

Service  
Service  
**Service**



# Service Manual

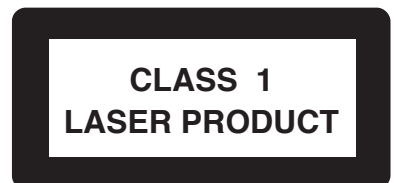
## TABLE OF CONTENTS

	Page
Technical Specifications .....	1-2
Measurement setup .....	1-3
Service Aids, Safety Instruction, etc. ....	1-4 to 1-5
Lead-free Information & Service Instruction .....	1-6
Preparations & Controls & Troubleshooting ..	1-7 to 1-11
Disassembly Diagram.....	2
Service Test Programs .....	3-1
Set Block diagram .....	4-1
Set Wiring diagram .....	5-1
CPU Board .....	6
Tuner Board (ECO6-01) .....	7
AMP Board .....	8
Output Terminal Board .....	9
Circle AMP Board (for MCD305) .....	10
Circle Output Board (for MCD305) .....	10
Power Board (for MCD305) .....	11
Set Mechanical Exploded view & parts list .....	12



© Copyright 2005 Philips Consumer Electronics B.V. Eindhoven, The Netherlands  
All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, or otherwise without the prior permission of Philips.

Published by SL 0545 Service Audio Printed in The Netherlands Subject to modification



3141 785 30650

Version 1.0



**PHILIPS**

## SPECIFICATIONS

### GENERAL:

Mains voltage	: 220V $\pm$ 10%
Mains frequency	: 50Hz
Clock accuracy	: < 4 seconds per day
Dimension centre unit	: 165(W) x 257(L) x 156(H) (mm)
Power consumption	
Active	: 28.6W /MCD300 55W /MCD300
Standby	: < 4.4W (DEMO mode off)/MCD300 < 10W (DEMO mode off)/MCD305

### TUNER:

#### FM

Tuning range	: 87.5-108MHz
Grid	: 100kHz
IF frequency	: 10.7MHz $\pm$ 20kHz
Aerial input	: 75 $\Omega$ coaxial
Sensitivity at 26dB S/N	: < 22dBf
Selectivity at 300kHz bandwidth	: > 33dB
Image rejection	: > 20dB
Distortion at RF=1mV, dev. 75kHz	: < 3%
-3dB Limiting point	: < 23.5dB
Crosstalk at RF=1mV, dev. 40kHz	: > 26dB

#### AM

Tuning range	: 531-1602kHz
Grid	: 9kHz
IF frequency	: 450kHz $\pm$ 1kHz
Aerial input	: Frame aerial 18.1 $\mu$ H
Sensitivity at 26dB S/N	: > 1.3mV/M
Selectivity at 300kHz bandwidth	: > 20dB
IF rejection	: > 24dB
Image rejection	: > 28dB
Distortion at RF=50mV, M=80%	: < 5%

### AMPLIFIER:

Output power	
L & R	: 2 x 22W (8 $\Omega$ , 1kHz, 10% THD)
	: 22W x 2 + 15W x 3 (8 $\Omega$ , 1kHz, 10% THD)
Subwoofer	: 50W (8 $\Omega$ , 1kHz, 10% THD)
Frequency response within +0.5/-1.0dB	
	: 100Hz-15kHz
	80Hz-300Hz (Subwoofer)
S-Bass & Loudness	: On / Off

### Input sensitivity

Aux in (at 1kHz) : 500mV at 600  $\Omega$

Microphone in (at 1kHz) : 1mV rms at 600  $\Omega$  /21M

### Output sensitivity

Headphone output at 32 k $\Omega$  : 12mW  $\pm$  1dB (Max. vol.)

Line output at 10 k $\Omega$  : 2Vrms

Subwoofer output at 10 k $\Omega$  : 3Vrms (100Hz,Dist: 1%)

Digital output (Coaxial SPDIF): 0.5Vpp at 75 $\Omega$

### COMPACT DISC:

Frequency response within  $\pm$  3dB : 20Hz - 20kHz

Output level (in Vrms) : 500mV,  $Z_{out}$  = 100 $\Omega$

Signal/Noise ratio (A-weighted) : > 65dBA

Distortion at 1kHz : < 0.02%

Channel unbalance at 1kHz : <  $\pm$ 2dB

Channel separation at 1kHz : > 40dB

Emphasis : 15/50  $\mu$ S (switched automatically by CD10)

THD Noise(1kHz) : < 0.5%

Outband Attenuation : 35dB

MP3-CD Bit Rate : 8-320 kbps

Sampling Rate : 8, 11.025, 16, 22.05, 32, 44.1, 48 kHz

Format : ISO9660, Joliet

### VIDEO PART

Video Bandwidth : 6MHz(-5dB)

S/N luminance : > 53dB

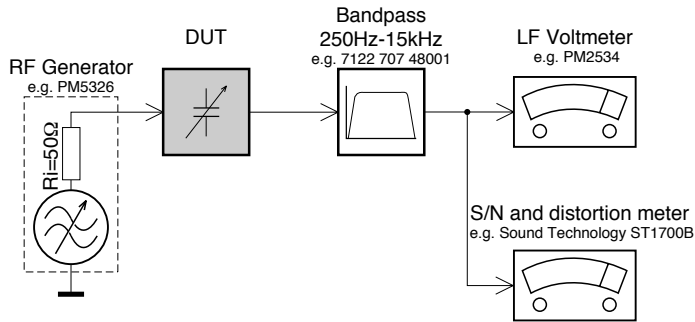
S/N chroma : AM: >58dB/PM: >51dB

Chrome/Luminance delay : < 80ns

Burst/Chroma ratio :  $\pm$  5%

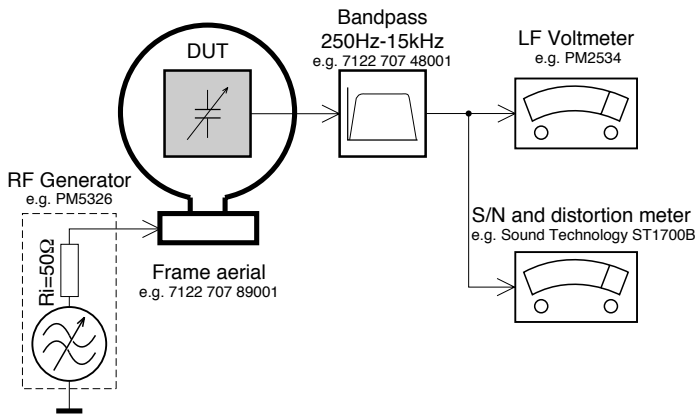
## MEASUREMENT SETUP

### Tuner FM



Use a bandpass filter to eliminate hum (50Hz, 100Hz) and disturbance from the pilotone (19kHz, 38kHz).

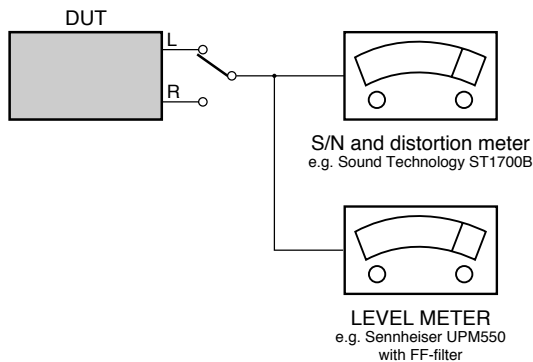
### Tuner AM (MW,LW)



To avoid atmospheric interference all AM-measurements have to be carried out in a Faraday's cage. Use a bandpass filter (or at least a high pass filter with 250Hz) to eliminate hum (50Hz, 100Hz).

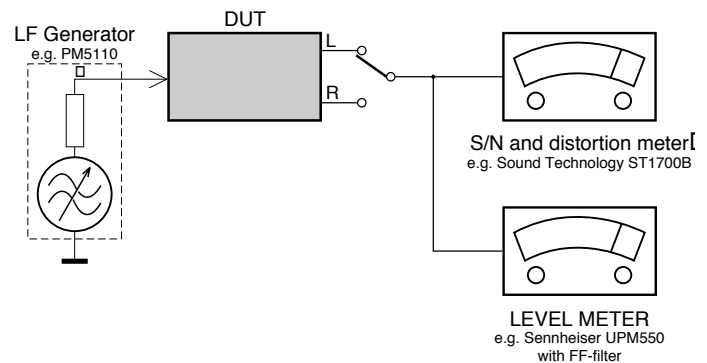
### CD

Use Audio Signal Disc SBC429 4822 397 30184 (replaces testdisc 3)



### Recorder

Use Universal Test Cassette **CrO2** SBC419 4822 397 30069  
or Universal Test Cassette **Fe** SBC420 4822 397 30071



# SERVICE AIDS

## Service Tools:

Universal Torx driver holder .....	4822 395 91019
Torx bit T10 150mm .....	4822 395 50456
Torx driver set T6-T20 .....	4822 395 50145
Torx driver T10 extended .....	4822 395 50423

## Compact Disc:

SBC426/426A Test disc 5 + 5A .....	4822 397 30096
SBC442 Audio Burn-in test disc 1kHz .....	4822 397 30155
SBC429 Audio Signals disc .....	4822 397 30184
Dolby Pro-logic Test Disc .....	4822 395 10216

## ESD Equipment:

Anti-static table mat - large 1200x650x1.25mm ...	4822 466 10953
anti-static table mat - small 600x650x1.25mm .....	4822 466 10958
Anti-static wristband .....	4822 395 10223
Connectorbox (1M $\Omega$ ) .....	4822 395 11307
Extension cable (to connect wristband to conn.box) .....	4822 320 11305
Connecting cable (to connect table mat to conn.box) .....	4822 320 11306
Earth cable (to Connect product to mat or box) --	4822 320 11308
Complete kit ESD3 (combining all above products) .....	4822 320 10671
Wristband tester .....	4822 344 13999

## HANDLING CHIP COMPONENTS

**GENERAL**

Diagram illustrating the general assembly of a chip component on a P.C.B. The component is mounted on a copper track, secured with solder and glue. A service package is shown containing multiple such components.

**DISMOUNTING**

Diagram illustrating the dismounting process in three steps:

- A:** Heating the component with a soldering iron (e.g., Weller solder tip PT-H7) and using a vacuum piston (4822 395 10082) to lift it.
- B:** Heating the component with a soldering iron and tweezers (e.g., a pair of tweezers).
- C:** Cleaning the copper track with a soldering iron and a solder wick (4822 321 40042).

**MOUNTING**

Diagram illustrating the mounting process in two steps:

- A:** Placing the component on the copper track using tweezers (e.g., a pair of tweezers).
- B:** Soldering the component with a soldering iron and pressure. The solder diameter is specified as  $\varnothing 0.5-0.8\text{mm}$ . Soldering time is noted as  $< 3 \text{ sec/side}$ .

**PRECAUTIONS**

Diagram illustrating precautions during soldering and handling:

- CORRECT:** Soldering iron applied to the copper track.
- INCORRECT:** Soldering iron applied to the chip component.
- INCORRECT:** Handling chip components with bare hands.
- INCORRECT:** Storing chip components in a container.

**EXAMPLES**

Diagram illustrating various examples of correct and incorrect soldering techniques:

- CORRECT:** Proper soldering technique resulting in a clean joint.
- INCORRECT:** Various examples of poor soldering, including insufficient solder, excessive heat, and incorrect component placement.

**(GB) WARNING**

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically.

When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance.

Keep components and tools also at this potential.

**(F) ATTENTION**

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD).

Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise à leur manipulation.

Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfiler le bracelet serti d'une résistance de sécurité.

Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.

**(D) WARNUNG**

Alle ICs und viele andere Halbleiter sind empfindlich gegenüber elektrostatischen Entladungen (ESD).

Unvorsichtige Behandlung im Reparaturfall kann die Lebensdauer drastisch reduzieren. Veranlassen Sie, dass Sie im Reparaturfall über ein Pulsarmband mit Widerstand verbunden sind mit dem gleichen Potential wie die Masse des Gerätes.

Bauteile und Hilfsmittel auch auf dieses gleiche Potential halten.

**(NL) WAARSCHUWING**

Alle IC's en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD).

Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen. Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.

Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

**(I) AVVERTIMENTO**

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).

La loro longevità potrebbe essere fortemente ridotta in caso di non osservazione della più grande cauzione alla loro manipolazione.

Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza.

Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

**(GB)**

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified, be used.

"Pour votre sécurité, ces documents doivent être utilisés par des spécialistes agréés, seuls habilités à réparer votre appareil en panne".

**(NL)**

Veiligheidsbepalingen vereisen, dat het apparaat bij reparatie in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde, worden toegepast.

**(F)**

Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utilisés les pièces de rechange identiques à celles spécifiées.

**(D)**

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Geräts darf nicht verändert werden; für Reparaturen sind Original-Ersatzteile zu verwenden.

**(I)**

Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati i pezzi di ricambio identici a quelli specificati.

"After servicing and before returning set to customer perform a leakage current measurement test from all exposed metal parts to earth ground to assure no shock hazard exist. The leakage current must not exceed 0.5mA."

**ESD****(GB) Warning !**

Invisible laser radiation when open. Avoid direct exposure to beam.

**(S) Varning !**

Osynlig laserstrålning när apparaten är öppnad och spårren är urkopplad. Betrakta ej strålen.

**(SF) Varoitus !**

Avatussa laitteessa ja suojalukituksen ohitettaessa olet alttiina näkymättömälle laserisäteilylle. Älä katso säteeseen!

**(DK) Advarse !**

Usynlig laserstrålning ved åbning når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

## INFORMATION ABOUT LEAD-FREE SOLDERING

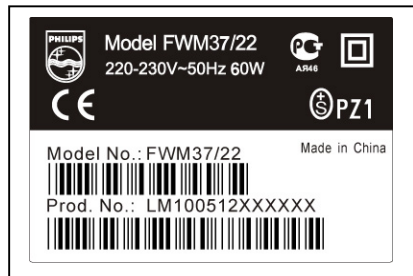
Philips CE is producing lead-free sets from 1.1.2005 onwards.

### IDENTIFICATION:

Regardless of special logo (not always indicated) one must treat all sets from 1 Jan 2005 onwards, according next rules:



### Example S/N:



Bottom line of typeplate gives a 14-digit S/N. Digit 5&6 is the year, digit 7&8 is the week number, so in this case 2005 wk12

So from 0501 onwards = from 1 Jan 2005 onwards

**Important note:** In fact also products of year 2004 must 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 or does not know whether product is lead-free, 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 the 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. (MSL=Moisture Sensitivity Level). This will be communicated via AYS-website. Do not re-use BGAs at all.
- For sets produced before 1.1.2005 (except products of 2004), containing leaded solder-alloy 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](http://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.

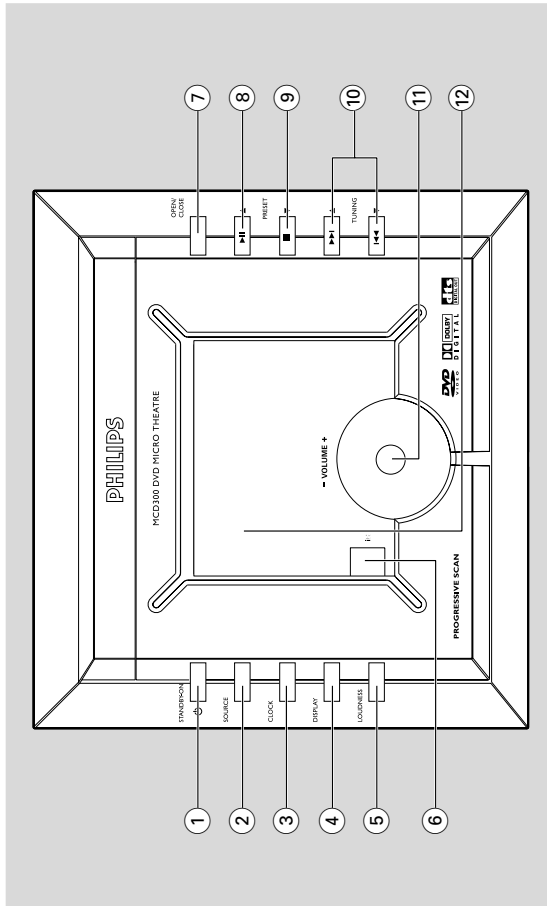
## SERVICE INSTRUCTION

Safety regulations require that after a repair, the set must be returned in its original condition. Pay in particular attention to the following points:

- Route the wire trees correctly and fix them with the mounted cable clamps.
- Check the insulation of the AC Power lead for external damage.
- Check the strain relief of the AC Power cord for proper function.
- Check the electrical DC resistance between the AC Power Plug and the secondary side (only for sets which have a AC Power isolated power supply):
  1. Unplug the AC Power cord and connect a wire between the two pins of the AC Power plug.
  2. Set the AC Power switch to the "on" position (keep the AC Power cord unplugged!).
  3. Measure the resistance value between the pins of the AC Power plug and the metal shielding of the tuner or the aerial connection on the set. The reading should be larger than 4.5 Mohm (For U.S. it should be between 4.2 Mohm and 12 Mohm).
  4. Switch "off" the set, and remove the wire between the two pins of the AC Power plug.
- Check the cabinet for defects, to avoid touching of any inner parts by the customer.

# PREPARATIONS AND CONTROLS

## Functional Overview

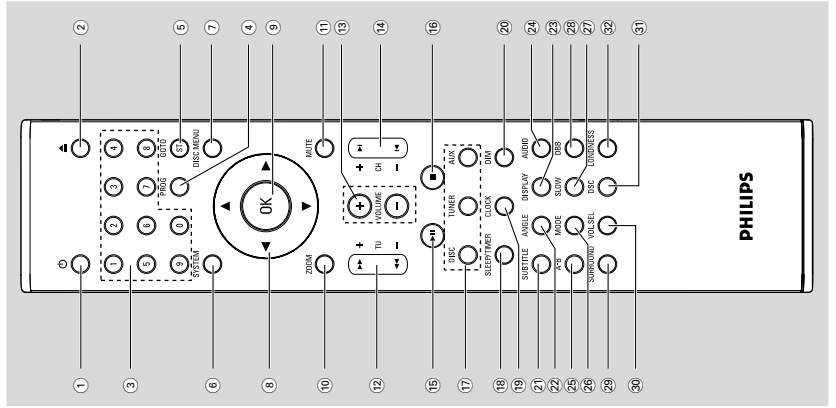


## Functional Overview

### Remote control

- ① **⏻** switches the system on/ off.
- ② **⏸** opens or closes the disc compartment door.
- ③ **Numeric Keypad (0-9)** inputs a track/title/chapter number of the disc.
- ④ **PROG** DVD/VCD/CD: enters the program menu.  
MP3/WMA-CD: adds/deletes a programmed track to/from the program list.  
Picture CD: during playback; to select a slide show mode.  
Tuner: programs preset radio stations.

- ⑤ **GOTO/ST** Disc: fast searches in a disc by entering a time, title, chapter or track.  
FM: sets stereo or mono sound mode.
- ⑥ **SYSTEM (disc mode only)** enters or exits the system menu.
- ⑦ **DISC MENU (disc mode only)** DVD/VCD: enters or exits the disc contents menu.  
VCD2.0: switches the playback control (PBC) mode on or off.  
MP3/WMA: switches between Album and Filelist.
- ⑧ **⏮ / ▲ / ▶ / ⏭** selects an item in a menu.  
moves an enlarged picture up/down/left/right.
- ⑨ **OK** confirms a selection.
- ⑩ **ZOOM** DVD/VCD/Picture CD: enlarges or reduces a picture or active image on the TV screen.
- ⑪ **MUTE** disables or enables sound output.
- ⑫ **TU +/- (▶▶ / ◀◀)** Tuner press to tune to a lower/higher radio frequency gradually.  
press and hold; then release the key to start automatic search for a radio frequency downward/upward.
- ⑬ **Disc** searches backward/forward in a disc at different speeds.
- ⑭ **VOLUME +/-** adjusts the volume upward/downward.  
adjusts the hours and minutes in clock/timer setting mode.  
switches the set wake-up timer ON or OFF.
- ⑮ **CH +/- (◀/▶)** Disc: skips to the previous/next chapter/title/track  
Tuner: selects a preset radio station.
- ⑯ **⏪** starts or interrupts disc playback.
- ⑰ **■** stops disc playback or erases a program.



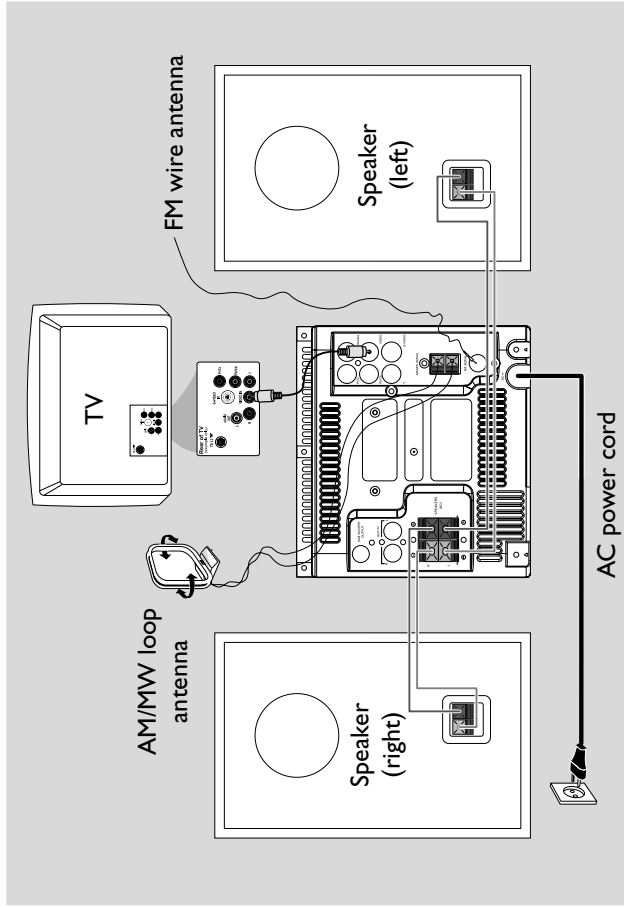
### Controls on the system

- ① **STANDBY-ON** **⏻** switches the system on or to standby mode.
- ② **SOURCE** selects the respective sound source: DVD/AUX/TUNER (FM and MW).  
switches the system on.
- ③ **CLOCK** Standby mode sets the system clock.  
Playback mode displays the system clock.
- ④ **DISPLAY** displays information on TV screen during playback.
- ⑤ **LOUDNESS** enables or disables automatic loudness adjustment.
- ⑥ **IR Sensor** point the remote control towards this sensor.
- ⑦ **OPEN•CLOSE** opens or closes the disc door.
- ⑧ **⏪ / PRESET ▲** Disc: starts or interrupts disc playback  
TUNER: selects a preset radio station upward
- ⑨ **■ / PRESET ▼** Disc: stops disc playback or erases a program.  
TUNER: selects a preset radio station backward
- ⑩ **⏮ ◀◀ / ▶▶ ⏭** Disc: press to skip to the previous/next chapter/title/track.
- ⑪ **TUNING ▲▼** Tuner: press to tune to a higher/lower radio frequency.
- ⑫ **VOLUME +/-** adjusts the volume upward/downward.  
adjusts the hours and minutes in clock/timer setting mode.  
switches the set wake-up timer ON or OFF.
- ⑬ **Display** shows the current status of the DVD player.

## Functional Overview

- 17 DISC/TUNER/AUX**
  - selects the respective sound source for DVD/TUNER/AUX.
  - exits P-SCAN (progressive scan). (Only for DISC)
- 18 SLEEP/TIMER**
  - **Stand-by mode (wake-up timer)** sets a time for switching on the system automatically.
  - **Power-on mode (sleep timer)** sets the sleep timer function (auto off).
- 19 CLOCK**
  - **Standby mode** sets the system clock
  - **Playback mode** displays the system clock.
- 20 DIM**
  - selects different levels of brightness for the display screen.
- 21 SUBTITLE**
  - selects a subtitle language.
- 22 ANGLE**
  - selects a DVD camera angle.
- 23 DISPLAY**
  - displays information on TV screen during playback
- 24 AUDIO**
  - **for VCD** sets Stereo, Mono-Left or Mono-Right sound mode.
  - **for DVD** selects an audio language.
- 25 A-B**
  - repeats playback of a specific section on a disc.
- 26 MODE**
  - selects various repeat modes or the shuffle play mode for a disc.
- 27 SLOW**
  - selects different slow playback modes for a VCD/SVCD/DVD.
- 28 DBB**
  - enables or disables bass enhancement.
- 29 SURROUND (unavailable for this version)**
  - selects surround (Dolby Digital, DTS-Digital Theatre Systems or VSS-Virtual Surround Sound) or stereo sound effect.
- 30 VOL.SEL (unavailable for this version)**
  - selects different speaker modes.
- 31 DSC**
  - selects different types of preset sound equalizer settings (CLASSIC, JAZZ, POP or ROCK).
- 32 LOUDNESS**
  - enables or disables automatic loudness adjustment.

## Connections

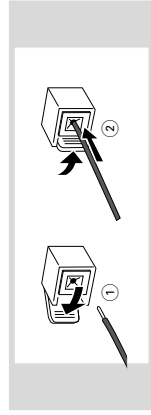


### IMPORTANT!

- The type plate is located at the rear of the system.
- Before connecting the AC power cord to the wall outlet, ensure that all other connections have been made.
- Never make or change any connections with the power switched on.

### Connecting the speakers

Connect the speakers to the SPEAKERS (8) terminals with two speaker wires. Right speaker to "R" and left speaker to "L"; red wire to "+" and silver wire to "-". Fully insert the stripped portion of the speaker wire into the terminal as shown.



### Notes:

- Ensure that the speaker wires are correctly connected. Improper connections may damage the system due to short-circuit.
- For optimal sound performance, use the supplied speakers.
- Do not connect more than one speaker to any one pair of +/- speaker jacks.
- Do not connect speakers with an impedance lower than the speakers supplied. Please refer to the SPECIFICATIONS section of this manual.



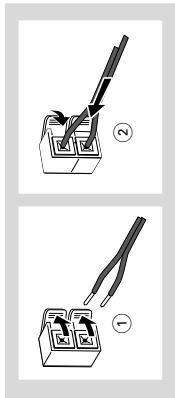
# PREPARATIONS AND CONTROLS

## Connections

### Connecting antennas

Connect the supplied AM/MW loop antenna and FM antenna to the respective terminals. Adjust the position of the antenna for optimal reception.

#### AM/MW Indoor Loop Antenna



Position the antenna as far as possible from a TV, VCR or other radiation source.

#### FM Indoor Antenna



For better FM stereo reception, connect an outdoor FM antenna to the **FMAERIAL** (FM ANTENNA) terminal.

### Connecting a TV

You must connect a TV to your DVD micro system in order to view the DVD/VCD playback.

#### IMPORTANT!

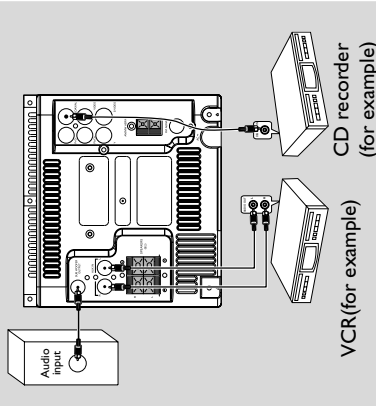
- There are various ways to connect the system to a TV. You only need to make one of the best connections, depending on the capabilities of your TV system.
- If COMPONENT video output jacks or S-Video jack is used for video connection, the system's Component setting will need to be set accordingly. Details are shown under "Video Setup Page".

### Connecting additional equipment

#### IMPORTANT!

- Some discs are copy-protected. You cannot record the disc through a VCR or digital recording device.
- When making connections, make sure the colour of cables matches the colour of jacks.
- Always refer to the owner's manual of the other equipment for complete connection and usage details.

Active subwoofer (for example)



### Viewing and listening to the playback of other equipment

Connect the system's **AUX IN (R/L)** jacks to the **AUDIO OUT** jacks on the other audio/visual device (such as a TV, VCR, Laser Disc player or cassette deck).  
Before starting operation, press **AUX** on the remote repeatedly in order to activate the input source (**AUX**).

### Connecting an active subwoofer

Connect the DVD micro system's **SUB WOOFER OUT** jack to the **AUDIO INPUT** jack on an active woofer (not supplied).

Connect the **VIDEO** jack to the video input jack on the TV using a video cable (yellow).

#### OR

#### Option 1

Connect the **S-VIDEO** output jack to the S-Video input jack on the TV using an S-Video cable (not supplied).

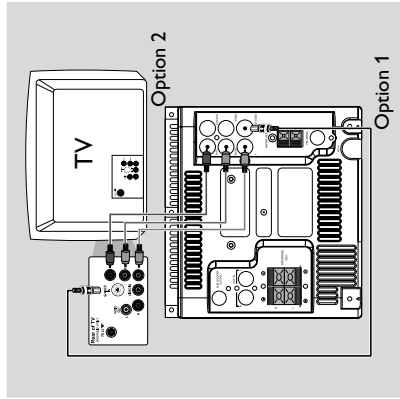
#### OR

#### Option 2

Use the component video cables (red/blue/green) to connect the DVD micro system's **COMPONENT** video output jacks to the corresponding component video input jacks (or labeled as **Pr/Cr Pb/Cb Y** or **YUV**) on the TV.

#### IMPORTANT!

- The progressive scan video quality is only possible when using **Y Pb Pr** and a progressive scan TV is required. (Proceed to page 47-48 for detailed Progressive Scan setup.)



#### Note:

- To avoid magnetic interference, do not position the front speakers too close to your TV.

### Connecting the power cord

After everything is connected properly, plug in the AC power cord to the power outlet.

Never make or change any connection with the power switched on.

### Recording (digital)

Connect the system's **COAXIAL** (digital output) jack to the **DIGITAL IN** jack on a digital recording device (such as DTS-Digital Theatre compatible, with Dolby Digital decoder).

Before starting operation, set **SPDIF** according to the audio connection. (See "SPDIF Setup").

### Connecting a digital amplifier



Connect the **COAXIAL** (digital output) port to the coaxial/optical input jack of a digital amplifier with a coaxial/optical cable (not supplied) for superior digital sound effect.

# Troubleshooting

## WARNING

Under no circumstances should you try to repair the system yourself, as this will invalidate the warranty. Do not open the system as there is a risk of electric shock.

If a fault occurs, first check the points listed below before taking the system for repair. If you are unable to remedy a problem by following these hints, consult your dealer or Philips for help.

Problem	Solution
<b>No power.</b>	Check if the AC power cord is properly connected. Press STANDBY ON  on the top of the DVD micro system or  on the remote to turn on the power.
<b>No picture.</b>	Check if the TV is switched on. Check the video connection. Press SOURCE on the top of the DVD player repeatedly to select "DVD" or press DISC on the remote. Set your TV to the correct Video In channel. This channel is usually near channel 00. Or, you may have a button on the TV remote control that selects Auxiliary or AV IN channel. See your TV owner's manual for details. Or, change channels at the TV until you see DVD screen on the TV. If the progressive scan feature is activated but the connected TV does not support progressive signals or the cables are not connected accordingly, see page 43-44 for proper progressive scan setup or deactivate the progressive scan feature as below: 1) Turn off your TV progressive scan mode or turn on to interlaced mode. 2) Press SYSTEM on the remote to exit the system menu and then DISC to exit progressive scan.
<b>Distorted or poor picture.</b>	Sometimes a small amount of picture distortion may appear. This is not a malfunction. Clean the disc.
<b>Completely distorted picture or black/white picture.</b>	TV has a colour system standard. If the disc's or DVD system's colour system is different than your TV's colour system, the picture may be distorted or colourless.

# Troubleshooting



The aspect ratio is fixed on the DVD disc. Depending on the TV, it may not be possible to change the aspect ratio.

Adjust the volume.

Check that the speakers are connected correctly.

Replace the speaker cables.

Disconnect the headphones.

The system is in pause, slow motion or fast forward/reverse mode, press  (or  on the remote) to resume normal play mode.

Insert a readable disc with the playback side facing down.

Check the disc type, colour system and regional code. Check for any scratches or smudges on the disc.

Press SYSTEM MENU to turn off the setup menu screen.

Cancel the parental control rating function or change the rating level.

Moisture has condensed inside the system.

Remove the disc and leave the system turned on for about an hour.

Disconnect the power plug from the outlet and insert again.

Multi-language sound or subtitle is not recorded on the DVD.

Changing the language for the sound or subtitle is prohibited on the DVD.

The features may not be available on the disc.

Tune in to the correct frequency.

Connect the antennas.

Fully extend the FM wire antenna. Position for best reception and secure to a wall.

Connect an outdoor FM or AM antenna.

Adjust the direction and position for best reception.

Place the antenna farther away from any equipment that may be causing the noise.

Increase the distance between the system and your TV or other equipment.

**The aspect ratio of the screen cannot be changed even though you have set the TV shape.**

**No sound or distorted sound.**

**The micro DVD player does not start playback.**

**The DVD micro system does not respond when the buttons are pressed.**

**Cannot activate some features, such as Angles, Subtitles, or multi-language Audio.**

**Considerable noise in radio broadcasts. Sound cannot be heard or is of poor quality.**

## Troubleshooting

**The remote control does not function.**

Select the correct source (DISC or TUNER, for example) before pressing the function button. Point the remote control at the remote sensor of the unit.

Reduce the distance to the player.

Remove any possible obstacles.

Replace the batteries with new ones.

Check that the batteries are loaded correctly.

Press DIM again.

**The display is dark.**

**Low hum or buzz sound.**

Place the DVD micro system as far away as possible from electrical devices that may be causing interference.

**Low bass response.**

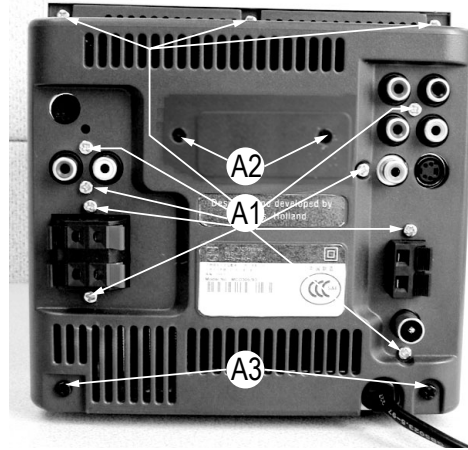
Check all speakers for correct polarity.

**Unable to select Progressive Scan**

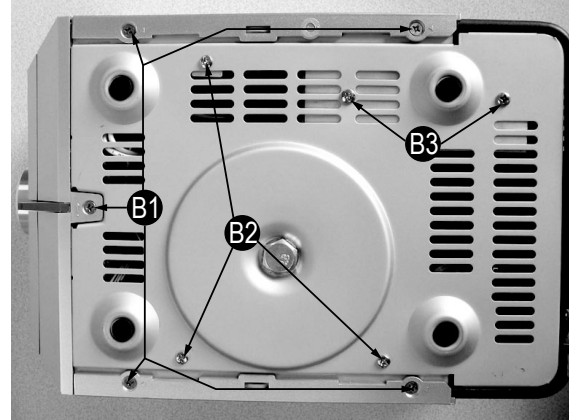
Check that the output of the video signal is switched to 'Ypbpr'.

**DISASSEMBLY DIAGRAM**

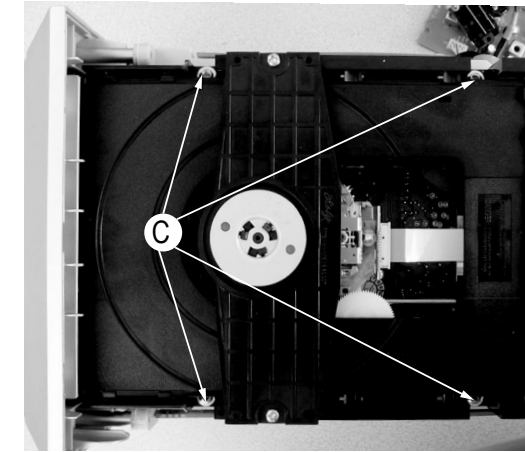
**A.Remove Back Cabinet**  
 A1 remove screws M3x8 (11pcs)  
 A2 remove screws M3x6 (2pcs)  
 A3 remove screws T3x6 (2pcs)



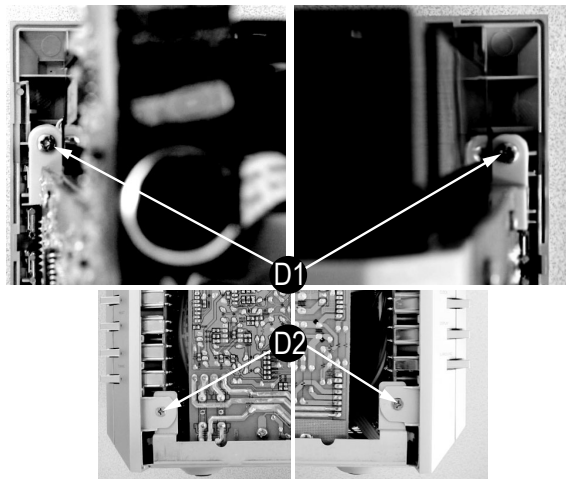
**B.Remove Bottom Screws**  
 B1 remove screws K2.9x5.25 (5pcs)  
 B2 remove screws T3x8 (3pcs)  
 B3 remove screws M3x8 (2pcs)



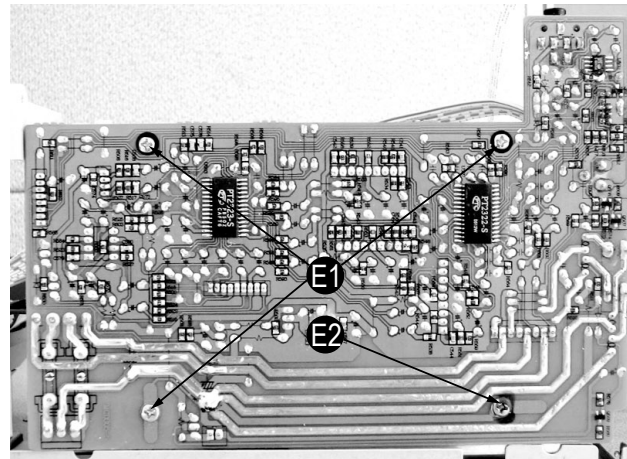
**C.Remove DVD Lader Screws**  
 remove screws TP 3x11 (4pcs)



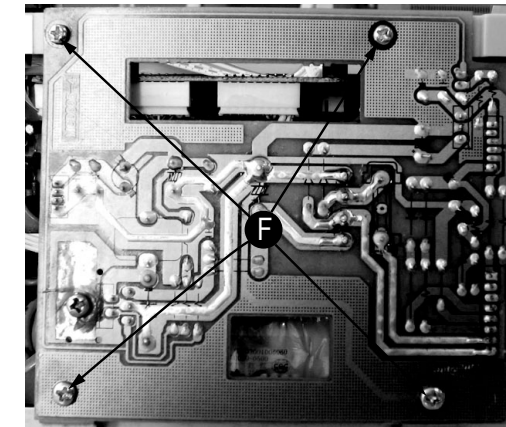
**D.Remove Front Panel Screws**  
 D1 remove screws M3x12 (2pcs)  
 D2 K2.9x5.25 (2pcs)



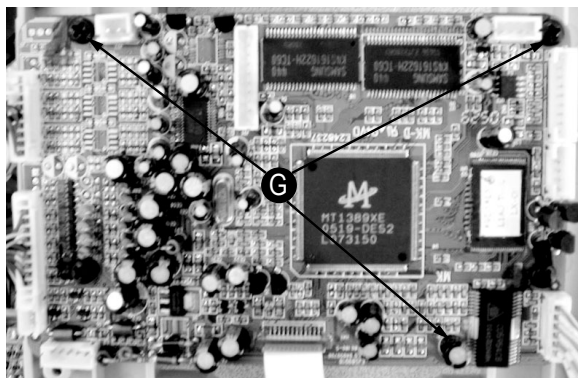
**E.Remove Amplifier PCB board Screws**  
 E1 remove screws M3x8 (3pcs)  
 E2 remove screws T3x8 (1pcs)



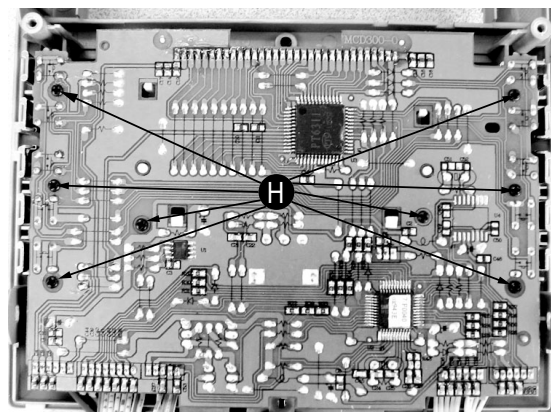
**F.Remove Power PCB Board Screws**  
 F remove screws M3x8 (4pcs)



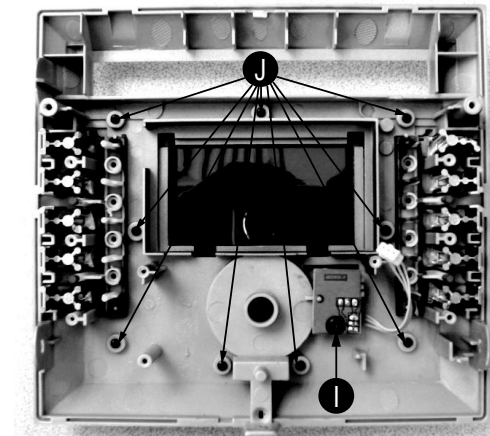
**G.Remove DVD Decoder Card Assy**  
 G remove screws M3x7.6 (3pcs)



**H.Remove VFD board assy**  
 H remove screws M2x8 (8pcs)



**I.Remove Front Panel Screws**  
 I remove screws M3x8 (1pcs)  
 J remove screws M2x8 (9pcs)



**SERVICE TEST PROGRAM****A.MPEG SOFTWARE VERSION CHECK**

1.Press SYSTEM key(on Remote Control) to open setup page,

TV Screen shows:

<p>TV Displlay</p> <p>Osd Lang</p> <p>Screen Saver</p> <p>DIVX(R) VOX</p>
---

2.Press REMOVAL key(on Remote Control) to the original setup page,

TV Screen shows:

<p>TV Type</p> <p>Audio</p> <p>Subtitle</p> <p>Disc Menu</p> <p>Parental</p> <p>Default</p>
---

3.Enter the password "811502"(on Remote Control),

TV Screen shows:

<p>Ver       MCD305/93 V003</p> <p>Date     mm dd yyyy</p> <p>Time     hh:mm:ss</p> <p>Region code   6</p>
--

**B.MCU SOFTWARE VERSION CHECK**

Keep PLAY and STOP buttons (on the set) depressed while pressing POWER on.

TV screen shows:

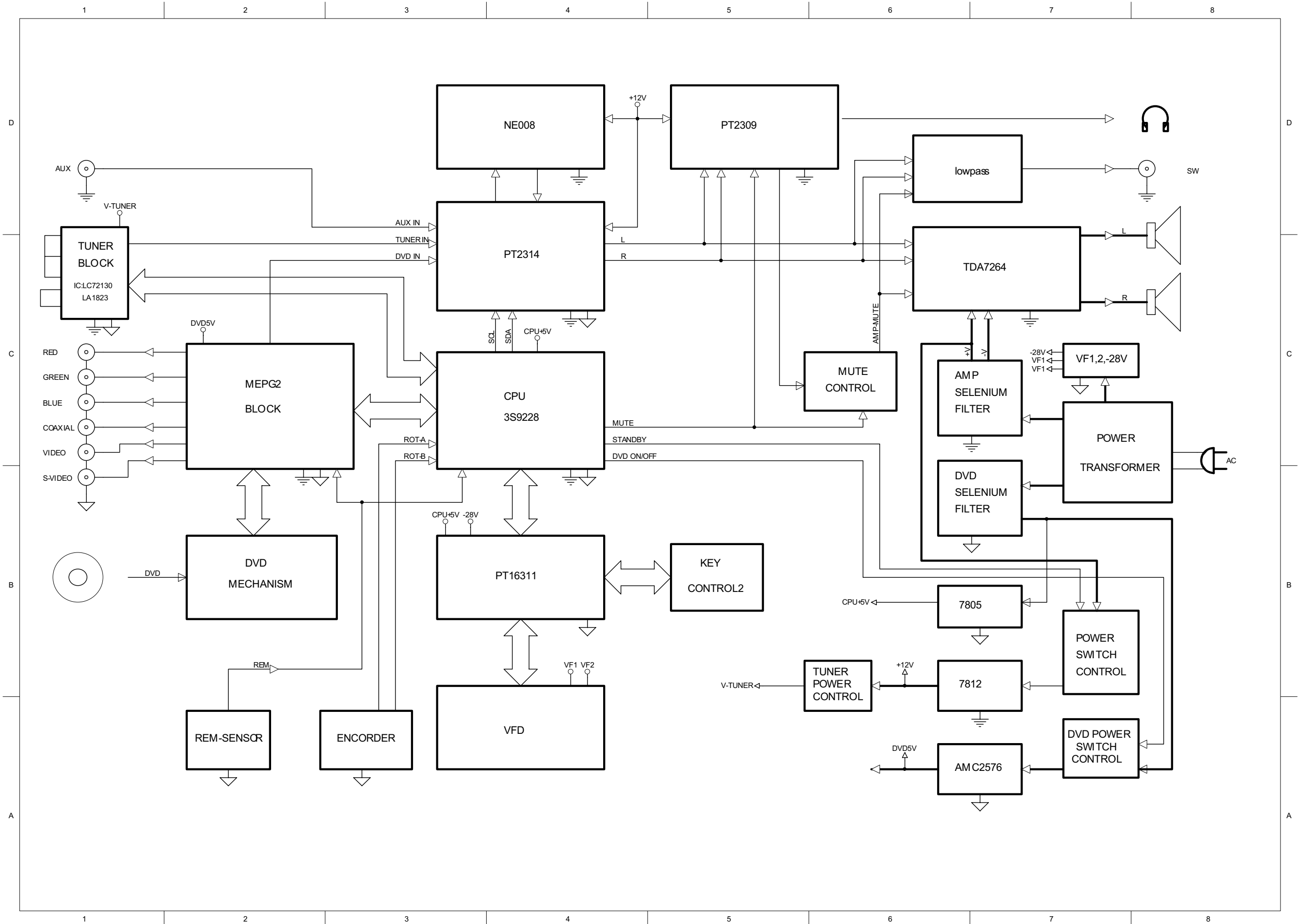
<p>MCD300 V 0.2</p>
---------------------

**C. MPEG SOFTWARE UPGRADING**

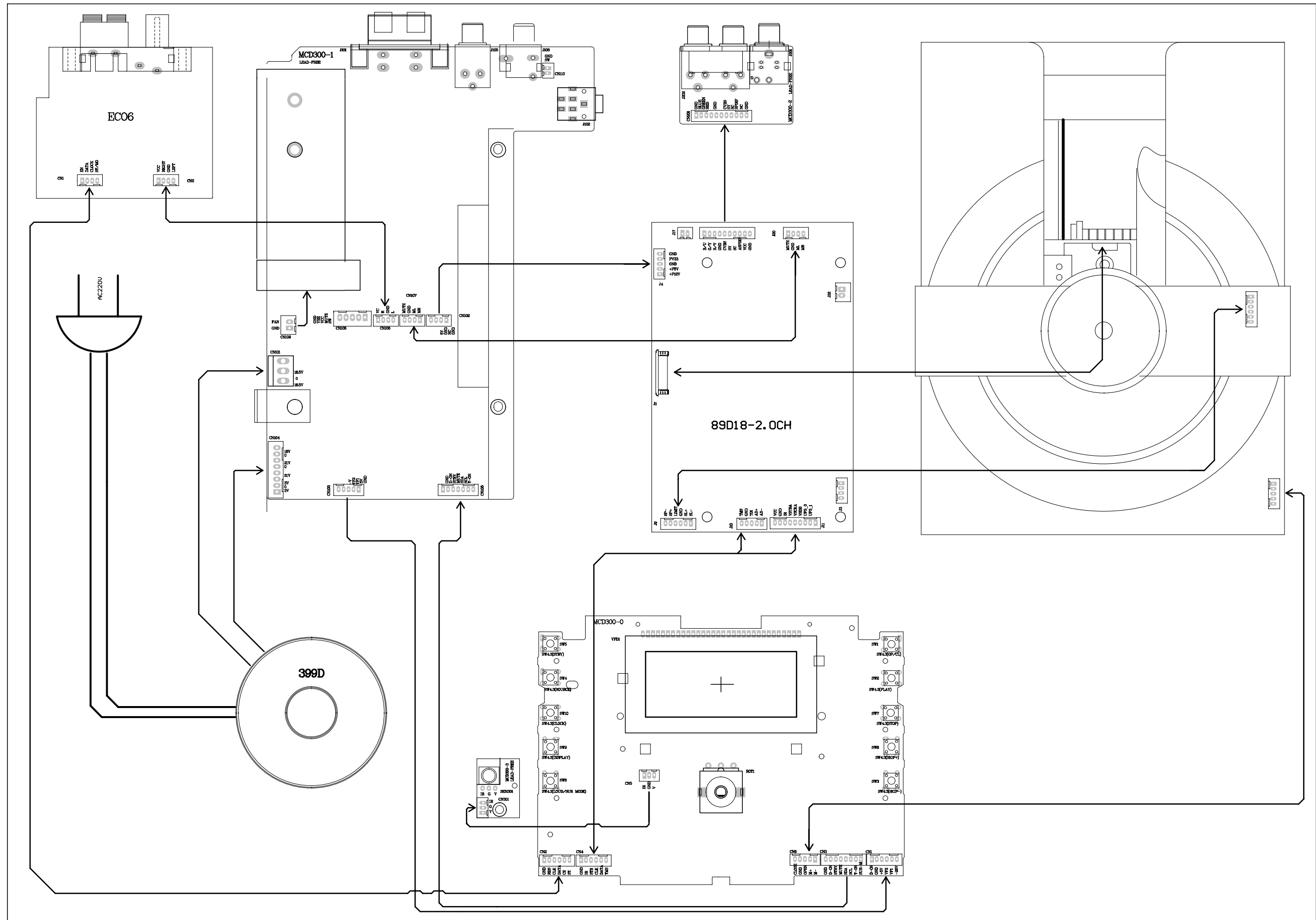
1. download the firmware from Philips support website,  
<http://www.philips.com/support>
2. Prepare a uploading CD,
3. Put the CD in the CD tray,
4. TV Screen shows:

<p>Upgade file deteced</p> <p>Upgade?</p> <p>Press PLAY to start</p> <p>upgrading</p>
---

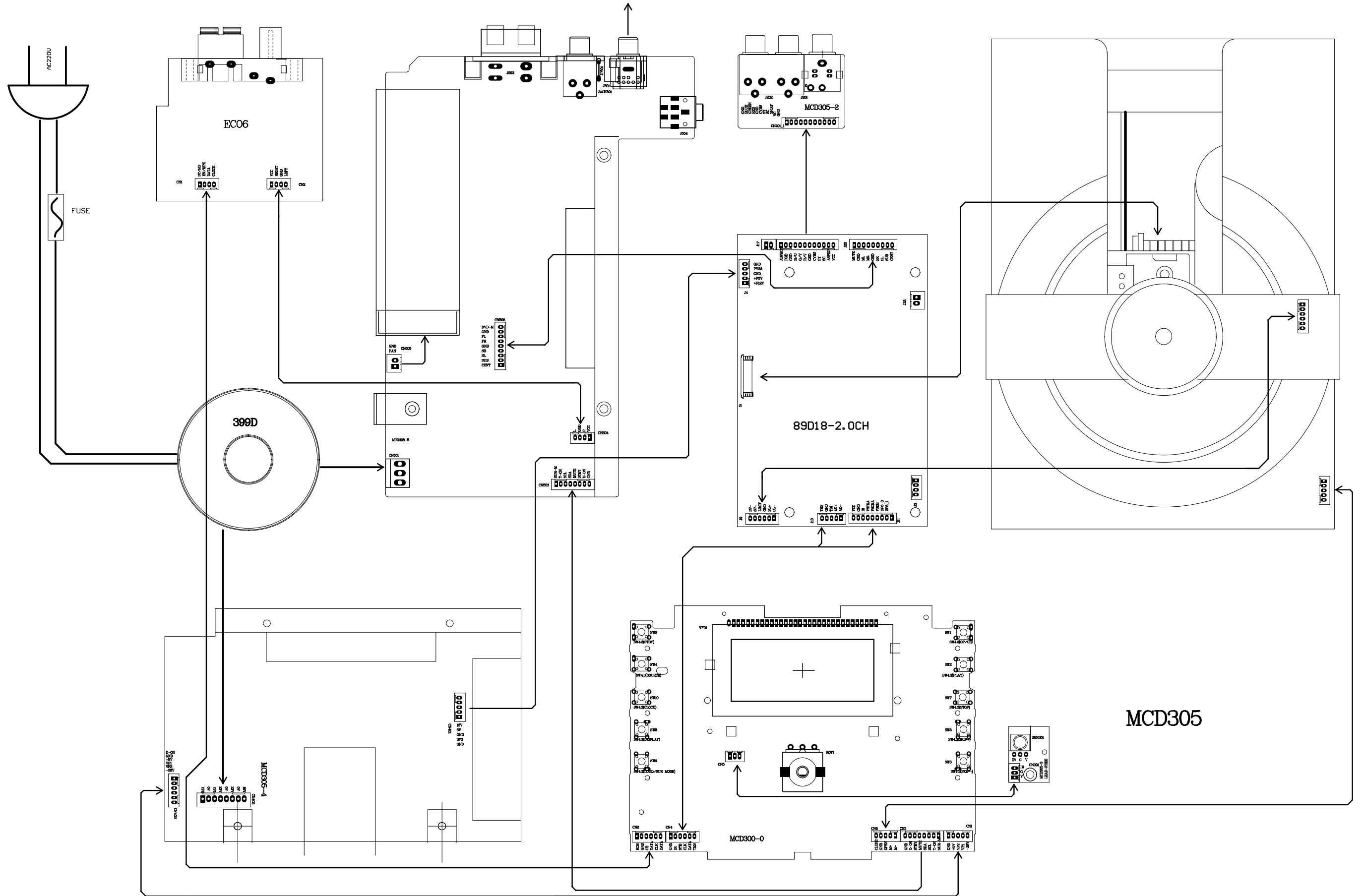
# SET BLOCK DIAGRAM



SET WIRING DIAGRAM(ONLY FOR MCD300)

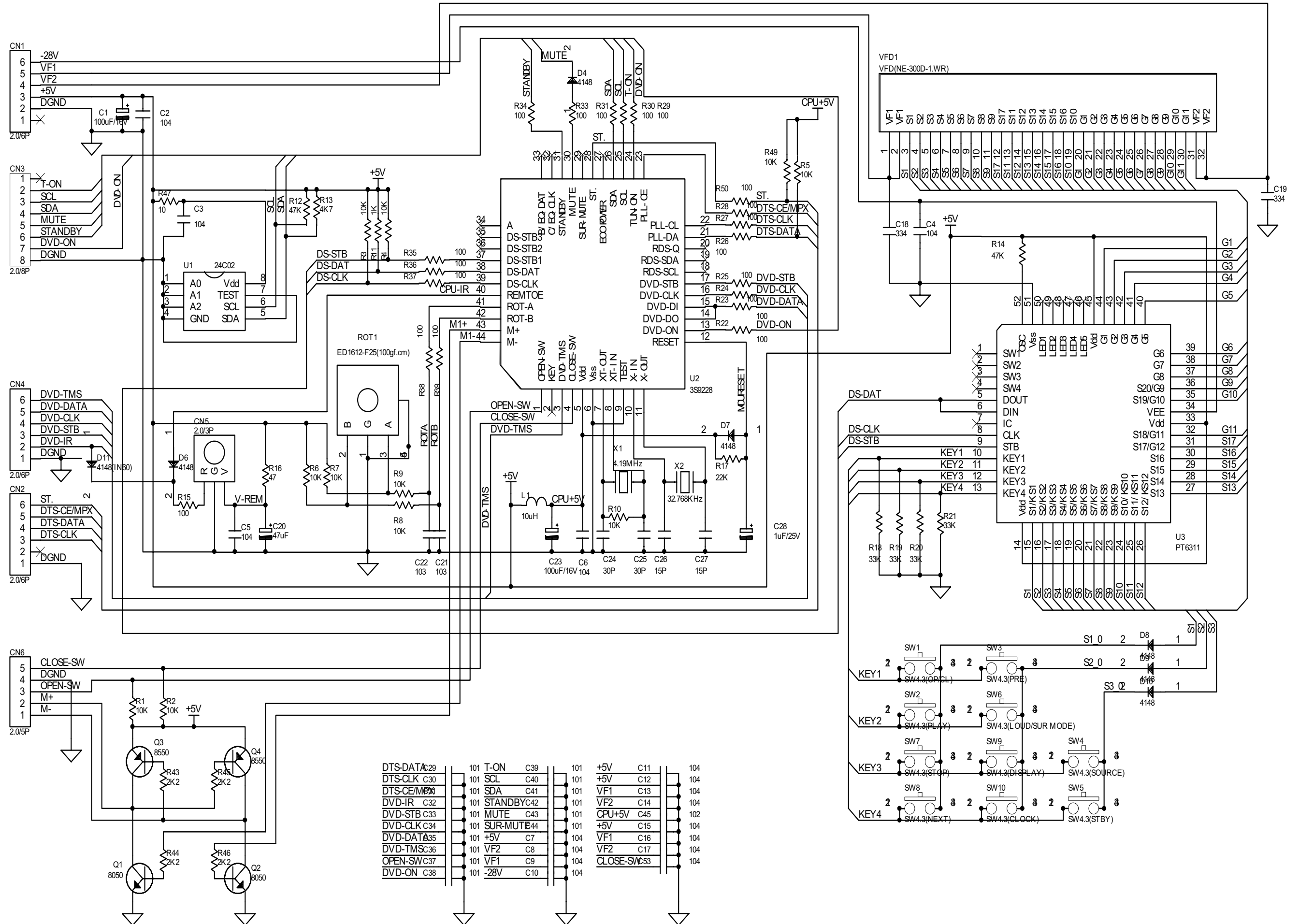


SET WIRING DIAGRAM(ONLY FOR MCD305)

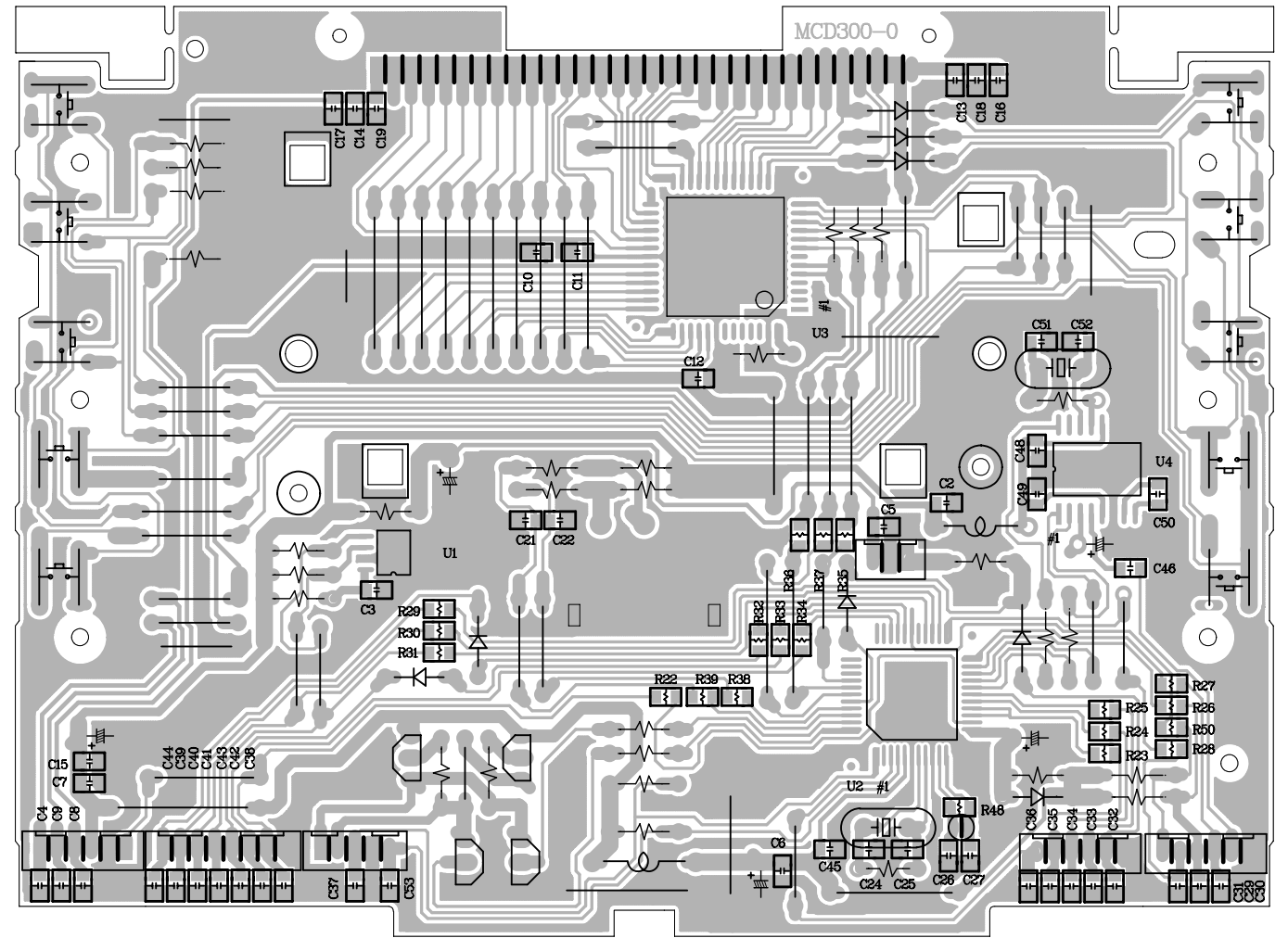
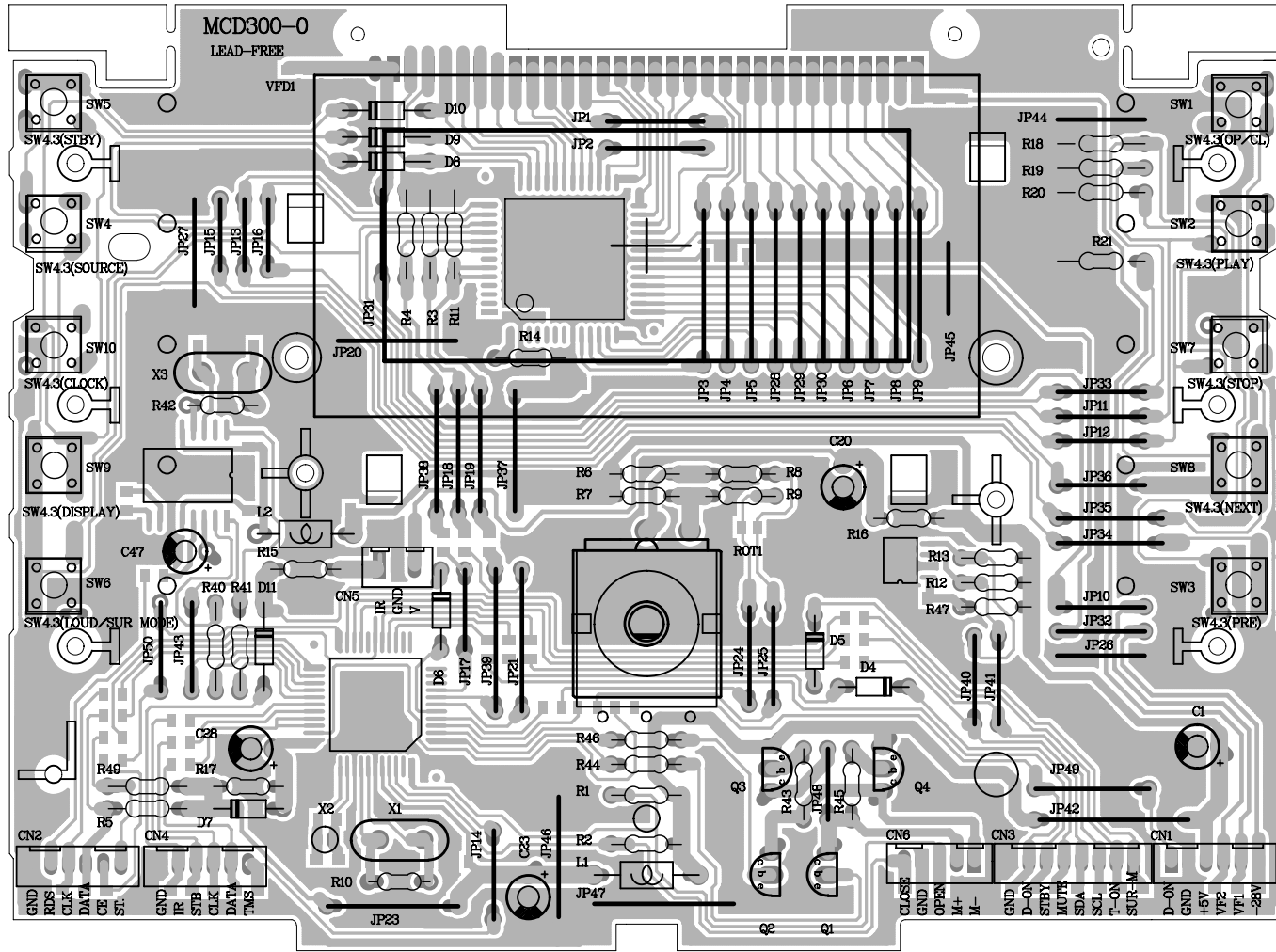




# CIRCUIT DIAGRAM - CPU BAORD

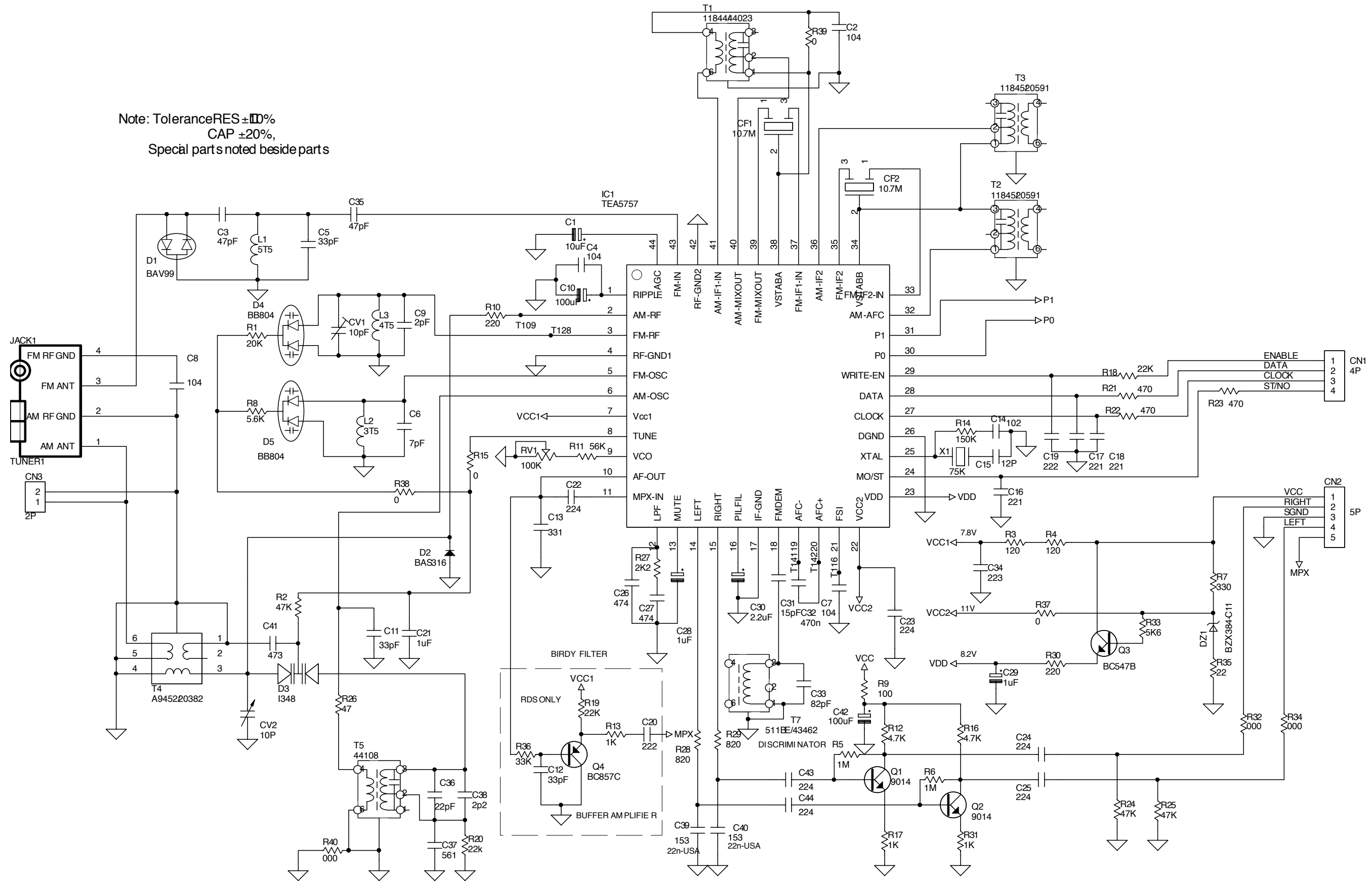


LAYOUT DIAGRAM - CPU BAORD

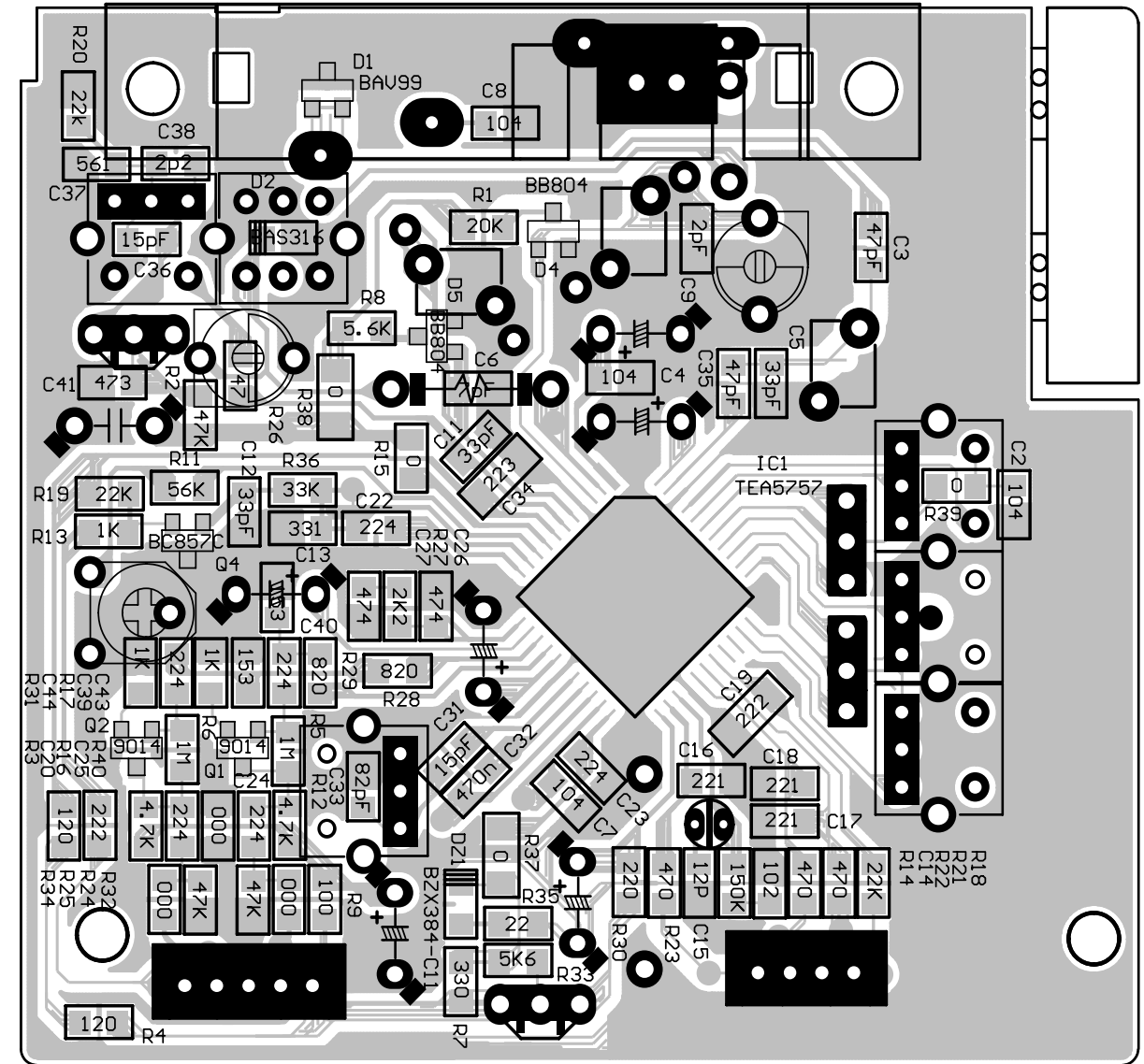
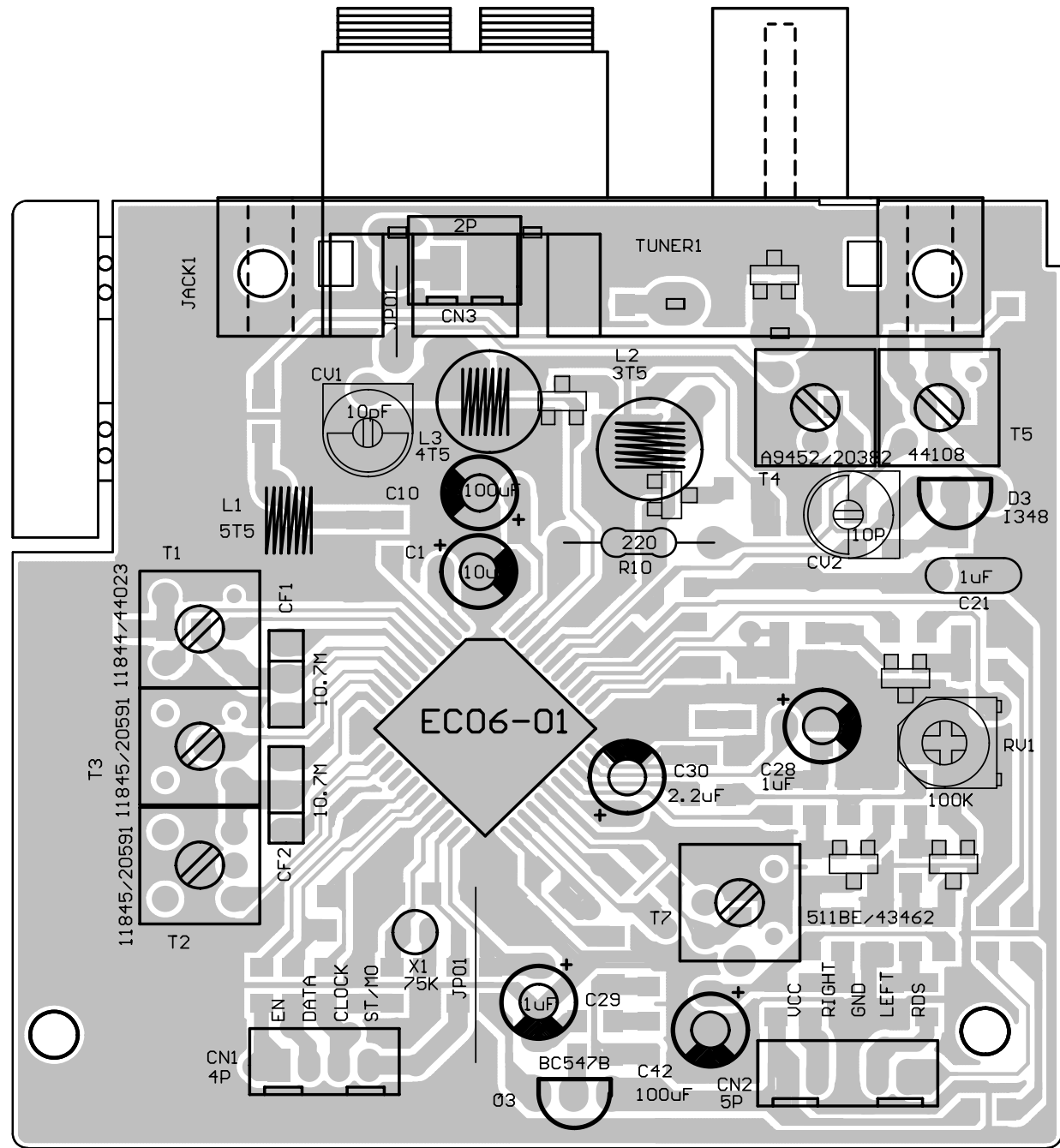


# CIRCUIT DIAGRAM - TUNER BOARD (ECO6-01)

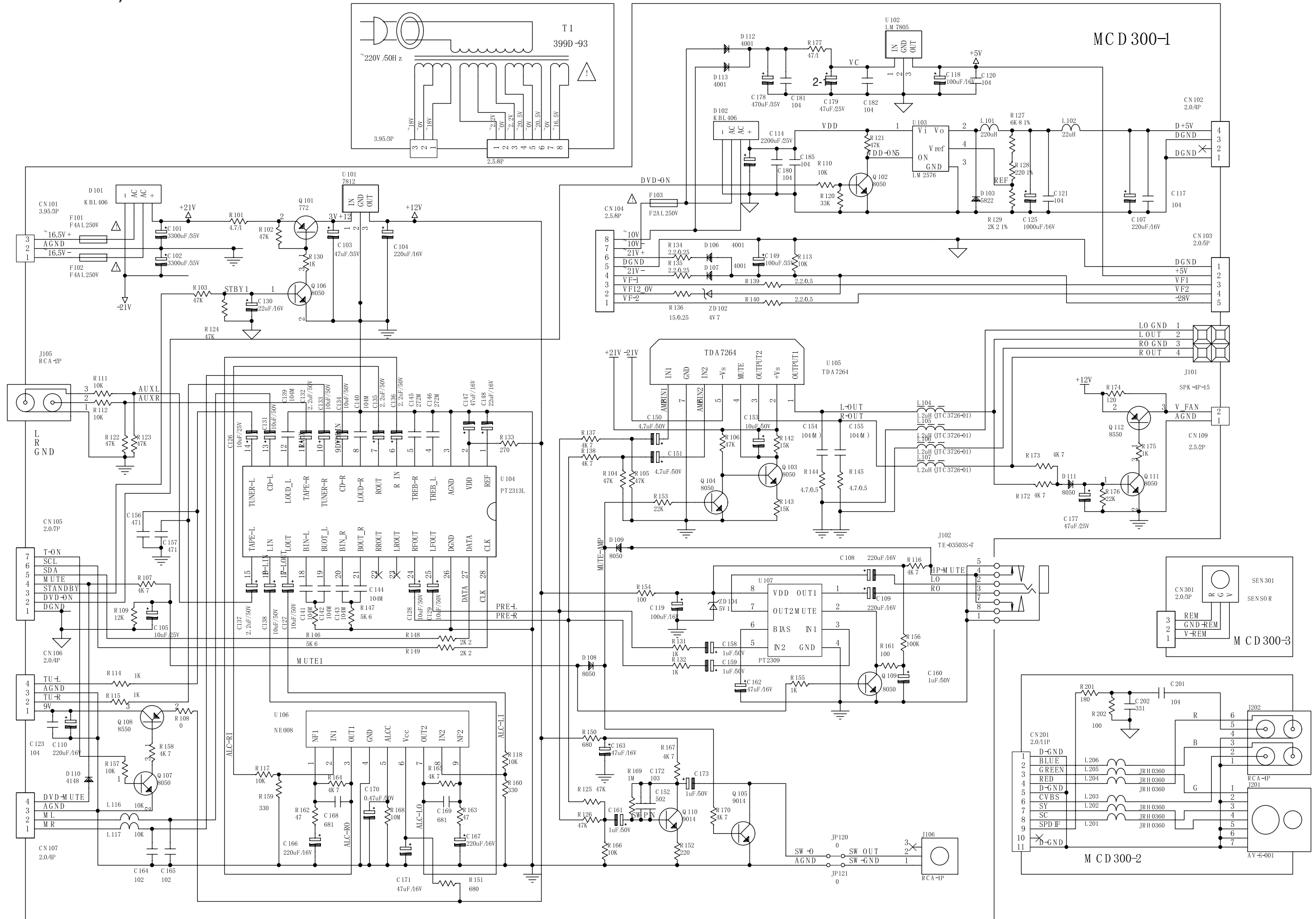
Note: Tolerance RES  $\pm 1\%$   
CAP  $\pm 20\%$ ,  
Special parts noted beside parts



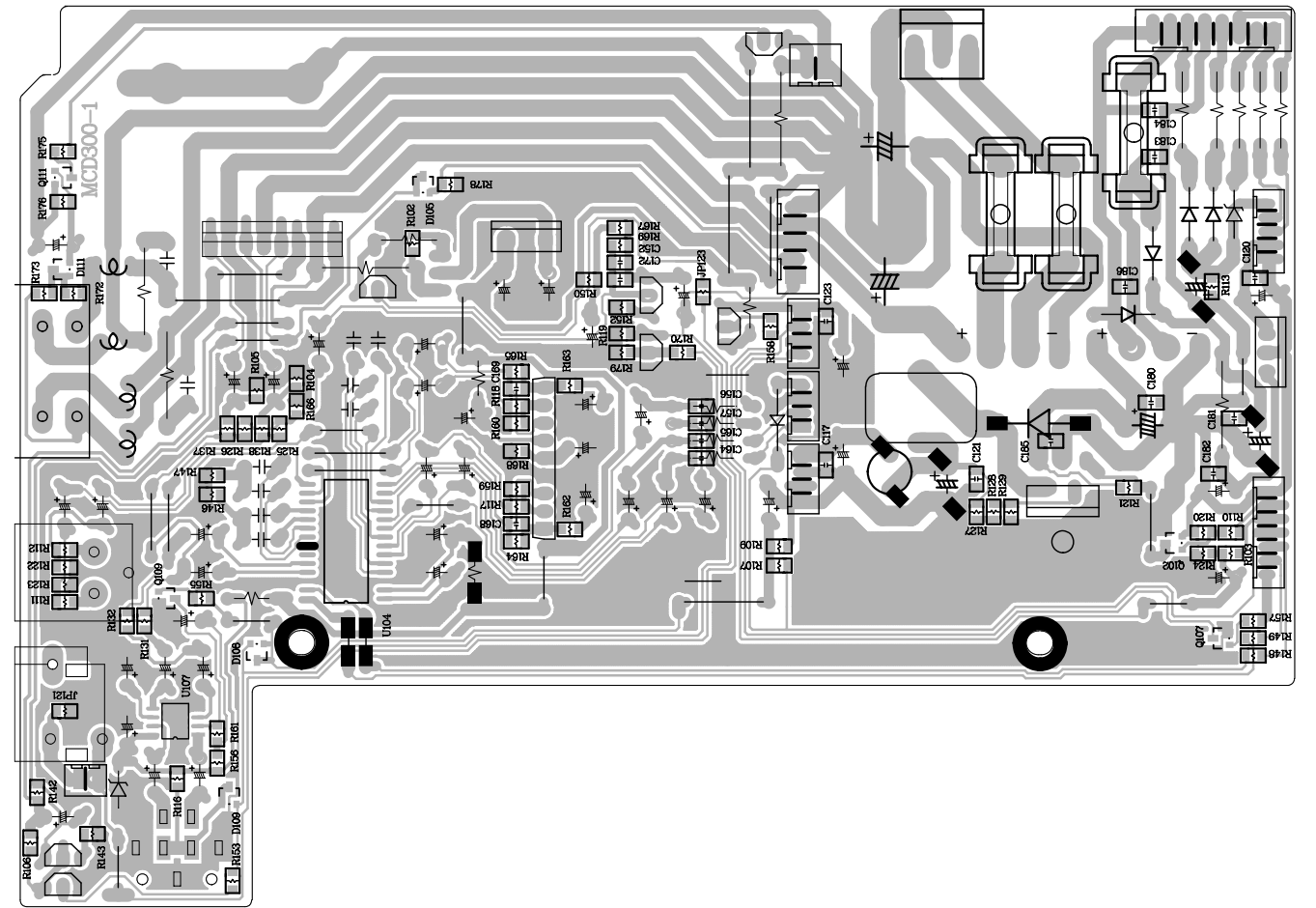
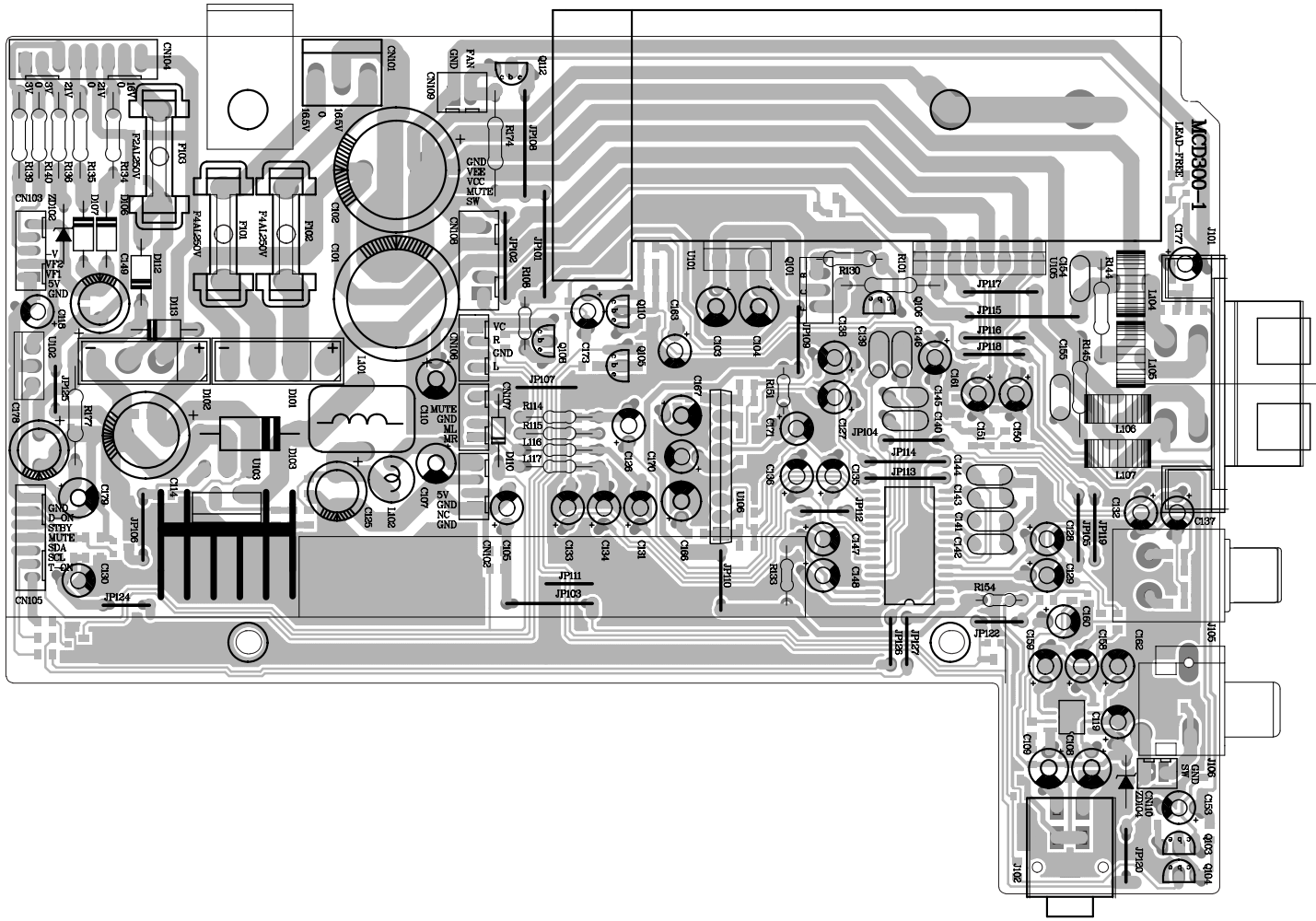
LAYOUT DIAGRAM - TUNER BOARD  
(ECO6-01)



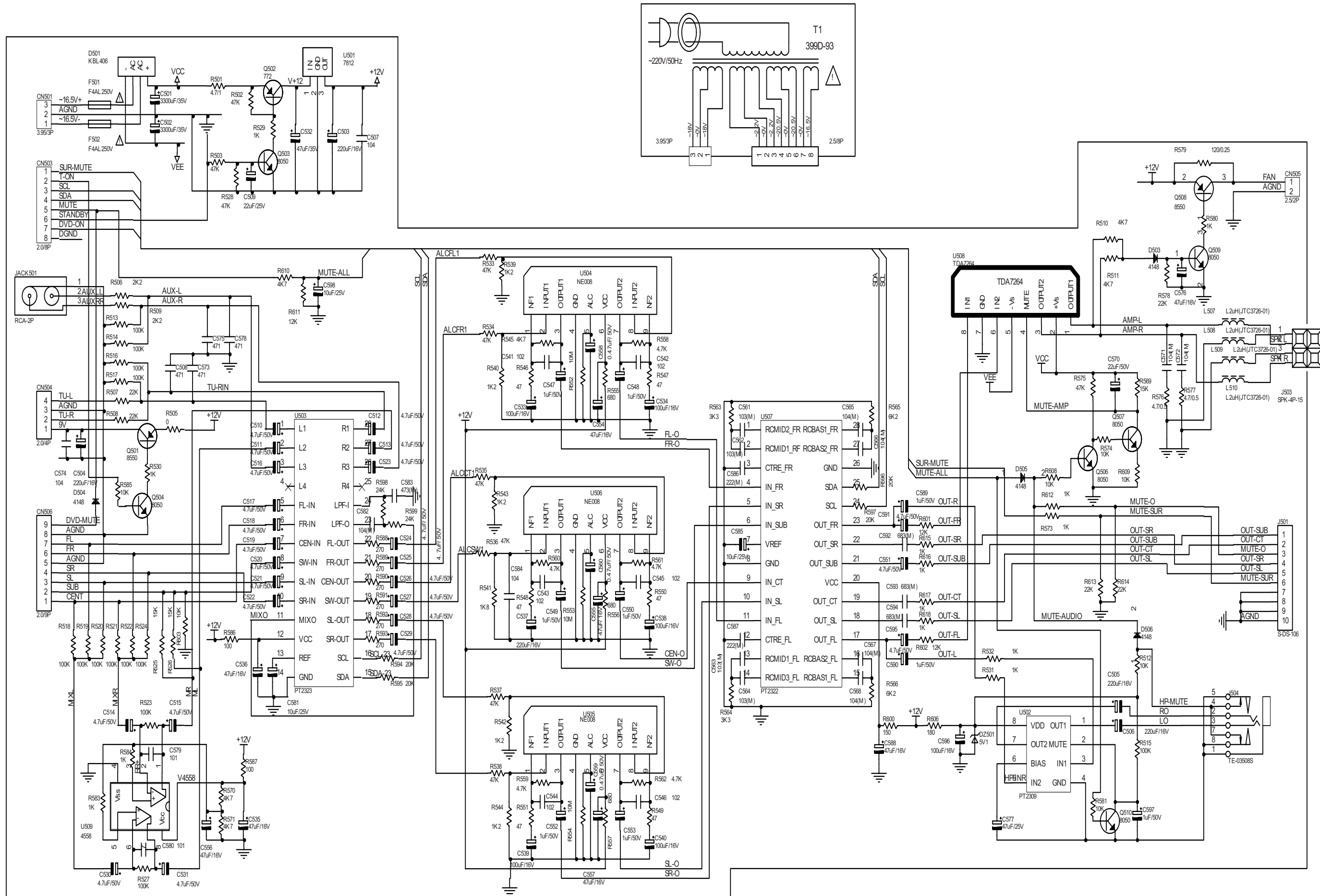
# CIRCUIT DIAGRAM - AMPLIFIER BOARD (ONLY FOR MCD300)



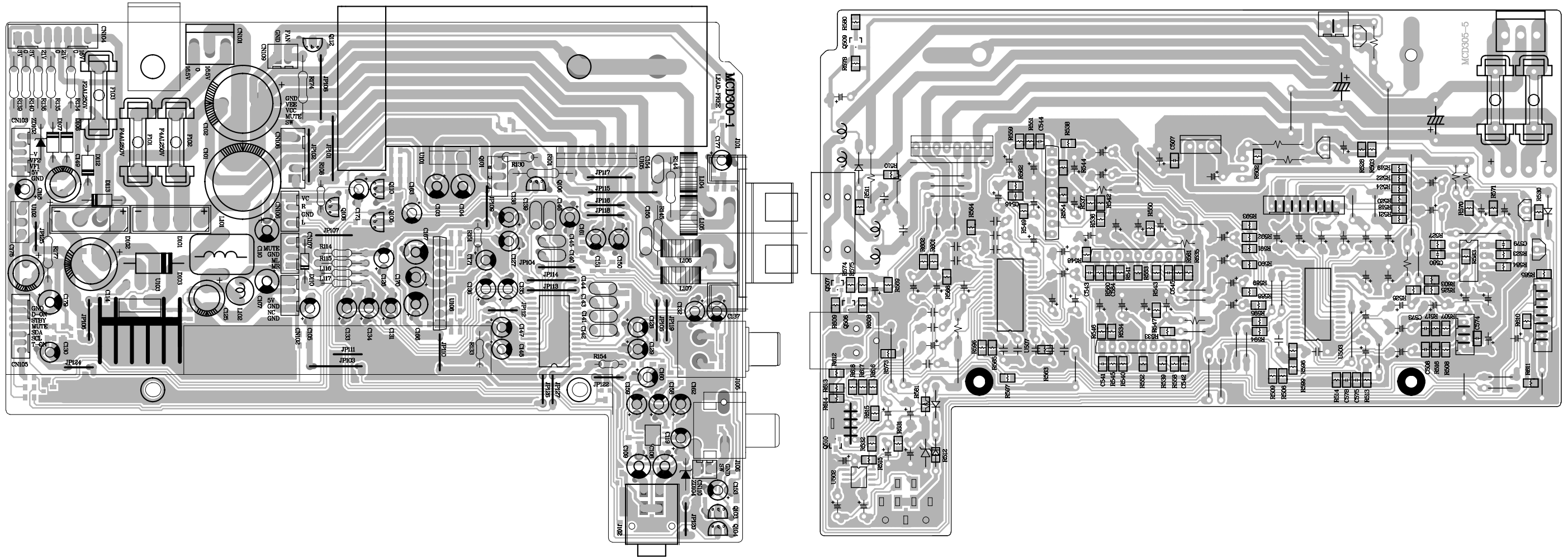
# LAYOUT DIAGRAM -AMPLIFIER BOARD (ONLY FOR MCD300)



# CIRCUIT DIAGRAM - AMPLIFIER BOARD (ONLY FOR MCD305)

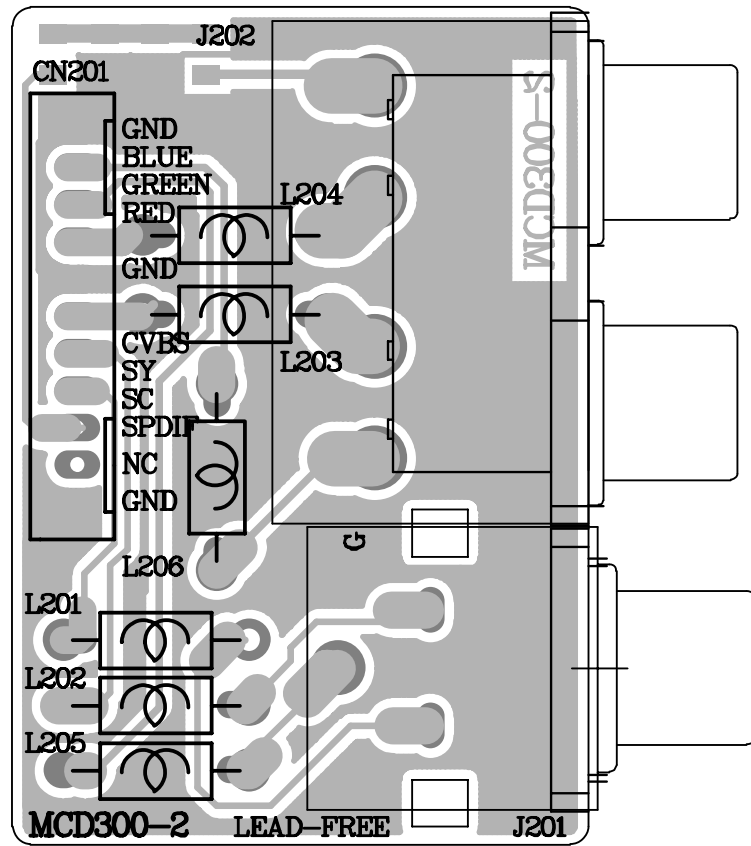


# LAYOUT DIAGRAM -AMPLIFIER BOARD (ONLY FOR MCD305)

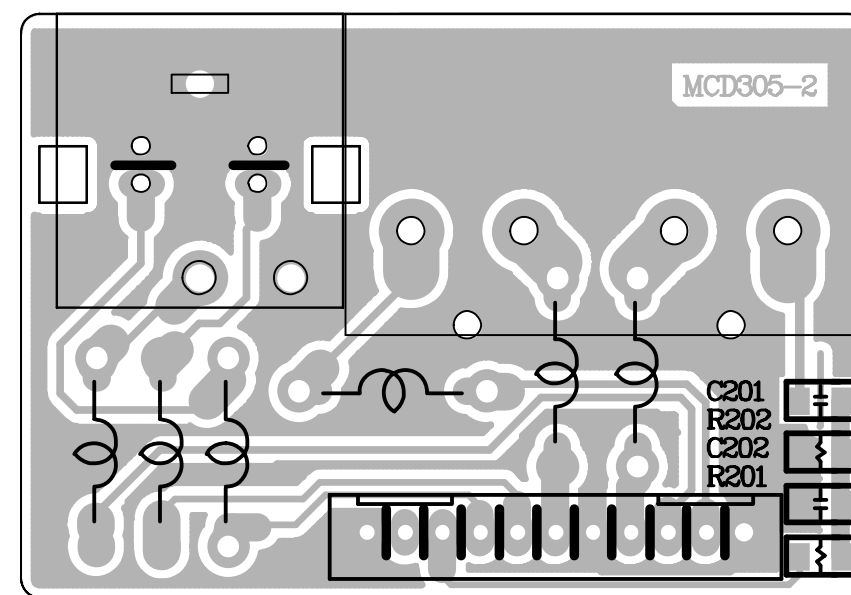
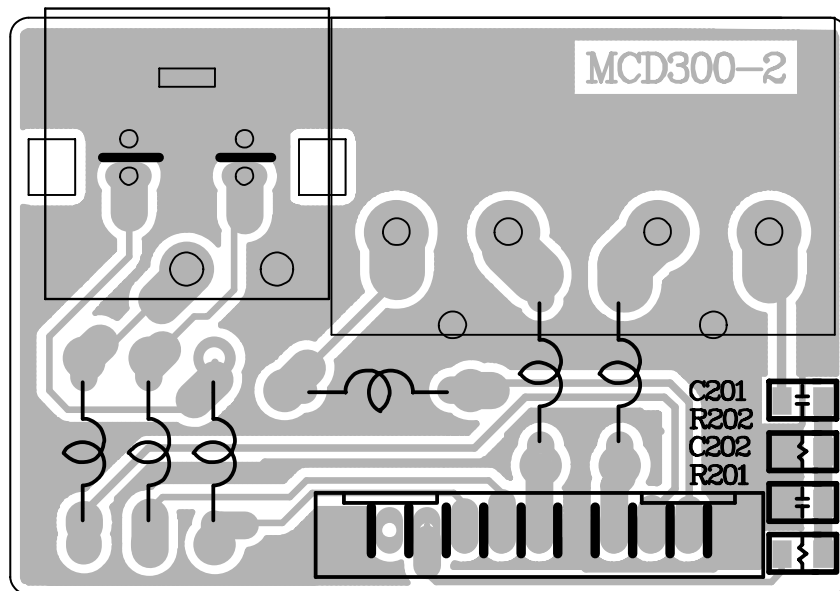
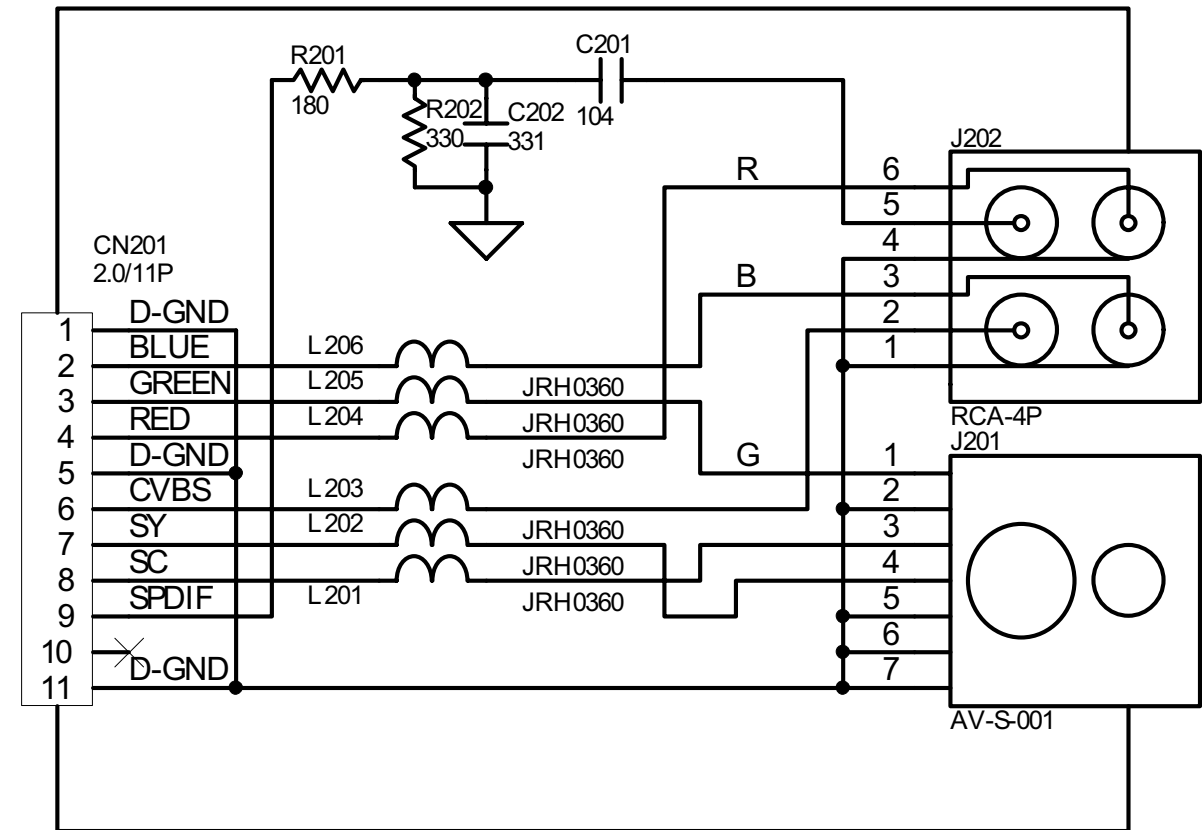




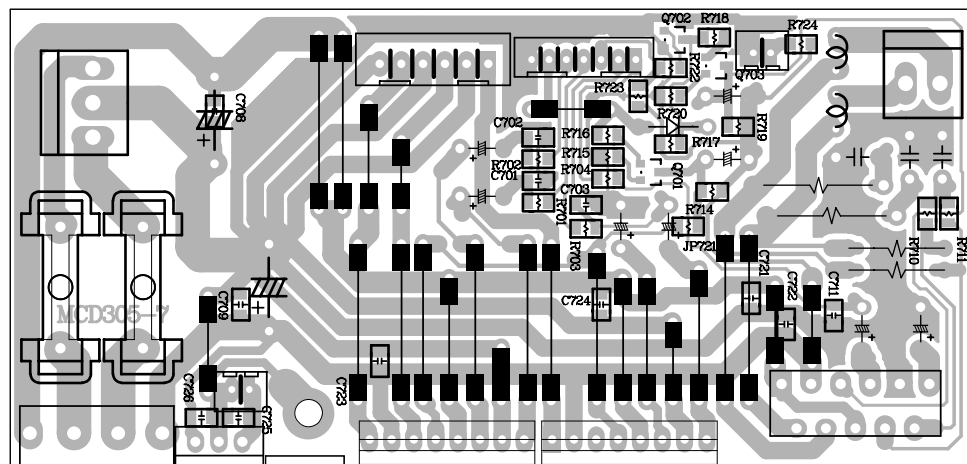
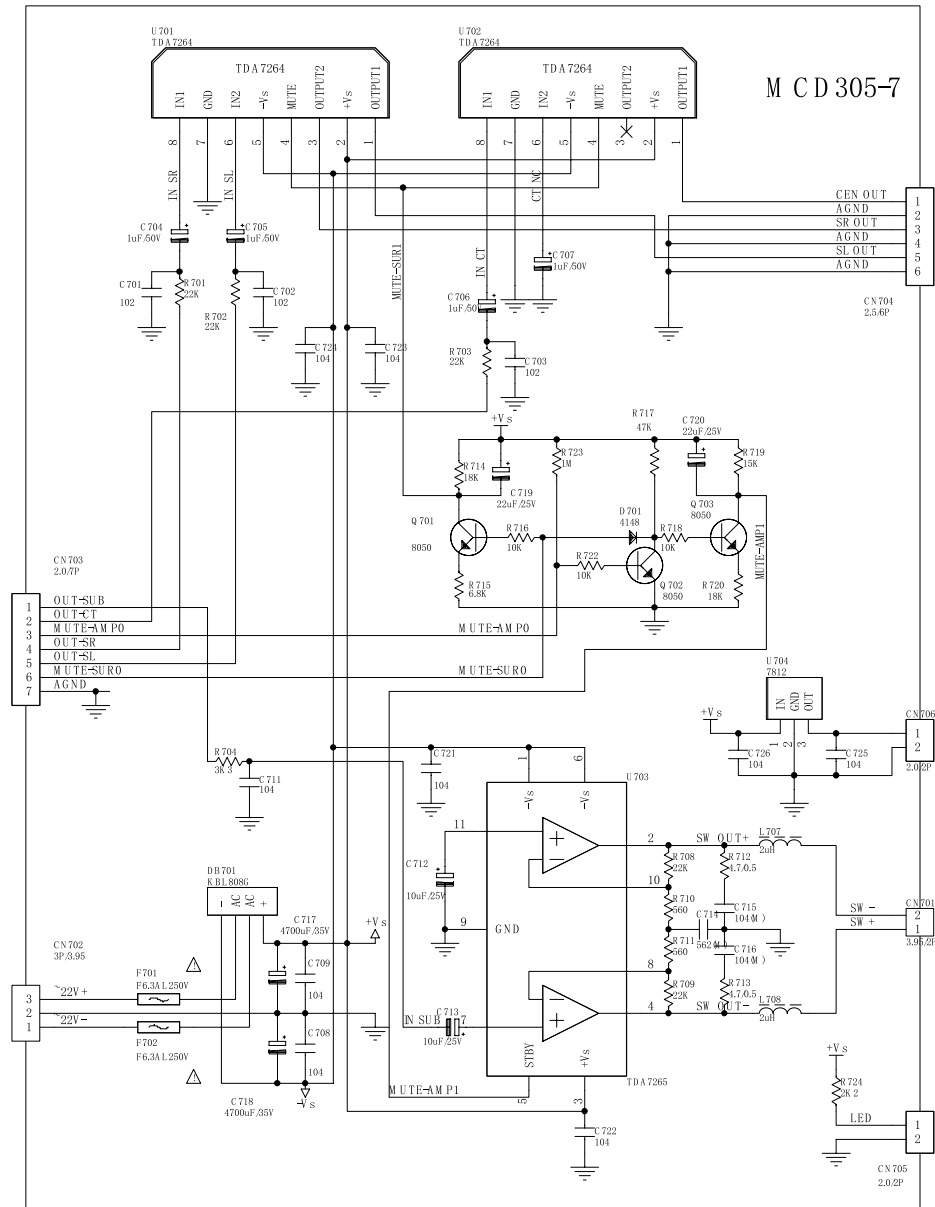
LAYOUT DIAGRAM - OUTPUT TERMINAL BOARD  
ONLY FOR MCD300



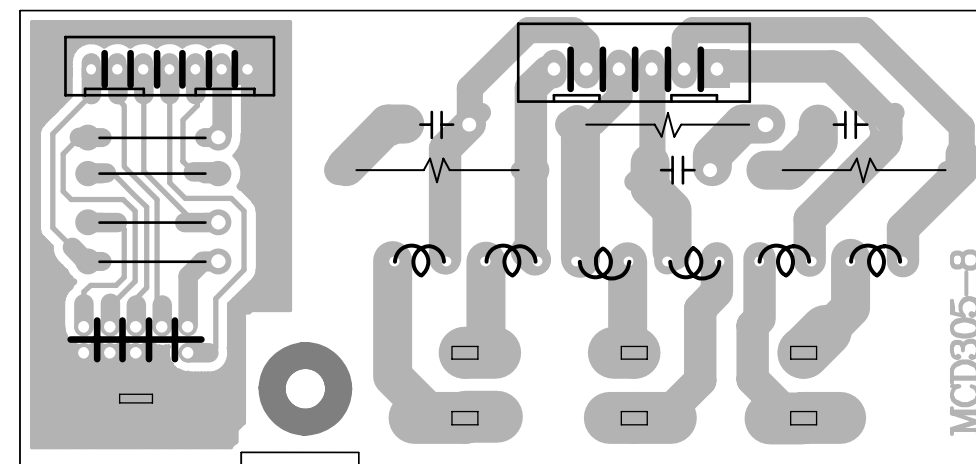
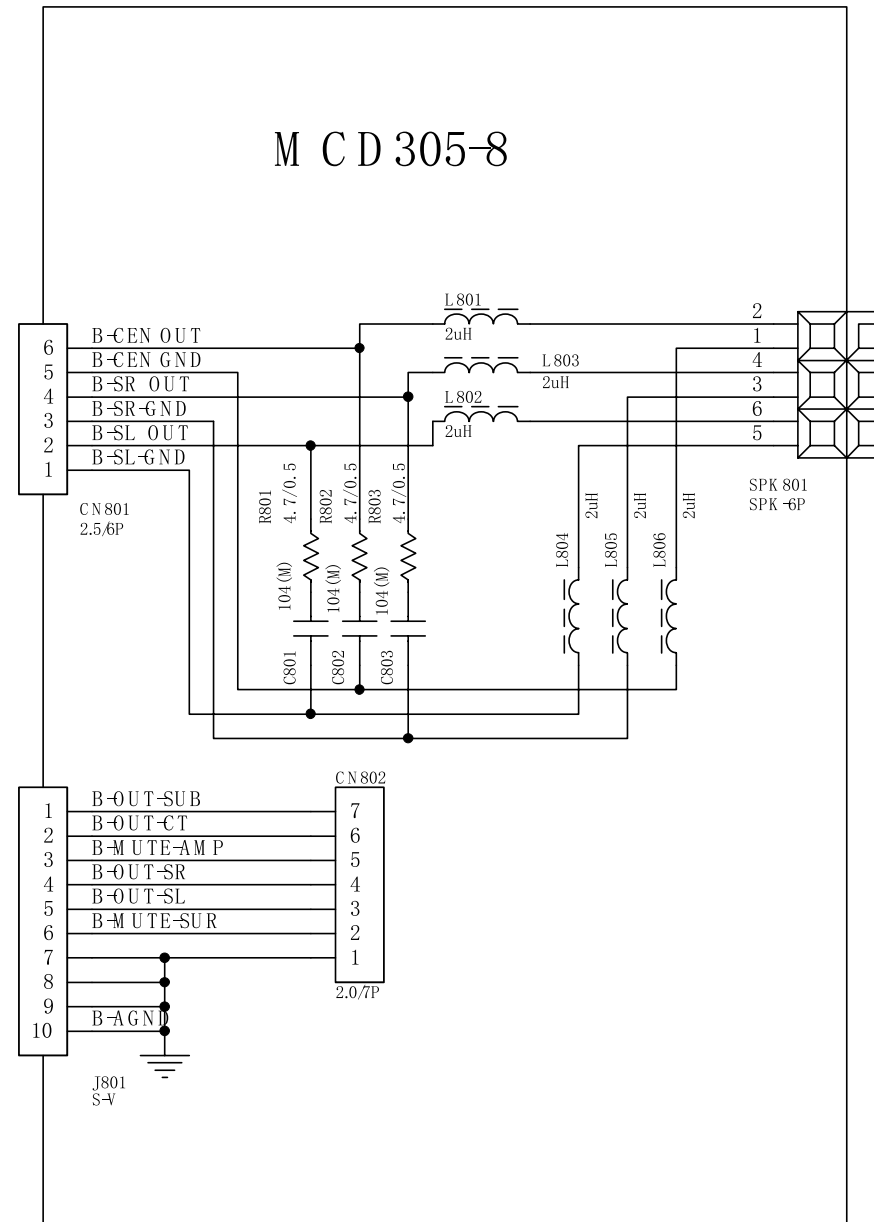
CIRCUIT DIAGRAM - OUTPUT TERMINAL BOARD  
ONLY FOR MCD3005



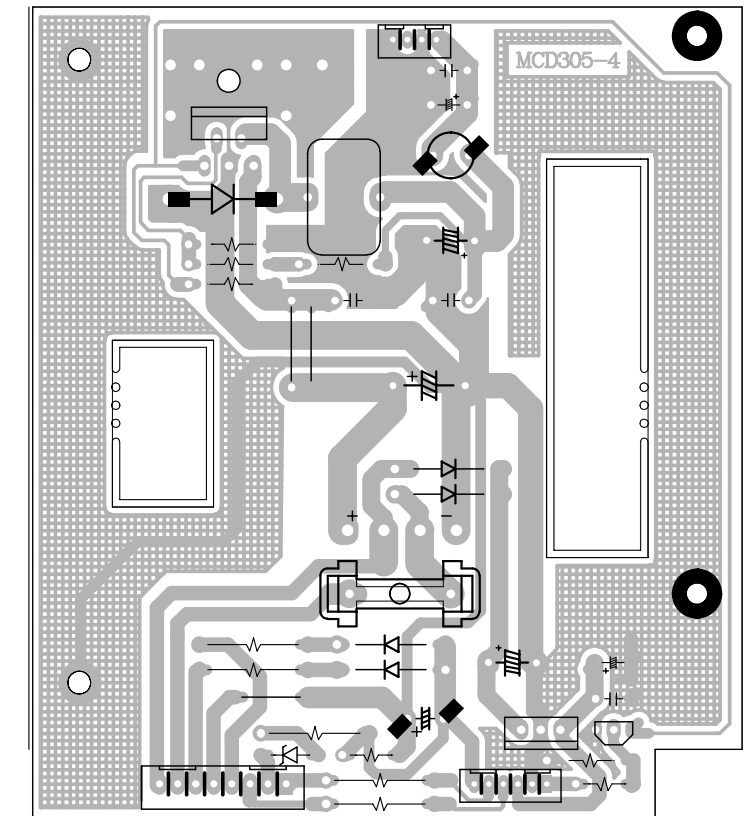
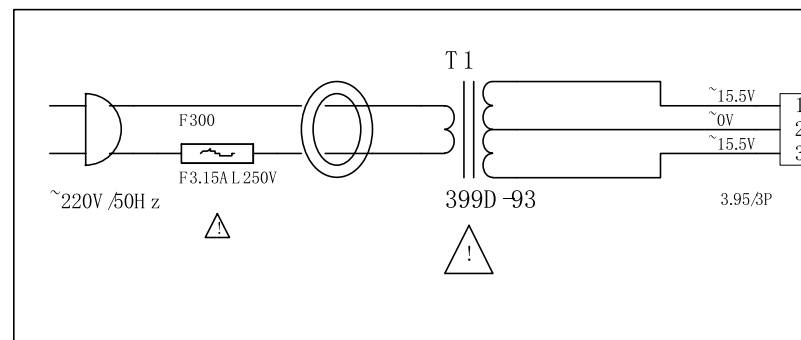
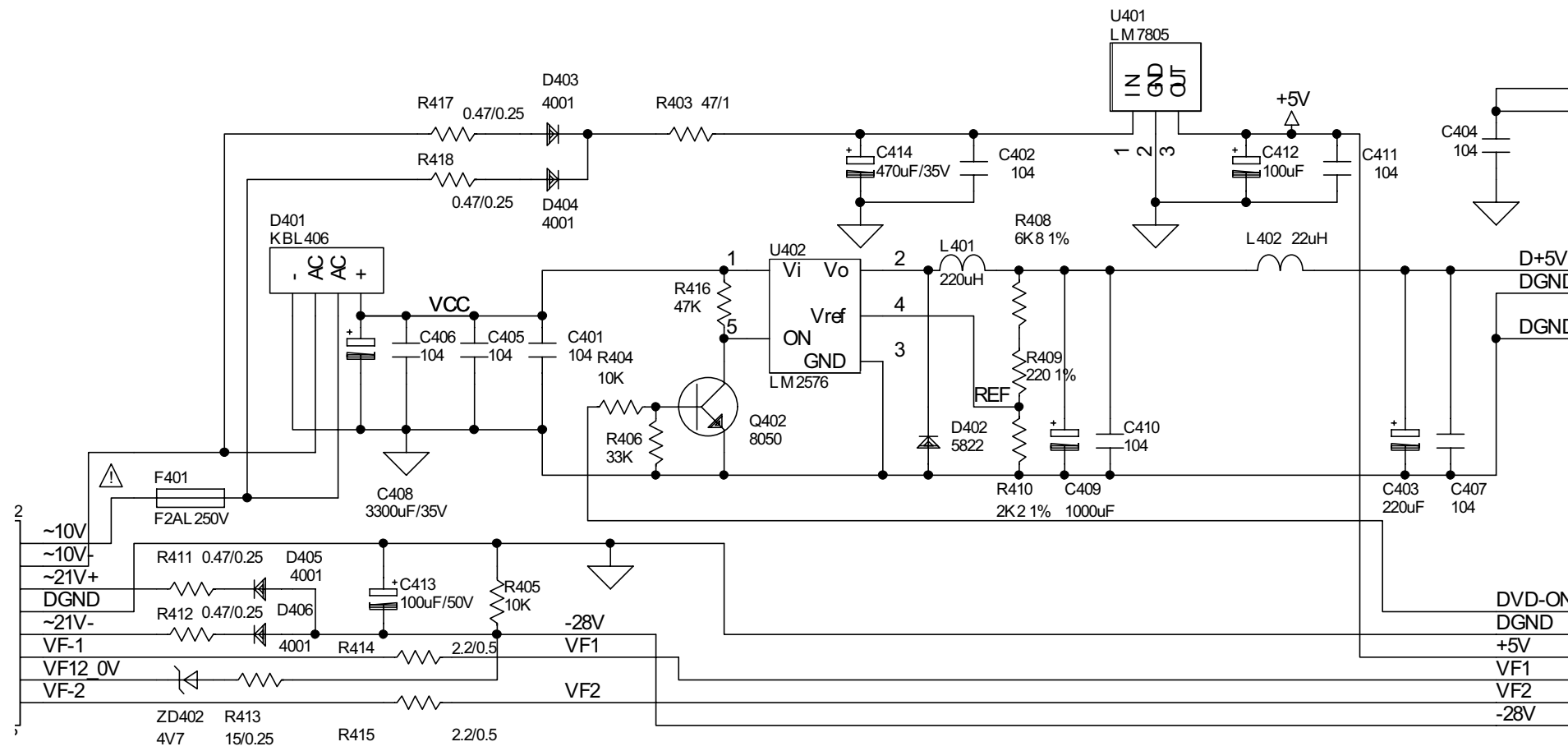
**CIRCUIT AND LAYOUT DIAGRAM - CIRCLE AMP BOARD ONLY FOR MCD305**



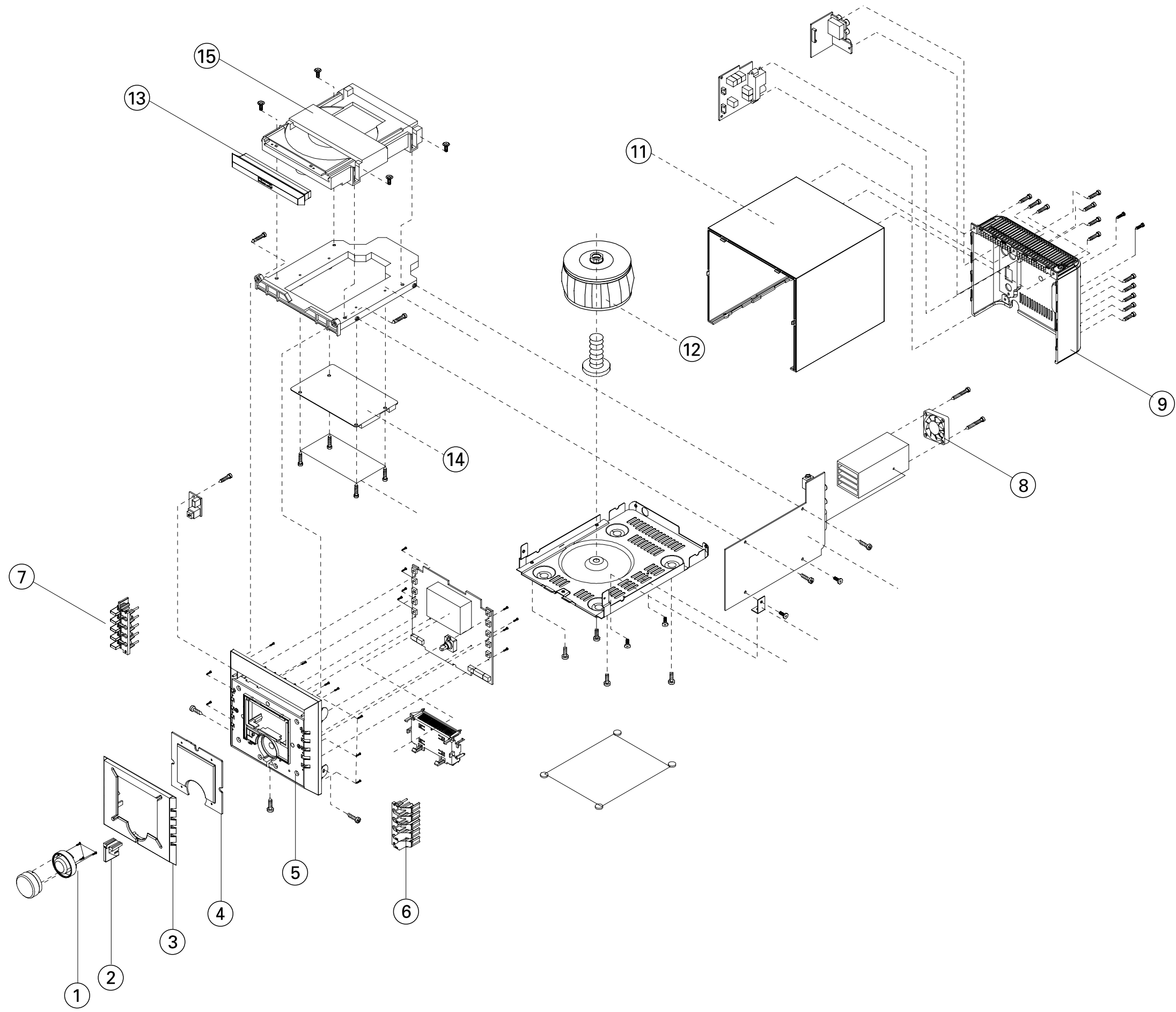
**CIRCUIT AND LAYOUT DIAGRAM - CIRCLE OUTPUT BOARD ONLY FOR MCD305**



**CIRCUIT AND LAYOUT DIAGRAM - POWER BOARD  
ONLY FOR MCD305**



EXPLODED VIEW DIAGRAM



**MECHANICAL PARTSLIST**

01	994000003748	HOLDER-VOL KNOB
02	994000003746	RIB-DECORATING
03	994000003741	PANEL FRONT -/D300
03	994000003826	PANEL FRONT -/D305
04	994000003747	CABINET FRONT LENS
05	994000003742	CABINET FRONT -/D300
05	994000003868	CABINET FRONT -/D305
06	994000003751	FUNCTION KNOB R
07	994000003749	FUNCTION KNOB L
08	994000003731	MINI FAN DC12V 0.07A
09	994000003744	CABINET BACK -/D300
09	994000003827	CABINET BACK -/D305
11	994000003743	CABINET TOP
13	994000003745	CD DOOR
15	994000003816	DVD MECHANISM RT656K
12		TRASFO 220V/50Hz /D300
14		DVD DECODER BOARD ASS'Y /D300
	994000003461	DVD DRIVER KENWOOD 510
	994000003735	NE-830 RUBBER FOOT
	994000003739	RUBBER PAD
	994000003752	RUBBER FOOT

**ACCESSORIES**

994000002508	VIDEO WIRE 1.5M
994000002512	REMOTE CONTROL ASS'Y
994000002562	AM ANTENNA HOLDER
994000003819	WOOFER TRASFO -/D305
994000003506	SPK CONNECTION WIRE 1.5M
994000003516	FM ANTENNA 1P WIRE 1.5M
994000003736	SPEAKER BOX ASS'Y -/D300
994000003737	2P SPEAKER TERMINAL BOARD
994000003738	SPK. GRILLE WD-13
994000003753	REMOTE BATTERY COVER
994000003817	SPEAKER BOX ASS'Y -/D305
994000003818	WOOFER L.S. ASS'Y -/D305

**Note: Only these parts mentioned in the list are normal service parts.**

**ELECTRICAL PARTSLIST - CPU BOARD**

D11	994000003714	DIODE IN60 L=52MM /D300
D11	994000003803	DIODE IN60 /D305
Q1	994000002518	TRANSISTOR 8050C L=5.0MM
Q2	994000002518	TRANSISTOR 8050C L=5.0MM
Q3	994000002519	TRANSISTOR 8550C L=5.0MM
Q4	994000002519	TRANSISTOR 8550C L=5.0MM
ROT1	994000003716	ROT ENCODER ED1612-F25
SW1	994000002555	LIGHT TOUCH SWITCH
SW10	994000002555	LIGHT TOUCH SWITCH
SW2	994000002555	LIGHT TOUCH SWITCH
SW3	994000002555	LIGHT TOUCH SWITCH
SW4	994000002555	LIGHT TOUCH SWITCH
SW5	994000002555	LIGHT TOUCH SWITCH
SW6	994000002555	LIGHT TOUCH SWITCH
SW7	994000002555	LIGHT TOUCH SWITCH
SW8	994000002555	LIGHT TOUCH SWITCH
SW9	994000002555	LIGHT TOUCH SWITCH
U1	994000002547	IC AT24C02-PC27(2.7V) /D300
U1	994000003804	IC AT24C01 / AT24C02 2.7V /D305
U2	994000003162	CPU U252(OR 3P9228) /D300
U2	994000003805	CPU 3S9228 /D305
U3	994000002539	IC PT6311 / SC16311 / CD16311
VFD1	994000003715	VFD DISPLAY NE-300D-1.WR
X1	994000003806	XTAL OSC FREQ 4.19MHz /D305
X1	994000003152	CER FILTER FREQ 4.19MHZ /D300
X2	994000002551	CRYSTAL OSC FREQ. 32.768 KHz

**OUTPUT TERMINAL BOARD**

J201	994000003733	VIDEO JACK-B
J202	994000003732	VIDEO JACK-A /D300
J202	994000003807	4P RCA SOCKET /D305

**Note:** Only these parts mentioned in the list are normal service parts.

**ELECTRICAL PARTSLIST - ECO6 TUNER BOARD**

CF1	994000003153	FM FILTER FREQUENCY 10.7MHz
CF2	994000003153	FM FILTER FREQUENCY 10.7MHz
CV1	994000003758	TRIMMER CAP 10pF
CV2	994000003758	TRIMMER CAP 10pF
D1	994000003764	DIODE BAV99
D2	994000003759	DIODE BAS316
D3	994000003762	VARIODE DIODE I348
D4	994000003763	VARIODE DIODE BB804
D5	994000003763	VARIODE DIODE BB804
DZ1	994000003761	ZENER DIODE BZX384-C11 11V
IC1	994000003421	IC TEA5757H
JACK1	994000003435	ANT. TERMINAL
L1	994000003833	WOUND COIL 3.5 $\times$ 6.5 $\times$ 0.5mm
L2	994000003831	WOUND COIL 3.5 $\times$ 4.5 $\times$ 0.5m
L3	994000003832	WOUND COIL 3.5 $\times$ 5.5 $\times$ 0.5mm
Q1	994000003156	CHIP TRANSISTOR 9014
Q2	994000003156	CHIP TRANSISTOR 9014
RV1	994000003757	SEMI-FIXED RESISTOR 100KR
T1	994000003446	I.F.T. COIL 44023 BLACK
T2	994000003447	I.F.T. COIL 20591 YELLOW
T3	994000003447	I.F.T. COIL 20591 YELLOW
T4	994000003448	I.F.T. COIL 20382 BLACK
T5	994000003449	I.F.T. COIL 44108 BROWN
T7	994000003451	I.F.T. COIL 43462 BLACK
X1	994000003452	QUARTZ X'TAL 75KHz 3.0 $\pm$ 20PPM

**Note: Only these parts mentioned in the list are normal service parts.**

**ELECTRICAL PARTSLIST - AMP BOARD ONLY FOR MCD300**

C101	994000003721	ELE. CAP. 3300uF 35V +100-10%
C102	994000003721	ELE. CAP. 3300uF 35V +100-10%
C139	994000003718	CAPACITOR 104J 100V ±10%
C140	994000003718	CAPACITOR 104J 100V ±10%
C141	994000003718	CAPACITOR 104J 100V ±10%
C142	994000003718	CAPACITOR 104J 100V ±10%
C143	994000003718	CAPACITOR 104J 100V ±10%
C144	994000003718	CAPACITOR 104J 100V ±10%
C145	994000003719	CAPACITOR 272J 100V ±10%
C146	994000003719	CAPACITOR 272J 100V ±10%
C154	994000003718	CAPACITOR 104J 100V ±10%
C155	994000003718	CAPACITOR 104J 100V ±10%
CN101	994000003725	PIN SOCKET 3.95/3P
D101	994000002521	THYRISTOR RS406(4A)
D102	994000002521	THYRISTOR RS406(4A)
D108	994000003723	TRANSISTOR 8050
D109	994000003723	TRANSISTOR 8050
D111	994000003723	TRANSISTOR 8050
F101	⚠ 994000002531	FUSE F4AL250V
F102	⚠ 994000002531	FUSE F4AL250V
F103	⚠ 994000002529	FUSE F2AL250V
FAN	994000003731	MINI FAN DC12V/0.07A
J101	994000003728	4P SPK TERMINAL CLIP
J102	994000003726	HEADPHONE JACK
J105	994000003727	2P RCA SOCKET AV2-8.4-7A
J106	994000002558	SINGLE RCA SOCKET
L102	994000003717	FIXED INDUCTOR 22uH
L104	994000003729	CHOKER COIL JTC3726-01 7T(2uH)
L105	994000003729	CHOKER COIL JTC3726-01 7T(2uH)
L106	994000003729	CHOKER COIL JTC3726-01 7T(2uH)
L107	994000003729	CHOKER COIL JTC3726-01 7T(2uH)
Q101	994000002517	TRANSISTOR 2SB772
Q102	994000003723	TRANSISTOR 8050
Q103	994000002518	TRANSISTOR 8050C L=5.0MM
Q104	994000002518	TRANSISTOR 8050C L=5.0MM
Q105	994000002545	TRANSISTOR 9014C L=5.0mm
Q106	994000002518	TRANSISTOR 8050C L=5.0MM
Q107	994000003723	TRANSISTOR 8050
Q108	994000002519	TRANSISTOR 8550C L=5.0MM
Q109	994000003723	TRANSISTOR 8050



**ELECTRICAL PARTSLIST - AMP BOARD ONLY FOR MCD300**

Q110	994000002545	TRTRANSISTOR 9014C L=5.0mm
Q111	994000003723	TRANSISTOR 8050
Q112	994000002519	TRANSISTOR 8550C L=5.0MM
U101	994000002526	IC 7812
U102	994000002548	IC LM7805/LM340T5 7805
U103	994000003157	IC 2576-ADJPB
U104	994000003724	IC PT2313L
U105	994000002523	IC TDA7264
U106	994000003427	IC NE008
U107	994000002524	IC PT2309-S(L)
ZD102	994000003722	ZENER DIODE 4.7V L=52MM
ZD104	994000002516	ZENER DIODE 5V1 L=52mm

**Note:** Only these parts mentioned in the list are normal service parts.

**ELECTRICAL PARTSLIST - AMP BOARD ONLY FOR MCD305**

C501	994000003808	ELEC. CAP. 3300uF 35V +100-10%
C502	994000003808	ELEC. CAP. 3300uF 35V +100-10%
CN501	994000003725	PIN SOCKET 3.95/3P
D501	994000002521	THYRISTOR RS406A)
DZ501	994000002516	ZENER DIODE 5V1 L=52mm
F501	994000002531	FUSE F4AL250V
F502	994000002531	FUSE F4AL250V
J501	994000003813	S-VIDEO OUTPUT SOCKET
J503	994000002527	4PINS SPK SOCKET PST-416
J504	994000003811	HEADPHONE JACK
JACK501	994000003812	2P RCA SOCKET AV2-8.4-7
L507	994000003729	CHOKO COIL JTC3726-01(2uH)
L508	994000003729	CHOKO COIL JTC3726-01(2uH)
L509	994000003729	CHOKO COIL JTC3726-01(2uH)
L510	994000003729	CHOKO COIL JTC3726-01(2uH)
Q501	994000002519	TRANSISTOR 8550C L=5.0MM
Q502	994000002517	TRANSISTOR 2SB772
Q503	994000002518	TRANSISTOR 8050C
Q504	994000002518	TRANSISTOR 8050C L=5.0MM
Q506	994000003723	TRANSISTOR 8050
Q507	994000003723	TRANSISTOR 8050
Q508	994000002519	TRANSISTOR 8550C L=5.0MM
Q509	994000003723	TRANSISTOR 8050
Q510	994000003723	TRANSISTOR 8050
U501	994000002526	IC 7812
U502	994000002524	IC PT2309-S(L) SOP
U503	994000003426	IC PT2323
U504	994000003427	IC NE008
U505	994000003427	IC NE008
U506	994000003427	IC NE008
U507	994000003428	IC PT2322
U508	994000002523	IC TDA7264
U509	994000003809	IC D4558/RC4558

**Note: Only these parts mentioned in the list are normal service parts.**

**ELECTRICAL PARTSLIST - CIRCLE AMP BOARD ONLY FOR MCD305**

C717	994000003822	ELEC. CAP. 4700uf 35V +100-10%
C718	994000003822	ELEC. CAP. 4700uf 35V +100-10%
DB701	994000003502	THYRISTOR RS808
F701	994000003433	FUSE F6.3AL 250V (50F)
F702	994000003433	FUSE F6.3AL 250V (50F)
L707	994000003729	CHOKE COIL 10 $\phi$ 5 $\phi$ 3 7T(2 $\mu$ H)
L708	994000003729	CHOKE COIL 10 $\phi$ 5 $\phi$ 3 7T(2 $\mu$ H)
Q701	994000003723	CHIP TRANSISTOR 8050
Q702	994000003723	CHIP TRANSISTOR 8050
Q703	994000003723	CHIP TRANSISTOR 8050
U701	994000002523	IC TDA7264
U702	994000002523	IC TDA7264
U703	994000003767	IC TDA7265 STEREO POWER IC
U704	994000002526	IC 7812

**POWER BOARD ONLY FOR MCD305**

D401	994000002521	THYRISTOR RS406(4A)
F401	994000002529	FUSE F2AL250V
L402	994000003717	FIXED INDUCTOR 22uH
Q402	994000002518	TRANSISTOR 8050C L=5.0MM
U401	994000002548	IC LM7805/LM340T5 7805
U402	994000003157	IC 2576-ADJPB TO-220B

**CIRCLE OUTPUT BOARD ONLY FOR MCD305**

J801	994000003825	S-VIDEO OUTPUT SOCKET S-DS-106
L801	994000003729	CHOKE COIL JTC3726-01(2 $\mu$ H)
L802	994000003729	CHOKE COIL JTC3726-01(2 $\mu$ H)
L803	994000003729	CHOKE COIL JTC3726-01(2 $\mu$ H)
L804	994000003729	CHOKE COIL JTC3726-01(2 $\mu$ H)
L805	994000003729	CHOKE COIL JTC3726-01(2 $\mu$ H)
L806	994000003729	CHOKE COIL JTC3726-01(2 $\mu$ H)
SPK801	994000003824	SPEAKER OUTPUT CLIP (6P)

**Note:** Only these parts mentioned in the list are normal service parts.

**ELECTRICAL PARTS - MISCELLANEOUS**

	994000003499	FFC 24P 120mm /D300
12	 994000003734	TRASFO 220V/50Hz /D300
14	994000003754	DVD DECODER BOARD ASS'Y /D300
	994000003755	FLAT FLEX CABLE 200mm /D300
	994000003756	FLAT FLEX CABLE 220mm /D300
	994000003821	SWITCH RS-1209 /D305
	994000003823	DC FAN 12V 0.12A /D305
	994000003829	24P FFC 150mm /D305
	994000003828	FLAT FLEX CABLE(26#) /D305
	 994000003814	TOROIDAL TRASFO 220V/50Hz /D305
	994000003834	DVD DECODER BOARD /D305
	 994000003765	LINE CORD L=1.8M -/D300
	 994000003187	AC LINE CORD 1.95M -/D305

**Note: Only these parts mentioned in the list are normal service parts.**