Mini System

FWM583/55

Service
Service
Service

Service Manual

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CLASS 1
LASER PRODUCT

Published by SL0728 Service Audio Printed in The Netherlands Subject to modification.

GB 3141 785 31980

Version 1.0

PHILIPS

VERSION VARIATIONS

Type /Versions: / Features & Board in used:	FWM583							
	/55							
Karaoke								
News								
RDS								
Rotary Encoder (volume control)	x							
Jog Shuttle								
Voltage Selector								
Aux Input	x							
Digital Output								
Headphone Socket	x							
Line Output								
Matrix Surround Loudspeakers								
Standby - FTD Clock Display	x							
ECO Standby - LED Display	x							
ECO6 Tuner board - System Non-Cenelec	x							
ECO6 Tuner board - System Cenelec								
ETF7 Tape Module: Non-Autoreverse Ferro								
USB Direct	x							

SPECIFICATIONS

AMPLIFIER

RMS output power
- LF channel ..... 105 W per channel
- HF channel ..... 105 W per channel
- Total Bi-Amp power ..... 420 W

Signal-to-noise ratio ..... 60 dBA (IEC)
Frequency response ..... 50 – 15000 Hz
Input sensitivity
- AUX ..... 900/2400 mV

Output
- Speakers ..... 3 Ω
- Headphones ..... 32 Ω

(1) (3 Ω, 1 kHz, 10% THD)

CD/MP3-CD PLAYER

Number of programmable tracks 99
Frequency response ..... 50 – 20000 Hz -3dB
Signal-to-noise ratio ..... 60 dBA
Channel separation ..... 60 dBA (1 kHz)
Total harmonic distortion ..... < 0.003%
MPEG 1 Layer 3 (MP3-CD) ..... MPEG AUDIO
MP3-CD bit rate ..... 32-256 kbps (128 kbps advised)
Sampling frequencies ..... 32, 44.1, 48 kHz

TUNER

FM wave range ..... 87.5 – 108 MHz
MW wave range (9 kHz) ..... 531 – 1602 kHz
MW wave range (10 kHz) ..... 530 – 1700 kHz
Tuning grid ..... 9/10 kHz
Number of presets 40
Antenna
- FM ..... 75 Ω wire
- MW ..... Loop antenna

USB PLAYER

USB ..... 12 Mb/s,V1.1 ..... support MP3 and WMA files
Number of albums/folders ..... maximum 99
Number of tracks/titles ..... maximum 400

SPEAKERS

System 2-way; double port bass reflex
Impedance ..... 3 Ω
Woofer ..... 1 x 5.5"
Tweeter ..... 1 x 2"
Dimensions (w x h x d) . 248 x 310 x 195 (mm)
Weight ..... 3.65 kg each

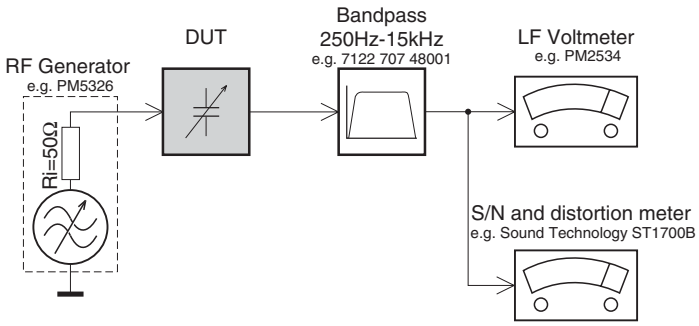
GENERAL

Material/finish ..... Polystyrene/Metal
AC Power ..... 110 – 127 / 220 – 240 V; ..... 50/60 Hz Switchable
Power Consumption
- Active ..... 90 W
- Standby ..... ≤ 15 W

Dimensions (w x h x d) .. 265 x 310 x 367 (mm)
Weight (without speakers) ..... 9.1 kg

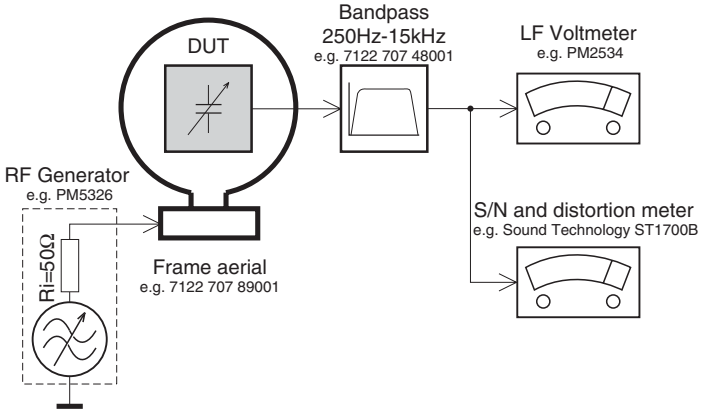
MEASUREMENT SETUP

Tuner FM



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

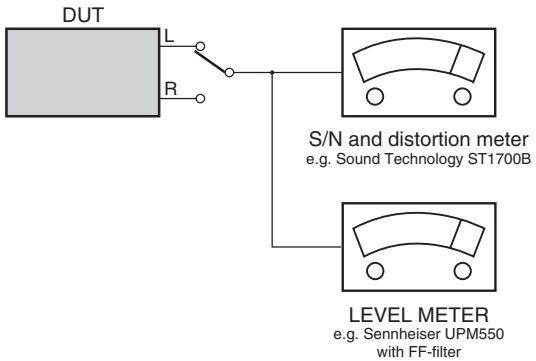
Tuner AM (MW,LW)



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)



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

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

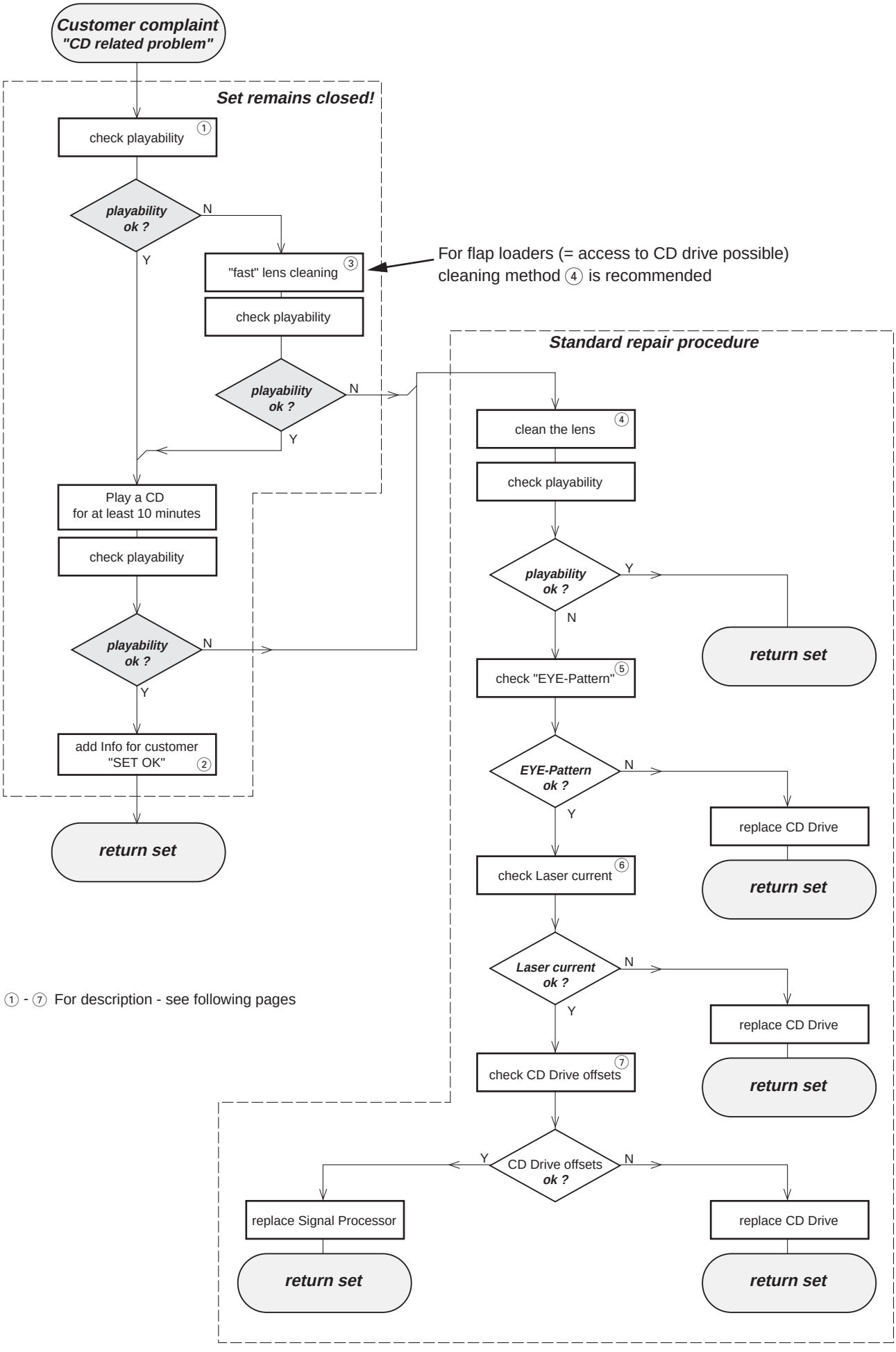
Safety regulations require that after a repair, the set must be returned in its original condition. Pay in particular attention to the following points:

- 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



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)

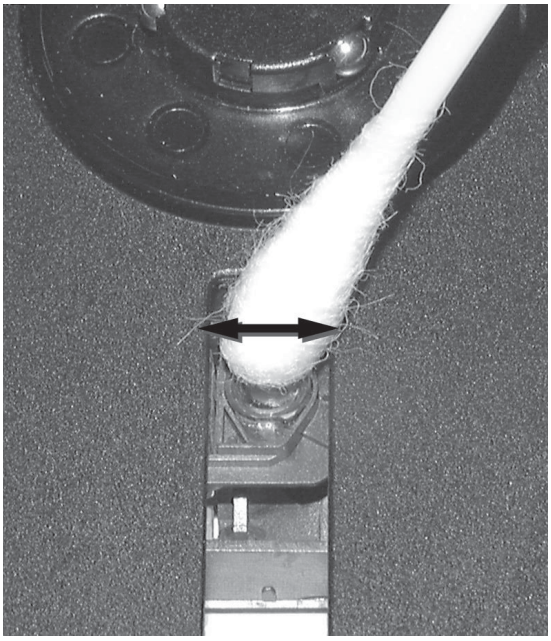
LIQUID LENS CLEANING

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.

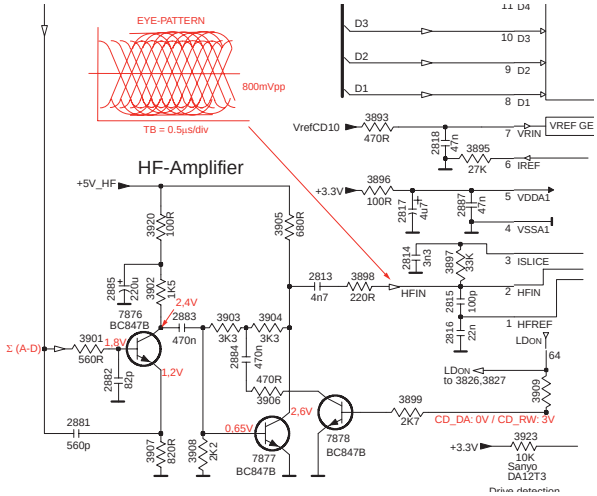


INSTRUCTIONS ON CD PLAYABILITY

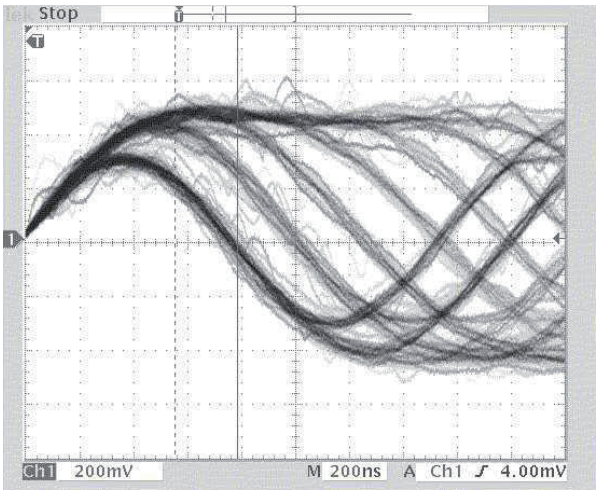
⑤

EYE-PATTERN SIGNAL – JITTER MEASUREMENT

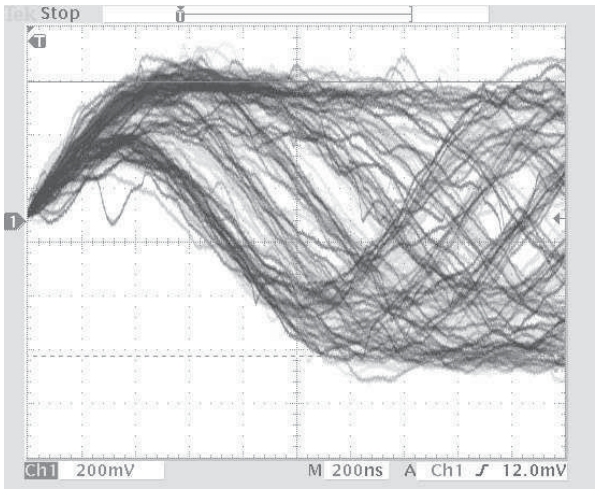
Measure the signal on the input of the Signal processor using an **analog** oscilloscope. Please find the exact measuring point in your Service Manual.



See below examples of the signal. Amplitude should read at least 700mVpp using SBC444A.



good



bad

If the oscilloscope shows a signal like the 'bad' one, and/or the amplitude decreases within 1 minute - the CD drive has to be replaced.

⑥

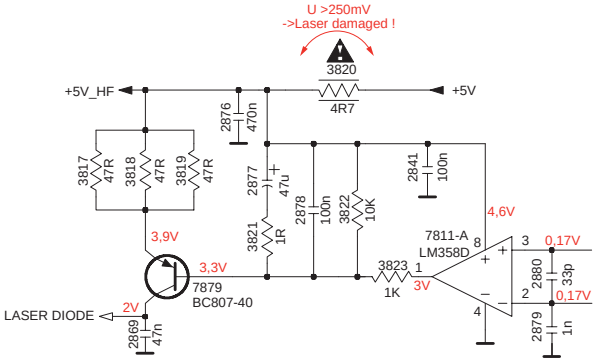
CD DRIVE – LASER CURRENT MEASUREMENT

The laser current can be measured as a voltage drop on a resistor. The resistor is marked in every Service Manual. The value depends on the type of CD drive.

	typical value	most probably defect
VAMxxxx	: 150-230mV	≥350mV
MCDxx	: 170-230mV	≥300mV
DA1x	: 210-250mV	≥350mV
DA2x	: 175-200mV	≥250mV

Use SBC444A (CD-DA) for measurement.

Laser power control



⑦

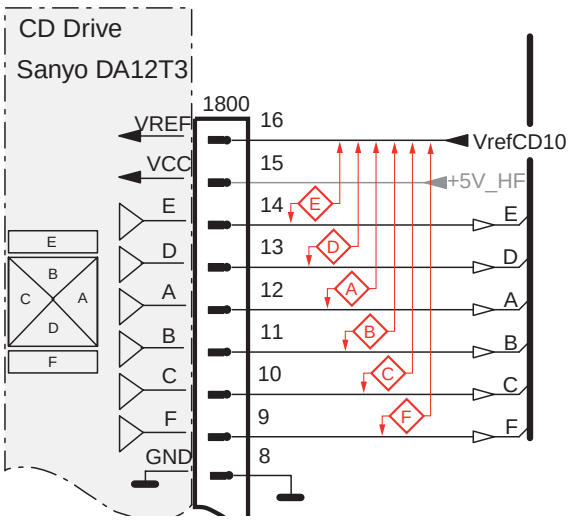
CD DRIVE – OFFSET MEASUREMENT

The photodiodes of the CD-drive may have an offset. These offsets have to be compensated by the signal processor. High offsets can lead to poor playability of some CDs (skipping tracks).

To measure the offset values, start the **Service Test Program** - section "Focus Test" without a CD.

The offsets can be measured with a DC Millivoltmeter directly on the connector (see drawing below). Pin numbering varies from drive to drive.

The values from diode A-D should read 0±10mV. Diodes E and F are less critical.

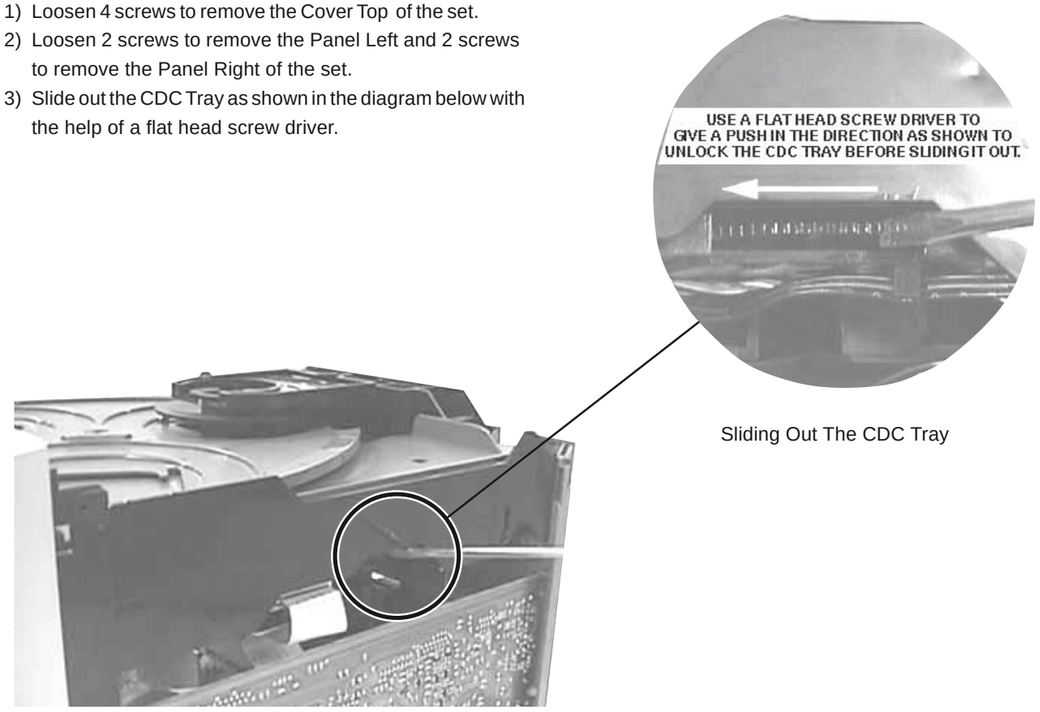


If one of the offsets is higher than ±10mV the CD drive has to be replaced. Otherwise replace the Signal Processor.

DISMANTLING INSTRUCTIONS

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.

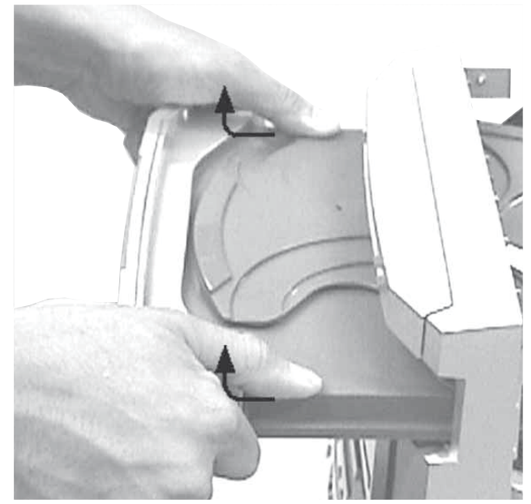


Sliding Out The CDC Tray

2-1

Dismantling of the CDC Module and Front Panel

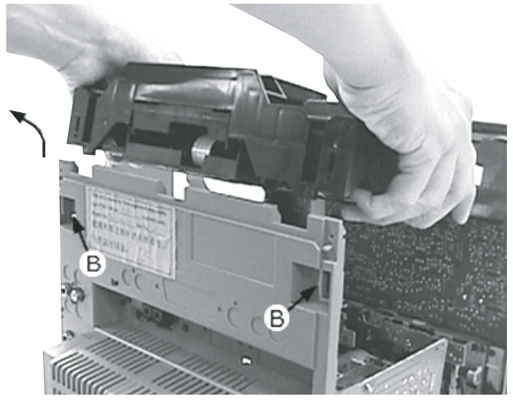
4) Remove the Cover Tray CDC as indicated.



Remove Cover Tray CDC

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 .

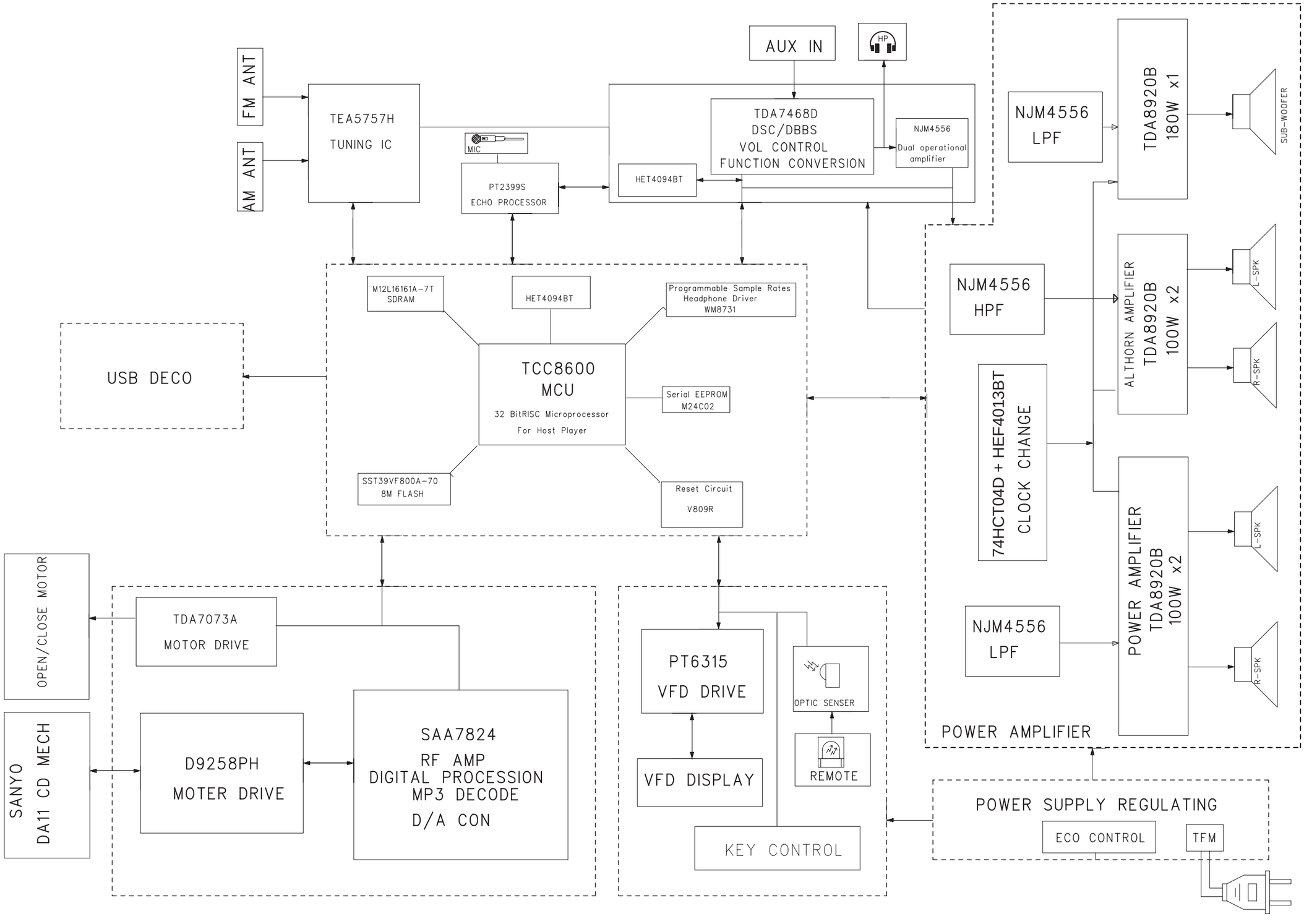
Front View CDC



Remove CDC Module

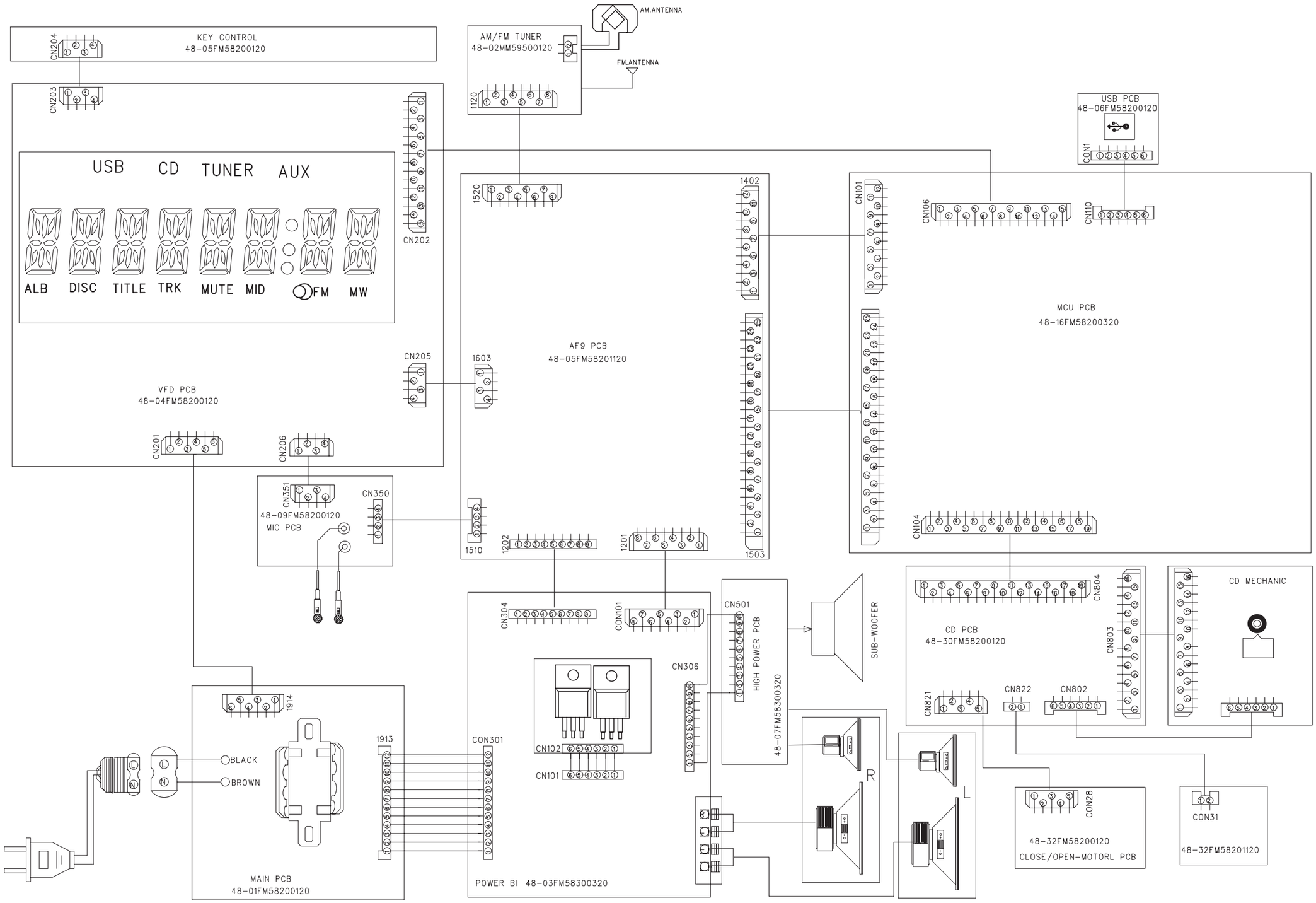
4-1

SET BLOCK DIAGRAM



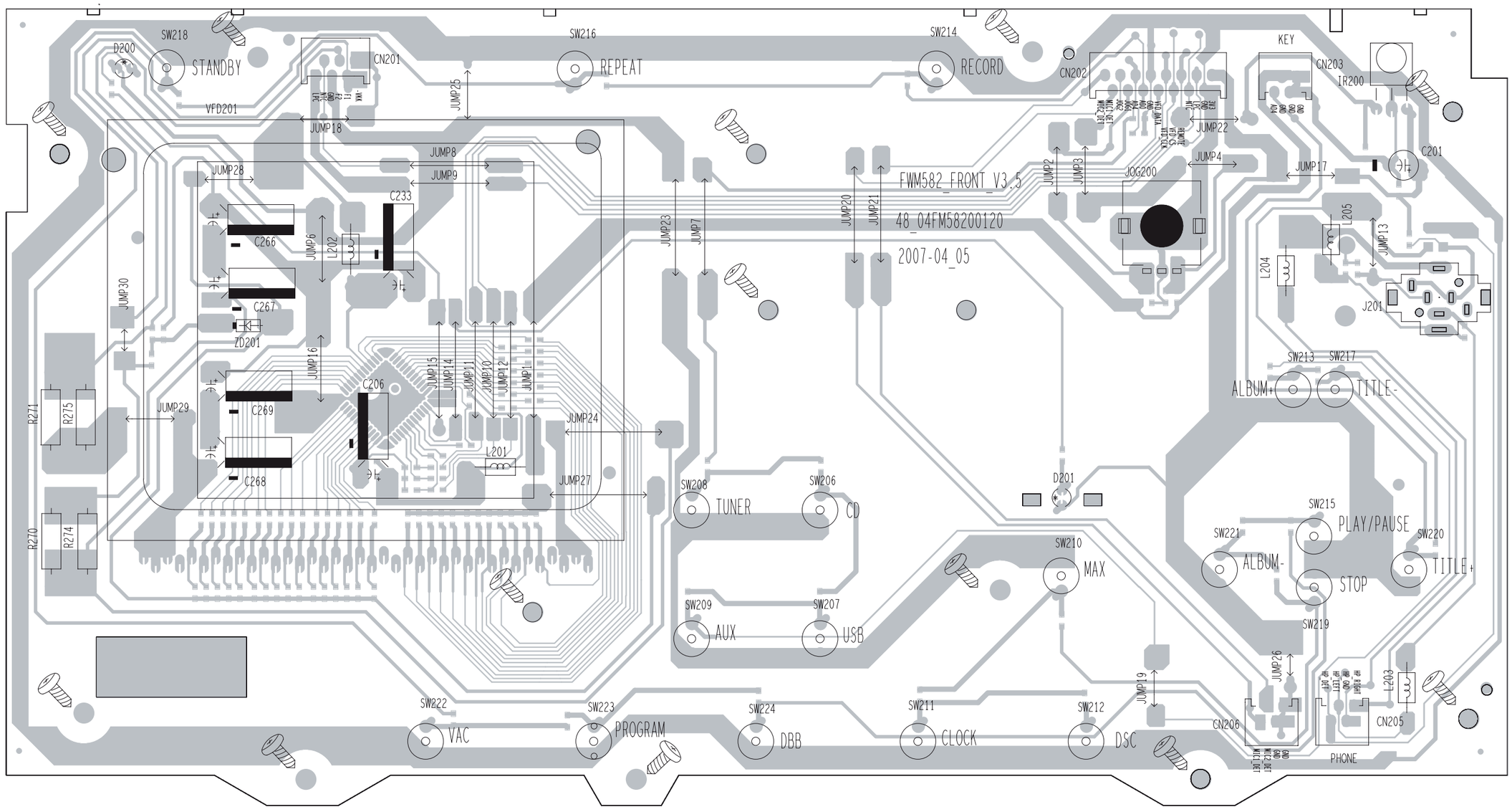
4-2

SET WIRING DIAGRAM



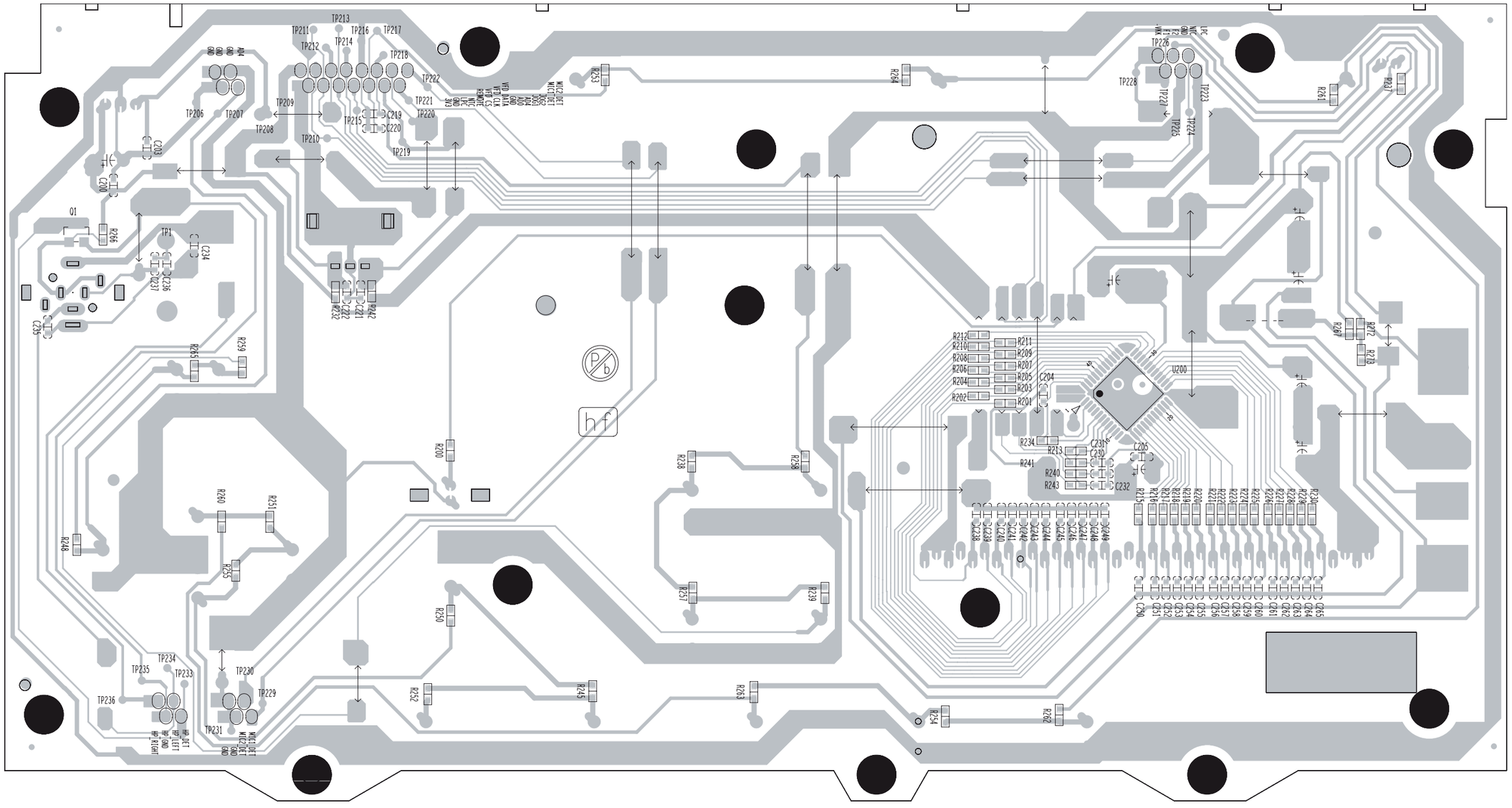
5-1

PCB LAYOUT - FRONT BOARD (TOP VIEW)



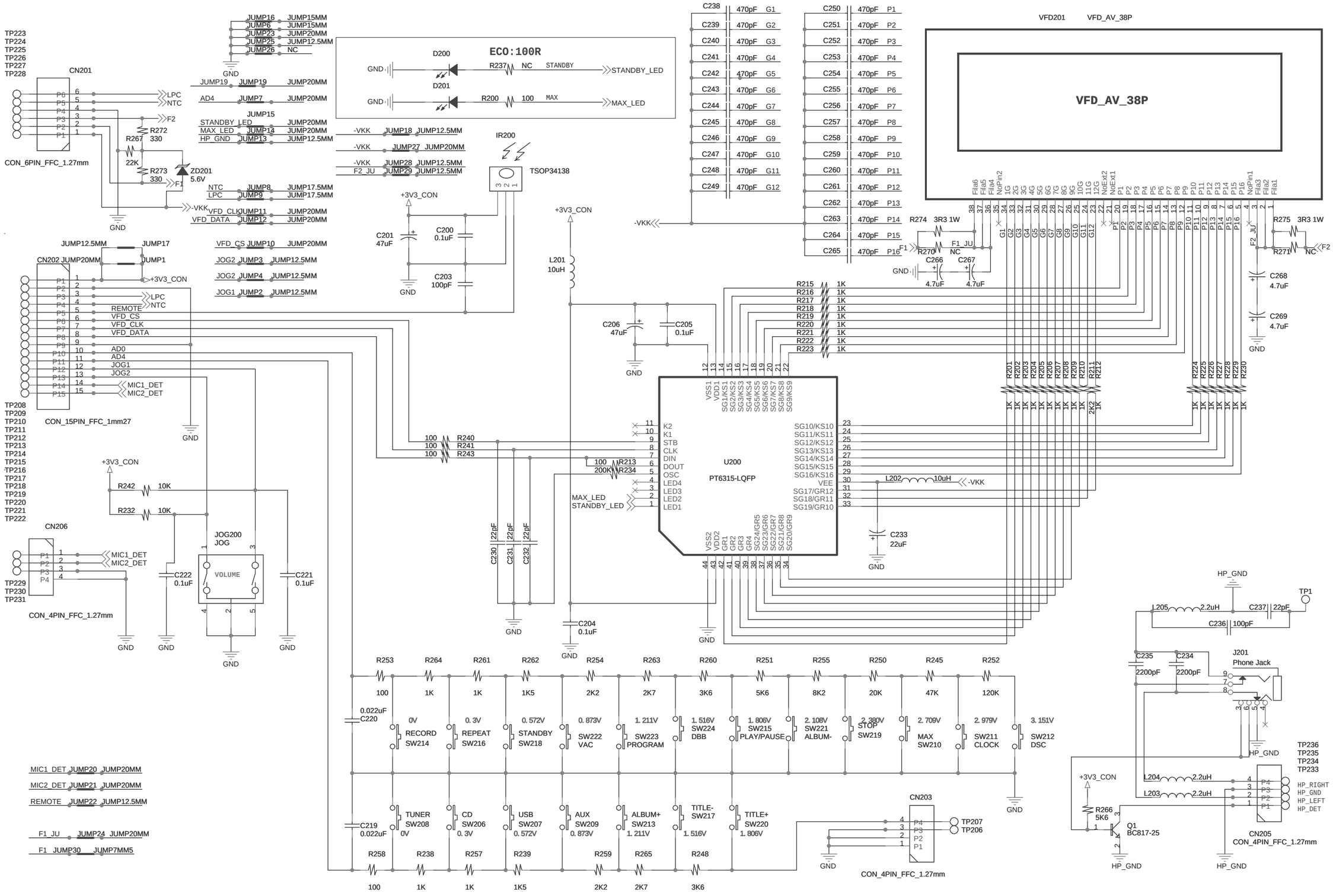
5-2

PCB LAYOUT - FRONT BOARD (BOTTOM VIEW)



5-4

CIRCUIT DIAGRAM - FRONT BOARD



MIC1_DET JUMP20 JUMP20MM

MIC2_DET JUMP21 JUMP20MM

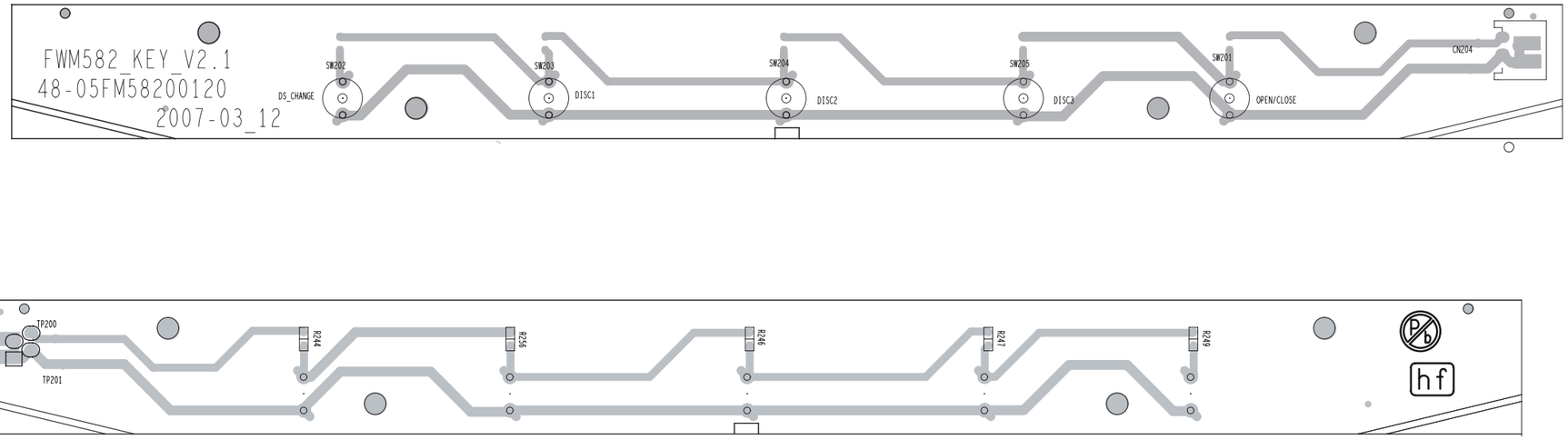
REMOTE JUMP22 JUMP12.5MM

F1_JU JUMP24 JUMP20MM

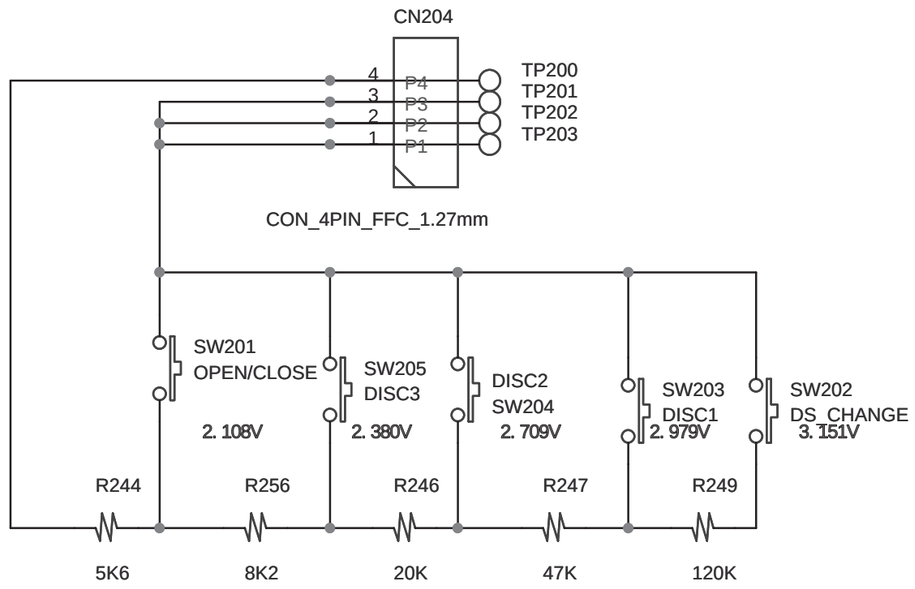
F1 JUMP30 JUMP7MM5

5-5

PCB LAYOUT - KEY BOARD

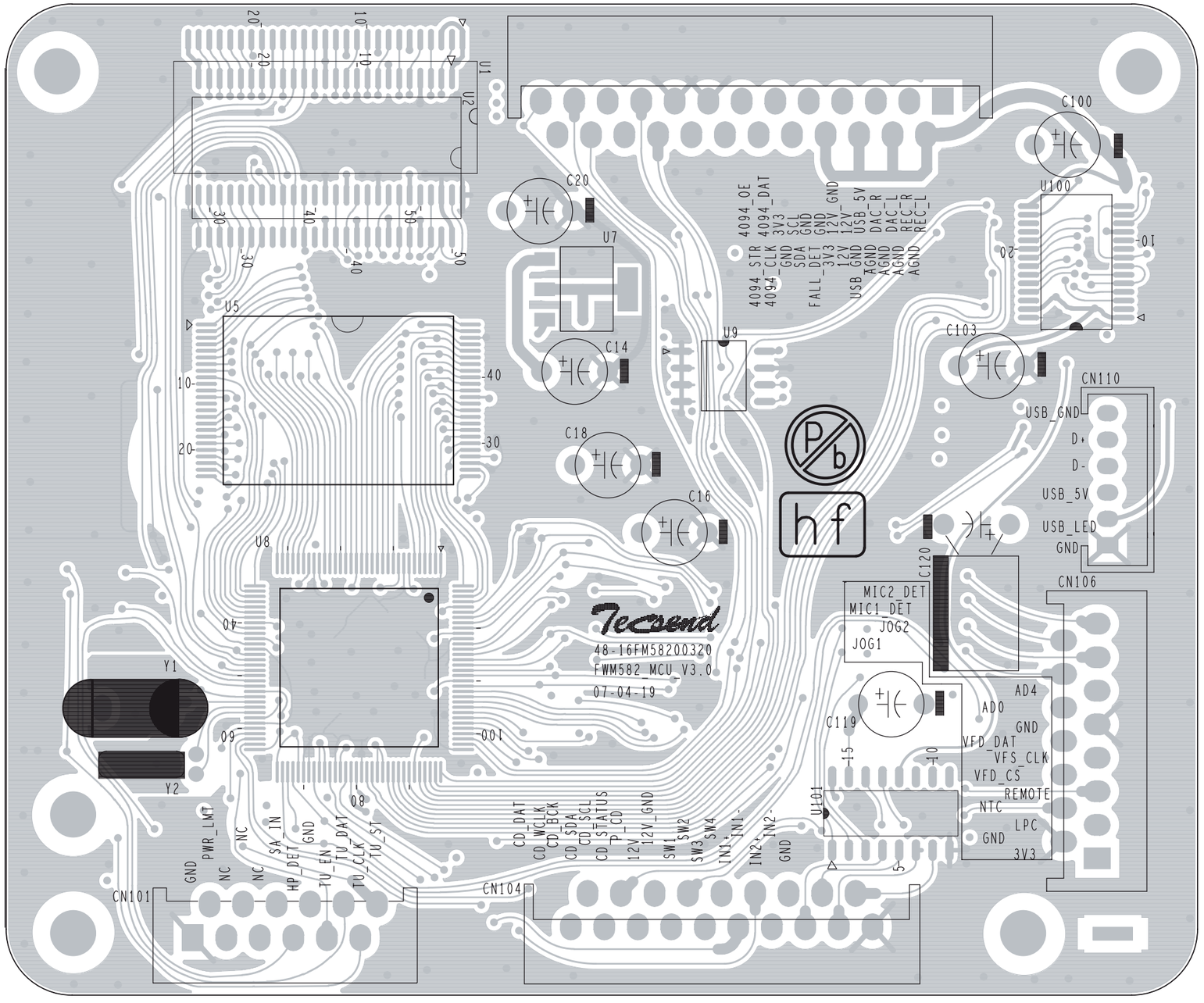


CIRCUIT DIAGRAM - KEY BOARD



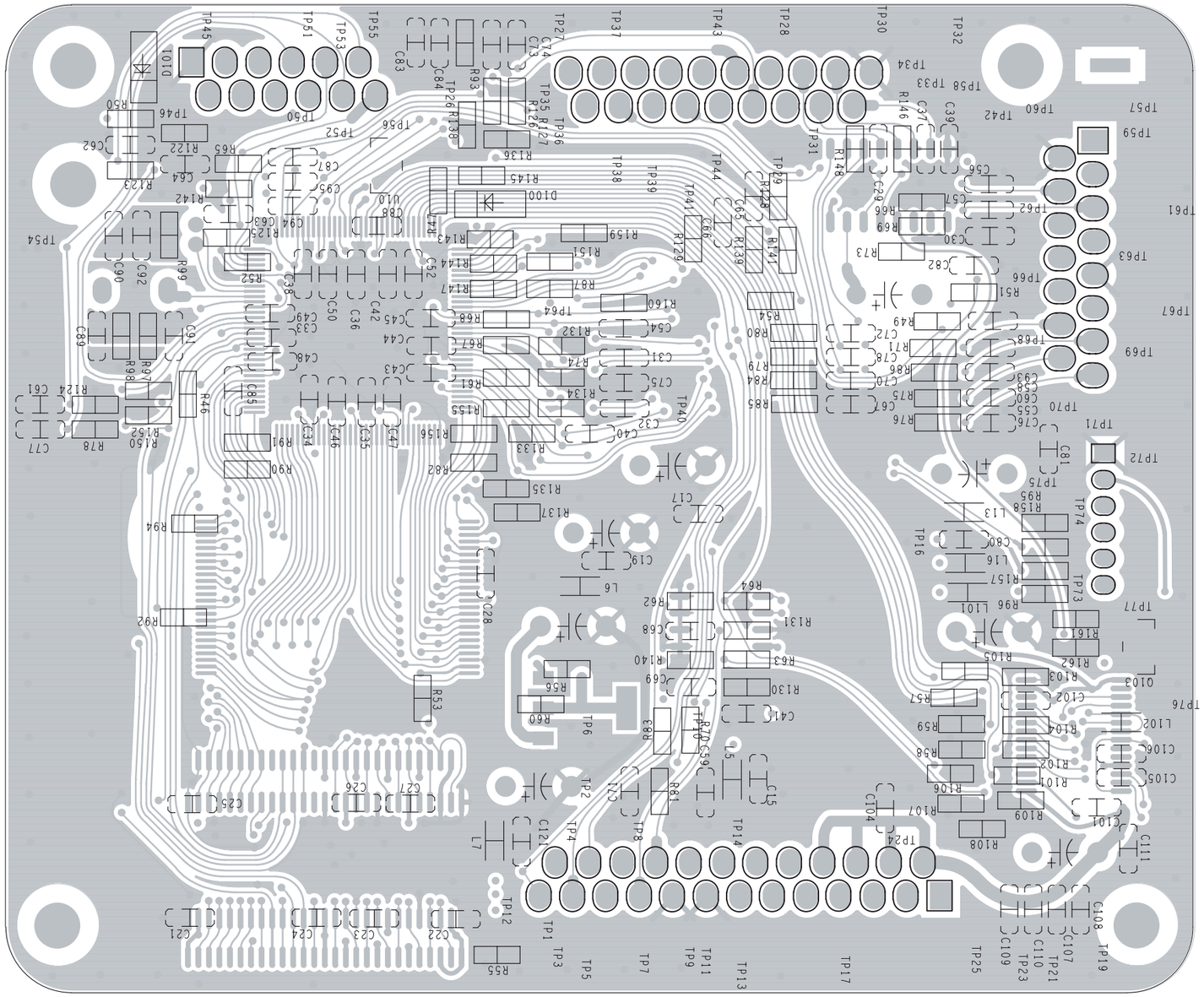
6-1

PCB LAYOUT - MCU BOARD (TOP VIEW)



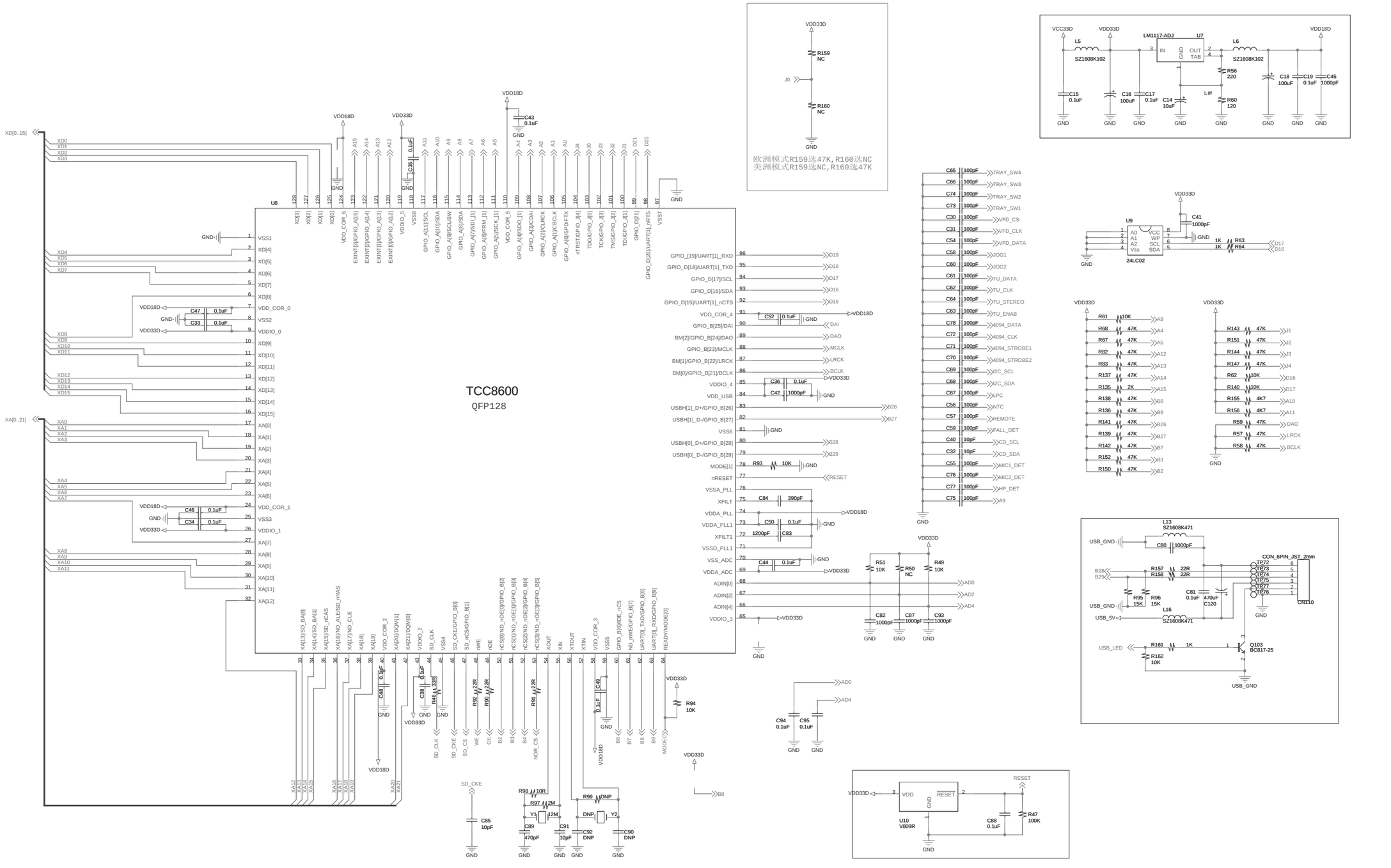
6-2

PCB LAYOUT - MCU BOARD (BOTTOM VIEW)



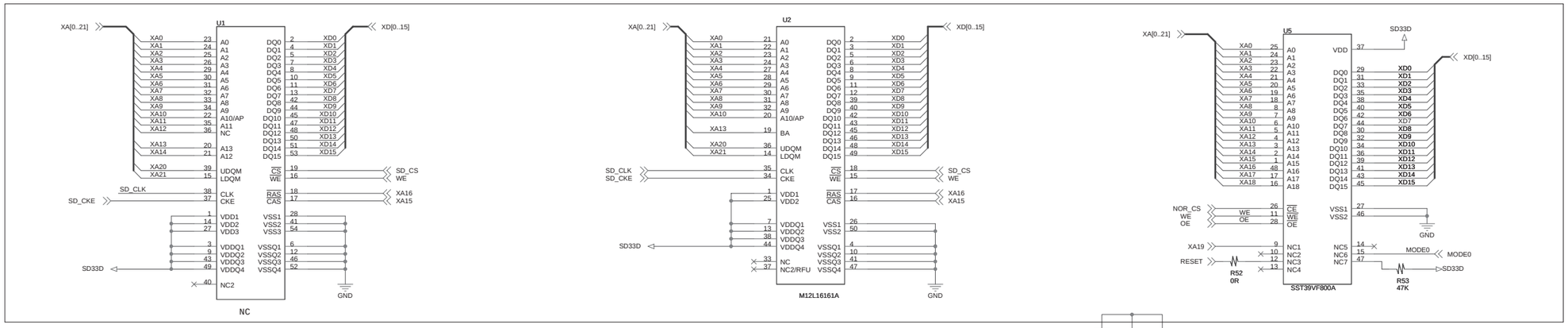
6-4

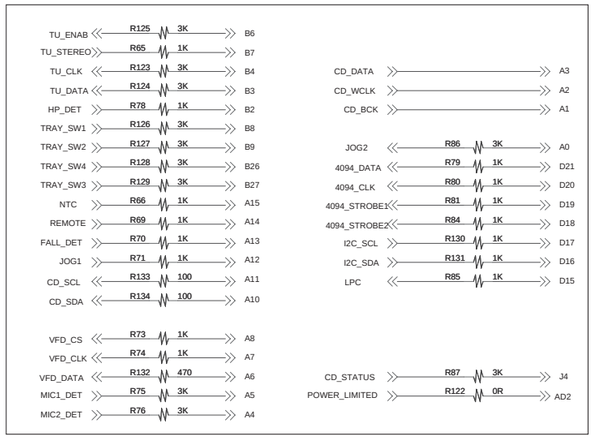
CIRCUIT DIAGRAM - MCU BOARD PART1

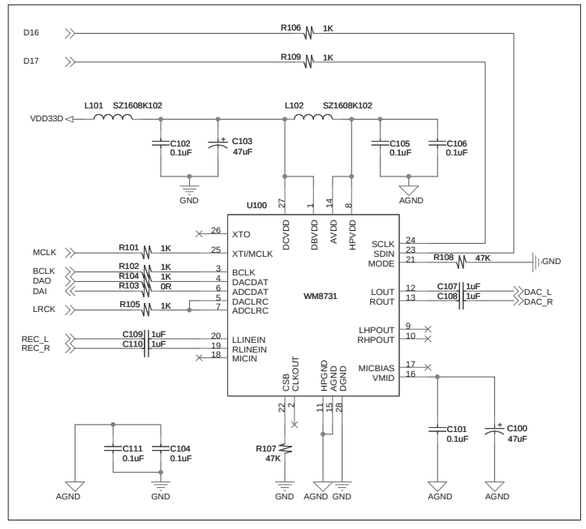


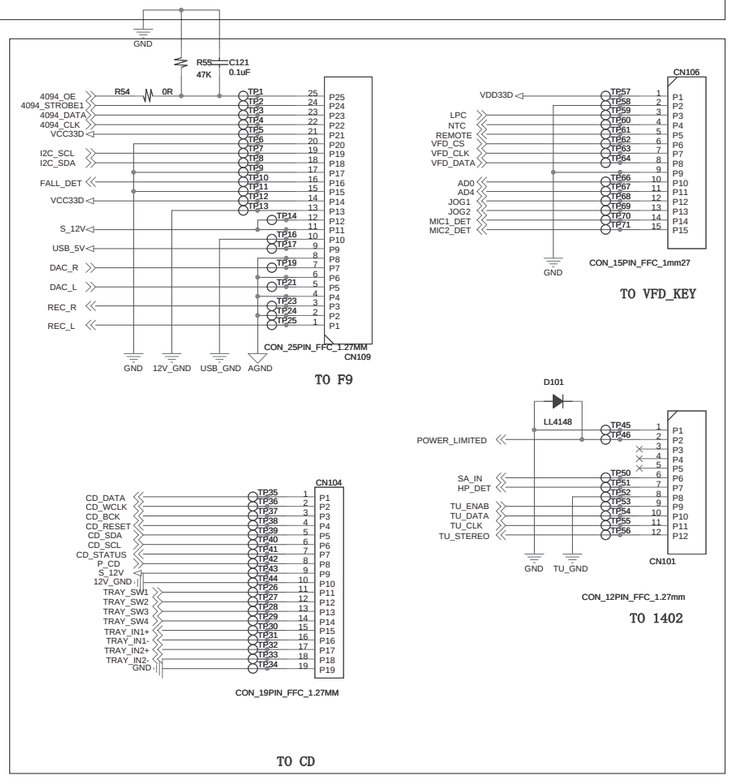
6-4

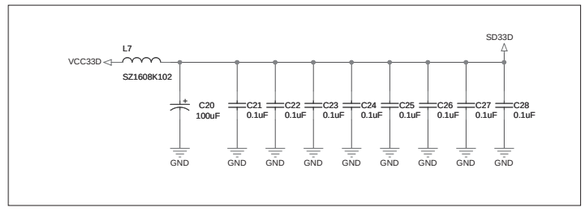
CIRCUIT DIAGRAM - MCU BOARD PART2

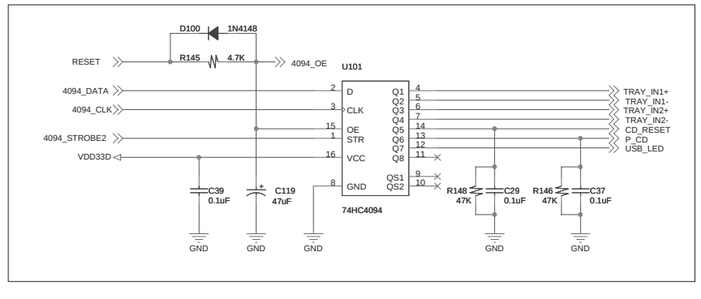






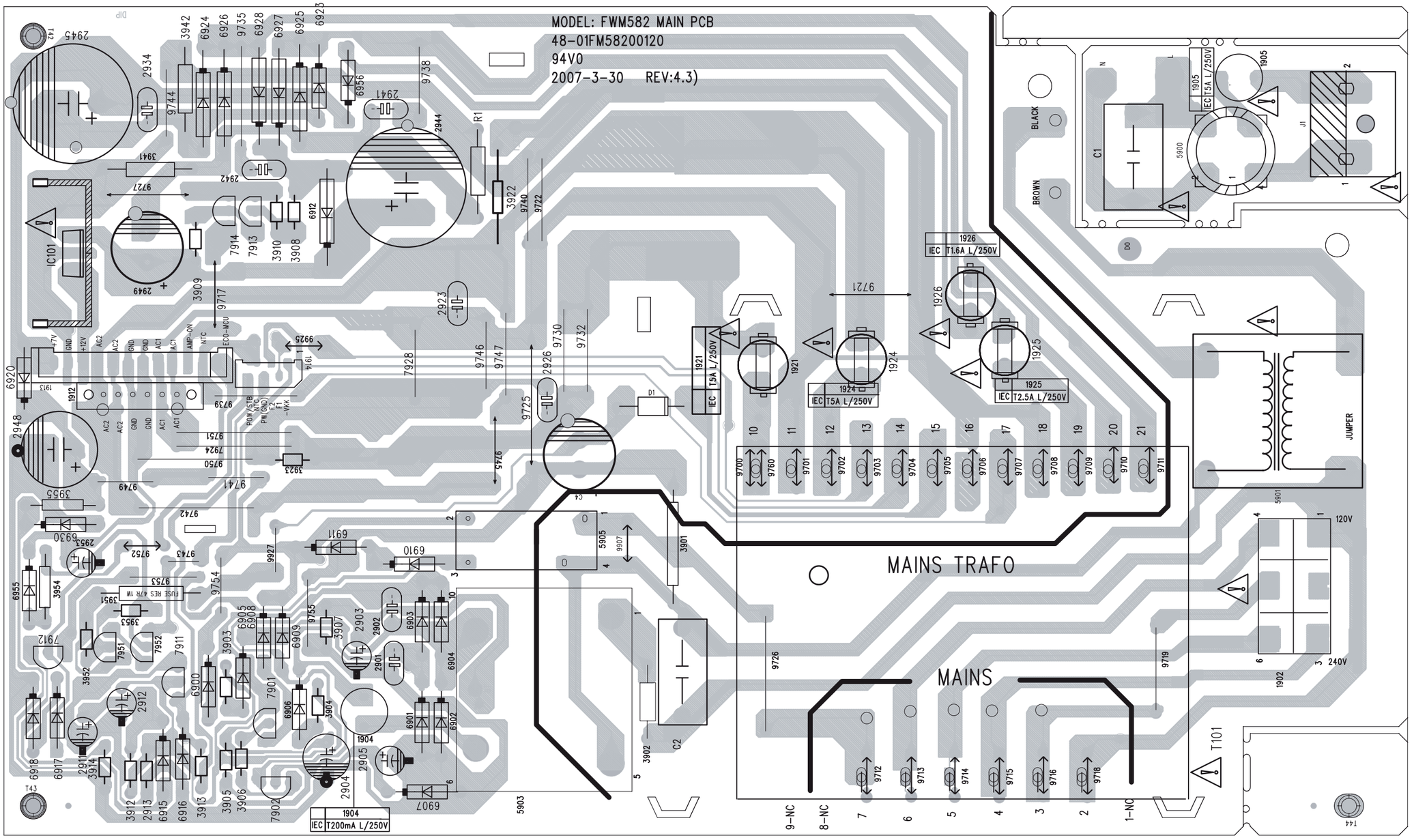


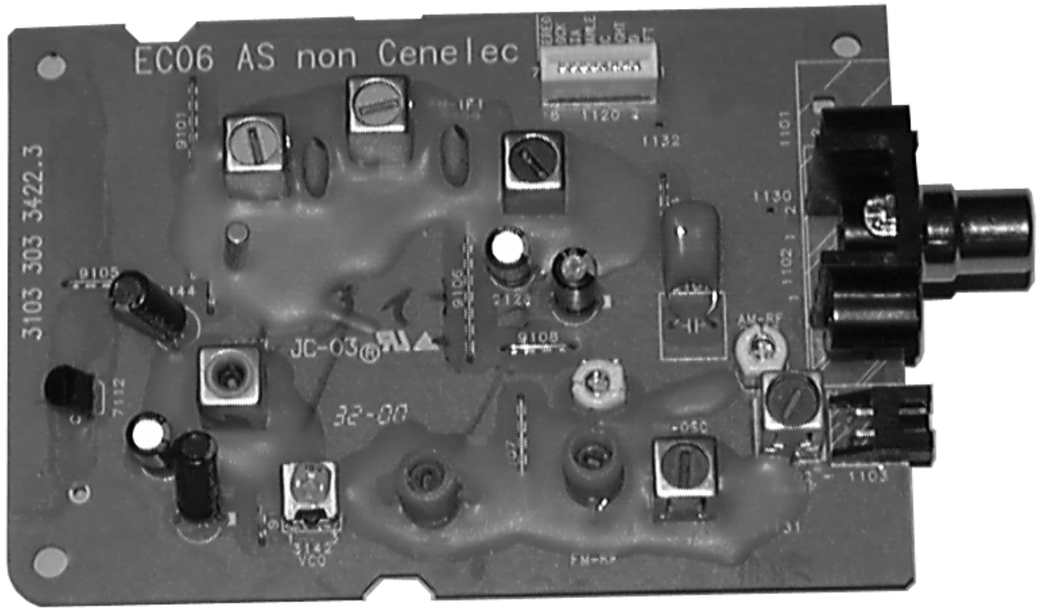




9-1

LAYOUT DIAGRAM - MAINS BOARD (TOP VIEW)





ECO6 Tuner Board

version: ***SYSTEMS non-CENELEC***

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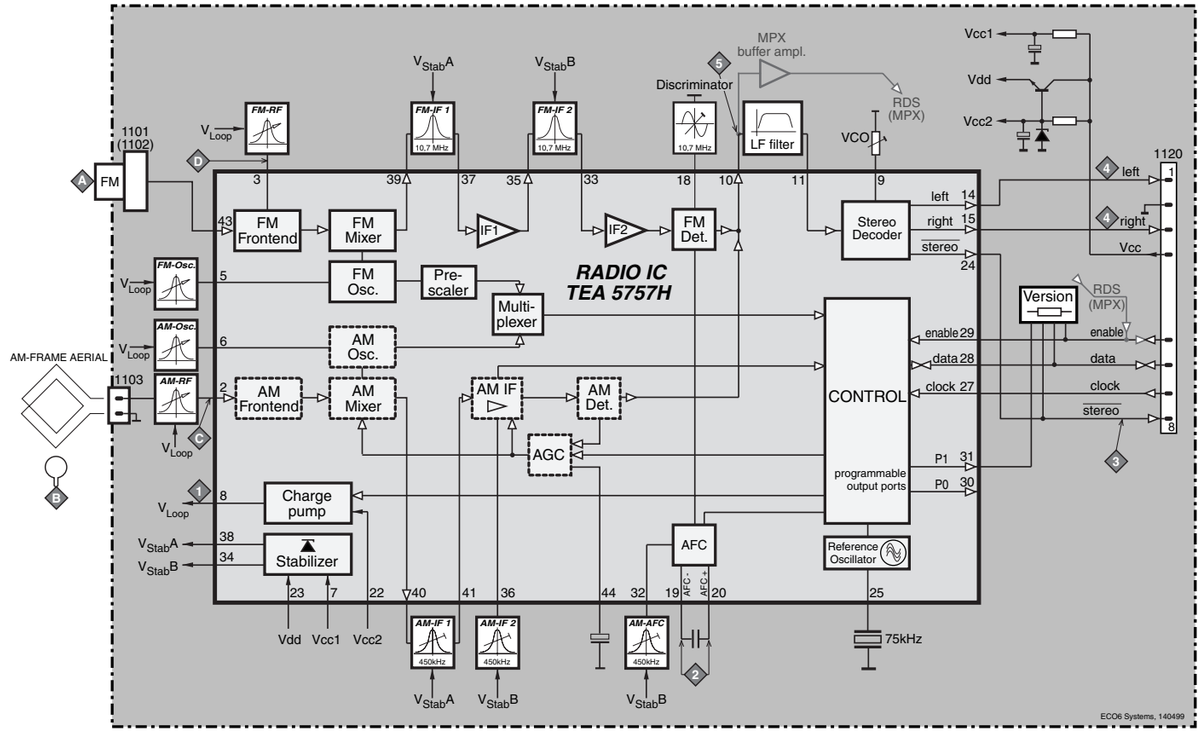
BLOCK DIAGRAM

TUNER BOARD
ECO 6 Systems



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TUNER BOARD ECO6 / SYSTEMS NON CENELEC

VERSION PROGRAMMING COMPONENTS

VERSION	6120	3156	3157	3170	7111
/00 /02 FM/MW/LW	X				
/00 /02 FM/MW		X	X		X
/01 FM/MW		X		X	X
/14 FM-OIRT/MW		X	X		X
/17 FM/AM	X			X	X
/06 FM-Japan/AM			X	X	X

X component mounted

VERSION DETECTION

LEGEND

(p)...for provision only
USA ... for USA version only
E-EU ... for East European version only
J ... for Japanese version only

...V FM mode stereo
...V MW mode
(V) EVM ...V LW mode
voltages measured while set is tuned to a strong transmitter

Signal path
FM
AM
MPX (Audio Frequency)
AF - left/right

ECO6 Sys-non Cenelec, 000911

These assembly drawings show a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.

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TUNER ADJUSTMENT TABLE (ECO6 FM/MW- and FM/MW/LW - versions with AM-frame aerial)

Waverange	Input frequency	Input	Tuned to	Adjust	Output	Scope/Voltmeter
VARICAP ALIGNMENT						
FM 87.5 - 108MHz (65.81 - 74, 87.5 - 108MHz)			108MHz	5130	1	8V ±0.2V
			87.5MHz (65.81MHz)	check		4.3V ±0.5V (1.2V ±0.5V)
MW FM/AM-version, 10kHz grid 530 - 1700kHz			1700kHz	5123		8V ±0.2V
			530kHz	check		1.1V ±0.4V
FM/MW-version, 9kHz grid 531 - 1602kHz			1602kHz	5123		6.9V ±0.2V
			531kHz	check		1.1V ±0.4V
LW 153 - 279kHz			279kHz	5122		8V ±0.2V
			153kHz	check		1.1V ±0.4V
MW FM/MW/LW- version, 9kHz grid 531 - 1602kHz			1602kHz	5123		8V ±0.2V
			531kHz	check		1.1V ±0.4V
FM IF						
FM	10.7MHz, 45mV continuous wave	D	IC 7101 21 — shortcircuit to block AFC — 2141	5119	2	0 ± 3 mV DC
FM RF						
FM 87.5 - 108MHz (65.81 - 74, 87.5 - 108MHz)	108MHz	A mod=1kHz Δf=±22.5kHz	108MHz	2155	4	MAX
	87.5MHz (65.81MHz)		87.5MHz (65.81MHz)	5131		
VCO						
FM	98MHz, 1mV continuous wave	A	98MHz	3142	3	152kHz ±1kHz [1]
AM IF						
MW	450kHz connect pin 6 of IC 7101 (AM Osc.) with 3.3kΩ to Vcc	C Δf=±10kHz V_{RF} = 0.5mV (as low as possible)	IC 7101 36 — 100nF — 220R	5111	5	max. / f_o symmetric
			see remark [2] IC 7101 40 — 100nF — 220R	5112		
AM AFC **MW**		C continuous wave V_{RF} = 2mV		5114	2	0 ± 2 mV DC
AM RF [3]						
MW [4] FM/MW/LW- and FM/MW-version (9kHz grid) 531 - 1602kHz	1494kHz	B Δf = ±30kHz V_{RF} as low as possible	1494kHz	2106	5	max. / f_o symmetric
	558kHz		558kHz	5102		
LW	198kHz		198kHz	5103		
MW FM/AM-version, 10kHz grid 530 - 1700kHz	1500kHz		1500kHz	2106		
	560kHz		560kHz	5102		

ECO6, Sys + PA with frame aerial, 070799

Use Service Testprogram. By selecting the TUNER TEST test frequencies will be stored as preset frequencies automatically.

[1] If sensitivity of frequency counter is too low adjust to max. channel separation (input signal: stereo left 90% + 9%, adjust output on right channel to minimum)

[2] RC network serves for damping the IF-filter while adjusting the other one.

[3] For AM RF adjustments the original frame antenna has to be used !

[4] MW has to be aligned before LW.

↕ Repeat

8-1

CD BOARD

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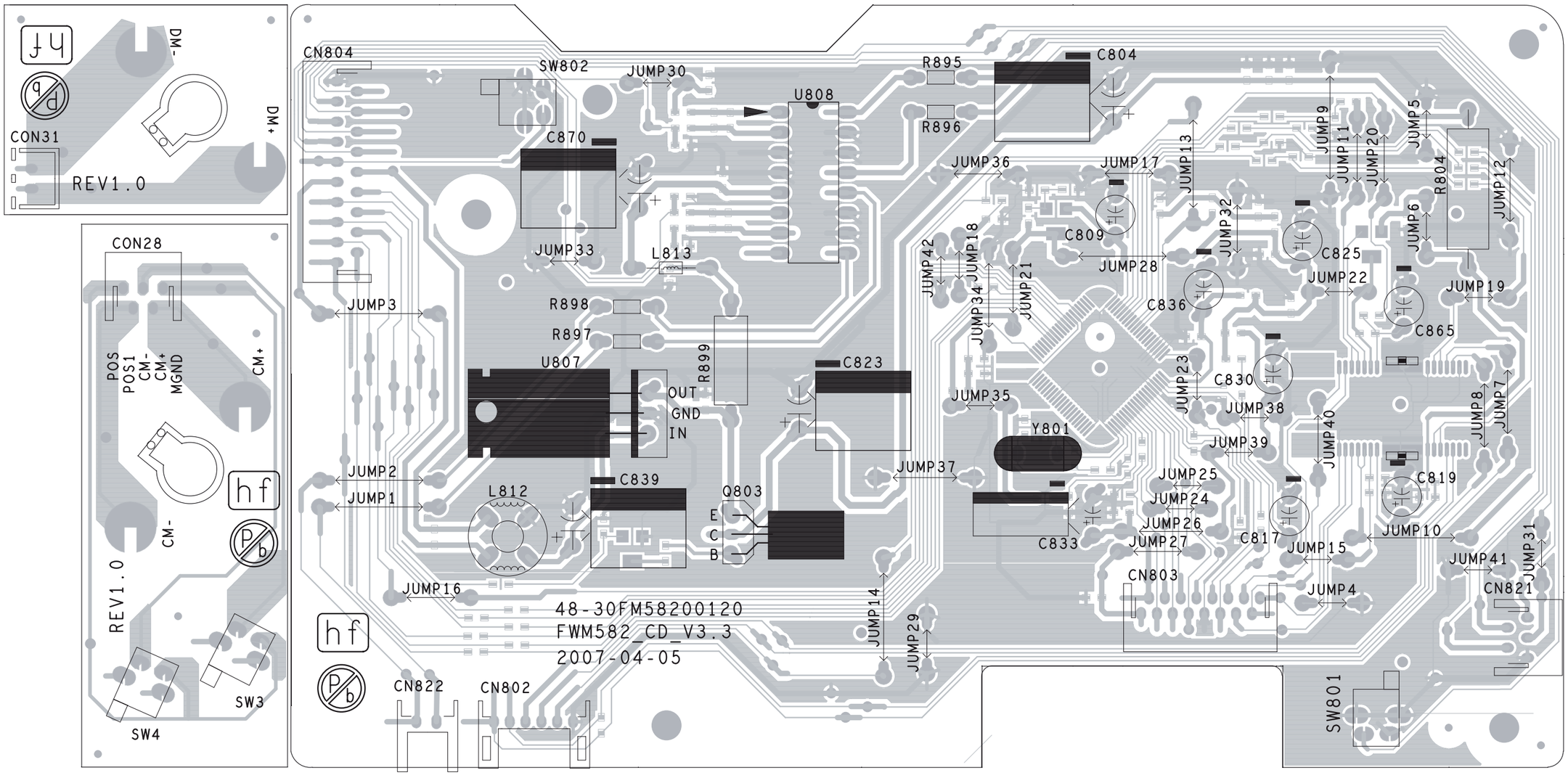
Remark: This chapter is only for reference, the whole CD Board Ass'y can be orderd with 12nc: 9965 100 03995

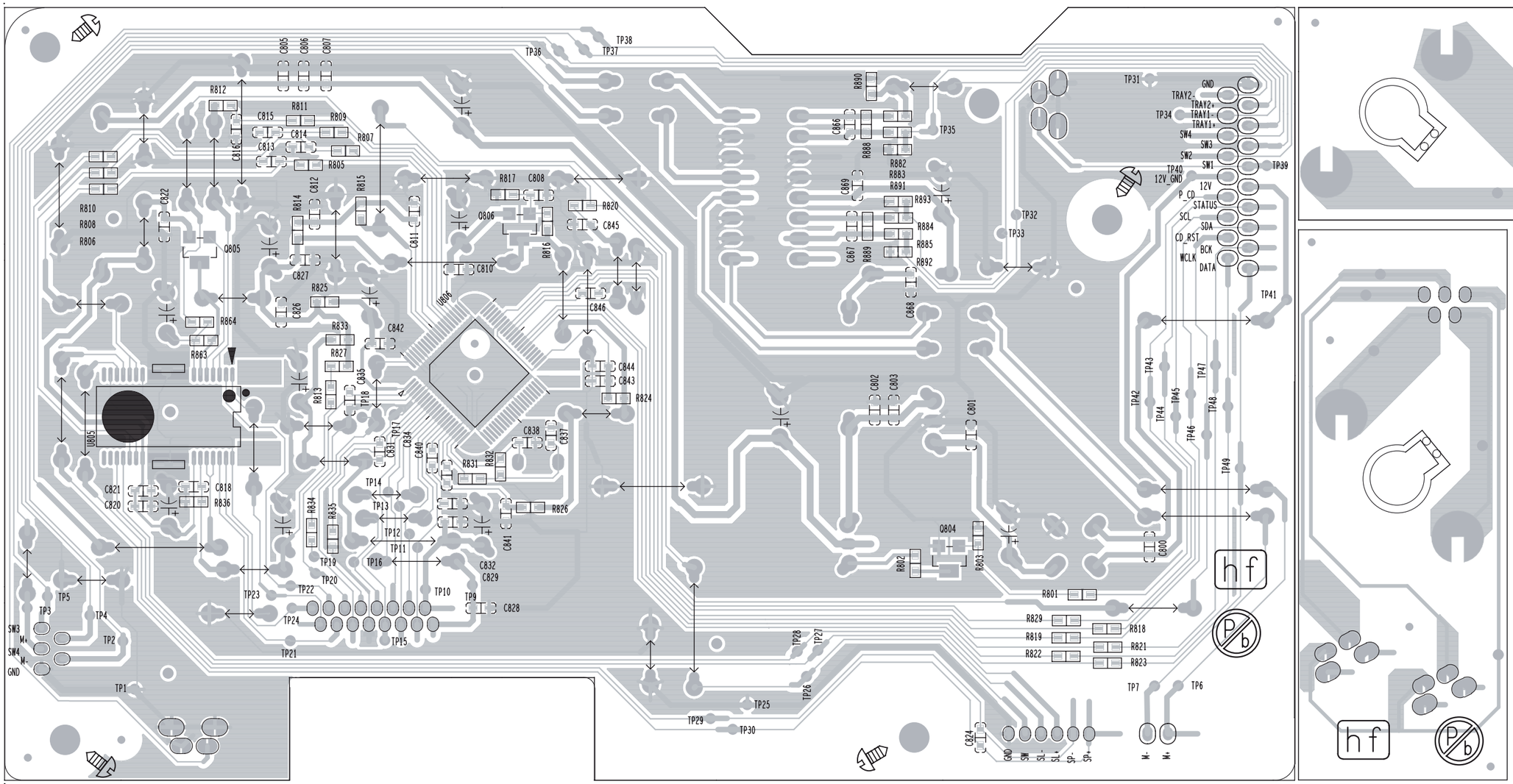
8-2

LAYOUT DIAGRAM - CD BOARD (TOP VIEW)



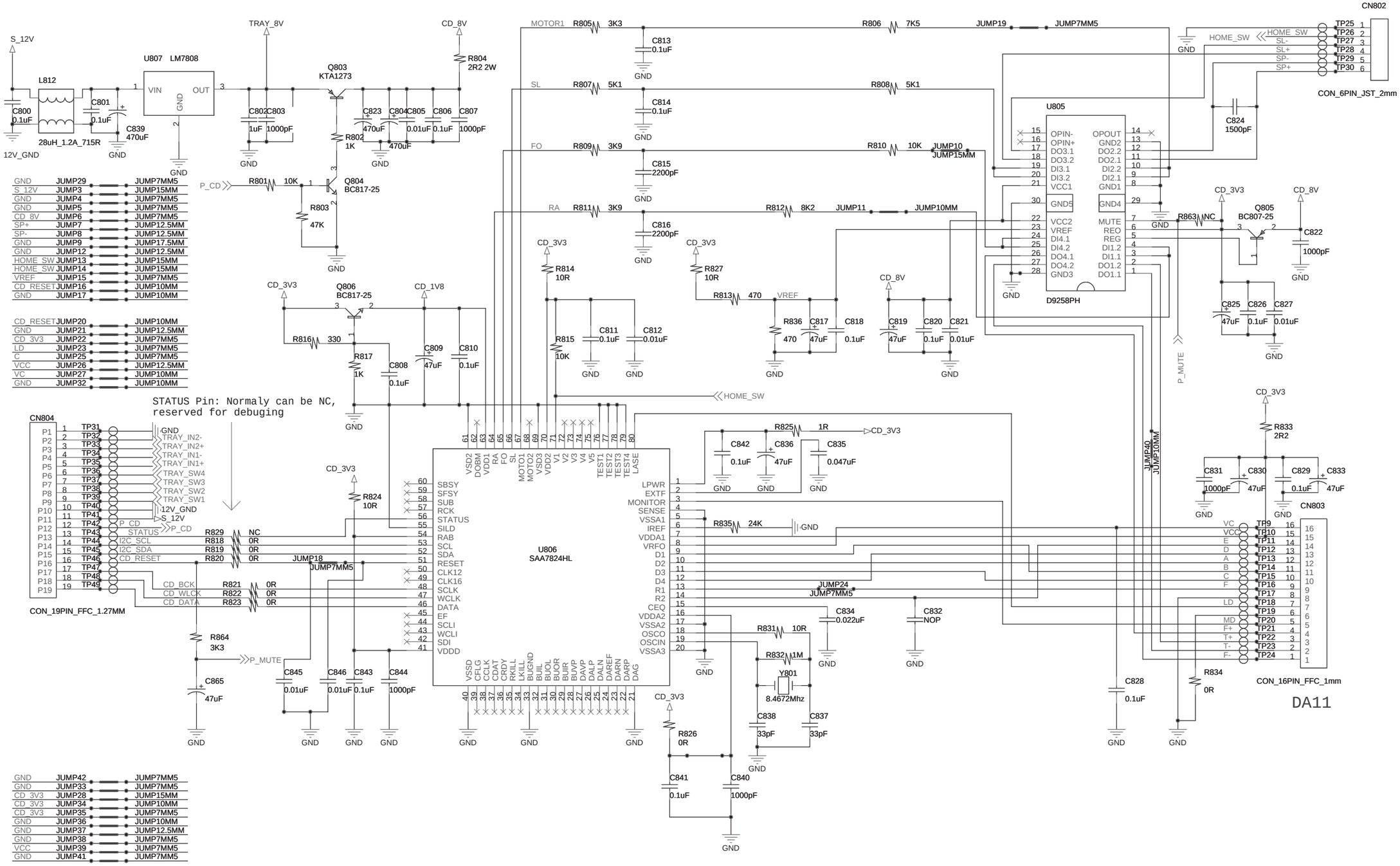
8-3

LAYOUT DIAGRAM - CD BOARD (BOTTOM VIEW)



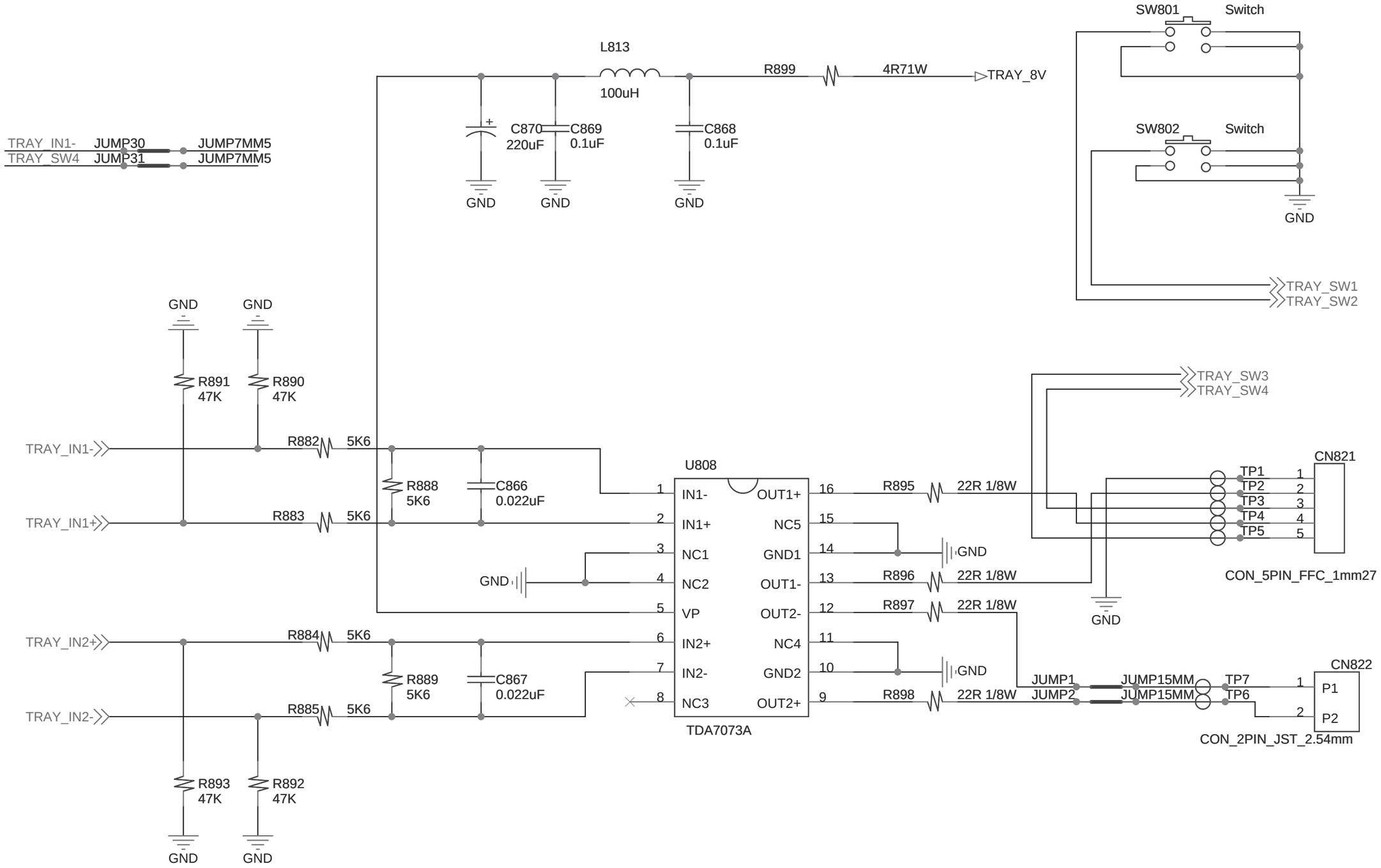
8-4

CIRCUIT DIAGRAM - CD BOARD (PART1)



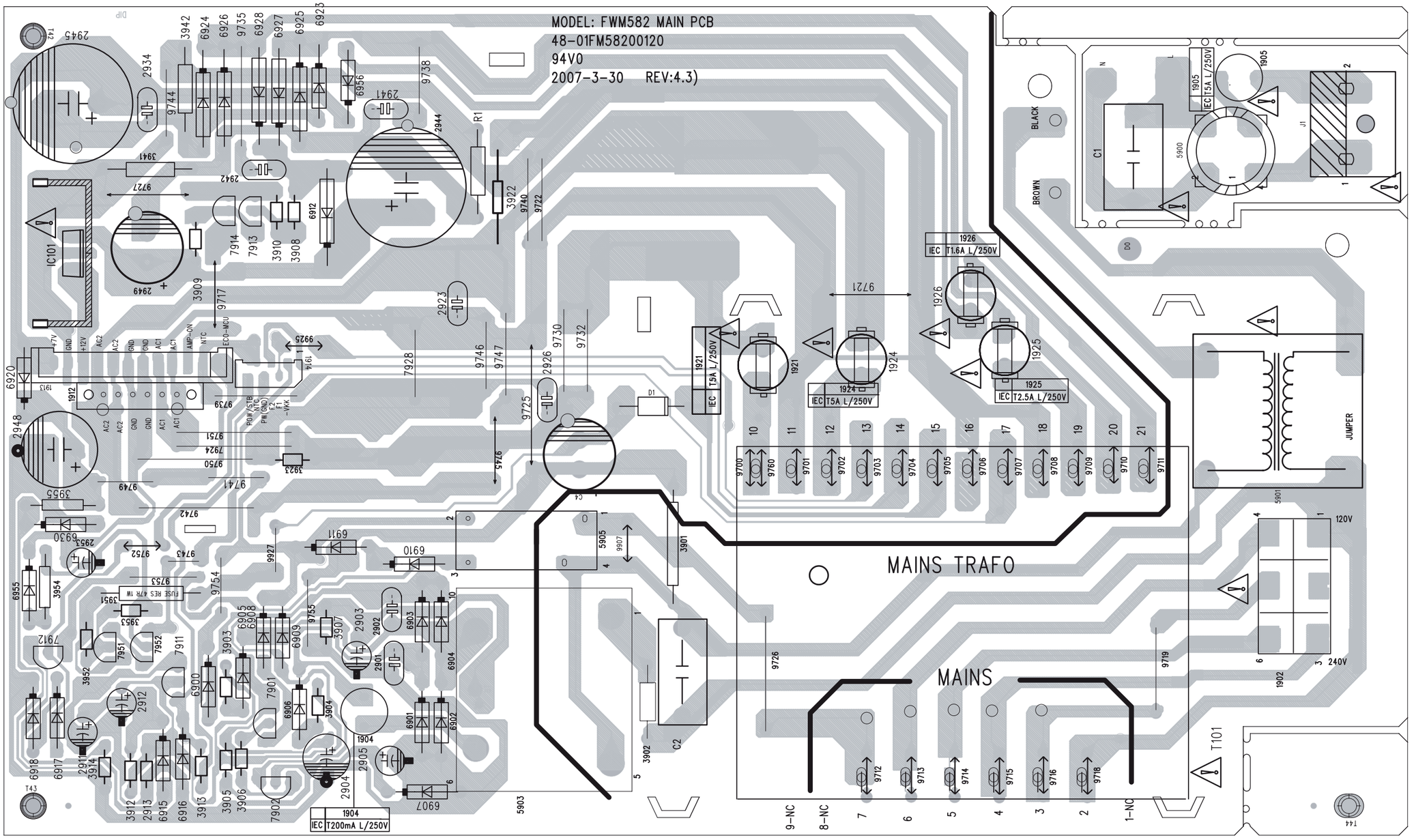
8-5

CIRCUIT DIAGRAM - CD BOARD (PART 2)



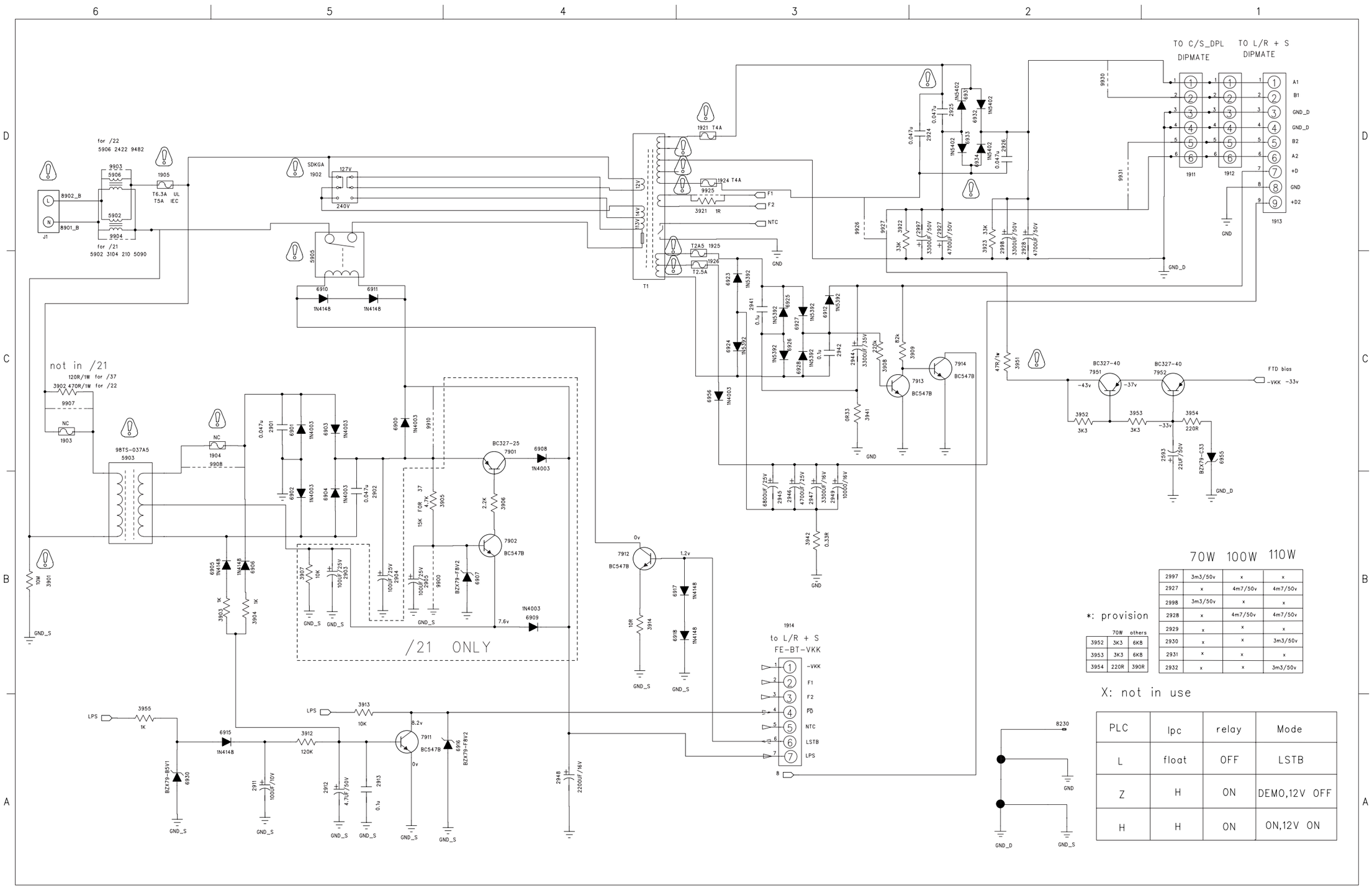
9-1

LAYOUT DIAGRAM - MAINS BOARD (TOP VIEW)

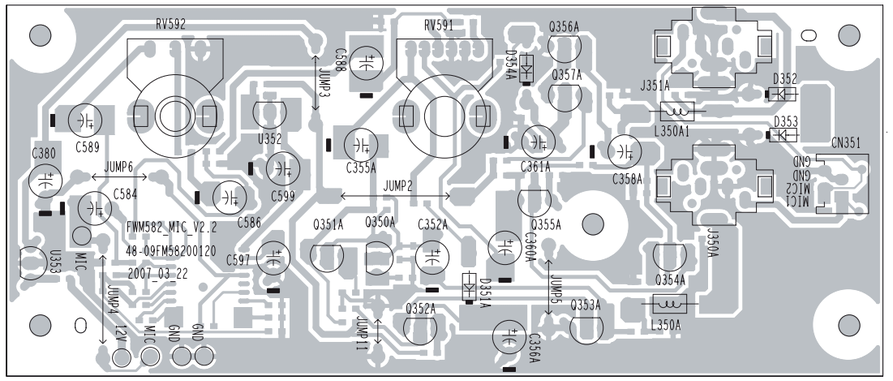


9-2

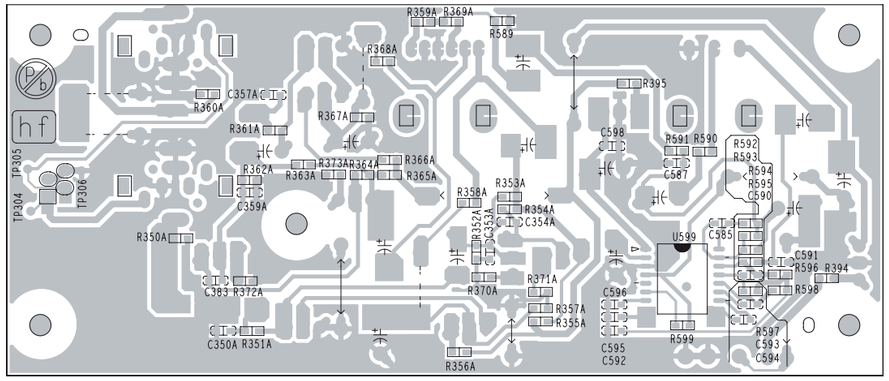
CIRCUIT DIAGRAM - MAINS BOARD



LAYOUT DIAGRAM - MIC BOARD (TOP VIEW)

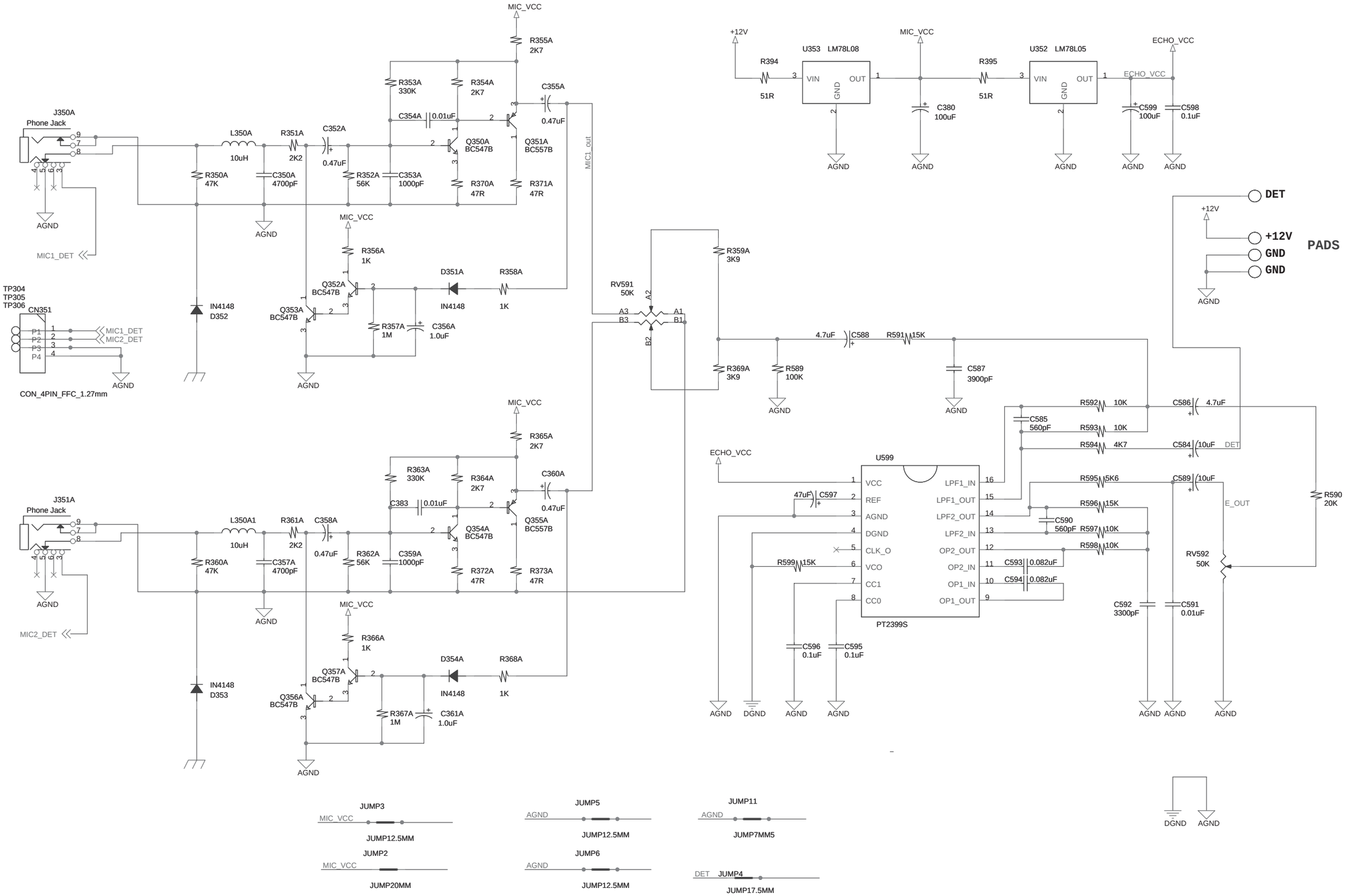


LAYOUT DIAGRAM - MIC BOARD (BOTTOM VIEW)



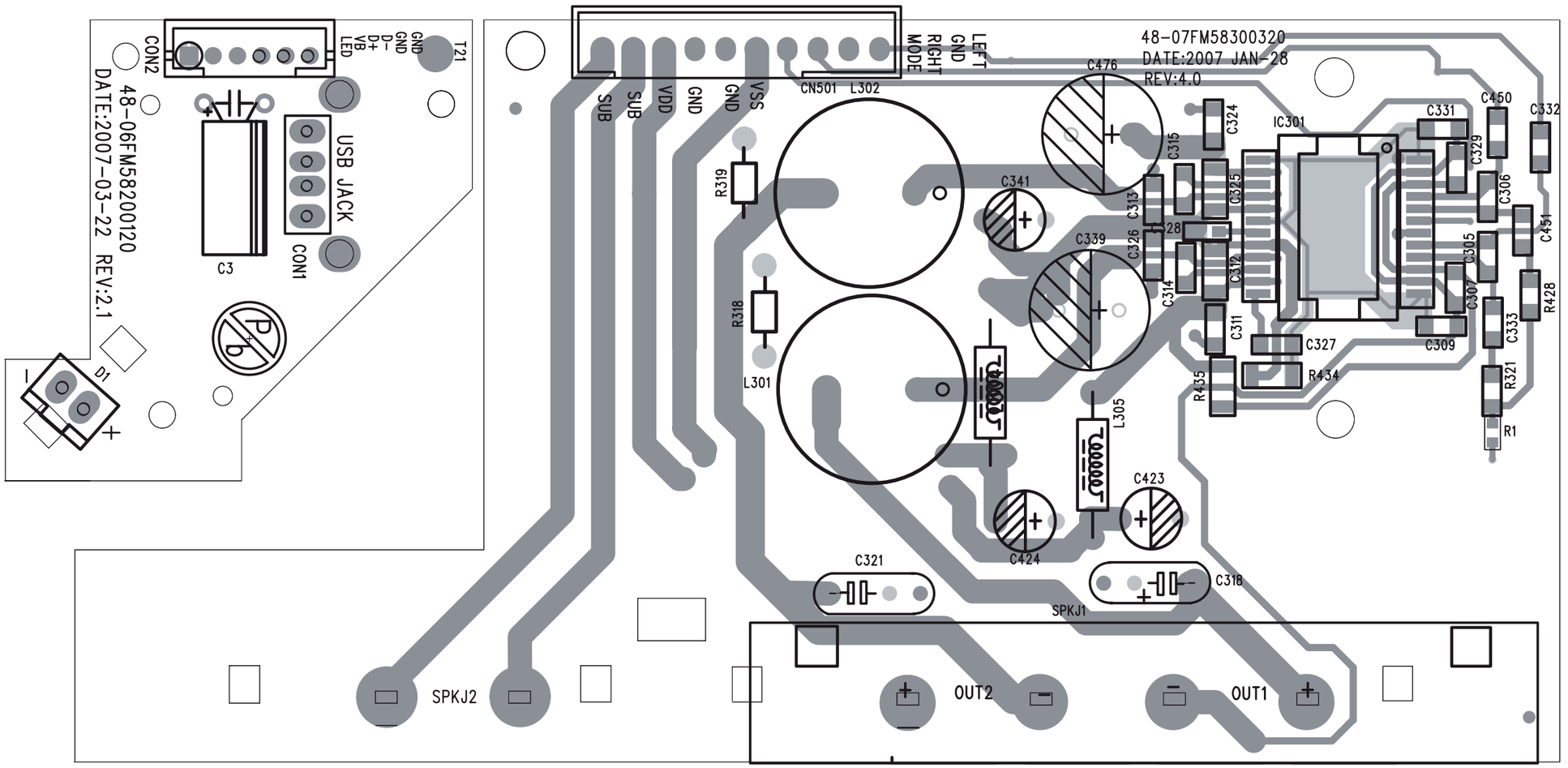
9-4

CIRCUIT DIAGRAM - MIC BOARD



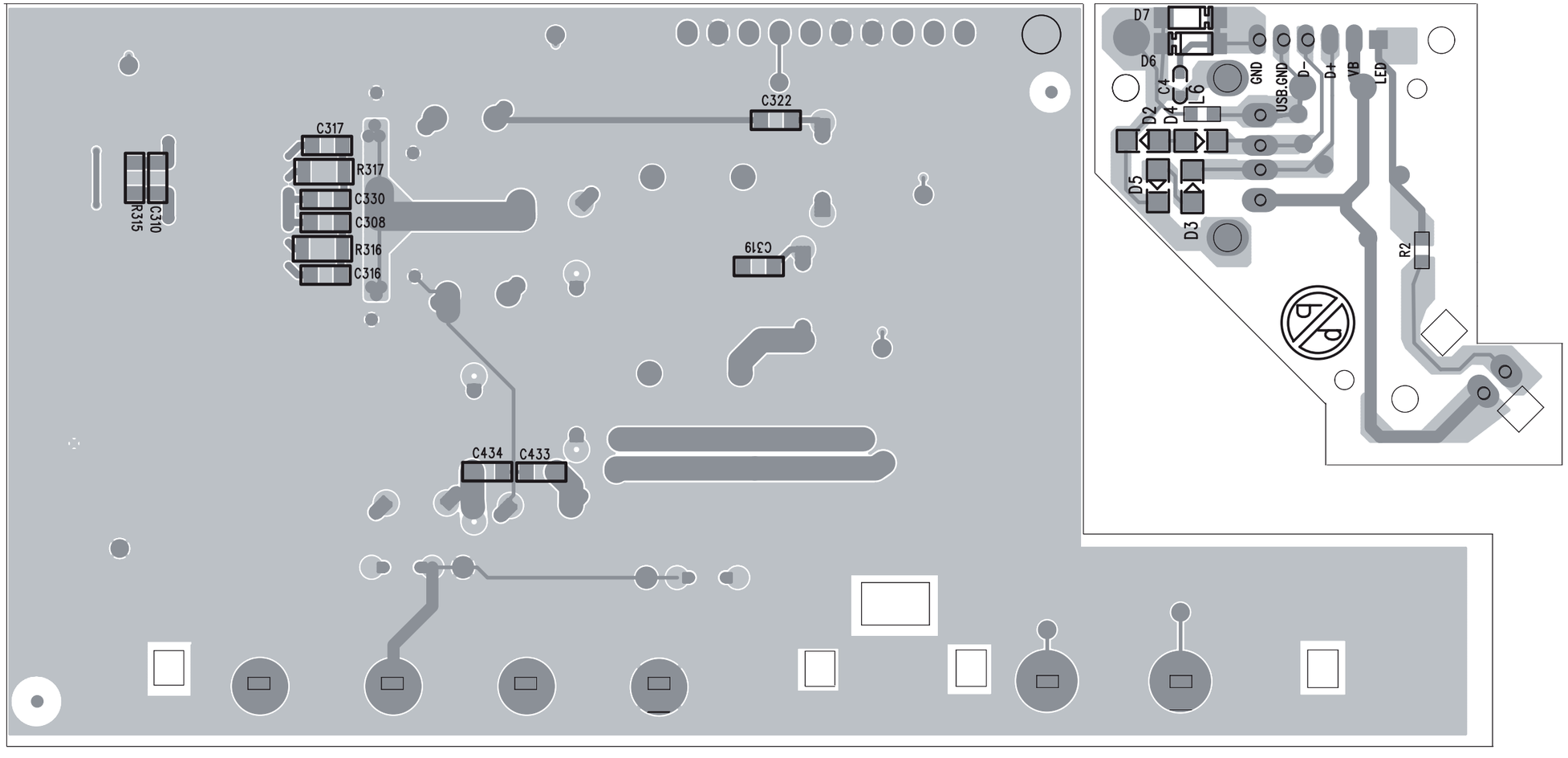
10-1

LAYOUT DIAGRAM - HIGH AMP & USB JACK BOARD (TOP VIEW)



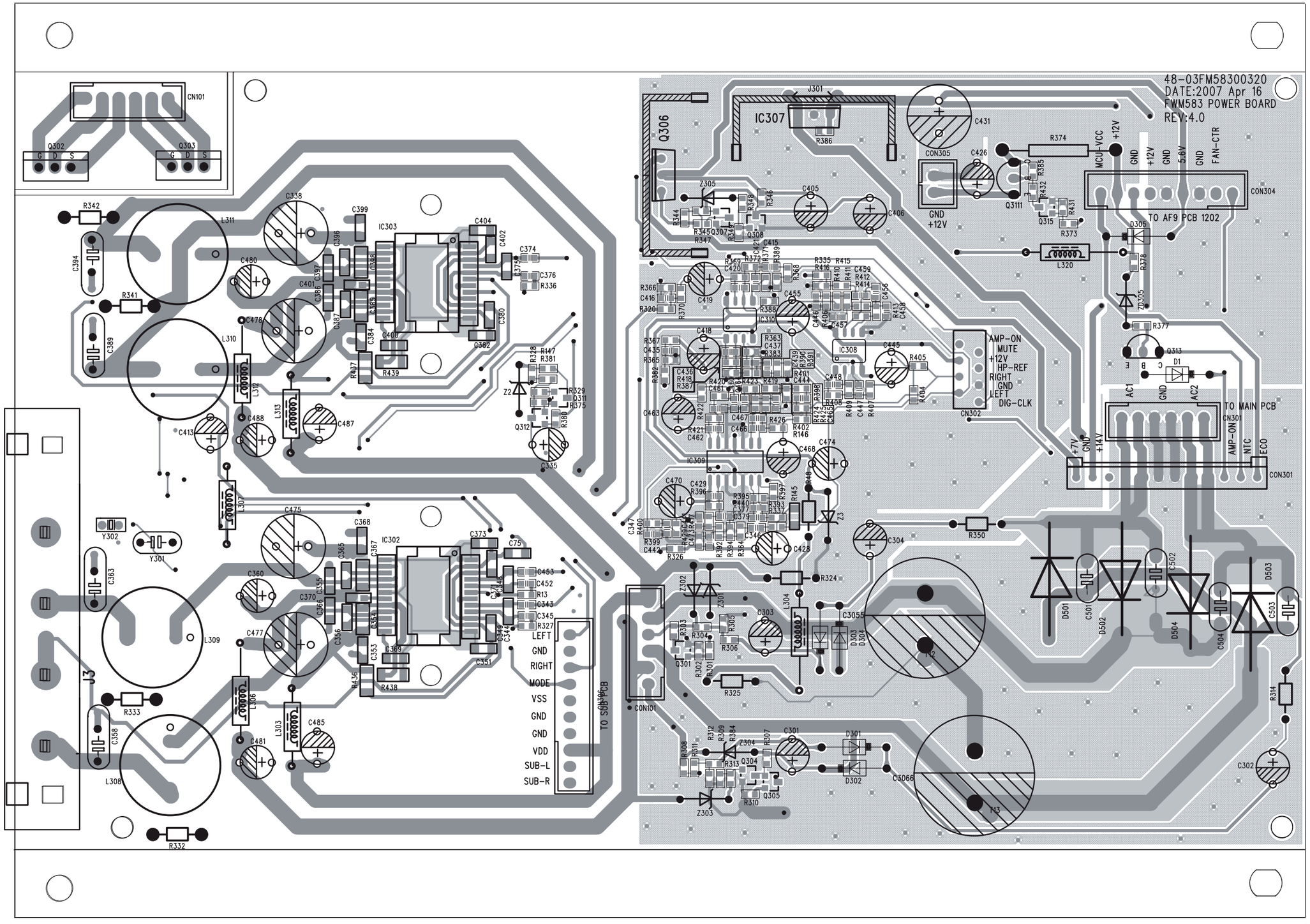
10-2

LAYOUT DIAGRAM - HIGH AMP & USB JACK BOARD (BOTTOM VIEW)



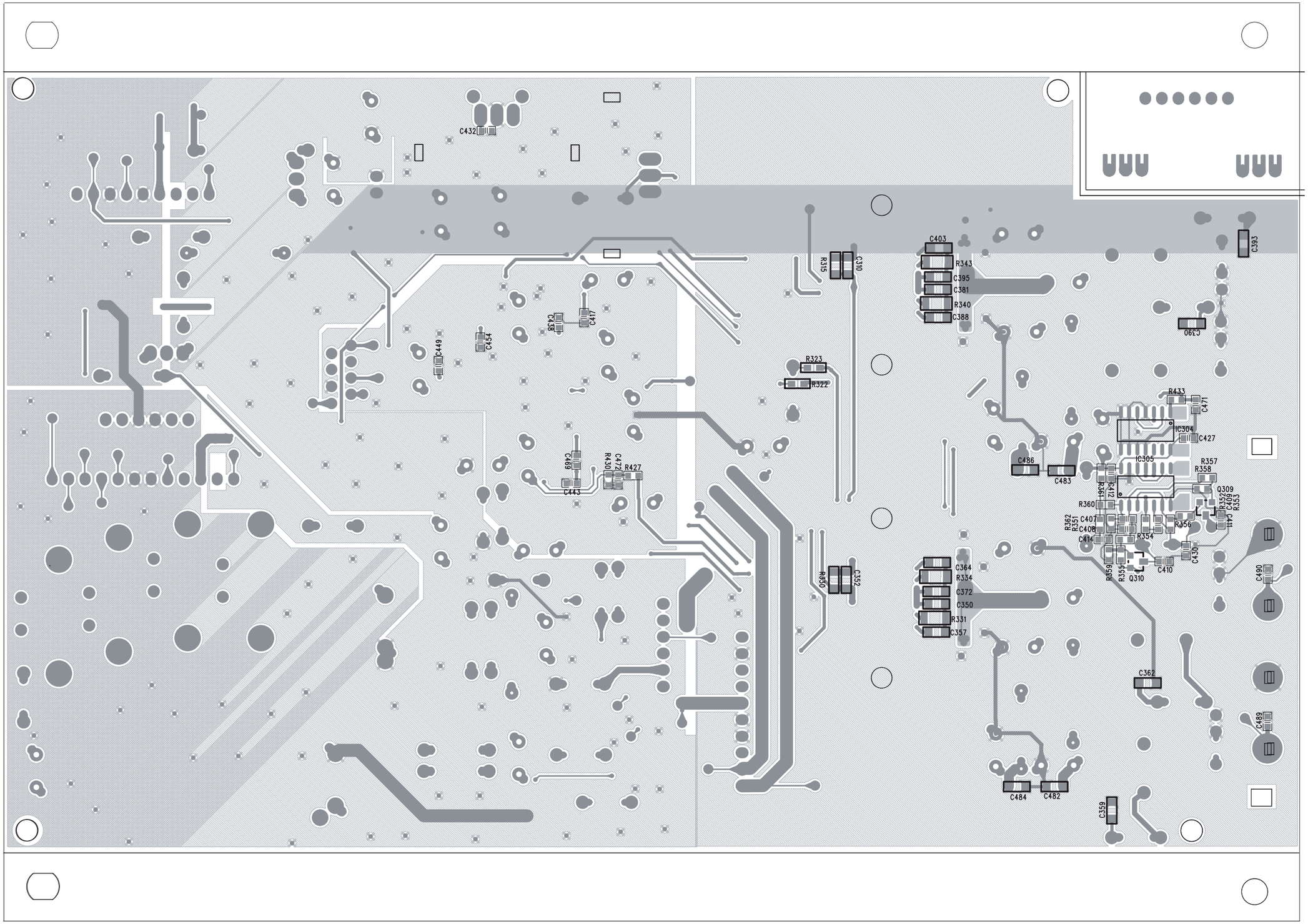
10-3

LAYOUT DIAGRAM - POWER BOARD (TOP VIEW)



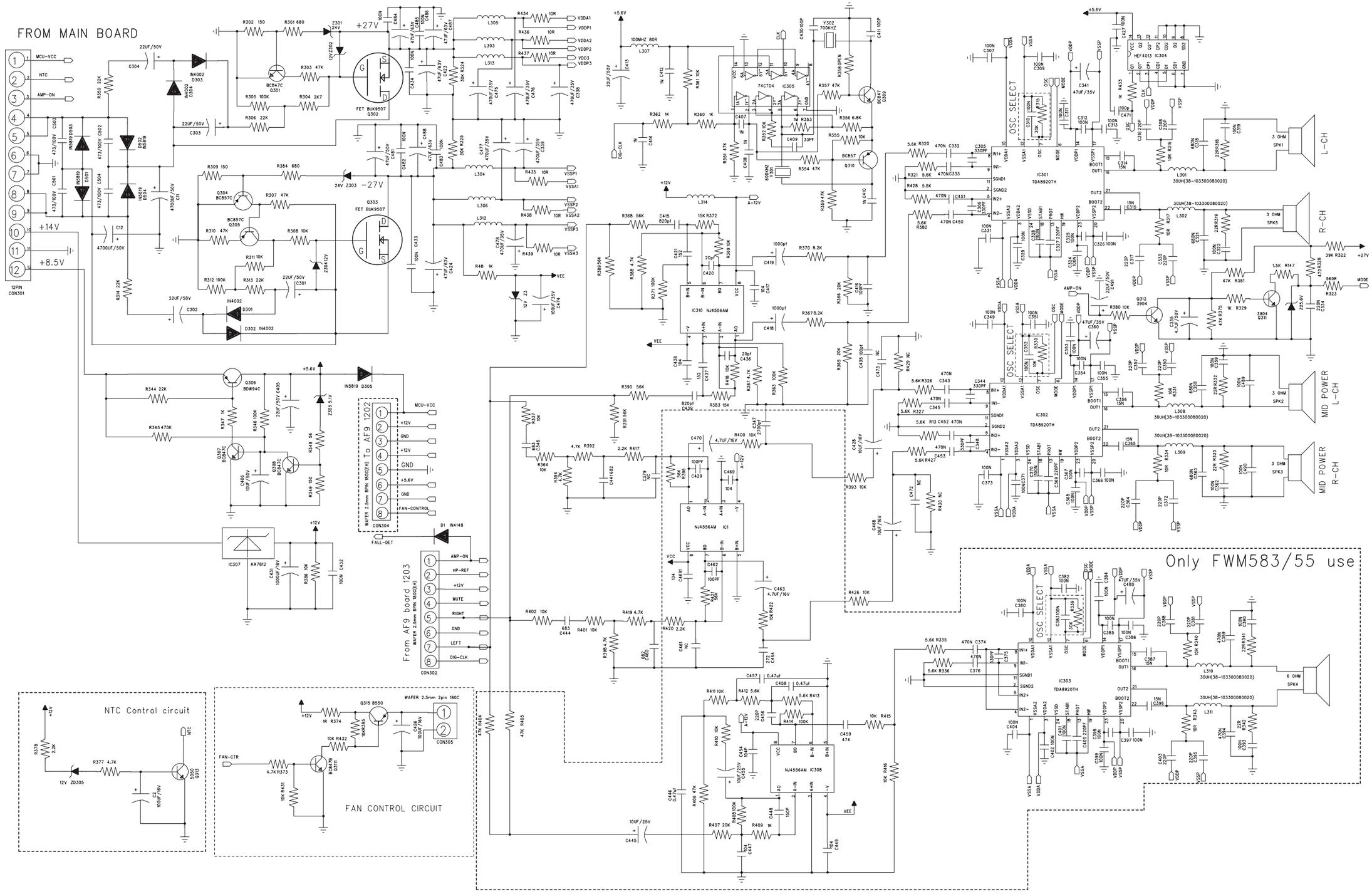
10-4

LAYOUT DIAGRAM - POWER BOARD (BOTTOM VIEW)



10-3

CIRCUIT DIAGRAM - HIGH AMP BOARD & POWER BOARD



AF9 BOARD

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12-1

BRIEF INTRODUCTION OF THE AF9 BOARD

The AF9 Board consists of the following features :

a. TDA7468D IC
TDA7468D IC (7501) which includes functions such as source selection, loudness control, dynamic bass control, treble control, volume control and muting function. Sound features such as ALC, DBB, DSC and IS are controllable via I^2C Bus from the microprocessor.

The TDA7468D IC caters for 4 input sources namely TUNER, TAPE, CD and AUX. It also has a Mic mix input. In our application, software will switch the input source to previous source MUTE during STANDBY mode and some other occasions where noise from other input source is undesirable.

Note that the input to the TDA7468D IC must be ac coupled to prevent 'polp' noise.
Input networks are included to provide appropriate attenuation for various sources.

b. SIMPLE MIC MIXING
The AF9 Board has provisions which can be configured to cater for one of the following:
MM : which caters for Mic mixing with additional Mic amplifier board.
NM : non Mic mixing.

c. DOLBY PRO LOGIC (DPL) INTERFACE
The AF9 Board has provisions which can be configured to cater for DPL.

d. LINE OUT
Line out cinch socket for connection to external amplifier.

e. SUB-WOOFER OUT
Sub-woofer out cinch socket for connection to active sub-woofer speaker.

f. INCREDIBLE SURROUND
Incredible surround effect using transistor circuit to create phase shifting and spatial effect.

g. HEADPHONE AMPLIFIER
Headphone amplifier to drive 32 ohm to 1kohm headphone.

h. CD STANDBY CONTROL
CD Standby Control circuit which switches on the supply to CD servo control IC, digital out buffer IC, HF circuit and the laser light pen in CD mode only.

i. ATTENUATION NETWORK
Attenuation network is provided at the output of the AF9 Board for interfacing with power board of different output power.

j. CD DIGITAL OUT
CD Digital out cinch socket for connection to external digital audio decoders.

12-2

CHIP LAYOUT

2205	A4	2523	C4	2567	C4	2641	C3	2805	D6	3202	A4	3521	A5	3552	D5	3591	C4	3624	B2	3654	B4	3676	D3	3803	D6	4124	C4	4148	A5	4904	C1	7501	C4	7693	C6
2206	C5	2524	C5	2568	D4	2642	C4	2806	D6	3401	B1	3522	A5	3553	C4	3592	D4	3625	B2	3655	B5	3677	D3	3805	C6	4125	C5	4149	C6	4905	B3	7585	C4	7802	D6
2208	B1	2533	C4	2581	D3	2653	A5	2807	C6	3402	B1	3523	A5	3554	D5	3593	C3	3626	B2	3656	A4	3678	D3	3806	C6	4126	A2	4150	C6	4906	A6	7586	D4	7803	B4
2210	B1	2534	D4	2582	D2	2654	A4	2808	C6	3404	B1	3524	A5	3555	C4	3594	D4	3629	C2	3657	A4	3683	B3	3807	D6	4127	B2	4151	A2	4907	A1	7601	C2		
2211	B1	2543	C4	2583	C3	2663	A6	2809	D6	3405	B1	3525	C4	3556	D5	3605	C1	3630	C1	3658	A4	3684	B2	3808	D6	4128	C3	4152	A2	4908	A1	7603	C2		
2401	B1	2544	D4	2584	D2	2664	A6	2810	D6	3406	B1	3526	C4	3557	C4	3606	D2	3633	B5	3659	C2	3685	B3	3809	D6	4130	C2	4153	B1	4909	C6	7604	C2		
2402	B1	2547	C4	2585	C3	2665	A6	2902	D1	3408	B3	3531	D1	3558	D5	3607	C2	3634	B5	3660	D2	3687	B2	3822	B1	4132	C1	4403	B1	4910	C6	7621	B2		
2403	B1	2548	D4	2586	D2	2666	A6	2904	A6	3409	B3	3532	D1	3559	B5	3609	C2	3635	C3	3661	A6	3688	B2	4100	A4	4133	C1	4404	A4	4911	C6	7622	B2		
2404	B2	2553	C4	2587	C3	2667	A6	2905	C2	3501	B6	3533	D2	3560	D5	3610	D2	3636	B4	3662	A6	3689	C2	4101	C6	4134	D4	4405	B3	4912	B1	7623	B2		
2501	B6	2554	D5	2588	D2	2669	B6	2908	C3	3502	A6	3534	D1	3561	B5	3611	C2	3637	C3	3664	A6	3690	C6	4104	B6	4135	C2	4406	B1	4913	B1	7635	B5		
2502	A6	2555	C4	2601	D3	2682	B2	2921	C6	3503	B6	3541	C3	3562	D5	3612	D2	3638	B4	3665	A6	3692	B3	4108	C5	4137	D1	4407	C3	4914	B3	7636	C3		
2505	C4	2556	D4	2602	C3	2683	B3	2922	C1	3504	A6	3543	C4	3563	C5	3613	C2	3639	B5	3666	A6	3694	B1	4110	C5	4138	D2	4501	C5	4915	A1	7651	A5		
2506	C5	2557	C5	2605	C3	2691	B4	2924	C6	3505	B6	3544	D4	3564	D5	3614	C2	3641	D3	3667	A6	3699	C6	4111	C6	4139	B1	4641	D3	4920	C6	7652	A4		
2507	C5	2558	D5	2606	D3	2697	C6	2950	A1	3506	B6	3545	C4	3565	C4	3615	C2	3642	D3	3668	A6	3700	C6	4112	D4	4141	B1	4642	D3	4921	C6	7653	A4		
2513	C3	2559	C4	2607	C3	2698	C6	2951	A2	3507	B6	3546	D4	3566	D5	3616	C2	3644	A2	3669	A6	3707	C3	4113	D4	4142	B1	4801	D6	7201	A4	7654	A5		
2514	C3	2560	D5	2608	D3	2707	C4	2952	A2	3508	B6	3547	C4	3567	C4	3619	C2	3645	C4	3671	D4	3708	C3	4114	C2	4143	A4	4802	A2	7402	B3	7661	A6		
2515	C4	2561	B5	2609	C2	2708	C4	2953	A2	3511	B3	3548	D4	3568	D4	3620	C1	3646	C4	3672	D3	3711	B3	4115	D4	4144	B4	4811	C3	7403	B1	7662	A6		
2516	D4	2562	D3	2610	D2	2801	C6	2954	A5	3512	B3	3549	C4	3569	B4	3621	B2	3651	B4	3673	D4	3712	A6	4116	B5	4145	A1	4812	D2	7404	B1	7663	A6		
2521	A5	2563	C3	2622	B2	2802	D6	2955	B1	3513	C3	3550	D4	3570	D4	3622	C1	3652	C1	3674	D3	3801	C6	4119	D4	4146	A4	4813	C6	7485	B5	7681	B2		
2522	A5	2564	D4	2624	D3	2804	D6	3201	A5	3514	C3	3551	C4	3582	D2	3623	B2	3653	A4	3675	D3	3802	D6	4122	C2	4147	A1	4903	A1	7488	D5	7682	B2		

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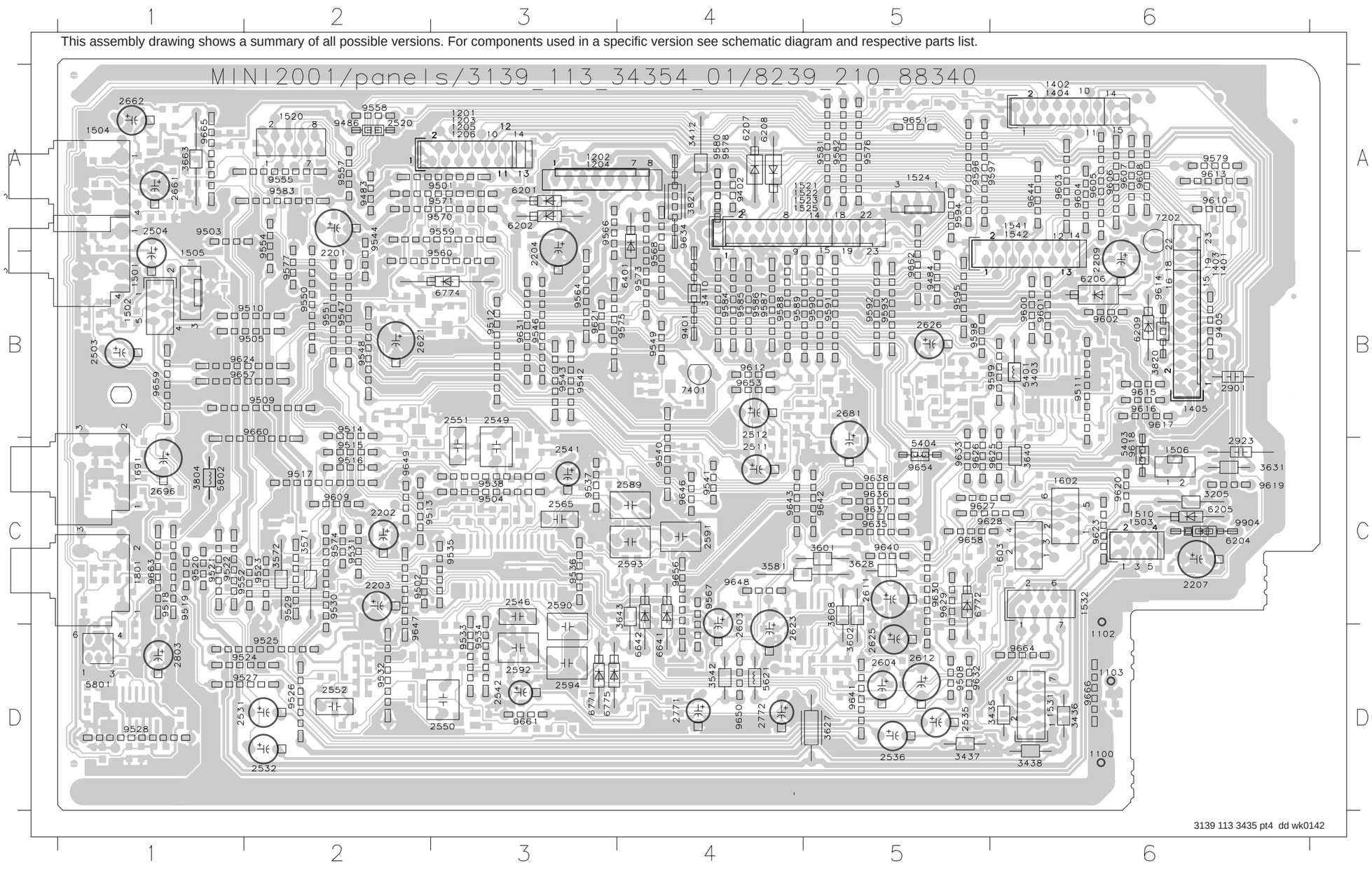
COMPONENT LAYOUT

1100	D6	1503	C6	1603	C6	2535	D5	2603	D4	2923	C6	3627	D5	6202	A3	9401	B4	9513	C2	9529	C2	9547	B2	9570	A3	9587	B4	9603	A6	9620	C6	9637	C5	9657	B1
1102	D6	1504	A1	1691	C1	2536	D3	2604	D5	3205	C6	3628	C5	6204	C6	9402	A4	9514	B2	9530	C2	9548	B2	9571	B2	9588	B4	9604	A6	9621	B3	9638	C5	9658	C5
1103	D6	1505	B1	1801	C1	2541	C3	2611	C5	3403	B6	3631	C6	6205	C6	9403	B6	9515	C2	9531	C2	9549	B2	9572	B2	9589	B4	9605	A6	9622	B3	9639	C5	9659	B2
1201	A3	1506	C6	2201	B2	2542	D3	2612	D5	3640	C6	6206	B6	9483	B5	9516	C2	9532	C2	9550	B2	9573	B2	9590	B4	9606	A6	9623	B3	9640	C5	9660	B2
1202	A3	1510	C6	2202	C2	2546	D3	2621	B2	3410	B4	6207	A4	9484	B5	9517	C2	9533	C2	9551	B2	9574	B2	9591	B4	9607	A6	9624	B3	9641	C5	9661	B3
1203	A3	1520	A5	2203	C2	2549	D3	2623	D4	3412	A4	6208	A4	9485	B5	9518	C2	9534	C2	9552	B2	9575	B2	9592	C1	9608	A6	9625	C6	9642	C5	9662	B5
1204	A3	1521	A5	2204	B3	2550	D3	2625	D5	3435	D6	6209	B6	9501	A3	9519	C2	9535	C2	9553	B2	9576	B2	9593	C1	9609	C6	9626	C5	9643	C5	9663	C1
1205	A3	1522	A5	2207	C6	2551	B3	2626	B5	3436	D6	6401	B4	9502	C2	9520	C1	9536	C3	9554	A2	9577	B2	9594	A2	9610	A6	9627	C5	9644	A6	9664	D6
1206	A3	1523	A5	2209	B6	2552	D2	2661	A1	3438	D6	6641	D4	9503	A1	9521	C1	9537	C3	9555	A2	9578	A4	9595	B5	9611	A6	9628	C5	9645	C4	9665	A1
1401	B6	1524	A5	2503	B1	2565	C3	2662	A1	3542	D4	6642	D4	9504	C3	9522	C1	9538	C3	9556	A2	9579	A6	9596	A5	9612	B4	9629	C5	9646	C4	9666	D6
1402	A6	1525	A5	2504	A1	2589	C4	2681	B5	3571	C2	6771	D3	9505	B2	9523	C2	9539	C3	9557	A2	9580	A5	9597	A6	9613	A6	9630	C5	9647	D2	9665	A1
1403	B6	1531	D6	2511	C4	2590	C3	2696	C1	3572	C2	6772	C5	9508	D5	9524	C2	9540	C3	9558	A2	9581	A5	9598	B5	9614	B6	9631	B3	9648	C4	9666	D6
1404	A6	1532	C6	2512	B4	2591	C4	2771	D4	3581	C4	6774	B3	9509	B2	9525	D2	9541	C4	9559	A2	9582	A5	9599	B6	9615	B6	9632	D5	9649	C2	9904	C6
1405	B6	1541	A6	2520	A2	2592	D3	2772	D4	3601	C5	6775	D3	9510	B2	9526	D2	9542	B3	9560	A2	9583	A2	9600	B6	9616	B6	9633	C5	9650	D4				
1501	B1	1542	A6	2531	D1	2593	C4	2803	D1	3602	D5	5802	C1	7202	A6	9511	B6	9527	D2	9543	B2	9561	A2	9584	B4	9601	B6	9617	B6	9634	A4	9651	A5		
1502	B1	1602	C6	2532	D2	2594	D3	2901	B6	3608	C5	6201	A3	7401	B4	9512	B3	9528	D1	9546	B3	9568	B4	9586	B4	9602	B6	9619	C6	9636	C5	9656	C4		



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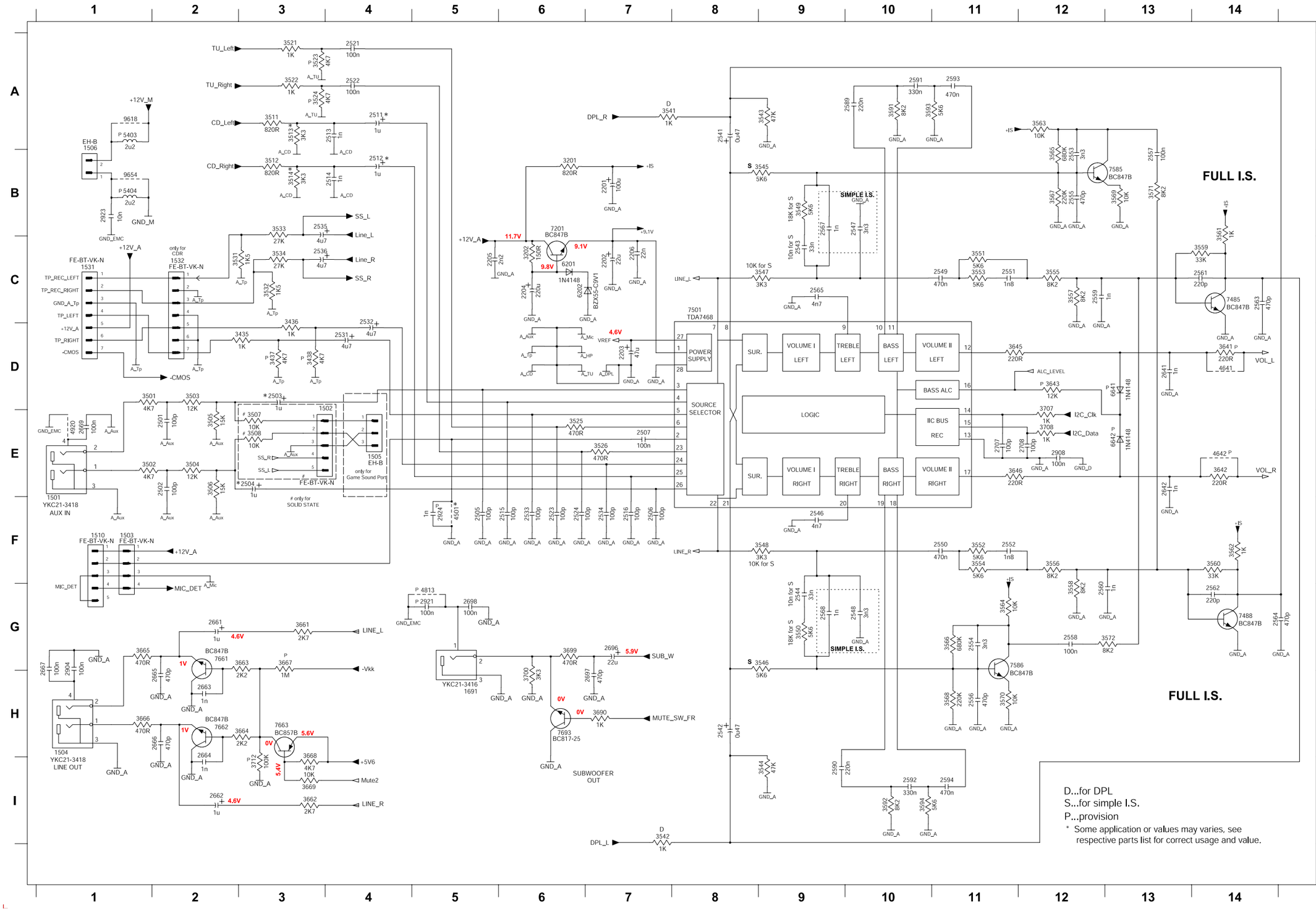
SOURCE SELECTION & SOUND PROCESSING CIRCUIT

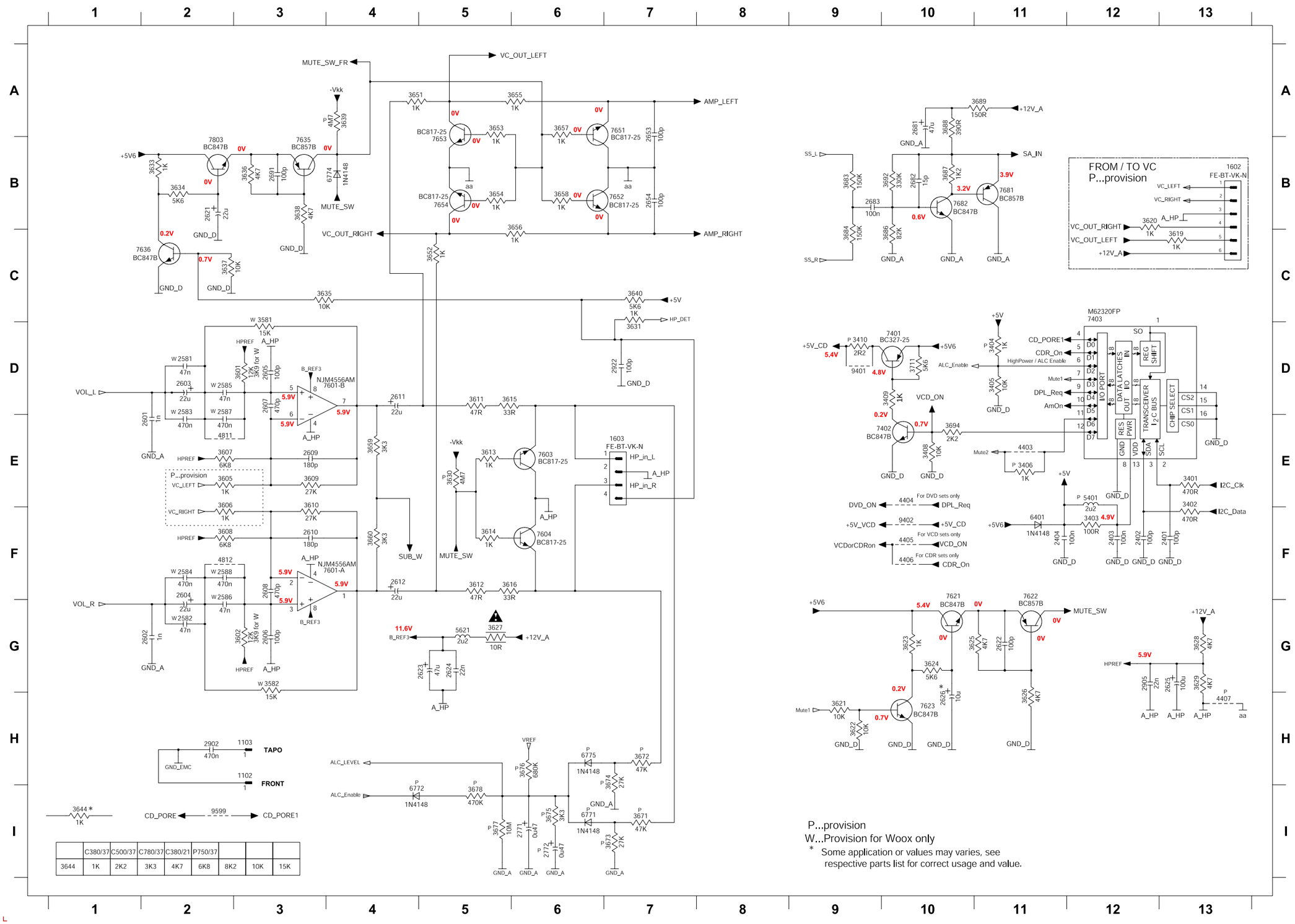


1501	E1	3511	A3
1502	E3	3512	B3
1503	F1	3513	A3
1504	H1	3514	B3
1505	E4	3521	A3
1506	A1	3522	A3
1510	F1	3523	A3
1531	C1	3524	A3
1532	C2	3525	E6
1691	H5	3526	E7
2201	B7	3531	C2
2202	C7	3532	C3
2203	D7	3533	B3
2204	C6	3534	C3
2205	C5	3541	A7
2206	C7	3542	I7
2501	E2	3543	A9
2502	E2	3544	I9
2503	D3	3545	B9
2504	E3	3546	G9
2505	F5	3547	C9
2506	F7	3548	F9
2507	E7	3549	B9
2511	A4	3550	G9
2512	B4	3551	C11
2513	A4	3552	F11
2514	B4	3553	C11
2515	F6	3554	F11
2516	F7	3555	C12
2521	A4	3556	F12
2522	A4	3557	C12
2523	F6	3558	G12
2524	F6	3559	C14
2531	D4	3560	F14
2532	C4	3561	B14
2533	F6	3562	F14
2534	F7	3563	A12
2535	B3	3564	G11
2536	C3	3565	B12
2541	A8	3566	G11
2542	H8	3567	B12
2543	C9	3568	H11
2544	G9	3569	B13
2546	F9	3570	H11
2547	B10	3571	B13
2548	G10	3572	G13
2549	C11	3591	A10
2550	F11	3592	I10
2551	C11	3593	A10
2552	F11	3594	I10
2553	B12	3641	D14
2554	G11	3642	E14
2555	B12	3643	D12
2556	H11	3645	D11
2557	B13	3646	E11
2558	G12	3661	G3
2559	C12	3662	I3
2560	G12	3663	G3
2561	C14	3664	H3
2562	G14	3665	G1
2563	C14	3666	H1
2564	G14	3667	G3
2565	C9	3668	I3
2567	B9	3669	I3
2568	G9	3690	H7
2589	A10	3699	G6
2590	I9	3700	H6
2591	A10	3707	E12
2592	I10	3708	E12
2593	A11	3712	I3
2594	I11	4501	F5
2641	D13	4641	D14
2642	E13	4642	E14
2661	G2	4813	G5
2662	I2	4920	E1
2663	H2	5403	A1
2664	I2	5404	B1
2665	H2	6201	C6
2666	H2	6202	C6
2667	G1	6641	D13
2669	E1	6642	E13
2696	G7	7201	B6
2697	H7	7485	C14
2698	G5	7488	G14
2707	E11	7501	C8
2708	E12	7585	B13
2904	G1	7586	G11
2908	E12	7661	G2
2921	G5	7662	H2
2923	B1	7663	H3
2924	F5	7693	H6
3201	B6	9618	A1
3202	C6	9654	B1
3435	D3		
3436	D3		
3437	D3		
3438	D3		
3501	D1		
3502	E1		
3503	D2		
3504	E2		
3505	E2		
3506	E2		
3507	E3		
3508	E3		

D...for DPL
S...for simple I.S.
P...provision
* Some application or values may varies, see respective parts list for correct usage and value.

12-5

HEADPHONE AMPLIFIER & I²C EXPANDER CIRCUIT



P...provision
W...Provision for Woox only
* Some application or values may varies, see respective parts list for correct usage and value.

1102	H3
1103	H3
1602	B13
1603	E7
2401	F13
2402	F12
2403	F12
2404	F11
2581	D2
2582	G2
2583	D2
2584	F2
2585	D2
2586	F2
2587	D2
2588	F2
2601	E2
2602	G2
2603	D2
2604	F2
2605	D3
2606	G3
2607	D3
2608	F3
2609	E3
2610	F3
2611	D4
2612	F4
2621	B2
2622	G11
2623	G5
2624	G5
2625	G13
2626	H10
2653	A7
2654	B7
2681	A10
2682	B10
2683	B9
2691	B3
2771	I6
2772	I6
2902	H2
2905	G12
2922	D7
3401	E13
3402	E13
3403	F12
3404	D11
3405	D11
3406	E11
3408	E10
3409	D10
3410	D9
3581	D3
3582	G3
3601	D3
3602	G3
3605	E2
3606	F2
3607	E2
3608	F2
3609	E3
3610	F3
3611	D5
3612	F5
3613	E5
3614	F5
3615	D5
3616	F5
3619	C13
3620	B12
3621	H9
3622	H9
3623	G10
3624	G10
3625	G10
3626	H11
3627	G5
3628	G13
3629	G13
3630	E5
3631	D7
3633	B2
3634	B2
3635	C3
3636	B3
3637	C2
3638	B3
3639	A4
3640	C7
3644	I1
3651	A4
3652	C5
3653	A5
3654	B5
3655	A6
3656	C6
3657	A6
3658	B6
3659	E4
3660	F4
3671	I7
3672	H7
3673	I7
3674	H7
3675	I6
3676	H6
3677	I5
3678	I5
3683	B9
3684	C9
3686	C10
3687	B10
3688	A10
3689	A11
3692	B10
3694	E10
3711	D10
4403	E11
4404	E10
4405	F10
4406	F10
4407	H13
4811	E2
4812	F2
5401	E12
5621	B2
5621	G11
6401	F11
6771	I6
6772	I4
6774	B4
6775	H10
7401	D10
7402	E10
7403	C12
7601-A	G3
7601-B	D3
7603	E6
7604	F6
7621	F10
7622	F11
7623	H10
7635	B3
7636	C2
7651	A7
7652	B7
7653	B5
7654	B5
7681	B11
7682	B10
7803	B2
9401	D9
9402	F10
9599	I2

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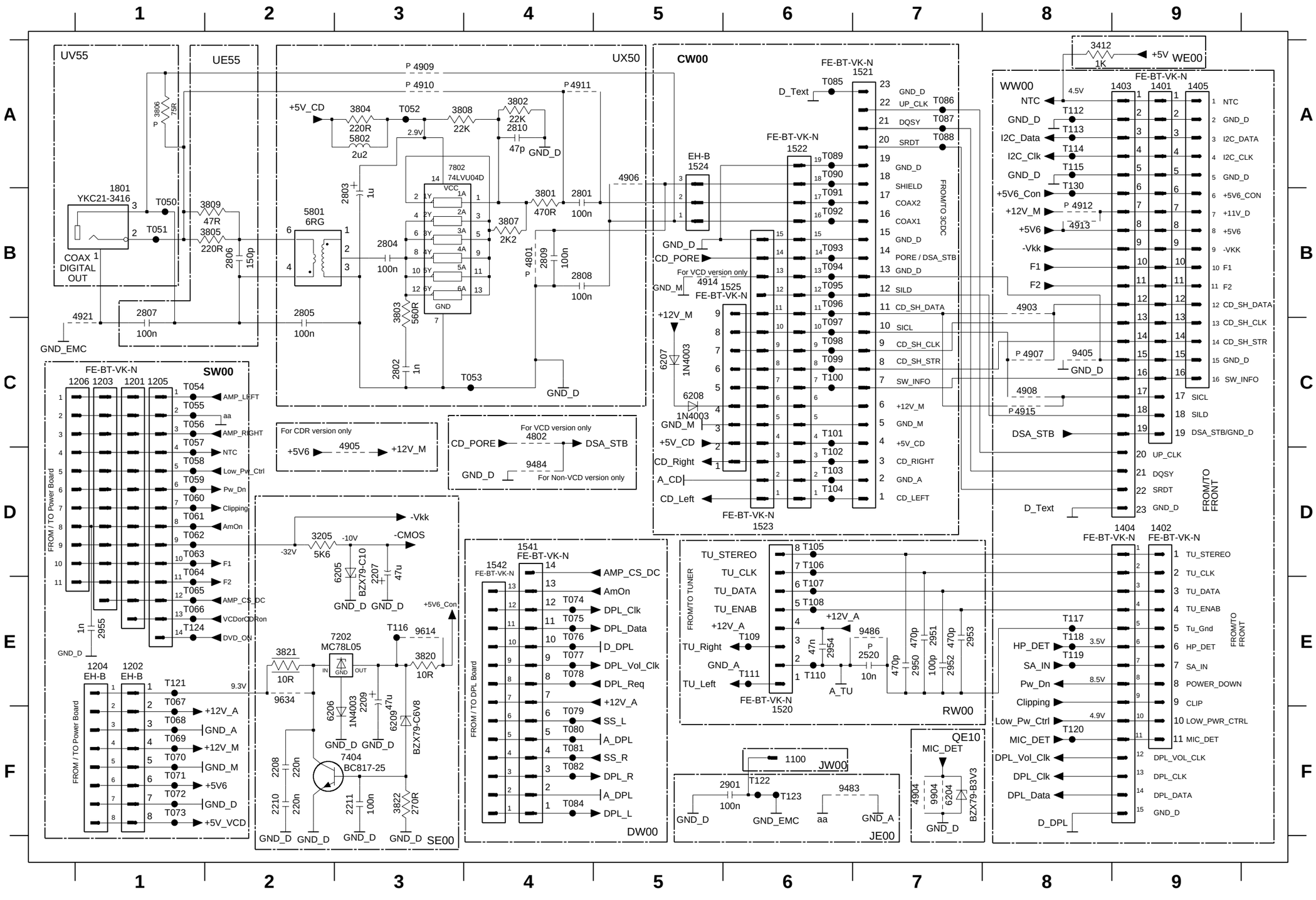
DIGITAL OUT & INTERCONNECTION CIRCUIT



Updated on 15 SEPT 2003

1100 F6	T054 C1	3412 A8	T100 C6
1201 C1	T055 C1	3801 B4	T101 C6
1202 E1	T056 C1	3802 A4	T102 D6
1203 C1	T057 C1	3803 B3	T103 D6
1204 E1	T058 D1	3804 A3	T104 D6
1205 C1	T059 D1	3805 B2	T105 D6
1206 C1	T060 D1	3806 A1	T106 D6
1401 A9	T061 D1	3807 B4	T107 E6
1402 D9	T062 D1	3808 A3	T108 E6
1403 A9	T063 D1	3809 B2	T109 E6
1404 D9	T064 D1	3820 E3	T110 E6
1405 A9	T065 E1	3821 E2	T111 E6
1520 E6	T066 E1	3822 F3	T112 A8
1521 A7	T067 E1	4801 B4	T113 A8
1522 A6	T068 F1	4802 C4	T114 A8
1523 D6	T069 F1	4903 B8	T115 A8
1524 A5	T070 F1	4904 F7	T116 E3
1525 B5	T071 F1	4905 D3	T117 E8
1541 D4	T072 F1	4906 A5	T118 E8
1542 D4	T073 F1	4907 C8	T119 E8
1801 B1	T074 E4	4908 C8	T120 F8
2207 D3	T075 E4	4909 A3	T121 E1
2208 F2	T076 E4	4910 A3	T122 F6
2209 E3	T077 E4	4911 A4	T123 F6
2210 F2	T078 E4	4912 B8	T124 E1
2211 F3	T079 F4	4913 B8	T130 B8
2520 E7	T080 F4	4914 B5	
2801 B4	T081 F4	4915 C8	
2802 C3	T082 F4	4921 C1	
2803 B3	T084 F4	5801 B2	
2804 B3	T085 A6	5802 A3	
2805 B2	T086 A7	6204 F7	
2806 B2	T087 A7	6205 D3	
2807 B1	T088 A7	6206 F2	
2808 B4	T089 A6	6207 C5	
2809 B4	T090 A6	6208 C5	
2810 A4	T091 B6	6209 F3	
2901 F6	T092 B6	7202 E3	
2950 E7	T093 B6	7404 F3	
2951 E7	T094 B6	7802 A3	
2952 E7	T095 B6	9405 C8	
2953 E7	T096 B6	9483 F6	
2954 E6	T097 C6	9484 D4	
2955 E1	T098 C6	9486 E7	
3205 D2	T099 C6	9614 E3	
		9634 E2	
		9904 F7	
		T050 B1	
		T051 B1	
		T052 A3	
		T053 C4	

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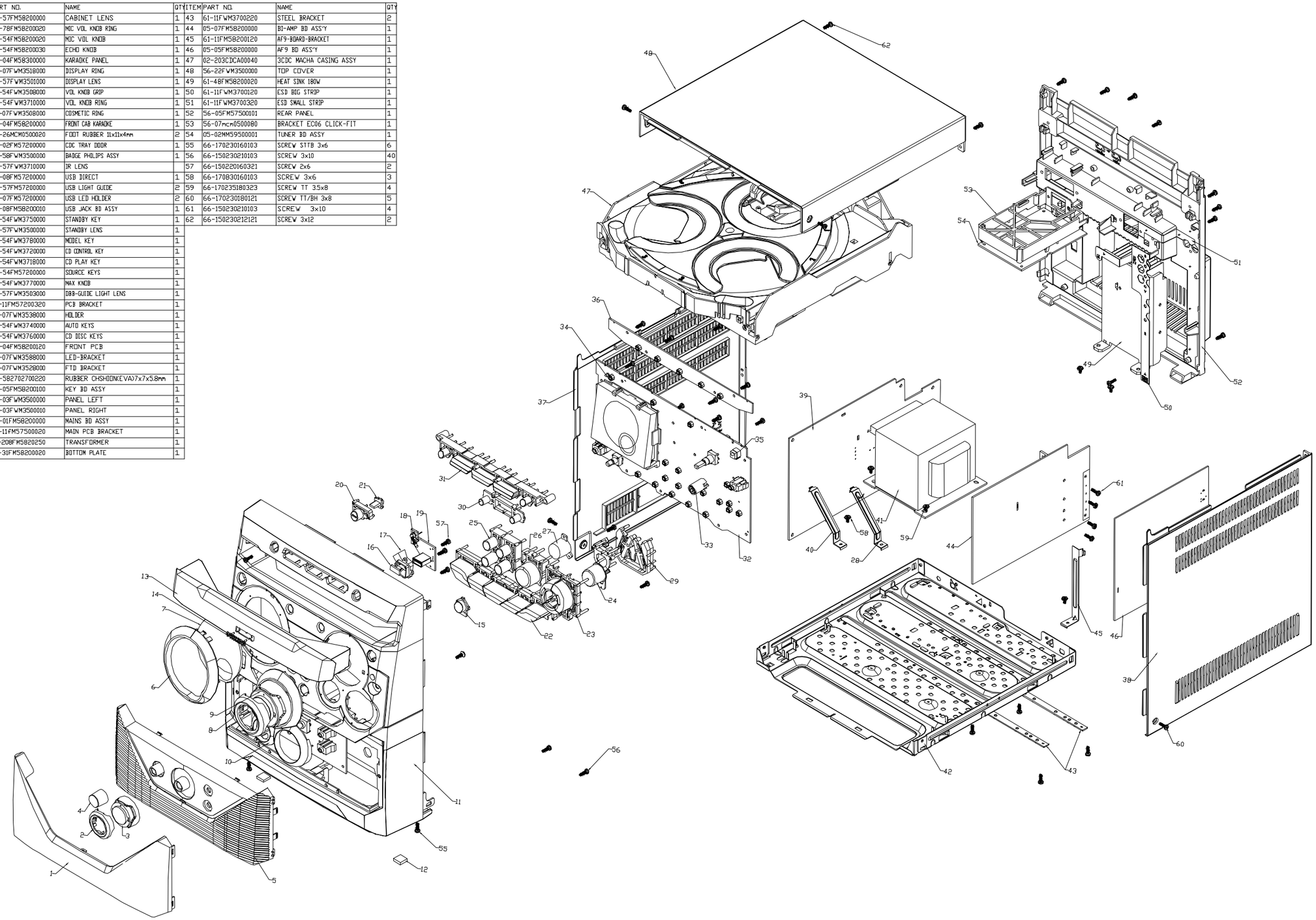
SET MECHANICAL EXPLODED VIEW

ITEM	PART NO.	NAME	QTY
1	56-57FM58200000	CABINET LENS	1
2	56-78FM58200020	MIC VOL KNOB RING	1
3	56-54FM58200020	MIC VOL KNOB	1
4	56-54FM58200030	ECHO KNOB	1
5	56-04FM58300000	KARAOKE PANEL	1
6	56-07FWM3518000	DISPLAY RING	1
7	56-57FWM3501000	DISPLAY LENS	1
8	56-54FWM3508000	VOL KNOB GRIP	1
9	56-54FWM3710000	VOL KNOB RING	1
10	56-07FWM3508000	COSMETIC RING	1
11	56-04FM58200000	FRONT CAB KARAOKE	1
12	58-26MCM0500020	FOOT RUBBER 11x11x4mm	2
13	56-02FM57200000	CDC TRAY DOOR	1
14	56-58FWM3500000	BADGE PHILIPS ASSY	1
15	56-57FWM3710000	IR LENS	
16	56-08FM57200000	USB DIRECT	1
17	56-57FM57200000	USB LIGHT GUIDE	2
18	56-07FM57200000	USB LED HOLDER	2
19	05-08FM58200010	USB JACK BD ASSY	1
20	56-54FWM3750000	STANDBY KEY	1
21	56-57FWM3500000	STANDBY LENS	1
22	56-54FWM3780000	MODEL KEY	1
23	56-54FWM3720000	CD CONTROL KEY	1
24	56-54FWM3718000	CD PLAY KEY	1
25	56-54FM57200000	SOURCE KEYS	1
26	56-54FWM3770000	MAX KNOB	1
27	56-57FWM3503000	DBB-GUIDE LIGHT LENS	1
28	61-11FM57200320	PCB BRACKET	1
29	56-07FWM3538000	HOLDER	1
30	56-54FWM3740000	AUTO KEYS	1
31	56-54FWM3760000	CD DISC KEYS	1
32	48-04FM58200120	FRONT PCB	1
33	56-07FWM3588000	LED-BRACKET	1
34	56-07FWM3528000	FTD BRACKET	1
35	58-582702700220	RUBBER CHSHIONKEVA)7x7x5.8mm	1
36	05-05FM58200100	KEY BD ASSY	1
37	56-03FWM3500000	PANEL LEFT	1
38	56-03FWM3500010	PANEL RIGHT	1
39	05-01FM58200000	MAINS BD ASSY	1
40	61-11FM57500020	MAIN PCB BRACKET	1
41	18-208FM5820250	TRANSFORMER	1
42	61-31FM58200020	BOTTOM PLATE	1

ITEM	PART NO.	NAME	QTY
43	61-11FWM3700220	STEEL BRACKET	2
44	05-07FM58200000	BI-AMP BD ASS'Y	1
45	61-11FM58200120	AF9-BOARD-BRACKET	1
46	05-05FM58200000	AF9 BD ASS'Y	1
47	02-203CDCA00040	3CDC MACHA CASING ASSY	1
48	56-22FWM3500000	TOP COVER	1
49	61-48FM58200020	HEAT SINK 180W	1
50	61-11FWM3700120	ESD BIG STRIP	1
51	61-11FWM3700320	ESD SMALL STRIP	1
52	56-05FM57500101	REAR PANEL	1
53	56-07MCM0500080	BRACKET EC06 CLICK-FIT	1
54	05-02MM59500001	TUNER BD ASSY	1
55	66-170230160103	SCREW STTB 3x6	6
56	66-150230210103	SCREW 3x10	40
57	66-150220160321	SCREW 2x6	2
58	66-170830160103	SCREW 3x6	3
59	66-170235180323	SCREW TT 3.5x8	4
60	66-170230180121	SCREW TT/BH 3x8	5
61	66-150230210103	SCREW 3x10	4
62	66-150230212121	SCREW 3x12	2



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MECHANICAL & ACCESSORIES PARTS LIST

1	996510004022	CABINET LENS
2	996510004023	MIC VOL KNOB RING
3	996510004013	MIC VOL KNOB
4	996510004014	ECHO KNOB
5	996510004010	KARAOKE PANEL
6	996510004012	DISPLAY RING
7	994000001308	DISPLAY LENS
8	996510004024	VOL KNOB RING
9	996510004021	VOL KNOB GRIP
10	994000001281	COSMETIC RING
11	996510004009	FRONT CAB KARAOKE
13	996510006292	CDC TRAY DOOR
15	996500038473	IR LENS
16	994000004495	USB DIRECT
17	994000004514	USB LIGHT GUIDE LENS
20	996510004019	STANDBY KEY
21	994000001307	STANDBY LENS
22	996510006295	MODEL KEY
23	996510006294	CD CONTROL KEY
24	996510004016	CD PLAY KEY
25	996510004015	SOURCE KEYS
26	994000004512	MAX KNOB
27	996510000987	DBB-GUIDE LIGHT LENS
30	996510004020	AUTO KEYS
31	996510000984	CD DISC KEYS
37	994000001276	PANEL LEFT
38	994000001277	PANEL RIGHT
41	⚠996510004003	TRANSFORMER EI86x65 127/240V
47	996510004001	3CD MECHA CASING ASS'Y
48	994000001285	TOP COVER
52	996510006293	REAR PANEL
54	994000001964	TUNER BOARD ASS'Y

B	996510003974	REMOTE CONTROL
C	996510003975	SPK BOX L+R
D	994000001192	AM LOOP ANTENNA LAN-031
E	⚠994000001478	AC PLUG ADAPTOR
F	⚠996500037714	AC CORD SET VDE APP 1.8
G	994000001381	FM ANT (BLACK) 1M
L	994000003669	CD MECHANISM DA11VF
M	994000004487	16P FFC 1MM L=170MM
N	996510004002	19P FFC 1.25mm L80mm (AA)
O	994000004457	5P FFC L=200MM(AA)
P	996510004004	15P FFC 1.25mm L120mm(AB)
Q	994000001362	8P FFC1.25MM L=160MM
R	996510004005	4P FFC 1.25mm L180mm (AB)
S	996510004006	12P FFC 1.25mm L250mm (AA)
T	996510004007	25P FFC 1.25mm L250mm AB
U	994000004462	4P FFC 1.25MM L=270MM(AA)
V	994000001258	6P FFC 1.25MM L=280MM

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

ELECTRICAL PARTSLIST

FRONT BOARD

D201	994000001234	LED LAMP 3MM (RED)
IR200	994000000325	OPTIC SENSER (OPTO..)
J201	994000001244	PHONE JACK 3.5MM
JOG200	994000001241	ROTARY ENCODER
SW206	994000001243	TACT SWITCH
SW207	994000001243	TACT SWITCH
SW208	994000001243	TACT SWITCH
SW209	994000001243	TACT SWITCH
SW210	994000001243	TACT SWITCH
SW211	994000001243	TACT SWITCH
SW212	994000001243	TACT SWITCH
SW213	994000001243	TACT SWITCH
SW214	994000001243	TACT SWITCH
SW215	994000001243	TACT SWITCH
SW216	994000001243	TACT SWITCH
SW217	994000001243	TACT SWITCH
SW218	994000001243	TACT SWITCH
SW219	994000001243	TACT SWITCH
SW220	994000001243	TACT SWITCH
SW221	994000001243	TACT SWITCH
SW222	994000001243	TACT SWITCH
SW223	994000001243	TACT SWITCH
SW224	994000001243	TACT SWITCH
U200	994000004542	IC PT6315
VFD201	996510003978	VFD DISPLAY QG/ZBOE-VFD

MAINS BOARD

1902		994000001323	SWITCH
1905	⚠	994000001223	FUSE RADIAL T5A 250V
1921	⚠	994000001223	FUSE RADIAL T5A 250V
1924	⚠	994000001223	FUSE RADIAL T5A 250V
1925	⚠	994000001356	FUSE RADIAL T2.5A/250V
1926	⚠	994000001349	FUSE RADIAL T1.6A 250V
2944		996500042429	E.CAP 6800UF 25V -20%
2945		996500042429	E.CAP 6800UF 25V -20%
3941		994000004473	RESISTOR METAL 0.33R 1W +-1%
3942		994000004473	RESISTOR METAL 0.33R 1W +-1%
3951		994000004472	RESISTOR FUSIBLE 47R 1W +-1%
5900		994000001226	AC LINE FILTER IND. 400UH 3A
C1	⚠	994000001225	SAFETY CAP 275V 0.22UF -20%
IC101		996510003976	IC (SAMSUNG) KA7812E
J1	⚠	996510003977	AC SOCKET 2PIN TC08-275-11

AF9 BOARD

1501	994000001221	V/RCA JACK 2P
7102	996500038610	TRANSISTORS 2W 8550C
7202	994000002839	IC LM1117S-3.3
7403	994000001247	IC HEF4094BT
7601	994000001201	IC NJM4556AM

KEY BOARD

SW201	994000001243	TACT SWITCH
SW202	994000001243	TACT SWITCH
SW203	994000001243	TACT SWITCH
SW204	994000001243	TACT SWITCH
SW205	994000001243	TACT SWITCH

POWER BOARD

104	996500042455	FAN JD4020L-S110 5000R/MIN
C3055	996510003982	E.CAP 4700UF 50V +-20% (PH)85C
C3066	996510003982	E.CAP 4700UF 50V +-20% (PH)85C
C358	996510006290	M. POLY FILM CAP 0.68UF 63V
C363	996510006290	M. POLY FILM CAP 0.68UF 63V
IC302	996510003980	IC TDA8920(SOT566-3) 2X100W
IC303	996510003980	IC TDA8920(SOT566-3) 2X100W
IC304	996500042457	IC HEF4013BT
IC305	996500042456	IC 74HCT04D SOP14
IC308	994000001201	IC NJM4556AM
IC309	994000001201	IC NJM4556AM
IC310	994000001201	IC NJM4556AM
J3	994000001219	SPK JACK (RD/BLK/BLK/RD)
Q302	994000004545	TRANSISTORS BUK9507-30B
Q303	994000004545	TRANSISTORS BUK9507-30B
Q306	994000004443	TRANSISTOR BDW94C
Q311	994000004338	SMD TRANSISTORS PMBT3904
Q3111	996500038610	TRANSISTORS 2W 8550C
Q312	994000004338	SMD TRANSISTORS PMBT3904
Q313	996500038609	TRANSISTORS 2W 8050C
Y301	996500042460	CERAMIC RESONATOR 600KHz
Y302	996500042461	CERAMIC RESONATOR 700KHz

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ELECTRICAL PARTSLIST

HIGH AMP BOARD

C318	996510006290	M. POLY FILM CAP 0.68UF 63V
C321	996510006290	M. POLY FILM CAP 0.68UF 63V
IC301	996510003980	IC TDA8920(SOT566-3) 2X100W
SPKJ1	996510003983	SPK JACK (GR/BL/BL/GR)
SPKJ2	996510006291	SPK JACK PST-202B-03 (B/P)

MCU BOARD

D100	996510003989	SMD DIODE 1N4148 (1206)
Q103	996510000317	SMD TRANSISTORS BC817-25
U10	996510003993	IC V809R
U100	996510003994	IC WM8731 SSOP28
U101	994000001247	IC HEF4094BT
U2	996510003990	IC SDRAM M12L16161A-7T
U5	996510003991	IC SST39VF800A-70 8M 3.3V W/SW
U7	996500039353	IC LM1117SJ-ADJ SOT-223
U8	996510003992	IC TCC8600 12-LQFP-1414
U9	994000004541	IC M24C02-WMN6

CD BOARD

L812	996510004000	TOROID COIL 28UH +-30% 1.2A
L813	996510000855	AXIAL INDUCTOR 100UH +-10%
Q803	996510003996	TRANSISTORS KTA1273
SW3	994000004552	DETECT SWITCH
SW4	994000004552	DETECT SWITCH
SW801	994000004552	DETECT SWITCH
SW802	994000004552	DETECT SWITCH
U805	994000005381	IC D9258PH
U806	996510000330	IC SAA7824HL/MIA
U807	996510003997	IC LM7808
U808	996510003998	IC TDA7073A/N4
Y801	996510003999	XTAL 8.4672MHz +-30PPM 20PF

TUNER BOARD

1102	994000001353	COAXIAL JACK IF-01A
2106	994000000254	TRIMMER 10PF 6MM (WH)
2155	994000000254	TRIMMER 10PF 6MM (WH)
5102	994000001212	AM IFT (BLACK) 7MM
5109	994000001208	CER. FILTER SFELA10M7HA00-B0
5110	994000001208	CER. FILTER SFELA10M7HA00-B0
5111	996500042436	I.F.T 7mm 7M4A2011N (BLACK)
5112	996500042434	I.F.T 7mm C712KC-004 (YEL)
5114	996500042434	I.F.T 7mm C712KC-004 (YEL)
5119	996500042433	I.F.T 7mm KS2599 (BLK)
5123	996500042435	I.F.T 7mm 7M1A2146 (BROWN)
5130	994000003653	BOBBIN COIL WHITE 1 1/2T
5131	994000003653	BOBBIN COIL WHITE 1 1/2T
6105	994000002454	VARIABLE CAP DIODE HN-1V02H
6130	994000001479	VARICAP DIODE ISV228
6131	994000001479	VARICAP DIODE ISV228
7101	994000001321	IC TEA5757H/V1

USB BOARD

D1	996510000438	LED LAMP
J6	996510000344	USB SOCKET

SPK JACK BOARD

SPKJ1	996510003983	SPK JACK (GR/BL/BL/GR)

MIC BOARD

J350	994000001244	V/PHONE JACK 3.5MM
J351	994000001244	V/PHONE JACK 3.5MM
RV591	996510003987	ROTARY VOLUME F-122KGP B50K
RV592	996510003986	ROTARY VOLUME
U352	996510003984	IC CYT78L05 (TO-92)
U353	996510000880	IC LM78L08
U599	996510003985	IC ECHO PROCESSOR PT2399S

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