LED-TV

Chassis : U72D

Model : UN32EH6030G
UN40EH6030G
UN46EH6030G
UN55EH6030G

SERVICE MANUAL

LED TV

UN**EH6030G

Contents

1. Precautions
2. Product Specifications
3. Disassembly and Reassembly
4. Troubleshooting
5. Wiring Diagram

Refer to the service manual in the GSPN (see the rear cover) for more information.

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1. Precautions

1.1. Safety Precautions

Follow these safety, servicing and ESD precautions to prevent damage and to protect against potential hazards such as electrical shock.

1-1-1. Warnings

WARNING

For continued safety, do not attempt to modify the circuit board.
Disconnect the AC power and DC power jack before servicing.

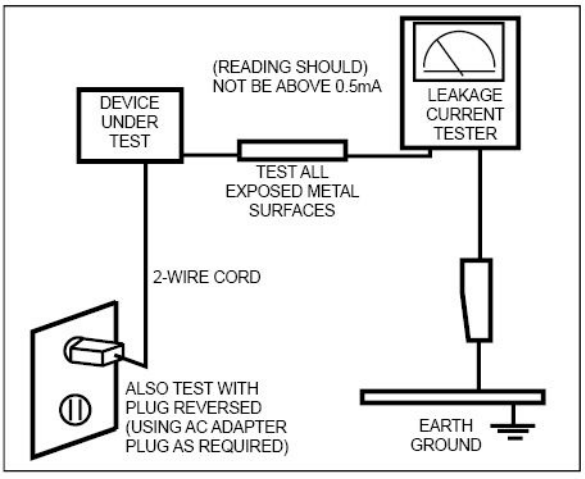
1-1-2. Servicing the LED TV

1. When servicing the LED TV, Disconnect the AC line cord from the AC outlet.
2. It is essential that service technicians have an accurate voltage meter available at all times. Check the calibration of this meter periodically.

1-1-3. Fire and Shock Hazard

Before returning the monitor to the user, perform the following safety checks:

1. Inspect each lead dress to make certain that the leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the monitor.
2. Inspect all protective devices such as nonmetallic control knobs, insulating materials, cabinet backs, adjustment and compartment covers or shields, isolation resistorcapacitor networks, mechanical insulators, etc.
3. Leakage Current Hot Check:



WARNING

Do not use an isolation transformer during this test.
Use a leakage current tester or a metering system that complies with American National Standards Institute (ANSI C101.1, Leakage Current for Appliances), and Underwriters Laboratories (UL Publication UL1410, 59.7).

4. With the unit completely reassembled, plug the AC line cord directly into a 120V AC outlet. With the unit's AC switch first in the ON position and then OFF, measure the current between a known earth ground (metal water pipe, conduit, etc.) and all exposed metal parts, including: metal cabinets, screwheads and control shafts.
   The current measured should not exceed 0.5 milliamp.
   Reverse the power-plug prongs in the AC outlet and repeat the test.

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1-1-4. Product Safety Notices

Some electrical and mechanical parts have special safetyrelated characteristics which are often not evident from visual inspection. The protection they give may not be obtained by replacing them with components rated for higher voltage, wattage, etc. Parts that have special safety characteristics are identified by ⚠ on schematics and parts lists. A substitute replacement that does not have the same safety characteristics as the recommended replacement part might create shock, fire and/or other hazards. Product safety is under review continuously and new instructions are issued whenever appropriate.

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1.2. Servicing Precautions

An electrolytic capacitor installed with the wrong polarity might explode.

Before servicing units covered by this service manual, read and follow the Safety Precautions section of this manual.

If unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions, always follow the safety precautions.

1-2-1. General Servicing Precautions

1. Always unplug the unit's AC power cord from the AC power source and disconnect the DC Power Jack before attempting to: (a) remove or reinstall any component or assembly, (b) disconnect PCB plugs or connectors, (c) connect a test component in parallel with an electrolytic capacitor.
2. Some components are raised above the printed circuit board for safety. An insulation tube or tape is sometimes used. The internal wiring is sometimes clamped to prevent contact with thermally hot components. Reinstall all such elements to their original position.
3. After servicing, always check that the screws, components and wiring have been correctly reinstalled. Make sure that the area around the serviced part has not been damaged.
4. Check the insulation between the blades of the AC plug and accessible conductive parts (examples: metal panels, input terminals and earphone jacks).
5. Insulation Checking Procedure: Disconnect the power cord from the AC source and turn the power switch ON. Connect an insulation resistance meter (500 V) to theblades of the AC plug. The insulation resistance between each blade of the AC plug and accessible conductive parts (see above) should be greater than 1 megohm.
6. Always connect a test instrument's ground lead to the instrument chassis ground before connecting the positive lead; always remove the instrument's ground lead last.

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1.3. Static Electricity Precautions

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

1. Immediately before handling any semiconductor components or assemblies, drain the electrostatic charge from your body by touching a known earth ground. Alternatively, wear a discharging wrist-strap device. To avoid a shock hazard, be sure to remove the wrist strap before applying power to the monitor.
2. After removing an ESD-equipped assembly, place it on a conductive surface such as aluminum foil to prevent accumulation of an electrostatic charge.
3. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ESDs.
4. Use only a grounded-tip soldering iron to solder or desolder ESDs.
5. Use only an anti-static solder removal device. Some solder removal devices not classified as “anti-static” can generate electrical charges sufficient to damage ESDs.
6. Do not remove a replacement ESD from its protective package until you are ready to install it. Most replacement ESDs are packaged with leads that are electrically shorted together by conductive foam, aluminum foil or other conductive materials.
7. Immediately before removing the protective material from the leads of a replacement ESD, 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 body motions when handling unpackaged replacement ESDs. Motions such as brushing clothes together, or lifting your foot from a carpeted floor can generate enough static electricity to damage an ESD.

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1.4. Installation Precautions

1. For safety reasons, more than a people are required for carrying the product.
2. Keep the power cord away from any heat emitting devices, as a melted covering may cause fire or electric shock.
3. Do not place the product in areas with poor ventilation such as a bookshelf or closet. The increased internal temperature may cause fire.
4. Bend the external antenna cable when connecting it to the product. This is a measure to protect it from being exposed to moisture. Otherwise, it may cause a fire or electric shock.
5. Make sure to turn the power off and unplug the power cord from the outlet before repositioning the product. Also check the antenna cable or the external connectors if they are fully unplugged. Damage to the cord may cause fire or electric shock.
6. Keep the antenna far away from any high-voltage cables and install it firmly. Contact with the highvoltage cable or the antenna falling over may cause fire or electric shock.
7. When installing the product, leave enough space (0.4m) between the product and the wall for ventilation purposes. A rise in temperature within the product may cause fire.

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2. Product Specifications

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2.1. Product Information

2-1-1. Model Comparison

Model	UN**EH6030G		
Front View	* W : Width H : High D : Depth		
Detail View			
Front Color	Black (panel)		
Dimensions (W x H x D)	32"	Set with Stand	739.4 x 498.6 x 191.6 mm / 29.1 x 19.6 x 7.5 inches
		Set without Stand	739.4 x 442.7 x 93.2 mm / 29.1 x 17.4 x 3.7 inches
	40"	Set with Stand	927.5 x 607.2 x 227.6 mm / 36.5 x 23.9 x 9.0 inches
		Set without Stand	927.5 x 548.0 x 93.1 mm / 36.5 x 21.6 x 3.7 inches
	46"	Set with Stand	1060.0 x 681.1 x 277.6 mm / 41.7 x 26.8 x 10.9 inches
		Set without Stand	1060.0 x 622.5 x 96.2 mm / 41.7 x 24.5 x 3.8 inches
	55"	Set with Stand	1251.4 x 789.6 x 277.6 mm / 48.7 x 31.1 x 10.9 inches
		Set without Stand	1251.4 x 730.1 x 94.4 mm / 48.7 x 28.7 x 3.7 inches
Weight	32"	Set with Stand	6.3 kg / 13.9 lbs
		Set without Stand	5.6 kg / 12.3 lbs
	40"	Set with Stand	10.9 kg / 24.0 lbs
		Set without Stand	8.9 kg / 19.6 lbs
	46"	Set with Stand	13.3 kg / 29.3 lbs
		Set without Stand	11.3 kg / 24.9 lbs
	55"	Set with Stand	20.6 kg / 45.4 lbs
		Set without Stand	18.0 kg / 39.7 lbs
Panel Type	Anti Glare		
Internal Memory	256 Mbtye		
DDR	512 Mbtye		
Feature	Samsung 3D		

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2-1-2. Feature & Specifications

Model	UN32EH6030G

Feature

- Digital-TV, RF, 2-HDMI, 1-Component, 1-A/V, 1-USB2.0, LAN
- Brightness : 350 cd/m^2
- Response Time : 6 ms
- Clear Motion Rate : 200/240 Hz
- Dynamic contrast Ratio : 16.7 Mega Contrast, Super-PVA
- Samsung 3D, Dolby Digital+, SRS TheaterSound HD

Specifications		
Item	**Description**	
LCD Panel	32 inch FHD 120 Hz	
Scanning Frequency	Horizontal : 60 kHz ~ 73 kHz (Automatic) Vertical : 47 Hz ~ 63 Hz (Automatic)	
Display Colors	16.7M color	
Maximum Resolution	Horizontal : 1920 Pixels Vertical : 1080 Pixels	
Input Signal	Analog 0.7 Vp-p ± 5% positive at 75Ω, internally terminated	
Maximum Pixel Clock Rate	74.25 MHz	
Active Display (H x V)* * Horizontal x Vertical	703.4 (H) x 397.8 (V) mm / 28.7 (H) x 16.2 (V) inches	
AC Power Voltage & Frequency	AC100-240 V 50/60 Hz	
Power Consumption	85 W (Under 0.3 W, Stand by)	
Dimensions (W x H x D)	739.4 x 498.6 x 191.6 mm / 29.1 x 19.6 x 7.5 inches_Set with Stand 739.4 x 442.7 x 93.2 mm / 29.1 x 17.4 x 3.7 inches_Set without Stand	
Weight	6.3 kg / 13.9 lbs_Set with Stand 5.6 kg / 12.3 lbs_Set without Stand	
TV System	Tunning	Frequency Synthesize (Refer to detailed Frequency Table)
	System	ISDB-T, PAL-N, PAN-M, NTSC
	Sound	NTSC-M, Dolby Digital Plus/Pulse
Environmental Considerations	Operating Temperature : 32°F ~ 122°F (0°C ~ 50°C) Operating Humidity : 20% ~ 90% Storage Temperature : -4°F ~ 140°F (-20°C ~ 60°C) Storage Humidity : 10% ~ 90%	
Audio Specifications	MAX Internal Audio Output Power : Each 10 W (Left/Right) Equalizer : 5 Band Output Frequency : RF : 20 Hz ~ 15.4 kHz AV/Componet/HDMI : 20 Hz ~ 20 kHz	
Note : Samsung 3D, 3D Converter, Dolby Digital +, SRS TheaterSound HD, Game Mode, Film Mode, Energy Saving		

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Model	UN40EH6030G
Feature	
• Digital-TV, RF, 2-HDMI, 1-Component, 1-A/V, 1-USB2.0, LAN • Brightness : 350 cd/m^2 • Response Time : 6 ms • Clear Motion Rate : 200/240 Hz • Dynamic contrast Ratio : 16.7 Mega Contrast, Super-PVA • Samsung 3D, Dolby Digital+, SRS TheaterSound HD	

Specifications		
Item	**Description**	
LCD Panel	40 inch FHD 120 Hz	
Scanning Frequency	Horizontal : 60 kHz ~ 73 kHz (Automatic) Vertical : 47 Hz ~ 63 Hz (Automatic)	
Display Colors	16.7M color	
Maximum Resolution	Horizontal : 1920 Pixels Vertical : 1080 Pixels	
Input Signal	Analog 0.7 Vp-p ± 5% positive at 75Ω, internally terminated	
Maximum Pixel Clock Rate	74.25 MHz	
Active Display (H x V)* * Horizontal x Vertical	890.6 (H) x 503.2 (V) mm / 36.4 (H) x 20.5 (V) inches	
AC Power Voltage & Frequency	AC100-240 V 50/60 Hz	
Power Consumption	108 W (Under 0.3 W, Stand by)	
Dimensions (W x H x D)	927.5 x 607.2 x 227.6 mm / 36.5 x 23.9 x 9.0 inches_Set with Stand 927.5 x 548.0 x 93.1 mm / 36.5 x 21.6 x 3.7 inches_Set without Stand	
Weight	10.9 kg / 24.0 lbs_Set with Stand 8.9 kg / 19.6 lbs_Set without Stand	
TV System	Tunning	Frequency Synthesize (Refer to detailed Frequency Table)
	System	ISDB-T, PAL-N, PAN-M, NTSC
	Sound	NTSC-M, Dolby Digital Plus/Pulse
Environmental Considerations	Operating Temperature : 32°F ~ 122°F (0°C ~ 50°C) Operating Humidity : 20% ~ 90% Storage Temperature : -4°F ~ 140°F (-20°C ~ 60°C) Storage Humidity : 10% ~ 90%	
Audio Specifications	MAX Internal Audio Output Power : Each 10 W (Left/Right) Equalizer : 5 Band Output Frequency : RF : 20 Hz ~ 15.4 kHz AV/Componet/HDMI : 20 Hz ~ 20 kHz	
Note : Samsung 3D, 3D Converter, Dolby Digital +, SRS TheaterSound HD, Game Mode, Film Mode, Energy Saving		

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Model	UN46EH6030G
Feature	
• Digital-TV, RF, 2-HDMI, 1-Component, 1-A/V, 1-USB2.0, LAN • Brightness : 350 cd/m^2 • Response Time : 6 ms • Clear Motion Rate : 200/240 Hz • Dynamic contrast Ratio : 16.7 Mega Contrast, Super-PVA • Samsung 3D, Dolby Digital+, SRS TheaterSound HD	

Specifications		
Item	**Description**	
LCD Panel	46 inch FHD 120 Hz	
Scanning Frequency	Horizontal : 60 kHz ~ 73 kHz (Automatic) Vertical : 47 Hz ~ 63 Hz (Automatic)	
Display Colors	16.7M color	
Maximum Resolution	Horizontal : 1920 Pixels Vertical : 1080 Pixels	
Input Signal	Analog 0.7 Vp-p ± 5% positive at 75Ω, internally terminated	
Maximum Pixel Clock Rate	74.25 MHz	
Active Display (H x V)* * Horizontal x Vertical	1023.0 (H) x 577.6 (V) mm / 41.8 (H) x 23.6 (V) inches	
AC Power Voltage & Frequency	AC100-240 V 50/60 Hz	
Power Consumption	110 W (Under 0.3 W, Stand by)	
Dimensions (W x H x D)	1060.0 x 681.1 x 277.6 mm / 41.7 x 26.8 x 10.9 inches_Set with Stand 1060.0 x 622.5 x 96.2 mm / 41.7 x 24.5 x 3.8 inches_Set without Stand	
Weight	13.3 kg / 29.3 lbs_Set with Stand 11.3 kg / 24.9 lbs_Set without Stand	
TV System	Tunning	Frequency Synthesize (Refer to detailed Frequency Table)
	System	ISDB-T, PAL-N, PAN-M, NTSC
	Sound	NTSC-M, Dolby Digital Plus/Pulse
Environmental Considerations	Operating Temperature : 32°F ~ 122°F (0°C ~ 50°C) Operating Humidity : 20% ~ 90% Storage Temperature : -4°F ~ 140°F (-20°C ~ 60°C) Storage Humidity : 10% ~ 90%	
Audio Specifications	MAX Internal Audio Output Power : Each 10 W (Left/Right) Equalizer : 5 Band Output Frequency : RF : 20 Hz ~ 15.4 kHz AV/Componet/HDMI : 20 Hz ~ 20 kHz	
Note : Samsung 3D, 3D Converter, Dolby Digital +, SRS TheaterSound HD, Game Mode, Film Mode, Energy Saving		

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Model	UN55EH6030G
Feature	
• Digital-TV, RF, 2-HDMI, 1-Component, 1-A/V, 1-USB2.0, LAN • Brightness : 350 cd/m^2 • Response Time : 6 ms • Clear Motion Rate : 200/240 Hz • Dynamic contrast Ratio : 16.7 Mega Contrast, Super-PVA • Samsung 3D, Dolby Digital+, SRS TheaterSound HD	

Specifications		
Item	**Description**	
LCD Panel	55 inch FHD 120 Hz	
Scanning Frequency	Horizontal : 60 kHz ~ 73 kHz (Automatic) Vertical : 47 Hz ~ 63 Hz (Automatic)	
Display Colors	16.7M color	
Maximum Resolution	Horizontal : 1920 Pixels Vertical : 1080 Pixels	
Input Signal	Analog 0.7 Vp-p ± 5% positive at 75Ω, internally terminated	
Maximum Pixel Clock Rate	74.25 MHz	
Active Display (H x V)* * Horizontal x Vertical	1213.4 (H) x 684.3 (V) mm / 49.5 (H) x 27.9 (V) inches	
AC Power Voltage & Frequency	AC100-240 V 50/60 Hz	
Power Consumption	139 W (Under 0.3 W, Stand by)	
Dimensions (W x H x D)	1251.4 x 789.6 x 277.6 mm / 48.7 x 31.1 x 10.9 inches_Set with Stand 1251.4 x 730.1 x 94.4 mm / 48.7 x 28.7 x 3.7 inches_Set without Stand	
Weight	20.6 kg / 45.4 lbs_Set with Stand 18.0 kg / 39.7 lbs_Set without Stand	
TV System	Tunning	Frequency Synthesize (Refer to detailed Frequency Table)
	System	ISDB-T, PAL-N, PAN-M, NTSC
	Sound	NTSC-M, Dolby Digital Plus/Pulse
Environmental Considerations	Operating Temperature : 32°F ~ 122°F (0°C ~ 50°C) Operating Humidity : 20% ~ 90% Storage Temperature : -4°F ~ 140°F (-20°C ~ 60°C) Storage Humidity : 10% ~ 90%	
Audio Specifications	MAX Internal Audio Output Power : Each 10 W (Left/Right) Equalizer : 5 Band Output Frequency : RF : 20 Hz ~ 15.4 kHz AV/Componet/HDMI : 20 Hz ~ 20 kHz	
Note : Samsung 3D, 3D Converter, Dolby Digital +, SRS TheaterSound HD, Game Mode, Film Mode, Energy Saving		

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2-1-3. Specification Comparison to Old Models

Model	UE6Q(UN**EH6030G)	UD6V(UE**D6500**)
Design		
Diplay Type	LED TV	LED TV
Built-in TUEer	O	O
Resolution	1920 x 1080	1920 x 1080
LCD Panel	TFT LCD Panel 120 Hz	TFT LCD Panel 120 Hz
Screen Size	32"/40"/46"/55"	32"/37"/40"/46"/55"/60"
Picture ratio	16:9	16:9
Contrast Ratio	MEGA	MEGA
Picture Enhancer	3D HyperReal Engine	3D HyperReal Engine
Wide Color Enhance Plus	Wide Color Enhance Plus	Wide Color Enhance Plus
Equalizer	5 Band	5 Band
Auto Volume Control	O	O
Surround Sound	Dolby Digital Plus/Pulse	Dolby Digital Plus
Speaker Output	10 W x 10 W	10 W x 10 W
PIP	X	O
FUEction	Jog Function	Touch Fuction
Caption	O	O
Game Mode	O	O
Energy Saving	O	O
3D	O	X
Antenna	1 (Cable/Air)	1 (Cable/Air)

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2.2. Detail Factory Option

NOTE

If you replace the main board with new one, please change the factory option as well.
The options you must change are "Type".

Model Name		UN32EH6030G	UN40EH6030G	UN46EH6030G	UN55EH6030G
PANEL	Vendor	AML	AML	AML	AML
	Code	BN95-00697A	BN95-00699A	BN95-00701A	BN95-00703A
	Spec.	LTJ320HW10-V	LTJ400HV11-V	LTJ460HW10-V	LTJ550HW13-V
SMPS	Vendor	SEM	SEM	SEM	HANSOE
	Code	BN44-00551A	BN44-00552A	BN44-00552A	BN44-00556A
	Spec.	PD32CV1_CSM	PD46CV1_CSM	PD46CV1_CSM	PD55CV1_CHS
MAIN	Chassis Ass'y	Depending on Region, Chassis Ass'y is different.			
	PBA Ass'y	Depending on Region, PBA Ass'y code is different.			
Byte	Item				
0	Factory Reset	-	-	-	-
1	Type	32A1AF6D	40A1AF6D	46A1AF6D	55A1AF6D
2	Local Set	BRA_DTV (Depending on Region, Local Set is different.)			
3	Basic Model	UE6030	UE6030	UE6030	UE6030
4	SVC Model	6030	6030	6030	6030
5	TUNER	SEC_ISDB	SEC_ISDB	SEC_ISDB	SEC_ISDB
6	Ch Table	-	-	-	-
7	Front Color	U-S-BK	U-S-BK	U-S-BK	U-S-BK

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2.3. Accessories

Product	Description	Code. No	Remark
	Remote Control	AA59-00604A	Samsung Electronics Service center
	Batteries (AAA x 2)	4301-000121	
	Power Cord	3903-000599	
	Warranty Card	BN68-03176A	
	Safety Guide	AA68-03242L	
	User Manual	BN68-04469F	
	3D Glasses	BN96-22902A	
	Holder-Wire Stand	BN61-05491A	

NOTE

The part code for some accessories may differ depending on your region.

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3. Disassembly and Reassembly

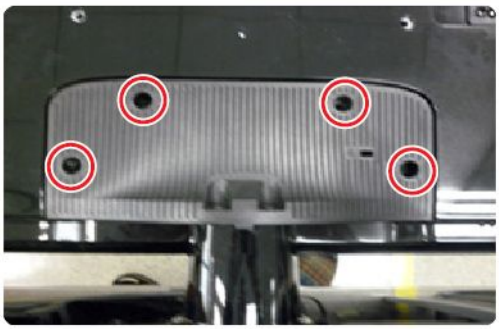
This section of the service manual describes the disassembly and reassembly procedures for the LED TV.

WARNING This LED TV contains electrostatically sensitive devices. Use caution when handling these components.

3.1. Disassembly and Reassembly

CAUTION

1. Disconnect the LED TV from the power source before disassembly.
2. Follow these directions carefully; never use metal instruments to pry apart the cabinet.
3. If there is no additional coment, it is same for all inches.

Description	Picture Description	Screws
1 Place TV face down on cushioned table.		
2 Remove 4 screws from the Stand.		6003-001782
3 Remove Stand.		

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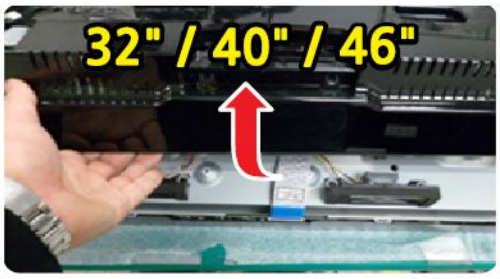
	Description	Picture Description	Screws
4	Remove screws of ASSY COVER P-REAR. • 32" : 10 EA / 4 EA • 40" : 12 EA / 4 EA • 46" : 14 EA / 4 EA		6003-001782 6003-002755
	Remove screws of COVER MIDDLE and ASSY COVER P-REAR. • 55": 17 EA / 4 EA		6003-001782 6003-002755
5	Remove the ASSY COVER P-REAR.		
	Remove the ASSY COVER P-REAR.		
	Remove the COVER P-MIDDLE.		

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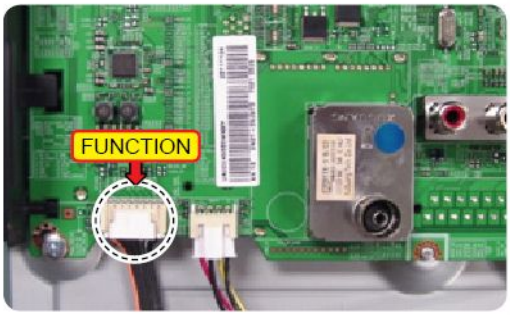
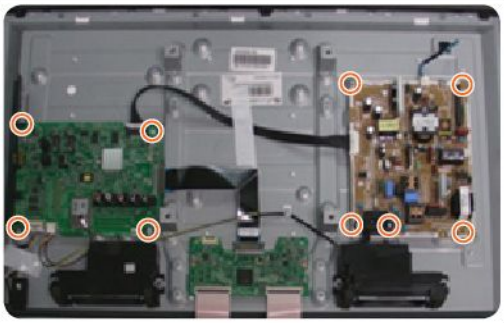
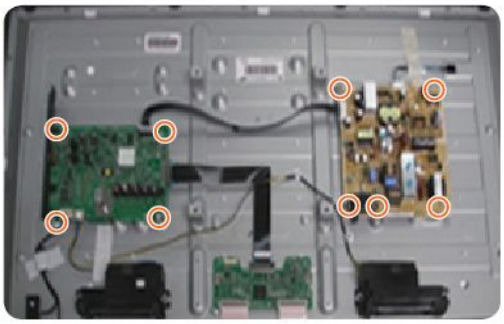
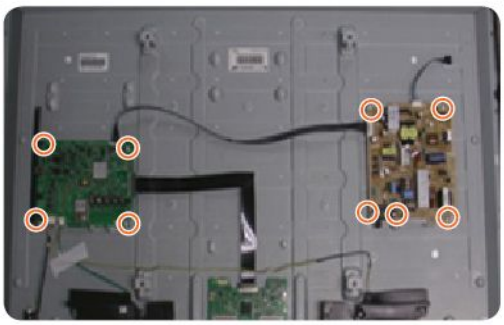
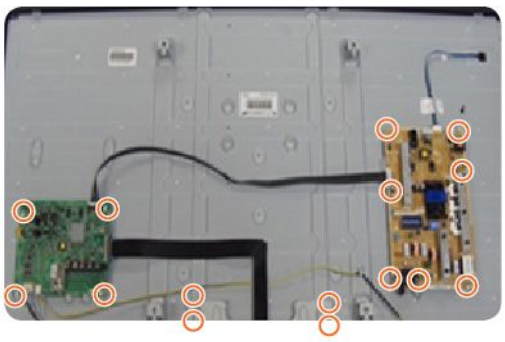
Description	Picture Description	Screws
6 Disconnect the Function Cable.		
7 Remove the screws of MAIN BOARD, SMPS BOARD. • 32" – MAIN BOARD: 4 EA – SMPS BOARD: 5 EA		 6001-002756
• 40" – MAIN BOARD: 4 EA – SMPS BOARD: 5 EA		 6001-002756
• 40" – MAIN BOARD: 4 EA – SMPS BOARD: 5 EA		 6001-002756
• 55" – MAIN BOARD: 4 EA – SMPS BOARD: 7 EA – T-CON BOARD: 4 EA		 6001-002756

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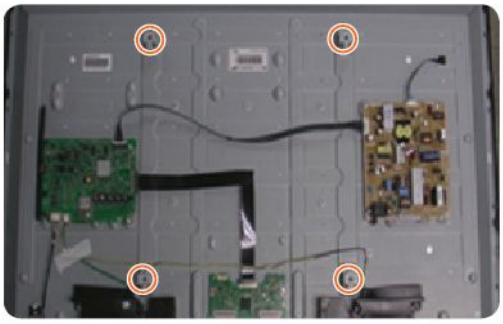
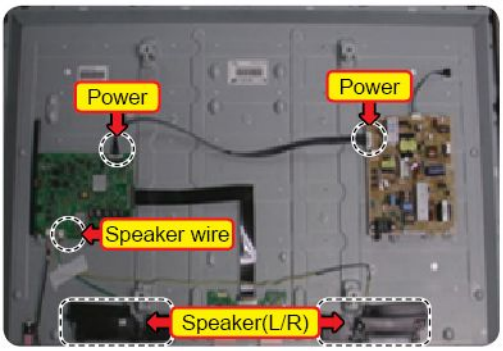
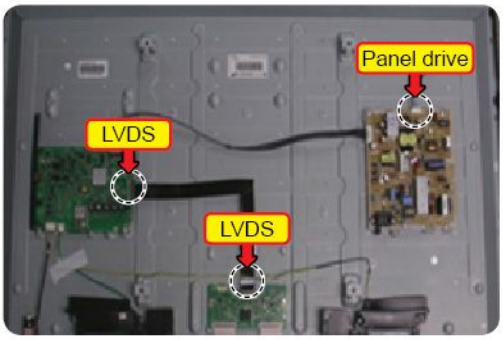
Description	Picture Description	Screws
8 Remove the 4 screws of BRACKET-WALL.		6001-002756
9 Remove the ASSY SPEAKER (L/R) and Power Cables.		
10 Remove the LVDS Cable and Panel Drive Cable.		
11 Completed disassembly.		

NOTE

Reassembly procedures are in the reverse order of disassembly procedures.

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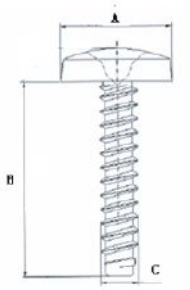
Screw Size

Code No.	COLOR	A (mm)	B (mm)	C (mm)	
6003-001782	BLACK	7.80~8.30	11.20~12.00	3.81~3.91	
6001-002755	BLACK	7.1~7.5	5.7~6.0	2.98~3.02	
6001-002756	WHITE	7.1~7.5	5.7~6.0	2.98~3.02	

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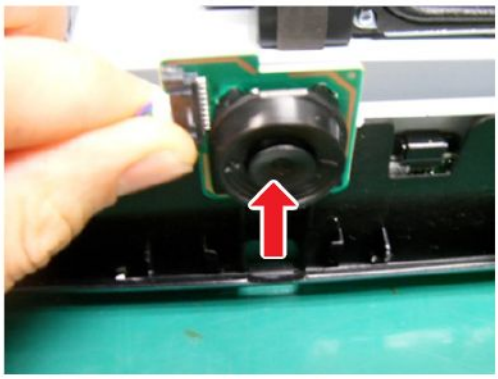
3.2. Function Assy

■ How to Disassembly

Description	Picture Description	Refer
1 Remove the screw.		
2 Remove the Function Assy.		

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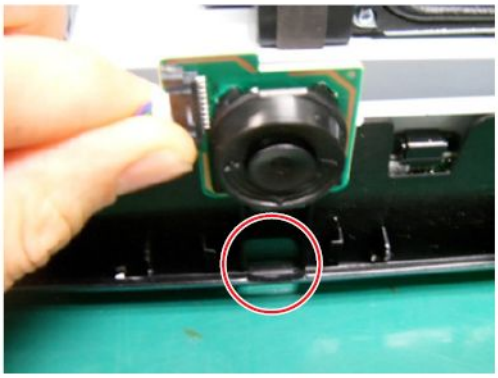
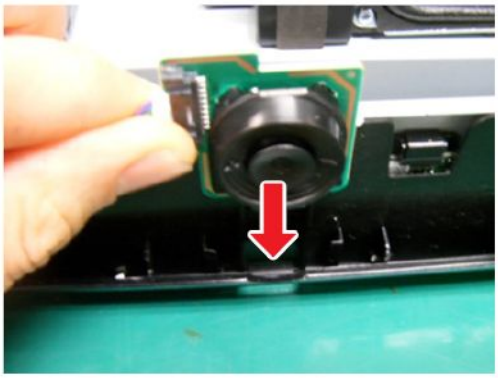
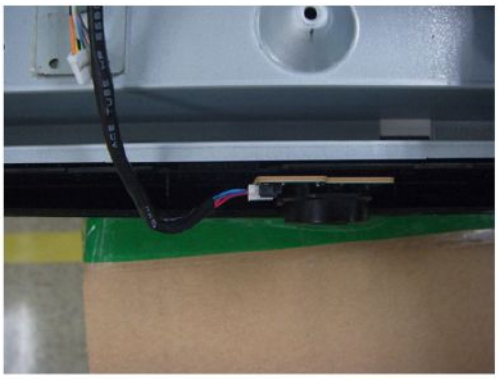
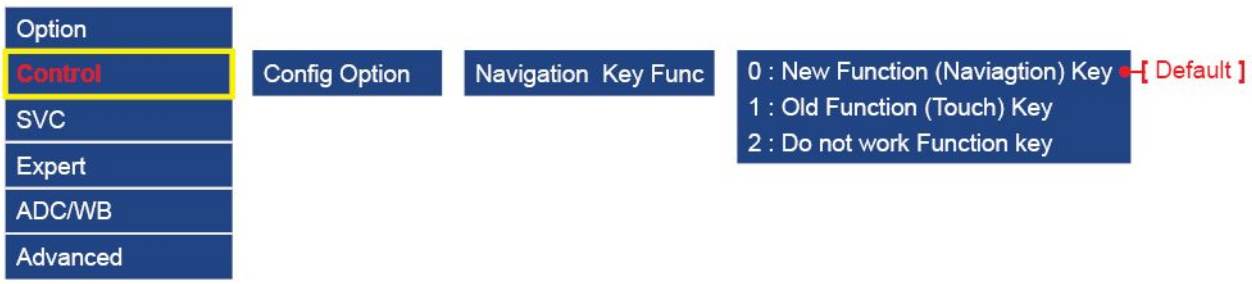
■ How to Assembly

Description	Picture Description	Refer
1 Check the locking hole.		
2 Combine the function assy to locking hole.		
3 Press the function assy to TV.		

When you want to ignore the funtion key actions



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3.3. Disassembly(PTC)

■ How to disassembly

Description	Picture Description	Refer
1 Place TV face up on cushioned table.		
2 Remove the ASSY Function assy.		
3 Spread the both sides of PTC upper (marked "▼") by use the tool. **CAUTION** Do not scratch on both side by use tool. Gate Cof will be damaged. 	 	

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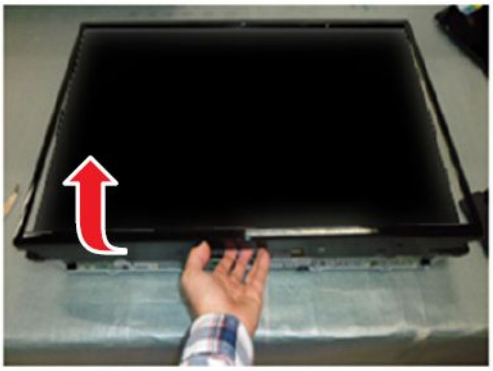
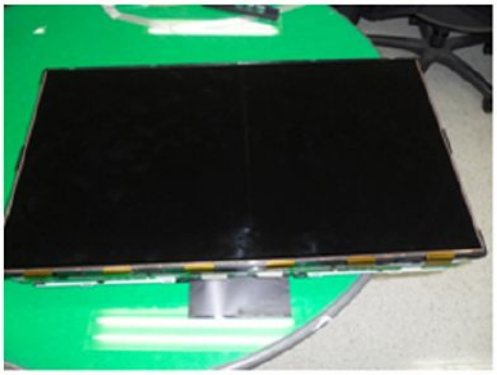
Description	Picture Description	Refer
4 Separate the left and right side of the PTC as shown.		
5 Separate the Bottom of the PTC as shown		
6 Raise up the PTC Bottom.		
7 Disassembly is complete.		

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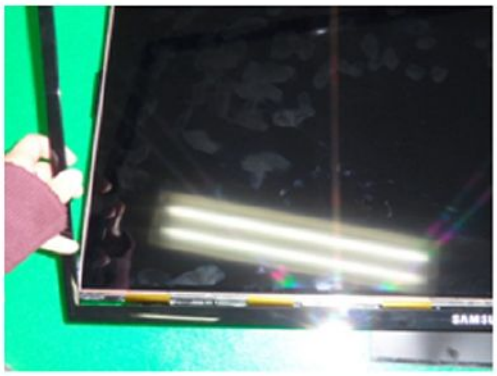
■ How to reassembly

Description	Picture Description	Refer
1 Attach the PTC Bottom first to the Panel.		
2 Secure the plastic latch on the left and right side of the PTC as shown.		

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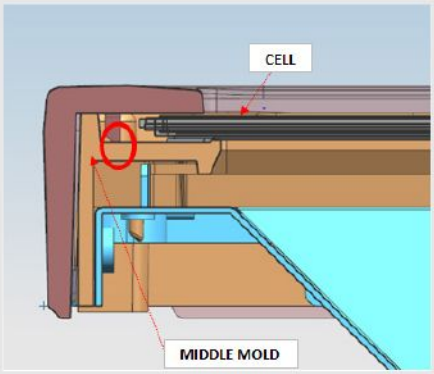
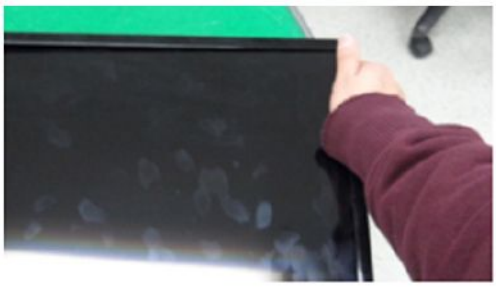
Description	Picture Description	Refer
3 Visually inspect the spacing between the PTC and the Panel for equal clearance. **CAUTION** Combine to stick the PTC Rib into the middle mold. 		
		

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Description	Picture Description	Refer
4 Assembly is complete.		

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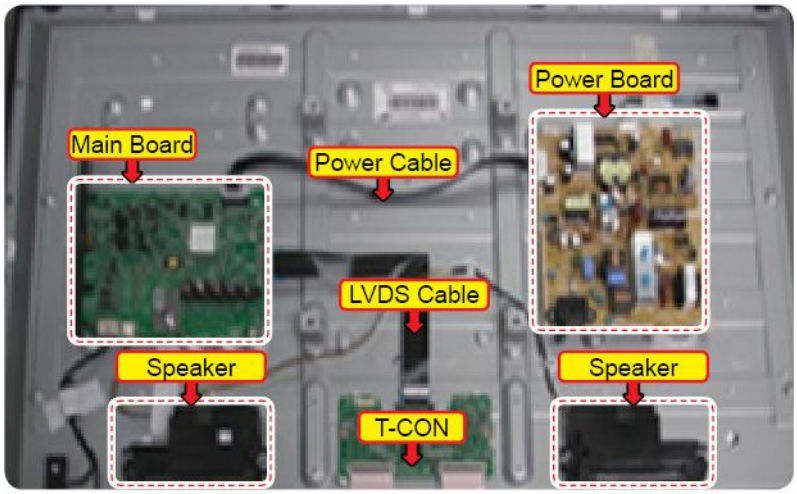
4. Troubleshooting

4.1. Troubleshooting

■ Previous Check

1. Check the various cable connections first.
   - Check to see if there is a burnt or damaged cable.
   - Check to see if there is a disconnected or loose cable connection.
   - Check to see if the cables are connected according to the connection diagram.
2. Check the power input to the Main Board.



3. Check the power in & output between IP & Main Board, Main Board & Panel, IP & Panel.

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■ How to know it is from Main Board or T-Con when some problems happen

1. No Picture : Backlight is on, but there is no picture and LED indicator in front of TV is blinking.
   - Check the LVDS Cable connection. If still problems, change the T-CON Board and then Main Board step by step.
2. Picture distortion : Enter the service mode ⋯› Choose 'SVC' ⋯› Check the 'internal pattern.'
   - Enter 'Service Mode.'
     - If you do not have Factory remote control

       Power OFF → MUTE → 1 → 8 → 2 → Power On
     - If you have Factory remote control

       INFO → Factory
3. Choose 'SVC.'
4. Choose 'Test pattern.'
5. Select the each pattern and then check all pattern is ok or not.

- **For All mode**

NT72558	Echo_FS FRC Post	Picture	Problem
OK	OK	NG	Main Board or Signal Source.
NG	OK	NG	Main Board.
NG	NG	NG	Main or LVDS cable or T-CON or Panel.

- **Only for HDMI mode (additional check)**

HDMI	Picture	Problem
OK	NG	There is no problems after HDMI IC check HDMI source or HDMI jack.
NG	NG	There is no problems before HDMI IC check X10+ pattern or LVDS cable or T-CON.

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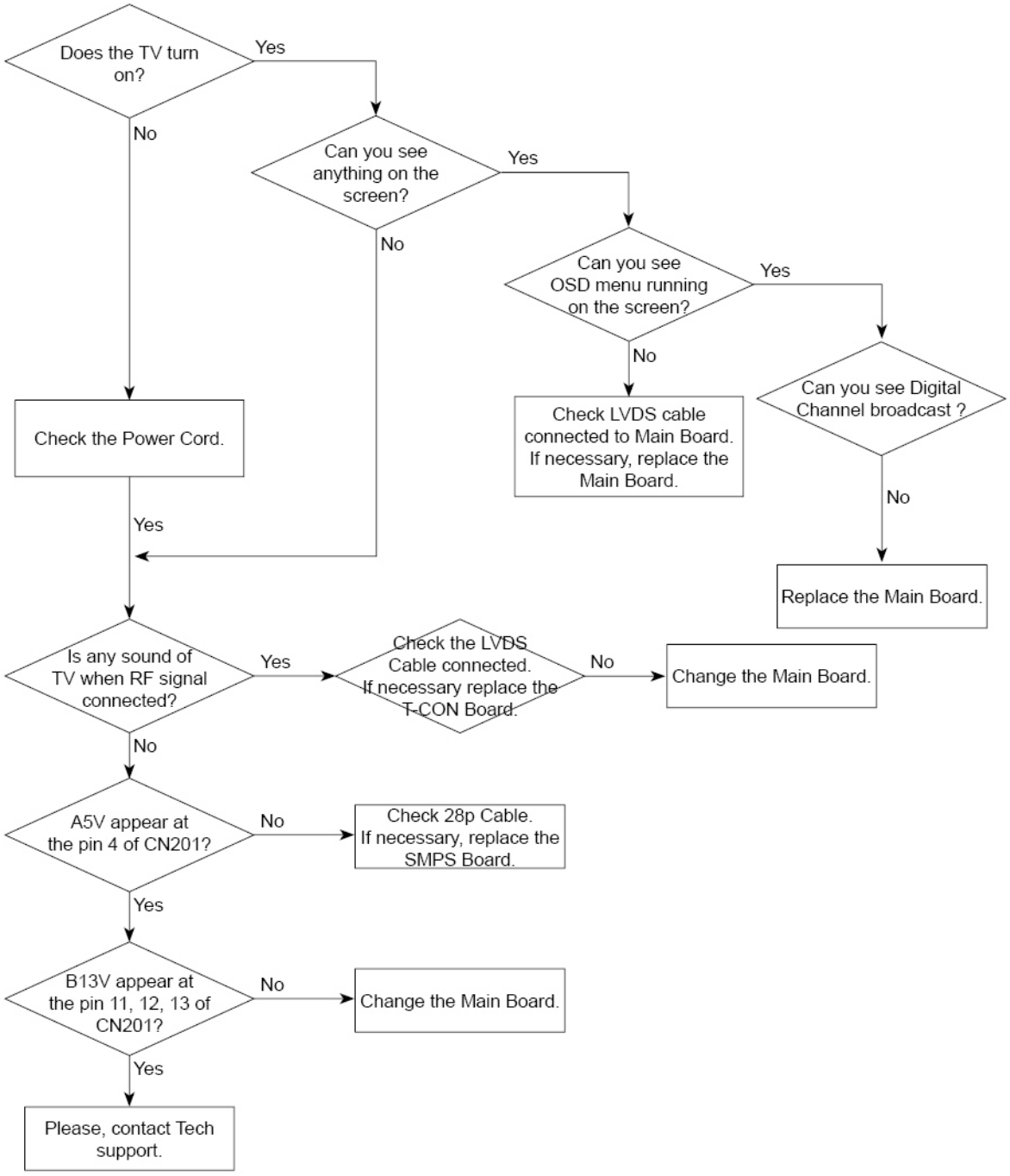
■ Simple flow chart of malfunction



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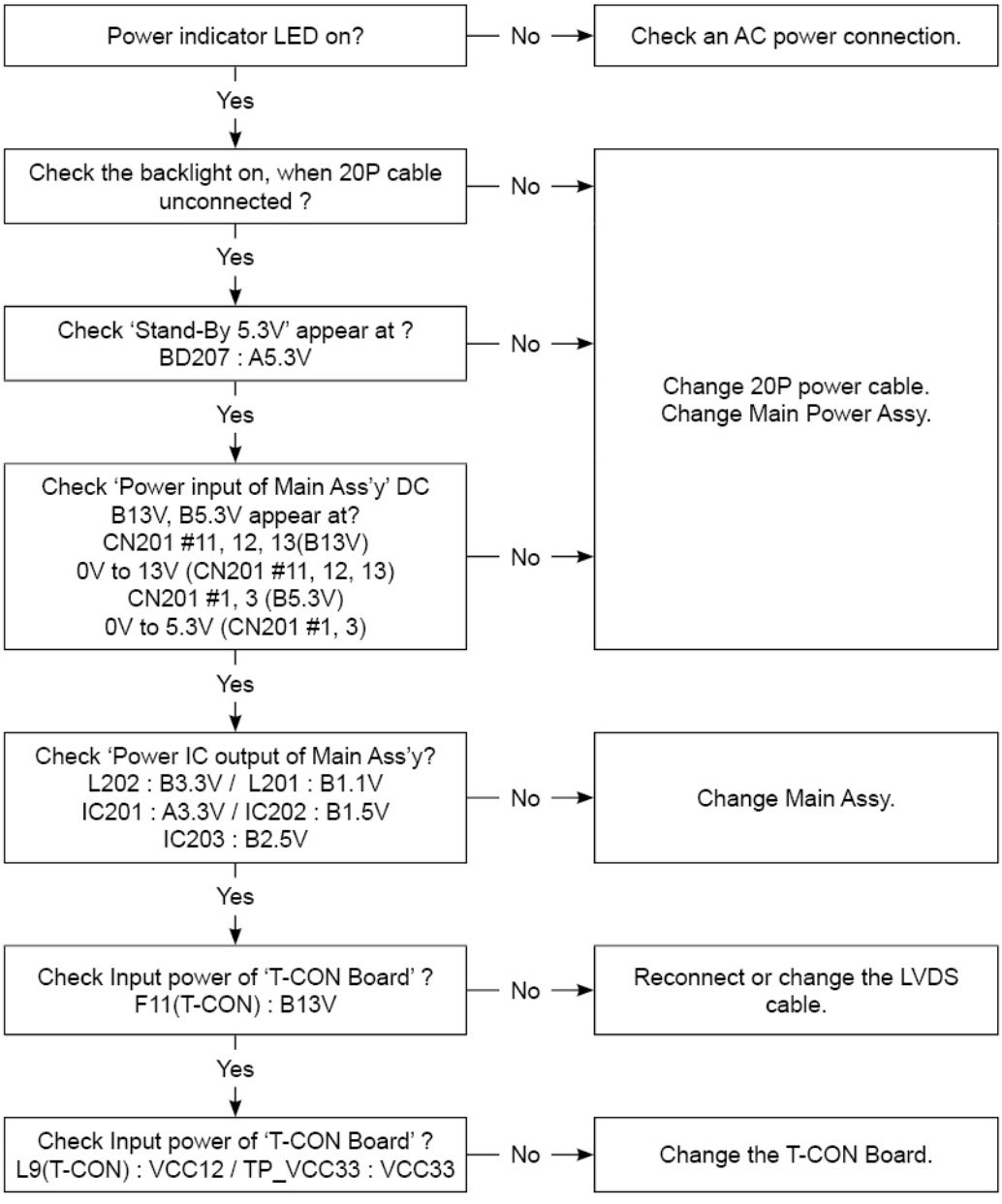
4.2. How to check fault symptom

4-2-1. No Power

Symptom	• The PD board relay does not work when connecting the power cord. • The units appears to be dead.
Major checkpoints	The PD relay does not work when connecting the power cord if the cables are improperly connected or the Main Board or PD is not functioning. In this case, check the following: Check the internal cable connection status inside the unit. • Check the fuses of each part. • Check the output voltage of PD. • Replace the Main Board.
Diagnostics	

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	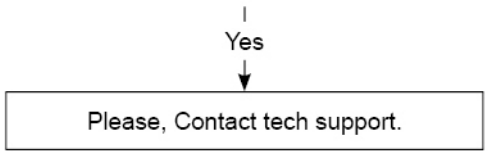
Caution	Make sure to disconnect the power before working on the IP Board.

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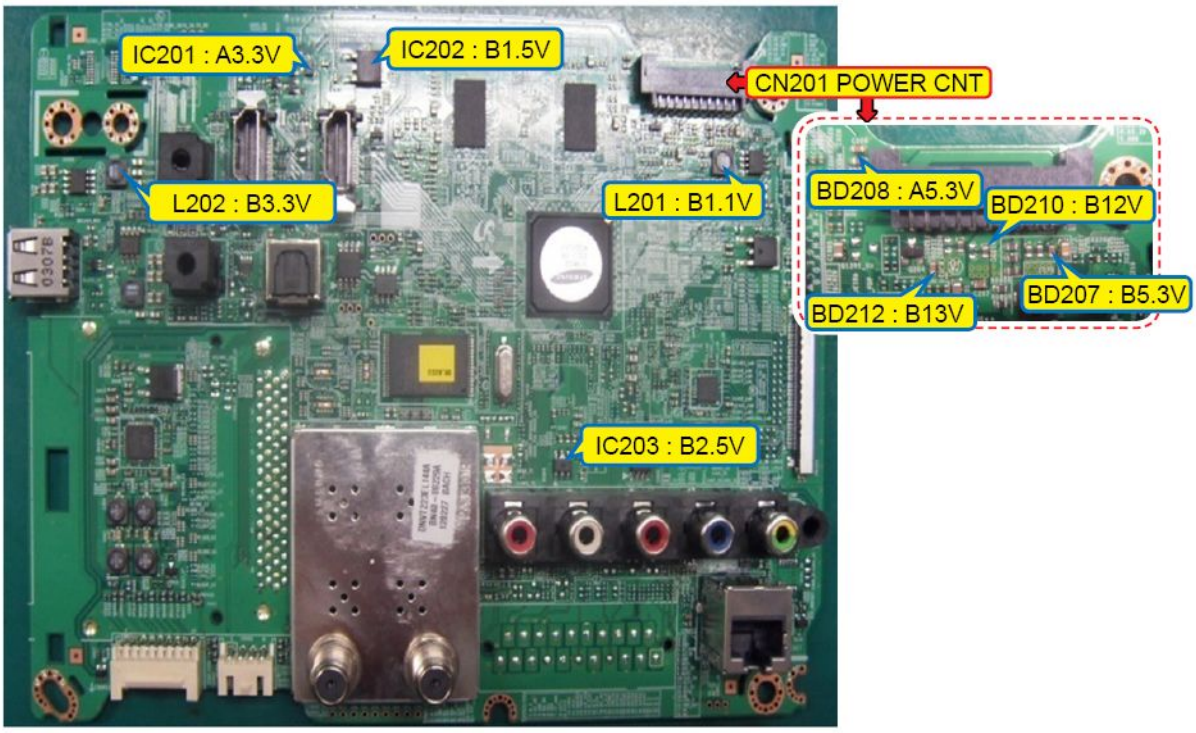
■ Location of Parts

Main Board_Front



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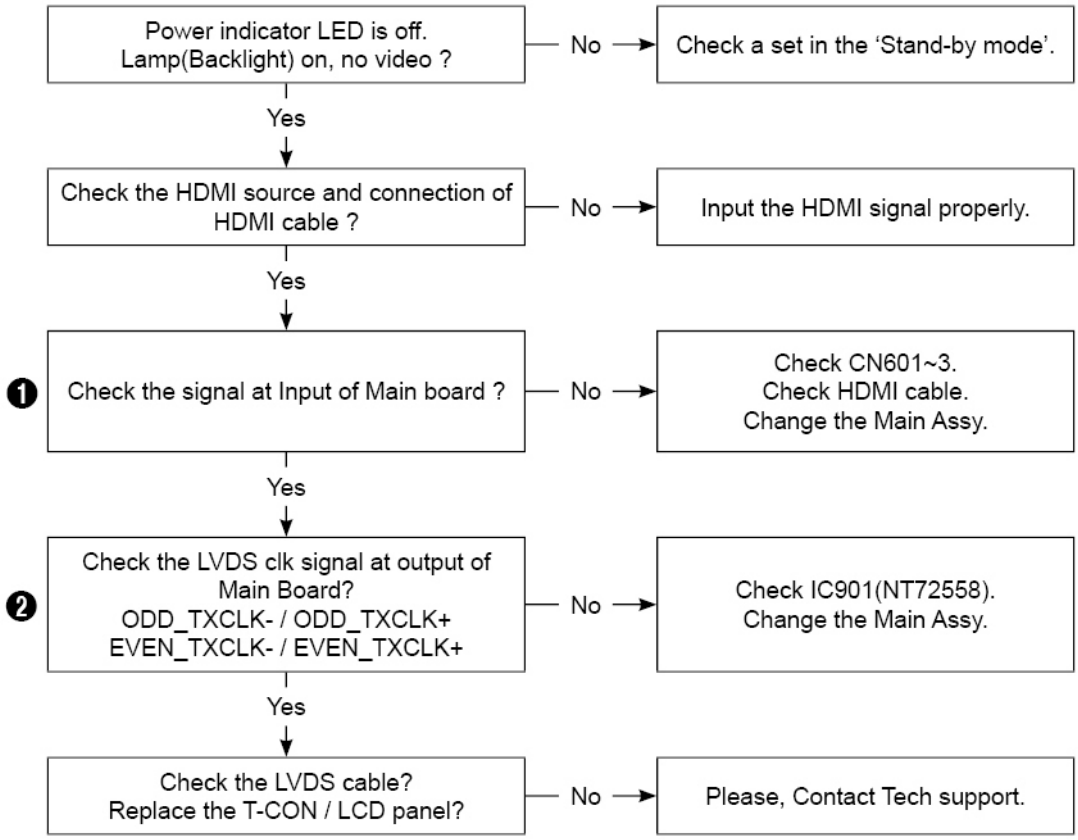
4-2-2. No Video (3-HDMI_Digital signal)

Symptom	Audio is normal but no picture is displayed on the screen.
Major checkpoints	• Check the HDMI source. • Check the HDMI switch. • This may happen when the LVDS cable connecting the Main Board and the Panel is disconnected.
Diagnostics	
Caution	Make sure to disconnect the power before working on the IP Board.

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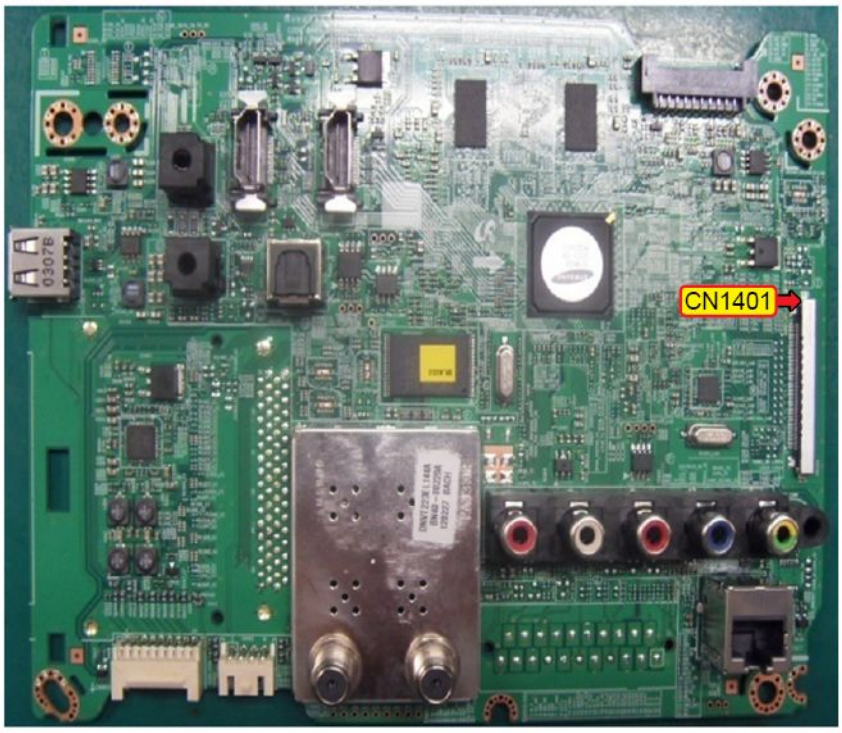
■ Location of Parts

Main Board_Front


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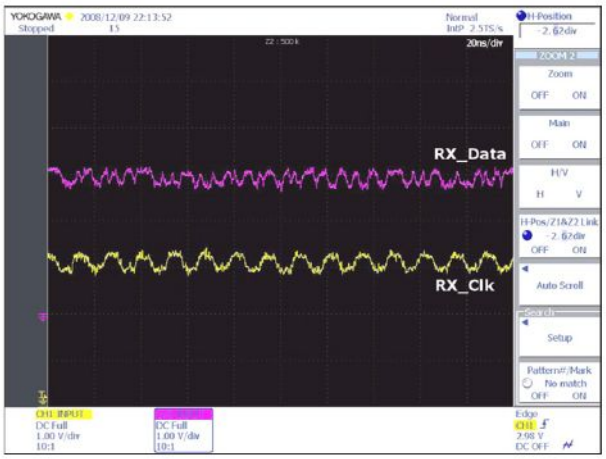
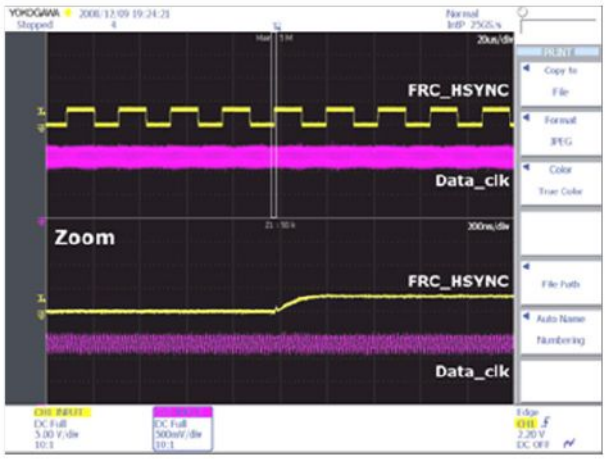
■ Waveforms

❸ HDMI input (RX_Data, RX_Clk)	❷ LVDS output
	

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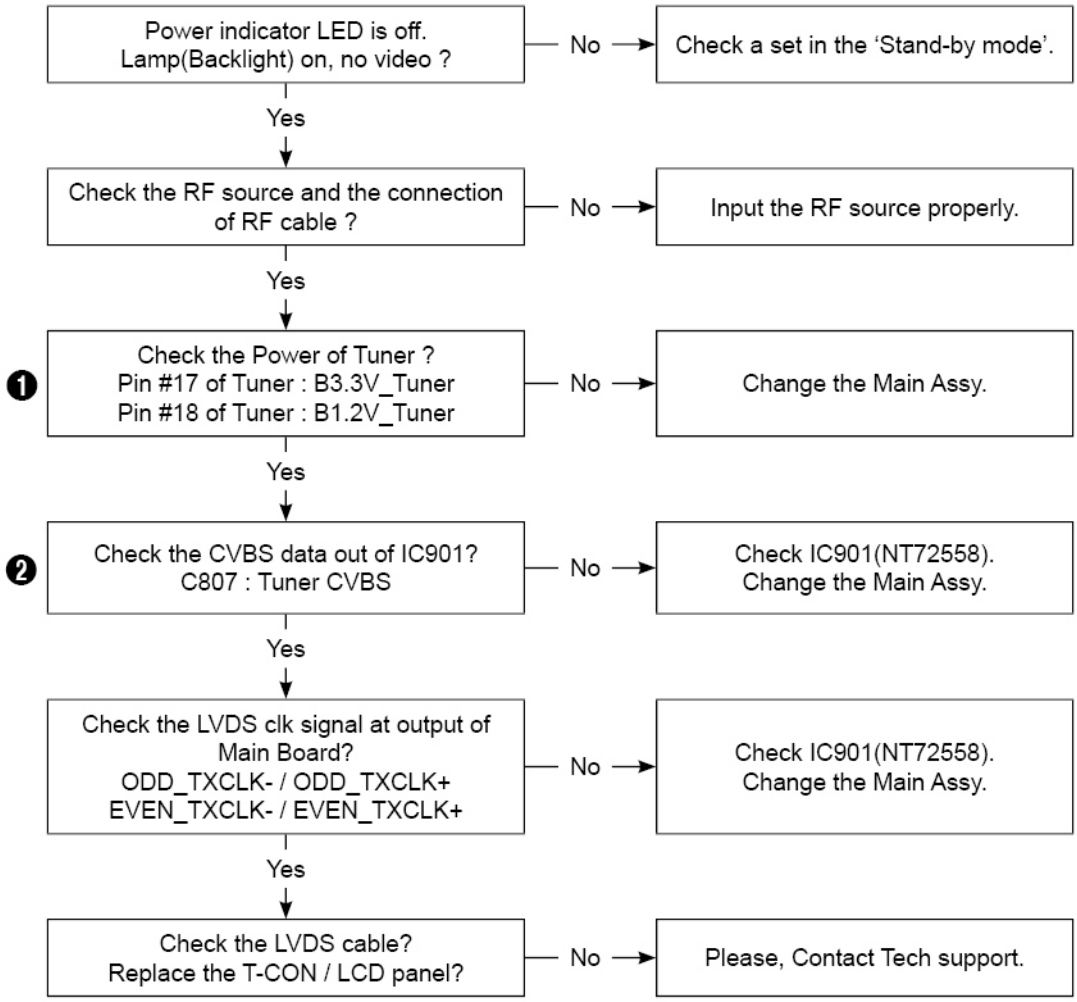
4-2-3. No Video (Tuner_CVBS)

Symptom	Audio is normal but no picture is displayed on the screen.
Major checkpoints	• Check the Tuner CVBS source. • Check the Tuner. • This may happen when the LVDS cable connecting the Main Board and the Panel is disconnected.
Diagnostics	
Caution	Make sure to disconnect the power before working on the IP Board.

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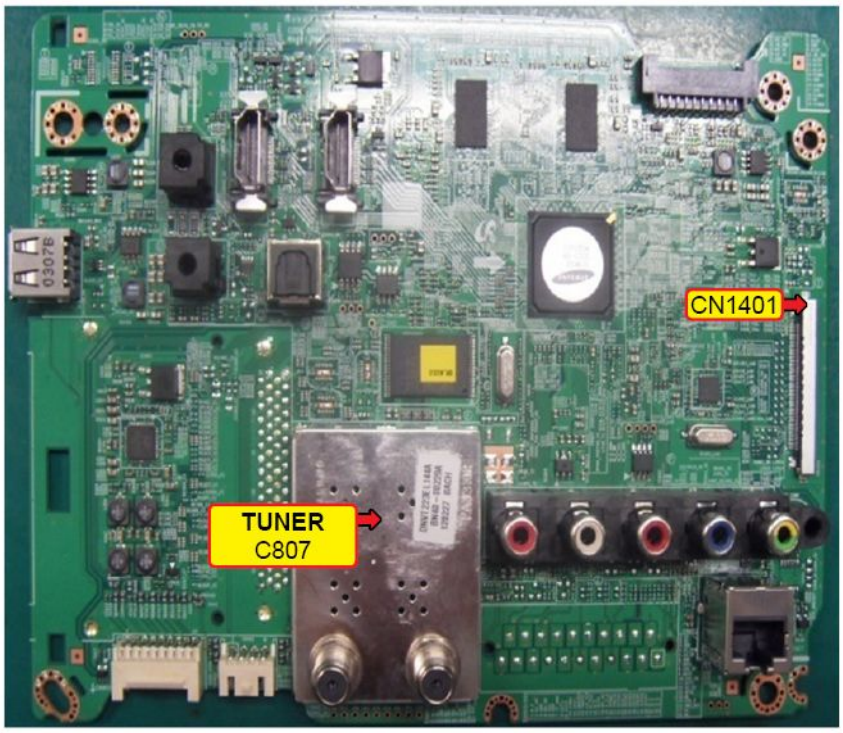
■ Location of Parts

Main Board_Front


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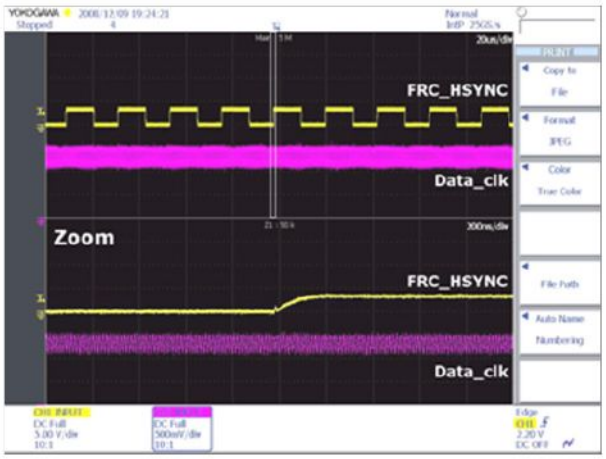
■ Waveforms

❸ CVBS OUT (Grey Bar)	❷ LVDS output
	

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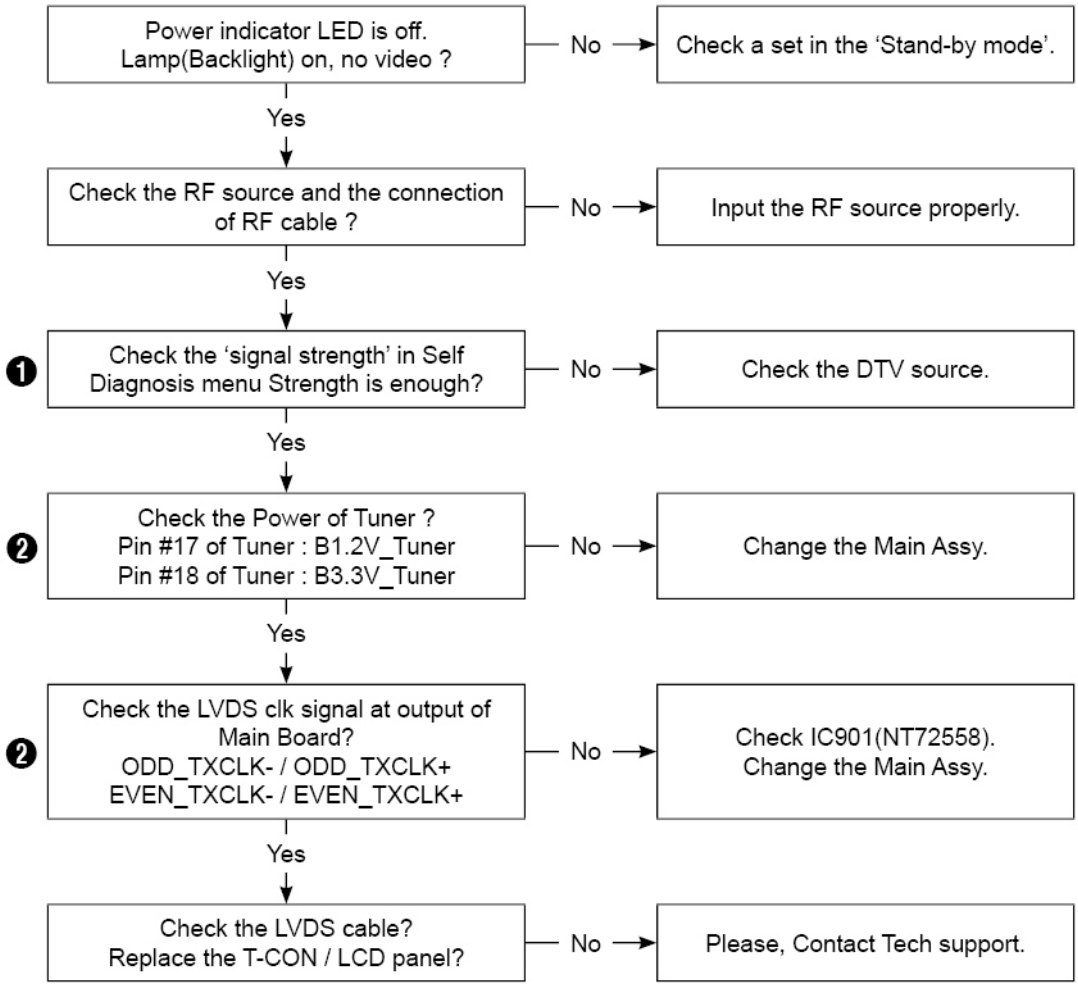
4-2-4. No Video (Tuner_DTV)

Symptom	Audio is normal but no picture is displayed on the screen.
Major checkpoints	• Check the DTV source. • Check the Tuner. • This may happen when the LVDS cable connecting the Main Board and the Panel is disconnected.
Diagnostics	
Caution	Make sure to disconnect the power before working on the IP Board.

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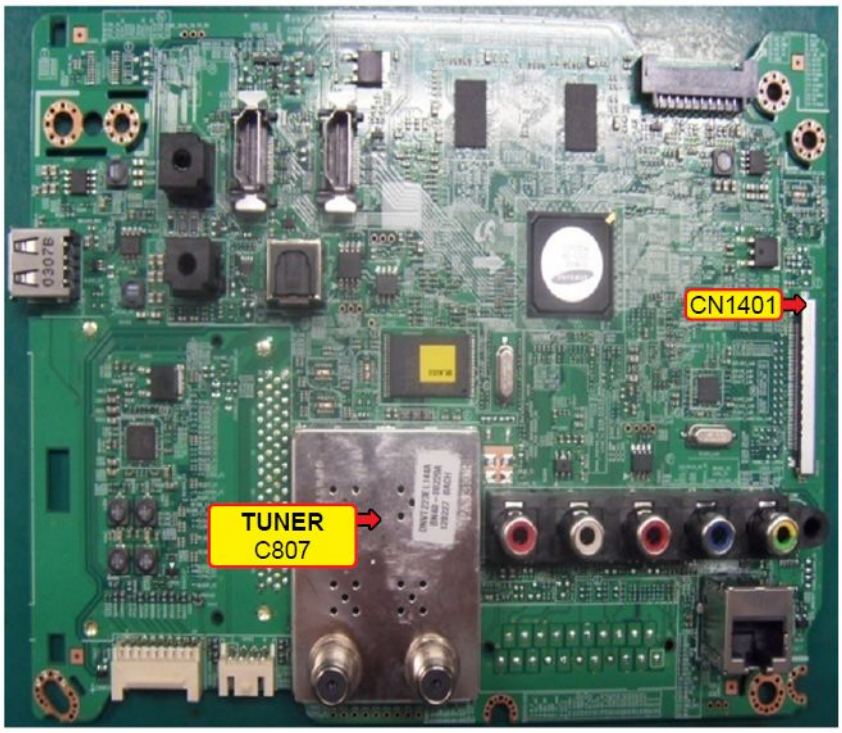
■ Location of Parts

Main Board_Front


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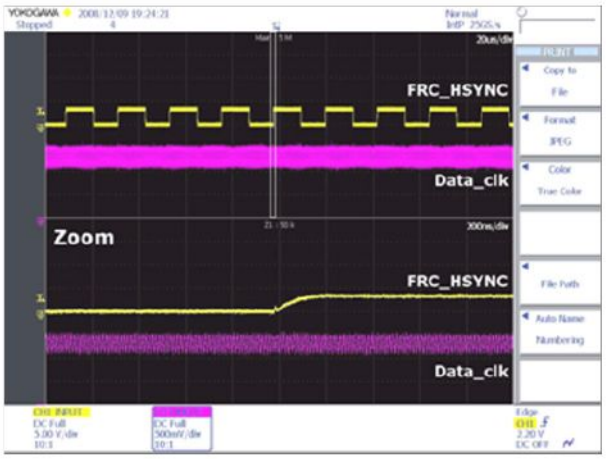
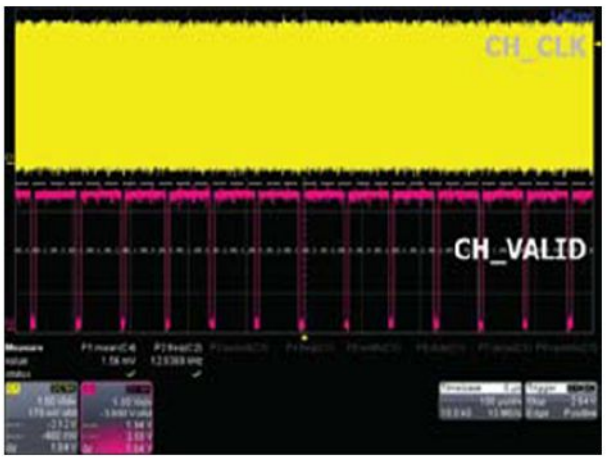
■ Waveforms

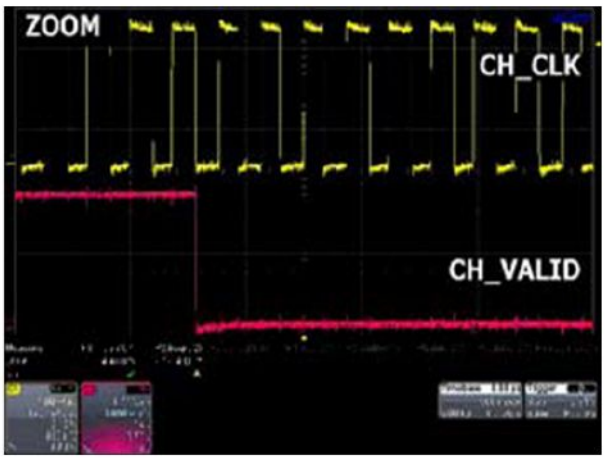
❶ LVDS output



❷ CH_CLK



❷ CH_VALID



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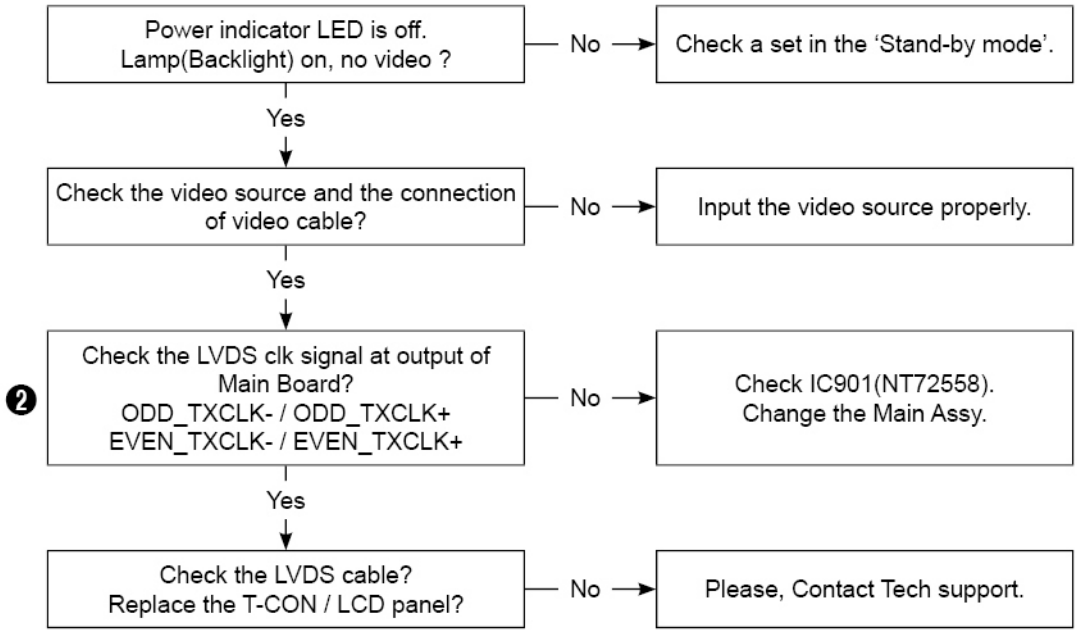
4-2-5. No Video (Video AV 1, 2)

Symptom	Audio is normal but no picture is displayed on the screen.
Major checkpoints	• Check the Video CVBS source. • This may happen when the LVDS cable connecting the Main Board and the Panel is disconnected.
Diagnostics	
Caution	Make sure to disconnect the power before working on the IP Board.

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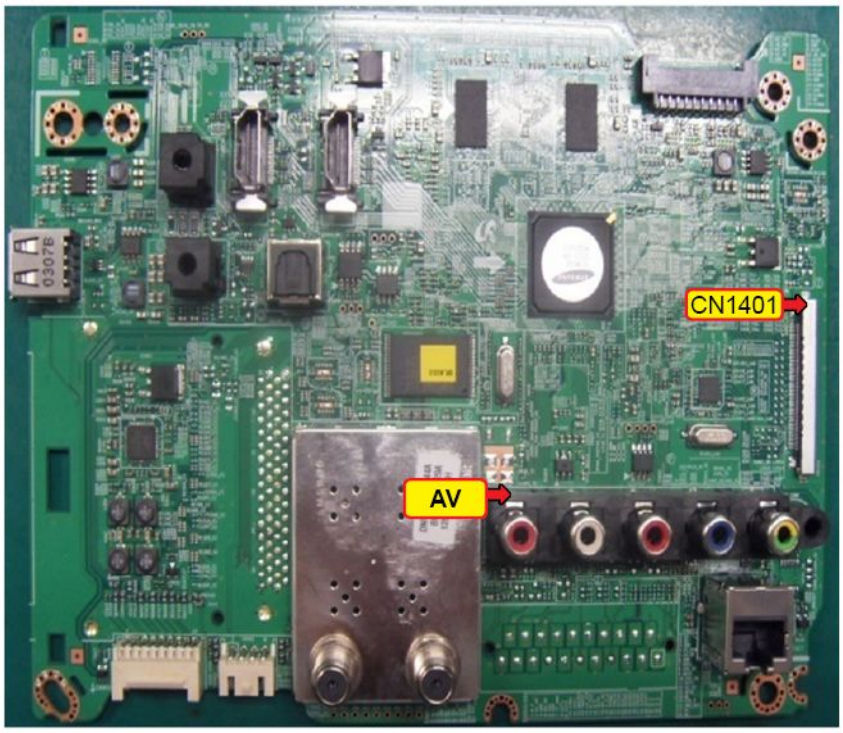
■ Location of Parts

Main Board_Front


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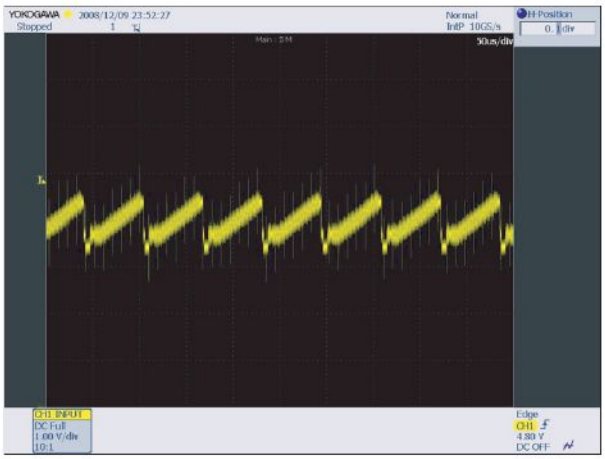
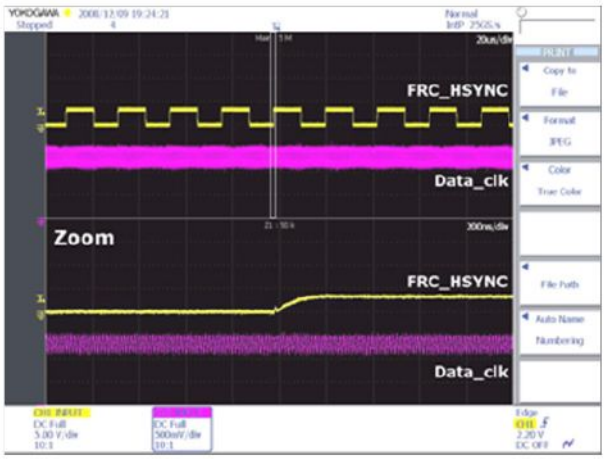
■ Waveforms

❶ CVBS OUT (Grey Bar)	❷ LVDS output
	

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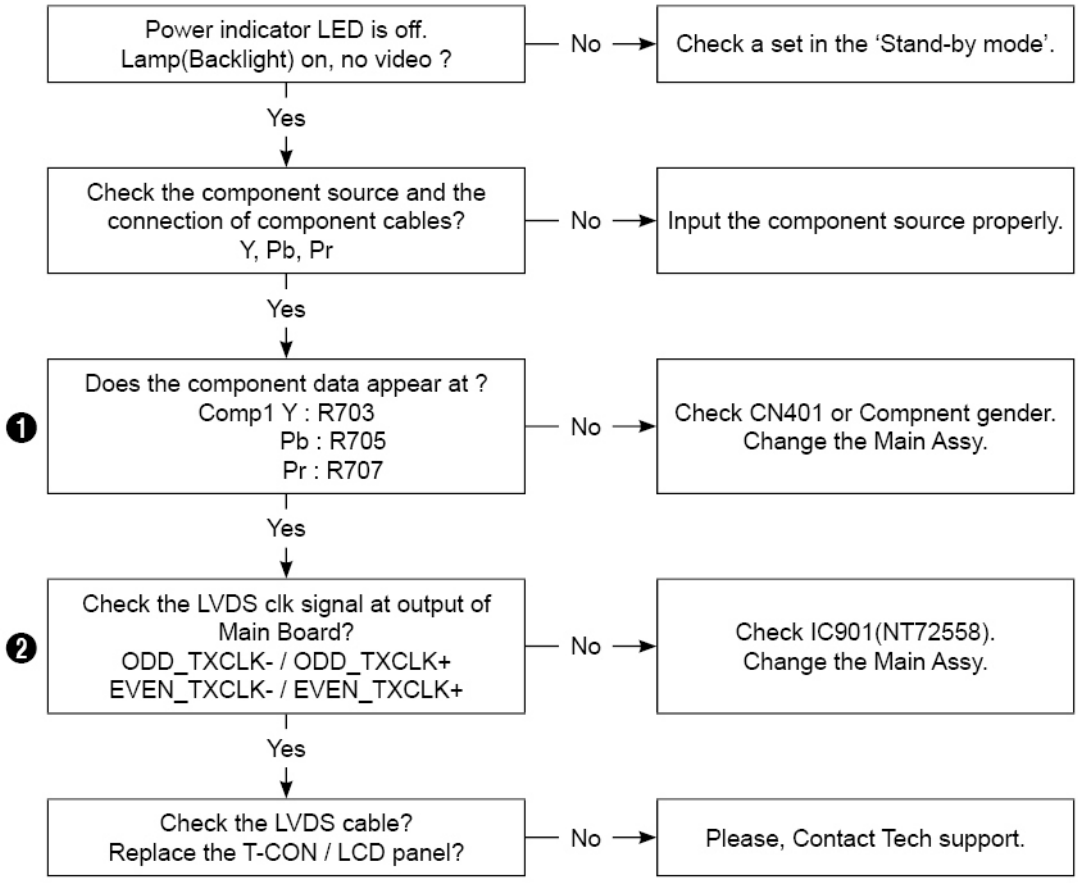
4-2-6. No Video (Component)

Symptom	Audio is normal but no picture is displayed on the screen.
Major checkpoints	• Check the Component source. • This may happen when the LVDS cable connecting the Main Board and the Panel is disconnected.
Diagnostics	
Caution	Make sure to disconnect the power before working on the IP Board.

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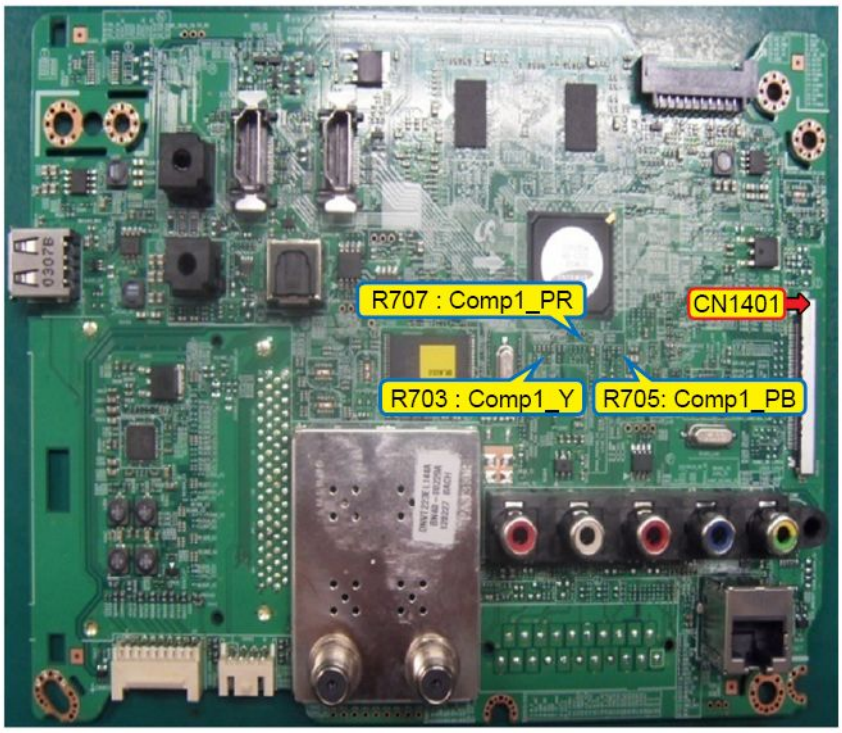
■ Location of Parts

Main Board_Front


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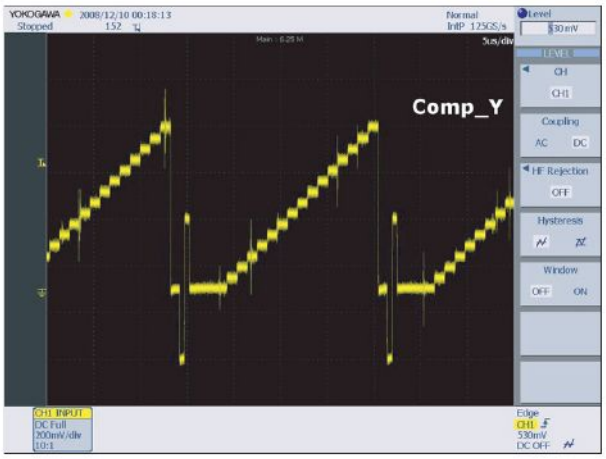
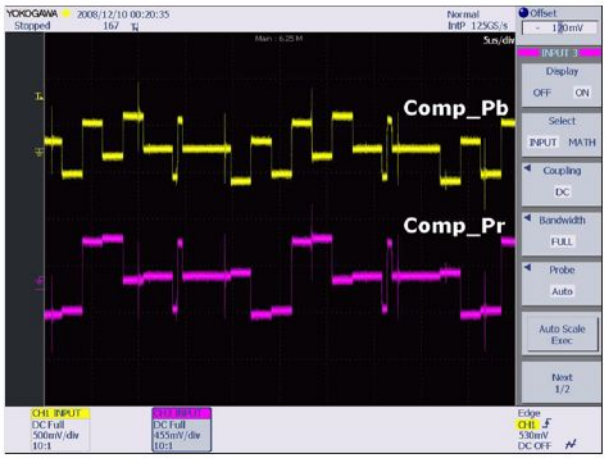
■ Waveforms

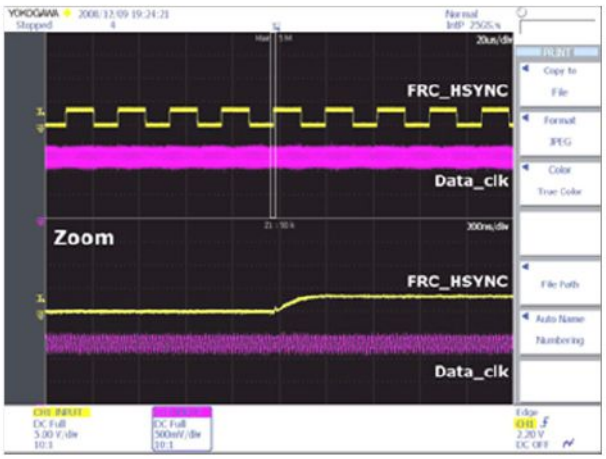
❶ Compnent_Y (Gray scale)



❶ Compnent_Pb / Pr (Color bar)



❷ LVDS output



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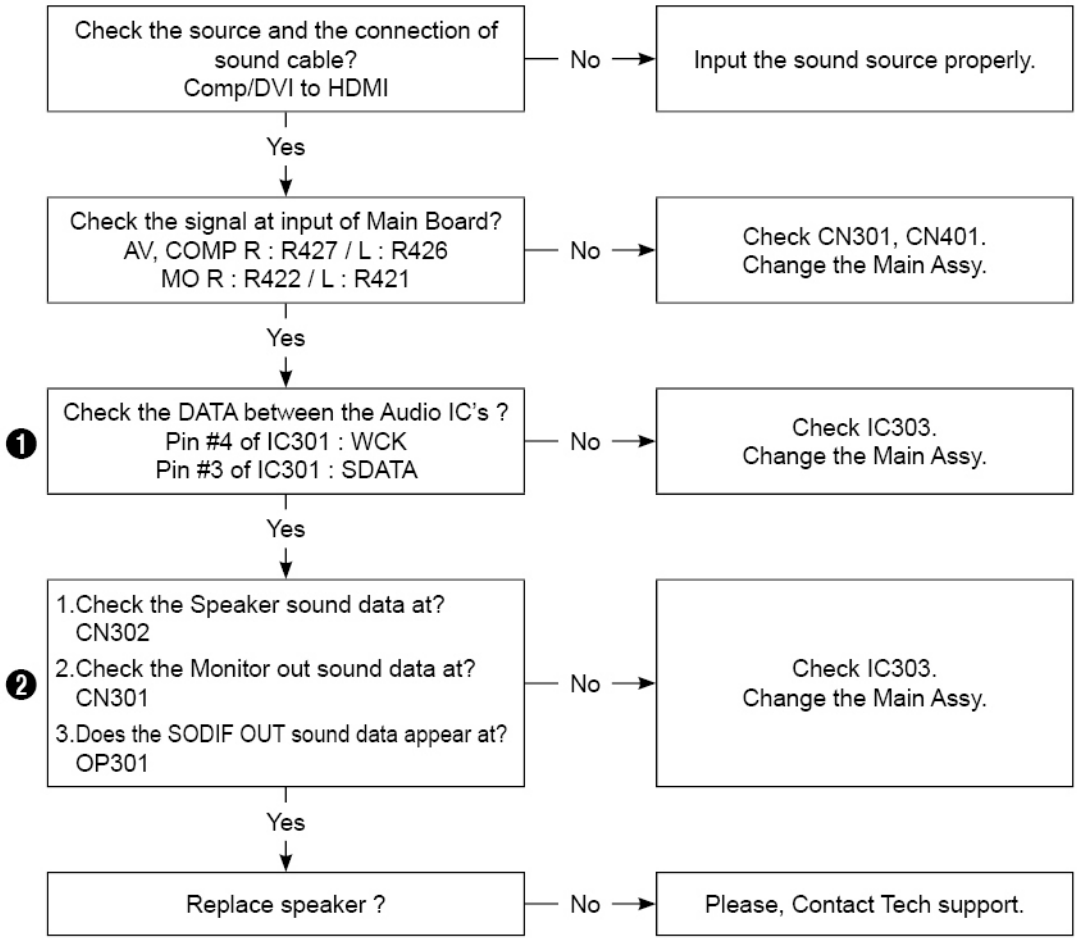
4-2-7. No No Sound (1. Speaker, 2. Monitor_Out, 3. Optical)

Symptom	Video is normal but there is no sound.
Major checkpoints	• When the speaker connectors are disconnected or damaged. • When the sound processing part of the Main Board is not functioning. • Speaker defect.
Diagnostics	
Caution	Make sure to disconnect the power before working on the IP Board.

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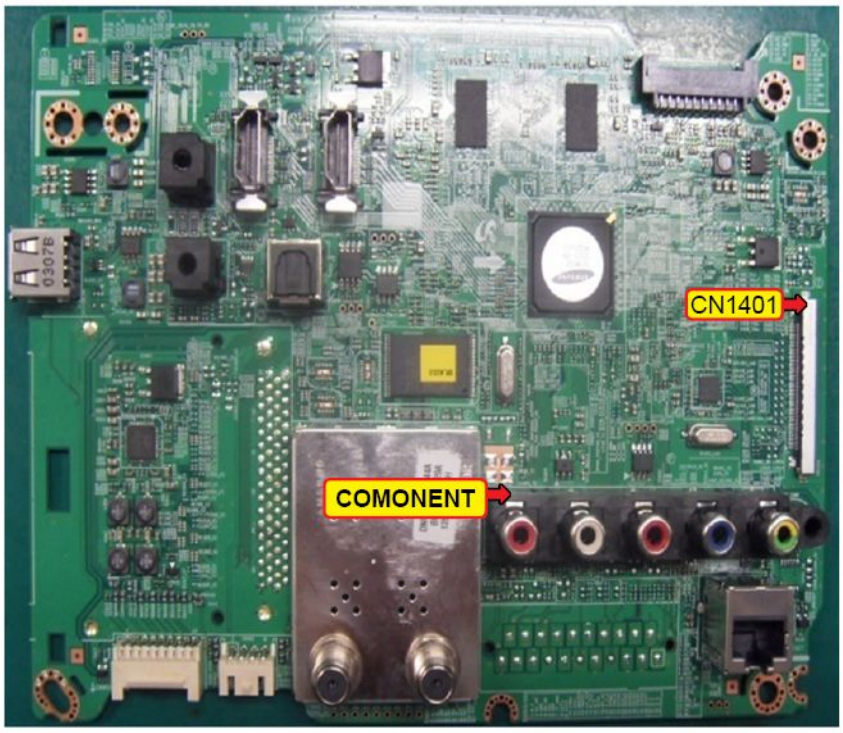
■ Location of Parts

Main Board_Front


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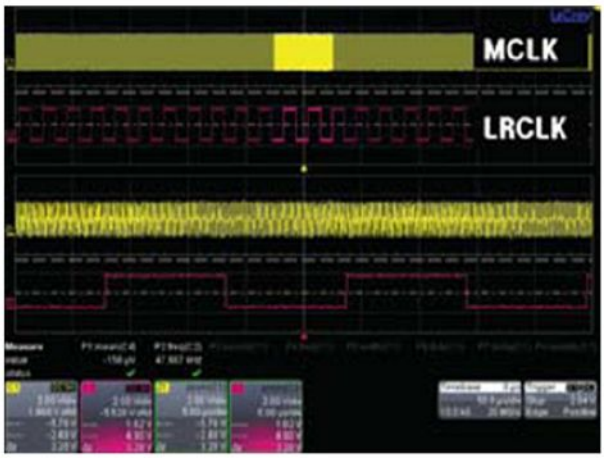
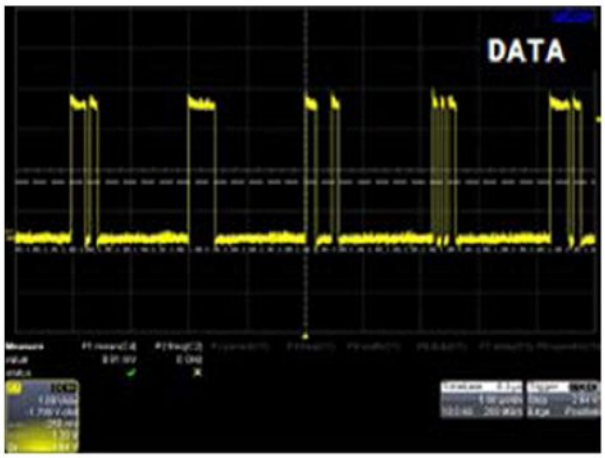
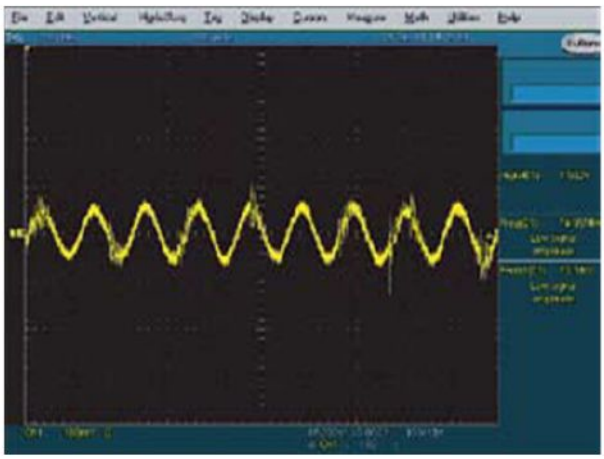
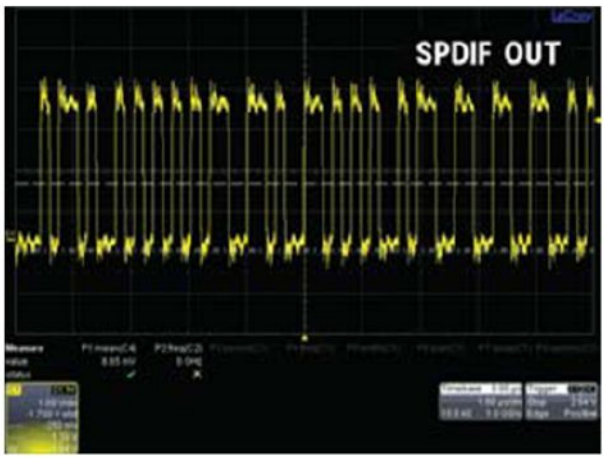
■ Waveforms

❶ MCLK / LRCLK	❶ PCM_I2C_DATA
	
❷ Speaker	❷ Monitor OUT , SPDIF OUT
	

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4.3. Factory Mode Adjustments

4-3-1. Entering Factory Mode

To enter 'Service Mode' Press the remote -control keys in this sequence :

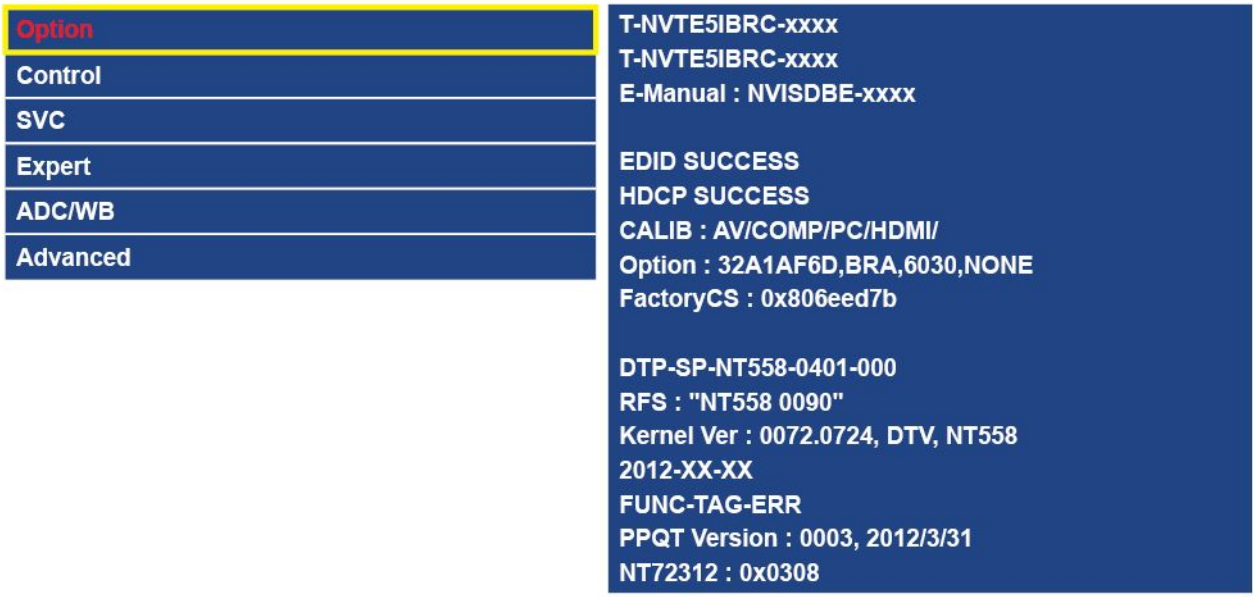
- If you do not have Factory remote control

Power OFF → MUTE → 1 → 8 → 2 → Power On

- If you have Factory remote control

INFO → Factory

- If you don't have Factory remote control, can't control some menus. (Expert, Advanced menu)



- How to enter the hidden factory mode.

1. Into the factory mode.
2. Move the tap to Advanced.
3. Key input : 0 + 0 + 0 + 0.

NOTE

hidden menu : Advanced

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4-3-2. Factory Data

■ Option

Factory Menu Name	Data	Range
Factory Reset	-	
Type	32A1AF6D / 40A1AF6D / 46A1AF6D / 55A1AF6D	
Local set	BRA_DTV (Depending on Region, Local set is different.)	
Basic Model	UE6030	
SVC Model	6030	
TUNER	SEC_ISDB	
Ch table	NONE	
Front Color	U-S-BK	

■ Control

Factory Menu Name	Data	Range
EDID		
EDID ON/OFF	OFF	
EDID WRITE ALL	…	
EDID WRITE HDMI	…	
EDID WRITE PC	…	
EDID Ver	…	
EDID Port		
EDID WRITE DVI	…	
Sub Option		
RF Mute Time	600ms	
RS-232 Jack	UART	
Watchdog	OFF	
WD COUNT	0	
Dimm Type	EXT	
LVDS FORMAT	JEIDA	
LVDS Srive Strength	400mv	
Language_Arabic	EU	
TOOLS Support	57	
LNA Support	0	
NETWORK Support	Ext-Wifi	
IPERF	Stopped	
Info Link Server Type	operating	
Info Link Country	None	
TTX List	Flof	

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Factory Menu Name	Data	Range
TTX Group	UserOSD	
24Px4 Support	OFF	
Power Indicator Support	ON	
BD Wise Support	OFF	
Data Service Support	OFF	
Cable Modulation	Error	
IIC Bus Stop	OFF	
Visual Test	Disable	
Emergency Log Copy		
Checksum	0x0000	
View Log		
Select Log Type	MICOM	
Log View		
Delete Log		
ColorSpace Support	RGB Type	
Gemstar On/Off	OFF	
WSS Support	ON	
PVR Support	OFF	
CI Support	ON	
Eeprom Reset		
Spread Spectrum		
LVDS Spread	ON	
LVDS Period	40K	
LVDS Amplitude	1	
DDR Period	20K	
DDR Amplitude	0.00%	
NT72312 LVDS SSC ON/OFF	ON	
NT72312 LVDS SSC Period	30K	
NT72312 LVDS SSC Modulation	1.00%	
NT72312 DDR SSC ON/OFF	ON	
NT72312 DDR SSC Period	30K	
NT72312 DDR SSC Modulation	1.00%	
DDR Margin		
A CTRL_OFFSET_0_3	0x0	
A CTRL_OFFSET_D	0x0	
B CTRL_OFFSET_0_3	0x0	
B CTRL_OFFSET_D	0x0	
H.264 Margin	8	

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Factory Menu Name	Data	Range
MPEG Margin	1000	
Region	PANEURO	
PnP Language	ENG	
PC Auto Ident	Enable	
OTP Lock	…	
Auto Power	MEMORY	
Key SENSITIVITY	39	
Key Proximity		
OTA Support	OFF	
FKP Down		
WIFI REGION	E	
e-Pop Default	ON	
OPTION_SWU		
OPTION_MEDIAPLAY		
Energy Star Logo	ON	
3D OPTIMIZE VALUE	1	
ECO IC TYPE	NLS1006	
Fast USB Booting	ON	
Nume of Network Stream	0	
CI+1.3	OFF	
HOTEL Option		
Hospitality Mode	OFF	
Power On	…	
Menu OSD	…	
Operation	…	
Music Mode	…	
External Source	…	
Eco Solution	…	
Cloning	…	
Shop Option		
Shop Mode	OFF	
Exhibition Mode	OFF	
3D Cube	OFF	
Asia Option		
TTX	OFF	
China HD	OFF	
NT Conversion	OFF	
Sepco 120Hz	OFF	

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Factory Menu Name	Data	Range
Unbalance	OFF	
FMTransmitter Support	OFF	
FMTransmitter Carrier	OFF	
AF Level adjust	3	
TX Power Level	0	
Mono Last Memory	OFF	
H Shaking	OFF	
SOUND		
High Devi	OFF	
Carrier Mute	OFF	
Volume Curve	Type1	
Speaker Delay Normal	0	
Pilot Level High Thld	0x1Fh	
Pilot Level Low Thld	0x1Dh	
FM Prescale	23	
AM Prescale	30	
NICAM Prescale	29	
Amp Volume	0xC7h	
Amp Scale	0x8eh	
Amp Check Sum	0x1B52015	
Woofer Type	0	
Woofer Scale	0x8ah	
Woofer Check Sum		
Speaker EQ	ON	
PEQ Test	0	
Amp Model	NTP7412	
Speaker cut-off Freq	5	
SPDIF PCM Gain	-9	
FM M Prescale	0	
BTSC Mono Prescale	0	
BTSC stereo Prescale	0	
SAP Prescale	0	
A2Ident High Thid	11	
A2Ident Low Thid	5	
Carrier2 Amp High Thld	4	
Carrier2 Amp Low Thld	2	
Carrier2 SNR High THR	16	
Carrier2 SNR Low THR	6	

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Factory Menu Name	Data	Range
Audio-IP Test	Ready	
TruBass CheckSum	0xFFFFFFF	
PWM Mode	BD	
Mic Scale	0	
SubWoofer Support	0	
India Sound	OFF	
SAP High T'hld	9	
SAP Low T'hld	7	
Config Option		
Num of ATV	1	
Num of DTV	1	
Num of AV	1	
Num of SVIDEO	0	
Num of COMP	1	
Num of HDMI	2	
Num of PC	0	
Num of SCART	1	
Num of DVI	0	
Num of OPTICAL Link	1	
Num of MEDIA	1	
Num of PANEL KEY	6	
Num of USB Port	1	
Num of HeadPhone	1	
Num of RVU	0	
Num of IPTV	0	
Num of Display	1	
Num of CI	1	
MFT Offset	62.5	
Select LCD/PDP	LCD	
HDMI/DVI SEL	1	
Indicator Led	OFF	
Wall Mount	OFF	
HV Flip	HV Flip	
BackEnd SEL	120Hz	
DVI/HDMI SOUND	Auto	
HDMI HOT PLUG	Disable	
HOTPLUG SWITCHING	Boot	
HOTPLUG DURATION	200ms	

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Factory Menu Name	Data	Range
CLK TERM DURATION	200ms	
HDMI FLT CNT SIG	100ms	
HDMI FLT CNT LOS	100ms	
UNSTABLE BAN CNT	3500ms	
HDMI Err Cnt	1	
HDMI ROBIN	ON	
HDMI Callback	OFF	
HDMI CTS Thld	8	
HDMI CTS Cnt1	1	
HDMI EQ	AUTO	
HDMI Write Type	Combine	
HDMI Switch	NONE	
DVI SET TIME	300ms	
Type Of PANEL KEY	Horizontal	
Function Vendor	AUTO	
EcoSensor Support	ON	
LEDMotionPlus Support	ON	
Natural Mode Support	ON	
All Share Support	ON	
Relax Mode Support	OFF	
BT Support	ON	
3D Support	ON	
3D Explorer Support	ON	
DVI-I Support	OFF	
H Write		
HDMI Sync	DE	
HeadPhone Port	A Out2	
FANET	ON	
Support MultiMedia Key	ON	
Config_AV_PATH		
5 Way Function Key	R BOTTOM	
SCC		
SCC Mode	Dynamic	
SCC ON/OFF	OFF	
SCC Input Data		
Hx	272	
Hy	278	
Lx	272	

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Factory Menu Name	Data	Range
Ly	278	
sSCC Const		
sSCC Hx	550	
sSCC Hy	556	
sSCC Lx	598	
sSCC Ly	550	
pSCC Const		
pSCC Hx	550	
pSCC Hy	566	
pSCC Lx	598	
pSCC Ly	550	
SCC Source Data	PBA	
SWAP	PBA	

■ SVC

Factory Menu Name	Data	Range
Test Pattern		
LOGIC Pattern Sel	…	
LOGIC Level Sel	…	
NT72312 Pre Test Pattern	0	
NT72312 Post Test Pattern	0	
NT72312 PC mode ON/OFF	OFF	
Panel Auto Setting		
Panel Display Time	21Hr	
Logic Usb D/L	…	
Tuner Status		
T-CON Usb Download		
T-CON CheckSum	0x3076	
Tuner Margin	10	
CAM Wait Time	1500	
MICOM UPGRADE	Off	
BT ADDRESS	8cc8cdc192da	
BT UPGRADE		
BT FREEPAIRING	ON	
BT ER COUNT	0	
T-CON TEMP READ	50.05	
TEMP LAST	50.05	
DCC VERSION	0x2C39	

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Factory Menu Name	Data	Range
DCC CHK SEL	0	
DCC CHECK LOCAL	0x2131	
DCC CHECK TOTAL		
TS Clock delay	0	
Wifi Fail	…	
TS Clock Delay TC	0	
TS Clock Delay S	0	
Delete S/N		
SVC Reset		
Debug Log Down		

■ Expert

Factory Menu Name	Data	Range
N/D ADJ		
Source		

■ ADC/WB

Factory Menu Name	Data	Range
ADC		
AV Calibration	Success	
Comp Calibraion	Success	
PC Calibration	Success	
HDMI Calibration	Success	
ADC Target		
1st_AV_Low	64	
1st_AV_High	880	
1st_AV_Delta	2	
1st_COMP_Y_Low	64	
1st_COMP_Cb_Low	512	
1st_COMP_Cr_Low	512	
1st_COMP_Y_High	940	
1st_COMP_Cb_High	512	
1st_COMP_Cr_High	512	
1st_COMP_Delta	2	
1st_PC_Low	4	
1st_PC_High	1016	
1st_PC_Delta	2	
2nd_ACH_Low	4	
2nd_ACH_High	940	

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Factory Menu Name	Data	Range
2nd_PC_Low	4	
2nd_PC_High	940	
2nd_Delta	2	
ADC Result		
1st_Y_GH	134	
1st_Y_GL	126	
1st_Cb_BH	…	
1st_Cb_BL	…	
1st_Cr_RH	…	
1st_Cr_RL	…	
2nd_R_L	133	
2nd_G_L	133	
2nd_B_L	133	
2nd_R_H	69	
2nd_G_H	69	
2nd_B_H	69	
White Balance		
Sub Brightness	128	
R-Offset	128	
G-Offset	128	
B-Offset	128	
Sub Contrast	128	
R-Gain	128	
G-Gain	128	
B-Gain	128	
Movie R-Offset	…	
Movie B-Offset	…	
Movie R-Gain	…	
Movie B-Gain	…	

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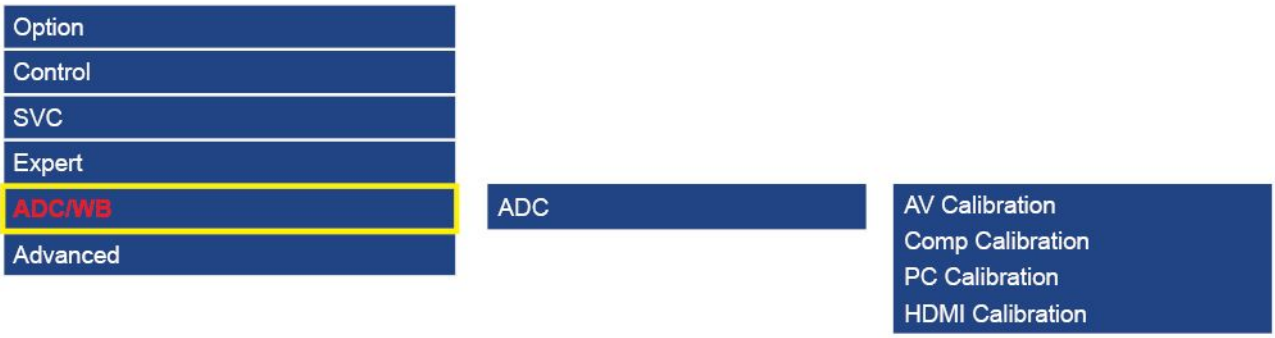
4.4. White Balance

4-4-1. Calibration

1. Into the Factory Mode.
2. Select SVC Menu.
3. Select ADC/WB menu.
4. Select ADC menu.



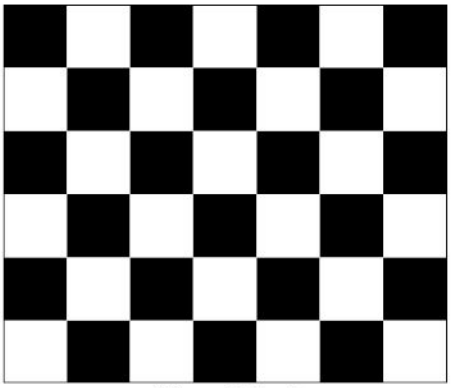
4-4-2. Service Adjustment

You must perform Calibration in the Lattice Pattern before adjusting the White Balance.

■ Color Calibration

- Adjust Specification

Source	Setting Mode	Pattern	Use Equipment
HDMI	1280 x 720@60 Hz	Pattern #24 (Chess Pattern)	CA210 & Master MSPG925 Generator



(Chess Pattern)

– Use other equipment only after comparing the result with that of the Master equipment.

Input mode	Calibration	Pattern
CVBS IN (Model_#1)	Perform in NTSC B&W Pattern #24	Lattice
Component IN (Model_#6)	Perform in 720p B&W Pattern #24	Lattice
PC Analog IN (Model_#21)	Perform in VESA XGA (1024x768) B&W Pattern #24	Lattice
HDMI IN	Perform in 720p B&W Pattern #24	Lattice

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■ Method of Color Calibration (AV)

1. Apply the NTSC Lattice (N0. 3) pattern signal to the AV IN 1 port.
2. Press the Source key to switch to “AV1” mode.
3. Enter Service mode.
4. Select the “ADC” menu.
5. Select the “AV Calibration” menu.
6. In “AV Calibration Off” status, press the “► ” key to perform Calibration.
7. When Calibration is complete, it returns to the high-level menu.
8. You can see the change of the “AV Calibration” status from Failure to Success.

■ Method of Color Calibration (Component)

1. Apply the 720p Lattice (N0. 6) pattern signal to the Component IN 1 port.
2. Press the Source key to switch to “Component1” mode.
3. Enter Service mode.
4. Select the “ADC” menu.
5. Select the “Comp Calibration” menu.
6. In “Comp Calibration Off” status, press the “ ►” key to perform Calibration.
7. When Calibration is complete, it returns to the high-level menu.
8. You can see the change of the “Comp Calibration” status from Failure to Success.

■ Method of Color Calibration (PC)

1. Apply the VESA XGA Lattice (N0. 21) pattern signal to the PC IN port.
2. Press the Source key to switch to “PC” mode.
3. Enter Service mode.
4. Select the “ADC” menu.
5. Select the “PC Calibration” menu.
6. In “PC Calibration Off” status, press the “ ►” key to perform Calibration.
7. When Calibration is complete, it returns to the high-level menu.
8. You can see the change of the “PC Calibration” status from Failure to Success.

■ Method of Color Calibration (HDMI)

1. Apply the 720p Lattice (N0. 6) pattern signal to the HDMI1/DVI IN port.
2. Press the Source key to switch to “HDMI1” mode.
3. Enter Service mode.
4. Select the “ADC” menu.
5. Select the “HDMI Calibration” menu.
6. In “HDMI Calibration Off” status, press the “►” key to perform Calibration.
7. When Calibration is complete, it returns to the high-level menu.
8. You can see the change of the “HDMI Calibration” status from Failure to Success.

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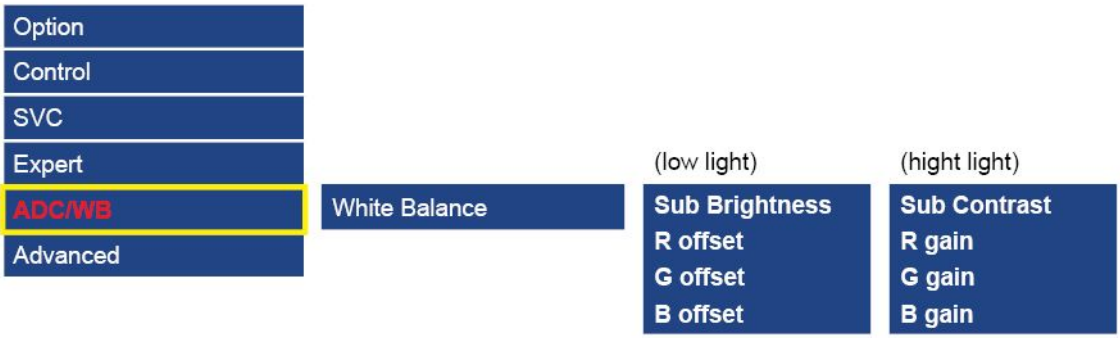
4-4-3. Adjustment

1. Into the Factory Mode.
2. Select SVC Menu.
3. Select ADC/WB menu.
4. Select White Balance menu.



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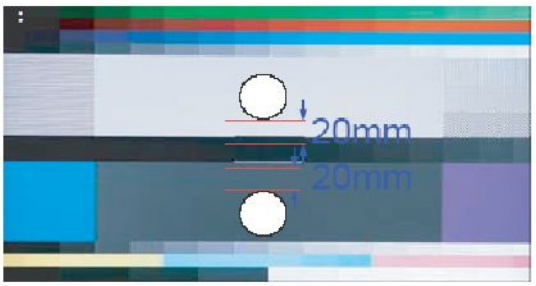
4.5. White Ratio (Balance) Adjustment

1. You can adjust the white ratio in factory mode (1:Calibration, 3:White-Balance).
2. Since the adjustment value and the data value vary depending on the input source, you have to adjust these in CVBS, Component 1 and HDMI 1 modes.
3. The optimal values for each mode are configured by default. It varies with Panel's size and Specification.

- Equipment : CS-210
- Pattern: MIK K-7256 #92 "Flat W/B Pattern" as standard
- Altenate Equipmet : CA200& anyone Master supported pattern#92(refer to right photo)
- Use other Equipment only after comparing the result with that of the Master equipment.
- Set Aging time : 60 min



Calibration and Manual setting for WB adjustment

- HDMI : Calibration at #24 Chessboard Pattern Manual adjustment at #92 pattern (720p)
- COMP: Calibration at #24 Chessboard Pattern Manual adjustment at #92 pattern (720p)
- CVBS: Calibration at #24 Chessboard Pattern Manual adjustment at #92 pattern (NTSC)

NOTE

If finishing in HDMI mode, adjustment coordinate is almost same in AV/COMP mode.

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4.6. AV Control Table

Control Item					Cmd1	Cmd2	Cmd3	Value
General	Power	Power			0x00	0x00	0x00	0x00
		Off						0x01
		On						0x02
	Volume	Direct			0x01	0x00	0x00	(0~100)
		Up					0x01	0x00
		Down					0x02	0x00
	Mute				0x02	0x00	0x00	0x00
		Ch.	Direct		0x04	-		
			Continuous	Up	0x03	0x00	0x01	0x00
				Down			0x02	0x00

Control Item				Cmd1	Cmd2	Cmd3	Value	
Input	Source List	TV	TV	0x0a	0x00	0x00	0x00	
		AV	AV1			0x01	0x00	
			AV2				0x01	
			AV3				0x02	
		S-Video	S-Video1			0x02	0x00	
			S-Video2				0x01	
			S-Video3				0x02	
		Component	Component1			0x03	0x00	
			Component2				0x01	
			Component3				0x02	
		PC	PC1			0x04	0x00	
			PC2				0x01	
			PC3				0x02	
		HDMI	HDMI1			0x05	0x00	
			HDMI2				0x01	
			HDMI3				0x02	
			HDMI4				0x03	Not Support
		DVI	DVI1			0x06	0x00	
			DVI2				0x01	
			DVI3				0x02	

Control Item				Cmd1	Cmd2	Cmd3	Value
PICTURE	Mode	Dynamic(Entertain)		0x0b	0x00	0x00	0x00
		Standard					0x01
		Movie					0x02
		Natural					0x03
		CAL-NIGHT					0x04

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Control Item				Cmd1	Cmd2	Cmd3	Value	
		CAL-DAY					0x05	
		BD Wise					0x06	
		Relax					0x07	Not Support only PDP (2012)
	BackLight (CellLight)		0~20		0x01	0x00	(0~20)	
	Contrast		0~100		0x02	0x00	(0~100)	
	Brightness		0~100		0x03	0x00	(0~100)	
	Sharpness		0~100		0x04	0x00	(0~100)	
	Color		0~10		0x05	0x00	(0~100)	
	Tint	G/R			0x06	0x00	(0~100)	
	Advanced Settings	Black Tone	Off		0x07	0x00	0x00	
			Dark				0x01	
			Darker				0x02	
			Darkest				0x03	
		Dynamic Contrast	Off			0x01	0x00	
			Low				0x01	
			Medium				0x02	
			HIgh				0x03	
		Shadow Detail	-2 ~ 2			0x02	(-2~2)	Not Support
		Gamma	-3 ~ 3			0x03	(-3~3)	
		RGB Only Mode	Off			0x05	0x00	
			Red				0x01	Not Support
			Green				0x02	
			Blue				0x03	
		Color Space	Auto			0x06	0x00	
			Native				0x01	
			Custom				0x02	
		White Balance	R-Offset(LCD)			0x07	(0~50)	
		White Balance	G-Offset(LCD)			0x08	(0~50)	
		White Balance	B-Offset(LCD)			0x09	(0~50)	
		White Balance	R-Gain(LCD)			0x0a	(0~50)	
		White Balance	G-Gain(LCD)			0x0b	(0~50)	
		White Balance	B-Gain(LCD)			0x0c	(0~50)	
		White Balance	Reset(LCD)			0x0d	0x00	
		Flesh Tone	-15 ~ 15			0x0e	(-15~15)	
		Edge Enhancement	Off			0x0f	0x00	
			On				0x01	

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Control Item				Cmd1	Cmd2	Cmd3	Value	
		xvYCC	Off			0x10	0x00	
			On				0x01	
		Motion Lighting	Off			0x11	0x00	
			On				0x01	
		LED Motion Plus	Off		0x0a	0x07	0x00	
			On(Normal)				0x01	
			Cinema				0x02	Not Support
			Ticker				0x03	
	Picture Option	Color Tone	Cool		0x0a	0x00	0x00	
			Standard				0x01	
			Warm1				0x02	
			Warm2				0x03	
		Digital Noise Filter	Off			0x02	0x00	
			Low				0x01	
			Medium				0x02	
			High				0x03	
			Auto				0x04	
			Auto Visualization				0x05	
		MPEG Noise Filter	Off			0x03	0x00	
			Low				0x01	
			Medium				0x02	
			High				0x03	
			Auto				0x04	
		HDMI Black Level	Normal			0x04	0x00	
			Low				0x01	
		Film Mode	Off			0x05	0x00	
			Auto1				0x01	
			Auto2				0x02	
			Cinema Smooth				0x03	
		Auto Motion Plus	Off			0x06	0x00	
			Clear				0x01	
			Standard				0x02	
			Smooth				0x03	
			Custom				0x04	
			Demo				0x05	

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Control Item				Cmd1	Cmd2	Cmd3	Value	
	Screen Adjustment	Picture Size	16:9	0x0b	0x0a	0x01	0x00	
			Zoom1				0x01	
			Zoom2				0x02	
			Wide Fit				0x03	
			4:3				0x04	
			Screen Fit				0x05	
			Smart View I				0x06	
			Smart View II				0x07	
			Auto Wide				0x08	
			Wide Zoom				0x09	
			Zoom				0x0a	
	Reset Picture	Reset Picture		0x0b	0x0b	0x00	0x00	
	3D	3D Mode	Off	0x0b	0x0c	0x00	0x00	
			2D ⇢ 3D				0x01	
			Side By Side				0x02	
			Top Bottom				0x03	
			Line By Line				0x04	
			Vertical Line				0x05	
			Checker BD				0x06	
			Frame Sequence				0x07	Not Support
		3D ⇢ 2D	Off			0x01	0x00	
			On				0x01	
		3D View Point				0x02	(-5~5)	
		Depth				0x03	(1~10)	
		3D Auto View	Off			0x05	0x00	
			Message Notice				0x01	
			On				0x02	

Control Item				Cmd1	Cmd2	Cmd3	Value
Sound	Sound Mode	Standard		0x0c	0x00	0x00	0x00
		Music					0x01
		Movie					0x02
		Clear Voice					0x03
		Amplify					0x04
	Equalizer	Balance			0x01	0x00	(0~20)
		100hz				0x01	(0~20)

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Control Item				Cmd1	Cmd2	Cmd3	Value	
		300hz				0x02	(0~20)	
		1khz				0x03	(0~20)	
		3khz				0x04	(0~20)	
		10khz				0x05	(0~20)	
		Reset				0x06	0x00	
	SRS TruSurround HD (echo)	Off			0x02	0x00	0x00	
	Virtual Surrond (echo)	On					0x01	
	SRS TruDialog (echo)	Off			0x03	0x00	0x00	
	Dialog Clarify (X9)	On					0x01	
	Preferred Language	English			0x04	0x00	0x00	
		Spanish					0x01	
		French					0x02	
		Korean					0x03	
		Japanese					0x04	
	Multi-Track Sound	Mono			0x05	0x00	0x00	
		Stereo					0x01	
		SAP					0x02	
	Auto Volume	Off			0x06	0x00	0x00	
		ON					0x01	
		Night					0x02	
	Speaker Select	TV Speaker			0x07	0x00	0x00	
		External Speaker					0x01	
	Sound Select	Main			0x08	0x00	0x00	
		Sub					0x01	
	Sound Reset	Sound Reset			0x09	0x00	0x00	
	3D Audio	Off			0x0a	0x00	0x00	
		Low					0x01	Not Support add 2012
		Medium					0x02	
		High					0x03	
	Auto Stereo	Manual			0x0b	0x00	0x00	Not Support only KOREA (2012)
		Auto					0x01	

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Control Item			Cmd1	Cmd2	Cmd3	Value	
KEY	Key Generation		0x0d	0x00	0x00	refer to table	
OSD	Show/Hide Control	Show	0x0e	0x00	0x00	0x00	add 2012
		Hide				0x01	
Get Status	Power (On/Off)		0xf0	0x00	0x00	0x00	
	Volume(0~100)		0xf0	0x01	0x00	0x00	
	Mute (On/Off)		0xf0	0x02	0x00	0x00	
	Channel Number		0xf0	0x03	0x00	0x00	
	Source (TV/AV/…/HDMI/…)		0xf0	0x04	0x00	0x00	
	Picture Size		0xf0	0x05	0x00	0x00	
	3D (On/Off)		0xf0	0x06	0x00	0x00	
	Picture Mode		0xf0	0x07	0x00	0x00	
	Sound Mode		0xf0	0x08	0x00	0x00	

Key value	Value	
Up	96 (0x60)	
Down	97 (0x61)	
Left	101 (0x65)	
Right	98 (0x62)	
Menu	26 (0x1A)	
Internet	147 (0x93)	Not Support
Enter(OK)	104 (0x68)	
EXIT	45 (0x2D)	

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4.7. Software Upgrade

Software Upgrade can be performed by downloading the. latest firmware from samsung.com to a USB memory device.

- Current Version - The software already installed in the TV.

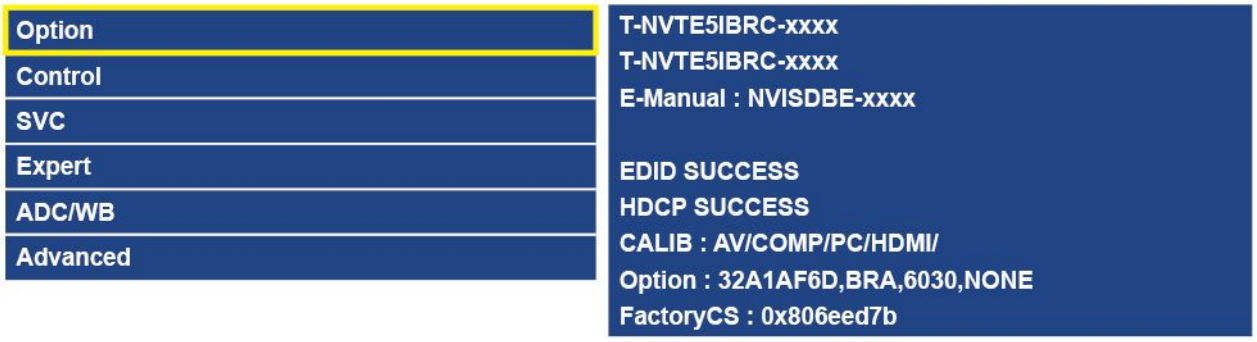
Software is represented as 'Year/Month/Day_Version'.

4-7-1. How to Check the Software Version

■ Use the Main Menu

1. Click the "MENU" key in remote controller.
2. Select "Support" menu.
3. Locate the menu cursor "Software Upgrade" menu.
4. Click the "INFO" key.
   - Check the Main SW and Micom version.

■ Use the Factory Mode



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4-7-2. How to Upgade Software

1. Insert a USB drive containing the firmware upgrade downloaded from samsung.com into the TV.

> **NOTE**
>
> Please be careful not to disconnect the power or remove the USB drive while upgrades are being applied.

2. The TV will turn off and turn on automatically after completing the firmware upgrade.
3. Please check the firmware version after the upgrades are complete.
   - the new version will have a higher number than the older version.

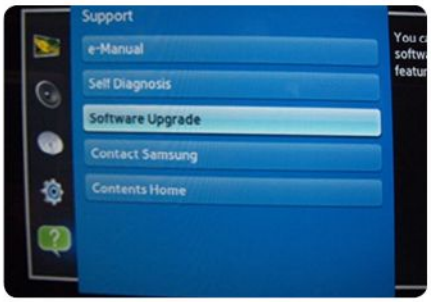
> **NOTE**
>
> - When software is upgraded, video and audio settings you have made will return to their default (factory) settings.
> - We recommend you write down your settings before beginning firmware update.

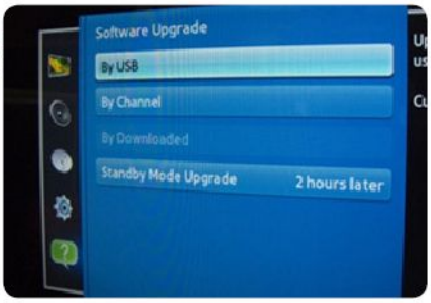
4. After update is completed, restore your previous settings.

■ Main Software Upgrade

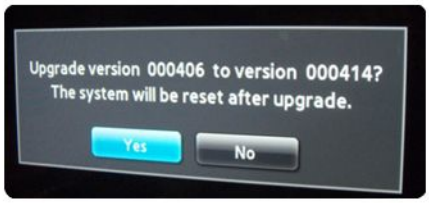
1. Store the sw program named "T-NVTE5IBRC" in USB memory stick.

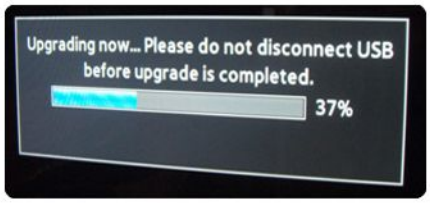
2. Click the "MENU" key in Remote Controller.
3. Select "Support - Software Upgrade - By USB" menu.





4. Click the "ENTER" key.
   - Wait for upgrade complete.
   - Check the Software Version.





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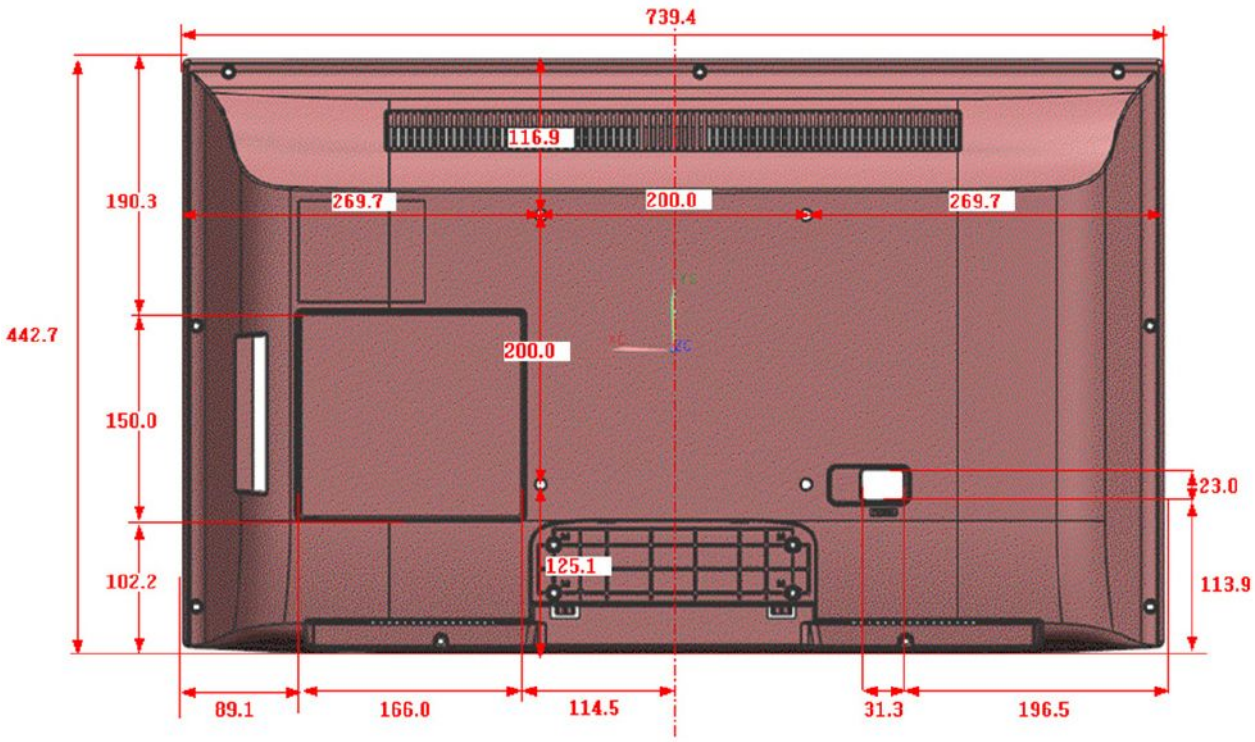
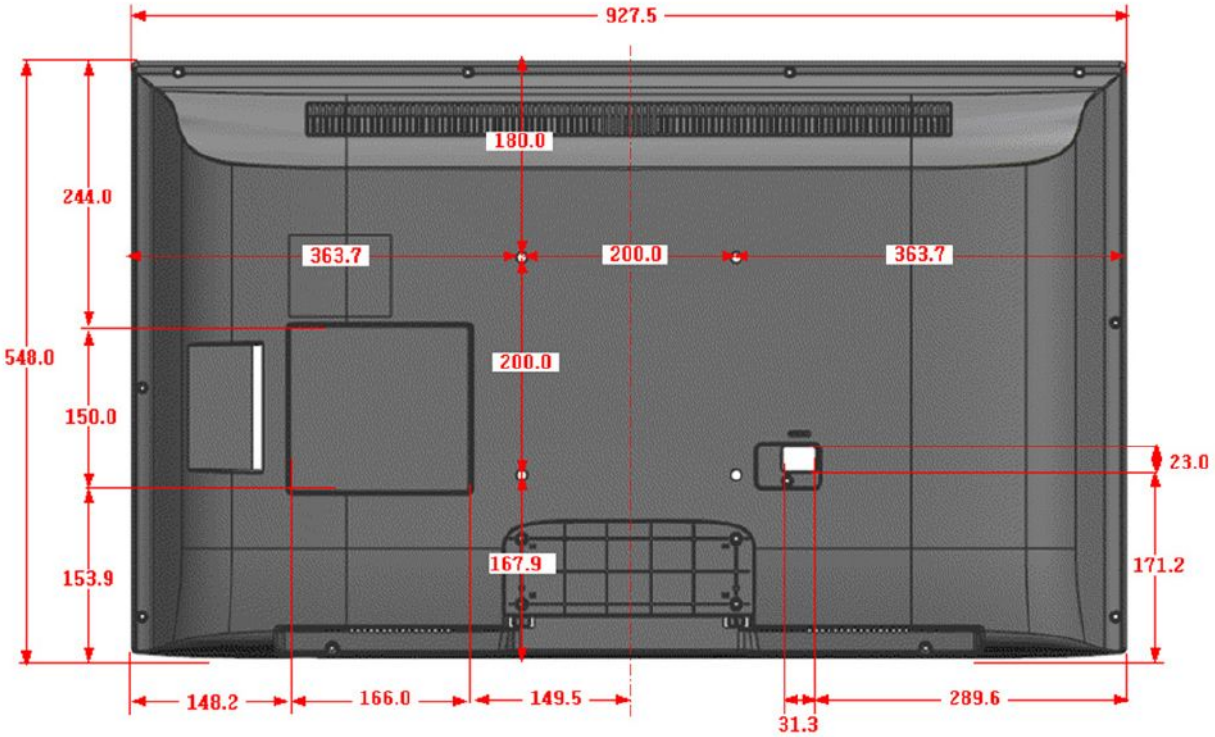
4.8. Cover-Middle Rear Dimension

■ 32 inch



■ 40 inch



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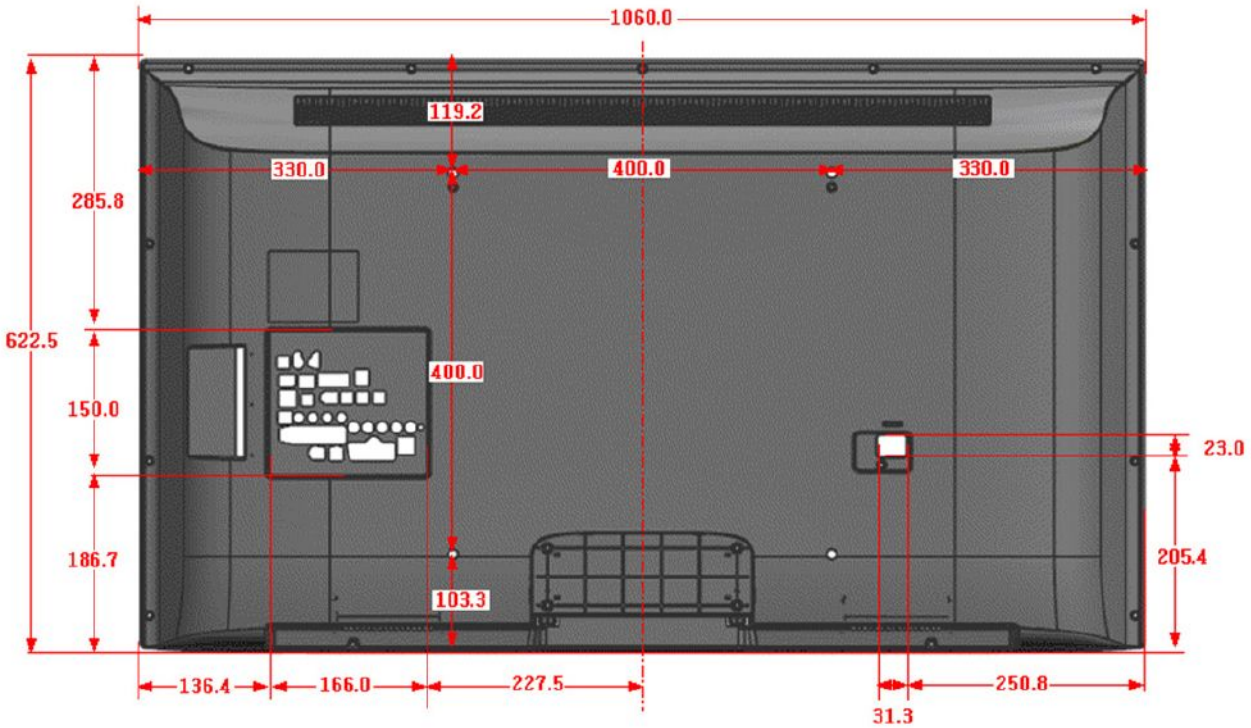
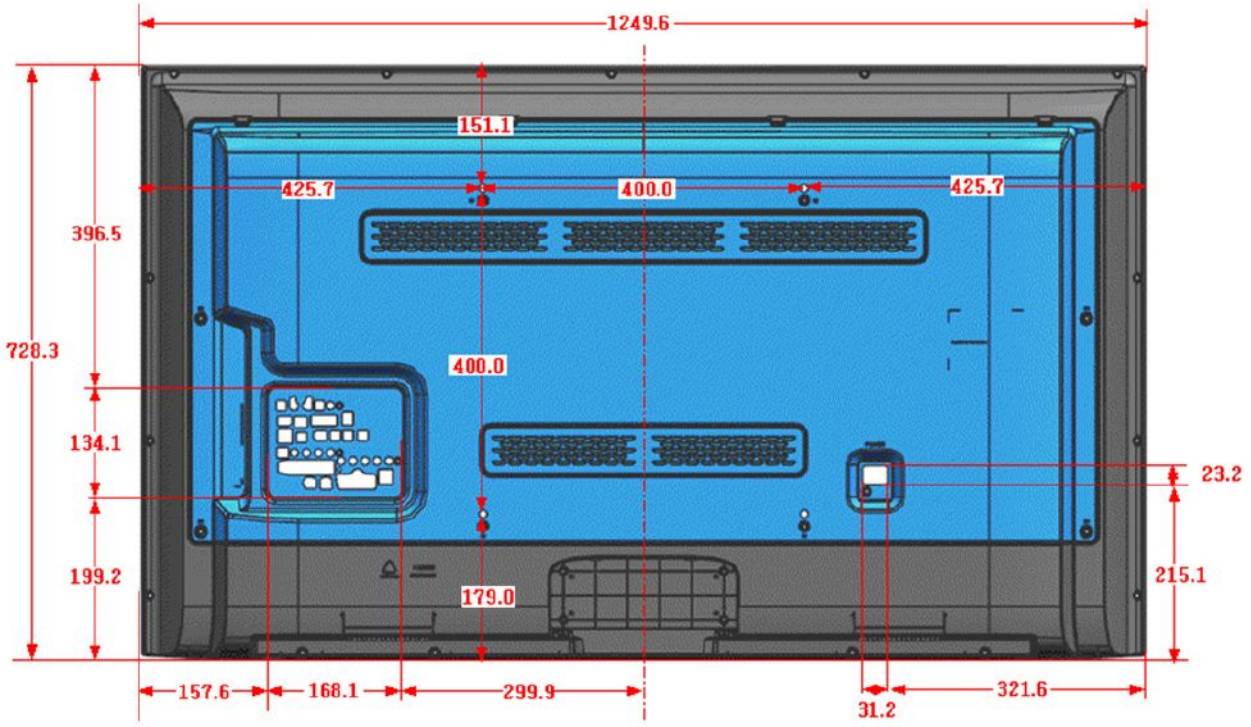
■ 46 inch



■ 55 inch



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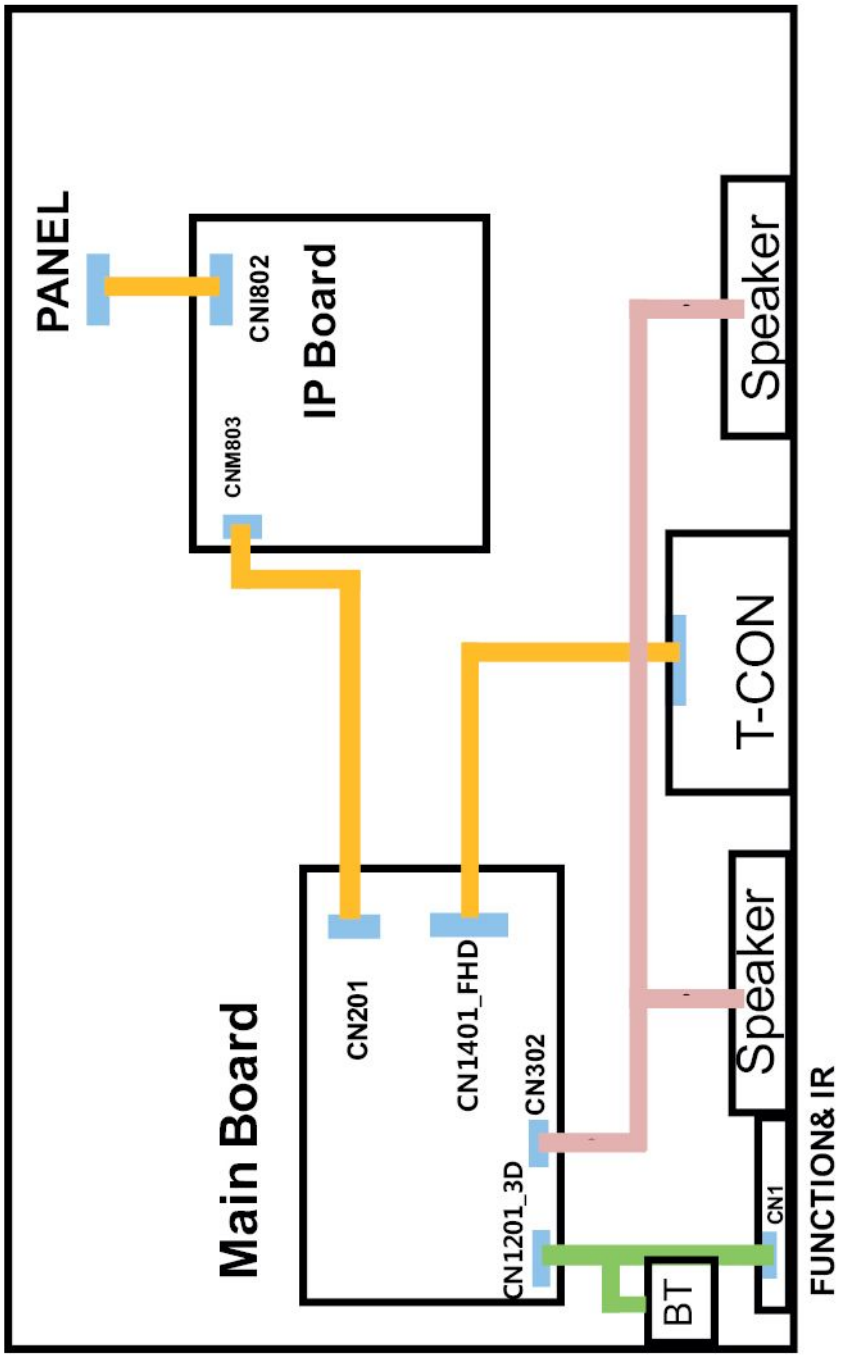
5. Wiring Diagram

5.1. Wiring Diagram



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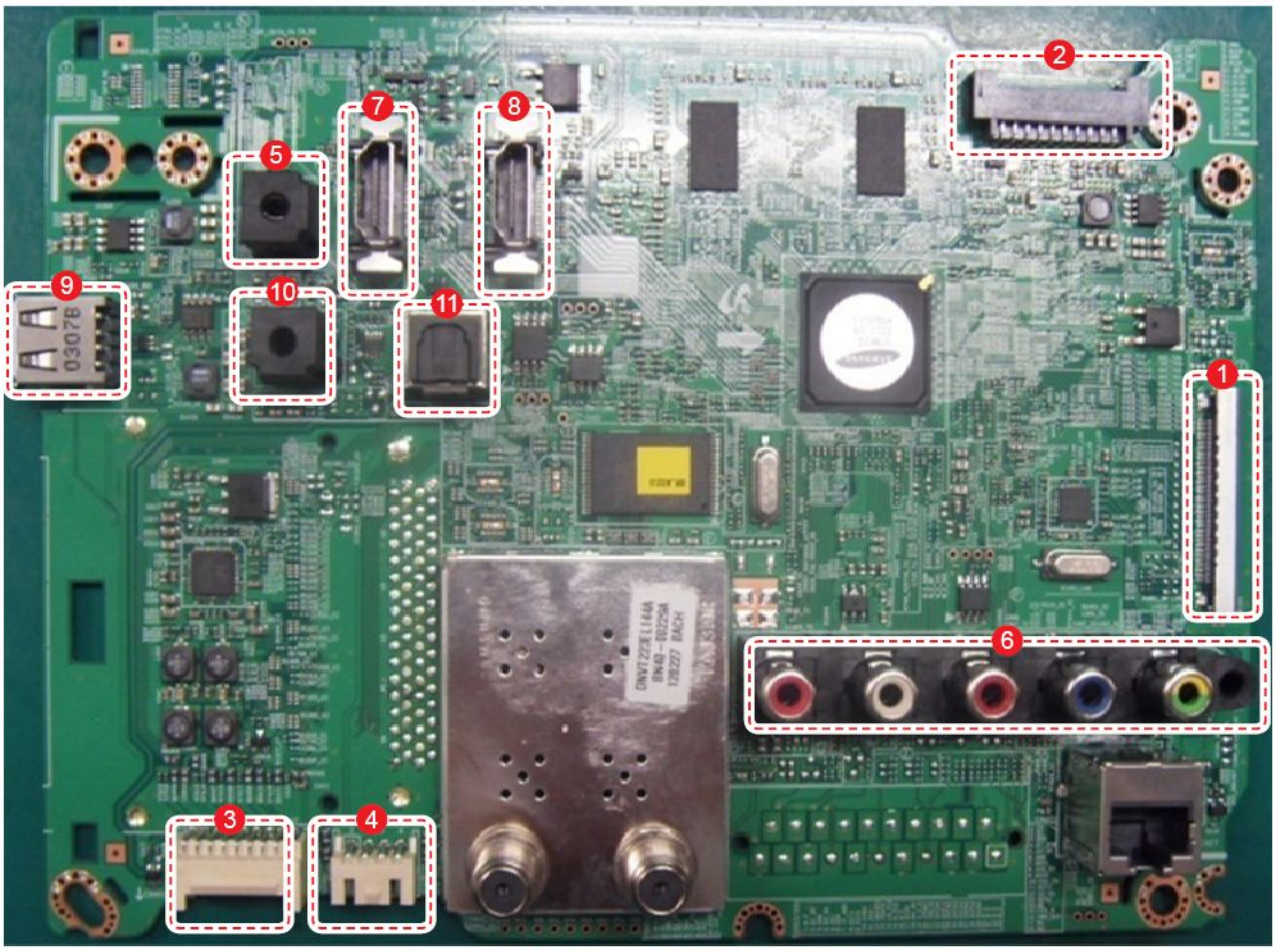
5.2. Connector

■ Main Board



CN1401_FHD (to Panel)			
1	NC	14	EVEN_TX4+_LVDS
2	GND	15	EVEN_TX4-_LVDS
3	NC	16	EVEN_TX3+_LVDS
4	NC	17	EVEN_TX3-_LVDS
5	NC	18	GND
6	NC	19	EVEN_TXCLK+_LVDS
7	GND	20	EVEN_TXCLK-_LVDS
8	TCON_SDA	21	GND
9	PANEL_I2C_EN	22	EVEN_TX2+_LVDS
10	NC	23	EVEN_TX2-_LVDS
11	NC	24	EVEN_TX1+_LVDS
12	TCON_SCL	25	EVEN_TX1-_LVDS
13	GND	26	EVEN_TX0+_LVDS

CN1401_FHD (to Panel)			
27	EVEN_TX0-_LVDS	40	ODD_TX1-_LVDS
28	GND	41	ODD_TX0+_LVDS
29	ODD_TX4+_LVDS	42	ODD_TX0-_LVDS
30	ODD_TX4-_LVDS	43	GND
31	ODD_TX3+_LVDS	44	GND
32	ODD_TX3-_LVDS	45	GND
33	GND	46	NC
34	ODD_TXCLK+_LVDS	47	Panel_13V_PW
35	ODD_TXCLK-_LVDS	48	Panel_13V_PW
36	GND	49	Panel_13V_PW
37	ODD_TX2+_LVDS	50	Panel_13V_PW
38	ODD_TX2-_LVDS	51	Panel_13V_PW
39	ODD_TX1+_LVDS		

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❷ CN201 (to Powr board)			
1	B5.3V	11	B13V
2	SW_POWER_OUT	12	B13V
3	B5.3V	13	B13V
4	A5.3V	14	PWM_DIMM1_OUT
5	GND	15	GND
6	GND	16	PWM_DIMM2_OUT
7	B12VS	17	OVD_ON_OFF
8	GND	18	PWM_DIMM3_OUT
9	B12VS	19	NC
10	SW_INVERTER	20	PWM_DIMM4_OUT

❸ CN1201_F18 (FUNCTION)			
1	IR	10	USB_BT_DM
2	FRAME_SYNC_IN	11	KEY_INPUT1
3	GND	12	GND
4	BT_SYNC	13	KEY_INPUT2
5	A3.3V	14	BT_WAKE
6	GND	15	LED_STB
7	MSCL	16	POWER_DET
8	USB_BT_DP	17	NC
9	MSDA	18	NC

❹ CN302 (SPEAKER)			
1	R+	3	L+
2	R-	4	L-

❺ CN1203(DEBUG)			
1	GND	4	DEBUG_TX
2	DEBUG_RX	5	DEBUG_TX
3	DEBUG_TX	6	GND

❻ CN502(COMPONENT)			
1	GND	9	COMP2_PR
2	COMP2_Y_CVBS	10	GND
3	IDENT_VIDEO2	11	COMP2_AV2_SL_IN
4	GND	12	COMP2_AV2_SR_IN
5	COMP2_PB	13	GND
6	IDENT_COMP2	14	COMP2_AV2_SR_IN
7	GND	15	COMP2_AV2_SL_IN
8	COMP2_PR		

❼ CN601_H1 (HDMI1)			
1	HDMI1_RX2+	11	GND
2	GND	12	HDMI1_RXCLK-
3	HDMI1_RX2-	13	HDMI_CEC
4	HDMI1_RX1+	14	GND
5	GND	15	SCL
6	HDMI1_RX1-	16	SDA
7	HDMI1_RX0+	17	GND
8	GND	18	5V
9	HDMI1_RX0-	19	HPD
10	HDMI1_RXCLK+		

❽ CN602_H2 (HDMI2)			
1	HDMI2_RX2+	11	GND
2	GND	12	HDMI2_RXCLK-
3	HDMI2_RX2-	13	HDMI_CEC
4	HDMI2_RX1+	14	GND
5	GND	15	SCL
6	HDMI2_RX1-	16	SDA
7	HDMI2_RX0+	17	GND
8	GND	18	5V
9	HDMI2_RX0-	19	HPD
10	HDMI2_RXCLK+		

❾ CN1502_U2 (USB1)			
1	USB_VCC	3	USB_DP
2	USB_DM	4	GND

❿ CN402(DVI SOUND OUT)			
1	GND	4	NC
2	DVI_SR_OUT	5	NC
3	DVI_SL_OUT	6	NC

⓫ OP301 (OPTICAL)			
1	SPDIF_OUT	3	GND
2	GND		

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5.3. Connector Functions

Connector	Function
CN201 ↔ IP CNM803	Supply main power and dimming signal from IP Board to Main Board.
CN1401_FHD ↔ T-CON CNF1	The LVDS signal transfered from Main Board to Panel.

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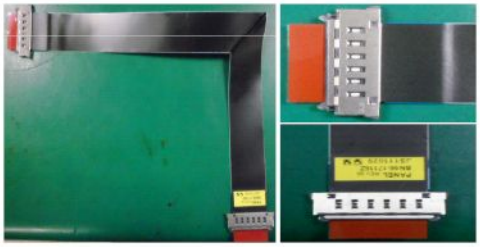
5.4. Cables

Use	LEAD (Main - IP 20P)	LVDS CALBE (Main - Panel 51P)
Code No.	32" : BN39-01475D 40" : BN39-01475N 46" : BN39-01475H 55" : BN39-01475P	32" : BN96-23839D 40" : BN96-22239D 46" : BN96-22239E 55" : BN96-22239F
Image		

NOTE

The part code for some cables may differ depending on your region.

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GSPN (GLOBAL SERVICE PARTNER NETWORK)

Area	Web Site
Europe, MENA, CIS, Africa	https://gspn1.samsungcsportal.com
E.Asia, W.Asia, China, Japan	https://gspn2.samsungcsportal.com
N.America, S.America	https://gspn3.samsungcsportal.com

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