

Service
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Service Manual

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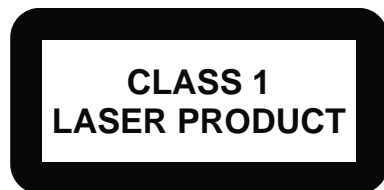
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Version 1.6



PHILIPS

SPECIFICATIONS

AMPLIFIER

Output power 2 x 4W RMS
 Signal-to-noise ratio ≥ 60 dBA (IEC)
 Frequency response 125 – 16000 Hz
 Impedance loudspeakers 4Ω

CD PLAYER

Frequency range 125 – 16000 Hz
 Signal-to-noise ratio 65 dBA

TUNER

FM wave range 87.5 – 108 MHz
 MW wave range 531 – 1602 kHz
 Sensitivity at 75 Ω
 – FM 26 dB sensitivity 20 μ V
 – MW 26 dB sensitivity 5 mV/m
 Total harmonic distortion $\leq 5\%$

TAPE DECK

Frequency response
 Normal tape (type I) 125 – 8000 Hz (8 dB)
 Signal-to-noise ratio
 Normal tape (type I) 40 dBA
 Wow and flutter $\leq 0.4\%$ JIS

SPEAKERS

Bass reflex system
 Dimensions (w x h x d) . 146 x 228 x 160 (mm)

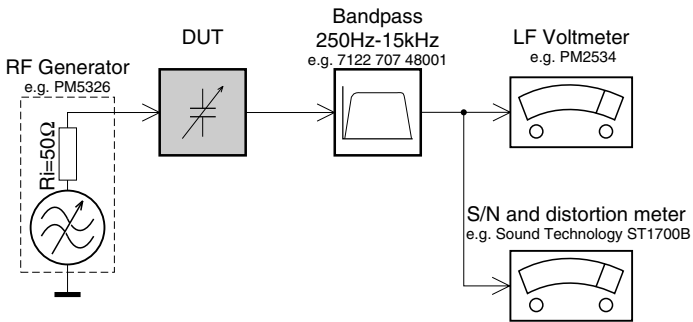
GENERAL INFORMATION

AC Power 220 – 230 V / 50 Hz
 Dimensions (w x h x d) .. 146 x 228 x 216(mm)
 Weight (with/without speakers)
 approx. 4.4 / 2.0 kg
 Power consumption
 Active 30 W
 Standby < 5 W
 Eco Power Standby < 1 W

Specifications and external appearance are subject to change without notice.

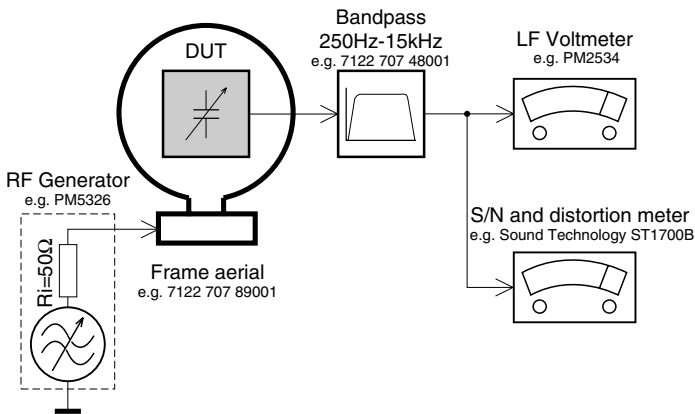
MEASUREMENT SETUP

Tuner FM



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

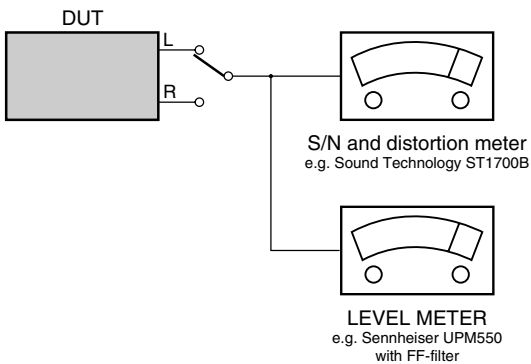
Tuner AM (MW,LW)



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).

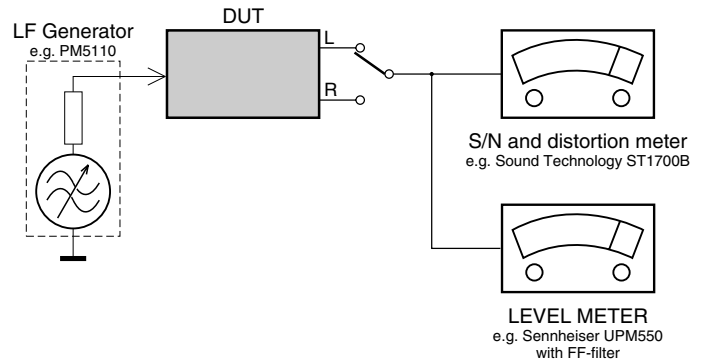
CD

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



Recorder

Use Universal Test Cassette **CrO2** SBC419 4822 397 30069
or Universal Test Cassette **Fe** SBC420 4822 397 30071



SERVICE AIDS

Service Tools:

Universal Torx driver holder	4822 395 91019
Torx bit T10 150mm	4822 395 50456
Torx driver set T6-T20	4822 395 50145
Torx driver T10 extended	4822 395 50423

Compact Disc:

SBC426/426A Test disc 5 + 5A	4822 397 30096
SBC442 Audio Burn-in test disc 1kHz	4822 397 30155
SBC429 Audio Signals disc	4822 397 30184
Dolby Pro-logic Test Disc	4822 395 10216

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".

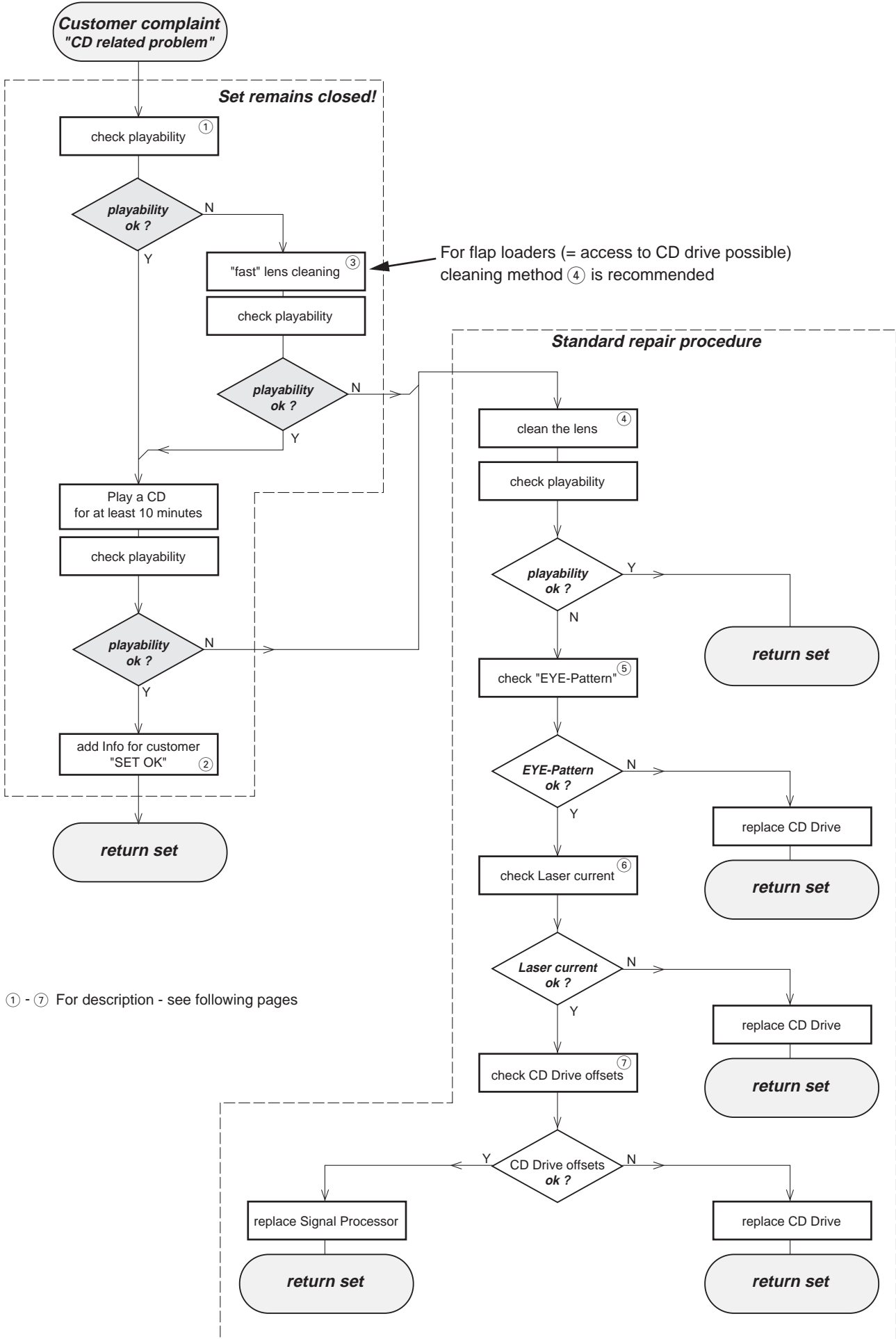
For additional questions please contact your local repair-helpdesk.

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



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.

③

FAST LENS CLEANING (dry brush)

Use lens cleaning CD
 SBC AC300.....9082 100 00043

Insert the lens cleaning CD, press PLAY and follow the voice guide's instructions on the CD.

④

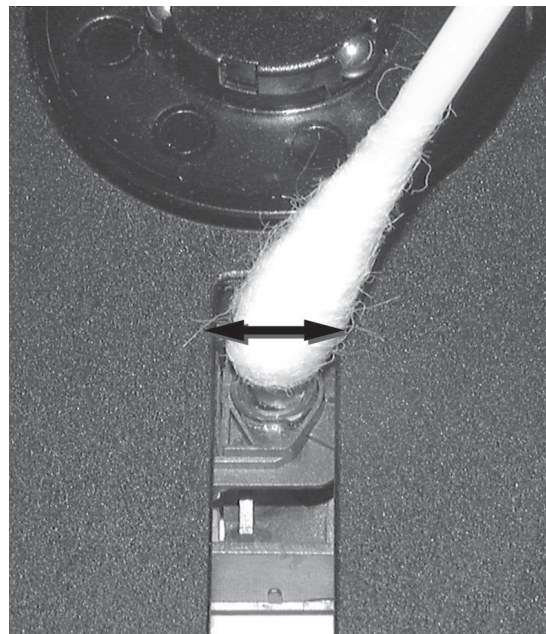
LIQUID LENS CLEANING

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.

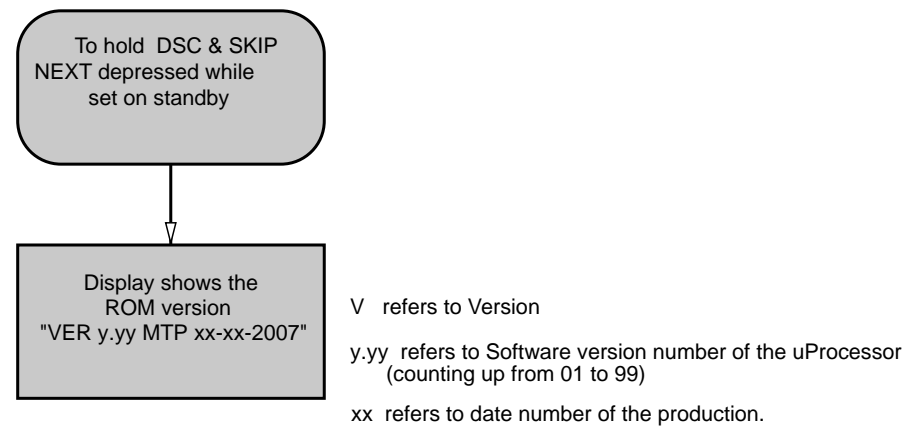
Because the material of the lens is synthetic and coated with a special anti-reflectivity layer, cleaning must be done with a non-aggressive cleaning fluid. It is advised to use "Cleaning Solvent B4-No2", available with codenumber 4822 389 10026.

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.

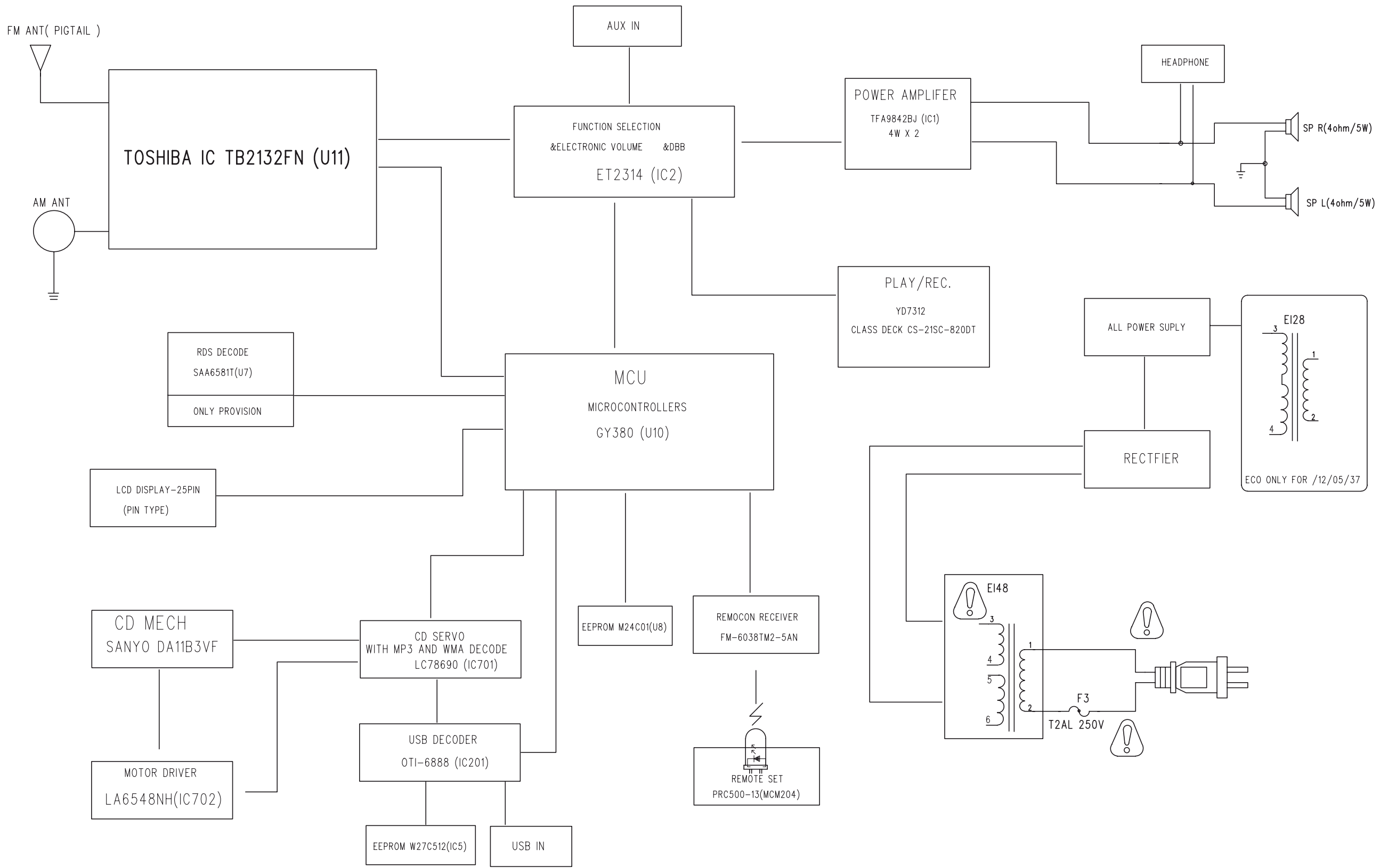
The direction of cleaning must be in the way as indicated in the picture below.



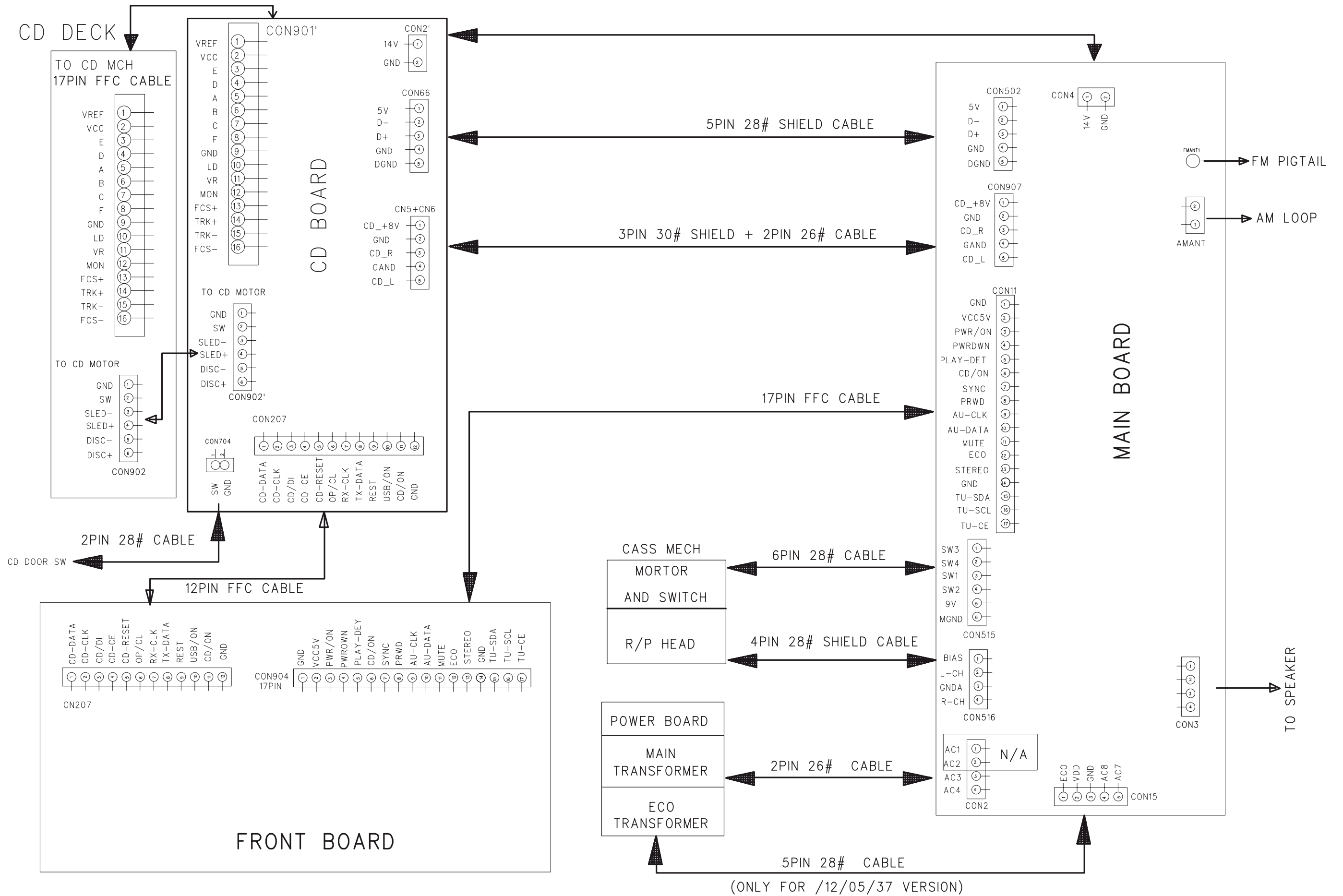
SOFTWARE VERSION CHECKING



SET BLOCK DIAGRAM



SET WIRING DIAGRAM

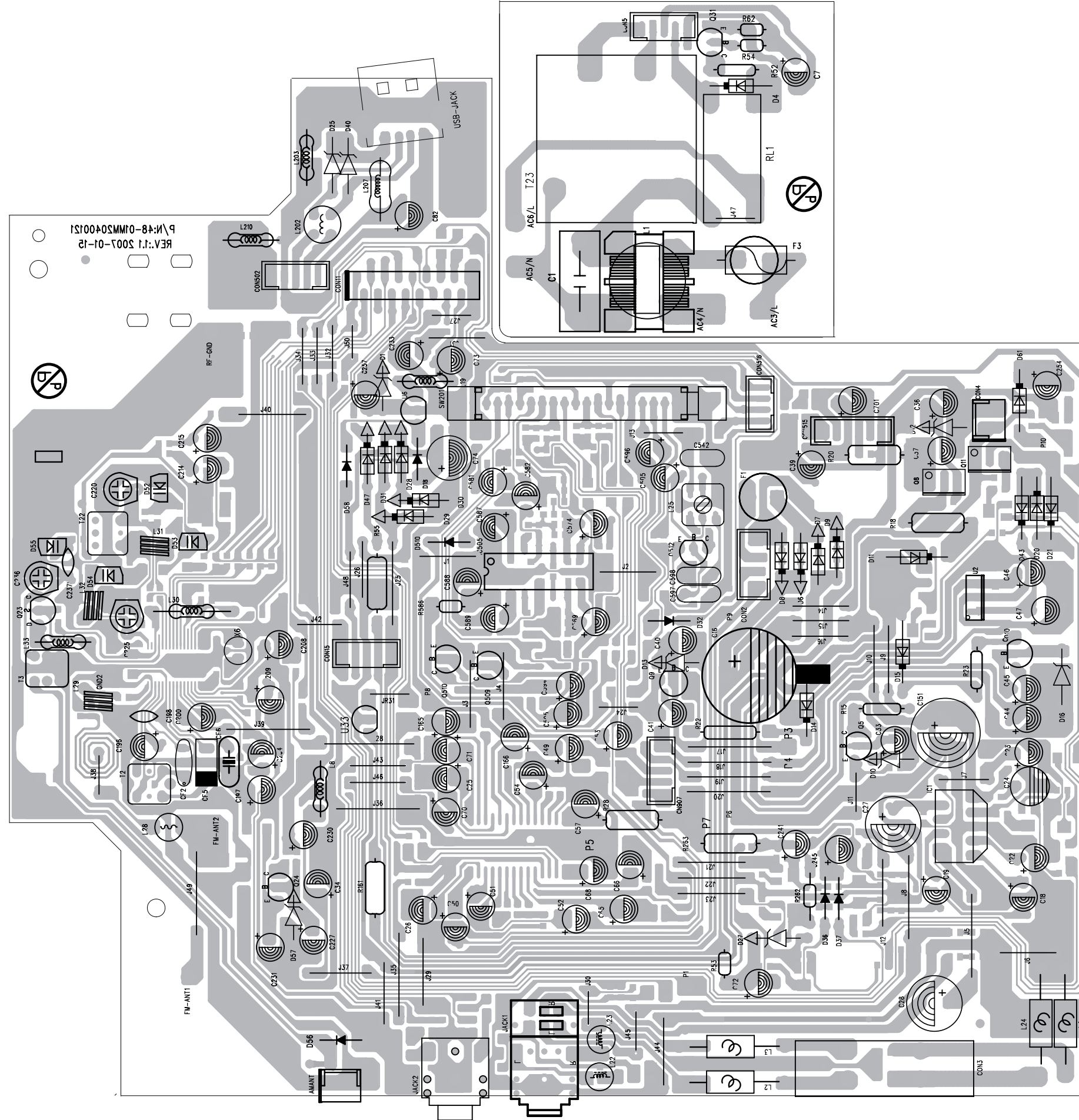


MAIN & POWER BOARD

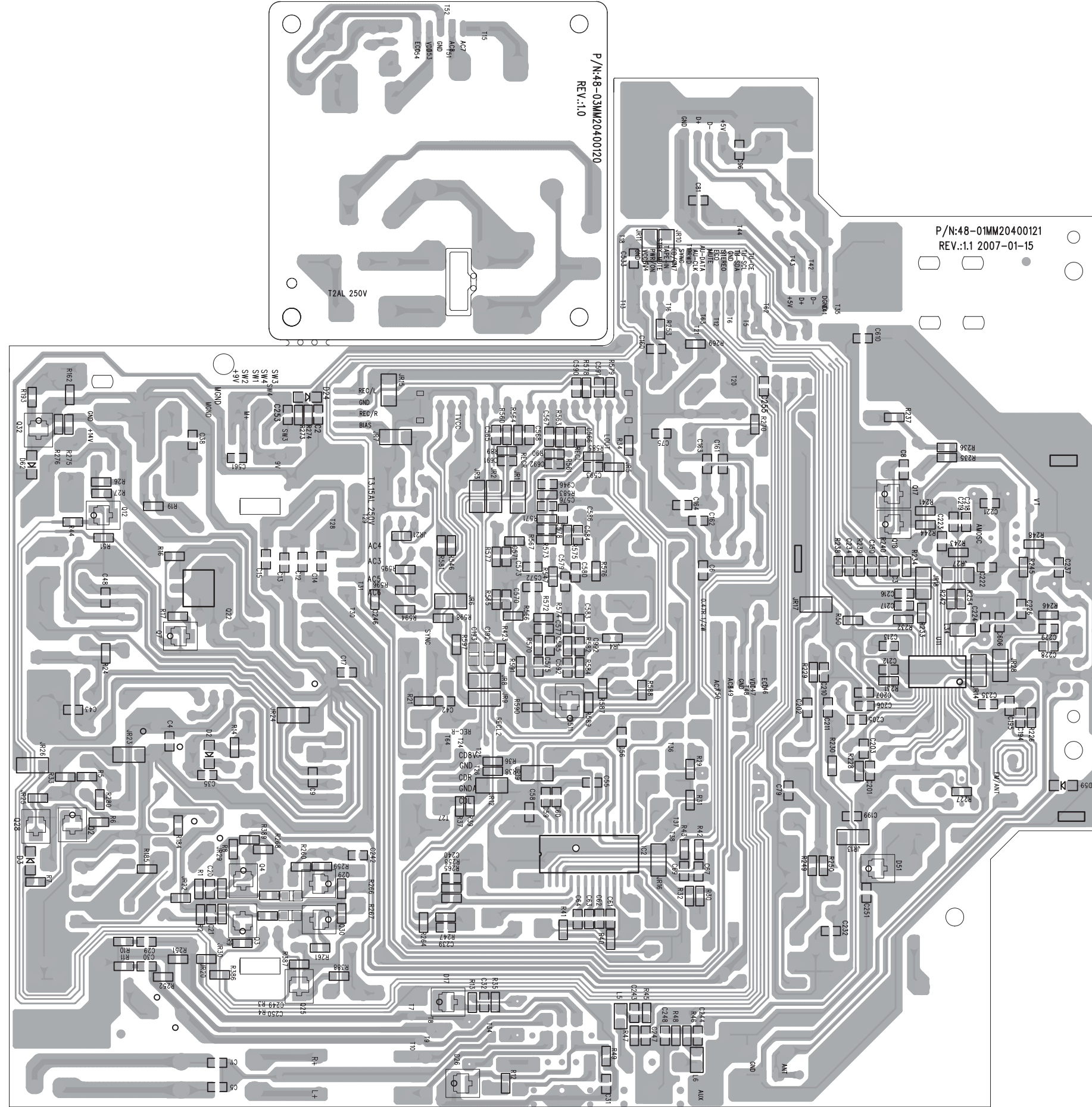
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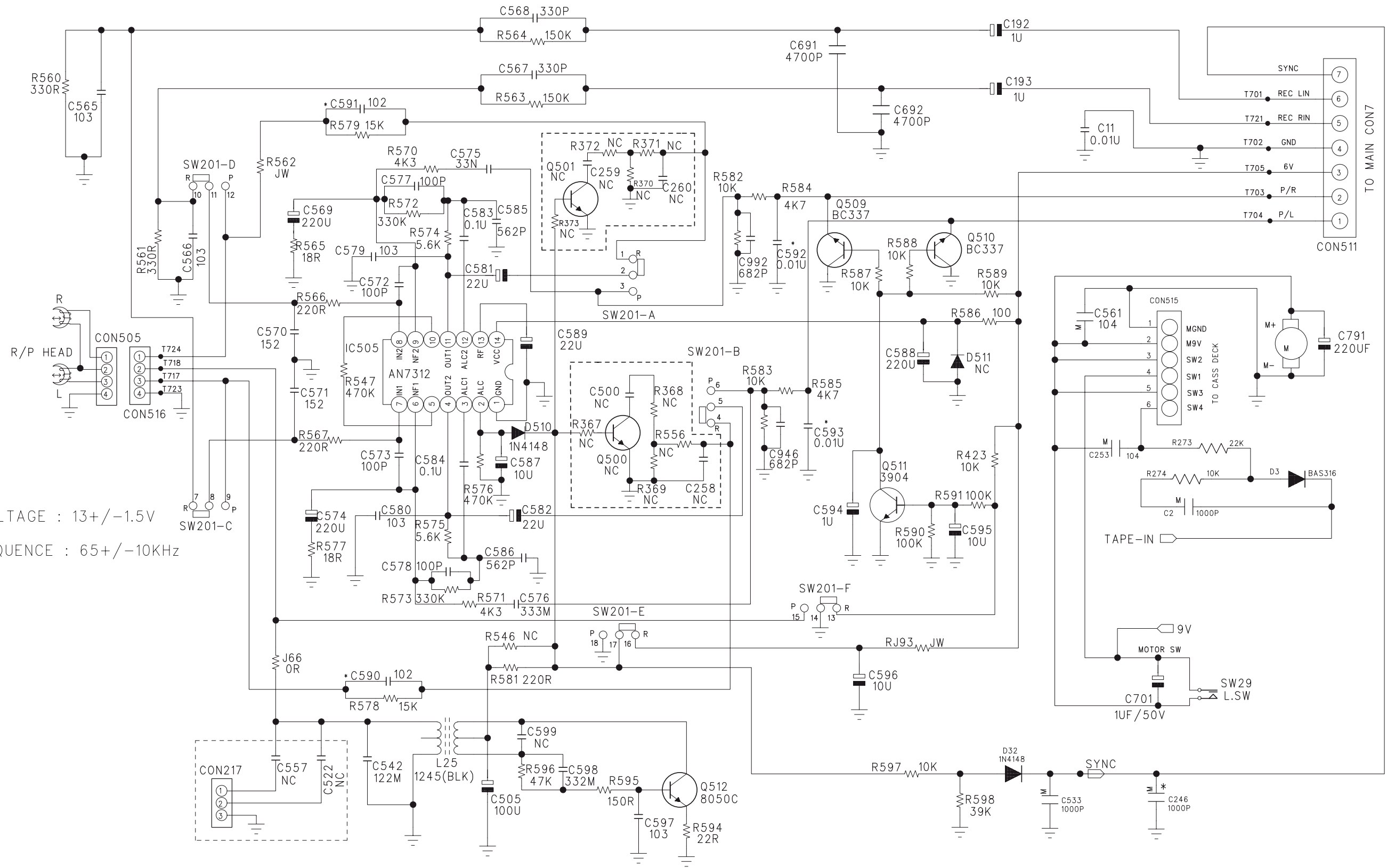
PCB LAYOUT - MAIN & POWER BOARD (TOP VIEW)



PCB LAYOUT - MAIN & POWER BOARD (BOTTOM VIEW)



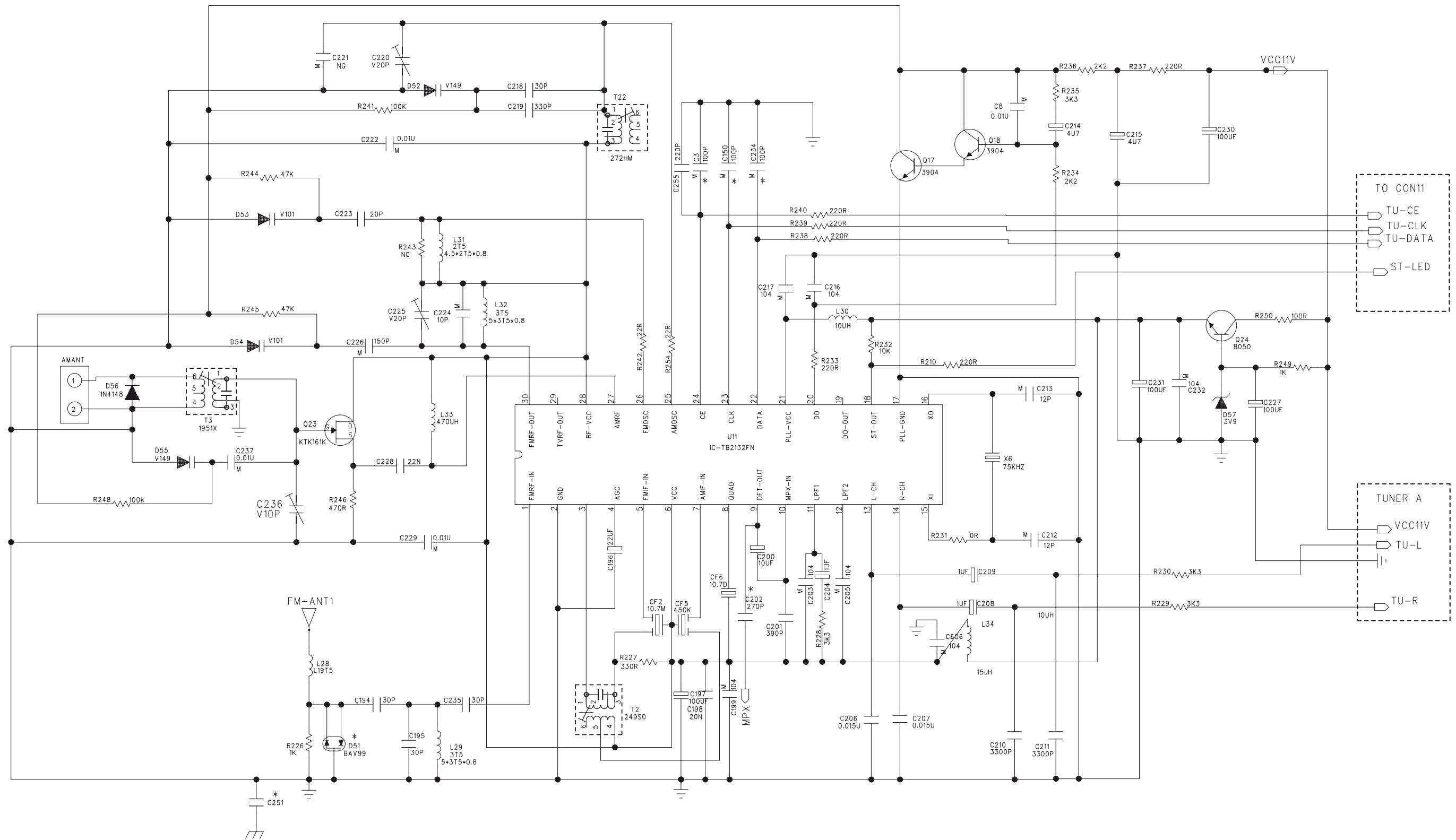
CIRCUIT DIAGRAM - MAIN BOARD TAPE PART



BIAS VOLTAGE : $13 \pm 1.5V$
 BIAS FREQUENCY : $65 \pm 10kHz$

* FOR PROVISION ONLY

CIRCUIT DIAGRAM - MAIN BOARD TUNER PART

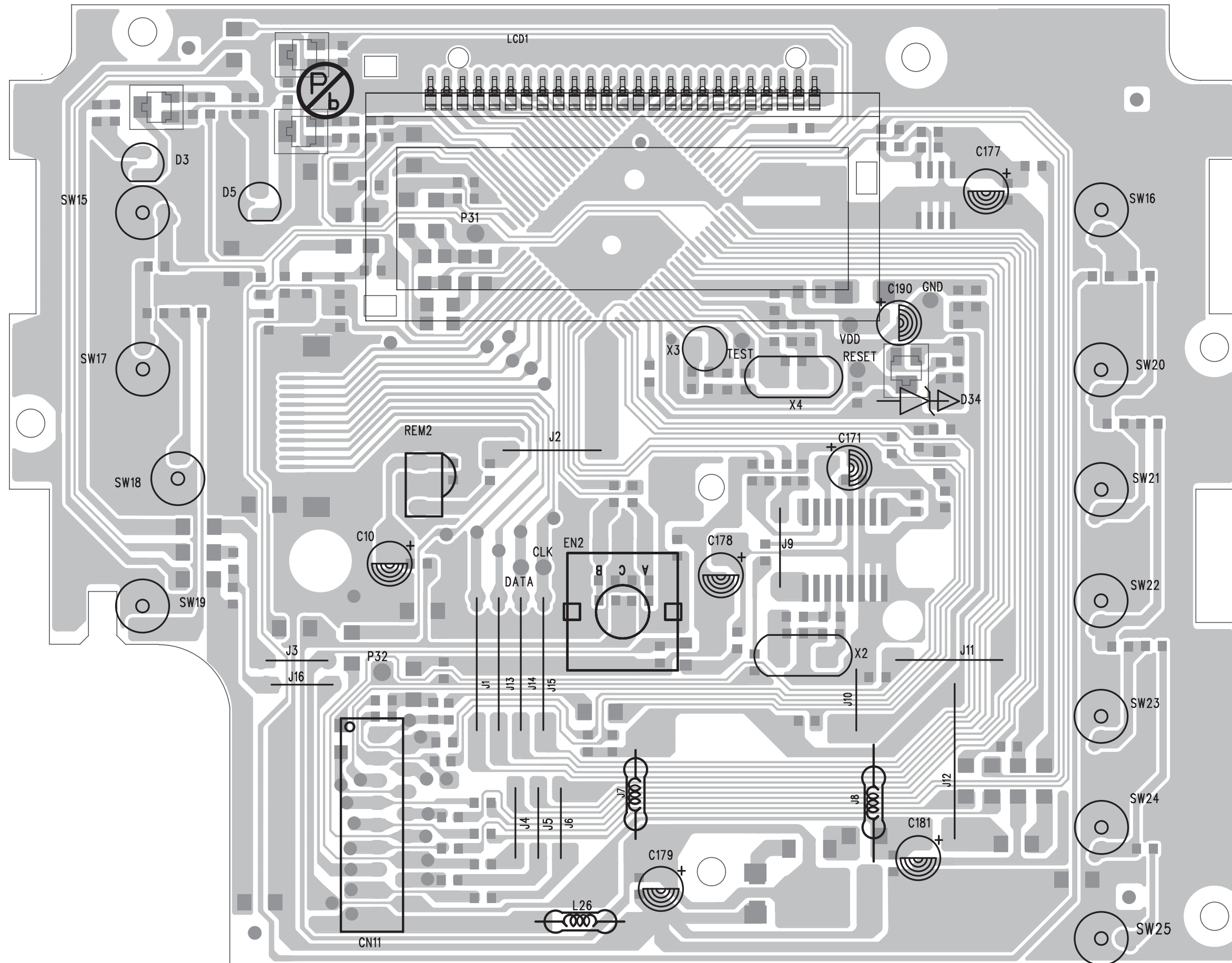


FRONT/MCU BOARD

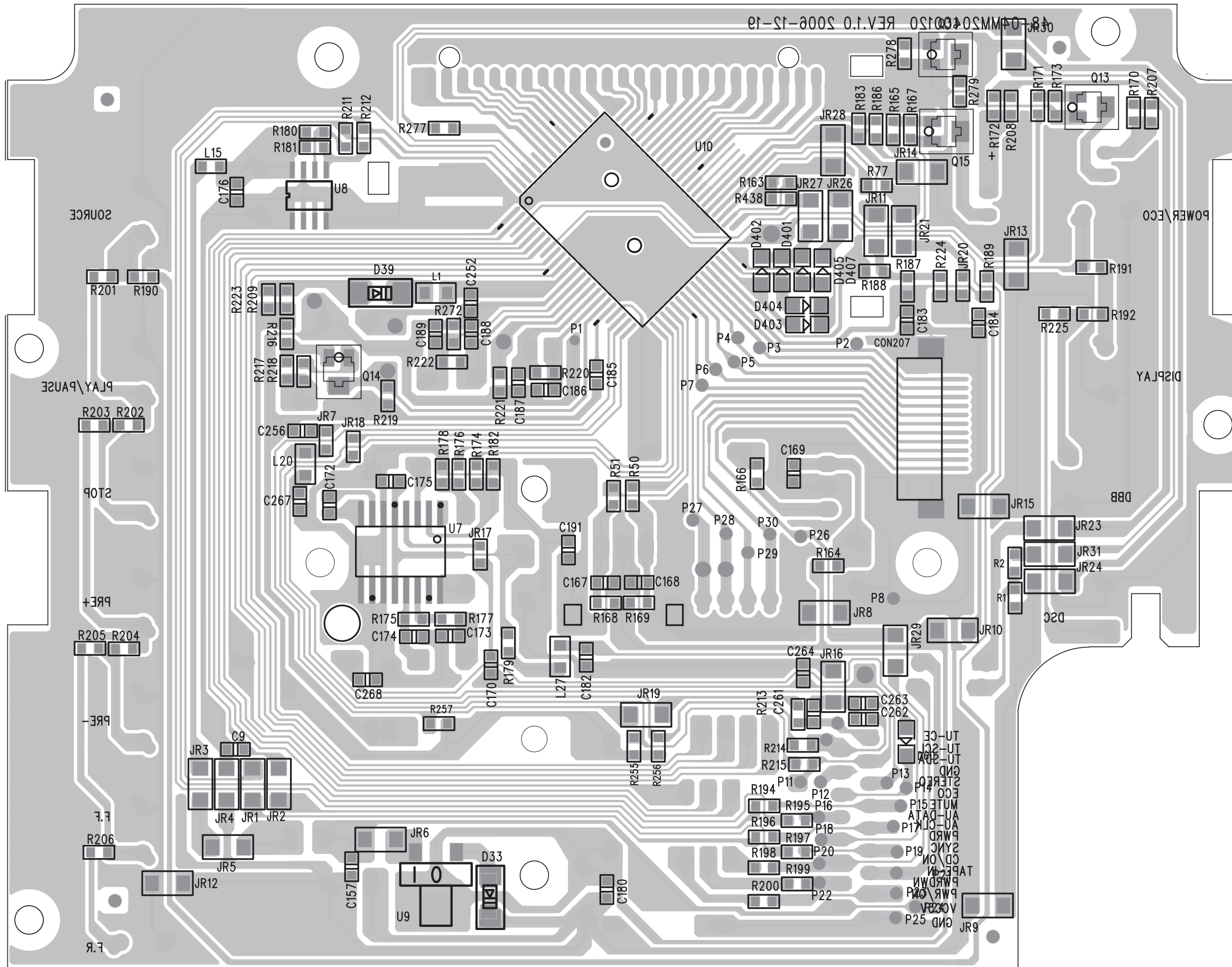
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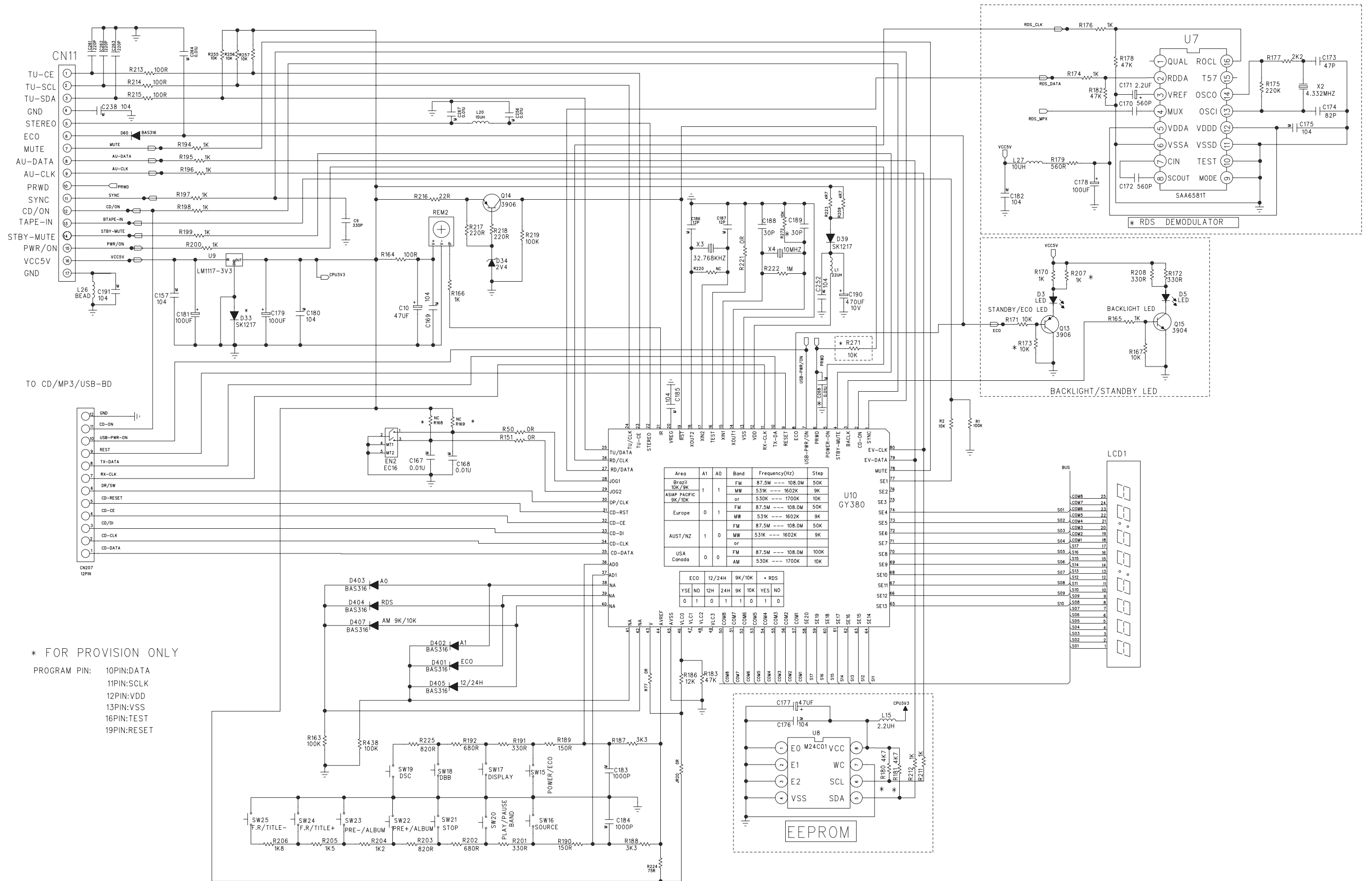
PCB LAYOUT - FRONT/MCU BOARD (TOP VIEW)



PCB LAYOUT - FRONT/MCU BOARD (BOTTOM VIEW)



CIRCUIT DIAGRAM - FRONT/MCU BOARD

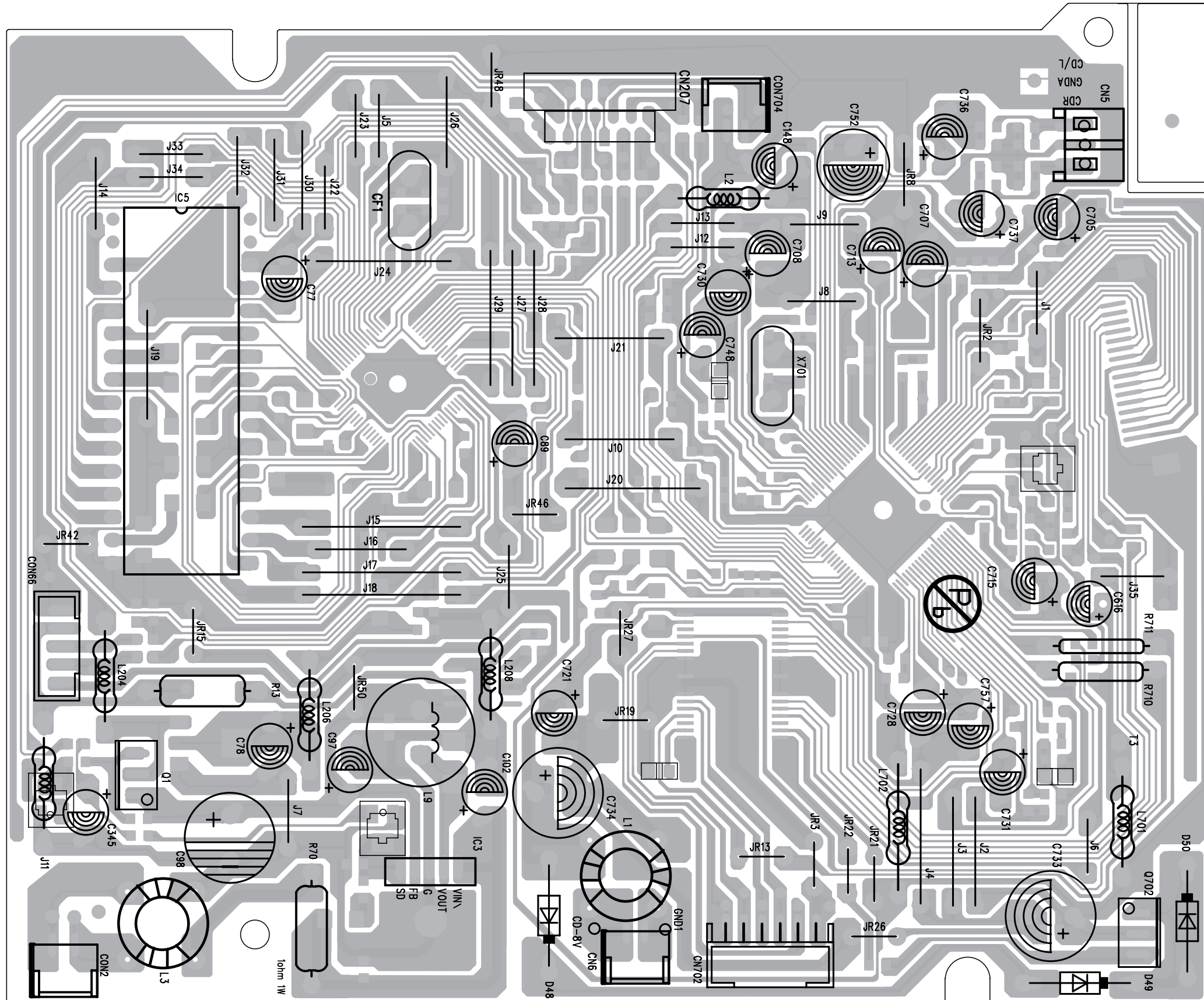


CD MP3 BOARD

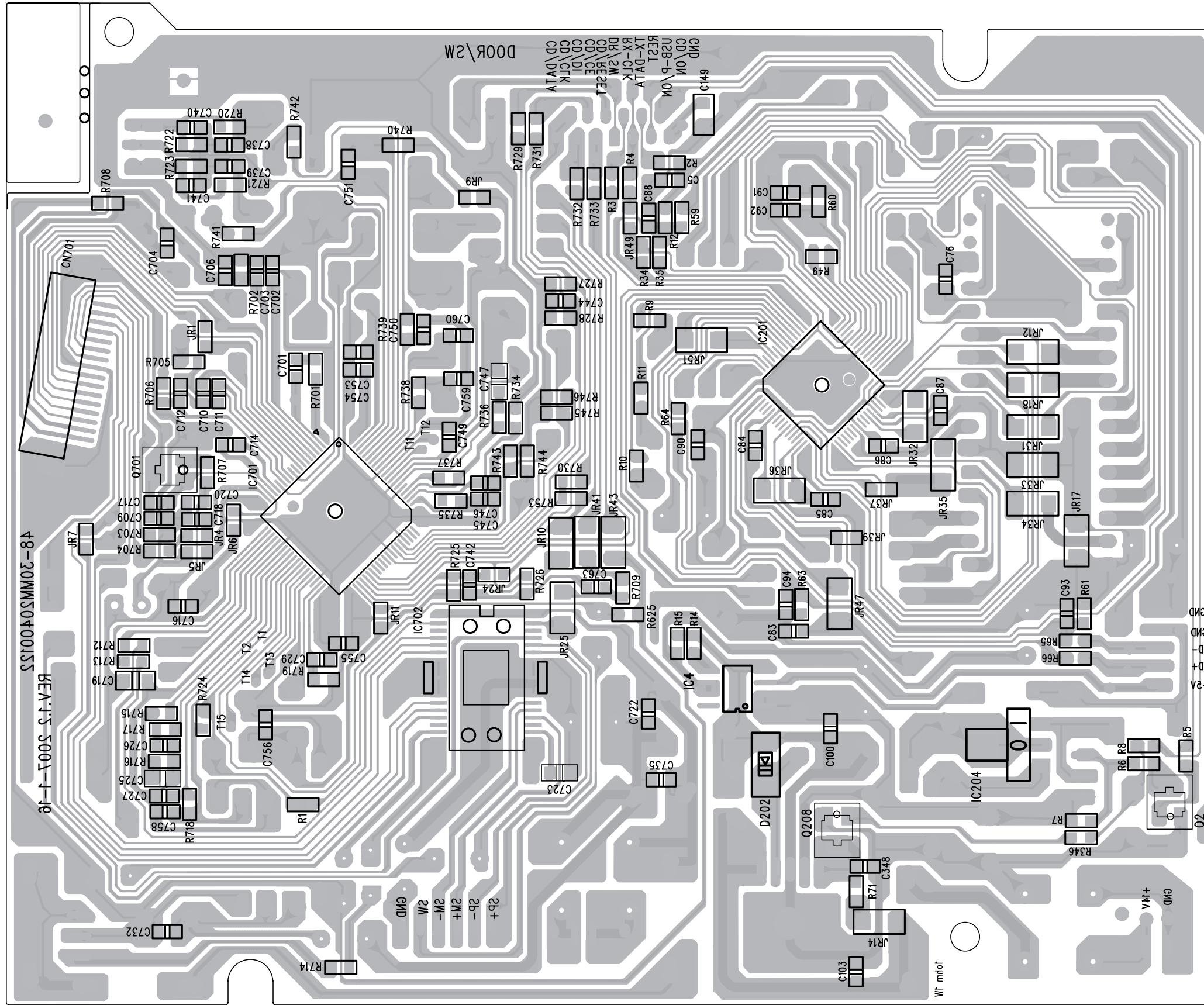
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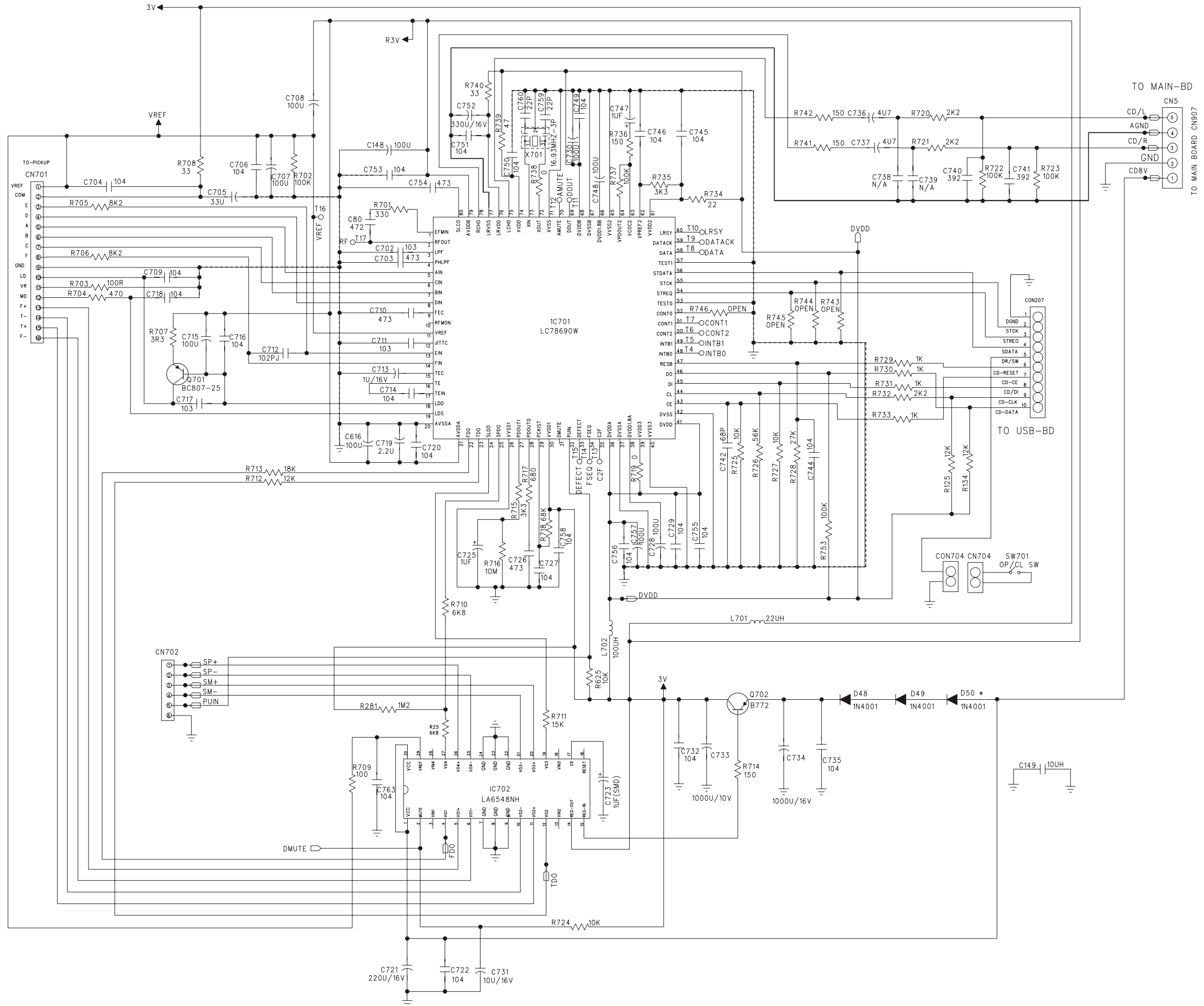
PCB LAYOUT - CD MP3 BOARD (TOP VIEW)



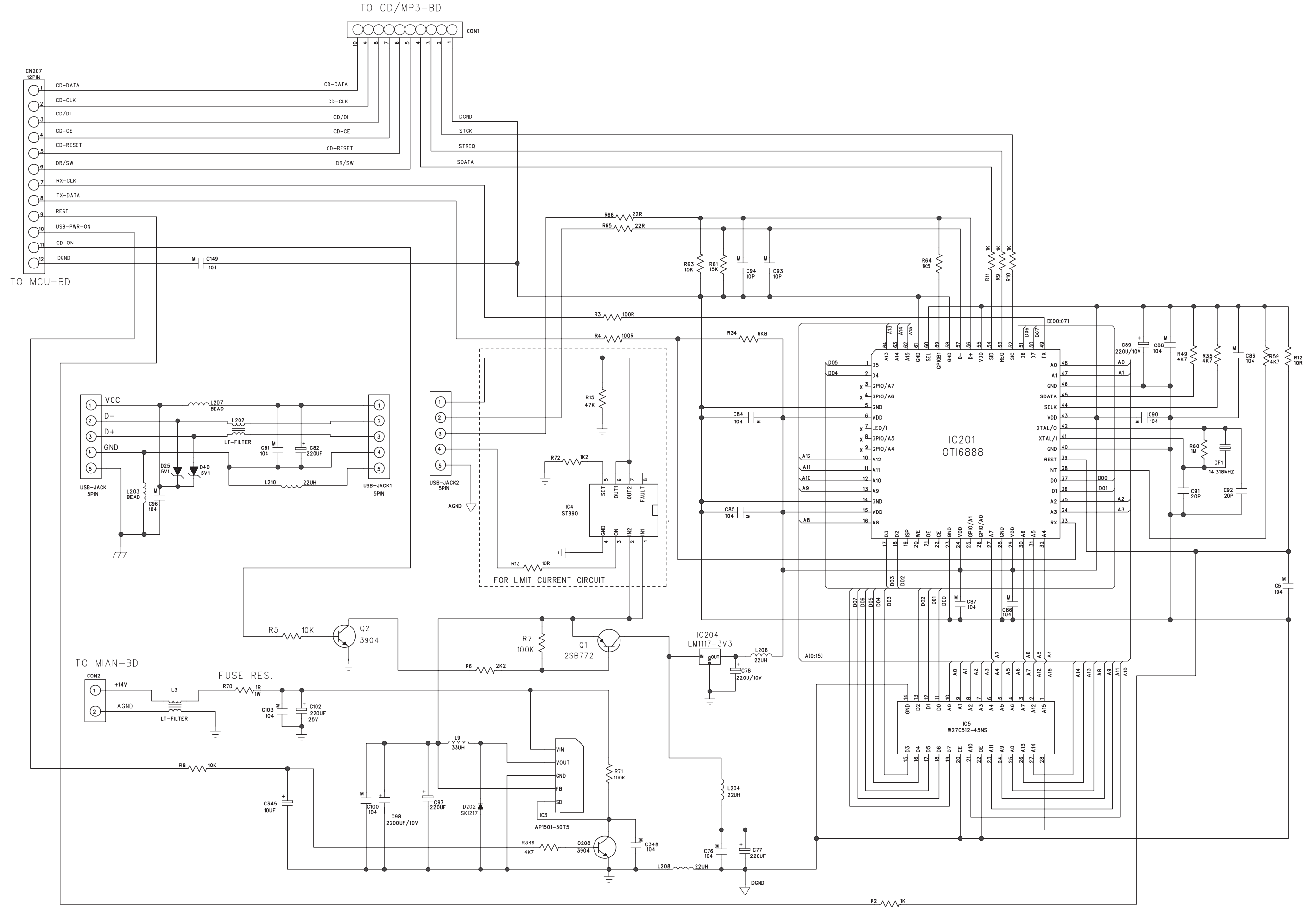
PCB LAYOUT - CD MP3 BOARD (BOTTOM VIEW)



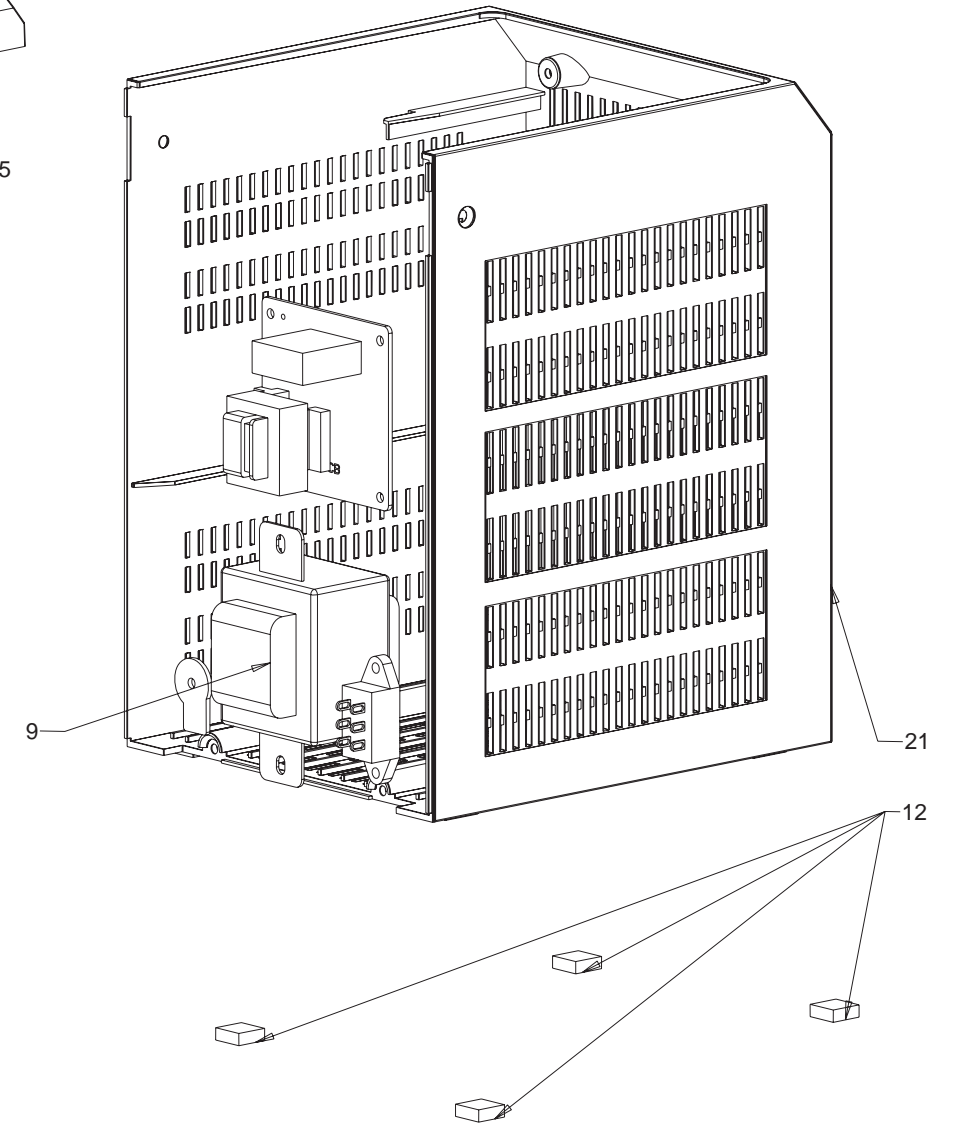
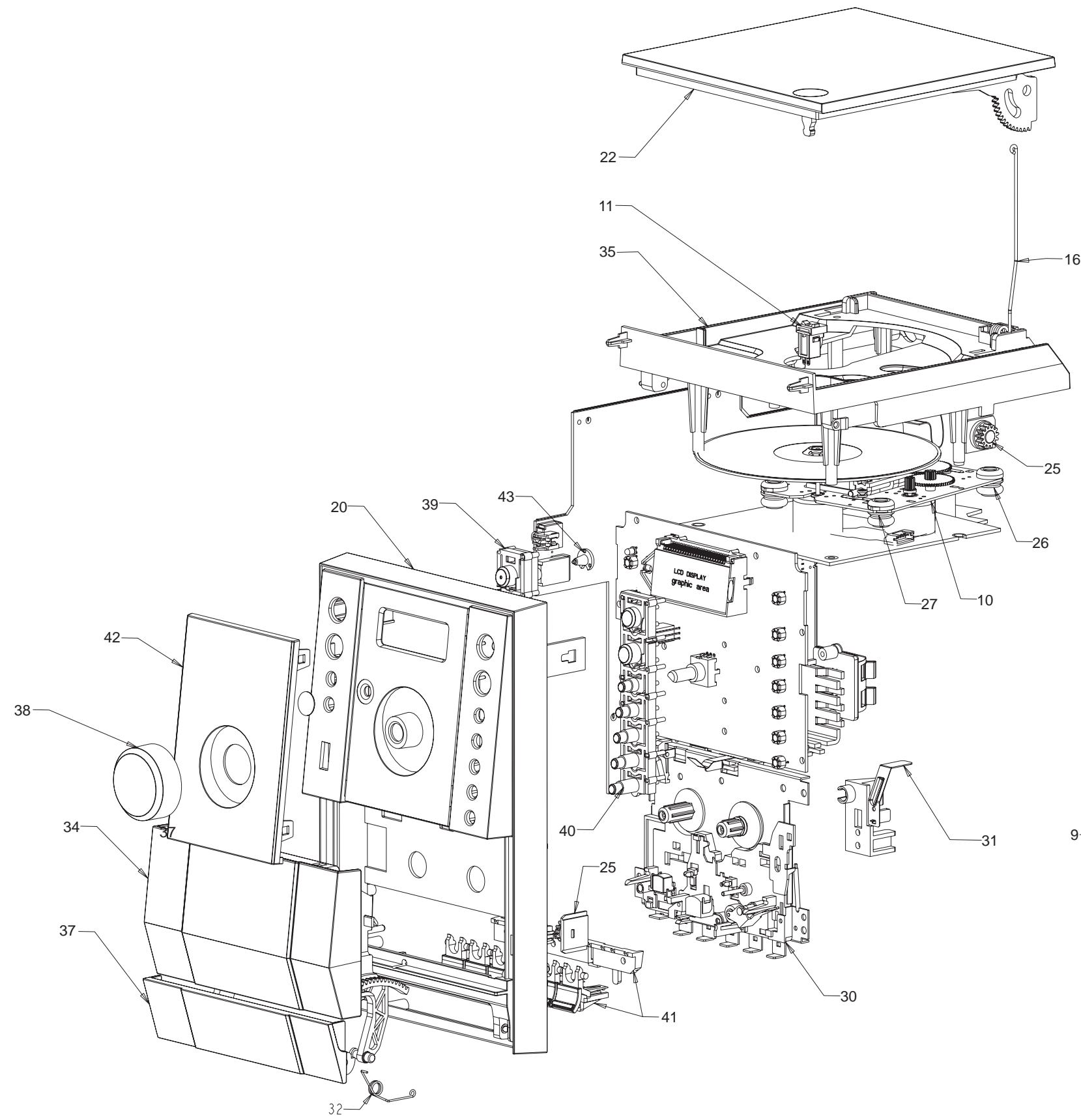
PCB LAYOUT - CD MP3 BOARD



PCB LAYOUT - CD MP3 BOARD USB PART



SET MECHANICAL EXPLODED VIEW



MECHANICAL & ACCESSORIES PARTS LIST

2	996510000877	SINGLE SPK BOX ASS'Y
9	△ 996510000902	TRANSFORMER 230V T08405A
10	994000005398	CD MECHANISM DA11B3VF
11	994000002354	CD DOOR SWITCH DLS-02-W-1
12	996510000904	RUBBER FOOT
16	996510000905	CD DOOR SPRING
20	996510000906	FRONT CABINET
20	996510005454	FRONT CABINET /77/96
21	996510000907	REAR CABINET
21	996510006554	REAR CABINET /77/96
22	996510000908	CD DOOR
23	△ 996510000909	AC CORD VDE APP 2M /12
23	△ 996510001471	AC CORD IRAM PLUG VDE /77/96
23	△ 996510000859	AC CORD BS APP 2M /05
J010	996510000910	FM ANT SMF-01T-1.3 L=1.1M
J011	994000001192	AM LOOP ANTENNA LAN-031
25	994000001295	DAMPER GEAR ASS'Y
26	996510000911	CD DAMPER-BLACK
27	996510000912	CD DAMPER-GREY
28	996510000913	12P FFC CABLE 1mm L200mm
29	996510000914	17P FFC CABLE 1.25mm
30	996510000915	CASS DECK CS-21SC-820DTS
31	996510000916	RECORD ARM
32	996510000917	CASS SPRING
34	996510000919	CASSETTE DOOR
35	996510000920	CD TRAY
37	996510000921	CASS KEY DOOR
38	996510000922	VOL KNOB
38	996510005456	VOL KNOB /77/96
39	996510000923	POWER BUTTON
40	996510000924	CONTROL KEYS
41	996510000925	CASS KEY WITH HOLDER
42	996510000926	DISPLAY LENS
42	996510005457	DISPLAY LENS /77/96
43	996510000927	STANDBY LIGHT GUIDE
43	996510005458	STANDBY LIGHT GUIDE /77/96
44	996510005452	REMOTE CONTROL
45	996510001482	CD MP3 BOARD ASS'Y
46	996510001494	MAIN BOARD ASS'Y
CN701	996510000903	16P FFC L=110mm
S001	994000002354	CD DOOR SWITCH /77/96

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

MECHANICAL & ACCESSORIES PARTS LIST (ONLY FOR MCM204/61 & MCM204B/61)

10	994000005398	CD MECHANISM DA11B3VF
11	994000002354	CD DOOR SWITCH DLS-02-W-1
12	996510000904	RUBBER FOOT
16	996510000905	CD DOOR SPRING
20	996510005454	FRONT CABINET
21	996510005455	REAR CABINET
22	996510001010	CD DOOR
23	996510005453	AC CORD KS APP 1.92M /MCM204/61
23	996510007312	AC CORD KS APP 1.92M /MCM204B/61
24	996510000910	FM ANT SMF-01T-1.3 L=1.1M
25	994000001295	DAMPER GEAR ASS'Y
26	996510000911	CD DAMPER-BLACK
27	996510000912	CD DAMPER-GREY
30	996510000915	CASS DECK CS-21SC-820DTS
31	996510000916	RECORD ARM
32	996510000917	CASS SPRING
34	996510001002	CASSETTE DOOR
35	996510001009	CD TRAY
37	996510001003	CASS KEY DOOR
38	996510005456	VOL KNOB
39	996510001005	POWER BUTTON
40	996510001007	CONTROL KEYS
41	996510001008	CASS KEY WITH HOLDER
42	996510005457	DISPLAY LENS /MCM204/61
42	996510010342	DISPLAY LENS /MCM204B/61
43	996510005458	STANDBY LIGHT GUIDE
44	996510005452	REMOTE CONTROL MCM204
45	996510001482	CD MP3 BOARD ASS'Y
46	996510001494	MAIN BOARD ASS'Y
J001	996510005460	SPK CORD L1.5M #22UL2468
T001	△ 996510000902	TRANSFORMER 230V T08405A
CN701	996510000903	16P FFC L=110mm
	996510000913	12P FFC 1mm L200mm
	996510000914	17P FFC 1.25mm
	996510000918	CASSETTE KEY COVER SPRING
	994000001192	AM LOOP ANTENNA LAN-031
	996510005459	SINGLE SPK BOX MCM204/61

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

ELECTRICAL PARTS LIST - MAIN BOARD

C16	994000001205	E.CAP 3300UF 35V +-20%	Q22	996510000878	TRANSISTORS SPD09P06PL
C220	994000004351	TRIMMER 20PF 6mm (RED)	Q23	994000005384	TRANSISTOR KTK161GR
C225	994000004351	TRIMMER 20PF 6mm (RED)	Q24	996500038609	TRANSISTOR 2W 8050C
C236	994000000254	TRIMMER 10PF 6mm (WH)	Q25	994000004338	TRANSISTOR PMBT3904
CF2	994000003642	CERAMIC FILTER LT10.7MA5-A	Q28	994000004338	TRANSISTOR PMBT3904
CF5	994000002857	CERAMIC FILTER SFU450B	Q32	994000004338	TRANSISTOR PMBT3904
CF6	996510000343	CER. DISCRIMINATOR JT10.7MG77	Q5	996500038609	TRANSISTOR 2W 8050C
CON3	994000004547	SPK JACK MSP-134V-05 LF	Q511	994000004338	TRANSISTOR PMBT3904
D51	994000004341	DIODE BAV99L	Q512	996500038609	TRANSISTOR 2W 8050C
D52	994000002836	VARICAP DIODE 1SV-149	Q7	994000004338	TRANSISTOR PMBT3904
D53	996510000879	VARACTOR DIODE SVC201SPA	Q8	994000001194	TRANSISTOR KSD882Y
D54	996510000879	VARACTOR DIODE SVC201SPA	Q9	996500038609	TRANSISTOR 2W 8050C
D55	994000002836	VARICAP DIODE 1SV-149	R55	△ 996510000883	FUSE RES. 0.47R 1/2W +-5%
D6	994000003938	RECTIFIER DIODE RL-202	SW201	994000004539	PUSH SWITCH PS-62 18PIN
D7	994000003938	RECTIFIER DIODE RL-202	T2	994000004356	I.F.T 7mm 7AC-249S0
D8	994000003938	RECTIFIER DIODE RL-202	T22	994000004357	I.F.T 7mm 7AL-272HM
D9	994000003938	RECTIFIER DIODE RL-202	T3	996510000886	AM ANT BLACK 7mm 7M4A1951X
F1	△ 994000000586	GLASS FUSE W/LEAD 3.15A/250V	U11	996510000881	IC TB2132FNG
IC1	996510000882	IC TFA9842BJ	U2	994000000253	IC KA7808E
IC2	996500039806	IC ET2314	U33	996510000880	IC LM78L08
IC505	994000004533	IC YD7312	U6	994000001357	IC LM78L05-AC
JACK1	994000004369	PHONE JACK TC38-063-05-01	USBJAC	996510000890	USB SOCKET 4P USB
JACK2	996510000889	PHONE JACK TC38-060-01 RING	CON3	996510005450	SPK JACK PT-22V11A
L19	996510000884	AXIAL INDUCTOR 100UH			
L2	996510000850	CHOKER COIL 8UH +-20%			
L207	996510000854	INDUCTOR 2.2UH-K CEC-2R2K			
L22	996510000885	CHOKER COIL 47UH			
L23	996510000885	CHOKER COIL 47UH			
L24	996510000850	CHOKER COIL 8UH +-20%			
L25	994000004538	I.F.T 10148BK7			
L28	996510000887	FM COIL 3x19.5T			
L29	996510000888	FM COIL 5x3.5T			
L3	996510000850	CHOKER COIL 8UH +-20%			
L30	996510000884	AXIAL IND. 100UH K CNCL-101K			
L31	996500039350	FM COIL 4.5x2.5T			
L32	996510000888	FM COIL 5x3.5T			
L33	996510000856	AXIAL IND. 470UH DCR=8.5R			
L4	996510000850	CHOKER COIL 8UH +-20%			
L8	994000003646	AXIAL IND. 10UH +-10% 500mA			
Q10	996500038609	TRANSISTOR 2W 8050C			
Q11	994000001193	TRANSISTOR KSB772YS			
Q12	994000004338	TRANSISTOR PMBT3904			
Q17	994000004338	TRANSISTOR PMBT3904			
Q18	994000004338	TRANSISTOR PMBT3904			
Q2	994000004338	TRANSISTOR PMBT3904			

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

ELECTRICAL PARTS LIST - POWER & FRONT BOARD

C1	△ 994000001225	SAFETY CAP 275V 0.22UF +-20%
D3	994000001234	LED LAMP 3mm LB304V3CB-2B/01
D5	996510000893	LED LAMP 3mm 1L034FV22G0CT001
F3	994000000585	CERAMIC FUSE W/LEAD T2A/250V
J7	994000003646	AXIAL IND. 10UH +-10% 500mA
J8	994000003646	AXIAL IND. 10UH +-10% 500mA
L1	996510000892	AC LINE FILTER 3mH 1A LFT20A-083
LCD1	996510000894	LCD DISPLAY SDH-DA1355-TN-1
Q13	994000003937	TRANSISTOR PMBT3906
Q14	994000003937	TRANSISTOR PMBT3906
Q15	994000004338	TRANSISTOR PMBT3904
Q31	996500038609	TRANSISTOR 2W 8050C
REM2	994000004367	OPTIC SENSER FM-6038TM2-5AN
RL1	△ 996500039818	RELAY ME-7-006-HSL DC6V AC10A
SW15	994000001243	TACT SWITCH 160g
SW16	994000001243	TACT SWITCH 160g
SW17	994000001243	TACT SWITCH 160g
SW18	994000001243	TACT SWITCH 160g
SW19	994000001243	TACT SWITCH 160g
SW20	994000001243	TACT SWITCH 160g
SW21	994000001243	TACT SWITCH 160g
SW22	994000001243	TACT SWITCH 160g
SW23	994000001243	TACT SWITCH 160g
SW24	994000001243	TACT SWITCH 160g
SW25	994000001243	TACT SWITCH 160g
T23	△ 996510000891	TRASFO. EI28 230V HF-V28B30 /05/12
T001	△ 996510001014	TRASFO 120/230V /77/96
U10	996510000895	MCU GY380 (FLASH)
U8	994000001236	IC (SGS) M24C01-WMN6
U9	994000002839	IC LM1117S-3.3 SOT-223
S001	994000004376	SWITCH SL14-22AH-5AN /77/96
X3	994000004615	CRYSTAL 32.768KHZ +-20PPM
X4	996500039820	X'TAL 10MHz 49/US
X4	996510005451	X'TAL 10.000MHz 49/US +-20PPM

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

ELECTRICAL PARTS LIST - CD USB BOARD

CF1	996510000899	CRYSTAL 14.318180 MHz
D202	996510000896	SCHOTTKY BARRIER DIODE SK1217
IC201	996510000897	IC OTI-6888G USB DECODER
IC204	994000002839	IC LM1117S-3.3 SOT-223
IC3	994000002447	IC AP1501-50T5 150KHz
IC5	996510000898	IC W27C512-45Z EPROM DIP28D-2
IC701	996500039807	IC (SANYO) LC78690NW-E
IC702	994000004622	IC (SANYO) LA6548NH HSOP28H
L2	996510000850	AXIAL INDUCTOR 22UH +-10%
L204	996510000900	AXIAL INDUCTOR 22UH +-10%
L206	996510000900	AXIAL INDUCTOR 22UH +-10%
L208	996510000900	AXIAL INDUCTOR 22UH +-10%
L701	996510000900	AXIAL INDUCTOR 22UH +-10%
L702	996510000855	AXIAL INDUCTOR 100UH +-10%
L9	996510000901	CHOKER COIL 33UH +-10% 3A
Q1	994000004145	TRANSISTOR B772Y
Q2	994000004338	TRANSISTOR PMBT3904
Q208	994000004338	TRANSISTOR PMBT3904
Q702	994000004145	TRANSISTOR B772Y
R70	△ 994000004478	FUSE RESISTORS 1R 1W +-5%
X701	994000004551	CRYSTAL 16.9344MHZ +-20PPM

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

REVISION LIST

1.0 Manual 3141 785 31320

Initial Service Manual released.

1.1 Manual 3141 785 31321

In this version,

- 1) the instruction of CD playability check is added.
- 2) Chapter 3 to Chapter 7 have been revised according to latest diagrams.

1.2 Manual 3141 785 31322

In this version, Remote Control has been added.

- 1) P8-2 Mechanical and Accessories Partslist updated.

1.3 Manual 3141 785 31323

In this version, version /61 added.

- 1) P8-2B Mechanical and Accessories Partslist added.

1.4 Manual 3141 785 31324

In this version, version /77 and /96 added.

- 1) P8-2A Mechanical and Accessories Partslist and P8-3 to P8-4 Electrical Partslist updated.

1.5 Manual 3141 785 31325

New version MCM204B/61 added.

- 1) P8-2B Mechanical and Accessories Partslist updated.

1.6 Manual 3141 785 31326

1) P8-2A Mechanical and Accessories Partslist updated.

2) P8-2B Mechanical and Accessories Partslist updated.

Add:

- | | | |
|----|--------------|--------------------|
| 45 | 996510001482 | CD MP3 BOARD ASS'Y |
| 46 | 996510001494 | MAIN BOARD ASS'Y |