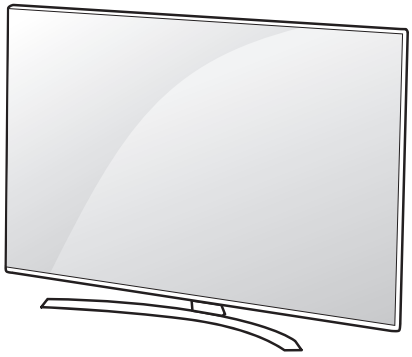
Internal Use Only

LED TV
SERVICE MANUAL

CHASSIS : UJ71P/UT71P

MODEL : 55UJ6580 55UJ6580-SD
55UJ658T 55UJ658T-DD

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



P/NO : MFL69761707 (1701-REV00)

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SAFETY PRECAUTIONS

IMPORTANT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These parts are identified by ⚠ 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 it's components from being damaged by accidental shorts of the circuitry that may be inadvertently introduced during the service operation.

If any fuse (or Fusible Resistor) in this TV receiver is blown, replace it with the specified.

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

Keep wires away from high voltage or high temperature parts.

Before returning the receiver to the customer,

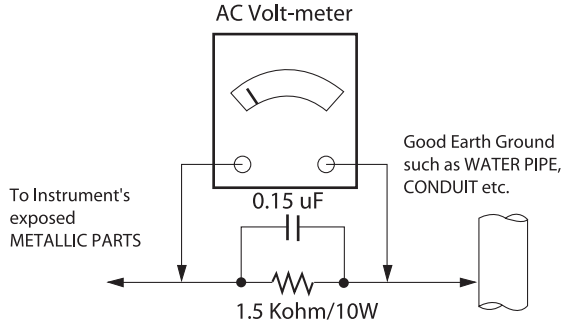
always perform an **AC leakage current check** on the exposed metallic parts of the cabinet, such as antennas, terminals, etc., to be sure the set is safe to operate without damage of electrical shock.

Leakage Current Cold Check(Antenna Cold Check)
With the instrument AC plug removed from AC source, connect an electrical jumper across the two AC plug prongs. Place the AC switch in the on position, connect one lead of ohm-meter to the AC plug prongs tied together and touch other ohm-meter lead in turn to each exposed metallic parts such as antenna terminals, phone jacks, etc.
If the exposed metallic part has a return path to the chassis, the measured resistance should be between 1 MΩ and 5.2 MΩ.
When the exposed metal has no return path to the chassis the reading must be infinite.
An other abnormality exists that must be corrected before the receiver is returned to the customer.

Leakage Current Hot Check (See below Figure)
Plug the AC cord directly into the AC outlet.

Do not use a line Isolation Transformer during this check.
Connect 1.5 K / 10 watt resistor in parallel with a 0.15 uF capacitor between a known good earth ground (Water Pipe, Conduit, etc.) and the exposed metallic parts.
Measure the AC voltage across the resistor using AC voltmeter with 1000 ohms/volt or more sensitivity.
Reverse plug the AC cord into the AC outlet and repeat AC voltage measurements for each exposed metallic part. Any voltage measured must not exceed 0.75 volt RMS which is corresponds to 0.5 mA.
In case any measurement is out of the limits specified, there is possibility of shock hazard and the set must be checked and repaired before it is returned to the customer.

Leakage Current Hot Check circuit



When 25A is impressed between Earth and 2nd Ground for 1 second, Resistance must be less than 0.1 Ω
*Base on Adjustment standard

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SERVICING PRECAUTIONS

CAUTION: Before servicing receivers covered by this service manual and its supplements and addenda, read and follow the *SAFETY PRECAUTIONS* on page 3 of this publication.
NOTE: If unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions on page 3 of this publication, always follow the safety precautions. Remember: Safety First.

General Servicing Precautions

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

Electrostatically Sensitive (ES) Devices

Some semiconductor (solid-state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor “chip” components. The following techniques should be used to help reduce the incidence of component damage caused by static by static electricity.

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

General Soldering Guidelines

1. Use a grounded-tip, low-wattage soldering iron and appropriate tip size and shape that will maintain tip temperature within the range or 500 °F to 600 °F.
2. Use an appropriate gauge of RMA resin-core solder composed of 60 parts tin/40 parts lead.
3. Keep the soldering iron tip clean and well tinned.
4. Thoroughly clean the surfaces to be soldered. Use a mall wire-bristle (0.5 inch, or 1.25 cm) brush with a metal handle. Do not use freon-propelled spray-on cleaners.
5. Use the following unsoldering technique
   a. Allow the soldering iron tip to reach normal temperature. (500 °F to 600 °F)
   b. Heat the component lead until the solder melts.
   c. Quickly draw the melted solder with an anti-static, suction-type solder removal device or with solder braid.
   CAUTION: Work quickly to avoid overheating the circuit board printed foil.
6. Use the following soldering technique.
   a. Allow the soldering iron tip to reach a normal temperature (500 °F to 600 °F)
   b. First, hold the soldering iron tip and solder the strand against the component lead until the solder melts.
   c. Quickly move the soldering iron tip to the junction of the component lead and the printed circuit foil, and hold it there only until the solder flows onto and around both the component lead and the foil.
   CAUTION: Work quickly to avoid overheating the circuit board printed foil.
   d. Closely inspect the solder area and remove any excess or splashed solder with a small wire-bristle brush.

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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.

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SPECIFICATION

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

1. Application range

This spec sheet is applied to the LED TV used UJ71P/UT71P chassis

2. Test condition

Each part is tested as below without special notice.

(1) Temperature : 25 °C ± 5 °C(77 °F ± 9 °F), CST: 40 °C ± 5 °C
(2) Relative Humidity: 65 % ± 10 %
(3) Power Voltage
Standard input voltage (100~240V@ 50/60Hz)
* Standard Voltage of each products is marked by models.
(4) Specification and performance of each parts are followed each drawing and specification by part number in accordance with BOM.
(5) The receiver must be operated for about 20 minutes prior to the adjustment.

3. Test method

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

4. Model Specification

(1) - S

No	Item		Specification		Remark
1	Market		Central and South AMERICA		
2	Broadcasting system		Digital : SBTVD		
			Analog : NTSC / PAL-M / PAL-N		
3	Available Channel		BAND	NTSC	
			VHF UHF DTV CATV	2 ~ 13 14 ~ 69 2 ~ 69 1 ~ 135	
4	Receiving system		Digital : SBTVD / Analog : NTSC-M / PAL-M / PAL-N		
5	Video Input		NTSC / PAL-M / PAL-N		
6	Component Input		Y/Cb/Cr, Y/ Pb/Pr		Rear RCA
7	HDMI Input	HDMI 3	PC / DTV format, Support HDCP2.2		
		HDMI 2	PC / DTV format, Support HDCP2.2		Side, Support ARC
		HDMI 1	PC / DTV format, Support HDCP2.2		
8	Audio Input		Component / AV Audio / DVI audio		L/R Input ; Rear Component and av and DVI use same jack ; Rear (Gender)
9	SPDIF out(1EA)		Optical Audio out		Rear (1EA),
10	USB Input(3EA)		EMF, DivX HD, For SVC (download) USB 2.0 : 2EA USB 3.0 :1EA		Side JPEG, MP3, DivX HD

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(2) - D

No	Item		Specification		Remark
1	Market		Colmbia/Panama/Taiwan		
2	Broadcasting system		Digital : DVB-T		Colombia : DVB-T/T2
			Analog : NTSC / PAL-M / PAL-N		Colombia/Panama
			Analog : NTSC-M		Taiwan
3	Available Channel		BAND	NTSC	
			VHF UHF DTV CATV	2 ~ 13 14 ~ 69 2 ~ 69 1 ~ 125	
4	Receiving system		Digital : COFDM (DVB-T)/DVB-T2(Colombia) Analog : Upper Heterodyne		▪ DVB-T - Guard Interval(Bitrate_Mbit/s) 1/4, 1/8, 1/16, 1/32 - Modulation : Code Rate QPSK/16-QAM/64-QAM - Code Rate 1/2, 2/3, 3/4, 5/6, 7/8 ▪ DVB-T2 - Guard Interval(Bitrate_Mbit/s) 1/4, 19/256, 1/8, 1/16, 1/32, 1/128 - Modulation QPSK, 16-QAM, 64-QAM, 256QAM - Code Rate 1/2, 3/5, 2/3, 3/4, 4/5, 5/6
5	Video Input		NTSC / PAL-M / PAL-N		Colombia/Panama
			NTSC		Taiwan
6	Component Input		Y/Cb/Cr, Y/ Pb/Pr		Rear RCA
		HDMI 3	DTV format, Support HDCP2.2, PC(HDMI Ver1.4/2.0)		Rear
		HDMI 2	DTV format, Support HDCP2.2, PC(HDMI Ver1.4/2.0)		Side, Support ARC
		HDMI 1	DTV format, Support HDCP2.2, PC(HDMI Ver1.4/2.0)		Side
8	Audio Input		Component / AV Audio / DVI audio		L/R Input : Rear Component and AV and DVI use same jack : Rear
9	SPDIF out(1EA)		Optical Audio out		Rear (1EA),
10	USB Input(3EA)		EMF, DivX HD, For SVC (download) USB2.0 : 2EA		Side(1)/Rear(1) : JPEG, MP3, DivX HD

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5. External Input Support Format

5.1. Component input(Y, P_B, P_R)

No	Resolution	H-freq(kHz)	V-freq.(kHz)	Pixel clock	Proposed
1	720*480i	15.73	59.94	13.500	SDTV, DVD 480I(525I)
2	720*480i	15.75	60.00	13.514	SDTV, DVD 480I(525I)
3	720*576i	15.625	50.00	13.500	SDTV, DVD 576I(625I) 50Hz
4	720*480p	31.47	59.94	27.000	SDTV 480P
5	720*480p	31.50	60.00	27.027	SDTV 480P
6	720*576p	31.25	50.00	27.000	SDTV 576P 50Hz
7	1280*720	44.96	59.94	74.176	HDTV 720P
8	1280*720	45.00	60.00	74.250	HDTV 720P
9	1280*720	37.5	50.00	74.250	HDTV 720P 50Hz
10	1920*1080	28.125	50.00	74.250	HDTV 1080I 50Hz,
11	1920*1080	33.72	59.94	74.176	HDTV 1080I
12	1920*1080	33.75	60.00	74.25	HDTV 1080I
13	1920*1080	56.25	50	148.5	HDTV 1080P
14	1920*1080	67.5	60.00	148.5	HDTV 1080P

5.2. HDMI Input (PC)

No.	Resolution	H-freq(kHz)	V-freq.(kHz)	Pixel clock	Proposed	Remarks
1	640*350	31.468	70.09	25.17	EGA	
2	720*400	31.469	70.08	28.32	DOS	
3	640*480	31.469	59.94	25.17	VESA(VGA)	
4	800*600	37.879	60.31	40	VESA(SVGA)	
5	1024*768	48.363	60.00	65	VESA(XGA)	
6	1360*768	47.712	60.015	84.75	VESA(WXGA)	
7	1152*864	54.348	60.053	80	VESA	Support to HDMI-PC
8	1280*1024	63.981	60.020	109.00	SXGA	
9	1920*1080	67.5	60	158.40	WUXGA (Reduced Blanking)	
10	3840*2160	54	24.00	297.00	UDTV 2160P	Only UHD Model
11	3840*2160	56.25	25.00	297.00	UDTV 2160P	Only UHD Model
12	3840*2160	67.5	30.00	297.00	UDTV 2160P	Only UHD Model
13	4096*2160	53.95	23.97	296.703	UDTV 2160P	Only UHD Model
14	4096*2160	54	24	297	UDTV 2160P	Only UHD Model

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5.3. HDMI Input (DTV)

No	Resolution	H-freq(kHz)	V-freq.(Hz)	Pixel clock(MHz)	Proposed	Remark
1	640*480	31.469	59.94	25.125	SDTV 480P	
2	640*480	31.5	60.00	25.125	SDTV 480P	
3	720*480	15.73	59.94	13.500	SDTV, DVD 480I(525I)	Spec. out but display
4	720*480	15.75	60.00	13.514	SDTV, DVD 480I(525I)	
5	720*576	15.625	50.00	13.500	SDTV, DVD 576I(625I) 50Hz	
6	720*480	31.47	59.94	27	SDTV 480P	
7	720*480	31.5	60.00	27.027	SDTV 480P	
8	720*576	31.25	50.00	27	SDTV 576P (DVB)	
9	1280*720	44.96	59.94	74.176	HDTV 720P	
10	1280*720	45	60.00	74.25	HDTV 720P	
11	1280*720	37.5	50.00	74.25	HDTV 720P(DVB)	
12	1920*1080	28.125	50.00	74.25	HDTV 1080I (DVB)	
13	1920*1080	33.72	59.94	74.176	HDTV 1080I	
14	1920*1080	33.75	60.00	74.25	HDTV 1080I	
15	1920*1080	26.97	23.976	63.296	HDTV 1080P	
16	1920*1080	27.00	24.000	63.36	HDTV 1080P	
17	1920*1080	33.71	29.97	79.120	HDTV 1080P	
18	1920*1080	33.75	30.00	79.20	HDTV 1080P	
19	1920*1080	56.25	50.00	148.5	HDTV 1080P (DVB)	
20	1920*1080	67.432	59.94	148.350	HDTV 1080P	
21	1920*1080	67.5	60.00	148.50	HDTV 1080P	
22	3840*2160	53.95	23.98	296.703	UDTV 2160P	Only UHD Model
23	3840*2160	54	24.00	297.00	UDTV 2160P	Only UHD Model
24	3840*2160	56.25	25.00	297.00	UDTV 2160P	Only UHD Model
25	3840*2160	61.43	29.97	296.703	UDTV 2160P	Only UHD Model
26	3840*2160	67.5	30.00	297.00	UDTV 2160P	Only UHD Model
27	3840*2160	112.5	50.00	594	UDTV 2160P	Only UHD Model
28	3840*2160	134.86	59.94	593.407	UDTV 2160P	Only UHD Model
29	3840*2160	135	60.00	594	UDTV 2160P	Only UHD Model
30	4096*2160	53.95	23.98	296.703	UDTV 2160P	Only UHD Model
31	4096*2160	54	24.00	297	UDTV 2160P	Only UHD Model
32	4096*2160	56.25	25.00	297	UDTV 2160P	Only UHD Model
33	4096*2160	61.43	29.97	296.703	UDTV 2160P	Only UHD Model
34	4096*2160	67.5	30.00	297	UDTV 2160P	Only UHD Model
35	4096*2160	112.5	50.00	594	UDTV 2160P	Only UHD Model
36	4096*2160	134.86	59.94	593.407	UDTV 2160P	Only UHD Model
37	4096*2160	135	60.00	594	UDTV 2160P	Only UHD Model

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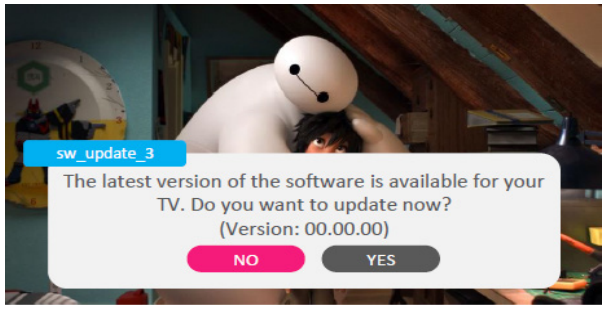
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SOFTWARE UPDATE

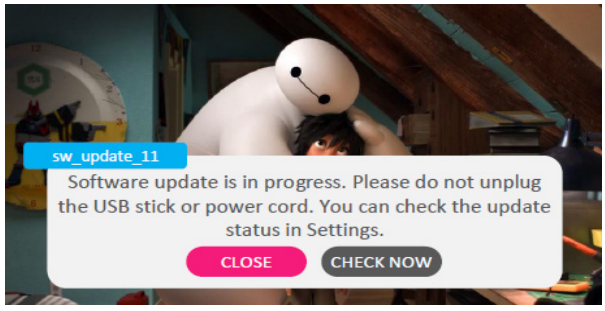
1. USB

(1) Insert the USB memory Stick to the USB port

(2) Automatically detect the SW Version and show the below message

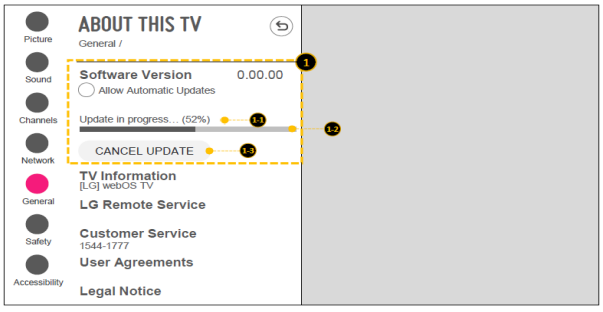


(3) Click [YES]: initiate the download and install of the update.

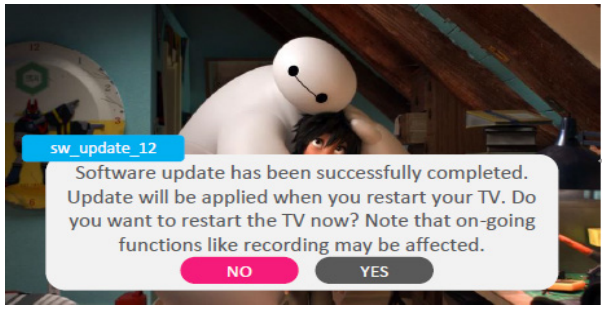


(4) Click [Check Now]: move to “About This TV” page for update

(5) TV is updating



(6) After finished the update, below Pop-up appear



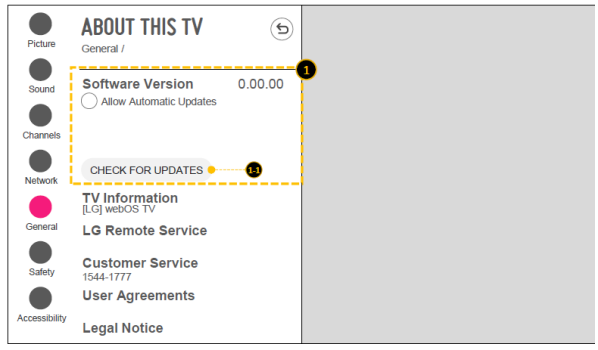
(7) Click [Yes] : TV will be DC OFF -> ON

(8) After TV turned on, Check the updated SW Version and Tool Option

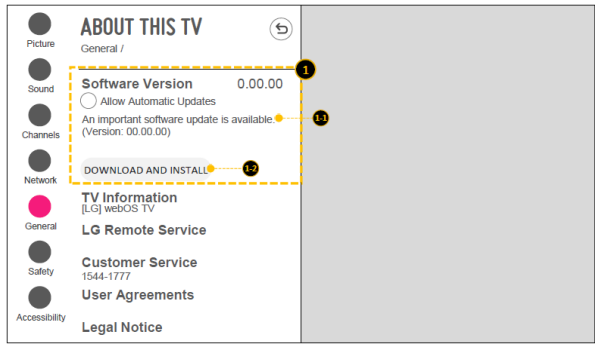
2. NSU

(This Function is needed to connect to the internet)

(1) Menu -> All Settings -> General -> About This TV

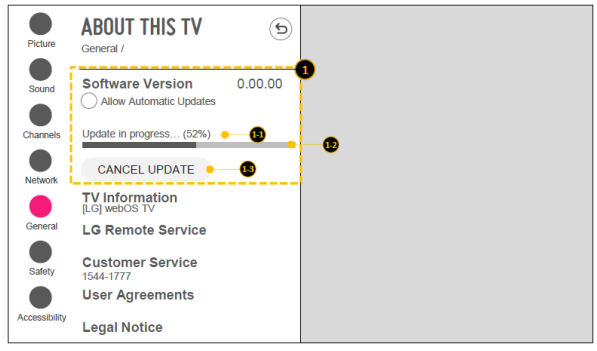


(2) Click [CHEK FOR UPDATES] : system check newest version

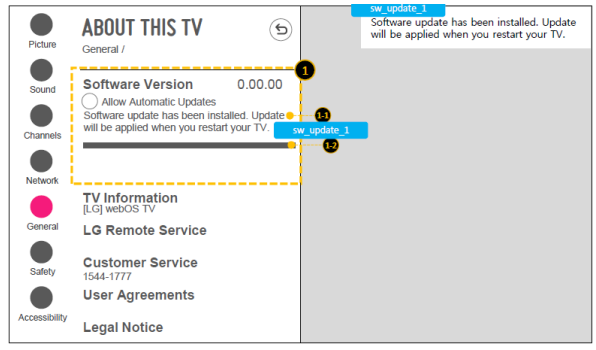


(3) Click [DOWNLOAD AND INSTALL]

(4) TV is updating



(5) After finished the update, below Pop-up appear

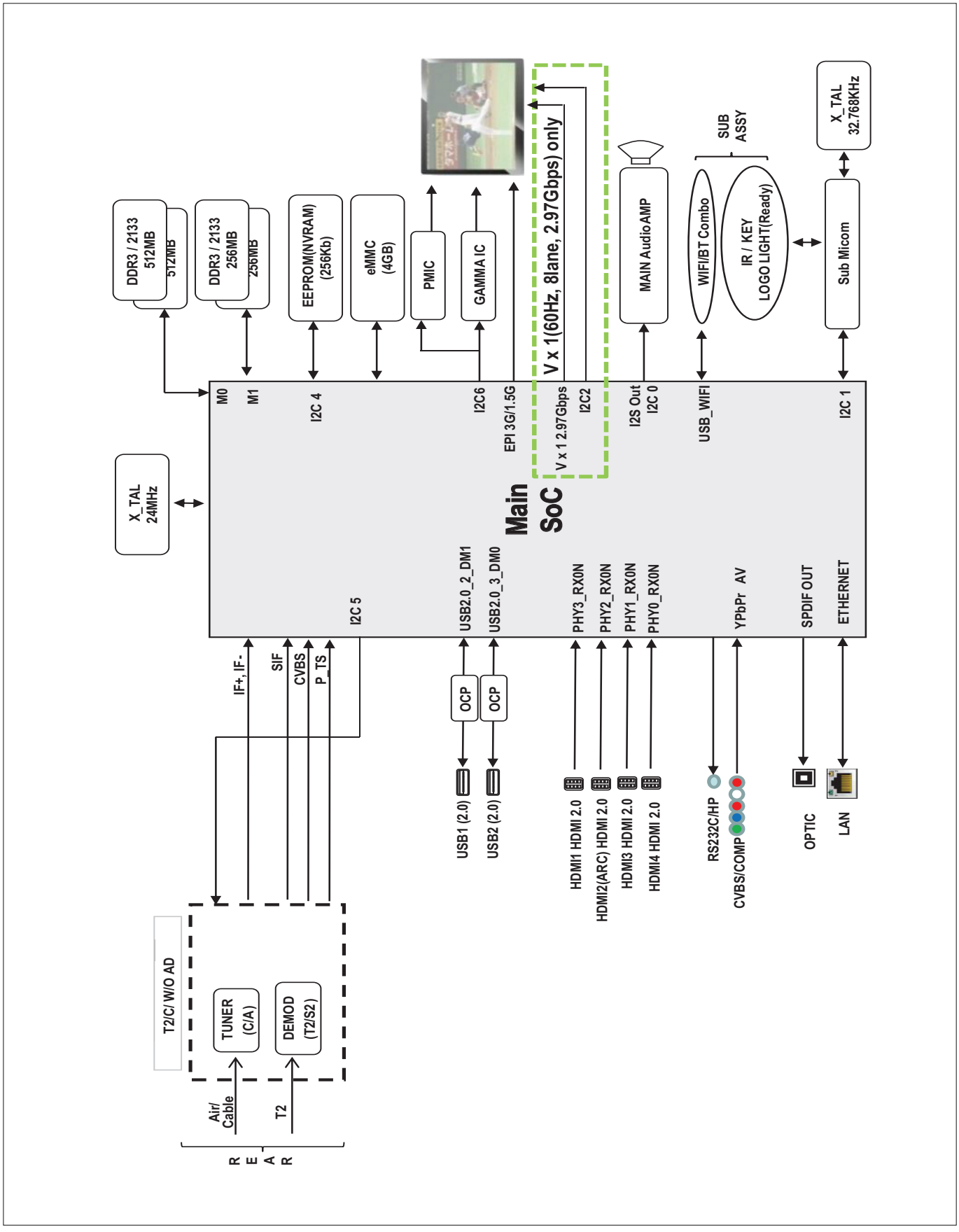


(6) Turn OFF the TV and On. Check the updated SW Version and Tool Option

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Block Diagram



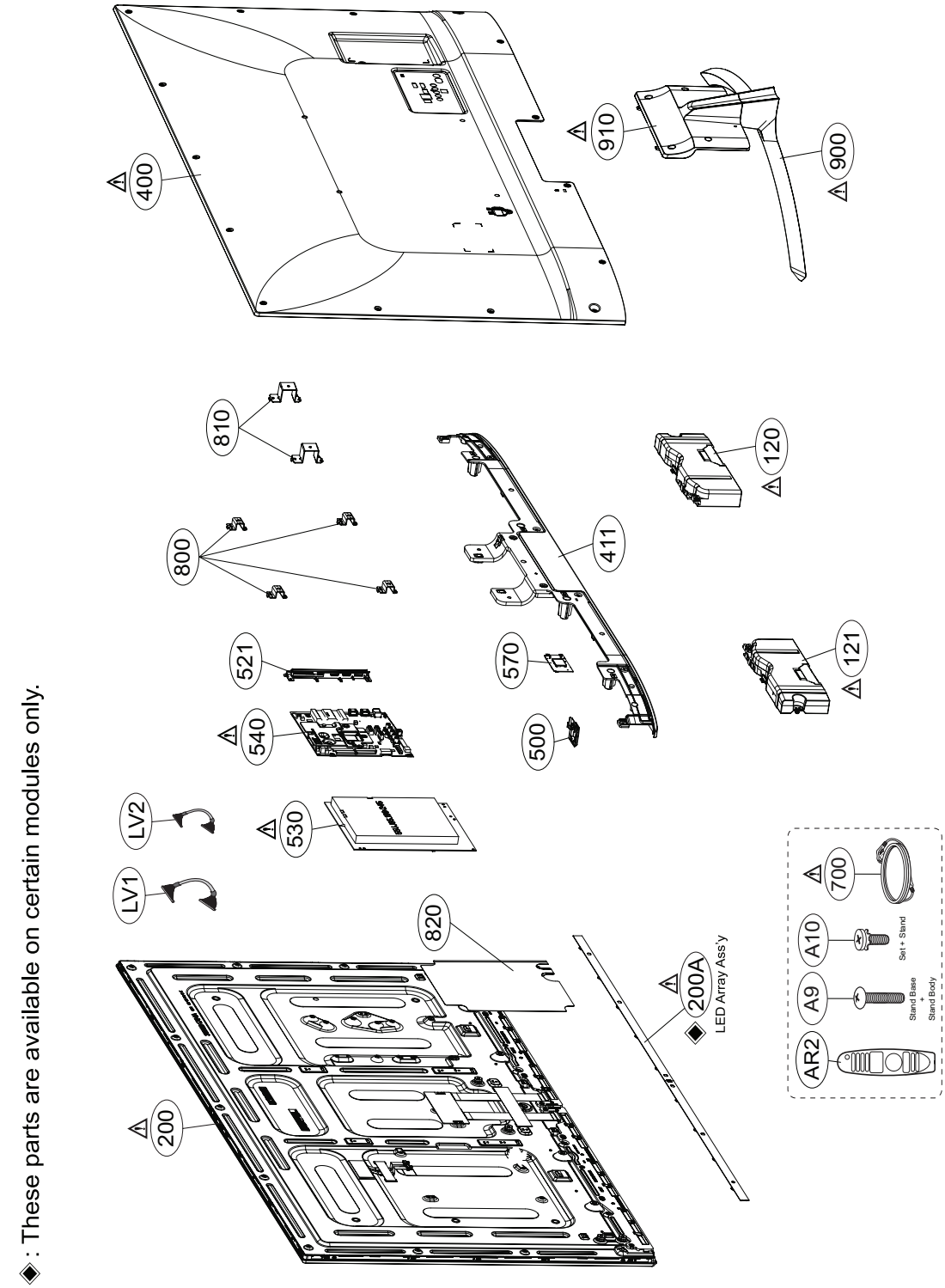
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EXPLODED VIEW

IMPORTANT SAFETY NOTICE

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

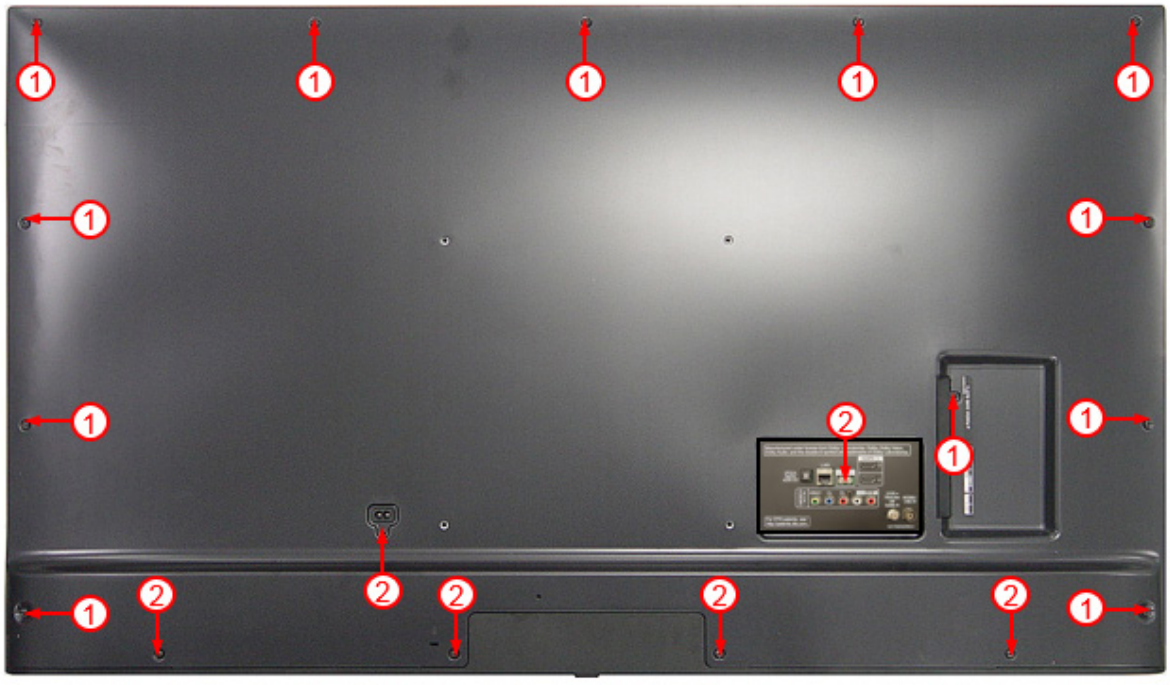


◈ : These parts are available on certain modules only.

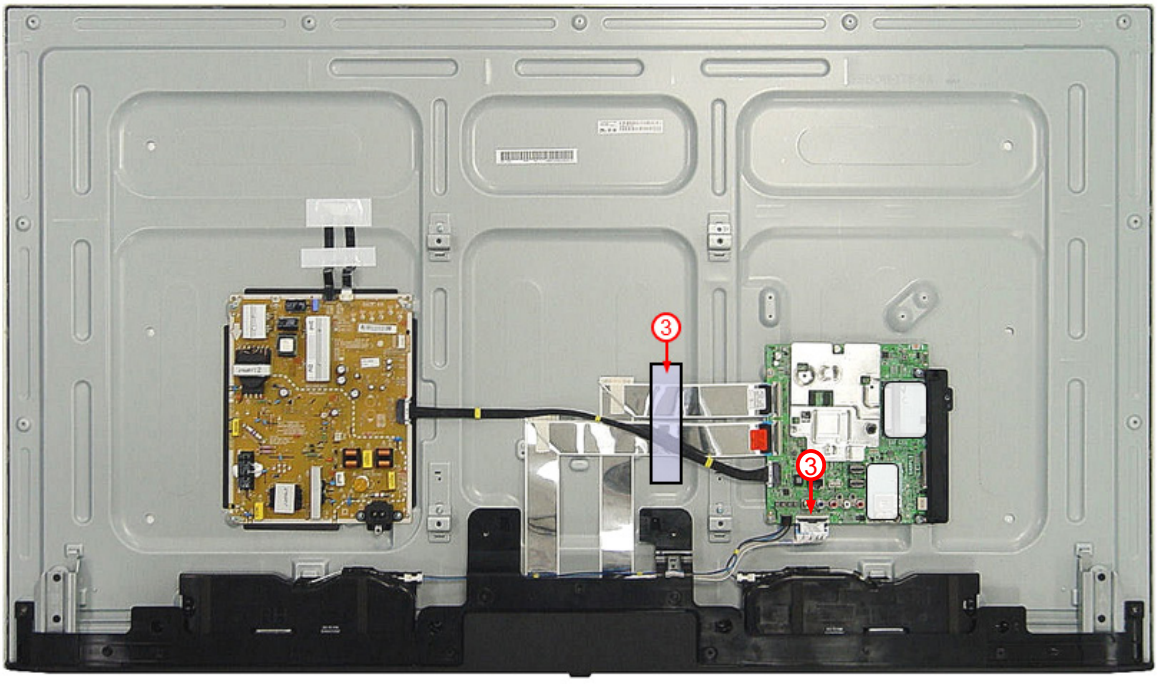
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DISASSEMBLY GUIDE



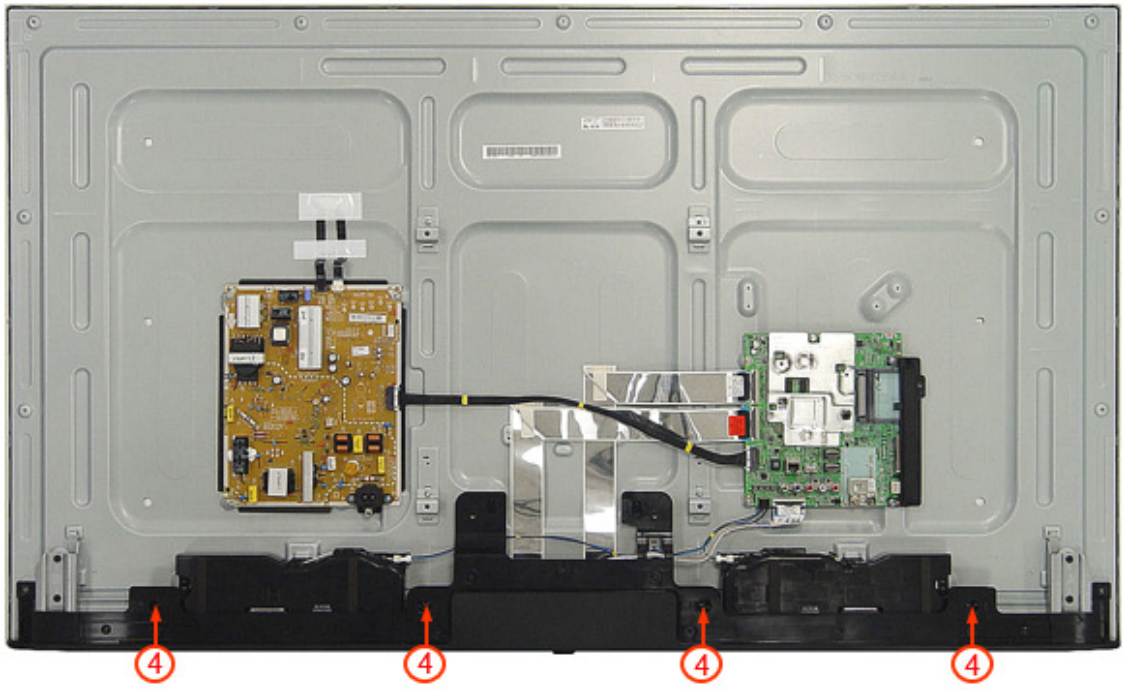
[Fig.1]



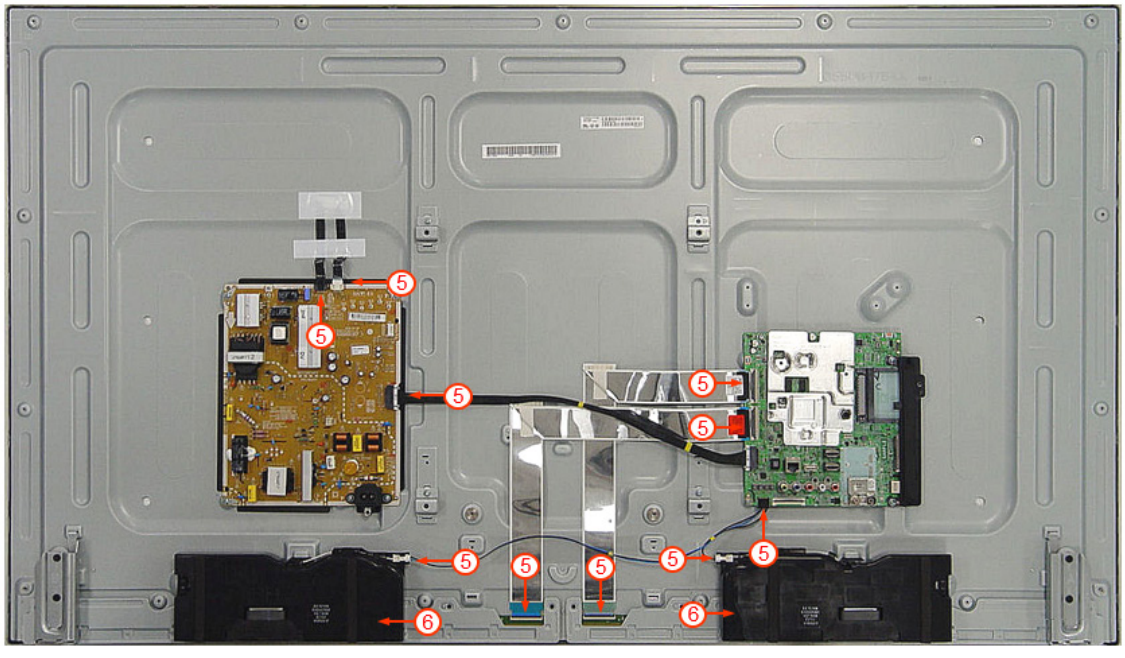
[Fig.2]

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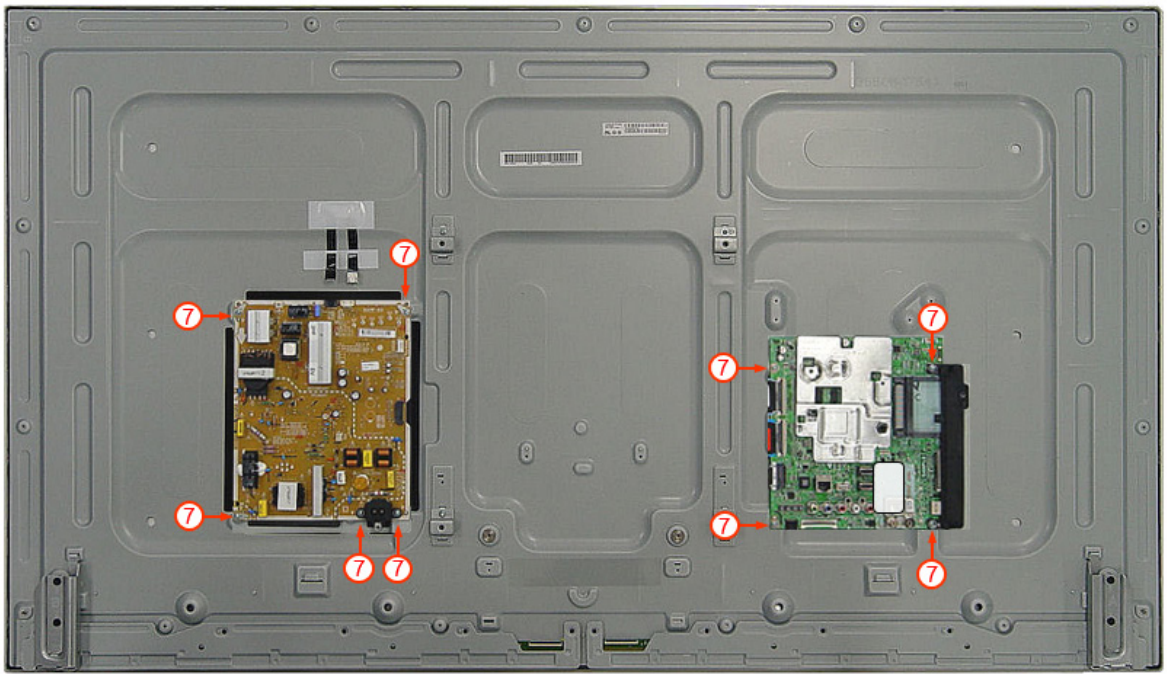
[Fig.3]



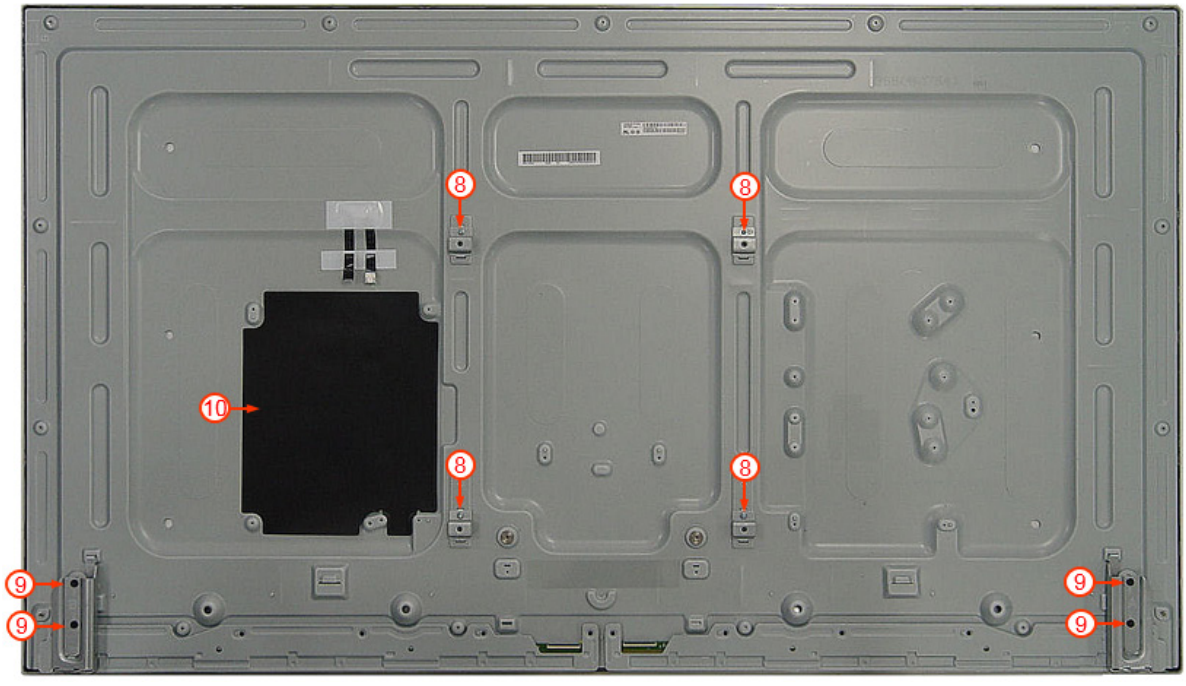
[Fig.4]

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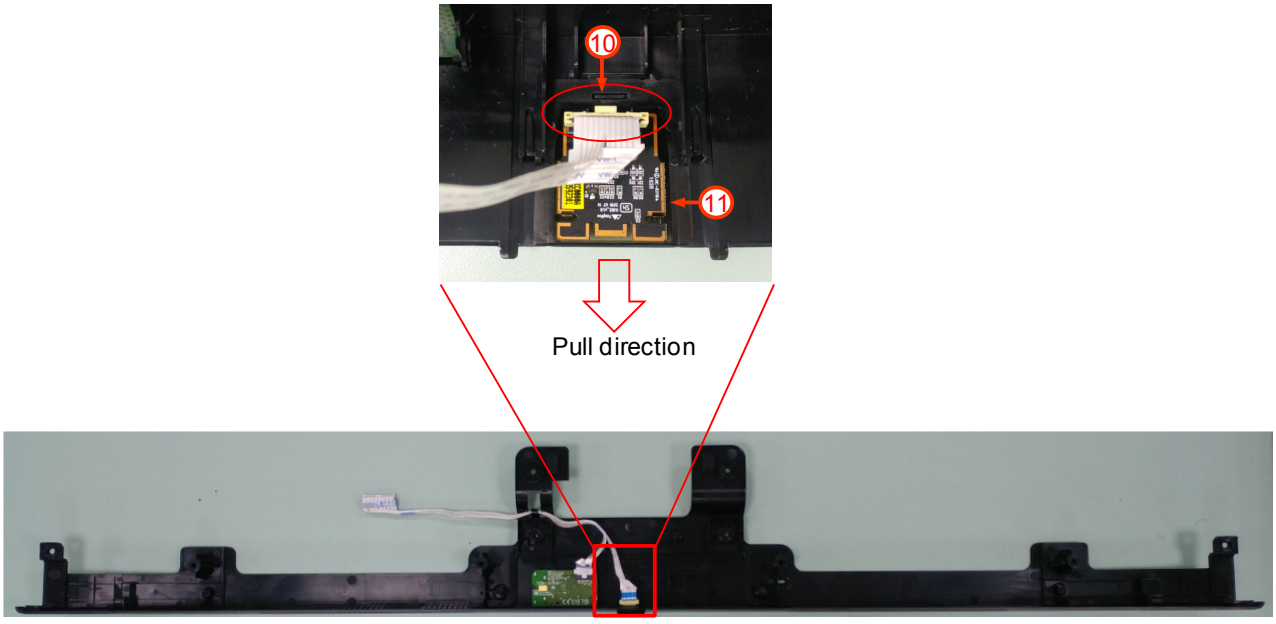
[Fig.5]



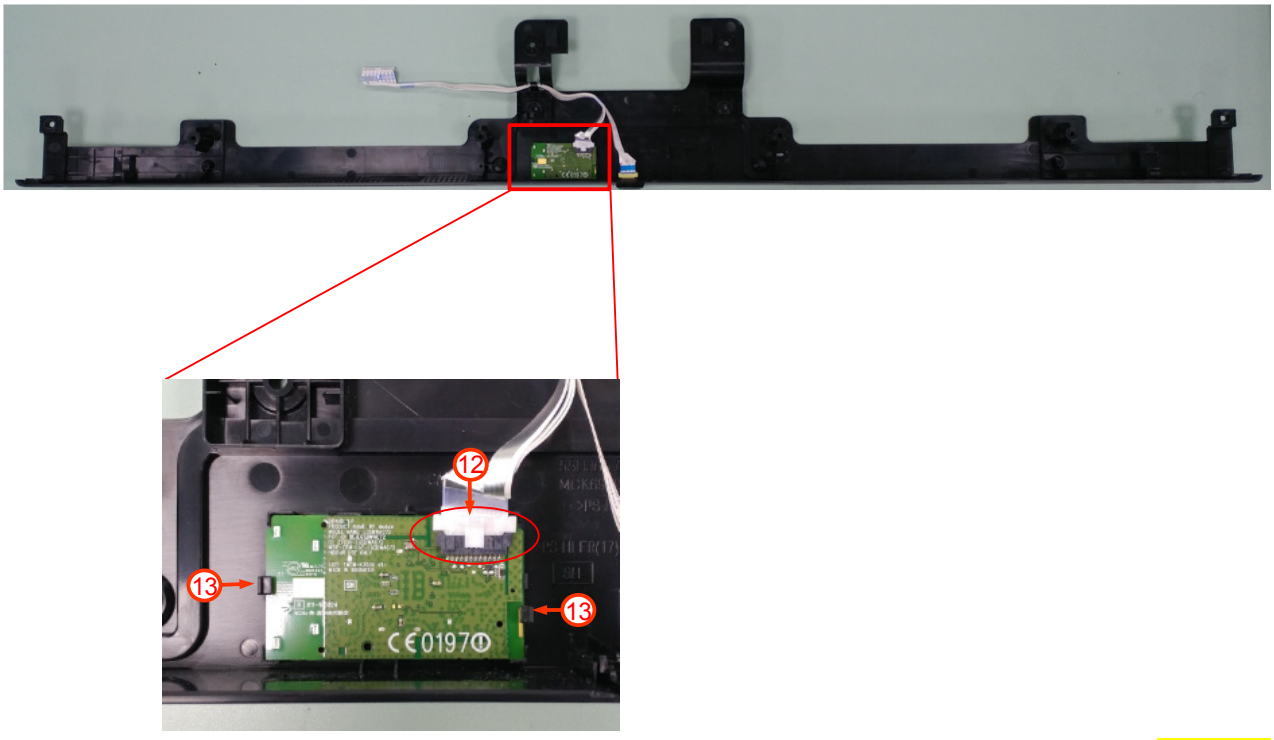
[Fig.6]

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[Fig.7]



[Fig.8]

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TROUBLE SHOOTING GUIDE

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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	C. Audio error	No audio/Normal video	8	
9		Wrecked audio/discontinuation/noise	9	
10	D. Function error	Remote control & Local switch checking	10	
11		MR15 operating checking	11	
12		Wifi operating checking	12	
13		Camera operating checking	13	
14		External device recognition error	14	
15	E. Noise	Circuit noise, mechanical noise	15	
16	F. Exterior error	Exterior defect	16	

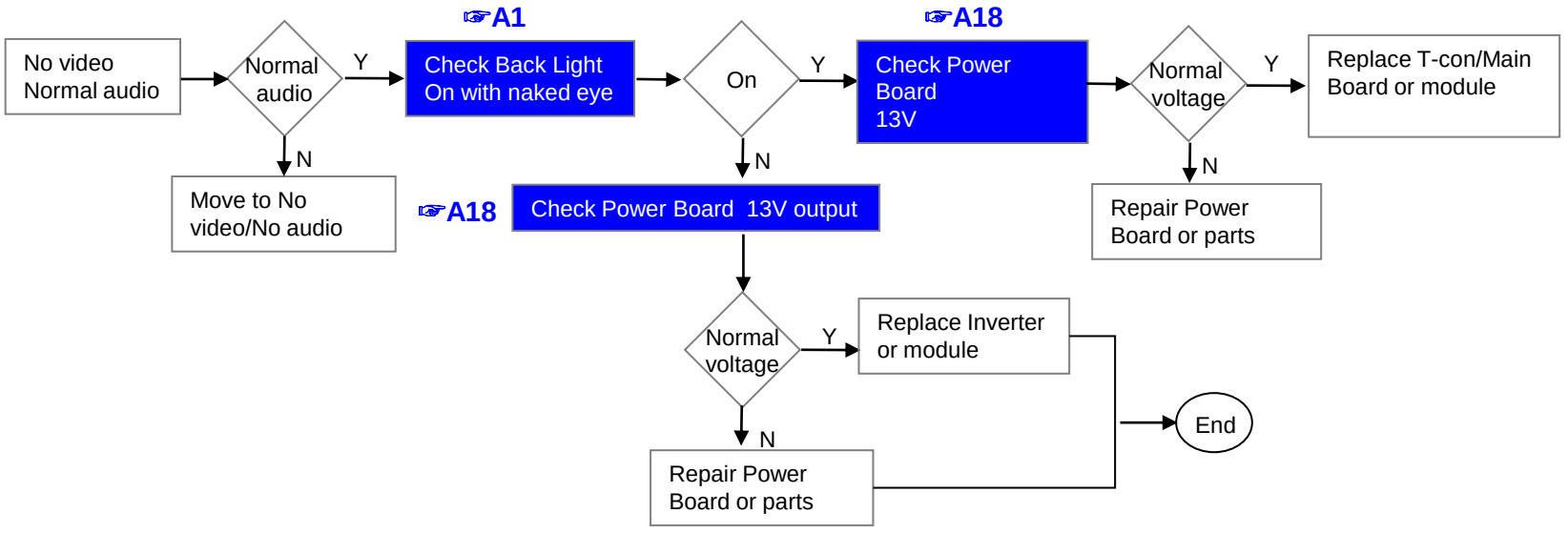
First of all, Check whether there is SVC Bulletin in GSCS System for these model.

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	Error symptom	A. Video error	Established date		
		No video/ Normal audio	Revised date		1/16

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

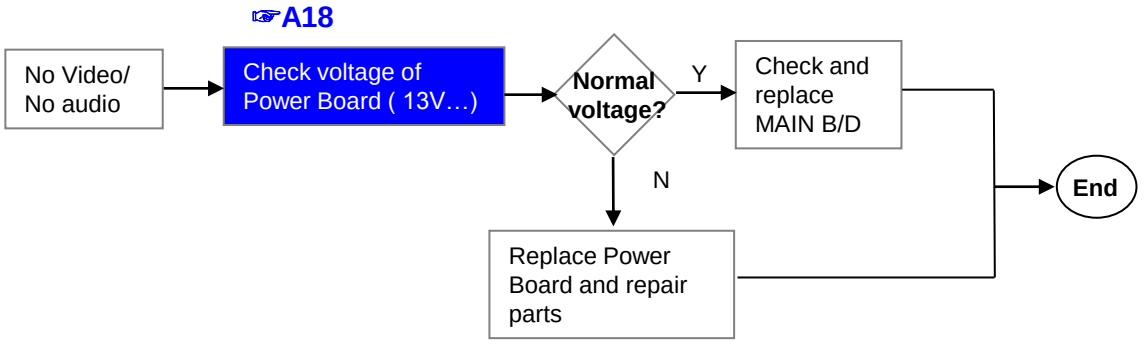


※Precaution ☞A4 & A2

Always check & record S/W Version and White Balance value before replacing the Main Board → Replace Main Board → Re-enter White Balance value

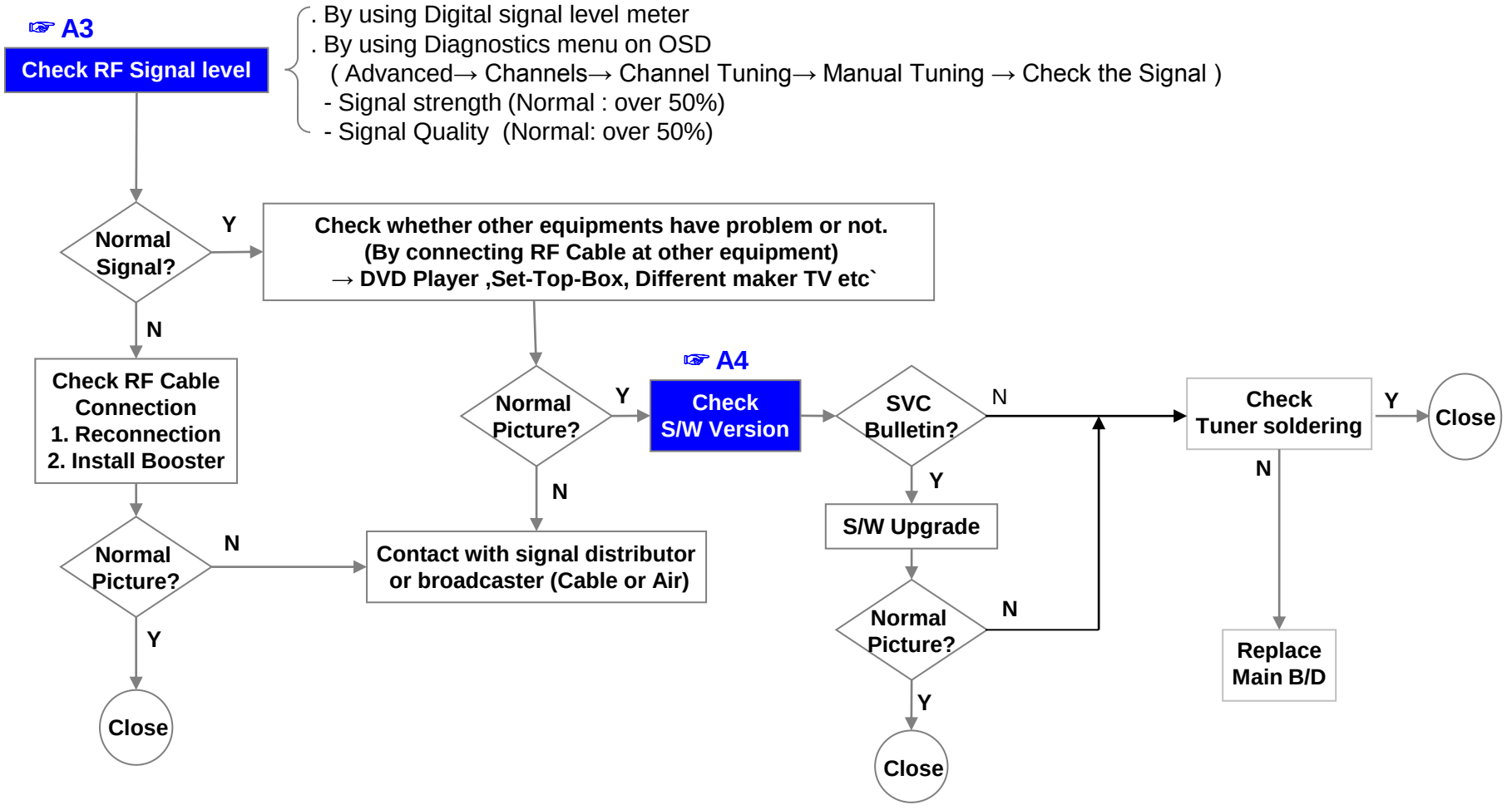
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	Error symptom	A. Video error	Established date		
		No video/ No audio	Revised date		2/16



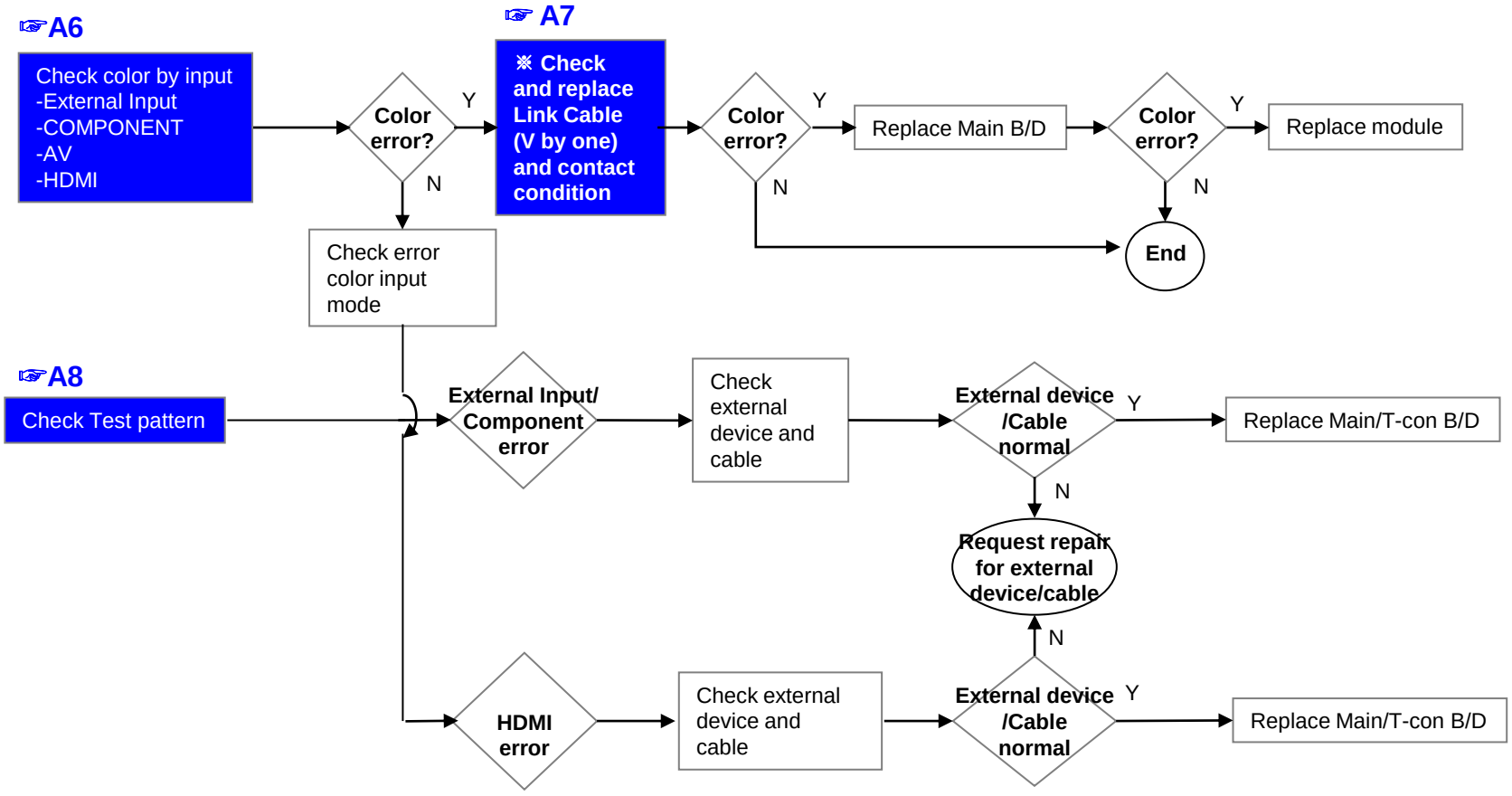
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	Error symptom	A. Video error	Established date		
		Picture broken/ Freezing	Revised date		3/16



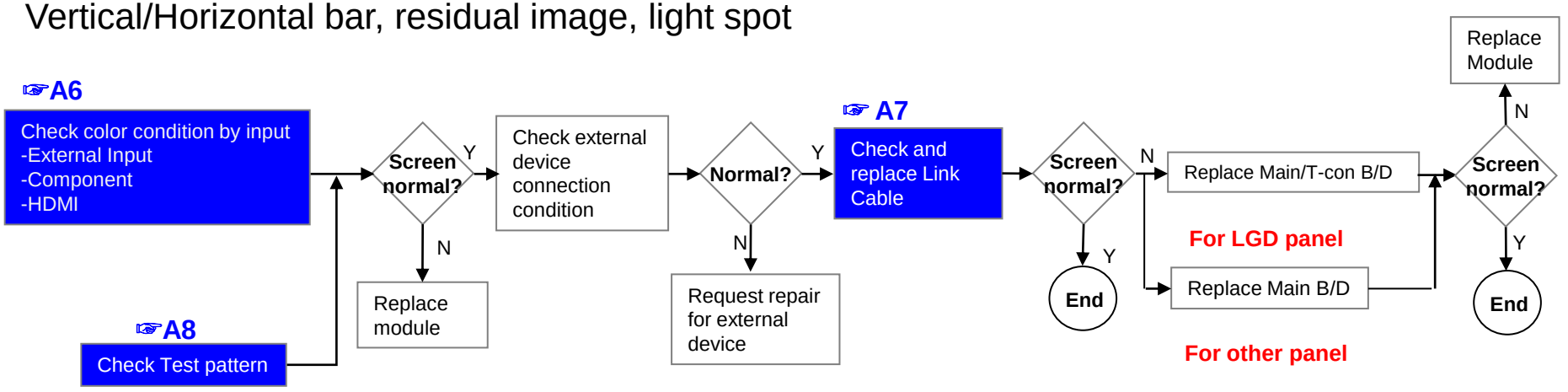
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	Error symptom	A. Video error	Established date		
		Color error	Revised date		4/16

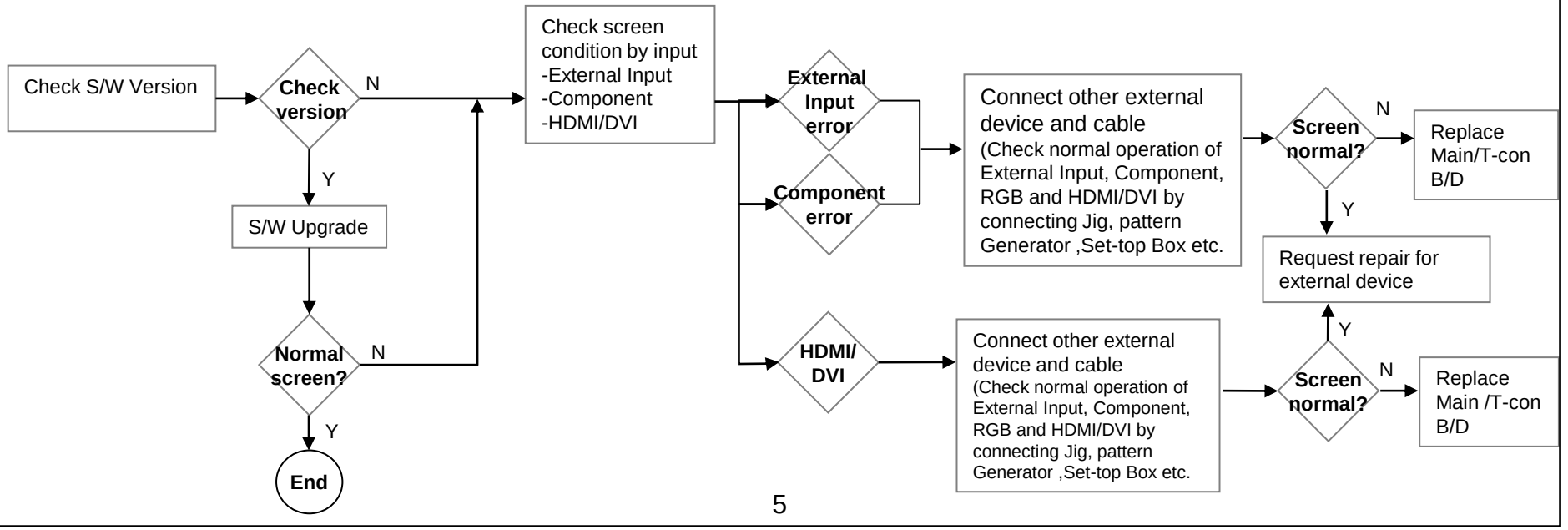


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Vertical/Horizontal bar, residual image, light spot



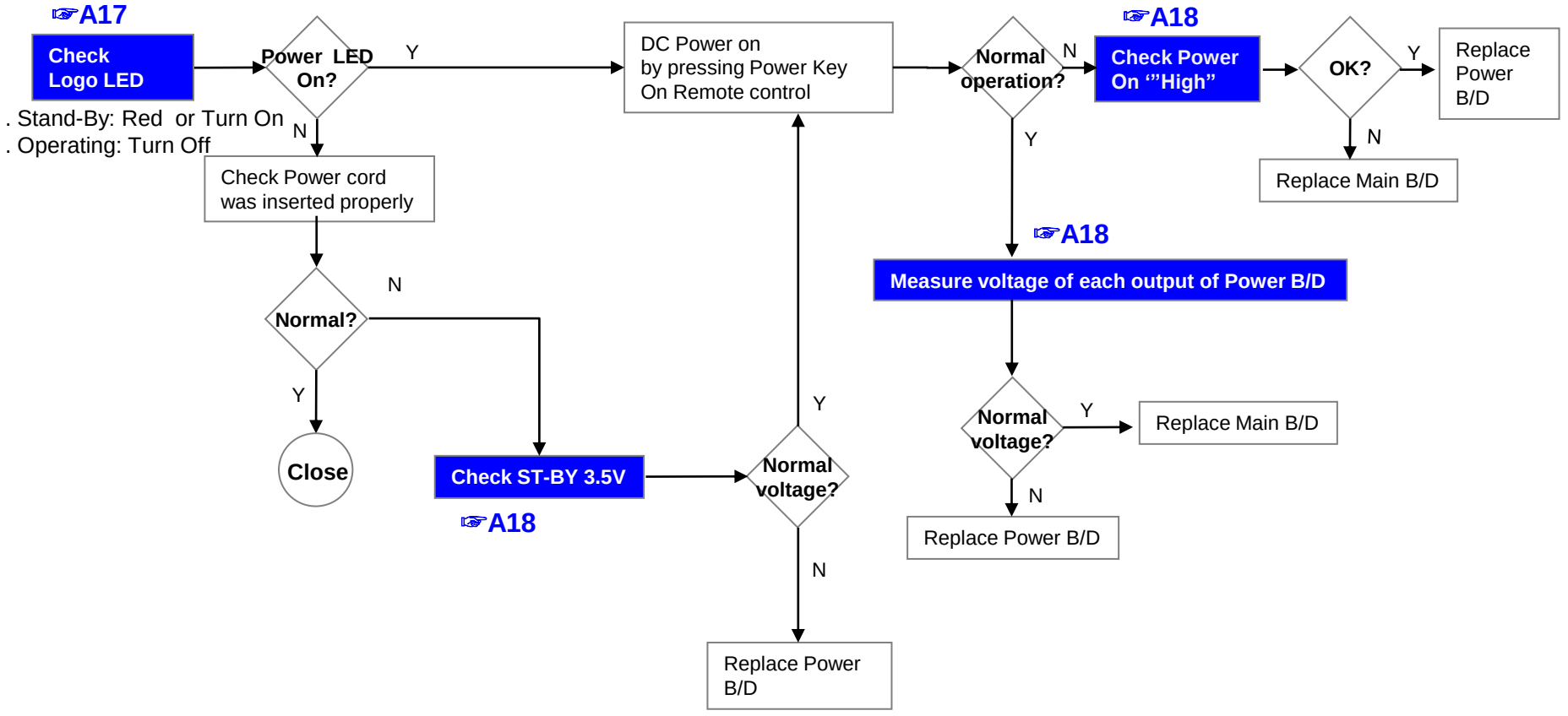
External device screen error-Color error



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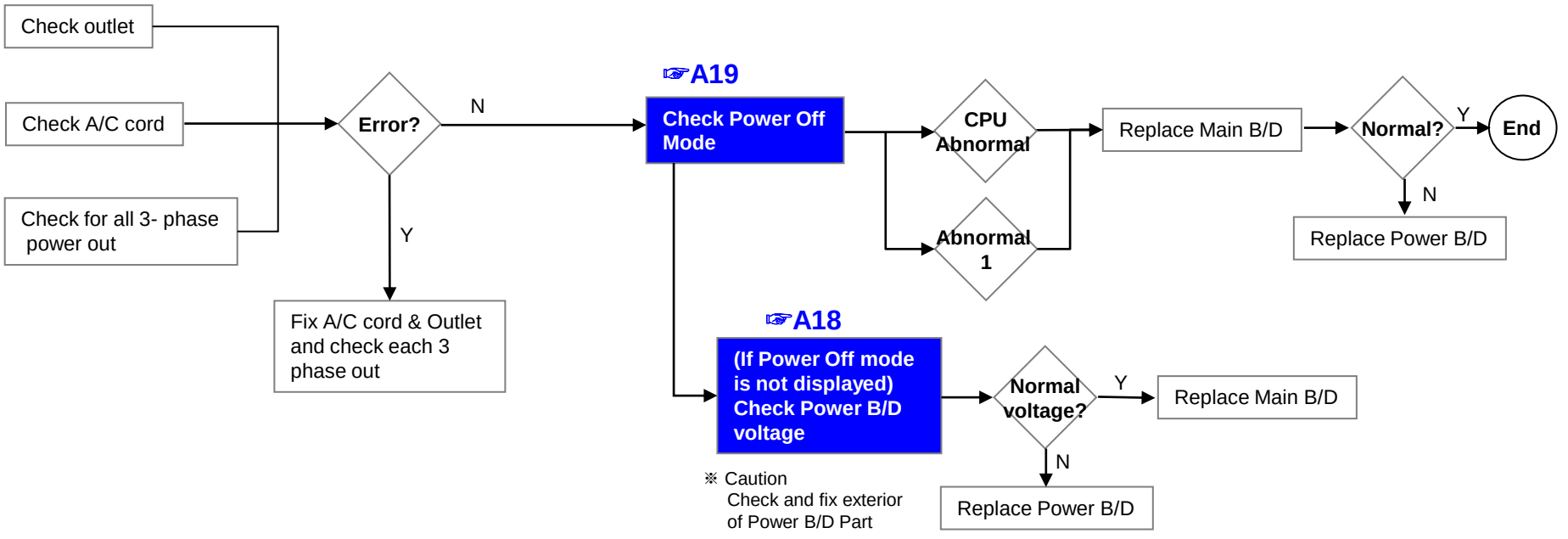
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	Error symptom	B. Power error	Established date		
		No power	Revised date		6/16



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	Error symptom	B. Power error	Established date		
		Off when on, off while viewing, power auto on/off	Revised date		7/16

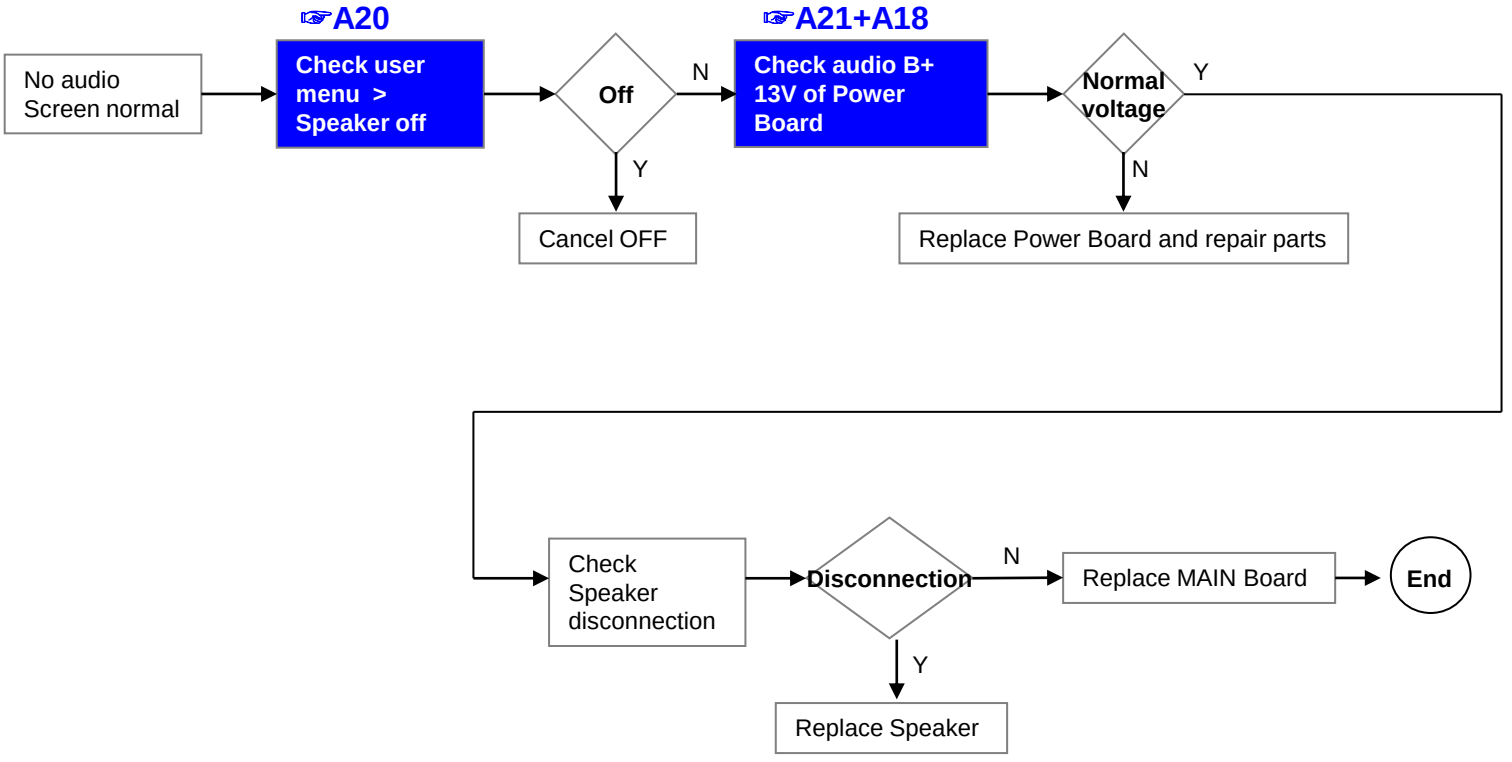


*** Please refer to the all cases which can be displayed on power off mode.**

Status	Power off List	Explanation
Normal	"POWEROFF_REMOTEKEY"	Power off by REMOTE CONTROL
	"POWEROFF_OFFTIMER"	Power off by OFF TIMER
	"POWEROFF_SLEEPTIMER"	Power off by SLEEP TIMER
	"POWEROFF_INSTOP"	Power off by INSTOP KEY
	"POWEROFF_AUTOOFF"	Power off by AUTO OFF
	"POWEROFF_ONTIMER"	Power off by ON TIMER
	"POWEROFF_RS232C"	Power off by RS232C
	"POWEROFF_RESREC"	Power off by Reservated Record
	"POWEROFF_RECEND"	Power off by End of Recording
	"POWEROFF_SWDOWN"	Power off by S/W Download
	"POWEROFF_UNKNOWN"	Power off by unknown status except listed case
Abnormal	"POWEROFF_ABNORMAL1"	Power off by abnormal status except CPU trouble
	"POWEROFF_CPUABNORMAL"	Power off by CPU Abnormal

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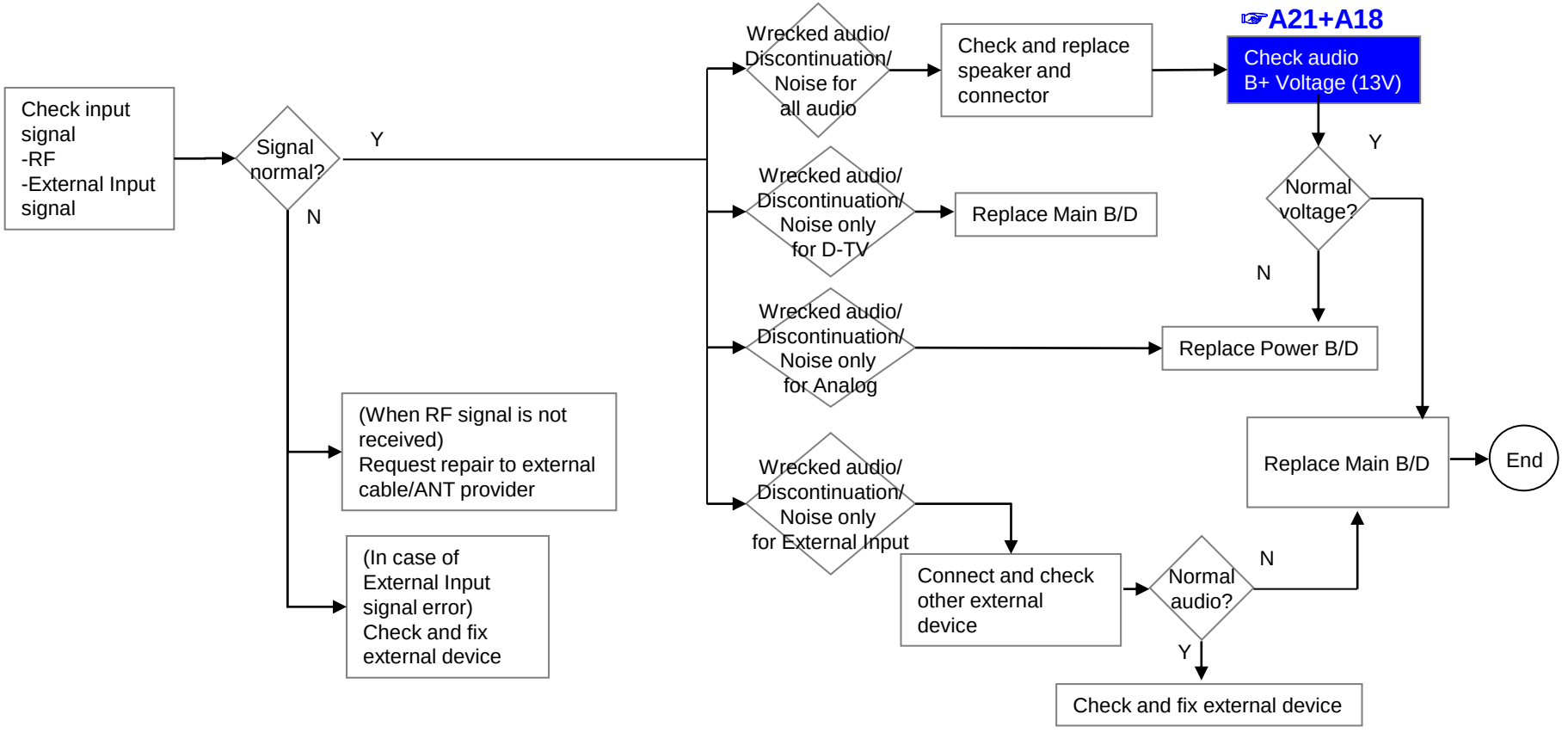
	Error symptom	C. Audio error	Established date		
		No audio/ Normal video	Revised date		8/16



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

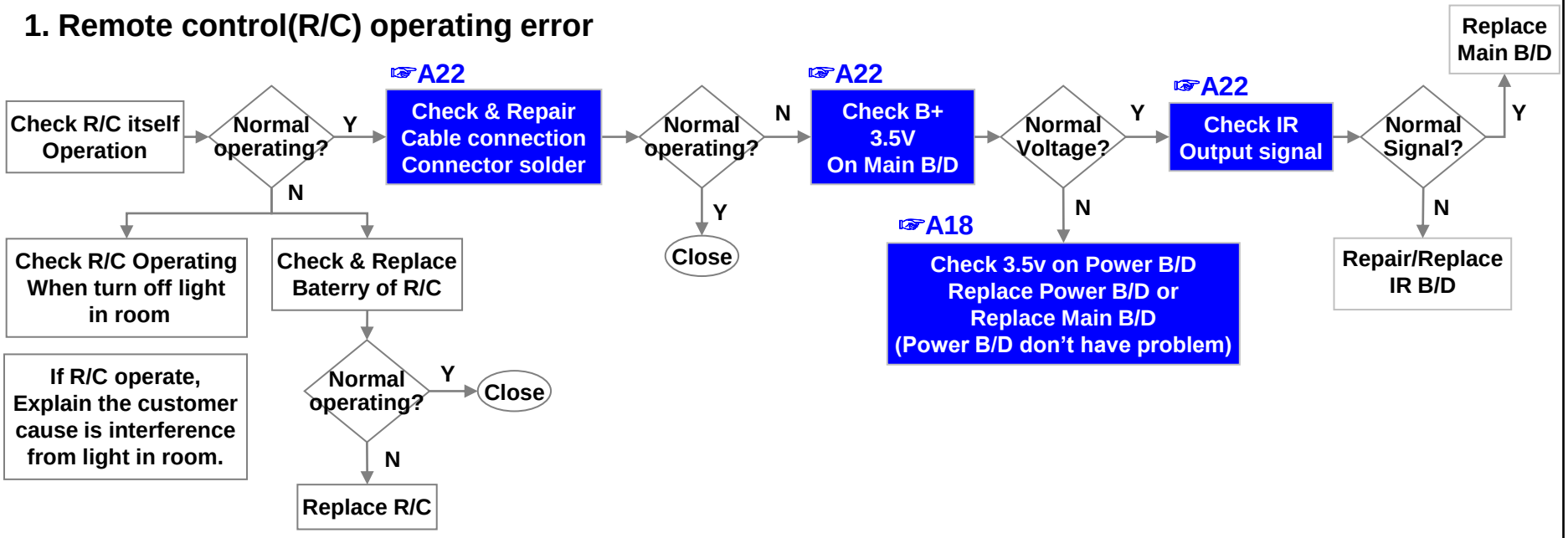


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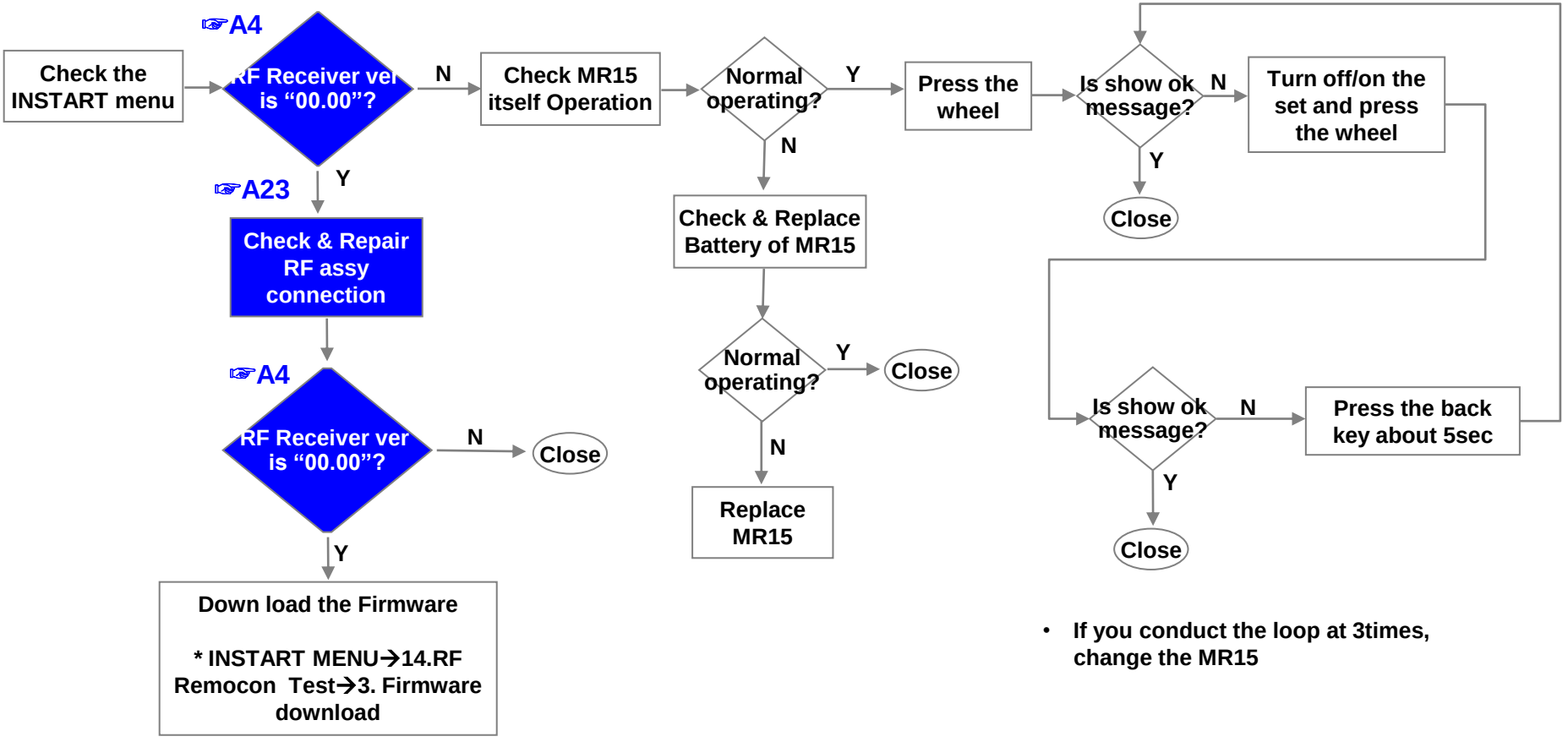
	Error symptom	D. Function error	Established date		
		Remote control & Local switch checking	Revised date		10/16

1. Remote control(R/C) operating error



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2. MR15 (Magic Remocon) operating error



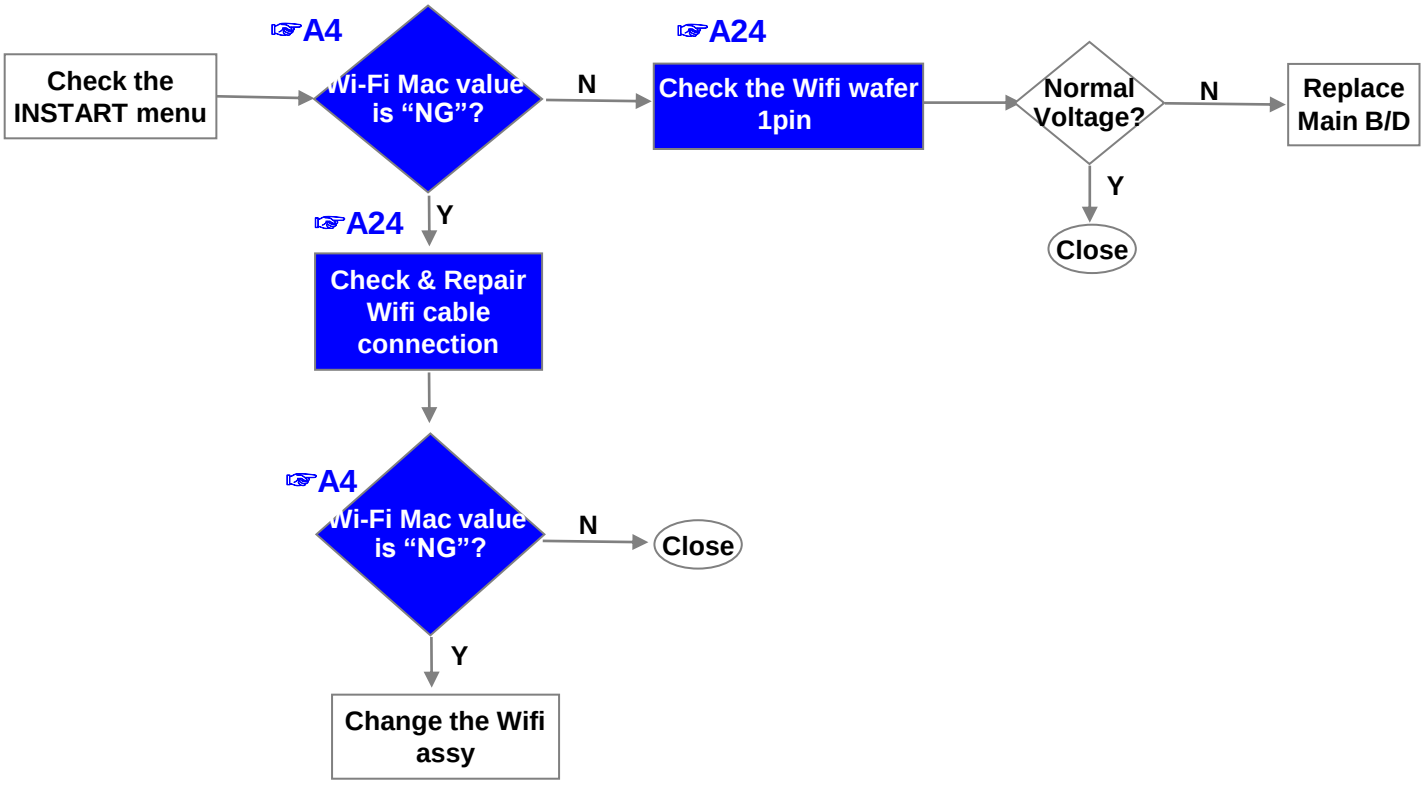
- If you conduct the loop at 3times, change the MR15

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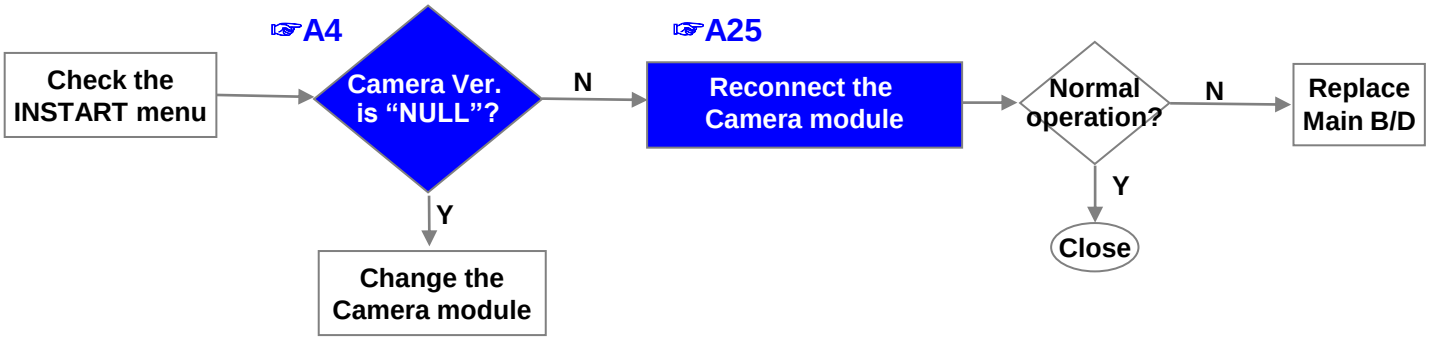
	Error symptom	D. Function error	Established date		
		Wifi operating checking	Revised date		12/16

3.Wifi operating error



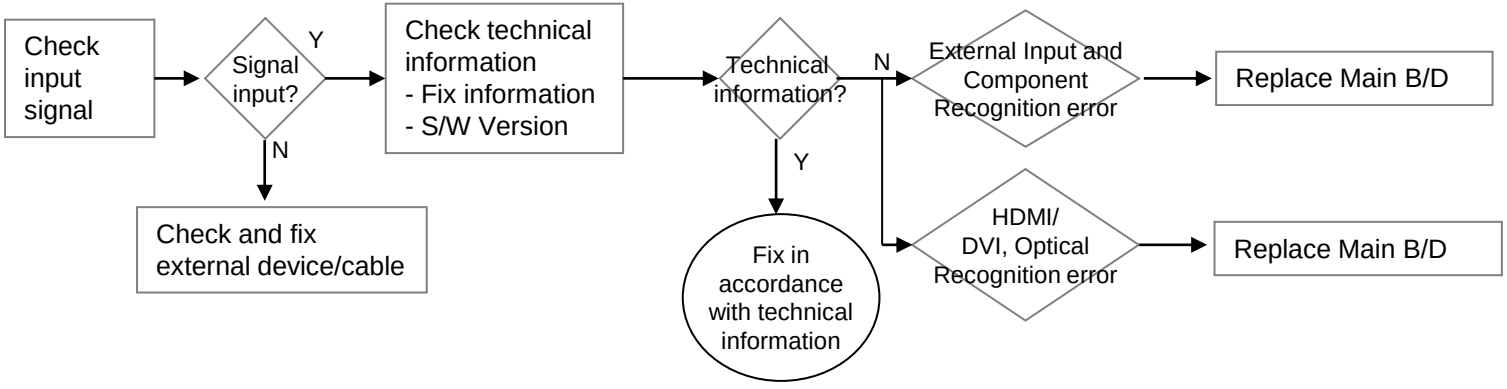
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4.Camera operating error



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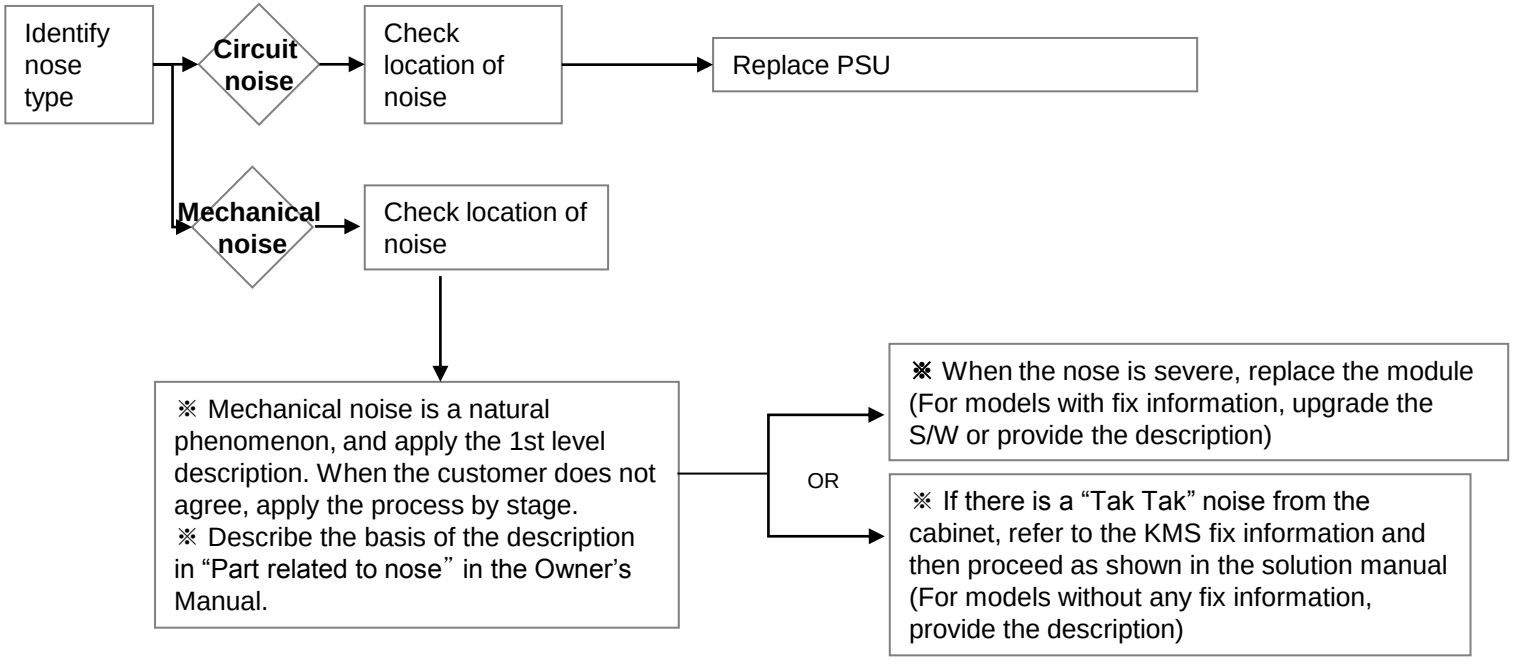
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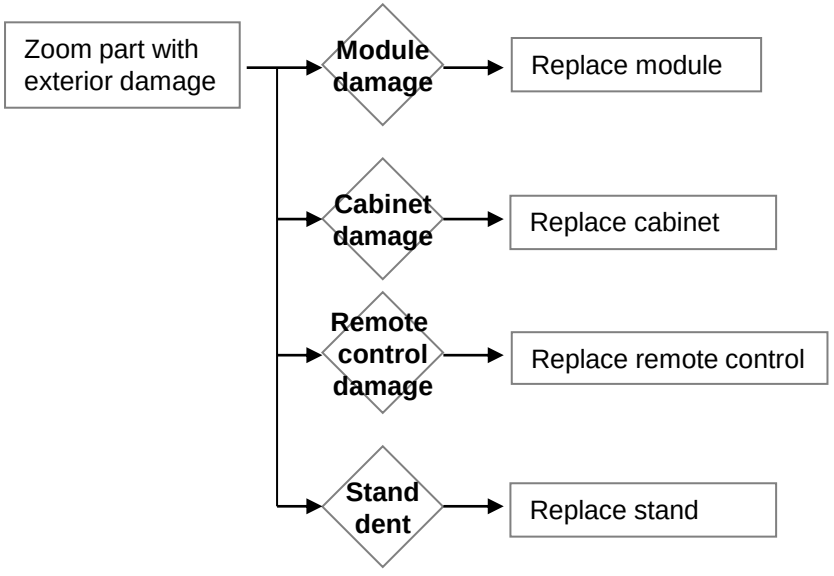
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	Error symptom	E. Noise	Established date		
		Circuit noise, mechanical noise	Revised date		15/16



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	Error symptom	F. Exterior defect	Established date		
		Exterior defect	Revised date		16/16



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Contents of Standard Repair Process Detail Technical Manual

No.	Error symptom	Content	Page	Remarks
1	A. Video error_ No video/Normal audio	Check LCD back light 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 (EPI) reconnection condition	A7	
8		Adjustment Test pattern - ADJ Key	A8	
9	<Appendix> Defected Type caused by T-Con/ Inverter/ Module	Exchange Main Board (1)	A-1/5	
10		Exchange Main Board (2)	A-2/5	
11		Exchange Power Board (PSU)	A-3/5	
12		Exchange Module (1)	A-4/5	
13		Exchange Module (2)	A-5/5	

Continue to the next page

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Contents of Standard Repair Process Detail Technical Manual

Continued from previous page

No.	Error symptom	Content	Page	Remarks
14	B. Power error_ No power	Check front display LED	A17	
15		Check power input Voltage & ST-BY 3.5V	A18	
16	B. Power error_Off when on, off while viewing	POWER OFF MODE checking method	A19	
17	C. Audio error_ No audio/Normal video	Checking method in menu when there is no audio	A20	
18		Voltage and speaker checking method when there is no audio	A21	
19	D. Function error	Remote control operation checking method	A22	

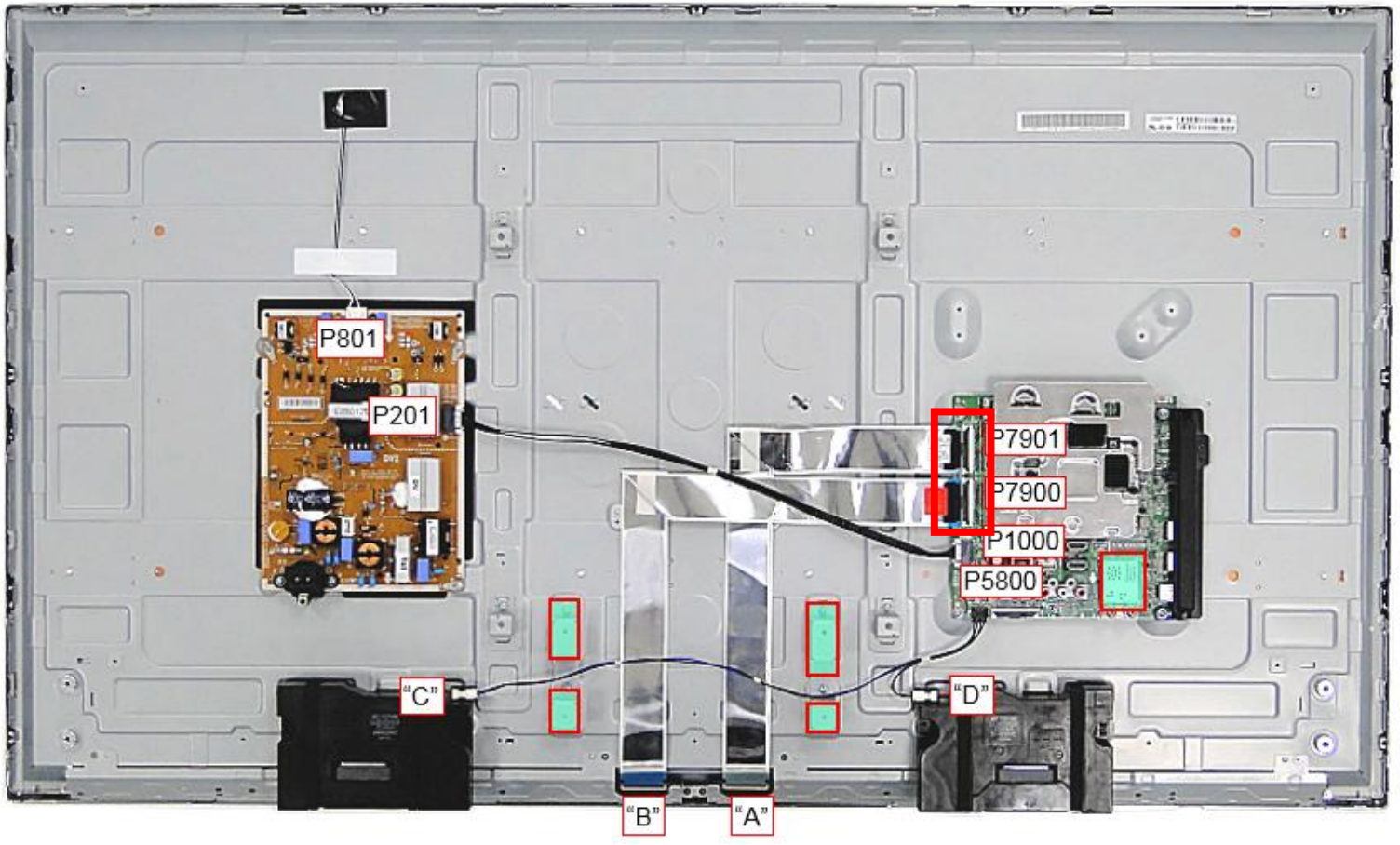
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Standard Repair Process Detail Technical Manual

	Error symptom	A. Video error_No video/Normal audio	Established date		
	Content	Check LCD back light with naked eye	Revised date		A1

<ALL MODELS>

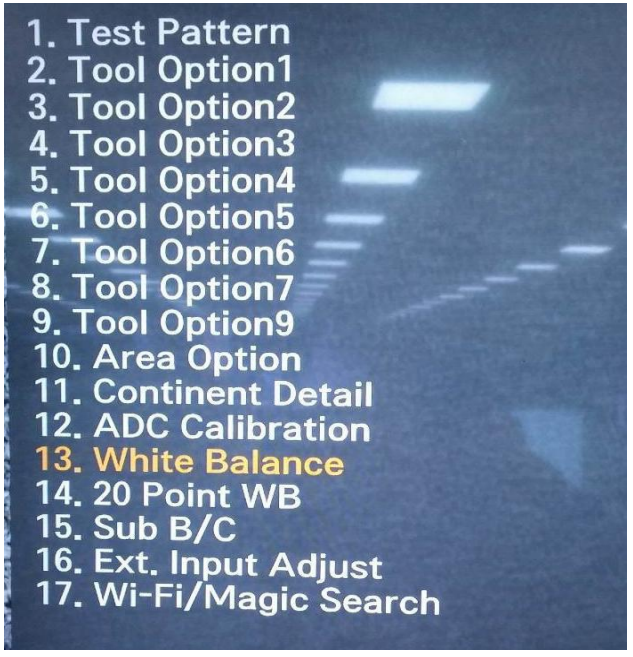


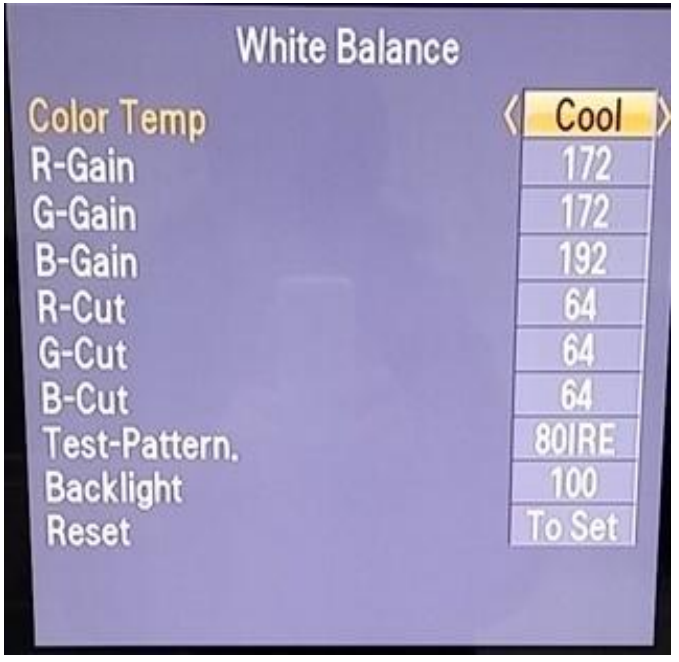
After turning on the power and disassembling the case, check with the naked eye, whether you can see light from locations.

A1

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<ALL MODELS>





Entry method

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

2. Enter into White Balance of item 13.

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.

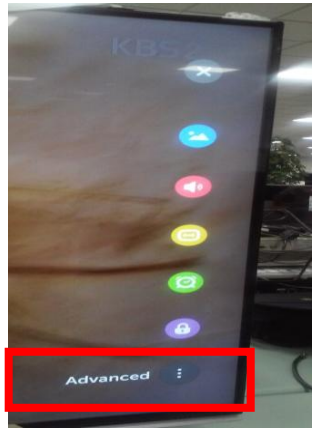
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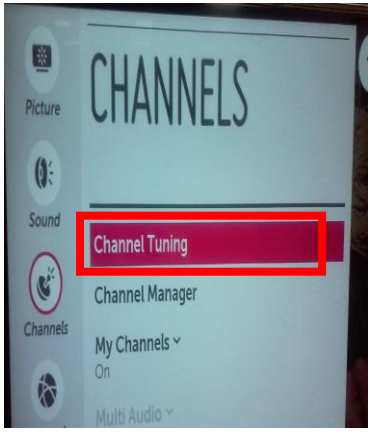
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Standard Repair Process Detail Technical Manual

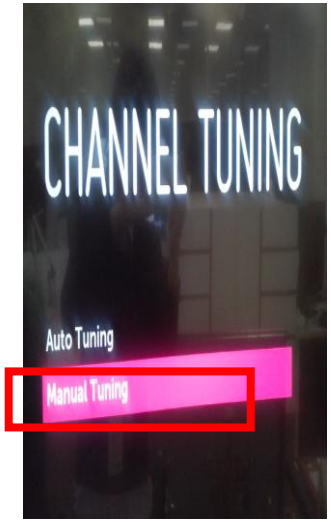
	Error symptom	A. Video error_Video error, video lag/stop	Established date		
	Content	TUNER input signal strength checking method	Revised date		A3

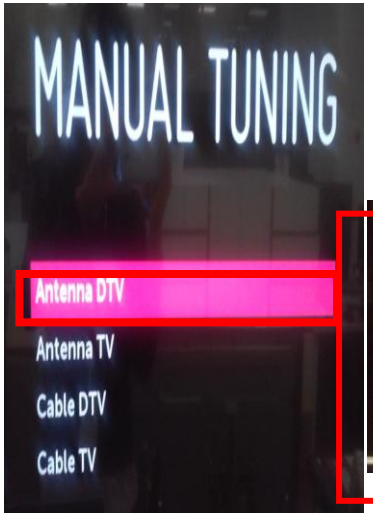
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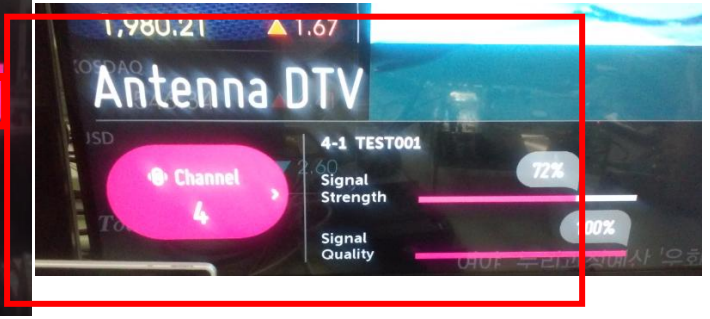




Advanced→ Channels → Channel Tuning→ Manual Tuning







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



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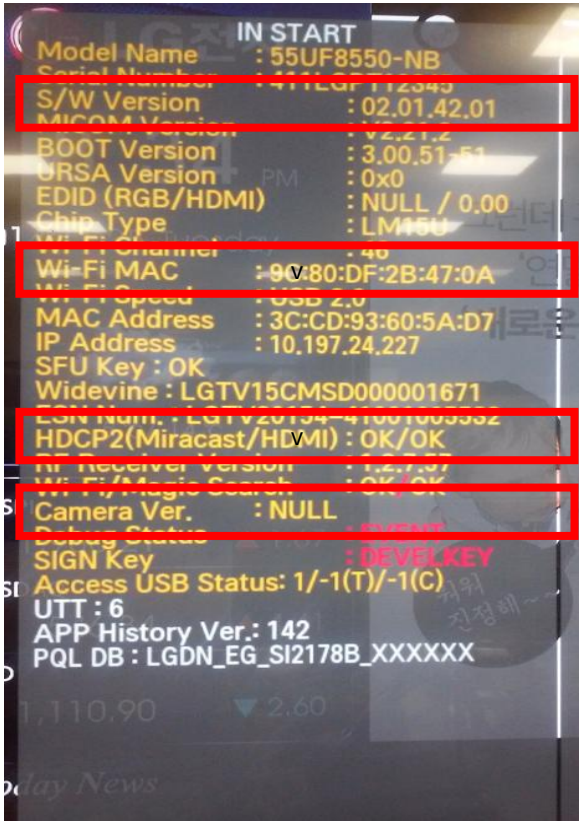
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	Error symptom	A. Video error_Video error, video lag/stop	Established date		
	Content	Version checking method	Revised date		A4

<ALL MODELS>

1. Checking method for remote control for adjustment

Version





Press the IN-START with the remote control for adjustment

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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

<ALL MODELS>



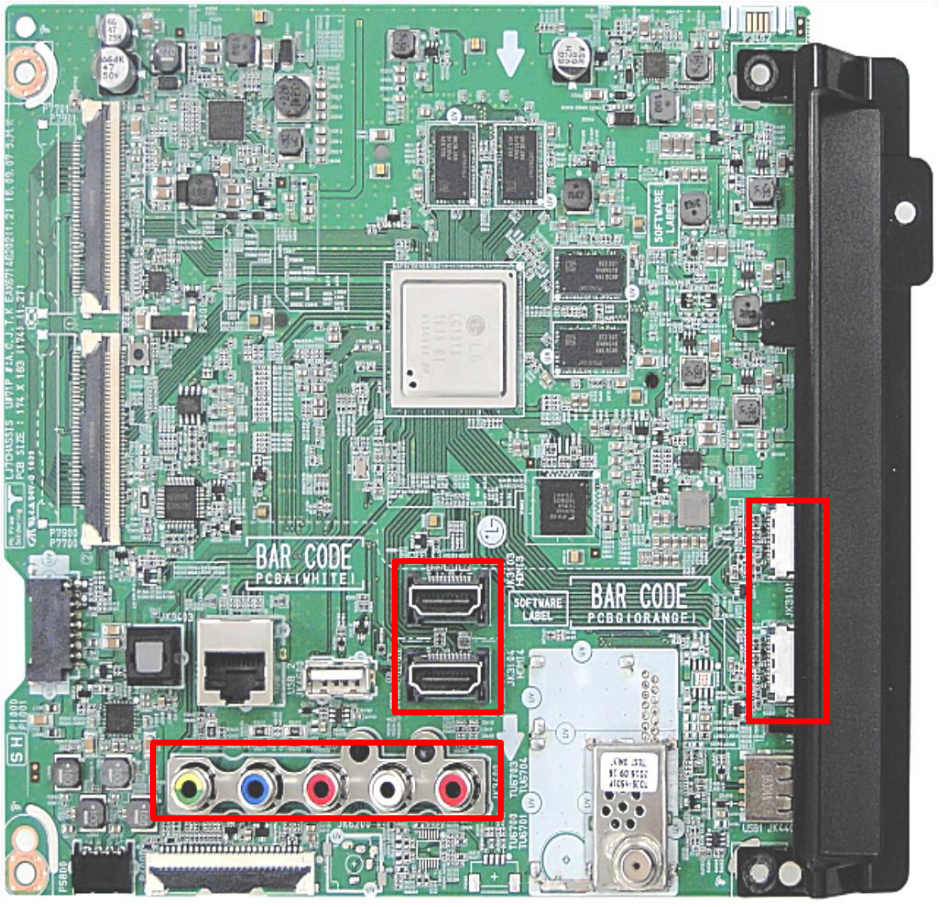
Checking method:
1. Check the signal strength or check whether the screen is normal when the external device is connected.
2. After measuring each voltage from power supply, finally replace the MAIN BOARD.
3. If you can`t see the UHD live TV, please connect signal at left side of jack. (Korea model only)

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Standard Repair Process Detail Technical Manual

	Error symptom	A. Video error _Vertical/Horizontal bar, residual image, light spot	Established date		
	Content	Connection diagram (1)	Revised date		A6

<ALL MODELS>



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

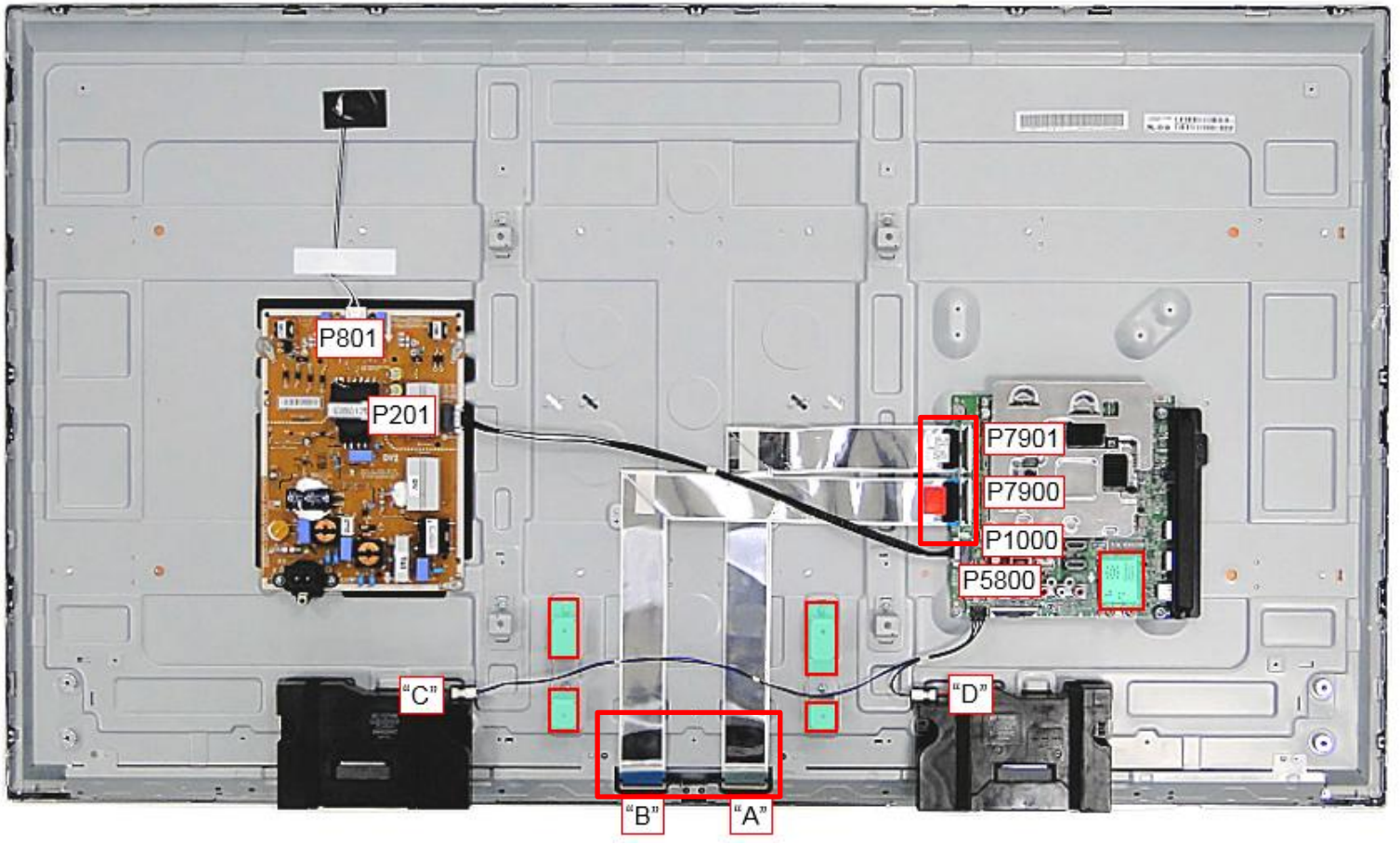
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	Error symptom	A. Video error_Color error	Established date		
	Content	Check Link Cable(FFC) reconnection condition	Revised date		A7

<ALL MODELS>



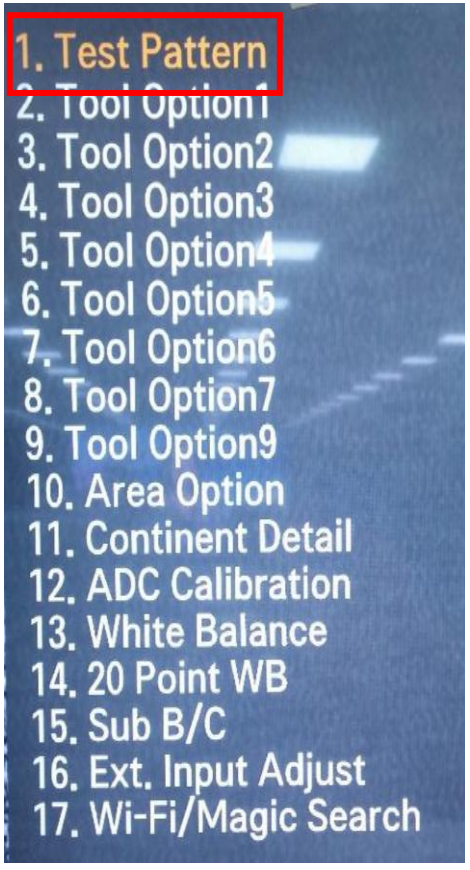
Check the contact condition of the Link Cable, especially dust or mis insertion.

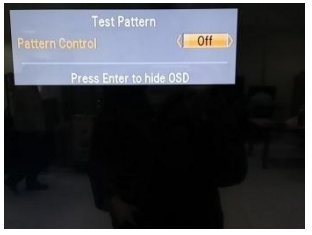
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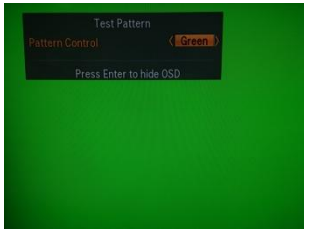
	Error symptom	A. Video error_Color error	Established date		
	Content	Adjustment Test pattern - ADJ Key	Revised date		A8







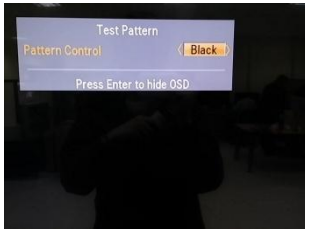












You can view 6 types of patterns using the ADJ Key

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!)

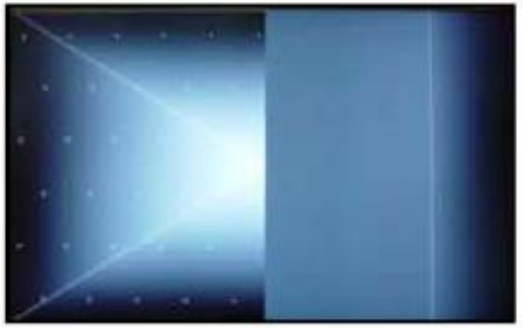
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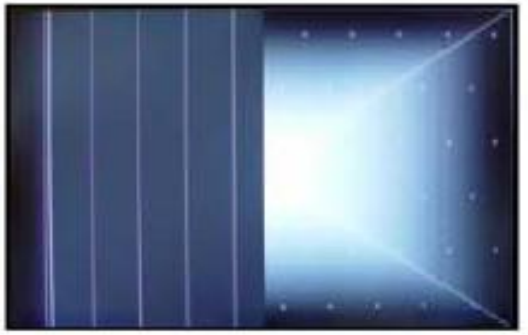
Appendix : Exchange Main Board (1)



Solder defect, CNT Broken



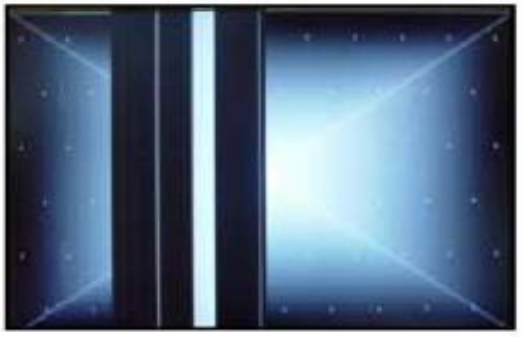
Solder defect, CNT Broken



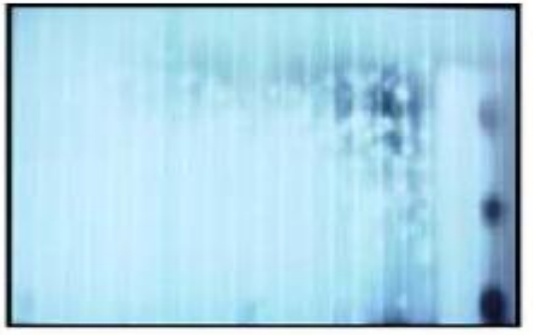
Solder defect, CNT Broken



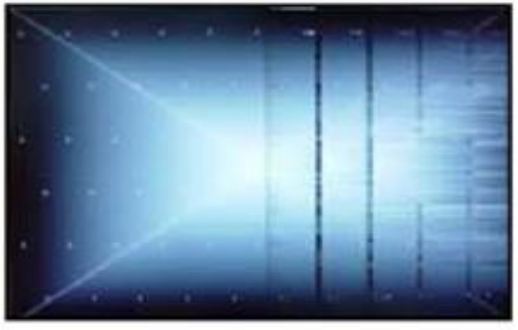
Solder defect, CNT Broken



Solder defect, CNT Broken



Abnormal Power Section



Solder defect, Short/Crack



Abnormal Power Section

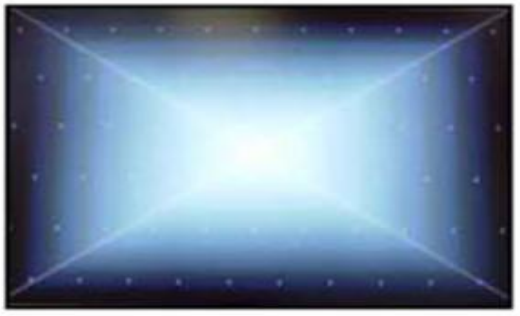


Solder defect, Short/Crack

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Appendix : Exchange Main Board (2)



Abnormal Power Section



Abnormal Power Section



Solder defect, Short/Crack



Solder defect, Short/Crack



Fuse Open, Abnormal power section



Abnormal Display



GRADATION



Noise



GRADATION

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Appendix : Exchange Power Board (PSU)



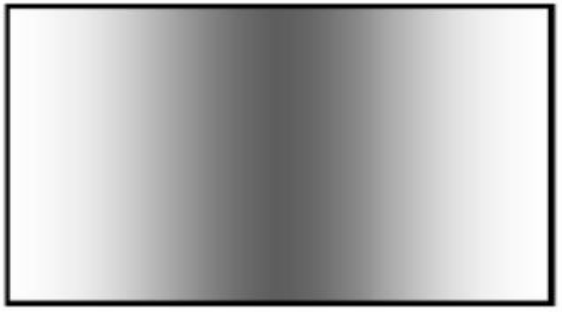
No Light



Dim Light



Dim Light



Dim Light

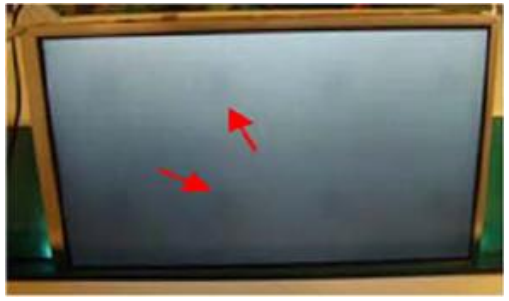


No picture/Sound Ok

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Appendix : Exchange the Module (1)



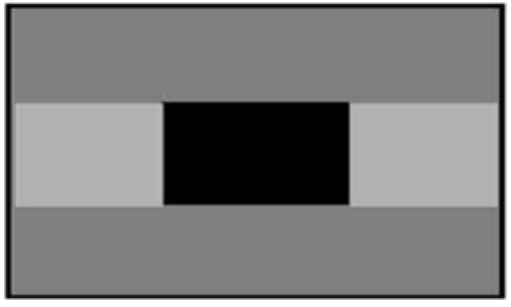
Press damage



Press damage



Press damage



Crosstalk



Crosstalk

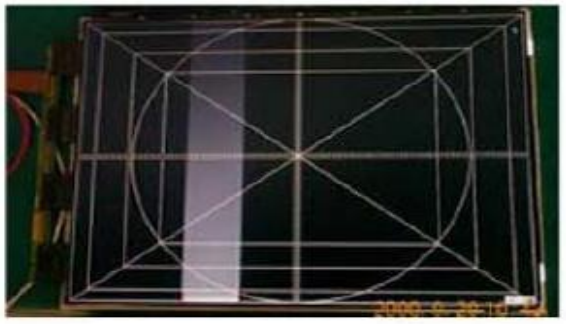
Un-repairable Cases

In this case please exchange the module.

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Appendix : Exchange the Module (2)



Vertical Block
Source TAB IC Defect



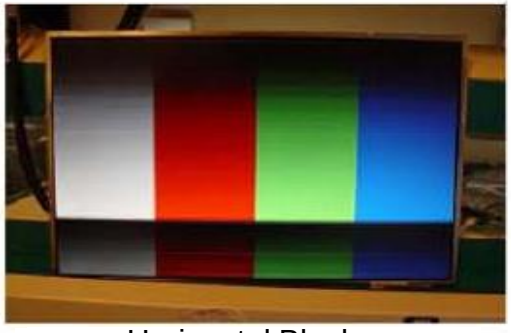
Vertical Line
Source TAB IC Defect



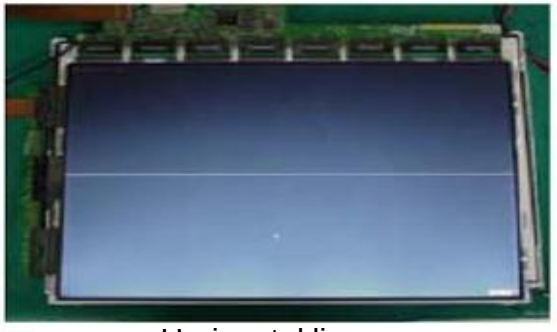
Vertical Block
Source TAB IC Defect



Horizontal Block
Gate TAB IC Defect



Horizontal Block
Gate TAB IC Defect



Horizontal line
Gate TAB IC Defect



Horizontal Block
Gate TAB IC Defect

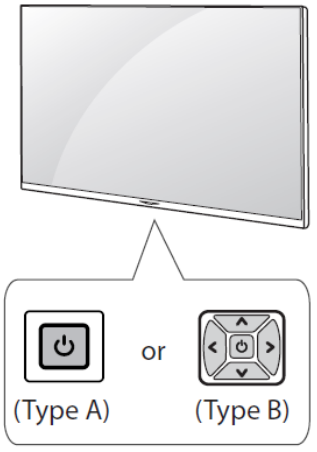
Un-repairable Cases

In this case please exchange the module.

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<ALL MODELS>



Basic Functions

(Type A)

	Power On (Press) Menu control (Press)[1] Menu selection (Press and Hold)

(Type B)

	Power On (Press) Power Off (Press and Hold)[2]
	Volume Control
	Channels Control

1 : You can access and adjust the menu by pressing the button when TV is on.

2 : All running apps will close.

Adjusting the Menu

When the TV is turned on, press ⏻ button one time. You can adjust the Menu items pressing or moving the buttons. (Depending upon model)

⏻	Turns the power off.
	Changes the input source.
	Scrolls through the saved programmes.
+ −	Adjusts the volume level.
⚙	Accesses the setting menu.
✕	Clears on-screen displays and returns to TV viewing.

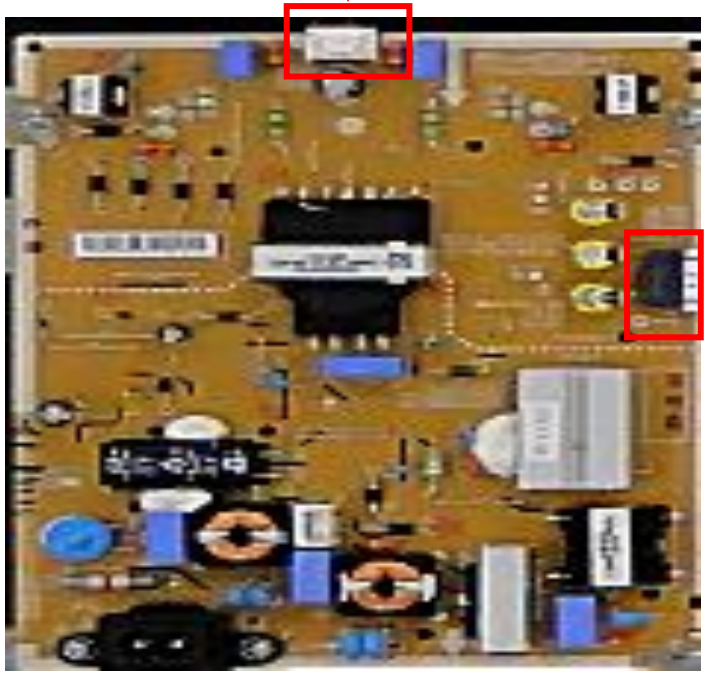
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	Error symptom	B. Power error _No power	Established date		
	Content	Check power input voltage and ST-BY 3.5V	Revised date		A18

Backlight Forward Voltage	Symbol	Values			Unit
		Min	Typ	Max	
65UJ65	V_F	117.18	130.2	143.22	Vdc
60UJ65		111.87	124.3	136.73	
55UJ65		99.4	106.6	113.8	
49UJ65		-	85.05	91.8	
43UJ65		-	65.94	71.4	

Backlight Forward Voltage	Symbol	Values			Unit
		Min	Typ	Max	
65UJ63	V_F	-	192	216	Vdc
60UJ63		-	175	195	
55UJ63		-	130.4	141.2	
49UJ63		-	111.6	118.8	
43UJ63		-	65.94	71.4	



Check the DC 13V

P201 YEONHO (SMAW200-H12S5K)			
Pin No.	Assignment	Pin No.	Assignment
1	PWR-ON	2	P-DIM2
3	GND	4	13.2V
5	13.2V	6	13.2V
7	13.2V	8	13.2V
9	GND	10	GND
11	MS	12	P-DIM1

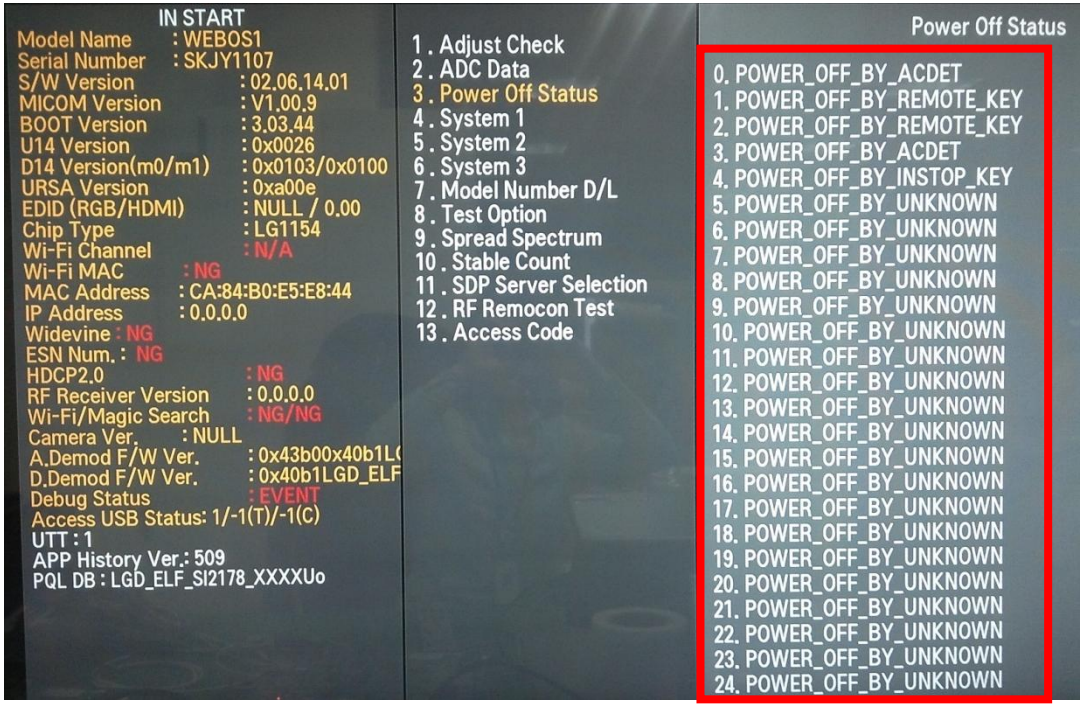
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	Error symptom	B. Power error _Off when on, off whiling viewing	Established date		
	Content	POWER OFF MODE checking method	Revised date		A19

<ALL MODELS>



Entry method

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

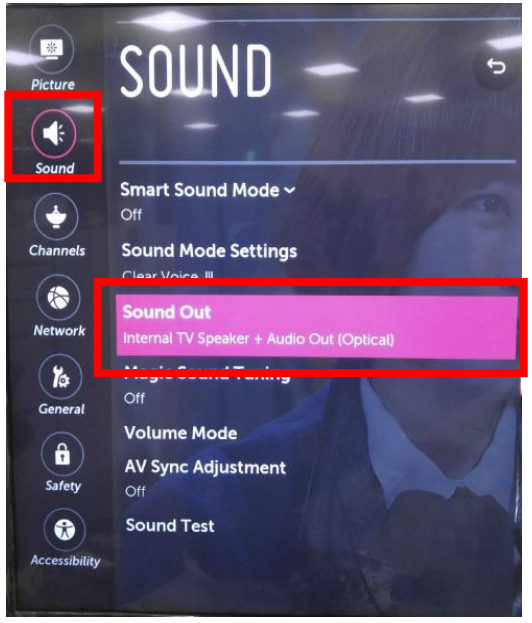
2. Check the entry into adjustment item 3

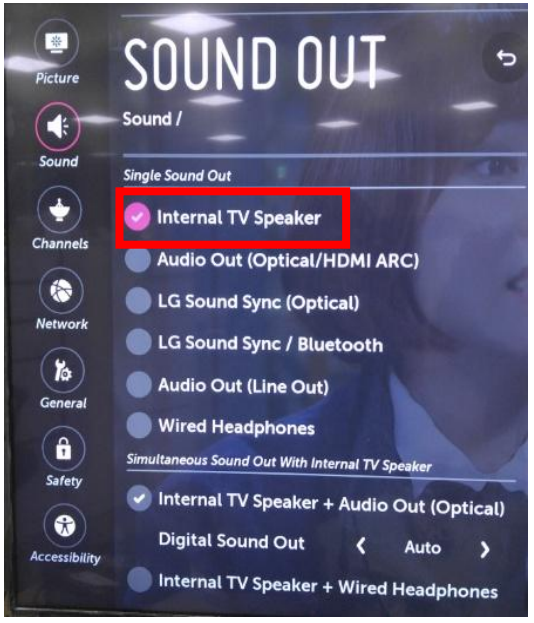
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	Error symptom	C. Audio error_No audio/Normal video	Established date		
	Content	Checking method in menu when there is no audio	Revised date		A20

<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

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	Error symptom	C. Audio error_No audio/Normal video	Established date		
	Content	Voltage and speaker checking method when there is no audio	Revised date		A21

<ALL MODELS>



UJ7*

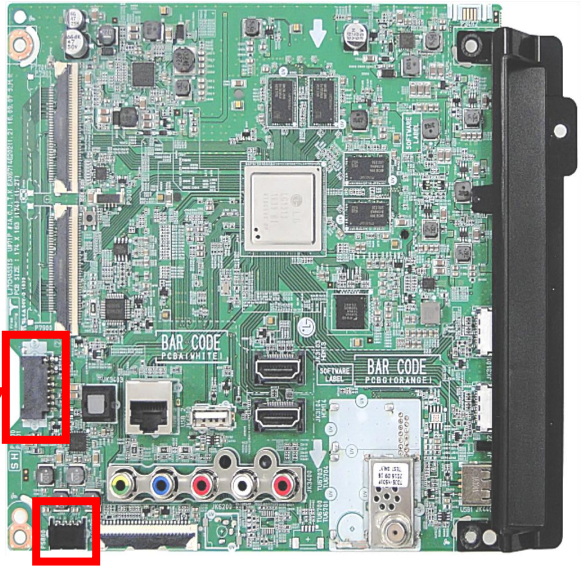
1	VSYNC	2	SIN
3	GND	4	SCLK
5	DRV_ON	6	PDIM1
7	GND	8	GND
9	A13	10	A13
11	D13	12	D13
13	GND	14	D13
15	PWR_ON	16	PDIM2
17	GND	18	GND

②

UJ6*

1	DRV_ON	2	PDIM1
3	GND	4	GND
5	A13	6	A13
7	D13	8	D13
9	GND	10	D13
11	PWR_ON	12	PDIM2

①



③

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

Checking order when there is no audio

1.Check the contact condition of or 13V connector of Main Board

2. Measure the 13V 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.

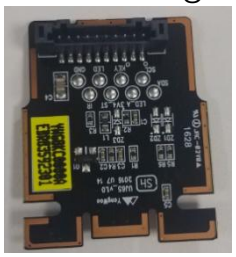
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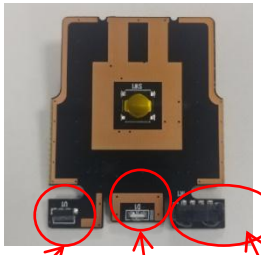
	Error symptom	D. Function error	Established date		
	Content	Remote control operation checking method	Revised date		A22

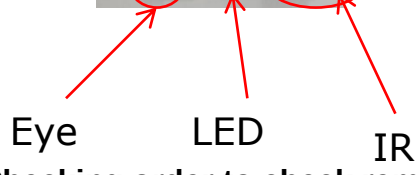
<ALL MODELS>

IR & LOGO light Front

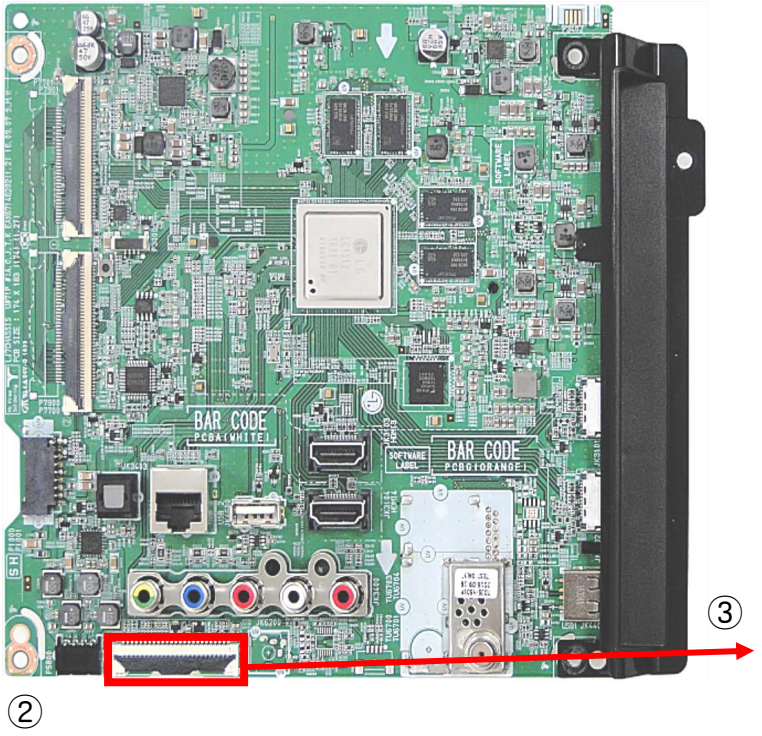


IR & LOGO light Rear





Checking order to check remote control



1	+3.5V
2	WIFI_DM
3	WIFI_DP
4	GND
5	WOL_ON
6	3.5V
7	COMBO_RESET
8	GND
9	COMBO_WAKEUP_DEVICE
10	COMBO_WAKEUP_HOST
11	GND
12	GND
13	NC
14	NC
15	NC
16	EYE_SDA
17	EYE_SCL
18	GND
19	IR
20	LED
21	GND
22	3.5V
23	KEY2
24	KEY1
25	GND

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 22 pin (③)
3.AS checking the Pre-Amp(IR LED light) , the power is in ON condition, an Analog Tester needle should move slowly, otherwise, it's defective.

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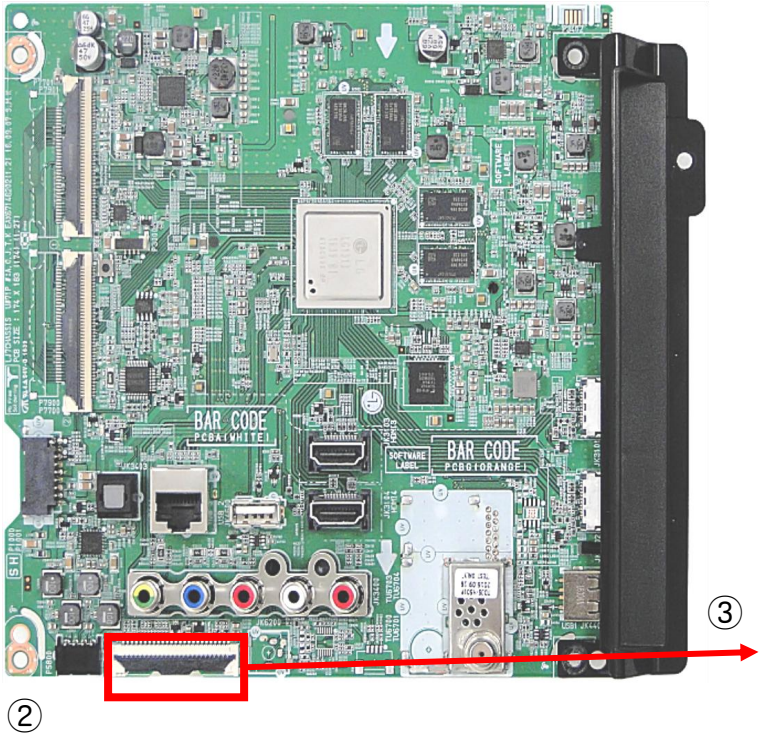
<ALL MODELS>

① Wifi & BT Front



Wifi & BT Rear





1	+3.5V
2	WIFI_DM
3	WIFI_DP
4	GND
5	WOL_ON
6	3.5V
7	COMBO_RESET
8	GND
9	COMBO_WAKEUP_DEVICE
10	COMBO_WAKEUP_HOST
11	GND
12	GND
13	NC
14	NC
15	NC
16	EYE_SDA
17	EYE_SCL
18	GND
19	IR
20	LED
21	GND
22	3.5V
23	KEY2
24	KEY1
25	GND

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

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