

Service  
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**Service**



# Service Manual



TABLE OF CONTENTS

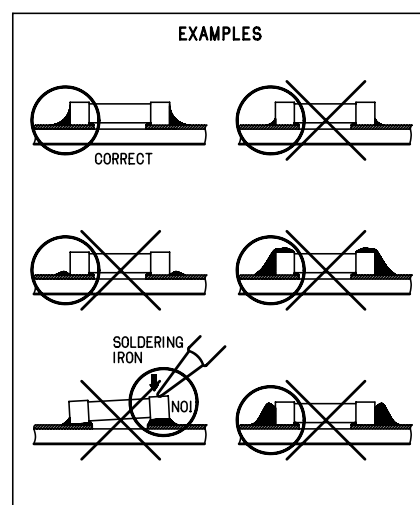
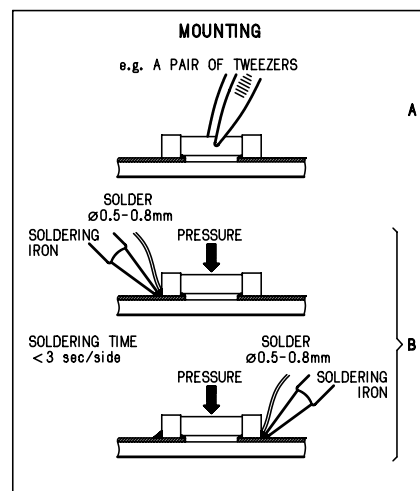
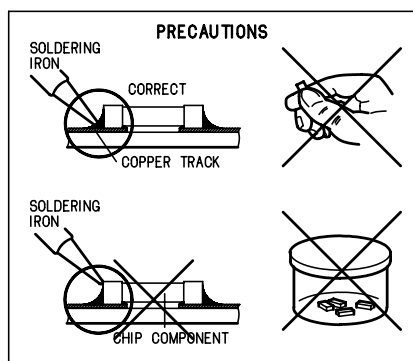
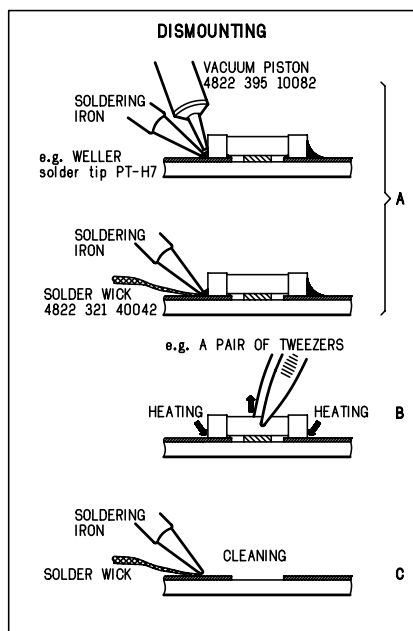
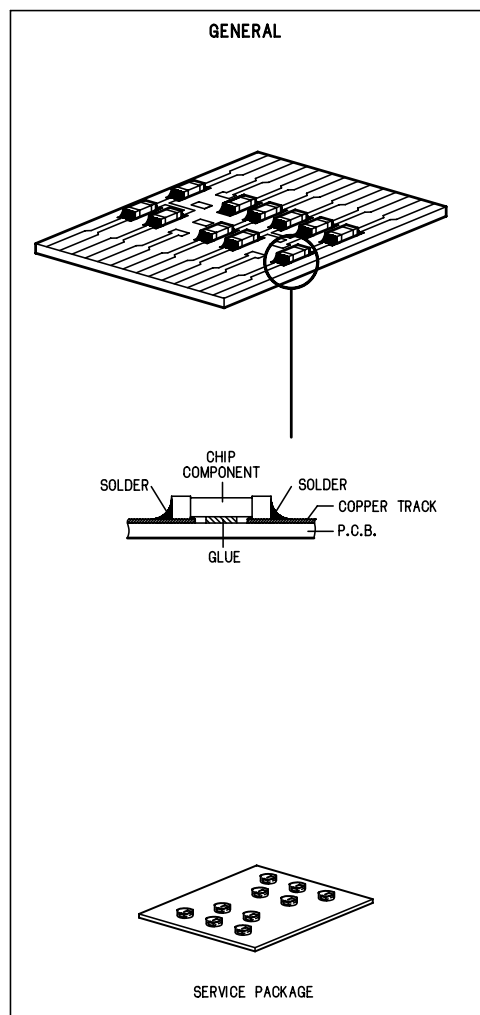
Handling chip components..... 1-1  
 Leadfree and safety information ..... 1-2  
 Technical specification ..... 2-1  
 Service test program ..... 2-1  
 Service measurement setup ..... 2-2  
 Connections and controls ..... 3-1...3-2  
  
 Disassembly diagram ..... 4-1...4-2  
 Set block diagram ..... 5-1  
 Set wiring diagram ..... 5-2  
  
 Display and key board  
     circuit diagram ..... 6-1  
     layout diagram..... 6-2  
  
 Main and AC power board  
     circuit diagram ..... 7-1...7-2  
     layout diagram (component side)..... 7-3  
     layout diagram (copper side) ..... 7-4

Cassette board  
     circuit diagram ..... 8-1  
     layout diagram..... 8-2  
     tape deck adjustment ..... 8-2  
  
 Exploded view (main set) ..... 9-1  
 Mechanical partslist ..... 9-2  
 Electrical partslist ..... 10-1...10-2

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## HANDLING CHIP COMPONENTS



## SERVICE TOOLS

TORX T10 screwdriver with shaftlength 150mm.....	4822 395 50423
TORX screwdriver set SBC 163.....	4822 295 50145
Audio signal disc SBC 429.....	4822 397 30184
Playability test disc SBC 444.....	4822 397 30245
Test disc 5 (disc without errors) +	
Test disc 5A (disc with dropout errors, black spots and fingerprints)	
SBC 426/426A.....	4822 397 30096
Burn in test disc (65 min. 1kHz signal at -30 dB level without "pause").....	4822 397 30155
Universal test cassette Fe SBC 420.....	4822 397 30071

## AVAILABLE ESD PROTECTION EQUIPMENT

anti-static table mat	large 1200x650x1.25mm	4822 466 10953
	small 600x650x1.25mm	4822 466 10958
anti-static wristband		4822 395 10223
connection box (3 press stud connections, 1MΩ)		4822 320 11307
extendible cable (2m, 2MΩ, to connect wristband to connection box)		4822 320 11305
connecting cable (3m, 2MΩ, to connect table mat to connection box)		4822 320 11306
earth cable (1MΩ, to connect any product to mat or to connection box)		4822 320 11308
KIT ESD3 (combining all 6 prior products - small table mat)		4822 310 10671
wristband tester		4822 344 13999

## INFORMATION ABOUT LEAD-FREE SOLDERING

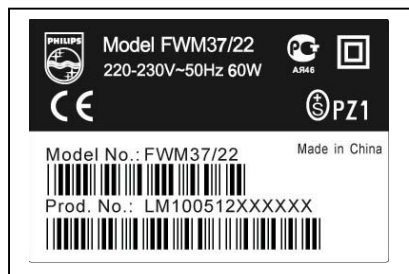
Philips CE is producing lead-free sets from 1.1.2005 onwards.

### IDENTIFICATION:

Regardless of special logo (not always indicated) one must treat all sets from 1 Jan 2005 onwards, according next rules:



### Example S/N:



Bottom line of typeplate gives a 14-digit S/N. Digit 5&6 is the year, digit 7&8 is the week number, so in this case 2005 wk12

So from 0501 onwards = from 1 Jan 2005 onwards

**Important note:** In fact also products of year 2004 must be treated in this way as long as you avoid mixing solder-alloys (lead/ lead-free). So best to always use SAC305 and the higher temperatures belong to this.

Due to lead-free technology some rules have to be respected by the workshop during a repair:

- Use only lead-free solder alloy Philips SAC305 with order code 0622 149 00106. If lead-free solder-paste is required, please contact the manufacturer of your solder-equipment. In general use of solder-paste within workshops should be avoided because paste is not easy to store and to handle.
- Use only adequate solder tools applicable for lead-free solder alloy. The solder tool must be able
  - To reach at least a solder-temperature of 400°C,
  - To stabilize the adjusted temperature at the solder-tip
  - To exchange solder-tips for different applications.
- Adjust your solder tool so that a temperature around 360°C – 380°C is reached and stabilized at the solder joint. Heating-time of the solder-joint should not exceed ~ 4 sec. Avoid temperatures above 400°C otherwise wear-out of tips will rise drastically and flux-fluid will be destroyed. To avoid wear-out of tips switch off un-used equipment, or reduce heat.
- Mix of lead-free solder alloy / parts with leaded solder alloy / parts is possible but PHILIPS recommends strongly to avoid mixed solder alloy types (leaded and lead-free).  
If one cannot avoid or does not know whether product is lead-free, clean carefully the solder-joint from old solder alloy and re-solder with new solder alloy (SAC305).
- Use only original spare-parts listed in the Service-Manuals. Not listed standard-material (commodities) has to be purchased at external companies.
- **Special information for BGA-ICs:**
  - always use the 12nc-recognizable soldering temperature profile of the specific BGA (for de-soldering always use the lead-free temperature profile, in case of doubt)
  - lead free BGA-ICs will be delivered in so-called 'dry-packaging' (sealed pack including a silica gel pack) to protect the IC against moisture. After opening, dependent of MSL-level seen on indicator-label in the bag, the BGA-IC possibly still has to be baked dry. (MSL=Moisture Sensitivity Level). This will be communicated via AYS-website. Do not re-use BGAs at all.
- For sets produced before 1.1.2005 (except products of 2004), containing leaded solder-alloy and components, all needed spare-parts will be available till the end of the service-period. For repair of such sets nothing changes.
- 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

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.

## TECHNICAL SPECIFICATIONS

### GENERAL:

Mains voltage /22 : 230V  
 /21 : Switchable  
 /37 : 120V  
 Mains frequency /22 : 50 Hz  
 /21 : 50/60 Hz  
 /37 : 60 Hz  
 Battery remote : 3 V (R03, AAA x2)  
 Power consumption : < 10 W max.  
 < 3 W at standby  
 Dimension center unit : 235 x 148 x 258 mm

### AMPLIFIER:

Output power mains : 2 x 5 W RMS  
 Speaker impedance : 4 ohm  
 Frequency response  
 Within ± 3dB : 63 Hz – 14 kHz  
 Digital sound control : Jazz/Pop/Classic/Rock  
 Headphone output : 32 mW ± 2dB at 32 Ω

### TUNER:

#### FM

Tuning range : 87.5 – 108 MHz  
 IF Frequency : 10.7 MHz ± 20kHz  
 Sensitivity at 26sb S/N : < 20 μV  
 Selectivity at 600 kHz  
 Bandwidth : > 24 dB  
 IF rejection : > 55 dB  
 Image rejection : > 24 dB  
 Distortion : < 2%  
 Crosstalk : > 28 dB

#### MW

Tuning range 9 kHz : 531 – 1602 kHz  
 10 kHz : 531 – 1700 kHz  
 Tuning grid : 9/10 kHz  
 IF Frequency : 450 kHz ± 1kHz  
 Aerial input : Loop antenna  
 Sensitivity at 26sb S/N : < 5 mV/M  
 Selectivity at 18 kHz  
 Bandwidth : > 20 dB  
 IF rejection : > 64 dB  
 Image rejection : > 25 dB

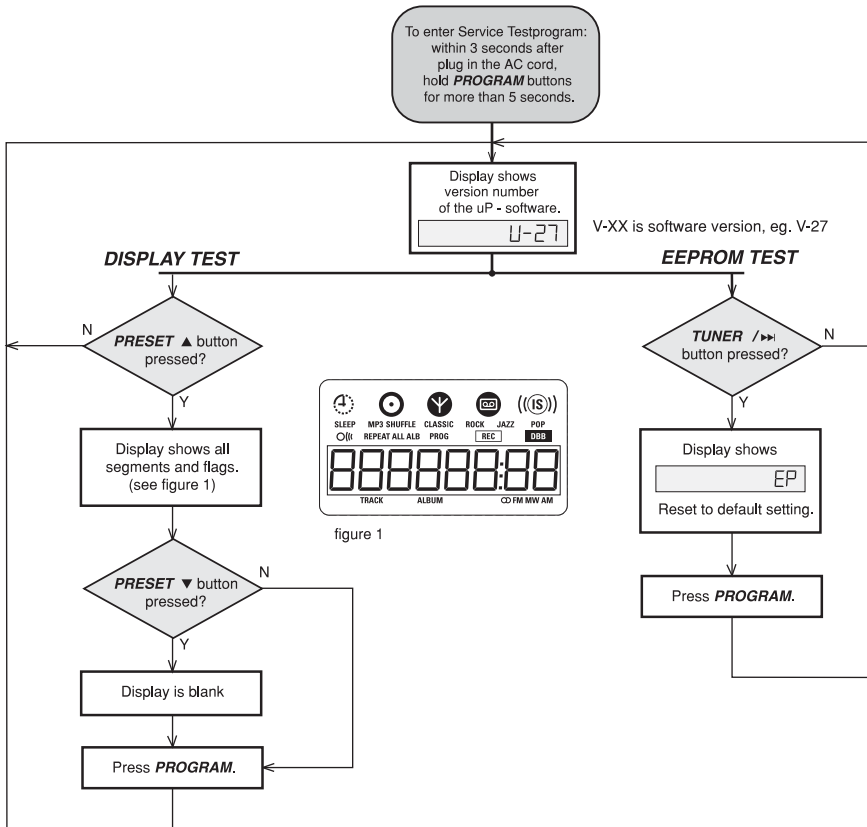
### CASSETTE RECORDER:

Number of tracks : 2 x 2 stereo  
 Tape speed : 4.76 cm/sec +2.5/-1.5%  
 Wow and flutter : < 0.4% DIN  
 Bias frequency : 73 ± 1.5 kHz  
 R/P frequency response : 120 – 10 kHz (8 dB)  
 Channel separation 1 kHz : > 15 dB  
 Signal to noise ratio : > 48 dB with type 1 tape

### COMPACT DISC:

Number of programming track : 20  
 Frequency response  
 Within ± 1.5 dB : 63 Hz – 16 kHz  
 Signal/Noise ratio : 65 dB/A-weighted  
 Distortion at 1 kHz : < 1%  
 Channel separation at 1 kHz : > 26 dB

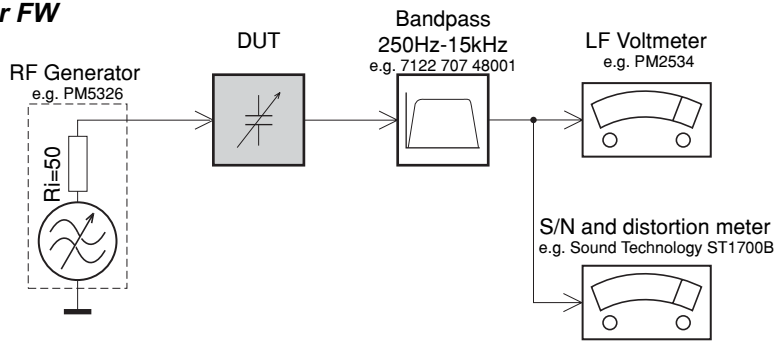
## SERVICE TEST PROGRAM



Item	Spec	Setting
1	Source	FM
2	FM	87.5MHz
3	Step	*100KHz(/37)
4	MW *AM(/37)	531KHz *530KHz
5	Step	9KHz *10KHz(/37)
6	Volume Level	12
7	IS	Off
8	DBB	Off
9	DSC	JAZZ
10	Sleep	Off

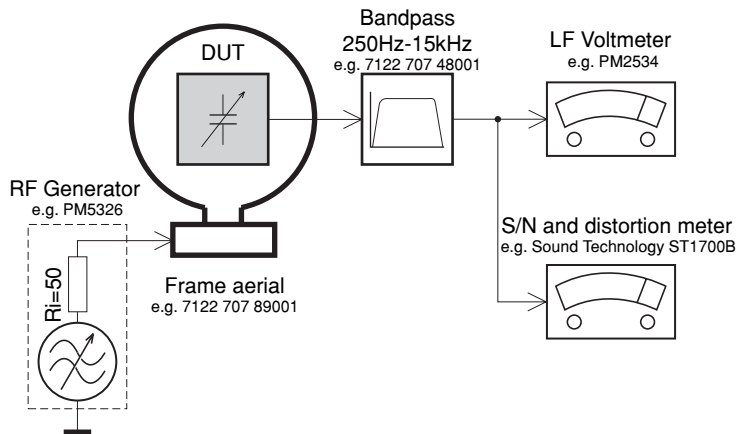
## SERVICE MEASUREMENT

### Tuner FW



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

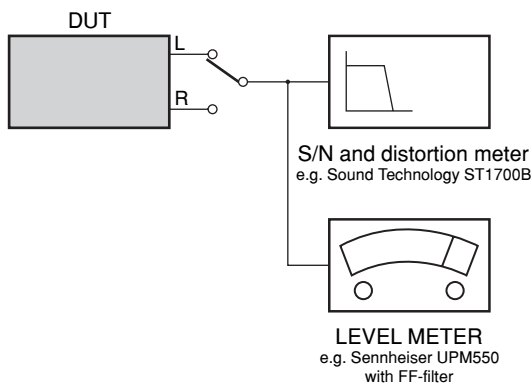
### Tuner AM (MW, LW)



To avoid atmospheric interference all AM-measurements have to be carried out in a Faraday cage. Use a bandpass filter (or at least a high pass filter with 250kHz) to eliminate hum (50Hz, 100Hz).

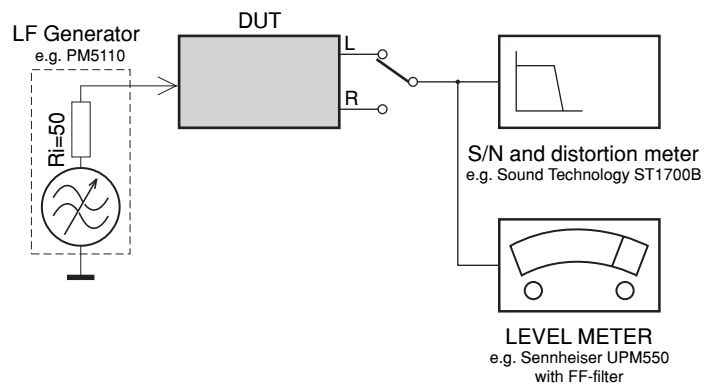
### CD

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



### RECORDER

Use Universal Test Cassette Fe SBC420 4822 397 30071



# CONNECTION AND CONTROLS

## Controls (illustrations on page 3)

### Controls on the system and remote control

- 1 **STANDBY ON**  $\psi$   
switches the system to standby/on.
- 2 **IR SENSOR**  
infrared sensor for remote control.
- 3 **CLOCK SET**  
sets the clock function.
- 4 **PROGRAM**  
for CD ..... programmes tracks and reviews the programme.  
for Tuner ..... programmes tuner stations manually or automatically.
- 5 **DISPLAY/BAND**  
for CD ..... displays the current track number and total remaining time (or current album and track numbers for MP3 disc) during playback.  
for Tuner ..... selects waveband.
- 6 **Mode Selection**  
**STOP** ■ ..... stops CD playback or erases a CD programme.  
**PLAY/PAUSE** ►► ..... starts or interrupts CD playback.

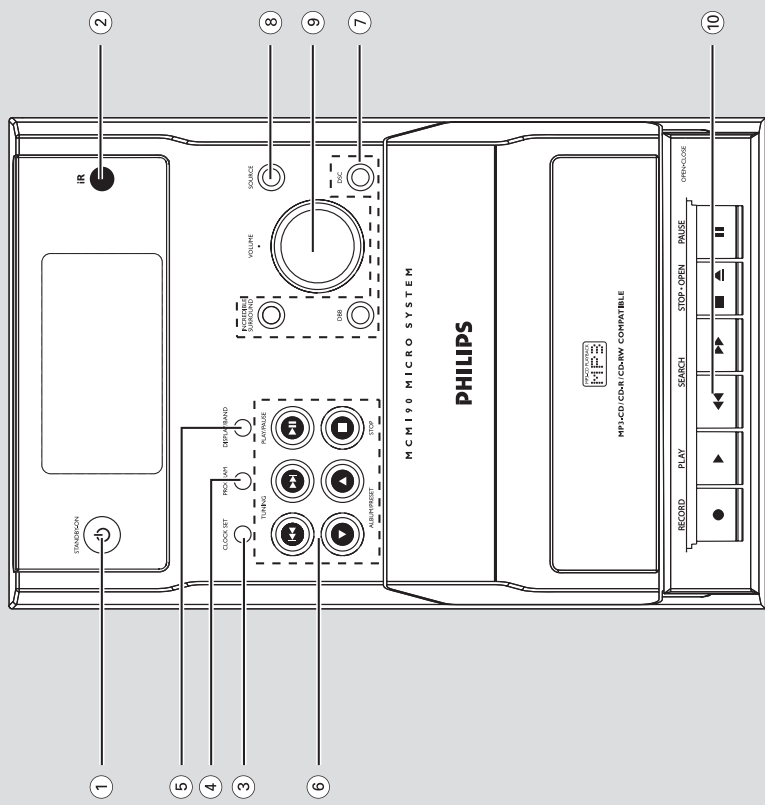
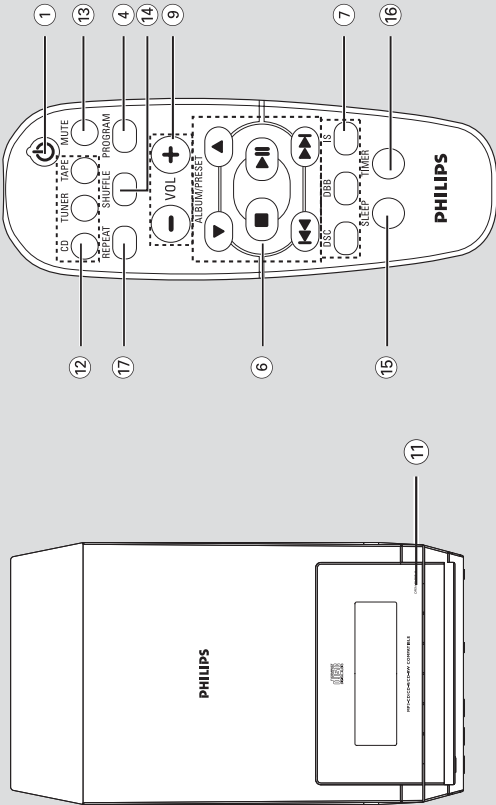
- 7 **ALBUM/PRESET** ▼ ▲  
for radio ..... selects a preset radio station.  
for MP3 disc ..... selects an album.
- 8 **TUNING** ◀◀ ▶▶ ..... tunes to radio stations.  
for CD ..... skips to the beginning of the current/previous/subsequent track.  
..... fast searches back and forward within a track/CD.  
for clock/timer ..... adjusts the hours and minutes for the clock/timer function

- 9 **INTERACTIVE SOUND controls:**  
**DBB** ..... (Dynamic Bass Boost) enhances the bass.  
**DSC** ..... (Digital Sound Control) selects sound characteristics: JAZZ/POP/CLASSIC/ROCK.
- 10 **INCREDIBLE SURROUND (IS)** ..... creates a super-enhanced stereo effect.

- 8 **SOURCE**  
selects the respective sound source for CD/TUNER/TAPE.  
switches on the system.
- 9 **VOLUME (VOL +/-)**  
adjusts the volume level.
- 10 **Tape Deck Operation**  
**RECORD** ● ..... starts recording.  
**PLAY** ► ..... starts playback.  
**SEARCH** ◀◀ / ▶▶ ..... fast rewinds/winds the tape.  
**STOP-OPEN** ■ ▲ ..... stops the tape; opens the tape compartment.  
**PAUSE** II ..... interrupts recording or playback.
- 11 **OPEN-CLOSEA**  
opens/closes the CD door.

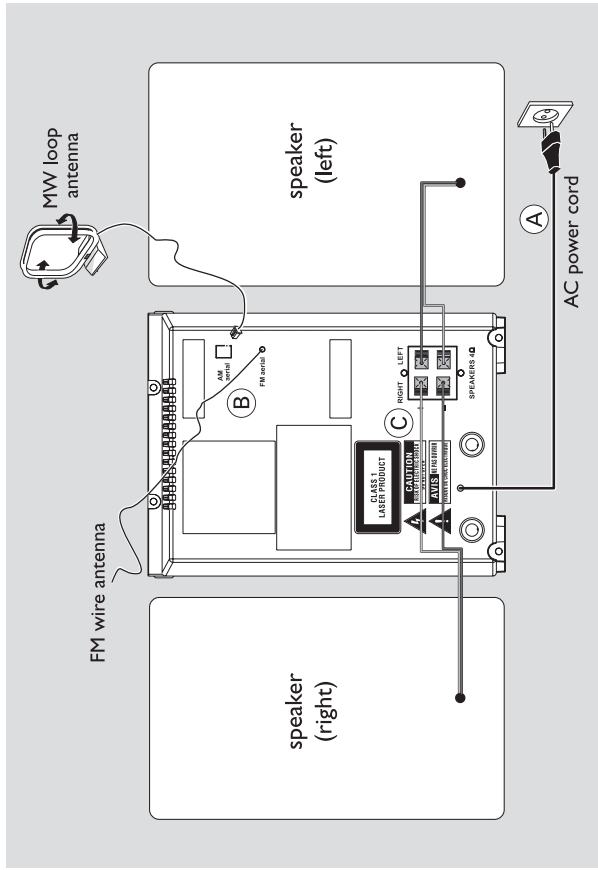
### Controls available on the remote control only

- 12 **CD/TUNER/TAPE**  
selects the respective sound source.
- 13 **MUTE**  
interrupts and resumes sound reproduction.
- 14 **SHUFFLE**  
plays CD/MP3 tracks in random order.
- 15 **SLEEP**  
activates/deactivates or selects the sleeper time.
- 16 **TIMER**  
activates/deactivates or sets the timer function.
- 17 **REPEAT**  
repeats a track/disc/all programmed tracks.



# CONNECTION AND CONTROLS

## Preparations



### Rear connections

The type plate is located at the rear of the system.  
For users in the U.K.: please follow the instructions on page 2.

#### (A) Power

Before connecting the AC power cord to the wall outlet, ensure that all other connections have been made.

#### WARNING!

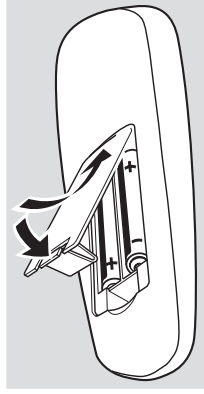
- For optimal performance, use only the original power cable.
- Never make or change any connections with the power switched on.

To avoid overheating of the system, a safety circuit has been built in. Therefore, your system may switch to Standby mode automatically under extreme conditions. If this happens, let the system cool down before reusing it (not available for all versions).

## Preparations

### Inserting batteries into the remote control

Insert two batteries (not supplied) type R03 or AAA into the remote control with the correct polarity as indicated by the "+" and "-" symbols inside the battery compartment.



#### CAUTION!

- Remove batteries if they are exhausted or will not be used for a long time.
- Do not use old and new or different types of batteries in combination.
- Batteries contain chemical substances, so they should be disposed of properly.

### FM Antenna

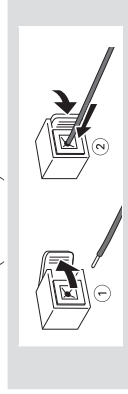
It is unnecessary to connect the FM pigtail antenna since it is fixed to the main unit.

Adjust the FM antenna for optimal FM stereo reception.

### (C) Speakers Connection

#### Front Speakers

Connect the speaker wires to the SPEAKERS terminals, right speaker to "RIGHT" and left speaker to "LEFT", coloured (marked) wire to "+" and black (unmarked) wire to "-".



Fully insert the stripped portion of the speaker wire into the terminal as shown.

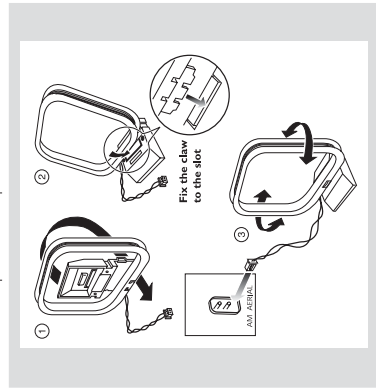
#### Notes:

- For optimal sound performance, use the supplied speakers.
- Do not connect more than one speaker to any one pair of + / - speaker terminals.
- Do not connect speakers with an impedance lower than the speakers supplied. Please refer to the SPECIFICATIONS section of this manual.

### (B) Antenna Connection

#### MW Antenna

Connect the supplied MW loop antenna to the "AM aerial" terminal. Adjust the position of the antenna for optimal reception.



Position the antenna as far as possible from a TV, VCR or other radiation source.

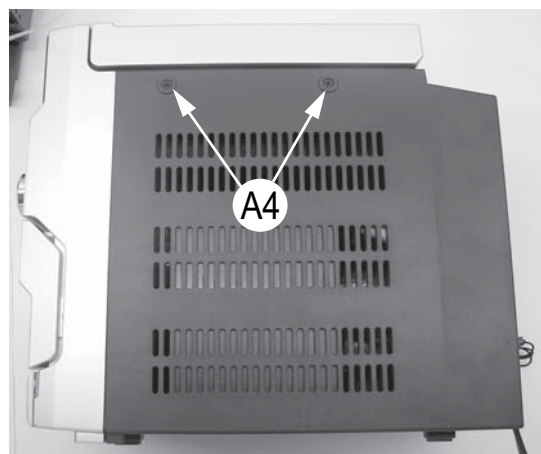
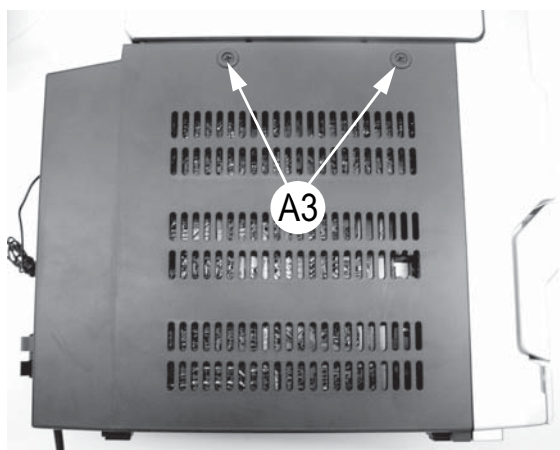
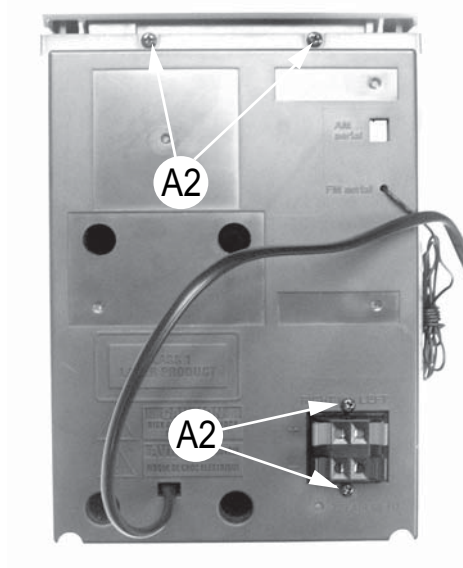
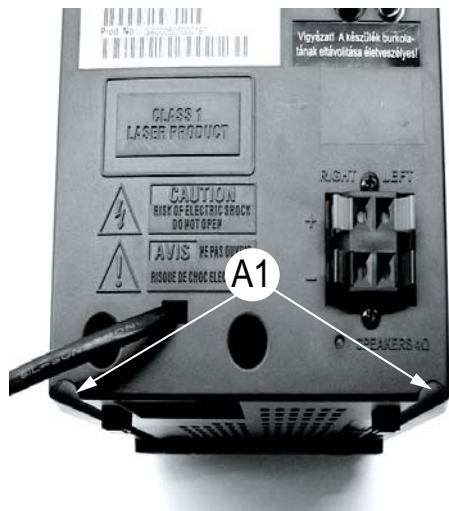
For more information on operation instruction please visit Philips Audio internet site :

<http://www.audio.philips.com>

## DISASSEMBLY DIADRAMS

### STEP A : Remove Back Cabinet

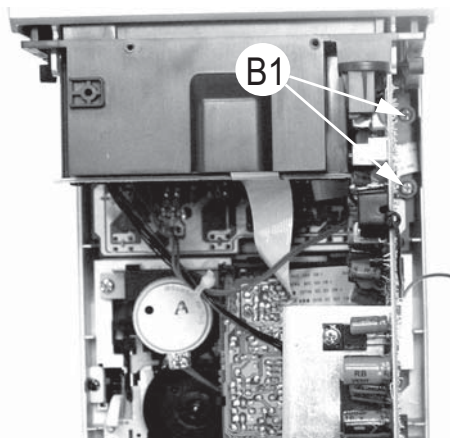
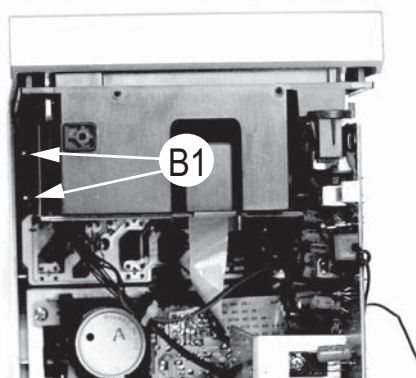
- A1 : Remove 2 screws (SP3x12)
- A2 : Remove 4 screws (SP3x10)
- A3 : Remove 2 screws (K3x10)
- A4 : Remove 2 screws (K3x10)



### STEP B :

#### Remove CD Tray and Mains board

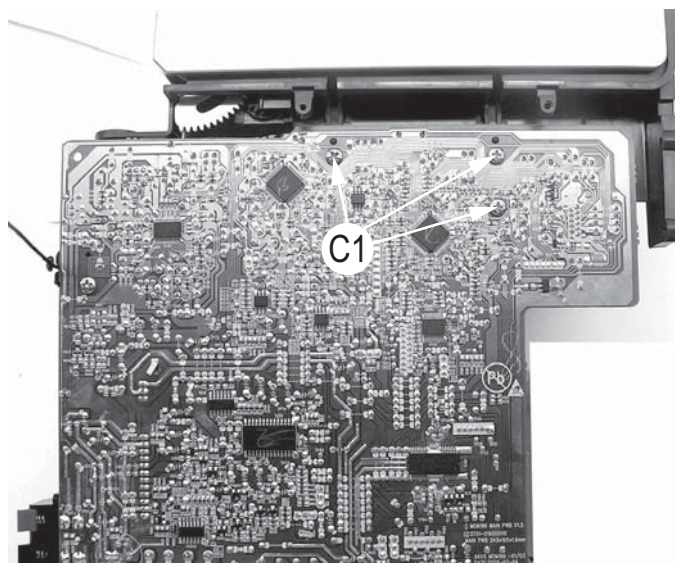
- B1: Remove 4 screws (SP3x12)



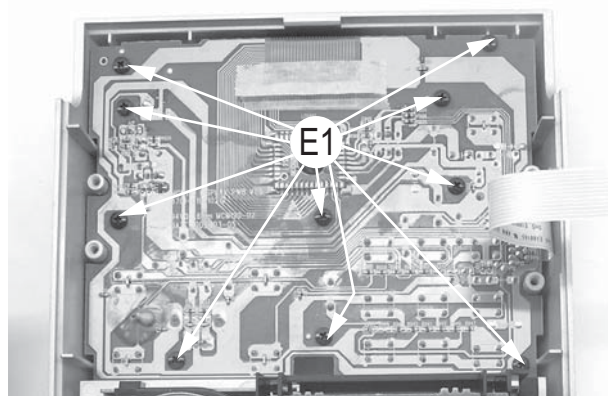


**DISASSEMBLY DIADRAMS****STEP C :****Remove Main PCB Assy**

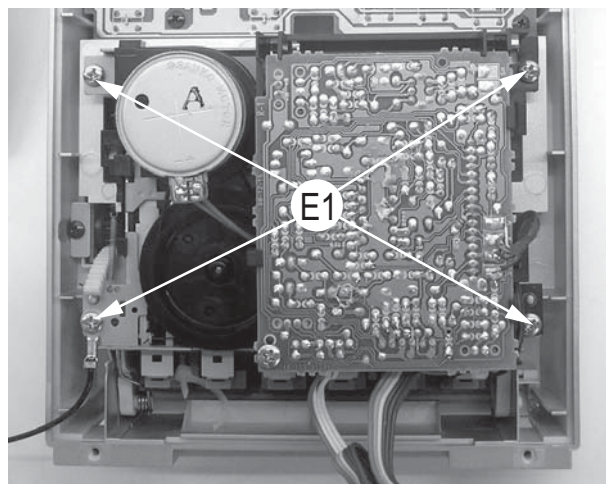
- Remove 3 screws (SP3x8)

**STEP D :****Remove LCD PCB from Front Cabinet**

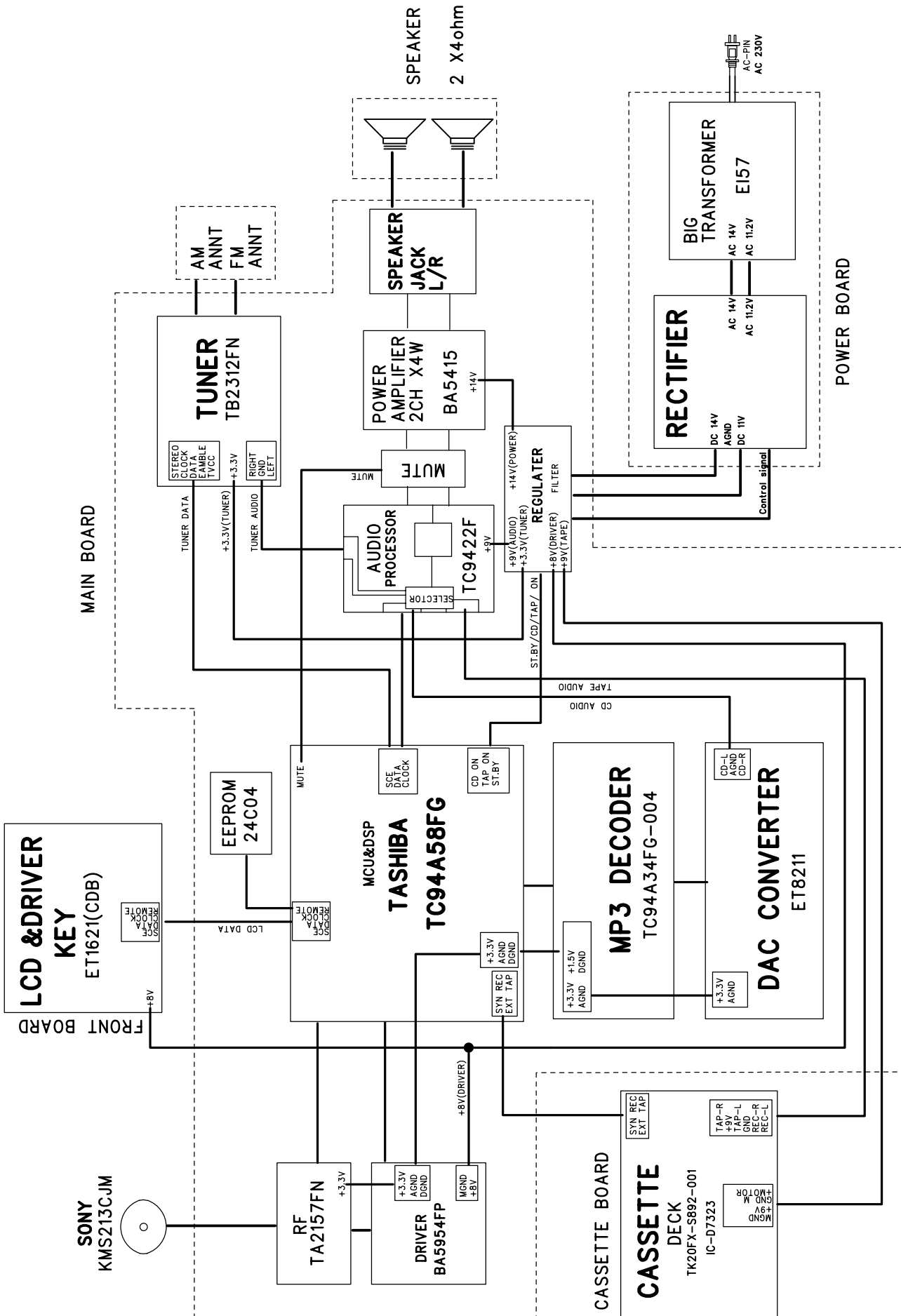
- E1 : Remove 10 screws (SP2.6x8)

**STEP E :****Remove Tape Deck**

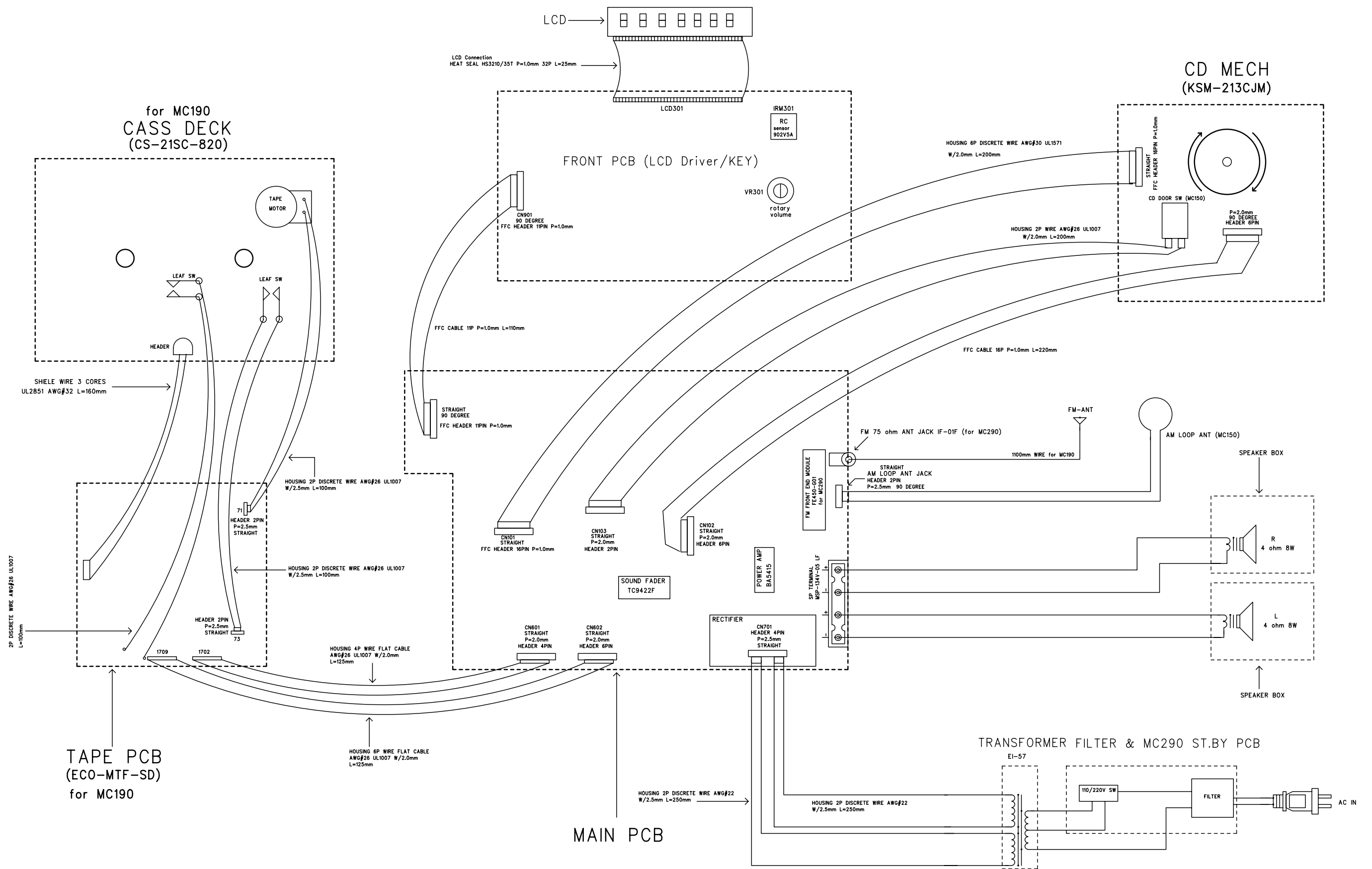
- H : Remove 4 screws (SP3x8)



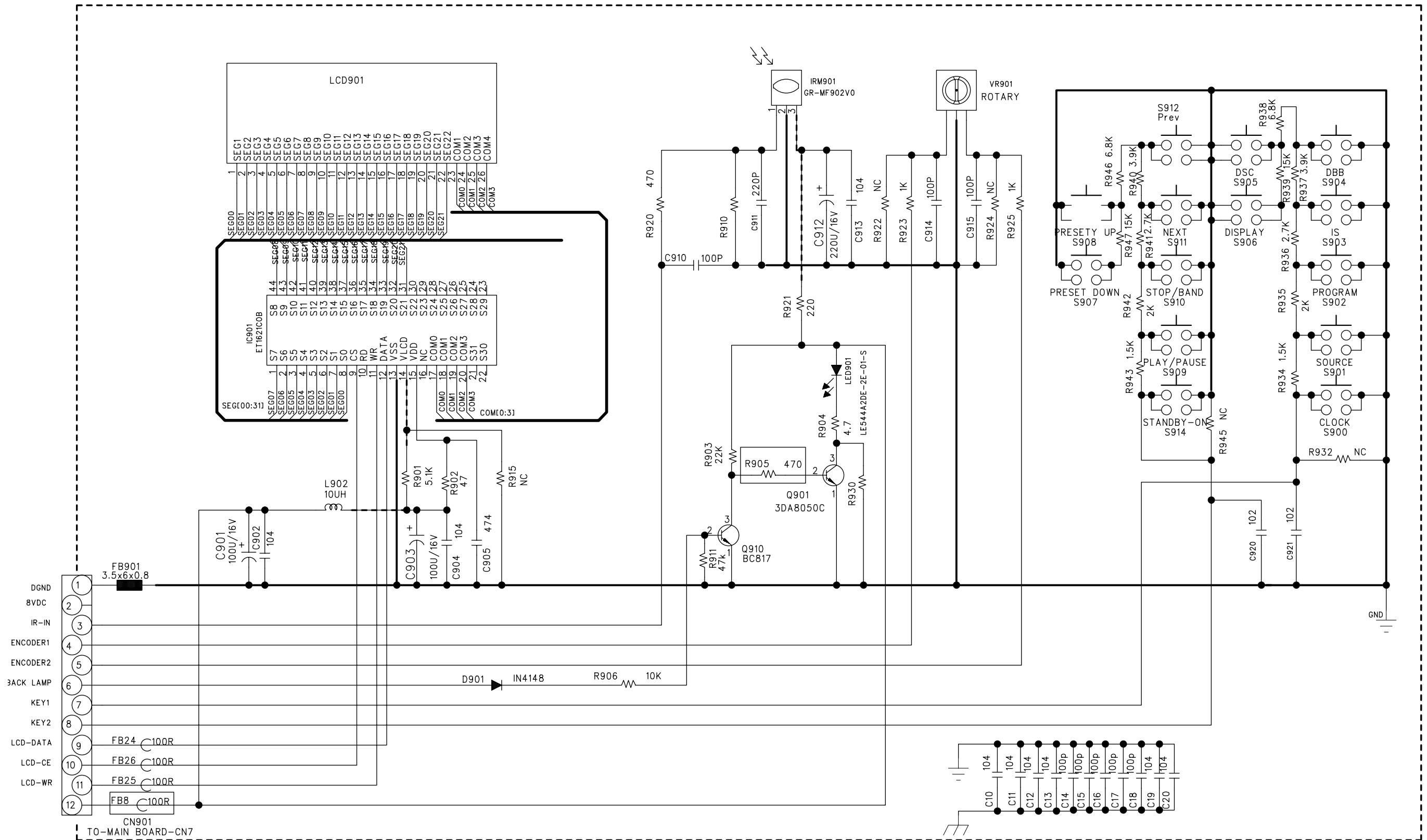
# SET BLOCK DIADRAM



SET WIRING DIAGRAM



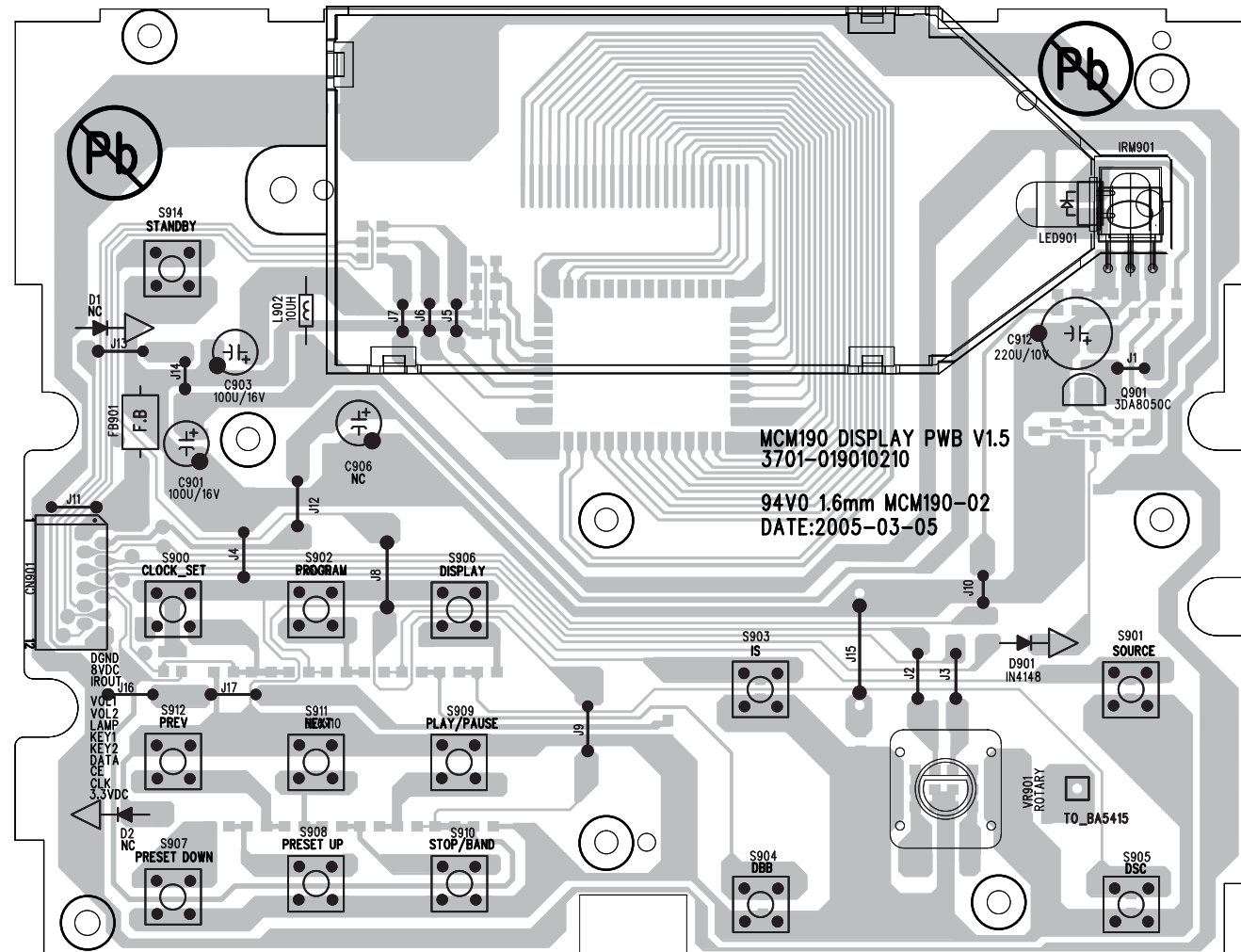
CIRCUIT DIAGRAM - DISPLAY AND KEY BOARD



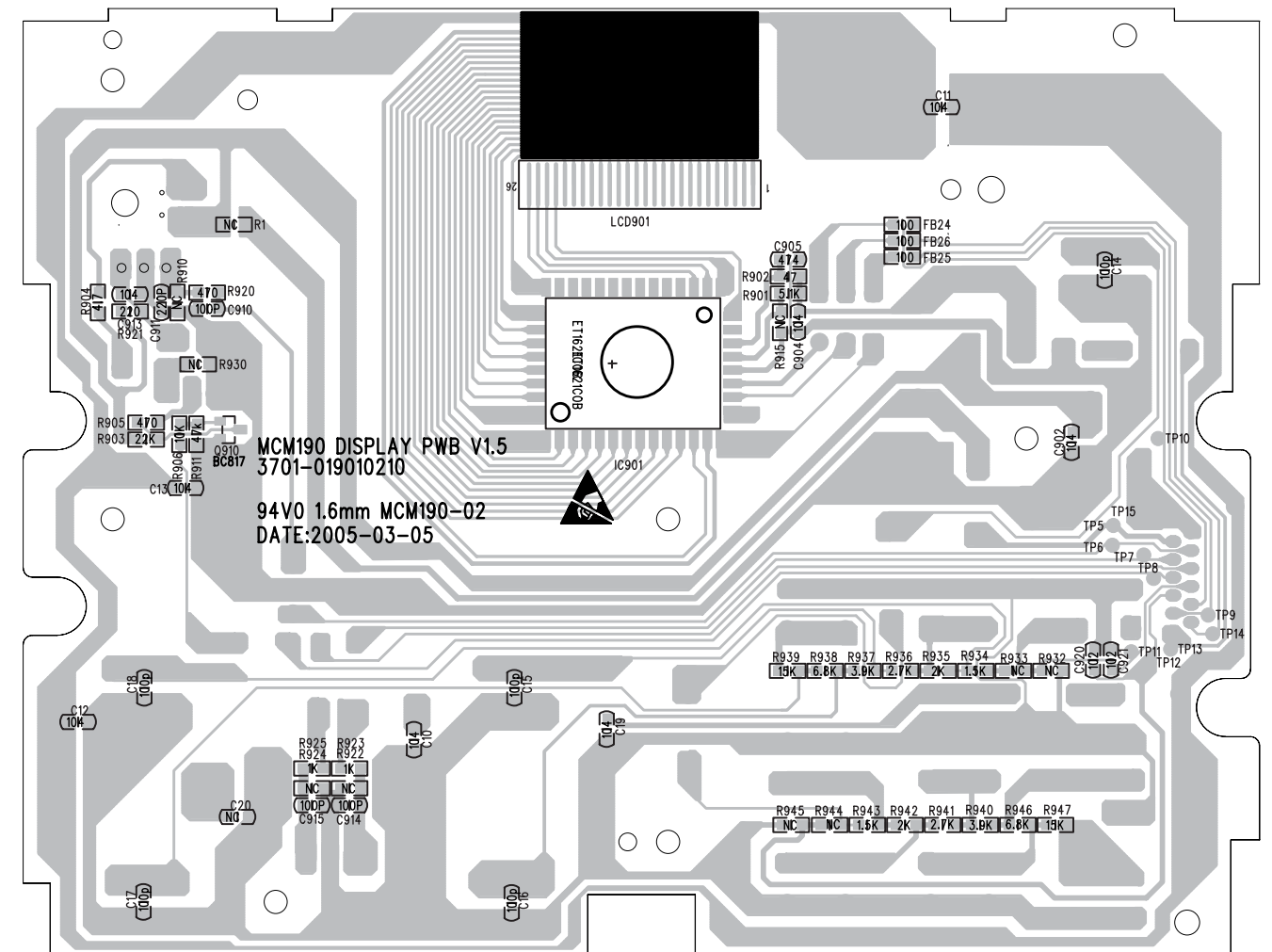
GND	
VCC	

LAYOUT DIAGRAM - DISPLAY AND KEY BOARD

COMPONENT SIDE

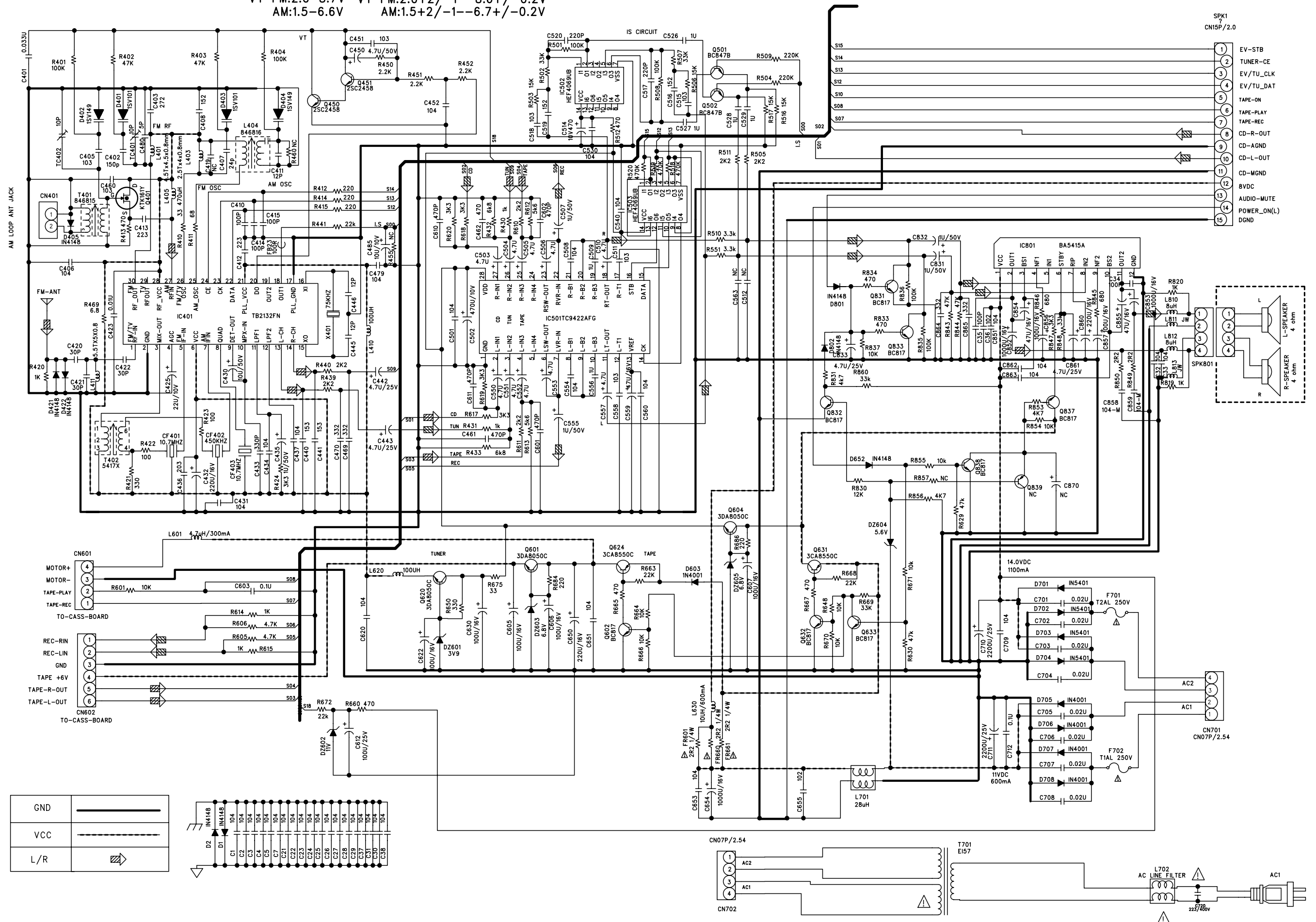


COPPER SIDE

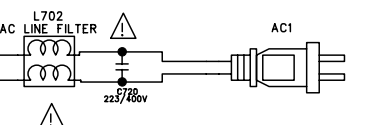
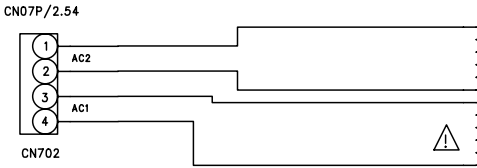
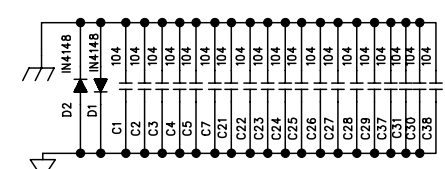


CIRCUIT DIAGRAM - MAIN BOARD (1)

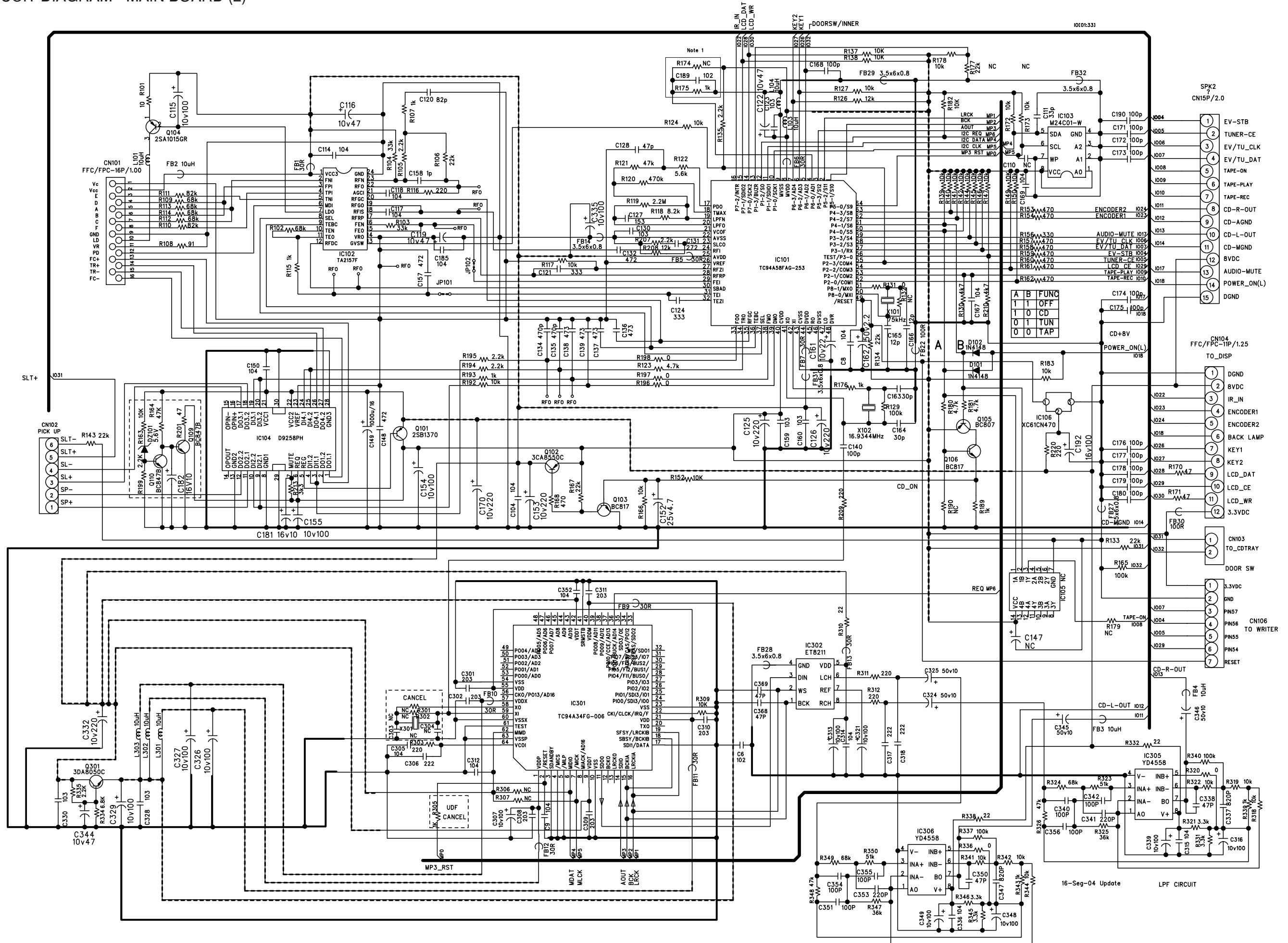
VT FM:2.0-8.7V VT FM:2.0+2/-1--8.6+/-0.2V  
AM:1.5-6.6V AM:1.5+2/-1--6.7+/-0.2V



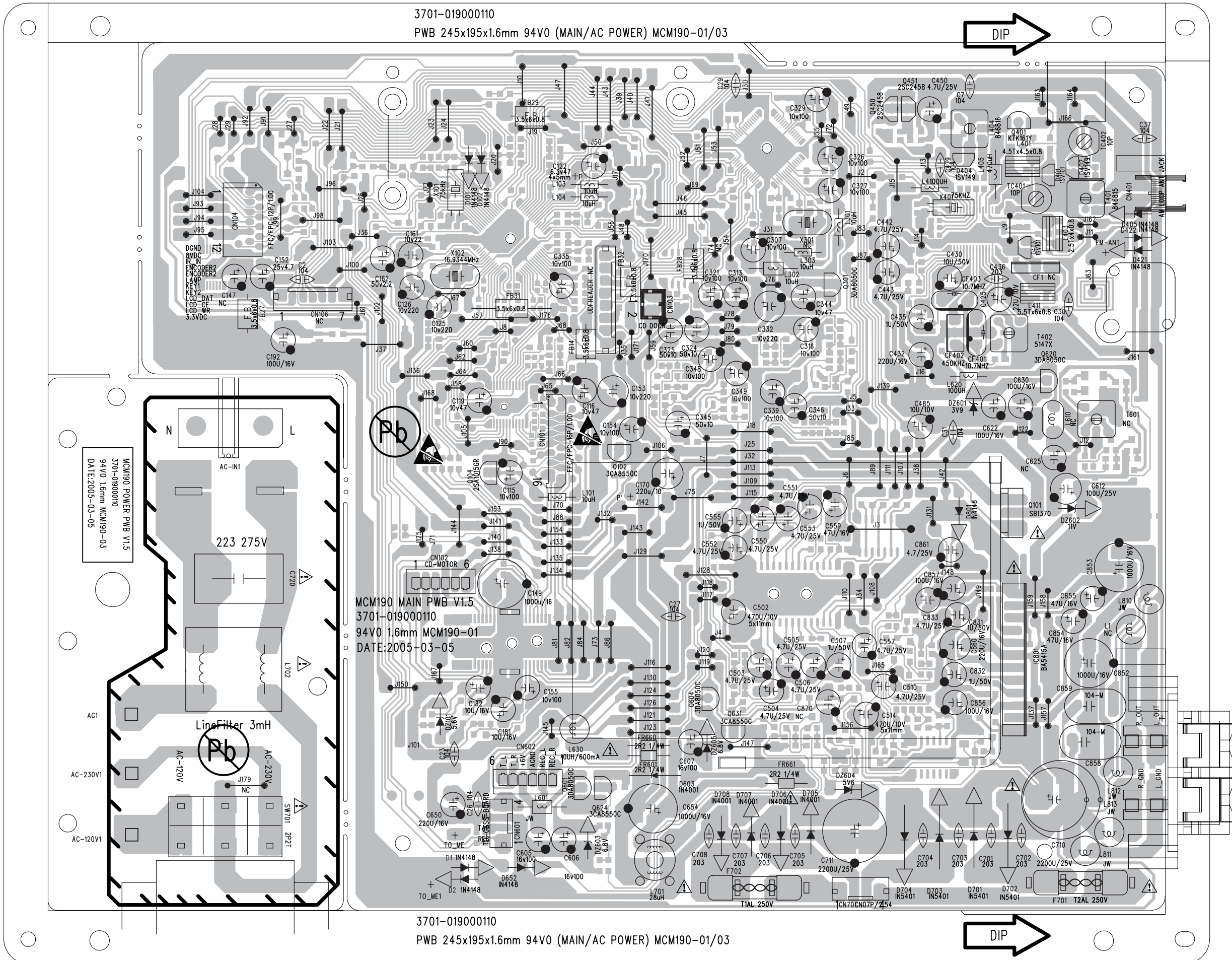
GND	———
VCC	- - - - -
L/R	↔



CIRCUIT DIAGRAM - MAIN BOARD (2)

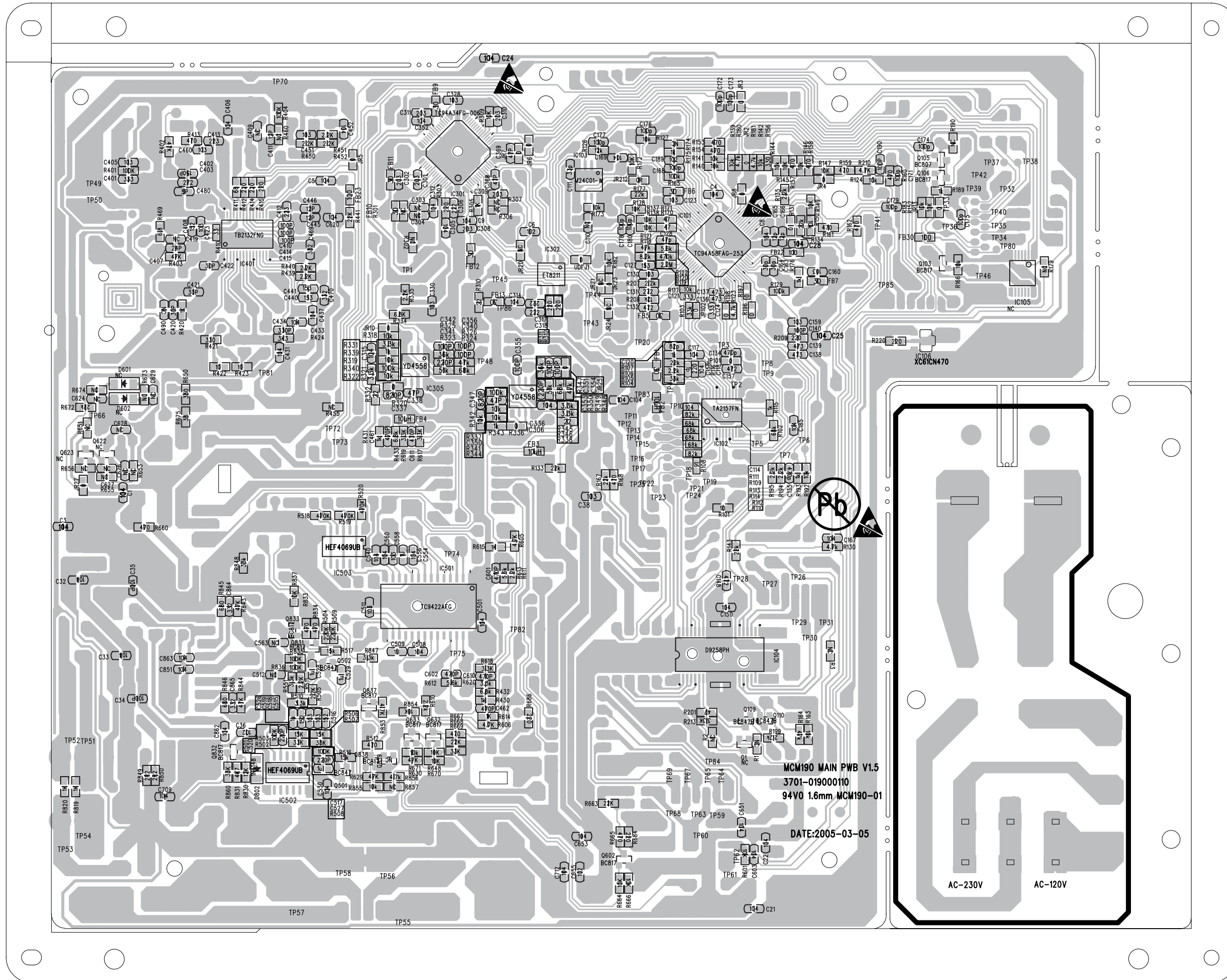


LAYOUT DIAGRAM - MAIN AND POWER PCB (TOP VIEW)



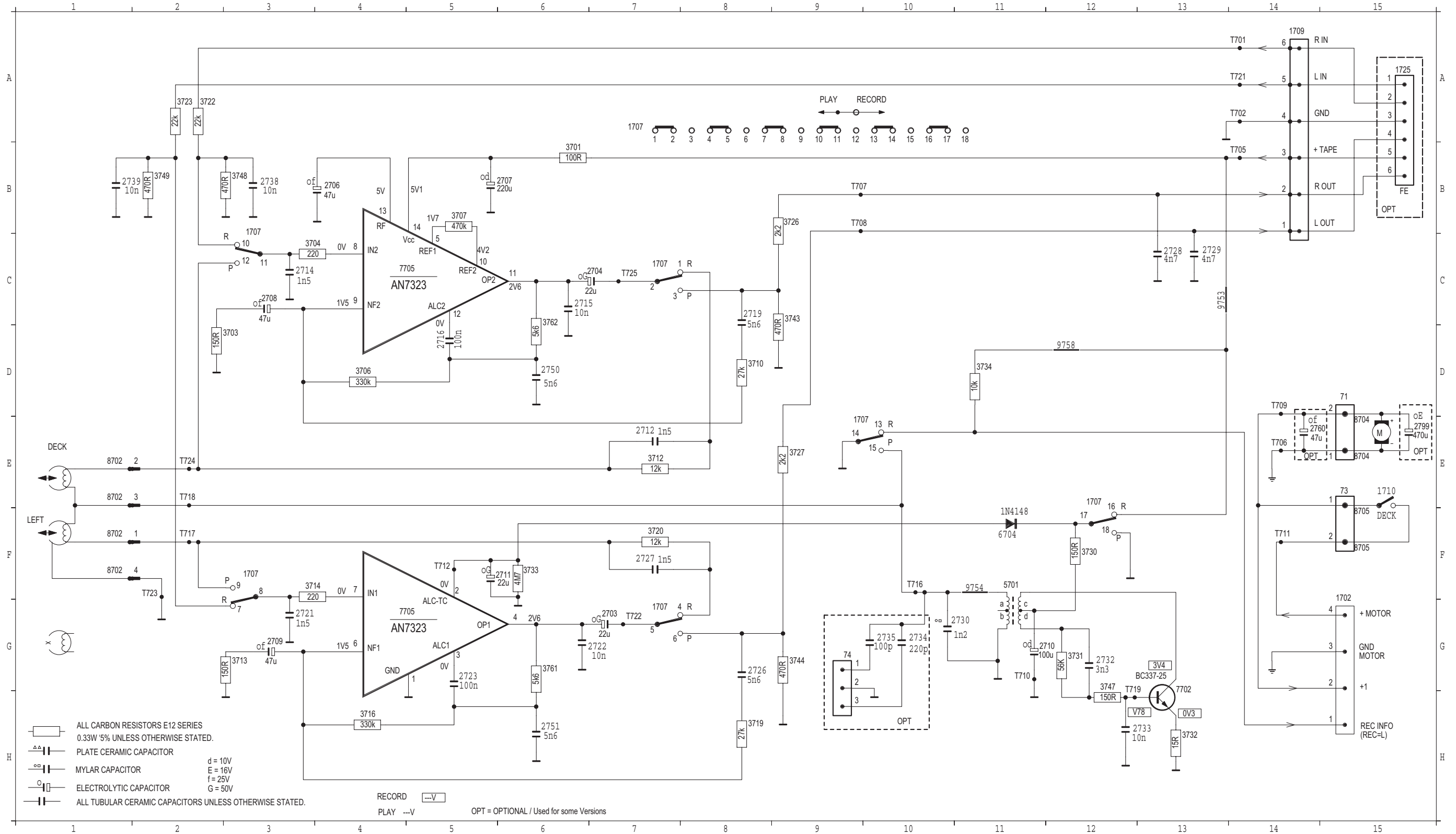


LAYOUT DIAGRAM - MAIN AND POWER PCB (BOTTOM VIEW)

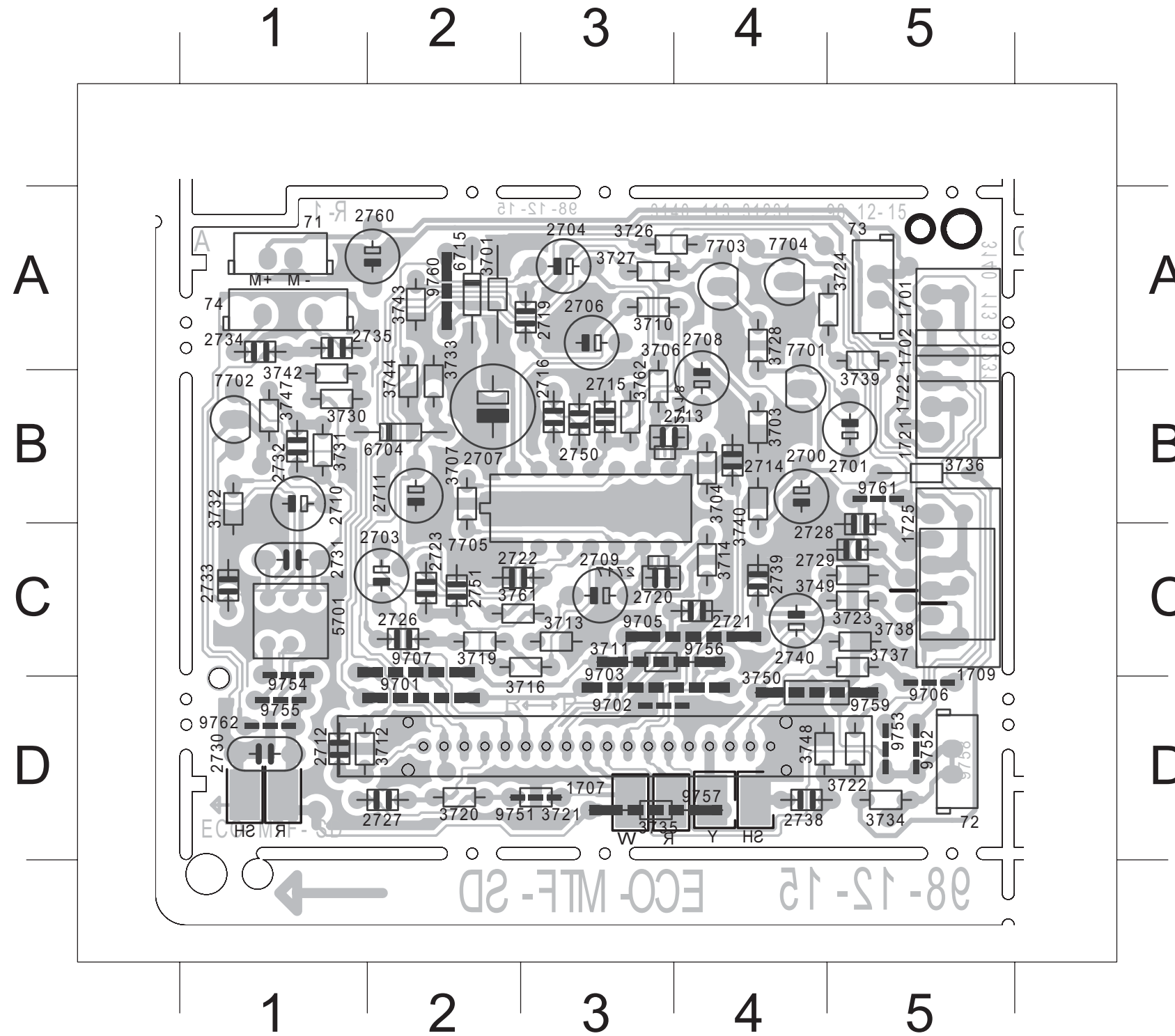


# CIRCUIT DIAGRAM - CASSETTE BOARD

71	D15	1707	C 3	1709	A14	2706	B 4	2711	F 6	2719	C 8	2727	F 7	2733	H13	2750	D 6	3703	D 3	3712	E 7	3720	F 7	3730	F12	3743	C 9	3761	G 6	7705	G 4	8702	E 1	9753	C13	T705	B14	T710	G11	T718	E 2	T724	E 2
73	E15	1707	G 7	1710	E15	2707	B 6	2712	E 7	2721	G 3	2728	C13	2734	G10	2751	H 6	3704	C 3	3713	G 3	3722	A 2	3731	G12	3744	G 9	3762	D 6	7705	C 4	8704	H15	9754	F11	T706	E14	T711	F14	T719	H13	T725	C 7
74	G 9	1707	C 7	1725	A15	2708	C 3	2714	C 3	2722	G 7	2729	C13	2735	G10	2760	E14	3706	D 4	3714	F 3	3723	A 2	3732	H13	3747	G12	5701	F11	8702	F 1	8704	H15	9758	D12	T707	B10	T712	F 5	T721	A14	T723	F 2
1702	G15	1707	E 9	2703	G 7	2709	G 3	2715	C 6	2723	G 5	2730	G11	2738	B 3	2799	E15	3707	B 5	3716	H 4	3726	B 9	3733	F 6	3748	B 3	6704	F11	8702	F 1	8705	F15	T701	A14	T708	B10	T716	F10	T722	G 7	T723	F 2
1707	F 3	1707	E12	2704	C 7	2710	G12	2716	D 5	2726	G 8	2732	G12	2739	B 1	3701	B 6	3710	D 8	3719	H 8	3727	E 9	3734	D11	3749	B 2	7702	H13	8702	E 1	8705	F15	T702	A14	T709	D14	T717	F 2	T723	F 2		



LAYOUT DIAGRAM - CASSETTE BOARD



71 A 1	2729 C 5	3733 B 2	9756 C 3
72 D 5	2730 D 1	3734 D 5	9757 D 3
73 A 5	2731 C 1	3735 D 3	9759 D 4
74 A 1	2732 B 1	3736 B 5	9760 A 2
1701 A 5	2733 C 1	3737 C 5	9761 B 5
1702 B 5	2734 A 1	3738 C 5	9762 D 1
1707 D 3	2735 A 1	3739 A 5	T701 C 5
1709 C 5	2738 D 4	3740 B 4	T702 C 5
1721 B 5	2739 C 4	3742 B 1	T705 B 5
1722 B 5	2740 C 4	3743 A 2	T706 B 5
1725 C 5	2750 B 3	3744 B 2	T709 A 5
2700 B 4	2751 C 2	3747 B 1	T710 C 1
2701 B 5	2760 A 2	3748 D 4	T711 B 5
2703 C 2	3701 A 2	3749 C 5	T712 C 2
2704 A 3	3703 B 4	3750 D 4	T713 A 5
2706 A 3	3704 B 4	3761 C 2	T714 D 5
2707 B 2	3706 B 3	3762 B 3	T715 D 5
2708 B 4	3707 B 2	5701 C 1	T716 D 1
2709 C 3	3710 A 3	6704 B 2	T719 B 1
2710 B 1	3711 C 3	6715 A 2	T720 A 5
2711 B 2	3712 D 1	7701 B 4	T721 C 5
2712 D 1	3713 C 3	7702 B 1	T722 C 2
2713 B 3	3714 C 4	7703 A 4	T725 D 2
2714 B 4	3716 C 3	7704 A 4	T7707 A 4
2715 B 3	3719 C 2	7705 B 3	T7708 A 4
2716 B 3	3720 D 2	9701 D 2	
2717 C 3	3721 D 3	9702 D 3	
2718 B 3	3722 D 5	9703 D 3	
2719 A 3	3723 C 5	9705 C 4	
2720 C 3	3724 A 5	9706 D 5	
2721 C 4	3726 A 3	9707 C 2	
2722 C 2	3727 A 3	9751 D 3	
2723 C 2	3728 A 4	9752 D 5	
2726 C 2	3730 B 1	9753 D 5	
2727 D 2	3731 B 1	9754 C 1	
2728 C 5	3732 B 1	9755 D 1	

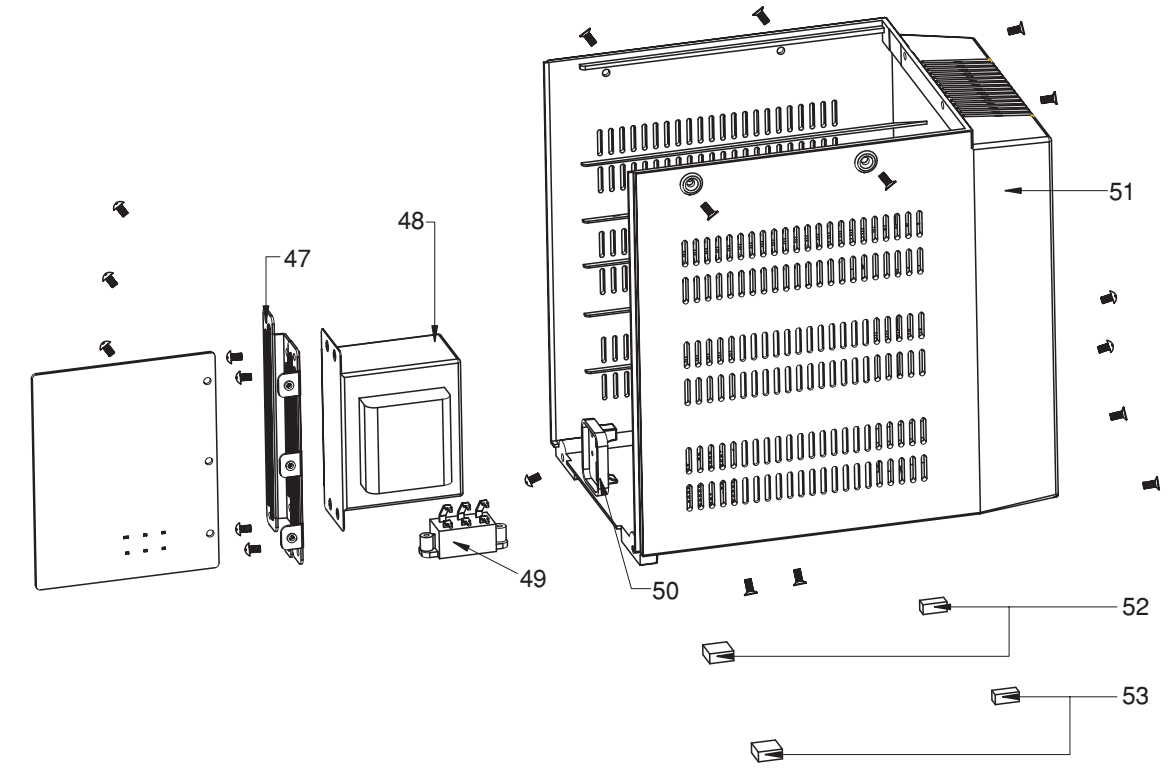
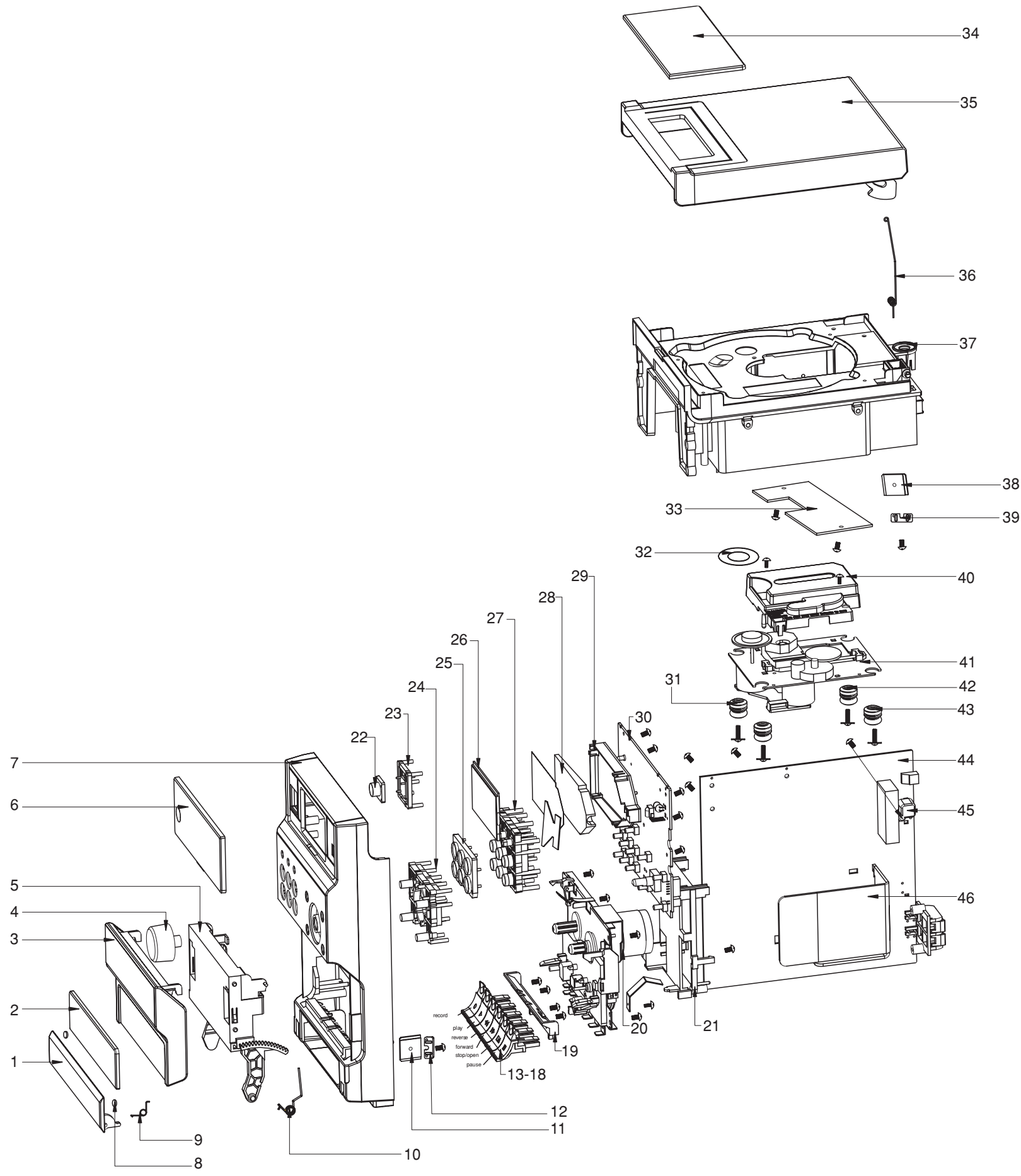
CASSETTE ADJUSTMENT

Adjustment	Cassette	SK ....	Deck 1	Measure on	Read on	Adjust with	Adjust to
Azimuth	10 kHz SBC420*	Tape	Play	H/P Jack	mV meter	Left hand Screw R/P head	max.
Motor Speed	3150 kHz SBC420*	Tape	Play	H/P Jack	Wow and flutter meter	Preset in motor	**a

\* SBC420 : 4822 397 30071

\*\*a The maximum permissible speed deviation is ± 3%.  
Moreover, the wow and flutter value can be read.

EXPLODED VIEW DIAGRAM



**ACCESSORIES**

<b>MCM190</b>	<b>MCM195/37</b>	
9940 000 00509	9940 000 00509	AM LOOP ANT
9940 000 01589	9940 000 01589	REMOTE CONTROL
9940 000 01591	9940 000 02723	SPEAKER BOX ASSY

**MECHANICAL PARTS LIST**

	<b>MCM190</b>	<b>MCM195/37</b>	
1	9940 000 01662	9940 000 02722	COVER-CASSETTE KEY
2	9940 000 01642	9940 000 02717	LENS-CASSETTE
3	9940 000 01639	9940 000 02716	DOOR-CASSETTE
4	9940 000 01647	9940 000 01647	KNOB VOLUME
5	9940 000 01641	9940 000 01641	BRACKET-CASSETTE DOOR
6	9940 000 01644	9940 000 02719	LENS-DISPLAY
7	9940 000 01635	9940 000 02712	FRONT CABINET
9	9940 000 01667	9940 000 01667	CASSETTE KEY COVER SPRING
10	9940 000 01666	9940 000 01666	SPRING-CASSETTE DOOR
11	9940 000 01664	9940 000 01664	DAMPER GEAR ASSEMBLY
13	9940 000 01654	9940 000 01654	KEY-CASSETTE RECORD
14	9940 000 01655	9940 000 01655	KEY-CASSETTE PLAY
15	9940 000 01656	9940 000 01656	KEY-CASSETTE FORWARD
16	9940 000 01657	9940 000 01657	KEY-CASSETTE REVERSE
17	9940 000 01658	9940 000 01658	KEY-CASSETTE STOP/OPEN
18	9940 000 01659	9940 000 01659	KEY-CASSETTE PAUSE
19	9940 000 01653	9940 000 01653	CLAMPER-CASSETTE-KEY
20	9940 000 01633	9940 000 01633	CASSETTE DECK CS-21SC-820S
22	9940 000 01649	9940 000 02721	BUTTON POWER
23	9940 000 01648	9940 000 01648	BRACKET-POWER KNOB
24	9940 000 01652	9940 000 01652	BUTTON PROGRAM
25	9940 000 01661	9940 000 01661	RING-CD FUNCTION BUTTON
27	9940 000 01651	9940 000 01651	BUTTON-CD FUNCTION.
28	9940 000 01645	9940 000 01645	LIGHT GUIDE
29	9940 000 01646	9940 000 01646	BRACKET LCD
30	9940 000 01621		DISPLAY PBASY (/22)
30	9940 000 01673		DISPLAY PBASY (/21)
30		9940 000 01621	DISPLAY PBASY (/37)
34	9940 000 01643	9940 000 02718	LENS-CD DOOR
35	9940 000 01637	9940 000 02714	DOOR-CD
36	9940 000 01665	9940 000 01665	CD DOOR SPRING
37	9940 000 01638	9940 000 02715	TRAY CD
38	9940 000 01664	9940 000 01664	DAMPER GEAR ASSEMBLY
40	9940 000 01663	9940 000 01663	DUST COVE(SONY213)
41	9940 000 01601	9940 000 01601	CD MECHANISM-KSM-213CJM
42	9940 000 01671	9940 000 01671	CD DAMPER 658TA 30DEGREE
43	9940 000 01672	9940 000 01672	CD DAMPER 658TB 40DEGREE
51	9940 000 01636		CABINET-REAR (/22)
51	9940 000 01677		CABINET-REAR (/21)
51		9940 000 02713	CABINET-REAR (MCM195/37)
52	9940 000 01668	9940 000 01668	RUBBER FOOT A (12X6X5MM)

**ELECTRICAL PARTS LIST****MAIN PWB ASSEMBLY****CD / MP3 PART**

IC101	9940 000 01594	IC, TC94A58FAG-253
IC102	9940 000 01593	IC, TA2157FN
IC103	9940 000 01592	IC, M24C01-W 1K EEPROM
IC104	9940 000 01595	IC, D9258PH MOTOR DRIVER
IC106	9940 000 01596	IC, XC61CN4702PR RESET
IC301	9940 000 02706	IC, TC94A34FG-006 LQFP-64
IC302	9940 000 02705	IC, ET8211 SOP8RS
IC305	9940 000 02107	IC, YD4558 SOP8
IC306	9940 000 02107	IC, YD4558 SOP8
Q301	9940 000 02707	TRANSISTOR, 3DA8050
FB2	9940 000 01597	CHOCK COIL 10UH 0603
	9940 000 01598	FFC CABLE 16PIN L=210
	9940 000 01599	CD DOOR SWITCH
	9940 000 01601	CD MECHANISM KSM-213CJM

**TUNER PART**

D401	482213070056	VAR. CAP DIODE 1SV101 (F)
D402	482213081673	VAR. CAP DIODE 1SV149
D403	482213070056	VAR. CAP DIODE 1SV101 (F)
D404	482213081673	VAR. CAP DIODE 1SV149
IC401	9940 000 01614	IC TB2132FNG
Q401	9940 000 02685	MOSFET, KTK161Y
CF401	9940 000 01611	CER. FILTER LT10.7MS3.
CF402	9940 000 01613	AM FILTER 450KHz
CF403	9940 000 01612	CER. DISC JT10.7MG-A.
L401	9940 000 01608	FM RF COIL 4.5T
L403	9940 000 01607	FM OSC BOBBIN COIL 2.5T
L404	9940 000 01604	AM OSC ORANGE 7MM
L411	9940 000 01609	FM COIL 5.5T
T401	9940 000 01605	AM ANT BLACK 7MM
T402	9940 000 01606	AM IFT BLACK 7MM
TC401	9940 000 01615	TRIMMER CAP 10PF N450
TC402	9940 000 01615	TRIMMER CAP 10PF N450

**AUDIO / POWER PART**

F701	△ 9940 000 01617	FUSE 2A 250V 5X20MM (T-L)
F702	△ 9940 000 01618	FUSE 1A 250V 5X20MM (T-L)
FR601	△ 9940 000 00678	FUSE RES, 2.2 1/4W +/-5%
FR660	△ 9940 000 00678	FUSE RES, 2.2 1/4W +/-5%
FR661	△ 9940 000 00678	FUSE RES, 2.2 1/4W +/-5%
IC501	9940 000 01616	IC TC9422AFG
IC502	5322 209 14482	IC, HEF4069UBT HEX INVERTER
IC503	5322 209 14482	IC, HEF4069UBT HEX INVERTER
IC801	5322 209 16507	IC BA5415A SIP-M12
L702	△ 9940 000 02657	AC LINE FILTER 3MH 1A
SPK801	9940 000 01619	SP TERMINAL MSP-134V-05

**ELECTRICAL PARTS LIST****DISPLAY PWB ASSEMBLY**

IC901	9940 000 01623	IC, ET1621COB LCD DRIVER
IRM901	9940 000 01622	IR RECEIVER GR-MF902V0
LCD901	9940 000 01624	LCD 81066TT/H(MCM190 LCD)
LED901	9940 000 01625	LED LE543Y2DE-3F-01-S
Q901	9940 000 02707	TRANSISTOR, 3DA8050
S900	9940 000 01626	SWITCH, TACT KFC-A06-10
S901	9940 000 01626	SWITCH, TACT KFC-A06-10
S902	9940 000 01626	SWITCH, TACT KFC-A06-10
S903	9940 000 01626	SWITCH, TACT KFC-A06-10
S904	9940 000 01626	SWITCH, TACT KFC-A06-10
S905	9940 000 01626	SWITCH, TACT KFC-A06-10
S906	9940 000 01626	SWITCH, TACT KFC-A06-10
S907	9940 000 01626	SWITCH, TACT KFC-A06-10
S908	9940 000 01626	SWITCH, TACT KFC-A06-10
S909	9940 000 01626	SWITCH, TACT KFC-A06-10
S910	9940 000 01626	SWITCH, TACT KFC-A06-10
S911	9940 000 01626	SWITCH, TACT KFC-A06-10
S912	9940 000 01626	SWITCH, TACT KFC-A06-10
S914	9940 000 01627	TACT SWITCH AI KFC-A06-5
VR901	9940 000 01628	ROTARY ENCODER
	9940 000 02708	FFC CABLE 12P L=110

**MISCELLANEOUS**

	9940 000 01621	DISPLAY PBAS MCM190//22
	9940 000 01632	CASSETTE PBAS MCM190//22
	9940 000 01633	CASSETTE DECK CS-21SC-820S
1707	4822 277 11504	SWITCH, SLIDE RECORDING
7705	9940 000 01634	IC, YD7312 PREAMPLIFIER
	△ 9940 000 01675	AC POWER CORD (/21)
	△ 9940 000 01629	AC POWER CORD (/22)
	△ 9940 000 02709	AC POWER CORD (/37)
	△ 9940 000 01676	POWER TRANSF. 120/230V (/21)
	△ 9940 000 01631	POWER TRANSF. 230V (/22)
	△ 9940 000 02711	POWER TRANSF. 120V (/37)
	△ 9940 000 01674	VOLTAGE SELECTOR 110/220V