

Service

Service

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Service Manual

TABLE OF CONTENTS

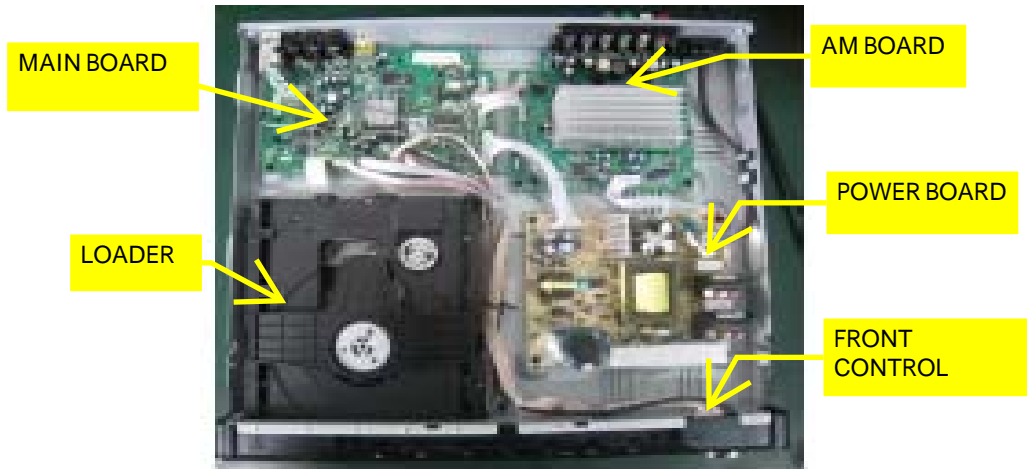
Page

| | |
|---|-----|
| . Location of PCB Bds,Version Variation and Repair Scenario Matrix..... | 1-2 |
| . Technical Specifications..... | 1-3 |
| . Safety Instruction, Warning & Notes..... | 1-4 |
| . DFU Instruction..... | 2-1 |
| . Mechanical and Dismantling Instructions..... | 3-1 |
| . Software Upgrades and Region Code Change..... | 4-1 |
| . Trouble Shooting Chart..... | 5-1 |
| . Wiring Diagram..... | 6-1 |
| . Electrical Diagrams and Print-layouts..... | 7-1 |
| . Set Mechanical Exploded view & Part list..... | 8-1 |
| . Revision List..... | 9-1 |

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**CLASS 1
 LASER PRODUCT**

LOCATION OF PCB BOARDS:



Version Variation:

| Type/Versions Features | HTS3511E/94 |
|---------------------------|-------------|
| Output Power-300W | X |
| Voltage(110~240v) | X |

Repair Scenario Matrix:

| Type/Versions Board in used | HTS3511E/94 |
|--------------------------------|-------------|
| Main Board | C |
| Front Control Board | C |
| Amplifier Board | C |
| Power Board | C |

*Bd:Board Level Replacement

*C:Component Level Repair

Product specifications

Note

- Specification and design are subject to change without notice.

Region code

| Country | DVD |
|-----------------------------|---|
| Europe, United Kingdom |  |
| Asia Pacific, Taiwan, Korea |  |
| Latin America |  |
| Australia, New Zealand |  |
| Russia, India |  |
| China |  |

Playback media

DVD-Video, DVD+R/+RW, DVD-R/-RW, DVD+R DL, CD-R/CD-RW, Audio CD, Video CD/SVCD, Picture CD, MP3-CD, WMA-CD, USB storage device

File Format

- Audio: .mp3, .wma
- Video: .mpeg, .mpg
- Picture: .jpeg, .jpg

Amplifier

- Total output power:
 - HTS3510: 300 W RMS (30% THD)
 - HTS3520: 600 W RMS (30% THD)
- Frequency response: 20 Hz-20 kHz / ± 3 dB
- Signal-to-noise ratio: > 65 dB (CCIR) / (A-weighted)
- Input sensitivity:
 - AUX: 1 mV

Video

- Signal system: PAL / NTSC
- HDMI output: 480i/576i, 480p/576p, 720p, 1080i, 1080p

Audio

- Sampling frequency:
 - MP3: 32 kHz, 44.1 kHz, 48 kHz
 - WMA: 44.1 kHz, 48 kHz
- Constant bit rate:
 - MP3: 112 kbps - 320 kbps
 - WMA: 48 kbps - 192 kbps

Radio

- Tuning range: FM 87.5-108 MHz (50/100 kHz)
- Signal-to-noise ratio: FM 50 dB
- Frequency response: FM 180 Hz ~ 10 kHz / ± 6 dB

USB

- Compatibility: Hi-Speed USB (2.0)
- Class support: UMS (USB Mass Storage Class)
- File system: FAT12, FAT16, FAT32
- Maximum memory support: < 160GB.

Main Unit

- Power supply:
 - Asia Pacific/Latin America/India: 110-240V, ~50-60Hz
 - China: 220-230V, ~50-60Hz
 - Russia: 230V, ~50Hz
- Power consumption: 100 W
- Standby power consumption: < 0.9 W
- Dimensions (WxHxD): 360 x 58 x 320 (mm)
- Weight: 2.84 kg

Subwoofer

- Impedance: 8 ohm
- Speaker drivers: 165 mm (6.5") woofer
- Frequency response: 40 Hz-150 kHz
- Dimensions (WxHxD): 120 x 307 x 369 (mm)
- Weight: 3.84 kg
- Cable length: 4.3 m

Speakers

- System: full range satellite
- Speaker impedance: 8 ohm (center), 4 ohm (Front/Rear)
- Speaker drivers: 3" full range
- Frequency response: 150 Hz-20 kHz
- Dimensions (WxHxD):
 - HTS3510: 96 × 162 × 96 (mm)
 - HTS3520:
 - Center: 160.9 × 95 × 92 (mm)
 - Front/Rear: 95 × 160.9 × 87 (mm)
- Weight:
 - HTS3510: 0.68 kg
 - HTS3520:
 - Center: 0.77 kg
 - Front/Rear: 0.56 kg/each
- Cable length:
 - Center: 3 m
 - Front: 4 m
 - Rear: 10 m

Laser specification

- Type: Semiconductor laser GaAlAs (CD)
- Wave length: 645 - 665 nm (DVD), 770 - 800 nm (CD)
- Output power: 6 mW (DVD), 7 mW (VCD/CD)
- Beam divergence: 60 degrees.

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 1M Ω .
 - 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 handling 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 handling 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.

Service Hints

CAUTION

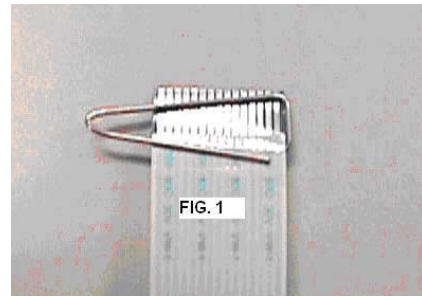
CHARGED CAPACITORS ON THE SERVO BOARD MAY DAMAGE THE DRIVE ELECTRONICS WHEN CONNECTING A NEW DRIVE. THAT'S WHY, BESIDES THE SAFETY MEASURES LIKE

- **SWITCH OFF POWER SUPPLY**
- **ESD PROTECTION**

ADDITIONAL ACTIONS MUST BE TAKEN BY THE REPAIR TECHNICIAN.

The following steps have to be done when replacing the defective loader :

1. Dismantling of the loader to access the ESD protection point if necessary.
2. **Solder the ESD protection point***.
3. Disconnect flexfoil cable from the defective loader.
4. Put a paper clip on the flexfoil to short-circuit the contacts (fig.1)
5. Replace the defective loader with a new loader.
6. Remove paperclip from the flexfoil and connect it to the new loader.
7. Remove solder joint on the ESD protection point.



ATTENTION: The laser diode of this loader is protected against ESD by a solder joint which shortcircuits the laserdiode to ground. For proper functionality of the loader this solder joint must be remove **after** connection loader to the set.



(ESD protection point is accessible from top of loader)


**Only applicable for defective loader needed to be sent back to supplier for failure analysis and to support backcharging evidence.*

This is also applicable for all partnership workshops.

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:

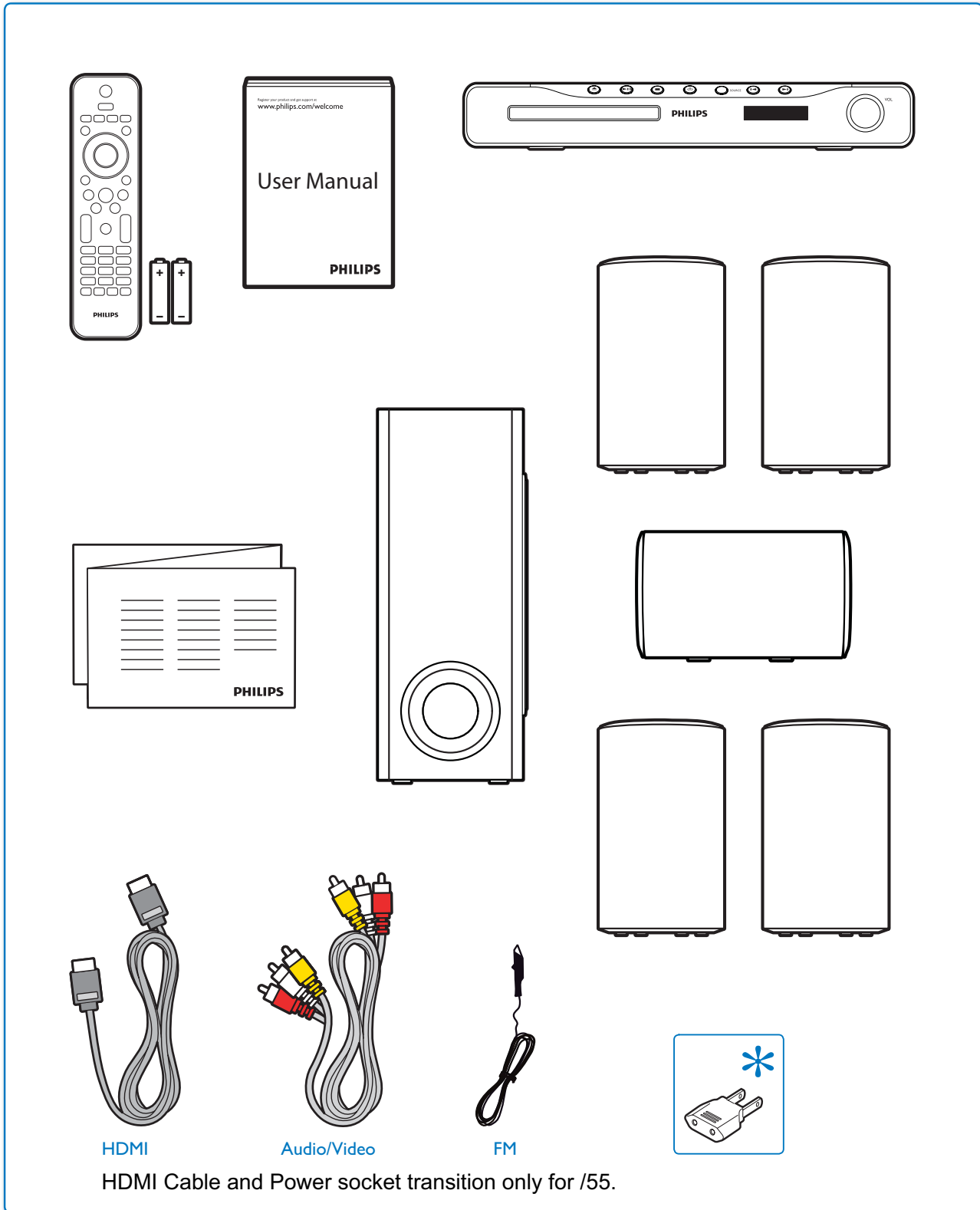
BGA-de-/soldering (+ baking instructions)
Heating-profiles of BGAs and other ICs used in Philips-sets

You will find this and more technical information within the "magazine", chapter "workshop news".
For additional questions please contact your local repair-helpdesk.

QSG for HTS3511E/94:

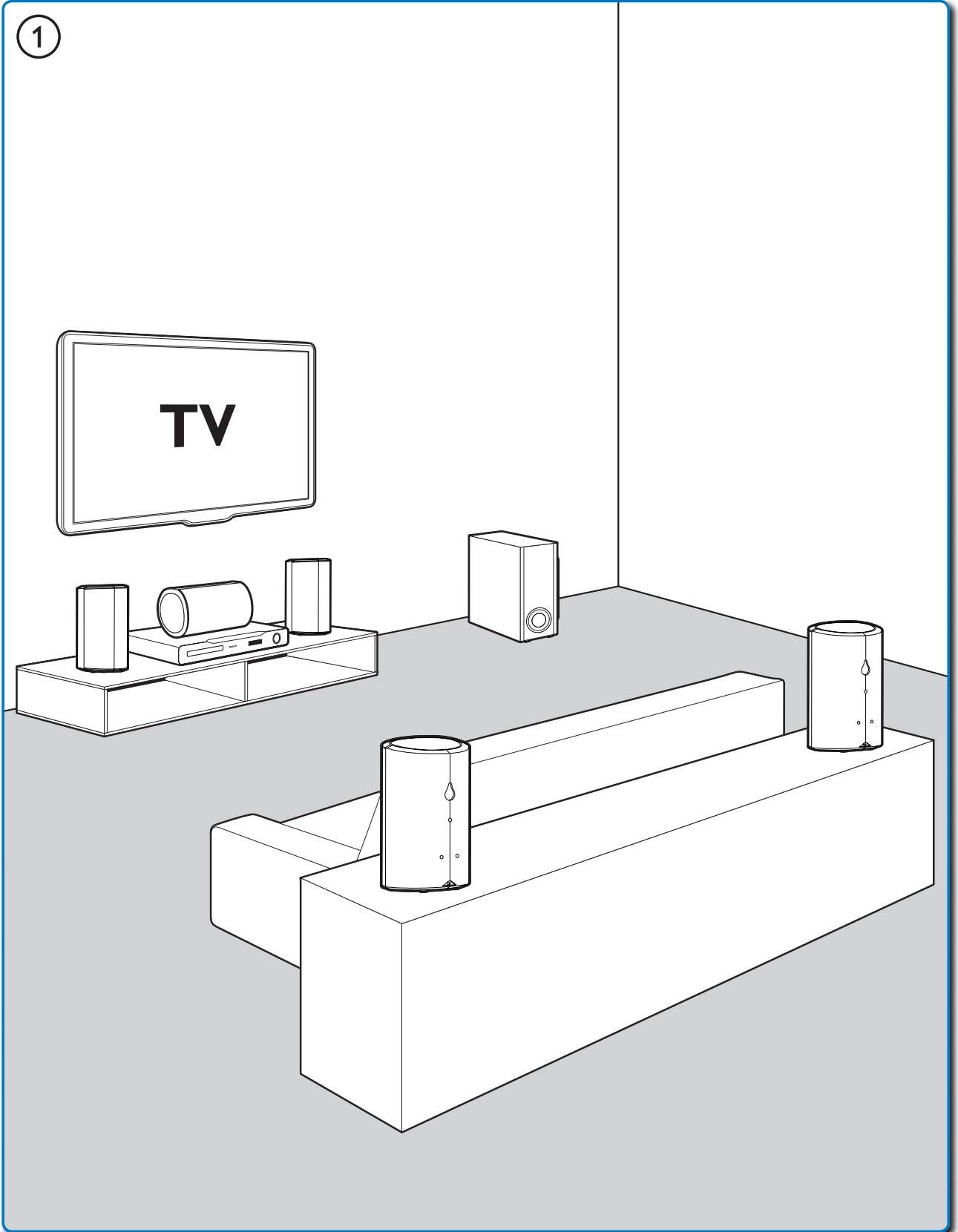


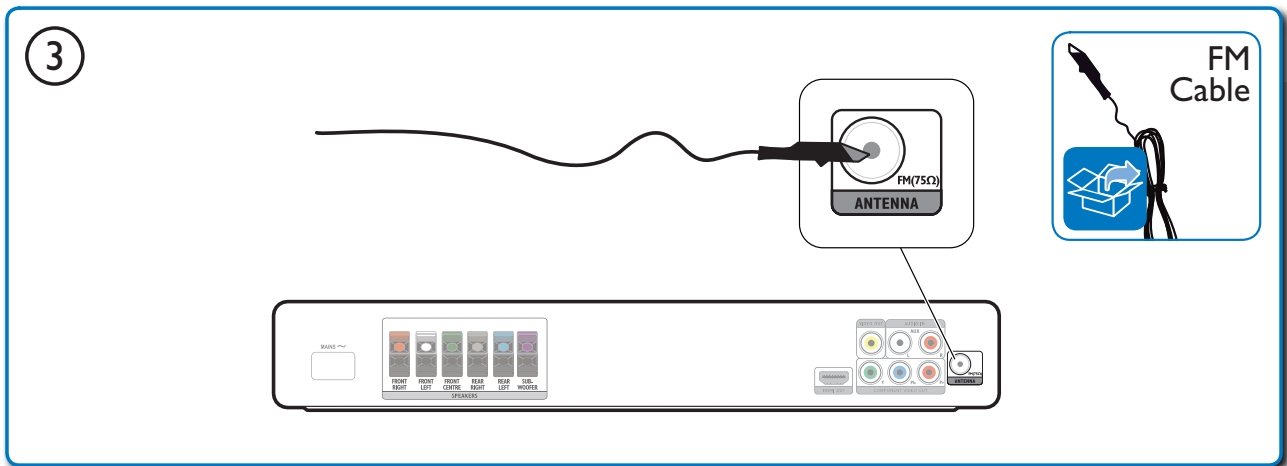
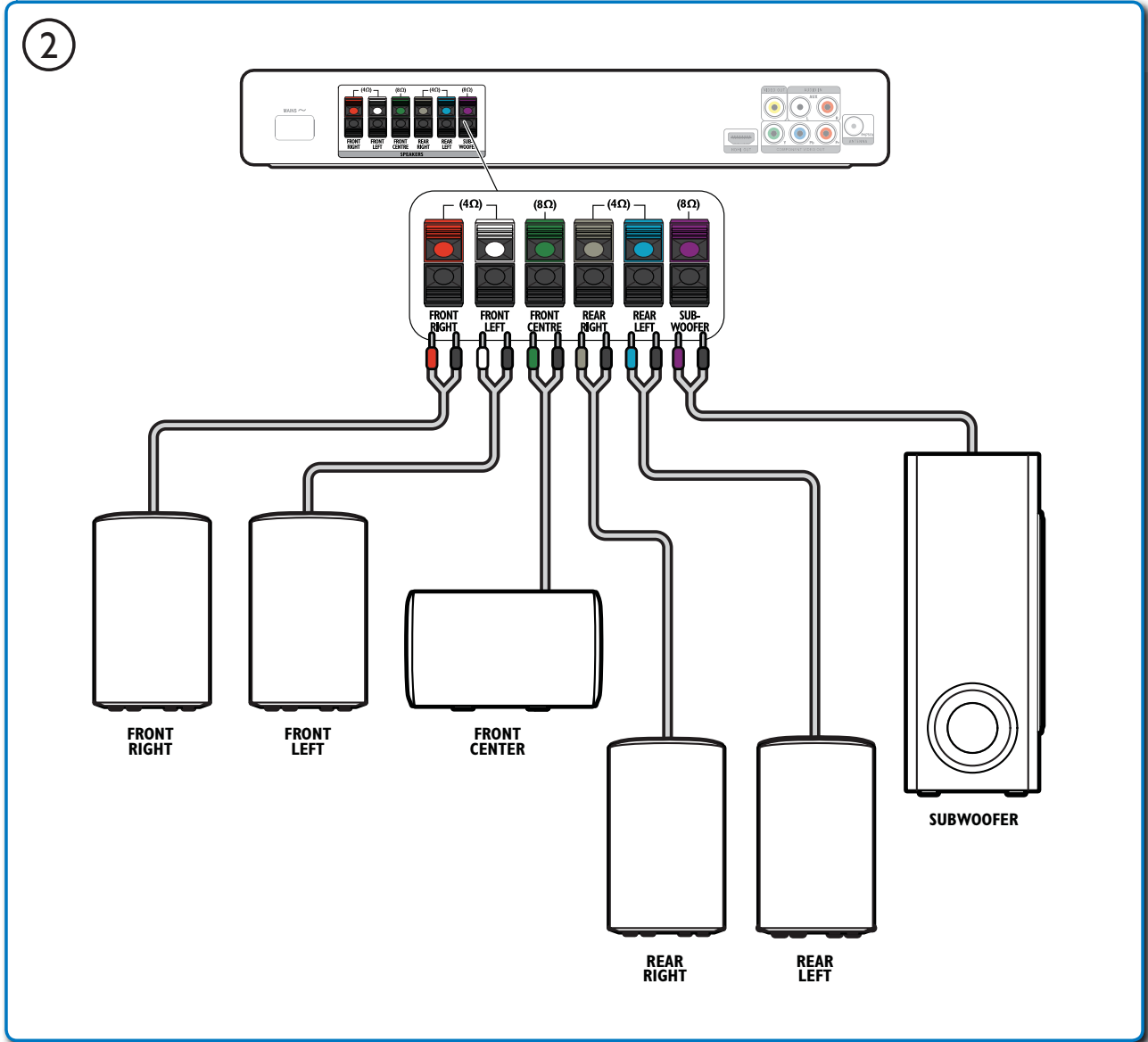
The following excerpt of the Quick Start Guide serves as an introduction to the set. The complete Direction For Use can be download in different languages from Philips Customer Contact & Support site: www.p4c.philips.com

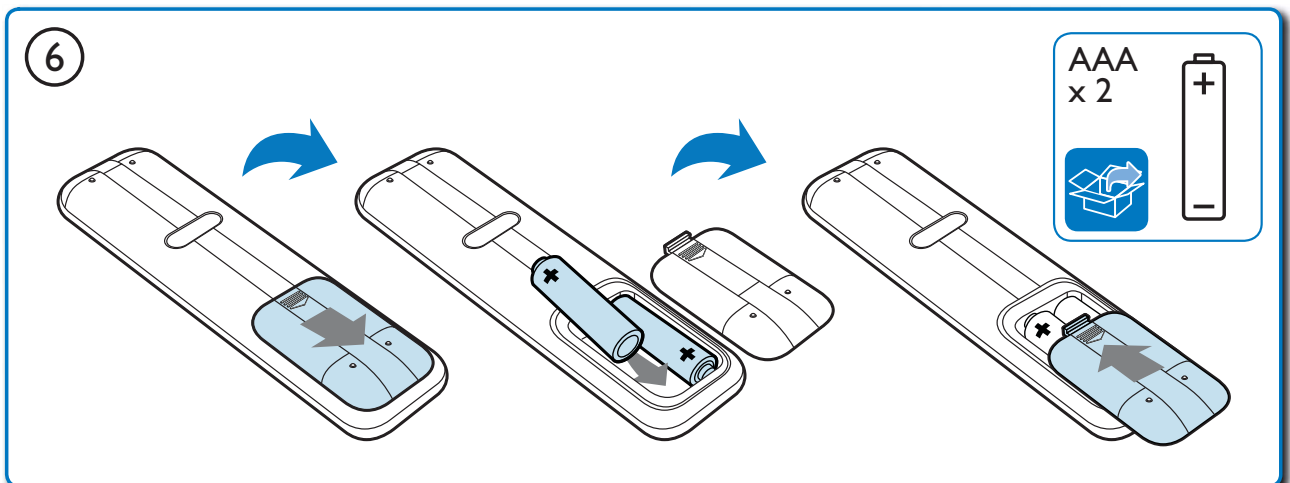
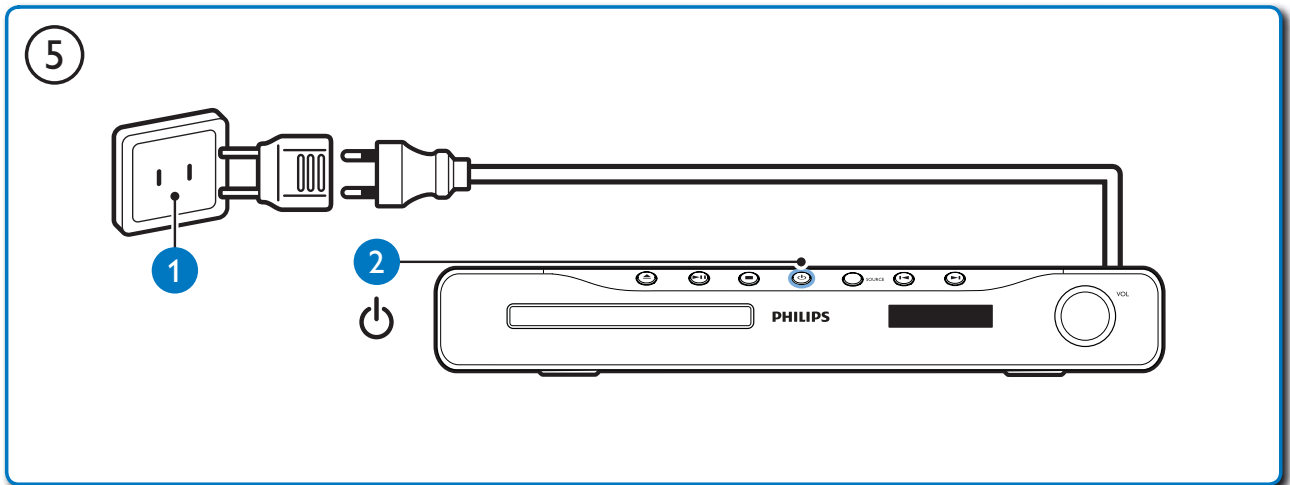
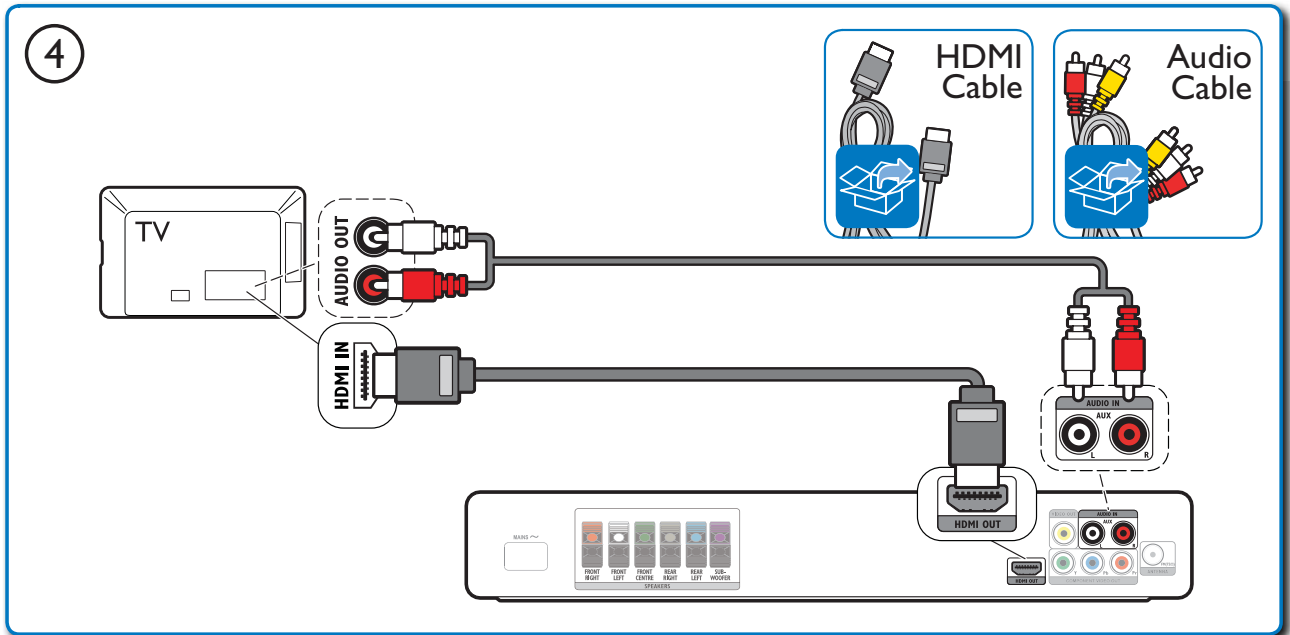


* Adaptador fornecido como acessório não deverá ser usado nas redes elétricas do Brasil, seu uso é destinado exclusivamente a outros países da América Latina.

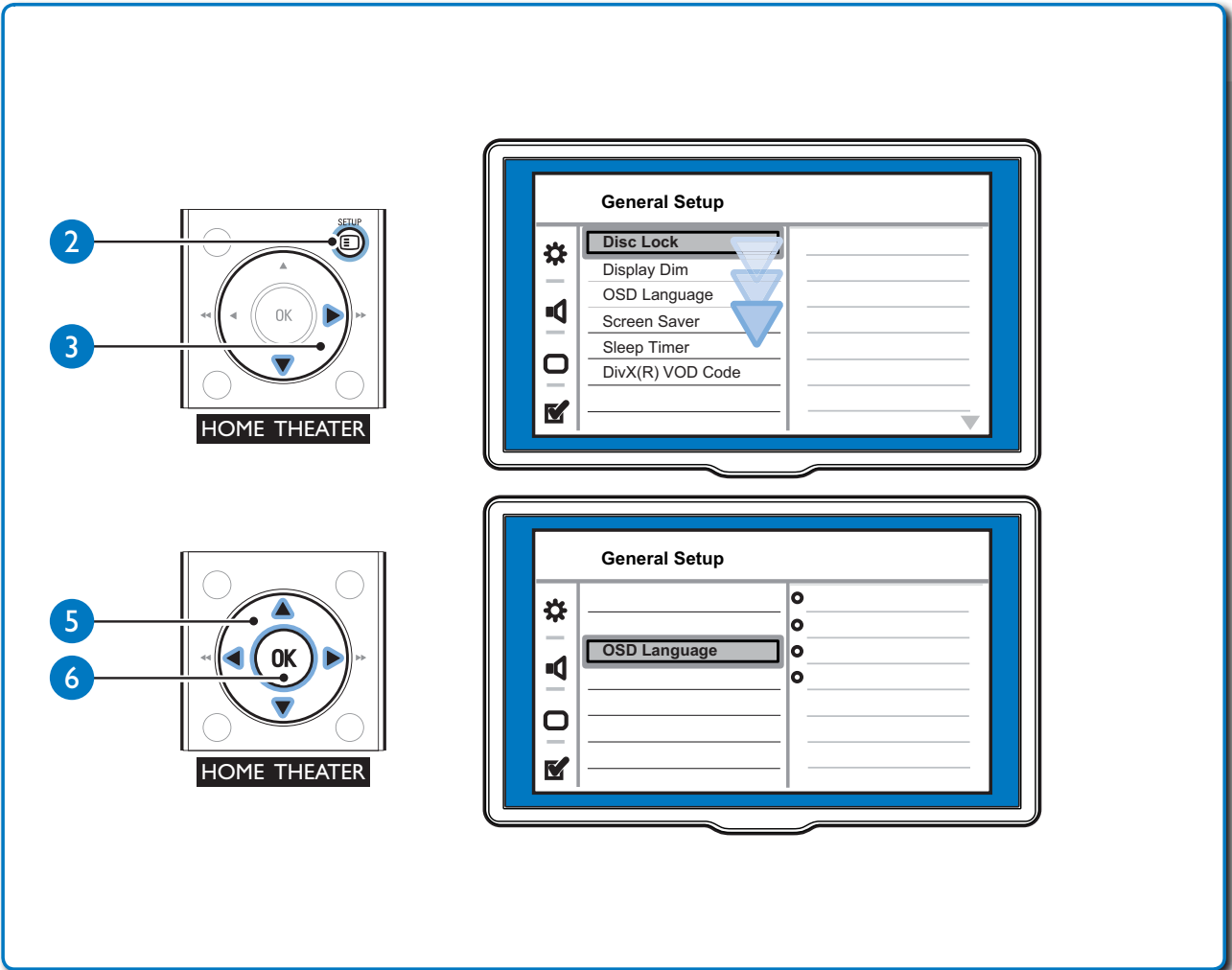
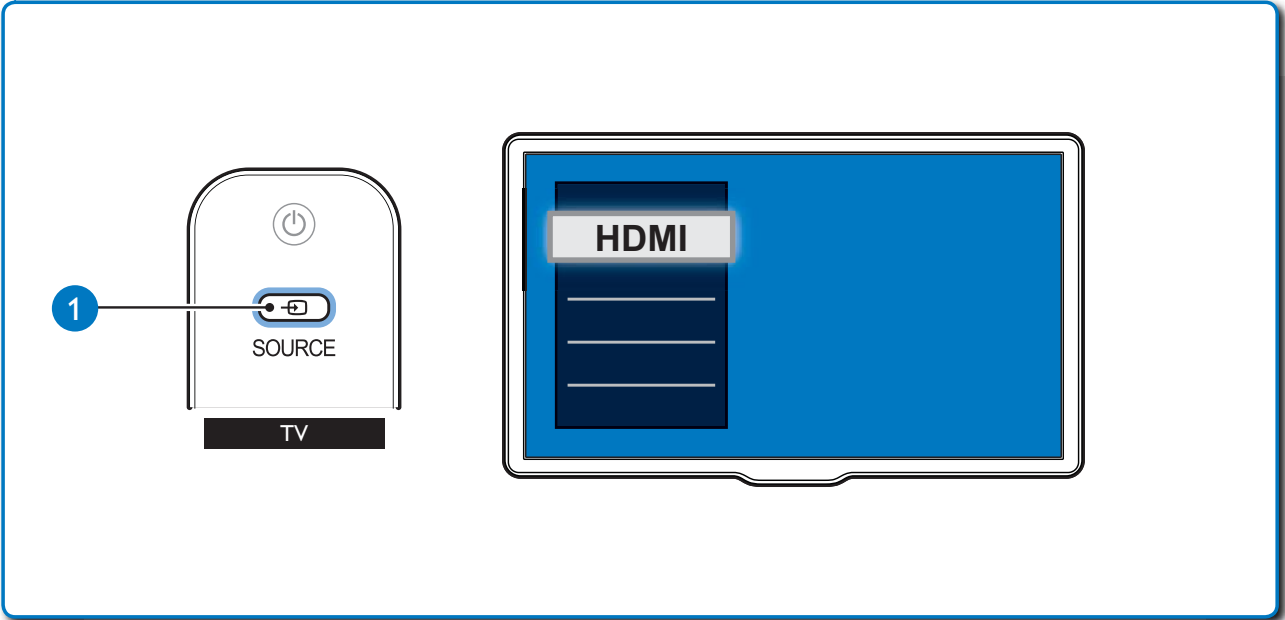
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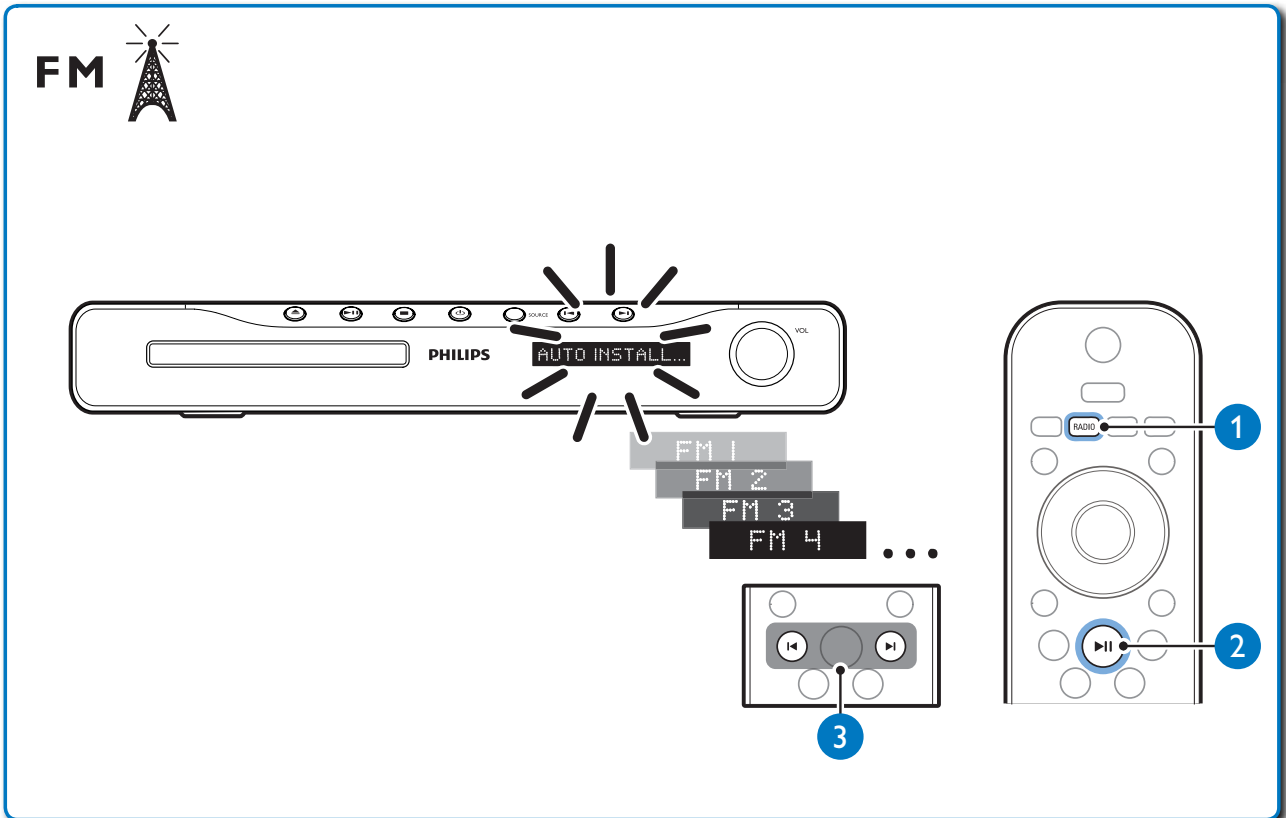
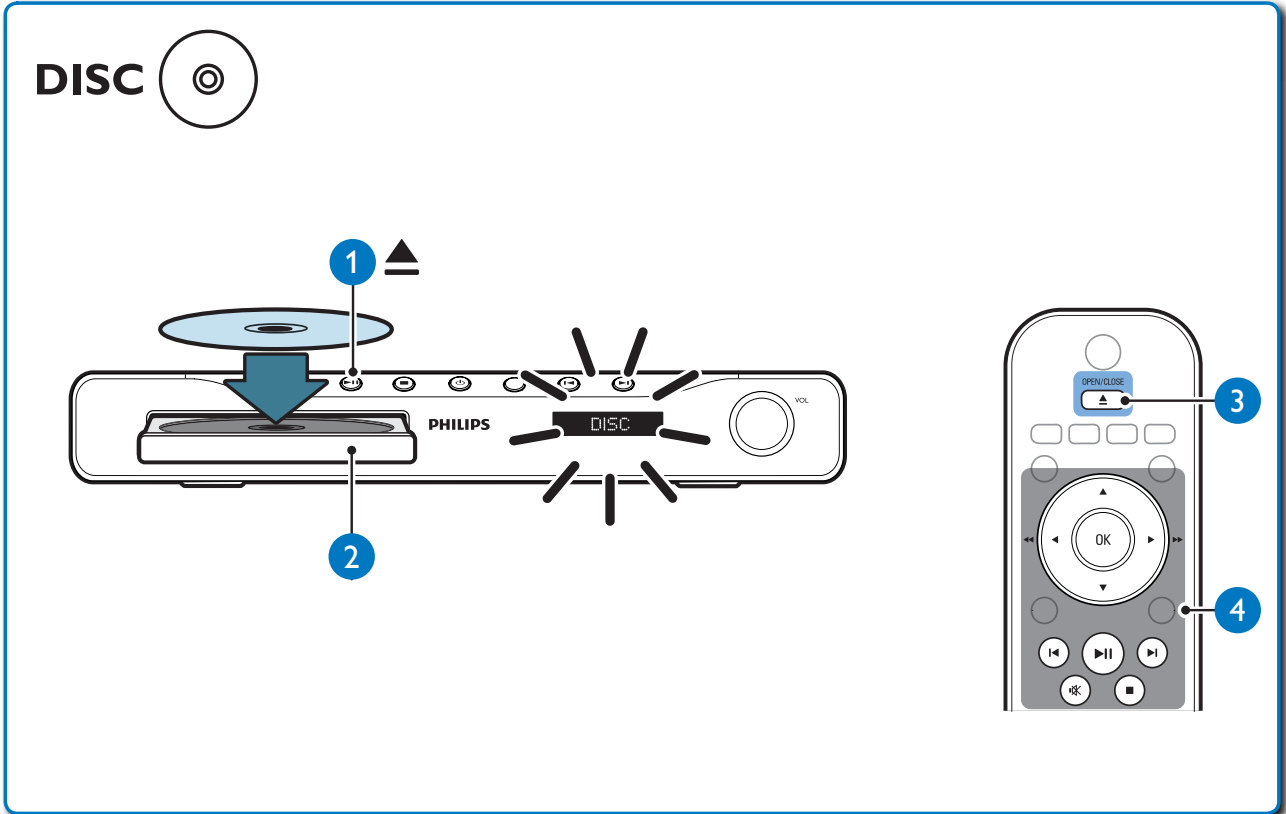


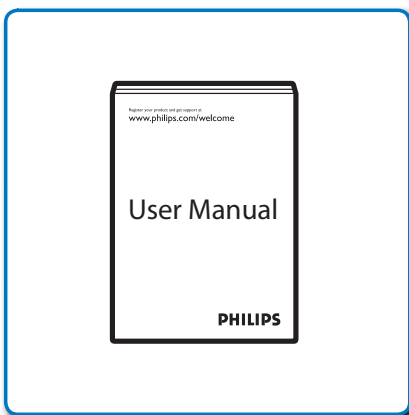
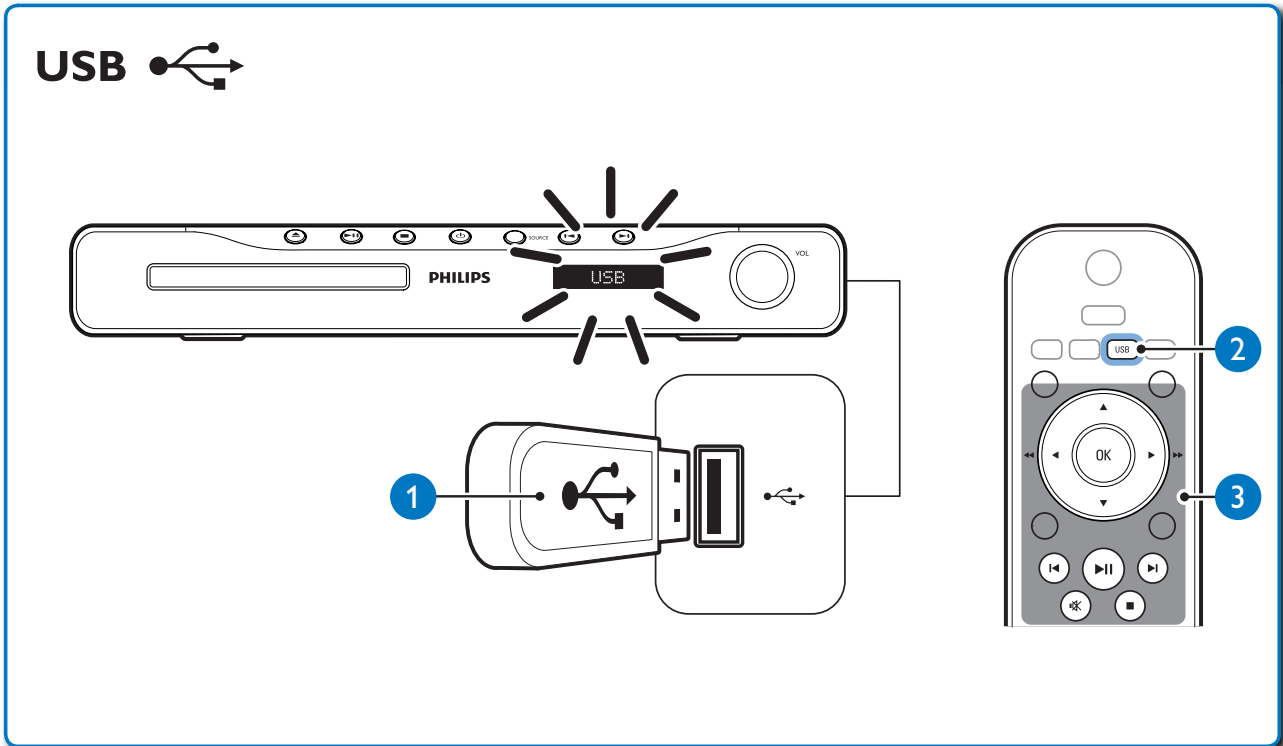


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3





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sgyth_1001/55/v1

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Respect copyrights

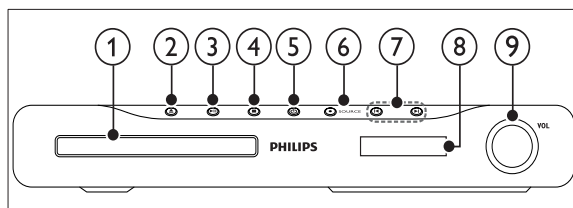


HTS3511E/94:

Your home theater

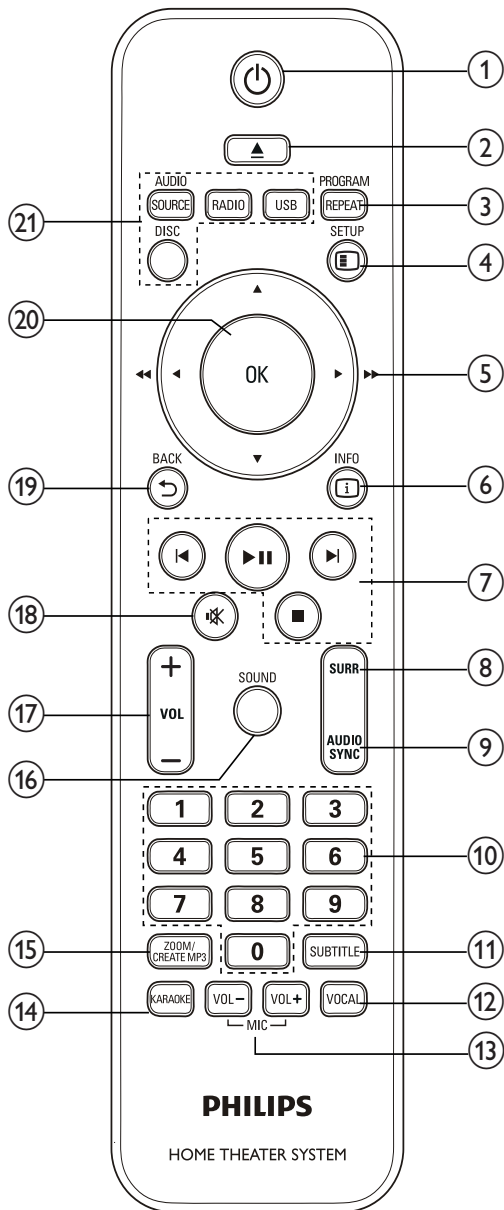
Congratulations on your purchase, and welcome to Philips! To fully benefit from the support that Philips offers, register your home theater at www.philips.com/welcome.

Main unit



- ① **Disc compartment**
- ② **▲ (Open/Close)**
Opens or closes the disc compartment.
- ③ **▶|| (Play/Pause)**
Starts, pauses or resumes play.
- ④ **■ (Stop)**
 - Stops play.
 - In radio mode, erases the current preset radio station.
- ⑤ **⏻ (Standby-On)**
Switches the home theater on or to standby.
- ⑥ **SOURCE**
Selects an audio/video source for the home theater.
- ⑦ **◀ / ▶**
 - Skips to the previous or next track, chapter or file.
 - In radio mode, selects a preset radio station.
- ⑧ **Display panel**
- ⑨ **Volume control wheel**

Remote control



- ① **⏻ (Standby-On)**
Switches the home theater on or to standby.
- ② **▲ OPEN/CLOSE**
Opens or closes the disc compartment.
- ③ **REPEAT / PROGRAM**
 - Selects a repeat or shuffle mode.
 - In radio mode, programs radio stations.
- ④ **⌘ SETUP**
Accesses or exits the setup menu.
- ⑤ **▲▼◀▶ (Navigation buttons)**
 - Navigate menus.
 - In video mode, press left or right to fast backward or fast forward.
 - In radio mode, press left or right to search a radio station; press up or down to fine tune a radio frequency.
- ⑥ **ⓘ INFO**
Displays information about what is playing.
- ⑦ **Playback buttons**
Control playback.
- ⑧ **SURR (Surround Sound)**
Switches to surround sound or stereo sound.
- ⑨ **AUDIO SYNC**
 - Selects an audio language or channel.
 - Press and hold to synchronize audio with video. Use with +/-.
- ⑩ **Numeric buttons**
Selects an item to play.
- ⑪ **SUBTITLE**
Selects subtitle language for video.
- ⑫ **VOCAL**
Turns off the vocal by changing the audio channel.
- ⑬ **MIC VOL +/-**
Increases or decreases microphone volume.
- ⑭ **KARAOKE**
Accesses or exits the karaoke menu.
- ⑮ **CREATE MP3 / ZOOM**
 - Accesses the menu to create MP3.
 - Zooms into a video scene or picture.
- ⑯ **SOUND**
Selects a sound mode.
- ⑰ **VOL +/-**
Increases or decreases volume.
- ⑱ **⊘ (Mute)**
Mutes or restores volume.
- ⑲ **↶ BACK**
Returns to a previous menu screen.
- ⑳ **OK**
Confirms an entry or selection.
- ㉑ **Source buttons**
 - **AUDIO SOURCE:** Selects an audio input source.
 - **RADIO:** Switches to FM radio.
 - **USB:** Switches to USB storage device.
 - **DISC:** Switches to disc source.

Mechanical and Dismantling Instructions

Dismantling Instruction

Detailed information please refer to the model set.

The following guidelines show how to dismantle the player.

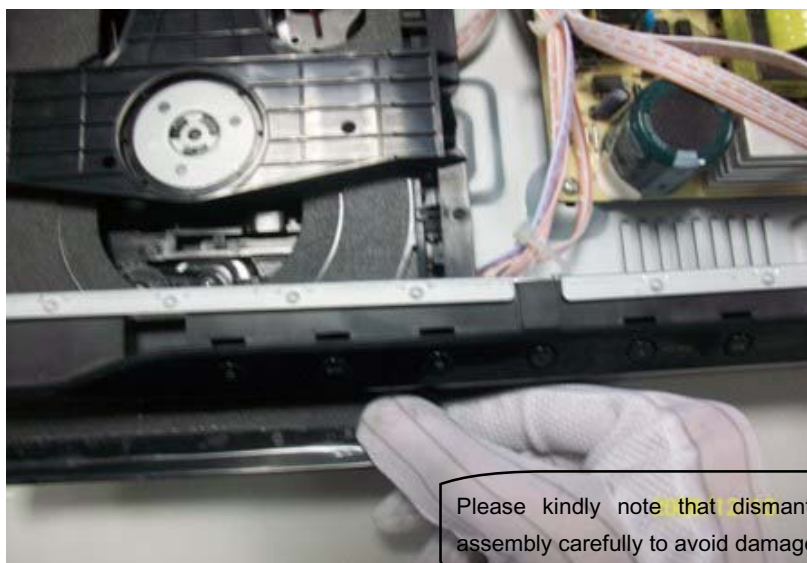
Step1: Remove 6 screws around the Top Cover, and then remove the Top Cover (Figure 1).



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

Detailed information please refer to the model set.

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.

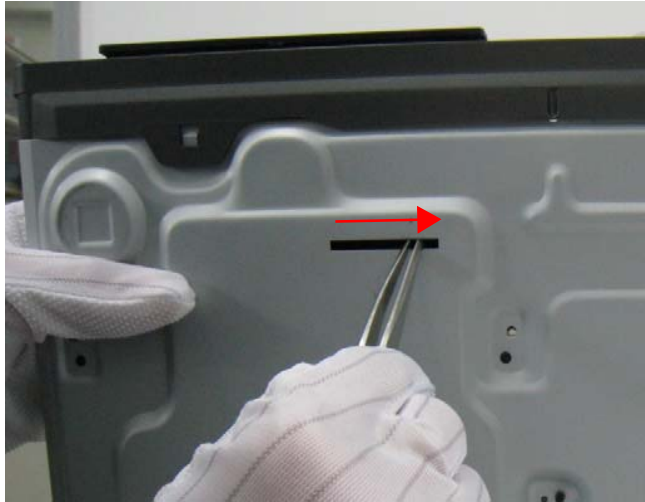


Figure 3

Step4: Dismantling Front Panel, disconnect the connectors (XP9, XP16, XP18, XP20), need cut 2 twist tie down, and release 2 snaps of front panel & 2 snaps of bottom cabinet, then gently pull the Panel out from the set. (Figure 4 - Figure 6)

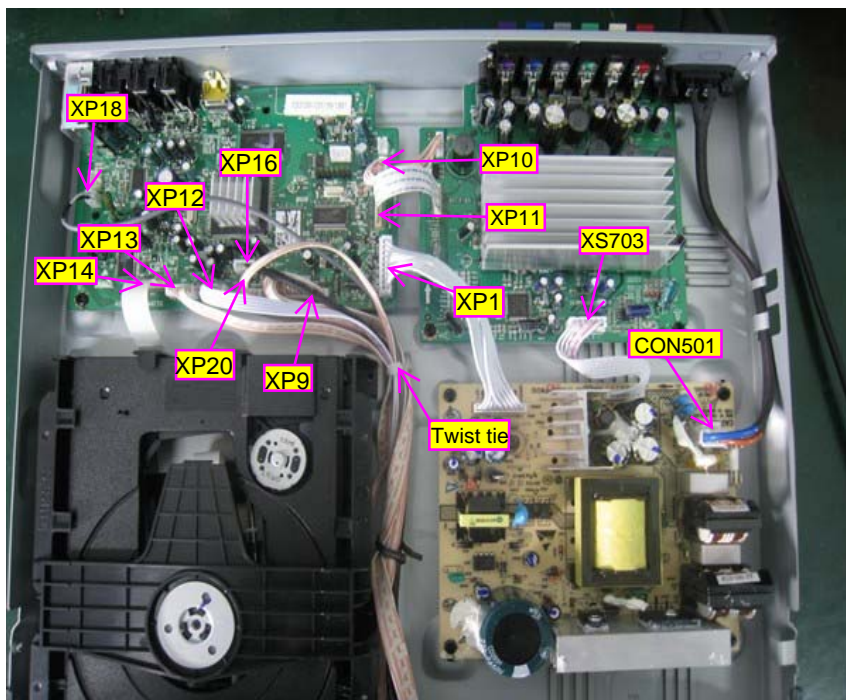


Figure 4

Mechanical and Dismantling Instructions

Dismantling Instruction

Detailed information please refer to the model set.

Step5: Dismantling Loader, disconnect the 3 connectors (XP12, XP13, XP14) aiming in the below figure, and remove 2 screws that connects the loader and the bottom cabinet. (Figure 5)

Dismantling the Turn Knob assembly, pls refer to below instruction, or poke it out at rearward by forceps. (The last steps of Figure 5)

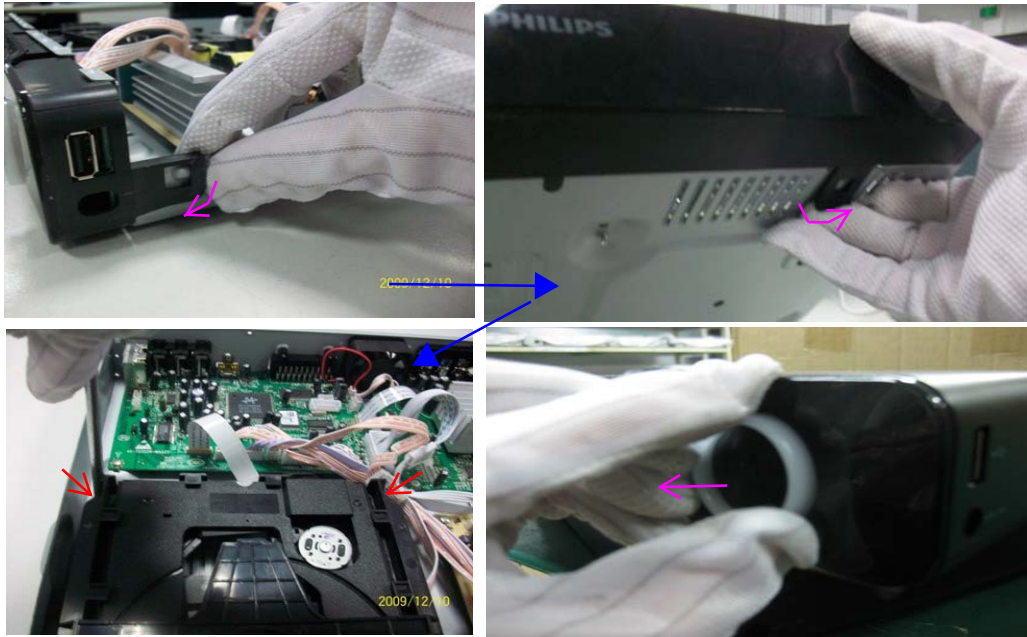


Figure 5

Step6: Dismantling Main Board, first disconnect 3 connectors (XP1, XP10, XP11), and then remove 6 screws. (Figure 6)

Step7: Dismantling Power Board, disconnect the connectors XS703 and CON501 then remove 4 screws. (Figure 6)

Step8: Dismantling Amplifier Board, remove 4 screws from the PCB. (Figure 6)

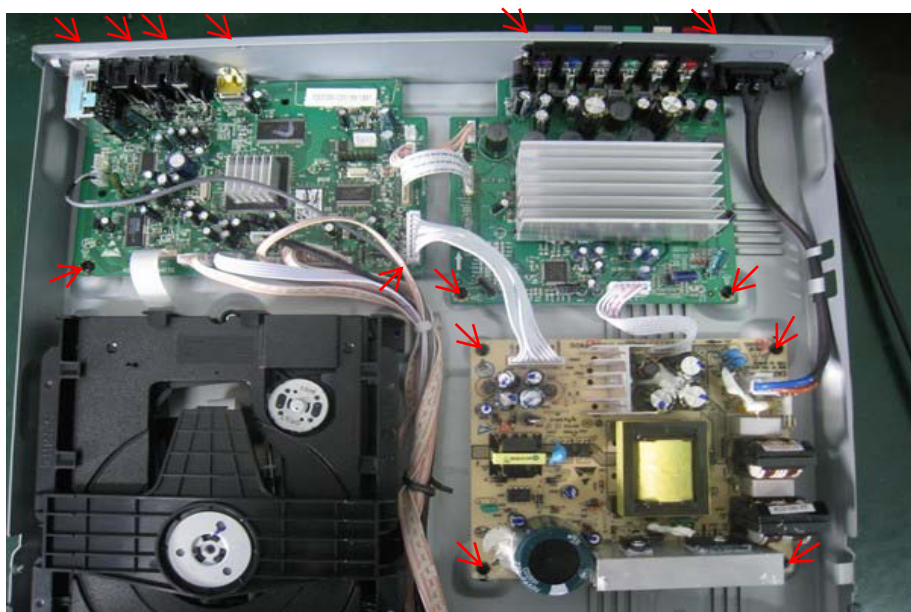


Figure 6

Software upgrade and region code change

Preparation to upgrade software

- 1) Power on the set and open the tray, then press "5" on remote control to check the SW File Name.
- 2) Start the CD Burning software and create a new CD project (Data Disc) with the following setting:
Label: HTSXXXX (No need the label name)
SW File Name: HTSXXXX_XX.BIN
Note: It is required to keep the SW file name accord.
- 3) Burn the data onto a blank CDR

A. Procedure for software upgrade:

A) Upgrade software via CDR:

- 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 file copying completed, then take the disc out.
- 5) About 1 minute later, the trace will automatically close when upgrading completed.

B) Upgrade software via USB Flash Drive:

- 1) Create the correct software file onto the USB flash drive.
- 2) Power on the set and keep no disc, then insert it to the USB jack of the front panel.
- 3) When the DVD player switches to the USB state automatically, pls follow the instructions on the TV screen to confirm the upgrade operation.

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 or press down cursor on remote control to select "Preferences" and press right & down cursor to select "Version Info".

The software version and other informations will be displayed on the TV screen as follows:

| | |
|-------------|--|
| File Name | HTSXXXX_XX.BIN |
| Version | XX.XX.XX.XX (Main version) |
| Sub-Ver | XX.XX.XX.XX (version of applicaton software) |
| RISC | XX.XX.XX.XX |
| Servo | XX.XX.XX.XX (software version of Servo) |
| Region Code | X |
| HDCP | PASS |
| MCU | XX |

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

Software version switch instruction

- 1). Power on the set and open the tray;
- 2). Press "6" "6" "6" "6" and "Audio" button on the remote control;
- 3). Press suited "Number code" below to switch to correct version;
- 4). Restart the Home theater player.

*Note: The Number code must be matched with the part code.

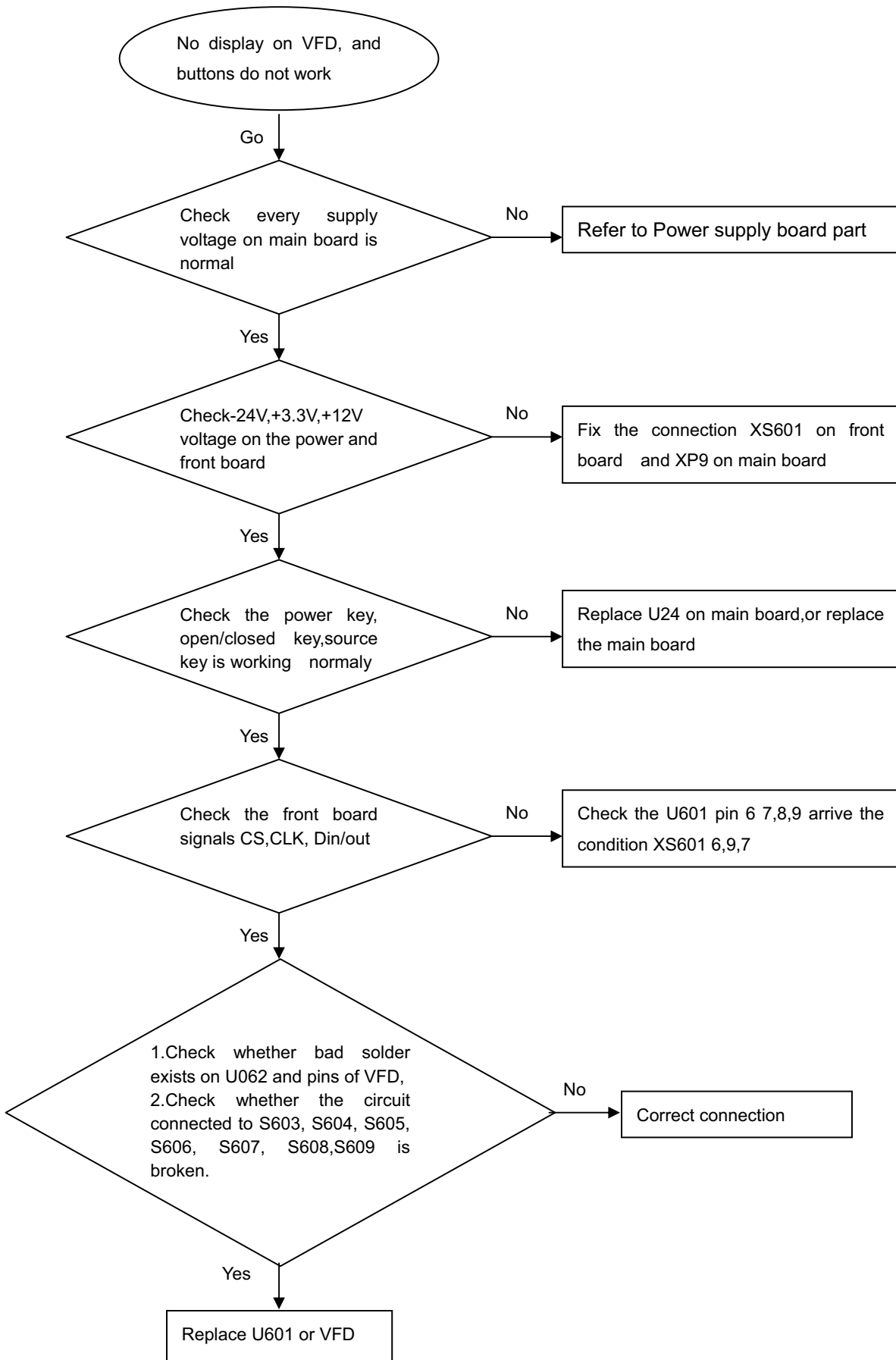
| Number code | Version |
|-------------|---------|
| 15 | 94 |

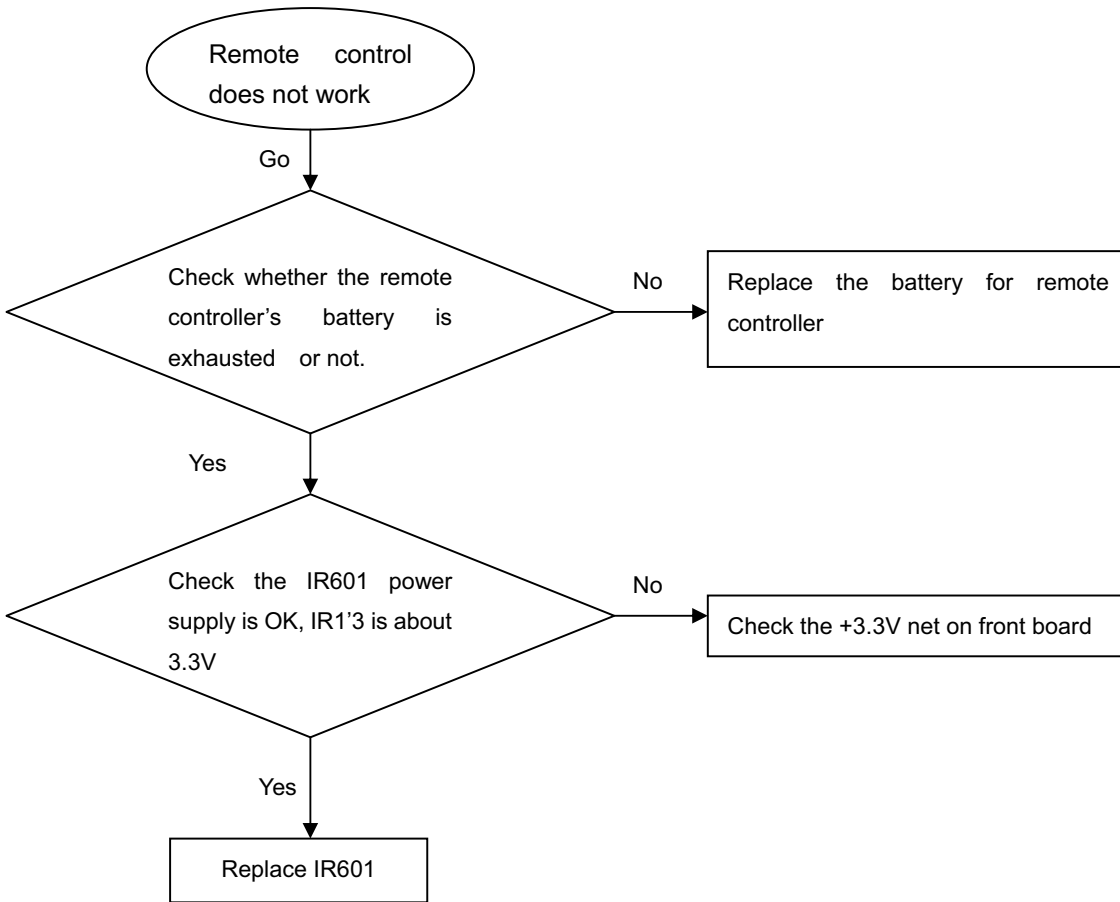
Region Code Change

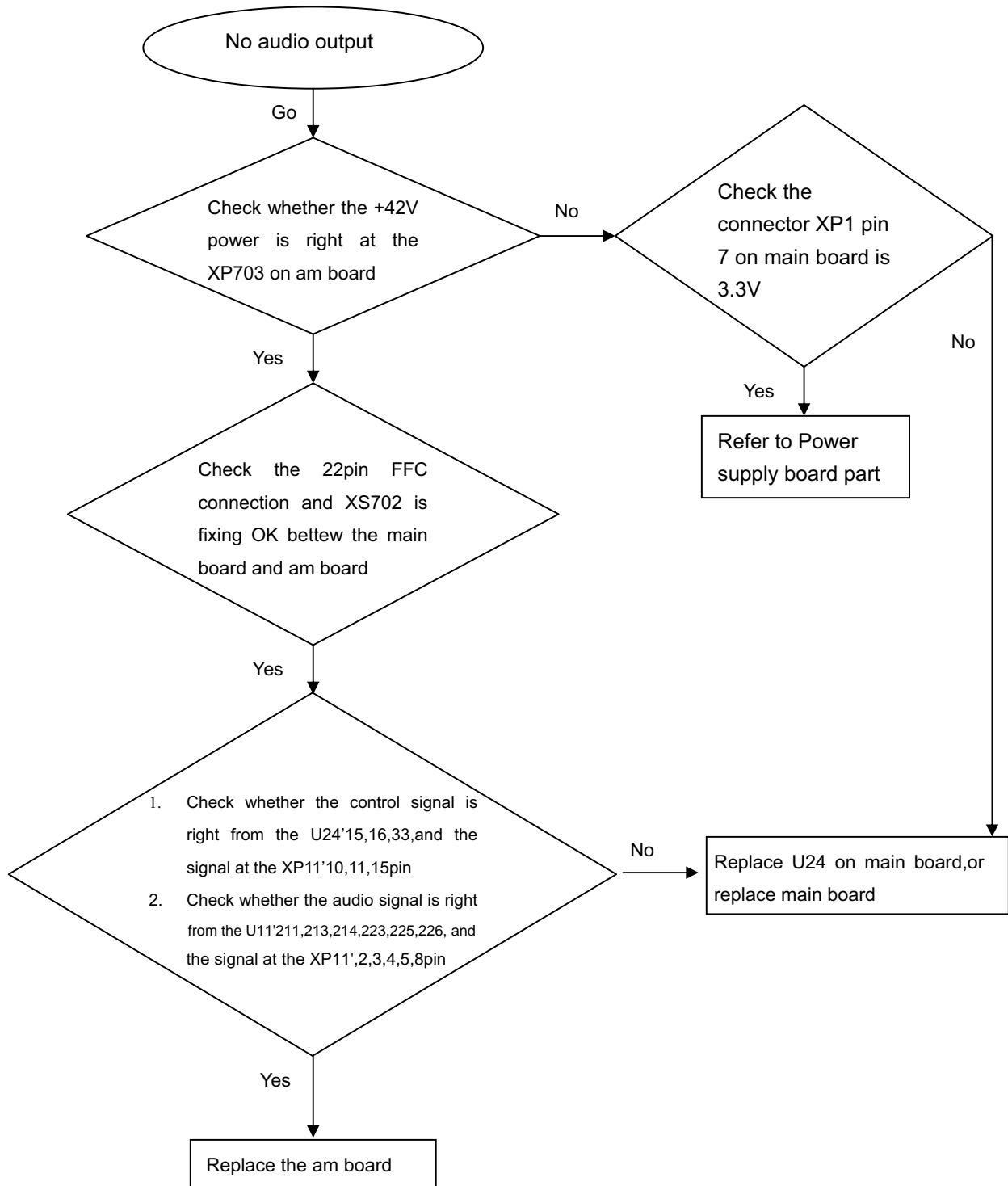
- 1) Power on the set and open the tray door;
- 2) Press the "Setup" button on the remote control, then the setup interface will be displayed on the TV screen;
- 3) Move the down cursor on remote control to select "Preferences" and press "1" "3" "8" "9" "3" "1" on the remote control;
- 4) Then move the up or down cursor to select the region code.

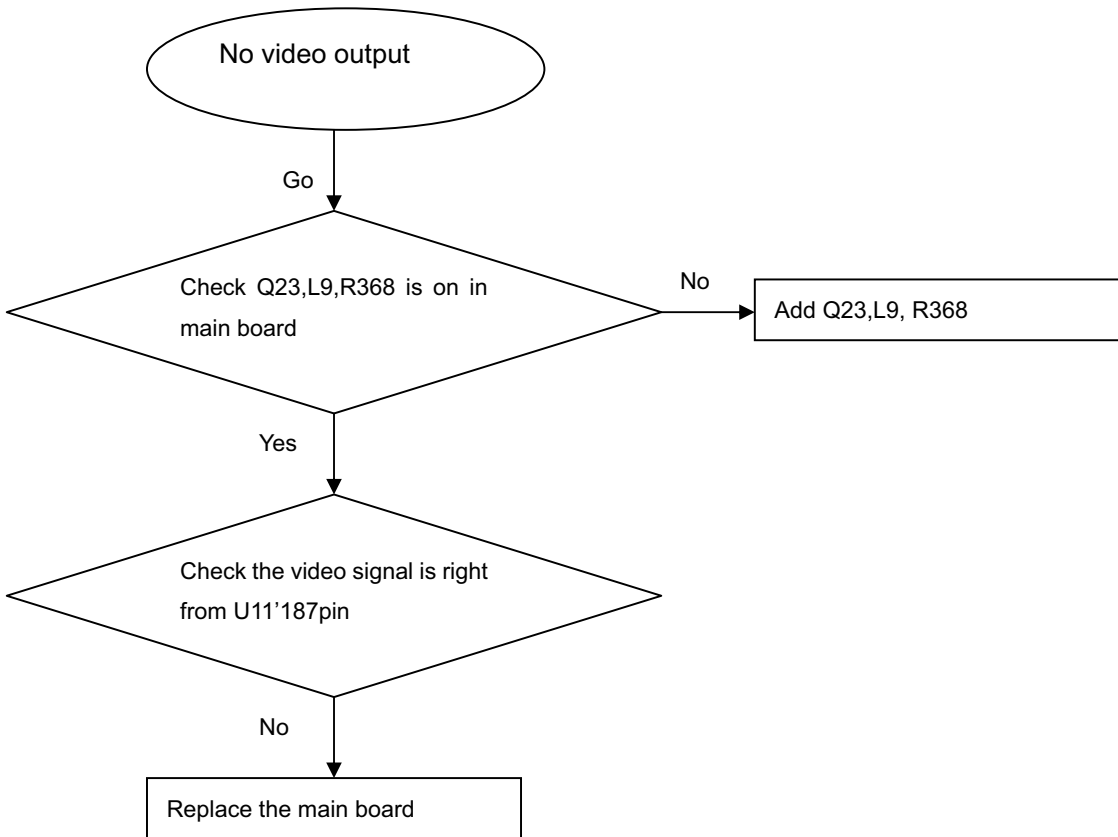
Note: Restart after above steps.

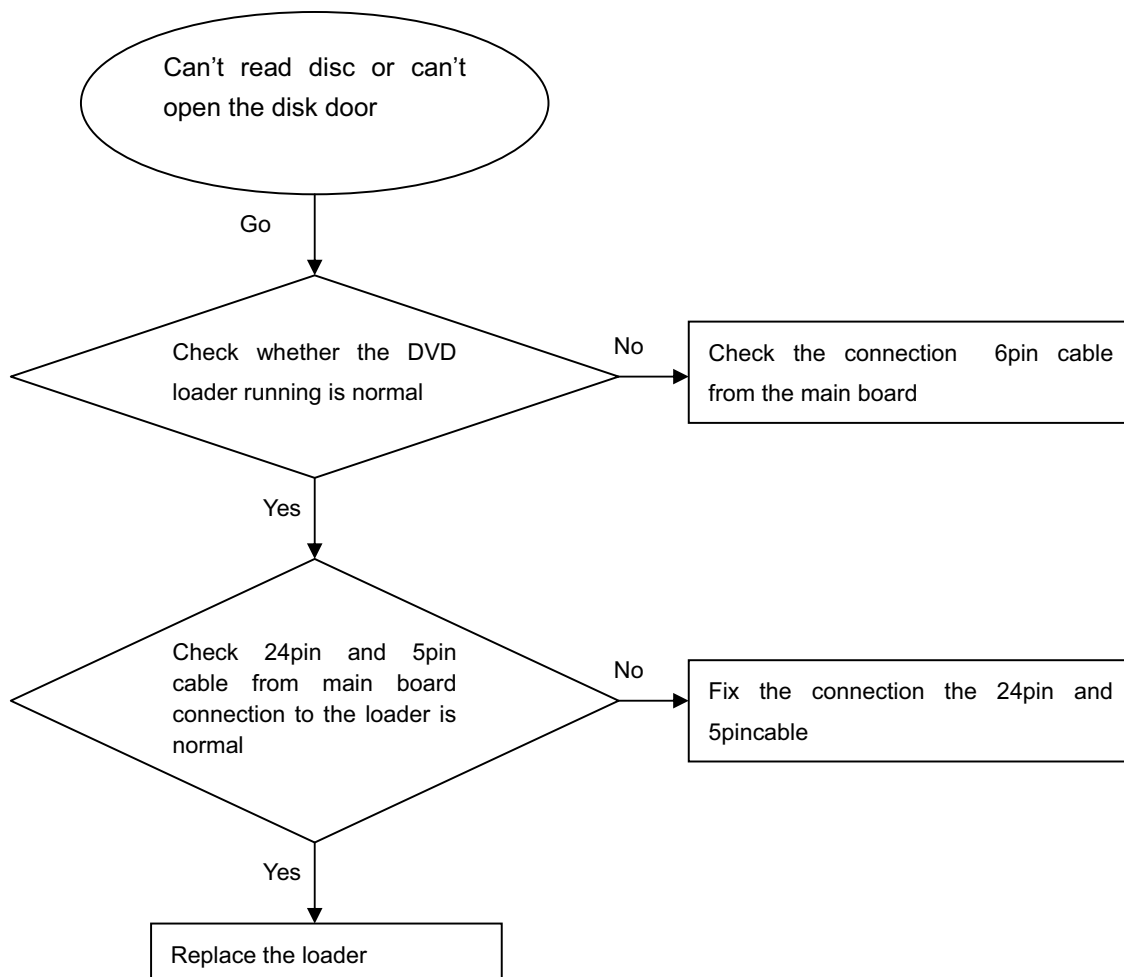
No display on VFD, and buttons do not work



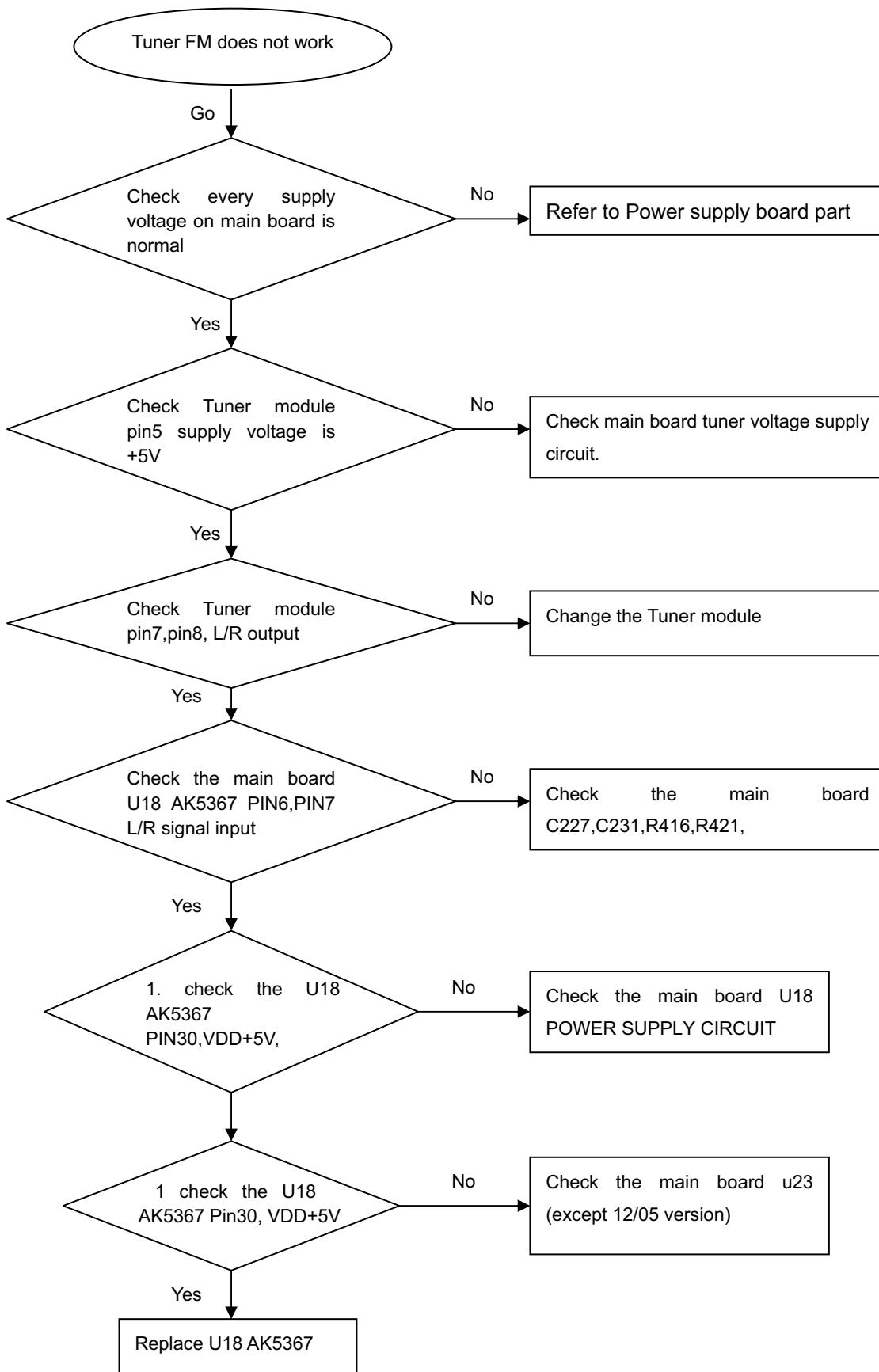
Remote control does not work

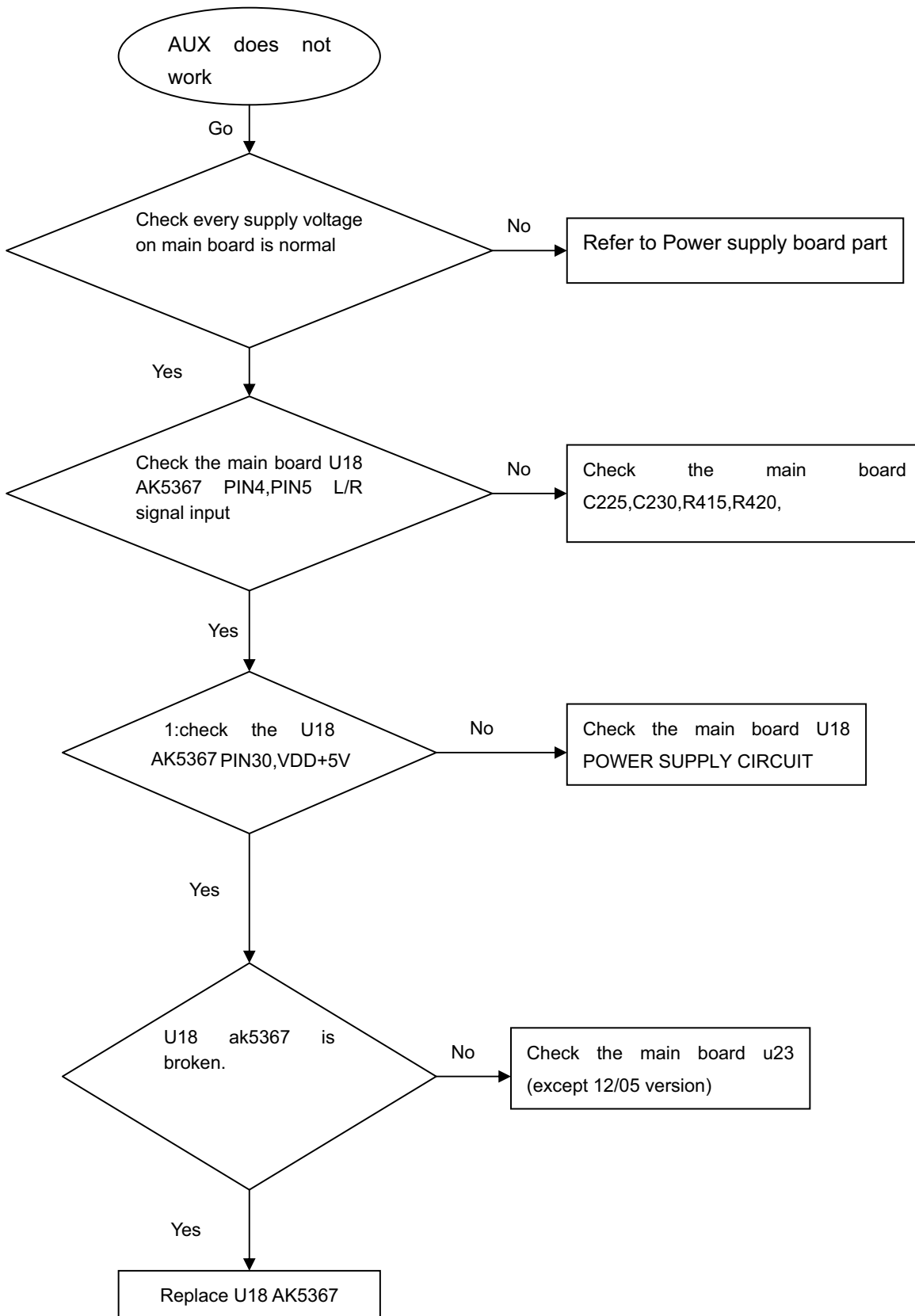
No audio output

No video output

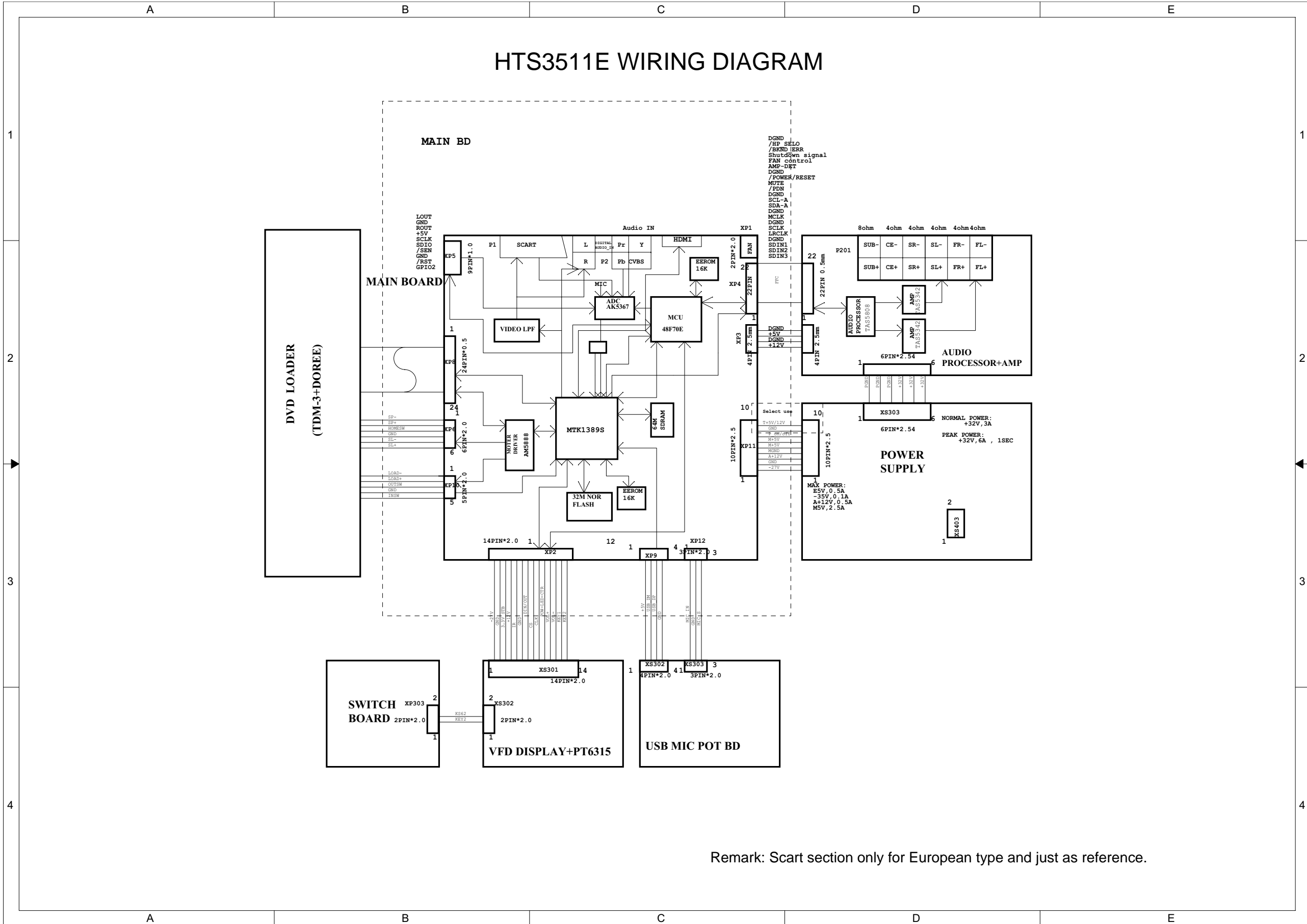
Can't read disc or can't open the disk door

Tuner FM does not work



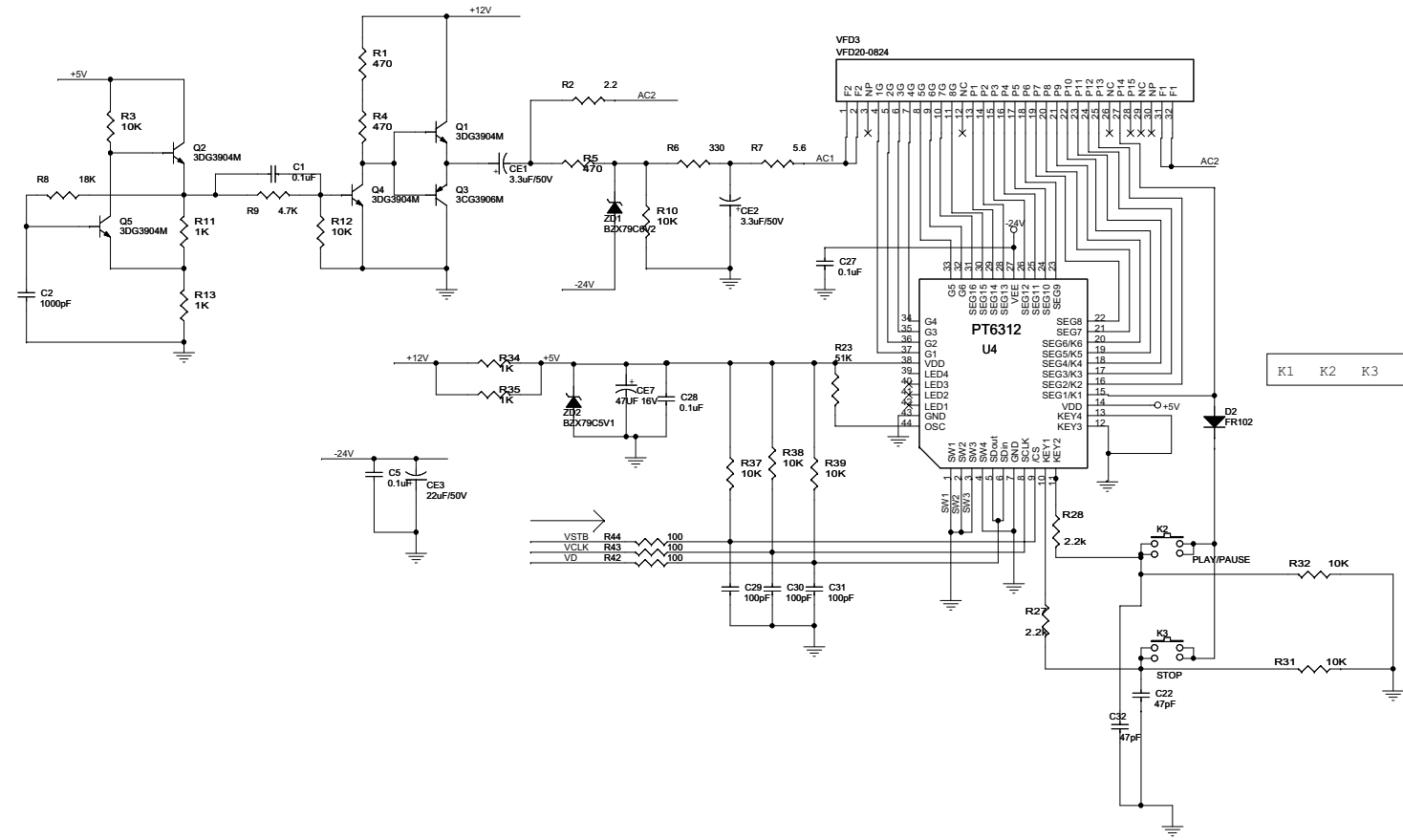
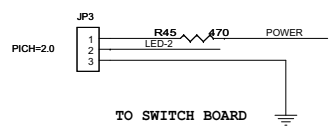
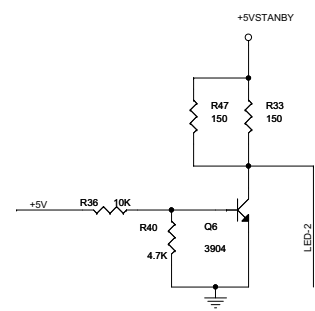
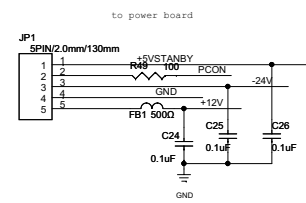
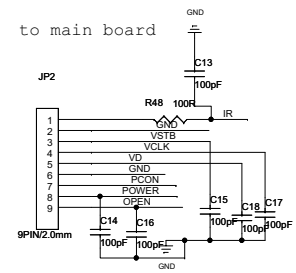
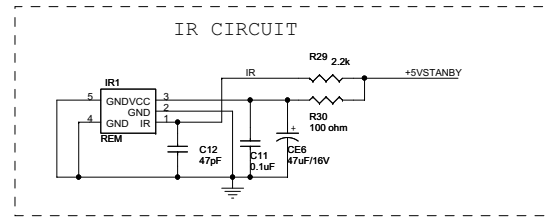
AUX does not work

HTS3511E WIRING DIAGRAM

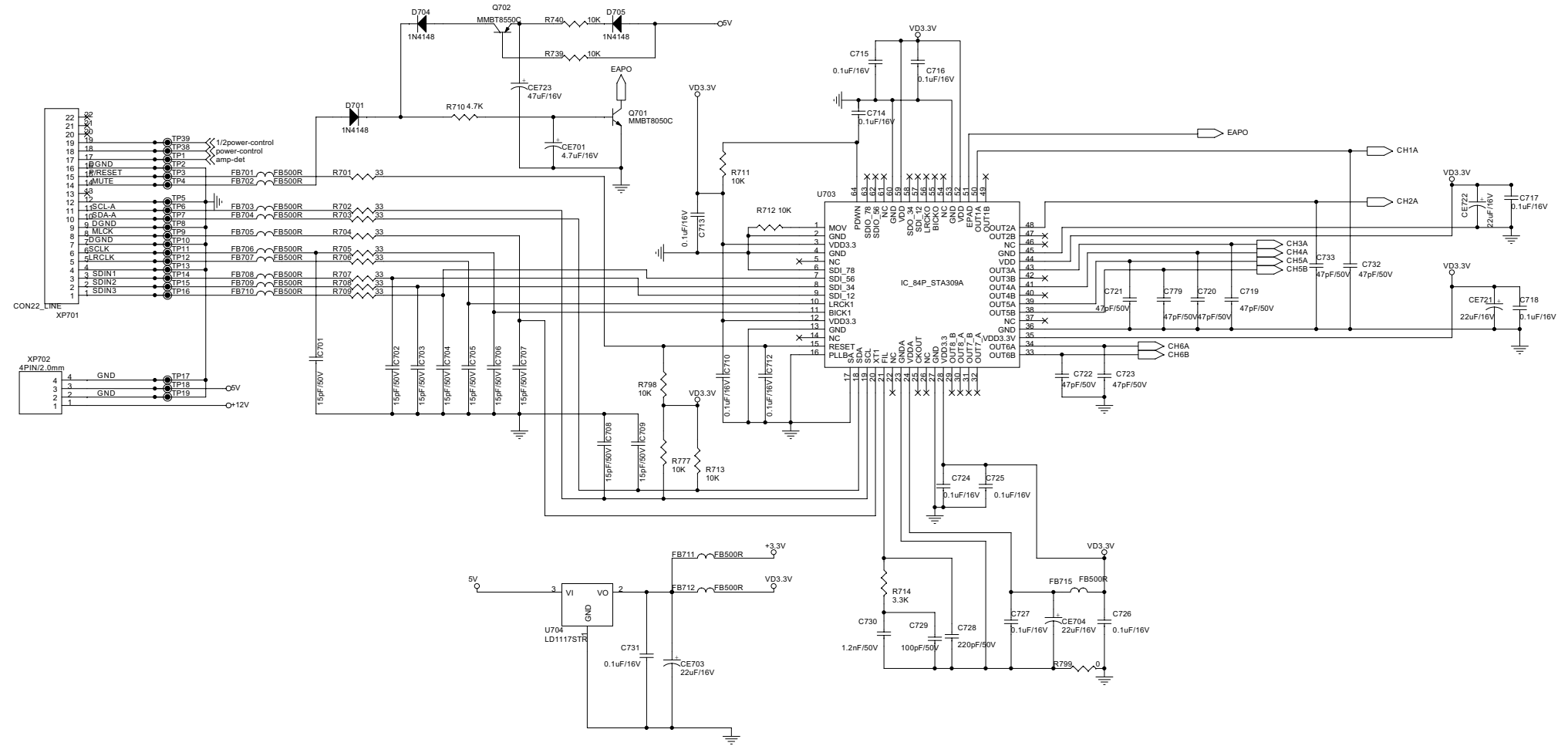


Remark: Scart section only for European type and just as reference.

Front Board Circuit Diagram:



Amplifier Board Circuit Diagram: STA309A



1

1

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4

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A

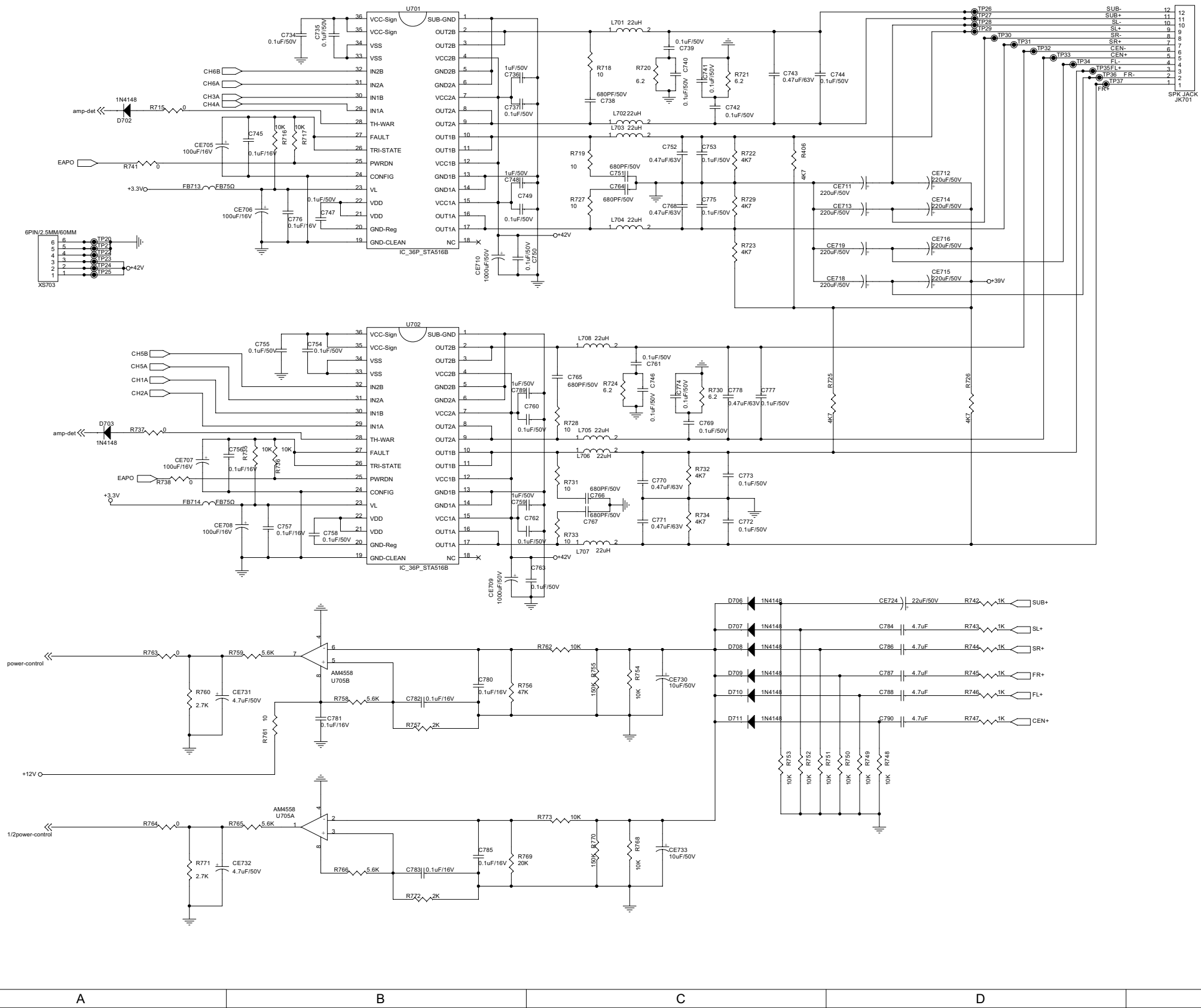
B

C

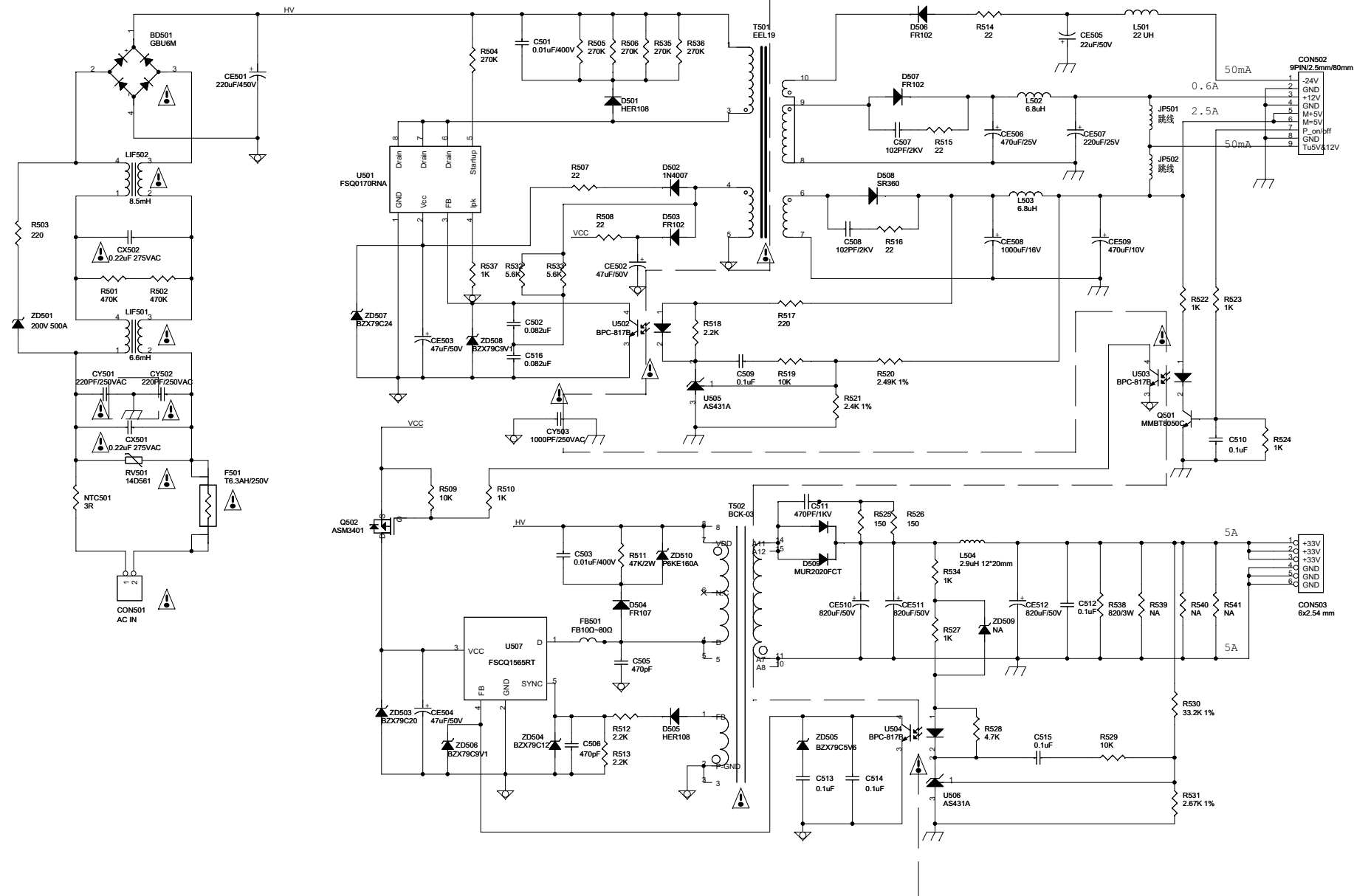
D


E

Amplifier Board Circuit Diagram: STA516B



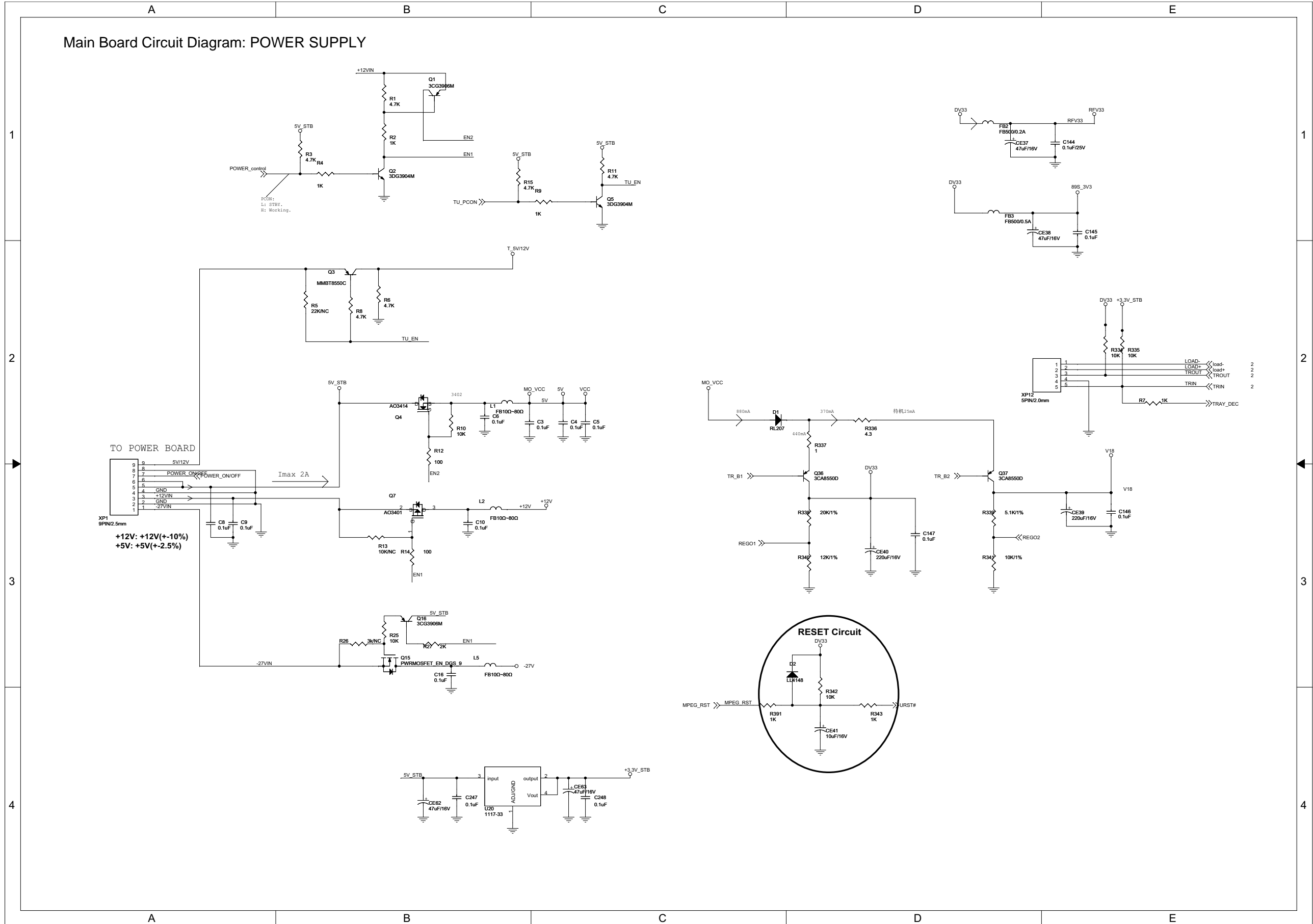
Power Board Circuit Diagram:

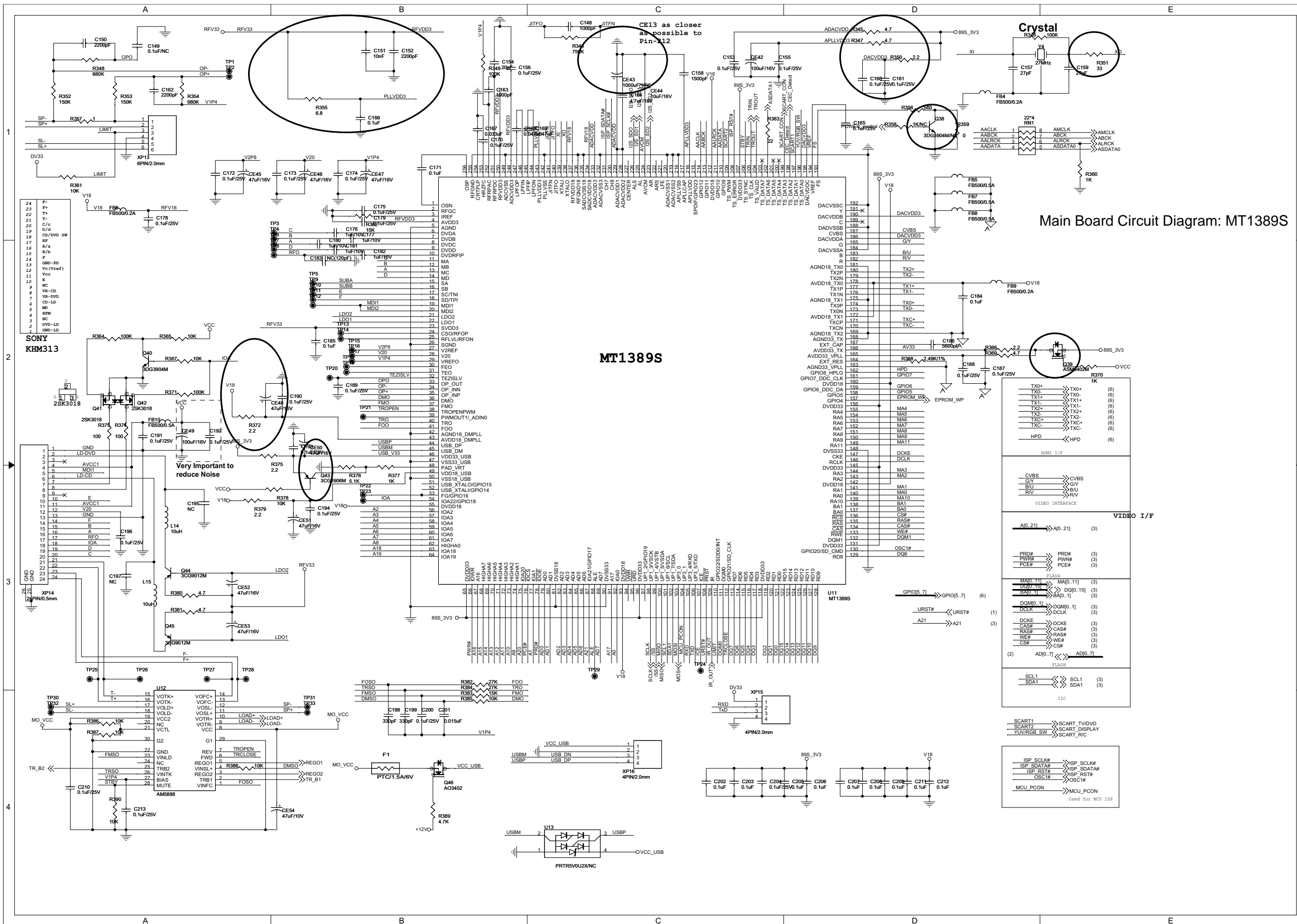


*** CAUTION :**
 THE PARTS MARKED WITH  ARE IMPORTANT PARTS ON THE SAFETY.
 PLEASE USE THE PARTS HAVING THE DESIGNATED PARTS NUMBER WITHOUT FAIL.

*** NO USE** of the class1 environment management substance of SS-00259.

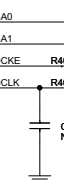
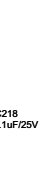
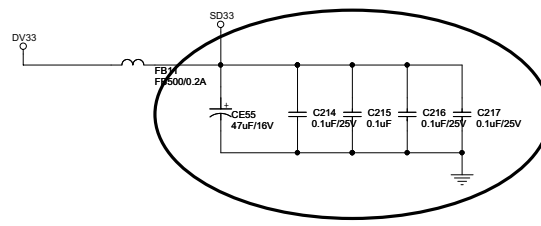
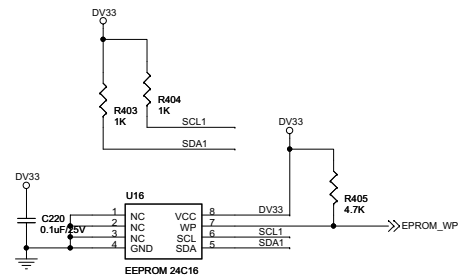
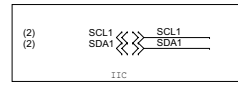
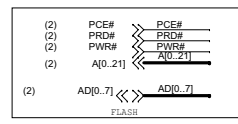
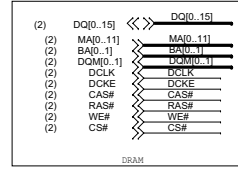
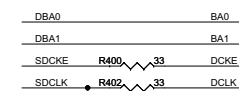
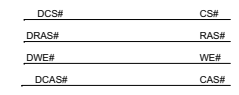
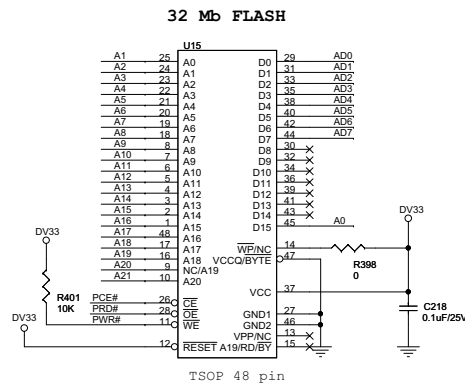
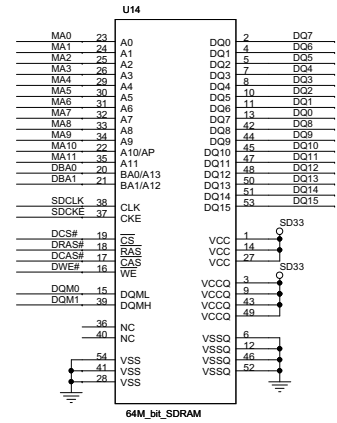
Main Board Circuit Diagram: POWER SUPPLY



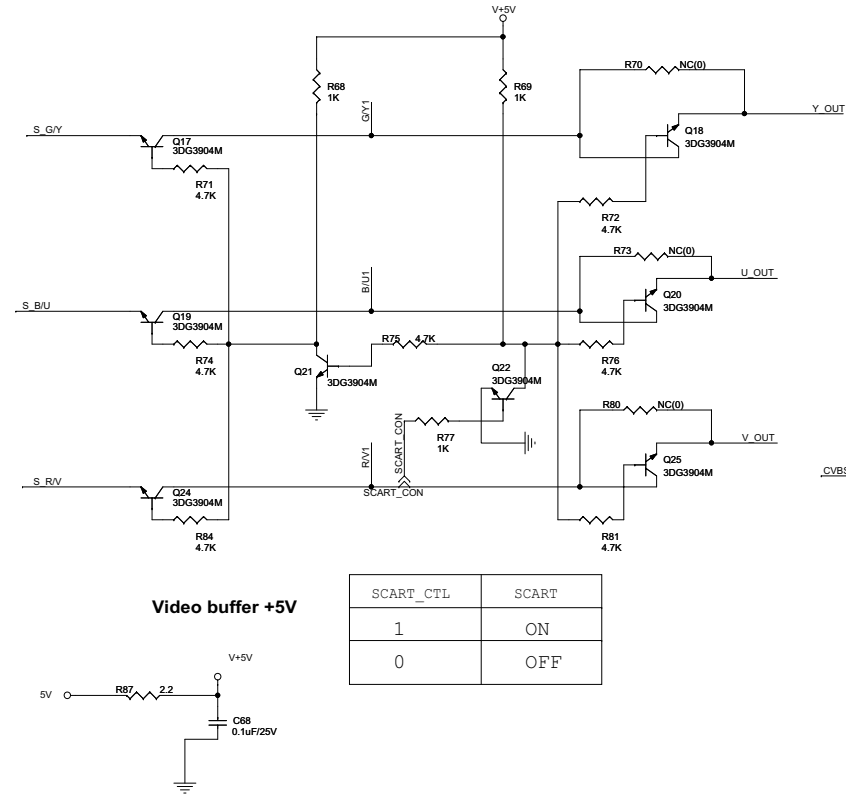


Main Board Circuit Diagram: MT1389S

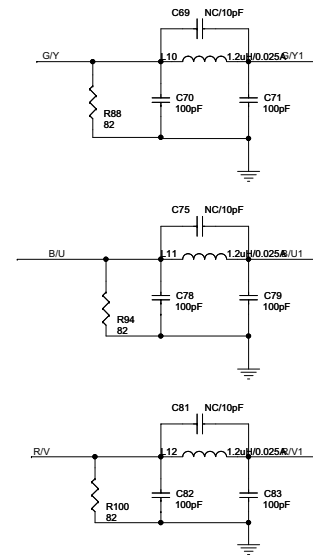
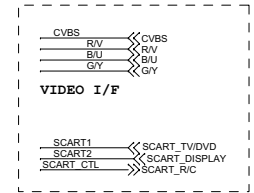
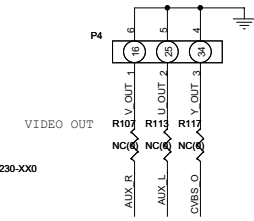
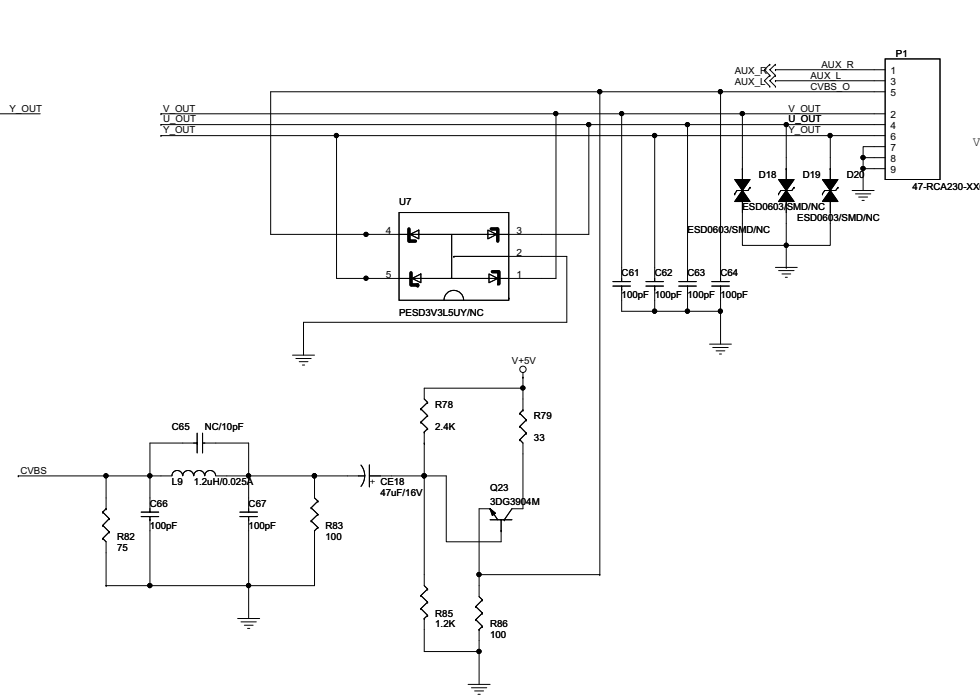
Main Board Circuit Diagram: SDRAM & FLASH



Main Board Circuit Diagram: SCART & VIDEO OUT

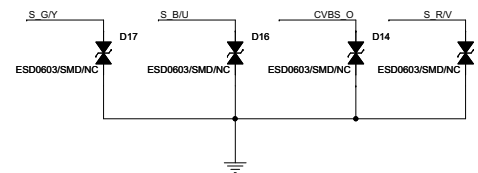
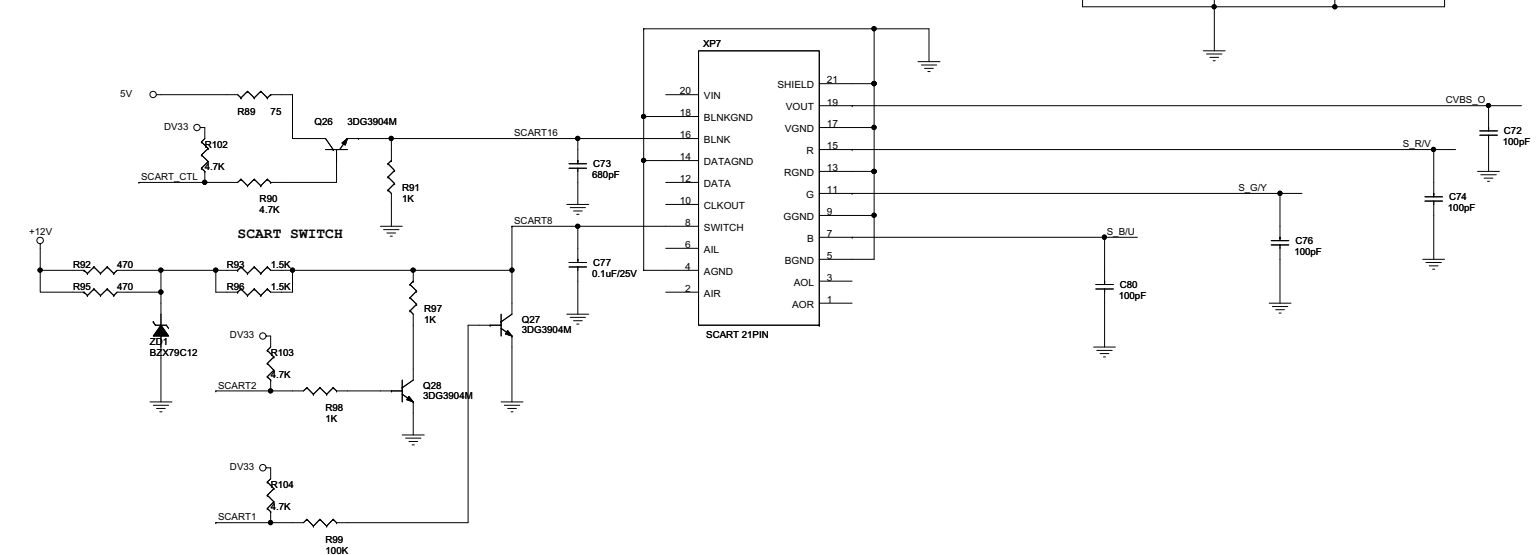


| SCART_CTL | SCART |
|-----------|-------|
| 1 | ON |
| 0 | OFF |

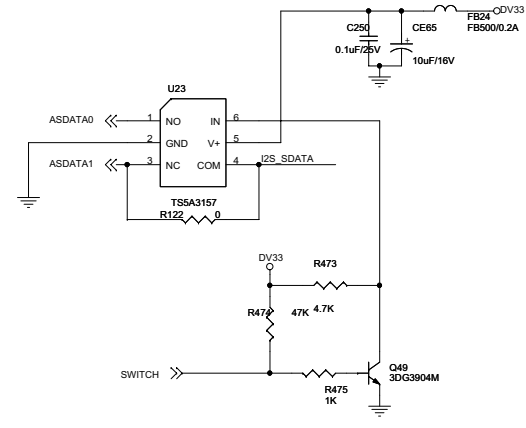
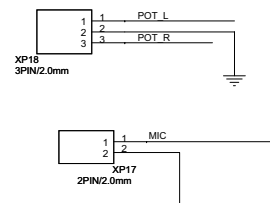
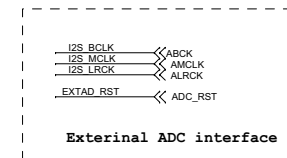
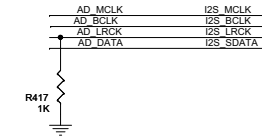
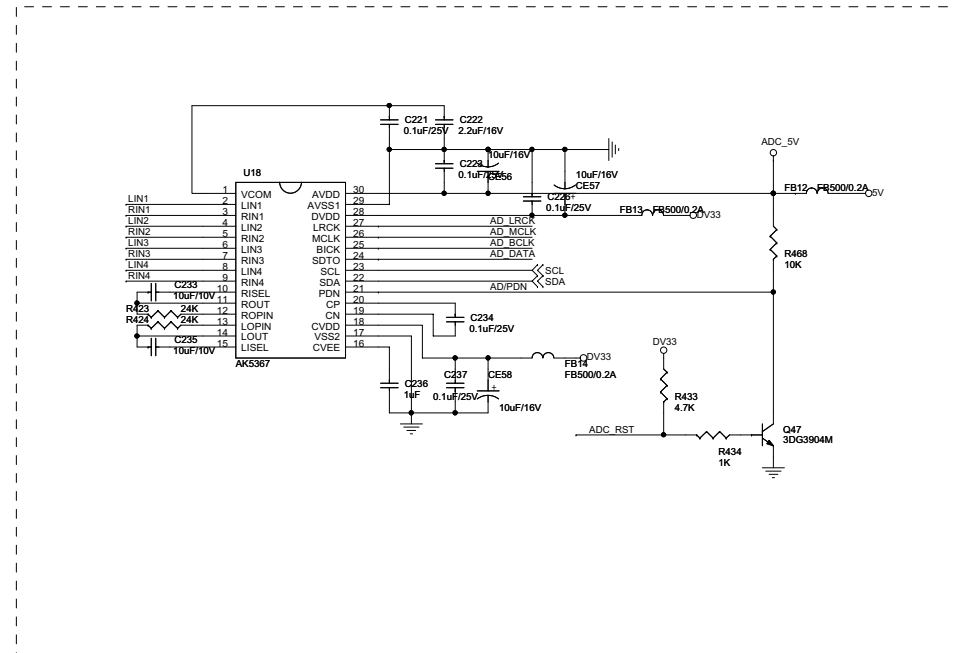
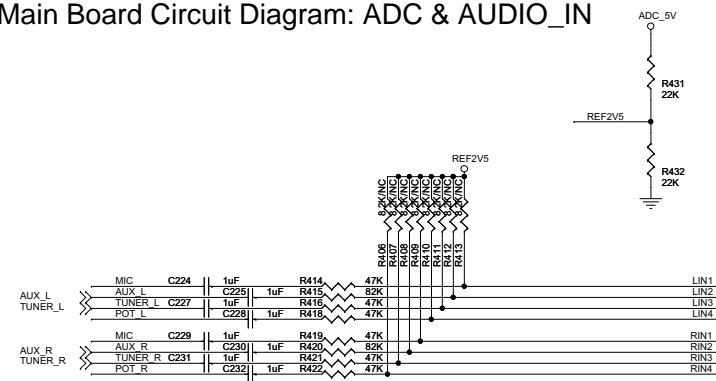


| SCART_CTL | SCART16 |
|-----------|----------|
| 0 | CVBS OUT |
| 1 | RGB OUT |

| SCART1 | SCART2 | SCART8 |
|--------|--------|---------------|
| 1 | X | 0 (Standby) |
| 0 | 1 | 6V (16:9) |
| 0 | 0 | 9.5-12V (4:3) |



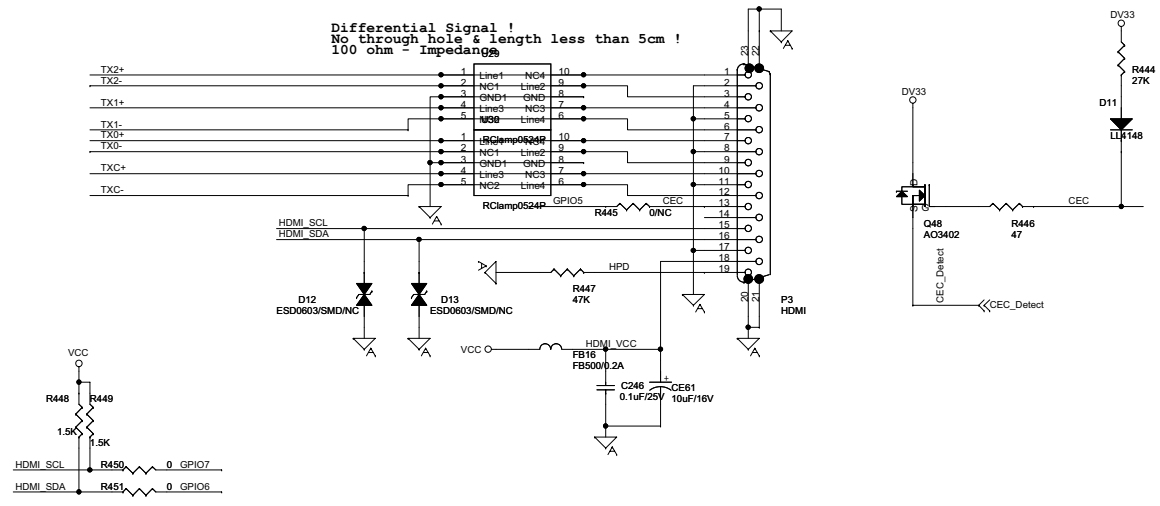
Main Board Circuit Diagram: ADC & AUDIO_IN



Main Board Circuit Diagram: HDMI I/F

| | | |
|---------|---------|-----|
| TXC+ | TXC+ | (2) |
| TXC- | TXC- | (2) |
| TX0+ | TX0+ | (2) |
| TX0- | TX0- | (2) |
| TX1+ | TX1+ | (2) |
| TX1- | TX1- | (2) |
| TX2+ | TX2+ | (2) |
| TX2- | TX2- | (2) |
| HPD | HPD | (2) |
| GPIO5,7 | GPIO5,7 | (2) |

TMS I/F

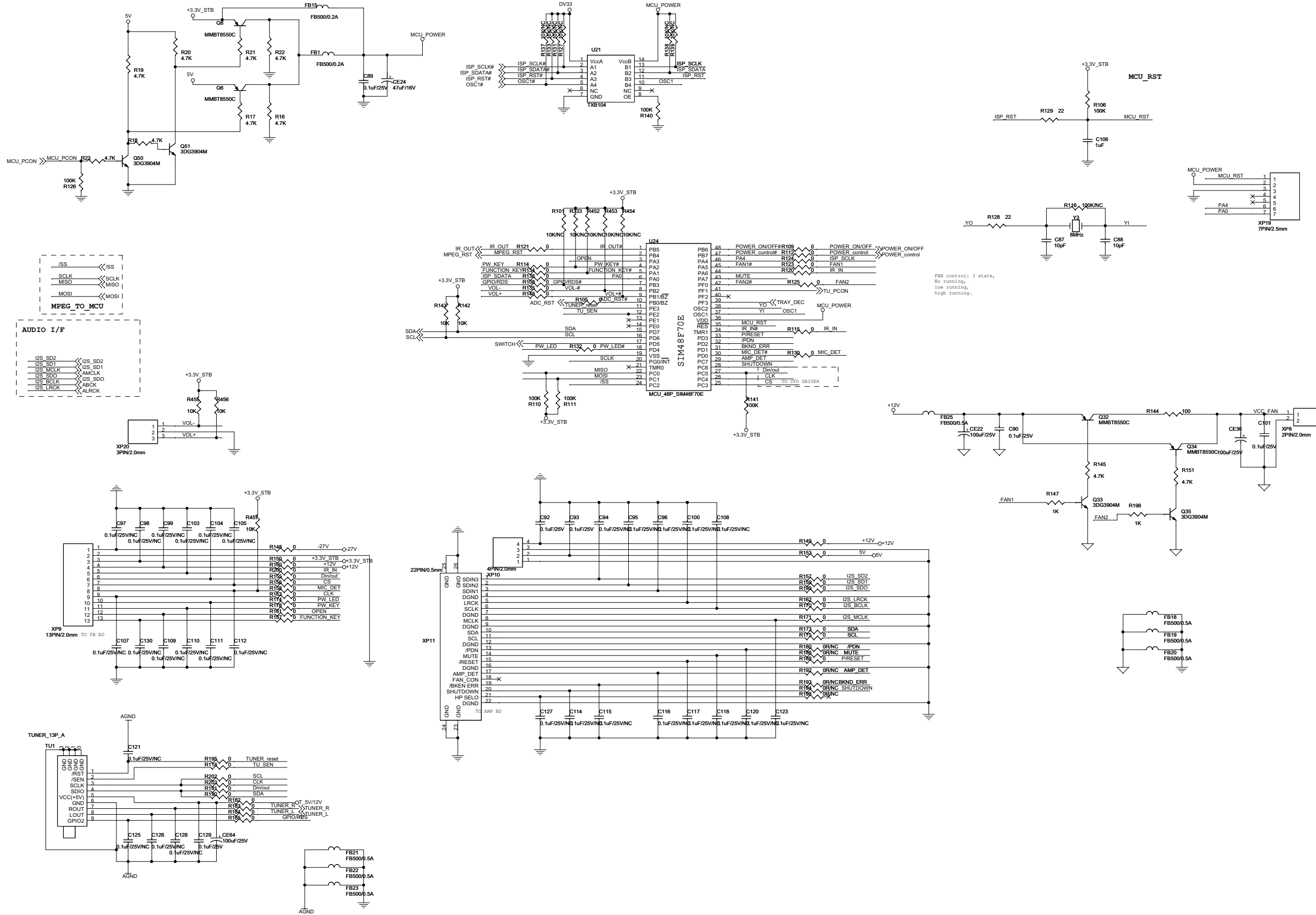


1
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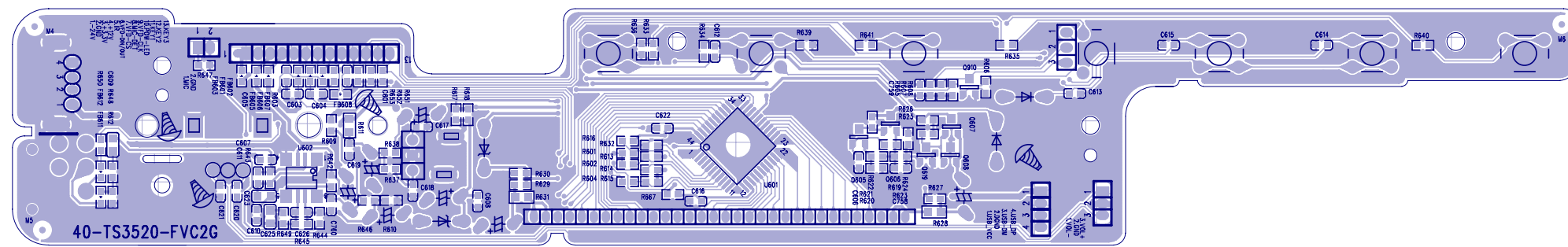
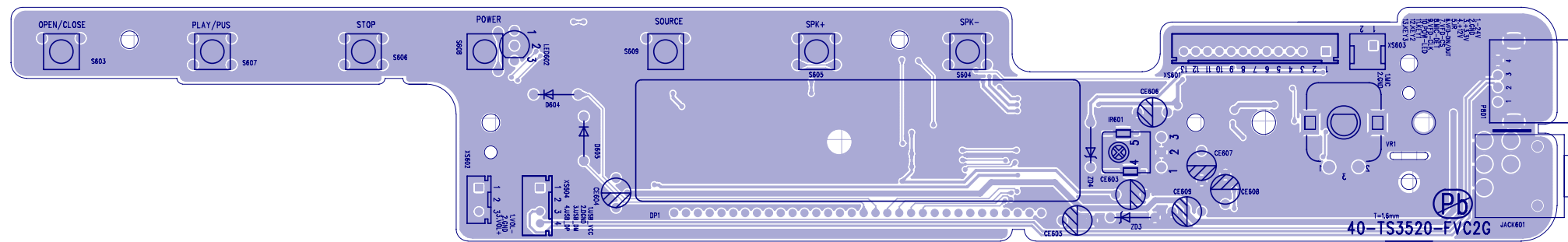
1
2
3
4

A B C D E

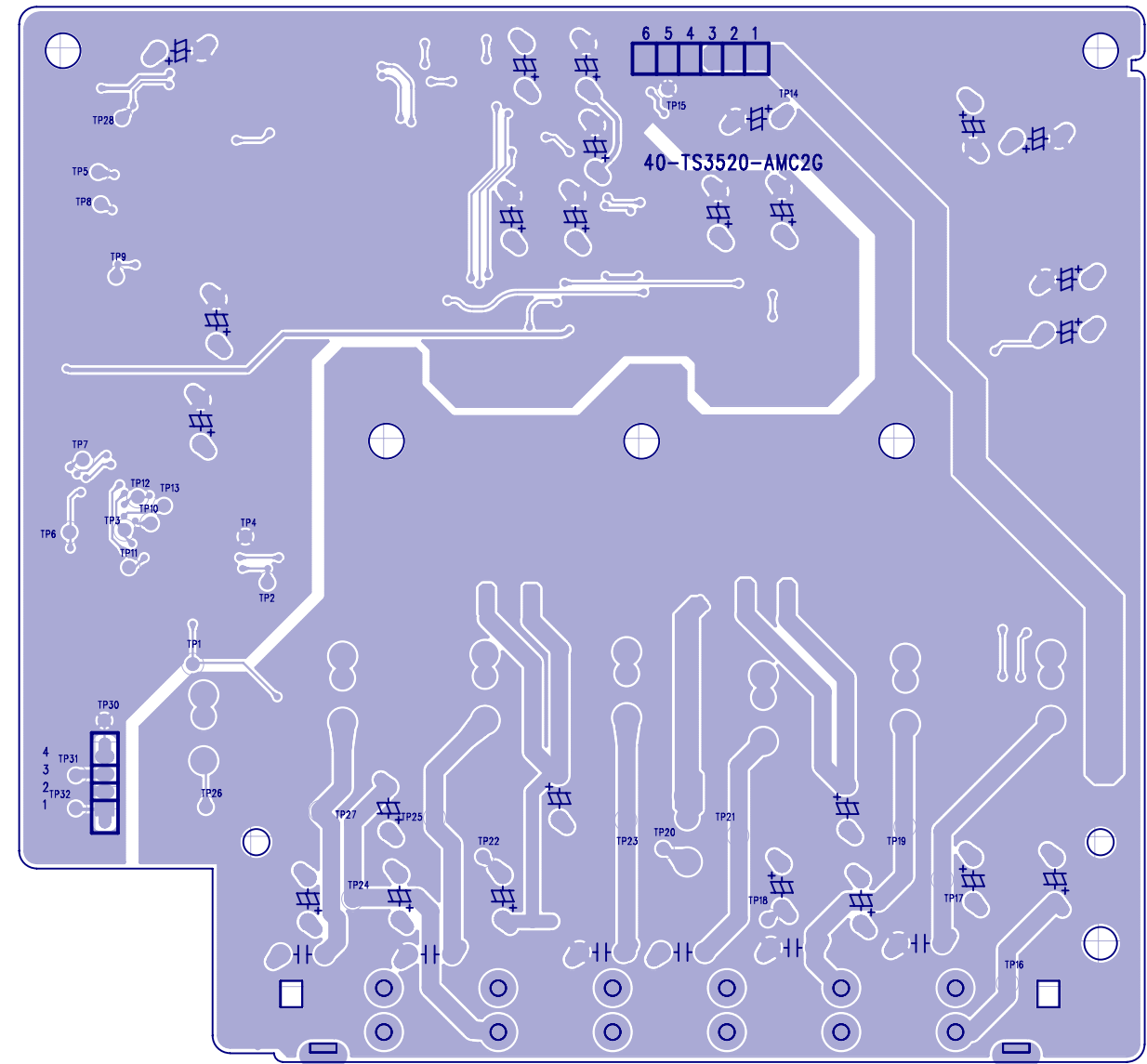
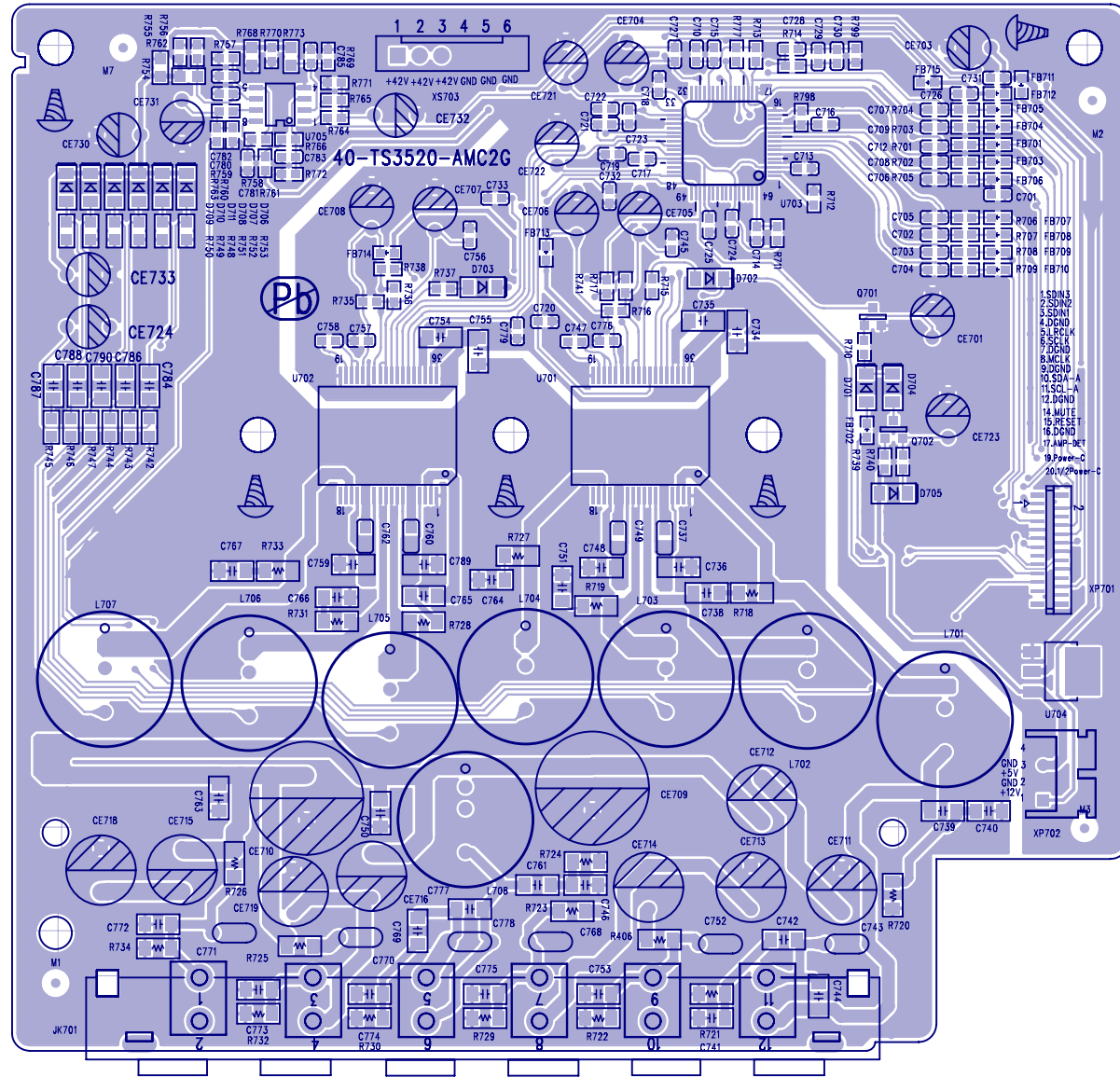
Main Board Circuit Diagram: MCU & CONNECTOR



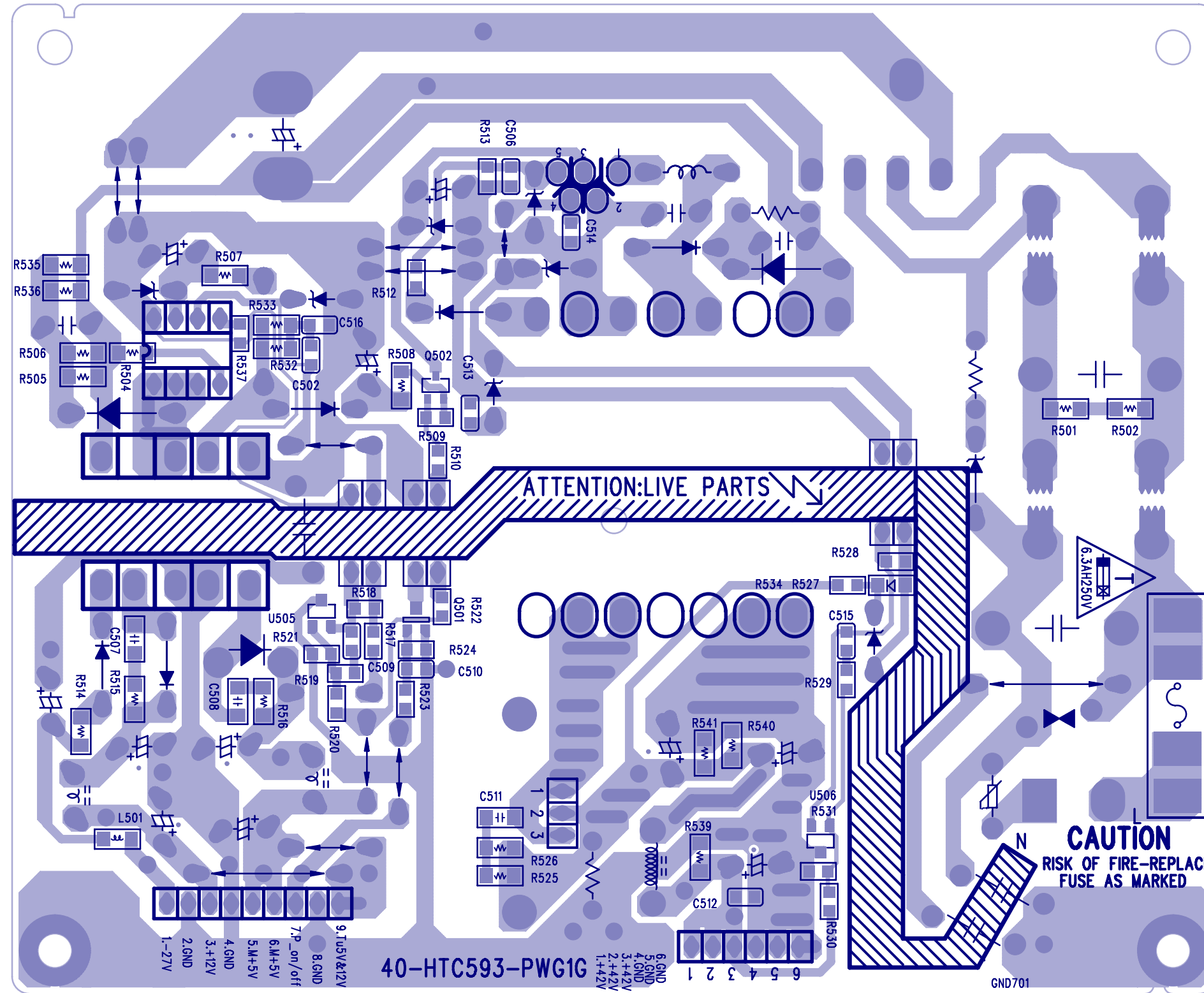
Front Board Print-layout (Top and Bottom side):



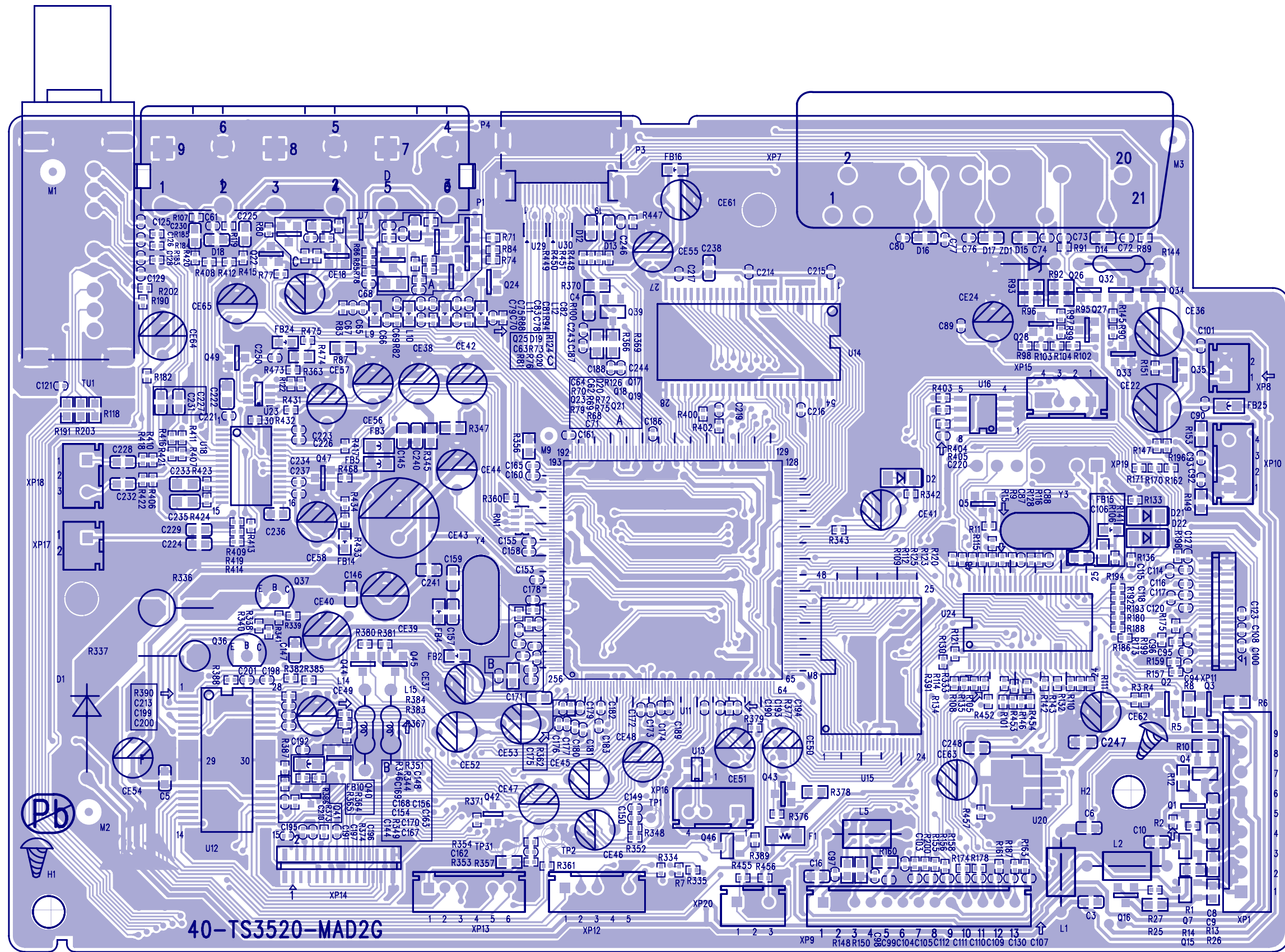
Amplifier Board Print-layout (Top and Bottom side):



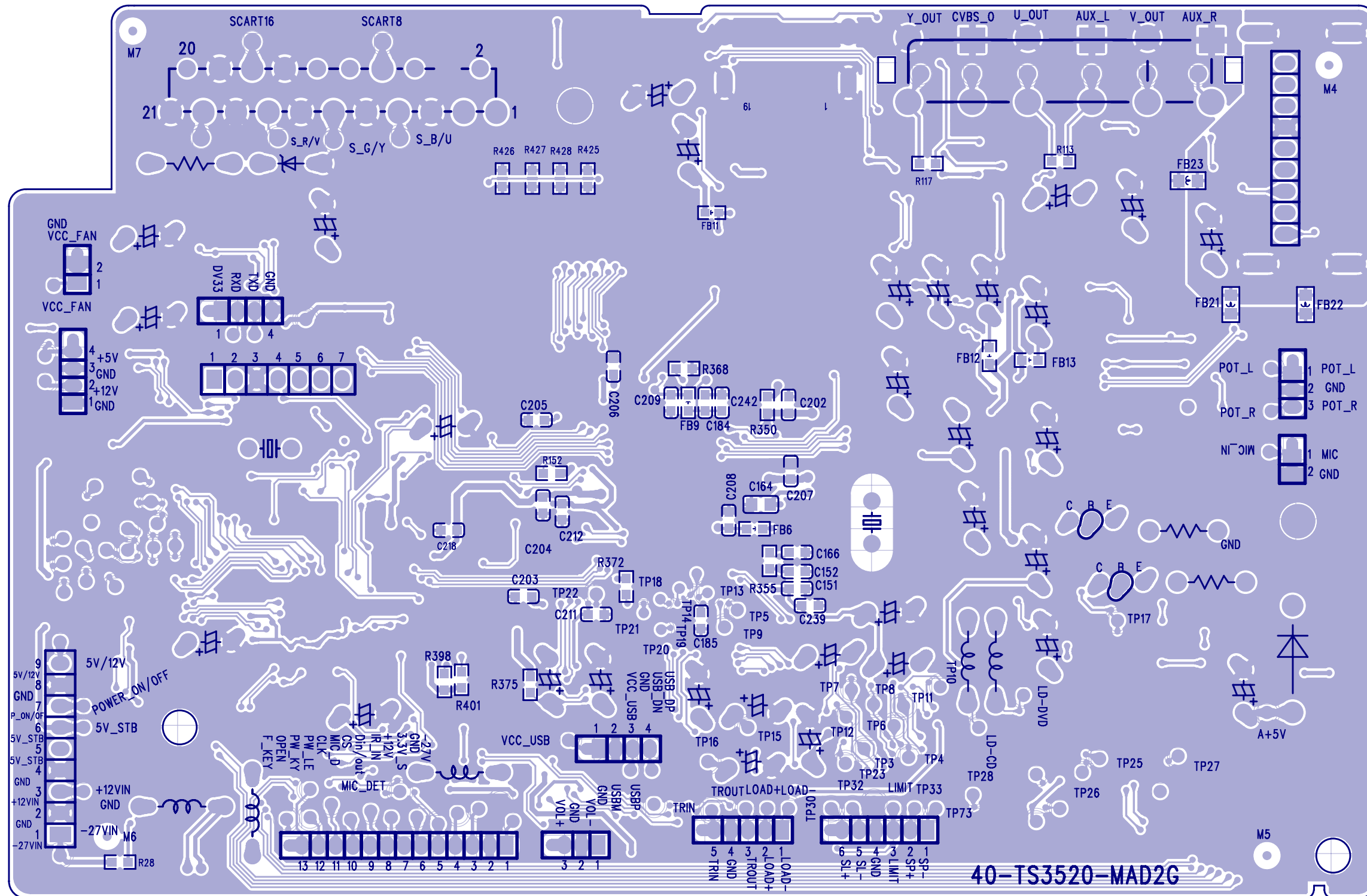
Power Board Print-layout (Bottom side):



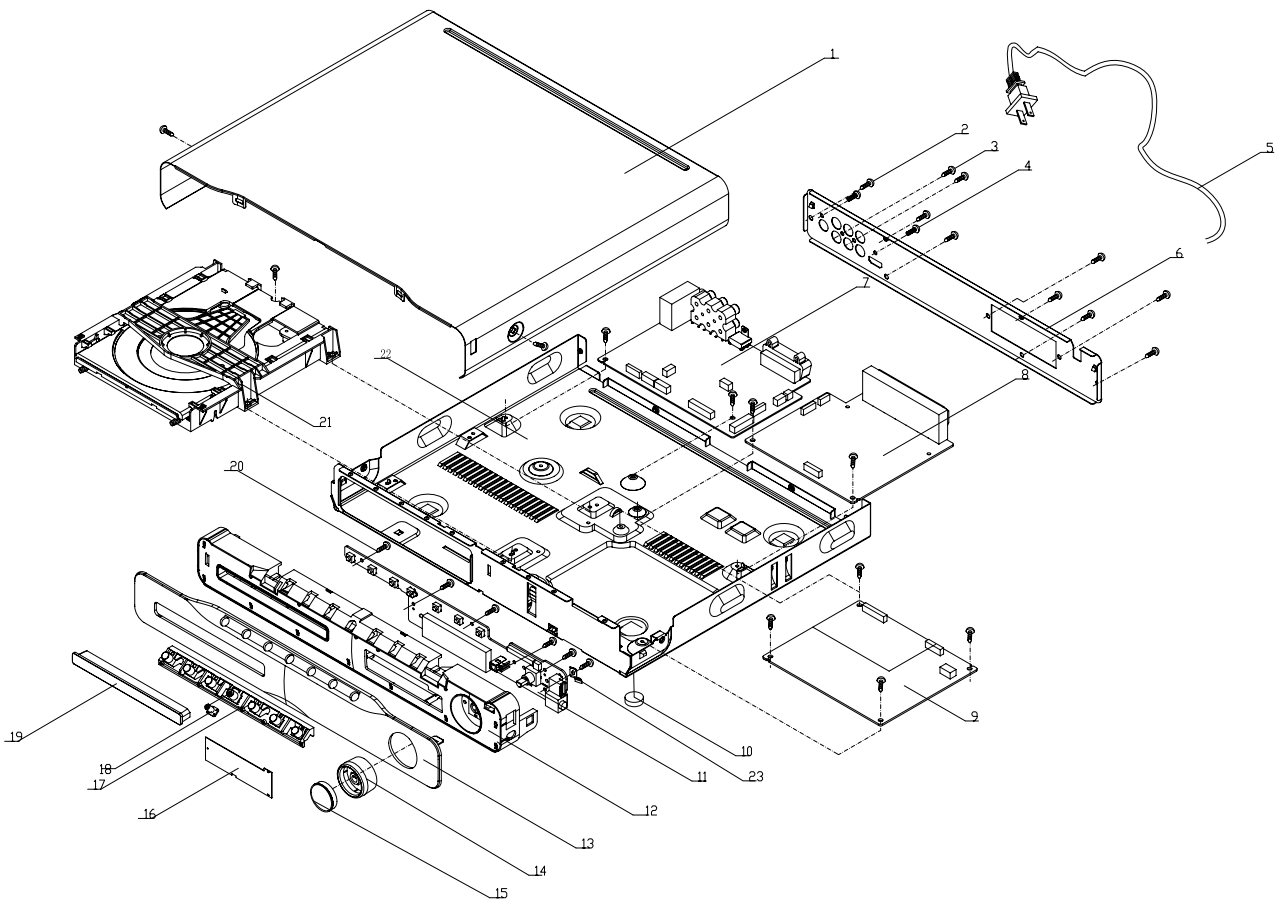
Main Board Print-layout (Top side):



Main Board Print-layout (Bottom side):



Exploded view for HTS3511E/94:



It is general mechanical exploded view for HTS3511E/94, detailed informations pls refer to the model set.

ASSY1 includes components:12.13.16.17.18

ASSY2 includes components:14.15

REVISION LIST

Version 1.0

* Initial release for HTS3511E/94

Version 1.1

*Adding location of PCB,Variation and Matrix.