



LED-TV

Chassis :	U71D	U71E
Model :	HG40*A570*W	HG22EA47**W
	HG26*A47**W	
	HG32*A47**W	

SERVICE MANUAL

LED TV

Contents



HG22EA47**W
HG**A47**W/HG40*A570*W

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

Contents

1.	Precautions	1 – 1
1.1.	Safety Precautions	1 – 1
1.2.	Servicing Precautions	1 – 3
1.3.	Static Electricity Precautions.....	1 – 4
1.4.	Installation Precautions	1 – 5
2.	Product Specifications.....	2 – 1
2.1.	Product Information	2 – 1
2.2.	Detail Factory Option	2 – 15
2.3.	Accessories	2 – 18
3.	Disassembly and Reassembly	3 – 1
3.1.	Disassembly and Reassembly.....	3 – 1
3.2.	Assy Board P-Jog Switch & Ir.....	3 – 12
3.3.	Disassembly(PTC)	3 – 14
4.	Troubleshooting.....	4 – 1
4.1.	Troubleshooting	4 – 1
4.2.	How to Check Fault Symptom.....	4 – 5
4.3.	Factory Mode Adjustments	4 – 8
4.4.	White Balance.....	4 – 17
4.5.	White Ratio (Balance) Adjustment	4 – 20
4.6.	Software Upgrade	4 – 21
4.7.	Cover-Middle Rear Dimension	4 – 24
5.	Wiring Diagram	5 – 1
5.1.	Wiring Diagram.....	5 – 1
5.2.	Connector	5 – 5
5.3.	Connector Functions.....	5 – 7
5.4.	Cables	5 – 8

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



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

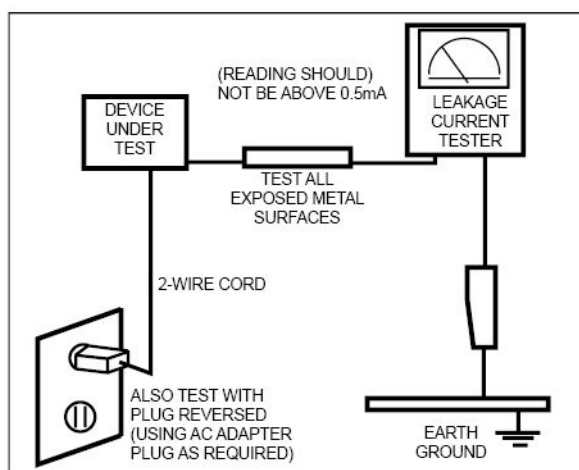
1-1-2. Servicing the LED TV

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 resistor/capacitor networks, mechanical insulators, etc.
3. Leakage Current Hot Check:




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.

1-1-4. Product Safety Notices

Some electrical and mechanical parts have special safety-related 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.

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 the blades 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.

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.



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.



1.4. Installation Precautions


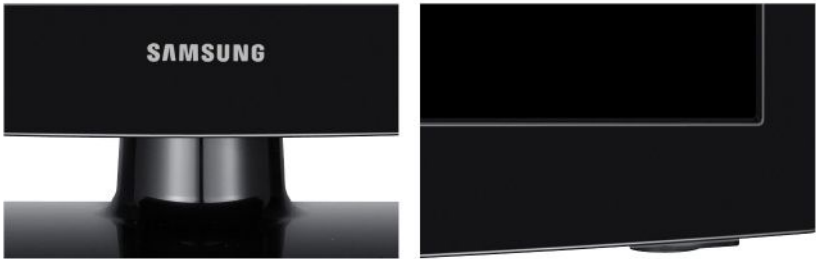
1. For safety reasons, more than a people are required for carrying the product.
2. Keep the power cord away from any heat emitting devices, as a melted covering may cause fire or electric shock.
3. Do not place the product in areas with poor ventilation such as a bookshelf or closet. The increased internal 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.




2. Product Specifications



2.1. Product Information

2-1-1. Model Comparison

Model	HG***A47**W		
Front View	 <p>* W: Width H: High D: Depth</p>		
Detail View			
Front Color	Black (Panel)		
Dimensions (W x H x D)	26"	Set with Stand	615.1 x 419.2 x 180.7 mm
		Set without Stand	615.1 x 365.6 x 93.3 mm
	32"	Set with Stand	738.8 x 498.1 x 191.6 mm
		Set without Stand	738.8 x 444.6 x 93.1 mm
Weight	26"	Set with Stand	4.5 kg
		Set without Stand	4.0 kg
	32"	Set with Stand	6.4 kg
		Set without Stand	5.7 kg
Panel Type	Anti Glare		
Internal Memory	None		
DDR	128 Mbyte		
Feature	Media Play(Movie)		

Model	HG***A475*W		
Front View	 <p>* W : Width H : High D : Depth</p>		
Detail View			
Front Color	Black (Panel)		
Dimensions (W x H x D)	26"	Set with Stand	622.1 x 180.7 x 450.6 mm
		Set without Stand	622.1 x 397.1 x 96.3 mm
	32"	Set with Stand	745.9 x 191.7 x 524.9 mm
		Set without Stand	745.9 x 467.1 x 96.3 mm
Weight	26"	Set with Stand	4.7 kg
		Set without Stand	4.2 kg
	32"	Set with Stand	7.9 kg
		Set without Stand	5.9 kg
Panel Type	Anti Glare		
Internal Memory	None		
DDR	128 Mbyte		
Feature	Media Play(Movie)		

Model	HG22EA47**W		
Front View	 <p>* W : Width H : High D : Depth</p>		
Detail View	 		
Front Color	Black (Panel)		
Dimensions (W x H x D)	22"	Set with Stand	513.4 x 364.4 x 161.0 mm
		Set without Stand	513.4 x 316.2 x 49.6 mm
Weight	22"	Set with Stand	3.5 kg
		Set without Stand	3.3 kg
Panel Type	Anti Glare		
Internal Memory	None		
DDR	128 Mbyte		
Feature	Media Play(Movie)		

Model	HG40*A570LW		
Front View	 <p>* W : Width H : High D : Depth</p>		
Detail View			
Front Color	Black (Panel)		
Dimensions (W x H x D)	40"	Set with Stand	927.6 x 606.4 x 227.6 mm
		Set without Stand	927.6 x 551.0 x 93.0 mm
Weight	40"	Set with Stand	11.0 kg
		Set without Stand	9.0 kg
Panel Type	Anti Glare		
Internal Memory	None		
DDR	128 Mbyte		
Feature	Media Play(Movie)		

2-1-2. Feature & Specifications

Model	HG26*A47**W	
Feature		
<ul style="list-style-type: none">Digital-TV, RF, 1-HDMI, 1-Component, 1-A/V, 1-USB2.0High Contrast Ratio : MEGAResponse Time : 4 msCMR (Clear Motion Rate) : 60		
Specifications		
Item	Description	
LCD Panel	26 inch HD 60Hz	
Scanning Frequency	Horizontal : 60 kHz ~ 73 kHz (Automatic) Vertical : 47 Hz ~ 63 Hz (Automatic)	
Display Colors	16.7M colors	
Maximum Resolution	Horizontal : 1366 Pixels Vertical : 768 Pixels	
Input Signal	Analog 0.7 Vp-p ± 5% positive at 75Ω, internally terminated	
Input Sync Signal	H/V Separate, TTL, P. or N.	
Maximum Pixel Clock Rate	74.25 MHz	
Active Display (H x V)* * Horizontal x Vertical	580.8(H) x 328.7(V) mm	
AC Power Voltage & Frequency	AC 110V ~ 120 V, 60 Hz	
Power Consumption	28 W (Under 0.3 W, Stand by)	
Dimensions Set (W x H x D)* * Width x High x Depth	Set with Stand	615.1 x 419.2 x 180.7 mm
	Set without Stand	615.1 x 365.6 x 93.3 mm
Weight	Set with Stand	4.5 kg
	Set without Stand	4.0 kg
TV System	Tunning	Frequency Synthesize (Refer to detailed Frequency Table)
	System	DVB-T/C/S/S2, PAL, SECAM, NT4.43
	Sound	BK, DK, NICAM, MPEG1
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 5 W(Left/Right) Equalizer : 5 Band Output Frequency : <ul style="list-style-type: none">RF : 20 Hz ~ 15.4 kHzAV/Componet/HDMI : 20 Hz ~ 20 kHz	
Note : Dolby Digital Plus/Pulse, USB2.0, Film mode, Energy Saving		

Model	HG32*A47**W	
Feature		
<ul style="list-style-type: none">Digital-TV, RF, 1-HDMI, 1-Component, 1-A/V, 1-USB2.0High Contrast Ratio : MEGAResponse Time : 4 msCMR (Clear Motion Rate) : 60		
Specifications		
Item	Description	
LCD Panel	32 inch HD 60Hz	
Scanning Frequency	Horizontal : 60 kHz ~ 73 kHz (Automatic) Vertical : 47 Hz ~ 63 Hz (Automatic)	
Display Colors	16.7M colors	
Maximum Resolution	Horizontal : 1366 Pixels Vertical : 768 Pixels	
Input Signal	Analog 0.7 Vp-p ± 5% positive at 75Ω, internally terminated	
Input Sync Signal	H/V Separate, TTL, P. or N.	
Maximum Pixel Clock Rate	74.25 MHz	
Active Display (H x V)* * Horizontal x Vertical	902.0(H) x 162.0(V) mm	
AC Power Voltage & Frequency	AC 110V ~ 120 V, 60 Hz	
Power Consumption	28 W (Under 0.3 W, Stand by)	
Dimensions Set (W x H x D)* * Width x High x Depth	Set with Stand	738.8 x 498.1 x 191.6 mm
	Set without Stand	738.8 x 444.6 x 93.1 mm
Weight	Set with Stand	6.3 kg
	Set without Stand	5.7 kg
TV System	Tunning	Frequency Synthesize (Refer to detailed Frequency Table)
	System	DVB-T/C/S/S2, PAL, SECAM, NT4.43
	Sound	BK, DK, NICAM, MPEG1
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 5 W(Left/Right) Equalizer : 5 Band Output Frequency : <ul style="list-style-type: none">RF : 20 Hz ~ 15.4 kHzAV/Componet/HDMI : 20 Hz ~ 20 kHz	
Note : Dolby Digital Plus/Pulse, USB2.0, Film mode, Energy Saving		



Model	HG26*A475RW	
Feature		
<ul style="list-style-type: none">Digital-TV, RF, 1-HDMI, 1-Component, 1-A/V, 1-USB2.0High Contrast Ratio : MEGAResponse Time : 4 msCMR (Clear Motion Rate) : 60		
Specifications		
Item	Description	
LCD Panel	26 inch HD 60Hz	
Scanning Frequency	Horizontal : 60 kHz ~ 73 kHz (Automatic) Vertical : 47 Hz ~ 63 Hz (Automatic)	
Display Colors	16.7M colors	
Maximum Resolution	Horizontal : 1366 Pixels Vertical : 768 Pixels	
Input Signal	Analog 0.7 Vp-p ± 5% positive at 75Ω, internally terminated	
Input Sync Signal	H/V Separate, TTL, P. or N.	
Maximum Pixel Clock Rate	74.25 MHz	
Active Display (H x V)* * Horizontal x Vertical	580.8(H) x 328.7(V) mm	
AC Power Voltage & Frequency	AC 110V ~ 120 V, 60 Hz	
Power Consumption	28 W (Under 0.3 W, Stand by)	
Dimensions Set (W x H x D)* * Width x High x Depth	Set with Stand	622.1 x 180.7 x 450.6 mm
	Set without Stand	622.1 x 397.1 x 96.3 mm
Weight	Set with Stand	4.7 kg
	Set without Stand	4.2 kg
TV System	Tunning	Frequency Synthesize (Refer to detailed Frequency Table)
	System	DVB-T/C/S/S2, PAL, SECAM, NT4.43
	Sound	BK, DK, NICAM, MPEG1
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 5 W(Left/Right) Equalizer : 5 Band Output Frequency : <ul style="list-style-type: none">RF : 20 Hz ~ 15.4 kHzAV/Componet/HDMI : 20 Hz ~ 20 kHz	
Note : Dolby Digital Plus/Pulse, USB2.0, Film mode, Energy Saving		

Model	HG32*A475RW	
Feature		
<ul style="list-style-type: none">Digital-TV, RF, 1-HDMI, 1-Component, 1-A/V, 1-USB2.0High Contrast Ratio : MEGAResponse Time : 4 msCMR (Clear Motion Rate) : 60		
Specifications		
Item	Description	
LCD Panel	32 inch HD 60Hz	
Scanning Frequency	Horizontal : 60 kHz ~ 73 kHz (Automatic) Vertical : 47 Hz ~ 63 Hz (Automatic)	
Display Colors	16.7M colors	
Maximum Resolution	Horizontal : 1366 Pixels Vertical : 768 Pixels	
Input Signal	Analog 0.7 Vp-p ± 5% positive at 75Ω, internally terminated	
Input Sync Signal	H/V Separate, TTL, P. or N.	
Maximum Pixel Clock Rate	74.25 MHz	
Active Display (H x V)* * Horizontal x Vertical	902.0(H) x 162.0(V) mm	
AC Power Voltage & Frequency	AC 110V ~ 120 V, 60 Hz	
Power Consumption	28 W (Under 0.3 W, Stand by)	
Dimensions Set (W x H x D)* * Width x High x Depth	Set with Stand	745.9 x 191.7 x 524.9 mm
	Set without Stand	745.9 x 467.1 x 96.3 mm
Weight	Set with Stand	7.9 kg
	Set without Stand	5.9 kg
TV System	Tunning	Frequency Synthesize (Refer to detailed Frequency Table)
	System	DVB-T/C/S/S2, PAL, SECAM, NT4.43
	Sound	BK, DK, NICAM, MPEG1
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 5 W(Left/Right) Equalizer : 5 Band Output Frequency : <ul style="list-style-type: none">RF : 20 Hz ~ 15.4 kHzAV/Componet/HDMI : 20 Hz ~ 20 kHz	
Note : Dolby Digital Plus/Pulse, USB2.0, Film mode, Energy Saving		



Model	HG22*A470PW	
Feature		
<ul style="list-style-type: none">Digital-TV, RF, 1-HDMI, 1-Component, 1-A/V, 1-USB2.0High Contrast Ratio : MEGAResponse Time : 8 msCMR : 120		
Specifications		
Item	Description	
LCD Panel	22 inch FHD 60 Hz	
Scanning Frequency	Horizontal : 60 kHz ~ 73 kHz (Automatic) Vertical : 47 Hz ~ 63 Hz (Automatic)	
Display Colors	16.7M colors	
Maximum Resolution	Horizontal : 1920 Pixels Vertical : 1080 Pixels	
Input Signal	Analog 0.7 Vp-p ± 5% positive at 75Ω, internally terminated	
Input Sync Signal	H/V Separate, TTL, P. or N.	
Maximum Pixel Clock Rate	74.25 MHz	
Active Display (H x V)* * Horizontal x Vertical	503.4(H) x 397.8(V) mm	
AC Power Voltage & Frequency	AC 110V ~ 120 V, 60 Hz	
Power Consumption	22.4 W (Under 0.3 W, Stand by)	
Dimensions Set (W x H x D)* * Width x High x Depth	Set with Stand	513.4 x 364.4 x 161.0 mm
	Set without Stand	513.4 x 316.2 x 49.6 mm
Weight	Set with Stand	3.5 kg
	Set without Stand	3.3 kg
TV System	Tunning	Frequency Synthesize (Refer to detailed Frequency Table)
	System	DVB-T/C/S/S2, PAL, SECAM, NT4.43
	Sound	BK, DK, NICAM, MPEG1
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 5 W(Left/Right) Equalizer : 5 Band Output Frequency : <ul style="list-style-type: none">RF : 20 Hz ~ 15.4 kHzAV/Componet/HDMI : 20 Hz ~ 20 kHz	
Note : Dolby Digital Plus/Pulse, USB2.0, Film mode, Energy Saving, Eco sensor		

Model	HG40*A570*W	
Feature		
<ul style="list-style-type: none">• Digital-TV, RF, 2-HDMI, 1-Component, 1-A/V, 1-USB2.0• High Contrast Ratio : MEGA• Response Time : 8 ms• CMR : 120		
Specifications		
Item	Description	
LCD Panel	40 inch FHD 60Hz	
Scanning Frequency	Horizontal : 60 kHz ~ 73 kHz (Automatic) Vertical : 47 Hz ~ 63 Hz (Automatic)	
Display Colors	16.7M colors	
Maximum Resolution	Horizontal : 1920 Pixels Vertical : 1080 Pixels	
Input Signal	Analog 0.7 Vp-p ± 5% positive at 75Ω, internally terminated	
Input Sync Signal	H/V Separate, TTL, P. or N.	
Maximum Pixel Clock Rate	74.25 MHz	
Active Display (H x V)* * Horizontal x Vertical	890.6(H) X 503.2(V) (mm)	
AC Power Voltage & Frequency	AC 110V ~ 120 V, 60 Hz	
Power Consumption	55 W (Under 0.3 W, Stand by)	
Dimensions Set (W x H x D)* * Width x High x Depth	Set with Stand	927.6 x 606.4 x 227.6 mm
	Set without Stand	927.6 x 551.0 x 93.0 mm
Weight	Set with Stand	11.0 kg
	Set without Stand	9.0 kg
TV System	Tunning	Frequency Synthesize (Refer to detailed Frequency Table)
	System	DVB-T/C/S/S2, PAL, SECAM, NT4.43
	Sound	BK, DK, NICAM, MPEG1
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 5 W(Left/Right) Equalizer : 5 Band Output Frequency : <ul style="list-style-type: none">• RF : 20 Hz ~ 15.4 kHz• AV/Componet/HDMI : 20 Hz ~ 20 kHz	
Note : Dolby Digital Plus/Pulse, USB2.0, Film mode, Energy Saving, Eco sensor		

2-1-3. Specification Comparison to Old Models

Model	HGA5L(HG40EA57**W)		UD5R(UE**D5500R*)	
Design				
Display Type	LED TV		LED TV	
Built-in Tuner	○		○	
Resolution	1920 x 1080		1920 x 1080	
LCD Panel	TFT LCD Panel 60 Hz		TFT LCD Panel 60 Hz	
Screen Size	40"		32"/40"	
Picture ratio	16 : 9		16 : 9	
Power Consumption	40"	55 W (Under 0.3W, Standby)	32" 40"	80 W (Under 0.3W, Standby) 100 W (Under 0.3W, Standby)
Dimensions (W x H x D)	40"	927.6 x 606.4 x 227.6 mm_with stand 927.6 x 551.0 x 93.0 mm_without stand	32" 40"	513.4 x 364.4 x 161.0 mm_with stand 513.4 x 316.2 x 49.6 mm_without stand 513.4 x 364.4 x 161.0 mm_with stand 513.4 x 316.2 x 49.6 mm_without stand
Weight	40"	11.0 kg_with stand 9.0 kg_without stand	32" 40"	XX kg_with stand XX kg_without stand XX kg_with stand XX kg_without stand
Contrast Ratio	MEGA		MEGA	
Picture Enhancer	HyperReal Engine (X9)		HyperReal Engine (X5)	
Equalizer	5 Band		5 Band	
Auto Volume Control	○		○	
Surround Sound	Dolby Digital plus		Dolby Digital plus	
Speaker Output	40"	10 W x 10 W	32" 40"	10 W x 10 W 10 W x 10 W
PIP	○		○	
Function	Jog Function		Touch Function	
Caption	○		○	
Game Mode	○		○	
Energy Saving	○		○	
Network	X		X	

Model	HGA5L(HG40EA57**W)	UD5R(UE**D5500R*)
Anynet+	○	○
Antenna	1(Cable/Air)	1(Cable/Air)

Model	HGA4J(HG**EA47**W)		UD4N(UE32D4000NW)	
Design				
Display Type	LED TV		LED TV	
Built-in Tuner	O		O	
Resolution	22" : 1920 x 1080 26"/32" : 1360 x 1080		1920 x 1080	
LCD Panel	TFT LCD Panel 60 Hz		TFT LCD Panel 60 Hz	
Screen Size	22"/26"/32"		22"/27"	
Picture ratio	16 : 9		16 : 9	
Power Consumption	26"	39 W (Under 0.3W, Standby)	19"	40 W (Under 0.3W, Standby)
	32"	55 W (Under 0.3W, Standby)	32"	70 W (Under 0.3W, Standby)
Dimensions (W x H x D)	26"	615.1 x 419.2 x 180.7 mm_with stand 615.1 x 365.6 x 93.3 mm_without stand	19"	513.4 x 364.4 x 161.0 mm_with stand 513.4 x 316.2 x 49.6 mm_without stand
	32"	738.8 x 498.1 x 191.6 mm_with stand 738.8 x 444.6 x 93.1 mm_without stand	32"	513.4 x 364.4 x 161.0 mm_with stand 513.4 x 316.2 x 49.6 mm_without stand
Weight	26"	4.5 kg_with stand 4.0 kg_without stand	19"	3.4 kg_with stand 3.1 kg_without stand
	32"	6.4 kg_with stand 5.7 kg_without stand	32"	9.0 kg_with stand 7.0 kg_without stand
Contrast Ratio	MEGA		MEGA	
Picture Enhancer	HyperReal Engine (X9)		HyperReal Engine (X5)	
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	26"	5 W x 5 W	19"	3 W x 3 W
	32"	10 W x 10 W	32"	10 W x 10 W
PIP	X		O	
Function	Jog Function		Touch Function	
Caption	O		O	
Game Mode	O		O	
Energy Saving	O		O	

Model	HGA4J(HG**EA47**W)	UD4N(UE32D4000NW)
Network	X	X
Anynet+	X	O
Antenna	1(Cable/Air)	1(Cable/Air)

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".

■ HG47*

Model Name		HG22EA47**W	HG26*A47**W	HG32*A47**W
Panel	Vendor	CMI	CMI AUO	BOE AUO AML
	Code	BN07-01094A	BN07-01094A BN07-01111A	BN95-00624A BN07-01112A BN95-00585A
	Spec.	DE260AGM-C1	DE260AGM-C1 DE260AGA-B1	DE320AGE-Z1 DE320AGA-B1 LTJ320AP03-V
SMPS	Vendor	SEM DONGYANG	SEM DONGYANG	DONGYANG SEM DONGYANG
	Code	BN44-00491A BN44-00492C	BN44-00491A BN44-00492C	BN44-00492B BN44-00492A BN44-00492C
	Spec.	PSLF360A04A PD32AV0N_CDY	PSLF360A04A PD32AV0N_CDY	PD32AV0_CDY PSLF450A04A PD32AV0N_CDY
Byte	Item	Chassis Ass'y	Depending on Region, Chassis Ass'y is different.	
0	Factory Reset	PBA Ass'y code	Depending on Region, PBA Ass'y code is different.	
1	Type	26P6AH0D	26P6AH0D 26R6AH0D	32B6AH0D 32R6AH0D
2	Model	HA470	HA470	HA470
3	SVC Model	470	470	470
4	Local Set	Depending on Region, Local Set is different.		
5	Tuner	SI_ATC2	SI_ATC2	SI_ATC2
6	Ch Table	NONE	NONE	NONE
7	Front Color	NONE	NONE	NONE





■ HG475

Model Name			HG26*A475*W	HG32*A475*W
Panel	Vendor		CMI AUO	BOE AUO AML
	Code		BN07-01094A BN07-01111A	BN95-00624A BN07-01112A BN95-00585A
	Spec.		DE260AGM-C1 DE260AGA-B1	DE320AGE-Z1 DE320AGA-B1 LTJ320AP03-V
SMPS	Vendor		SEM DONGYANG	DONGYANG SEM DONGYANG
	Code		BN44-00491A BN44-00492C	BN44-00492B BN44-00492A BN44-00492C
	Spec.		PSLF360A04A PD32AV0N_CDY	PD32AV0_CDY PSLF450A04A PD32AV0N_CDY
Byte	Item	Chassis Ass'y	Depending on Region, Chassis Ass'y is different.	
0	Factory Reset	PBA Ass'y code	Depending on Region, PBA Ass'y code is different.	
1	Type		26P6AH0D 26R6AH0D	32B6AH0D 32R6AH0D
2	Model		HA475	HA475
3	SVC Model		475	475
4	Local Set		Depending on Region, Local Set is different.	
5	Tuner		SI_ATC2	SI_ATC2
6	Ch Table		NONE	NONE
7	Front Color		NONE	NONE

■ HG570

Model Name			HG40EA570*W
Panel	Vendor		AML AUO
	Code		BN95-00587A BN07-01116A
	Spec.		DE400BGA-B1
SMPS	Vendor		SEM DONGYANG
	Code		BN44-00498C BN44-00496A BN44-00496B
	Spec.		PD46AV1N_CSM PD40AVF_CSM PD40AVF_CDY
Byte	Item	Chassis Ass'y	BN91-09246A
0	Factory Reset	PBA Ass'y code	BN94-05730B
1	Type		40R6AF0D
2	Model		HA570
3	SVC Model		570
4	Local Set		EA_CHINA
5	Tuner		SI_ATC2
6	Ch Table		NONE
7	Front Color		P-S-C-BK

2.3. Accessories

Product	Description	Code. No	Remark
	Remote Control	AA59-00629A OR AA59-00818A AA59-00502A (WHITE MODEL ONLY)	Samsung Electronics Service center
	Batteries (AAA x 2)	4301-000103	
	Data Cable	AA39-00864A	
	Power Cord	Depending on model, Power Cord is different.	
	Quick Set up Guide		

3. Disassembly and Reassembly

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






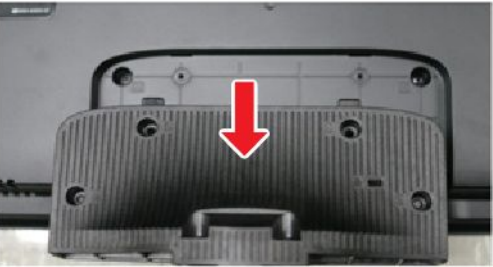
This LED TV contains electrostatically sensitive devices. Use caution when handling these components.

3.1. Disassembly and Reassembly




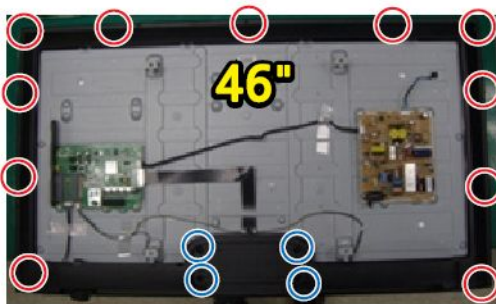


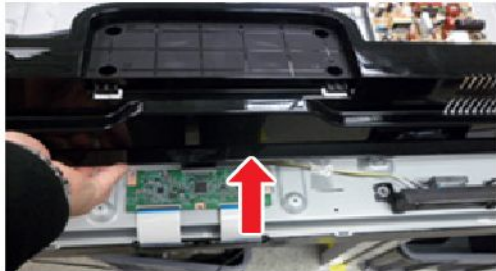


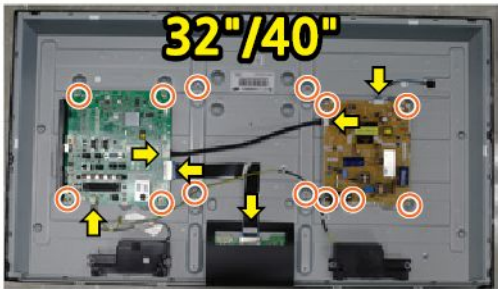

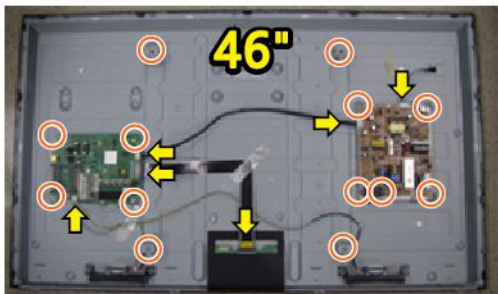
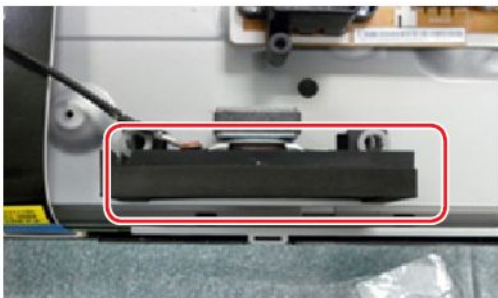
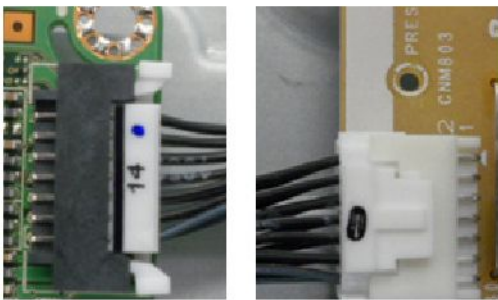
1. Disconnect the LED TV from the power source before disassembly.
2. Follow these directions carefully; never use metal instruments to pry apart the cabinet.
3. If there is no additional coment, it is same for all inches.

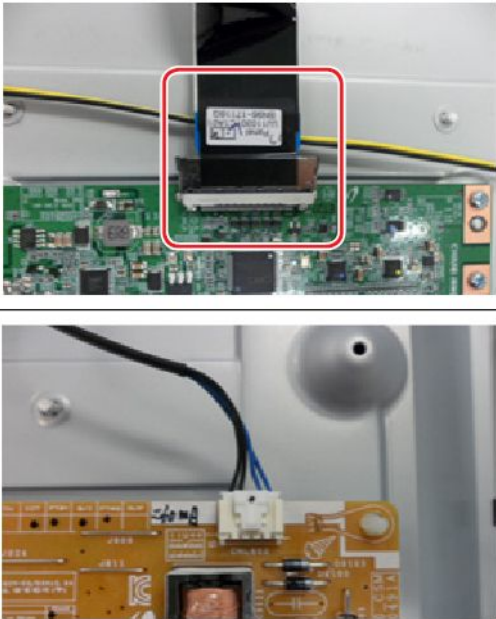

■ HA570


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

Description	Picture Description	Screws
<div>4</div> <div>Remove 1 screw of Cover-Jack.</div> <div>Remove 11 screws of Rear-Cover.</div>	<div><p>32"/40"</p></div> <div><p>46"</p></div>	<div><p>6003-001782</p></div> <div><p>6003-002755</p></div>
<div>5</div> <div>Remove the Cover-Jack.</div> <div>Remove the Rear-Cover.</div>	<div><p>32"/40"</p></div> <div><p>46"</p></div>	

Description	Picture Description	Screws
6 Disconnect the Function Ass'y Cable.	 	
7 Remove the screws of Rear-Cover. <ul style="list-style-type: none"> • 32"/40" : 13 EA • 46" : 15 EA 	 	 6003-001782  6003-002755 (Machine)
8 Remove the Rear-Cover.		








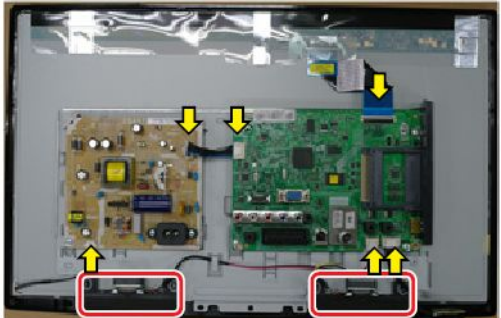
Description	Picture Description	Screws
9 Remove the 13 screws of Main Board and SMPS Board and Panel.		 6001-002756
		
10 Remove the Speakers and Power Cables.		
		





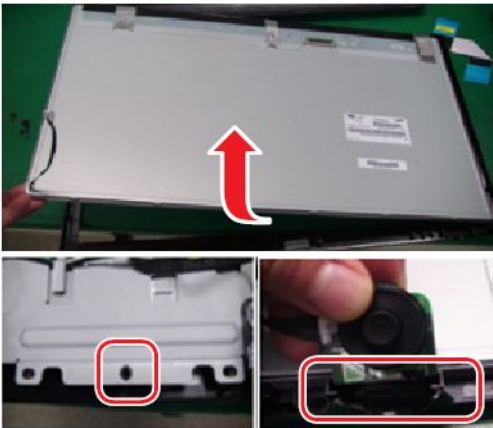
Description	Picture Description	Screws
11 Remove the LVDS Cable and Panel Drive Cable.		
12 Completed disassembly.		

 **NOTE**

Reassembly procedures are in the reverse order of disassembly procedures.

■ HA470_22"









Description	Picture Description	Screws
1 Place TV face down on cushioned table.		
2 Remove 3 screws from the Stand. Remove Stand. <div data-bbox="247 761 699 922">  NOTE If you want to remove the only rear cover, you don't need to remove the stand) </div>		 6003-001782
3 Remove 5 screws of Rear-Cover.		 6003-001782
4 Lift up the Rear-Cover.		
5 Separate the Left/Right Speaker, Cables.		

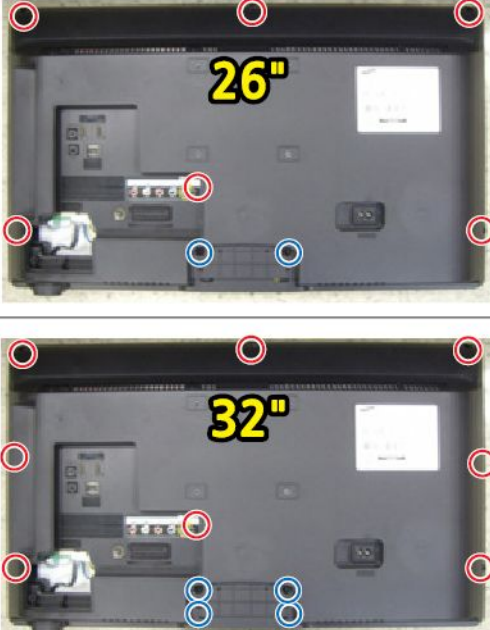

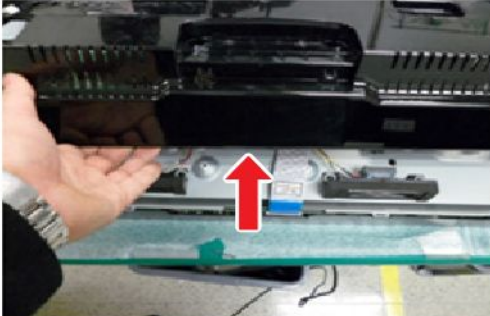
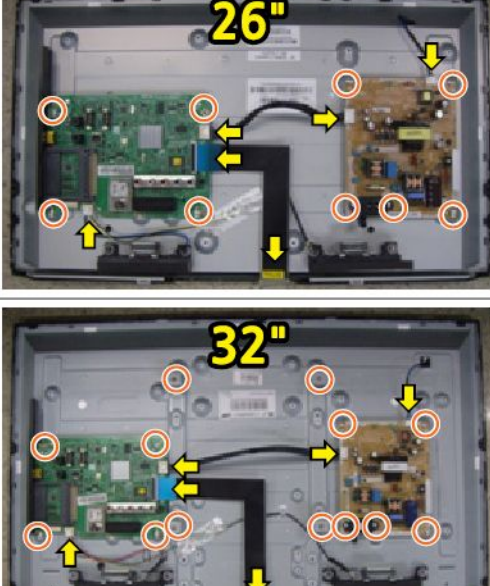

Description	Picture Description	Screws
<p>6 Remove the screws of Main Board and SMPS Board.</p> <ul style="list-style-type: none">• Remove the 4 screws of Main Board.• Remove the 3 screws of SMPS Board. <p> NOTE</p> <ul style="list-style-type: none">• If you need, Side Bracket also.• If you want to change the only Panel, you don't need to separate Boards and cables (except LVDS).		 <p>6001-002756 (Machine)</p>
<p>7 Lift up the Panel.</p> <p> NOTE</p> <p>If you re-assemble, you should keep the stop-point.</p>		

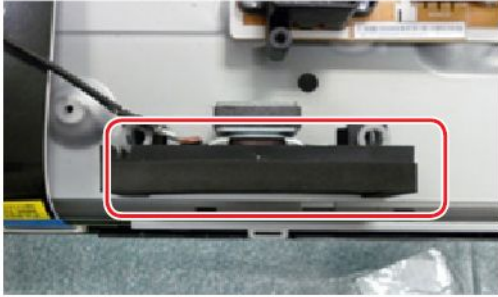
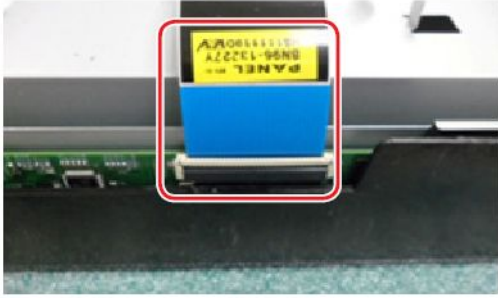


**NOTE**

Reassembly procedures are in the reverse order of disassembly procedures.

■ HA470-26"/32"

Description	Picture Description	Screws
1 Place TV face down on cushioned table.		
2 Remove 4 screws from the Stand.		 6003-001782
3 Remove Stand.		
4 Remove 1 screw of Cover-Jack.		 6003-001782
5 Remove the Cover-Jack.		
6 Disconnect the Function Ass'y Cable.		

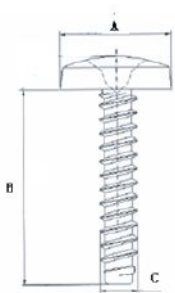
Description	Picture Description	Screws
<p>7 Remove the screws of Rear-Cover.</p> <ul style="list-style-type: none"> • 26" : 8 EA • 32" : 12 EA 		 <p>6003-001782</p> <p>6003-002755 (Machine)</p>
<p>8 Remove the Rear-Cover.</p>		
<p>9 Remove the screws of Main Board and SMPS Board and Panel.</p> <ul style="list-style-type: none"> • 26" : 9 EA • 32" : 13 EA 		 <p>6001-002756</p>

Description	Picture Description	Screws
10 Remove the Speakers and Power Cables.		
11 Remove the LVDS Cable and Panel Drive Cable.	 	
12 Completed disassembly.		

**NOTE**

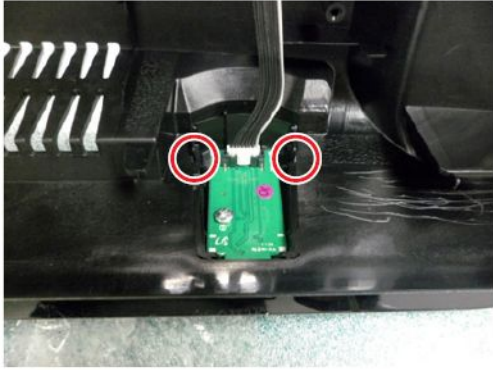
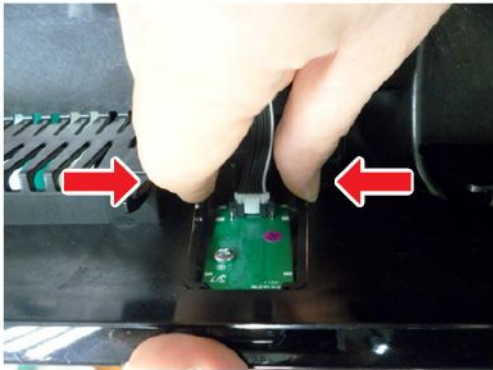
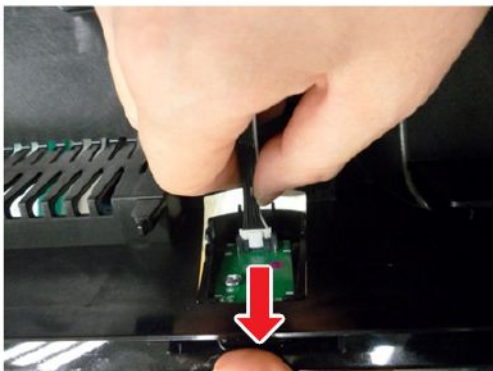
Reassembly procedures are in the reverse order of disassembly procedures.

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	

3.2. Assy Board P-Jog Switch & Ir

■ How to disassembly

Description	Picture Description	Refer
1 Check the 2 Locking Holders.		
2 Press both holders.		
3 Remove the Function Assy.		

■ 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

- Option
- Control**
- SVC
- Expert
- ADC/WB
- Advanced






Config Option




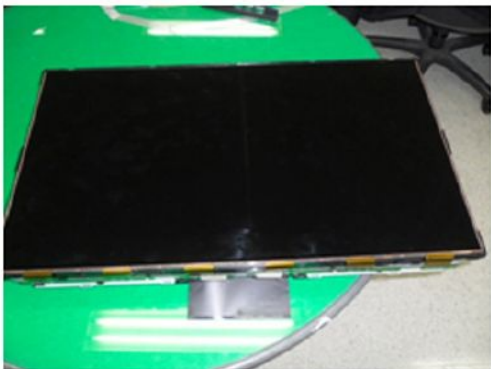
Navigation Key Func

- 0 : New Function (Naviagtion) Key **[Default]**
- 1 : Old Function (Touch) Key
- 2 : Do not work Function key

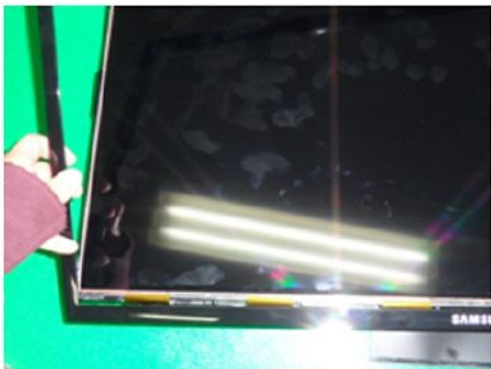


3.3. Disassembly(PTC)

■ 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. <div data-bbox="244 1272 699 1574"> <p>! CAUTION</p> <p>Do not scratch on both side by use tool. Gate Cof will be damaged.</p>  </div>	<div data-bbox="735 1200 1225 1570">  </div> <div data-bbox="735 1592 1225 1962">  </div>	

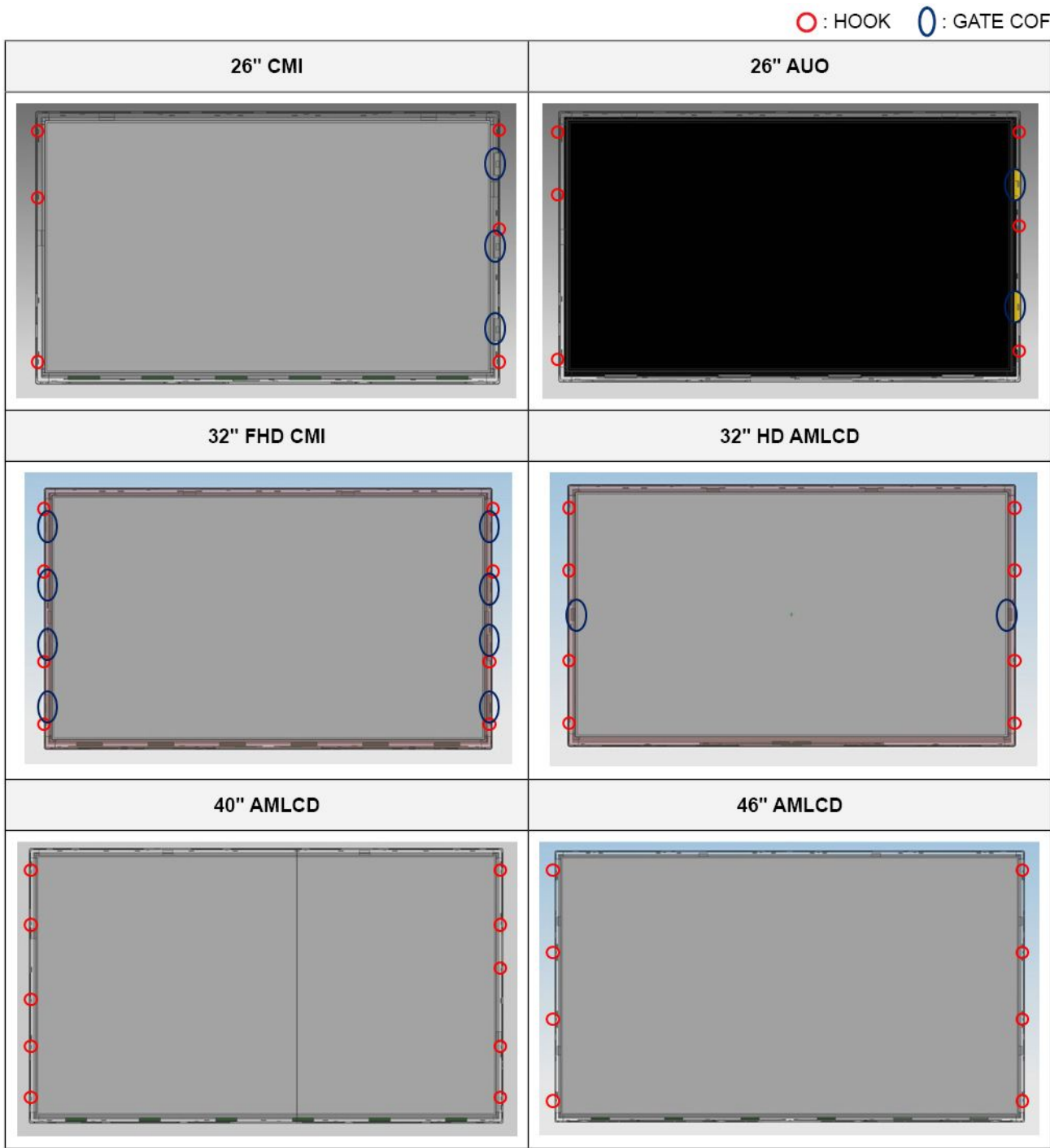
Description	Picture Description	Refer
4 Separate the left and right side of the PTC as shown.		
5 Separate the Bottom of the PTC as shown		
6 Raise up the PTC Bottom.		
7 Disassembly is complete.		

■ 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.		

Description	Picture Description	Refer
<div data-bbox="145 264 643 320">3 Visually inspect the spacing between the PTC and the Panel for equal clearance.</div> <div data-bbox="213 342 643 465"><div data-bbox="213 342 277 398"></div><div data-bbox="277 353 387 387">CAUTION</div><div data-bbox="213 405 620 465">Combine to stick the PTC Rib into the middle mold.</div></div> <div data-bbox="213 472 643 846"></div>		

Description	Picture Description	Refer
4 Assembly is complete.		

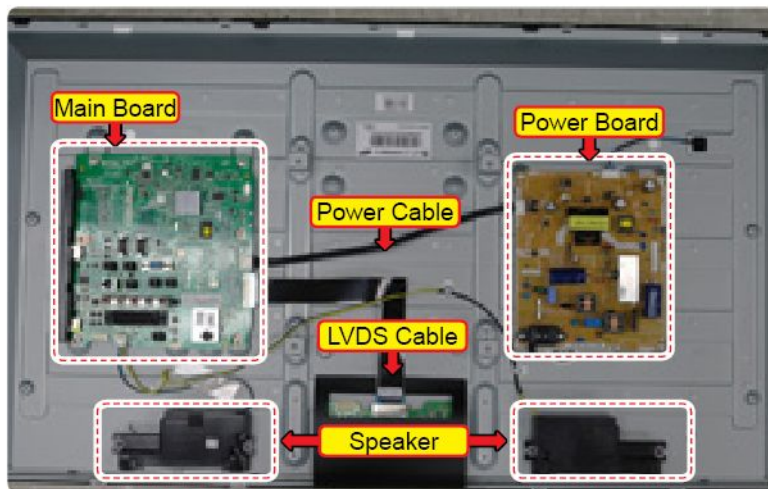


4. Troubleshooting

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.



Main Board Assy (CN201)			
13	B13V	14	B13V
11	B13V	12	B13V
9	B13VS	10	SW_INV
7	B13VS	8	GND
5	GND	6	GND
3	B5.3V	4	A5.3V
1	B5.3V	2	SW_PW

Power Board Assy (CNM803)			
14	B13V	13	B13V
12	B13V	11	B13V
10	SW_INV	9	B13VS
8	GND	7	B13VS
6	GND	5	GND
4	A5.3V	3	B5.3V
2	SW_PW	1	B5.3V

* Change the 12 PIN to B13V(2012) from NC(2011)

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

■ 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

 →

Info

 →

MENU

 →

Mute

 →

Power On
 - If you have Factory remote control

INFO

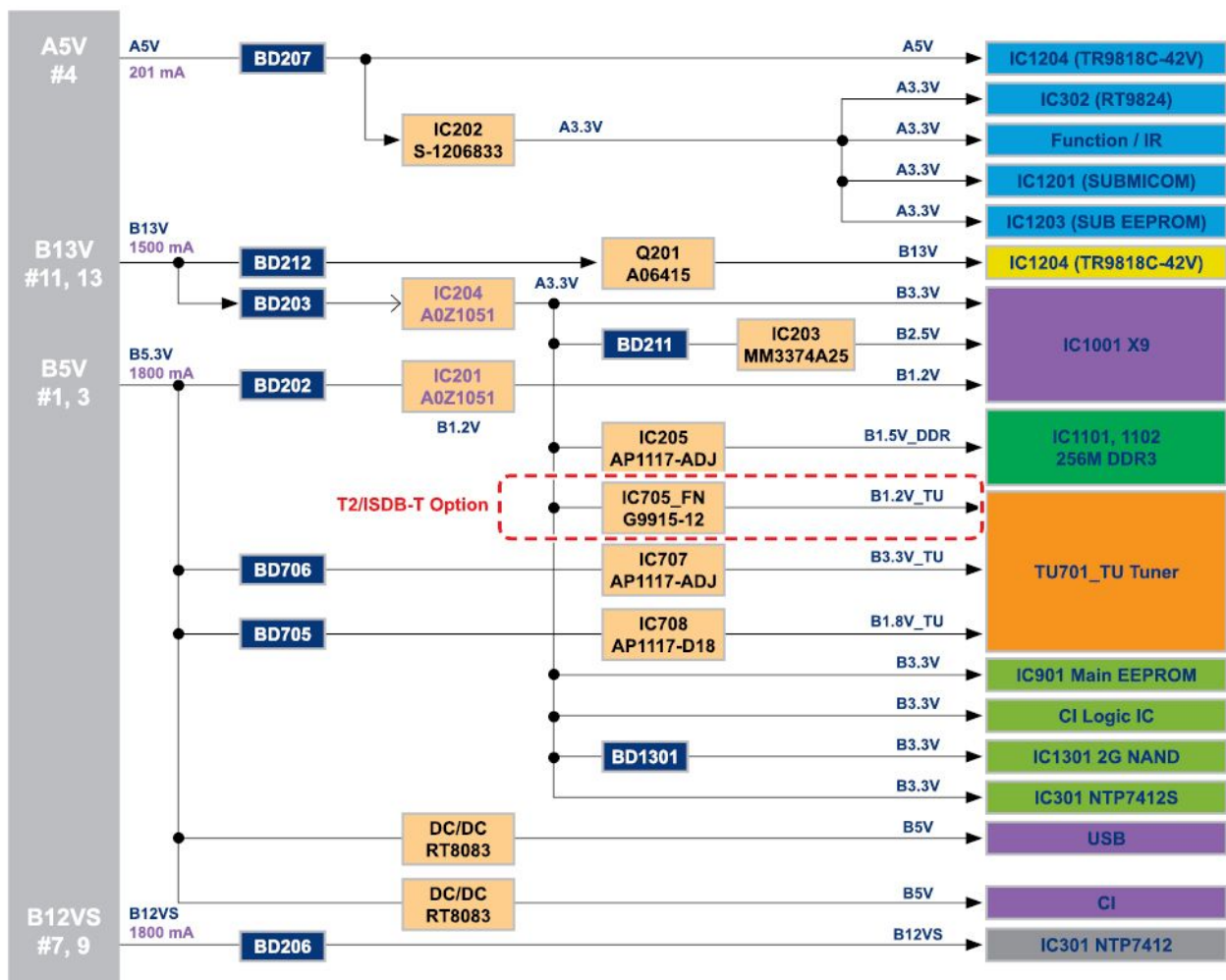
 →

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

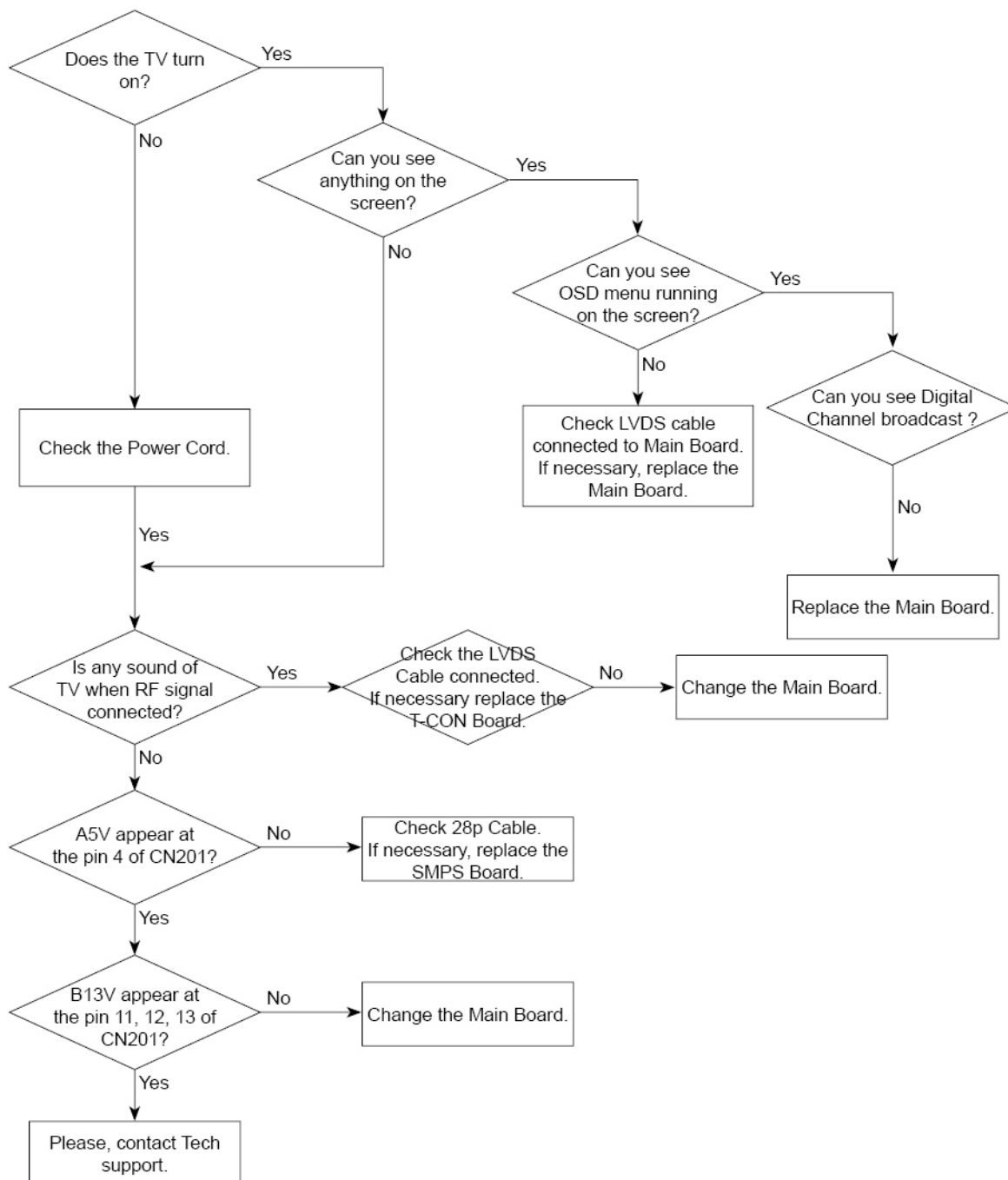


Pattern Status is	Change the	Test Pattern is made by the MSTAR IC
OK	Main Board	We guess front of MSTAR IC has problem.
NG	Panel and T-Con Board	We guess back of MSATR IC has problem.

■ Power-Tree



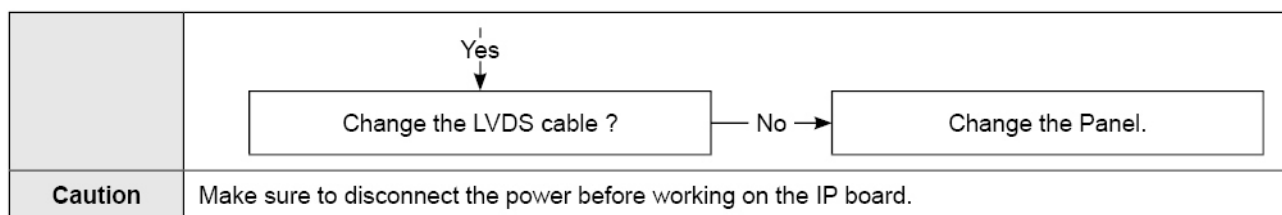
■ Simple flow chart of malfunction



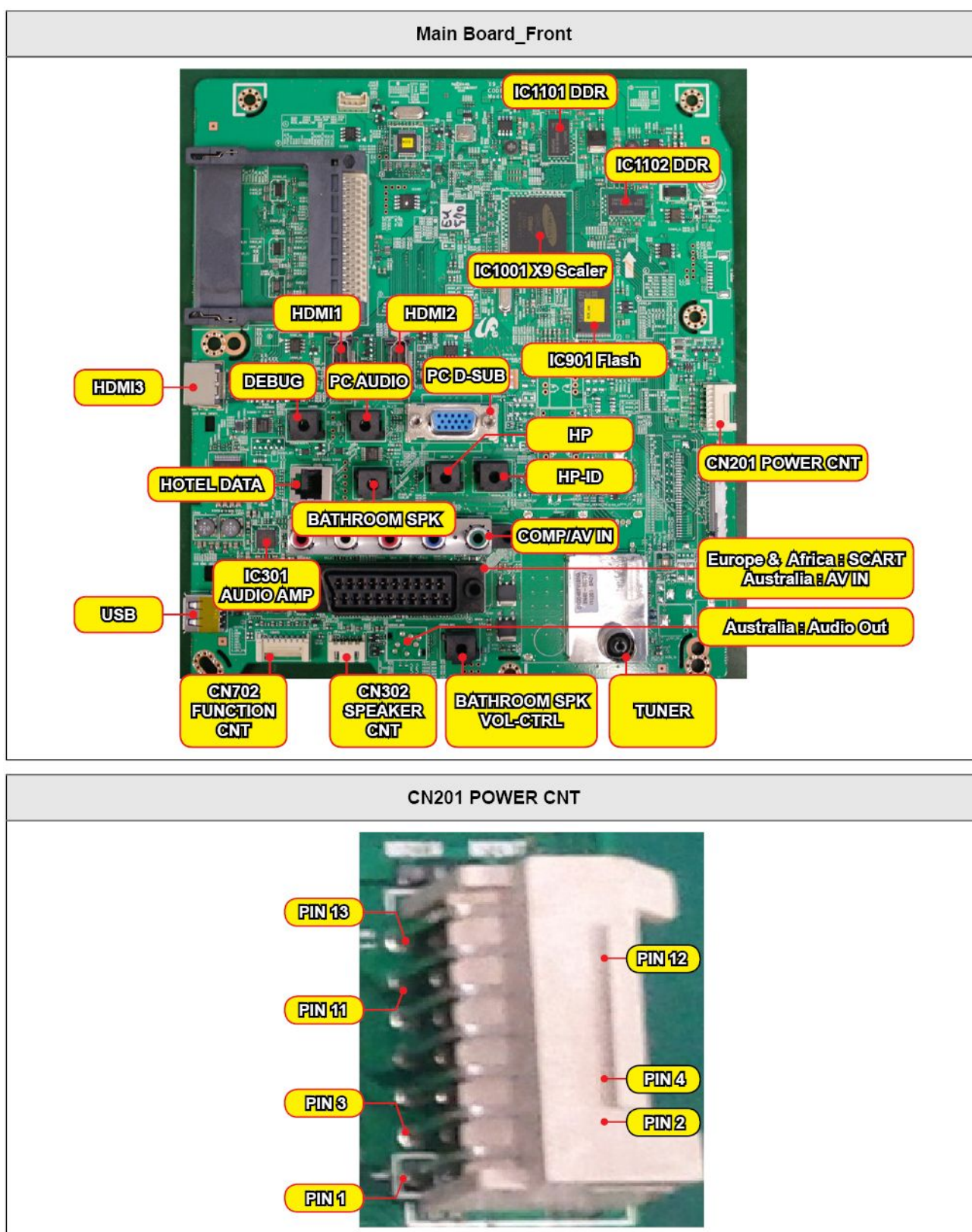
4.2. How to Check Fault Symptom

■ NO Power and No Video

Symptom	<ul style="list-style-type: none"> The LEDs on The front panel do not work when connecting The power cord. The SMPS relay does not work when connecting The power cord. The units appears to be dead.
Major checkpoints	<p>The IP relay or the LEDs on the front panel does not work when connecting the power cord if the cables are improperly connected or the Main Board or SMPS is not functioning. In this case, check the following:</p> <ul style="list-style-type: none"> Check the internal cable connection status inside the unit. Check the fuses of each part. Check the output voltage of SMPS. Replace the Main Board.
Diagnostics	<pre> graph TD Start[Power cord on.] -- Yes --> Check1[Check 'Stand-By A5.3V' 5.3V appear at BD210? 0V to 5.3V (CN201 #4)] Check1 -- No --> Cause1[Cause : There did not supply the power from SMPS. Measure : Change 14p power cable and SMPS.] Check1 -- Yes --> SetOn[Set On.] SetOn -- Yes --> Check2[Check 'SW_POWER' more than 3.3V appear at CN201(#2) ? 0V to 3.3V↑ (CN201 #2)] Check2 -- No --> Cause2[Cause : Main IC(X9) did not control the SW_Power. Measure : Change the Main Assy.] Check2 -- Yes --> Check3[Check 'Power input of Main Ass'y' ? DC B13V, B5.3V appear at CN201 #11,12,13(B13V) CN201 #1,3 (B5.3V)? 0V to 13V (CN201 #11,12,13) 0V to 5.3V (CN201 #1,3)] Check3 -- No --> Cause3[Cause : There did not supply the power from SMPS. Measure : Change 14p power cable and SMPS.] Check3 -- Yes --> Check4[Check 'Power of main IC(B1.2V/B2.5V)' Check 'Power of DDR IC(B1.5V)' appear at TP-1.2V, TP-B2.5V, TP-B1.5V(1.5V) 0V to 1.2V (TP-1.2V) 0V to 2.5V (TP-2.5V) 0V to 1.5V (TP-1.5V)] Check4 -- No --> Cause4[Cause : There is proble at DCDC(IC203) / LDO(IC204). Measure : Change the Main Assy.] Check4 -- Yes --> Check5[Check 'Power of LVDS (13V)' appear at TP-PANEL_VCC? 0V to 13V (TP-PANEL_VCC)] Check5 -- No --> Cause5[Cause : There is proble at FET(Q201) or Main IC(X9) did not control the SW_PVCC. Measure : Change the Main Assy.] </pre>



■ Location of Parts



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



- If you have Factory remote control



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

Option	T-MST0DEUC : SW Ver
Control	T-MST0DEUS : SW Ver
SVC	EDID : SUCCESS
Expert	HDCP : SUCCESS
ADC/WB	CALIB : AV / COMP / PC / HDMI /
Advanced	OPTION:**
	FactoryCS-*****
	T-MSXDEUCIP-****
	Onboot : ***
	SDAL-****
	RFS:Mstar-X9 ****
	20**-**-**

- 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

4-3-2. Factory Data

■ Option

Factory Menu Name	Data	Range	Remark	Key
Factory Reset	-	-		
Type	22A6AF0D 32P6AF0D 40A6AF0D 46P6AF0D		use to change panel	
Model	UE5000	E4000/E5000/E6000/E420/ E4080/E5080		
SVC Model	5000			
Local Set	Other			
Tuner	SI_ATSC2		do not change	
Ch Table	SAMEX			
Front Color	U-S-C-5K	NONE/S-C-BLK/S-R-BLK/S- BLK/T-R-BLK/T-C-BLK/S-B- BLK		

■ Control

Factory Menu Name	Data	Range	Remark	Key
EDID				
EDID ON/OFF	Off	On/Off		
EDID WRITE ALL		Success/Failure	use to write the EDID	
EDID WRITE PC		Success/Failure		
EDID WRITE DVI		Success/Failure		
EDID WRITE HDMI1		Success/Failure		
EDID WRITE HDMI2		Success/Failure		
EDID WRITE HDMI3		Success/Failure		
EDID WRITE HDMI4		Success/Failure		
EDID VERSION		HDMI 1.3/HDMI1/2		
Sub Option				
Mute Time(VIDEO)	4	0~10		
ready	Off	On/Off		
HotPlug	On			
Hotplugcontrol	On			
Spread Spectrum				
Spread Spectrum	On	On/Off		
Period	60K	40K/50K/60K		
Amplitude	2	0/0.5/1/1.5/2		
DDR Spread	2%	Off/1%/2%		

4. Troubleshooting

Factory Menu Name	Data	Range	Remark	Key
Auto Power	On			
Mirror	ON	ON/ OFF		
HDMI EQ1	Middle	Low/Middle/High/Strong	use to solve HDMI Noise	
HDMI EQ2	Middle	Low/Middle/High/Strong		
HDMI EQ3	Middle	Low/Middle/High/Strong		
HDMI EQ4	Middle	Low/Middle/High/Strong		
EER Count	-			
WM Calib				
Panel Enter Key				
Panel Display Time	9Hr			
Checksum	XXXX			
View Log				
Font Data Viewer				
Dimm Type	EXT			
Carrier Mute	Off	On/Off		
Anynet+	Off	On/Off		
HPD Polarity				
High Devi	Off	On/Off		
Hot Plug Delay	12	0~63		
HP Ident	High	High/Low		
PC Ident	On	On/Off		
Watchdog	On	On/Off		
LVDS Format	JEIDA	JEIDA / VESA		
OSD Resolution	1366*768			
Bus Stop				
OTA Code				
OTA Duration Test				
Alternate Del				
Ignore VCT Version	On	On/Off		
HDMI Sync	DE	DE/HV	use to solve HDMI problem	
Watch Dog Count	0	-		
PDP Option				
Hotel Option				
Shop Option				
Shop Mode		ON/OFF		
USB DEMO ON(SEC)				
USB DEMO OFF(SEC)				

Factory Menu Name	Data	Range	Remark	Key
Exhibition Mode		ON/OFF		
Sound				
Audio Amp	NTP7412s	NTP7412s/NTP7411s	do not change	
Volume Curve	NT	NT/EU/EA	do not change	
A2K Prescale	20	0~40		
BTSC Mono Prescale	25	0~40		
BTSC stereo Prescale	47	0~40		
SAP Prescale	43	0~40		
BTSC M2S Threshold	0x20	0xA0~0x9F		
BTSC S2M Threshold	0x15	0xA0~0x9F		
BTSC Stereo On Thr	0x20	0xA0~0x9F		
BTSC Stereo Off Thr	0x26	0xA0~0x9F		
SAP Amp On Thr	0x56	0xA0~0x9F		
SAP Amp Off Thr	0x48	0xA0~0x9F		
SAP NSR On Thr	0x35	0xA0~0x9F		
SAP NSR Off Thr	0x7F	0xA0~0x9F		
Carrier NSR On Thr	0x20	0xA0~0x9F		
Carrier NSR Off Thr	0x29	0xA0~0x9F		
MP3 Level	-6dB	-12dB~0dB		
Audio Delay	20ms	0~150ms		
Main Amp Master Vol	199			
Center Amp Master Vol				
Main Amp PWM Mod	142			
Center Amp PWM Mod	103			
Woofer Amp PWM Mod	103			
Woofer Type				
Main Speaker EQ	On			
Center Speaker EQ				
Main EQ CheckSum	-			
Center EQ CheckSum	-			
Woofer EQ CheckSum	-			
Config Option				
Num of AV	1	0~3		
Num of PC	0	1~3		
Num of Comp	1	1~3		
Num of HDMI	2	0~4		
Num of SCART	0			

Factory Menu Name	Data	Range	Remark	Key
DVI Sound	0	0~1		
Number of HeadPhone	0	0~1		
Num of USB Port				
Num of SPDIF OUT	1	0~1		
LNA SUPPORT	Off	On/Off		
Navigation Key Func	0	0 : New function (Navigation jog) Key		
		1 : Old function (Touch) Key		
		2 : don't work function		
Eco Sensor Support	On	On/OFF		
MFT OFFSET				

■ SVC

Factory Menu Name	Data	Range	Remark	Key
Test pattern				
T-CON Download				

■ ADC/WB

Factory Menu Name	Data	Range	Remark	Key
ADC				
AV Calibration	Success	Success / Failure		
Comp Calibration	Success	Success / Failure		
PC Calibration	Success	Success / Failure		
HDMI Calibration	Success	Success / Failure		
ADC Target				
1st_AV_Low	18	0~255		
1st_AV_High	220	0~255		
1st_AV_Delta	1	0~255		
1st_COMP_Low	16	0~255		
1st_COMP_High	235	0~255		
1st_COMP_Delta	1	0~255		
1st_PC_Low	2	0~255		
1st_PC_High	235	0~255		
1st_PC_Delta	1	0~255		
2nd_Low	1	0~255		
2nd_High	235	0~255		
2nd_Delta	1	0~255		
ADC Result				
1st_AV_Gain	121			

Factory Menu Name	Data	Range	Remark	Key
1st_AV_Offset	141			
1st_Comp_Gain	70			
1st_Comp_Gain_Cb	70			
1st_Comp_Gain_cr	70			
1st_Comp_Offset	127			
1st_Comp_Offset_Cb	127			
1st_Comp_Offset_Cr	127			
1st_PC_R_Gain	94			
1st_PC_G_Gain	93			
1st_PC_B_Gain	94			
1st_PC_R_Offset	127			
1st_PC_G_Offset	127			
1st_PC_B_Offset	127			
2nd_R_Offset	113	0~255		
2nd_G_Offset	113	0~255		
2nd_B_Offset	113	0~255		
2nd_R_Gain	144	0~255		
2nd_G_Gain	144	0~255		
2nd_B_Gain	144	0~255		
WB				
Sub Brightness	128	0~255		
R_Offset	128	0~255		
G_Offset	128	0~255		
B_Offset	128	0~255		
Sub Contrast	128	0~255		
R_Gain	128	0~255		
G_Gain	128	0~255		
B_Gain	128	0~255		
Movie R Offset	133	0~255		
Movie B Offset	129	0~255		
Movie R Gain	131	0~255		
Movie B Gain	64	0~255		

■ Advanced

Factory Menu Name	Data	Range	Remark	Key
PBE				
WB Movie				
Mode	Off	On/Off		

4. Troubleshooting

Factory Menu Name	Data	Range	Remark	Key
Color Mode	Movie			
Color Tone	Cool			
Msub Brigh	128			
Msub Contr	128			
W1_RGAIN	138			
W1_BGAIN	104			
W1_ROFFS	130			
W1_BOFFS	127			
W2_RGAIN	131			
W2_BGAIN	64			
W2_ROFFS	133			
W2_BOFFS	129			
W3_RGAIN	128			
W3_BGAIN	128			
W3_ROFFS	128			
W3_BOFFS	128			
N_RGAIN	131			
N_BGAIN	122			
N_ROFFS	128			
N_BOFFS	129			
Movie Countr	100			
Movie Brigh	45			
Movie Color	55			
Movie Sharp	55			
Movie Tint	50			
Movie BkLight	10			
M.Gamma	Off			
M_Sub Gamma	0			
EPA Standard				
Std Contr	100	0~100		
Std Bright	45	0~100		
Std Sharp	50	0~100		
Std Color	50	0~100		
Std Tint	50	0~100		
Std Backight	8	0~10		
ADJUST				
Dynamic Dimming	Off	On/Off		

Factory Menu Name	Data	Range	Remark	Key
Power Key Protects	Off	On/Off		
UART Select	Auto Wall	Auto Wall/Debug/MDC/On1/On2		
Debug Mode	Debug Off	Debug Off/Debug Smart/Debug RunTime		
Back End Mute				
PDP FRC				
VisualTEST Plus	Disable			
Standby Mode Time	45 Min	2 Min/45 Min		
Delete alt.ver	1 Flash			
OTA confirm Time	90 Min	3 Min/90 Min		
OTA limit Time	3 Hour	3 Min/3Hour		
Dynamic CE	Off	On/Off		
FWC	Off	On/Off		
1080p 48Hz	On	On/Off		
PWM Max	100	1~100		
PWM Max2	95	1~100		
PWM Mid	10	0~10		
PWM Min	0	0~10		
COMP PHASW	110			
Quick Start				
DTV LNA	Auto	On/Off		
HDCP Download	Off	On/Off		
USB Download	Off	On/Off		
LED Peak OnOFF				
COLOR MAPPING				
WCE				
SHARPNESS				
ENHANCE				
LNA_Plus				
FCC				
PC_Picture				
FRC				
PQ OTHERS				
7.5 IRE NTSC	OFF	ON/OFF		
7.5 IRE OFFSET	16	0~60		
YC_Delay				
PAL BG	1	0~3		

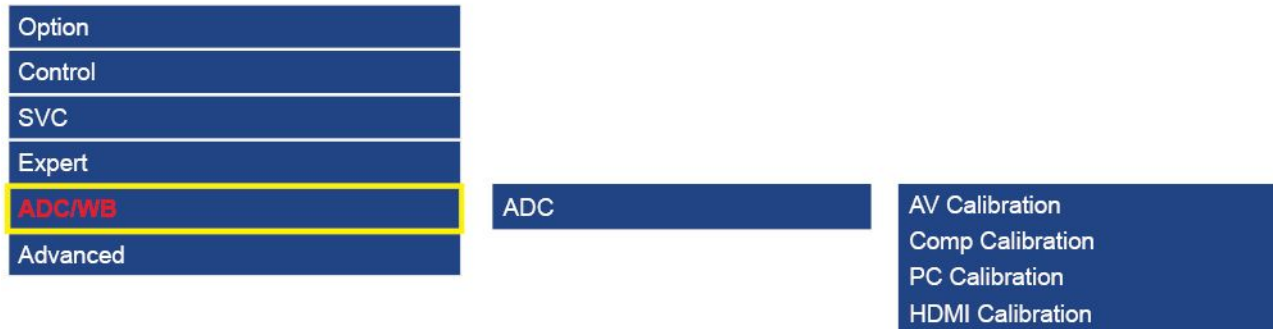
4. Troubleshooting

Factory Menu Name	Data	Range	Remark	Key
PAL DK	1	0~3		
PAL I	1	0~3		
SECAM BG	4	0~3		
SECAM DK	4	0~3		
SECAML	4	0~3		
NTSC 358	1	0~3		
NTSC 443	0	0~3		
AV PAL	1	0~3		
AV SECAM	4	0~3		
AV NT358	1	0~3		
AV NT443	1	0~3		
AV PAL60	1	0~3		
EEPROM RESET				
EEPROM RESET	OFF	ON/OFF		
NVR ALL CLEAR	OFF	ON/OFF		

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.



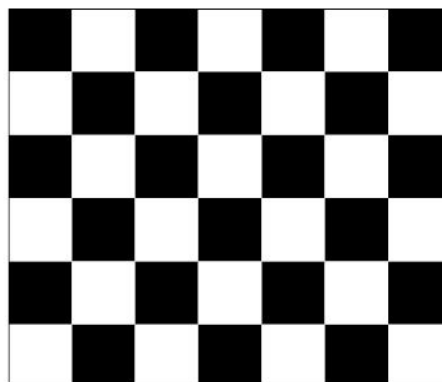
4-4-2. Service Adjustment

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

■ 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)

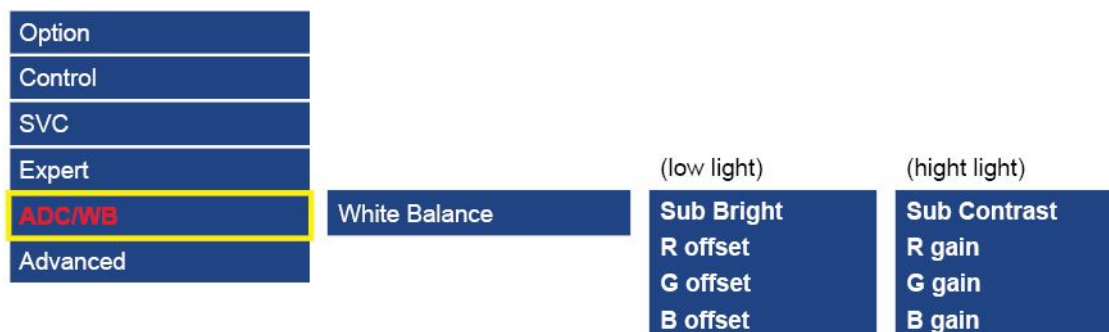
1. Apply the VESA XGA Lattice (N0. 21) pattern signal to the PC IN port.
2. Press the Source key to switch to "PC" mode.
3. Enter Service mode.
4. Select the "ADC" menu.
5. Select the "PC Calibration" menu.
6. In "PC Calibration Off" status, press the "▶" key to perform Calibration.
7. When Calibration 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.

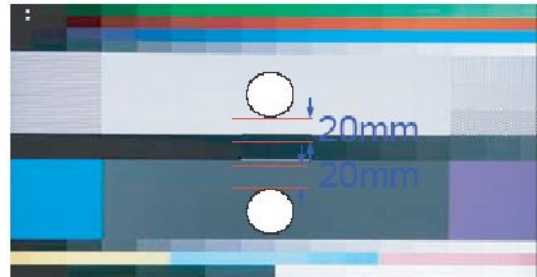
4-4-3. Adjustment

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



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
 - Alternate Equipment : 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.

4.6. Software Upgrade

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

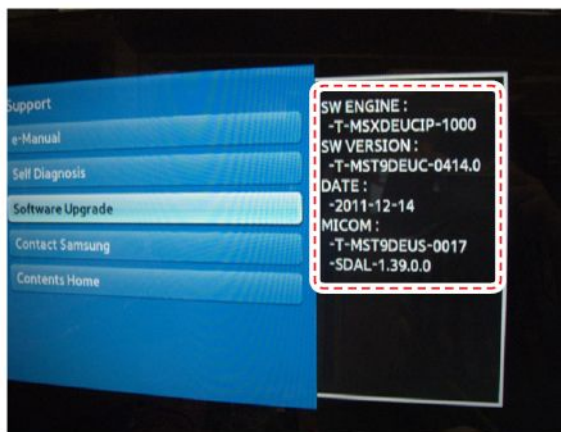
- Current Version - The software already installed in the TV.

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

4-6-1. 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

Option	T-MST0DEUC : SW Ver
Control	T-MST0DEUS : SW Ver
SVC	EDID : SUCCESS
Expert	HDCP : SUCCESS
ADC/WB	CALIB : AV / COMP / PC / HDMI /
Advanced	OPTION:**
	FactoryCS:*****
	T-MSXDEUCIP_****
	Onboot : ***
	SDAL-****
	RFS:Mstar-X9 ****
	20**_**_**

4-6-2. How to Upgrade 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.

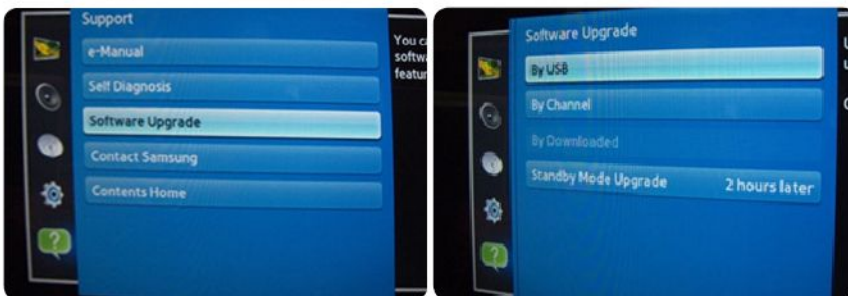
4. After update is completed, restore your previous settings.

■ Main Software Upgrade

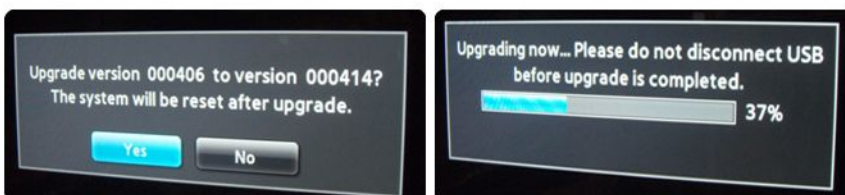
1. Store the sw program named "T-MST9DEU" in USB memory stick.



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.



■ Sub Software Upgrade

USB Download

1. After Main Software upgrade, Enter the Factory menu by below method.

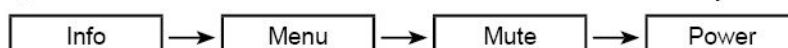
– Factory Remocon

- Click the Remocon button continuedly. (Info key+ Factory key)



– Nomal Remocon

- ❶ Turn off the TV. → ❷ Click the Remocon button continuedly.



2. Select the "SVC".

Option
Control
SVC
Expert
ADC/WB
Advanced

3. Select the "SUBMICOM UPGARADE".

Test pattern		DCC CHK SEL	0
Panel Display Time	1Hr	DCC CHECK LOCAL	0x0
Tuner Status		DCC CHECK TOTAL	
T-CON Usb Download	Failure	Fuction Upgrade	off
T-CON CheckSum	Error	Smart Hub Reset	off
Tuner Margin	10	WIFI ER COUNT	0
TS Clock delay	0	BT ER COUNT	0
SUBMICOM UPGRADE	off	Debug Log Down	
BT ADDRESS	0000	MultACC Checksum	Error
BT UPGRADE		SVC Info	
BT FREEPAIRING	ON	TS Clock delay TC	0
SVC Reset		TS Clock delay S	0
TCON_TEMP READ	0.00	CAL Data Backup
TEMP LAST	60.00	CAL Data Restore
DCC VERSION	0x0		

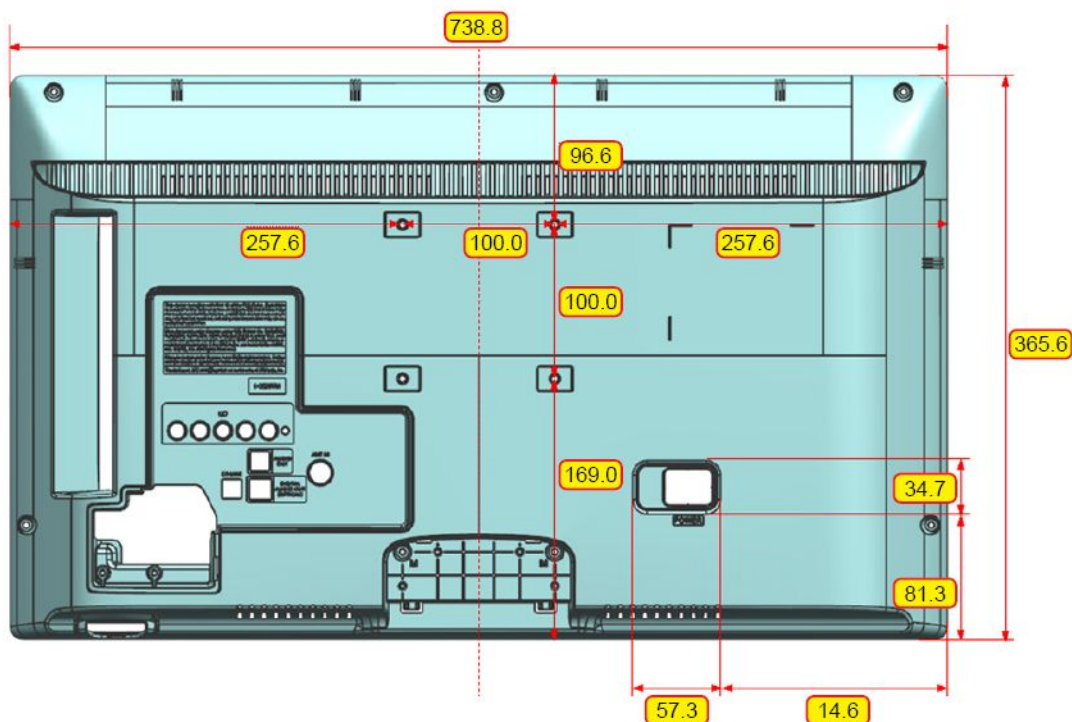
4. Click the "→" remocon key.

SUBMICOM UPGRADE	Wait
-------------------------	-------------

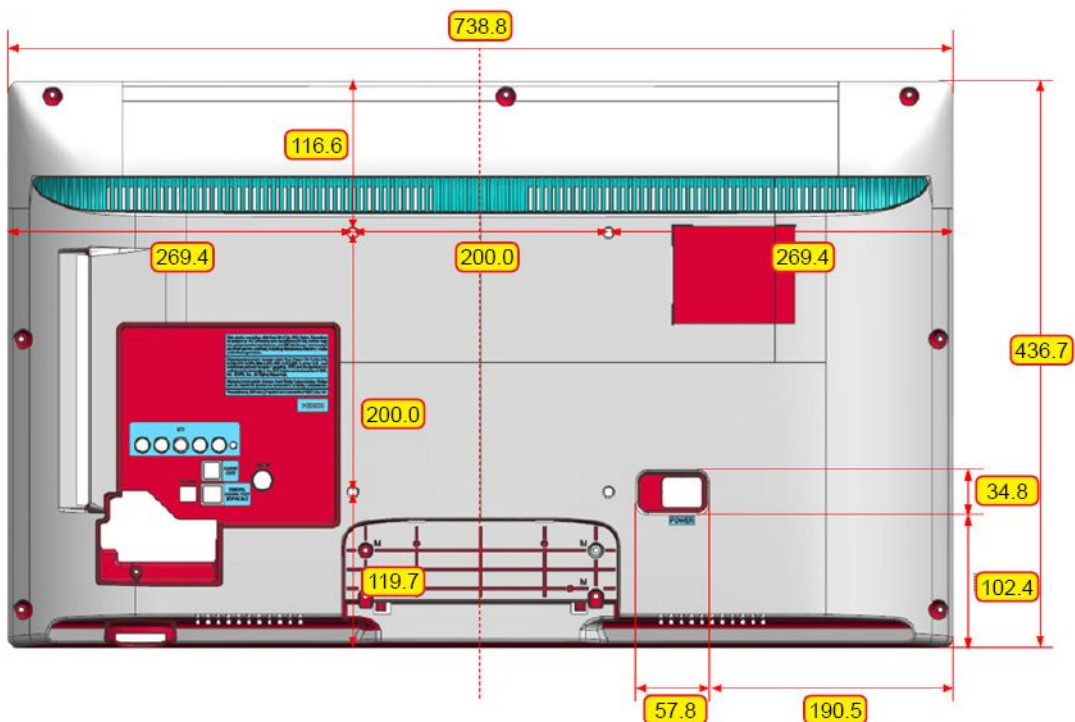
- Wait for upgrade complete.
- Check the Software version.

4.7. Cover-Middle Rear Dimension

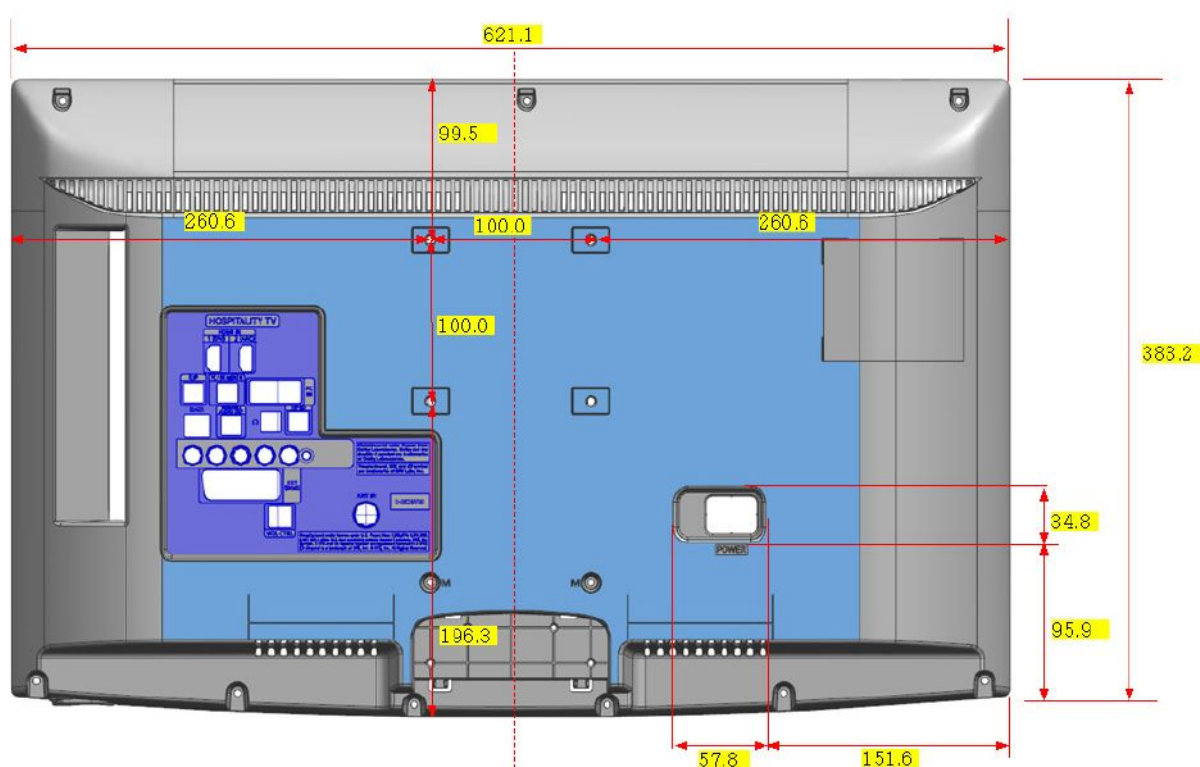
■ HG26*A47**W



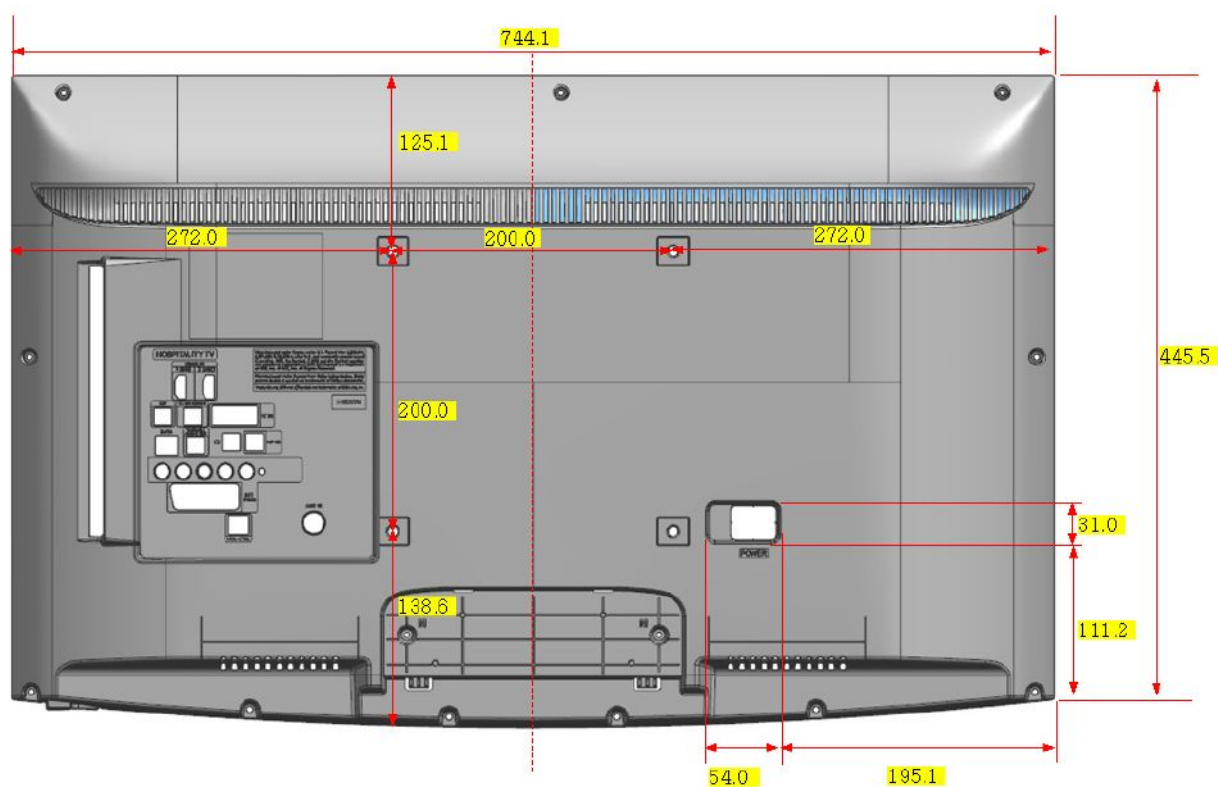
■ HG32*A47**W



■ HG26*A475*W



■ HG32*A475*W

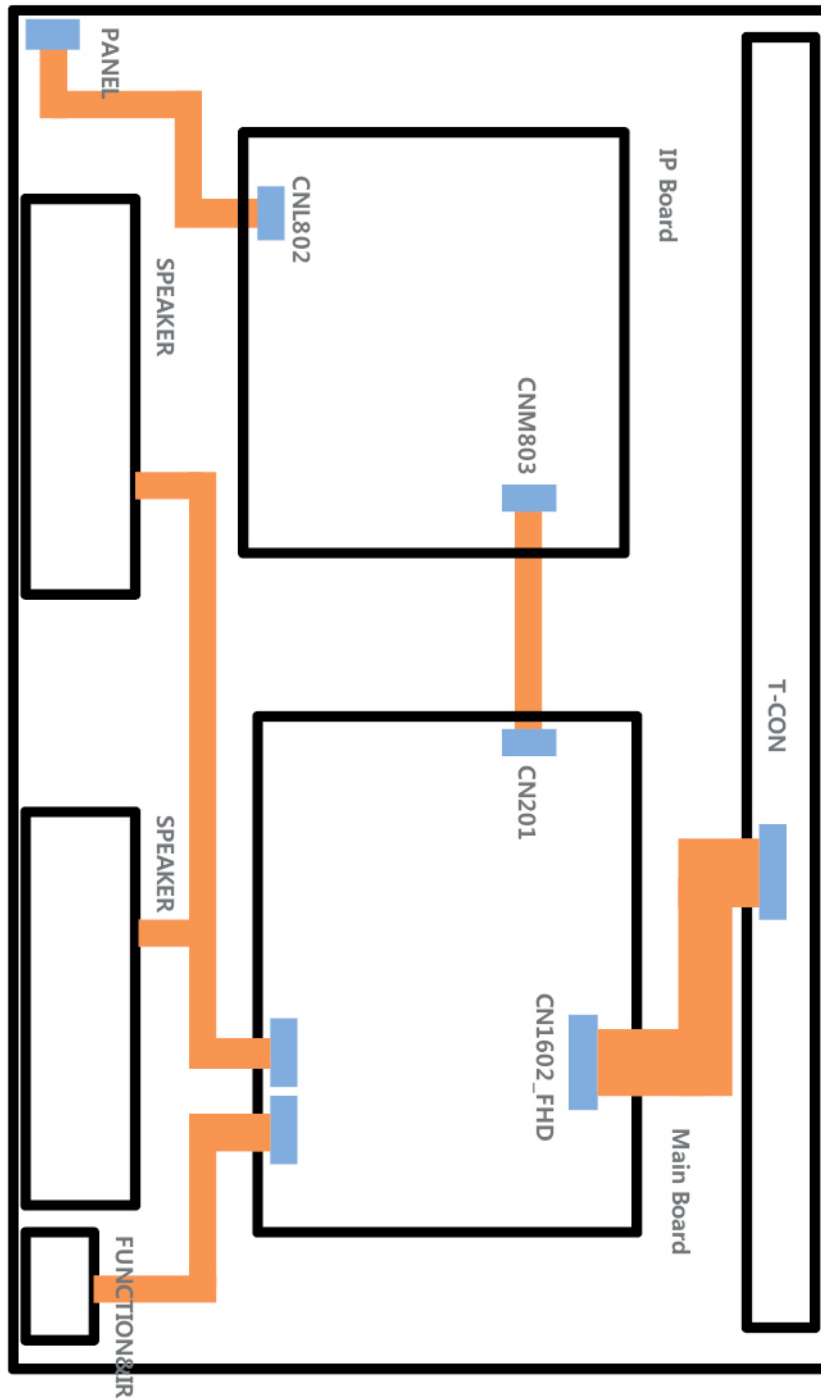




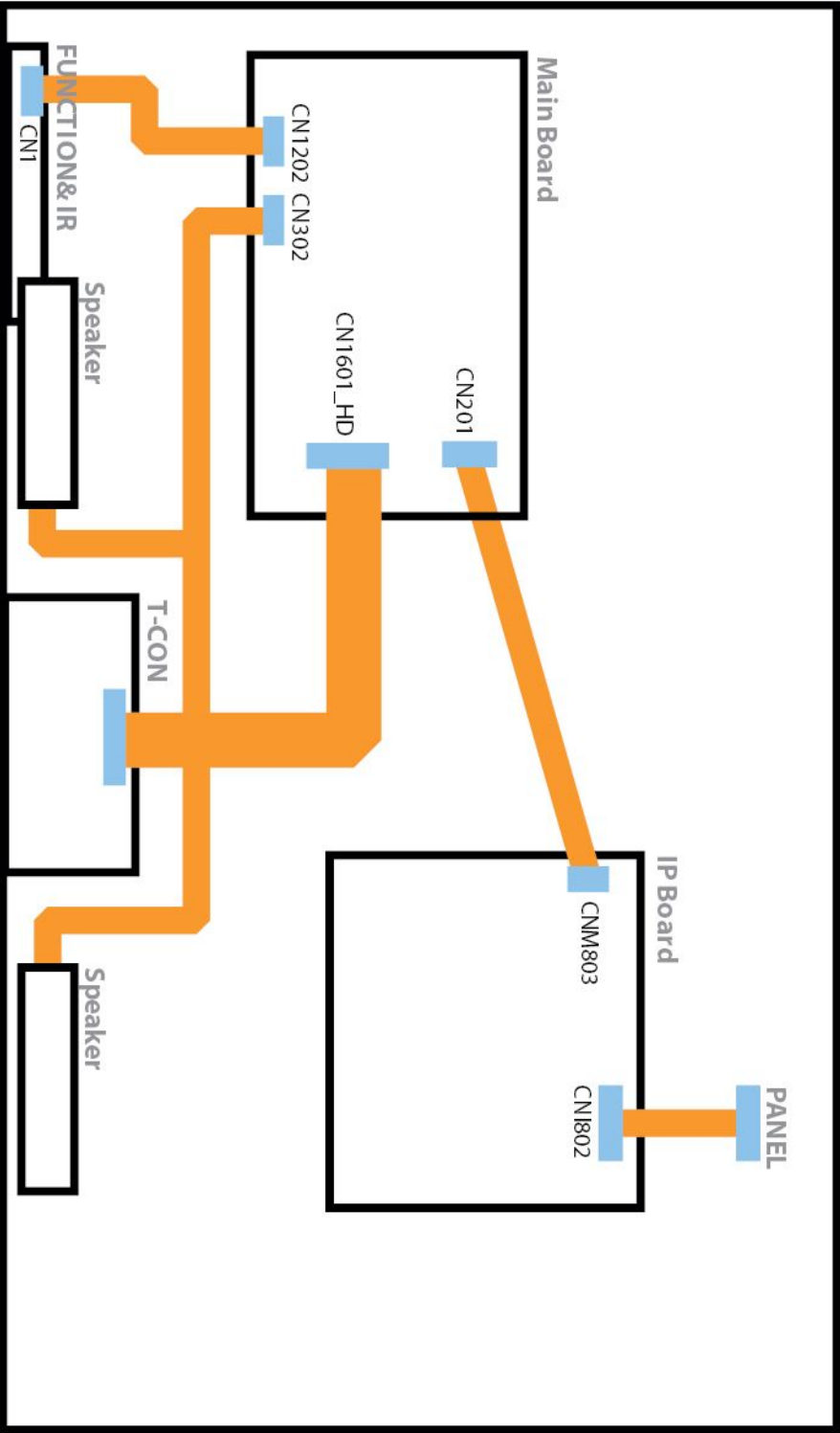
5. Wiring Diagram

5.1. Wiring Diagram

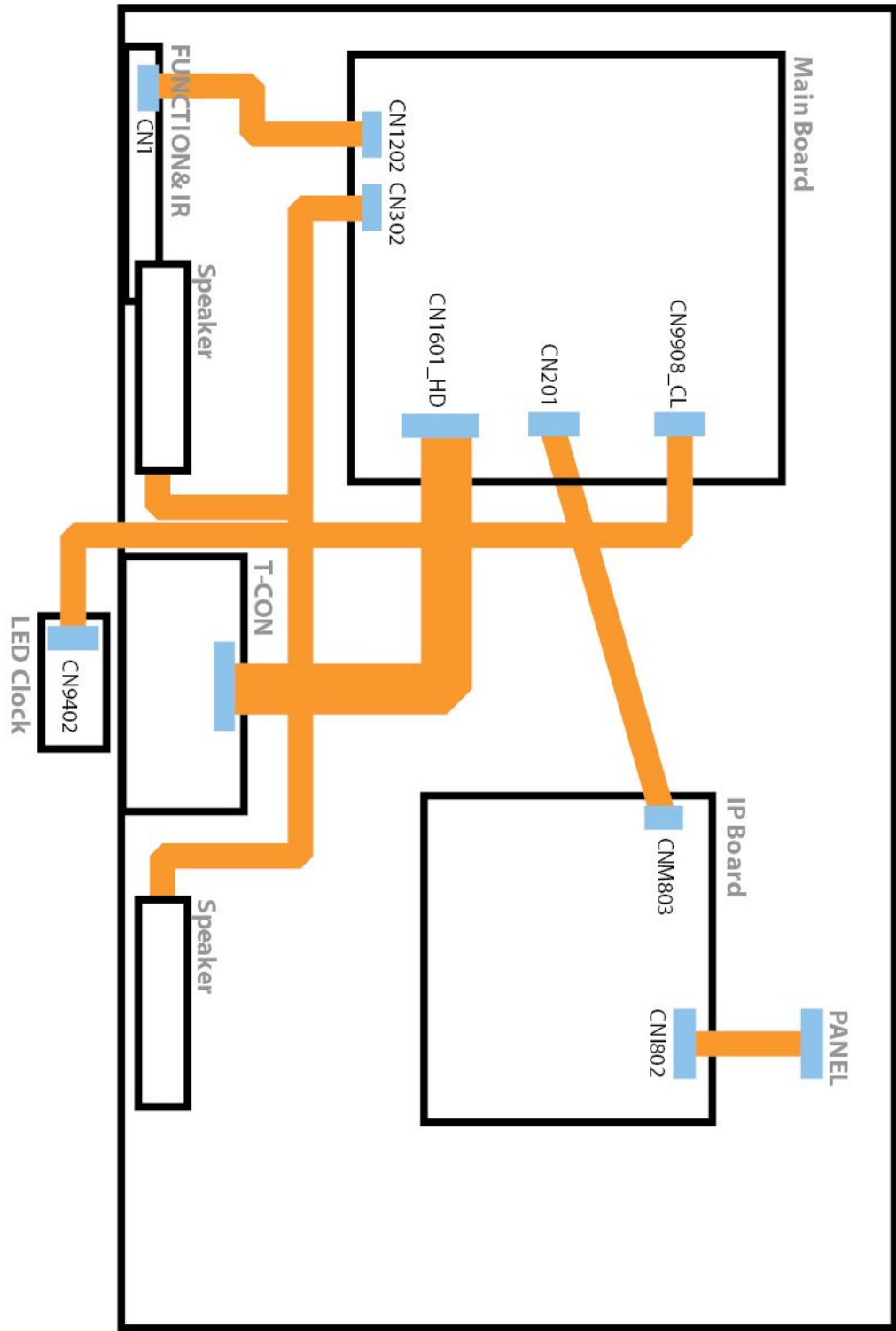
■ HG22EA47**W



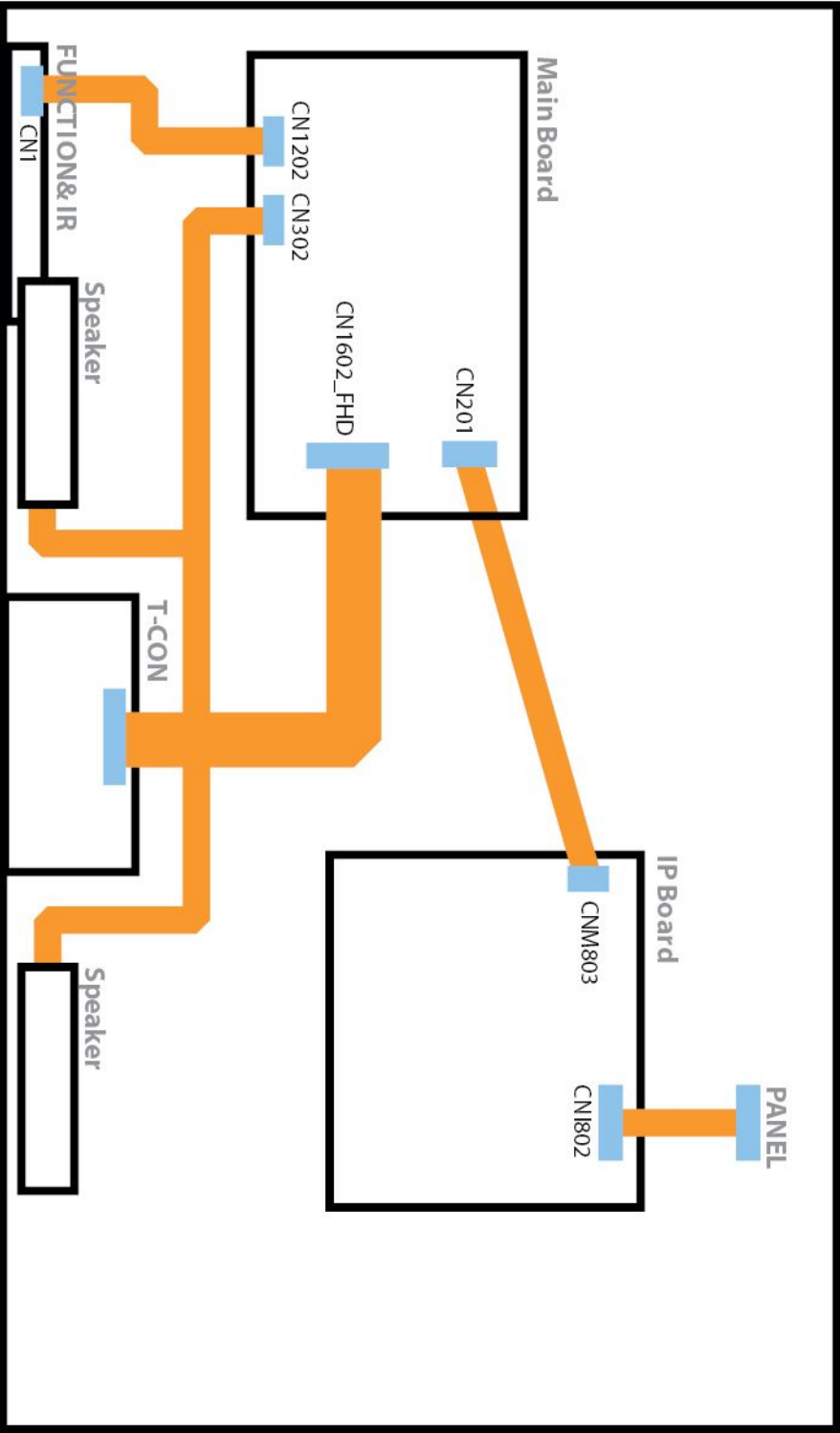
■ HG**EA47**W



■ HG**EA475*W



■ HG40EA570*W



5.2. Connector

① CN1602_FHD(to Panel)			
1	NC	27	EVEN[0]-
2	NC	28	GND
3	NC	29	ODD[4]+
4	NC	30	ODD[4]-
5	NC	31	ODD[3]+
6	NC	32	ODD[3]-
7	FORMAT	33	GND
8	SDA_Panel	34	ODDCLK+
9	TCON_WP	35	ODDCLK-
10	NC	36	GND
11	SDA_Panel	37	ODD[2]+
12	SCL_Panel	38	ODD[2]-
13	GND	39	ODD[1]+
14	EVEN[4]+	40	ODD[1]-
15	EVEN[4]-	41	ODD[0]+
16	EVEN[3]+	42	ODD[0]-
17	EVEN[3]-	43	GND
18	GND	44	GND
19	EVENCLK+	45	GND
20	EVENCLK-	46	NC
21	GND	47	Panel_VCC
22	EVEN[2]+	48	Panel_VCC
23	EVEN[2]-	49	Panel_VCC
24	EVEN[1]+	50	Panel_VCC
25	EVEN[1]-	51	Panel_VCC
26	EVEN[0]+		

② CN201(to Powr board)			
1	B5V	8	GND
2	SW_POWER	9	B13VS
3	B5V	10	SW_INVERTER
4	A5V	11	B13V
5	GND	12	B13V
6	GND	13	B13V
7	B13VS	14	PWM_DIMM

③ CN1202(FUNCTION)			
1	IR	5	MSDA
2	GND	6	KEY1
3	A3.3V	7	KEY2
4	MSCL	8	GND

④ CN30 (SPEAKER)			
1	R+	3	L+
2	R-	4	L-

⑤ CN9905_FPC(DEBUG)			
1	GND	4	DEBUG_TX
2	DEBUG_RX	5	DEBUG_TX
3	DEBUG_TX	6	GND

⑥ CN502(COMPONETN)			
1	GND	9	GND
2	COMP1_Y	10	GND
3	IDENT_AV	11	SL
4	GND	12	SR
5	PB	13	GND
6	IDENT_COMP	14	SR
7	GND	15	SL
8	PR		

⑦ 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+		

⑧ 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+		

⑧ CN603_H3(HDMI3)			
1	HDMI3_RX2+	11	GND
2	GND	12	HDMI3_RXCLK-
3	HDMI3_RX2-	13	HDMI_CEC
4	HDMI3_RX1+	14	GND
5	GND	15	SCL
6	HDMI3_RX1-	16	SDA
7	HDMI3_RX0+	17	GND
8	GND	18	5V
9	HDMI3_RX0-	19	HPD
10	HDMI3_RXCLK+		

⑨ CN1201 (USB1)			
1	USB_VCC	3	USB_DP
2	USB_DM	4	GND

⑩ CN302_MON			
1	GND	4	GND
2	SR_OUT	5	NC
3	SL_OUT	6	GND

⑪ CN401(PC)			
1	PC_RED	9	PC_5V
2	PC_GREEN	10	IDENT_PC
3	PC_BLUE	11	R_FANET
4	T_FANET	12	SDA_DOWN
5	GND	13	PC_HS
6	GND	14	PC_VS
7	GND	15	SCL_DOWN
8	GND		

⑫ CN402(PC/DVI SOUND)			
1	GND	4	NC
2	PC_SR_IN	5	NC
3	PC_SL_IN	6	NC

⑬ CN1601_HD (to Panel)			
1	PANEL_VCC	16	ODD_CLK+
2	PANEL_VCC	17	ODD_CLK-
3	PANEL_VCC	18	GND
4	PANEL_VCC	19	ODD2+
5	PANEL_VCC	20	ODD2-
6	GND	21	GND
7	GND	22	ODD1+
8	GND	23	ODD1-
9	WP_PANEL	24	GND
10	LVDS FORMAT	25	ODD0+
11	NC	26	ODD0-
12	GND	27	GND
13	ODD3+	28	SDA
14	ODD3-	29	SCL
15	GND	30	NC

5.3. Connector Functions

■ HG22EA47**W_HG40EA570*W

Connector	Function
CN201 ↔ IP CNM803	Supply main power and dimming signal from IP board to Main Board.
CN1602_FHD ↔ T-CON CNF1	The LVDS signal transfered from Main Board to Panel.

■ HG**EA47**W_HG**EA475W

Connector	Function
CN201 ↔ IP CNM803	Supply main power and dimming signal from IP board to Main Board.
CN1601_HD ↔ T-CON CNF1	The LVDS signal transfered from Main Board to Panel.

5.4. Cables

■ HA570

Use	LEAD (Main-IP 14P)	LVDS CALBE (Main - Panel 30P)
Code No.	HG40EA570*W : BN39-01449Q	HG40EA570*W : BN96-17116W
Image		

■ HA470

Code No.	HG26EA47**W : BN39-01449N HG32EA47**W : BN39-01449C	HG26EA47**W BN96-20370D / BN96-20370H HG32EA47**W BN96-20370C
Image		



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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Printed in Korea
Code No.: