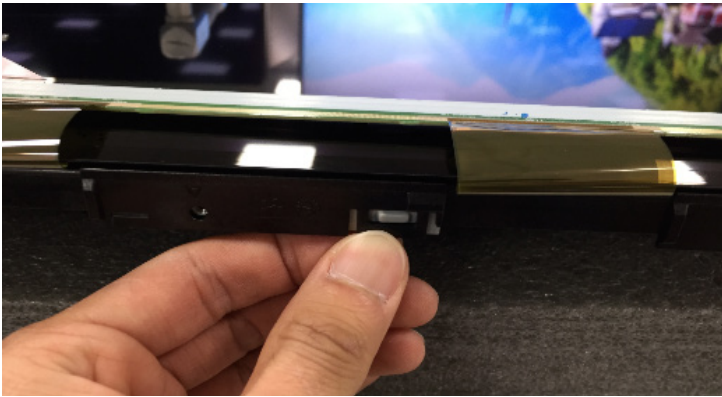
- * Make sure it is assembled on the sheet hangers.
- * There is chamfer in the lower left corner of the DP.

5. Assemble the Panel and Guide Panel(use adsorber)

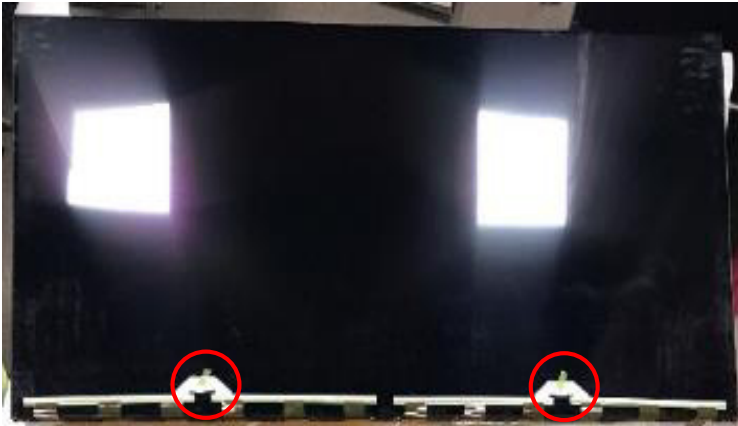


- * Assemble the upper left/right first and assemble the bottom left/right.

6. Assemble the Guide Panel down hook



7. Remove the fixed tape first, then assemble the case top.



8. Assemble the case top screws

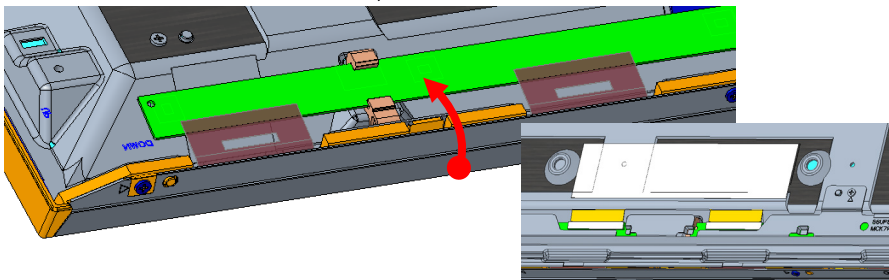
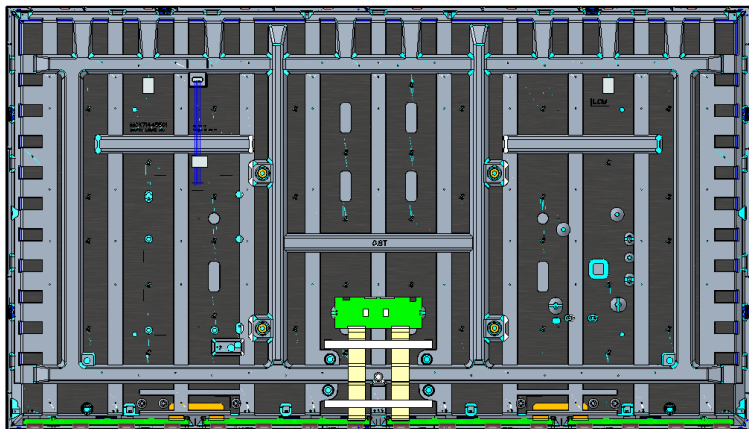


* Bottom side screws 11 EA.

* When the left and right ends, hold case top by hand.

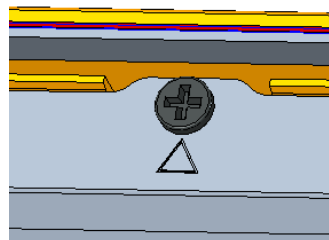
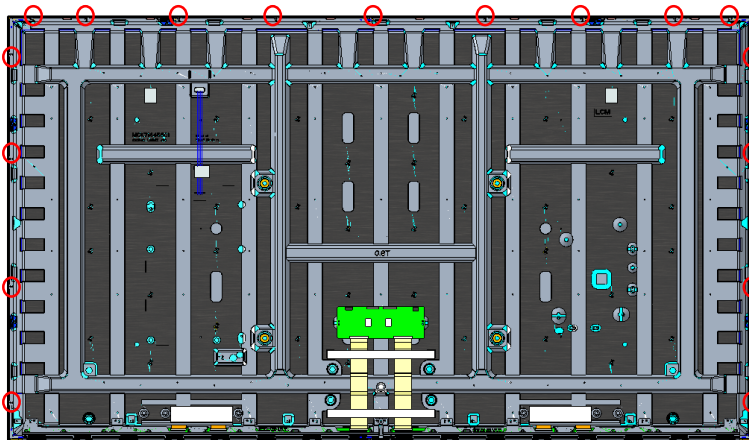


9. Reverse the module and assemble S-PCB to holder.



* Then assemble the Cover shield and attach the tape to the Bridge Cable.

10. Assemble the Guide panel Screws and Cover Shield Screws.



* Assemble the Screws Screw.

- Guide Panel Screws(Up 9 EA / L 4 EA / R 4 EA)
- Cover Shield Screws(Left 4 EA / Center 1 EA / Right 4 EA).

TROUBLE SHOOTING GUIDE

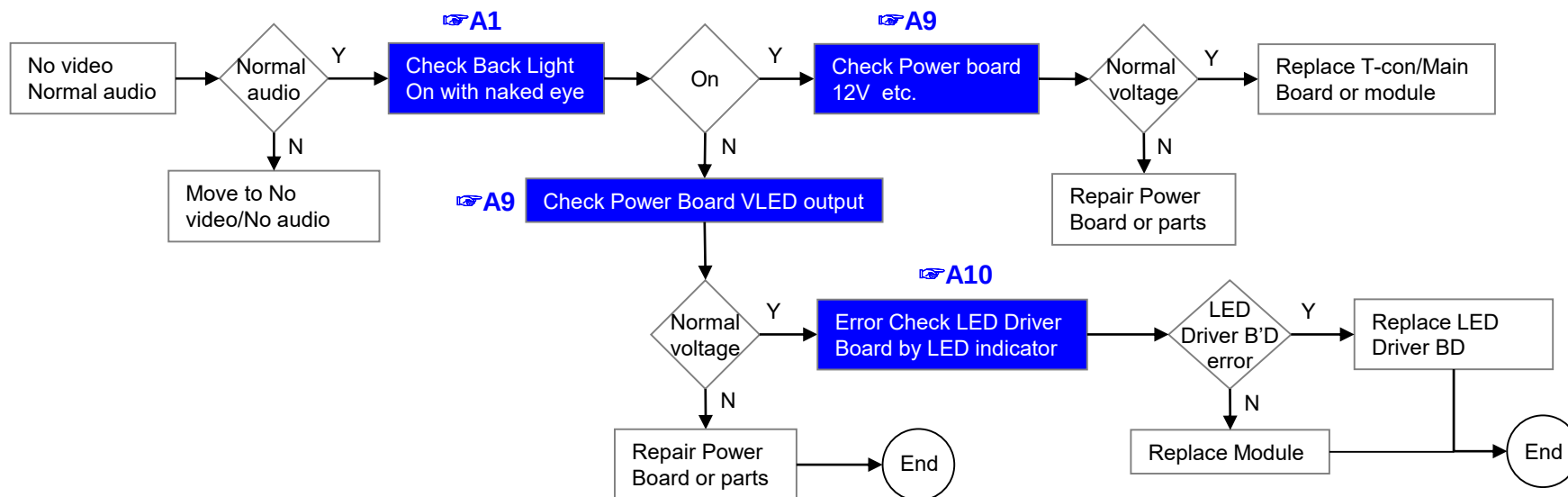
Contents of Standard Repair Process

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		Magic Remote control operating checking	12	
13		WiFi operating checking	13	
14		External device recognition error	14	
15		Voice Recognition Function Error	15	
15	E. Noise	Circuit noise, mechanical noise	16	
16	F. Exterior error	Exterior defect	17	

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

	Error symptom	A. Video error	Established date		
		No video/ Normal audio	Revised date		1/17

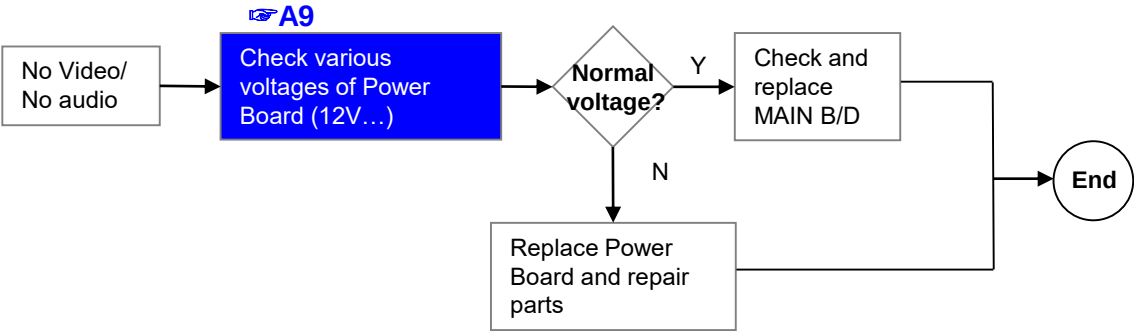
**First of all, Check whether all of cables between board is inserted properly or not.
(Main B/D↔ Power B/D, Each Cable for Panel, Speaker Cable, IR B/D Cable,,,)**



※Precaution **A4 & A2**



	Error symptom	A. Video error	Established date		
		No video/ No audio	Revised date		2/17

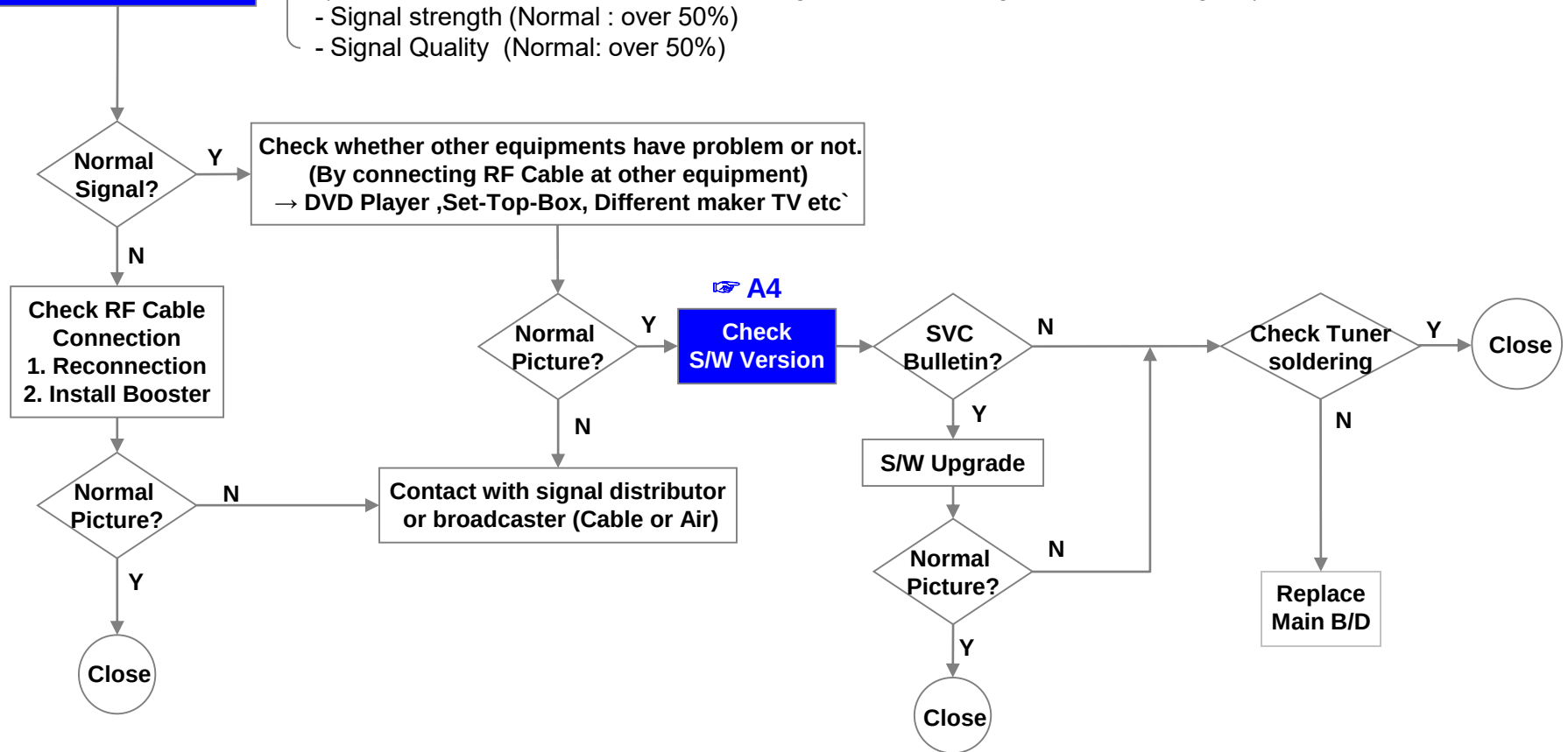


	Error symptom	A. Video error	Established date		
		Picture broken/ Freezing	Revised date		3/17

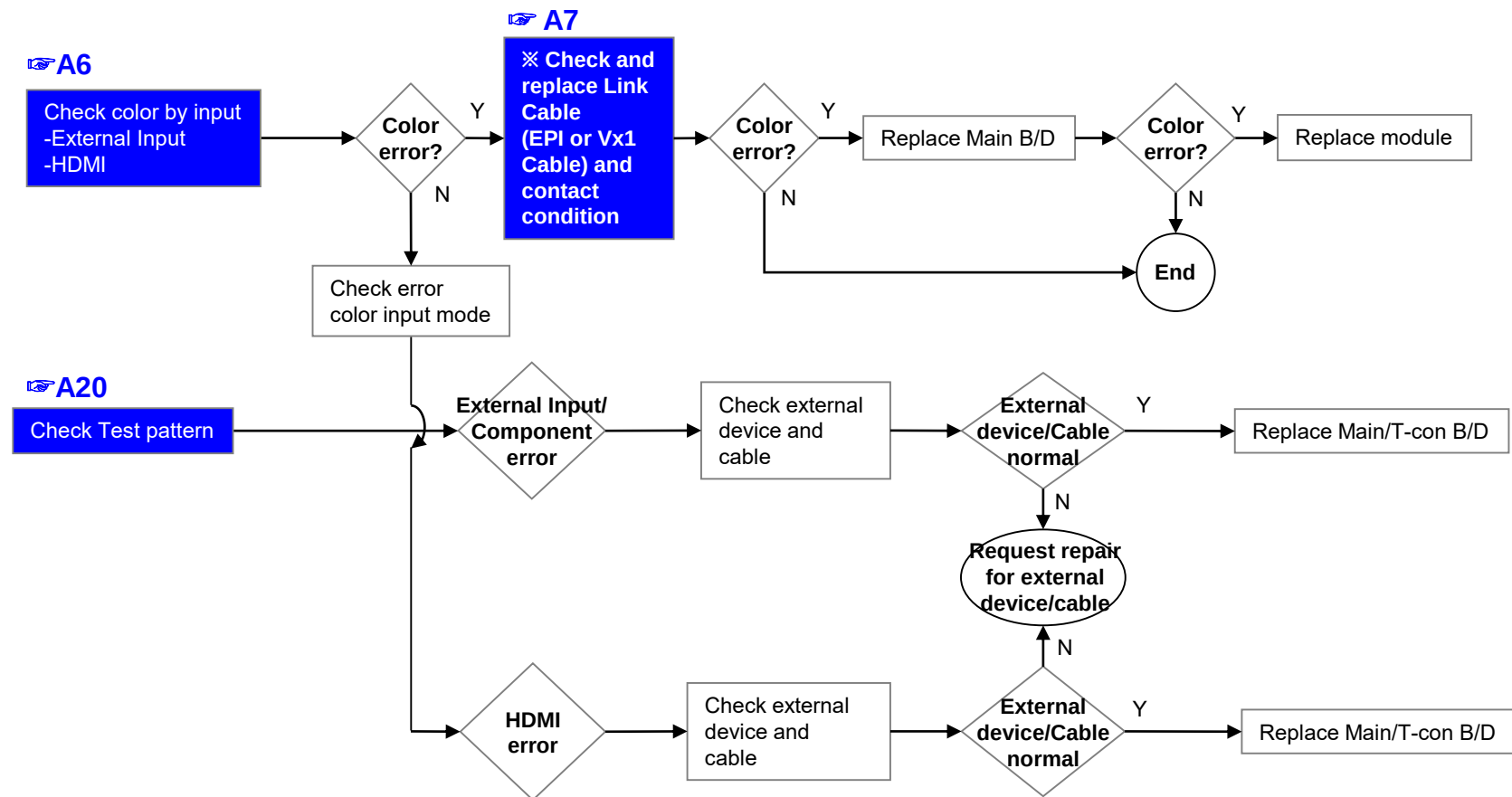
👉 A3

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%)



	Error symptom	A. Video error	Established date		
		Color error	Revised date		4/17



	Error symptom	A. Video error	Established date		
		Vertical / Horizontal bar, residual image, light spot, external device color error	Revised date		5/17

Vertical/Horizontal bar, residual image, light spot

A6

Check color condition by input
-External Input
-HDMI

A20

Check Test pattern

Screen normal?

Replace module

Check external device connection condition

Normal?

Request repair for external device

A7

Check and replace Link Cable

Screen normal?

End

Replace Main/T-con B/D
For LGD panel

Replace Main B/D
For other panel

Screen normal?

End

Replace Module

External device screen error-Color error

Check S/W Version

Check version

S/W Upgrade

Normal screen?

End

Check screen condition by input
-External Input
-Component
-HDMI/DVI

External Input error

Component error

HDMI/DVI

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.)

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.)

Screen normal?

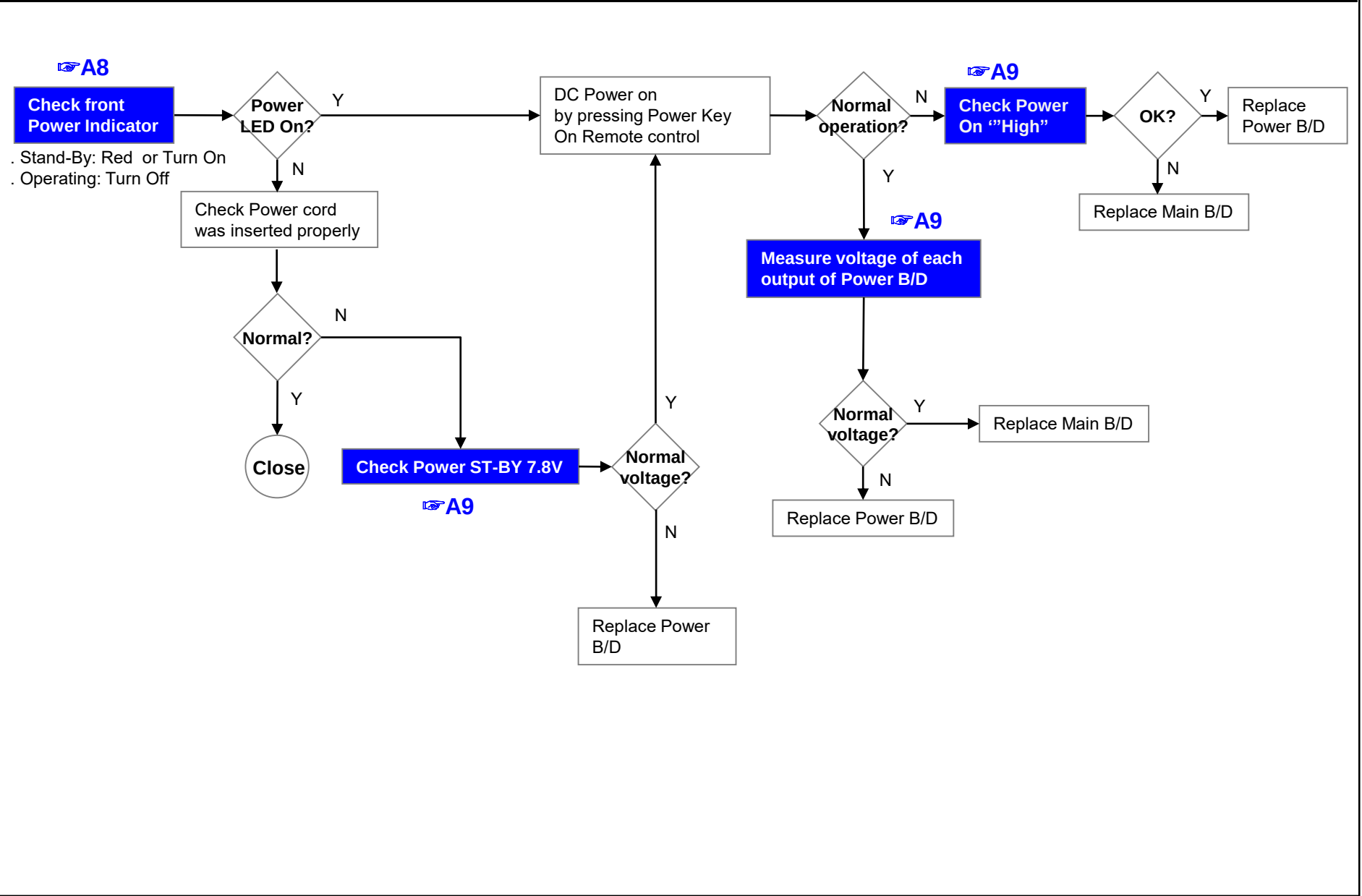
Request repair for external device

Screen normal?

Replace Main/T-con B/D

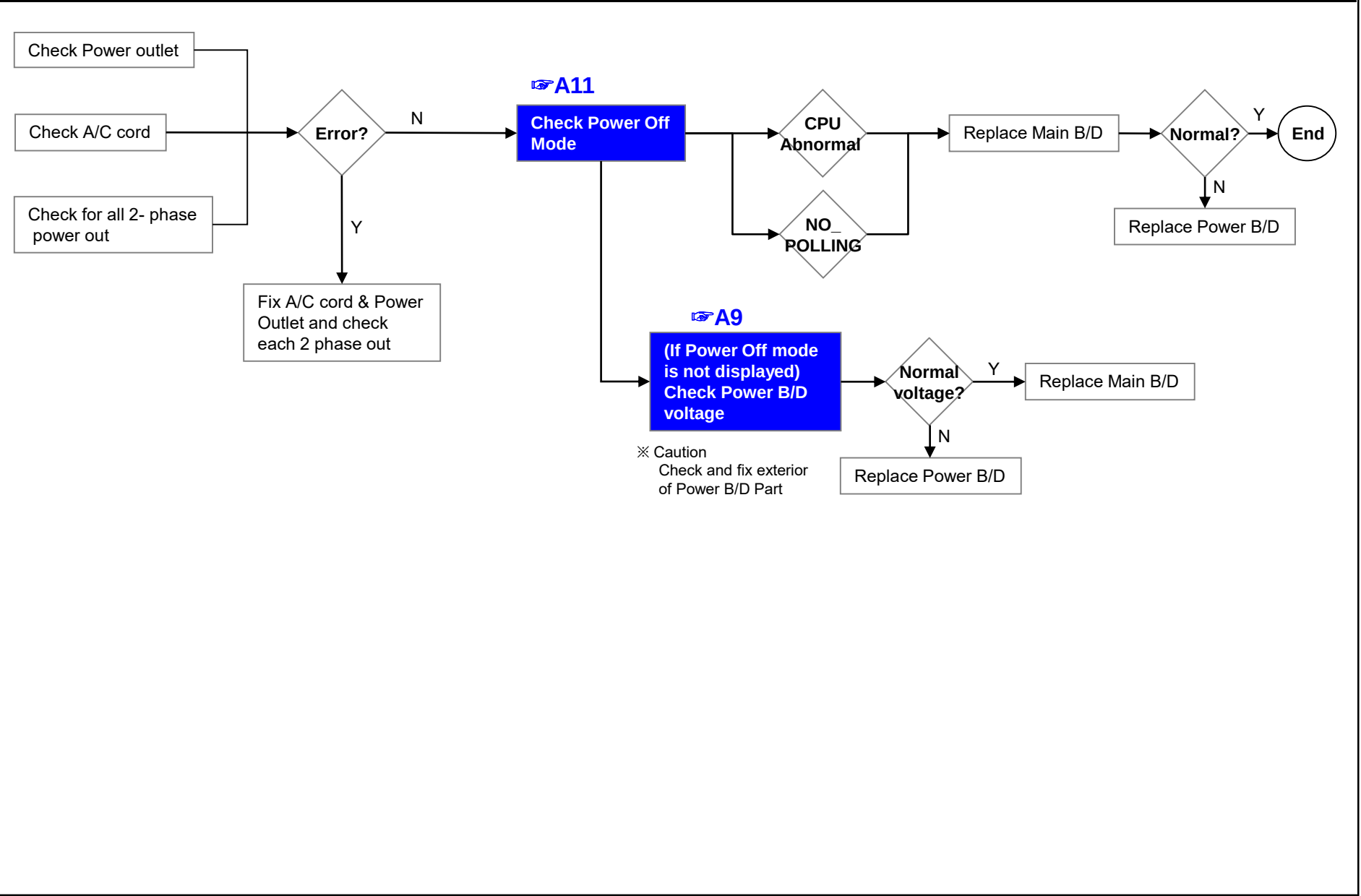
Replace Main /T-con B/D

	Error symptom	B. Power error	Established date		
		No power	Revised date		6/17



Standard Repair Process

	Error symptom	B. Power error	Established date		
		Off when on, off while viewing, power auto on/off	Revised date		7/17

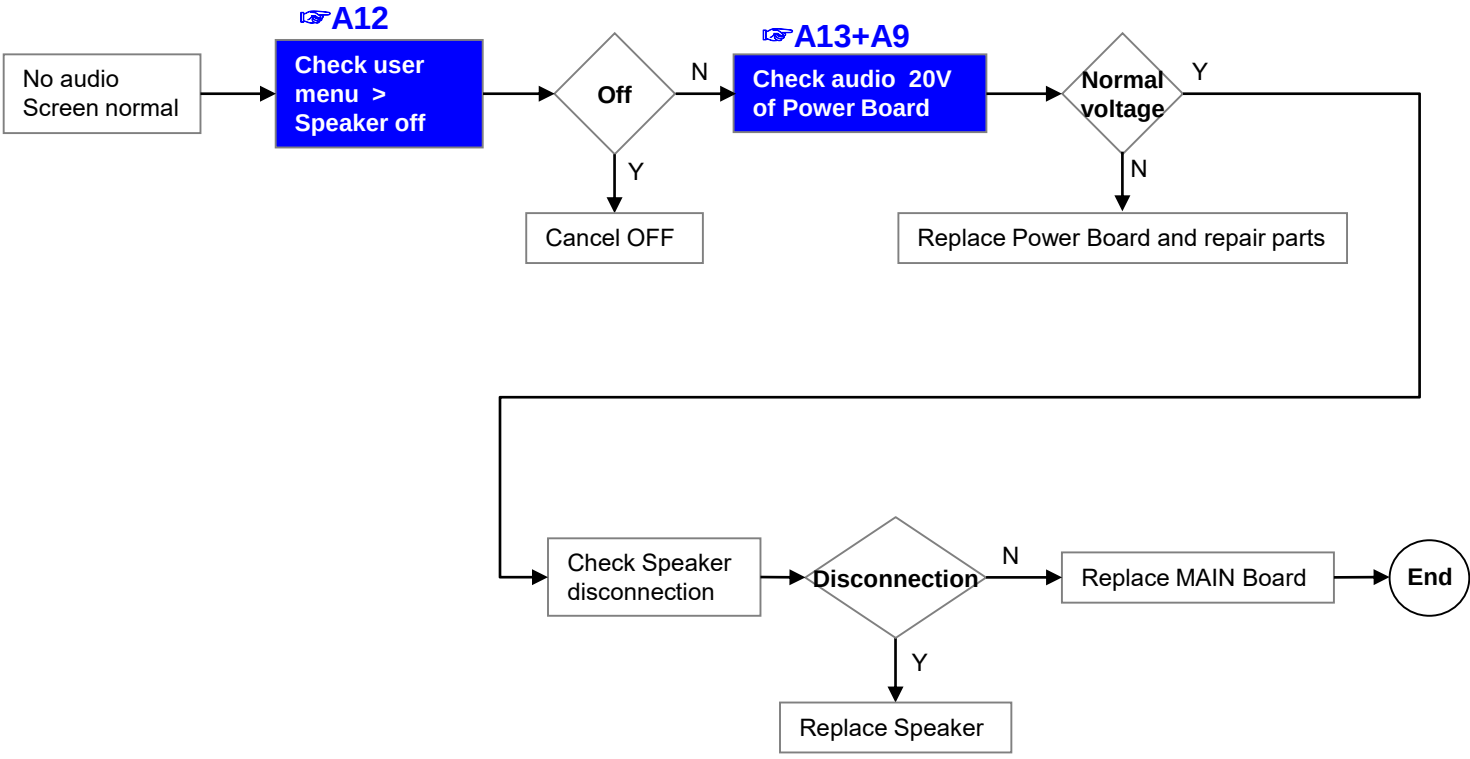


	Error symptom	B. Power error	Established date		
		Off when on, off while viewing, power auto on/off	Revised date		8/17

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

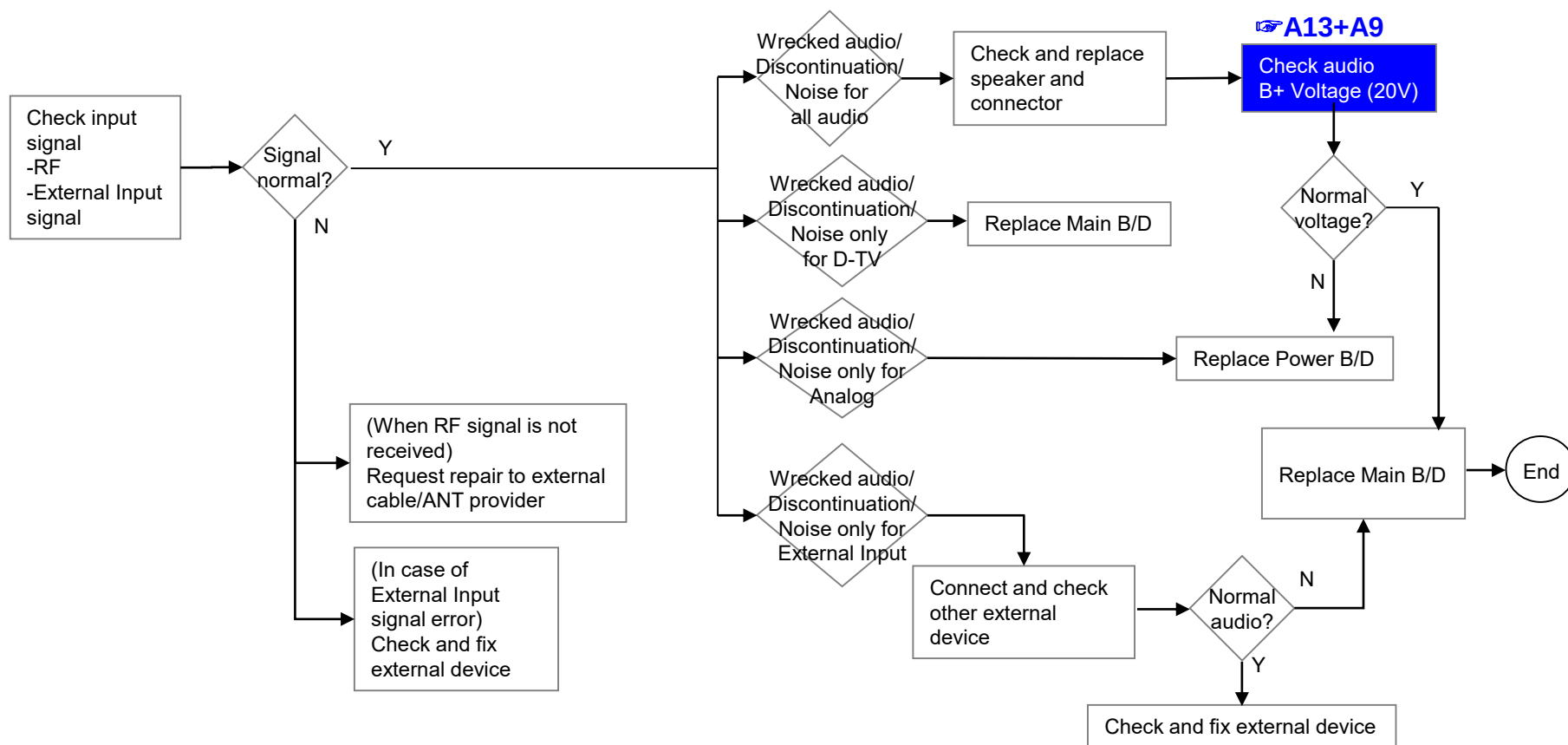
Power Off list	Explanation	Action contents
KEYTIMEOUT	Power off when TV is not turned off during a certain time RESULT : micom force to trigger TV power off. CONDITION : When pressing power key while power on/off status, CPU does not response within 8 seconds	Check & Change Main B/D
1SEC Power OFF	Almost the same as Power Off by KEYTIMEOUT. If there is no valid communication between CPU and MICOM for more than 5 seconds, the MICOM switches off PSU and Records. Power off by 1SEC Power off. In this case, we don't have information where the malfunction exactly occurred. But it indicates that CPU had stopped and rebooted.	Check & Change Main B/D
ACDET	In case of AC Off (It is normal when the power cord is unplugged.)	Normal
	If there are many ACDETs connected, Power Board is defective	Check & Change Power B/D
5V MNT	Power off by unstable AC power detect. RESULT : micom check the stable power. CONDITION : When AC on or DC on, stabilization check routine (Power Detect High Check) fail after multi power on.	Check & Change Power B/D
CPUABNORMAL	If the CPU attempts to reset in case of abnormal operation and Shut Down in case of failure.	Check & Change Main B/D
NO POLING	Power off when receiving no ack. RESULT : TV power off/on (Reboot) CONDITION : There is no I2C response from CPU for 15 seconds.	Check & Change Main B/D
CPUCMD	Power off by main SoC command.	Check & Change Main B/D
INV ERROR	Power off by module error (OLED), CONDITION : OLED Module send signal to micom	Check & Change OLED Module
ONRF FAIL	RESULT : Reboot, CONDITION : OLED module compensation is running but fails.	Check & Change OLED Module
PNWASHFAIL	Power off by panel noise wash function fail case.	Check & Change OLED Module
RESET	When Micom is reset by AC Off	Normal Case
KEY	Power off by Local key	
OFFTIMER	Power off by Off timer	
SLEPTIMER	Power off by sleep timer	
NOSIG	Power off by No Signal	
FANSTOP	Power off by FAN operation stopped	
INSTOP	Power off by Instop Key	
AUTO OFF	Power off by auto off function	
RESREC	Power off by reserved recording	
RECECD	Power off when recording stops	
SWDOWN	Reboot by SW down load function	
UNKNOWN	No meaning (same as initial value)	
COMP END	OLED threshold voltage degradation(Compensation) completes.	
PNWASHDONE	Power off by panel noise wash function completed. (OLED)	
POWER_OFF_BY_FAN_CTRL_ERROR	Power off by FAN operation status.	
POWER_OFF_BY_TEMPERATURE_SENSOR_ERROR	Power off by Temperature Sensor operation status	

	Error symptom	C. Audio error	Established date		
		No audio/ Normal video	Revised date		9/17



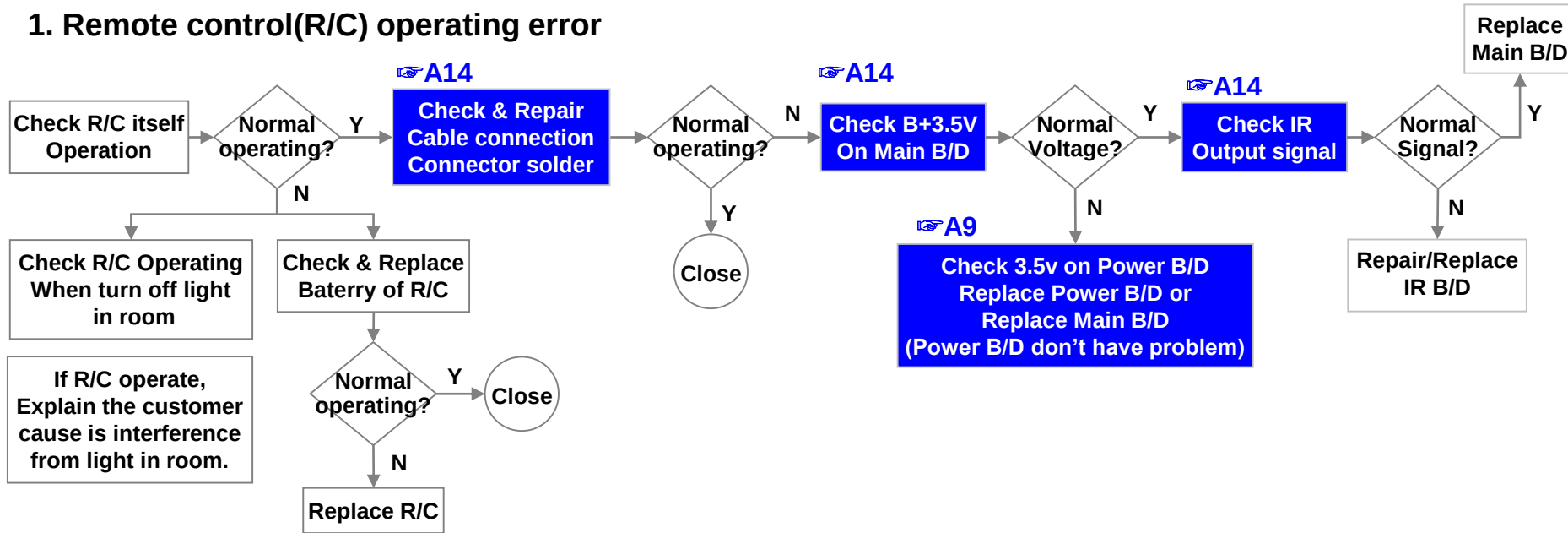
	Error symptom	C. Audio error	Established date		
		Wrecked audio/ discontinuation/noise	Revised date		10/17

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

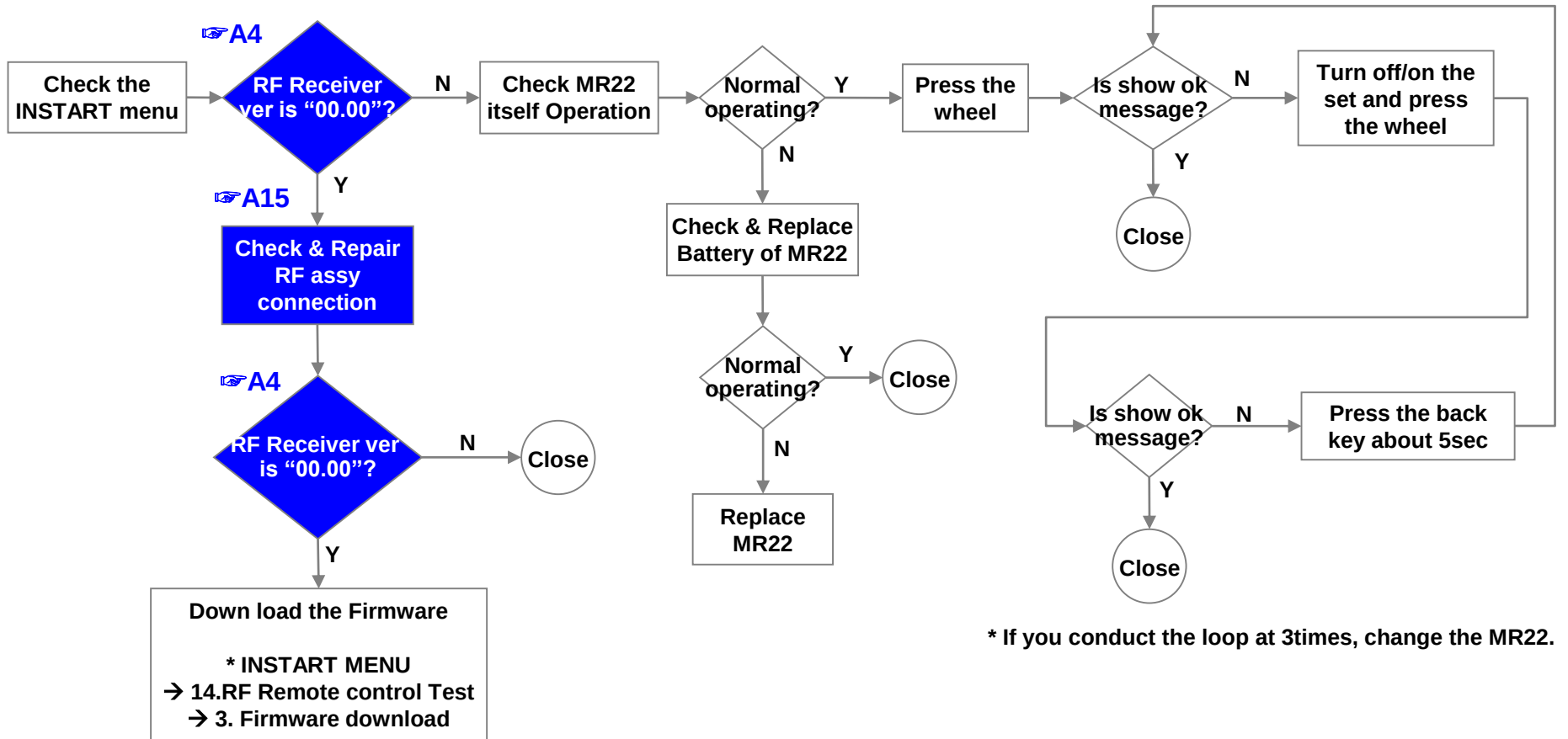


	Error symptom	D. Function error	Established date		
		Remote control & Local switch checking	Revised date		11/17

1. Remote control(R/C) operating error

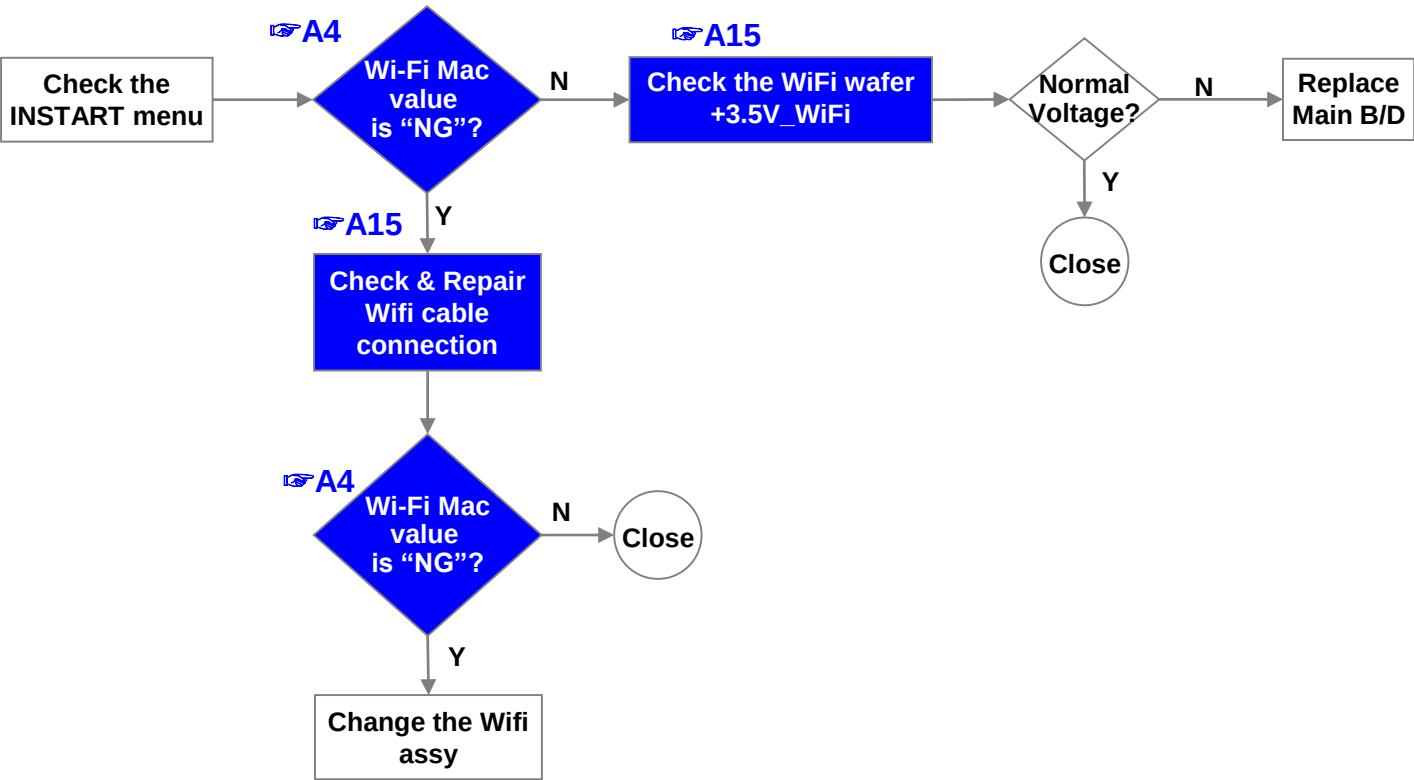


2. Magic Remote control operating error

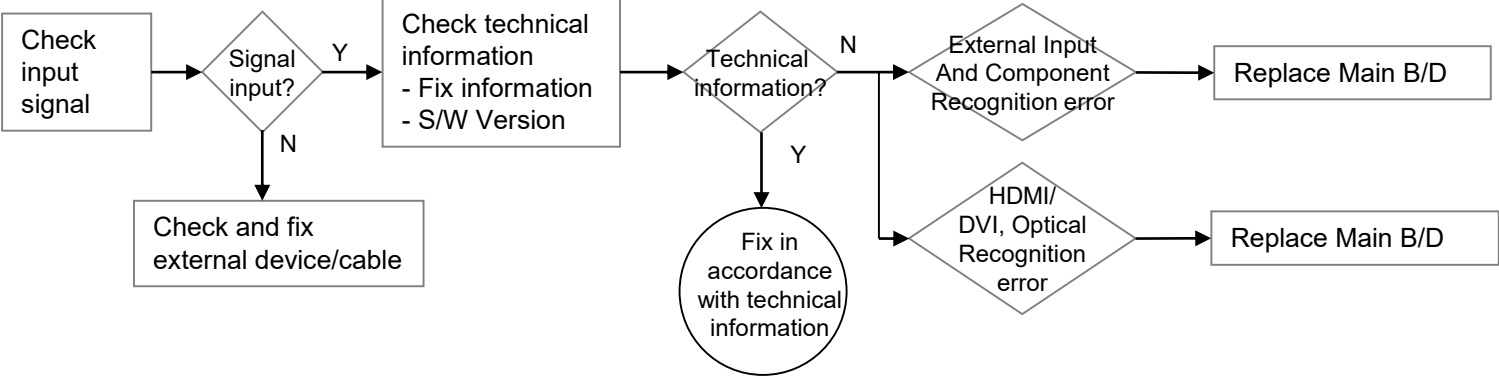


	Error symptom	D. Function error	Established date		
		WiFi operating checking	Revised date		13/17

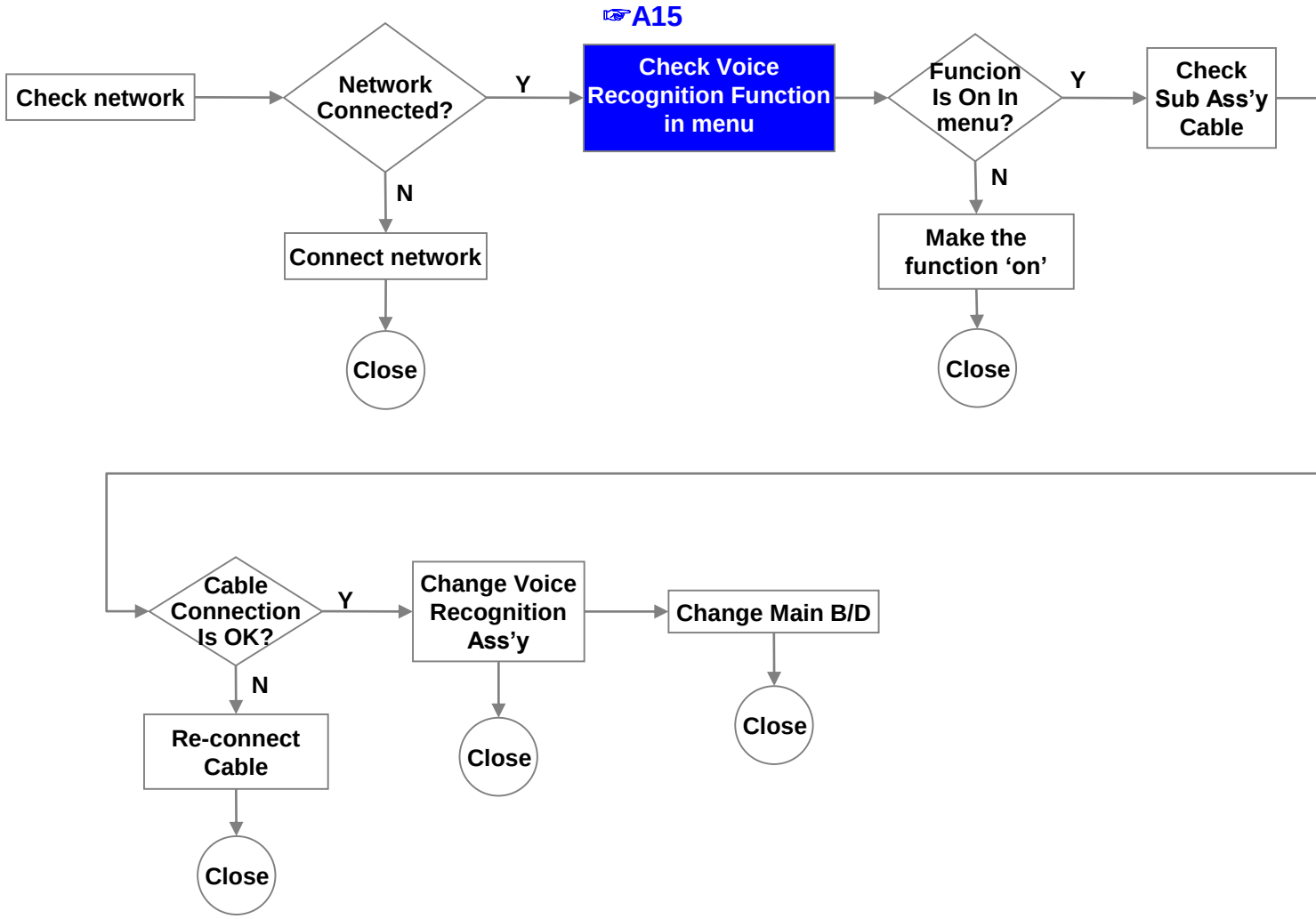
3. WiFi operating error



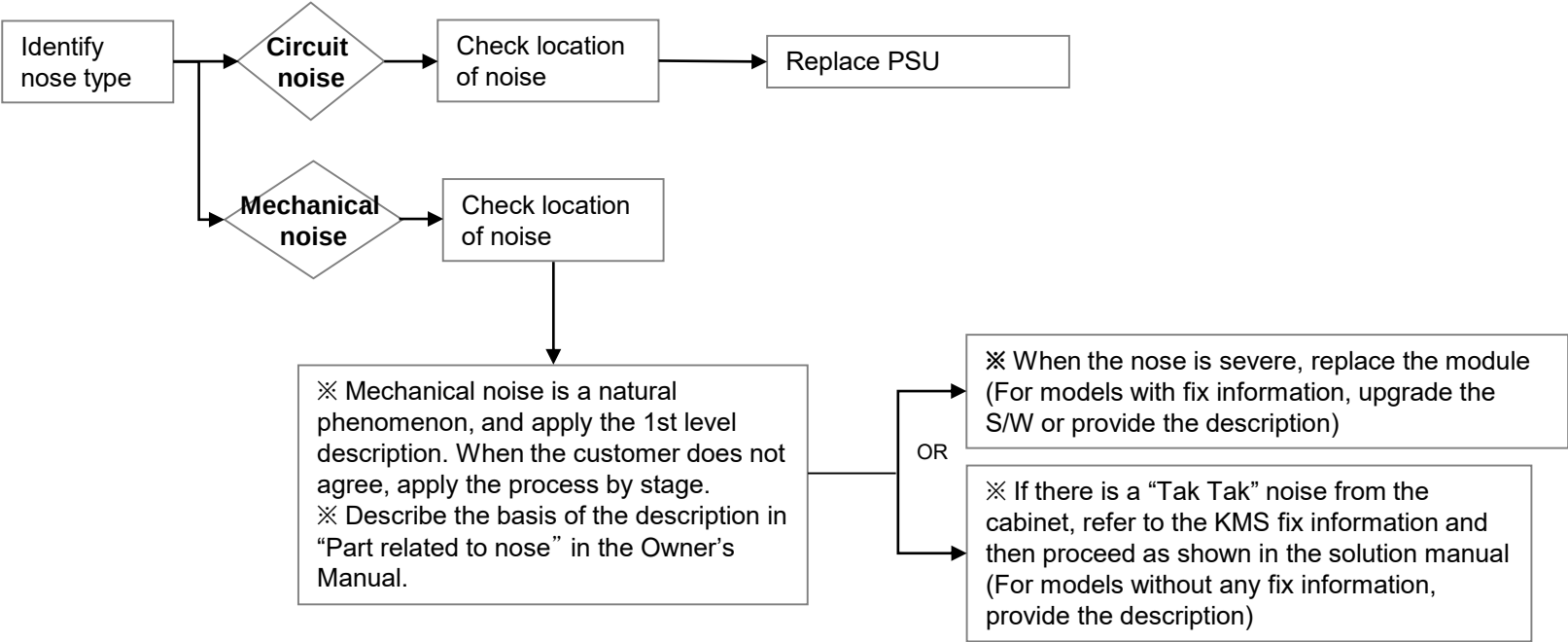
	Error symptom	D. Function error	Established date		
		External device recognition error	Revised date		14/17



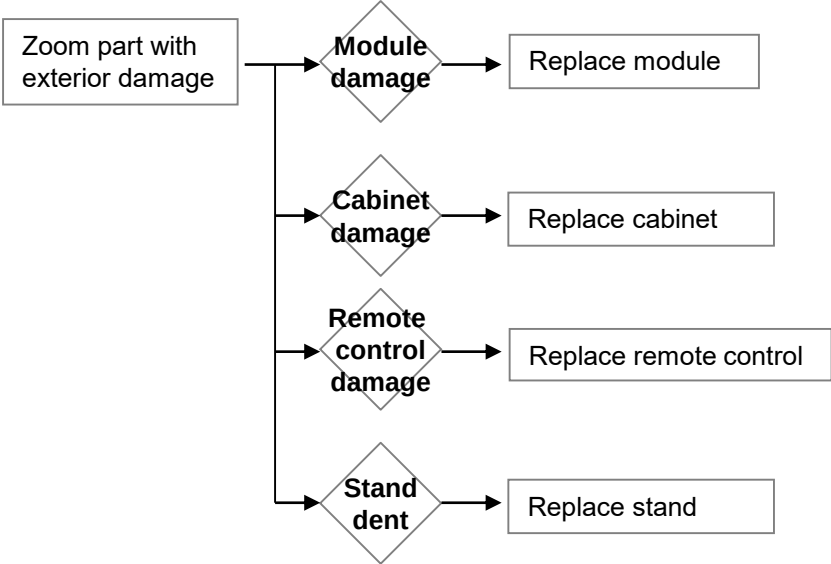
	Error symptom	D. Function error	Established date		
		Voice Recognition Function Error	Revised date		15/17



	Error symptom	E. Noise	Established date		
		Circuit noise, mechanical noise	Revised date		16/17



	Error symptom	F. Exterior defect	Established date		
		Exterior defect	Revised date		17/17



Contents of Standard Repair Process Detail Technical Manual

No.	Error symptom	Content	Page	Remarks
1	A. Video error_ No video/Normal audio	Check Back Light On with naked eye	A1	
2		Check White Balance value	A2	
3	A. Video error_ video error /Video lag/stop	TUNER input signal strength checking method	A3	
4		Version checking method	A4	
5		Tuner Checking Part	A5	
6	A. Video error _Vertical/Horizontal bar, residual image, light spot	Connection diagram	A6	
7	A. Video error_ Color error	Check Link Cable (Vx1/EPI) reconnection condition	A7	
8	<Appendix> Defected Type caused by T-Con/Module	Check Cable (1) ~ (2)	A-1/11 ~ 2/11	
		Exchange Main Board (1) ~ (3)	A-3/11 ~ 5/11	
		Exchange Module (1) ~ (3)	A-6/11 ~ 8/11	
		Exchange T-Con (1) ~ (2)	A-9/11 ~ 10/11	
		Exchange Power Board(PSU)	A-11/11	

Continue to the next page

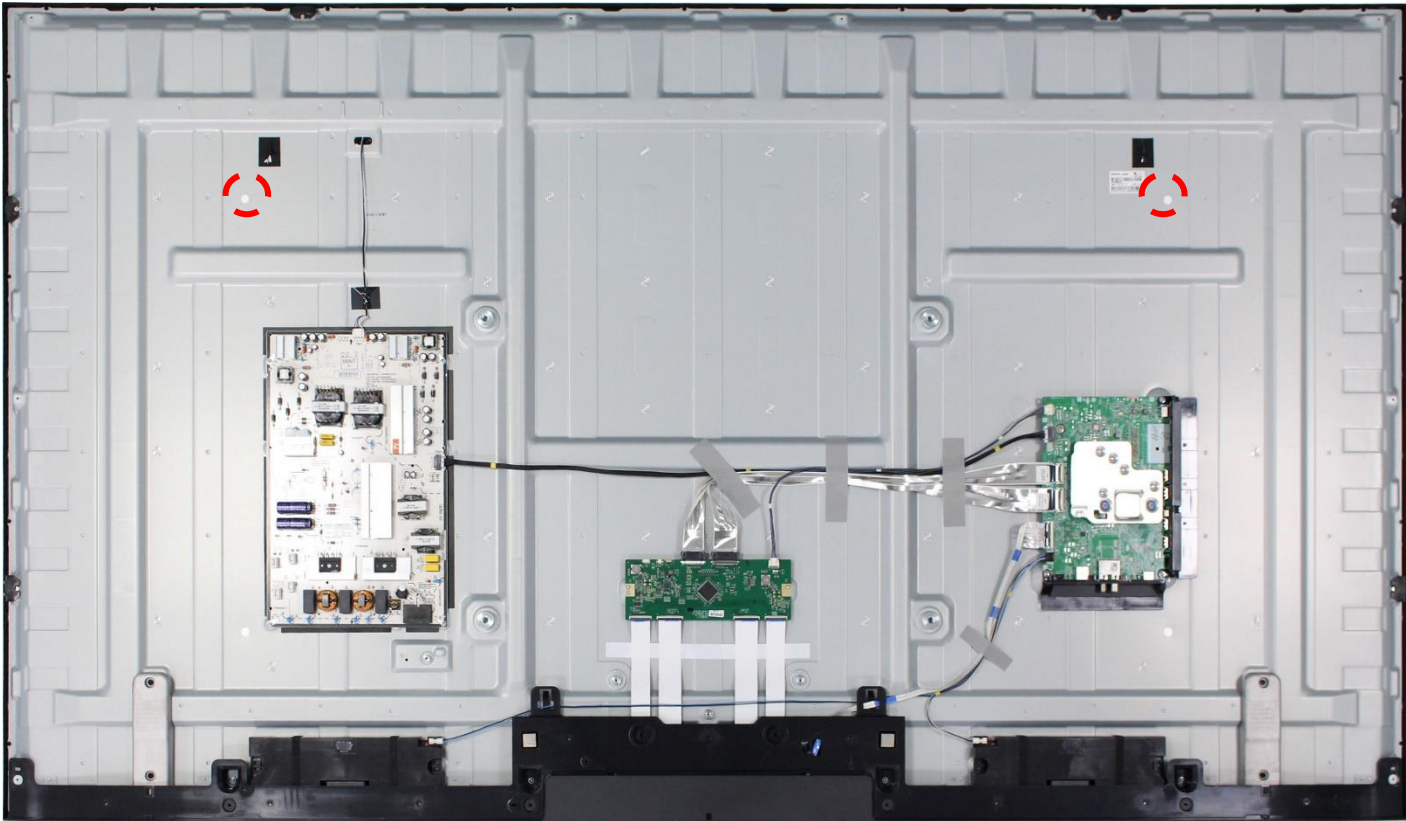
Contents of Standard Repair Process Detail Technical Manual

Continued from previous page

No.	Error symptom	Content	Page	Remarks
9	B. Power error_ No power	Check front display LED(Power Indicator)	A8	
10		Check power input Voltage & ST-BY	A9	
11	B. Power error_Off (when on/off, while viewing)	POWER OFF MODE checking method	A11	
12	C. Audio error_ No audio/Normal video	Checking method in menu when there is no audio	A12	
13		Voltage and speaker checking method when there is no audio	A13	
14	D. Function error	Remote control operation checking method	A14	
15		Magic Remote/WiFi operation checking method	A15	
16	E. Etc	How to use the Service remote control	A16-A18	
17		Check items after Main B/D replacement	A19	
18		Adjustment Test pattern - ADJ Key	A20	

Standard Repair Process Detail Technical Manual

	Error symptom	A. Video error_No video/Normal audio	Established date		
	Content	Check Back Light On with naked eye	Revised date		A1

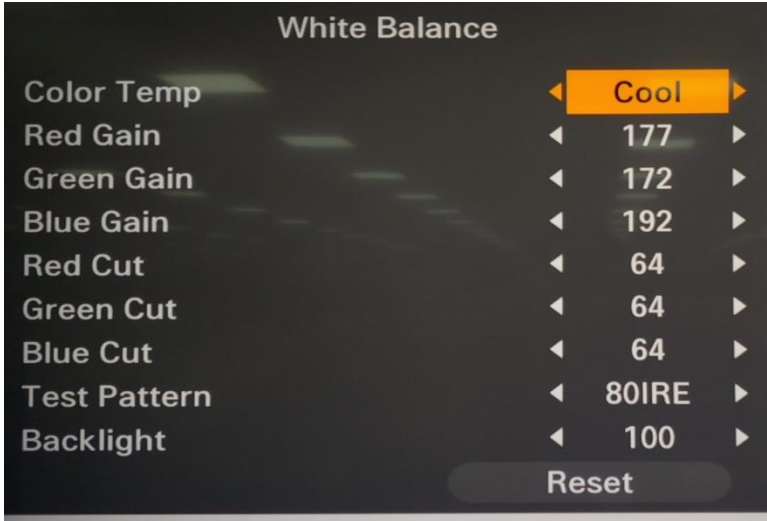


If the Black light LED assemble is 'OK', you can see the lights on each points.

Standard Repair Process Detail Technical Manual

	Error symptom	A. Video error_No video/Normal audio	Established date		
	Content	Check White Balance value	Revised date		A2

1. Test Pattern
2. ToolOPT1_Product
3. ToolOPT2_Power
4. ToolOPT3_PQ/Sound
5. ToolOPT4_Etc
6. ToolOPT5_JackID/Key
7. ToolOPT6_Energy/Country
8. Area Option
9. Continent Detail
10. ADC Calibration
- 11. White Balance**
12. 22 Point WB
13. Sub B/C
14. Ext. Input Adjust
15. Wi-Fi/Magic Search
16. Control Key Reset
17. Voice Sensor Reset

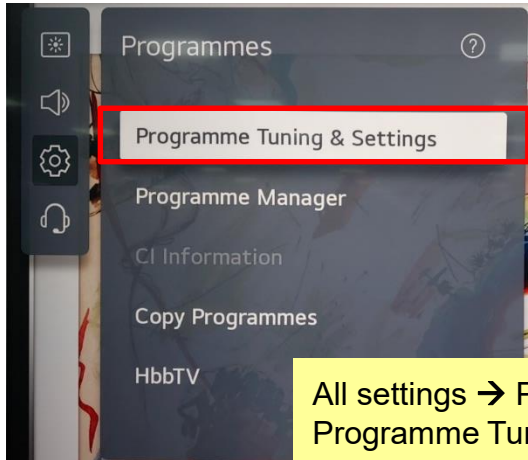
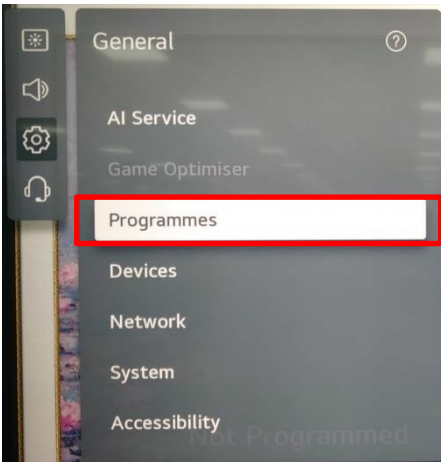


Entry method

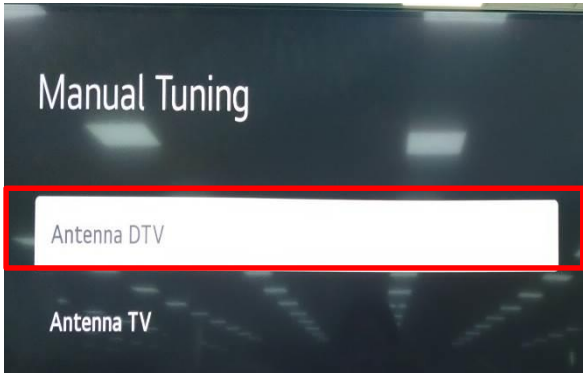
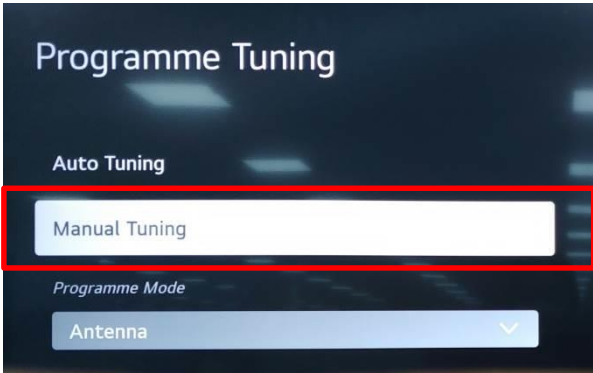
1. Press the ADJ button on the remote control for adjustment.
2. Enter into White Balance.
3. After recording the R, G, B (GAIN, Cut) value of Color Temp (Cool/Medium/Warm), re-enter the value after replacing the MAIN BOARD.

Standard Repair Process Detail Technical Manual

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



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



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



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

```

Instart
Model Name : 65QNED916QA
Serial Number : 109KCNIK2631
S/W Version : 02.00.32.01
Micom Version : V2.01.3
Boot Version : 8.00.32/8.00.32
UHD BE Version : N/A
Chip Type : K8HP
Wi-Fi Channel/Speed : N/A/USB 2.0
Wi-Fi MAC : 4C:BC:E9:26:FE:DE
MAC Address : B0:37:95:71:4C:23
IP Address : 0.0.0.0
SFU/RPMB/eMMC : OK/OK/NULL
Widevine : LGTV22CRTK100102854
ESN Num. : LGTV20222=21001001514
HDCP2(Miracast/HDMI) : OK/OK
RF Receiver Version : 23:13:09:11
Wi-Fi/Magic Search : OK/OK
Debug Status : EVENT
SIGN Key : DEVELKEY
Far Field Voice : OK(12.18.00.00)
Eye Check : OK
Control Key : OK
Access USB Status : 1/-1(T)/-1(C)
UTT :
App History Version : 32 (manas)
Firmware : BOE_QNED
Demo : NULL
Gallery/USP Demo : NULL/NULL
    
```

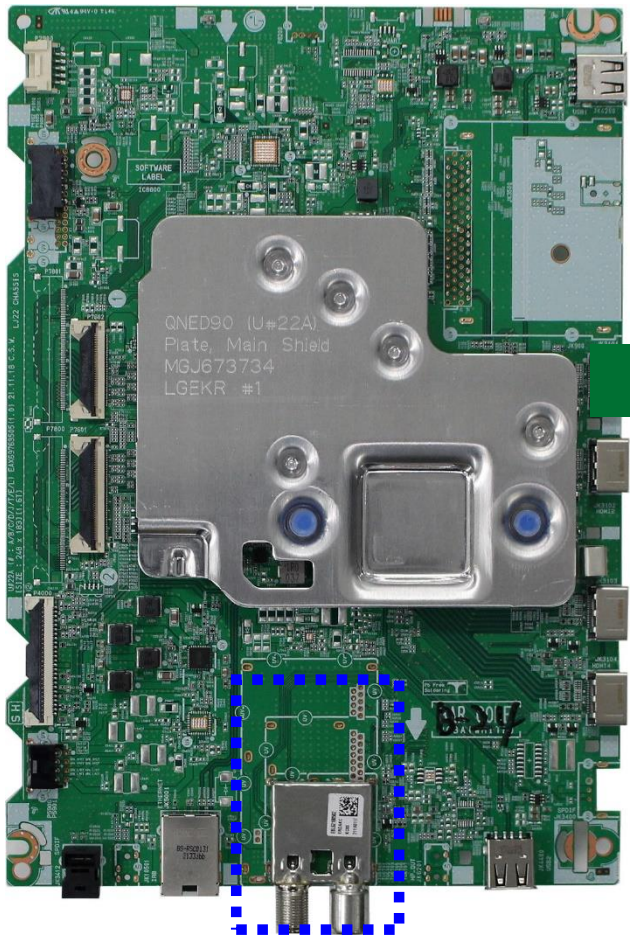


Press the IN-START with the remote control for adjustment

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

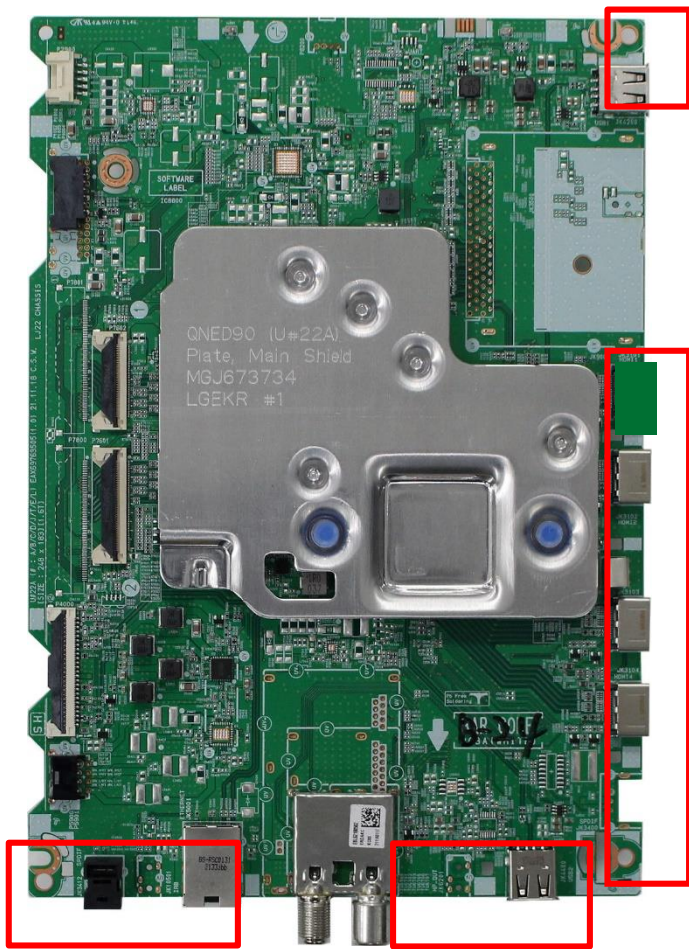


Checking method:

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.

Standard Repair Process Detail Technical Manual

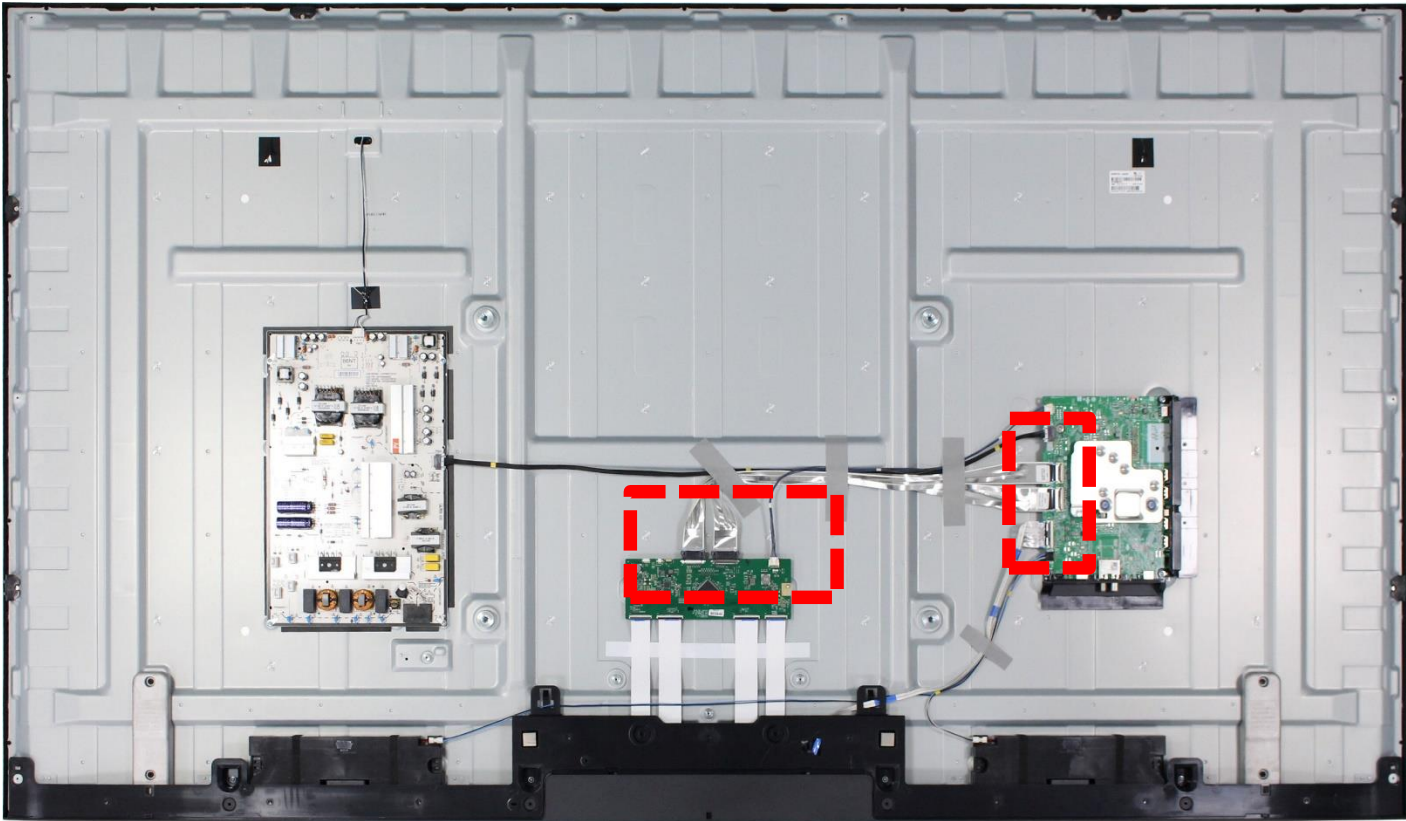
	Error symptom	A. Video error _Vertical/Horizontal bar, residual image, light spot	Established date		
	Content	connection diagram	Revised date		A6



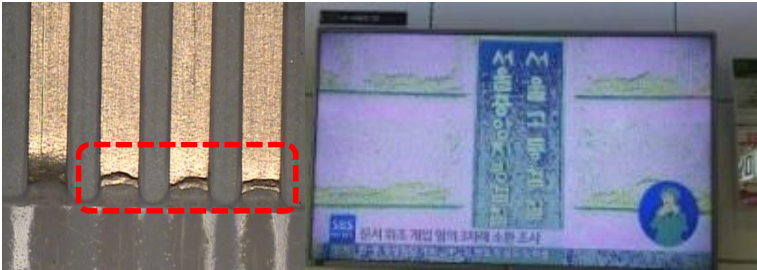
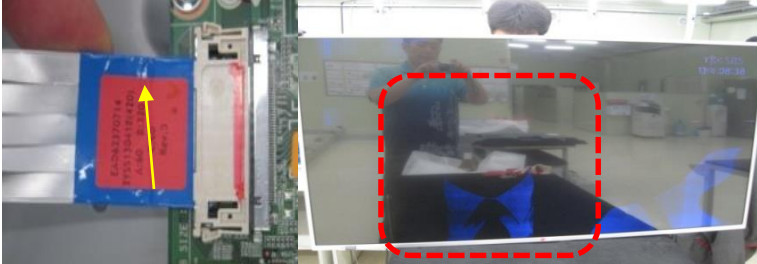
As the part connecting to the external input, check the screen condition by signal

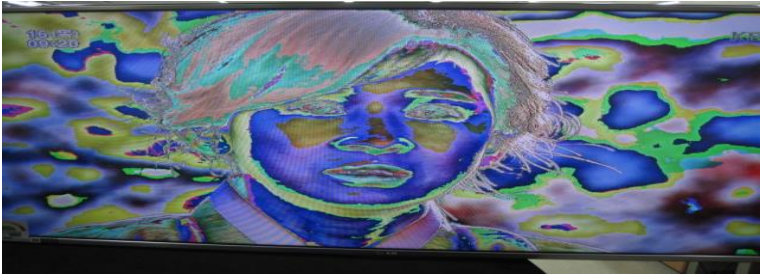
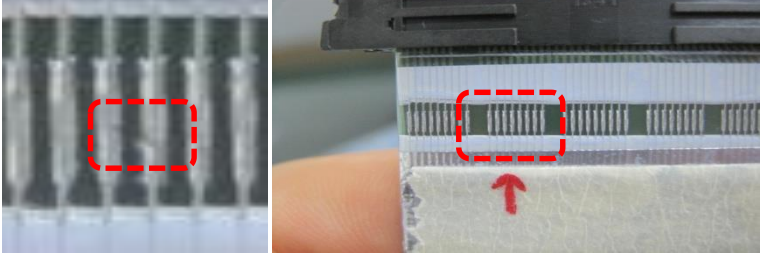
Standard Repair Process Detail Technical Manual

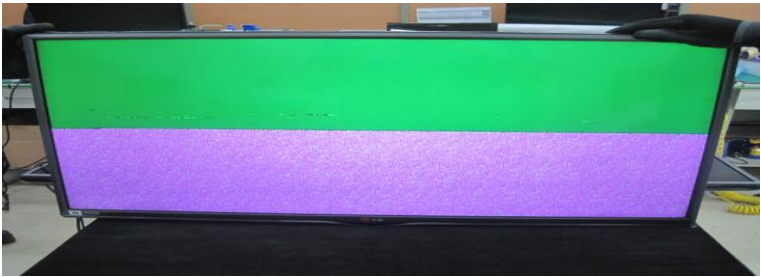
	Error symptom	A. Video error_Color error	Established date		
	Content	Check Link Cable(CEDS) reconnection condition	Revised date		A7

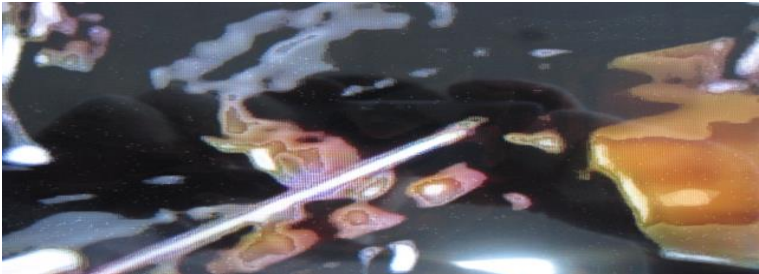


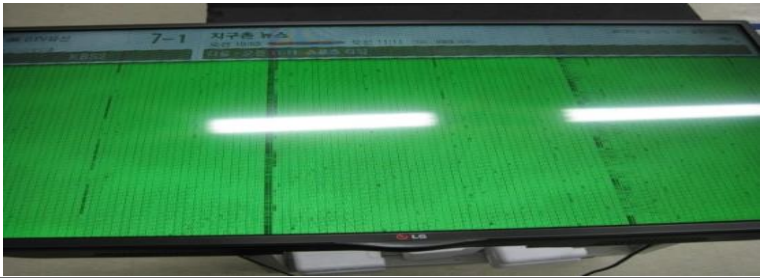
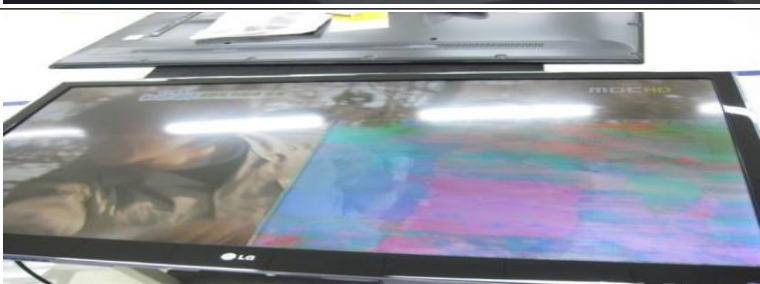
Check the contact condition of the Link Cable, especially dust or mis insertion.

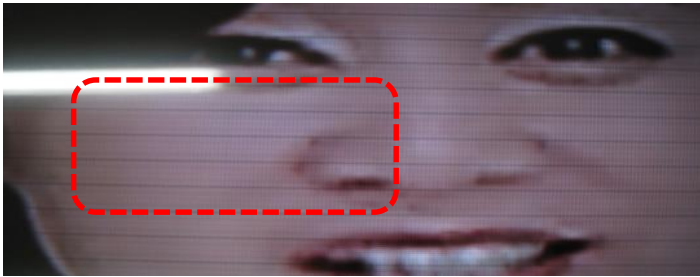
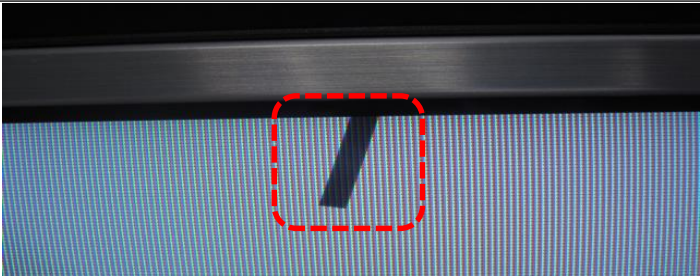
Item	Symptom Name	Cause	Symptom Image
CABLE	Color smear	Poor broken pin of FFC cable	
CABLE	R Color Excessive	Color is Excessive due to FFC Cable Contact.	
CABLE	Screen darkness	screen is dark due to poor contact due to disconnection of the FFC cable pin.	
CABLE	G Color Excessive	G color transient due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

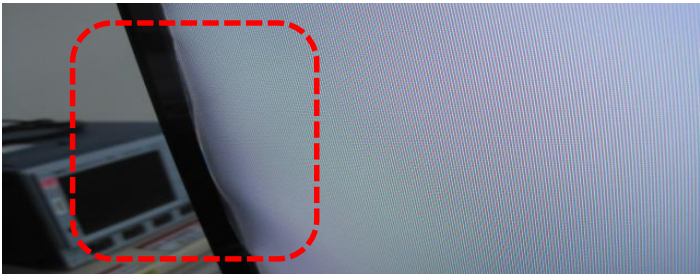
Item	Symptom Name	Cause	Symptom Image
CABLE	Color spread	LVDS cable connection problem	
CABLE	Color spread	LVDS cable connection problem	
CABLE	Color spread	LVDS cable connection problem	
CABLE	Screen stop	Due to foreign substance with nLVDS cable PIN	

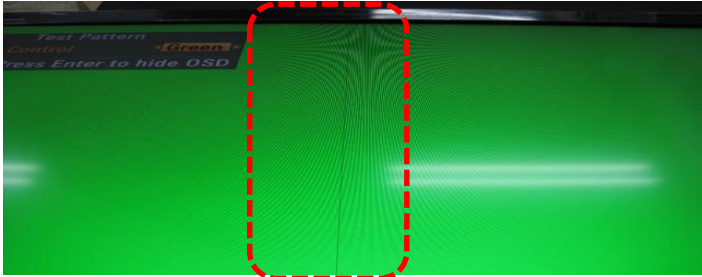
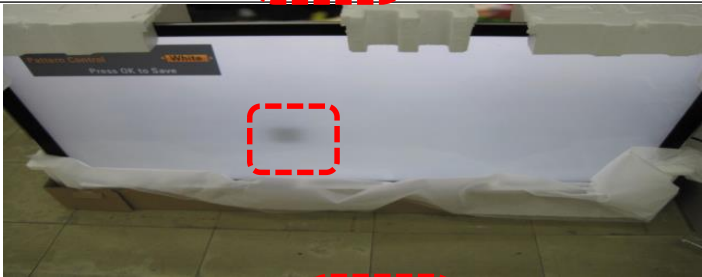
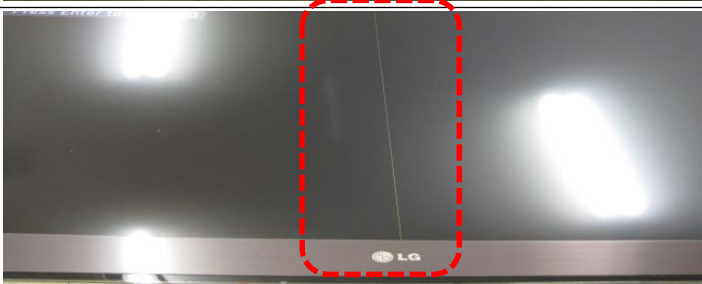
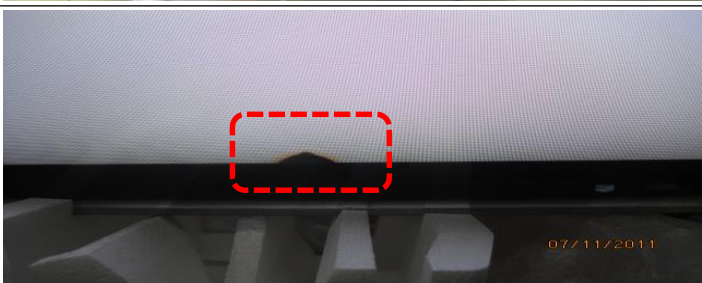
Item	Symptom Name	Cause	Symptom Image
Main	Screen noise	Bit noise from horizontal screen	
Main	Screen noise	Broken screen due to Main IC problem	
Main	Dark picture	Dark left-side screen	
Main	Broken picture	Top/bottom screen part Picture problem due to tuner Inner side quality problem	

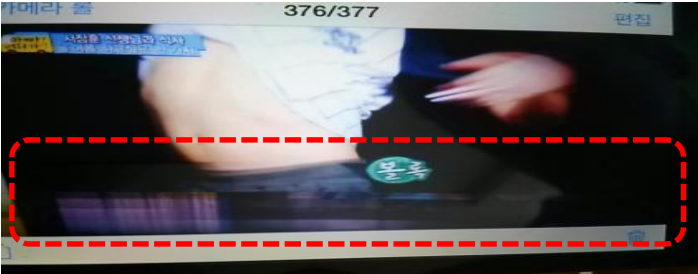
Item	Symptom Name	Cause	Symptom Image
Main	Broken screen	Broken screen in a horizontal manner	
Main	Screen spread	Screen corner appears blurry	
Main	Color Spread	Color spread on the screen	
Main	Blurry Screen	Blurry picture on the screen	

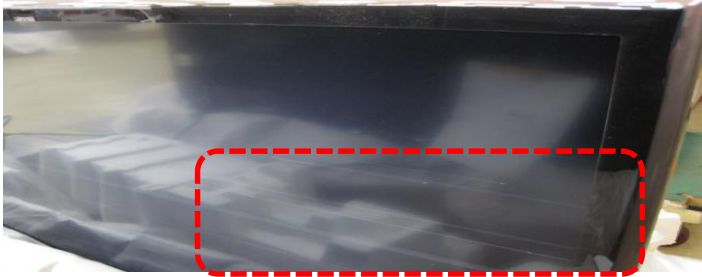
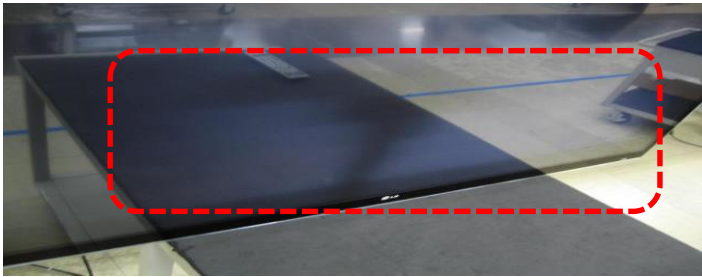
Item	Symptom Name	Cause	Symptom Image
Main	Broken picture	No problem at the initial stage, G-color spread after 10 minutes	
Main	Right-side Screen problem	Right-side screen problem	
Main	LG logo Screen problem	Screen picture spread problem	
Main	Right-side picture problem	No problem at the initial stage.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

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	

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	

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	

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	

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	

No Light

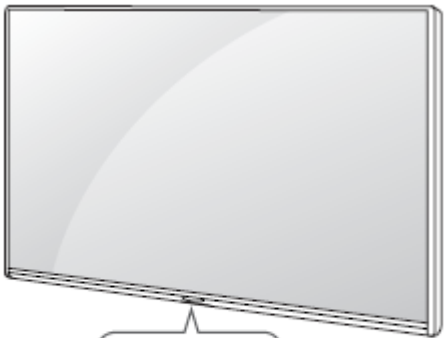


No Power On



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 Off ¹ (Press and Hold)
	Menu Control (Press ²)
	Menu Selection (Press and Hold ³)

- 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
86UQ7590/7070	EAY65895562, LGP86NT-21U1

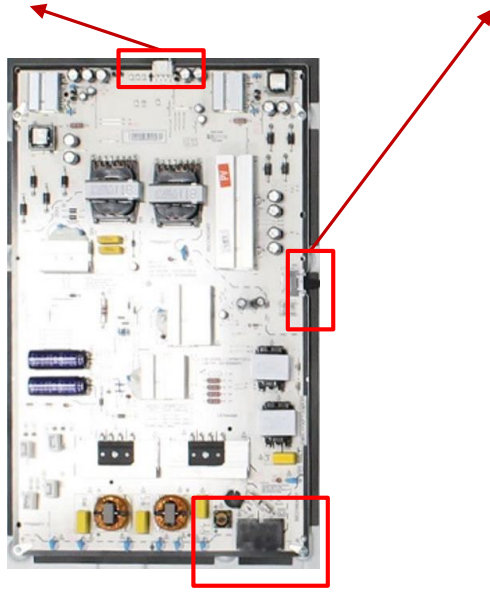
Power Check Sequence

1. AC input Check : SK100 (100~240Vac)
2. PWR-ON Check : P201, 1 pin
 - SET On : above 3V
 - SET St-by : 0V
3. 13.2V DC Check : P201, 4~8 pin
 - SET On : 13.2V
 - SET St-by : 7.8V
4. LED voltage Check : P801, 1,3,5,7 pin

Output		Voltage range	Rated Current (Min, Max)	Voltage Regulation	MS Mode	Ripple Voltage
13.2V		12.54V ~ 13.86V	5.8A(0.3~ 5.8A) (ON condition)	± 5%	-	350 mVp_p
LED B+	Ch1	121.5V ~ 148.5V	670mA (636.5mA~ 703.5mA)[mean]	-	MS2 (PDIM 99%)	-
	Ch2	145.8V ~ 178.2V	670mA (636.5mA~ 703.5mA)[mean]			

P801	
Type : SMAW200A-H07AA2 (WH)	
Maker : YEONHO	
Pin No.	Assignment
1	LED-
2	Remove
3	LED+
4	Remove
5	LED-
6	Remove
7	LED+

P201			
Type : SMAW200-H12S5K (BK)			
Maker : YEONHO			
Pin No.	Assignment	Pin No.	Assignment
1	PWR-ON	2	PDIM2
3	GND	4	13.2V
5	13.2V	6	13.2V
7	13.2V	8	13.2V
9	GND	10	GND
11	MS	12	PDIM1

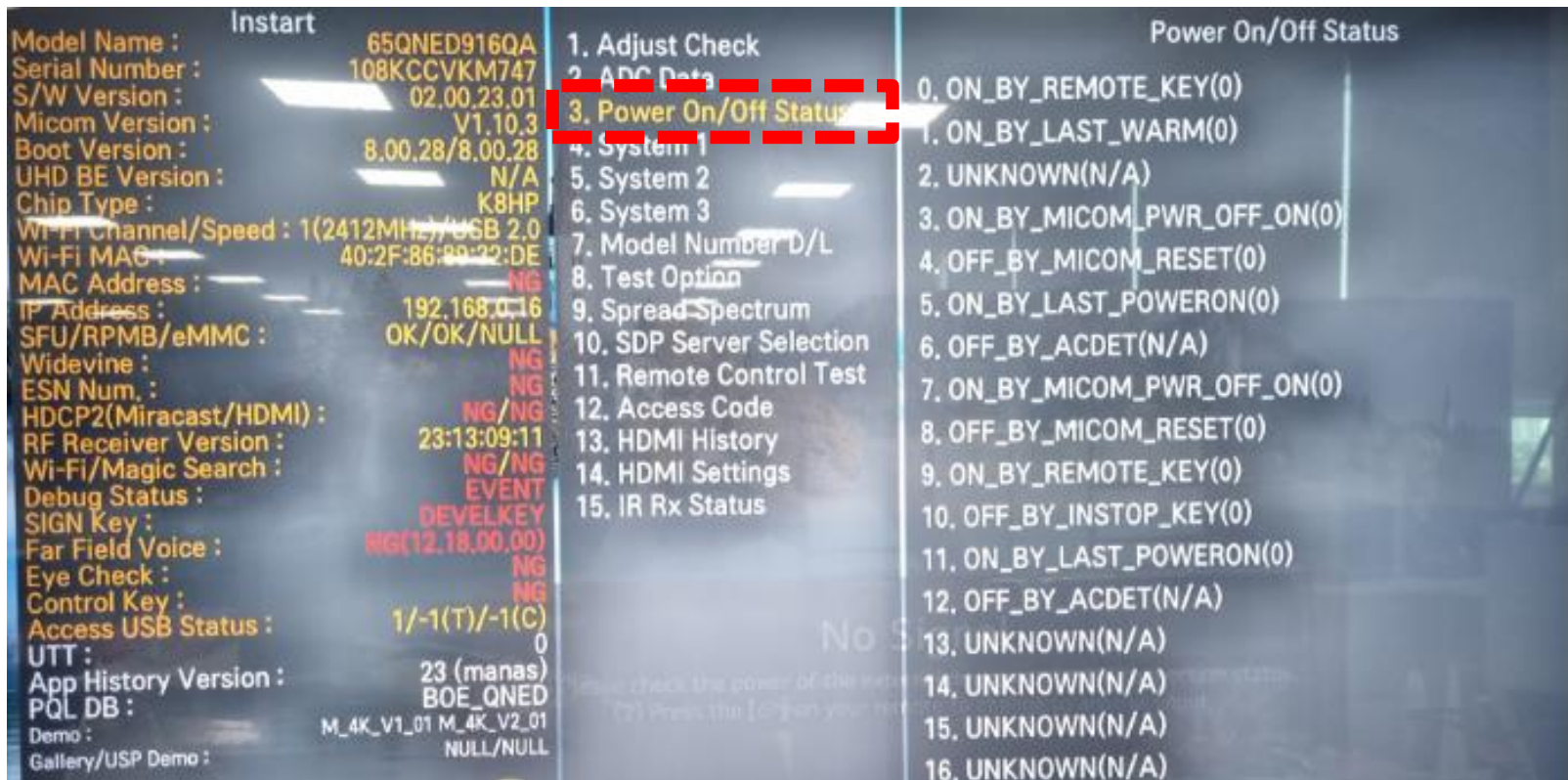


SK100 (AC input)

All condition meets, Power Board OK.

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		A11



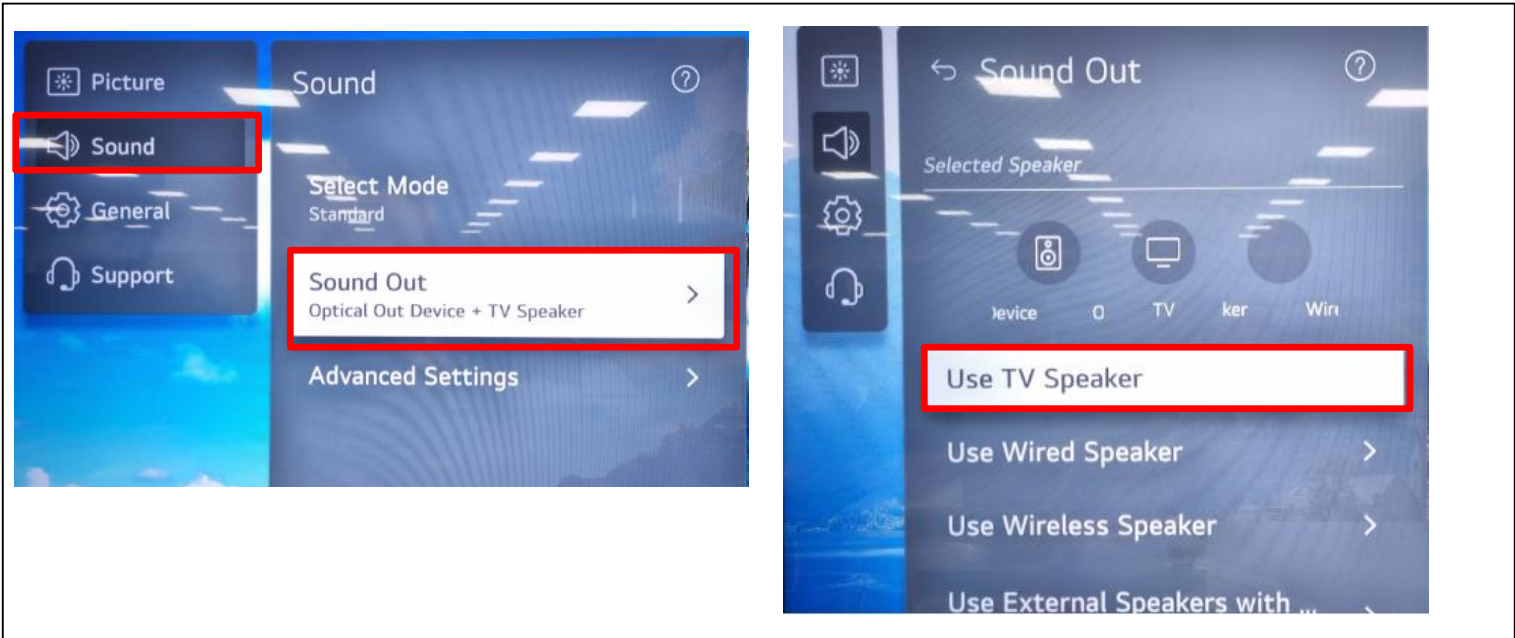
Entry method

1. Press the IN-START button of the remote control for adjustment.
2. Check the entry into adjustment item 3.

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		A12

<ALL MODELS>

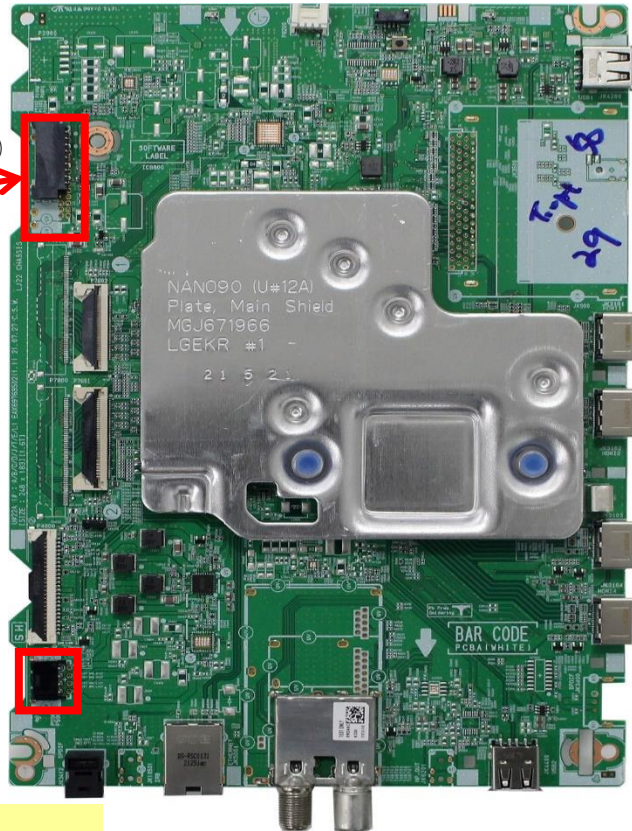
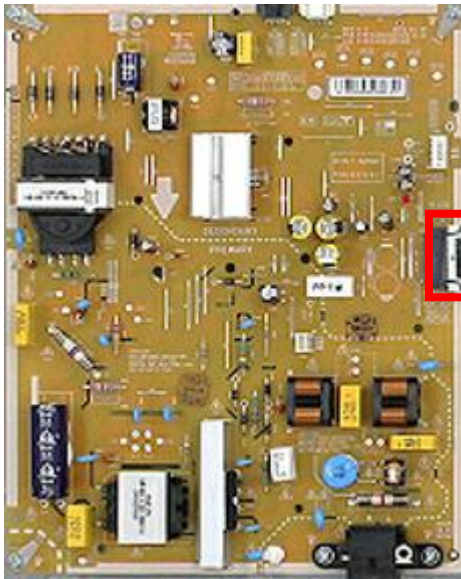


Checking method

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.

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		A13



1	SPK_R-
2	SPK_R-
3	SPK_R+
4	SPK_R+

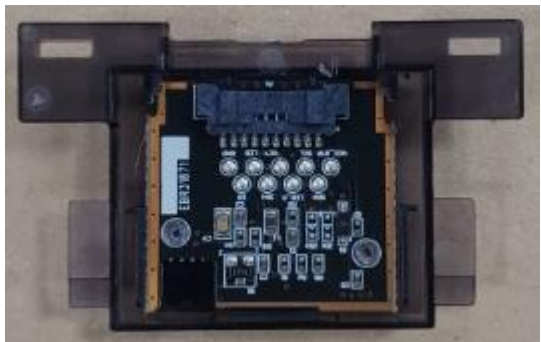
Checking order when there is no audio

1. Check the contact condition of or 13.2V connector of Main Board.
2. Measure the 13.2V 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.

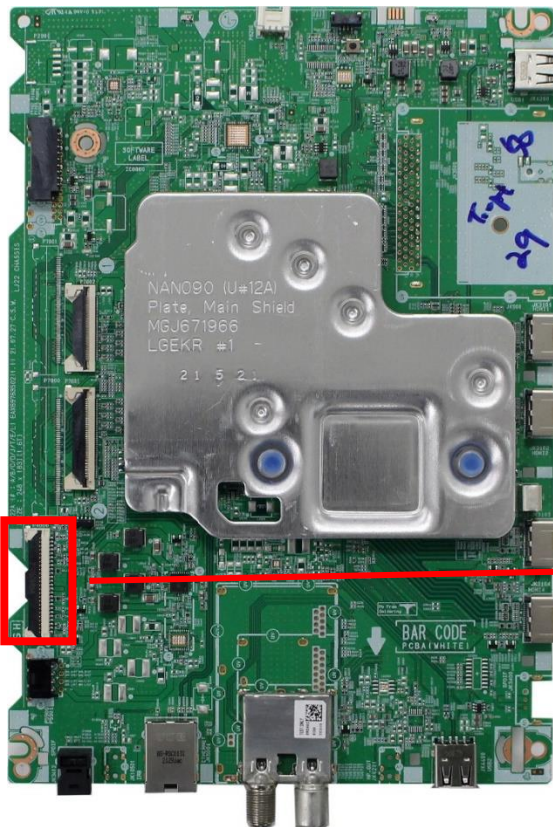
Standard Repair Process Detail Technical Manual

	Error symptom	D. Function error	Established date		
	Content	Remote control operation checking method	Revised date		A14

① IR & EYE Sensor



②
Pin #25
~
Pin #1



③

Pin	Pin name
1	+3.5V_WIFI
2	WIFI_DM
3	WIFI_DP
4	GND
5	WOL/WIFI_POWER_ON
6	+3.5V_WIFI
7	WIFI_SUSPEND/RESUME
8	GND
9	COMBO_RESET
10	BT_WAKEUP_HOST
11	GND
12	+3.5V_WIFI
13	N.C
14	N.C
15	N.C
16	EYE_SDA
17	EYE_SCL
18	GND
19	IR
20	LED_R
21	GND
22	+3.5V_ST
23	KEY2
24	MIC_DATA
25	MIC_CLK

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 standby 3.5V on the terminal. (③)

Standard Repair Process Detail Technical Manual

	Error symptom	D. Function error	Established date		
	Content	Magic Remote/WiFi operation checking method	Revised date		A15

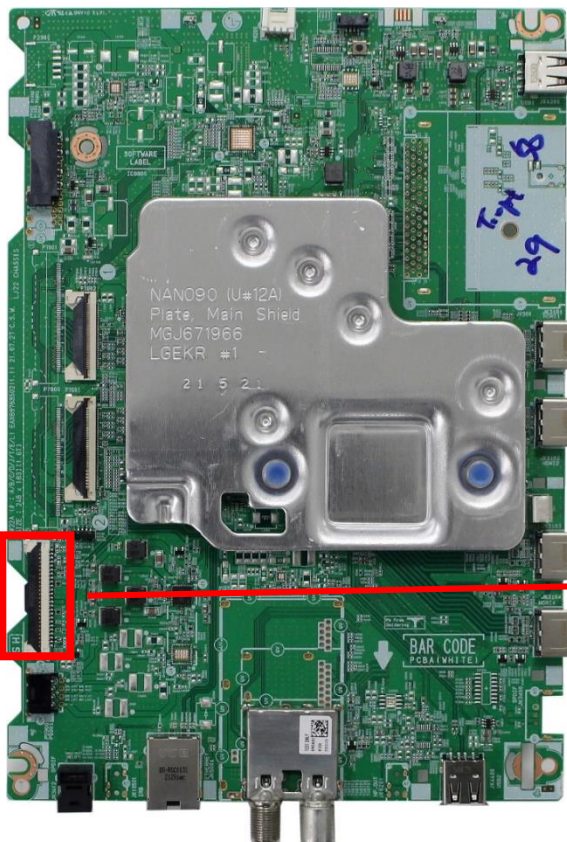
① Wifi & BT Front



Wifi & BT Rear



②
Pin #25
2
Pin #1



Pin	Pin name
1	+3.5V_WIFI
2	WIFI_DM
3	WIFI_DP
4	GND
5	WOL/WIFI_POWER_ON
6	+3.5V_WIFI
7	WIFI_SUSPEND/RESUME
8	GND
9	COMBO_RESET
10	BT_WAKEUP_HOST
11	GND
12	+3.5V_WIFI
13	N.C
14	N.C
15	N.C
16	EYE_SDA
17	EYE_SCL
18	GND
19	IR
20	LED_R
21	GND
22	+3.5V_ST
23	KEY2
24	MIC_DATA
25	MIC_CLK

Checking order to check motion remote/wifi

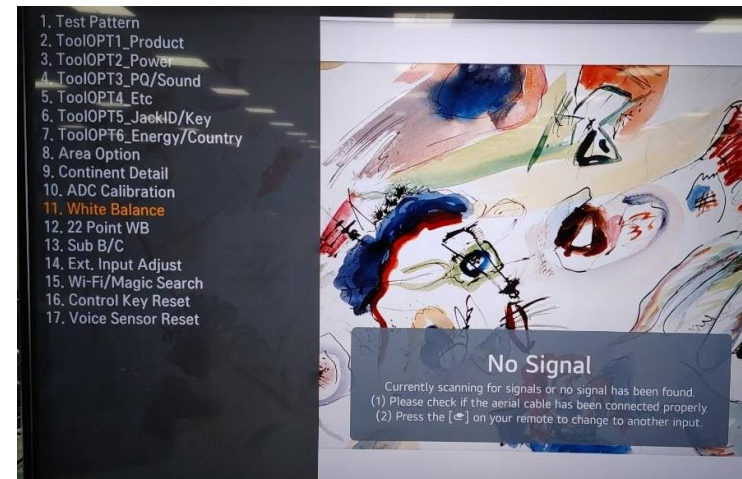
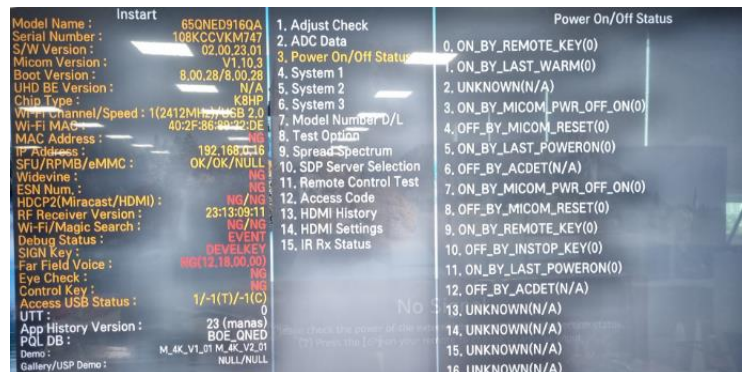
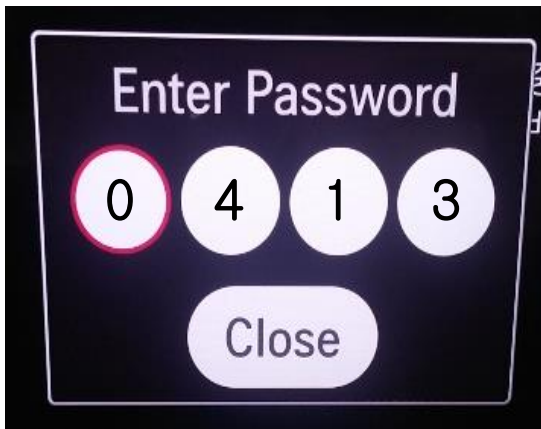
Checking order

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

Standard Repair Process Detail Technical Manual

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

1. How to access the remote control



Standard Repair Process Detail Technical Manual

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

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=>Aucto Screen=>4:3=>16:9
PSM	Changes in the order of Bright Picture=>Easy Picture=>Cinema=>Spots=>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)

A17

Standard Repair Process Detail Technical Manual

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



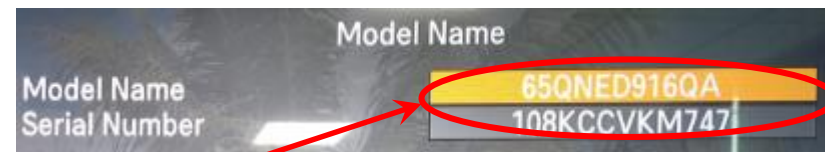
B-TOOTH (Added function)	Connected to Blue-Tooth
IN-START	Model Nam ex) 42PG60D-NA Current Model Name S/W Version ex) V03.11.0 Current S/W version MICOM Version ex) V3.05.0 current Mi-Com version UTT ex) User TV total usage time
ADJ	POWER OFF STATUS ex) Shows power-off status Test Pattern (Off=>White=>Red=>Green=>Blue=>Black=>Pattern=>Off) 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	Check items after Main B/D replacement	Revised date		A19

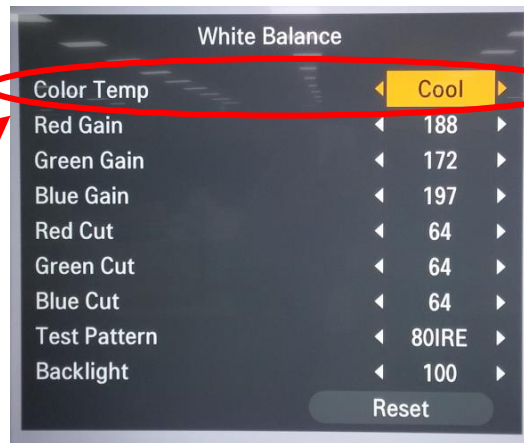
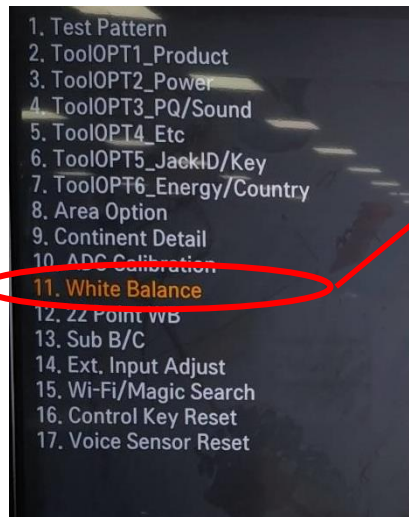
Check items after Main B/D(Model Number D/L, White Balance)

1. Press the Service remote control instart Key.



No.7 Select Model Number D/L
- Key in the model name and serial number after checking the ID label on the back cover.

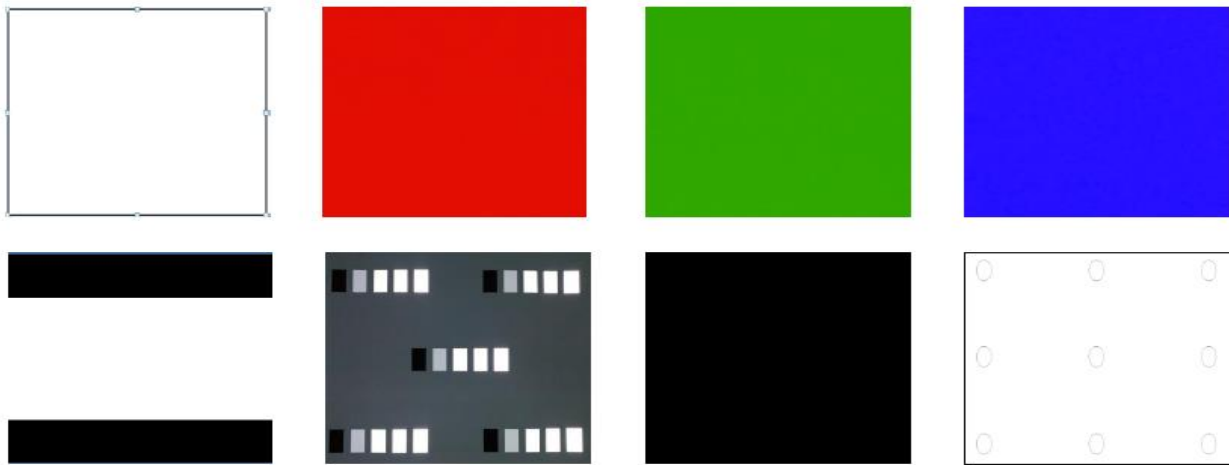
2. Press the Service remote control ADJ Key.



No.13 Select White Balance
- Record the R, G, B (GAIN, Cut) value of the color temperature before main board replacement.
After replacing the main board, key in the recorded value.

Standard Repair Process Detail Technical Manual

	Error symptom	E. Etc	Established date		
	Content	Adjustment Test pattern - ADJ Key	Revised date		A20



P-ONLY → HDMI HOT(Yellow button) → CH '+' or '-'
 You can view 11 types of patterns using the ADJ Key

Checking item :

1. Defective pixel
2. Residual image
3. MODULE error (ADD-BAR,SCAN BAR..)
4. Video error (Classification of MODULE or Main-B/D!)

webOS22 new features & Usability

Quick Customer Service Guide for webOS22 TV Usability Issues

- To respond to usability related issues that commonly occur on WebOS TV
 - Quick customer service guide for issues that can be resolved by changing settings and providing explanations
 - **[Remote Control] webOS5.0 (2020) vs. webOS6.0 (2021) vs. webOS22**
 - **[Home screen] webOS6.0 (2021) vs. webOS22**
 - **[Homeboard] webOS4.5 (2019) ~ webOS22 dashboard supported products**
 - **WebOS22 new features & usability**



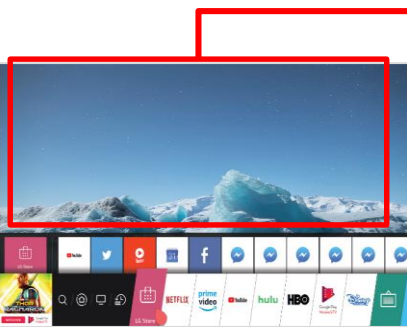
[Remote control] webOS5.0 (2020) vs. webOS6.0 (2021) vs. webOS22

	webOS5.0 (2020)	webOS6.0 (2021)	webOS22 (2022)
Magic (Artificial Intelligence) Remote Control	Diagram of the webOS5.0 Magic Remote. Red circles highlight the Voice recognition button, Settings button, OK (Wheel), and CP button. Red lines connect these to labels: Voice recognition, Settings, OK (Wheel), and CP (Netflix, Amazon, etc.).	Diagram of the webOS6.0 Magic Remote. Red circles highlight the Voice recognition button, External input button, OK (Wheel), Settings button, and CP button. Red lines connect these to labels: Voice recognition, External input, OK (Wheel), Settings, and CP (Netflix, Amazon, etc.).	Diagram of the webOS22 Magic Remote. Red circles highlight the -/LIST button (changed to GUIDE/-), the OK (Wheel), and the CP button. Red lines connect these to labels: -/LIST (webOS6.0) changed to "GUIDE/-" (Short key-Long key changed), OK (Wheel) controls Up/Down/Left/Right arrow keys (Not printed), and CP (Netflix, Amazon, etc.).
General Remote Control	Diagram of the webOS5.0 General Remote. Red circles highlight the Region button, Settings button, External input button, CP button, and OK button. Red lines connect these to labels: Region, Settings, External input, CP (Netflix, Amazon, etc.), and OK.	Diagram of the webOS6.0 General Remote. Red circles highlight the Region button, External input button, Settings button, CP button, and OK button. Red lines connect these to labels: Region, External input, Settings, CP (Netflix, Amazon, etc.), and OK.	Diagram of the webOS22 General Remote. Red circles highlight the -/LIST button (changed to GUIDE/-), the TV Icon, and the CP button. Red lines connect these to labels: -/LIST changed to GUIDE/-, TV Icon printed, and CP (Netflix, Amazon, etc.).

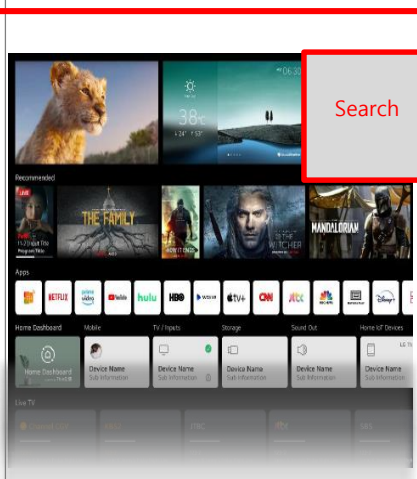
[Home screen] webOS6.0 (2021) vs. webOS22

Home screen

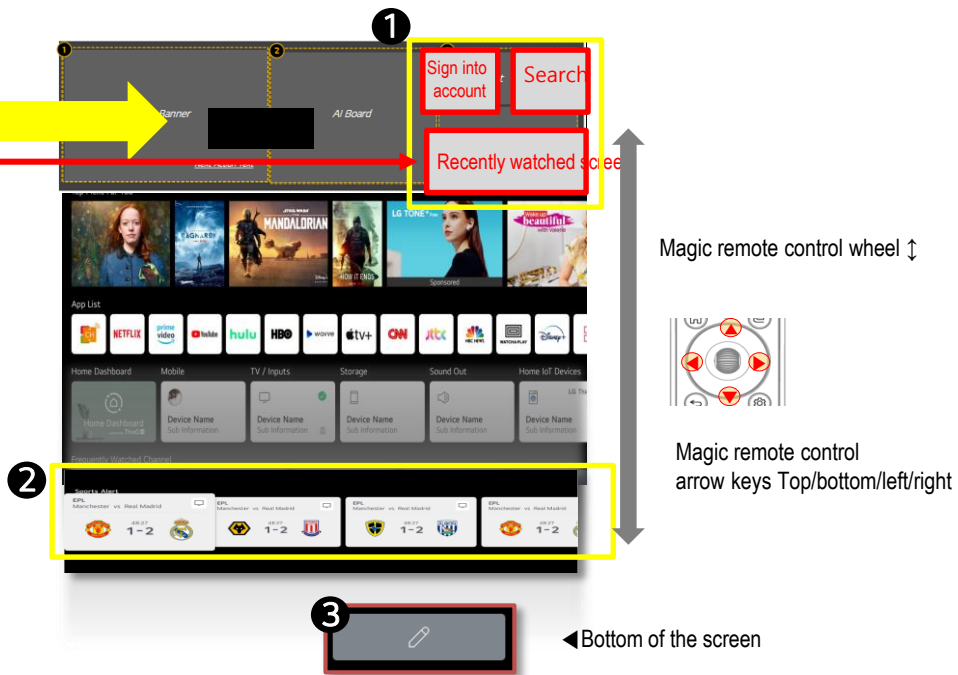
webOS5.0
(2020)



webOS6.0
(2021)



webOS22
(2022)



Improved

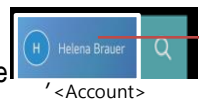


Created Home Bar at the bottom of the screen

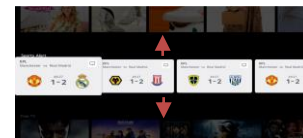
Easy to find OTT content/ programs

- The category can't be edited.
- The layout is full of content.
- I can't watch live TV while using Home.
- There is not much useful content in the top category.

1 Quick verification and account switching
Easy access to Recent Input (including live



2 The selected row is located at the center of the screen and other rows becomes blurred.



3 Added the category list editing function
→ The order of the top/ bottom of the list has been changed

[Homeboard] List of LG products that can be registered on webOS4.5 ~ webOS22 Home Dashboard

Products	* Push notification supported	Compatibility			
		webOS 4.5 (2019)	webOS 5.0 (2020)	2021 webOS 6.0	2022 webOS22
Refrigerator	O	O	O	O	O
Wine refrigerator	X	Available after SW update in March, 2022	O	O	O
Kimchi refrigerator	O	Available after SW update in March, 2022	O	O	O
Washing machine	O	O	O	O	O
Dryer	O	O	O	O	O
Air conditioner	O	O	O	O	O
Air purifier	O	O	O	O	O
Robot vacuum	O	O	O	O	O
Oven	O	O	O	O	O
Dish washer	O	O	O	O	O
Styler	O	O	O	O	O
Humidifier	O	O	O	O	O
Cook top	X	Available after SW update in March, 2022	O	O	O
Hood	X	Available after SW update in March, 2022	O	O	O
Microwave oven	X	-	O	O	O
Heater	X	Available after SW update in March, 2022	O	O	O
Ceiling pan	X	Available after SW update in March, 2022	O	O	O
Wash tower- Washing machine / Wash tower-Dryer	X	Available after SW update in March, 2022	O	O	O
Aqara Sensor- Door sensor	O	Available after SW update in March, 2022	O	O	O
Aqara Sensor-Motion sensor	O	-	O	O	O
Aqara Sensor-Plug	O	Available after SW update in March, 2022	O	O	O
Aqara Sensor-Temperature /humidity sensor	X	Available after SW update in March, 2022	O	O	O
A9 Stick vacuum	X	Undecided	Undecided	Undecided	SW to be updated in June, 2022

* A notification message sent from the device registered on Homeboard appears on the TV screen while watching TV

E.g.) The air purifier filter needs to be cleaned. The oven is done preheating.

※ For products that are compatible with WebOS, but do not provide the push notification function, only the status information of the product is displayed. The status information differs by each product.



[New function] Explanation on webOS22 TV New function (Features)

Personalized Smart experience

- Home
- AI Recommendation & Sports Alert
- LG ThinQ
-  • **Family Care** 
- Game Dashboard & Game Optimizer

Everyday Life Smart experience

-  • **Always Ready (AOD)** 
-  • **Room to Room Share (Screen link)** 
-  • **Multi View** 
-  • **Remote Desktop PC**
- Magic Remote

- Family Care: You can set up a TV screen environment for your children
 - Setting up screen time: Set up the start and end time of the TV screen
 - For vision protection: A function that blocks blue light
 - For hearing protection: Limit the maximum volume of the TV to protect your children's hearing
 - Screen time analysis: TV Monitoring total TV screen time and app usage list

- Always Ready: It provides various everyday life services even when you are not watching TV
 - : This function allows a screen to switch to standby mode when the TV is turned off when not in use and provides art frames on the screen. It also enables to play music from a smartphone through a Bluetooth connection. Even when the background screen is off, you can use the voice recognition function when you say, "Hi LG".

- Multi View: Two screens at the same time
 - : You can watch a workout video on the main screen and observe yourself exercising using the camera app on the other screen at the same time.

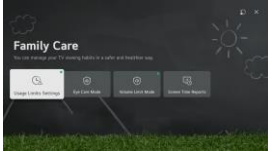
- Room to Room Share (Screen link): After connecting your LG TVs at home, you can watch the video that was only connected to the set-top box in the living room with the TV in your room. For example, even when the set-top box is installed only in the living room, you can use the screen link function to bring up the living room TV screen directly to your bedroom TV to watch the drama. The TV that transmits the screen automatically turns off. With the TV that receives the screen, you can easily watch the programs of your choice by controlling it with remote control.

- Remotely connected to the PC in the office (Remote Desktop PC)
 - : By accessing to the PC in the office, you can work from home more efficiently with the big TV screen at home.

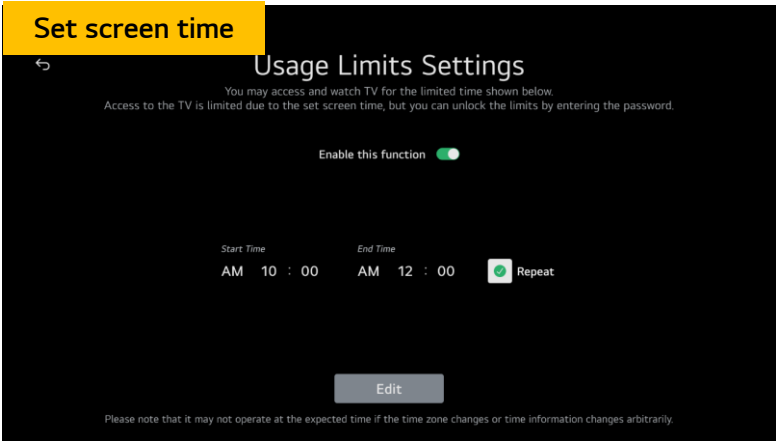


WebOS22 New feature: Family Care

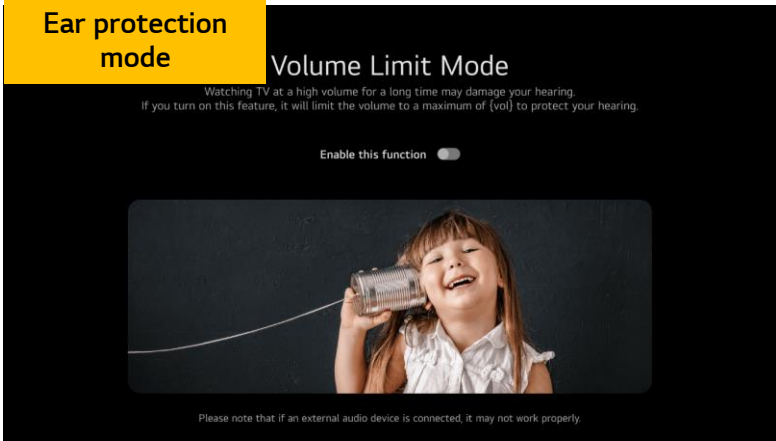
© Access: Settings> General> Family Car



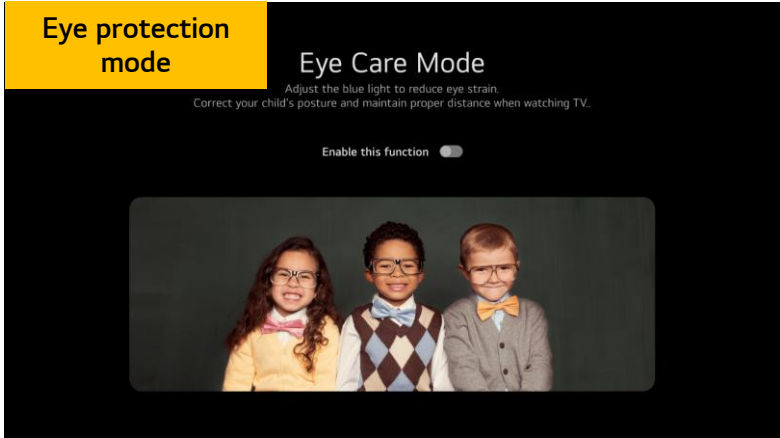
※ All functions on the Family Care app operate on a device-by-device basis regardless of login status



- You can only watch TV for the available screen time.
 - After the screen time is over, the password window will pop up, making it unable to watch TV.
- (If you don't enter the password within 2 minutes, the power will turn off)

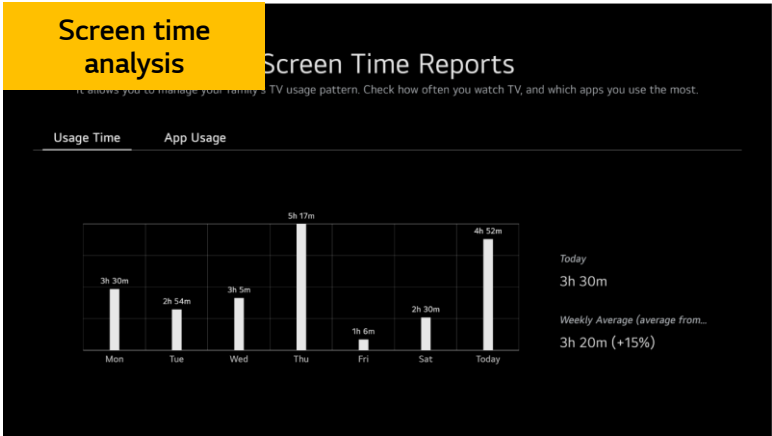


- It sets a maximum volume limit to protect your hearing.
- Even if your child presses the remote control mistakenly, the volume won't go above 60.



- This is a function that **reduces blue light** to prevent eye fatigue and vision loss when watching TV.

* This is not function that automatically turns off TV when you get close to the screen



- The usage of screen time shows in a bar graph
- It provides not only total TV screen time, but also daily/ weekly screen time for each app.

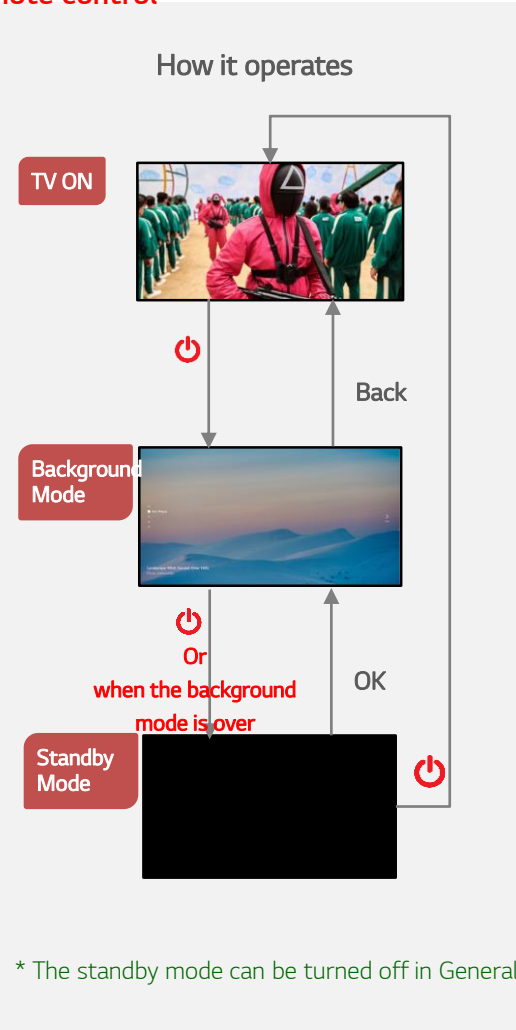
WebOS22 New Feature: Always Ready

Use your TV as AI speaker and art frame when not in use

© Access: Settings> General> Standby Mode

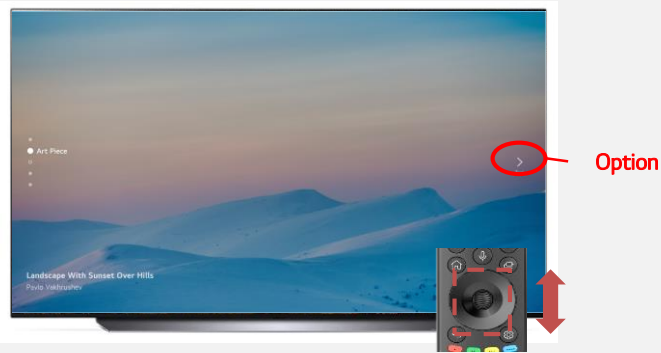
Initial settings: Off: When power OFF after an initial installation, a message pops up three times (After that, no message appears)

※ To enter Background Mode, the TV must be turned on using Artificial Intelligence (AI) remote control



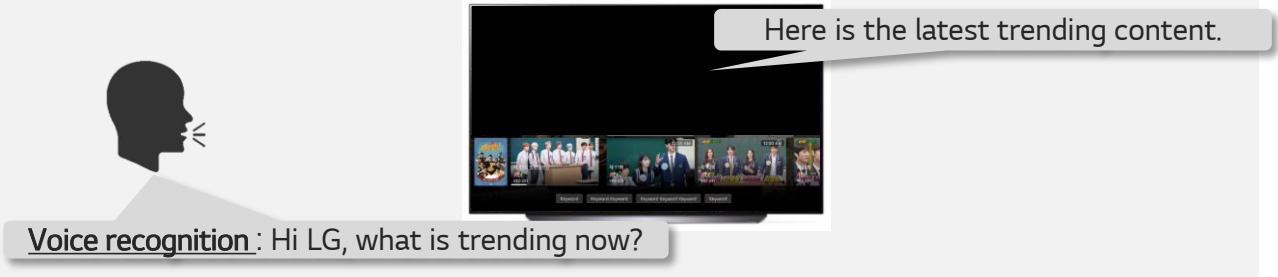
Background Mode

- 1 Art gallery (7 themes)
- 2 Movements (Video Clips)
- 3 Photo (at least 16 photos need to be registered) (USB/ LG ThinQ app)
- 4 Music (USB, BT sharing)
- 5 Clock (Time & Weather)



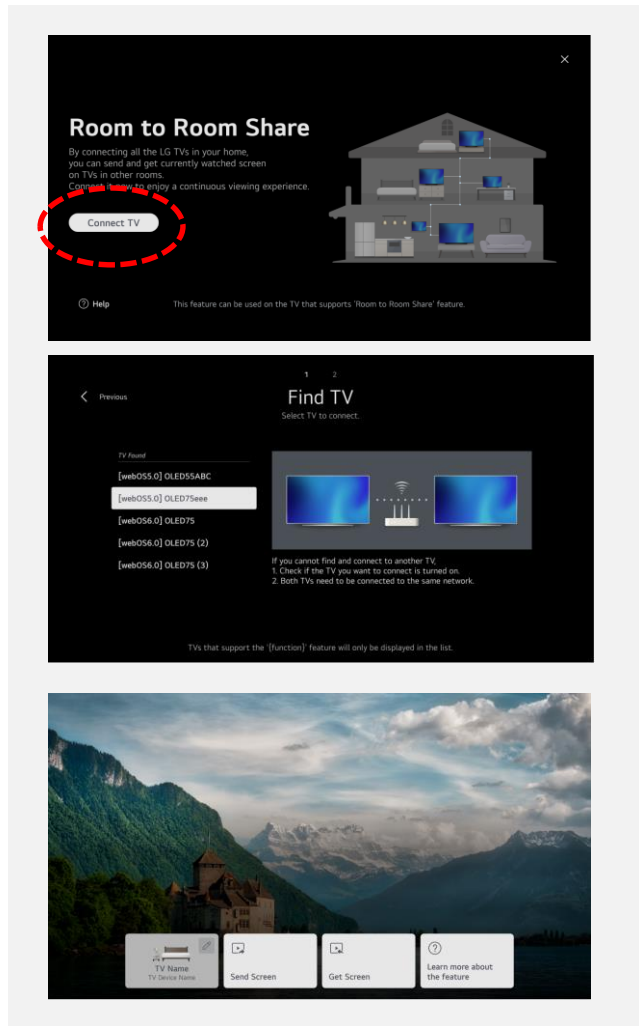
Use the wheel or top/bottom arrow keys to switch themes

Standby Mode: Voice recognition available

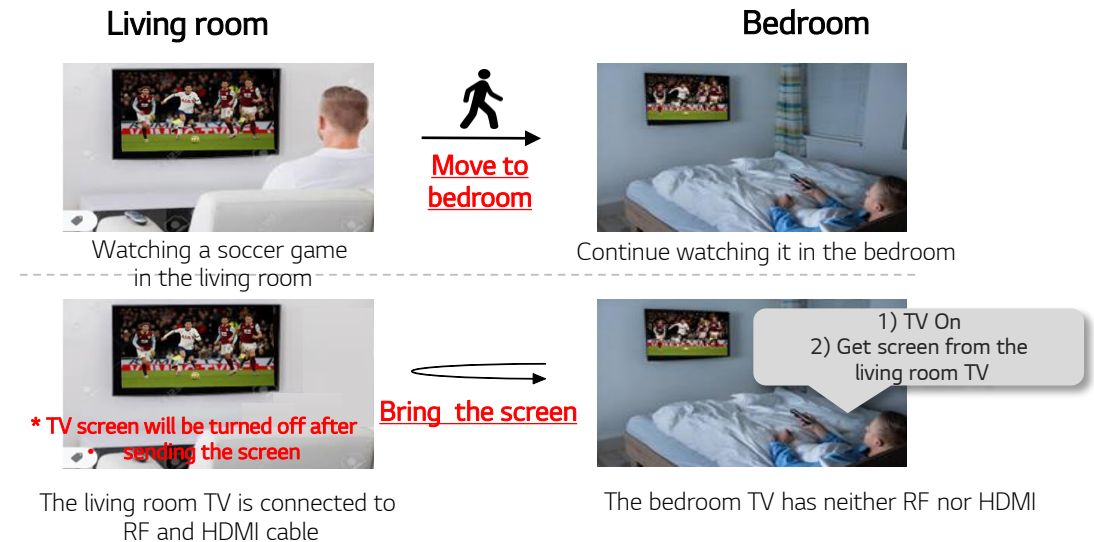


Q1. How much electricity does my TV consume in Background Mode or Standby Mode?	
Q2. Are there any required formats for image file size and extensions?	
Q3. Is it possible to change the settings for the standby mode timer?	
Q4. The screen brightness in the standby mode is too bright at night	

Connecting your TV at other room through Wi-Fi and watch content wirelessly



* TVs that are connected to the same Wi-Fi AP can be synced



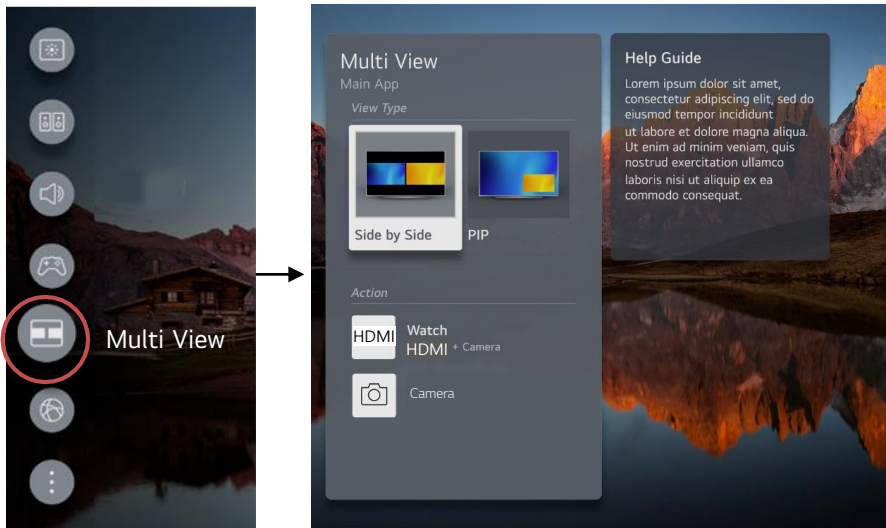
What TV models support this function?	<u>" Send Screen" available TV : Z2, G2, C2, QNED99/95</u> " Get Screen" available TV : All LG TV models launched in 2022
The screen quality on the TV is not good.	During the screen transmission process, the original image is compressed and then data is transmitted through a wireless network. There is a possibility that the quality of some images may be degraded during the process. In addition, there may be differences in image quality depending on the quality settings and panel specifications of the receiving TV. In the process of video data being transmitted through the network, poor video quality and corrupted video screens may occur when there is network traffic.
When using Sending Screen or Receiving Screen, a message that says 'Connect IR Blaster' pops up. 	
My OLED TV suddenly turns on and off by itself 	
When mirroring through the Room to Room app, I can't see the subtitle or set-top settings menu. 	
When using Sending Screen or Receiving Screen, a message that says 'Set up a remote control' pops up. 	



WebOS22 New Feature: Multi View

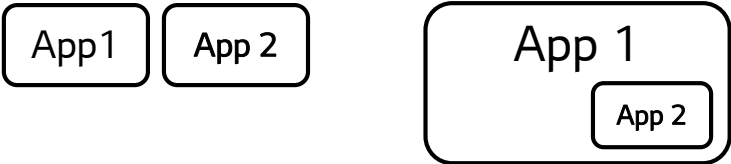
Two screens at the same time

Quick settings– Launch Multi View



Side by Side mode

PIP mode



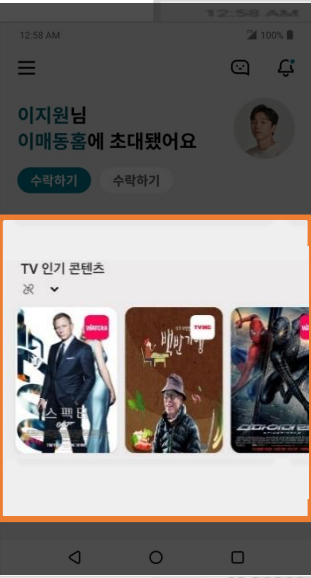
App 1 \ App 2	App 2		
	USB Camera	Screen share Miracast	Spotify
Live TV	●	●	○
HDMI	●	●	○
Gallery	-	-	●

- Q1. I can't open an application using Multi View. ▶
- Q2. Unable to run the combination of apps supported by Multi View. ▶
- Q3. The app forcibly closes while Multi View is running. / Suddenly released. ▶
※ Resolution/Audio Spec restrictions
- Q4. I can't launch Multi View in the game dashboard. ▶
- Q5. Screen Saver automatically starts when no movement is detected for 30 minutes while watching videos using Multi View, (OLED)

WebOS22 New Feature : ThinQ

Mobile ThinQ App has been updated with most used features

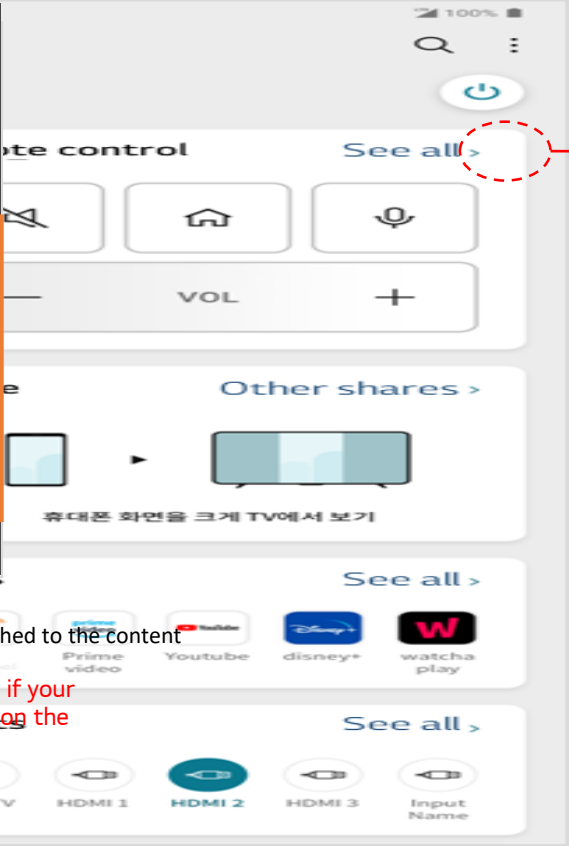
ThinQ app > Home



TV 인기 콘텐츠

- TV will be automatically switched to the content provider screen
- Sending to TV only works if your mobile device and TV are on the same network
- Content search is always supported.

ThinQ app > TV



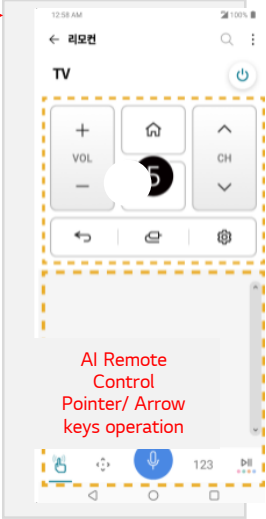
Basic function
To open other remote control functions, click 'See All'

Share TV ↔ Mobile
Mobile screen mirroring
TV mobile sound
TV mobile content
TV playback sound

Recently used app

Live TV / Switch input

ThinQ app > TV (Detailed View)



AI Remote Control
Pointer/ Arrow
keys operation

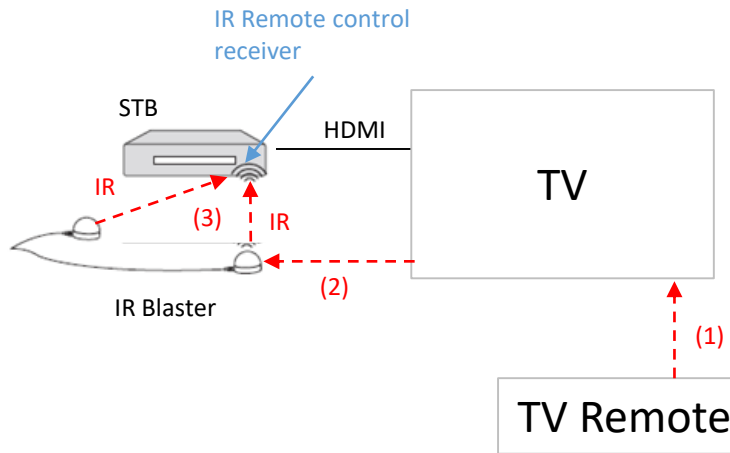
* Supports webOS4.5 or higher version

WebOS22 New Feature: Always Ready FAQ

Q1. How much electricity does my TV consume in Background Mode or Standby Mode?	1) Wallpaper mode: It is difficult to give you the exact number because it depends on each TV inch and each wallpaper mode functions. When setting up the art gallery wallpaper, the power consumption is similar to when you watch TV. When setting up other functions such as clock/music, it consumes less power than watching TV. 2) Standby mode: It consumes 5W power. (※For OLED C Series: 10W)	
Q2. Are there any required formats for image file size and extensions?	At least 16 photos need to be registered, and they are displayed in order. There is no capacity limit and any photos that are displayed normally on TVs/mobile devices can be set. ※ For transferring mobile photos using the ThinQ app only works for Android. (It will be available for Apple after updating MR)	
Q3. Is it possible to change the settings for the standby mode time?	Standby Mode Time-Off: Set 30 minutes as default → Can change to 60 minutes / 120 minutes ※ For G2 model, it switches on/off by motion sensor	1) Enter 'Remote Control Confirmation Key (Wheel)' on the standby mode 2) Select the arrow in the right center of the screen (Optional) 
Q4. On the standby mode, the screen is too bright at night	By enabling the illuminance sensor, you can set the settings so the brightness automatically becomes darker in darker environments.	3) In the upper right corner, Select 'Settings'  4) Select 'Settings' on the upper right corner - Receive notifications - Turn off screen - Slide show speed - Screen on time setting - Enable Illuminance sensor

CIC Guide

Title	When using Sending Screen or Receiving Screen, a message that says 'Connect IR Blaster' pops up					Korea(✓) Overseas(✓) CIC agent(✓) Customer()
Product type	TV	Product	All	Model	All webOS TV models launched before 2022	Troubleshooting(✓) Operation() Installation(✓)
Category	It is difficult to set the universal remote control to use the Room-to-Room function.	Inquiry			I want to send/receive the TV screen connected to the set-top box using the Room-to-Room function. 1) I'm not quite sure how to set the universal remote control.	
Inquiry & Reason	■ Inquiry: A customer wanted to send/receive the TV screen connected to the set-top box using the Room-to-Room function, but a message that says 'Set the universal remote control' pops up. <i>※How the universal remote control works with the Room-to-Room function</i> ■ Reason: It is difficult to understand how to set the universal remote control					
Caution & Explanation	1) To send/receive an external device screen using the Room-to-Room function, the universal remote control must be set. (Settings-> All settings-> General-> General-> Managing TV & External device-> External device settings-> Universal remote control settings) 2) If the universal remote control is not set, you can't send/receive an external device screen.					
Customer Service Guide	■ Connect the external device you wish to use with the universal remote control function to a TV using an HDMI cable. The TV recognizes the connected device and automatically sets the universal remote control function. (Applicable for some device). After completing the setting, the below message will be displayed in the upper right corner of the TV screen.  [LGU+ TV] The device is connected. You cant control it with the AI remote control . ✕ ■ If the universal remote control function is not automatically set, the below message will pop up in the upper right corner of the screen.  [HDMI 3] You can control the device using an AI remote control if you set the device on the connected app. ✕ By following the steps below, you can manually set the universal remote control. ※ Settings-> All settings-> General-> General-> Managing TV & External device-> External device settings-> Universal remote control settings→ Connecting device→ Device type→ Select input terminal→ Select STB operator or manufacturer (If not in the list, search and select) → Test remote control operation (Follow the guideline on the screen) → Completed					

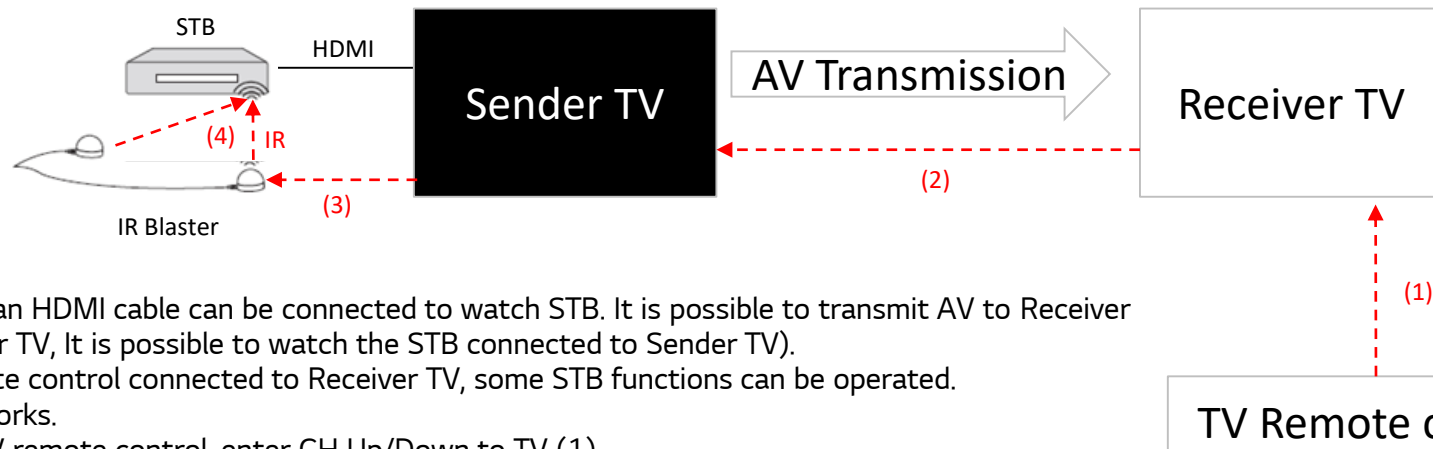


❖How the universal remote control works

1. How it works

- Using TV remote control, enter CH Up/Down to TV (1)
- Sender TV transmits the IR data corresponding to STB to IR Blaster (2)
- IR Blaster sends CH Up/Down signal to STB (IR) (3)
- (Note) When setting the universal remote control, the IR data on the remote control connected to STB can be downloaded to TV.
 - It is to show how STB can be controlled with a TV remote control

❖How the universal remote control works with the Room-to-Room function



- For Sender TV, an HDMI cable can be connected to watch STB. It is possible to transmit AV to Receiver TV. (On Receiver TV, It is possible to watch the STB connected to Sender TV).
- Using the remote control connected to Receiver TV, some STB functions can be operated.
- This is how it works.
 - Using TV remote control, enter CH Up/Down to TV (1)
 - Transmit CH Up/Down signal from Receiver TV to Sender TV (2)
 - Sender TV transmits the IR data corresponding to STB to IR Blaster (3)
 - Send CH Up/Down signal from IR Blaster to STB (IR) (4)
- Set the universal remote control settings only for Sender TV
- When controlling STB using the TV remote control connected to Sender TV, the Room-to-Room share function is disconnected. The sender TV screen turns on and it starts to work as a usual TV.

CIC Guide

Title	When Sending/ Receiving TV, a message that says 'Set the universal remote control' pops up.					Korea(✓) Overseas(✓) CIC agent(✓) Customer()
Product type	TV	Product	All	Model	All webOS TV models launched before 2022	Troubleshooting(✓) Operation() Installation(✓)
Category	It is difficult to set the universal remote control to use the Room-to-Room function.	Inquiry			I want to send/receive the TV screen connected to the set-top box using the Room-to-Room function. 1) I'm not quite sure how to set the universal remote control.	
Inquiry & Reason	■ Inquiry: A customer wanted to send/receive the TV screen connected to the set-top box using the Room-to-Room function, but a message that says 'Set the universal remote control' pops up. ■ Reason: Unable to install IR Blaster properly.					
Caution & Explanation	1) To send/receive an external TV screen using the room-to-room function, IR Blaster must be connected to the TV. 2) If IR Blaster is not connected, the set-top TV screen cannot be sent/received. (If there is no IR Blaster available, it is impossible to use other functions such as changing TV channels even after sending the set-top TV screen.)					
Customer Service Guide	■ Connecting IR Blaster and User Guide Connect the IR Blaster cable to the IR Blaster port on the back of the TV - Place both ends (one or two) of the IR Blaster in front of the external device remote control receiver (usually located in front of the device). 					



CIC Guide

Title	My OLED TV suddenly turns on and off by itself.					Korea(✓) Overseas(✓) CIC agent(✓) Customer()
Product type	TV	Product	All	Model	All webOS TV models launched before 2022	Troubleshooting(✓) Operation() Installation(✓)
Category	My OLED TV suddenly turns on and off by itself	Inquiry			My TV in the living room suddenly turns on and off by itself. 1) My TV in the living room suddenly turns on and off by itself and the screen goes black when watching TV.	

Inquiry & Reason	■ Inquiry: My TV in the living room suddenly turns on and off by itself and the screen goes black when watching TV. ■ Reason: The screen of the Sender TV is off during room-to-room mirroring. When the receiver TV is off, it may look like the TV turns on and off by itself because the power must be ON first.					
Caution & Explanation	1) When the receiver TV is off, it may look like the TV turns on and off by itself because the power must be ON first. 2) By turning off the 'Turn on the TV using Wi-Fi' function, the TV won't turn off suddenly. However, when the TV is off, you can't receive the screen from other TVs.					
Customer Service Guide	■ Please don't be surprised. The TV turns on to do screen mirroring with other TVs in the house. After the TV turns on, a message indicating that other TVs in the house will do screen mirroring the TV will be displayed. If you don't want to send the screen, click 'Cancel' in the below message to stop the mirroring. {Receiver TV} would like to receive the screen. To send the TV screen, the screen will turn off in a moment. Cancel ■ If you don't want other TVs in the house to turn on the TV, please turn OFF the 'Turn on the TV using Wi-Fi' function. Settings-> All settings -> General-> Managing TV and external device-> External device settings-> Turn on the TV using mobile device-> Turn on the TV using Wi-Fi : OFF ※ When [Turn on the TV using Wi-Fi] is OFF, there may be restrictions on other functions. -Turning on the TV on ThinQ App / AirPlay / Youtube, etc					

CIC Guide

Title	I can't see subtitles or set-top settings menu when mirroring through the room-to-room app.					Korea(✓) Overseas(✓) CIC agent(✓) Customer()
Product type	TV	Product	All	Model	All webOS TV models launched before 2022	Troubleshooting(✓) Operation() Installation(✓)
Category	I can't see subtitles or set-top settings menu when mirroring through the room-to-room app.	Inquiry			There are some missing features after mirroring my TV through the room-to-room app. 1) Before mirroring my TV, I was able to see subtitles, but after the mirroring, I can't see any of them on the TV. 2) Before mirroring my TV, I was able to see set-up menus, but after the mirroring, I can't see any of them on the TV.	
Inquiry & Reason	■ Inquiry: Before the mirroring, I was able to see subtitles and set-up menus, but after the mirroring, I can't see any of them on the TV. ■ Reason: When mirroring, only the video data is transferred through the room-to-room app. If video data doesn't include subtitles, set-top menus, etc., such information won't be displayed.					
Caution & Explanation	1) When receiving the TV screen through the room-to-room app, only the video information of the sender TV will be transferred. So, only the video screen will be displayed and subtitles or menus aren't available.					
Customer Service Guide	■ When receiving the TV screen through the room-to-room app, only the video information of the sender TV will be transferred. Subtitles are separated from the video information. Therefore, they aren't provided. ※ Even if you set the subtitle function on the receiver TV, it won't show any subtitle. ■ When receiving the TV screen through the room-to-room app, only the video information of the sender TV will be transferred, the menus won't be displayed. ※ Keys that work with Receiver TV - Power - Channel Up/Down - Volume Up/Down - Number buttons - (AI remote control) wheel If you want to change the settings of the connected external device, please change the settings on the TV to which the external device is connected after exiting the room-to-room function. (mirroring).					



CIC Guide_Multi View

Title	I can't open my app on Multi View					Korea(✓) Overseas(✓) CIC agent(✓) Customer()
Product type	TV	Product	LED TV	Model	WebOS 22 Multi View support models	Troubleshooting (✓) Operation () Installation ()
Category	Multi View function	Inquiry			Apps won't open on Multi View	

Symptom	Many apps installed on the TV (e.g. Netflix, Amazon Prime Video, Disney+, etc.) can't be launched on Multi View. (I can't find my apps on Multi View.)					
Explanation	For webOS 22, only some of the apps that are installed on TV works with Multi View.					
Customer Service Guide	Please note that only the combinations of the apps mentioned below work with Multi View.					
	App 1 (Left-side of split screen mode, the big screen on PIP mode)		App 2 (Right-side of split screen mode, the smaller screen on PIP mode)			
	Live TV ※ Not applicable to China/ Hong Kong products		Screenshare(Miracast) Camera			
	HDMI		Screenshare(Miracast) Camera			
	Gallery		Spotify			

Split screen mode

App1App 2

PIP mode

App 1App 2

CIC Guide_Multi View

Guide	List of Multi View support models			
	SoC	O22 + F22	O22	K8Hp
	Model Name	OLEDXXZ2 & its derivative model XXQNED99 & its derivative model XXQNED96 & its derivative model XXQNED95 & its derivative model	OLEDXXG2 & its derivative model OLEDXXC2 & its derivative model OLEDXXCS & its derivative model	OLEDXXB2 & its derivative model OLEDXXA2 & its derivative model XXQNED91 & its derivative model XXQNED90 & its derivative model XXQNED87 & its derivative model XXQNED86 & its derivative model XXQNED85 & its derivative model XXQNED82 & its derivative model XXQNED81 & its derivative model XXQNED80 & its derivative model XXNANO79 & its derivative model XXNANO76 & its derivative model XXNANO75 & its derivative model XXUQ91 & its derivative model XXUQ90 & its derivative model XXUQ80 & its derivative model

CIC Guide_Multi View

Title	The combinations of the apps supported by Multi View won't work.					Korea(✓) Overseas(✓) CIC agent(✓) Customer()
Product type	TV	Product	LED TV	Model	WebOS 22 Multi View support models	Troubleshooting (✓) Operation () Installation ()
Category	Multi View function	Inquiry			The combinations of the apps supported by Multi View won't work.	

Symptom	The combinations of the apps supported by Multi View won't work and a message indicating that it is unable to launch appears.				
Explanation	Depending on the content you are watching, there may be some restrictions on launching Multi View				
Customer Service Guide	If a user is watching the content below, Multi View cannot be launched.				
	Apps in use	Content being played	Apps you want to use on Multi View	Guide	
	Live TV	8K broadcast 4K high frame (HFR) broadcast Data broadcasting is running Audio Description Video is recording	TVScreenshare(Miracast) Camera	You can't launch the channel you are watching and Multi View at the same time. Try again after changing to other channels, closing the data broadcast, or turning off the audio description.	
	HDMI	Dolby Vision signal 4K High Frame(HFR) signal 8K signal Dolby MAT audio signal Dolby TrueHD audio signal	TVScreenshare(Miracast) Camera	You cant run the HDMI input you're watching and Multi View at the same time. On HDMI devices, try again after 1) Turning off Dolby Vision, 2) Turning off the high frame mode 3) Setting the output resolution to 4K resolution or lower, 4) After setting the audio signal to PCM or AC3	



CIC Guide_Multi View

Title	Multi View is forcibly closed.					Korea(✓) Overseas(✓) CIC agent(✓) Customer()
Product type	TV	Product	LED TV	Model	WebOS 22 Multi View support models	Troubleshooting (✓) Operation () Installation ()
Category	Multi View function	Inquiry			Multi View is forcibly closed.	

Symptom	When running two apps on Multi View, it suddenly shuts down and only one app takes up full screen.
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Explanation	Depending on the content you are watching, Multi View may be forcibly closed.
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Customer Service Guide	The combinations of the apps		Is forcibly closed when	Guide
	Live TV	TVScreenshare(Miracast) Camera	On Live TV 1. Switch to 8K channels 2. Switch to 4K high frame channels 3. Audio description ON 4. Scheduled screen recording starts	You can't launch the channel you are watching and Multi View at the same time. Try again after changing to other channels, closing the data broadcast, or turning off the audio description.
	HDMI	TVScreenshare(Miracast) Camera	On HDMI devices 1. Dolby Vision signal ON 2. 4K high frame (HFR) signal ON 3. Change the screen resolution to 8K, or Dolby MAT/Dolby TrueHD audio signal ON	You can't run the HDMI input you're watching and Multi View at the same time. On HDMI devices, try again after 1) Turning off Dolby Vision, 2) Turning off the high frame mode 3) Setting the output resolution to 4K resolution or lower, 4) Setting the audio signal to Dolby Digital or AC3



CIC Guide_Multi View

Title	Multi View doesn't work on the game dashboard.					Korea(✓) Overseas(✓) CIC agent(✓) Customer()
Product type	TV	Product	LED TV	Model	WebOS 22 Multi View support models	Troubleshooting (✓) Operation () Installation ()
Category	Multi View function	Inquiry			Multi View doesn't work on the game dashboard.	
Symptom	I wanted to run Multi View while playing a game, but it didn't work.					
Explanation	Multi View may not run depending on the game controller settings on the latest game controller (Xbox Series X and Playstation 5).					
Customer Service Guide	If your game controller settings are set as below, Multi View might not be working.					
	Type		Game controller settings		Guide	
	Video		Dolby Vision On Screen resolution settings: 4K 120Hz Variable Refresh Rate : On		Multi View is not available in the current game controller settings. On the settings, you can try again after turning off Dolby Vision, setting the resolution to 4K 60Hz or lower, or turning off Variable Refresh Rate.	
	Audio		Dolby MAT audio signal Dolby TrueHD audio signal		Multi View is not available in the current game controller settings. On the game controller settings, you can try again after setting the audio signal to Dolby Digital or AC3.	



