

Service  
Service  
Service



# Service Manual



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Version 1.1



## TECHNICAL SPECIFICATION

### AMPLIFIER

RMS output power	
1KHz (Low channel-both channels driven) .....	60 W per channel
10KHz (High channel-both channels driven) ....	60 W per channel
Total output power .....	240 W
Signal-to-noise ratio .....	67 dB A (IEC)
Frequency response .....	60 – 16000 Hz
Input sensitivity	
AUX .....	1500mV/2000mV
Output	
Speakers .....	6 $\Omega$
(1) (6 $\Omega$ , 1 kHz, 10%THD)	

### CD/MP3-CD PLAYER

Number of programmable tracks .....	40
Frequency response .....	60 – 20000 Hz -3dB
Signal-to-noise ratio .....	75 dB A
Channel separation .....	50 dB (1 kHz)
Total harmonic distortion .....	< 1.5%
MPEG 1 Layer 3 (MP3-CD) .....	MPEG AUDIO
MP3-CD bit rate .....	32-256 kbps
	(128 kbps advised)
Sampling frequencies .....	32, 44.1, 48 kHz

### TUNER

FM wave range .....	87.5 – 108 MHz
AM wave range (9 kHz) .....	531 – 1602 kHz
AM wave range (10 kHz) .....	530 – 1700 kHz
Tuning grid .....	9/10 kHz
Number of presets .....	40
Antenna	
FM .....	75 $\Omega$ wire
AM .....	Loop antenna

### USB PLAYER

USB .....	12Mb/s,V1.1
	support MP3 and WMA files
Number of albums/folders .....	maximum 99
Number of tracks/titles .....	maximum 999

### SPEAKERS

System	2-way; double port bass reflex
Impedance .....	6 $\Omega$
Woofer .....	5.25"
Tweeter .....	1.75"
Dimensions (w x h x d) ..	249 x 344 x 250 (mm)
Weight .....	3.65 kg each

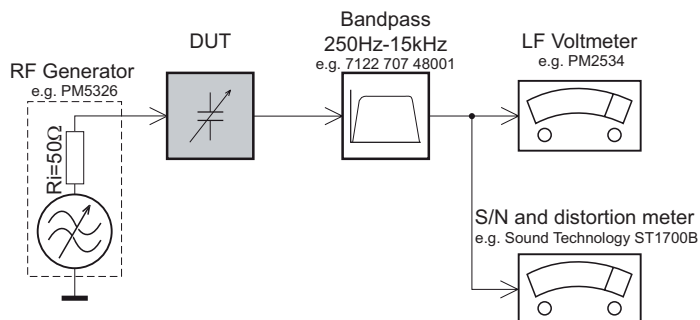
### GENERAL

Material/finish .....	Polystyrene/Metal
AC Power .....	110 – 127 / 220 – 240 V;
	50/60 Hz, Switchable
Power Consumption	
Active .....	100 W
Standby .....	≤ 15 W
Dimensions (w x h x d) ..	265 x 310 x 403 (mm)
Weight (without speakers) .....	9.1 kg

**Specifications and external appearance are subject to change without notice.**

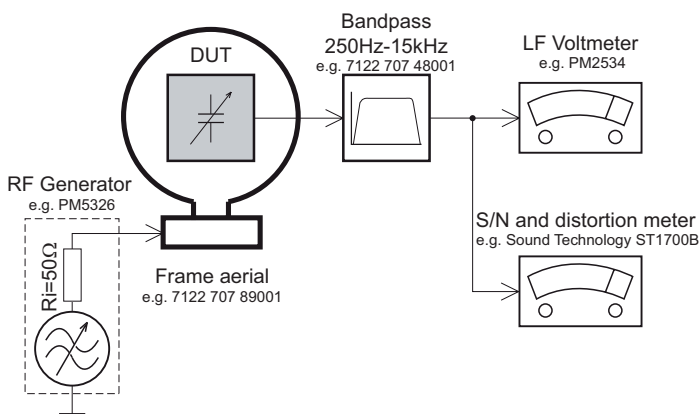
# MEASUREMENT SETUP

## Tuner FM



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

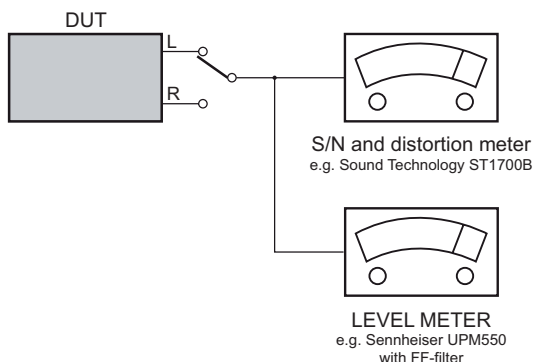
## Tuner AM (MW,LW)



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).

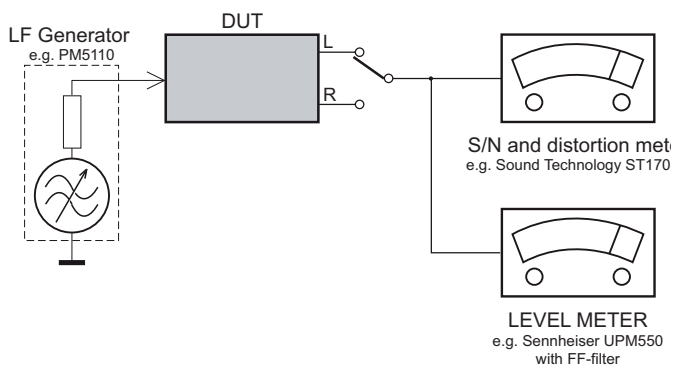
## CD

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  $\Delta$ .

**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".

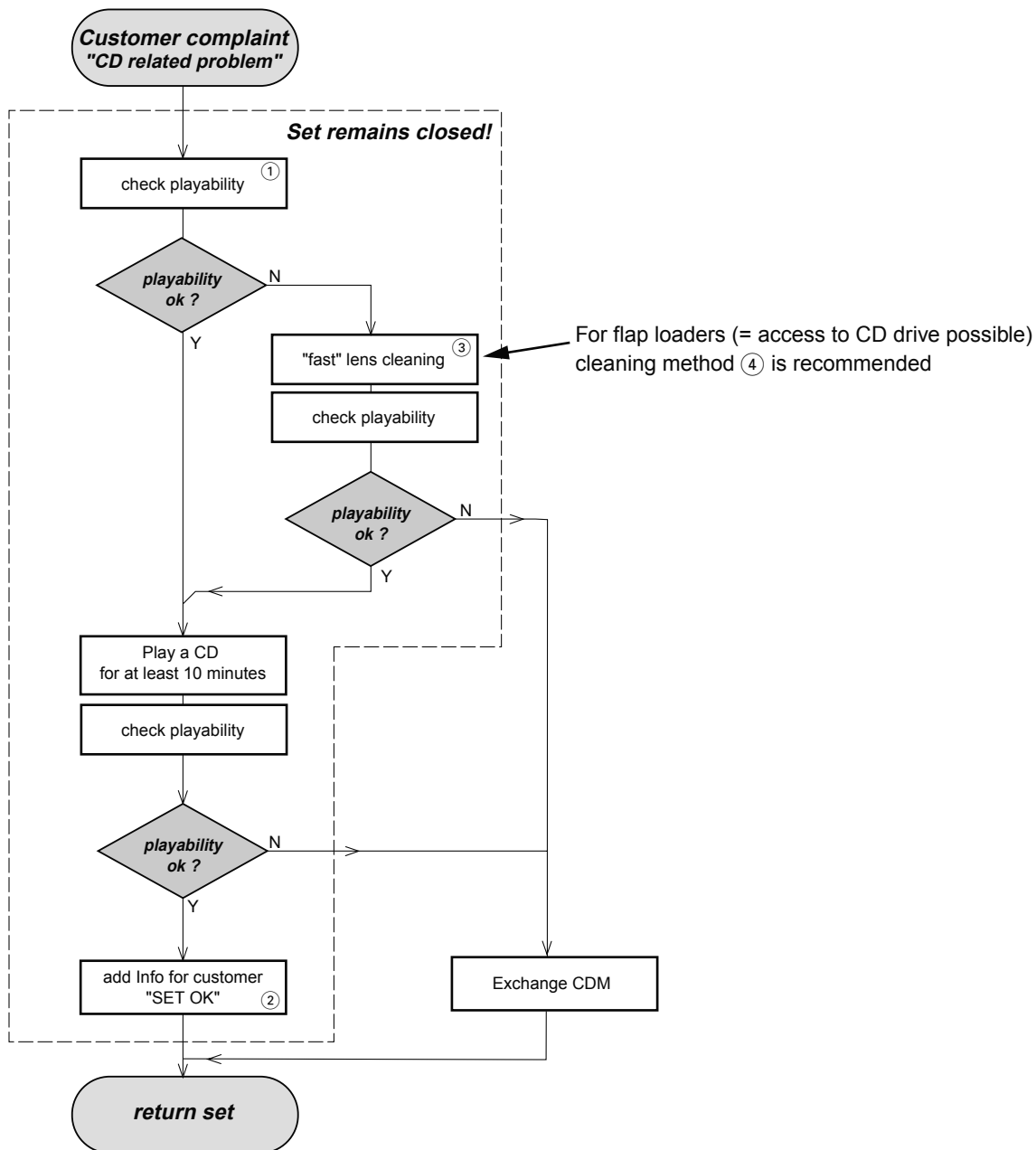
For additional questions please contact your local repair-helpdesk.

## 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



For flap loaders (= access to CD drive possible) cleaning method ④ is recommended

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

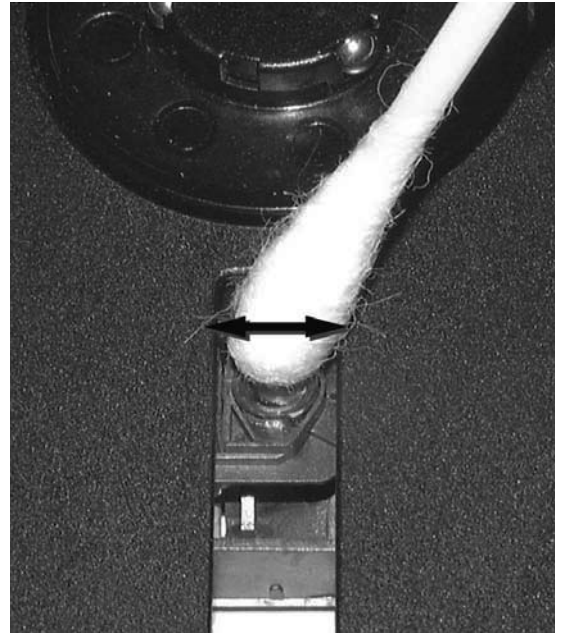
### LIQUID LENS CLEANING

**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.

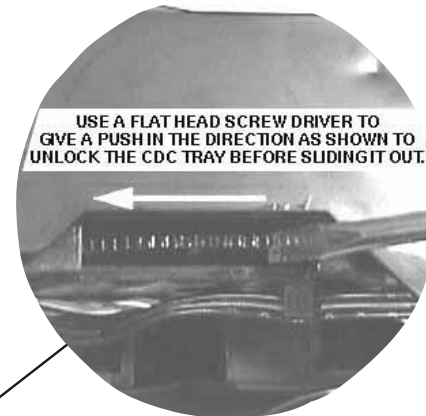
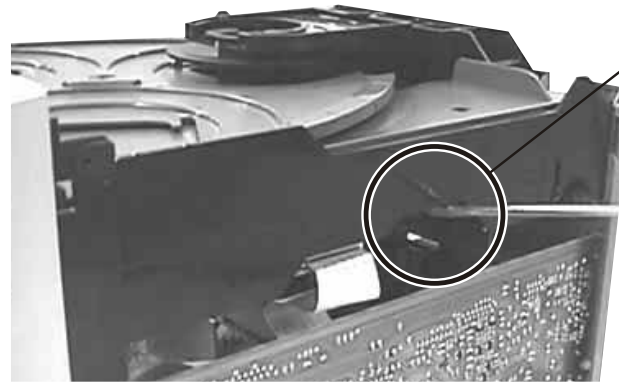
The direction of cleaning must be in the way as indicated in the picture below.



## DISASSEMBLY DIAGRAM VIEW PART 1

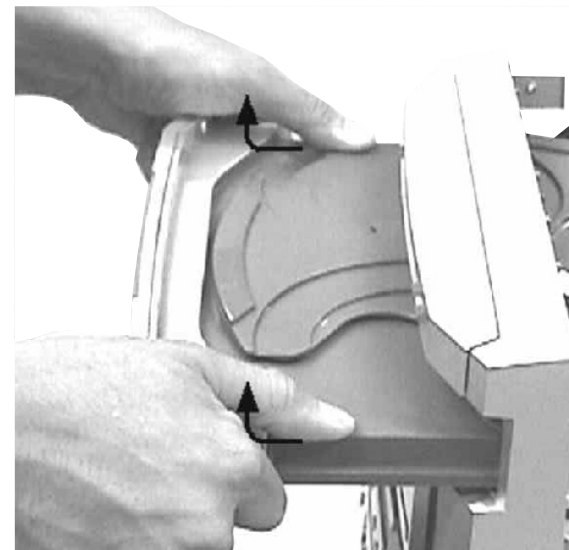
### *Dismantling of the CDC Module and Front Panel*

- 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.

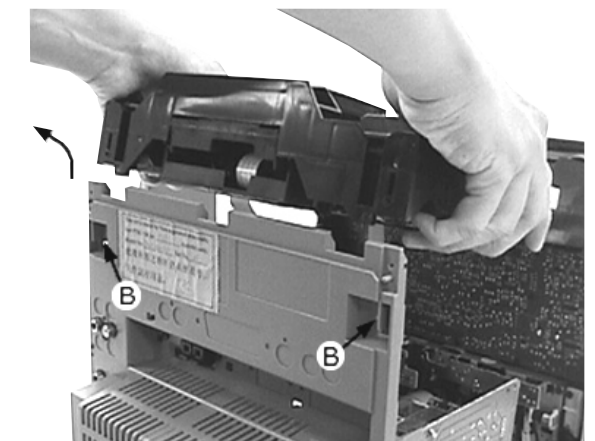


Remove Cover Tray CDC

- 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



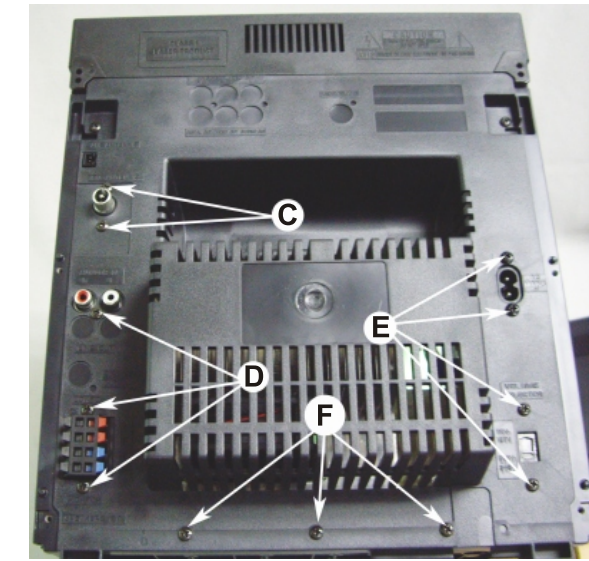
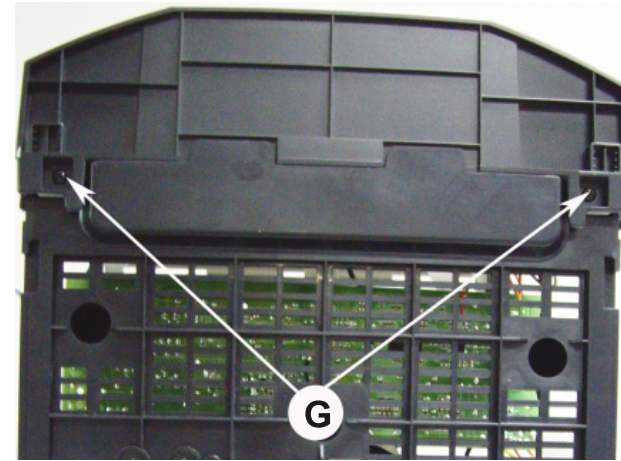
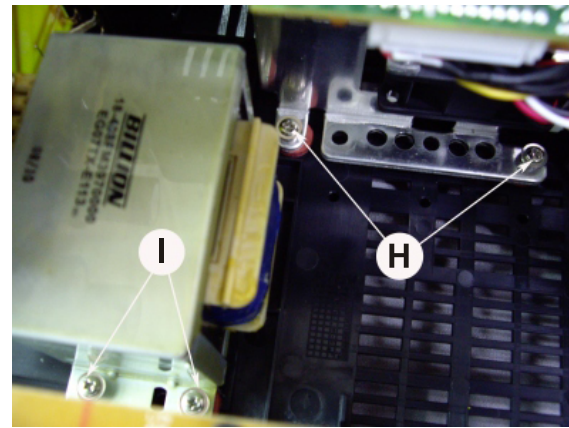
Remove CDC Module



## DISASSEMBLY DIAGRAM VIEW PART 2

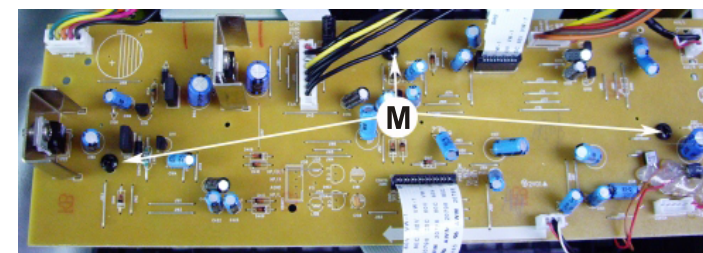
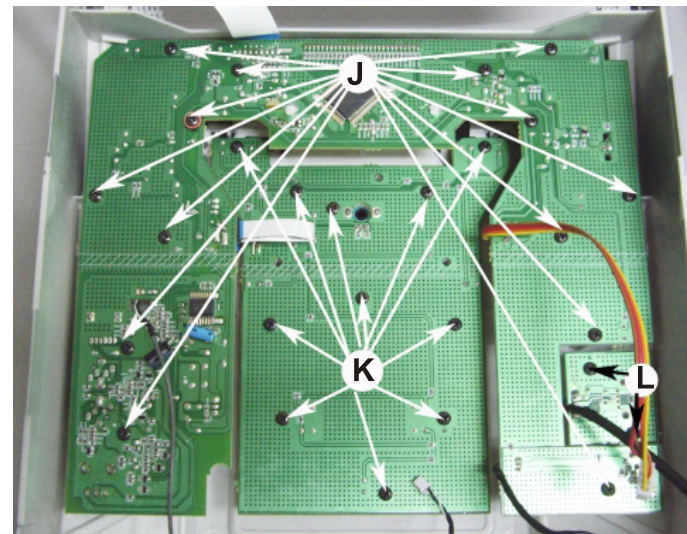
### Dismantling of Rear Portion

- 1) Remove 2 screws C as indicated to loosen the Tuner Module
- 2) Remove 5 screws D&H as indicated to loosen the Low Power Board.
- 3) Remove 6 screws E&I as indicated to loosen the Power Board.
- 4) Remove 3 screws F as indicated to loosen the Bottom Cabinet.
- 5) Remove 2 screws G as indicated to loosen the Front Cabinet.



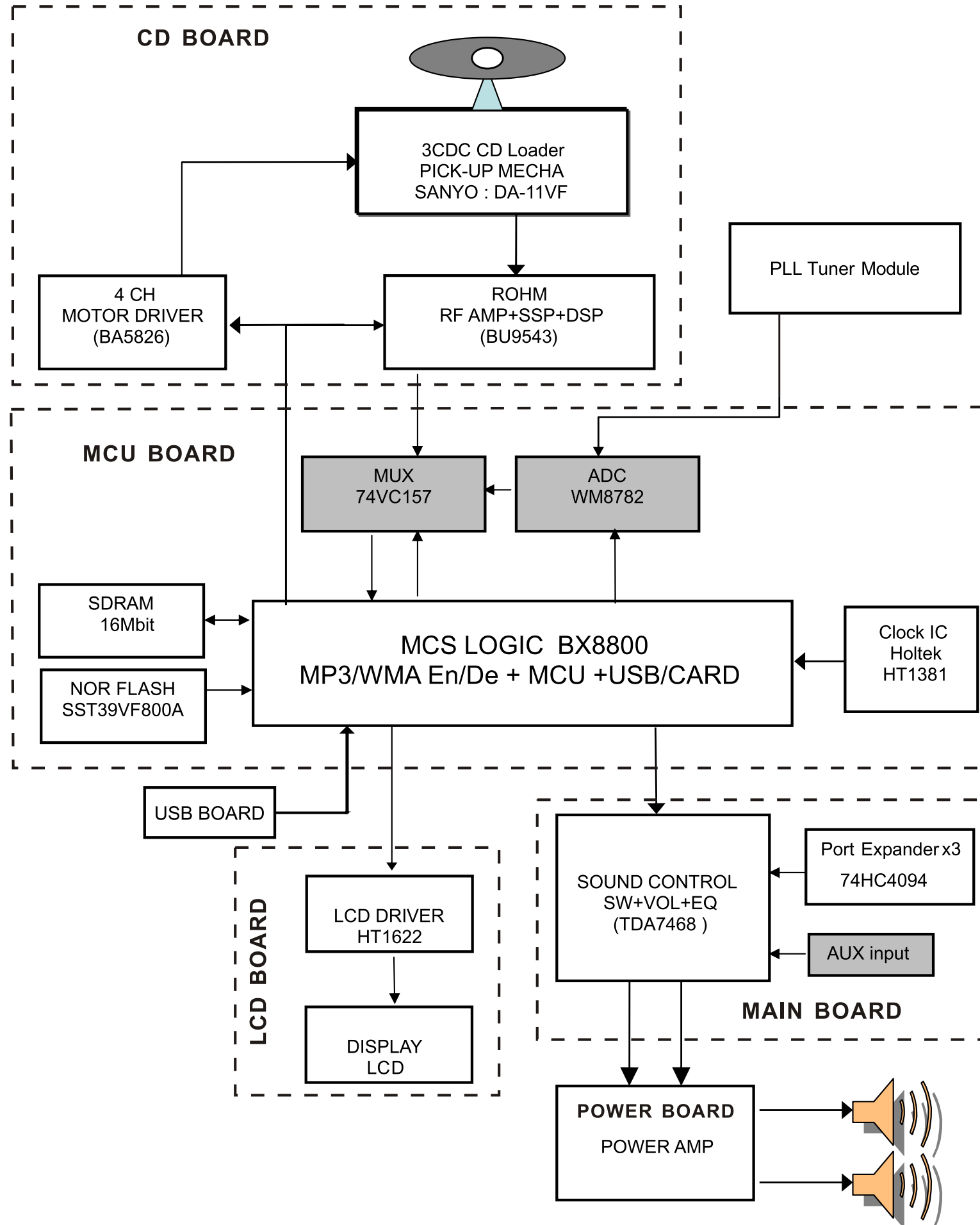
### Dismantling of the PCB Board

- 1) Remove 14 screws J as indicated to loosen the MCU Board.
- 2) Remove 11 screws K as indicated to loosen the Key Board.
- 3) Remove 2 screws L as indicated to loosen the USB Board.
- 4) Remove 3 screws M as indicated to loosen the Main Board.

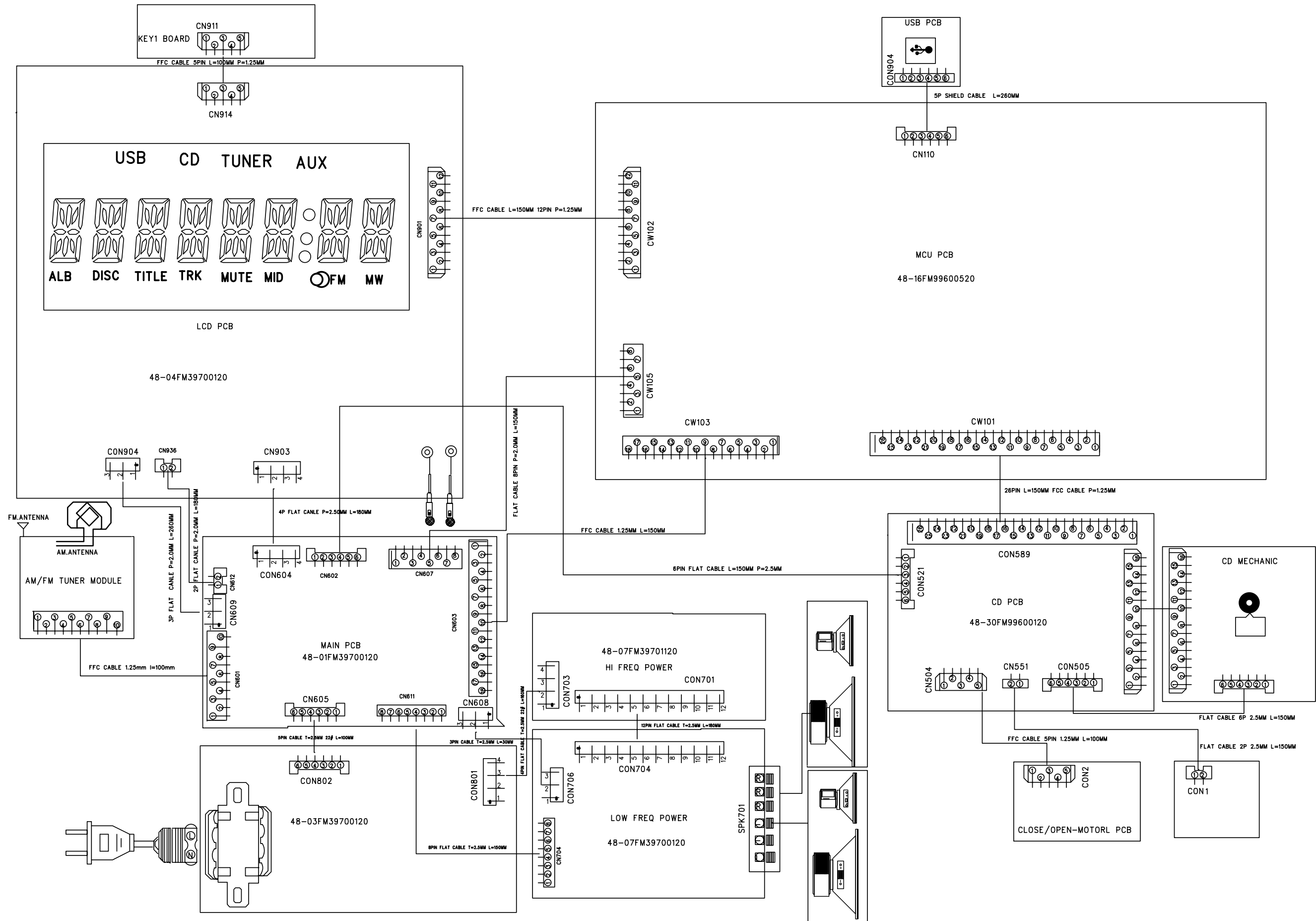




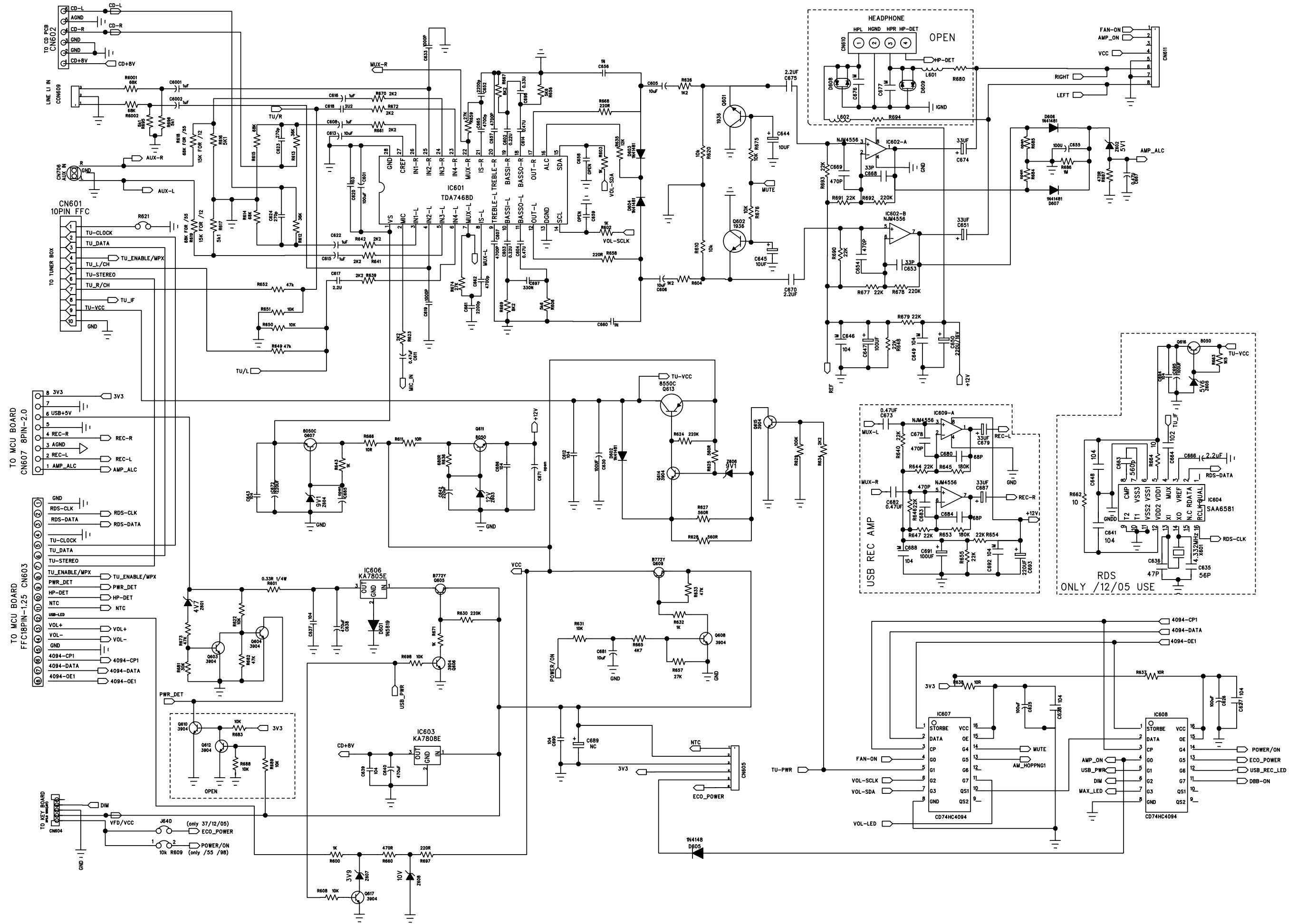
SET BLOCK DIAGRAM



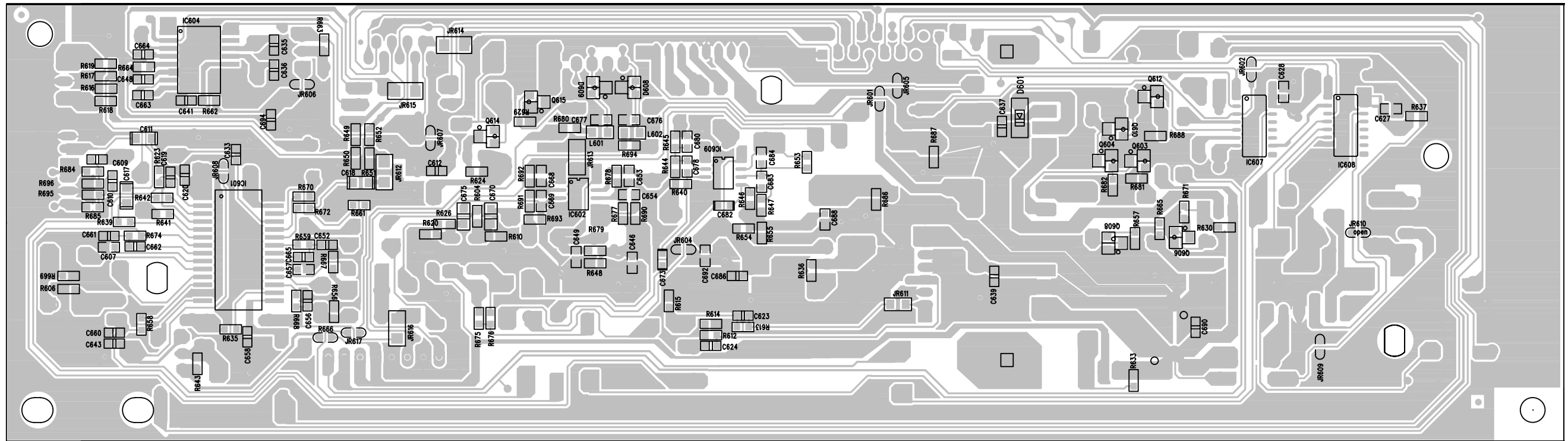
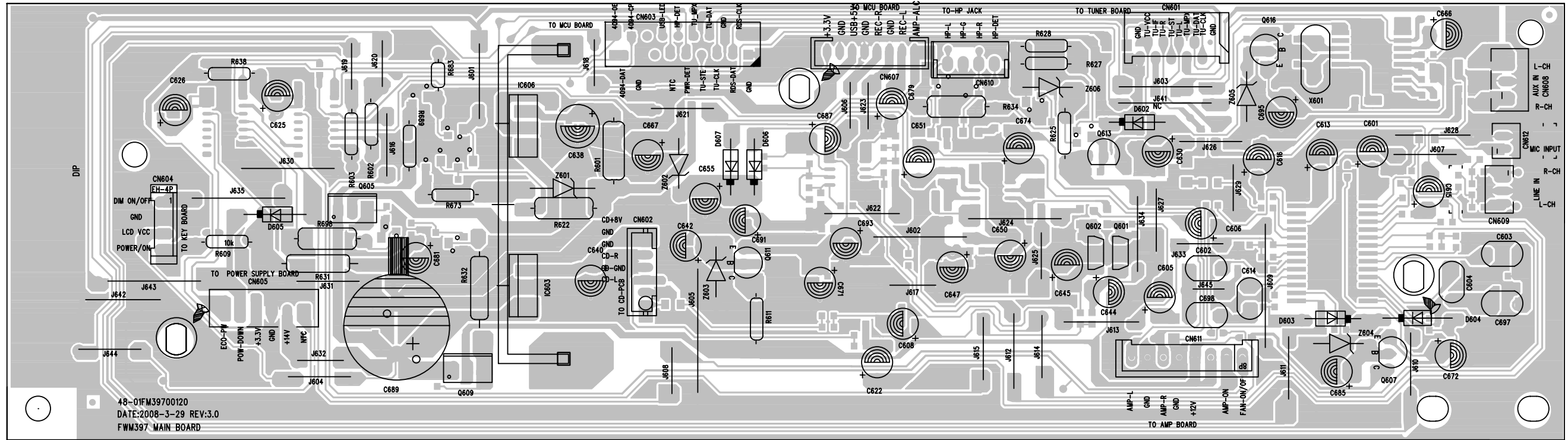
SET WIRING DIAGRAM



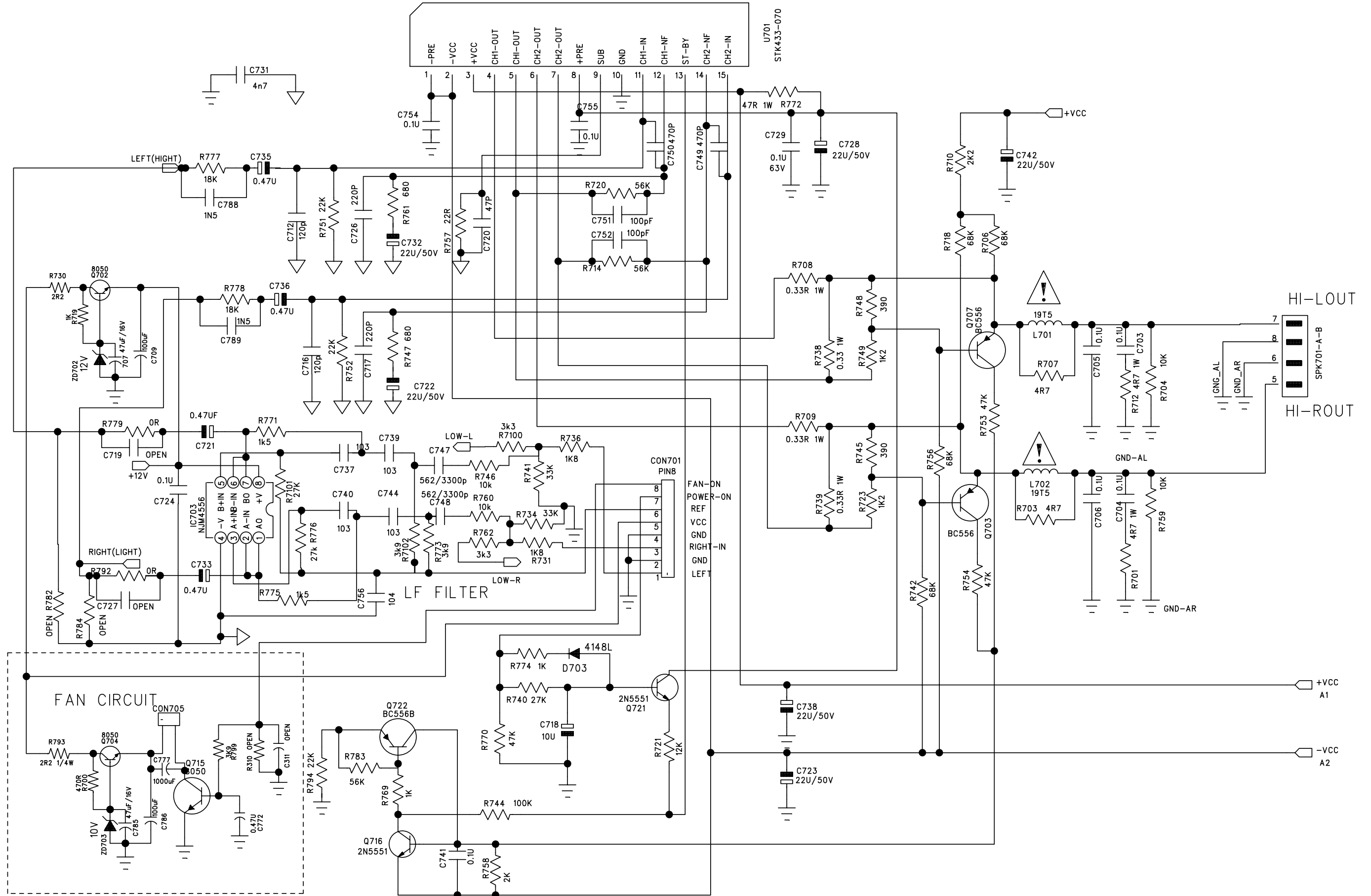
# CIRCUIT DIAGRAM - MAIN BOARD



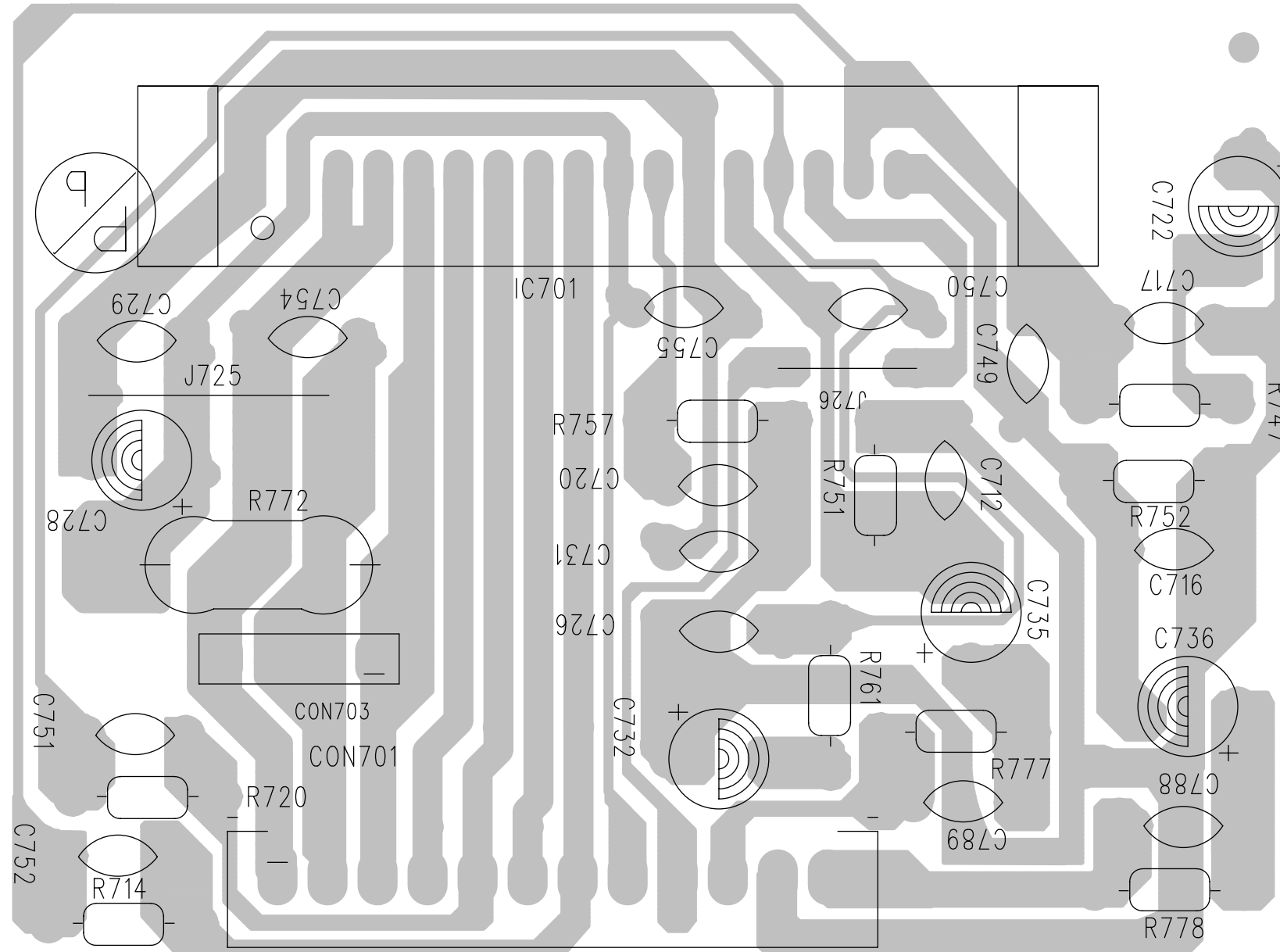
LAYOUT DIAGARM - MAIN BOARD



# CIRCUIT DIAGRAM - AMP BOARD Hi POWER PART

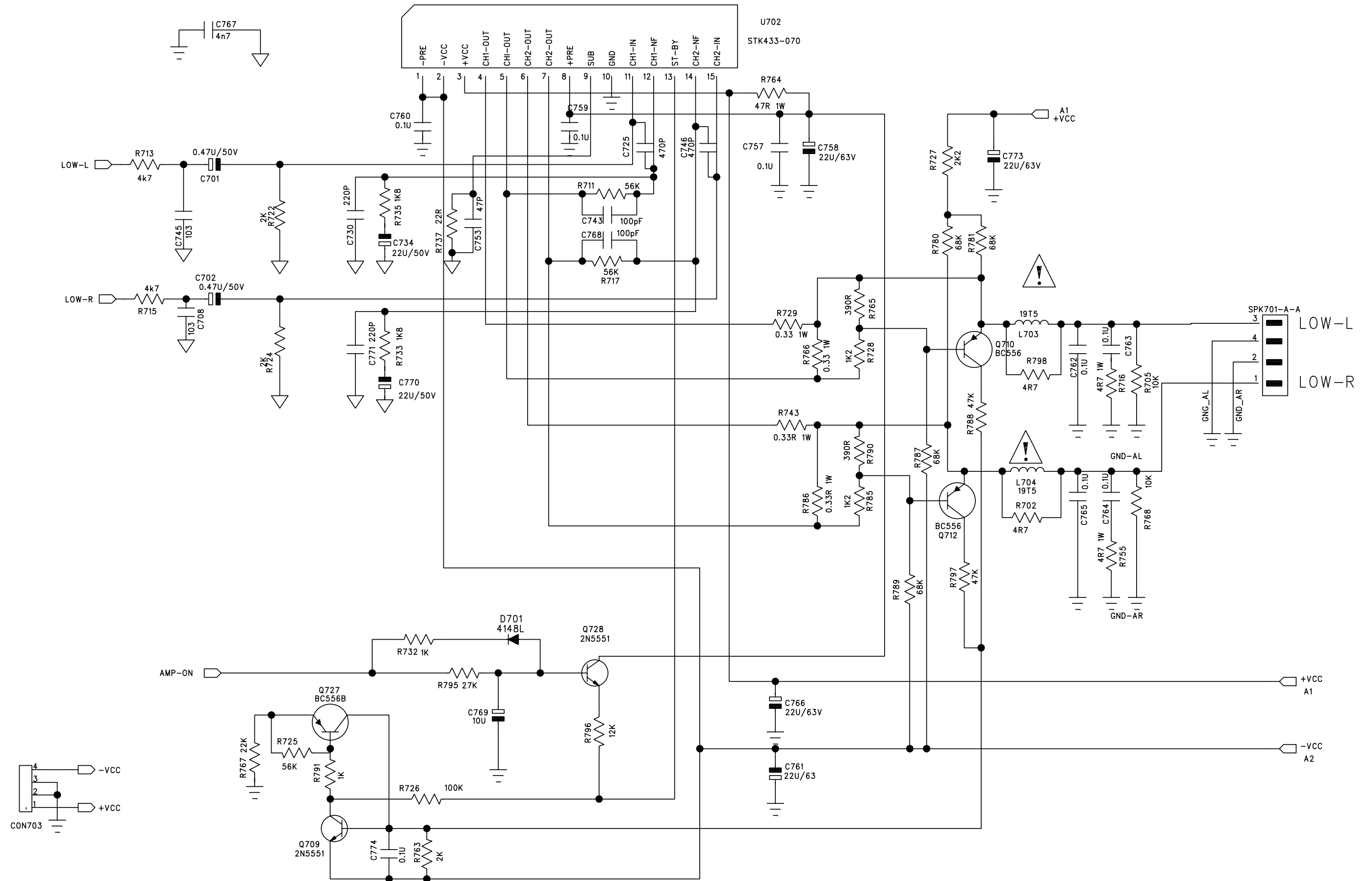


LAYOUT DIAGARM - AMP BOARD  
Hi POWER PART

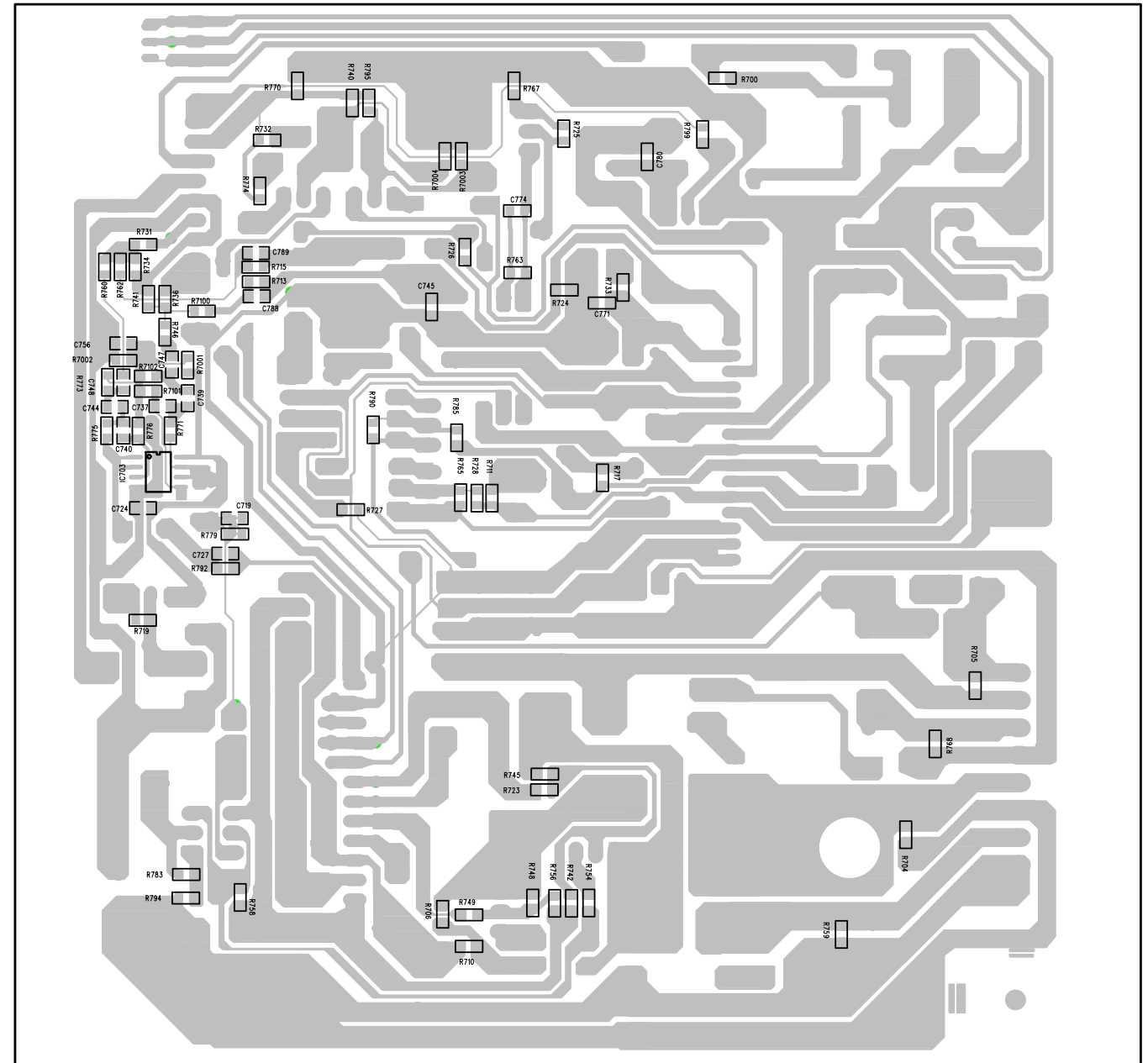
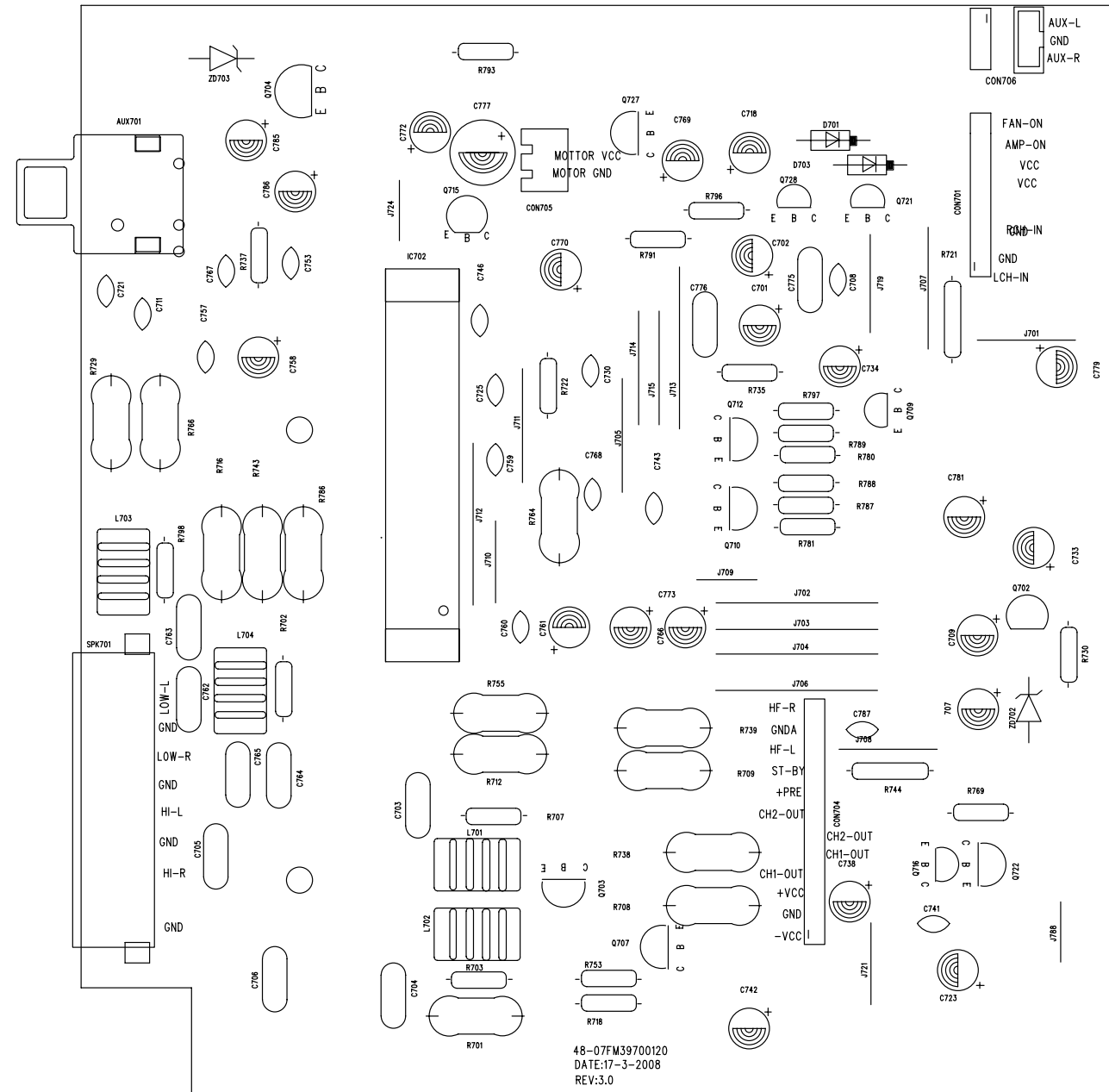




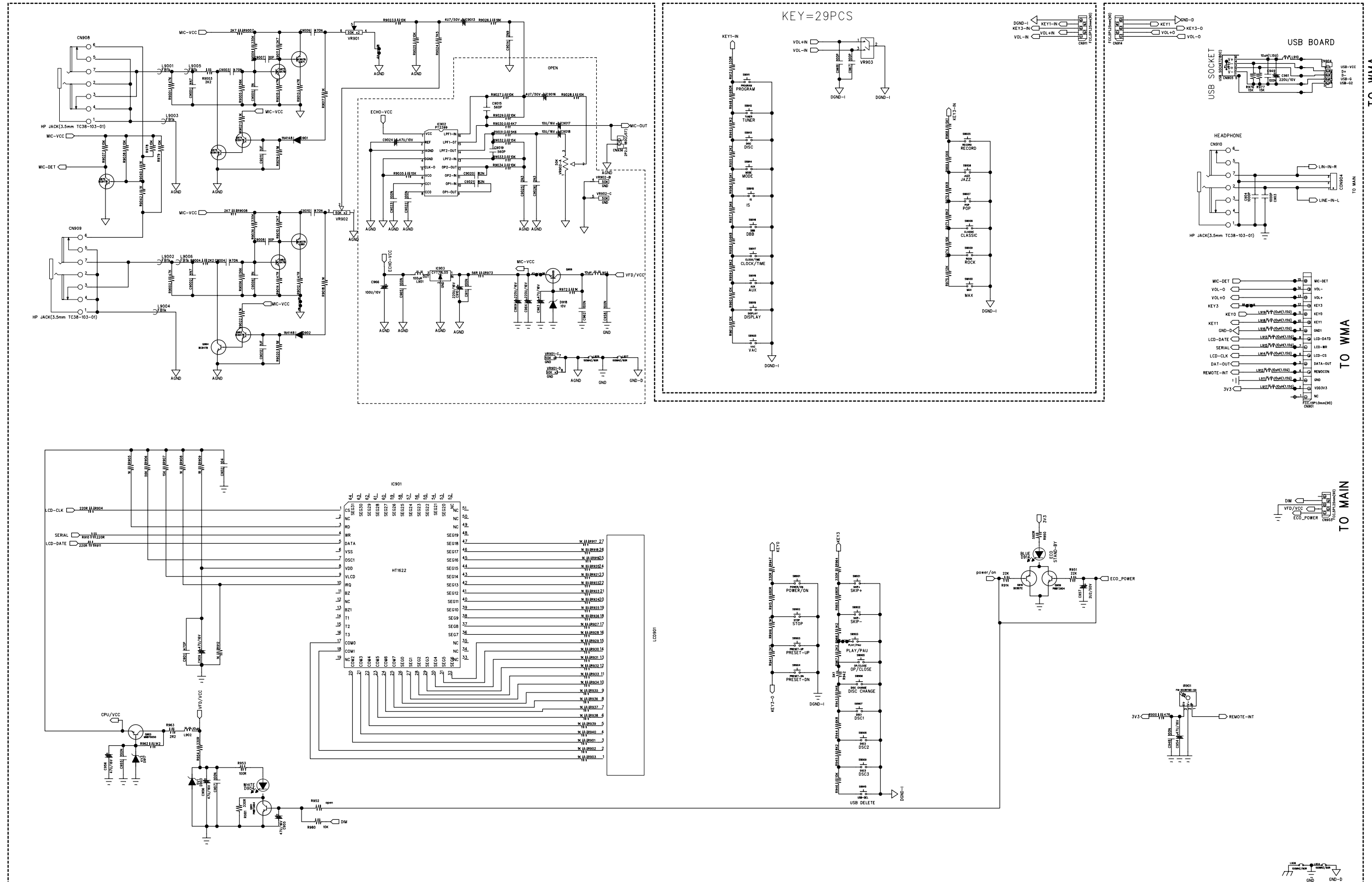
# CIRCUIT DIAGRAM - AMP BOARD LOW POWER PART



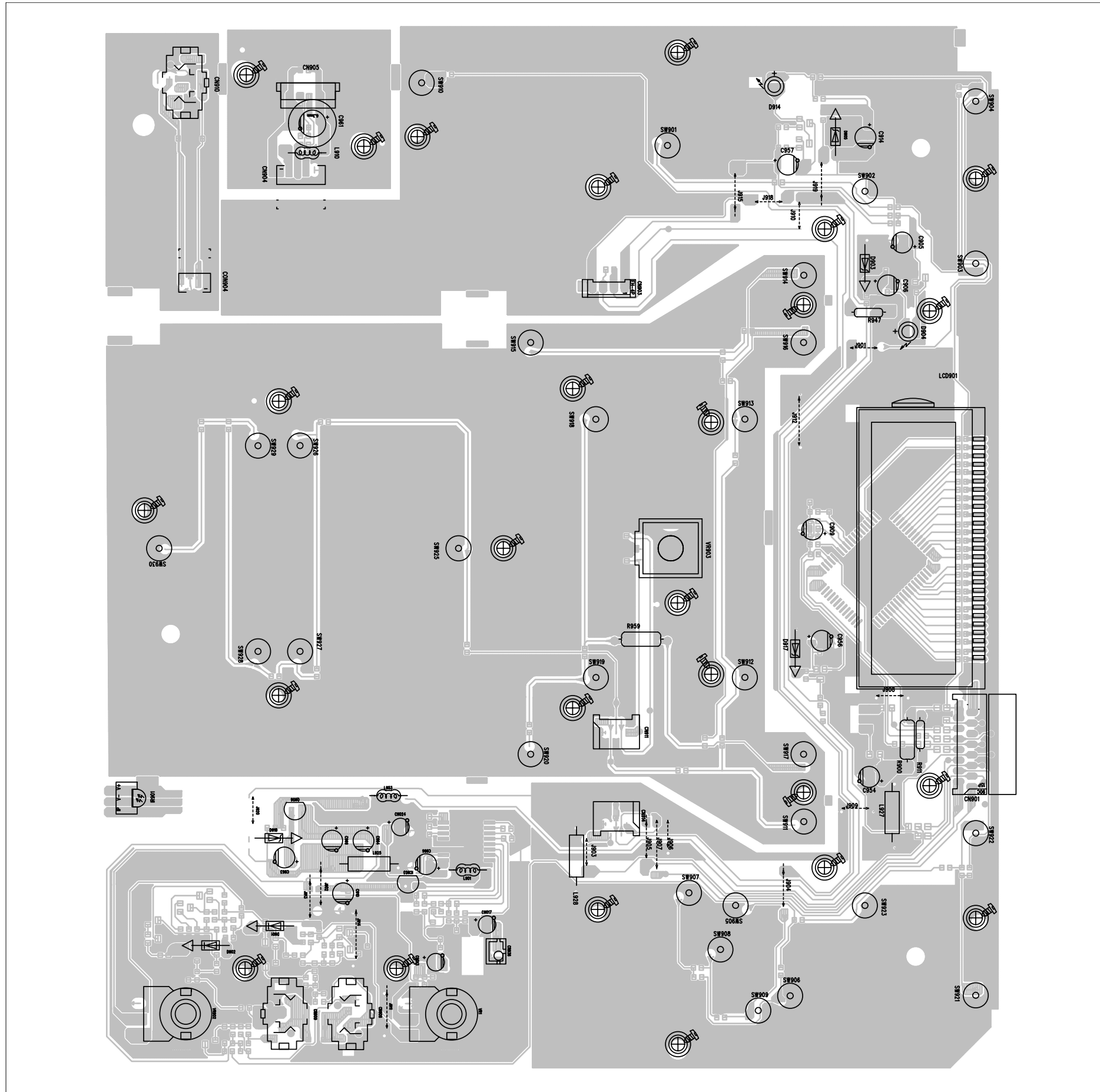
# LAYOUT DIAGARM - AMP BOARD LOW POWER PART



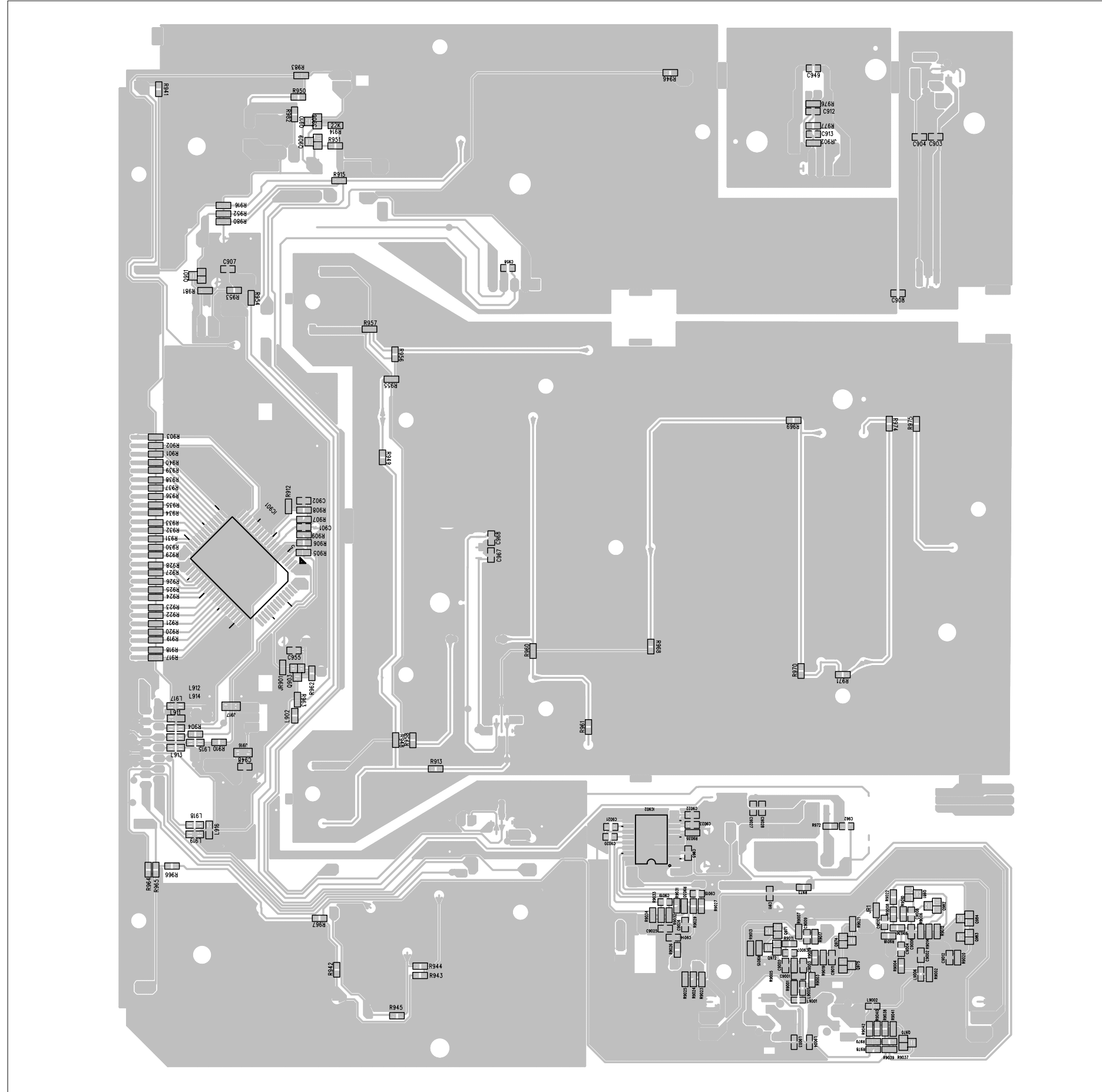
# CIRCUIT DIAGRAM - DISPLAY/KEY BOARD



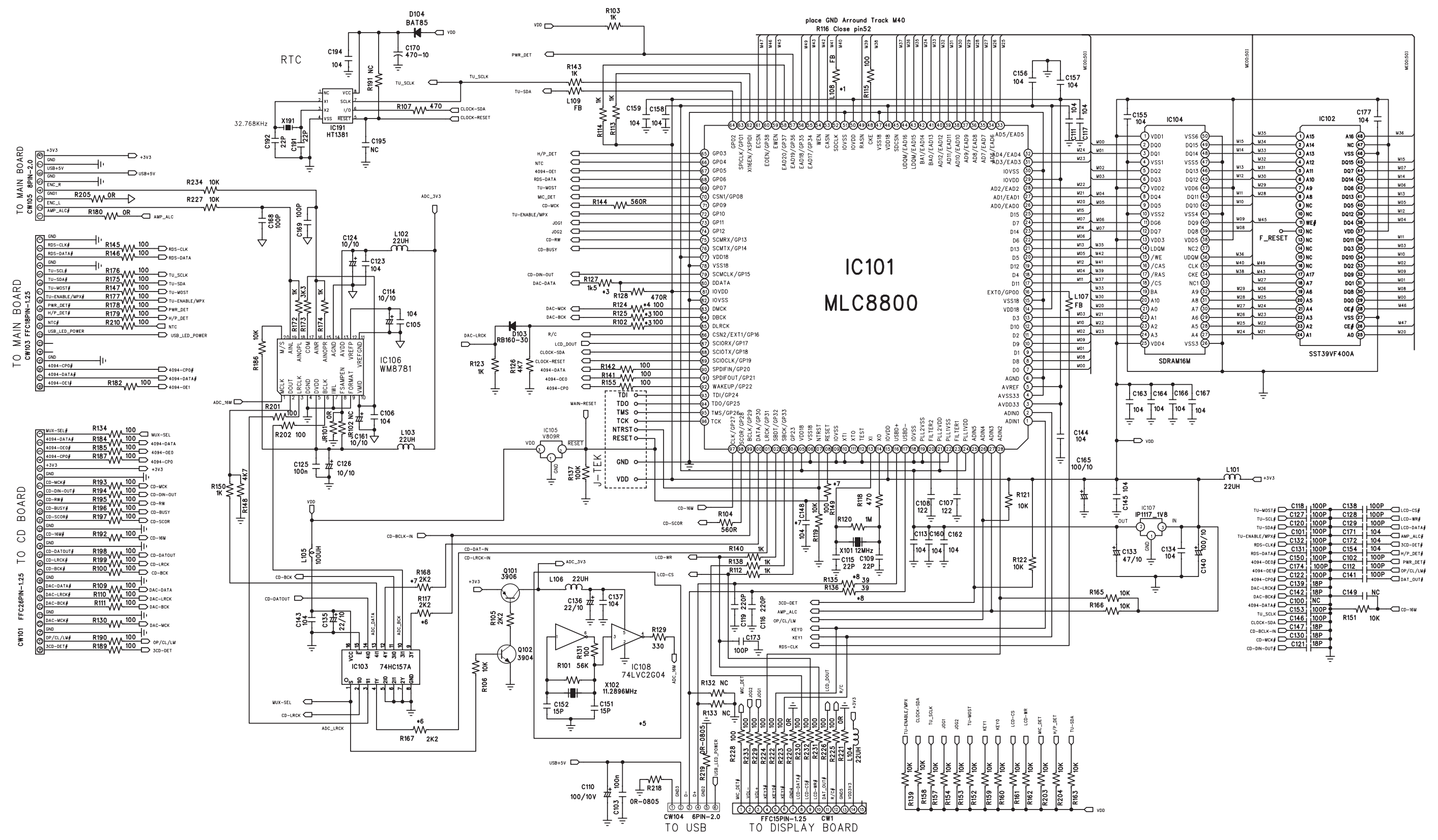
### LAYOUT DIAGARM - DISPLAY/KEY BOARD COMPONENT SIDE VIEW



LAYOUT DIAGARM - DISPLAY/KEY BOARD  
COPPER SIDE VIEW



# CIRCUIT DIAGRAM - MCU BOARD



TO MAIN BOARD  
CW105 8PIN-20

TO MAIN BOARD  
CW103 FFC15PIN-125

TO CD BOARD  
CW101 FFC28PIN-125

TO USB  
CW104 6PIN-20

TO DISPLAY BOARD  
FFC15PIN-125  
CW1

TO MAIN BOARD  
R139 10K  
R158 10K  
R157 10K  
R154 10K  
R153 10K  
R152 10K  
R159 10K  
R161 10K  
R162 10K  
R203 10K  
R204 10K  
R163 10K

TO MAIN BOARD  
C118 100P  
C127 100P  
C120 100P  
C101 100P  
C132 100P  
C131 100P  
C150 100P  
C174 100P  
C122 100P  
C139 18P  
C142 18P  
C100 100P  
C153 100P  
C146 100P  
C147 18P  
C130 18P  
C121 18P

## IC101 MLC8800

SDRAM16M

SST39VF400A

RTC

32.768KHz

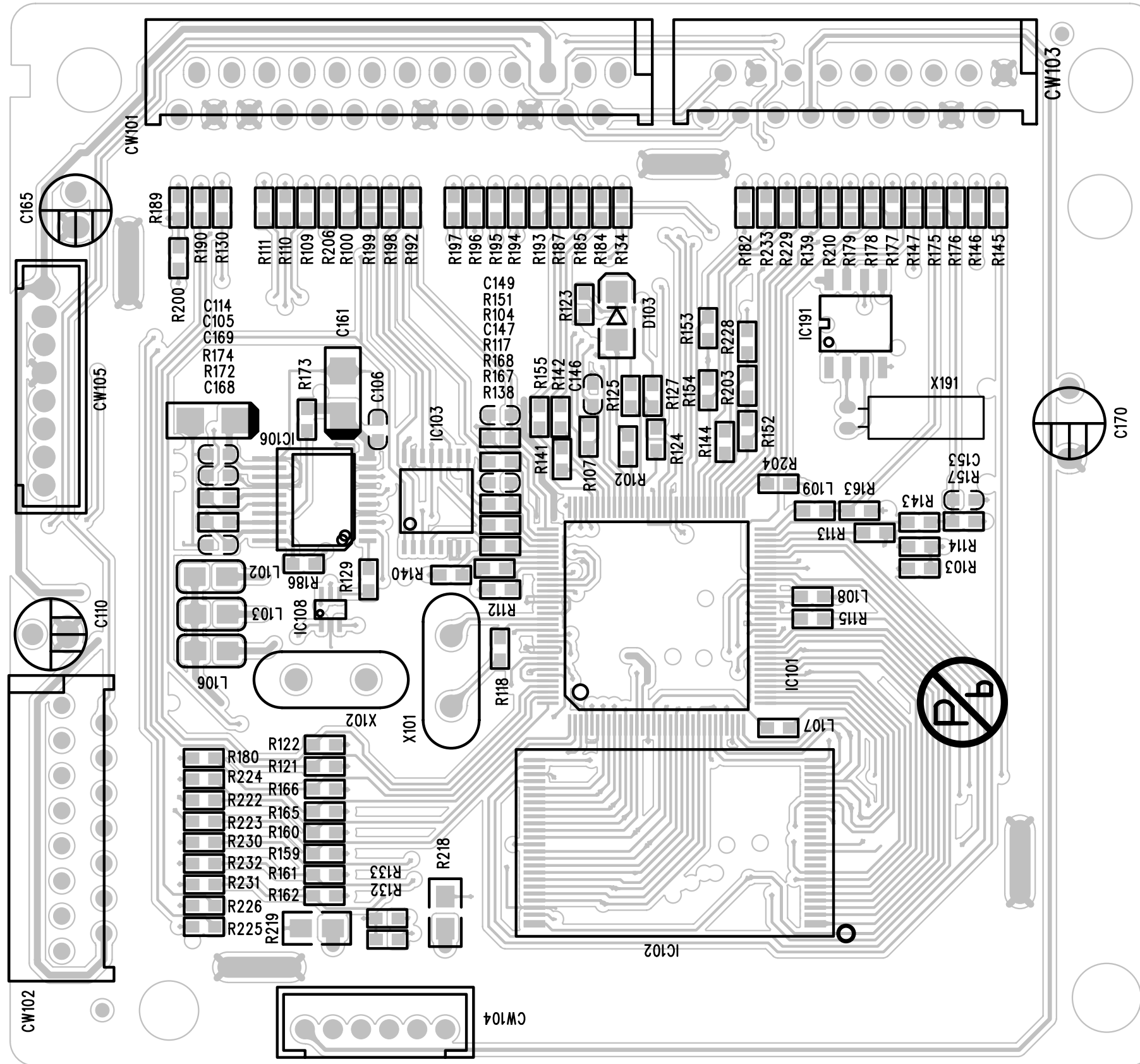
place GND Around Track M40  
R116 Close pin52

TO USB

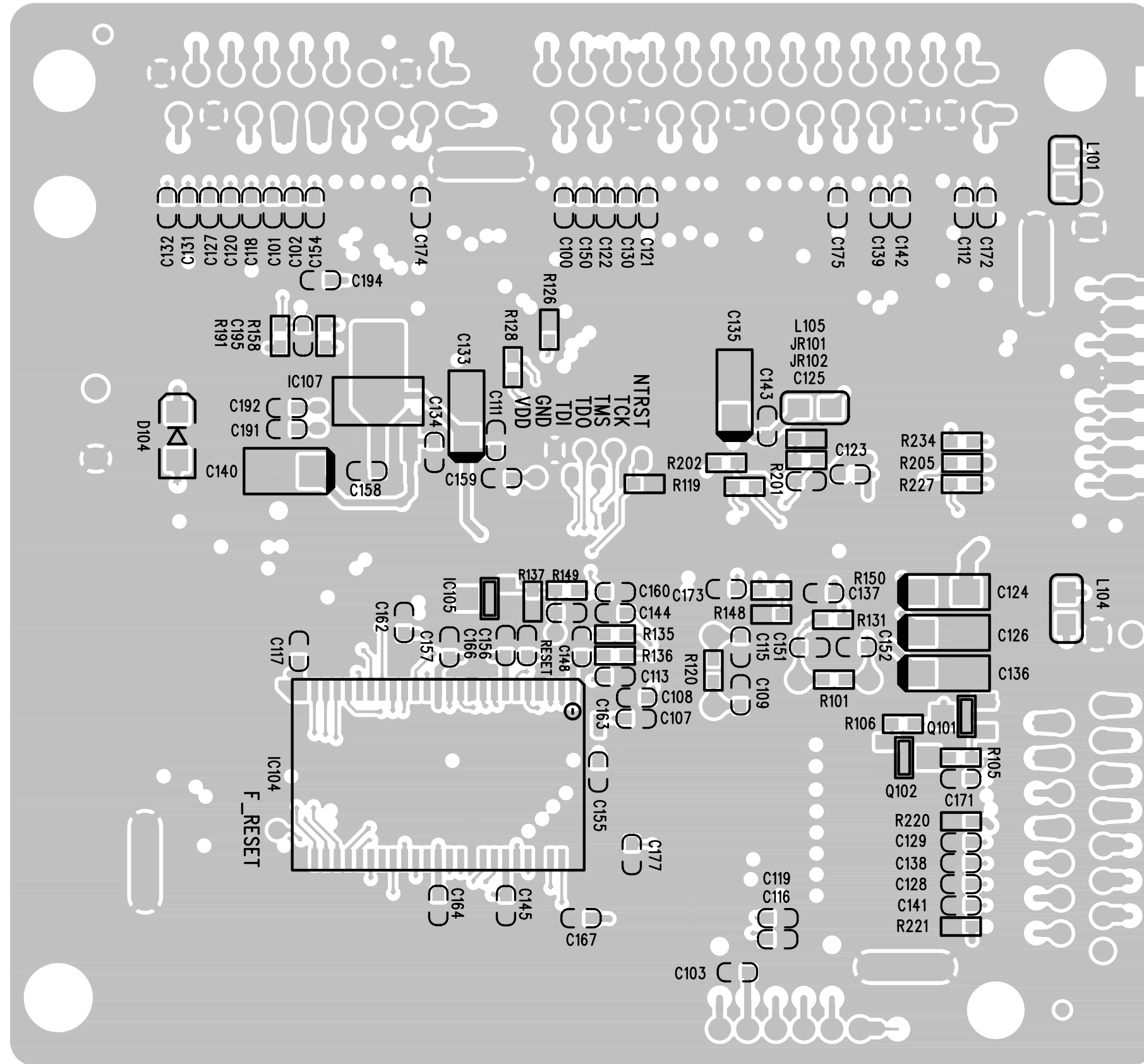
TO DISPLAY BOARD



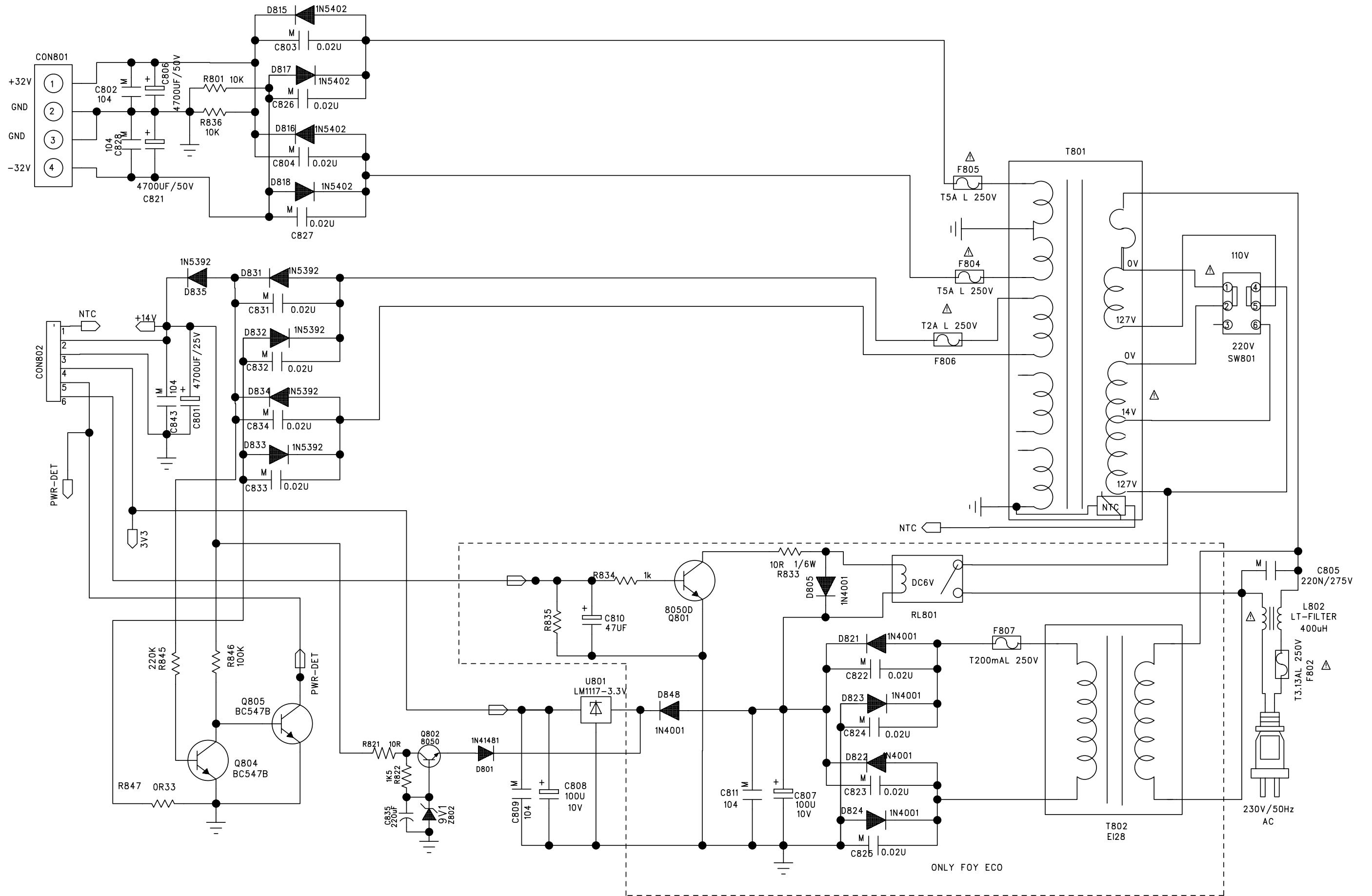
LAYOUT DIAGARM - MCU BOARD  
COMPONENT SIDE VIEW



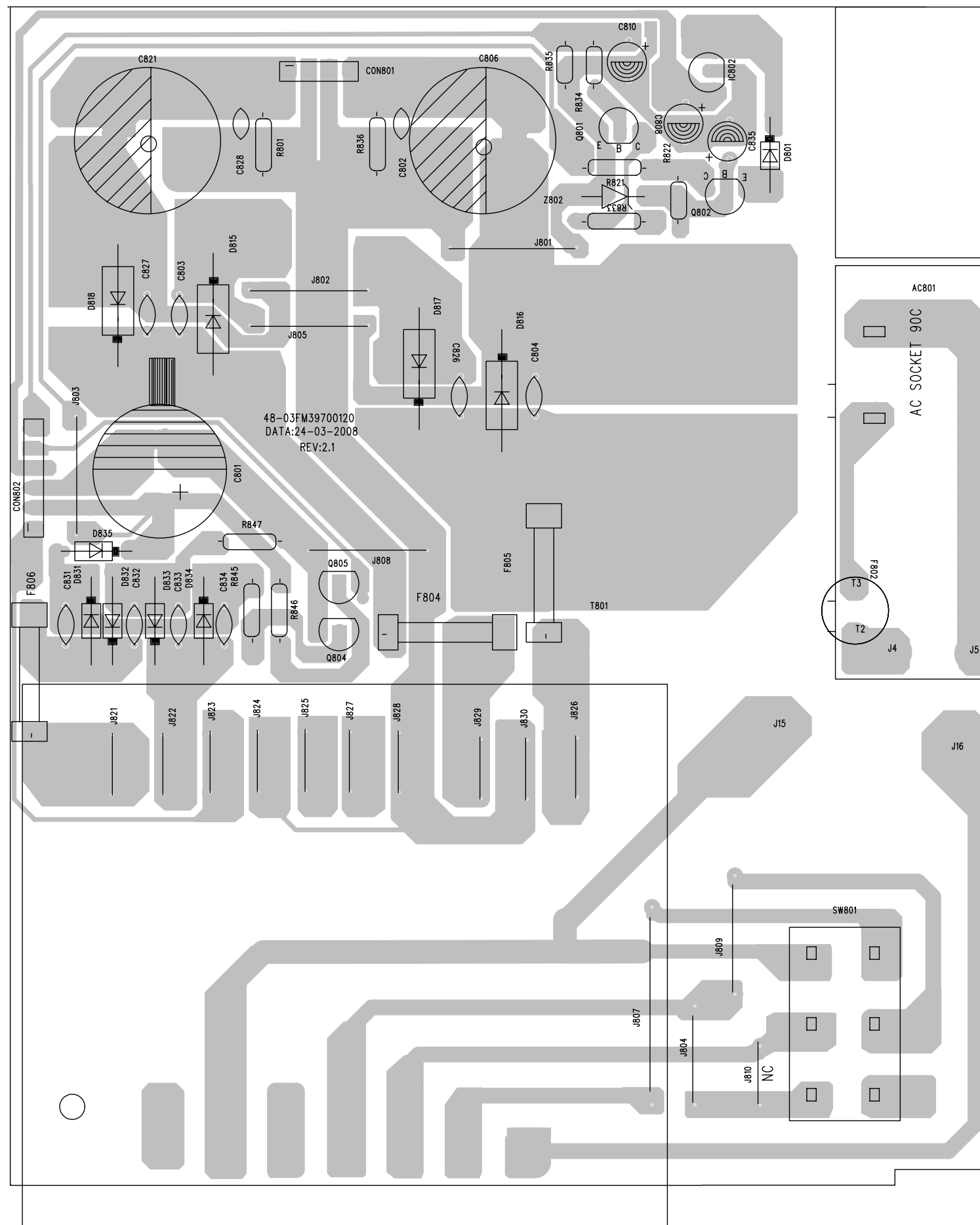
### LAYOUT DIAGARM - MCU BOARD COPPER SIDE VIEW



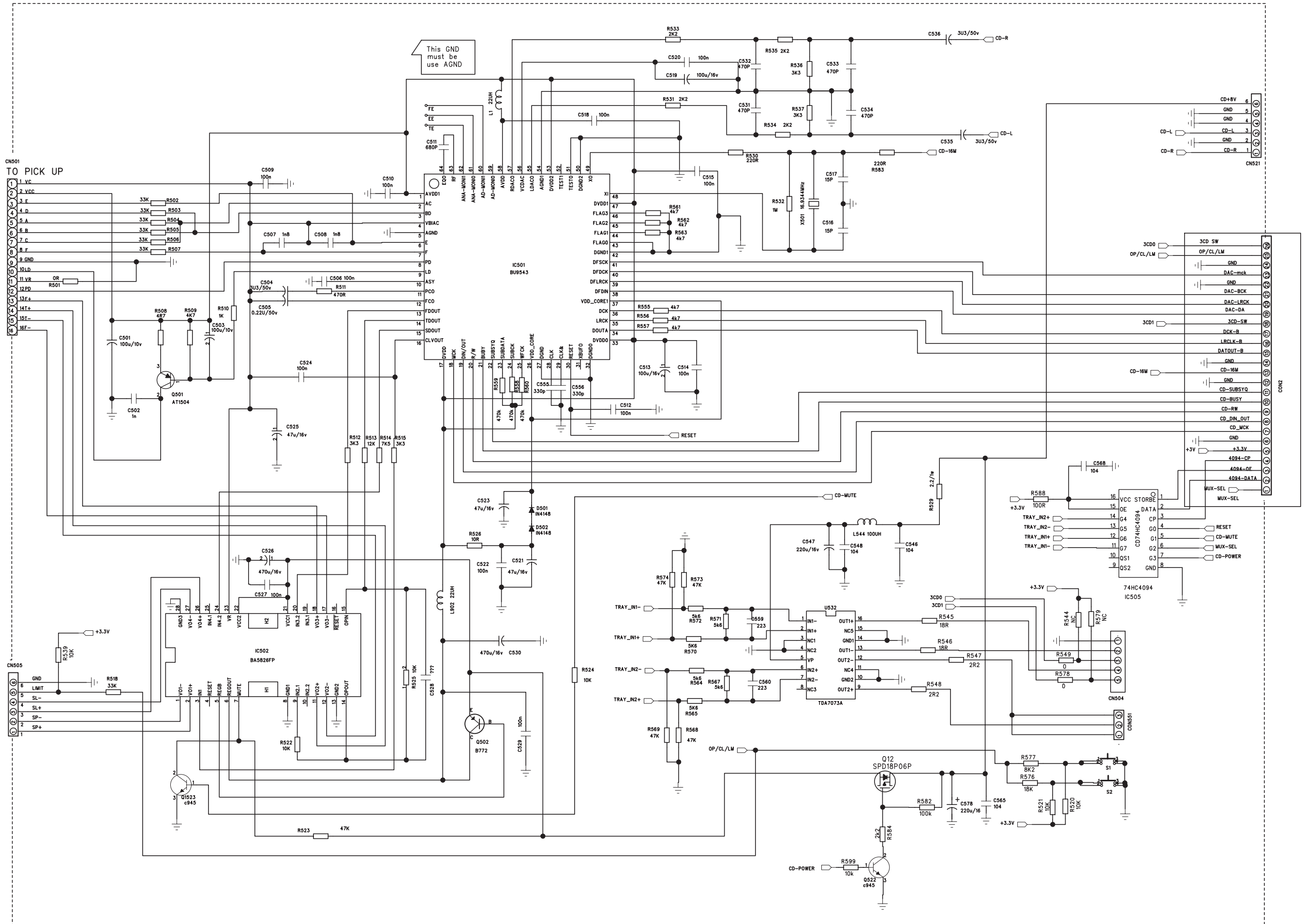
# CIRCUIT DIAGRAM - AC BOARD



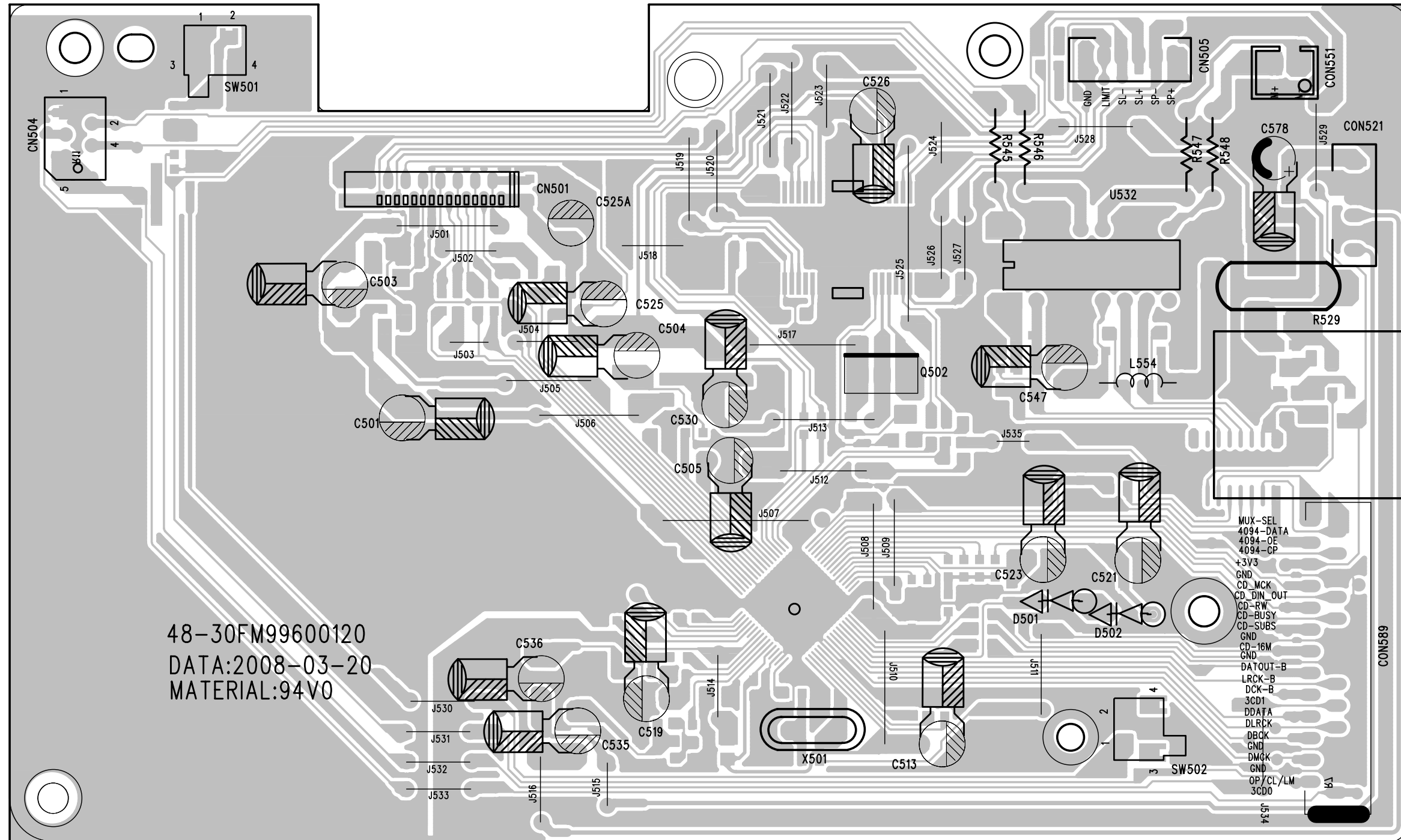
# LAYOUT DIAGRAM - AC BOARD



# CIRCUIT DIAGRAM - CD BOARD

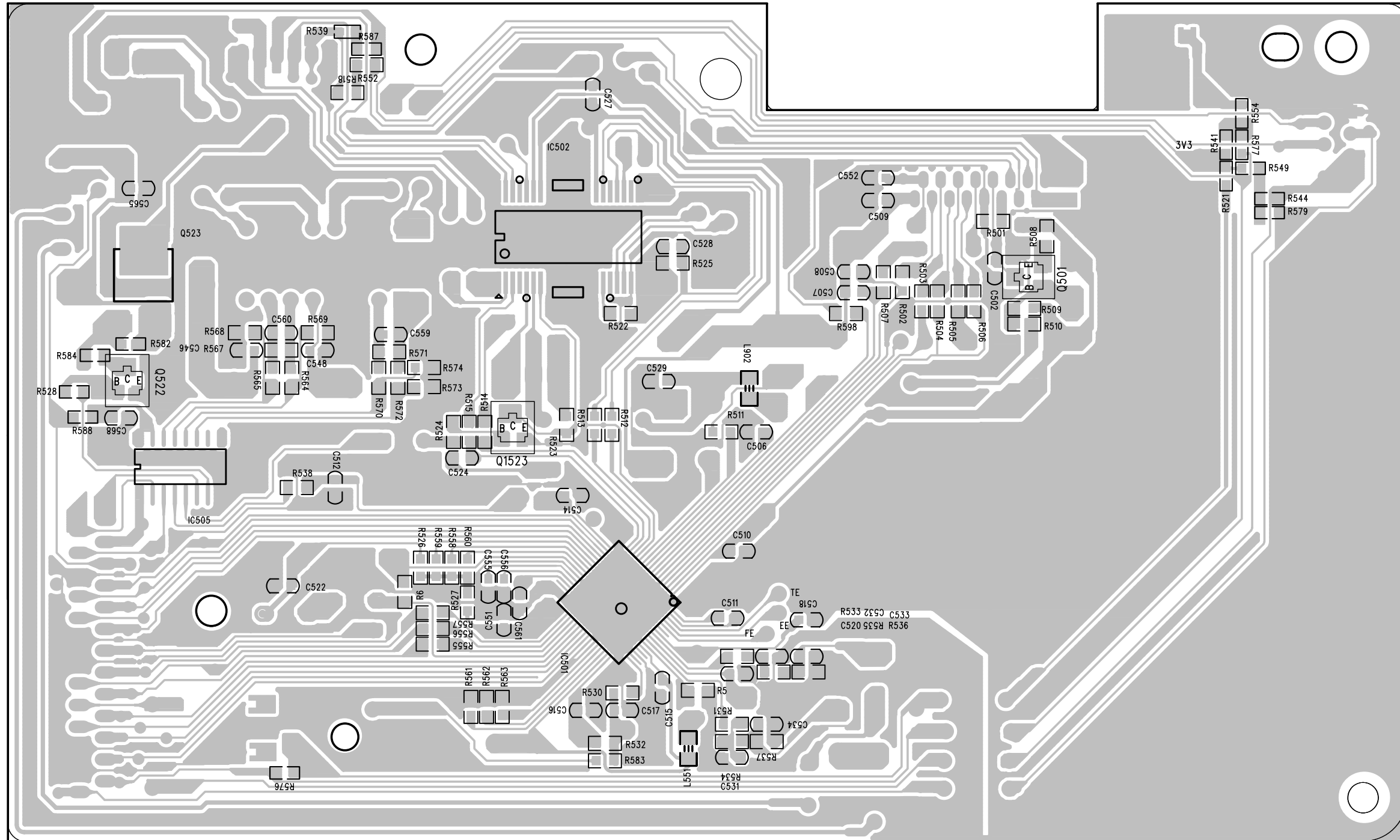


LAYOUT DIAGRAM - CD BOARD  
COMPONENT SIDE VIEW

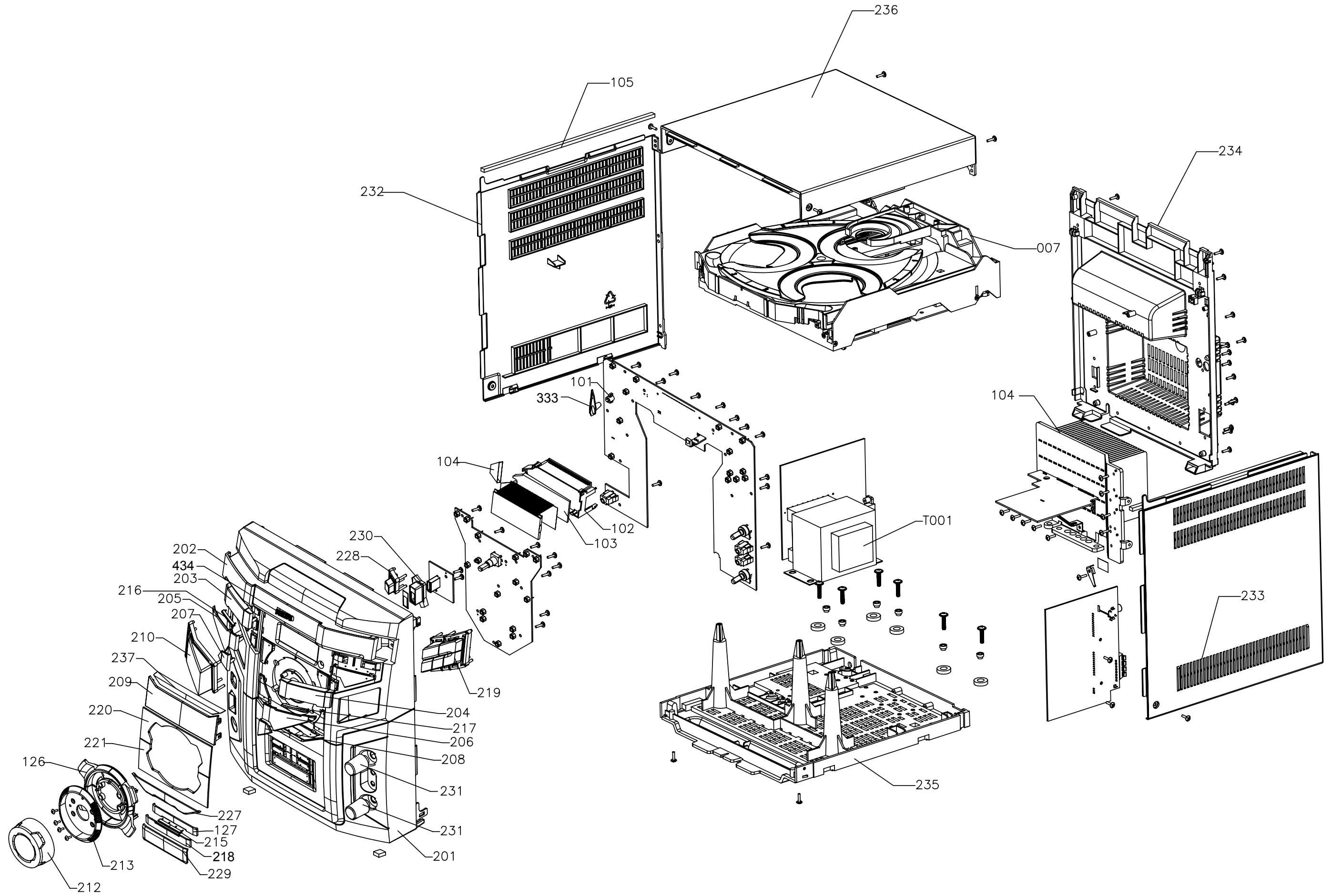




LAYOUT DIAGRAM - CD BOARD  
COPPER SIDE VIEW



EXPLODED VIEW DIAGRAM



**MECHANICAL PARTSLIST**

11	996510012567	FERRITE CORE 17.5x10.7x28.5mm
82	994000003669	CD MECHANISM (SANYO) DA11VF
101	996510014307	LED HOLDER
	996510014310	MAGNET 27x16x4mm 546g
102	996510014308	LCD BRACKET
103	996510014309	LCD LIGHT GUIDE
126	996510015498	CLUSTER BUTTON
201	996510015487	FRONT CABINET
202	996510015488	3CDC DOOR
203	996510015489	ALBUM BUTTON
204	996510015490	TITLE BUTTON
205	996510015491	STOP BUTTON
206	996510015492	PLAY BUTTON
207	996510015493	MODE BUTTON
208	996510015494	PROGRAM BUTTON
209	996510014362	DISPLAY LENS (PMMA)
210	996510015495	POWER BUTTON
212	996510014355	VOL KNOB
213	996510014369	VOL RING
215	996510015499	MIDDLE STRAP OF SOUND BUTTON
216	996510015500	MIDDLE STRAP L
127	996510015496	JAZZ-POP BUTTON
217	996510015501	MIDDLE STRAP R
218	996510015497	ROCK-CLASSIS BUTTON
219	996510015502	CD BUTTON
220	996510015503	COSMETIC COVER UP
221	996510015504	COSMETIC COVER DOWN
227	996510015652	USB REC BUTTON
228	996510015507	USB DELETE BUTTON
229	996510015653	MAX SOUND BUTTON
230	996510015509	USB RING
231	996510015510	MIC KNOB
232	994000001276	PANEL LEFT
233	994000001277	PANEL RIGHT
234	996510019319	REAR CABINET
235	996510009414	CHASSIS PLASTIC
236	994000001285	TOP COVER
237	996510015505	DISPLAY TOP BAR
333	996510014363	POWER LIGHT GUIDE
434	996510000439	PHILIPS LOGO
1111	996510018665	3CD MECHA PART DA11VF
J003	996510015651	15P FFC.1.25mm L=100mm
J005	996510015650	18P FFC.1.25mm L=190mm
J006	996510001328	10P FFC 1.25mm L160mm
T001	△ 996510014340	TRANSFORMER EI76
TUN	996510014874	TUNER MODULE MT000M

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

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

IC601	996510005250	IC TDA7468D
IC602	994000001201	IC NJM4556AM
IC603	994000000253	IC (SAMSUNG) KA7808
IC606	994000004549	IC KA7805E
IC607	994000001247	IC HEF4094BT
IC608	994000001247	IC HEF4094BT
IC609	994000001201	IC NJM4556AM
Q601	996510001308	TRANS. 2SD1936U
Q602	996510001308	TRANS. 2SD1936U
Q603	996510010292	SMD TRANSISTORS MMBT3904
Q604	996510010292	SMD TRANSISTORS MMBT3904
Q605	994000004145	TRANSISTORS B772Y (160-320)
Q606	996510010292	SMD TRANSISTORS MMBT3904
Q607	996500038609	TRANSISTORS 2W 8050C
Q608	996510010292	SMD TRANSISTORS MMBT3904
Q609	994000004145	TRANSISTORS B772Y (160-320)
Q611	996500038609	TRANSISTORS 2W 8050C
Q613	996500038610	TRANSISTORS 2W 8550C
Q614	996510010292	SMD TRANSISTORS MMBT3904
Q615	996510010292	SMD TRANSISTORS MMBT3904

**AMP BOARD ASSEMBLY**

L701	994000001217	AIR COIL 6X18.5T (0.5MM)
L702	994000001217	AIR COIL 6X18.5T (0.5MM)
L703	994000001217	AIR COIL 6X18.5T (0.5MM)
L704	994000001217	AIR COIL 6X18.5T (0.5MM)
IC702	996510001314	IC (SANYO) STK433-070
IC703	994000001201	IC NJM4556AM
Q702	996500038609	TRANSISTORS 2W 8050C
Q703	996510014338	TRANSISTOR BC556B
Q704	996500038609	TRANSISTORS 2W 8050C
Q707	996510014338	TRANSISTOR BC556B
Q709	996500041825	TRANSISTORS 2N5551
Q710	996510014338	TRANSISTOR BC556B
Q712	996510014338	TRANSISTOR BC556B
Q715	996500038609	TRANSISTORS 2W 8050C
Q716	996500041825	TRANSISTORS 2N5551
Q721	996500041825	TRANSISTORS 2N5551
Q722	996510014338	TRANSISTOR BC556B
Q727	996510014338	TRANSISTOR BC556B
Q728	996500041825	TRANSISTORS 2N5551
SPK701	996510001315	SPK JACK (R/R/BUE/BUE/BLKx4)
AUX701	994000001221	V/RCA JACK 2P

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

**ELECTRICAL PARTSLIST****DISPLAY/KEY BOARD ASSEMBLY**

D904	996500042438	LED LAMP 2x5x7mm (WHITE)
D914	996510005256	LED LAMP 4mm (WHITE)
IC901	996510002124	IC (HOLTEK) HT1622
IC902	996510003985	IC ECHO PROCESSOR PT2399S
IC903	996510003984	IC CYT78L05 (TO-92)
Q901	996510010292	SMD TRANSISTORS MMBT3904
Q903	996510008369	TRANSISTORS MMBT8050D (SOT23)
Q906	996500039345	TRANSISTORS 2W 8050D
Q910	994000003937	SMD TRANSISTORS PMBT3906
Q970	996510000337	SMD TRANSISTORS BC847B
Q971	996510006601	SMD TRANSIST BC857B
Q972	996510000337	SMD TRANSISTORS BC847B
Q974	996510000337	SMD TRANSISTORS BC847B
Q975	996510000337	SMD TRANSISTORS BC847B
Q981	996510006601	SMD TRANSIST BC857B
Q982	996510000337	SMD TRANSISTORS BC847B
Q983	996510000337	SMD TRANSISTORS BC847B
Q984	996510000337	SMD TRANSISTORS BC847B
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
IR901	994000000325	OPTIC SENSER (OPTO..)
J005	996510015476	5P FFC.1.25mm L=50mm
LCD901	996510014305	LCD DISPLAY

**ELECTRICAL PARTSLIST****DISPLAY/KEY 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
VR901	996510006586	ROTARY VOLUME F-122KGP B50K L
VR902	996510003986	ROTARY VOLUME
VR903	994000001241	ROTARY ENCODER
IC701	996510001314	IC (SANYO) STK433-070

**CD BOARD ASSEMBLY**

IC501	996510009311	IC BU9543KV (SMD)
IC502	996510009310	IC BA5826FP
IC505	994000001247	IC HEF4094BT
J001	996510015477	26P FFC.1.25mm L=80mm
Q1523	996510000317	SMD TRANSISTORS BC817-25
Q501	996510000315	SMD TRANSISTORS BC807-25
Q502	994000001193	TRANSISTORS KSB772YS
Q522	996510000317	SMD TRANSISTORS BC817-25
Q523	996510000992	TRANSISTORS SPD18P06P
SW501	994000004552	DETECT SWITCH
SW502	994000004552	DETECT SWITCH
SW503	994000004552	DETECT SWITCH
SW504	994000004552	DETECT SWITCH
U532	996510035364	IC TDA7073A (SOT16) (-/55/BK)
X501	994000004551	CRYSTAL 16.9344MHZ +-20PPM

**MCU BOARD ASSEMBLY**

IC101	996510015478	IC BX8800
IC102	996510009337	IC SST39VF800A-70 8M 3.3V TSOP
IC103	996510001318	IC 74LVC157APW
IC104	996510003990	IC SDRAM M12L16161A-7T
IC105	996510003993	IC V809R
IC106	996510015480	IC WM8782SEDS
IC107	996510009335	IC LM1117S-1.8V SOT-223
IC108	996510015479	IC 74LVC2G04GW
IC191	996510015481	IC HT1381
Q101	994000003937	SMD TRANSISTORS PMBT3906
Q102	996510010292	SMD TRANSISTORS MMBT3904
X101	996510008326	CRYSTAL 12 MHzHC-49/US H=3.5mm
X102	996510015482	CRYSTAL 11.2896MHz
X191	994000004615	CRYSTAL 32.768KHZ 12.5PF
8001	994000004487	16P FFC 1MM L=170MM
8002	996510001327	23P FFC 1.25mm L80mm
8003	994000004457	5P FFC L=200MM(AA)

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



## ELECTRICAL PARTSLIST

### AC BOARD ASSEMBLY

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
Q802		996500038609	TRANSISTORS 2W 8050C
Q804		996510006590	TRANSISTOR BC547B TAPING
Q805		996510006590	TRANSISTOR BC547B TAPING
SW801		994000001323	SWITCH

### ACCESSORIES

J001		994000001478	AC PLUG ADAPTOR
1007		996510003974	REMOTE CONTROL
10		994000001192	AM LOOP ANTENNA LAN-031
J010	△	996500037714	AC CORD SET VDE/BRAZIL APP 1.8 (only for -/55/78/BK)
J010	△	994000001706	AC CORD SET IRAM APP 6FT(only for -/77)
J011		994000001381	FM ANT (BLACK) 1M
J012		996510002103	CONN. CORD 3.5 ST/PLUGx2 500mm
SPK		996510015649	SPK BOX(Single) (only for -/55/77)
SPK		996510015484	SPK BOX(Single) (only for -/78/BK)

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

## REVISION LIST

**Version 1.0 (3141 785 32660)**

\* Initial Release

**Version 1.1 (3141 785 32661)**

\* P12-3 is revised.Changed U532 for /55/BK (2010/4/1).