

Service
Service
Service



Service Manual

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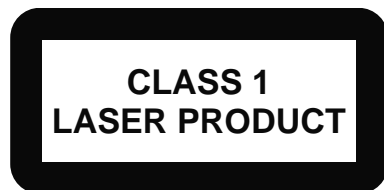
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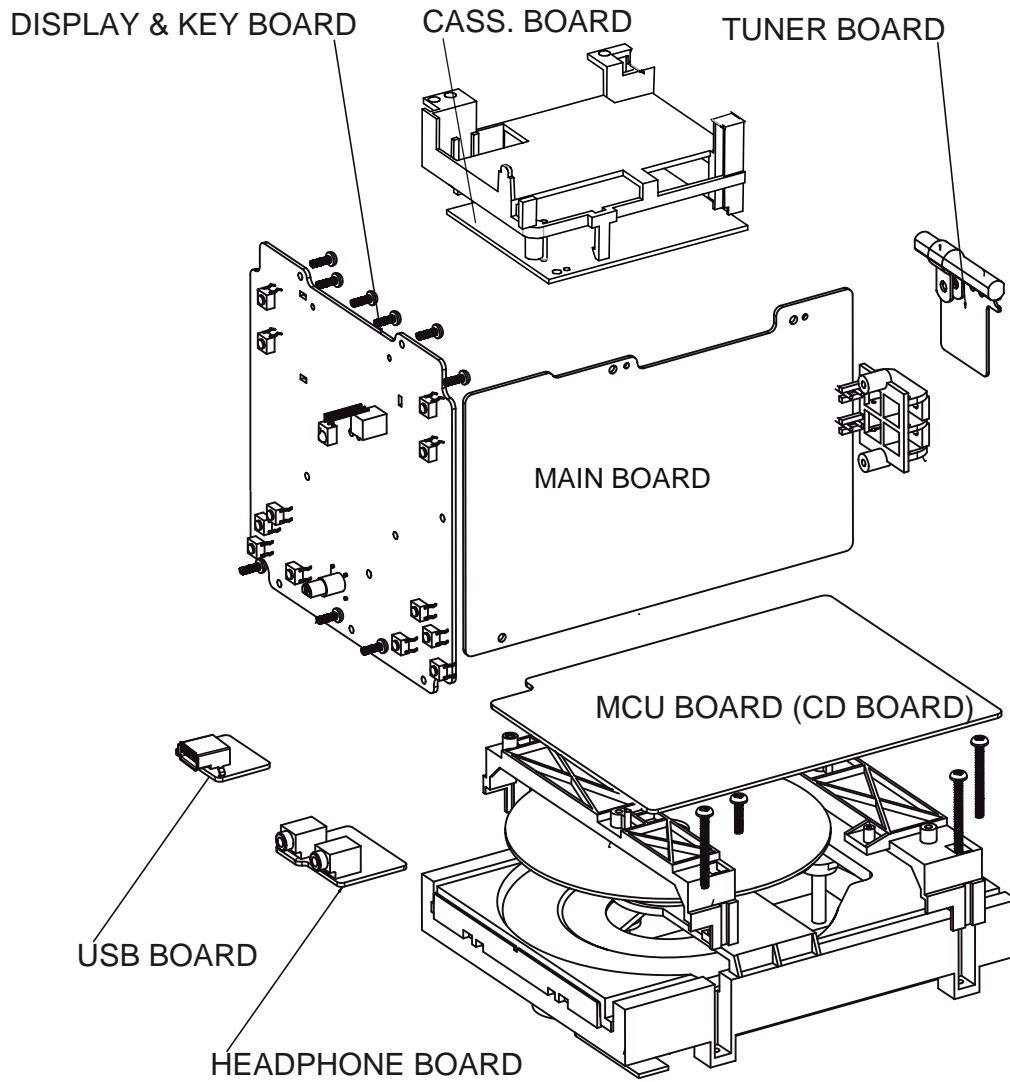


Version 1.1



PHILIPS

PCBS LOCATION



VERSION VARIATIONS

Type /Versions:	MCM207										
	Service policy	/12	/05	/37	/55	/58	/61				/98
Board in used:											
MAIN BOARD	C										
MCU BOARD (CD BOARD)	C/M										
USB JACK BOARD	C										
DISPLAY & KEY BOARD	C										
TUNER BOARD	M										
HEADPHONE BOARD	C										
CASS. BOARD	M										

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

SPECIFICATIONS

Amplifier

Rated Output Power	2X5W RMS
Frequency Response	60 - 16kHz, ± 3 dB
Signal to Noise Ratio	>62dB

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%
Frequency Response	60Hz -16kHz
S/N Ratio	>62dBA

Tuner

Tuning Range	FM: 87.5 - 108MHz; MW: 531 - 1602kHz
Tuning grid	50 kHz (FM); 9 kHz (MW)
Total Harmonic Distortion	<3%
Signal to Noise Ratio	>50 dB

Tape deck

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

Speakers

Speaker Impedance	4ohm
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General information-Specs

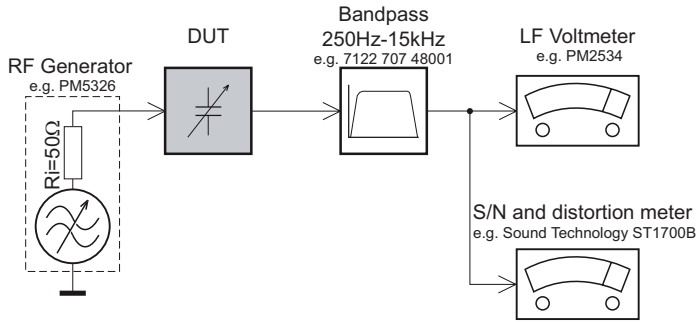
Power supply	Model: GFP181T-1512-I or GFP181DA-1512-I, Input: AC100-240V~, 50/60Hz, 0.35A Output: DC15V, 1.2A
Operation Power Consumption	26 W
Standby Power Consumption	<4 W
Dimensions	
• Main Unit (W x H x D)	152 x 228 x 222mm
• Speaker Box (W x H x D)	146 x 232 x 140mm
Weight	
• With Packing	6.6 kg
• Main Unit	1.95 kg
• Speaker Box	2 x 1.2 kg

Supported MP3 disc formats

- ISO9660, Joliet
- Maximum title number: 512 (depending on file name length)
- Maximum album number: 255
- Supported sampling frequencies: 32 kHz, 44.1kHz, 48 kHz
- Supported Bit-rates: 32~256 (kbps), variable bit rates

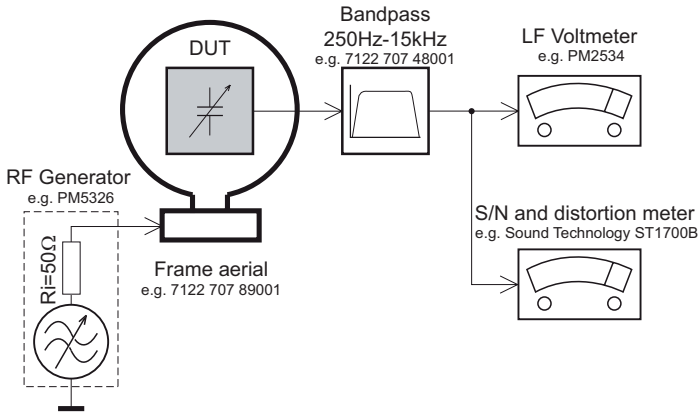
MEASUREMENT SETUP

Tuner FM



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

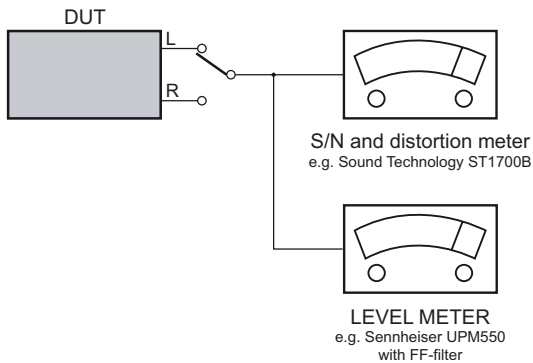
Tuner AM (MW,LW)



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).

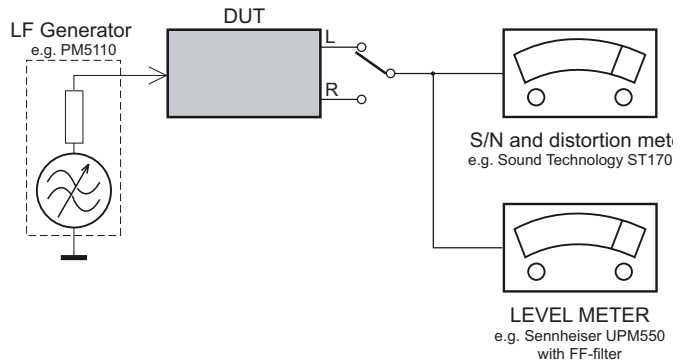
CD

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 .

**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".

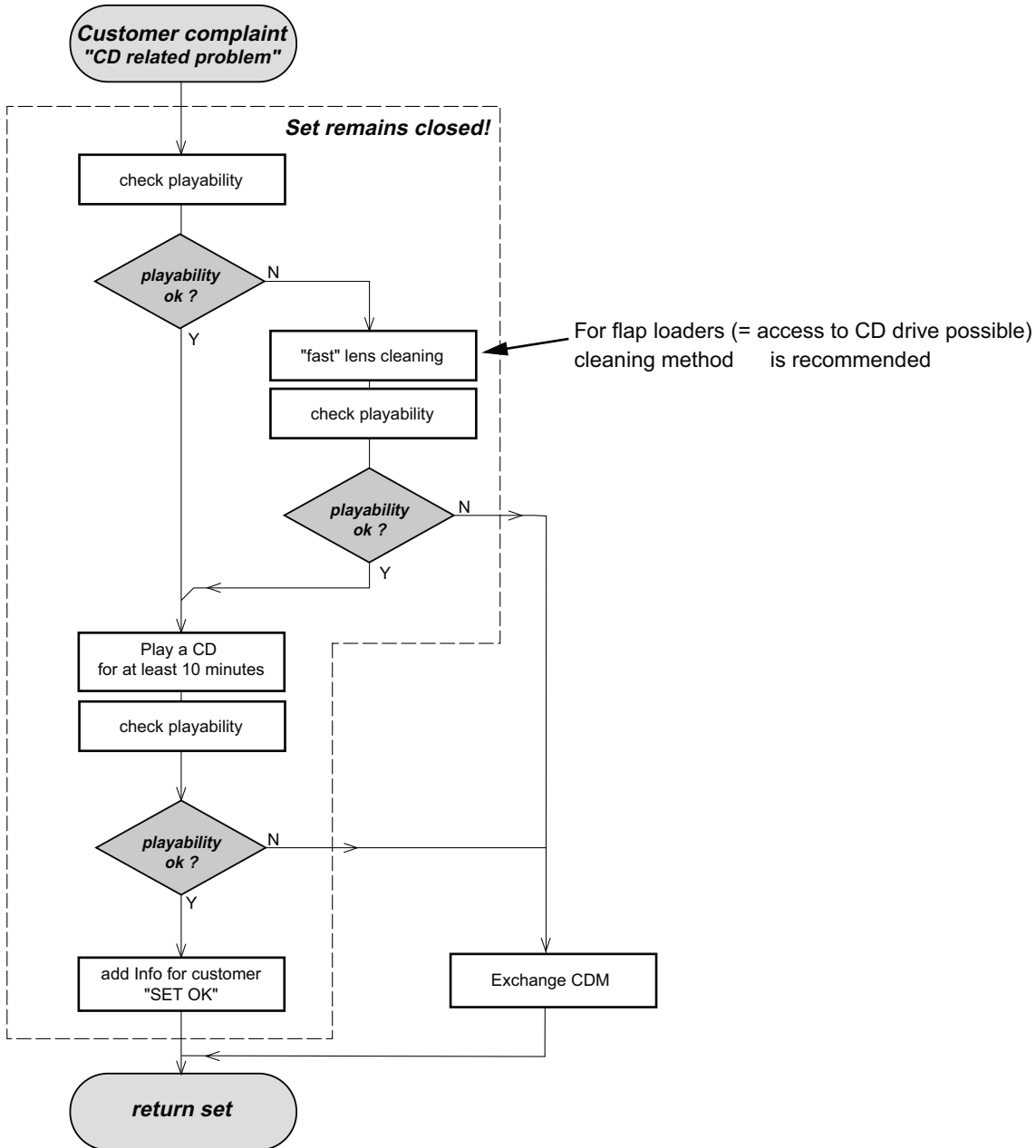
For additional questions please contact your local repair-helpdesk.

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



- For description - see following pages

INSTRUCTIONS ON CD PLAYABILITY

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 ≥ 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 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 ≥ 10 seconds
 Fingerprint ≥ 10 seconds
 Black dot from 01:05 to 01:25
- jump forward/backward (search) within a reasonable time

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) 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.

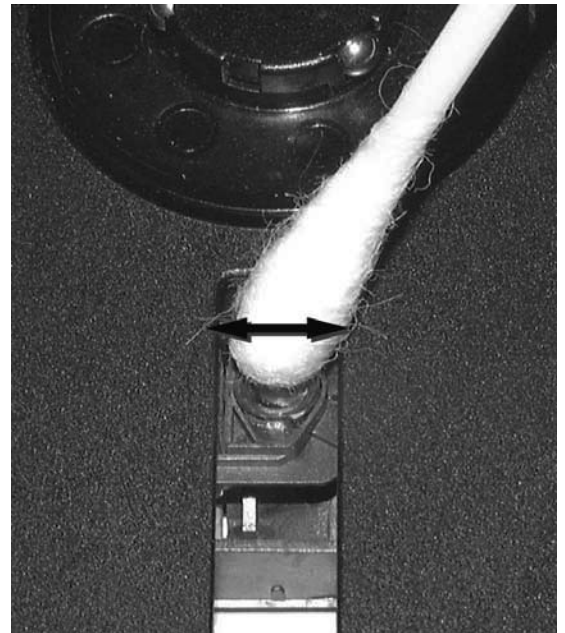
LIQUID LENS CLEANING

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.

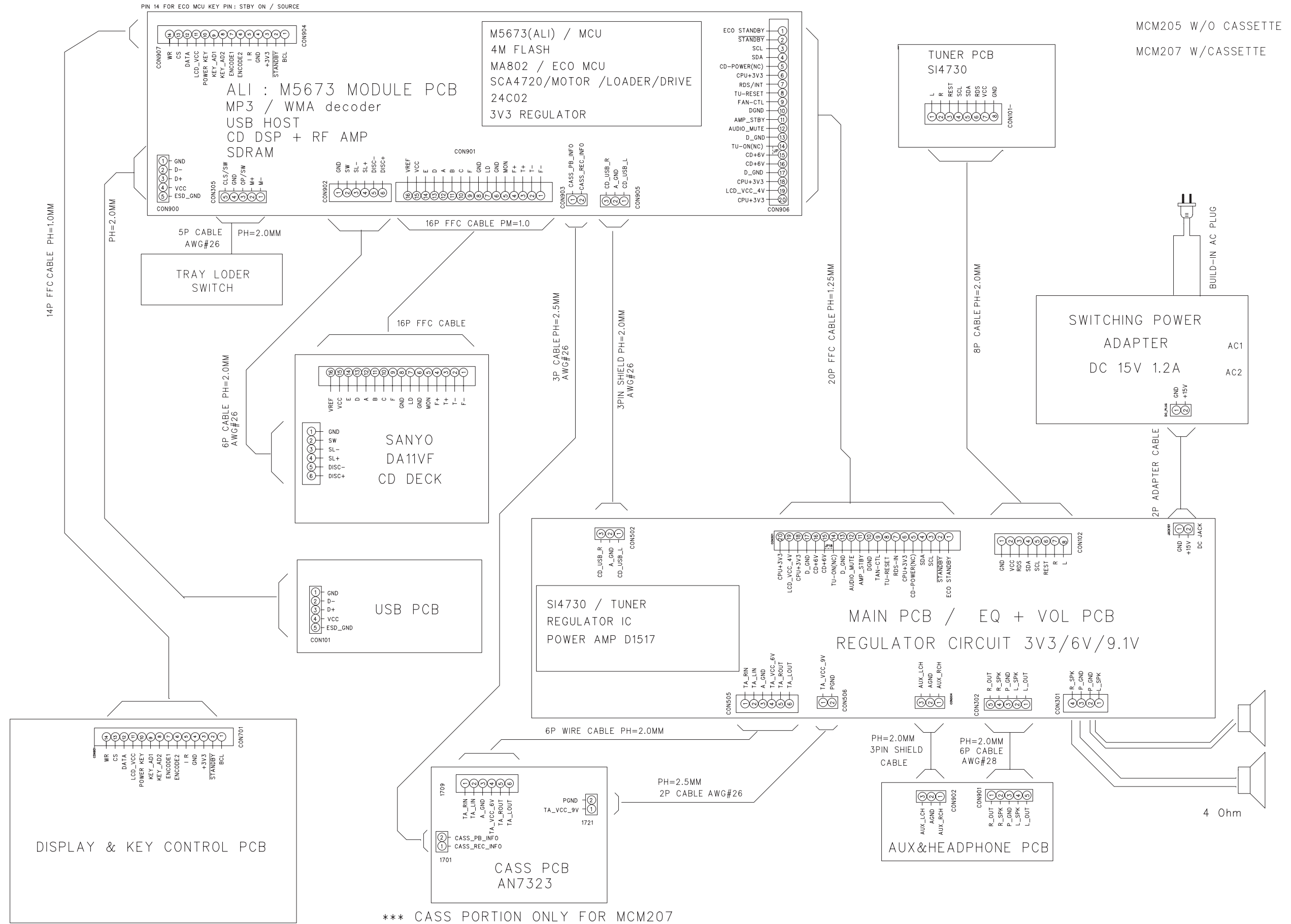


SERVICE TEST PROGRAM

How to read software version,

1. Plug A/C to power on and NO DISC mode, press and hold PLAY and DBB buttons for 5 seconds, LCD Display shows existing CD software version "CD - V029" and MCU software version "MCU - 013".

SET BLOCK & WIRING DIAGRAM



MCM205 W/O CASSETTE
 MCM207 W/CASSETTE

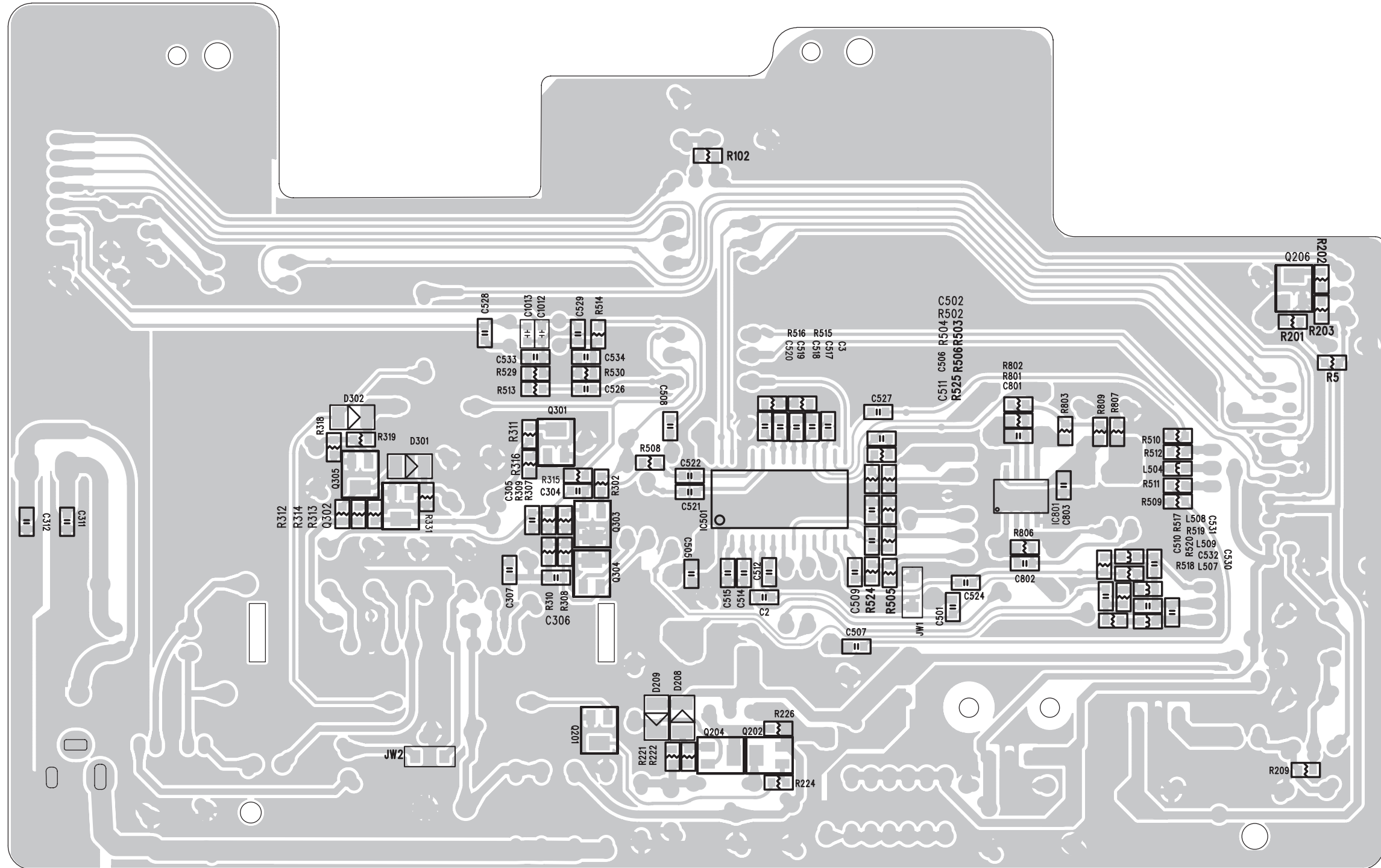
*** CASS PORTION ONLY FOR MCM207

MAIN & TUNER & HEAD- PHONE BOARD

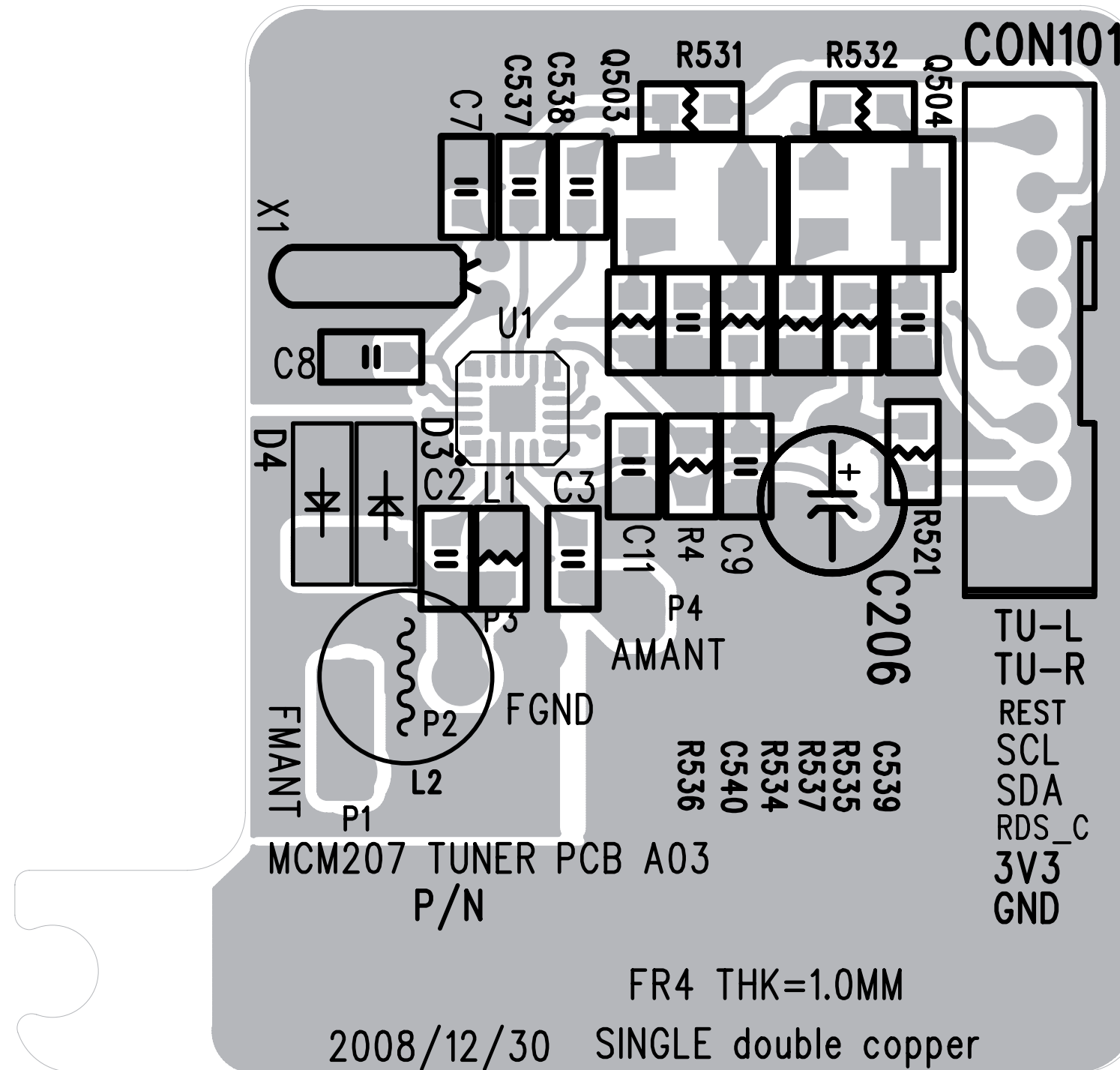
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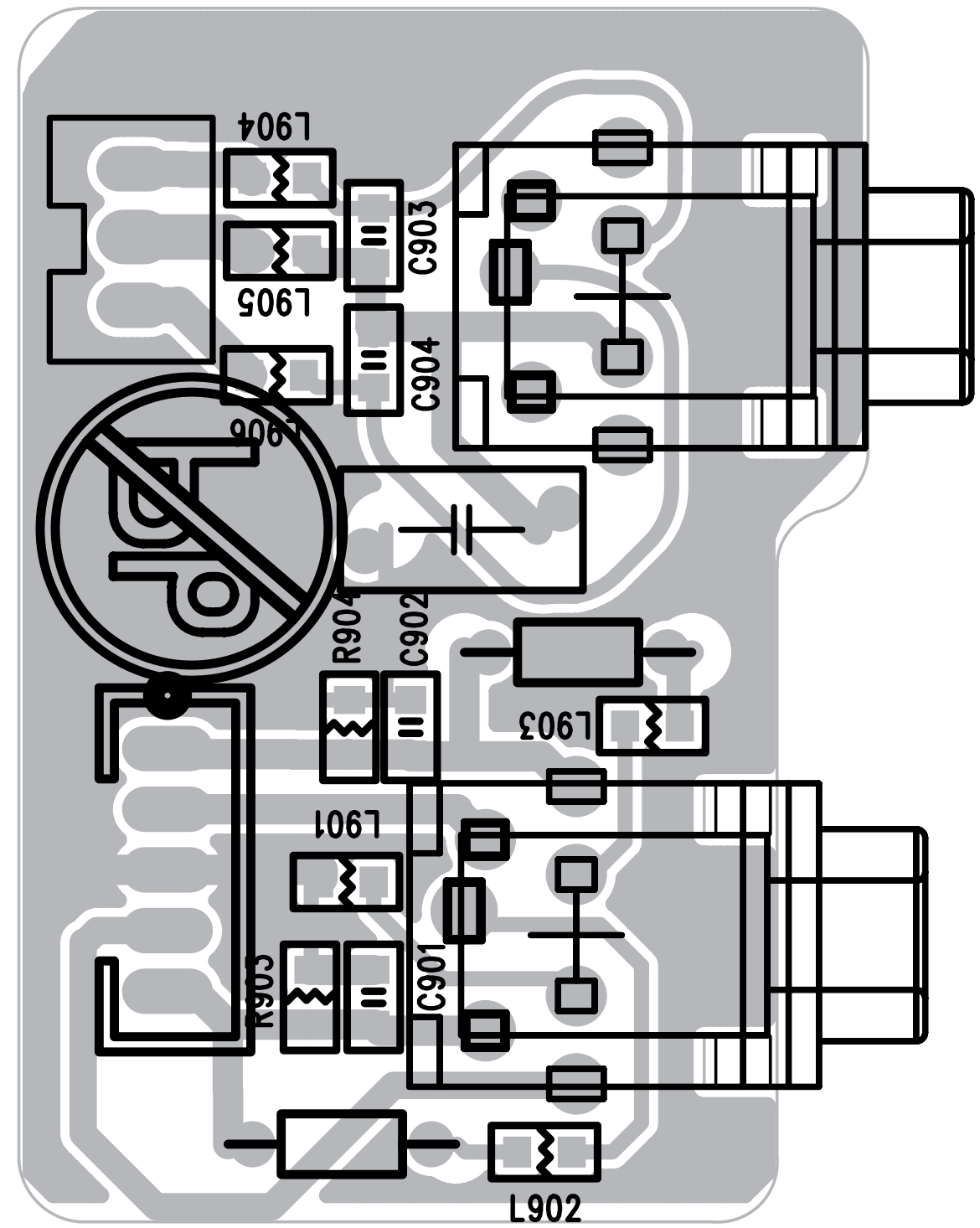
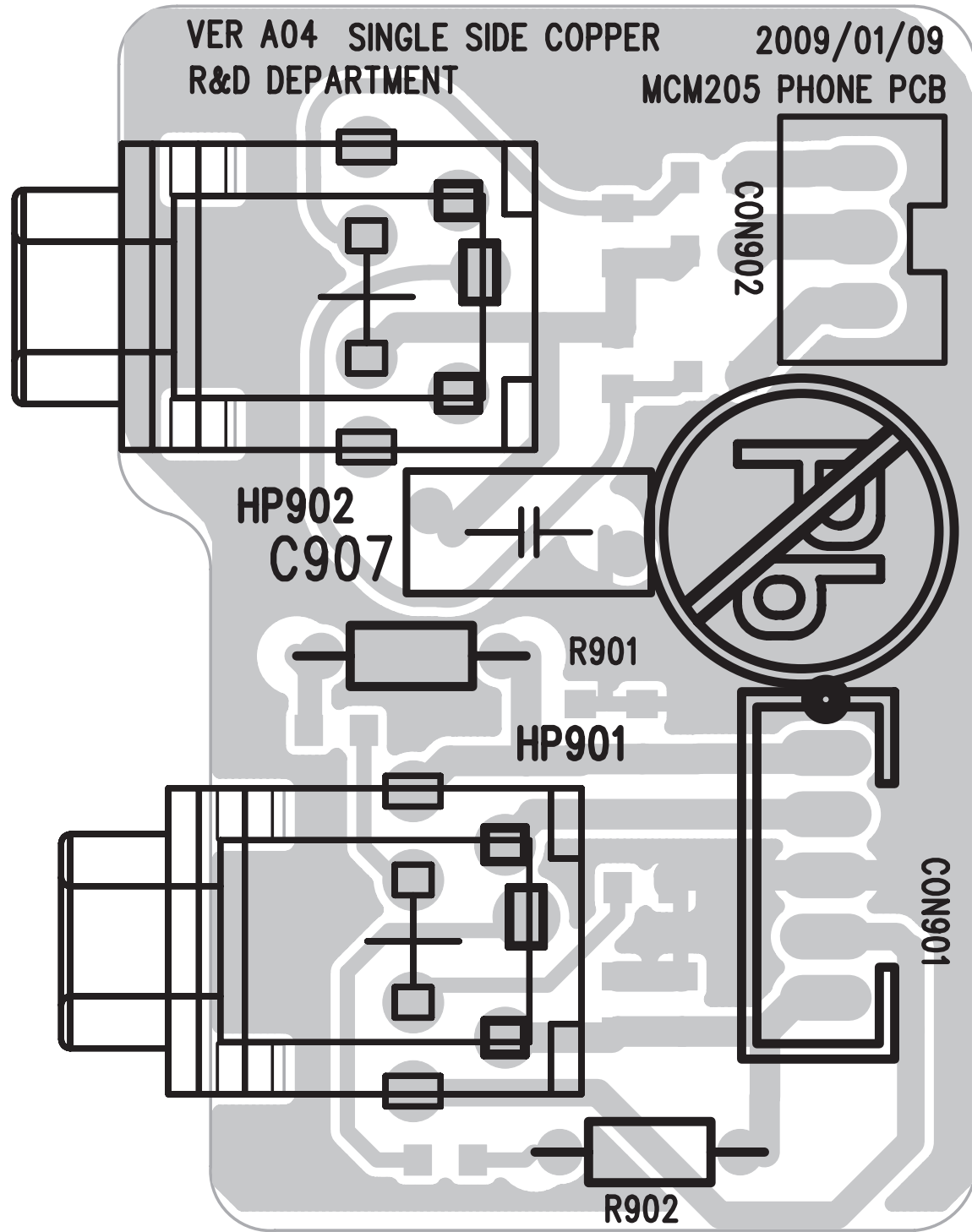
PCB LAYOUT - MAIN BOARD (BOTTOM VIEW)



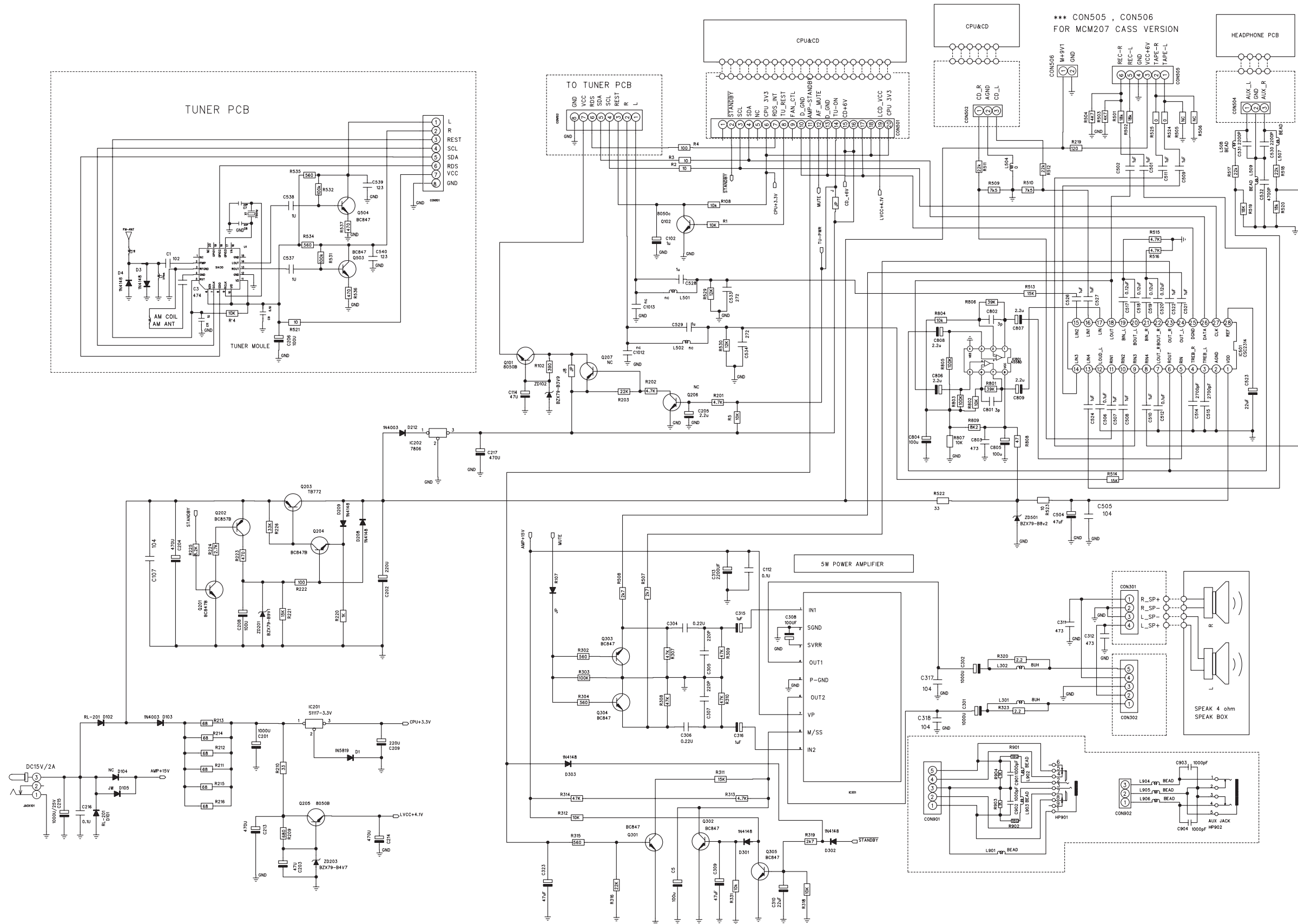
PCB LAYOUT - TUNER BOARD (ONLY FOR REFERENCE, MODULE SWAP)



LAYOUT DIAGRAM - HEADPHONE BOARD



CIRCUIT DIAGRAM - MAIN & TUNER & HP BOARD

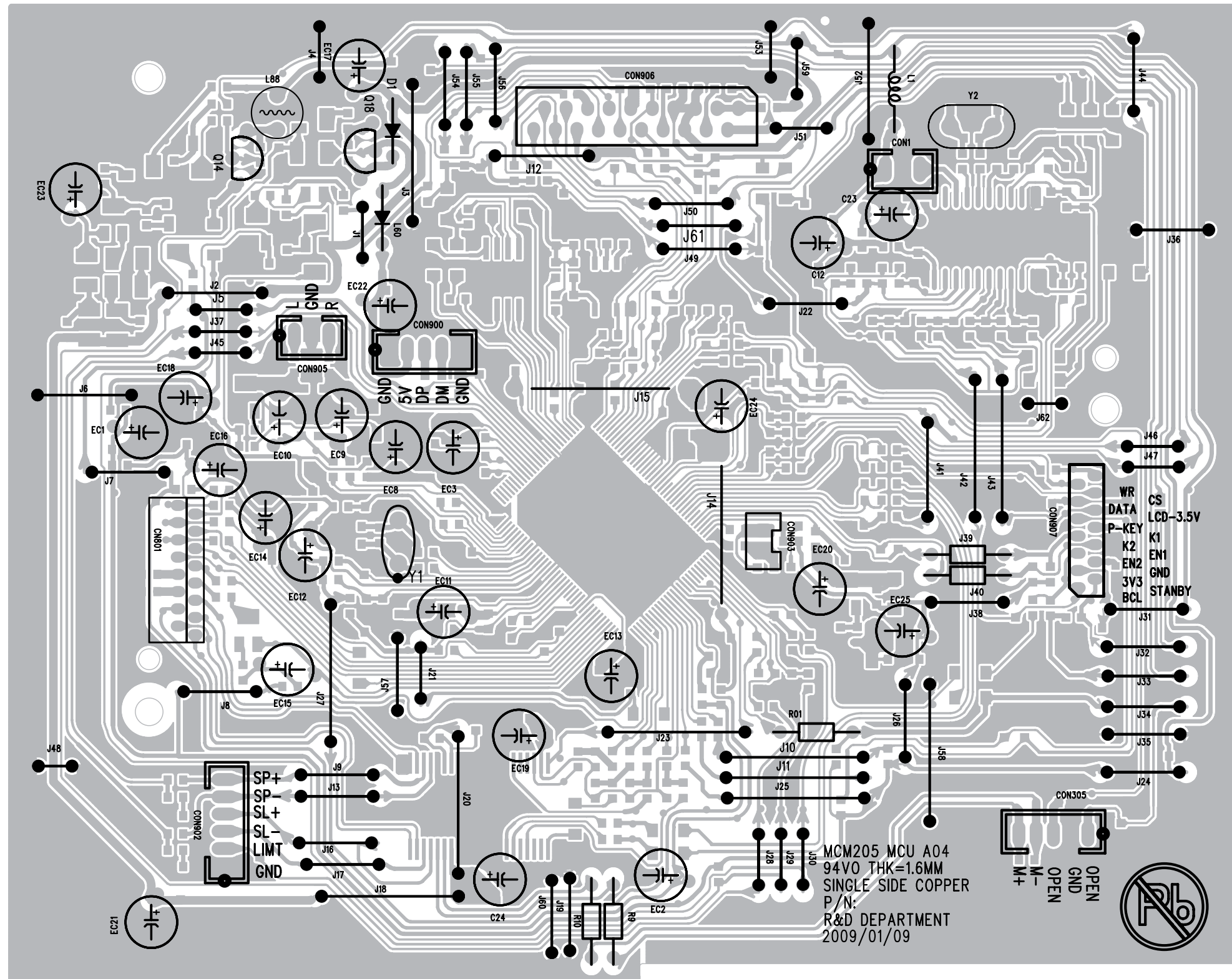


MCU & USB BOARD

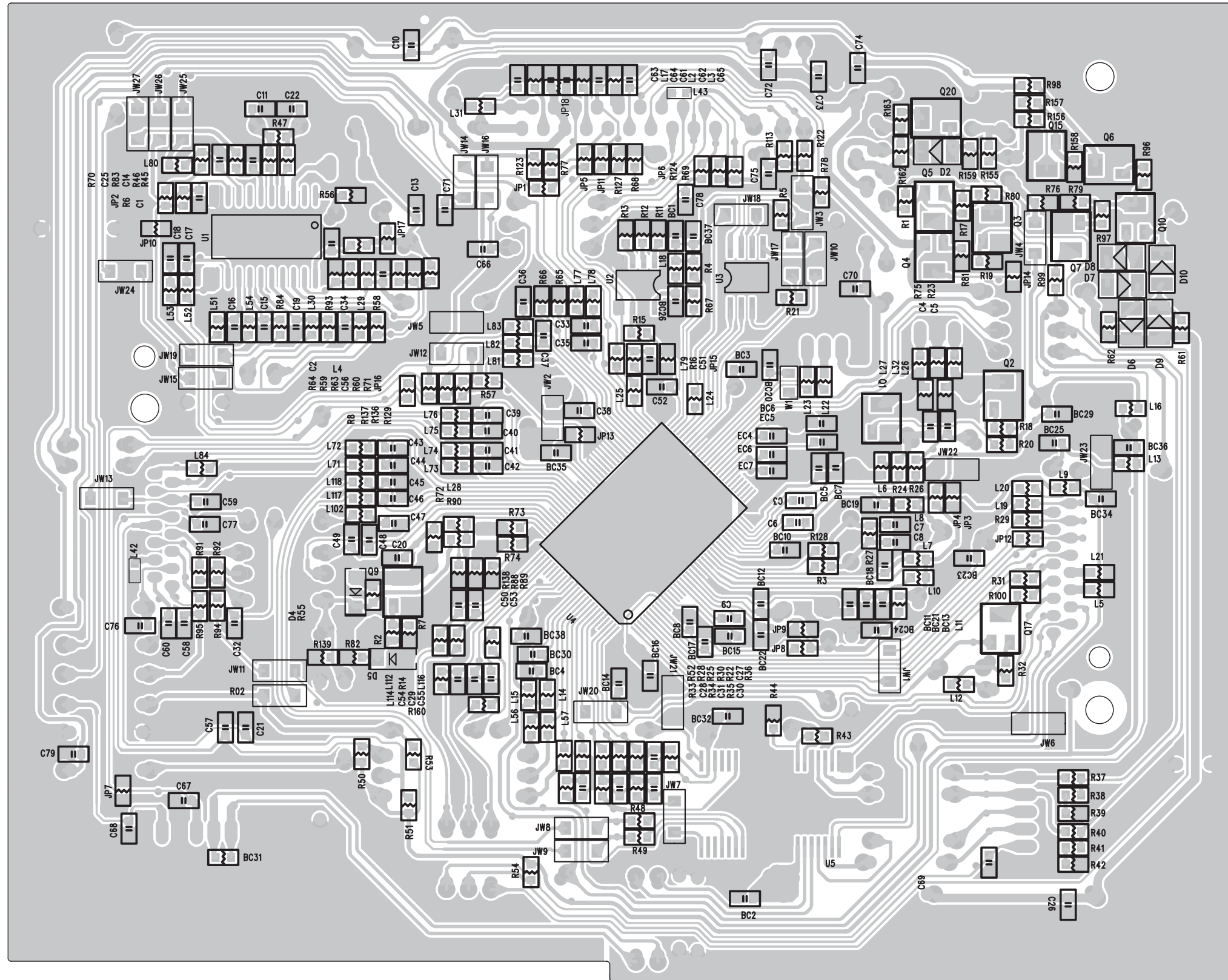
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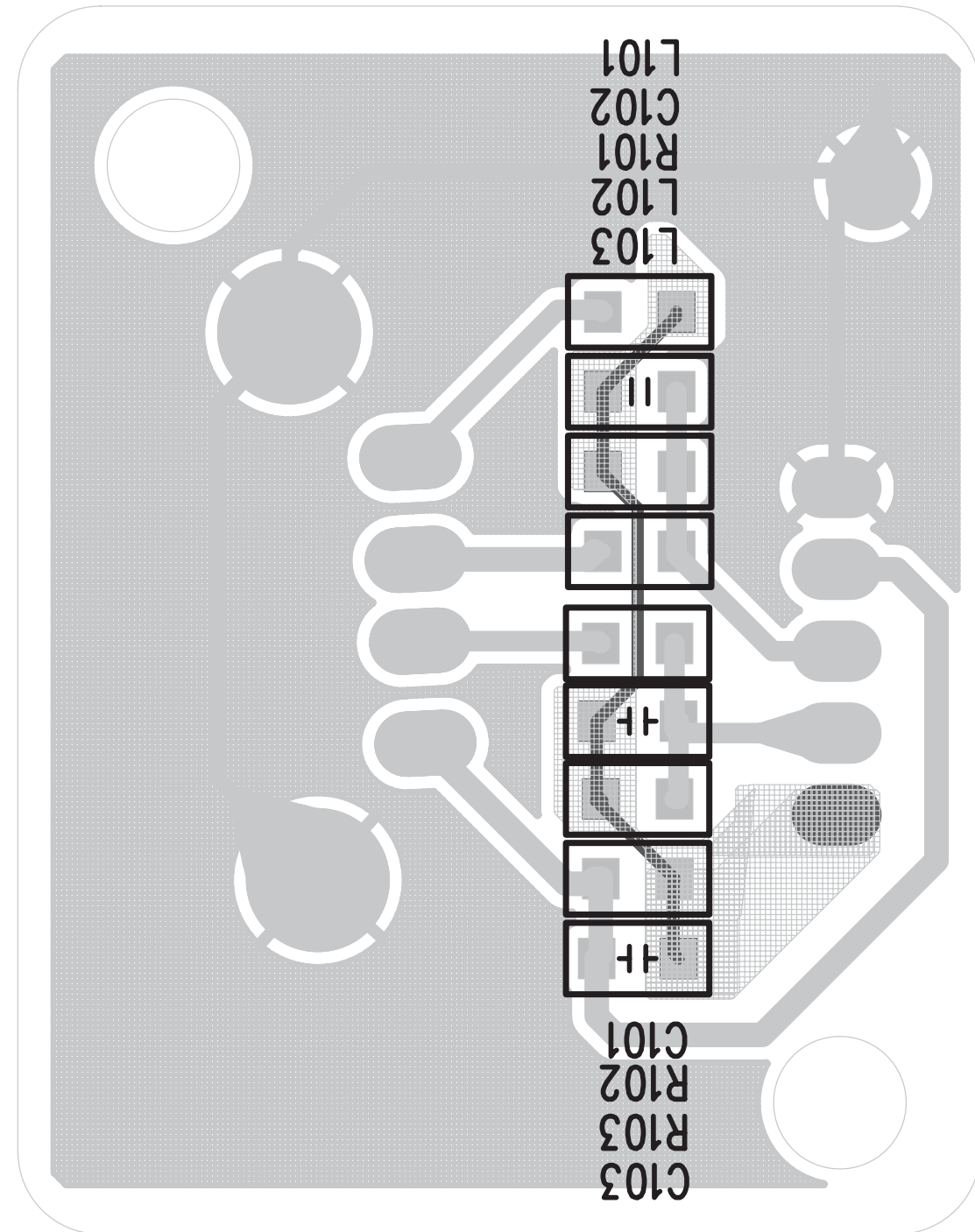
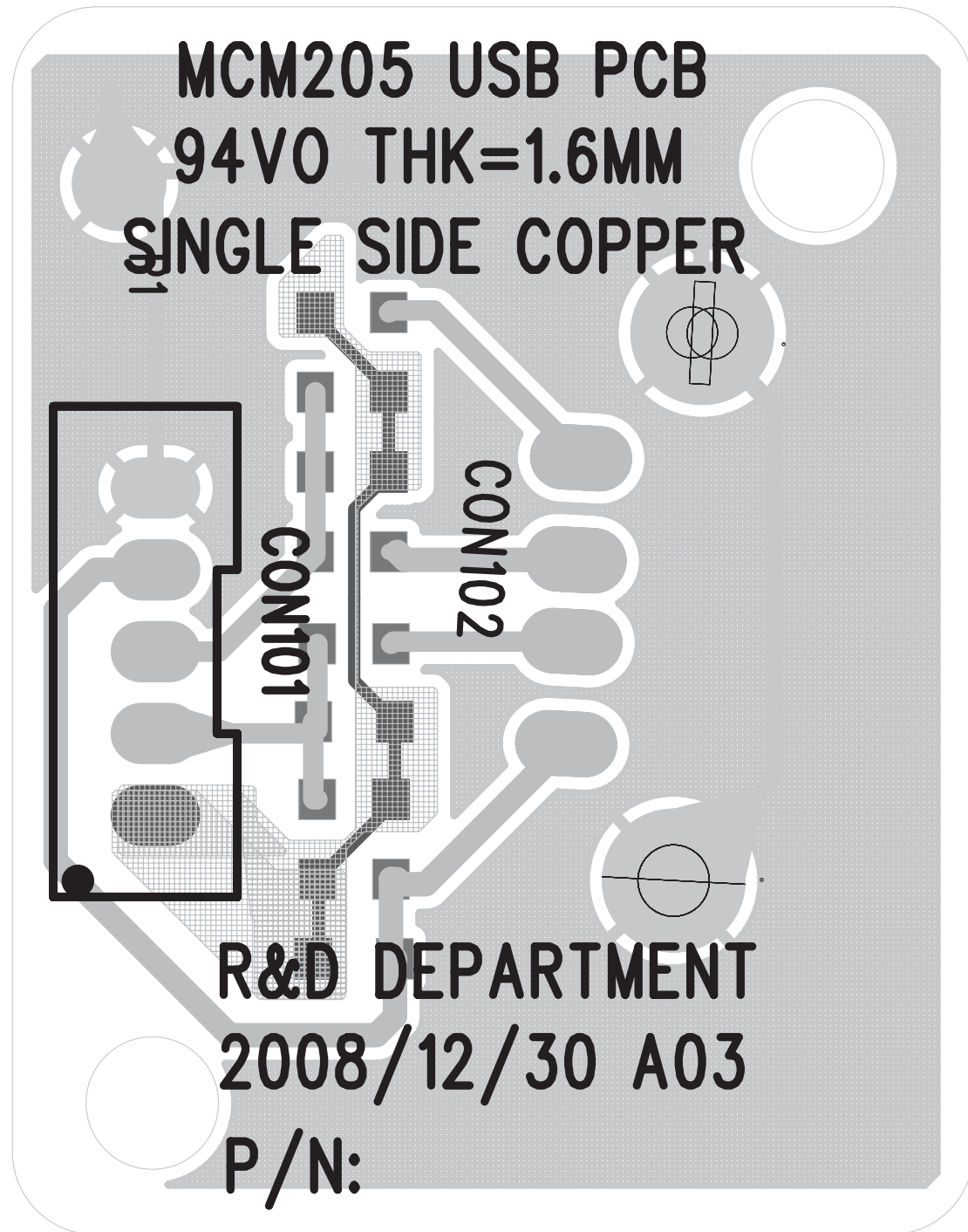
PCB LAYOUT - MCU BOARD (TOP VIEW)



PCB LAYOUT - MCU BOARD (BOTTOM VIEW)



LAYOUT DIAGRAM - USB BOARD

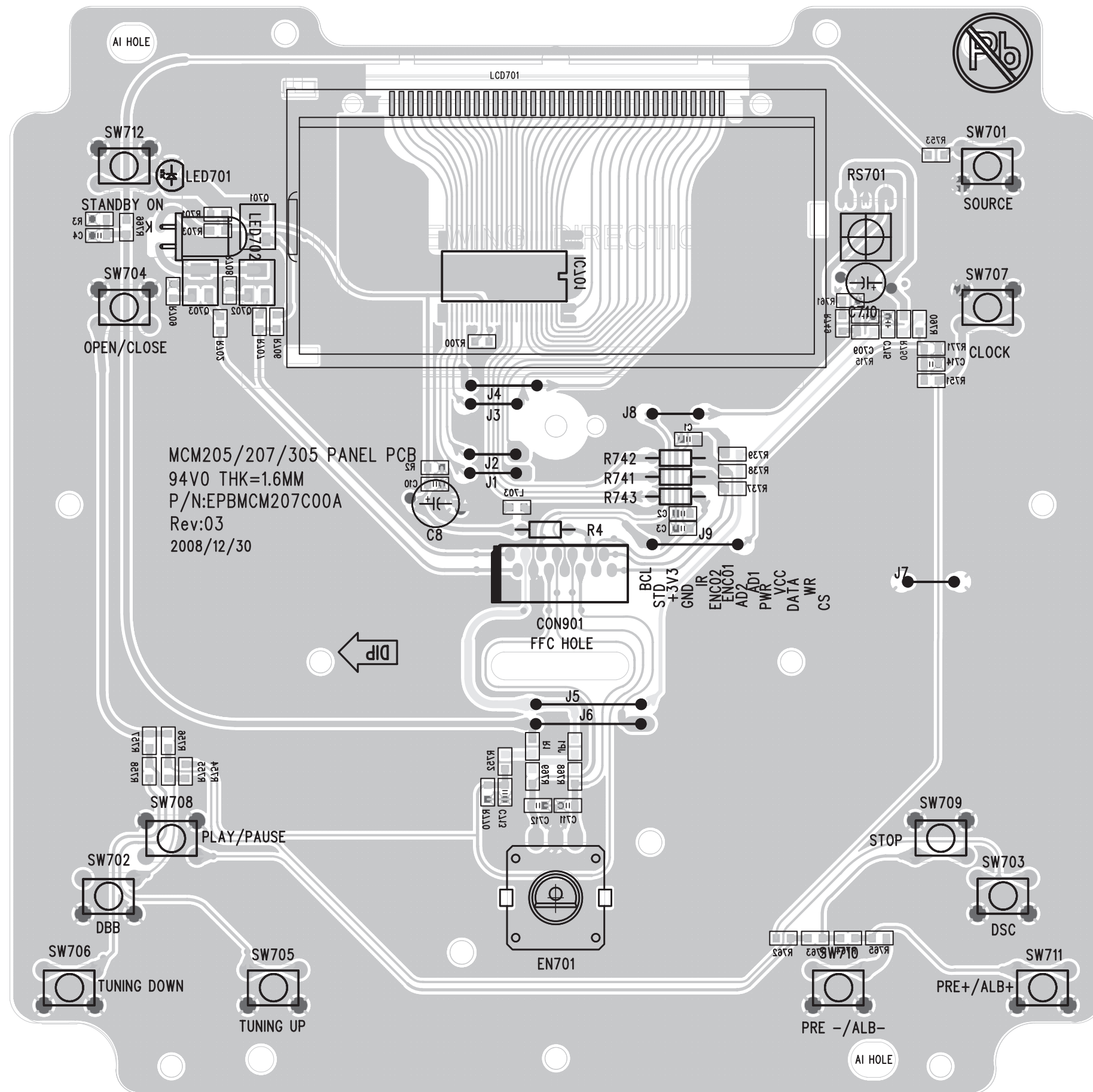


DISPLAY/KEY BOARD

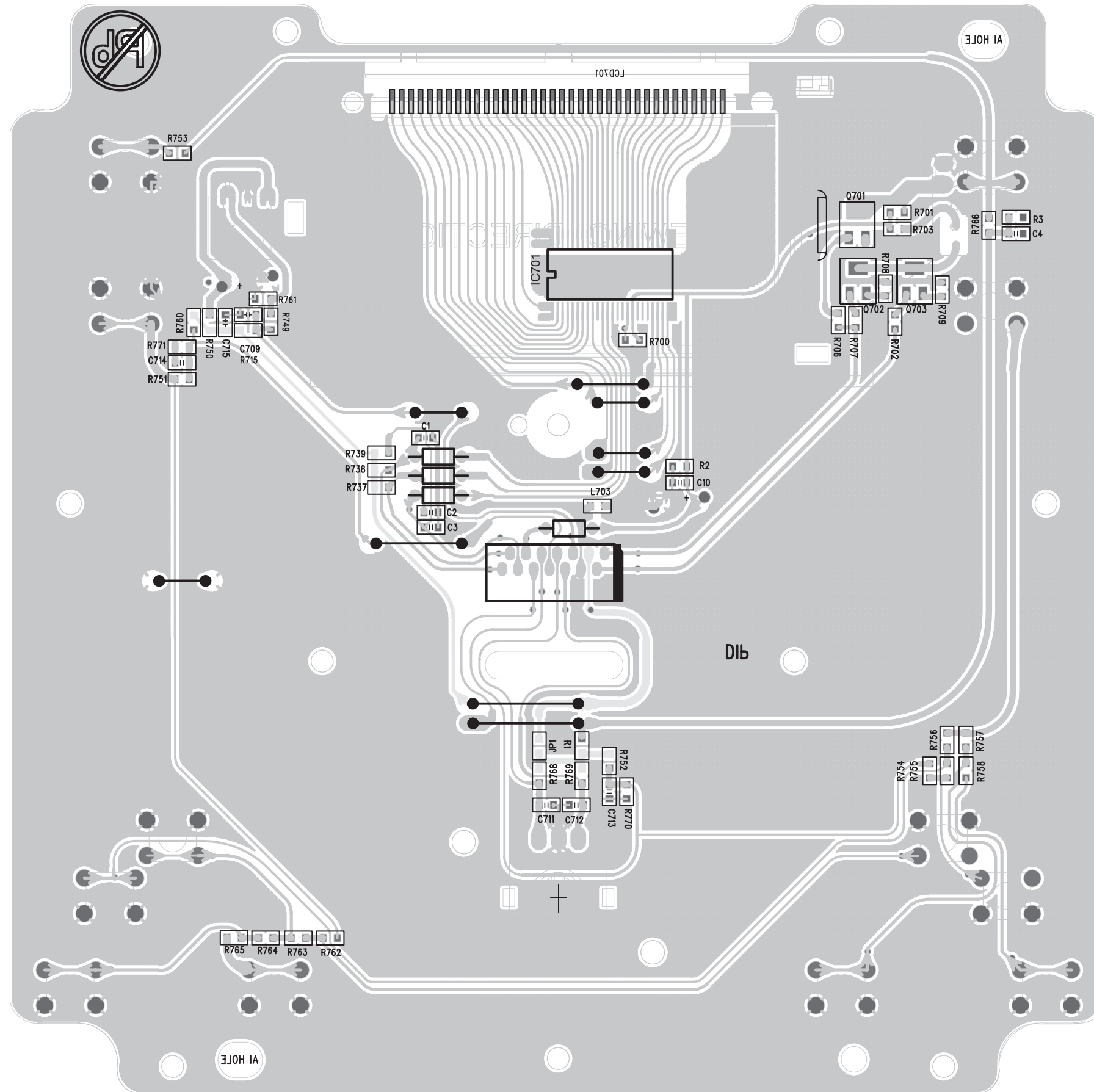
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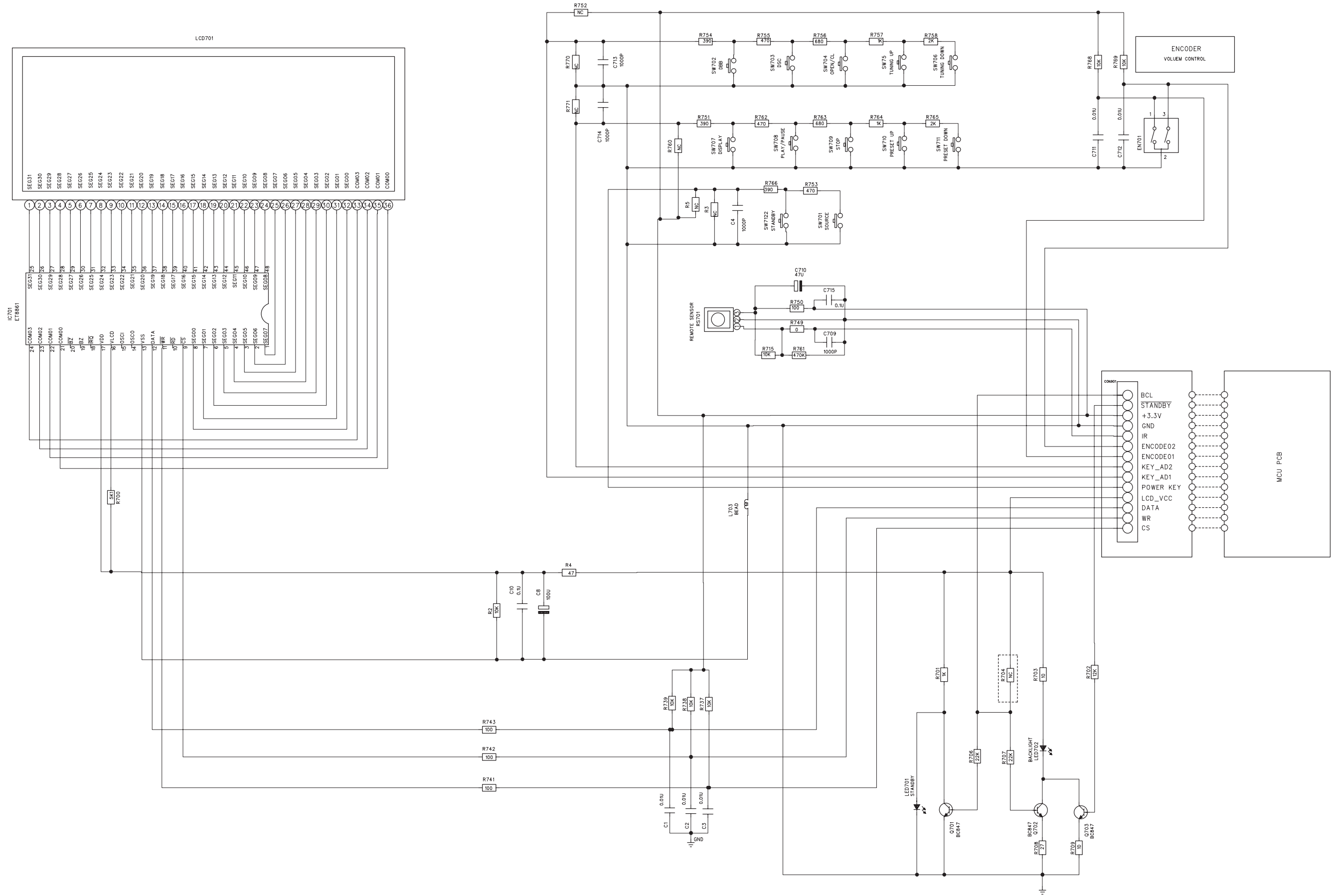
PCB LAYOUT - DISPLAY/KEY BOARD (TOP VIEW)



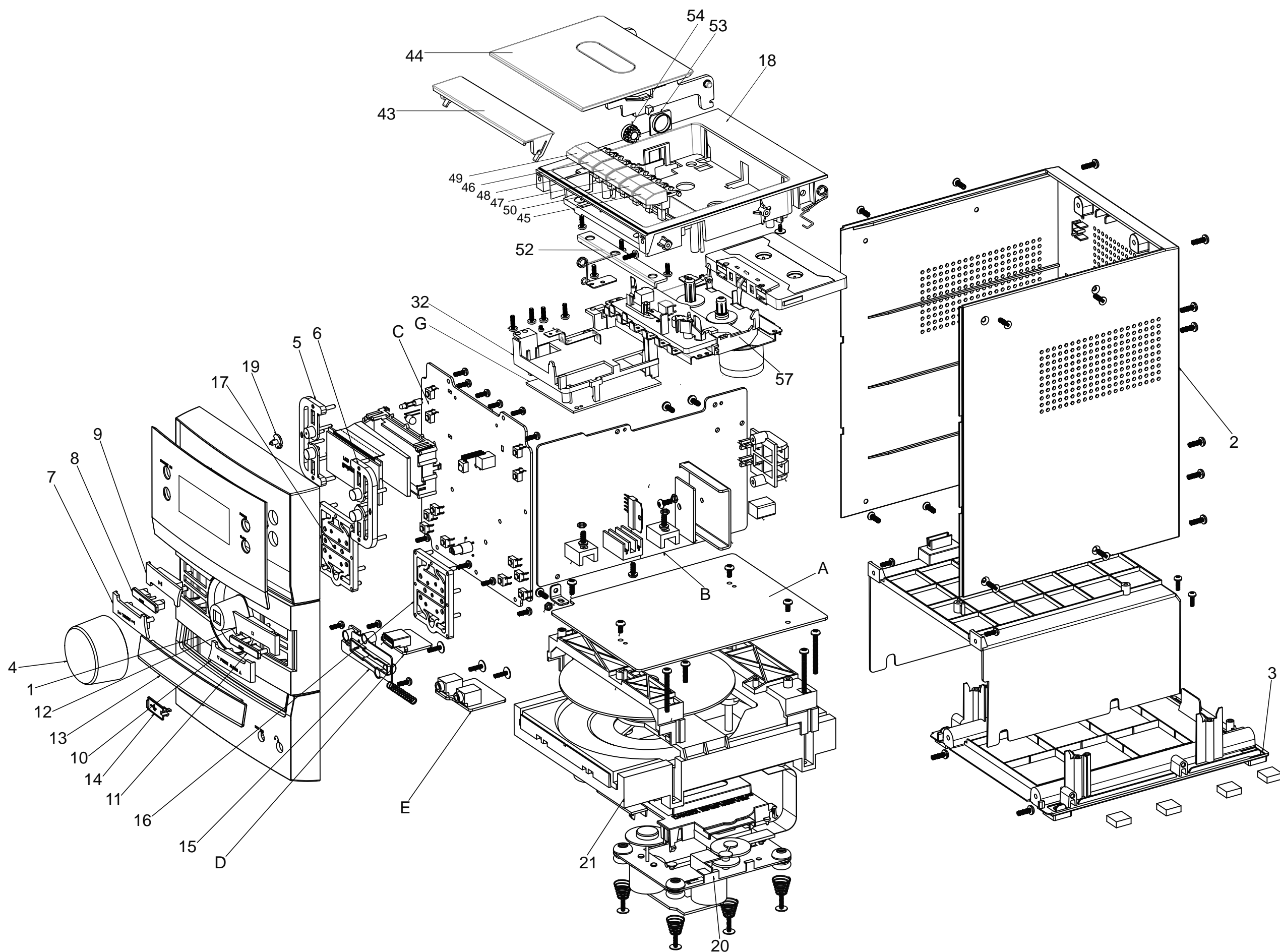
PCB LAYOUT - DISPLAY/KEY BOARD (BOTTOM VIEW)



CIRCUIT DIAGRAM - DISPLAY/KEY BOARD



SET MECHANICAL EXPLODED VIEW



MECHANICAL & ACCESSORIES PARTS LIST

Loc.	12NC	Description
MAIN UNIT		
1	996510021684	FRONT CABINET
2	996510021679	REAR CABINET
3	996510021659	BOTTOM CABINET
4	996510021657	VOLUME KNOB
5	996510021656	POWER CD BUTTON
6	996510021666	SOURCE CLOCK BUTTON
7	996510021677	TUNING BUTTON
8	996510021682	DBB BUTTON
9	996510021662	PLAY BUTTON
10	996510021667	PRESET ALBUM BUTTON
11	996510021653	DSC BUTTON
12	996510021685	STOP BUTTON
13	996510025117	CD DOOR
14	996510021672	USB DOOR
15	996520035756	USB BRACKET
16	996510021658	FUNCTION BUTTON BKT LEFT
17	996510021663	FUNCTION BUTTON BKT RIGHT
18	996510016230	TOP CABINET
19	996510012854	POWER LIGHT GUIDE
20	994000005786	CD MECHANISM DA11VF(SANYO)
21	996510000871	CD TRAY LOADER
23	994000005767	FFC CABLE 20P TYPE A
25	△ 996510025131	APPROVAL CORD VDE TYPE 0.71M
26	996510025132	REMOTE CONTROL
27	996510021654	SINGLE SPK BOX L/R
32	996510025114	BRACKET CASS. DECK
43	996510016237	CASSETTE KEY DOOR
44	996510025116	CASS DOOR
45	996510025118	CASS KEY - PAUSE
46	996510025119	CASS KEY - PLAY
47	996510025121	CASS KEY - FF
48	996510025122	CASS KEY - FB
49	996510025123	CASS KEY -REC
50	996510025124	CASS KEY - STOP
51	996510025125	DISPLAY LENS
52	996510025126	CASS KEY - BRACKET
53	994000001409	CD DOOR GEAR HOLDER
54	996510000931	CD DOOR GEAR
55	996510012854	POWER LIGHT GUIDE
57	996510001449	CASS DECK MECHANISM
58	△ 996510025128	ADAPTER AC:100-240V DC:15V 1.2A
A	996510025102	MCM207 MCU PCB (CD BOARD)
B	996510025104	MCM207 MAIN & H.P. & USB PCB
CDMF	996510021681	FFC CABLE 16P 180MM P1MM
CON905A	996510021686	FFC CABLE 80MM 14P P1MM
F	996510021664	MCM207 TUNER PCB
G	996510025106	CASS PCB

ELECTRICAL PARTS LIST

Loc.	12NC	Description
MCU PCB ASSY		
D1	996510011340	DIODE 1N5819 DO-41
D10	996510010774	DIODE 1N4148 FDLL4148
D2	996510010774	DIODE 1N4148 FDLL4148
D4	996510010774	DIODE 1N4148 FDLL4148
D5	996510010774	DIODE 1N4148 FDLL4148
D6	996510010774	DIODE 1N4148 FDLL4148
D7	996510010774	DIODE 1N4148 FDLL4148
D8	996510010774	DIODE 1N4148 FDLL4148
D9	996510010774	DIODE 1N4148 FDLL4148
J39	996520035757	CARBON RES.100KR 1/6W J%
J40	996520035757	CARBON RES.100KR 1/6W J%
L60	996510015966	DIODE 1N4001 TAPE FORM
Q10	996510002323	TRANSISTOR S8550 SMD TYPE
Q14	996510003718	TRANSISTOR KTC-8550C
Q15	996510024762	TRANSISTOR KTC9014S
Q17	996510012833	TRANSISTOR BC857B
Q18	996510011342	TRANSISTOR HIT562 PNP TO-92MOD
Q20	996510024762	TRANSISTOR KTC9014S
Q3	996510024762	TRANSISTOR KTC9014S
Q6	996510016572	TRANSISTOR KTC8050S SOT-23
Q7	996510016572	TRANSISTOR KTC8050S SOT-23
Q9	996510024762	TRANSISTOR KTC9014S
R10	996520035758	CARBON RES.2.2R 1/6W J%
R9	996520035758	CARBON RES.2.2R 1/6W J%
U1	996510021671	IC MA802AS PROGRAMMED
U2	996510010763	IC AT24C02BN-SH-T
U3	996510021661	IC ST25VF040 PROGRAMMED
U4	996510021675	IC M5673 128P LQFP
U5	996510021673	IC SCA4720
Y2	996510016576	X'TAL 12MHZ 20PF +-20PPM
MAIN PCB ASSY		
CON301	996510000380	PUSH TERMINAL JACK PST-418
D1	996510011340	DIODE 1N5819 DO-41
D101	996510001053	RECTIFIER DIODE RL201
D102	996510001053	RECTIFIER DIODE RL201
D103	996510011339	DIODE 1N4003
D106	996510011332	DIODE 1N4148
D2	996510010774	DIODE 1N4148 FDLL4148
D212	996510011339	DIODE 1N4003
D4	996510010774	DIODE 1N4148 FDLL4148
D5	996510001053	RECTIFIER DIODE RL201
D5	996510010774	DIODE 1N4148 FDLL4148
D6	996510010774	DIODE 1N4148 FDLL4148

MAIN PCB ASSY

IC201	994000005724	IC LD1117AL-3.3V-D
IC202	996510001058	IC S7806PI TO-220F
IC301	996510021676	IC D1517 FSIP9 (DIP)
IC501	996510010771	IC 7314(ANGUS)
IC801	996510004562	IC D4558
JACK101	996510001054	6.5MM DC JACK (DJ32-2)
L2	996510001060	FERRITE BEAN SBK160808T-601Y-S
L3	996510001060	FERRITE BEAN SBK160808T-601Y-S
L4	996510001060	FERRITE BEAN SBK160808T-601Y-S
Q101	996500039268	TRANSISTOR KTC-8050C
Q102	996500039268	TRANSISTOR KTC-8050C
Q15	996510024762	TRANSISTOR KTC9014S
Q17	996510012833	TRANSISTOR BC857B
Q20	996510024762	TRANSISTOR KTC9014S
Q203	996510001414	TRANSISTOR KTB772(KEC)
Q205	996500039268	TRANSISTOR KTC-8050C
Q207	996510003718	TRANSISTOR KTC-8550C
Q3	996510024762	TRANSISTOR KTC9014S
Q9	996510024762	TRANSISTOR KTC9014S
ZD102	994000005722	ZENER DIODE 4V3 1/2W
ZD201	996500039258	ZENER DIODE 9V1 1/2W
ZD203	996510011334	ZENER DIODE BZX4V7
ZD501	996510011338	DIODE BZX79-B8V2 SOD27

HEADPHONE PCB ASSY

HP901	994000001456	STEREO HEADPHONE JACK
HP902	996510001073	EARPHONE CKX3.5-19S (3PIN)

USB PCB ASSY

CON102	996510001071	USB JACK 4P ANGLE TYPE
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TUNER PCB ASSY (ONLY FOR REFERENCE)

D2	996510010774	DIODE 1N4148 FDLL4148
D4	996510010774	DIODE 1N4148 FDLL4148
Q20	996510024762	TRANSISTOR KTC9014S
Q9	996510024762	TRANSISTOR KTC9014S
U1	996510021655	IC SI4730-A10-GM 20P (QFN)
X1	994000003208	CRYSTAL 32.768KHZ 12.5PF -10P

ELECTRICAL PARTS LIST

Loc.	12NC	Description
<i>DISPLAY/KEY PCB ASSY</i>		
EN701	996510001059	ENCODER EC121102X2B-HA1-082
IC701	996510001064	IC ET8861S LCD DRIVER
LCD701	996510021695	LCD DISPLAY
Q15	996510024762	TRANSISTOR TRANSISTOR KTC9014S
Q20	996510024762	TRANSISTOR TRANSISTOR KTC9014S
Q3	996510024762	TRANSISTOR TRANSISTOR KTC9014S
R741	996510021674	CARBON RES. 100R 1/6W J%
R742	996510021674	CARBON RES. 100R 1/6W J%
R743	996510021674	CARBON RES. 100R 1/6W J%
R808	996510021669	CARBON RES. 47R 1/6W J%
RS701	996510011311	INFRARED RECEIVER RIGHT ANGLE
SW701	996500039269	TACT SWITCH
SW702	996500039269	TACT SWITCH
SW703	996500039269	TACT SWITCH
SW704	996500039269	TACT SWITCH
SW705	996500039269	TACT SWITCH
SW706	996500039269	TACT SWITCH
SW707	996500039269	TACT SWITCH
SW708	996500039269	TACT SWITCH
SW709	996500039269	TACT SWITCH
SW710	996500039269	TACT SWITCH
SW711	996500039269	TACT SWITCH
SW712	996500039269	TACT SWITCH

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

REVISION LIST

1.0 Manual 3141 785 33920

Initial Service Manual released.

1.1 Manual 3141 785 33921

In this version,

Mechanical Partslist updated.

996510024762 TRANSISTOR KTC9014S (was 996510012793 TRANSISTOR BC847B)