LED TV

Chassis : U8AA U8AB

Model : UE32H5000AW UE22H5000AW
UE40H5000AW
UE48H5000AW
UE50H5000AW

SERVICE Manual

LED TV

UE**H5000AW

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.

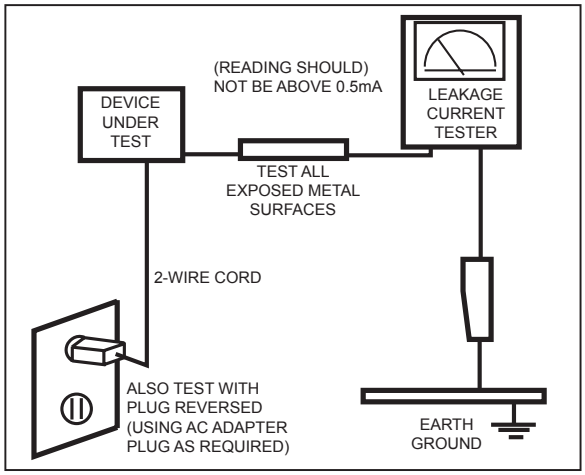
1-1-2. Servicing the LED TV

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

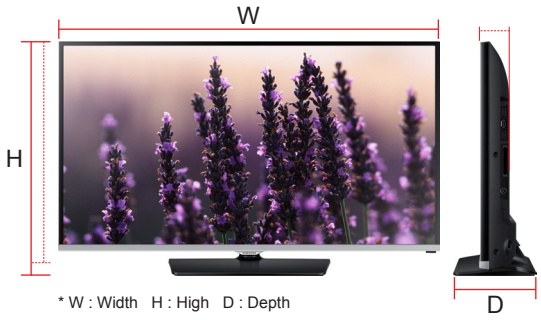
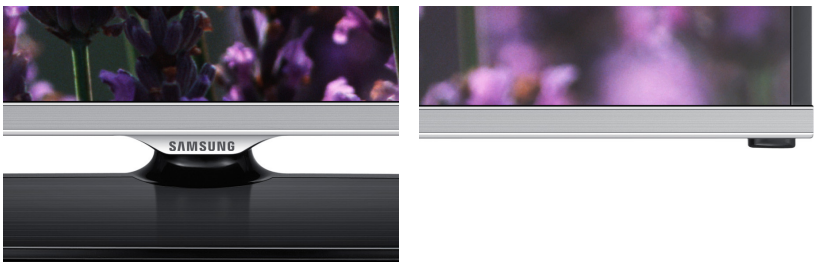
1. For safety reasons, more than a people are required for carrying the product.
2. Keep the power cord away from any heat emitting devices, as a melted covering may cause fire or electric shock.
3. Do not place the product in areas with poor ventilation such as a bookshelf or closet. The increased internal 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.
8. If an equipment is provided with a replaceable battery, and if replacement by an incorrect type could result in an explosion (for example, with some lithium batteries), the following applies:

CAUTION

- Risk of explosion if battery is replaced by an incorrect type dispose of used batteries according to the instructions.
- Do not dispose of batteries in a fire.
- Do not short circuit, disassemble or overheat the batteries.
- Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type.
- Do not be exposed to excessive heat such as sunshine, fire or the like.

2. Product Specifications

2-1. Product information

Model	UE**H5000AW		
Front View			
Detail View			
Front Color	Black (Panel)		
Dimensions W x H x D	22H5	Set with Stand	506.9 x 355.2 x 151.8 mm / 20.0 x 14.0 x 6.0 inches
		Set without Stand	506.9 x 317.0 x 46.8 mm / 20.0 x 12.5 x 1.8 inches
	32H5	Set with Stand	723.0 x 465.1 x 163.4 mm / 28.5 x 18.3 x 6.4 inches
		Set without Stand	723.0 x 427.5 x 64.6 mm / 28.5 x 16.8 x 2.5 inches
	40H5	Set with Stand	908.2 x 578.2 x 196.4 mm / 35.8 x 22.8 x 7.7 inches
		Set without Stand	908.2 x 532.9 x 64.8 mm / 35.8 x 21.0 x 2.6 inches
	48H5	Set with Stand	1076.7 x 674.4 x 203.7 mm / 42.4 x 26.6 x 8.0 inches
		Set without Stand	1076.7 x 626.5 x 65.2 mm / 42.4 x 24.7 x 2.6 inches
	50H5	Set with Stand	1118.4 x 696.4 x 203.9 mm / 44.0 x 27.4 x 8.0 inches
		Set without Stand	1118.4 x 650.1 x 65.4 mm / 44.0 x 25.6 x 2.6 inches

Model	UE**H5000AW		
Weight	22H5	Set with Stand	3.3 kg / 7.2 lbs
		Set without Stand	3.1 kg / 6.8 lbs
	32H5	Set with Stand	5.3 kg / 11.6 lbs
		Set without Stand	4.9 kg / 10.8 lbs
	40H5	Set with Stand	8.5 kg / 18.7 lbs
		Set without Stand	7.6 kg / 16.8 lbs
	48H5	Set with Stand	12.0 kg / 26.5 lbs
		Set without Stand	10.9 kg / 24.0 lbs
	50H5	Set with Stand	13.7 kg / 30.1 lbs
		Set without Stand	12.6 kg / 27.8 lbs
Panel Type	Slim LED		
Flash Memory	128 Mbyte		
DDR	256 Mbyte		
Feature	Media Play(Movie)		

2-2. Product specification

2-2-1. Detailed Specifications

NOTE

Design and specifications are subject to change without prior notice.

Item		UE**H5000AWXZF	
General Information	Product	LED	
	Series	5	
	Country	FRANCE	
Display	Screen Size	22"/32'/40"/48'/50"	
	Resolution	1,920 x 1,080	
	Ultra Clear Panel	N/A	
Video	Picture Engine	HyperReal Engine	
	Clear Motion Rate	100	
	Micro Dimming	N/A	
	Precision Black (Local Dimming)	N/A	
	Wide Color Enhancer (Plus)	Yes	
	Wide Color Gamut	N/A	
	Color Accuracy	N/A	
	Auto Depth Enhancer	N/A	
	Film Mode	Yes	
Audio	Dolby MS10 / MS110	Dolby Digital Plus / Dolby Pulse	
	DTS Studio Sound / DNSe+	DTS Studio Sound	
	DTS Premium Sound / DTS Premium Sound 5.1	DTS Premium Sound 5.1	
	3D Sound	N/A	
	Auto Volume Leveler	Yes	
	Sound Customizer	N/A	
	Sound Output (RMS)	22" : 3W x2	10W x2
	Speaker Type	Down Firing + Full Range	
	Woofer	N/A	
Smart TV	Smart Hub	N/A	
	Samsung SMART TV	N/A	
	On TV	N/A	
	Movies & TV Shows	N/A	
	Multimedia	N/A	
	Apps	N/A	

Item		UE**H5000AWXZF
Smart TV	Game	N/A
	Fitness	N/A
	Kids	N/A
	Multi-Screen (Dual / Quad Screen)	N/A
	Skype™ on Samsung TV	N/A
	Web Browser	N/A
Smart Interaction	Voice Interaction	N/A
	Voice Control	N/A
	Camera Built-in	N/A
	Face recognition	N/A
	Motion control	N/A
Smart Convergence	Contents Streaming	N/A
	Screen Mirroring	N/A
	Samsung SMART View	N/A
	Smart Home	N/A
Tuner/Broadcasting	Twin Tuner	N/A
	CI/CI+/2CI+	CI+ (1.3)
	DTV Tuner	DVB-TC
	Analog Tuner	Yes
	MHP / MHEG / HbbTV / ACAP / GINGA / OHTV	No
Connectivity	HDMI	2
	USB	1
	Component In (Y/Pb/Pr)	1
	Composite In (AV)	1 (Common Use for Component Y)
	Ethernet (LAN)	No
	Headphone	Yes
	Digital Audio Out (Optical)	1
	RF In (Terrestrial / Cable input)	1
	Ex-Link (RS-232C)	No
	IR Out	N/A
	CI Slot	1
	Scart	1
	MHL CE 3.0	N/A
	One Connect (Jack)	N/A
	WiFi Direct	N/A

Item		UE**H5000AWXZF
Connectivity	HDMI 1.4 3D Auto Setting	N/A
	HDMI 1.4 A/Return Ch. Support	N/A
	InstaPort S (HDMI quick switch)	N/A
	Wireless LAN Adapter Support	N/A
	Wireless LAN Built-in	N/A
	Anynet+ (HDMI-CEC)	N/A
Design	Design	Luxe Line
	Bezel Type	VNB (46mm)
	Front Color	Black
	Light Effect (Deco)	N/A
	Stand Type	Square
	Swivel (Left/Right)	N/A
Additional Feature	Samsung 3D	N/A
	3D Converter	N/A
	Instant On	N/A
	Quad Core+	N/A
	Accessibility	N/A
	Auto Power Off	Yes
	Clock&On/Off Timer	Yes
	Sleep Timer	Yes
	BD Wise Plus	N/A
	Caption (Subtitle)	Yes
	Channel List USB-Clone	Yes
	ConnectShare™ (USB 2.0)	Movie
	Football Mode	Basic
	Embeded POP	Yes
	EPG	Yes
	PVR Ready	N/A
	Game Mode	Yes
	Multiroom Compatible	N/A
	OSD Language	27 European Languages
	Picture-In-Picture	Yes
	BT HID Built-in	N/A
	USB HID Support	N/A
	Smart Evolution Support	N/A

Item		UE**H5000AWXZF	
Additional Feature	TV SoundConnect	N/A	
	Teletext (TTXT)	Yes	
	Time Shift	N/A	
Eco Feature	Eco Sensor	No	
	Energy Efficiency Class	22" : A	A+
	Mercury Content	0.0mg	
	Lead Presence	Yes	
Accessory	3D Active Glasses (Included)	N/A	
	Remote Controller Model	TM1240A	
	Batteries (for Remote Control)	Yes	
	Samsung Smart Touch Control (Included)	N/A	
	Ultra Slim Wall Mount Supported	No	
	Mini Wall Mount Supported	No	
	Vesa Wall Mount Supported	Yes	
	Floor Stand Support	No	
	TV Camera (Included)	N/A	
	IR Extender Cable (Included)	N/A	
	Wireless Keyboard (Included)	N/A	
	Wireless LAN Adaptor (Included)	N/A	
	User Manual	Yes	
	E-Manual	Yes	
	Power Cable	Yes	
	Slim Gender Cable	N/A	

2-2-2. Specifications

■ Feature

- Digital-TV, RF, 2-HDMI, 1-Component, 1-A/V, 1-USB2.0, Digital Sound Out(Optical),1-Headphone
- Brightness : 250 cd/m^2 (22"), 350 cd/m^2
- Dynamic Contrast Ratio : Mega DCR
- CMR : 100

■ Specifications

Model	UE**H5000AW

Item	Description				
Screen Size (Diagonal)	21.5 inches	31.5 inches	40 inches	47.5 inches	49.5 inches
LCD Panel	FHD 60 Hz				
Display Colors	16.7 M color				
Display Resolution	1,920 x 1,080				
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	75 MHz	148.5 MHz	148.5 MHz	148.5 MHz	74.25 MHz
AC Power Voltage & Frequency	AC220-240V 50/60Hz				
Sound (Output)	6 W (3 W X 2)	20 W (10 W X 2)			

2-3. Accessories

NOTE

- The items' colors and shapes may vary depending on the model.
- Cables not included in the package contents can be purchased separately.
- The part code for some accessories may differ depending on your region.

Product	Code. No	Product	Code. No
• Remote Control	BN59-00741A	• User Manual	BN68-06489A
• Batteries (AAA x 2)	4301-000121	• Warranty Card (Not available in some locations)	BN68-00514K
• Power Cord	3903-000849		

Image	Product	Code. No
	• Holder-Wire Stand	BN61-08370A

3. Disassembly and Reassembly

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

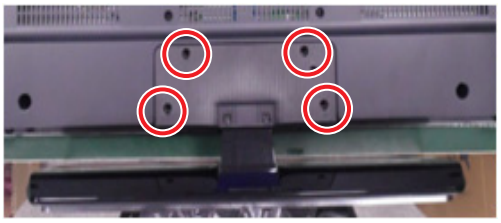
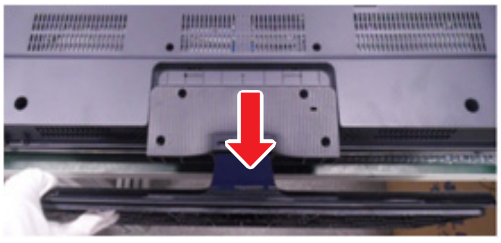
WARNING This LED TV contains electrostatically sensitive devices. Use caution when handling these components.

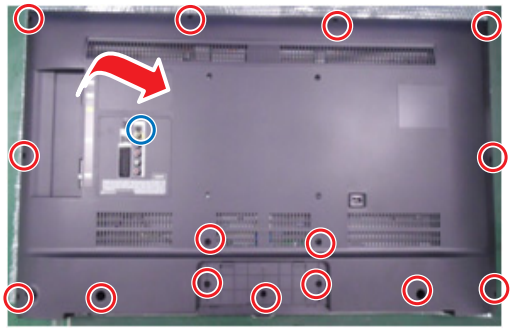
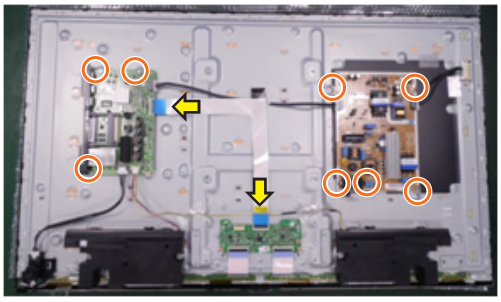
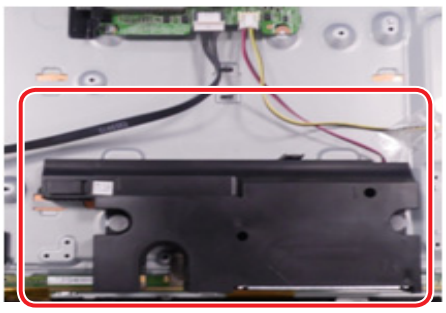
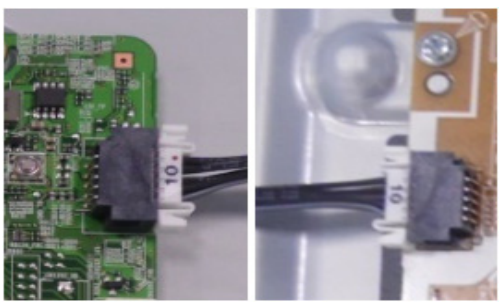
3-1. Disassembly and Reassembly

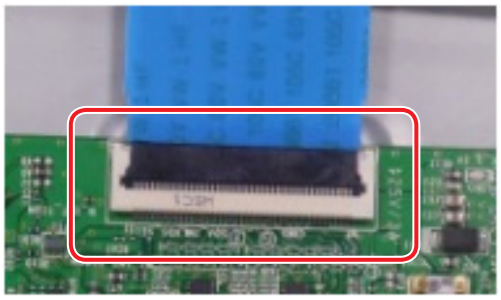
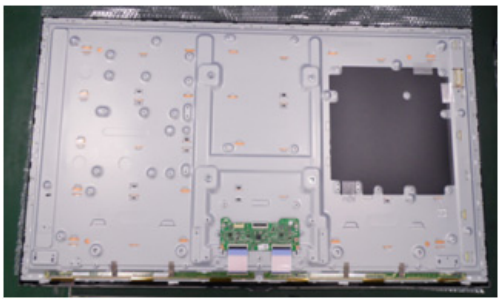
CAUTION

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.

■ (For 40H5000 model)

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

Description	Picture Description	Screws
4 Remove the screws of rear-cover.		 6003-001782  6003-002755
5 Remove the rear-cover.		
6 Remove the screws.		 6001-003016
7 Remove the speakers and power cables.	 	

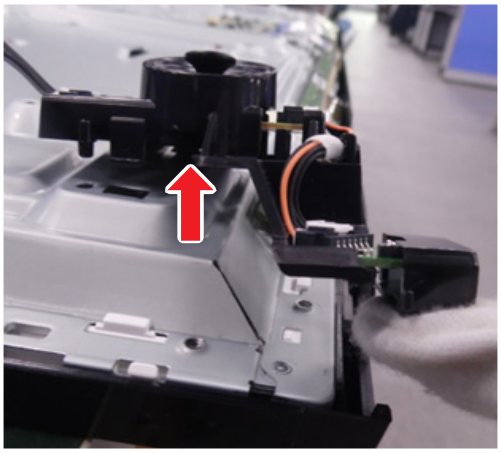
Description	Picture Description	Screws
8 Remove the LVDS Cable and Panel Drive Cable.		
		
9 Completed disassembly.		

NOTE

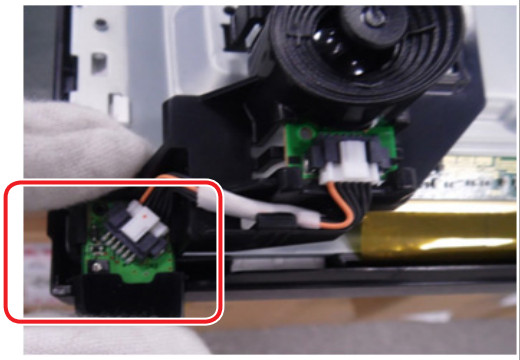
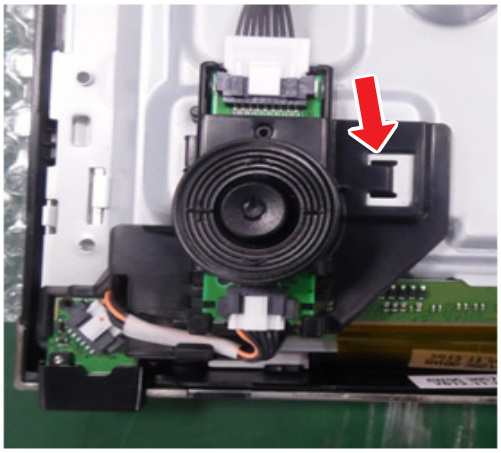
Reassembly procedures are in the reverse order of disassembly procedures.

3-2. Assy Board P-Jog Switch & Ir

■ How to disassembly (For 40H5000)

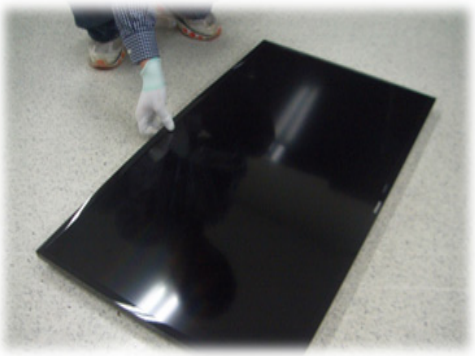
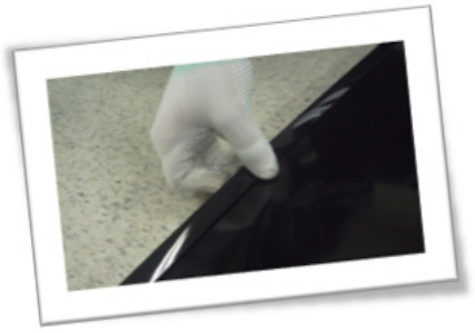
Description	Picture Description	Refer
1 Pull out a jog function.		

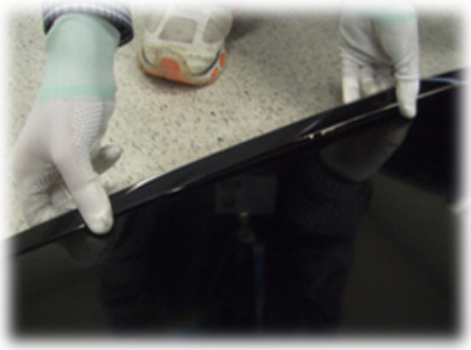
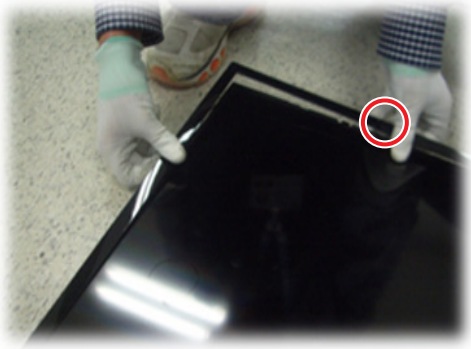
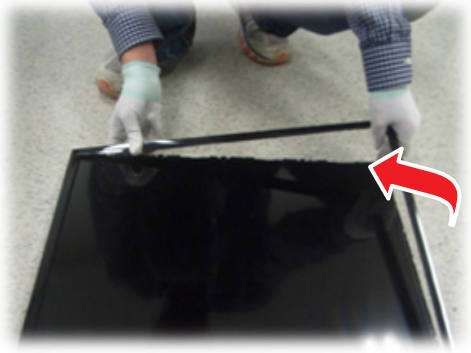
■ How to assembly (For 40H5000)

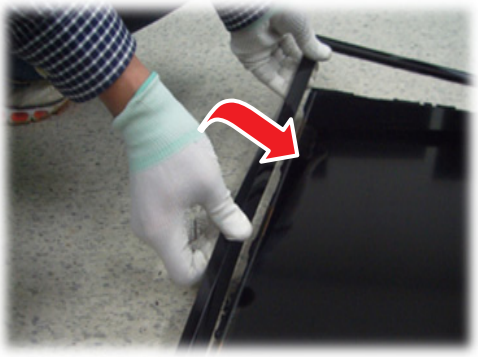
Description	Picture Description	Refer
1 Insert a jog function.		
2 Put 2 screws.		

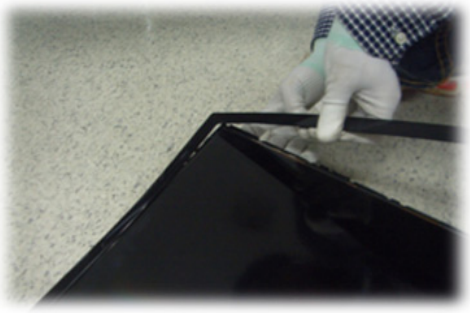
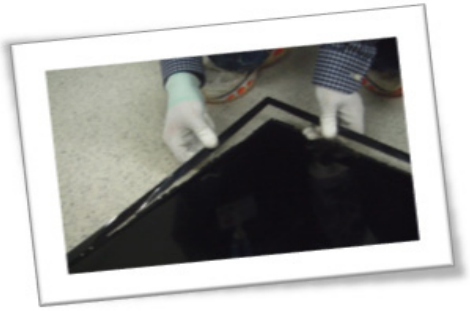
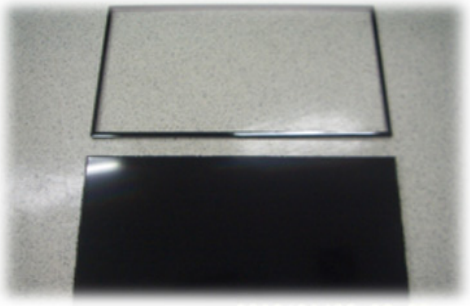
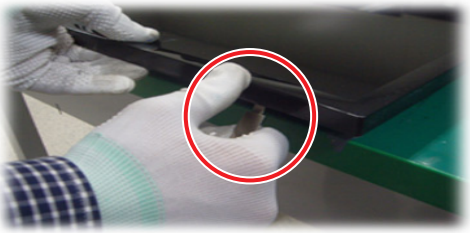
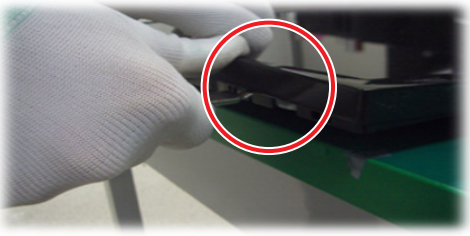
3-3. Disassembly(PTC)

■ How to disassembly

Description	Picture Description	Refer
1 Place TV face up on cushioned table.		
2 Products at the top of the central TOP-CHASSIS is rotated by 45 degrees outward and pulls.	 	

Description	Picture Description	Refer
3 Pull in the same way from the center of the top.	 	
4 Pull the left part of the product as shown while holding the raised portion on figure 3.		
5 Pull the bottom part of the product as figure 2 while holding the raised portion on figure 4.		

Description	Picture Description	Refer
6 As shown in the picture, Lift the bottom of the TOP-CHASSIS.		
		
7 Pull the products at the bottom of the right side of the chassis.		
		

Description	Picture Description	Refer
8 Lift the bottom of the chassis with one hand and holding the bottom of the product after you pull the right side of the product chassis.	 	
9 Disassembly is complete.		
CAUTION To use JIG : Does not lift the chassis by hand, JIG using the lift.	 	

NOTE

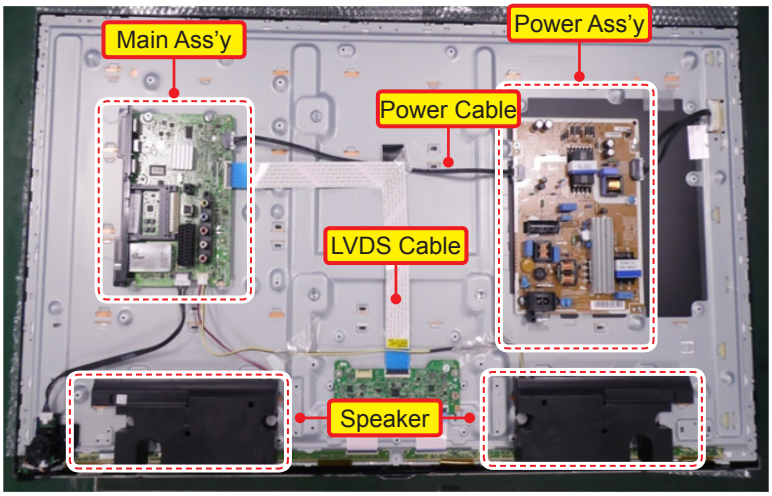
Reassembly procedures are in the reverse order of disassembly procedures.

4. Troubleshooting

4-1. Troubleshooting

■ Previous Check

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



Main Board Assy (CN202)			
9	A13V	10	UNDER_DRIVER
7	A13V	8	PWM_DIM
5	A13V	6	SW_POWER_TO _SMPS
3	A13V	4	GND
1	GND	2	GND

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

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

1. No Picture : Backlight is on, but there is no picture and LED indicator in front of TV is blinking.

- Check the LVDS Cable connection. If still problems, change the T-Con Board and then Main Board step by step.

2. Picture distortion : Enter the service mode ⋯› Choose 'SVC' ⋯› Check the 'internal pattern.'

- Enter 'Service Mode.'
  - If you do not have Factory remote control

    Power OFF → Info → MENU → Mute → Power On
  - If you have Factory remote control

    INFO → Factory

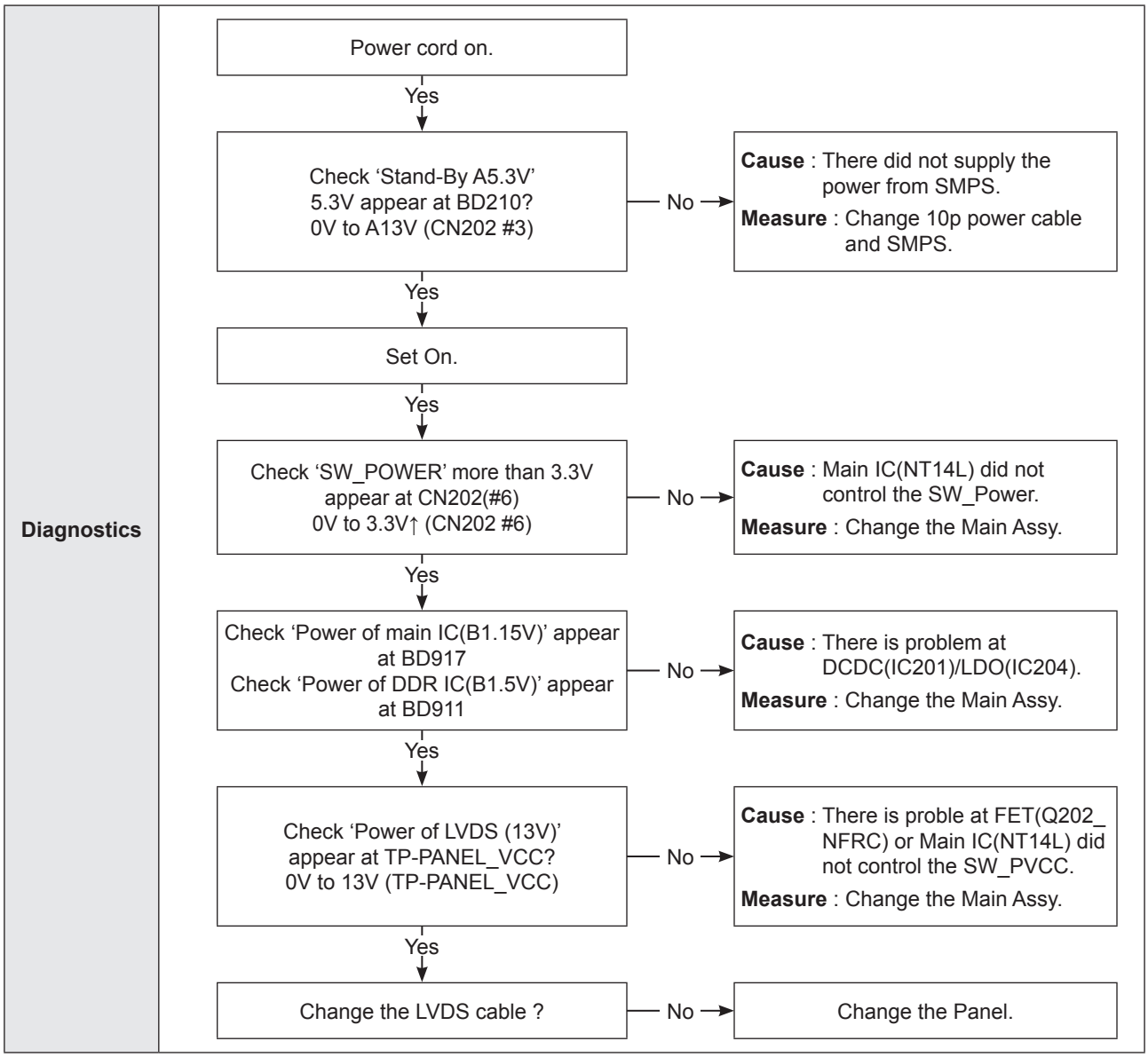
3. Choose 'SVC.'

4. Choose 'Test pattern.'

5. Select the each pattern and then check all pattern is ok or not.

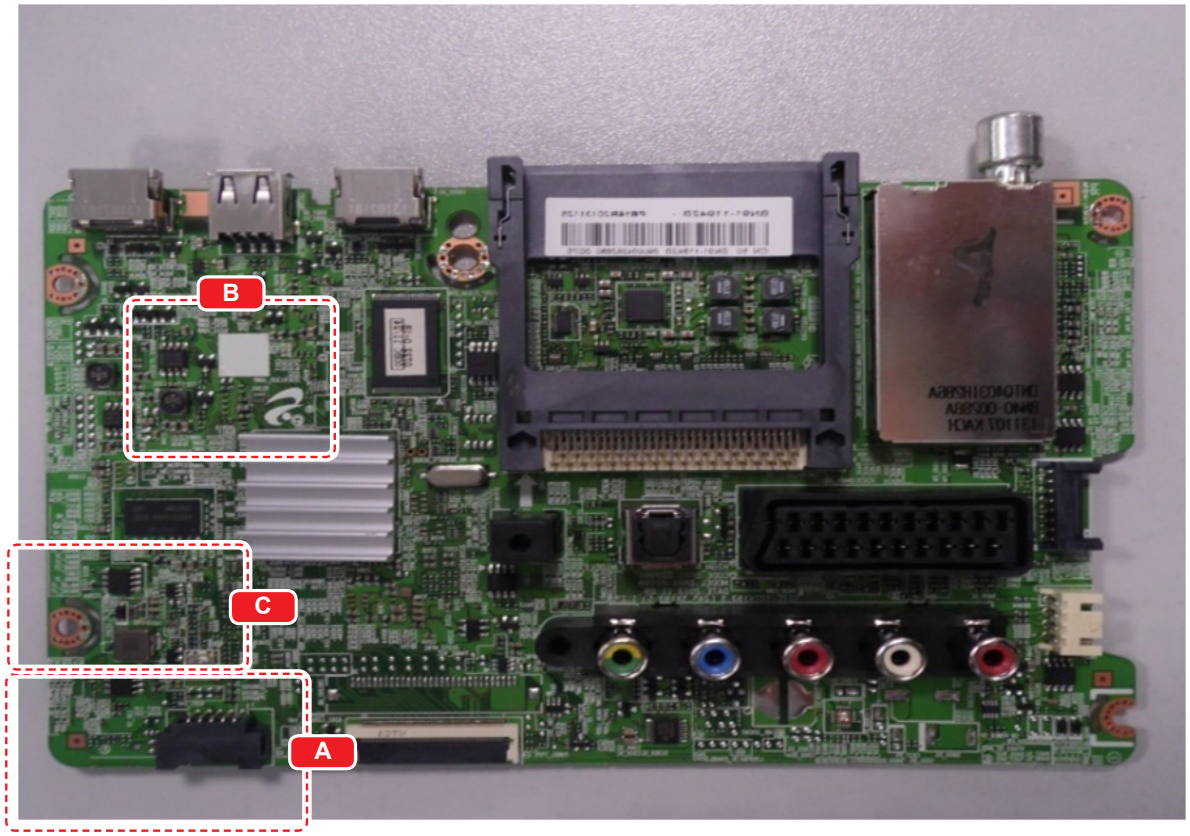
Pattern Status is	Change the	Test Pattern is made by the NOVATEK IC
OK	Main Board	We guess front of NOVATEK IC has problem.
NG	Panel and T-Con Board	We guess back of NOVATEK IC has problem.

4-2. How to Check Fault Symptom



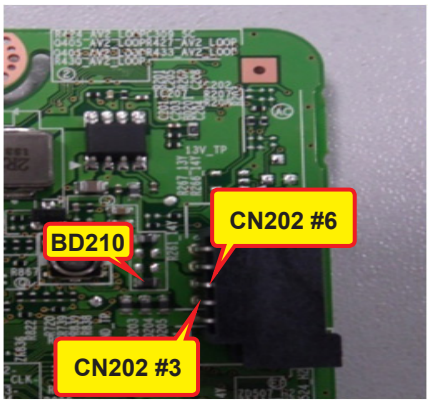
■ Location of Parts

Main Board_Front

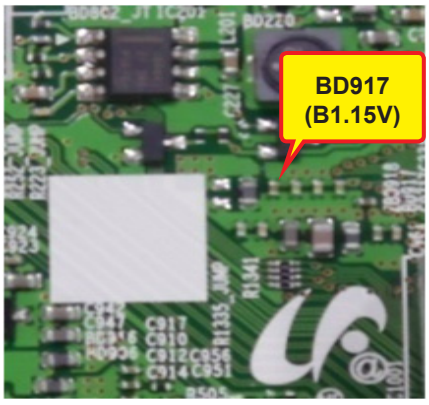


Detail

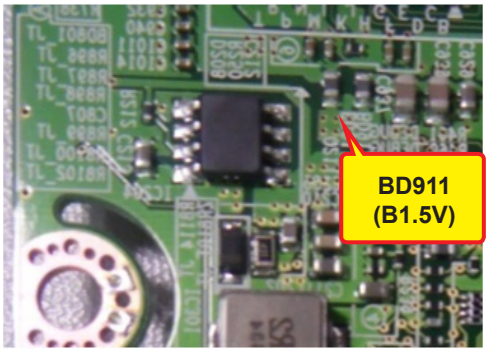
A



B



C



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".

■ UE**H5000AWXZF

Model Name		22"	32"	40"
Panel	Vendor	AUO	SDC	SDC
	Code	BN07-01061A	BN95-01325A	BN95-01316A
	Spec.	M215HW03 V1	LSF320HN03-G	LSF400HM03-G
SMPS	Vendor	POWER	SEM	SEM
	Code	BN44-00692A	BN44-00697A	BN44-00698A
	Spec.	L22S0Q_EPN	L32SF_ESM	L42SF_ESM
MAIN ASSY	Chassis Ass'y	BN91-11942D	BN91-11942A	BN91-11942K
	PBA Ass'y code	BN94-07136D	BN94-07136A	BN94-07136K

Byte	Item			
0	Factory Reset	-		
1	Type	22L6TF0E	32A6AF0V	40A6AF0V
2	Basic Model	UH5000		
3	SVC Model	5000		
4	Local Set	depending on the country (EU)		
5	Tuner	DVB-TC		
6	Ch Table	NONE		

■ UE**H5000AWXXN

Model Name		48"	50"
Panel	Vendor	SDC	AUO
	Code	BN95-01317A	BN07-01359A
	Spec.	LSF480HN01-G	GH050BGA-B1
SMPS	Vendor	SEM	HANSOE
	Code	BN44-00699A	BN44-00704A
	Spec.	L48SF_ESM	L55S1_EHS
MAIN ASSY	Chassis Ass'y	BN91-11946N	BN91-11942L
	PBA Ass'y code	BN94-07140N	BN94-07136L

Byte	Item		
0	Factory Reset	-	
1	Type	48A6AF0V	50R6AF0V
2	Basic Model	UH5000	
3	SVC Model	5000	
4	Local Set	depending on the country (EU)	
5	Tuner	DVB-TC	
6	Ch Table	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 → INFO → MENU → MUTE → 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

Option
Control
Debug
SVC
ADC/WB
Advanced

T-NT14LDEUC-xxxx.x
T-NT14LDEUS-xxxx
E-Manual : NLDVBEUxH-xxxx
EDID SUCCESS
CALIB : AV/COMP/PC/HDMI/
Option : 40A6AF0V,EU_UK,5000,NONE

DTP-SDAL-NT14L-MAIN-xxxx-xxxx

RFS:"NT14L xxxx" K/20xx-xx-xx
KERNEL:xxxx.xxxx,/Onboot: xxxx
TCON Version:----
NSP-DTVTD-xxxx

Model: UE40H5000
Wireless MAC ----
CIP FAIL
Factory Data Ver:xxx
EERC Version: xxx
NSP-BP-HAL-xxxx
NSP-AP-CNC-xxxx
NSP-AP-MM-xxxx

NSP-BP-MW-xxxx
NSP-BP-APP-xxxx
NSP-PNG-xx-xxxx
Date of purchase:-/-/----

4-3-3. 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	Remark	Key
Factory Reset	-	-		
Type	40A6AF0V	19B6TH0E/19L6TH0E/22D6TH0E/22L6TF0E 28S6AH0S/28T6AH0S/28B6AH0S 32S6AH0S/32T6AH0S/32A6AH0S/32H6AH0S/ 32R6AF0V/32A6AF0V 40A6AF0V/48A6AF0V 50D6AF0V/50R6AF0V		
Local Set	Local Set	Select Local		
SW Model	UF5000	UH4000/UH5000/UH5070		
BOM Model	5000	4000/5000/5070		
TUNER	S-T2C	Not Detected/S_TC/S-T2C/S_TCS2/S_T2CS2		
Ch Table	NONE			
MRT Option				
Front Color	U-S-C-5K			
Lvds Format	JEIDA			
Language_Arabic	EU	EU/AUSTRAILIA		
Region	PANEURO			
PnP Language	ENG			
WIFI REGION	E	A~Z/AA/AB		
OTN Support	OFF	ON/OFF		
MediaPlay DLNA	...			
TTX	ON	ON/OFF		
China HD	OFF	ON/OFF		
NT Conversion	OFF	ON/OFF		
Num of DTV	1	0~2		
Num of AV	1	0~3		
Num of COMP	1	0~3		
Num of HDMI	2	0~4		

Factory Menu Name	Data	Range	Remark	Key
Num of SCART	1	0~2		
Num of USB Port	1	0~2		
Num of RVU	0	0~1		
Num Of Display	2	1~2		
Num of IPTV	0	0~1		
Num of RUI	0	0~1		
TOOLS Support	1849			
LNA Support	0	0~1		
24Px4 Support	OFF	ON/OFF		
BD Wise Support	OFF	ON/OFF		
Data Service Support	OFF	ON/OFF		
PVR Support	OFF	ON/OFF		
CI Support	ON	ON/OFF		
OTA Support	General	General/OFF		
LEDMotionPlus Support	ON	ON/OFF		
Natural Mode Support	ON	ON/OFF		
Relax Mode Support	OFF	ON/OFF		
HDMI/DVI SEL	2	1~4		
Select LCD/PDP	LCD	LCD/PDP		
Wall Mount	0	0~1		
HV Flip	HV Flip	OFF/HV Flip/V Flip/H Flip		
PVR RECORD NUM	0	0~2		
Light Effect	OFF	ON/OFF		
e-POP Default	ON	ON/OFF		
CAMERA Support	OFF	ON/OFF		
NETWORK Support	ExtOnly-Wifi	Not Support/Cable/Ext-Wifi/Int-Wifi/ ExtOnly-Wifi/Error		
EcoSensor Support	ON	ON/OFF		
3D Support	OFF	ON/OFF		
BT Support	OFF	ON/OFF		
BT ADDRESS	Not Support	Not Support		
HP LINE	Headphone	Headphone/LineOut/NONE		
Capture Recording Support	OFF	ON/OFF		

Factory Menu Name	Data	Range	Remark	Key
Engineer Option				
Type Of PANEL KEY	Horizontal	Horizontal/Vertical/PDPVertical/ PDPHorizon/None		
5 Way Function Key	R_BOTTOM	L_BOTTOM/R_BOTTOM/L_BACK/R_ BACK/4		
Contents Bar	0	0~1		
Cable Modulation	…			
Standby led on/off	OFF	ON/OFF		
Recognition Support	OFF	ON/OFF		
IF AGC	0	0~10		
D AGC	0	0~10		
PH BW	3	0~10		
FQ BW	3	0~10		
PH RATE	4	0~10		
PD EN	1	0~10		
PEQ Inx	43			
WF Scale				
Num of Network Stream	0	0~1		
DP V Size	1	0~1		
Backend Device	ECHO_FS	NONE/ECHO_FP/ECHO_FS/PARMA		
BT_AUDIO_ON_ OFF	OFF	ON/OFF		
Config_AV_PATH				
V_HDMI IDENT TYPE	2134			
V_HDMI PATH TYPE	BACD			
V_EDID TYPE	LCD_FHD	LCD_FHD/LCD_HD		
V_ATV	CVBS_PORT_2			
V_AV1	AV_COMP_G1			
V_AV2	CVBS_PORT_3			
V_COMP1	ADC_PORT_1			
V_COMP2	None			
V_PC	ADC_PORT_0			
V_SCART1_CVBS	CVBS_PORT_3			
V_SCART1_RGB	ADC_PORT_2			
V_SCART2_CVBS	None			
V_SCART2_RGB	None			
A_ATV	SIF			

Factory Menu Name	Data	Range	Remark	Key
A_DTV	DECODER			
A_AV1	AUIN1			
A_AV2	AUIN0			
A_COMP1	AUIN1			
A_COMP2	None			
A_PC	AUIN0			
A_SCART1	AUIN0			
A_SCART2	None			
A_DVI	None			
A_HDMI	None			
A_Media	DECODER			
USING_PSI_ UPDATE	…			
Fast Logo Delay	0	0~20		
Num Of PANEL KEY	6	0~20		

■ Control

Factory Menu Name	Data	Range	Remark	Key
EDID				
EDID ON/OFF	ON	ON/OFF		
EDID WRITE ALL	Success			
EDID WRITE PC	…			
EDID WRITE HDMI	Success			
EDID WRITE HDMI1	…			
EDID WRITE HDMI2	…			
EDID WRITE HDMI3	…			
EDID WRITE HDMI4	…			
EDID Ver	HDMI 1.3			
EDID Port	NONE			
EDID WRITE DVI	…			
Sub Option				
RS-232 Jack	Debug	Debug/UART		
Serial Log On/Off	ON	ON/OFF		
Watchdog	OFF	ON/OFF		
Checksum	0x0000			
Fast Boot in Production	ON	ON/OFF		
USB Serial	OFF	ON/OFF		

Factory Menu Name	Data	Range	Remark	Key
Eeprom Reset				
EER Reset	0			
NVR All Clear	OFF	ON/OFF		
ECO IC TYPE	MC8121	NONE/CT802FN/NLS1106/ MC8121/MC8121_REV		
Info Link Server Type	operating	operating/development/ developing		
Info Link Country	None			
TTX Group	UserOSD	WestEurope/EastEurope/ Russian/Greek/Turkey/Arabic/ Farsian/Arab/Hbrw/UserOSD		
Visual Test	…			
MediaPlay DB	…			
OPTION_SWU				
OTN Server Type	operating	operating/development		
OTN Test Server	OFF	ON/OFF		
SWU Reset				
SWU Duration	OFF	ON/OFF		
SWU Fail Test	OFF	ON/OFF		
SWU_Diag_Code				
OPTION_NUM				
Num of ATV	1	0~2		
Num of SVIDEO	0	0~3		
Num of PC	0	0~1		
Num of DVI	0	0~1		
Num of OPTICAL Link	1	0~1		
Num of MEDIA	1	0~1		
Num of Tuner	1	0~1		
Num of PVR RECORD	0	0~1		
RF Remocon Support	OFF	ON/OFF		
CDD mode	…			
DPMS Support	OFF	ON/OFF		
Num of IPTV CIP	0	0~1		
Num of CI	1	0~1		
Num of DECODER	0	0~1		
T-CON Device				
BOARD CONTROL	OFF	ON/OFF		
RM				
Server Type	Operating	operating/development		

Factory Menu Name	Data	Range	Remark	Key
RTS Mode	0	0~1		
PSA				
FKP Download1				
FKP Download2				
LMK threshold	0			
Low threshold	0			
High threshold	0			
CSB	ON	ON/OFF		
CLB	ON	ON/OFF		
EEPG Enable	OFF	ON/OFF		
PDP Option				
Hotel Option				
Hotel Mode	OFF	ON/OFF		
Hospitality Mode	1			
Power On				
Menu OSD				
Music Mode				
External Source				
Eco Solution				
Cloning				
Shop Option				
Shop Mode	OFF	ON/OFF		
Exhibition Mode	OFF	ON/OFF		
3D Cube	OFF	ON/OFF		
Asia Option				
Sepco 120Hz	OFF	ON/OFF		
Unbalance	OFF	ON/OFF		
FMTransmitter Support	OFF	ON/OFF		
FMTransmitter Carrier	OFF	ON/OFF		
AF Level adjust	3	0~7		
TX Power Level	0	0~3		
Mono Last Memory	OFF	ON/OFF		
H Shaking	OFF	ON/OFF		
SOUND				
High Devi	OFF	ON/OFF		
Carrier_Mute	OFF	ON/OFF		
Speaker Delay Normal	0			

Factory Menu Name	Data	Range	Remark	Key
Wiselink Delay Menu	0			
Pilot Level High Thld	0x13h			
Pilot Level Low Thld	0x09h			
Pilot_Phase_diff_on_THR	OFF	ON/OFF		
FM Prescale	0x2Eh			
AM Prescale	0x1Ah			
NICAM Prescale	0x1Dh			
Amp Model	NTP7414			
Amp Volume	0xc5h			
Amp Scale	0x9ah			
Amp Check Sum	0x01575E95			
SubWoofer Support	0	0~7		
Woofer Type	0	0~7		
Woofer Volume	0xcbh			
Woofer Scale	0x8ah			
Woofer Check Sum	NONE			
Woofer Local Check Sum	NONE			
Amp local Check Sum	NONE			
Speaker EQ	ON	ON/OFF		
PEQ Test	Ready	Ready/Set1~Set5		
Speaker cut-off Freq	5			
SPDIF PCM Gain	-9dB			
FM M Prescale	0			
BTSC Mono Prescale	0			
BTSC stereo Prescale	0			
SAP Prescale	0			
A2 Ident High Thld	15			
A2 Ident Low Thld	4			
Carrier2 Amp High Thld	16			
Carrier2 Amp Low Thld	14			
Carrier2 SNR High THR	32			
Carrier2 SNR Low THR	17			
Audio-IP Test	Ready	Ready/Set1~Set9		
SRS Tuning Parm	0			
TruBass-CheckSum	0			
Mic Scale	0			
India Sound	OFF	ON/OFF		
Wall Filter Type	0			

Factory Menu Name	Data	Range	Remark	Key
SAP High Thld	9			
SAP Low Thld	7			
Bottom Checksum	0			
Bottom Local CHeckSum	0			

■ Debug

Factory Menu Name	Data	Range	Remark	Key
Spread spectrum				
LVDS Spread	ON	ON/OFF		
LVDS Period	40K	20K/30K/40K		
LVDS Amplitude	2.0	0.0/0.5/1.0/1.5/2.0/2.5/3.0		
DDR Spread	ON	ON/OFF		
DDR Period	20K	20K/30K/40K		
DDR Amplitude	1.5	0.0/0.5/1.0/1.5/2.0		
FRC LVDS SSC ON/OFF	ON	ON/OFF		
FRC LVDS SSC MFR	1			
FRC LVDS SSC MRR	10			
FRC LVDS SSC Period	0			
FRC LVDS SSC Modulation	1			
FRC DDR SSC ON/OFF	ON	ON/OFF		
FRC DDR SSC MFR	1			
FRC DDR SSC MRR	10			
FRC DDR SSC Period	1			
FRC DDR SSC Modulation	1			
DDR Margin				
A CTRL_OFFSET_0_3	0	0~1		
A CTRL_OFFSET_D	0	0~1		
B CTRL_OFFSET_0_3	0	0~1		
B CTRL_OFFSET_D	0	0~1		
ND ADJ Support	0	0~1		
MICOM POWER OFF	0	0~1		
RF Mute Time	6ms	0ms~10ms		
CI+1.3	0	0~1		
FRC				
FRC FDISPLAY ON/OFF	OFF	ON/OFF		
PC Mode ON/OFF	OFF	ON/OFF		
Home Panel FRC	OFF	ON/OFF		

Factory Menu Name	Data	Range	Remark	Key
Tuner Margin	0	0~1		
MPEG Margin	1000			
H.264 Margin	8			
CAM Wait Time	0			
TS Clock delay	0			
TCON_TEMP READ	0.00			
TEMP LAST	60.00			
DCC VERSION	0x0			
DCC CHK SEL	0			
DCC CHECK LOCAL	0x0			
DCC CHECK TOTAL	0x0			
MultiACC Checksum	0			
IIC Bus Stop	OFF	ON/OFF		
Tuner Status				
DVB				
SNR	0	0		
BER	0	0		
Signal Strength	0	0		
Bandwidth	0	0		
Frequency	0	0		
LNA Status	0	0		
FFT	0	0		
Modulation	0	0		
Code Rate	0	0		
GI	0	0		
Hier Modulation	0	0		
Frequency Offset	0	0		
Timing Offset	0	0		
AGC	0	0		
UCB	0	0		
PLL Type	0	0		
DEMOD Type	0	0		
TPS Lock	0	0		
RS Lock	0	0		
SSI	0	0		
SQI	0	0		
Firmware Version	0	0		
ISDB-T				

Factory Menu Name	Data	Range	Remark	Key
FFT Size_1				
Guard Interval_1				
Freq.Offset_1				
SNR_1				
IF AGC_1				
TMCC Lock_1				
TS Packet_1				
Master Lock_1				
A_Modulation_1				
A_Code Rate_1				
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	Remark	Key
Self Diagnosis				
Loop Back				
LAN Test				
AV Audio Test	Failure	Failure/Success		
DVIN Audio Test	Failure	Failure/Success		
CVBS Test	Failure	Failure/Success		
COMP Test	Failure	Failure/Success		

Factory Menu Name	Data	Range	Remark	Key
USB HUB Test				
HDMI Test	NG/NG/NG/NG			

Factory Menu Name	Data	Range	Remark	Key
SCART Audio Test	Failure	Failure/Success		
SCART CVBS Test	Failure	Failure/Success		
SCART RGB Test	Failure	Failure/Success		
PC Audio Test	Failure			
PC Self Test	Failure			
CPU	Failure	Failure/Success		
DDR				
FLASH				
EEPROM				
X-TAL	Failure	Failure/Success		
Tuner1	Failure	Failure/Success		
Sound AMP	Failure	Failure/Success		
HDMI Switch IC	Failure	Failure/Success		
USB HUB IC	Failure	Failure/Success		
WIFI	Failure			
LVDS				
T-CON/FRC				
PCB Test	Failure	Failure/Success		
MOIP	0			
BT				
EcoSensor				
Voltage	0			
Device Self Test	0			
App Self Test				
EXT Sound Inspection				
Woofer Sound Inspection	NONE			
ATV CH Inspection	Failure	Failure/Success		
DTV CH Inspection				
Satellite CH Inspection				
PDP Discharge Voltage				
Info				
SVC Info	0			
LOG				
Select Log Type	MICOM			
Log View	0			
Delete Log				
Debug Log Down				

Factory Menu Name	Data	Range	Remark	Key
ER Count				
WD Count	0			
AR Count	0			
WIFI ER Count	0			
BT ER Count	1			
HDMI Stable Cnt	1			
Camera ER Count	0			
Panel Display Time	0Hr			
Upgrade				
T-CON Usb Download	Failure	Failure/Success		
T-CON CheckSum	N/A			
Logic Usb D/L	…			
SUBMICOM UPGRADE	Ready			
BT UPGRADE				
BT FREEPAIRING	ON	ON/OFF		
Function Upgrade	Failure	Failure/Success		
FRC3D FW Upgrade				
Camera Upgrade	0	0~1		
Mic Upgrade	0	0~1		
CPLD USB Download	0	0~1		
JP MICOM UPGRADE	Failure	Failure/Success		
DP MICOM UPGRADE	Failure	Failure/Success		
Jump Upgrade	Failure	Failure/Success		
MIC PROGRAM UPGRADE	Failure	Failure/Success		
Reset				
Smart Hub Reset	0			
EEPROM_Reset				
Factory_Reset				
OPTION_HDMI				
DVI/HDMI SOUND	Auto	Auto/DVI		
HDMI HOT PLUG	Disable	Disable/Enable		
HOT PLUG SWITCHING	Boot	Boot/Source		
HOT PLUG DURATION	200ms			
CLK TERM DURATION	200ms			
HDMI FLT CNT SIG	100ms			
HDMI FLT CNT LOS	100ms			
UNSTABLE BAN CNT	3500ms			

Factory Menu Name	Data	Range	Remark	Key
HDMI ROBIN	1	0~1		
HDMI Callback	0	0~1		
HDMI CTS Thld	8	0~15		
HDMI CTS Cnt1	1	0~15		
HDMI EQ	AUTO	AUTO/Low/Middle/High/Strong		
HDMi Write Type	Combine	Combine/Separate		
HDMI Switch	NONE	NONE/SIL9287/TMDS461		
DVI SET TIME	300ms			
HDMI Sync	DE	DE/HV		
HDMI 3D DET	0	0~1		
HOT PLUG OFF HOLD TIME	0	0~1		
DVB CI				
TS Clock delay TC	0			
TS Clock delay S	0			
CI Control Buf ON	ON	ON/OFF		
TS Clock delay CPU	-1	-15~15		
Test Pattern				
Pattern Sel	OFF	OFF/CHESS/VISON1/ VISON2/8COLOR_BAR/RGB_ RAMP/WHITE/RED/GREEN/ BLUE/16GRAY/32GRAY/ BLACK/RGB_COMP		
Logic Pattern Sel	…			
Logic Level Sel	…			
FRC Pre Test Pattern	0			
FRC Post Test Pattern	0			
SOC TCON Test Pattern	0	0~1		
SOC TCON Pattern Level	0	0~1		
SOC TCON FRC Pattern	0	0~1		
HDMI WB Pattern	0	0~1		
HDMI Pattern Sel	0	0~1		
Others				
Delete S/N	Failure	Failure/Success		
IREPF	Stopped	Stopped/running		
Expert				
N/D ADJ	…			
Source	…			
CAL Data Backup_Copy	…			

Factory Menu Name	Data	Range	Remark	Key
CAL Data Restore_Copy	…			
ATV IF AGC SPEED	0	0~16		
Auto Power	MEMORY	MEMORY/ALWAYS ON/ ALWAYS OFF		

■ ADC/WB

Factory Menu Name	Data	Range	Remark	Key
ADC				
AV Calibration	----			
Comp Calibration	----			
PC Calibration	----			
HDMI Calibration	----			
ADC Result				
1st_Y_GH	0			
1st_Y_GL	0			
1st_Cb_BH	0			
1st_Cb_BL	0			
1st_Cr_RH	0			
1st_Cr_RL	0			
2nd_R_L	134			
2nd_G_L	134			
2nd_B_L	134			
2nd_R_H	49			
2nd_G_H	49			
2nd_B_H	49			
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	162			
WB_W2_B_Gain	69			
WB_N_R_Offset	128			

Factory Menu Name	Data	Range	Remark	Key
WB_N_B_Offset	128			
WB_N_R_Gain	151			
WB_N_B_Gain	109			
MGA				
MAG On/Off	OFF	ON/OFF		
R1_Gain	512			
G1_Gain	512			
B1_Gain	512			
R2_Gain	512			
G2_Gain	512			
B2_Gain	512			
R3_Gain	512			
G3_Gain	512			
B3_Gain	512			
R4_Gain	512			
G4_Gain	512			
B4_Gain	512			
R5_Gain	512			
G5_Gain	512			
B5_Gain	512			
R6_Gain	512			
G6_Gain	512			
B6_Gain	512			
R7_Gain	512			
G7_Gain	512			
B7_Gain	512			
R8_Gain	512			
G8_Gain	512			
B8_Gain	512			
R9_Gain	512			
G9_Gain	512			
B9_Gain	512			
R10_Gain	512			
G10_Gain	512			
B10_Gain	512			

■ Advanced

4-4. White Balance

4-4-1. Calibration

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

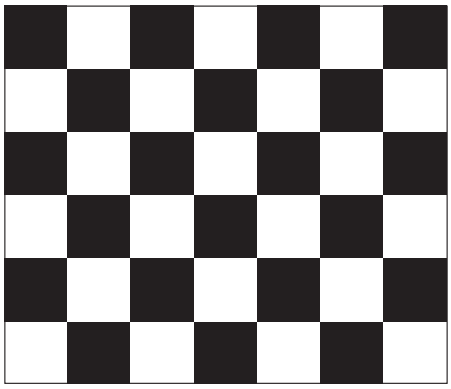
4-4-2. Service Adjustment

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

■ Color Calibration

- Adjust Specification

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



(Chess Pattern)

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

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

■ Method of Color Calibration (AV)

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

■ Method of Color Calibration (Component)

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

■ Method of Color Calibration (PC)

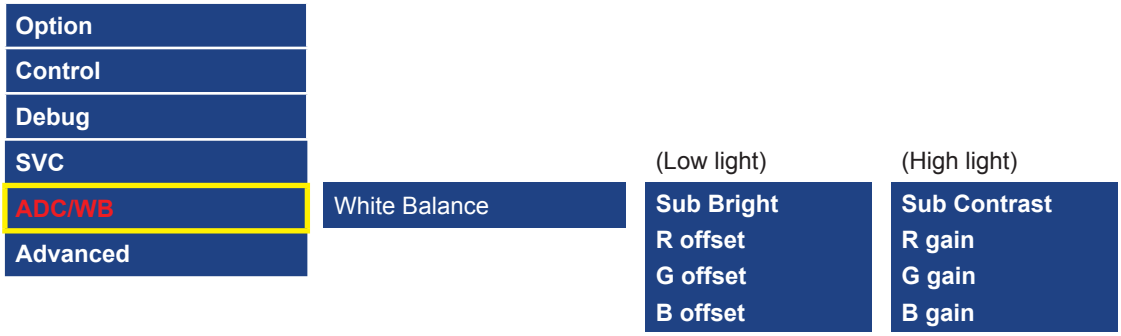
1. Apply the VESA XGA Lattice (N0. 21) pattern signal to the PC IN port.
2. Press the Source key to switch to “PC” mode.
3. Enter Service mode.
4. Select the “ADC” menu.
5. Select the “PC Calibration” menu.
6. In “PC Calibration Off” status, press the “ ►” key to perform Calibration.
7. When Calibration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

■ Method of Color Calibration (HDMI)

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

4-4-3. Adjustment

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



4-5. White Ratio (Balance) Adjustment

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

- Equipment : CS-210
- Pattern: MIK K-7256 #92 "Flat W/B Pattern" as standard
- 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

DEVICES	PANEL-TYPE
CA-210	40A6AF0V

RGB Measurement		
Levels	Code	Check
10 IRE	0x01	O
20 IRE	0x02	O
30 IRE	0x03	X
40 IRE	0x04	O
50 IRE	0x05	X
60 IRE	0x06	X
70 IRE	0x07	O
80 IRE	0x08	X
90 IRE	0x09	X
100 IRE	0x0A	O

Panel Inspection Spec.				
Levels	Check	x(±)	y(±)	Gamma(±)
10 IRE	O	0.020	0.020	0.40
20 IRE	O	0.020	0.020	0.40
30 IRE	O	0.020	0.020	0.40
40 IRE	O	0.020	0.020	0.40
50 IRE	O	0.020	0.020	0.40
60 IRE	O	0.020	0.020	NA
70 IRE	O	0.020	0.020	NA
80 IRE	O	0.020	0.020	NA
90 IRE	O	0.020	0.020	NA
100 IRE	O	NA	NA	NA

Gray Check			Adjust Spec(xyL)			Adjust Target offset(xyL)		
Levels	Code	Check	x(±)	y(±)	L(±)	x(±)	y(±)	L(±)
10 IRE	0x01	X	0.007	0.007	0.11	0.000	0.000	0.000
20 IRE	0x02	O	0.007	0.007	0.08	0.000	0.000	0.000
30 IRE	0x03	X	0.007	0.007	0.06	0.000	0.000	0.000
40 IRE	0x04	O	0.005	0.005	0.05	0.000	0.000	0.000
50 IRE	0x05	X	0.005	0.005	0.04	0.000	0.000	0.000
60 IRE	0x06	X	0.005	0.005	0.03	0.000	0.000	0.000
70 IRE	0x07	O	0.004	0.004	0.02	0.000	0.000	0.000
80 IRE	0x08	X	0.004	0.004	0.01	0.000	0.000	0.000
90 IRE	0x09	X	0.004	0.004	0.01	0.000	0.000	0.000
100 IRE	0x0A	X	NA	NA	NA	NA	NA	NA

Target Gamma		2.20	
Black	x	y	Contrast
	0.231	0.208	300000
Target xy	Option	x	y
	Auto	0.282	0.299

Panel Spec.		±	
Gamma	2.2	0.35	20~128
x	0.281	0.030	255
y	0.288	0.030	
ACC x	255 white	0.015	26~255
ACC y	x,y value	0.015	

Color Tone Target			Spec.	
High	x	y	x(±)	y(±)
COOL	0.262	0.276	0.004	0.004
NORMAL	0.281	0.295		
WARM2	0.313	0.340		
Low	x	y	x(±)	y(±)
COOL	NA	NA	NA	NA
NORMAL	NA	NA		
WARM2	NA	NA		

10IRE Gamma target	2.20
RetryCount	6

4-6. Software Upgrade

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

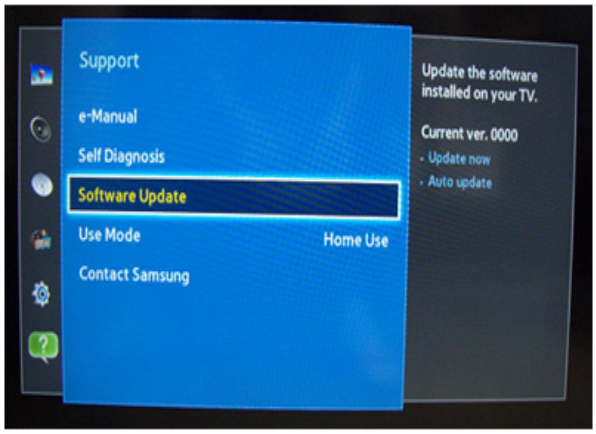
- Current Version - The software already installed in the TV.

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

4-6-1. How to Check the Software Version

■ Use the Main Menu

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



■ Use the Factory Mode

Option
Control
Debug
SVC
ADC/WB
Advanced

T-NT14LDEUC-xxxx.x
T-NT14LDEUS-xxxx
E-Manual : NLDVBEUxH-xxxx
EDID SUCCESS
CALIB : AV/COMP/PC/HDMI/
Option : 40A6AF0V,EU_UK,5000,NONE

DTP-SDAL-NT14L-MAIN-xxxx-xxxx

RFS:"NT14L xxxx" K/20xx-xx-xx
KERNEL:xxxx.xxxx,/Onboot: xxxx
TCON Version:----
NSP-DTVTD-xxxx

Model: UE40H5000
Wireless MAC ----
CIP FAIL
Factory Data Ver:xxx
EERC Version: xxx
NSP-BP-HAL-xxxx
NSP-AP-CNC-xxxx
NSP-AP-MM-xxxx

NSP-BP-MW-xxxx
NSP-BP-APP-xxxx
NSP-PNG-xx-xxxx
Date of purchase:-/-/----

4-6-2. 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

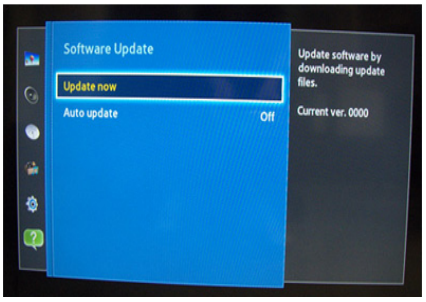
1. Store the sw program named "T-NT14LDEUC" in USB memory stick.

- Connect the USB.

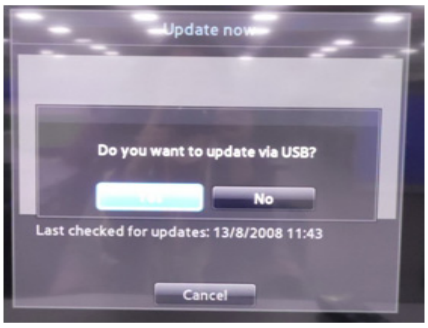
2. Click the "MENU" key in Remote Controler.

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

4. Locate the menu cursor "Update now" menu.



5. Click the "ENTER" key.

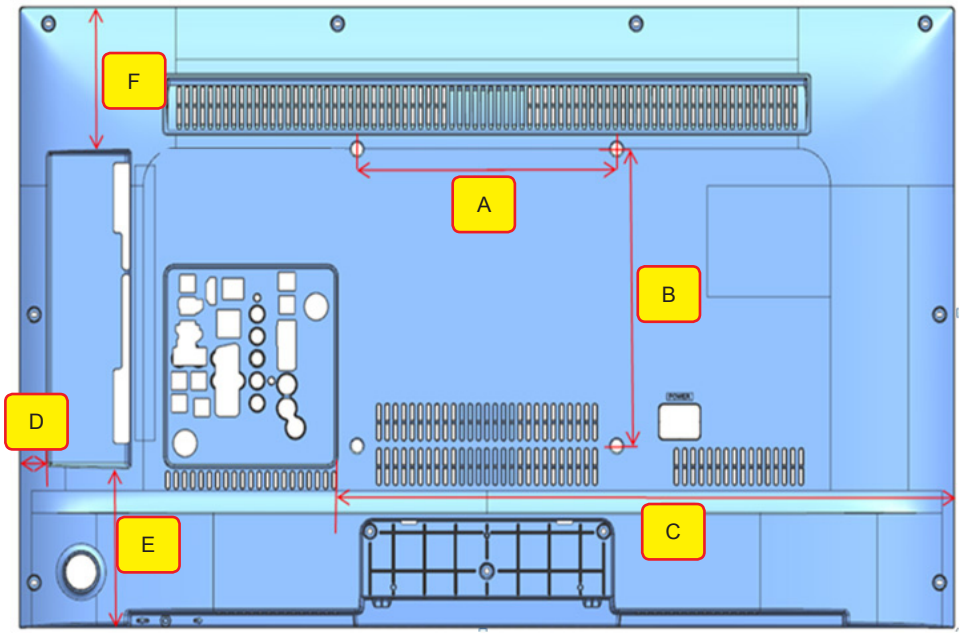


6. Click the "ENTER" key.

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

4-7. Rear Cover Dimension

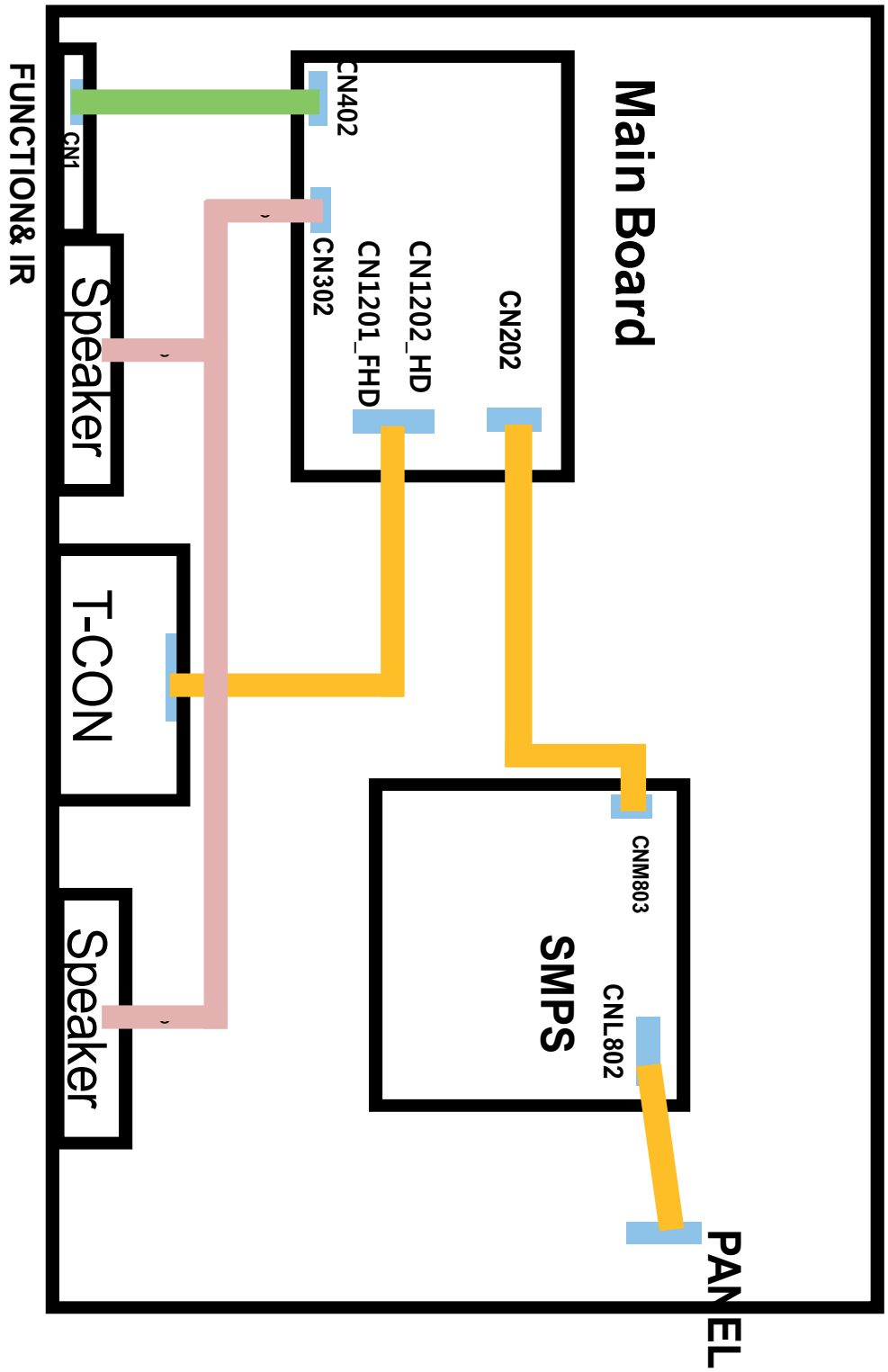
■ UE**H50*0



Rear Cover Dimension	H5000				
	22"	32"	40"	48"	50"
A	75	200	200	400	400
B	75	200	200	400	400
C	218	477.8	620.9	768.07	821.2
D	8.6	23.8	32	41.45	32.1
E	80	110	194.5	222.06	206.7
F	80	98.5	115.8	184.83	221.9

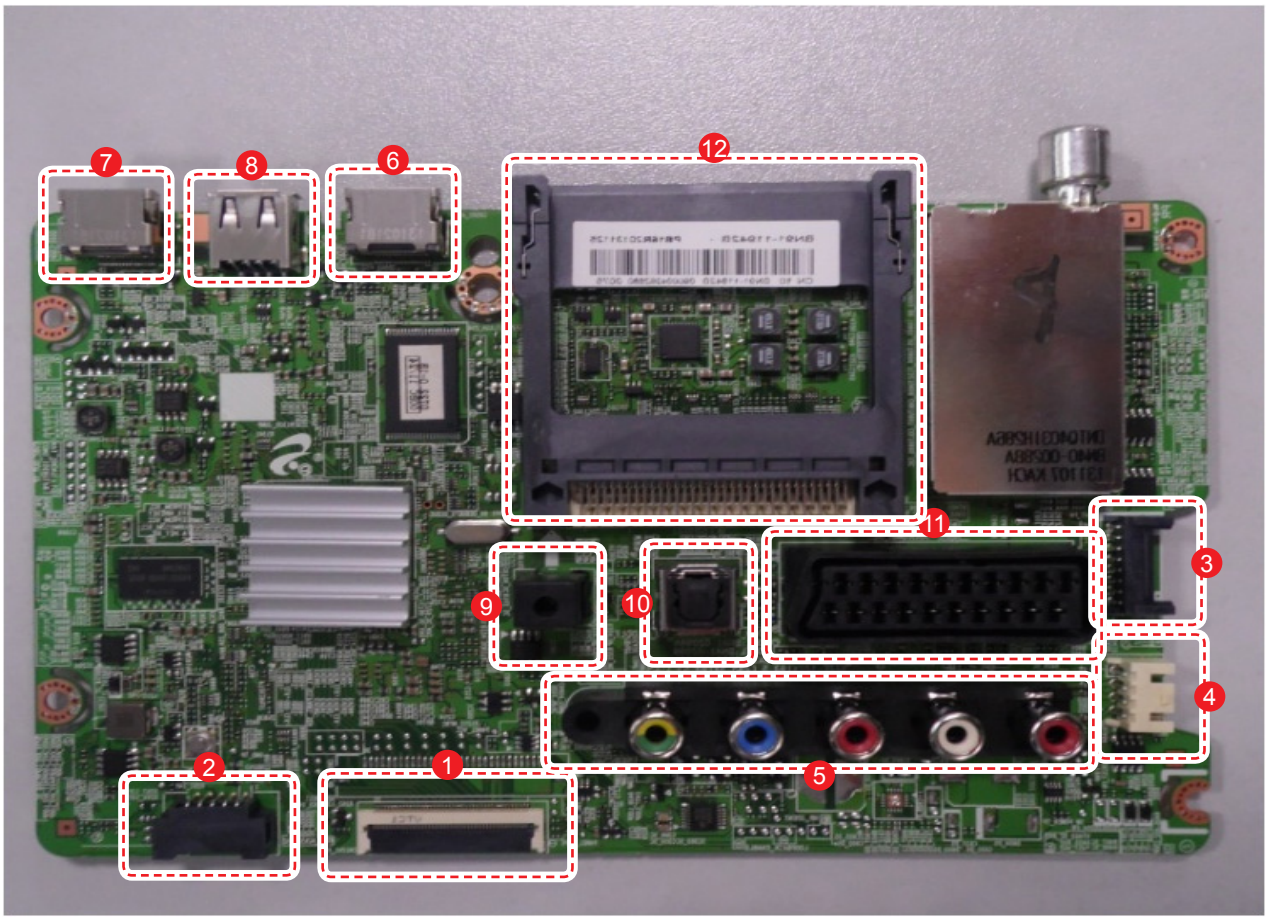
5. Wiring Diagram

5-1. Wiring Diagram



5-2. Connector

■ Main Board



❶ CN1201_FHD (to Panel)			
1	NC	14	EVEN_TX4+_LVDS
2	GND	15	EVEN_TX4-_LVDS
3	FRC_SDA	16	EVEN_TX3+_LVDS
4	PWM_DIM1_FRC	17	EVEN_TX3-_LVDS
5	FRC_SCL	18	GND
6	FRC_NRESET	19	EVEN_TXCLK+_ LVDS
7	LVDS_FORMAT	20	EVEN_TXCLK-_ LVDS
8	TCON_SDA	21	GND
9	TCON_WP	22	EVEN_TX2+_LVDS
10	NC	23	EVEN_TX2-_LVDS
11	UPDATE_CHECK	24	EVEN_TX1+_LVDS
12	TCON_SCL	25	EVEN_TX1-_LVDS
13	GND	26	EVEN_TX0+_LVDS

❶ CN1201_FHD (to Panel)			
27	EVEN_TX0-_LVDS	40	ODD_TX1-_LVDS
28	GND	41	ODD_TX0+_LVDS
29	ODD_TX4+_LVDS	42	ODD_TX0-_LVDS
30	ODD_TX4-_LVDS	43	GND
31	ODD_TX3+_LVDS	44	GND
32	ODD_TX3-_LVDS	45	GND
33	GND	46	NC
34	ODD_TXCLK+_ LVDS	47	Panel_13V_PW
35	ODD_TXCLK-_ LVDS	48	Panel_13V_PW
36	GND	49	Panel_13V_PW
37	ODD_TX2+_LVDS	50	Panel_13V_PW
38	ODD_TX2-_LVDS	51	Panel_13V_PW
39	ODD_TX1+_LVDS		

❷ CN202 (to Power board)			
1	GND	6	SW_POWER_TO_SMPS
2	GND	7	A13V
3	A13V	8	PWM_DIM
4	GND	9	A13V
5	A13V	10	UNDER_DRIVER

❸ CN402 (FUNCTION)			
1	IR	5	MSDA
2	GND	6	KEY_INPUT1
3	A3.3V	7	KEY_INPUT2
4	MSCL	8	LED_STB

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

❺ CN404_COMP(COMPONENT)			
1	GND	9	TEST_PR
2	COMP1_Y_CVBS	10	GND
3	IDENT_VIDEO1	11	COMP1_AV1_SL_IN
4	GND	12	TEST_SL
5	COMP1_PB	13	GND
6	IDENT_COMP1	14	COMP1_AV1_SR_IN
7	GND	15	TEST_SR
8	COMP1_PR		

❻ CN501_H1 (HDMI1)			
1	HDMI1_RX2+	11	GND
2	GND	12	HDMI1_RXCLK-
3	HDMI1_RX2-	13	CEC
4	HDMI1_RX1+	14	NC
5	GND	15	HDMI1_SCL
6	HDMI1_RX1-	16	HDMI1_SDA
7	HDMI1_RX0+	17	GND
8	GND	18	HDMI1_5V
9	HDMI1_RX0-	19	STB_CHECK
10	HDMI1_RXCLK+		

❼ CN502_H2 (HDMI2)			
1	HDMI2_RX2+	11	GND
2	GND	12	HDMI2_RXCLK-
3	HDMI2_RX2-	13	CEC
4	HDMI2_RX1+	14	NC
5	GND	15	HDMI_SCL
6	HDMI2_RX1-	16	HDMI_SDA
7	HDMI2_RX0+	17	GND
8	GND	18	5V
9	HDMI2_RX0-	19	STB_CHECK
10	HDMI2_RXCLK+		

❽ CN1101 (USB1)			
1	B5V_USB1	3	USB_DP
2	USB_DM	4	GND

❾ CN301(Headphone)			
1	GND	5	TEST_SR
2	SL_OUT	6	IDENT_HP
3	SR_OUT	7	GND
4	TEST_SL		

❿ OP301_OP (OPTICAL)			
1	SPDIF_OUT	3	GND
2	B5V		

⓫ CN401_SC (SCART)			
1	SC_SR_OUT	12	NC
2	SC_AV2_SR_IN	13	GND
3	SC_SL_OUT	14	GND
4	GND	15	SC_R
5	GND	16	SC_FB
6	SC_AV2_SL_IN	17	GND
7	SC_B	18	GND
8	IDENT_SC	19	SC_CVBS_OUT
9	GND	20	SC_AV2_CVBS_IN
10	NC	21	GND
11	SC_G		

12 CN1301_CI (PCMCIA)			
1	GND	35	GND
2	PCM_DATA[3]	36	PCM_CD1
3	PCM_DATA[4]	37	TSO_DATA[3]
4	PCM_DATA[5]	38	TSO_DATA[4]
5	PCM_DATA[6]	39	TSO_DATA[5]
6	PCM_DATA[7]	40	TSO_DATA[6]
7	PCM_CE1	41	TSO_DATA[7]
8	PCM_ADDR[10]	42	NC
9	PCM_OE	43	NC
10	PCM_ADDR[11]	44	PCM_IORD
11	PCM_ADDR[9]	45	PCM_IOWR
12	PCM_ADDR[8]	46	CH_START
13	PCM_ADDR[13]	47	CH_DATA[0]
14	PCM_ADDR[14]	48	CH_DATA[1]
15	PCM_WE	49	CH_DATA[2]
16	PCM_IRQA	50	CH_DATA[3]
17	VCC_CI_5V	51	VCC_CI_5V
18	VCC_CI_5V	52	VCC_CI_5V
19	CH_VALID	53	CH_DATA[4]
20	CH_CLK	54	CH_DATA[5]
21	PCM_ADDR[12]	55	CH_DATA[6]
22	PCM_ADDR[7]	56	CH_DATA[7]
23	PCM_ADDR[6]	57	TSO_CLK
24	PCM_ADDR[5]	58	PCM_RESET
25	PCM_ADDR[4]	59	PCM_WAIT
26	PCM_ADDR[3]	60	NC
27	PCM_ADDR[2]	61	PCM_REG
28	PCM_ADDR[1]	62	TSO_VALID
29	PCM_ADDR[0]	63	TSO_START
30	PCM_DATA[0]	64	TSO_DATA[0]
31	PCM_DATA[1]	65	TSO_DATA[1]
32	PCM_DATA[2]	66	TSO_DATA[2]
33	VCC_CI_5V	67	PCM_CD1
34	GND	68	GND

5-3. Connector Functions

Connector	Function
CN202 ↔ IP CN	Supply main power and dimming signal from SMPS to Main Board.
CN1201_FHD ↔ T-CON CNF1	The LVDS signal transfered from Main Board to Panel.