DK1005S service manual

first draft

Catalog

Chapter One About Maintenance

1.1 Safety precautions

1.1.1 Power supply

When maintenancepersonnel are repairing DVDplayers, he should payspecialattention to thepowerboard with 220V AC and330VDCwhich will cause hurtand damage topersons!

1.1.2 Precautions for antistatic

Movement and friction will both bringstatic electricitywhich causesserious damages tointegrated IC. Though static charge islittle, when a limited quantity of electric charge isadded to large-scaleintegrated IC, asthecapacitanceis very smallinthemeantime,nowtheintegrated IC is very mucheasytobe struckthroughbystaticelectricity or the performance will decrease.Thus static electricity prevention isofextraordinaryimportance.Thefollowingareseveral measuresto prevent staticelectricity:

1. Use a piece of electric conductionmetalwith thelength of about 2 metres toinsert into the earth, and fetch thelead wire from the top of thesurplus metalandconnect tothe required staticelectricity device. The length anddepth ofthe metal embedded under theearth should be determined according to thewettability of the localsoil. Forhumid places, itmaybeshorter, and longer and deeper fordry places. If possible, it can be distributedand layed in terms of "#" shape.
2. On operating table-board,theantistatic table cushion shouldbecoveredandgrounded.
3. Alldevices andequipments shouldbeplaced on theantistatic tablecushionand grounded.
4. Maintenance personnel should wear antistatic wrist ring which shouldbegrounded.
5. Placesaround theoperating position should also becovered with electric conductioncushionor paintedwith antistaticpaint.

1.1.3 Precautions for laser head

1. Do notstare at laser headdirectly, for laseremission will occur whenlaser head is working, whichwill hurt youreyes!
2. Do notuse wiping wateror alcohol to clean laserhead,andyoumayusecotton swab.

1.1.4 About placement position

1. Never place DVDplayerinpositions withhigh temperatureand humidity.
2. Avoid placing near high magneticfields, such as loudspeaker ormagnet.
3. Positions for placement should bestableand secure.

1.2 Maintenance method

1.2.1 Visualized method

Directlyview whether abnormalitiesof collision,lackofelement, joint welding, sheddingwelding, rosin joint, copper foilturningup,leadwiredisconnection and elementsburningup amongpinsofelements appear.Checkpower supply of themachine andthen usehandstotouchthe casingofpartof elements andcheck whether they arehotto judge the troublespot. You shouldpay more attention whenusingthis methodtocheckinhighvoltageparts.

1.2.2 Electric resistance method

Set the multimeterinresistance position and test whether the numericalvalue of resistance of eachpoint inthe circuit has differencefromthenormalvalue tojudge thetroublespot. Butinthecircuitthetested numerical value of resistance is not accurate, and the tested numerical value ofintegrated IC's pins can only be used for reference, so theelements shouldbe broken down fortest.

1.2.3 Voltage method

Voltage method is relatively convenient, quickand accurate. Setthemultimeterinvoltagepositionand test power supply voltage oftheplayer and voltageofa certainpointtojudgethetrouble spot accordingto the tested voltage variation.

1.2.4 Current method

Set the multimeterincurrentpositionand test current of theplayerof a certain point to judge the troublespot. But when testing in current method, the multimeter should be series connected inthe circuit, whichmakesthis method tootrivial and troublesome, soitislessfrequently usedin reality.

1.2.5 Cutting method

Cutting method should be combined with electric resistance method andvoltage method touse.This method is mainly usedinphenomena ofshort circuit andcurrentleakage of the circuit. Whencuttingthe inputterminalvoltage ofacertainlevel,if voltage oftheplayerrises again, it means that the trouble liesin thislevel.

1.2.6 Element substitution method

Whensomeelements cannotbe judged good or bad, substitution methodmay deadopteddirectly.

1.2.7 Comparison method

A same good PCboard is usually usedtotest the correct voltageand waveform. Compared these datawith those tested through fault PCboard, the cause of troublesmaybefound.

Through theabove maintenancemethod, theoretical knowledgeand maintenanceexperience, all difficulties and troubles will bereadily solved.

1.3 Required device for maintenance

◆Digital oscillograph (≥100MHE)

◆TVset

◆SMD rework station

◆Multimeter

◆Soldering iron

◆Pointed-monthpincers

◆Cutting nippers

◆Forceps

◆Electric screw driver

◆Terminals connecting cord

◆Headphone

◆Microphone

Chapter Two Functions and Operation Instructions

2.1 Features

This player has employed the newgeneration DV decode chipwithbuilt-inDolbyDigital decoder which will bringyoutoabrand-newAV ententainment world.The 2-laser super error-correction mechanism supportsCD-R.

2.1.1 Brand-new AV Effects

1. Compatible with DivX, MPEG4discs to produce wonderful pictures.
2. 108MHz/12bit videoDAC, withmore vivid and brilliantpictures.
3. DVD-Audiodecoding output to reproduce originalandrealistic sound effects.
4. Progressive-scanvideo outputsto eliminatethe flickers hardly ouvercome by interlacing scan and therefore your eyesight will bewell-protected. Atthe sametime, the pictures deflnltion Is sharplyenhanced and thepictures will be finer,smoother and stabler
5. Composite Video, S-Video andComponentVideo outputs.
6. Bullt-InDolbyDigital decoder.
7. Dolby output for 2channel(DOWNMIX)
8. Digital echo karaoke to enable

2.1.2 High Quality Digital Audio

1. Optical and coaxialoutputs forDigital audio.
2. DTS,Dobly Digital, PCM Digital audio outputs to satisfy theFans s acoustic Requirements.

2.1.3 Many Convenient Features

1. Screensaver protects yourTVsetcarefully.
2. The novel MP3playback window GULprovides you a newway to appreciate MP3 music.
3. Multi-angleplaybackfunction makes it possible for you toview a scenefrom different camera angles.
4. Direct entry into desired scenes(title/chapter/time/track search).
5. Muti-step zoom-in/zoom-outfunction providing you with brand-new enjoying means.
6. Capable ofplayingPAL/NTSC discs.

7. Multipleaspect to fit TV sets of various screen ratios.

8. Parental lock function toprevent childrenfrom watching unsuitablediscs.

9. Multipledubbing languagesand subtitlelanguages bringyouthebestentertainment status all the tine.

10.FM/AM radiotuning function.

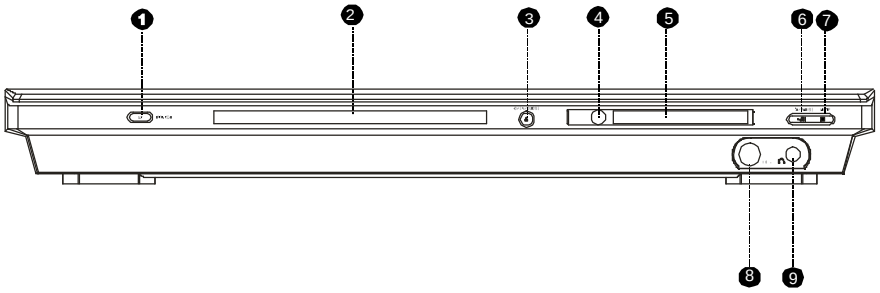
11. Sleep timerfunction

2.1.4 Super Compatibility With

SVCD, VCD, CD, MP3, HDCD, KODAK, PLCTURE, CDetc.

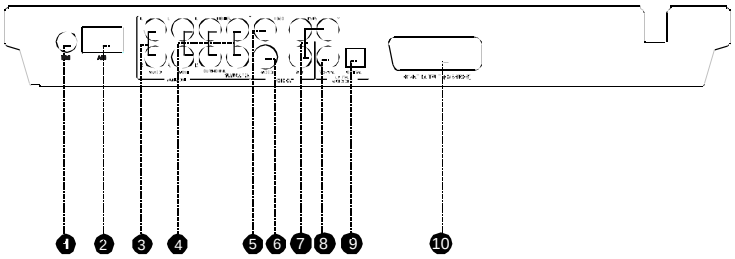
2.2 Control Button Locations and Explanations

2.2.1 Front Panel Illustration



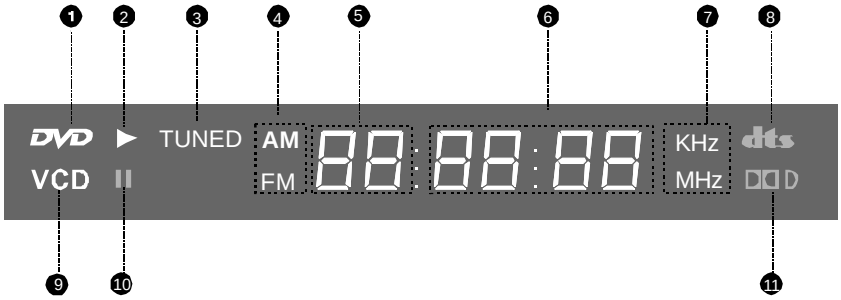
❶ POWER switch
❷ Disctray
❸ OPEN/CLOSE button
❹ Remote control signal sensor
❺ LED display window
❻ PLAY/PAUSE button
❼ STOP button
❽ MIC jack
❾ Headphone jack

2.2.2 Rear Panel Illustration



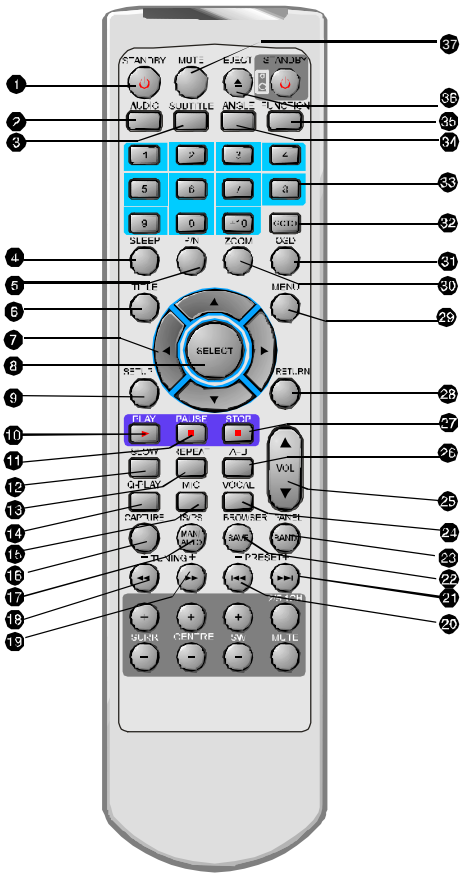
❶ FM Antenna jack
❷ AM Antenna jack
❸ MixedAudioout jack
❹ 5.1CH Audio Outjack
❺ Video Outjack
❻ S-Video
❼ Video Component /Y P b P r out jacks
❽ DigitalAudio Coaxial Outjack
❾ DigitalAudio O pticalOut jack
❿ SCART outjack

2.2.3 LED Display Window Illustration



❶ DVDdisc
❷ Play
❸ Radio status indicator
❹ FM/AM indicator
❺ Chapteror Track
❻ Playback time
❼ Radio frequency unit indicator
❽ DTS
❾ VCD disc
❿ Pause
⓫ Dolby digital

2.2.4 Remote Controller Illustration



❶ STANDBY button
Enter orexitthestandbymode
❷ AUDIO button
Changetheaudiolanguage
❸ SUBTITLEbutton
Change s ubtitlelanguage;
Switch JPEGdisplaymode
❹ SLEEPbutton
Sleeptimerfunction
❺ P/N button
Switch PAL/NTSCsystemsorAUTOmode
❻ TITLEbutton
TitlesofDVDdisc
❼ Cursorbuttons
❽ SELECT button
❾ SETUPbutton
Function setup
❿ PLAYbutton
Normalplayback
⓫ PAUSEbutton
Pauseplayback
⓬ SLOWbutton
Slowplayback
⓭ REPEAT button
Repeatplayback
⓮ Q-PLAYButton
Skip the a dvertisement/warning
and play DVD directly
⓯ MIC button
Karaoke operation menu
⓰ CAPTUREButton
Settheplayed imageas
the p ower-onlogo
⓱ IS/PS button
Switch video o utputtothe
interlacingmodeor progressive
YPbPrmode.
MAN/AUTO button
Manual/automatic t uning
⓲ TUNING-button
Tuningdownstations
REWbutton
Fast backwardplay
⓳ TUNING+button
Tuningupstations
Forward button
Fast forwardplay
⓴ PREVIOUS button
Selectprevioustrackorchapter.
PREST-button
Selectpreviouspresetstation
㉑ NEXTbutton
Select nexttrackorchapter
PRESET+ button
Select next presetstation
㉒ BROWSER
Switch newuser interface
SAVEbutton
Stationssavingbutton
㉓ PANELButton
Open/closethevirtual
keyboardfunction
BAND button
FM/AM switch
㉔ VOCALbutton
Selectthekaraoke
sing-alongmode.
㉕ VOL+/-buttons
Increase/decreasethe
volume oftheselected
speakerchannel.
㉖ A-Bbutton
Repeatselected part
㉗ STOP button
Stopplayback
㉘ RETURNbutton
Backtothepreviousmenu
㉙ MENUbutton
Displaythe disc menu
PBC o n/off
㉚ ZOOMbutton
Zoomin/outthedisplayed
frame
㉛ OSD button
Switch on/offinformation
display
㉜ GOTO button
Playfromthedesiredpoint
㉝ Number buttons
㉞ ANGLEbutton
Cameraanglesswitch.
MP3orJPEGplaybackmodes
switch.
㉟ UNCTIONbutton
Switch betweenDVDplayerand
tunermode.
Turn on/offaudiosignal
㊱ EJECTbutton
Open/close disctray.
㊲ MUTE b utton

2.2.5 Accessories

Audio/Video Cord 1PE
AM Cord 1PE
FMCord 1PE
RemoteControl 1PE
AAASizeBatteries 2PCS
WarrantyCard 1PE
UserManual 1PE

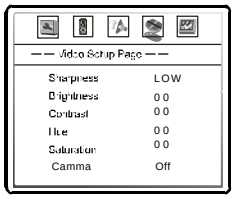
2.3 Play operation

2.3.1 General function setup steps

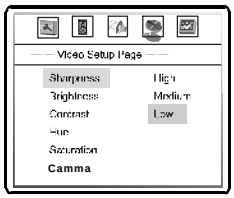
1. Press SETUP button and the screen displays the selection menu of function setup.

2. Press CURSOR button to select the menu to be entered and press SELECT button to confirm; or press CURSOR button to "Exit Menu" and then press SELECT button to exit. If you just need general setup, please select "Common Setup". If you need professional setup, please select "Professional Setup".

3. Press UP/DOWN arrow to select the item that you want to set and press SELECT button.
   For example, press UP/DOWN arrows to select SHARPNESS, then press SELECT button and the sharpness appears on the screen.



4. Press UP/DOWN arrow to select the desired value. press SELECT to confirm it. For example, press UP/DOWN arrow to select "Medium", then press select, the TV screen display;

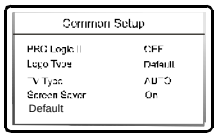


5. Press SETUP button to exit the setup menu.

NOTES

"logo Type" and "TV Type" are only effective in Stop or No Disc status; "PRO Logic II" is only effective when the "Downmix" is set in 5.1CH. The following are the contents of professional Function Setup Steps.

2.3.2 Common Setup



1. PROLogic II: This item is used to setup the Cyber Logic. If the disc does not support this function, the effect will be worse after processed like this and it is suggested to be OFF.
   Optional settings: ON, OFF, AUTO
   DEFAULT: OFF

2. Logo type: This item is used to setup the sort of power-on Logo.
   Optional settings: Default, Captured
   Default: Default

NOTE:

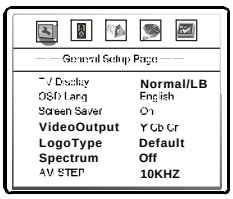
The Screen Logo refers that use the image selected by pressing LOGO button as the power-on logo. When in the operation of changing screen, if the power-on logo has not set in Screen Logo, the unit will automatically set the power-on logo as Screen Logo.

3. TV Type: This item is used to set the video output system of this unit.
   Optional settings: AUTO, PAL, NTSC
   Default: AUTO

4. Screen saver: This item is used to set whether screen saver is allowed.
   Optional settings: ON, OFF
   Default: ON

5. Default: To restore all settings to the default value except for the parental control and password settings.

2.3.3 General settings



1. TV Display: To set the aspect ratio of this player's output image.
   Optional settings: NORMAL/PANSCAN, NORMAL/LETTER BOX, WIDE
   Default: NORMAL/LETTERBOX.

NOTES

- The playbackeffects are contingent upon the disc's recording aspect ratio. Somediscsmay not beplayedaccording toyour selectedaspect ratio.
- WIDE isonlyapplicable totheWIDE TV.
- Please selectthe aspect ration in accordance with that of your TV.

2. OSD Lang: This item is used to set the prompts language onthe screen.
   Optionalsettings: English,Russian
   Default: English

3. ScreenSaver: Open or close the screensaver function.
   Optionalsettings: OFF, ON
   Default: ON

4. Video Output: To set the types ofthe SCART out connector.
   Optionalsettings: YCbCr, RGB
   Default:YCbCr
   When using RGB outputs from the SCART interface, pleaseselect RGB. Otherwise,please select YCbCr.

5. Logo Type: This item is used setup the sort of power-on logo.
   Optionalsettings: Default,Captured
   Default: Default

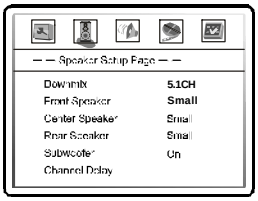
NOTE：

The Screen Logo refers that use the imageselected by pressing LOGO button asthepower-onlogo. When in the operationofchanging screen,if the power-on logo has not set in Screen Logo,the unit will automatically set thepower-onlogo as Screen Logo.

6. Spectrum: This item is used to set whether the dynamic Spectrum is allowed.
   Selectable value: ON, OFF
   Default: OFF
   Dynamic Spectrum displayisinvalid when in DVD AUDIO playback.

7. AM STEP
   Optionalsettings: 9KHz, 10KHz
   Default: 10KHz

2.3.4 Speaker Setup



1. Downmix Mode: To set this player'sDOWNMIX mode tochange multi-channel audiointo two channelaudio.
   Optionalsettings: LT/RT, STEREO, VSURR, 5.1CH MODE
   Default:5.1CH

NOTES

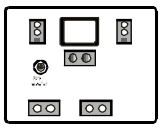
The 5.1CHmode needsdisc's support. The number of actual output channelsdepends onthe disc being played.

2. Front speaker: To set the front speaker's sound filtering control.
   Optionalsettings: LARGE, SMALL
   Default:SMALL

3. Centre Speaker: To set the centre speaker's sound filtering control.

4. Rear Speaker: To set thesurround speaker's sound filtering control.
   Optionalsettings of Centre/Rear Speaker: LARGE,SMALL, OFF
   Default settingofCentre/Rearspeaker: SMALL
   Centre and Rear Speaker settings areeffective only when DOWNMIXMODE is set to OFF.

5. Subwoofer: Toopen/close thebassspeaker.
   Optionalsettings: ON, OFF
   Default:ON



6. Channel Delay: To set delay time of the Centre/ Surround/Subwoofer Speaker.

A. Press UP/DOWN navigation keys to select the delay settingitem. PressSELECTnavigation key to enterthe setting box.

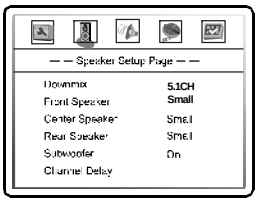
B. Press UP/DOWN navigation keys to select the desired item, andthen press LEFT/RIGHT navigation keys to set thedistance between the speakerandlistener.

C. Afterfinishing setting, please press SELECT buttonto exit.

NOTE

The centre/surround/subwoofer delay is effective only forthe corresponding speakerswhen the delay is not set to OFF.

2.3.5 Audio Setup



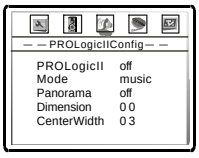
1. EQ type: Toset EQ modes.
   Optional settings: None, Rock, Pop,Live, Dance, Techno, Classic, Soft
   Default: None

2. Sound Field: To set different sound field effects.
   Optional settings: Off, Concert, Living room, Hall, Bathroom,Cave, Arena, Church
   Default: Off
   SoundField is invalid when playing DVDAUDIO discs.

3. SPDIF Output: To set the bit streamtype of the digital output.
   Optional settings: SPDIF/RAW, SPDIF/PCM
   Default: SPDIF/RAW

4. LPCMOut:Tosetthe output frequency ofthe 96K LPCM audio data tofitfor different poweramplifiers.
   Optional settings: 48K,96K, 192K
   Default: 48K

5. PRO LogicII:To set 2CH music intothe virtual 5CH musicwhich can be played by multi-channel speakers. Press UP/DOWN navigation keys in the AUDIO SETUP page toselect PRO Logic II, and then pressSELECTnavigation key to enter the PRO LogicIISETUP page.
   PRO LogicIIiseffectiveonly when the DOWNMIX mode is set to OFF andSPDIF is setto RAW.



A. PRO Logic II: To setPRO Logic IIto ON or OFF. IftheTITLE does not supportthisfunction,we recommend that yousetthisitemtoAUTO because it would become worse ifthe processing effects were added forcibly
   Optionalsettings:ON, OFF,AUTO
   Default: OFF

B. Mode:To set the modes ofPROLogicII.The musicmodemeansthatthesoundfromall speakers arrives at the same timewithout delay. The movie mode means thatdelayof 10ms is addedto the surround channel. The Pro Logic mode virtualize Pro Logic I (utilizingProLogic II). TheAUTO modemeansamode is selected automatically according to thedisc.
   Optionalsettings:MUSIC,MOVIE, PRO LOGIC, AUTO
   Default: music

C. Panorama: To set thepanorama mode to ON orOFF.Thismode isto extend the front stereo to the two sides in order to achieveexcellent surround effects.
   Optionalsettings:ON, OFF
   Default: OFF

D. Dimension: To set the size.Itissimilartothe balancecontrol of the front and surround speakers whichgradually adjust the front and rear sound fields. There are 7 steps to adjust.
   Optionalsettings:Size-3, Size-2, Size-1, Size0, Size1,Size2, Size3
   Default: Size0

E. CentralWidth:To set the central width. It is to dividethe centre channel signals to the left and right channels.Therefore,thesignals are sent out formthefrontspeakers indifferentdegrees.
   Optionalsettings:LEVEL0,LEVEL1, LEVEL2, LEVEL3, LEVEL4, LEVEL5, LEVEL6,LEVEL7
   Default: LEVEL3

6. Dolby Digital Setup:Press UP/DOWN navigation keys to select DOLBY DIGITAL SETUP,andthen press SELECT navigation key toenter the DOLBY DIGITAL SETUP page.

A. Dual Mono: To set the output means of the left or right audio when playing a Dolby disc with separate two-channel audio

Optional settings: Stereo, L-Mono, R-Mono, Mix-Mono
Default: Stereo

B. Dynamic Compression: To set the linear compression ratio to get different compression result.
Optional settings: OFF, 1/8, 1/4, 3/8, ½, 5/8, 3/4, 7/8, FULL
Default: OFF

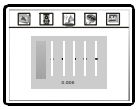
7. Channel Trim: To set volume of each individual channel.

A. Press LEFT/RIGHT navigation keys to select CHANNEL TRIM, and then press SELECT navigation key to select ENTER SETUP PAGE as shown in the TV screen.

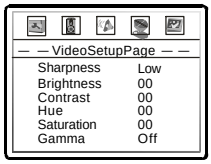
B. Press UP/DWON navigation keys to select the desired channel to adjust.

C. Press UP/DWON navigation keys to raise or lower volume of the channel.

D. Press SELECT button to return to the audio setup page.



2.3.6 VIDEO Setup



1. Sharpness: Used to set the sharpness of video outputs.
Optional settings: High, Medium, Low
Default: Low

2. Brightness: Used to set the brightness of video outputs.

3. Contrast: Used to set the contrast of video outputs.

4. Hue: Used to set the hue of video outputs.

5. Saturation: Used to set the saturation of video outputs.

- Brightness, contrast, hue and saturation adjusting means:

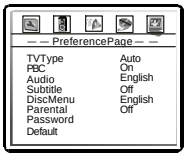
A. Press UP/DOWN arrow in the video setup menu to select the item that you want to adjust. Press SELECT button to enter the adjustment of this item.

B. Press LEFT/RIGHT arrow to adjust the setting value.

C. After finishing adjustment, press SELECT arrow to return to the video setup menu.

6. Gamma emendation: This item is used to setup the Gamma value of video output.
Optional settings: High, Medium, Low, Off
Default: Off

2.3.7 Initial Setup



1. TV Type: To set the output video system of this player.
Optional settings: AUTO, NTSC, PAL
Default: AUTO

2. PBC: To set the PBC status.
When playing SVCD or VCD2.0 discs, if the PBC is ON, the menu image displays on the screen and this player enter the PBC mode; if the PBC is OFF, this player plays the disc by its sequence.
Optional settings: On, Off
Default: On

3. Audio: To set the preference audio language when playing.

4. Subtitle: To set the preference subtitle language when playing.
Optional settings: English, French, Spanish, Chinese, Japanese, Korean, Russian, German, Others, Off

Default: Off

5. Disc MenuLanguage: To setthepreference disc menu languagewhen playing.
   Optional settings: English, French, Spanish, Chinese, Japanese, Korean, Russian, Thai, others
   Default: English

NOTES

- Audio/subtitle/disc menu languages areeffective toDVD only.
- Ifthe disc does not record your desired language, theplayerwillselect the disc-specified languages toplay.
- Selecting otherlanguages：Press UP/DOWN arrow to movethe cursor toOTHER item,andthen press SELECTbutton. Press NUMBER buttons to enter your desired languagecodes, andthenpress SELECT button.

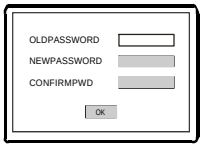
6. Parental: To set the parental control ratings to prevent children from watching the restricted contents. (In case the disc supports thisfunction.)
   Optional settings: KID SAFE, G, PG, GP-13, PGR, R,NC17,ADULT, OFF
   Default: OFF

NOTE

When changing the parental control ratings, a password is needed. Refertothefollowing password item for detailed settings.

☆★☆★☆★☆★☆★☆★☆★☆★☆★☆★☆★☆★☆★☆★

7. Password: To set a four digit password to enable youto change theparental control ratings.
   Default: 7890



8. Default: Torestoreallsettings to the default value exceptfortheparental control and password settings.

2.3.8 Useful Notes

- Inordertoprolong the service life ofyour player, itisrecommended to wait at least 30 seconds before youturn iton again after switching itoff.
- Turn off power after operation.
- Only use the power supply of the nominal voltage, otherwise the player will not be operationalor even be damaged.
- Some functions oftheplayermay notbe applicable to some discs.
- In case of occasionalplayerhalt, please turn it offandturnitonagain.
- This playercannot play some SVCD discs with the CVD format.
- To cancel bass effects, you may disconnectthe subwoofer speaker.

2.3.9 Specifications

2.3.9 Specifications			
DVD receiver	Playable discs	DVD-Video, Super VCD, VCD, DivX 3.11, DivX 4, DivX 5, DivX Pro, XviD, DVD-Audio, CD-DA, CD+G, HDCD, MP3, WMA, Kodak Picture CD, JPEG, MPEG4	
	Input	MIC jack FM antenna input AM antenna input	
	Output	Audio output	Analog audio output:Headphones,5.1,2.0 Digital audio output Coaxial,Optical
		Video output	Composite,S-Video,component Y Cb Cr, Progressive scan output Y Pb Pr, RGB/SCART
		Headphones output	
	Video characteristics	Video amplitude: 1.0Vp-p(75Ω) S-Video amplitude: Y:1.0Vp-p(75Ω) C:0.286Vp-p(75Ω) Component video 1.0Vp-p((75Ω) Amplitude Cb/Cr:0.7Vp-p(75Ω)	
	Audio characteristics	Freqency response 20-20000 Hz(±1 dB) Signal-to-oiseratio >100(dB) THD <0.01%	
	Operating Voltage	～220V,50Hz	
	Power consumption	160W	

FM Tuner	Frequency range 87.5 MHz-108 MHz Channel separation > 35dB
Am Tuner	Frequency range 522 KHz-1611KHz
Speaker system	Output power RMS,1% THD,1 kHz Subwoofer (40 Hz) 25W Front channel 10W Real channel 10W Center channel 10W Maximum output power Subwoofer (40Hz) 40W Front channel 20W Rear channel 20W Centre channel 20W
Operating temperature	5℃-35℃

* Design and specifications are subject to change without notice.
* We do not guarantee that all discs can be played smoothly due to the disc quality and disc recording.

2.4 Operation Instructions for Audio Power Amplifier

2.4.1 Features

- 5.1CH audio input, capable of connecting Dolby AC-3 and DTS decoding output signals
- Simultaneous 5.1CH volume adjustment
- Centre, surround and subwoofer channel level separate adjustment
- Standby function
- Mute function
- Full function remote control
- Powerful and high performance amplifier
- Complete protection function
- Full magnetic-shielded design for satellite speakers
- Unique reflective bass structure
- Novel appearance, soft colour

2.4.2 Accessories

Please open the carton box and check your speaker system. If the model and quantity do not conform to the following list, please contact the dealer.

Satellite Speakers …… 5pcs

Dual-RCA Plug Audio Cord …… 2pcs

Audio Cords for Phones Jack …… 3pcs

Left, Right and Centre Speaker Cords (ca.2m) …… 3pcs

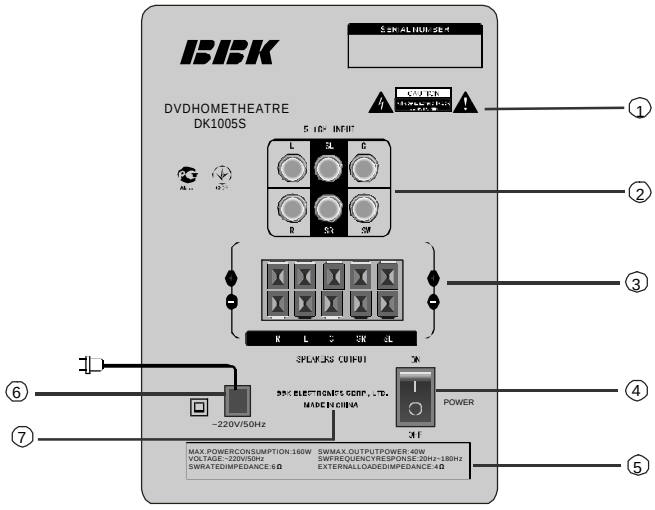
Surround Speaker Cords (ca.5m) …… 2pcs

2.4.3 Distribution and Illustration of the Control Buttons

1. Illustration to thepanel

①IR Sensor/LED Display
(FRONTPANELFIGURE)

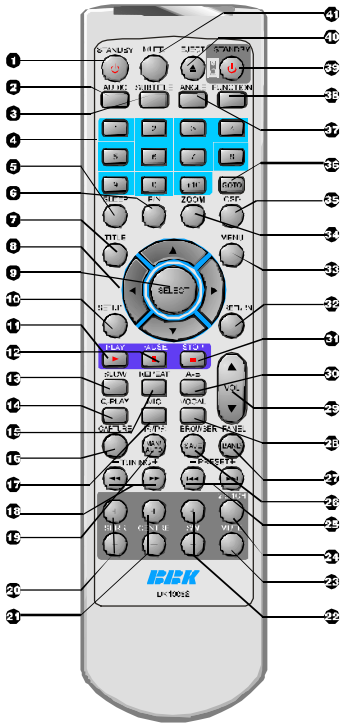
(REARPANELFIGURE)



CONNECTTOTHEACPOWERSUPPLY

① Safetywarning mark
② 5.1CHAudiosignal input jack
③ 5CH speaker connectionports
④ Power switch
⑤ Productdata
⑥ Powercords
⑦ Manufacturer

2. Illustration to the remote control



⑳ SURR channellevel adjustment
Usedtoadjustthe surroundchannel level comparedwith the master volume.

㉑ CENTREchannelleveladjustment
Used to adjust the centre channellevel comparedwiththe master volume.

㉒ SWchannelleveladjustment
Usedtoadjustthe subwoofer channel level comparedwith the master volume.

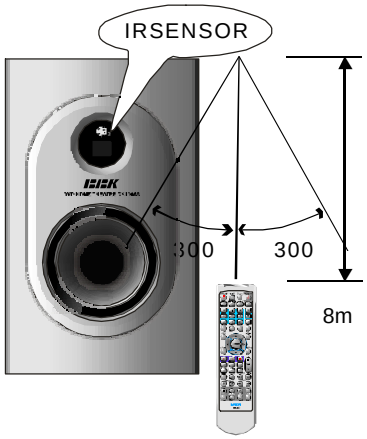
㉓ MUTE
Press the MUTEbuttontoterminate audio signal outputs. Press it again to cancel MUTE andrestore audio outputs.

㉔ 2/5.1 CH
Select between 2.1 sound field and 5.1 sound field

㉙ VOLUME
Adjust the5.1CHvolume simultaneously.

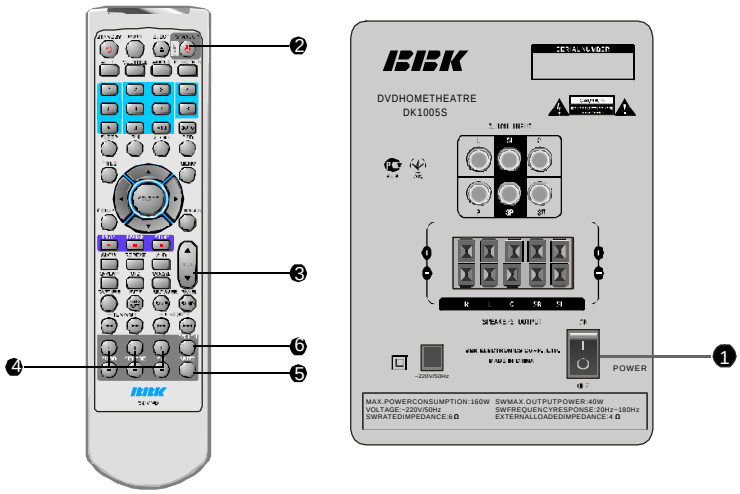
㊴ STANDBY
Press this button to enter or leave the standbymode.
Thepowerisnotcutoffinthestandby mode.Therefore,please turnoffthe power switch on the subwoofer speaker when you do notintendtouseitforan extendedperiodof time.

3. How to use the remote control



- Pointthe emitterofthe remote control atthe infraredsensoronthesubwooferspeaker.
- Use the remotecontrol withina distanceof 8 metres from the subwoofer speaker.
- Use the remotecontrol withinan angle of 30 degrees fromthecentre.

2.4.4 Operating Instructions



GETTING STARTED

1. Insert theplugintothe power supply socket, turn on the POWER buttonontherearpanel of the subwoofer speaker, the CPU comes into initialization and the unitenterstthe standby mode,the LEDdisplays "--".

USING THE STANDBY BUTTON

2. Press the STANDBYbuttonto enter the workmode. The master volume rises up from"0" to "4" (DEFAULT VALUE) gradually and theLEDdisplaysthecorrespondinglevel.
   Press the STANDBYbuttonagain, this unit will entertheSTANDBY mode.In this mode, thisunit is not poweredoff.Therefore,please turn offthe POWERbutton onthe rear panelofthesubwoofer speaker ifyoudonotintend tousethisunit for an extendedperiod of time.

ADJUSTING THE VOLUME

3. Press the VOLUME ▲/▼ buttons onthe remote control toadjust the5.1CHvolume simultaneously, thedisplayed range: 0~16.
   Press the VOLUME▲ toincrease thevolume,themaximumdisplayingvolume is16.
   Press the VOLUME▼ todecreasethe volume,theminimum displayingvolumeis 0.

ADJUSTINGTHESURROUND/CENTRE/SUBWOOFER CHANNEL LEVEL

4. PresstheSURR/CENTRE/SW+/- buttons on the remotecontrol to adjustthe correspondingchannel levels separately compared withthe master volume. Adjustmentrange: The Volume ± 5
   Press the + button to increase the level.Themaximum displaying levelis5.
   Press the - button todecrease the level.Theminimum displayinglevel is-5.
   Adjust each channellevelcomparedwiththemastervolume to compensate sound imbalancedueto poor listeningcircumstances or awkward location of the speakers. Youcanalsoadjusteach channelaccordingto yourpersonal favourites andthe characteristics of theprogram in ordertoobtain a satisfactory effect. Themastervolumelevelwill reappear on theLEDabout3secondsafterthe above operations stop.

USING THE MUTEBUTTON

5. Press theMUTE button onthe remote control to mute the sound.
   Press theMUTEbutton in the playback mode toterminate the audio signal output.
   Press theMUTEbutton againtorestorethenormalaudio.The LED displays a flashing "0" inthemutemode.

SOUND FIELD SELECTION:

6. To adaptto different program signals,thisunitutilizes2/5.1CH selectfunction. When you enjoy 2CH programofCDdisc,you are suggested to use 2.1CH mode and "2.1" displays on the screen;centreand surround havenotsoundoutput at this time.When you enjoy5.1CH program, youmaypress2/5.1CH button. This unit enters 5.1CH mode, "5.1" displays on the screen andthe unit is in5.1working modeatthistime.

NOTE: Theunit defaults 5.1CH modewhen power on.

2.4.5 Specifications

* RMS Output Power：	
L, R, C, SL, SRChannel Output Power:	10wX5 (RMS,Load=4Ω f=1kHz)
SW Output Power:	≥25W (RMS,Load=4Ω f=1kHz)
Symptom II: No Sound	
* Total Harmonic Distortion：	<1% (at 1kHz,1W)
*AmplifierFrequency Response：	180Hz~20kHz±3dB (L、R、C、SL、SR) 20Hz~180Hz±3dB
* 5.1CH Input Jacks：	RCASocketLine In
* Input Impedance：	>10KΩ
* Control、Adjustment Means：	Remote Controlled
* Subwoofer Unit:	6.5" Dynamic Paper Cone Speaker
Max.Output Power:	40W
Nominal Impedance:	6Ω
Frequency Response:	50Hz~250Hz
* SatelliteSpeaker Uni:	3" Wide Frequency Band (Magnetic-shielded)Cone Speaker
Max.Output Power:	20W
Nominal Impedance:	4Ω
Frequency Response:	200Hz~15000Hz

* Input Power Supply:	~220V±10%50Hz
*MAX.Power Consumption:	160W
* Subwoofer Speaker Dimensions:	200×310×325mm (L x W x H)
*Satellite Speaker Dimensions:	100×86×112mm (L x W x H)
*Package Dimensions:	525×475×385mm (L x W x H)
* Net Weight:	12.5kg
* Gross Weight:	14.2kg

*Specifications are subjecttochangewithout priornotice.

Chapter Three Principle and Servicing

Section One Schematic Diagram of DK1005S

3.1.1 Schematic diagram of DK1005S

The schematic diagram of DVD player, DK1005S is shown as the following figure 3.1.1.1:

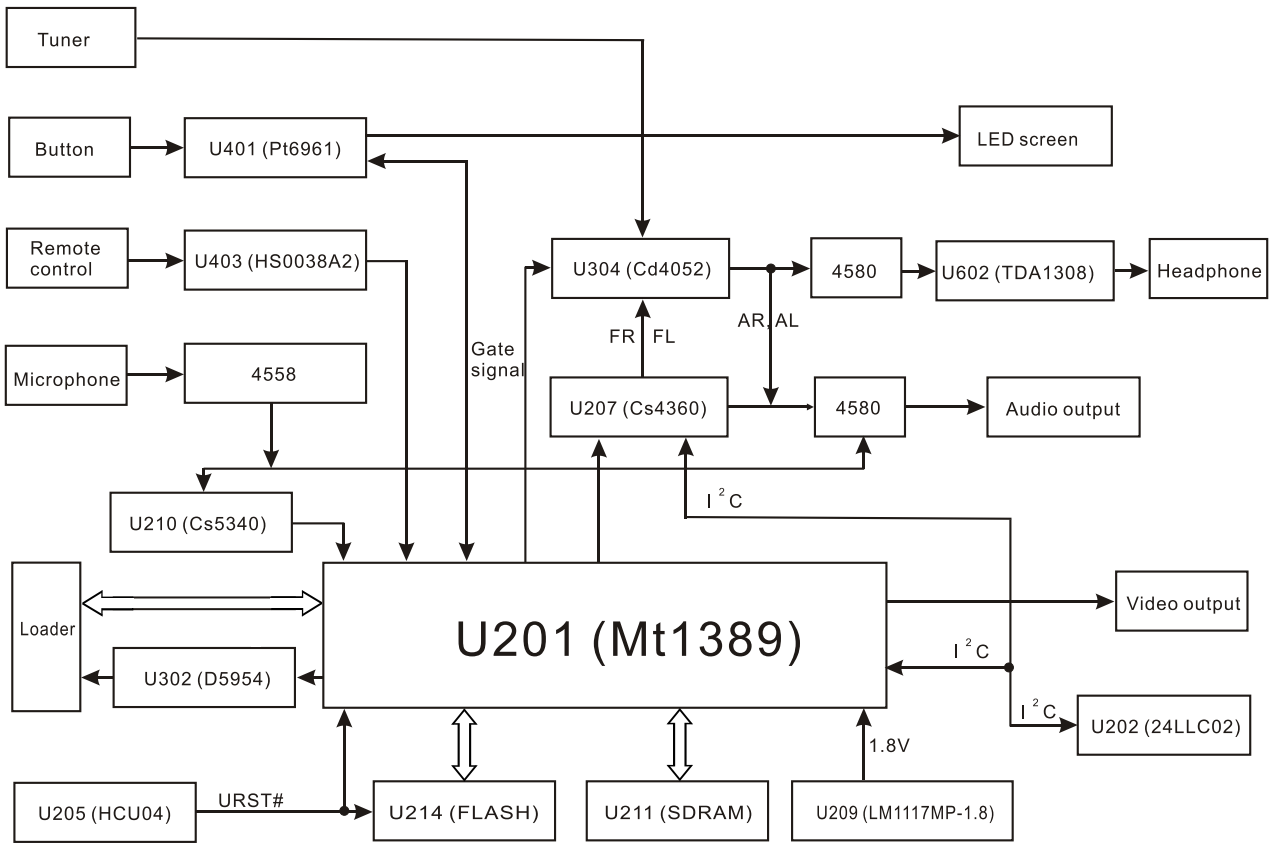


Figure 3.1.1.1 Schematic diagram of DK1005S

3.1.2 Detailed flow chart for audio signal

1.headphone output is shown as the following figure 3.1.2.1:

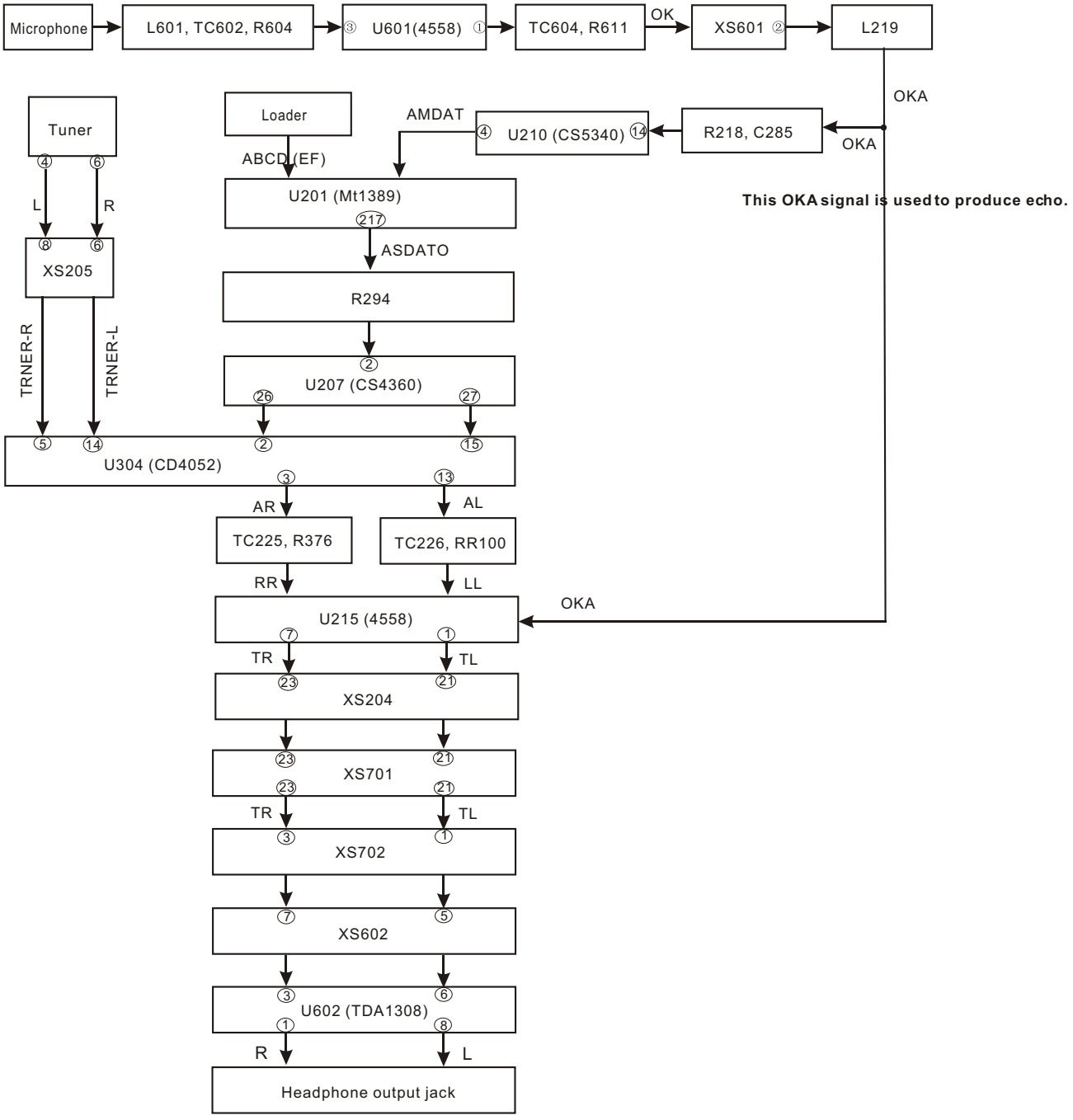


Figure 3.1.2.1 Flowchart of headphone output

2.Signals flow of mixed left/right and front left/right channels is shown as the following figure 3.1.2.2:

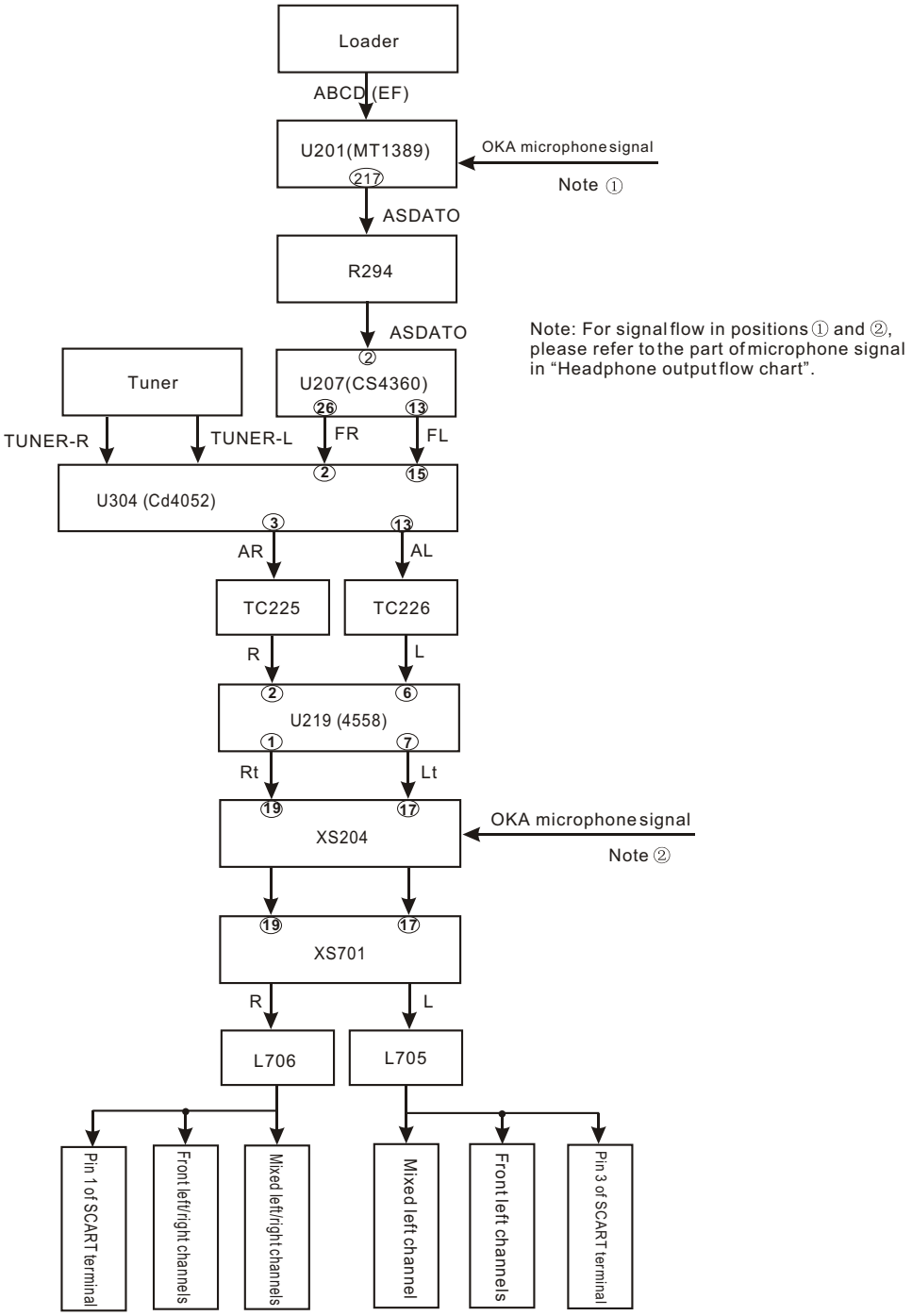


Figure 3.1.2.2 Signals flow chart of mixed left/right and front left/right channels

3. Output signals flow of surround left/right, centre and subwoofer channels

Output signals flow chart of surround left/right channels is shown as the following figure 3.1.2.3; and that of centre and subwoofer channels is shown as the following figure 3.1.2.4.

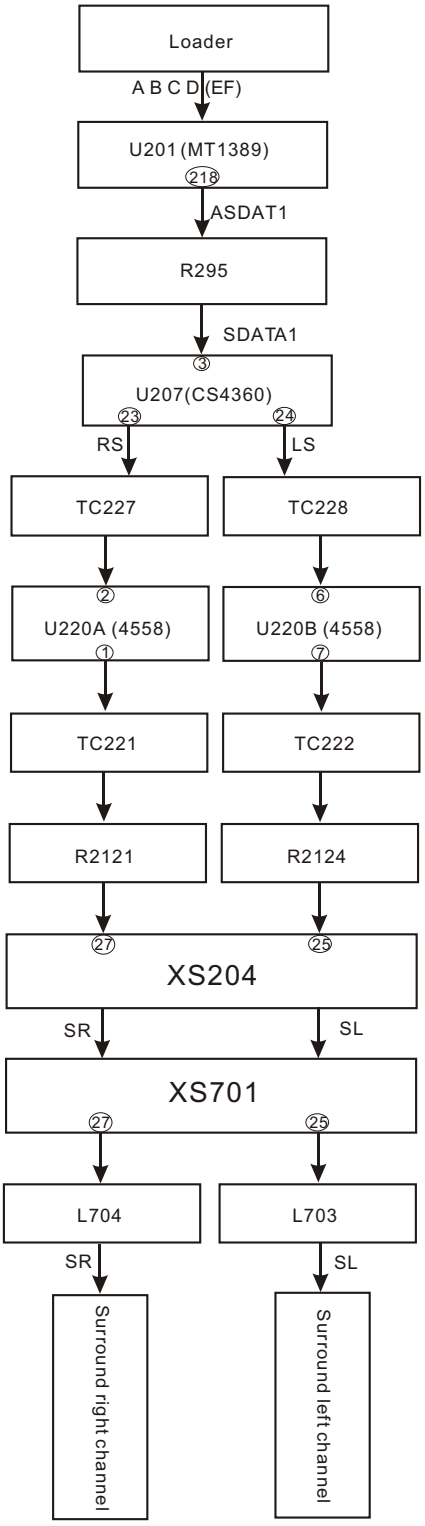


Figure 3.1.2.3 Output signals flow chart of surround left/right channels

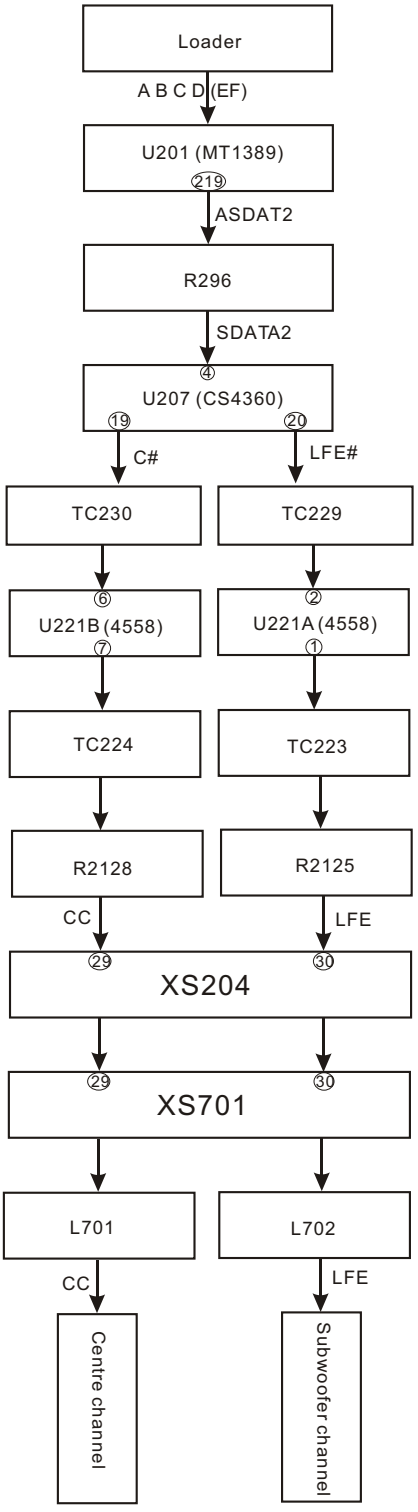


Figure 3.1.2.4 Output signals flow chart of centre and subwoofer channels

3.1.3 Detailed flow chart for video signal

1.S (S-Video) output is shown as the following figure 3.1.3.1:

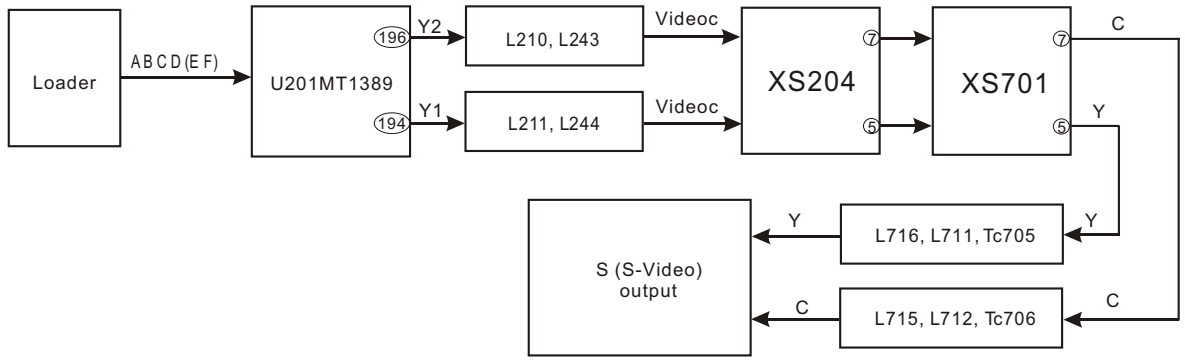


Figure 3.1.3.1 S output flow chart

2.composite video signal output (V-OUT) and that in SCART terminal is shown as the fllowing figure 3.1.3.2:

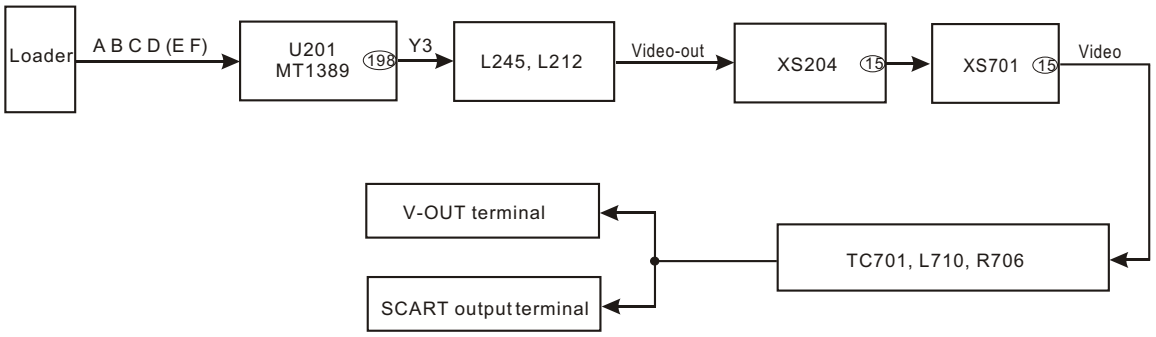


Figure 3.1.3.2 Flow chart of composite video signal output

3. Flow chart for component video output is shown as the following figure 3.1.3.3:

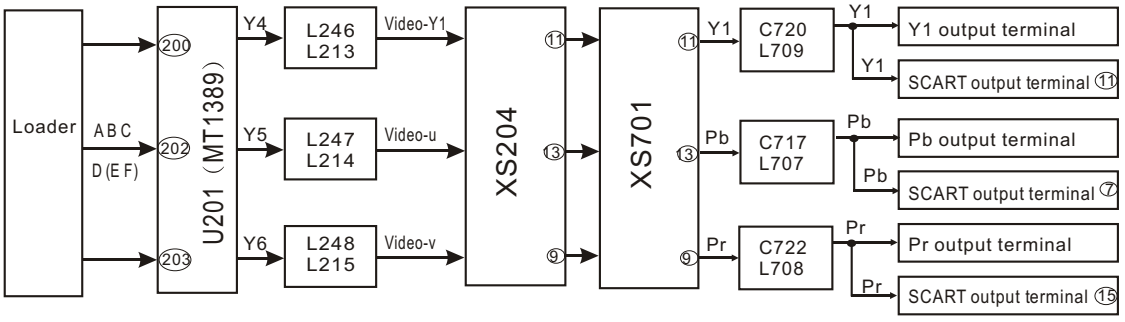


Figure 3.1.3.3 Flow chart of component video output

3.1.4 Generation process for supply voltage of each IC

1. Supply conditions for each IC voltage

◆ U201 (MT1389) DV33 V18

◆ U302 (D5954) V33

◆ U211 (SDRAM) SD33

◆ U214 (FLASH) VD

◆ U202 (24LLC02) Dv33

◆ U205 (HCU04) DV33

◆ U207 (CS4360) DV33 AVCC

◆ 4558 ±9V

◆ U304 (CD4052) ±9V

◆ U401 (PT6961) VCC

◆ U210 (CS5340) Dv33

◆ U602 (TDA1308) +5V

◆ U403 (HS0038A2) VCC

◆ 4558 ±9

2. Power supply process of each voltage

(1) Power supply process of +5V voltage is shown as the following figure 3.1.3.1:

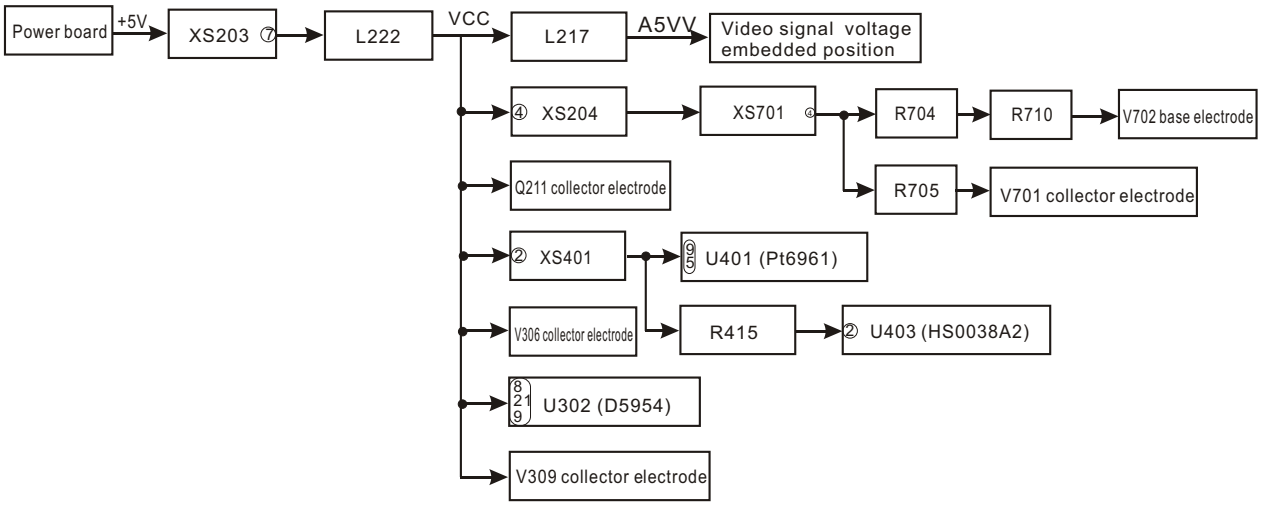


Figure 3.1.3.1 Power supply process chart of +5V voltage

(2) Power supply process of SA+5V voltage si shown as the following figure 3.1.3.2:

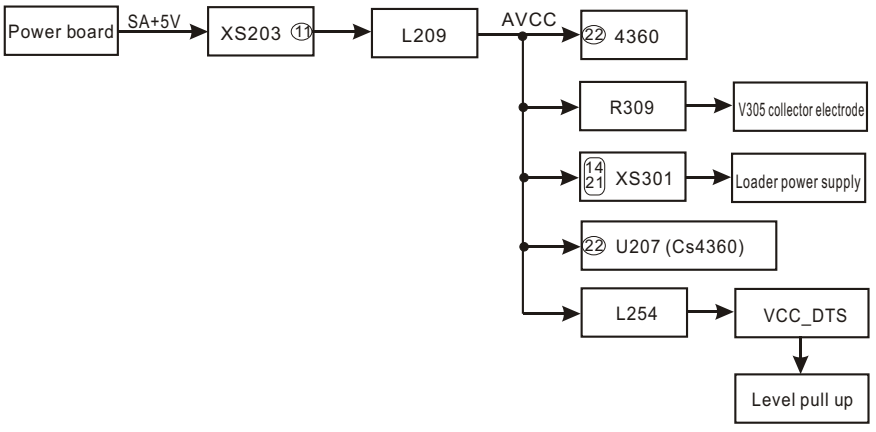


Figure 3.1.3.2 Power supply process chart of SA+5V voltage

(3) Power supply process of +9V voltage is shown as the following figure 3.1.3.3:

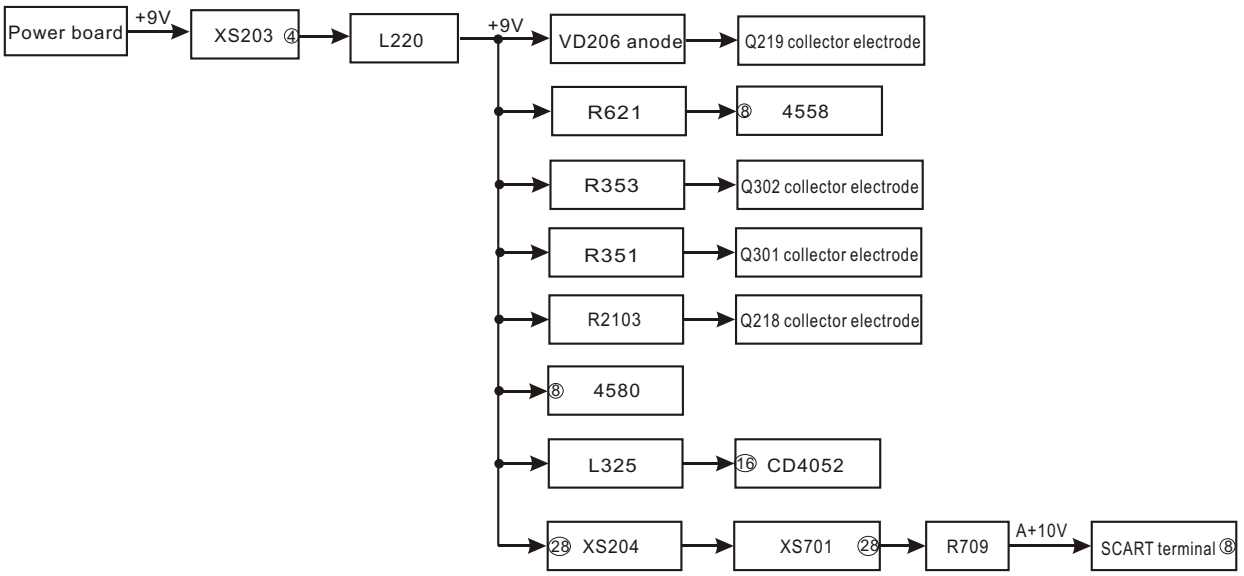


Figure 3.1.3.3 Power supply chart of +9V voltage

(4) Power supply process of Dv33 is shown as the following figure 3.1.3.4:

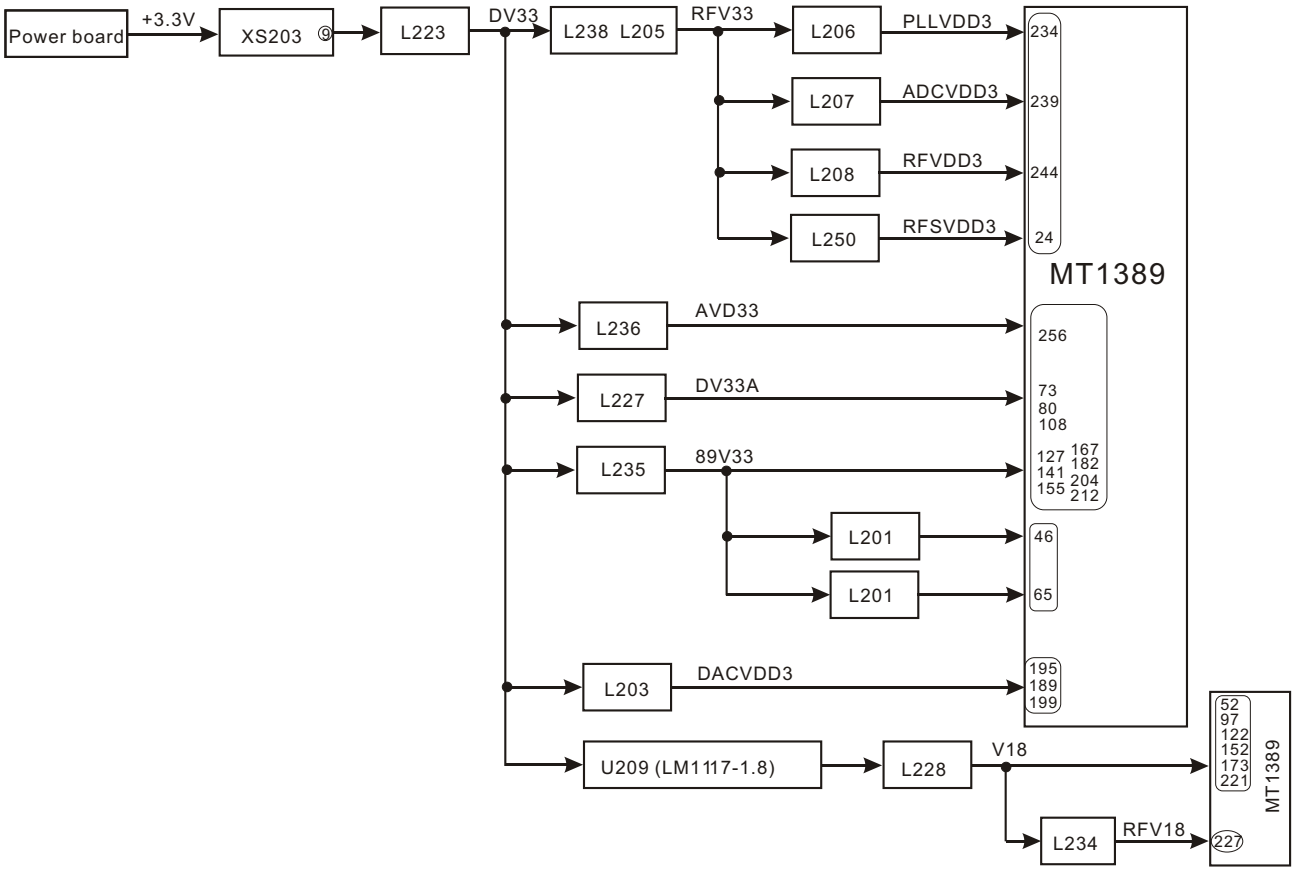


Figure 3.1.3.4 Power supply chart of DV3.3

(5) Power supply process of -9V voltage is shown as the following figure 3.1.3.5:

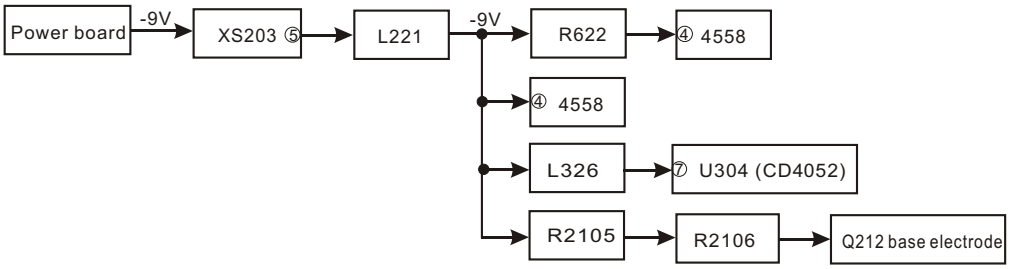


Figure 3.1.3.5 Power supply process chart of -9V voltage

(6) Power supply process of 3.3V voltage is shown as the following figure 3.1.3.6:

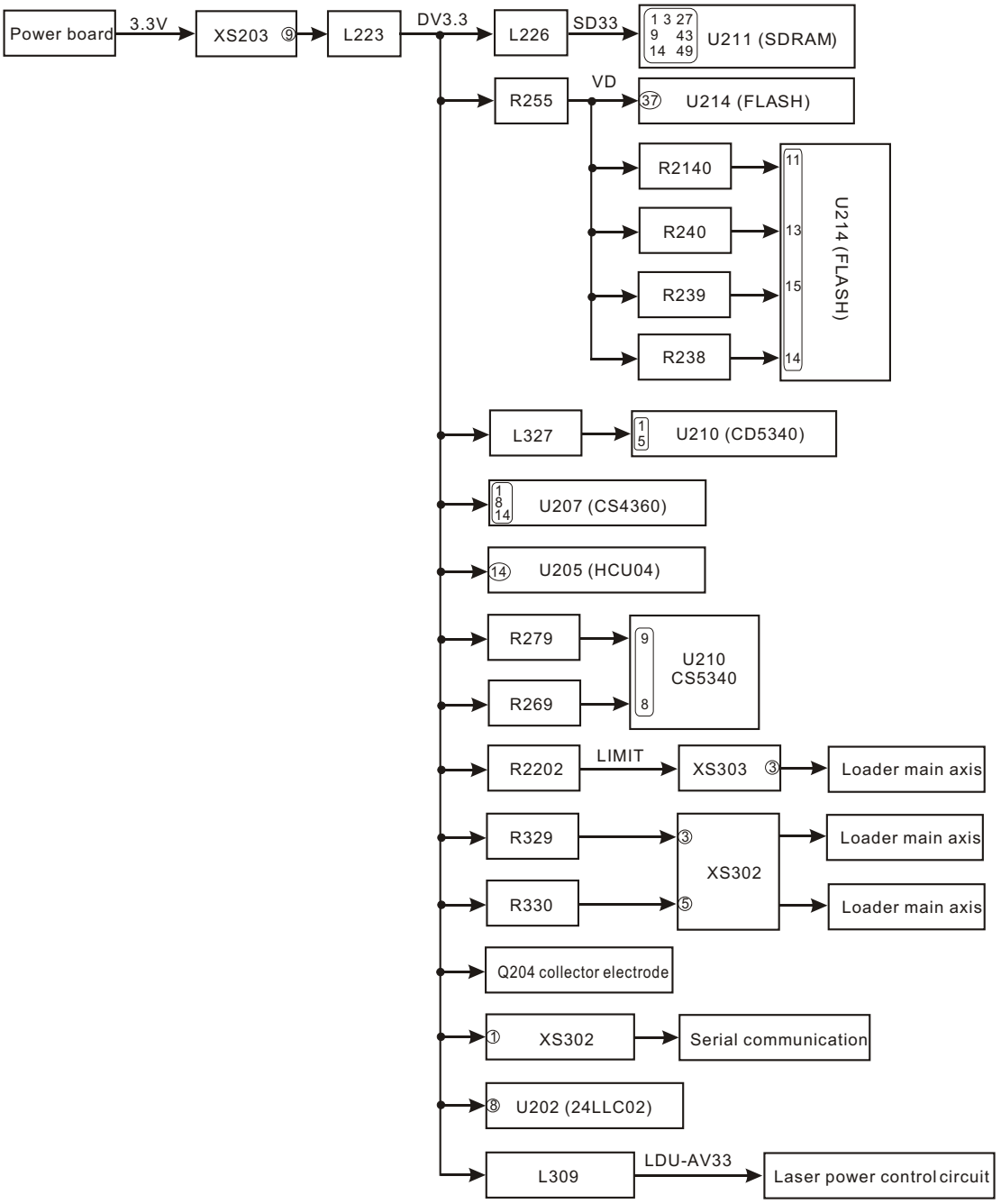


Figure 3.1.3.6 Power supply process chart of 3.3V voltage

Section Two DK1005S unit circuit principle and troubleshooting process

3.2.1 Function description to signals of XS301 loader flat cable holder

Function description to signals of XS301 loader flat cable holder is shown as the following table 3.2.1.1:

Pin Number	Pin Name	Flow Direction	DC Voltage			Function Description
			Read DVD disc	Read CD disc	No disc	
1	F-	Input loader	2.52	2.34	0.46	Focus error signal is added to the two ends of pick-up focusing coil.
2	F+	Input loader	2.49	2.49	0.93	
3	T+	Input loader	2.53	2.51	0.94	Trace error signal is added to the two ends of pick-up trace coil.
4	T-	Input loader	2.58	2.51	0.93	
5	C	Input MT1389	2.2	2.25	2.04	Disc data signal
6	D	Input MT1389	2.2	3.2	2.04	Disc data signal
7	IOA	Input MT1389	0.01	3.2	3.21	Disc identification signal, CD is high level 3.3V; and DVD is 0V.
8	RF	Input MT1389	2.21	2.53	1.28	Total sum of disc data signals. This signal is not used by this player.
9	A	Input MT1389	2.17	2.22	2.04	Disc data signal
10	B	Input MT1389	2.19	2.27	2.04	Disc data signal
11	F	Input MT1389	2.07	2.44	2.03	Auxiliary signal used for trace
12	GND	Grounding	0.01	0.01	0	Grounding
13	V20	Input loader	2.04	2.06	2.03	Reference voltage
14	Vcc	Input loader	5.04	5.04	5.02	Supply voltage for loader
15	E	Input MT1389	2.06	2.45	2.03	Disc data signal
16	NC	Hang in the air	0.01	0	0	Not used
17	VR-CD	Input loader	0.21	0.01	0	After being processed inside loader, ensure MD is 180mV when reading CD disc.
18	VR-DVD	Input loader	0.01	0.2	0	After being processed inside loader, ensure MD is 181mV when reading DVD disc.
19	LD-CD	Input loader	0.09	2.1	0	CD laser power control signal
20	MDII	Input MT1389	0.21	0.2	0	Laser power monitoring signal of CD and DVD

Pin Number	Pin Name	Flow Direction	DC Voltage			Function Description
			Read DVD disc	Read CD disc	No disc	
21	HFM	Input loader	5.04	5.04	5.02	High frequency overlap signal. Generate laser with different wavelength inside loader.
22	NC	Unused	0.01	0.1	0	
23	LD-DVD	Input loader	2.21	0.1	0	DVD laser power control signal
24	GND	Grounding	0.01	0.01	0	Grounding

Table 3.2.1.1 Function description to signals of XS301 loader flat cable holder

Note: 1. When reading DVD disc, there are only four signals of A, B, C and D.
2. When reading CD disc, there are only six signals of A, B, C, D, E and F.
3. RFO = A + B + C + D.
4. Focus error signal = (A+C) - (B+D); Trace error signal = E-F

3.2.2 Disc identification circuit

1. The circuit schematic diagram is shown as the following figure 3.2.2.1:

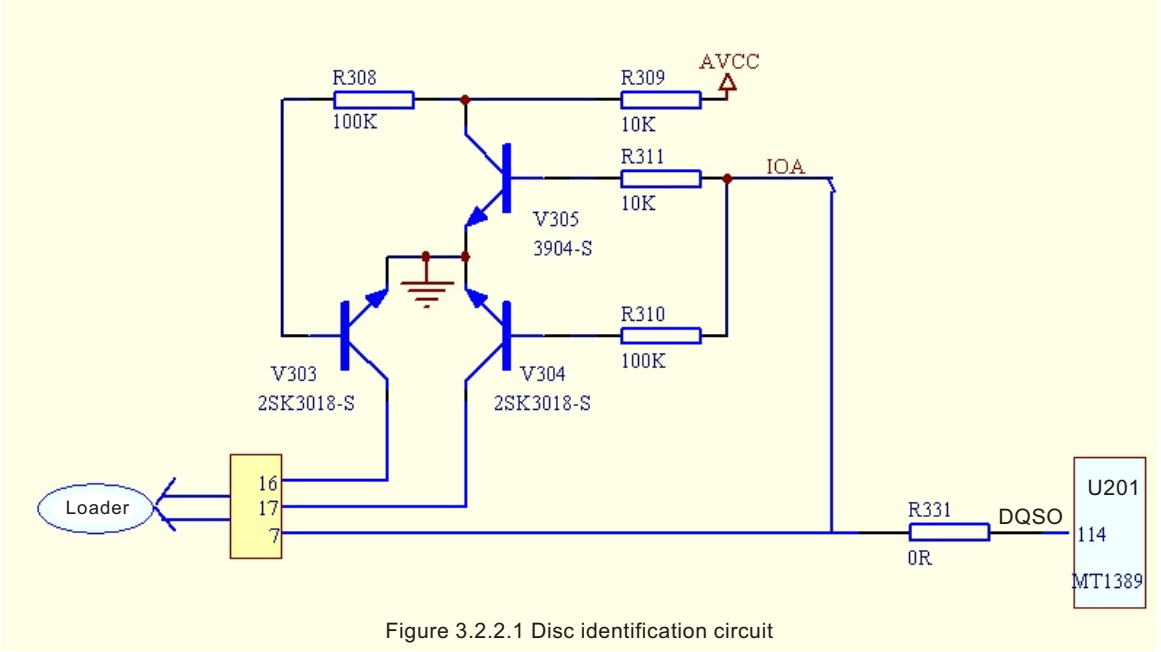


Figure 3.2.2.1 Disc identification circuit

2. Working principle: when reading CD disc, the loader outputs a high level (3.3v) to IOA; when reading DVD disc, the loader outputs a low level (0V) to IOA. U201 (MT1389) judges it is DVD disc or CD disc according to whether it is high level or low level to DQSO (achieved by IOA through a resistor R331). IOA signal gives loader a feedback signal through V305, V304 and V303 to inform the loader of starting up CD signal or DVD signal in the future.

   When reading CD disc, IOA is high level; V304 and V305 are on; V305 collector electrode is low level; V303 drain electrode is equal to hang in the air (laser receiver pipe inside loader selects CD channel).

   When reading DVD disc, IOA is low level; V304 and V305 cut off; V303 is on; V304 drain electrode is equal to hang in the air (laser receiver pipe inside loader selects CD channel).

Note: V303 and V304 are MOS pipe.

3.2.3 Laser power control circuit

1. The circuit schematic diagram is shown as the following figure 3.2.3.1:

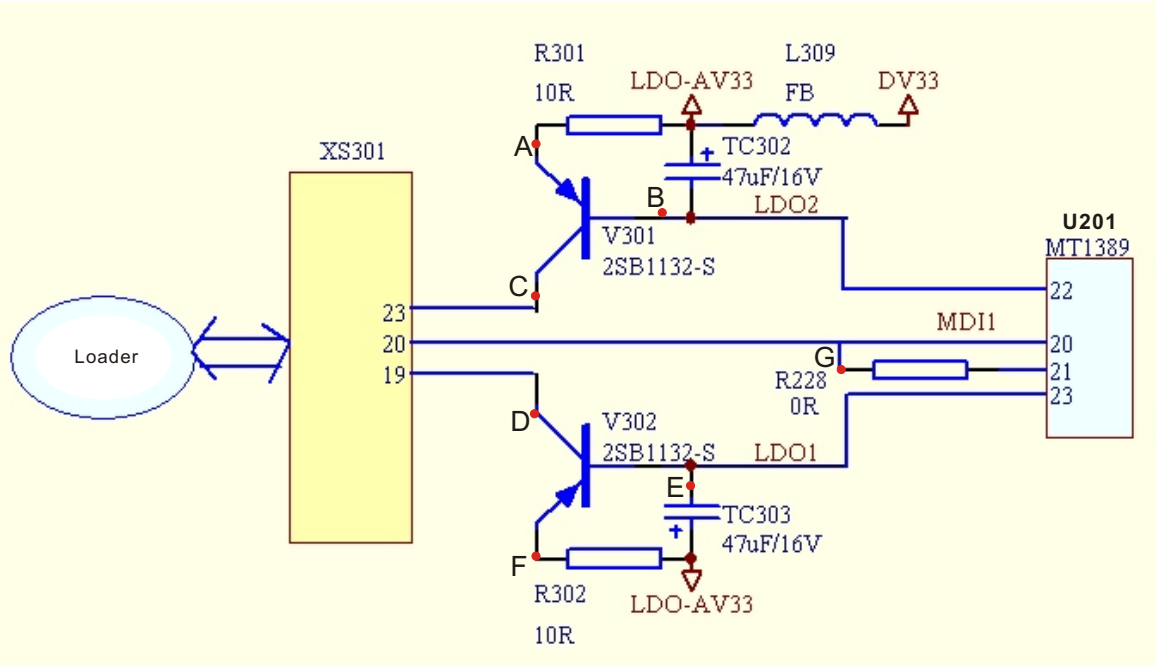


Figure 3.2.3.1 Laser power control circuit diagram

2. Working principle: Pin 20 of MT1389 is VCD laser power strong/weak signal input checking pin; pin 21 is DVD laser power strong/weak signal input checking pin; 23 pin is VCD laser power drive control output pin and pin 22 is DVD laser power drive control output pin. When reading VCD disc, if pin 20 of U201 (MT1389) has detected that the laser output power it too strong, after being processed by U201 (MT1389) internal circuit, pin 23 output voltage increases and the on-state degree of V302 decreases to make the voltage supplied for pick-up decrease and the light emitting of laser head become weak. If pin 20 has detected that the laser output power is too low, pin 23 output voltage decreases; on-state degree of V302 increases and the light emitting of laser head become strong to reach the purpose of automatically adjusting laser output power.

   When reading DVD disc, pin 21 is signal input checking pin and pin 22 is drive control output pin. The working principle is the same with that when playing VCD disc.

3. Key point voltage (unit: V), shown as the following table 3.2.3.1:

Key Point	Position	Voltage w hen reading DVD	Voltage w hen reading VCD
A	Emitter electrode of V301	2.9	3.2
B	Base electrode of V301	2.2	3.2
C	Collector electrode of V301	2.2	0
D	Collector electrode of V302	0	2.2
E	Base electrode of V302	3.2	2.2
F	Emitter electrode of V302	3.2	2.9
G	One end of R228	0.2	0.2

Table 3.2.3.1 Key point voltage

3.2.4 Reset circuit

1. The circuit schematic diagram is shown as the following figure 3.2.4.1:

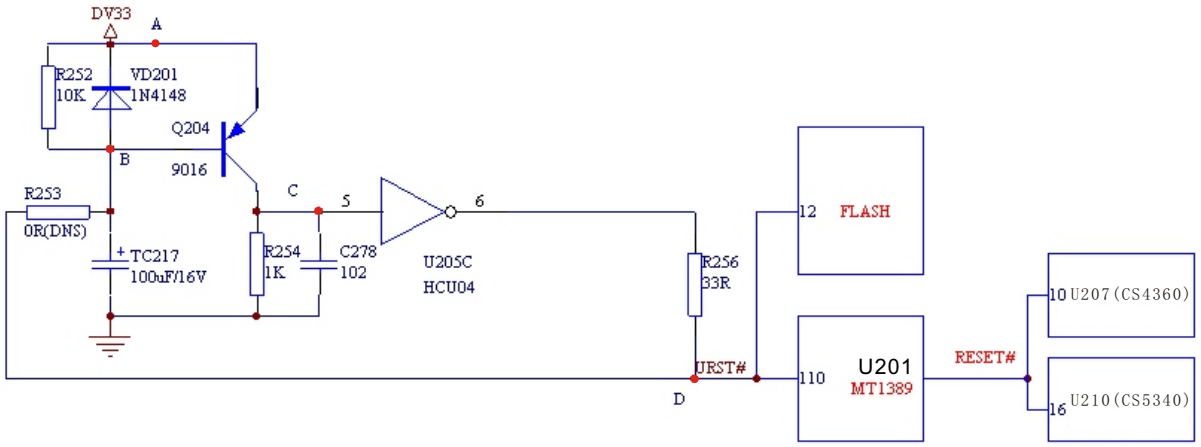


Figure 3.2.4.1 Reset circuit schematic diagram

2. Working principle: The two ends voltage of capacitor T217 cannot change suddenly, anode of the capacitor begins charging from 0V and now triode Q204 is on. Pin 5 of phase inverterU205 (HCU04) output port is high voltage and pin 6 of it is low voltage to reset chip U201 (MT1389) and chip U214 (FLASH). When charge of the capacitor is close to 3.3V, triode Q204 cut off; pin 5 of phase inverter input port is low level; phase inverter outputs high voltage from pin 6 and MT1389 reset finishes. After reset of MT1389, reset signal is also given to sound D/A conversion chip CS4360 and sound A/D conversion chip CS5340V for their resetting.
3. Key point voltage (unit: V), shown as the following table 3.2.4.1:

Key Point	Position	Voltage	Remark
DV33 (pointA)	Cathode of diode VD201	3.3V	After pow er-off, TC217 discharge current from this point
Point B	Anode of diode VD201	After reset finishes, 3.3V	After reset finishes, voltage rises from 0V up to 3.3V.
Point C	Pin 5 of phase inverter	After reset finishes, 0V	After reset finishes, voltage decreases from 3.3V dow n to 0V.

Table 3.2.4.1 Key point voltage

4. Troubleshooting process is shown as the following figure:

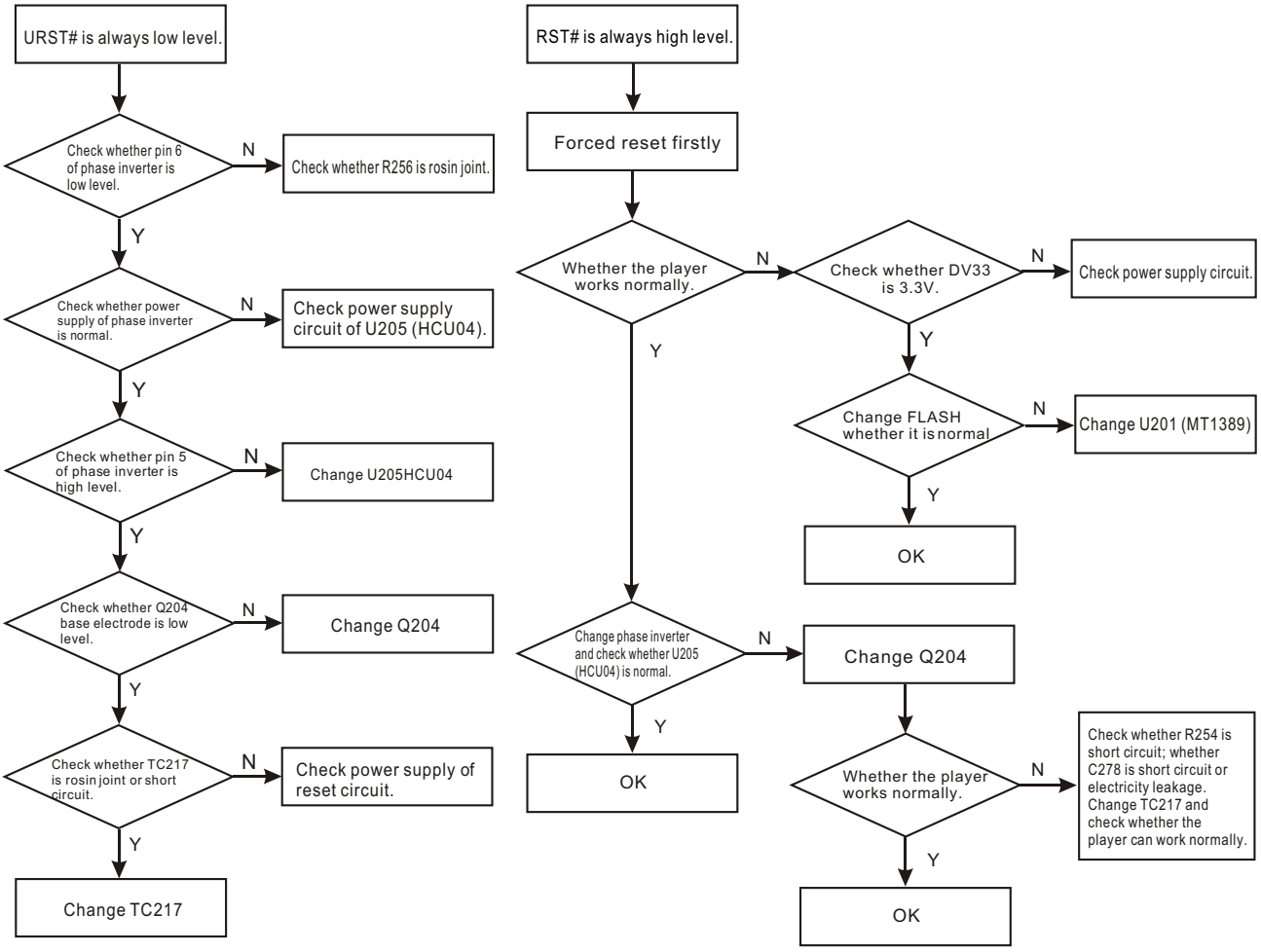


Figure 3.2.4.2 corrective maintenance process

Note: The detailed steps of forced reset if that touch a piece of grounding line with any end of R256 slightly after powering on.

3.2.5 Clock circuit

1. The circuit schematic diagram is shown as the figure 3.2.5.1.
   Note: Elements marked with "X" symbol are those unused in practice.

2. Working principle: 27MHZ clock provides working clock for system. When powering on, capacitor C275 and C276 will generate a concussion, so a vibration occurs on crystal oscillator. After several times of feedback, a stable 27MHZ clock signal is finally generated on crystal oscillator.
   The function of phase inverter is to increase feedback coefficient and for isolation.

3. This circuit may probably cause these troubles: power supply not connected; not read disc; colour distortion of picture and no colour of picture.
   Note: DC voltage of point A and B is 1.47V when in normal working.

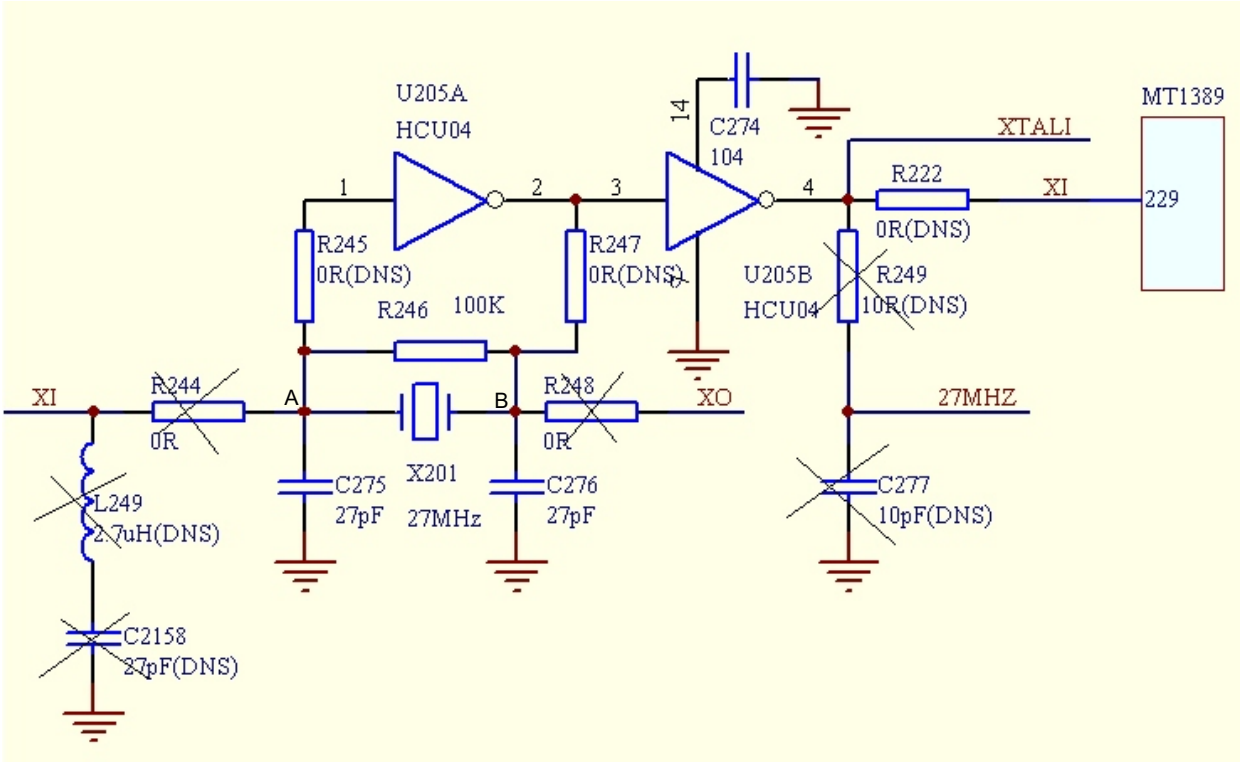


Figure 3.2.5.1 Clock circuit

3.2.6 Disc in/out circuit

1. The circuit schematic diagram is shown as the following figure 3.2.6.1:

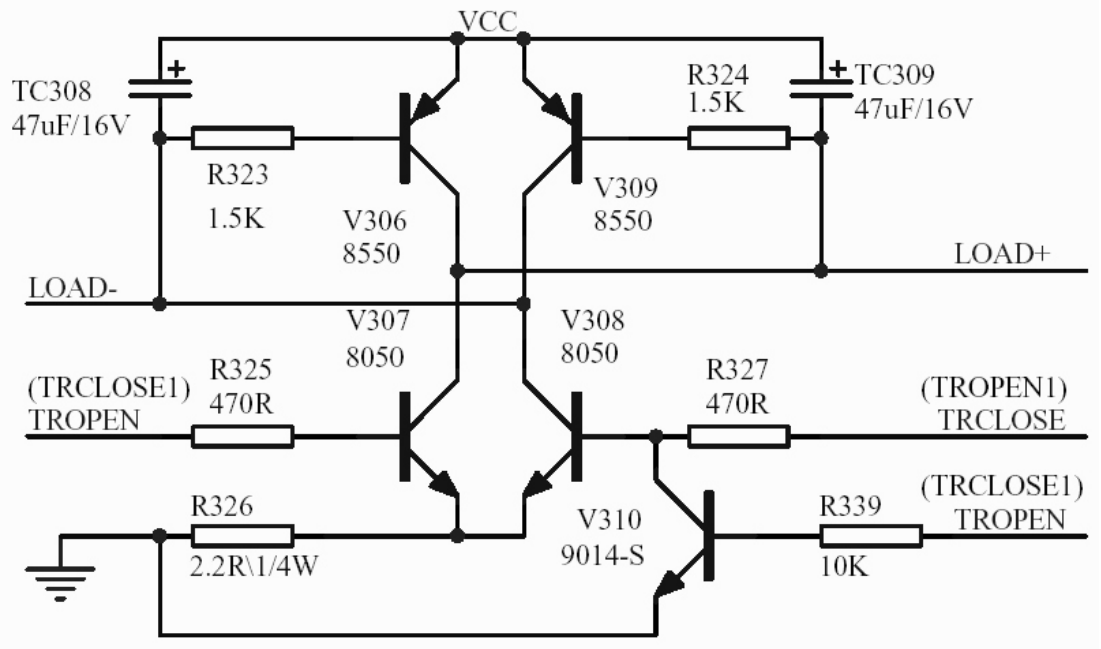


Figure 3.2.6.1 Disc in/out circuit

2. Electric current when disc in/out

Open disc tray: VCC→V306CE electrode on→LOAD+→Electric machine→LOAD- →V308CE electrode on→R326→Ground

When not opening disc tray, pin 51 and 39 of U201 (MT1389) are low level. When opening disc tray, pin 51 of U201 (Mt1389) sends a high level; V308 is on; V308 collector electrode changes into low level; LOAD- changes into low level; V306 base electrode changes into low level; V306 is on. V306 collector electrode changes into high level and LOAD+ changes into high level.

Close disc tray: VCC→V309CE electrode on→LOAD- →Electric machine→LOAD+ →V307CE electrode on→R326→Ground

when closing disc tray, pin 39 of U201 (Mt1389) sends a high level; V307 is on; collector electrode changes into low level; LOAD+ is low level; base electrode through R324 and V309 is low level; V309 is on; V309 collector electrode changes into high level; LOAD- changes into high level.

3. Troubleshooting process is shown as the following figure 3.2.6.2:

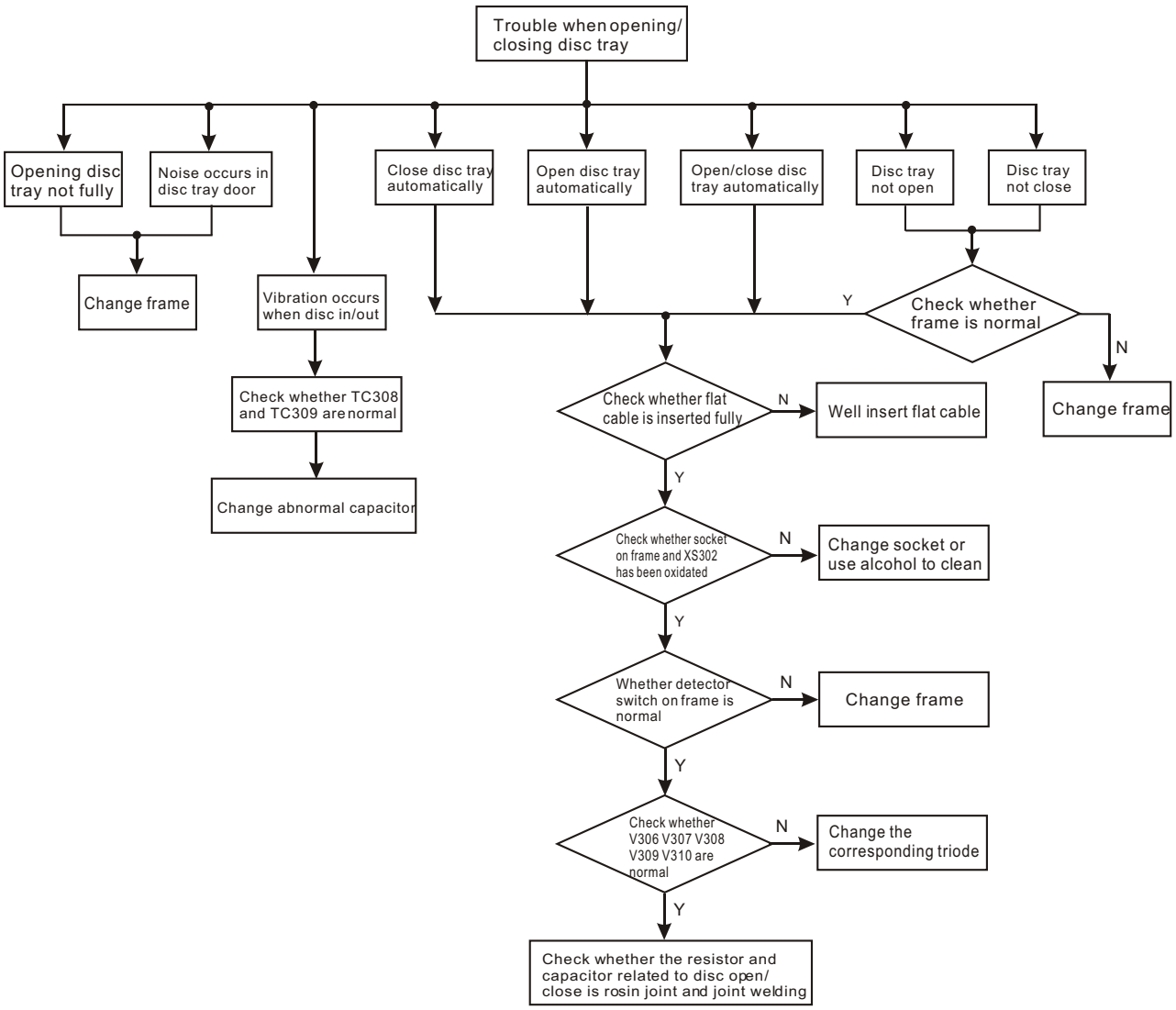


Figure 3.2.6.2 Troubleshooting flow chart when opening/closing disc tray

3.2.7 Main axis braking circuit

1. The circuit schematic diagram is shown as the following figure 3.2.7.1:

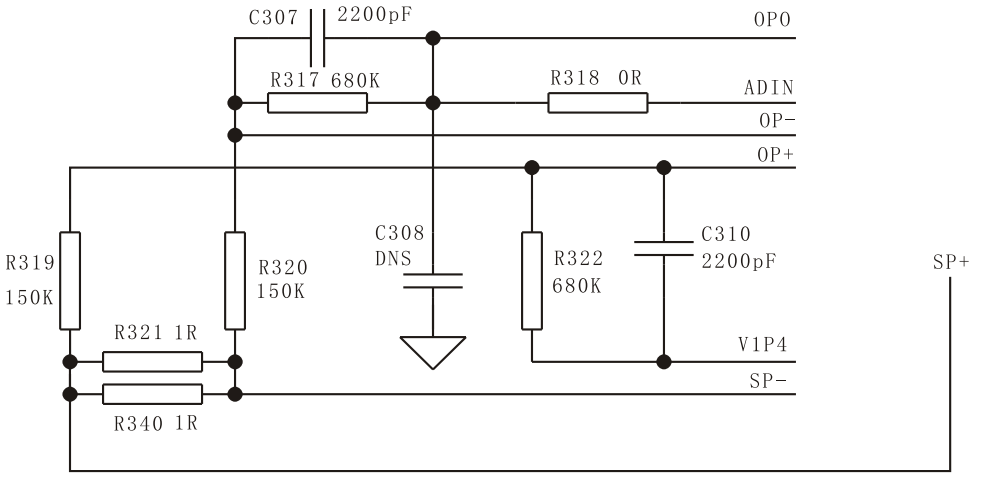
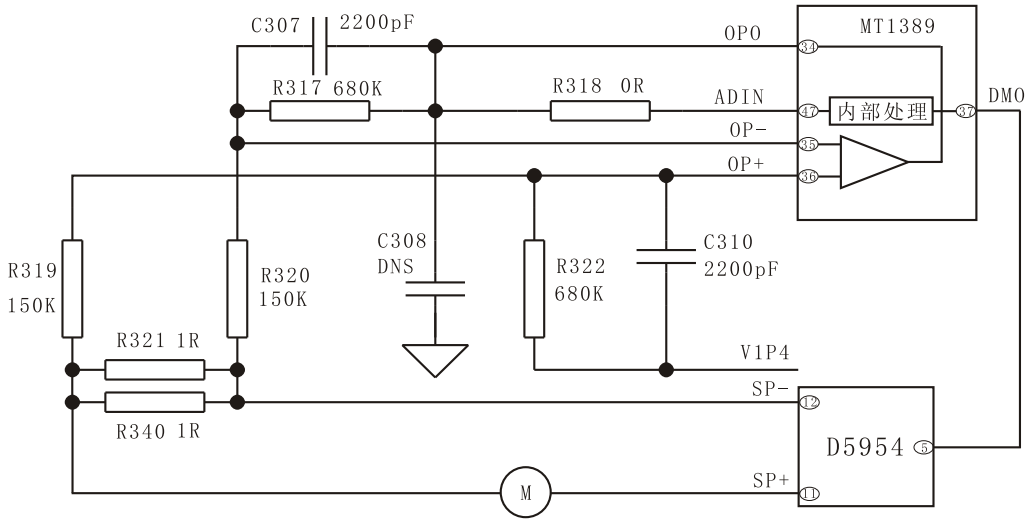


Figure 3.2.7.1 main axis braking circuit disgram

The equivalent circuit is shown as the following figure:



2. Working principle:

To prolong the service life of electric machine and decrease the influence of start-up concussion current to the machine, when there is disc in, the development personnel design the main axis electric machine in running state always. Even though “STOP” button is pressed, disc will not stop running immediately. Thus when pressing “OPEN” button, a braking signal is required to make the main axis electric machine stop running to fulfill the completion of opening disc tray in a short period. In the course of playback, press “OPEN" button and main axis drive signal disappears. For the reason of inertia, the main axis electric machine is still in running state, and now the induced voltage achieved by the induced electromotive force which is generated by electric machine's running on sampling resistor R321 and R340 outputs from pin 34 through resistor E319,

R320 and pin 36 of MT1389 after being processed inside MT1389 and magnified, then sends to pin 47 of MT1389 through R13; after A/D conversion and the corresponding processing inside MT1389, an instant electric machine reversal braking signal is outputted from pin 37 of MT1389 to make the main axis electric machine decrease speed. When MT1389 detects the disc stops running, disc tray will open to ensure that disc will not run when disc tray opens.

3. Key point voltage (unit: V), shown as the following table 3.2.7.1:

Key Point	Position	Normal working voltage (V)	Voltage changes when opening disc tray (V)
SP+	Pin 11 of D5954, pin 5 of XS303	3.79	3.79→0.70→1.80
SP-	Pin 12 of D5954, pin 6 of XS303	1.38	1.38→3.40→1.80
OP+	Pin 36 of MT1389/B	1.38	1.38→3.10→1.80
OP-	Pin 35 of MT1389/A	1.53	1.53→3.08→1.98
OPO	Pin 34 of MT1389/C	2.44	2.44→0.40→2.50
ADIN	Pin 47 of MT1389/D	2.44	2.41→0.41→2.44
DMSO	Pin 5 of D5954	1.42	1.42
VIP4	Pin 30 of MT1389	1.41	1.41

Table 3.2.7.1 Key point voltage

3.2.8 Mute circuit and power-off quieting circuit

1. The circuit schematic diagram is shown as the following figure 3.2.8.1:

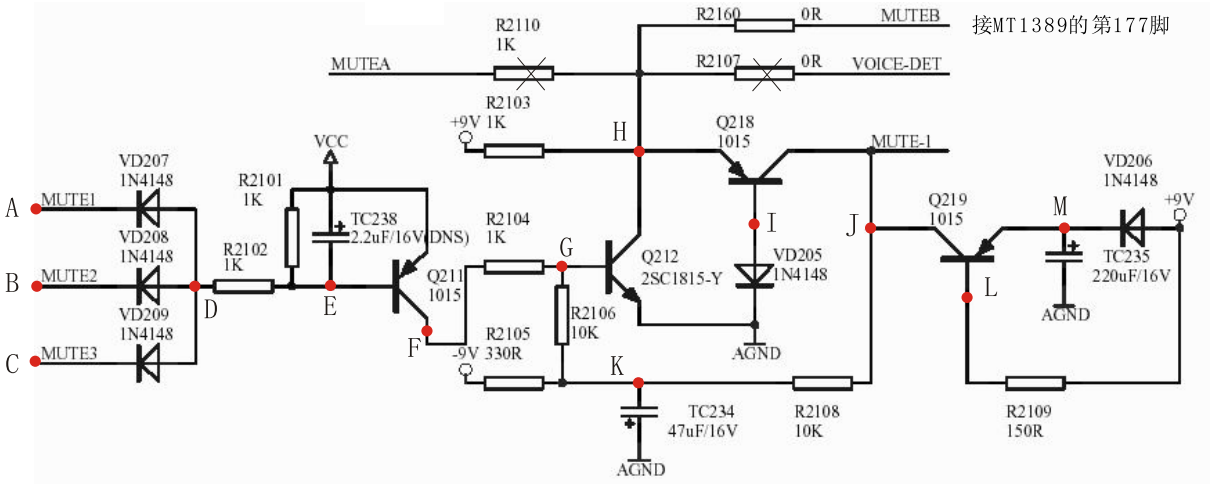


Figure 3.2.8.1 Mute and power-0ff quieting circuit

2. Working principle: under the control of I²C to MT1389, CS4360 sends 3 mute control signals, MUTE1, MUTE2, MUTE3 from pin 28, 25 and 18 which is added to mute circuit. The generated mute control signal MUTE-1 is added to the base electrode of each switching tube Q205 - Q210 of 6-path analog channel to make the switching tube and make audio signal bypass into ground to reach the purpose of mute. The working mechanism is that when no audio signal comes to a certain path, CS4360 changes the mute control signal corresponding with this path to high level. After pressing MUTE button, 3-path mute signals all change to high level. In practical usage, R2160, R2107 and R2110 are not used. For this player is with a tuner, when using radio set, CS4360 input port has no signals. Now

These three signals are all high level. To realize sound output of tuner, the collector electrode (c electrode) of Q212 is connected to pin 177 of MT1389. When tuner is working, this pin changes into low level to make the mute circuit do not work, and sound of the tuner can be outputted normally. When working normally (playing discs), only one path signal of the 3-path signals, MUTE1, MUTE2 and MUTE3 changes into low level, now Q211 is on. The collector electrode of Q211 is high level; Q212 is also on and its collector electrode is low level; Q218 is cutoff; MUTE-1 is low level and sound outputs normally.

When working normally (listening to radio set), 3-path signals of MUTE1, MUTE2 and MUTE3 are all high level, but now MUTEB is low level, so MUTE_1 is low level and tuner sound outputs normally.

When muting, MUTE1, MUTE2 and MUTE3 outputted by CS4360 all change into high level. At this time, for the base electrode of Q211 is high level, Q211 is cutoff and Q212 is also cutoff. The emitter electrode of Q218 changes into high level and also is on. +9V voltage is added to MUTE-1 through Emitter-Collector of Q218, the outputted high level is added to the base electrode of switching tube Q205~Q210. The switching tube is on and sound is bypassed to ground.

Power-off quieting: when working normally, because there is no forward bias, Q219 is in cutoff state. When powering off, +9V disappears and the base electrode of Q219 changes into low level. For capacitor TC235 discharge is high level to the emitter electrode, Q219 is on. The discharge of TC235 makes MUTE-1 outputs high level and add to each switching tube through Emitter-Collector of Q219 to make the switching tube on and sound is bypassed to ground to realize the function of power-off quieting.

Power-on quieting: when powering on, VCC is connected to power supply, voltage of the two ends of TC238G cannot change suddenly. The base electrode of Q211 changes into about 5V and then Q211 is cutoff, Q212 is cutoff and MUTE-1 changes into about 1.68 to perform power-on quieting function.

The function of -9V voltage in the figure is to ensure the secure cutoff of each switching tube when circuit is working normally.

3. Key point voltage (unit: V), shown as the following table 3.2.8.1:

Key point	A	B	C	D	E	F	G	H	I	J	K	L	M
No mute	0.02	0.02	0.02	0.53	4.55	5.2	0.84	0.12	-0.15	-4.27	-4.27	10.4	10.4
Mute	5.02	5.02	5.02	5.18	5.23	-3.86	-3.87	1.67	0.81	1.63	-3.87	10.31	10.4
Insert microphone	0.02	5.02	0.02	0.53	4.52	5.2	0.64	0.12	-0.15	-4.27	-4.27	10.4	10.4

Table 3.2.8.1 Key point voltage

3.2.9 Servo circuit

1、DK1005S adopts SANYO 62 decoder and MTK decode solution (MT1389+FLASH (16M)+ SDRAM (64M)). The servo circuit is mainly composed of front signal processing, digital servo processing, signal processing IC T1389 and drive circuit D5954, in which MT1389 is the main component of decode circuit at the same time.

2、The circuit functional block diagram is shown as figure 3.2.9.1.

The Explanation to the block diagram:

After powering on or disc in, disc identification circuit identifies the disc inserted into loader, and judges whether the disc is CD or DVD to conduct the corresponding control. At the same time, MT1389 adjusts laser output power through laser power control circuit. Pin 20 of MT1389 is VCD laser power strongness/weakness detecting signal input pin, pin 21 is DVD laser power strongness/weakness detecting signal input pin, pin 23 is VCD laser power drive control output pin and pin 22 is DVD laser power drive control output pin. When reading VCD disc, if pin 20 detects laser output power is too strong, output voltage of pin 23 of MT1389 increases and on-state of V302 decreases to make the voltage provided for pick-up decrease and light emission of laser head become strong.

After loader reading disc information, A, B, C, D, E, F signals are sent out to Mt1389 (DVD only has A, B, C, D signals), and then inputted from pin 2~11, 18, 19 of MT1389. After being amplified and processed by the pre-amplifier inside MT1389, now signals are separated to two part s for

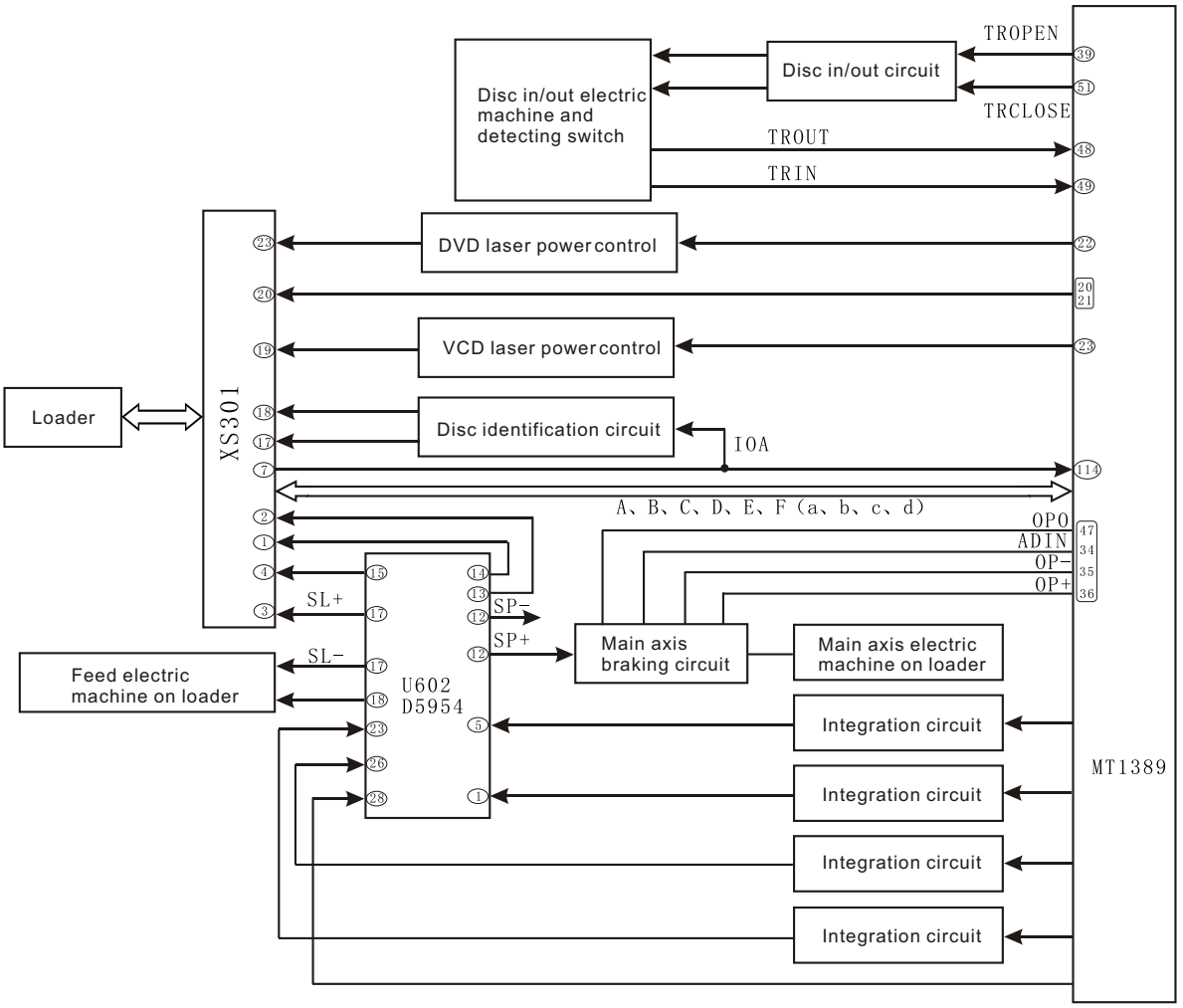


Figure 3.2.9.1 Servo circuit diagram

processing inside Mt1389:
After being processed by digital servo signal circuit inside MT1389, one part of signal form corresponding servo control signals and output FOO, TRO, DMO, FMO digital servo control signals from pin 42, pin 41, pin 37, pin 38 of Mt1389 respectively, then change into analog servo control signal FOSO, TRSO, DMSO, FMSO through integration circuit composed by resistor capacitor, and send to driver circuit BA5954 for amplification to bring along focus coil, trace coil, main axis electric machine and feed electric machine after drive amplification. Among these, focus and trace servo are used to correct objective position accurately; feed servo is used to bring along laser head to make radial large-scale move which belongs to the preliminary adjustment to pick-up position;and main axis servo is used to control main axis electric machine to make it read signals in means of constant linear velocity and bring along disc to rotate.
After processing of amplification by VGA voltage control amplifier and equalization frequency compensation inside MT1389, another part of signals are changed into digital signals through internal A/D converter. When loader is reading CD/VCD signals, these signals are conducted EFM demodulation inside MT1389, and then outputted to latter stage for AV decoding after finishing CIRC (Cross-Interleaved Reed-Solomon Code) error correction inside. When loader is readingDVD signals, these signals are conducted ESM demodulation inside MT1389, and then sent to latter stage for decoding after finishing RSPC error correction inside.

The other part of servo is open/close disc tray circuit. After panel or remote controller emits open/close disc tray signal toMT1389, in usual conditions, TROPEN and TRCLOSE sent out by pin 39, 51 of Mt1389 are both low level, when signal of “open” comes, after Mt1389 makes disc stop rotating through main axis braking circuit, TRCLOSE is set high to make open/close electric machine on loader frame run to bring along dist tray to eject. After disc tray ejecting to proper

Signal of opening to proper position (TR_OUT) is set high level (0V) through the detecting switch on loader frame, MT1389 pulls down TRCLOSE and open/close electric machine stop running. When MT1389 receiving “close” signal, TROPEN is set high level by MT1389, open/clode electric machine tuns conversely to bring along disc tray to close. After disc tray closing to proper position, signal of closing to proper position (TR_IN) is set low level through the detecting switch on loader frame, MT1389 pulls down TROPEN and electric machine stops running to finish “close” process.

3. Explanation to servo terms

FOO: when rotating, disc may probably move upwards or downwards slightly to make the focus of laser emitted by pick-up cannot justly fall on data pit of disc, so pick-up is required to move upwards or downwards to make focus aim at data pit justly. When pick-up is moving upwards or downwards, it means that pick-up is making focus acts.

TRO: data information is save in disc in form of tracks. The process when pick-up moves from one track to another one to read data is trace. In this process, it is objective, but the entire pick-up, that moves forwards or backwards, and the moving range is very small.

FMO: similar to acts of trace, the acts of feed are larger than those of trace. Feed conducts a large scale movement firstly, and then trace moves slightly in this range. Feed moves for a while, and does not move for another while; but trace moves all the time. Feed is rough adjustment and trace is fine.

DMO: it is the top that holds up disc. Its rotation speed decides that of disc. Its rotation is generated by an individual DC electric machine, in which rotation speed of DVD is twice over that of CD.

Hint: In order to observe these processes, you may take down upper cover of the machine, and then the loader cover board. When power on with no disc in or disc in after disc out, you may observe that pick-up returns to inner ring firstly and then springs back for a little distance, which is feed process. Then pick-up will emit light and you may notice the objective moves upwards and downwards, which is focus process. In face, in the same time of focus, the objective also moves upwards and backwards to make trace acts. Because the range is small, it is not easy to observe, and meanwhile DEMO disc tray also rotates slightly, which is DEMO acts.

3.2.10 Video circuit

1. The circuit functional block diagram is shown as the figure 3.2.10.1:

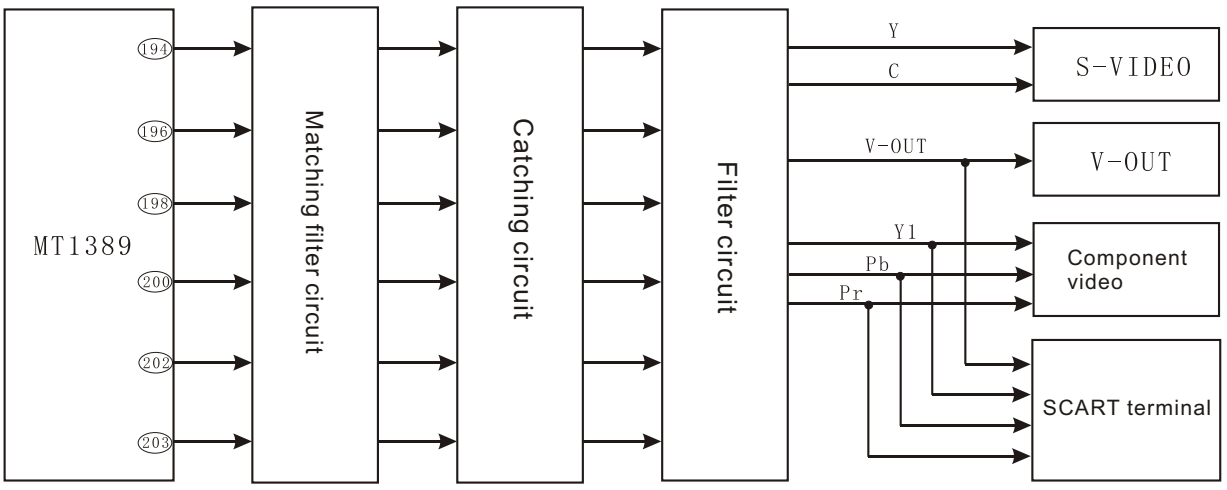


Figure 3.2.10.1 Functional block diagram of video

Brightness signal, colour difference signal, CVBS signal and component video signal after being decoded by U201 (MT1389) are sent out to the corresponding terminal for output after lowpass filtering and clipping. Take C signal as an instance, the following figure 3.2.10.2 shows the working principle of filtering limiter circuit.

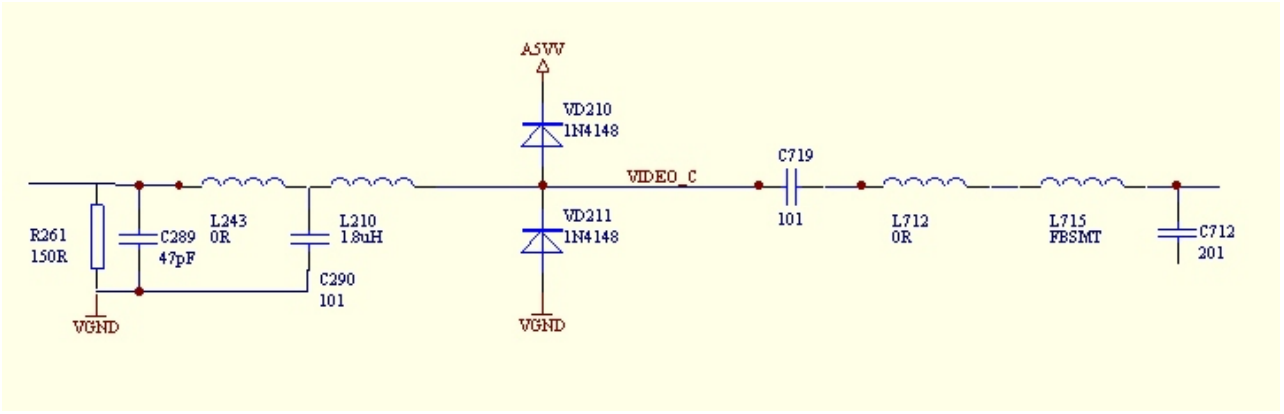


Figure 3.2.10.2 C signal circuit diagram

2. Working principle: R261 is a matched resistor, which makes the signal achieve the maximum power on load. Capacitor C289, C290 and inductor L243, L210 compose a lowpass filter which filters the high frequency interference signals beside useful ones; diode Vd210 and Vd211 compose a limiter circuit. It is known from features of diode that the maximum amplitude of colour difference signal C cannot exceed 5.7V and the minimum one cannot be under -0.7V, thus the high voltage signal from TV set can be avoided burning down the player. Please refer to video signal flow diagram for details.
3. Key point voltage (unit: V) is shown as the following table 3.2.10.1:

Signal	Function	Probably caused trouble	No disc	In playing
Y	Brightness of S-VIDEO	No picture/picture bright/picture dark for S-video terminal	0.74/0.65	1.44
C	Chroma of S-VIDEO	No colour/colour distortion for S-video terminal	1.48	1.48
VIDEO	Composite signal of component video	No picture/picture bright/picture dark for composite video	0.64	0.66
Y1	Brightness signal of component video	No picture/picture bright/picture dark for component video	0.78/0.67	0.56
Pb	Chroma signal of component video	colour distortion for component video	1.76/1.46	0.71
Pr			1.5	0.77

Note: In "No disc" column, "/" symbol refers to the data when blue screen is changing into black screen. The above measurement are all those when connecting with load.

4. Troubleshooting process for video circuit

(1) Troubleshooting process for “No output for composite video” is shown as the following figure 3.2.10.3:

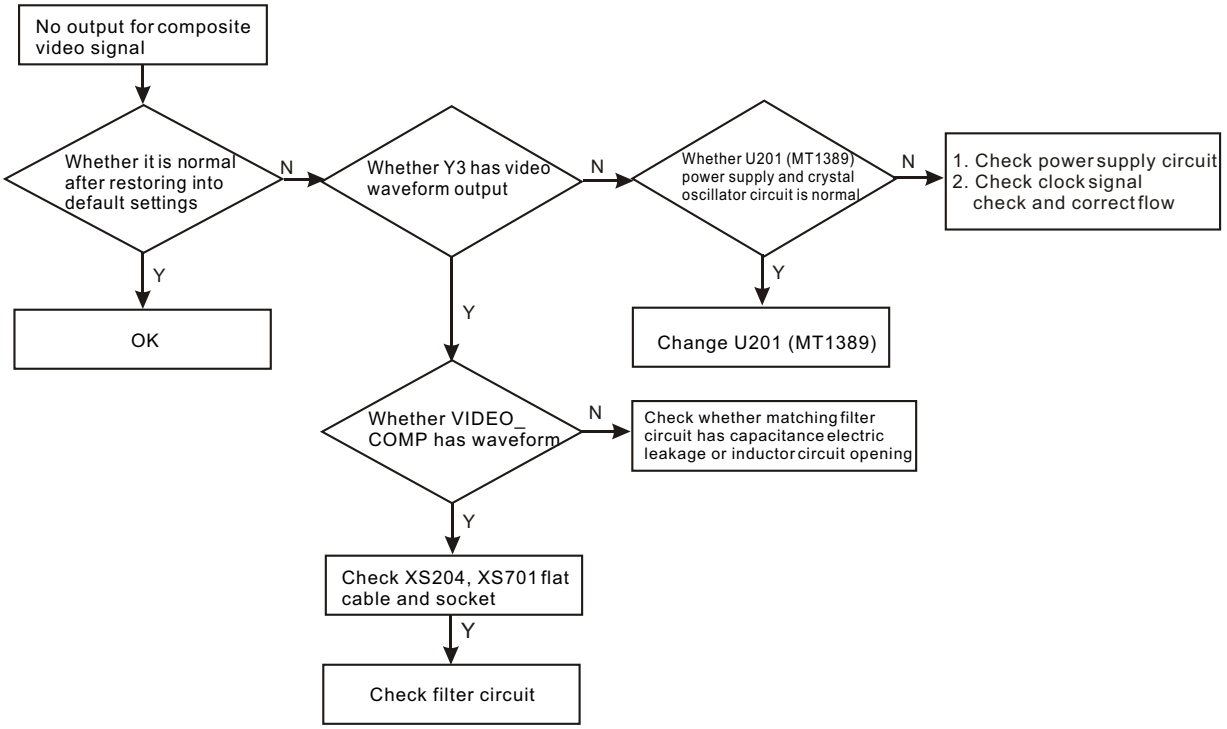


Figure 3.2.10.3 Flow chart of “No output for composite video”

(2) Troubleshooting process for “On-screen-mosaic when playing” is shown as the following figure 3.2.10.4:

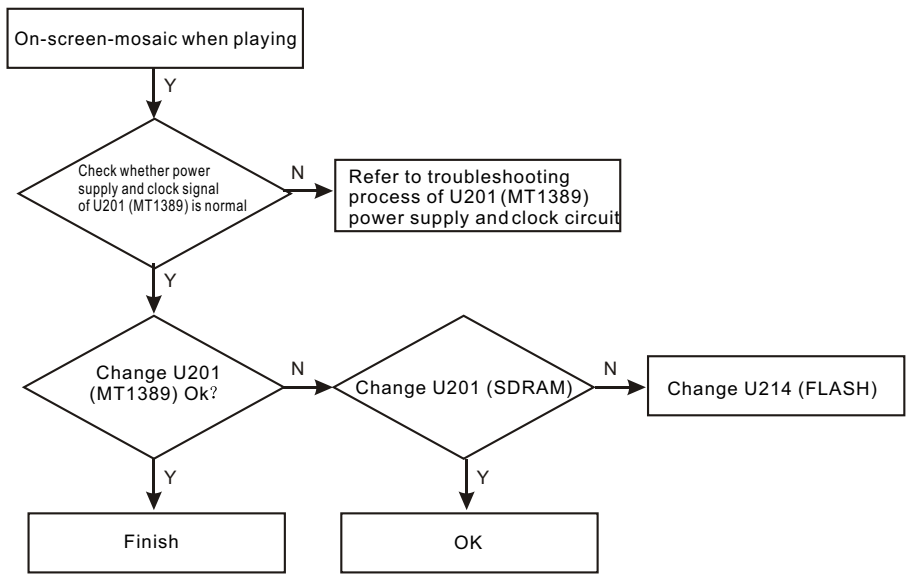


Figure 3.2.10.4 Flow chart of “On-screen-mosaic when playing”

(3) Troubleshooting process for "No colour of picture" is shown as the following figure 3.2.10.5:

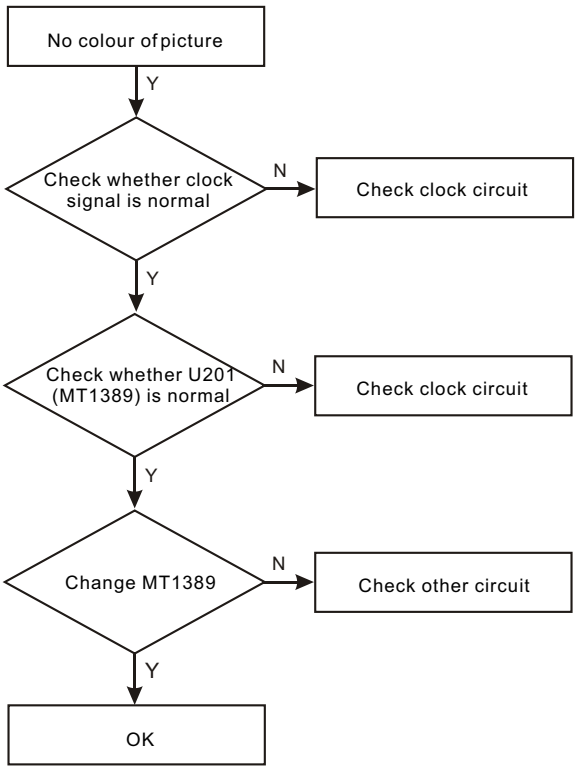
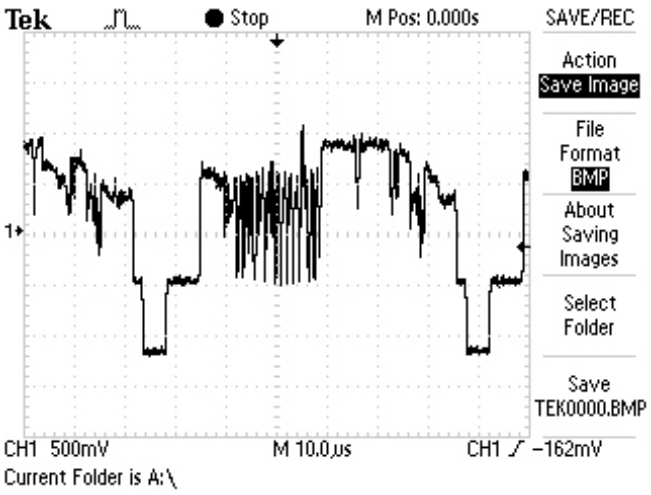


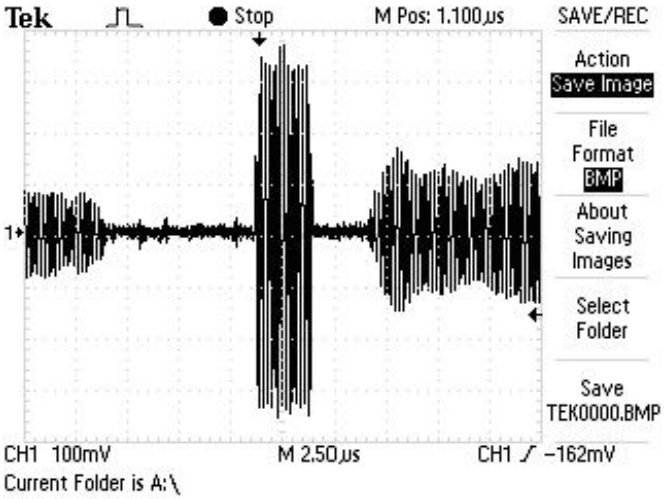
Figure 3.2.10.5 Flow chart of "No colour of picture"

5. Video signal waveform diagram is shown as the following series figure 3.2.10.6:

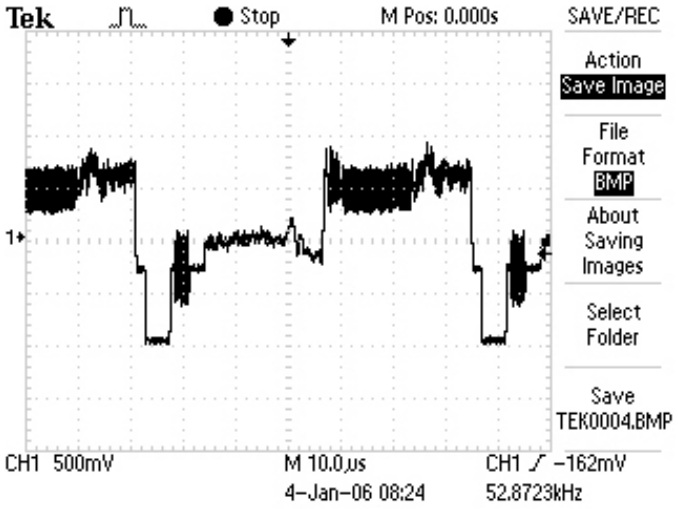
(1) Y1: brightness signal in S-Video terminal



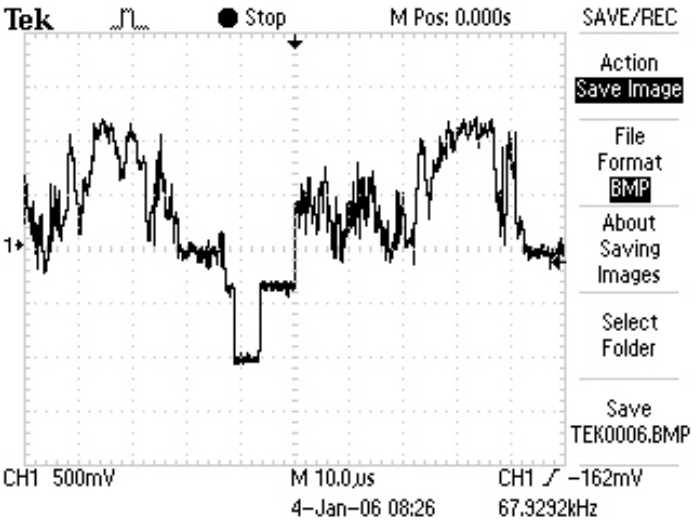
(2) Y2: colour difference signal in S-Video terminal



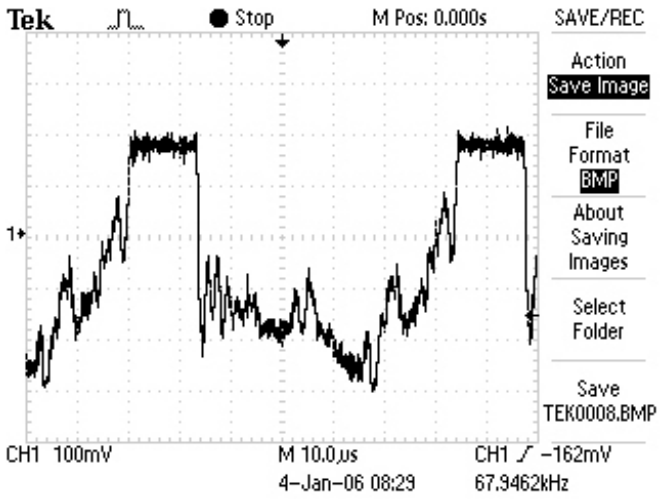
(3) Y3: composite video signal



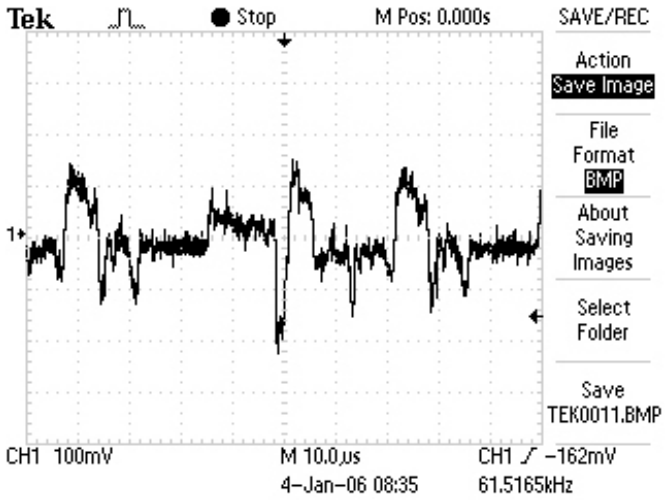
(4) Y4: component video brightness signal



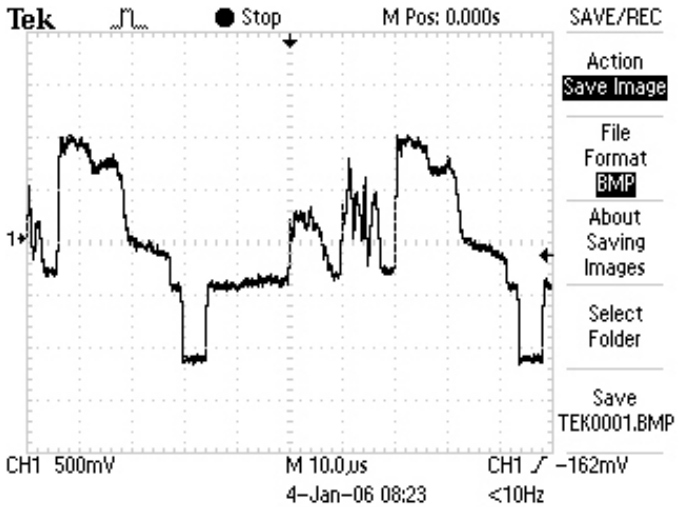
(5) Y5: component video blue colour difference signal (Y-B)



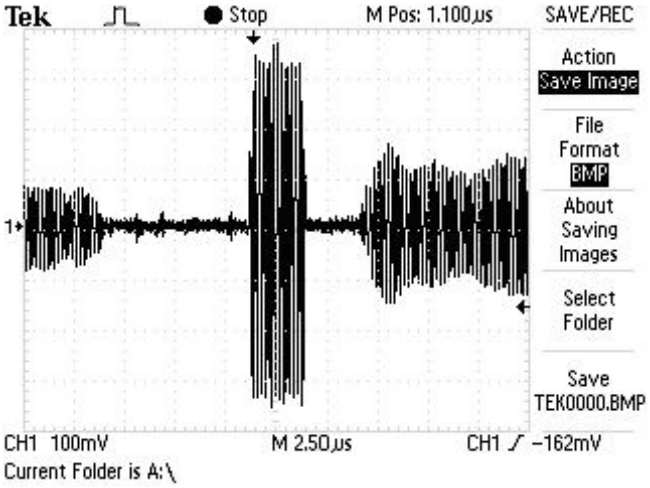
(6) Y6: component video red colour difference signal (Y-R)



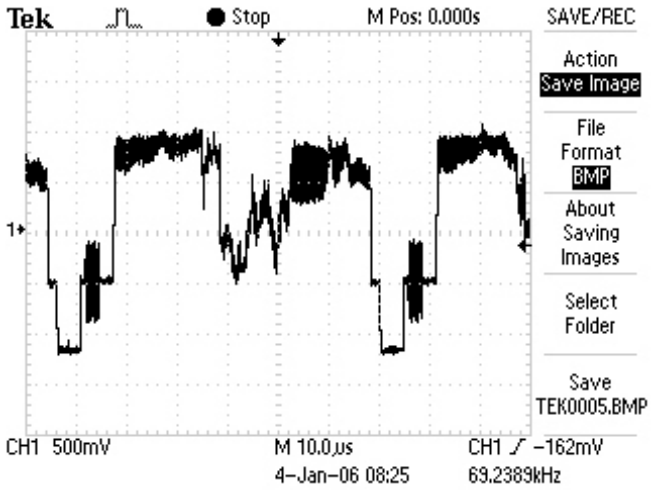
(7) VIDEO-C: S-video terminal colour difference signal after filtering



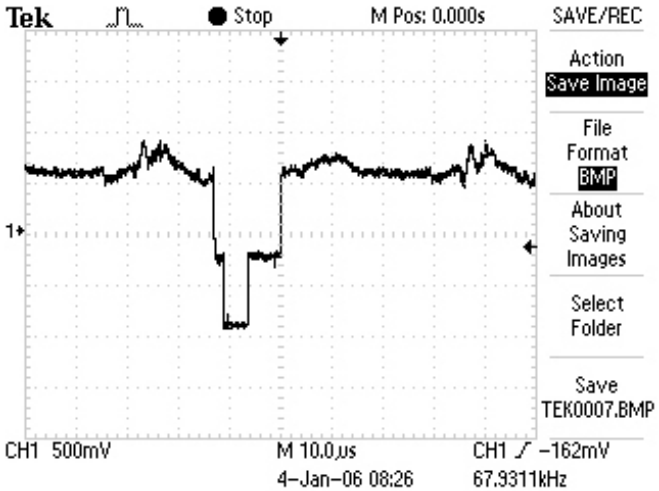
(8) VIDEO-Y: S-Video terminal brightness signal after filtering



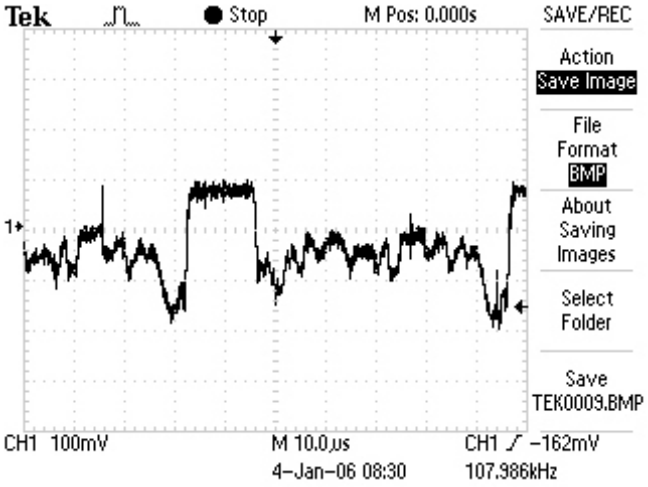
(9) VIDEO-COMP: composite video signal after filtering



(10) VIDEO-Y1: component video brightness signal after filtering



(11) VIDEO-U: component video blue colour difference signal after filtering (Y-b)



(12) VIDEO-V: component video red colour difference signal after filtering (Y-r)

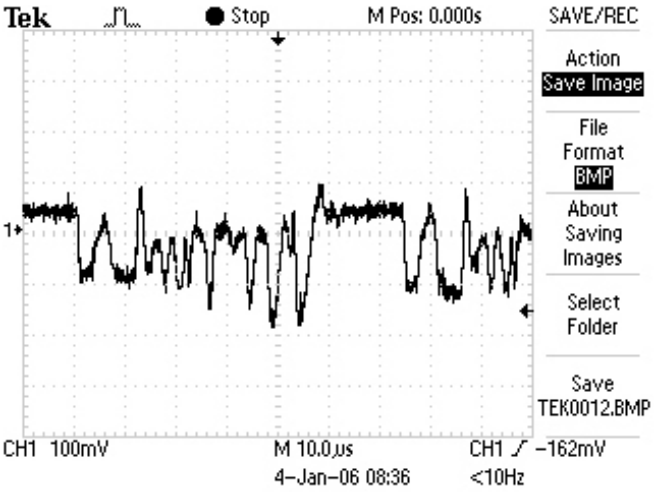


Figure 3.2.10.6 Video waveform series figure

3.2.11 Audio circuit

1. The function of connect signal between MT1389 and Cs4360 is shown as the following figure 3.2.11.1:

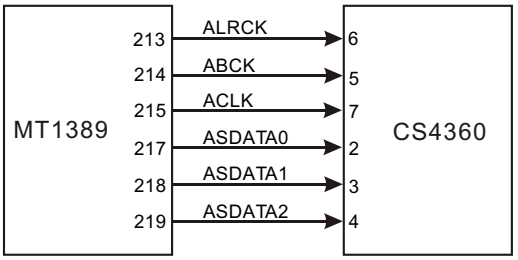


Figure 3.2.11.1 Diagram about the connection between MT1389 and Cs4360

2. Explanation to signal function is shown as the following table 3.2.11.1:

Name	Function	Signal	Name	Function
Left/right bit clock signal	Used to separate left and right channels	ASDATA0	Digital audio signal	including left and right channel signals
Bit clock signal	Used to ensure the accuracy of signal transmission	ASDATA1	Digital audio signal	Including surround left and right channel signals
External clock signal	Working clock of CS4360	ASDATA2	Digital audio signal	Including centre/subwoofer channel signals

Table 3.2.11.1 Explanation to signal function

3. Functional block diagram of audio circuit is shown as the figure 3.2.11.2.

4. Working principle: digital audio signals SDATA0, ASDATA1 and ASDATA2 after being decoded by U201 (MT1389) are outputted to pin 2, 3 and 4 of U207 (CS4360) from pin 217, 218 and 219 of U201 (MT1389) respectively, among which the function of 33ohm resistor is to prevent electromagnetic interference. The above three-path digital signals, through CS4360 D/A conversion, output left/right channel analog audio signal from pin 27 and 26; output left/right channel mute control signal MUTE1 from pin 28; output surround left/right channel analog audio signal from pin 24 and 23; output surround left/right channel mute control signal MUTE2 from pin2; output centre subwoofer analog audio signal from pin 20 and 19 and output centre subwoofer mute control signal MUTE3 from pin 28. When a certain path signal has input, the corresponding analog signal of this path has output, and the corresponding MUTE signal is low level, or else it is high level. When tuning function is selected, as for U207 (CS4360), the three-path digital audio signals all have no output and the corresponding three-path MUTE signals are all high level. Now, MUTEA signal is low level and makes MUTE-1 change into low level and the sound is not made bypass. When in no-disc state, MUTEA, MUTE1, MUTE2 and MUTE3 are all high level, MUTE-1 is high level, sound is bypassed and in mute state. U201 (MT1389) will output the gating signal of U304 (CD4052) through pin 186 and 187. This signal is inputted into pin 9 and 10 of U304 (CD4052) after reversal and U304 (CD4052) will perform gating according to these two signals, shown as the following table 3.2.11.2.

CD4052	Disc read	Radio set	Unused	Unused
Pin 9	1 (10.47V)	0 (0.02V)	0	0
Pin 10	0 (0.03V)	1 (0.36V)	0	0

Table 3.2.11.2 CD4052 function table

The used three-path clock signals of U207 (CS4360) are the same with those of U210 (CS5340). U210 (CS5340) is to converse the analog OKA into digital signal and then output from pin 4 of U210 (CS5340), then into pin 224 of MT1389 and form echo with OKA signal which is connected to the operational amplifier after being processed inside U201 (MT1389). AR and AL signals outputted from pin 31 of U304 (CD4052) output LS, RS, C# and LFE# from pin 24, 23, 20 and 19 of U207 (MT1389) which are transmitted to AV board and then outputted through terminal after being amplified by the operational amplifier.

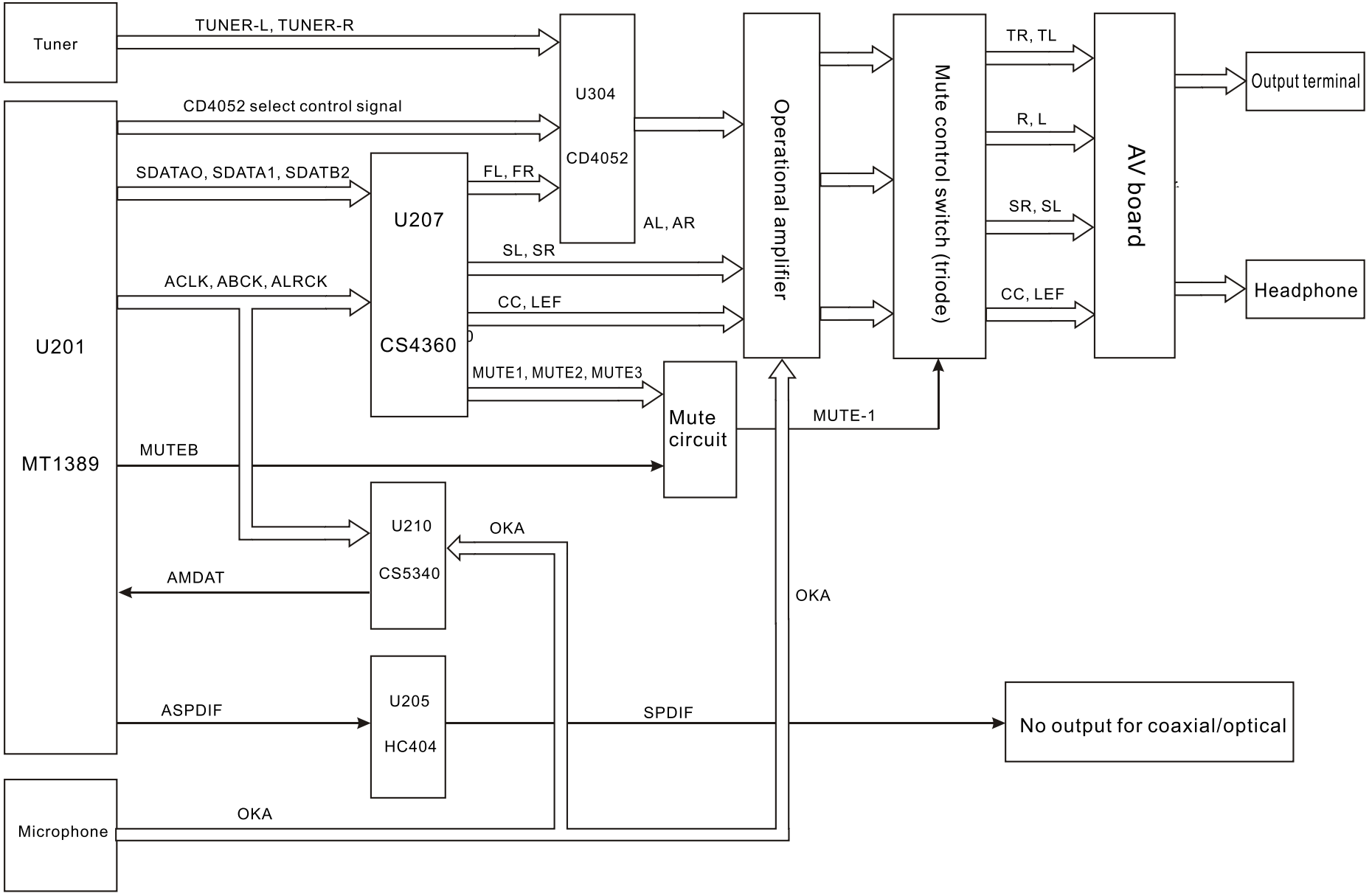


Figure 3.2.11.2 Functional block diagram for audio circuit

5. Troubleshooting for "No signal output for left/right channel when playing disc" is shown as the figure 3.2.11.3:

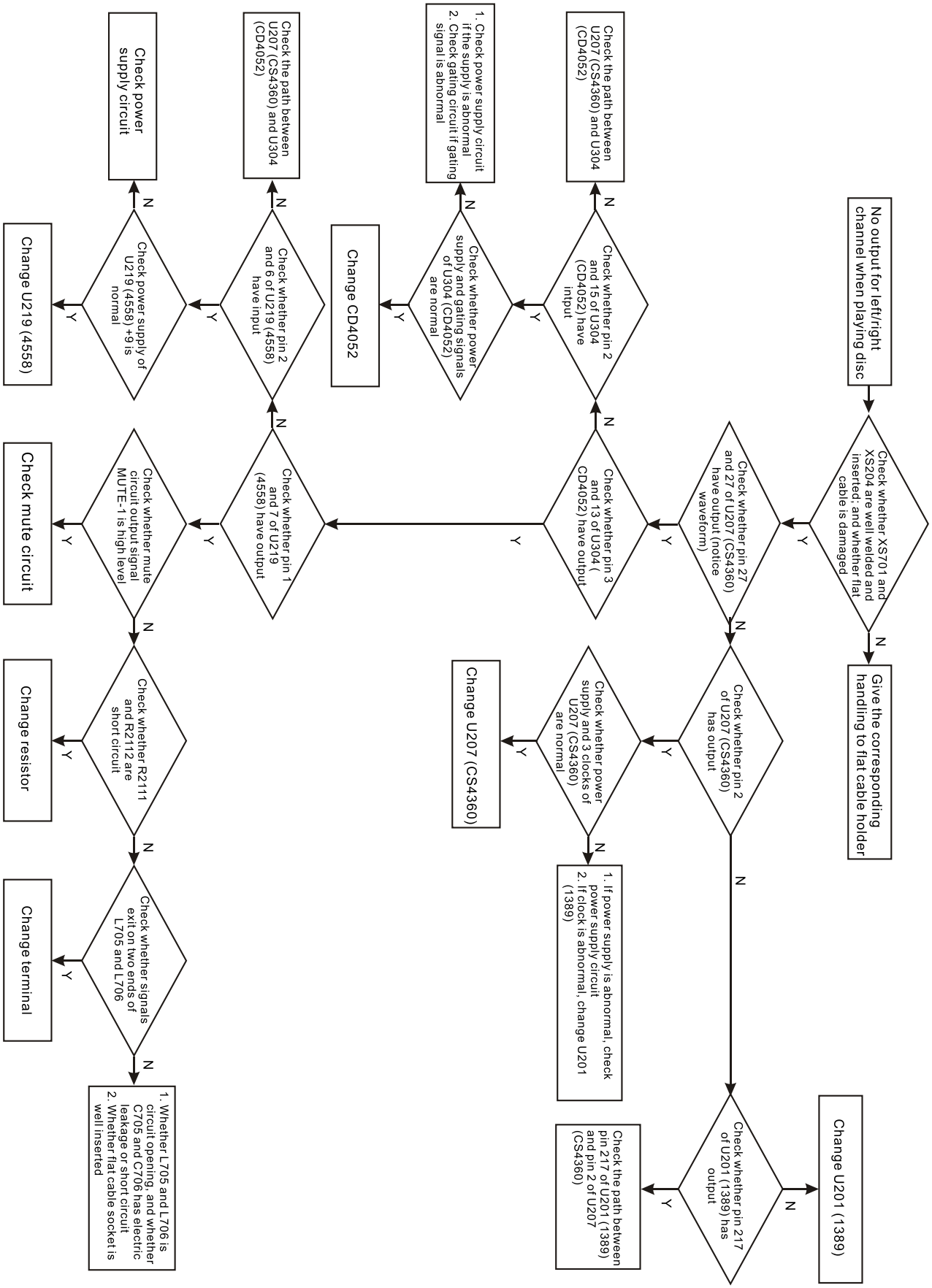
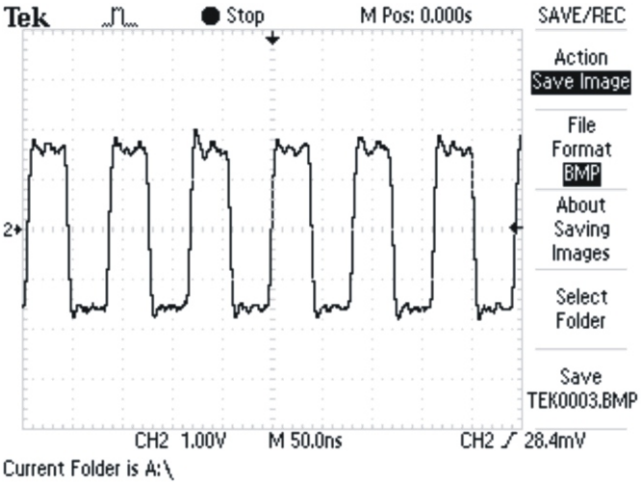


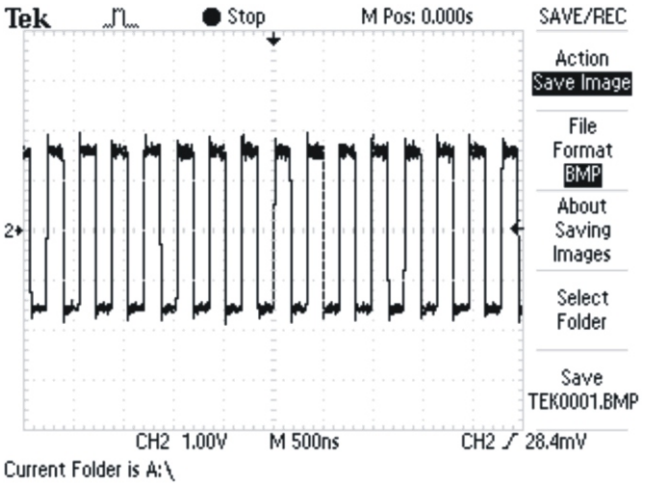
Figure 3.2.11.3 Troubleshooting diagram for “No sound for left/right channel when playing disc”

6. Audio signal waveform is shown as the following figure 3.2.10.4:

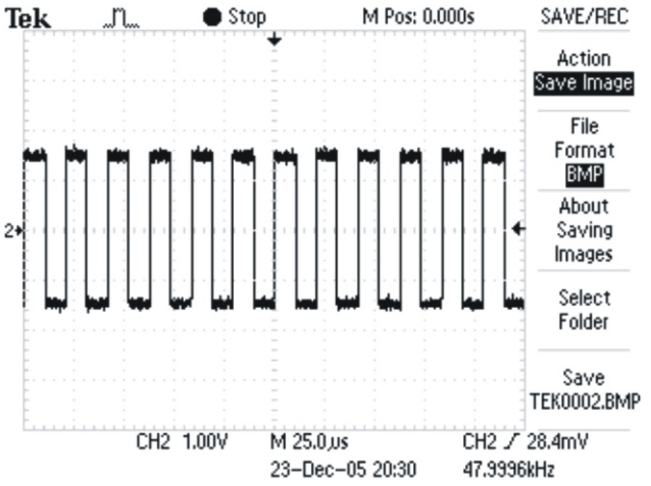
(1) ACLK (12.2878MHZ): externmal clock signal



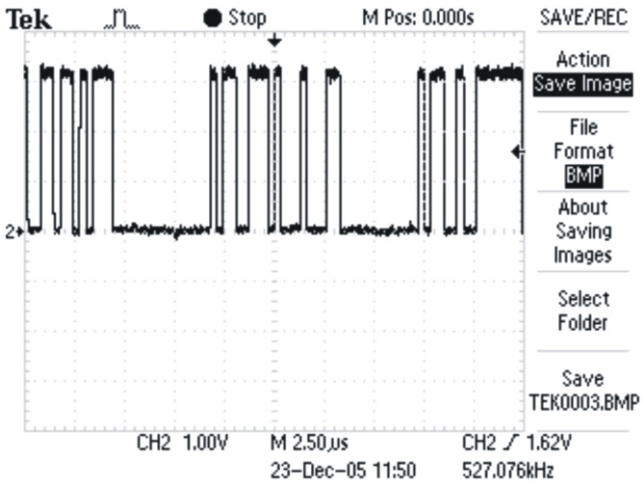
(2) ABCK (3.07195MHZ): bit clock signal



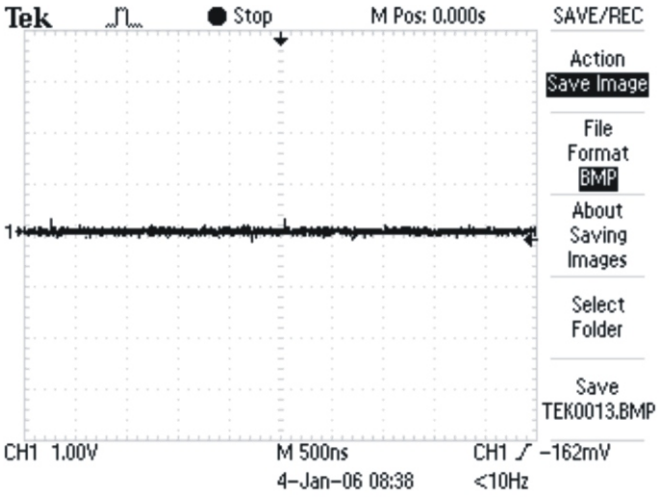
(3) ALRCK (48KHZ): left/right channel clock signal



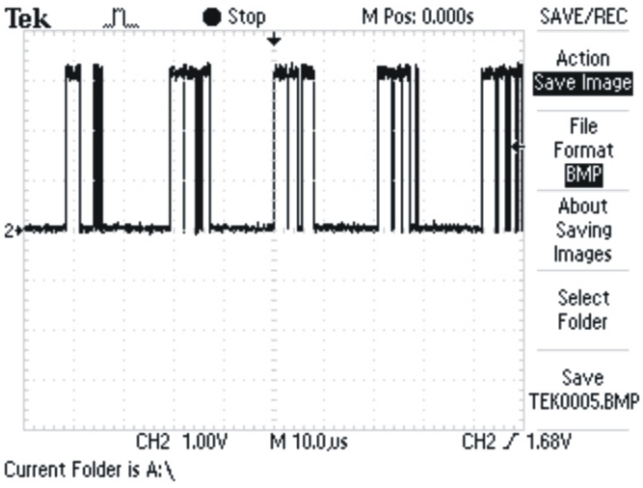
(4) SDATAO: mixed left/right channel digital signal



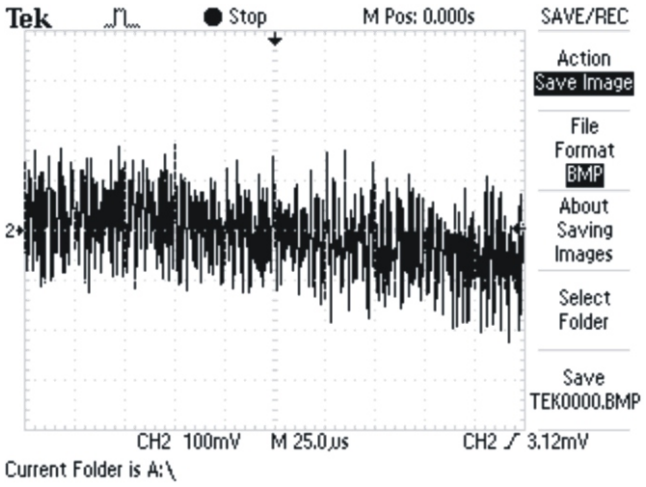
(5) SDATA1: surround left/right channel digital signal (now if the played disc is 2.1CH, this signal has no output; if 5.1CH, the form of this signal is the same with that of SDATA0)



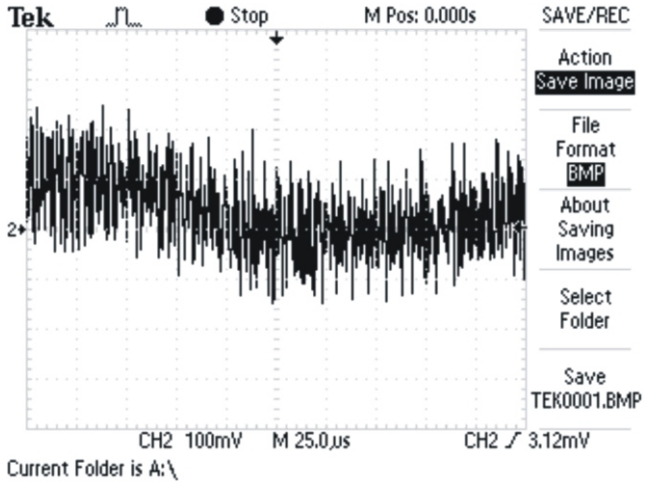
(6) SDATA2: centre subwoofer digital signal



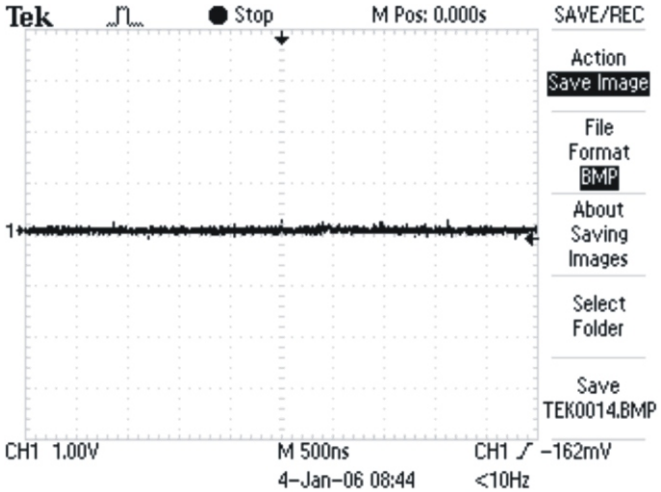
(7) FL: front left channel analog signal



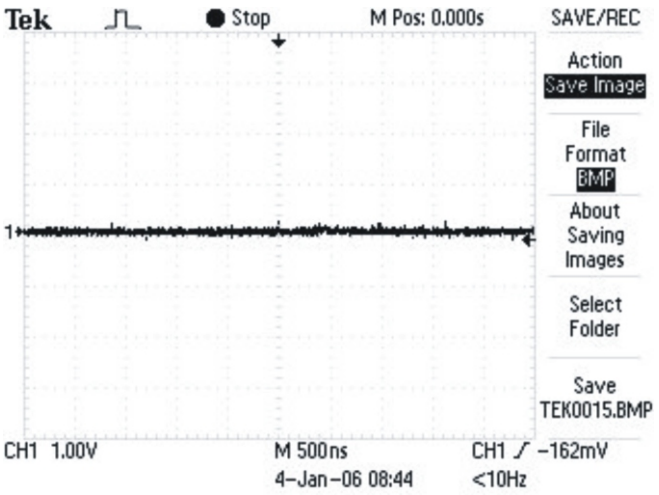
(8) FR: front right channel analog signal



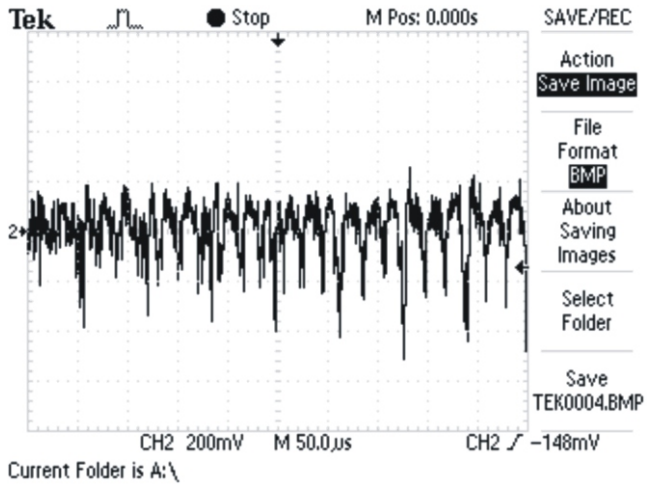
(9) LS: surround left channel analog signal (now if the played disc is 2.1CH, there is no signal; if 5.1CH, the form is similar with that in title (8))



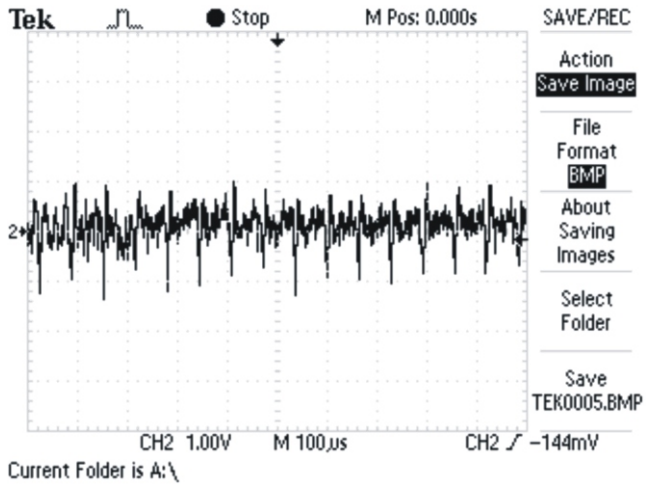
(10) RS: surround right channel analog signal (only the played disc is 5.1CH, there is this signal, with the form similar as that in title (8))



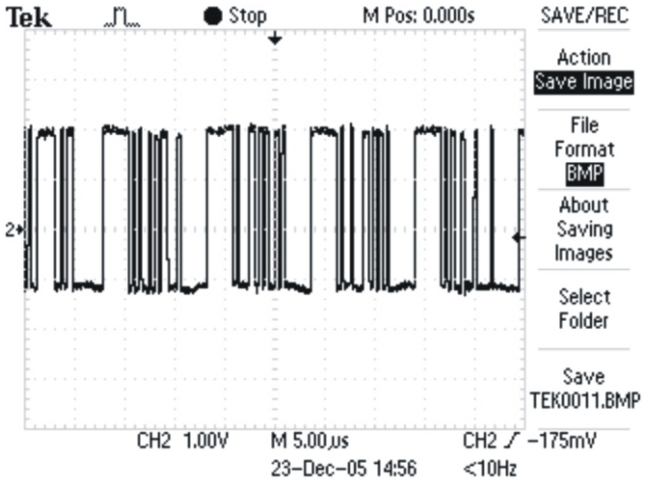
(11) C#: centre channel analog signal



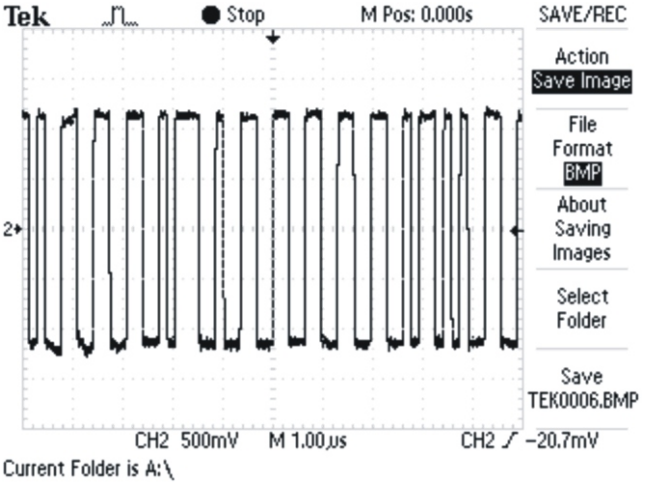
(12) LEF#: subwoofer channel analog signal



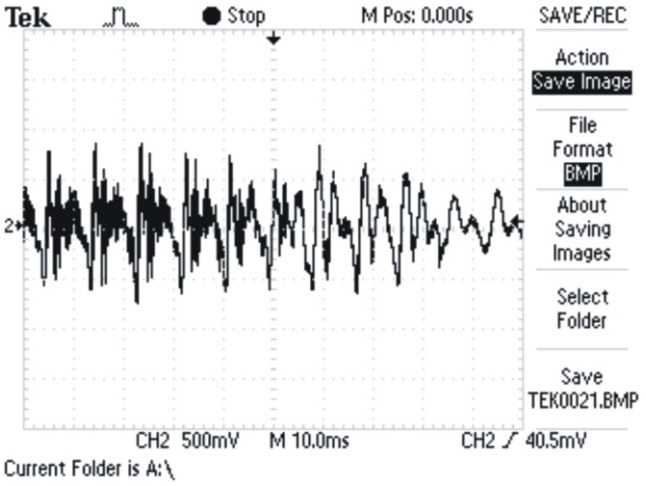
(13) AMDAT: microphone signal after 5340 A/D conversion



(14) SPDIF: optical/coaxial digital audio signal



(15) TUNER-L: radio set left channel signal



(16) TUNER-R: radio set right channel signal

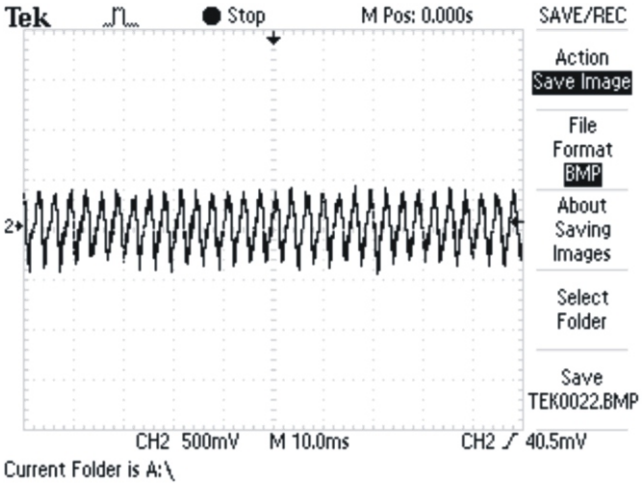


Figure 3.2.10.4 video signal waveform figure series

3.2.12 Power circuit

1. The circuit schematic diagram is shown as the figure 3.2.12.1:

2. The circuit functional block diagram is shown as the figure 3.2.12.2:

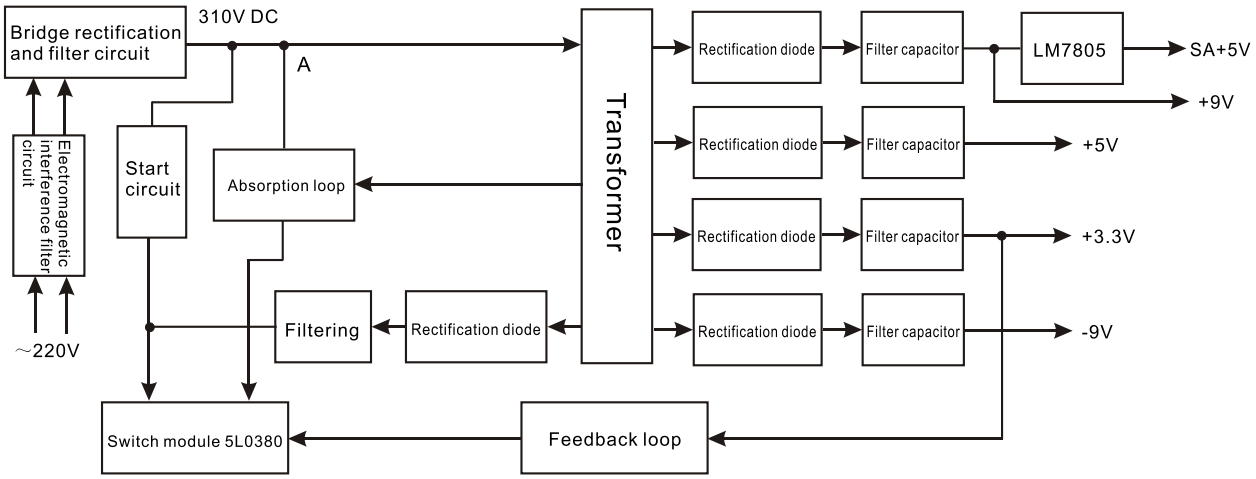


Figure 3.2.12.2 Power circuit flow chart

3. Working principle

A: The working range of this switch power is AC 110V~250V. The voltage value here is 1.414 times of effective AC value.

(1) Electromagnetic interference filter circuit: for various electromagnetic radiation exits in surroundings, the inputted current will be disturbed. The function of electromagnetic filter circuit is to remove these interferences by filtration to make those which enter the bridge rectification circuit are relatively pure 220V AC.

(2) Bridge rectification and filter circuit: the function of this circuit is to generate a DC about 310V to provide usage for future.

(3) Start circuit: when power-on just starts, transformer has not started working, and now the start circuit provides a power supply voltage for 5L0380 to make it work; after the transformer begins working normally, the power supply circuit provides 16V voltage for 5L0380 to keep its working.

(4) Power supply circuit: provides a 16V power supply voltage for switch module 5L0380.

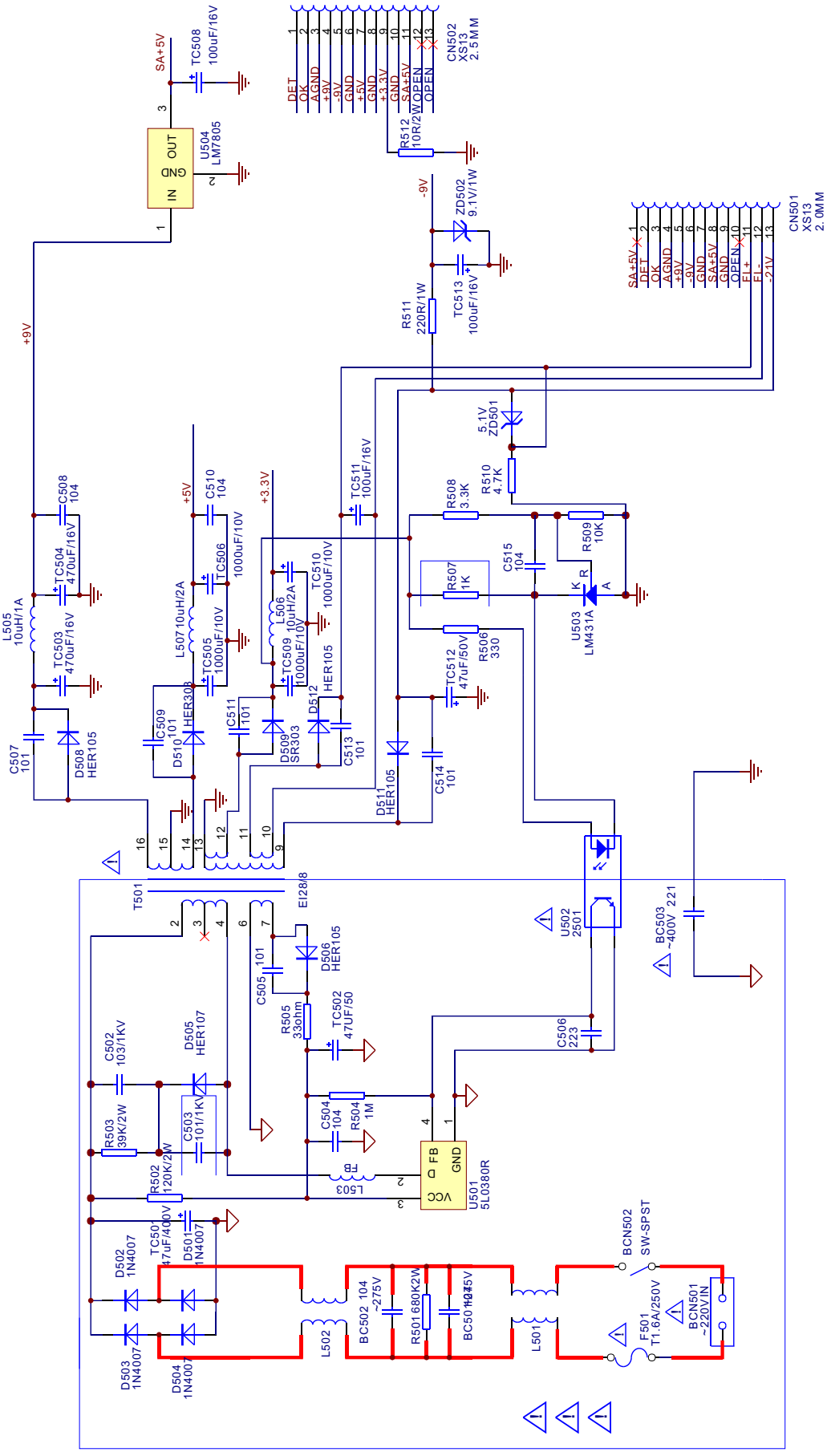


Figure 3.2.12.1 Power circuit schematic diagram

(5) Absorption loop: The waveform of pin 2 of switch module 5L0380 sometimes is high level, and sometimes is ow level, so a strong self-induction voltage will generate in primary coil of transformer and 5L0380 may probably be caused damage. The function of absorption loop is to form a loop for this self-induction to ensure the normal working of circuit.

(6) Switch module 5L0380: That inputted from pin 2 of transformer is 310V DC. In order to make transformer work, the DC voltage must be presented. The function of 5L0380 is to control this 310V DC and make it on for a while and off for another while to generate a high-low level variation at the input port of transformer (pin 2, 4), thus the transformer can start working.

(7) Rectification diode: The voltage which is just outputted from transformer is pulsating DC. The function of rectification diode is to change pulsating DC into DC together with the later filter circuit.

(8) Feedback loop: The length of time of “on’ and “off” within the same cycle inside switch module 5L0380 is decided by the feedback loop. Feedback loop samples the +3.3V output port voltage. When the output port voltage is too high, the sampled voltage is on the high side. Through feedback loop, it changes the ratio of occupying space of pin 2 of 5L0380 to decrease the time of on-state. The coupling quantity of transformer decreases and outputted voltage starts decreasing. When the outputted voltage is too low, the sampled voltage is on the low side. Through feedback loop, it makes the ratio of occupying space of 5L0380 increase. The coupling quantity of transformer increases and outputted voltage starts increasing. Through the function of feedback loop, it makes power board output relatively stable voltage. LM431 used in this power supply is a 2.5V comparison device, which is compared with sampling voltage. When sampling voltage is more than 2.5V (means output voltage is on high side), LM431 is on, and light emitting diode in photoelectric coupler starts emitting light to make the other side of photoelectric coupler starts being on. The light emission of light emitting diode is stronger, the on-state degree is larger. The on time of switch module 5L0380 decreases, the coupling quantity of transformer decreases and the outputted voltage starts decreasing. When sampling voltage is less than 2.5V (means output voltage is on low side), LM431 is cutoff. The on time of 5L0380 decreases, the coupling quantity of transformer decreases and output voltage starts increasing. Through auto control function of feedback loop, it makes power board output relatively stable voltage.

(9) Filter circuit: its function is to generate a stable and small-curve DC voltage. “Π" shaped filter is usually adopted in filter circuit. The feature of capacitor filtering is that load resistance is high. When current is small, the function of filtering is obvious. But the feature of inductor filtering is that load resistance is small. When current is large, the function of filtering is obvious. If the capacitor is constructed to “Π" shaped filter, it can perform better filtering effect.

(10) 5V voltage regulator: stabilize +9V voltage into a more stable 5V voltage (SA+5V) to supply power for decode board.

4. Troubleshooting process for power supply voltage

(1) Troubleshooting process when voltage is on high or low side, shown as the following figure 3.2.12.3:

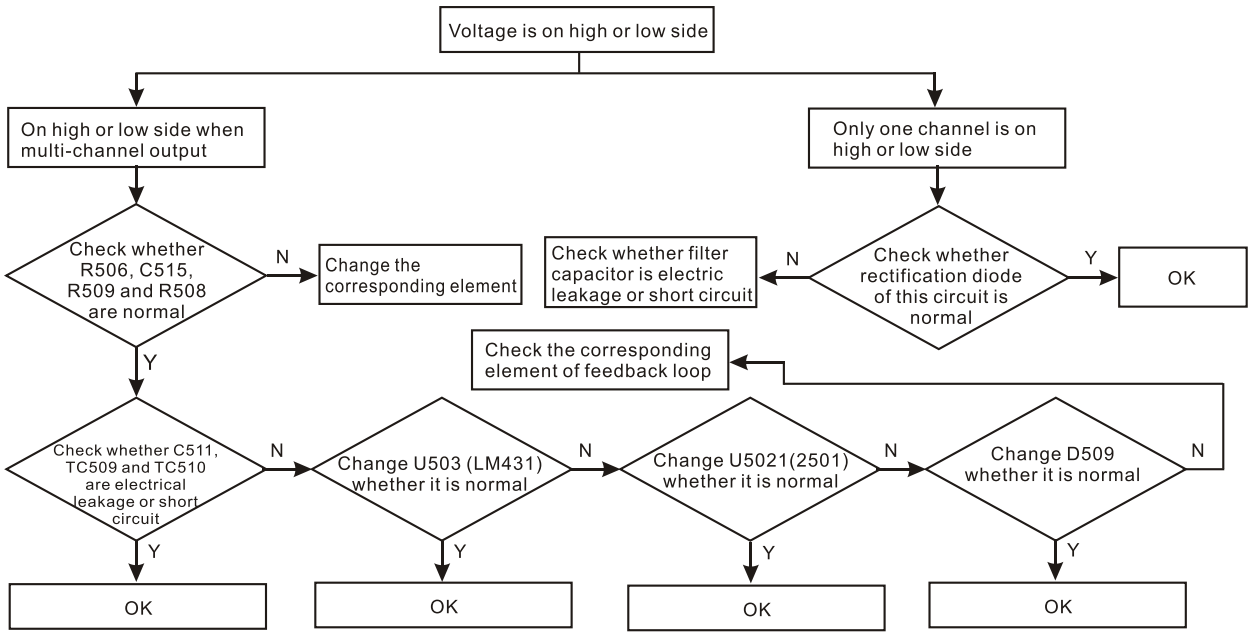


Figure 3.2.12.3 Troubleshooting flow chart for “Voltage is on high or low side”

(2) Troubleshooting process for “No voltage output” is shown as the figure 3.2.12.4:

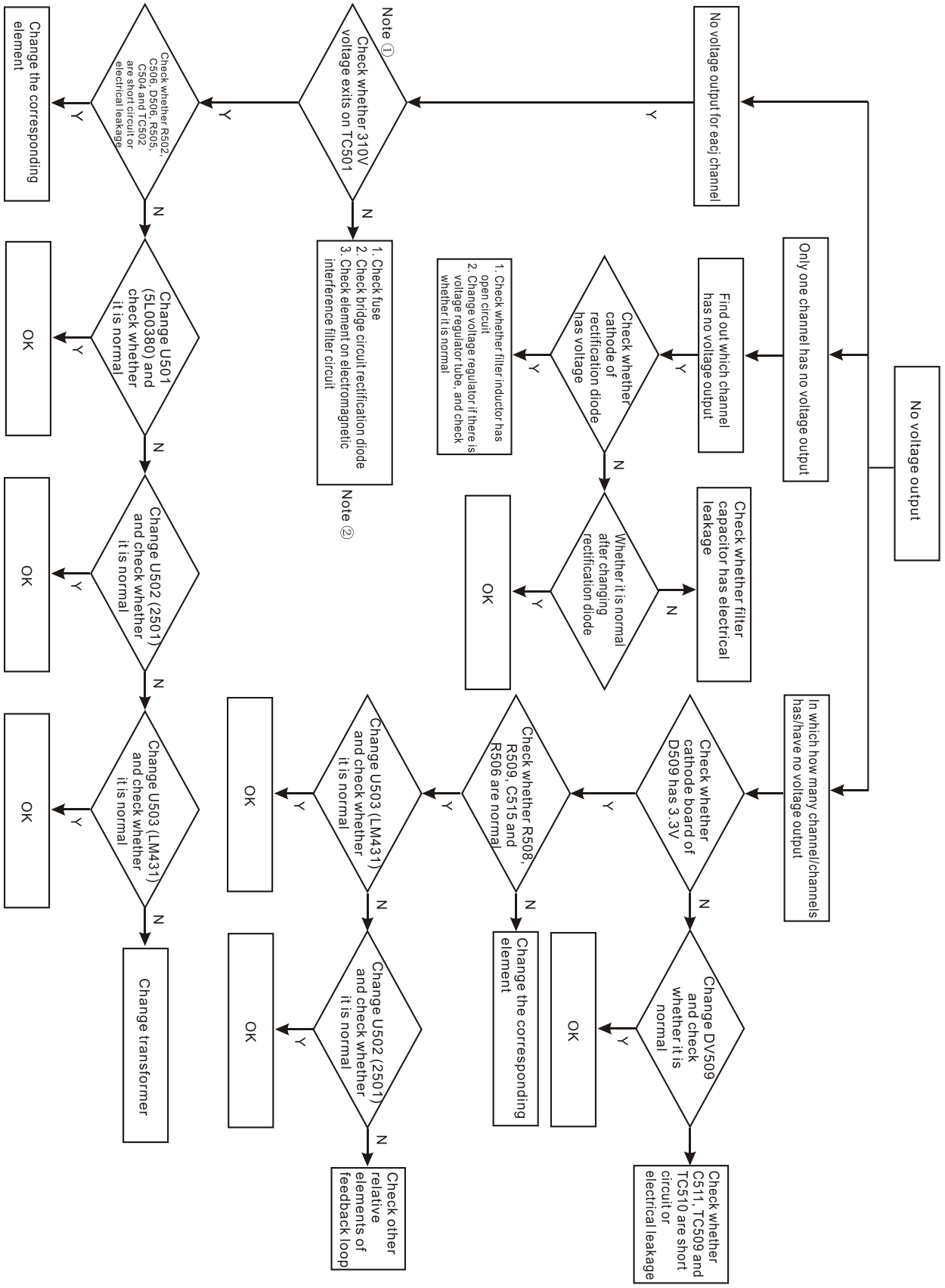


Figure 3.2.12.4 Troubleshooting flow chart for “No voltage output”

(3) Troubleshooting process for “Output power of power supply is not enough” is shown as the following figure 3.2.12.5

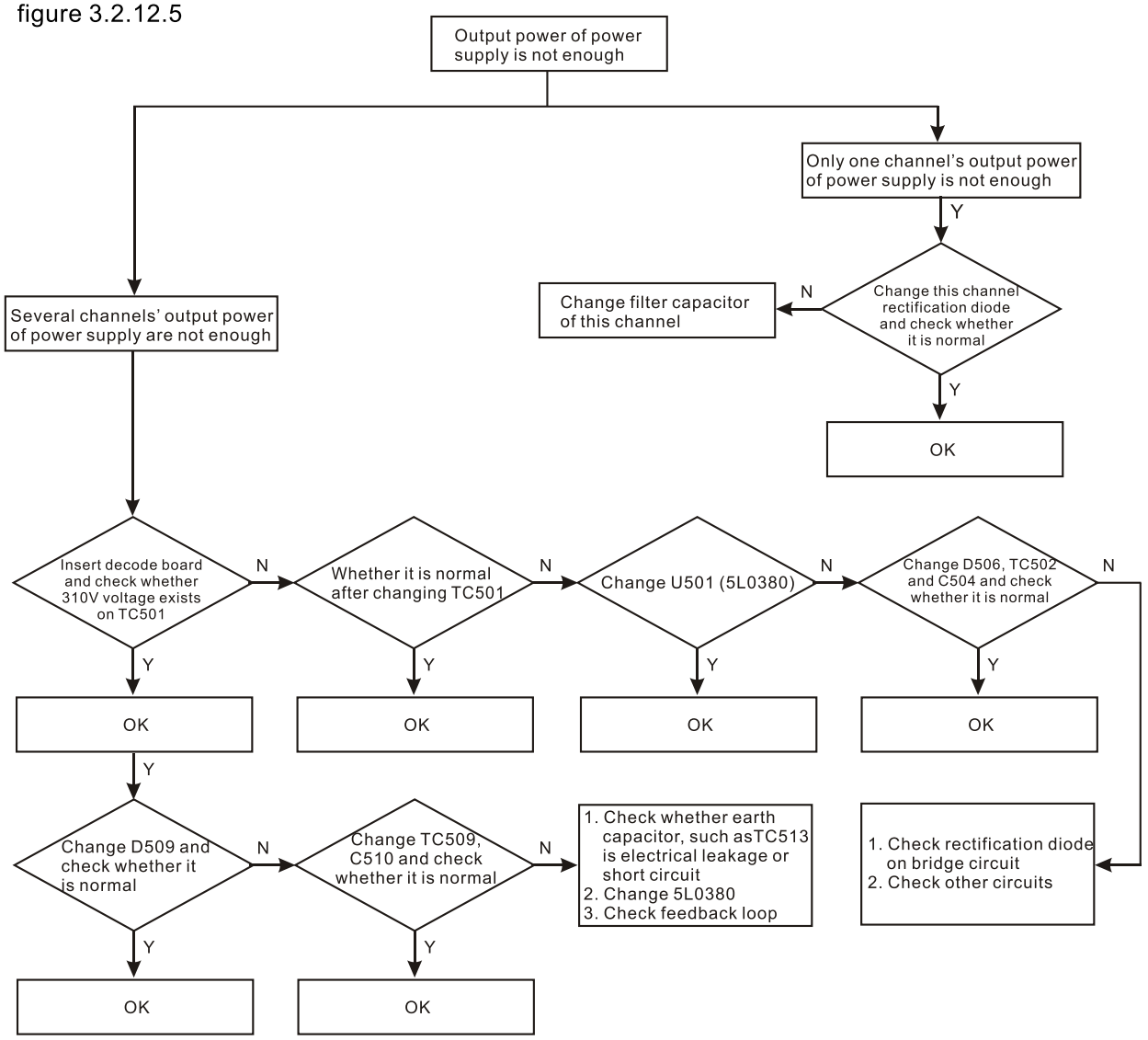


Figure 3.2.12.5 Troubleshooting flow chart for “Output power of power supply is not enough”

3.2.13 Microphone circuit

1. Circuit schematic diagram is shown as the figure 3.2.13.1:
2. Working principle: when there is microphone signal input, the signal is send to pin 3 of U601A (4558) for operational amplifying through L601 filtering, TC602 coupling and RC filter circuit of C604, R606, then outputted by pin 1 of U601A (4558). Though TC604 coupling and RC filtering of C608, R617, OK signal is outputted and sent to decode board.
   DET is microphone identification signal. U201 (MT1389) will not process microphone signal until it detects DET is a voltage that increases with the increase of microphone sound. The signal coupled out by TC604 is sent to pin 5 of U601 (4558) through R618, and then compared with the reference voltage 0.016V on pin 6. When more than 0.016V, pin 7 of U601B (4558) outputs a voltage that increases with the increase of microphone sound, and meanwhile charges TC311; when less than 0.016V, pin 7 of U601B (4558) has no output, VD603 is cutoff, and now the output of DET is maintained by TC611 to ensure there is enough time to generate echo. VD601 and VD602 position the signal between -0.7V and +5.7V.

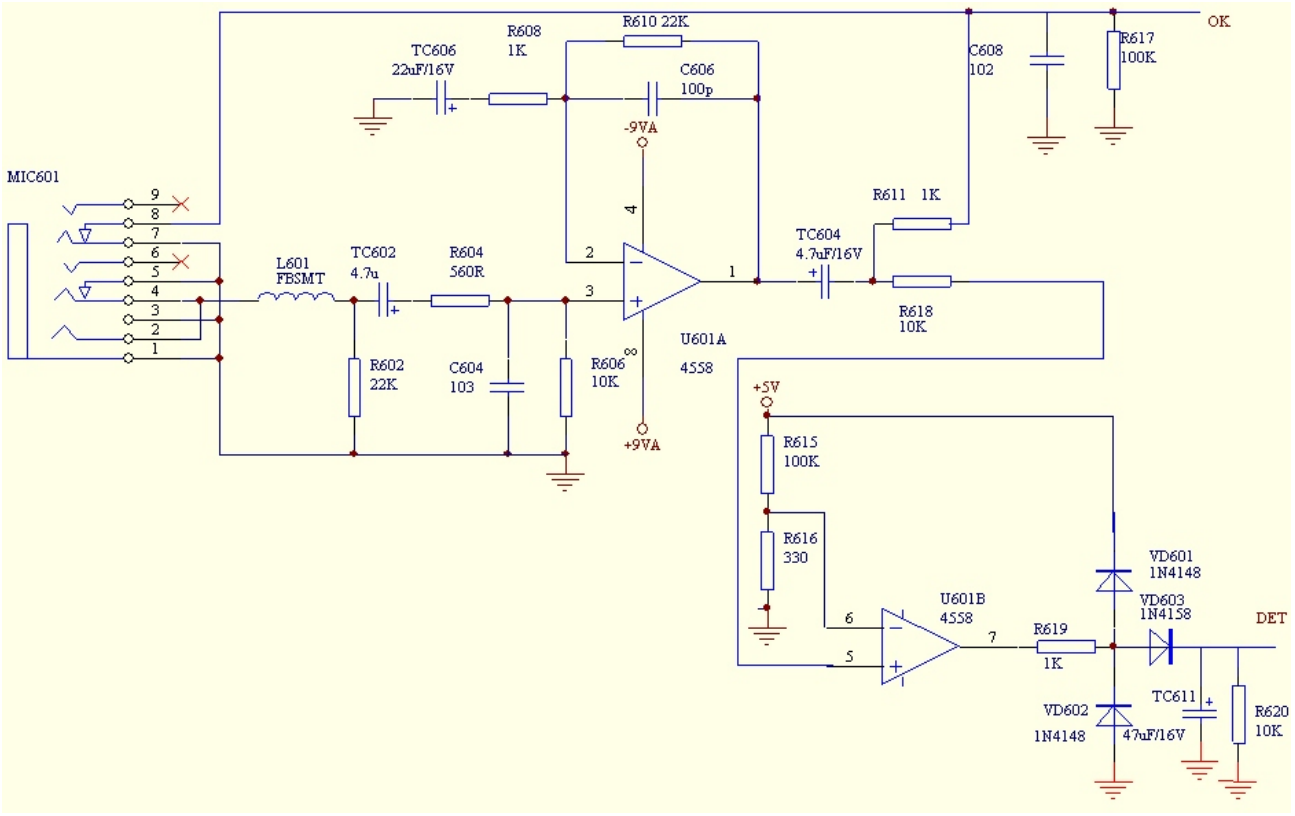


Figure 3.2.13.1 Microphone circuit diagram

3. Echo principle: OK signal is divided into two paths from MIC board to decode board. One path is connected to left/right channel and the operational amplifiers U219 (4580) and U215 (4580) of left/right headphone channel, and then outputted after being amplified; the other path is connected to U210 (CS5340), and then outputted to U201 (MT1389) after A/D conversion. Now, U201 (MT1389) detects DET microphone identification signal, processes A/D conversion to the OK signal inputted by U210 (CS5340), then inputs this signal in U207 (CS4360), inputs to operational amplifiers U219 (4580) and U215 (4580) after D/A conversion, and joints with the previous OK signal to form echo in tandem.
4. Troubleshooting process for “No output for MIC” is shown as the following figure 3.2.13.2:

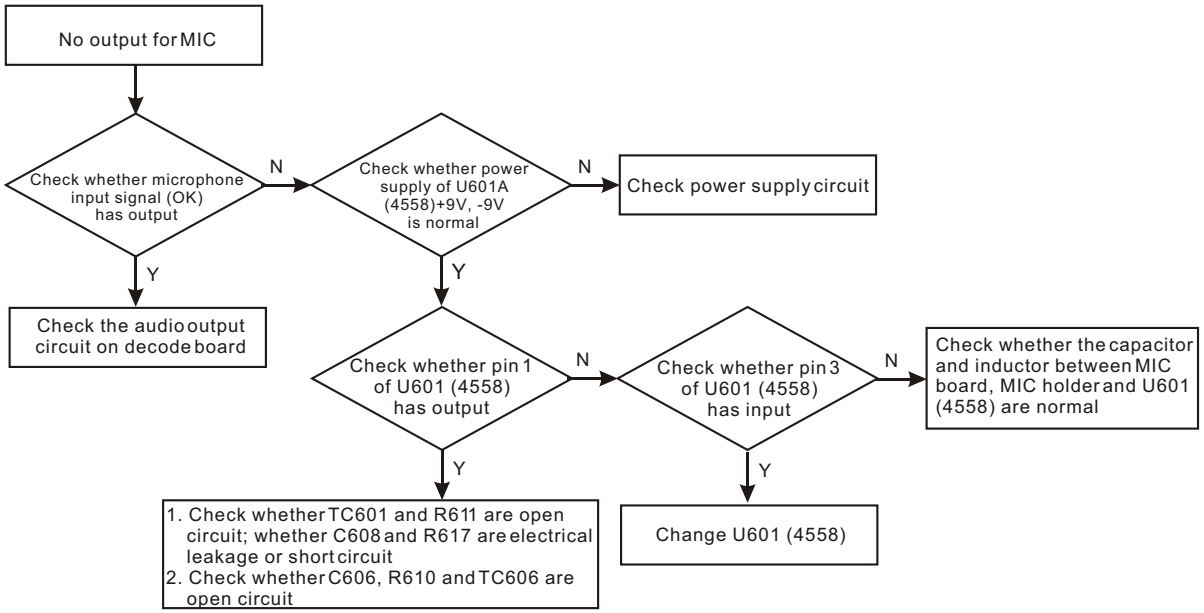


Figure 3.2.13.2 Troubleshooting flow chart for “No output for MIC”

3.2.14 Headphone signal transmission circuit

1. The circuit schematic diagram is shown as the following figure 3.2.14.1:

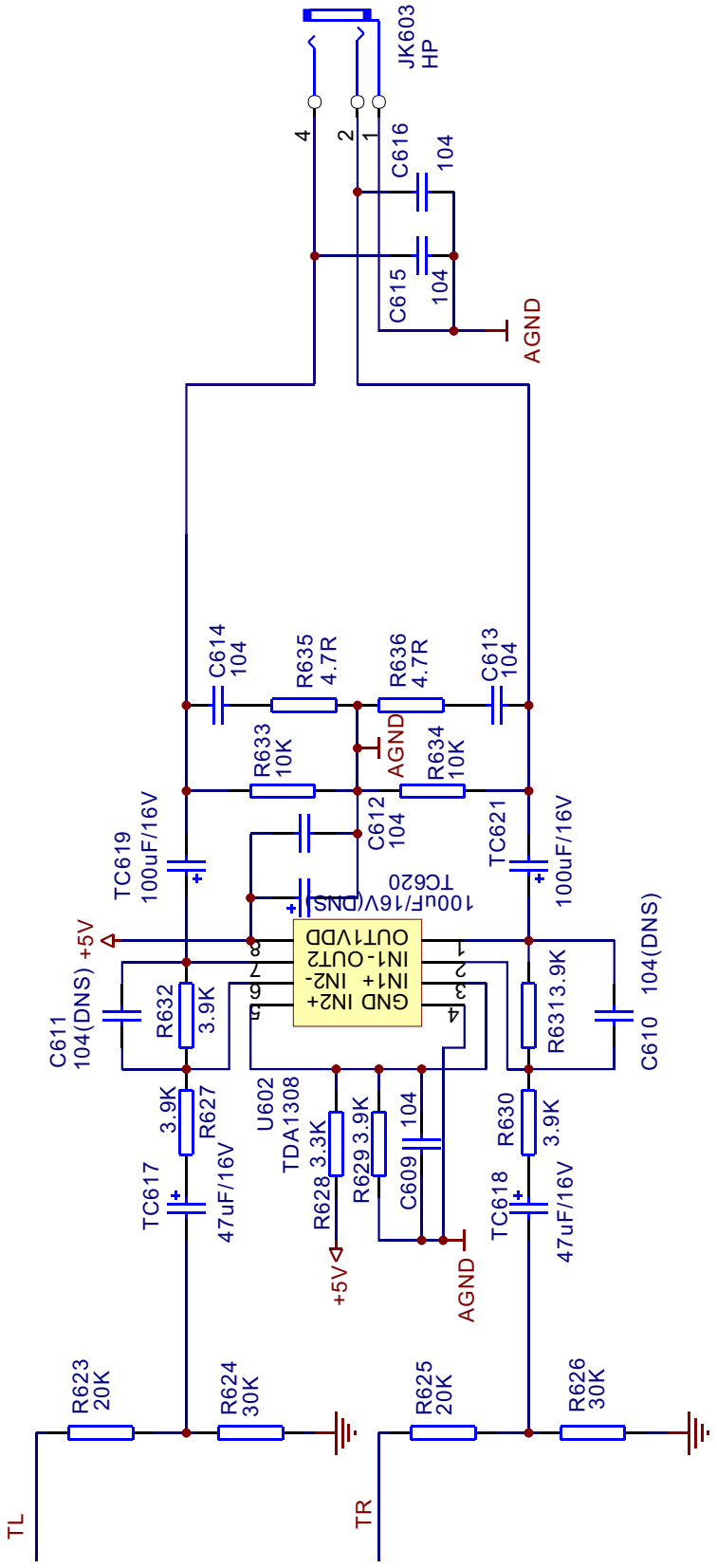


Figure 3.2.14.1 Headphone signal transmission circuit diagram

2. Working principle: audio signal TR, TL outputted by decode board, after being voltage divided by R625, R626 and R634, R624 respectively, and then being coupled by TC618, TC617, are connected to pin 2 and 5 of headphone drive chip U602 (TDA1308), and then outputted by pin 1 and 7 of U602 (TDA1308) after internal operational amplification. After being coupled by TC621, TC619, filtered by R634, C613, R636 and R633, C614, R635, they are outputted by C616 and C615 filtering finally.
3. Troubleshooting process for headphone mono channel is shown as the following figure 3.2.14.2:

Figure 3.2.14.2 Troubleshooting flow chart for headphone mono channel

3.2.15 panel control circuit

1. The circuit functional block diagram is shown as the following figure 3.2.15.1:

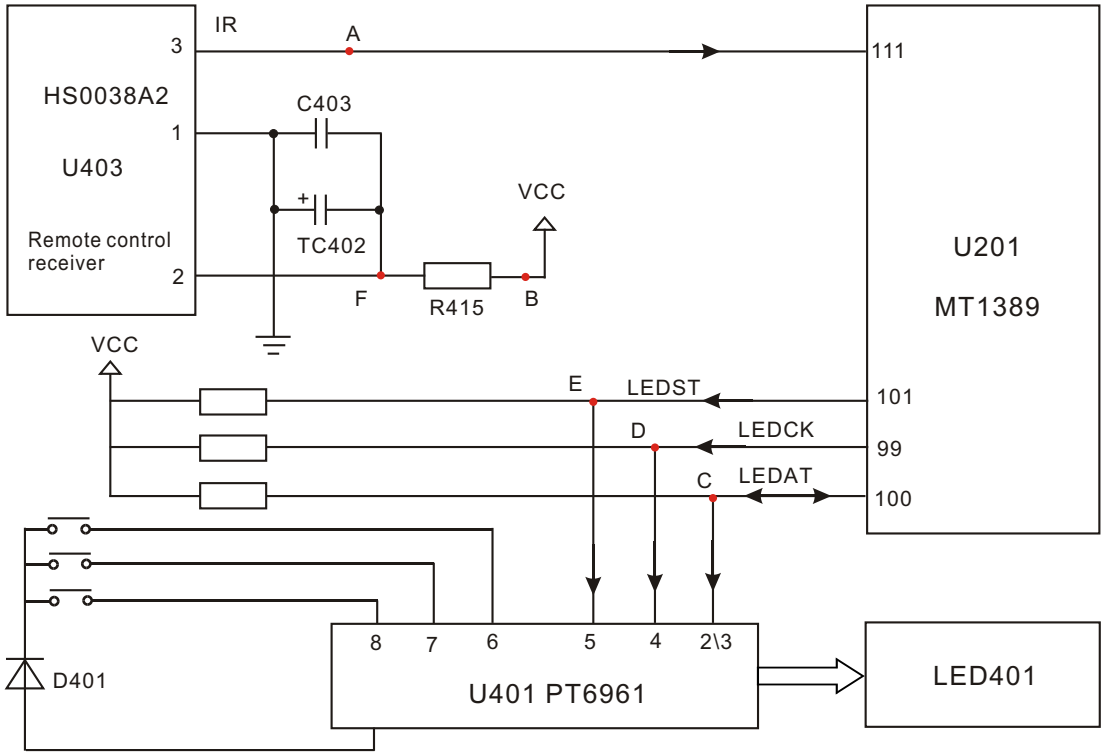


Figure 3.2.15.1 Panel control circuit diagram

2. Working principle: control panel components are composed of LED screen, drive IC U401 (PT6961), remote control receiver HS0038A2, buttons and indicator light. U401 (PT6961) processes the data sent by decode board, and drive display screen displays the corresponding state information; meanwhile, scans panel buttons matrix and sends to U201 (MT1389) after processing buttons information to realize the control to the player by users.

   Pin 3 of remote control receiver sends the remote control information to U201 (MT1389) to realize remote control function. It has three pin in all, in which pin 1 grounding, pin 2 provides 3.3V voltage and pin 3 IR outputs to decode board.

3. Key point voltage (V) is shown as the following table 3.2.15.1:

SN	Name	Function	Voltage flow	Remark
A	IR	Remote control information transmission	O	0 means inout
B	VCC	Power supply voltage of panel	I	I means output
C	LEDAT	Serial data transmission	I/O	0/ I measn input.output
D	LEDCK	I^2C bus communication clock	I	
E	LEDST	I^2C bus interface gating	I	
F	VS	Power supply voltage of receiver HS0038A2	I	

Table 3.2.15.1 Key point voltage

4. Troubleshooting flow chart (position of A, B, C, D, E and F is shown in the figure 3.2.15.1)

(1) Troubleshooting process for "No function for buttons" is shown as the figure 3.2.15.2:

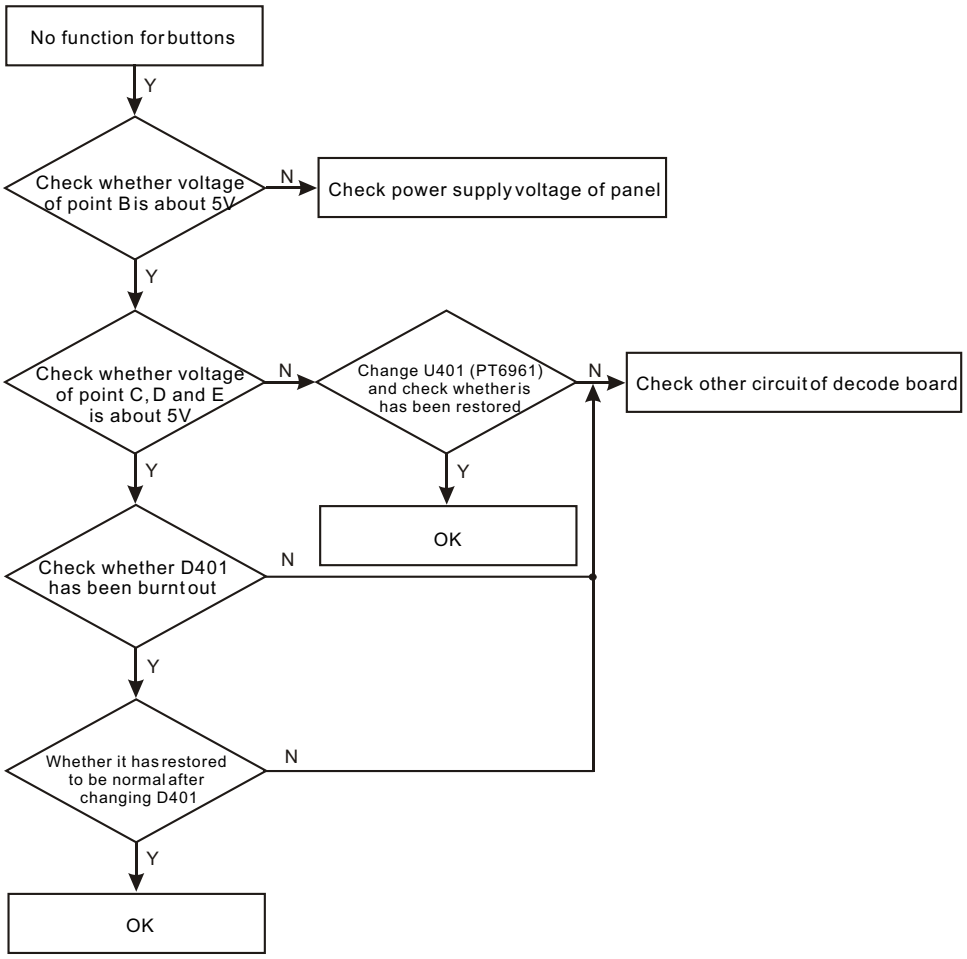


Figure 3.2.15.2 Troubleshooting flow chart for “No function for buttons”

(2) Troubleshooting process for "No function for buttons" is shown as the figure 3.2.15.3:

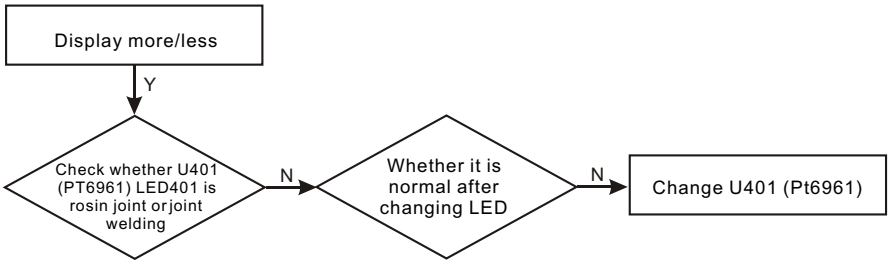


Figure 3.2.15.3 Troubleshooting flow chart for “No function for buttons”

(2) Troubleshooting process for "No function for remote control" is shown as the figure 3.2.15.4:

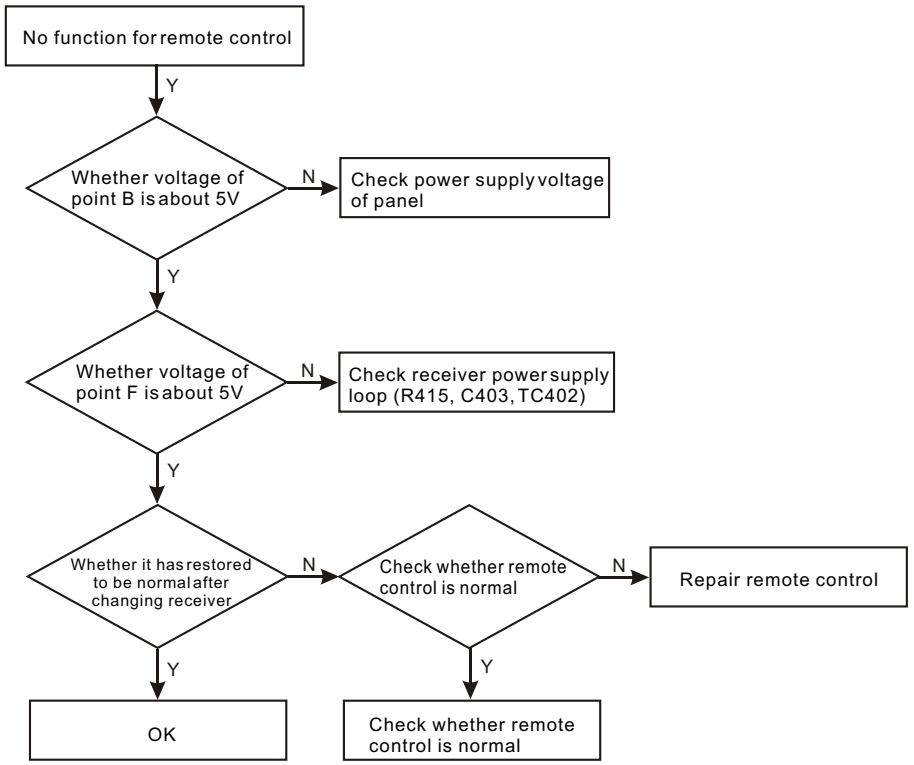


Figure 3.2.15.4 Troubleshooting flow chart for "No function for remote control"

(4) Troubleshooting process for "No screen display" is shown as the figure 3.2.15.4:

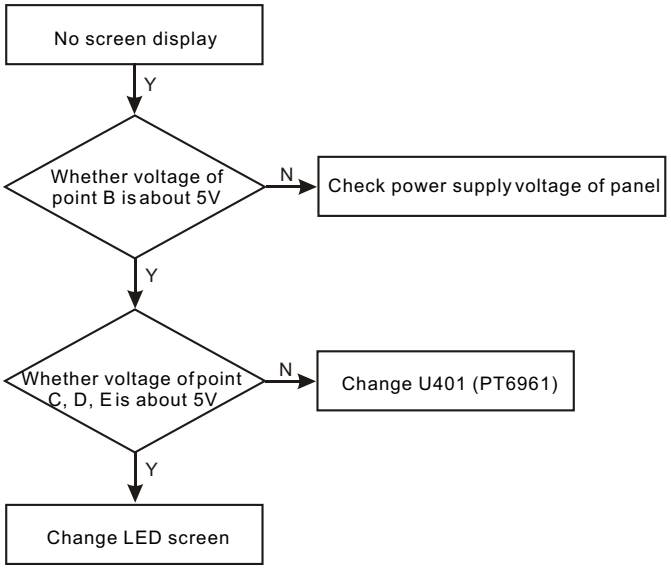
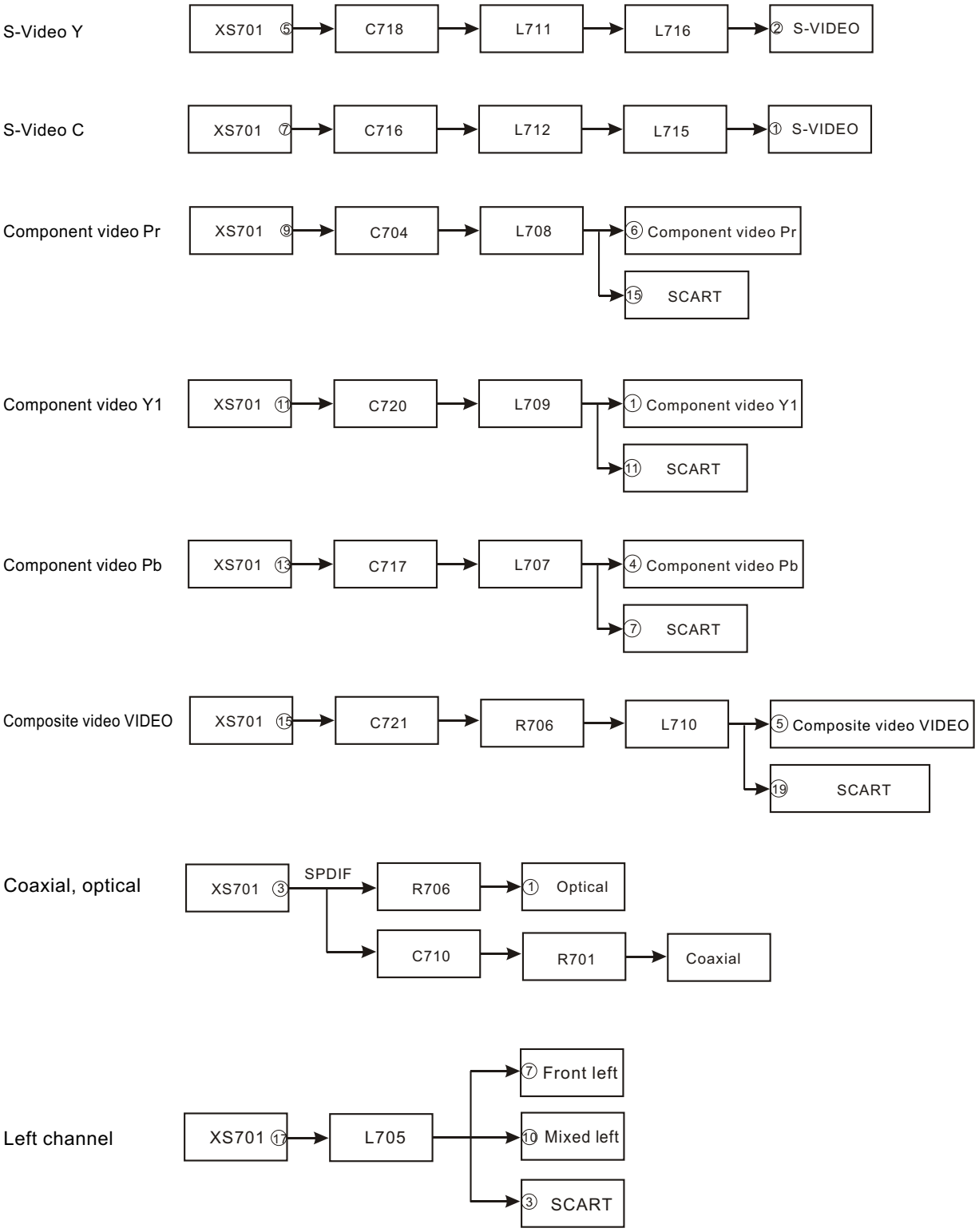


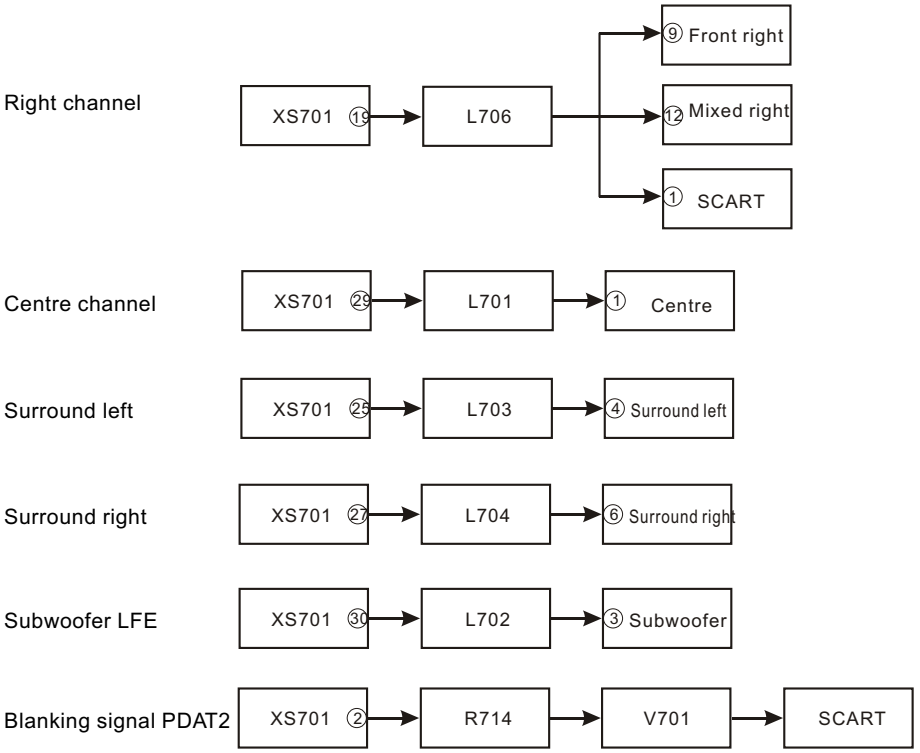
Figure 3.2.15.4 Troubleshooting flow chart for "No screen display"

3.2.16 Input/output (AV board) circuit

1. General description for input/output circuit: AV board outputs video and audio signals sent here from the corresponding terminal through coupling of electrolytic capacitor and filtering of inducting capacitor on AV board. Video part includes S-video, component video and composite video output; audio part includes left/right channel, surround left/right, centre, subwoofer and coaxial cable output. SCART terminal is one that integrates video and audio output into one.

2. Block diagram for signal flow





3.2.17 Remote controller

1. The circuit schematic diagram is shown as the following figure 3.2.17.1:

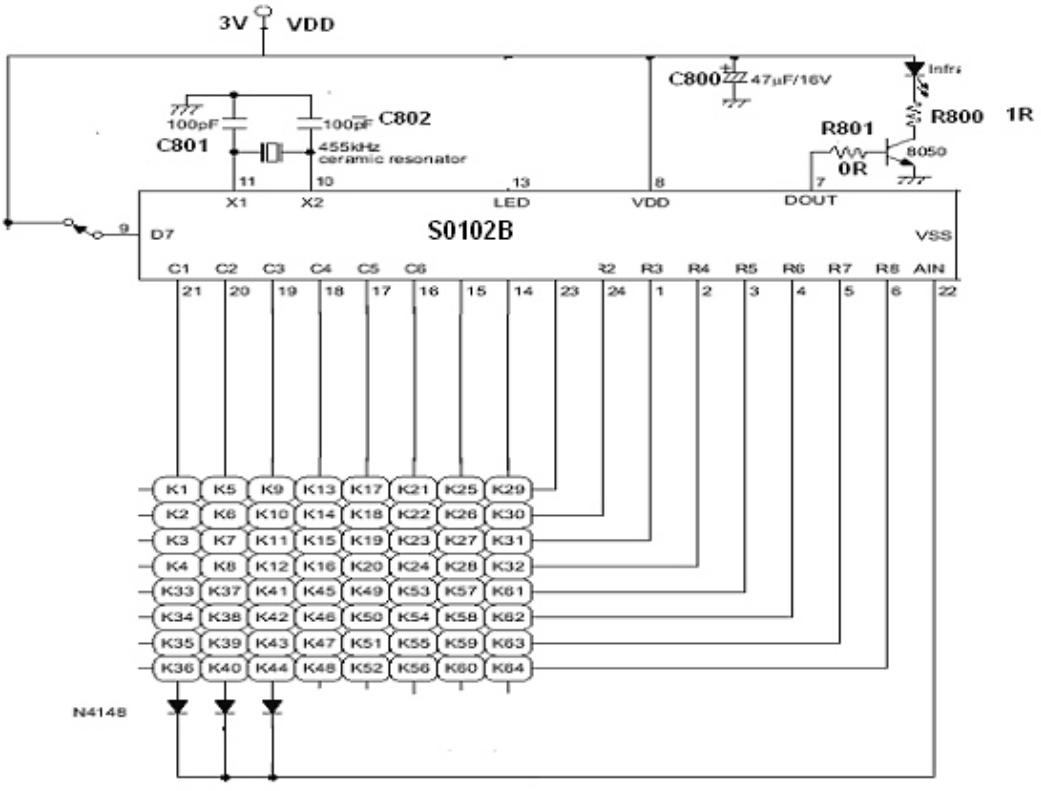


Figure 3.2.17.1 Remote controller circuit diagram

2. Working principle: This player adopts NEC decoding S0102B/505014200 infrared remote control chip, and the pin function of this chip is the same with that of the chip that adopts NEC decoding, such as PT6222 and HT2222, in which C1～C8 (14～21pin) and R1～R8 compose keyboard.
   The clock circuit composed of crystal oscillator generates 455khz vibration wave, part of which is used to keep all elements working synchronously and another part is used as 38khz carrier wave for data emission, after internal frequency division. Pin 14～21 (C1～C8), 23, 24 and pin 1～6 (R1～R8) compose keyboard matrix. In which, according to that whether C1～C 8 is connected with pull-up resistor and connected to ADIN pin, the customer code is set. The data emitted by remote controller includes guiding code, 16-bit customer code, 8-bit data code and 8-bit data nine's complement, which are added to 38khz carrier wave and sent out by infrared emission diode by adopting PWM (Pulse Width Modulation) method. The normally effective remote control range of this player is 8m.
3. Troubleshooting process for remote control is shown as the following figure 3.2.17.1:

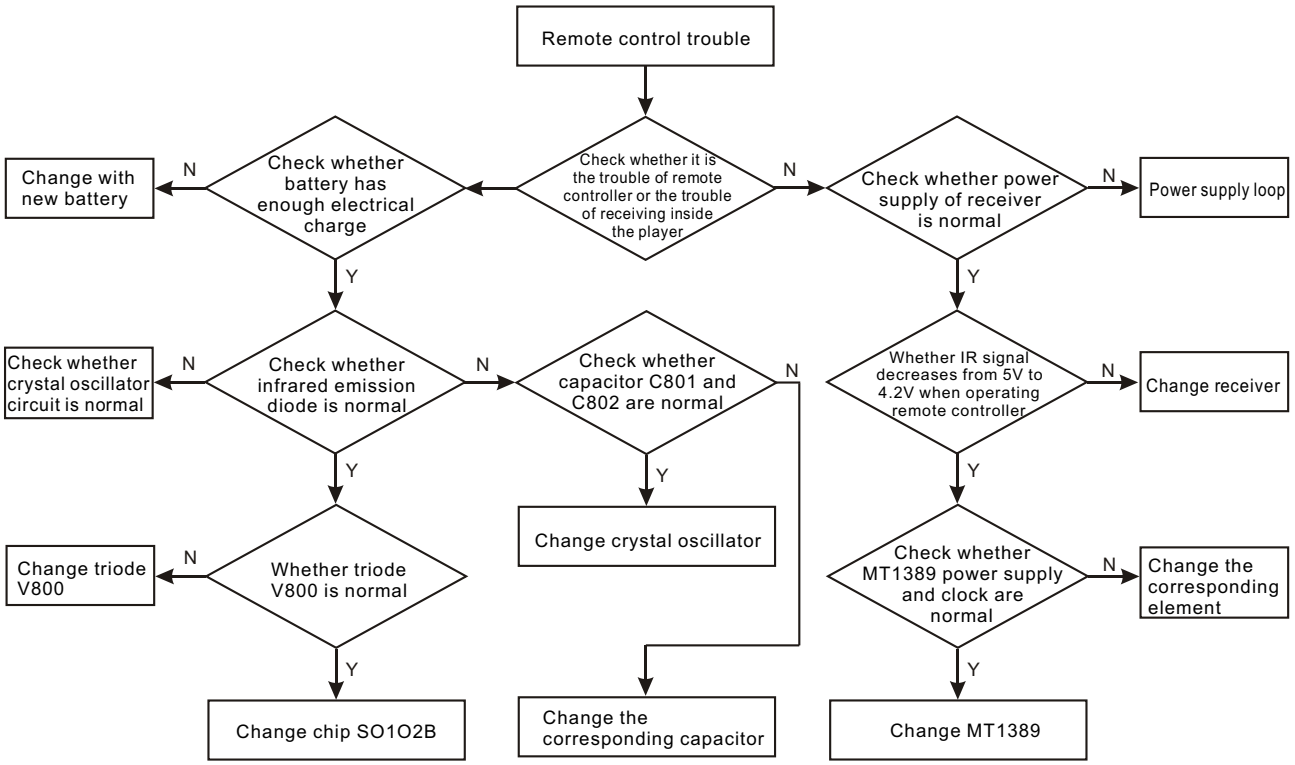


Figure 3.2.17.1 Troubleshooting flow chart for "Remote control trouble"

Section Three Explanation to SCART Terminal and Tuner

3.3.1 SCART terminal

SCART terminal is the one that integrates video and audio transmission together, which can transmit video and audio signal, and also the operation is very convenient. There are 21 holes in all locating in the centralpart at the rear side of the player.

1. Explanation to SCART terminal pin function is shown as the following table 3.3.1.1:

SN	Name	Function	Signal direction	SN	Name	Function	Signal direction
1	A(B)OUT	Audio right channel input	I	12	NC	Network communication data line 2	
2	A(B)IN	Audio right channel output	O	13	RETURN	Pr signal ground	
3	A(A)OUT	Audio left channel input	I	14	RETURN	Blanking signal ground	
4	A-COM	Audio signal ground		15	RED I/O	Pr signal I/O port	I/O
5	RETURN	Pb signal ground		16	BLK I/O	Blanking signal I/O port (used to select RGB and CVBS mode)	I/O
6	A(A)IN	Audio left channel output	O				
7	BLUE I/O	Pb signal I/O port	I/O	17	RETURN	Blanking signal ground	
8	FUNCSW	Function select interface	I	18	TRTURN	Composite video signal ground	
9	RETURN	Y1 signal ground		19	V-OUT	Composite video signal input	I
10	CONT	Network communication data line 2	I/O	20	V-IN	Composite video signal output	O
11	GREEN I/O	Y1 signal I/O port	I/O	21	GND	Common ground	

Figure 3.3.1.1 Explanation to SCART terminal pin function

Note: I means input, O means output, I/O means input/output

2. Function selection is shown as the following table 3.3.1.2:

SN	PDA TO	PDA T1	PDA T2	Pin 8 of SCART terminal	Function	SN	PDA TO	PDA T1	PDA T2	Pin 8 of SCART terminal	Function
1	0	□	0	10V	AV 4:3 screen mode	4	1	□	1	0.85V	TV
2	0	□	1	7.5V	AV 16:9 screen mode	5	□	0	□	□	CVBS MODE
3	1	□	0	0.90V	TV	6	□	1	□	□	RGB MODE

Table 3.3.1.2 Function selection

Note: PDAT0 and PDAT2 the input voltage on pin 8 used to control SCART terminal.

PDAT1 is used to control the voltage variation on pin 16 of SCART terminal, and voltage on pin 16 is used to control whether SCART select RGB mode or CVBS mode.

3.3.2 Explanation to tuner signal function

The tuner model of this player is TAF—11MF. AM receiving frequency range is 530KHZ-1710KHZ, and step frequency is 10KHZ; FM frequency range is 87.5MHZ-108MHZ, step frequency is 50KHZ, and working is 9V, which are shown as the following figure 3.3.2.1:

SN	Name	Function	Direction	Voltage (DC measurement)	
				Not worked	Working (FM)
1	GND	Ground		0	0
2	FM DET	FM demodulation		0	0
3	VSM	Signal voltage	0	0	0
4	RCH	Right channel	I	0.77	8.99
5	VCC	Power supply	I	0	0
6	LCH	Left channel	0	0	0
7	GND	Ground		0	0
8	DO/ST、SD	Data read output	0	2.99	5.09
9	CL	Clock	I	0.01	3.2
10	DI	Data	0	0.01	0.11
11	CE	Chip selection	I	0.01	0.24

Figure 3.3.2.1 Explanation to tuner output terminal

Section Four Introduction to IC

3.4.1 Function introduction to Mt1389

MT1389 (U201) adopts LQFP pin 256 casing and 3.3V/1.8V dual voltage working mode, which is a good performance large-scale CDROM front-end processing CMOS integrated circuit, and CD/VCD/DVD player special-used single chip. It includes focus servo error magnification, trace servo error magnification and horizontal output servo control. The main function are narrated as follows:

1. The main function of front-end RF small signal processing is to process and amplify signals A, B, C, D, E and F transmitted from pick-up, and automatically adjust laser output power, meanwhile fulfil the identification of VCD disc and DVD disc.
2. Digital servo processing may produce focus, trace, feed, main axis servo control signal processing and digital signal processing to realize modulating EFM/EFM+ of Therefore signal.
3. MPEG1/MPEG2/MPEG4/JPEG Video decoder. This chip can decode VCD, DVD, MPEG 4 network video, compatible with “network movie” disc, and also can read JPEG picture to fulfil digital album playback.
4. In audio aspect, AC-3/DTS dual decoding, actively read MP3, compatible with DVD Audio decode, to reach high resolution sound quality restore 1000 times higher than that of CD.
5. By using the built-in 8032 micro-processer of chip, MT1389 may also fulfil the control of the player system to simplify circuit design greatly.
6. Introduction to pin function is shown as the following table:

Pin	Name	Function	Data direction	DC voltage when no disc	Remark
1	AGND	Analog		0	
2	DVDA	DVD-RF high frequency AC coupling signal A	I	1.72	Signals A, B, C and D from loader are coupled by capacitor C201, C202, C203 and respectively
3	DVDB	DVD-RF high frequency AC coupling signal B	I	1.72	
4	DVDC	DVD-RF high frequency AC coupling signal C	I	1.72	
5	DVDD	DVD-RF high frequency AC coupling signal D	I	1.72	
6	DVDRFIP	DVD-RF high frequency AC coupling signal RFIP input	I	1.2	unused
7	DVDRFIN	DVD-RF high frequency AC coupling signal RFIN input	I	1.38	
8	MA	DVD-RAM main beam RF DC signal input A	I	2	Signals A, B, C and D from loader are coupled by resistor R201, R202, R203 and R204 respectively
9	MB	DVD-RAM main beam RF DC signal input B	I	2	
10	MC	DVD-RAM main beam RF DC signal input C	I	2	
11	MD	DVD-RAM main beam RF DC signal input D	I	2	

Pin	Name	Function	Data direction	DC voltage when no disc	Remark
12	SA	DVD-RAM assistant beam RF DC signal input A	I	1.4	unnsed
13	SB	DVD-RAM assistant beam RF DC signal input B	I	1.33	
14	SC	DVD-RAM assistant beam RF DC signal input C	I	1.35	
15	SD	DVD-RAM assistant beam RF DC signal input D	I	1.31	
16	CDFON	CD focus error inverted input	I	1.33	
17	CDFOP	CD focus error onoinverted input	I	1.3	
18	TNI	3 beam assistant PD signal interted input	I	2	E, F signal input directly
19	TPI	4 beam assistant PD signal noninverted input	I	2	
20	MDI1	Laser power monitoring input 1	I	0	
21	MDI2	Laser power monitoring input 2	I	0	
22	LDO2	Laser power output 2	O	3.18	
23	LDO1	Laser power output 1	O	3.18	
24	SVDD3	Servo 3.3V power supply		3.2	
25	CSO/RFOP	Main servo signal output/RF noninverted output	O	1.3	R2165 is unused, so these two pins are unused.
26	RFLVL/RFON	RF level output/ RF inverted output	O	1.33	
27	SGND	Servo ground		0	
28	V2REFO	Reference voltage 2.8V	O	2.74	
29	V20	Reference voltage 2.0V	O	2.18	
30	VREFO	Reference voltage1.4V	O	1.5	
31	FEO	Focus error signal output	O	1.5	R2166 is unused
32	TEO	Trace error signal output	O	1.16	
33	TEZISLV	Trace zero passage error input	I	1.32	Joint welding with capacitor C207 connected with this position will cause disc not reading
34	OP_OUT	Sensing signal magnifying output	O	2.55	Input/output of main axis braking circuit
35	OP_INN	Sensing signal inverted output	I	2	
36	OP_INP	Sensing signal noninverted output	I	1.74	
37	DMO	Main axis control signal output	O	1.37	
38	FMO	Feed control signal output	O	1.38	
39	TROPEN PWM	Close signal output	O	0	
40	PWMOUT1/ADIN9	the first path PWM signal output/ AD universal input	I	1.38	unused
41	TRO	Trace control signal output	O	1.38	
42	FOO	Focus control signal output	O	1.38	
43	USB_VSS	USB ground		0	

Pin	Name	Function	Data direction	DC voltage when no disc	Remark
44	USBP	USB data	I/O	0	unused
45	USBM	USB data	I/O	0	
46	USB_VDD3	USB 3.3V power supply		3.2	
47	FG/ADIN8	Sensing signal input/AD universal input	I	2.69	
48	TDI/ADIN4	Open-to-position checking signal input/AD universal input	I	3.2	
49	TMS/ADIN5	Open-to-position checking signal input/AD universal input	I	0	
50	TCK/ADIN6	BA5954 signal output/AD universal input	O	0	
51	TDO/ADIN7	Open signal output/AD universal input	O	0	
52	DVDD18	Digital 1.8V power supply		1.8	
53	IOA2	Microcontroller address bit 2	O	1.96	FLASH address signal
54	IOA3	Microcontroller address bit 3	O	1.98	
55	IOA4	Microcontroller address bit 4	O	1.96	
56	IOA5	Microcontroller address bit 5	O	1.69	
57	IOA6	Microcontroller address bit 6	O	3.23	
58	IOA7	Microcontroller address bit 7	O	3.23	
59	HIGHA0	Microcontroller address bit 0	O	1.01	
60	IOA18	Microcontroller address bit 18	O	0.05	
61	IOA19	Microcontroller address bit 19	O	0	
62	DVSS	Digital		0	
63	APLLCAP	Analog phase-locked loop external capacitor		1.8	
64	APLLVSS	Analog phase-locked loop		0	
65	APLLVDD3	Analog phase-locked loop		3.1	
66	IOWR	FLASH read-write control signal	O	3.23	output PWR# and change into DWR# signal to control FLASH through 0 ohm resistor R297
67	A16	FLASH address bit 16	O	1.3	FLASH address signal
68	HIGHA7	Microcontroller address bit 7	O	1.18	
69	HIGHA6	Microcontroller address bit 6	O	1.99	
70	HIGHA5	Microcontroller address bit 5	O	2.9	
71	HIGHA4	Microcontroller address bit 4	O	2	
72	HIGHA3	Microcontroller address bit 3	O	1.11	
73	DVDD3	Digital 3.3V power supply		3.24	
74	HIGHA2	Microcontroller address bit 2	O	1.81	FLASH address signal
75	HIGHA1	Microcontroller address bit 1	O	1.55	
76	IOA20	Microcontroller address bit 0	O	0	FLASH address signal

Pin	Name	Function	Data direction	DC voltage when no disc	Remark
76	IOA20	Microcontroller address bit 20	O	0	FLASH address signal
77	IOCS	FLASH chip selection	O	0	Output PCE# signal and change into DCE# signal to control FLASH through 0 ohm resistor R298
78	IOA1	Microcontroller address bit 1	O	2.03	FLASH address signal
79	IOOE	FLASH output enable	O	0	Output PRD# signal and change into DRD# signal to control FLASH output through 0 ohm resistor R299
80	DVDD3	Power supply		3.23	
81	AD0	Microcontroller address/data bit 0	I/O	1.32	FLASH data signal
82	AD1	Microcontroller address/data bit 1	I/O	1.52	
83	AD2	Microcontroller address/data bit 2	I/O	1.16	
84	AD3	Microcontroller address/data bit 3	I/O	0.9	
85	DVSS	Ground		0	
86	AD4	Microcontroller address/data bit 4	I/O	1.57	FLASH data signal
87	AD5	Microcontroller address/data bit 5	I/O	1.57	
88	AD6	Microcontroller address/data bit 6	I/O	1.57	
89	IOA21/ADIN0	Microcontroller address bit 21/AD universal input	O	0.03	FLASH address signal
90	ALE	Microcontroller address enable	O	1.18	unused
91	AD7	Microcontroller address/data bit 7	I/O	1.6	FLASH data signal
92	A17	FLASH address bit 17	O	0	FLASH address signal
93	IOA0	Microcontroller address bit 0	O	2.04	
94	DVSS	Digital		0	
95	UWR	Microcontroller write operation		3.22	unused
96	URD	Microcontroller read operation		3.26	
97	DVDD18	Digital 1.8V power supply		1.92	
98	UP1_2	Microcontroller port		0	unused
99	UP1_3	Microcontroller port	O	5.15	Panel communication-used c
100	UP1_4	Microcontroller port	I/O	5.2	Panel communication-used c
101	UP1_5	Microcontroller port	O	5.2	Panel communication-enable
102	UP1_6	Microcontroller port	O	0.3	I2C clock
103	UP1_7	Microcontroller port	I/O	3.22	I2C data
104	UP3_0	Microcontroller port	O	0	4052 select signal
105	UP3_1	Microcontroller port	O	0.68	4052 select signal
106	UP3_4	Microcontroller port	I/O	3.8	Serial communication port

Pin	Name	Function	Data direction	DC voltage when no disc	Remark
107	UP3_5	Microcontroller port	I/O	3.23	Serial communication port
108	DVDD3	Power supply		3.24	
109	ICE	Microcontroller correction mode enable		0	Ground through 1K resistor R213
110	PRST	Reset input	I	3.3	0V at power on moment
111	IR	Remote control signal input	I	5.03	
112	INT0	Microcontroller interrupt 0	I	3.6	unused
113	DQM0	DRAM input/output screen-shielded signal	O	2.2	
114	DQS0	DRAM input/output screen-shielded signal	O	3.22	
115	RD7	DRAM data	I/O	0.9	SDRAM data line
116	DVSS	Dround		0	
117	RD6	DRAM data	I/O	0.4	SDRAM data line
118	RD5	DRAM data	I/O	0.85	
119	DVSS	Ground		0.02	
120	RD4	DRAM data	I/O	1.62	SDRAM data line
121	RD3	DRAM data	I/O	1	
122	DVDD18	Digital 1.8V power supply		1.9	
123	RD2	DRAM data	I/O	1.15	SDRAM data line
124	RD1	DRAM data	I/O	0.92	
125	RD0	DRAM data	I/O	0.92	
126	RD15	DRAM data	I/O	0.66	
127	DVDD3	Digital 3.3V power supply		3.21	
128	RD14	DRAM data	I/O	1.2	SDRAM data line
129	RD13	DRAM data	I/O	1.2	
130	RD12	DRAM data	I/O	1.42	
131	RD11	DRAM data	I/O	0.85	
132	RD10	DRAM data	I/O	0.87	
133	RD9	DRAM data	I/O	0.98	
134	DVSS	Ground		0.01	
135	RD8	DRAM data	I/O	0.67	SDRAM data line
136	DQS1	DRAM input/output screen-shielded signal	O	3.24	
137	DQM1	DRAM input/output screen-shielded signal	O	2.6	
138	RWE	DRAM write enable	O	3.17	Output WE# signal and change into DWE# to control the write of SDRAM through 33 ohm resistor

Pin	Name	Function	Data direction	DC voltage when no disc	Remark
139	CAS	DRAM line address selection	O	3.11	Output CAS# through 33 ohm resistor R267
140	RAS	DRAM row address selection	O	3.15	Output RAS# and change into DRAS# to control chip selection of SDRAM through 33 ohm resistor R266
141	DVDD3	Digital 3.3V power supply		3.22	
142	RCS	DRAM chip selection	O	2.7	Output CS# and change into DCS# to control chip selection of SDRAM through 33 ohm resistor 265
143	BA0	DRAM section address 0	O	1.75	
144	DVSS	Ground		0	
145	BA1	DRAM section address 1	O	1.95	SDRAM address line
146	RA10	DRAM address	O	0.04	
147	RA0	DRAM address	O	0.4	
148	DVSS	Ground		0	
149	RA1	DRAM address	O	2.2	SDRAM address line
150	RA2	DRAM	O	2.25	
151	RA3	DRAM address	O	1.57	
152	DVDD18	Digital 1.8V power supply		1.91	
153	RVREF/ADIN3	Reference voltage/AD universal input	I	0.01	unused
154	RCLKB	DRAM clock	O	0.01	
155	DVDD3	Digital 3.3V power supply		3.21	
156	RCLK	DRAM address	O	1.66	
157	CKE	DRAM clock enable	O	1.2	
158	RA11	DRAM address	O	0.03	SDRAM address line
159	RA9	DRAM address	O	0.07	
160	RA8	DRAM address	O	0.04	
161	DVSS	Digital		0	
162	RA7	DRAM address	O	1.4	SDRAM address line
163	DVSS	Digital		0	
164	RA6	DRAM address	O	1.44	SDRAM address line
165	RA5	DRAM address	O	1.74	
166	RA4	DRAM address	O	1.63	
167	DVDD3	Digital 3.3V power supply	O	3.21	
168	RD13/ASDATA5	DRAM data/audio serial data	I	5.04/3.03	Data outputted by tuner

Pin	Name	Function	Data direction	DC voltage w he no disc	Remark
169	RD30	DRAM data	I/O	0.01	Tuner data
170	RD29	DRAM data	O	0.01	Tuner data
171	RD28	DRAM data		0.01	unused
172	RD27	DRAM data		0.01	
173	DVDD18	Digital 1.8V pow er supply		1.91	
174	RD26	DRAM data	I/O	3.6	unused
175	DVSS	Digital	I/O	0	
176	RD25	DRAM data	I/O	3.6	
177	RD24	DRAM data	I/O	1.68	
178	DQM3	DRAM input/output scr een-shielded signal	O	0.04	Output TURER_ON signal to control pow er supply of tuner and c ontrol mute circuit w hen tuner is w orking
179	DQM2	DRAM input/output scr een-shielded signal	O	0.01	Tuner chip selection
180	RD23	DRAM data	I/O	0.01	unused
181	RD22	DRAM data	I/O	0.01	
182	DVDD3	Digital 3.3V pow er supply		3.21	
183	RD21	DRAM data		0.02	unused
184	RD20	DRAM data		0.01	
185	RD19	DRAM data		0.02	
186	RD18	DRAM data		0.02	
187	RD17	DRAM data		0.02	
188	RD16	DRAM data		0.01	
189	DACVDDC	D/A conver sion 3.3V pow er supply		3.5	
190	VREF	Reference v oltage		1.32	
191	FS			1.32	
192	YUV0/CIN			1.8	unused
193	DACVSSC	D/A conver sion		0.01	
194	YUV1/Y	Video signal YUV1 output/Y signal output	O	0.74	Supply Y s ignal for S-video
195	DACVDDB	D/A conver sion 3.3V pow er supply		3.19	
196	YUV2/C	Video signal YUV2 output/C signal output	O	1.47	Supply C signal for S-video
197	DACVSSB	D/A conver sion		0.01	
198	YUV3/CVBS	Video signal YUV3 output/CVBS signal output	O	0.74	Provide for video output port (V IDEO)
199	DACVDDA	D/A conver sion 3.3V pow er supply		3.17	

Pin	Name	Function	Data direction	DC voltage when no disc	Remark
200	YUV4/G	Video signal YUV4 output/G signal output	O	0.5	Supply Y1 signal for component video output port
201	DACVSSA	D/A conversion		0.01	
202	TUV5/B	Video signal YUV5 output/B signal output	O	0.01	Supply Pb signal for component video output port
203	YUV6/R	Video signal YUV6 output/R signal output	O	0	Supply Pr signal for component video output port
204	DVDD3	Digital 3.3V power supply		3.21	
205	VSYNC/ADIN1	Field sync signal output/AD universal input	O	0.04	Supply for SCART
206	YUV7/ASDATA5	Video signal YUV7 output/audio serial data		3.79	unused
207	HSYNC/ADIN2	Line sync signal output/AD universal input	O	0.2	Supply for SCART
208	SPMCLK		I	0.01	connect with mute detect signal
209	SPDATA			0.14	
210	SPLRCK			3.78	unused
211	SPBCK/ASDATA5			3.86	unused
212	DVDD3	Digital 3.3V power supply		3.21	
213	ALRCK	Audio left/right channel clock	O	1.52	
214	ABCK	Audio bit clock	O	1.6	
215	ACLK	Audio DAC external clock	O	1.59	
216	DVSS	Digital		0	
217	ASDATA0	Audio serial data	O	0.01	
218	ASDATA1	Audio serial data	O	0.01	
219	ASDATA2	Audio serial data	O	0.01	
220	ASDATA3	Audio serial data		0.01	unused
221	DVDD18	Digital 1.8V power supply		1.93	
222	ASDATA4	Audio serial data	O	3.22	Give audio IC reset signal
223	DVSS	Digital		0.01	
224	MC_DATA	MIC digital audio input	I	1.24	
225	SPDIF	Digital audio signal output	O	1.61	
226	RFGND18	RF signal		0.01	
227	RFVDD18	RF signal 1.8V power supply		0.64	
228	XTALO	Clock output	O	3.18	
229	XTALI	Clock input	I	3.04	
230	JITFO	RF small signal output	O	0.04	

Pin	Name	Function	Data direction	DC voltage when no disc	Remark
232	PLLVSS	Phase-locked loop		0.06	
233	IDACEXLP			3.22	
234	PLLVDD3	Phase-locked loop 3.3V power supply		0.01	
235	LPFON	Amplifier loop filter output	O	0.01	
236	LPFIP	Amplifier loop filter input	I	0.01	
237	LPFIN	Amplifier loop filter input	I	0.09	
238	LPFOP	Amplifier loop filter input	O	2.24	
239	ADCVDD3	D/A conversion 3.3V power supply		3.22	
240	S_VCM			0	
241	ADCVSS	D/A conversion		0	
242	S_VREFP			0	
243	S_VREFN			0.03	
244	RFVDD3	RF 3.3V power supply		3.22	
245	RFRPDC	DC RF error signal input		0.73	
246	RFRPAC	AC RF error signal input		1.37	
247	HRFZC	High frequency RF signal zero passage detect		3.2	
248	CRTPLP			1.53	
249	RFGND	RF ground		0.01	
250	CEQP			0.05	
251	CEQN			0.02	
252	OSP			1.68	
253	OSN			1.68	
254	RFGC			1.06	
255	IREF	Reference current		0.92	
256	AVDD3	Analog 3.3V power supply		3.22	

3.4.2 Function introduction to FLASH

U214 (FLASH) 16Mbit memorizer, FLASH function pin are shown as follows:

Pin	Name	Function	Voltage (when no disc)	Data direction
1-9, 16-25, 48	AO-A19	20 bit address bus		I
11	WE	Write enable signal, low level is effective	3.23V	I
12	RESET	Reset, low level is effective	3.23V	I

Pin	Name	Function	Voltage (when no disc)	Data direction
10, 13, 14	NC	Blank pin		
15	RY/BY	Ready/system busy	3.23V	O
26	CE	Chip enable, low level effective	0V	I
27、46	VSS	Ground		
28	OE	Output enable signal , low level is effective	0V	I
29-3, 6, 38-44	DQ0-DQ14	15 bit data bus		O
37	VCC	5V power supply	+5V	
45	DQ15/A-1	Take word extend mode as data line, and bit extend mode as address line		I/O
47	BYTE	Select 8-bit or 16-bit output mode. High level is 16-bit output and low level is 8-bit output		I

2.4.3 Function introduction to SDRAM

The function of SDRAM (U211) in the player is to save program taken out by Mt1389 from FLASH and information of picture and sound taken out from disc when the player is working to form damping, add the stability of information output and add anti-vibration of the player. The pin function and real voltage are shown as the following table:

Pin	Name	Function	Data direction	Voltage when no disc	Pin	Name	Function	Data direction	Voltage when no disc
1	VDD	3.3V power supply		3.18	28	VSS	Ground		0.01
2	DQ0	Data bus	I/O	0.94	29	MA4	Address bus	I	1.65
3	VDDQ	3.3V power supply	I/O	3.19	30	MA5	Address bus	I	1.74
4	DQ1	Data bus	I/O	0.9	31	MA6	Address bus	I	1.49
5	DQ2	Data bus	I/O	1.3	32	MA7	Address bus	I	1.22
6	VSSQ	Ground		0	33	MA8	Address bus	I	0.05
7	DQ3	Data bus	I/O	1.2	34	MA9	Address bus	I	0.04
8	DQ4	Data bus	I/O	1.5	35	MA11	Address bus	I	0.04
9	VDDQ	3.3V power supply		3.18	36	NC	Blank pin		0.01
10	DQ5	Data bus	I/O	0.7	37	CKE	Clock enable signal	I	1.22
11	DQ6	Data bus	I/O	0.45	38	CLK	System clock input	I	1.68
12	VSSQ	Ground		0	39	UDQM	Data in/out screen-shielded signal	I	2.42
13	DQ7	Data bus	I/O	0.8	40	NC	Blank pin		0.01
14	VDD	3.3V power supply		3.14	41	VSS	Ground		0.01
15	LDQM	Data in/out screen-shielded signal	I	2.46	42	DQ8	Data bus	I/O	0.6
16	WE	Write control signal	I	3.17	43	VDDQ	3.3V power supply		3.19

Pin	Name	Function	Data direction	Voltage when no disc	Pin	Name	Function	Data direction	Voltage when no disc
18	RAS	Row address gating signal	I	3.13	45	DQ10	Data bus	I/O	0.8
19	CS	Chip selection signal	I	2.95	46	VSSQ	Ground		0.01
20	SD-BS0	Section address 0 gating signal	I	1.8	47	DQ11	Data bus	I/O	0.79
21	SD-BS1	Section address 1 gating signal	I	2	48	DQ12	Data bus	I/O	1.16
22	MA10	Address bus	I	0.04	49	VDDQ	3.3V power supply		3.19
23	MA0	Address bus	I	0.36	50	DQ13	Data bus	I/O	1.15
24	MA1	Address bus	I	0.35	51	DQ14	Data bus	I/O	1.24
25	MA2	Address bus	I	2.38	52	VSSQ	Ground		0.01
26	MA3	Address bus	I	1.59	53	DQ15	Data bus	I/O	0.68

3.4.4 Function introduction to D5954

D5954 (U302) is a servo drive IC with built-in 4-channel drive circuit. Digital focus, trace, feed and main axis drive signal outputted by MT1389 is sent to D5954 for amplifying through RC integration circuit. The focus, trace, feed and main axis drive signal being amplified by D5954 is sent to loader to fulfil the corresponding servo work. The introduction to function pin is shown as the following table:

SN	Name	Function	Voltage when no disc (V)	DVD disc voltage (V)	CD disc voltage (V)
1	VINFC	Focus control signal input	1.41	1.4	1.45
2	CF1	External feedback loop	2.3	2.54	2.43
3	CF2	External feedback loop	2.01	2.56	2.43
4	VINSL+	Forward control input, connected to reference voltage	1.41	1.42	1.42
5	VINSL-	Main axis control signal input	1.4	1.42	1.42
6	VOSL	External feedback resistor	1.4	1.17	1.21
7	VINFFC	Focus feedback signal input	1.92	2.59	2.36
8	VCC	5V power supply	5.38	5.04	5.01
9	PVCC1	5V power supply	5.38	5.04	5.03
10	PGND	Ground	0.01	0.01	0.01
11	VOSL-	Main axis drive reverse voltage output	1.87	3.71	3.54
12	VO2+	Main axis drive forward direction voltage output	1.87	1.24	1.4
13	VOFC-	Focus drive reverse voltage output	3.3	2.6	2.33
14	VOSC+	Focus drive forward voltage voltage output	3.3	2.46	2.68
15	VOTK+	Trace drive forward direction voltage output	3.39	2.56	2.51
16	VOTK-	Trace drive reverse voltage output	3.52	2.48	2.51

SN	Name	Function	Voltage when no disc (V)	DVD disc voltage (V)	CD disc voltage (V)
17	VOLD+	Feed drive forward direction voltage output	0.93	2.56	2.5
18	VOLD-	Feed drive reverse voltage output	0.93	2.59	2.62
19	PGND	Ground	0.01	0.01	0.01
20	VINFTK	Trace feedback signal input	3.73	2.5	2.53
21	PVCC2	5V power supply	5.38	5.08	5.07
22	PREGND	Ground	0	0.01	0.01
23	VINLD	Feed control signal input	1.4	1.41	1.4
24	CTK2	External feedback loop	2.41	2.52	2.53
25	CTK1	External feedback loop	2.51	2.52	2.53
26	VINTK	Trace control signal input	1.42	1.42	1.41
27	BIAS	1.4V reference voltage input	1.41	1.42	1.42
28	STBY	Enable control signal	0	3.18	3.19

Note: pin 28 is enable restrain pin, and U302 (D5954) is high level when starting up, low level when not starting up, and pin 4 is 1.4V reference voltage.

3.4.5 Function introduction to CS4360

CS4360 (U207) is a 6CH audio D/A converter produced by CIRRUS LOGIC company, which can realize digital volume adjustment through software. Each step is with 1DB adjustment coefficient, with 9DB decay range and +3.3V or +5V voltage power supply is adopted, 28 pin casing. The main features include 24-bit sampling accuracy, highest sampling frequency, dynamic range of 02DB, SNR of -90DB. When in 3.3V voltage working mode, power consumption is 105MV. Function pin introduction is shown as the following table.

Pin	Name	Function	Voltage when no disc (V)	Pin	Name	Function	Voltage when no disc (V)
1	VLS	Serial audio power supply, +3.3V	3.22	15	M2	Mode 2	1.3
2	SDIN1	Serial audio data 1 input	0	16	FILT+	In-phase feedback voltage output	4.89
3	SDIN2	Serial audio data 2 input	0	17	VQ	External filter of static working voltage	2.42
4	SDIN3	Serial audio data 3 input	0	18	MUTEC3	Output 3 mute control	5.03
5	SCLK	Bit clock	1.6	19	AOUTB3	Analog audio 3 output	2.44
6	LRCK	Left/right channel clock	1.52	20	AOUTA3	Analog audio 3 output	2.44
7	MCLK	Main clock input	1.59	21	GND	Ground	0
8	VD	Digital power supply, +3.3V	3.22	22	VA	Analog power supply, +5V	5.04
9	GND	Ground	0	23	AOUTB2	Analog audio 2 output	2.44

Pin	Name	Function	Voltage when no disc (V)	Pin	Name	Function	Voltage when no disc (V)
11	SCL	Serial control clock	0.29	25	MUTEC2	Output 2 mute control	5.03
12	SDA	Serial control data	3.22	26	AOUTB1	Analog audio 2 output	2.44
13	CS/M1	Chip selection/mode 1	0	27	AOUTA1	Analog audio 2 output	2.44

3.4.6 Function introduction to CS5340

Cs5340 (U210) is a kind of complete A/D converter used in digital audio system. It has sampling, A/D conversion and anti-aliasing filtering function, and can generate 24-bit sampling frequency to left and right channels with serial value of each channel up to 2000 KHz. A 5-step multi-bit DELTA-SIGMA modulator is adopted, with digital filtering and simplification function, so external anti-aliasing filter is not needed. It is specially applicable for audio system required wide dynamic range, Hi-Fi and low noise.

1. The main features are shown as follows:

◆ Support all sampling frequency including 192 KHZ

◆ Dynamic range is 101dB when voltage is 5V

◆ -94 dB THD+N

◆ Highpass filter may remove DC offset

◆ Low delay digital filter

◆ Power consumption is 90 milliwatt under 3.3V power supply

◆ A/D inner core power supply voltage is 3.3V ~ 5V

◆ Support 1.8V ~ 5V logic level

◆ Auto mode selection

◆ Compatible with CS5341 pin

2. Pin function of CS5340 is shown as the following table:

Pin	Name	Function
1	M0	Mode selection (input) - decide running mode of element
2	MCLK	Mainclock (input) - Δ - δ clocl source of adjuster and digital filter
3	VL	Logic power supply (input) - digital input/outputted forward power supply
4	SDOUT	Serial audio data output (output) - output two's complement of serial audio data
5	GND	Analog (input)
6	VD	digital power supply (input) - supply forward direction power for digital part
7	SCLK	Serial clock (in/out) - supply serial clock for serial audio interface
8	LRCK	Left/right clock (in/put) - decide whether left or right functions in serial audio data sequence
9	RST	Reset (input) - element enters a low consumption state when in low level
10	AINL	Analog input (input)
11	VQ	Static voltage (output)
12	AINR	Analog input (input)
13	VA	Analog power supply (input) - supply forward power for analog part
14	REF_GND	Reference (input) - supply reference for internal sampling circuit
15	FILT+	Forward direction reference voltage (output)
16	M1	Mode selection (input) - decide the running mode of element

2.4.7 Function introduction to V304 (CD4052)

CD4052 is a 2-group 4-channel data selector used to select disc sound signal or tuner sound signal.

1. Pin function is shown as the following table:

Pin	Name	Function	Remark	Pin	Name	Function	Remark
1, 2, 4, 5	Y0-Y3	Y signal input	I	8	VSS	Ground	
11, 12, 14, 15	X0-X3	X signal input	I	16	VDD	9V power supply	
3, 13	Y	Y signal output	O	9、10	B、A	Gating signal	I
6	INH	Two groups both have no output when prohibition end is high level	I	13	X	X signal output	O
7	VEE	minus 9V power supply					

2. A, B signal gating condition is shown as the following table:

Pin	Disc reading	Radio set	unused	
9	1 (10.4V)	0 (0V)	1	0
10	0 (0V)	1 (10.4V)	1	0

2.4.8 Function introduction to U504 (LM7805)

1. LM7805 is 5V voltage regulator, locates on power board in this player and is used to generate 5V stable voltage. Pin function is shown as the following table:

Pin	Name	Function	DC voltage
1	IN	Voltage input	+9V
2	GND	Ground	0
3	OVT	5V voltage output	+5V

2. Function introduction to U209 (LM1117MP-1.8)

LM1117MP-1.8V is 1.8V voltage regulator, locates on decode board to provide 1.8V stable voltage for MT1389. Pin function is shown as the following table:

Pin	Name	Function	Remark
1	GND	Ground	
2	OUT	1.8V voltage output	1.8V
3	IN	Voltage input	3.3V

3.4.9 Function introduction to 4558/TDA1308

1. 4558/4580 includes two integrated operational amplifiers inside, and pin function is shown as the following table:

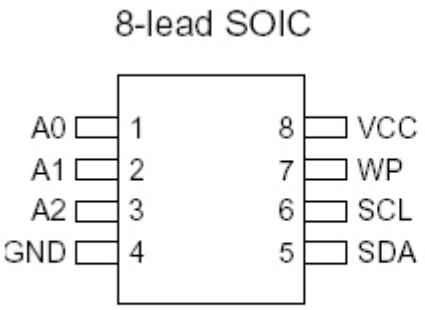
Pin	Function	Signal flow	Pin	Function	Signal flow
1	Output of operational amplifier A	O	5	Output of operational amplifier B	O
2	Cathode input of port operational amplifier A	I	6	Cathode input of port operational amplifier B	I
3	Anode input port of operational amplifier A	I	7	Anode input of port operational amplifier B	I
4	minus 9V voltage input	I	8	(+) 9V voltage input	I

2. U602 (TDA1308) is a headphone drive chip, and pin function is shown as the following table:

Pin	Name	Function	Signal flow	Pin	Name	Function	Signal flow
1	OUT1	Headphone right channel output	I	5	IN2+	Reference voltage input	I (2.3V)
2	IN1-	Right channel signal input	O	6	IN2-	Left channel signal input	I
3	IN1+	Reference voltage input	I (2.3V)	7	OUT2	Headphone left channel output	O

3.4.10 Function introduction to status memorizer U202 (24LLC020) and explanation to I2C bus

1. 24LLC02 is a writable and programmable read-only memorizer, with its casing and pin function shown in the following figure .4.10.1:



Pin Configurations

Pin Name	Function
A0 - A2	Address Inputs
SDA	Serial Data
SCL	Serial Clock Input
WP	Write Protect
NC	No Connect
GND	Ground
VCC	Power Supply

Figure 3.4.10.1 Casing and pin function explanation

2. The function of 24LLC02 is to keep some setup status of machine, such as system information of sound and language selection, not losing after power on and still keeping the information set last time when power on the next time. The circuit schematic diagram is shown as the figure3.4.10.2:

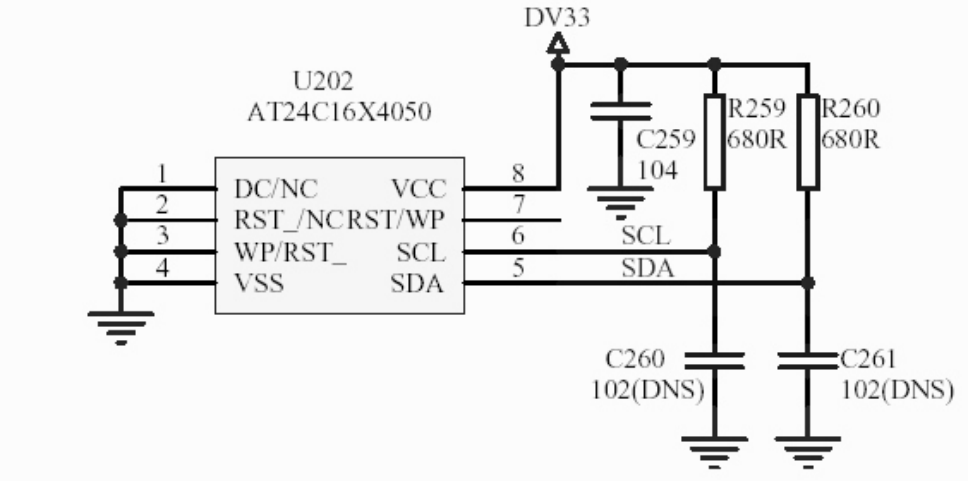


Figure 3.4.10.2 Circuit schematic diagram

I^2C bus is a kind of bus protocol developed by PHILIPS company, which has two pieces of signal line, that it, clock line SCL and data line SDA. When device and this bus keep high impedance state, high level must be kept on bus, so pull-up resistor is required on I^2C bus.

3. Pin function is shown as the following table:

Pin	Name	Voltage (V)	Pin	Name	Voltage (V)
1	DC/NC	0	5	SDA	3.21
2	RST_/NC	0	6	SCL	0
3	WP/RST	0	7	WP	0.29
4	VSS	0	8	VCC	3.21

Note: when playing DVD, CD disc and no disc in, the measured voltage are all the same, in which pin 7 is protection-write pin, unused.

2.4.11 Function introduction to U501 (5L0380)

Pin 3 of 5L0380 is controlled by feedback pin 4 to make it on for a while and off for another while to form pulse DC to control coupling quantity of transformer. When secondary output voltage of transformer is on the high side, under the control of pin 4, disconnection time of pin 3 gets longer and coupling quantity of transformer decreases to make output voltage get lower gradually; when secondary output voltage of transformer is on the low side, disconnection time of pin 3 gets shorter, connection time gets longer (connect inside 5L0380), coupling quantity of transformer decreases and secondary output voltage gets larger gradually. Pin function is shown as the following table:

Pin	Function	Voltage	Remark
1	Grounding	0	
2	Voltage supply	16V	supply voltage for 5L0380 after starting up
3	310V power supply input	310V	
4	Control of space occupation ratio to		

3.4.12 Working principle and function introduction to U503 (LM431A)

U503 (LM431A) is a 2.5V comparator, shown as the figure 3.4.12.1. Compared the inputted voltage of R end with 2.5V, when voltage of R end is more than 2.5V, KA end is on and photoelectric coupler starts to send out photocurrent; when voltage of R end is less than 2.5V, KA end is cutoff and photoelectric coupler does not send out photocurrent. CPU+3.3V in power board circuit must be kept in 3.3V, for the function of comparator. No matter more than or less than 3.3V, through on and off status of comparator, it will control the on state of the output end of photoelectric coupler LM431A to adjust the output space occupation ratio of switch module to control the output voltage of transformer and masthead the power supply of the whole system.

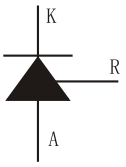


Figure 3.4.12.1 LM431A outside drawing

3.4.13 Function introduction to U502 (2501)

U502 (2501) is a photoelectric coupler, shown as the figure 3.4.13.1. The right side is a light emitting diode, which sends out light of different intensity according to the strength of voltage inputted from the right side, generates photocurrent of different intensity on the left side according to light of different intensity, and outputs from position D. The higher of the voltage inputted from the right side, the stronger of the light emitted from light emitting diode and the larger of the photocurrent produced from position D. The lower of the voltage inputted from the right side of photoelectric coupler, the weaker of the light emitted from light emitting diode and the weaker of the current outputted from position D.

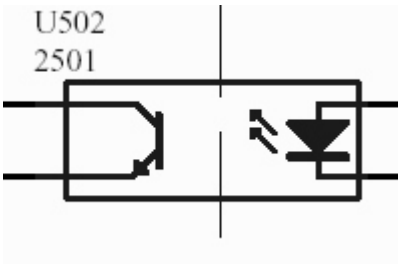


Figure 3.4.13.1 2501 outside drawing

2.4.14 Function introduction to U401 (PT6961)

Pt6961 is drive IC of buttons scanning and LED screen. Pin function is shown as the following table:

Pin	Name	Function	Working voltage (V)	Signal flow
1	OSC	Clock frequency adjustment	2.31	I
2	DOUT	Serial data output	5.34	O
3	DIN	Serial data input	5.34	I
4	CLK	Clock signal	5.34	I

Pin	Name	Function	Working voltage (V)	Signal flow
5	STB	Gating signal	5.33	I
6 □ 8	K1□ K3	Keyboard scanning input	0.01	I
10 □ 12	SG/KS [1□ 3]	Segment [1□ 3]/keyboard matrix [1□ 3] output		O
14 □ 20	SG/KS [4□ 10]	Segment [4□ 10]/keyboard matrix [4□ 10] output		O
21	SG11	Segment 11 output		O
22	SG12/GR7	Segment 12/grid 7 output		O
23, 24	GR[6□ 5]	Grid [6□ 5] control output		O
27, 28	GR[4□ 3]	Grid [4□ 3] control output		O
30, 31	GR[2□ 1]	Grid [2□ 1] control output		O
9, 25	VDD	Power supply	5.34	
13	NC	Blank pin	0.04	
26, 29, 32	GND	Circuit	0	

Note: when no button is pressed, voltage of pin 68 is 0V.

2.4.15 Function introduction to U403 (HS0038A2)

Infrared receiver HS0038A2 or HS0038B has three pins: power supply anode (pin 2), power supply cathode (pin 1) and data output port (pin 3). If 5V is used for power supply, when keeping the state, voltage of data output port is also 5V (HS0038B requires pull-up resistor). The internal part is composed of infrared receiving diode and amplification circuit. To reduce the interference of visible light to working, diode part of infrared receiving usually adopts black resin casing to filter the beam with waveform length below 700nm. The amplification circuit is composed of an integrated block and elements of resistor and capacitor (including amplification, frequency selection and demodulator circuit), cased inside a screen-shielded box. Pin function is shown as the following figure:

Pin	Name	Function	Voltage	Remark
1	GND	Ground	0	When there is remote control signal, voltage of IR signal changes between 5.1 and 4.1.
2	VCC	Power supply	5.1	
3	IR	Remote control data	5.1	

Section Five Troubleshooting Process

3.5.1 Key point explanation

1. Key point of power board

◆ voltage between anode and cathode of capacitor TC501: 310V

◆ pin 2 of U501 (5L0380): 310V

◆ pin 3 of U501 (5L0380): 16V

◆ R electrode of U503 (AZ431): 2.5V

2. Key point of decode board

◆Power supply voltage Xs203: pin 3: A5V=5V, pin 5: DR33=3.3V, pin 7: VCC=5, pin 9: -9V=-9V, pin 10: +9V=+9V

◆ Pin 2 of U209 (H11A536BF) +19V (some other decode boards use standard voltage 1.8V)

◆ Reset circuit: pin 6 of U205 (HC2104) +3.3V

◆ Pin 12 of U214 (flash) +3.3V, pin 37 +3.3V

◆ Clock circuit: frequency of crystal oscillator Xs201 is 27MHZ, original voltage of two ends is +1.5V

◆ Pin 4 of U302 (D5954) +1.4V, pin 8 + 5V, pin 9 + 5V, pin 28 + 3.3V (when reading disc)

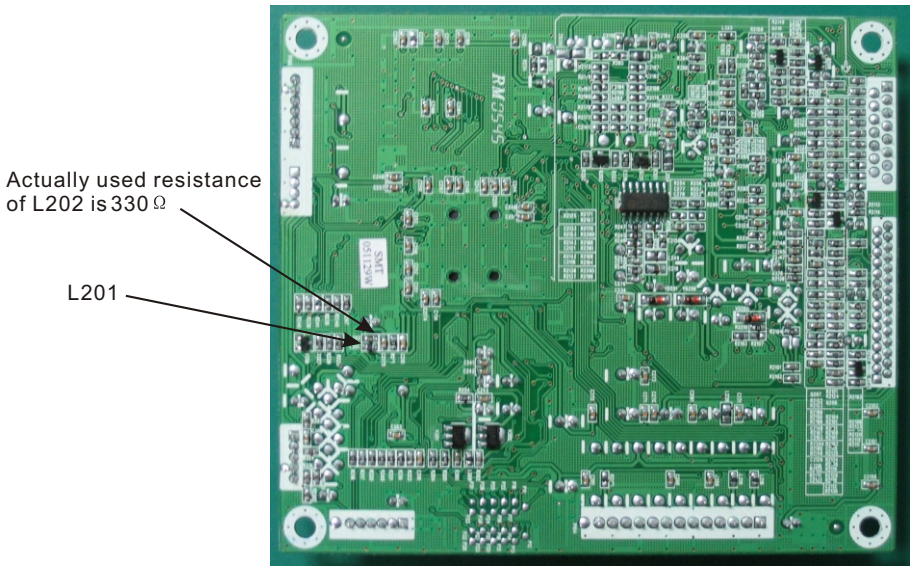
◆ Pin 1 of U211(SDRAM) is 3.3V, frequency of pin 38 changes to 100MHZ

◆ Pin 8 of U202 (24LLC02) is 3.3V

◆ Pin 4 of 4558 is -9V, pin 8 is +9V

3.5.2 Checking point of MT1389 power supply voltage

1. Checking point of MT1389 power supply voltage is shown as the following figure 2.5.2.1:



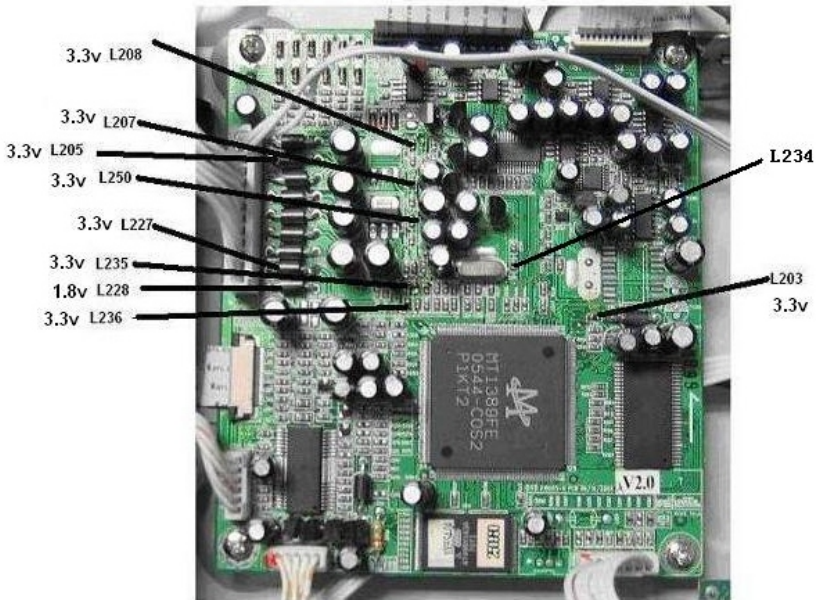


Figure 3.5.2.1 Checking point illustration of MT1389 power supply voltage

2. There are so many pins of MT1389 that it is very difficult to check voltage of power supply pins directly. To make readers test it more easily, the following flow chart and the corresponding elements are list out, shown as the figure 3.5.2.2:

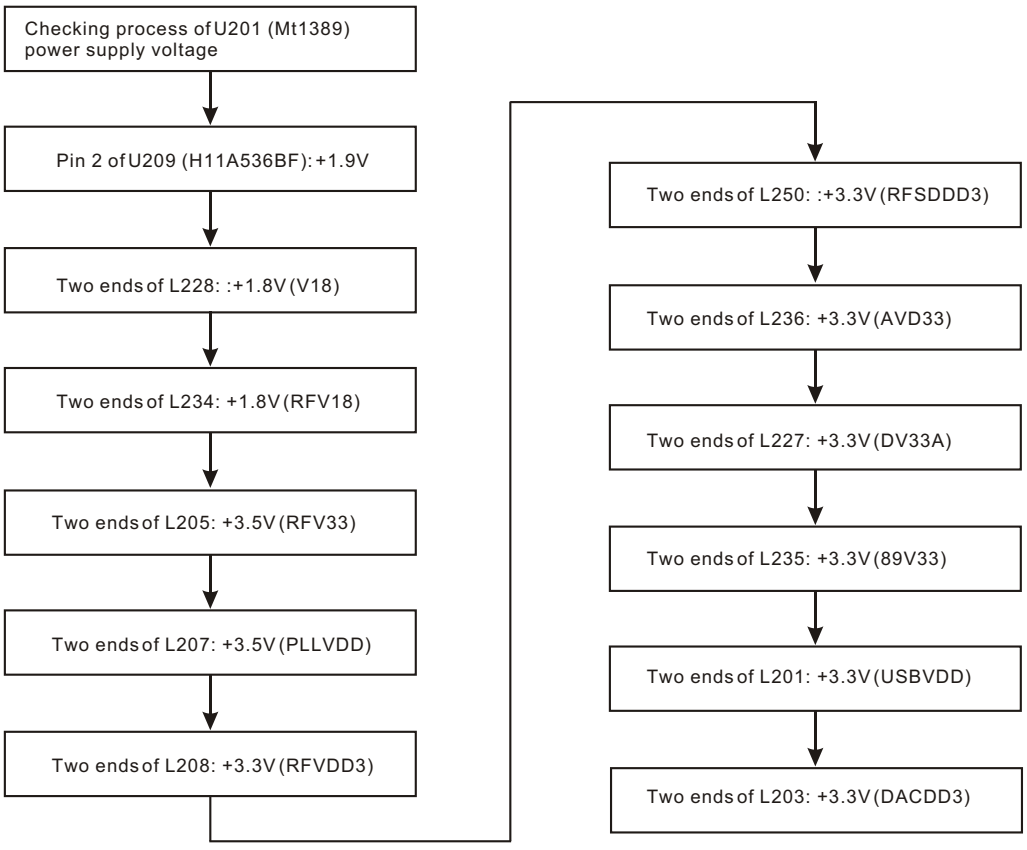


Figure 3.5.2.2 Troubleshooting flow chart

3. The trouble illustration when Mt1389 power supply is abnormal, shown as the figure 3.5.2.3:

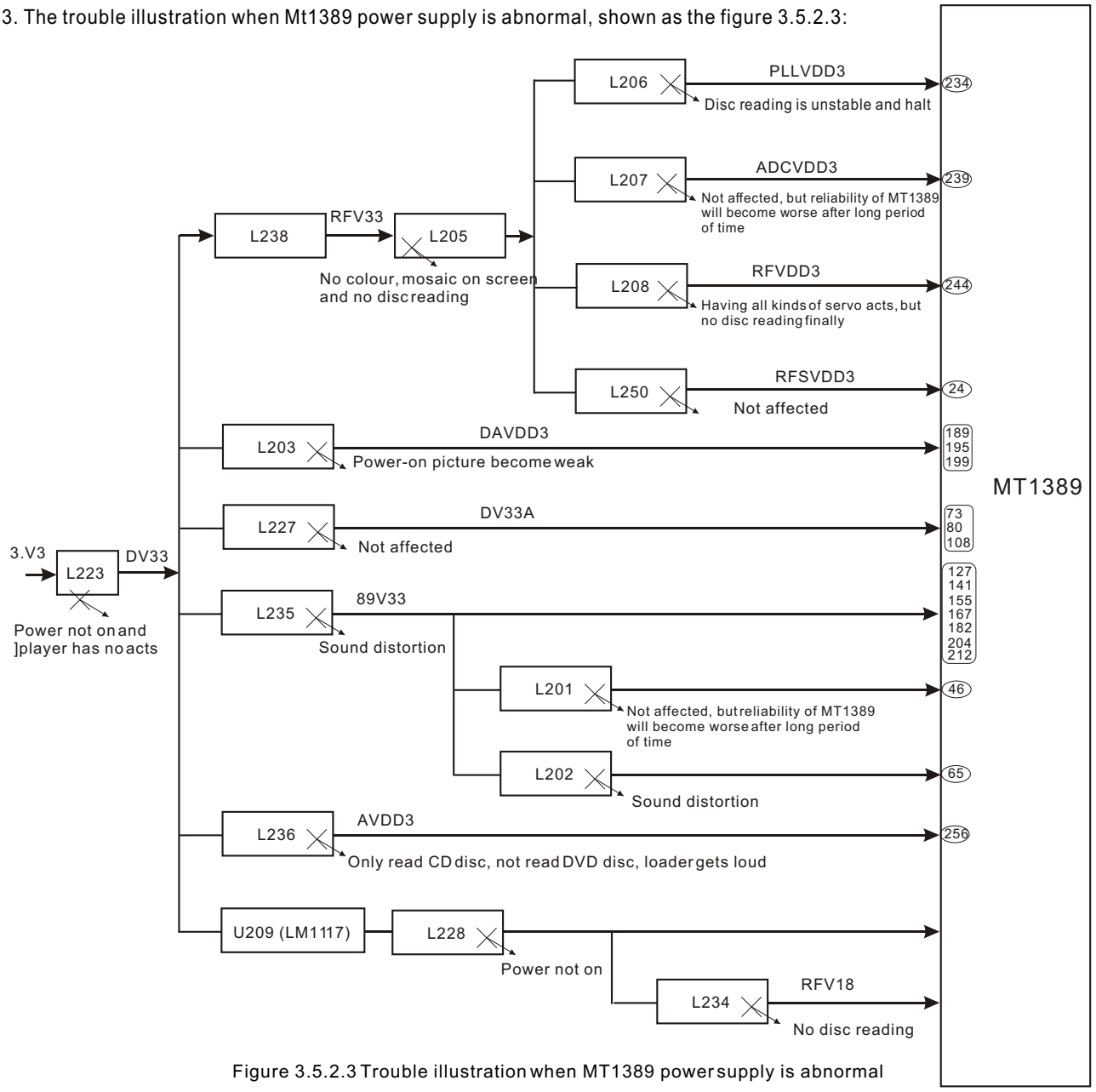


Figure 3.5.2.3 Trouble illustration when MT1389 power supply is abnormal

✕ Means this element has open circuit; ↘ means explanation and direction

note: after open circuit of L235 happens, sound distortion will appear. For the voltage flown through L201 from pin 46, the sound distortion will not be serious. If open circuit happens to L235 and L201 at the same time, the sound distortion will be more serious. Pin function is shown as the following table 3.5.2.1:

SN	Name	Connect to MT1389 pin	Function	SN	Name	Connect to MT1389 pin	Function
1	RFSVDD3	24	Servo 3.3V power supply	7	RFV18	227	RF signal 1.8V power supply
2	89V33	46	USB 3.3V power supply	8	PLLVDD3	234	Phase-locked 3.3V power supply
3	89V33	65	Analog phase-locked 3.3V power supply	9	ADCVDD3	239	Analog conversion 3.3V power supply
4	89V33	127.141.155.167.182.204.212	Digital 3.3V power supply	10	RFVDD3	244	RF 3.3V power supply
5	DV33A	73.80.108	Digital 3.3V power supply	11	AVDD3	256	Analog 3.3V power supply

Figure 3.5.2.1 Pin function introduction

3.5.3 Troubleshooting process for "Power not on"

Troubleshooting flow chart is shown as the following figure 3.5.3.1:

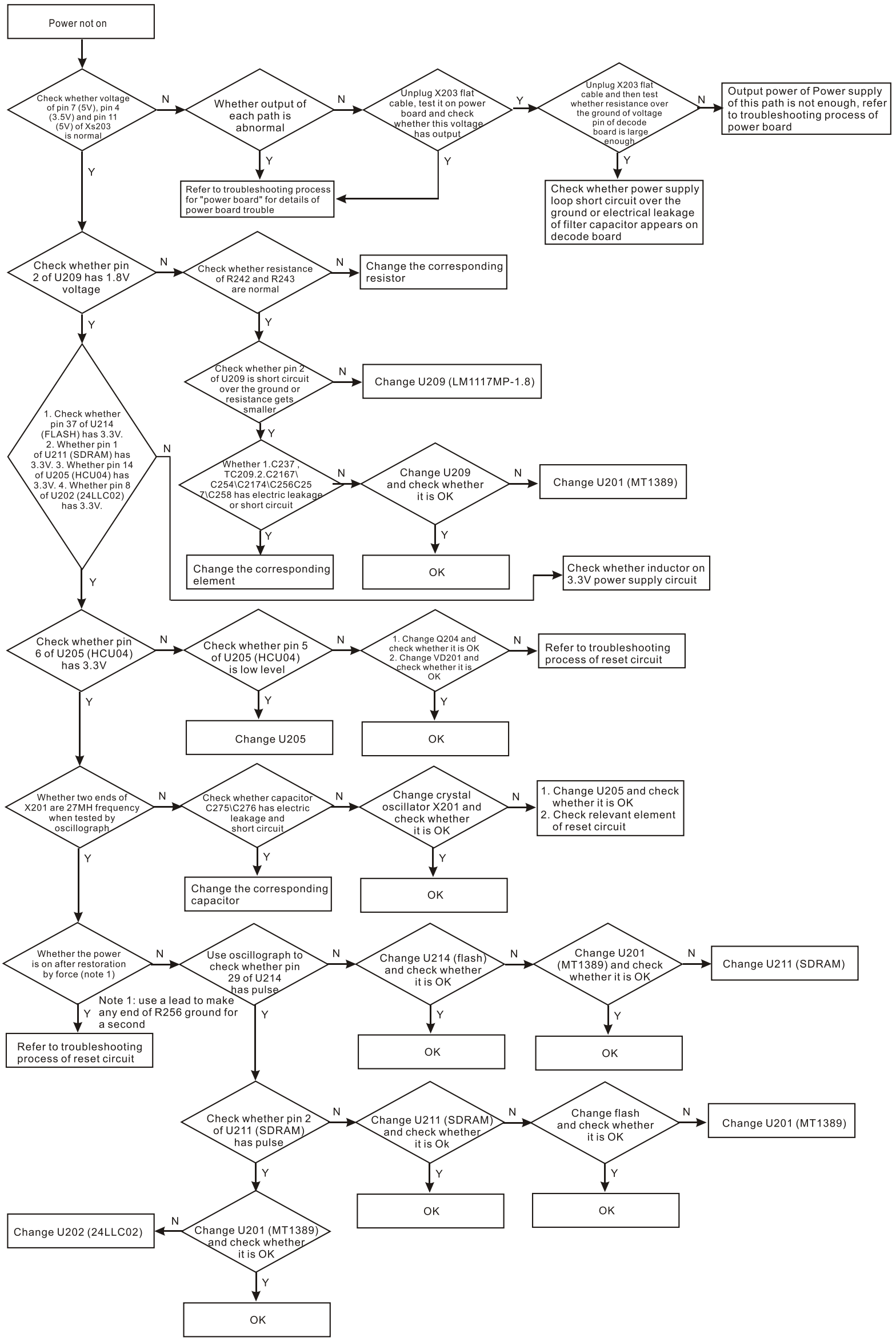
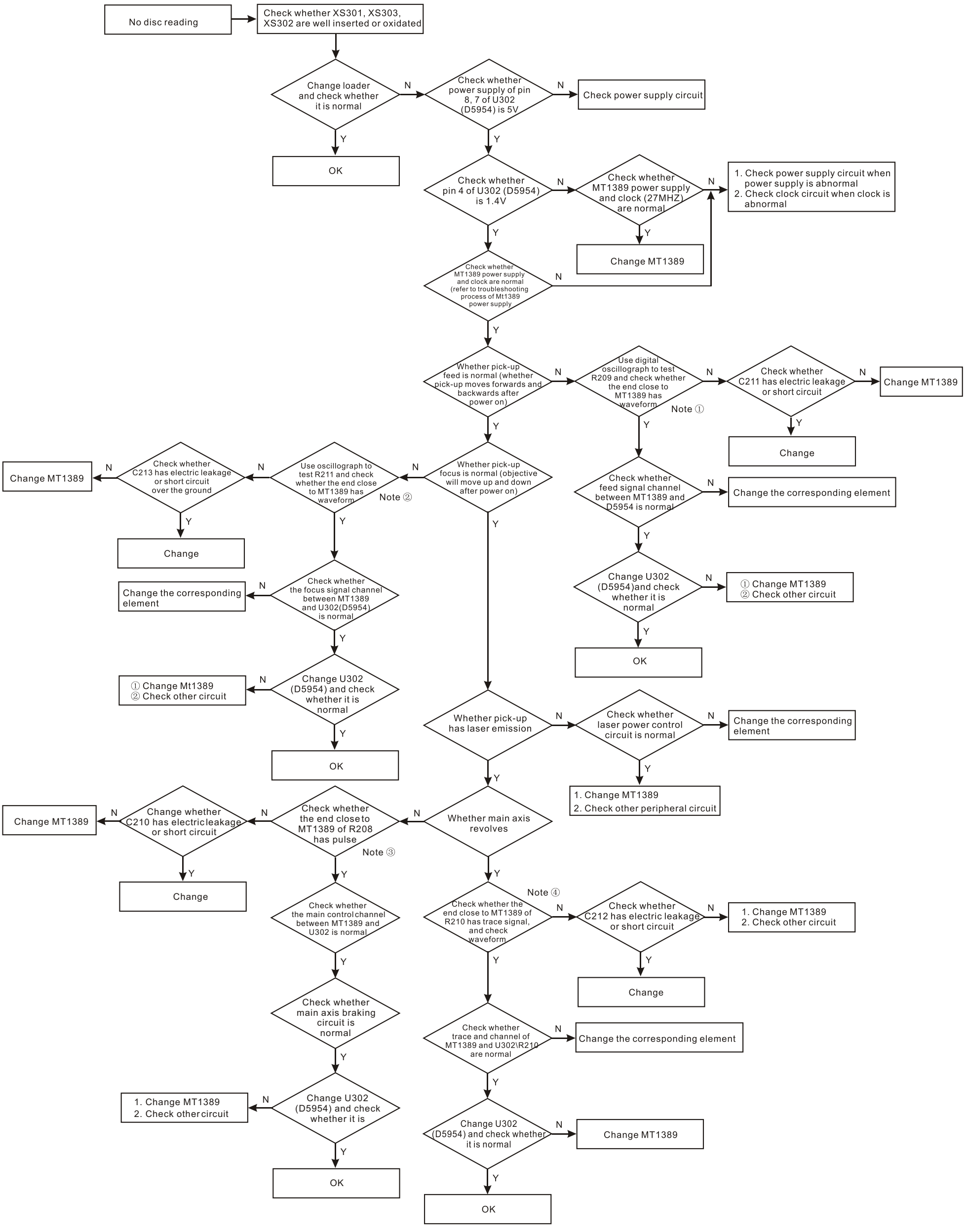


Figure 3.5.3.1 Troubleshooting flow chart for "Power not on"

3.5.4 Troubleshooting process for "No disc reading"

The flow chart for "No disc reading" is shown as the following figure 3.5.4.1:



Note ①, ②, ③ and ④ are all tested when no disc in, disc in to position, pick-up defaults focus and feed

Figure 3.5.4.1 Troubleshooting flow chart for "No disc reading"

3.5.5 Troubleshooting process for audio and video

1. Troubleshooting flow chart for “Image distortion”

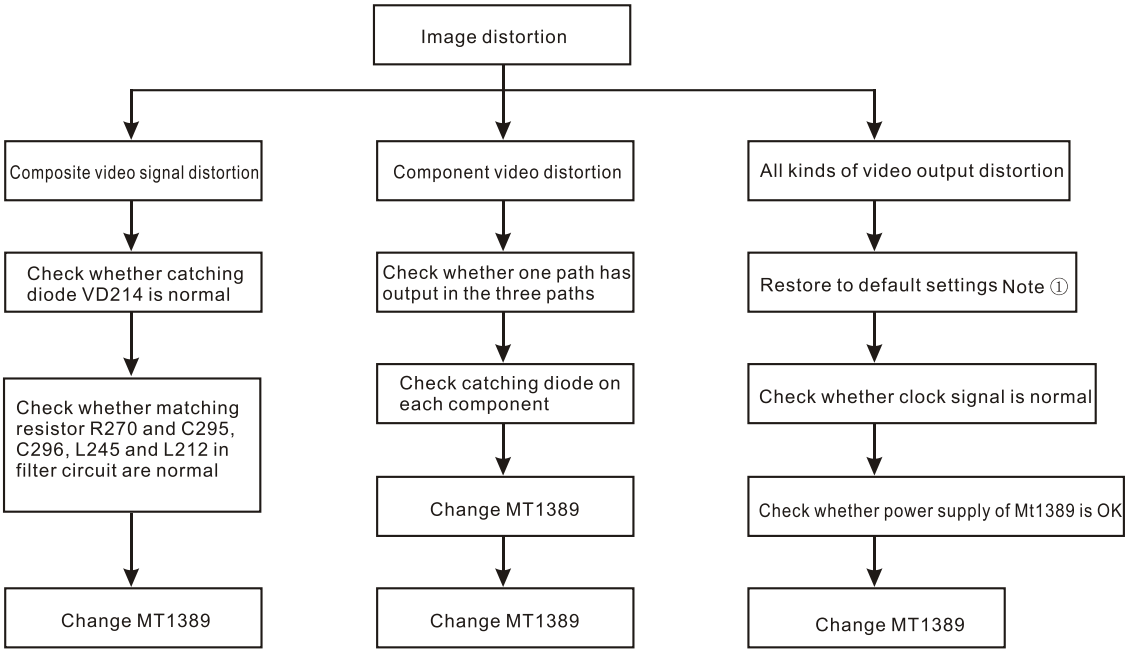


Figure 3.5.5.1 Troubleshooting flow chart for "Image distortion"

Note ① Flow chart of restoring to default settings is shown as figure 3.5.5.2:

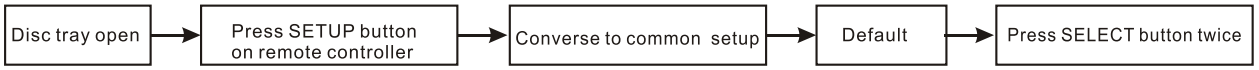


Figure 3.5.5.2 Operation flow chart for restoring to default settings

2. Troubleshooting flow chart for “Having picture but on sound” is shown as the figure 3.5.5.3:

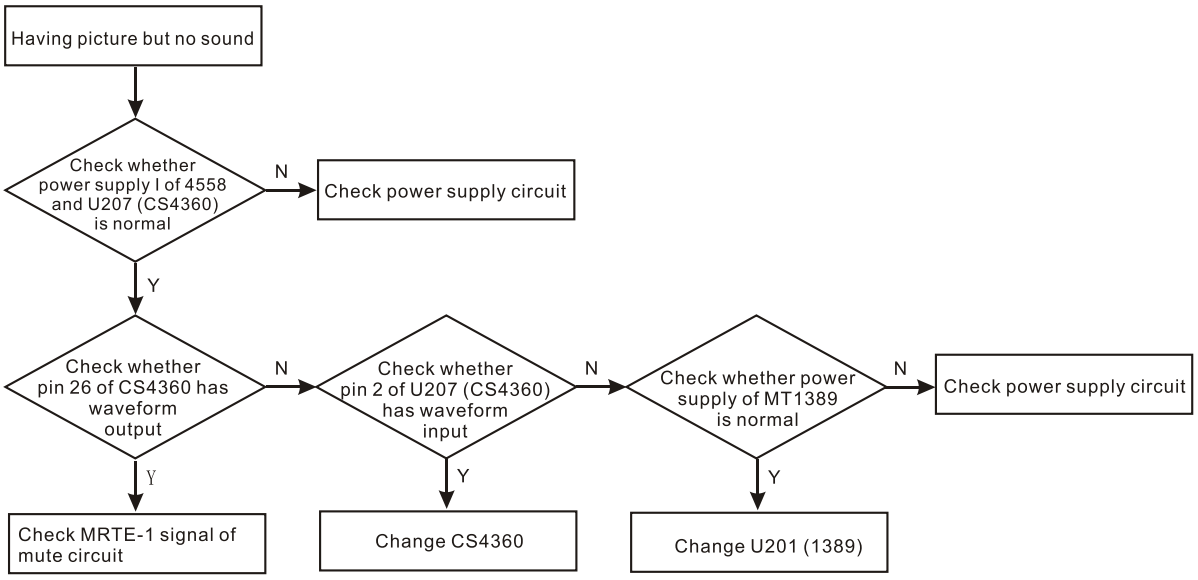


Figure 3.5.5.3 Troubleshooting flow chart for "Having sound but no sound"

3. Troubleshooting process for “Having noise” is shown as the figure 3.5.5.4:

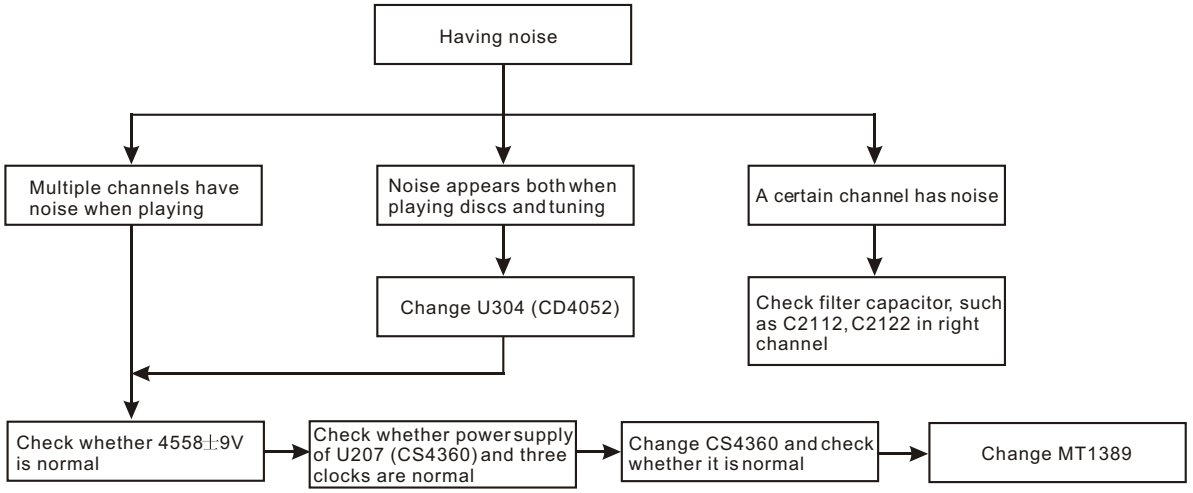


Figure 3.5.5.4 Troubleshooting flow chart for “Having noise”

4. Troubleshooting process for “No echo” is shown as the following figure 3.5.5.5:

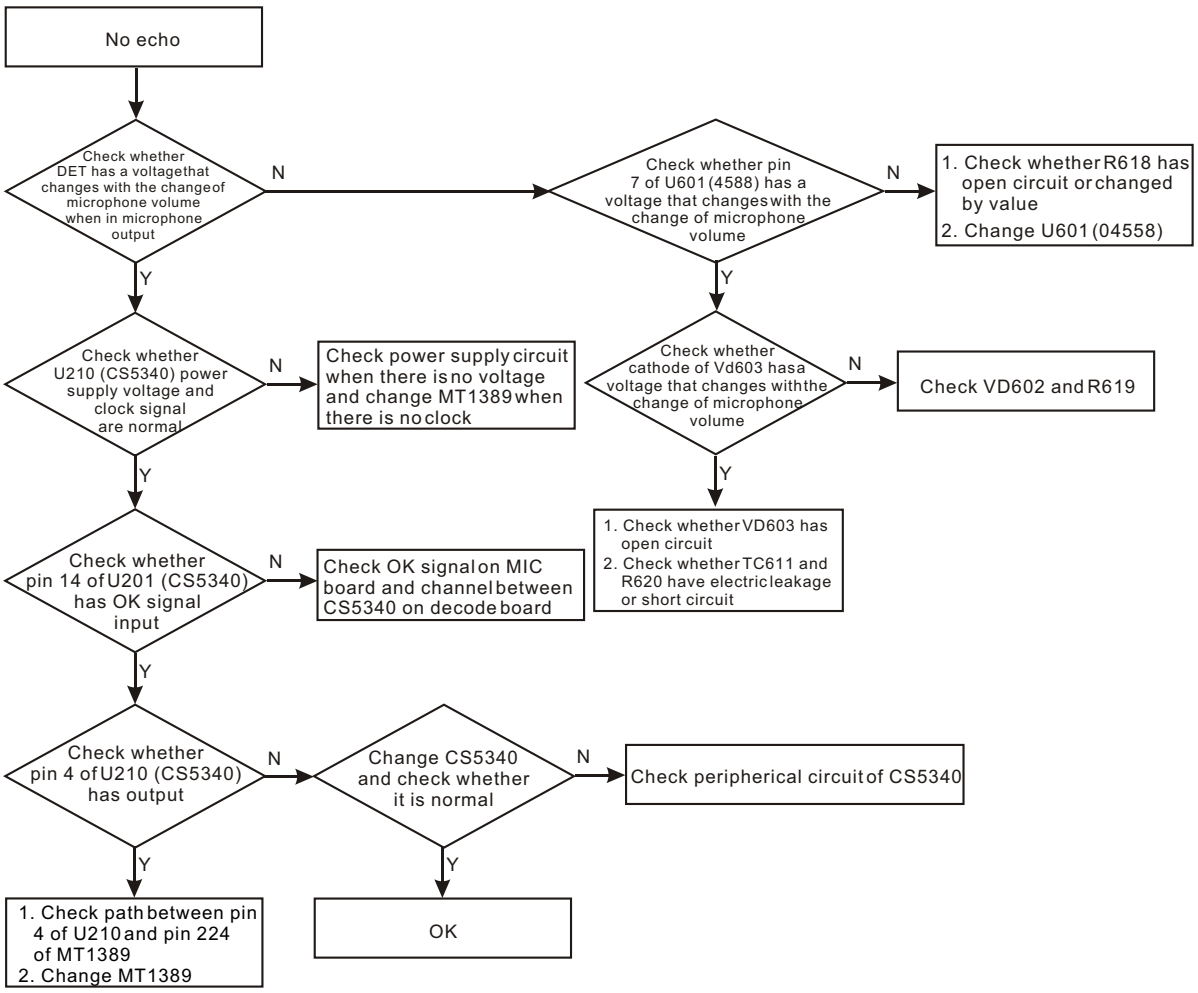


Figure 3.5.5.5 Troubleshooting flow chart for “No echo”

5. Troubleshooting process for “No picture, no sound” is shown as the following figure3.5.5.6:

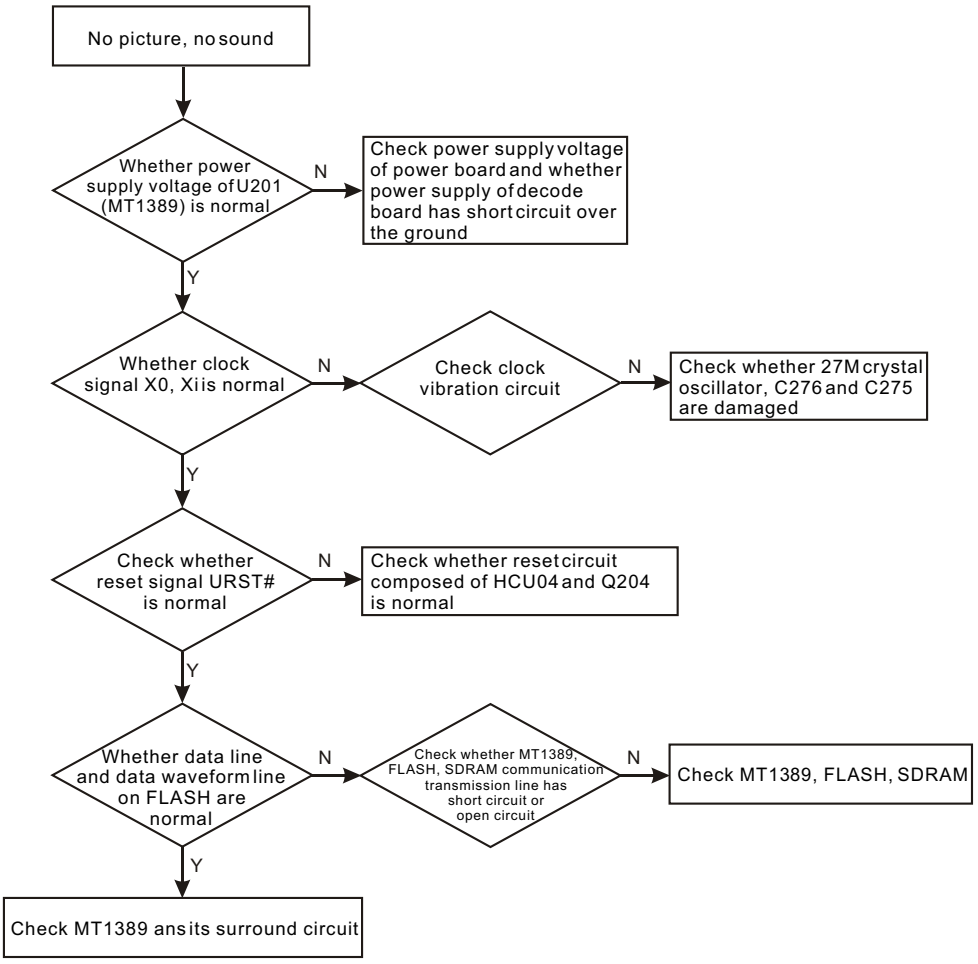


Figure 3.5.5.6 Troubleshooting flow chart for "No picture, no sound"

Chapter Six Instances of Maintenance

3.6.1 Instances of maintenance

【Example 1】Composite video has not picture and sound, but normal disc reading displays on screen.

Step One: check power supply voltage. When checking power supply voltage on flat cable holder X203, voltage of pin 7 VCC has only 4.4V (in normal cases, it should be 5V), and other voltage are all normal.

Step Two: remove flat cable on the flat cable holder X203, and find that +5V (VCC) positive electricity outputted from power board is 5.9V (in normal cases, it is 5V, but will be on high side when NIC), so the trouble does not lie in power board by preliminary judgement.

Step Three: Use another decode board to replace the original one, and find that all conditions are normal, which means that the trouble is certain to lie in decode board , but not that the output power of power supply is not enough.

Step Four: use multimeter to test the resistance over the ground of pin 7 (VCC) on XS203, and find that it is 45 ohm (in normal cases, it is far more than 45 ohm), so we can confirm that the trouble lies in VCC (+5V) power supply circuit.

Step Five: refer to VCC change process in 2.1.3 chapter “voltage change process”, firstly check A5VV that has direct relation to video, which used as catching position of video output. Because only composite video does not have output, directly check the catching diode VD214 of composite video and find that VD214 is struck through and all things become normal after changing VD214.

Summarization: video output of this player is normal, so the trouble may probably lie in composite video circuit. Thus directly search VD214 in step 5.

【Example 2】No picture, no sound and no OSD

Step One: check all voltage of X203 and find that all voltage are normal. 。

step Two: check the output voltage of U209 (1.8V voltage regulator) and its is 1.9V which is normal. Check and find that pin 37 of U214 (flash) is 3.23V, pin 1 of U211 (SDRAM) is 3.19V, pin 14 of U205 (HCU204) and pin 8 of U202 (24LLC02) are 3.21V which are all normal.

Step Three: use oscillograph to check the frequency of crystal oscillator X201, and find that there is no waveform. Check capacitor C275 and C276 and find that resistance of two ends of C275 are 100 ohm. This capacitor has electrical leakage and it is OK after changing it.

【Example 3】No output for component video

Step One: composite video is normal after checking, so we can preliminary decide that the trouble is in the part of component video output.

Step Two: use oscillograph to check pin 200 (Y4) of U201 (Mt1389), pin 202 (Y5) and pin 203 (Y6) and find that the three output pins all have waveform output (refer to IV for waveform shape) to judge that the trouble is not in MT1389, but in output circuit.

Step Three: in three component video, only when brightness signal has trouble, there is no output, so directly check the path of brightness signal. Check the brightness signal Video-Y4 of pin 11 of flat cable holder XS204 and find that there is no waveform output, so we can judge that the trouble is in decode board.

Step Four: check anode of catching diode V216, shown as the following figure 3.6.1, or whether there is no waveform to decide whether the trouble is on filter circuit matching resistor. R273 is matching resistor, VD216, Vd217 are catching diode, and L246, 213, C298, C299 compose filter circuit.

Step Five: use multimeter to check the above element and find no troubles, but point A has no waveform in the above circuit. Carefully observe L246 and find that it rosin joint. After well welding, component video output resumes to be normal.

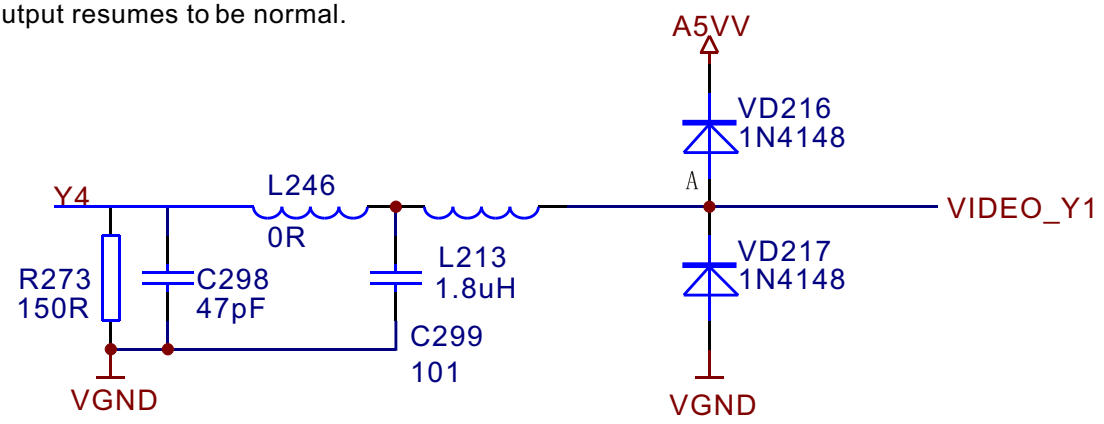


Figure 3.6.1 VIDEO_Y1 output diagram

【Example 4】Colour distortion for component video

Step 1: use oscillograph to check YpbPr terminal and find that Pb terminal has no signal output.

Step 2: use oscillograph to check Y5 signal (pin 202 of 1389 or high level end of R276) and find no abnormality.

Step 3: use oscillograph to check VIDEO-U signal (anode of Vd218正极) and VIDEO-U is normal.

Step 4: use oscillograph to check two ends of L247, L214, and find that L247 has open circuit. It is normal after changing it.

【Example 5】No output for component video

Composite video output is normal after checking, but use oscillograph to test pin 200, 202 and 203 of MT1389 to find that all have no output. Composite video is normal, so we can preliminary decide that the trouble does not lie in clock circuit and power supply circuit. Change MT1389 directly and component video output resumes to be normal.

【Example 6】Having image but no sound

Step 1: all channels have no sound, so the trouble is certain to lie in the common part of these channel which includes: 1. 4558 power supply voltage; 2. MUTE-1 signal in mute; 3. CS4360 fails; 4. MT1389 fails.

Step 2: check 4558 power supply voltage (9V) from simple steps firstly, and find it is normal.

Step 3: use multimeter to test the end of voltage LR2118 of MUTE-1 signal and find that it is the voltage when high level (1.68V) is in mute state, so the trouble may probably lie in mute circuit.

Step 4: in mute circuit, to make MUTE-1 is 1.68V, Q212 must be cutoff. To make Q212 cutoff, cathode of VD207, VD208 and VD209 must be high level. But when using multimeter to test the cathode of Vd207, it is low level. In normal cases, Q212 must be on, so we decides that Q212 may probably have troubles.

Step 5: change Q212 and troubles are removed.

【Example 7】No sound for mixed right channel

Step 1: use oscillograph to check R terminal and confirm there is no output.

Step 2: use oscillograph to check pin 26 FR signal of U207 (CS4360) and the output is normal.

Step 3: check waveform of RT signal (pin 19 of XS204 or C electrode of Q205) and waveform is normal.

Step 4: check waveform of pin 1 of U219 (4580) and output is normal.

Step 5: use multimetre to check c electrode resistor over the ground of Q205C and resistance is 0. It is doubt that Q205 has trouble and it is normal after changing Q205.

【Example 8】Power supply not on after switching on the unit

Step 1: check voltage of pin 7 (5V), pin 9 (3.3V) and pin 11 (5V) of XS203 and the voltage is normal. So it is estimated that the trouble lies in decode board.

Step 2: check voltage of pin 2 of U209, and the voltage is tested to be 0V (1.9V in normal cases).

Step 3: check resistor R242 and R243, and resistance is normal. So it is estimated that U209 is damaged.

Step 4: it is normal after changing U209.

【Example 9】No microphone

Step 1: change MIC board and the working is normal, which means that the trouble lies in MIC board.

Step 2: speak towards microphone and check waveform of pin 1 and 3 of U601(4558) to find that pin 3 has waveform input but pin 1 has no output.

Step 3: check power supply of pin 4 (-9V) and pin 8 (+9V) of U601 and power supply is normal.

Step 4: check resistance of R610 and find that R610 has open circuit. Microphone still has no input after changing R610.

Step 5: repeat step 2 and pin 1 still has no output, so it is estimated that V601 is damaged.

【Example 10】Having picture but no sound

Step 1: all channels have no sound, so the trouble lies in the common part of each channel sound.

Step 2: check mute signal MUTE-1 (one end of R2118) and it is -0.98V, normal.

Step 3: check power supply of U207 (CS4360) and it is normal.

Step 4: use oscillograph to check pin 26 and 27 of U207 (CS4360) and find that there is no waveform output (refer to IV for waveform shape). Use oscillograph to check pin 2 of U207 (CS4360) and there is waveform input, which means U207 is damaged.

Step 5: trouble is removed after changing U207 (Cs4360).

【Example 11】Not read DVD

Step 1: change loader and still not read DVD, so the trouble is not in loader. Check decode board.

Step 2: check power supply. The power supply of Mt1389 is complicated, so check whether voltage is normal according to voltage change process in chapter 2.1.3. The output voltage of U209 (LM1117MP-1.8) is checked to be 1.9V, normal.

Step 3: check RFV33 (one end of L205) and it is 3.3V, normal.

Step 4: check PLLVDD3 (one end of L206) and it is 1.8V (3.3V in normal cases).

Step 5: use multimeter to test resistance of L206 and it is infinite. The result is L206 has open circuit. The trouble is removed after changing L206.

【Example 12】Not read disc

Step 1: check flat cable socket on XS301 and find no abnormality.

Step 2: change loader, disc reading is normal and trouble is removed.

【Example 13】Not read disc

Step 1: check XS301 flat cable and socket and they are both normal.

Step 2: change loader and trouble still exists.

Step 3: check power supply and observe that pick-up, main axis and feed are both normal, but still not focus.

Step 4: check D5954 power supply and reference voltage and they are both normal.

Step 5: check MT1389 power supply, and refer to “MT1389 power supply troubleshooting” for checking method.

Step 6: check the path between pin 42 of MT1389 (focus error signal output) and pin 1 of D5954, and find that capacitor electric leakage happens in C210, C211, C212 and C213. Change one by one and the trouble is removed after changing C213, which means that C213 has electric leakage.

【Example 14】Not read disc

Step 1: check flat cable and socket on Xs301 and they are normal. Trouble still exists after changing loader.

Step 2: when no disc in, after disc tray closes, when pick-up is performing focus and trace operations, the DVD beam sent out is not very strong, so it is preliminarily decided that laser power control circuit has trouble.

Step 3: when using multimeter to testing V301 and V302, V301 is found to be struck through and trouble is removed after changing V301.

【Example 15】Down in the course of playing

According to the former experiences, this type of trouble may probably appear on MT1389, so change MT1389 directly to remove the trouble.

Summarization: for this type of trouble, change MT1389 firstly; if the trouble can not be removed, change U211 (SDRAM); if it is not ok after this, change U214 (FLASH).

【Example 16】Power not on

Step1: check voltage on Xs203 flat cable holder and find that there is no voltage output. After unplugging flat cable on XS203, power board still has no voltage output, so the trouble appears in power board.

Step 2: check power supply on C501 on power board and it is 310V, normal.

Step 3: change U501 (5L0380) and voltage output of power board is normal, so trouble is removed.

【Example 17】Power not on

Step 1: check voltage on XS203 flat cable holder and all things are normal. Check power supply voltage on U201 (MT1389), U211 (SDRAM), U214 (Flash), U202 (24LLC02) and they are still normal.

Step 2: check reset circuit and reset bu force, but power supply is still not on. Check clock circuit and clock frequency is normal.

Step 3: change U217 (flash) and trouble is removed.

Summarization: when power supply, reset and clock are all normal, for this type of trouble, change U214 (flash), and then U201 (MT1389) or U211 (SDRAM).

【Example 18】No sound for headphone

Step 1: check power supply voltage and reference voltage of TDA1308 and they are normal.

Step 2: check whether pin 2 and 6 of TDA1308 has input and find that there is input.

Step 3: check whether pin 1 and 7 of TDA1308 has output and find that there is no output.

Preliminarily decide that TDA1308 has trouble and change TDA1308 to remove trouble.

【Example 19】Sound of left headphone small

Headphone has sound and can preliminarily decide that U602 (TDA1308) works normally. Sound of left headphone is small and this may be caused by the resistance variation of resistor R632 or R627 of TDA1308. Use multimeter to test this two resistors and find that resistance of R632 is about 2.5 kilohm, not 3.9 kilohm. The resistance value of this resistor changes, and change R632 to remove trouble.

【Example 20】No echo

Step 1: when inserting microphone and speaking, voltage of pin 13 of XS203 changes with the change of microphone sound, which is normal.

Step 2: check power supply of U210 (CS5340) and it is normal.

Step 3: when using oscillograph to check pin 10, 12 of U210 (CS5340), as long as voice is inputted to microphone, this place has waveform. But when checking pin 4 of U210 (CS5340), there is no waveform output, so we preliminarily decide that CS5340 has been damaged.

Step4: change CS5340 and trouble is removed.

3.6.2 List for troubles

1. List for MIC board trouble is shown as the following table:

SN	Symptom	Causes	Remark	SN	Symptom	Causes	Remark
1	No MIC	MIC holder not good		10	MIC small	R604 or R618 variate	No mic means there is no microphone output
2	No MIC	U601 open circuit (4558) not good		11	No sound for headphone	7DA1308 not good	
3	No MIC	R621 open circuit (+9V power supply cut)		12	No sound for headphone	TC620 or C612 electric leakage	Pull 5V down to make U602 not work
4	No MIC	L601 open circuit (MIC channel cut)		13	No sound for headphone	Headphone holder not good	
5	MIC large	R610 variate or rosin joint (feedback resistor)		14	Sound of left headphone small	R632or R627 variate	Resistance of channel increases
6	MIC noise	U601 (4558) not good		15	Only left headphone	TC617 electric leakage	
7	MIC noise	C606 electric leakage		16	Only right headphone	TC618 electric leakage	
8	Noise when twisting microphone	MIC holder not good	inside contact not good	17	Sound of left headphone large	R612 variate	
9	MIC small	TC602 or TC604 electric leakage		18	Sound of right headphone large	R629 variate	

2. List for decode control components trouble is shown as the following table:

SN	Symptom	Causes	Remark
1	Not read disc or a certain disc	Loader not good	
2	Not read disc	C212or C213 electric leakage	Trace focus servo signal pull-down
3	Not read disc	C201or C202 electric leakage	Signal A, B weak or RF signal weak
4	Not read disc	C206 electric leakage	
5	Not read disc	U302 (D5954) or U201 (MT1389) not good	
6	Not read DVD	V301 not good	
7	Not read VCD	V302 not good	

SN	Symptom	Causes	Remark
8	Disc rotates rapidly when disc out	R322 variate	
9	Disc rotates rapidly when disc out	R318 open circuit	
10	Disc tray not open	V307 not good	
11	Disc tray not open	MT1389 not good	
12	Disc not rotate	L304 open circuit	Loader has no 5V power supply
13	Disc not rotate	C312 electric leakage	V20 voltage pull down
14	Power not on	Software not good	
15	Power not on	MT1389 not good	
16	Power not on	27M crystal oscillator not good	without clock
17	Power not on	U209 (LM1117MP) not good	without 1.8V power supply
18	Power not on	Q204 not good	without reset
19	No sound	U207 (CS4360 not good)	
20	No sound	C2156 electric leakage	4360 (pin 16) VQ value pull down
21	No sound	Q212 not good	Quieting
22	Sound distortion	L202 open	ADD3, VDD3 voltage cut
23	Noise	MT1389 failure	
24	Sound high R (mono channel)	R2129 variate	
25	Sound low R (mono channel)	R2117 variate	
26	No video output	L245 or L212 open circuit	Video channel cut
27	No output for S-Video	L244 or L211 open circuit	No Y signal
28	No color for S-Video	L243or L210 open circuit	No C signal
29	No color for AV	27M crystal oscillator not good	Frequency deviation
30	No output for component video	L246 or L213 open circuit	No Y1 signal
31	Color distortion for component video	L247 or L214 open circuit	No U signal
32	Color distortion for component video	L248 or L215 open circuit	No V signal
33	Power on automatically	MT1389 not good	
34	No sound when tuning	Tuner not good	
35	Noise when tuning	MT1389 not good or tuner not good	
36	Sound not saved when tuning	MT1389 not good	
37	No sound when tuning	R2170 open circuit	Data line cut
38	Down when playing	SDRAM not good	
39	Mosaic on screen when power on	flash not good	
40	Mosaic on screen when power on	MT1389 not good	
41	Halt when playing	MT1389 not good	

3. List for power board trouble is shown as the following table:

SN	Symptom	Causes	SN	Symptom	Causes
1	Power not on	Protector tube not good	10	Voltage low	R208 variate
2	Power not on	U501 (5L0380) not good	11	Voltage unstable	T501 not good
3	Power not on	U502	12	Cannot drive load	TC501 electric leakage
4	Power not on	T501 transformer not good	13	Cannot drive load	U501 (5L0380) not good
5	Power not on	D502 struck through	14	No +9V	D508 struck through
6	Power not on	D506 open circuit	15	No -9V	2D502 struck through
7	Power not on	TC502 electric leakage	16	No 5V	L507 open circuit
8	Power not on	LM431A not good	17	No 3.3V	D509 struck through
9	Voltage high	R509 variate	18	No A5V	U504 (LM7805) not good

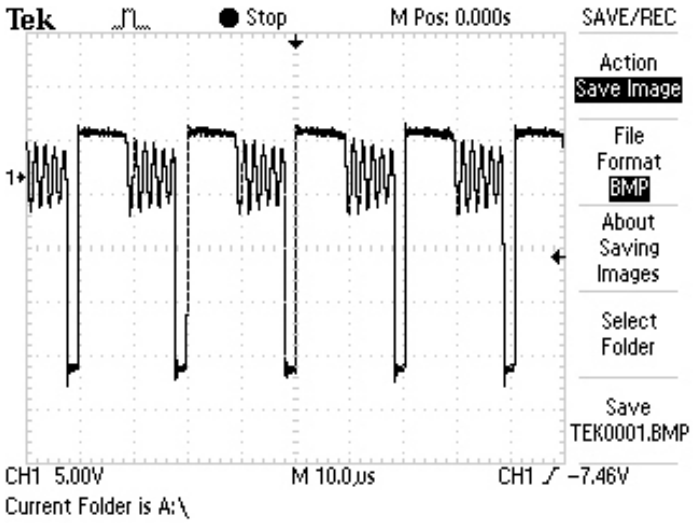
4. List for control panel components is shown as the following figure:

SN	Symptom	Causes	SN	Symptom	Causes
1	No OSD	VFD not good	7	Display less	PT6961 not good
2	No OSD	C402 electric leakage	8	Full screen	VFD not good
3	No osd, no function	PT6961 not good	9	Screen dark	VFD not good
4	No function for OPEN/CLOSE button	Light touch switch not good	10	Indicator light not on	Q401 not good
5	Display more	VFD not good	11	No function for remote control	Receiver not good
6	Display more	PT6961 not good	12	Remote control failure	Receiver not good

Appendix One Signal Waveform Illustration

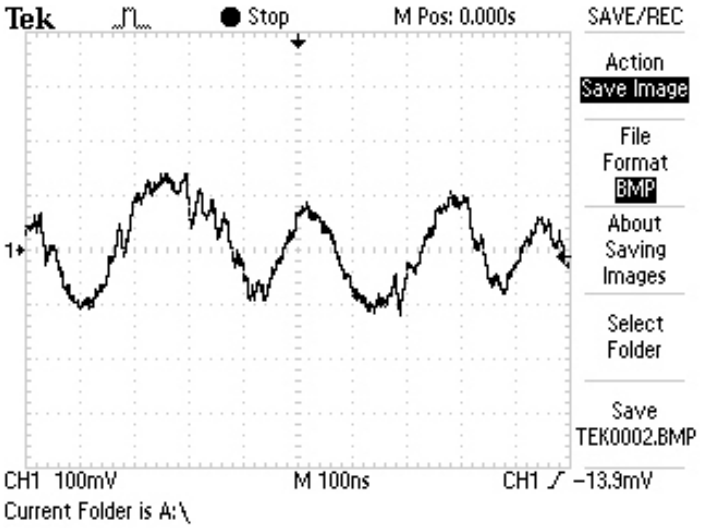
1. Power board

Waveform diagram for pulse DC of power board D509 anode

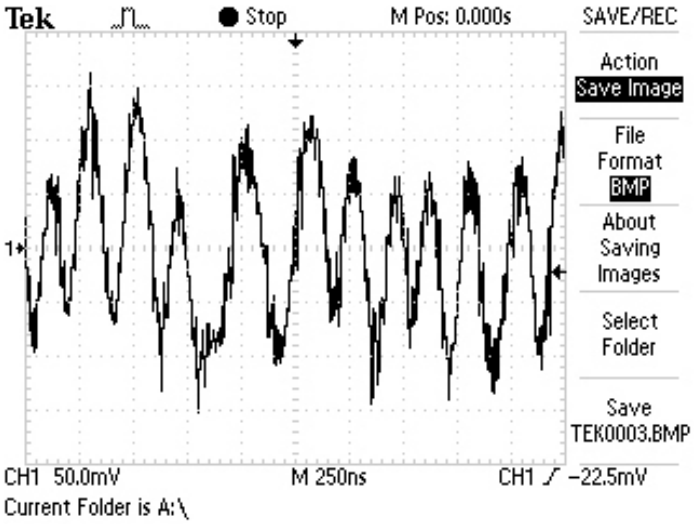


2. Decode board

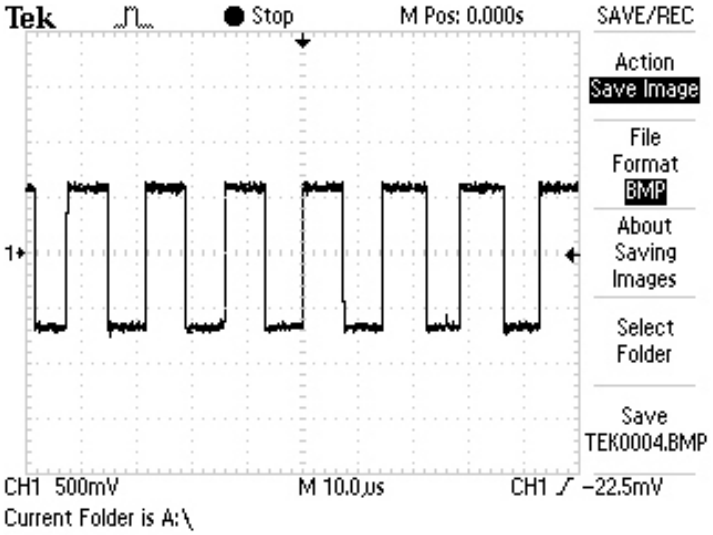
(1) RFO signal waveform diagram of pin 8 of XS301



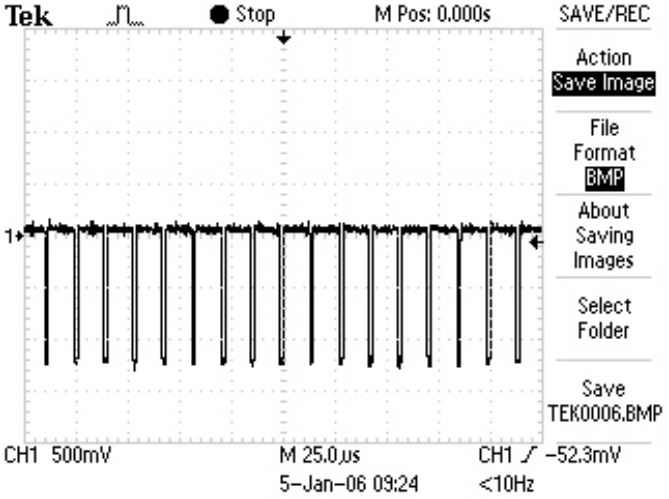
(2) A signal waveform diagram of pin 9 of Xs301



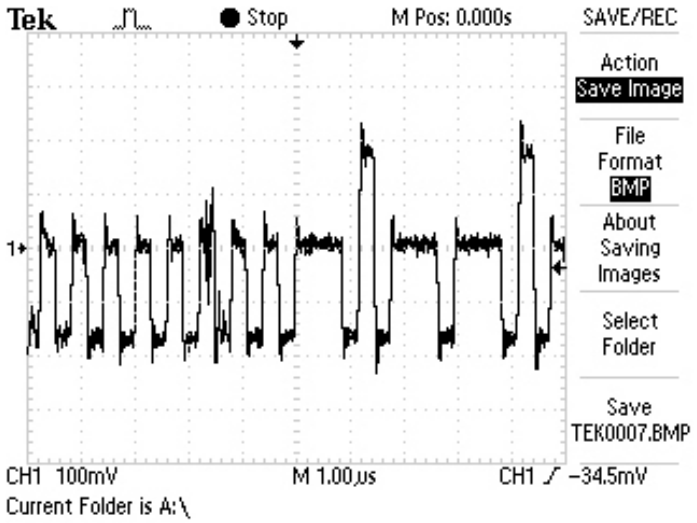
(3) DMO signal (when there is main axis rotation) waveform diagram of pin 37 of U201 (MT1389)



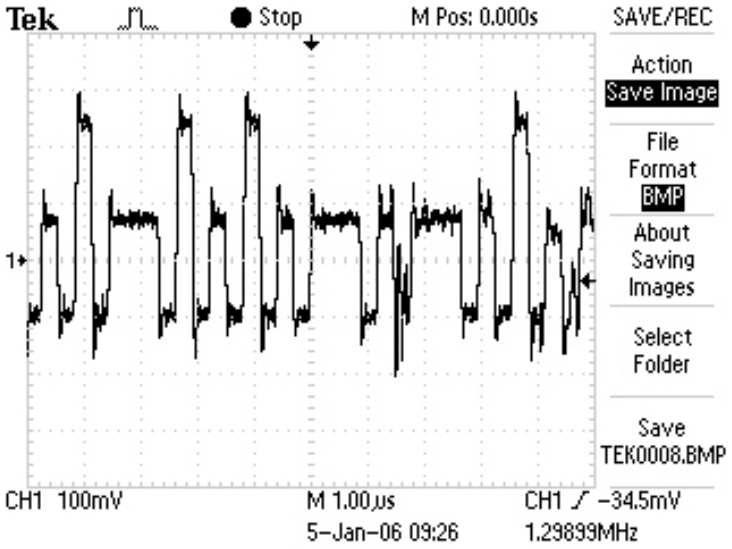
(4) FMO signal (when there is feed) waveform diagram of pin 38 of U201 (MT1389)



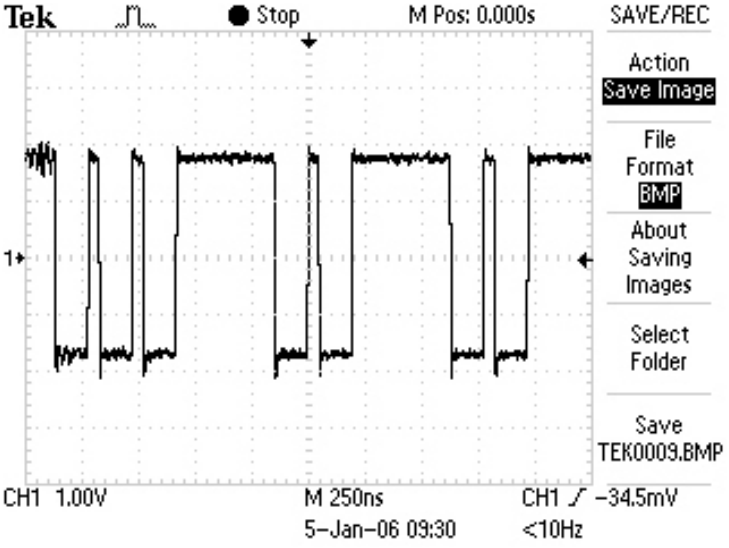
(5) TRO signal (when there is trace) waveform diagram of pin 41 of U201 (MT1389)



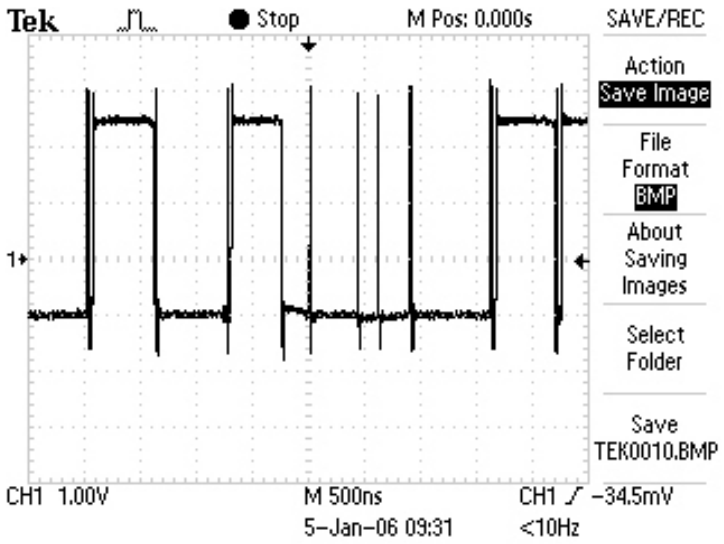
(6) FOO signal (when there is focus) waveform diagram of pin 42 of U201 (MT1389)



(7) Waveform diagram of pin 29 (when no disc in) of U214 (FLASH)

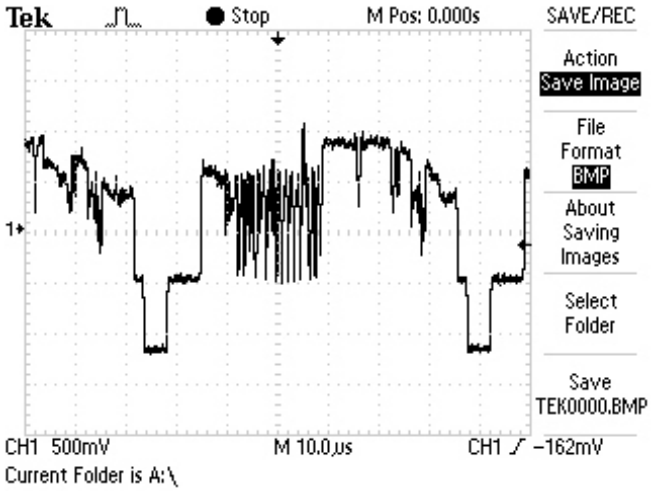


(8) Waveform diagram of pin 2 of U211 (SDRAM)

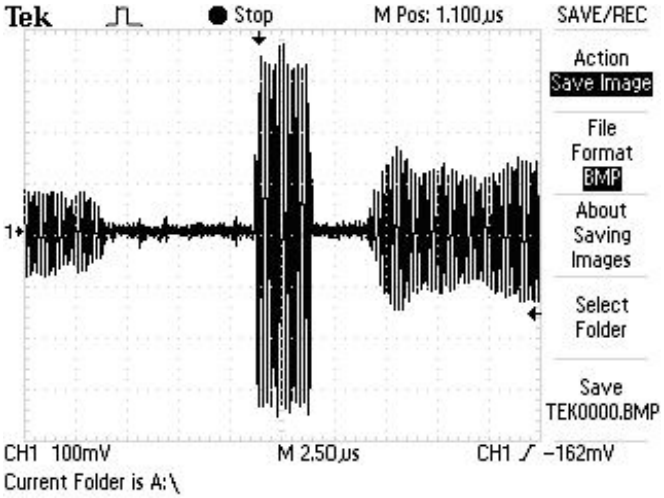


3. Video signal waveform diagram

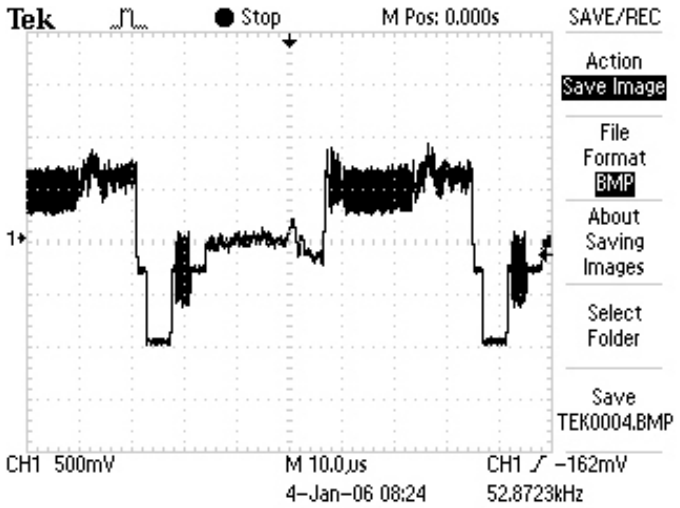
(1) Y1: waveform diagram of brightness signal in S-Video



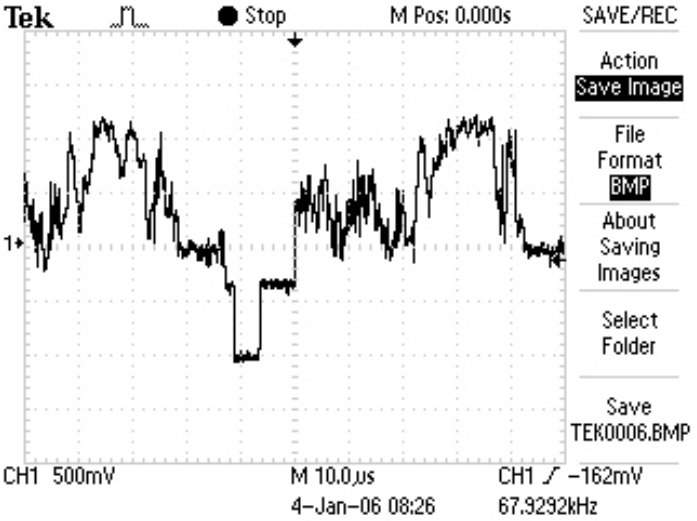
(2) Y2: waveform diagram of chroma signal in S-Video



(3) Y3: waveform diagram for composite video signal

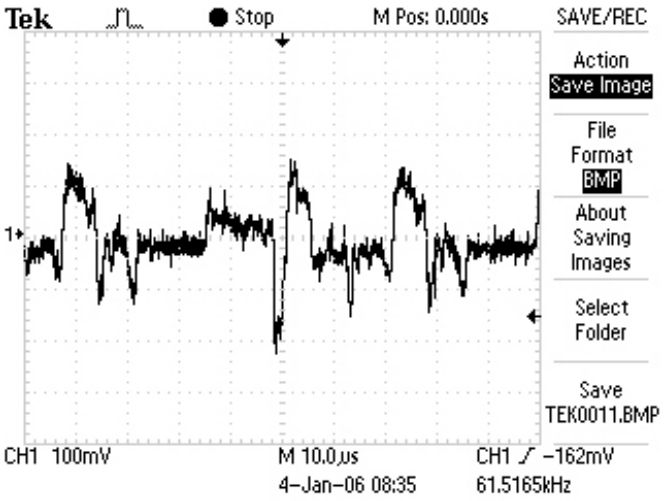


(4) Y4: waveform diagram for component video signal

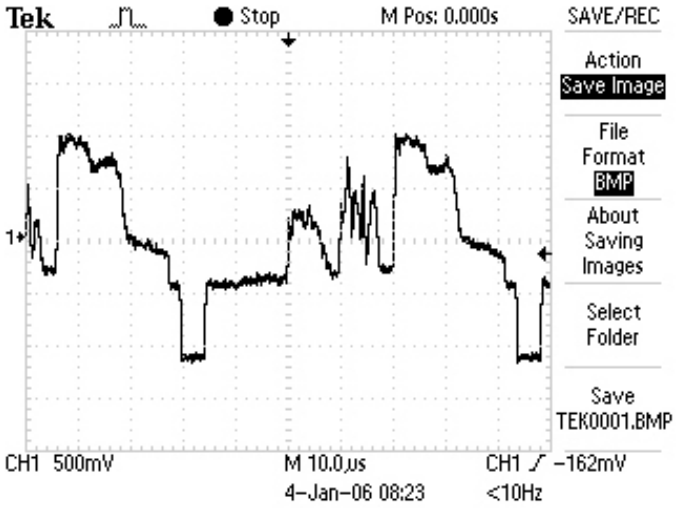


(5) Y5: waveform diagram for component video blue chroma signal (Y-B)

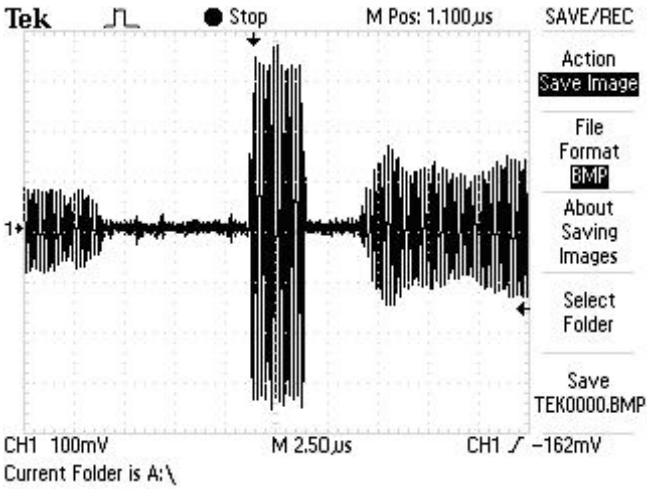
(6) Y6: waveform diagram for component video red chroma signal (Y-R)



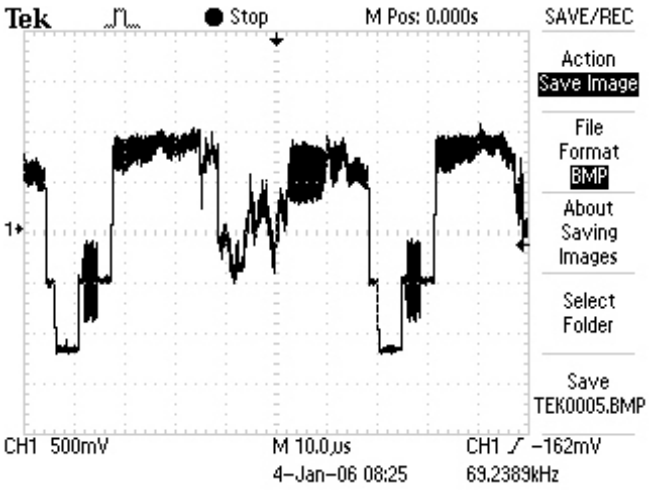
(7) VIDEO-C: waveform diagram for S-Video chroma signal after filtering



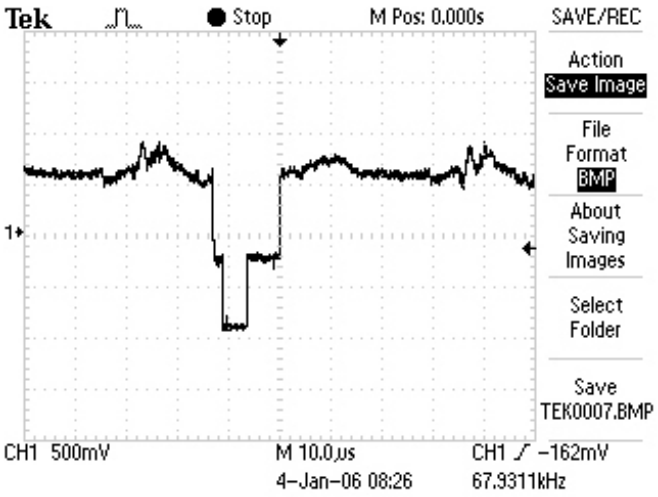
(8) VIDEO-Y: waveform diagram for S-Video brightness signal after filtering



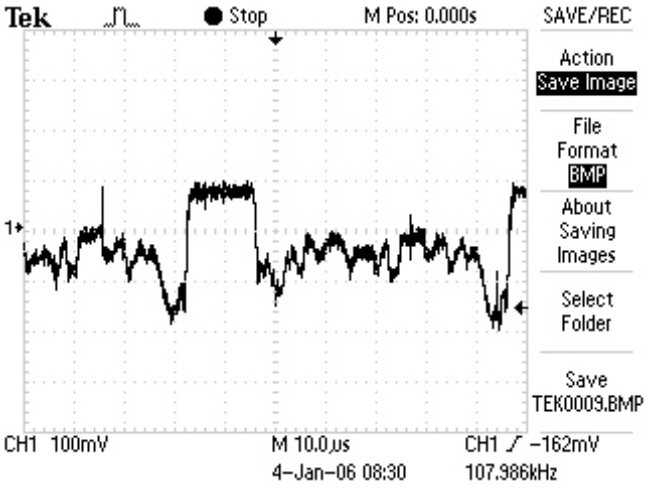
(9) VIDEO-COMP: waveform diagram for composite video signal after filtering



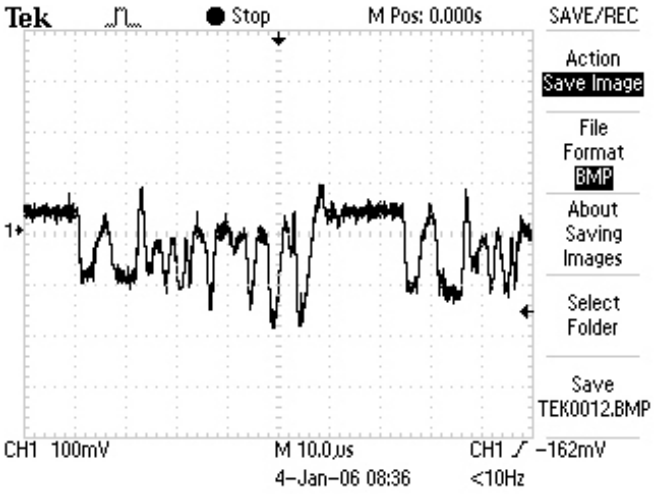
(10) VIDEO-Y1: waveform diagram for component video brightness signal after filtering



(11) VIDEO-U: waveform diagram for component video blue chroma signal (Y-b) after filtering

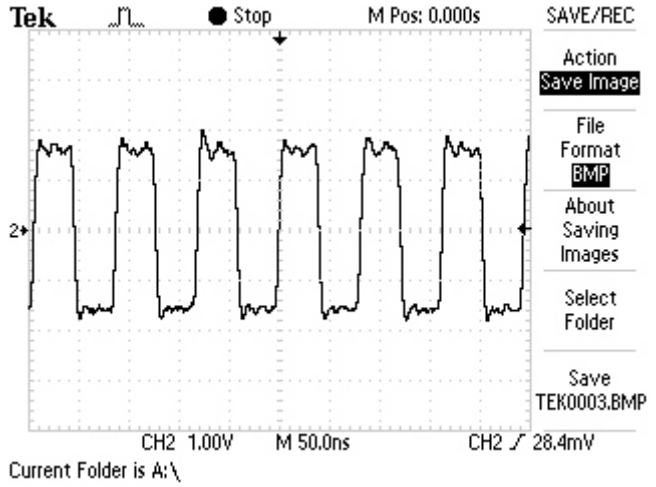


(12) VIDEO-V: waveform diagram for component video red chroma signal (Y-r) after filtering

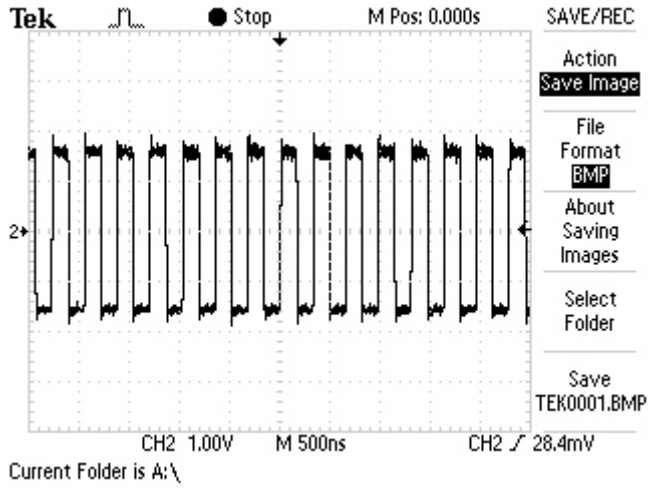


4. Waveform diagram for audio signal

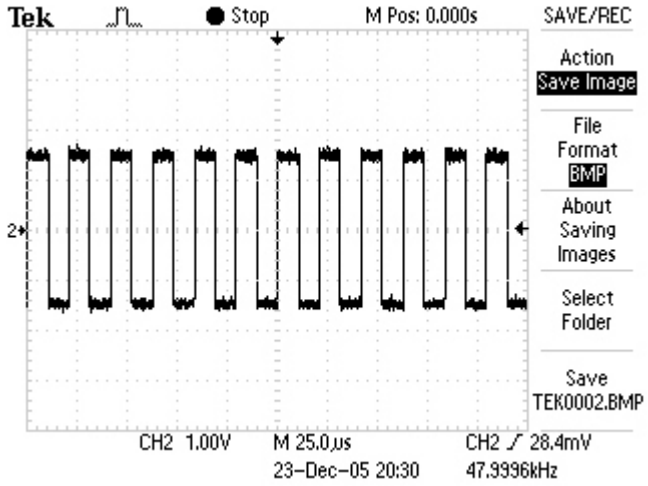
(1) ACLK (12.2878MHZ): waveform diagram for external clock signal



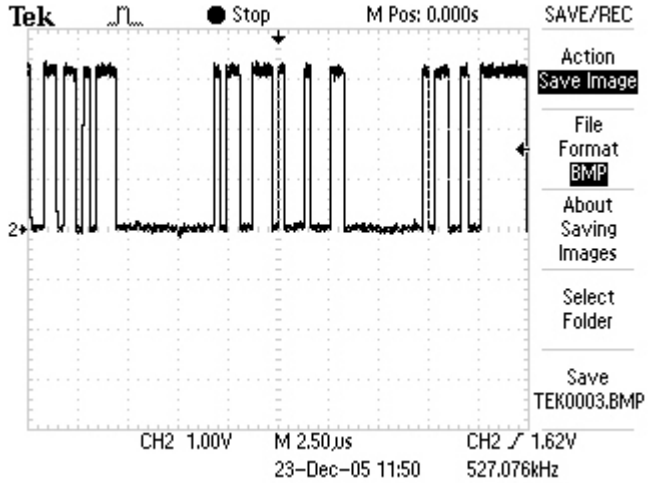
(2) ABCK (3.07195MHZ): waveform diagram for bit clock signal



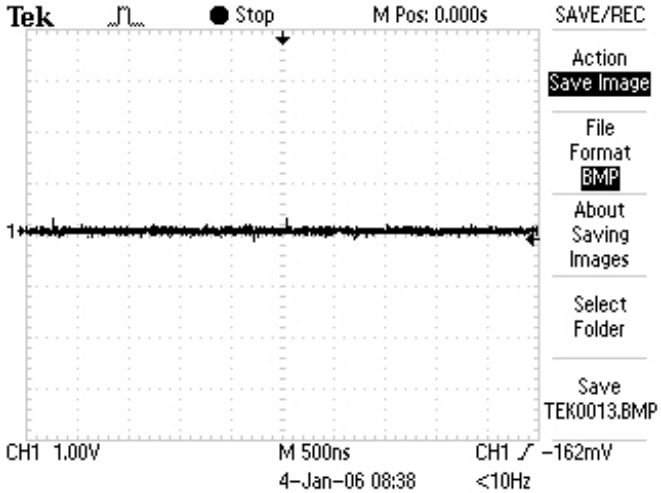
(3) ALRCK (48KHZ): waveform diagram for left/right channel clock signal



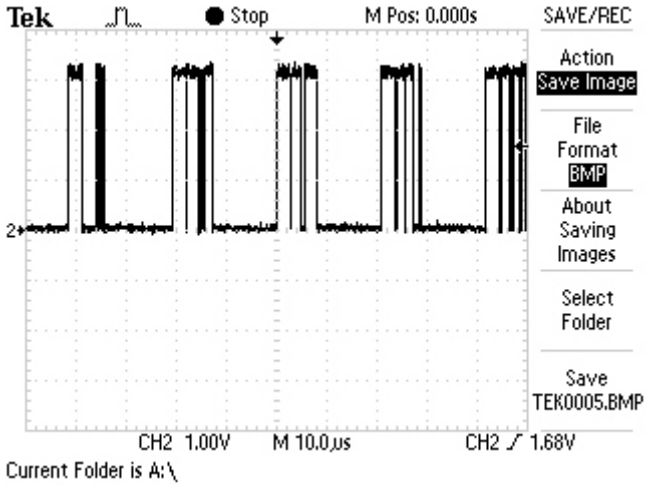
(4) SDATAO: waveform diagram for mixed left/right channel digital signal



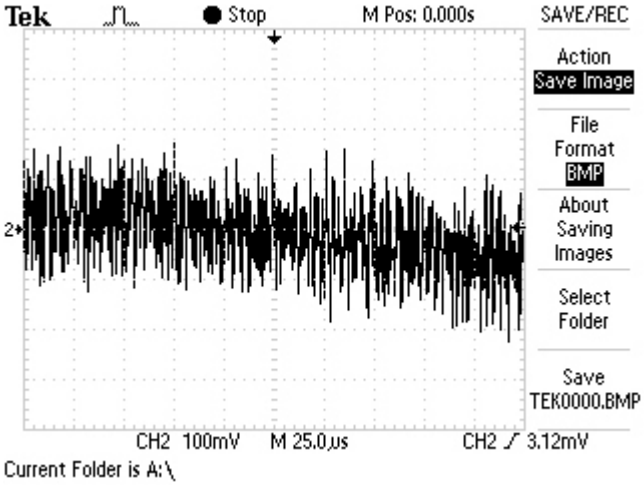
(5) SDATA1: waveform diagram for surround left/right channel digital signal (now the disc being played is 2.1CH, and this signal has no output; if 5.1CH, the form is the same with that of SDATA0)



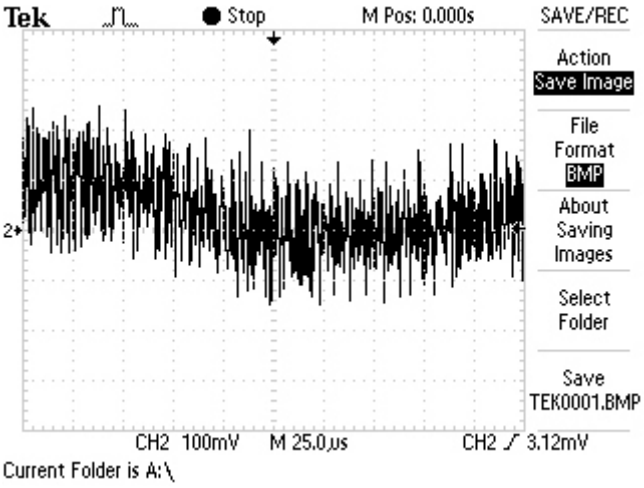
(6) SDATA2: waveform diagram for centre subwoofer digital signal



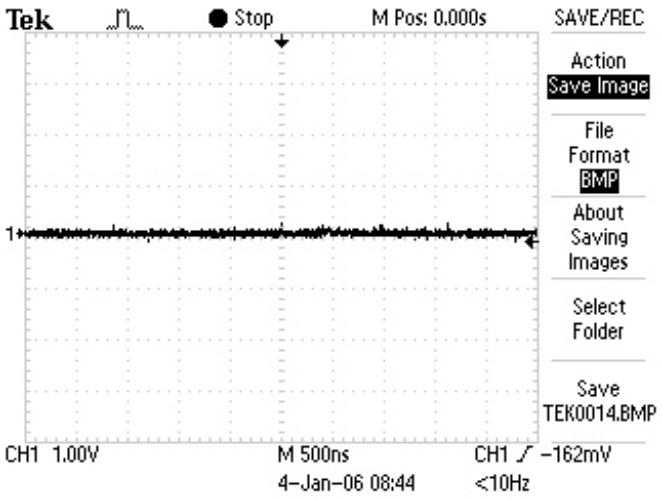
(7) FL: waveform diagram for front left channel analog signal



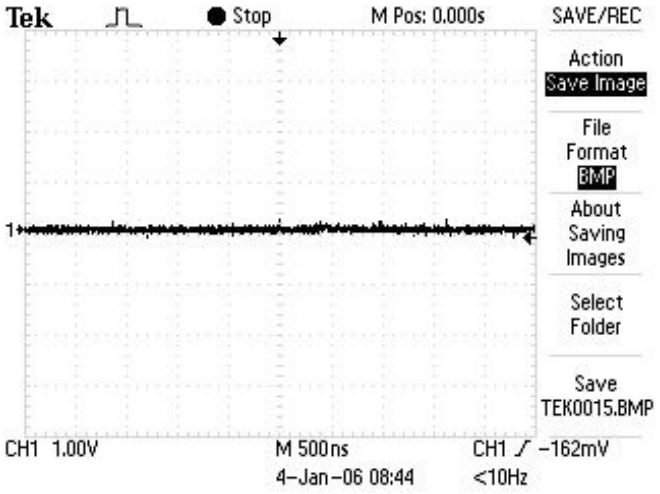
(8) FR: waveform diagram for front right channel analog signal



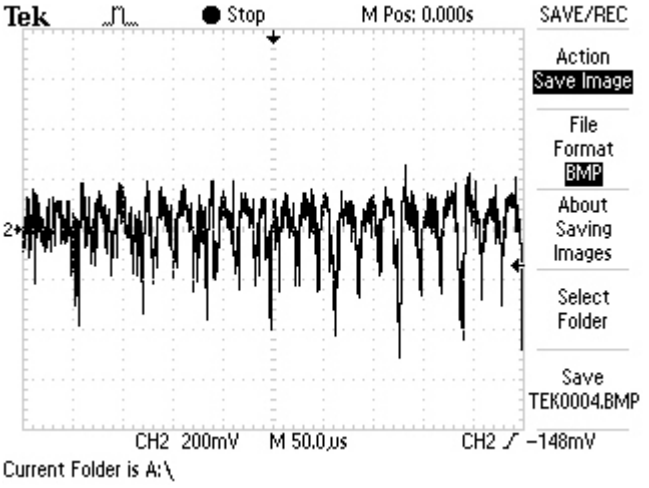
(9) LS: waveform diagram for surround left channel analog signal (now the disc being played is 2.1CH, and there is no this signal; if 5.1CH, the form is the same with that in title (8))



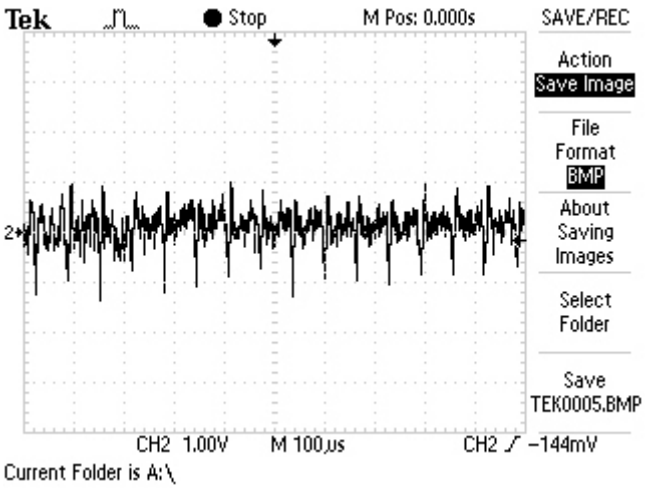
(10) RS: waveform diagram for surround right channel analog signal (there is this signal only when in 5.1CH, and the form is the same with that in title (8))



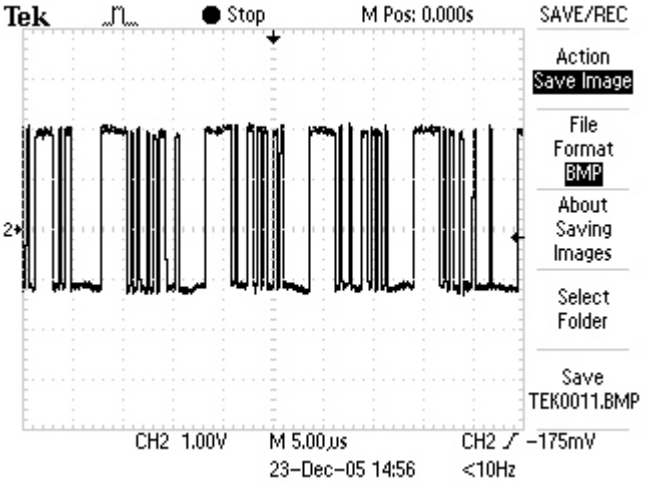
(11) C#: waveform diagram for centre channel analog signal



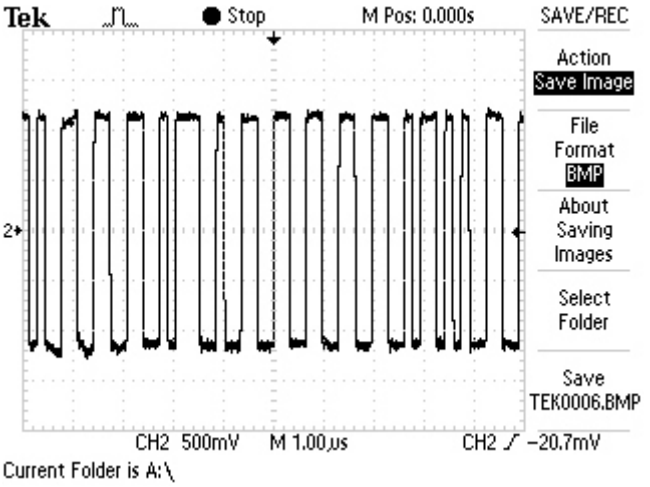
(12) LEF#: waveform diagram for subwoofer channel analog signal



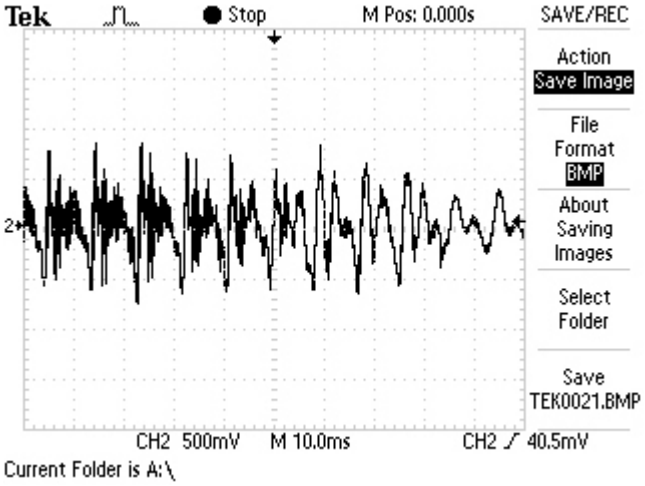
(13) AMDAT: waveform diagram for microphone signal after 5340 A/D conversion



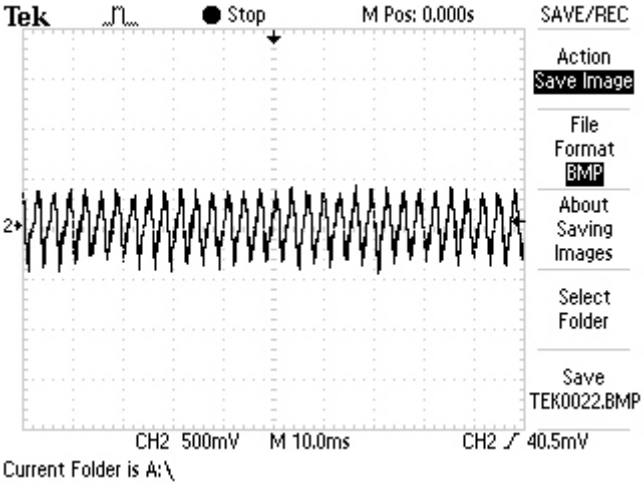
(14) SPDIF: waveform diagram for optical/coaxial digital audio signal



(15) TUNER-L: waveform diagram for radio left channel signal

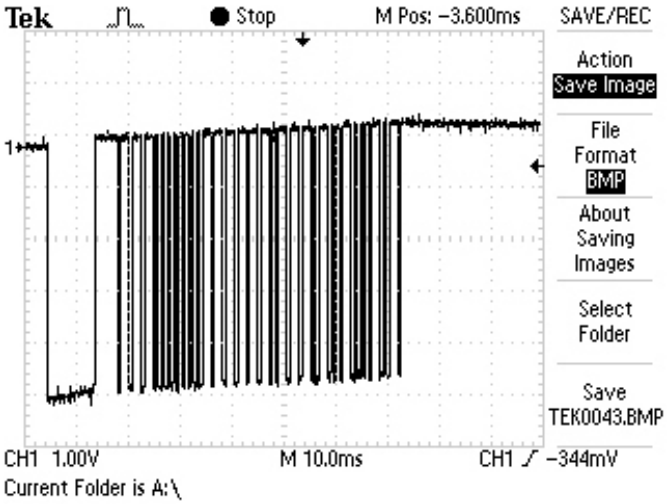


(16) TUNER-R: waveform diagram for radio right channel signal

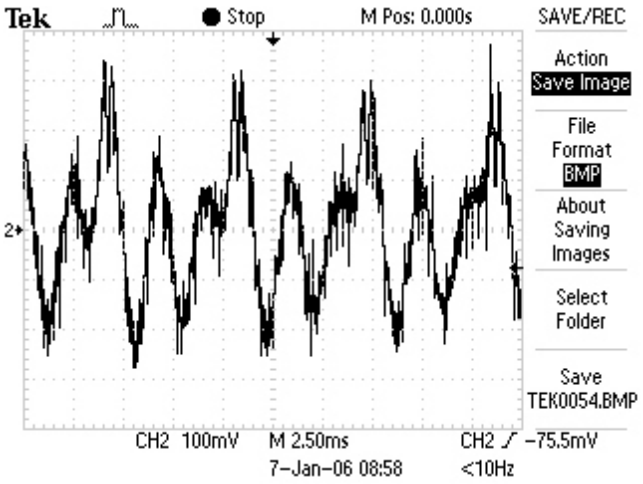


4. Waveform diagram for other signals

(1) waveform diagram for IR signal



(2) waveform diagram for MIC signal

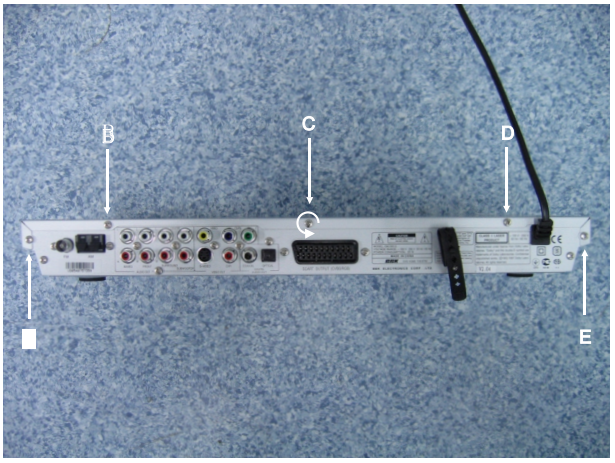


Chapter Four Disassembly and Assembly Process

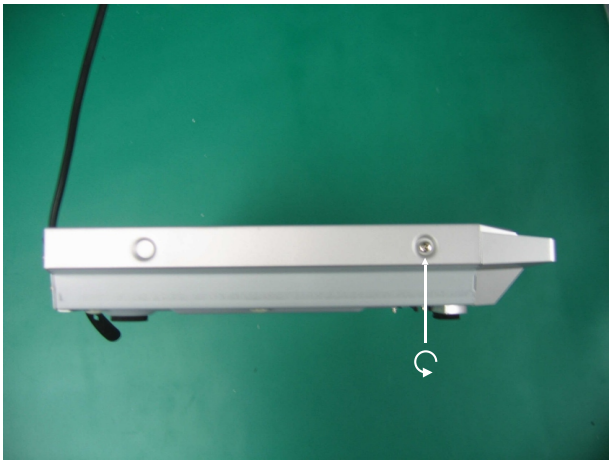
In order to know the structure of DVD player DK1005S easily, visibly and quickly, now each key link of the disassembly and assembly process of the player is presented in means of pictures to prevent users from incorrect operating and damaging elements. This player is divided into: the unit, loader, loader components, control panel components, decode control components, power board components, AV board components, MIC board components and remote controller. You are suggested to operate according to illustrations strictly.

4.1 The unit

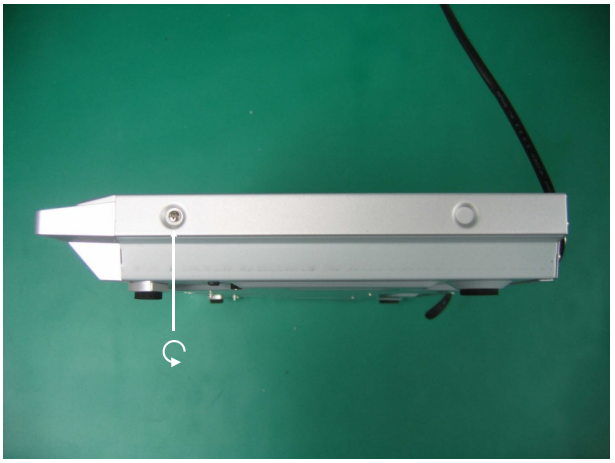
4.1.1 Disassembly and assembly process for the unit



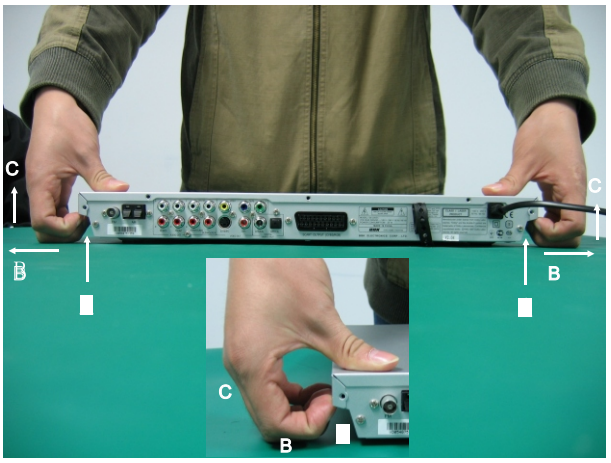
(1) Use electric screwdriver or "+"-shaped screwdriver to fix 5 screws (A, B, C, D, E) in the joint of upper cover and rear cover.



(2) Use electric screwdriver or "+"-shaped screwdriver to fix screw in upper cover on left hand side.

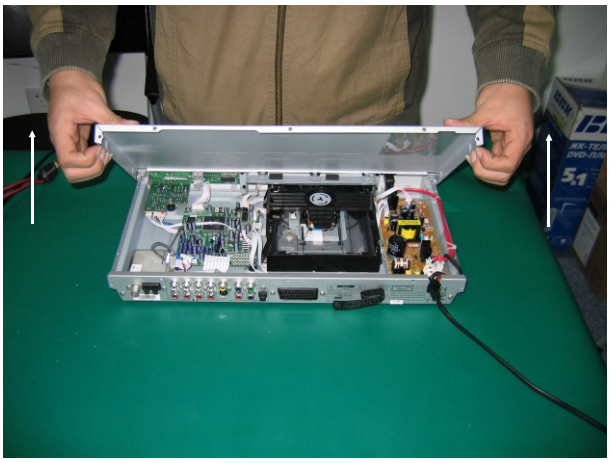


(3) Use electric screwdriver or "+"-shaped screwdriver to fix screw in upper cover on right hand side.



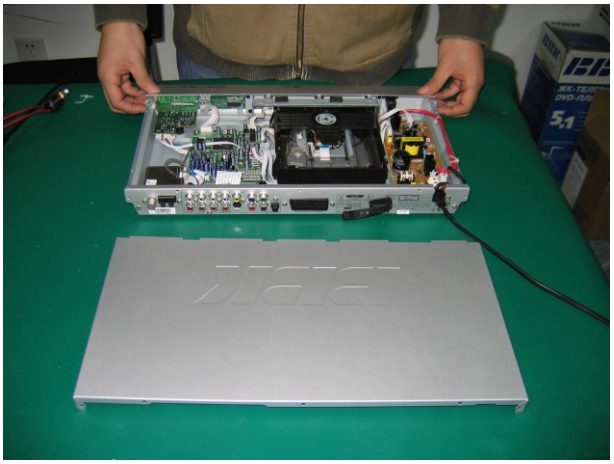
(4) Put four fingers into the gap of the upper cover (Position A), exert strength towards direction of arrow B (outwards), and meanwhile towards direction of arrow C (upwards), and then the upper cover is upraised certainly.

(5) Exert strength continuously by two hands towards the arrow direction (upwards) to lift up the upper cover.



(6) Uplift the upper cover to a certain extent and you will hear al click sound.

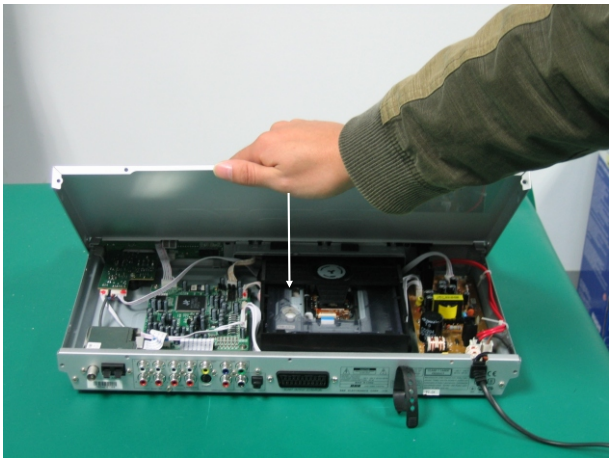
(7) After hearing a click sound, take out the upper cover.



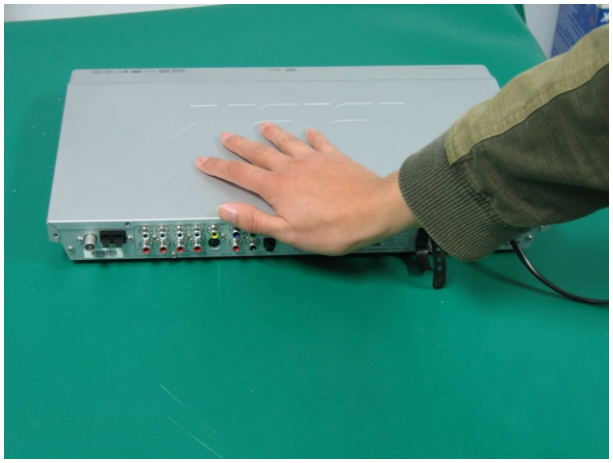
(8) Take down the upper cover.

4.1.2 Assembly process for the unit

(1) Take hold of the upper cover by two hands at an angle more than 45-degree, then take the front edge of the upper cover aiming at the slot and push it slightly to the position.

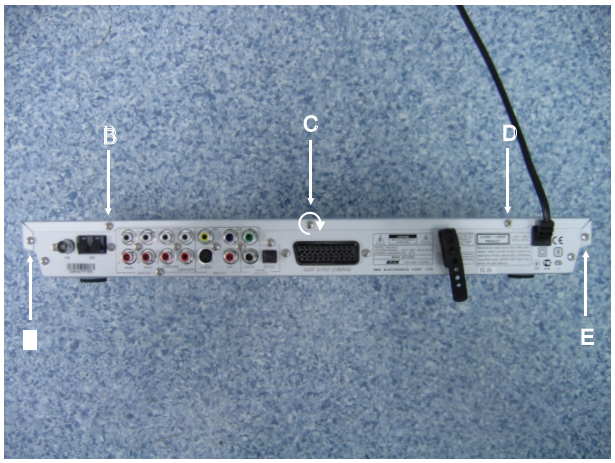


(2) Take hold of the middle part of rear edge of the upper cover by right hand and press down towards the arrow direction by force.



(3) Use right hand to press down by force to proper position.

(4) After well installing the upper cover, check whether the whole upper cover has reached proper position.

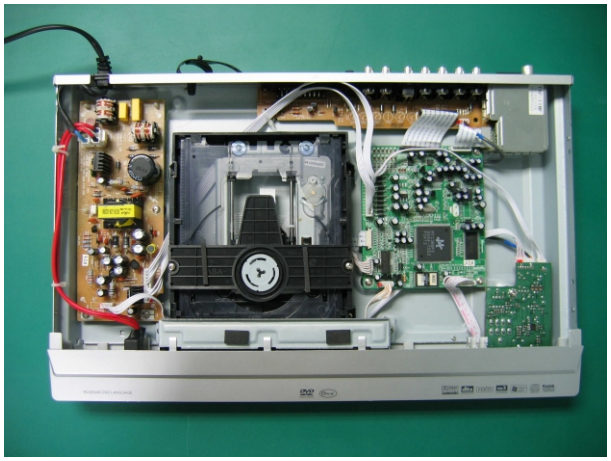


(5) Use electric screwdriver or "+"-shaped screwdriver to fix 5 screws (A, B, C, D, E) in the joint of upper cover and rear cover.

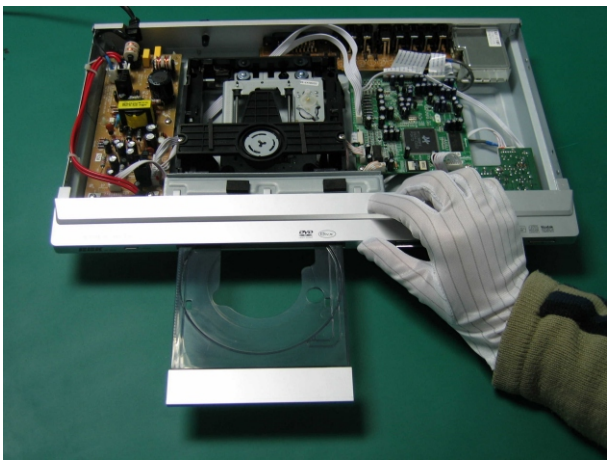
(6) Use electric screwdriver or "+"-shaped screwdriver to fix screw on left and right hand side of the upper cover.

4.2 Loader

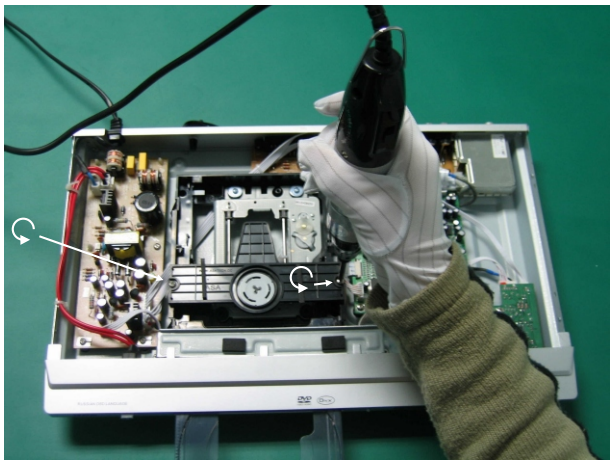
4.2.1 Disassembly process for loader



(1) Take out upper cover and prepare to change loader.

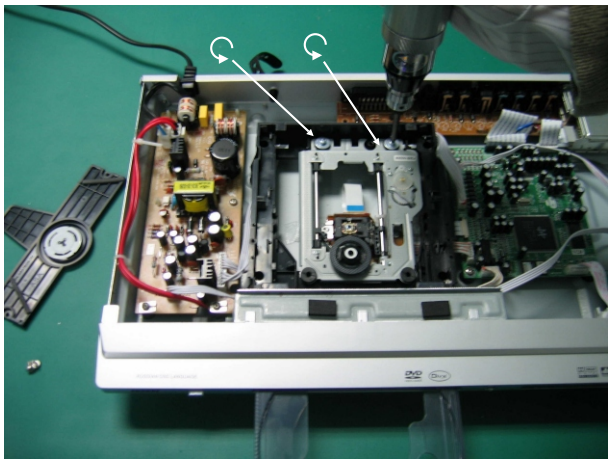


(2) Turn on power, press OPEN/CLOSE button and disc tray ejects. Turn off power and unplug power cord.

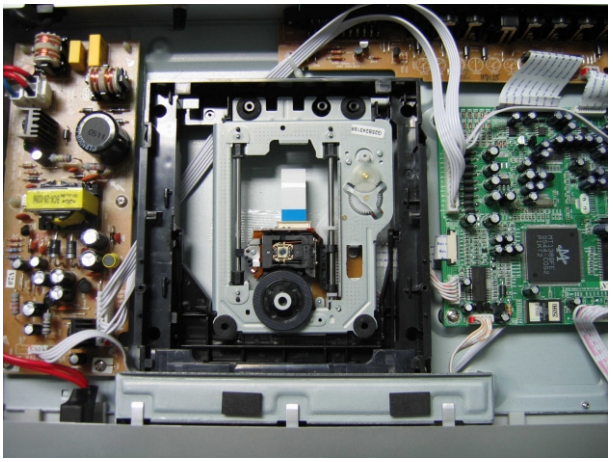


(3) Unfix the two screws in the cover board of loader.

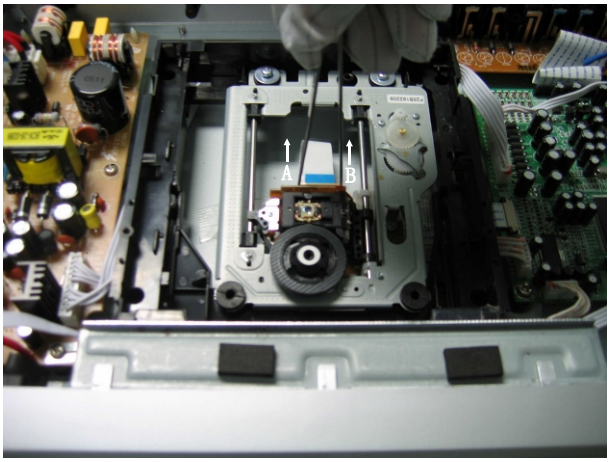
(4) Take out cover board of loader.



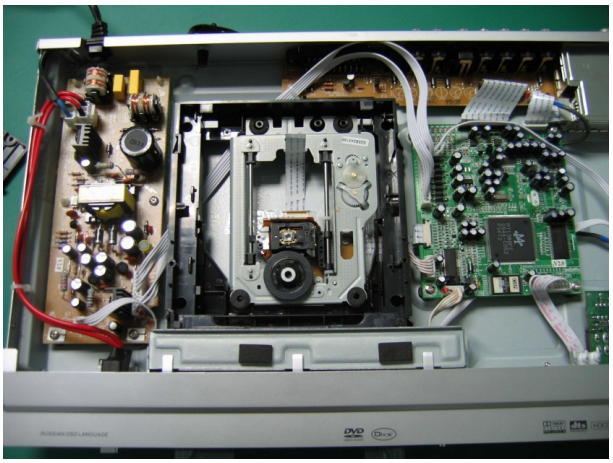
(5) Use electric screwdriver or "+"-shaped screwdriver to unfix the two screws of loader.



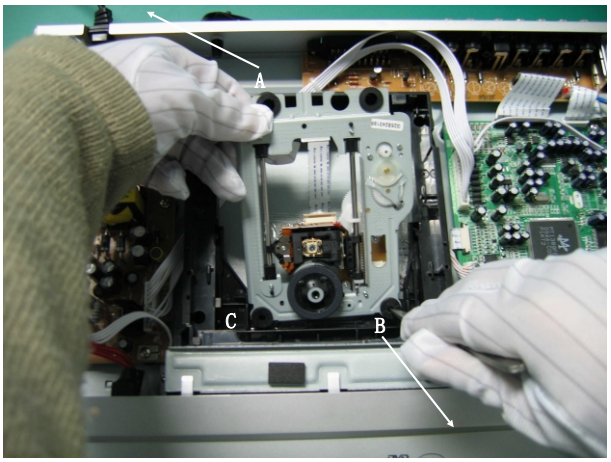
(6) Observe the joint of laser head and flat cable, and then take out flat cable by hand.



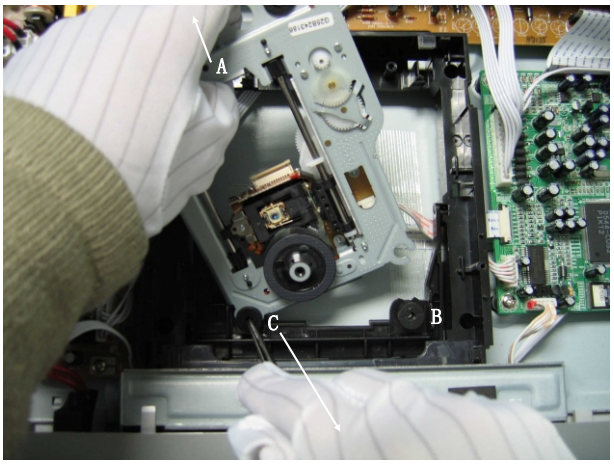
(7) Use forceps to grasp flat cable holder of laser head (B is point of support), and exert strength towards direction of arrow A. After flat cable holder A become loose, exert strength towards direction of arrow B. Do not take down flat cable until the whole flat cable holder become loose.



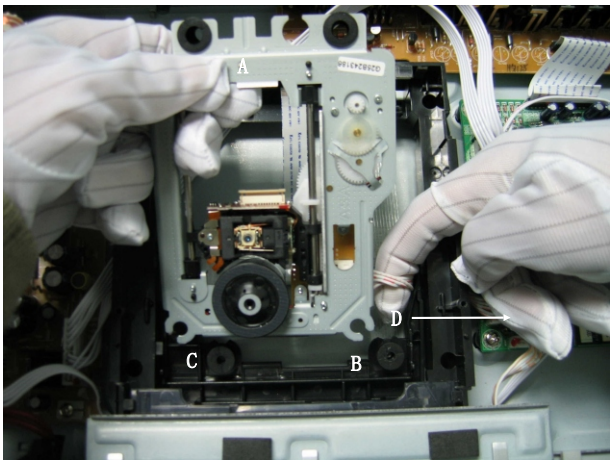
(8) Flat cable of laser head fall off.



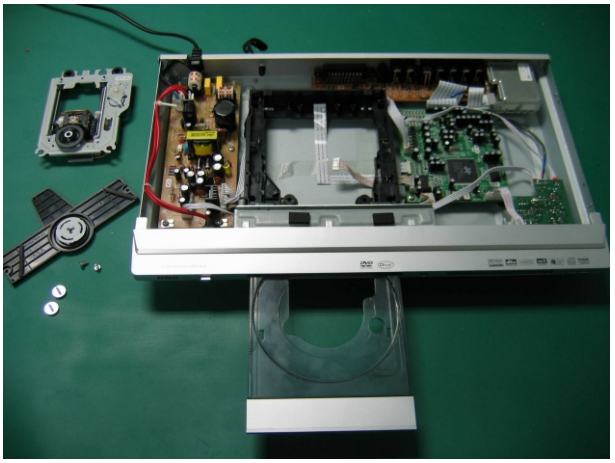
(9) Take hold of loader A by left hand, and exert strength towards arrow direction. Hold forceps by right hand and insert into the hole of buffer cushion B. Exert strength towards arrow direction until the loader falls off from buffer cushion B.



(10) Take hold of loader A by left hand, and exert strength towards arrow direction. Hold forceps by right hand and insert into the hole of buffer cushion C. Exert strength towards arrow direction until the loader falls off from buffer cushion C.

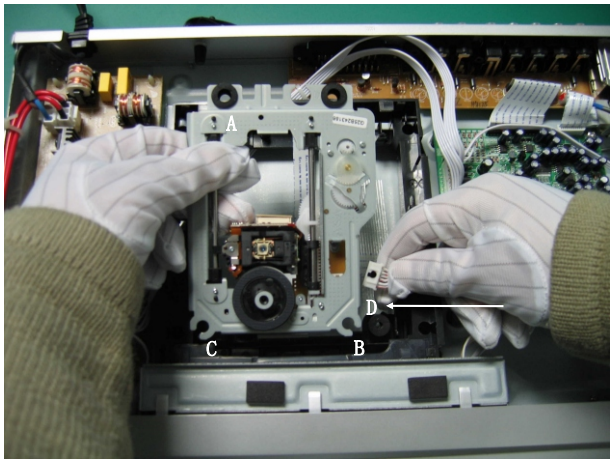


(11) Take hold of loader A by left hand, then take flat cable D between thumb and forefinger of right hand and exert strength towards arrow direction until flat cable comes off from loader.

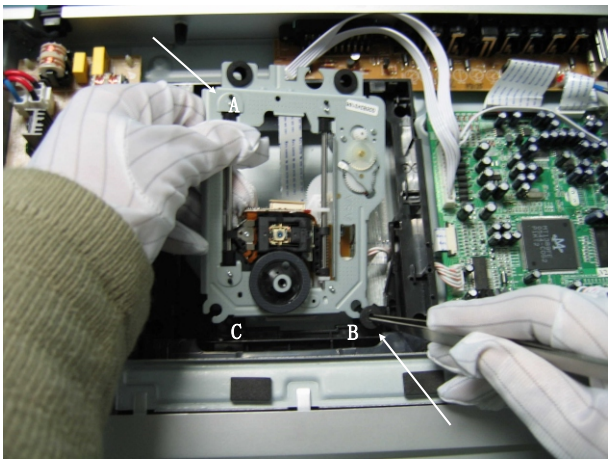


(12) Take out loader.

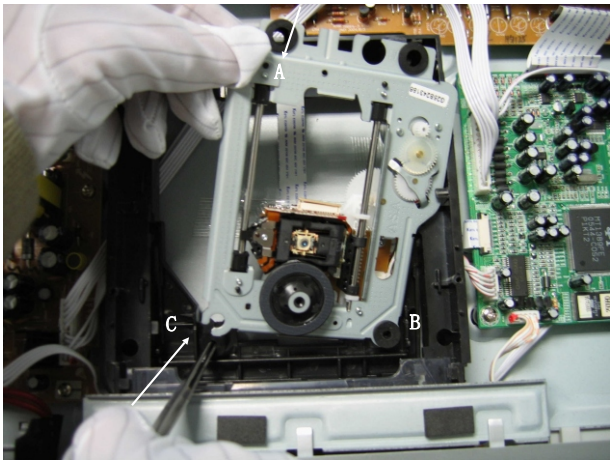
4.2.2 Assembly process for loader



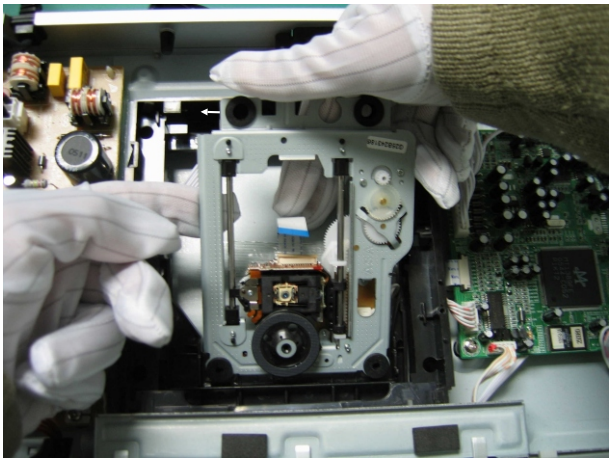
(1) Take hold of loader A by left hand, then take flat cable D between thumb and forefinger and exert strength towards arrow direction to insert into flat cable holder D and make sure it reaches proper position.



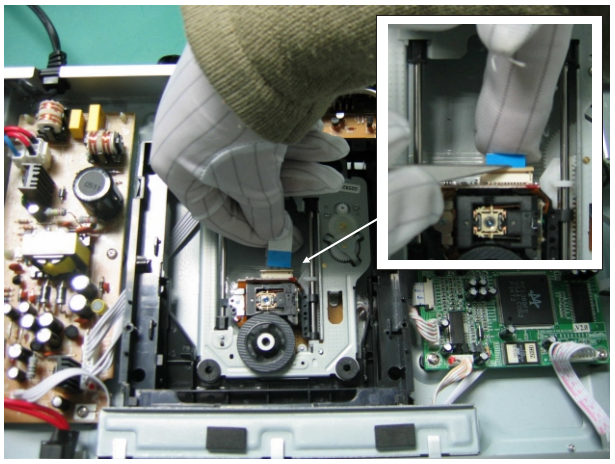
(2) Take hold of loader A by left hand and exert strength towards arrow direction. Hold forceps by right hand and insert into the hole of buffer cushion. Exert strength towards arrow direction until buffer cushion B and loader reach proper position.



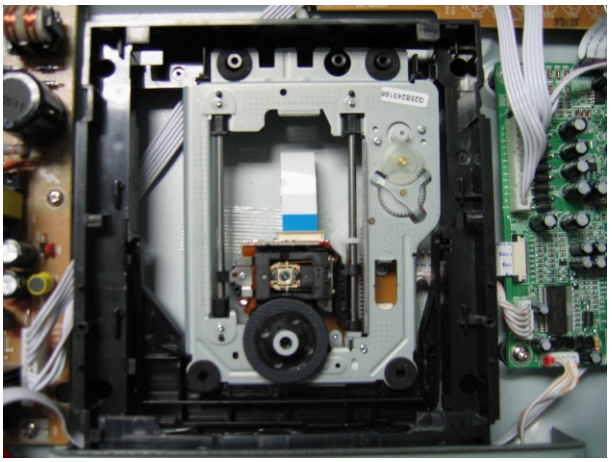
(3) Take hold of loader A by left hand and exert strength towards arrow direction. Hold forceps by right hand and insert into the hole of buffer cushion C. Exert strength towards arrow direction until buffer cushion C and loader reach proper position.



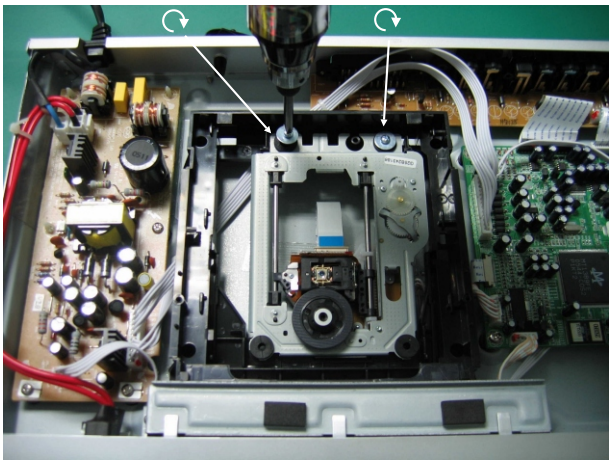
(4) Take flat cable between forefinger and middle finger of right hand, then thumb and forefinger of left hand take the flat cable and place loader to proper position by right hand.



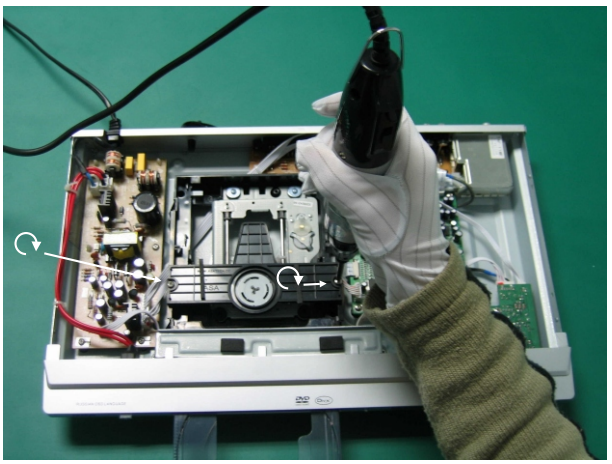
(5) Take flat cable between thumb and forefinger of right finger, send it to the holder slot and press against the slot with forefinger. Hold forceps by left hand and push the middle part of flat cable until it is locked.



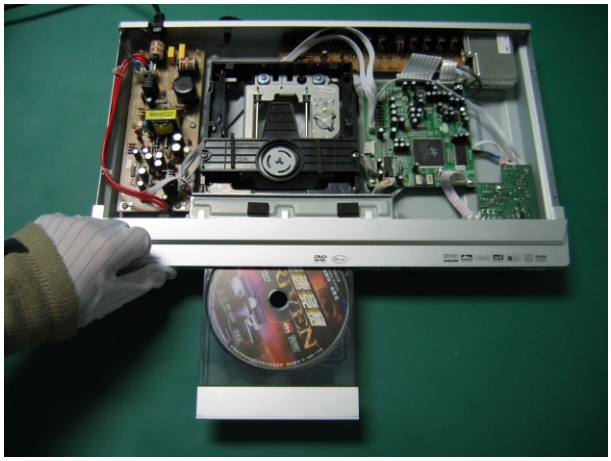
(6) Check whether flat cable has reached the proper position to make sure the good contact.



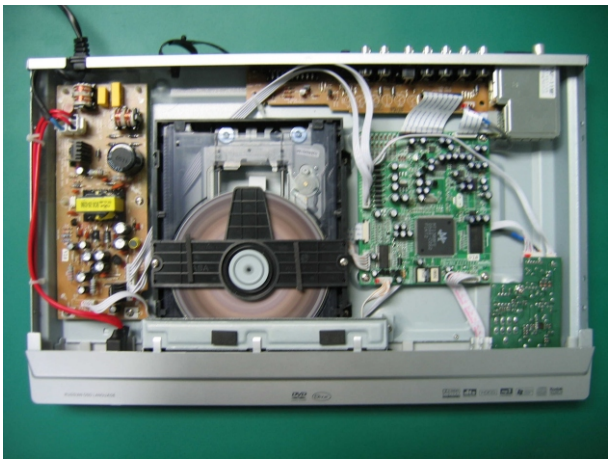
(7) Use electric screwdriver or "+"-shaped screwdriver to fix two screws of loader.



(8) Use electric screwdriver or "+"-shaped screwdriver to fix two screws of loader cover board.

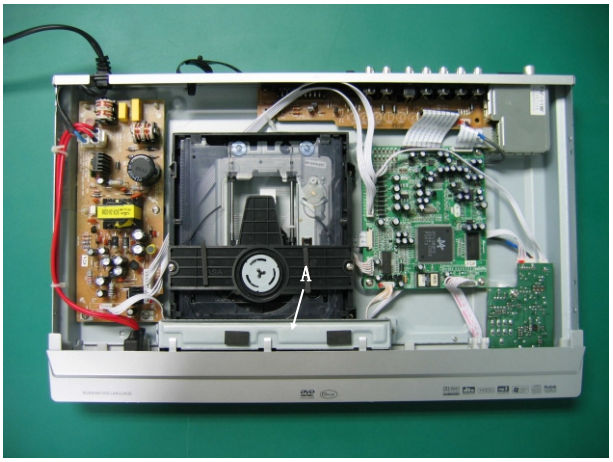


(9) Connect to power supply, switch on power, load disc and test function of the unit.

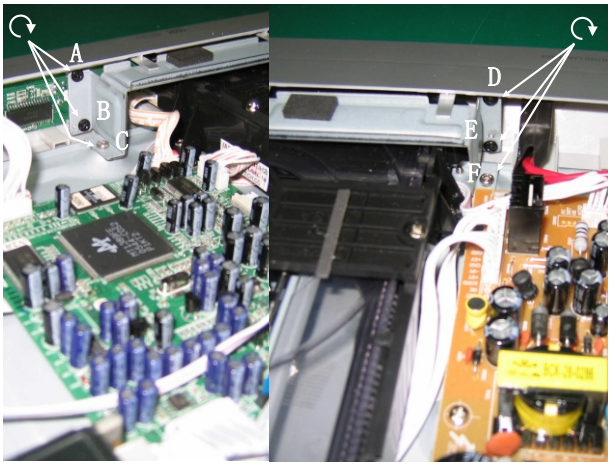


(10) The test result is OK.

4.2.3 Disassembly and assembly process if "Disc tray not eject"

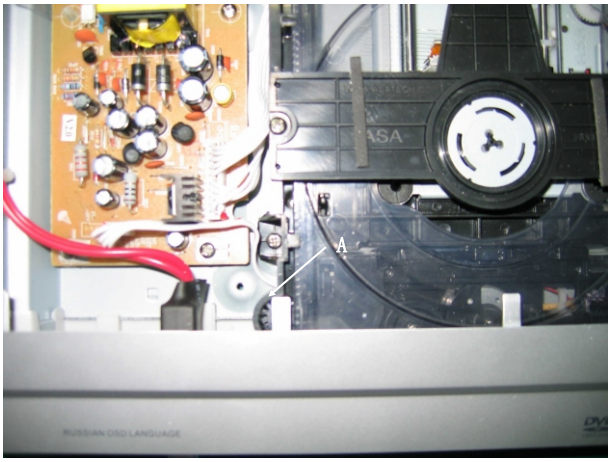


(1) For some reason, disc tray cannot eject, and loader cannot be taken out. Thus the iron bracket of control panel components should be taken down firstly.

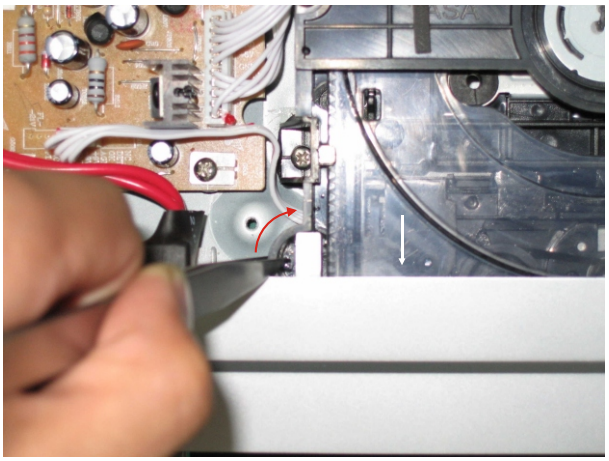


(2) Use electric screwdriver or "+"-shaped screwdriver to unfix six screws in iron bracket of control panel components.

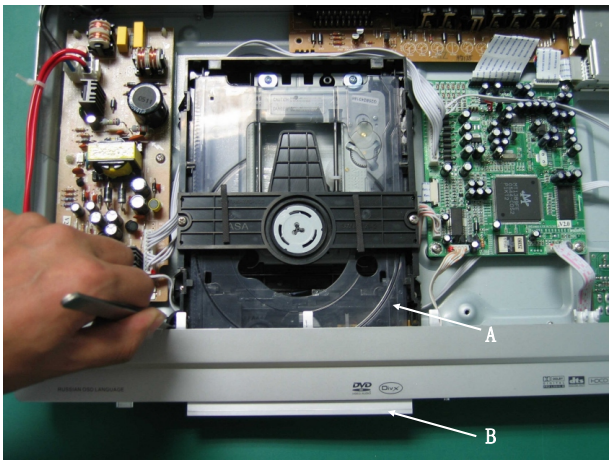
(3) Take down iron bracket of control panel components.



(4) A is gear for disc tray in and out.



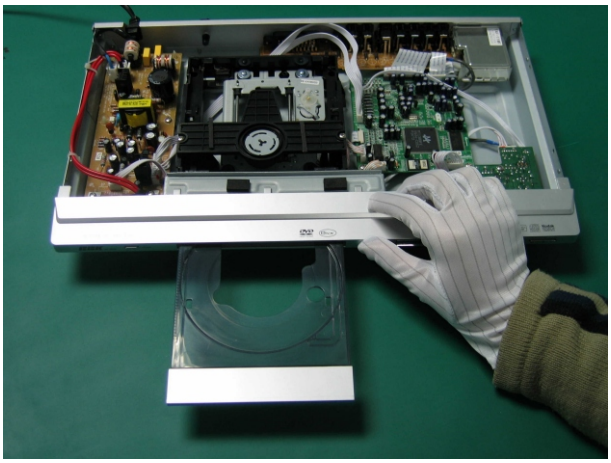
(5) Use forceps to insert into gear pot holes and exert strength towards arrow direction.



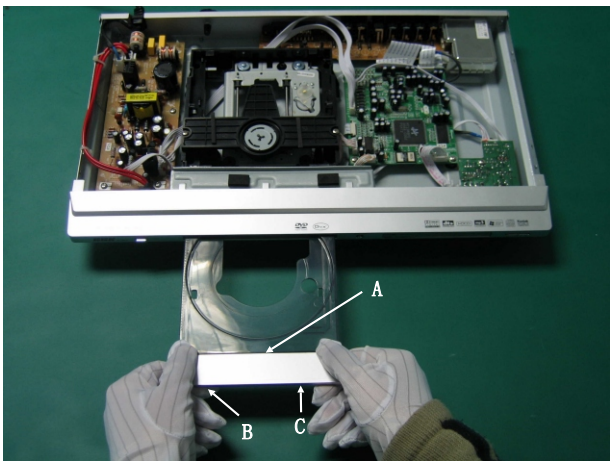
(6) The running of gear brings along disc tray A, and door of disc tray (B) ejects. You only need to take disc tray door with fingers and pull it outwards.

4.3 Loader components

4.3.1 Disassembly and assembly process for loader components

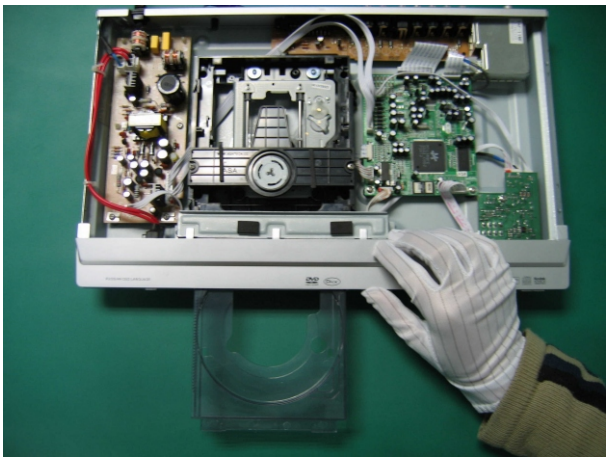


(1) Connect to power supply, switch on power, press OPEN button and disc tray eject.

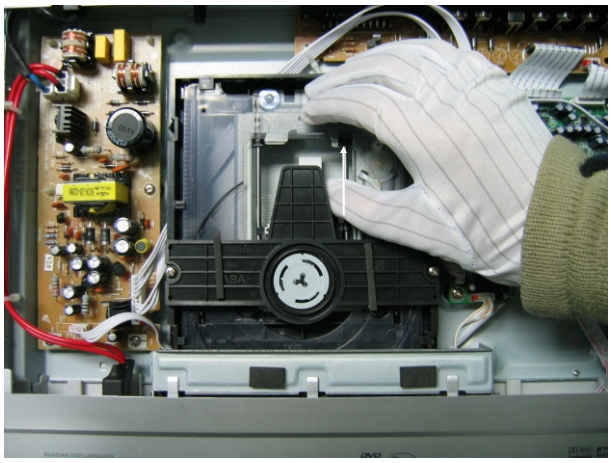


(2) Hold on to joint A of disc tray door and disc tray with two thumbs, the crooked two forefingers hold the front edge (B) of door and exert strength towards direction of arrow C (upwards), then you will hear a click sound.

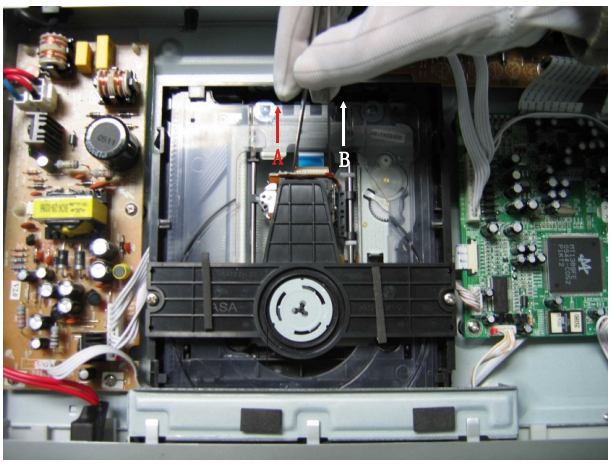
(3) After hearing a click sound, exert strength towards arrow direction (outwards) by two hands and the door falls off naturally.



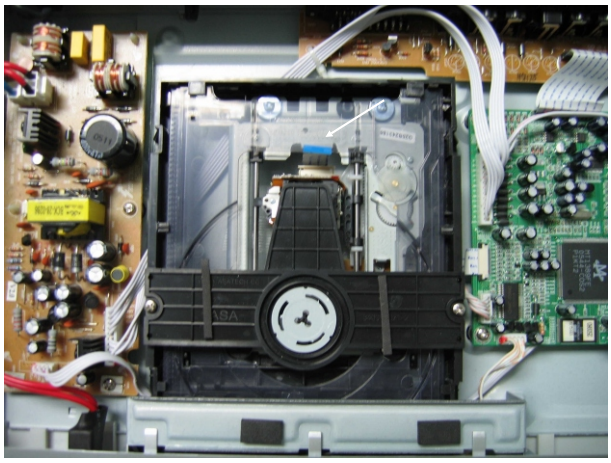
(4) Press OPEN button, and disc tray rebounds. Switch off power and unplug power cord.



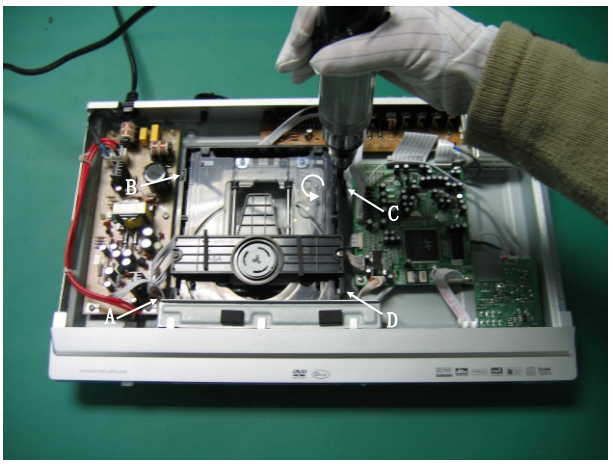
(5) Hold laser head with thumb and exert strength towards arrow direction, and then laser head slides out automatically.



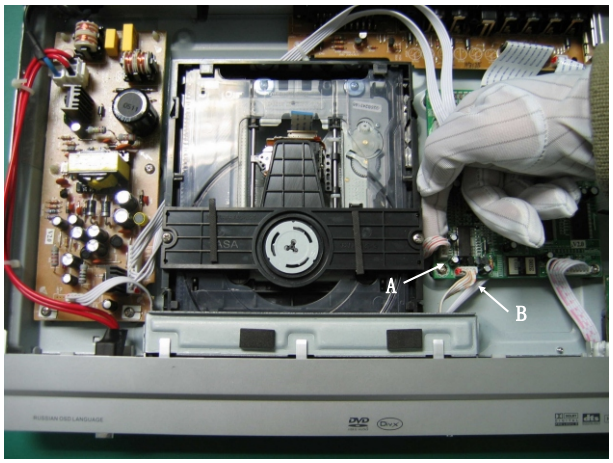
(6) Use forceps to take flat cable holder of laser head (B is point of support) and exert strength towards direction of arrow B. After flat cable holder A become loose, exert strength towards direction of arrow B. Do not take down flat cable until the whole flat cable holder become loose.



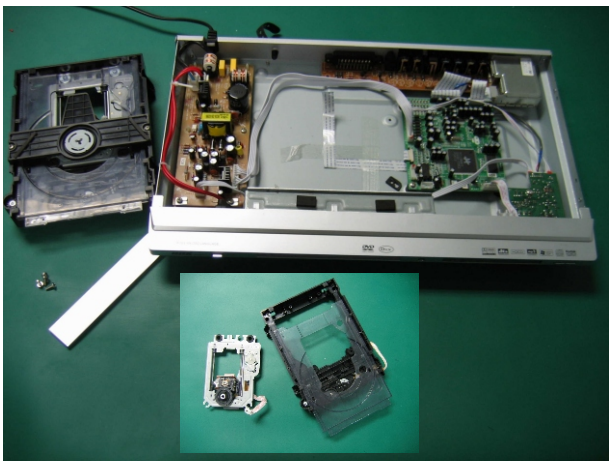
(7) Flat cable falls off.



(8) Use electric screwdriver or "+"-shaped driver to unfix four screws (A, B, C, D) of loader frame.

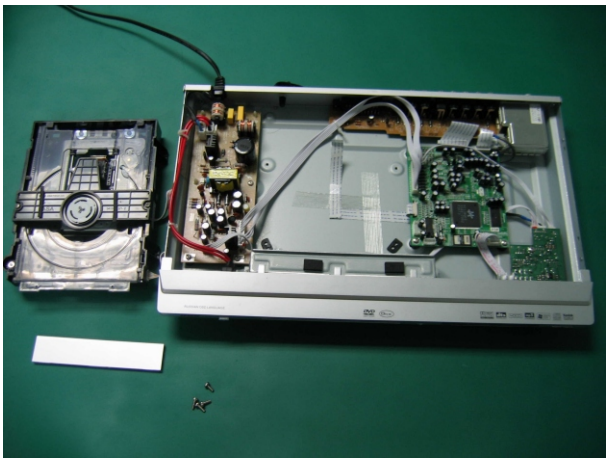


(9) Pull up plug wire A, B.

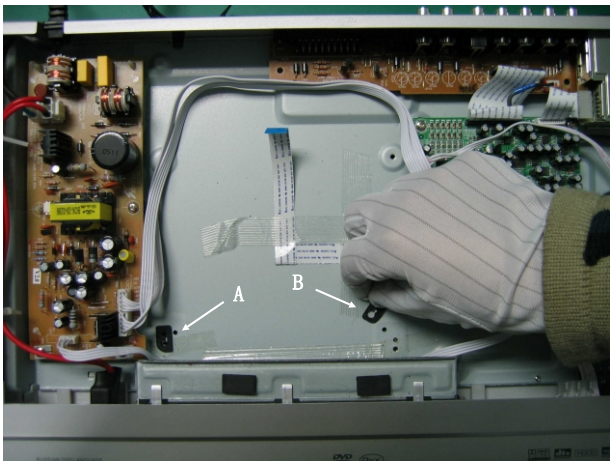


(10) Take out loader components. If you want to separate loader and frame, shown as small figure, please refer to (2. Loader).

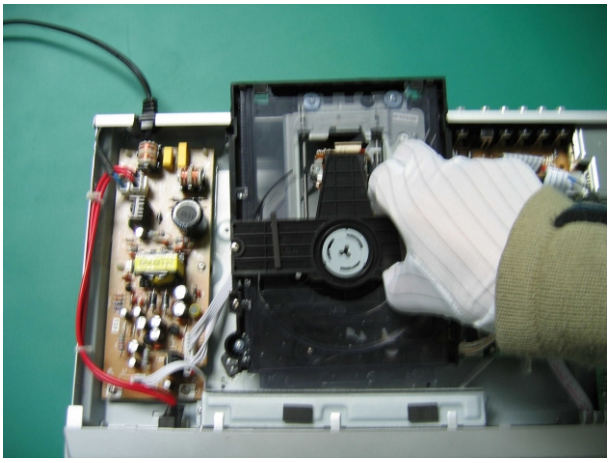
4.3.2 Assembly process for loader components



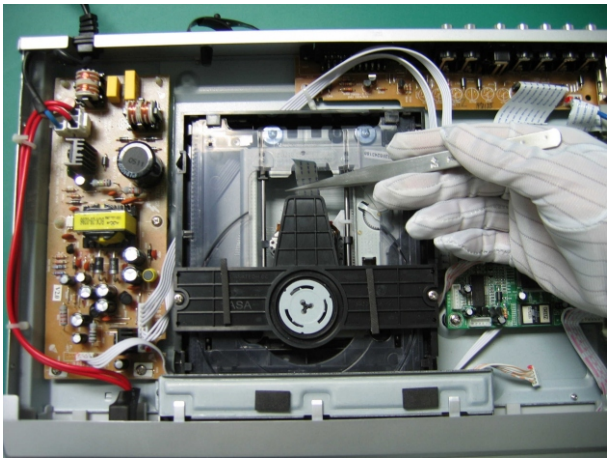
(1) Change a new loader components and prepare the assembly.



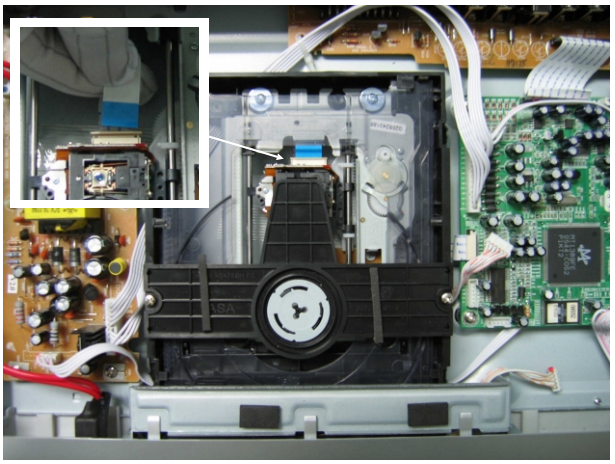
(2) Arrange the two (A, B) loader foot spacer to make it aim at the hole of screw.



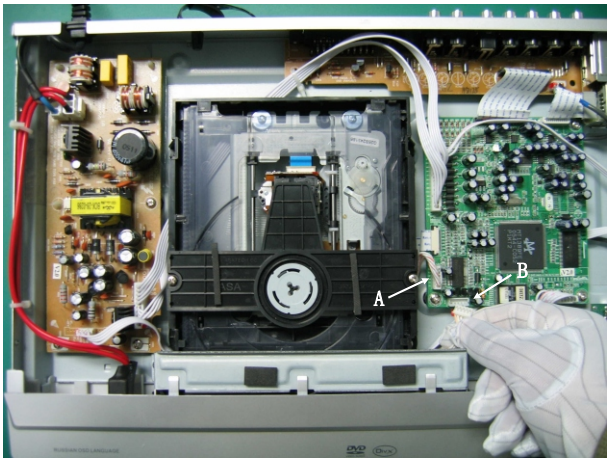
(3) Hold loader cover board by right hand and put it to proper position.



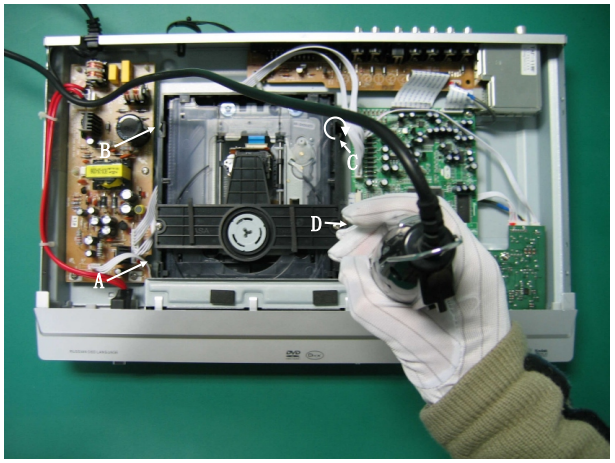
(4) Use forceps to seek out flat cable of laser head.



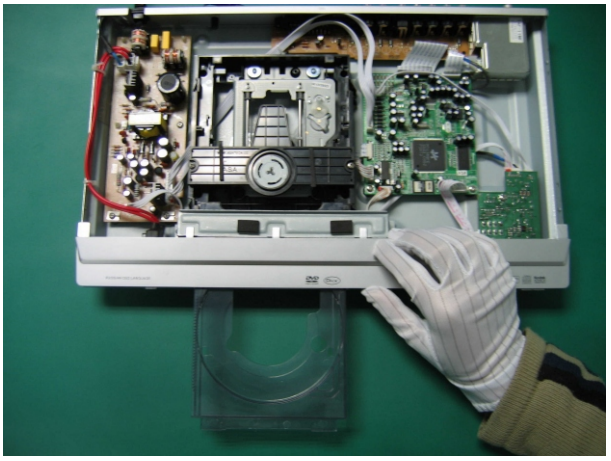
(5) Take flat cable between thumb and forefinger of right hand and send it to flat cable holder slot. Hold forceps by left hand and push the middle part of flat cable to the proper position to make sure the good contact.



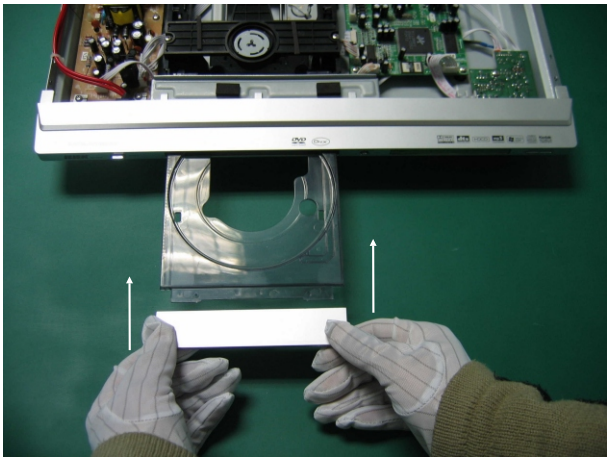
(6) Insert plug wire A, B.



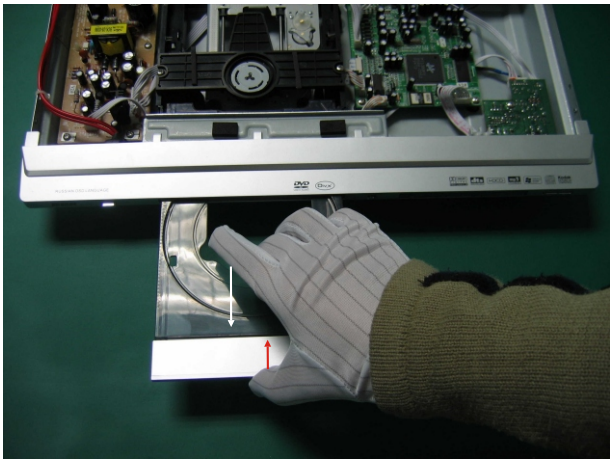
(7) Use electric screwdriver or "+"-shaped driver to fix four screws (A, B, C, D) of loader frame.



(8) Connect with power supply, switch on power and press OPEN/CLOSE button to make disc tray eject.

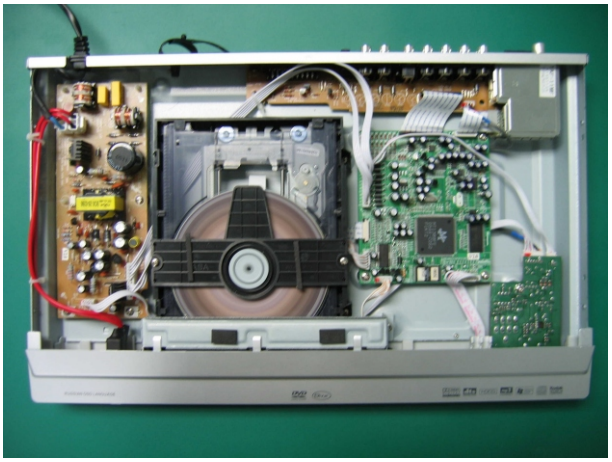


(9) Switch off power, take disc tray door between thumb and forefinger of two hands and then send towards arrow direction aiming at disc tray.



(10) Take hold of disc tray and its door by right hand, and then exert strength towards arrow direction with thumb and middle finger. If you hear a click sound, disc tray door reaches the proper position.

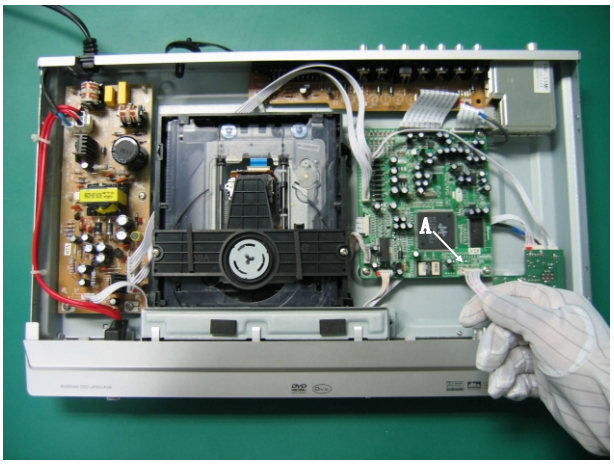
(11) Switch on power, load disc and test functions of the unit.



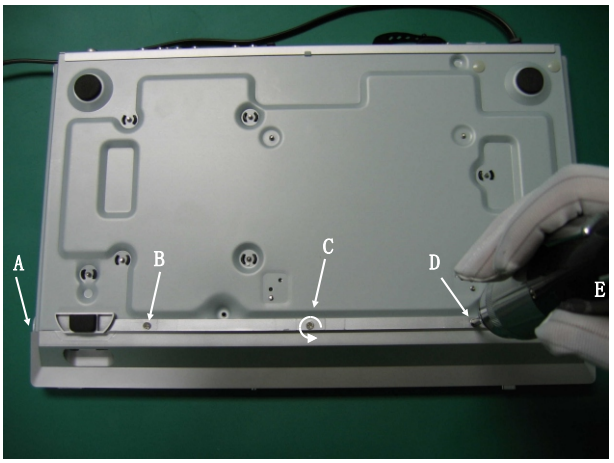
(12) The test result is OK.

4. 4 Control panel components

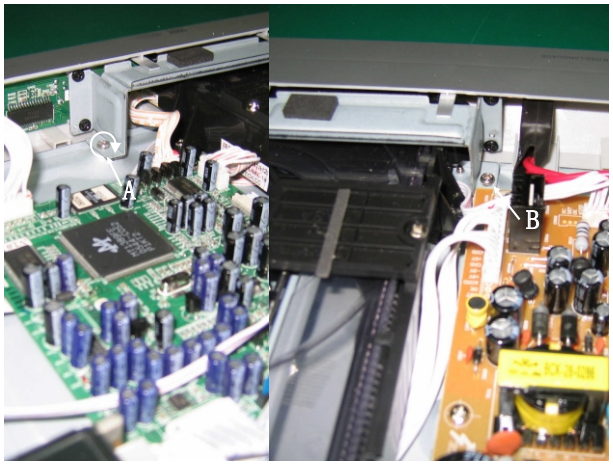
4.4.1 Disassembly process for control panel components



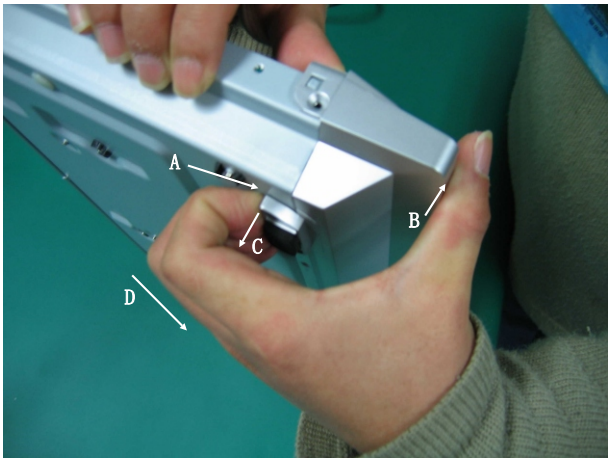
(1) Pull out flat cable of panel.



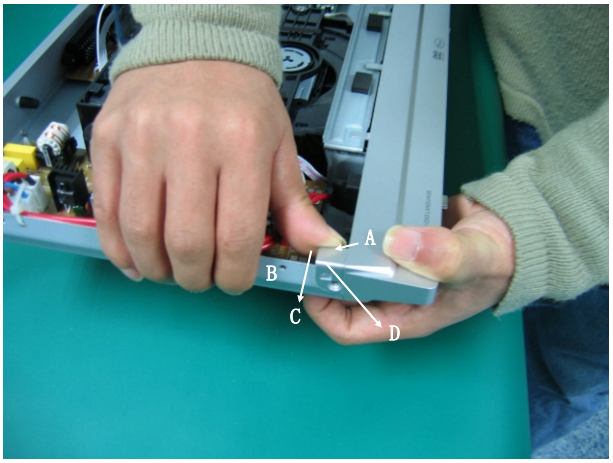
(2) Use electric screwdriver or “+”-shaped screwdriver to unfix five screws (A, B, C, D, E) of panel.



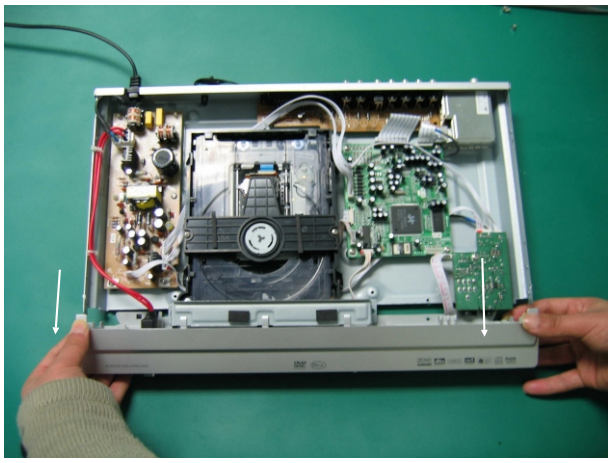
(3) Use electric screwdriver or “+”-shaped screwdriver to unfix two screws (A, B) of iron bracket of control panel components.



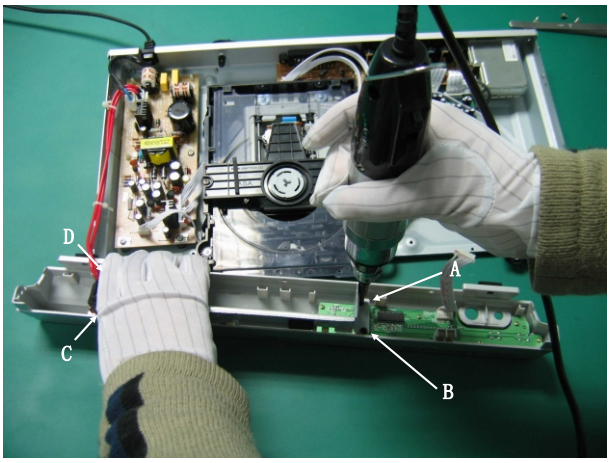
(4) Put nail of four fingers of left hand into the gap between foot and bottom casing (A), use thumb to hold position B of front panel and exert strength towards the direction of arrow C with the four fingers. After the foot falls off from the bottom casing, remove the left hand side of control panel components. When removing the left hand side, use the same method.



(5) Keep the state that foot falls off from bottom casing by left hand, hold the point of support (A) of upper cover with thumb of right hand, and hold bottom casing B with the other four fingers. Exert strength with thumb towards the direction of arrow C. After surface casing separates from bottom casing, change direction with thumb and exert strength towards the direction of arrow D, and the surface casing falls off from the slot of bottom casing automatically. When removing the right hand side of control panel components, use the same method.



(6) Take hold of panel components by two hands, and then take out towards the arrow direction.



(7) Use electric screwdriver or "+"-shaped screwdriver to unfix four screws (A, B, C, D) of upper cover bracket, and then take out.

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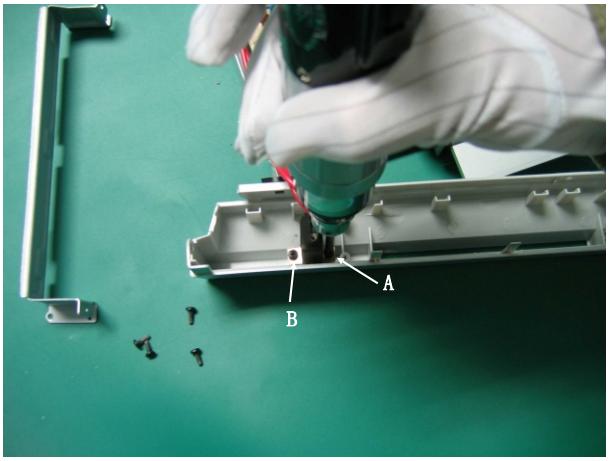
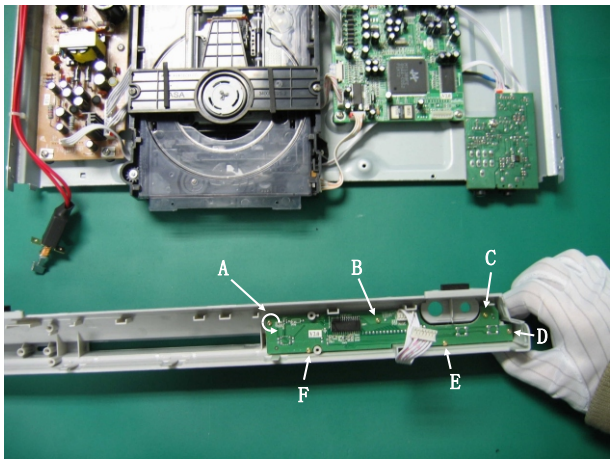
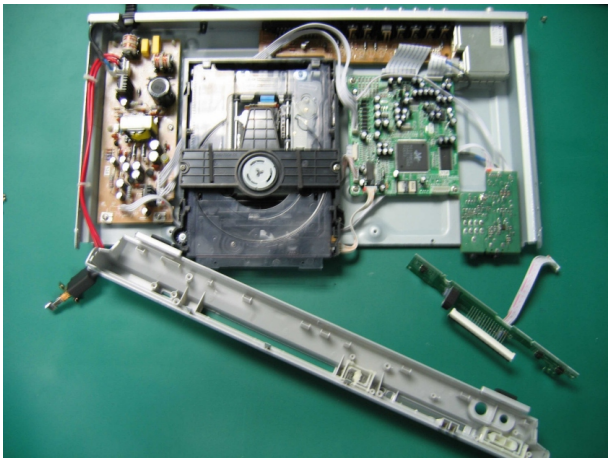


(8) Use electric screwdriver or “+”-shaped screwdriver to unfix two screws (A, B) of power button, and then take out.

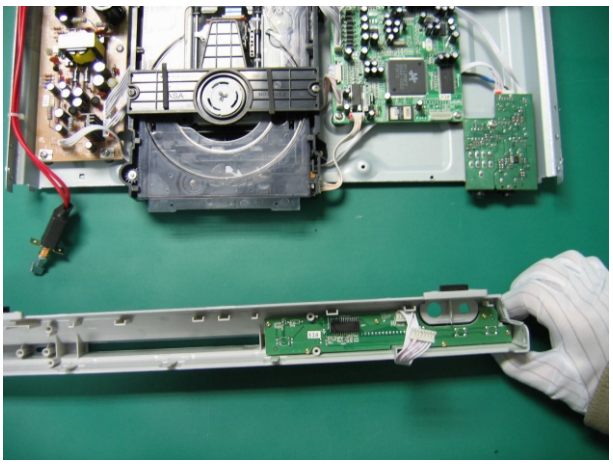


(9) Use electric screwdriver or “+”-shaped screwdriver to unfix six screws (A, B, C, D, E, F) of PC board.

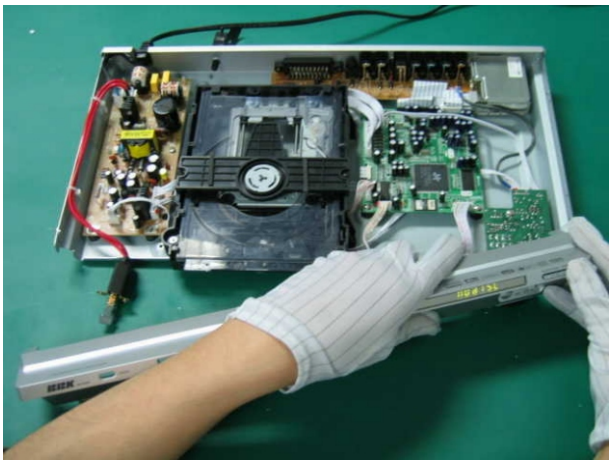


(10) Take down PC board.

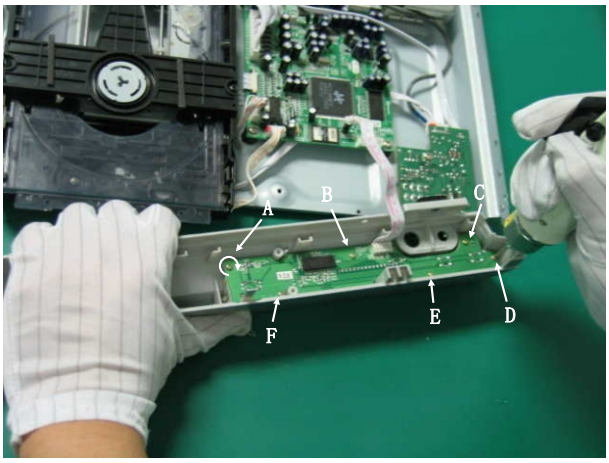
4.4.2 Assembly process for control panel components



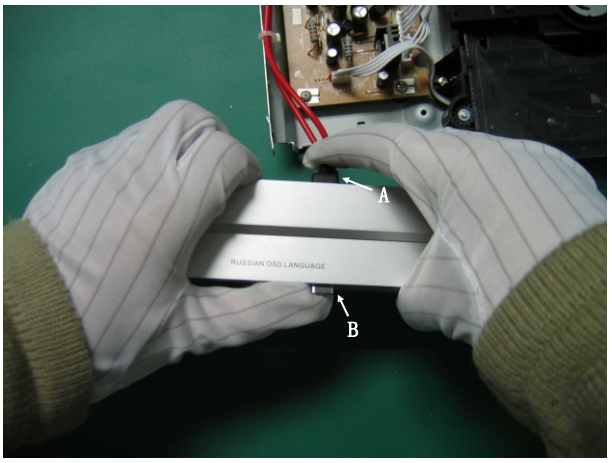
(1) Install PC board aiming at slot.



(8) Connect with power supply and switch on power. Hold PC board with four fingers of left hand, and use right hand to test whether function button is sensitive. Switch off power and unplug power cord.

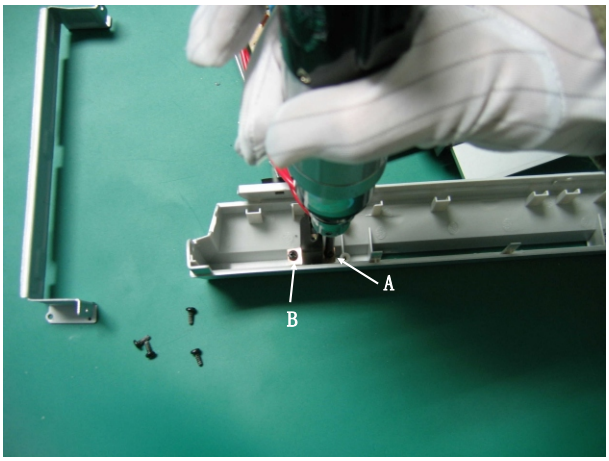


(3) Use electric screwdriver or "+"-shaped screwdriver to fix six screws (A, B, C, D, E).

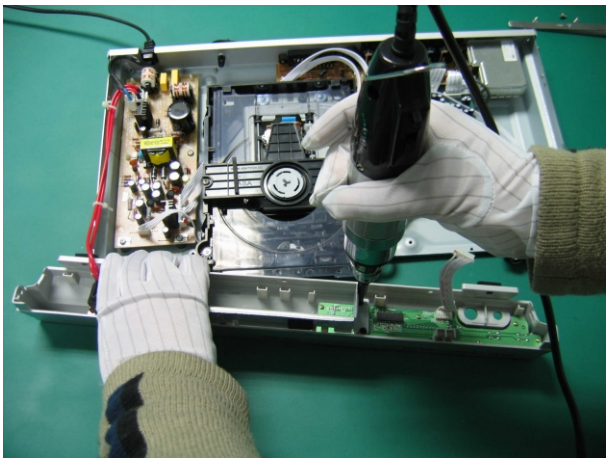


(4) Take hold of panel components by right hand, and hold power switch A with forefinger. Take hold of panel by left hand, and press switch button B with thumb many times to ensure the sensitivity of switch.

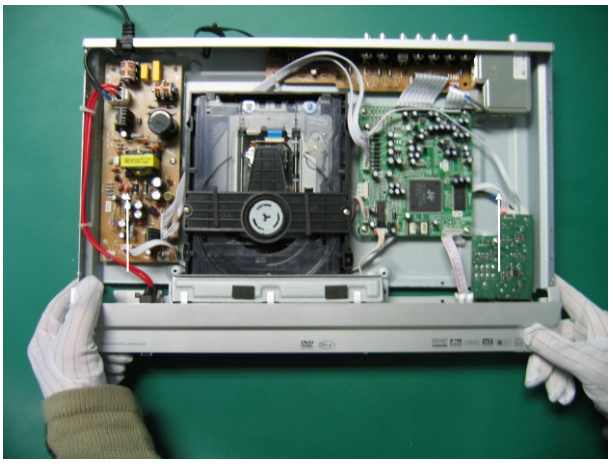
Note: Make sure power supply is not connected.



(5) Use electric screwdriver or "+"-shaped screwdriver to fix two screws (A, B) of power button.



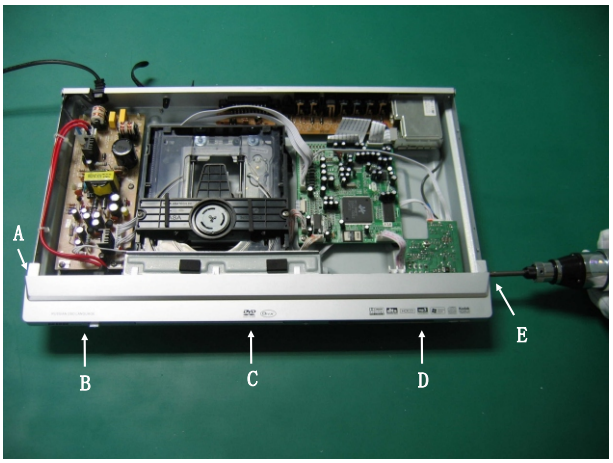
(6) Install iron bracket of control panel components, and then use electric screwdriver to fix 4 screws.



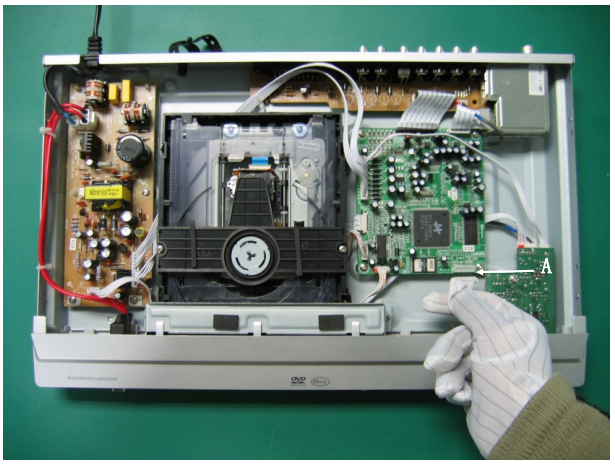
(7) Take hold of panel by two hands and then push towards arrow direction.

(8) Take hold of control panel components and press down with wrist forcibly towards the arrow direction. After hearing a click sound, the panel and bottom casing slot are locked.

(8) After hearing click sound, press down with wrists forcibly. If you hear a click sound, foot and bottom casing slot are locked. Check whether components reach the proper position.



(10) Use electric screwdriver or "+"-shaped screwdriver to fix five screws (A, B, C, D, E) of control panel components.

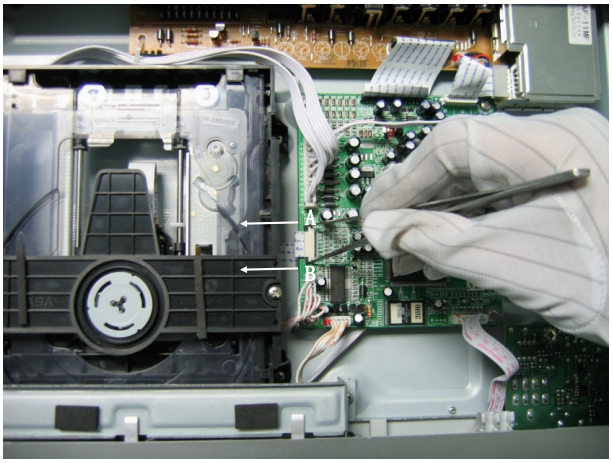


(11) Insert flat cable A of control panel components.

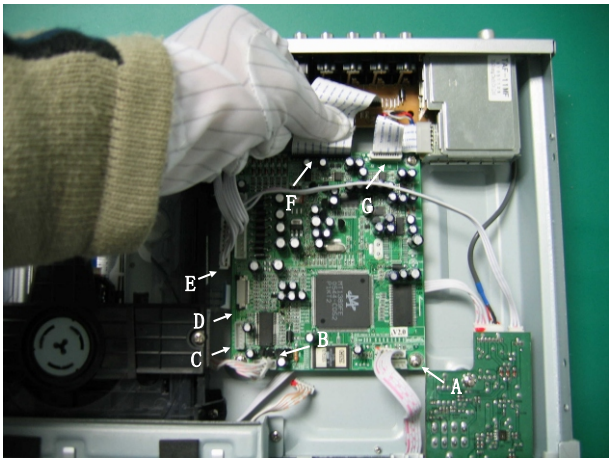
(12) Connect to power supply, switch on power and test functions of the unit, and all are ok.

4.5 Decode board control components

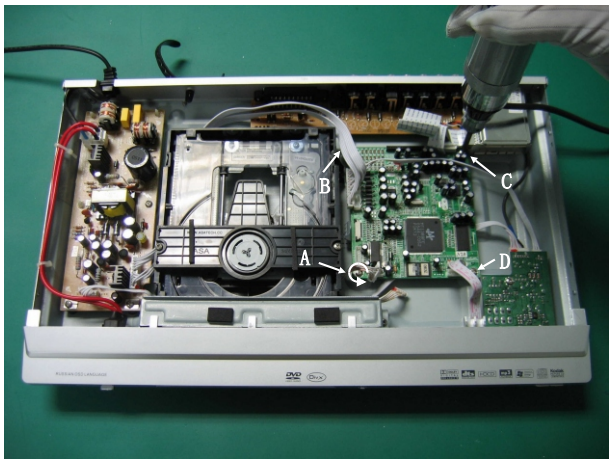
4.5.1 Disassembly process for decode board control components



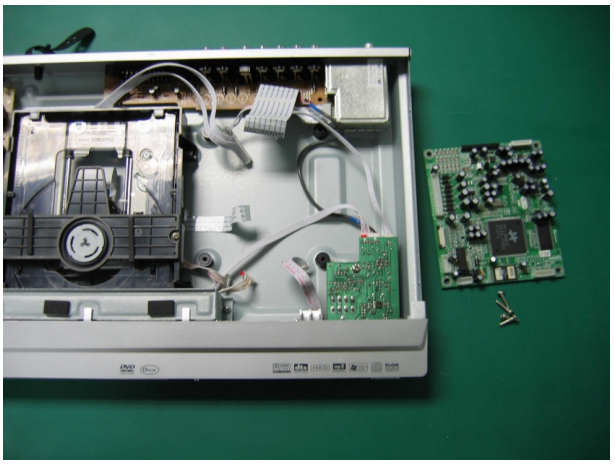
(1) Remove red glue on socket D. Use forceps to hold flat cable holder (B is the point of support), and exert strength towards the direction of arrow A. After flat cable holder A become loose, exert strength towards the direction of arrow B. Take down flat cable after the entire flat cable holder falls off.



(2) Pull out flat cable A, B, C, E, F, G of decode board.

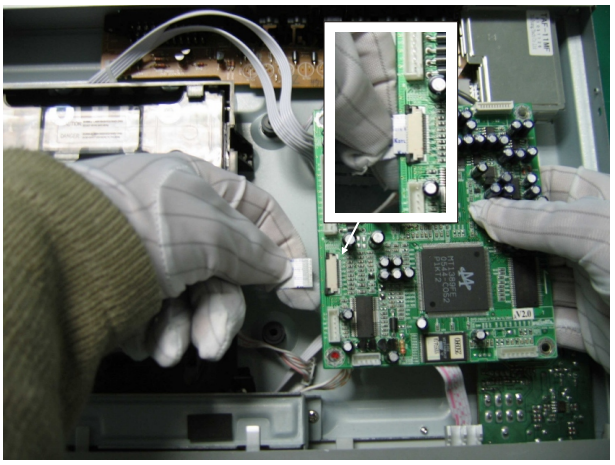


(3) Use electric screwdriver or "+"-shaped screwdriver to unfix four screws (A, B, C, D).

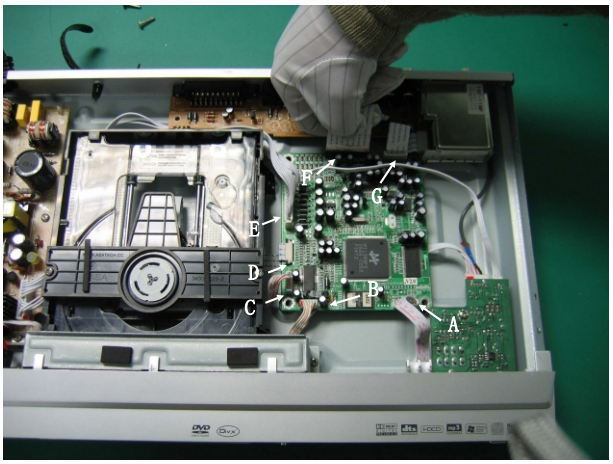


(4) Take down decode board.

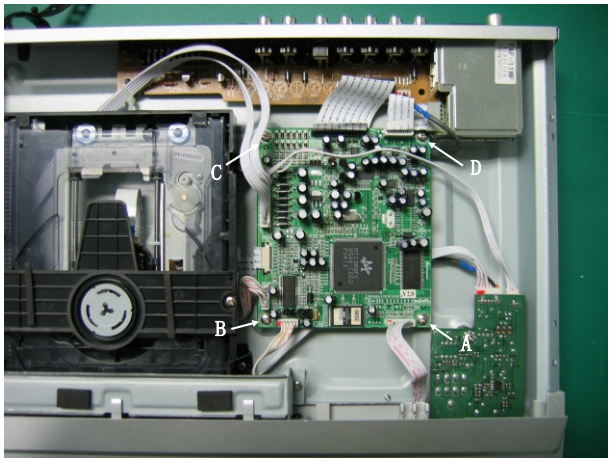
4.5.2 Assembly process for decode board control components



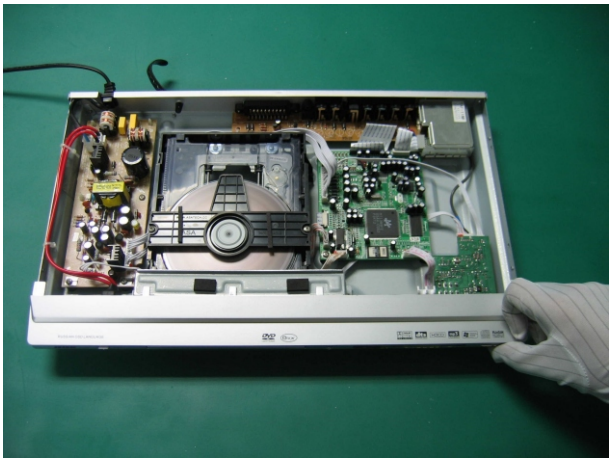
(1) Hold decode board control components by right hand, take flat cable between thumb and forefinger of left hand and insert into hold D of flat cable holder to push into flat cable holder plug to ensure good contact.



(2) Insert flat cable A, B, C, E, F, G.



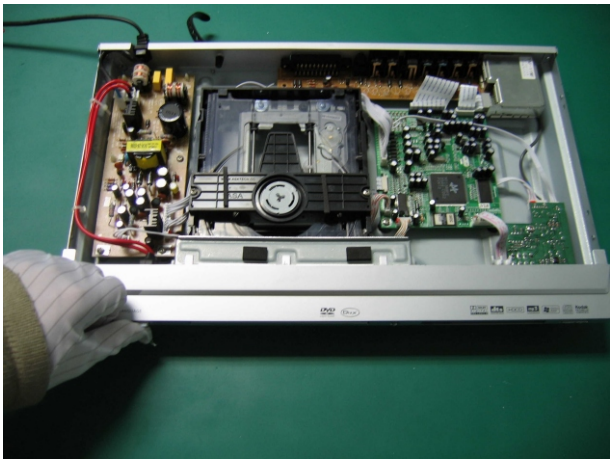
(3) Use electric screwdriver or "+"-shaped screwdriver to fix four screws (A, B, C, D).



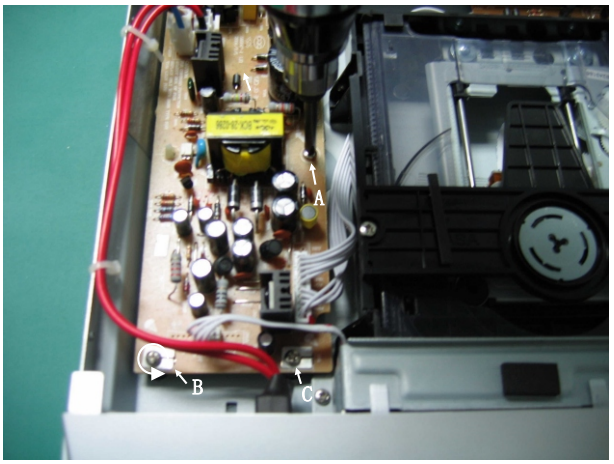
(4) Connect to power supply, switch on power, test functions of the unit and all are ok.

4.6 Power board components

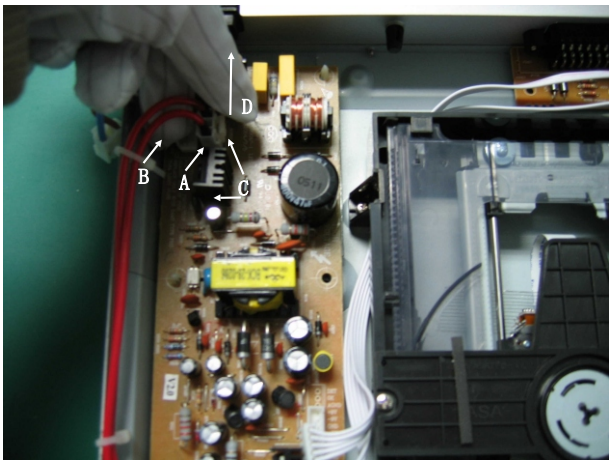
4.6.1 Disassembly process for power board components



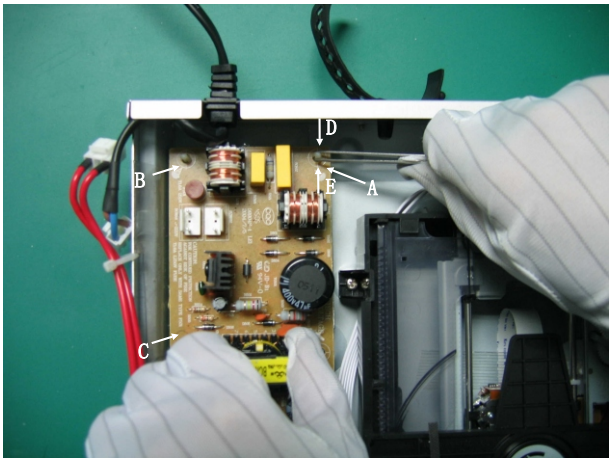
(1) Switch off power and unplug power cord.



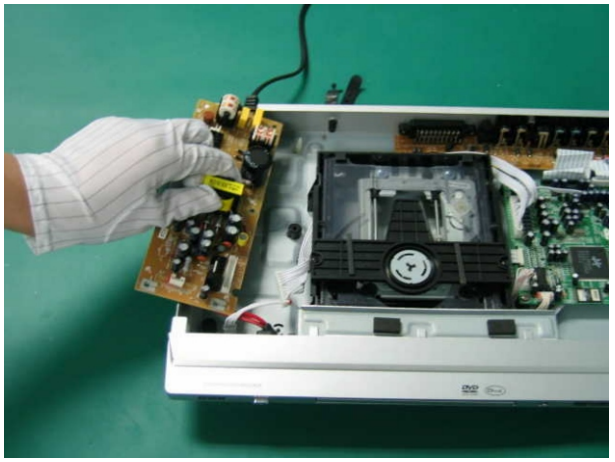
(2) Use electric screwdriver or “+”-shaped screwdriver to unfix three screws (A, B, C) of power board components.



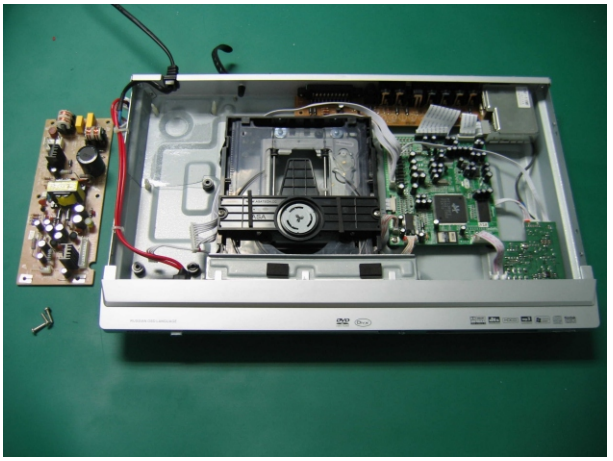
(3) Pull out flat cable. When pulling out flat cable A, B, hold the button C and pull out towards the direction of arrow D.



(4) Hold forceps by right hand to clamp the projecting part of bracket A, and exert strength towards direction of arrow D, E. Meanwhile, hold transformer by left hand, lift up upwards, and then take down brackets B and C.

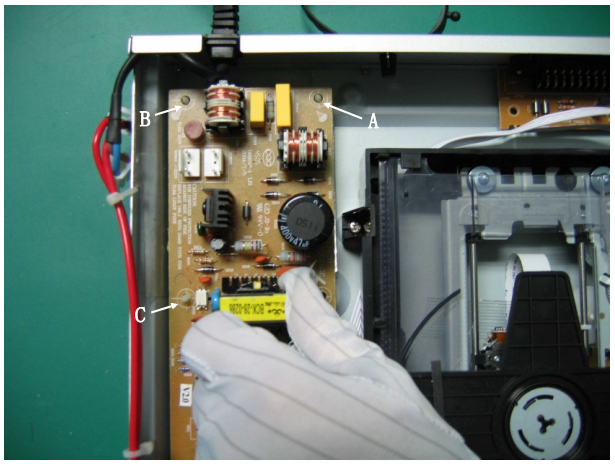


(5) Lift up power board components.

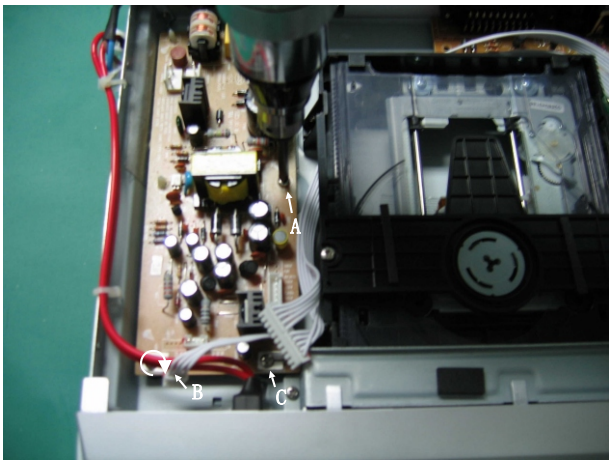


(6) Take down power board components.

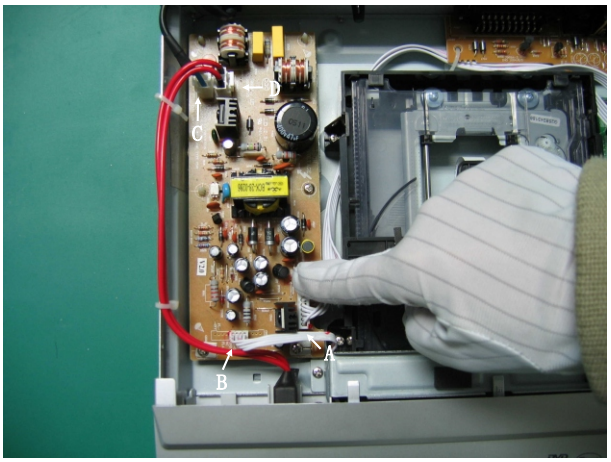
4.6.2 Assembly process for power board components



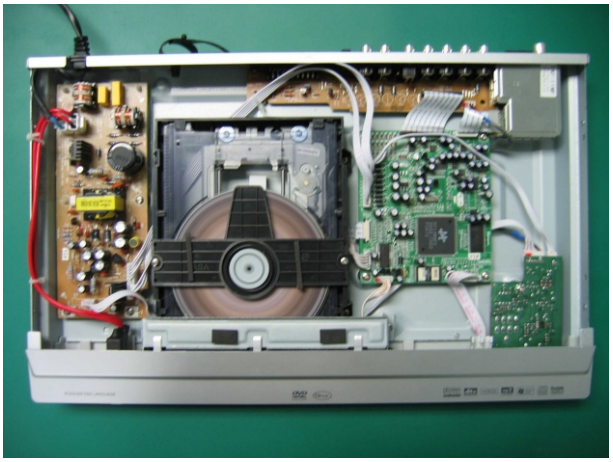
(1) Take hold of transformer by left hand. Make holes A, B and C of power board components aim at bracket, and then press down forcibly by right hand.



(2) Use electric screwdriver or "+"-shaped screwdriver to fix three screws (A, B, C) of power board components.



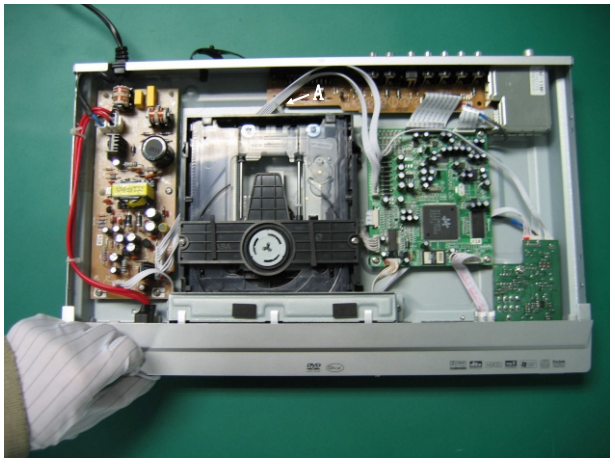
(3) Insert flat cable A, B, C, D..



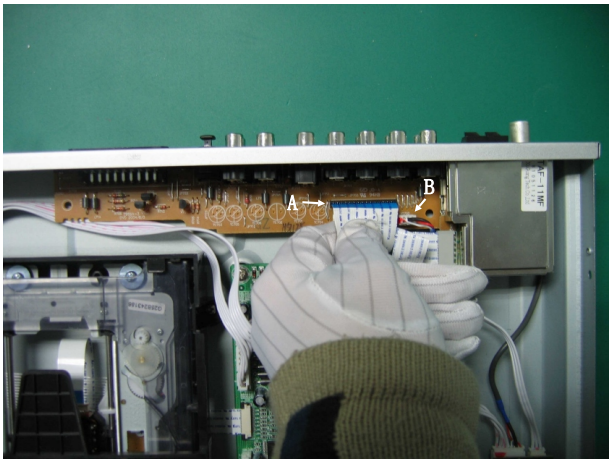
(4) Connect to power supply, power on and test, and all are normal.

4.7 AV board components

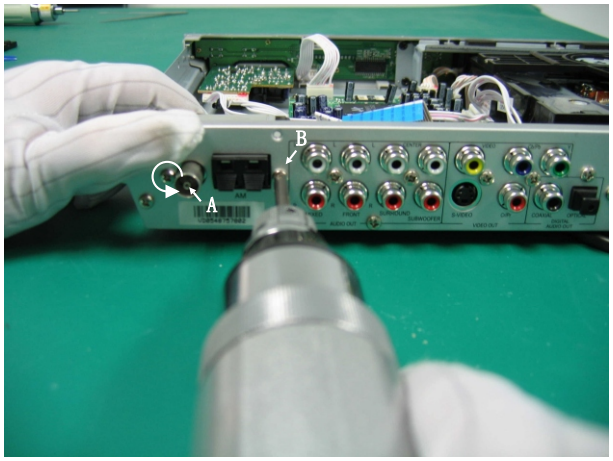
4.7.1 Disassembly process for AV board components.



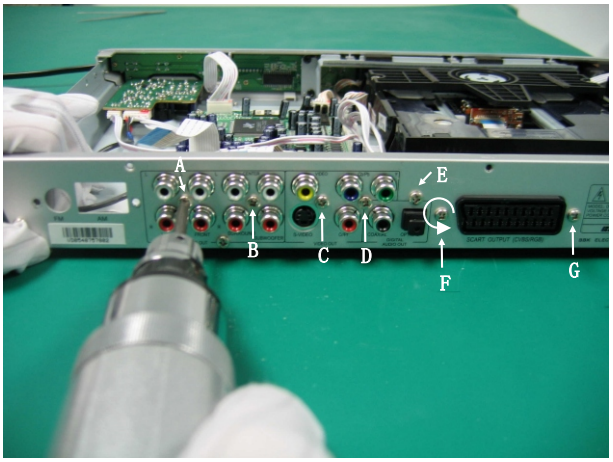
(1) Switch off power and use pliers to cut binding wire A.



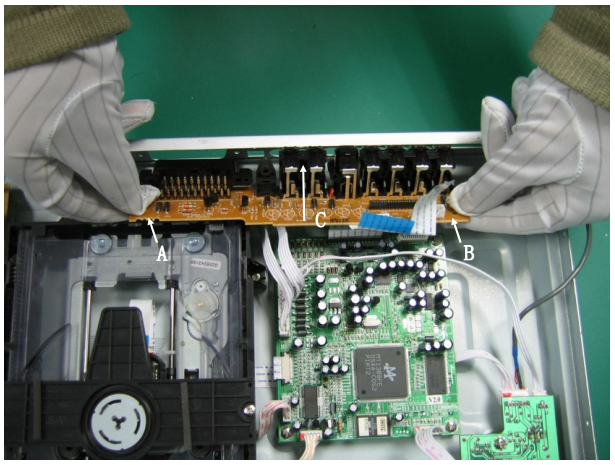
(2) Pull out flat cable A and B.



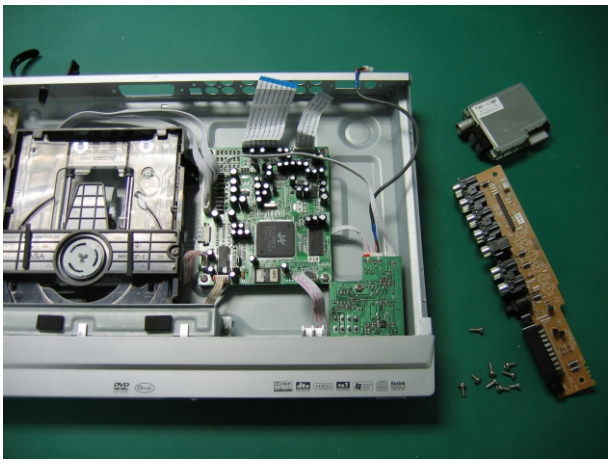
(3) Use electric screwdriver or "+"-shaped driver to unfix two screws (A, B) of tuner and then take down.



(4) Use electric screwdriver or "+"-shaped driver to unfix seven screws (A-B) of AV board components.

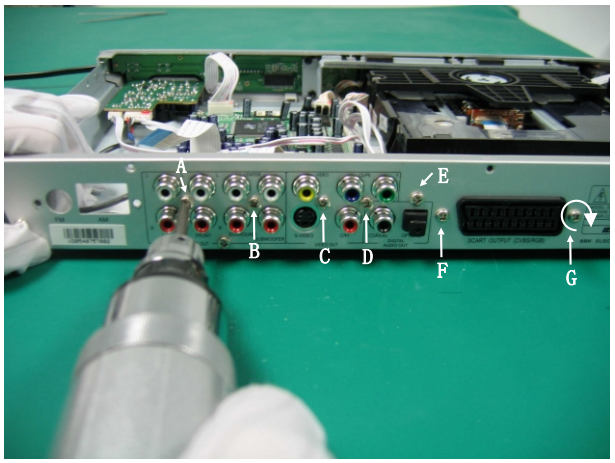


(5) Take position A, B of AV board components between thumb and forefinger of two hands, and then lift up towards direction of arrow C.

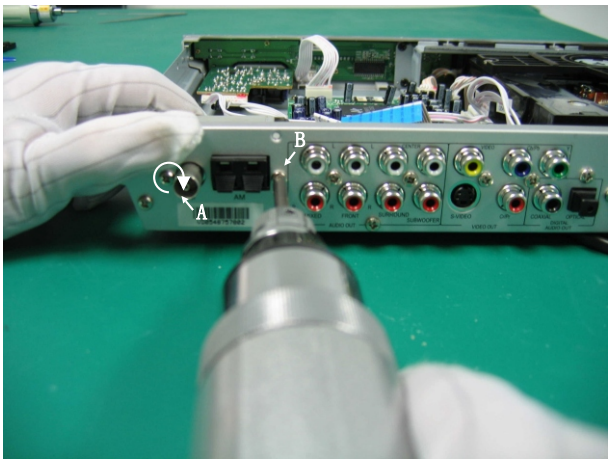


(6) Take out AV board components and tuner.

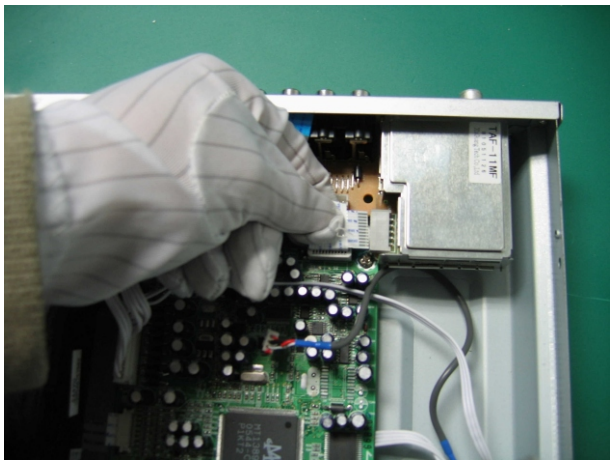
4.7.2 Assembly process of AV board components



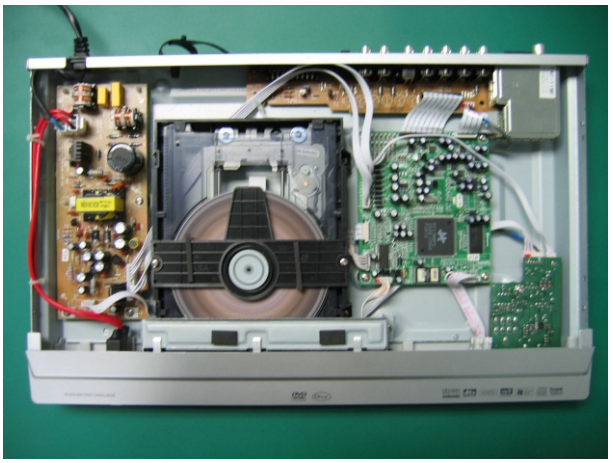
(1) Use electric screwdriver or "+"-shaped driver to fix seven screws (A-B) of AV board components.



(2) Use electric screwdriver or "+"-shaped driver to fix two screws (A, B) of tune.



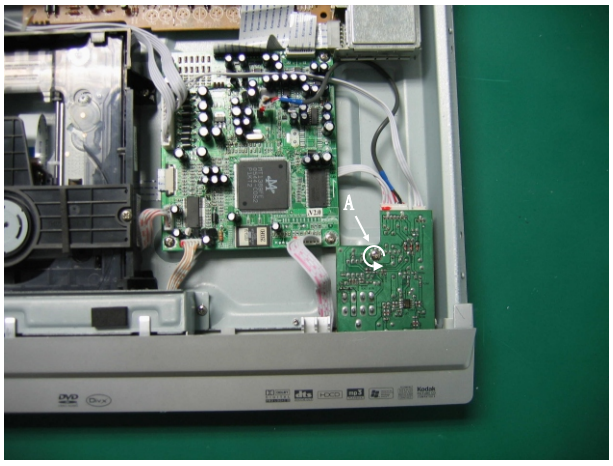
(3) Insert flat cable of AV board components and that of tuner.



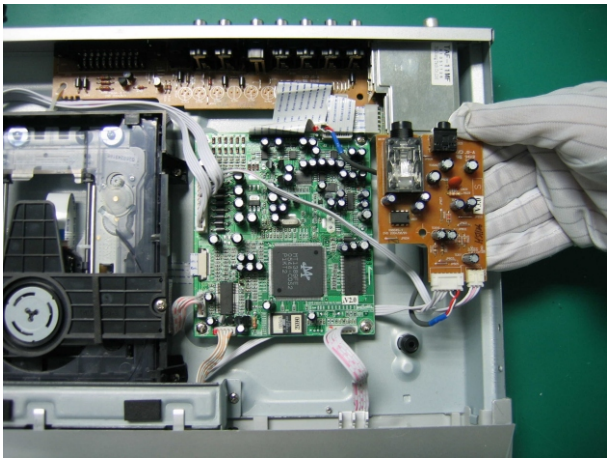
(4) Connect to power supply, power on and test, and all are normal.

4.8 MIC board components

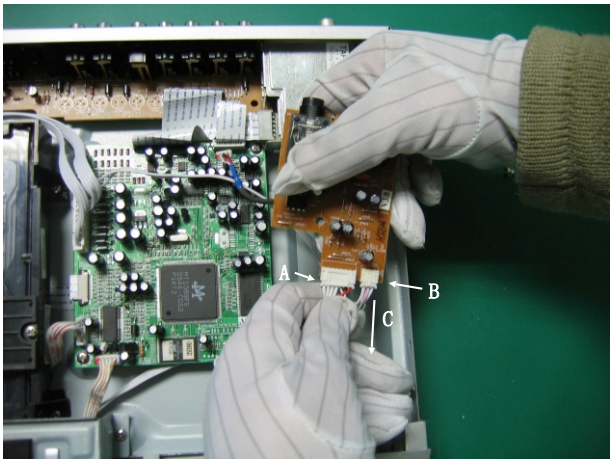
4.8.1 Disassembly process for MIC board components



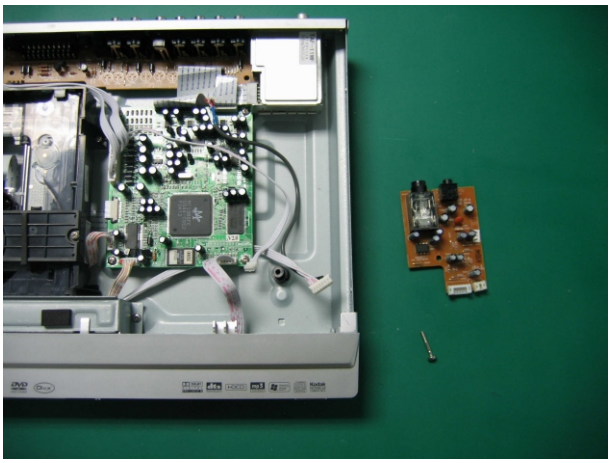
(1) Use electric screwdriver or "+"-shaped driver to unfix screw A.



(2) Take hold of MIC board components by right hand and then take it out.

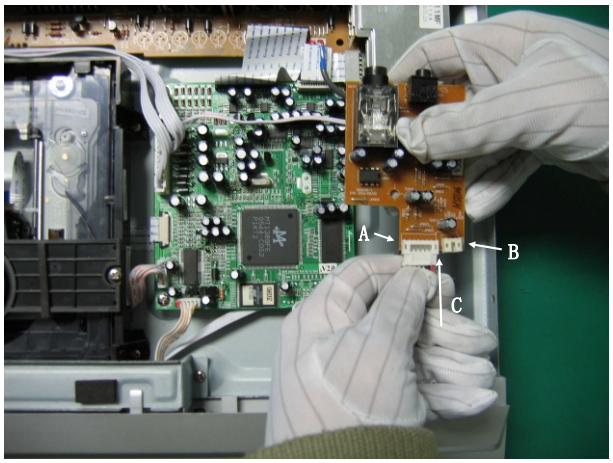


(3) Take hold of MIC board components by right hand, take flat cable A between thumb and forefinger of left hand and pull out towards direction of arrow C, and then pull out flat cable B.

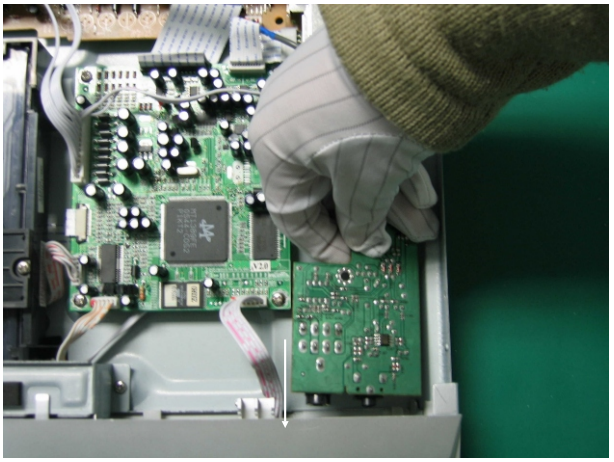


(4) Take out MIC board components.

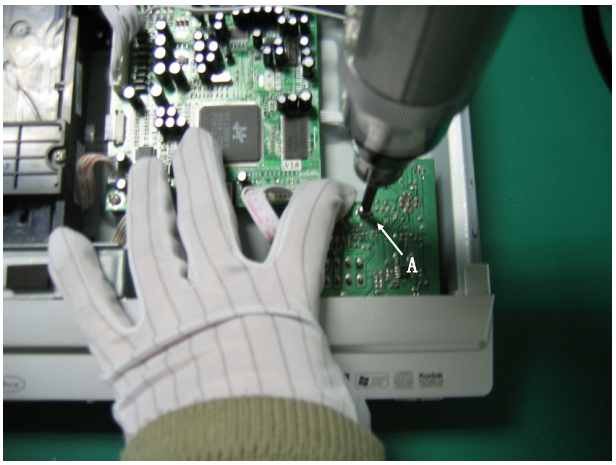
4.8.2 Assembly process for MIC board components



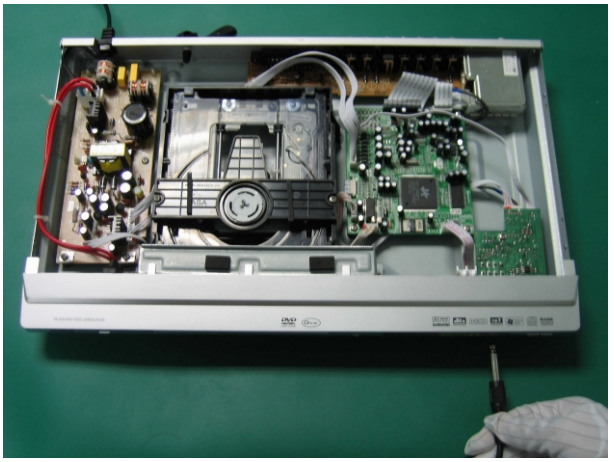
(1) Take hold of MIC board components, take flat cable A between thumb and forefinger of left hand and exert strength towards direction of arrow C to pull out, then insert flat cable B.



(2) Take hold of MIC board components and insert towards arrow direction to make sure it reaches the proper position.



(3) Use electric screwdriver or "+"-shaped driver to fix screw A.

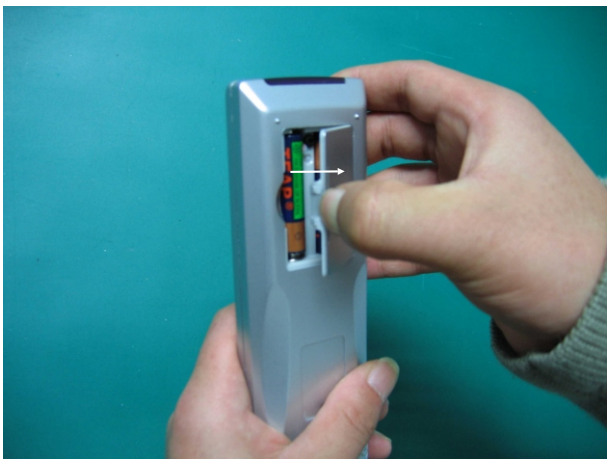


(4) Connect to power supply and power on. Insert microphone, test and all are normal.

4.9 Remote conreoller

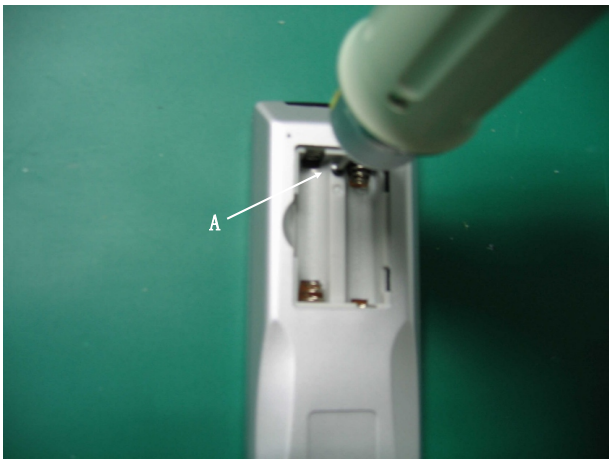
4.9.1 Disassembly process for remote controller

(1) Take hold of remote controller by left hand, hold button with thumb of right hand and exert strength towards arrow direction.



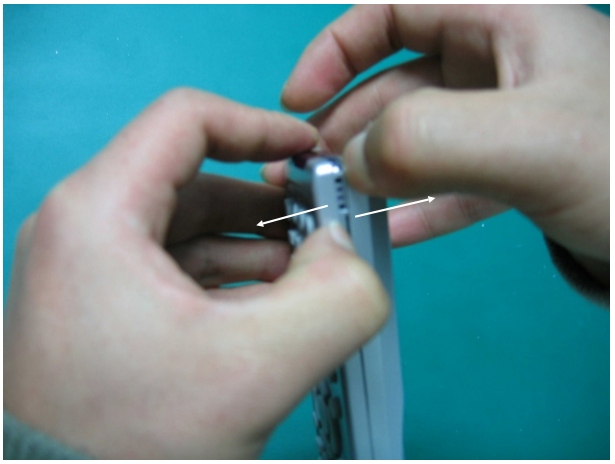
(2) Exert strength to lift up towards arrow direction after the button become loose.

(3) Take out battery.



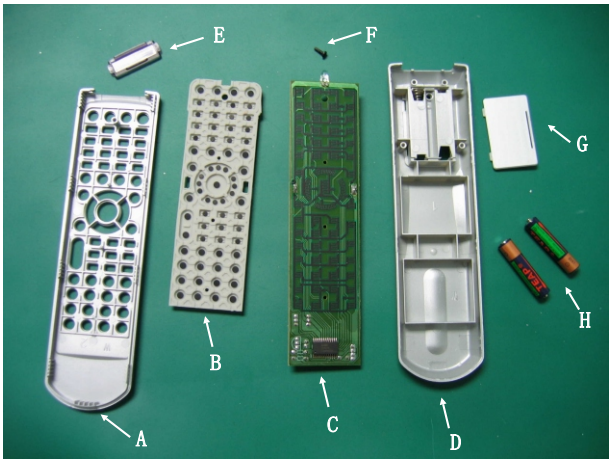
(4) Use electric screwdriver or “+”-shaped driver to unfix screw A.

(5) Use nail of thumb of two hands to hold into corner A of remote controller, and make out a gap forcibly.



(6) Use thumb of two hands to separate it towards opposite direction forcibly.

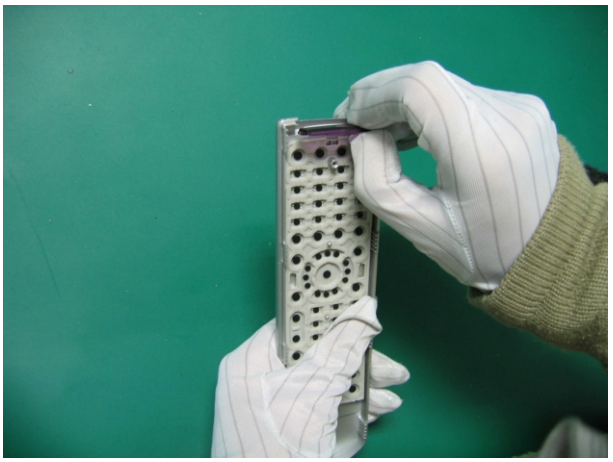
(7) After separating it, remote controller is shown as the above figure.



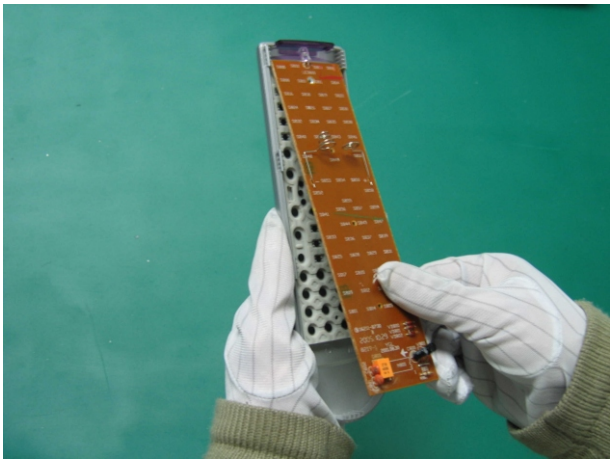
(8) Components of remote control are panel (A), electricity conduct glue (B), PC board (C), rear cover (D), Glass (E), screw (F), battery case cover (G) and rear cover (H).

4.9.1 Assembly process for remote controller

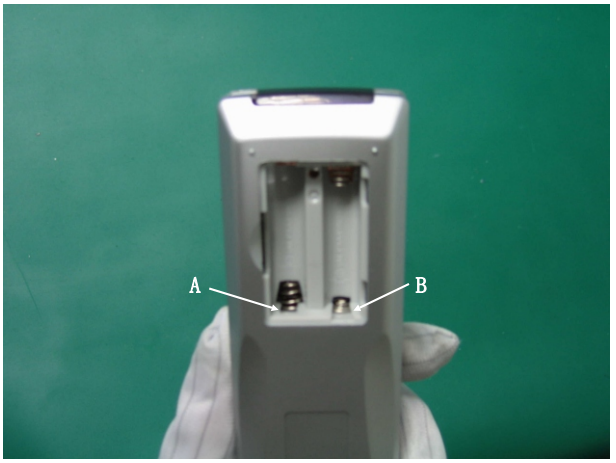
(1) Take hold of remote controller panel by left and, hold electricity conduct glue by right hand and then install it to make sure it reaches the proper position.



(2) Take hold of remote controller front panel by left hand, take glass between thumb and forefinger of right hand and insert into slot.



(3) Take hold of remote controller front panel by left hand , take PC board between thumb and forefinger of right hand and then install to make sure it reaches the proper position.

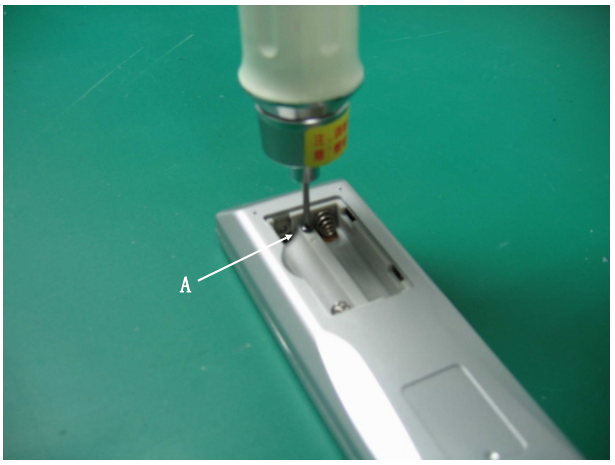


(4) Take hold of remote controller front panel by left hand, hold rear cover by right hand and stick aiming at battery case spring A, B.

(5) After spring and rear panel are stuck together, aim at bottom part of remote controller to make sure it reaches the proper position.

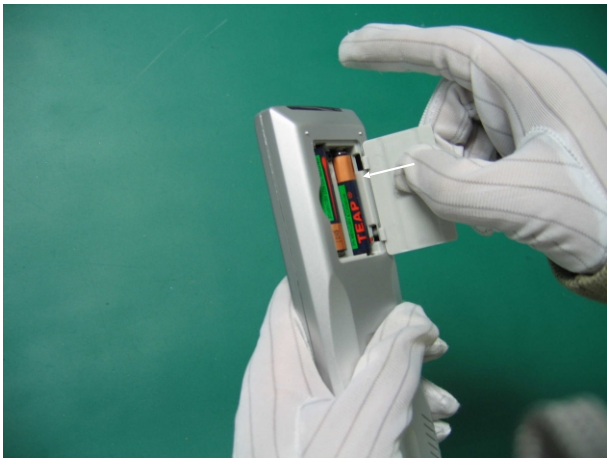
(6) After aiming at bottom position of remote controller, left hand to hold the bottom part forcibly. Hold the middle part of remote controller with thumb and another four fingers of right hand and press towards the same direction forcibly until you hear a click sound.

(7) Take hold of bottom part of remote controller by left hand forcibly, hold its top part with thumb and another four fingers of right hand and then press towards the same direction forcibly until you hear a click sound. Thus the whole remote controller has been installed to proper position.



(8) Use electric screwdriver or "+"-shaped screwdriver to fix screw A.

(9) Take hold of remote controller by left hand and take battery by right hand to put in.

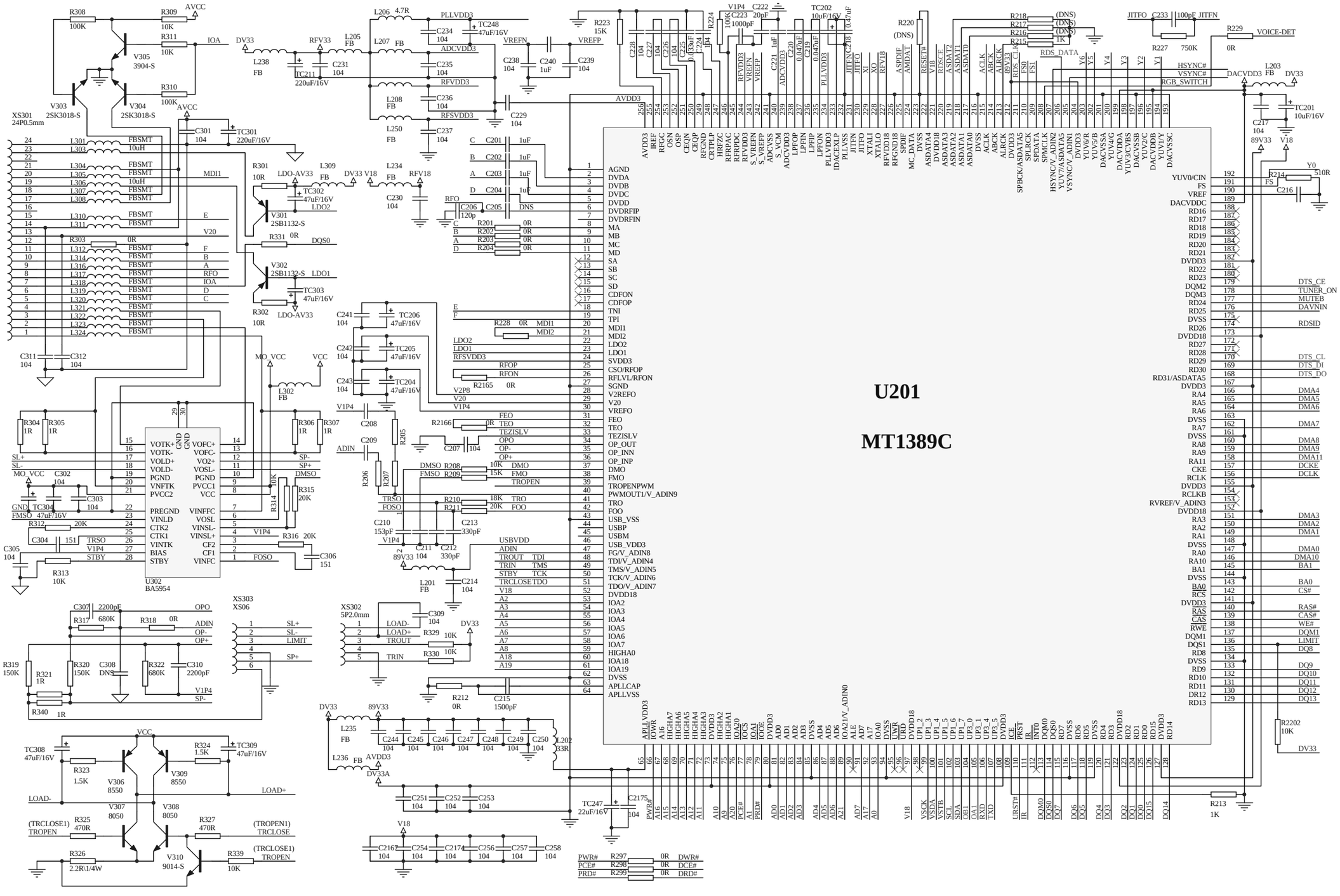


(10) Take hold of remote controller by left hand and take battery case door by right hand to install.

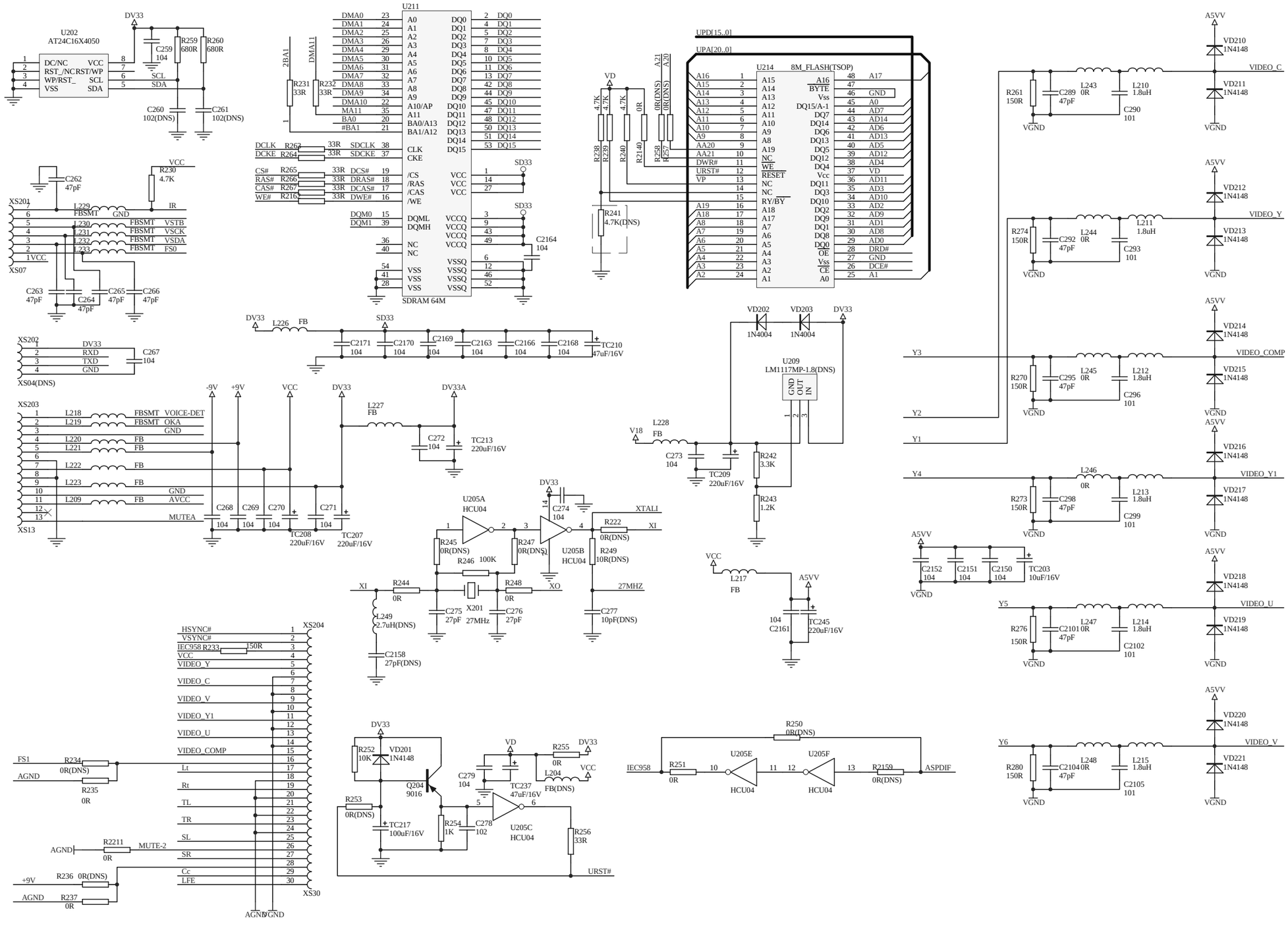
(11) Take hold of remote controller by left hand and press down battery case door with thumb of right hand until you hear a click sound. Thus battery case door reaches the proper position.

(12) The assembly of remote controller finishes.

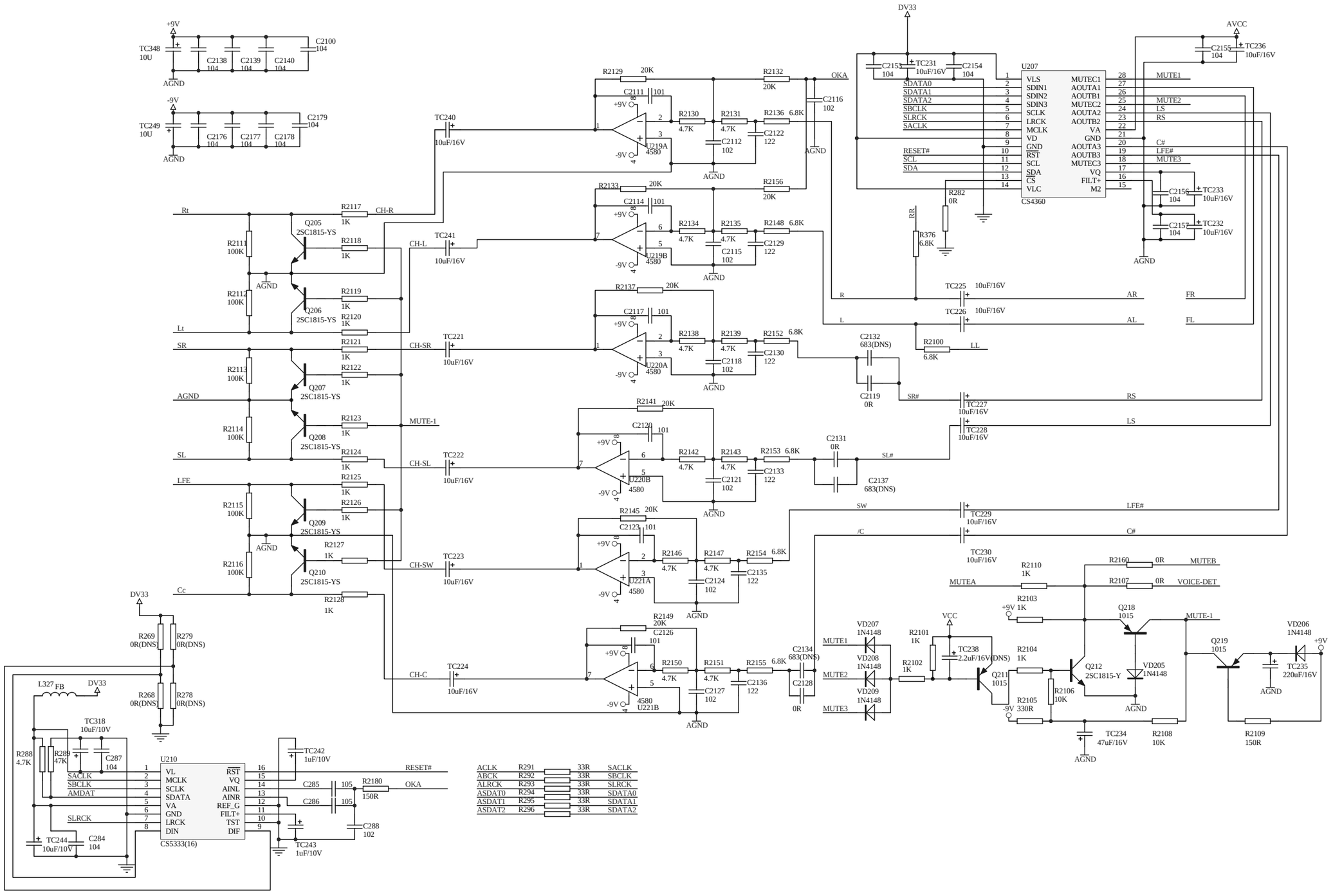
5.1.1 MPEG&SERVO 1 BOARD



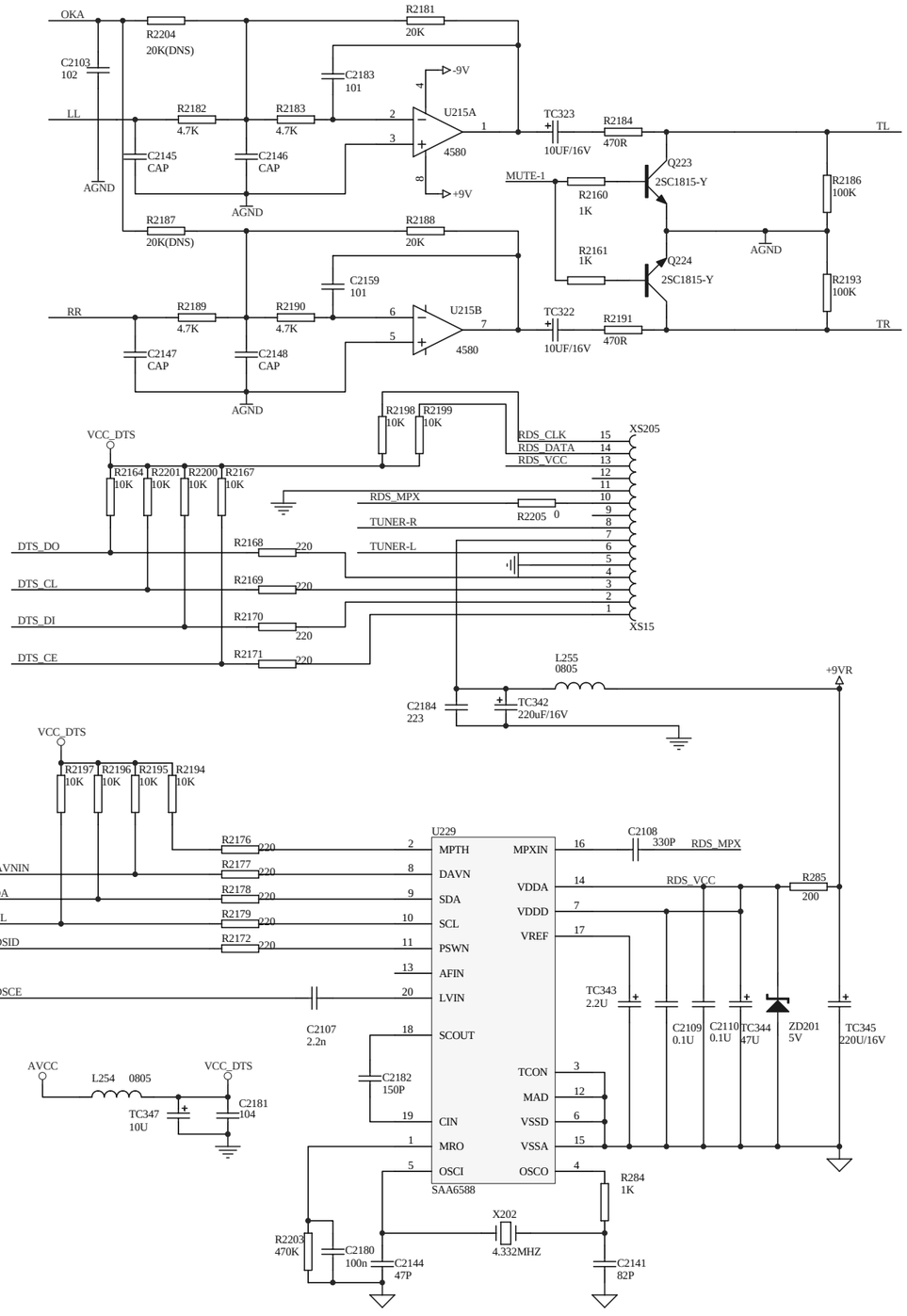
5.1.2 MPEG&SERVO 2 BOARD

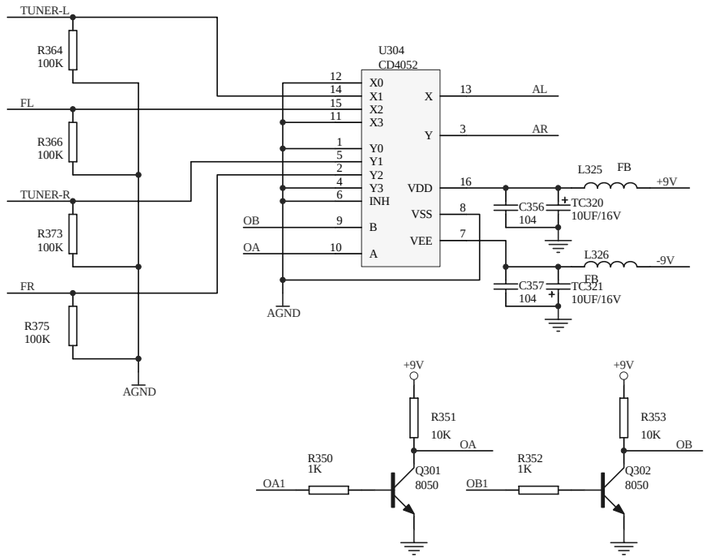


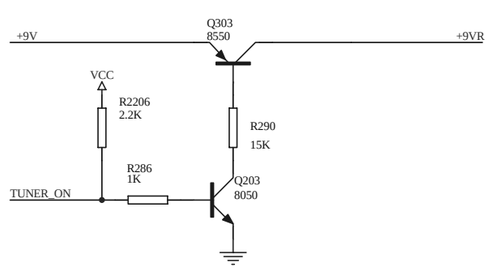
5.1.3 MPEG&SERVO 3 BOARD



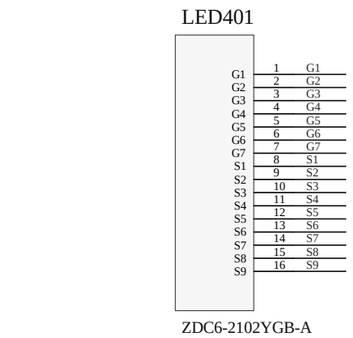
5.1.4 MPEG&SERVO 4 BOARD

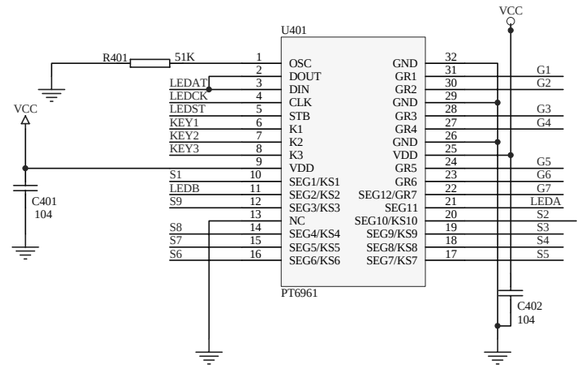


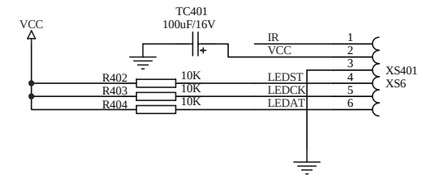


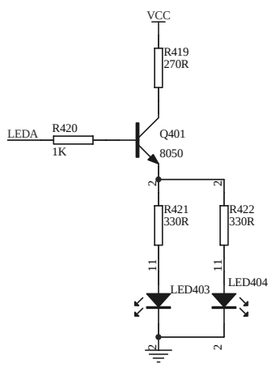


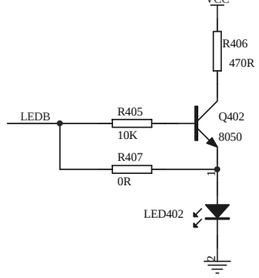
5.1.5 KEY SCAN BOARD

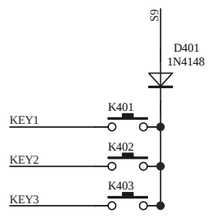


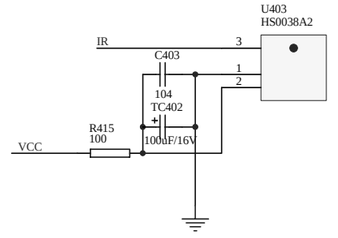




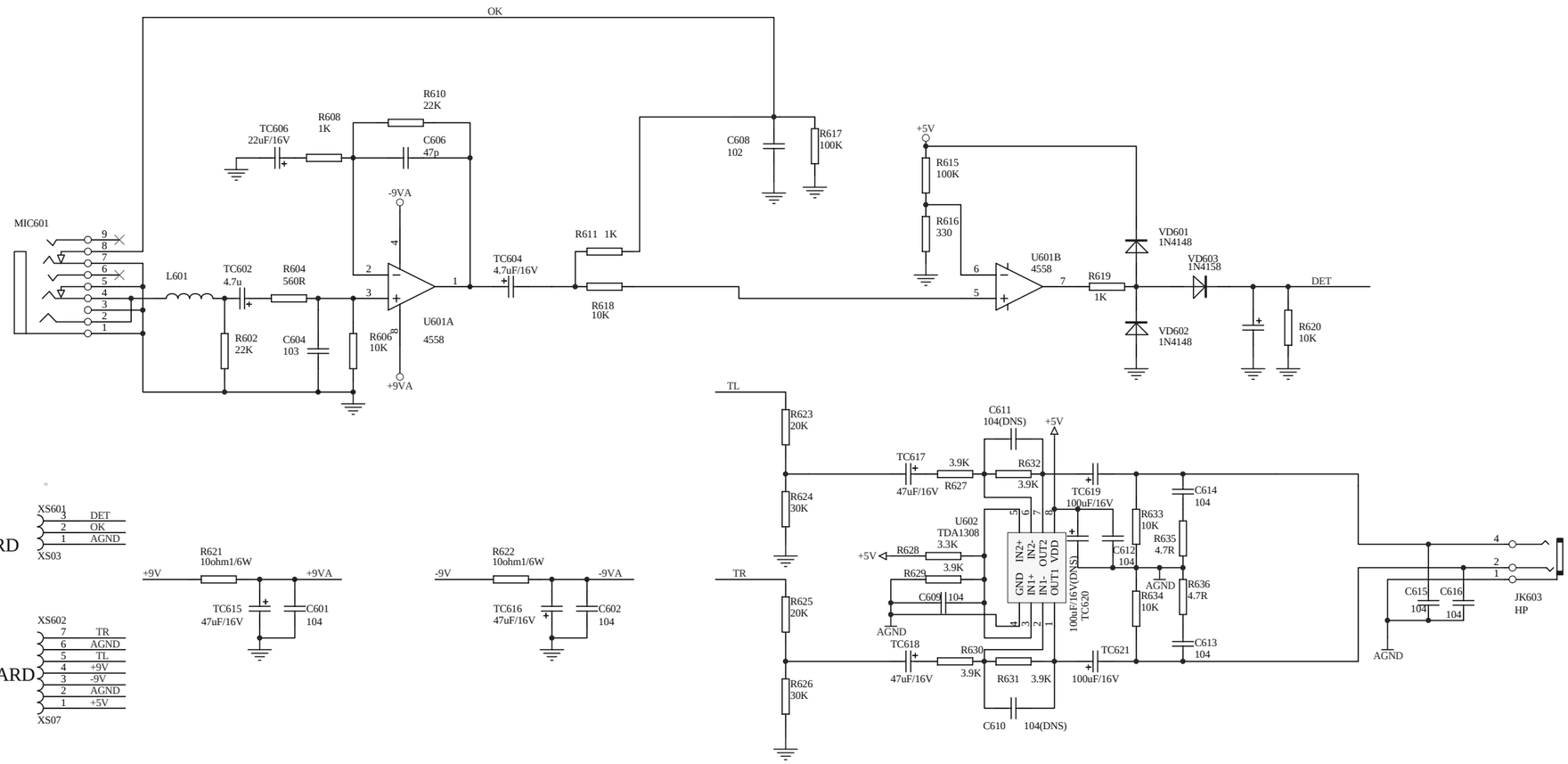




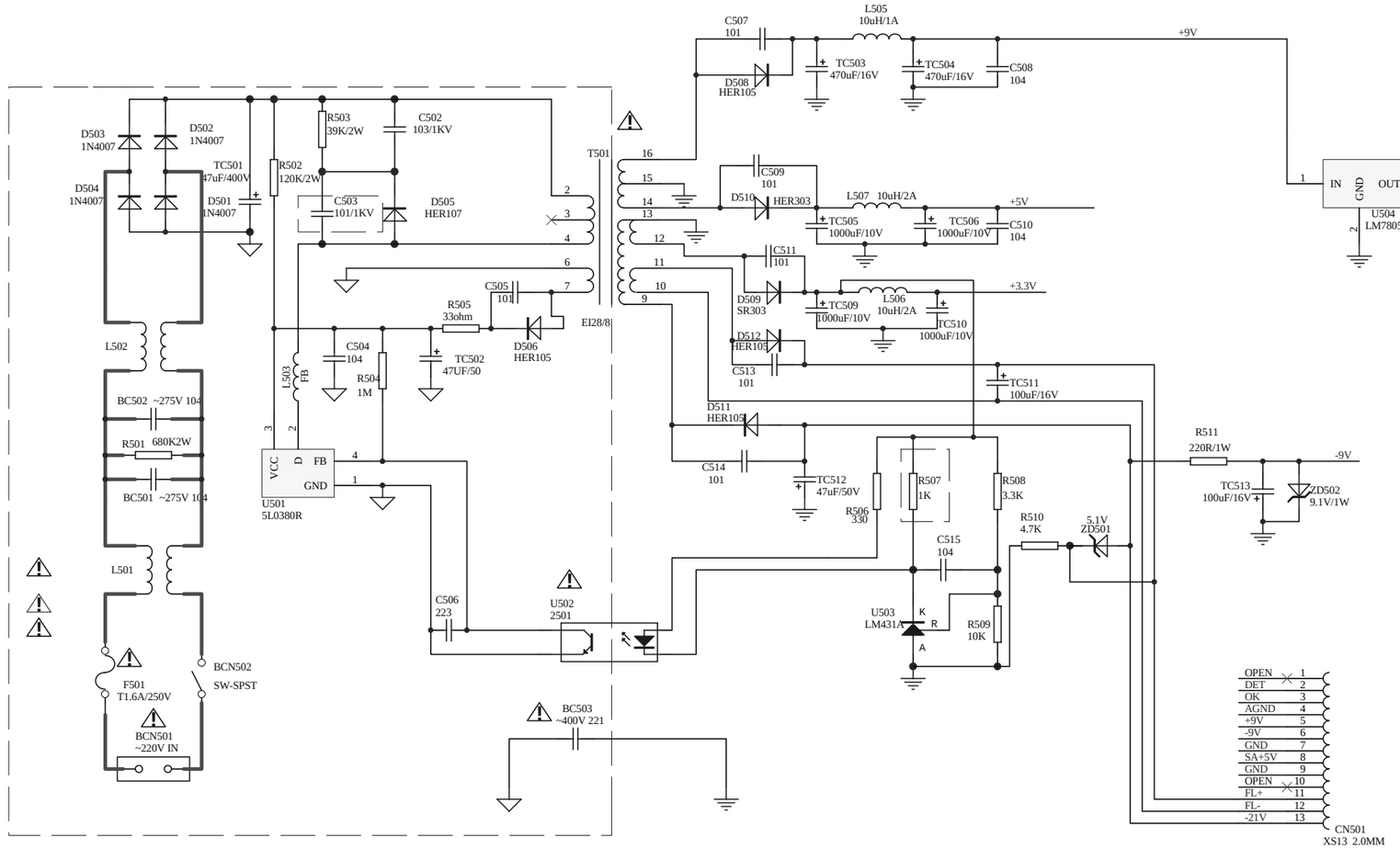




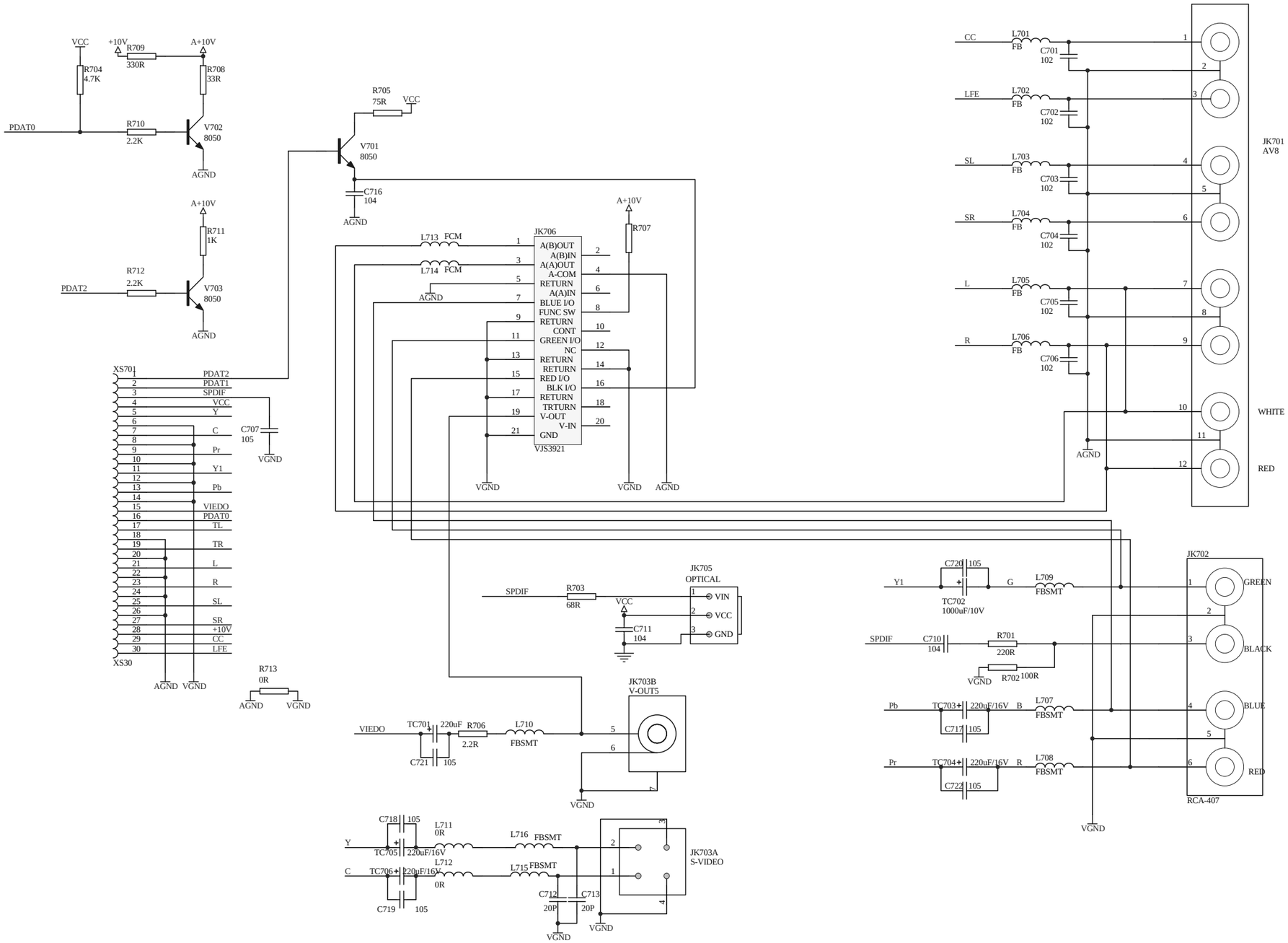
5.1.6 MIC BOARD



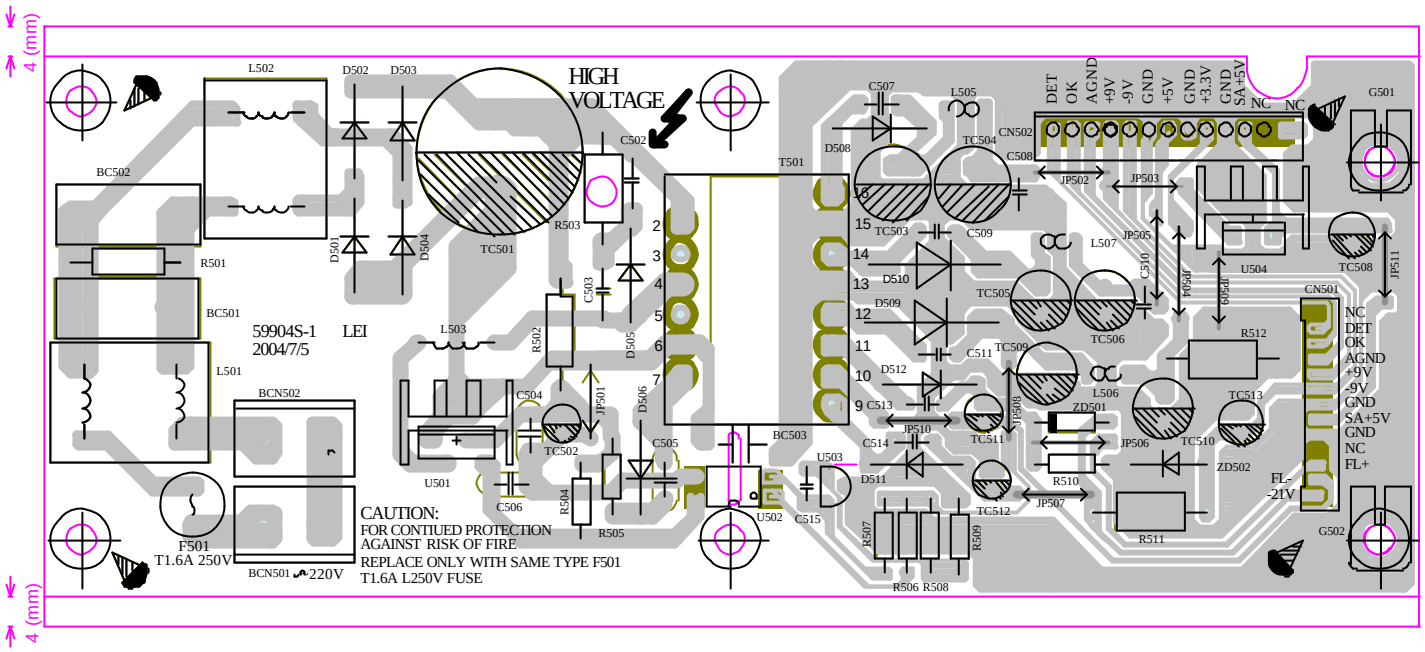
5.1.7 POWER BOARD



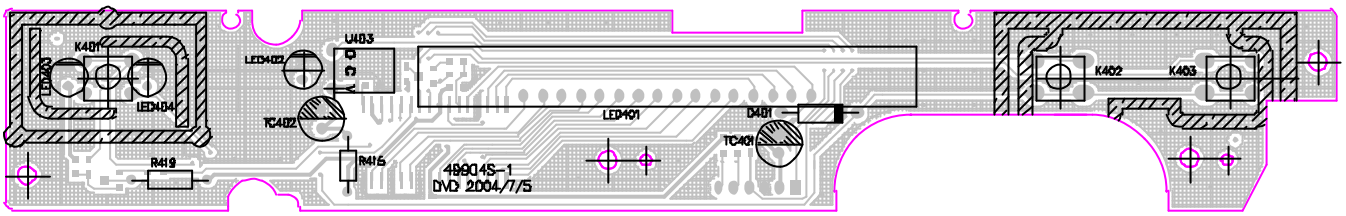
5.1.8 AV OUTPUT BOARD



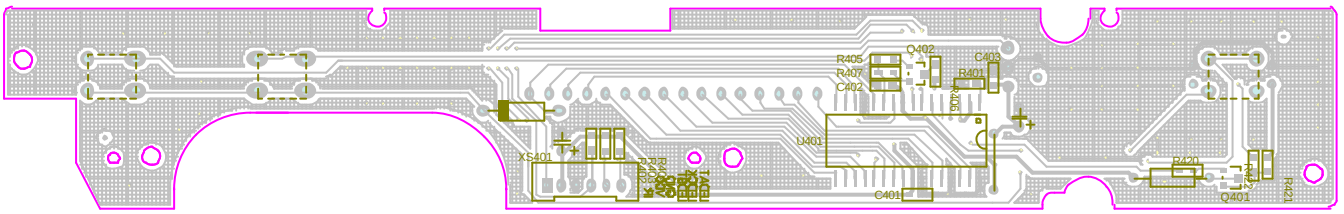
5.2.1 POWER BOARD PCB



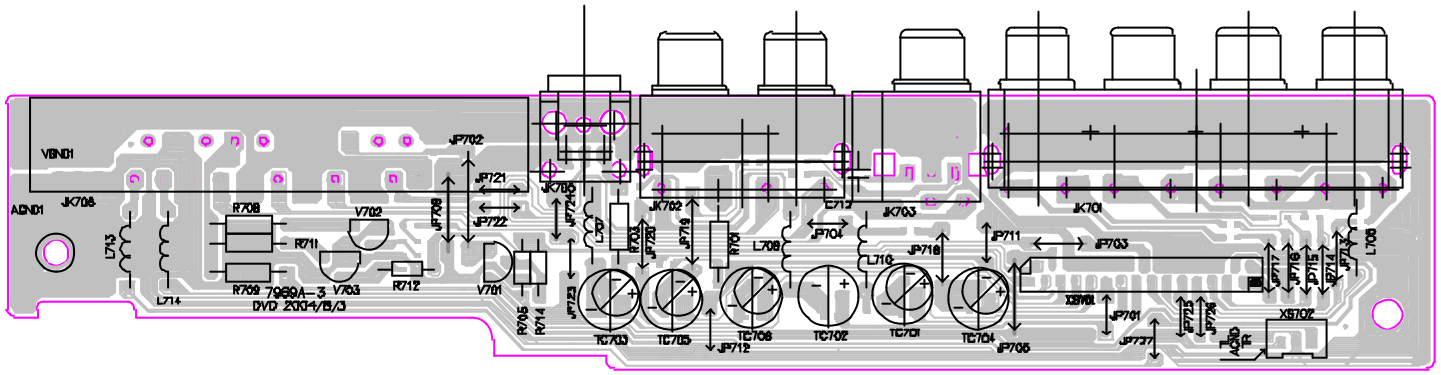
5.2.2 KEY SCAN 1 BOARD PCB



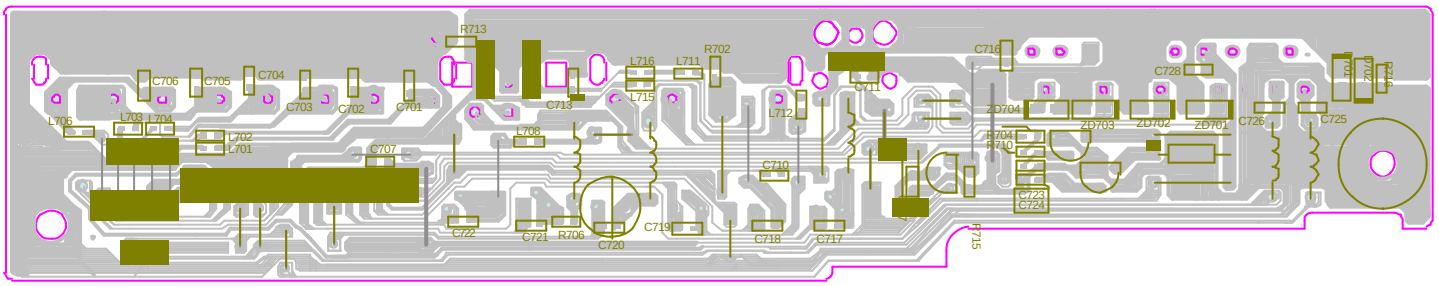
5.2.3 KEY SCAN 2 BOARD PCB



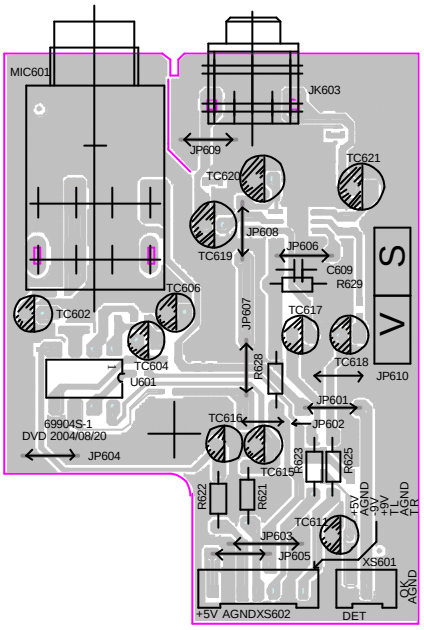
5.2.4 AV 1 BOARD PCB



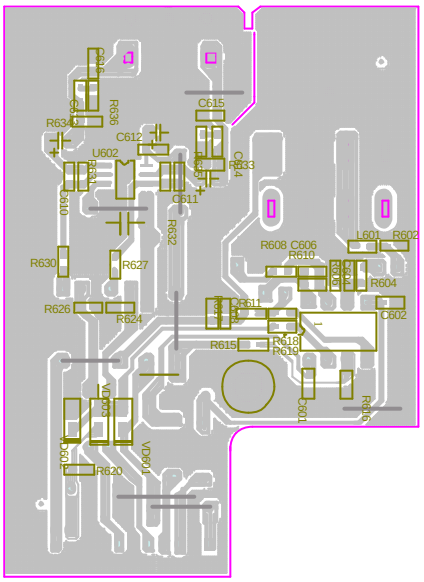
5.2.5 AV 2 BOARD PCB



5.2.6 MIC 1 BOARD PCB



5.2.7 MIC 2 BOARD PCB



Chapter six BOM List

6.1 AV board

DK1005S (RU) -2Silivery[1389] 5445736

material code	material name	Spec	Location
0090181	SMD RESISTOR	1/16W 100Ω ±5% 0603	R702
0090002	SMD RESISTOR	1/16W 2.2Ω ±5%	R706
0310066	SMD CAPACITOR	50V 102 ±10% 0603	C701~C706,C716,C723~C728
0310222	SMD CAPACITOR	25V 104 ±20% X7R 0603	C710 ③
0310207	SMD CAPACITOR	50V104 ±20% 0603	C710 ③
0310543	SMD CAPACITOR	50V 104 ±10% X7R 0603	C710 ③
0390095	SMD MAGNETIC BEADS	FCM1608K-221T05	L701~L704,L706,L708,L715,L716
0310085	SMD CAPACITOR	50V 20P ±5% NPO 0603	C713
0090019	SMD RESISTOR	1/16W 4.7K ±5% 0603	R704
0090029	SMD RESISTOR	1/16W 47K ±5% 0603	R715
0090017	SMD RESISTOR	1/16W 2.2K ±5% 0603	R710
0310234	SMD CAPACITOR	16V 105 +80%-20% 0603	C707,C711
0090001	SMD RESISTOR	1/16W 0Ω ±5% 0603	L711,L712,C717~C722
0700007	SMD DIODE	1N4148	D701,D702 ④
0700001	SMD DIODE	LS4148	D701,D702 ④
0700002	SMD DIODE	LL4148	D701,D702 ④
0700004	SMD VOLTAGE REGULATOR DIODE	5.1V ±5% 1/2W	ZD701~ZD704
1563192	PCB	7969A-3	
0000171	CARBON FILM RESISTOR	1/4W68Ω±5%	R703
0000181	CARBON FILM RESISTOR	1/4W220Ω±5%	R701
0000286	CARBON FILM RESISTOR	1/4W2.2K±5% SHAPED 10	R711
0000132	CARBON FILM RESISTOR	1/6W2.2K±5% SHAPED 7.5	R712,R714
0000278	CARBON FILM RESISTOR	1/4W330Ω±5% SHAPED 10	R709
0000133	CARBON FILM RESISTOR	1/6W4.7K±5% SHAPED 7.5	R705
0390057	MAGNETIC BEADS INDUCTOR	RH354708	L705,L707,L709,L710,L713,L714
1090045	ELECTRO-OPTIC TRANSFORMER	TX179ATW	JK705 ⑤
1090024	ELECTRO-OPTIC TRANSFORMER	TX179AT	JK705 ⑤
1910078	TERMINAL SOCKET	AV4-8.4-6G-3	JK702

material code	material name	Spec	Location
1910129	TERMINAL SOCKET	SA-001-012 BLACK IRON PIECE, SCREEN-SHIELDED	JK703
1910079	TERMINAL SOCKET	AV8-8.4-6G-3	JK701
1940193	CABLE SOCKET	15P 1.0mm STRAIGHT CONTACT DUAL LINE PLUG	XS701
2100010	CONNECTED CORDS	Φ0.6 SHAPED 5mm	JP701,JP704,JP711~JP712,JP721~JP727
2100003	CONNECTED CORDS	Φ0.6 SHAPED 7.5mm	JP703,JP713~JP718,JP720
2100004	CONNECTED CORDS	Φ0.6 SHAPED 10mm	JP705,JP709,JP719
2100006	CONNECTION CORDS	Φ0.6 SHAPED 12.5mm	JP702
1860029	SCART SOCKET	SCART-01	JK706
1940026	SOCKET	3P 2.0mm	XS702
0200031	PORCELAIN CAPACITOR	50V 20P ±10% NPO 5mm	C712
0780050	TRIODE	S8050D	V701~V703
0000167	CARBON FILM RESISTOR	1/4W33Ω±5%	R708
6.2 OK board			
69904S-1 DK1005S(RU)-2silivery[1389] 5445253			
0000118	CARBON FILM RESISTOR	1/6W10Ω±5% SHAPED 7.5	R621,R622
0090009	SMD RESISTOR	1/16W 330Ω ±5% 0603	R616
0090012	SMD RESISTOR	1/16W 560Ω ±5% 0603	R604
0090014	SMD RESISTOR	1/16W 1K ±5% 0603	R608,R611,R619
0000129	CARBON FILM RESISTOR	1/6W1K±5% SHAPED 7.5	R623,R625
0090023	SMD RESISTOR	1/16W 10K ±5% 0603	R606,R620,R618,R633,R634
0090026	SMD RESISTOR	1/16W 22K ±5% 0603	R602,R610
0090034	SMD RESISTOR	1/16W 100K ±5% 0603	R615,R617
0310045	SMD CAPACITOR	50V 47P ±5% NPO 0603	C606
0310072	SMD CAPACITOR	50V 103 ±10% 0603	C604
0310207	SMD CAPACITOR	50V104 ±20% 0603	C601,C602,C608,C612~C616 ⑥
0310543	SMD CAPACITOR	50V 104 ±10% X7R 0603	C601,C602,C608,C612~C616 ⑥
0310222	SMD CAPACITOR	25V 104 ±20% X7R 0603	C601,C602,C608,C612~C616 ⑥
0260094	CD	CD110 16V47U±20%5×11 2	TC611,TC615,TC616 ⑦
0260025	CD	CD11 16V47U±20%5×11 2	TC611,TC615,TC616 ⑦
0260200	CD	CD11C 16V47U±20%5×7 2	TC611,TC615,TC616 ⑦
0260127	CD	CD11 16V4.7U±20%5×11 2	TC602,TC604
0260021	CD	CD11 16V22U±20%5×11 2	TC606 ⑧
0260037	CD	CD11 25V22U±20%5×11 2	TC606 ⑧

material code	material name	Spec	Location
0390095	SMD MAGNETIC BEADS	FCM1608K-221T05	L601
0700007	SMD DIODE	1N4148	VD601~VD603
0880124	IC	NJM4558D DIP	U601 ⑨
0880308	IC	KA4558 DIP	U601 ⑨
1980006	MICROPHONE SOCKET	CK3-6.35-106	MIC601
1940209	SOCKET	7P 2.0mm RIGHT-ANGLE	XS602
1940216	SOCKET	3P 2.0mm FLEX INSERT	XS601
1563436	PCB	69904S-1	
2100003	CONNECTED CORDS	Φ0.6 SHAPED 7.5mm	JP601,JP604～JP610
2100010	CONNECTED CORDS	Φ0.6 SHAPED 5mm	JP602
2100004	CONNECTED CORDS	Φ0.6 SHAPED 10mm	JP603
0000030	CARBON FILM RESISTOR	1/6W3.3K±5%	R628
0090224	SMD RESISTOR	1/16W 3.9K ±5% 0603	R627,R630~R632
0000288	CARBON FILM RESISTOR	1/4W3.9K±5% SHAPED 10	R629
0090106	SMD RESISTOR	1/16W 4.7Ω ±5% 0603	R635,R636
0260039	CD	CD11 25V47U±20%5×11 2	TC617,TC618
0260201	CD	CD11C 16V100U±20%6×7 2.5	TC619~TC621
0200138	PORCELAIN CAPACITOR	50V 104 ±20% 5mm	C609
0881537	IC	TDA1308 SOP	U602
1980058	EARPHONE SOCKET	2SJ-05231N23	JK603 ⑩
1980060	EARPHONE SOCKET	2SJ-05232N23	JK603 ⑩
0090030	SMD RESISTOR	1/16W 56K ±5% 0603	R624,R626
6.3 power board			
DK1005S(RU)-2银[1389] 5445252			
0000273	CARBON FILM RESISTOR	1/4W33Ω±5% SHAPED 10	R505
0000278	CARBON FILM RESISTOR	1/4W330Ω±5% SHAPED 10	R506
0000294	CARBON FILM RESISTOR	1/4W10K±5% SHAPED 10	R507
0000289	CARBON FILM RESISTOR	1/4W4.7K±5% SHAPED 10	R510
0000310	CARBON FILM RESISTOR	1/4W1MΩ±5% SHAPED 10	R504
0010128	METAL FILM RESISTOR	1/4W3.9K±1% SHAPED 10	R508
0010101	METAL FILM RESISTOR	1/4W12K±1% SHAPED 10	R509
0010134	METAL OXIDE FILM RESISTOR	1W330Ω±5% SHAPED R 15×8	R511
0010135	METAL OXIDE FILM RESISTOR	2W39K±5% SHAPED FLAT 15×9	R503 ⑾

material code	material name	Spec	Location
0010159	METAL OXIDE FILM RESISTOR	2W39K±5% SHAPED FLAT 15×7	R503 (11)
0010148	METAL OXIDE FILM RESISTOR	2W120K±5% SHAPED FLAT 15×7	R502
0010219	METAL OXIDE FILM RESISTOR	2W10Ω±5% SHAPED FLAT 15×7	R512
0070001	HIGH VOLTAGE RESISTOR	1/2W680K±5%	R501
0200105	PORCELAIN CAPACITOR	50V 100P ±10% 5mm	C505,C507,C509,C511,C513,C514
0200138	PORCELAIN CAPACITOR	50V 104 ±20% 5mm	C504,C508,C510,C515
0200223	PORCELAIN CAPACITOR	1000V 101 +80%-20% 7.5mm	C503 (12)
0200228	PORCELAIN CAPACITOR	1000V 101 ±10% 7.5mm	C503 (12)
0200224	PORCELAIN CAPACITOR	1000V 103 +80%-20% 7.5mm	C502
0200267	CERAMIC CAPACITOR	CT81 250VAC221±20% 10mm	BC503 (13)
0200268	CERAMIC CAPACITOR	CT81 250VAC221±10% 10mm	BC503 (13)
0210023	TERYLENE CAPACITOR	100V 223 ±10% 5mm	C506
0210066	TERYLENE CAPACITOR	275V 104 ±20% 15mm	BC502 (14)
0210070	TERYLENE CAPACITOR	275V 104 ±10% 15mm	BC502 (14)
0210166	anti-jamming	MKP41 275VAC 103 ±20% 10	BC501
0260557	CD	CD11T 16V100u±20%6×12 2.5	TC508,TC511,TC513
0260558	CD	CD11T 25V470u±20%10×16 5	TC503,TC504
0260559	CD	CD11T 50V47u±20%6×12 2.5	TC502,TC512
0260560	CD	CD11T 10V1000u±20%8×16 3.5	TC505,TC506,TC509,TC510
0260527	CD	CD294 400V47U±20%22×25 10	TC501
0390057	MAGNETIC BEADS INDUCTOR	RH354708	L503
0410010	CHOKE COIL	VERTICAL 10UH 1A 5mm	L505
0410011	CHOKE COIL	VERTICAL 10UH 2A 5mm	L506,L507
0460282	SWITCHING POWER TRANSFORMER	BCK-28-0286	T501 (15)
0460283	SWITCHING POWER TRANSFORMER	BCK2801-624	T501 (15)
0570013	DIODE	HER105	D506,D508,D511,D512
0570028	DIODE	HER306	D510
0680007	SCHOTTKY DIODE	SR360	D509
0570014	DIODE	HER107	D505
0580006	VOLTAGE REGULATOR DIODE	5.1V 1/2W	ZD501
0580054	VOLTAGE REGULATOR DIODE	9.1V 1W	ZD502
0570005	DIODE	1N4007	D501~D504
0880765	IC	5L0380R YDTU	U501

material code	material name	Spec	Location
0880553	IC	LM431ACZ TO-92	U503 (16)
0880581	IC	TL431C TO-226AA(LP)	U503 (16)
0880800	IC	431L TO-92	U503 (16)
0880888	IC	KA431AZ TO-92	U503 (16)
1000004	POWER GRID FILTER	UT-20 40mH ±20% 10×13	L501,L502
1080011	PHOTOELECTRIC COUPLER	HS817	U502
0880379	IC	LM7805 GOLD SEALED TO-220	U504
1940022	SOCKET	4P 2.0mm	CN501
1940030	SOCKET	10P 2.5mm	CN502
1940045	SOCKET	2P 8.0mm 2#	BCN501,BCN502
2100004	CONNECTED CORDS	Φ0.6 SHAPED 10mm	JP501~JP503,JP506~JP510,JP511
2100006	CONNECTION CORDS	Φ0.6 SHAPED 12.5mm	JP504,JP505
2300021	FUSE	T1.6AL 250V	F501
3580039	HEAT RADIATION BOARD	11×15×25 AB009K	U501,U504 (17)
3580054	HEAT RADIATOR BOARD	11×15×25 WHITE AB905	U501,U504 (17)
1563276	PCB	59904S-1	
3870115	GROUND CHIP OF POWER BOARD	AB903	G501,G502
4000073	TAPPING SCREW	BT 3×8 BLACK	

6.4 decode board

DK1005SRU)-2银[1389] 2967S-2 1.3/Ver2.1

0090001	SMD RESISTOR	1/16W 0Ω ±5% 0603	C2119,C2128,C2131,L210~L215,R201~R204,R212,R226,R228,R234,R236,R245,R247,R222,R251,R255,R257,R258,R282,R298,R299,R303,R318,R331,R2159,R297,R2205,R2110,R279,R268
0090006	SMD RESISTOR	1/16W 75Ω ±5% 0603	R233,R261,R270,R273,R274,R276,R280
0000375	CARBON FILM RESISTOR	1/4W2.2Ω±5%	R326
0090272	SMD RESISTOR	1/16W1Ω±5% 0603	R304~R307,R321,R340
0090003	SMD RESISTOR	1/16W 10Ω ±5% 0603	R301,R302
0090005	SMD RESISTOR	1/16W 33Ω ±5% 0603	R231,R232,R256,R263~R267,R291~R296,R2162 ,L202
0090232	SMD RESISTOR	1/16W 150Ω ±5% 0603	R2180
0090008	SMD RESISTOR	1/16W 220Ω ±5%	R2168~R2171
0090009	SMD RESISTOR	1/16W 330Ω ±5% 0603	R2105
0090011	SMD RESISTOR	1/16W 470Ω ±5% 0603	R325,R327
0090013	SMD RESISTOR	1/16W 680Ω ±5% 0603	R259,R260

material code	material name	Spec	Location
0090014	SMD RESISTOR	1/16W 1K ±5% 0603	L225,R213,R215,R2101,R2102,R2104,R2117,R2118~R2128,R254,R2184,R2160,R2161,R2191,R350,R352,R286,R2109
0090223	SMD RESISTOR	1/16W 2K ±5%	R2103
0090016	SMD RESISTOR	1/16W 1.5K ±5% 0603	R323,R324,R243
0090249	SMD RESISTOR	1/16W 510Ω ±5% 0603	R214
0090018	SMD RESISTOR	1/16W 3.3K ±5% 0603	R242
0090019	SMD RESISTOR	1/16W 4.7K ±5% 0603	R238~R240,R2130,R2131,R2134,R2135,R2138~R2140,R2142,R2143,R2146,R2147,R2150,R2151,R2182,R2183,R2189,R2190,R2206
0090021	SMD RESISTOR	1/16W 6.8K ±5% 0603	R2136,R2148,R2152~R2155,R376,R2100
0090023	SMD RESISTOR	1/16W 10K ±5% 0603	R208,R229,R252,R309,R311,R313,R314,R329,R330,R339,R2164,R2200,R2201,R2167,R351,R353,R290,R2202,R2106,R2108
0090024	SMD RESISTOR	1/16W 15K ±5% 0603	R209,R223
0090025	SMD RESISTOR	1/16W 20K ±5% 0603	R211,R312,R315,R316
0090255	SMD RESISTOR	1/16W24K±5% 0603	R2129,R2133,R2137,R2141,R2145,R2149,R2181,R2188
0090188	SMD RESISTOR	1/16W 18K ±5% 0603	R210
0090029	SMD RESISTOR	1/16W 47K ±5% 0603	R289
0090197	SMD RESISTOR	1/16W 150K ±5% 0603	R319,R320
0090231	PRECISION SMD RESISTOR	1/16W 680K ±1% 0603	R317,R322
0090319	PRECISION SMD RESISTOR	1/16W 750K ±1% 0603	R227
0090034	SMD RESISTOR	1/16W 100K ±5% 0603	R224,R308,R310,R2111~R2116,R246,R2186,R2193,R364,R366,R373,R375
0260019	CD	CD11 16V10U±20%5×11 2	TC201,TC202,TC217,TC221~TC233,TC236,TC240,TC241,TC323,TC322,TC347,TC320,TC321,TC348,TC249,TC203,TC318,TC244
0260126	CD	CD11 16V1U±20%5×11 2	TC242,TC243
0260028	CD	CD11 16V220U±20%6×12 2.5	TC207~TC209,TC211,TC213,TC235,TC345,TC301,TC342,TC245
0260025	CD	CD11 16V47U±20%5×11 2	TC204~TC206,TC210,TC234,TC237,TC302~TC304,TC308,TC309 ,TC247,TC248
0310085	SMD CAPACITOR	50V 20P ±5% NPO 0603	C222
0310190	SMD CAPACITOR	50V 27P ±5% NPO 0603	C275,C276
0310045	SMD CAPACITOR	50V 47P ±5% NPO 0603	C266,C289,C290,C292,C293,C295,C296,C298,C299,C2101,C2102,C2104,C2105,C262~C265
0310047	SMD CAPACITOR	50V 101 ±5% NPO 0603	C233,C2111,C2114,C2117,C2120,C2123,C2126,C206,C2159,C2183
0310051	SMD CAPACITOR	50V 331 ±5% NPO 0603	C212,C213
0310048	SMD CAPACITOR	50V 151 ±5% NPO 0603	C304,C306

material code	material name	Spec	Location
0310207	SMD CAPACITOR	50V104 ±20% 0603	C207,C211,C214,C216,C217,C224,C226~C231,C234~C239,C241~C254,C256~C259,C267~C274,C279,C301~C303,C305,C309,C311,C312,C2138~C2140,C2153~C2157,C2161,C2163,C2169,C2166,C2174,C2175,C2168,C2100,C2179,C2181,C356,C357,C2164,C2171,C2167,C2176,C2177,C2178,C2150~C215
0310543	SMD CAPACITOR	50V 104 ±10% X7R 0603	C207,C211,C214,C216,C217,C224,C226~C231,C234~C239,C241~C254,C256~C259,C267~C274,C279,C301~C303,C305,C309,C311,C312,C2138~C2140,C2153~C2157,C2161,C2163,C2169,C2166,C2174,C2175,C2168,C2100,C2179,C2181,C356,C357,C2164,C2171,C2167,C2176,C2177,C2178,C2150~C215
0310222	SMD CAPACITOR	25V 104 ±20% X7R 0603	C207,C211,C214,C216,C217,C224,C226~C231,C234~C239,C241~C254,C256~C259,C267~C274,C279,C301~C303,C305,C309,C311,C312,C2138~C2140,C2153~C2157,C2161,C2163,C2169,C2166,C2174,C2175,C2168,C2100,C2179,C2181,C356,C357,C2164,C2171,C2167,C2176,C2177,C2178,C2150~C215
0310234	SMD CAPACITOR	16V 105 +80%-20% 0603	C201~C204,C221,C240,C285,C286
0310066	SMD CAPACITOR	50V 102 ±10% 0603	C2112,C2115,C2118,C2121,C2124,C2127,C223,C278,C2146,C2148,C288
0310231	SMD CAPACITOR	50V 122 ±10% 0603	C2122,C2129,C2130,C2133,C2135,C2136,C2145,C2147
0310067	SMD CAPACITOR	50V 152 ±10% 0603	C215
0310068	SMD CAPACITOR	50V 222 ±10% 0603	C307,C310
0310201	SMD CAPACITOR	50V 153 ±10% 0603	C210
0310202	SMD CAPACITOR	50V 223 ±10% 0603	C2184
0310055	SMD CAPACITOR	16V 333 ±10% 0603	C225
0310056	SMD CAPACITOR	16V 473 ±10% 0603	C219,C220
0310362	SMD CAPACITOR	16V474 +80%-20% 0603	C218
0390044	SMD INDUCTOR	10UH ±10% 2012	L303,L306
0390096	SMD INDUCTOR	1.8UH ±10% 1608	L243~L248
0390057	MAGNETIC BEADS INDUCTOR	RH354708	L205,L209,L217,L220,L221,L222,L223,L227,L228,L226.L302
0390095	SMD MAGNETIC BEADS	FCM1608K-221T05	L201,L203,L207,L208,L224,L234~L236,L238,L250,L309,L229~L233,L301,L304,L305,L307,L308,L310~L312,L314,L316~L324,L325,L326,L327, L218,L219
0390087	SMD MAGNETIC BEADS	FCM2012V-221T07	L254,L255
0090106	SMD RESISTOR	1/16W 4.7Ω ±5% 0603	L206
0700007	SMD DIODE	1N4148	VD201,VD205~VD221 (5)
0700001	SMD DIODE	LS4148	VD201,VD205~VD221 (5)

material code	material name	Spec	Location
0700002	SMD DIODE	LL4148	VD201,VD205~VD221 (5)
0780085	SMD TRIODE	8050D	Q301,Q302,Q203
0780029	TRIODE	C8050	V307,V308
0780030	TRIODE	8550C	V306,V309,Q303
0780062	SMD TRIODE	9014C	V310
0780033	TRIODE	9015C	Q204
0780020	TRIODE	C1815Y	Q212
0780197	SMD TRIODE	C1815	Q205~Q210,Q223,Q224
0780043	TRIODE	2SA1015	Q211,Q218,Q219
0780040	SMD TRIODE	0	V305
0780193	SMD TRIODE	2SK3018	V303,V304
0780115	SMD TRIODE	2SB1132	V301,V302
0880185	IC	NJM4558M SOP	U219, U220, U221,U215 (19)
0880562	IC	4580 SOP	U219, U220, U221,U215 (19)
0880361	IC	4558 SOP	U219, U220, U221,U215 (19)
0880322	IC	MM74HCU04M SOP	U205 (20)
0880513	IC	HCU04 SOP	U205 (20)
0881415	IC	HY57V641620HGT-7 TSOP	U211 (21)
0881872	IC	KSV464P4JA-70 TSOP	U211 (21)
0881182	IC	LM1117MP-ADJ SOT-223	U209
0881057	IC	CS4360 SSOP	U207
0881059	IC	CS5333 SSOP	U210
0881031	IC	24C02N SOP	U202
0881897	IC	MT1389EE QFP	U201 (22)
0881994	IC	MT1389FE QFP	U201 (22)
0881378	IC	BA5954FP HSOP	U302
0881886	IC	36C7T 3MCD4052BM SOP	U304
0960020	CRYSTAL OSCILLATOR	27.00MHz 49-S	X201
1940072	CABLE SOCKET	6/5P 1.25mm STRAIGHT DUAL LINE PLUG	XS205
1940193	CABLE SOCKET	15P 1.0mm STRAIGHT CONTACT DUAL LINE PLUG	XS204
1631529	PCB	2967S-2	
1940024	SOCKET	5P 2.0mm	XS302
1940023	SOCKET	7P 2.0mm	XS201

material code	material name	Spec	Location
1940005	SOCKET	6P 2.0mm	XS303
1940171	SOCKET	11P 2.5mm	XS203
1940094	CABLE SOCKET	24P 0.5mm SMD WITH CLASP	XS301
6.5 remote control			
MX-DK1005S(RU)-2银[1389] 5471005			
599	CARBON FILM RESISTOR	1/6W1O±5% SHAPED 7.5	R800
200062	PORCELAIN CAPACITOR	50V 151 ±10% 2.5mm	C801,C802
570006	DIODE	1N4148	VD800,VD801,VD802
630003	EMISSION PIPE	TSAL6200	LED800
780050	TRIODE	S8050D	V800
880220	IC	PT2222 SOP	N800
970003	CERAMIC RESONATOR	455E	G800
1561684	PCB	Jan-19	
2100003	CONNECTED CORDS	Φ0.6 SHAPED 7.5mm	
4000258	SELF-TAPPING SCREW	BB 2.3×8 BLACK	
5154227	SURFACE STICKER OF REMOTE CONTROL	DK1005S(RU)	
4630768	CONDUCT GLUE OF REMOTE CONTROL	DK1005S(RU)	
5070698	GLUE BAG FOR ENVIRONMENTAL PROTECTION (WITHOUT HOLE)	90×255×0.05 PE	
3031194	SURFACE CASING OF REMOTE CONTROL	RC-109 SILVER WHITE	
3040873	ROMOTE CONTROL BOTTOM CASING	RC-109 SILVER WHITE	
3050750	BATTERY CASE DOOR OF REMOTE CONTROL	RC-109 SILVER WHITE	
3050603	GLASS OF REMOTE CONTROLLER	YK10 BRIGHT PURPLE	
3850068	ANODE CATHODE SPRING	RC-109	
3850066	ANODE SPRING	RC-109	
3850067	CATHODE SPRING	RC-109	
6.6 main panel			
DK1005S(RU)-2银[1389] 49904S-1 5445251			
0000009	CARBON FILM RESISTOR	1/6W100Ω±5%	R415
0090023	SMD RESISTOR	1/16W 10K ±5% 0603	R402~R404
0090192	SMD RESISTOR	1/16W 51K ±5% 0603	R401
0310222	SMD CAPACITOR	25V 104 ±20% X7R 0603	C401~C403
0260206	CD	CD11C 10V100U±20%5×7 2	TC401,TC402
0570006	DIODE	1N4148	D401

material code	material name	Spec	Location
1631730	PCB	49904S-1	
1200608	LED DISPLAY SCREEN	ZDC6-2102YGB-A	LED401 (23)
1200618	LED DISPLAY SCREEN	TOS-2601BG-B29	LED401 (23)
2360026	IR SENSOR	AT138BV3 FEET LENGTH:27mm	U403
1340003	LIGHT TOUCH RESTORE SWITCH	HORIZONTAL 6×6×1	K401~K403
0881426	IC	PT6961 SOP	U401
5233992	SOFT SPONGE SPACER	8×7×16.5 DOUBLE-FACED,HARD	
2121516	FLAT CABLE	6-7P 100 2.0 2 PIN,WITH L NEEDLE,THE SAME DIRECTION 6 CORD	XS401
6.7 upper cover with PVC piece			
DK1005S(RU)-2silivery[1389]-DVD 3101450			
3101441	UPPER COVER	DT9904S(RU) SILVER WHITE	
5231842	PVC PIECE	110×80×0.5 SINGLE-SIDED WITH GLUE IN REAR SIDE	
6.8 Loader unit			
DVD PlayerDK1005S(RU)-2silivery[1389]-DVD 5461622			
2380245	DVD LOADER	COSMIC DV342S	
3060297	DVD LOADER FRAME	8106B 5#	
5231495	RUBBER SPACER	25×7×1	
6.9 power switch			
DK1005S(RU)-2silivery[1389]-DVD 5500341			
1350006	POWER SUPPLY SWITCH	PS4D-A-062	
1780026	SWITCH DOWN-LEAD	2P 245mm 8.0mm	
5230415	PYROCONDENSATION SLEEVE	Φ22	
6.10 surface unit			
DVD DK1005S(RU)-2silivery[1389]-DVD 5500341			
3003041	PANAL	DK1005S(RU) SILVER WHITE	
3028685	POWER BUTTON	DT9904S(RU) PLATING NICKEL	
3028929	GLASS	DT9904S(RU)[1389] 2#	
3028684	GUIDING LIGHT RING	DT9904S(RU) TRANSPARENCE	
3028930	CAP OF UNITS BUTTON	DT9904S(RU) PLATING NICKEL 2#	
3028932	CAP OF 2-DIRECTION BUTTON	DT9904S(RU) PLATING NICKEL 2#	
3028931	BRACKET OF UNITS BUTTON	DT9904S(RU) 2#	
3028933	BRACKET OF 2-DIRECTION BUTTO	DT9904S(RU) 2#	
5233457	FOOT SPACER	18×12×8 SPONGE(RIGIDITY 50)	

material code	material name	Spec	Location
3871048	IRON BRACKET	DT9904S(RU) GREY	
4000073	TAPPING SCREW	BT 3×8 BLACK	
4000039	SELF-TAPPING SCREW	PB 2.3×8 COLOR ZINC	
1350036	POWER SUPPLY SWITCH	PS4D-A-062 WITH 2P 245mm DOWN-LEAD	
5445251	PCB SEMI-FINISHED PRODUCT	49904S-0 DT9904S(RU)	
6.11 general assembly			
DVD DK1005S(RU)-2silivery[1389]-DVD 5500341			
2121920	SOFT FLAT CABLE	6P85 2.0 2 PIN,THE SAME DIRECTION	
2121904	SOFT FLAT CABLE	5P80 2.0 2 PIN,THE SAME DIRECTION	
2140307	POWER CORD	@2P 1.5m 2.5A 100/8.0 CIRCLE HEAD VDE	
2250054	FLAT CABLE CORD	24P240mm0.5mm THE SAME DIRECTION	
2250048	FLAT CABLE CORD	30P80mm 1.0mm REVERSE	
2250251	FLAT CABLE CORD	11P 65mm 1.25mm THE SAME DIRECTION	
4000219	SELF-TAPPING SCREW	PT 3×18.5 WHITE ZINC,TOOTH LONGTH 9	
5233237	SOFT SPONGE SPACER	18×10×4 SINGLE-FACED,HARD	
3022335	PLASTIC BRACKET	13mm WITH CLASP	
5461021	RECEIVE HEAD UNIT	TFCF1U	①
1020016	DIGITAL RECEIVE TUNER	TAF-11MF	①
2121518	FLAT CABLE	13-10/3P360/200 2.5/2.0 3 PIN,REVERSE	
3028682	DOOR	DT9904S(RU) SILVER WHITE	
3101450	UPPER COVER	DT9904S(RU) SILVER WHITE, WITH PVC PIECE	
3101442	LOWER COVER	DT9904S(RU) GREY	
3101682	REAR COVER	DK1005S(RU) GREY 2#	
3023884	PLASTIC BRACKET	8.0mm WITH CLASP	
3025568	PLASTIC BRACKET	φ5×8 RIVET HEAD TYPE	
5461622	LOADER UNIT	COSMIC DV342S+ASA 8106B	
5230010	NYLON BANDAGE	100mm	
2121639	FLAT CABLE	7-4/3P420/200 2.0 3 PIN	
5232637	RUBBER SPACER	35×3.5×1.5 SINGLE-FACED WITH GLUE IN REAR SIDE	
4000386	SELF-TAPPING SCREW	BT3×9 WHITE NICKEL	
4000267	SELF-TAPPING SCREW	PT3×13H WHITE NICKEL	
4000197	SELF-TAPPING SCREW	BT3×8 NICKEL	
4000308	SELF-TAPPING SCREW	BT3×5 NICKEL	

material code	material name	Spec	Location
4040037	SELF-TAPPING SCREW	FB 3×6H NICKEL	
4000295	SELF-TAPPING SCREW	BT 3×6 WHITE NICKEL	
5231494	FOOT SPACER	φ20×4 SPONGE	
5230472	CLASP	132×10	
5230458	SILICA GEL SPACER	16×9.5×1.5 (RIGIDITY 30)	
5232827	PVC PIECE	102×91×0.5 SINGLE-SIDED WITH GLUE IN REAR SIDE	
5445668	PCB SEMI-FINISHED PRODUCT	2967S-2 DK1005S(RU)-2	
5445252	PCB SEMI-FINISHED PRODUCT	59904S-0 DT9904S(RU)	
5445253	PCB SEMI-FINISHED PRODUCT	69904S-0 DT9904S(RU)	
5445736	PCB SEMI-FINISHED PRODUCT	7969A-3 DT9904S(RU)	
5461600	PANAL UNITS	DK1005S(RU) SILVER	
6.12 wrapper			
DK1005S(RU)-2silivery[1389]-DVD 5500341			
1440002	BATTERY	7# AAA	
2160136	AV CORD	1.2M AUDIO	
2170021	AV CORD	1.2M VIDEO	
2180018	FM ANTENNA	1.5mWITH CATVFEMALE SLUG	
2180021	AM SCREEN-SHIELDED ANTENNA BRACKET	AM-300-AWM	
5012593	GIFT BOX	DK1005S(RU) 2#	
5180014	SEALING STICKER OF CARTON BOX		
5040742	FOAM BOARD	49×10.5×9.5cm3	
5040743	FOAM BOARD	46×9.5×2cm3	
5070443	HANDLED DRAW	32.5×85.5×8 WHITE	
5040723	FOAM	DT9904S(RU) 2#	
5040703	FOAM NIP	DT9904S(RU)	
5070621	SELF-SEALED GLUE BAG FOR ENVIRONMENTAL PROTECTION	230×250×0.05 PE	
5070570	GLUE BAG	380×560×0.05 PE Lafayette	
5142068	SN LABEL	RUSSIA WITH BAR CODE NUMBER 2#	
5193022	USER MANUAL	DK1005S(RU)[1389]ENGLISH/RUSSIA	
5471005	REMOTE CONTROL	DK1005S(RU)	
5210336	WARRANTY CARD	CURRENCY FOR RUSSIA 3#	
5180181	STICKER	BBK ENGLISH 25×10 2#	
5454897	DVD PLAYER	DK1005S(RU)-2 SILVER [1389]	

material code	material name	Spec	Location
6.13 supplement material			
DK1005S(RU)-2silivery[1389]-DVD 5500341			
5110002	ELECTRO WELDING WIRE	Φ1.0	
5110003	ELECTRO WELDING WIRE		
5110004	ADHESIVE TAPE		
5120001	THINNER		
5120004	SOLDERING FLUX		
5120011	WIPING WATER		
5120012	RED GLUEWATER		
5120013	YELLOW GLUEWATER		
5120014	SILICONE GREASE HEAT CONDUCT	LYCAL304	
5120064	CLEANING AGENT	F-311B	
5120067	GLUEWATER	502	
5230013	DOUBLE-FACED GLUE	LENGTH:50m WIDTH:10mm	
5230017	MASKING PAPER	12mm	
5230020	MASKING PAPER	24mm	
5230021	SCOTCH TAPE	12mm	
5230023	SEALING PAPER	BBK	
5230452	FIBRE ADHESIVE TAPE	18mm	
5231134	DOUBLE-FACED GLUE	LENGTH:100m WIDTH:12mm	
software			
DK1005S(RU)-2银[1389]-DVD 5500341			软体程序FLASH ROM1005SRU2-0A(16M) 0910969
0881650	IC	29LV160BE-70PFTN TSOP	U214 ②
0881651	IC	M29W160EB 70N6 TSOP	U214 ②