

Service  
Service  
**Service**



# Service Manual

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Subject to modification

GB 3141 785 32951



Version 1.1



# PHILIPS



## SPECIFICATIONS

### AMPLIFIER

Output power ..... 2 x 2W RMS  
 Signal-to-noise ratio .....  $\geq 60$  dBA (IEC)  
 Frequency response ..... 125 – 16000 Hz  
 Impedance loudspeakers .....  $8\Omega$

### 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  
 – FM 26 dB sensitivity ..... 20  $\mu$ 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) .. 134 x 230 x 152 (mm)

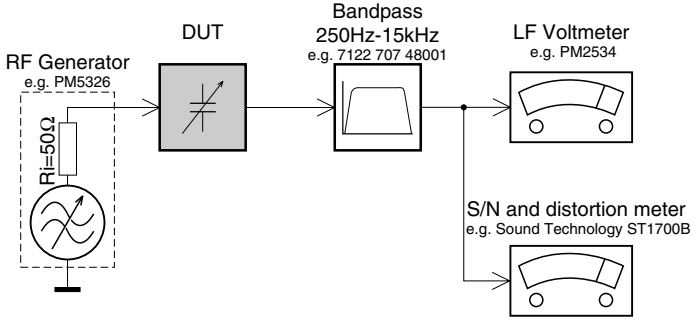
### GENERAL INFORMATION

AC Power ..... 110 – 127 / 220 – 240 V  
 ..... 50/60 Hz, switchable  
 Dimensions (w x h x d) .. 148 x 233 x 216 (mm)  
 Weight (with/without speakers) .....  
 ..... approx. 3.65 / 1.53 kg  
 Power consumption  
 Active ..... 15 W  
 Standby .....  $< 4$  W

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

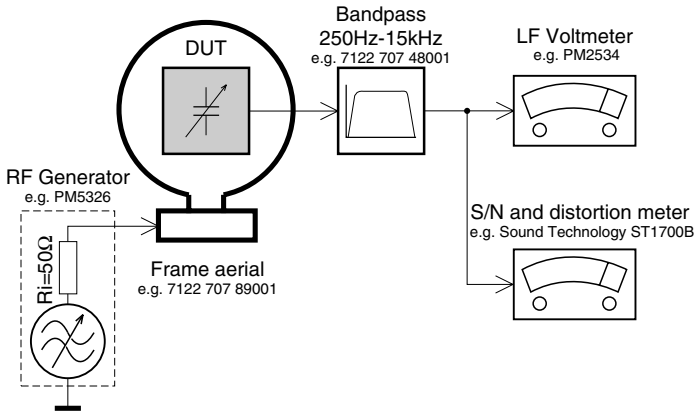
**MEASUREMENT SETUP**

**Tuner FM**



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

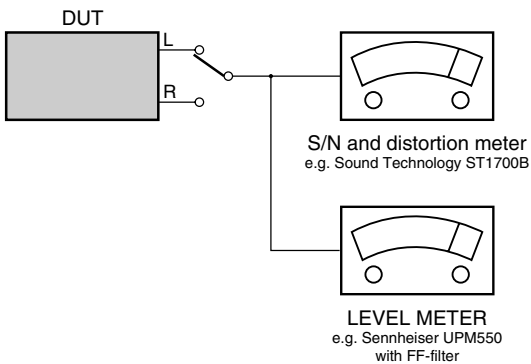
**Tuner AM (MW,LW)**



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).

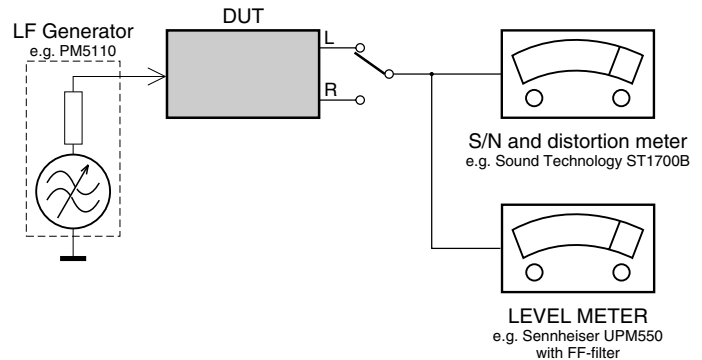
**CD**

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




### 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



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".

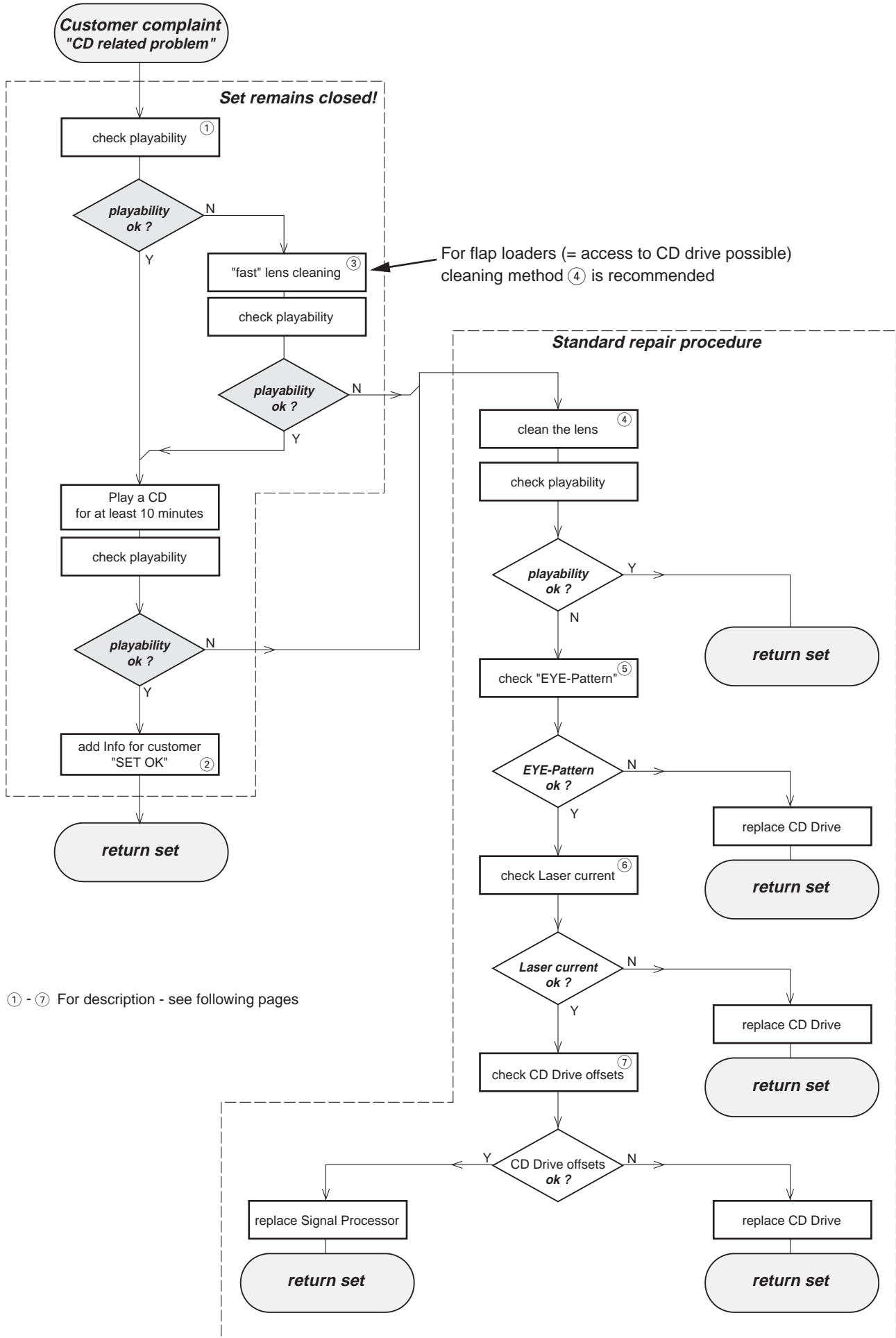
For additional questions please contact your local repair-helpdesk.

## 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 ≥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

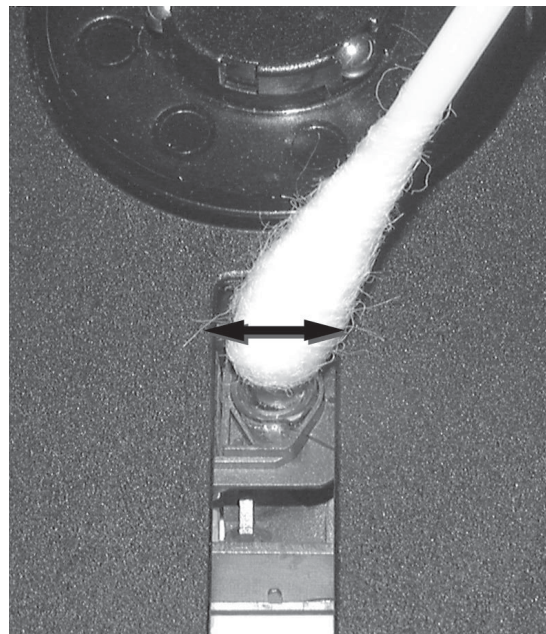
## LIQUID LENS CLEANING

**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.**

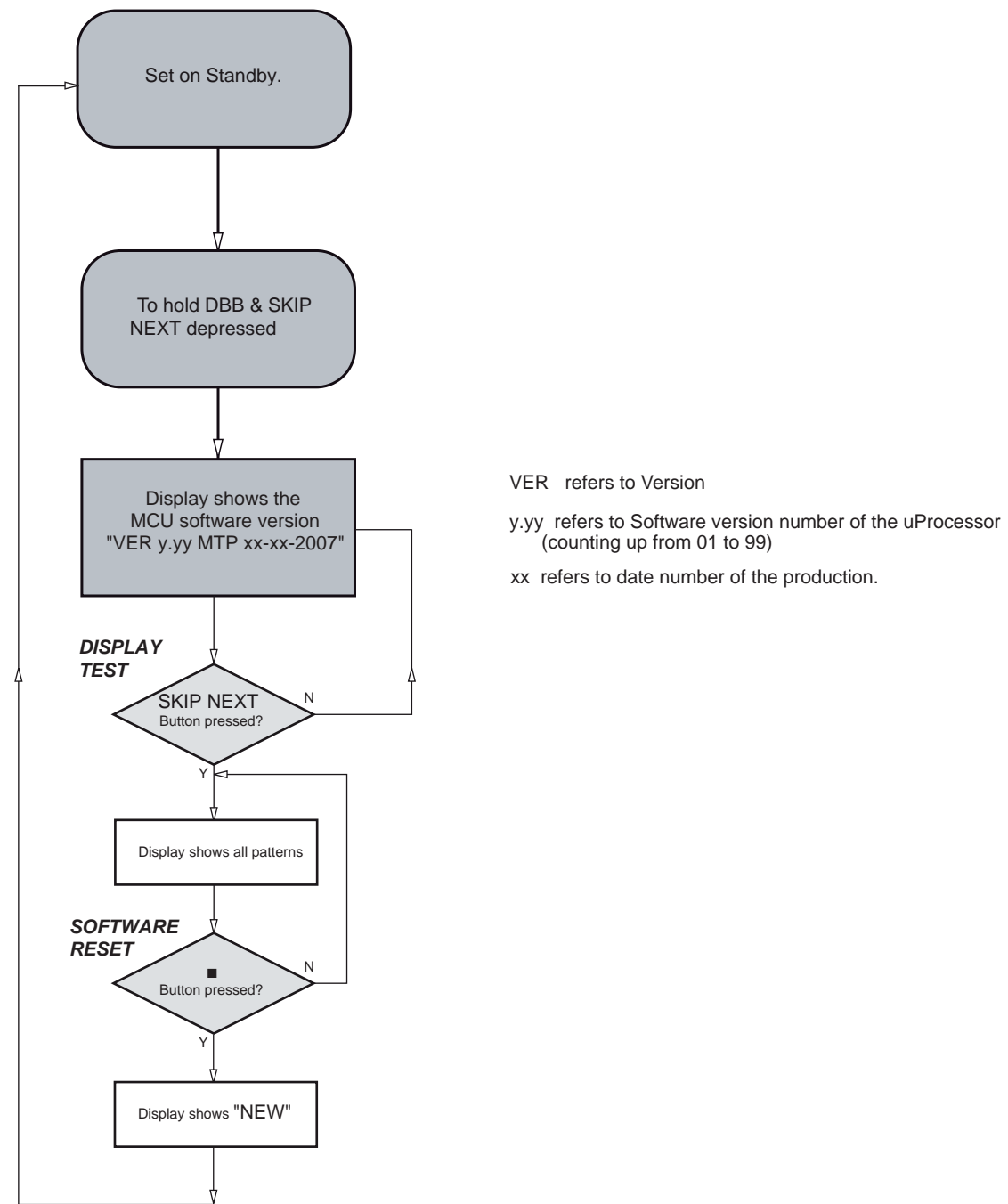
Because the material of the lens is synthetic and coated with a special anti-reflectivity layer, cleaning must be done with a non-aggressive cleaning fluid. It is advised to use "Cleaning Solvent B4-No2", available with codenumber 4822 389 10026.

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.

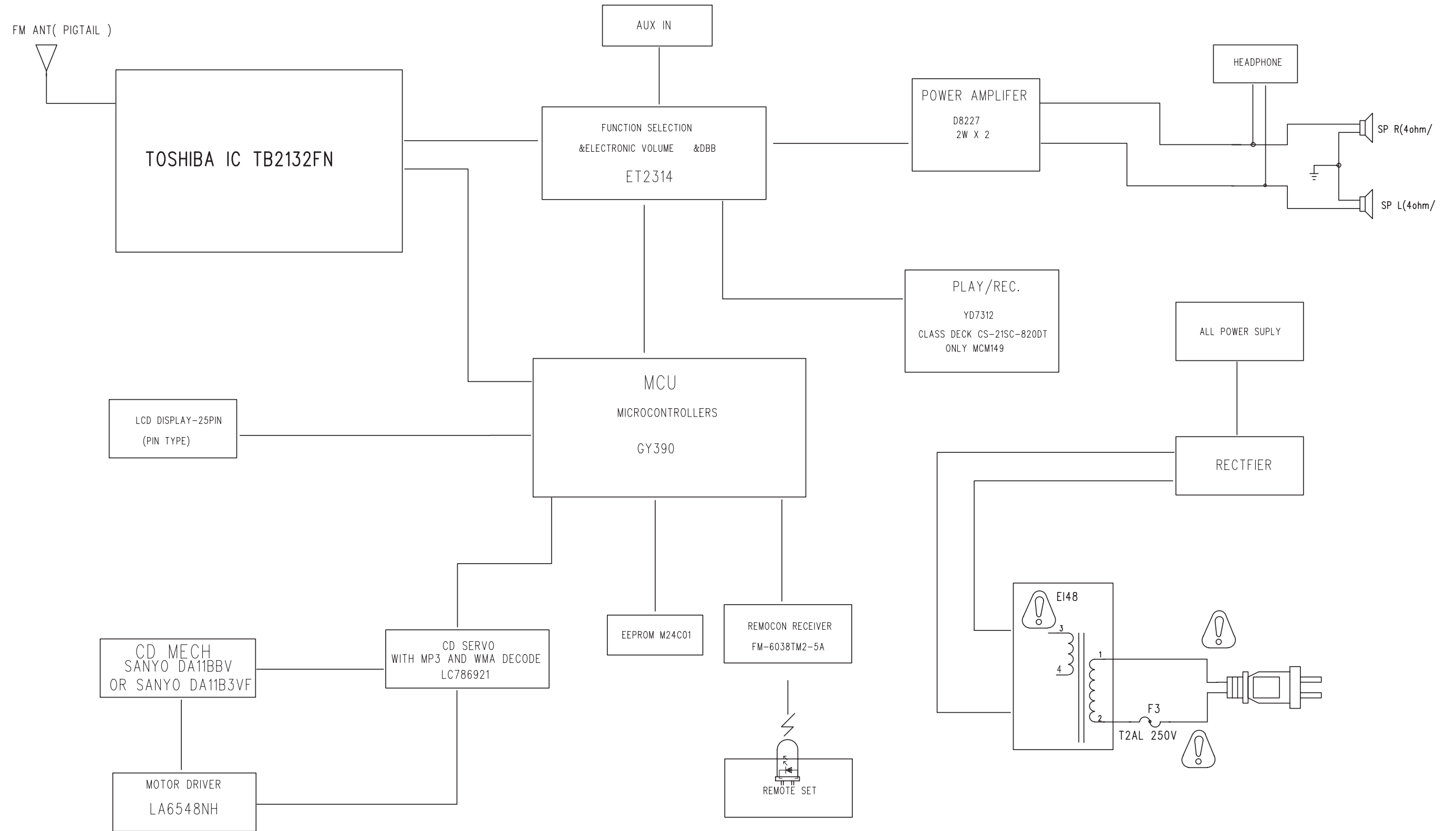


## SOFTWARE VERSION CHECKING

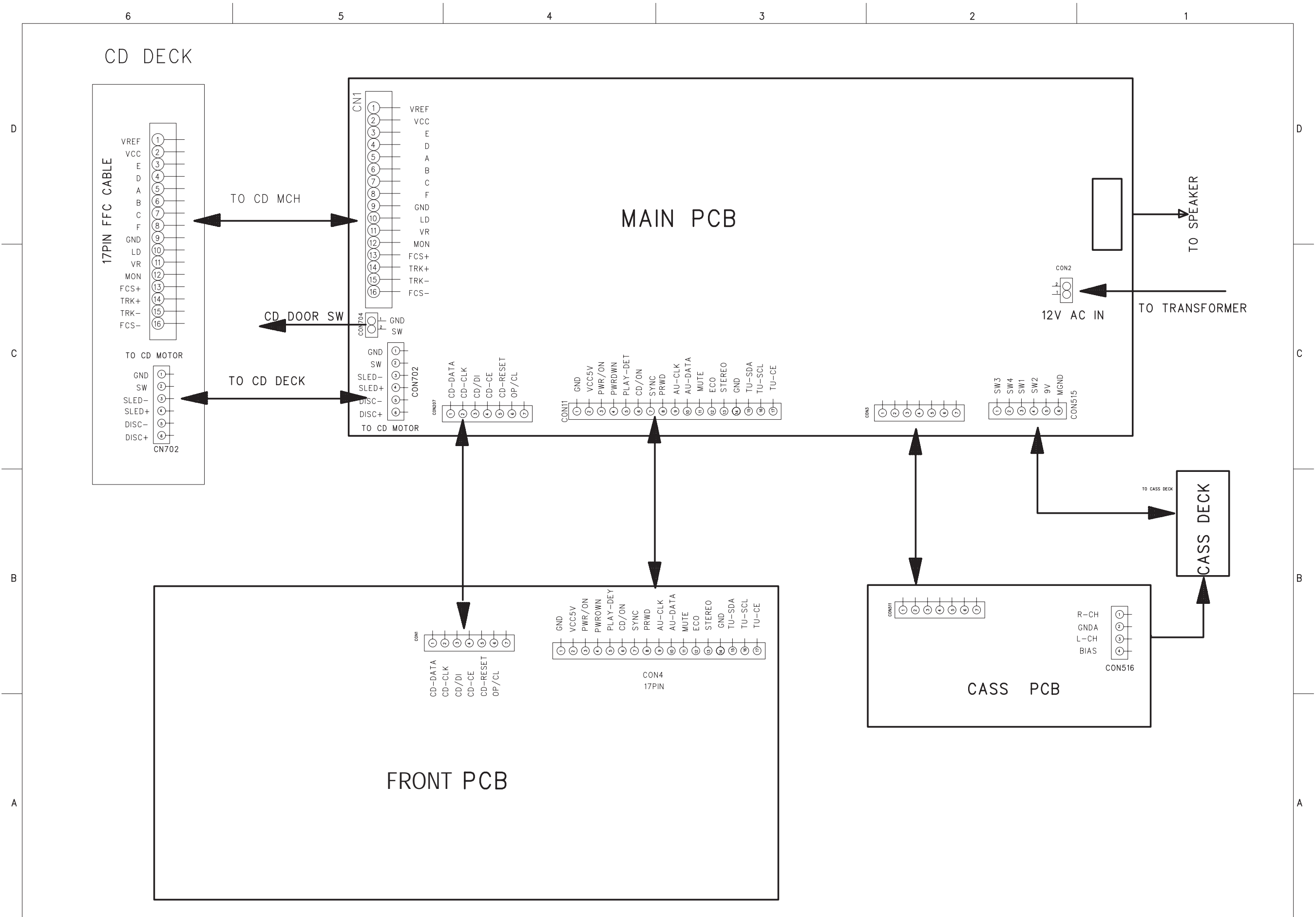




### SET BLOCK DIAGRAM



# SET WIRING DIAGRAM



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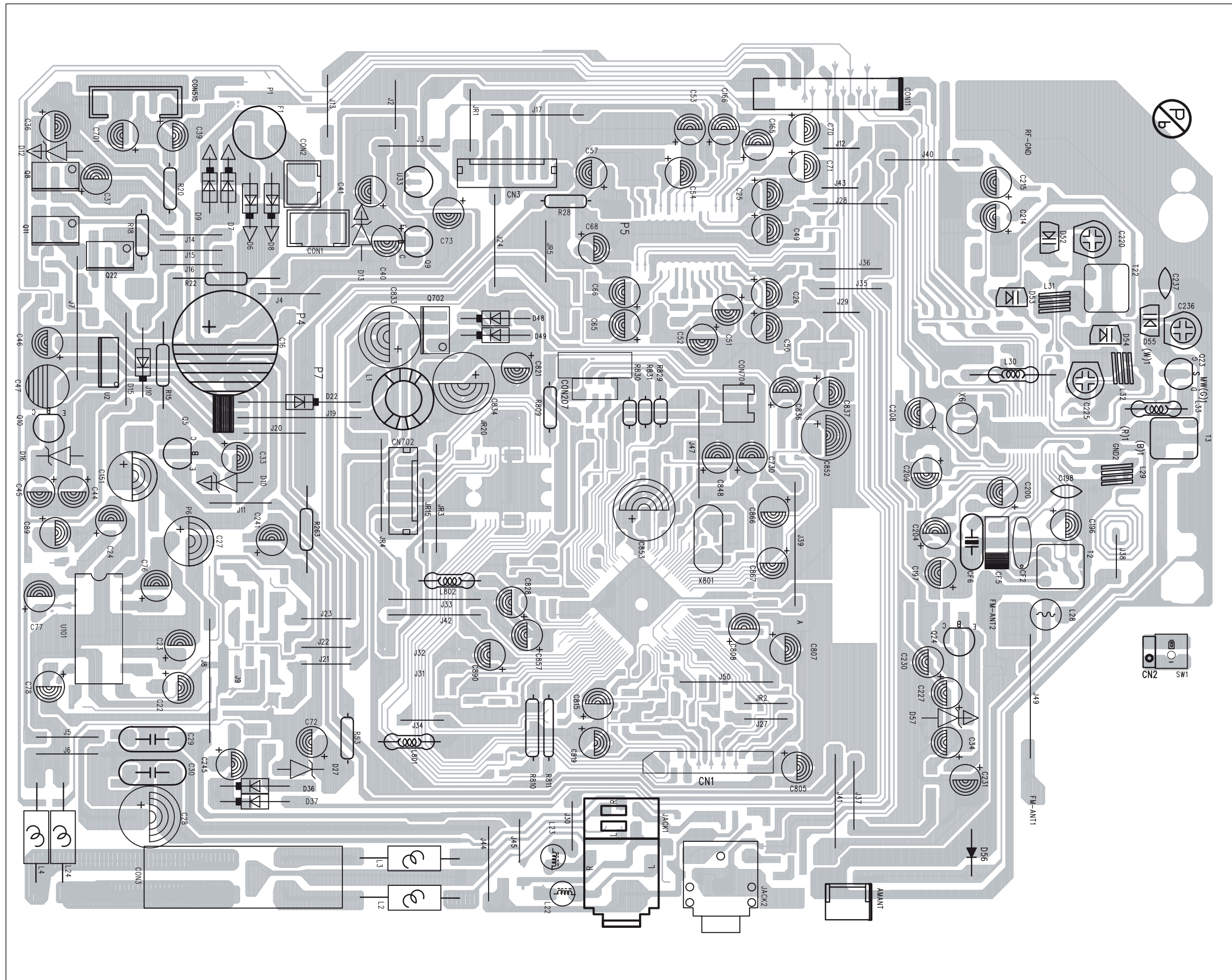
# MAIN BOARD

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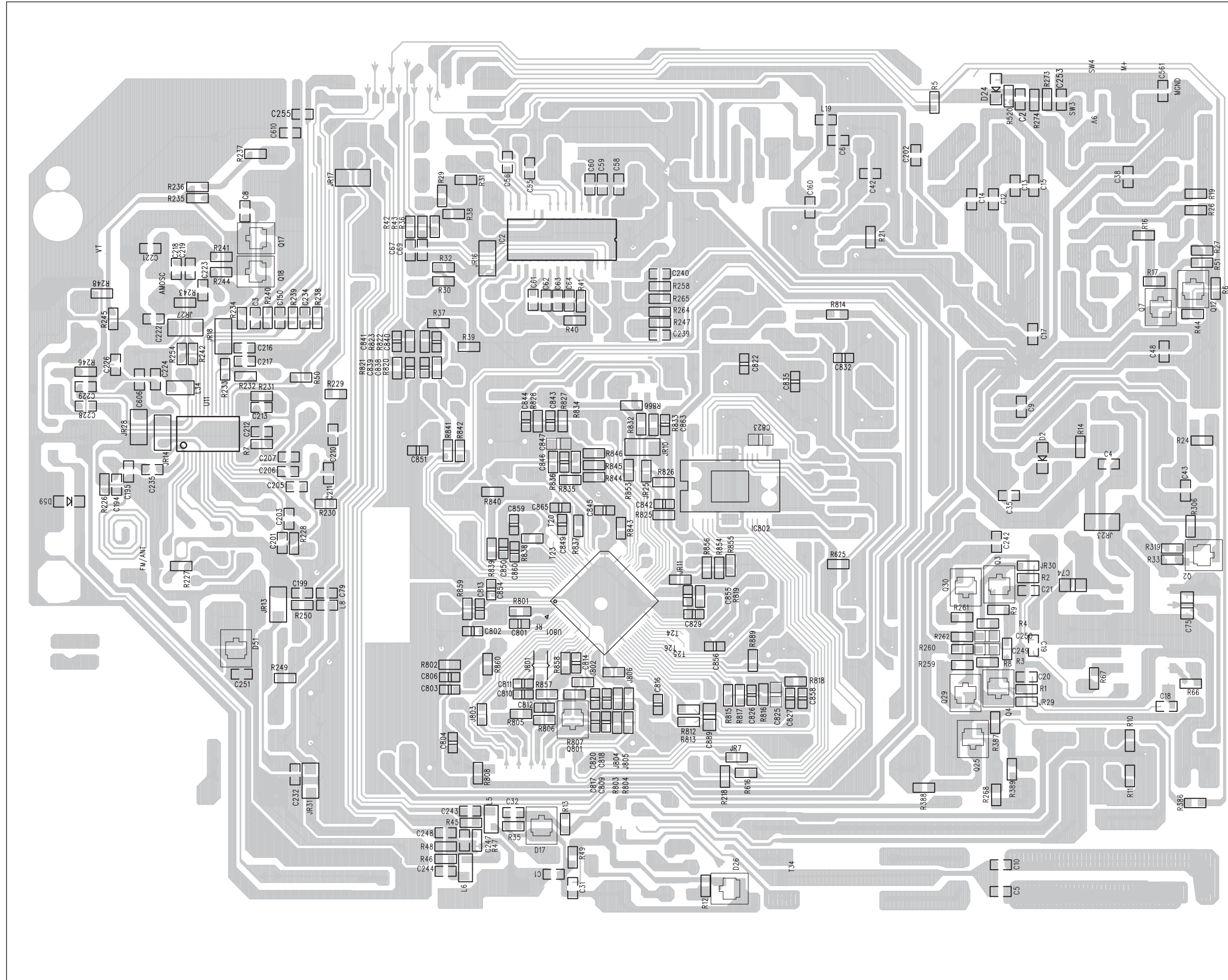
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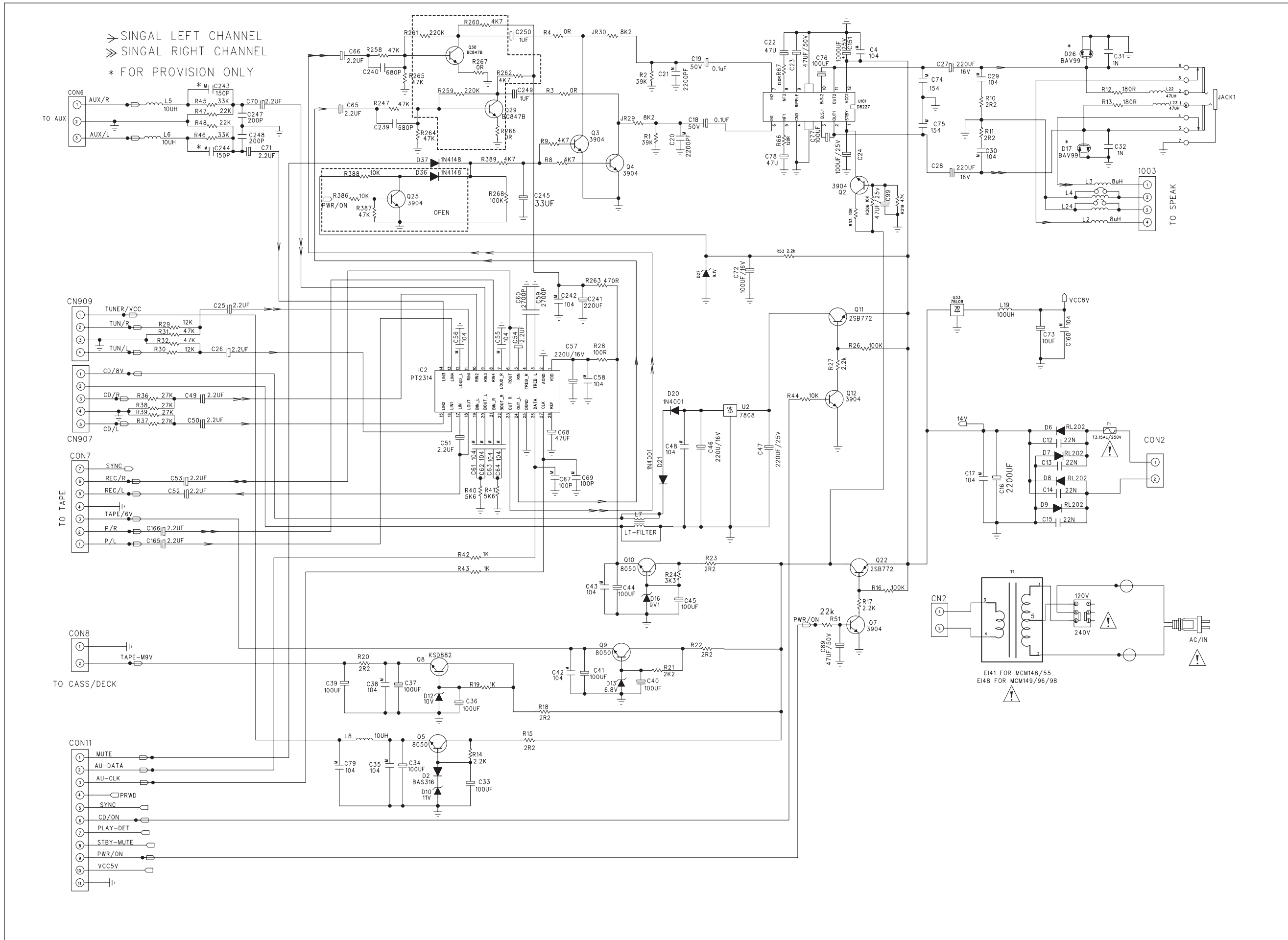
# PCB LAYOUT - MAIN BOARD (TOP VIEW)



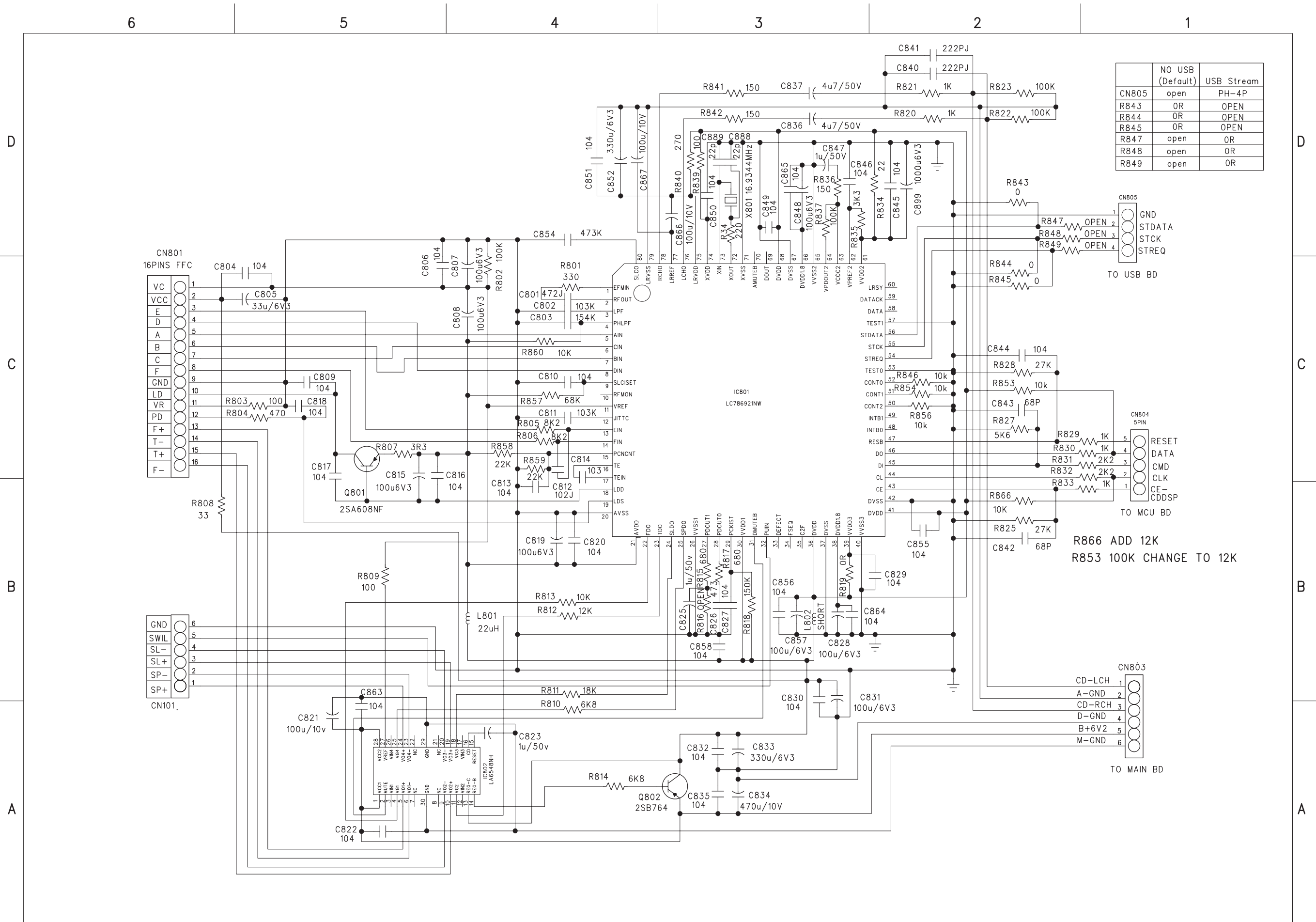
# PCB LAYOUT - MAIN BOARD (BOTTOM VIEW)



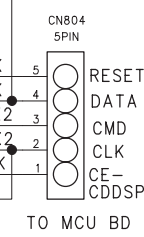
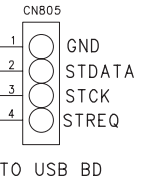
# CIRCUIT DIAGRAM - MAIN & POWER BOARD AF & AMP PART



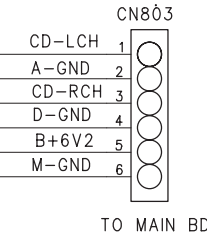
# CIRCUIT DIAGRAM - MAIN BOARD CD & MP3 PART



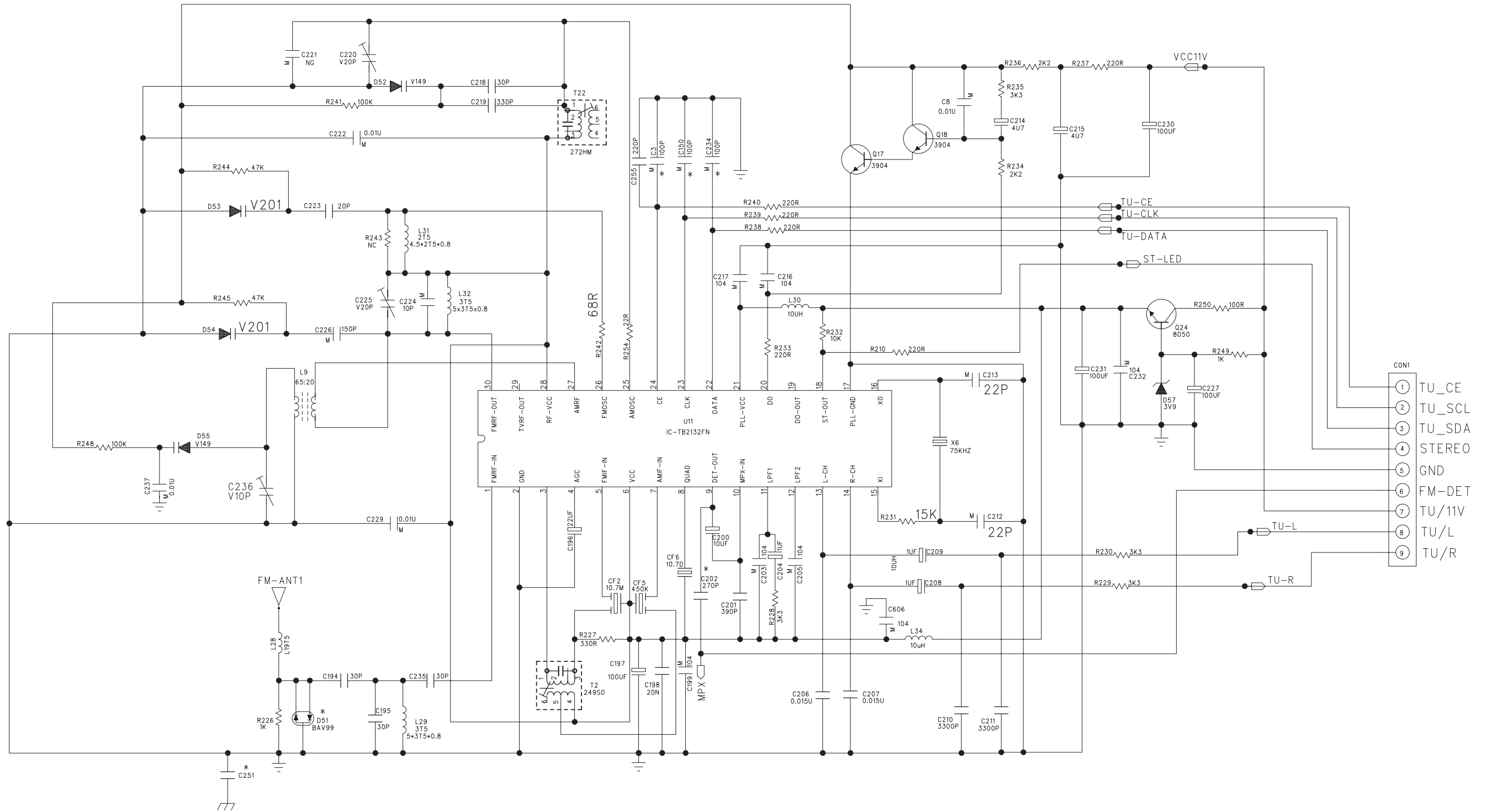
	NO USB (Default)	USB Stream
CN805	open	PH-4P
R843	OR	OPEN
R844	OR	OPEN
R845	OR	OPEN
R847	open	OR
R848	open	OR
R849	open	OR



R866 ADD 12K  
R853 100K CHANGE TO 12K



# CIRCUIT DIAGRAM - MAIN BOARD TUNER PART





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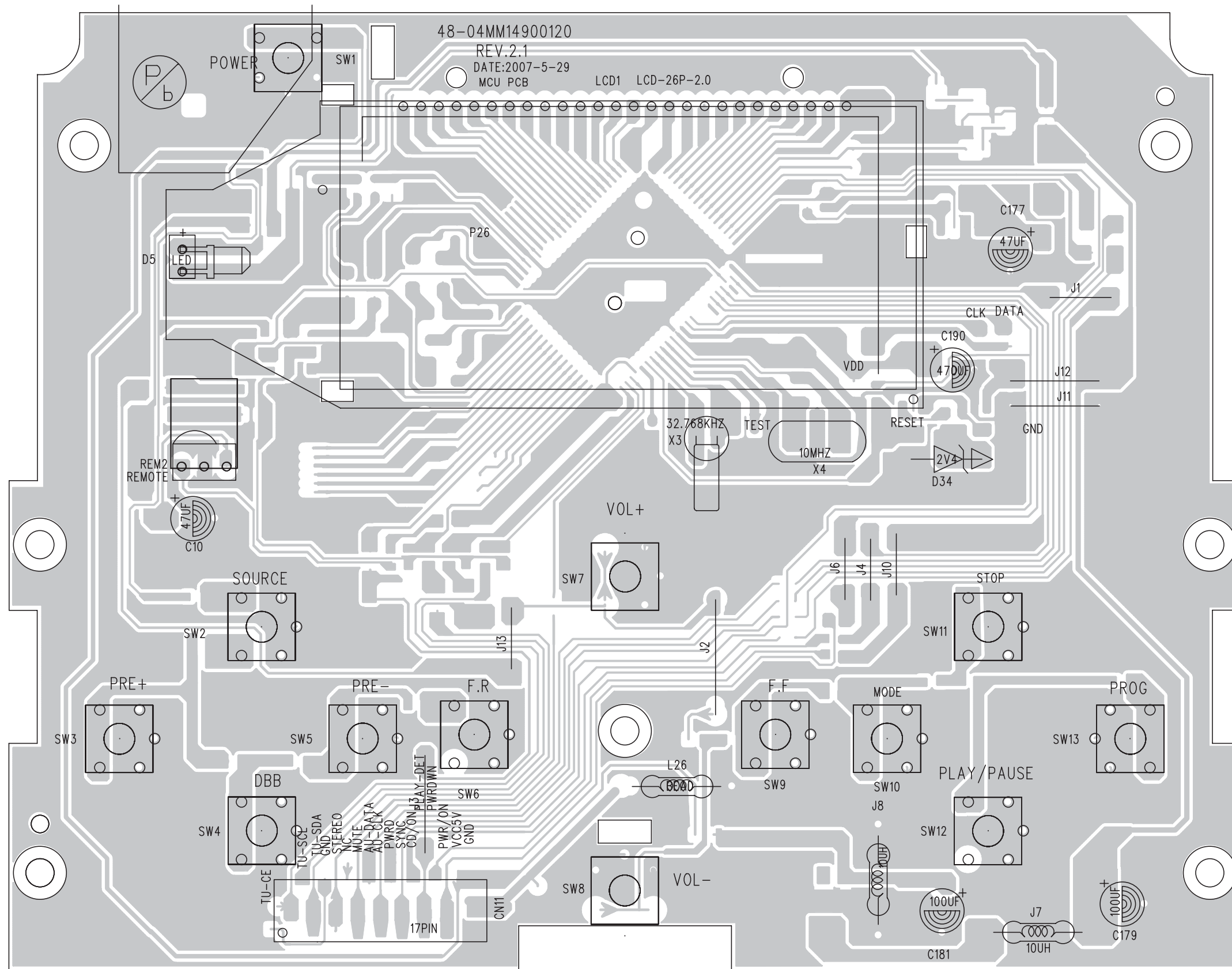
# FRONT BOARD

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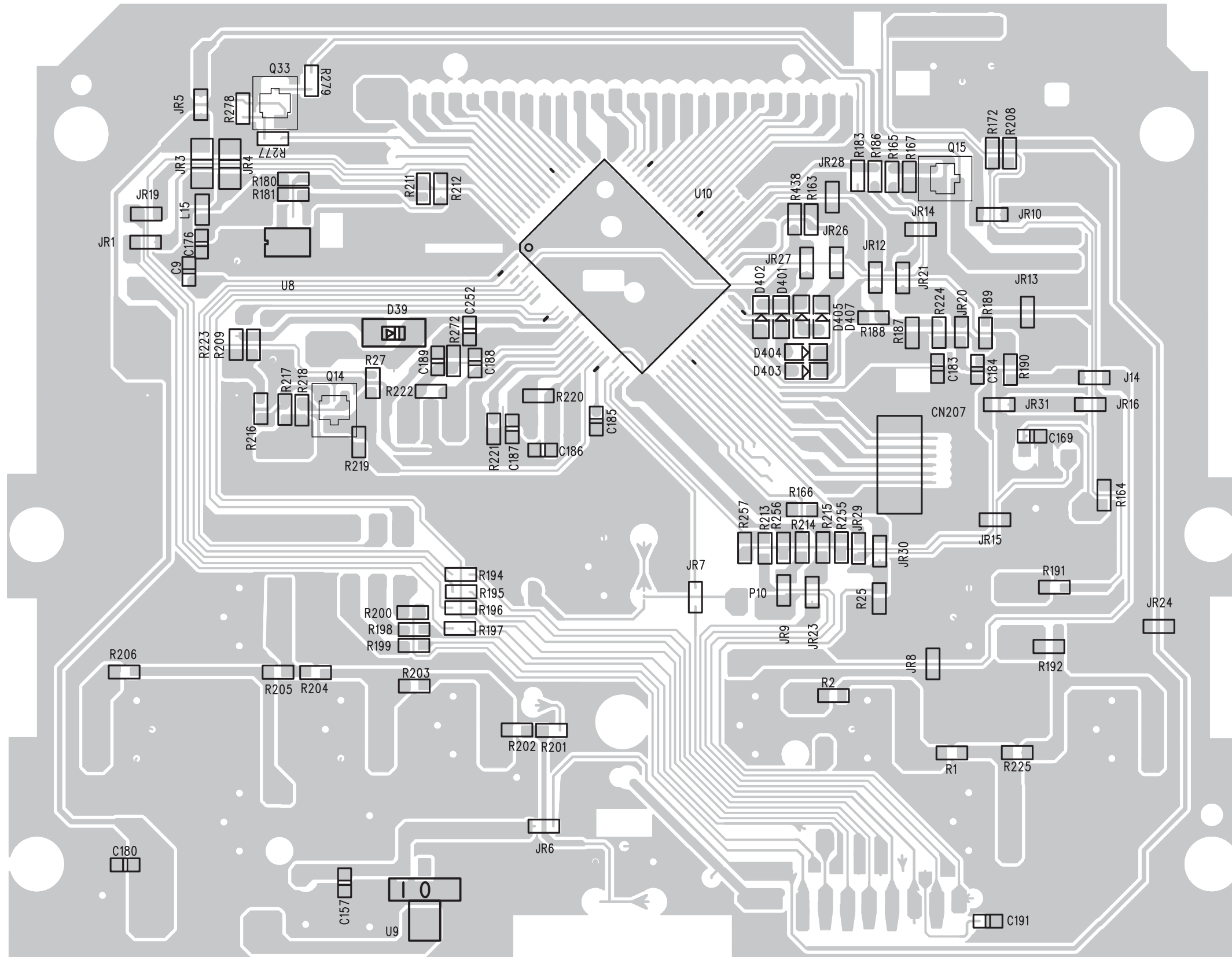
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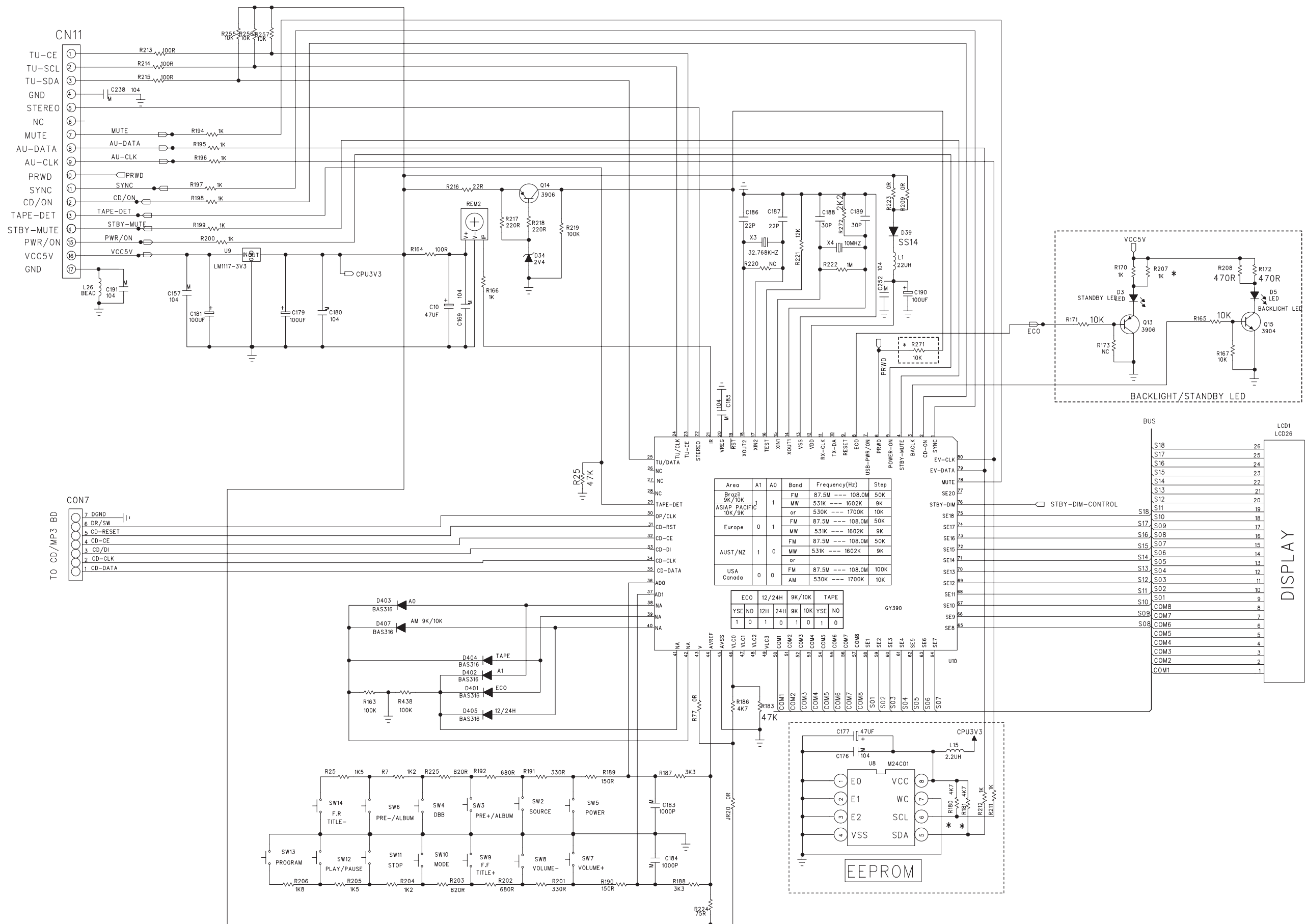
# PCB LAYOUT - FRONT BOARD (TOP VIEW)



# PCB LAYOUT - FRONT BOARD (BOTTOM VIEW)



# CIRCUIT DIAGRAM - FRONT BOARD



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# CASSETTE BOARD

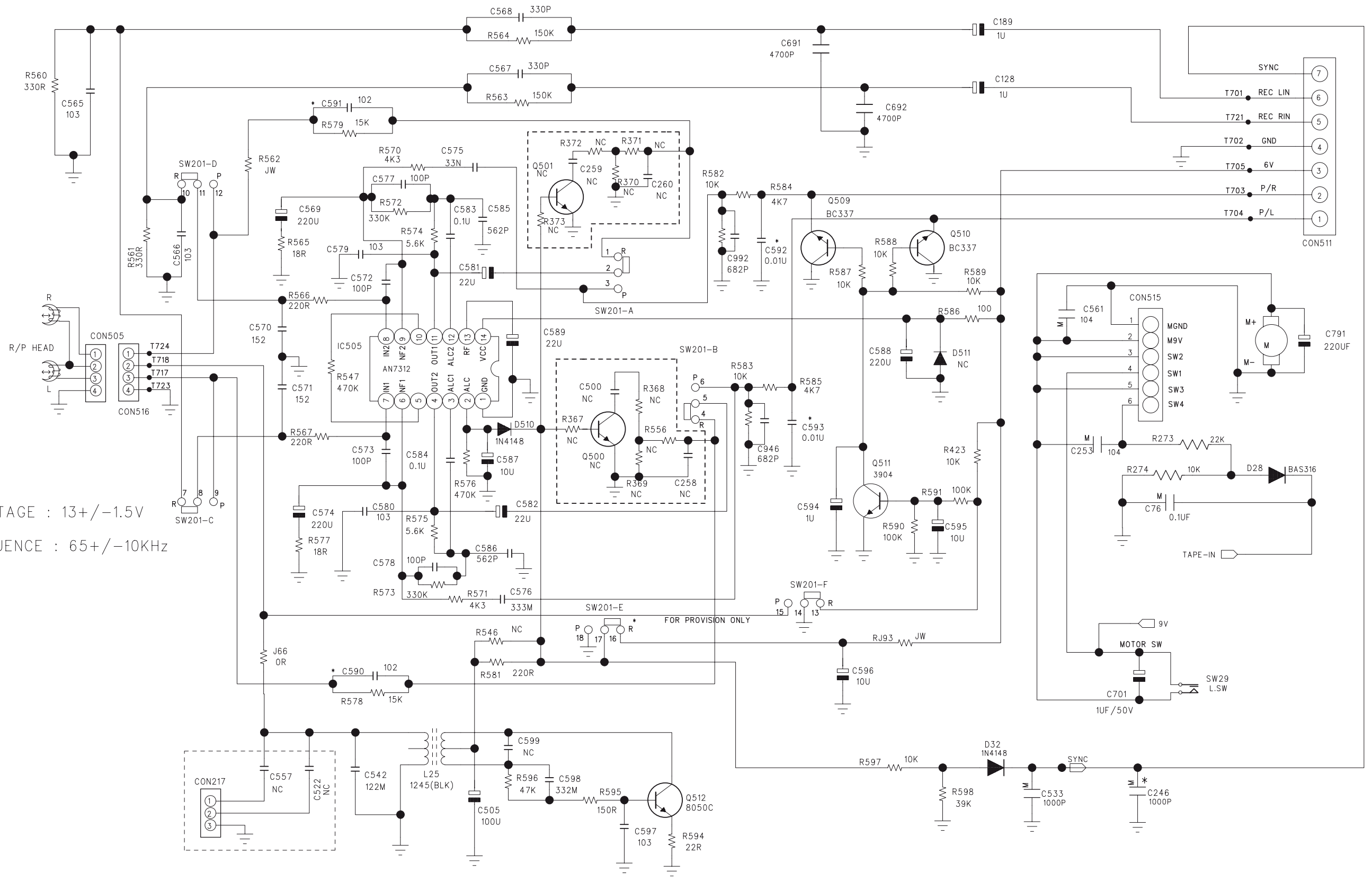
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Layout Bottom View..... 7-2  
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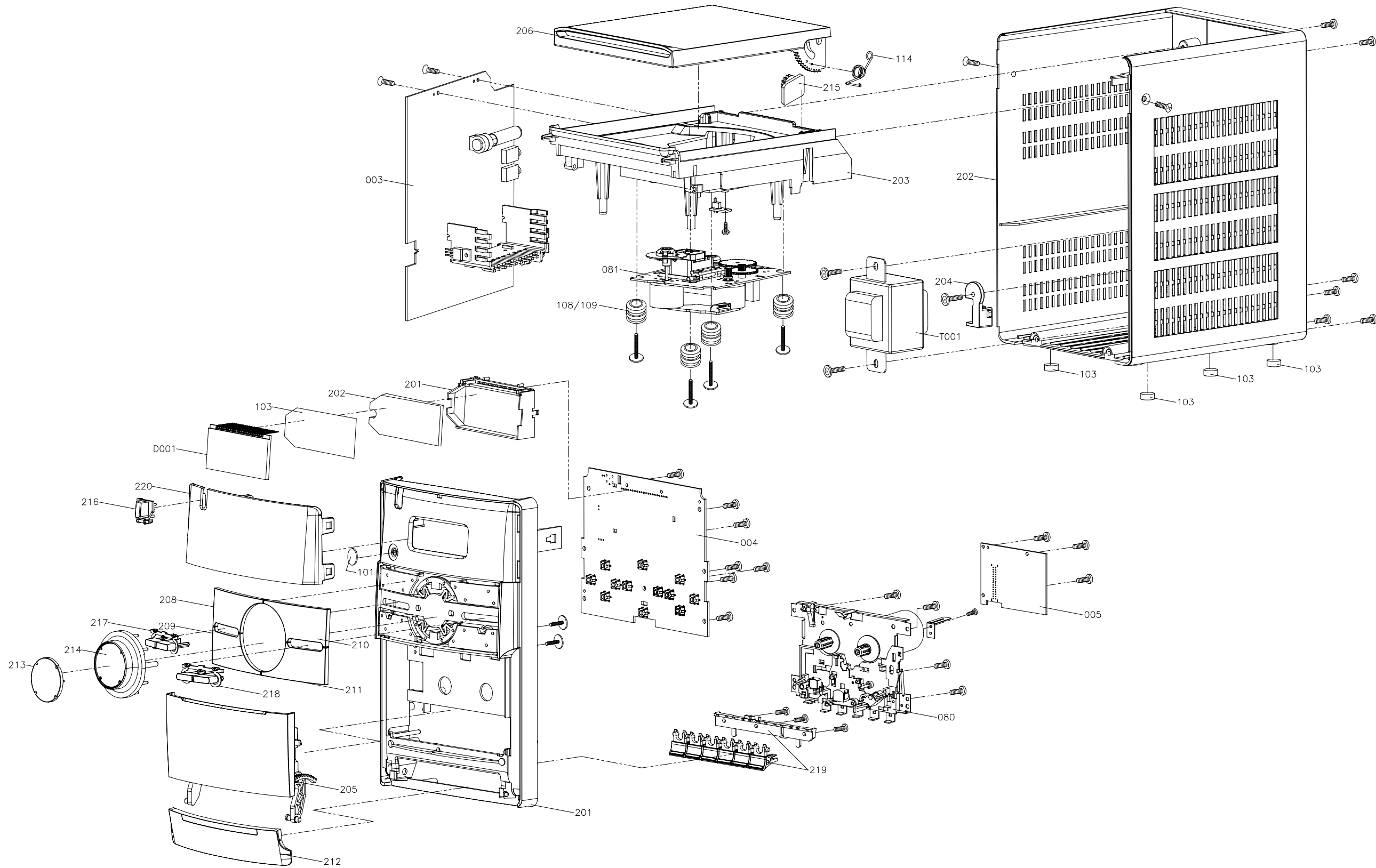


# CIRCUIT DIAGRAM - CASSETTE BOARD



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

SET MECHANICAL EXPLODED VIEW





**MECHANICAL & ACCESSORIES PARTS LIST**

5	996520032155	PCBA-CASS DECK	J001	996500042448	CLOSE END WIRE CONNECTOR
6	996510006668	REMOTE CONTROL	J002	996510006652	7P FFC 1MM L=150MM (AB)
80	996510006840	CASS DECK JS-21FB8923-SGS	J003	994000004487	16P FFC L=170MM
81	994000005398	CD MECHANISM DA11B3VF	J004	996510008608	17P FFC 1.25mmL=100mm
114	994000003674	CD DOOR SPRING	J010	△996510007312	AC CORD KS APP 1.92M /61
115	996510000917	CASS SPRING	J010	△996510000909	AC CORD VDE APP 2M /98
116	996510000918	CASSETTE KEY COVER SPRING	J011	996510000910	FM ANT SMF-01T-1.3 L=1.1M
201	996510016845	FRONT CABINET /61	S001	996510016844	SINGLE SPK BOX L/R /61
201	996510018593	FRONT CABINET /98	S001	996510018592	SINGLE SPK BOX L/R /98
202	996510016846	REAR CABINET /61	T001	△996510006839	TRASFO. EI48 230V /61
202	996510018594	REAR CABINET /98	T001	△996510007311	TRASFO. EI48 127/240V /98
203	996510016847	CD TRAY /61			
203	996510018595	CD TRAY /98			
204	996510016848	AC CORD BRACKET			
205	996510016849	CASSETTE DOOR /61			
205	996510018596	CASSETTE DOOR /98			
206	996510016850	CD DOOR /61			
206	996510018597	CD DOOR /98			
208	996510016851	SOURCE BUTTON COVER /61			
208	996510018601	SOURCE BUTTON COVER /98			
209	996510016852	DBB BUTTON COVER /61			
209	996510018603	DBB BUTTON COVER /98			
210	996510016853	PLAY BUTTON COVER /61			
210	996510018602	PLAY BUTTON COVER /98			
211	996510016854	STOP BUTTON COVER /61			
211	996510018604	STOP BUTTON COVER /98			
212	996510016855	CASS KEY DOOR /61			
212	996510018598	CASS KEY DOOR /98			
213	996510016856	VOL COSMETI COVER /61			
213	996510018599	VOL COSMETI COVER /98			
214	996510016857	VOL BUTTON COVER /61			
214	996510018600	VOL BUTTON COVER /98			
215	994000001295	DAMPER GEAR ASSY			
216	996510016858	POWER BUTTON /61			
216	996510018605	POWER BUTTON /98			
217	996510016859	PRESET BUTTON /61			
217	996510018606	PRESET BUTTON /98			
218	996510016860	MODE PROG BUTTON /61			
218	996510018607	MODE PROG BUTTON /98			
219	996510016861	CASS KEY WITH HOLDER /61			
219	996510018608	CASS KEY WITH HOLDER /98			
220	996510016862	DISPLAY LENS /61			
220	996510018609	DISPLAY LENS /98			

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

**ELECTRICAL PARTS LIST - MAIN BOARD**

C220	994000004351	TRIMMER 20PF (RED)	U11	996510000881	IC TB2132FNG
C225	994000004351	TRIMMER 20PF (RED)	U2	994000000253	IC (SAMSUNG) KA7808
C236	994000000254	TRIMMER 10PF 6MM (WH)	U33	996510000880	IC LM78L08
CF2	994000003642	CER. FILTER LT10.7MA5-A RED	U801	996510006679	IC (SANYO) LC786921W-UPHI-E
CF5	996510006680	CER. FILTER SFU450B	X6	994000004352	CRYSTAL 75KHZ 12.5PF DT-381
CF6	994000004353	DISC. FILTER JT10.7MG77-A	X801	994000004551	CRYSTAL 16,9344MHZ -20PPM
CON3	996510005450	SPK JACK PT-22V11A			
D52	994000002836	VARICAP DIODE 1SV-149			
D53	996510000879	VARACTOR DIODE SVC201SPA			
D54	996510000879	VARACTOR DIODE SVC201SPA			
D55	994000002836	VARICAP DIODE 1SV-149			
D6	994000003938	RECTIFIER DIODE RL-202			
D7	994000003938	RECTIFIER DIODE RL-202			
D8	994000003938	RECTIFIER DIODE RL-202			
D9	994000003938	RECTIFIER DIODE RL-202			
F1	△ 994000000586	GLASS FUSE W/LEAD 3.15A/250V	<b>Note: Only these parts mentioned in the list are normal service parts.</b>		
FMANT1	996510002038	FM ANT CONTACT PIN			
IC2	996500039806	IC ET2314 (SOP28)			
IC802	994000004622	IC LA6548NH			
JACK1	994000004369	PHONE JACK TC38-063-05-01			
JACK2	996510000889	PHONE JACK TC38-060-01 RING			
L28	996510000887	FM COIL 3x19.5T			
L29	996510000888	FM COIL 5x3.5T			
L31	996500039350	FM COIL 4.5X2.5T (0.8MM)			
L32	996510000888	FM COIL 5x3.5T			
Q10	996500038609	TRANSISTORS 2W 8050C			
Q11	994000001193	TRANSISTORS KSB772YS			
Q12	994000004338	SMD TRANSISTORS PMBT3904			
Q17	994000004338	SMD TRANSISTORS PMBT3904			
Q18	994000004338	SMD TRANSISTORS PMBT3904			
Q2	994000004338	SMD TRANSISTORS PMBT3904			
Q22	994000001193	TRANSISTORS KSB772YS			
Q24	996500038609	TRANSISTORS 2W 8050C			
Q25	994000004338	SMD TRANSISTORS PMBT3904			
Q3	994000004338	SMD TRANSISTORS PMBT3904			
Q4	994000004338	SMD TRANSISTORS PMBT3904			
Q5	996500038609	TRANSISTORS 2W 8050C			
Q7	994000004338	SMD TRANSISTORS PMBT3904			
Q702	994000001193	TRANSISTORS KSB772YS			
Q8	994000001194	TRANSISTORS KSD882Y			
Q9	996500038609	TRANSISTORS 2W 8050C			
T001	996510006681	AM COIL AD/M7 65:20T			
T2	994000004356	I.F.T 7MM 7AC-249S0 (YELLOW)			
T22	994000004357	I.F.T 7MM 7AL-272HM (RED)			
U101	994000003636	IC D8227 DIP			

**ELECTRICAL PARTS LIST - FRONT BOARD**

D001	996510006683	LCD DISPLAY
D39	996500042437	CH-DIODE SS14 SMA/DO-214AC
D5	996500042438	LED LAMP 2x5x7mm (WHITE)
Q14	994000003937	SMD TRANSISTORS PMBT3906
Q15	994000004338	SMD TRANSISTORS PMBT3904
Q33	994000004338	SMD TRANSISTORS PMBT3904
REM2	994000004367	OPTIC SENSER FM-6038TM2-5AN
SW1	996500042444	TACT SWITCH 6x6mm 4.3mm
SW10	996500042444	TACT SWITCH 6x6mm 4.3mm
SW11	996500042444	TACT SWITCH 6x6mm 4.3mm
SW12	996500042444	TACT SWITCH 6x6mm 4.3mm
SW13	996500042444	TACT SWITCH 6x6mm 4.3mm
SW2	996500042444	TACT SWITCH 6x6mm 4.3mm
SW3	996500042444	TACT SWITCH 6x6mm 4.3mm
SW4	996500042444	TACT SWITCH 6x6mm 4.3mm
SW5	996500042444	TACT SWITCH 6x6mm 4.3mm
SW6	996500042444	TACT SWITCH 6x6mm 4.3mm
SW7	996500042444	TACT SWITCH 6x6mm 4.3mm
SW8	996500042444	TACT SWITCH 6x6mm 4.3mm
SW9	996500042444	TACT SWITCH 6x6mm 4.3mm
U10	996510006682	MCU GY390 (FLASH)
U8	994000001236	IC M24C01-WMN6
U9	994000002839	IC H1117SJ-3.3V
X3	994000004615	CRYSTAL 32.768KHZ 12.5PF
X4	996500039820	CRYSTAL 10MHZ 49/US

**ELECTRICAL PARTS LIST - CASS BOARD**

IC505	994000004533	IC YD7312
L25	994000004538	I.F.T. 10148BK7
Q511	994000004338	TRANSISTORS PMBT3904
Q512	996500038609	TRANSISTORS 2W 8050C
SW201	994000003656	PUSH SWITCH PS-102D13-NS

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

## **REVISION LIST**

### **1.0 Manual 3141 785 32950**

Initial Service Manual released.

### **1.1 Manual 3141 785 32951**

In this version, version /98 added.

Page 8-2 Mechanical & Accessories Parts List is updated.