LED TV

Chassis : U88A

Model : UN40F6100AG
UN46F6100AG
UN55F6100AG

SERVICE Manual

LED TV

UN**F6100AG

Contents

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Printed in Korea

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.

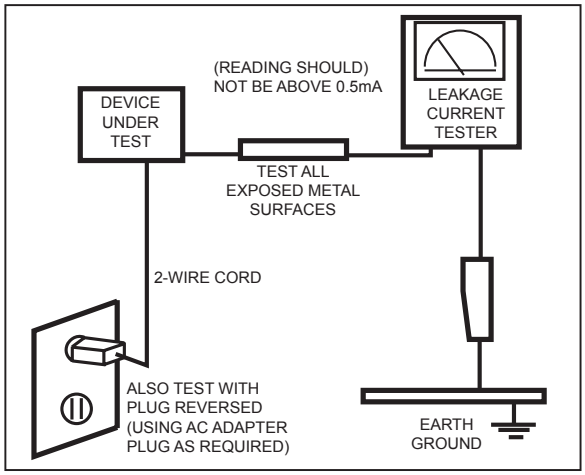
1-1-2. Servicing the LED TV

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.

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.

1-2. Servicing Precautions

WARNING

An electrolytic capacitor installed with the wrong polarity might explode.

CAUTION

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

NOTE

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.

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.

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 Specifications

Item		UN**F6100AG
General Information	Product	LED
	Cabinet Basic Code	FP
	Series	6
	Series Name	LED F6100
	Country	BOLIVIA, CHILE, PARAGUAY, PERU, URUGUAY
	Tools Support	No
	Platform(TV)	Novatek | NT13
Display	Inch	40" / 46" / 55"
	Resolution	1,920 x 1,080
	Ultra Clear Panel	No
	Lvds Format	JEIDA
	HV Flip	ON
Video	Picture Engine	3D HyperReal Engine
	Clear Motion Rate	240/200 (PY/UY)
	Dynamic Contrast Ratio	Mega Contrast
	Micro Dimming	No
	Precision Black (Local Dimming)	No
	Wide Color Enhancer (Plus)	Yes
	Auto Motion Plus 120/240Hz	120Hz
	Film Mode	Yes
	Brightness	300nits
	Contrast Ratio	5000:1
	Picture	3D-Effect,Film Mode
	Detail Resolution	50/60Hz
	Response Time	8ms
	Viewing Angle (H/V)	178/178
	Natural Mode Support	Yes
Audio	Dolby	Dolby Digital Plus / Dolby Pulse
	SRS / DNSe+	DTS Studio Sound
	dts 2.0+Digital Out / DTS Premium Audio	DTS Premium Audio 5.1
	3D Sound	Yes
	Sound Customizer	No
	Speaker Type	Down Firing + Full Range
	Sound Output (RMS)	10Wx2
	Woofer	No

Item		UN**F6100AG
Audio	Sound	SRS TheaterSound HD
	Sound Amp IC	NeoFidelity | NTP7412
	Speaker	10W + 10W
	Analog	2Ch
	Digital	Optical
VESA Standard	Screw Size	M8
Feature	Samsung 3D	Yes
	3D Converter	Yes
	History	No
	MultiTasking	No
	Smart Phone Remote support	No
	Smart Evolution Support	No
	Extended PVR	No
	Time Shift	No
	Allshare Play	No
	ConnectShare™ (USB2.0)	Movie
	AllShare Cast	No
	WiFi Direct	No
	Wireless LAN Built-in	No
	Wireless LAN Adaptor Support	No
	ISP Bound Service	No
	BT HID Built-in	Yes (Glasses Only)
	USB HID Support	No
	OSD Language	Local Languages
	User Interface	Golden Bridge Lite
	Digital Noise Filter	Yes
	Network Speaker Support	No
	MHL	No
	Sound Share	No
	WiDi	No
	InstaPort S (HDMI quick switch)	No
	HDMI 1.4 3D Auto Setting	Yes
	HDMI 1.4 A/Return Ch. Support	No
	EPG	Yes
	Analog Clean View	Yes
	Teletext (TTX)	No
	Miracast	No
	Anynet+ (HDMI-CEC)	No

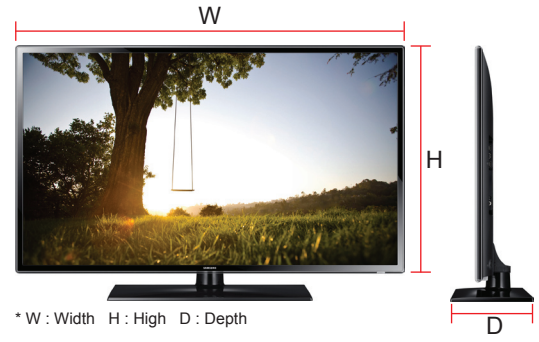
Item		UN**F6100AG
Feature	BD Wise Plus	No
	Auto Channel Search	Yes
	Auto Power Off	Yes
	Auto Volume Leveler	Yes
	Caption (Subtitle)	Yes
	2 Tuner	No
	Clock&On/Off Timer	Yes
	Game Mode	Yes
	Picture-In-Picture	Yes
	Sleep Timer	Yes
	Embeded POP	Yes
	Channel	Auto Store,Fine Tune
	Plug&Play	Yes
	Child Lock	Yes
	Sports Mode	Basic
	Paratal Lock	No
	Media Play(USB & DLNA)	Yes
	Bluetooth	Yes
	Home Network Centre	No
Additional Feature	Self Diagnosis	Yes
	Software Upgrade	Yes
	HD Connection Guide	Yes
	Contact Samsung	Yes
S/W	MCU name	NT13
	OS	Linux
System	DTV Tuner	ISDB-T
	Analog Tuner	Yes (Trinorma)
	MHP / MHEG (version) / ACAP	GINGA
	NTSC 3.58	Yes
	Trinorma (PAL M,N)	Yes
	Broadcast System	ISDB-T
	ATV Sound System	M,N
	DTV Video System	ISDBT
	DTV Sound System	Dolby
	Tuner Vendor & Model	SEM | DTIS22EIH055A
Core Component	DDR SDRAM	Samsung
	Nand Flash Memory	Samsung
	Display Device Vender	SDC
Input & Output	HDMI	2

Item		UN**F6100AG
Input & Output	Resolution	1920 x 1080
	DVI Supported Port	Port1 Type
	PC Maximum Resolution	1920 x 1080 | 60 Hz
	USB	1
	Port 1 Type	Host
	OS	Linux
	Component In (Y/Pb/Pr)	1
	Composite In (AV)	1 (Common Use for Component Y)
	Ethernet (LAN)	No
	Headphone	No
	Digital Audio Out (Optical)	1
	Audio Out (Mini Jack / LR)	1
	PC In (D-sub)	No
	PC Audio In (Mini Jack)	No
	DVI Audio In (Mini Jack)	No
	RF In (Terrestrial/Cable Input)	2
	RF In (Satelite Input)	No
	RS232C (AV CONTROL)	No
	EX-Link	Yes
	Monitor Output	No
Design	Design	ToC
	Bezel Type	NNB
	Slim Type	Slim 1
	Front Color	Clear
	Light Effect (Deco)	No
	Stand Type	Square
	Swivel (Left/Right)	No
	Molding Method	ToC
	Front Resin	PC+G/F
	Stand Packing Type	Bundle
Eco	Eco Mark	Planet First
	Eco Sensor	Yes
Security	Kensington Lock	Yes
Accessory	3D Active Glasses (Included)	4 EA - SSG-5100GB
	IR Blaster (Included)	No
	Wireless LAN Adaptor (Included)	No
	Network Speaker (Included)	No
	MOIP Camera (Included)	No
	Wireless Keyboard (Included)	No

Item		UN**F6100AG
Accessory	Remote Controller Model	TM1240
	Battery (for Remote Control)	Yes
	Mini Wall Mount Support	Yes
	Ultra Slim Wall Mount Support	No
	VESA Wall Mount Support	Yes
	Slim Gender Cable	No
	ANT-Cable	No
	Power Cable	Yes
	User Manual	Yes
	E-Manual	Yes
	Floor Stand Support	No

2-2. Detailed Specifications

2-2-1. Model Comparison

<table>
<tr><th>Model</th><th colspan="3">UN**F6100AG</th></tr>
<tr><td>Front View</td><td colspan="3"> 
</td></tr>
<tr><td>Detail View</td><td colspan="3"> 
</td></tr>
<tr><td>Front Color</td><td colspan="3">Clear / Black</td></tr>
<tr><td rowspan="6">Dimensions
(W x H x D)</td><td rowspan="2">40"</td><td>Set with Stand</td><td>934.0 x 617.4 x 235.0 mm / 36.77 x 24.31 x 9.25 inches</td></tr>
<tr><td>Set without Stand</td><td>934.0 x 548.6 x 49.6 mm / 36.77 x 21.6 x 1.95 inches</td></tr>
<tr><td rowspan="2">46"</td><td>Set with Stand</td><td>1065.4 x 697.3 x 235.0 mm / 41.94 x 27.45 x 9.25 inches</td></tr>
<tr><td>Set without Stand</td><td>1065.4 x 622.5 x 49.6 mm / 41.94 x 24.51 x 1.95 inches</td></tr>
<tr><td rowspan="2">55"</td><td>Set with Stand</td><td>1256.0 x 798.6 x 235.0 mm / 49.45 x 31.44 x 9.25 inches</td></tr>
<tr><td>Set without Stand</td><td>1256.0 x 729.3 x 49.2 mm / 49.45 x 28.71 x 1.94 inches</td></tr>
<tr><td rowspan="6">Weight</td><td rowspan="2">40"</td><td>Set with Stand</td><td>9 kg / 19.84 lbs</td></tr>
<tr><td>Set without Stand</td><td>7.5 kg / 16.53 lbs</td></tr>
<tr><td rowspan="2">46"</td><td>Set with Stand</td><td>13.1 kg / 28.88 lbs</td></tr>
<tr><td>Set without Stand</td><td>11.5 kg / 25.35 lbs</td></tr>
<tr><td rowspan="2">55"</td><td>Set with Stand</td><td>18.3 kg / 40.34 lbs</td></tr>
<tr><td>Set without Stand</td><td>16.9 kg / 37.26 lbs</td></tr>
<tr><td>Panel Type</td><td colspan="3">Black</td></tr>
<tr><td>Internal Memory</td><td colspan="3">128 MByte</td></tr>
<tr><td>DDR</td><td colspan="3">256 MByte</td></tr>
<tr><td>Feature</td><td colspan="3">AllShare, 3D, USB 2.0, Energy Saving, ECO Sensor</td></tr>
</table>

2-2-2. Feature & Specifications

Model	UN40F6100AG

Feature

- Digital-TV, RF, 1-Component, 1-A/V(Common Use for Component Y), 2-HDMI, 1-USB2.0(Media Play)
- PIP(in HDMI 1, 2 Component and Sub picture is available only in TV mode(DTV/ATV))
- CMR Clear Motion Rate : 240(PY) / 200(UY)
- Dolby Digital Plus Pulse, DTS Premium Sound 5.1, DTS Studio Sonud

Specifications		
Item	**Description**	
LCD Panel	40 inch FHD 120 Hz	
Input Signal Frequency	Horizontal : 31~80 kHz Vertical : 56 ~ 75 Hz	
Input Sync Signal	H/V Separate, TTL, P. or N.	
Display Colors	1.07 B	
Maximum Resolution	Horizontal : 1920 Pixels Vertical : 1080 Pixels	
Input Signal	Analog 0.7 Vp-p ± 5% positive at 75Ω, internally terminated	
Maximum Pixel Clock Rate	138 MHz	
Active Display (H x V)* * Horizontal x Vertical	885.6 (H) x 498.15 (V) mm	
AC Power Voltage & Frequency	AC 100 V ~ 240 V, 50/60 Hz	
Power Consumption	138 W (Under 0.1 W, Stand by)	
TV System	Tunning	Frequency Synthesize (Refer to detailed Frequency Table)
	System	ISDB-T, PAL-M, PAL-N, NTSC
	Sound	NTSC-M, Dolby Digital +
Environmental Considerations	Operating Temperature : 50˚F ~ 104˚F (10˚C ~ 40˚C) Operating Humidity : 10% ~ 80%, non-condensing Storage Temperature : -13˚F ~ 113˚F (-25˚C ~ 45˚C) Storage Humidity : 5% ~ 95%, non-condensing	
Audio Specifications	MAX Internal Audio Output Power : Each 10 W (Left/Right) Equalizer : 5 Band Output Frequency : RF : 20 Hz ~ 15.4 kHz AV/Componet/HDMI : 20 Hz ~ 20 kHz	
Note : AllShare, 3D, USB 2.0, Energy Saving, ECO Sensor		

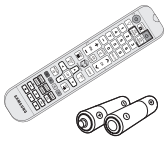
Model	UN46F6100AG
Feature	
• Digital-TV, RF, 1-Component, 1-A/V(Common Use for Component Y), 2-HDMI, 1-USB2.0(Media Play) • PIP(in HDMI 1, 2 Component and Sub picture is available only in TV mode(DTV/ATV)) • CMR Clear Motion Rate : 240(PY) / 200(UY) • Dolby Digital Plus Pulse, DTS Premium Sound 5.1, DTS Studio Sonud	

Specifications		
Item	**Description**	
LCD Panel	46 inch FHD 120 Hz	
Input Signal Frequency	Horizontal : 31~80 kHz Vertical : 56 ~ 75 Hz	
Input Sync Signal	H/V Separate, TTL, P. or N.	
Display Colors	1.07 B	
Maximum Resolution	Horizontal : 1920 Pixels Vertical : 1080 Pixels	
Input Signal	Analog 0.7 Vp-p ± 5% positive at 75Ω, internally terminated	
Maximum Pixel Clock Rate	138 MHz	
Active Display (H x V)* * Horizontal x Vertical	1018.08 (H) x 572.67 (V) mm	
AC Power Voltage & Frequency	AC 100 V ~ 240 V, 50/60 Hz	
Power Consumption	140 W (Under 0.1 W, Stand by)	
TV System	Tunning	Frequency Synthesize (Refer to detailed Frequency Table)
	System	ISDB-T, PAL-M, PAL-N, NTSC
	Sound	NTSC-M, Dolby Digital +
Environmental Considerations	Operating Temperature : 50˚F ~ 104˚F (10˚C ~ 40˚C) Operating Humidity : 10% ~ 80%, non-condensing Storage Temperature : -13˚F ~ 113˚F (-25˚C ~ 45˚C) Storage Humidity : 5% ~ 95%, non-condensing	
Audio Specifications	MAX Internal Audio Output Power : Each 10 W (Left/Right) Equalizer : 5 Band Output Frequency : RF : 20 Hz ~ 15.4 kHz AV/Componet/HDMI : 20 Hz ~ 20 kHz	
Note : AllShare, 3D, USB 2.0, Energy Saving, ECO Sensor		

Model	UN55F6100AG
Feature	
• Digital-TV, RF, 1-Component, 1-A/V(Common Use for Component Y), 2-HDMI, 1-USB2.0(Media Play) • PIP(in HDMI 1, 2 Component and Sub picture is available only in TV mode(DTV/ATV)) • CMR Clear Motion Rate : 240(PY) / 200(UY) • Dolby Digital Plus Pulse, DTS Premium Sound 5.1, DTS Studio Sonud	

Specifications		
Item	**Description**	
LCD Panel	55 inch FHD 120 Hz	
Input Signal Frequency	Horizontal : 31~80 kHz Vertical : 56 ~ 75 Hz	
Input Sync Signal	H/V Separate, TTL, P. or N.	
Display Colors	1.07 B	
Maximum Resolution	Horizontal : 1920 Pixels Vertical : 1080 Pixels	
Input Signal	Analog 0.7 Vp-p ± 5% positive at 75Ω, internally terminated	
Maximum Pixel Clock Rate	138 MHz	
Active Display (H x V)* * Horizontal x Vertical	1209.6 (H) X 680.4 (V) mm	
AC Power Voltage & Frequency	AC 100 V ~ 240 V, 50/60 Hz	
Power Consumption	166 W (Under 0.1 W, Stand by)	
TV System	Tunning	Frequency Synthesize (Refer to detailed Frequency Table)
	System	ISDB-T, PAL-M, PAL-N, NTSC
	Sound	NTSC-M, Dolby Digital +
Environmental Considerations	Operating Temperature : 50˚F ~ 104˚F (10˚C ~ 40˚C) Operating Humidity : 10% ~ 80%, non-condensing Storage Temperature : -13˚F ~ 113˚F (-25˚C ~ 45˚C) Storage Humidity : 5% ~ 95%, non-condensing	
Audio Specifications	MAX Internal Audio Output Power : Each 10 W (Left/Right) Equalizer : 5 Band Output Frequency : RF : 20 Hz ~ 15.4 kHz AV/Componet/HDMI : 20 Hz ~ 20 kHz	
Note : AllShare, 3D, USB 2.0, Energy Saving, ECO Sensor		

2-3. Accessories

Product	Description	Code. No		Remark
	Remote Control Batteries (AAA x 2)	AA59-00722A 4301-000121		Supplied Accessories
	Power Cord	Chile, Uruguay	3903-000849	
		Argentina	3903-000850	
		Paraguay	3903-000851	
		Peru	3903-000853	
		SELA	3903-000853	
	User Manual	Chile, Uruguay	BN68-04920C	
		Argentina	3903-000850	
		Paraguay	3903-000851	
		Peru	3903-000853	
		SELA	BN68-04920D	
	3D Active Glasses	BN96-25614A		
	Holder-Ring (4ea)	BN61-07295A		
	Holder-Wire Stand	BN61-08370A		
	Cloth-clean	BN63-02368B		

NOTE

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

2-4. Viewing the Functions

2-4-1. Auto Motion Plus 120 Hz

■ Function Naming

- 120 Hz FRC + MJC : Auto Motion Plus 120 Hz

■ Detail Specifications

Function (OSD)	120 Hz FRC	Judder reduction (only 24p source)	Blur reduction
Off	Off (repeat)	Off	Off
Clear	ON (interpolation)	Off	High
Standard	ON (interpolation)	Medium	Medium
Smooth	ON (interpolation)	High	High
Custom	Level variable (0~10)		
Demo	Demo (Standard / Off)		

■ 120Hz Motion Enhancement

Off

Low / Mudium / High

Demo

2-4-2. Supported Formats

■ Supported Subtitle Formats

Exterminal

Name	File Extension
MPEG-4 Timed text	.ttxt
SAMI	.smi
SubRip	.srt
SubViewer	.sub
Micro DVD	.sub or .txt
SubStation Alpha	.ssa
Advanced SubStation Alpha	.ass
Powerdivx	.psb

Internal

Name	Container	Format
Xsub	AVI	Picture Format
SubStation Alpha	MKV	Text Format
Advanced SubStation Alpha	MKV	Text Format
SubRip	MKV	Text Format
MPEG-4 Timed text	MP4	Text Format

■ Supported Photos Formats

File Extension	Type	Resolution
*.jpg *.jpeg	JPEG	15360 x 8640
*.bmp	BMP	4096 x 4096
*.mpo	MPO	15360 x 8640

* The MPO type file does not support Zoom, Rotate and Slide Show Effect functions.

■ Supported Music Formats

File Extension	Type	Codec	Comments
*.mp3	MPEG	MPEG1 Audio Layer 3	
*.m4a	MPEG4	AAC	
*.mpa			
*.aac			
*.flac	FLAC	FLAC	Supports up to 2 channel
*.ogg	OGG	Vorbis	Supports up to 2 channel
*.wma	WMA	WMA	WMA 10 Pro supports up to 5.1 channel. WMA lossless audio is not supported. Supports up to M2 profile (except LBR mode)
*.wav	wav	wav	
*.mid *.midi	midi	midi	type 0, type 1 are supported.

■ Supported Video Formats

<table>
<tr><th>File Extension</th><th>Container</th><th>Video Codec</th><th>Resolution</th><th>Frame rate (fps)</th><th>Bit rate (Mbps)</th><th>Audio Codec</th></tr>
<tr><td rowspan="15">*.avi
*.mkv
*.asf
*.wmv
*.mp4
*.3gp
*.vro
*.mpg
*.mpeg
*.ts
*.tp
*.trp
*.mov
*.flv
*.vob
*.svi
*.m2ts
*.mts</td><td rowspan="15">AVI
MKV
ASF
MP4
3GP
MOV
FLV
VRO
VOB
PS
TS
SVAF</td><td>Divx 3.11 / 4 / 5 / 6</td><td rowspan="3">1920 x 1080</td><td rowspan="14">6~30</td><td rowspan="3">30</td><td rowspan="14">AC3
LPCM
ADPCM(IMA, MS)
AAC
HE-AAC
WMA
DD+
MPEG(MP3)
G.711(A-Law, µ-Law)</td></tr>
<tr><td>MPEG4 SP/ASP</td></tr>
<tr><td>H.264 BP/MP/HP</td></tr>
<tr><td>Motion JPEG</td><td>640 x 480</td><td rowspan="2">8</td></tr>
<tr><td>Microsoft MPEG-4 v3</td><td rowspan="2">1280 x 720</td></tr>
<tr><td>Window Media Video v7,v8</td><td rowspan="4">30</td></tr>
<tr><td>Window Media Video v9</td><td rowspan="3">1920x1080</td></tr>
<tr><td>MPEG2</td></tr>
<tr><td>MPEG1</td></tr>
<tr><td rowspan="2">*.divx</td><td>MVC</td><td rowspan="2">640 x 480</td><td>24/25/30</td><td>60</td></tr>
<tr><td>VP6</td><td>6~30</td><td>4</td></tr>
<tr><td>*.webm</td><td>WebM</td><td>VP8</td><td>1920 x1080</td><td></td><td>20</td><td>Vorbis</td></tr>
</table>

■ Other Restrictions

- Video content will not play, or not play correctly, if there is an

■ Video Decorders

- Supports up to H.264, Level 4.1 (does not support FMO/ASO/RS)
- VC1 AP L4 is not supported.
- All video codecs excluding WMV v7, v8, MSMPEG4 v3, MVC, and VP6:
  - Below 1280 x 720: 60 frame max
  - Above 1280 x 720: 30 frame max
- GMC is not supported.
- Supports SVAF top/bottom and left/right only.
- Supports Blu-ray/DVD MVC specs only.

■ Audio Decorders

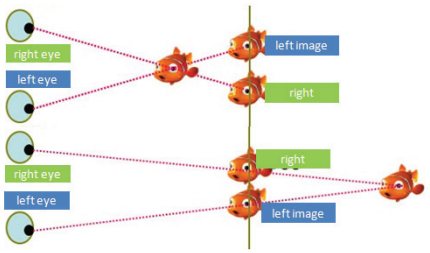
- WMA 10 Pro supports up to 5.1 channels. Supports up to M2 profile. (Excluding M0 LBR mode)

- WMA lossless audio is not supported.
- Vorbis is supported for up to 2 channels.
- DD+ is supported for up to 5.1 channels.

2-4-3. 3D Display

■ What is 3D Display?

This mode is to enables users to view images on the TV/Monitor in 3D by receiving the video signal in 3D format from sources such as 3D games and titles. The human brain constructs a 3 dimensional image from the two images entering both eyes. The depth of a 3 dimensional images is determined by the horizontal difference between the images from both the left and right eyes. 3D is displayed two images alternately on screen equivalent to left and right at TV, and embodies by doing to see each relevant image in left eye and right eye through shutter glasses.



■ 3D Function of Model Series

LCD / LED / PDP TV			LED
Items	Sub Items		120 Hz
	Platform (Main)		X12
	Platform (FRC / Formatter)		Fox-FT1 (SDC) Fox-FT2 (AUO / CMI) Echo-Fs (Sharp 3D) NT7231 2 (Sharp 2D)
3D Feature	2D → 3D Coversion		O
	3D → 2D		O
	3D Perspective		O
	3D Depth		O
	Auto View (Auto Format Detection)		X
	3D Optimize		O
FRC Feature	Auto Motion Plus		O
3D Input Format	ATV / AV, PC	2D → 3D	O
	Component	2D → 3D	O
		SS, TB	O
	HDMI	2D → 3D	O
		SS, TB	O
		FP 1080P 24 / 25 / 30 FP 720P 50 / 60 FP 1080i 50 / 60	O
	HDMI (PC / DVI)	LL, VS, Check ker BD, FS	X
	HDMI (PC / DVI)	2D → 3D	O
		SS, TB	O
		MPO	O
		SVAF IES (SS, BT)	O
		MVC 1080P 24 / 25 /30 MVC 720P 50 / 60 MVC 1080i 50 / 60 MVC 720P 24 / 25 /30	O
	DTV	2D → 3D	O
		SS, TB	O
		DVB_Phasel (SS, BT)	O
		ATSC_KR30	O

■ Surpported 3D Resolutions

Supported resolutions (16:9 Only)

- HDMI

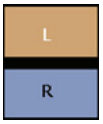
Source	Resolution	Frequency (Hz)
	1280 x 720p	59.94 / 60 Hz
	1920 x 1080i	59.94 / 60 Hz
	1920 x 1080p	23.98 / 24 / 29.97 / 30 / 59.94 / 60 Hz
Frame Packing	1280 x 720p	59.94 / 60 Hz
	1920 x 1080i	59.94 / 60 Hz
	1920 x 1080p	23.98 / 24 / 29.97 / 30 Hz

- Components & DTV

Source	Resolution	Frequency (Hz)
Components	1280 x 720p	59.94 / 60 Hz
	1920 x 1080i	59.94 / 60 Hz
	1920 x 1080p	23.98 / 24 / 29.97 / 30 / 59.94 / 60 Hz
DTV	1280 x 720p	59.94 / 60 Hz
	1920 x 1080i	59.94 / 60 Hz

■ 3D Format Test

3D Format : There are several 3D formats existing on how to merge Left and Right images.

Format	Input images	Test Method
Frame Packin (HDMI 1.4)		Able to test only by HDMI 1.4 BD Player or MSPG-4600MT(Master Device)
Top & Bottom		Using Format_test.bmp • Check in the PC(HDMI) source. PC resolution and format resolution must be same • Wearing 3D glass, left eye sees only 'L' letter, right eye sees only 'R' letter (close your eyes one by one)
Side by Side		Using Format_test.bmp • Check in the PC(HDMI) source. PC resolution and format resolution must be same • Wearing 3D glass, left eye sees only 'L' letter, right eye sees only 'R' letter (close your eyes one by one)
2D → 3D		Check in the normal 2D source. Check not in the test pattern but in the actual video. • Left/Right black region will grow more and more as the depth goes higher.

3. Disassembly and Reassembly

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

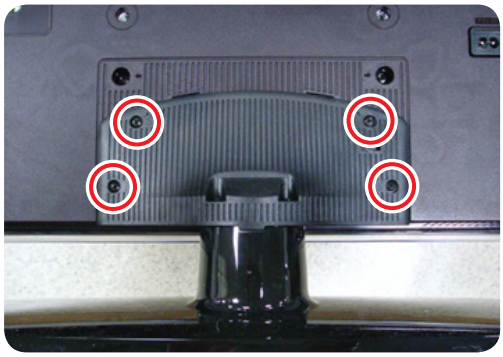
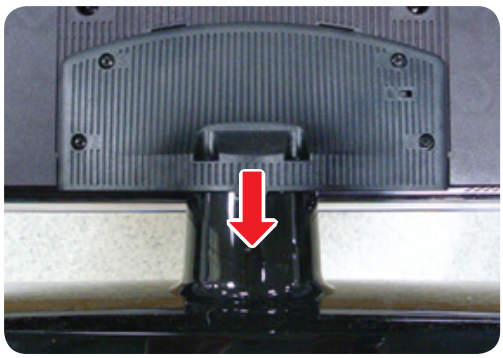
WARNING This LED TV contains electrostatically sensitive devices. Use caution when handling these components.

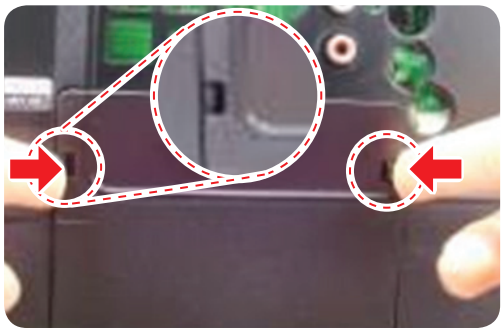
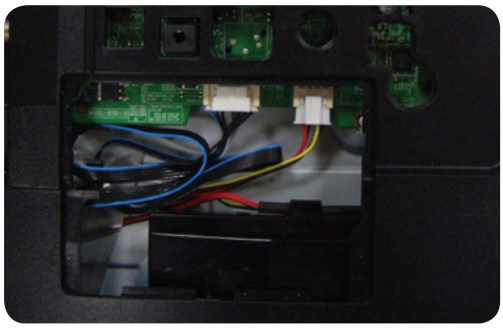
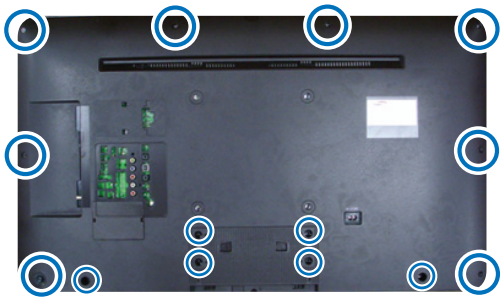
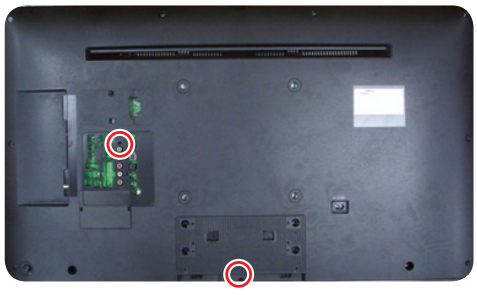
3-1. Disassembly and Reassembly

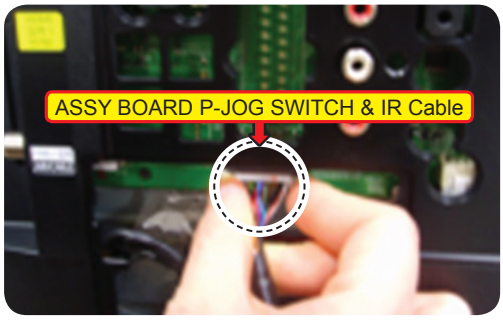
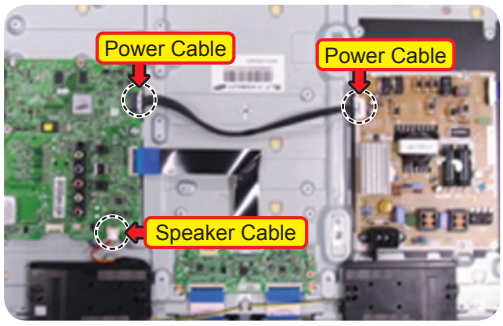
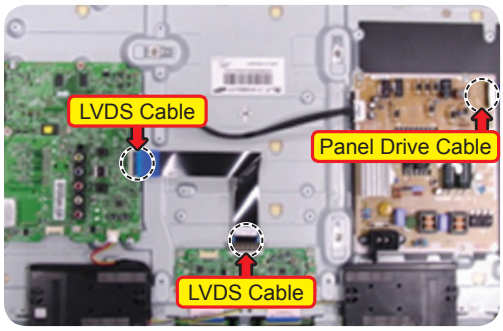
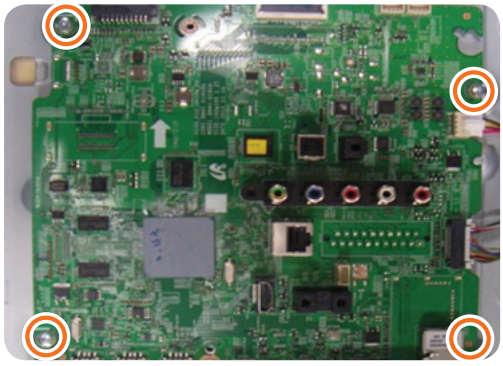
CAUTION

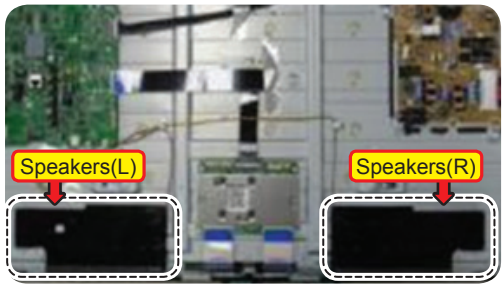
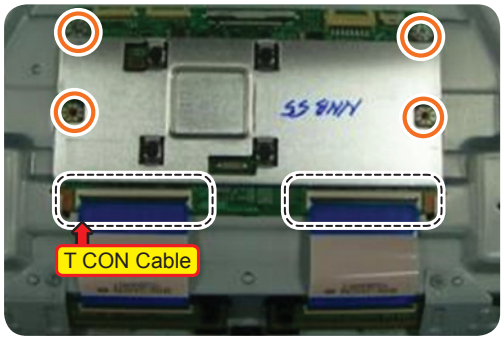
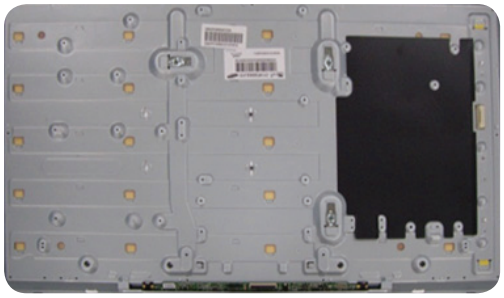
1. Disconnect the LED TV from the power source before disassembly.
2. Follow these directions carefully; never use metal instruments to pry apart the cabinet.
3. If there is no additional coment, it is same for all inches.

3-1-1. LED TV

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

Description	Picture Description	Screws
4 Remove the COVER-JACK after push the locking in both sides.		
		
		
5 Remove screws of ASSY COVER P-MIDDLE, REAR. • 40 inch : 14 EA • 46 inch : 14 EA • 55 inch : 21 EA		Torque : 7~8Kgf.cm.  6001-002755
• 40 inch : 2 EA • 46 inch : 3 EA • 55 inch : 5 EA		Torque : 9~11Kgf.cm.  6003-001782

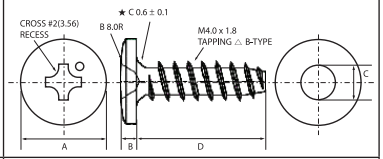
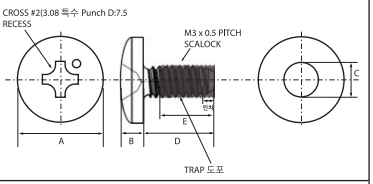
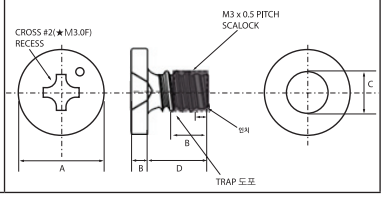
Description	Picture Description	Screws
6 Disconnect the ASSY BOARD P-JOG SWITCH & IR Cable. **NOTE** First remove the cable before you remove the ASSY COVER P-MIDDLE, REAR.		
7 Remove the ASSY COVER P-MIDDLE, REAR.		
8 Remove the Power Cables and Speaker Cables. Remove the LVDS Cable and Panel Drive Cable.		
		
9 Remove the screws of ASSY PCB MAIN.		Torque : 7~8Kgf.cm  6001-002756

Description	Picture Description	Screws
10 Remove the screws of DC VSS-LED TV PD BD.		Torque : 7~8Kgf.cm  6001-002756
11 Remove the ASSY SPEAKER (L/R).		
12 Remove the 4 screws of ASSY T CON and unlock the locking of T CON Cable.		Torque : 7~8Kgf.cm  6001-002756
13 Completed disassembly. • Panel.		

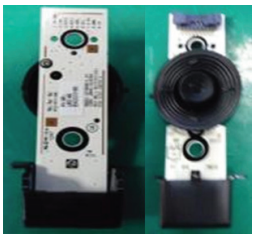
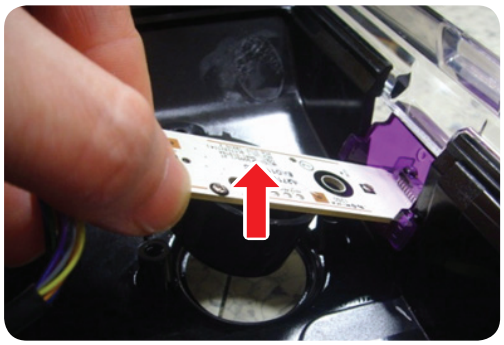
NOTE

Reassembly procedures are in the reverse order of disassembly procedures.

Screw Size

Code No.	COLOR	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	Screw Image
6003-001782	BLACK	7.80~8.20	1.85~1.95	3.81~3.91	11.4~12.0	-	
6001-002755	BLACK	7.1~7.5	1.9~2.0	2.98~3.02	5.7~6.0	4.4~5.4	
6001-002756	WHITE	5.6~6.0	1.15~1.25	2.92~2.98	3.7~4.0	4.4~5.4	

3-1-2. ASSY BOARD P-JOG SWITCH & IR Cable

Description	Picture Description	Screws
1 Loosen 2 screws.		 6001-000115
2 Pull out an ASSY BOARD P-JOG SWITCH & IR. • ASSY BOARD P-JOG SWITCH & IR 		

NOTE

Reassembly procedures are in the reverse order of disassembly procedures.

When you want to disable the Function Key

Option	Engineer Option	Type of PANEL KEY
Control		
Debug		
SVC		
ADC/WB		
Advanced		

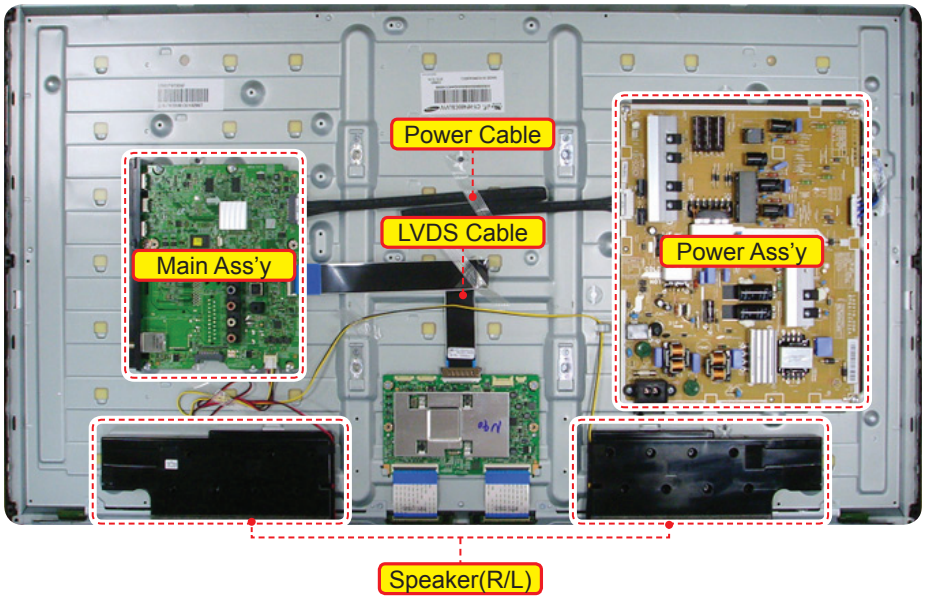
- 5 way : IR + Key → Default
- Old : Touch Function (C model) Key
- IR Only : Do not work Function key of PANEL KEY

4. Troubleshooting

4-1. Troubleshooting

4-1-1. 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**
   - 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.

     • For All mode

NT13	FOX_FT1 FRC Post	Picture	Problem
OK	OK	NG	Main Board or Signal Source
NG	OK	NG	Main Board
NG	NG	NG	Main Board or LVDS cable or T CON or Panel

     • Only for HDMI mode (additional check)

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

■ How to check inner pattern?

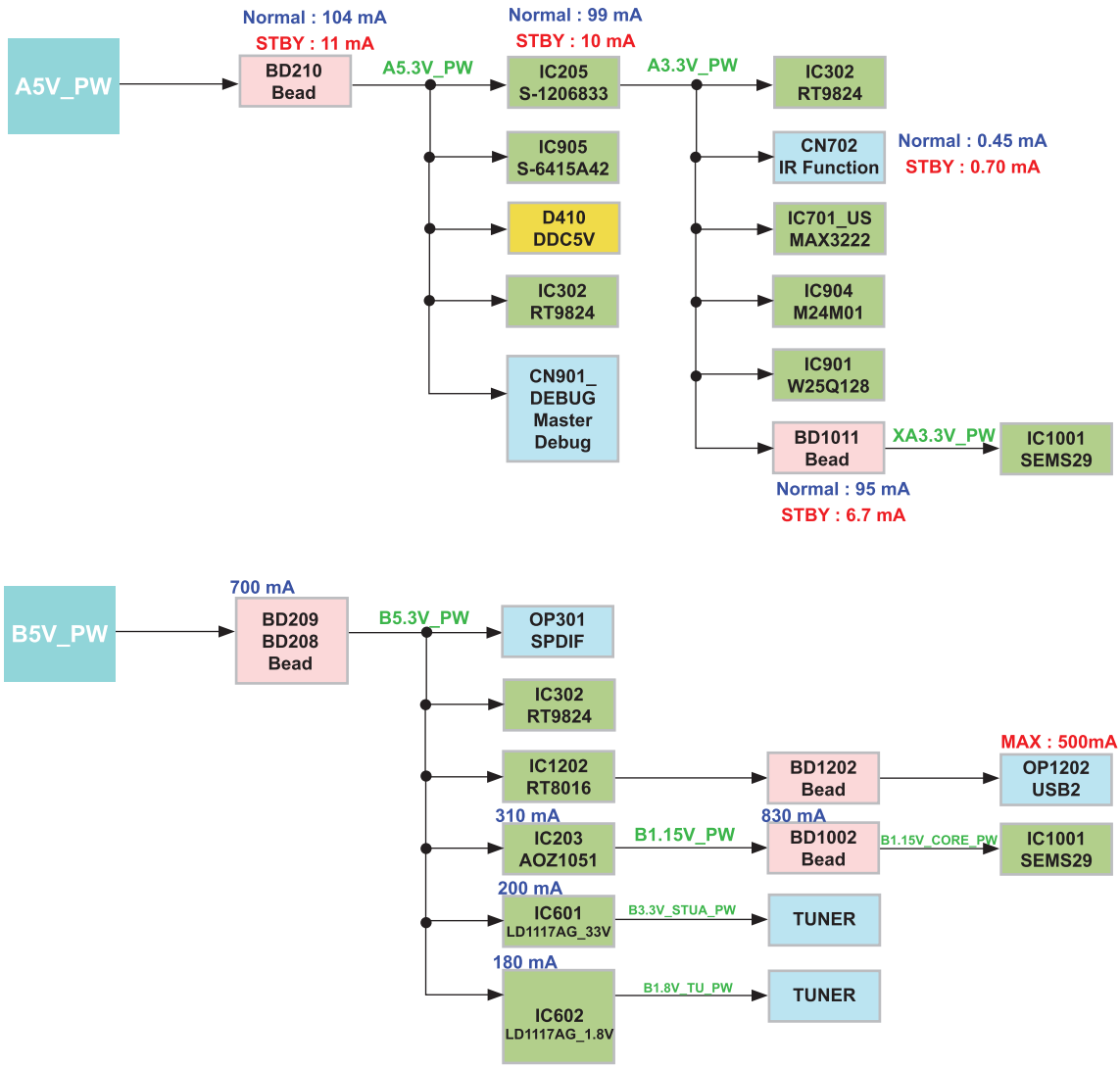
1. Enter the service mode ···› Choose ‘SVC’ ···› Check the ‘internal pattern.’
2. Enter ‘Service Mode.’
   - If you do not have Factory remote control

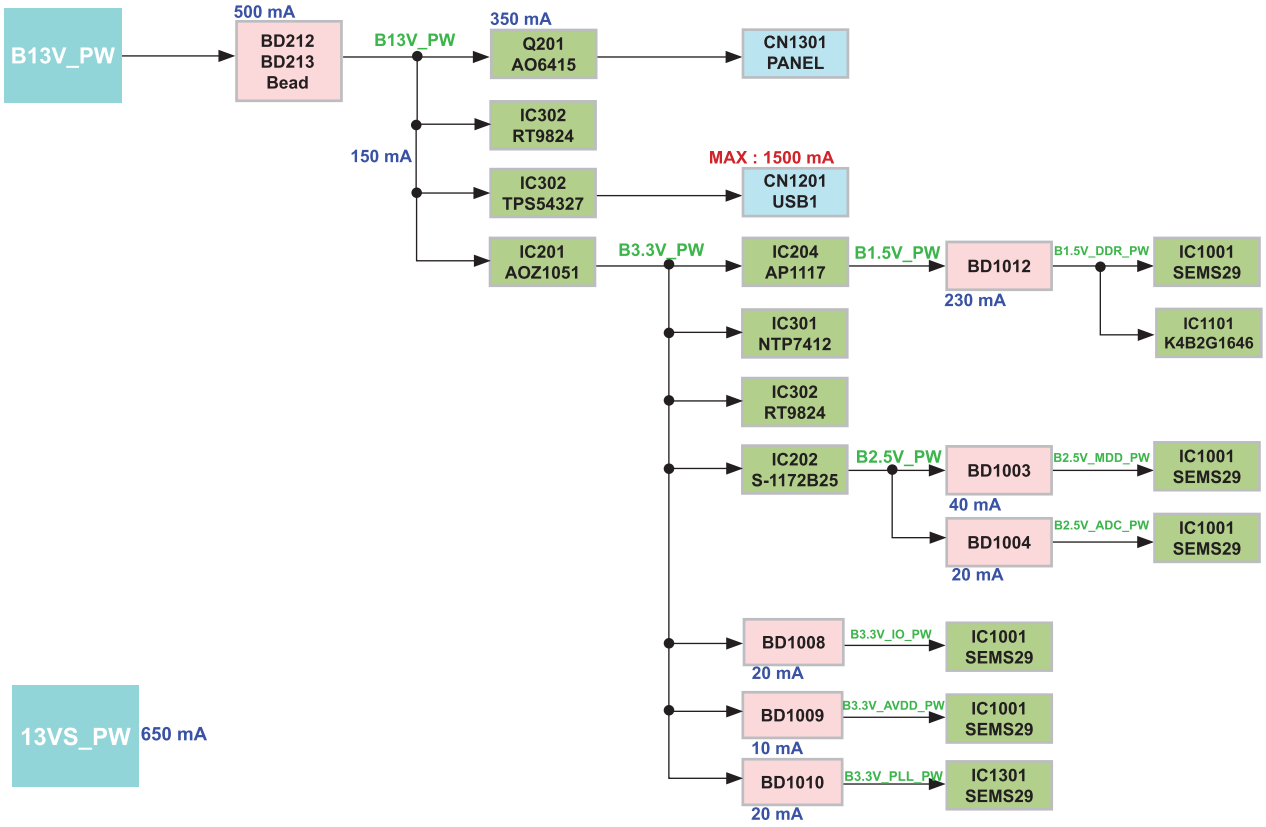
     Power OFF → MENU → 1 → 8 → 2 → Power On
   - If you have Factory remote control

     INFO → Factory
3. Choose ‘SVC ···› Test pattern’.

4. Check inner patterns.

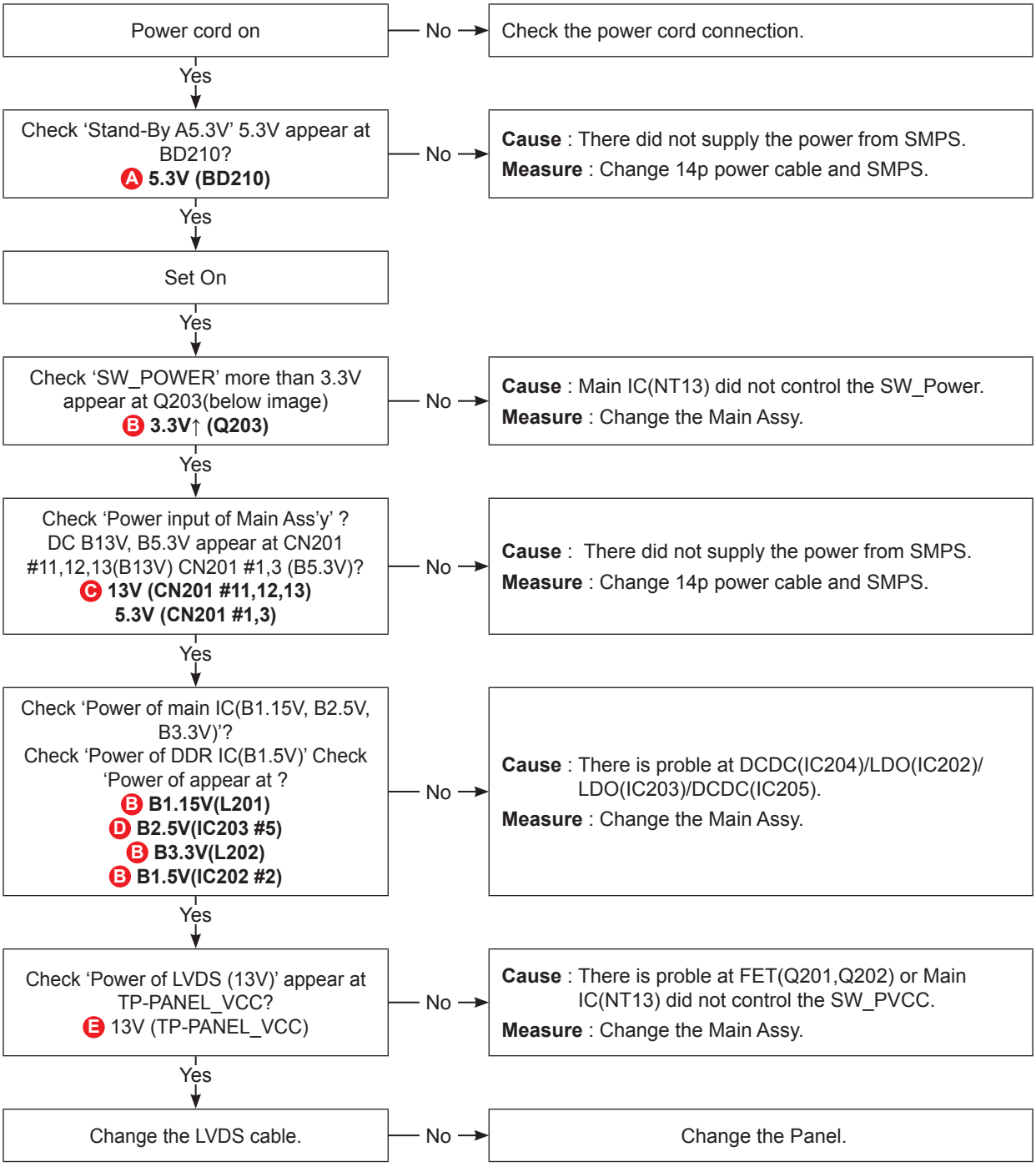
4-1-2. Power Tree




B13V_PW
500 mA
BD212
BD213
Bead
B13V_PW
350 mA
Q201
AO6415
CN1301
PANEL
IC302
RT9824
150 mA
MAX : 1500 mA
IC302
TPS54327
CN1201
USB1
IC201
AOZ1051
B3.3V_PW
IC204
AP1117
B1.5V_PW
BD1012
B1.5V_DDR_PW
IC1001
SEMS29
230 mA
IC1101
K4B2G1646
IC301
NTP7412
IC302
RT9824
IC202
S-1172B25
B2.5V_PW
BD1003
B2.5V_MDD_PW
IC1001
SEMS29
40 mA
BD1004
B2.5V_ADC_PW
IC1001
SEMS29
20 mA
13VS_PW
650 mA
BD1008
B3.3V_IO_PW
IC1001
SEMS29
20 mA
BD1009
B3.3V_AVDD_PW
IC1001
SEMS29
10 mA
BD1010
B3.3V_PLL_PW
IC1301
SEMS29
20 mA

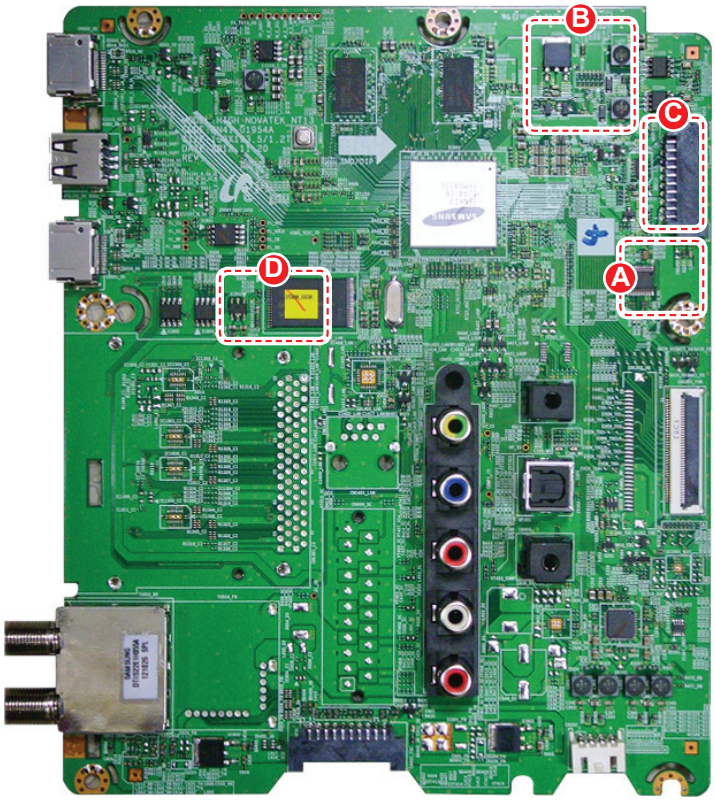
4-2. How to Check Fault Symptom

■ NO Power and No Video

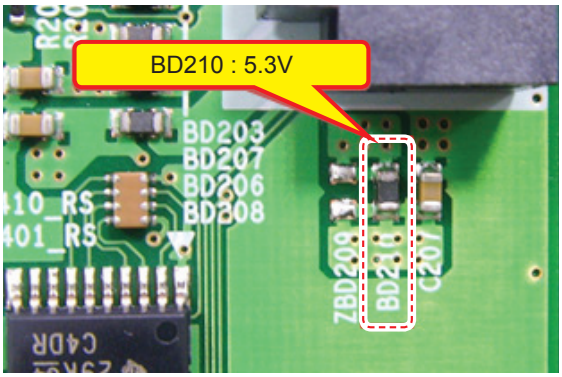


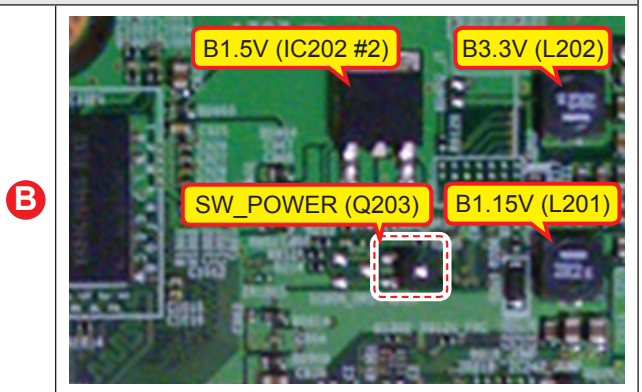
■ Location of Parts

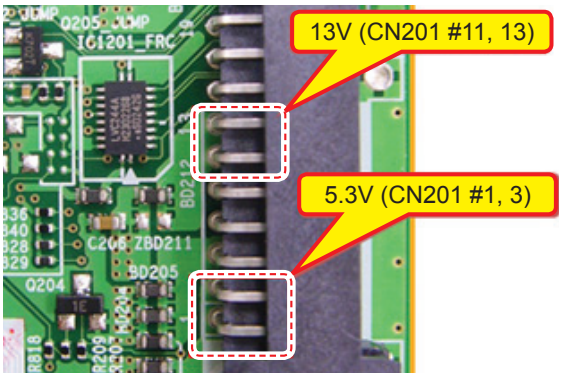
Main Board_Front

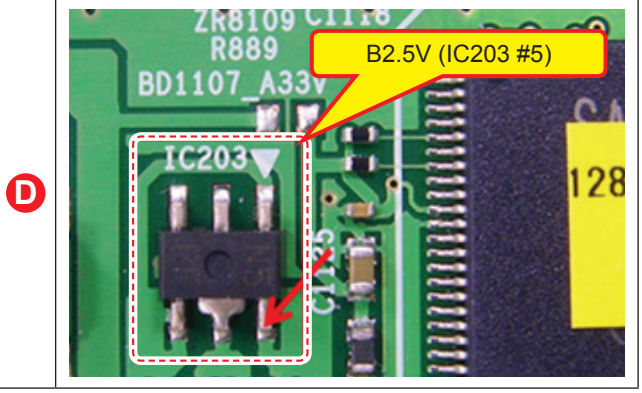


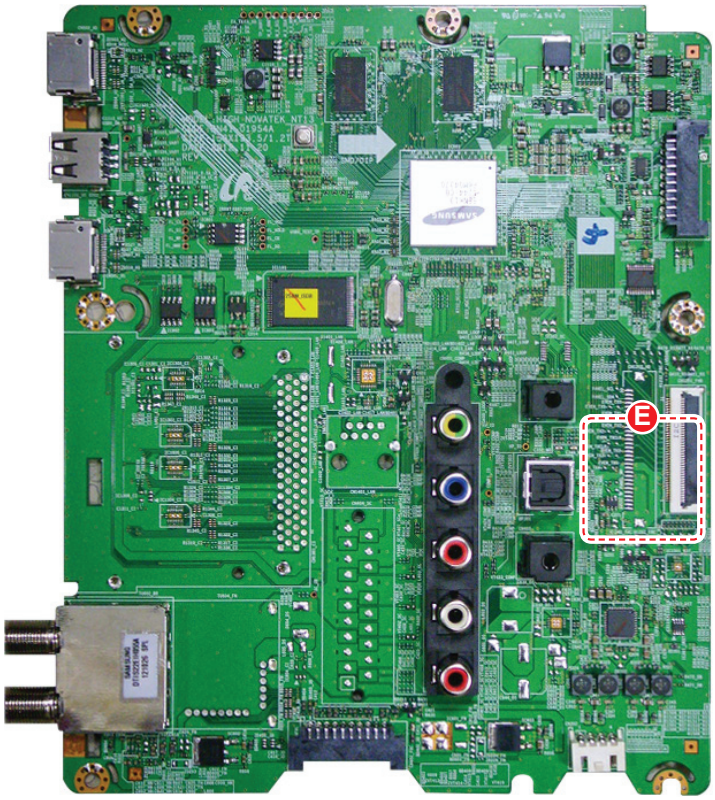
Detail

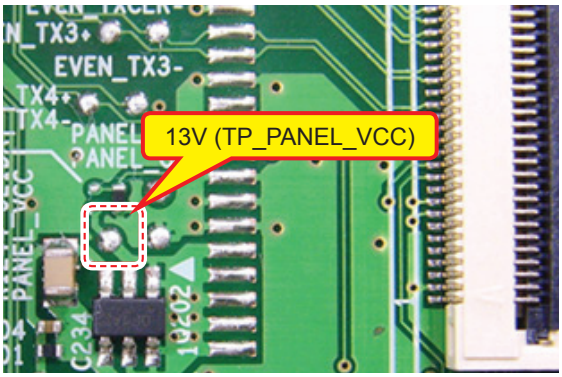








Main Board_Front


Detail			
E			

4-3. Factory Mode Adjustments

4-3-1. 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			UN40F6100AG	UN46F6100AG	UN55F6100AG
PANEL	Vendor		SDC	SDC	SDC
	Code		BN95-00889A	BN95-00893A	BN95-00895A
	Spec.		CY-HF400CSLV1V	CY-HF460CSLV1V	CY-HF550CSLV1V
SMPS	Vendor		SEM	SEM	SEM
	Code		BN44-00622A	BN44-00623A	BN44-00625A
	Spec.		L42X1Q_DSM	L46X1Q_DSM	L55X1Q_DSM
MAIN ASSY	Chassis Ass'y		BN91-10457*	BN91-10457*	BN91-10457*
	PBA Ass'y		BN94-06229*	BN94-06229*	BN94-06229*
Byte	Item				
0	Factory Reset		-	-	-
1	Type		40A1AF0S	46A1AF0S	55A1AF0S
2	Local set	Argentina	ARG_DTV	ARG_DTV	ARG_DTV
		Peru	PERU_DTV	PERU_DTV	PERU_DTV
		Chile	CHILE_DTV	CHILE_DTV	CHILE_DTV
		Uruguay	URU_DTV	URU_DTV	URU_DTV
		Paraguay	PAR_DTV	PAR_DTV	PAR_DTV
3	SW Model		UF6100	UF6100	UF6100
4	BOM Model		6100	6100	6100
5	Tuner		Auto	Auto	Auto
6	Ch table		NONE	NONE	NONE

4-3-2. Entering Factory Mode

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

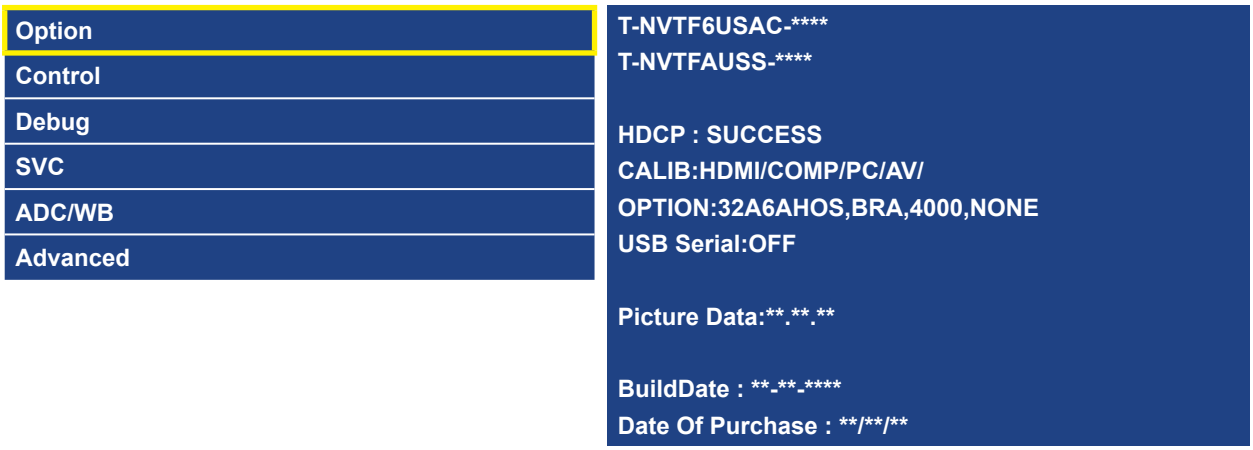
- If you do not have Factory remote control

  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. (Expert, Advanced menu)



4-3-3. Factory Data

■ Option

Factory Menu Name	Data	Range
Factory Reset	-	
Type	40A1AF0S / 46A1AF0S / 55A1AF0S	
Local Set	CHILE_DTV	ARG_DTV / PERU_DTV / URU_DTV / PAR_DTV
SW Model	UF6100	
BOM Model	6100	
TUNER	Auto	
Ch Table	NONE	
MRT Option		
Front Color	-	
LVDS FORMAT	JEIDA	
Language_Arabic	-	
Region	-	
PnP Language	ENG_US	
WIFI REGION	S	
OTN Support	ON	
OTA Support	OFF	
TTX	OFF	
China HD	OFF	
NT Conversion	OFF	
Num of DTV	1	
Num of AV	1	
Num of COMP	1	
Num of HDMI	4	
Num of SCART	0	
Num of USB Port	3	
Num of HeadPhone	0	
Num of RVU	1	
Num of Display	2	
Num of IPTV	0	
Num of RUI	0	
Num of PVR RECORD	0	
TOOLS Support	40	
LNA Support	OFF	

Factory Menu Name	Data	Range
24Px4 Support	OFF	
BD Wise Support	ON	
Data Service Support	OFF	
PVR Support	OFF	
CI Support	OFF	
LEDMotionPlus Support	ON	
Natural Mode Support	ON	
Relax Mode Support	OFF	
HDMI/DVI SEL	4	
Select LCD/PDP	LCD	
Wall Mount	OFF	
HV Flip		HV Flip / H Filp / OFF
Light Effect	OFF	
e-Pop Default	1	
CAMERA Support	OFF	
NETWORK Support	3	
EcoSensor Support	ON	
3D Support	ON	
BT Support	ON	
BT ADDRESS		
Engineer Option		
Auto Power	MEMORY	
Type Of PANEL KEY	None	
5 Way Function Key	R BACK	
Contents Bar	OFF	
Cable Modulation	QAM	
Standby led on/off	OFF	
Recognition Support		
IF AGC	0	
D AGC	0	
PH BW	0	
FQ BW	0	
PH RATE	0	
PD EN	0	
PEQ Inx	0	
WF Scale		
WF Type	0	

Factory Menu Name	Data	Range
Nu of Network Stream	1	
DP V Size	0	
Backend Device	FOX-FT1	
BT_AUDIO_ON_OFF	OFF	
Config_AV_PATH		
ECO Standby	OFF	
Fast Logo Delay	0	
Num of PANEL KEY	6	

■ Control

Factory Menu Name	Data	Range
EDID		
EDID ON/OFF	OFF	
EDID WRITE ALL	…	
EDID WRITE HDMI	…	
EDID Ver	…	
EDID Port		
Sub Option		
RS-232 Jack	UART	Debug/UART
Watchdog	OFF	
Checksum	0x0000	
Fast Boot in Production	OFF	
USB Serial	OFF	
Eeprom Reset		
ECO IC TYPE	NONE	
Info Link Server Type	development	
Info Link Country	None	
TTX Group	-	
Visual Test	-	
MediaPlayDB	-	
OPTION_SWU		
OTN Server Type	operating	
OTN Test Server	OFF	
SWU Reset		
SWU Duration	OFF	
SWU Fail Test	OFF	
OPTION_NUM		

Factory Menu Name	Data	Range
Num of ATV	1	
Num of SVIDEO	0	
Num of PC	0	
Num of DVI	0	
Num of OPTICAL Link	1	
Num of MEDIA	1	
Num of Tuner	1	
Num of ISP	1	
RF Remocon Support	OFF	
CDD mode	-	
DPMS Support	OFF	
Num of IPTV CIP	0	
Num of CI	0	
Num of DECODER	0	
T-CON Device		
BOARD CONTROL	OFF	
HP LINE	LineOut	
RM		
Server Type	Operating	
RTS Mode	OFF	
PSA		
FKP Download1	0	
FKP Download2	0	
LMK threshold	3	
Low threshold	10	
High threshold	15	
CSB	ON	
CLB	ON	
PDP Option		
Pixel Shift Test	OFF	
Logic SW	0	
Panel Temperature	0	
LOGIC Waveform Day	0	
Logic CheckSum	0	
MRT	0	
SAPC Timer		
APC Speed		

Factory Menu Name	Data	Range
Hotel Option		
Hospitality Mode	OFF	
Power On	…	
Menu OSD	…	
Operation	…	
Music Mode	…	
External Source	…	
Eco Solution	…	
Cloning	…	
Shop Option		
Shop Mode	OFF	
Exhibition Mode	OFF	
3D Cube	OFF	
Asia Option		
Unbalance	OFF	
AF Level adjust	3	
TX Power Level	0	
Mono Last Memory	OFF	
H Shaking	OFF	
SOUND		
Carrier_Mute	OFF	
High Devi	OFF	
Speaker Delay Normal	0x6Eh	
SPDIF PCM Gain	-9dB	
FM M Prescale	0x30h	
FM Prescale	0x00h	
AM Prescale	0x32h	
NICAM Prescale	0x48h	
BTSC Mono Prescale	0x19h	
BTSC stereo Prescale	0x2Fh	
BTSC SAP Prescale	0x2Bh	
A2Ident High THID	31	
A2Ident Low THID	0	
Pilot Level High Thld	0x28h	
Pilot Level Low Thld	0x10h	
Carrier2 Amp High THID	4	
Carrier2 Amp Low THID	3	

Factory Menu Name	Data	Range
Carrier2 SNR High THR	16	
Carrier2 SNR Low THR	80	
Sig Error On	35	
Sig Error Off	41	
Amp Model	TAS5745	
Amp Volume	0xcbh	
Amp Scale	0x35h	
Amp Check Sum	0x000821B2	
Woofer Type	0	
Woofer Scale	0	
Woofer Check Sum	0x8ah	
Woofer Local EQ Checksum	0	
Speaker EQ	ON	
PEQ Test	Ready	
Local Speaker EQ	0	
Local EQ Checksum	0	
Speaker cut-off Ferq	4	
Audio-IP Test		
SRS Tuning Parm	0	
TruBass-CheckSum	0	
Mic Scale	0	
Subwoofer Support	0	
India Sound	OFF	
AudioDock BT delay	50	
Wall Filter Type	0	
Wiselink Delay Menu	90	

■ Debug

Factory Menu Name	Data	Range
Spread Spectrum		
LVDS Spread	ON	
DDR Spread	1.0% Spectrum	
Period	30K	
Amplitude	1	
HD SSC ON/Off	ON	
HD SSC Value	1	
LVDS SSC ON/Off	ON	

Factory Menu Name	Data	Range
LVDS SSC Value	0	
DDR SSC ON/Off	ON	
DDR SSC Value	1	
FRC LVDS SSC ON/OFF	ON	
FRC LVDS SSC MRR	10	
FRC LVDS SSC MFR	1	
FRC LVDS SSC Period	1	
FRC LVDS SSC Modulation	1	
FRC DDR SSC ON/OFF	ON	
FRC DDR SSC MRR	15	
FRC DDR SSC MFR	1	
FRC DDR SSC Period	1	
FRC DDR SSC Modulation	1	
DDR Margin		
A CTRL_OFFSET_0_3	0x0	
A CTRL_OFFSET_D	0x0	
B CTRL_OFFSET_0_3	0x0	
B CTRL_OFFSET_D	0x0	
ND ADJ Support	OFF	
MICOM POWER OFF	OFF	
RF Mute Time	6ms	
CI+1.3	OFF	
FRC		
FRC FDISPLAY ON/OFF	0	
3D FDISPLAY ON/OFF	OFF	
PC Mode ON/OFF	OFF	
Tuner Margin	10	
MPEG Margin	1000	
H.264 Margin	8	
CAM Wait Time		
TS Clock deldy	0	
TCON_TEMP READ	0	
TEMP LAST	60	
DCC VERSION	0x0	
DCC CHK SEL	0	
DCC CHECK LOCAL	0x0	
DCC CHECK TOTAL	0x0	

Factory Menu Name	Data	Range
MulitACC Checksum	0	
IIC Bus stop	OFF	
Tuner Status		
DVB		
SNR		
BER		
Signal Strength		
Bandwidth		
Frequency		
LNA Status		
FFT		
Modulation		
Code Rate		
GI		
Hier Modulation		
Frequency offset		
Timing offset		
AGC		
UCB		
PLL Type		
DEMOD Type		
TPS Lock		
RS Lock		
SSI		
SQI		
Firmware Version		
ISDB-T		
FFT Size_1		
Guard Interval_1		
Freq. Offset_1		
SNR_1		
IF AGC_1		
TMCC Lock_1		
TS Packer_1		
Master Lock_1		
A_Modulation_1		
A_Code Rate_1		

Factory Menu Name	Data	Range
A_Timer InterLeave_1		
A_Segments Num_1		
A_BER_1		
B_Modulation_1		
B_Code Rate_1		
B_Timer InterLeave_1		
B_Segments Num_1		
B_BER_1		
C_Modulation_1		
C_Code Rate_1		
C_Timer InterLeave_1		
C_Segments Num_1		
C_BER_1		

■ SVC

Factory Menu Name	Data	Range
Test Pattern		
Pattern Sel	OFF	
Logic Pattern Sel	…	
Logic Level Sel	…	
FRC Pre Test Pattern	0	
FRC Post Test Pattern	0	
FRC3D Fdisplay	OFF	
FRC3D PC Mode	OFF	
SOC TCON Test Pattern	0	
SOC TCON Pattern Level	255	
SOC TCON FRC Pattern	0	
HDMI WB Pattern	OFF	
HDMI Pattern Sel	0	
Parma Pre Test Pattern	0	
Parma Post Test Pattern	0	
Panel Display Time	0Hr	
SVC Info	0	
Delete S/N	0	
Upgrade		
T-CON Usb Download	Failute	
T-CON CheckSum	Error	

Factory Menu Name	Data	Range
Logic Usb D/L	…	
SUBMICOM UPGRADE	Failute	
BT UPGRADE		
BT FREEPAIRING	ON	
Function Upgrade	Failute	
FRC3D FW Upgrade		
Camera Upgrade		
Mic Upgrade		
CPLD USB Download		
JP MICOM UPGRADE	Failute	
DP MICOM UPGRADE	Failute	
Jump Upgrade	Failute	
Smart Hub Reset	0	
ER Count		
WD Count	0	
AR Count	0	
WIFI ER Count	0	
BT ER Count	0	
HDMI Err Cnt	0	
Camera ER Count	0	
LOG(View Log)		
Select Log Type	NVRAM	
Log View	0	
Delete Log		
Debug Log Down		
Emergency Log Copy		
Self Diagnosis		
Loop Back		
LAN Test		
AV Audio Test		
DVIN Audio Test		
CVBS Test		
COMP Test		
USB HUB Test		
HDMI Test		
SCART Audio Test		
SCART CVBS Test		

Factory Menu Name	Data	Range
SCART RGB Test		
CPU		
DDR		
FLASH		
EEPROM		
Sound AMP		
HDMI Switch IC		
USB HUB IC		
WIFI		
LVDS		
T-CON/FRC		
PCB Test		
MOIP		
App Self Test		
Device self Test		
Voltage		
EcoSensor		
BT		
EXT Sound Inspection		
Woofer Sound Inspection	NONE	
ATV CH Inspection		
DTV CH Inspection		
Satellite CH Inspection		
IPERF	Stopped	
OPTION HDMI		
Expert		
DVB CI		
CAL Data Backup	…	
CAL Data Restore	…	

■ ADC/WB

Factory Menu Name	Data	Range
ADC		
AV Calibration	Success	
Comp Calibraion	Success	
PC Calibration	Success	
HDMI Calibration	Success	

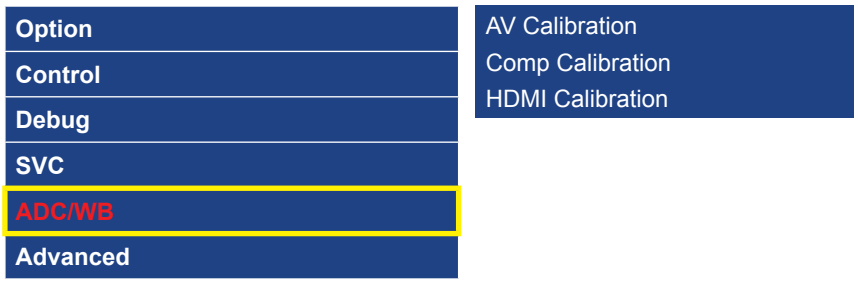
Factory Menu Name	Data	Range
ADC Result		
1st_Y_GH	258	
1st_Y_GL	128	
1st_Cb_BH	…	
1st_Cb_BL	…	
1st_Cr_RH	…	
1st_Cr_RL	…	
2nd_R_L	132	
2nd_G_L	132	
2nd_B_L	132	
2nd_R_H	70	
2nd_G_H	70	
2nd_B_H	70	
White Balance		
R-Offset	128	
G-Offset	128	
B-Offset	128	
R-Gain	128	
G-Gain	128	
B-Gain	128	
WB_W2_R_Offset	128	
WB_W2_B_Offset	128	
WB_W2_R_Gain	164	
WB_W2_B_Gain	63	
WB_N_R_Offset	128	
WB_N_B_Offset	128	
WB_N_R_Gain	151	
WB_N_B_Gain	108	
MGA		
MGA On/Off	OFF	
R1_Gain	…	
B1_Gain	…	
G1_Gain	…	
R2_Gain	…	
B2_Gain	…	
G2_Gain	…	
R3_Gain	…	

Factory Menu Name	Data	Range
B3_Gain	…	
G3_Gain	…	
R4_Gain	…	
B4_Gain	…	
G4_Gain	…	
R5_Gain	…	
B5_Gain	…	
G5_Gain	…	
R6_Gain	…	
B6_Gain	…	
G6_Gain	…	
R7_Gain	…	
B7_Gain	…	
G7_Gain	…	
R8_Gain	…	
B8_Gain	…	
G8_Gain	…	
R9_Gain	…	
B9_Gain	…	
G9_Gain	…	
R10_Gain	…	
B10_Gain	…	
G10_Gain	…	

4-4. White Balance

4-4-1. Calibration

1. Into the Factory Mode.
2. Select **ADC/WB** menu.
3. Select **ADC** menu.



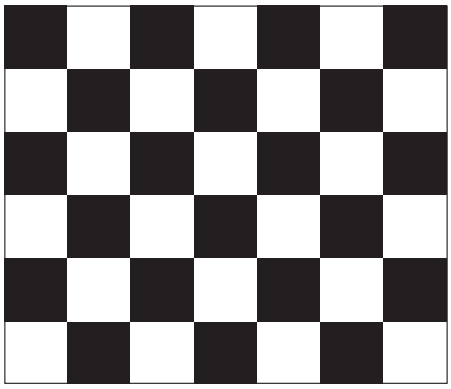
4-4-2. Service Adjustment

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
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)

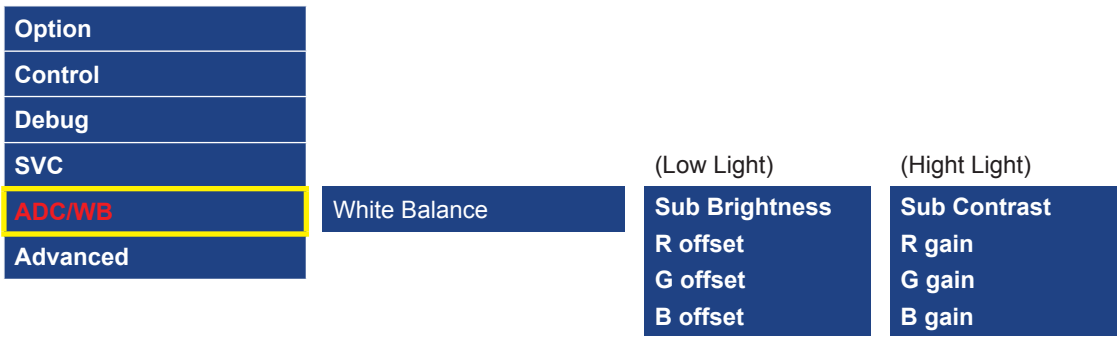
1. Apply the 720p Lattice (N0. 6) pattern signal to the Component IN 1 port.
2. Press the Source key to switch to “Component1” mode.
3. Enter Service mode.
4. Select the “ADC” menu.
5. Select the “Comp Calibration” menu.
6. In “Comp Calibration Off” status, press the “ ►” key to perform Calibration.
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 (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.

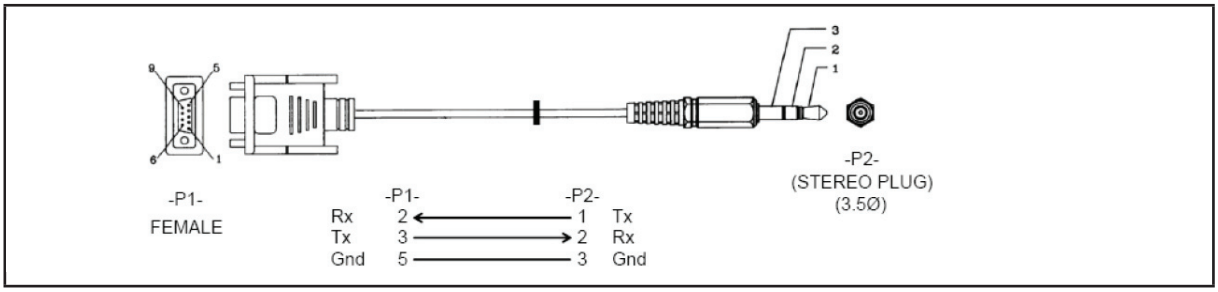
4-4-3. Adjustment

9. Into the Factory Mode.
10. Select **ADC/WB** menu.
11. Select **White Balance** menu.



4-5. RS-232C

- **RS232C Control**
  - Port : COM#(Serial)
  - Bit rate : 115200
  - Data Bit : 8 bit
  - Parity : None
  - Stop Bits : 1
  - Flow Control : None



- Description of RS232C

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

4-6. AV Control Tabe

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

Control Item				Cmd1	Cmd2	Cmd3	Value	
PICTURE	Mode	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	
		Flesh Tone	-15 ~ 15			0x0e	(-15~15)	
		Edge Enhancement	Off			0x0f	0x00	

Control Item				Cmd1	Cmd2	Cmd3	Value	
PICTURE			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	
			Cinema Smooth				0x03	New function of 12" (only PDP TV)
		Auto Motion Plus	Off			0x06	0x00	
			Clear				0x01	
			Standard				0x02	
			Smooth				0x03	
			Custom				0x04	

Control Item				Cmd1	Cmd2	Cmd3	Value	
PICTURE			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	
			Wide Zoom				0x09	New function of 12" (only DVB TV)
			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	
			Message Notice				0x01	
			On				0x02	

Control Item				Cmd1	Cmd2	Cmd3	Value
Sound	Sound Mode	Standard		0x0c	0x00	0x00	0x00
		Music					0x01
		Movie					0x02
		Clear Voice					0x03
		Amplify					0x04

Control Item				Cmd1	Cmd2	Cmd3	Value	
Sound	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	
	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	
KEY	Key Generation		0x0d	0x00	0x00	refer to table	
OSD	Show/Hide Control	Show	0x0e	0x00	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)

4-7. Software Upgrade

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

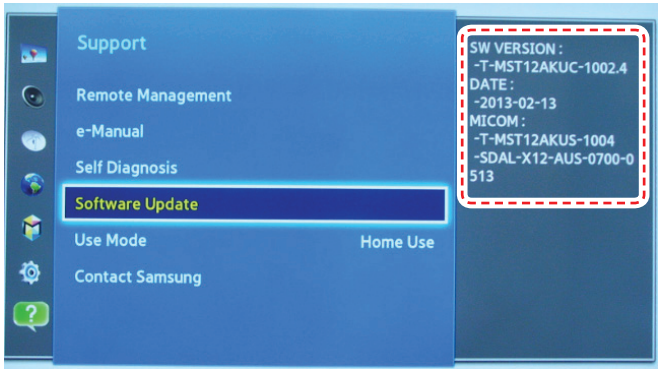
- Current Version - The software already installed in the TV.

Software is represented as ‘Year/Month/Day_Version’.

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

■ Use the Main Menu

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



■ Use the Factory Mode

Option
Control
Debug
SVC
ADC/WB
Advanced

T-NVTF6AKUC-****
T-NVTFAUSS-****

HDCP : SUCCESS
CALIB:HDMI/COMP/PC/AV/
OPTION:32A6AHOS,BRA,4000,NONE
USB Serial:OFF

Picture Data:**.**.**
BuildDate : **-**-****
Date Of Purchase : **/**/**

4-7-2. How to Upgade Software

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

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

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

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

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

■ Main Software Upgrade

1 Store the sw program named "**T-NVTF6USAC**" in USB memory stick.

2 Click the "**MENU**" key in Remote Controller.

3 Select "**Support** - **Software Update** - **Update Now**" 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)

  Info → Factory

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

  Info → Menu → Mute → Power

2. Select the “SVC”.

Option
Control
Debug
SVC
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	MulitACC Checksum	Errow
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		

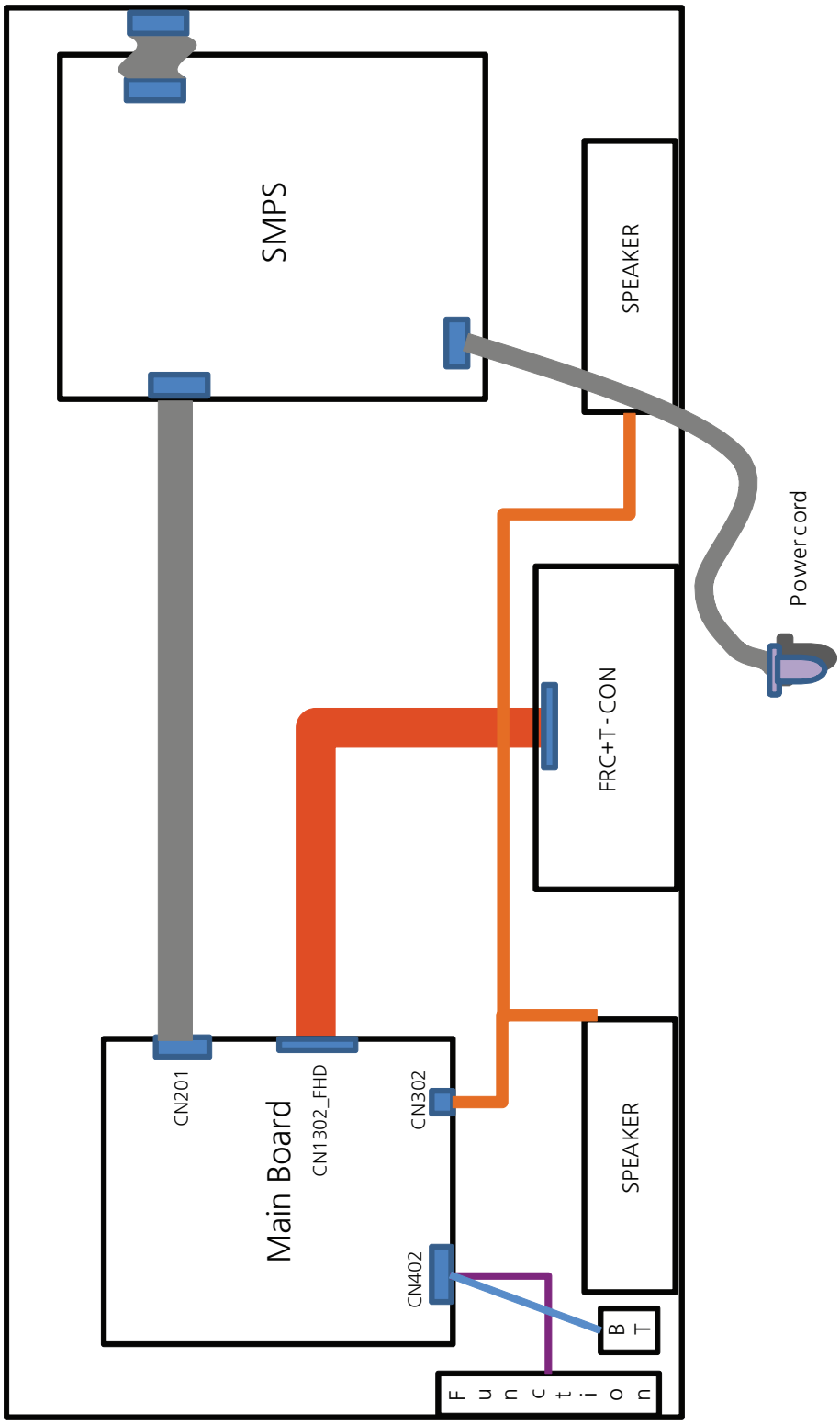
4. Click the “→” remocon key.

SUBMICOM UPGRADE	Wait

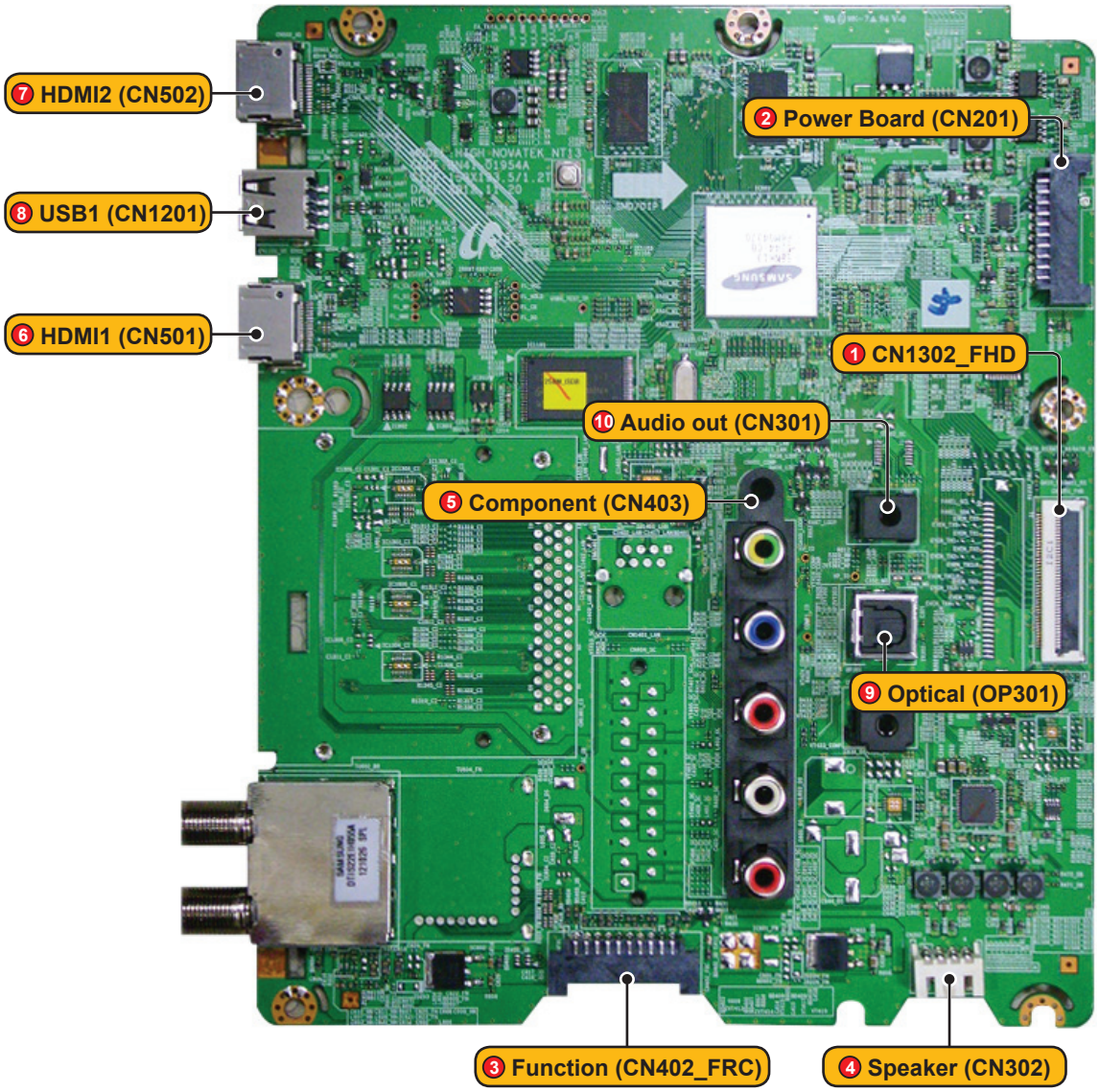
- Wait for upgrade complete.
- Check the Software version.

5. Wiring Diagram

5-1. Wiring Diagram



5-2. Board Connection



5-2-1. Connector

① CN1302_FHD			
1	NC	27	EVEN_TX0-
2	GND	28	GND
3	FRC_SDA	29	ODD_TX4+
4	FRC_PWM1	30	ODD_TX4-
5	FRC_SCL	31	ODD_TX3+
6	FRC_PWM3	32	ODD_TX3-
7	FRC_PWM2	33	GND
8	TCON_SDA	34	ODD_TXCLK+
9	PANEL_I2C_EN	35	ODD_TXCLK-
10	BT_SYNC	36	GND
11	UPDATE_CHK	37	ODD_TX2+
12	TCON_SCL	38	ODD_TX2-
13	GND	39	ODD_TX1+
14	EVEN_TX4+	40	ODD_TX1-
15	EVEN_TX4-	41	ODD_TX0+
16	EVEN_TX3+	42	ODD_TX0-
17	EVEN_TX3-	43	GND
18	GND	44	GND
19	EVEN_TXCLK-	45	GND
20	EVEN_TXCLK+	46	FRC_PWM4
21	GND	47	PANEL_13V_PW
22	EVEN_TX2+	48	PANEL_13V_PW
23	EVEN_TX2-	49	PANEL_13V_PW
24	EVEN_TX1+	50	PANEL_13V_PW
25	EVEN_TX1-	51	PANEL_13V_PW
26	EVEN_TX0+		

② Power Board (CN201)			
1	B5.3V_PW	11	B13V_PW
2	SW_POWER_OUT	12	ECO_ON
3	B5.3V_PW	13	B13V_PW
4	A5.3V_PW	14	CPLD_PWM1
5	GND	15	GND
6	GND	16	CPLD_PWM2
7	B12VS_PW	17	OVD_ON_OFF
8	GND	18	CPLD_PWM3
9	GND	19	OVD_LEVEL
10	SW_INVERTER	20	CPLD_PWM4

③ Function (CN402_FRC)			
1	IR	11	KEY1
2	GND	12	USB1_BT_DM
3	GND	13	KEY2
4	FRAME_SYNC_IN	14	B5.3V
5	A3.3V	15	LED_STB
6	BT_SYNC	16	BT_WAKE
7	MSCL	17	NC
8	GND	18	POWER_DET
9	MSDA	19	NC
10	USB1_BT_DP	20	BT_NRESET

④ Speaker (CN302)			
1	R+	3	L+
2	R-	4	L-

⑤ Component (CN403)			
1	GND	9	TEST_COMP_PR
2	COMP1_Y_CVBS	10	GND
3	IDENT_VIDEO1	11	COMP1_SL_IN
4	GND	12	TEST_SL
5	COMP1_PB	13	GND
6	IDENT_COMP1	14	COMP1_SR_IN
7	GND	15	TEST_SR
8	COMP1_PR		
9	HDMI4_RX0-	19	HDMI4_HOT_PLUG
10	HDMI4_RXCLK+		

⑥ HDMI1 (CN501)			
1	HDMI1_RX2+	11	GND
2	GND	12	HDMI1_RXCLK-
3	HDMI1_RX2-	13	CEC
4	HDMI1_RX1+	14	NC
5	GND	15	HDMI3_SCL_DDC
6	HDMI1_RX1-	16	HDMI3_SDA_DDC
7	HDMI1_RX0+	17	GND
8	GND	18	HDMI1_5V
9	HDMI1_RX0-	19	HDMI1_HOT_PLUG
10	HDMI1_RXCLK+		

⑦ HDMI2 (CN502)			
1	HDMI2_RX2+	11	GND
2	GND	12	HDMI2_RXCLK-
3	HDMI2_RX2-	13	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	HDMI2_5V
9	HDMI2_RX0-	19	HDMI2_HOT_PLUG
10	HDMI2_RXCLK+		

⑧ USB1 (CN1201)			
1	USB_VCC	3	USB_DP
2	USB_DM	4	GND

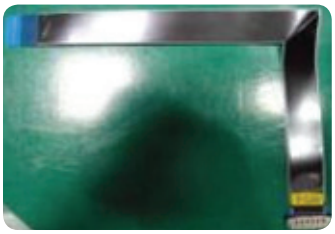
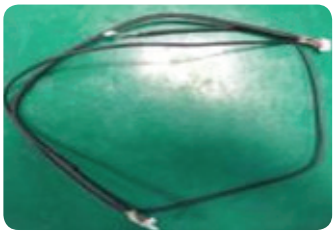
⑨ Optical (OP301)			
1	SPDIF_OUT	3	HDMI2_RXCLK+
2	VCC		

⑩ Audio out (CN301)			
1	GND	5	NC
2	SL_OUT	6	IDDENT
3	SR_OUT	7	GND
4	NC	8	GND

5-3. Connector Functions

Connector	Function
CN201 ↔ IP CNM803	Supply main power and dimming signal from IP Board to Main Board.
CN1302_FHD ↔ FRC + T-CON	The LVDS signal transfered from Main Board to Panel.

5-4. Cables

Use	Main-SMPS (20P)		Main-Tcon		Function-Main	
Code No.	40"	BN39-01475D	40"	BN96-24278K	40"	BN39-01771B
	46"	BN39-01475X	46"	BN96-24278L	46"	BN39-01771B
	55"	BN39-01475V	55"	BN96-24278M	55"	BN39-01771C
Image						

NOTE

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

5-5. The types of module

Use	Bluetooth module	Function module
Code No.	BN96-25376A	40" : BN96-26401N 46" : BN96-26401N 55" : BN96-26401P
Standard	-	-
Image		

NOTE

The part code for some module may differ depending on your region and Model name.