

Service
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Service Manual



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TECHNICAL SPECIFICATION

AMPLIFIER

Output power 2 x 10W RMS
 Signal-to-noise ratio ≥ 60 dBA (IEC)
 Frequency response 125 – 16000 Hz
 Impedance loudspeakers 4 Ω

CD PLAYER

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

TUNER

FM wave range 87.5 – 108 MHz
 Sensitivity at 75 Ω
 – FM 26 dB sensitivity 20 μ V
 Total harmonic distortion $\leq 5\%$

SPEAKERS

Bass reflex system
 Dimensions (w x h x d) . 160 x 250 x 180 (mm)

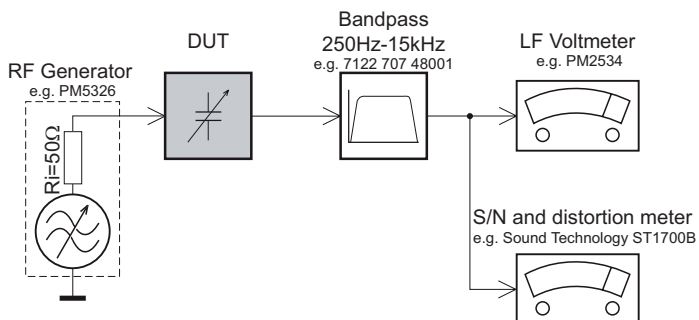
GENERAL INFORMATION

AC Power 100 – 240V, 50/60 Hz
 Dimensions (w x h x d) 232 x 85 x 275 (mm)
 Weight (with speakers) approx. 5 kg
 Power consumption
 Active 30 W
 Standby < 5 W
 Eco Power Standby < 1 W

Specifications and external appearance are subject to change without notice.

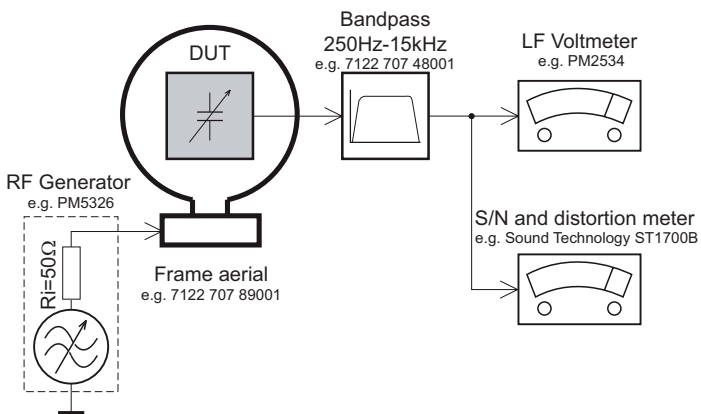
MEASUREMENT SETUP

Tuner FM



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

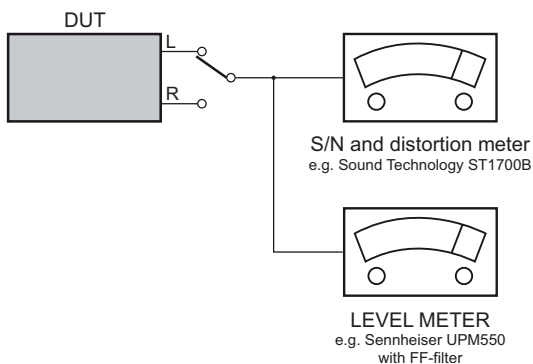
Tuner AM (MW,LW)



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).

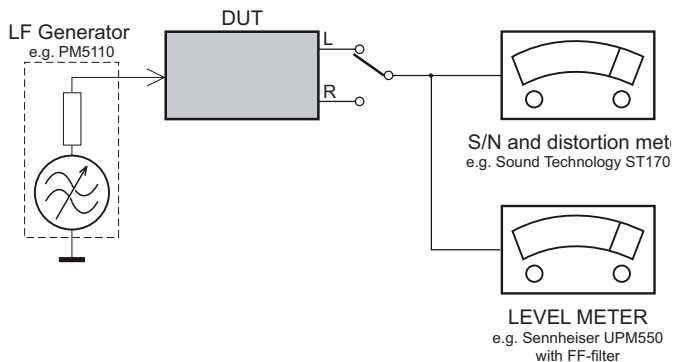
CD

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



Recorder

Use Universal Test Cassette **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 Δ .

**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".

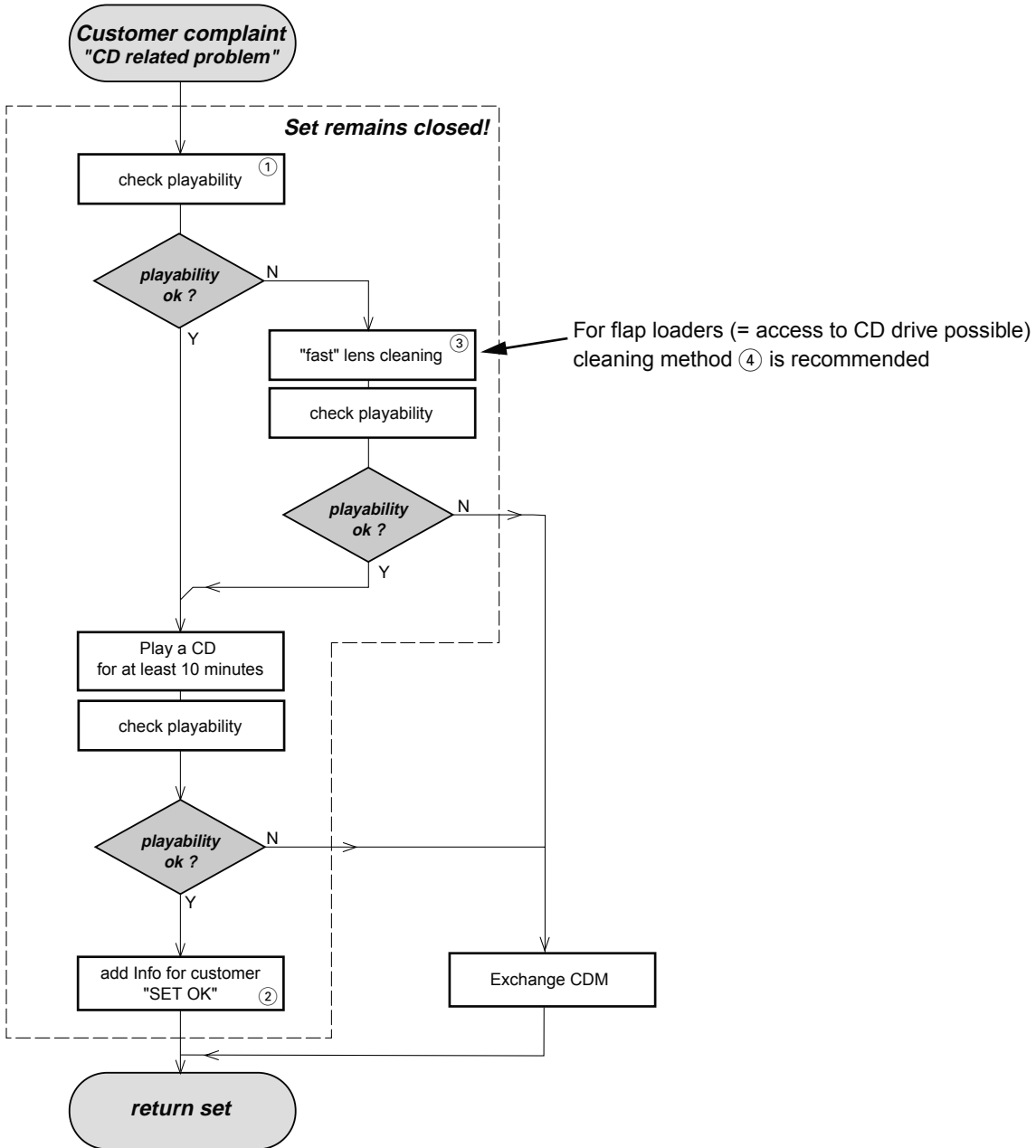
For additional questions please contact your local repair-helpdesk.

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 Disc7104 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 ≥ 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 444A4822 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 ≥ 10 seconds
 Fingerprint ≥ 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

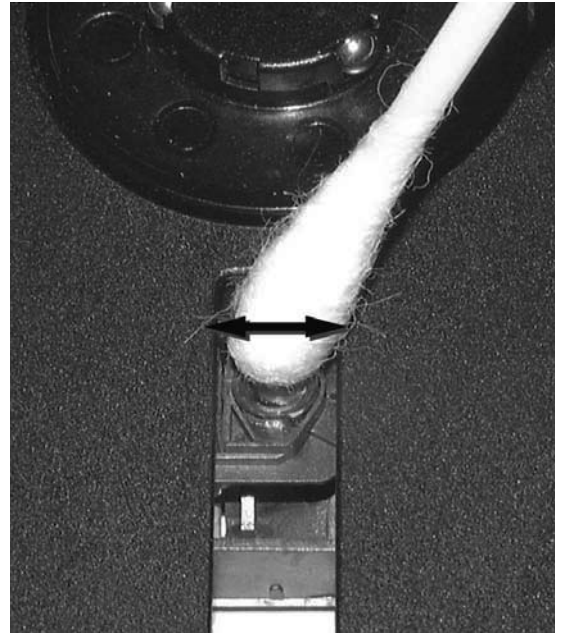
LIQUID LENS CLEANING

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.

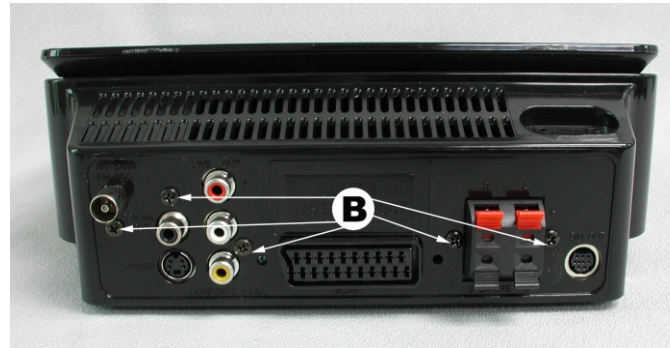
The direction of cleaning must be in the way as indicated in the picture below.



DISASSEMBLY DIAGRAM

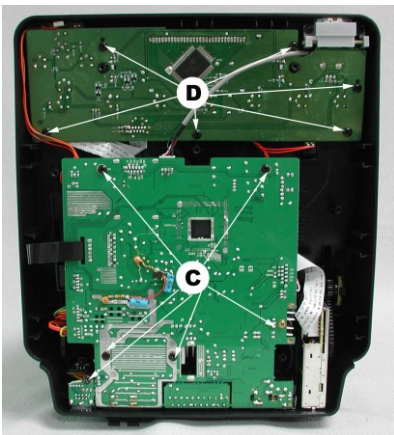
Dismantling of the Bottom Cabinet

- 1) Remove 7 screws A as indicated to loosen the Bottom Cabinet.
- 2) Remove 5 screws B before dismantling of the PCB Board "C".

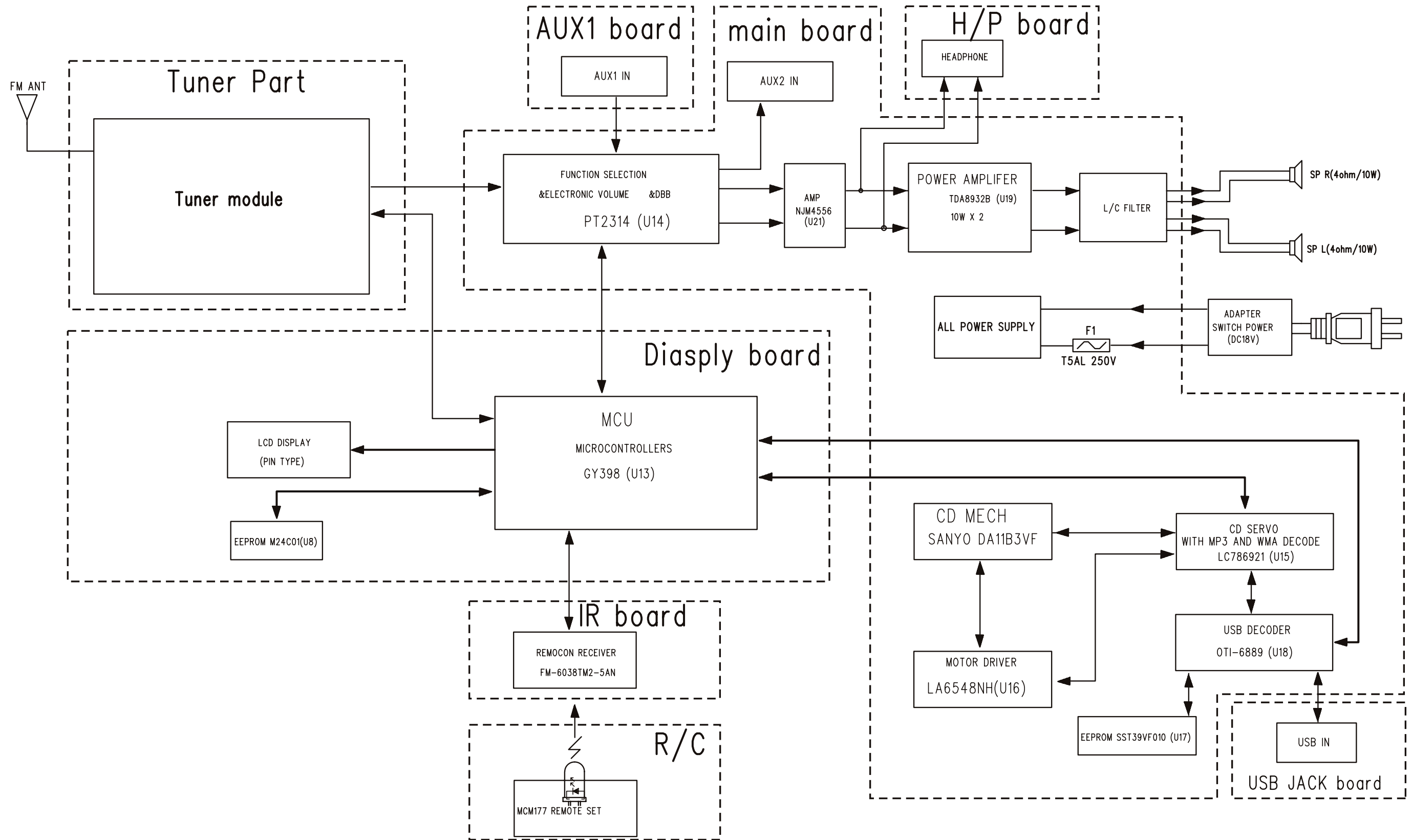


Dismantling of the PCB Board

- 3) Remove 12 screws C&D as indicated to loosen the Main&Display Board.

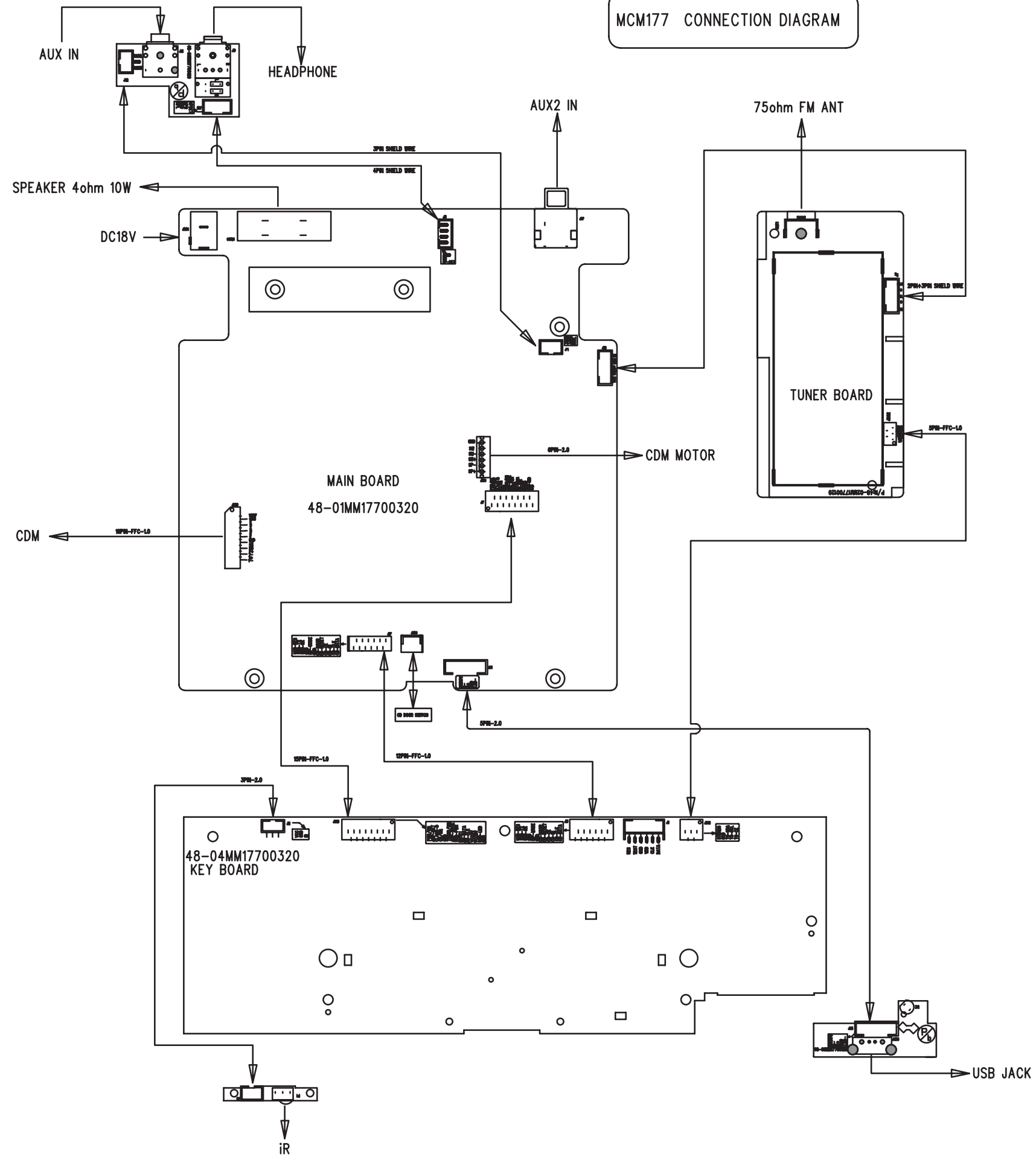


SET BLOCK DIAGRAM

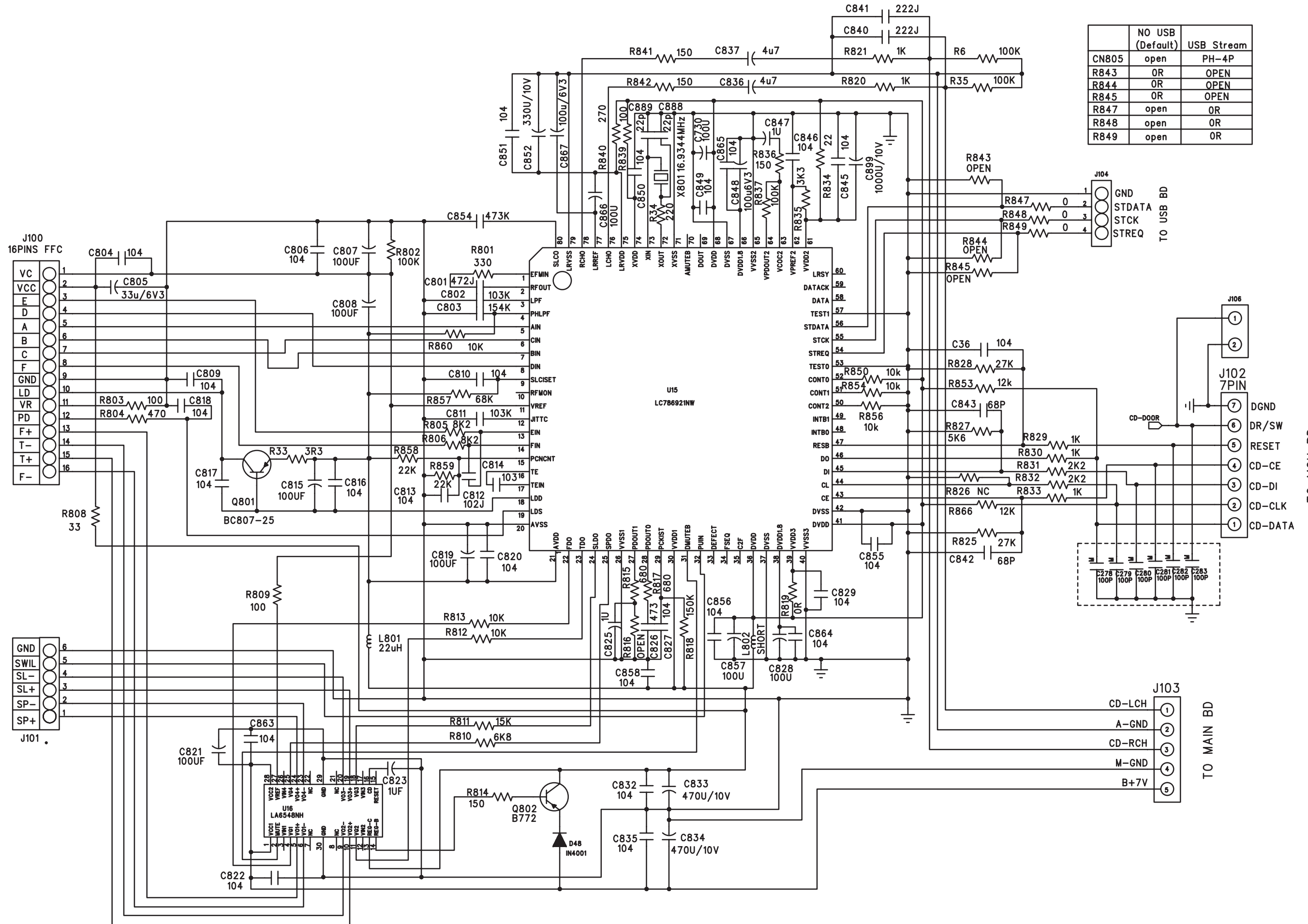


SET WIRING DIAGRAM

MCM177 CONNECTION DIAGRAM

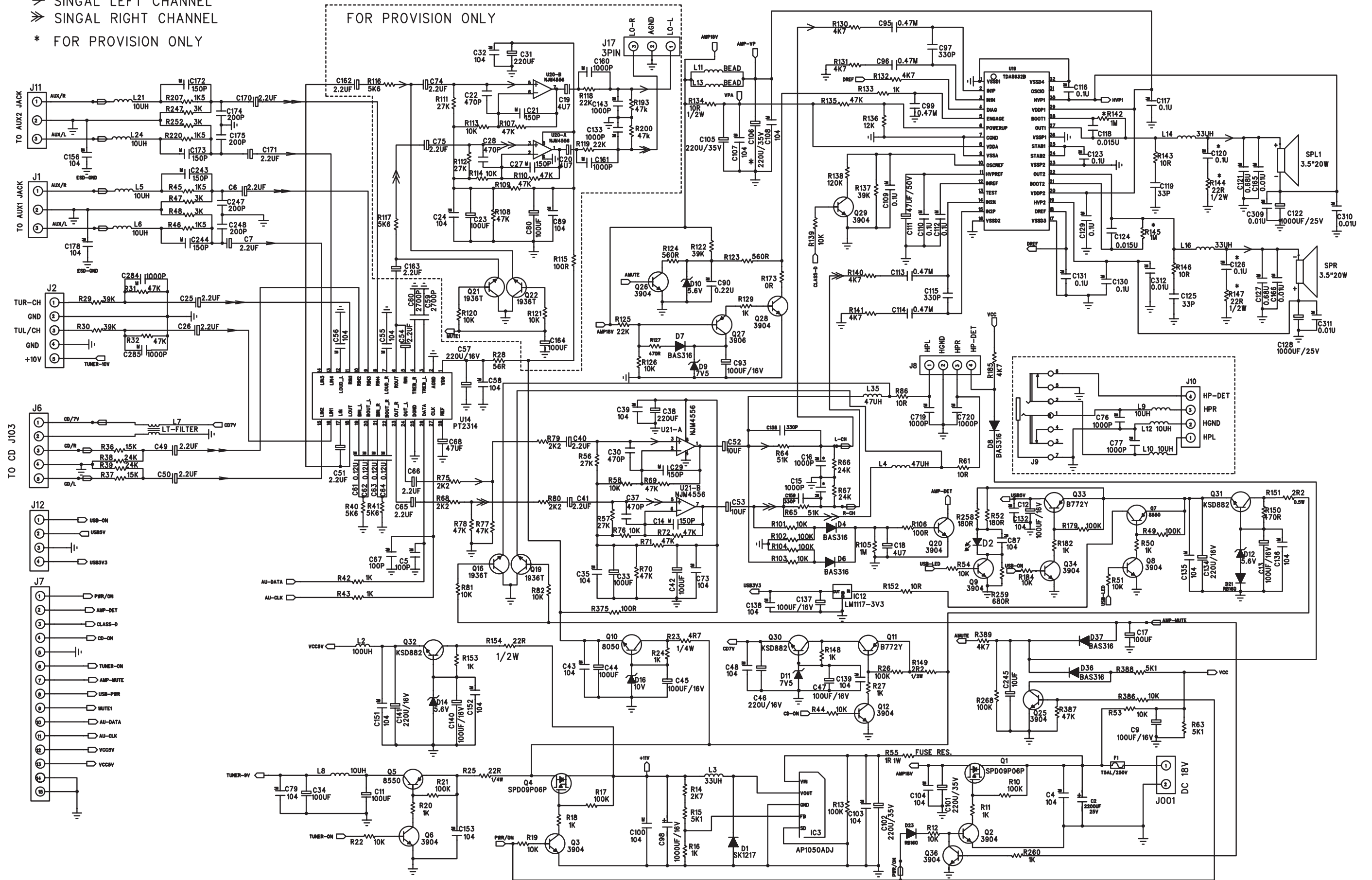


CIRCUIT DIAGRAM - MAIN BOARD
CD & MP3 PART



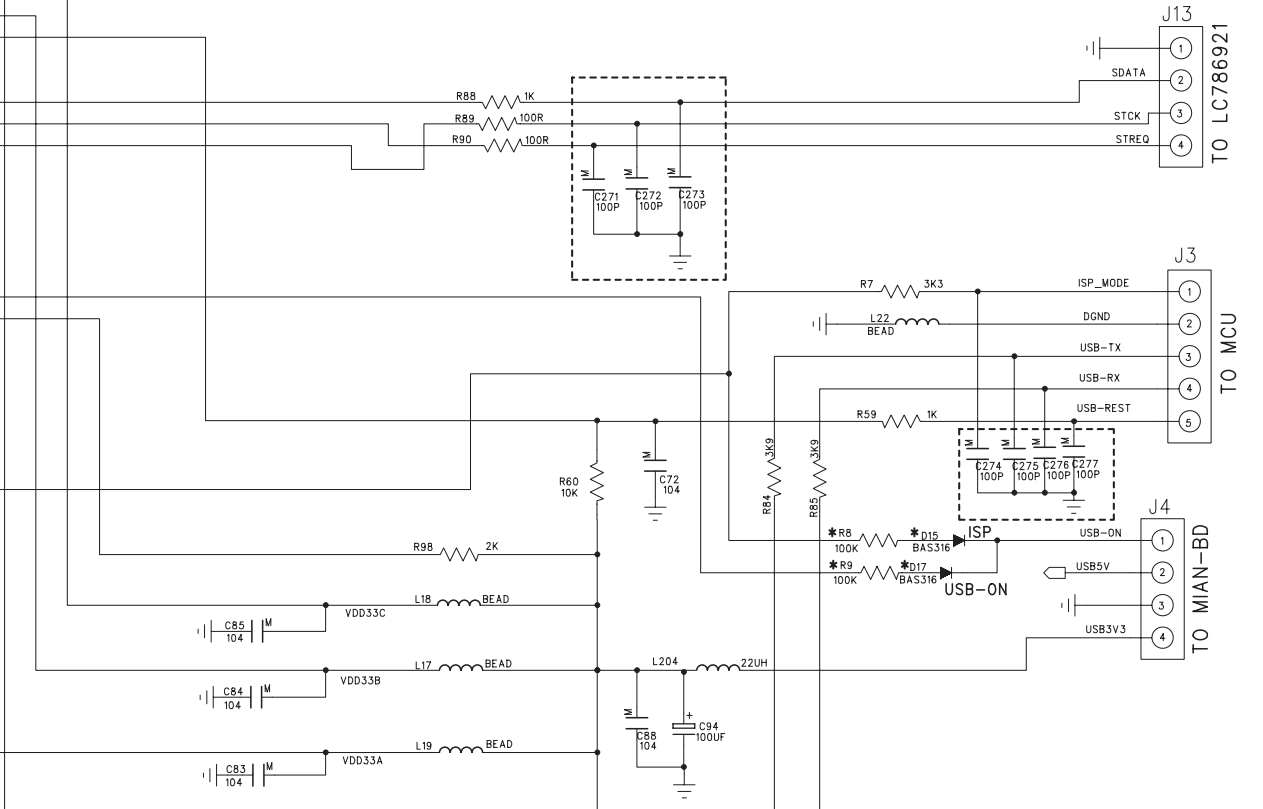
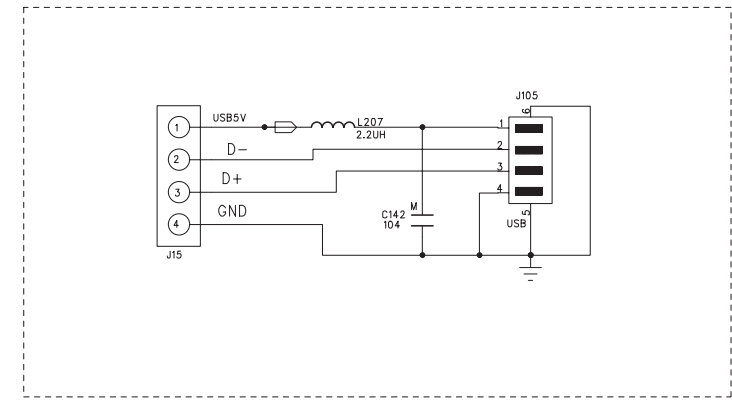
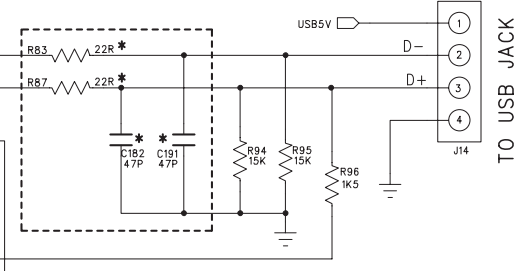
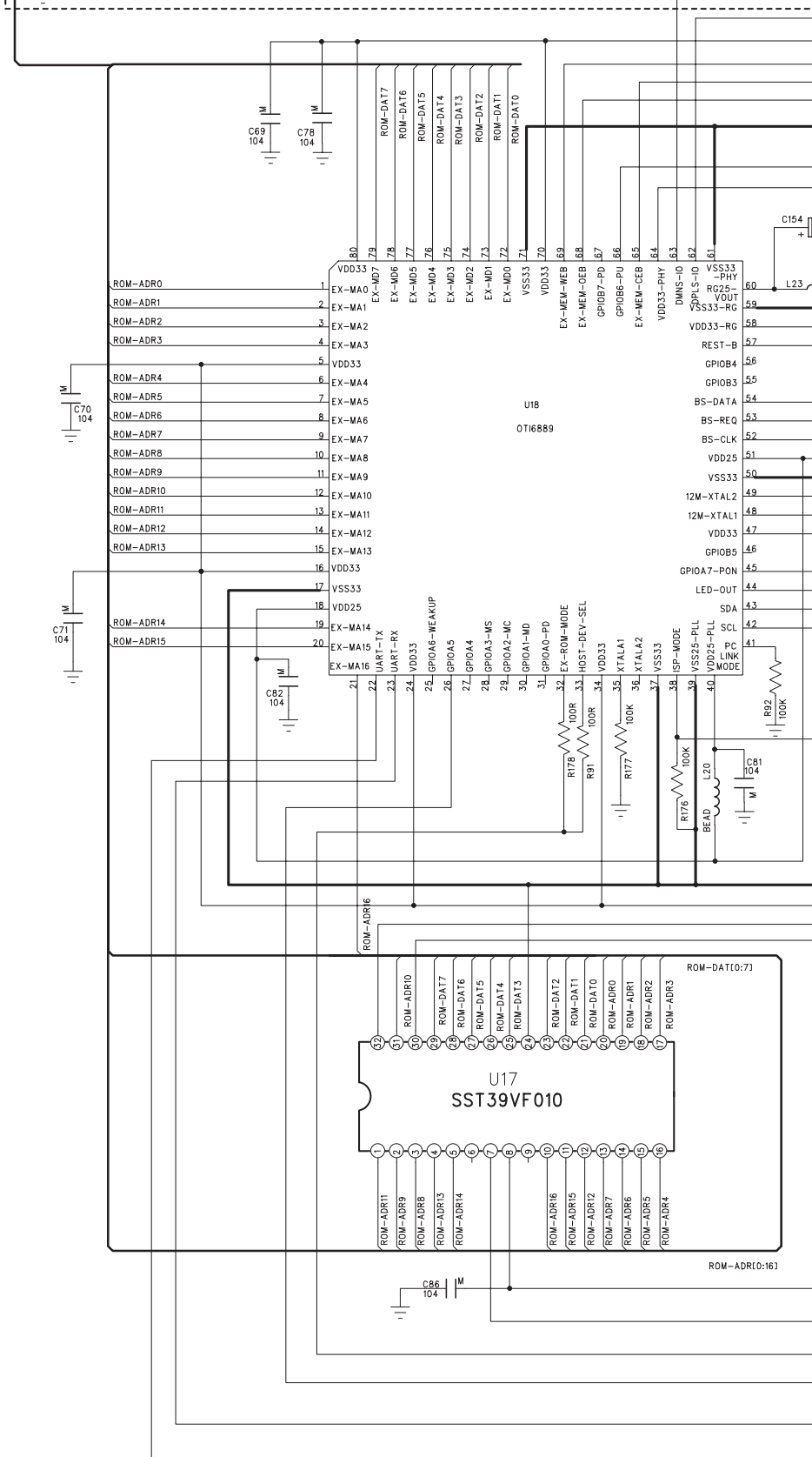
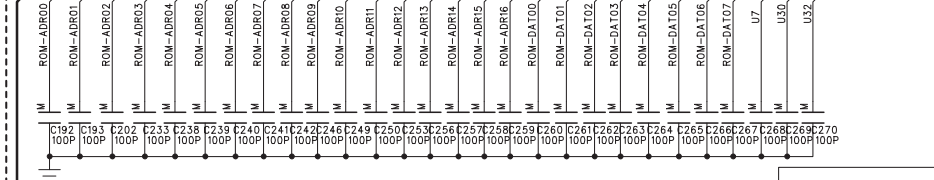
CIRCUIT DIAGRAM - MAIN BOARD AF & AMP PART

- > SINGAL LEFT CHANNEL
- >> SINGAL RIGHT CHANNEL
- * FOR PROVISION ONLY

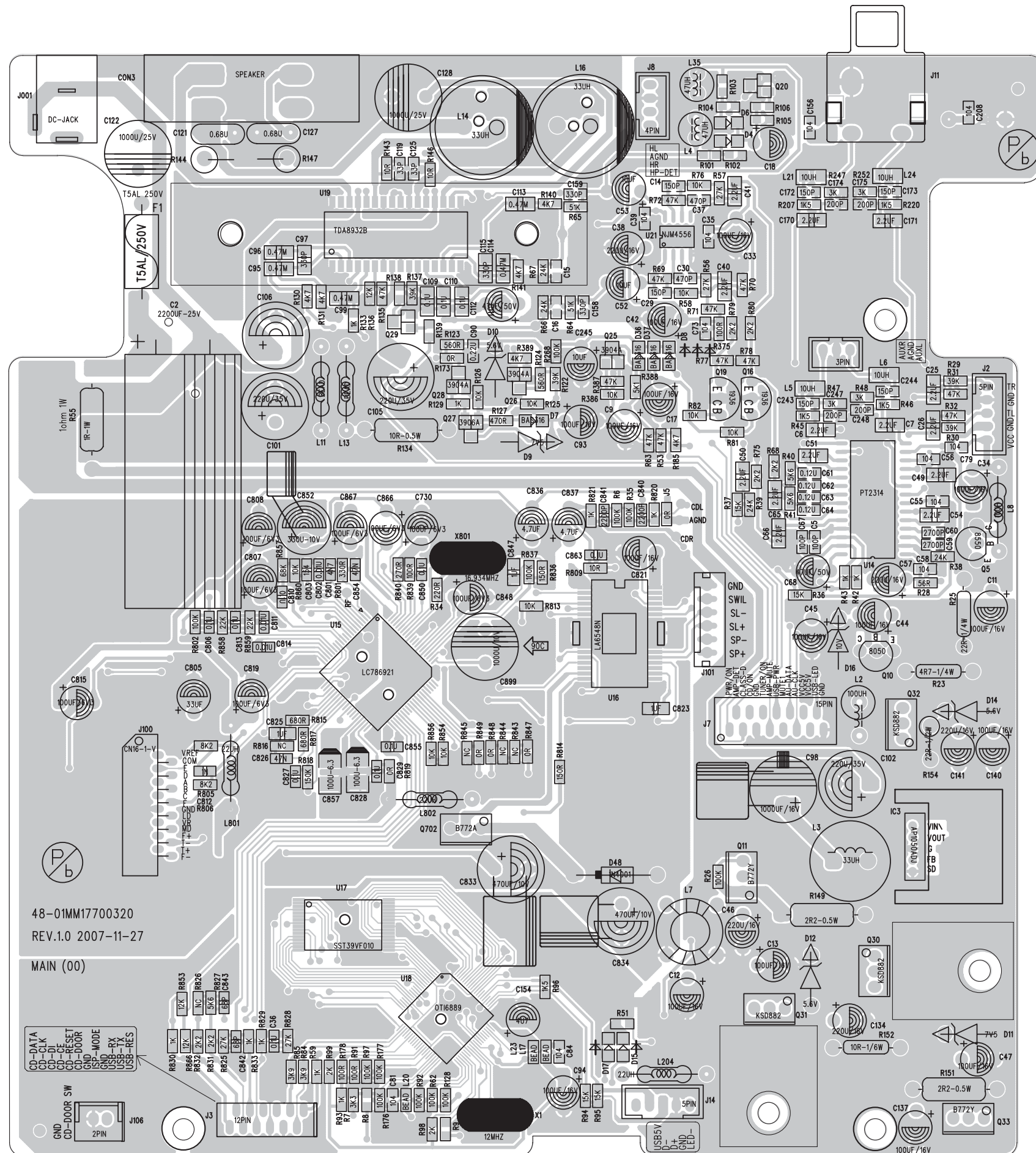


CIRCUIT DIAGRAM - MAIN BOARD USB PART

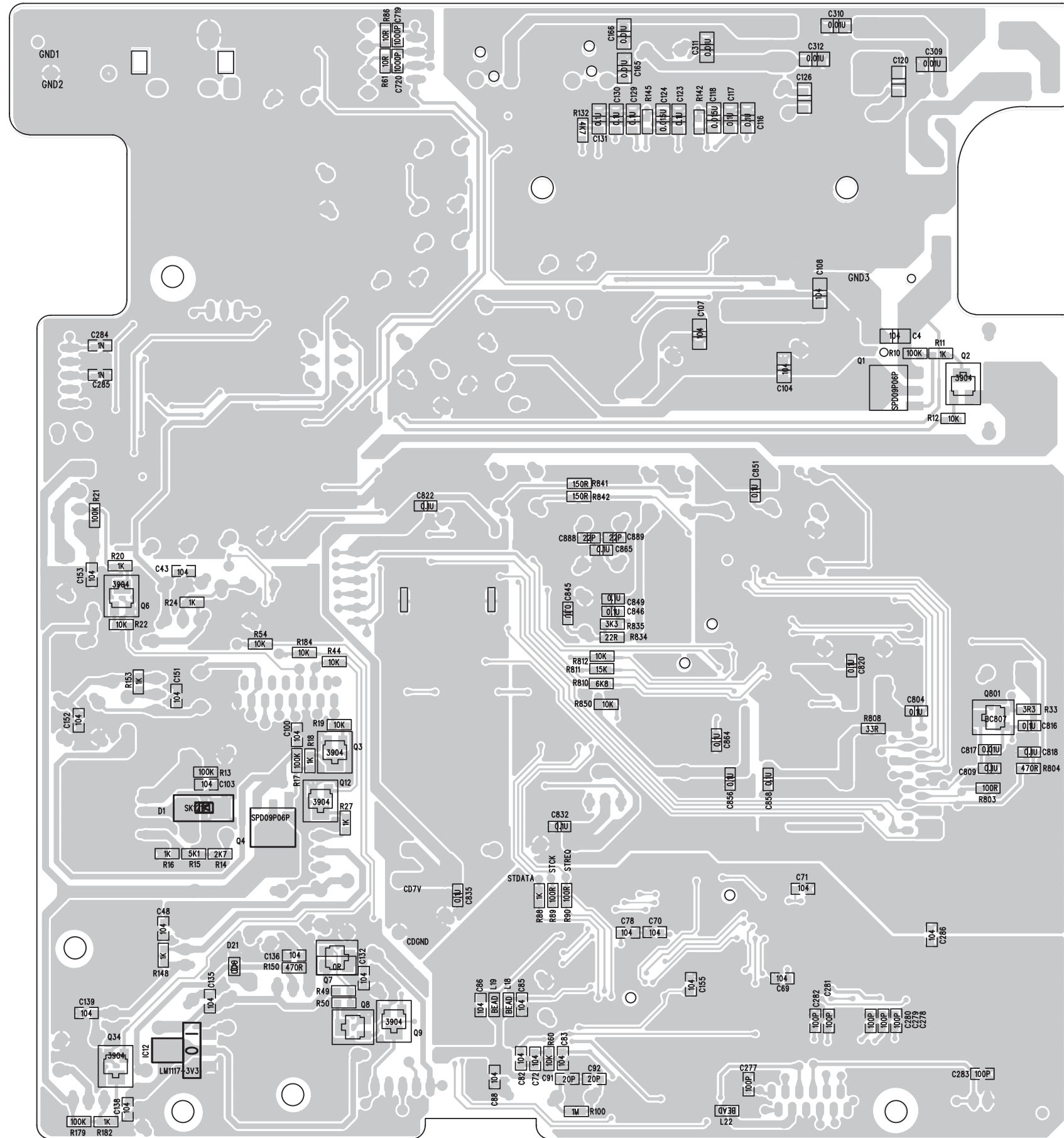
FOR EMC PROVISION



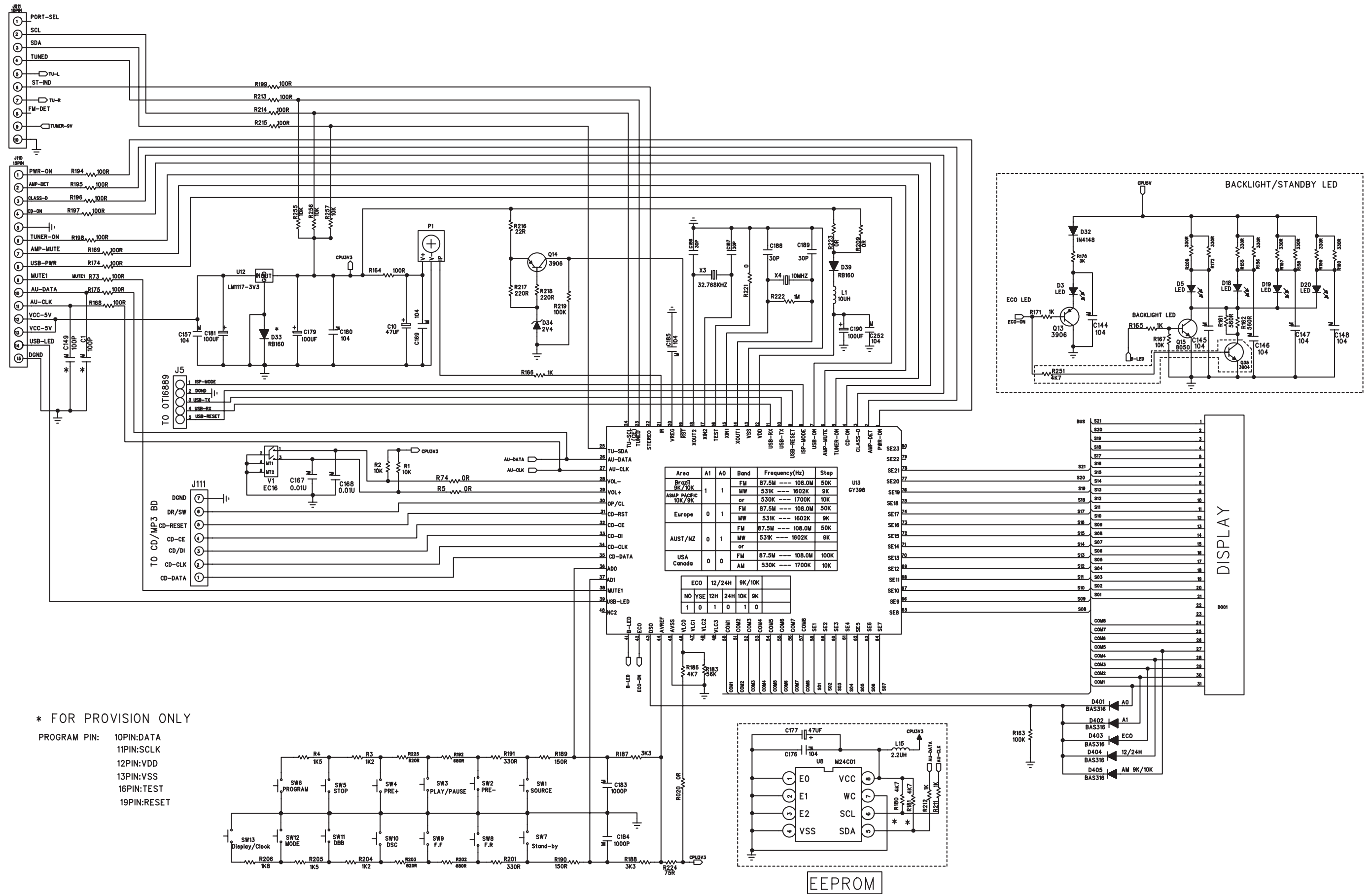
LAYOUT DIAGRAM - MAIN BOARD COMPONENT SIDE VIEW



LAYOUT DIAGARM - MAIN BOARD COPPER SIDE VIEW



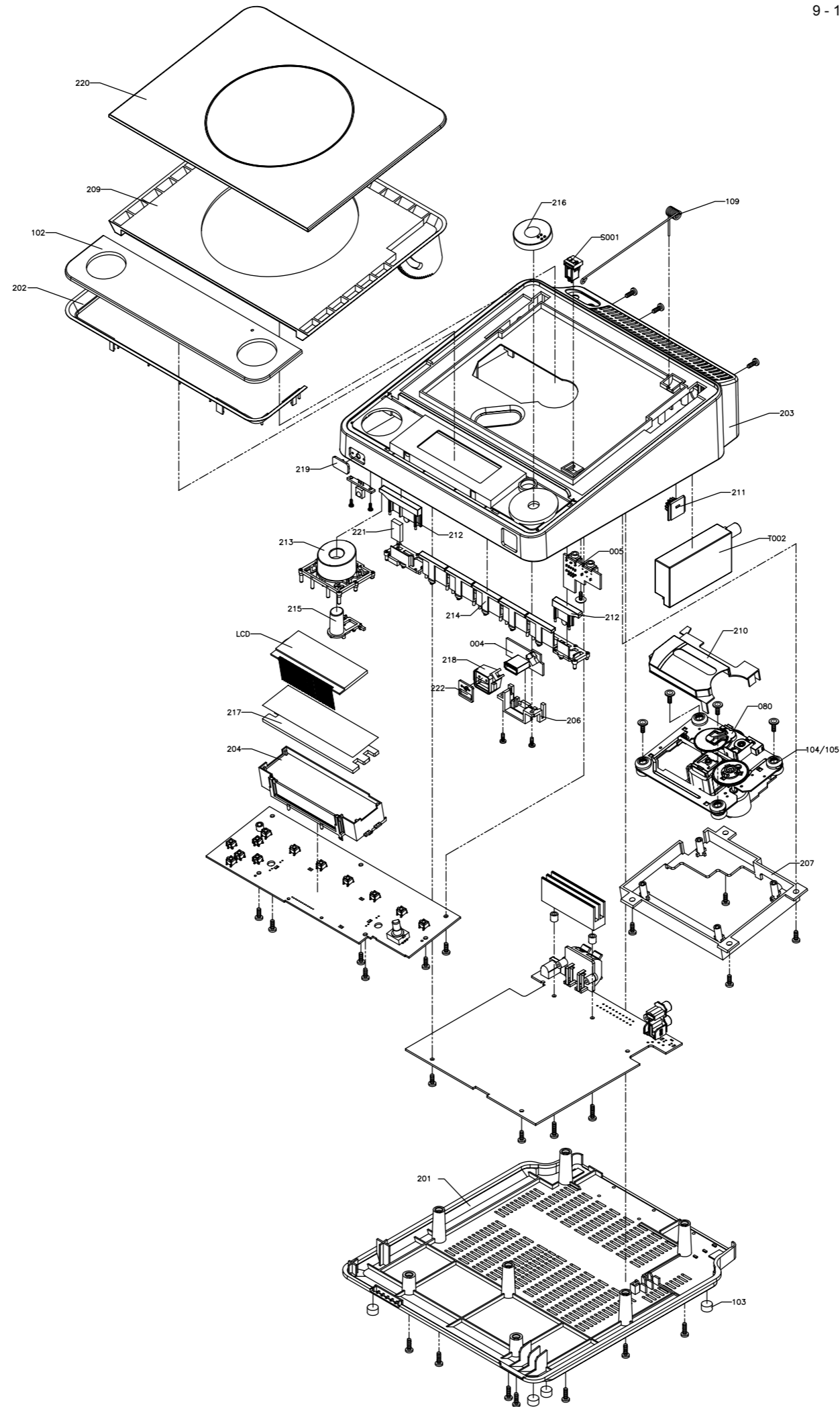
CIRCUIT DIAGRAM - DISPLAY BOARD



EXPLODED VIEW DIAGRAM

9 - 1

9 - 1



MECHANICAL PARTSLIST


D001	996510012043	LCD DISPLAY
204	996510012045	LCD HOLDER
205	996510012046	ECO POWER LED HOLDER
217	996510012047	LCD LIGHTGUIDE LENS
80	994000005398	CD MECHANISM DA11B3VF
109	996510012072	CD DOOR SPRING
201	996510019958	BOTTOM CABINET
202	996510012057	TOP CAB FRONT
203	996510019959	HOUSING
206	996510012059	USB BRACKET
207	996510012060	CD HOLDER
209	996510012061	CD DOOR
210	996500039787	LASER COVER (FOR SANYO CD)
211	996510008685	DAMPER GEAR ASSY (70kgf/cm)
212	996510012062	TWO KEYS
213	996510012063	HOLDER UNDER KEYS
214	996510012100	CLUSTER KEYS
215	996510012064	PLAY KEY
216	996510012065	VOLUME KNOB
218	996510012066	USB LENS
219	996510012067	IR LENS
220	996510012068	CD DOOR LENS
221	996510012069	ECO POWER LIGHTGUIDE LENS
222	996510012071	USB LOGO PANEL
224	996510012070	STAND
J001	996510012052	16P FFC.1mm L=70mm
J002	996510012053	12P FFC.1mm L=150mm
J003	996510012054	15P FFC.1mm L=200mm
J004	996510012055	10P FFC.1.25mm L=180mm
S001	994000002354	CD DOOR SWITCH DLS-02-W-1
T002	996510012051	TUNER MODULE EUROP

ACCESSORIES

T001	996510012050	AC ADAPTER VDE -/05
T001	996510019960	AC ADAPTER VDE -/12
2	996510025401	SINGLE SPEAKER BOX L/R
6	996510012049	REMOTE CONTROL
J008	996510009346	FM ANT (BLACK) 1M "CE"

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

ELECTRICAL PARTSLIST**MAIN BOARD ASSEMBLY**

D1	996510000896	SCHOTTKY BARRIER DIODE SK 1217
D21	996510009333	DIODE RB160M-30 SOD-123
D23	996510009333	DIODE RB160M-30 SOD-123
D36	996510000323	SMD DIODE BAS316
D37	996510000323	SMD DIODE BAS316
D7	996510000323	SMD DIODE BAS316
D8	996510000323	SMD DIODE BAS316
Q1	996510000878	TRANSISTORS SPD09P06PL
Q10	996510010910	TRANSISTOR ST8050C
Q11	994000004145	TRANSISTORS B772Y (160-320)
Q12	994000004338	SMD TRANSISTORS PMBT3904
Q2	994000004338	SMD TRANSISTORS PMBT3904
Q25	994000004338	SMD TRANSISTORS PMBT3904
Q26	994000004338	SMD TRANSISTORS PMBT3904
Q27	994000003937	SMD TRANSISTORS PMBT3906
Q28	994000004338	SMD TRANSISTORS PMBT3904
Q3	994000004338	SMD TRANSISTORS PMBT3904
Q30	994000001194	TRANSISTORS KSD882Y
Q31	994000001194	TRANSISTORS KSD882Y
Q32	994000001194	TRANSISTORS KSD882Y
Q33	994000004145	TRANSISTORS B772Y (160-320)
Q34	994000004338	SMD TRANSISTORS PMBT3904
Q36	994000004338	SMD TRANSISTORS PMBT3904
Q4	996510000878	TRANSISTORS SPD09P06PL
Q5	996510012039	TRANSISTOR ST8550C
Q6	994000004338	SMD TRANSISTORS PMBT3904
Q7	996510012039	TRANSISTOR ST8550C
Q702	994000004145	TRANSISTORS B772Y (160-320)
Q8	994000004338	SMD TRANSISTORS PMBT3904
Q801	996510000315	SMD TRANSISTORS BC807-25
Q9	994000004338	SMD TRANSISTORS PMBT3904
IC12	994000002839	IC LM1117S-3.3
IC3	996510012040	IC AP1501ADJ
U14	994000004607	IC PT2314
U15	996510006679	IC (SANYO) LC786921W-UPHI-E
U16	994000004622	IC LA6548NH
U17	996510002118	IC SST39VF010-70-4C-WHE (1M)
U18	996510002117	IC OTI6889 (LQFP-80)
U19	996510012038	IC TDA8932BT
U21	994000001201	IC NJM4556AM
CON3	994000003661	SPK JACK PT-22V11
F1	 996510002426	CERAMIC FUSE 3.9x10.5mmW
J001	996510002122	DC JACK TC-18-013-03
J11	996510012041	RCA JACK 2P
L11	996500042462	FXDIND BEAD 100MHz 80R
L13	996500042462	FXDIND BEAD 100MHz 80R
L35	996510000885	CHOKE COIL 47UH W/PLASTIC TUBE
L4	996510000885	CHOKE COIL 47UH W/PLASTIC TUBE
X1	996510008326	CRYSTAL 12 MHzHC-49/US H=3.5mm
X801	994000004551	CRYSTAL 16.9344MHZ +-20PPM

ELECTRICAL PARTSLIST

DISPLAY/KEY BOARD ASSEMBLY

D1	996510012044	ROTARY ENCODER
D18	996510019961	LED LAMP 2x5x7mm (WHITE)
D19	996510019961	LED LAMP 2x5x7mm (WHITE)
D20	996510019961	LED LAMP 2x5x7mm (WHITE)
D3	994000001234	LED LAMP 3MM (RED)
D39	996510009333	DIODE RB160M-30 SOD-123
D401	996510000323	SMD DIODE BAS316
D5	996510019961	LED LAMP 2x5x7mm (WHITE)
Q13	994000003937	SMD TRANSISTORS PMBT3906
Q14	994000003937	SMD TRANSISTORS PMBT3906
Q15	996510010910	TRANSISTOR ST8050C
Q35	994000004338	SMD TRANSISTORS PMBT3904
U12	994000002839	IC LM1117S-3.3
U13	996510019962	MCU GY398 V1.22
U8	994000001236	IC M24C01-WMN6
P1	994000004367	OPTIC SENSER FM-6038TM2-5AN
SW1	994000004157	TACT SWITCH 6X6MM H=5MM
SW10	994000004157	TACT SWITCH 6X6MM H=5MM
SW11	994000004157	TACT SWITCH 6X6MM H=5MM
SW12	994000004157	TACT SWITCH 6X6MM H=5MM
SW13	994000004157	TACT SWITCH 6X6MM H=5MM
SW2	994000004157	TACT SWITCH 6X6MM H=5MM
SW3	994000004157	TACT SWITCH 6X6MM H=5MM
SW4	994000004157	TACT SWITCH 6X6MM H=5MM
SW5	994000004157	TACT SWITCH 6X6MM H=5MM
SW7	994000004157	TACT SWITCH 6X6MM H=5MM
SW8	994000004157	TACT SWITCH 6X6MM H=5MM
SW9	994000004157	TACT SWITCH 6X6MM H=5MM

USB JACK BOARD ASSEMBLY

D1	996510000438	LED LAMP
J105	996510001316	USB SOCKET 4P

HP/AUX JACK BOARD ASSEMBLY

AUX	996510012048	PHONE JACK D3.6mm
J002	994000004369	PHONE JACK TC38-063-05-0

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