SAMSUNG

LED TV

Chassis: U74F

Model: UN32EH4003F

SERVICE MANUAL

LED TV

UN32EH4003F

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.

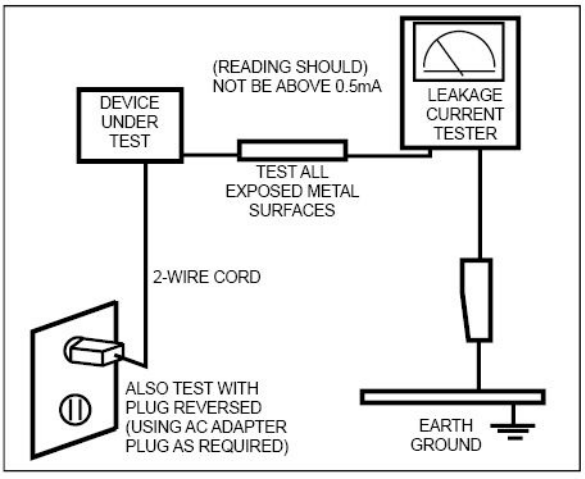
1-1-2. Servicing the LED TV

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

2.1. Product Information

2-1-1. Model Comparison

Model	UN32EH4003F		
Front View			
Detail View			
Front Color	Black (Panel)		
	32"	Set with Stand	29.1 x 19.6 x 7.5 inches / 738.4 x 497.7 x 191.7 mm
		Set without Stand	29.1 x 17.4 x 3.7 inches / 738.4 x 441.7 x 93.2 mm
Weight	26"	Set with Stand	9.9 lbs / 4.5 kg
		Set without Stand	8.8 lbs / 4.0 kg
	32"	Set with Stand	13.2 lbs / 6.0 kg
		Set without Stand	11.9 lbs / 5.4 kg
Panel Type	Anti Glare		
Internal Memory	None		
DDR	128 Mbtye		
Feature	Media Play(Movie)		

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2-1-2. Feature & Specifications

Model	UN32EH4003F
Feature	
• Digital-TV, RF, 2-HDMI, 1-Component, 1-A/V, 1-USB2.0 • Brightness : 300 cd/m^2 • High Contrast Ratio : 1200 : 1 • Response Time : 8 ms • CMR : 60	

Specifications		
Item	**Description**	
LCD Panel	32 inch HD 60 Hz	
Scanning Frequency	Horizontal : 39.4 kHz ~ 55 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	28.48 (H) x 16.01 (V) Inches (697.7 (H) x 392.26 (V) mm)	
AC Power Voltage & Frequency	AC 110 V ~ 120 V, 60 Hz	
Power Consumption	48W (Under 0.5 W, Stand by)	
TV System	Tunning	Frequency Synthesize (Refer to detailed Frequency Table)
	System	ATSC & Clear QAM
	Sound	SC-M, Dolby Digital +
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 : • RF : 20 Hz ~ 15.4 kHz • AV/Componet/HDMI : 20 Hz ~ 20 kHz	
Note: Dolby Digital Plus/Pulse, SRS TheaterSound, USB2.0, Film mode		

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2-1-3. Specification Comparison to Old Models

Model	UE4J(UN**EH4003F)		UD4N(UN**D4003BD)	
Design				
Diplay Type	LED TV 2D		LED TV 2D	
Built-in Tuner	O		O	
Resolution	1366 x 768		1366 x 768	
LCD Panel	TFT LCD Panel 60 Hz		TFT LCD Panel 60 Hz	
Picture ratio	16 : 9		16 : 9	
Power Consumption	32"	48W (Under 0.5 W, Stand by)	32"	70W (Under 0.3 W, Standby)
Brightness	32"	300 cd/m^2	32"	250 cd/m^2
Contrast Ratio	1200 : 1		MEGA	
Picture Enhancer	HyperReal Engine (X9R)		HyperReal Engine (Saturn4)	
Equalizer	5 Band		5 Band	
Auto Volume Control	O		O	
Surround Sound	SRS TheaterSound		SRS TruSurround HD	
Function	Jog function		Touch function	
Speaker Output	5W + 5W		5W + 5W	
Subtitle	O		O	
PIP	X		X	
Network	X		X	
Antenna	DTV 1 (Cable/Air)		DTV 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			UN32EH4003F
Panel		Vendor	BOE
		Code	BN95-00707A
		Spec.	HV320WX2-26
SMPS		Vendor	HANSOL
		Code	BN44-00554B
		Spec.	PD323GVO_CHS
Byte	Item	Chassis Ass'y	BN91-09525B
0	Factory Reset	PBA Ass'y code	BN94-05848A
1	Type		32B6AH0D
2	Model		UE4003
3	SVC Model		4003
4	Local Set		US
5	Tuner		SI_ATC2
6	Ch Table		NONE
7	Front Color		U-S-C-5K

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2.3. Accessories

Product	Description	Code. No	Remark
	Manual Users Quick Start Guide Warranty Card	BN68-04459A BN68-04465A BP68-00263E	
	Remote Control Batteries (AAA x 2)	AA59-00666A 4301-000121	Supplied Accessories
	Power Cord	3903-000599	
	Holder-Wire stand	BN61-05491A	

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3. Disassembly and Reassembly

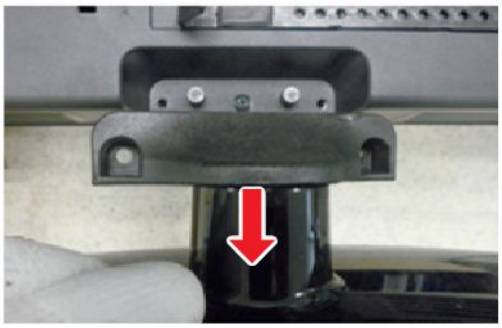
This section of the service manual describes the disassembly and reassembly procedures for the LED TV.

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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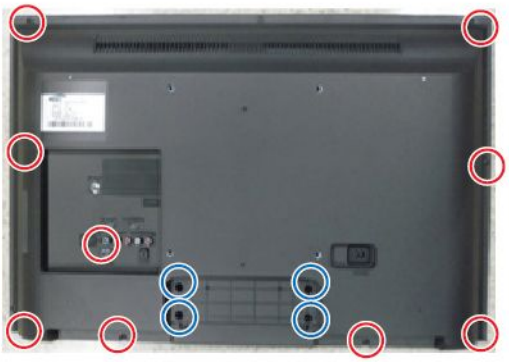
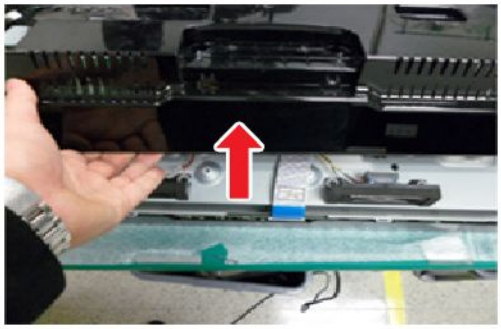
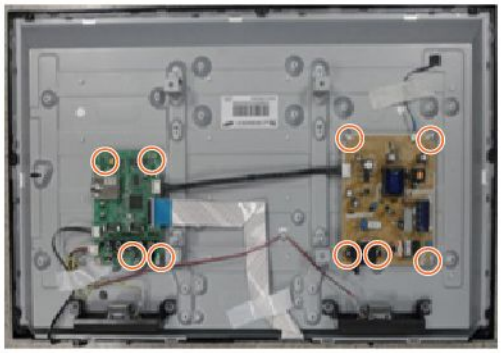
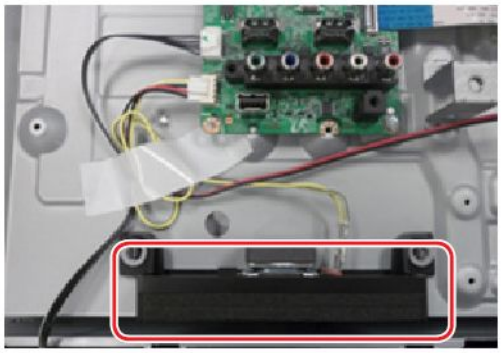
Description	Picture Description	Screws
4 Remove the screws of Rear-Cover. • 32" : 9 EA, 4EA		 6003-001782 6003-002755
5 Remove the Rear-Cover.		
6 Remove the screws of main board and IP board and Panel. • 32" : 9 EA		 6001-002756
7 Remove the connector of main board and IP board and Panel.		

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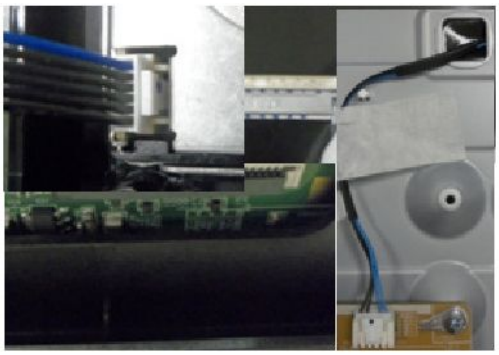
Description	Picture Description	Screws
8 Remove the LVDS Cable and Panel Drive Cable.		
9 Completed disassembly.		

NOTE

Reassembly procedures are in the reverse order of disassembly procedures.

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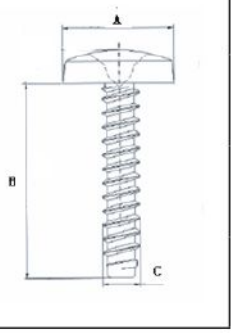
■ Screw Size

Code No.	COLOR	A (mm)	B (mm)	C (mm)	Q'ty	
6003-001782	BLACK	7.80~8.30	11.20~12.00	3.81~3.91	32" : 13 EA	
6001-002755	BLACK	7.1~7.5	5.7~6.0	2.98~3.02	32" : 4 EA	
6001-002756	WHITE	7.1~7.5	5.7~6.0	2.98~3.02	32" : 9 EA	

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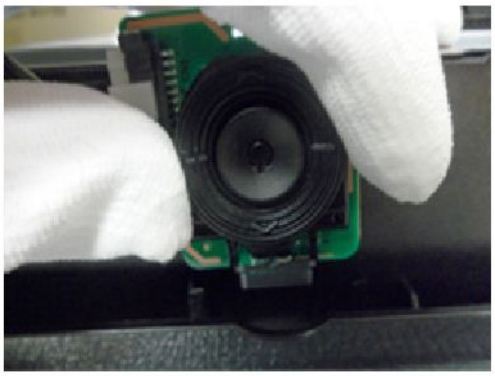
3.2. Assy Board P-Jog Switch & Ir

■ How to disassembly Function Assy

Description	Picture Description	Refer
Remove the function Assy.		

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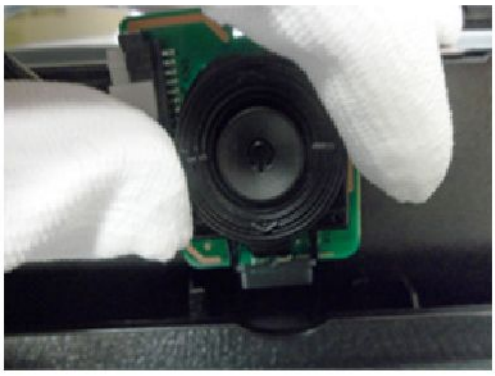
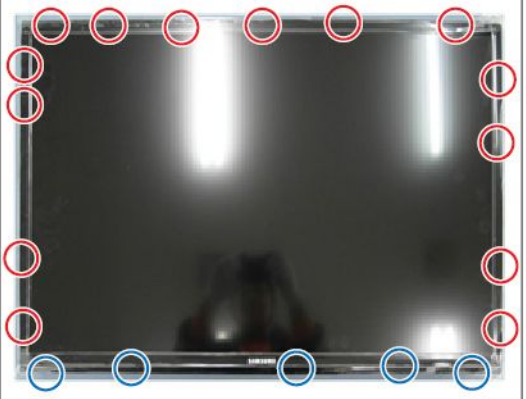
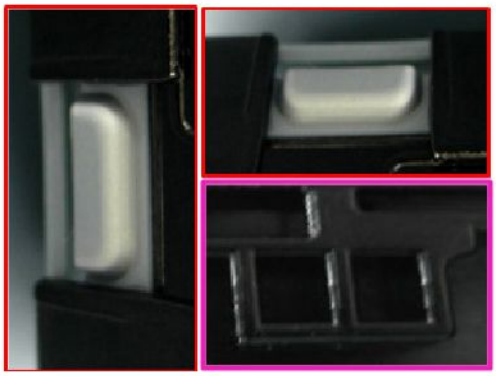
3.3. Disassembly(PTC)

■ How to disassembly

	Description	Picture Description	Refer
1	Place TV face up on cushioned table.		
2	Remove the ASSY Function assy.		
3	Disassemble ASSY MISC P-CHASSIS TOP(U/D & L/R)with hooks.		
			

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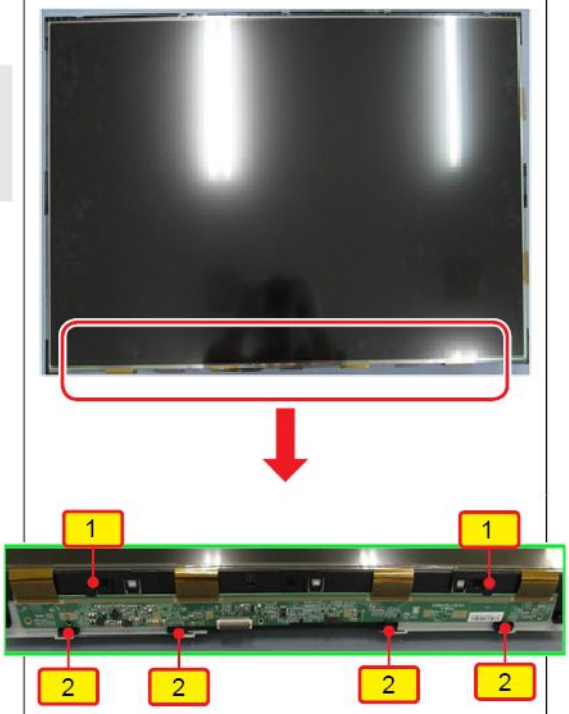
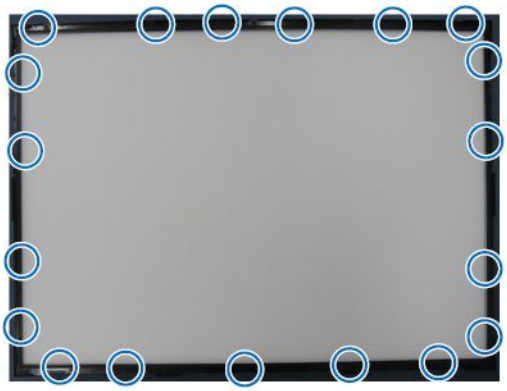
Description	Picture Description	Refer
4 Disassemble COF film to the guide with care not to make it bent or folded. **CAUTION** Disassemble COF film to the guide with care not to make it bent or folded.		
5 . Disassemble ASSY FRAME P-MOLD MIDDLE (L/R) & ASSY FRAME P-MOLD MIDDLE (U/D) with hooks. * HOOK POINT U : 6 pts. D : 5 pts. R : 4 pts. L : 4 pts. **CAUTION** Check whether the hooks are completely disassembled.	 	
6 Completed.		

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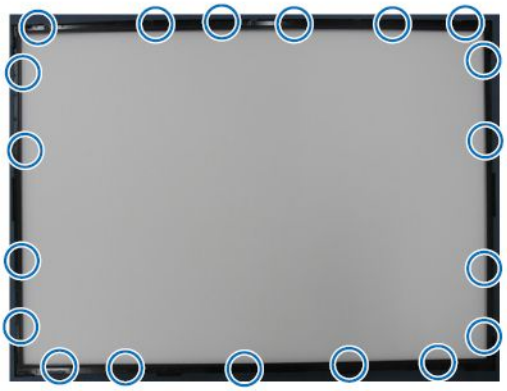
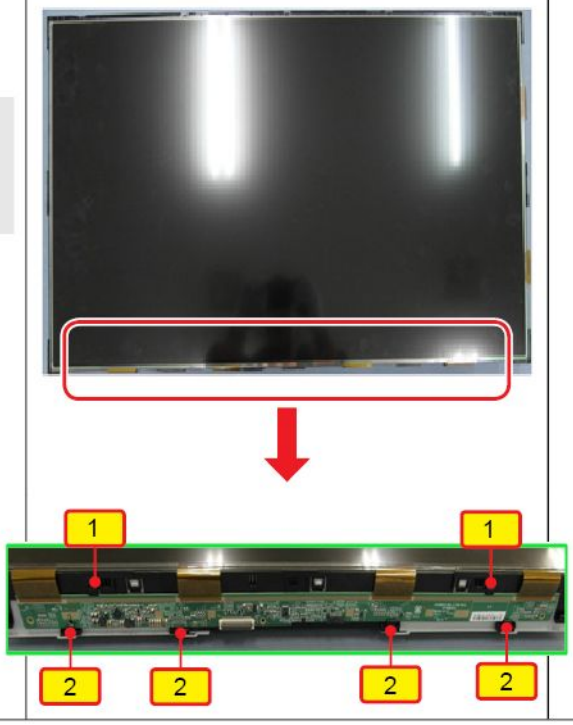
■ How to reassembly

Description	Picture Description	Refer
1 Place PCT.		
2 Assemble ASSY FRAME P-MOLD MIDDLE (L/R) & ASSY FRAME P-MOLD MIDDLE (U/D) with hooks. * HOOK POINT U : 6 pts. D : 5 pts. R : 4 pts. L : 4 pts. **CAUTION** Check whether the hooks are completely assembled.	 	
3 Place Assy MISC P-Open Cell on the FRAME-MOLD MIDDLE GUIDE in the same direction as the picture. **CAUTION** Be careful not to make COF film bent or folded during assembly of open cell.		

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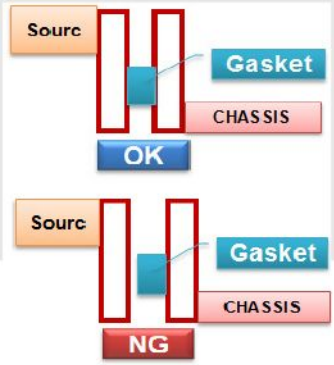
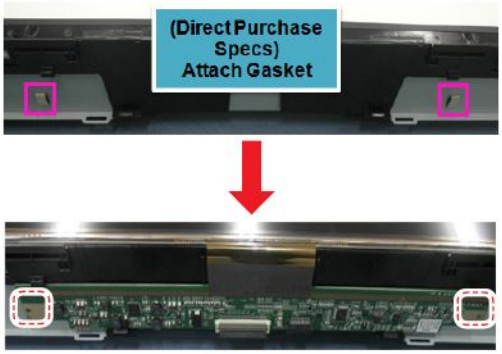
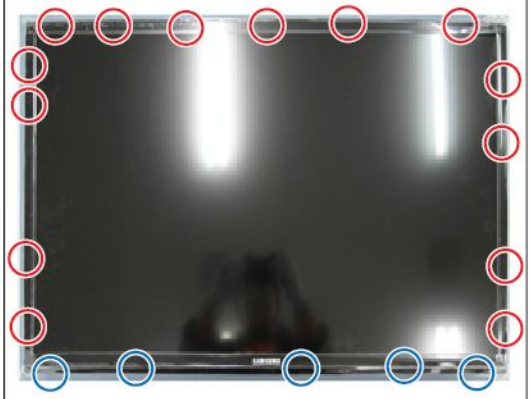
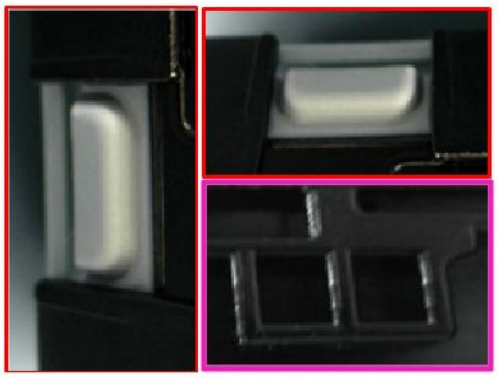
Description	Picture Description	Refer
4 When Source PCB attach CHASSIS BOTTOM, it should be attach the Gasket. **CAUTION** Combine to stick the PTC Rib into the middle mold. 		
5 Assemble ASSY MISC P-CHASSIS TOP(L/R) & ASSY MISC P-CHASSIS TOP(U/D) with hooks. * HOOK POINT U : 6 pts. D : 5 pts. R : 4 pts. L : 4 pts. **CAUTION** Check whether the hooks are completely assembled.	 	

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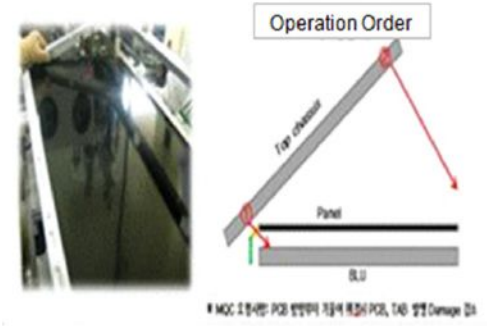
NOTE

Notice for ASSY MISC P-CHASSIS TOP Assembly

	Assembly process of mechanical tools (1) 1. To apply countermeasures against breaking defect 1-1. Causes -During placement of a panel and MF guide, the panel is hung due to embo interrruption, which provokes the panel to be broken which T/C assembly. 1-2. Solutions -To conduct 4 siodes touching inspection by operators. -To quantify SOP because of operational defects between DS photoelectricity progress.
	Assembly process of mechanical tools (2) 2. To apply countermeasures against TAB IC dent defect 2-1. Causes -A dent occurs due to T/C & S-IC interrruption which is caused by T/C assembly on the opposite or the L/R of the S-PCB. 2-2. Solutions -To fix the top chassis by making it leant based on S-PCB. -To quantify SOP because of operational defects between DS photoelectricity progress.

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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. How to distinguish if the problem is caused by Main Board or T-Con Board.
   - **No Video** : If the problem is No Video but BLU is on and Indication LED is blinking repeatedly and faster than nomal booting, replace the T-Con Board.
   - **Distorted Picture** : Check the inner patterns.
   - Service Mode (Using the Factory Remote Control - 'Info'+'Factory')
   - Move to SVC Menu
   - Move toTest Pattern
   - Check inner patterns.

For All mode

Picture	Problem	Solution
OK	Main Board	Change the Main Board
NG	Panel or T-con	Change the Panel or T-con

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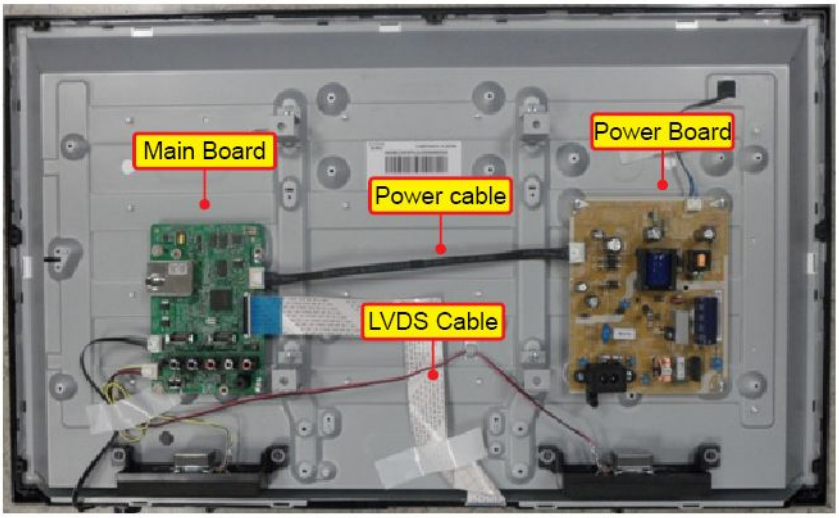
■ Inside View



CN201 (to Powr board)			
1	B5.3V	2	SW_PW
3	B5.3V	4	A5.3V
5	GND	6	GND
7	B13VS_AMP	8	GND
9	B13VS_AMP	10	SW_INV
11	B13VS_PW	12	B13VS_PW
13	B13VS_PW	14	PWM_DIM

CNM803 (to Main board)			
1	B5.3V	2	PWM_DIM
3	B5.3V	4	B13V
5	Vamp	6	BLU_On/Off
7	Vamp	8	GND
9	GND	10	GND
11	B5V	12	A5V
13	B5V	14	Power on

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

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4.2. How to Check Fault Symptom

■ NO Power and No Video

Symptom

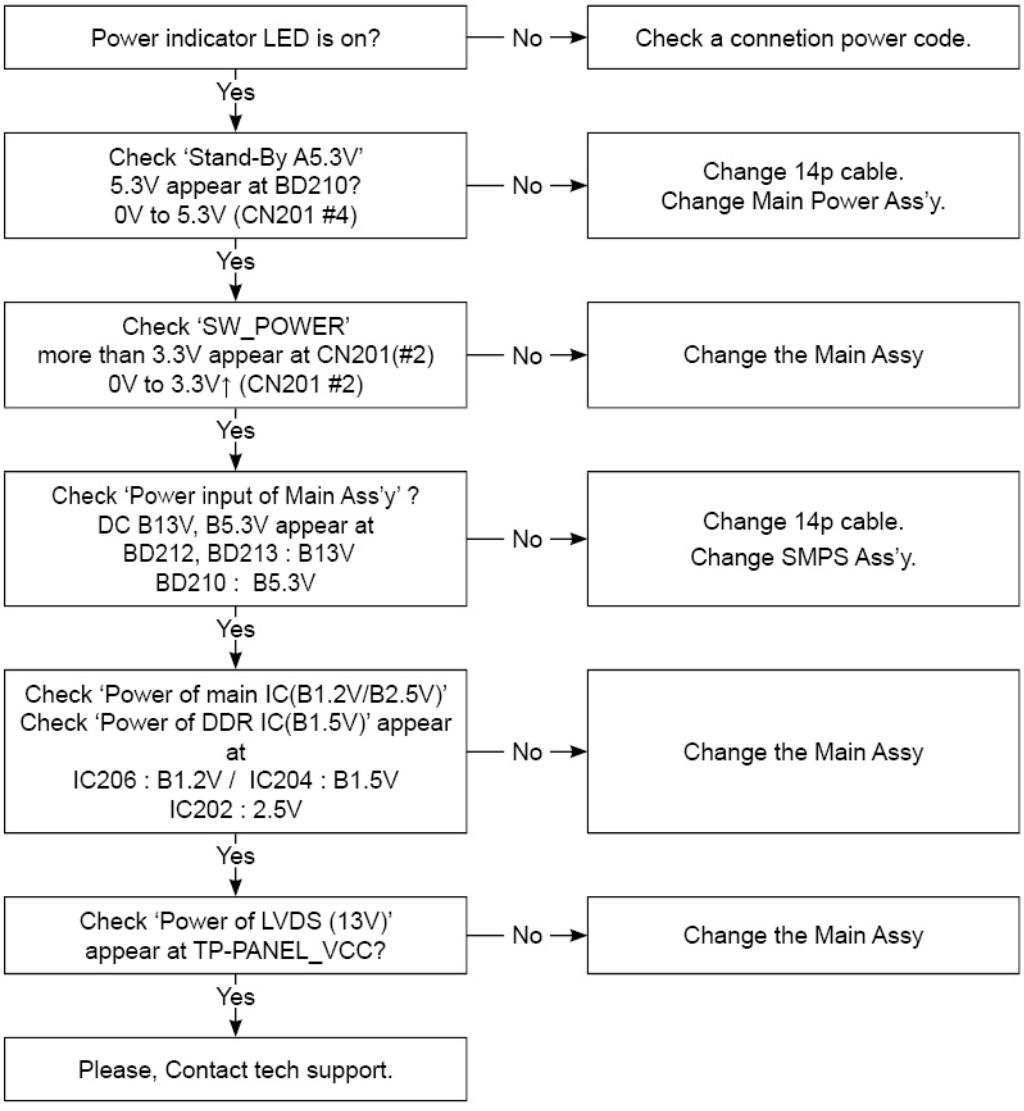
- The LEDs on The front panel do not work when connecting The power cord.
- The SMPS relay does not work when connecting The power cord.
- The units appears to be dead.

Major checkpoints

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:

- 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



Caution

Make sure to disconnect the power before working on the IP board.

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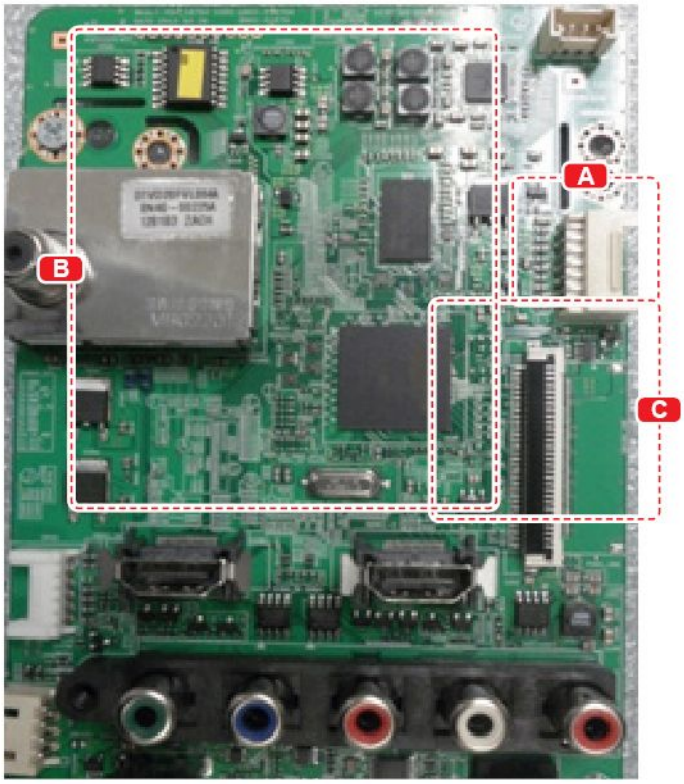
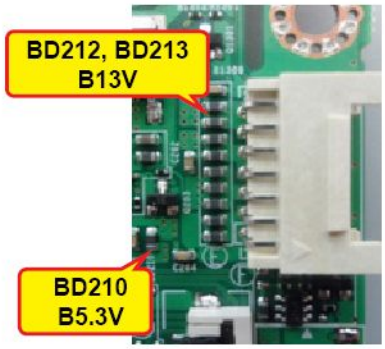
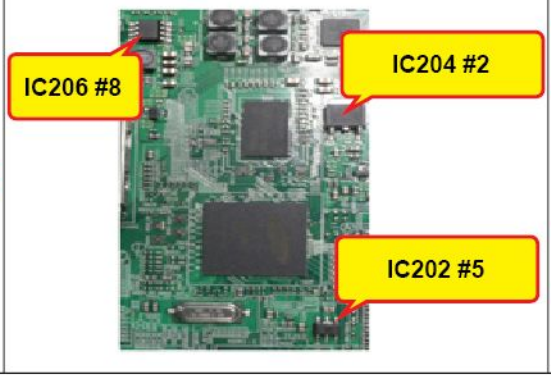
■ Location of Parts

Main Board_Front


Detail			
A		c	
B			

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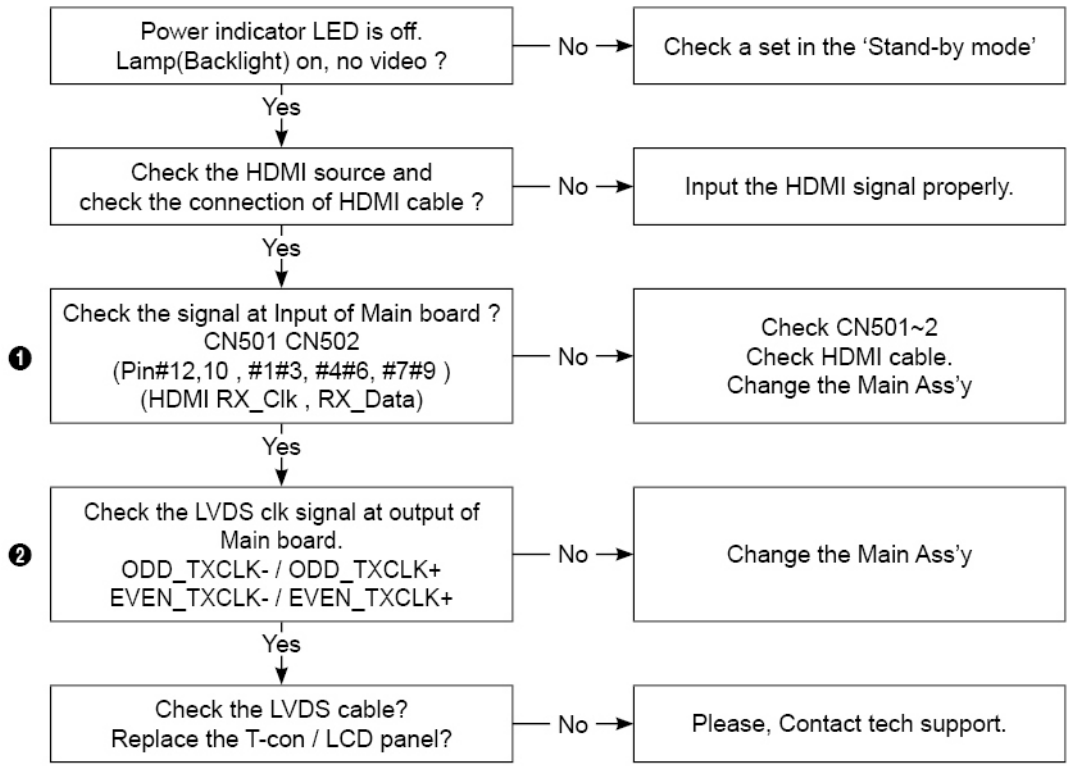
■ No Video (HDMI 1, 2 - Digital Signal)

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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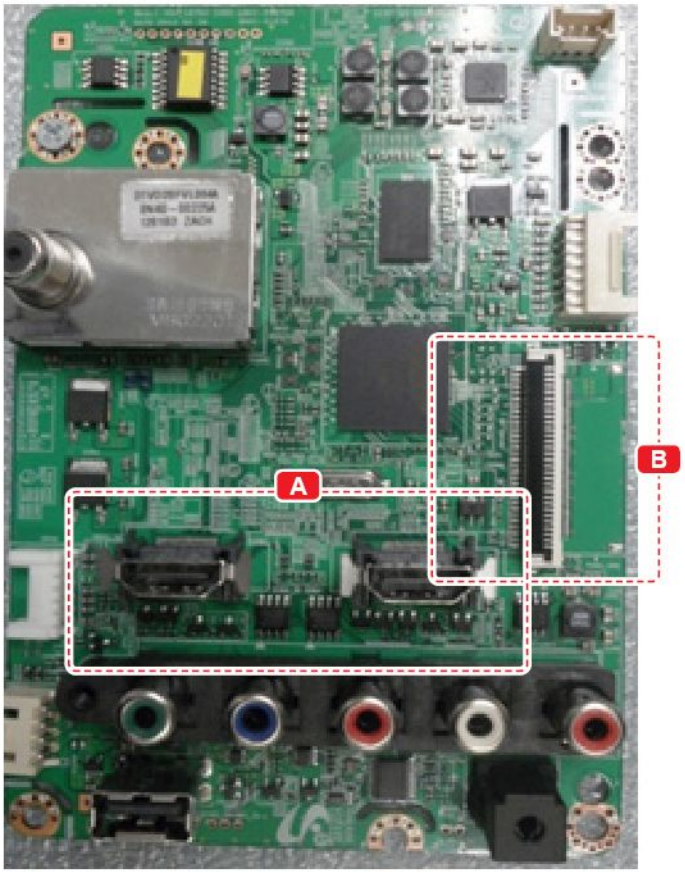
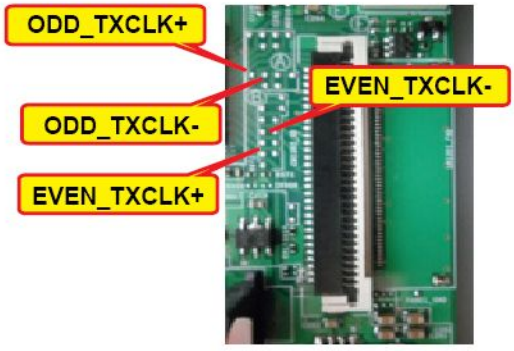
■ Location of Parts

Main Board_Front


Detail		
A		
B		

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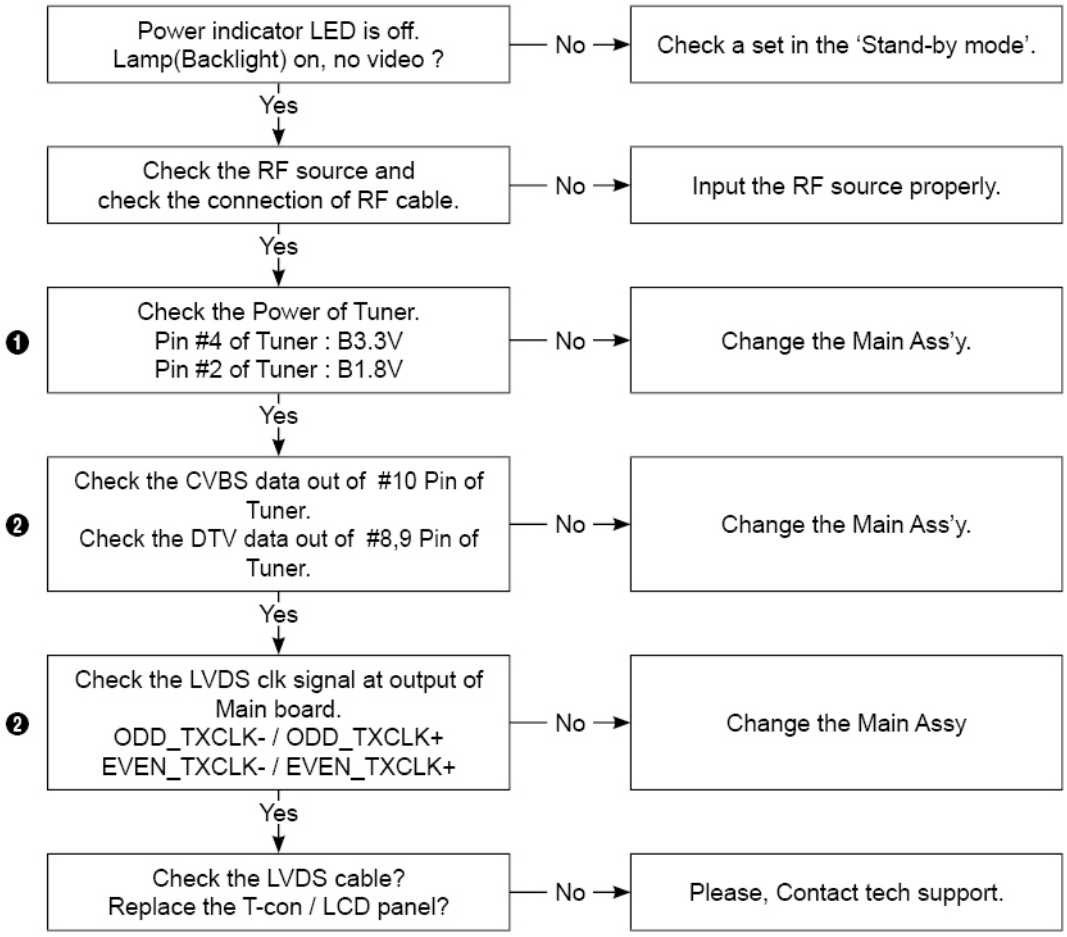
■ No Video (Tuner_CVBS)

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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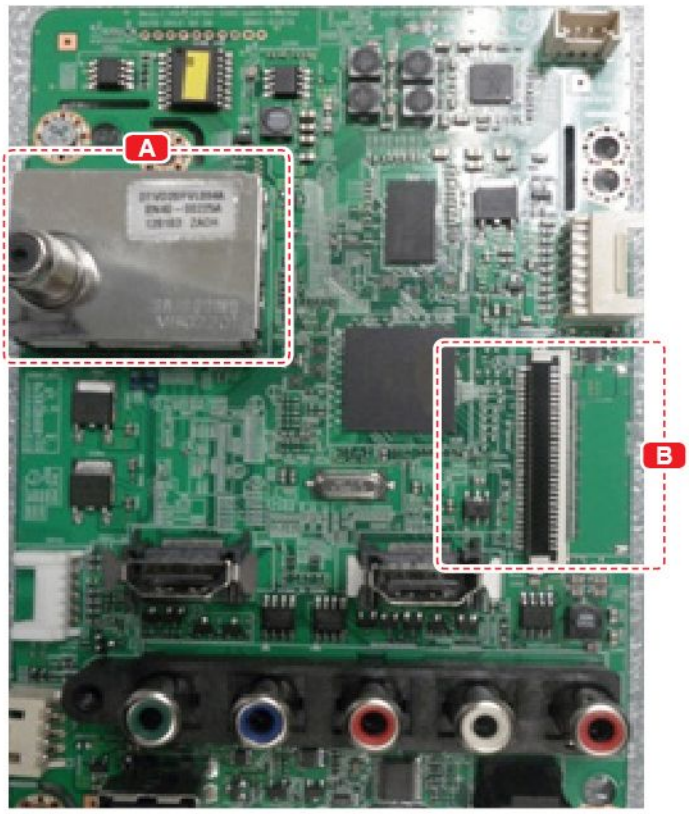
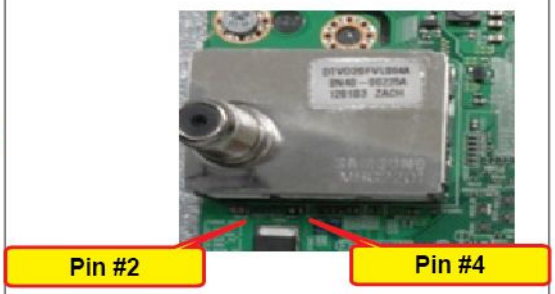
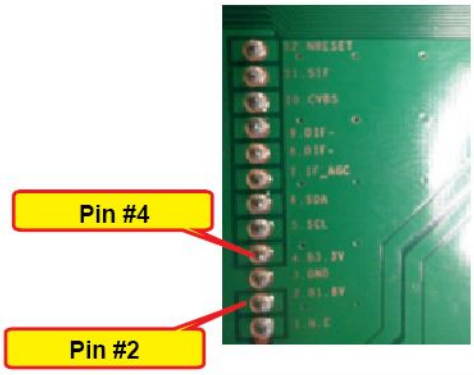
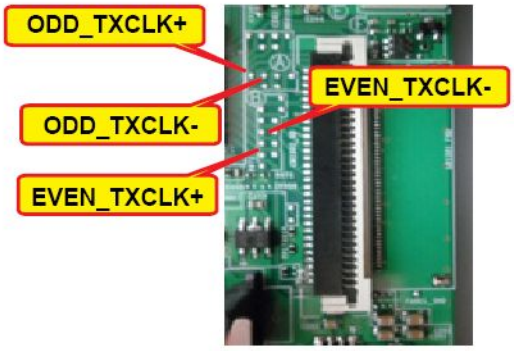
■ Location of Parts

Main Board_Front


Detail			
A (Front)		A (Rear)	
B			

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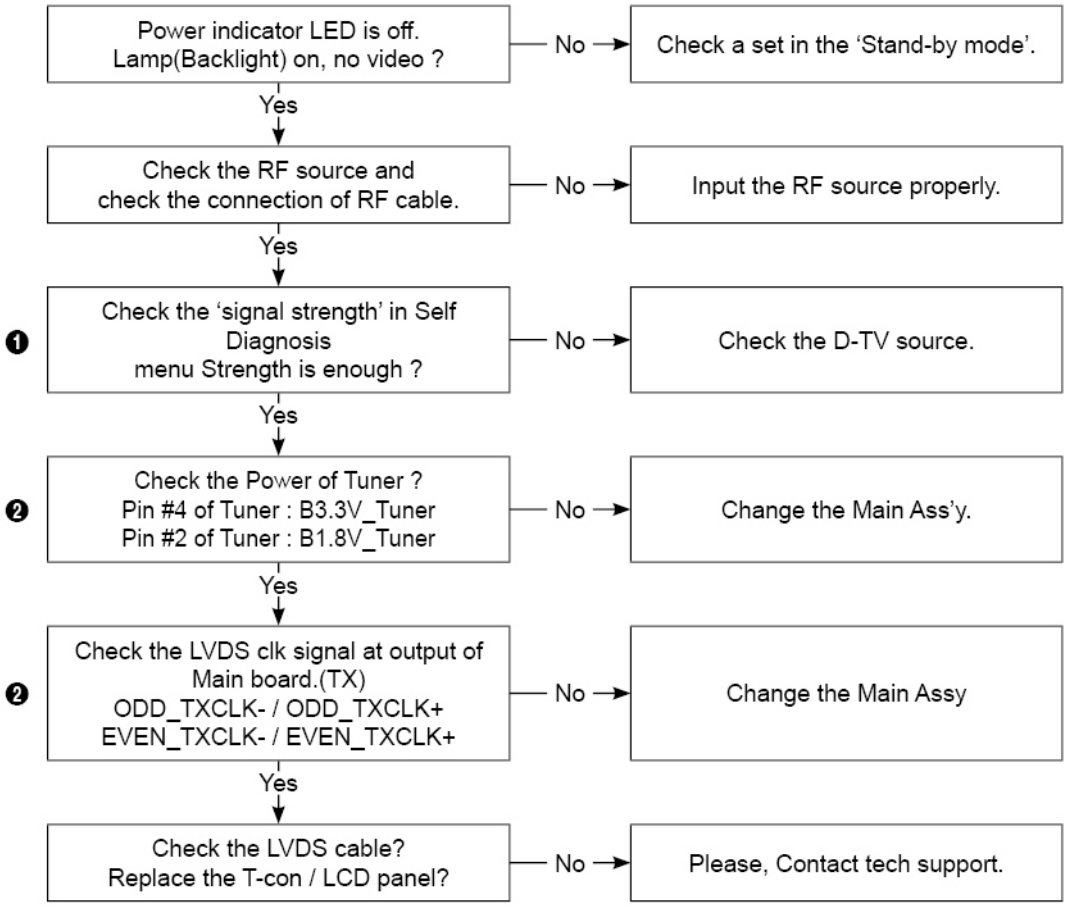
■ No Video (Tuner DTV)

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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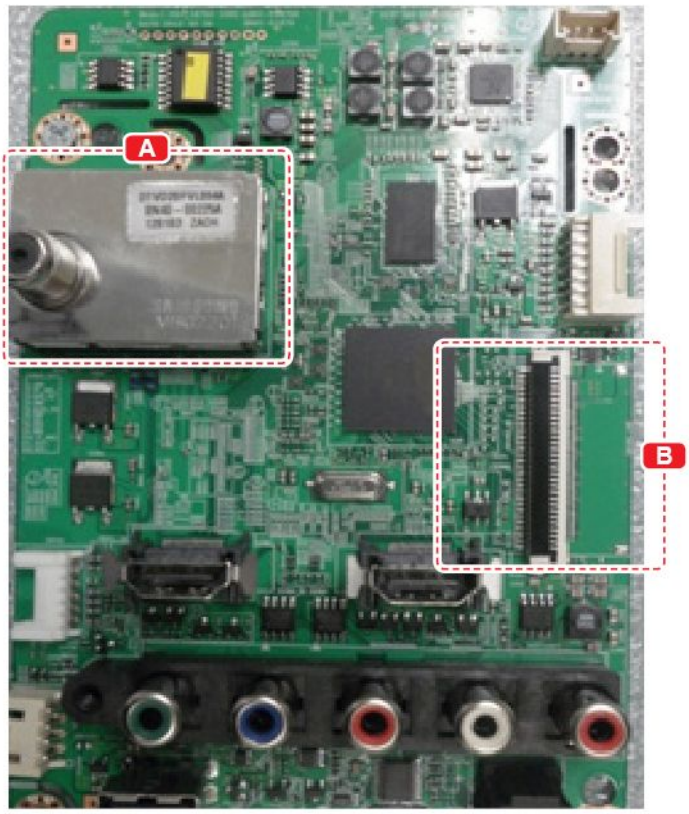
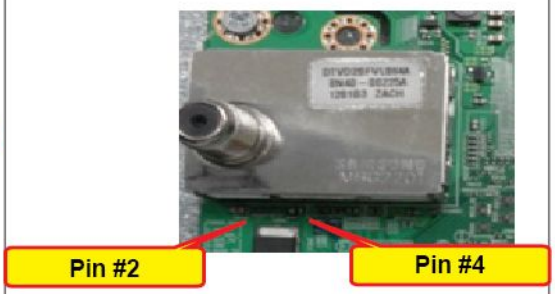
■ Location of Parts

Main Board_Front

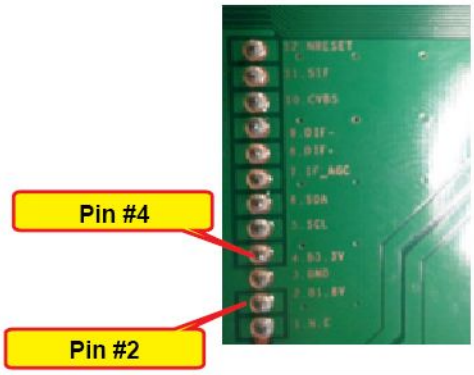


Detail

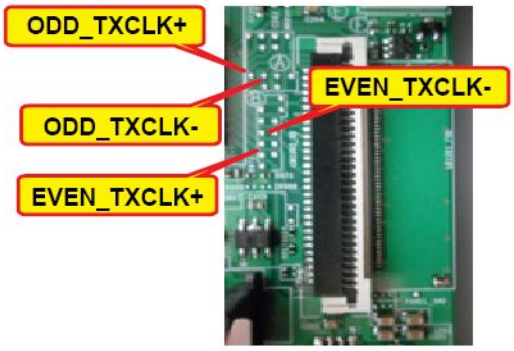
A (Front)



A (Rear)



B



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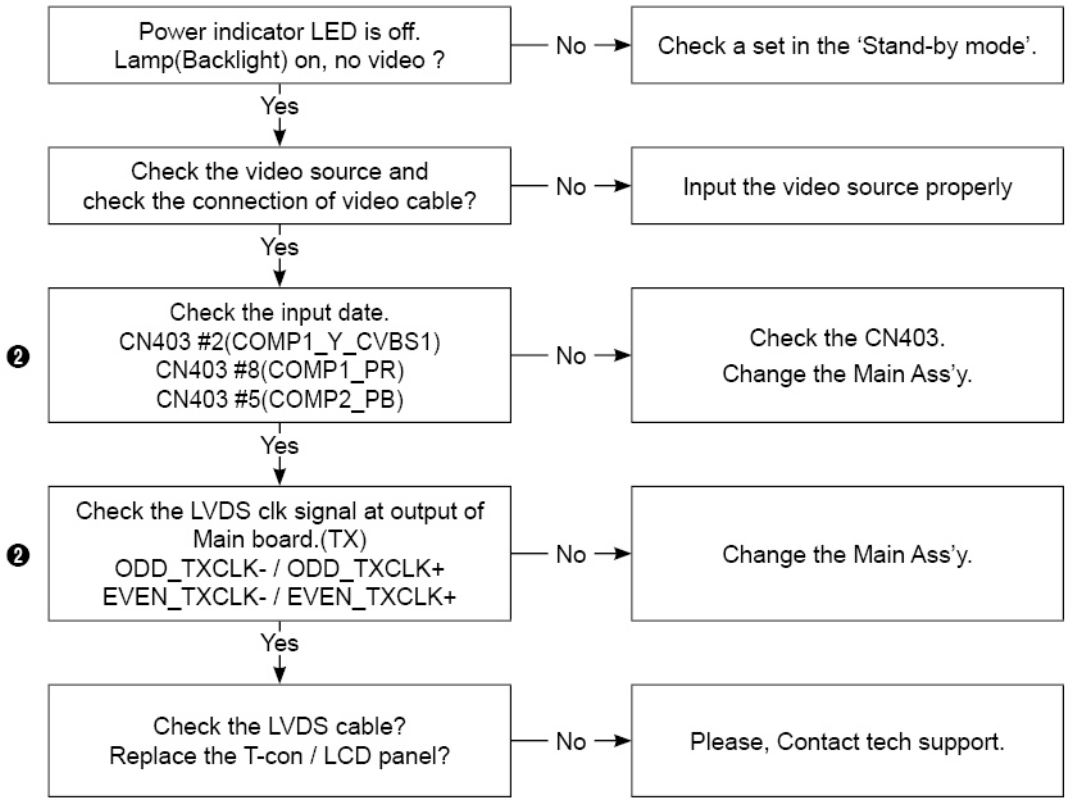
■ No Video (Video CVBS, COMPONENT)

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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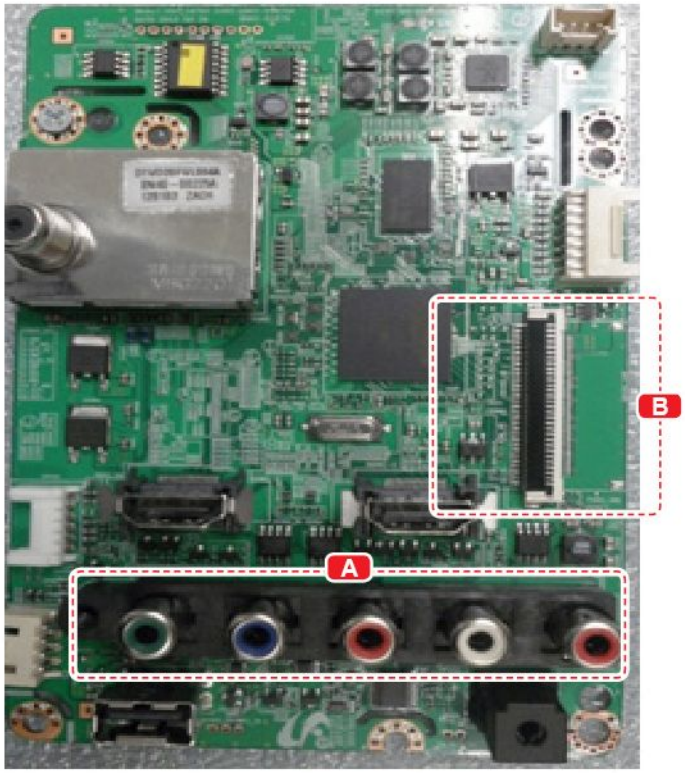
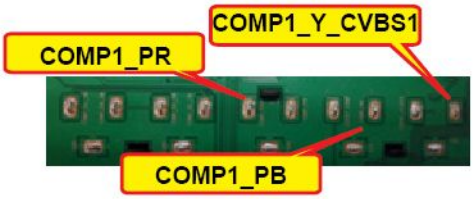
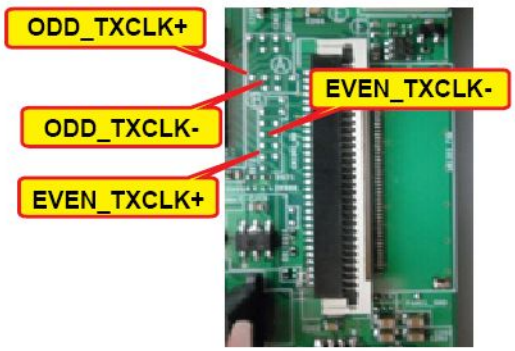
■ Location of Parts

Main Board_Front


Detail			
A (Front)		A (Rear)	
B			

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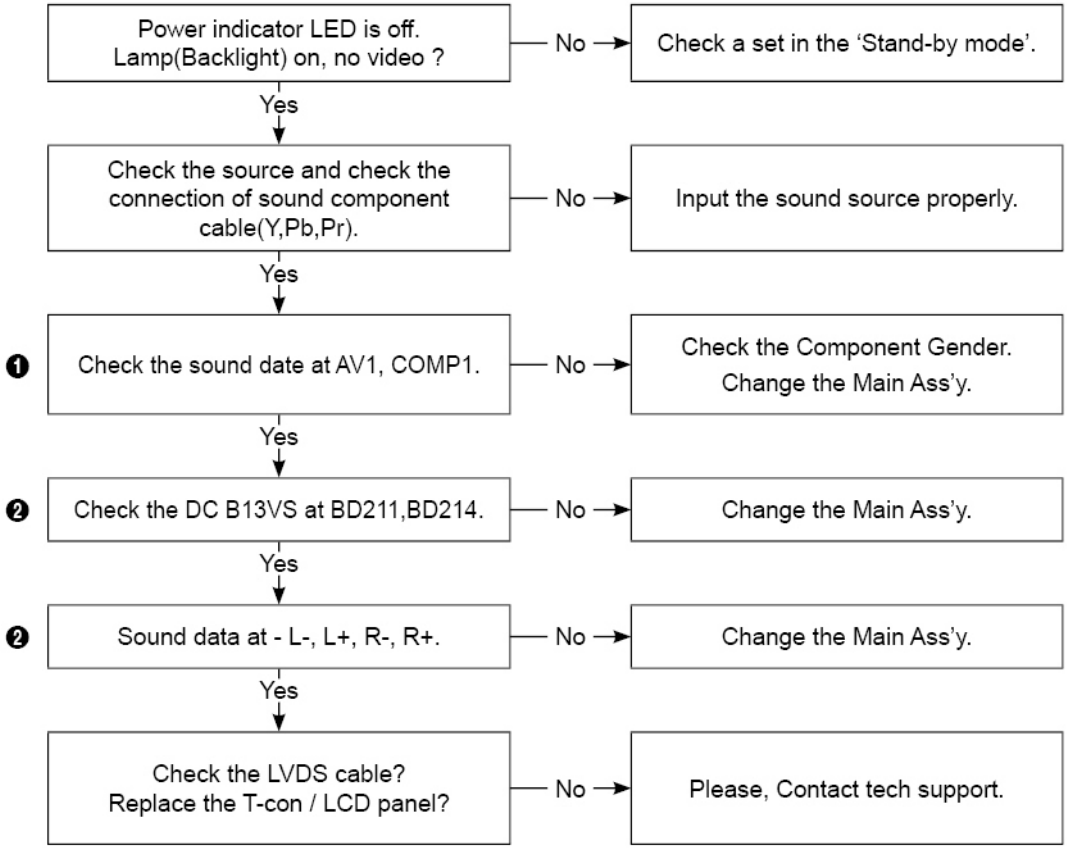
■ No Sound

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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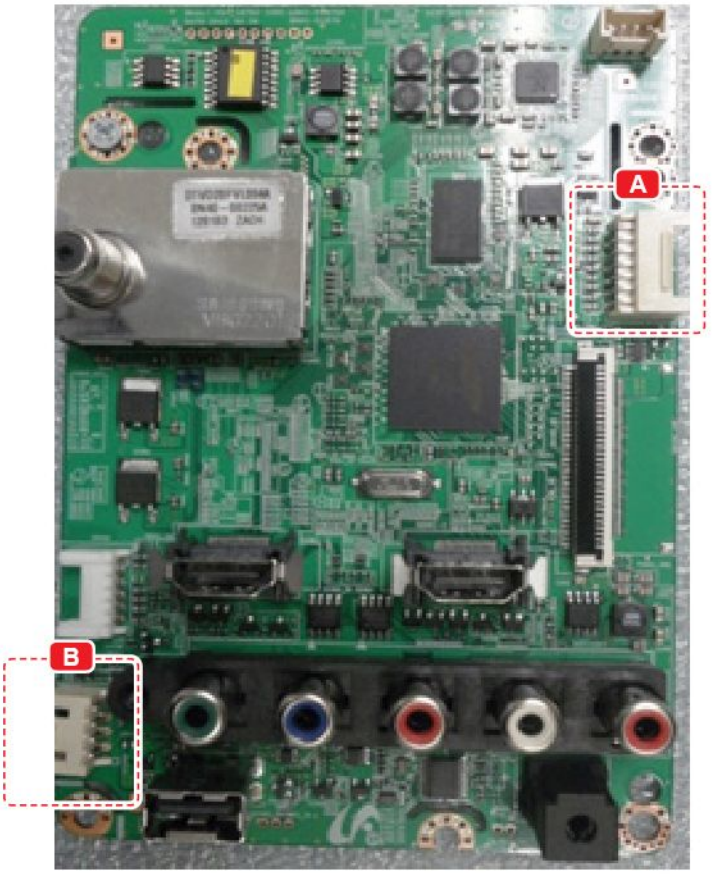
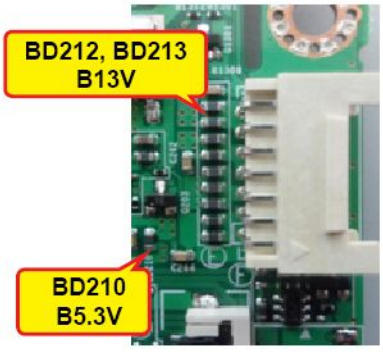
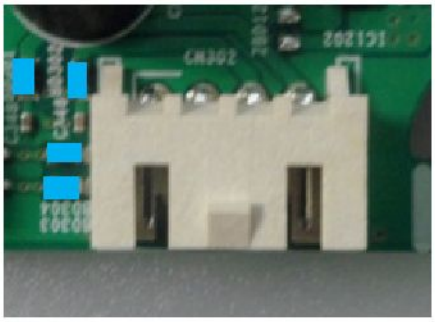
■ Location of Parts

Main Board_Front


Detail			
A		B	

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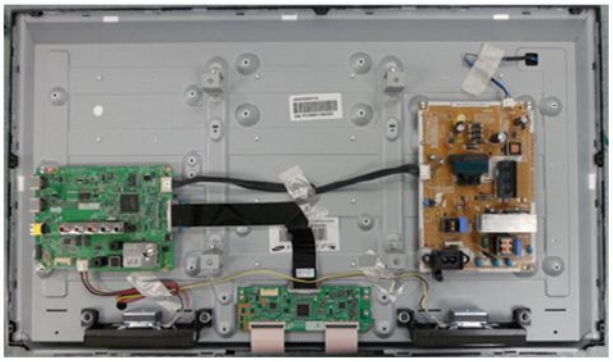
4.3. Troubleshooting2

4-3-1. Troubleshooting

Image	Sympton
	• Sympton : greensh • Reason : LVDS connector Even0 +/- short • Counterplan : Resoldering or Change Main Assy
	• Sympton : NO LAMP • Reason : Disconnected haness cable. • Counterplan : RConnecting the harness cable

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4-3-2. New componenets and function

Trouble	Counterplan
• No HDMI video and sound.	Check the EDID and HDCP in Factory menu
• No HDMI video with weak signal caused by long cable.	• Factory mode • Control → Sub option → HDMI# EQ • Change the value. • # : trouble port
• No CEC. • No E-manual.	• No supported in 2012 model.

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4.4. Factory Mode Adjustments

4-4-1. 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 → MENU → 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.

■ Initial SERVICE MODE DISPLAY State

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4-4-2. Factory Data

Note

- Version of the software is written in 0002.
- Black : I should not be possible to adjust or change that does not require a change item
  Blue : Adjustment Services for the corresponding
  Red : Items that are secured

■ Option

Factory Menu Name	Data	Range
Factory Reset	-	
Type		32B6AH0D
Model	UE4003	
SVC Model	4003	
Tuner	SI_ATSC2	
Ch Table	NONE	
Front Color	NONE	

■ Control

Factory Menu Name	Data	Range
EDID		
EDID ON/OFF	Off	
EDID WRITE ALL	…	
EDID WRITE PC		
EDID WRITE DVI	…	
EDID WRITE HDMI1	…	
EDID WRITE HDMI2	…	
EDID WRITE HDMI3		
EDID WRITE HDMI4	…	
EDID VERSION		
Sub Option		
Mute Time(VIDEO)	4	0~10
ready	Off	
HotPlug	On	
Hotplugcontrol	On	
Spread Spectrum		
Spread Spectrum	On	On/Off
Period	60K	40K/50K/60K

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Factory Menu Name	Data	Range
Amplitude	2	0/0.5/1/1.5/2
DDR Spread	2%	Off/1%/2%
Auto Power	On	
Mirror	ON	ON/ OFF
HDMI EQ1	Middle	Low/Middle/High/Strong
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
FRC LVDS Order	DCAB	
FRC Auto Recovery	On	
OSD Resolution	1366*768	
Bus Stop		
OTA Code		
OTA Duration Test		
Alternate Del		
Ignore VCT Version	On	On/Off
Change OSD Language	KOR	KOR/ENG
VCR Mode	off	On/Off
Watch Dog Count	0	-
E-POP Default	On	On/Off

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Factory Menu Name	Data	Range
Energy Star Logo	0	-
PDP Option		
Hotel Option		
Shop Option		
Shop Mode	OFF	ON/OFF
USB DEMO ON(SEC)		
USB DEMO OFF(SEC)		
Exhibition Mode	OFF	ON/OFF
Sound		
Audio Amp	NTP7412s	NTP7412s/NTP7411s
Volume Curve	NT	NT/EU/EA
A2K Prescale	20	0~40
A2K M2S Thr	0	0~40
A2K S2M Thr	0	
A2K Dual Ident High Thr	0	
A2K Dual Ident Low Thr	0	
Carrier2 Amp High Thr	0	
Carrier2 Amp Low Thr	0	
Carrier2 MSR High Thr	0	
Carrier2 MSR LowThr	0	USA/KOR
MP3 Level	-6dB	ENG_US/SPA_US/FRA_US
Audio Delay	20ms	-12dB~0dB
Main Amp Master Vol	199	0~150ms
Center Amp Master Vol	199	
Main Amp PWM Mod	103	
Center Amp PWM Mod	165	
Woofer Amp PWM Mod	0	
Woofer Type	0	
Main Speaker EQ	On	
Center Speaker EQ	On	
[Edu] SPK Level	1	
[Edu] MIC Level	1	0~8
[Edu] PGA Gain	2dB	0~8
Main EQ CS	0x00AE52C2	0~59dB
Center EQ CS	0x00000000	
Woofer EQ CS	0x00000000	
Config Option		

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Factory Menu Name	Data	Range
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	
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	5 way	5 Way : Navigation jog Key
		Old: Touch function Key
		IR Only : don't work function
Eco Sensor Support	off	On/OFF
MFT OFFSET		

■ SVC

Factory Menu Name	Data	Range
Test pattern		
T-CON USb Download		

■ ADC/WB

Factory Menu Name	Data	Range
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

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Factory Menu Name	Data	Range
1st_PC_High	251	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	116	
1st_AV_Offset	153	
1st_Comp_Gain	142	
1st_Comp_Gain_Cb	142	
1st_Comp_Gain_cr	142	
1st_Comp_Offset	128	
1st_Comp_Offset_Cb	128	
1st_Comp_Offset_Cr	128	
1st_PC_R_Gain	162	
1st_PC_G_Gain	162	
1st_PC_B_Gatin	162	
1st_PC_R_Offset	128	
1st_PC_G_Offset	128	
1st_PC_B_Offset	128	
2nd_R_Offset	111	0~255
2nd_G_Offset	111	0~255
2nd_B_Offset	111	0~255
2nd_R_Gain	169	0~255
2nd_G_Gain	169	0~255
2nd_B_Gain	169	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	142	0~255
G_Gain	128	0~255
B_Gain	195	0~255
Movie R Offset		
Movie B Offset		

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Factory Menu Name	Data	Range
Movie R Gain		
Movie B Gain		

■ Advanced

Factory Menu Name	Data	Range
PBE		
WM Movie		
Mode	Off	On/Off
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	
N_RGAIN	3	
N_BGAIN	-5	
N_ROFFS	0	
N_BOFFS	0	
M_N_RGAIN	0	
M_N_BGAIN	0	
M_N_ROFFS	0	
M_N_BOFFS	0	
M_W2_RGAIN	0	
M_W2_BGAIN	0	
M_W2_ROFFS	0	
M_W2_BOFFS	0	
Movie Countr	0	
Movie Brigh	0	
Movie Color	0	
Movie Sharp	0	
Movie Tint	-50	

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Factory Menu Name	Data	Range
Movie BkLight	0	
M.Gamma	Off	
M_Sub Gamma	0	
HDMI Black Level	Normal	Low/Normal
Gamma	0.93	
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	12	0~20
ADJUST		
Dynamic Dimming	On	On/Off
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 INI 2D	30	0~100
PWM Mid	10	0~10
PWM Min	0	0~10
COMP PHASW	128	
Quick Start		
DTV LNA	Auto	Auto/On/Off
HDCP Download	On	On/Off
USB Download	Off	On/Off

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Factory Menu Name	Data	Range
LED Peak OnOFF	Off	On/Off
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
PQ Others		
YC_Delay		
PAL BG	1	0~3
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

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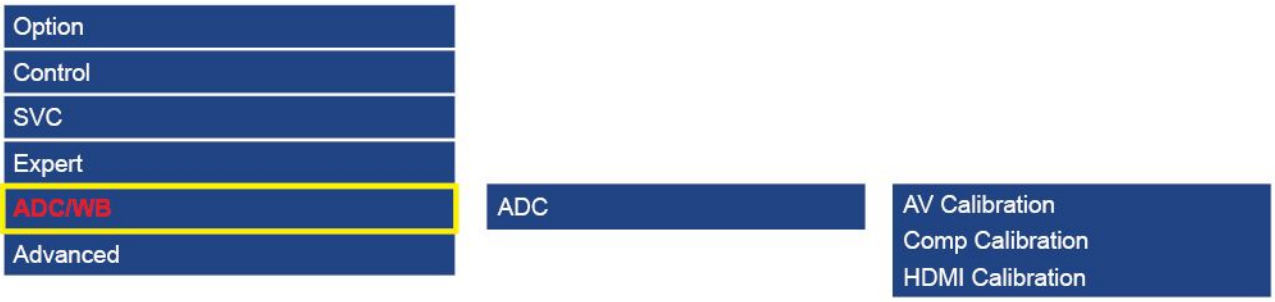
4.5. White Balance

4-5-1. Calibration

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



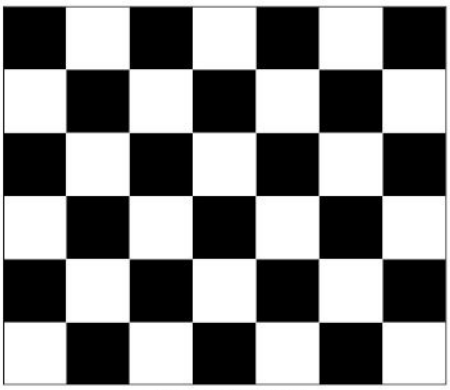
4-5-2. Service Adjustment

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
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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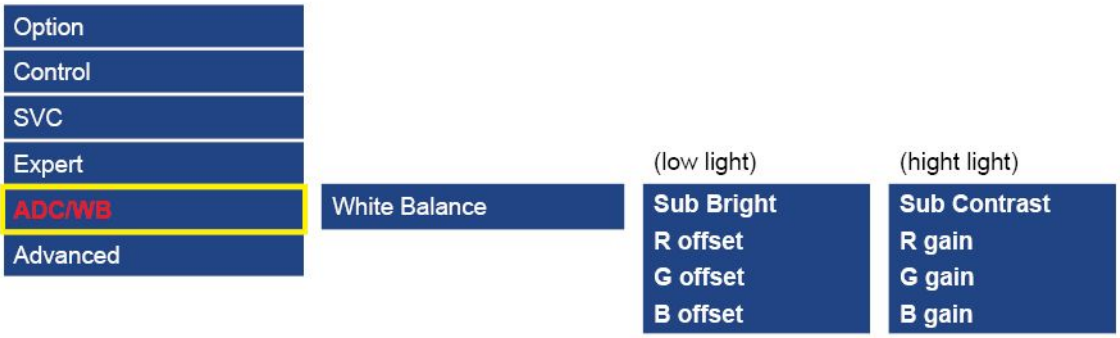
4-5-3. Adjustment

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



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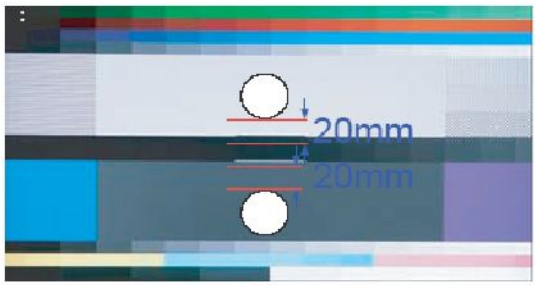
4.6. White Ratio (Balance) Adjustment

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.

White Balance Manual adjustment

- UN32EH4003F

P-Mode Input source	Section	Adjustment Coordinate CA-210					
HDMI COMP VIDEO	W/B High	Hx	264	Hy	274	HY	-
	W/B Low	Lx	-	Ly	-	LY	-
MOVIE	W/B High	Hx	318	Hy	340	HY	-
	W/B Low	Lx	-	Ly	-	LY	-

Sub Contrast	135	Sub Bright	128		
R-Gain	AJD	G-Gain	128	B-Gain	AJD
R-Offset	128	G-Offset	128	B-Offset	128

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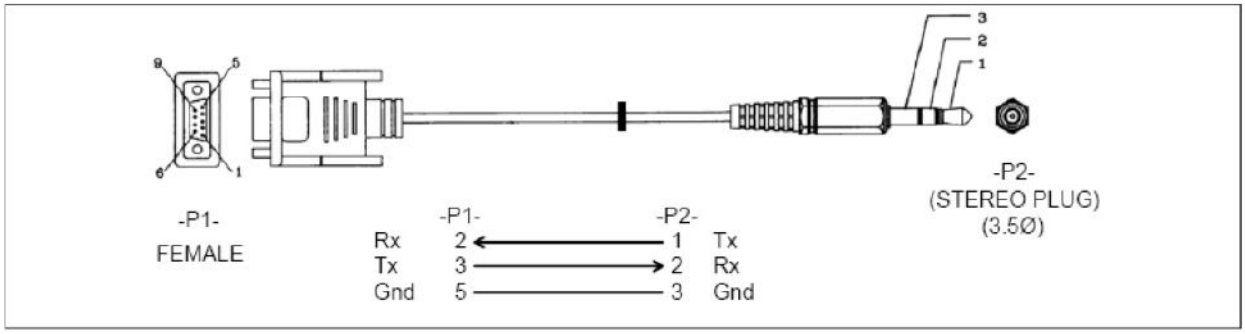
4.7. RS-232C

1. RS232C Control
   - Port : COM#(Serial)
   - Bit rate : 9600(Control)
   - Data Bit : 8 bit
   - Parity : None
   - Stop Bits : 1
   - Flow Control : None

2. Description of RS232C

Pin#	Name	Full Name
1	CD	Carrier Detect
2	RxD	Received Data
3	TxD	Transmitted Data
4	DTR	Data Terminal Ready
5	GND	Signal Ground
6	DSR	Data Set Ready
7	RTS	Request To Send
8	CTS	Clear To Send
9	RI	Ring Indicator



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4.8. 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
		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

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Control Item				Cmd1	Cmd2	Cmd3	Value	
		CAL-NIGHT					0x04	
		CAL-DAY					0x05	
		BD Wise					0x06	
		Relax					0x07	New function of 12" (only PDP TV)
	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)	
		Gamma	-3 ~ 3			0x03	(-3~3)	
		RGB Only Mode	Off			0x05	0x00	
			Red				0x01	
			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	

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Control Item				Cmd1	Cmd2	Cmd3	Value	
		Flesh Tone	-15 ~ 15			0x0e	(-15~15)	
		Edge Enhancement	Off			0x0f	0x00	
			On				0x01	
		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	
			Ticker				0x03	
	Picture Option	Color Tone	Cool		0x0a	0x00	0x00	
			Standard				0x01	change Normal → standard mode
			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	

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Control Item				Cmd1	Cmd2	Cmd3	Value	
			Cinema Smooth				0x03	New function of 12" (only PDP TV)
		Auto Motion Plus	Off			0x06	0x00	
			Clear				0x01	
			Standard				0x02	
			Smooth				0x03	
			Custom				0x04	
			Demo				0x05	
	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	New function of 12" (only DVB TV)
			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	
		3D ⇢ 2D	Off			0x01	0x00	
			On				0x01	
		3D View Point				0x02	(-5~5)	
		Depth				0x03	(1~10)	
		3D Auto View	Off			0x05	0x00	

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

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Control Item				Cmd1	Cmd2	Cmd3	Value	
	Sound Select	Main			0x08	0x00	0x00	
		Sub					0x01	
	Sound Reset	Sound Reset			0x09	0x00	0x00	
	3D Audio	Off			0x0a	0x00	0x00	
		Low					0x01	New function of 12"
		Medium					0x02	
		High					0x03	

Control Item				Cmd1	Cmd2	Cmd3	Value	
	Auto Stereo	Manual			0x0b	0x00	0x00	New function of 12"
		Auto					0x01	

Control Item			Cmd1	Cmd2	Cmd3	Value	
KEY	Key Generation		0x0d	0x00	0x00	refer to table	
OSD	Show/Hide Control	Show	0x0e	0x0e	0x00	0x00	New function of 12"
		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)
Enter(OK)	104 (0x68)
EXIT	45 (0x2D)

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4.9. Software Upgrade

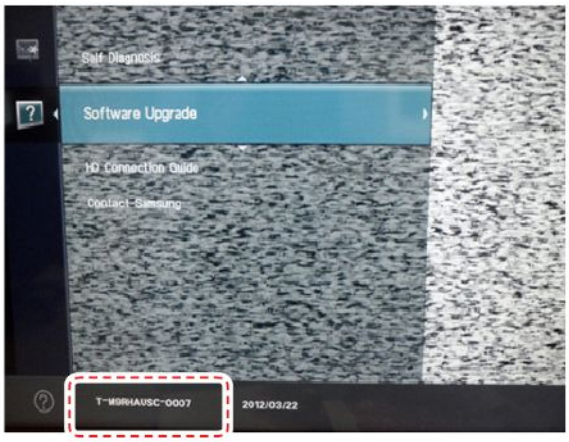
Software Upgrade can be performed by downloading the. latest firmware from samsung.com to a USB memory device.

- Current Version - The software already installed in the TV.
- Software is represented as 'Year/Month/Day_Version'.

4-9-1. 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
Control
SVC
Expert
ADC/WB
Advanced

T-M9RHAUSC-xxxx main SW
DTP-LP3-0093
DTP-LP3-App-0095
OPTION : 32B6AH0D,US, 4003, NONE
FactoryCS : 2011110080
ADC : HDMI / COMP / PC / AV
EDID SUCCESS
HDCP SUCCESS
BuildDate : **-**-****
Date of purchase : mm/dd/yyyy

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4-9-2. How to Upgade Software and Micom

Insert a USB drive containing the firmware upgrade downloaded from samsung.com into the TV. Please be careful not to disconnect the power or remove the USB drive while upgrades are being applied. The TV will turn off and turn on automatically after completing the firmware upgrade. Please check the firmware version after the upgrades are complete (the new version will have a higher number than the older version). 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. After update is completed, restore your previous settings.

■ Main Software Upgrade

1. Store the sw program named "T-M9RHAUSC" in USB memory stick.
   - Connect the USB.

2. Click the "MENU" key in Remote Controler.

3. Select "Support" menu.
   Locate the menu cursor "Software Upgrade" menu.

4. Click the "ENTER" key.

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

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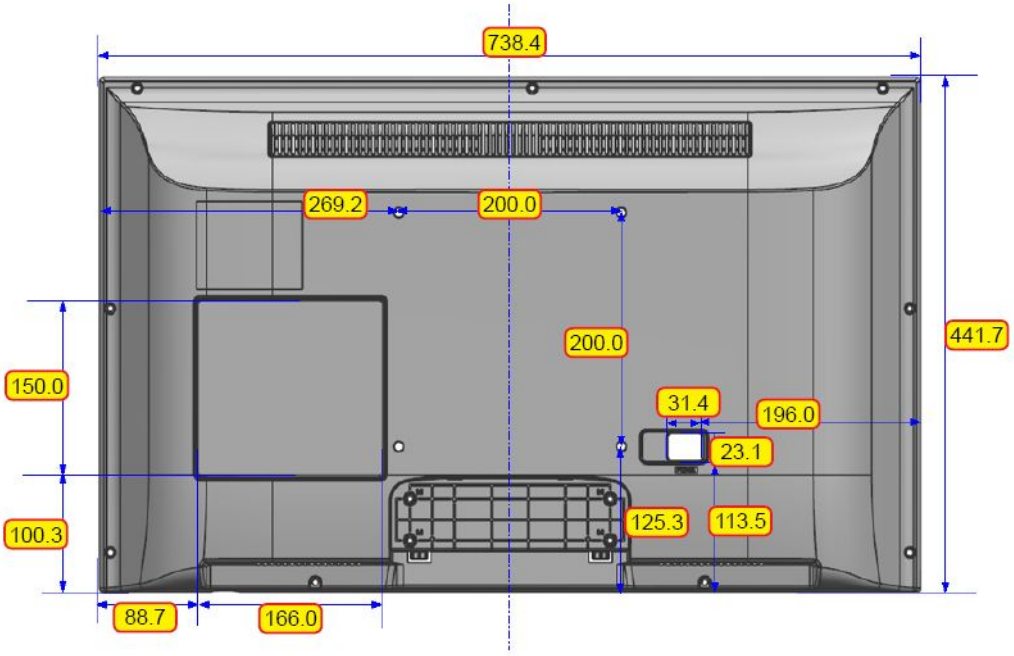
4.10. Rear Cover Dimension

■ UN32EH4003F



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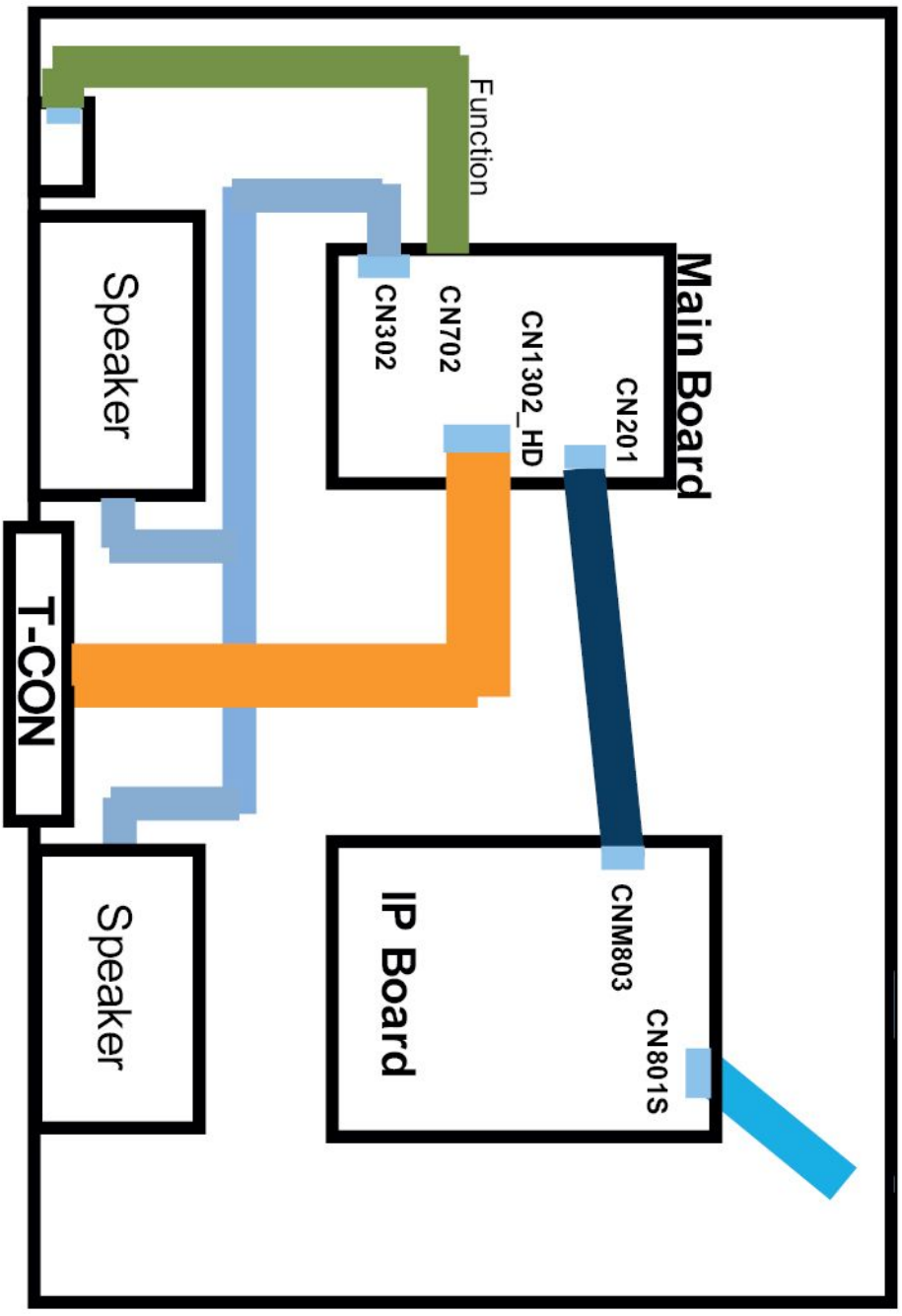
5. Wiring Diagram

5.1. Wiring Diagram



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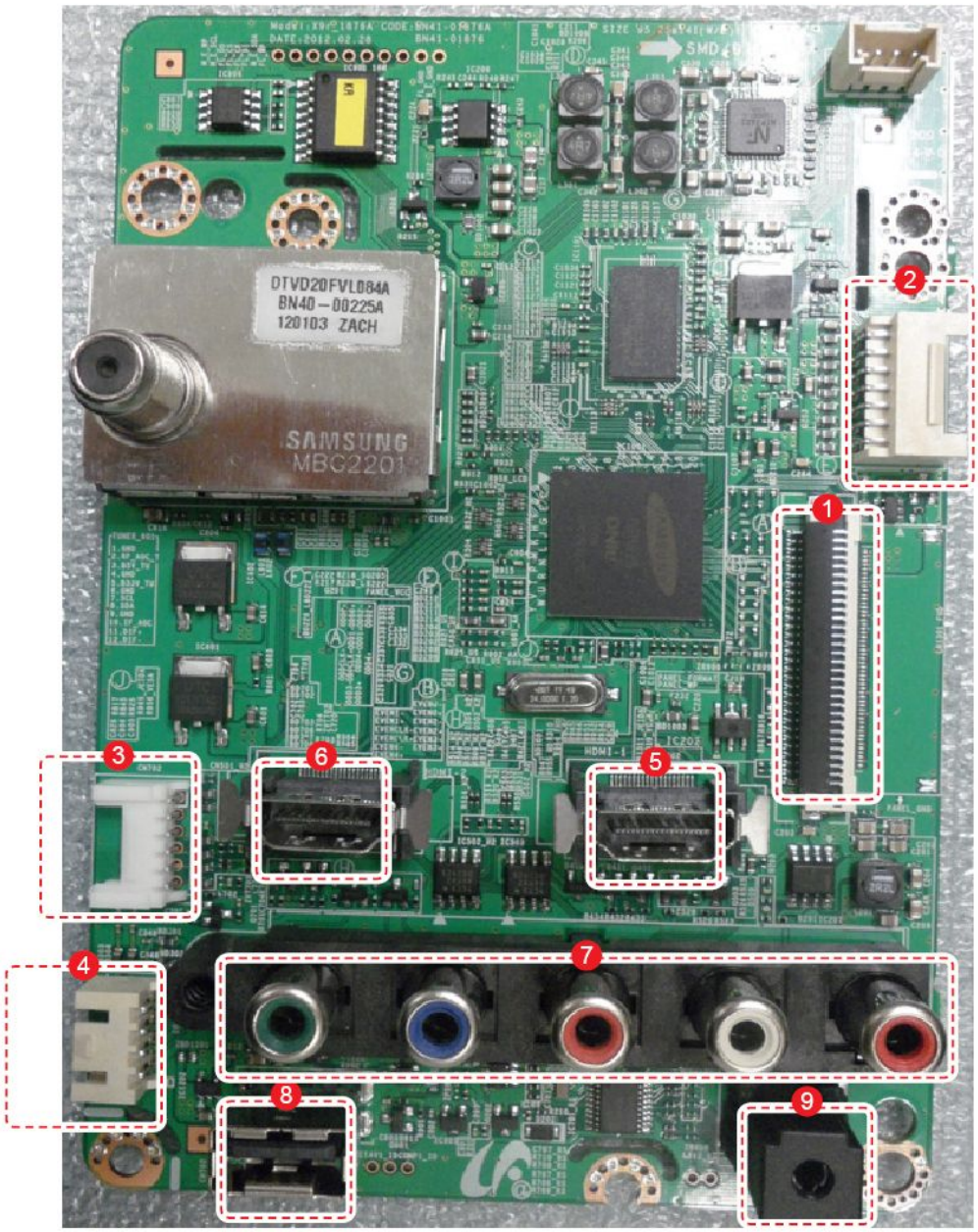
5.2. Connector

■ Main Board



❶ CN1302_HD			
1	PANEL_13V_PW	9	GND
2	PANEL_13V_PW	10	ODD_CLK-
3	PANEL_13V_PW	11	GND
4	PANEL_13V_PW	12	ODD2+
5	PANEL_13V_PW	13	ODD2-
6	GND	14	GND
7	GND	15	ODD1+
8	GND	16	EVEN_TXCLK+_LVDS

❶ CN1302_HD			
17	EVEN_TXCLK-_ LVDS	24	GND
18	GND	25	EVEN_TX0+_LVDS
19	EVEN_TX2+_LVDS	26	EVEN_TX0-_LVDS
20	EVEN_TX2-_LVDS	27	GND
21	GND	28	TCON_SDA
22	EVEN_TX1+_LVDS	29	TCON_SCL
23	EVEN_TX1-_LVDS	30	NC

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❷ CN201 (to Powr board)			
1	B5.3V	8	GND
2	SW_PW	9	B13VS_AMP
3	B5.3V	10	SW_INV
4	A5.3V	11	B13VS_PW
5	GND	12	B13VS_PW
6	GND	13	B13VS_PW
7	B13VS_AMP	14	PWM_DIM

❸ CN702 (FUNCTION)			
1	IR	4	KEY_INPUT1
2	GND	5	KEY_INPUT2
3	A3.3V_PW	6	GND

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

❺ CN502_H1 (HDMI1)			
1	HDMI1_RX2+	11	GND
2	GND	12	HDMI1_RXCLK-
3	HDMI1_RX2-	13	HDMI_CEC
4	HDMI1_RX1+	14	NC
5	GND	15	HDMI1_SCL_DDC
6	HDMI1_RX1-	16	HDMI1_SDA_DDC
7	HDMI1_RX0+	17	GND
8	GND	18	IDENT_HDMI1
9	HDMI1_RX0-	19	HDMI1_HOT_PLUG
10	HDMI1_RXCLK+		

❻ CN501_H2 (HDMI2)			
1	HDMI2_RX2+	11	GND
2	GND	12	HDMI2_RXCLK-
3	HDMI2_RX2-	13	HDMI_CEC
4	HDMI2_RX1+	14	NC
5	GND	15	HDMI2_SCL_DDC
6	HDMI2_RX1-	16	HDMI2_SDA_DDC
7	HDMI2_RX0+	17	GND
8	GND	18	IDENT_HDMI2
9	HDMI2_RX0-	19	HDMI2_HOT_PLUG
10	HDMI2_RXCLK+		

❼ CN403 (COMPONENT)			
1	GND	9	COMP1_PR
2	COMP1_Y_CVBS	10	GND
3	IDENT_VIDEO1	11	COMP1_SL_IN
4	GND	12	COMP1_SR_IN
5	COMP1_PB	13	GND
6	IDENT_COMP1	14	COMP1_SR_IN
7	GND	15	COMP1_SL_IN
8	COMP1_PR		

❽ CN1201 (USB)			
1	B5V_USB1_PW	3	USB0_DP+
2	USB0_DM-	4	GND

❾ CN701(Debug Port)			
1	FA_RX	3	NC
2	FA_TX	4	GND

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5.3. Connector Functions

Connector	Function
CN201 ↔ IP CN801	Supply main power and dimming signal from IP board to Main Board.
CN1302_HD ↔ T-CON CNF1	The LVDS signal transfered from Main Board to Panel.

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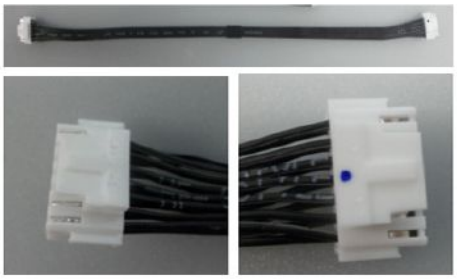
5.4. Cables

Use	LEAD (Main-IP 14P)	LVDS CALBE (Main - Panel 30P)
Code No.	UN32EH4003F : BN39-01449B	UN32EH4003F : BN96-20370T
Image		

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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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