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LCD TV

SERVICE MANUAL

CHASSIS : LU7000

MODEL : 22LU7000 22LU7000-ZA

CAUTION

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




Printed in Korea

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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 Schematic Diagram and Exploded View.

It is essential that these special safety parts should be replaced with the same components as recommended in this manual to prevent Shock, Fire, or other Hazards.

Do not modify the original design without permission of manufacturer.

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 1W), keep the resistor 10mm 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 1M Ω and 5.2M 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.

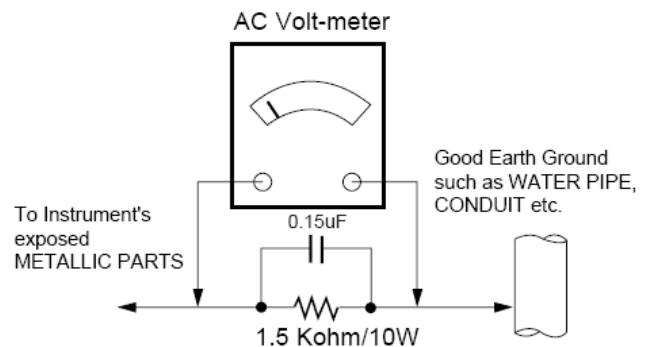
Connect 1.5K/10watt resistor in parallel with a 0.15uF capacitor between a known good earth ground (Water Pipe, Conduit, etc.) and the exposed metallic parts.

Measure the AC voltage across the resistor using AC voltmeter with 1000 ohms/volt or more sensitivity.

Reverse plug the AC cord into the AC outlet and repeat AC voltage measurements for each exposed metallic part. Any voltage measured must not exceed 0.75 volt RMS which corresponds to 0.5mA.

In case any measurement is out of the limits specified, there is possibility of shock hazard and the set must be checked and repaired before it is returned to the customer.

Leakage Current Hot Check circuit



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 4 of this publication, always follow the safety precautions. Remember: Safety First.

General Servicing Precautions

1. Always unplug the receiver AC power cord from the AC power source before;
 - a. Removing or reinstalling any component, circuit board module or any other receiver assembly.
 - b. Disconnecting or reconnecting any receiver electrical plug or other electrical connection.
 - c. Connecting a test substitute in parallel with an electrolytic capacitor in the receiver.**CAUTION:** A wrong part substitution or incorrect polarity installation of electrolytic capacitors may result in an explosion hazard.

2. Test high voltage only by measuring it with an appropriate high voltage meter or other voltage measuring device (DVM, FETVOM, etc) equipped with a suitable high voltage probe. Do not test high voltage by "drawing an arc".
3. Do not spray chemicals on or near this receiver or any of its assemblies.
4. Unless specified otherwise in this service manual, clean electrical contacts only by applying the following mixture to the contacts with a pipe cleaner, cotton-tipped stick or comparable non-abrasive applicator; 10% (by volume) Acetone and 90% (by volume) isopropyl alcohol (90%-99% strength)
CAUTION: This is a flammable mixture.
Unless specified otherwise in this service manual, lubrication of contacts is not required.
5. Do not defeat any plug/socket B+ voltage interlocks with which receivers covered by this service manual might be equipped.
6. Do not apply AC power to this instrument and/or any of its electrical assemblies unless all solid-state device heat sinks are correctly installed.
7. Always connect the test receiver ground lead to the receiver chassis ground before connecting the test receiver positive lead. Always remove the test receiver ground lead last.
8. Use with this receiver only the test fixtures specified in this service manual.
CAUTION: Do not connect the test fixture ground strap to any heat sink in this receiver.

Electrostatically Sensitive (ES) Devices

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

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed to prevent potential shock reasons prior to applying power to the unit under test.

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

General Soldering Guidelines

1. Use a grounded-tip, low-wattage soldering iron and appropriate tip size and shape that will maintain tip temperature within the range of 500. F to 600. F.
2. Use an appropriate gauge of RMA resin-core solder composed of 60 parts tin/40 parts lead.
3. Keep the soldering iron tip clean and well tinned.
4. Thoroughly clean the surfaces to be soldered. Use a mall wire-bristle(0.5 inch, or 1.25cm) 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 sheet is applied to the 19"/22" LCD TV with LU7000 chassis.

2. Specification

Each part is tested as below without special appointment

- 2.1 Temperature : 25±5°C(77±9°F), CST : 40±5°C
- 2.2 Relative Humidity : 65±10%
- 2.3 Power Voltage : Standard input voltage
(220~240V@ 50/60Hz)
 - Standard Voltage of each products is marked by models
- 2.4 Specification and performance of each parts are followed each drawing and specification by part number in accordance with BOM .
- 2.5 The receiver must be operated for about 5 minutes prior to the adjustment.

3. Test method

- 3.1 Performance : LGE TV test method followed.
- 3.2 Demanded other specification
 - Safety : CE, IEC specification
 - EMC : CE, IEC

4. General Specification

No	Item	Specification		Remark
1	Display Screen Device	19"/22" wide Color Display Module		
2	Aspect Ratio	16:9		MAKER : 19" – LGD 22" – LGD
3	Operating Environment	Temp. : 0 ~ 50 deg Humidity : 10 ~ 90%		LGE SPEC.
4	Storage Environment	Temp. : -20 ~ 50 deg Humidity : 10 ~ 90 %		
5	Input Voltage	AC220 ~ 240V, 50/60Hz		
6	Power Consumption	Power ON		
		19"	38W	
		22"	48W	
7	Module Size	19"	430.4(H) x 254.6(V) x 13.0(D)	
		22"	501.0(H) x 297.0(V) x 17.3(D)	
8	Pixel Pitch	19"	0.1(H) x 0.3(V)	
		22"	0.1165(H) x 0.3495(V)	
9	Back Light	19"	CCFL	
		22"	CCFL	
10	Display Colors	8-bit, 16.7M Color		
11	Coating	3H, AG		

5. MODEL General Specification

No	Item	Specification	Remark
1	Broadcasting system	1) PAL/SECAM BG (EU Only) 2) PAL/SECAM DK (EU Only) 3) SECAM L/L' (EU Only) 4) PAL I 5) DVB T	
2	Receiving system	Analog : Upper Heterodyne Digital : DVB-T(COOFDM)	
3	SCART Jack (2EA)	PAL, SECAM	SCART1 Jack is Full SACRT and support RF-OUT(TV-OUT) SCART2 jack is Half SCART and support MNT-OUT
4	Video Input RCA(1EA)	PAL, SECAM, NTSC	Rear
5	Component Input (1EA)	Y/Cb/Cr Y/Pb/Pr	
6	RGB Input	RGB-PC	Analog(D-SUB 15PIN)
7	HDMI Input (2EA)	HDMI1-DTV/DVI HDMI2-DTV	PC(HDMI version 1.3) Support HDCP
8	Audio Input (3EA)	RGB/DVI Audio, Component, AV	L/R Input
9	SDPIF out (1EA)		In digital mode only
10	Headphone out(1EA)		Side
11	USB(1EA)	JPEG, MP3,	Side
12	PCMCIA(1EA)	CI(CAM Interface)	Side

6. Chroma & Brightness

6.1 19"LCD Module

No	Item			Min	Typ	Max	Unit	Remark
1	Luminance, white	Luminance (white)		250	300	-	cd/m²	PSM : Vivid, CSM : Cool, White(100 IRE)
		Variation		75			%	
2	View angle (R/L, U/D)			140/130	170/160	-	degree	
3	Contrast ratio			600	1000	-		
4	Color Coordinate	White	X	Typ. -0.03	0.313	Typ. +0.03		PSM : Vivid, CSM : Cool, White(80 IRE)
			Y		0.329			
		Red	X		0.642			
			Y		0.334			
		Green	X		0.304			
			Y		0.608			
		Blue	X		0.146			
			Y		0.073			

- 1) Standard Test Condition (The unit has been 'ON')
- 2) Stable for approximately 30 minutes in a dark environment at 25
- 3) The values specified are at approximate distance 50Cm from the LCD surface
- 4) Ta= 25°C, VLCD=5.0V, fV=60Hz, fclk=77.0MHz, IBL=7.5mA

6.2 22"LCD Module

No	Item			Min	Typ	Max	Unit	Remark
1	Luminance, white	Luminance (white)		280	350	-	cd/m²	PSM : Vivid, CSM : Cool, White(100 IRE)
		Variation				1.3		
2	View angle (R/L, U/D)				170/155	-	degree	
3	Contrast ratio			700	1000	-		
4	Color Coordinate	White	X	Typ. -0.03	0.285	Typ. +0.03		PSM : Vivid, CSM : Cool, White(80 IRE)
			Y		0.293			
		Red	X		0.642			
			Y		0.333			
		Green	X		0.295			
			Y		0.608			
		Blue	X		0.147			
			Y		0.063			

- 1) Standard Test Condition (The unit has been 'ON')
- 2) Stable for approximately 30 minutes in a dark environment at 25±2
- 3) The values specified are at approximate distance 50Cm from the LCD surface
- 4) Ta= 25±2°C, VLCD=5.0V, fV=60Hz, Dclk=72.4MHz

7. SET Optical Feature

No	Item	Module	Luminance (cd/m ²)	C/R(min)	Remark
			AV, COMPONENT, HDMI	AV, COMPONENT, HDMI	
1	19 inch	LPL	220	1000	
2	22 inch	LPL	290	1000	

Measurement conditions(Full White Pattern)

- Set to Picture Reset.
- Set to "VIVID" for picture mode
- Set to "OFF" for energy saving mode
- Set to "Medium" for colour temperature
- Measure the black luminance after 30 seconds.

8. Component Video Input (Y, PB, PR)

No	Resolution	H-freq(kHz)	V-freq.(kHz)	Pixel clock(MHz)	Proposed	Remark
1	720*480	15.73	59.94	13.500	SDTV, DVD 480I(525I)	
2	720*480	15.75	60.00	13.514	SDTV, DVD 480I(525I)	
3	720*576	15.625	50.00	13.500	SDTV, DVD 576I(625I) 50Hz	
4	720*480	31.47	59.94	27.000	SDTV 480P	
5	720*480	31.50	60.00	27.027	SDTV 480P	
6	720*576	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	37.50	50.00	74.25	HDTV 720P 50Hz	
10	1920*1080	33.72	59.94	74.176	HDTV 1080I	
11	1920*1080	33.75	60.00	74.250	HDTV 1080I	
12	1920*1080	28.125	50.00	74.250	HDTV 1080I 50Hz,	
13	1920*1080	56.25	50	148.50	HDTV 1080P	
14	1920*1080	67.5	60	148.50	HDTV 1080P	
15	1920*1080	67.433	59.94	148.352	HDTV 1080p 60Hz	

9. RGB PC

No	Resolution	H-freq(kHz)	V-freq.(Hz)	Pixel clock(MHz)	Remark
1.	720*400	31.468	70.08	28.32	
2.	640*480	31.469	59.94	25.17	VESA
3.	800*600	37.879	60.31	40.00	VESA
4.	1024*768	48.363	60.00	65.00	VESA(XGA)
5.	1280*768	47.78	59.87	80.125	VESA(WXGA)
6	1360*768	47.72	59.80	84.625	VESA(WXGA)

10. HDMI Input (DTV)

No	Resolution	H-freq(kHz)	V-freq.(kHz)	Pixel clock(MHz)	Proposed	Remark
1	640*480	31.649	59.94	25.175	SDTV 480p 60Hz	
2	640*480	31.469	60	25.20	SDTV 480p 60Hz	
3	720*480	31.47	59.94	27.00	SDTV 480p 60Hz	
4	720*480	31.50	60	27.027	SDTV 480p 60Hz	
5	720*576	31.25	50.00	27.00	SDTV 576p 50Hz	
6	1280*720	37.50	50.00	74.176	HDTV 720p 50Hz	
7	1280*720	44.96	59.94	74.176	HDTV 720p 60Hz	
8	1280*720	45.00	60	74.250	HDTV 720p 60Hz	
9	1920*1080	28.125	50.00	74.250	HDTV 1080i 50Hz	
10	1920*1080	33.72	59.94	74.176	HDTV 1080i 60Hz	
11	1920*1080	33.75	60	74.250	HDTV 1080i 60Hz	
12	1920*1080	27.00	24.00	74.25	HDTV 1080p 24Hz	
13	1920*1080	33.750	30	74.25	HDTV 1080p 30Hz	
14	1920*1080	56.25	50.00	148.50	HDTV 1080p 50Hz	
15	1920*1080	67.433	59.94	148.352	HDTV 1080p 60Hz	
16	1920*1080	67.50	60	148.50	HDTV 1080p 60Hz	

11. HDMI Input (PC Mode)

No	Resolution	H-freq(kHz)	V-freq.(Hz)	Pixel clock(MHz)	Proposed	Remark
1.	720*400	31.468	70.08	28.32		HDCP
2.	640*480	31.469	59.94	25.17	VESA	HDCP
3.	800*600	37.879	60.31	40.00	VESA	HDCP
4.	1024*768	48.363	60.00	65.00	VESA(XGA)	HDCP
5.	1280*768	47.78	59.87	80.125	VESA(WXGA)	HDCP
6	1360*768	47.72	59.80	84.625	VESA(WXGA)	HDCP

12. Mechanical specification

12-1. 19LU7000-ZA

No.	Item		Content			Unit	Remark
1.	Product Dimension		Width (W)	Length (D)	Height (H)	mm	
		Before Packing	467.5	194	410.2	mm	With Stand
		After Packing	522	218	461	mm	Box Out Size
2.	Product Weight	Only SET	5.1			Kg	With Stand
		With BOX	7			Kg	

12-2. 22LU7000-ZA

No.	Item		Content			Unit	Remark
1.	Product Dimension		Width (W)	Length (D)	Height (H)	mm	
		Before Packing	536.5	194	449.7	mm	With Stand
		After Packing	600	223	500	mm	Box Out Size
2.	Product Weight	Only SET	6.2			Kg	With Stand
		With BOX	8.3			Kg	

ADJUSTMENT INSTRUCTION

1. Application Object

These instructions are applied to all of the LCD TV, LU7000 chassis.

2. USB S/W DOWNLOAD

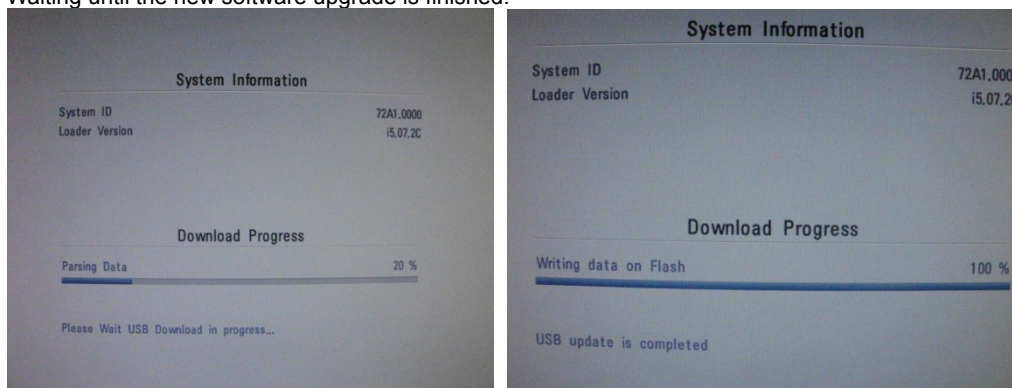
To update the TV software, use only the “**USB IN**” jack on the side of the TV.
(The **USB IN** jack on the side of the TV works for the music or photo service.)

2-1)sub Micom & TV Software Download

- a) Put the “**hmx_lu7000_GB.hdf(UK_Model)/hmx_lu7000_EU.hdf(EU_Model)**” in the USB.
- b) Connect the USB device to the “**USB IN**” jack on the side of the TV



- c) AC Power Off and On the TV.
- d) Waiting until the new software upgrade is finished.



- e) Finishing the version uploading, you have to put USB stick and “**AC Power**” off.
 - f) After putting “**AC Power**” on and check updated version on your TV.
- If downloading version is more high than your TV have, TV can lost all channel data.
In this case, you have to channel recover.
if all channel data is cleared, you didn't have a DTV/ATV test on production line.

3. DVD S/W DOWNLOAD

To update the DVD software, use only the **DVD Player**.

- Open the Door, press "Eject" keys on a remote
- Insert the S/W update Disc
- Close the Door, press "Eject" keys on a remote
- Check the follow message

Firmware Upgrade Mode
Current Version: MP09060601
New Version : MP09070101

Press PLAY Key to upgrade.

- Press "Play" keys on a remote
- Waiting until the new S/W upgrade is finished
- Automatically open the Door

Firmware Upgrade Mode
Current Version: MP09060601
New Version : MP09070101
Upgrading 0[%] completed

*** CAUTION!!! ***

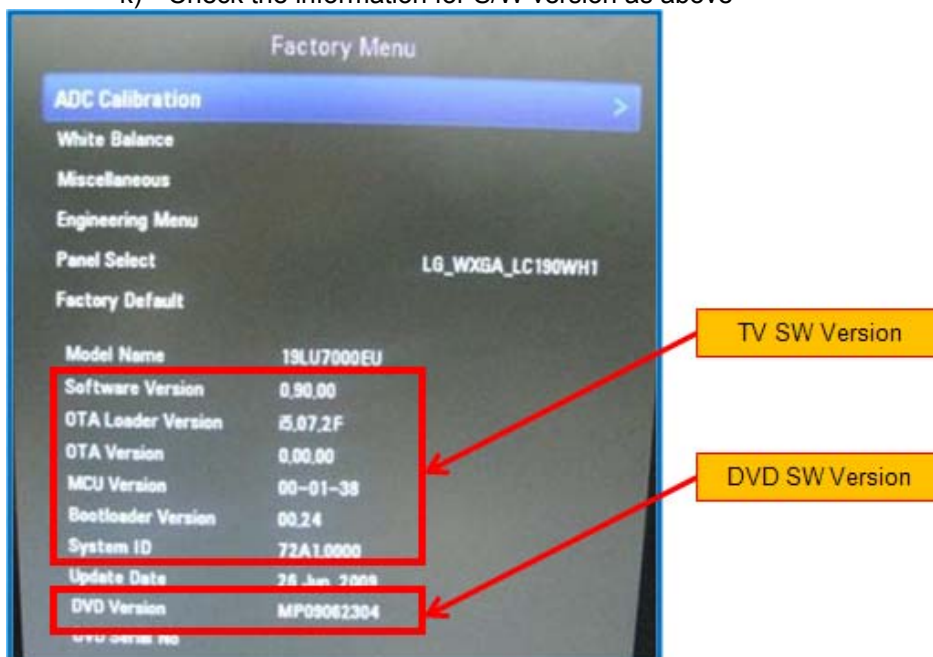
Do not turn off the player.

Firmware Upgrade Mode
Current Version: MP09060601
New Version : MP09070101
Upgrading 100[%] completed

*** CAUTION!!! ***

Do not turn off the player.

- Finishing the version uploading, you have to remove Disc and "AC Power" off
- After putting "AC Power on and check updated version by going to the Factory Mode
- Press "MENU", "1", "2", "4", "7" and "5" keys on a remote
- Check the information for S/W version as above



4. OTA DOWNLOAD

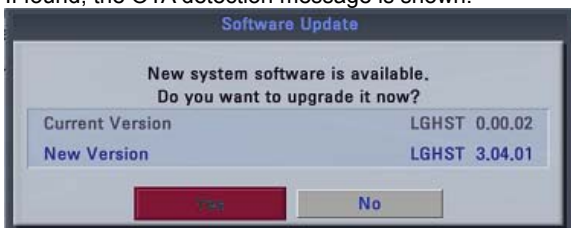
3-1) Software OTA Download.

Auto update case.

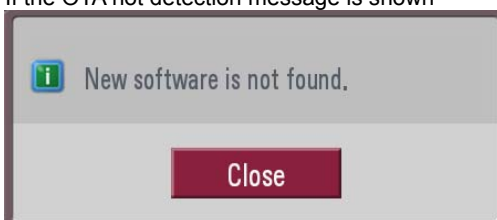
- Click the Software Update.
- Click the Auto Update.



- If found, the OTA detection message is shown.

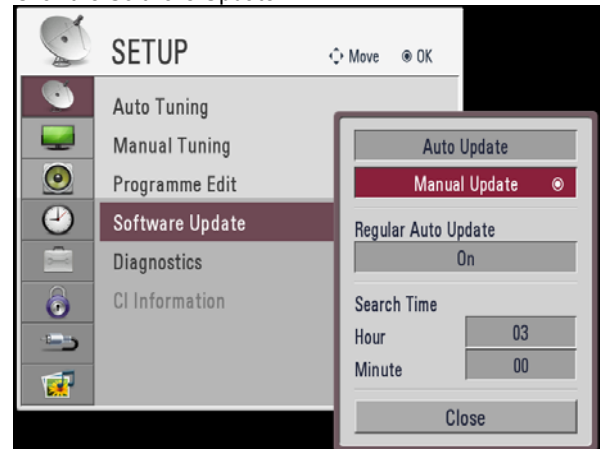


- Select "Yes".
 - The TV is reboot and OTA process starts.
 - Select "No"
 - OTA process does not start.
- The TV is reboot and OTA process starts.
 - If the OTA not detection message is shown



Manual Update Case.

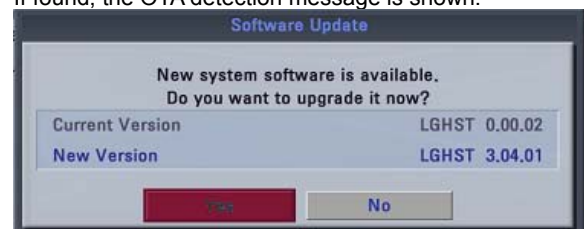
- Click the Software Update.



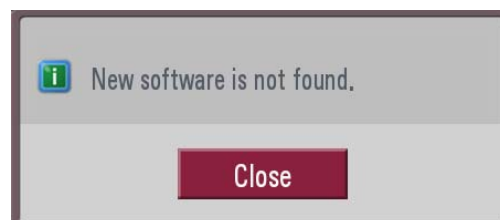
- Click the Manual Update.



- If found, the OTA detection message is shown.



- Select "Yes".
 - The tv is reboot and OTA process starts.
 - Select "No"
 - OTA process does not start
- The TV is reboot and OTA process shows.
 - If the OTA not detection message is shown

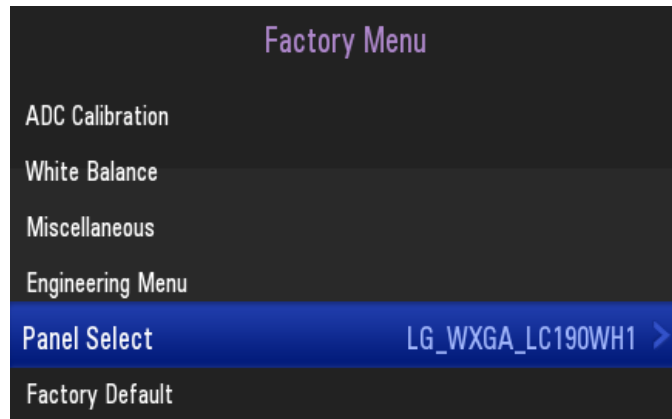


5. EDID DOWNLOAD

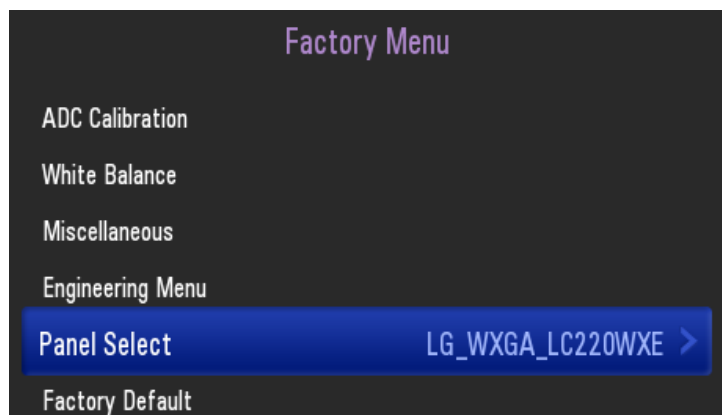
4-1) Panel Setting

- a) You should change the panel size by going to the Factory Mode, press "Menu", "1", "2", "4", 7" and "5" keys on a remote
- b) You have to select 19",22" panel in Factory mode.

19LU7000-ZA : Panel Select → "LG_WXGA_LC190WH1"



22LU7000-ZA : Panel Select → "LG_WXGA_LC220WXE"



4-2) EDID Setting

- Connect D-sub signal cable to D-sub jack(PC VGA)
- Connect HDMI signal cable to HDMI jack(HDMI)
- Write EDID data to EEPROM(24C08) by using DDC protocol
- Check whether written EDID data is correct or not

4-3) PC EDID Table

a) LU7000-ZA

	0x00	0x01	0x02	0x03	0x04	0x05	0x06	0x07	0x08	0x09	0x0A	0x0B	0x0C	0x0D	0x0E	0x0F
0x00	00	FF	FF	FF	FF	FF	FF	00	1E	6D	A		B			
0x10	C		01	03	08	29	17	78	2A	6F	B5	A4	55	4D	9B	25
0x20	12	50	54	A1	08	00	31	40	45	40	61	40	01	01	01	01
0x30	01	01	01	01	01	01	66	21	50	B0	51	00	1B	30	40	70
0x40	36	00	9A	E6	10	00	00	1E	0E	1F	00	80	51	00	1E	30
0x50	40	80	37	00	9A	E6	10	00	00	1C	00	00	00	FD	00	39
0x60	3F	1C	45	0F	00	0A	20	20	20	20	20	20	00	00	00	FC
0x70	D														00	E

a) Product ID

MODEL NAME	PRODUCT ID	HEX	EDID Table
19LU7000	19379	4B B3	B3 4B
22LU7000	22315	57 2B	2B 57

b) Serial No: Controlled on production line.

c) Week, Year: Controlled on production line: ex) Weekly : '01' → '01', Year : '2009' → '13'

d) Model Name(Hex):

MODEL NAME	MODEL NAME(HEX)
19LU7000	00 31 39 4C 55 37 30 30 30 2D 5A 41 0A 20
22LU7000	00 32 32 4C 55 37 30 30 30 2D 5A 41 0A 20

e) Checksum: Changeable by total EDID data.

4-4) HDMI EDID Table

a) LU7000-ZA

	0x00	0x01	0x02	0x03	0x04	0x05	0x06	0x07	0x08	0x09	0x0A	0x0B	0x0C	0x0D	0x0E	0x0F
0x00	00	FF	FF	FF	FF	FF	FF	00	1E	6D	A		B			
0x10	C		01	03	80	29	17	78	2A	6F	B5	A4	55	4D	9B	25
0x20	12	50	54	A1	08	00	31	40	45	40	61	40	01	01	01	01
0x30	01	01	01	01	01	01	66	21	50	B0	51	00	1B	30	40	70
0x40	36	00	9A	E6	10	00	00	1E	0E	1F	00	80	51	00	1E	30
0x50	40	80	37	00	9A	E6	10	00	00	1C	00	00	00	FD	00	39
0x60	3F	1C	45	0F	00	0A	20	20	20	20	20	20	00	00	00	FC
0x70	D														01	E
0x80	02	03	1F	F1	4A	90	1F	20	22	05	14	04	13	12	03	23
0x90	09	57	07	83	01	00	00	67	03	0C	00	F		38	2D	01
0xA0	1D	80	D0	72	1C	16	20	10	2C	25	80	C4	8E	21	00	00
0xB0	9E	01	1D	80	18	71	1C	16	20	58	2C	25	00	C4	8E	21
0xC0	00	00	9E	01	1D	00	BC	52	D0	1E	20	B8	28	55	40	C4
0xD0	8E	21	00	00	1E	01	1D	00	72	51	D0	1E	20	6E	28	55
0xE0	00	C4	8E	21	00	00	1E	00	00	00	00	00	00	00	00	00
0xF0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	G

a) Product ID

MODEL NAME	PRODUCT ID	HEX	EDID Table
19LU7000	19380	4B B4	B4 4B
22LU7000	22316	57 2C	2C 57

b) Serial No: Controlled on production line.

c) Week, Year: Controlled on production line: ex) Weekly : '01' → '01', Year : '2009' → '13'

d) Model Name(Hex):

MODEL NAME	MODEL NAME(HEX)
19LU7000	00 31 39 4C 55 37 30 30 30 2D 5A 41 0A 20
22LU7000	00 32 32 4C 55 37 30 30 30 2D 5A 41 0A 20

e) Checksum: Changeable by PC EDID data.

f) Port No. 10 : HDMI1, 20 : HDMI2,

g) Checksum: Changeable by total EDID data.

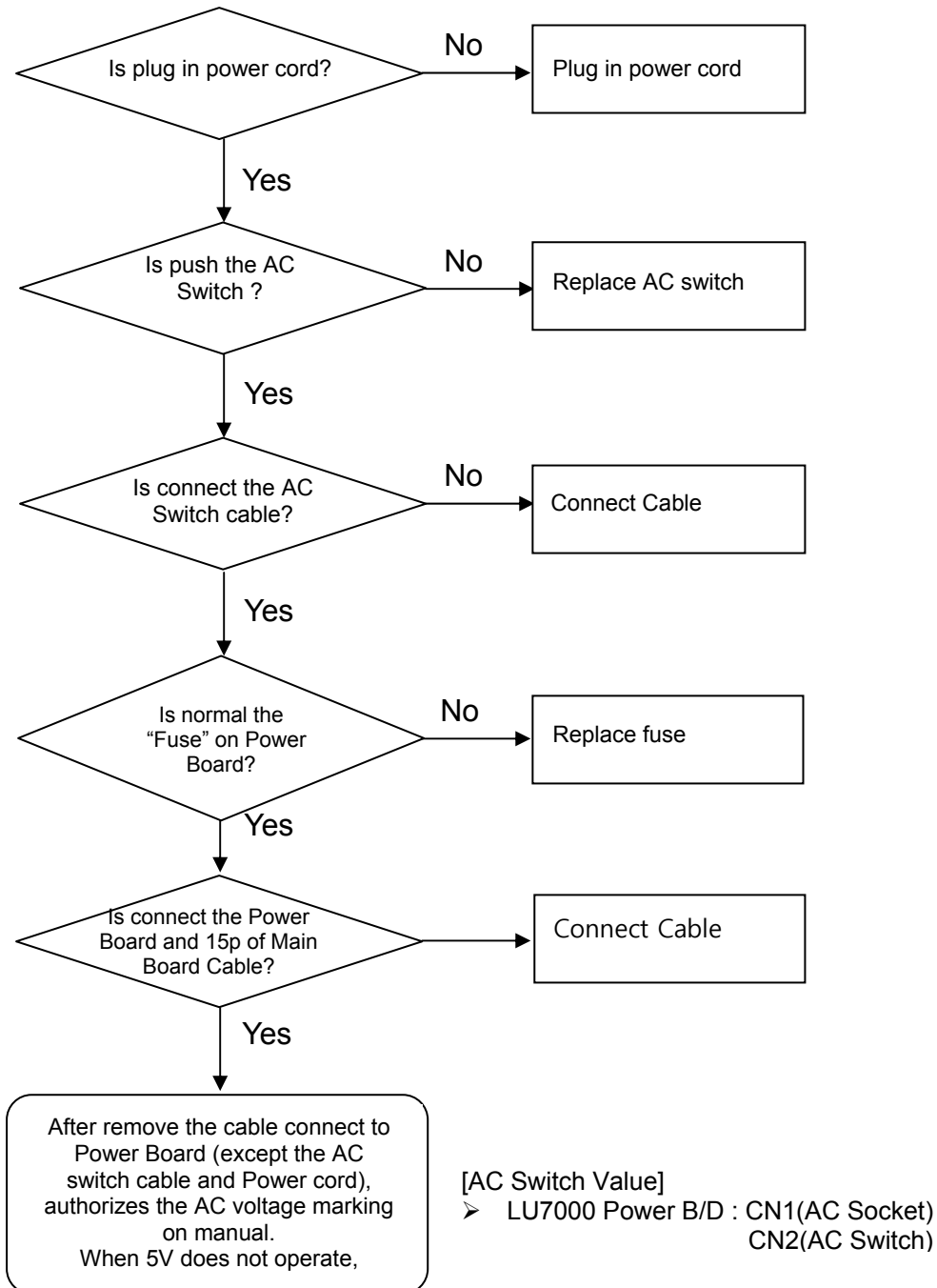
TROUBLESHOOTING

1. No power

(1) Symptom

- 1) Doesn't minute discharge at module.
- 2) Non does not come in into the front LED.
- 3) Check Off Mode.

(2) Check follow

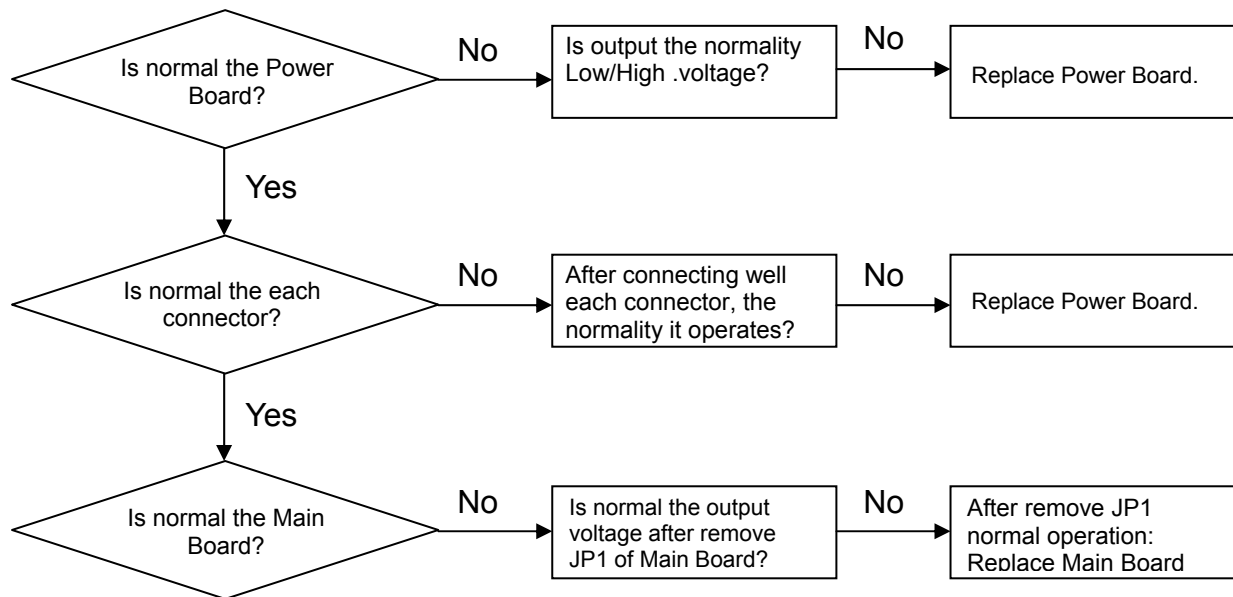


2. Protect mode

(1) Symptom

- 1) After once shining, it does not discharge minutely from module.
- 2) It is converted with the color where the front LED is red from blue.

(2) Check follow

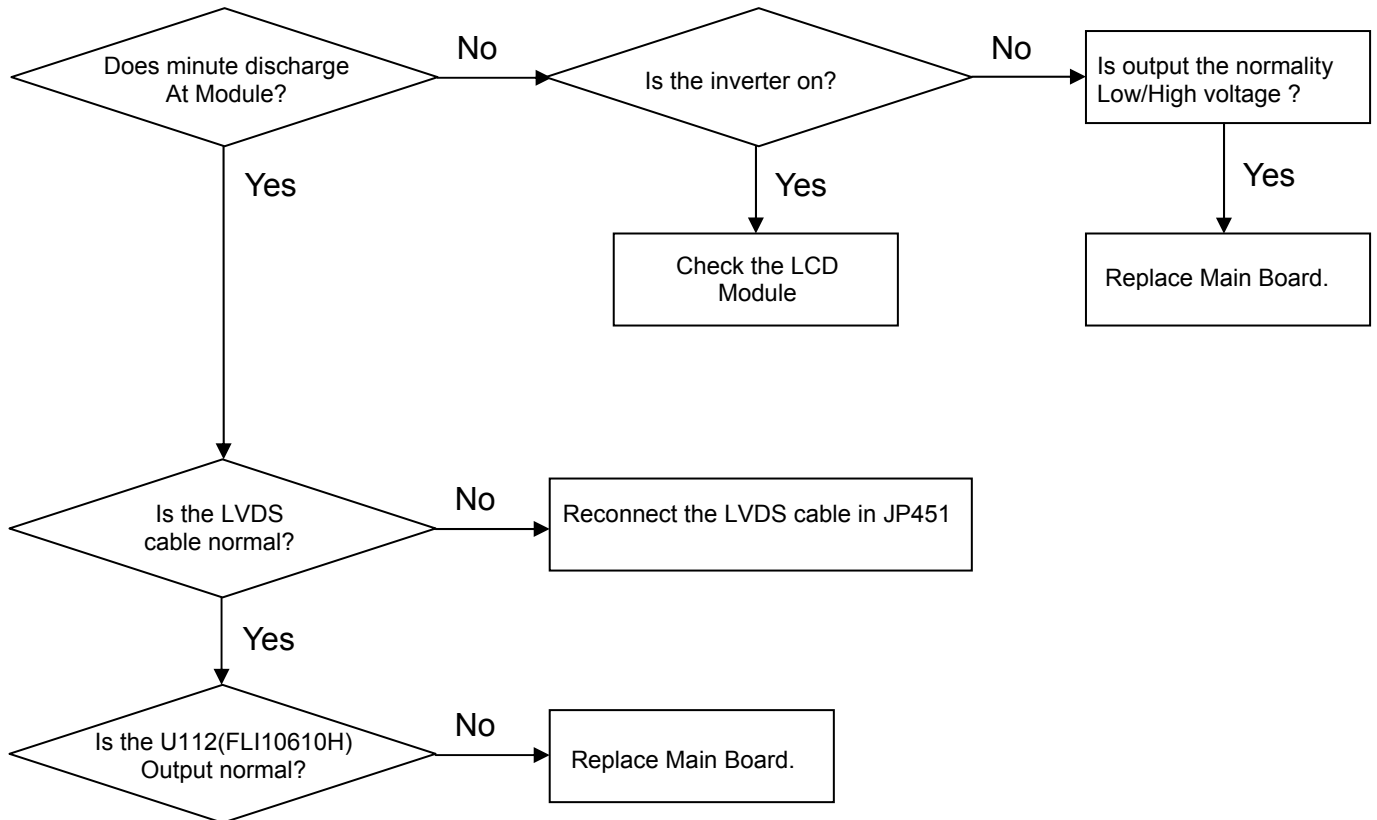


3. No Raster

(1) Symptom

- 1) No OSD and image occur at screen.
- 2) It maintains the condition where the front LED is blue

(2) Check follow



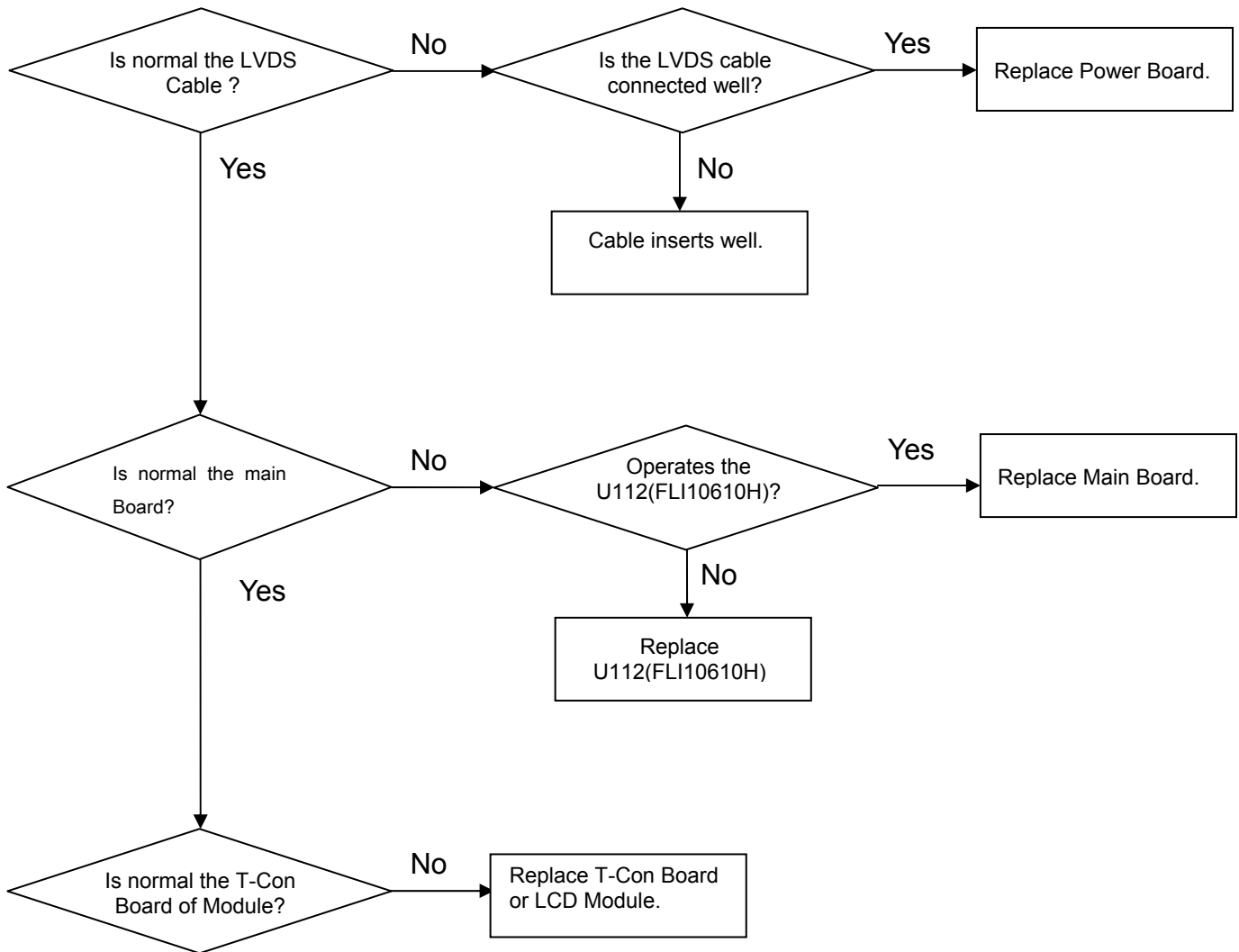
4. In case of occur strange screen into specific mode

1) In case of does't display the OSD

(1) Symptom

- 1) LED is blue.
- 2) The minute discharge continuously becomes accomplished from module

(2) Check follow



2) In case of doesn't display the screen into specific mode

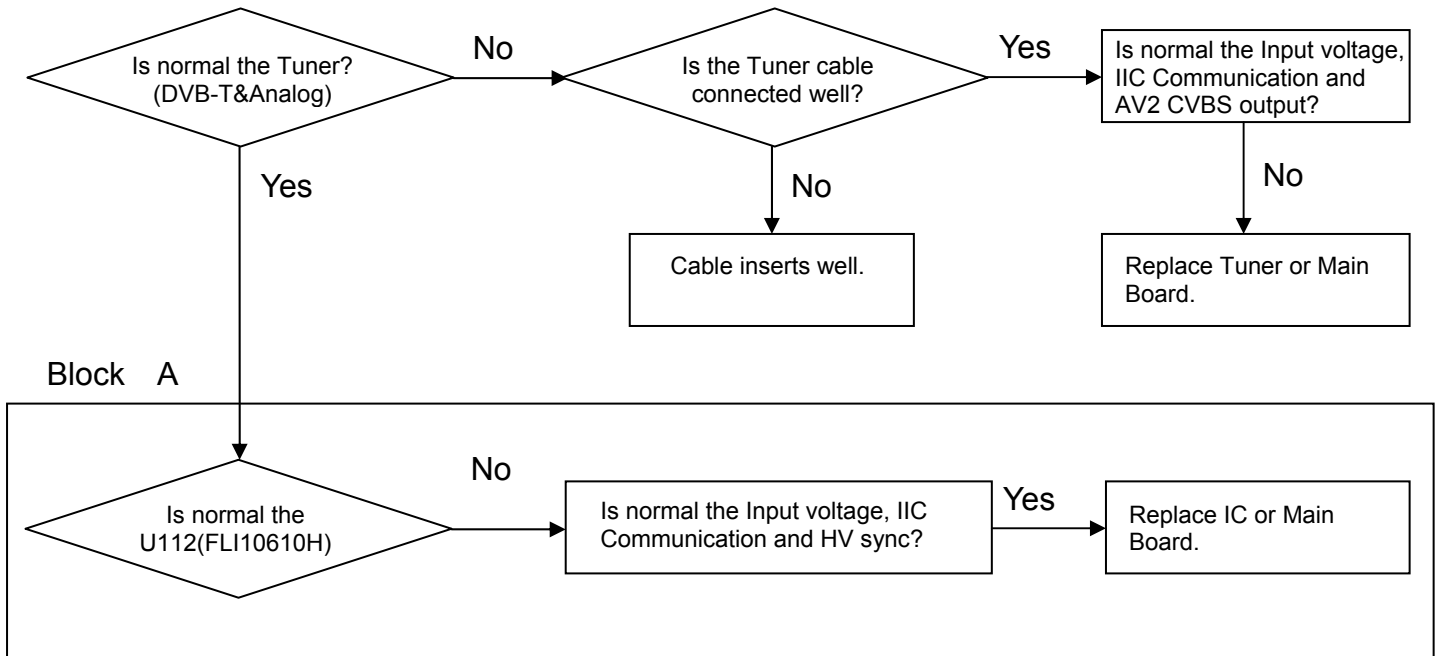
(1) Symptom

(1) The screen does not become the display from specific input mode (RF, AV, Component, RGB, HDMI,DVD).

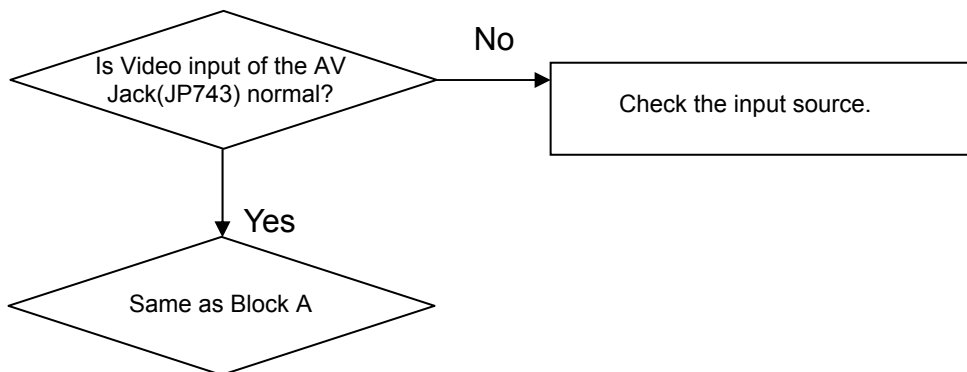
(2) Check follow

(1) Check the all input mode should become normality display.

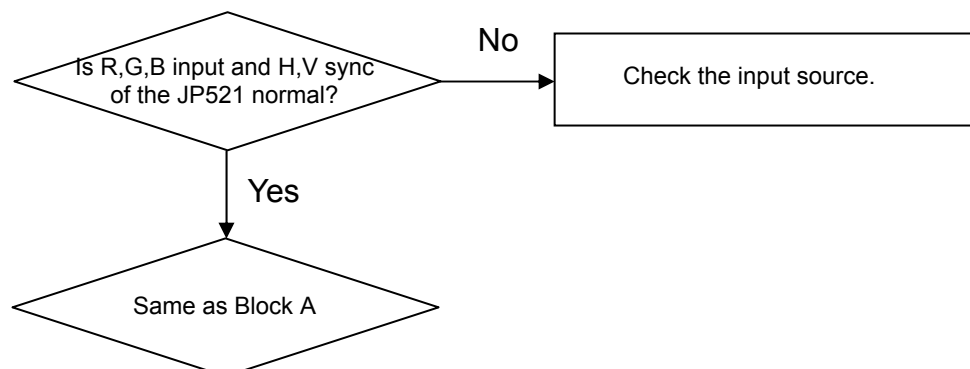
(3) In case of becomes unusual display from D/A mode



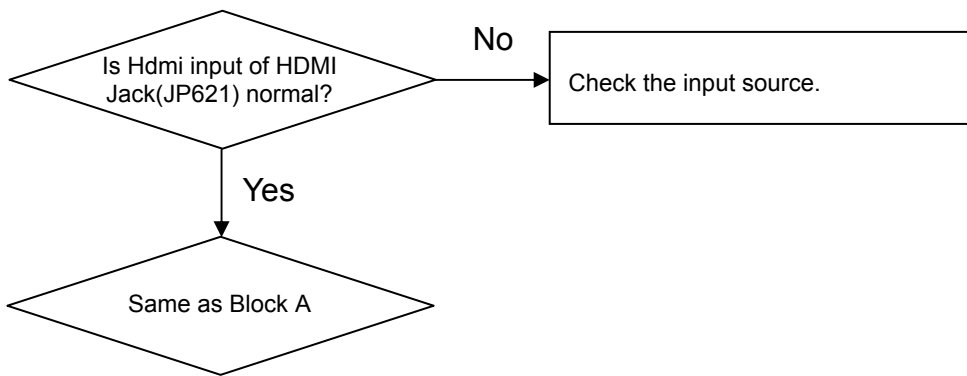
(4) In case of becomes unusual display from A/V mode



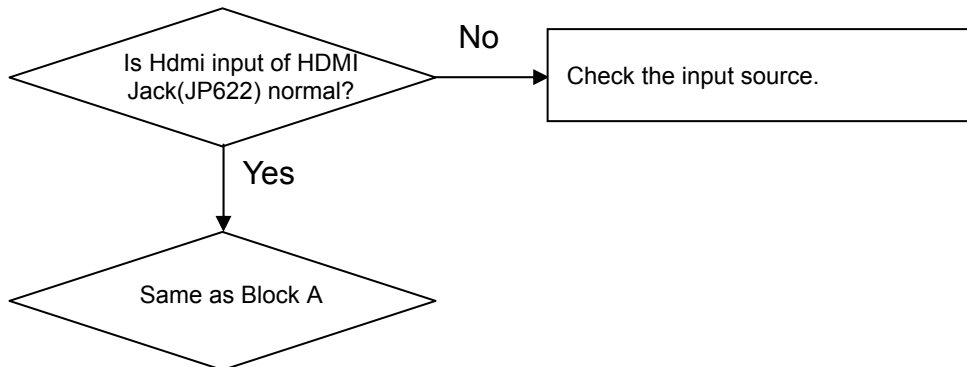
(5) In case of becomes unusual display from RGB mode



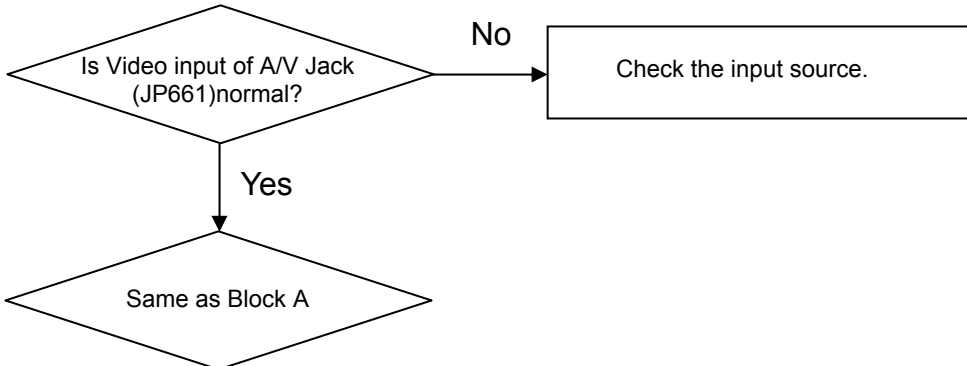
(6) In case of becomes unusual display from HDMI1 mode



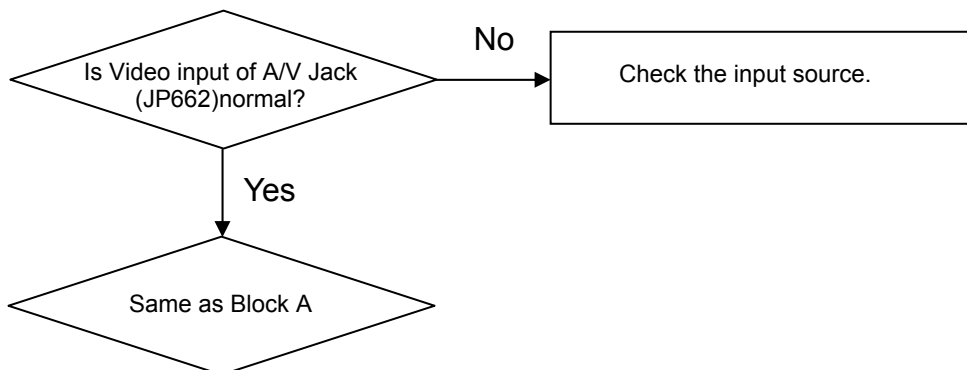
(7) In case of becomes unusual display from HDMI2 mode



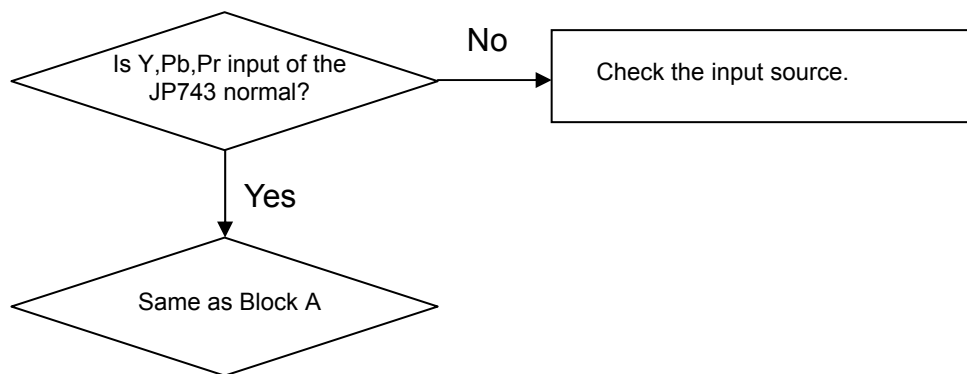
(8) In case of becomes unusual display from SCART1 mode



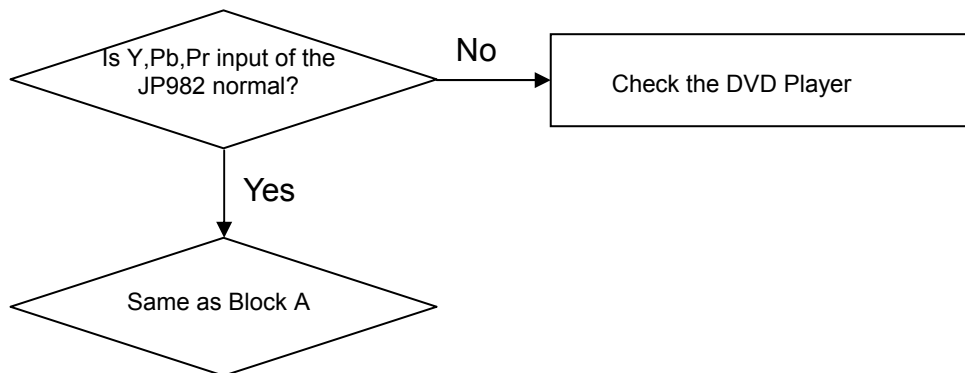
(9) In case of becomes unusual display from SCART2 mode



(10)In case of becomes unusual display from Component mode



(11)In case of becomes unusual display from DVD mode

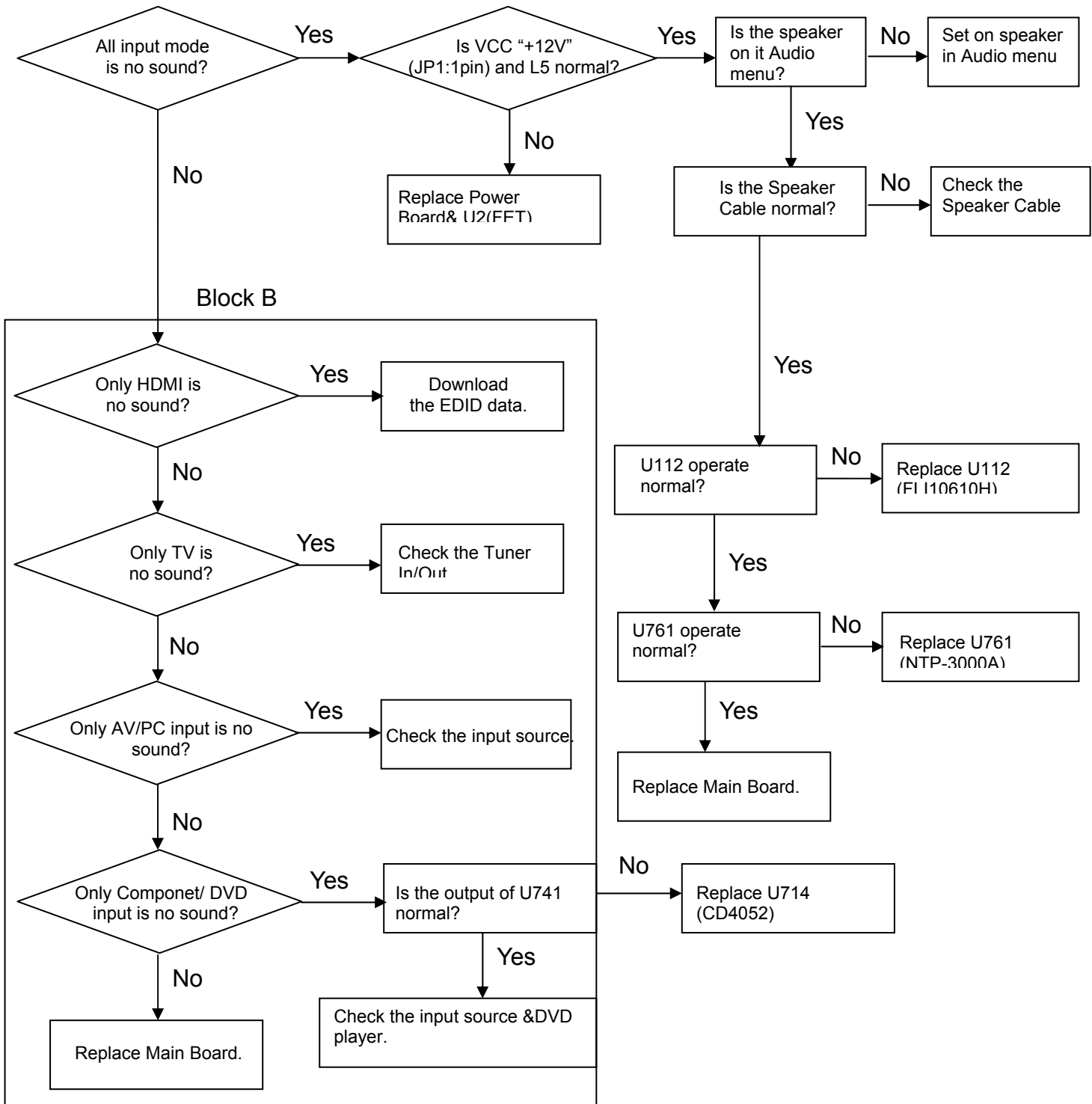


5. In case of no sound

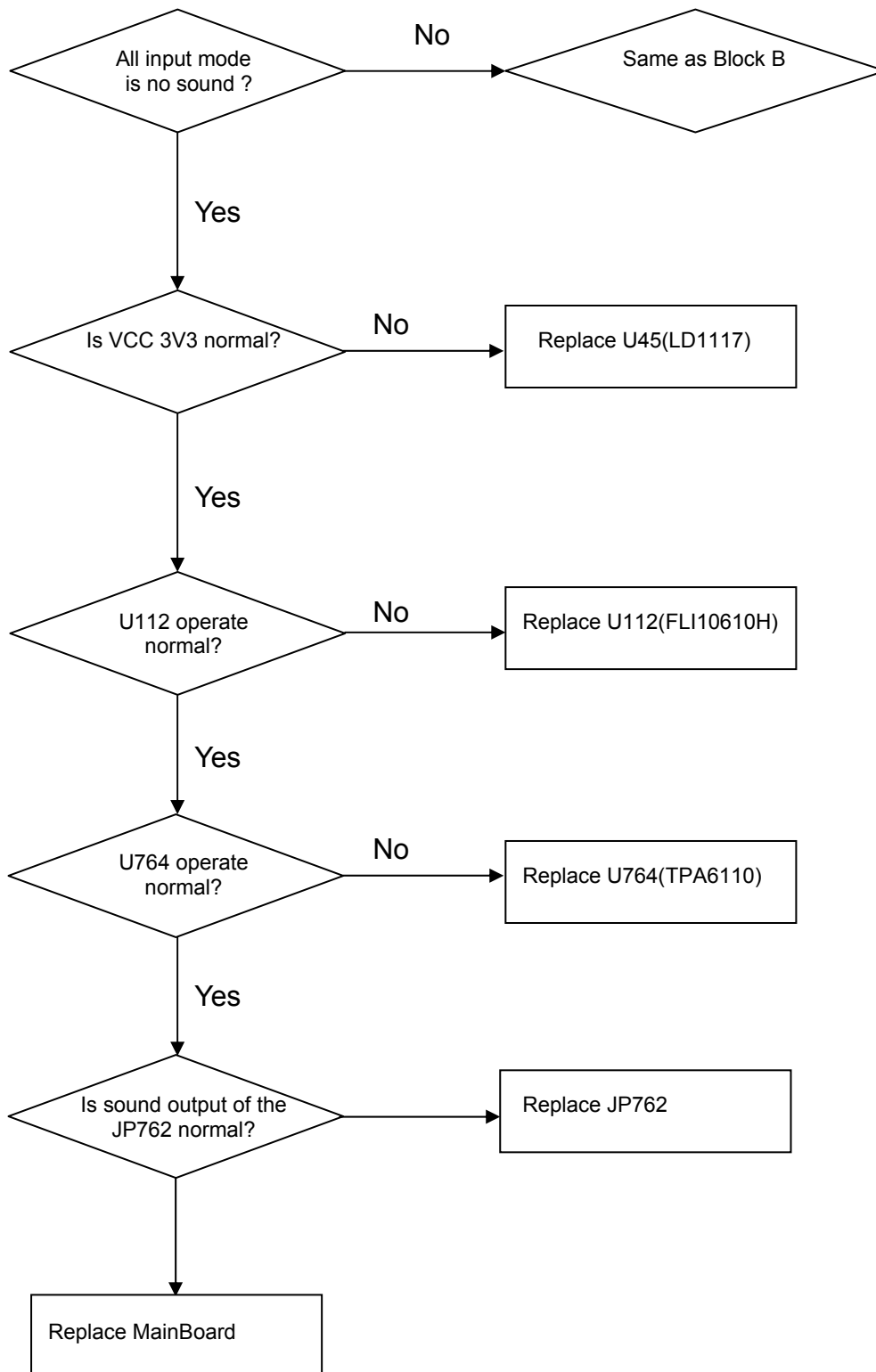
(1) Symptom

- 1) LED is blue.
- 2) Screen display but sound is not output

(2) In case of no sound to speaker

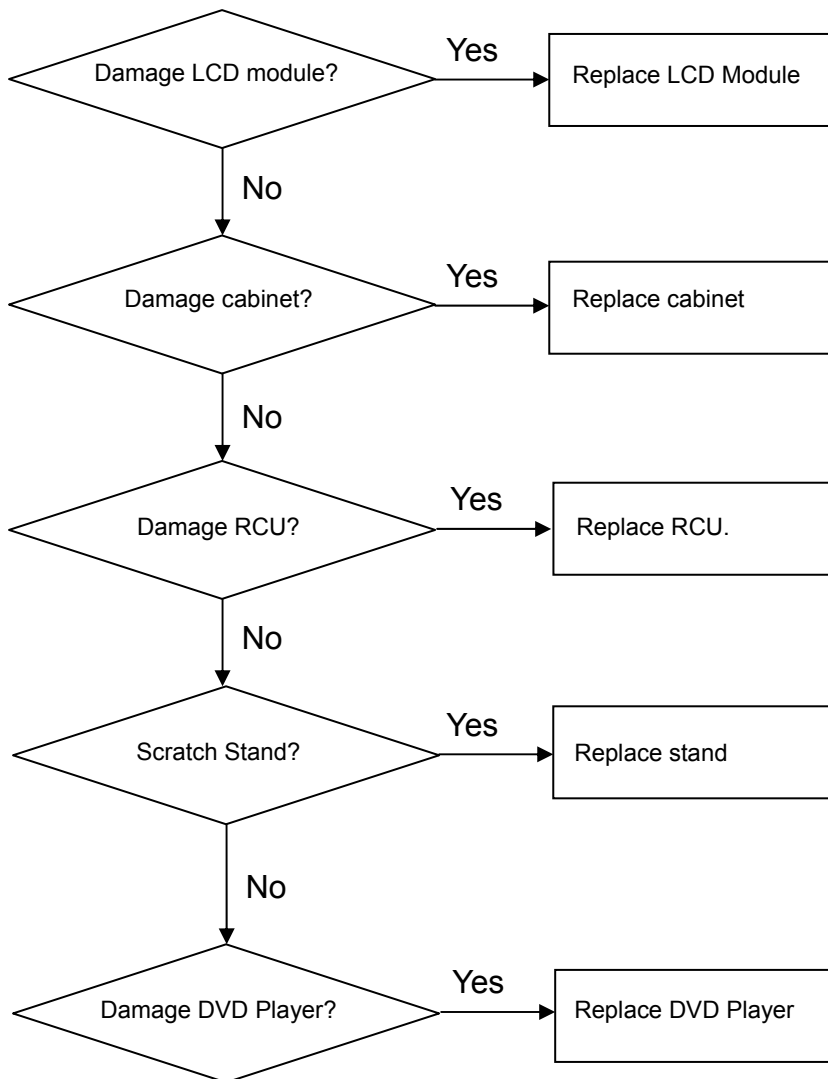


(3) In case of no sound to Headphone



6. Exterior view defectiveness

(1) Check follow



• DVD Door Open/Close

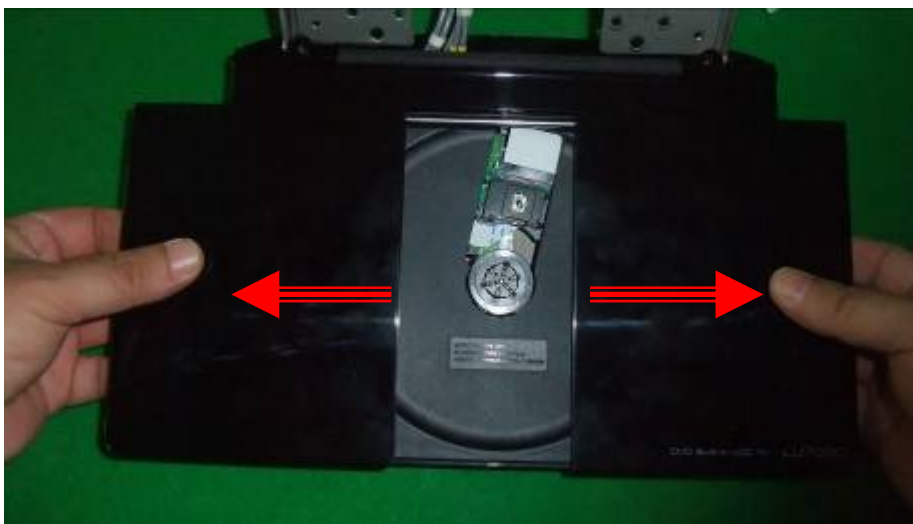
(1) Symptom

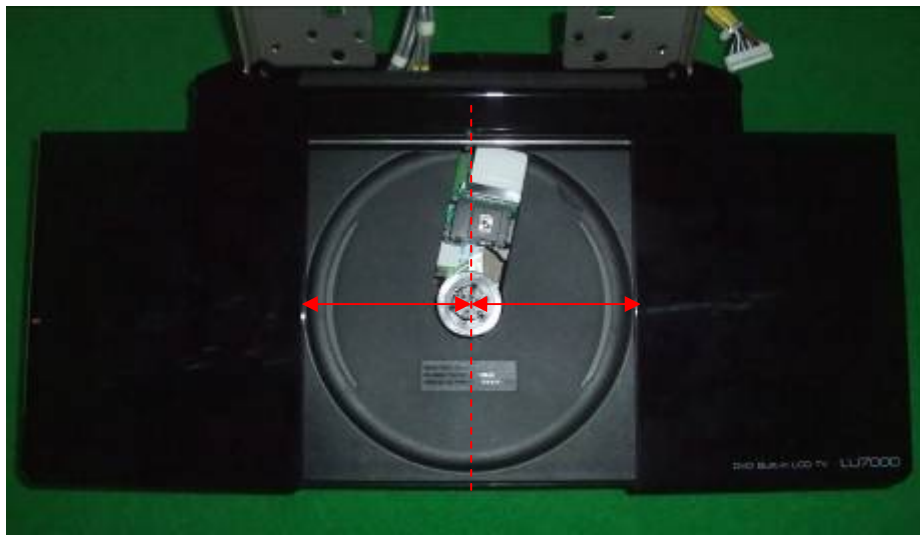
- 1) Door being not Opened/Closed completely
- 2) Unbalance Open/Close the door

(2) Check follow



- a) AC power off, while door is open.
- b) Grab both L/R door with each hands and pull it open.
- c) If pulled with hands disregard noises heard while opening by force.
- d) Doors are opened till its symmetrical to the center.

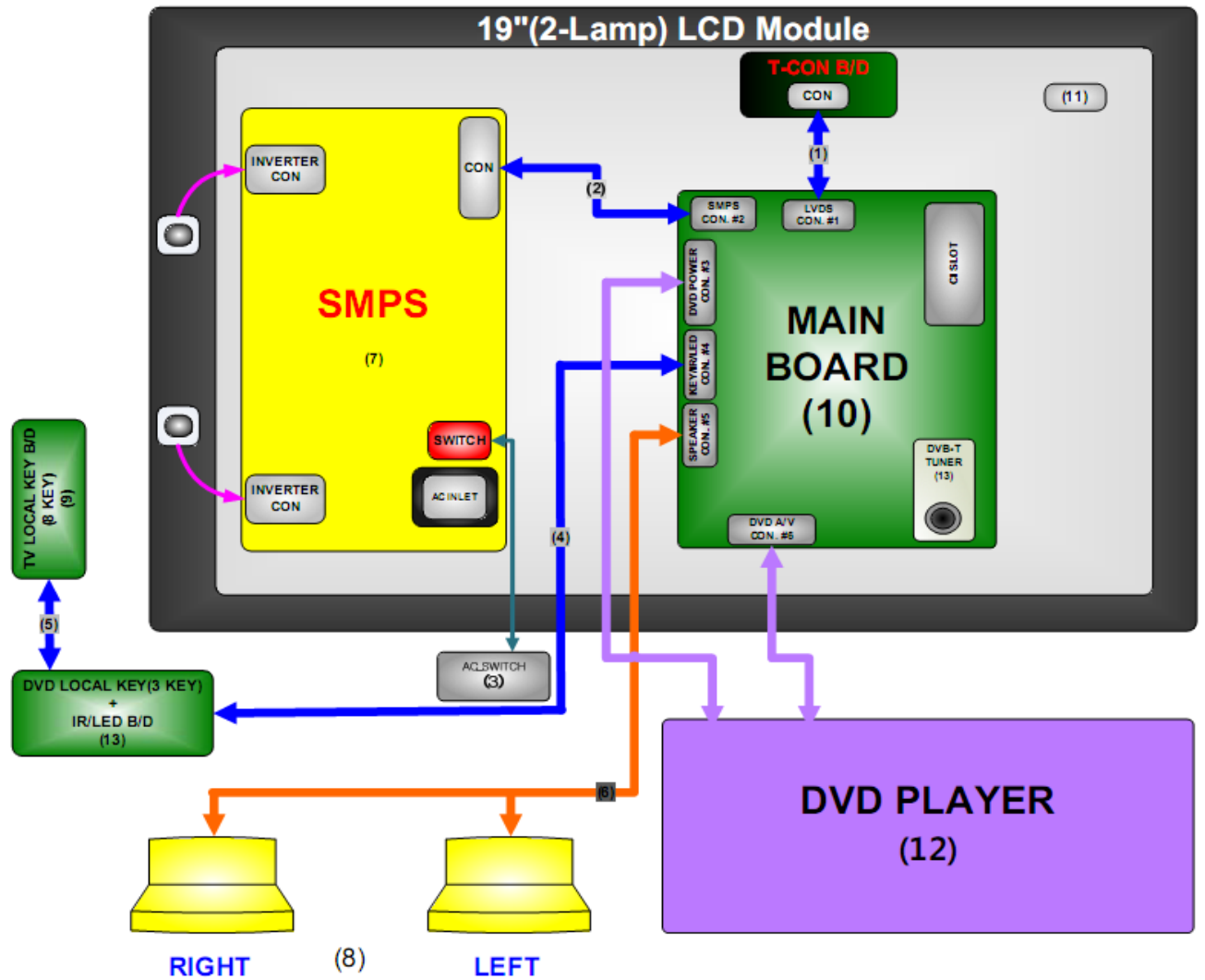




- e) AC power on and press eject button with remote or with keys and check to make sure that Door is opened or closed.
- f) If the Door is not aligned correctly or still not functioning correctly repeat the procedure from a.

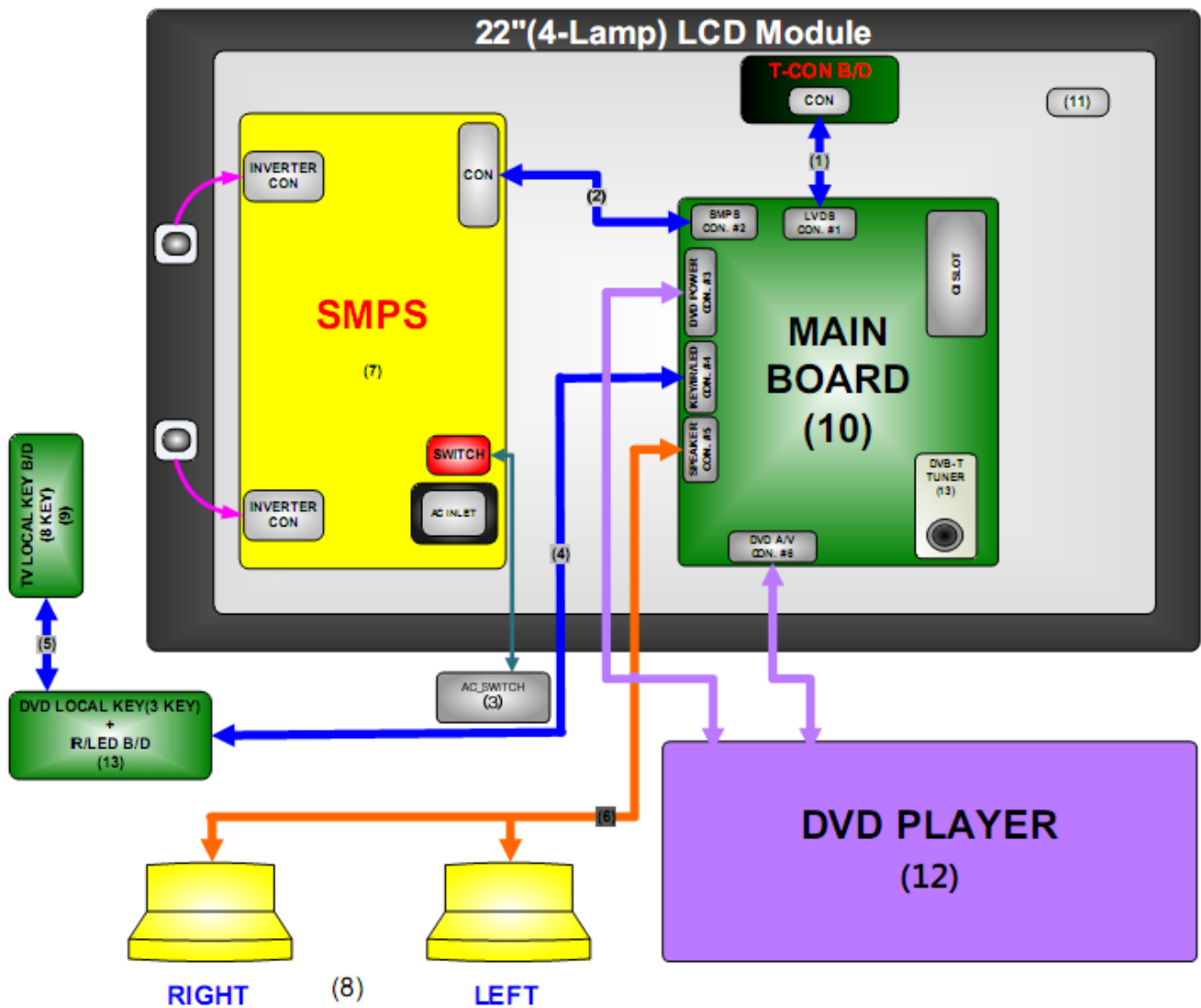
WIRING DIAGRAM

1. 19LU7000-ZA



No	LGE P.No	DESCRIPTION	Comment
1	COV30118201	ROHS/CABLE LVDS LPL 24P-30P 100MM	
2	COV30118002	ROHS/CABLE SMPS-MAIN 15P 80MM	
3	EBF58261502	ROHS/CABLE AC SWITCH_SDRA100WAA(2P100MM)	
4	COV30118003	ROHS/CABLE KEY-MAIN 12P 260MM	
5	COV30118004	ROHS/CABLE KEY-IR 4P 110MM	
6	COV30118005	ROHS/CABLE SPEAKER 4P 300MM	
7	EBR64031601	ROHS/POWER SMPS/PE901Y/REV 1.0/ASSY A.1	
8	COV30118006	ROHS/ SPEAKER 19/22 INCH 8 OHM 7W LG/T	
9	EBR64031201	ROHS_SUB(TV LOCAL KEY)/LU7000	
10	EBU60738301	ROHS/PCBA 19_22LU7000/EU MAIN_CS	EU Model
10	EBU60738302	ROHS/PCBA 19_22LU7000/GB MAIN_CS	UK Model
11	EAJ59445401	ROHS/PANEL LCD LC190WH1-TLC1	
12	AAN72930901	ROHS/AAN72930901/DVD PLAYER ASS'Y LU7000	
13	EBR64031501	ROHS_SUB(DVD KEY IR LED)/LU7000	

2. 22LU7000-ZA



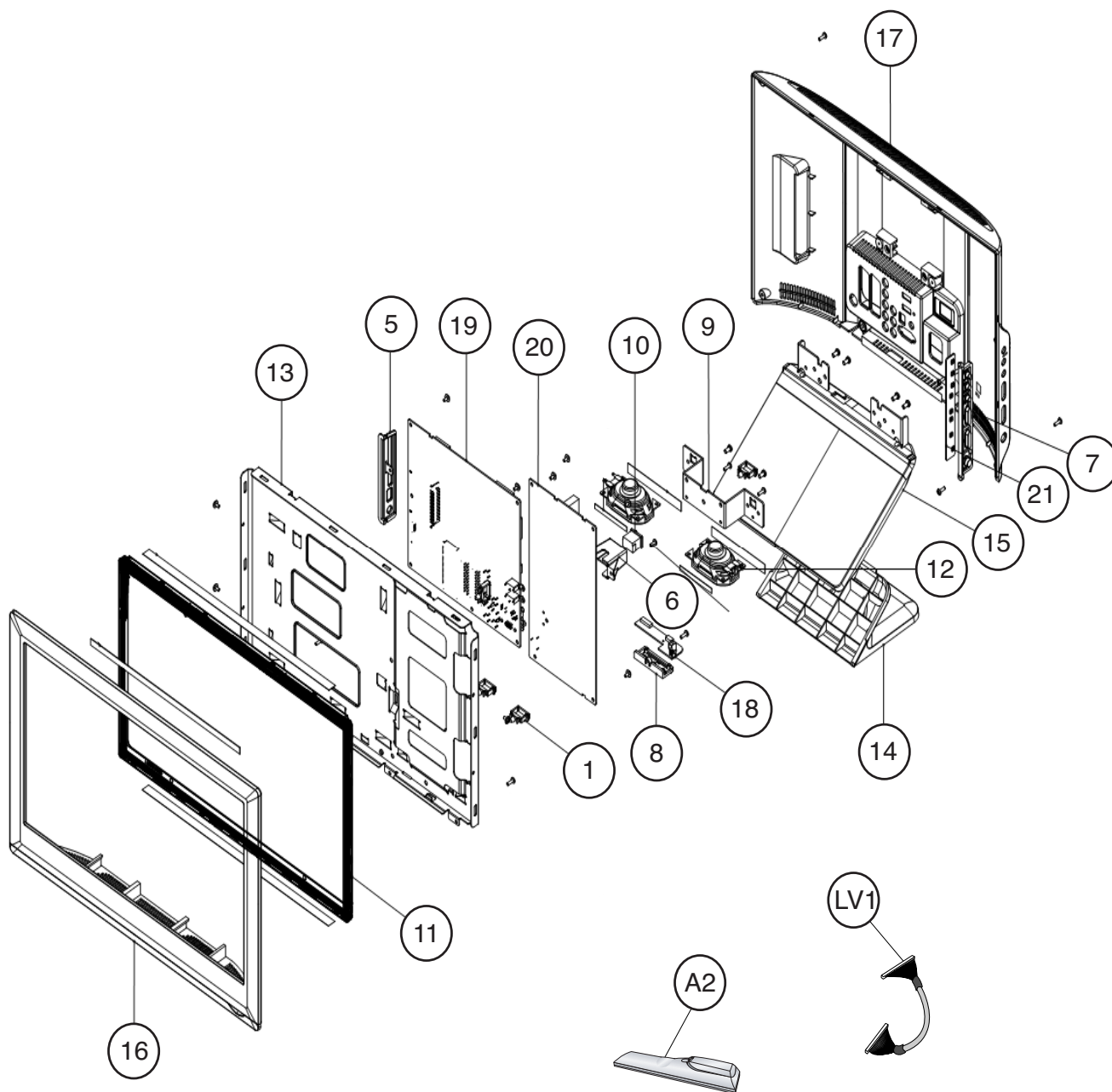
No	LGE P.No	DESCRIPTION	Comment
1	COV30118201	ROHS/CABLE LVDS LPL 24P-30P 100MM	
2	COV30118002	ROHS/CABLE SMPS-MAIN 15P 80MM	
3	EBF58261502	ROHS/CABLE AC SWITCH_SDR100WAA(2P100MM)	
4	COV30118003	ROHS/CABLE KEY-MAIN 12P 260MM	
5	COV30118004	ROHS/CABLE KEY-IR 4P 110MM	
6	COV30118005	ROHS/CABLE SPEAKER 4P 300MM	
7	EBR64031701	ROHS/POWER SMPS/PE902Y/REV 1.0/ASSY A.1	
8	COV30118006	ROHS/ SPEAKER 19/22 INCH 8 OHM 7W LG/T	
9	EBR64031201	ROHS_SUB(TV LOCAL KEY)/LU7000	
10	EBU60738301	ROHS/PCBA 19_22LU7000/EU MAIN_CS	EU Model
10	EBU60738302	ROHS/PCBA 19_22LU7000/GB MAIN_CS	UK Model
11	EAJ60140401	ROHS/PANEL LCD LC220WXE-TBA1	
12	AAN72930901	ROHS/AAN72930901/DVD PLAYER ASS'Y LU7000	
13	EBR64031501	ROHS_SUB(DVD KEY IR LED)/LU7000	

MEMO

EXPLODED VIEW

IMPORTANT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These parts are identified by Δ in the Schematic Diagram and EXPLODED VIEW. It is essential that these special safety parts should be replaced with the same components as recommended in this manual to prevent X-RADIATION, Shock, Fire, or other Hazards. Do not modify the original design without permission of manufacturer.



SCHEMATIC DIAGRAMME

19/22LU7000-ZA

