

# Service Service Service



# Service Manual



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**CLASS 1  
LASER PRODUCT**

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Published by LX 1003 Service Audio Subject to modification

3141 785 34202

**Version 1.2**



# PHILIPS

Total output power	2 x 5 W RMS
Frequency response	125 Hz - 16 kHz, $\pm$ 3 dB
Signal to noise ratio	> 60 dB
MP3 link input	0.5 V RMS 20 k $\Omega$

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

Tuning range	FM: 87.5 - 108 MHz
Tuning grid	50 KHz
Number of presets	20

Speaker driver	4" woofer
Speaker impedance	5 W, 3 $\Omega$

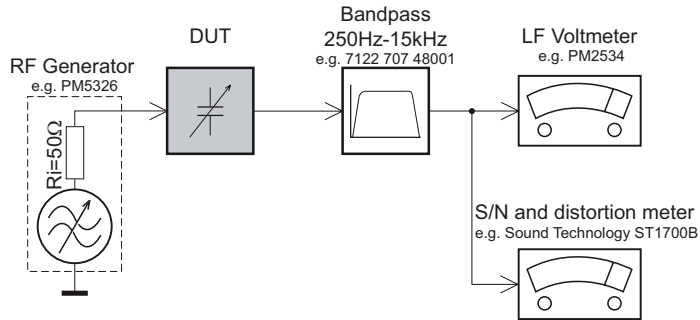
AC power	230-240 V~, 50 Hz
Operation Power Consumption	25 W
Standby Power Consumption	< 2 W
Eco Power Standby Power Consumption	< 1 W
USB Direct	Version 2.0/1.1
Dimensions - Main Unit (W x H x D)	542 x 238 x 102 mm
Weight - Main Unit	3.935 kg

Type /Versions:		DCM 276									
Board in used:	Service policy	/05	/12		/55	/58	/61			/93	/98
DISPLAY BOARD		C			C						
MAIN BOARD		C			C&M						
POWER BOARD		C			C&M						
KEY BOARD		C			C						
MCU BOARD		C			C&M						
IPOD JACK BOARD		C			C						
SW BOARD		C	C								
Type /Versions:		DCM 276									
Features	Feature difference	/05	/12		/55	/58	/61			/93	/98
RDS		√									
VOLTAGE SELECTOR											
ECO STANDBY - DARK		√									

\* TIPS : C -- Component Lever Repair.  
M -- Module Lever Repair  
√ -- Used

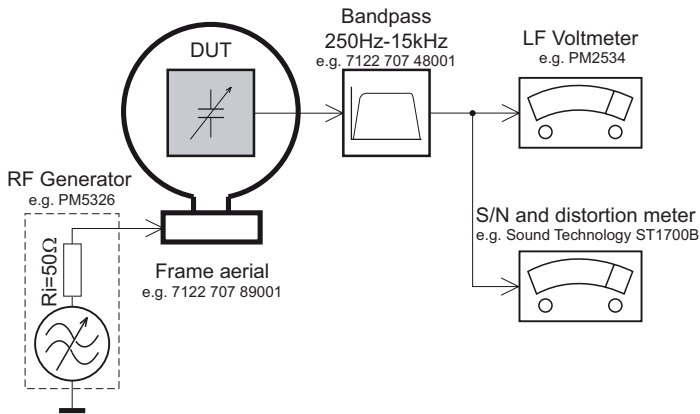
## MEASUREMENT SETUP

### Tuner FM



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

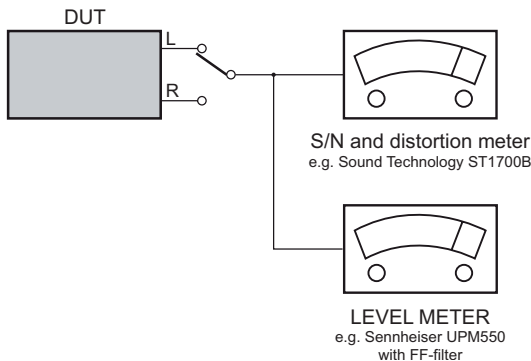
### Tuner AM (MW,LW)



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).

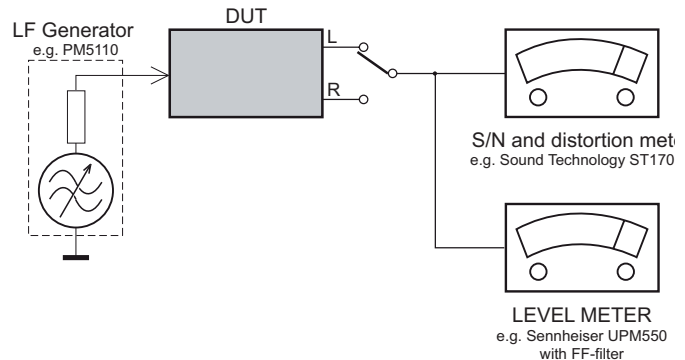
### CD

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".

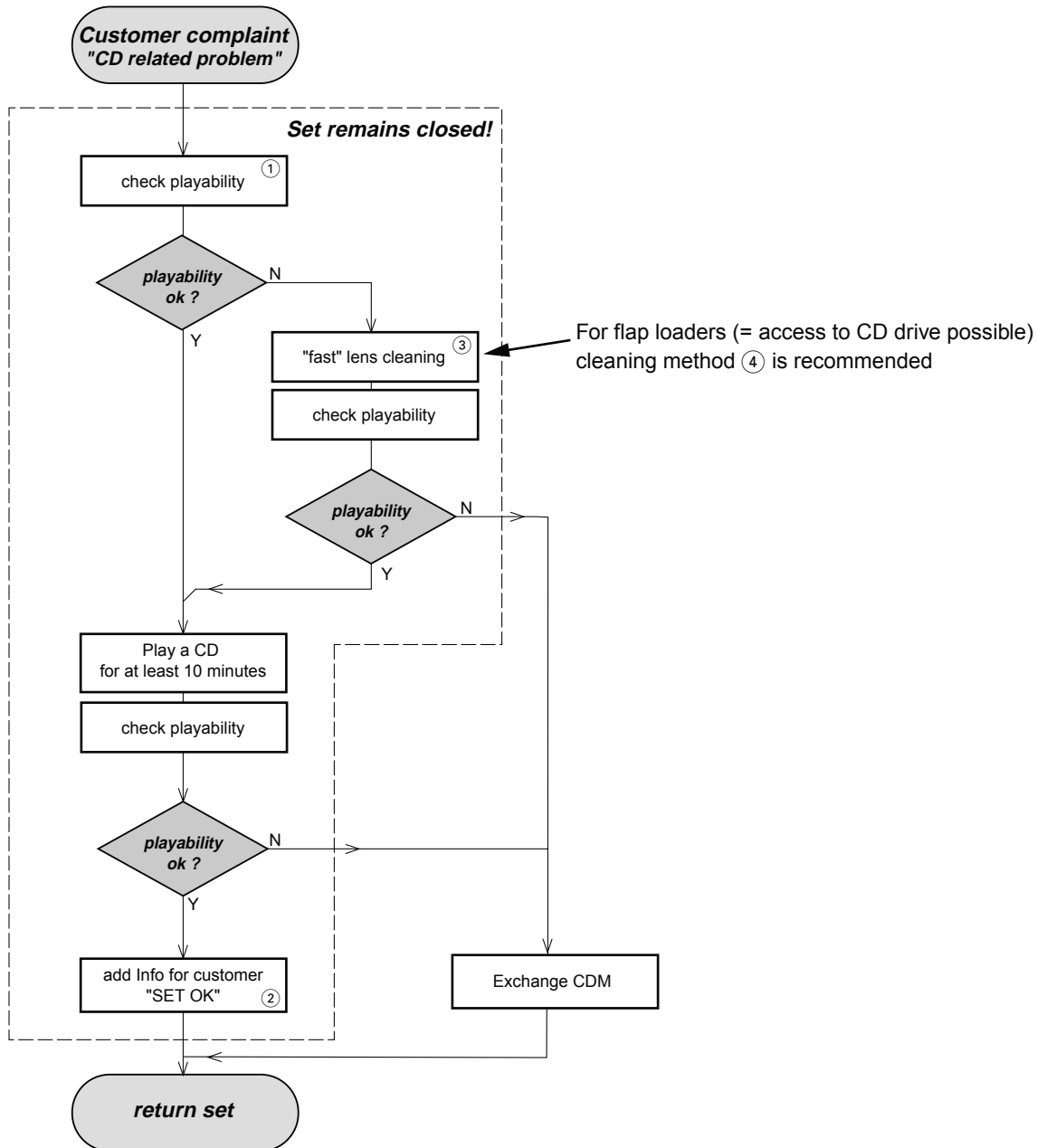
For additional questions please contact your local repair-helpdesk.

## 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



## 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

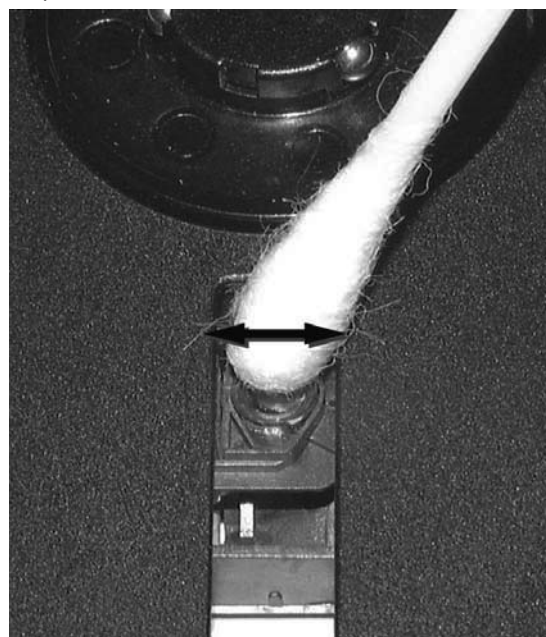
### LIQUID LENS CLEANING

**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

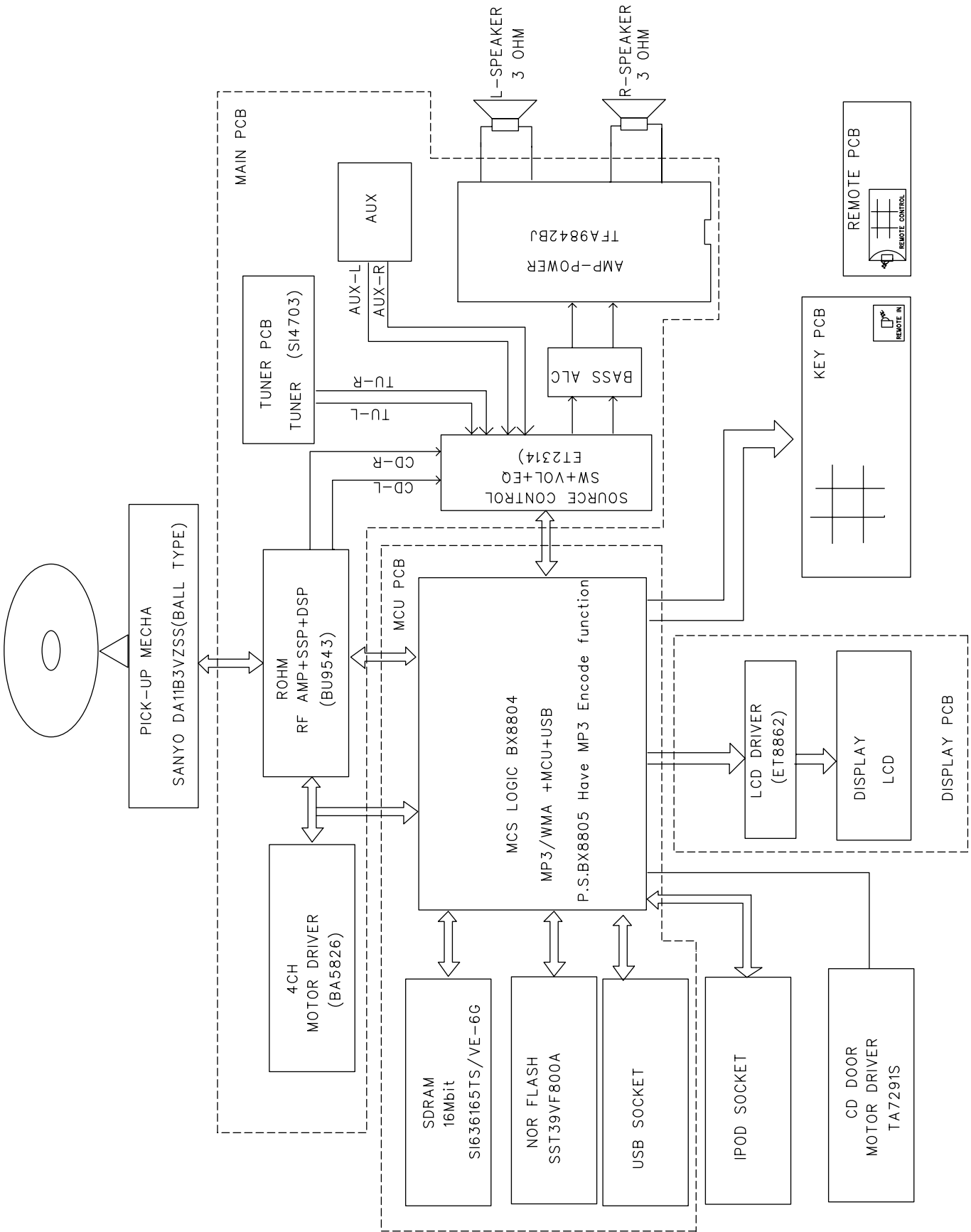
The actuator is a very precise mechanical component and may not be damaged in order to guarantee its full function. Clean the lens gently (don't press too hard) with a soft and clean cotton bud moistened with the special lens cleaner.

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

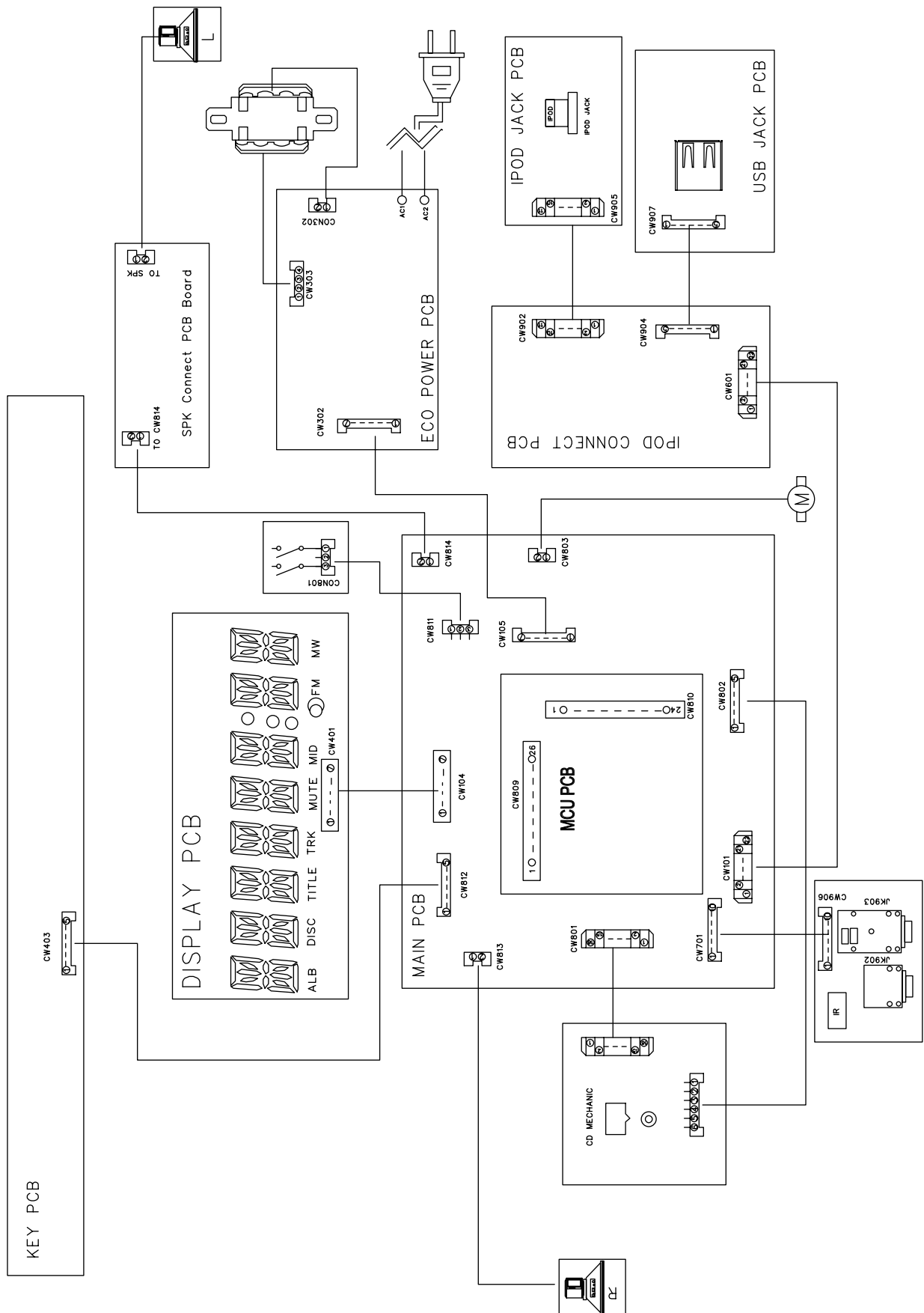


SET BLOCK DIAGRAM

3-1



## SET WIRING DIAGRAM

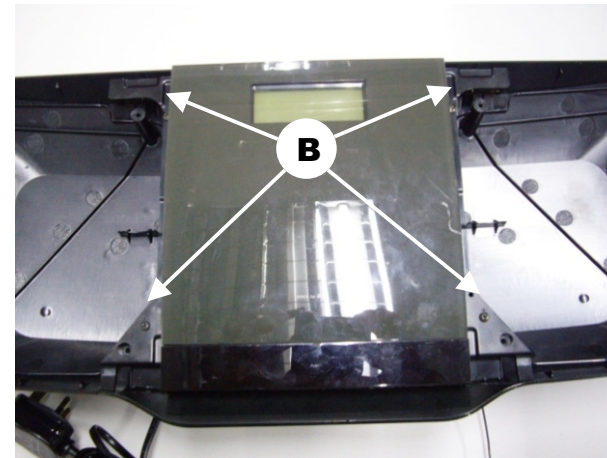
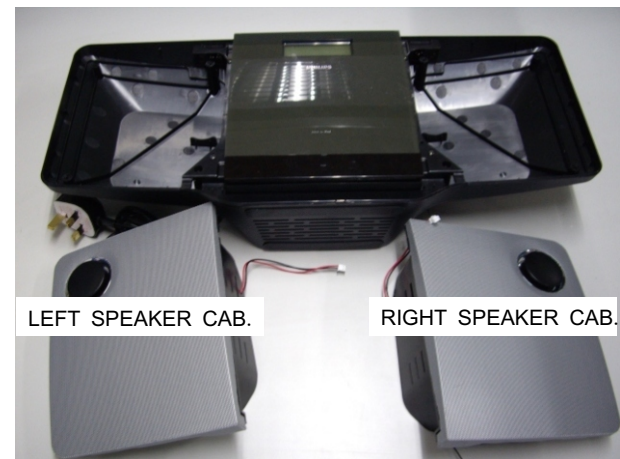
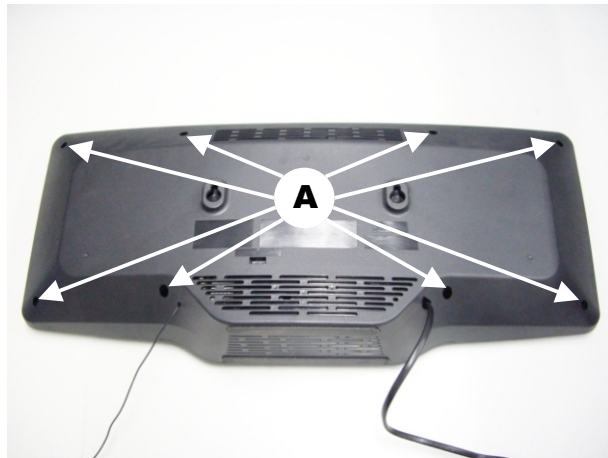




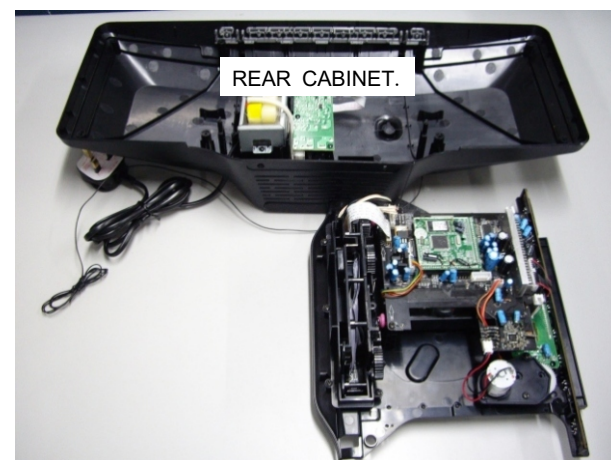
## DISASSEMBLY DIAGRAM

### Dismantling of the Rear Cabinet

- 1) Remove 8 screws A as indicated to loosen the speaker cabinet.
- 2) Remove 4 screws B as indicated.
- 3) Remove the rubber foot as indicated.

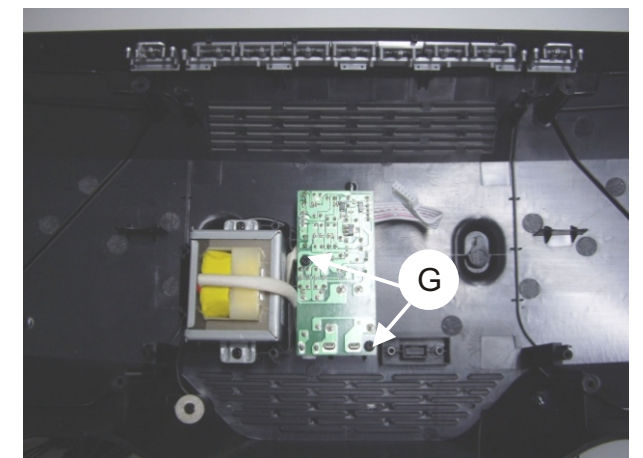
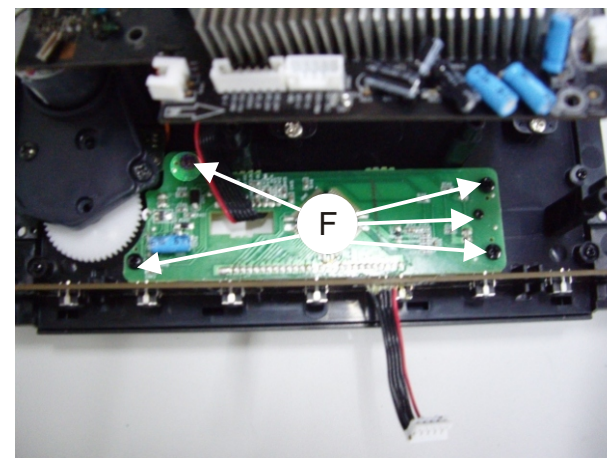
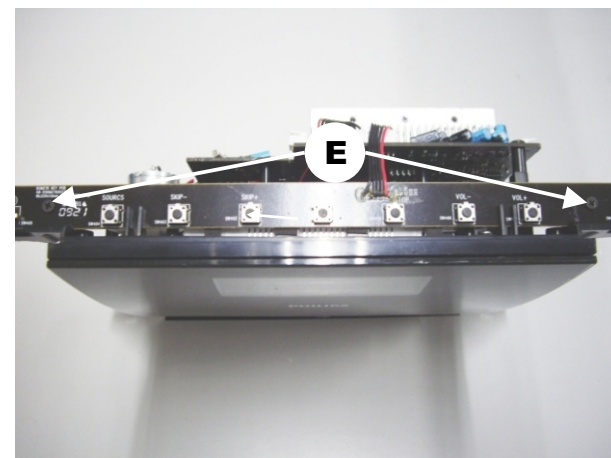


- 4) Remove 2 screws C as indicated to loosen the Rear cabinet.

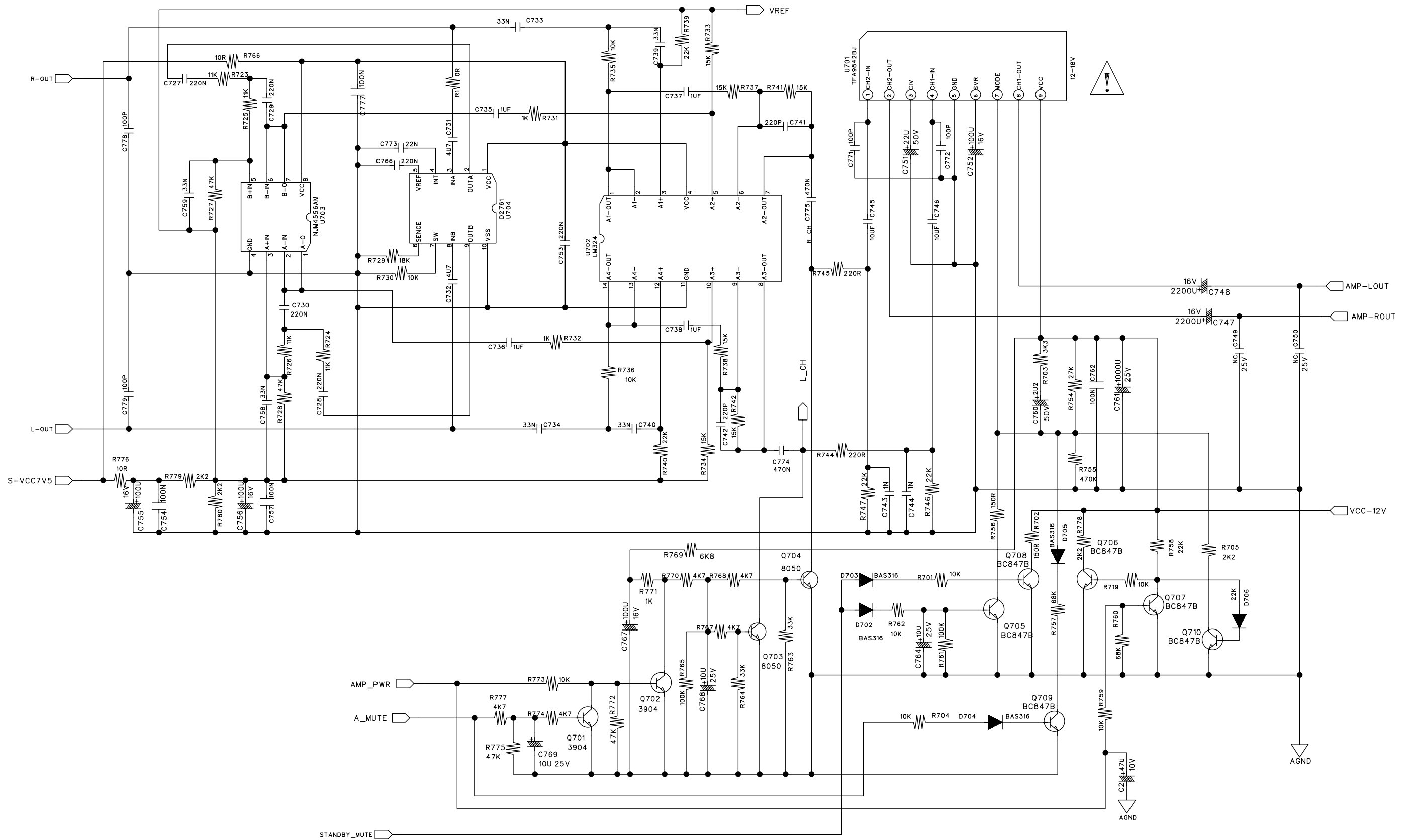


### Dismantling of the PCB Board

- 1) Remove 5 screws D as indicated to loosen the Main Board.
- 2) Remove 2 screws E as indicated to loosen the Key Board.
- 3) Remove 5 screws F as indicated to loosen the Display Board.
- 4) Remove 2 screws G as indicated to loosen the Power Board.

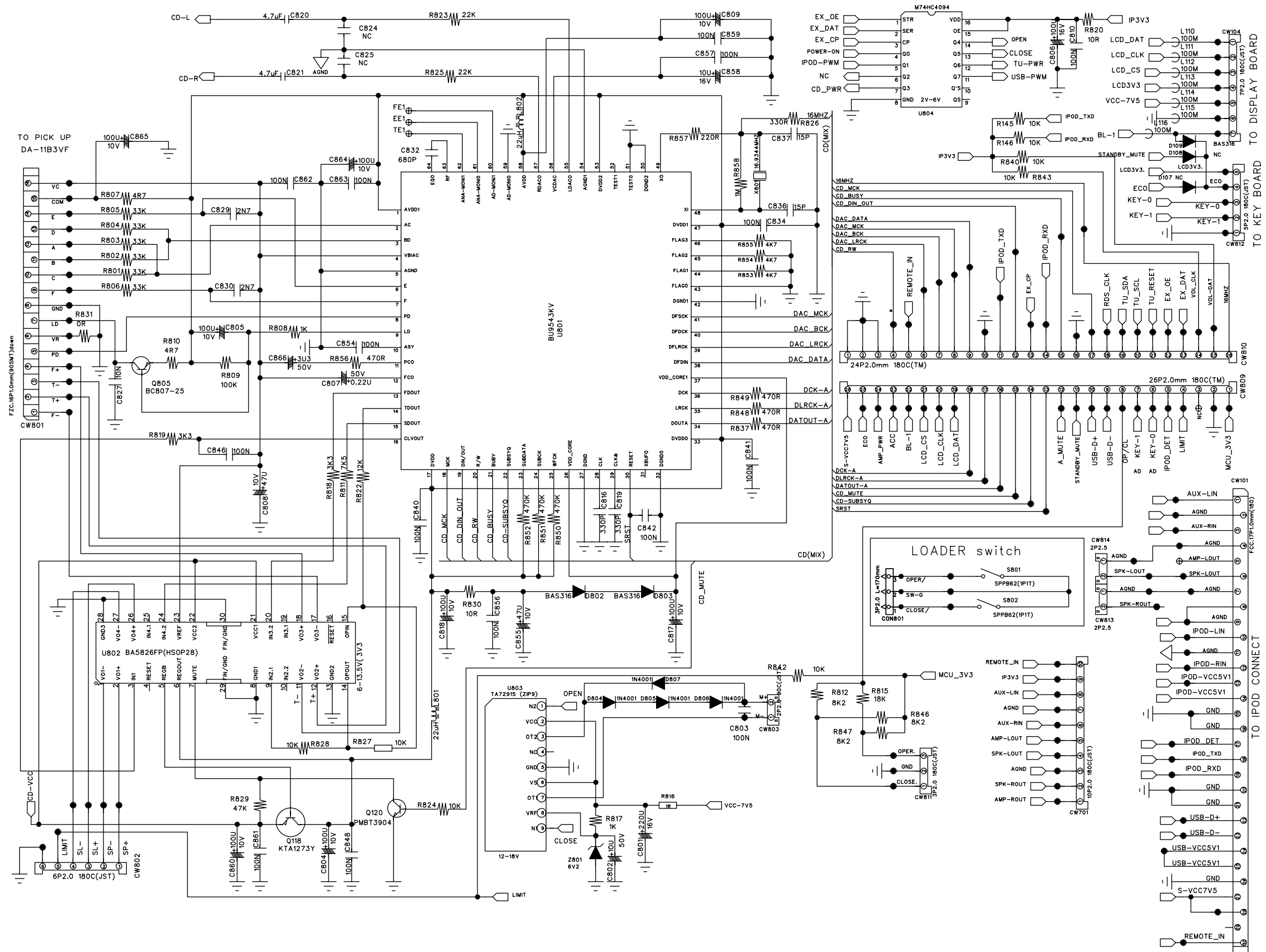


## CIRCUIT DIAGRAM - MAIN BOARD PART 1

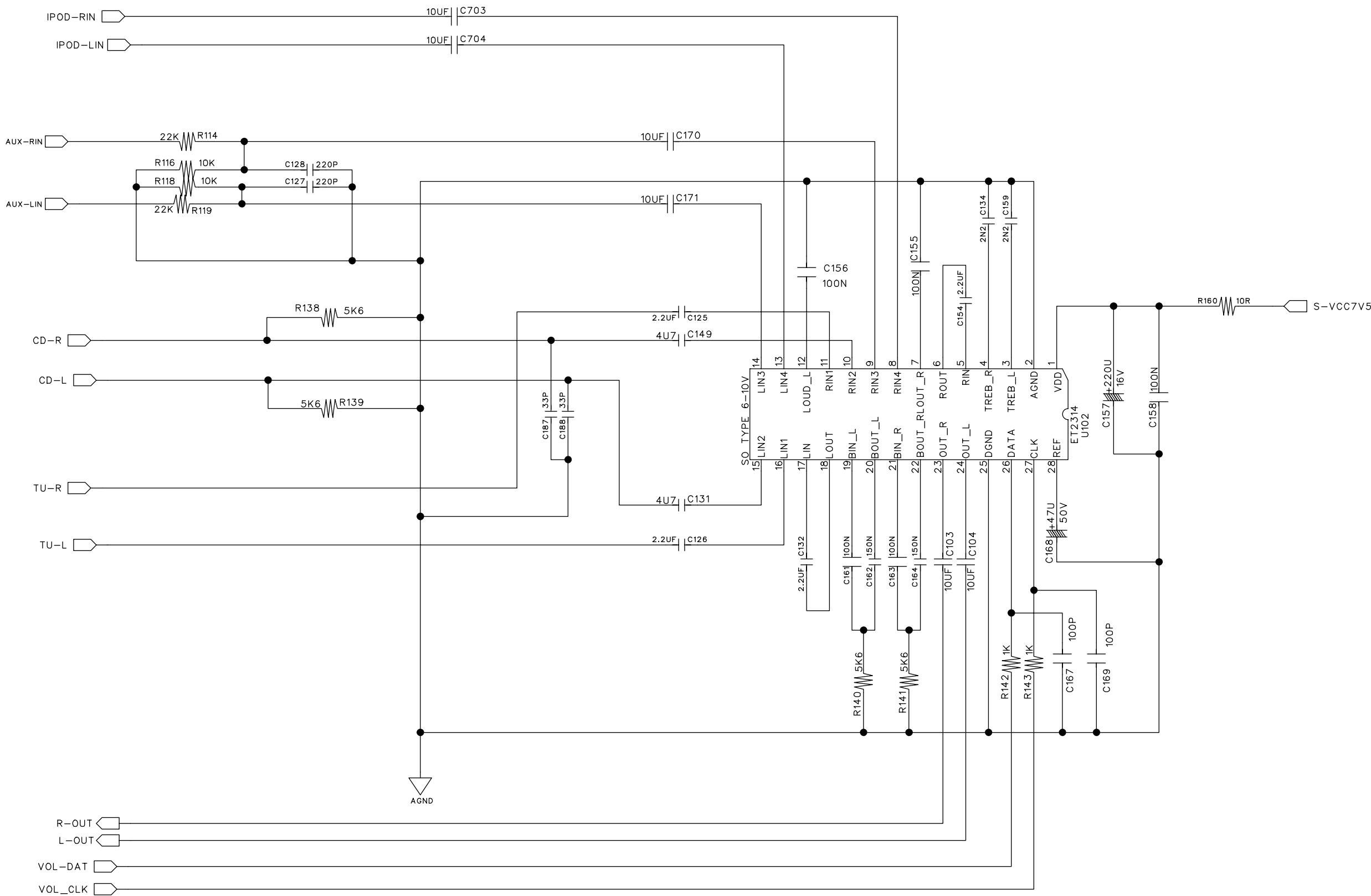




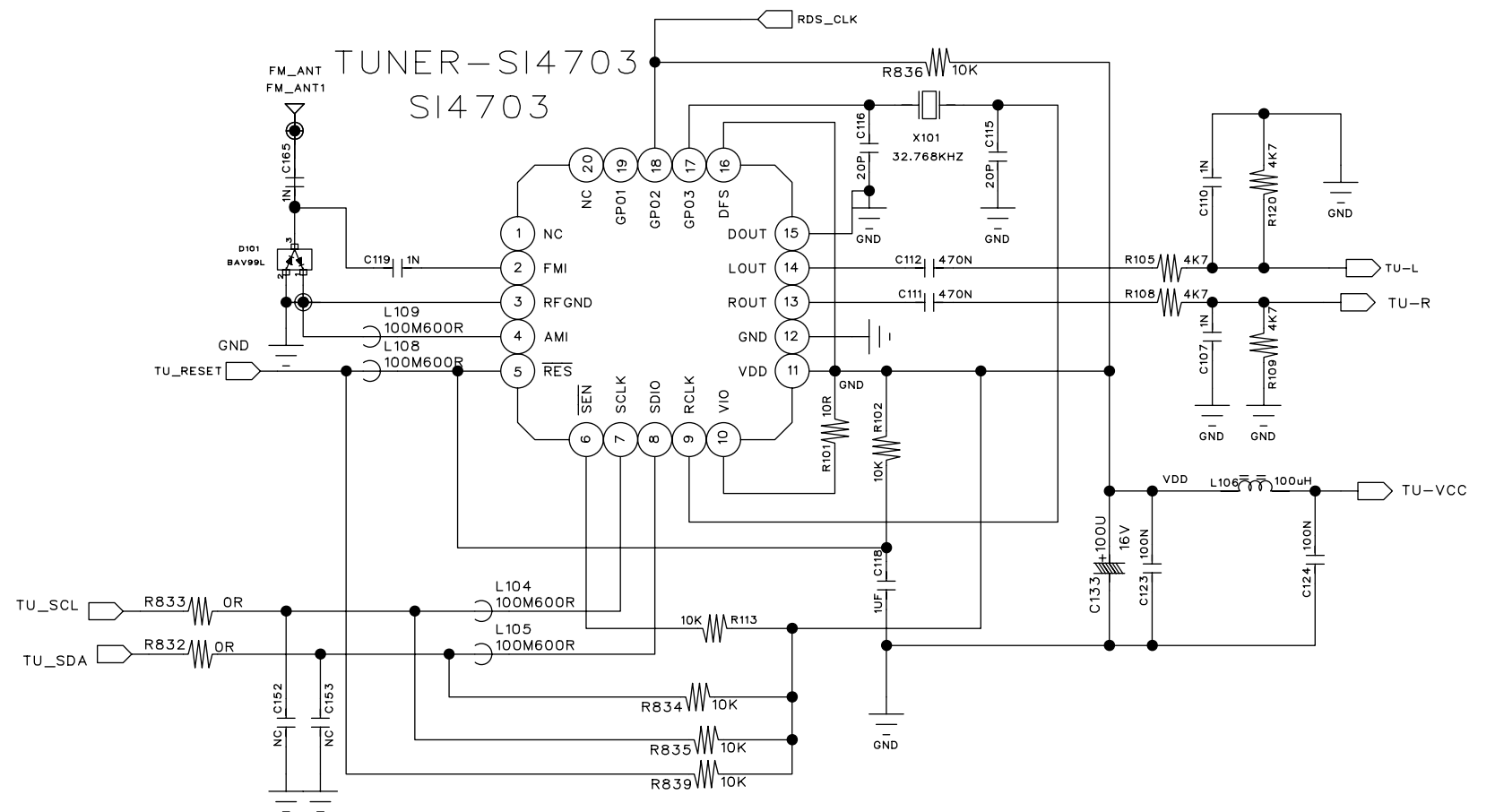
## CIRCUIT DIAGRAM - MAIN BOARD PART 2



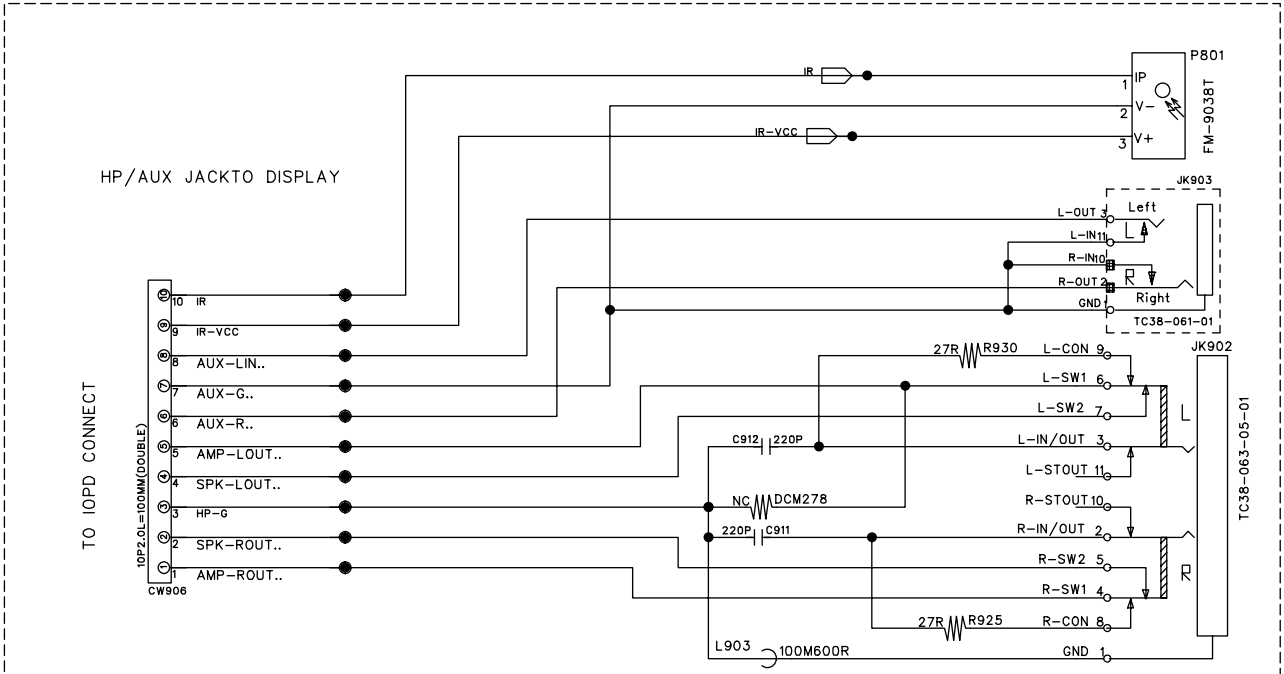
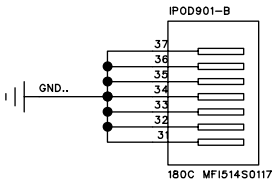
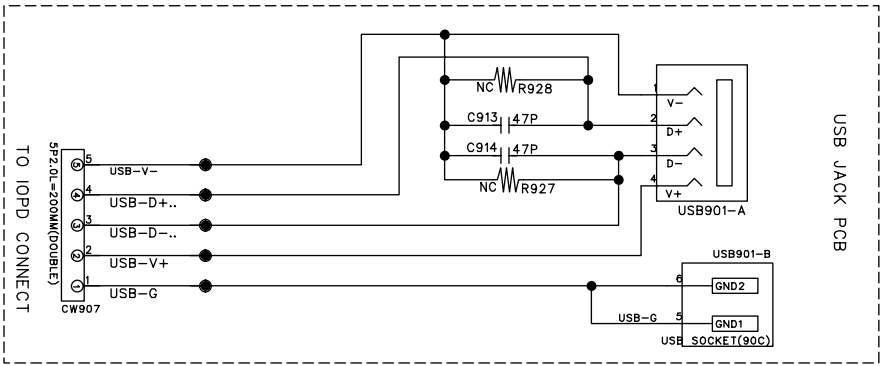
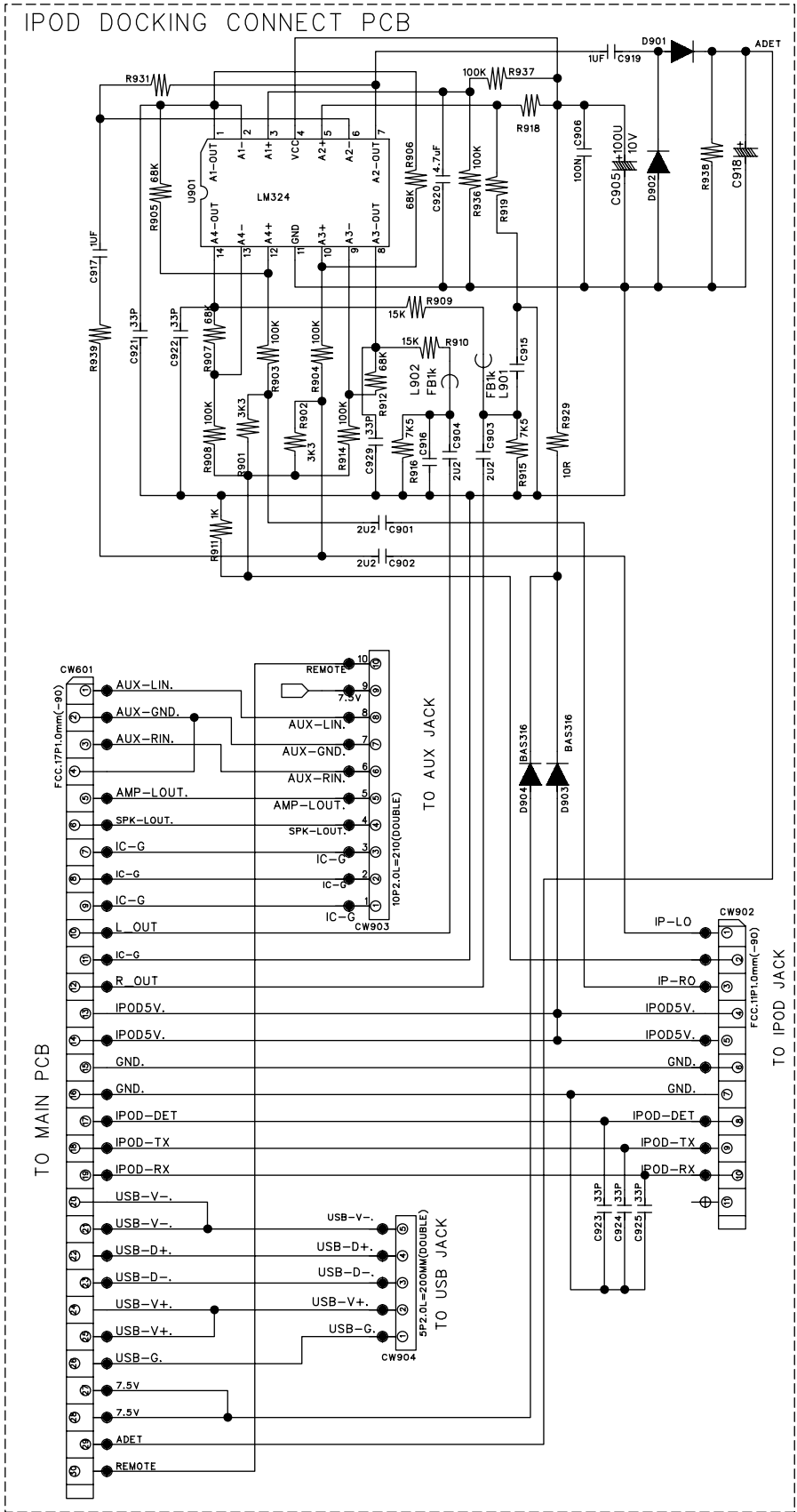
CIRCUIT DIAGRAM - MAIN BOARD  
PART 3



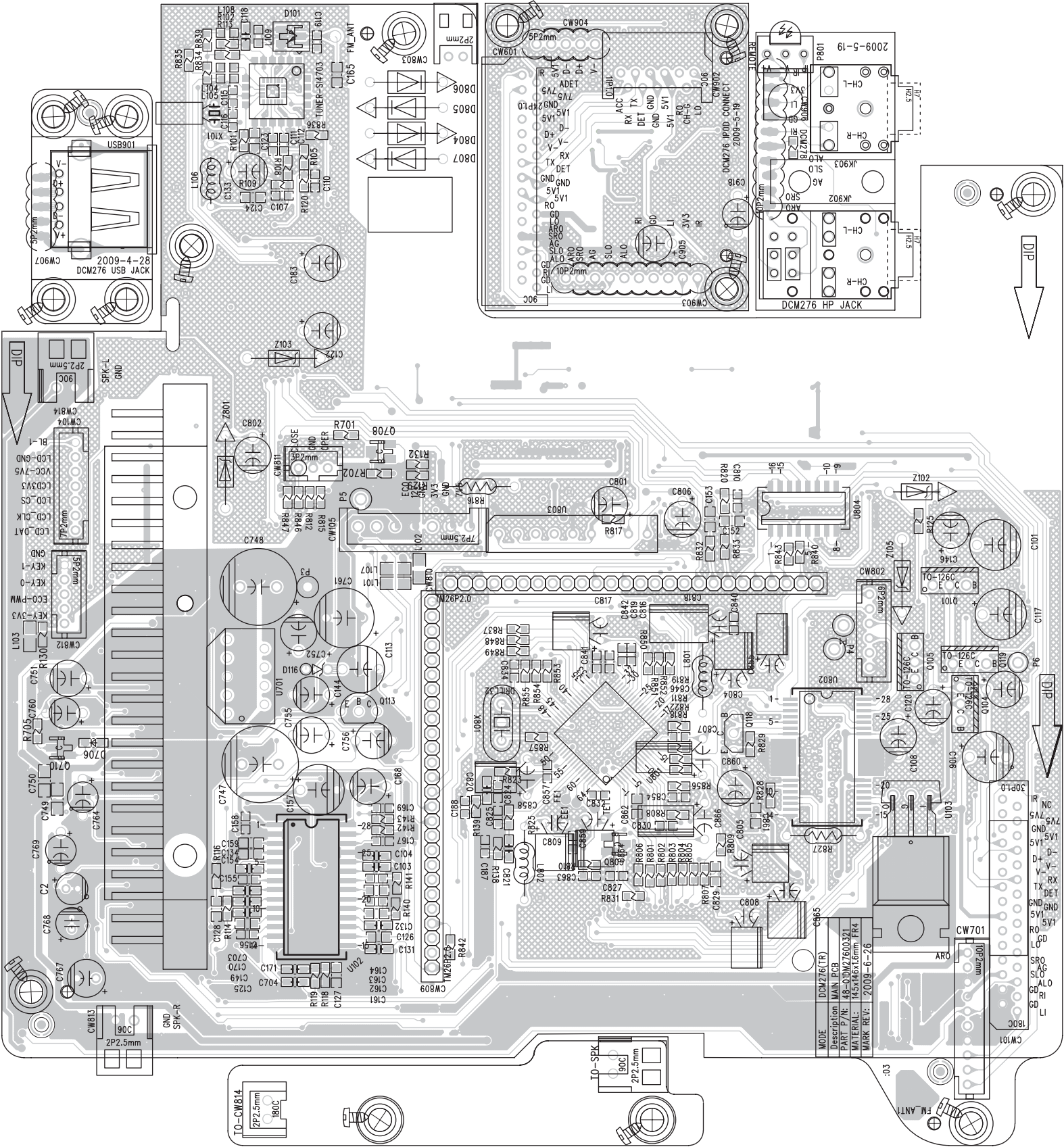
## CIRCUIT DIAGRAM - MAIN BOARD PART 4



CIRCUIT DIAGRAM - MAIN BOARD  
PART5

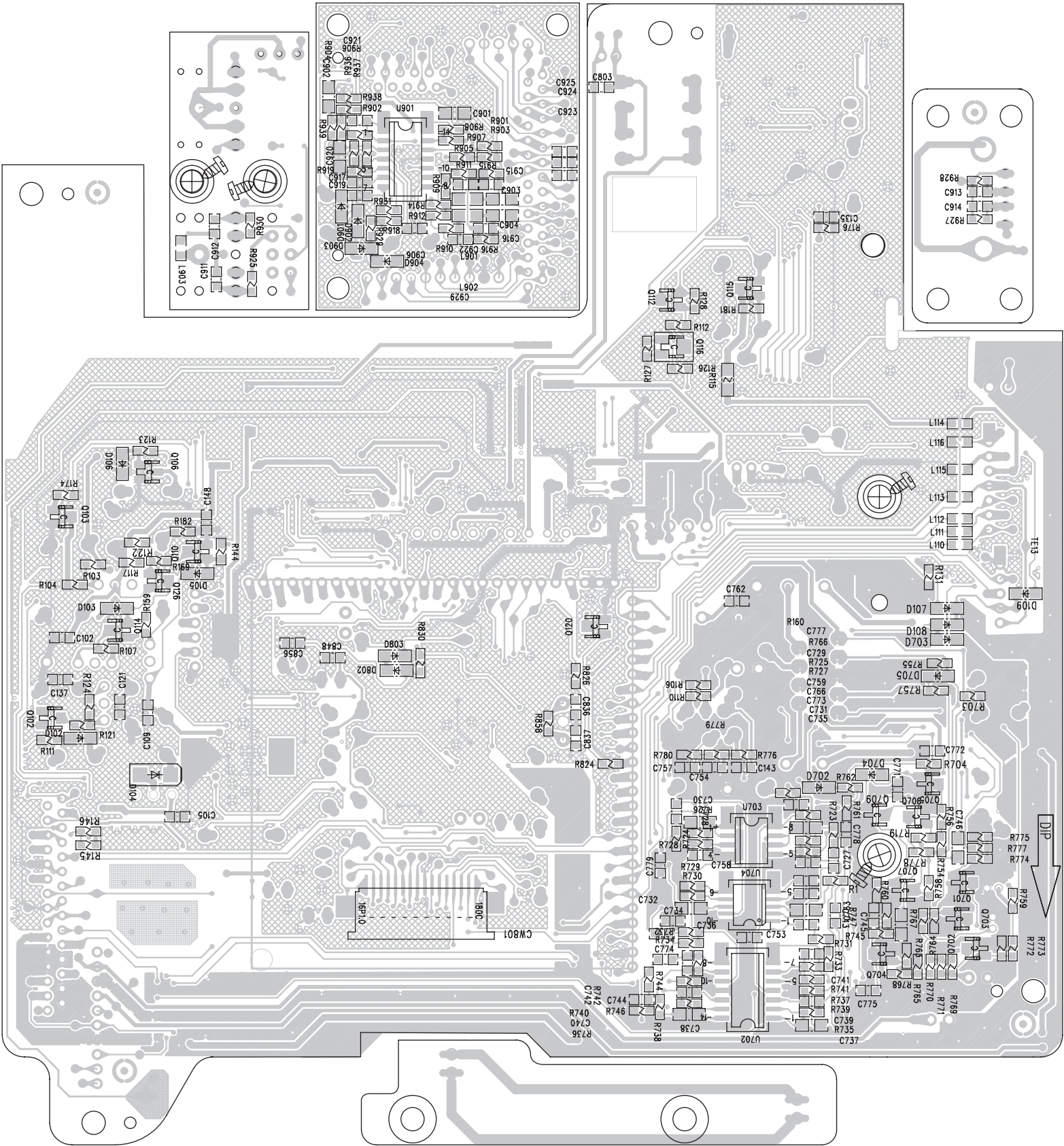


LAYOUT DIAGRAM - MAIN BOARD AND SOME SMALL BOARD  
TOP SIDE



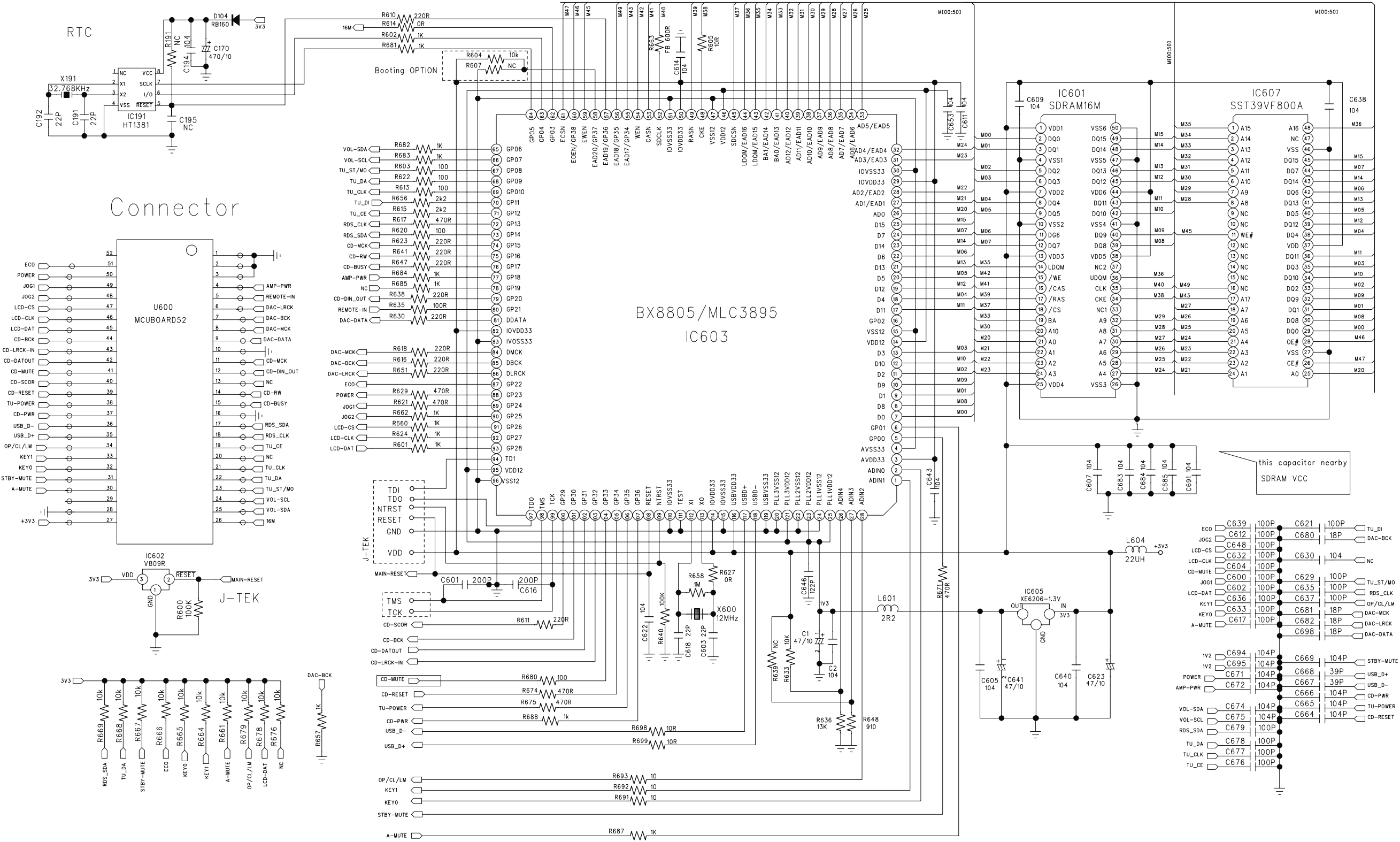


LAYOUT DIAGRAM - MAIN BOARD AND SOME SMALL BOARD  
BOTTOM SIDE



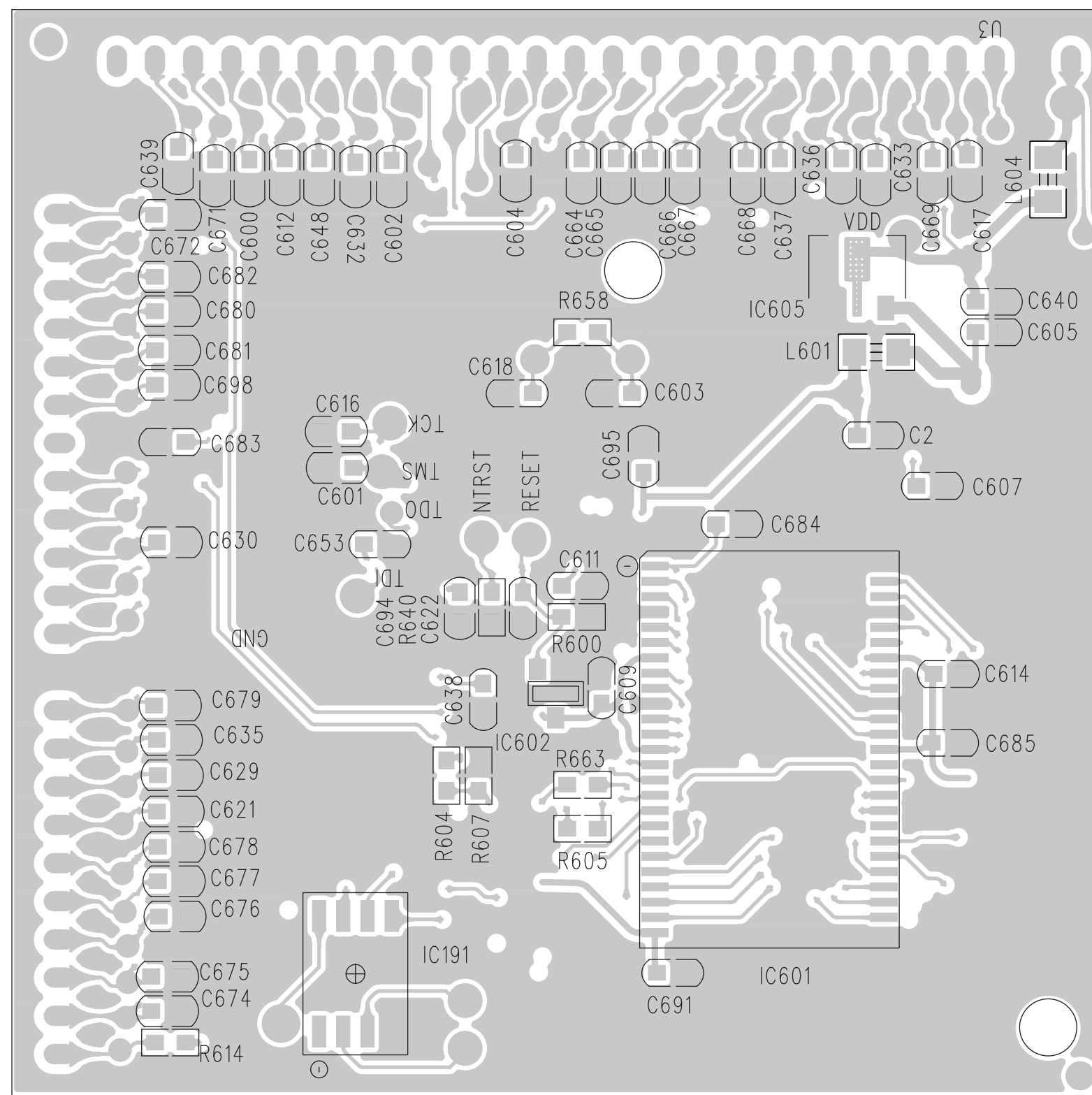


CIRCUIT DIAGRAM - MCU BOARD

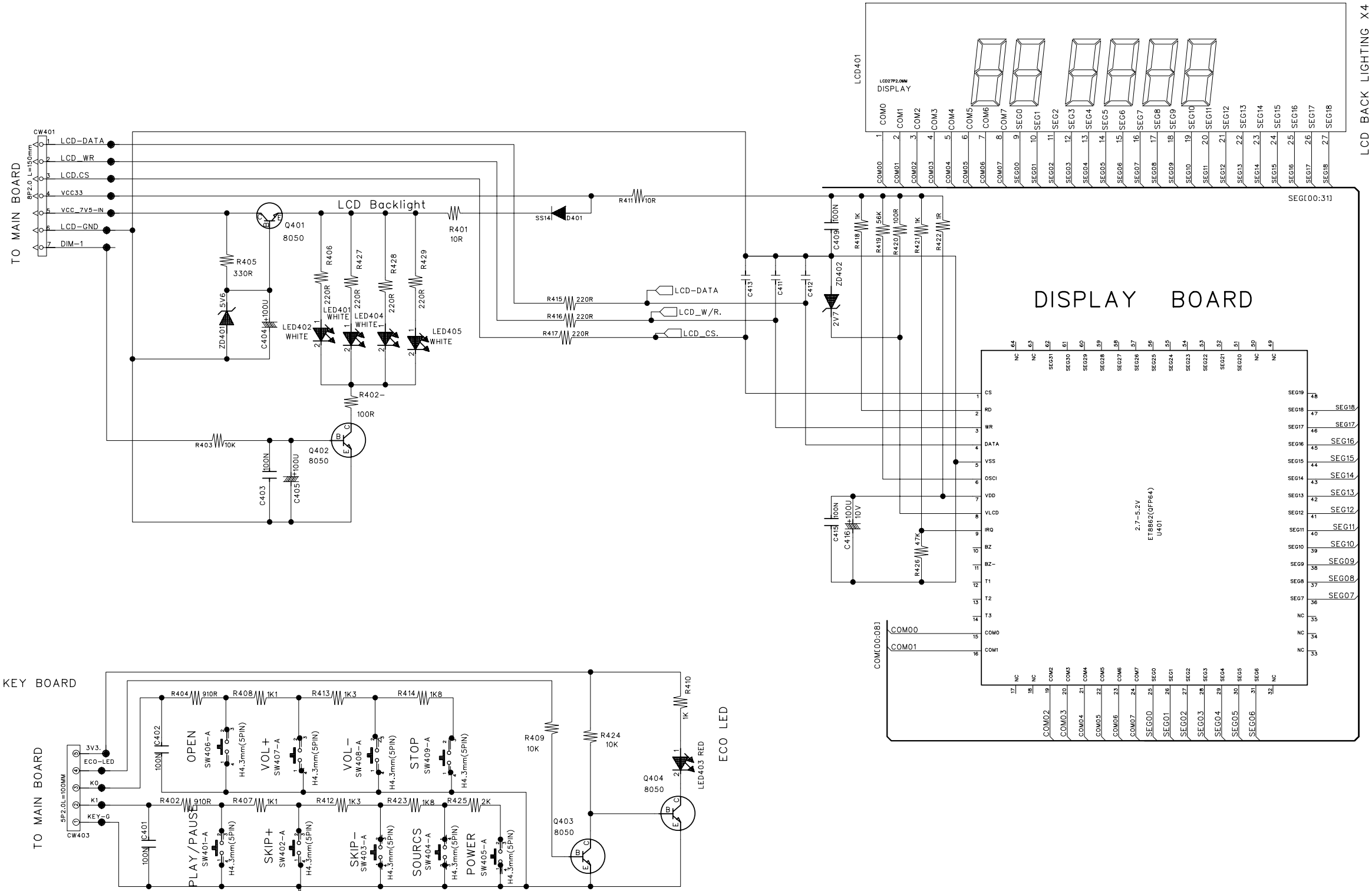


PCB layout of the MCU Board Rev1.0. The board features a central microcontroller unit (IC603) and a large integrated circuit (IC607). Various passive components, including resistors (R601, R602, R603, R604, R605, R606, R607, R608, R609, R610, R611, R612, R613, R614, R615, R616, R617, R618, R619, R620, R621, R622, R623, R624, R625, R626, R627, R628, R629, R630, R631, R632, R633, R634, R635, R636, R637, R638, R639, R640, R641, R642, R643, R644, R645, R646, R647, R648, R649, R650, R651, R652, R653, R654, R655, R656, R657, R658, R659, R660, R661, R662, R663, R664, R665, R666, R667, R668, R669, R670, R671, R672, R673, R674, R675, R676, R677, R678, R679, R680, R681, R682, R683, R684, R685, R686, R687, R688, R689, R690, R691, R692, R693, R694, R695, R696, R697, R698, R699, R700) and capacitors (C601, C602, C603, C604, C605, C606, C607, C608, C609, C610, C611, C612, C613, C614, C615, C616, C617, C618, C619, C620, C621, C622, C623, C624, C625, C626, C627, C628, C629, C630, C631, C632, C633, C634, C635, C636, C637, C638, C639, C640, C641, C642, C643, C644, C645, C646, C647, C648, C649, C650, C651, C652, C653, C654, C655, C656, C657, C658, C659, C660, C661, C662, C663, C664, C665, C666, C667, C668, C669, C670, C671, C672, C673, C674, C675, C676, C677, C678, C679, C680, C681, C682, C683, C684, C685, C686, C687, C688, C689, C690, C691, C692, C693, C694, C695, C696, C697, C698, C699, C700), are distributed across the board. The board is labeled "MCU BOARD REV1.0" and "48-33MM16900520". The board is also labeled "08-1104". The board is shown with a top view, with the components labeled with their respective part numbers.

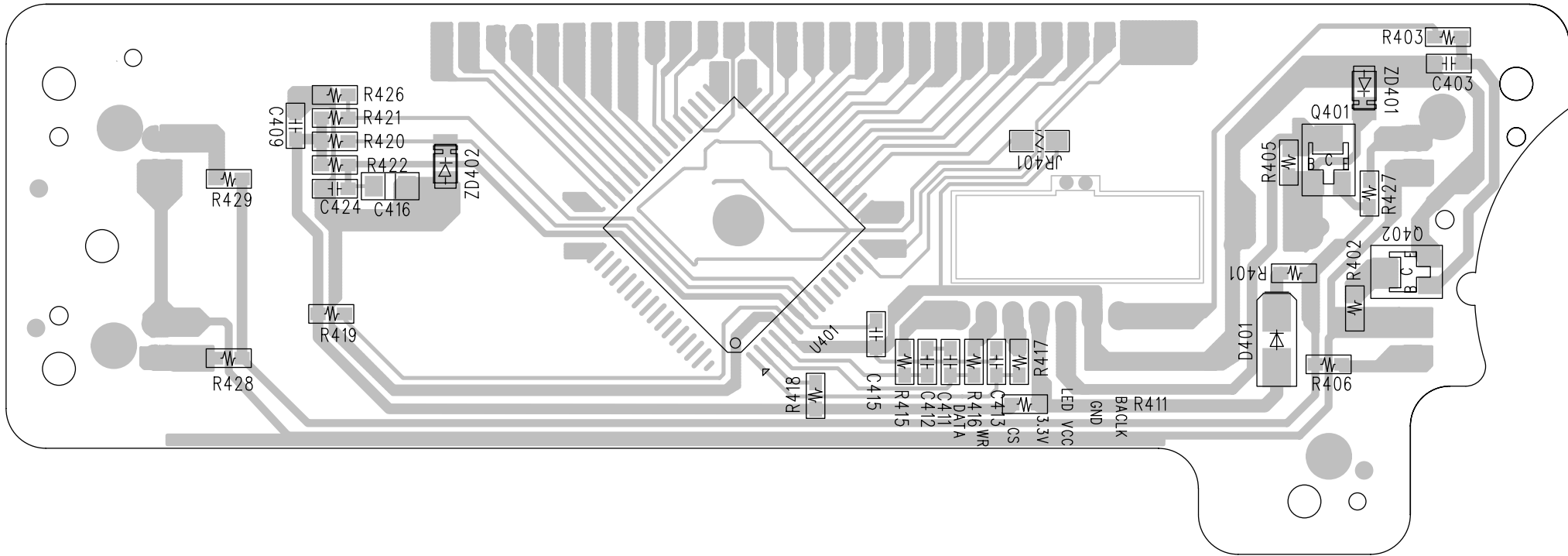
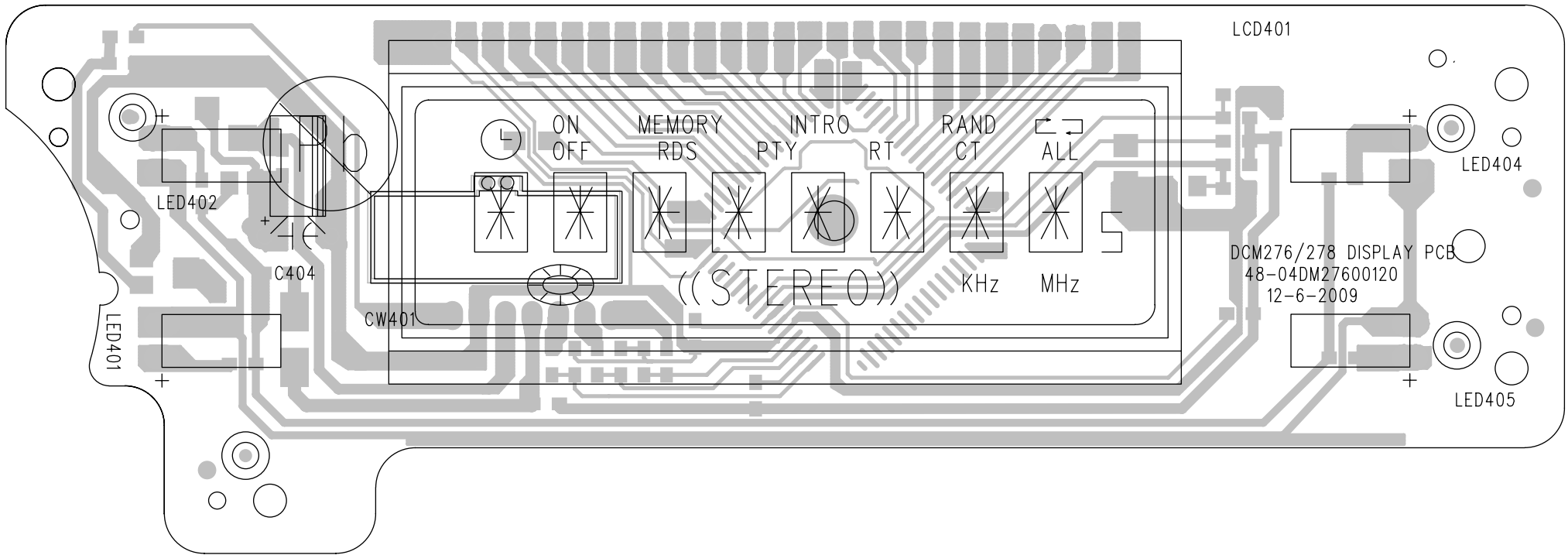
## LAYOUT DIAGRAM - MCU BOARD BOTTOM SIDE



CIRCUIT DIAGRAM - DISPLAY BOARD AND KEY BOARD

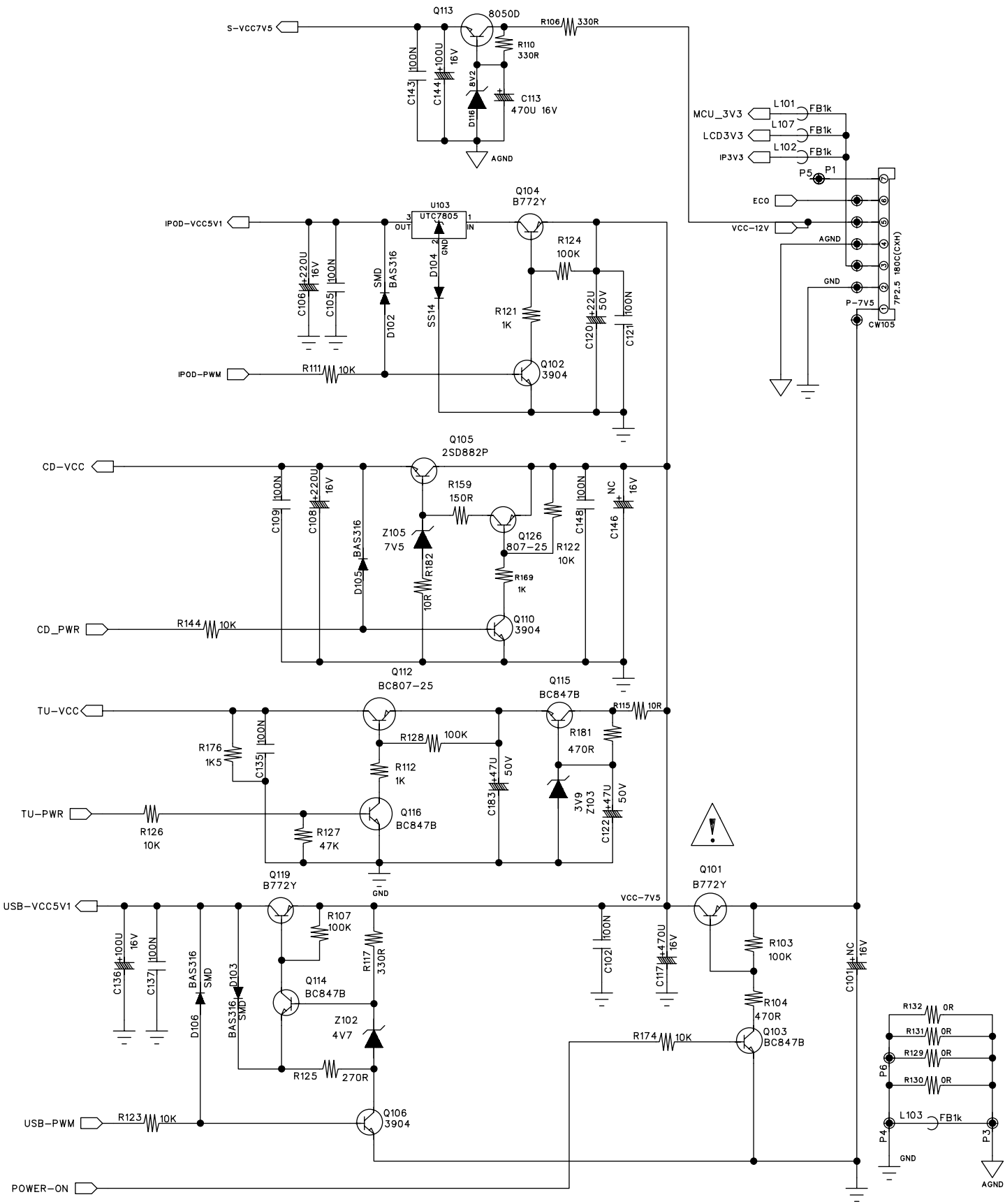


LAYOUT DIAGRAM - DISPLAY BOARD

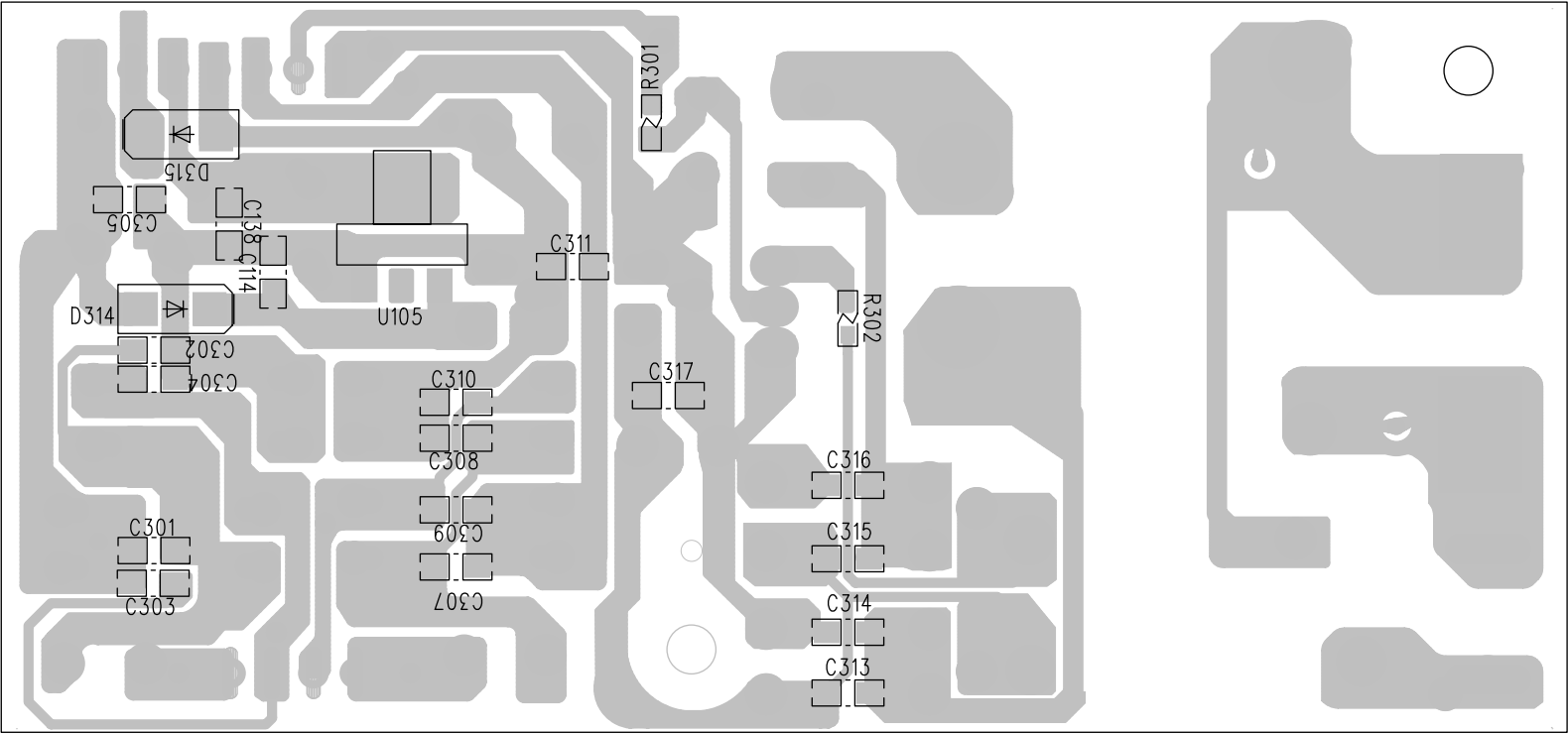
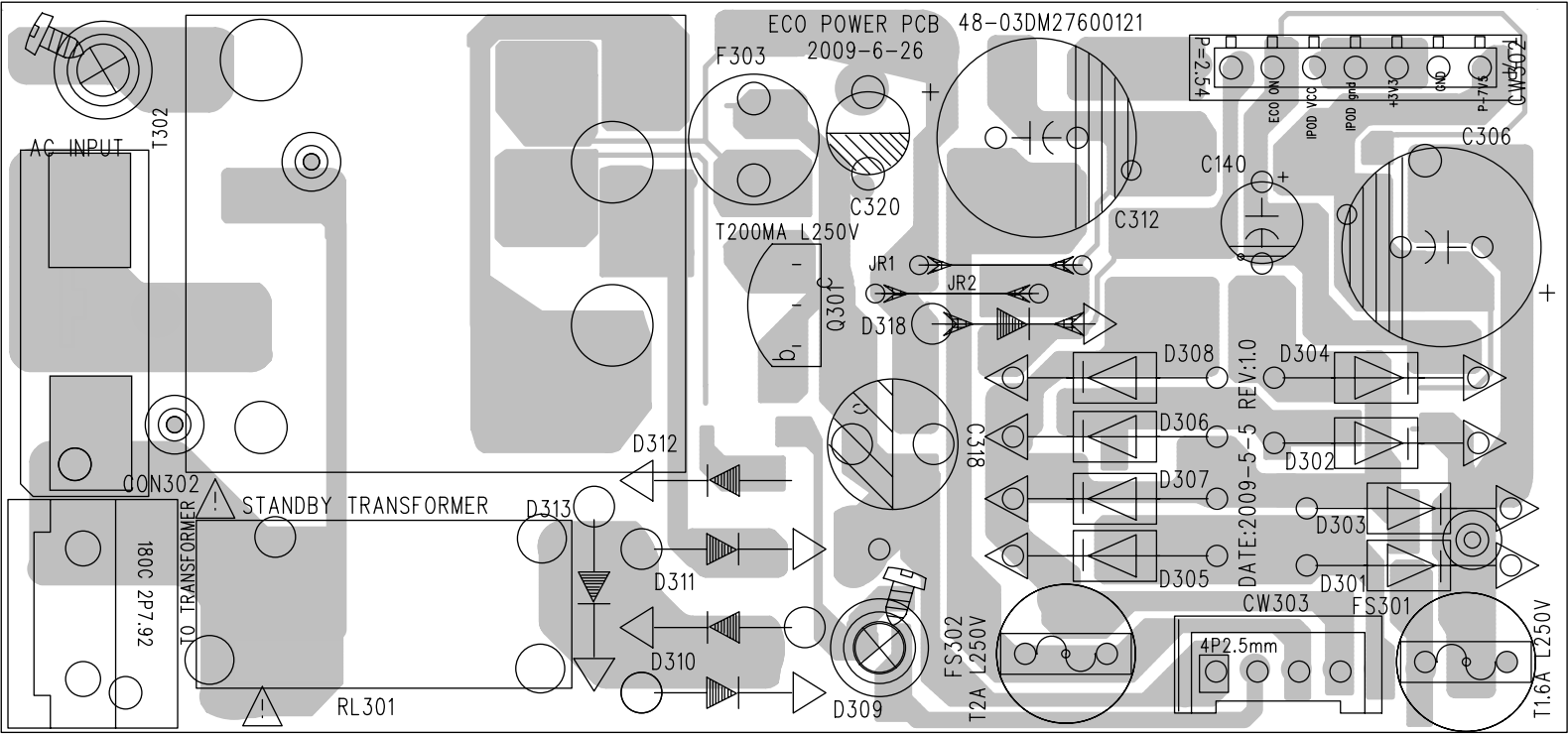




CIRCUIT DIAGRAM - POWER BOARD

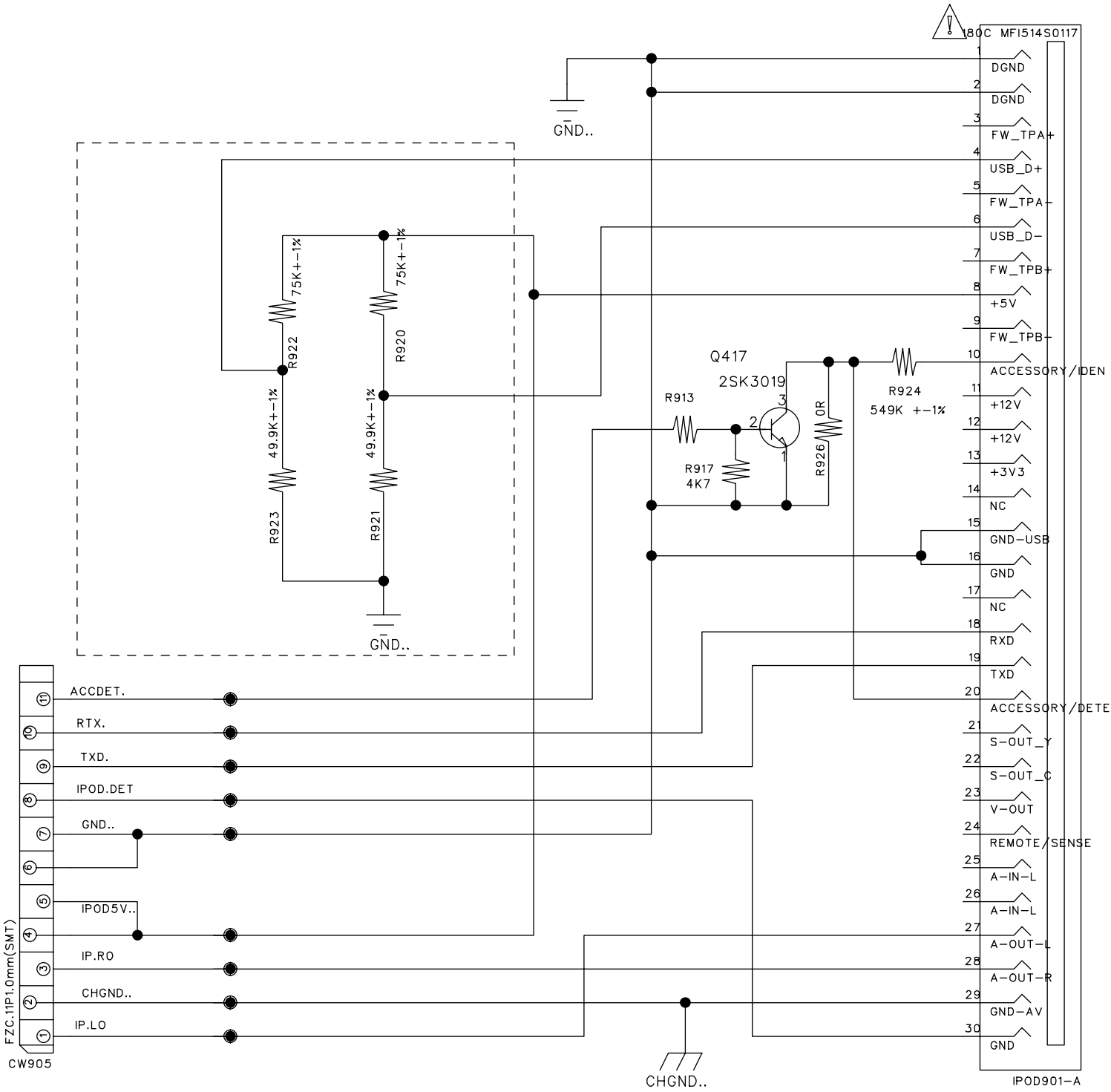


LAYOUT DIAGRAM - POWER BOARD

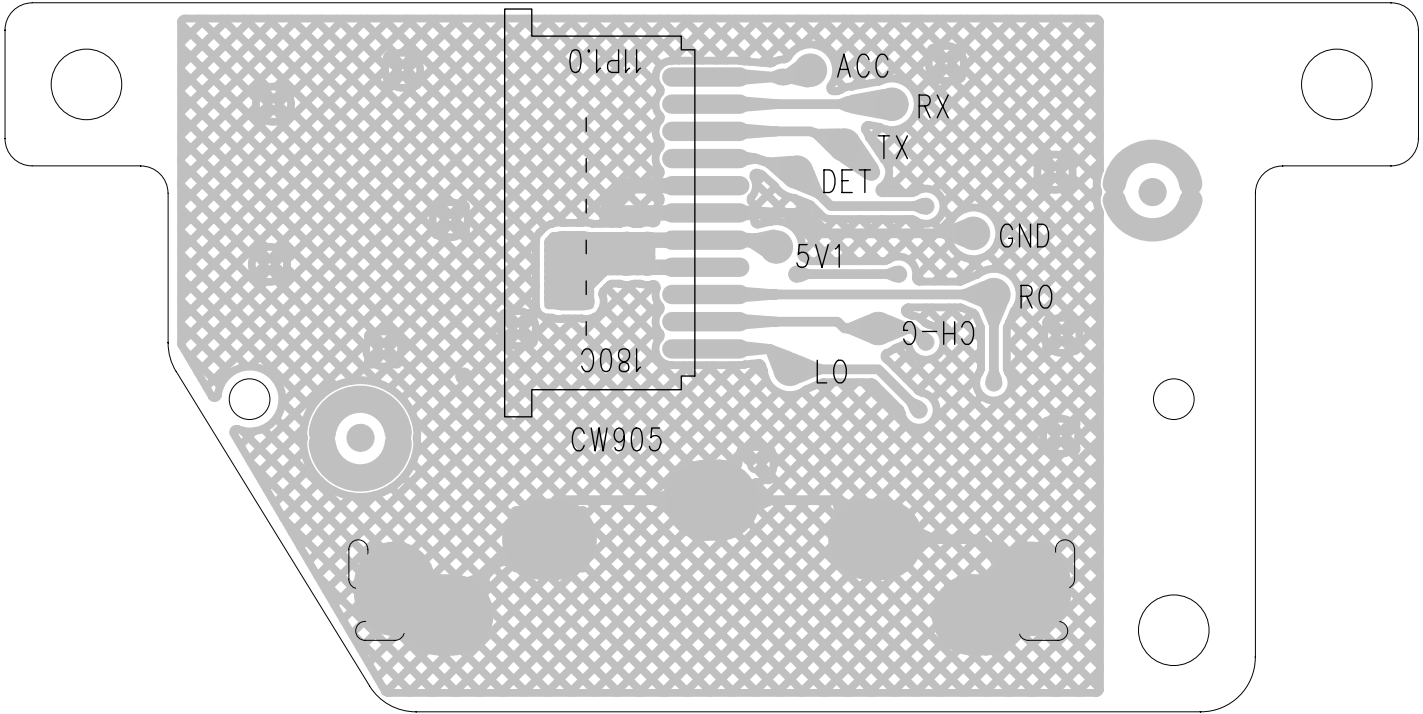
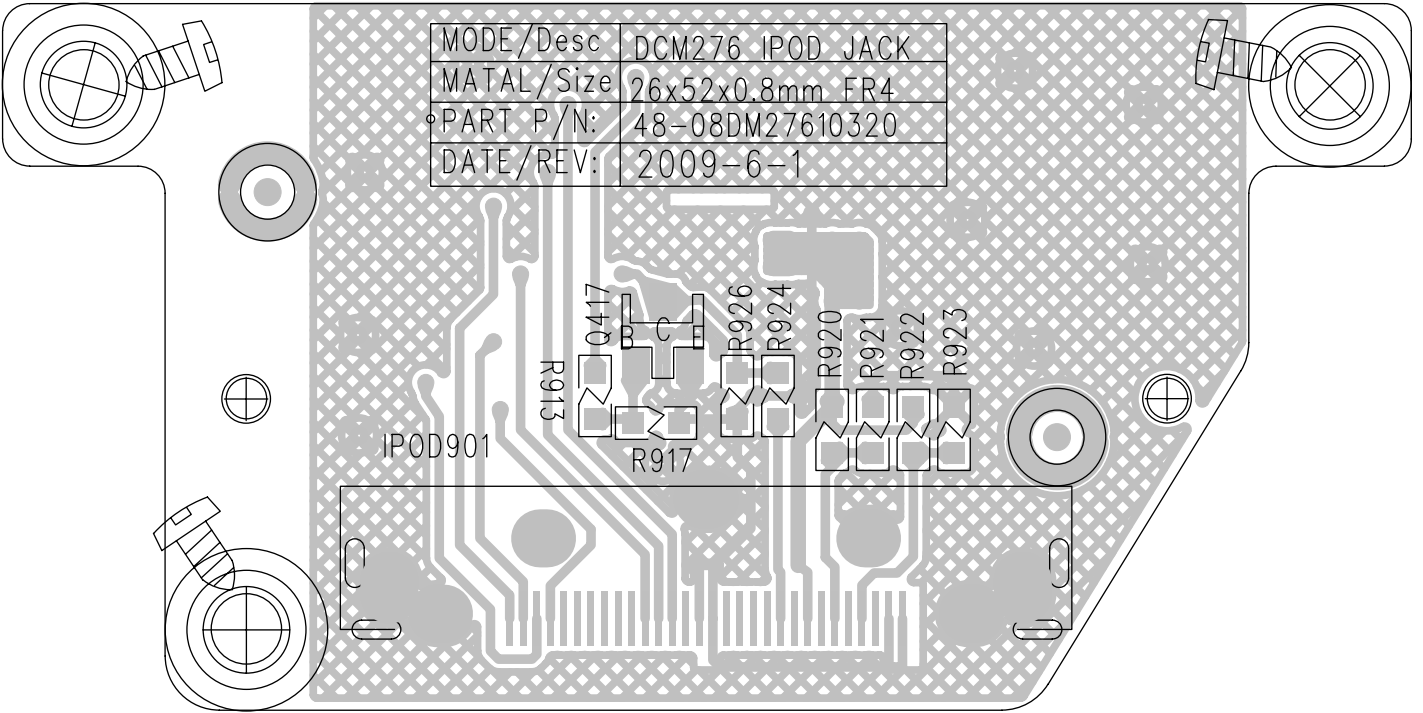




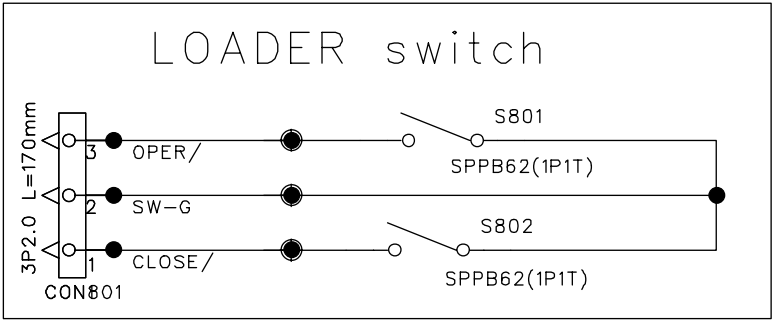
CIRCUIT DIAGRAM - iPod JACK BOARD



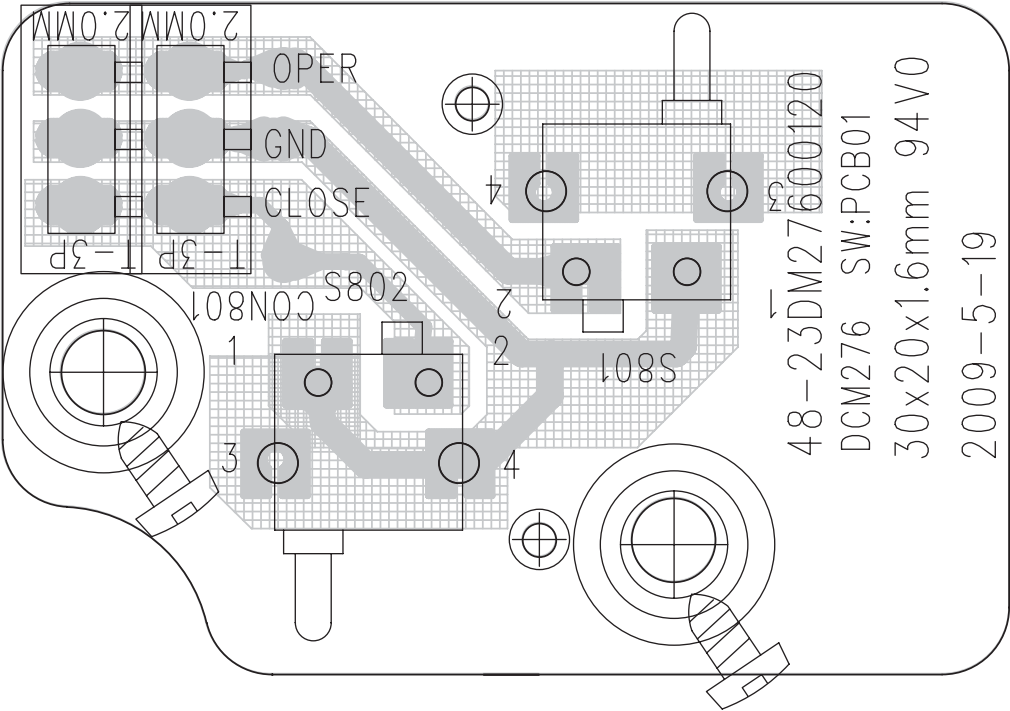
LAYOUT DIAGRAM - iPod JACK BOARD

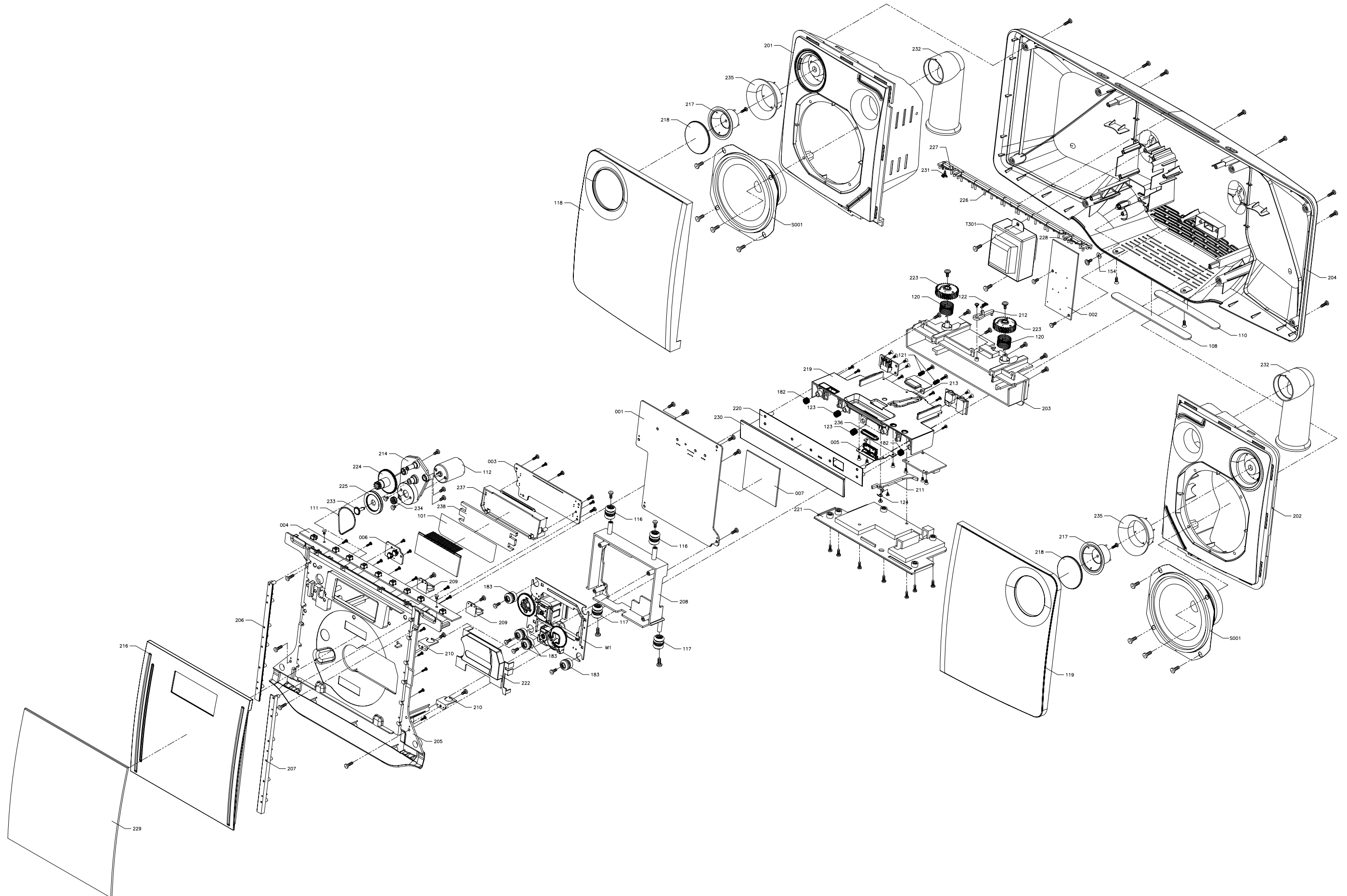


CIRCUIT DIAGRAM - SW BOARD



LAYOUT DIAGRAM - SW BOARD





**MECHANICAL PARTSLIST**

122	996510026713	EXTEN SPRING (SUS304)
123	996510026718	COMPRESS SPRING FOR PIN
124	996510026746	SPRING FOR LOCATION LEVER
201	996510031671	LEFT SPK FRONT
202	996510031658	RIGHT SPK FRONT
203	996510026752	DRAWER BASE
204	996510026725	REAR CABINET (-/05)
204	996510029312	REAR CABINET (-/55)
205	996510026706	CD TRAY
206	996510026708	DOOR HOLDER -LEFT
207	996510026753	DOOR HOLDER -RIGHT
208	996510026732	DOUBLE BRACKET
209	996510026721	HOLDER CDM TOP
210	996510026745	HOLDER CDM
211	996510026709	LOCATION LEVER
212	996510026719	MOVE LEVER
213	996510026726	PUSH BLOCK
214	994000002832	MOTOR BRACKET
216	996510026716	CD DOOR
217	996510026734	COSMETIC TUBE
218	996510026733	COSMETIC COVER
219	996510026724	MOVE DRAWER TOP
220	996510026741	DRAWER MOVE COVER
221	996510026707	MOVE DRAWER BOTTOM
222	994000004392	LASER COVER (FOR SANYO CD)
223	996510026751	GEAR
224	996510027146	DRIVING GEAR
225	996510027147	DRIVER PULLEY GEAR
226	996510026731	TOP KEYS
227	996510026754	POWER ON KEYS
228	996510026727	EJECT KEYS
229	996510026737	DOOR LENS
230	996510012604	CONNECTOR SLEEVE
230	996510026722	IPOD DOOR LENS
231	996510026736	LED LIGHT GUIDE LENS
232	996510026742	DUCT
233	996510011396	NAIL
234	994000002818	DOOR MOTOR PULLY
235	996510026717	COSMETIC RING
J001	994000001939	16P FFC 1MM L60MM
J002	996510012093	11P FFC 1mm L=100mm
J005	996510026729	17P FFC.1mm L=80mm
M1	996510026711	CD MECHANISM(SANYO) DA11B3VZSS
POWER1 <sup>△</sup>	996510000859	AC CORD BS APP 2M (-/05)
POWER1	996510030426	AC CORD VDE/BRAZIL APP 1.83M (-/55)
S001	996510026715	SPEAKER 4" 5W 3 (SINGLE)
T301 <sup>△</sup>	996510026747	TRANSFORMER EI57 230V (-/05)
T301	996510029315	TRANSFORMER 127/240V (-/55)
SW01	996510011384	SWITCH SL1-22-62F-4W (-/55)
AC01	994000001478	AC PLUG ADAPTOR (-/55)
124	996510029102	SPRING DRAWER -/55
0001	996510029317	PCBA-MAIN "DCM276/55"
0002	996510029314	PCBA-POWER "DCM276/55"
0007	996510029311	PCBA-MCU (-/55)

**ACCESSORIES**

RC	996510026738	REMOTE CONTROL
CC	996510002089	CONN. CORD 3.5 ST/PLUGx2 500mm
1231	996510002033	SCREW SPACE(DOWELS)
145	996510028896	HARDEN SCREW SMN TsA

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

## ELECTRICAL PARTSLIST

### MAIN BOARD ASSEMBLY

USB901	996510026748	USB SOCKET 4P USB-1400-060-010
X101	996500042441	X'TAL 32.768KHZ -20PPM
X801	994000004551	CRYSTAL 16.9344MHZ +-20PPM
JK902	994000004369	PHONE JACK TC38-063-05-0
JK903	996510012048	PHONE JACK D3.6mm
P801	996510023905	OPTIC SENSER FM-9038TM2-5AN
Q105	996510020216	TRANSISTORS D882F
Q118	996510003996	TRANSISTORS KTA1273
U102	996500039806	IC ET2314 (SOP28)
U103	996510018962	IC UTC7805
U104	996510023928	IC SI4703-C19-GM (-/05)
U104	996510018861	IC SI4702 (-/55)
U701	996510000882	IC TFA9842BJ
U702	996500039808	IC SM LM324D
U703	994000001201	IC NJM4556AM
U704	996510002115	IC D2761 (SSOP10)
U801	996510009311	IC BU9543KV (SMD)
U802	996510009310	IC BA5826FP
U803	996510002119	IC TA7291S
U804	994000001247	IC HEF4094BT
U901	996500039808	IC SM LM324D





### DISPLAY BOARD ASSEMBLY

LCD401	996510026755	LCD DISPLAY (SHD1911-TP-1)
LED401	996500042438	LED LAMP 2x5x7mm (WHITE)
LED402	996500042438	LED LAMP 2x5x7mm (WHITE)
LED404	996500042438	LED LAMP 2x5x7mm (WHITE)
LED405	996500042438	LED LAMP 2x5x7mm (WHITE)
U401	996510020783	IC ET8862Q

### KEY BOARD ASSEMBLY

LED403	996510026705	LED LAMP 3mm
SW401	996500042444	TACT SWITCH 6x6mm 4.3mm
SW402	996500042444	TACT SWITCH 6x6mm 4.3mm
SW403	996500042444	TACT SWITCH 6x6mm 4.3mm
SW404	996500042444	TACT SWITCH 6x6mm 4.3mm
SW405	996500042444	TACT SWITCH 6x6mm 4.3mm
SW406	996500042444	TACT SWITCH 6x6mm 4.3mm
SW407	996500042444	TACT SWITCH 6x6mm 4.3mm
SW408	996500042444	TACT SWITCH 6x6mm 4.3mm
SW409	996500042444	TACT SWITCH 6x6mm 4.3mm

### POWER BOARD ASSEMBLY

F303	 994000001229	FUSE RADIAL T200MA/250V (-/05)
FS301	 994000001349	FUSE RADIAL T1.6A 250V
FS302	 994000001222	FUSE RADIAL LT 2A 250V
RL301	996500039818	RELAY ME-7-006-HSL DC6V AC10A (-/05)
T302	 996510000853	TRANSF. 230V T28-0622022-00 (-/05)
U105	994000002839	IC LM1117S-3.3

**ELECTRICAL PARTSLIST****SW BOARD ASSEMBLY**

S801	994000004552	DETECT SWITCH
S802	994000004552	DETECT SWITCH

**IPOD JACK BOARD ASSEMBLY**

IPOD901	996510018114	IPOD SOCKET 0.5MM 30P 180C
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**MCU BOARD ASSEMBLY**

IC191	996510015481	IC HT1381
IC601	996510020772	IC SI636165TS
IC602	996510022969	IC HWD809R 2.63V
IC603	996510021319	IC BX8804
IC605	996510020761	IC XC6206P122PR 1.2V
IC607	996510020771	IC SST39VF800A
X191	996510024804	CRYSTAL 32.768KHZ 3x8mm
X600	996510008326	CRYSTAL 12 MHzHC-49/US H=3.5mm

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

## REVISION LIST

**Version 1.0 (314178534200)**

\* Initial Release

**Version 1.1 (314178534201)**

\* P12-2 :AC cord set (-/55) 12NC is changed  
Added SCREW (accessory).

**Version 1.2 (314178534202)**

\* P12-2 :Change LEFT and RIGHT SPK Front for both /05 and /55;