

Service  
Service  
**Service**



# Service Manual



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3141 785 34070

**Version 1.0**



**PHILIPS**

## TECHNICAL SPECIFICATION

### Amplifier

Total output power	280W RMS
Frequency response	60 - 16kHz
Signal-to-noise ratio	>67dB A (IEC)
Aux input	1500mV/2000mV

### Disc

Laser type	Semiconductor
Disc diameter	12cm/8cm
Support disc	CD-DA, CD-R, CD-RW, MP3-CD, WMA-CD
Audio DAC	24Bits / 44.1kHz
Total harmonic distortion	<1.5%
Frequency response	60Hz -16kHz (44.1kHz)
S/N ratio	>75dBA

### Tuner

Tuning range	FM: 87.5 - 108MHz; AM: 531 - 1602kHz (9kHz); 530 - 1700kHz (10kHz)
Tuning grid	100kHz (FM); 9kHz/10kHz (AM)
Number of presets	40 (FM + AM)
FM	75ohm wire
AM	loop antenna

### Speakers

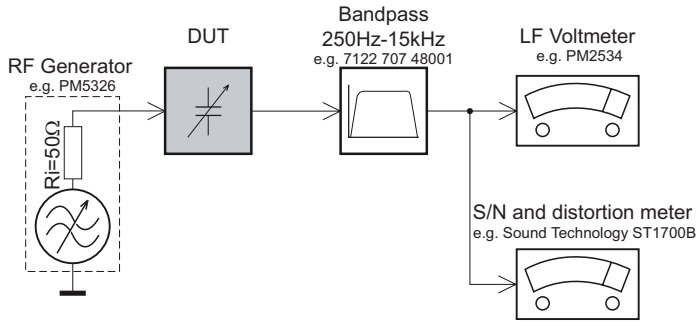
Speaker Impedance	6ohm
Woofers	2 x 5.25"
Tweeter	2 x 1.75"
Dimensions (W x H x D)	249 x 344 x 250mm
Weight	3.58kg each

### General information

AC power	110 - 127/220 - 240V, 50/60Hz
Operation power consumption	180W
Standby power consumption	<2W
USB direct	Version 2.0/1.1
Dimensions Main Unit (W x H x D)	265 x 310 x 403mm
Weight (without speakers)	6.09kg

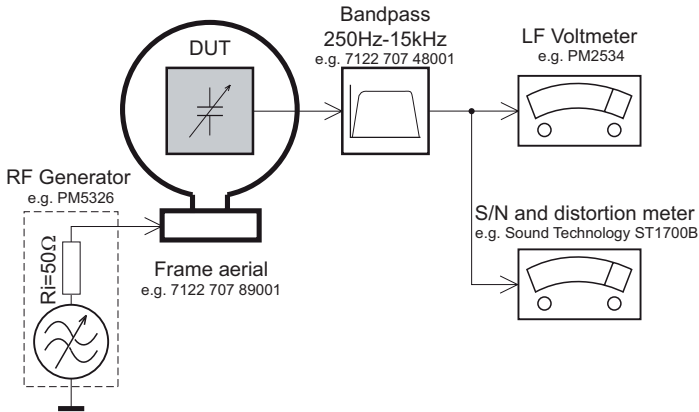
# MEASUREMENT SETUP

## Tuner FM



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

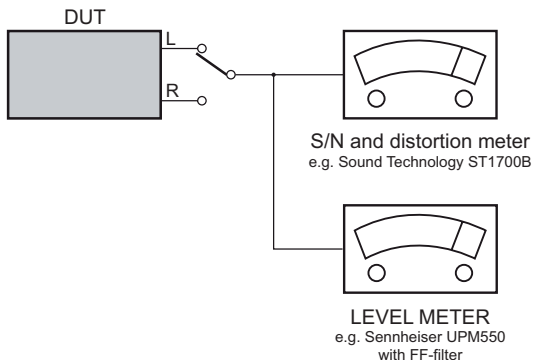
## Tuner AM (MW,LW)



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).

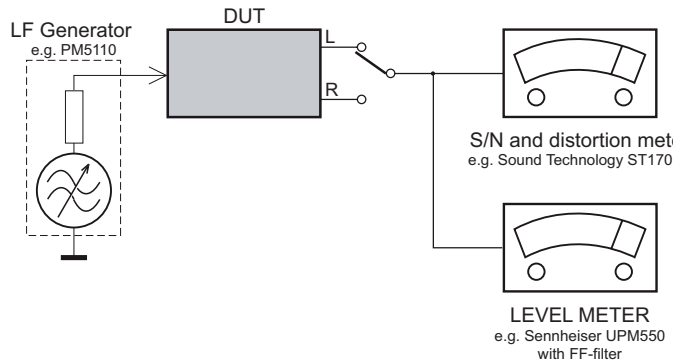
## CD

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



## Recorder

Use Universal Test Cassette Cr02 SBC419 4822 397 30069 or Universal Test Cassette Fe SBC420 4822 397 30071



## SERVICE AIDS

### **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.

### ESD



### **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 .

**CLASS 1  
LASER PRODUCT**

## 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:



- 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
  - \* Lead free

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

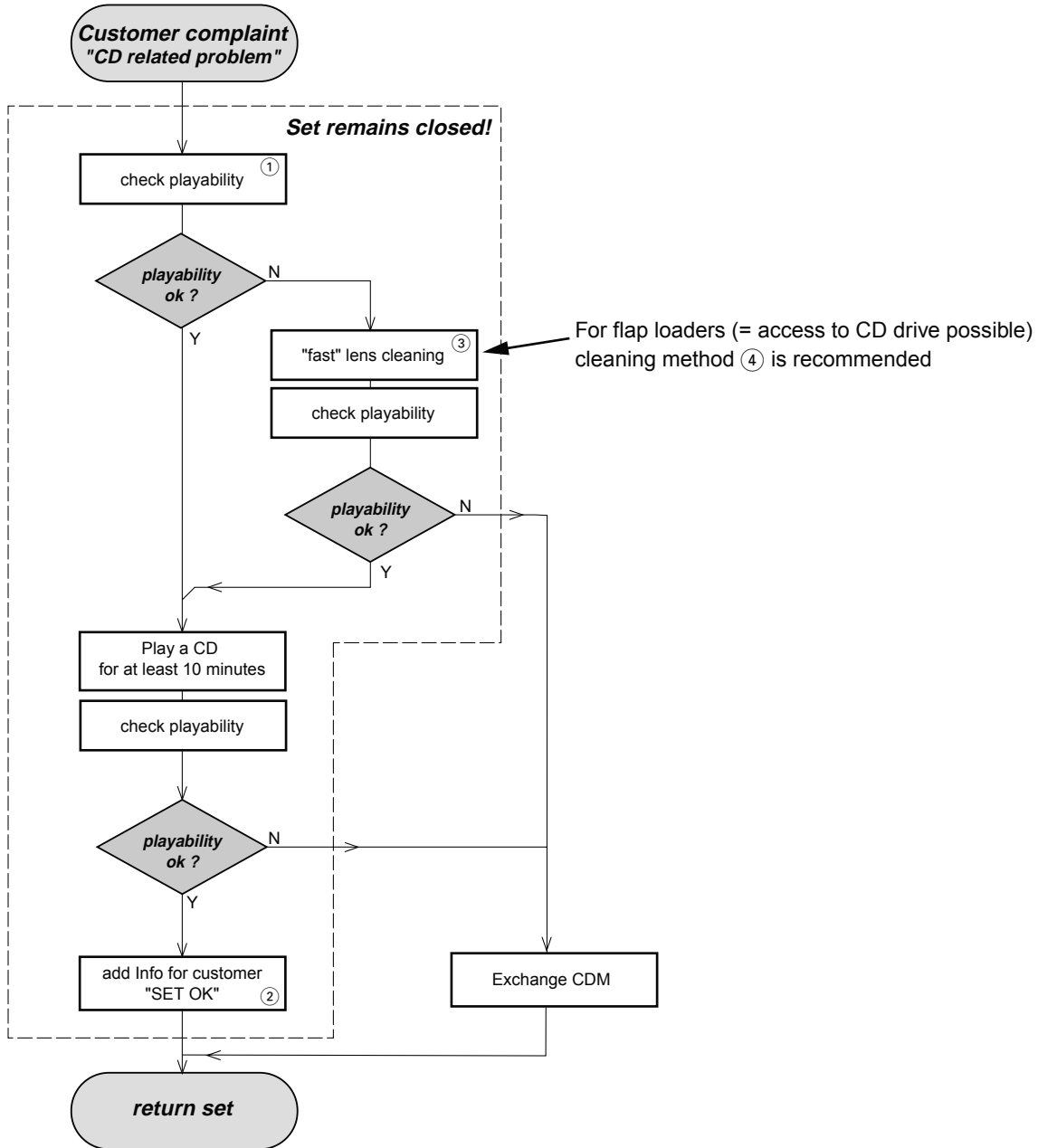
For additional questions please contact your local repair-helpdesk.

## 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.

# INSTRUCTIONS ON CD PLAYABILITY



① - ④ For description - see following pages

## INSTRUCTIONS ON CD PLAYABILITY

①

### PLAYABILITY CHECK

For sets which are compatible with **CD-RW** discs  
 use CD-RW Printed Audio Disc .....7104 099 96611  
 TR 3 (Fingerprint)  
 TR 8 (600µ Black dot) **maximum at 01:00**

- playback of these two tracks without audible disturbance  
 playing time for: Fingerprint  $\geq 10$ seconds  
 Black dot from 00:50 to 01:10
- jump forward/backward (search) within a reasonable time

For all other sets  
 use CD-DA SBC 444A .....4822 397 30245  
 TR 14 (600µ Black dot) **maximum at 01:15**  
 TR 19 (Fingerprint)  
 TR 10 (1000µ wedge)

- playback of all these tracks without audible disturbance  
 playing time for: 1000µ wedge  $\geq 10$ seconds  
 Fingerprint  $\geq 10$ seconds  
 Black dot from 01:05 to 01:25
- jump forward/backward (search) within a reasonable time

②

### CUSTOMER INFORMATION

It is proposed to add an addendum sheet to the set which informs the customer that the set has been checked carefully - but no fault was found.

The problem was obviously caused by a scratched, dirty or copy-protected CD. In case problems remain, the customer is requested to contact the workshop directly.

The lens cleaning (method ③) should be mentioned in the addendum sheet.

The final wording in national language as well as the printing is under responsibility of the Regional Service Organizations.

④

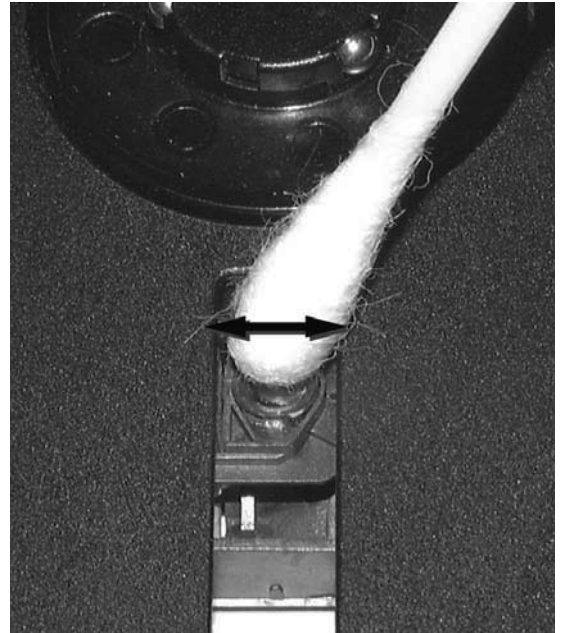
### LIQUID LENS CLEANING

**Before touching the lens it is advised to clean the surface of the lens by blowing clean air over it. This to avoid that little particles make scratches on the lens.**

Because the material of the lens is synthetic and coated with a special anti-reflectivity layer, cleaning must be done with a non-aggressive cleaning fluid. It is advised to use "Cleaning Solvent"

The actuator is a very precise mechanical component and may not be damaged in order to guarantee its full function. Clean the lens gently (don't press too hard) with a soft and clean cotton bud moistened with the special lens cleaner.

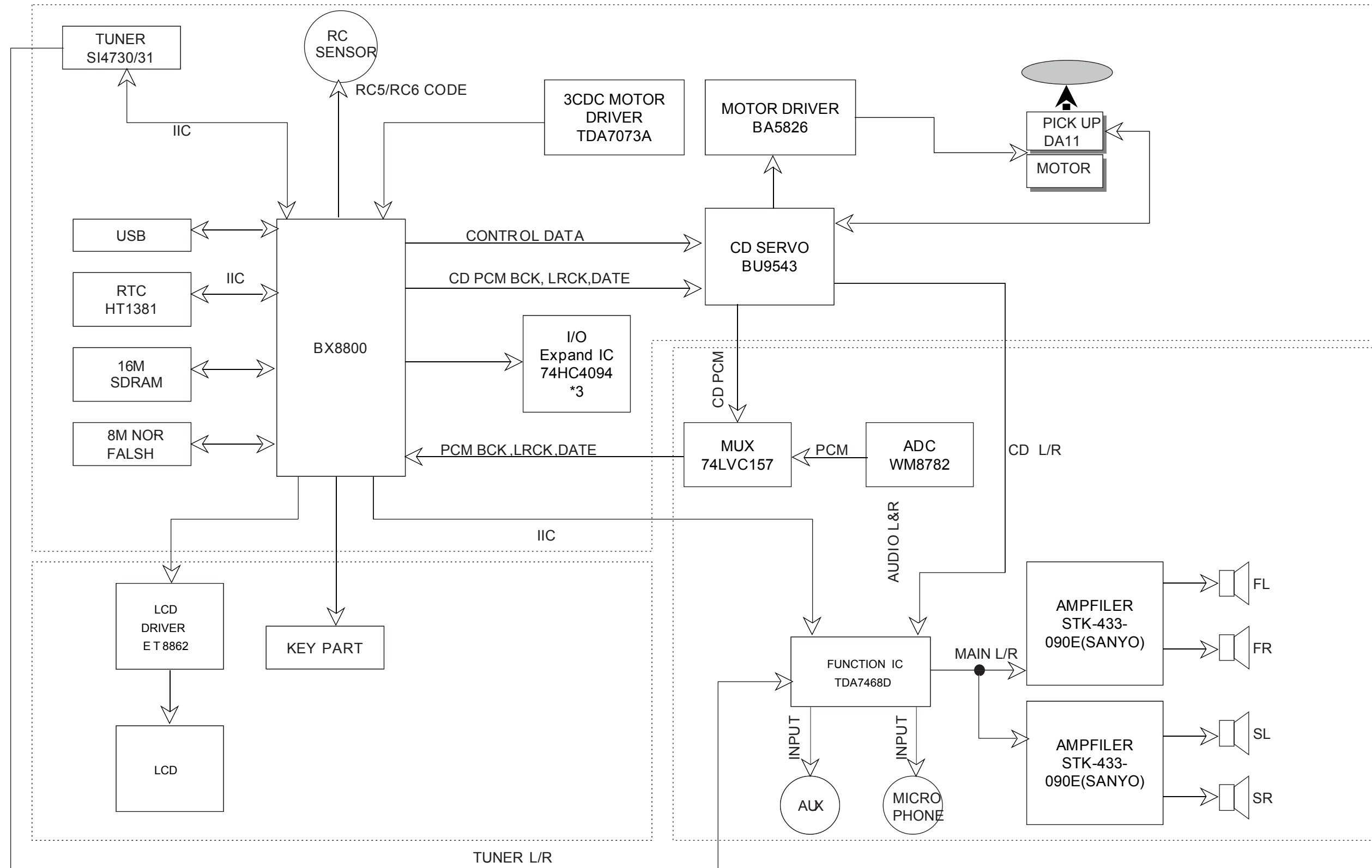
The direction of cleaning must be in the way as indicated in the picture below.



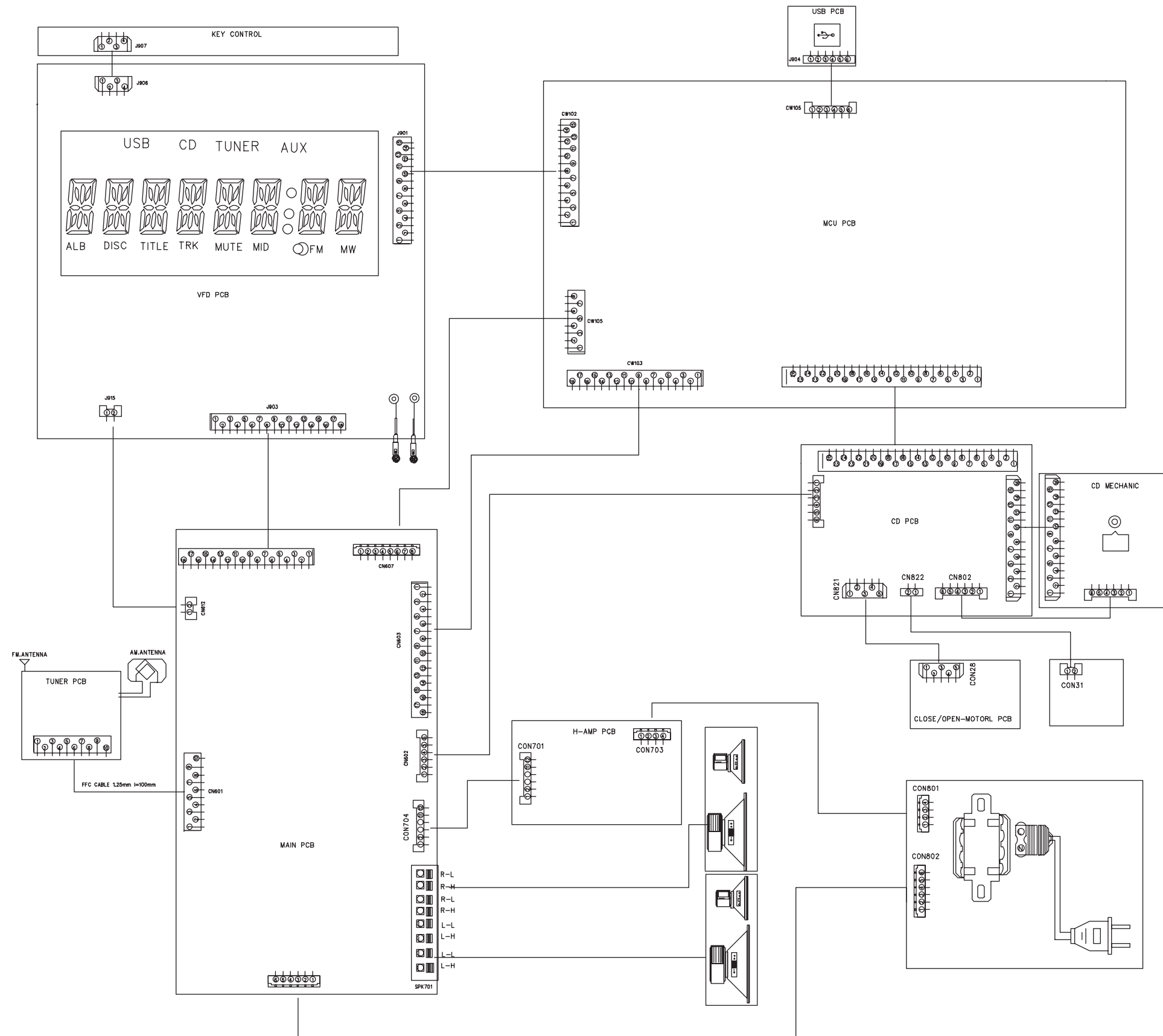
SET BLOCK DIAGRAM

3-1

3-1



# SET WIRING DIAGRAM

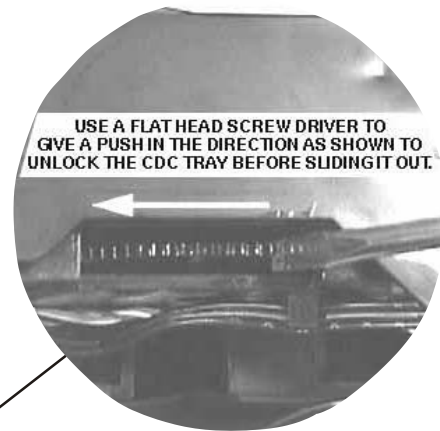
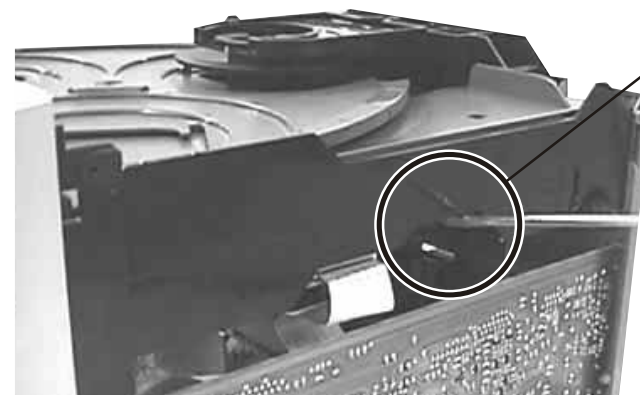




# DISMANTLING INSTRUCTIONS

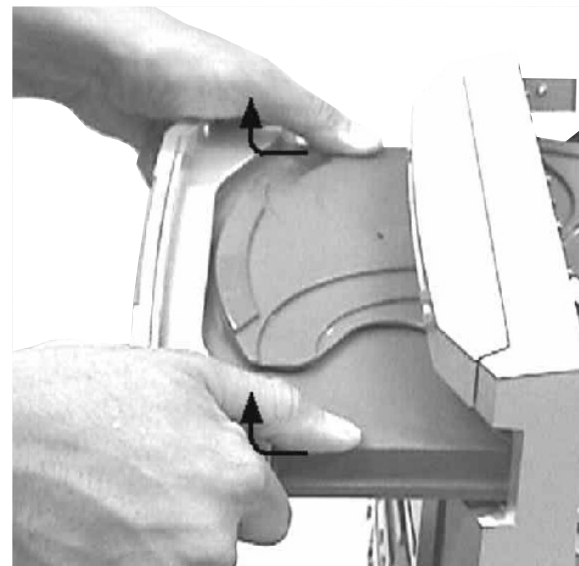
## Dismantling of the CDC Module and Front Panel

- 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) Slide out the CDC Tray as shown in the diagram below with the help of a flat head screw driver.



Sliding Out The CDC Tray

- 4) Remove the Cover Tray CDC as indicated.

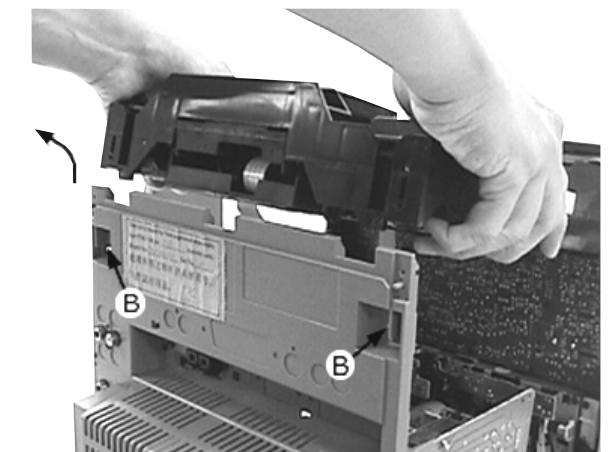


Remove Cover Tray CDC

- 5) Loosen 2 screws A and 2 screws B to remove the CDC Module as indicated.
- 6) Remove 2 screws at the bottom to separate the Front Panel Assembly from the Plate Bottom.



Front View CDC

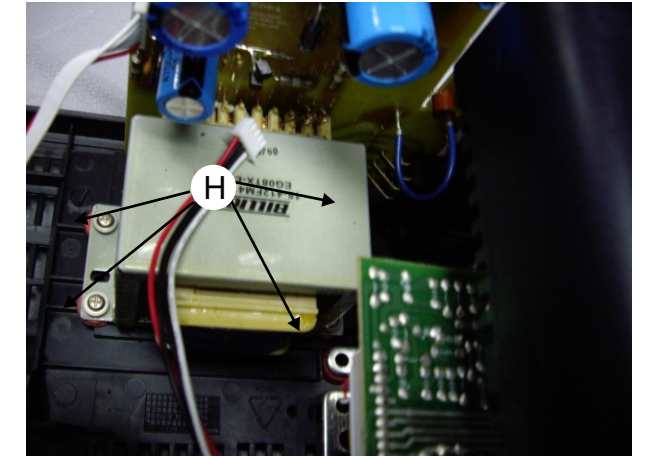
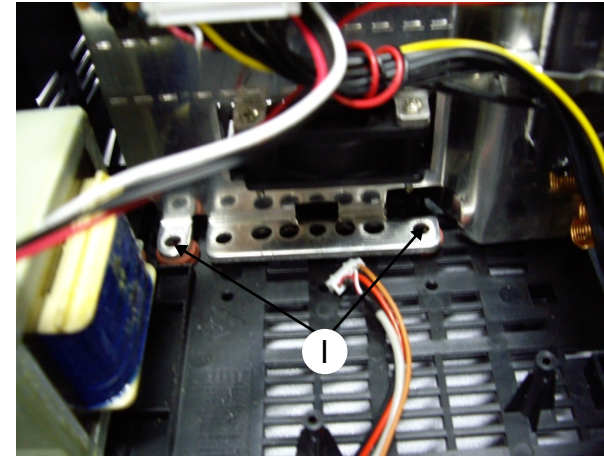
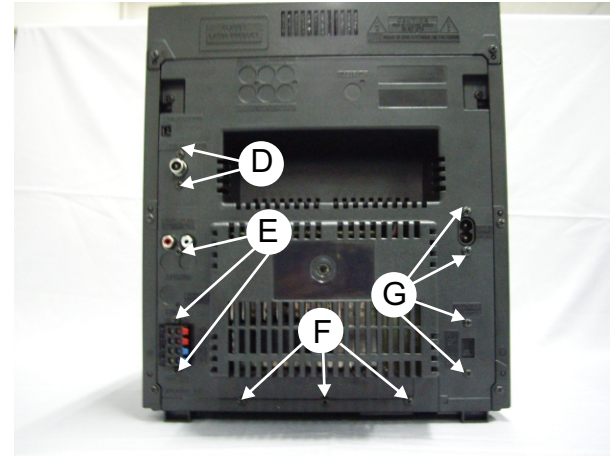
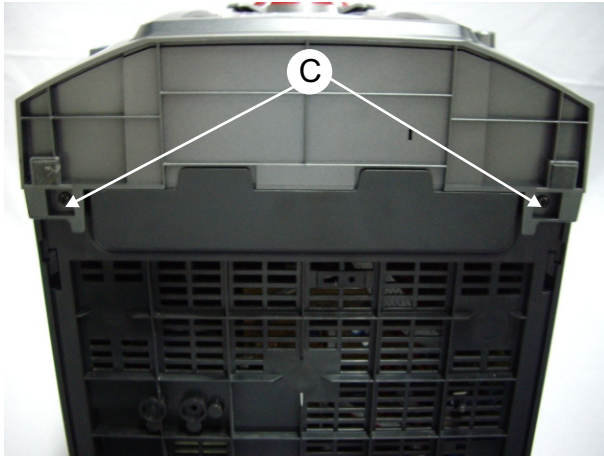


Remove CDC Module

## Dismantling of Rear portion

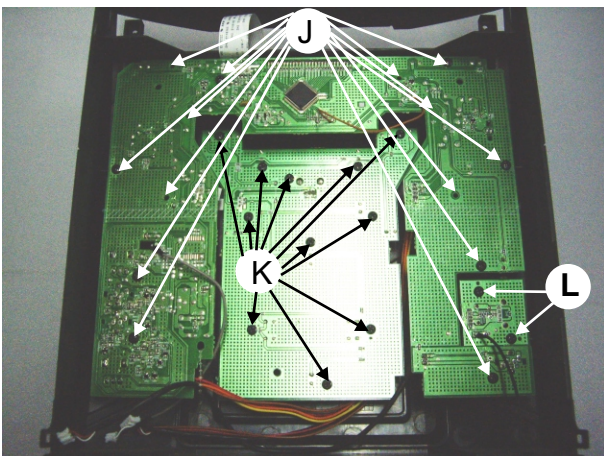
5-2

- 1) Remove 2 screws C as indicated to loosen the Front Cabinet.
- 2) Remove 2 screws D as indicated to loosen the Tuner Module.
- 3) Remove 9 screws E&I as indicated to loosen the Main Board.
- 4) Remove 8 screws G&H as indicated to loosen the POWER Board.
- 5) Remove 3 screws F as indicated to loosen the Bottom Cabinet.



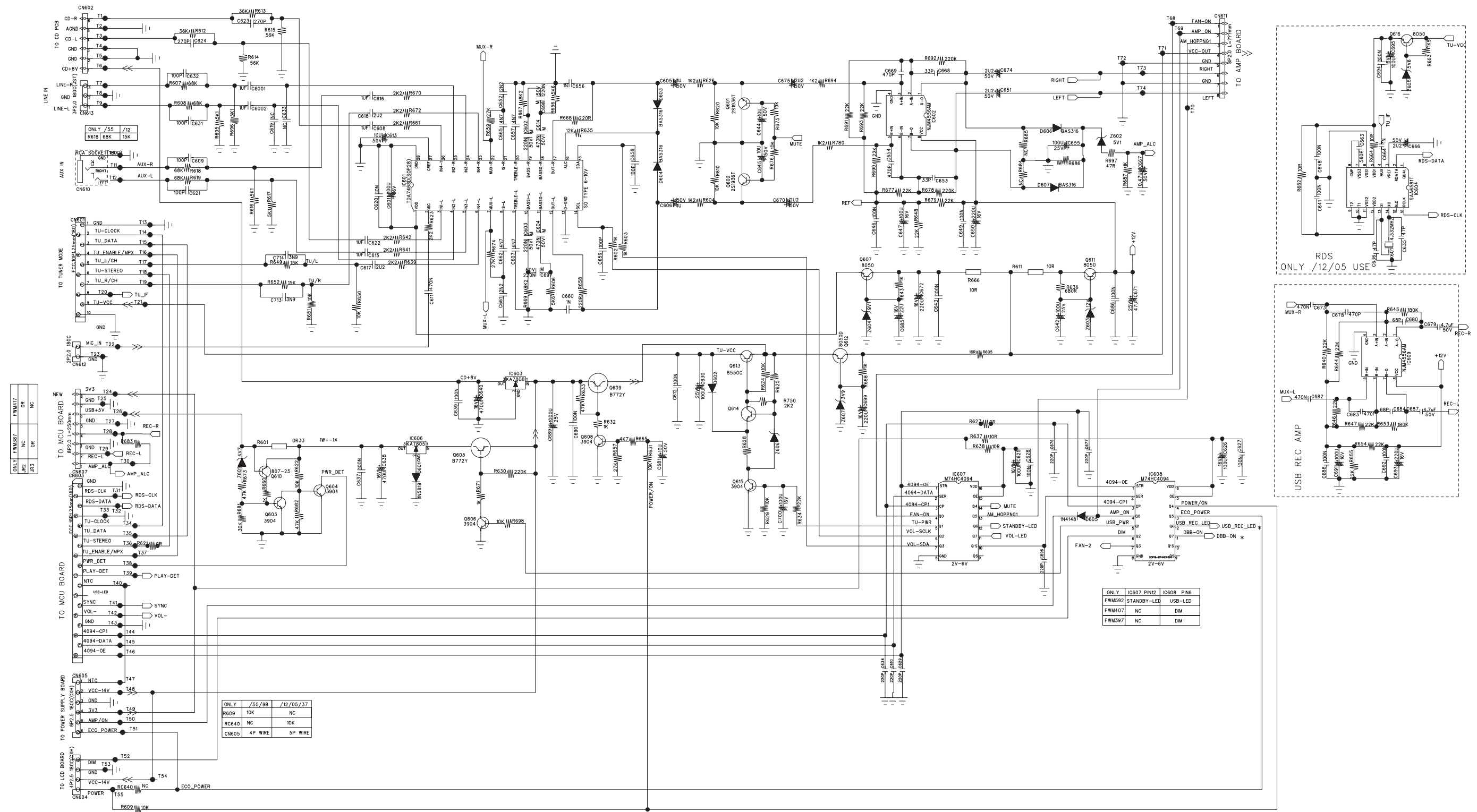
## Dismantling of the PCB Board

- 1) Remove 14 screws J as indicated to loosen the DISPLAY1 Board.
- 2) Remove 11 screws K as indicated to loosen the KEY Board.
- 3) Remove 2 screws L as indicated to loosen the USB Jack Board.



5-2

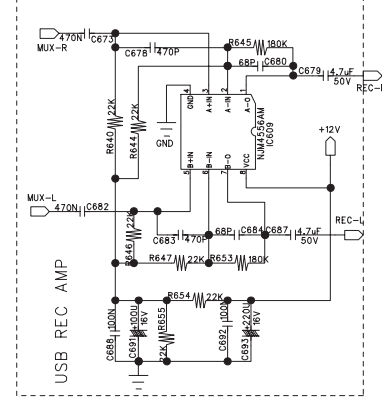
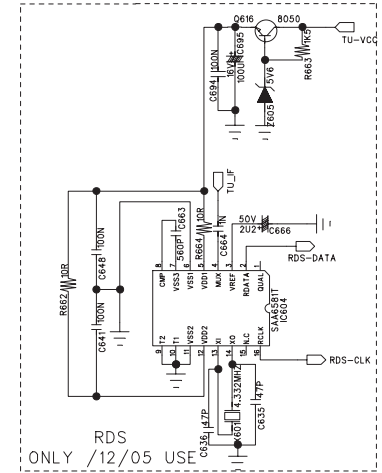
# CIRCUIT DIAGRAM - MAIN BOARD PART 1



ONLY	FWM417	OR	NC
R62	NC	OR	NC
R63	OR	NC	

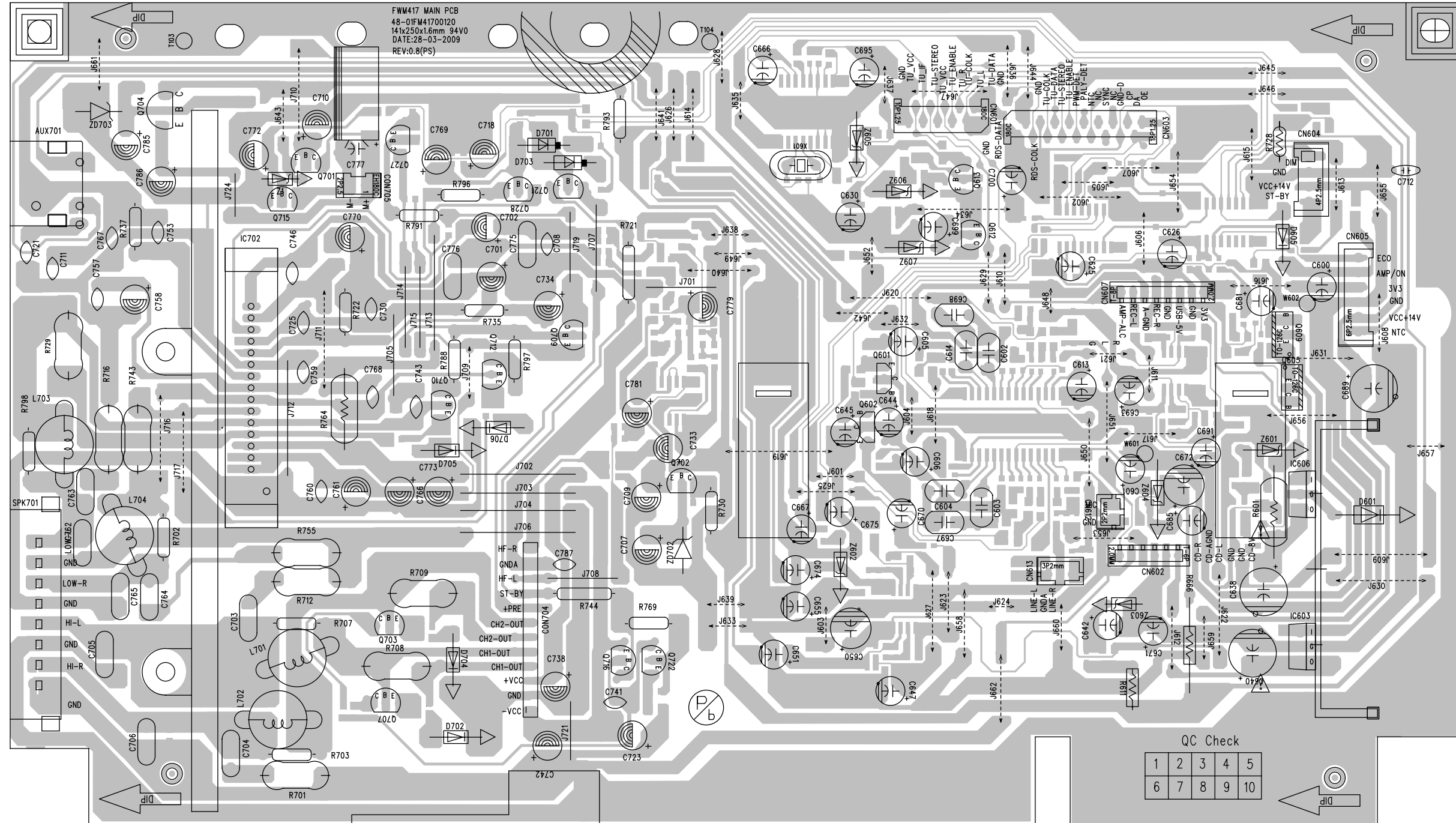
ONLY	/55/98	/12/05/37
R609	10K	NC
RC640	NC	10K
CN605	4P WIRE	SP WIRE

ONLY	IC607	PN12	IC608	PN6
FWM592	STANDBY-LED	NC	DM	DM
FWM407	NC	DM		
FWM397	NC	DM		





# LAYOUT DIAGRAM - MAIN BOARD TOP SIDE



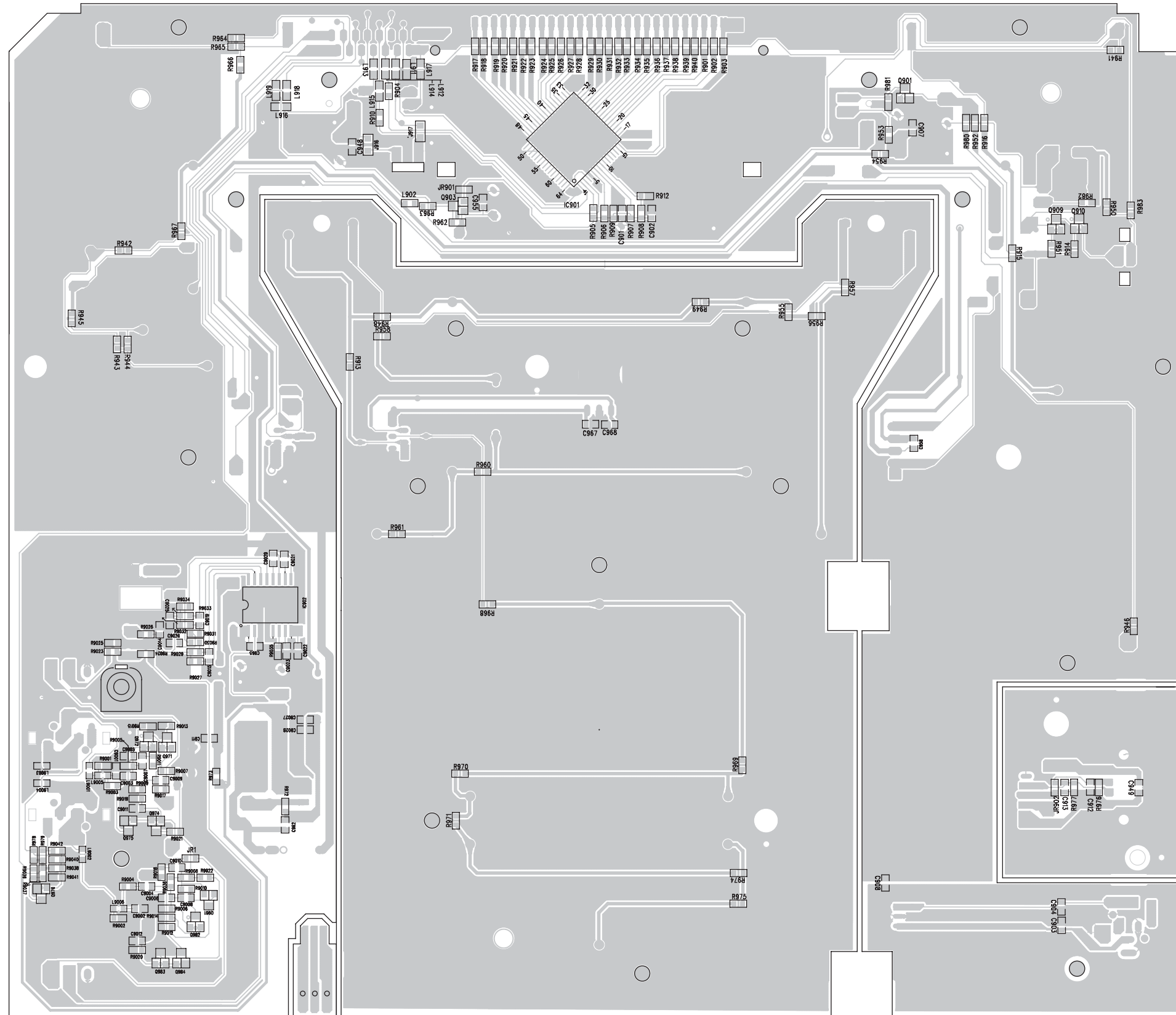


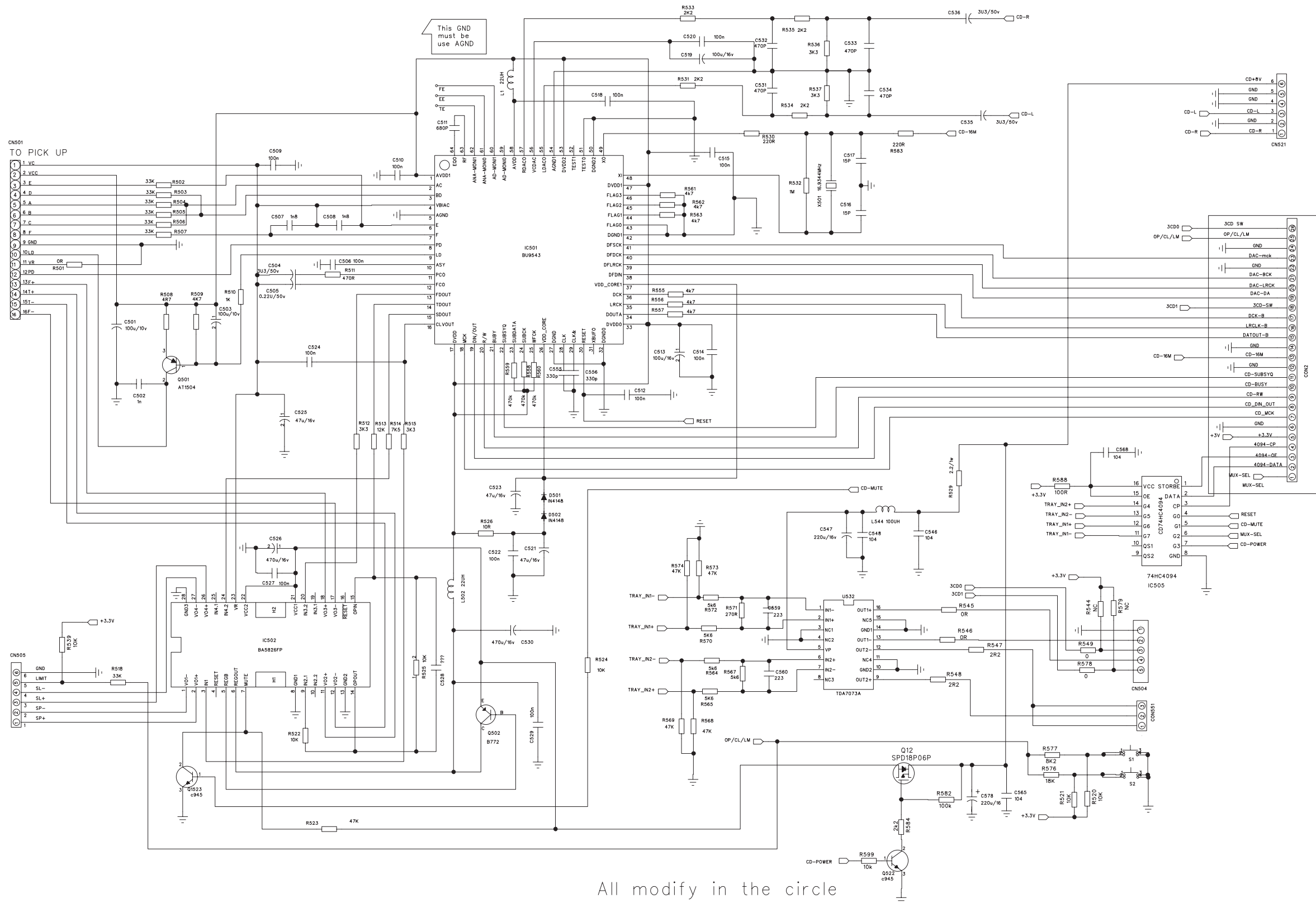




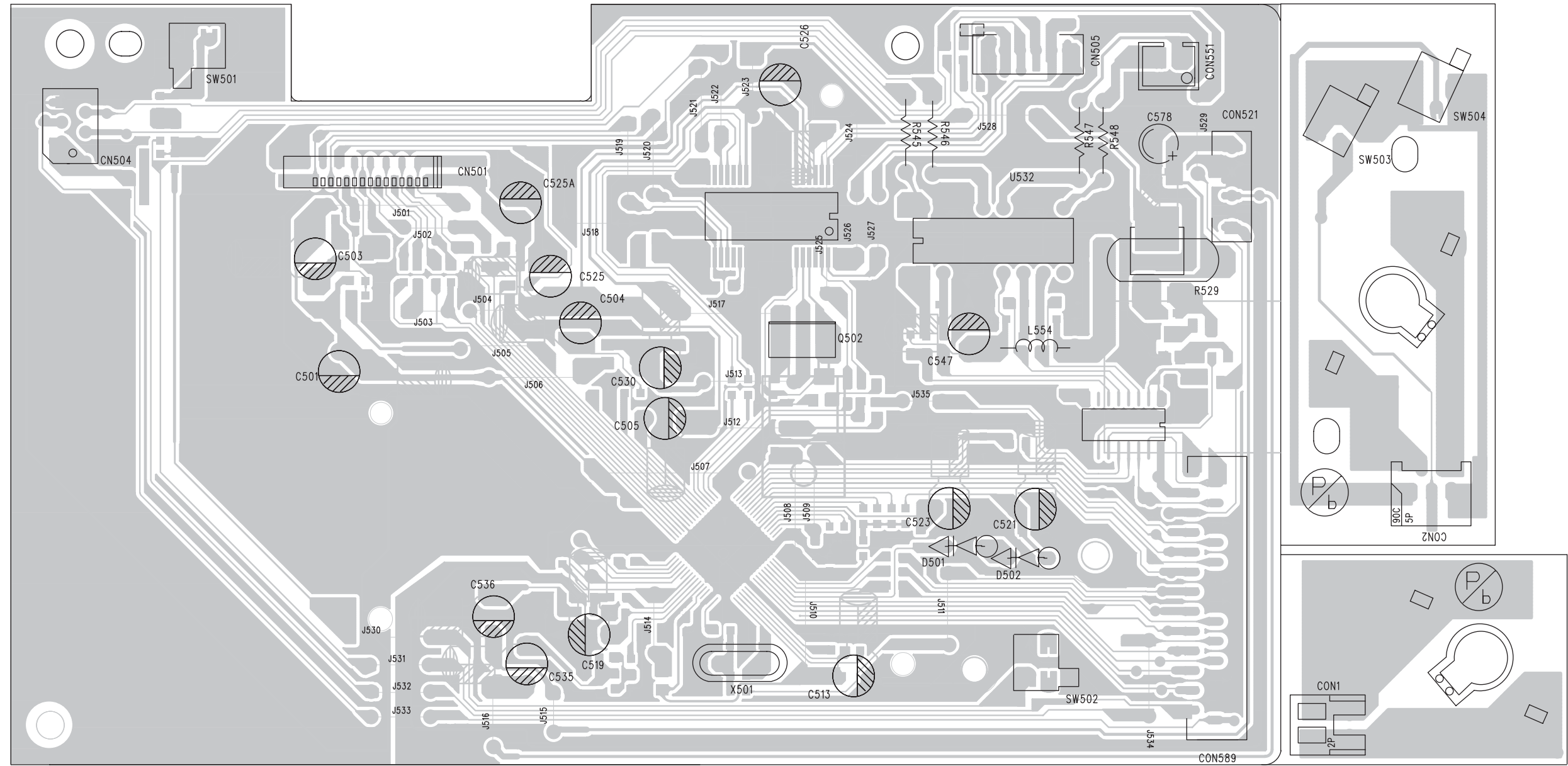


LAYOUT DIAGRAM - DISPLAY BOARD  
BOTTOM SIDE

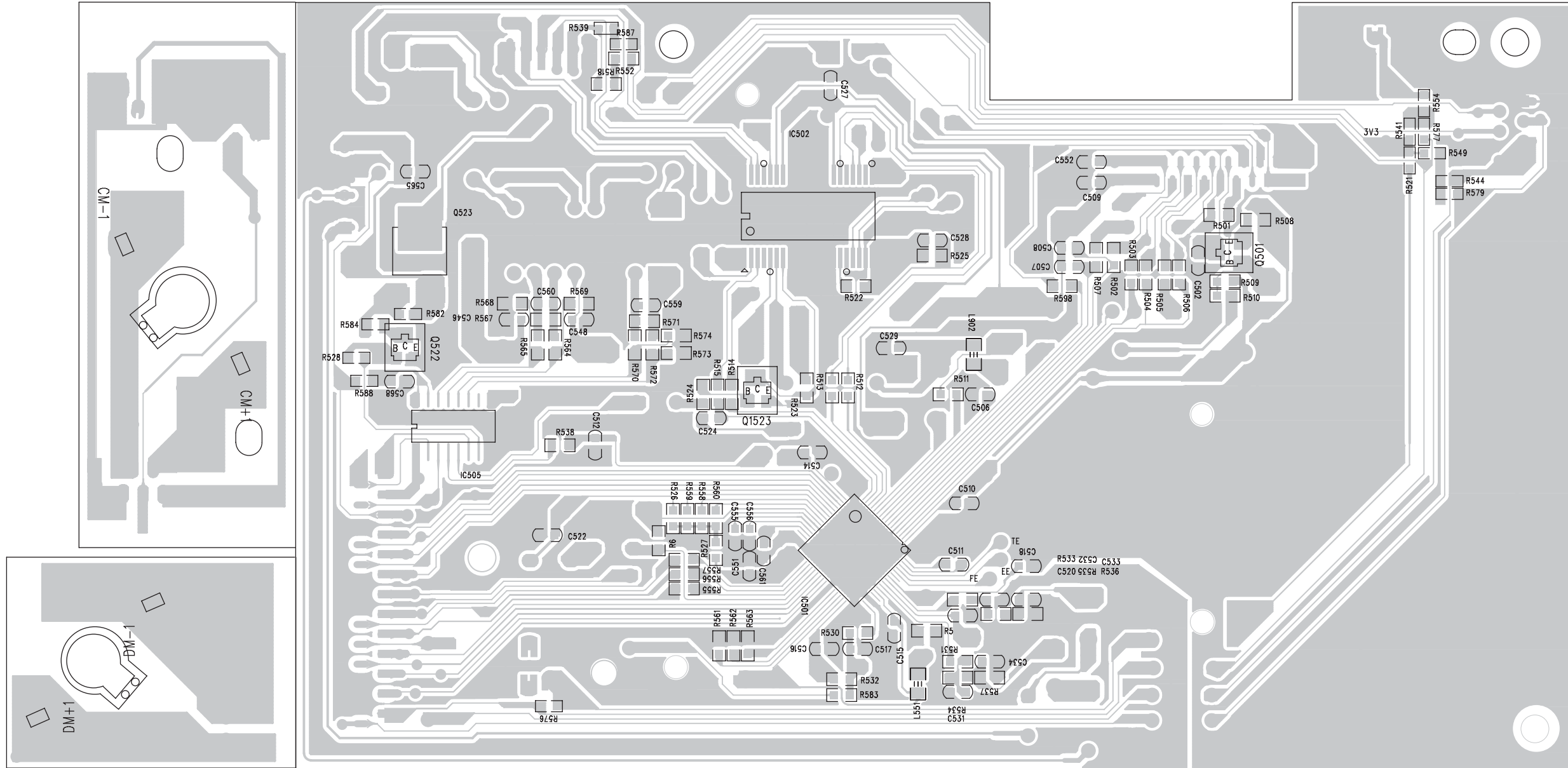




LAYOUT DIAGRAM - CD BOARD  
TOP SIDE

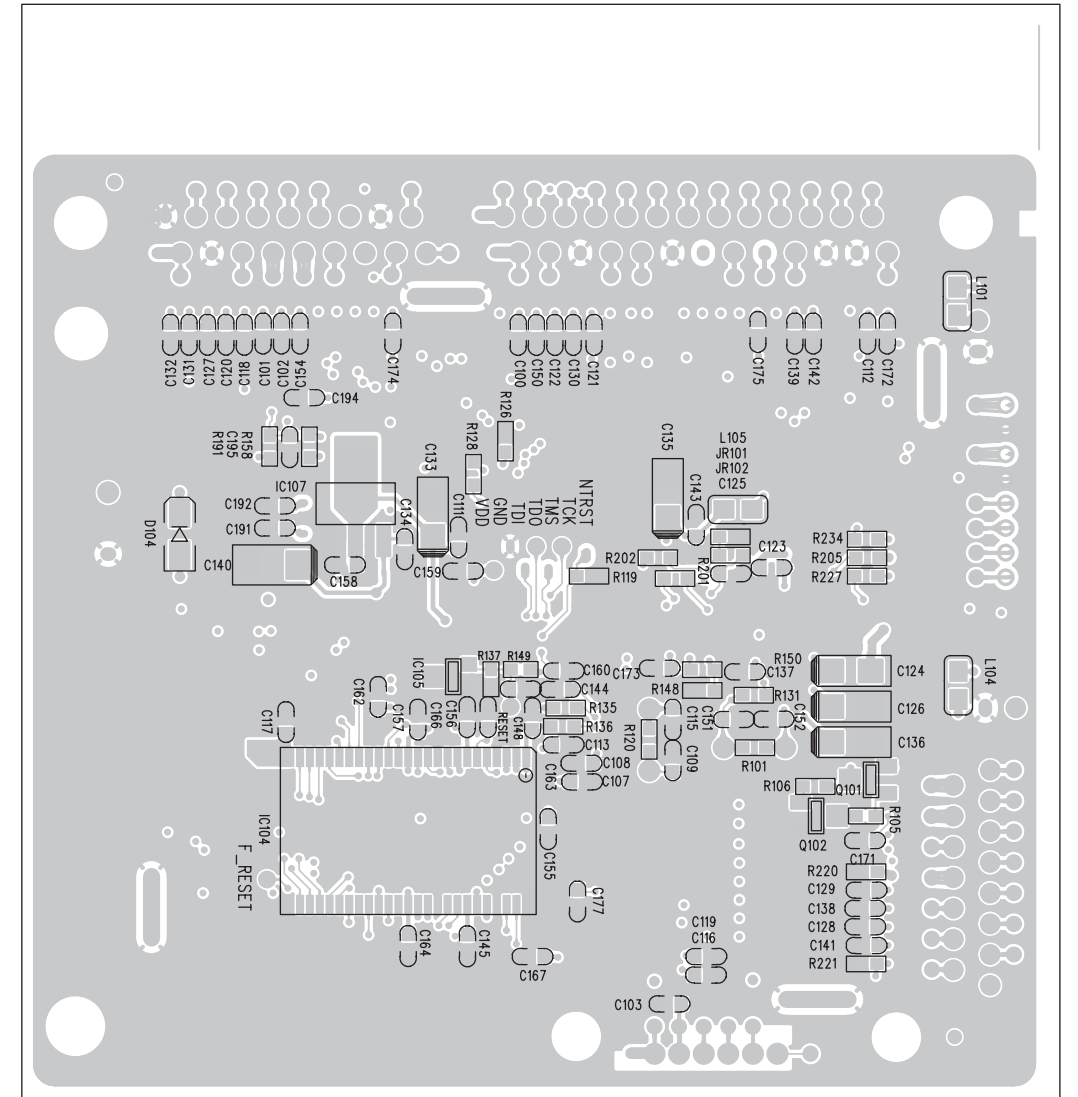
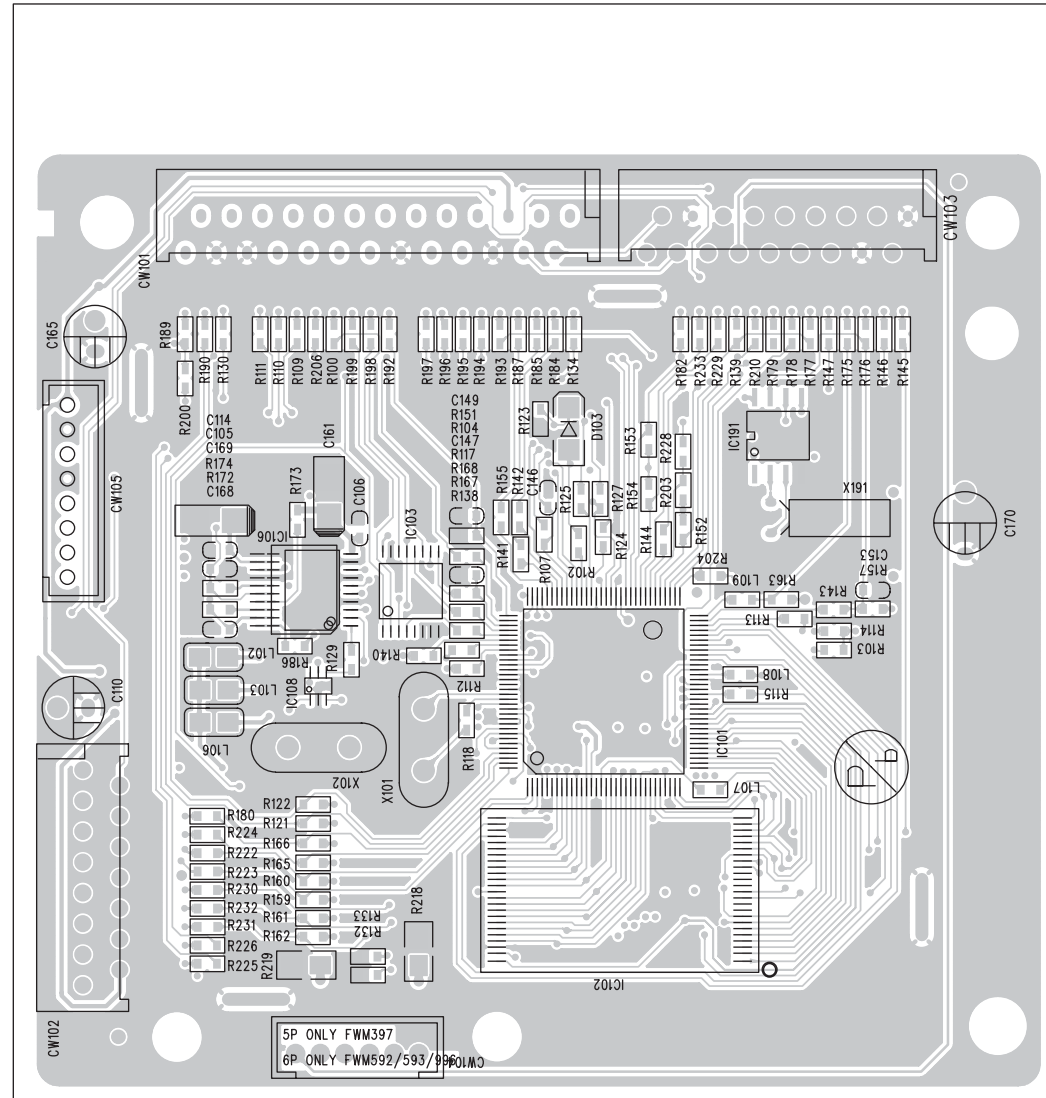


LAYOUT DIAGRAM - CD BOARD  
BOTTOM SIDE





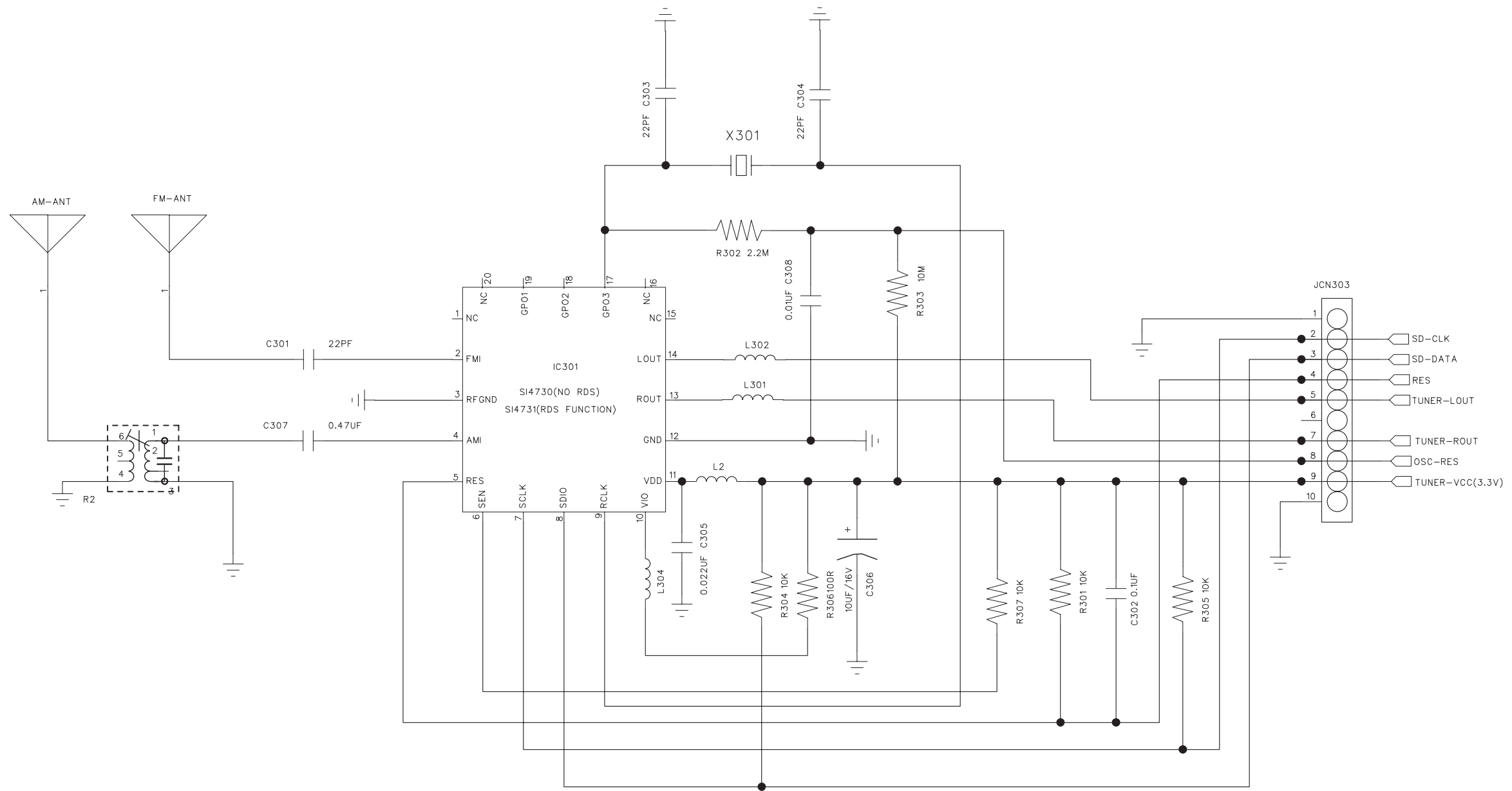
LAYOUT DIAGRAM - MCU BOARD



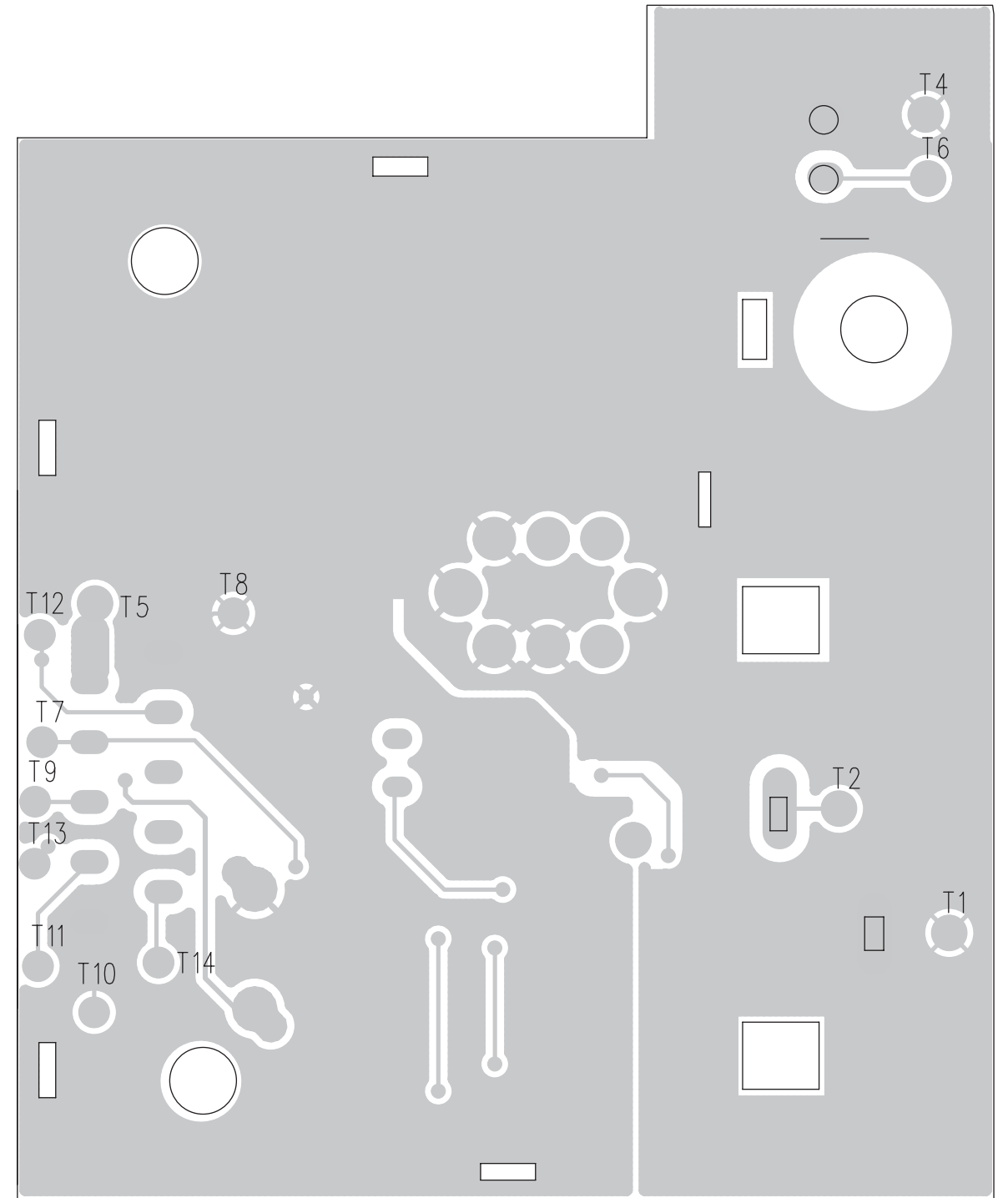
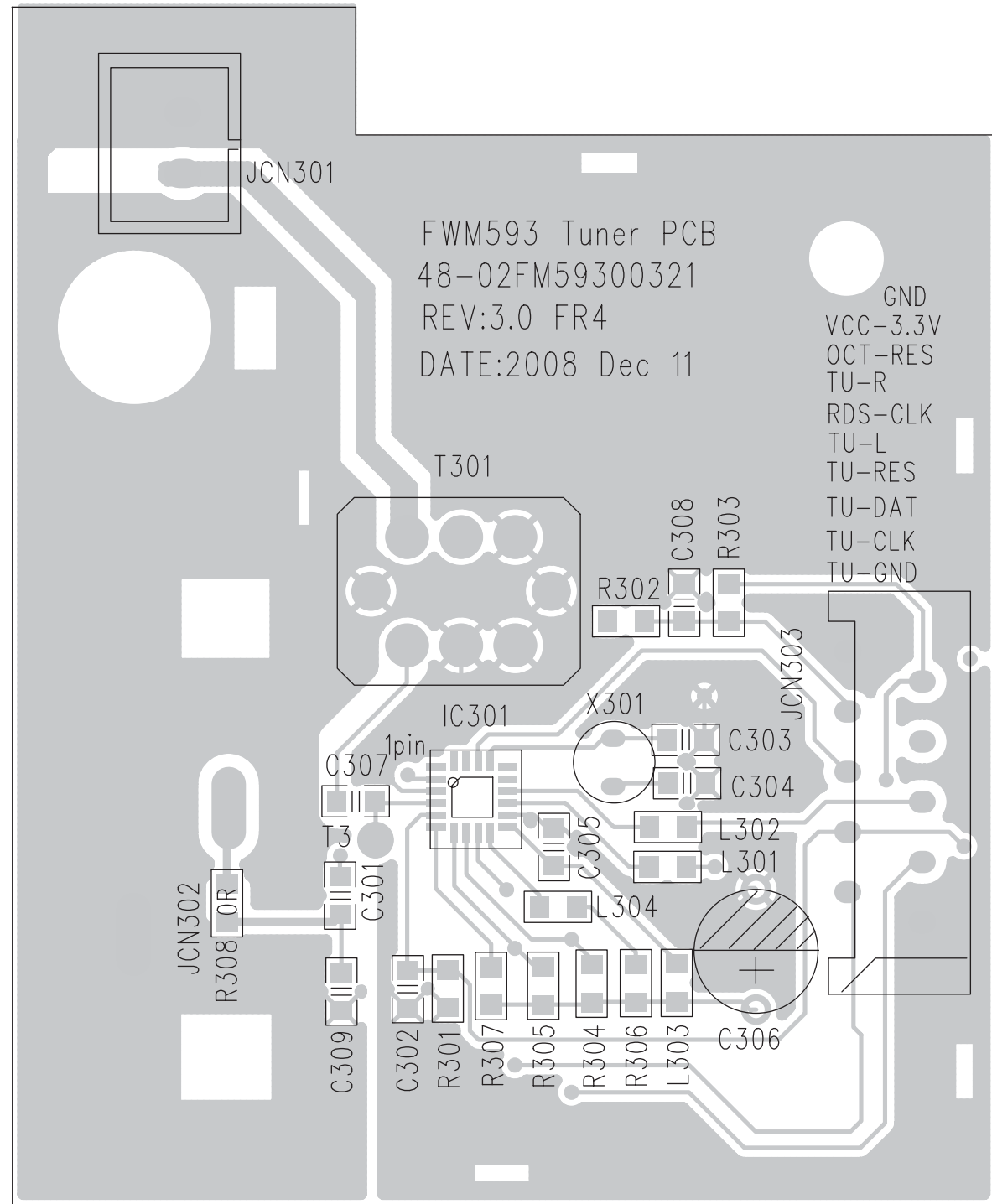
CIRCUIT DIAGRAM - TUNER BOARD

10-1

10-1

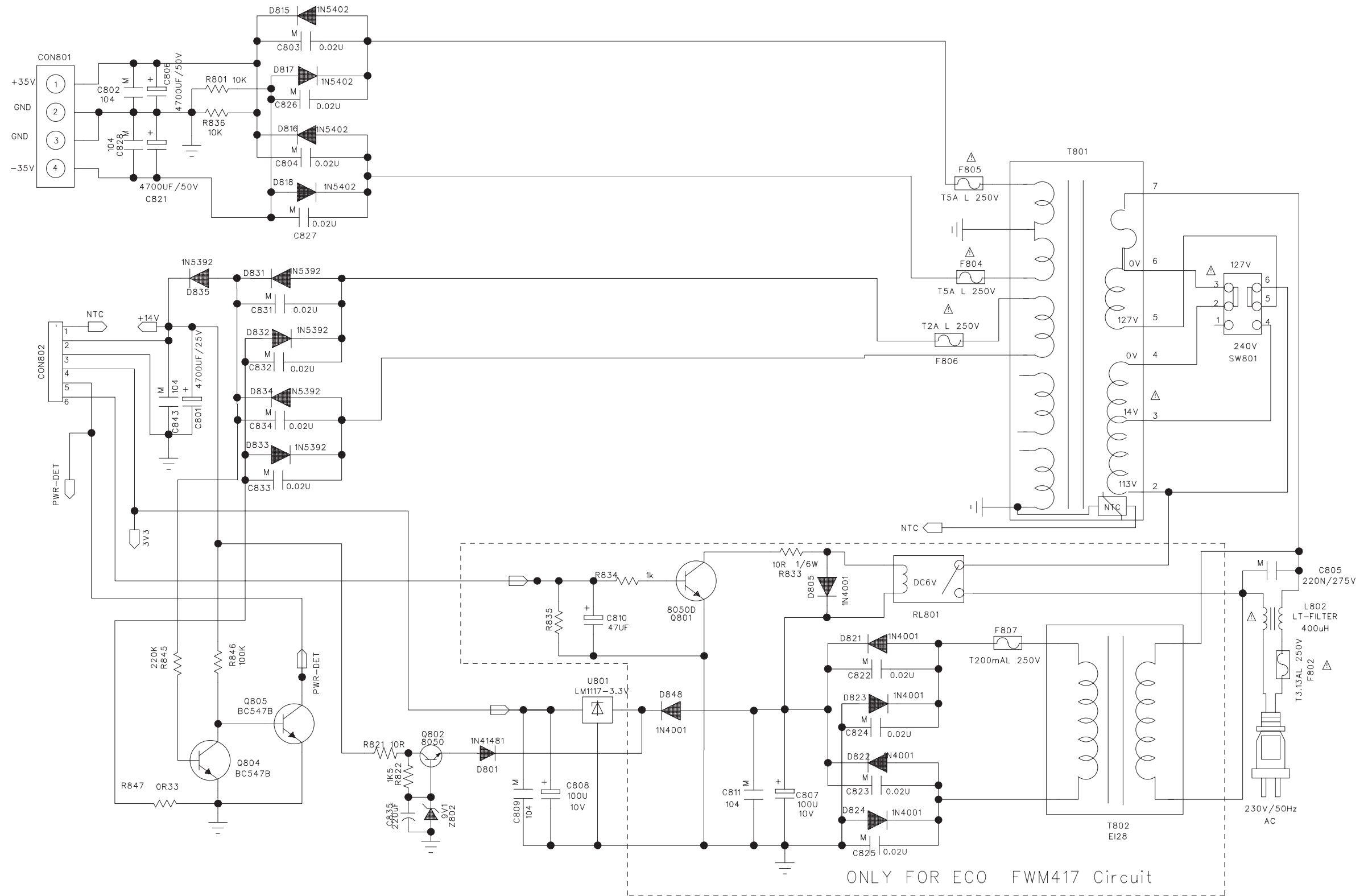


LAYOUT DIAGRAM - TUNER BOARD

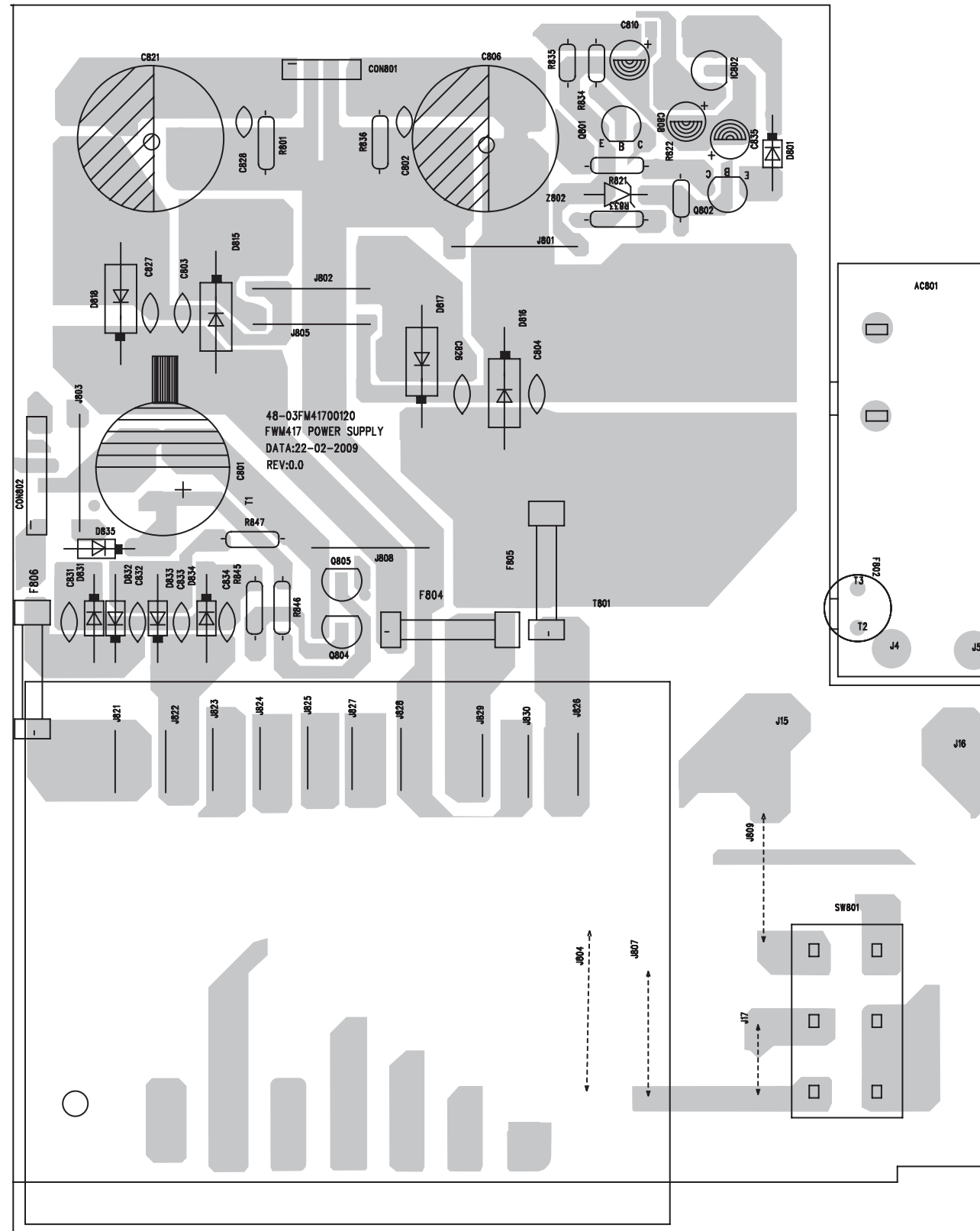




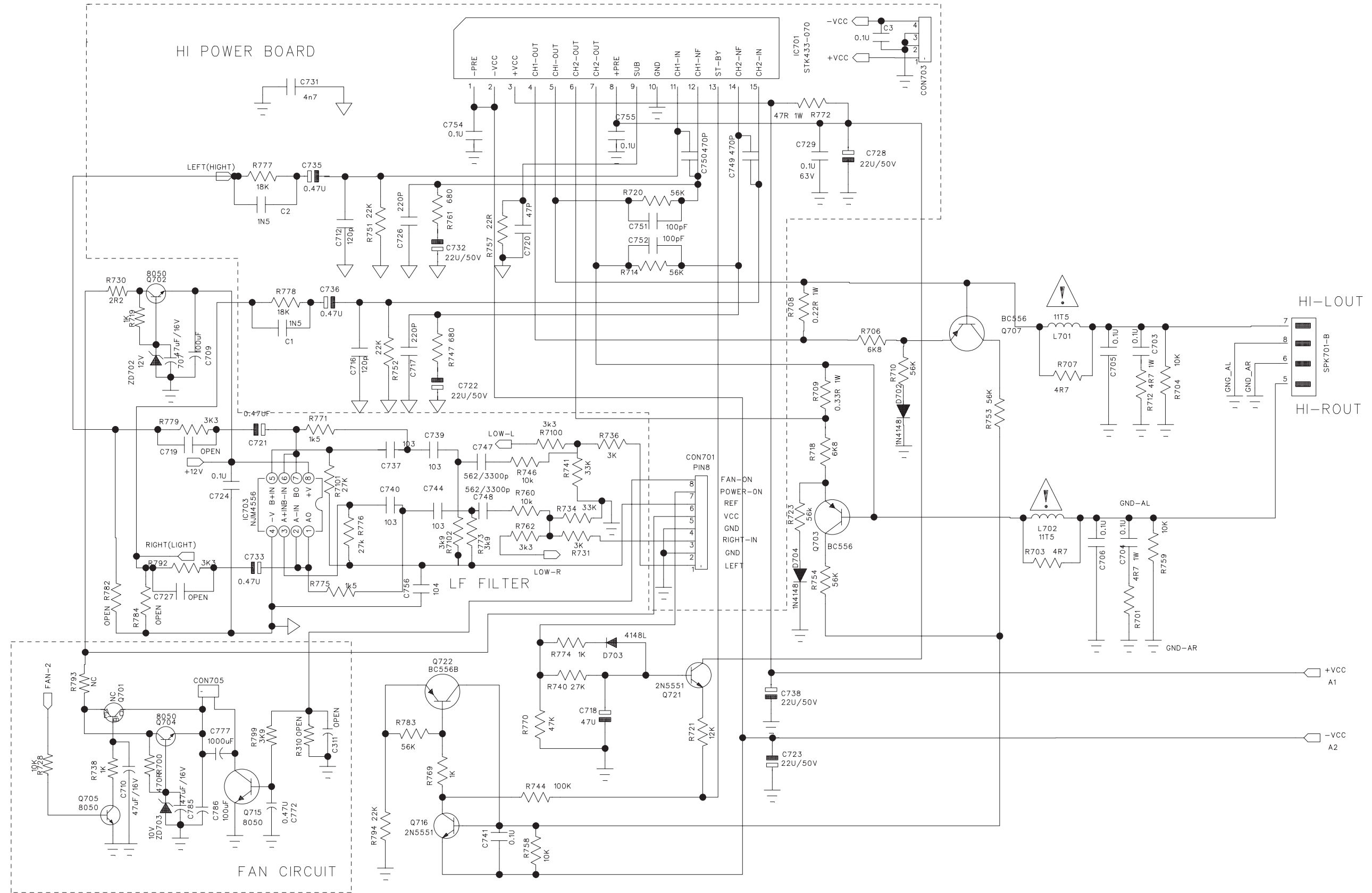
CIRCUIT DIAGRAM - POWER BOARD

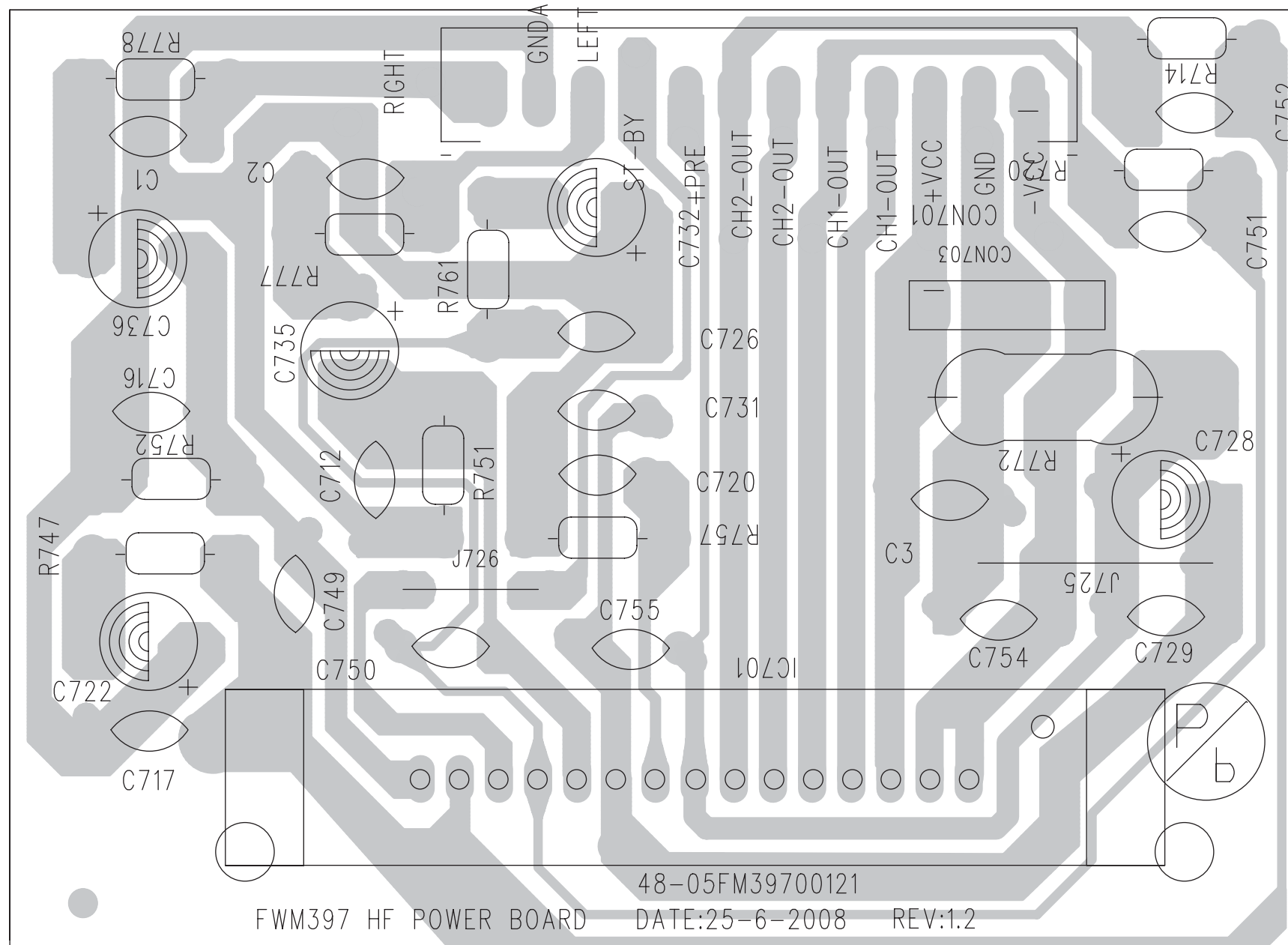


# LAYOUT DIAGRAM - POWER BOARD



# CIRCUIT DIAGRAM - HF BOARD

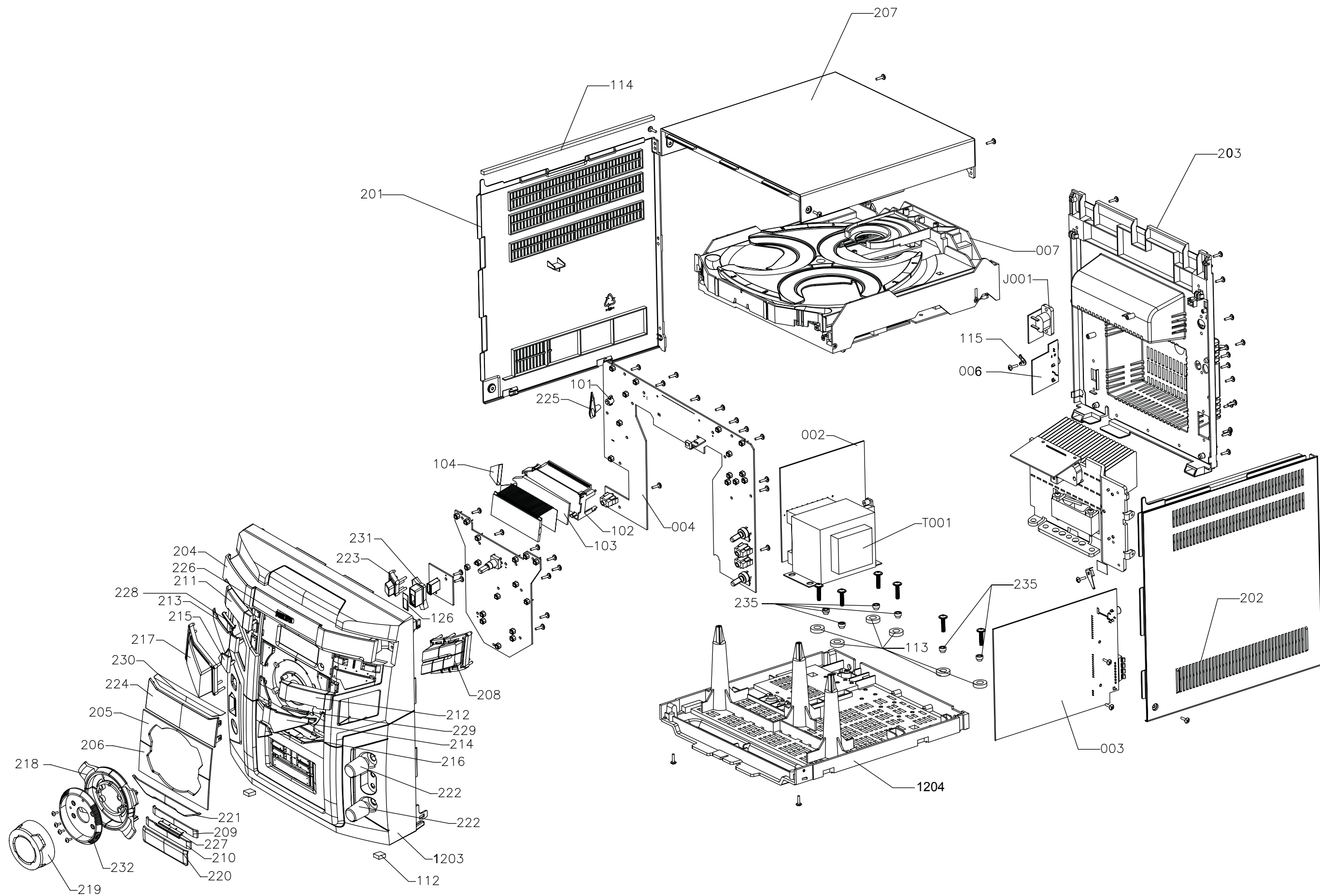




SET EXPLODED VIEW

13-1



13-1



**MECHANICAL PARTSLIST**

002	996510025308	PCBA-POWER
003	996510025313	PCBA-MAIN FWM417/55
006	996520035928	PCBA-TUNER "FWM417/55"
007	996510025032	3CD MECHA PART DA11VF(NO PCBA)
008	996520035926	PCBA-CD
009	996520035929	PCBA-MCU "FWM417/55"
082	994000003669	CD MECHANISM (SANYO) DA11VF
102	996510014310	MAGNET 27x16x4mm 546g
110	996510014336	SPRING-GUIDING
111	996510014337	SPRING-DISC
201	994000001276	PANEL LEFT
202	994000001277	PANEL RIGHT
203	996510019319	REAR CABINET (HIPS)
204	996510022977	3CDC DOOR
205	996510022978	COSMETIC COVER UP
206	996510022974	COSMETIC COVER DOWN
207	994000001285	TOP COVER
208	996510015502	CD BUTTON
209	996510014357	JAZZ-POP BUTTON
210	996510014361	ROCK-CLASSIS BUTTON
211	996510015489	ALBUM BUTTON
212	996510015490	TITLE BUTTON
213	996510015491	STOP BUTTON
214	996510015492	PLAY BUTTON
215	996510015493	MODE BUTTON
216	996510015494	PROGRAM BUTTON
217	996510015495	POWER BUTTON
218	996510015498	CLUSTER BUTTON
219	996510022973	VOL KNOB
220	996510022975	MAX SOUND BUTTON
221	996510022984	USB REC BUTTON
222	996510020805	MIC KNOB
223	996510020806	USB DELETE BUTTON
224	996510014362	DISPLAY LENS (PMMA)
225	996510014363	POWER LIGHT GUIDE
226	996510000439	PHILIPS LOGO
227	996510014365	MIDDLE STRAP OF SOUND BUTTON
228	996510015500	MIDDLE STRAP L
229	996510015501	MIDDLE STRAP R
230	996510025305	DISPLAY TOP BAR
231	996510021305	USB RING
232	996510021316	VOL RING
1203	996510025312	FRONT CABINET-BK
1204	996510021312	CHASSIS PLASTIC
8001	994000004487	16P FFC 1MM L=170MM
8003	994000004457	5P FFC L=200MM(AA)
J002	996510015477	26P FFC.1.25mm L=80mm
J003	996510025146	5P FFC. P=1.25MM L=100MM
J005	996510015486	18P FFC.1.25mm L=150mm
J0055	996510025309	14P FFC.1.25mm L=200mm
J006	996510025314	10P FFC.1.25mm L=200mm
T001	△ 996510025304	TRANSFORMER EI76 127/240V

**ACCESSORIES**

J010		996500037714	AC CORD SET VDE/BRAZIL APP 1.8
J001		994000001478	AC PLUG ADAPTOR
J011		996510009429	FM ANT (GREY) 1.5M CE/75
010		994000001192	AM LOOP ANTENNA LAN-031
J012		996510002103	CONN. CORD 3.5 ST/PLUGx2 500mm
RC		996510020798	REMOTE CONTROL
SK		996510025307	SPK BOX (L+R)

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

**ELECTRICAL PARTSLIST****MAIN BOARD ASSEMBLY**

102	996510025065	DC FAN JD6025MS1
AUX701	994000001221	V/RCA JACK 2P
IC601	994000001202	IC TDA7468D
IC602	994000001201	IC NJM4556AM
IC603	996510018852	IC UTC7808
IC606	996510018962	IC UTC7805
IC607	994000001247	IC HEF4094BT
IC608	994000001247	IC HEF4094BT
IC609	994000001201	IC NJM4556AM
IC702	996510005546	IC (SANYO) STK433-090E
IC703	994000001201	IC NJM4556AM
Q605	994000004145	TRANSISTORS B772Y (160-320)
Q609	994000004145	TRANSISTORS B772Y (160-320)
SPK701	996510001315	SPK JACK (R/R/BLUE/BLUE/BLKx4)

**POWER BOARD ASSEMBLY**

103	996510002038	FM ANT CONTACT PIN
C801	996510001309	E.CAP 4700UF 25V +-20% (PH)
C806	996510025311	E.CAP 4700UF 50V +-80% -20%
C821	996510025311	E.CAP 4700UF 50V +-80% -20%
F802	△ 994000004599	FUSE RADIAL T3.15A 250V
F804	△ 996510002426	CERAMIC FUSE 3.9x10.5mmW
F805	△ 996510002426	CERAMIC FUSE 3.9x10.5mmW
F806	△ 994000000585	CERAMIC FUSE W/LEAD 2A/250V
IC801	994000002839	IC LM1117S-3.3
J001	996510014304	AC SOCKET UL APP
SW801	994000001323	SWITCH

**CD BOARD ASSEMBLY**

IC501	996510009311	IC BU9543KV (SMD)
IC502	996510009310	IC BA5826FP
IC505	994000001247	IC HEF4094BT
SW501	994000004552	DETECT SWITCH
SW502	994000004552	DETECT SWITCH
SW503	994000004552	DETECT SWITCH
SW504	994000004552	DETECT SWITCH
U532	996510003998	IC TDA7073A/N4

**MCU BOARD ASSEMBLY**

IC101	996510015478	IC BX8800
IC102	996510009337	IC SST39VF800A-70 8M 3.3V TSOP
IC103	996510001318	IC 74LVC157APW
IC104	996510020772	IC SI636165TS
IC105	996510022969	IC HWD809R 2.63V
IC106	996510015480	IC WM8782SEDS
IC107	996510009335	IC LM1117S-1.8V SOT-223
IC108	996510015479	IC 74LVC2G04GW
IC191	996510015481	IC HT1381
X101	996510008326	CRYSTAL 12 MHzHC-49/US H=3.5mm
X102	996510015482	CRYSTAL 11.2896MHz
X191	996510012559	CRYSTAL 32.768KHZ



**ELECTRICAL PARTSLIST****DISPLAY BOARD ASSEMBLY**

CN905	996510000344	USB SOCKET
CN908	994000001244	V/PHONE JACK 3.5MM
CN909	994000001244	V/PHONE JACK 3.5MM
CN910	994000001244	V/PHONE JACK 3.5MM
D904	996510021295	LED LAMP 5mm
D914	996510000438	LED LAMP
IC901	996510020783	IC ET8862Q
IR901	994000000325	OPTIC SENSER (OPTO..)
LCD901	996510014305	LCD DISPLAY
SW901	994000001243	TACT SWITCH
SW902	994000001243	TACT SWITCH
SW903	994000001243	TACT SWITCH
SW904	994000001243	TACT SWITCH
SW905	994000001243	TACT SWITCH
SW906	994000001243	TACT SWITCH
SW907	994000001243	TACT SWITCH
SW908	994000001243	TACT SWITCH
SW909	994000001243	TACT SWITCH
SW910	994000001243	TACT SWITCH
SW911	994000001243	TACT SWITCH
SW912	994000001243	TACT SWITCH
SW913	994000001243	TACT SWITCH
SW914	994000001243	TACT SWITCH
SW915	994000001243	TACT SWITCH
SW916	994000001243	TACT SWITCH
SW917	994000001243	TACT SWITCH
SW918	994000001243	TACT SWITCH
SW919	994000001243	TACT SWITCH
SW920	994000001243	TACT SWITCH
SW921	994000001243	TACT SWITCH
SW922	994000001243	TACT SWITCH
SW923	994000001243	TACT SWITCH
SW925	994000001243	TACT SWITCH
SW926	994000001243	TACT SWITCH
SW927	994000001243	TACT SWITCH
SW928	994000001243	TACT SWITCH
SW929	994000001243	TACT SWITCH
SW930	994000001243	TACT SWITCH
VR1	996510003986	ROTARY VOLUME
VR902	996510003986	ROTARY VOLUME
VR903	996510021317	ROTARY ENCODER

**TUNER BOARD ASSEMBLY**

IC301	996510022983	IC SI4730
JCN302	994000001353	COAXIAL JACK IF-01A
T301	996510000886	AM ANT BLACK 7mm 7M4A1951X
X301	996500042441	X'TAL 32.768KHZ -20PPM

**HF BOARD ASSEMBLY**

IC701	996510005546	IC (SANYO) STK433-090E
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**Note:** Only these parts mentioned in the list are normal service parts.