

Service
Service
Service



Service Manual



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3141 785 34050

Version 1.0



PHILIPS

TECHNICAL SPECIFICATION

Amplifier

Total output power	200W RMS
Signal-to-noise ratio	≥ 60dB A (IEC)
Frequency response	50 - 16000Hz
AUX input	2000mV

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	<0.6%
Frequency response	50Hz -16kHz (44.1kHz)
Signal-to-noise ratio	≥ 60dBA

Tuner

Tuning range	FM: 87.5 - 108MHz AM: 531 - 1602kHz (9kHz); 530 - 1700kHz (10kHz)
Tuning grid	50kHz/100kHz (FM); 9kHz/10kHz (AM)
Number of presets	40 (FM + AM)
FM	75ohm wire
AM	Loop antenna

Speakers

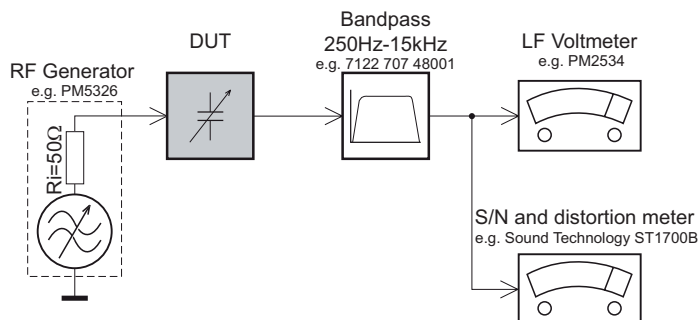
Speaker Impedance	6ohm
Woofer	1 x 5"
Tweeter	1 x 1.5"
Dimensions (W x H x D)	207 x 309 x 214mm
Weight	2.8kg each

General

AC power	110 - 127/220 - 240V, 50/60Hz
Operation power consumption	110W
Standby power consumption	<20W
Dimensions	265 x 310 x
Main Unit (W x H x D)	403mm
Weight (without speakers)	5.9kg

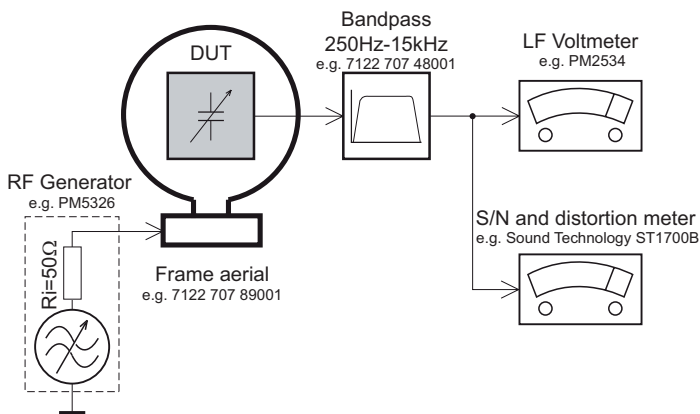
MEASUREMENT SETUP

Tuner FM



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

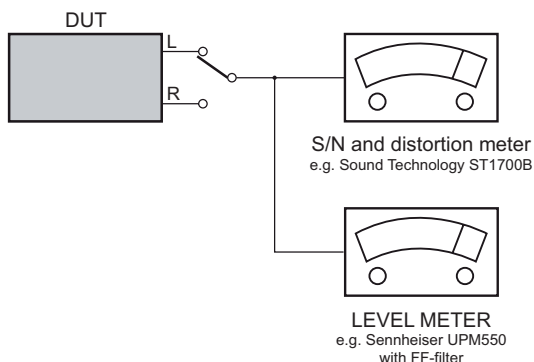
Tuner AM (MW,LW)



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).

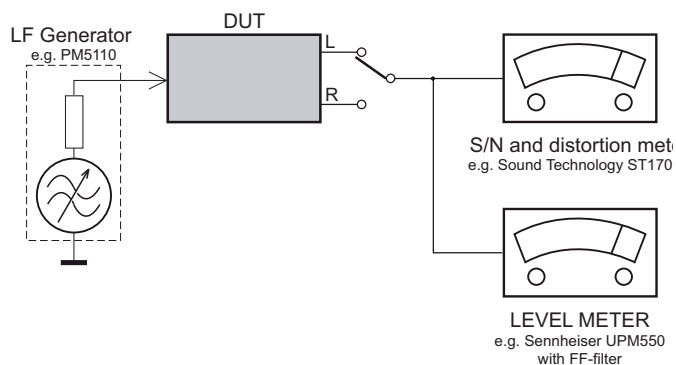
CD

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".

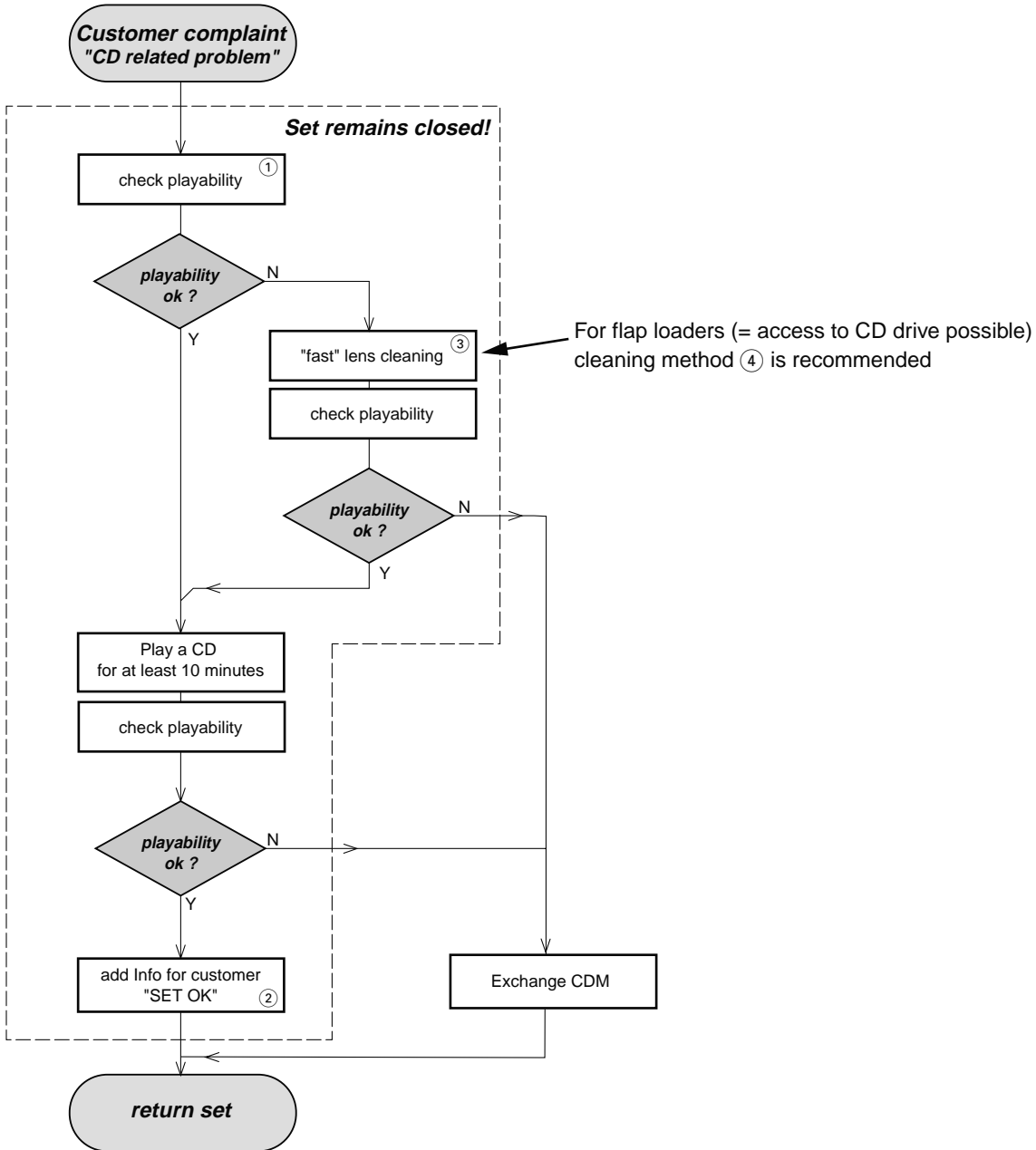
For additional questions please contact your local repair-helpdesk.

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

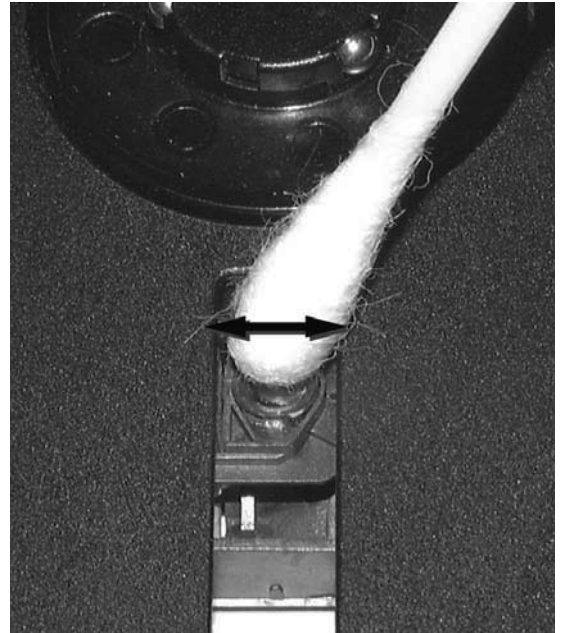
LIQUID LENS CLEANING

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.

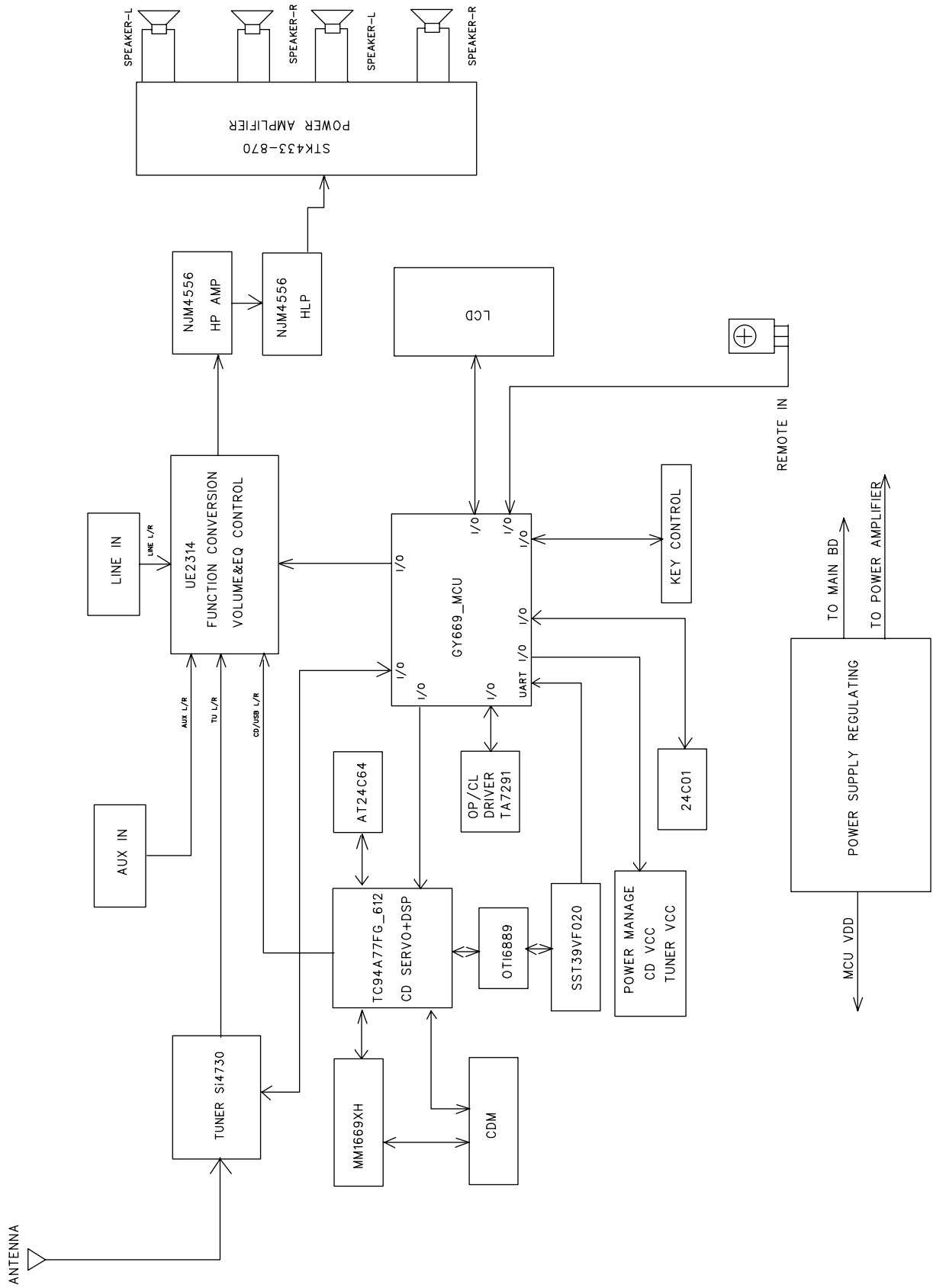
Because the material of the lens is synthetic and coated with a special anti-reflectivity layer, cleaning must be done with a non-aggressive cleaning fluid. It is advised to use "Cleaning Solvent"

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.



SET BLOCK DIAGRAM

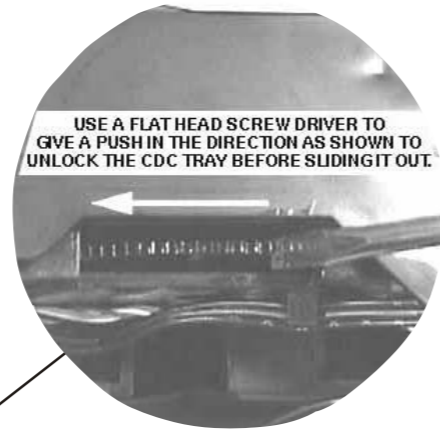
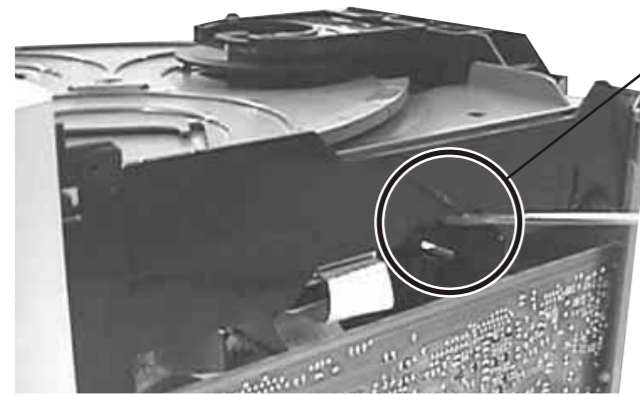


DISMANTLING INSTRUCTIONS

5 - 1

Dismantling of the CDC Module and Front Panel

- 1) Loosen 4 screws to remove the Cover Top of the set.
- 2) Loosen 2 screws to remove the Panel Left and 2 screws to remove the Panel Right of the set.
- 3) Slide out the CDC Tray as shown in the diagram below with the help of a flat head screw driver.

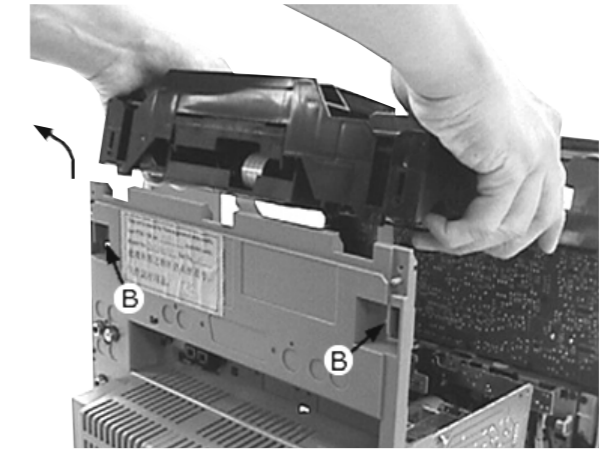


Sliding Out The CDC Tray

- 5) Loosen 2 screws A and 2 screws B to remove the CDC Module as indicated.
- 6) Remove 2 screws at the bottom to separate the Front Panel Assembly from the Plate Bottom.

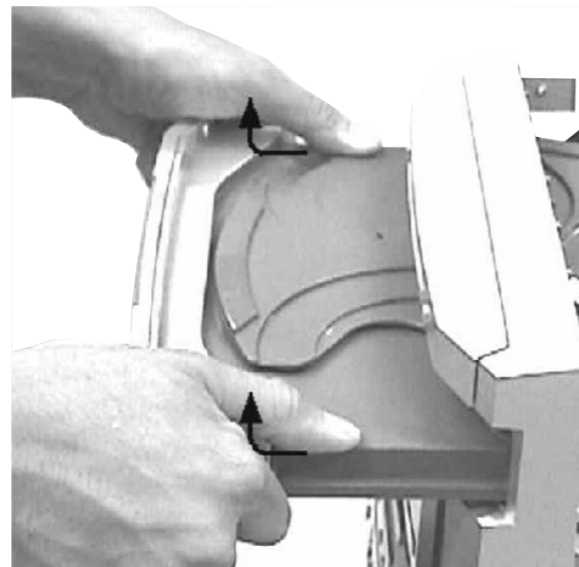


Front View CDC



Remove CDC Module

- 4) Remove the Cover Tray CDC as indicated.

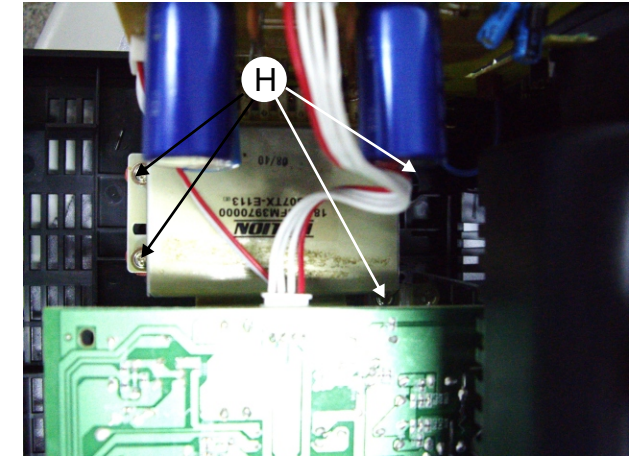
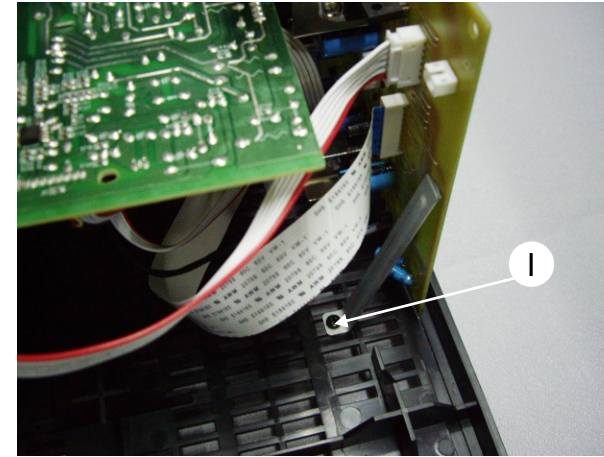
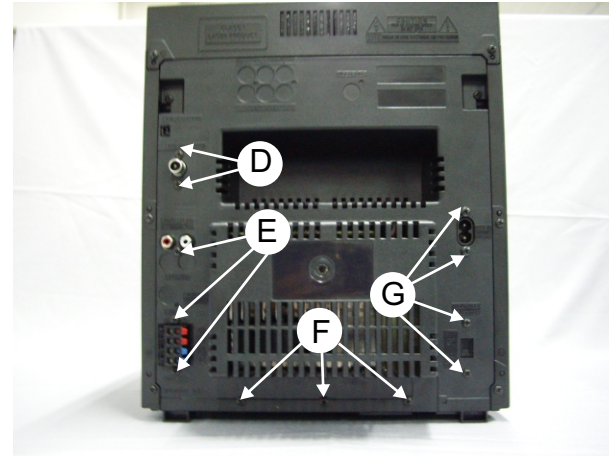
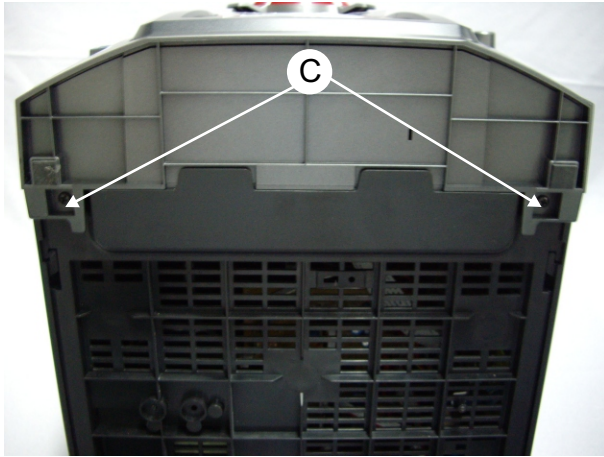


Remove Cover Tray CDC

Dismantling of Rear portion

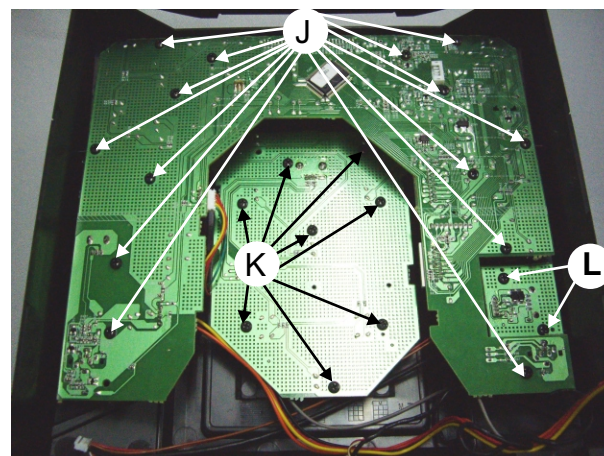
5-2

- 1) Remove 2 screws C as indicated to loosen the Front Cabinet.
- 2) Remove 2 screws D as indicated to loosen the Tuner Module.
- 3) Remove 9 screws E&I as indicated to loosen the Main Board.
- 4) Remove 8 screws G&H as indicated to loosen the AMP Board.
- 5) Remove 3 screws F as indicated to loosen the Bottom Cabinet.



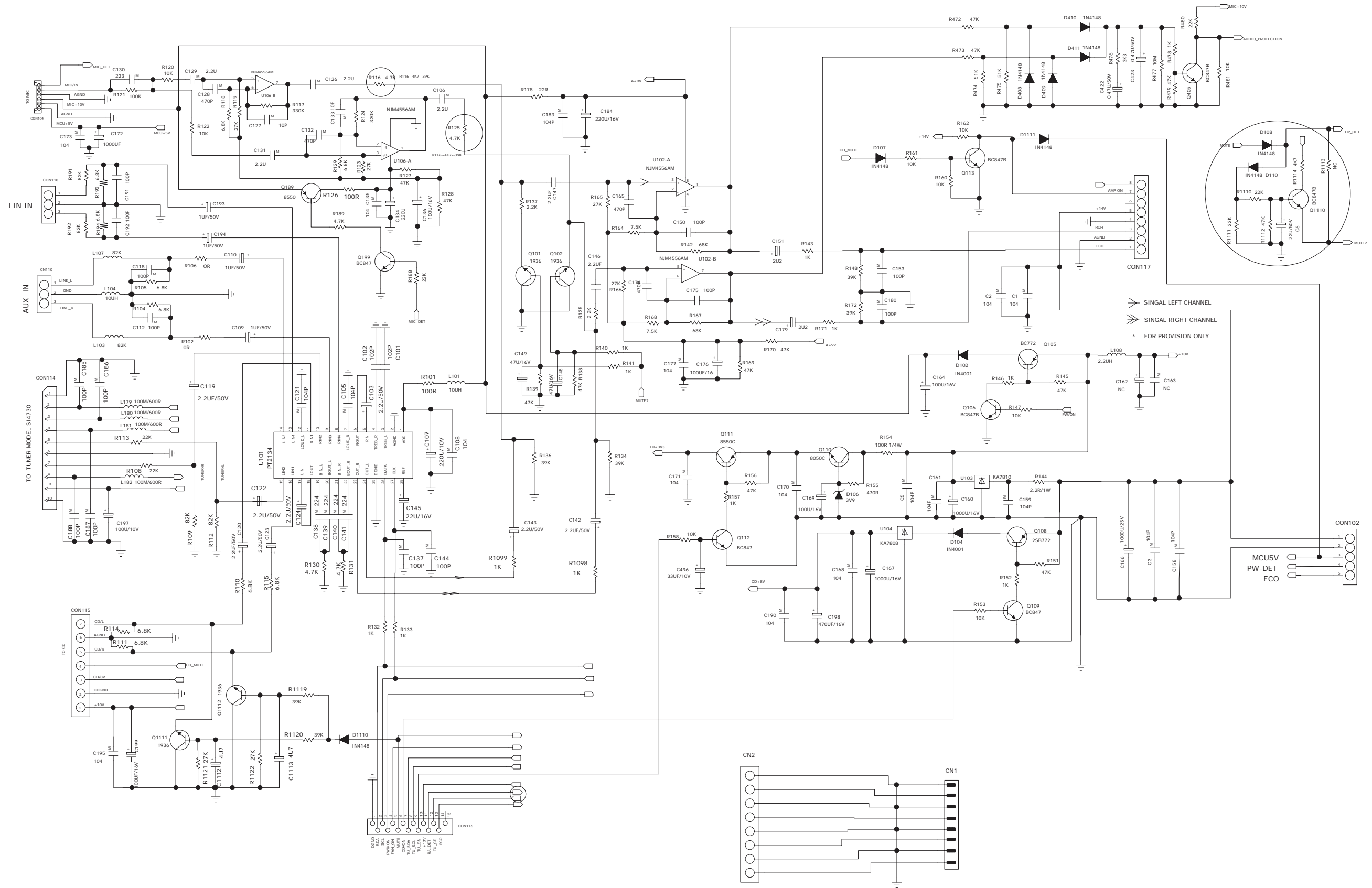
Dismantling of the PCB Board

- 1) Remove 14 screws J as indicated to loosen the Front 1 Board.
- 2) Remove 8 screws K as indicated to loosen the Front2 Board.
- 3) Remove 2 screws L as indicated to loosen the USB Jack Board.

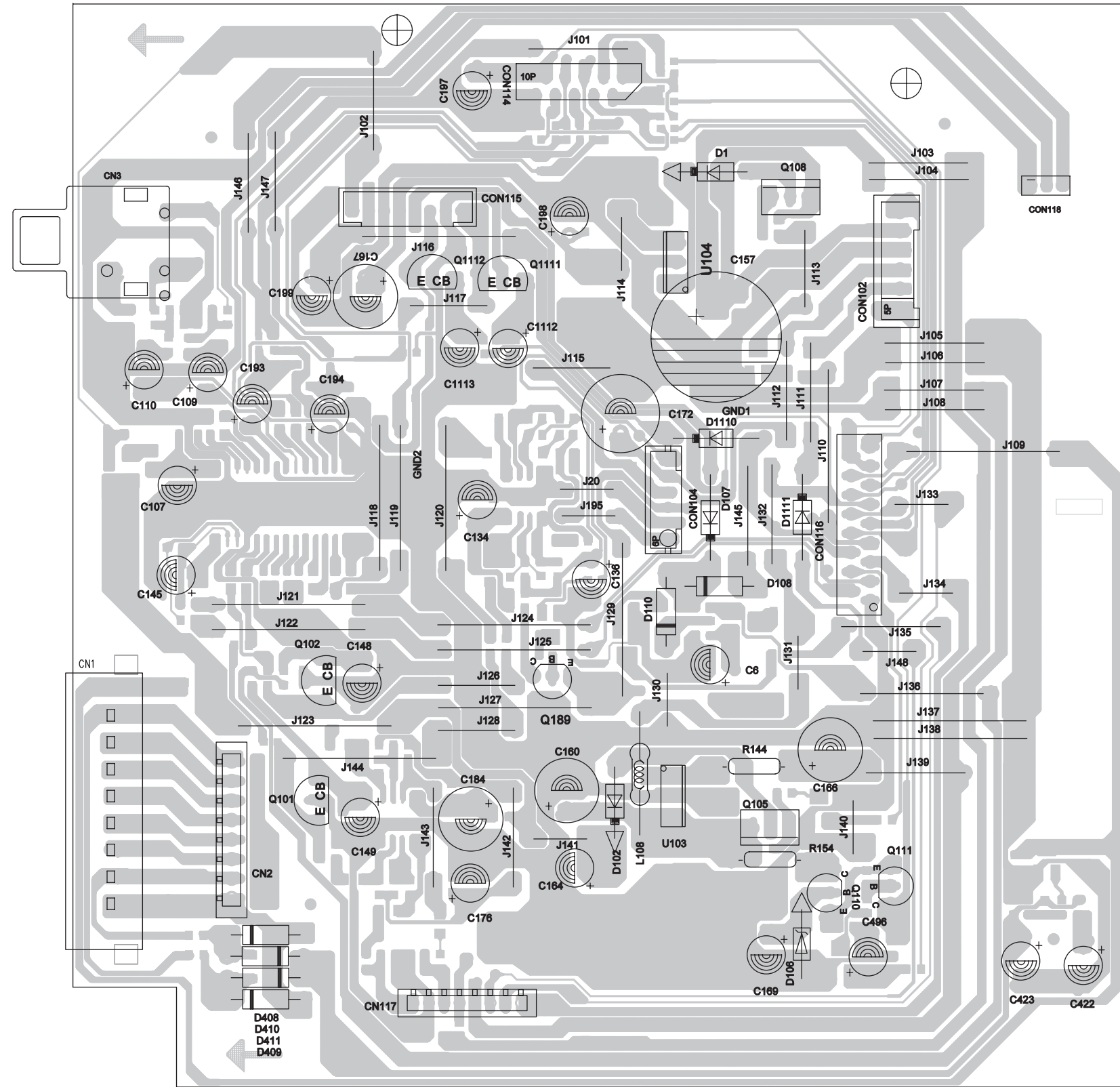


5-2

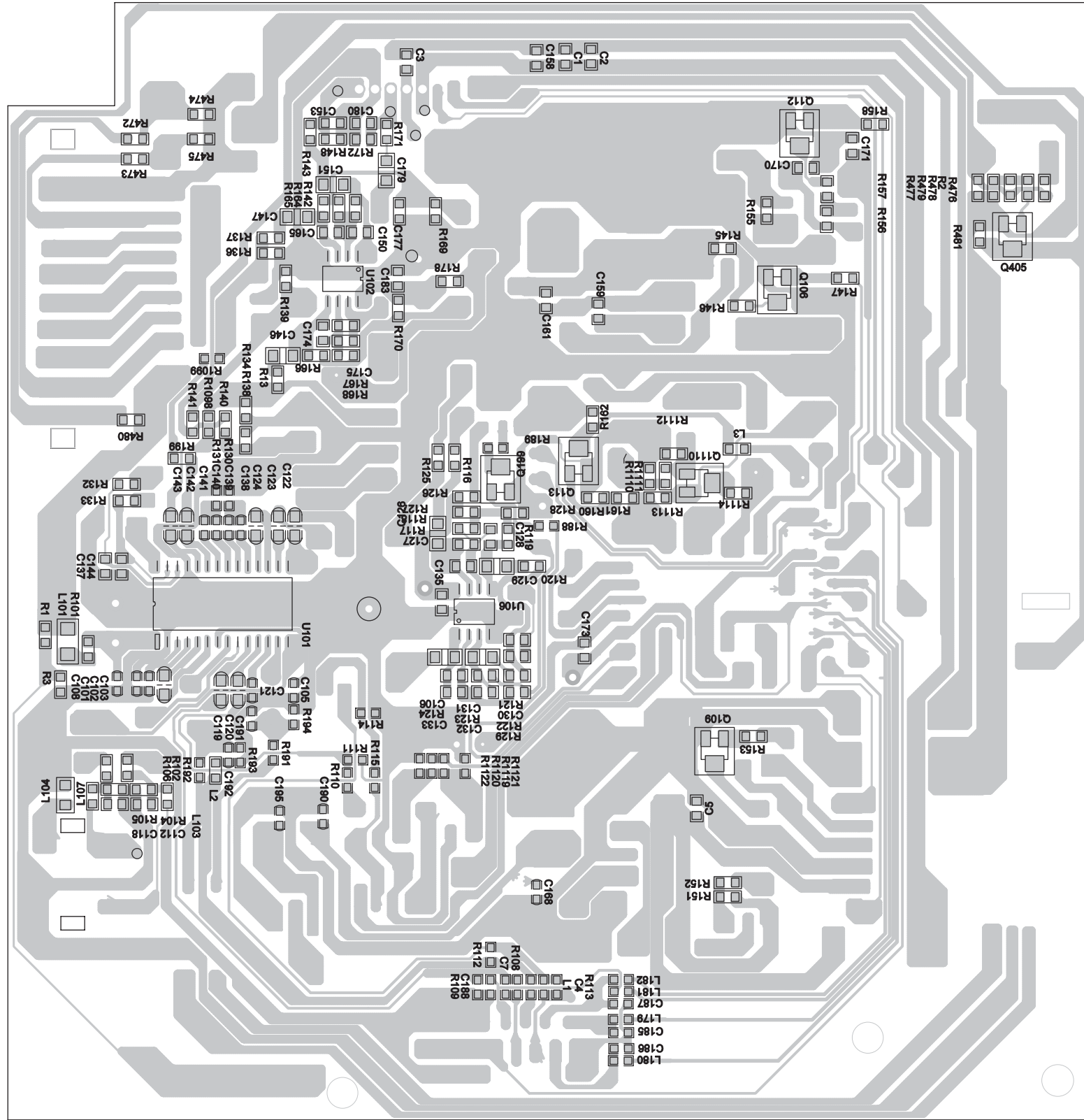
CIRCUIT DIAGRAM - MAIN BOARD



LAYOUT DIAGRAM - MAIN BOARD TOP SIDE

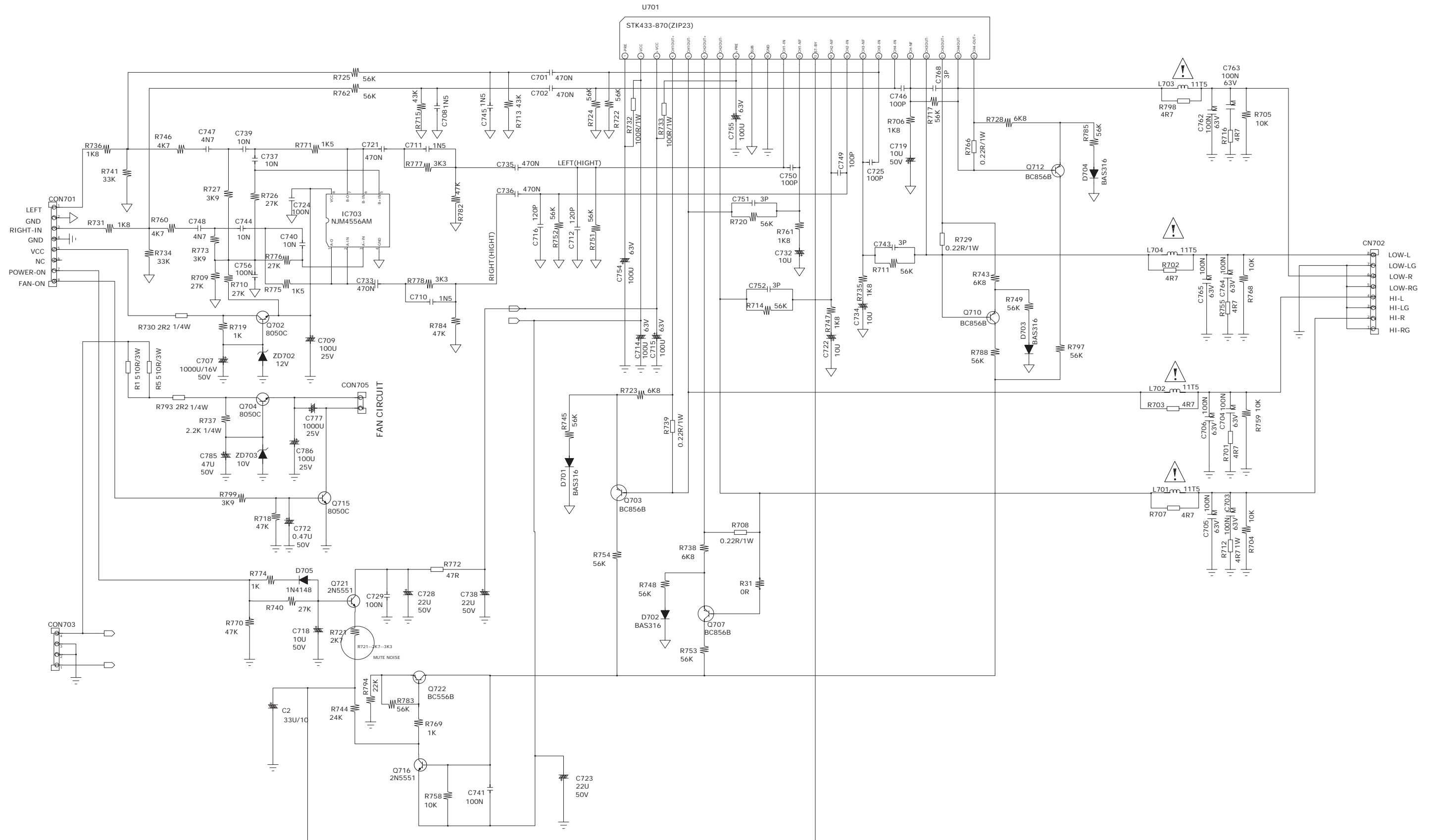


LAYOUT DIAGRAM - MAIN BOARD BOTTOM SIDE

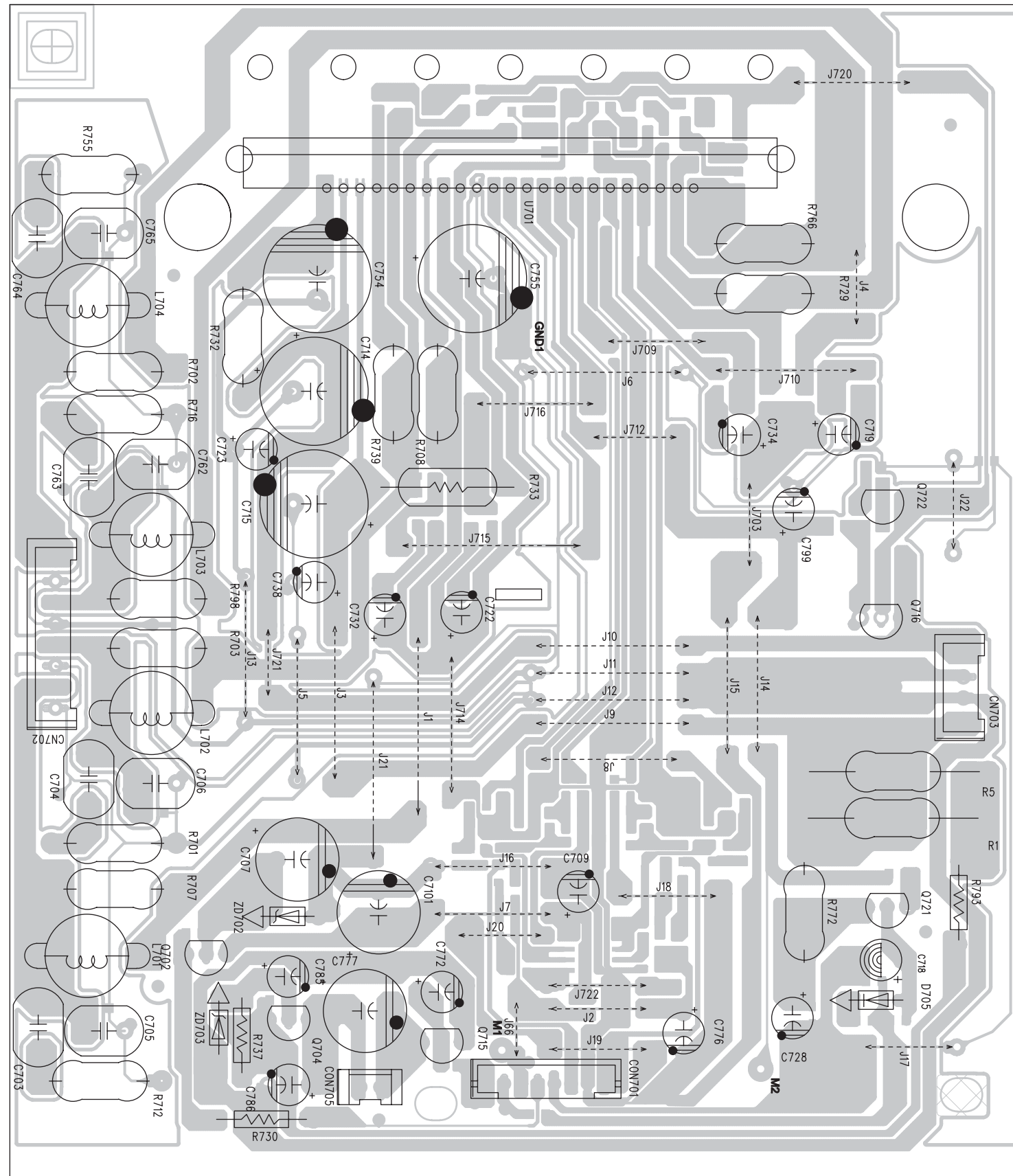


7-1
CIRCUIT DIAGRAM - AMP/POWER BOARD

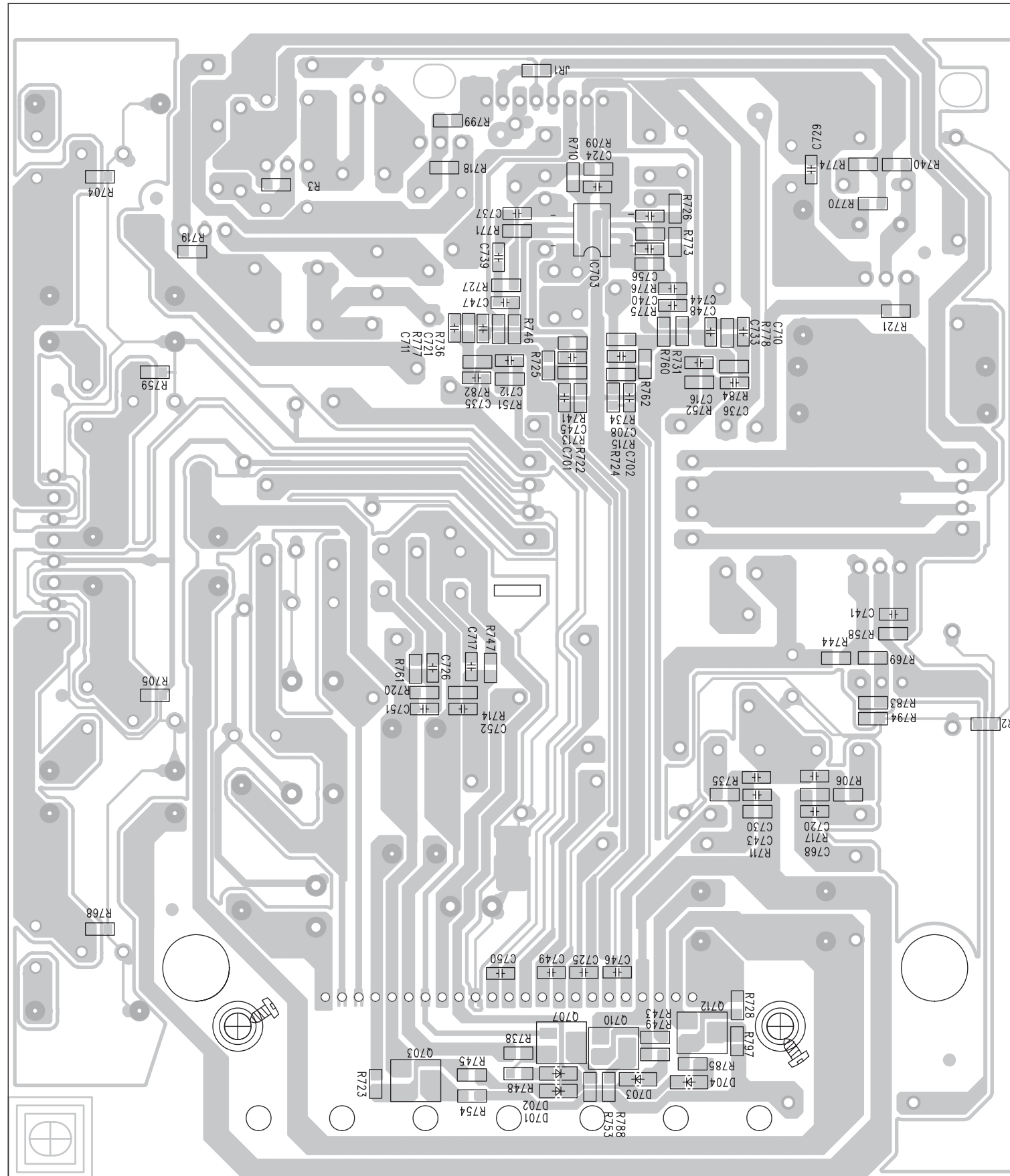
7-1

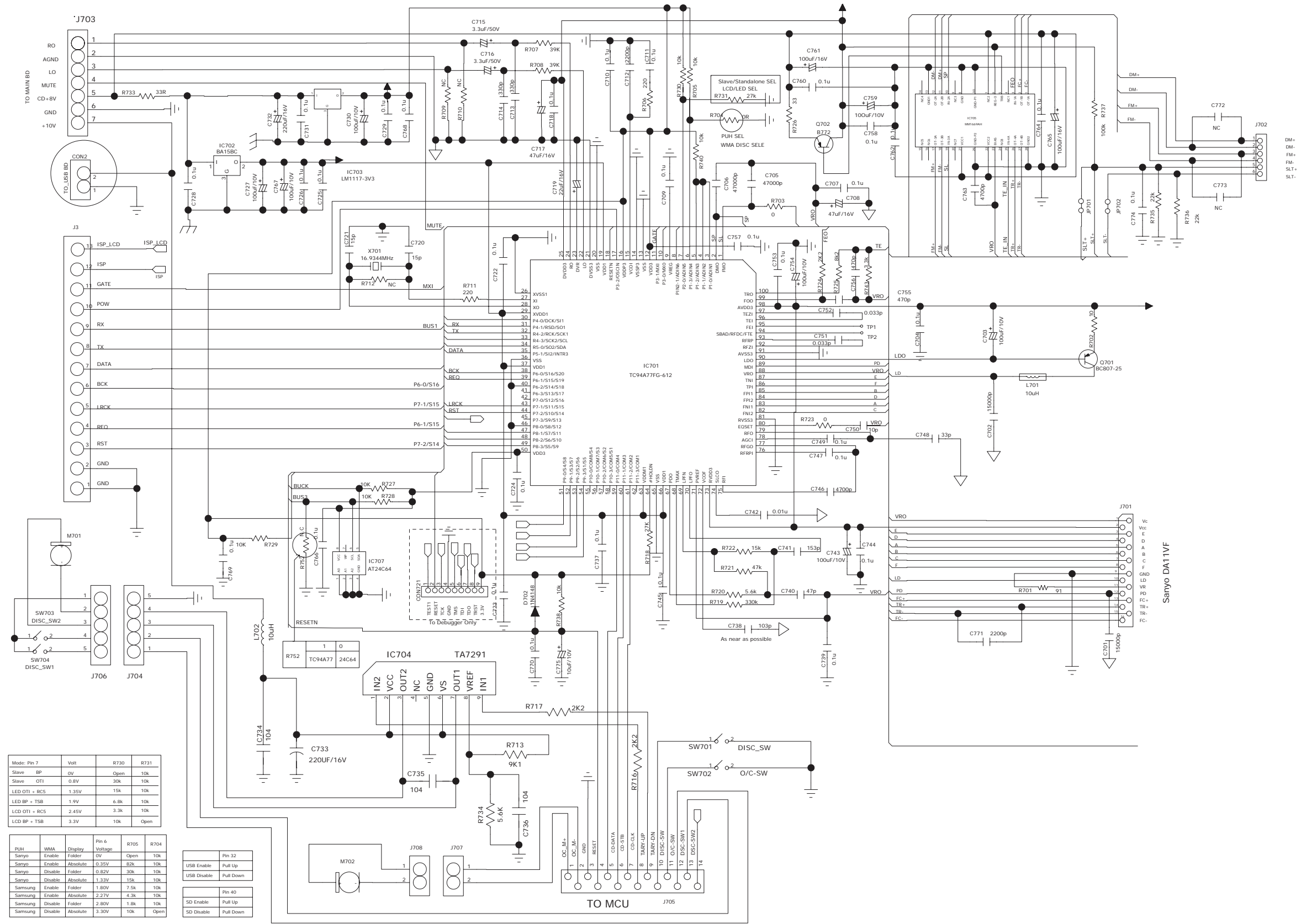


LAYOUT DIAGRAM - AMP/POWER BOARD
TOP SIDE



LAYOUT DIAGRAM - AMP/POWER BOARD
BOTTOM SIDE





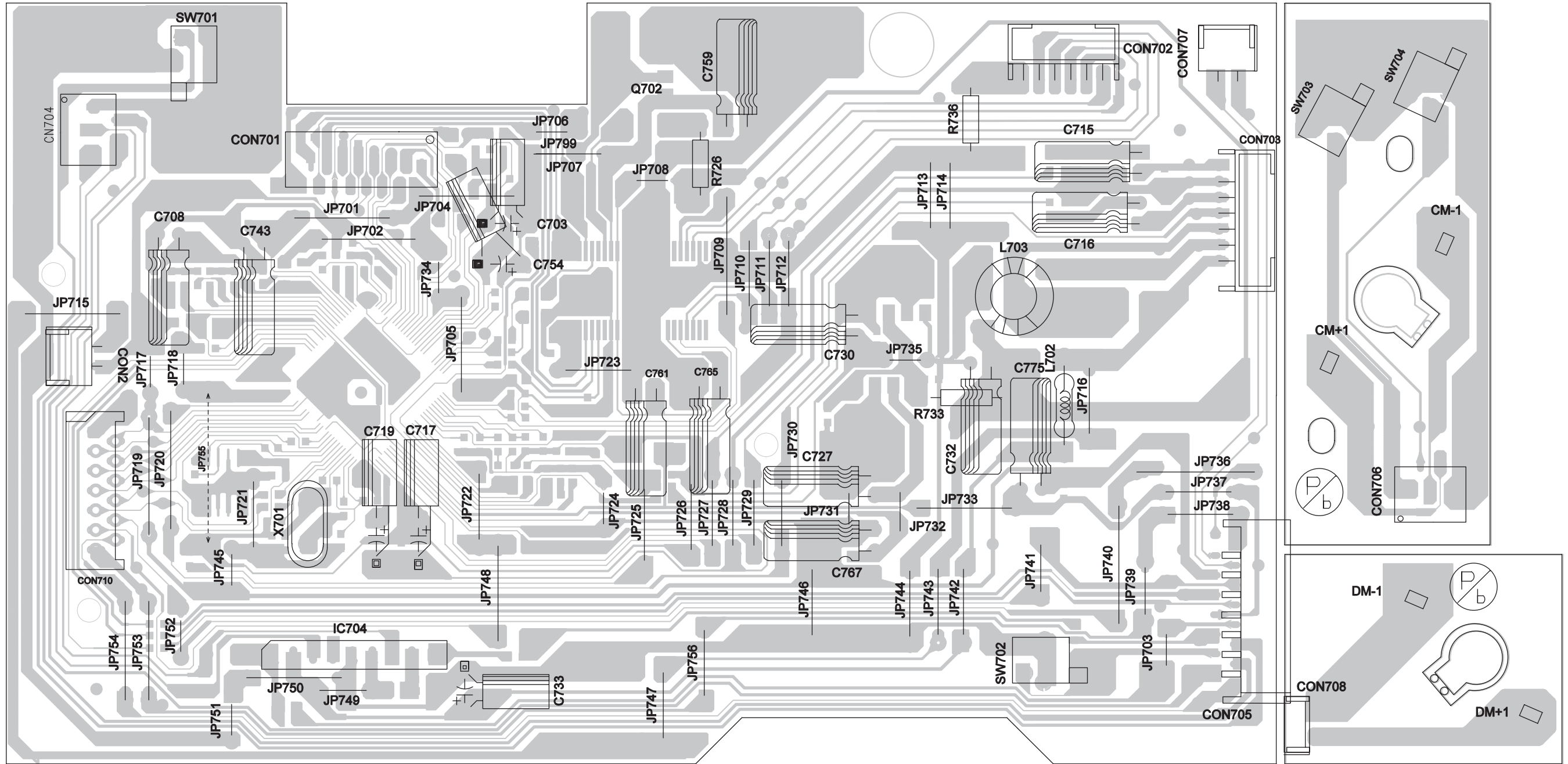
Mode:	Pin 7	Volt	R730	R731
Slave BP	OV	Open	10k	
Slave OT1	0.8V	30k	10k	
LED OT1 + RC5	1.35V	15k	10k	
LED BP + TSB	1.9V	6.8k	10k	
LCD OT1 + RC5	2.45V	3.3k	10k	
LCD BP + TSB	3.3V	10k	Open	

PUH	WMA	Display	Pin 4 Voltage	R705	R704
Sanyo	Enable	Folder	OV	Open	10k
Sanyo	Enable	Absolute	0.35V	5k	10k
Sanyo	Disable	Folder	0.82V	30k	10k
Sanyo	Disable	Absolute	1.32V	15k	10k
Samsung	Enable	Folder	1.80V	7.5k	10k
Samsung	Enable	Absolute	2.27V	4.3k	10k
Samsung	Disable	Folder	2.80V	1.8k	10k
Samsung	Disable	Absolute	3.30V	10k	Open

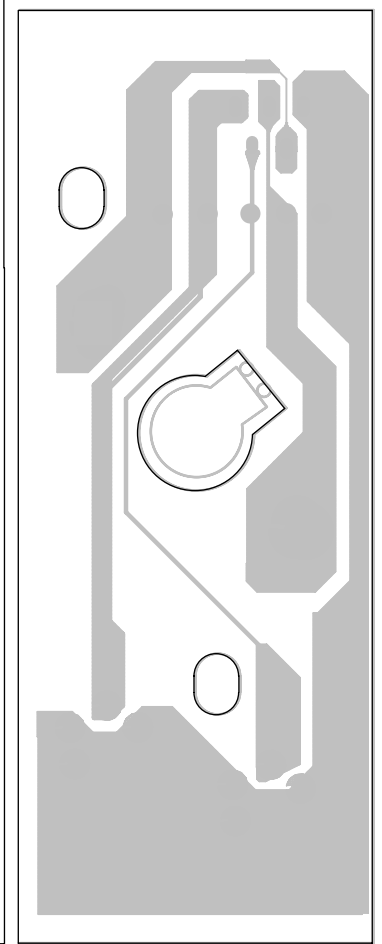
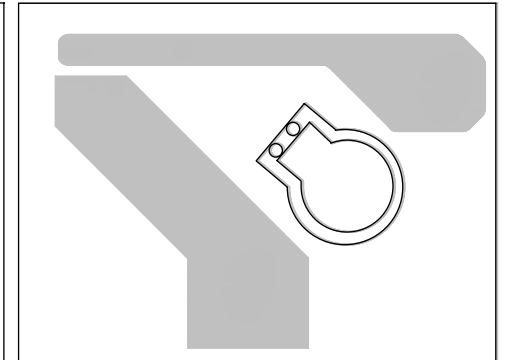
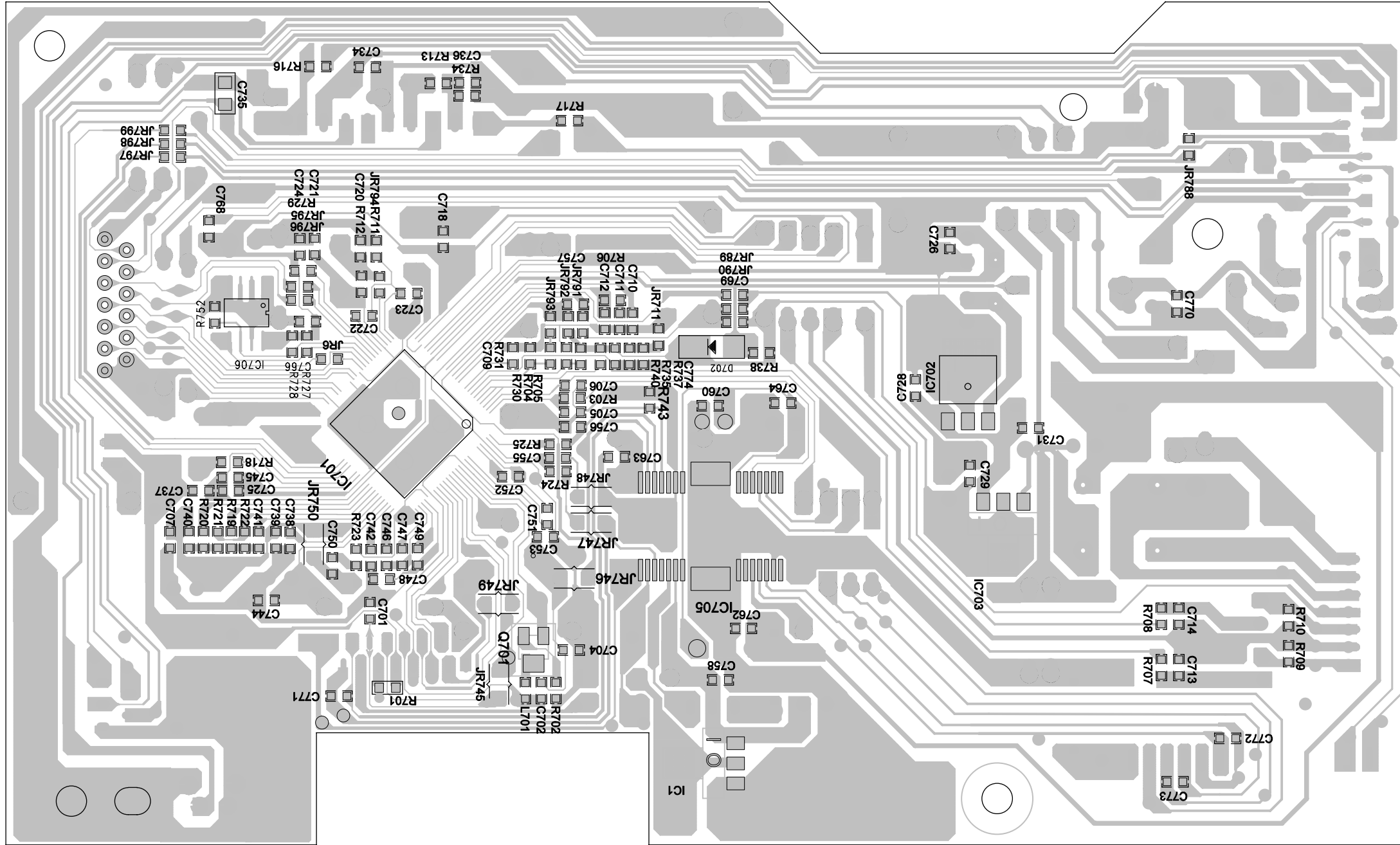
Pin 32
USB Enable
USB Disable
Pin 40
SD Enable
SD Disable

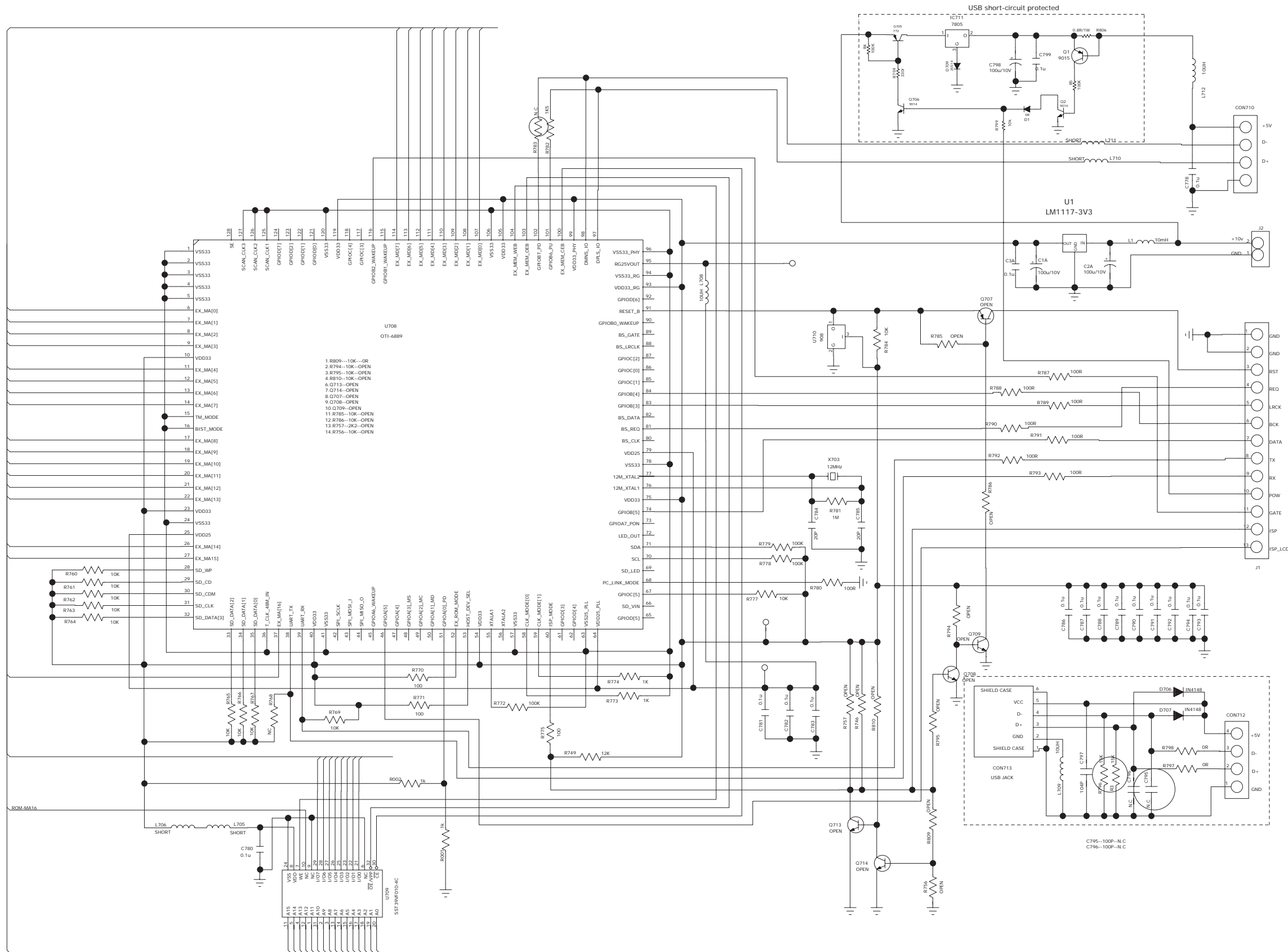
Sanyo DA11VF

LAYOUT DIAGRAM - CD BOARD TOP SIDE

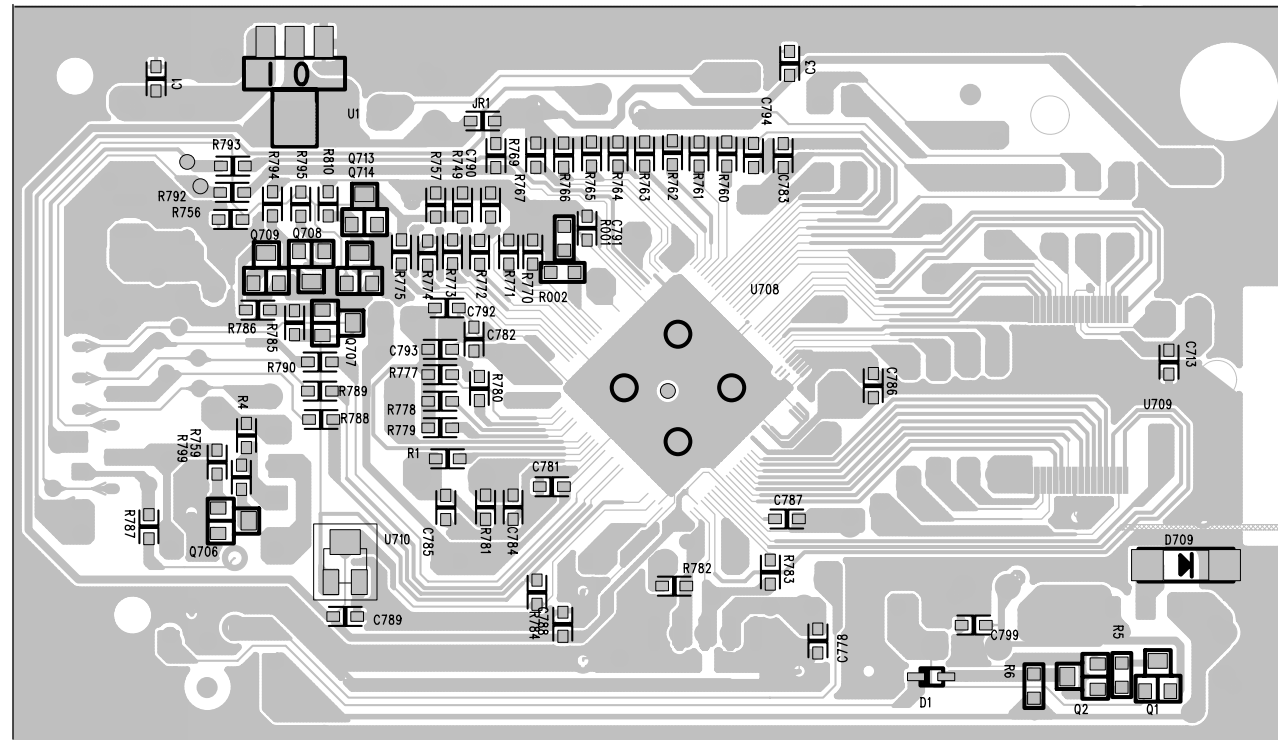
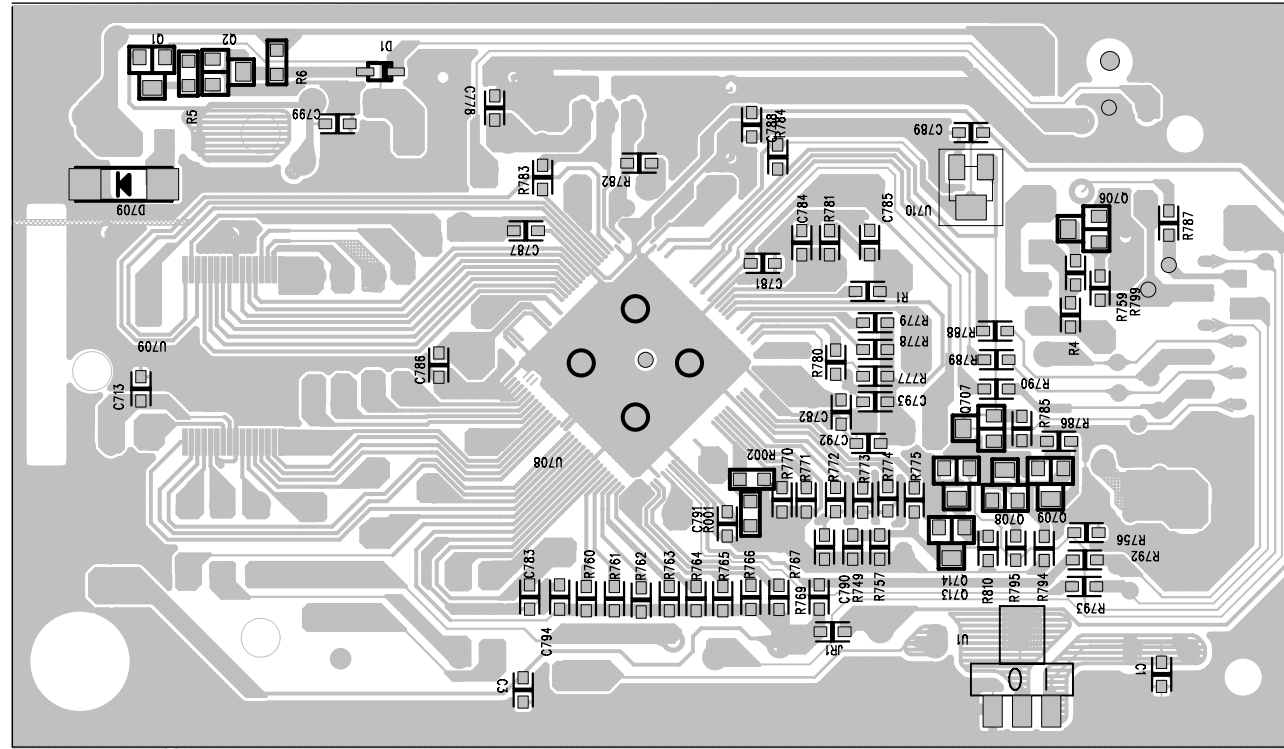


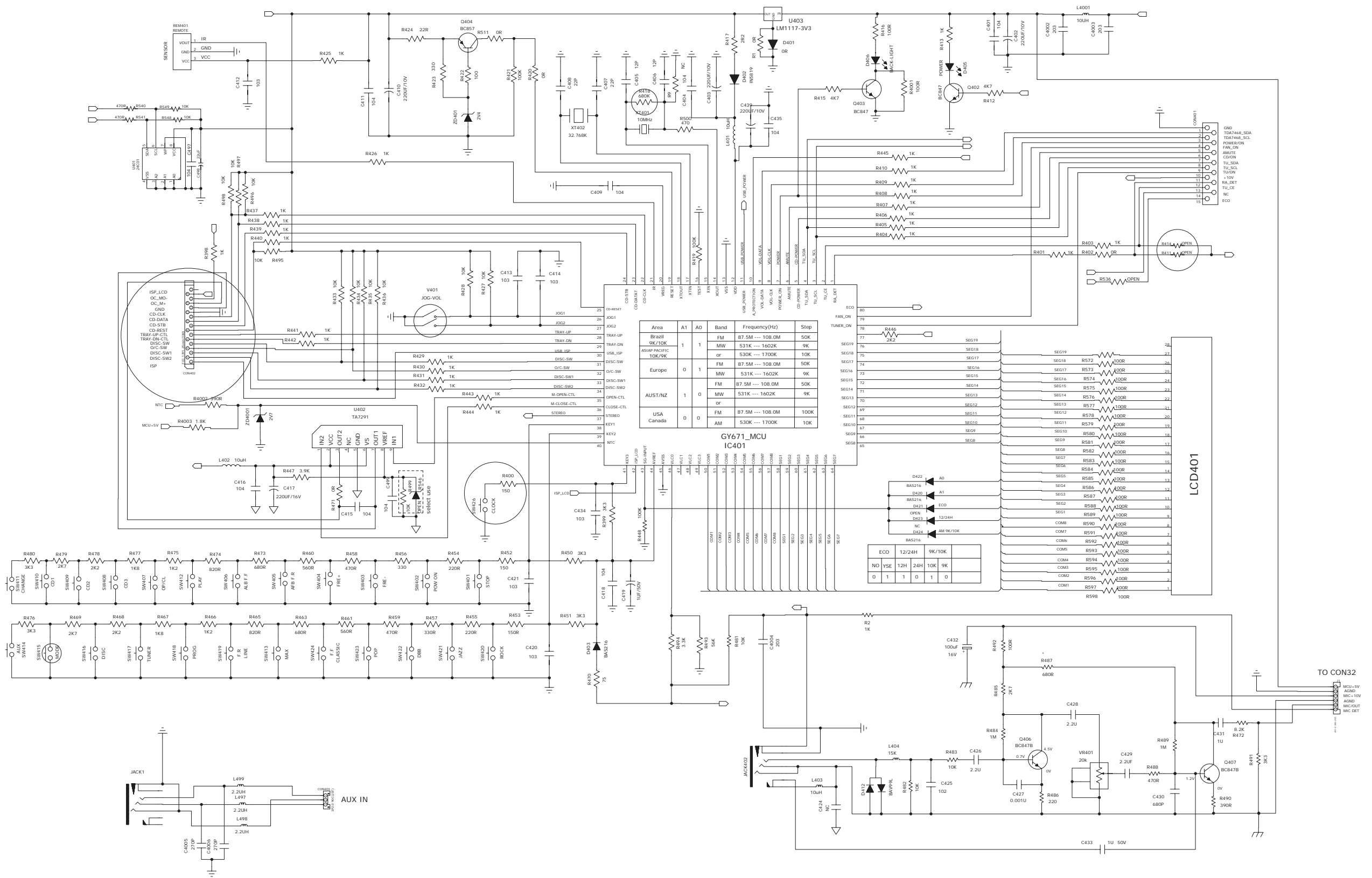
LAYOUT DIAGRAM - CD BOARD
BOTTOM SIDE



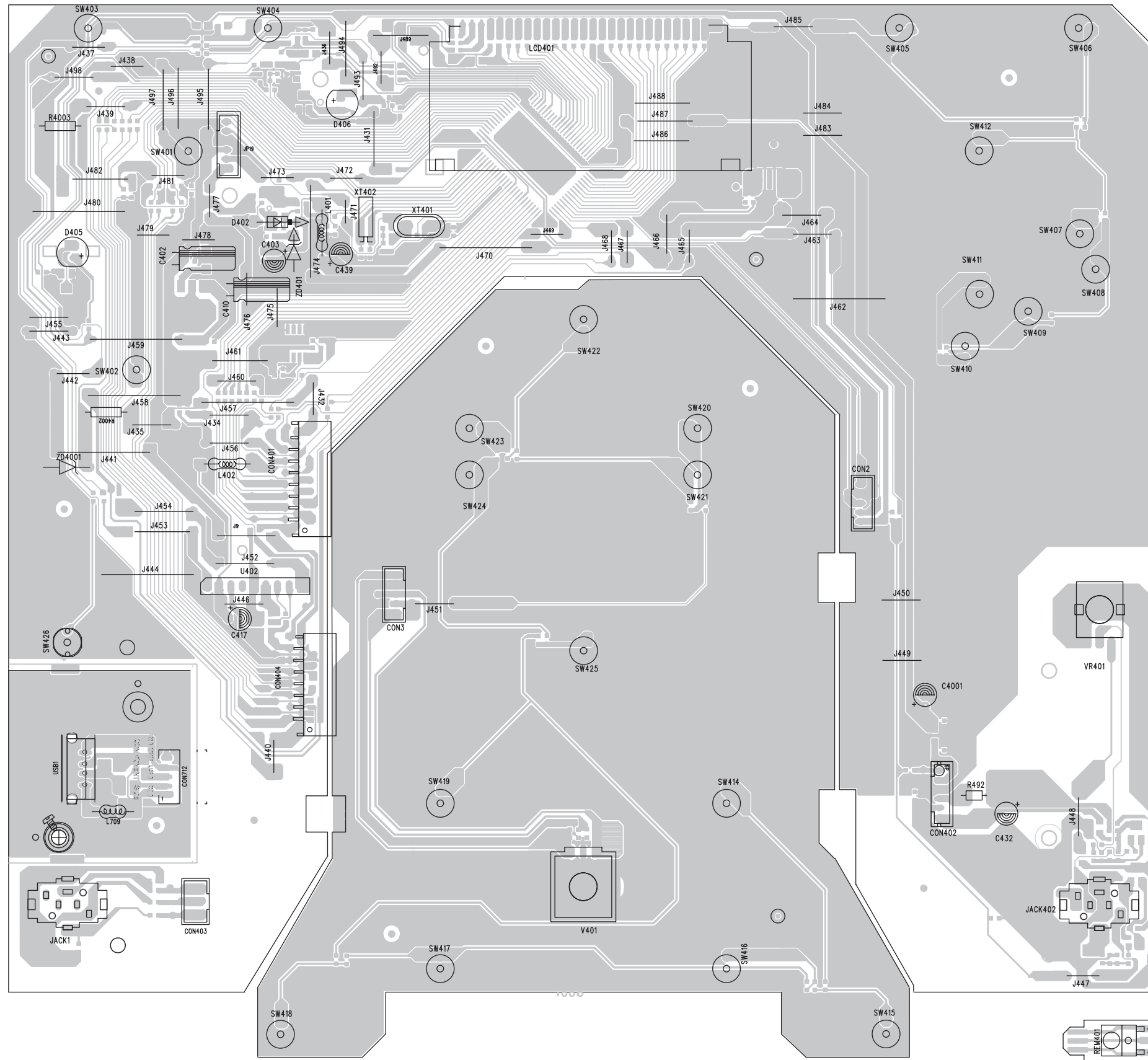


LAYOUT DIAGRAM - USB BOARD

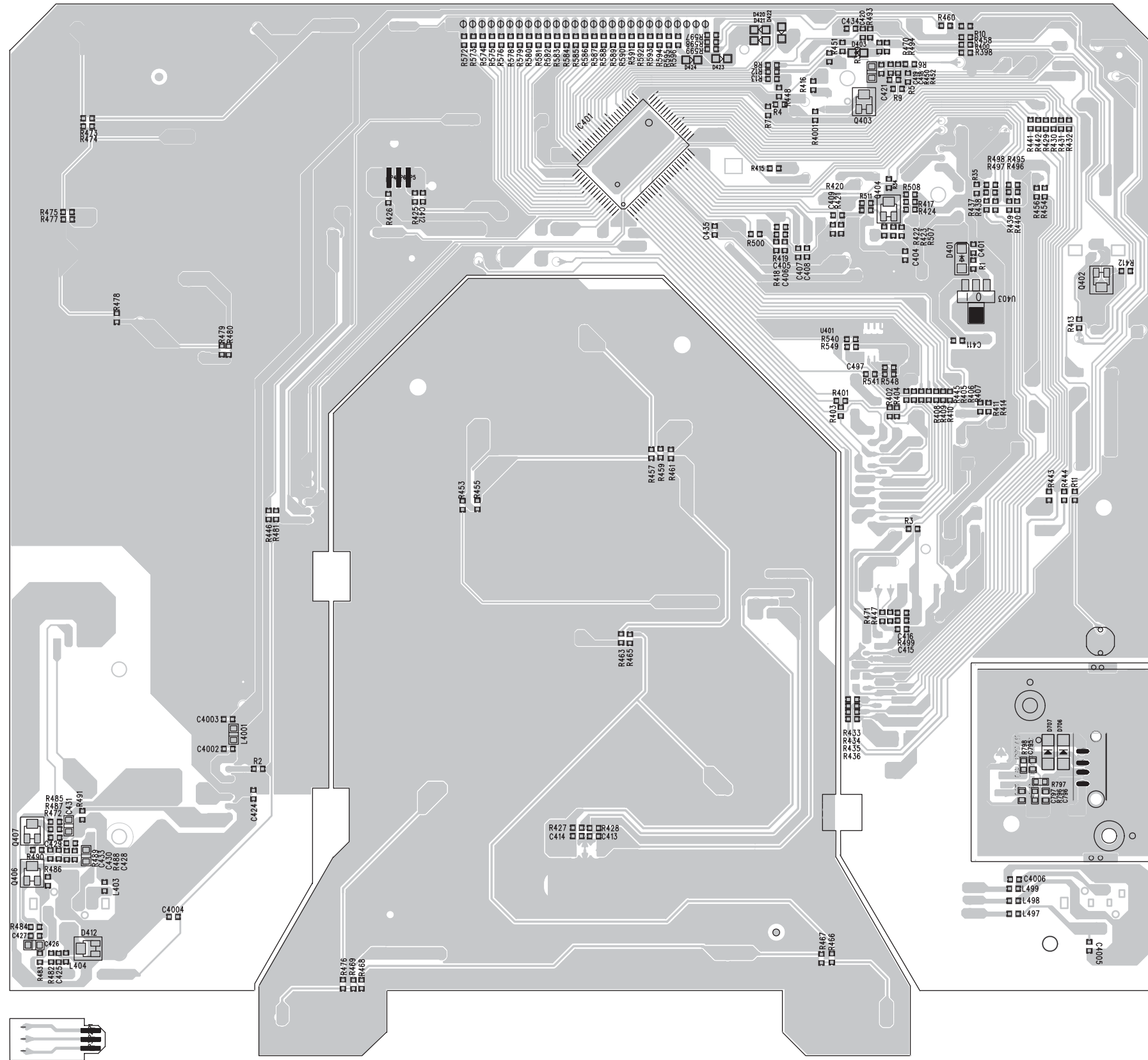




LAYOUT DIAGRAM - FRONT/MCU BOARD TOP SIDE



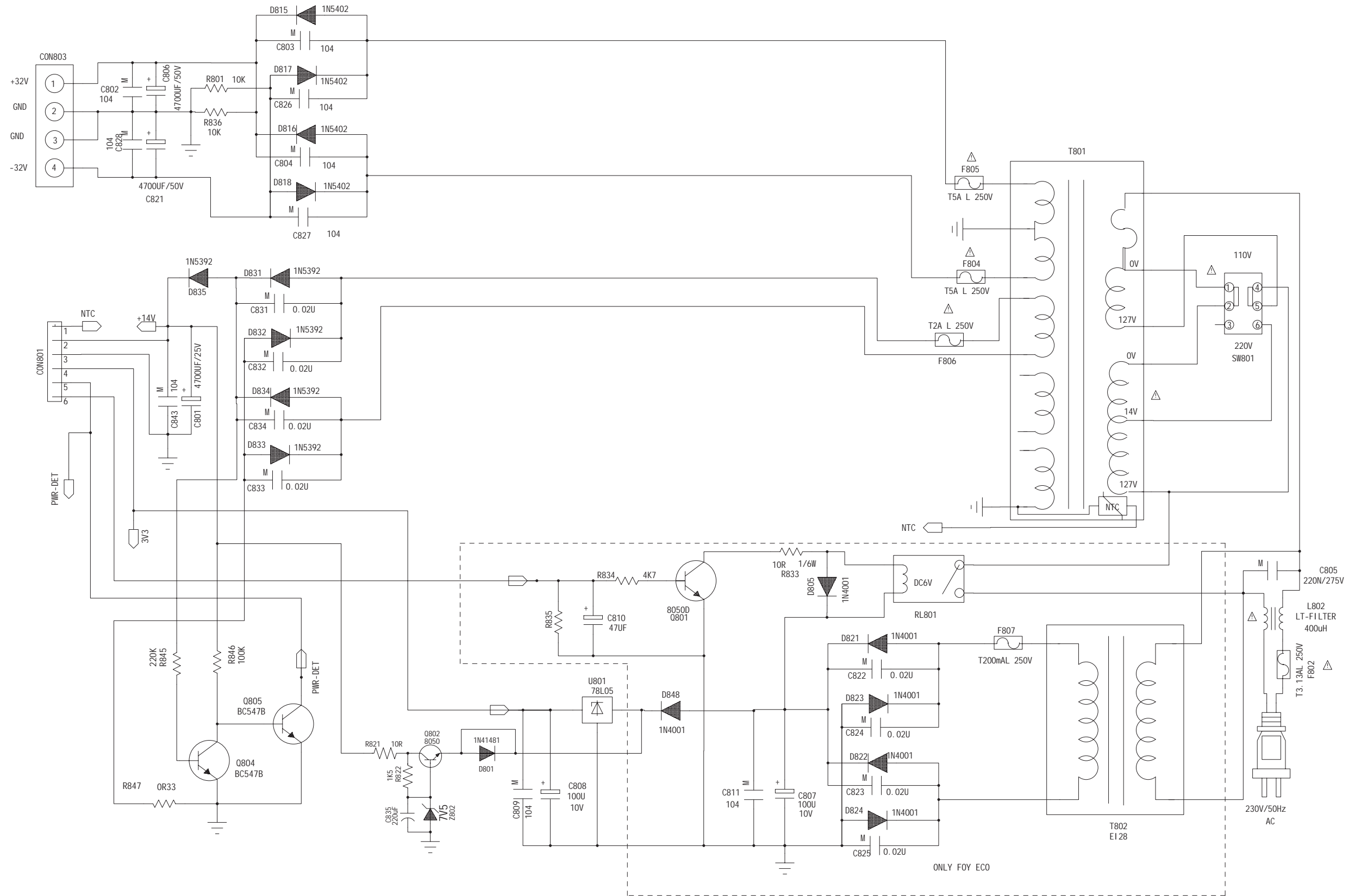
LAYOUT DIAGRAM - FRONT/MCU BOARD
BOTTOM SIDE



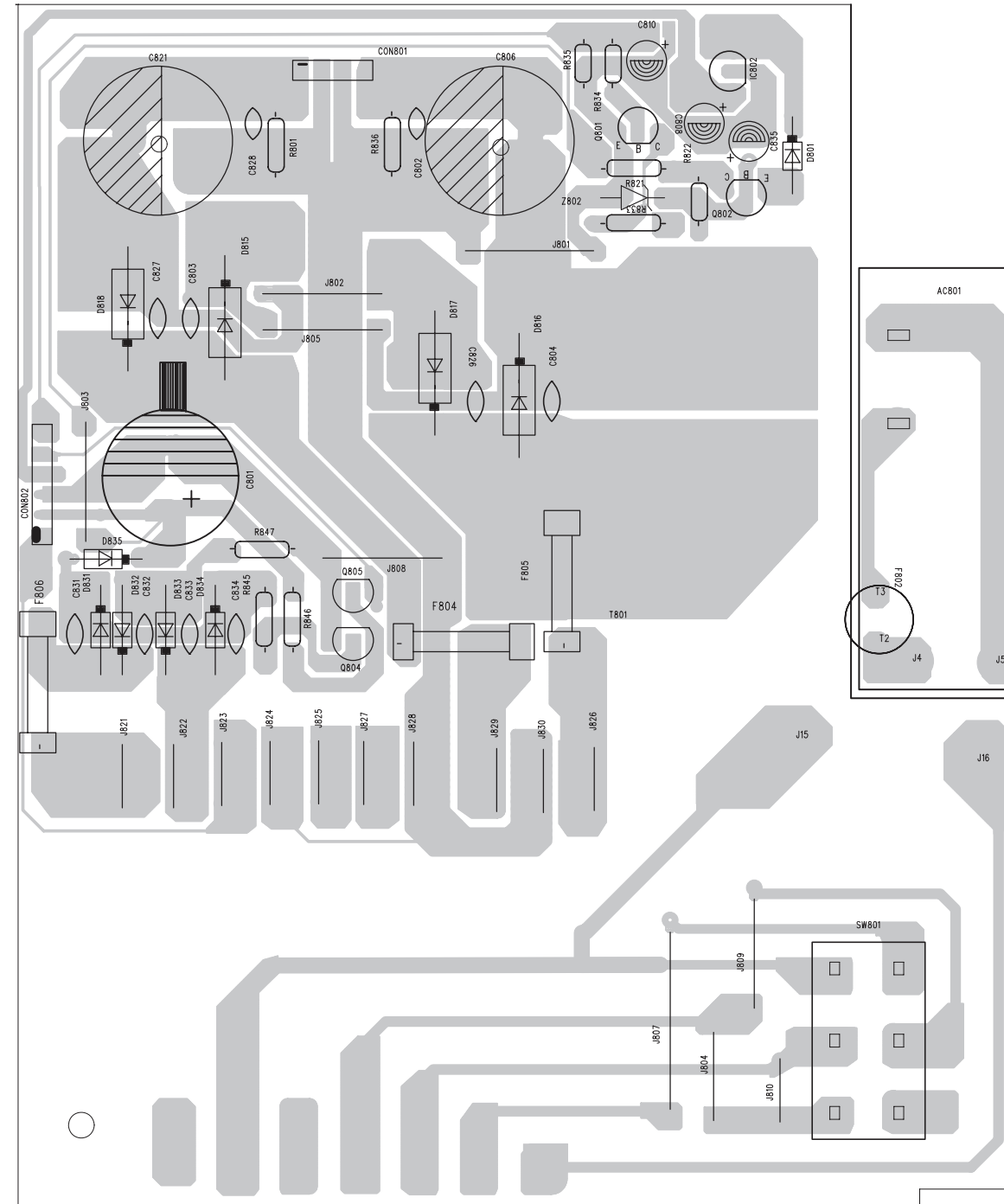
CIRCUIT DIAGRAM - POWER BOARD

11-1

11-1



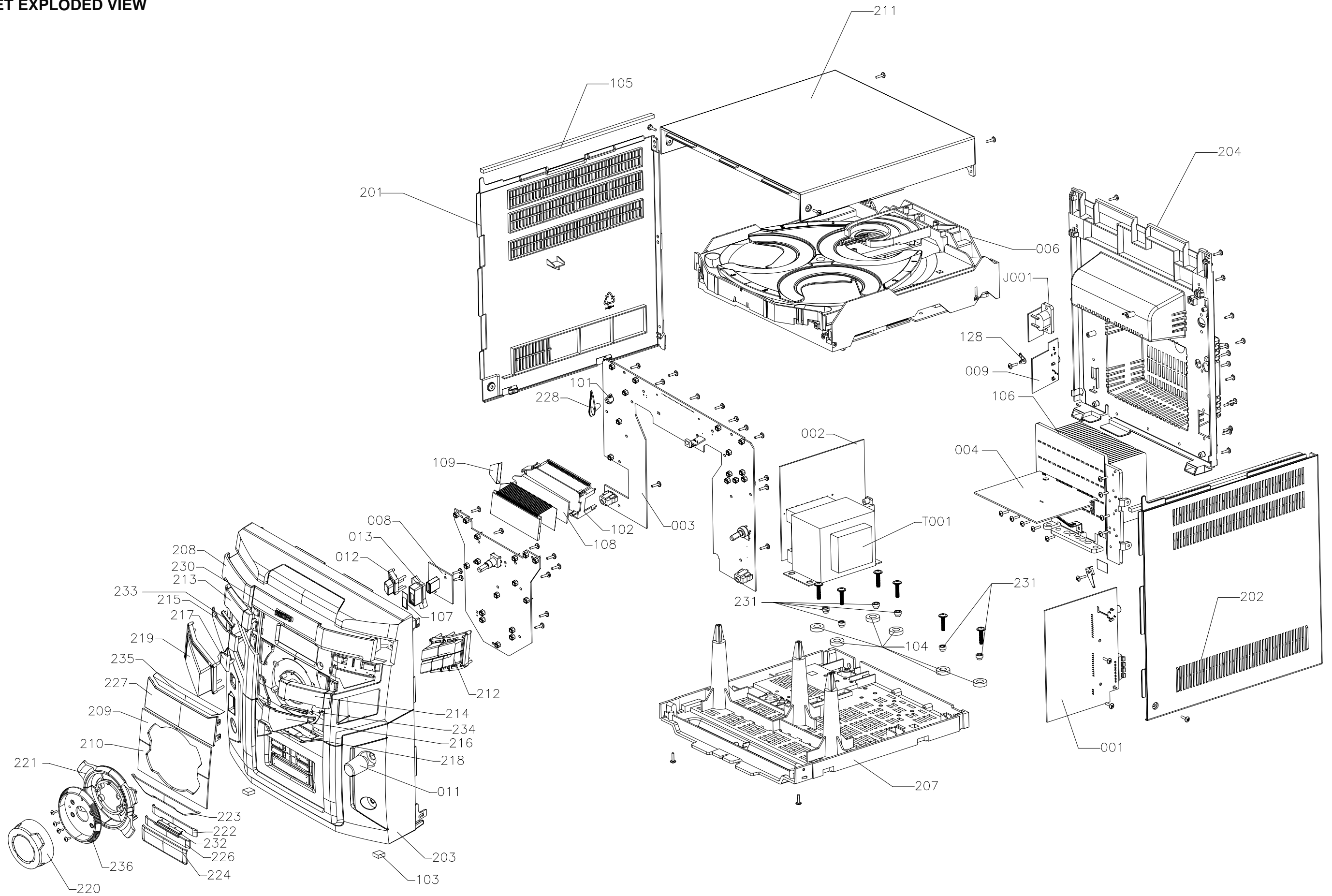
LAYOUT DIAGRAM - POWER BOARD



SET EXPLODED VIEW

12-1

12-1



MECHANICAL PARTSLIST

006	996510025071	3CD MECHA PART DA11VF
010	996510025072	PCBA-3CD
011	996510020805	MIC KNOB
012	996510020806	USB DELETE BUTTON
013	996510021305	USB RING
082	994000003669	CD MECHANISM (SANYO) DA11VF
101	996510014307	LED HOLDER
102	996510014308	LCD BRACKET
103	996510014309	LCD LIGHT GUIDE
101	996510014310	MAGNET 27x16x4mm 546g
109	996510025074	METAL RING-DA11
110	996510014336	SPRING-GUIDING
111	996510014337	SPRING-DISC
201	994000001276	PANEL LEFT
202	994000001277	PANEL RIGHT
203	996510025078	FRONT CABINET
204	996510019319	REAR CABINET (HIPS)
207	996510021312	CHASSIS PLASTIC
208	996510022977	3CDC DOOR
209	996510014345	COSMETIC COVER UP
210	996510014346	COSMETIC COVER DOWN
211	994000001285	TOP COVER
212	996510015502	CD BUTTON
213	996510015489	ALBUM BUTTON
214	996510015490	TITLE BUTTON
215	996510015491	STOP BUTTON
216	996510015492	PLAY BUTTON
217	996510015493	MODE BUTTON
218	996510015494	PROGRAM BUTTON
219	996510015495	POWER BUTTON
220	996510022973	VOL KNOB
221	996510015498	CLUSTER BUTTON
222	996510014357	JAZZ-POP BUTTON
223	996510014875	MAX SOUND BUTTON
224	996510014360	DBB BUTTON
226	996510014361	ROCK-CLASSIS BUTTON
227	996510014362	DISPLAY LENS (PMMA)
228	996510014363	POWER LIGHT GUIDE
230	996510000439	PHILIPS LOGO
231	996510014364	SCREW BUSHING
232	996510014365	MIDDLE STRAP OF SOUND BUTTON
233	996510015500	MIDDLE STRAP L
234	996510015501	MIDDLE STRAP R
235	996510025079	DISPLAY TOP BAR
236	996510014876	VOL RING
J001	△ 994000001478	AC PLUG ADAPTOR
J008	996510012055	10P FFC. 1.25mm L=180mm
J010	996510025077	16P FFC. 1.25mm L=280mm
J013	996510025076	17P FFC. 1.25mm L=280mm
J017	994000004633	13P FFC CABLE L=80MM
T001	△ 996510014340	TRANSFORMER EI76

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

ACCESSORIES

J015	△	996500037714	AC CORD SET VDE/BRAZIL APP 1.8
J011		996510009429	FM ANT (GREY) 1.5M CE/75
0007		994000001192	AM LOOP ANTENNA LAN-031
J012		996510002103	CONN. CORD 3.5 ST/PLUGx2 500mm
RC		996510014339	REMOTE CONTROL
S002		996510025075	SPEAKER BOX (L+R)

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

ELECTRICAL PARTSLIST**MAIN BOARD ASSEMBLY**

C16	996510006833	E.CAP 3300UF 25V +-20%
CF1	996510006834	DISCRI.FILTER CDA10.7MG46-A
CF2	994000003642	CER. FILTER LT10.7MA5-A RED
CF3	994000002857	CERAMIC FILTER SFU450B
CON3	996510005450	SPK JACK PT-22V11A
CT2	994000000254	TRIMMER 10PF 6MM (WH)
D6	994000003938	RECTIFIER DIODE RL-202
F1	△ 994000000586	GLASS FUSE W/LEAD 3.15A/250V
IC1	996510006827	IC (SANYO) LA6541NHL-TE-L-E
IC2	996500039806	IC ET2314 (SOP28)
IC3	996510006828	IC (SANYO) LA9242M-MPB-E
IC4	996510006829	IC (SANYO) LC78602RE-8616
IC5	996510006832	IC (SANYO) LA1823
JACK1	994000004369	PHONE JACK TC38-063-05-0
JACK2	996510000889	PHONE JACK TC38-060-01 RING
L001	996510006681	AM COIL AD/M7 65:20T
L1	996500039350	FM COIL 4.5x2.5T (0.8mm)
L8	994000003655	FM COIL 4.5X3.5T
Q11	994000004145	TRANSISTORS B772Y (160-320)
Q14	996510003996	TRANSISTORS KTA1273
Q16	996510006831	TRANSISTORS 9018F
Q2	996510008369	TRANSISTORS MMBT8050D (SOT23)
Q5	996500038609	TRANSISTORS 2W 8050C
Q7	994000004338	SMD TRANSISTORS PMBT3904
T2	996510006835	I.F.T 7mm 660R (RED)
T3	994000002861	I.F.T 7MM A049 (YELLOW)
U101	994000003636	IC D8227 DIP
U2	994000000253	IC (SAMSUNG) KA7808
U33	996510003984	IC CYT78L05 (TO-92)
VD1	994000002836	VARICAP DIODE 1SV-149
VD3	994000004342	VARICAP DIODE V101
X1	994000004551	CRYSTAL 16.9344MHZ +-20PPM

CD BOARD ASSEMBLY

IC701	996510025073	IC TC94A77FG-612 -SMD
IC702	994000002838	IC BA15BC0FP
IC703	994000002839	IC LM1117S-3.3
IC704	996510002119	IC TA7291S
IC705	996510009408	IC MM1669AH
IC706	996510009407	IC BR24L32F-W
J001	994000004487	16P FFC 1MM L=170MM
J002	994000004457	5P FFC L=200MM(AA)
Q701	996510000315	SMD TRANSISTORS BC807-25
Q702	994000004145	TRANSISTORS B772Y (160-320)
SW701	994000004552	DETECT SWITCH
SW702	994000004552	DETECT SWITCH
SW703	994000004552	DETECT SWITCH
SW704	994000004552	DETECT SWITCH
X701	994000004551	CRYSTAL 16.9344MHZ +-20PPM

ELECTRICAL PARTSLIST**FRONT/MCU BOARD ASSEMBLY**

D402	996510012557	RECTIFIER DIODE 1N5819
D403	996510009467	SMD DIODE BAS216
D405	996510000438	LED LAMP
D406	996510021295	LED LAMP 5mm
D412	994000004341	SMD DIODE BAV99L
D420	996510009467	SMD DIODE BAS216
D422	996510009467	SMD DIODE BAS216
D424	996510009467	SMD DIODE BAS216
D706	996500042437	CH-DIODE SS14 SMA/DO-214AC
D707	996500042437	CH-DIODE SS14 SMA/DO-214AC
IC401	996510025067	MCU IC GY671 OTP
JACK1	994000001244	V/PHONE JACK 3.5MM
JACK402	994000001244	V/PHONE JACK 3.5MM
LCD401	996510014305	LCD DISPLAY
Q402	996510006580	SMD TRANSIST BC847C
Q404	996510006581	SMD TRANSISTORS BC857C
Q406	996510006580	SMD TRANSIST BC847C
Q407	996510006580	SMD TRANSIST BC847C
REM401	994000004367	OPTIC SENSER FM-6038TM2-5AN
SW401	994000001243	TACT SWITCH
SW402	994000001243	TACT SWITCH
SW403	994000001243	TACT SWITCH
SW404	994000001243	TACT SWITCH
SW405	994000001243	TACT SWITCH
SW406	994000001243	TACT SWITCH
SW407	994000001243	TACT SWITCH
SW408	994000001243	TACT SWITCH
SW409	994000001243	TACT SWITCH
SW410	994000001243	TACT SWITCH
SW411	994000001243	TACT SWITCH
SW412	994000001243	TACT SWITCH
SW413	994000001243	TACT SWITCH
SW414	994000001243	TACT SWITCH
SW415	994000001243	TACT SWITCH
SW416	994000001243	TACT SWITCH
SW417	994000001243	TACT SWITCH
SW418	994000001243	TACT SWITCH
SW419	994000001243	TACT SWITCH
SW420	994000001243	TACT SWITCH
SW421	994000001243	TACT SWITCH
SW422	994000001243	TACT SWITCH
SW423	994000001243	TACT SWITCH
SW424	994000001243	TACT SWITCH
SW425	994000001243	TACT SWITCH
U401	994000004541	IC M24C02-WMN6
U402	996510002119	IC TA7291S
U403	994000002839	IC LM1117S-3.3
USB1	996510001316	USB SOCKET 4P
V401	994000001241	ROTARY ENCODER
VR401	994000001324	ROTARY VOLUME 20K
XT401	996500039820	CRYSTAL 10MHz 49/US
XT402	996510012559	CRYSTAL 32.768KHZ

ELECTRICAL PARTSLIST**AMP/POWER BOARD ASSEMBLY**

IC703	994000001201	IC NJM4556AM
L701	994000004483	FM COIL 8X11.5T (1MM)
L702	994000004483	FM COIL 8X11.5T (1MM)
L703	994000004483	FM COIL 8X11.5T (1MM)
L704	994000004483	FM COIL 8X11.5T (1MM)
M001	996510025065	DC FAN JD6025MS1
Q702	996510018960	TRANSISTOR ST8050C
Q703	996510025064	SMD TRANSISTORS BC856B PNP
Q704	996510018960	TRANSISTOR ST8050C
Q707	996510025064	SMD TRANSISTORS BC856B PNP
Q710	996510025064	SMD TRANSISTORS BC856B PNP
Q712	996510025064	SMD TRANSISTORS BC856B PNP
Q715	996510018960	TRANSISTOR ST8050C
Q716	996500041825	TRANSISTORS 2N5551
Q721	996500041825	TRANSISTORS 2N5551
Q722	996510014338	TRANSISTOR BC556B
U701	996510021306	IC STK433





TUNER BOARD ASSEMBLY

IC301	996510022983	IC SI4730
JCN302	994000001353	COAXIAL JACK IF-01A
T301	996510000886	AM ANT BLACK 7mm 7M4A1951X
X301	996500042441	X'TAL 32.768KHZ -20PPM

USB BOARD ASSEMBLY

D709	996500042437	CH-DIODE SS14 SMA/DO-214AC
IC711	996510018962	IC UTC7805
Q1	996510006581	SMD TRANSISTORS BC857C
Q2	996510006580	SMD TRANSIST BC847C
Q706	996510006580	SMD TRANSIST BC847C
U1	994000002839	IC LM1117S-3.3
U708	996520033295	IC OTI6889 (LQFP-128)
U709	996510018761	FLASH IC SST39VF020
U710	994000002853	IC XC61FC3012MR
X703	996510002120	CRYSTAL 12MHZ 20PF

POWER BOARD ASSEMBLY

C801	996510001309	E.CAP 4700UF 25V +-20% (PH)
C806	994000001206	E.CAP 3300UF 50V -20%
C821	994000001206	E.CAP 3300UF 50V -20%
D815	996500040362	RECTIFIER DIODE 1N5402 3A 200V
D816	996500040362	RECTIFIER DIODE 1N5402 3A 200V
D817	996500040362	RECTIFIER DIODE 1N5402 3A 200V
D818	996500040362	RECTIFIER DIODE 1N5402 3A 200V
D831	996510000322	DIODE 1N5392 1.5A 100V
D832	996510000322	DIODE 1N5392 1.5A 100V
D833	996510000322	DIODE 1N5392 1.5A 100V
D834	996510000322	DIODE 1N5392 1.5A 100V
D835	996510000322	DIODE 1N5392 1.5A 100V
F802	 994000004599	FUSE RADIAL T3.15A 250V
F804	 996510002426	CERAMIC FUSE 3.9x10.5mmW
F805	 996510002426	CERAMIC FUSE 3.9x10.5mmW
F806	 994000000585	CERAMIC FUSE W/LEAD 2A/250V
IC802	996510003984	IC CYT78L05 (TO-92)
J001	996510014304	AC SOCKET UL APP
Q804	996510006590	TRANSISTOR BC547B TAPING
Q805	996510006590	TRANSISTOR BC547B TAPING
SW801	994000001323	SWITCH

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