

Service
Service
Service



Service Manual



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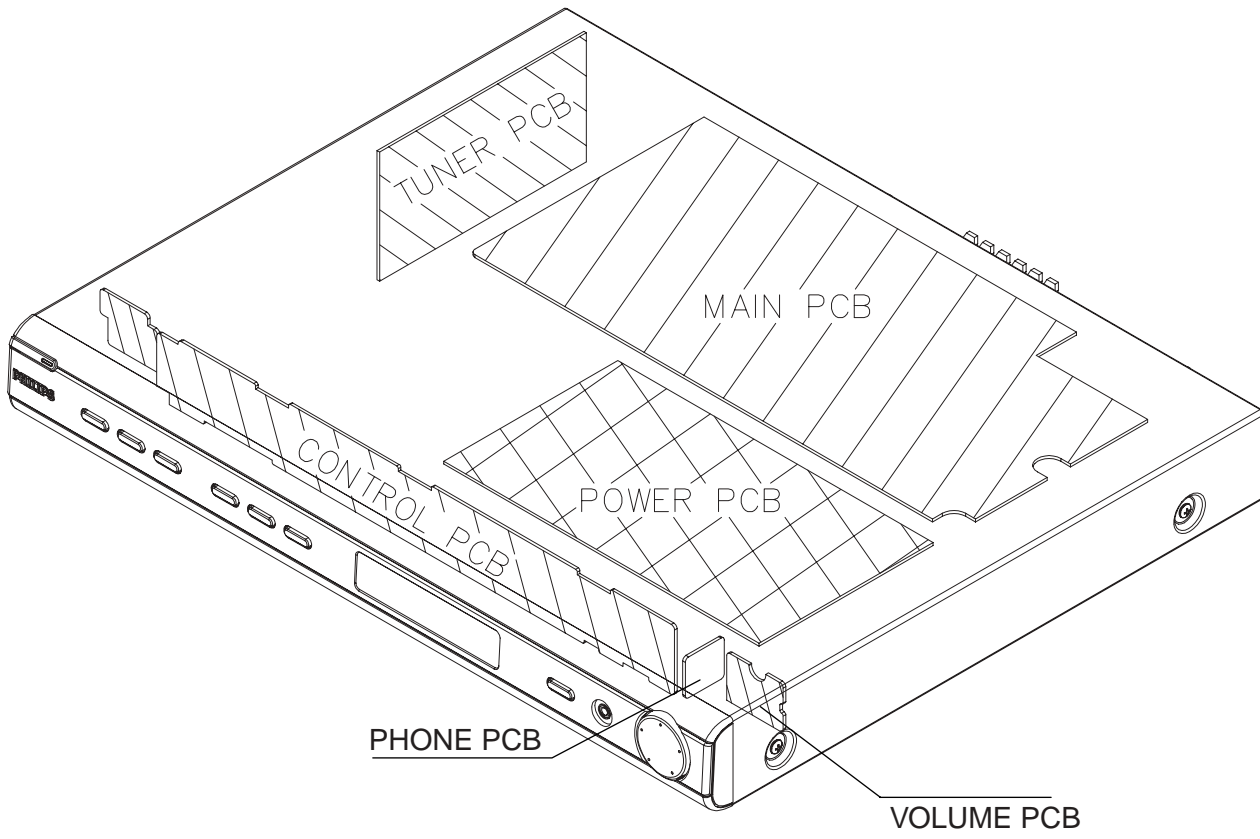
 3139 785 32150

Version 1.0



PHILIPS

LOCATION OF PCB BOARDS



VERSION VARIATION:

Type/Versions	HTR5000
Features & Board in used	/ 37
RDS function	X
Grid Switch	
Line Cord (Detachable)	x
Line Cord (Fixed)	
AC Voltage (120V / 60Hz)	x

SPECIFICATIONS

AMPLIFIER SECTION

Total Output Power (Home Theater Mode)	700W
Total Output Power (1% THD)	330W
- Front	50W ^① x 2
- Rear	50W ^① x 2
- Center	50W ^①
- Subwoofer	80W ^②
Frequency Response	150 HZ - 20 kHz / -3 dB
Signal-to-Noise Ratio	> 60 dB (CCIR)
Input Sensitivity	
- TV In	600 mV
- AUX In	600 mV
- 6 Channel In	800 mV

^① 140 Hz - 20 kHz, 3ohm, 1% THD
^② 40 Hz - 2 kHz, 3ohm, 1% THD

TUNER SECTION

Tuning Range	FM 87.5-108 MHz (50 kHz) MW530 - 1710 kHz (10 kHz)
26 dB Quieting Sensitivity	FM 22 dBf 5 uV / m
Signal-to-Noise Ratio	FM 55 dB MW 40 dB
Harmonic Distortion	FM Mono 3% FM Stereo 3% MW5%
Frequency Response	FM 180 Hz-10kHz/±6 dB
Stereo Separation	FM 26 dB(1 kHz)
Stereo threshold	FM 23.5 dB

TUNER AREA:

AREA	BAND	FREQUENCY (Hz)		STEP(Hz)
EU	FM	87.5M	108M	50K
	MW	531K	1602K	9K
AP	FM	87.5M	108M	50K/100K
	MW	531K	1602K	9K
		0		

MAIN UNIT

Power Supply Rating	120V; 60Hz
Power Consumption	180 W
Dimensions (w x h x d)	435mm x 53mm x 359mm
Weight	4.00 kg

SPEAKERS

Front Speakers / Rear (surround) speaker	
System - Front speaker	2-way, megnetically sheided
- Rear speaker	2- way
Impedance	3ohm
Speaker drivers	3" ful-range woofer, 1" conical dome tweeter
Frequency response	140 Hz - 20 kHz
Dimensions (w x h x d)	95mm x 175mm x 65mm
Weight	0.66 Kg / each(Front speaker) 0.77 Kg / each(Rear speaker)

CENTER SPEAKER

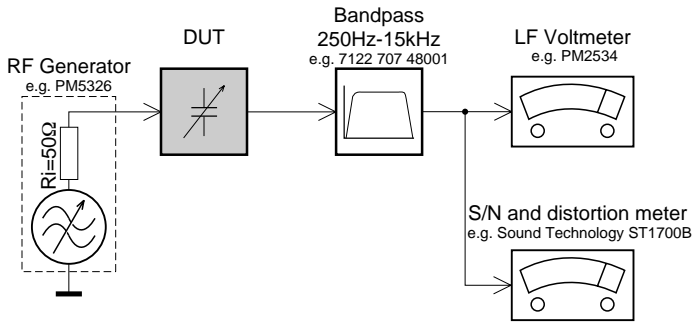
System	2-way, megnetically sheided
Impedance	3ohm
Speaker drivers	3" ful-range woofer, 1" conical dome tweeterr
Frequency response	140 Hz - 20 kHz
Dimensions (w x h x d)	220mm x 95mm x 75mm
Weight	0.8 Kg

PASSIVE SUBWOOFER

Frequency response	40 Hz - 140 Hz
Impedance	3ohm
Speaker drivers	6.5" woofer
Power rating	100W
Dimensions (w x h x d)	130mm x 340mm x 360mm
Weight	5.11 Kg

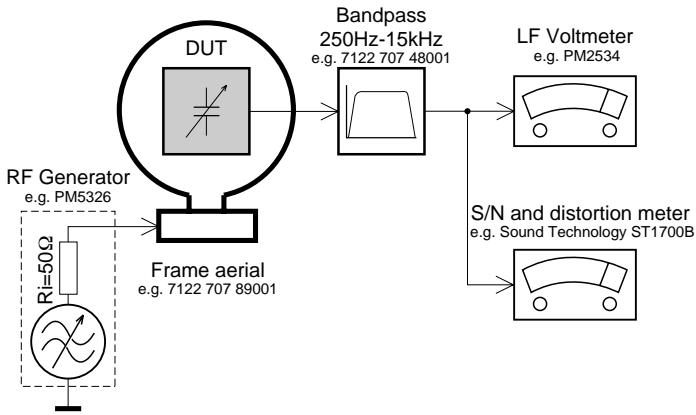
MEASUREMENT SETUP

Tuner FM



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

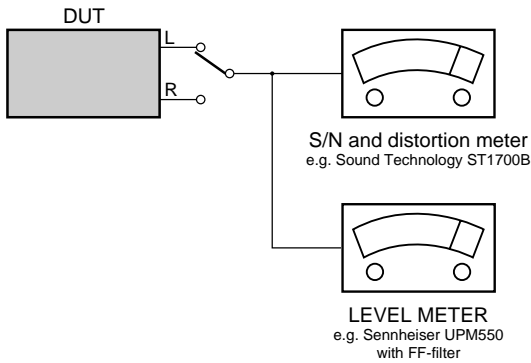
Tuner AM (MW,LW)



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

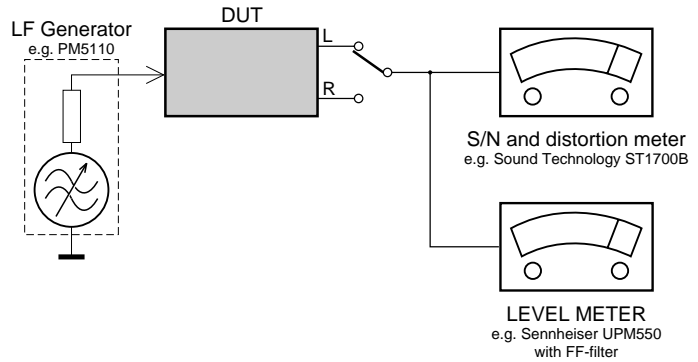
CD

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



Recorder

Use Universal Test Cassette **CrO2** SBC419 4822 397 30069 or Universal Test Cassette **Fe** SBC420 4822 397 30071



SERVICE AIDS

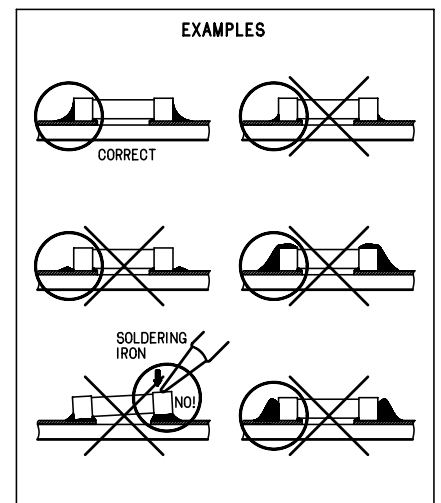
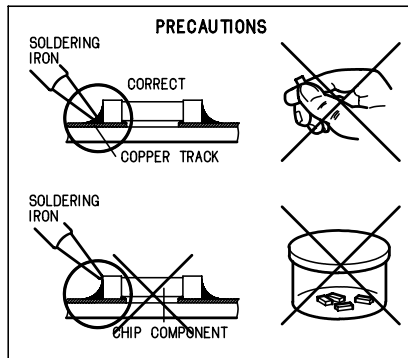
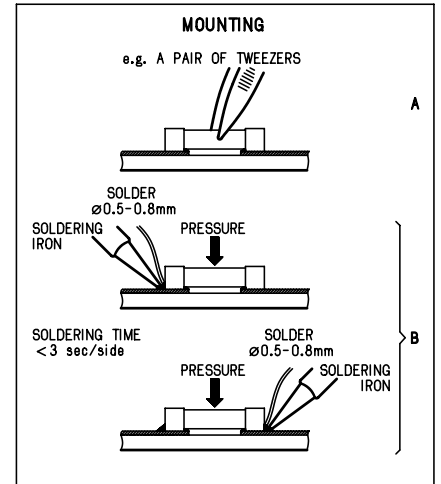
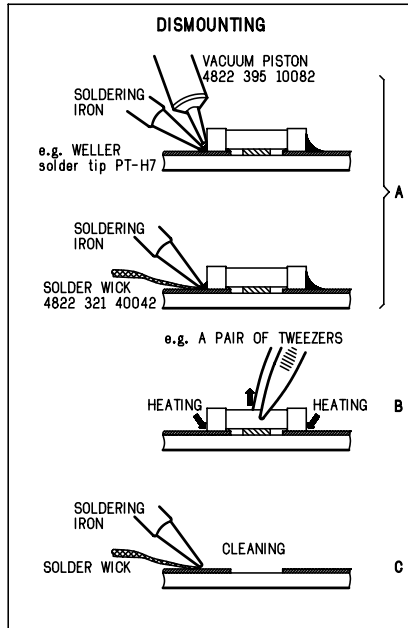
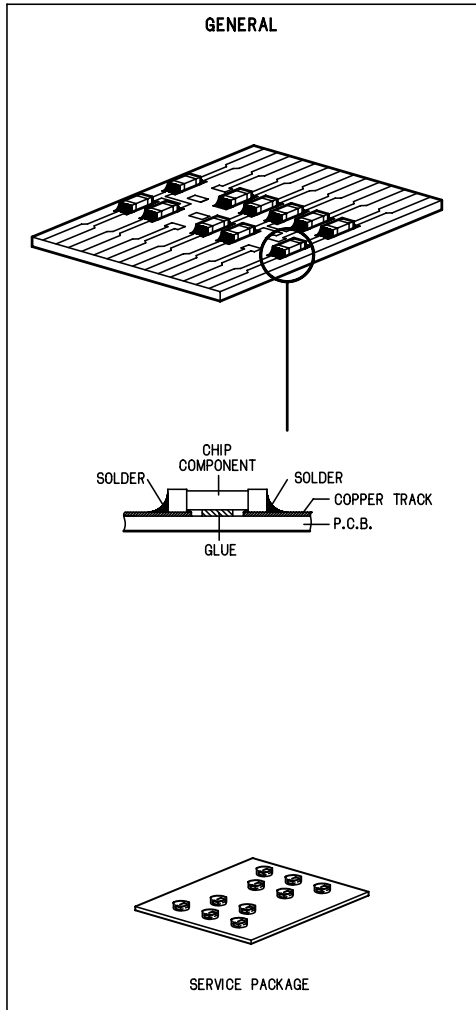
Service Tools:

- Universal Torx driver holder4822 395 91019
- Torx bit T10 150mm4822 395 50456
- Torx driver set T6-T204822 395 50145
- Torx driver T10 extended4822 395 50423

Compact Disc:

- SBC426/426A Test disc 5 + 5A4822 397 30096
- SBC442 Audio Burn-in test disc 1kHz4822 397 30155
- SBC429 Audio Signals disc4822 397 30184
- Dolby Pro-logic Test Disc4822 395 10216

HANDLING CHIP COMPONENTS



(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.

(F) ATTENTION

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD).

Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise à leur manipulation.

Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfiler le bracelet serti d'une résistance de sécurité.

Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.

(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 .

(NL)

Veiligheidsbepalingen vereisen, dat het apparaat bij reparatie in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde, worden toegepast.

De Veiligheidsonderdelen zijn aangeduid met het symbool .


(F)

Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utilisées les pièces de rechange identiques à celles spécifiées.

Les composants de sécurité sont marqués .


(D)

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Geräts darf nicht verändert werden; für Reparaturen sind Original-Ersatzteile zu verwenden.

Sicherheitsbauteile sind durch das Symbol  markiert.

(I)

Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati i pezzi di ricambio identici a quelli specificati.

Componenti di sicurezza sono marcati con .

(GB)

After servicing and before returning set to customer perform a leakage current measurement test from all exposed metal parts to earth ground to assure no shock hazard exist, The leakage current must not exceed 0.5mA.

ESD**(D) WARNUNG**

Alle ICs und viele andere Halbleiter sind empfindlich gegenüber elektrostatischen Entladungen (ESD).

Unvorsichtige Behandlung im Reparaturfall kann die Lebensdauer drastisch reduzieren.

Veranlassen Sie, dass Sie im Reparaturfall über ein Pulsarmband mit Widerstand verbunden sind mit dem gleichen Potential wie die Masse des Gerätes.

Bauteile und Hilfsmittel auch auf dieses gleiche Potential halten.

(GB) ESD PROTECTION EQUIPMENT

Complete Kit ESD3 (small tablemat, wristband, connection box, extension cable and earth cable 4822 310 10671
Wristband tester 4822 344 13999

(NL) WAARSCHUWING

Alle IC's en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD).

Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen.

Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.

Houd componenten en hulpmiddelen ook op hetzelfde potentiaal.

(I) AVVERTIMENTO

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).

La loro longevità potrebbe essere fortemente ridatta in caso di non osservazione della più grande cauzione alla loro manipolazione.

Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza.

Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

**(GB) Warning !**

Invisible laser radiation when open.
Avoid direct exposure to beam.

(S) Varning !

Osynlig laserstrålning när apparaten är öppnad och spårren är urkopplad. Betrakta ej strålen.

(SF) Varoitus !

Avatussa laitteessa ja suojalukituksen ohitettaessa olet alltiina näkymättömälle laserisäteilylle. Älä katso säteeseen!

(DK) Advarse !

Usynlig laserstråling ved åbning når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

(F)

"Pour votre sécurité, ces documents doivent être utilisés par des spécialistes agréés, seuls habilités à réparer votre appareil en panne".

Pb(Lead) Free Solder

When soldering, be sure to use the pb free solder.

IDENTIFICATION:

Regardless of special logo (not always indicated)



one must treat all sets from **1 Jan 2005** onwards, according next rules:

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

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

- Use only lead-free solder alloy Philips SAC305 with order code 0622 149 00106. If lead-free solder-paste is required, please contact the manufacturer of your solder-equipment. In general use of solder-paste within workshops should be avoided because paste is not easy to store and to handle.
- Use only adequate solder tools applicable for lead-free solder alloy. The solder tool must be able
 - To reach at least a solder-temperature of 400°C,
 - To stabilize the adjusted temperature at the solder-tip
 - To exchange solder-tips for different applications.
- Adjust your solder tool so that a temperature around 360°C – 380°C is reached and stabilized at the solder joint. Heating-time of the solder-joint should not exceed ~ 4 sec. Avoid temperatures above 400°C otherwise wear-out of tips will rise drastically and flux-fluid will be destroyed. To avoid wear-out of tips switch off unused equipment, or reduce heat.
- Mix of lead-free solder alloy / parts with leaded solder alloy / parts is possible but PHILIPS recommends strongly to avoid mixed solder alloy types (leaded and lead-free).
If one cannot avoid or does not know whether product is lead-free, clean carefully the solder-joint from old solder alloy and re-solder with new solder alloy (SAC305).
- Use only original spare-parts listed in the Service-Manuals. Not listed standard-material (commodities) has to be purchased at external companies.
- Special information for BGA-ICs:
 - Always use the 12nc-recognizable soldering temperature profile of the specific BGA (for de-soldering always use the lead-free temperature profile, in case of doubt)
 - Lead free BGA-ICs will be delivered in so-called 'dry-packaging' (sealed pack including a silica gel pack) to protect the IC against moisture. After opening,

dependent of MSL-level seen on indicator-label in the bag, the BGA-IC possibly still has to be baked dry. (MSL=Moisture Sensitivity Level). This will be communicated via AYS-website.

Do not re-use BGAs at all.

- For sets produced before 1.1.2005 (except products of 2004), containing leaded solder-alloy and components, all needed spare-parts will be available till the end of the service-period. For repair of such sets nothing changes.
- On our website www.atyourservice.ce.Philips.com you find more information to:
 - BGA-de-/soldering (+ baking instructions)
 - Heating-profiles of BGAs and other ICs used in Philips-sets

You will find this and more technical information within the "magazine", chapter "workshop news".

For additional questions please contact your local repair-helpdesk.

Software Upgrade Procedure

1) Software Update PCB as shown in figure 1.

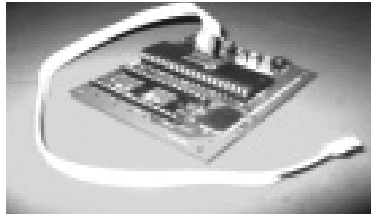


figure 1

2) Plug the updated software IC into PCB as shown in figure 2.



figure 2

3) Insert the plug of PCB into bottom of the main unit as shown in figure 3.

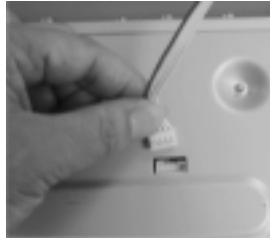


figure 3

4) Power on, the three LED on the PCB will be on . Then changed to optical mode(It will take shorter time to update on optical mode).



figure 4

5) Press START button on the PCB as shown in figure 5, VFD will show "UPDATE" "ERASE" "FLASH".



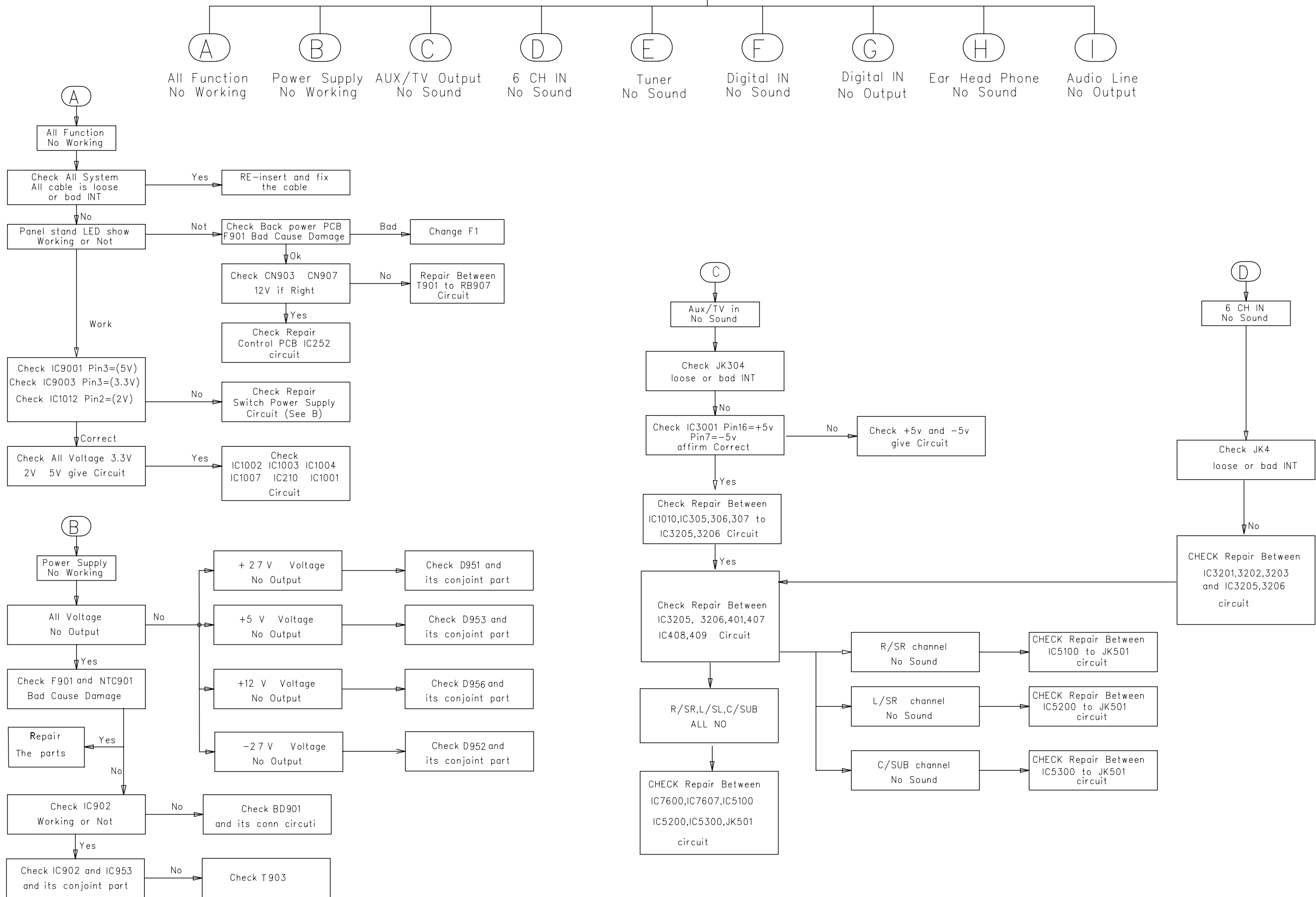
figure 5

6) It will be OK when the unit reset to standby.

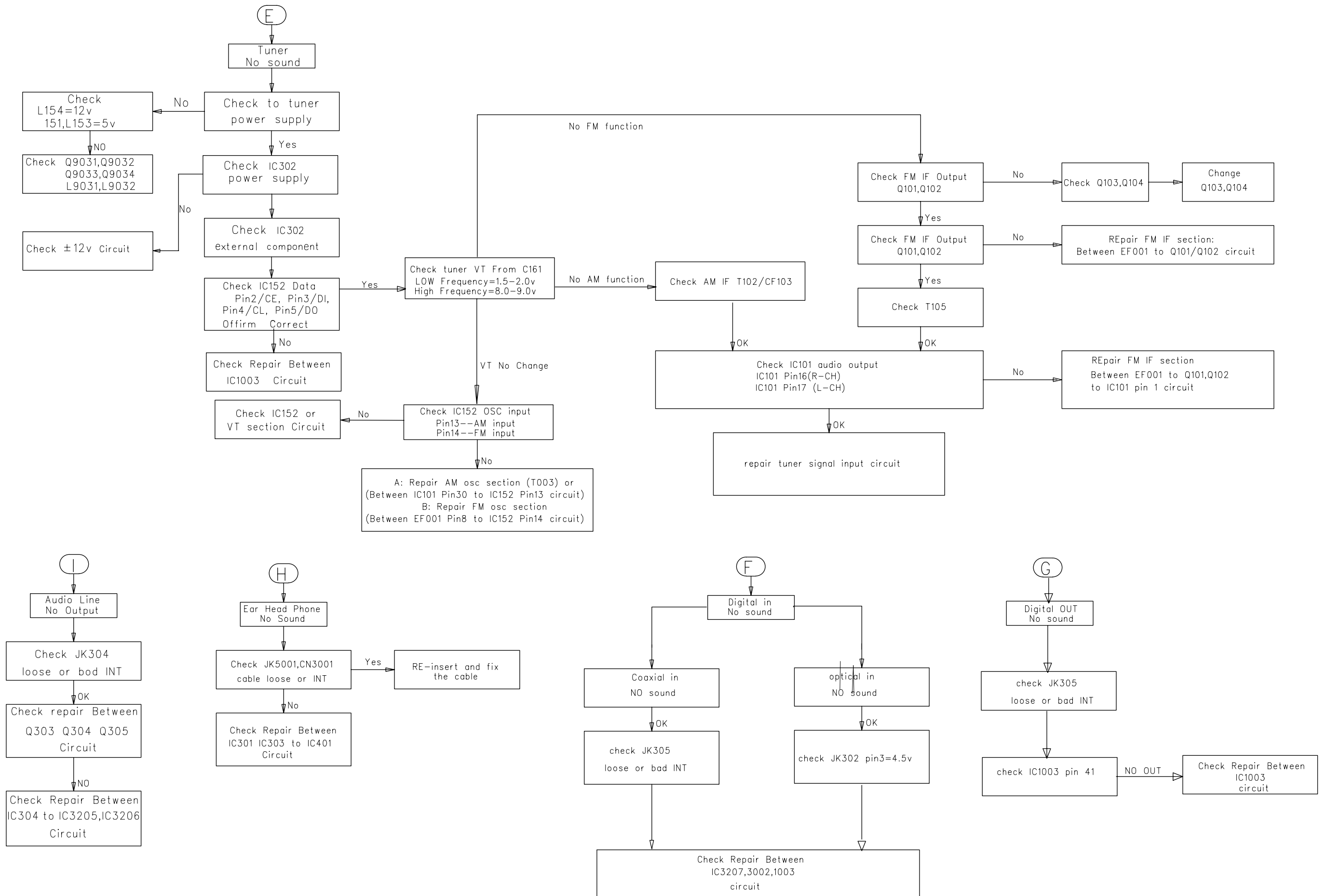
7) Unplug PCB from the bottom of the unit.Power on and press BASS button to view the software version.

REPAIR INSTRUCTION

MAIN UNIT REPAIR CHART



REPAIR INSTRUCTION



DISASSEMBLY INSTRUCTIONS

- 1) Loosen 9 screws and remove the Top Cover by lifting the rear portion upwards before sliding it out towards the rear.
 - 5 screws on the back
 - 2 screws each on the left & right side
- 2) Loosen 7 screws & lift up the top edge of Front Panel assembly to free some catches before sliding it out towards the front.
 - 4 screws on the bottom
 - 1 screw "A" on the inside as indicated in Figure 1 or Figure 2.
 - 1 screw each on the left & right side

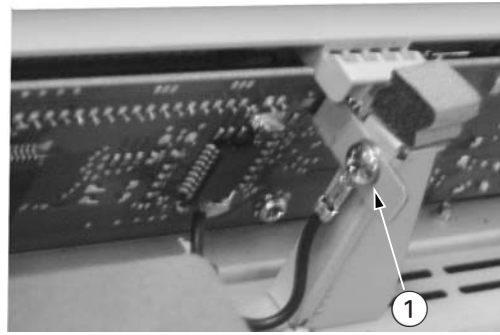


Figure 1

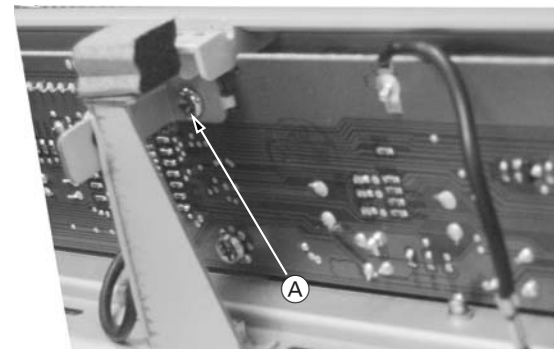


Figure 2

Dismantling of the Main Board

- 1) Loosen 4 screws "B" on the top of main board as shown in figure3.
- 2) Loosen 8 screws "C" at the back panel as shown in figure4.

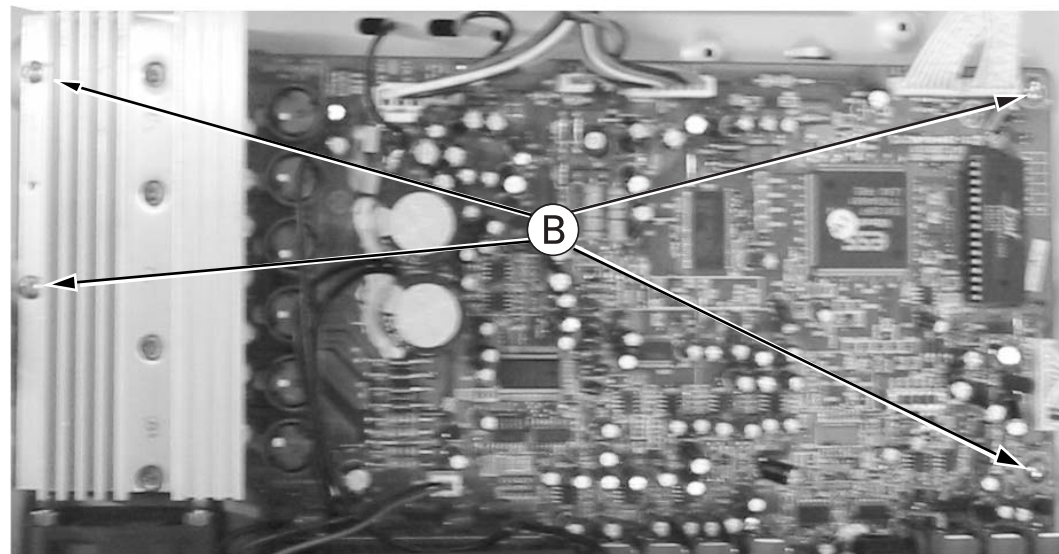


Figure 3

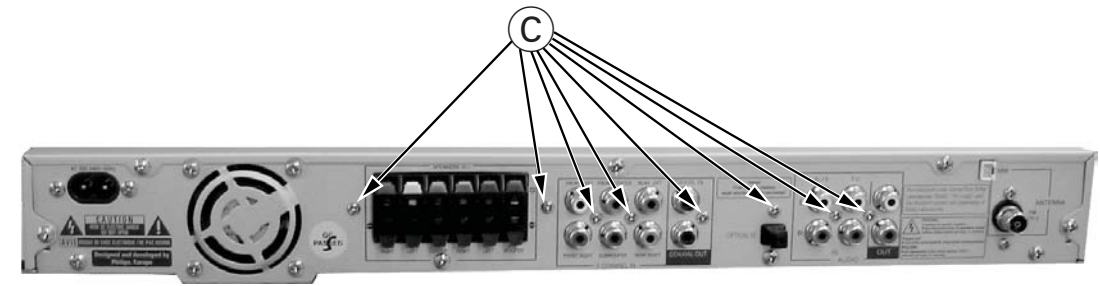


Figure 4

Dismantling of the Power & Tuner Board

- 1) Loosen 5 screws "D" on the top of power board as shown in figure 5.
- 2) Loosen 4 screws "E" on the top of tuner board as shown in figure 6.

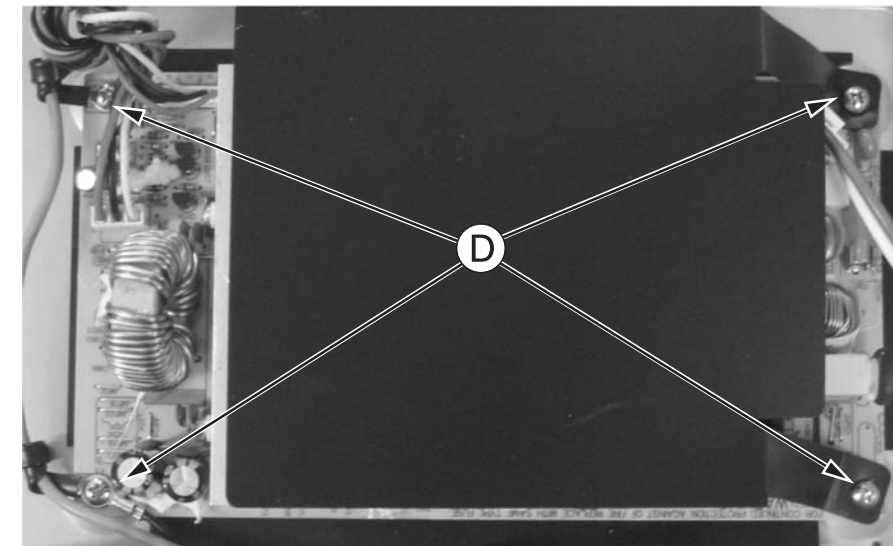


Figure 5

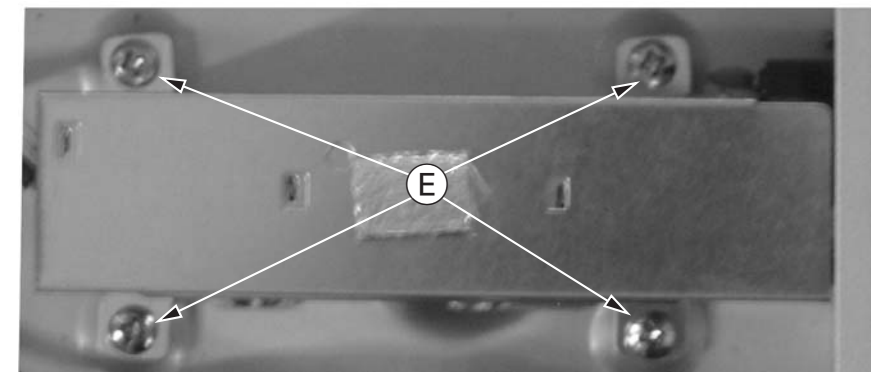
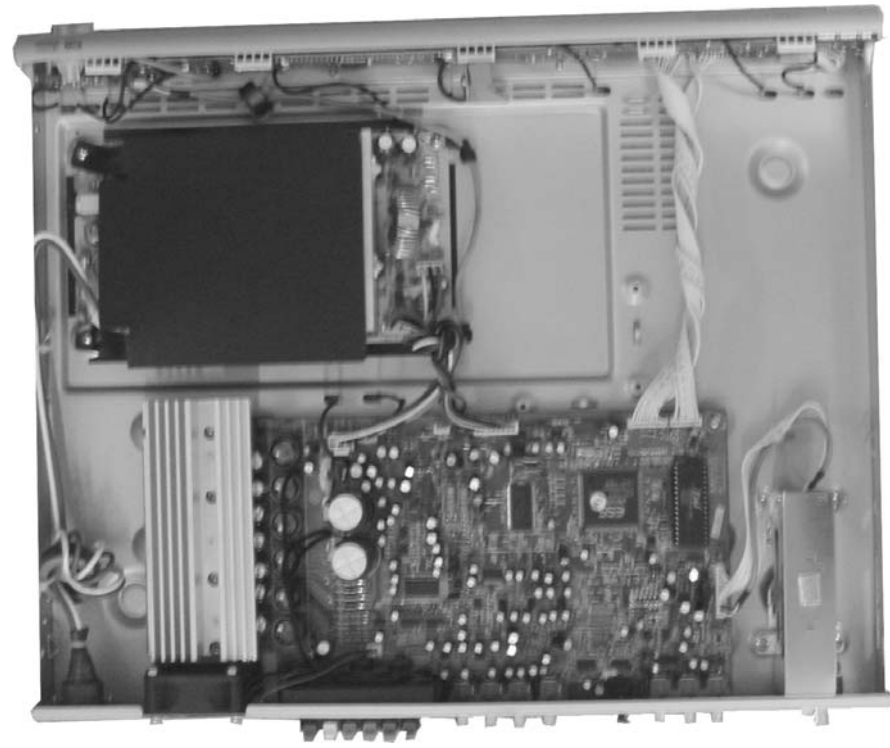


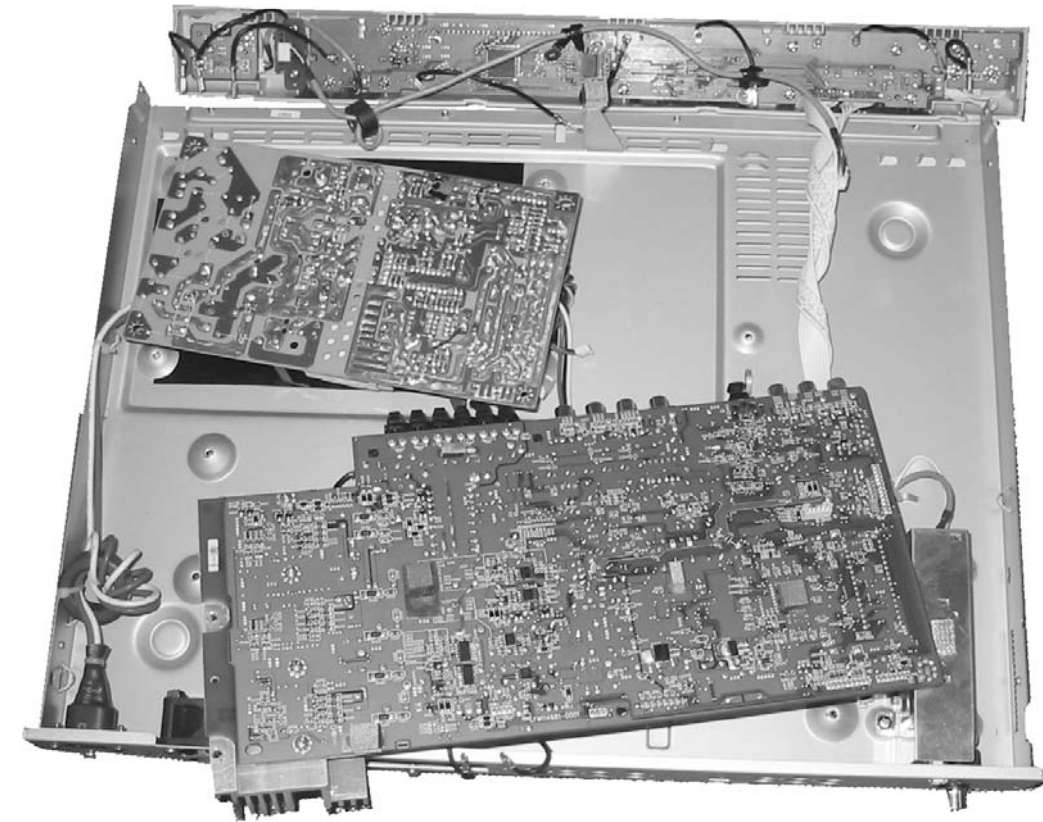
Figure 6

SERVICE POSITIONS

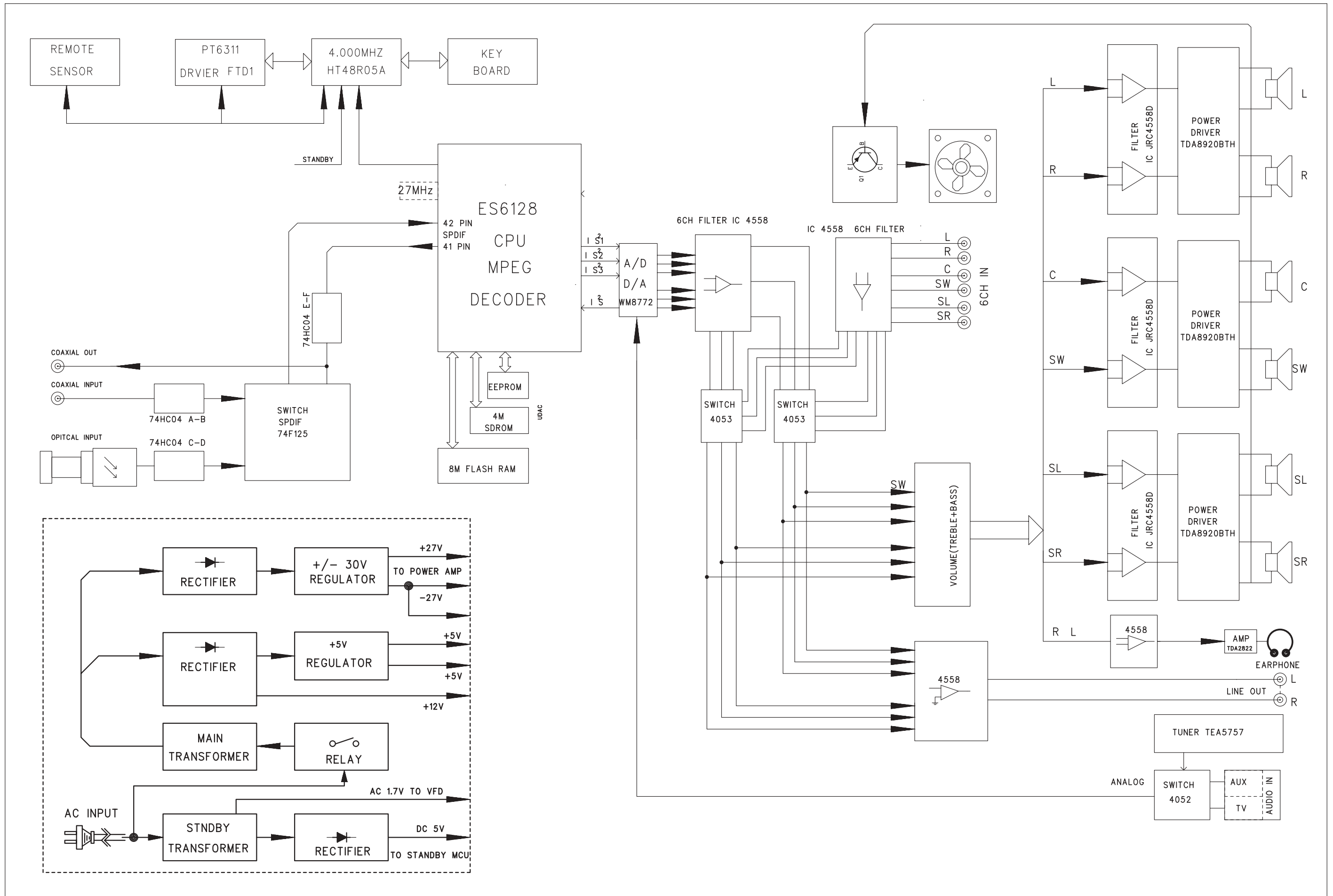
Service position A



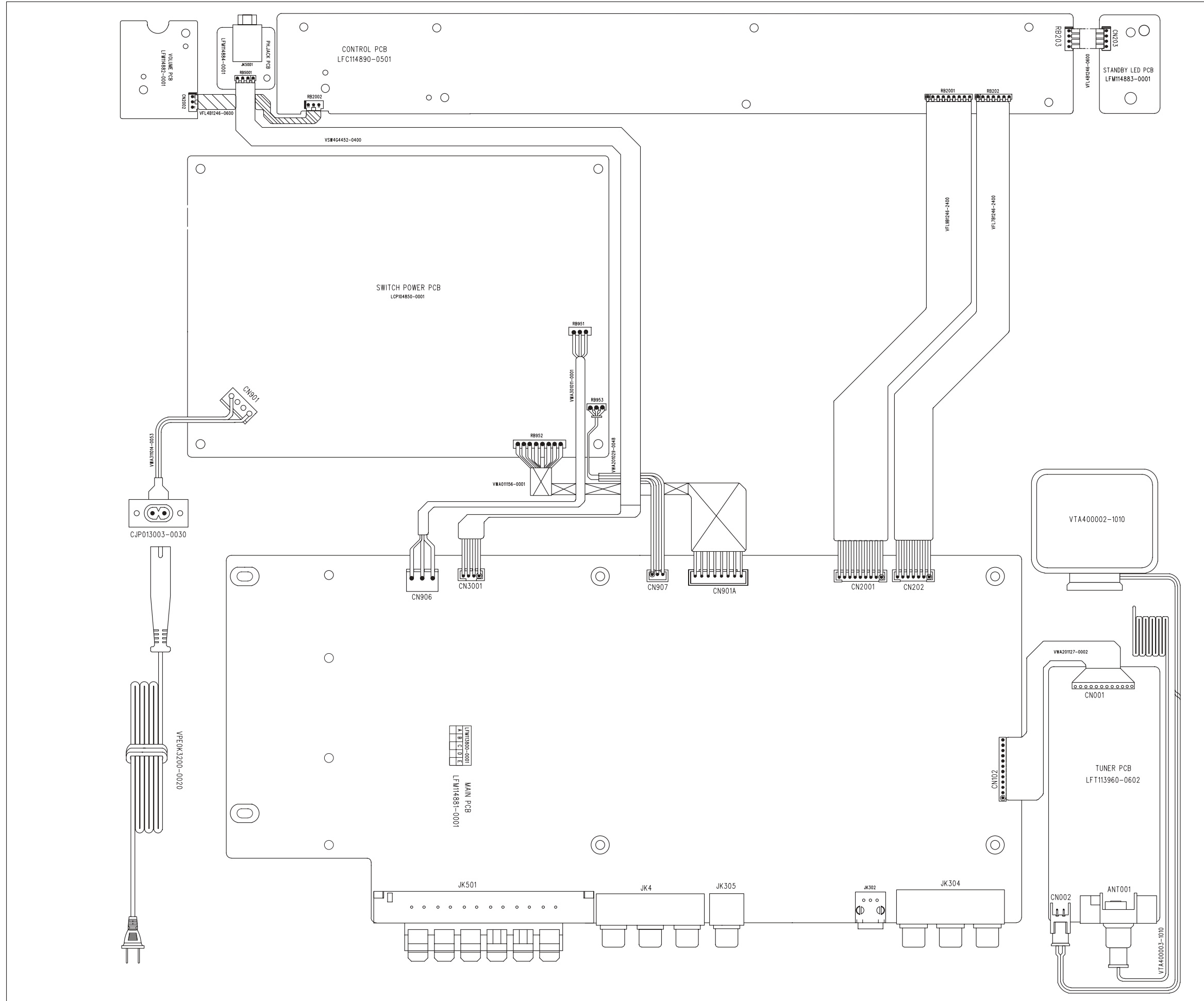
Service position B



BLOCK DIAGRAM



WIRING DIAGRAM

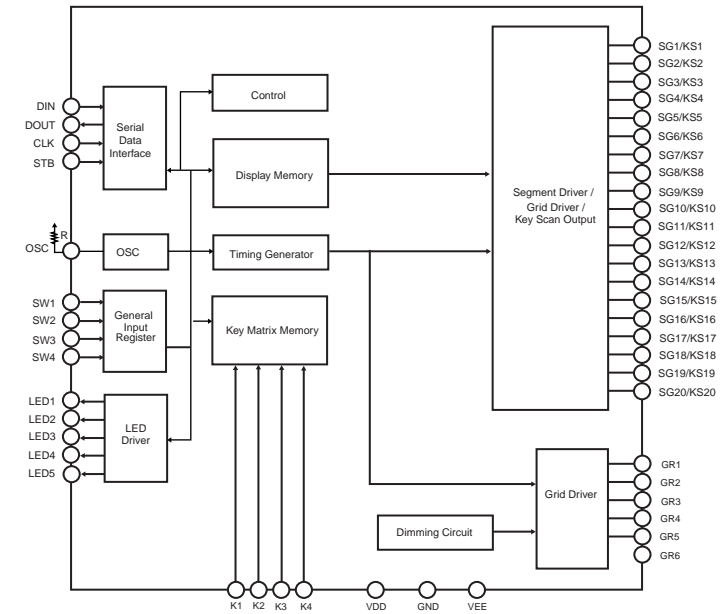


CONTROL BOARD

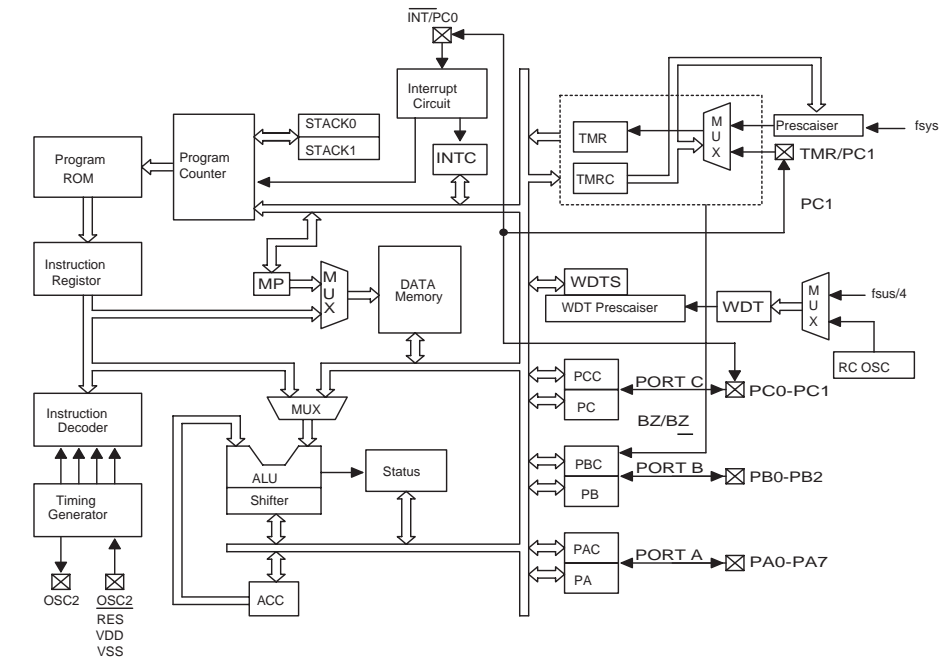
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PT6311 INTERNAL BLOCK DIAGRAM



HT48 R05 A INTERNAL BLOCK DIAGRAM



Voltages:

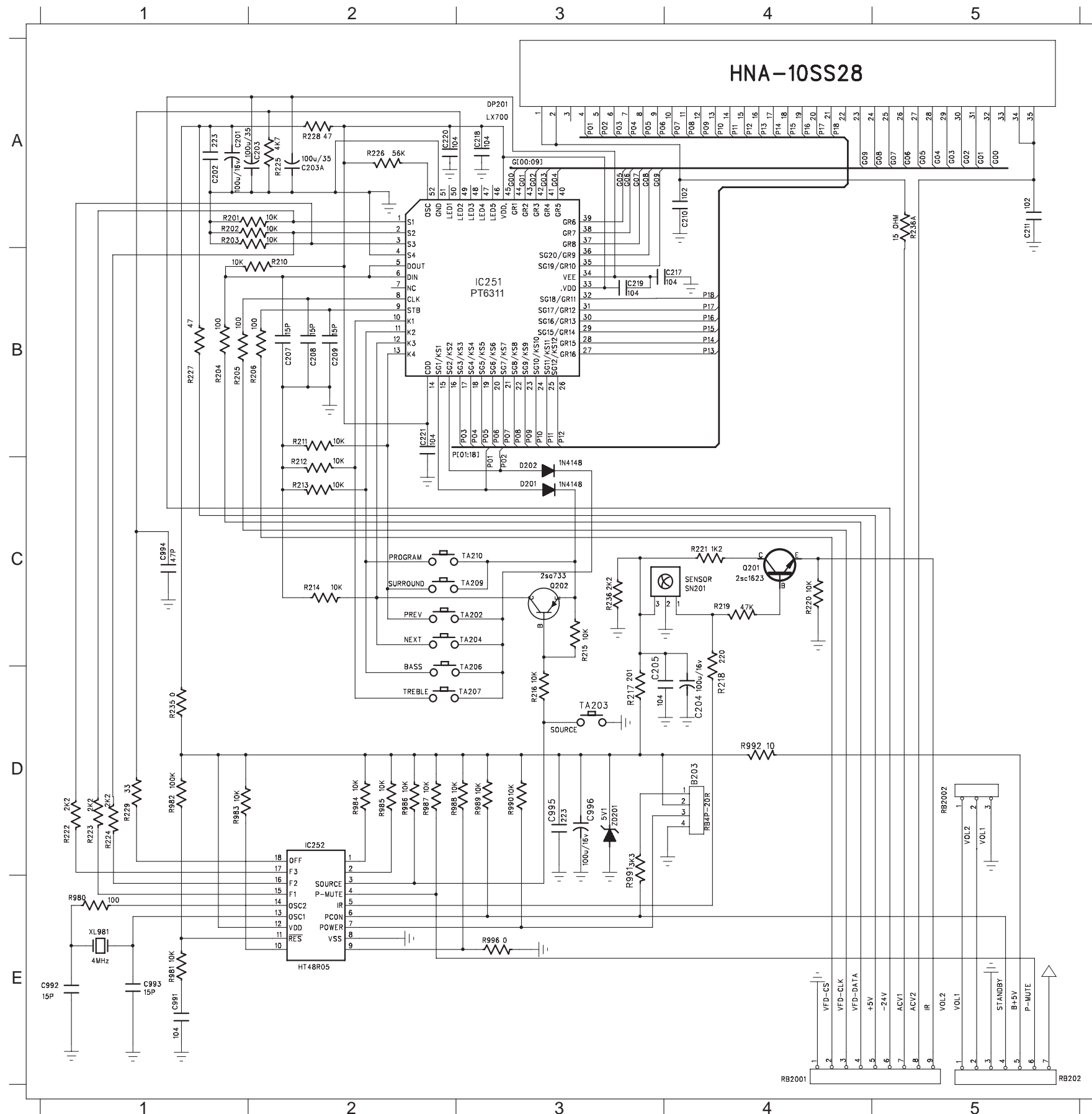
IC251 (PT6311)																				
PIN NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Voltage	0	0	0	0	3.8	3.8	0	3.8	3.7	0	0	0	0	0	19.7	-22.2	-22.0	-11.2	-19.9	-17.8
PIN NO	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Voltage	-21.8	-15.6	-13.4	-20	-13.4	-20	-22.4	-18	-20.3	-13.2	-15.8	-11.4	-4.6	-22.6	-20.4	-20.4	-20.4	-20.4	-20.4	-20.4
PIN NO	41	42	43	44	45	46	47	48	49	50	51	52								
Voltage	-20.4	-20.4	-20.5	-20.4	4.6	4.6	4.6	4.6	0	4.6	0	0.9								

IC252 (HT48R05A)																				
PIN NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Voltage	5.1	5.1	5.1	0	5.1	0	5.1	0	0	4.9	4.9	5.2	0	0	0	0	0	0	0	0

Q201 (2SA812)			
PIN NO	b	c	e
Voltage	4.4	4.1	4.0

Q202 (2SA1623)			
PIN NO	b	c	e
Voltage	4.9	0	4.8

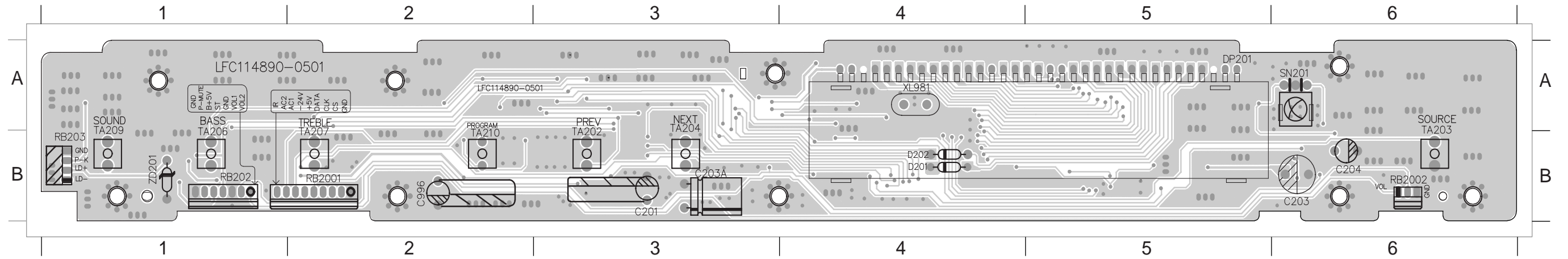
CIRCUIT DIAGRAM - CONTROL BOARD



C201	A1	R229	D1
C202	A1	R235	D1
C203	A2	R236	C3
C203A	A2	R236A	A5
C204	D4	R980	E1
C205	D3	R981	E1
C207	B2	R982	D1
C208	B2	R983	D1
C209	B2	R984	D2
C210	A4	R985	D2
C211	A5	R986	D2
C217	B3	R987	D2
C218	A3	R988	D3
C219	B3	R989	D3
C220	A2	R990	D3
C221	B2	R991	D3
C991	E1	R992	D4
C992	E1	R996	E3
C993	E1	RB2001	E4
C994	C1	RB2002	D5
C995	D3	RB202	E5
C996	D3	RB203	D4
D201	C3	SN201	C4
D202	C3	TA202	C2
DP201	A3	TA203	D3
IC251	B3	TA204	C2
IC252	D2	TA206	D2
Q201	C4	TA207	D2
Q202	C3	TA209	C2
R201	A1	TA210	C2
R202	A1	XL981	E1
R203	A1	ZD201	D3
R204	B1		
R205	B1		
R206	B2		
R210	B2		
R211	B2		
R212	C2		
R213	C2		
R214	C2		
R215	C3		
R216	D3		
R217	D3		
R218	D4		
R219	C4		
R220	C4		
R221	C4		
R222	D1		
R223	D1		
R224	B2		
R225	A2		
R226	A2		
R227	B1		
R228	A2		

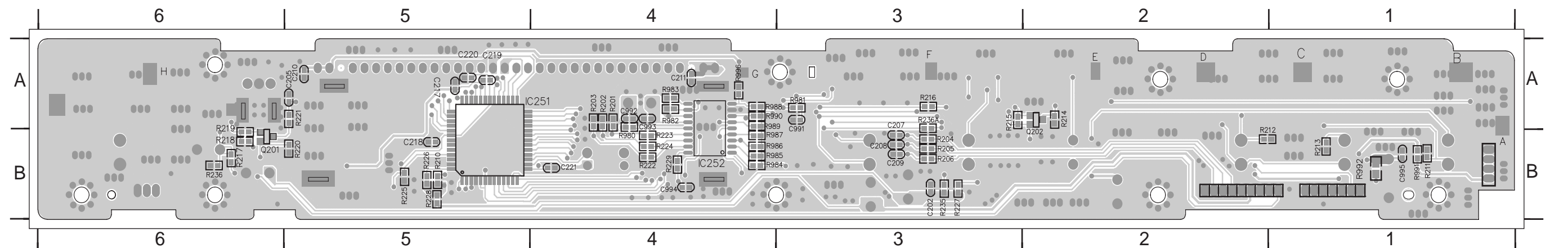
PCB LAYOUT - TOP VIEW

C201	B3	D201	B4	RB202	B1	TA204	B3	XL981	A4
C203	B6	D202	B4	RB203	B1	TA206	B1	ZD201	B1
C203A	B3	DP201	A5	SN201	A6	TA207	B2		
C204	B6	RB2001	B2	TA202	B3	TA209	B1		
C996	B2	RB2002	B6	TA203	B6	TA210	B2		

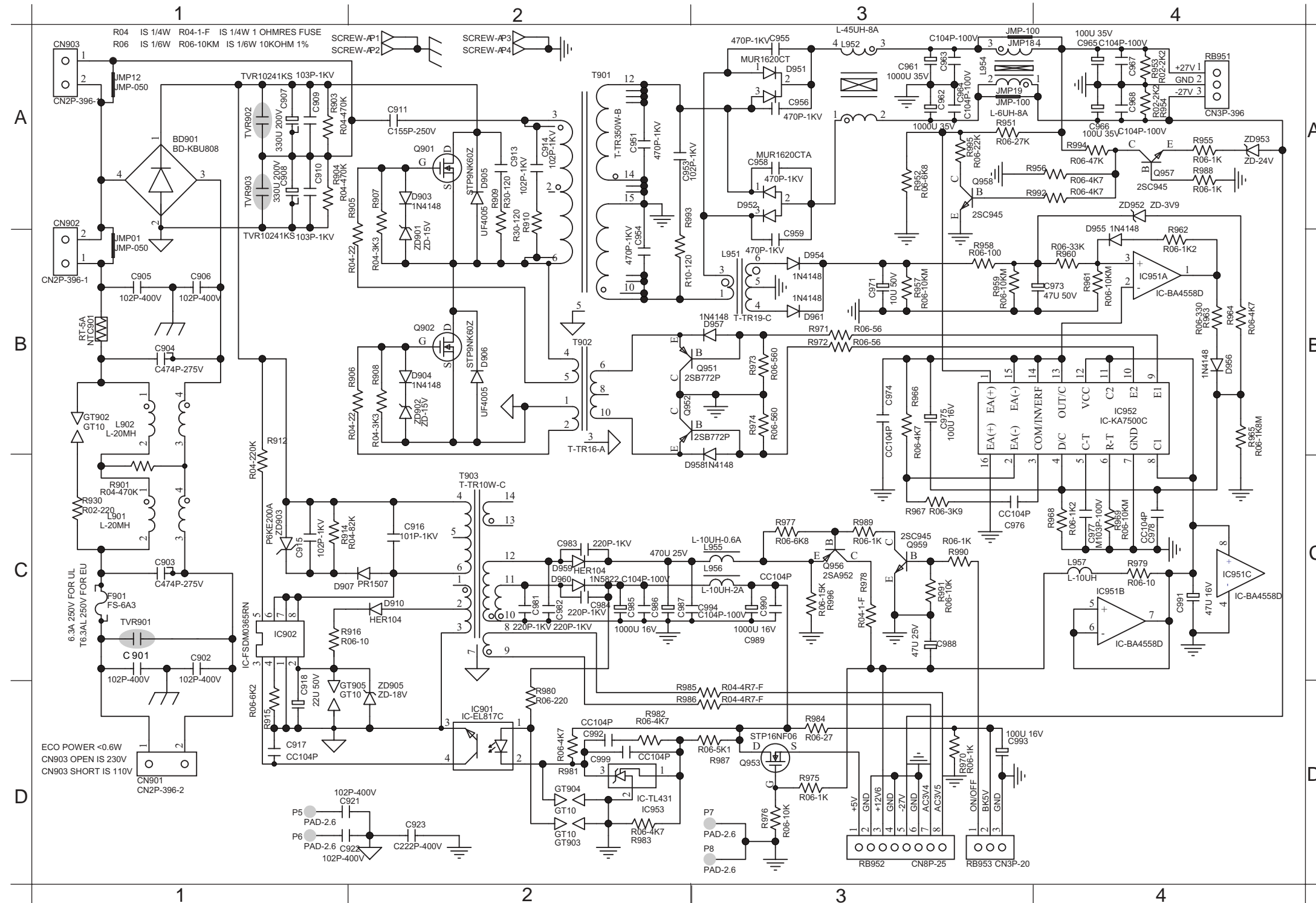


PCB LAYOUT - BOTTOM VIEW

C202	B3	C211	A4	C991	A3	IC252	B4	R204	B3	R213	B1	R219	B6	R225	B5	R236	B6	R984	B4	R990	A4
C205	A5	C217	A5	C992	A4	Q201	B6	R205	B3	R214	A2	R220	B5	R226	B5	R236A	A3	R985	B4	R991	B1
C207	B3	C218	B5	C993	A4	Q202	A2	R206	B3	R215	A3	R221	A5	R227	B3	R980	A4	R986	B4	R992	B1
C208	B3	C219	A5	C994	B4	R201	A4	R210	B5	R216	A3	R222	B4	R228	B5	R981	A3	R987	B4	R996	A4
C209	B3	C220	A5	C995	B1	R202	A4	R211	B1	R217	B6	R223	B4	R229	B4	R982	A4	R988	A4		
C210	A5	C221	B4	IC251	A5	R203	A4	R212	B2	R218	B6	R224	B4	R235	B3	R983	A4	R989	A4		

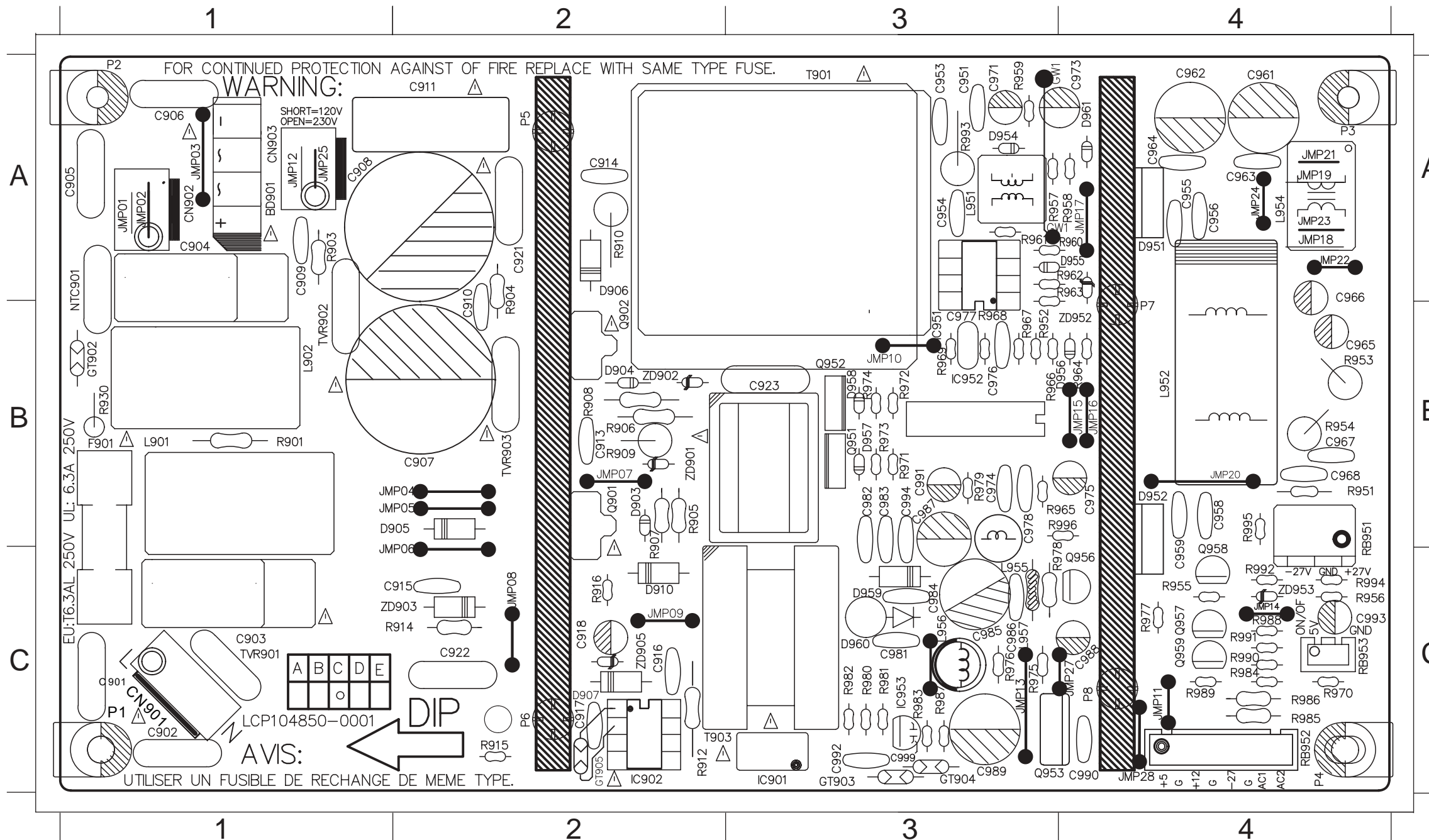


CIRCUIT DIAGRAM - POWER BOARD



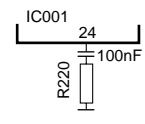
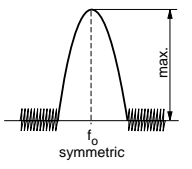
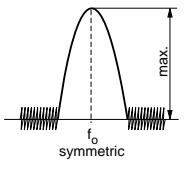
BD901	A1	D906	B2	R954	A4
C 901	C1	D907	C2	R955	A4
C902	C1	D910	C2	R956	A4
C903	C1	D951	A3	R957	B3
C904	B1	D952	A3	R958	B3
C905	B1	D954	B3	R959	B3
C906	B1	D955	B4	R960	B4
C907	A1	D956	B4	R961	B4
C908	A1	D957	B3	R962	B4
C909	A1	D958	B3	R963	B4
C910	A1	D959	C2	R964	B4
C911	A2	D960	C2	R965	B4
C913	A2	D961	B3	R966	B3
C914	A2	F901	C1	R967	C3
C915	C1	GT902	B1	R968	C4
C916	C2	GT903	D2	R969	C4
C917	D1	GT904	D2	R970	D3
C918	D1	GT905	D1	R971	B3
C921	D1	IC901	D2	R972	B3
C922	D1	IC902	C1	R973	B3
C923	D2	IC951A	B4	R974	B3
C951	A2	IC951B	C4	R975	D3
C953	A2	IC951C	C4	R976	D3
C954	B2	IC952	B4	R977	C3
C955	A3	IC953	D2	R978	C3
C955	A4	JMP01	B1	R980	D2
C956	A3	JMP12	A1	R981	D2
C958	A3	JMP18	A3	R982	D2
C959	B3	JMP19	A3	R983	D2
C961	A3	L901	C1	R984	D3
C962	A3	L902	B1	R985	D3
C963	A3	L951	B3	R986	D3
C964	A3	L952	A3	R987	D3
C965	A4	L954	A3	R988	A4
C967	A4	L955	C3	R989	C3
C968	A4	L956	C3	R990	C3
C971	B3	L957	C4	R991	C3
C973	B4	NTC901	B1	R992	A4
C974	B3	Q901	A2	R993	B2
C975	B3	Q902	B2	R994	A4
C976	C3	Q951	B3	R995	A3
C977	C4	Q952	B2	R996	C3
C978	C4	Q953	D3	RB951	A4
C979	C4	Q956	C3	RB952	D3
C981	C2	Q957	A4	RB953	D3
C982	C2	Q958	A3	T901	A2
C983	C2	Q959	C3	T902	B2
C984	C2	R901	C1	T903	C2
C985	C2	R903	A1	TVR901	C1
C986	C2	R904	A1	TVR902	A1
C987	C2	R905	A2	TVR903	A1
C988	C3	R906	B2	ZD901	B2
C990	C3	R907	A2	ZD902	B2
C991	C4	R908	B2	ZD903	C1
C992	D2	R909	A2	ZD905	D2
C993	D3	R910	A2	ZD952	A4
C994	C3	R912	B1	ZD953	A4
C999	D2	R914	C1		
CN901	D1	R915	D1		
CN902	B1	R916	C1		
CN903	A1	R930	C1		
D903	A2	R951	A3		
D904	B2	R952	A3		
D905	A2	R953	A4		

PCB LAYOUT - POWER BOARD



BD901	A1	GT905	C2	R970	C4
C 901	C1	IC901	C3	R971	B3
C902	C1	IC902	C2	R972	B3
C903	C1	IC951	A3	R973	B3
C904	A1	IC952	B3	R974	B3
C905	A1	IC953	C3	R975	C3
C906	A1	JMP01	A1	R976	C3
C907	B2	JMP02	A1	R977	C4
C908	A1	JMP03	A1	R978	C3
C909	A1	JMP04	B2	R979	B3
C910	B2	JMP05	B2	R980	C3
C911	A2	JMP06	B2	R981	C3
C913	B2	JMP07	B2	R982	C3
C914	A2	JMP08	C2	R983	C3
C915	C2	JMP09	C2	R984	C4
C916	C2	JMP10	B3	R985	C4
C917	C2	JMP11	C4	R986	C4
C918	C2	JMP12	A1	R987	C3
C921	A2	JMP13	C3	R988	C4
C922	C2	JMP14	C4	R989	C4
C923	B3	JMP18	A4	R990	C4
C951	B3	JMP19	A4	R991	C4
C951	B4	JMP19	A4	R992	C4
C953	A3	JMP20	B4	R993	A3
C954	A3	JMP21	A4	R994	C4
C955	A4	JMP22	A4	R995	B3
C956	A4	JMP24	A4	R996	B3
C958	B4	JMP25	A1	RB951	C4
C959	B4	JMP27	C4	RB952	C4
C961	A4	JMP28	C4	RB953	C4
C962	A4	JMP29	A4	T901	A3
C963	A4	L901	B1	T903	C2
C964	A4	L902	B1	TVR901	C1
C965	B4	L951	A3	TVR902	B1
C967	B4	L952	B4	TVR903	B2
C968	B4	L954	A4	ZD901	B2
C971	A3	L955	C3	ZD902	B2
C973	A4	L956	C3	ZD903	C2
C974	B3	L957	C3	ZD905	C2
C976	B3	NTC901	A1	ZD952	A4
C977	B3	Q901	B2	ZD953	C4
C978	B3	Q902	B2		
C978	B3	Q951	B3		
C981	C3	Q952	B3		
C982	B3	Q953	C3		
C983	B3	Q956	C4		
C984	C3	Q957	C4		
C985	C3	Q958	C4		
C986	C3	Q959	C4		
C987	B3	R901	B1		
C988	C4	R903	A1		
C989	C3	R904	B2		
C990	C4	R905	B2		
C991	B3	R906	B2		
C992	C3	R907	B2		
C993	C4	R908	B2		
C994	B3	R909	B2		
C999	C3	R910	A2		
CN901	C1	R912	C2		
CN902	A1	R914	C2		
CN903	A1	R915	C2		
CT902	B1	R916	C1		
D903	B2	R930	B1		
D904	B2	R951	B4		
D905	B2	R952	B3		
D906	A2	R953	B4		
D907	C2	R954	B4		
D910	C2	R955	C4		
D951	A4	R956	C4		
D952	B4	R957	A3		
D954	A3	R958	A4		
D955	A3	R959	A3		
D957	B3	R960	A3		
D958	B3	R961	A3		
D959	C3	R962	A3		
D960	C3	R963	A3		
D961	A4	R965	B3		
F901	B1	R966	B3		
GT903	C3	R967	B3		
GT904	C3	R968	B3		

TUNER ADJUSTMENT TABLE

Waverange	Input frequency	Input	Tuned to	Adjust	Output	Scope/Voltmeter
<i>VARICAP ALIGNMENT</i>						
FM 87.5 - 108MHz (50kHz grid)			108MHz	check		7.5V ± 1V
			87.5MHz	check		1.4V ± 0.2V
MW 531-1602kHz (10kHz grid) (21L / 21L / 37S)			1602KHz	check		7.2V ± 1V
			531KHz	T005		1.1V ± 0.2V
<i>FM - RF</i>						
FM	108MHz		106MHz	VC001	MAX	MAX
	87.5MHz	mod=1kHz Δf=±2.5kHz	90.1MHz	L001		
<i>AM IF</i>						
AM	450kHz	Connect pin 6 of IC001 (AM Osc.) with short wire to ground (pin 4)		T001 T002	MAX	
AM AFC MW				Δf = ±5kHz V _{RF} = 3mV		
<i>AM RF ³⁾</i>						
MW	1404kHz		1404kHz	VC001	MAX	
	612kHz		612kHz	T006		

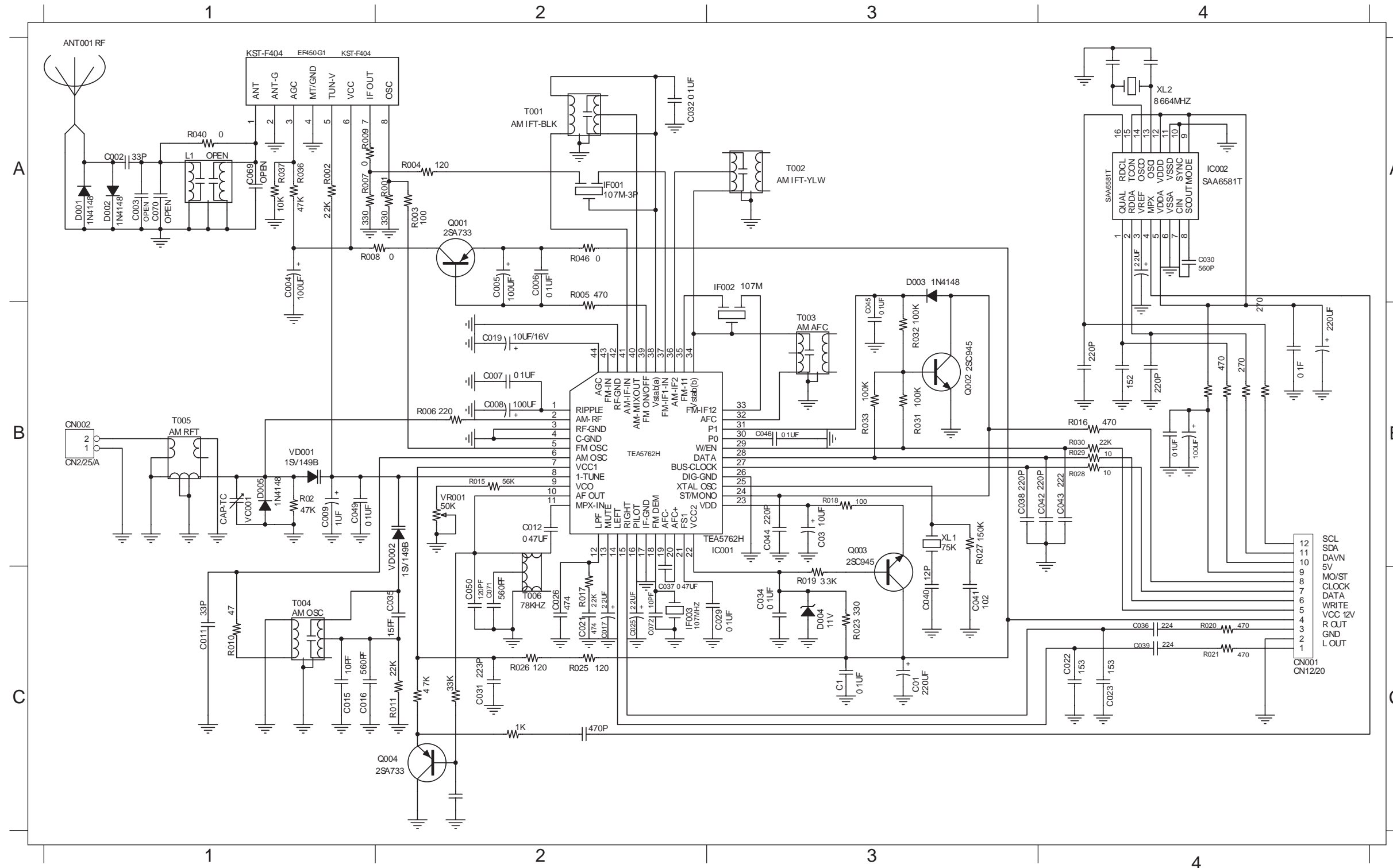
TUNER BOARD

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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!

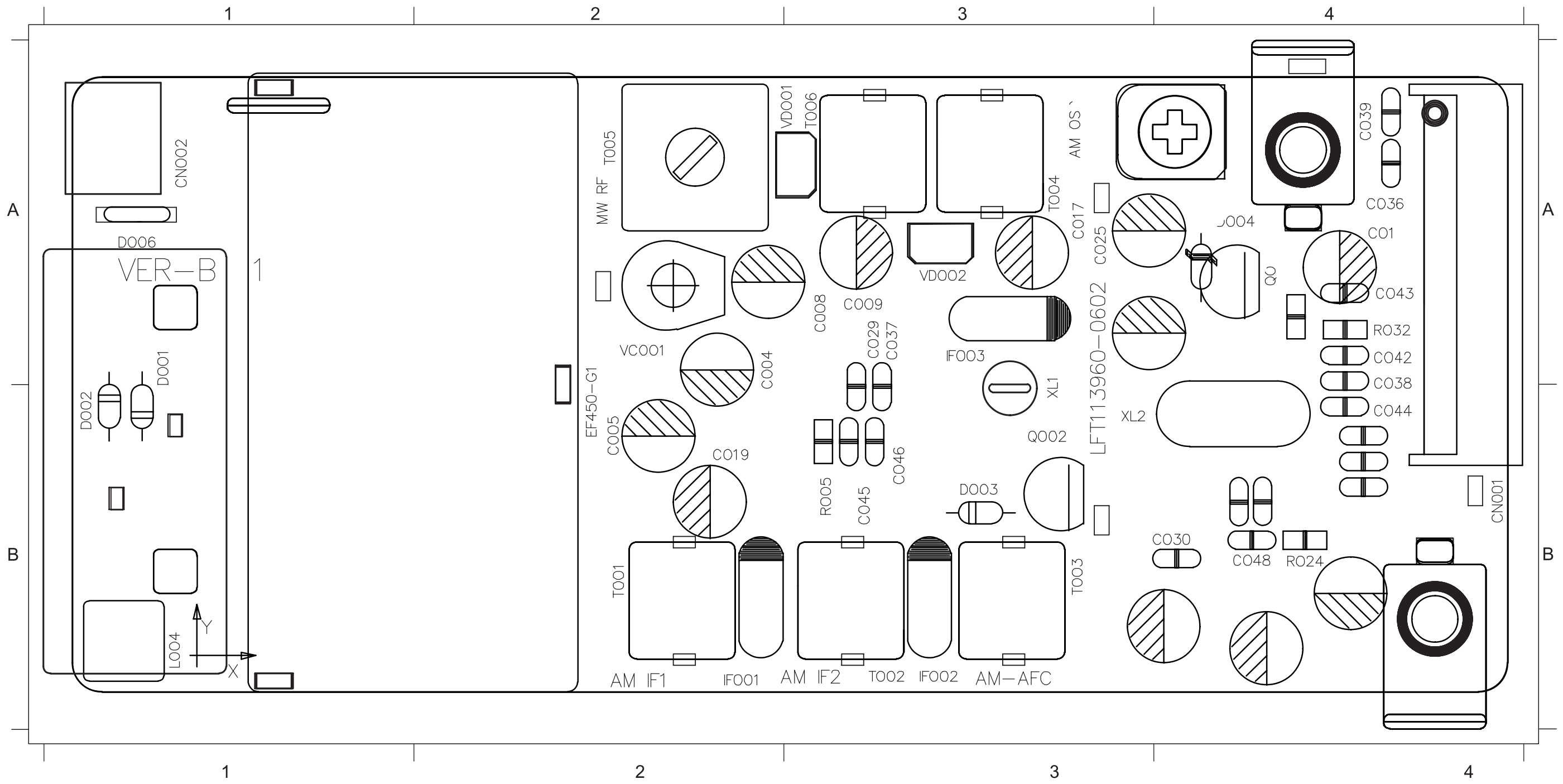
CIRCUIT DIAGRAM - TUNER BOARD



ANT001	A1	R004	A2
C002	A1	R005	B2
C003	A1	R006	B2
C004	A1	R007	A1
C005	A2	R009	A1
C006	A2	R010	C1
C007	B2	R011	C2
C008	B2	R015	B2
C009	B1	R016	B4
C01	C3	R017	C2
C011	C1	R018	B3
C012	B2	R019	C3
C015	C1	R02	B1
C016	C1	R020	C4
C017	C2	R021	C4
C019	B2	R023	C3
C021	C2	R025	C2
C022	C4	R026	C2
C023	C4	R027	B3
C025	C2	R028	B4
C026	C2	R029	B4
C029	C3	R030	B4
C03	B3	R031	B3
C030	A4	R032	B3
C031	C2	R033	B3
C032	A2	R036	A1
C034	C3	R037	A1
C035	C2	R040	A1
C036	C4	R046	A2
C037	C2	T001	A2
C039	C4	T002	A3
C040	C3	T003	B3
C041	C3	T004	C1
C042	B4	T005	B1
C043	B4	T006	C2
C044	B3	VC001	B1
C045	B3	VD001	B1
C046	B3	VD002	B2
C049	B1	VR001	B2
C050	C2	XL1	B3
C069	A1	XL2	A4
C070	A1		
C071	C2		
C072	C2		
C1	C3		
CN001	C4		
CN002	B1		
D001	A1		
D002	A1		
D003	A3		
D004	C3		
D005	B1		
IC001	B2		
IC002	A4		
IF001	A2		
IF002	A3		
IF003	C2		
L1	A1		
Q001	A2		
Q002	B3		
Q003	B3		
Q004	C2		
R001	A2		
R002	A1		
R003	A2		

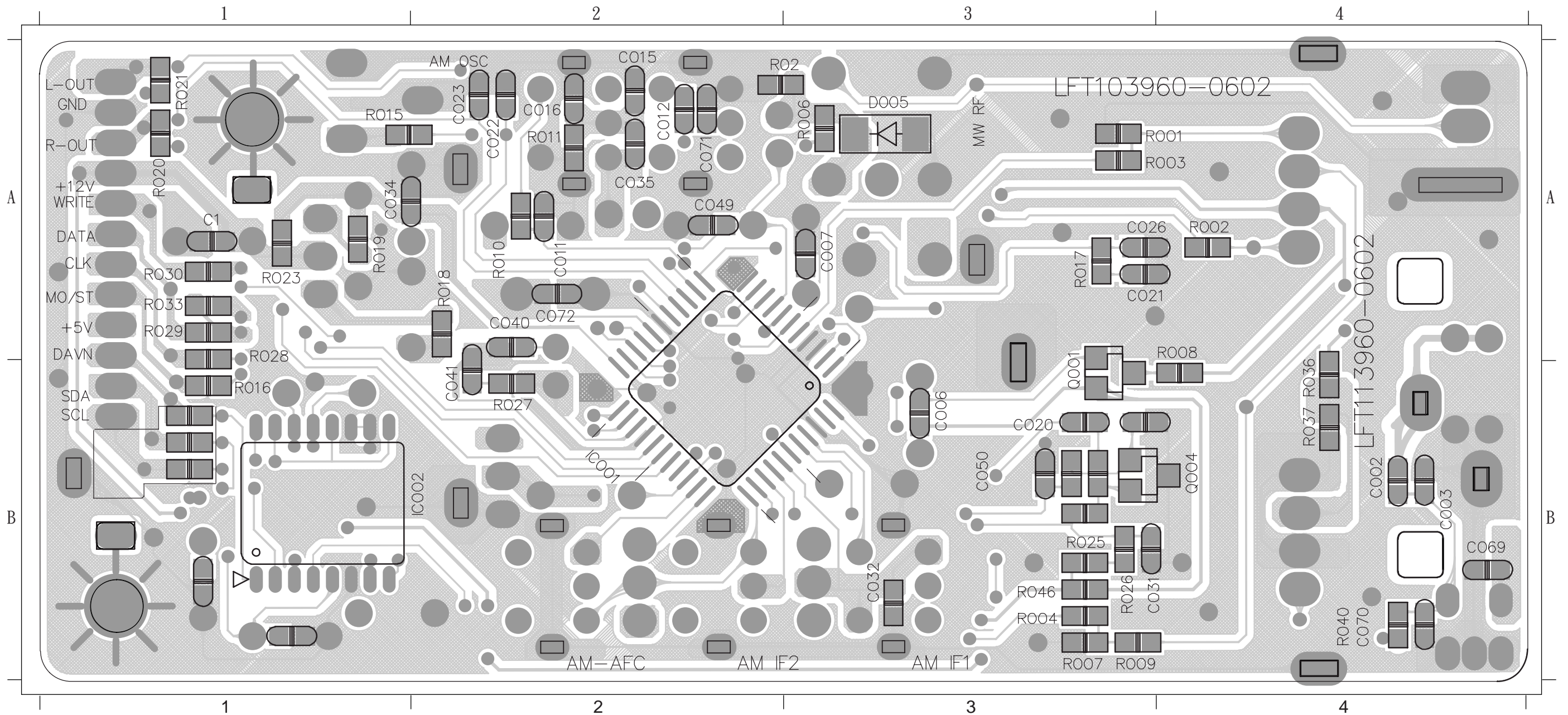
PCB LAYOUT - TUNER BOARD (TOP)

C004 A2	C019 B2	C037 A3	C045 B3	D002 B1	IF003 A3	R031 A4	T005 A2	XL1 A3
C005 B2	C025 A3	C038 A4	C046 B3	D003 B3	L004 B1	R032 A4	T006 A3	XL2 B4
C008 A3	C029 A3	C039 A4	C048 B4	D004 A4	Q002 B3	T001 B2	VC001 A2	
C009 A3	C03 A4	C042 A4	CN001 B4	D006 A1	Q003 A4	T002 B3	VD001 A3	
C01 A4	C030 B4	C043 A4	CN002 A1	IF001 B2	R005 B3	T003 B3	VD002 A3	
C017 A3	C036 A4	C044 B4	D001 B1	IF002 B3	R024 B4	T004 A3	VR001 A4	



PCB LAYOUT - TUNER BOARD (BOTTOM)

C002 B4	C020 B3	C035 A2	C072 A2	R002 A4	R011 A2	R021 A1	R033 A1
C003 B4	C021 A3	C040 A2	C1 A1	R003 A3	R015 A1	R023 A1	R036 B4
C006 B3	C022 A2	C041 B2	D005 A3	R004 B3	R016 B1	R025 B3	R037 B4
C007 A3	C023 A2	C049 A2	IC001 B2	R006 A3	R017 A3	R026 B3	R040 B4
C011 A2	C026 A3	C050 B3	IC002 B1	R007 B3	R018 A2	R027 B2	R046 B3
C012 A2	C031 B3	C069 B4	Q001 B3	R008 B4	R019 A1	R028 A1	
C015 A2	C032 B3	C070 B4	Q004 B3	R009 B3	R02 A3	R029 A1	
C016 A2	C034 A1	C071 A2	R001 A3	R010 A2	R020 A1	R030 A1	

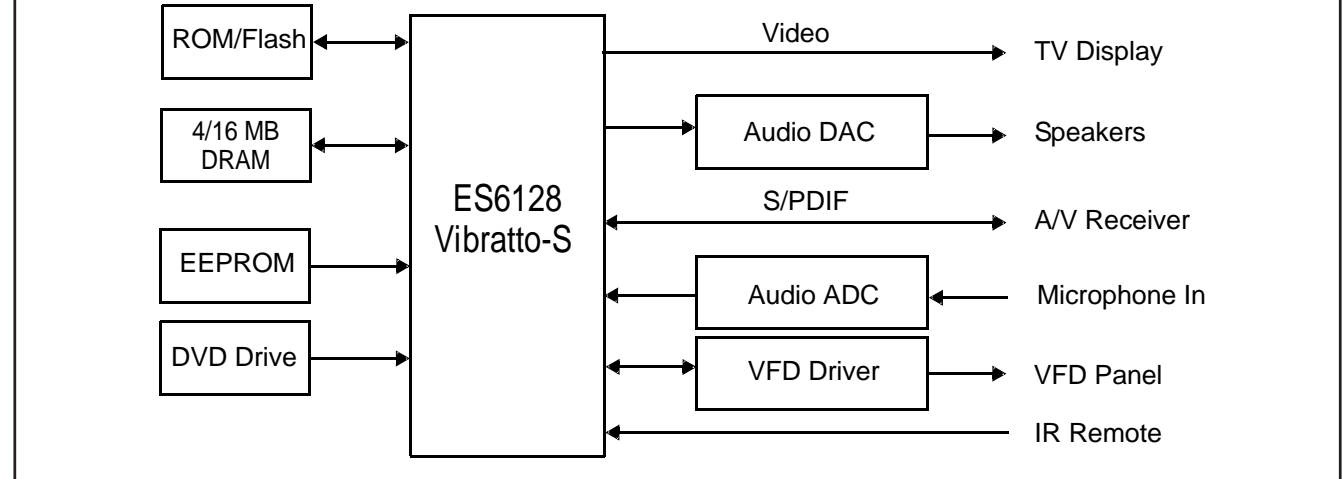


MAIN BOARD

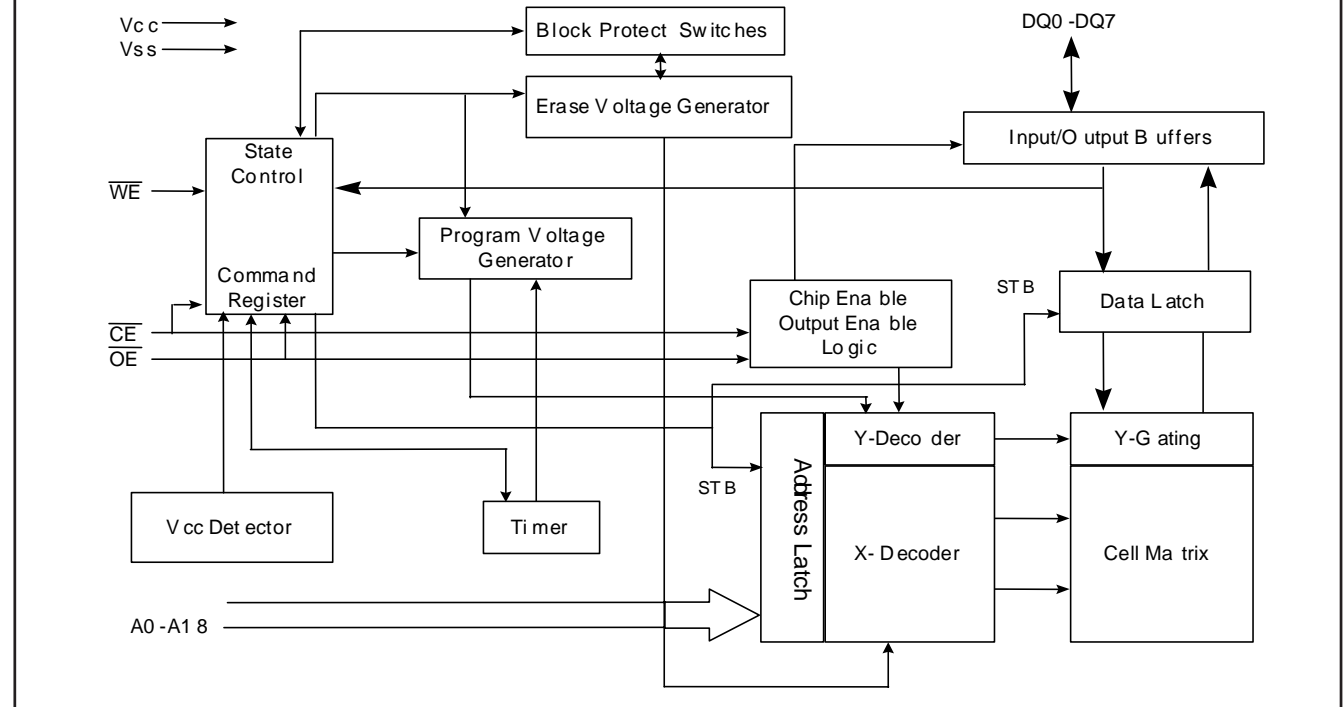
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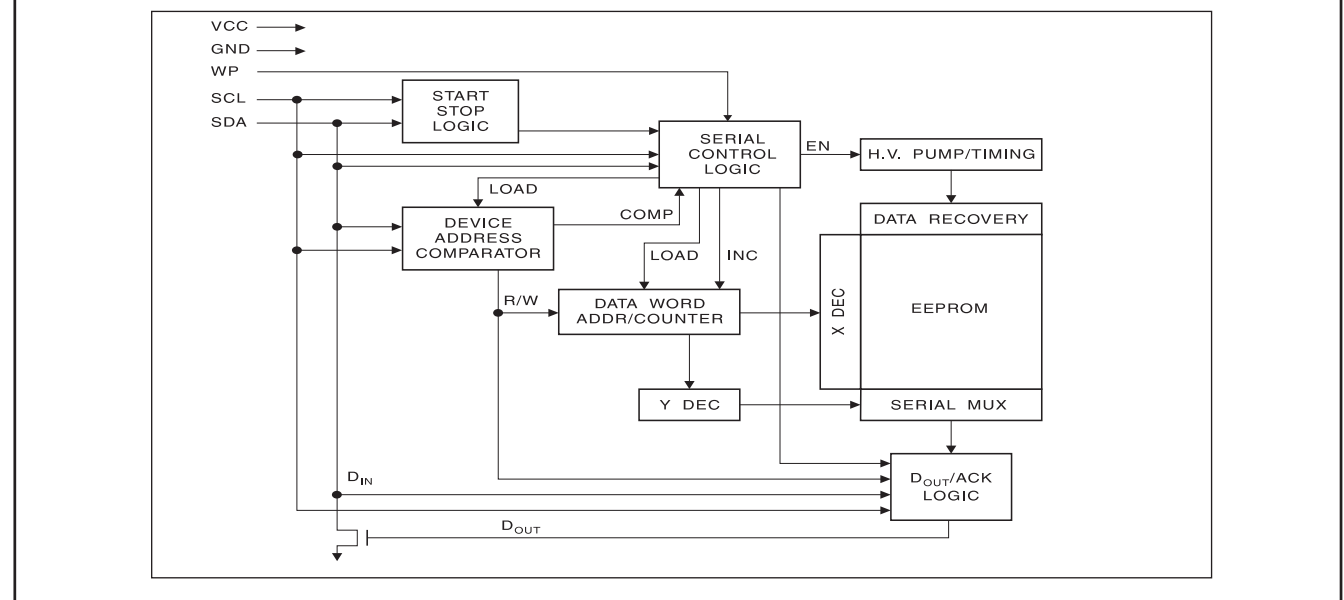
ES6128 INTERNAL IC DIAGRAM



EN29F040A INTERNAL IC DIAGRAM



M24C02N INTERNAL IC DIAGRAM

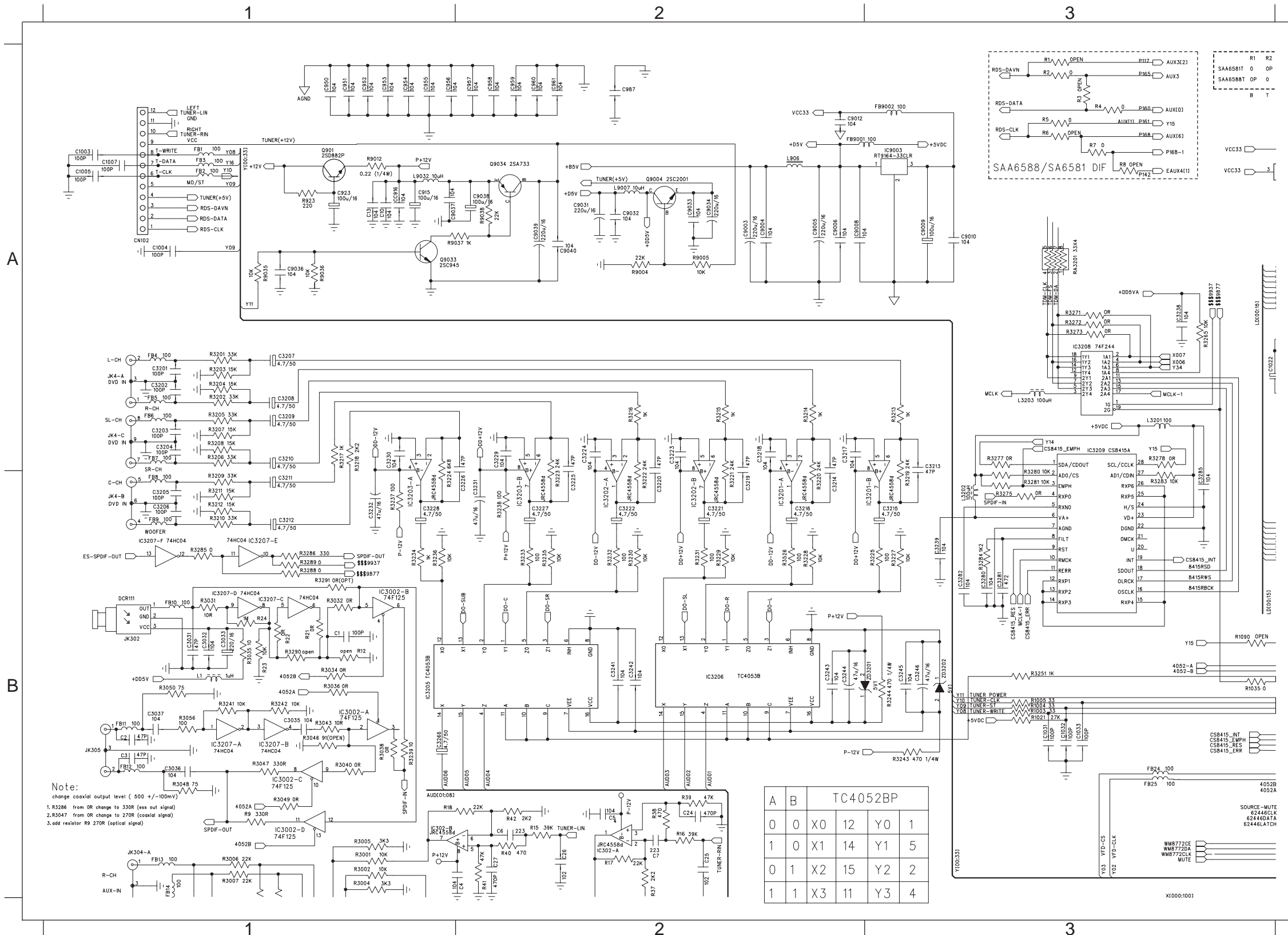


Voltages:

IC210 (ASM809SEURF)																				
PIN NO	1	2	3																	
Voltage	0	3.3	3.3																	
IC301 (TP5228)																				
PIN NO	1	2	3	4	5	6	7	8												
Voltage	0	0	0	0	0	0	0	5												
IC303 & IC304 & IC305 & IC306 & IC307 & IC309 & IC407 & IC408 & IC409 & IC3201 & IC3202 & IC3203 (RC4558D)																				
PIN NO	1	2	3	4	5	6	7	8												
Voltage	0	0	0	-11.5	0	0	0	11.3												
IC401 (M62446AFP)																				
PIN NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Voltage	0	0	0	0	5.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PIN NO	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Voltage	0	0	0	0	0	0	0	0	0	-5.2	0	0	0	0	0	0	0	0	0.1	0.1
PIN NO	41	42																		
Voltage	4.6	5.0																		
IC1002 (EN29F040A-70PCP)																				
PIN NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Voltage	1.8	0.2	0.8	1.8	1.1	1.3	1.5	1.4	1.4	0	0	1.8	1.7	1.7	0	1.3	1.3	0.7	1.3	
PIN NO	21	22	23	24	25	26	27	28	29	30	31	32								
Voltage	1.3	3.3	0.7	3.2	1.9	2.0	1.7	0.2	3.0	0.2	3.3	5.0								
IC1003 (ES6128FF)																				
PIN NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Voltage	3.3	1.4	1.5	1.3	1.1	1.7	1.9	0	2.1	0.6	1.8	1.7	0	3.0	0.7	0.2	0	3.3	0.2	1.8
PIN NO	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Voltage	0	0	0	3.3	2.2	0	3.3	1.7	1.6	1.6	2.2	0	1.2	0	2.0	1.1	1.1	1.1	1.4	1.6
PIN NO	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Voltage	1.6	0	0	2.0	1.6	2.0	1.8	1.8	1.8	1.8	3.3	0	0	0.7	0.7	1.7	1.5	0	3.3	0
PIN NO	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
Voltage	1.1	0	0	0	0	0	0	3.3	3.3	3.3	3.3	3.3	0	0	3.3	0	0	1.1	1.2	1.3
PIN NO	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
Voltage	1.3	0	0	0	1.3	1.2	1.1	0	1.1	1.1	0	3.3	1.0	1.4	1.5	0.6	3.3	0	3.3	3.3
PIN NO	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
Voltage	0	1.7	0	3.3	1.8	0	0	0	0	0	3.3	0.2	0	0	2.2	1.9	1.8	0	0	0
PIN NO	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140
Voltage	1.4	4.0	4.0	1.4	1.3	2.7	3.2	3.3	0	3.3	3.3	0	3.3	0	0	3.3	0	0	2.1	3.3
PIN NO	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160
Voltage	0	1.7	0	4.6	4.6	0	0	3.3	0	0	3.3	1.6	0	0.2	0	0	3.3	0.2	3.3	4.6
PIN NO	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180
Voltage	4.6	4.2	0	3.3	4.6	4.2	3.8	3.8	0.2	3.3	3.3	0	2.1	3.3	3.3	3.3	0	0.9	0.8	0.9
PIN NO	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200
Voltage	0.9	0.9	3.3	0	1.4	2.0	2.0	2.1	2.1	2.1	2.0	0	3.3	2.0	2.0	1.9	1.9	3.3	3.3	0
PIN NO	201	202	203	204	205	206	207	208												
Voltage	3.3	2.0	2.0	0	0	1.4	1.5	0												
IC1004 (HY57V641620HGT-55)																				
PIN NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Voltage	3.3	1.2	3.3	1.2	1.2	0	1.3	1.3	3.3	1.3	1.3	0	1.1	3.3	0	3.3	3.3	3.3	3.3	0
PIN NO	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Voltage	0	0	0	0.8	0.7	1.8	3.3	0	20	1.4	1.7	1.8	0	0	0	0	3.3	1.7	0	0
PIN NO	41	42	43	44	45	46	47	48	49	50	51	52	53	54						
Voltage	0	1.3	3.3	1.3	1.2	0	1.0	1.0	3.3	1.2	1.3	0	1.3	0						
IC1007 (AT24C02AN)																				
PIN NO	1	2	3	4	5	6	7	8												
Voltage	4.6	4.6	0	5.0	0	0	0	0												

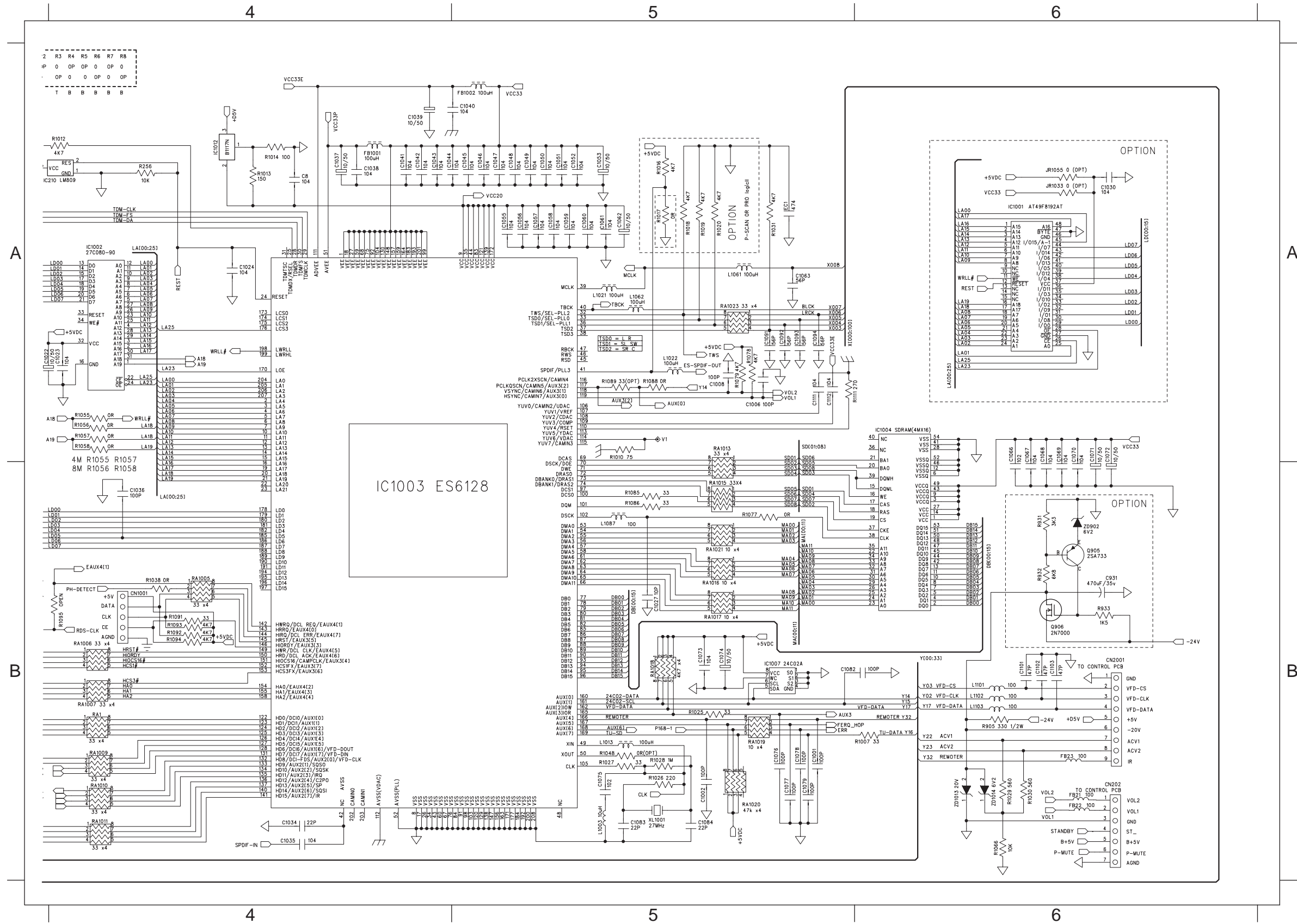
IC1010 (WM8772SEDS)																				
PIN NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Voltage	0	1.7	1.7	3.3	0	0	0	0	0	0	0	0	0	5	5	0	5	5	0	0
PIN NO	21	22	23	24	25	26	27	28												
Voltage	0	0	0	0	0	0	0	5												
IC1012 (LD1117)																				
PIN NO	1	2	3	4																
Voltage	0.8	2.1	5.0	0																
IC3001 (CD4052BM)																				
PIN NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16				
Voltage	0	0	0	0	0	0	-5.3	0	0	0	0	0	0	0	0	5.3				
IC3002 (SN74HC125DR)																				
PIN NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14						
Voltage	3.3	0.2	1.6	0	1.6	1.6	0	1.3	0.2	3.3	1.3	1.6	0	3.3						
IC3205 (TC4053BFN)																				
PIN NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16				
Voltage	0	0	0	0	0	0	-5.3	0	3.3	3.3	3.3	0	0	0	0	5.3				
IC3206 (TC4053BFN)																				
PIN NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16				
Voltage	0	0	0	0.2	0	0	-5.3	0	3.3	3.3	0	0	0	0	0	5.3				
IC3207 & IC7600 (74HCU04D)																				
PIN NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14						
Voltage	1.6	1.6	1.6	1.7	1.7	1.6	0	1.6	2.1	1.3	1.9	1.9	0	3.3						
IC5100 & IC5200 & IC5300 (TDA8920BTH)																				
PIN NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Voltage	-27	0	-0.9	-1.4	-1.4	4.1	2.8	-1.4	-1.4	-0.9	0	-27	-16	27	1.8	-5.5	-27	-13.4	-27	-27
PIN NO	21	22	23	24																
Voltage	-5.5	-1.8	27	-27																
IC7607 (HEF4013BT)																				
PIN NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14						
Voltage	2.4	2.5	2.4	0	2.5	0	0	0	0	0	0	0	5.0	5.0						
IC9003 (PT9164-33PLR)																				
PIN NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14						
Voltage	2.4	2.5	2.4	0	2.5	0	0	0	0	0	0	0	5.0	5.0						
Q301 (2SC945P)																				
PIN NO	b	c	e																	
Voltage	7.5	11.9	6.8																	
Q302 (2SC2878-A)																				
PIN NO	b	c	e																	
Voltage	0.2	4.5	0																	
Q303 (2SC2878-A)																				
PIN NO	b	c	e																	
Voltage	0	0	0																	
Q304 (2SC2878-A)																				
PIN NO	b	c	e																	
Voltage	0	0	0																	
Q305 (2SA812)																				
PIN NO	b	c	e																	
Voltage	0	1.0	0.2																	
Q307 (2SA1623)																				
PIN NO	b	c	e																	
Voltage	0	0.2	0.6																	
Q501 (2SA1623)																				
PIN NO	b	c	e																	
Voltage	0	5.2	0																	
Q910 (2SA812)																				
PIN NO	b	c	e																	
Voltage	12.0	12.5	12.5																	
Q911 (2SA1623)																				
PIN NO	b	c	e																	
Voltage	0.1	12.1	0																	
Q5202 (2SA1623)																				
PIN NO	b	c	e																	

CIRCUIT DIAGRAM - TOP LEFT



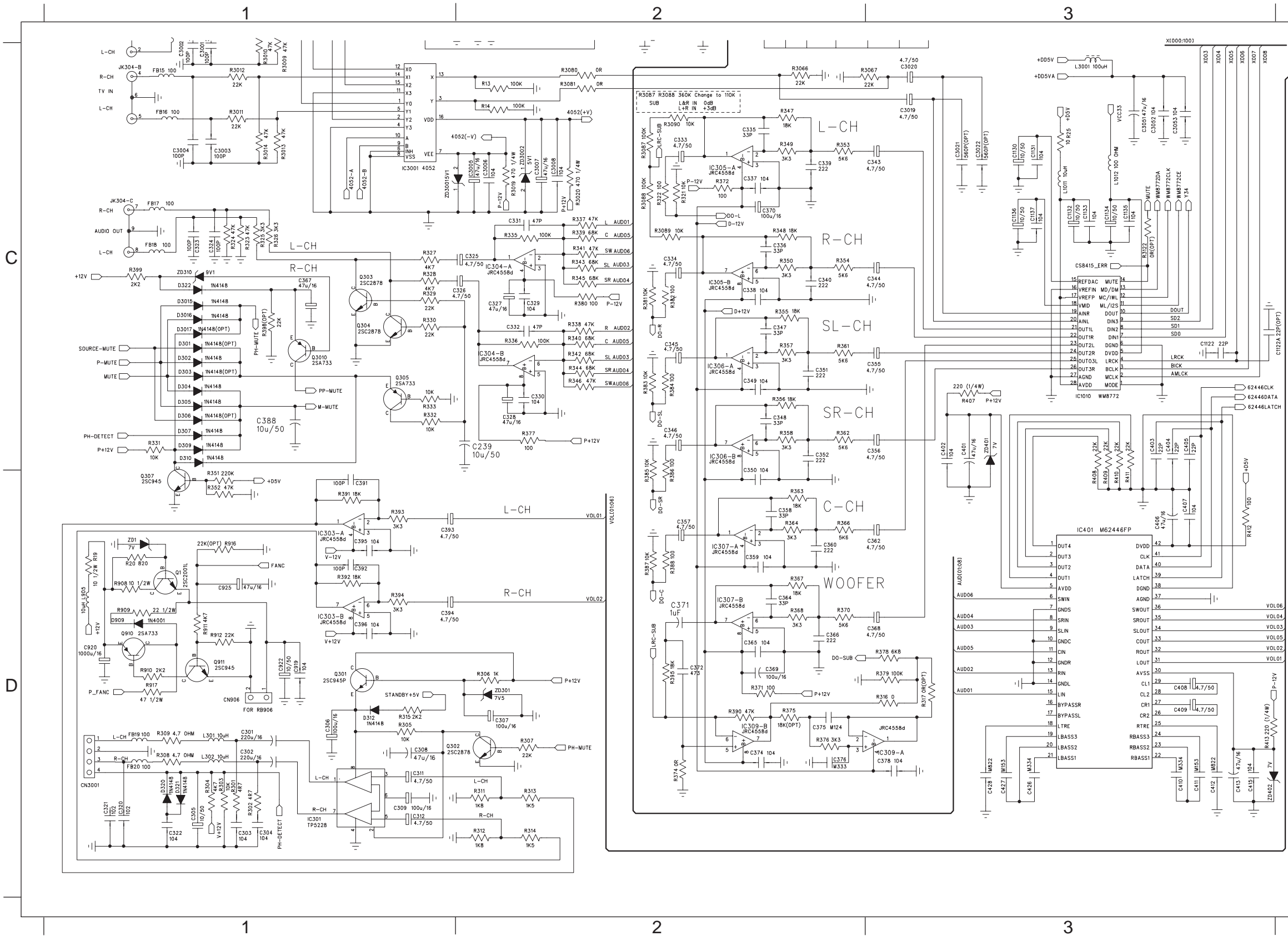
C1	B1	C915	A1	R3001	B1	R6	A3
C10	A1	C923	A1	R3002	B1	R8	A3
C1003	A1	C950	A1	R3004	B1	R9	A3
C1004	A1	C951	A1	R3005	B1	R9	B1
C1005	A1	C952	A1	R3006	B1	R9004	A2
C1007	A1	C953	A1	R3007	B1	R9005	A2
C1022	A3	C954	A1	R3031	B1	R9012	A1
C1031	B3	C955	A1	R3032	B1	R9035	A1
C1032	B3	C956	A1	R3034	B1	R9036	A1
C1033	B3	C957	A2	R3035	B1	R9037	A1
C13	A1	C958	A2	R3036	B1	R9038	A2
C2	B1	C959	A2	R3038	B1	RA23	A1
C24	B2	C960	A2	R3040	B1	RA3201	A3
C25	B2	C961	A2	R3043	B1	ZD3201	B3
C26	B2	C987	A2	R3046	B1	ZD3202	B3
C27	B2	CC916	A1	R3047	B1		
C3	B1	CN102	A1	R3048	B1		
C3031	B1	FB1	A1	R3049	B1		
C3032	B1	FB10	B1	R3050	B1		
C3033	B1	FB11	B1	R3056	B1		
C3035	B1	FB12	B1	R3201	A1		
C3036	B1	FB13	B1	R3202	A1		
C3037	B1	FB14	B1	R3203	A1		
C3201	A1	FB2	A1	R3204	A1		
C3202	A1	FB24	B3	R3205	A1		
C3203	A1	FB25	B3	R3206	A1		
C3204	A1	FB3	A1	R3207	A1		
C3205	B1	FB4	A1	R3208	A1		
C3206	B1	FB5	A1	R3209	B1		
C3207	A1	FB6	A1	R3210	B1		
C3208	A1	FB7	A1	R3211	B1		
C3209	A1	FB8	B1	R3212	B1		
C3210	A1	FB9	B1	R3213	A3		
C3211	B1	FB9001	A2	R3214	A2		
C3212	B1	FB9002	A3	R3215	A2		
C3213	B3	IC3002-A	B1	R3216	A2		
C3214	B2	IC3002-B	B1	R3217	A1		
C3215	B3	IC3002-C	B1	R3218	A1		
C3216	B2	IC3002-D	B1	R3219	B3		
C3218	A2	IC302-A	B2	R3220	B2		
C3218	A2	IC302-B	B1	R3221	B2		
C3219	B2	IC3201-A	B2	R3222	B2		
C3220	B2	IC3201-A	B3	R3223	B2		
C3221	B2	IC3202-A	B2	R3224	A1		
C3222	B2	IC3202-B	B2	R3225	B3		
C3223	A2	IC3203-A	A1	R3227	B3		
C3224	A2	IC3203-B	B2	R3228	B2		
C3225	B2	IC3205	B1	R3229	B2		
C3226	B2	IC3206	B2	R3230	B2		
C3227	B2	IC3207-A	B1	R3231	B2		
C3228	B1	IC3207-B	B1	R3232	B2		
C3229	A2	IC3207-C	B1	R3233	B2		
C3230	A1	IC3207-D	B1	R3234	B1		
C3231	B2	IC3207-E	B1	R3235	B2		
C3232	B1	IC3207-F	B1	R3236	B1		
C3238	A3	IC3208	A3	R3237	B1		
C3239	B3	IC3209	A3	R3238	B2		
C3241	B2	IC9003	A3	R3239	B1		
C3242	B2	JK302	B1	R3241	B1		
C3243	B2	JK305	B1	R3242	B1		
C3244	B2	L1	B1	R3243	B3		
C3245	B3	L3201	A3	R3244	B3		
C3246	B3	L3202	B3	R3251	B3		
C3266	B1	L3203	A3	R3265	A3		
C3280	B3	L9007	A2	R3271	A3		
C3281	B3	L9032	A1	R3272	A3		
C3282	B3	L906	A2	R3273	A3		
C3285	B3	Q9004	A2	R3275	B3		
C4	B2	Q901	A1	R3277	A3		
C5	B2	Q9033	A1	R3278	A3		
C6	B2	Q9034	A2	R3280	B3		
C7	B2	R1	A3	R3281	B3		
C9003	A2	R1003	B3	R3283	B3		
C9004	A2	R1004	B3	R3284	B3		
C9005	A2	R1005	B3	R3285	B1		
C9006	A2	R1021	B3	R3286	B1		
C9008	A2	R1035	B3	R3288	B1		
C9009	A3	R1090	B3	R3289	B1		
C9010	A3	R12	B1	R3290	B1		
C9012	A2	R15	B2	R3291	B1		
C9031	A2	R16	B2	R3526	B2		
C9032	A2	R17	B2	R37	B2		
C9033	A2	R18	B2	R38	B2		
C9034	A2	R21	B1	R39	B2		
C9035	A1	R22	B1	R4	A3		
C9037	A1	R23	B1	R40	B2		
C9038	A2	R24	B1	R41	B2		
C9039	A2	R25	A3	R42	B2		
C9040	A2	R3	A3	R5	A3		

CIRCUIT DIAGRAM - TOP RIGHT



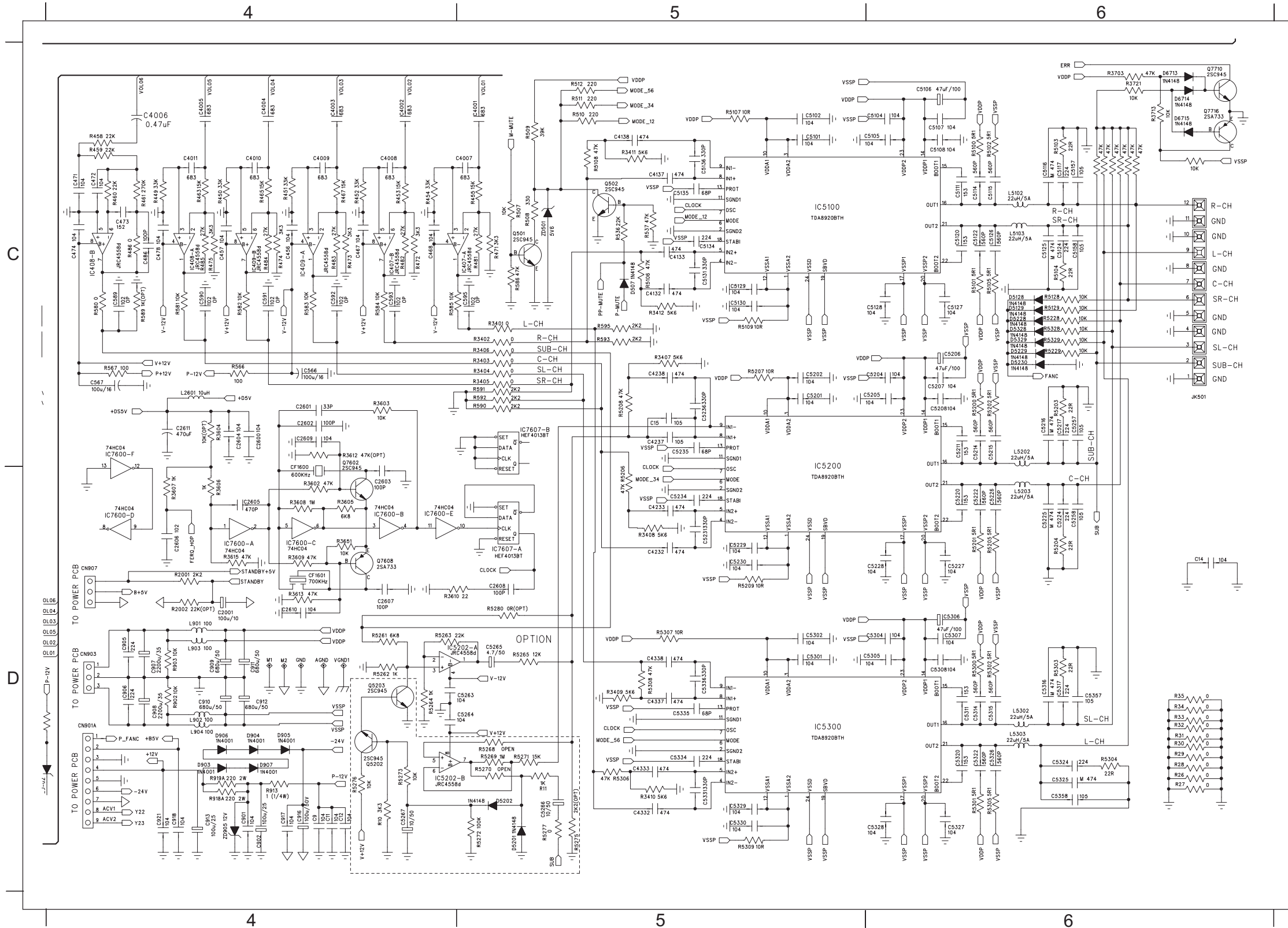
C1001	B5	JR1033	A6
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C1006	A5	L1003	B5
C1008	A5	L1013	B5
C1023	A4	L1021	A5
C1024	A4	L1022	A5
C1027	B5	L1061	A5
C1030	A6	L1062	A5
C1034	B4	L1087	B5
C1035	B4	L1101	B6
C1036	B4	L1102	B6
C1037	A4	L1103	B6
C1038	A4	Q905	B6
C1039	A4	Q906	B6
C1040	A5	R1007	B6
C1041	A4	R1010	A5
C1042	A4	R1012	A4
C1043	A4	R1013	A4
C1044	A4	R1014	A4
C1044	A5	R1016	A5
C1045	A5	R1017	A5
C1046	A5	R1018	A5
C1047	A5	R1019	A5
C1048	A5	R1020	A5
C1049	A5	R1025	B5
C1050	A5	R1026	B5
C1051	A5	R1027	B5
C1052	A5	R1028	B5
C1053	A5	R1029	B6
C1055	A5	R1030	B6
C1055	B6	R1031	A5
C1056	A5	R1038	B4
C1057	A5	R1048	B5
C1058	A5	R1055	A4
C1059	A5	R1056	A4
C1060	A5	R1057	A4
C1061	A5	R1058	A4
C1062	A5	R1066	B6
C1063	A5	R1078	A5
C1067	B6	R1079	A5
C1068	B6	R1085	B5
C1069	B6	R1086	B5
C1070	B6	R1088	A5
C1071	B6	R1089	A5
C1072	B6	R1091	B4
C1073	B5	R1092	B4
C1074	B5	R1093	B4
C1075	B5	R1094	B4
C1076	B5	R1095	B4
C1077	B5	R1111	A5
C1078	B5	R1112	A5
C1079	B5	R256	A4
C1082	B6	R905	B6
C1083	B5	R931	B6
C1084	B5	R932	B6
C1091	A5	R933	B6
C1092	A5	RA1005	B4
C1093	A5	RA1006	B4
C1094	A5	RA1007	B4
C1101	B6	RA1009	B4
C1102	B6	RA1010	B4
C1103	B6	RA1011	B4
C1111	A5	RA1013	B5
C8	A4	RA1015	B5
C931	B6	RA1016	B5
CN1001	B4	RA1017	B5
CN2001	B6	RA1018	B5
CN202	B6	RA1019	B5
EC1	A5	RA1020	B5
FB1001	A4	RA1021	B5
FB1002	A5	RA1023	A5
FB1003	B6	RAF1	B4
FB22	B6	XL1001	B5
FB23	B6	ZD1013	B6
IC1001	A6	ZD1014	B6
IC1002	A4	ZD902	B6
IC1003	B4		
IC1004	A6		
IC1007	B5		
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IC1197	B5		
IC1198	B5		
IC1199	B5		
IC1200	B5		

CIRCUIT DIAGRAM - BOTTOM LEFT



C1122	C3	C374	D2	Q303	C1	R366	D2
C1122A	C3	C375	D2	Q304	C1	R367	D2
C1130	C3	C376	D2	Q305	C1	R368	D2
C1131	C3	C378	D3	Q307	D1	R370	D2
C1132	C3	C388	C1	Q910	D1	R371	D2
C1133	C3	C391	D1	Q911	D1	R372	C2
C1134	C3	C392	D1	R13	C2	R375	D2
C1135	C3	C393	D1	R14	C2	R376	D2
C1136	C3	C394	D1	R19	D1	R377	C2
C1137	C3	C395	D1	R20	D1	R378	D3
C239	C2	C396	D1	R25	C3	R379	D3
C3001	C1	C401	C3	R3009	C1	R380	C2
C3002	C1	C402	C3	R301	D1	R381	C2
C3003	C1	C403	C3	R3010	C1	R382	C2
C3004	C1	C404	C3	R3011	C1	R383	C2
C3005	C2	C405	C3	R3012	C1	R384	C2
C3006	C2	C406	D3	R3013	C1	R385	D2
C3007	C2	C407	D3	R3014	C1	R386	D2
C3008	C2	C408	D3	R3019	C2	R387	D2
C301	D1	C409	D3	R302	D1	R388	D2
C3019	C3	C410	D3	R3020	C2	R390	D2
C302	D1	C411	D3	R303	D1	R391	D1
C3020	C3	C412	D3	R304	D1	R392	D1
C3021	C3	C413	D3	R306	D2	R393	D1
C3022	C3	C415	D3	R3066	C2	R394	D1
C303	D1	C426	D3	R3067	C3	R395	D2
C304	D1	C427	D3	R307	D2	R398	C1
C305	D1	C428	D3	R308	D1	R399	C1
C3051	C3	C919	D1	R3080	C2	R407	C3
C3052	C3	C922	D1	R3081	C2	R408	C3
C3053	C3	C925	D1	R3087	C2	R409	C3
C306	D1	CN3001	D1	R3088	C2	R410	C3
C307	D2	CN906	D1	R3089	C2	R411	C3
C308	D1	D301	C1	R309	D1	R412	D3
C309	D1	D3015	C1	R3090	C2	R413	D3
C311	D1	D3016	C1	R311	D2	R908	D1
C312	D1	D3017	C1	R312	D2	R909	D1
C320	D1	D302	C1	R3122	C3	R910	D1
C321	D1	D303	C1	R313	D2	R911	D1
C322	D1	D304	C1	R314	D2	R912	D1
C323	C1	D305	C1	R315	D1	R916	D1
C324	C1	D306	C1	R316	D3	R917	D1
C325	C2	D309	C1	R321	C2	ZD3001	C1
C327	C2	D310	C1	R322	C2	ZD3002	C2
C328	C2	D312	D1	R323	C1	ZD301	D2
C329	C2	D320	D1	R324	C1	ZD310	C1
C330	C2	D321	D1	R325	C1	ZD401	C3
C331	C2	D322	C1	R326	C1	ZD402	D3
C332	C2	D909	D1	R327	C1		
C333	C2	FB15	C1	R328	C1		
C334	C2	FB16	C1	R329	C1		
C335	C2	FB17	C1	R330	C1		
C336	C2	FB18	C1	R331	C1		
C337	C2	FB19	D1	R332	C1		
C338	C2	FB20	D1	R333	C1		
C339	C2	IC1010	C3	R335	C2		
C340	C2	IC3001	C1	R336	C2		
C343	C3	IC301	D1	R337	C2		
C344	C3	IC303-A	D1	R338	C2		
C345	C2	IC303-B	D1	R339	C2		
C346	C2	IC304-A	C2	R340	C2		
C347	C2	IC304-B	C2	R341	C2		
C348	C2	IC305-A	C2	R342	C2		
C349	C2	IC305-B	C2	R343	C2		
C350	D2	IC306-A	C2	R344	C2		
C351	C2	IC306-B	C2	R345	C2		
C352	C2	IC307-A	D3	R346	C2		
C353	C2	IC307-B	D2	R347	C2		
C354	C2	IC309-A	D3	R348	C2		
C355	C3	IC309-B	D2	R349	C2		
C356	D2	IC309-B	D2	R349	C2		
C357	D2	IC309-B	D2	R349	C2		
C358	D2	IC401	D3	R350	C2		
C359	D2	JK304-C	C1	R351	D1		
C360	D2	L1011	C3	R352	D1		
C361	D2	L1012	C3	R353	C2		
C362	D2	L3001	C3	R354	C2		
C363	D2	L3003	C3	R355	C2		
C364	D2	L301	D1	R356	C2		
C365	D2	L302	D1	R357	C2		
C366	D3	L905	D1	R358	C2		
C367	D2	Q1	D1	R361	C2		
C368	D2	Q301	D1	R362	C2		
C369	D2	Q3010	C1	R363	D2		
C370	D2	Q302	D2	R364	D2		

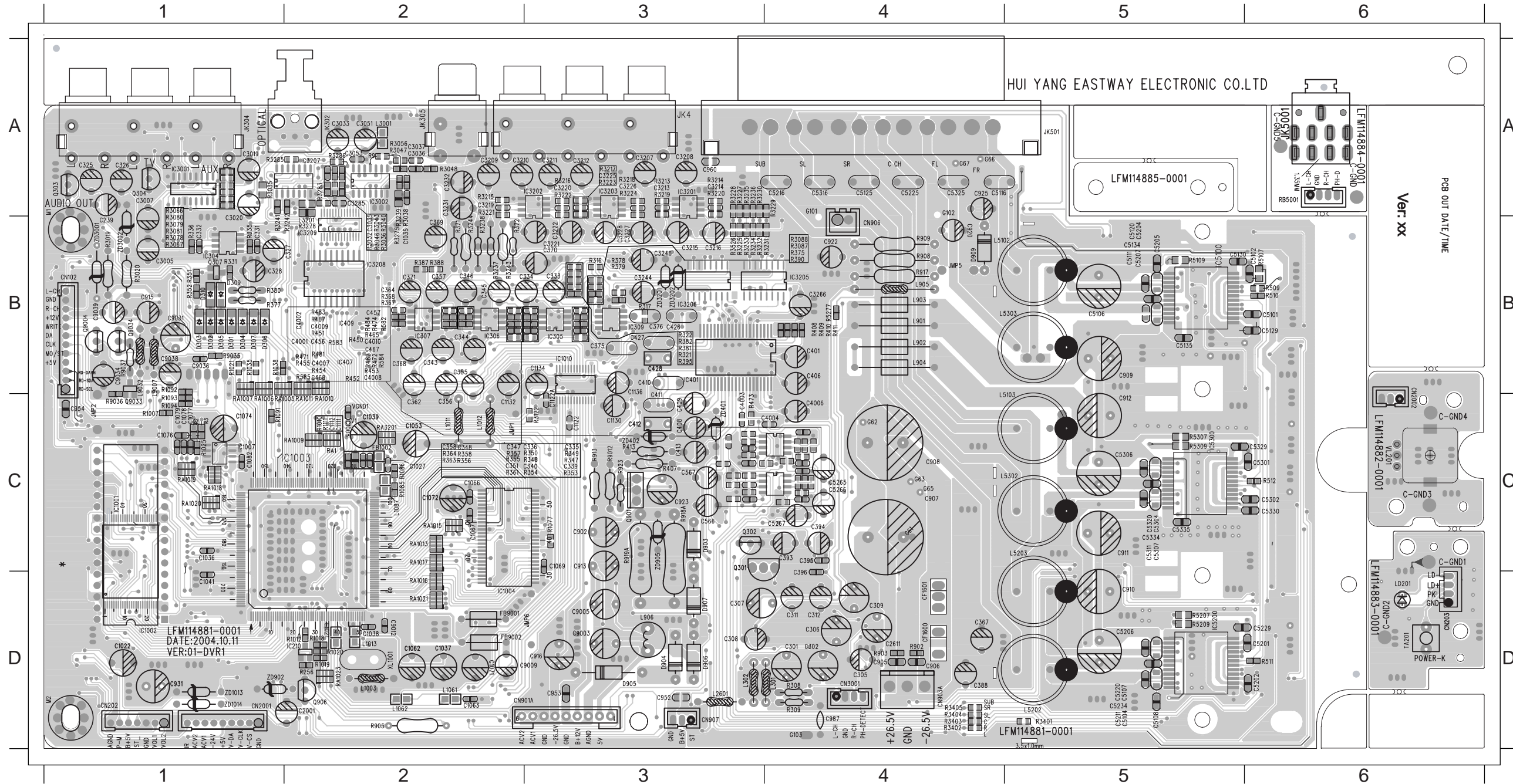
CIRCUIT DIAGRAM - BOTTOM RIGHT



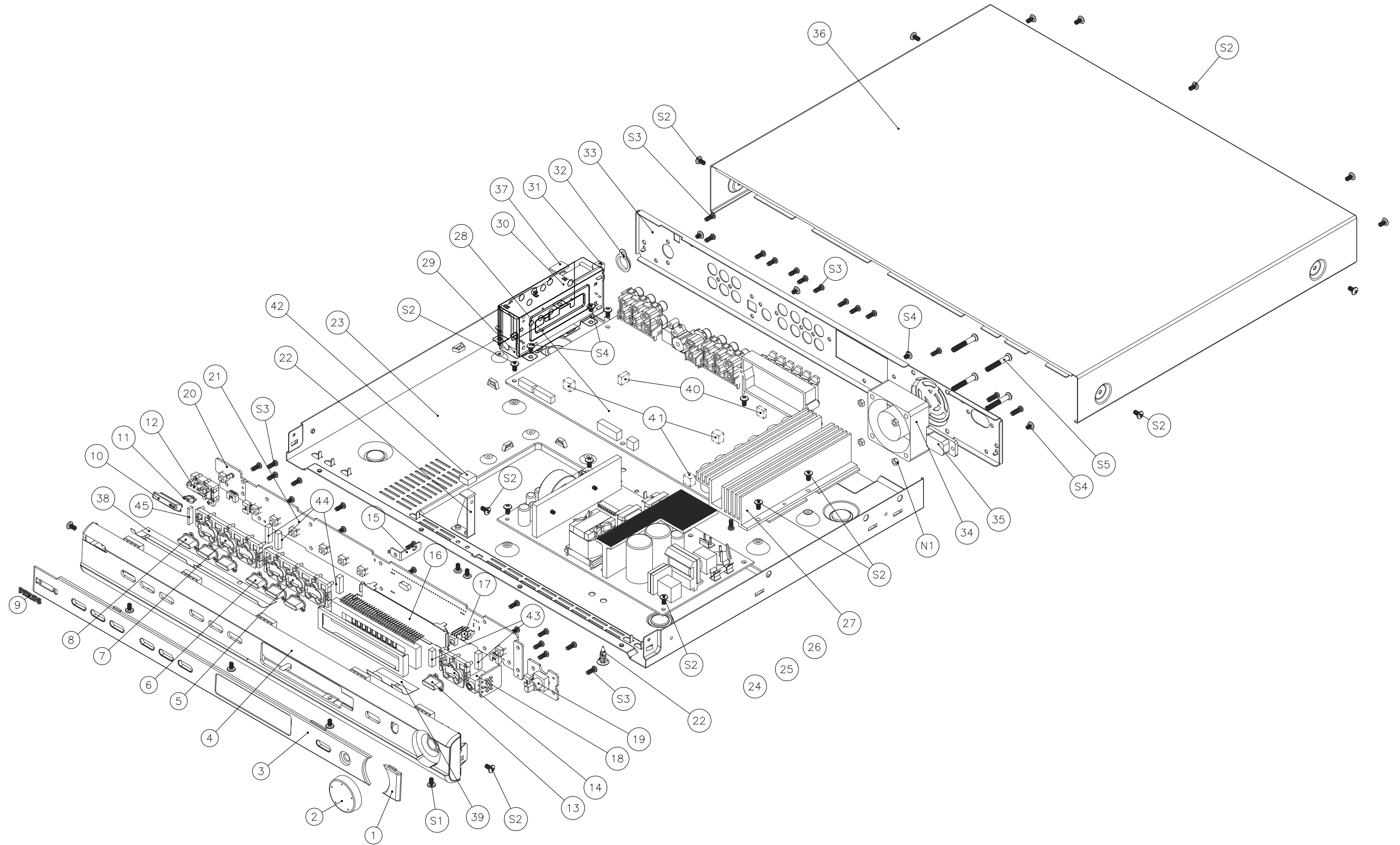
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C12	D4	C5220	D6	D6714	C6	R449	C4	R566	C4
C15	C5	C5222	D6	D6715	C6	R450	C4	R567	C4
C2001	D4	C5224	D6	D903	D4	R451	C4	R580	C4
C2600	C4	C5225	D6	D904	D4	R452	C4	R581	C4
C2601	C4	C5226	D6	D905	D4	R453	C4	R582	C4
C2602	C4	C5227	D6	D906	D4	R454	C4	R583	C4
C2603	D4	C5228	D6	D907	D4	R455	C5	R584	C4
C2604	C4	C5229	D5	IC407-A	C5	R458	C4	R585	C4
C2605	D4	C5230	D5	IC407-B	C4	R459	C4	R586	C5
C2606	D4	C5231	D5	IC408-A	C4	R460	C4	R589	C4
C2607	D4	C5234	D5	IC408-B	C4	R461	C4	R590	C5
C2608	D5	C5235	C5	IC409-A	C4	R465	C4	R591	C5
C2609	C4	C5236	C5	IC409-B	C4	R467	C4	R592	C5
C2611	C4	C5257	C6	IC5100	C5	R471	C5	R593	C5
C3610	D4	C5258	D6	IC5200	C5	R472	C4	R595	C5
C4001	C5	C5263	D4	IC5200	D5	R473	C4	R902	D4
C4002	C4	C5264	D4	IC5202-AD4		R474	C4	R903	D4
C4003	C4	C5265	D5	IC5202-BD4		R475	C4	R913	D4
C4004	C4	C5266	D5	IC5300	D5	R481	C5	R918A	D4
C4005	C4	C5267	D4	IC7600-AD4		R482	C4	R919A	D4
C4006	C4	C5301	D5	IC7600-BD4		R483	C4	ZD501	C5
C4007	C5	C5302	D5	IC7600-CD4		R484	C4	ZD905	D4
C4008	C4	C5304	D6	IC7600-DD4		R485	C4		
C4009	C4	C5305	D6	IC7600-ED4		R486	C4		
C4010	C4	C5306	D6	IC7600-FD4		R486	C4		
C4011	C4	C5307	D6	IC7607-AD5		R507	C5		
C4132	C5	C5308	D5	IC7607-BC5		R508	C5		
C4133	C5	C5308	D6	L2601	C4	R509	C5		
C4137	C5	C5311	D6	L5102	C6	R510	C5		
C4138	C5	C5314	D6	L5103	C6	R5100	C6		
C4232	D5	C5315	D6	L5202	C6	R5101	C6		
C4233	D5	C5316	D6	L5203	D6	R5102	C6		
C4237	C5	C5317	D6	L5302	D6	R5104	C6		
C4238	C5	C5320	D6	L5303	D6	R5105	C6		
C4332	D5	C5322	D6	L901	D4	R5106	C5		
C4333	D5	C5324	D6	L902	D4	R5107	C5		
C4337	D5	C5325	D6	L903	D4	R5108	C5		
C4338	D5	C5326	D6	L904	D4	R5109	C5		
C456	C4	C5327	D6	Q501	C5	R511	C5		
C457	C4	C5328	D6	Q502	C5	R5128	C6		
C467	C4	C5329	D5	Q5202	D4	R5129	C6		
C468	C4	C5330	D5	Q5203	D4	R5200	C6		
C471	C4	C5331	D5	Q7602	D4	R5201	D6		
C472	C4	C5334	D5	Q7608	D4	R5202	C6		
C473	C4	C5335	D5	Q7710	C6	R5203	C6		
C474	C4	C5336	D5	Q7716	C6	R5204	D6		
C478	C4	C5357	D6	R10	D4	R5205	D5		
C486	C4	C5358	D6	R11	D5	R5205	D6		
C5101	C5	C566	C4	R2001	D4	R5207	C5		
C5102	C5	C567	C4	R2002	D4	R5208	C5		
C5103	C6	C589	C4	R26	D6	R5209	D5		
C5104	C6	C590	C4	R27	D6	R521	C5		
C5105	C6	C591	C4	R28	D6	R5228	C6		
C5106	C6	C592	C4	R29	D6	R5229	C6		
C5107	C6	C593	C4	R30	D6	R5261	D4		
C5108	C6	C595	C5	R31	D6	R5262	D4		
C5111	C6	C9	D4	R32	D6	R5263	D4		
C5114	C6	C9010	D4	R33	D6	R5264	D4		
C5115	C6	C902	D4	R34	D6	R5265	D5		
C5116	C6	C905	D4	R3401	C5	R5268	D5		
C5117	C6	C906	D4	R3402	C5	R5269	D5		
C5120	C6	C907	D4	R3403	C5	R5270	D5		
C5122	C6	C908	D4	R3404	C5	R5271	D5		
C5124	C6	C909	D4	R3405	C5	R5272	D5		
C5126	C6	C910	D4	R3406	C5	R5273	D4		
C5126	C6	C911	D4	R3407	C5	R5275	D5		
C5127	C6	C912	D4	R3408	D5	R5276	D4		
C5128	C6	C913	D4	R3409	D5	R5277	D5		
C5129	C5	C916	D4	R3410	D5	R5280	D5		
C5130	C5	C917	D4	R3411	C5	R5300	D6		
C5131	C5	C918	D4	R3412	C5	R5301	D6		
C5134	C5	C921	D4	R35	D6	R5302	D6		
C5135	C5	CF1600D4		R3602	D4	R5303	D6		
C5136	C5	CF1601D4		R3603	C4	R5305	D6		
C5157	C6	CN901AD4		R3604	C4	R5307	D5		
C5158	C6	CN903	D4	R3605	D4	R5309	D5		
C5201	C5	CN907	D4	R3606	D4	R5328	C6		
C5202	C5	D507	C5	R3607	D4	R5329	C6		
C5204	C6	D5128	C6	R3608	D4	R536	C5		
C5205	C6	D5129	C6	R3609	D4				
C5206	C6	D5201	D5	R3610	D4				
C5207	C6	D5202	D5	R3612	C4				
C5208	C6	D5228	C6	R3613	D4				
C5211	C6	D5229	C6	R3615	D4				
C5214	C6	D5230	C6	R3651	D4				
C5215	C6	D5328	C6						
C5216	C6	D5329	C6						

PCB LAYOUT - TOP VIEW

C1008	C2	C1132	B2	C3208	A3	C331	B1	C376	B3	C457	C4	C5229	D6	C9034	B1	CN102	B1	FB9002	D2	IC5300	C5	L5302	C5	R1021	B1	R3067	A1	R3227	A3	R3403	D4	R380	B1	R483	C3	R913	C3	ZD3001	B1		
C1022	A1	C1134	B3	C3209	A2	C332	B1	C388	D4	C467	C4	C5234	D5	C9036	B1	CN2001	D1	IC1001	C1	JK302	A2	L5303	B5	R1035	B1	R3078	A1	R3228	A3	R3404	D4	R381	B3	R484	C4	R917	B4	ZD3002	B1		
C1035	A2	C1136	B3	C3210	A2	C333	B1	C393	C4	C468	C3	C5265	C4	C9038	B1	CN2002	C6	IC1002	D1	JK304	A1	L9007	B1	R1038	B1	R3079	A1	R3229	A4	R3405	D4	R382	B3	R484	C4	R918A	C3	ZD3201	B3		
C1036	C1	C2001	D2	C3211	A3	C334	B2	C394	C4	C5101	B6	C5266	C4	C9039	B1	CN202	D1	IC1003	C2	JK305	A2	VL901	B4	R1077	C3	R308	D4	R3230	A3	R347	B3	R387	B2	R510	B6	R919A	C3	ZD3202	B3		
C1037	D2	C210	D2	C3212	A3	C334	B2	C395	C4	C5102	B6	C5267	C4	C905	D4	CN203	D6	IC1004	D2	JK4	A3	L902	B4	R1085	C2	R3080	A1	R3231	B4	R348	B3	R388	B2	R5107	B6	R923	C3	ZD401	C3		
C1038	D2	C239	A1	C3213	A3	C335	B3	C396	C4	C5104	D5	C5301	C6	C906	D4	CN3001	D4	IC1007	C1	JK5001	A6	L903	B4	R1086	C2	R3081	A1	R3232	B3	R349	B3	R390	B3	R5109	B5	RA1	C2	ZD402	C3		
C1039	C2	C2611	D4	C3214	A3	C336	B3	C4001	C3	C5106	B5	C5302	C6	C907	C4	CN901A	D3	IC1010	B3	JK501	A5	L9032	B1	R1091	C1	R3087	B3	R3233	B3	R350	B3	R395	B3	R511	D6	RA1005	B2	ZD902	D1		
C1041	C1	C3005	B1	C3215	B3	C339	B3	C4002	C3	C5107	D5	C5304	C5	C908	C4	CN903A	D4	IC3001	A1	JMP1	C2	L904	B4	R1092	B1	R3088	B3	R3234	B3	R351	B1	R407	C3	R512	C6	RA1006	B1	ZD905	C3		
C1041	D1	C3007	A1	C3216	B3	C340	B3	C4003	C3	C5108	D5	C5305	C5	C909	B5	CN906	B4	IC3002	A2	JMP2	C1	L905	B4	R1093	C1	R309	D4	R3235	A3	R3526	B3	R408	B4	R5207	D5	RA1007	B1				
C1053	C2	C301	D4	C3219	A2	C343	B2	C4004	C3	C5111	B5	C5307	C5	C910	D5	CN907	D3	IC304	B1	JMP6	D2	L906	D3	R1094	C1	R3122	C3	R3236	A3	R3526	B1	R409	B4	R5209	D5	RA1009	C2				
C1062	D2	C3019	A1	C3220	A3	C344	B2	C4006	C4	C5116	A4	C5311	C5	C911	C5	D301	B1	IC305	B3	L1003	D2	LD201	D6	R1111	C2	R316	B3	R3237	B2	R353	B3	R410	B4	R5277	B4	RA1010	B2				
C1063	D2	C302	D4	C3221	B3	C345	B2	C4007	C3	C5120	B5	C5316	A4	C912	C5	D302	B1	IC306	B2	L1011	C2	Q301	C3	R2	C1	R317	B3	R3238	B2	R354	B3	R411	B4	R5307	C5	RA1011	B2				
C1066	C2	C3020	A1	C3222	B3	C346	B2	C4008	C4	C5125	A4	C5320	C5	C913	C3	D303	B1	IC307	B2	L1012	C2	Q302	C3	R256	D2	R321	B3	R3239	A2	R355	B2	R413	C3	R5309	C5	RA1013	C2				
C1067	C2	C3033	A2	C3225	A3	C347	B2	C4009	C3	C5129	B6	C5325	A4	C915	B1	D304	B1	IC309	B3	L1013	D2	Q303	A1	R3	C1	R3213	A3	R3241	A1	R356	B2	R450	C4	R582	C4	RA1015	C2				
C1069	D3	C3035	A2	C3226	A3	C348	B2	C401	B4	C5130	B5	C5329	C6	C916	D3	D305	B1	IC3201	A3	L1021	D2	Q304	A1	R3019	B1	R3214	A3	R3242	A2	R357	B2	R451	C3	R583	C3	RA1016	D2				
C1071	C2	C3036	A2	C3227	B3	C351	B2	C4010	C4	C5134	B5	C5330	C6	C920	B4	D306	B1	IC3202	A3	L1061	D2	Q307	B1	R3020	B1	R3215	A2	R3243	B2	R358	B2	R452	C4	R584	C4	RA1017	C2				
C1072	C2	C3037	A2	C3228	B3	C355	B2	C406	B4	C5135	B5	C5334	C5	C922	B4	D307	B1	IC3203	A3	L1062	D2	Q9004	B1	R3032	A2	R3216	A3	R3244	B2	R361	B2	R453	C4	R585	C3	RA1018	C1				
C1074	C1	C305	D4	C3231	A2	C356	B2	C408	C3	C5201	D6	C5335	C5	C923	C3	D309	B1	IC3205	B4	L1087	C2	Q901	C3	R3035	A1	R3217	A3	R3275	A2	R363	B2	R454	C3	R9	A2	RA1019	C1				
C1076	C1	C3051	A2	C3232	A2	C357	B2	C409	C3	C5202	D6	C566	C3	C925	A4	D310	B1	IC3206	B3	L2601	D3	Q9033	C1	R3036	A2	R3218	A3	R3278	A2	R364	B2	R455	C3	R9012	C3	RA1020	C1				
C1077	C1	C3053	A2	C3244	B3	C358	B2	C410	B3	C5204	B5	C567	C3	C931	D1	D903	C3	IC3207	A2	L3001	A2	Q9034	B1	R3038	A2	R3219	A3	R3283	A2	R367	B2	R465	C4	R902	D4	RA1021	D2				
C1078	C1	C306	D4	C3246	B3	C362	B2	C411	C3	C5205	B5	C9003	D3	C952	D3	D904	D3	IC3208	B2	L301	D4	Q906	D2	R3040	A2	R322	B3	R3285	A2	R368	B2	R467	C3	R903	D4	RA1023	D2				
C1079	C1	C307	D3	C325	A1	C364	B2	C412	C3	C5206	D5	C9005	D3	C953	D3	D905	D3	IC3209	B2	L302	D3	R1007	C1	R3043	A2	R3220	A3	R3286	A2	R371	B2	R471	C3	R9035	B1	RA3201	C2				
C1082	C1	C308	D3	C326	A1	C367	D4	C413	C3	C5207	B5	C9009	D2	C954	C1	D906	D3	IC401	B3	L3201	A2	R1010	C2	R3046	A2	R3221	A2	R331	B1	R372	B2	R472	C4	R9036	B1	RB5001	A6				
C1111	C2	C309	D4	C3266	B4	C368	B2	C426	B3	C5211	D5	C9012	D2	C960	A3	D907	D3	IC407	C4	L5102	B5	R1012	D2	R3047	A2	R3222	A3	R335	B1	R375	B3	R473	C3	R9037	B1	TA201	D6				
C1112	C2	C311	D4	C327	B1	C369	B2	C427	B3	C5216	A4	C902	C3	C987	D4	D909	B4	IC409	C4	L5103	C5	R1018	D2	R3048	A2	R3223	A3	R336	B1	R377	B1	R474	C4	R905	D2	XL1001	D2				
C1122A	C3	C312	D4	C3285	A2	C370	B3	C428	B3	C5220	D5	C902	C3	CF1600	D4	FB1002	C2	IC5100	B5	L5202	D5	R1019	D2	R3056	A2	R3224	A3	R3401	D5	R378	B3	R481	C3	R908	B4	ZD1013	D1				
C1130	C3	C3207	A3	C3285	B1	C371	B2	C456	C3	C5225	A4	C9031	B1	CF1601	D4	FB9001	D2	IC5200	D5	L5203	C5	R1020	D2	R3066	A1	R3225	B3	R3402	D4	R379	B3	R482	C4	R909	B4	ZD1014	D1				



EXPLODED DRAWING



MAIN ENCASING & ACCESSORIES PARTS LIST

MAIN POWER VOLUME PHONE PCB ASS'Y

9965 000 38268	MAIN PCB ASS'Y LEAD FREE	APE114881-0002
9965 000 38267	POWER KEY PCB ASS'Y LEAD FREE	APE114883-0001
9965 000 38269	VOL. PCB ASS'Y LEAD FREE	APE114882-0001
9965 000 38270	\$ SMPS PCB ASS'Y	APE104850-0012
9965 000 38262	TUNER PCB ASS'Y	APE113960-0009
9965 000 29577	CONTROL PCBA	APE114891-0001
9965 000 38266	FRONT CAB HIPS W435XD15.6XH48	BPF106019-1000
9965 000 38263	FUNCTION BUTTON-1 HOLDER ABS	BPH100126-0001
9965 000 38264	FUNCTION BUTTON-2 HOLDER ABS	BPH110126-0001
9965 000 38265	FUNCTION BUTTON-3 HOLDER ABS	BPH120126-0001
9965 000 29585	POWER BUTTON HOLDER ABS LF	BPH130126-0001
9965 000 29586	COVER FUNCTION BUTTON-1	BPK102091-Y001
9965 000 29587	VOLUME KNOB ABS CAVITY:1X2 D30.5	BPK105080-Y001
9965 000 29588	COVER FUNCTION BUTTON-2	BPK112091-Y001
9965 000 29589	COVER FUNCTION BUTTON-3	BPK122091-Y001
9965 000 29590	COVER POWER BUTTON	BPK132091-Y001
9965 000 29591	DISPLAY LENS L398.4XW27.8XT3.4MM	BPN100207-0001
9965 000 29592	VOLUME LENS L19.8XW27.8XT3.4MM L	BPN100208-0001
9965 000 29593	POWER LENS L5.9XT0.9MM CAVITY:1X	BPN100209-0001
9965 000 29594	RUBBER FOOT D13XT3.0MM W/ADV T40	BRF100050-0001
9965 000 29580	SAT SPK ASS'Y 100WX5 3OHM	ESB19E001-5303
9965 000 29579	SUBWOOFER ASS'Y 100W 3OHM	ESW10A001-5303
9965 000 29581	FAN 12V 0.09A APEED: 4000RPM WIR	FAN121201-Z002
9940 000 01549	LOOP ANT W/2P 2.5MM	VTA400002-1010
9940 000 01551	FM ANTENNA 1000MM	VTA400003-1010
9965 000 26916	RC 45KEY (313923804482)	WIR045Z01-9508

SAT SPK ASS'Y 100WX5 3OHM

9965 000 29616	SPEAKER BOX (FRONT-L)	ASL5M5000-CK01
9965 000 29617	SPEAKER BOX (FRONT-R)	ASL5M5000-CK02
9965 000 29618	SPEAKER BOX (REAR-L)	ASL5U5000-CK01
9965 000 29619	SPEAKER BOX (REAR-R)	ASL5U5000-CK02
9965 000 29620	CLOTH FRAME ASS'Y(FRONT /REAR)	ASW503001-0552
9965 000 28370	RUBBER FOOT 40LX6WX2.5T	DUF503010-0006
9965 000 29621	CABLE A'SSY #22 L5.2M - RED	ASW502002-0244
9965 000 29622	CABLE A'SSY #22 L15.2M- BLUE	ASW502002-0247
9965 000 29623	CABLE A'SSY #22 L15.2M- GRAY	ASW502002-0248
9965 000 29624	SPEAKER BOX (CENTRE)	ASL5C5000-CK01
9965 000 28368	CLOTH FRAME ASS'Y CENTER	ASW503001-0551
9965 000 28371	RUBBER FOOT 40.5LX6.0WX1.5T	DUF503002-0190
9965 000 29625	CABLE A'SSY #22 L5.2M-GREEN	ASW502002-0246
9965 000 34403	CABLE A'SSY #22 L5.2M- WHITE	ASW502002-0243

SUBWOOFER ASS'Y 100W 3OHM

9965 000 28373	CLOTH FRAME ASS'Y (BACK)	ASW503001-0550
9965 000 28375	RUBBER FOOT	DUF503002-0200
9965 000 29626	CABLE A'SSY #22 L5.2M- PURPLE	ASW502002-0245

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