

Haier SERVICE MANUAL

LED LCD TV

Model No. 24D2000

MSD3393LAC Chassis



WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

©2014 Qingdao Haier Electronics Co., Ltd.
All rights reserved. Unauthorized copying and distribution is a violation of law.

CONTENTS

Chapter 1. General Information

1-1. Document Information	3
1-2. General Guidelines.....	3
1-3. Important Notice.....	3
1-3-1. Follow the regulations and warnings	3
1-3-2. Be careful to the electrical shock	3
1-3-3. Electro static discharge (ESD).....	3
1-3-4. About lead free solder (PbF).....	4
1-3-5. Use the genewing parts (specified parts)	4
1-3-6 Safety check after repairment.....	4
1-3-7. Ordering Spare Parts.....	6
1-3-8. Photo used in this manual	6
1-4. How to Read this Service Manual	6
Using icons	6

Chapter 2. Specification

2-1. Specification list.....	8
2-2. External pictures (four faces).....	9

Chapter 3. Disassemble and Assemble

3-1. 24D2000	11
3-1-1. Remove the Stand.....	11
3-1-2. Remove the Back Cabinet	11
3-1-3. Remove the Mainboard.....	11
3-1-4. Remove the Power Supply Module	11
3-1-5. Remove the Speaker.....	11
3-1-6. Remove the Remote Control Board	12
3-1-7. Remove the Key Board.....	12

Chapter 4. Location of Controls and Components

4-1. Board Location	13
4-2. Mainboard	14
4-2-1. Function Description	14
4-2-2. Connector definition	14
4-3. Power Supply Module	15
4-3-1. Function Description	15

4-3-2. Connector definition	15
4-4. LCD Panel	16

Chapter 5. Installation Instructions

5-1. Accessories	18
5-2. External Equipment Connections.....	19

Chapter 6. Operation Instructions

6-1. Front Panel Controls.....	20
6-2. Back Panel Controls	21
6-3. Setting Up Your Remote Control	22

Chapter 7. Electrical Parts

7-1. Block Diagram.....	23
7-2. Circuit Diagram.....	28

Chapter 8. Measurements and Adjustments

8-1. Service Mode	30
8-1-1.How to enter into Service Mode.....	30
8-1-2.How to exit	30
8-2. Measurements and Adjustments	30
8-2-1. The Main Menu	30
8-2-2. General Setting	31
8-2-3. Picture	31
8-2-4. Sound.....	32
8-2-5. Debug.....	32
8-2-6. ADC Adjust	32
8-2-7. Emc Setting.....	32
8-2-8. SW Information.....	32
8-2-9. Software Update(USB)	32
8-2-10. Init FAC Channel.....	32
8-2-11. Init TV.....	32
8-2-12. Burn Mode.....	32
8-3. Software Update	33
8-3-1. MSD3393LAC software update	33

Chapter 9. Trouble shooting

9-1. Simple check	34
9-2. Mainboard IC Introduction.....	35
9-3. Mainboard Failure Check.....	38
9-4. Pannel Failure.....	44

Chapter 1. General Information

1-1. Document Information

Document format: Adobe PDF

Author: Zhu Yapeng

Compiler:

1-2. General Guidelines

When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.

After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed.

After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.

- 1) Leakage Current Cold Check
- 2) Leakage Current Hot Check
- 3) Prevention of Electro Static Discharge (ESD) to Electrostatically Sensitive

1-3. Important Notice

1-3-1. Follow the regulations and warnings

Most important thing is to list up the potential hazard or risk for the service personnel to open the units and disassemble the units. For example, we need to describe properly how to avoid the possibility to get electrical shock from the live power supply or charged electrical parts (even the power is off).



This symbol indicates that high voltage is present inside. It is dangerous to make any kind of contact with any inside part of this product.



This symbol indicates that there are important operating and maintenance instructions in the literature accompanying the appliance.

1-3-2. Be careful to the electrical shock

To prevent damage which might result in electric shock or fire, do not expose this TV set to rain or excessive moisture. This TV must not be exposed to dripping or splashing water, and objects filled with liquid, such as vases, must not be placed on top of or above the TV.

1-3-3. Electro static discharge (ESD)

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such

components commonly are called Electrostatically Sensitive (ES) Devices. The following techniques should be used to help reduce the incidence of component damage caused by electrostatic discharge (ESD).

Electrostatically Sensitive (ES) Devices

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

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed to prevent potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.

1-3-4. About lead free solder (PbF)

This product is manufactured using lead-free solder as a part of a movement within the consumer products industry at large to be environmentally responsible. Lead-free solder must be used in the servicing and repairing of this product.

1-3-5. Use the genewing parts (specified parts)

Special parts which have purposes of fire retardant (resistors), high-quality sound (capacitors), low noise (resistors), etc. are used.

When replacing any of components, be sure to use only manufacture's specified parts shown in the parts list.

Safety Component

- Components identified by mark have special characteristics important for safety.

1-3-6 Safety check after repairment

Confirm that the screws, parts and wiring which were removed in order to service are put in the original positions, or whether there are the positions which are deteriorated around the serviced places serviced or not. Check the insulation between the antenna terminal or external metal and the AC cord plug blades. And be sure the safety of that.

General Servicing Precautions

1. Always unplug the receiver AC power cord from the AC power source before:
 - a. Removing or reinstalling any component, circuit board module or any other receiver assembly.
 - b. Disconnecting or reconnecting any receiver electrical plug or other electrical connection.
 - c. Connecting a test substitute in parallel with an electrolytic capacitor in the receiver.

CAUTION: A wrong part substitution or incorrect polarity installation of electrolytic capacitors may result in an explosion hazard.

2. Test high voltage only by measuring it with an appropriate high voltage meter or other voltage measuring device (DVM, FETVOM, etc) equipped with a suitable high voltage probe.

Do not test high voltage by "drawing an arc".

3. Do not spray chemicals on or near this receiver or any of its assemblies.
4. Unless specified otherwise in this service manual, clean electrical contacts only by applying the following mixture to the contacts with a pipe cleaner, cotton-tipped stick or comparable non-abrasive applicator; 10% (by volume) Acetone and 90% (by volume) isopropyl alcohol (90%-99% strength).

CAUTION: This is a flammable mixture.

Unless specified otherwise in this service manual, lubrication of contacts is not required.
Capacitors may result in an explosion hazard.

5. Do not defeat any plug/socket B+ voltage interlocks with which receivers covered by this service manual might be equipped.
6. Do not apply AC power to this instrument and/or any of its electrical assemblies unless all solid-state device heat sinks are correctly installed.
7. Always connect the test receiver ground lead to the receiver chassis ground before connecting the test receiver positive lead.

Always remove the test receiver ground lead last. Capacitors may result in an explosion hazard.

8. Use with this receiver only the test fixtures specified in this service manual.

CAUTION: Do not connect the test fixture ground strap to any heat sink in this receiver.

9. Remove the antenna terminal on TV and turn on the TV.
10. Insulation resistance between the cord plug terminals and the external exposure metal should be more than Mohm by using the 500V insulation resistance meter.
11. If the insulation resistance is less than M ohm, the inspection repair should be required. If you have not the 500V insulation resistance meter, use a Tester. External exposure metal: Antenna terminal Headphone jack.

12. Use only a grounded-tip soldering iron to solder or unsolder ES devices.

13. Use only an anti-static type solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ES devices.

14. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.

15. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it.

(Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).

16. Immediately before removing the protective material from the leads of a replacement ES device, 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.

17. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device.)

1-3-7. Ordering Spare Parts

Please include the following informations when you order parts. (Particularly the Version letter)

1. Model number, serial number and software version

The model number and serial number can be found on the back cover of each product. Software version can be found in the Spare Parts List.

2. Spare part No. and description

Spare part No. and description can be found in the Spare Parts List.

1-3-8. Photo used in this manual

The illustration and photos used in this Service Manual may not base on the final design of products, which may differ from your products in some way.

1-4. How to Read this Service Manual

Using icons

Icons are used to attract the attention of the reader to specific information. The meaning of each icon is described in the table below:



Note:

A "note" provides information that is not indispensable, but may nevertheless be valuable to the reader, such as tips and tricks.

Caution:

A “caution ” is used when there is danger that the reader, through incorrect manipulation, may damage equipment, loose data, get an unexpected result or has to restart(part of) a procedure.

**Warning:**

A “warning” is used when there is danger of personal injury.

Reference:

A “reference” guides the reader to other places in this binder or in this manual, where he/she will find additional information on a specific topic.

Chapter 2. Specification

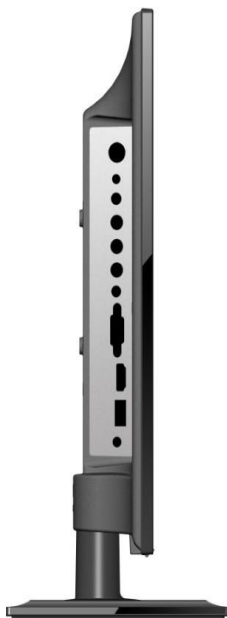
2-1. Specification list

Model	24D2000
Screen Size	23.6"
Aspect Ratio	16:9
Resolution	1366x768
Brightness (cd/m ²)	180
Contrast	600:1
Response Time (ms)	3.7
Angel of View	H:150°, V:140°
Color Display	16.7M
OSD Language	English,French,Spanish.
Color System	NTSC
Audio System	M/N
Audio Output Power (Built-in) (W)	2.3W×2
Audio Output Power (outer) (W)	No
Total Power Input (W)	40W
Voltage Range (V)	AC100V~240V
Power Frequency (Hz)	50~60Hz
Time of Sleep Timer (MINS)	240Min
Net Weight (KG)	3.26
Gross Weight (KG)	4.53
Net Dimension (MM)	562×389.3×176.5
Packaged Dimension (MM)	619×123×445

2-2. External pictures (four faces)



Front Side



Left Side



Right Side

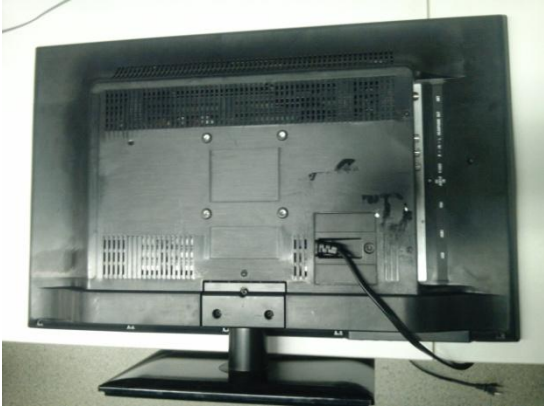


Back Side

Chapter 3. Disassemble and Assemble

3-1. 24D2000

3-1-1. Remove the Stand



1. Lay down the TV set .
2. Remove the three screws from the stand which in the picture above.
3. Remove the stand.



3-1-2. Remove the Back Cabinet



1. Remove the five screws indicated with red circles.
2. Flip machine, panel side up.
3. Carefully raise the Front shell from bottom.

3-1-3. Remove the Mainboard

1. Remove the three screws indicated with red circles.
2. Remove the Mainbord.



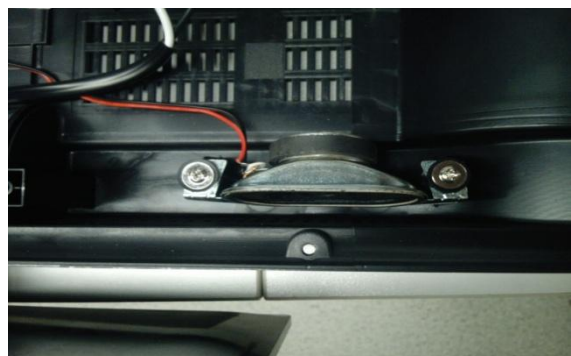
3-1-4. Remove the Power Supply Module



1. Remove the four screws indicated with red circles in below picture.
2. Remove the Power Supply Module.

3-1-5. Remove the Speaker

Remove the Speaker indicated by red circle in below picture.



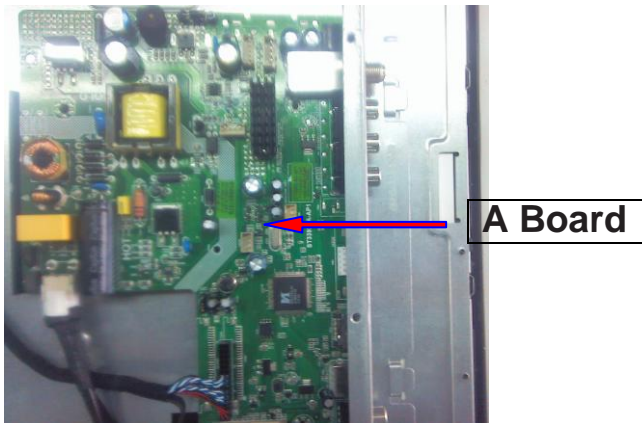
3-1-6. Remove the Remote Control Board And the Key Board

Remove the Remote Control Board indicated by red circle in below picture.



Chapter 4. Location of Controls and Components

4-1. Board Location



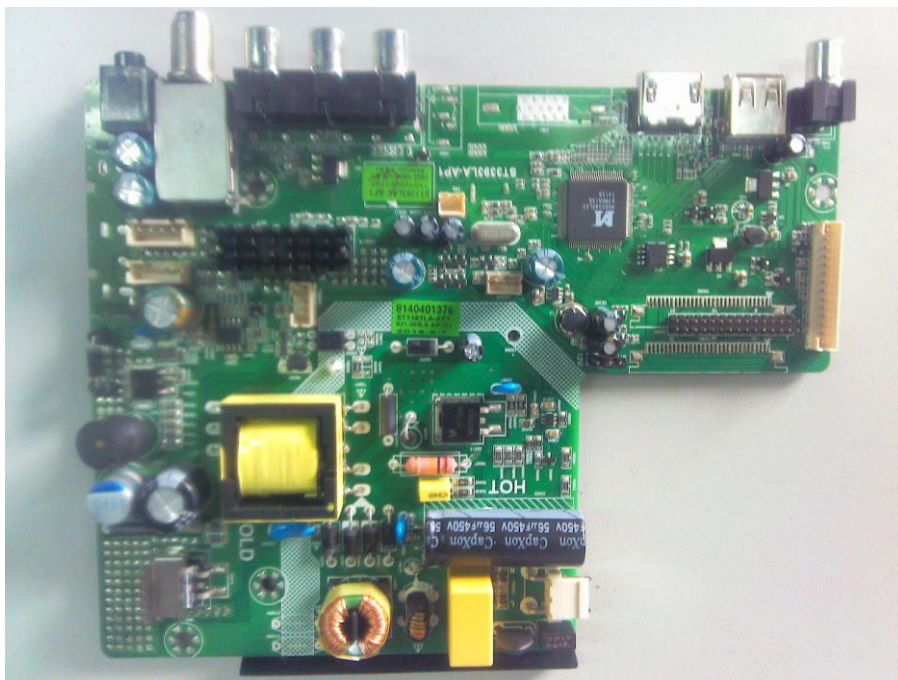
No.	Model	Description
A Board	DH1TK0M0102M	Main Board
B Panel	6047090070	LCD Panel

4-2. Mainboard

4-2-1. Function Description

Process signal which incept from exterior equipment then translate into signal that panel can display.

4-2-2. Connector definition

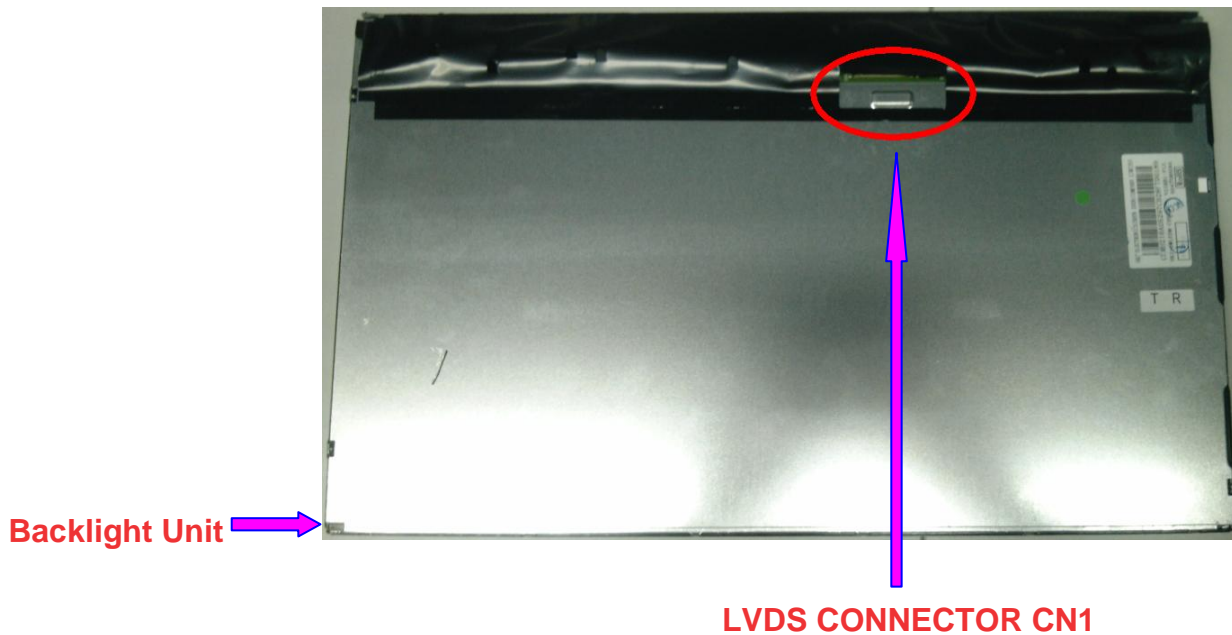


IR & Key connector CN4	
Pin number	Signal name
1	5V
2	RED
3	GRE
4	IR
5	GND
6	K0
7	K1
8	K2
9	K3
10	K4
11	K5
12	K6
13	K7
14	GND

Speaker connector CN502	
Pin number	Signal name
1	L+
2	GND
3	GND
4	R+

4-4. LCD Panel

24D2000



Connector Definition

Backlight Unit

Pin No	Symbol	Description
1	IRLED1	Cathode
2	IRLED2	Cathode
3	IRLED3	Anode
4	IRLED4	Anode
5	IRLED5	Cathode
6	IRLED6	Cathode

TFT LCD Module

Pin	Name	Description
1	VCC	+12.0V power supply
2	VCC	+12.0V power supply
3	VCC	+12.0V power supply
4	VCC	+12.0V power supply
5	GND	Ground
6	GND	Ground
7	GND	Ground
8	NC	No connection
9	SELLVDS	Select LVDS Format
10	NC	NC
11	GND	Ground
12	RX0-	Negative LVDS differential data input. Channel 0
13	RX0+	Positive LVDS differential data input. Channel 0
14	GND	Ground
15	RX1-	Negative LVDS differential data input. Channel 1
16	RX1+	Positive LVDS differential data input. Channel 1
17	GND	Ground
18	RX2-	Negative LVDS differential data input. Channel 2
19	RX2+	Positive LVDS differential data input. Channel 2
20	GND	Ground
21	RXLCK-	Negative LVDS differential clock input.
22	RXCLK+	Positive LVDS differential clock input.
23	GND	Ground
24	RX3-	Negative LVDS differential data input. Channel 3
25	RX3+	Positive LVDS differential data input. Channel 3
26	GND	Ground
27	NC	Not connection
28	SCL	I2C clock (For Vcom tuning)
29	SDA	I2C data (For Vcom tuning)
30	GND	Ground

Chapter 5. Installation Instructions

5-1. Accessories



Remote Control



Batteries

5-2. External Equipment Connections

Antenna Connection

Connect your aerial to the back of the TV into the ANTENNA IN socket.

Improve Your Signal

To improve picture quality in a poor signal area, use a signal amplifier (not supplied).

Connect Your PC to the TV

You can use your TV as a monitor for your personal computer by connecting it with a VGA cable (not supplied).

- A Read your computer user guide and check it has a VGA connector.
- B Turn off your TV and PC.
- C Connect a D type 15-pin VGA interface cable to the VGA video interface connector on the PC. Connect the other end of the cable to the PC interface connector on the TV. Tighten the screws on the VGA connectors and connect the audio cable (not supplied) to the audio input socket on the back of the TV.
- D Turn on the TV firstly and then the PC.
- E Press the Source button on the TV or TV remote control to set the video input mode to PC.
- F Once the image shows, if there is noise present,

clutions, change the

h refresh rate to other rate or adjust the brightness and

a contrast on the menu until the picture is clear.

Connect a DVD Player or VCR to Your TV

There are two ways in which you can connect a DVD player or VCR to your TV. Make sure that both the TV and DVD player or VCR are switched off before you connect them.

HDMI Input

- A Connect the cable from the HDMI device to the TV HDMI socket.
- B Press the **SOURCE** button to select HDMI mode.
- C Refer to the HDMI device user guide for how to operate.

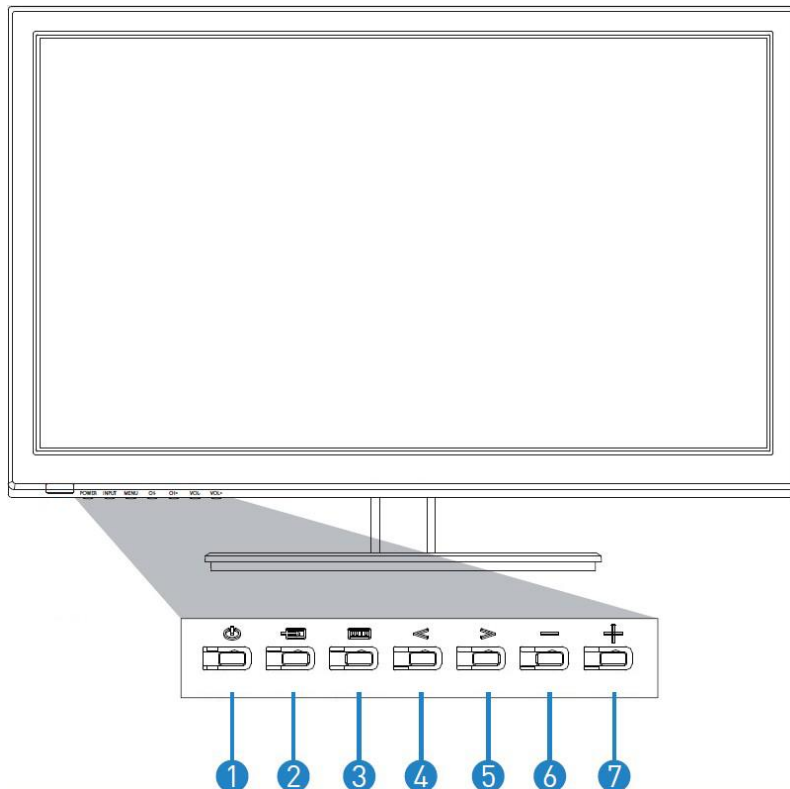
t

r

r
e
s
o

Chapter 6. Operation Instructions

6-1. Front Panel Controls



1	POWER	Press to turn the TV on and off.
2	INPUT	Toggles between all the available input sources.
3	MENU	Press to select the main menu.
4	CH-	TV channel down.

5	CH+	TV channel up.
6	VOL-	Press to decrease the volume.
7	VOL+	Press to increase the volume.

6-2. Back Panel Controls



1	Coax	output
2	USB	input
3	HDMI	output
4		
5	AV	output
6		
7	RF	input
8	Earphone	output

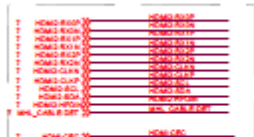
6-3. Setting Up Your Remote Control

When using the remote control, aim it towards the remote sensor on the TV.

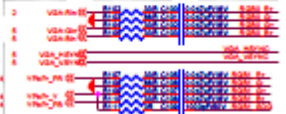


Item	Descriptions
	Press to turn the TV on or off. When your TV is off, power still flows through it. To completely disconnect power, unplug the power cord.
	Press to switch the sound on or off.
USB	Press to switch to USB input (USB multimedia mode).
CC	Press this key to select the CC ,ON or OFF mode and CC on Mute.
	Switch to the HDMI1(MHL) input, If the Roku Streaming Stick is connected, press this button to return to the Roku home screen.
INPUT	Press to open the input source list.
0~9 / • number	Press to enter a TV channel number (Press "." to choose the sub-channel).
RECALL	Press to switch to last viewed channel.
WIDE	Press to adjust the picture aspect ratio.
PICTURE	Press to switch the picture mode.
DISPLAY	Press to display the information window.
SLEEP	Press to set the sleep timer.
BACK	Return to the previous menu. If the Roku Streaming Stick is connected, press this button to go back to the previous screen.
OK	Enter the selected option or perform the selected operation.
	Use the arrow buttons to move around in menus.
MENU	Press to open or close the on-screen menu.
EXIT	Press to exit the menu or on screen display (OSD).
VOL+ / VOL-	Press VOL+ or VOL- to adjust volume level.
CH+ / CH-	Press CH+ or CH- to change TV channels.
CH.LIST	Press to display the Channel List.
FAVORITE	Press to display the Favorite List.
SAP	Press to switch sounds: SAP, Stereo, Mono for ATV, or switch audio language for DTV.
AUDIO	Press to switch the audio mode.
*	Enter electronic program guide. If the Roku Streaming Stick is connected, press this button to view more options.
PLAY	Press to start playing the MEDIA, or to pause playing.(Used for models with MEDIA function only).
REV	Press to fast reverse MP3 playback in Music mode.
FWD	Press to fast forward MP3 playback in Music mode.

HDMI Interface



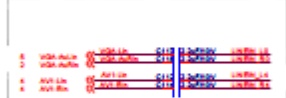
PC & YPbPr Interface



CVBS IN & OUT



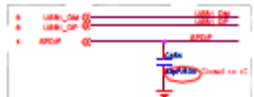
AUDIO IN



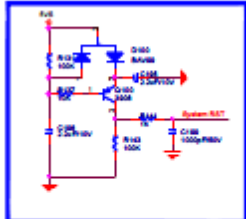
DIF IN



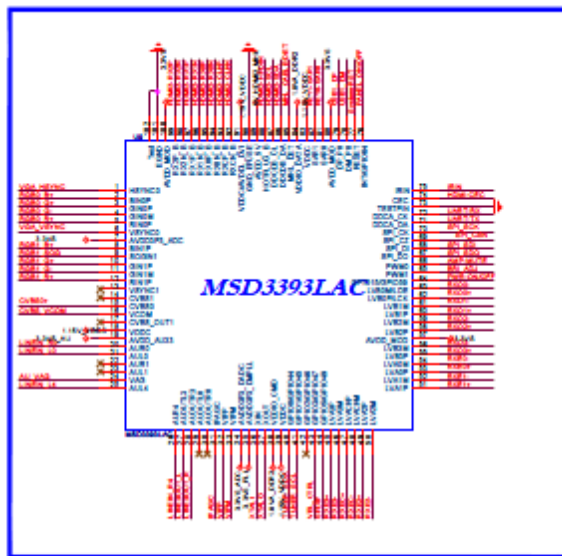
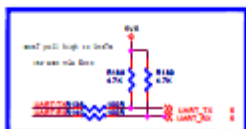
USB & SPDIF_OUT



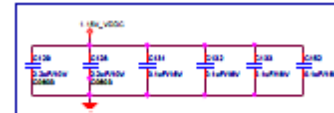
RESET



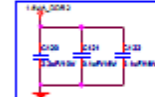
DEBUG



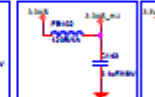
VDDC 1.20V



DDR2 1.8v



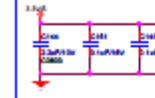
3.3v audio



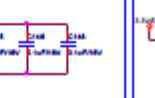
3.3v MPLL



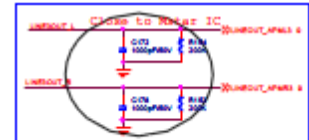
3.3v



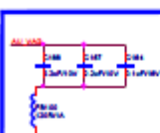
3.3v ADC



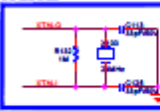
Audio Line Out



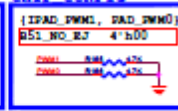
AGC



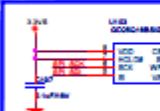
XTAL



CHIP CONFIG



FLASH

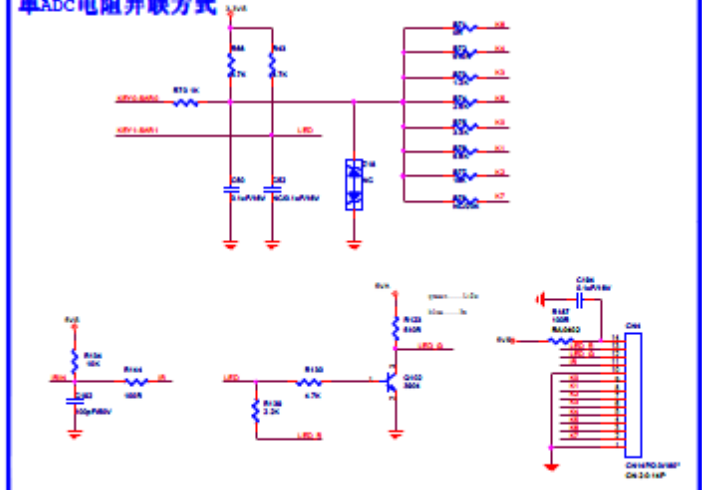


EXTERNAL IIC

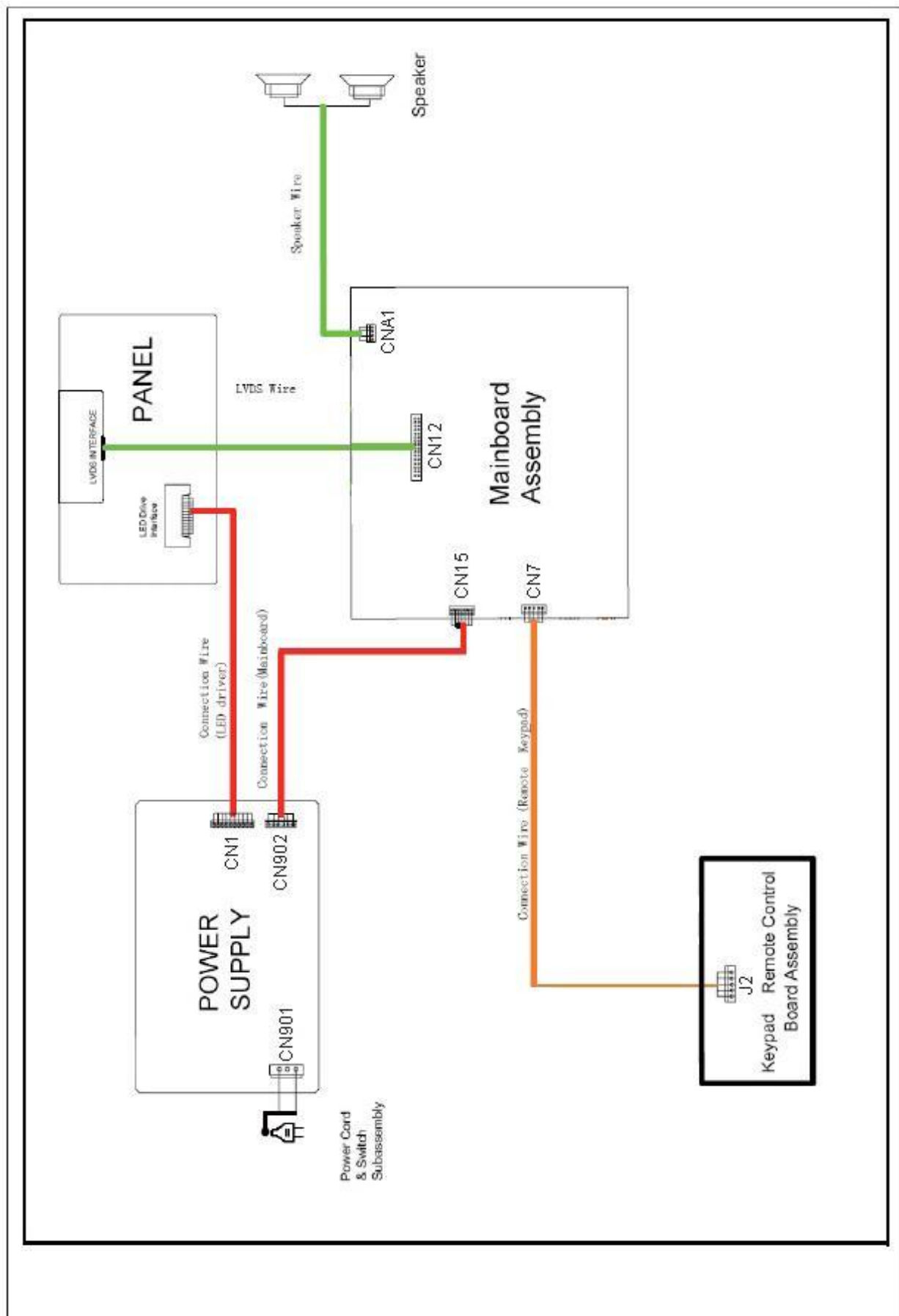


IR&KEY

单ADC电阻并联方式



7-2 . Wiring Connection Diagram



Chapter 8. Measurements and Adjustments

8-1. Service Mode

8-1-1.How to enter into Service Mode

The way to the factory mode menu:

Step 1: Press Menu,

Step 2: Input 1147,

System will be into the factory mode menu when 2 steps above are done.

At the end of the main factory menu, you can see the edition of the software,

like this" BUILD TIME 2013-05-25 19:50:41

VERSION v1.0".

8-1-2.How to exit

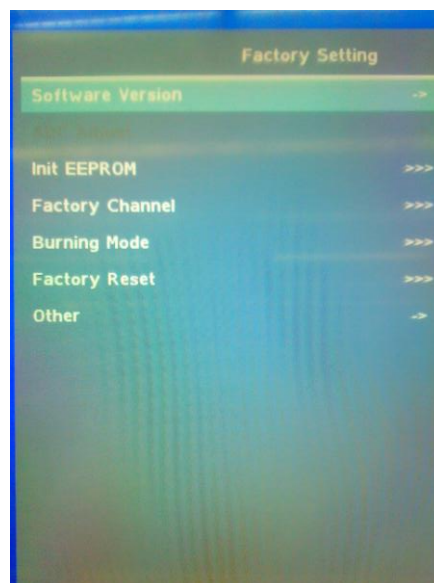
If you want to exit this factory menu, please press the button "Exit" on the remote.

system will be out the factory mode menu.

8-2. Measurements and Adjustments

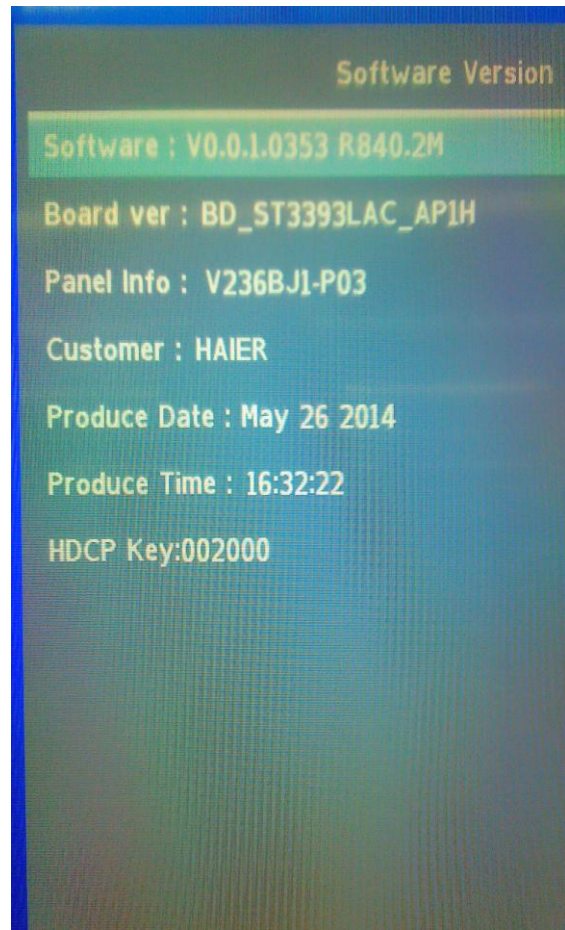
8-2-1. The Main Menu

In factory mode menu,press up/down button to choose the up/down item,press right or OK button to the submenu.press MENU button to go back.



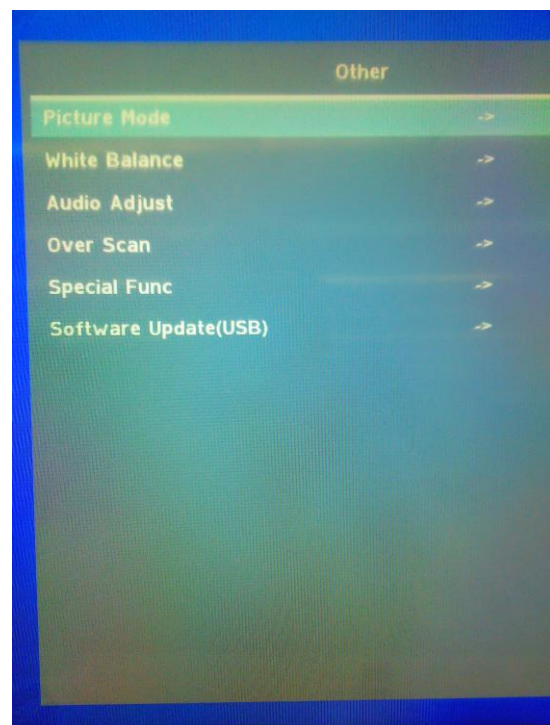
8-2-2. Software Version

- 1)Software
- 2)Board ver
- 3)Panel Info
- 4)Customer
- 5)Produce Date
- 6)Produce Time
- 7)HDCP Key



8-2-3. Other

- 1)Picture Mode
- 2)White Balance
- 3)Audio Adjust
- 4)Over Scan
- 5)Special Func
- 6)Software Update(USB)



8-2-4. Picture Mode

- 1) Picture Mode
- 2) INPUT
- 3) NON Linert
- 4) Contrast
- 5) Brightness
- 6) Tint
- 7) Color
- 8) Sharpness

Picture Mode	
Picture Mode	Mild
INPUT	DTV
Non Liner	
Contrast	045
Brightness	040
Tint	000
Color	050
Sharpness	050

8-2-5. White Blance

- 1) Color Temperature
- 2) Red Gain
- 3) Green Gain
- 4) Blue Gain
- 5) Red Offset
- 6) Green Offset
- 7) Blue Offset

White Balance	
Color Temperature	Cool
Red Gain	127
Green Gain	128
Blue Gain	134
Red Offset	128
Green Offset	128
Blue Offset	128

8-3. Software Update

8-3-1. MSD3393LAC software update

1. Copy the software files to a USB disk on the root directory;



MERGE3393.rar



MERGE3393.bin

2. Insert the USB disk when the AC power is off;
3. Turn on the AC power in turn to begin;
4. Turn off the AC power until the indicator light do not twinkling;
5. Pull out the USB disk and power on the television.

Note:

Do not turn off the TV while it is updating.

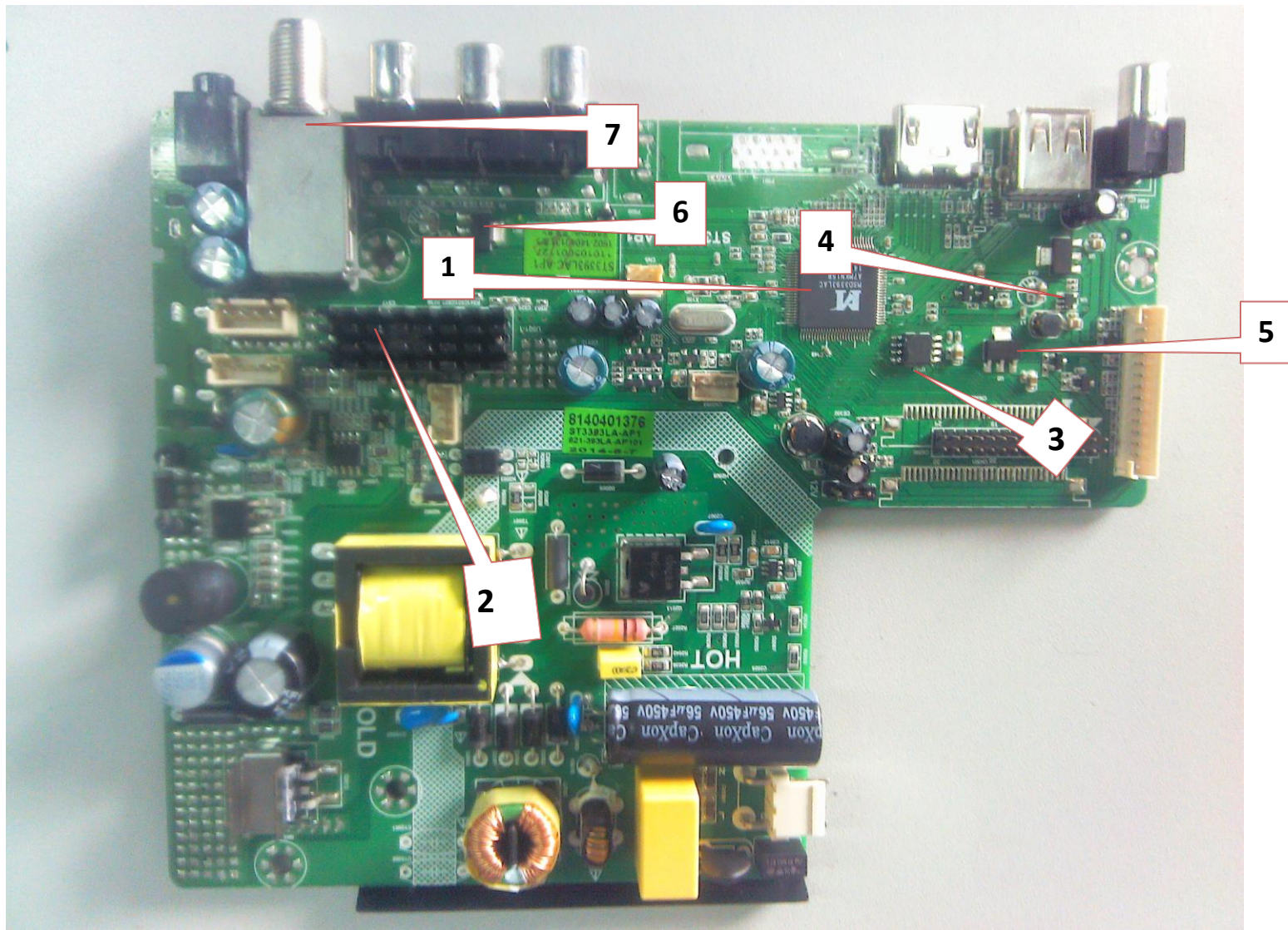
Chapter 9. Trouble shooting

9-1. Simple check

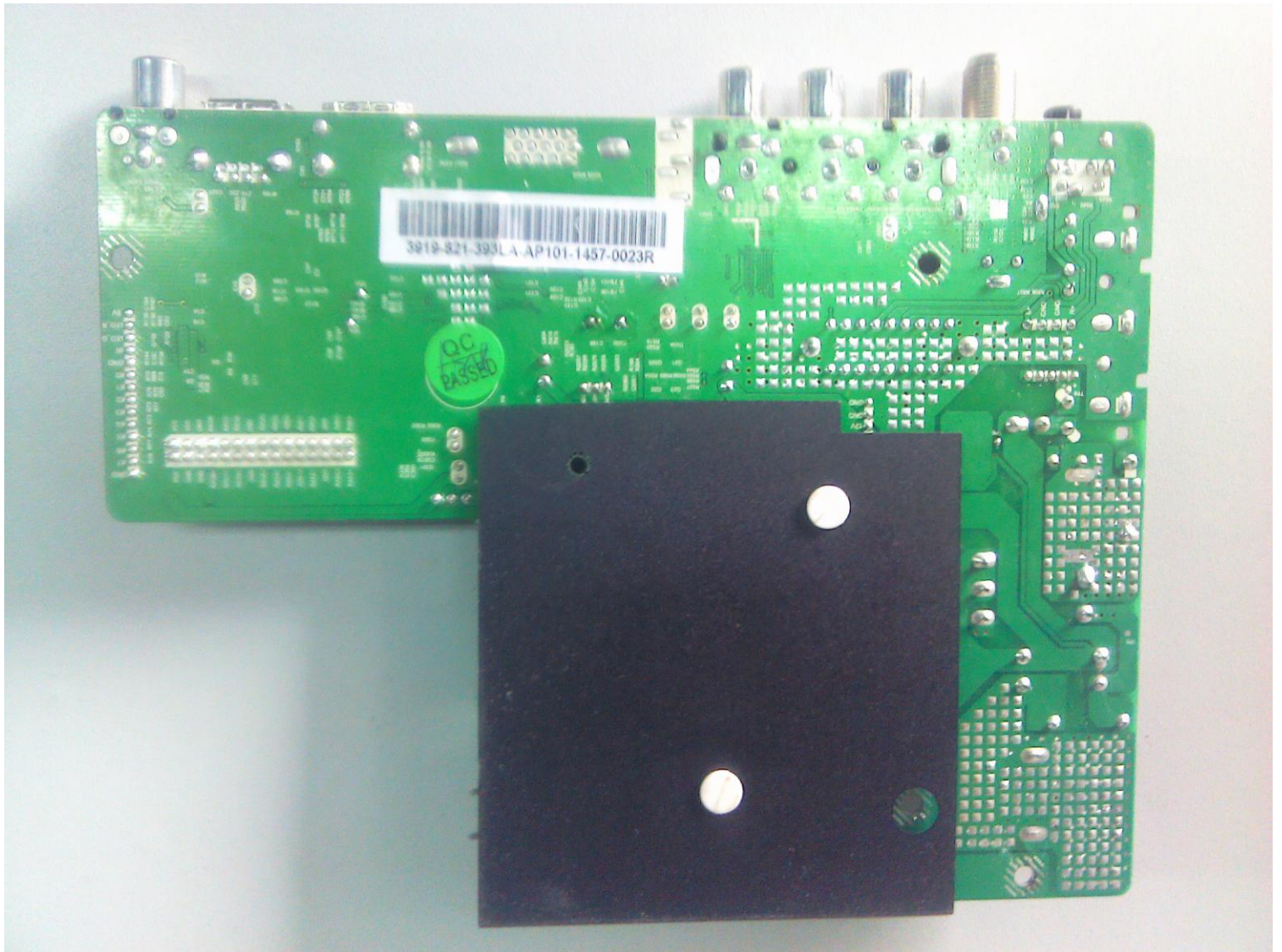
No picture/ No sound	<p>Verify if the television is properly plugged</p> <p>Verify if the television is properly supplied power</p> <p>Verify if electricity is available.</p>
Blank screen	<p>Verify if correct signals are input</p> <p>Press SOURCE button to change signal input to TV input</p> <p>Restart the television if power supply is interrupted</p>
No sound	<p>Press the MUTE button and verify that Mute mode is active.</p> <p>Switch to another channel to check whether the same problem occurs.</p> <p>Press the VOL+ button to see if the problem can be solved.</p>
Poor sound	<p>Verify that the sound system is correct. Refer to the user manual for instructions on how to adjust it.</p>
No picture on some channel	<p>Verify if correct channel is selected.</p> <p>Adjust the antenna.</p> <p>Make adjustments by Fine Tune and MANUAL Scan.</p>
No color for some channel program (black and white)	<p>Verify that the same problem exists on other channels.</p> <p>Check the picture and sound systems.</p> <p>Refer to the relevant instructions in the manual to adjust the colour.</p>
Spots with some or all pictures	<p>Verify if the antenna is correctly connected.</p> <p>Verify if the antenna is in good condition.</p> <p>Make fine adjustment of channel.</p>
Television is not working	<p>Disconnect the television from the power supply for 10 seconds, then reconnect the television. If the problem persists, contact an authorised after-sales service provider for technical assistance.</p>
Television out of control	<p>Disconnect the television from power supply and 10 seconds later, connect the television to the power supply. If the problem still exists, contact authorized after-sales service for technical assistance.</p>

9-2. Mainboard IC Introduction

Top view



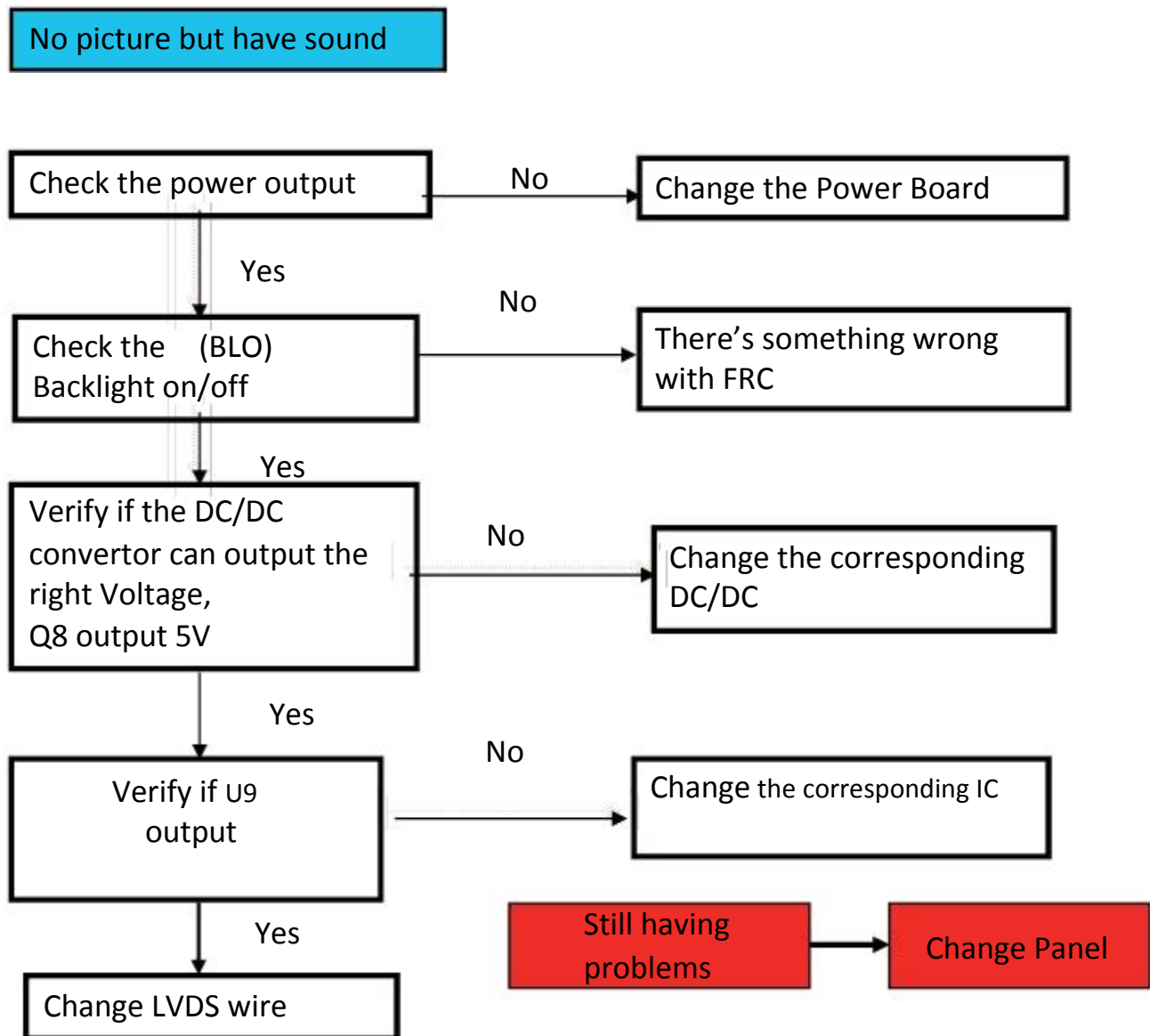
Bottom view



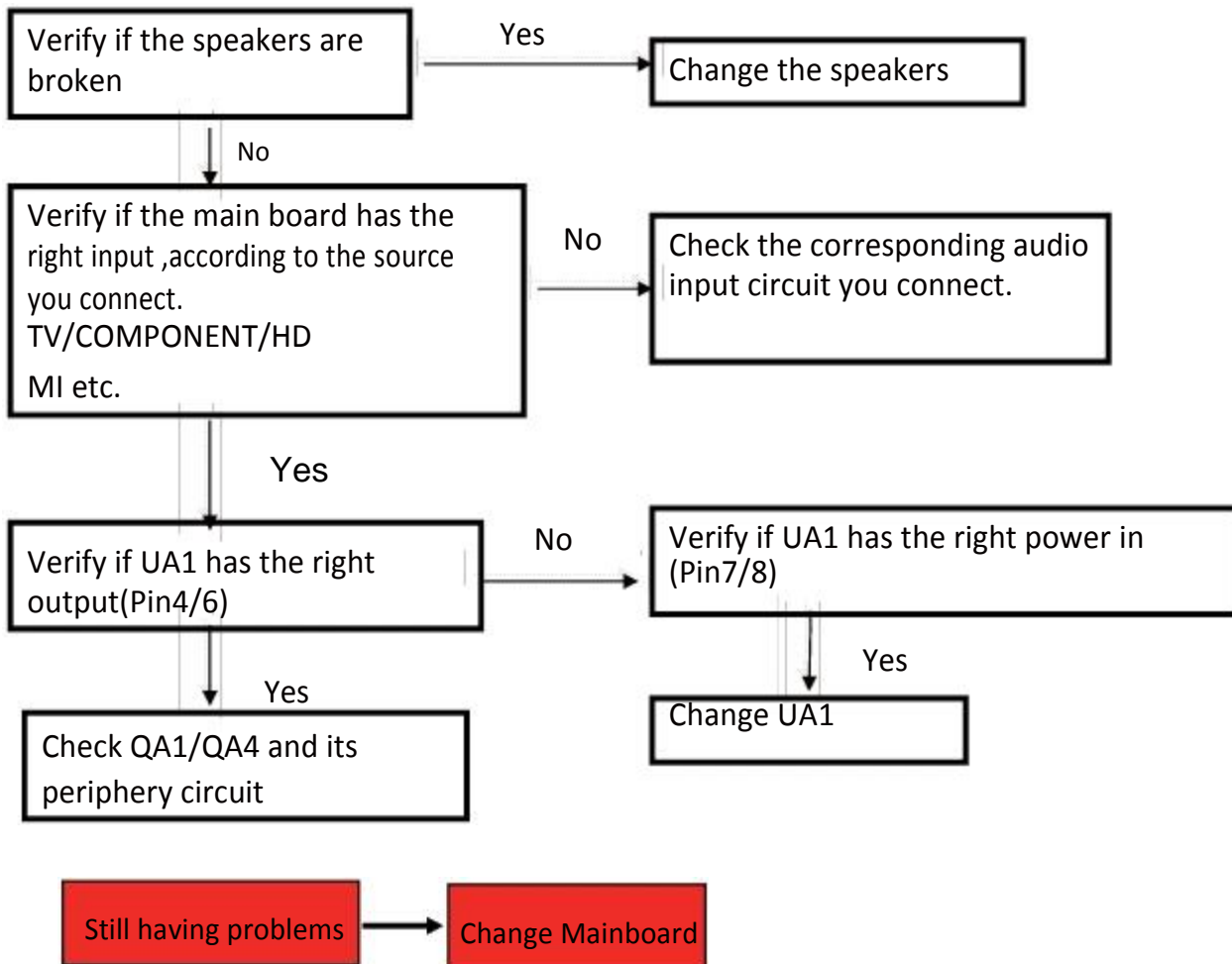
- 1.Mainchip—MSD3393LAC(U9)
2. Audio Amplifier—YD1517P(F) (U501)
- 3.Main Flash Memory—GD25Q16BSIG (U102)
- 4.DC/DC convertor 5V-1.2V-(U4)
- 5.voltage convertor 5V to 3.3V_STB —(U2)
- 6.voltage convertor 5V to 3.3V for tuner— (U801)
- 7.Tuner —(P800)

Please check the Schematic Diagram for the particular support

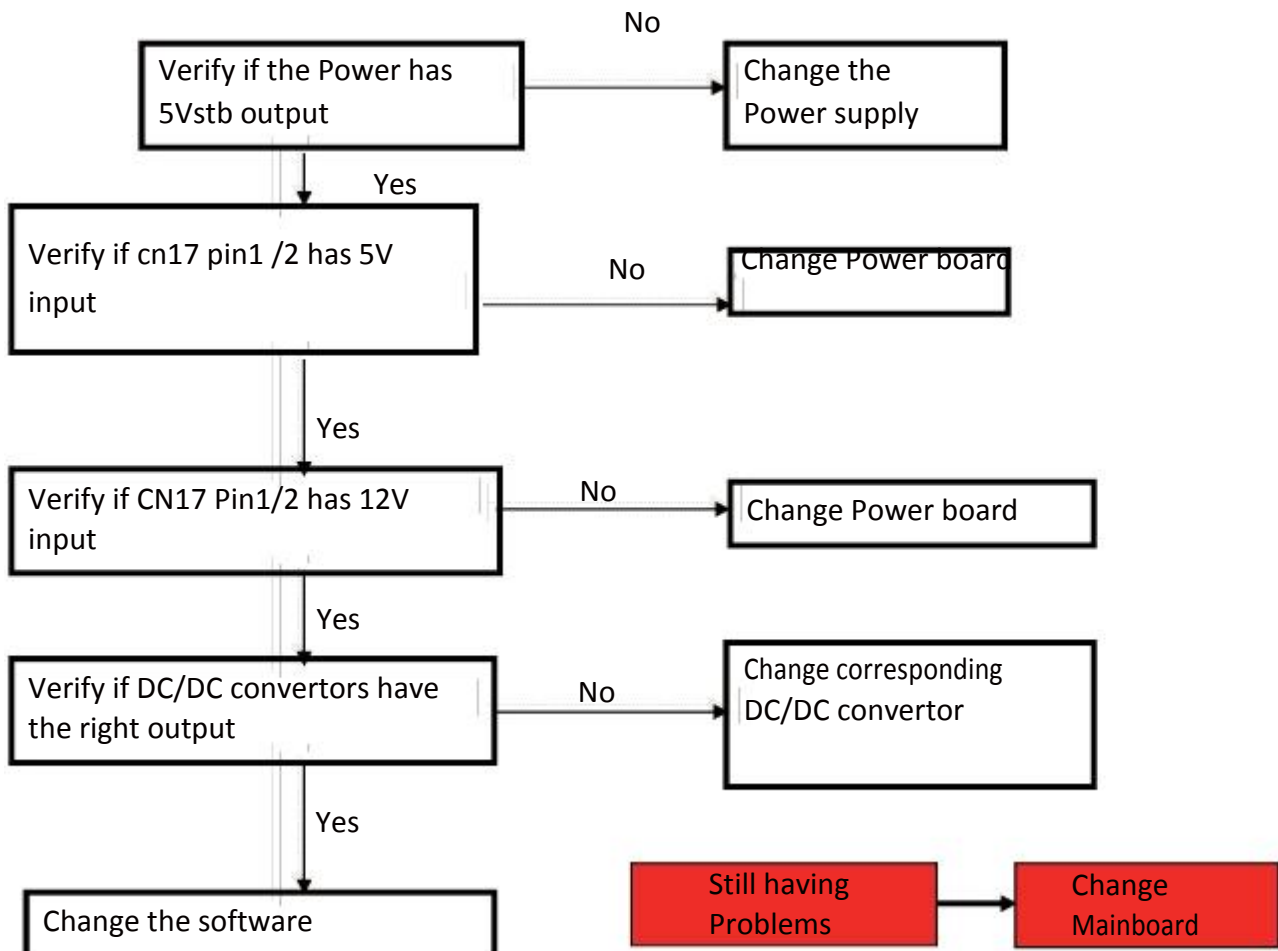
9-3. Mainboard Failure Check

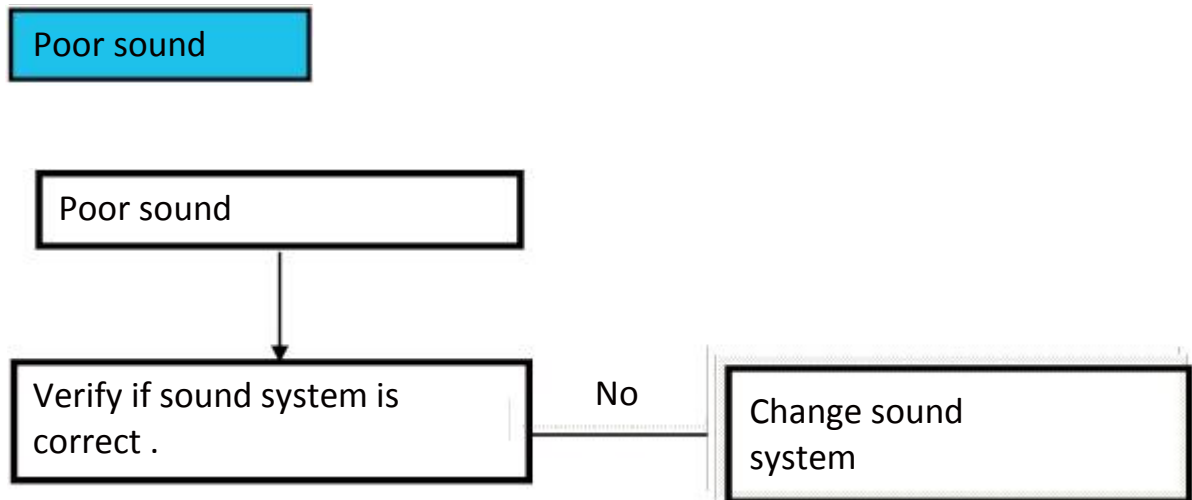


No sound but have picture

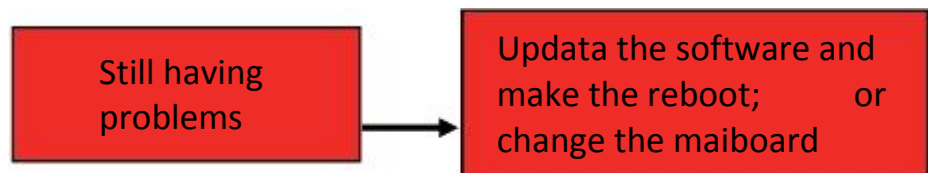


No sound No picture

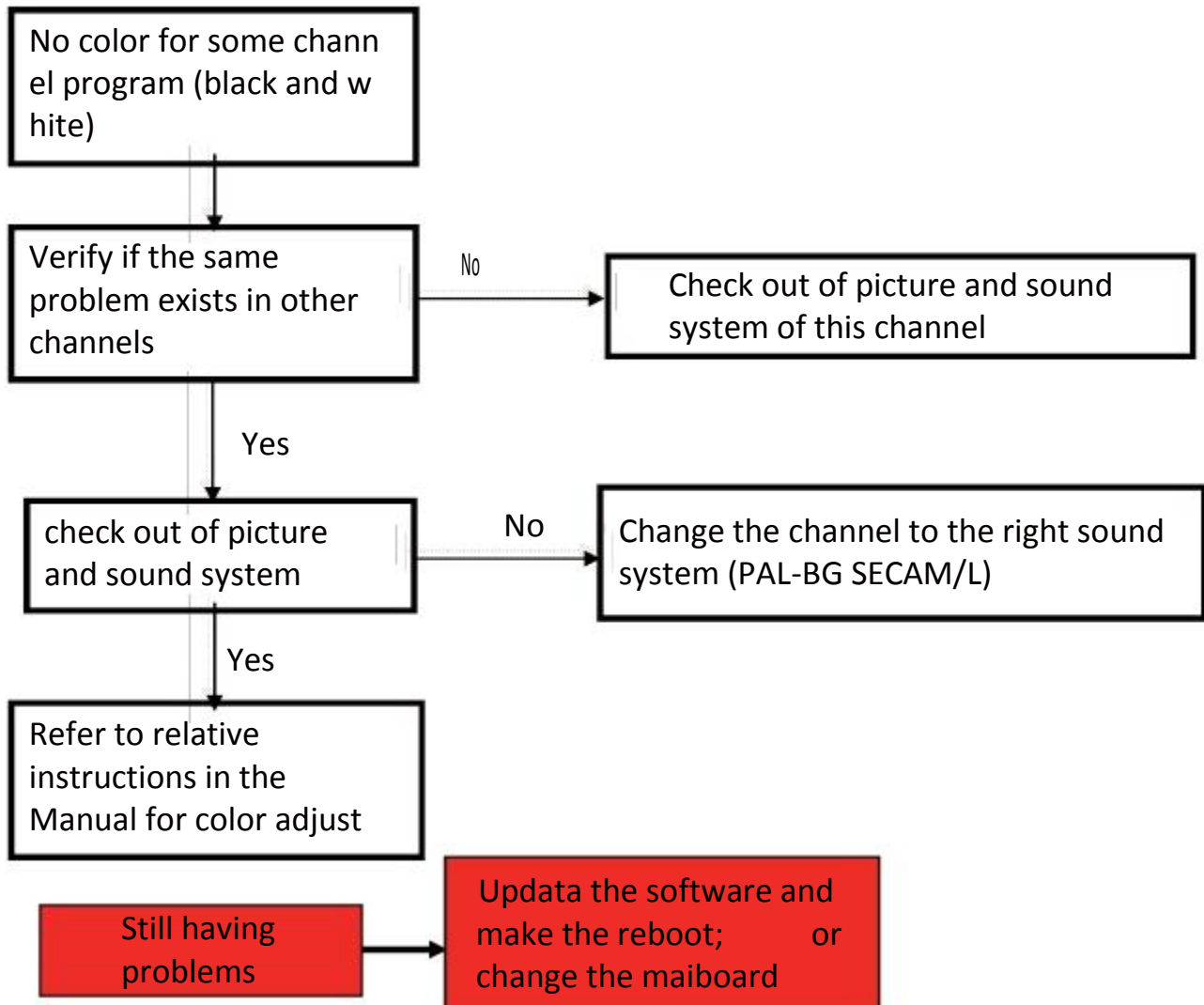




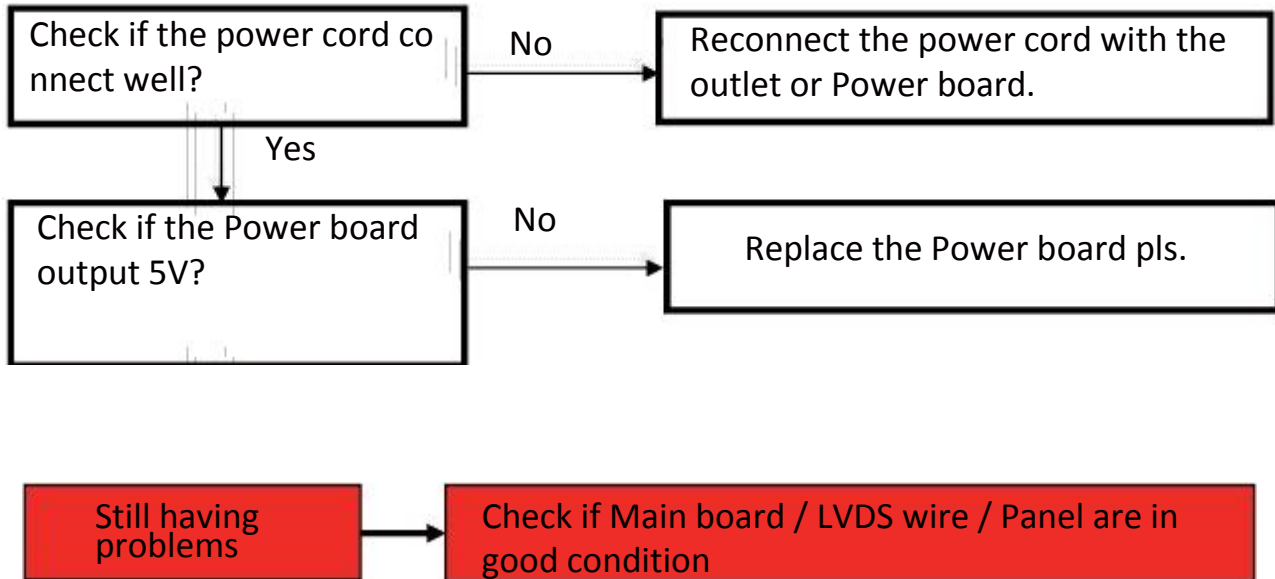
For ease of use, recommend that customer format the picture and sound settings in the automatic option.



No color for some channel program (black and white)




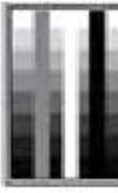

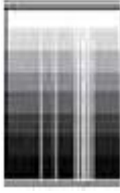
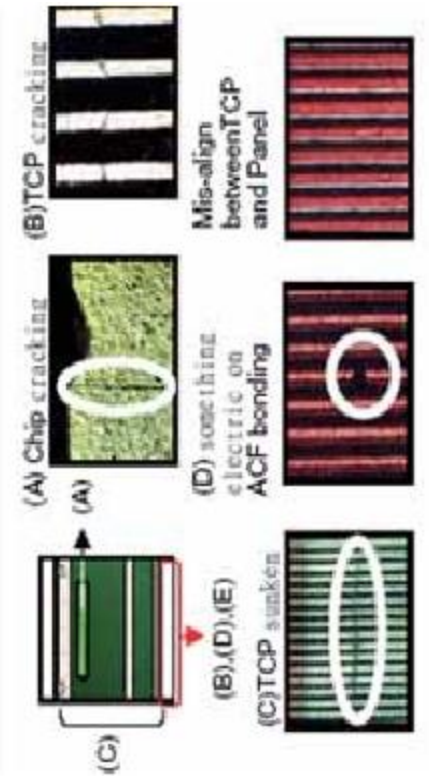


How to know whether the Power board is broken?







9-4. Pannel Failure





Failure Mode



Part	Name	Description	Phenomena	Failure cause
TCP	V B/D	Vertical bar		Block Defect :TCP cracking or cracking Dim or L/D :TCP Sunken :TCP lead cracking :ACF bonding short
	V Dim	Vertal gray line		:Awful environment and something electric enter into LCD
	V L/D	Vertical color line(light or dark forever)		:Mis-align between TCP and Panel :Panel failure :TCP failure
	H B/D	Horizontal bar		
	H Dim	Horizontal gary line		
	H L/D	Horizontal line(light or dark forever)		
				



Part	Name	Description	Phenomena	Failure Cause
Panel or Polarizer	Dot Defect	Bright dot dark dot in pannel		Incoming Inspection Standard
	Polarizer Bubble	Bladder in Polarizer		Bladder between Polarizer and top glass
	Polarizer Scratch	Polarizer Scratch		Tine or rigidity arose
	F/inside Polarizer	Eyewinker inside Polarizer		Eyewinker inside Polarizer
Circuit	Abnormal Display	Abnormal Display		1. Chip lose action 2. IC ahort or jointiog bad 3. Pannel and vsc connect bad
	Flashing	Bright and dark display alternately		

Part	Name	Description	Phenomena	Failure Cause
	White Screen	B/L normal, only white screen display		Maybe caused by surge current and EDS
	Black Screen	B/L normal, only Black screen display		
Circuit	Flicker	Crosstalk		LCD Vcom imbalance
	Abnormal Color	Only color abnormal		Capacitance improper bring crosstalk inside LCD pannel
	Abnormal Color	Only color abnormal		1.Chip lose action 2.IC short or jointion bad 3.Pannel and vsc connect bad

Part	Name	Description	Phenomena	Failure cause
	Mechanical Noise	When turn panel, appear cacophony		Caused by Mechanica noise of backlight unit
	Ripple	Connectric circle		Caused by between mechanism and pannel
	B/L off	B/L lose action		*Connect badness between wire and electrode
	B/L dark	B/L brightness darker than normal		*Connect badnessShort between wire and electrode
	B/L wire damaged	B/L wire damaged		Operation abnormal or systemic noise
	B/L wire open	Without backlight		Operation abnormal or systemic noise
	B/L shut down	B/L shutdown in sometime		Short between lamp housing and wire, Because consume power too much
F/M	F/M	inB/L ,white,baick Rotundity or wirelike		F/M in B/L unit

Part	Name	Description	Phenomena	Failure Cause
Mechanical or B/L	Light leakage	Brightness at bottom of LCM brighter than normal		B/L unit badness
	Uniformity	B/L brightness asymmetric		Sheet in B/L unit is uneven
	Mount hole	Lack screw or screw damage		*Lack screw Screw damage

Sincere Forever



Haier Group

Haier Industrial Park, No.1, Haier Road
266101, Qingdao, China
<http://www.haier.com>