DVD Player

DVP3962

Service

DVP3962/37

Service

Service

Service Manual

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**CLASS 1
LASER PRODUCT**

Published by KC-ET0846 Service Audio Printed in The Netherlands Subject to modification

GB 3139 785 33371

Version 1.1

PHILIPS

Specifications

TV STANDARD

	(PAL/50Hz)	(NTSC/60Hz)
Number of lines	625	525
Playback	Multistandard	(PAL/NTSC)

VIDEO PERFORMANCE

Video DAC	12 bit, 108 MHz
Y Pb Pr	0.7 Vpp ~ 75 ohm
Video Output	1 Vpp ~ 75 ohm

VIDEO FORMAT

Digital Compression	MPEG 2 for DVD, SVCD MPEG 1 for VCD DivX®

DVD	**50 Hz**	**60 Hz**
Horiz. resolution	720 pixels 1920 pixels	720 pixels 1920 pixels
Vertical resolution	576 lines 1080 lines	480 lines 1080 lines

VCD	**50 Hz**	**60 Hz**
Horiz. resolution	352 pixels	352 pixels
Vertical resolution	288 lines	240 lines

AUDIO FORMAT

Digital	MPEG/ AC-3/ PCM	compressed Digital 16, 20, 24 bits fs, 44.1, 48, 96 kHz
	MP3 (ISO 9660)	96, 112, 128, 256 kbps & variable bit rate fs, 32, 44.1, 48 kHz

Analog Sound Stereo
Dolby Surround compatible downmix from Dolby Digital multi-channel sound

AUDIO PERFORMANCE

DA Converter	24 bit, 192 kHz	
DVD	fs 96 kHz	4 Hz - 44 kHz
	fs 48 kHz	4 Hz - 22 kHz
SVCD	fs 48 kHz	4 Hz - 22 kHz
	fs 44.1kHz	4 Hz - 20 kHz
CD/VCD	fs 44.1kHz	4 Hz - 20 kHz

Signal-Noise (1kHz)	> 90 dB
Dynamic range(1kHz)	> 80 dB
Crosstalk (1kHz)	> 70 dB
Distortion/noise (1kHz)	> 65 dB
MPEG MP3	MPEG Audio L3

CONNECTIONS

Y Pb Pr Output	Cinch 3x
Video Output	Cinch (yellow)
Audio Output (L+R)	Cinch (red/white)
Digital Output	1 coaxial IEC60958 for CDDA / LPCM IEC61937 for MPEG 1/2, Dolby Digital
HDMI Output	

CABINET

Dimensions (w x h x d)	360 x 37 x 209 mm
Weight	Approximately 1.3 kg

POWER CONSUMPTION

Power Supply Rating	120 V; 60 Hz
Power consumption	< 10 W
Power consumption in Standby mode	< 1 W

Specification subject to change without prior notice.

Safety instruction, Warning & Notes

Safety instruction

1. General safety

Safety regulations require that during a repair:

. Connect the unit to the mains via an isolation transformer.

. Replace safety components indicated by the symbol ⚠, only by components identical to the original ones. Any other component substitution (other than original type) may increase risk of fire or electrical shock hazard.

Safety regulations require that after a repair, you must return the unit in its original condition. Pay, in particular, attention to the following points:

. Route the wires/cables correctly, and fix them with the mounted cable clamps.

. Check the insulation of the mains lead for external damage.

. Check the electrical DC resistance between the mains plug and the secondary side:

1) Unplug the mains cord, and connect a wire between the two pins of the mains plug.
2) Set the mains switch the "on" position (keep the mains cord unplug).
3) Measure the resistance value between the mains plug and the front panel, controls, and chassis bottom.
4) Repair or correct unit when the resistance measurement is less than 1MΩ.
5) Verify this, before you return the unit to the customer/user (ref. UL-standard no. 1492).
6) Switch the unit "off", and remove the wire between the two pins of the mains plug.

2.Laser safety

This unit employs a laser. Only qualified service personnel may remove the cover, or attempt to service this device (due to possible eye injury).

Laser device unit

Type : Semiconductor laser GaAlAs

Wavelength : 650nm (DVD)

: 780nm (VCD/CD)

Output power : 7mW (DVD)

: 10mW (DVD /CD)

Beam divergence: 60 degree

Note: Use of controls or adjustments or performance of procedure other than those specified herein, may result in hazardous radiation exposure. Avoid direct exposure to beam.

Warning

1.General

. All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD). Careless handing during repair can reduce life drastically. Make sure that, during repair, you are at the same potential as the mass of the set by a wristband with resistance. Keep components and tools at this same potential. Available ESD protection equipment:

1) Complete kit ESD3 (small tablemat, wristband, connection box, extension cable and earth cable) 4822 310 10671.
2) Wristband tester 4822 344 13999.

. Be careful during measurements in the live voltage section. The primary side of the power supply , including the heat sink, carries live mains voltage when you connect the player to the mains (even when the player is “off”!). It is possible to touch copper tracks and/or components in this unshielded primary area, when you service the player. Service personnel must take precautions to prevent touching this area or components in this area. A “lighting stroke” and a stripe-marked printing on the printed wiring board, indicate the primary side of the power supply.

. Never replace modules, or components, while the unit is “on”.

2. Laser

. The use of optical instruments with this product, will increase eye hazard.

. Only qualified service personnel may remove the cover or attempt to service this device, due to possible eye injury.

. Repair handing should take place as much as possible with a disc loaded inside the player.

. Text below is placed inside the unit, on the laser cover shield:

CAUTION: VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN, AVOID EXPOSURE TO BEAM.

Notes: Manufactured under licence from Dolby Laboratories. The double-D symbol is trademarks of Dolby Laboratories, Inc. All rights reserved.

Notes

Lead-Free requirement for service

INDENTIFICATION:

Regardless of special logo (not always indicated)

One must treat all sets from 1.1.2005 onwards, according next rules.

Important note: In fact also products a little older can also be treated in this way as long as you avoid mixing solder-alloys (leaded/ lead-free). So best to always use SAC305 and the higher temperatures belong to this.

Due to lead-free technology some rules have to be respected by the workshop during a repair:

- Use only lead-free solder alloy Philips SAC305 with order code 0622 149 00106. If lead-free solder-paste is required, please contact the manufacturer of your solder-equipment. In general use of solder-paste within workshops should be avoided because paste is not easy to store and to handle.
- Use only adequate solder tools applicable for lead-free solder alloy. The solder tool must be able
  - To reach at least a solder-temperature of 400°C,
  - To stabilize the adjusted temperature at the solder-tip
  - To exchange solder-tips for different applications.
- Adjust your solder tool so that a temperature around 360°C – 380°C is reached and stabilized at the solder joint. Heating-time of the solder-joint should not exceed ~ 4 sec. Avoid temperatures above 400°C otherwise wear-out of tips will rise drastically and flux-fluid will be destroyed. To avoid wear-out of tips switch off un-used equipment, or reduce heat.
- Mix of lead-free solder alloy / parts with leaded solder alloy / parts is possible but PHILIPS recommends strongly to avoid mixed
  solder alloy types (leaded and lead-free). If one cannot avoid, clean carefully the
  solder-joint from old solder alloy and re-solder with new solder alloy (SAC305).
- Use only original spare-parts listed in the Service-Manuals. Not listed standard-material (commodities) has to be purchased at external companies.
- Special information for BGA-ICs:
  - always use the 12nc-recognizable soldering temperature profile of the specific BGA (for de-soldering always use highest lead-free temperature profile, in case of doubt)
  - lead free BGA-ICs will be delivered in so-called 'dry-packaging' (sealed pack including a silica gel pack) to protect the IC against moisture. After opening, dependent of MSL-level seen on indicator-label in the bag, the BGA-IC possibly still has to be baked dry. This will be communicated via AYS-website.
  Do not re-use BGAs at all.
- For sets produced before 1.1.2005, containing leaded soldering-tin and components, all needed spare-parts will be available till the end of the service-period. For repair of such sets nothing changes.
- On our website:
  www.atyourservice.ce.Philips.com

You find more information to:

BGA-de-/soldering (+ baking instructions)
Heating-profiles of BGAs and other ICs used in Philips-sets

You will find this and more technical information within the "magazine", chapter "workshop news".

For additional questions please contact your local repair-helpdesk.

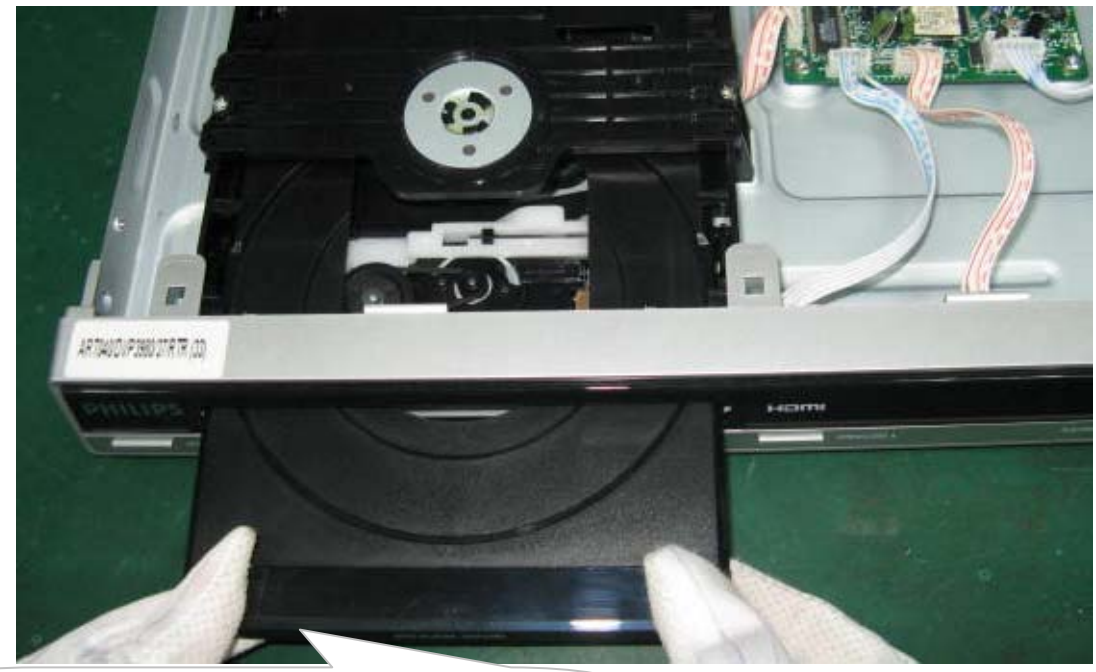
Mechanical and Dismantling Instructions

Dismantling Instruction

The following guidelines show how to dismantle the player.
Step1: Remove 5 screws around the Top Cover, and then remove the Top Cover (Figure 1).

Figure 1

Step2: If it is necessary to dismantle Loader or Front Panel, the Front door should be removed first. (Figure 2)
Note: Make sure to operate gently otherwise the guider would be damaged.



Please kindly note that dismantle the front door assembly carefully to avoid damage tray and the front door.

Figure 2

Mechanical and Dismantling Instructions
Dismantling Instruction

Step3: If the tray can't open in normal way, you can make it through the instruction as below (Figure 3).
Note: Make sure to operate gently otherwise the guider would be damaged.

Step4: Dismantling Front Panel, disconnect the connector (XP2), then release the snaps on the both sides of Front Panel and bottom cabinet , then gently pull the Panel out from the set. (Figure 5 & 6)

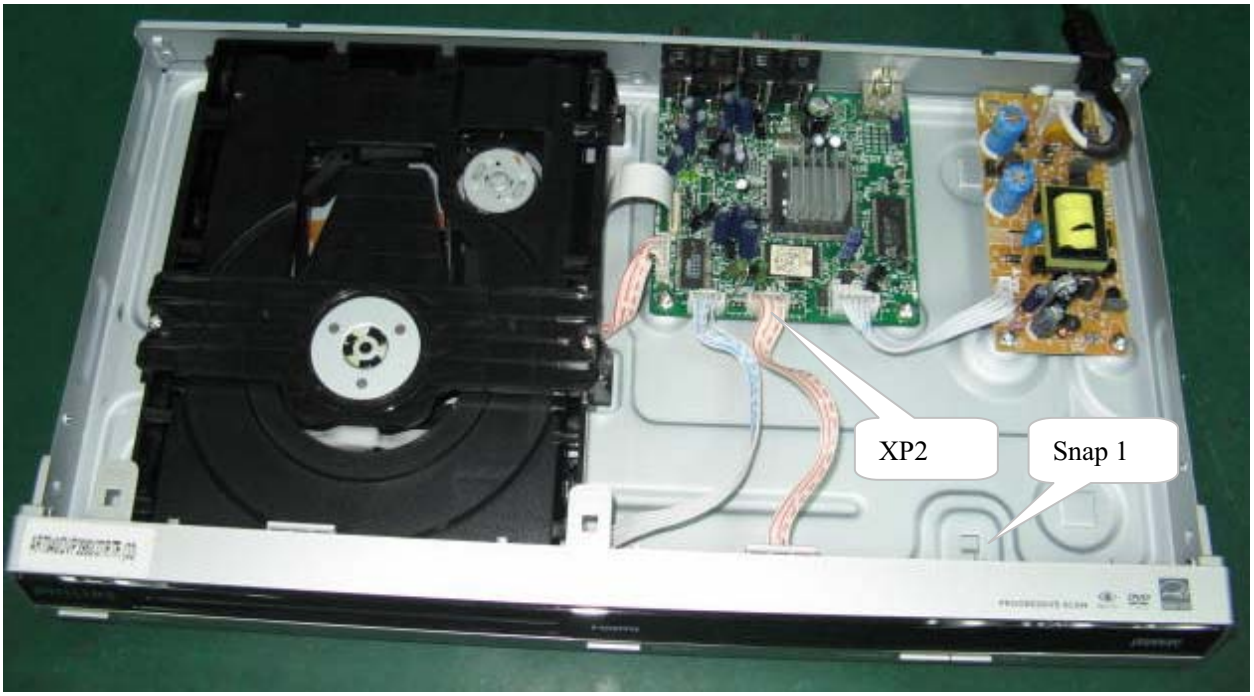


Figure 5

Mechanical and Dismantling Instructions

Dismantling Instruction

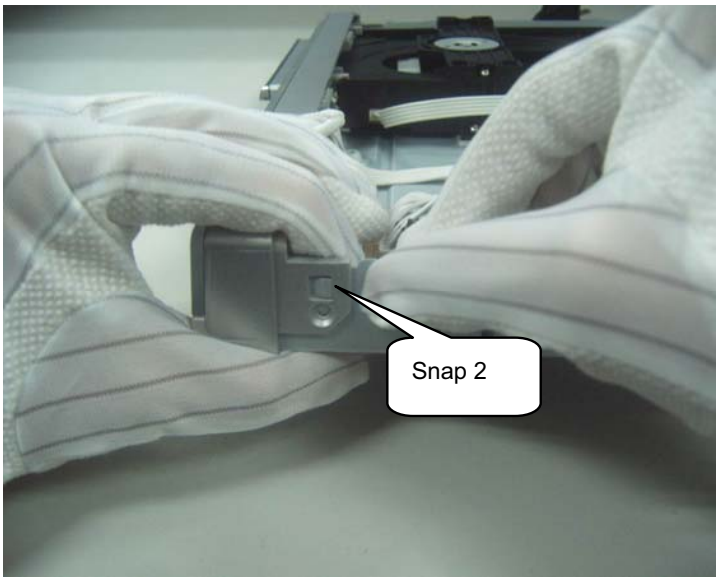


Figure 6

Step5: Dismantling Loader, disconnect the 3 connectors (XP3, XP4, XP5) aiming in the below figure, and remove 1 screw that connects the loader and the bottom cabinet. (Figure 7)

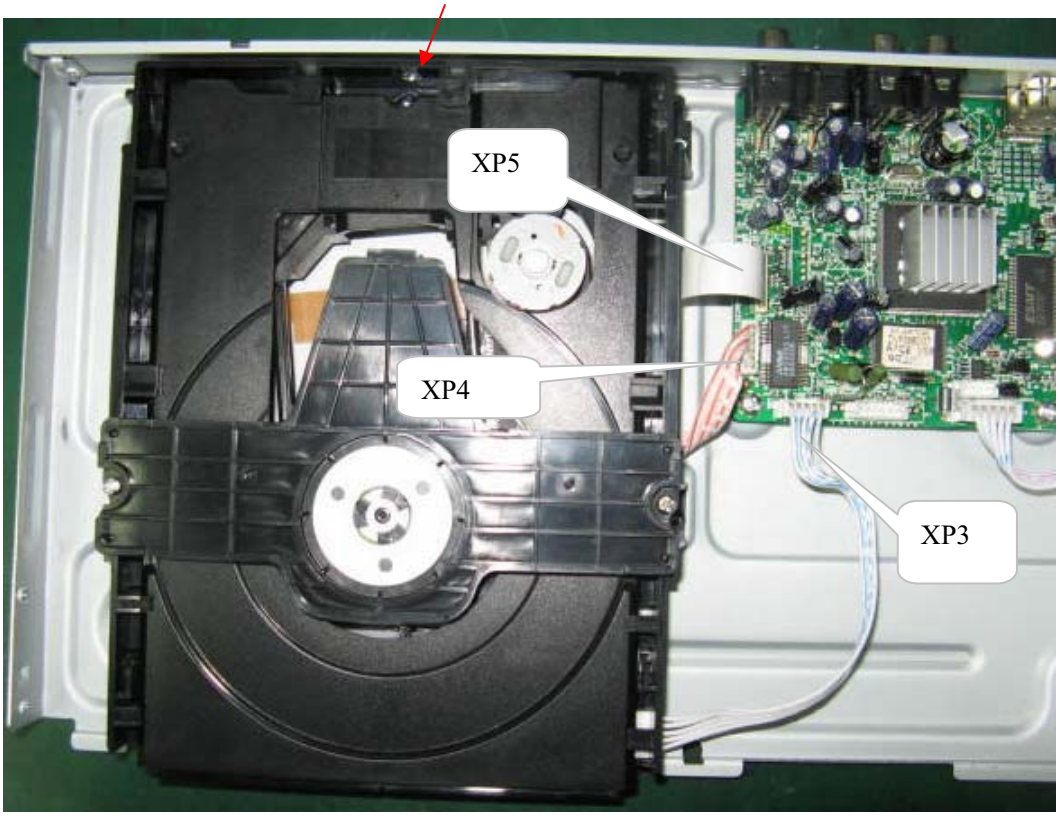


Figure 7

Mechanical and Dismantling Instructions

Dismantling Instruction

Step6: Dismantling Main Board, first disconnect the connector (XP1), and then remove 5 screws. (Figure 8)

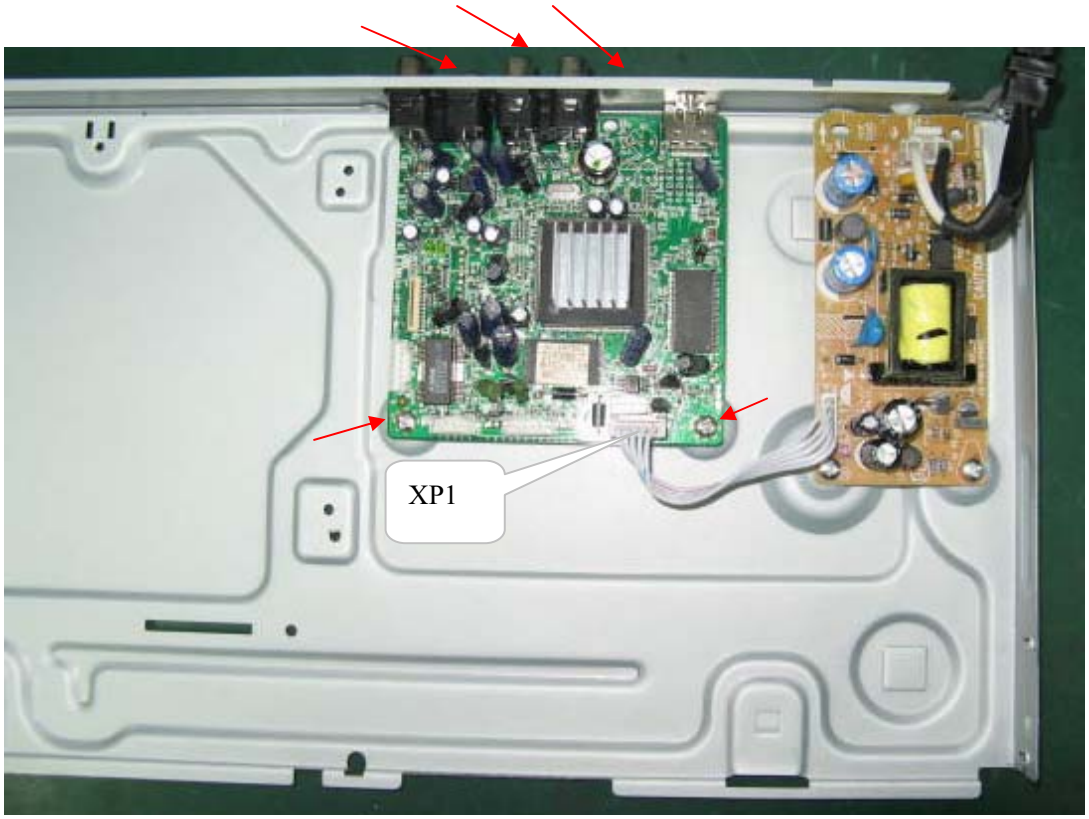


Figure 8

Step7: Remove the 2 screws on Power Board to dismantle the Power Board. (Figure 9)

Figure 9

Software upgrade

Preparation to upgrade software

1) Start the CD Burning software and create a new CD project (Data Disc) with the following setting:
   Label: DVP3XXX (No need the label name)
   File Name: DVPXXXX_XX.BIN
   Power on the set and open the tray, then press <5><5> to check the File Name.

Note: It is required capital letter for the File System name.

2) Burn the data onto a blank CDR

A. Procedure for software upgrade:

1) Power on the set and insert the prepared Upgrade CDR.
2) The set will starts reading disc & response with the following display TV screen:
   Upgrade File DETECTED
   Upgrade?
   Press Play TO START.
3) Press <OK> button to confirm, then screen will display :
   Files coping…
   UPGRADING…
4) The upgraded tray will automatically open when files coping complete, then take out the disc.
5) About 1 minute later, the trace will automatically close when upgrading complete.

B. Read out the software versions to confirm upgrading

1) Power on the set and press <Setup> button on the remote control.
2) Press <1><3><7><9> button.
   The software version and other information are display on the TV screen as follows:

Version	XX.XX.XX.XX (Main version)
SUB-VER	XX.XX.XX.XX (software version of application software)
8032	XX.XX.XX.XX
Servo	XX.XX.XX.XX (software version of Servo)
RISC	XX.XX.XX.XX
DSP	XX.XX.XX.XX
Region Code	X

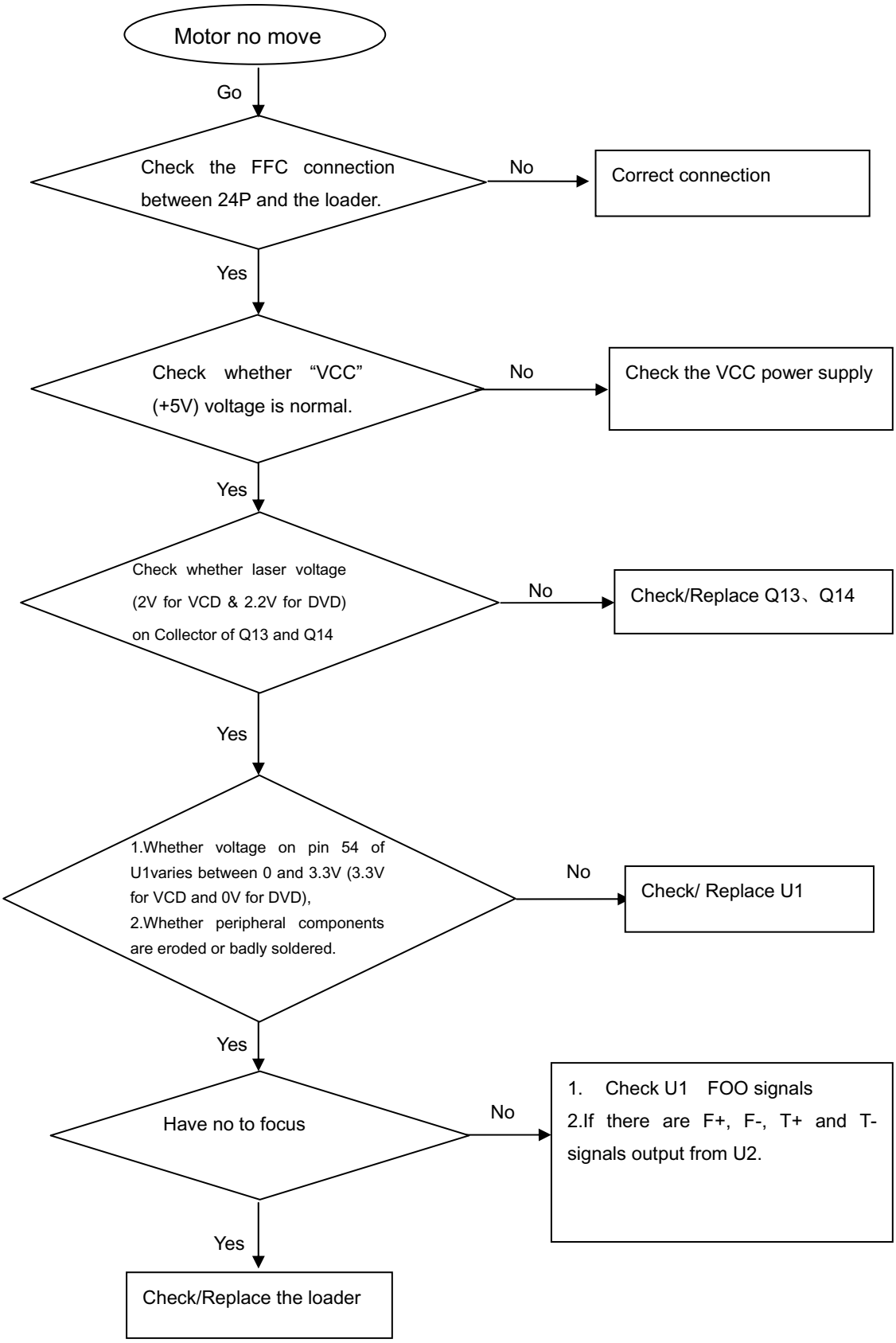
Caution: The set must not be power off during upgrading, Otherwise the Main board will be damaged entirely.

How to select the right language

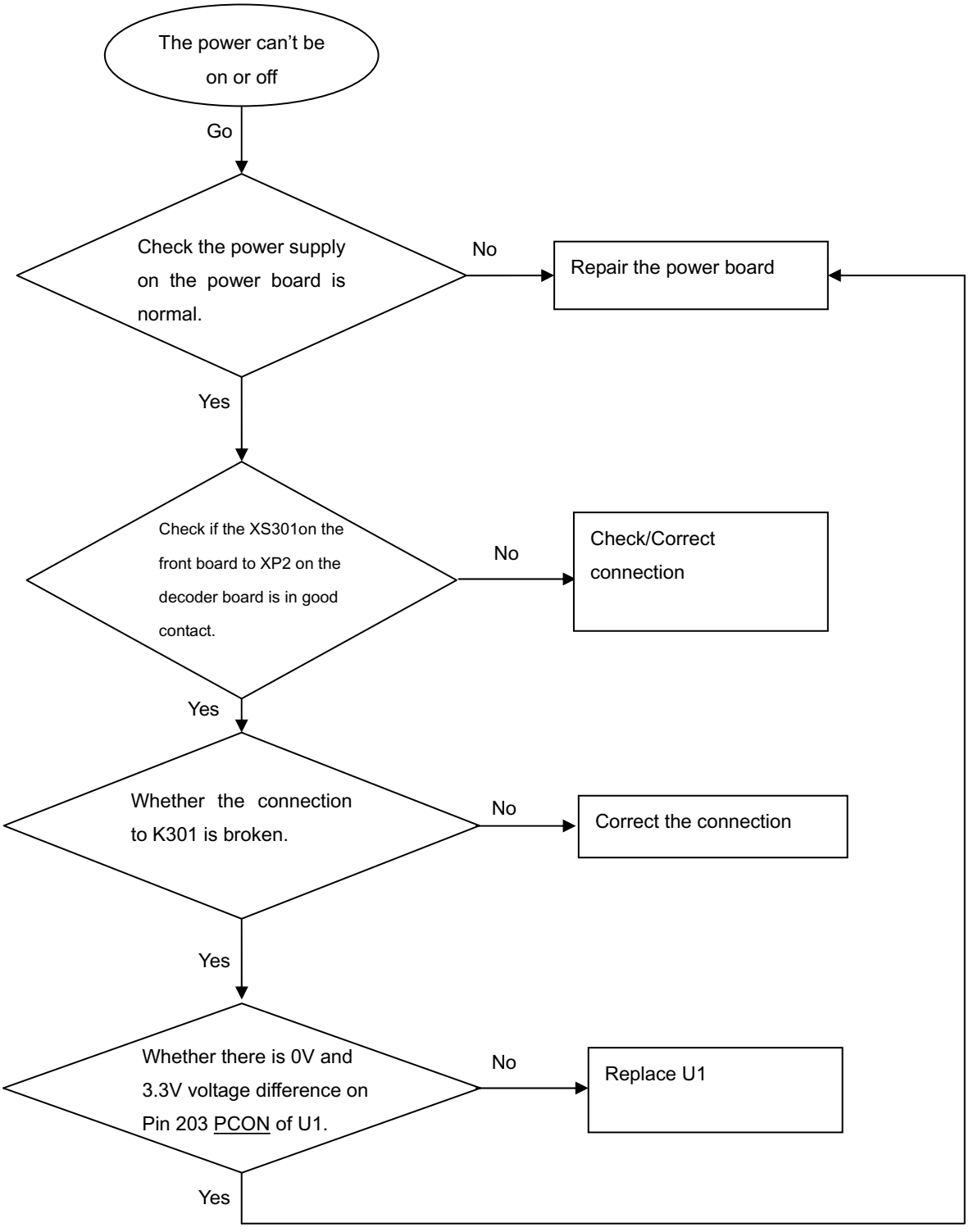
If the language is not right, it can be corrected by the following operation:

1. Power on the set and open the tray.
   Press “6” “6” “6” “6” and “Audio” button on the remote control.
   After that on the screen it shows:
   PLS INPUT MODEL CODE:
2. Then input the related MODEL CODE “6”.
   After that on the screen it shows:
   DVP××××× REGION × OK
   (It means the language has been corrected and the player will be power off automatically.)

Spindle motor does not move



The power can not be on or off



All output voltages on the power board is 0V or deviated.

All output voltages on the power board is 0V or deviated

Yes

Check whether F1 is blown

Yes → Replace F1

No

Check whether there is 300V on C1,C2

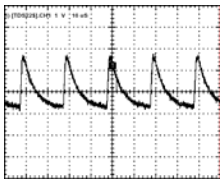
No → Replace C1,C2 if D1, D2, D3, D4 are normal.

Yes

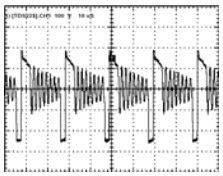
Check whether 100KHz oscillating signal on Pin6 of U1

No → Check/ replace U1.

U1(PIN 3 - RC waveform)



U1(PIN 8 - Drain waveform)



Yes

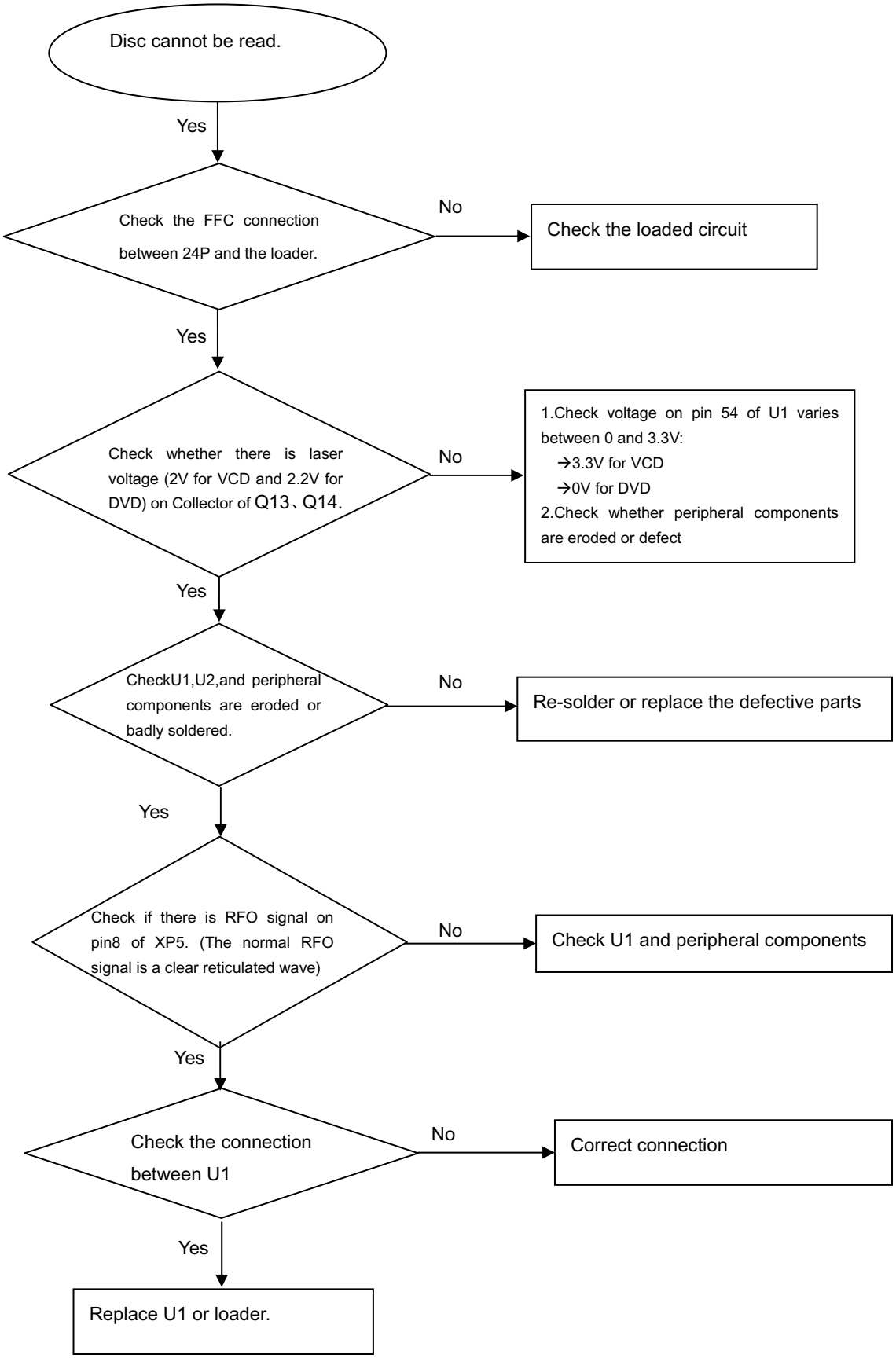
Check if +5V, +3.3v, +12V, -12V are short.

No → Check whether U2 are eroded.

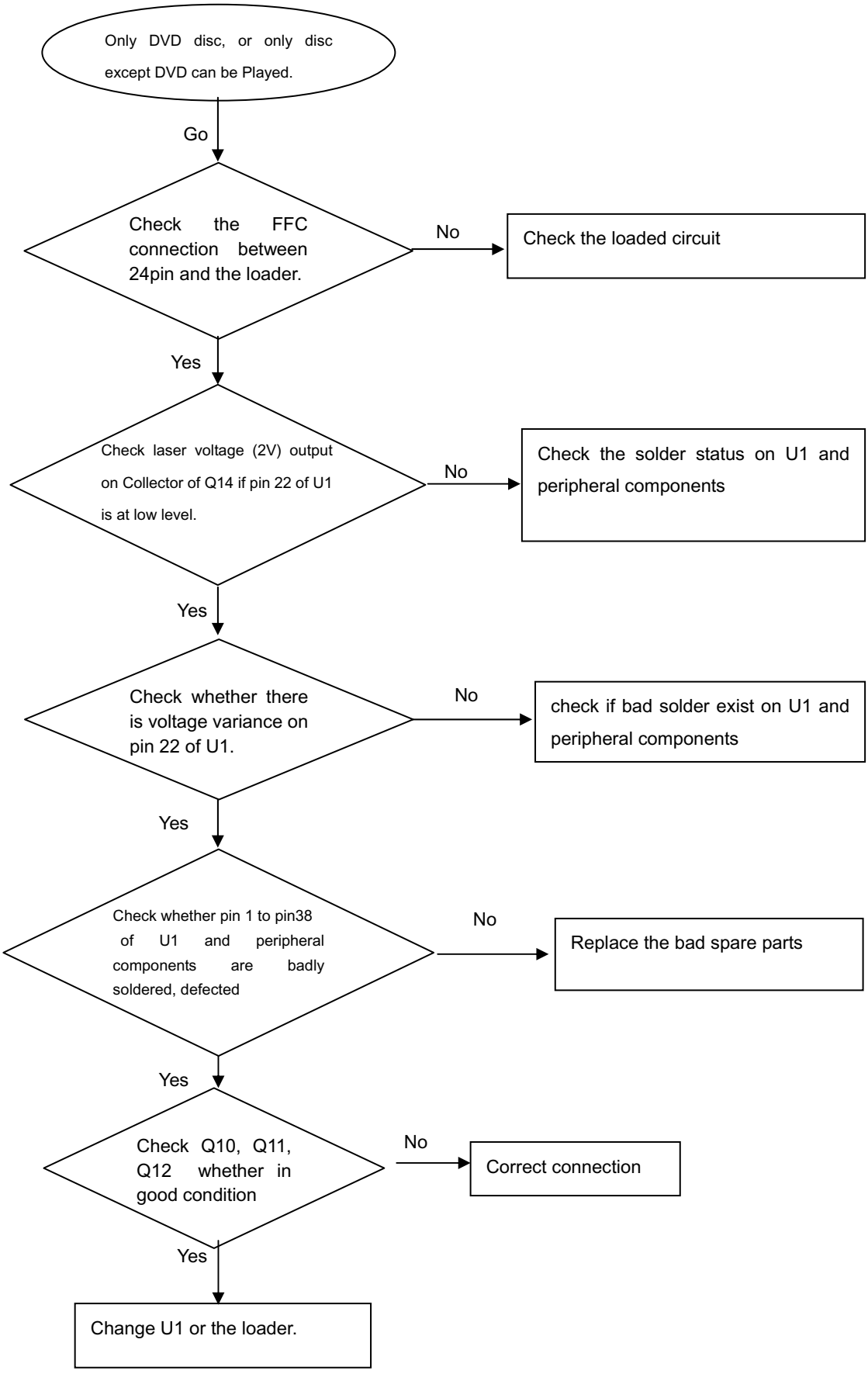
Yes

Check whether the components in the short-circuit voltage are defected or eroded.

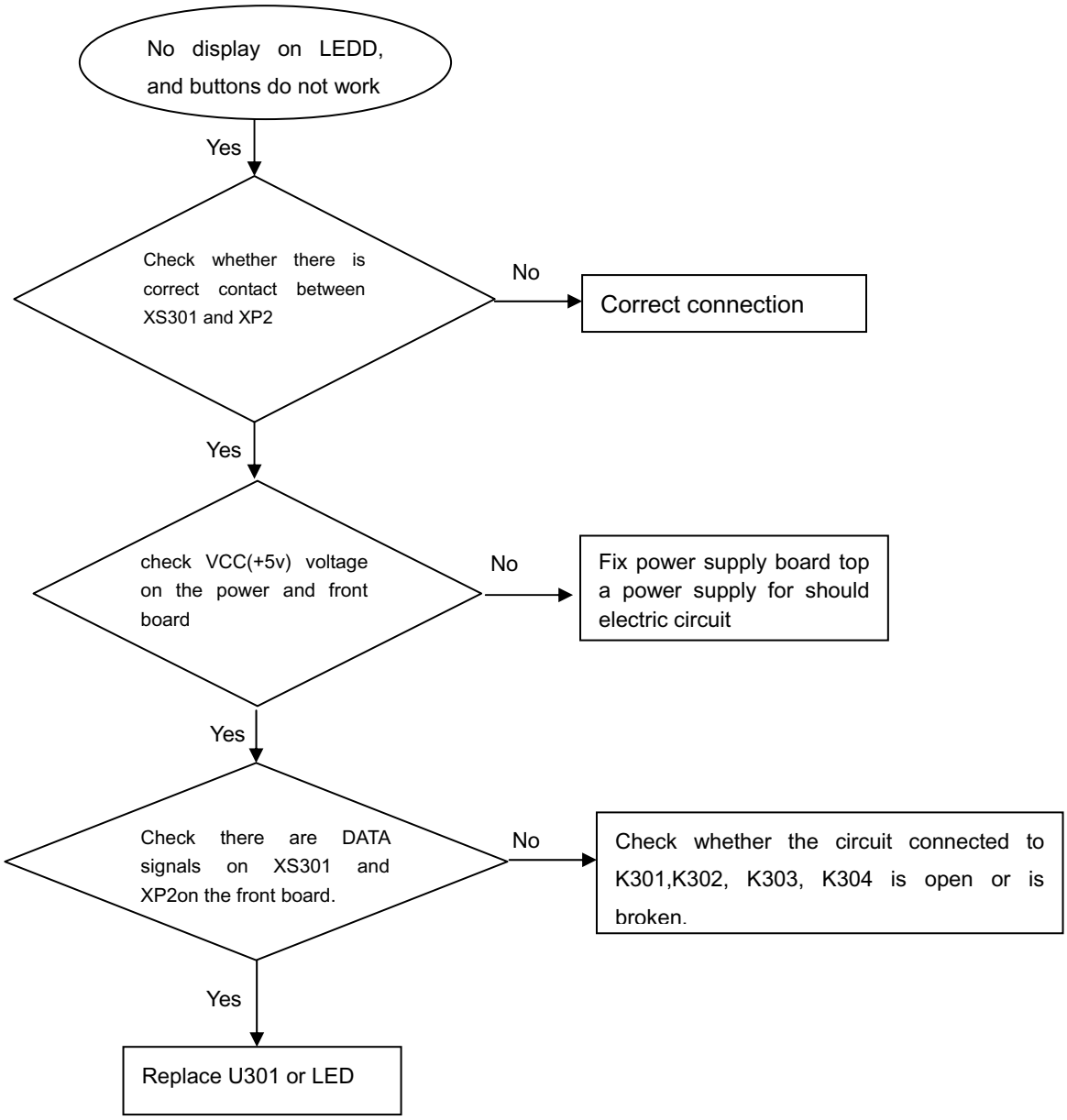
Disc cannot be read.



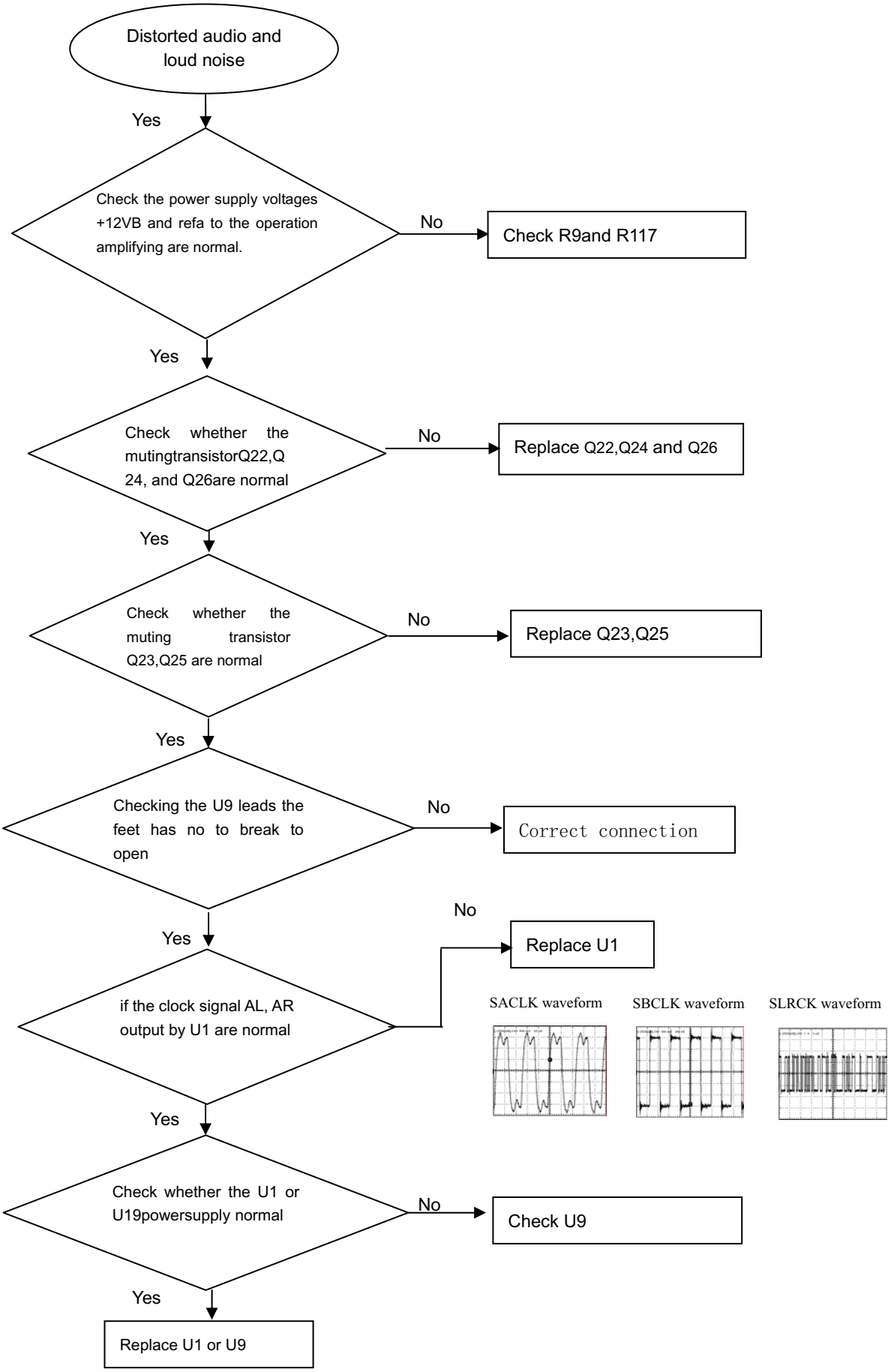
Only DVD disc or only disc except DVD can be played



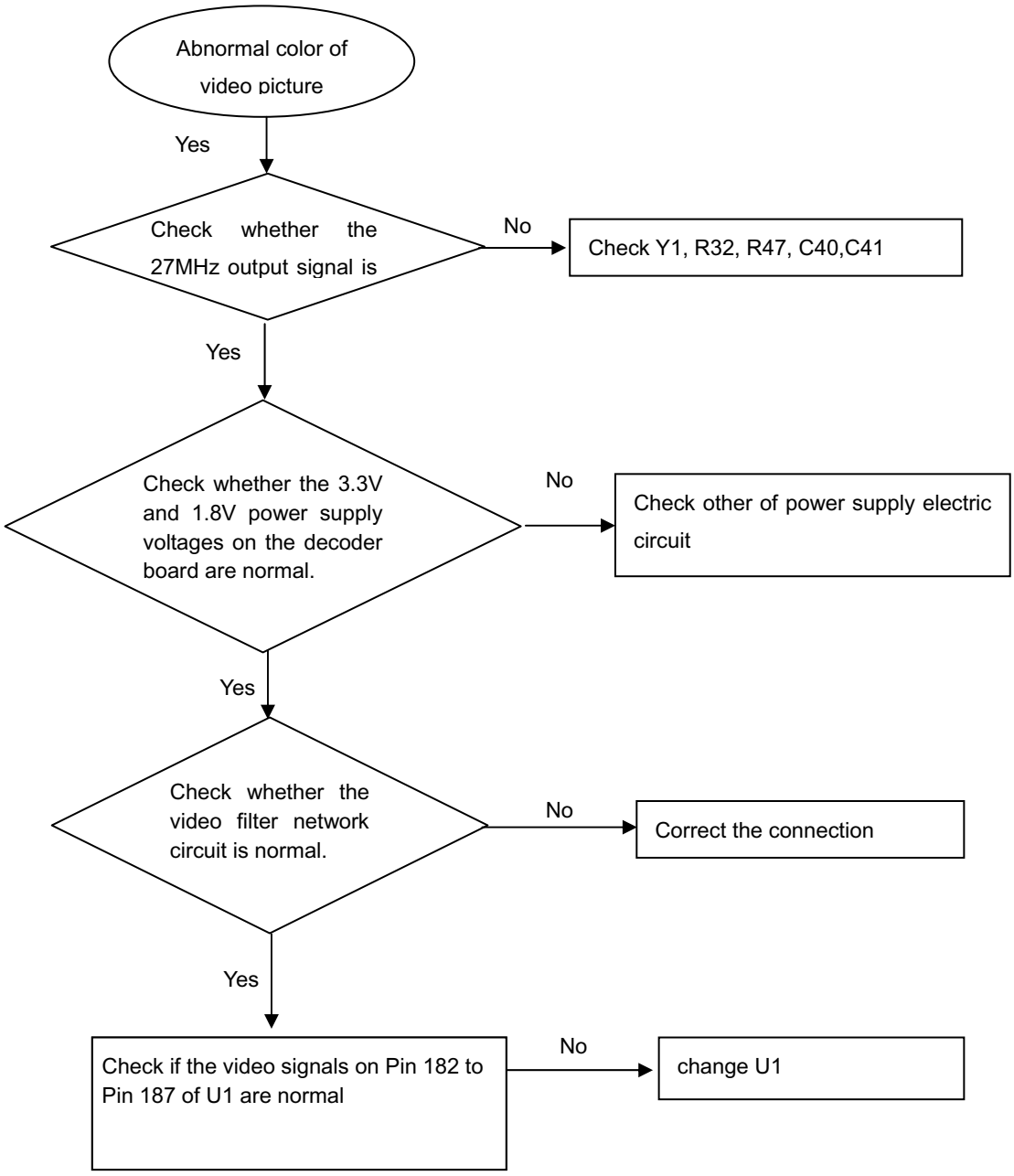
No display on LED, and buttons do not work



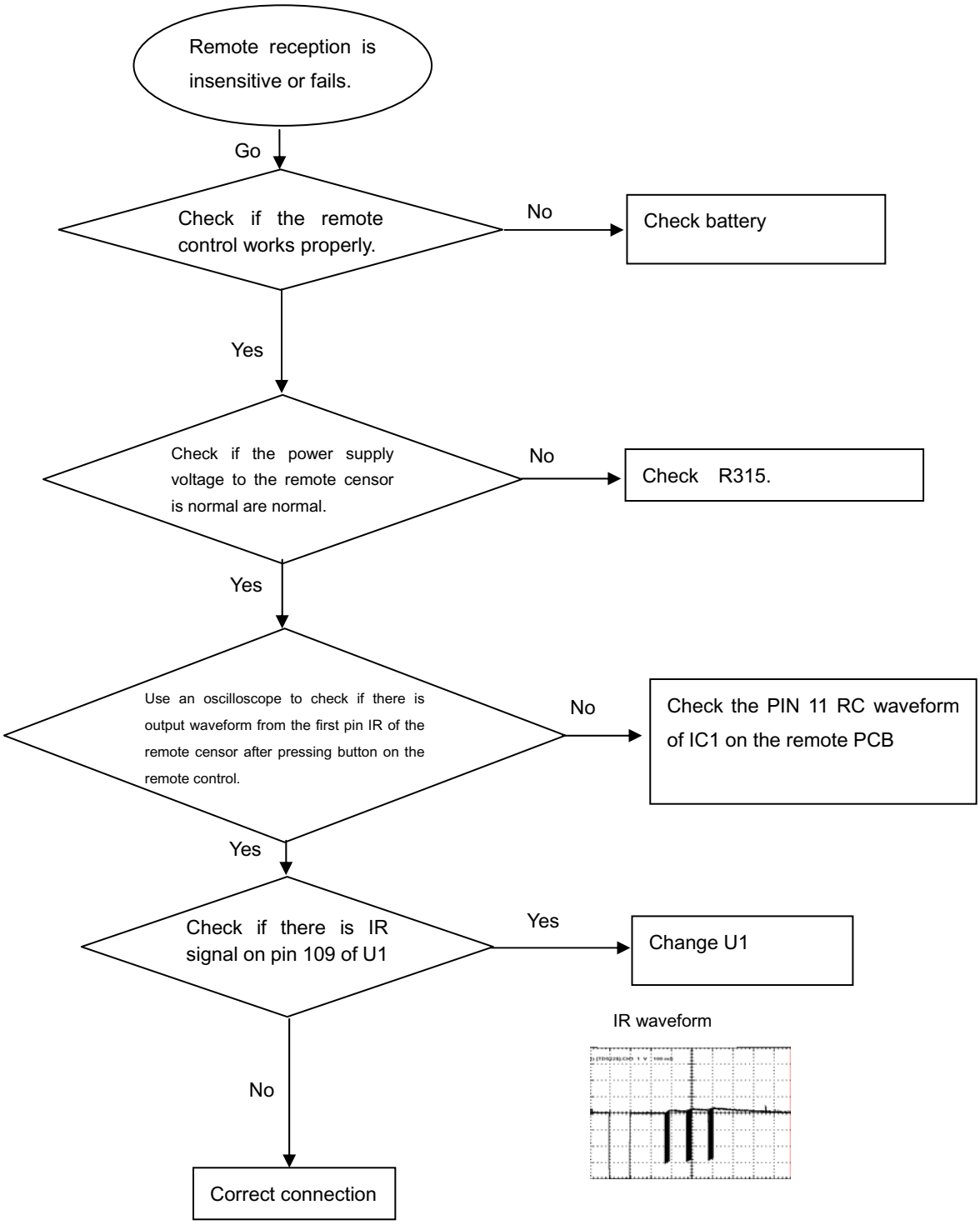
Distorted audio and loud noise



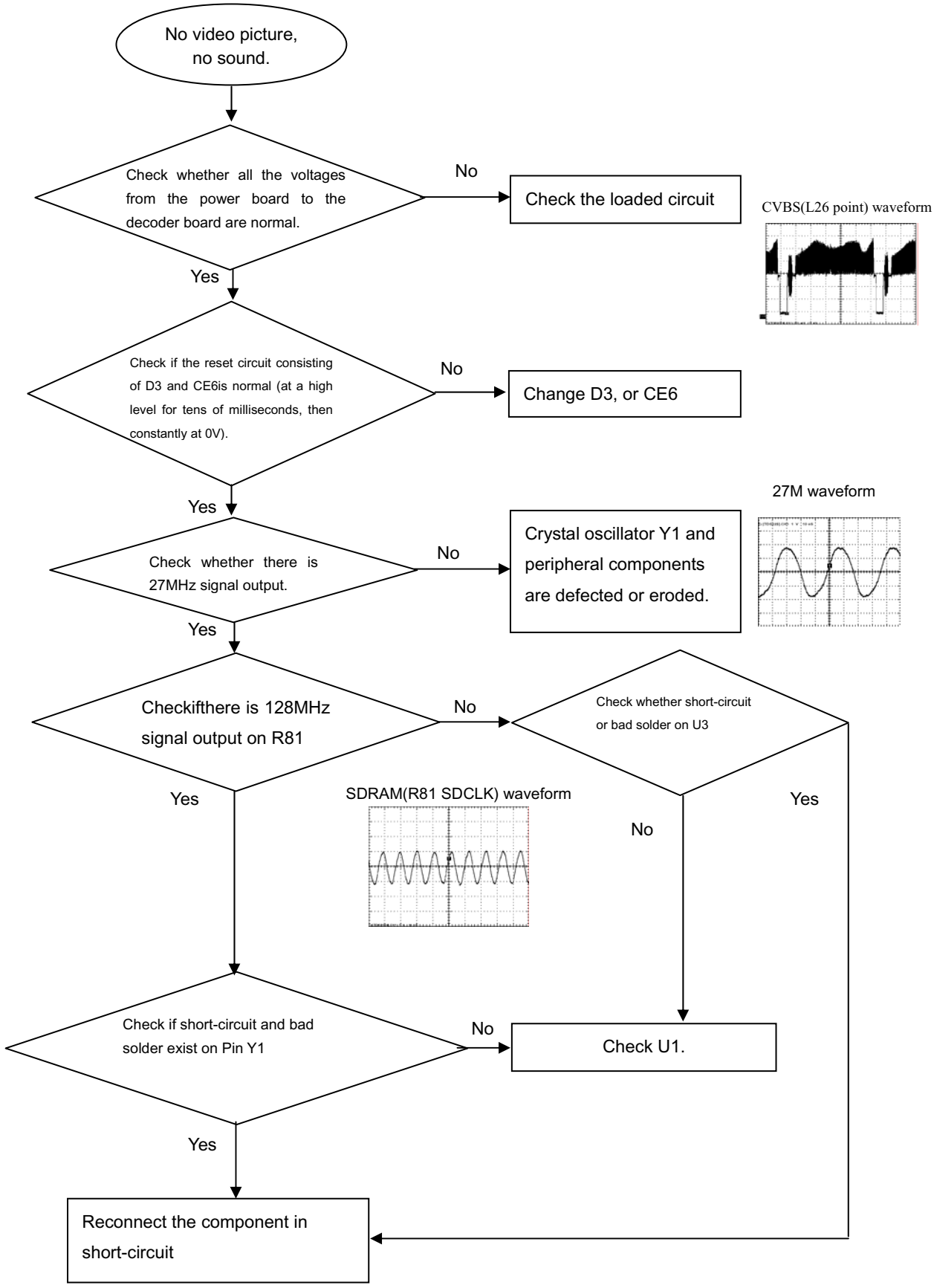
Abnormal color of video picture



Remote reception is insensitive or fails.

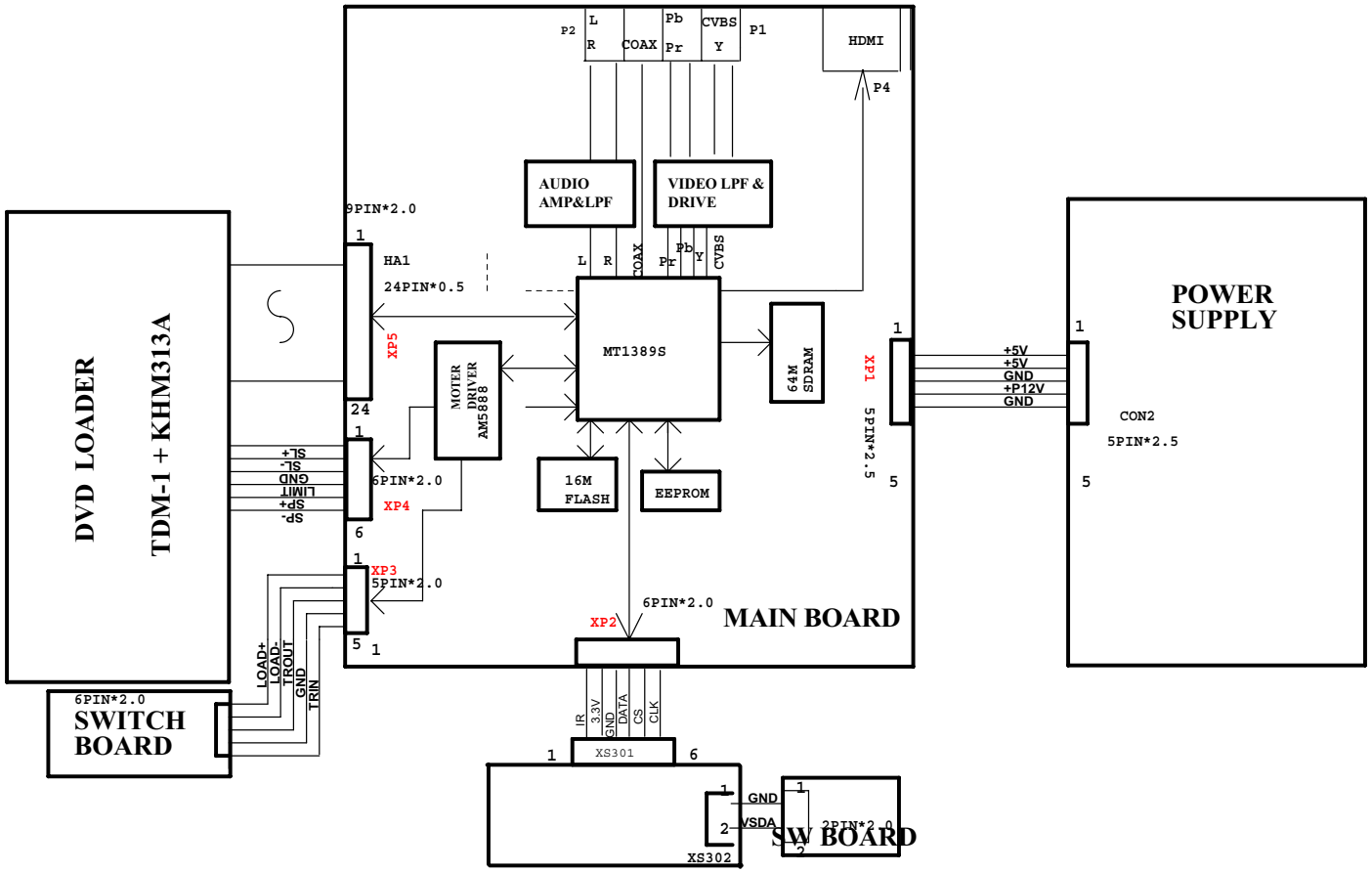


No video picture, no sound.



5-1

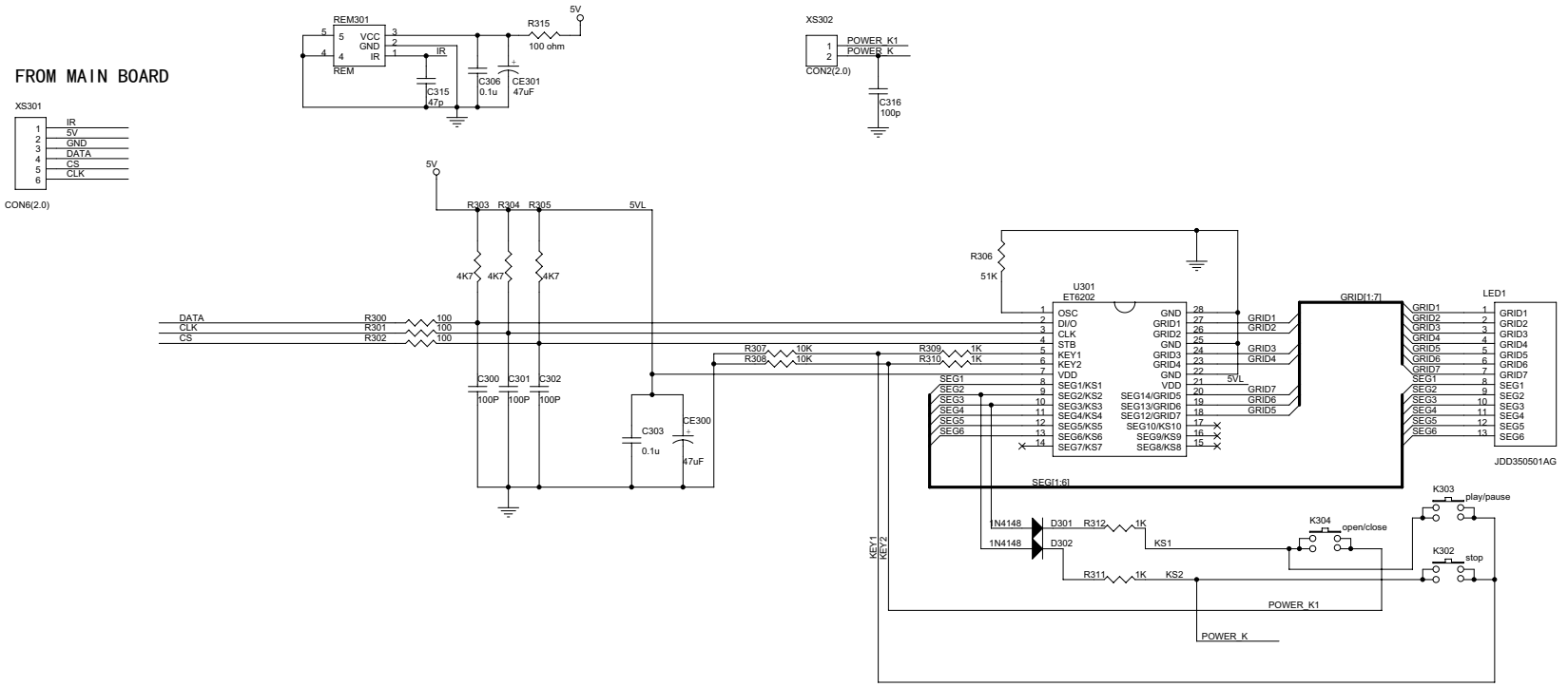
DVP3962/37 WIRING DIAGRAM



Remark:
XP5 24PIN*0.5 is same as 24PIN FLAT WIRE;
XP4 6PIN*2.0 is same as 6PIN HS PH-6Y*2 L=80MM;
XP3 5PIN*2.0 is same as PH-5Y/PH-5Y L=130MM;
XP2 6PIN*2.0 is same as 6PIN HS L=120MM ;
XP1 5PIN*2.5 is same as TJC3-5Y/SCN-5P L=80MM;

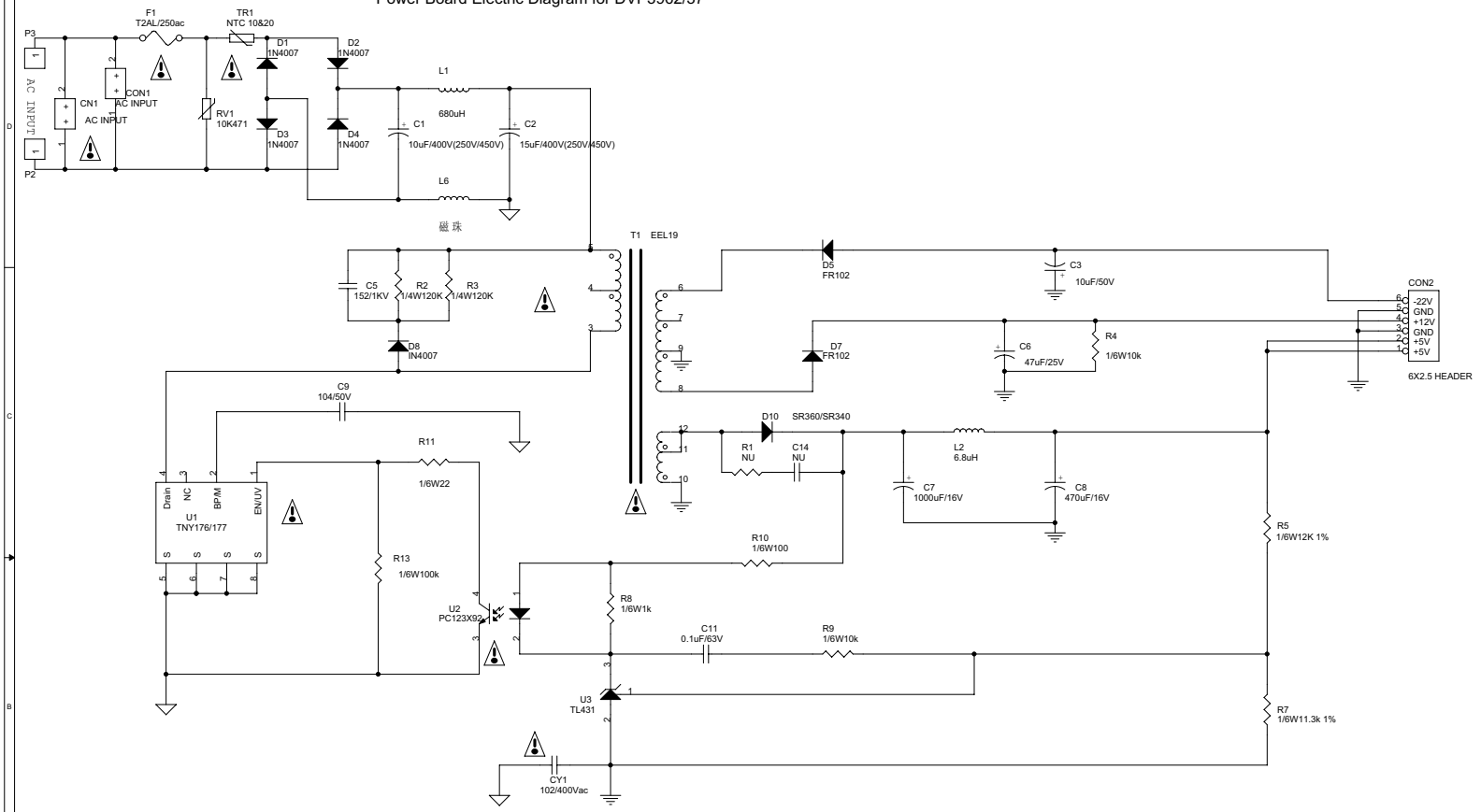
6-1

Front Board Electric Diagram for DVP3962/37



6-2

Power Board Electric Diagram for DVP3962/37



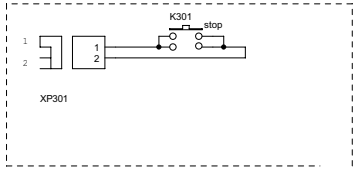
*** CAUTION :**

THE PARTS MARKED WITH ⚠ ARE IMPORTANT PARTS ON THE SAFETY.

PLEASE USE THE PARTS HAVING THE DESIGNATED PARTS NUMBER WITHOUT FAIL.

6-3

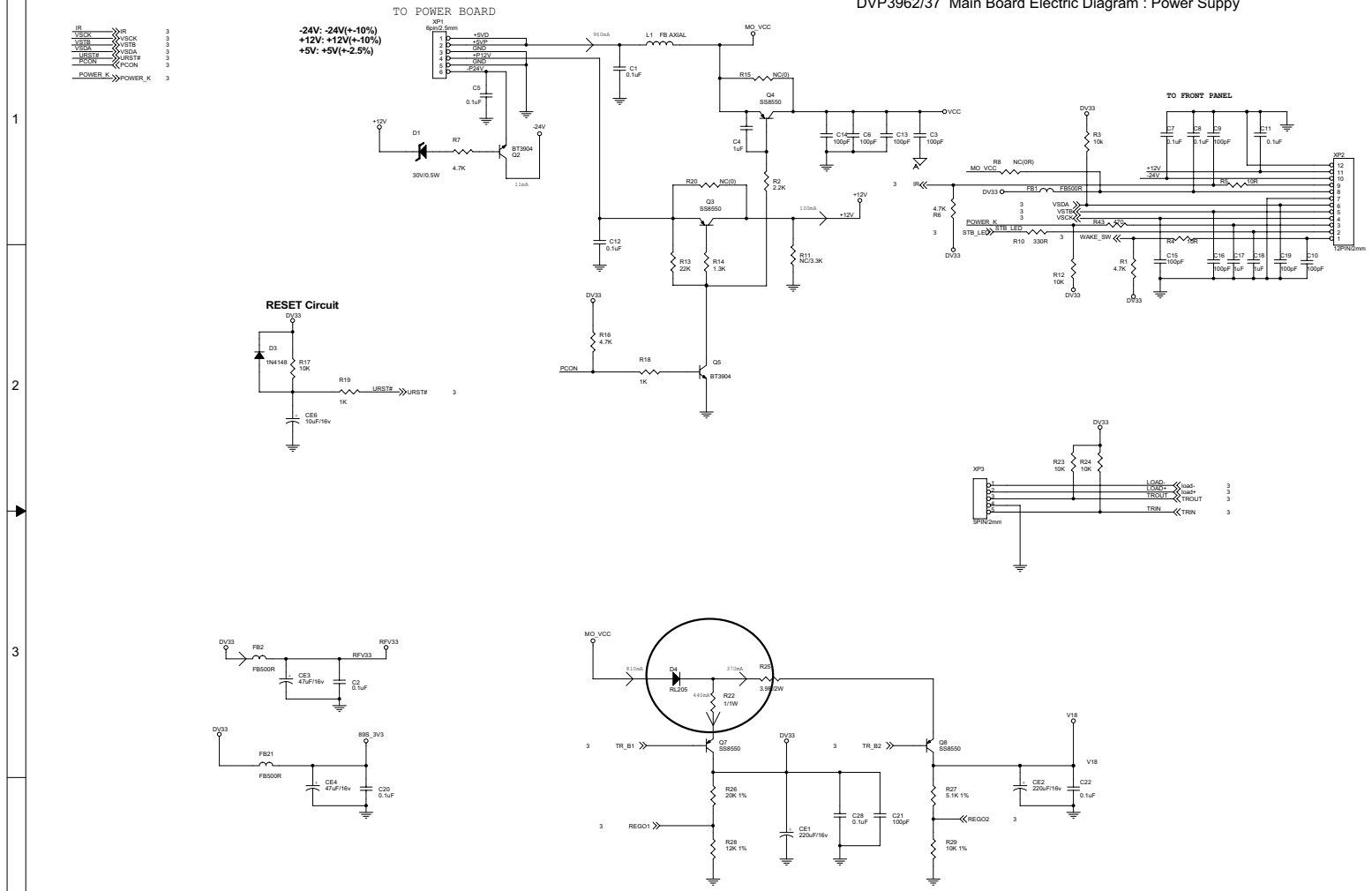
Switch Board Electric Diagram for DVP3962/37



SWITCH BOARD

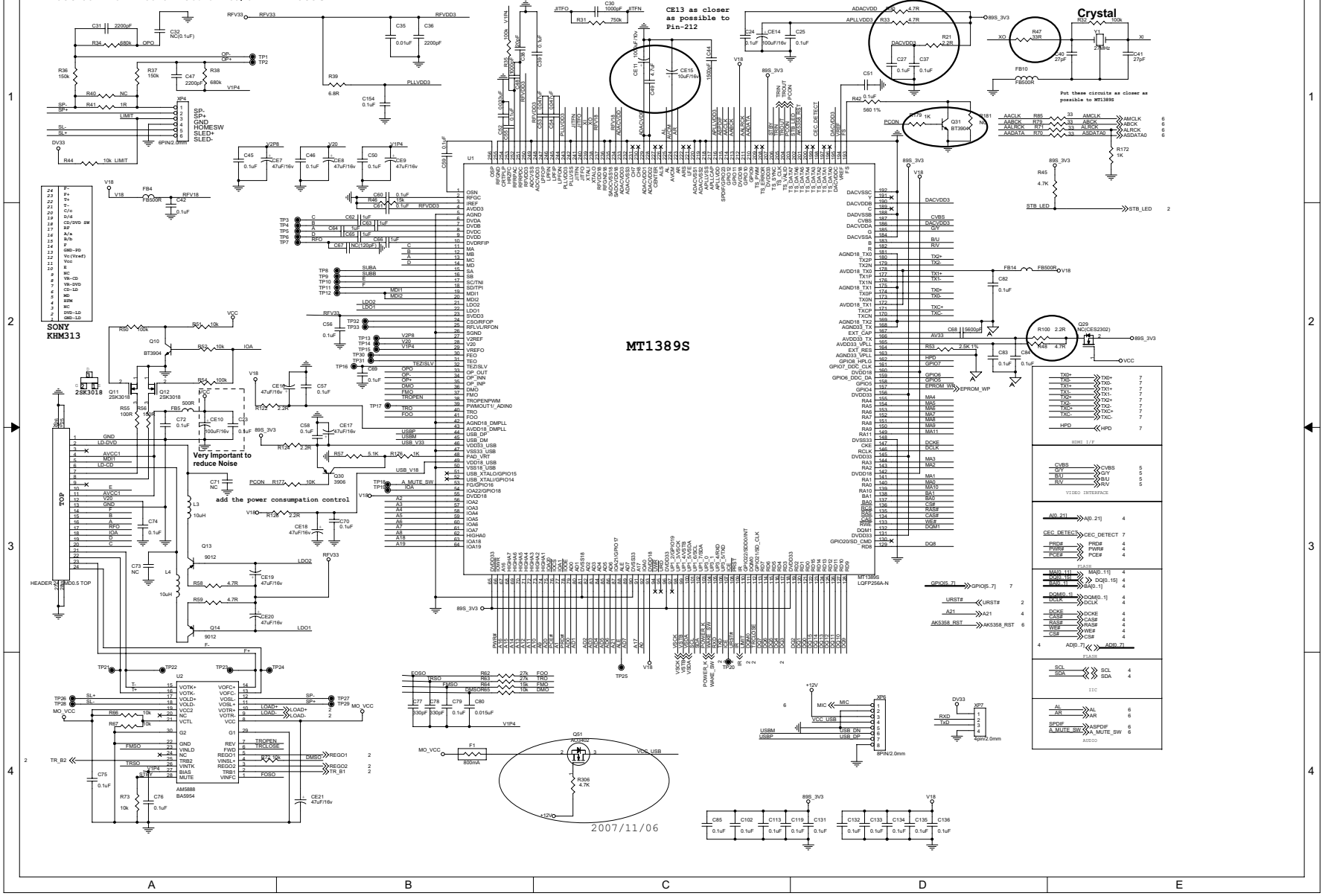
6-4

DVP3962/37 Main Board Electric Diagram : Power Suppy



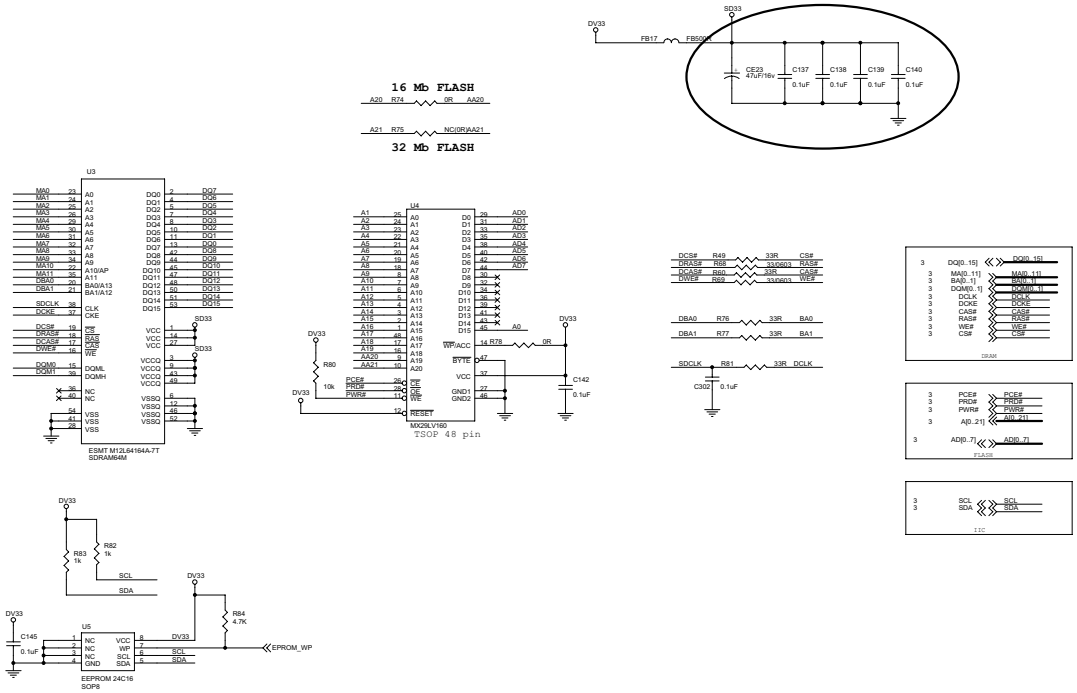
6-5

DVP3962/37 Main Board Electric Diagram: MT1389S



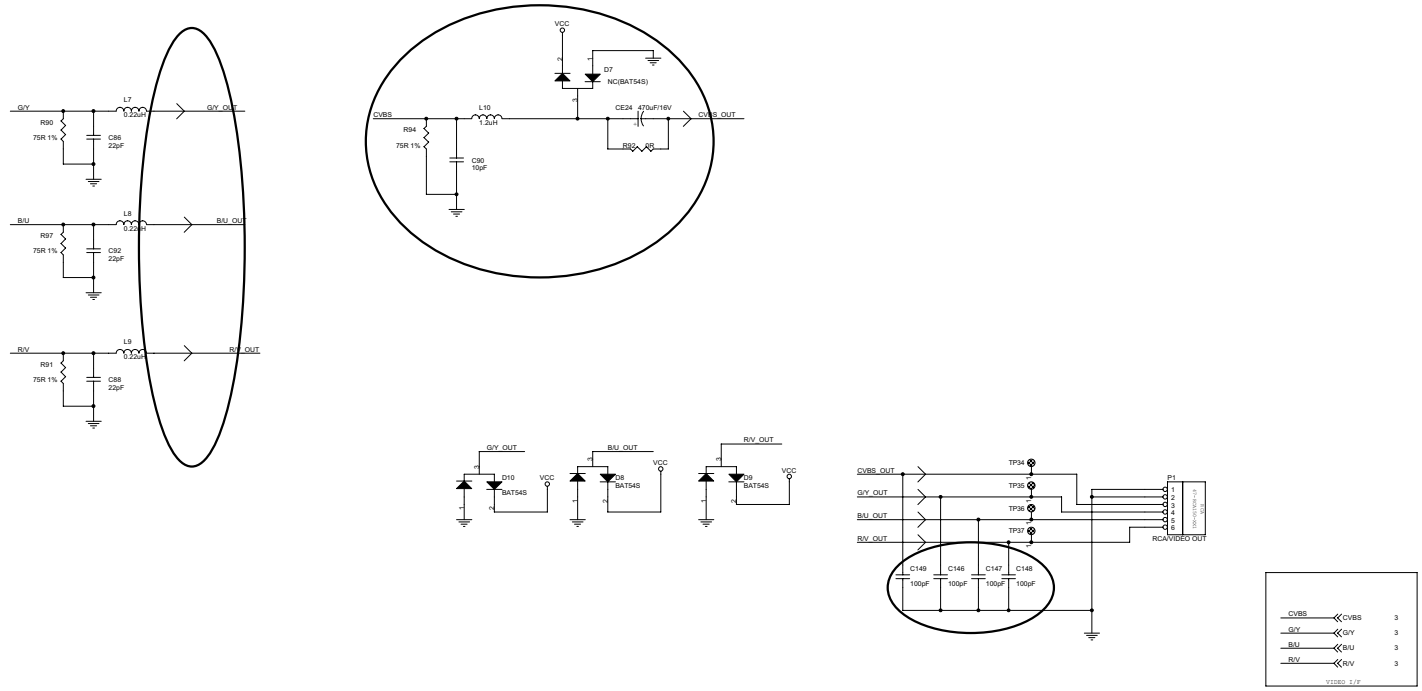
6-6

DVP3962/37 Main Board Electic Diagram : SDRAM & FLASH



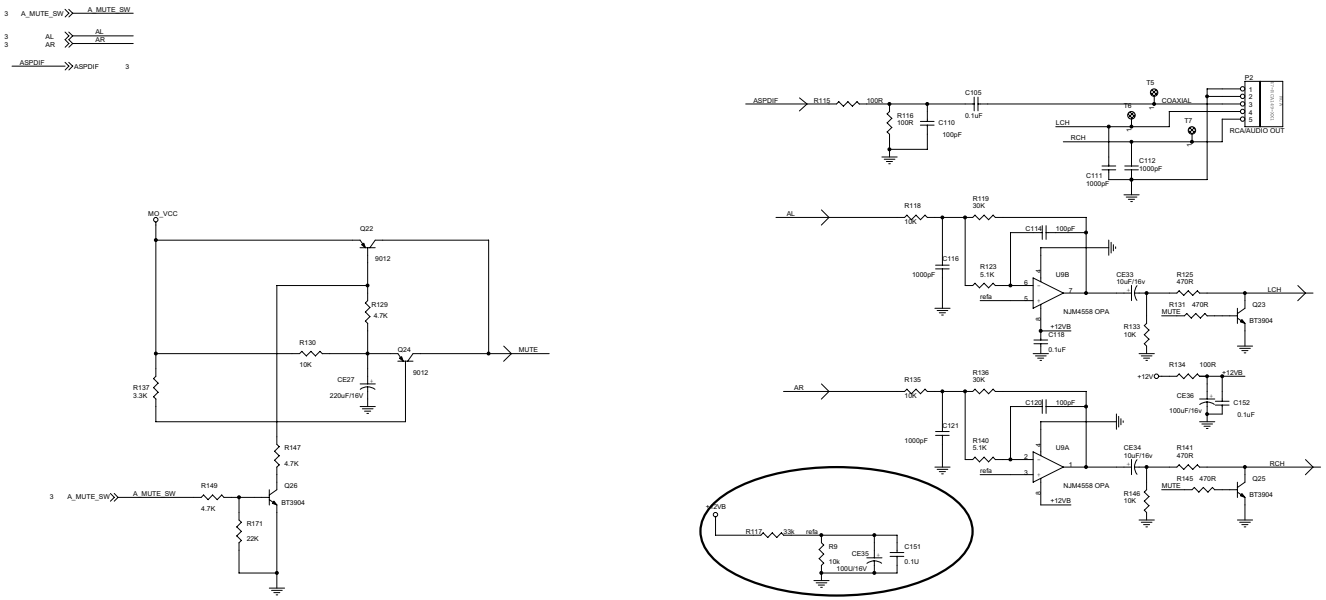
6-7

DVP3962/37 Main Board Electric Diagram: Video Out & AV-CONNECTOR

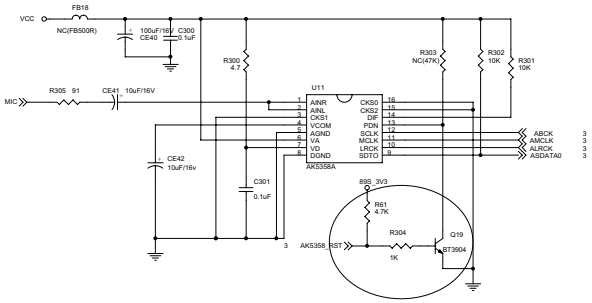


6-8

DVP3962/37 Main Board Electric Diagram: Audio Output



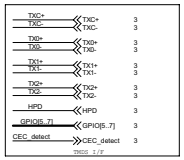
mute circuit

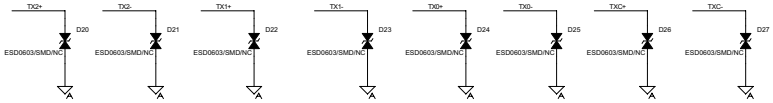


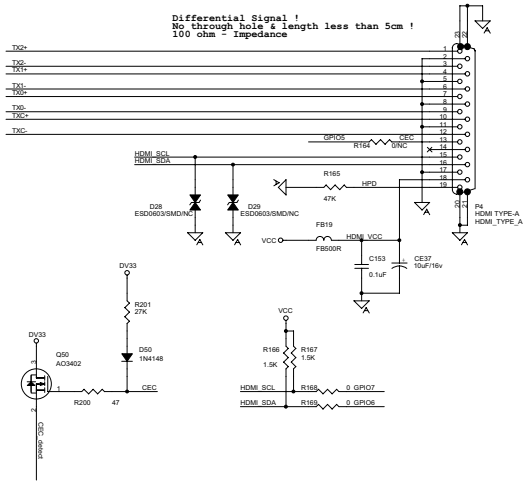
DIF PULL UP:I2S
CKS0,CKS1,CKS2 PULL Down:CLOCK SLAVE,ALL SPEED MODES

6-9

DVP3962/37 Main Board Electric Diagram: HDMI I/F

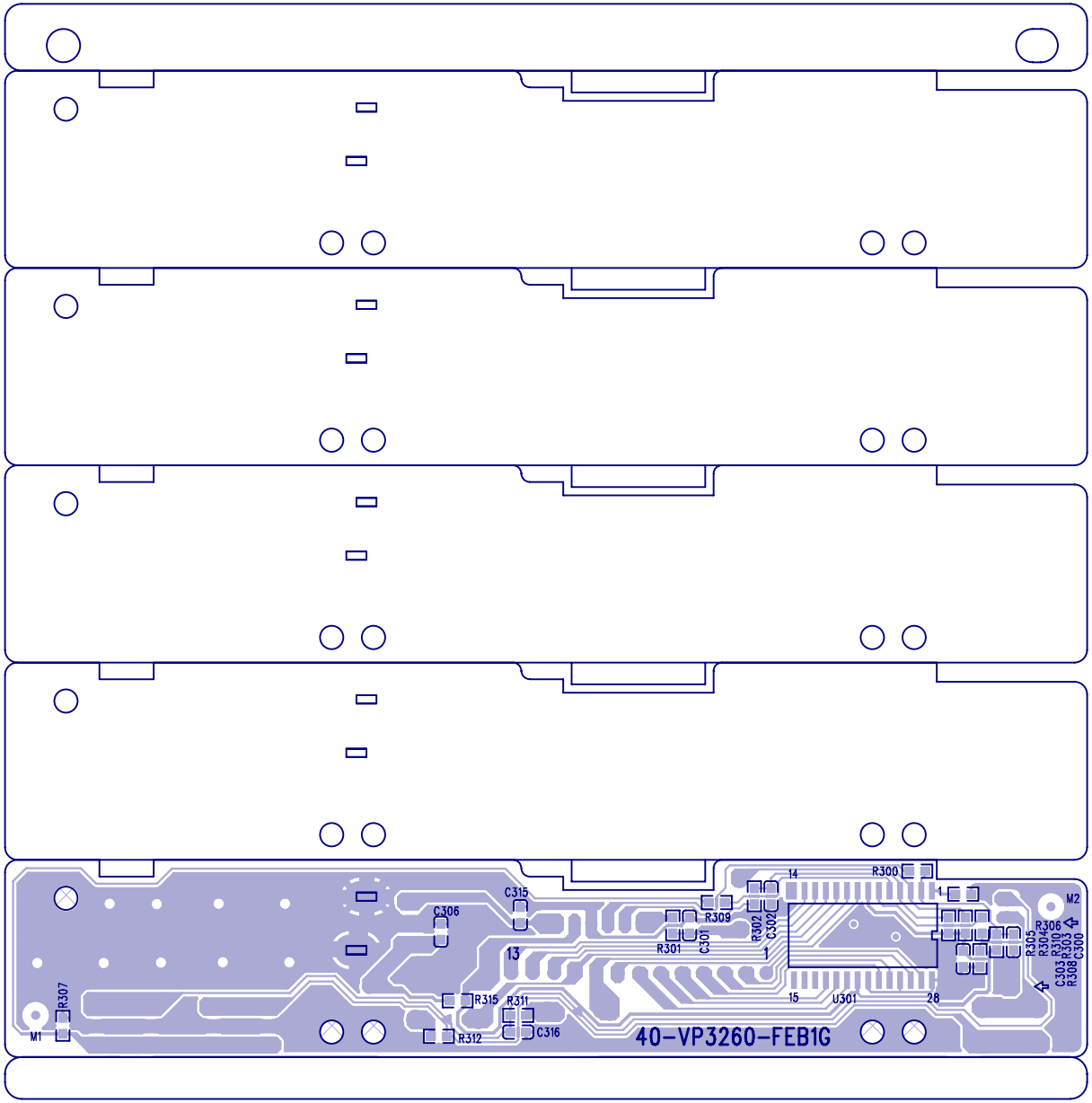






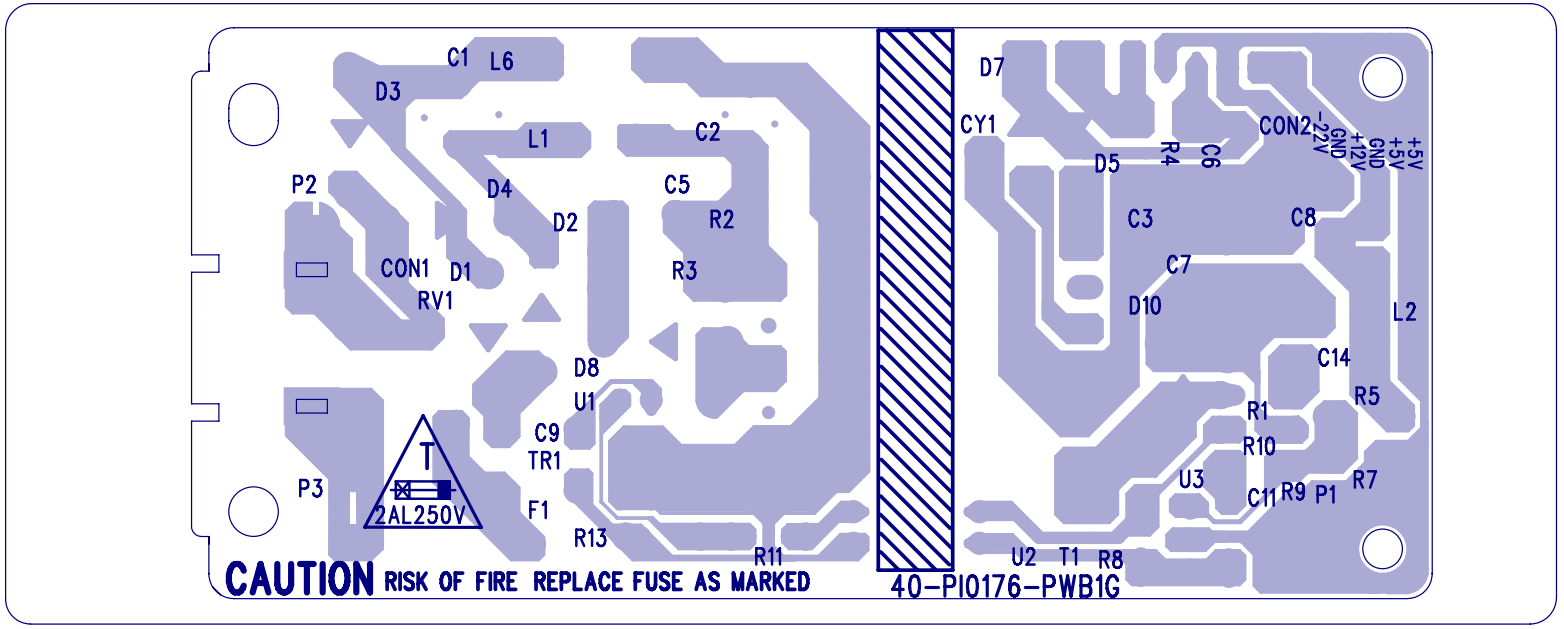
6-10

Front Board Print-layout (Bottom side) for DVP3962/37



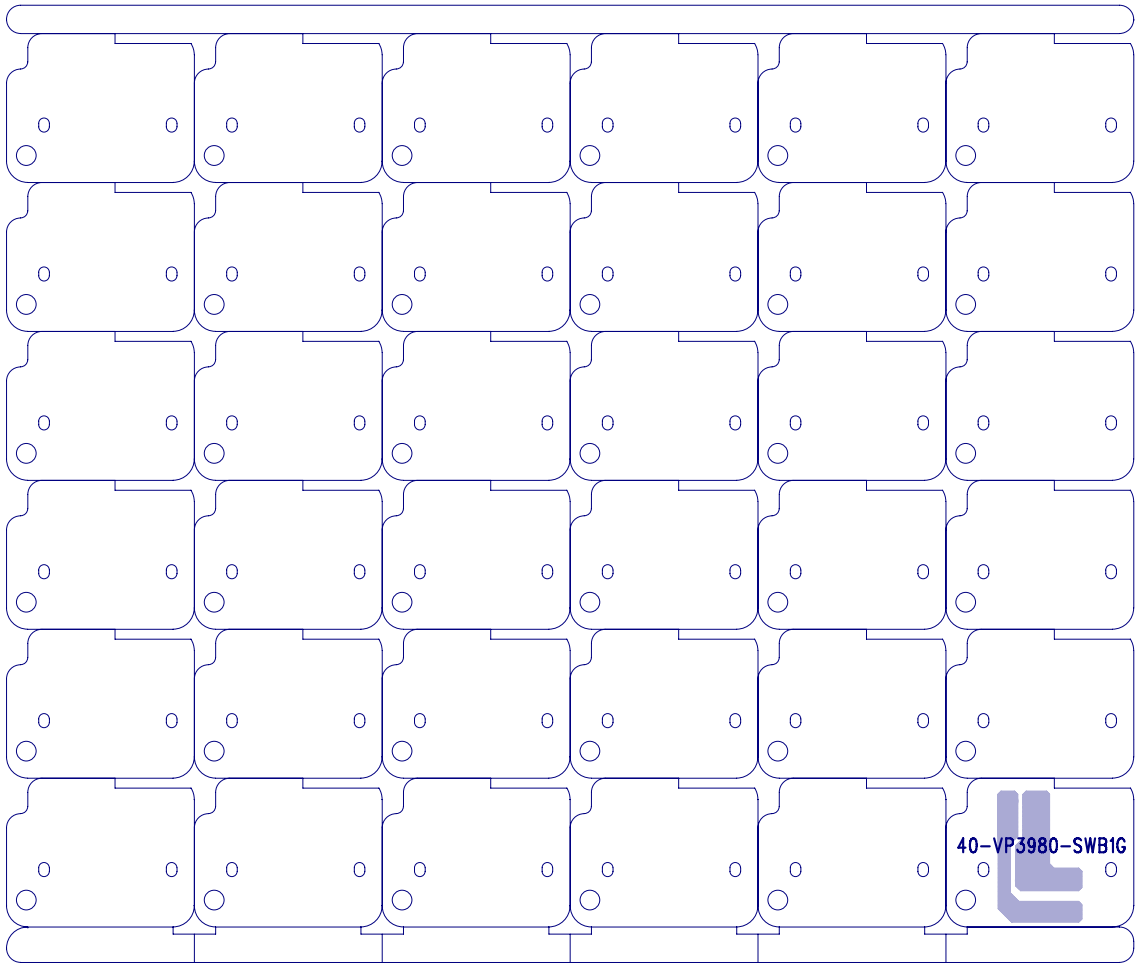
6-11

Power Board Print-layout (Bottom Side) for DVP3962/37



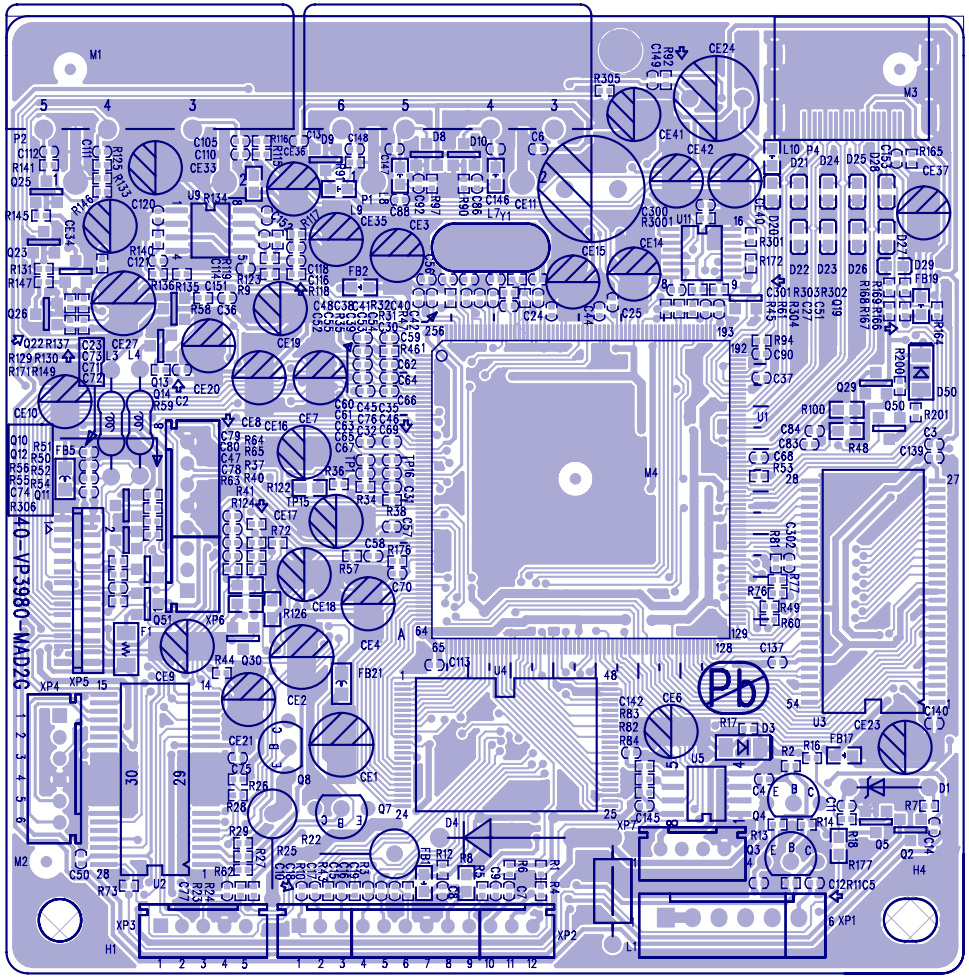
6-12

Switch Board Print-layout (Bottom Side) for DVP3962/37



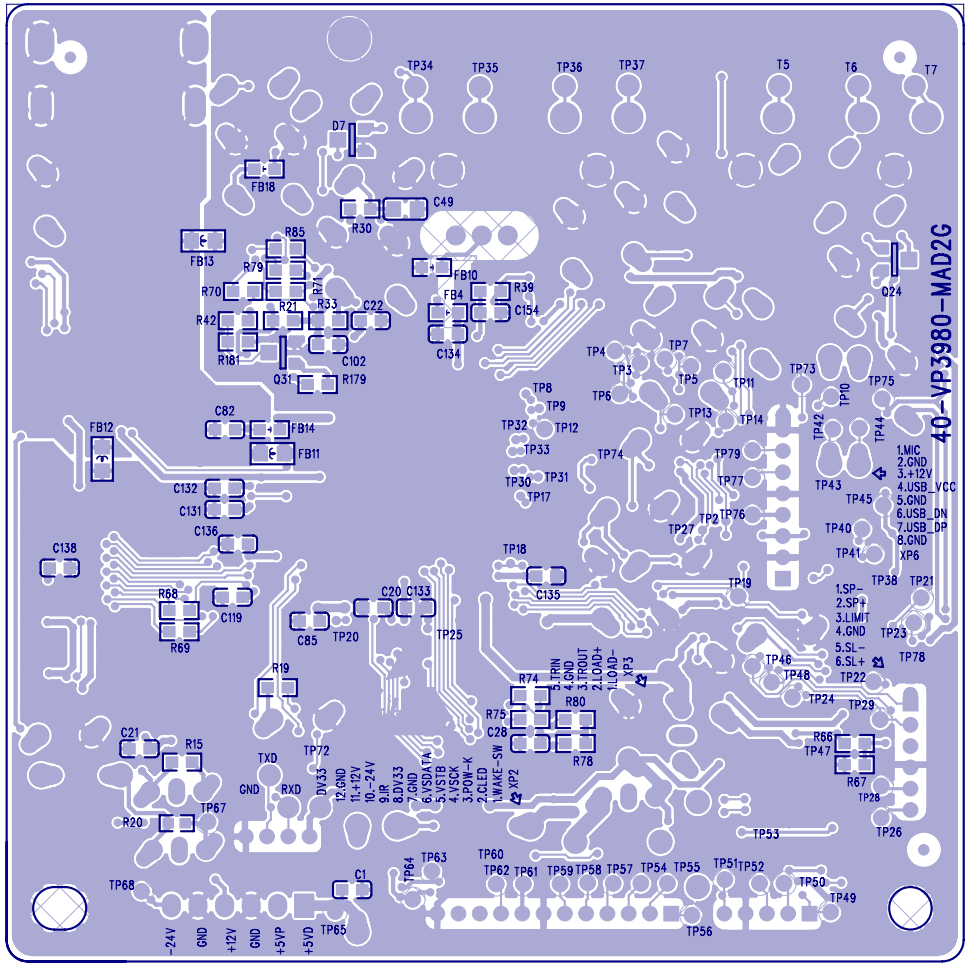
6-13

Main Board Print-layout (Top side) for DVP3962/37

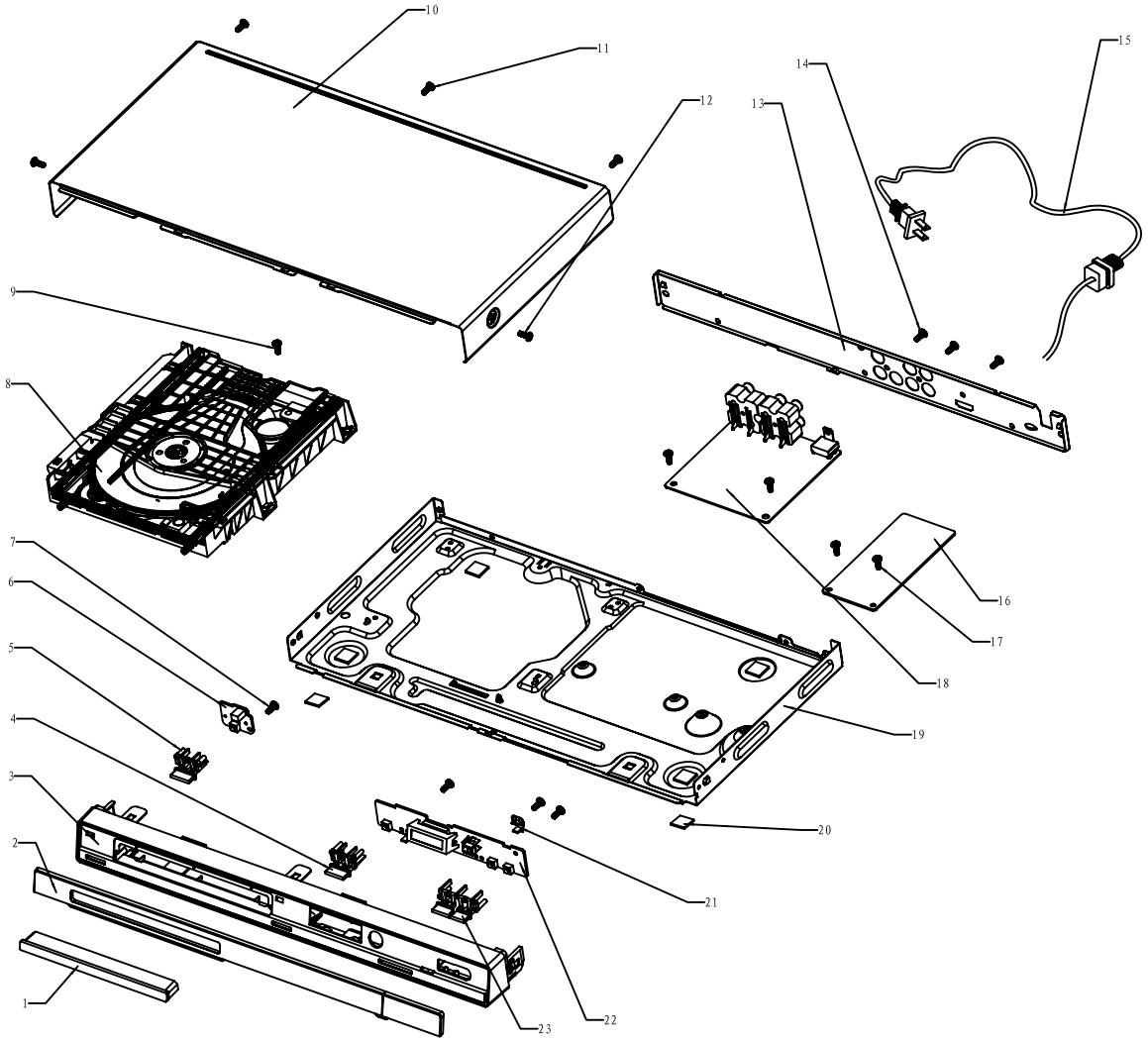


6-14

Main Board Print-layout (Bottom side) for DVP3962/37



DVP3962/37 Exploded view



Remark: It's a general Mechanical Exploded View for DVP3962/37 , Detailed information please refer to Model set.
Ass'y2 is the assembled component for location 2.3.4.5.23

Electrical PARTS LIST

No	12NC No.	Part Name	Q'ty
⚠ **16**	**996510010475**	**ASSY-PW BD**	**1**
D1	996510011047	DIODE IN4007	1
D10	996510011042	SR260	1
D2	996510011047	DIODE IN4007	1
D3	996510011047	DIODE IN4007	1
D4	996510011047	DIODE IN4007	1
D7	996500014043	DIODE FR102 (FAST RECOVERY)	1
D8	996510011047	DIODE IN4007	1
L1	996510009942	COIL WIDTH	1
L2	996500032509	COIL SL0811-6R8K2R4	1
T1	996510010954	TRANSFORMER CONV	1
U1	996510010953	IC TNY176PN	1
U2	996500027867	PHOTOCOUPLER PS2561L1-1-V(WF)	1
U3	996500014609	IC AM431LP	1
18	**996510011820**	**ASSY-MAIN BD (SONY OPU)**	**1**
	996510019843	**ASSY-MAIN BD (IM OPU)**	**1**
D10	996510009859	SCHOTTKY DIODES BAT54S SOP-23	1
D3	996510009667	SMD. SWITCHING DIODE LL4148	1
D50	996510009667	SMD. SWITCHING DIODE LL4148	1
D7	996510009859	SCHOTTKY DIODES BAT54S SOP-23	1
D8	996510009859	SCHOTTKY DIODES BAT54S SOP-23	1
D9	996510009859	SCHOTTKY DIODES BAT54S SOP-23	1
L3	996500014082	COIL CHOKE 10UH +/-10%	1
L4	996500014082	COIL CHOKE 10UH +/-10%	1
Q10	996510009669	SMD.TRANSISTOR MMBT3904LT1 NPN	1
Q11	996510009769	N Channel MOSFET 2SK3108	1
Q12	996510009769	N Channel MOSFET 2SK3108	1
Q13	996510009670	TRANSISTOR SMT 3CG9012M	1
Q14	996510009670	TRANSISTOR SMT 3CG9012M	1
Q22	996510009670	TRANSISTOR SMT 3CG9012M	1
Q23	996510009669	SMD.TRANSISTOR MMBT3904LT1 NPN	1
Q24	996510009670	TRANSISTOR SMT 3CG9012M	1
Q25	996510009669	SMD.TRANSISTOR MMBT3904LT1 NPN	1
Q26	996510009669	SMD.TRANSISTOR MMBT3904LT1 NPN	1
Q29	996510010922	ASM3402M/TR-LF SOT-23	1
Q3	996510009671	TRANSISTOR	1
Q30	996510009736	SMD TRANSISTORMMBT3906LT1 PNP	1
Q31	996510009669	SMD.TRANSISTOR MMBT3904LT1 NPN	1
Q4	996510009671	TRANSISTOR	1
Q5	996510009669	SMD.TRANSISTOR MMBT3904LT1 NPN	1
Q50	996510010949	MOSFET AO3402	1
Q7	996510009671	TRANSISTOR	1
Q8	996510009671	TRANSISTOR	1
U1	996510011041	IC MT1389DXE/S_L NO HDCP KEY	1
U2	996510009674	IC AM5888IC	1
U3	996510009863	64M SDRAM TSOP54 M12L64164A-7T	1
U4	996510009673	16m Flash 70ns 3.3V TSOP-48	1
U5	996510010944	IC 16K EEPROM M24C16-MN6	1
U9	996510010924	IC	1
Y1	996510009675	27MCL20PF	1
22	**996510010474**	**ASSY-FB BD**	**1**
LED1	996510010957	LED	1
REM301	996510012689	IR RECEIVER MODULE 14MM 5V	1
U301	996510009665	IC ET6202 SOP-2	1
6	**996510010473**	**ASSY-SW BD**	**1**
8	**996510010477**	**ASSY- LOADER**	**1**
OPU	996510006029	Sony OPU	1
	996510019847	**ASSY- LOADER**	**1**
OPU	996510018183	IM OPU	1

MECHANICAL & ACCESSORIES PARTS LIST

No	12NC No.	Part Name	Q'ty
1	**996510011043**	**FRONT DOOR**	**1**
10	**996510007452**	**TOP COVER**	**1**
13	**996510019940**	**BACK PANEL**	**1**
⚠ **15**	**996520000262**	**POWER CORD**	**1**
⚠ **19**	**996510010483**	**BOTTOM CABINET**	**1**
A2	**996510011044**	**ASSY- FRONT PANEL**	**1**
AVCAB	**996510001106**	**VIDEO CABLE 1500mm**	**1**
⚠ **FUSE**	**996510001780**	**FUSE 2A 250V 5X20MM**	**1**
⚠ **RC**	**996510010476**	**REMOTE CONTROL**	**1**
XP1	**996510010478**	**TJC3-5Y/SCN-5P L=80MM**	**1**
XP2	**996510010479**	**6PIN HS L=120MM**	**1**
XP3	**996510004063**	**CABLE PH-5Y/PH-5Y L=130MM**	**1**
XP4	**996510001170**	**6PIN HS**	**1**
XP5	**996510012752**	**24PIN HS**	**1**
XS302	**996510006820**	**CABLE PH-2Y/SAW-2P L=170MM**	**1**

REVISION LIST

Version 1.0

* Initial release

Version 1.1

* Adding DVP3962/37 (IM OPU)