Micro Hi-Fi System

MCM330

-/12

Service
Service
Service

Service Manual

CONTENTS

CLASS 1
LASER PRODUCT

Published by LX 0915 Service Audio Subject to modification

3141 785 33951

Version 1.1

PHILIPS

TECHNICAL SPECIFICATION

General information	
AC power (power adaptor)	Input: 100-240V~, 50/60Hz, 1.5A Max.; Output: 18V ⎓ 2.5A; Brand name: Philips; Model: OH-1048B1802500U-VDE
Operation Power Consumption	20W
Standby Power Consumption	<2W
Eco Power Standby Power Consumption	<1W
USB Direct	Version 2.0/1.1
Dimensions - Main Unit (W x H x D)	571 x143 x 91mm
Weight - Main Unit	1.91 kg

Amplifier	
Total output power	2X10W RMS (with Living Sound off) 4 x 6W RMS (with Living Sound on)
Frequency response	125Hz - 16kHz, ±3dB
Signal to noise ratio	>65dB
MP3 link input	0.5 V RMS 20kohm

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)
Signal to noise ratio	>75dBA

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

Speakers	
Speaker Driver	3.5"woofer+0.8" tweeter
Sensitivity	>82dB/m/W

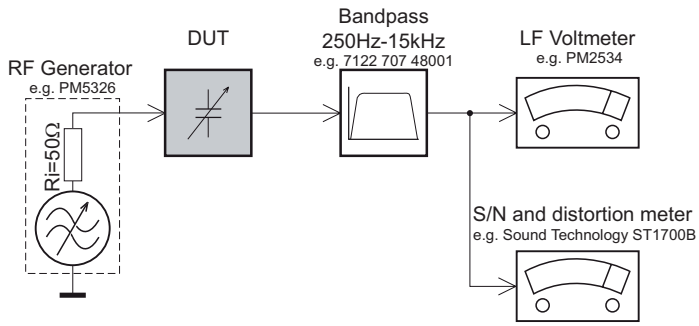
VERSION VARIATION

Type /Versions: / Board in used: / Service policy	MCM330									
	/05	/12		/55	/58	/61			/93	/98
DISPLAY BOARD		C								
CD BOARD		C								
KEY BOARD		C								
POWER BOARD		C								
USB & SD CARD BOARD		C								
MCU BOARD		C								
Type /Versions: / Features / Feature diffrence	MCM330									
	/05	/12		/55	/58	/61			/93	/98
RDS & DAB		√								
VOLTAGE SELECTOR										
ECO STANDBY - DARK		√								

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

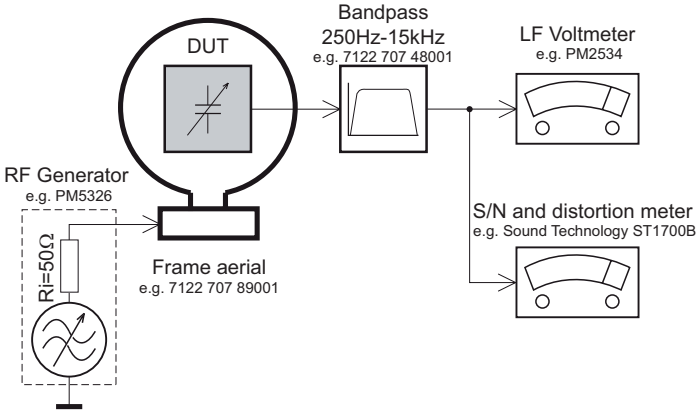
MEASUREMENT SETUP

Tuner FM



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

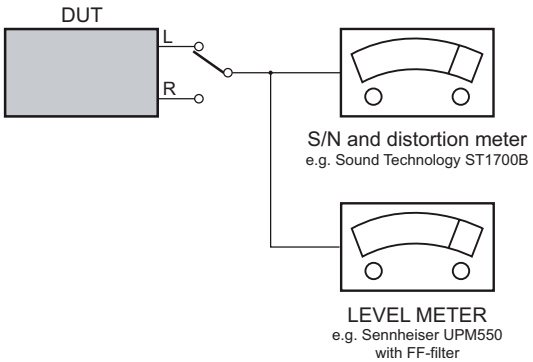
Tuner AM (MW,LW)



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).

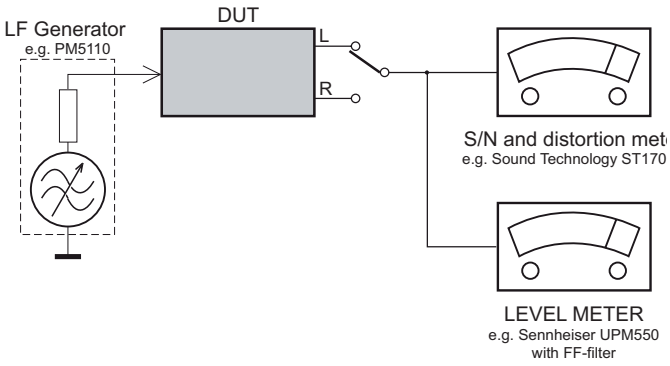
CD

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



Recorder

Use Universal Test Cassette **CrO2** 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** 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

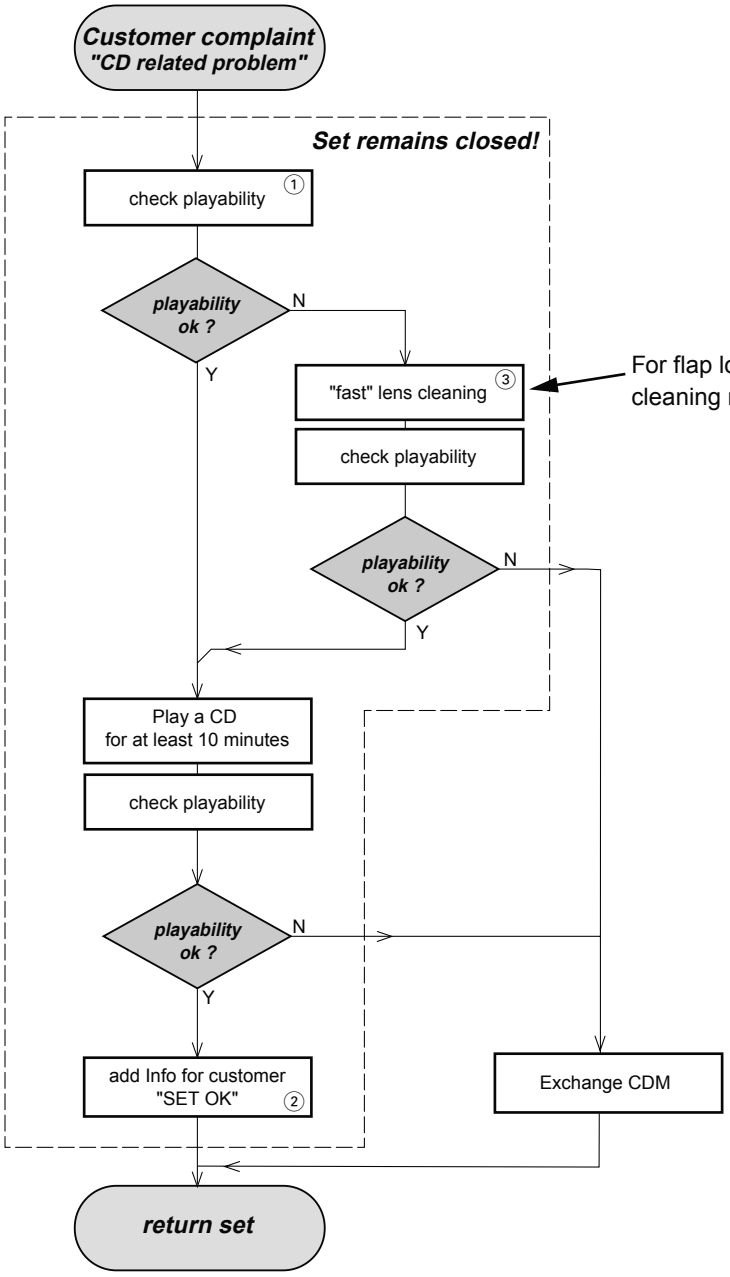
Safety regulations require that after a repair, the set must be returned in its original condition. Pay in particular attention to the following points:

- 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 ≥10seconds
  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 ≥10seconds
  Fingerprint ≥10seconds
  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

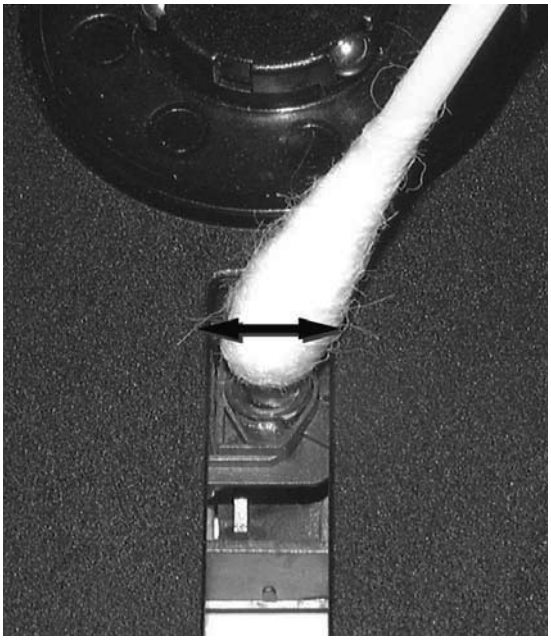
LIQUID LENS CLEANING

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.

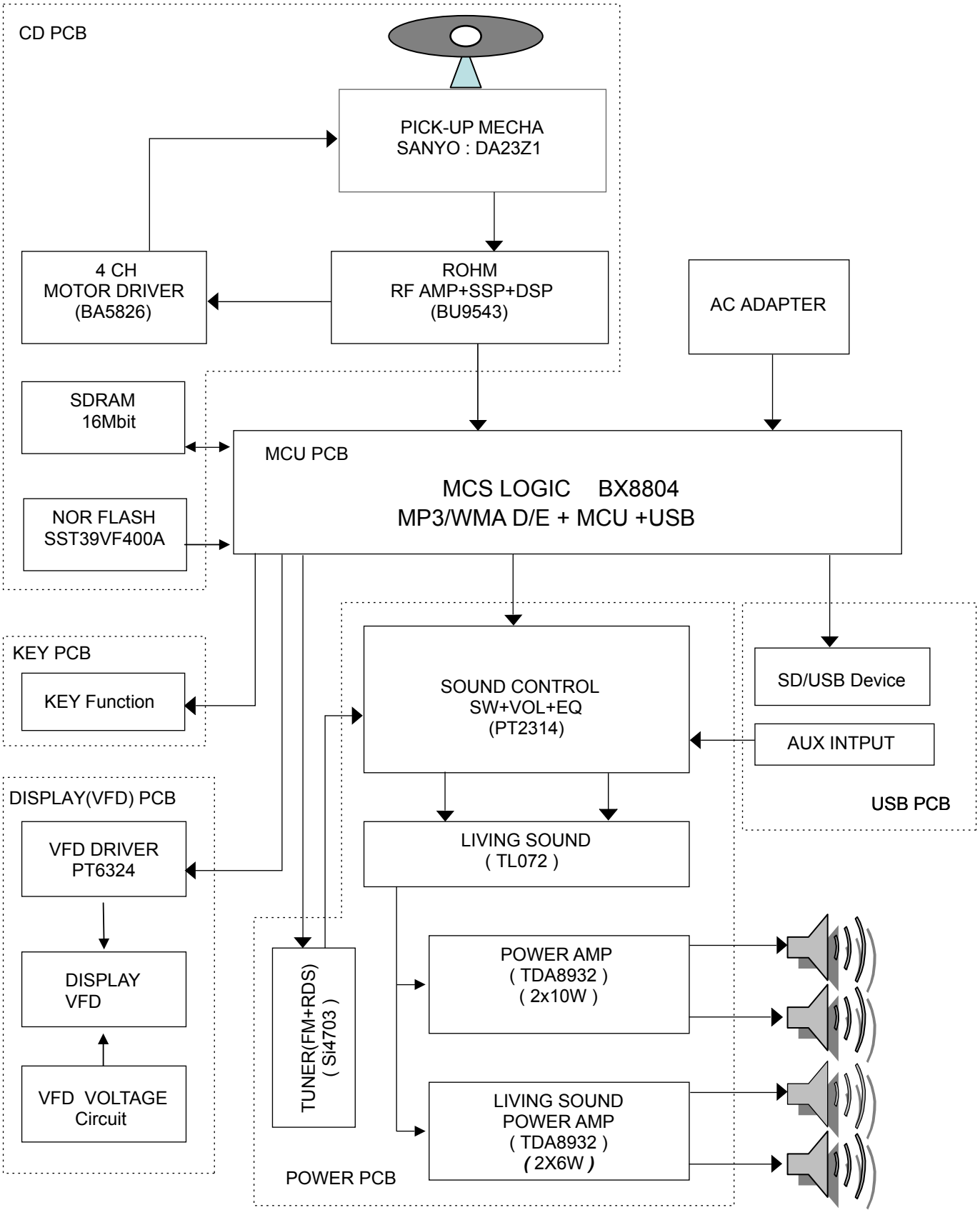
Because the material of the lens is synthetic and coated with a special anti-reflectivity layer, cleaning must be done with a non-aggressive cleaning fluid. It is advised to use “Cleaning Solvent

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.

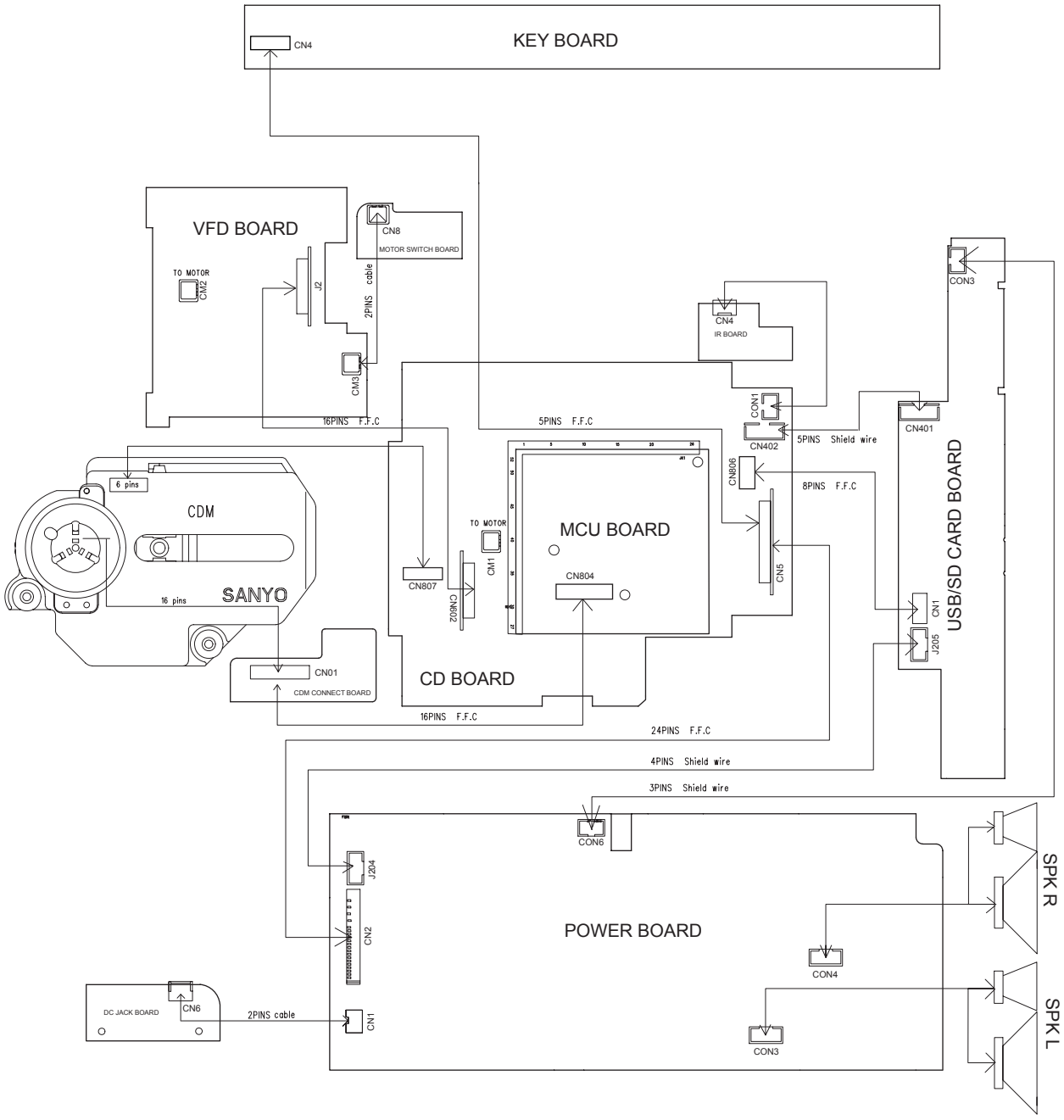
The direction of cleaning must be in the way as indicated in the picture below.



SET BLOCK DIAGRAM



SET WIRING DIAGRAM

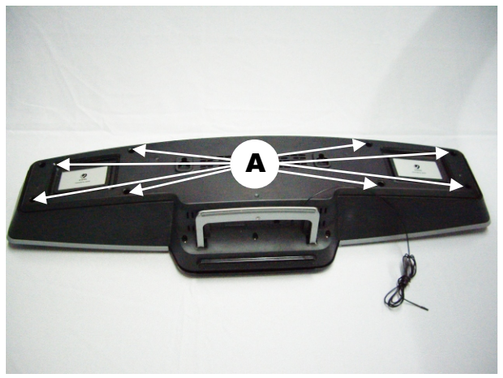


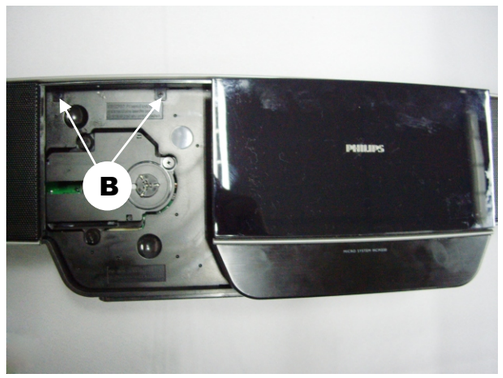
5-1

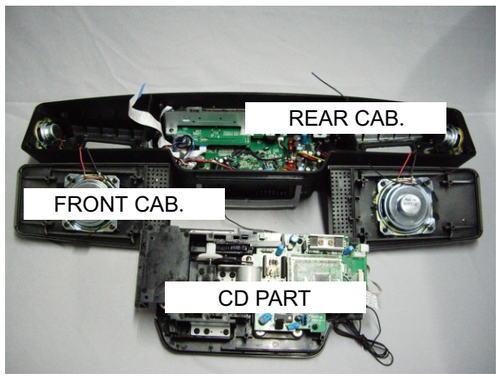
DISASSEMBLY DIAGRAM

Dismantling of the Rear Cabinet

1)Remove 8 screw rubbers.
2)Remove 8 screws A as indicated.
3)Open the CD door.
4)Remove 2 screws B as indicated to loosen the rear cabinet.

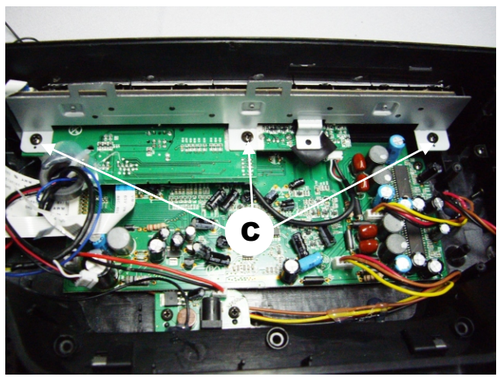


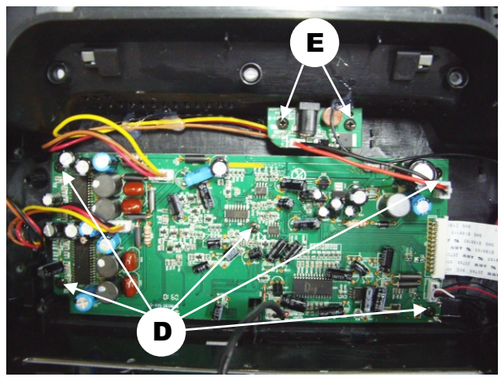


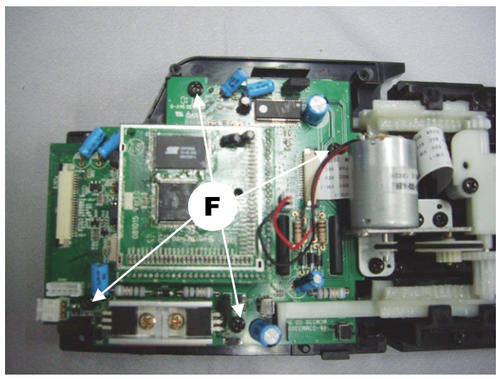


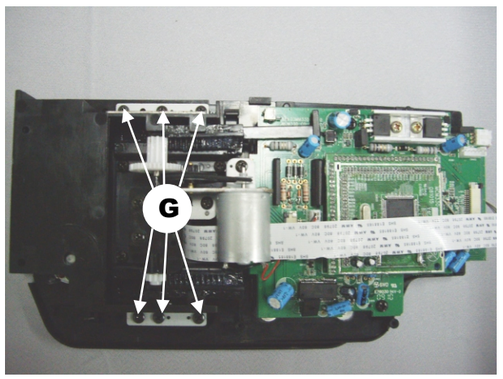
Dismantling of the PCB Board and CD part

1)Remove 3 screws C as indicated to loosen the Key Board and USB/SD jack Board.
2)Remove 5 screws D as indicated to loosen the Power Board.
3)Remove 2 screws E as indicated to loosen the DC jack Board.
4)Remove 4 screws F as indicated to loosen the CD Board.
5)Remove 6 screws G as indicated to loosen the CD mechanism



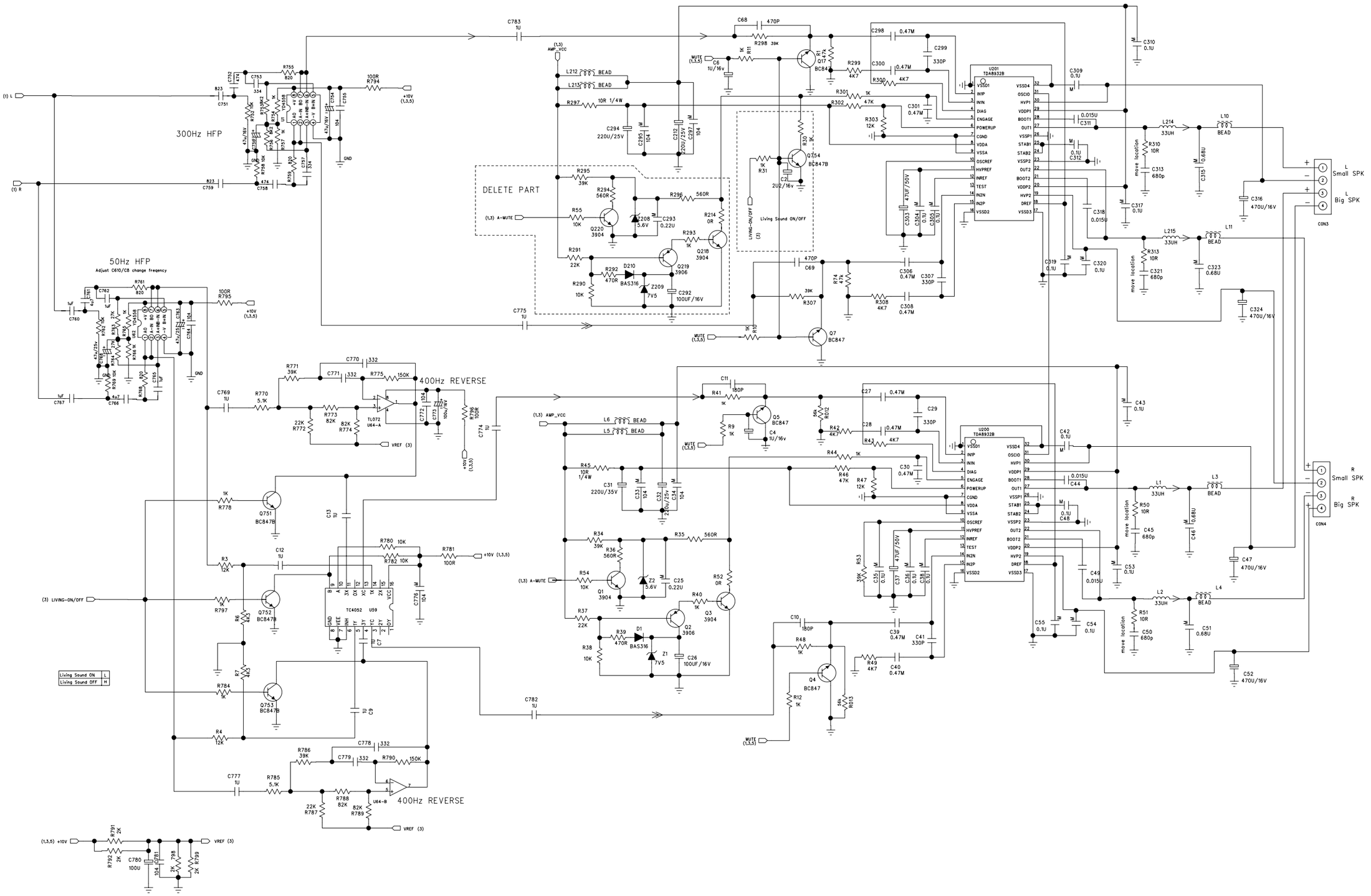






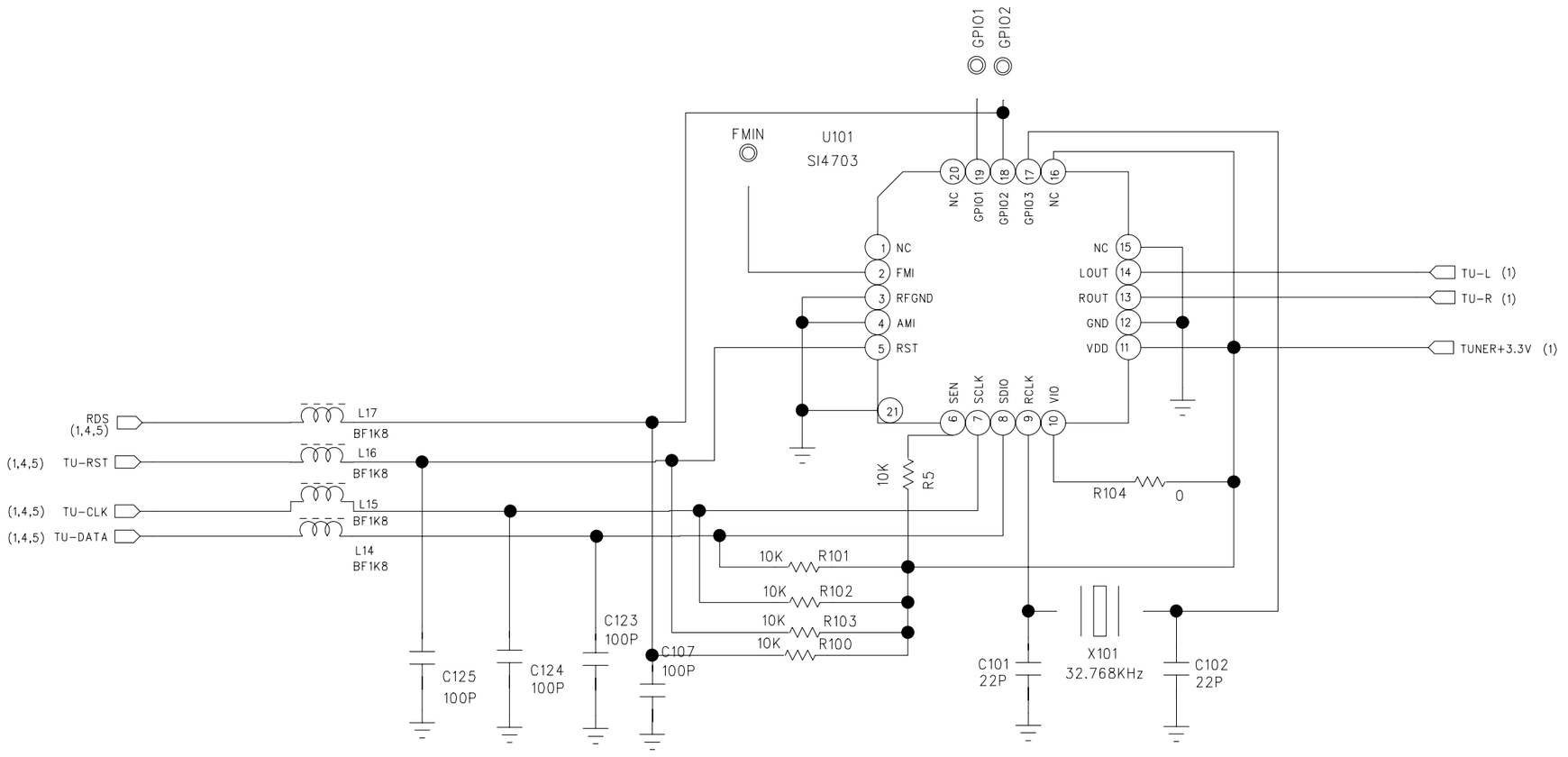
6-1

CIRCUIT DIAGRAM - POWER BOARD
PART1



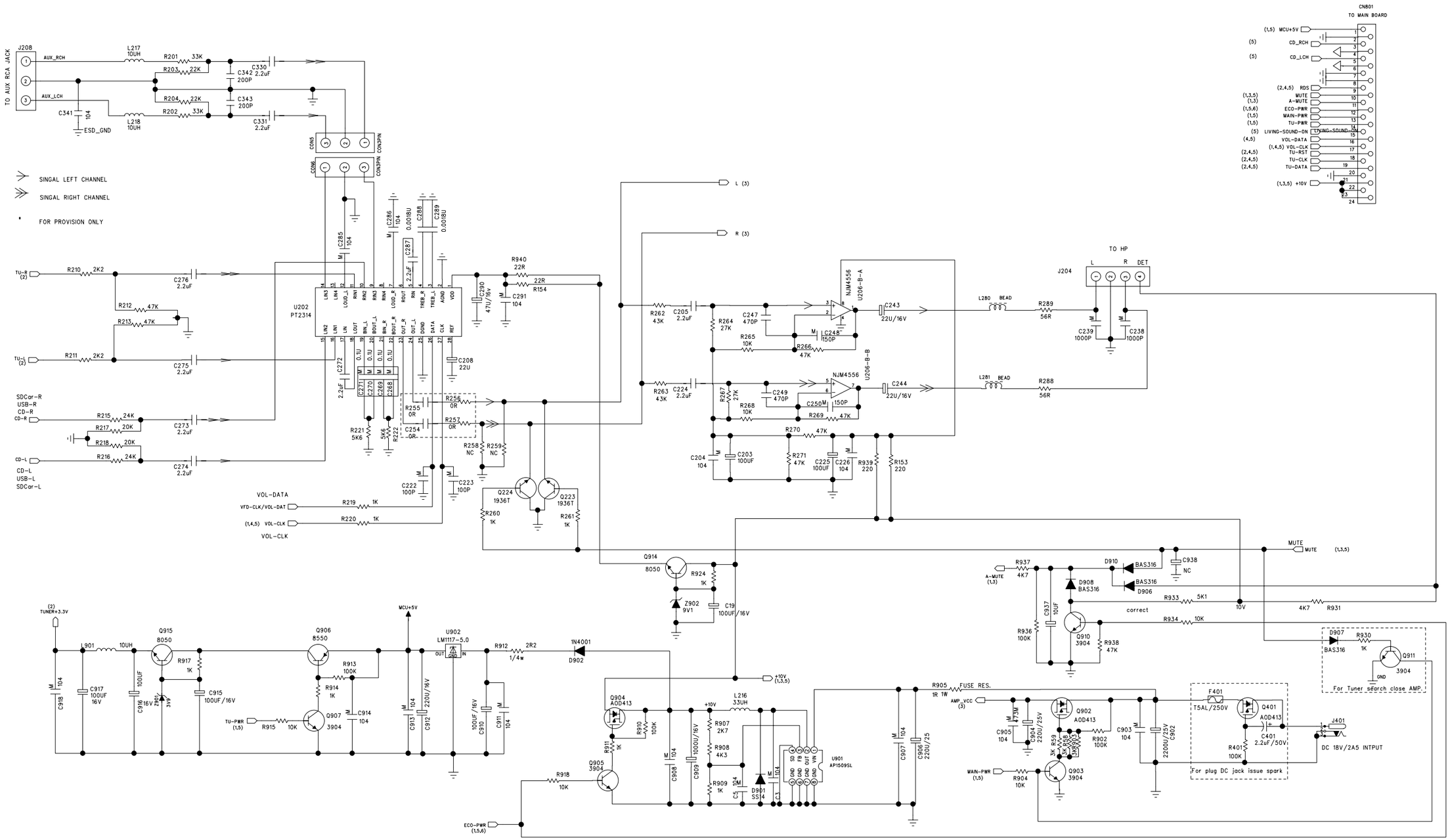
6-2

CIRCUIT DIAGRAM - POWER BOARD
PART2



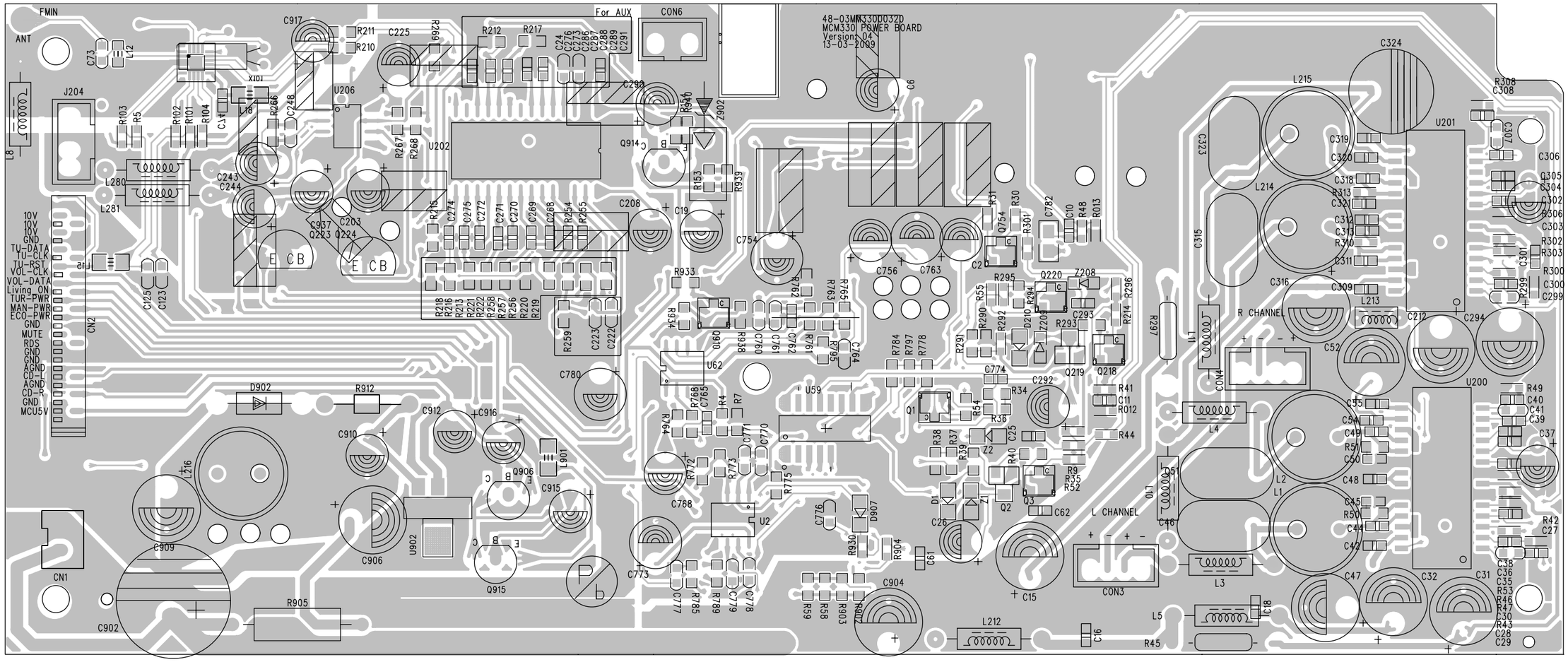
6-3

CIRCUIT DIAGRAM - POWER BOARD
PART3



6-4

LAYOUT DIAGRAM - POWER BOARD
TOP SIDE


48-03MM330D032D
MCM330 POWER BOARD
Version: 04
13-03-2009
For AUX
CON6
FMIN
ANT
J204
CN2
CN1
10V
10V
10V
GND
TU-DATA
TU-CLK
TU-RST
VOL-CLK
VOL-DATA
Living_ON
TUR-PWR
MAN-PWR
ECO-PWR
GND
MUTE
RDS
GND
GND
AGND
CD-L
AGND
CD-R
GND
MCU5V
R CHANNEL
L CHANNEL
CON3
CON4
U200
U201
U202
U206
U62
U59
U2
U902
Q914
Q915
Q906
Q754
Q1
Q2
Q3
Q218
Q219
Q220
Q223
Q224
D902
D907
D210
Z208
Z209
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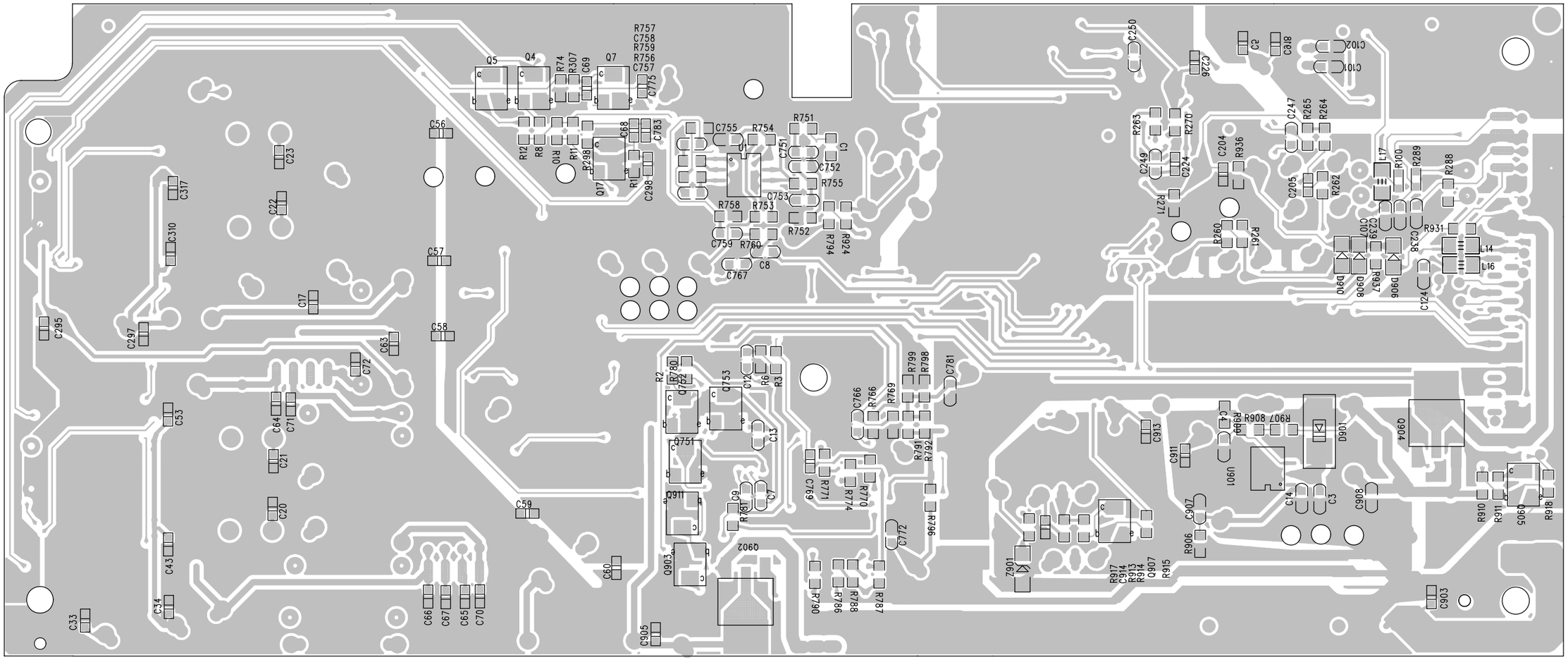
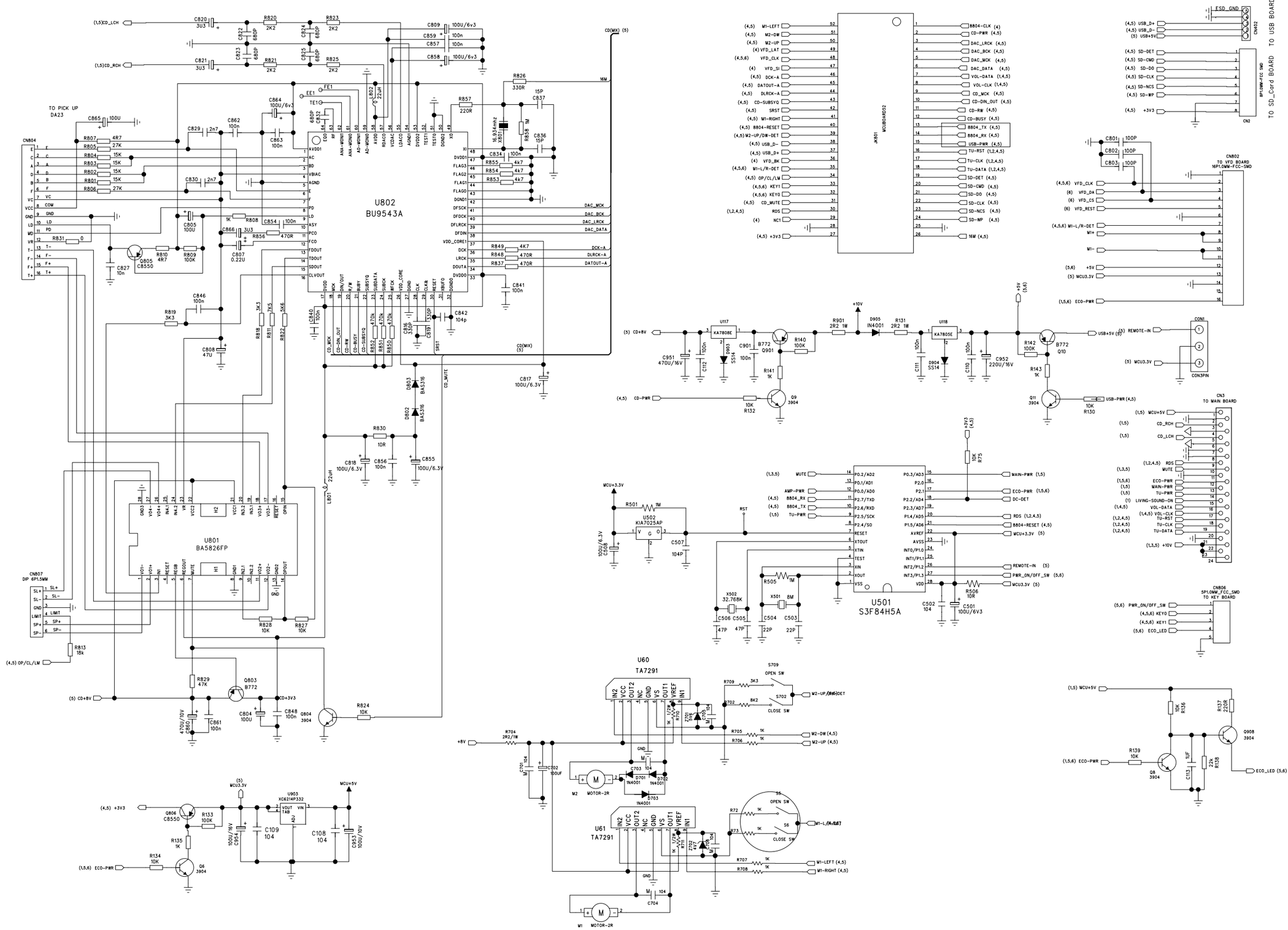
6-5

LAYOUT DIAGRAM - POWER BOARD
BOTTOM SIDE



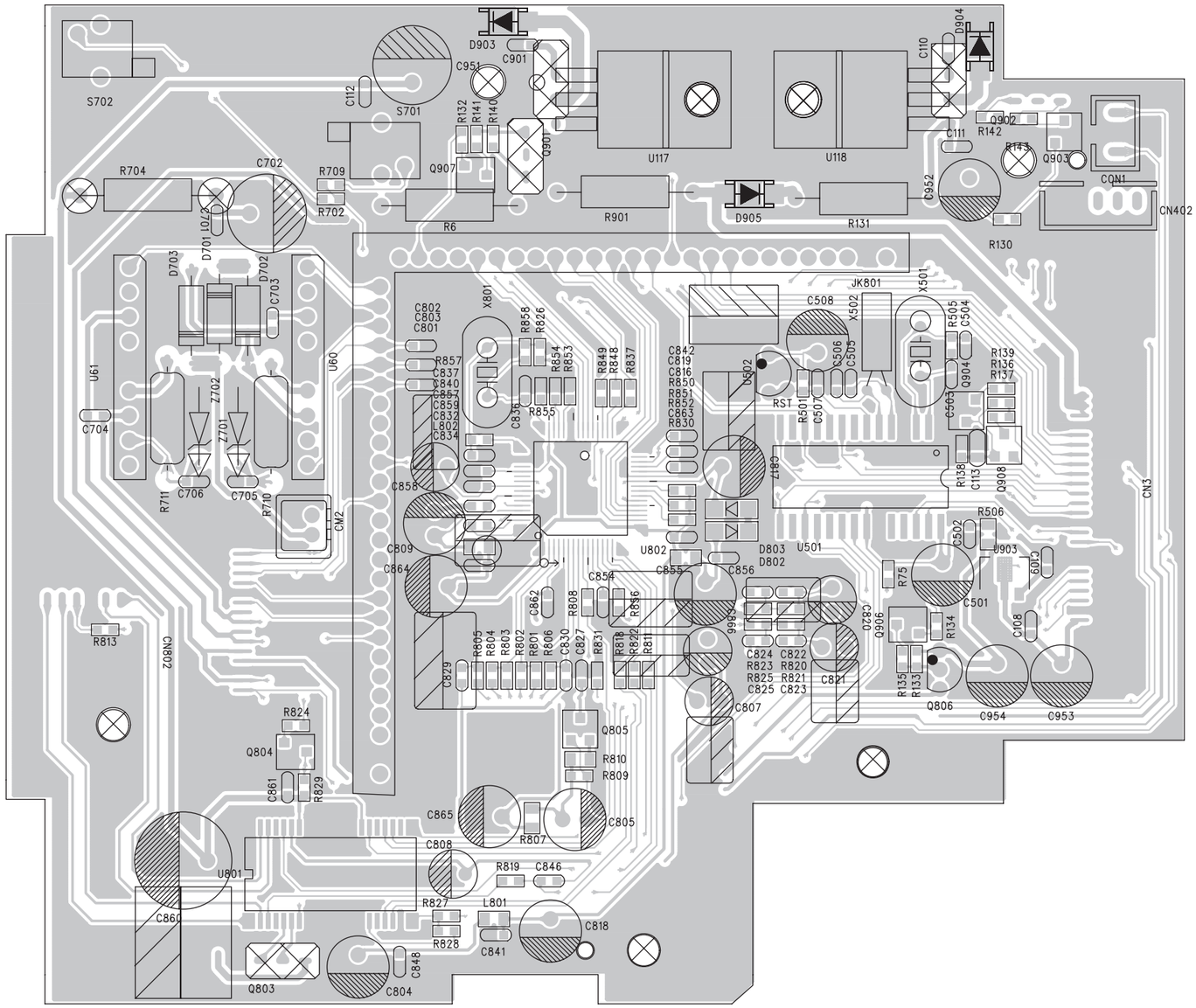
7-1

CIRCUIT DIAGRAM - CD BOARD



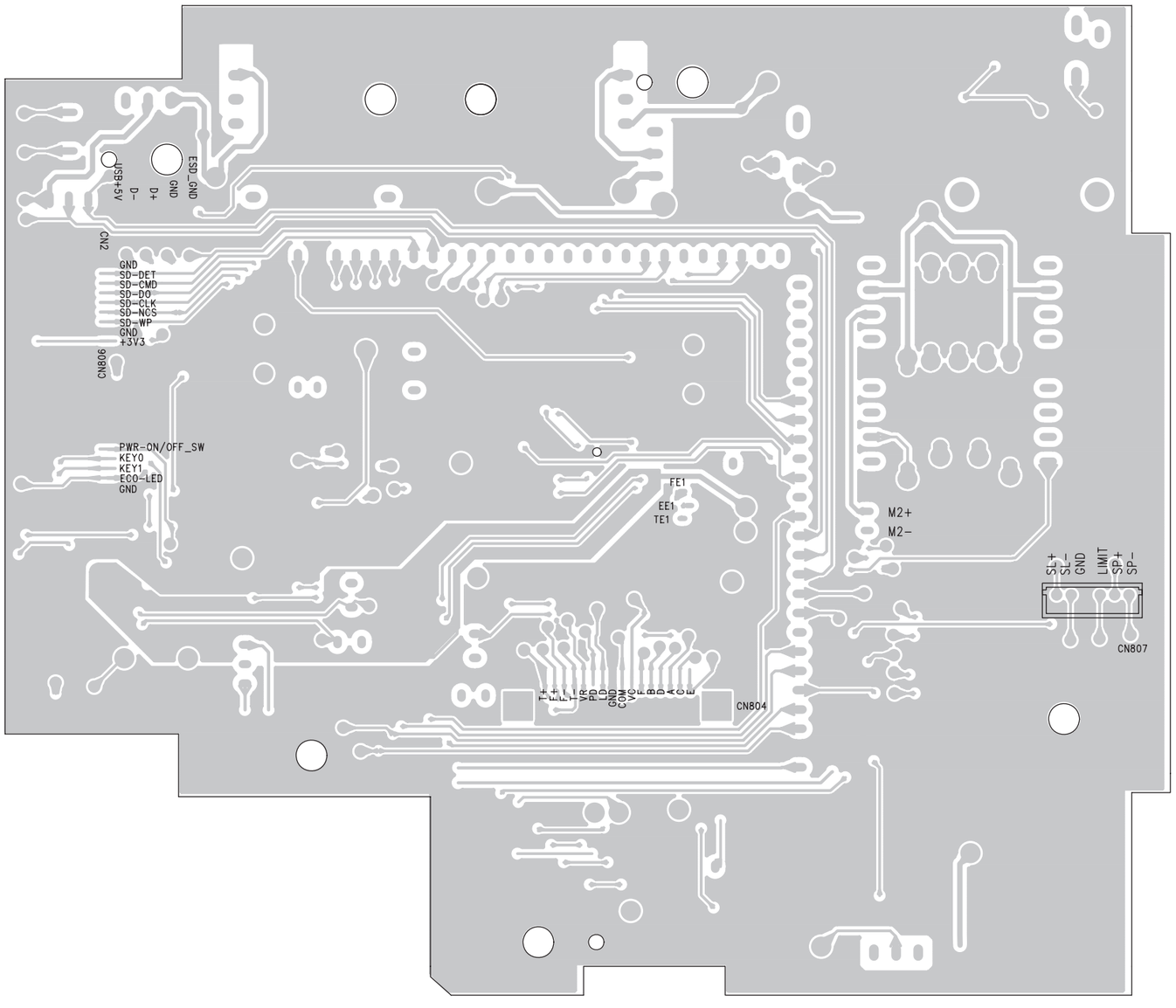
7-2

LAYOUT DIAGRAM - CD BOARD
TOP SIDE



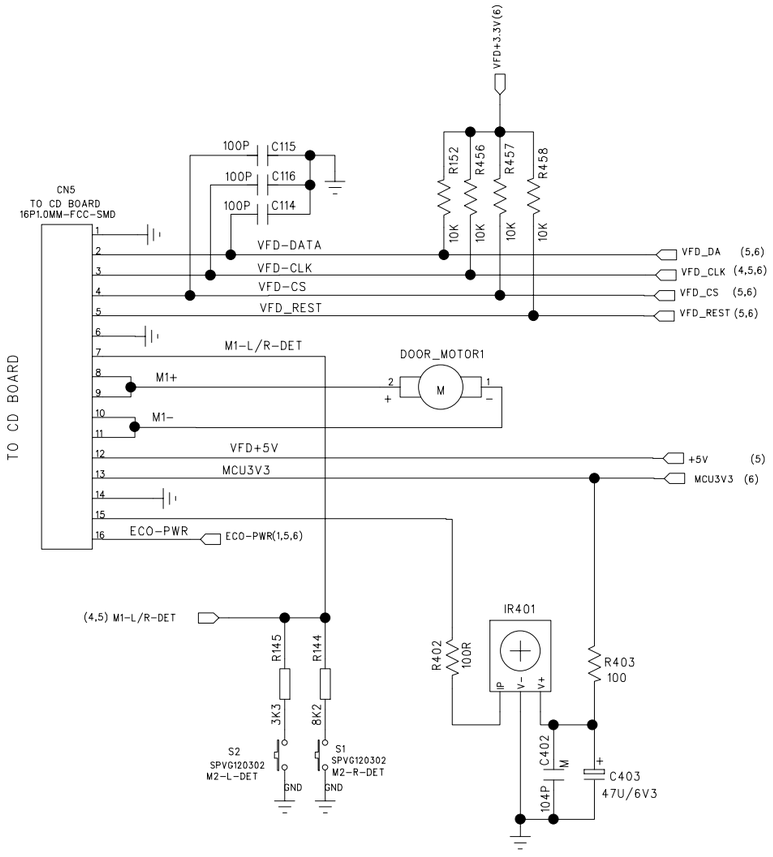
7-3

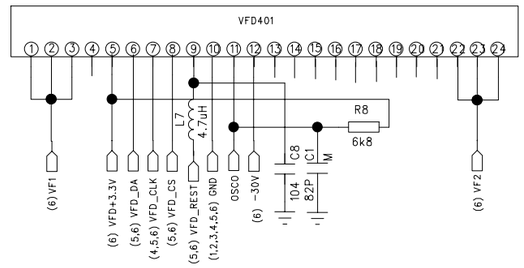
LAYOUT DIAGRAM - CD BOARD
BOTTOM SIDE

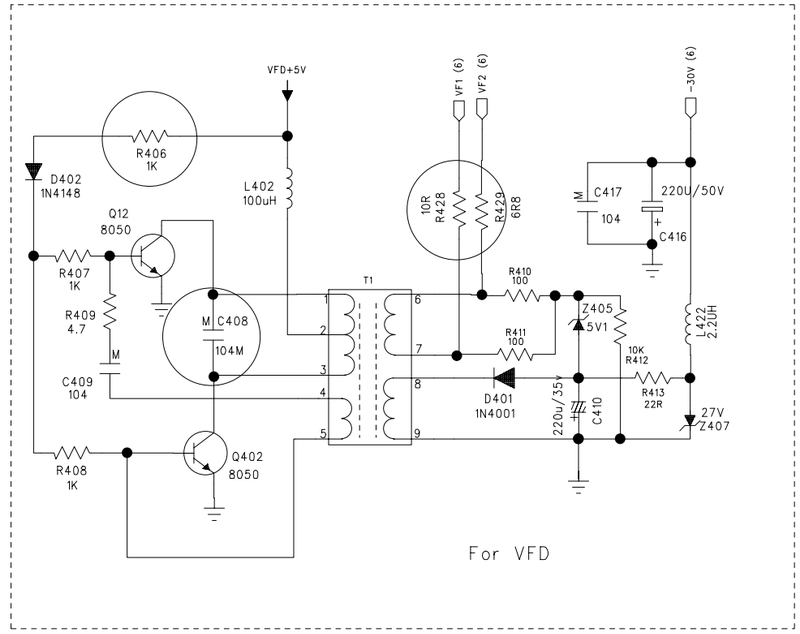


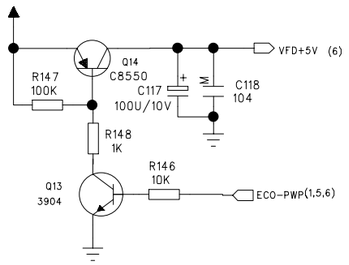
CIRCUIT DIAGRAM - DISPLAY (VFD) BOARD

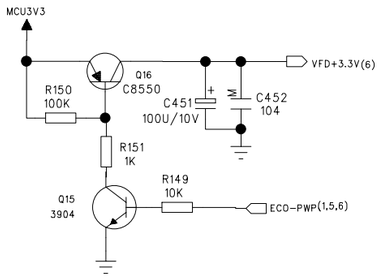
8-1





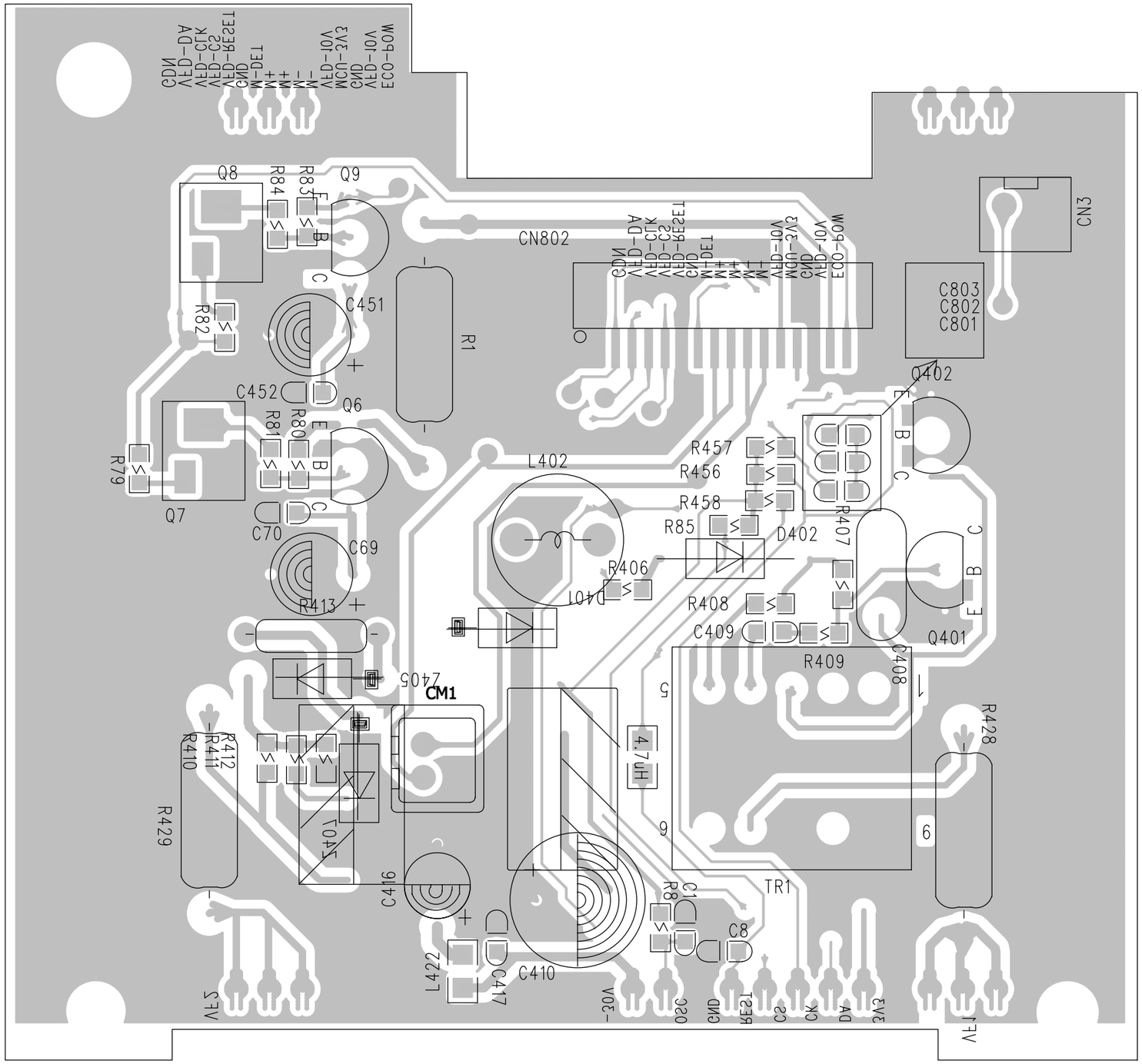






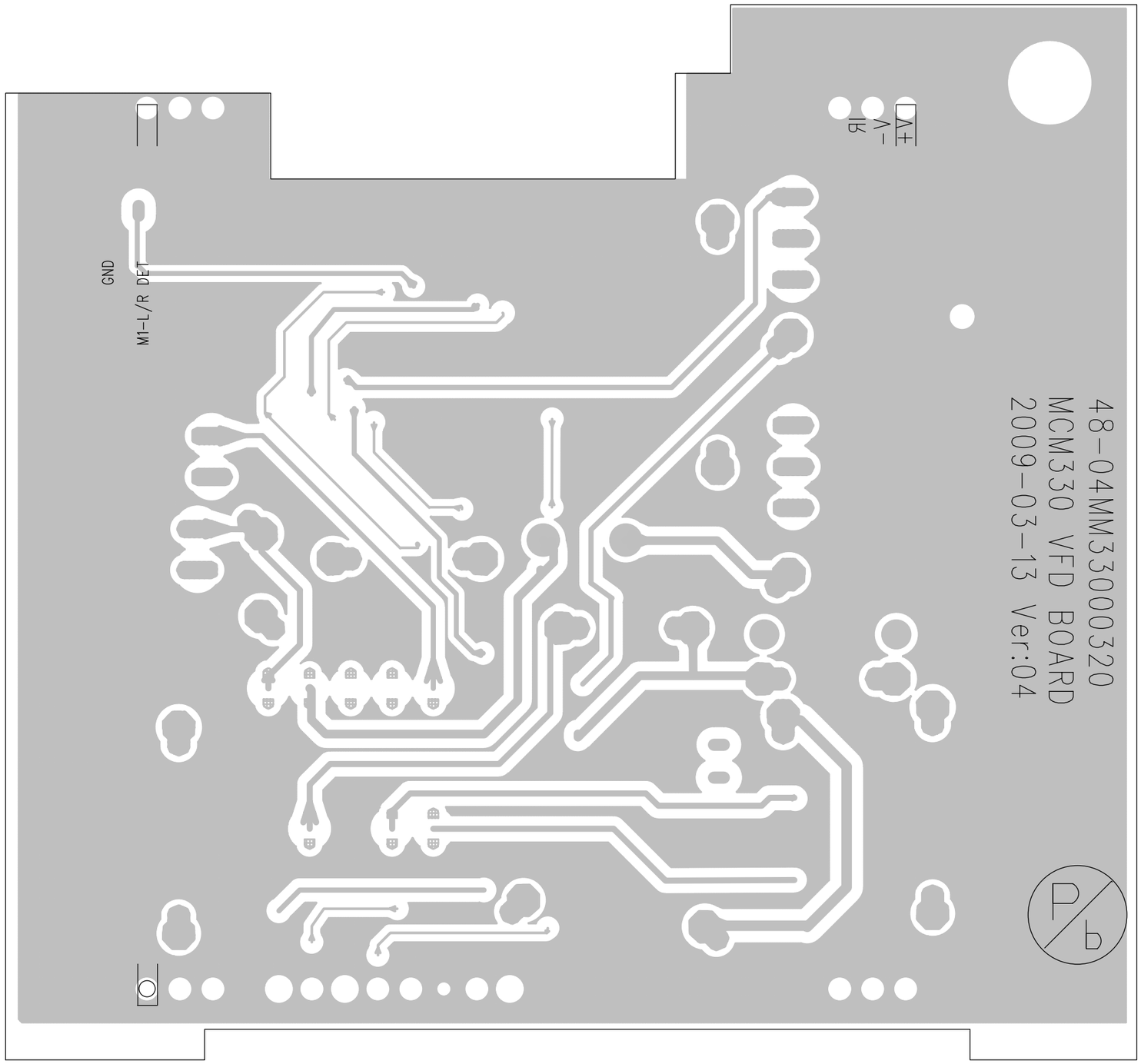
8-2

LAYOUT DIAGRAM - DISPLAY BOARD
TOP SIDE

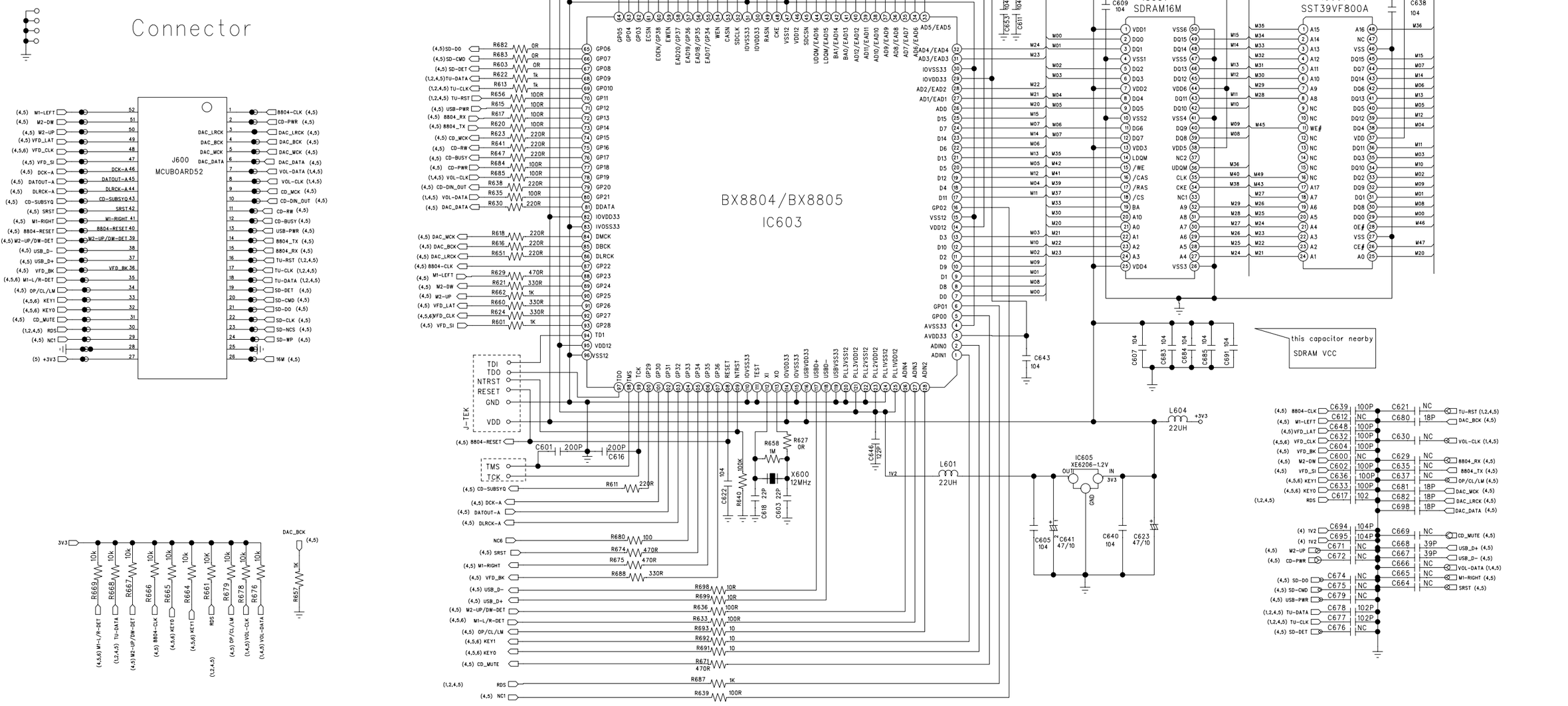


8-3

LAYOUT DIAGRAM - DISPLAY BOARD
BOTTOM SIDE

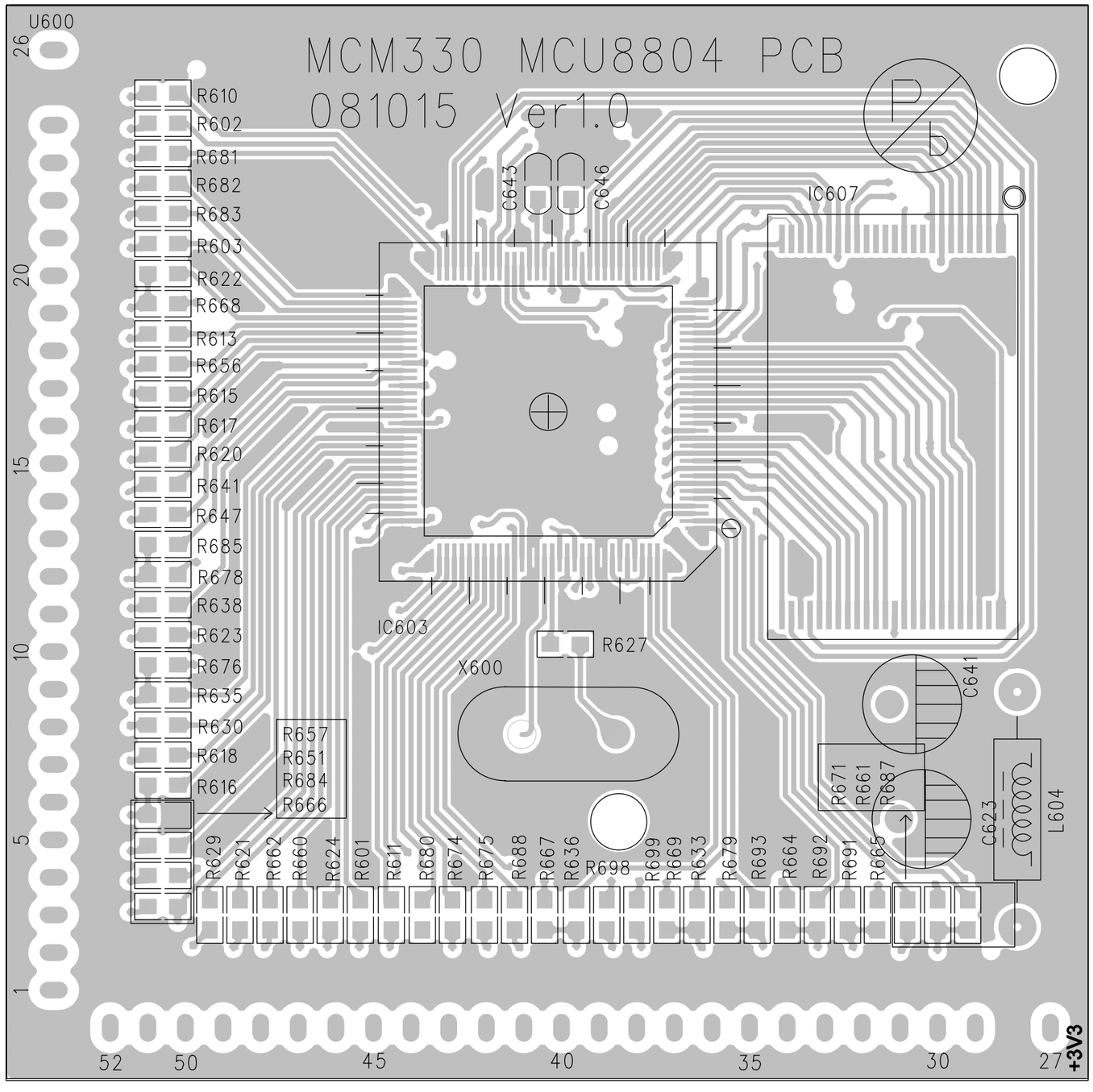


CIRCUIT DIAGRAM -MCU BOARD



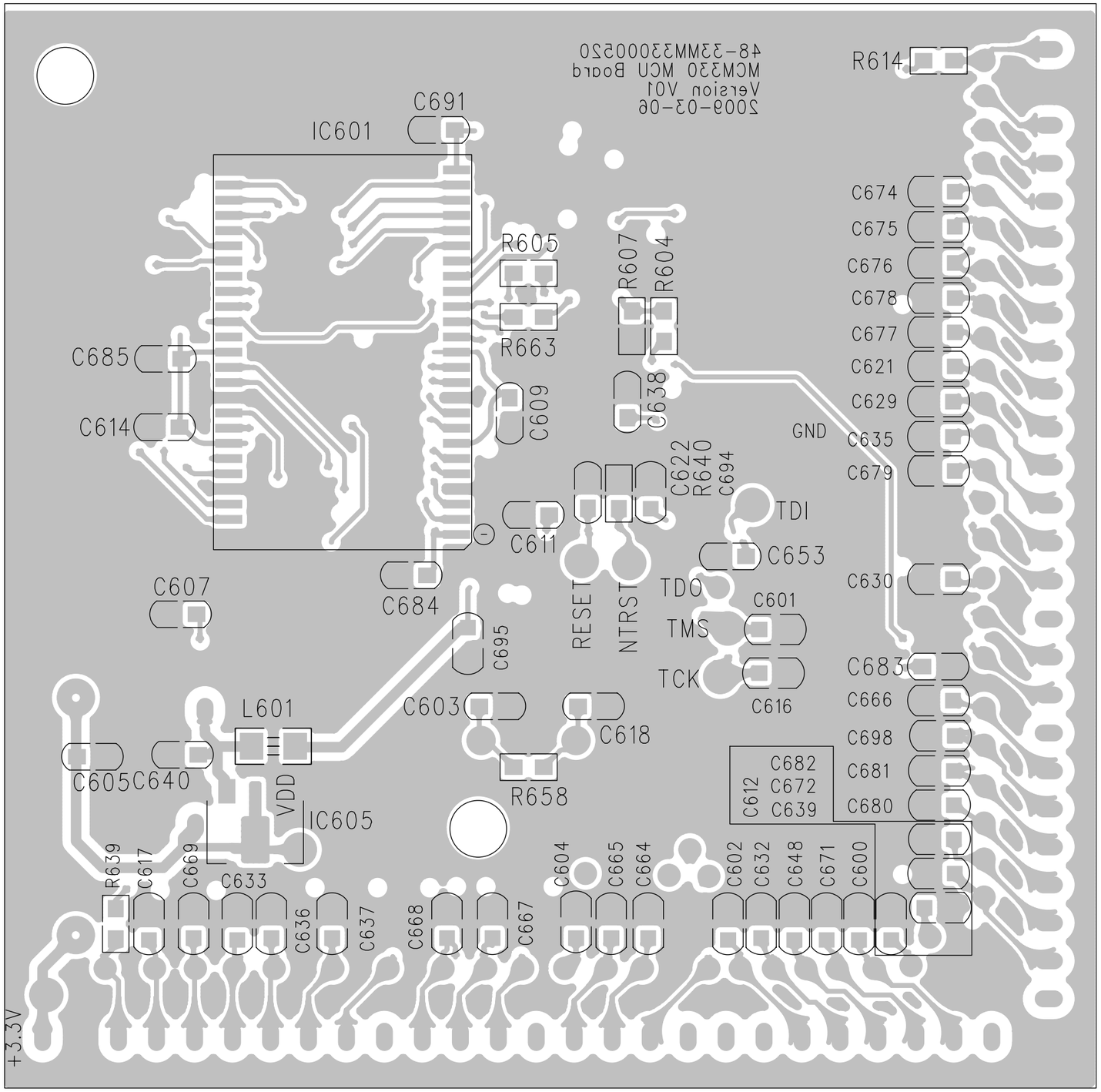
9-2

LAYOUT DIAGRAM - MCU BOARD
TOP SIDE



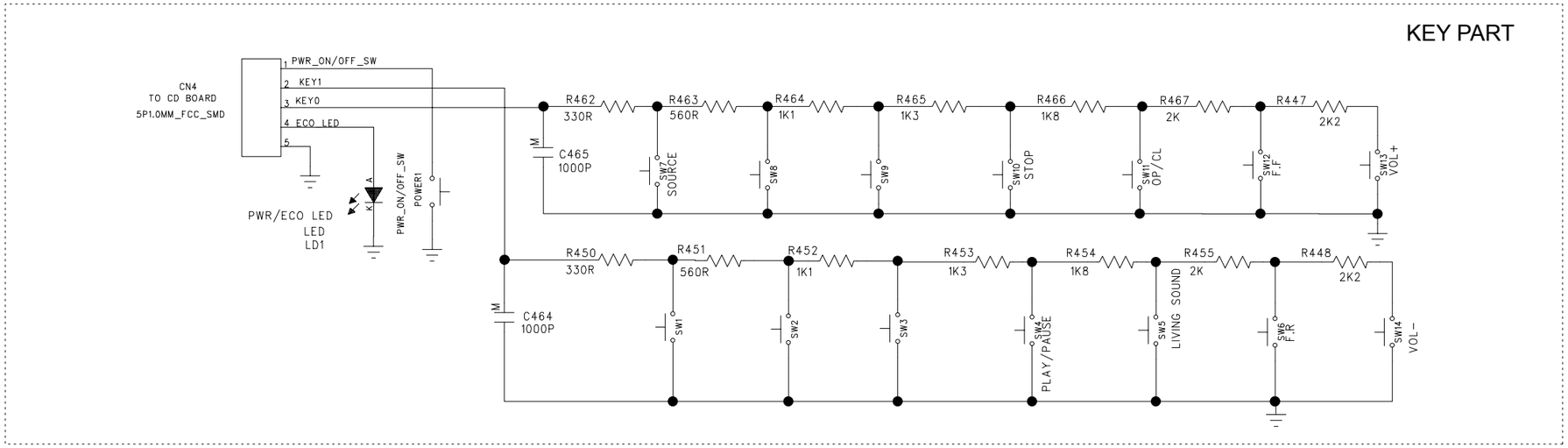
9-3

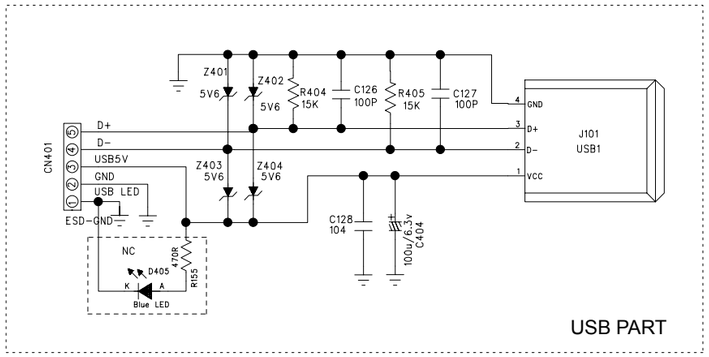
LAYOUT DIAGRAM - MCU BOARD
BOTTOM SIDE

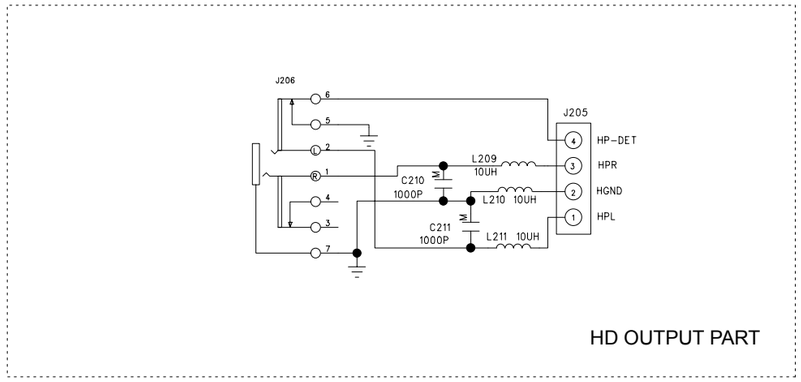


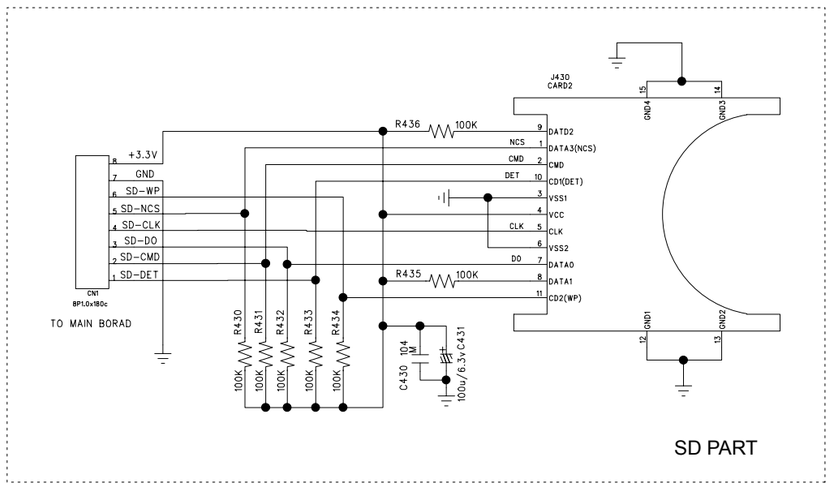
10-1

CIRCUIT DIAGRAM - KEY BOARD AND SOME SMALL BOARD



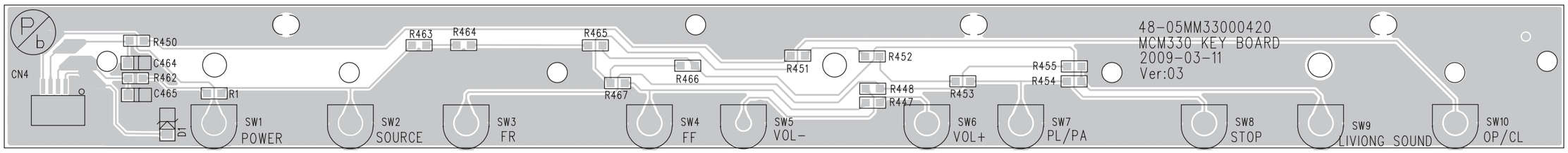


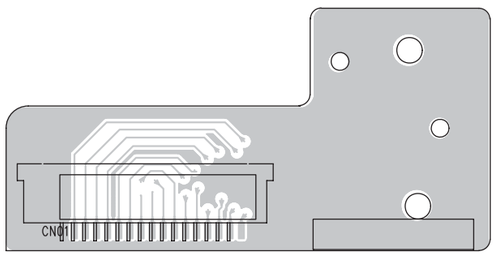


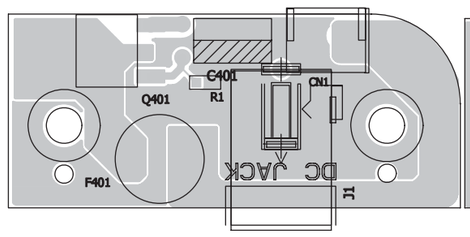


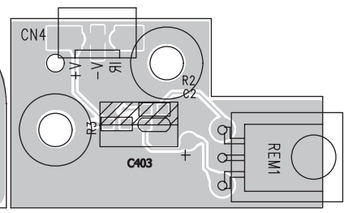
10-2

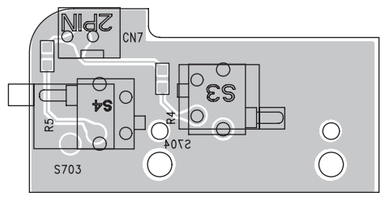
LAYOUT DIAGRAM - KAY BOARD AND SOME SMALL BOARD

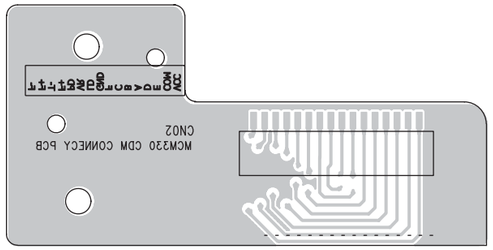


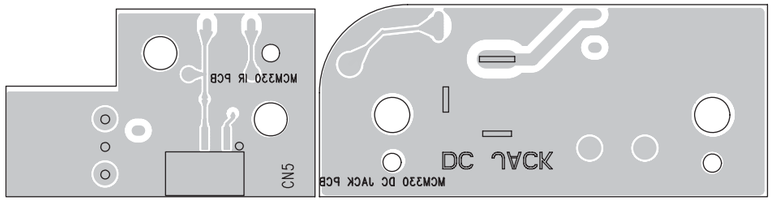


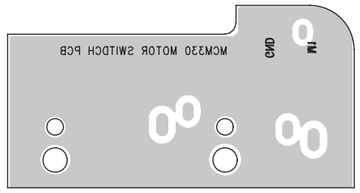


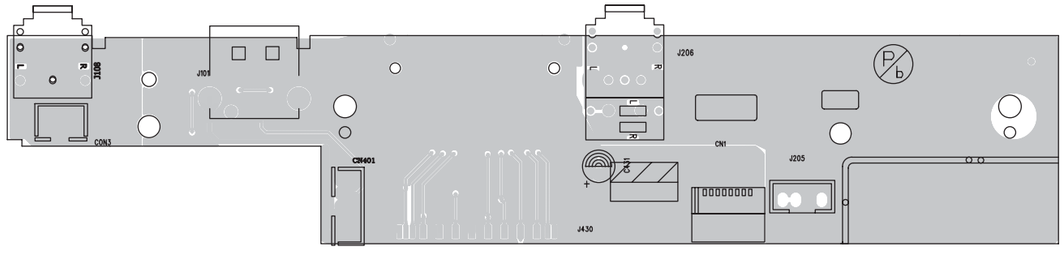


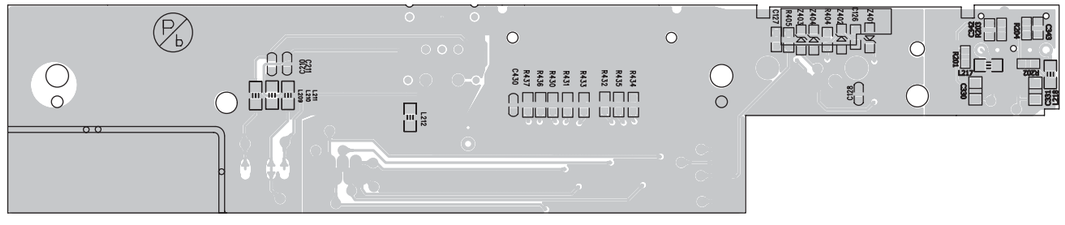






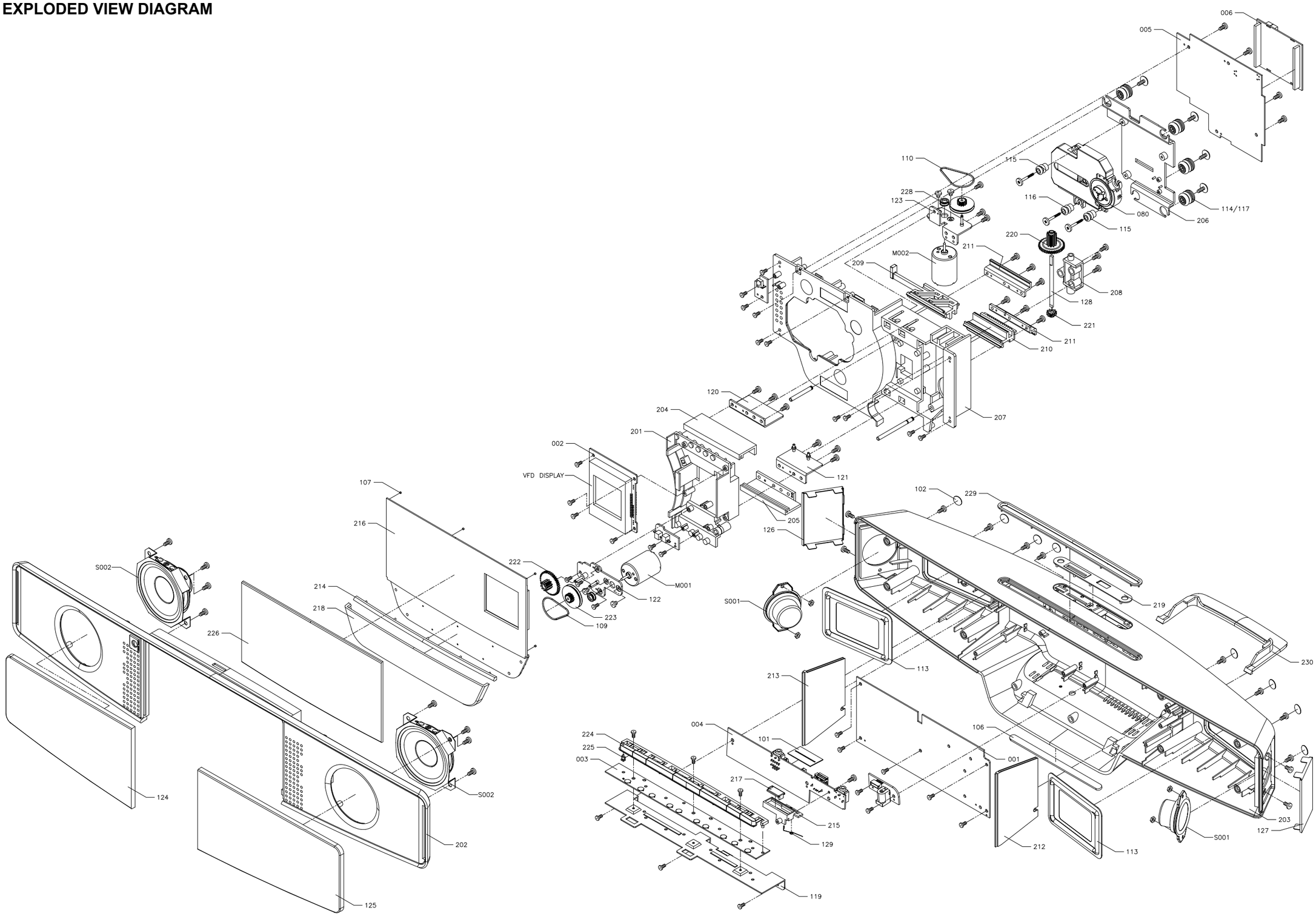






SET EXPLODED VIEW DIAGRAM

11-1



MECHANICAL PARTSLIST

080	994000002822	CD MECHANISM DA23Z1
129	996510023933	USB SPRING
201	996510023968	MOVE PANEL
202	996510023969	FRONT PANEL
203	996510023916	REAR HOUSING
204	996510023938	MOVE UP HOLDER
205	996510023935	MOVE DOWN HOLDER
206	996510023926	DOUBLE CD HOLDER
207	996510023903	CD TRAY
208	996510023907	ROLLER HOLDER
209	996510023937	TRACK UP
210	996510023936	TRACK DOWN
211	996510023919	TRACK DOWN HOLDER
212	996510023953	RIGHT WALL
213	996510023947	LEFT WALL
214	996510023942	FRAME
215	996510023904	USB BRACKET
216	996510023944	CD DOOR
217	996510023932	USB DOOR
218	996510023927	COSMETIC COVER
219	996510023945	USB COVER
220	996510023931	ROLLER BOTTOM GEAR
221	996510023911	ROLLER TOP GEAR
222	996510023901	TOP GEAR
223	996510023939	DRIVER GEAR-1
224	996510023906	TOP BUTTONS
225	996510023913	LED LIGHTGUIDE LENS
226	996510023921	DOOR LENS
228	994000002818	DOOR MOTOR PULLY
229	996510023929	BUTTONS RING
230	996510023951	STAND(PC+ABS)
J001	994000001942	16P FFC 1MM L80MM
J002	996510023954	8 FFC. 1mm L=120mm
J003	996510023948	24P FFC. 1mm L=160mm
J004	996510012588	5P FFC 1MM L=150MM
J005	996510023923	16P FFC. 1mm L=180mm
J006	996510023908	16P FFC. 1mm L=210mm
S001	996510023946	SPEAKER 1.5 10W 4
S002	996510025345	SPEAKER 2.5 4 15W

ACCESSORIES

T001	996510023934	AC ADAPTER 100-240V
RC	996510029727	REMOTE CONTROL
J009	996510002103	CONN. CORD 3.5 ST/PLUGx2 500mm

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

ELECTRICAL PARTSLIST

POWER BOARD ASSEMBLY

F	994000000245	BAND PASS FILTER
L14	996510023922	CHIP FERRITE BEAD 1800 +-25%
L15	996510023922	CHIP FERRITE BEAD 1800 +-25%
L16	996510023922	CHIP FERRITE BEAD 1800 +-25%
L17	996510023922	CHIP FERRITE BEAD 1800 +-25%
L901	996510023922	CHIP FERRITE BEAD 1800 +-25%
Q902	996510023918	SMD TRANSISTORS AOD413
Q904	996510023918	SMD TRANSISTORS AOD413
U1	996510019882	IC D4558
U101	996510023928	IC SI4703-C19-GM
U2	996510023941	IC TL072 (S08) SMD LOW NOISE
U200	996510012038	IC TDA8932BT
U201	996510012038	IC TDA8932BT
U202	996500039806	IC ET2314 (SOP28)
U206	994000001201	IC NJM4556AM
U59	996510012555	IC 74HC4052D
U62	996510019882	IC D4558
U901	996510023943	IC AP1509SL (SOP-8)
U902	996510023949	IC LM1117S- 5V SOT-223
X101	996500042441	X'TAL 32.768KHZ -20PPM

DISPLAY BOARD ASSEMBLY

T1	⚠ 996510023899	TRANSFORMER(only for bare PCB:48-04MM33000320)
T1	⚠ 996510035474	TRANSFORMER H00601A(only for bare PCB:48-04MM33000321)
VFD401	996510023915	VFD DISPLAY

KEY BOARD ASSEMBLY

D1	996510023952	LED LAMP (BLUE) 2x1.75x0.74mm

USB & SD CARD BOARD ASSEMBLY

J101	996510023909	USB SOCKET (USB-4PW) 90C
J108	994000004369	PHONE JACK TC38-063-05-0
J206	996510012048	PHONE JACK D3.6mm
J403	996510023914	SD CARD 7SDCN-X0-X101-E

ELECTRICAL PARTSLIST

MCU BOARD ASSEMBLY

IC601	996510020772	IC SI636165TS
IC603	996510021319	IC BX8804
IC605	996510020761	IC XC6206P122PR 1.2V
IC607	996510020771	IC SST39VF800A
J600	996510023917	FLAT PIN 2mm 26P L=8mm
J601	996510023917	FLAT PIN 2mm 26P L=8mm
X600	996510008326	CRYSTAL 12 MHzHC-49/US H=3.5mm

CD BOARD ASSEMBLY

F401	⚠	996510002426	FUSE RADIAL T5A 250V
J401		996510008148	DC JACK TC-18-013-23-V0 UL APP
JK801		996510023925	PCB CONNECTOR 2mm 26P
JK802		996510023925	PCB CONNECTOR 2mm 26P
Q803		994000004145	TRANSISTORS B772Y (160-320)
Q901		994000004145	TRANSISTORS B772Y (160-320)
Q902		994000004145	TRANSISTORS B772Y (160-320)
R131	⚠	994000004478	FUSE RESISTORS 1R 1W +-5%
R704	⚠	994000004478	FUSE RESISTORS 1R 1W +-5%
R901	⚠	994000004478	FUSE RESISTORS 1R 1W +-5%
REM1		996510023905	OPTIC SENSER FM-9038TM2-5AN
S701		994000004552	DETECT SWITCH
S702		994000004552	DETECT SWITCH
S703		994000004552	DETECT SWITCH
S704		994000004552	DETECT SWITCH
U117		996510018962	IC UTC7805
U118		996510018852	IC UTC7808
U501		996510023902	IC S3F84H5 (SOP28)
U502		996510009316	IC KIA7025AP/AF TO-92
U60		996510002119	IC TA7291S
U61		996510002119	IC TA7291S
U801		996510009310	IC BA5826FP
U802		996510009311	IC BU9543KV (SMD)
U903		996510012556	IC XC6214P332
X501		994000004451	CRYSTAL 8.000MHZ +-20PPM
X502		996510012559	CRYSTAL 32.768KHZ
X801		994000004551	CRYSTAL 16.9344MHZ +-20PPM

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