MP3 VCD Mini System

FWV182

all versions

Service
Service
Service

Service Manual

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CLASS 1
LASER PRODUCT

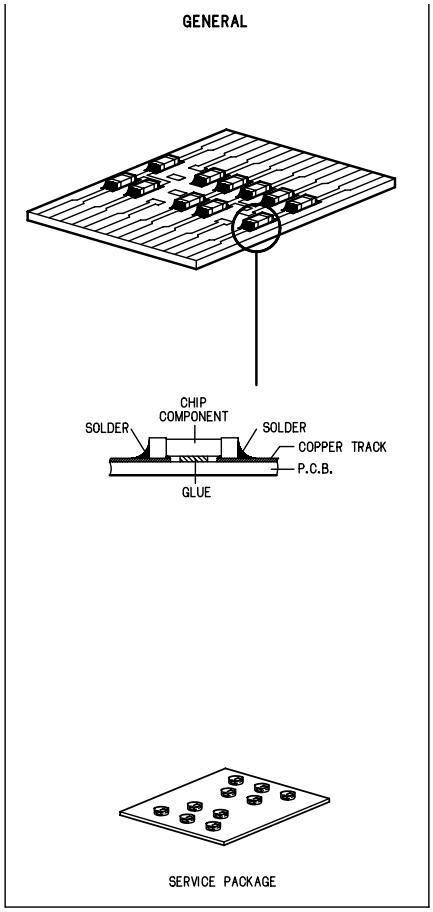
Published by LX 0607 Service Audio Printed in The Netherlands Subject to modification

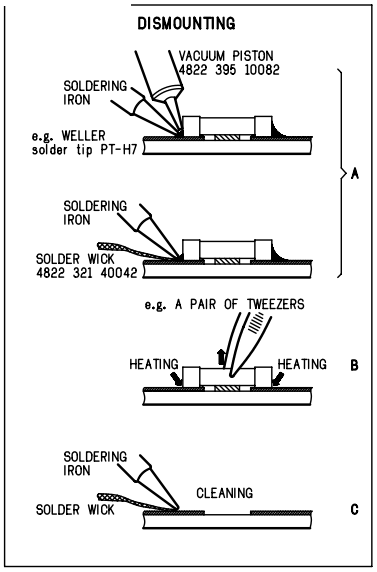
GB 3141 785 30780

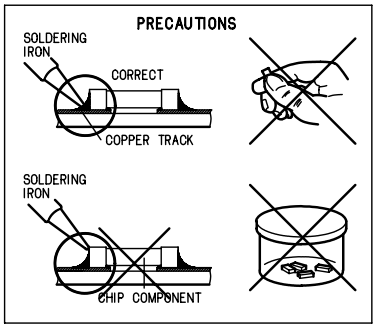
Version 1.0

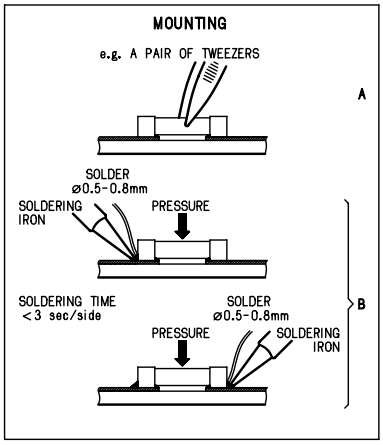
PHILIPS

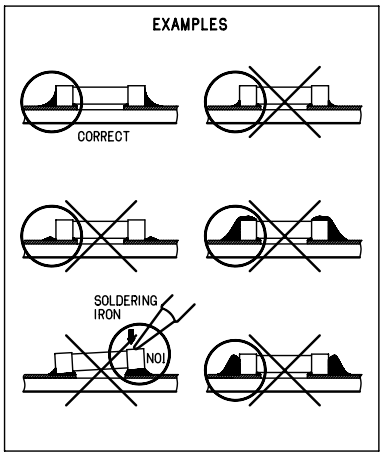
HANDLING CHIP COMPONENTS











(GB) WARNING
All ICs and many other semiconductors 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 wristband with resistance. Keep components and tools at this potential.

ESD

(NL) WAARSCHUWING
Alle IC´s en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD).
Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen vermindern. 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.

(F) ATTENTION
Tous les IC et beaucoup d´autres semi-conducteurs sont sensibles aux décharges statiques (ESD). Leur longévite pourrait être considérablement écourtée par le fait qu´aucune précaution nést prise à leur manipulation.
Lors de réparations, s´assurer de bien être relié au même potentiel que la masse de l´appareil et enfileer 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).
Unsorgfältige Behandlung im Reparaturfall kann die Lebensdauer drastisch reduzieren.
Sorgen Sie dafür, daß Sie im Reparaturfall über ein Pulsarmband mit Widerstand mit dem Massepotential des Gerätes verbunden sind.
Halten Sie Bauteile und Hilfsmittel ebenfalls auf diesem Potential.

(I) AVVERTIMENTO
Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).
La loro longevità potrebbe essere fortemente ridatta in caso di non osservazione della più grande cauzione alla loro manipolazione. Durante le riparationi occorre quindi essere collegato allo stesso potenziale che quello della massa delápparecchio tramite un braccialetto a resistenza.
Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

SAFETY

(GB)
Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.
Safety components are marked by the symbol ⚠

(NL)
Veiligheidsbepalingen vereisen, dat het apparaat in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde, worden toegepast.
De Veiligheidsonderdelen zijn aangeduid met het symbool ⚠

(F)
Les normes de sécurité exigent que l`appareil soit remis à l`état d`origine et que soient utilisées les pièces de rechange identiques à celles spécifiées.
Les composants de sécurité sont marqués ⚠

(I)
Le norme di sicurezza estigono che l´apparecchio venga rimesso nelle condizioni originali e che siano utilizzati i pezzi di ricambiago identici a quelli specificati.
Componenty di sicurezza sono marcati con ⚠

(D)
Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Gerätes darf nicht verändert werden. Für Reparaturen sind Originalersatzteile zu verwenden.
Sicherheitsbauteile sind durch das Symbol ⚠ markiert.

CLASS 1 LASER PRODUCT

(GB) DANGER: Invisible laser radiation when open. AVOID DIRECT EXPOSURE TO BEAM.

(S) Varning !
Osynlig laserstrålning när apparaten är öppnad och spärren är urkopplad. Betrakta ej strålen.

(DK) Advarsel !
Usynlig laserstråling ved åbning når sikkerhedsafbrydere er ude af funktion. Undgå udsaettelse for stråling.

(FIN) Varoitus !
Avatussa laitteessa ja suojalukituksen ohitettaessa olet alttiina näkymättömälle laserisäteilylle. Älä katso säteeseen !

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

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

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** 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.

TECHNICAL SPECIFICATIONS

GENERAL

Mains voltage	-/55/98	:	120/230V
Mains frequency	-/55/98	:	50/60 Hz
Battery	remote	:	3 V (AAA x 2)
Power consumption	normal	:	< 60 W
	Standby	:	< 15 W
Dimension (W x H x D)		:	265 x 310 x 384 mm
Weight (with/without speaker)		:	10/5.1 Kg

AMPLIFIER

Output power	:	2 x 25 W
Speaker impedance	:	2 x 6 ohm
Frequency response	:	125 Hz - 16 kHz (±3dB)
Signal to Noise ratio	:	> 65 dBA

TUNER - FM SECTION

Tuning range		:	87.5 - 108 MHz
IF frequency		:	10.7 MHz ± 0.02 MHz
Sensitivity		:	< 28 dBf
Selectivity	300kHz	:	> 10 dB
IF Rejection		:	> 50 dB
Image Rejection		:	> 20dB
Distortion		:	< 3 %
Tuning Grid		:	50K Hz

TUNER - AM SECTION

Tuning range	:	515 - 1650 kHz
Tuning Grid	:	9K Hz
IF frequency	:	455 kHz ± 3 kHz
Sensitivity	:	≤ 4.0 mV/m
Selectivity S9/300kHz	:	> 10 dB
IF rejection	:	> 24 dB
Distortion	:	< 5%
Image rejection	:	> 28 dB

AUDIO CASSETTE RECORDER

Number of tracks		:	2 stereo
Tape speed		:	4.76 cm/sec +3.5/-2.5%
Wow & flutter		:	< 0.4 % JIS
Fast wind/rewind C60		:	170 sec.
Frequency response	P/B	:	125 - 8000 Hz
S/N ratio		:	45 dBA

VIDEO PERFORMANCE

Number of progarmmable track		:	20
Channel sepatation	1 kHz	:	>50 dB
S/N ratio		:	> 62 dBA
Frequency response		:	125-16000Hz
MPEG1		:	VCD version 2.0
MPEG1 Layer 3		:	MPEG AUDIO
MP3-CD bit rate		:	32 - 256 kbps

SERVICE TOOLS

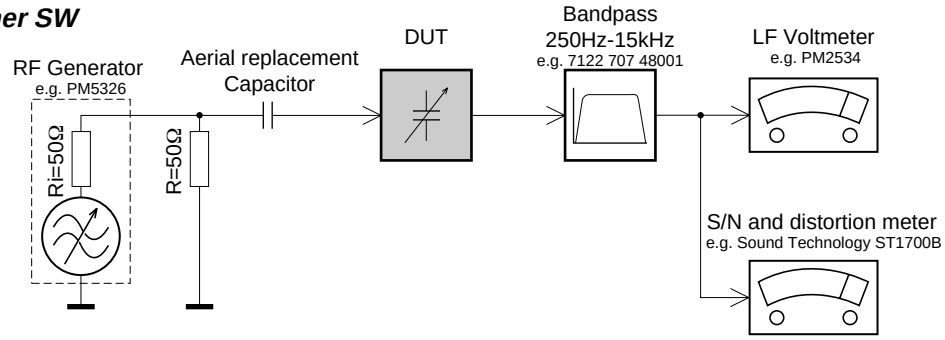
Audio signal disc SBC 429.....4822 397 30184
Playability test disc SBC 444.....4822 397 30245
Test disc 5 (disc without errors) +
Test disc 5A (disc with dropout errors, black spots and fingerprints)
SBC 426/426A.....4822 397 30096
Burn in test disc (65 min. 1kHz signal at -30 dB level without “pause”).....4822 397 30155

AVAILABLE ESD PROTECTION EQUIPMENT

anti-static table mat	large 1200x650x1.25mm	4822 466 10953
	small 600x650x1.25m	4822 466 10958
anti-static wristband		4822 395 10223
connection box (3 press stud connections, 1MΩ)		4822 320 11307
extendible cable (2m, 2MΩ, to connect wristband to connection box)		4822 320 11305
connecting cable (3m, 2MΩ, to connect table mat to connection box)		4822 320 11306
earth cable (1MΩ, to connect any product to mat or to connection box)		4822 320 11308
KIT ESD3 (combining all 6 prior products - small table mat)		4822 310 10671
wristband tester		4822 344 13999

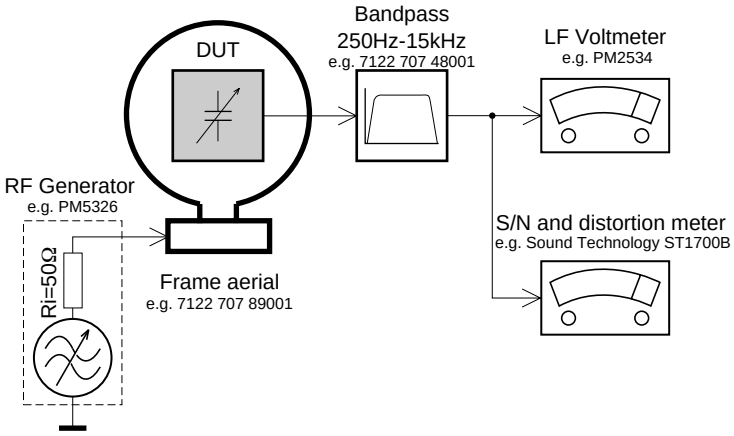
SERVICE MEASUREMENT

Tuner SW



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).

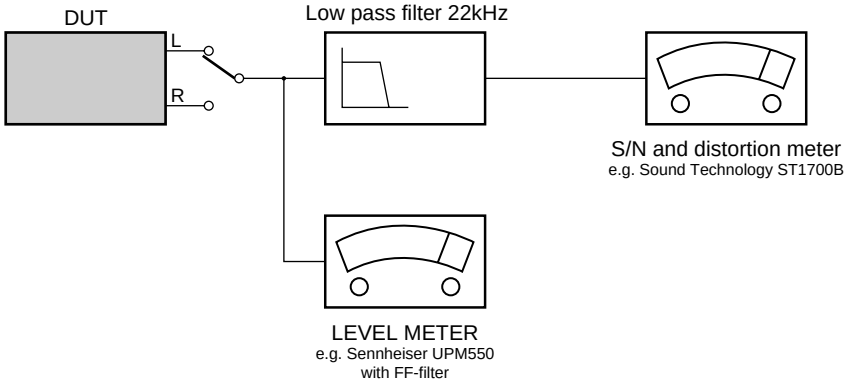
Tuner AM (MW,LW)



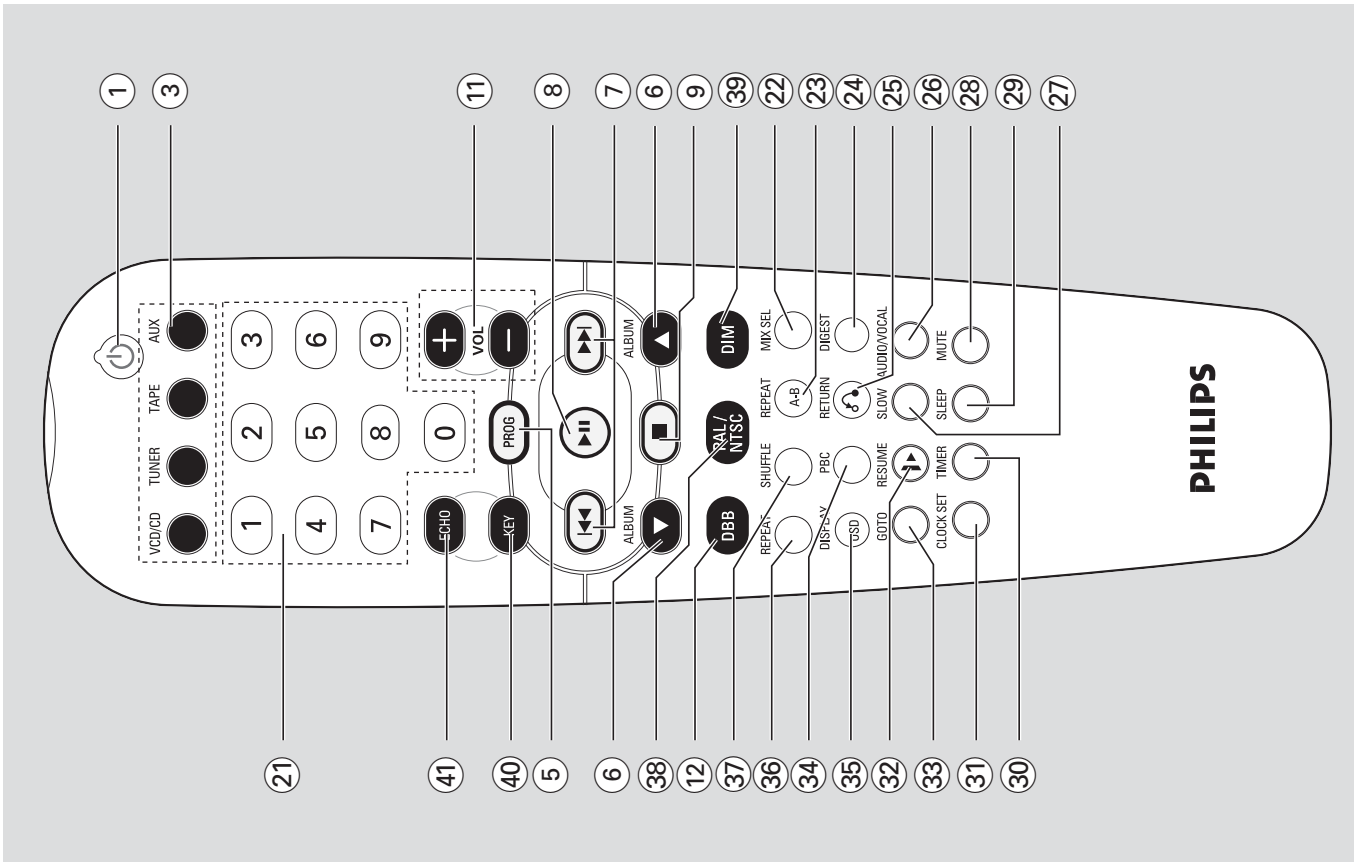
To avoid atmospheric interference all AM-measurements have to be carried out in a Faraday«s cage.

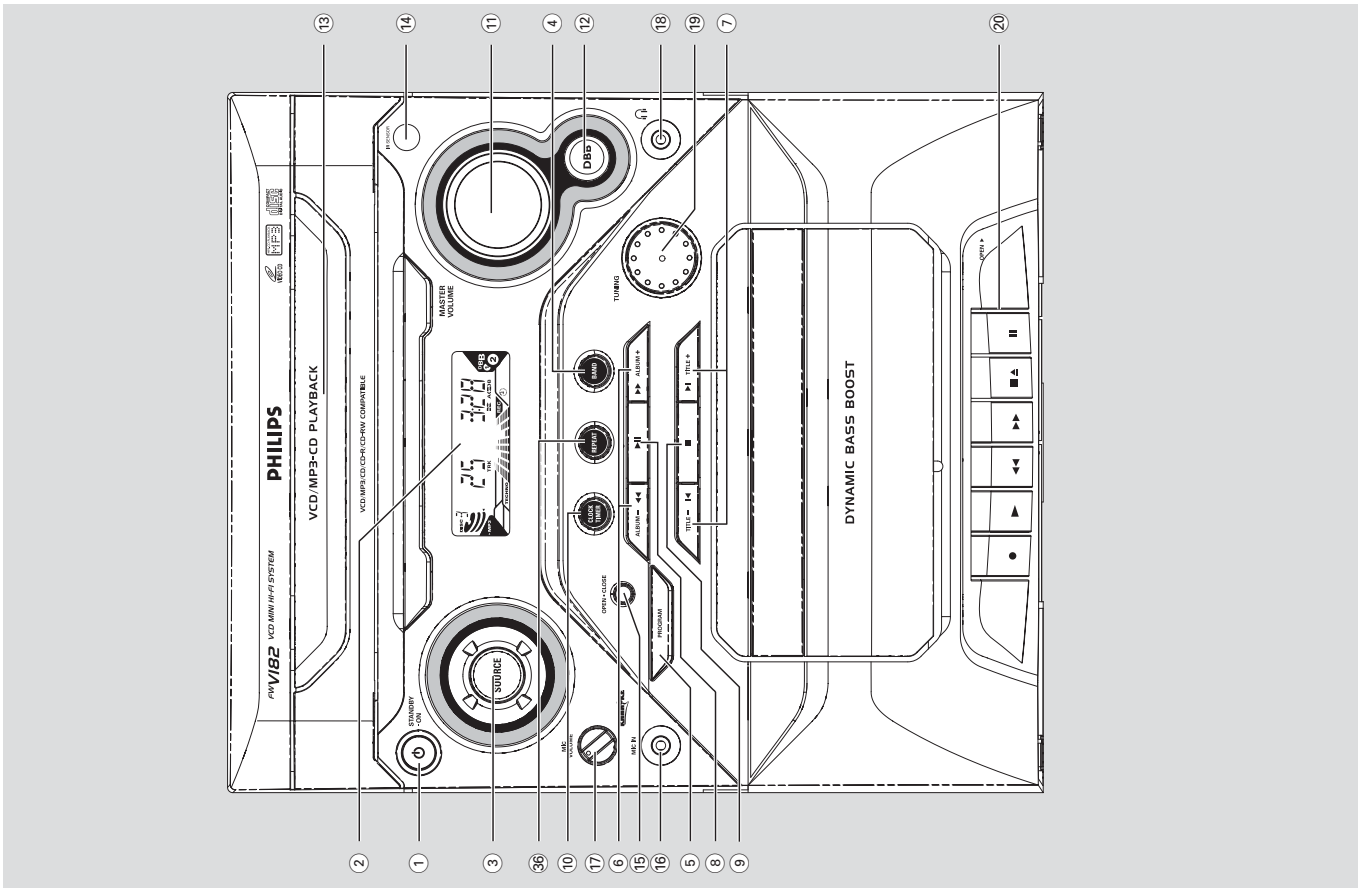
CD

Use Audio Signal Disc SBC429 4822 397 30184 (replaces test disc 3)
L.P.F. = 13 th order filter 4822 395 30204



CONNECTION AND CONTROLS





Controls *(illustrations on page 3&4)*

Controls on the system and remote control

① **STANDBY ON** ⏻
– switches the system on or to standby mode.

② **Display screen**
– views the current status of the system.

③ **SOURCE**
– selects the respective sound source : VCD/CD TUNER, TAPE or AUX.

④ **BAND**
for Tuner ..... selects waveband : FM or MW.

⑤ **PROGRAM (PROG)**
for VCD/CD/MP3-CD.....programs disc tracks.

⑥ **ALBUM-/+ ◄◄/►► (ALBUM ▲/▼)**
for MP3-CD ..... selects previous/next album.
for Clock/Timer adjusts the hours.
*for VCD/CD/MP3-CD.....(on the set only) fast reverses/forwards the disc.

⑦ **TITLE-/+ ⏮/⏭ (⏮◄ / ►⏭)**
for VCD/CD/MP3 CD.....selects a desired track/ preset.
for Clock/Timer adjusts the minutes.
*for VCD/CD/MP3-CD.....(on the remote only) fast reverses/forwards the disc.

⑧ **⏯**
for VCD/CD/MP3-CD.....starts or interrupts playback.

⑨ **■**
for VCD/CD/MP3-CD…stops playback or clears a program.

⑩ **CLOCK/TIMER**
– sets the clock/timer function.

⑪ **VOLUME (VOL ＋/－)**
– increases or decreases the volume.

⑫ **DBB (Dynamic Bass Boost)**
– enhances the bass.

⑬ **Disc tray**

⑭ **iR sensor**
– infrared sensor for remote control.

⑮ **OPEN•CLOSE**
– opens or closes the disc tray.

⑯ **MIC IN**
– connects microphone.

⑰ **MIC VOLUME**
– adjsuts the mixing level for Karaoke.

⑱ 🎧
– connects headphones.

⑲ **TUNING**
– tunes to a lower or higher radio frequency.

⑳ **Tape deck operations**
RECORD ● ... starts recording.
PLAY ▶ ..... starts playback.
SEARCH ◄◄/►► fast rewinds/winds the tape.
STOP•OPEN ■ ⏏
..... stops the tape; opens the tape compartment.
PAUSE ⏸ ..... interrupts recording or playback.

㉑ **Numeric Keypad (0-9)**
– for CD/VCD/MP3-CD - to select a track number. (numbers consisting more than 2 figures must be keyed in within 2 seconds)

㉒ **MIX SEL**
– selects disc format (CD/MP3-CD) from a mixed mode disc.

㉓ **REPEAT A - B**
– plays a certain scene or passage of a CD/VCD repeatedly. (REPEAT A - B is not possible for MP3-CD)

㉔ **DIGEST**
– scans through a VCD or a specific track.

㉕ **RETURN**
– returns to the previous MENU level during playack (for VCD with PBC on)

㉖ **AUDIO/VOCAL**
– fades out the original vocal from a Karaoke VCD or switches between mono or stereo mode during audio disc playback.
– selects channel left / channel right / stereo suond, or selects a luanguage in a billingual VCD.

㉗ **SLOW**
– watches the VCD at a slower speed.

㉘ **MUTE**
– mutes or restores sound.

㉙ **SLEEP**
– activates / deactivates or sets sleep timer

㉚ **TIMER**
– activates or deactivates the timer function

㉛ **CLOCK SET**
– enters clock setting mode
– switches to clock display mode

㉜ **RESUME ⏯**
– continues playback again from where you have stopped (for VCD with PBC switched off).

㉝ **GOTO**
– starts playback at any chosen time on the disc (for CD/VCD operation only and PBC mode is off).

㉞ **PBC (Playback Control)**
– switches on or off the PBC mode (for VCD 2.0 only)

㉟ **DISPLAY (OSD)**
for VCD/CD/MP3-CD…selects disc information display mode.

㊱ **REPEAT**
– repeats a track / CD program / entire disc.

㊲ **SHUFFLE**
– plays tracks in a random order

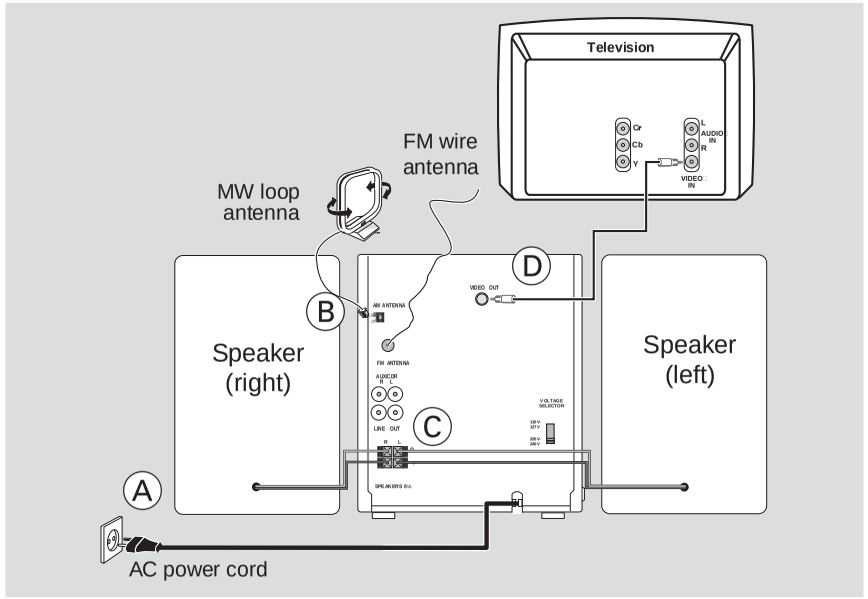
㊳ **PAL/NTSC**
– *VCD
selectes PAL or NTSC.

㊴ **DIM**
– turns on/off the dim mode.

㊵ **KEY**
– changes the VCD key tone level to suit your vocal range

㊶ **ECHO**
– adjusts the VCD echo level for Karaoke after inserting the microphone.
– selects MIC ON or OFF.

Notes for remote control:
– First, select the source you wish to control by pressing one of the source select keys on the remote control (VCD/ CD or TUNER, for example).
– Then select the desired function (⏯ , ⏮◄►►⏭ for example).



Rear connections

The type plate is located at the rear of the system.

Ⓐ **Power**

Before connecting the AC power cord to the wall outlet, ensure that the following are done;

– If your system is equipped with a Voltage Selector, set the VOLTAGE SELECTOR to the local power line voltage.

– All other connections have been made.

WARNING!

– For optimal performance, use only the original power cable.

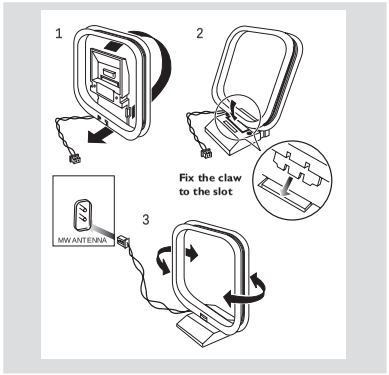
– Never make or change any connections with the power switched on.

To avoid overheating of the system, a safety circuit has been built in. Therefore, your system may switch to Standby mode automatically under extreme conditions. If this happens, let the system cool down before reusing it *(not available for all versions)*.

Ⓑ **Antennas Connection**

MW Antenna

Connect the supplied MW loop antenna to the "AM antenna" terminal. Adjust the position of the antenna for optimal reception.



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

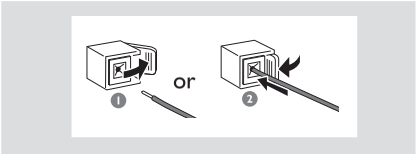
FM Antenna

It is unnecessary to connect the FM pigtail antenna since it is fixed to the main unit.

Adjust the FM antenna for optimal FM stereo reception.

Ⓒ **Speakers Connection**

Connect the speaker wires to the SPEAKERS terminals, right speaker to "**R**" and left speaker to "**L**", colored (marked) wire to "**+**" and black (unmarked) wire to "**–**".



Fully insert the stripped portion of the speaker wire into the terminal as shown.

Notes:

– For optimal sound performance, use the supplied speakers.

– Do not connect more than one speaker to any one pair of + / – speaker terminals.

– Do not connect speakers with an impedance lower than the speakers supplied. Please refer to the SPECIFICATIONS section of this manual.

Ⓓ **Video Out Connection**

Connect the **VIDEO OUT** terminal at the rear of the system to the TV or VCR VIDEO IN for viewing or recording.

Optional connection

The optional equipment and connecting cords are not supplied. Refer to the operating instructions of the connected equipment for details.

Connecting other equipment to your system

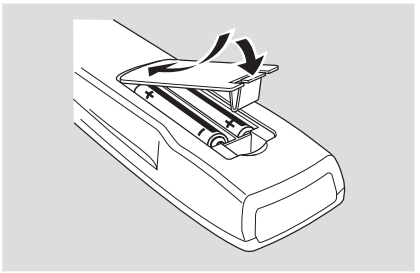
Connect the audio left and right OUT terminals of a TV, VCR, Laser Disc player, DVD player or CD Recorder to the **AUX** terminals.

Note:

– If you are connecting equipment with a mono output (a single audio out terminal), connect it to the AUX left terminal. Alternatively, you can use a "single to double" cinch cable (the output sound still remain mono).

Inserting batteries into the Remote Control

Insert two batteries (type R06 or AA) into the remote control with the correct polarity as indicated by the + and – symbols inside the battery compartment.



CAUTION!

– Remove batteries if they are exhausted or not to be used for a long time.

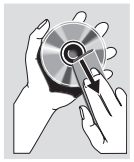
– Do not use old and new or different types of batteries in combination.

– Batteries contain chemical substances, so they should be disposed off properly.

Maintenance

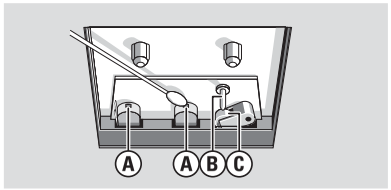
Cleaning the Cabinet
Use a soft cloth slightly moistened with a mild detergent solution. Do not use a solution containing alcohol, spirits, ammonia or abrasives.

Cleaning Discs
When a disc becomes dirty, clean it with a cleaning cloth. Wipe the disc from the centre out.
Do not use solvents such as benzene, thinner, commercially available cleaners, or antistatic spray intended for analogue records.



Cleaning the disc lens
After prolonged use, dirt or dust may accumulate at the disc lens. To ensure good playback quality, clean the disc lens with Philips CD Lens Cleaner or any commercially available cleaner. Follow the instructions supplied with cleaner.

Cleaning the Heads and the Tape Paths
To ensure good recording and playback quality, clean the heads (A), the capstan(s) (B), and pressure roller(s) (C) after every 50 hours of tape operation.
Caution: Do not rotate the heads during cleaning.
Use a cotton swab slightly moistened with cleaning fluid or alcohol.
You can also clean the heads by playing a cleaning tape once.



Demagnetising the heads
Use a demagnetising tape available at your dealer.

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
"NO DISC" is displayed.	Insert a disc. Check if the disc is inserted upside down. Wait until the moisture condensation at the lens has cleared. Replace or clean the disc, see "Maintenance". Use a finalised CD-RW or CD-R.
No picture on TV screen.	Connect the cable betwen the system and TV.
No colour on TV.	Change the system to the respective PAL or NTSC setting.

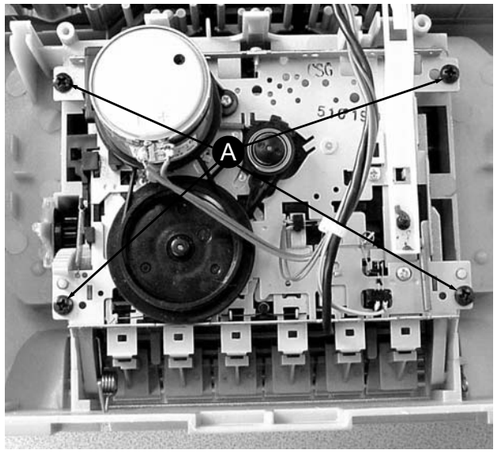
Troubleshooting

Problem	Solution
Radio reception is poor.	If the signal is too weak, adjust the antenna or connect an external antenna for better reception. Increase the distance between the Mini HiFi System and your TV or VCR.
Recording or playback cannot be made.	Clean deck parts, see "Maintenance". Use only normal (IEC I) tape for recording. Apply a piece of adhesive tape over the missing tab space.
The system does not react when buttons are pressed.	Remove and reconnect the AC power plug and switch on the system again.
Sound cannot be heard or is of poor quality.	Adjust the volume. Disconnect the headphones. Check that the speakers are connected correctly. Check if the stripped speaker wire is clamped.
The left and right sound outputs are reversed.	Check the speaker connections and location.
The remote control does not function properly.	Select the source (VCD/CD or TUNER, for example) before pressing the function button (⏯ , ⏮,⏭). Reduce the distance between the remote control and the system. Insert the battery with its polarities (+/– signs) aligned as indicated. Replace the battery. Point the remote control directly toward IR sensor on the front of the system.
The timer is not working.	Set the clock correctly. If a recording is in progress, stop the recording.
The Clock/Timer setting is erased.	Power has been interrupted or the power cord has been disconnected. Reset the clock/timer.

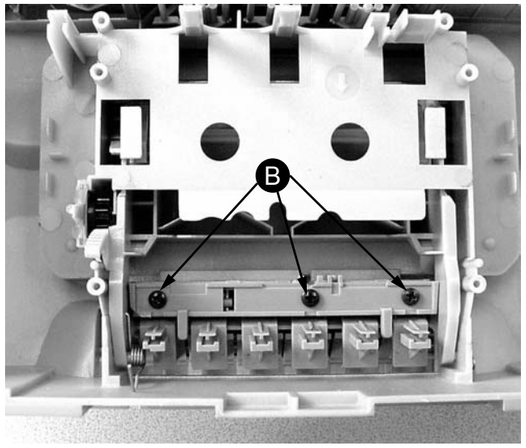
DISASSEMBLY DIAGRAM

Dismantling of the Cassette Cover

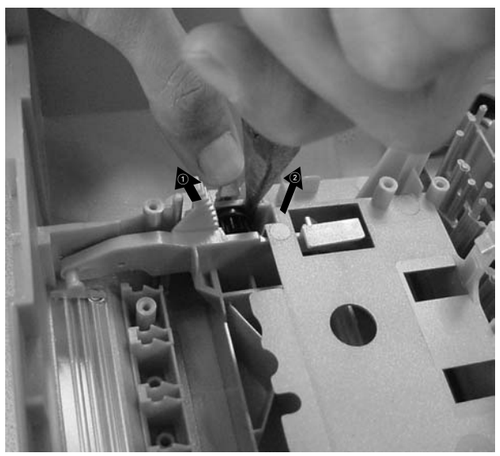
1) Loosen 4 screws to remove the Cassette Deck.



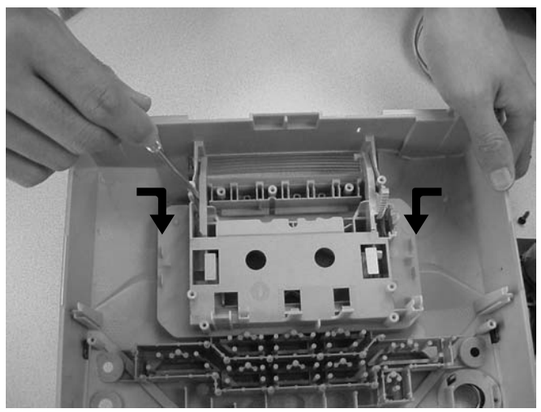
2) Loosen 4 screws to remove the Cassette Keys .



3) Push the catch outside and take out damper gear assembly as indicated.



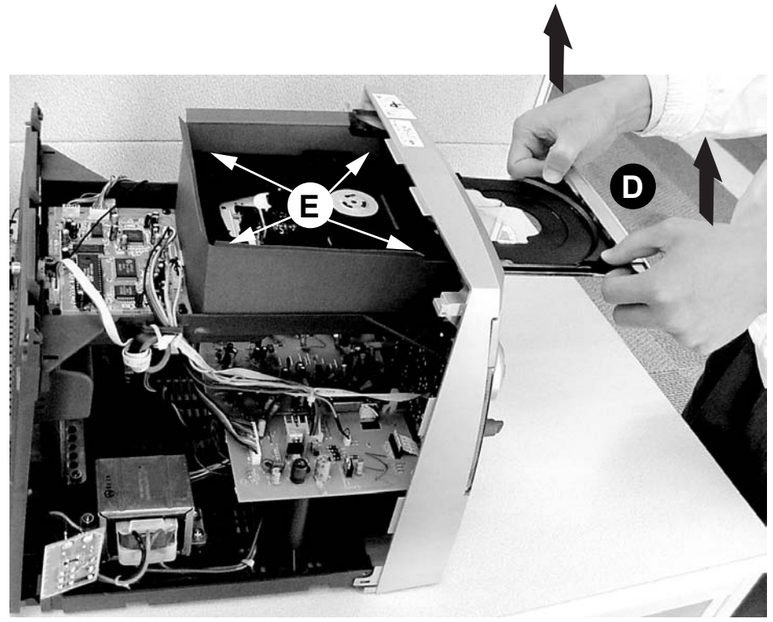
4) Remove the Cassette Cover as indicated.



4 - 1

Dismantling of the VCD Module

1) Loosen 4 screws to remove the Cover Top of the set.
2) Loosen 2 screws to remove the Panel Left and 2 screws to remove the Panel Right of the set.
3) Connect AC power cord first, open the CD tray and remove VCD Door as shown in the diagram below.
4) Remove screws M3x10 - 4pcs.

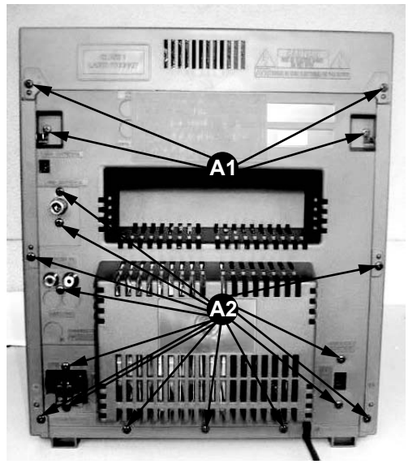


4 - 2

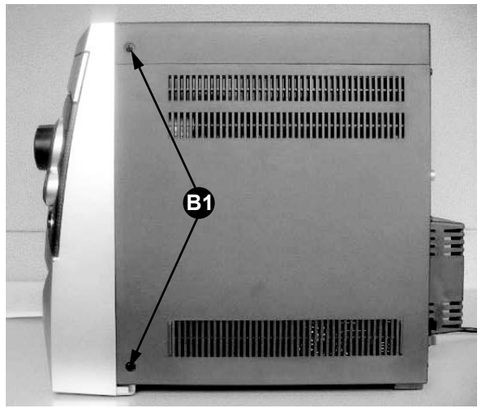
DISASSEMBLY DIAGRAM

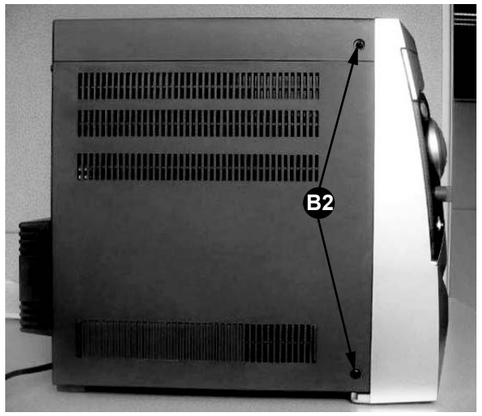
Dismantling of Rear Portion

A Remove the back panel :
A1 Remove screws M3x12 (4pcs)
A2 Remove screws M3x10 (14pcs)



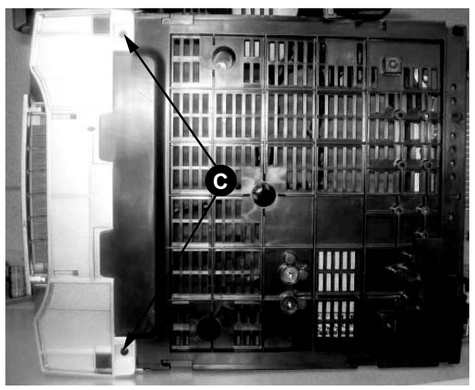
B Remove Left and Right panel :
B1 Remove screws M3x10 (2pcs)
B2 Remove screws M3x10 (2pcs)



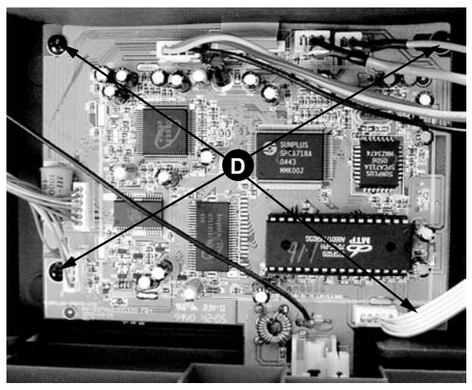


Dismantling of the Front Cabinet and PCB Boards

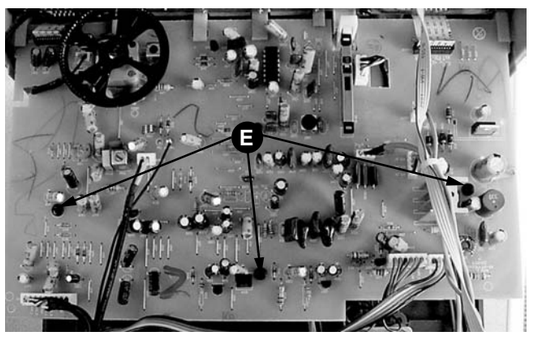
C Remove Front Cabinet:
Remove screws M3x10 (2pcs)



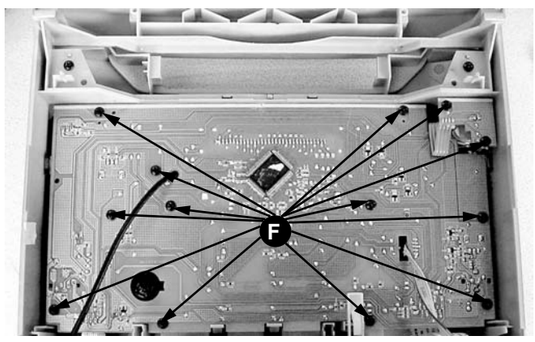
D Remove screws M3x10 (12pcs) - VCD Board



E Remove screws M3x10 (3pcs) - Main Board

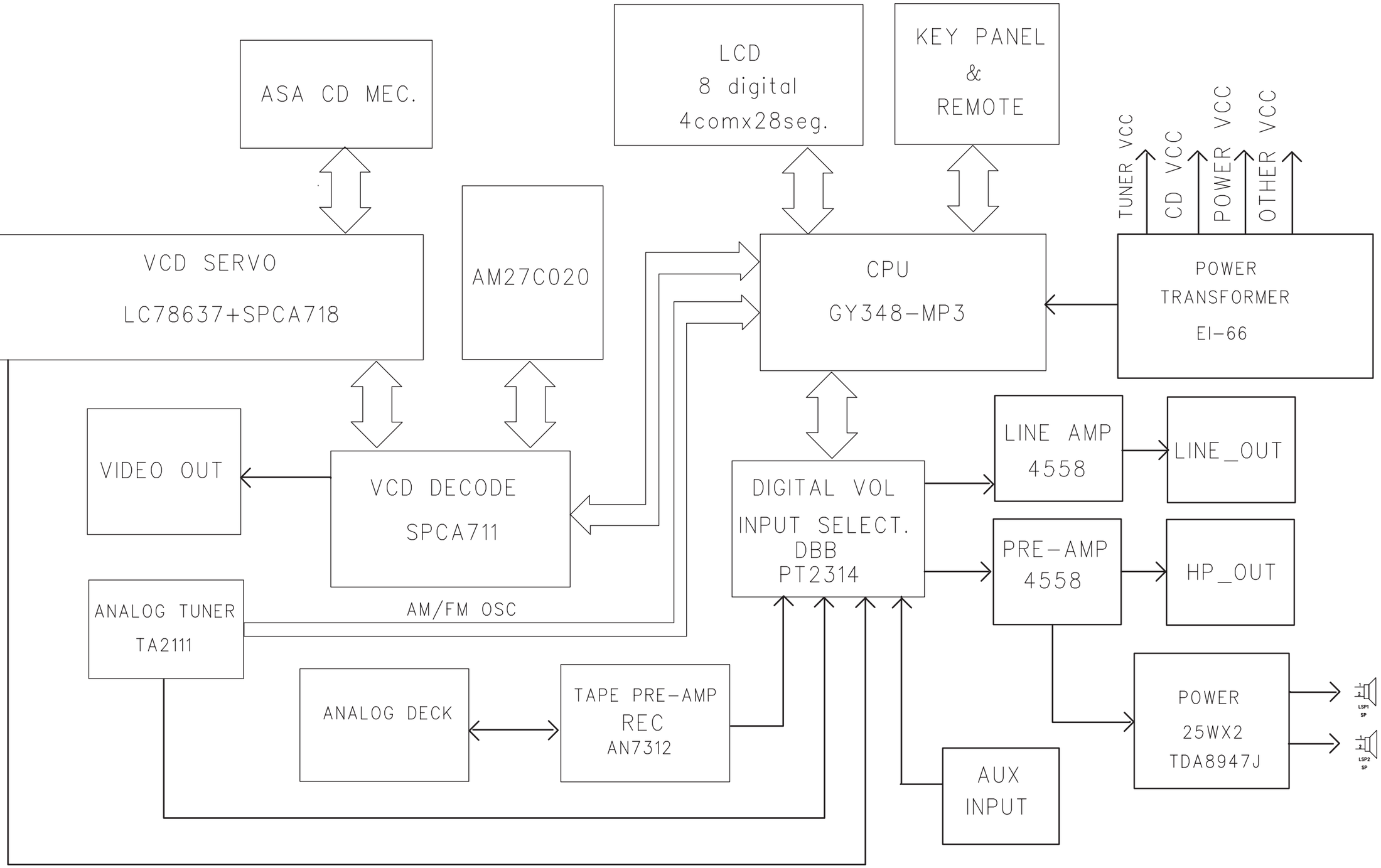


F Remove screws M3x10 (13pcs) - Front Board



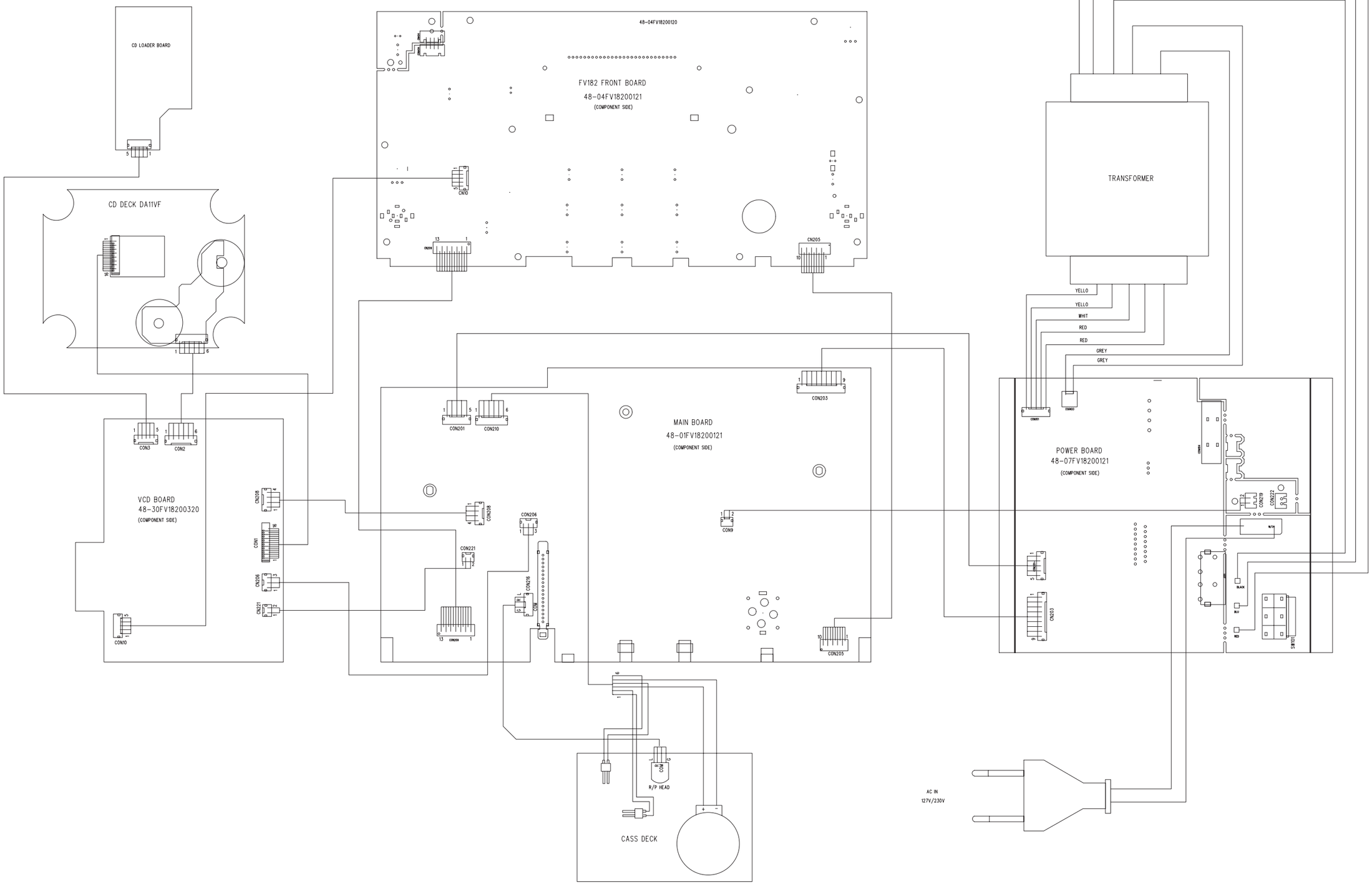
5 - 1

SET BLOCK DIAGRAM



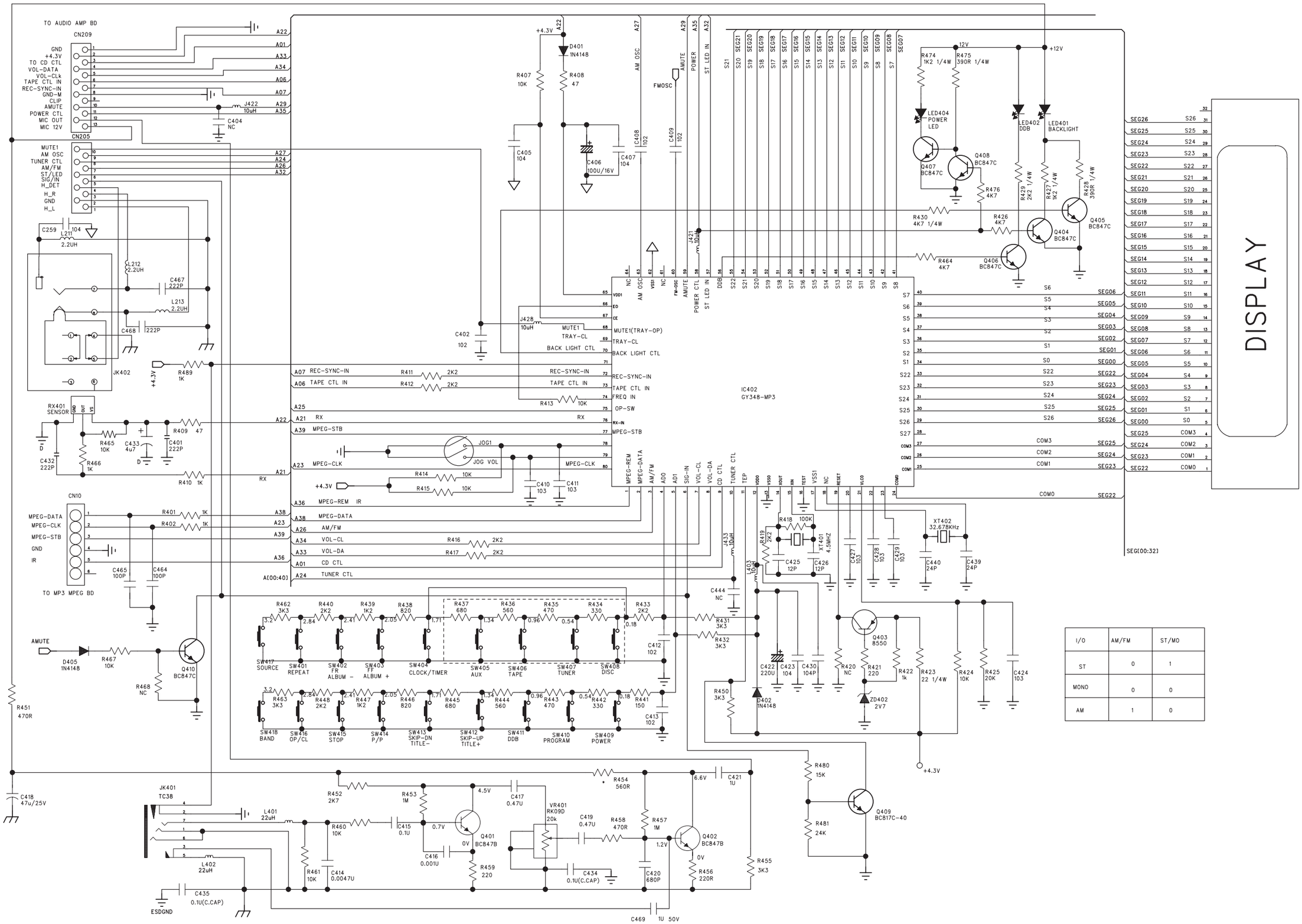
5 - 2

SET WIRING DIAGRAM



6 - 1

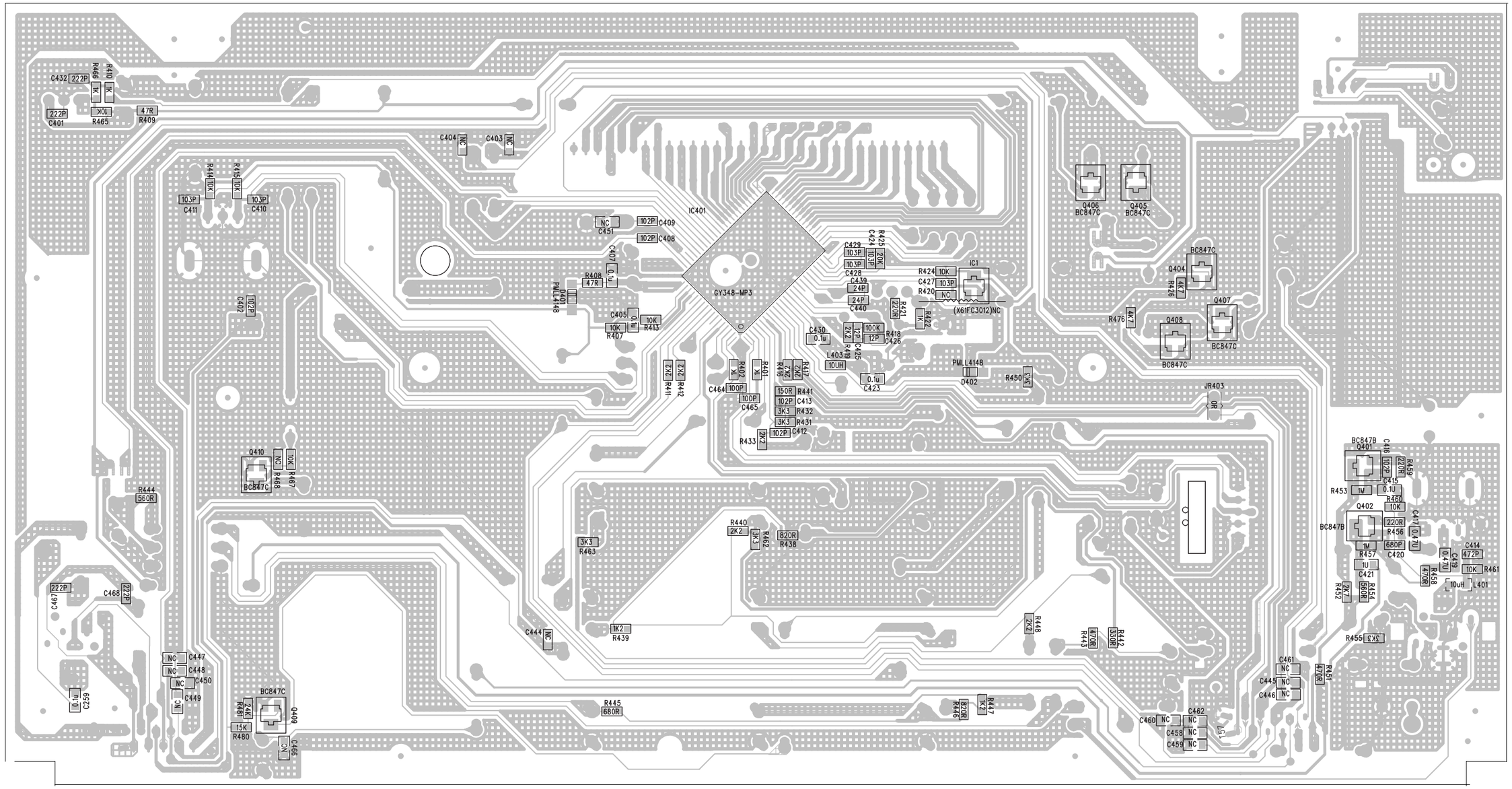
CIRCUIT DIAGRAM - FRONT BOARD



I/O	AM/FM	ST/MO
ST	0	1
MONO	0	0
AM	1	0

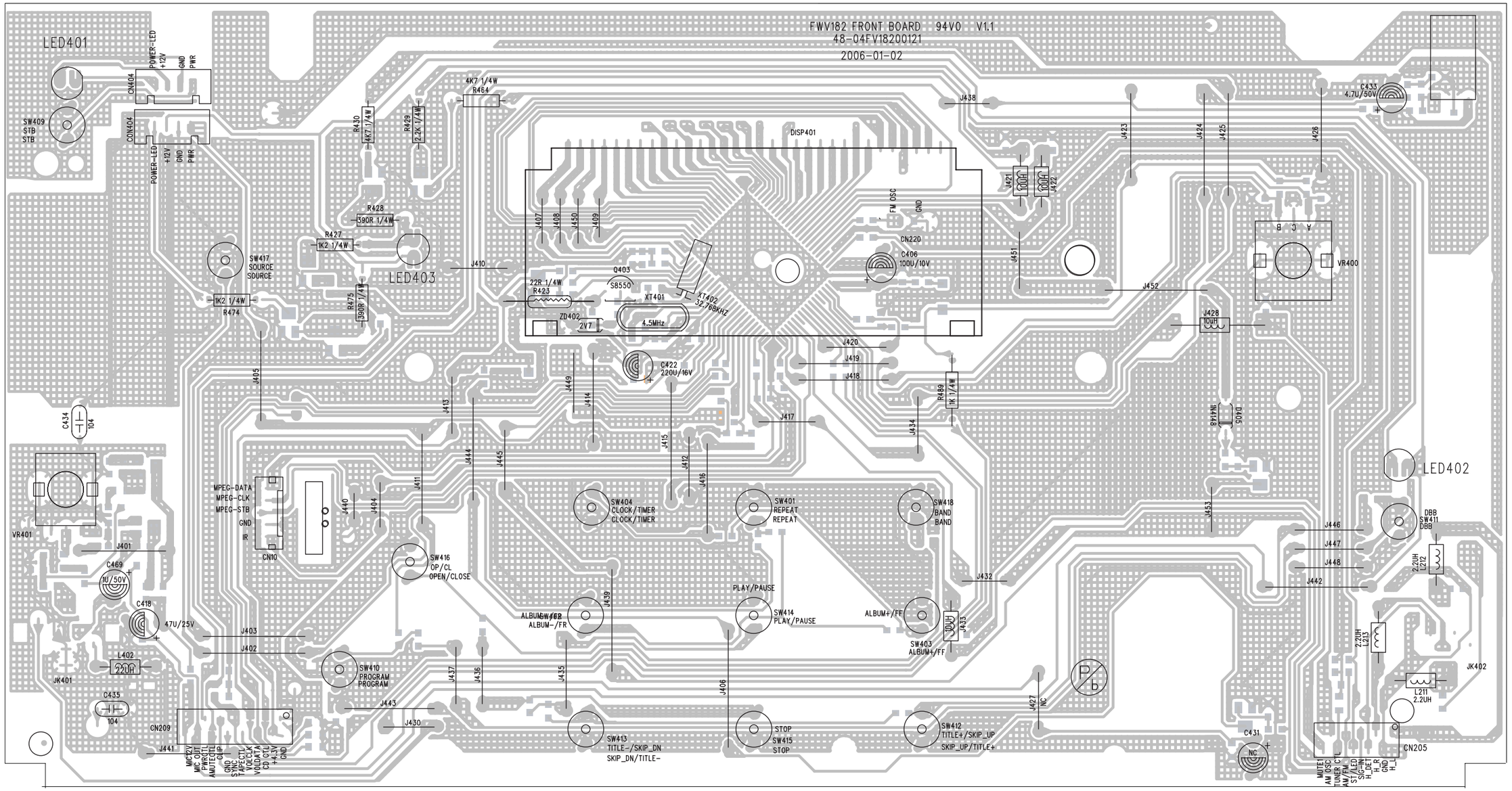
6 - 2

CIRCUIT DIAGRAM - FRONT BOARD



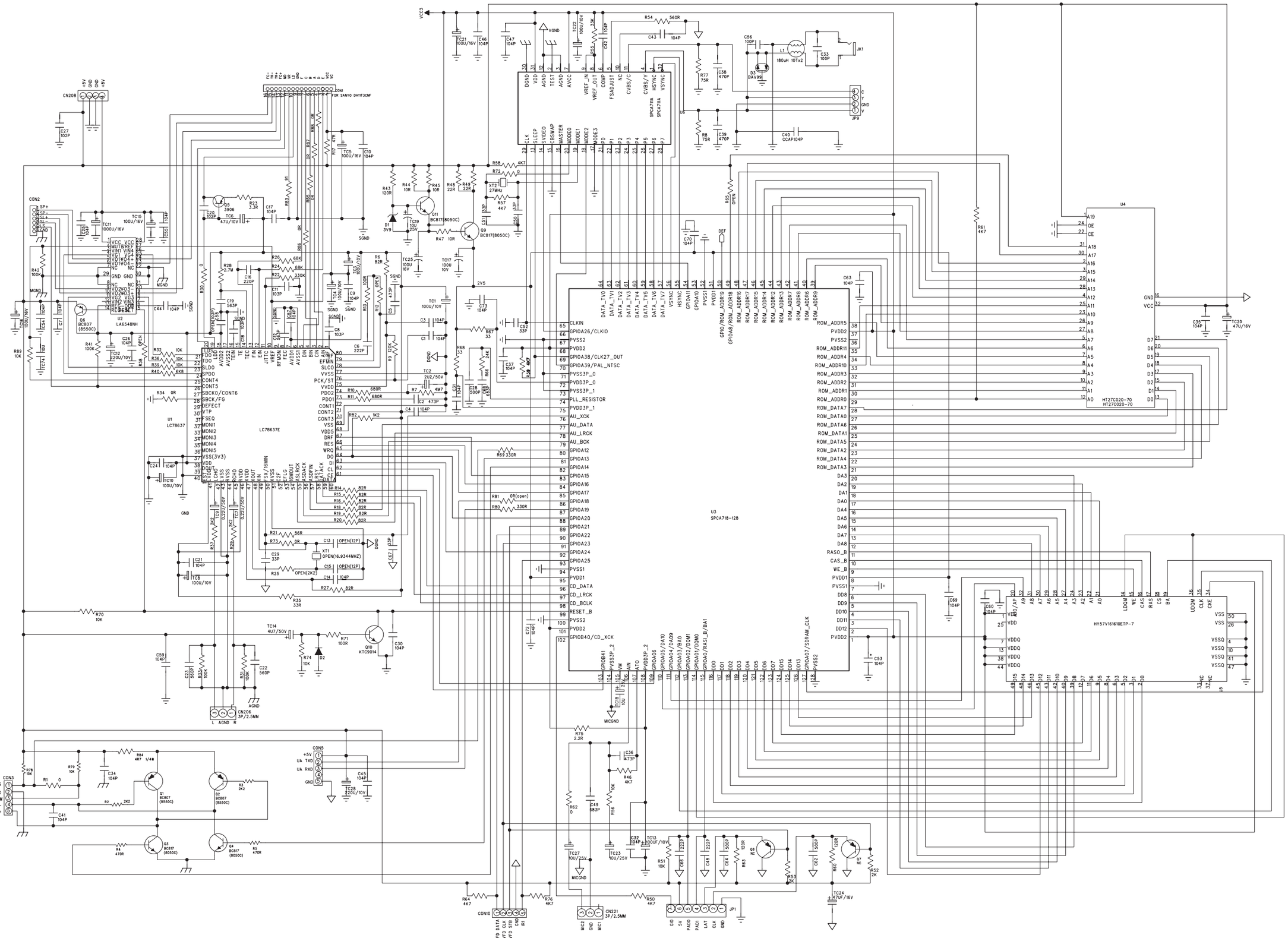
6 - 3

LAYOUT DIAGRAM - FRONT BOARD



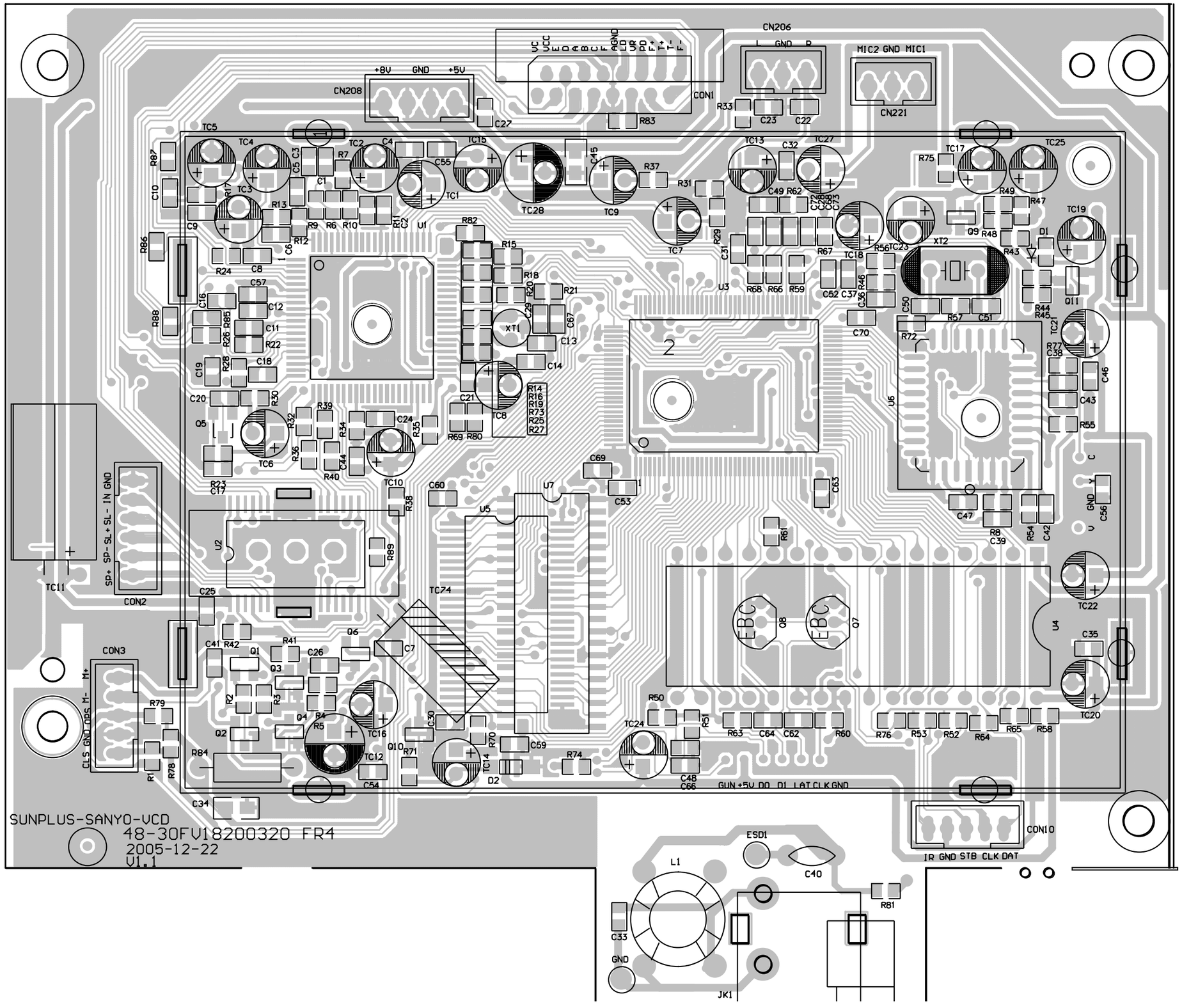
7 - 1

CIRCUIT DIAGRAM - VCD BOARD



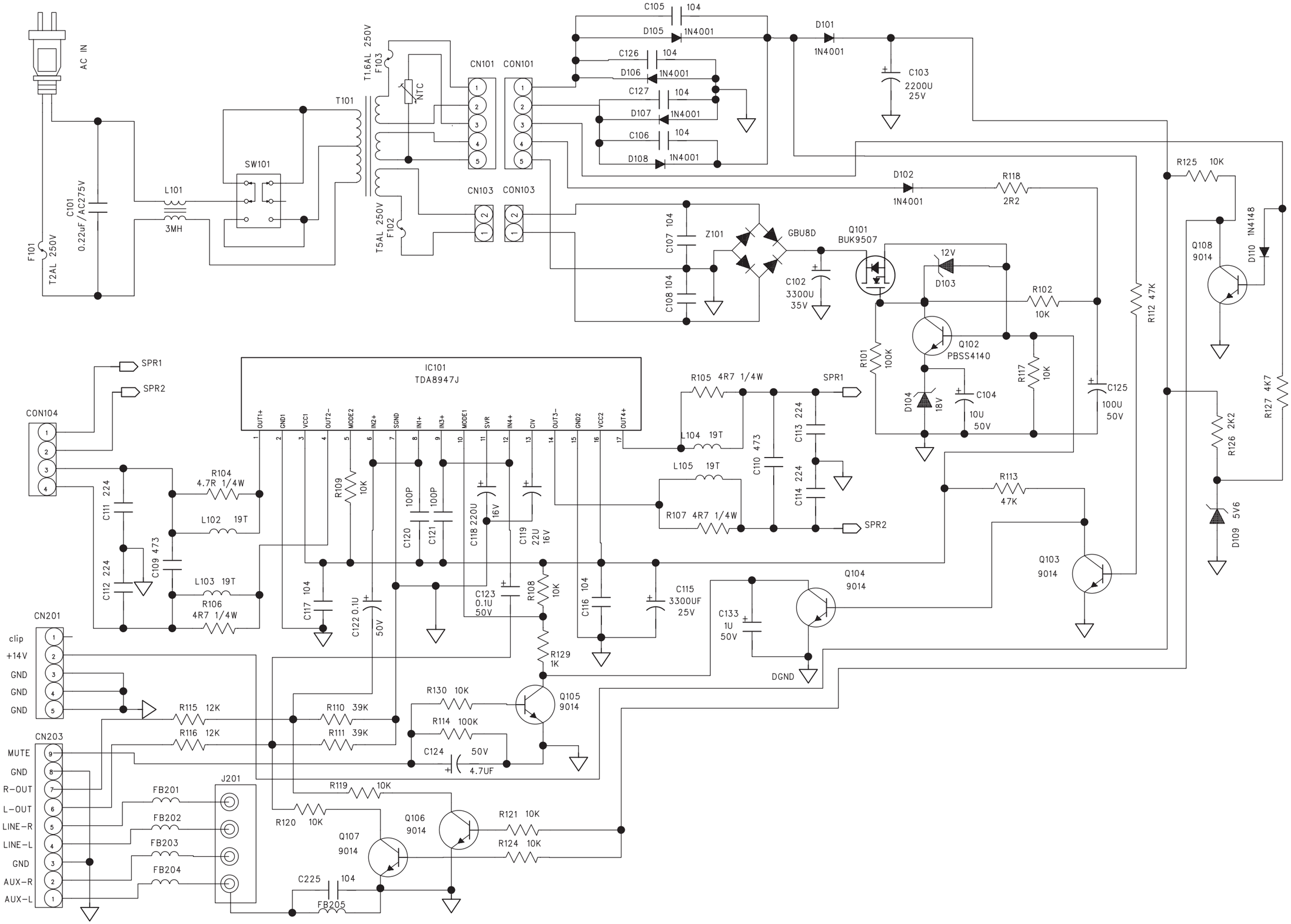
7 - 2

LAYOUT DIAGRAM - VCD BOARD



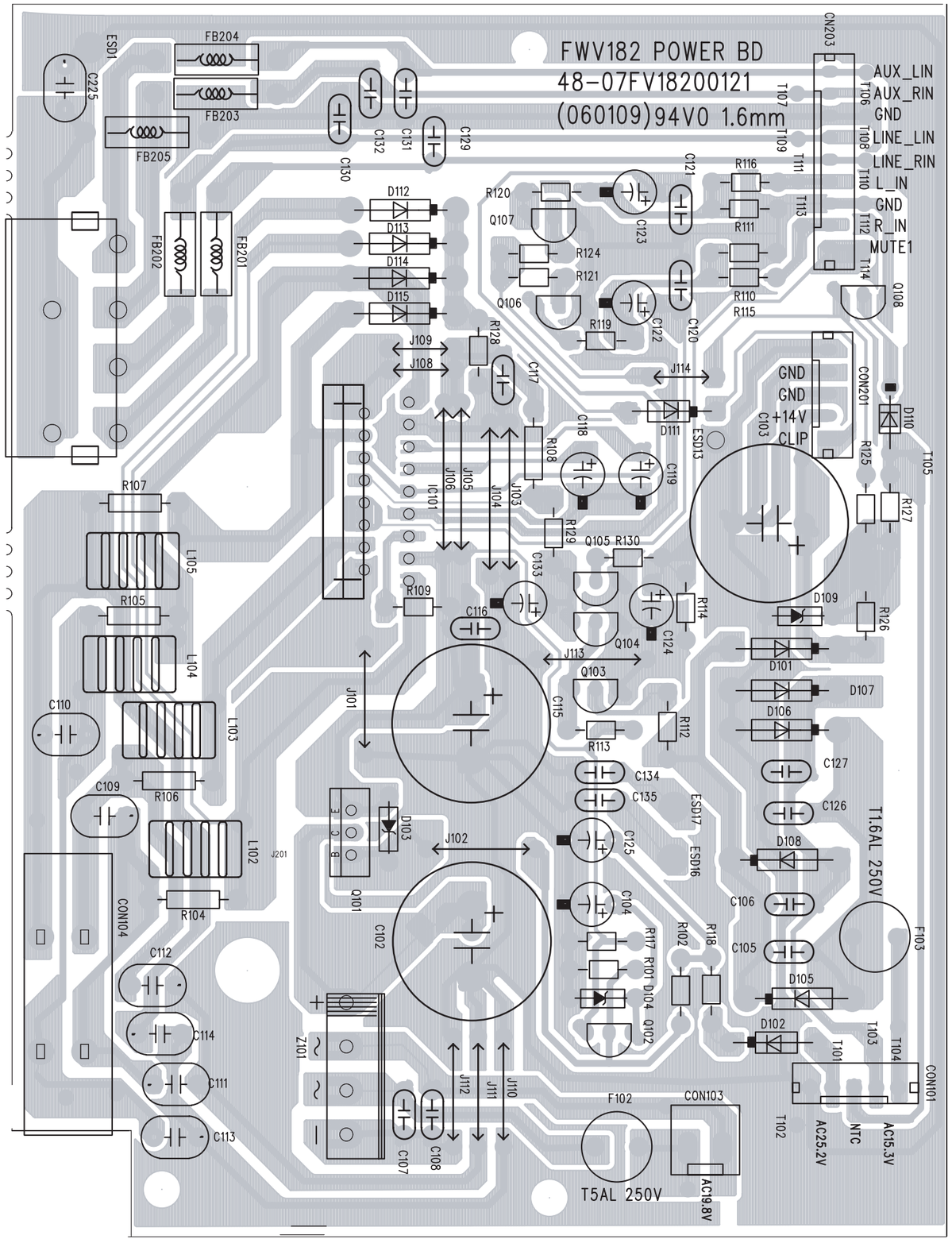
8 - 1

CIRCUIT DIAGRAM - POWER BOARD

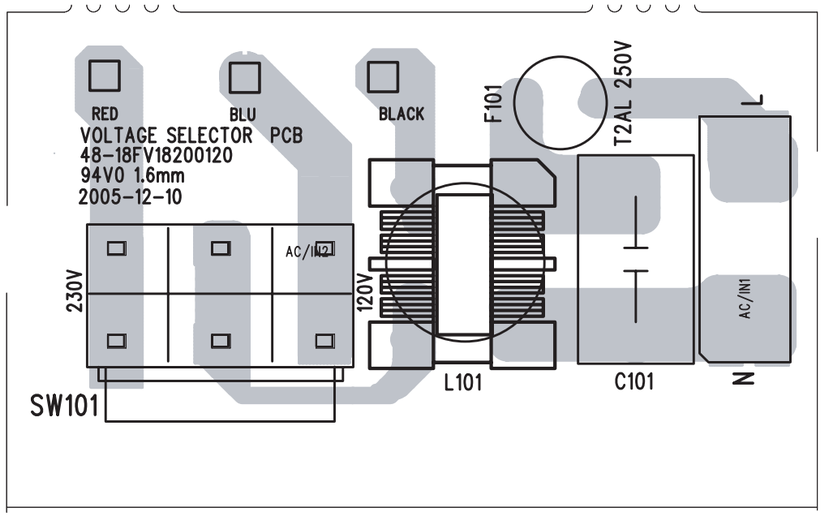


8 - 2

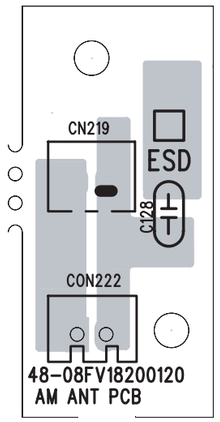
LAYOUT DIAGRAM - POWER BOARD



LAYOUT DIAGRAM - VOL SELECT BOARD

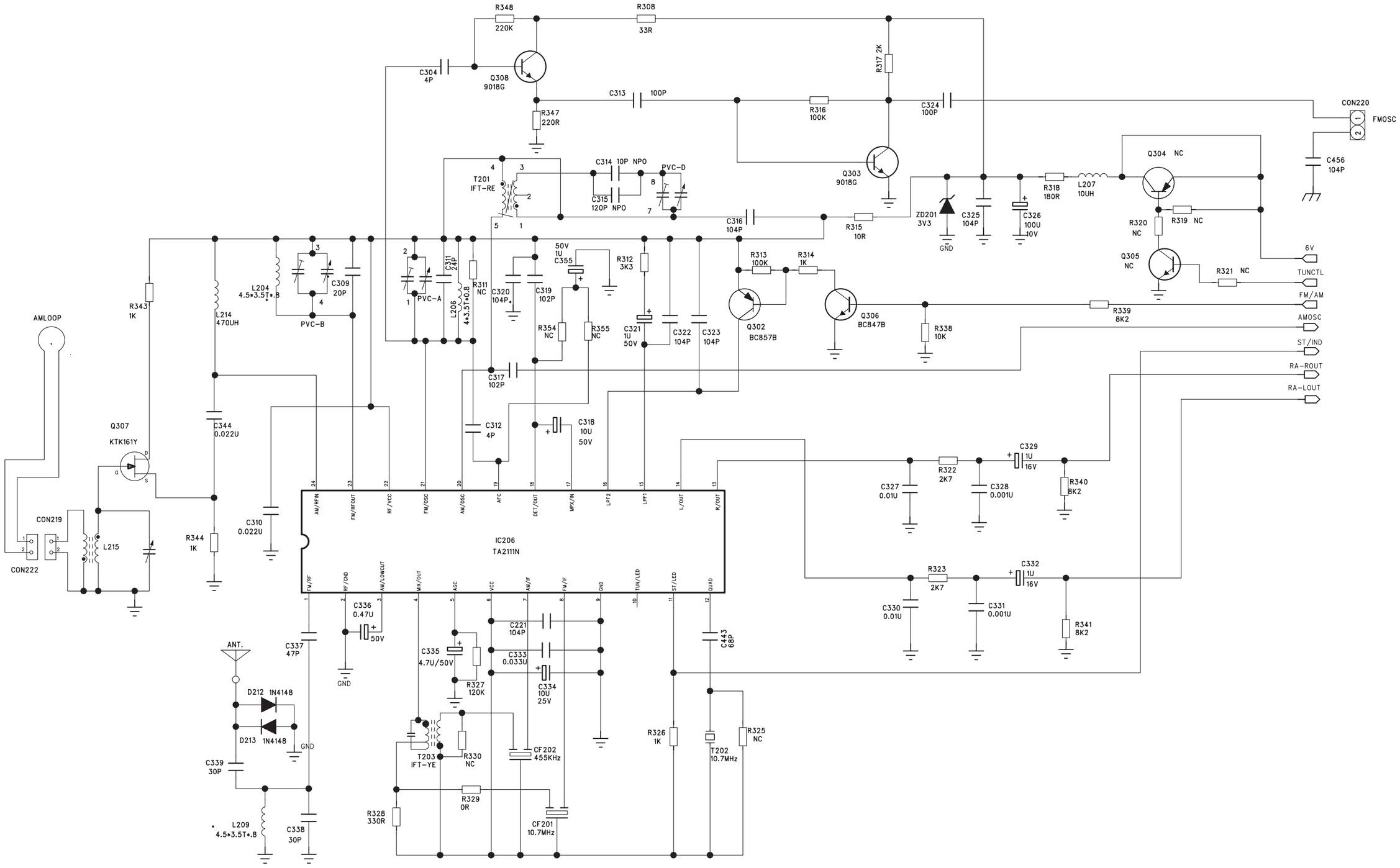


LAYOUT DIAGRAM - ANT BOARD



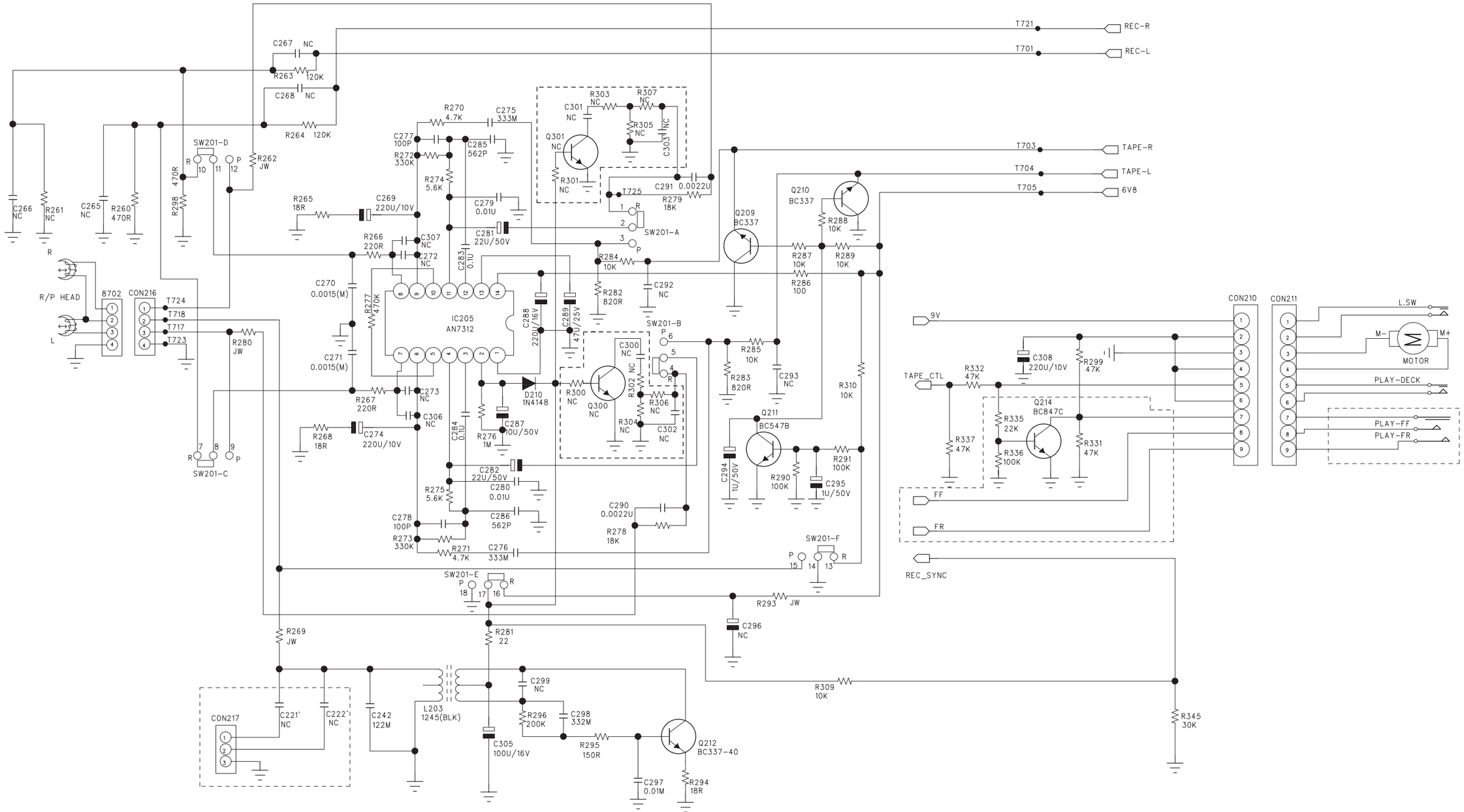
10 - 1

CIRCUIT DIAGRAM - MAIN BOARD
TUNER PART



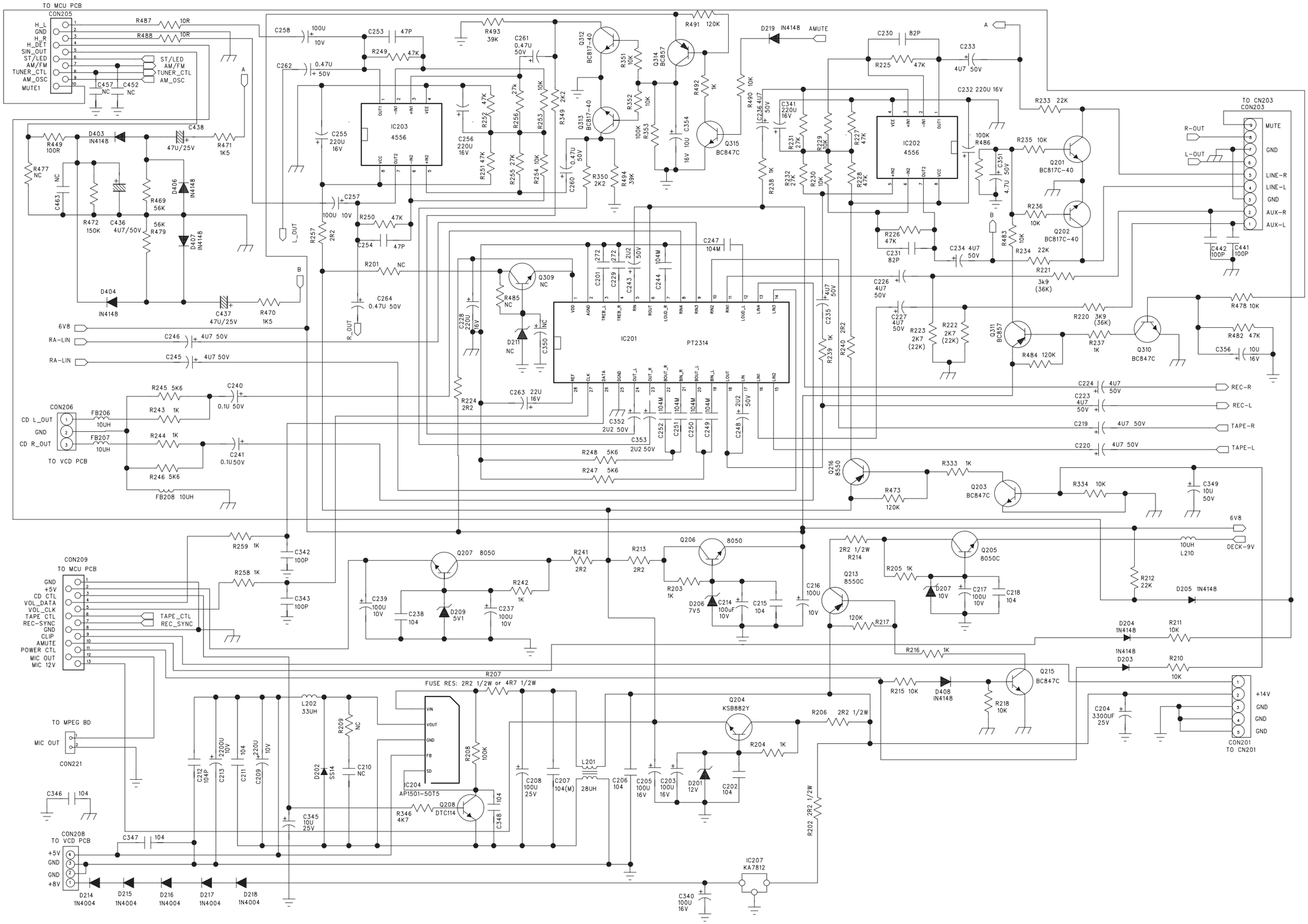
10 - 2

CIRCUIT DIAGRAM - MAIN BOARD
TAPE PART



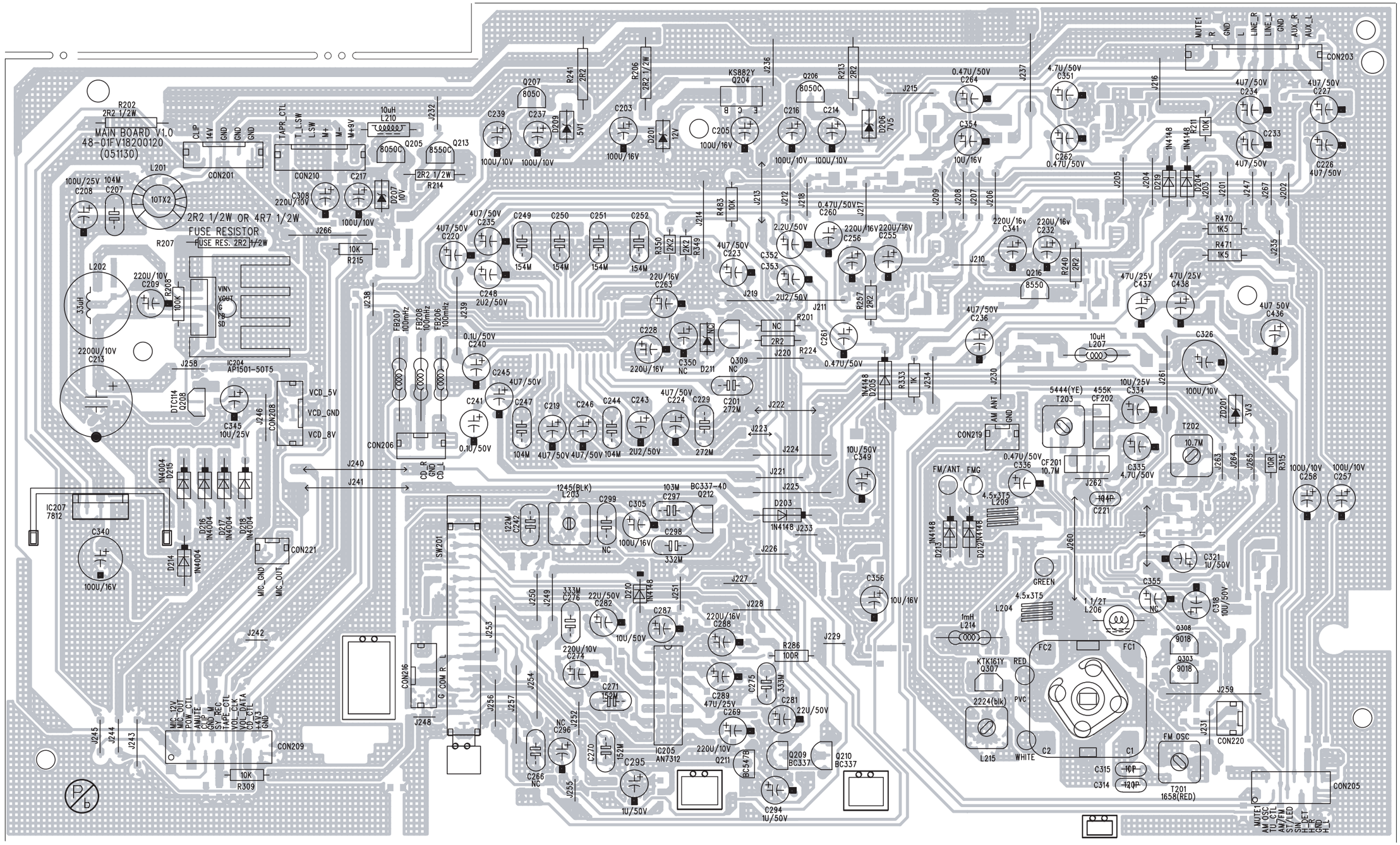
10 - 3

CIRCUIT DIAGRAM - MAIN BOARD



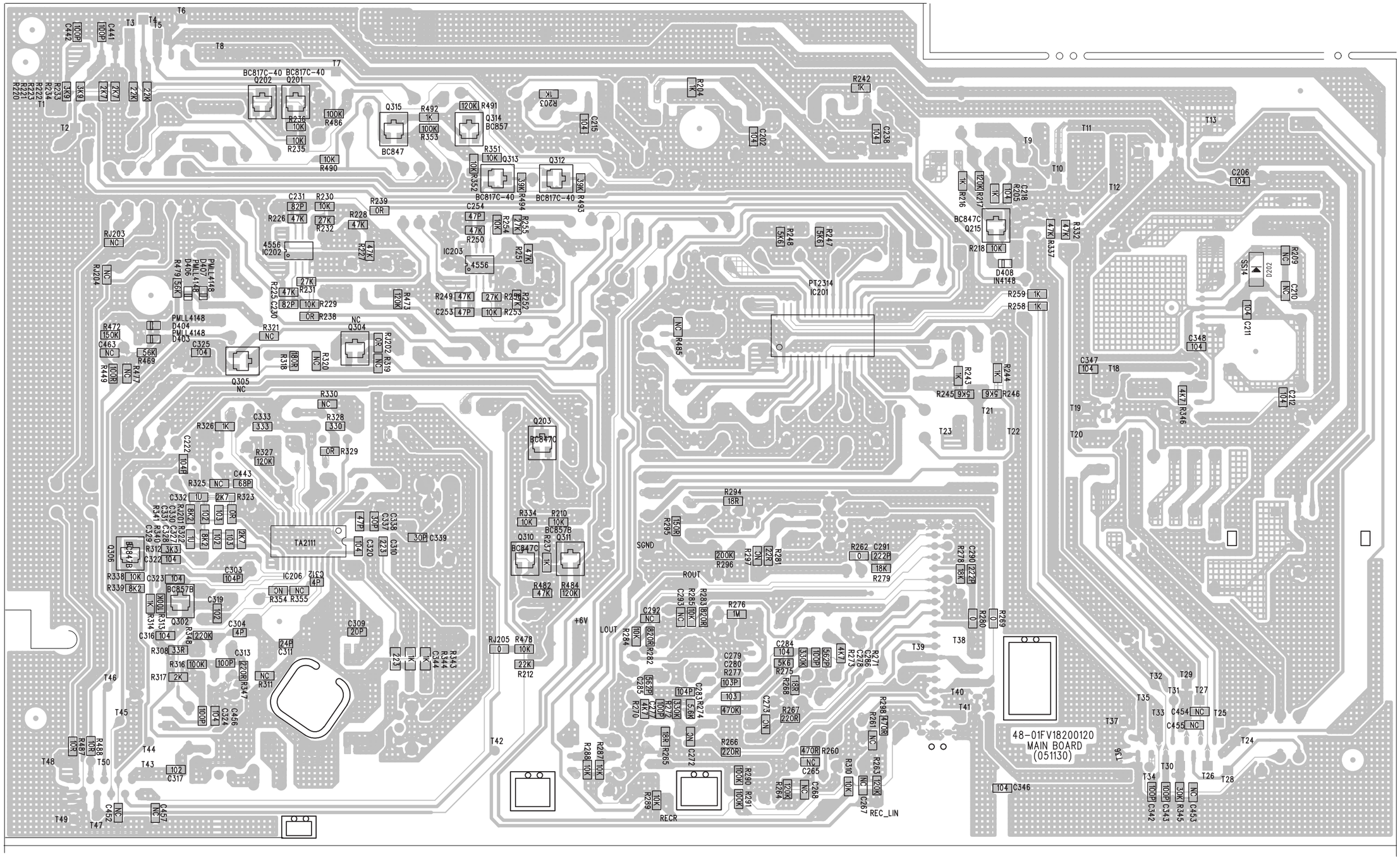
10 - 4

LAYOUT DIAGRAM - MAIN BOARD



10 - 5

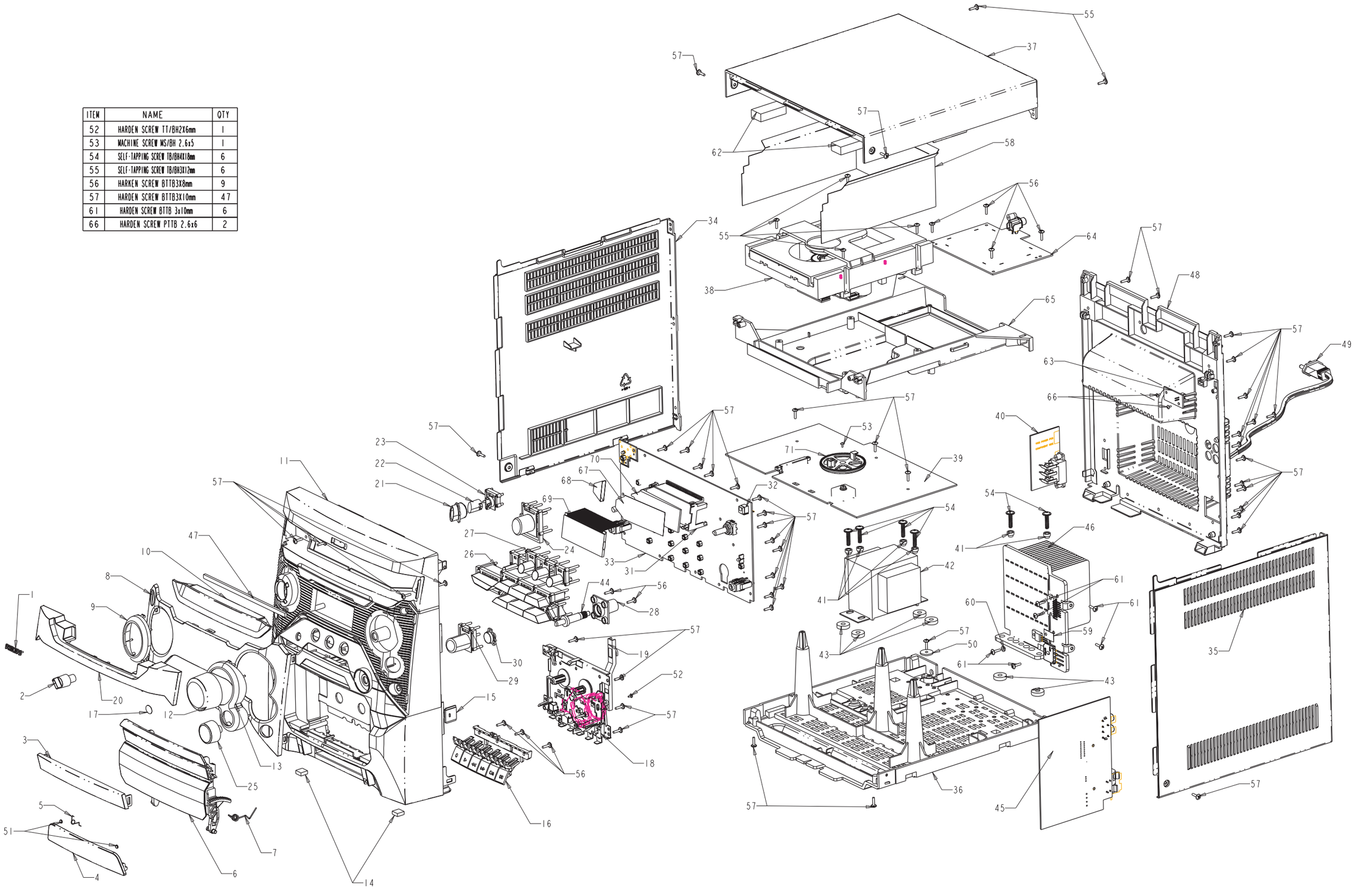
LAYOUT DIAGRAM - MAIN BOARD



11 - 1

EXPLODED VIEW DIAGRAM

ITEM	NAME	QTY
52	HARDEN SCREW TT/BH2X6mm	1
53	MACHINE SCREW MS/BH 2.6x5	1
54	SELF-TAPPING SCREW TB/BH4X18mm	6
55	SELF-TAPPING SCREW TB/BH3X12mm	6
56	HARKEN SCREW BTTB3X8mm	9
57	HARDEN SCREW BTTB3X10mm	47
61	HARDEN SCREW BTTB 3x10mm	6
66	HARDEN SCREW PTTB 2.6x6	2



MECHANICAL PARTSLIST

2	994000004578	MIC KNOB
3	994000004584	CASSETTE DOOR LENS
4	994000004637	CASS KEYS DOOR
5	994000004379	CASSETTE KEY COVER SPRING
6	994000004568	CASSETTE DOOR
7	994000001267	SPRING -RIGHT
8	994000004645	DISPLAY LENS
9	994000004648	KEYS DECORTIVE RING
10	994000004639	VCD SINGLE DOOR
11	994000004635	FRONT CABINET
12	994000004582	VOLUME KNOB
13	994000004647	VOLUME DECORTIVE RING
14	994000001264	FOOT RUBBER
15	994000001295	DAMPER GEAR ASS'Y
16	994000004583	CASSETTE KEY WITH HOLDER
18	994000004374	F/CASS DECK CS-21SC-820DT
19	994000004586	RECORD ARM
20	994000004638	3CDC DOOR
21	994000004591	RING POWER
22	994000004579	POWER BUTTON
23	994000004589	POWER BUTTON BASE
24	994000004642	DSC BUTTON
25	994000004644	TUNING KNOB
26	994000004575	PROGRAM KEYS
27	994000004643	CONTROL KEYS
29	994000004581	DBB BUTTON
34	994000004563	PANEL LEFT
35	994000004564	PANEL RIGHT
36	994000004567	CHASSIS PLASTIC
37	994000004572	TOP COVER
38	994000004628	VCD MECHA CASING ASS'Y
48	994000004636	REAR CABINET
58	994000004634	CD DUST COVER
70	994000004646	LCD LIGHT GUIDE
71	994000004641	TUNING GEAR
	994000003669	CD MECHANISM DA11VF

11 - 2

ACCESSORIES

994000004603	SPK BOX ASS'Y
994000004604	REMOTE CONTROL UNIT
994000002434	RCA PLUG CORD 1P L=1.5M
994000001192	AM LOOP ANTENNA

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

ELECTRICAL PARTSLIST - MAIN BOARD

- IC & TRANSISTORS -

Q303	994000002833	TRANSISTORS 9018G
Q308	994000002833	TRANSISTORS 9018G
Q204	940000001194	TRANSISTORS KSD882Y
Q208	994000004605	TRANSISTORS DTC114YSA
Q307	994000004606	TRANSISTOR KTK161Y
Q205	994000004529	TRANSISTORS PSS8050C
Q206	994000004529	TRANSISTORS PSS8050C
Q207	994000004529	TRANSISTORS PSS8050C
IC204	994000002447	IC AP1501-50T5 150KHz
IC207	994000001198	IC KA7812
IC202	994000001201	IC NJ M4556AM
IC203	994000001201	IC NJ M4556AM
IC205	994000004533	IC YD7312
IC201	994000004607	IC PT2314
IC206	994000004608	IC TA2111F

- COILS & FILTERS -

CF202	994000004609	CER. FILTER SFU455B
CF201	994000003642	CER.FILTER LT10.7MA5-A
T202	994000004537	FILTER J T10.7MG82-A

- MISCELLANEOUS -

L203	994000004538	I.F.T 10148BK7
L215	994000004611	I.F.T 7mm # 7M1A2224N
T203	994000004612	AM I.F.T - AH07-835444NP
SW201	994000004539	PUSH SWITCH 18PIN

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

ELECTRICAL PARTSLIST - AMP BOARD

- IC & TRANSISTORS -

Q101	994000004545	TRANSISTORS BUK9507-30B
Q102	994000004546	TRANSISTORS PBSS4140S
IC101	994000001203	IC TDA8947J /N3

- MISCELLANEOUS -

Z101	994000001196	BRIDGE RECTIFIER 8A GBU8D
CON104	994000004547	SPK J ACK MSP-134V-05 LF
J 201	994000004617	RCA J ACK 4P
F103 ⚠	994000001349	FUSE RADIAL T1.6A 250V
F102 ⚠	994000001223	FUSE RADIAL T5A 250V

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

ELECTRICAL PARTSLIST - FRONT BOARD

- IC & TRANSISTORS -

IC401	994000004614	IC GY348 MP3

- DIODES -

D401	994000004363	SMD DIODE PMLL4148L
D402	994000004363	SMD DIODE PMLL4148L
LED401	994000001234	LED LAMP 3mm
LED402	994000001234	LED LAMP 3mm
LED403	994000000267	LED LAMP 5mm

- MISCELLANEOUS -

XT402	994000004615	CRYSTAL 32.768KHZ 12.5PF
XT401	994000004616	CRYSTAL 4.500MHz
SW401	994000001243	TACT SWITCH
SW402	994000001243	TACT SWITCH
SW403	994000001243	TACT SWITCH
SW404	994000001243	TACT SWITCH
SW409	994000001243	TACT SWITCH
SW410	994000001243	TACT SWITCH
SW411	994000001243	TACT SWITCH
SW412	994000001243	TACT SWITCH
SW413	994000001243	TACT SWITCH
SW414	994000001243	TACT SWITCH
SW415	994000001243	TACT SWITCH
SW416	994000001243	TACT SWITCH
SW417	994000001243	TACT SWITCH
SW418	994000001243	TACT SWITCH
J K401	994000004543	V/PHONE J ACK
J K402	994000004543	V/PHONE J ACK
VR401	994000001324	ROTARY VOLUME
VR400	994000001241	ROTARY ENCODER
DIS401	994000004613	LCD DISPLAY 32P
RX401	994000000325	OPTIC SENSER

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

ELECTRICAL PARTSLIST - VCD BOARD

- IC & TRANSISTORS -

Q5	994000003937	TRANSISTORS PMBT3906
Q10	994000004618	TRANSISTORS KTC9014S-C
U4	994000004619	IC HT27C020-70
U5	994000004621	SDRAM HY57V161610ETP-7
U2	994000004622	IC LA6548NH
U1	994000004623	IC LC78637E
U6	994000004624	IC SPCA711A PLCC32
U3	994000004625	IC SPCA718A-128

- MISCELLANEOUS -

XT2	994000004626	CRYSTAL 27,000MHZ(2PIN)
D2	994000004363	SMD DIODE PMLL4148L
J K1	994000004627	RCA J ACK 1P
	994000005008	VCD BOARD ASSY

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

ELECTRICAL PARTSLIST - VOL SELECT BOARD

- MISCELLANEOUS -

C101		994000001225	CAP X2 TYPE 275V 0.22µF +-20%
L101		994000001226	AC LINE FILTER INDUCTOR 400µH
SW101		994000001323	SWITCH # SDKPA40300
F101	⚠	994000001222	FUSE RADIAL LT 2A 250V

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

ELECTRICAL PARTSLIST

- MISCELLANEOUS -

	994000004629	16P FFC CABLE L=120mm
	994000004632	10P FFC CABLE L=80mm
	994000004633	13P FFC CABLE L=80mm
⚠	994000004631	TRANSFORMER EI66 127/240V
⚠	994000001329	AC CORD VDE APP 1.83M

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