Service
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Service Manual

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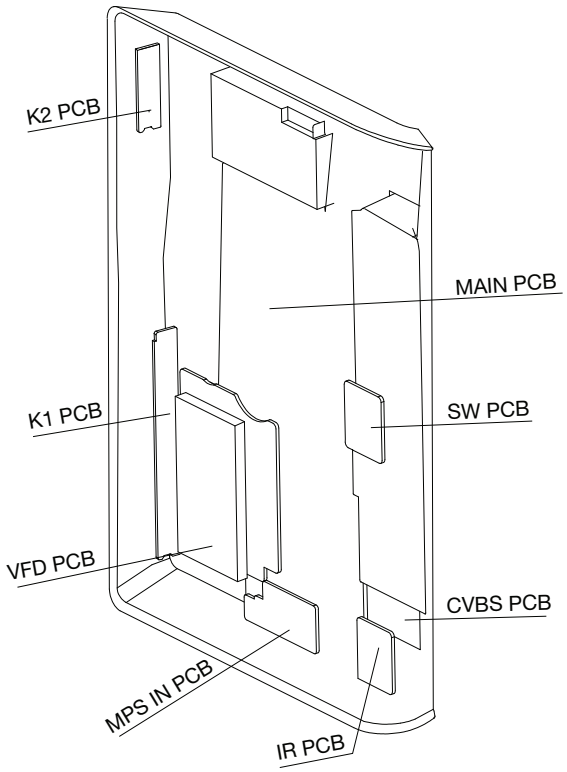
Published by KC-RL1018 Service Audio Printed in The Netherlands Subject to modification

GB 3139 785 34211

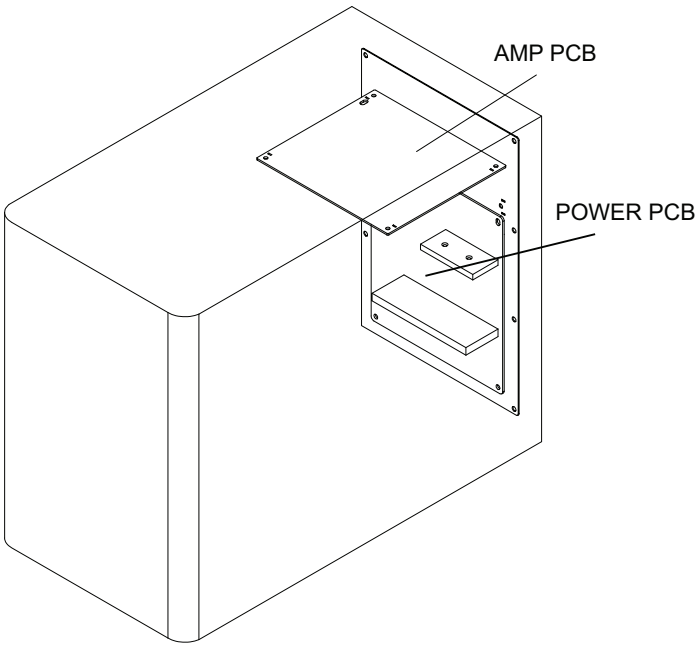
Version 1.1

PHILIPS

LOCATION OF PCB BOARDS



MAIN UNIT



SUBWOOFTER

VERSION VARIATION:

Type/Versions / Features	HTS4600	
	/05	/12
Output Power - 300W	x	x
Power Voltage (220V~240V)	x	x
Mp3 Link	x	x

SERVICE SCNARIO MATRIX:

Type/Versions / Board in used	HTS4600	
	/05	/12
MAIN+IR+SW+CVBS+FCC+K1+K2+MP3 IN Board	Bd	Bd
Power Board	Bd	Bd
AMP Board	Bd	Bd
VFD Board	Bd	Bd

*Bd = Board Level Repair

SPECIFICATIONS

Accessories supplied

Quick Start Guide
Remote control and batteries
Scart converter cable
Interconnect cable (connect between main unit and subwoofer)
Audio cable
3.5mm stereo audio cable (for MP3 LINK)
Power cable
Subwoofer
2 speakers
Table stand (for main unit)
FM wire antenna
Micro fi bre cleaning cloth
Mounting guide

Amplifier

Total output power (Home Theatre) 300W
Frequency response..... 180 Hz~18 kHz / ±3dB
Signal-to-noise ratio..... > 60 dB (A-weighted)
Input sensitivity
AUX ..... 1300 mV±200mV
MP3 LINK ..... 1300 mV±200mV

Disc

Laser Type..... Semiconductor
Disc diameter..... 12cm / 8cm
Video decording..... MPEG1/ MPEG2 / DivX / DivX Ultra
Video DAC..... 12 bits, 108 MHz
Signal system ..... PAL / NTSC
Video S/N ..... 56 dB
Audio DAC..... 24 bits / 96 kHz
Frequency response..... 4 Hz - 20 kHz (44.1 kHz)
..... 4 Hz - 22 kHz (48 kHz)
..... 4 Hz - 44 kHz (96 kHz)
PCM..... IEC 60958
Dolby Digital, DTS IEC60958, IEC61937

Radio

Tuning range ..... FM 87.5-108 MHz (50 kHz)
26dB quieting sensitivity..... FM 20 dBf
IF rejection ratio..... FM 60 dB
Signal-to-noise ratio..... FM 60 dB
Harmonic distortion..... FM 3%
Frequency response..... FM 180 Hz - 10 kHz /±6dB
Stereo separation ..... FM 26 dB (1 kHz)
Stereo Threshold..... FM 23.5 dB

USB

Compatibility..... Hi-Speed USB (2.0)
Class support..... UMS (USB Mass Storage Class)

Power (Subwoofer)

Power supply..... 220-240V~50 Hz
Power consumption..... 75 W
Standby power consumption..... < 1 W
System..... Bass Refl ex System
Impedance..... 8 ohm
Speaker drivers ..... 165 mm (6 1/2”) woofer
Frequency response..... 55 Hz - 150 Hz
Dimensions (WxHxD) ..... 202 x 300 x 380 (mm)
Weight ..... 5.55 kg

Main unit

Dimensions (WxHxD) ..... 315 x 199 x 106 (mm)
Net Weight..... 1.7 kg

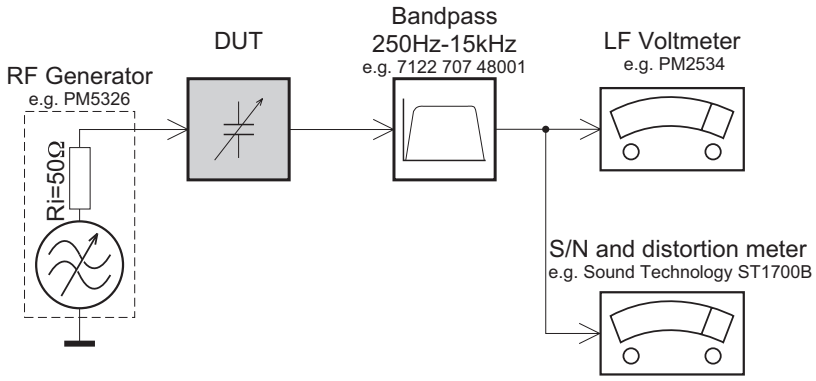
Speakers

System..... full range satellite
Speaker impedance..... 4 ohm/channel
Speaker drivers ..... 3”woofer + 0.8” tweeter
Frequency response..... 150 Hz - 20 kHz
Dimensions (WxHxD) ..... 180 x 199 x 106 (mm)
Weight ..... 1.1 kg

Speci cations subject to change without prior notice.

MEASUREMENT SETUP

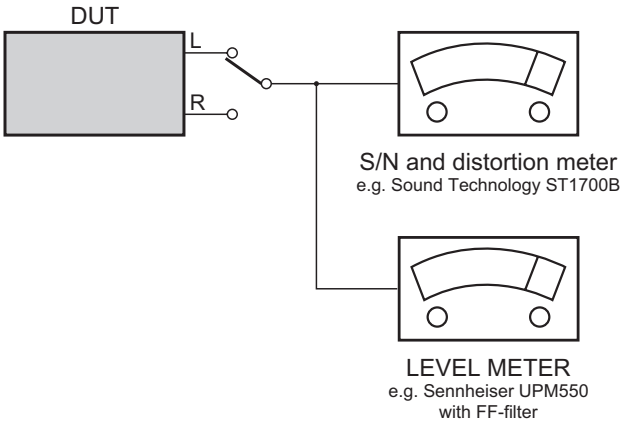
Tuner FM



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

CD

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



SERVICE AIDS

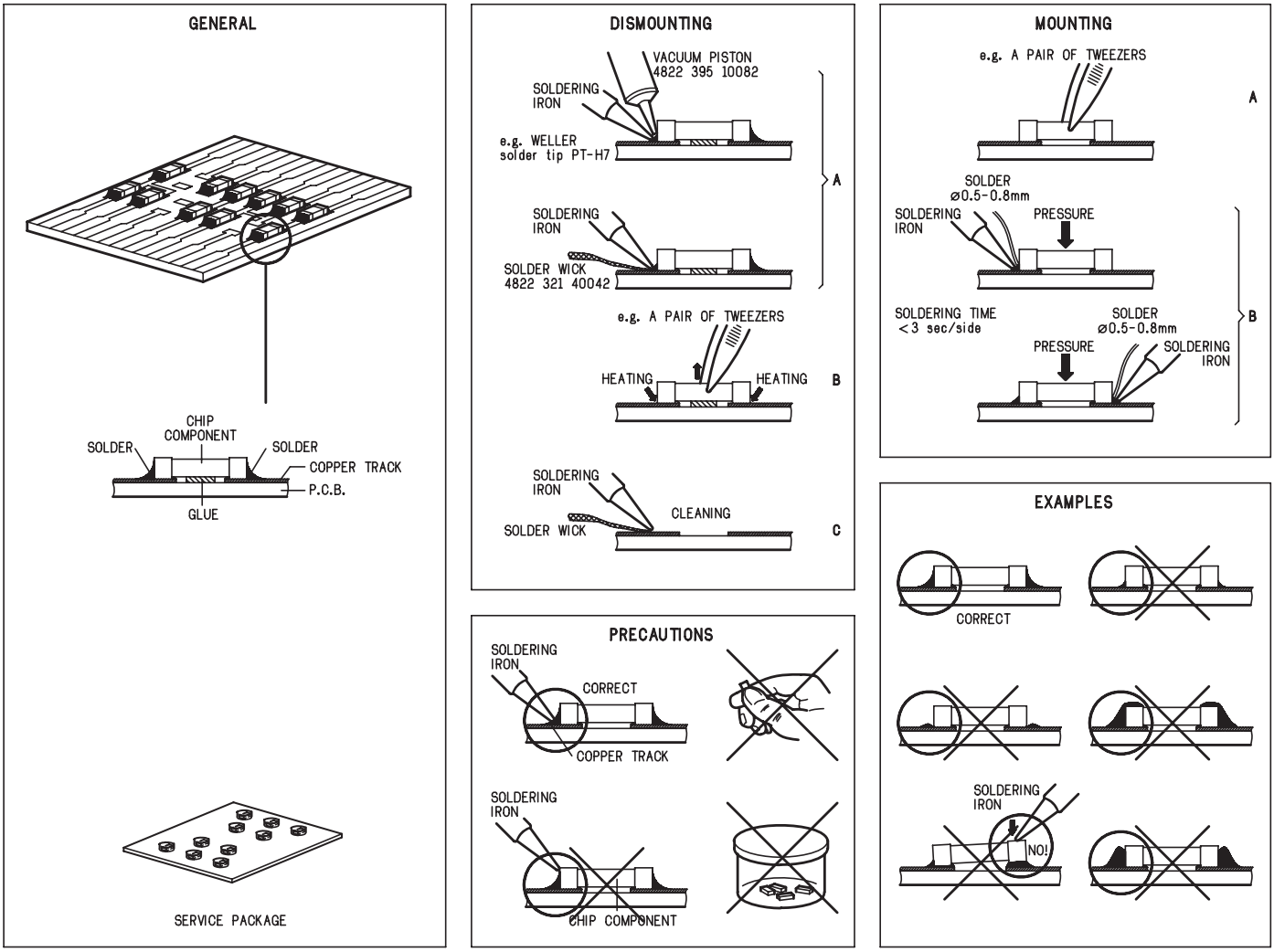
Service Tools:

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

HANDLING CHIP COMPONENTS



ESD

(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.

(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 ditzelfde potentiaal.

(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.

(D) WARNUNG

Alle ICs und viele andere Halbleiter sind empfindlich gegenüber elektrostatischen Entladungen (ESD).
Unsorgfältige Behandlung im Reparaturfall kan 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.

(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) ESD PROTECTION EQUIPMENT

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

(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 symbol ⚠ .

(F)

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

Less composants de sécurité sont marqués ⚠ .

(D)

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Original zustand 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.

Componenty 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.

(GB) Warning !

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

(S) Varning !

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

(SF) Varoitus !

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

(DK) Advarse !

Usynlig laserstråling ved åbning når sikkerhedsafbrydere er ude af funktion. Undgå udsaettelse 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.

INDENTIFICATION:

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 (leaded/ lead-free). So best to always use SAC305 and the higher temperatures belong to this.

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

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

– Always use the 12nc-recognizable soldering temperature profile of the specific BGA (for de-soldering always use the lead-free temperature profile, in case of doubt)

– Lead free BGA-ICs will be delivered in so-called 'dry-packaging' (sealed pack including a silica gel pack) to protect the IC against moisture. After opening, dependent of MSL-level seen on indicator-label in the bag, the BGA-IC possibly still has to be baked dry. (MSL=Moisture Sensitivity Level). This will be communicated via AYS-website.
  Do not re-use BGAs at all.

- For sets produced before 1.1.2005 (except products of 2004), containing leaded solder-alloy and components, all needed spare-parts will be available till the end of the service-period. For repair of such sets nothing changes.
- On our website **www.atyourservice.ce.Philips.com** 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.

2 - 1

System , Region Code , etc. Setting Produre

1)System Reset

a) Press “OPTIONS“ button on R/C,TV will show setup menu
b) Select the menu using the▼ and ► on R/C
c) Go preference page to do system reset

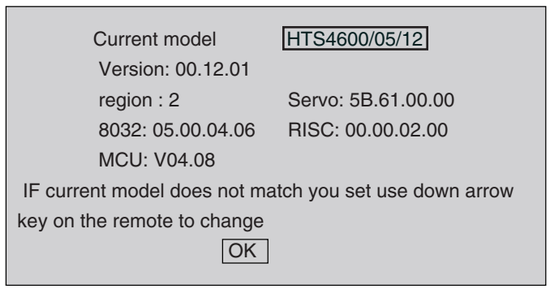
2)Region Code Change

a) Open the CD Door, press”9” “9“ “9“ “9“ on R/C,then input desired number to change region code :

1	USA
2	EU
3	AP
4	Australia ,NZ , Latam
5	Russia , INDIA
6	CHINA

3)Version Control Change

a) In open model, press “1“ “5“ “9“ on R/C
b) Press “ok” button to confirm
c) TV will show message as below:



4)Password Change

a) Press “OPTIONS “ button on R/C,TV will show setup menu
b) Select the menu using the▼ and ► on R/C
c) Go preference page select “password“ to change
* 000000 is default password supplied.

5)Check on the Sofeware Version

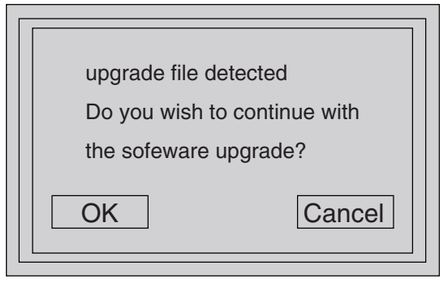
a) Open the CD Door
b) Press “INFO“ button on R/C
c) TV will show the version on screen

6)Trade model

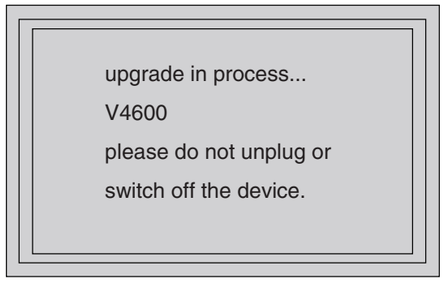
a) Press “Open/Close “ button on R/C
b) Press “2” “5” “9” on R/C,VFD will display “TRA ON “ or “TRA OFF“

7) Upgrading new sofeware

a) Copy “sofeware files” into a CD-R
b) Open the CD Door,the insert CD into USB jack in the front panel
c) Close the CD Door
d) VFD will show:
“Loading“
“Erase” -- erase the flash memory
“Writing” about 1 minute
“done “
* The system will switch off and on again automatically.
e) OSD will show:



f) Select “OK”, OSD will show:



CAUTION!

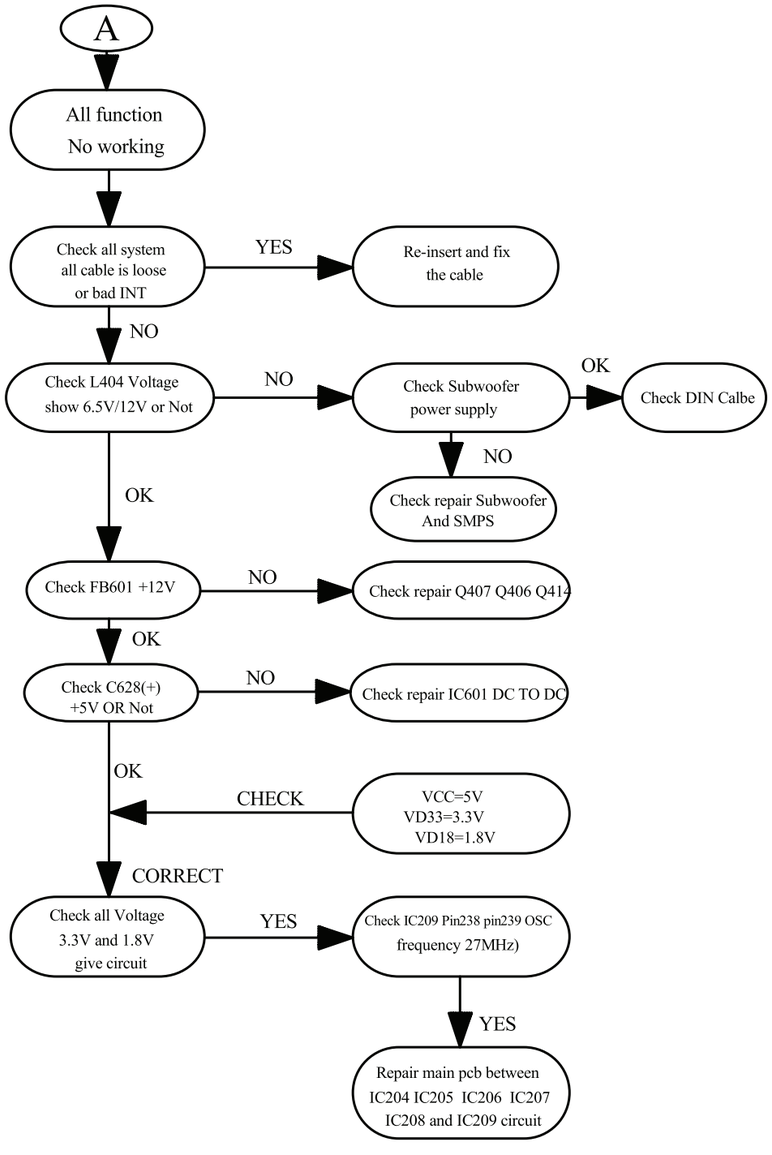
This information is confidential and may not be distributed.Only a qualified service person should reprogram the Region Code.

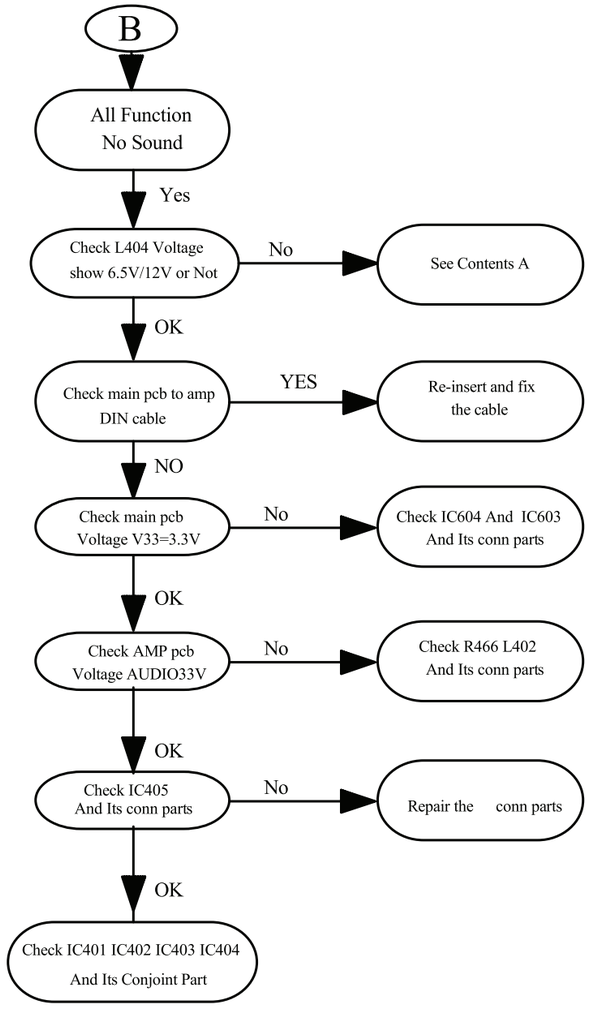
2 - 2

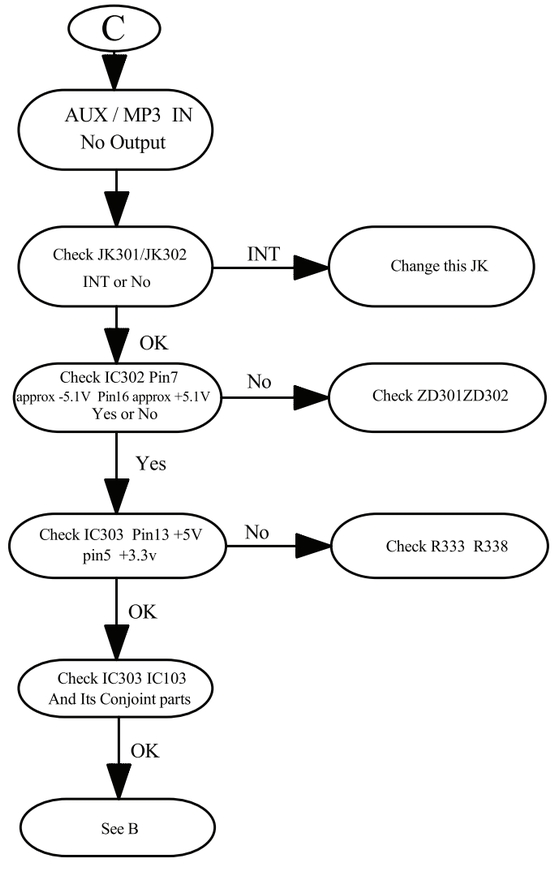
REPAIR INSTRUCTIONS (part one)

MAIN UNIT REPAIR CHART 1/2

A All Function No Working
B All Function No Sound
C AUX/MP3 IN No Output
D DVD Audio No Sound
E COAXIAL In No Sound
F Tuner No Sound
H HDMI No Output
I No CVBS Output
J No Y Pr Pb output
K POWER AMP All NO SOUND



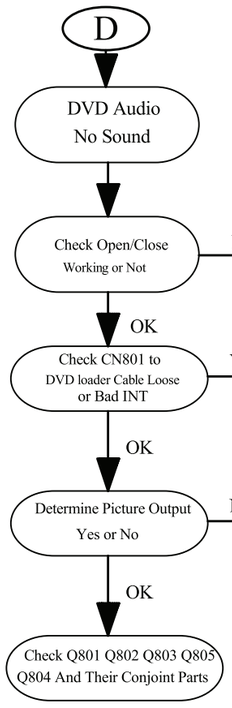


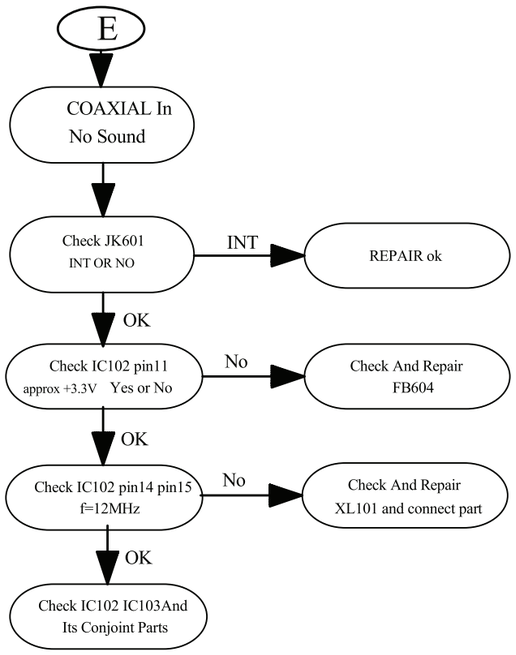


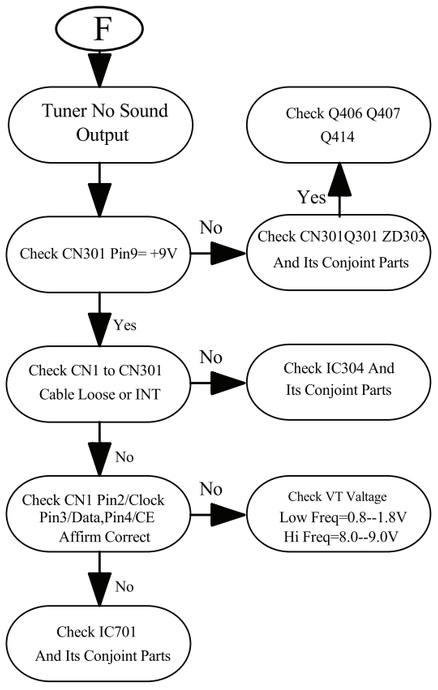
2 - 3

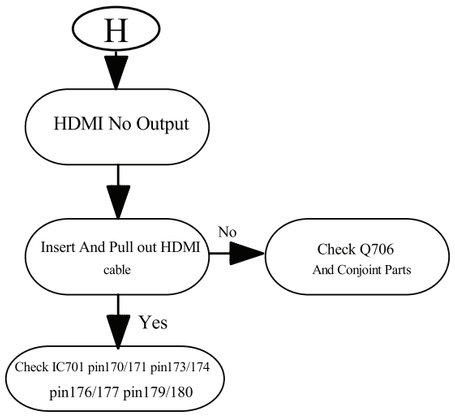
REPAIR INSTRUCTIONS (part two)

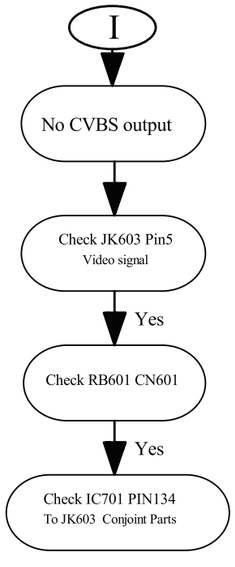
MAIN UNIT REPAIR CHART 2/2

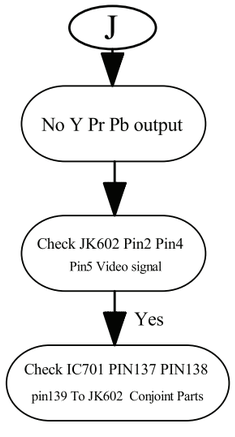


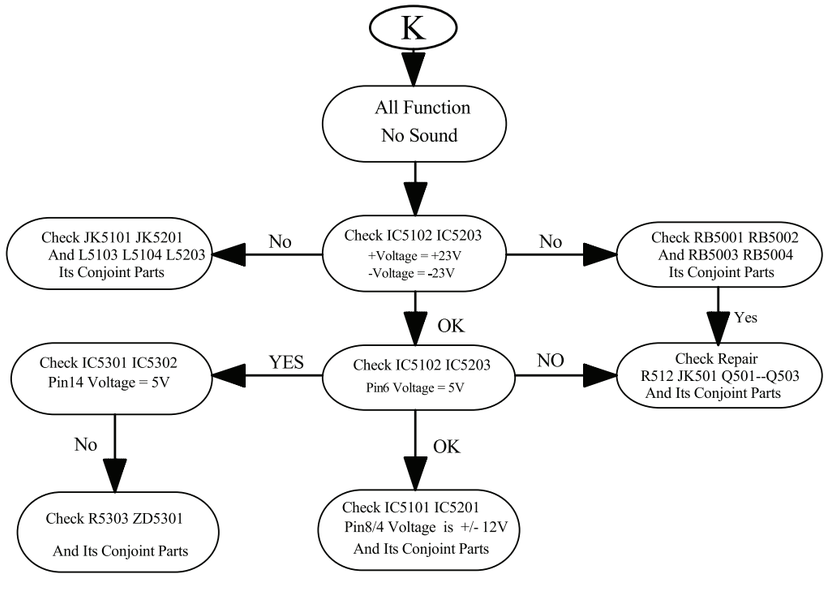












DISASSEMBLY INSTRUCTIONS (MAIN UNIT)

Dismantling of the Front Panel Assemble

1) Push the base support to the right will remove it as shown in figure 1.
2) Loosen 5 screws “A“ at the back panel as shown in figure 2, and pull the front panel to remove it as shown in figure 3.

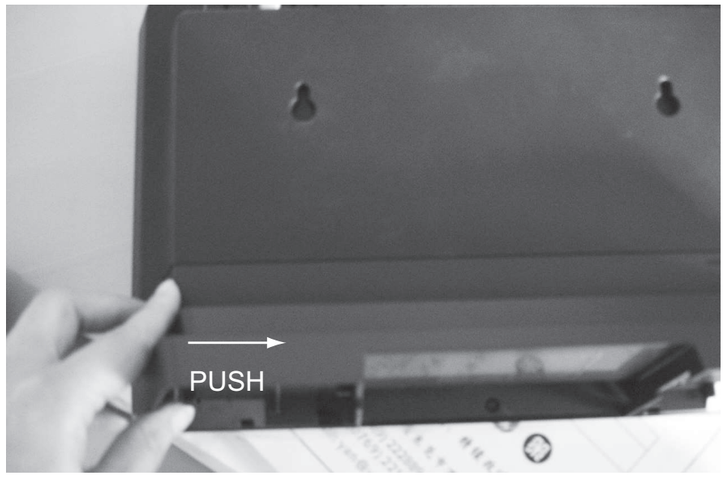


Figure 1

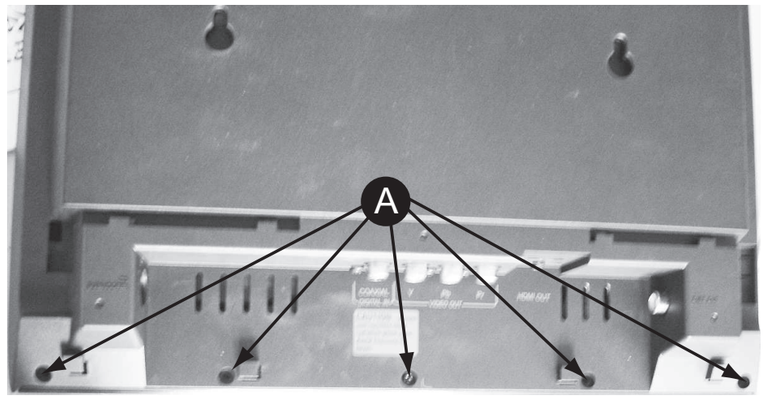


Figure 2

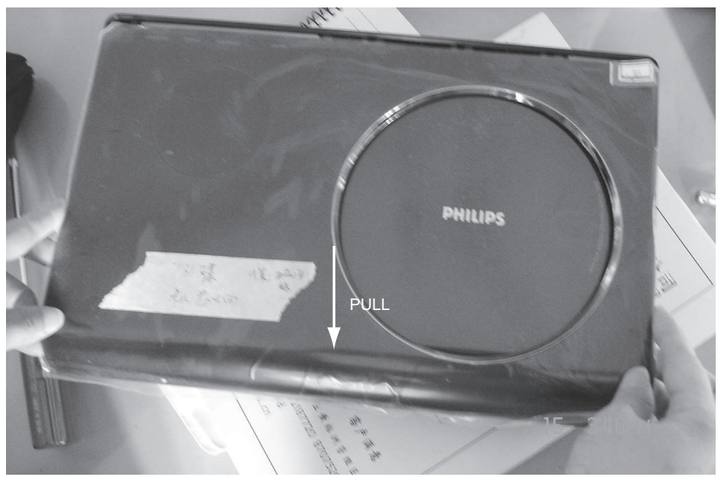


Figure 4

3 - 1

Dismantling of the Middle Base

1) Loosen 5 screws “B” at the Middle Base as shown in figure 4.

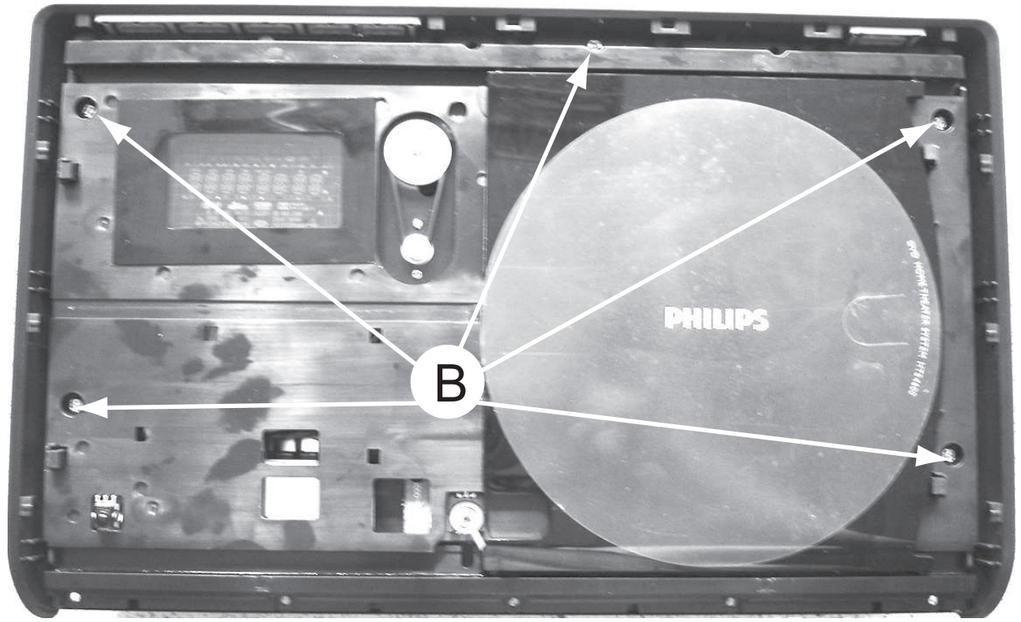


Figure 4

Dismantling of the MAIN+IR+SW+CVBS+FCC+K1+K2+MP3 IN Board

1) Loosen 10 screws “ C “ on the top of MAIN+IR+SW+CVBS+FCC+K1+K2+MP3 IN board as shown in figure 5.

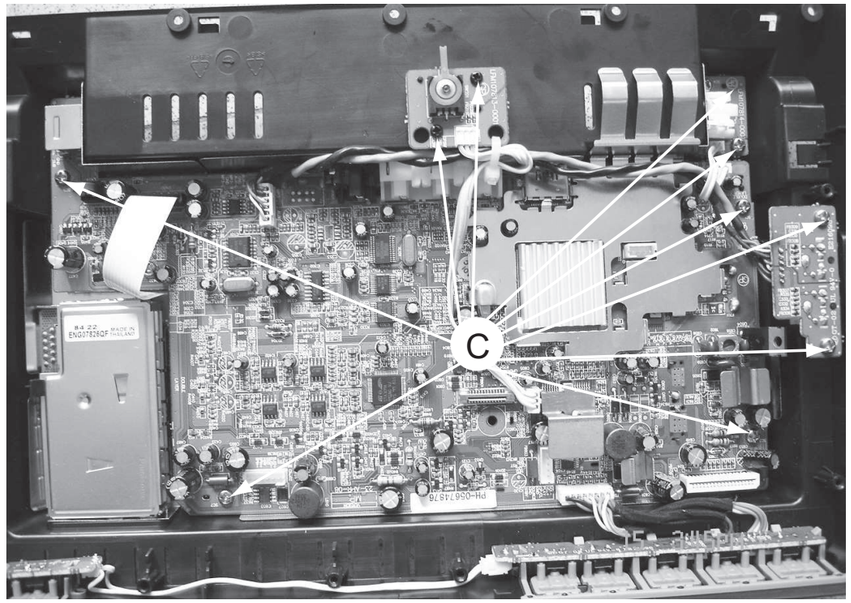


Figure 5

Dismantling of the VFD Board

1) Loosen 7 screws “D“ to remove the VFD board as shown in figure 6.

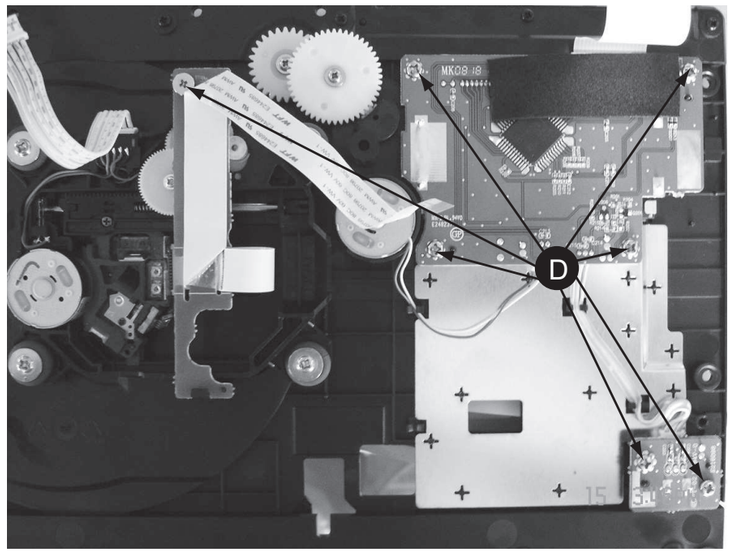
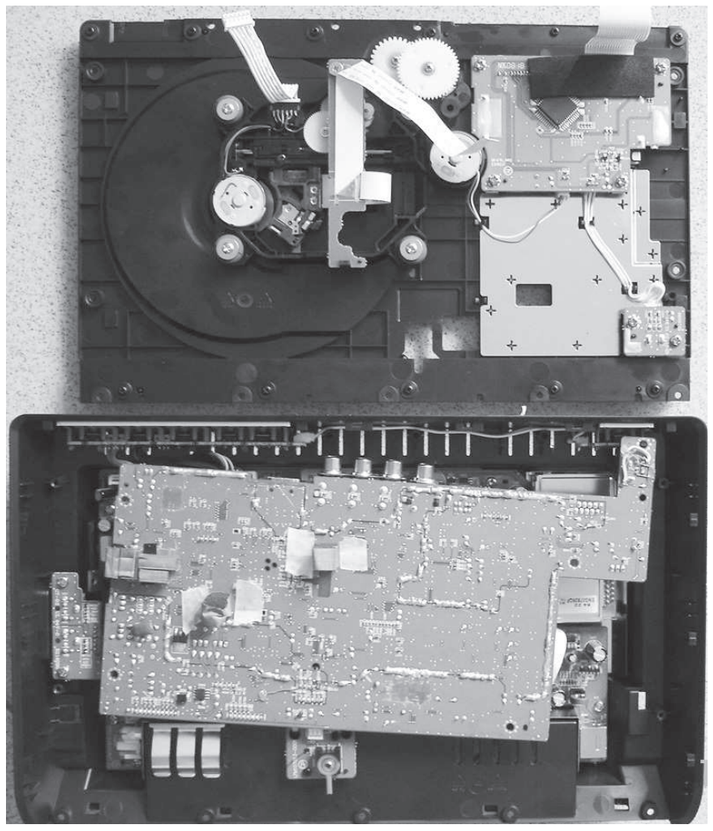


Figure 6

SERVICE POSITIONS

Service position A



DISASSEMBLY INSTRUCTIONS (SUBWOOFER)

Dismantling of the Back Panel

1) Loosen 8 screws “A” at the back panel to remove it as shown in figure 1.

Figure 1

Dismantling of the Power Board

1) Loosen 4 screws “ B “ on the top of power board as shown in figure 2.
2) With a pincers to nip this space as shown in figurer 3 and to take up the power board.

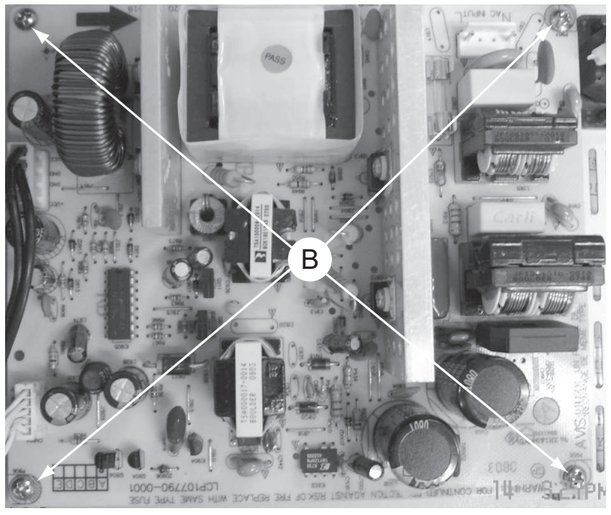


Figure 2

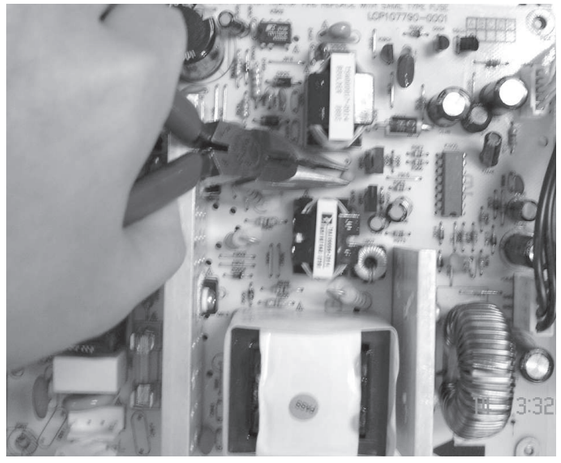


Figure 3

3 - 3

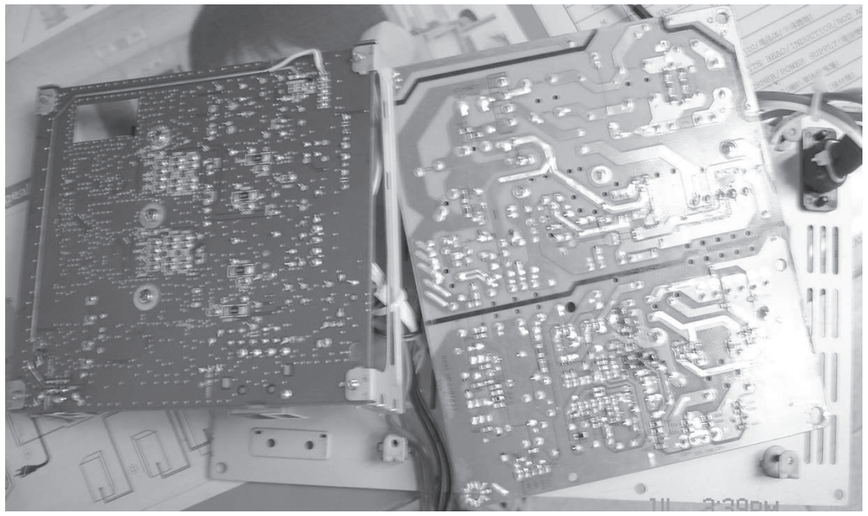
Dismantling of the AMP Board

1) Loosen 5 screws “C” at the back panel to remove AMP board as shown in figure 4.

Figure 4

SERVICE POSITIONS

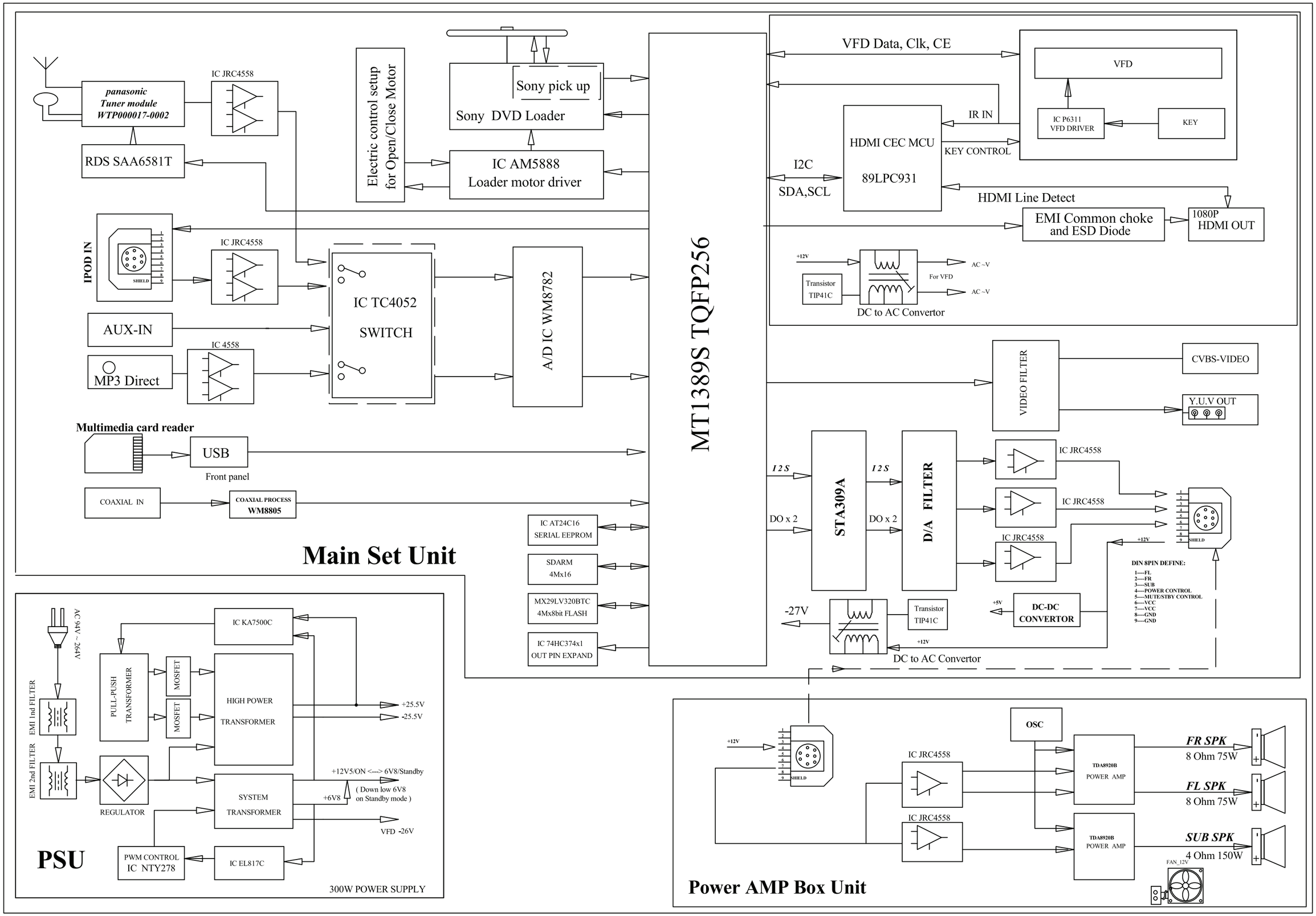
Service position A



Note:In some service positions the components or copper patterns of one board may risk touching its neighbouring pc boards or metallic parts. To prevent such short-circuit use a piece of hard paper or other insulating material between them.

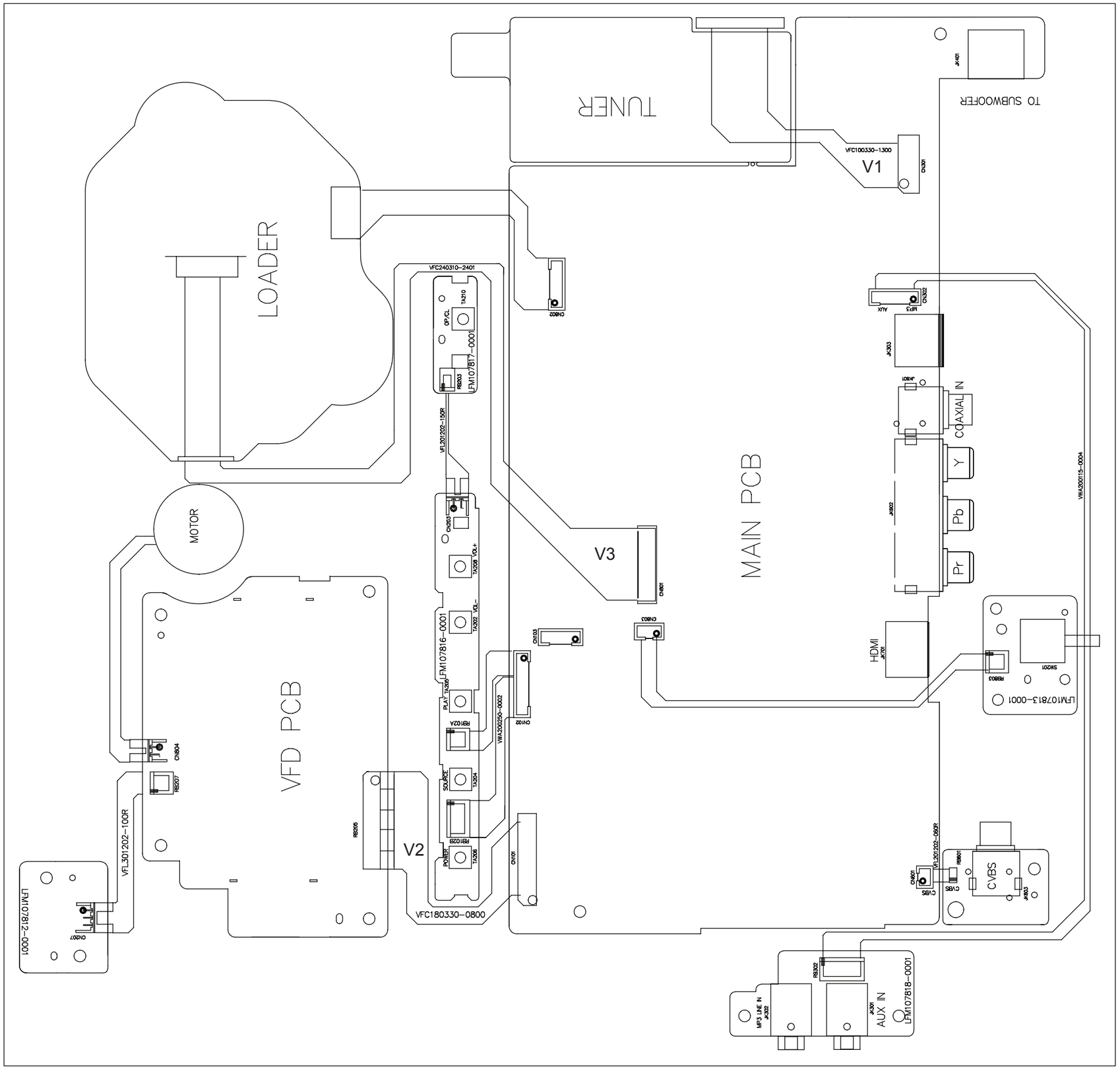
4 - 1

BLOCK DIAGRAM



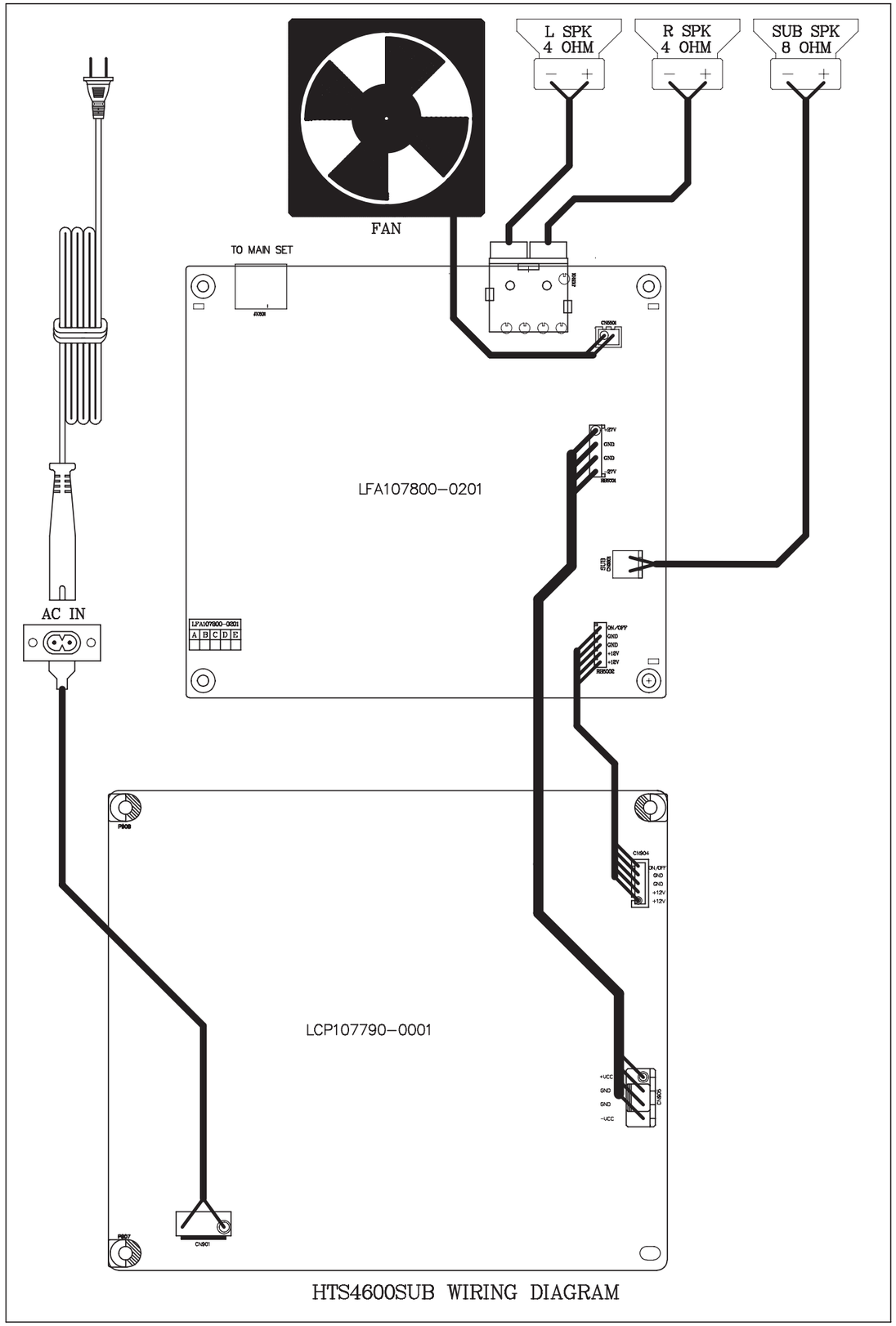
4 - 2

WIRING DIAGRAM (MAIN UNIT)



WIRING DIAGRAM (SUBWOOFER)

4 - 3



HTS4600SUB WIRING DIAGRAM

VFD BOARD

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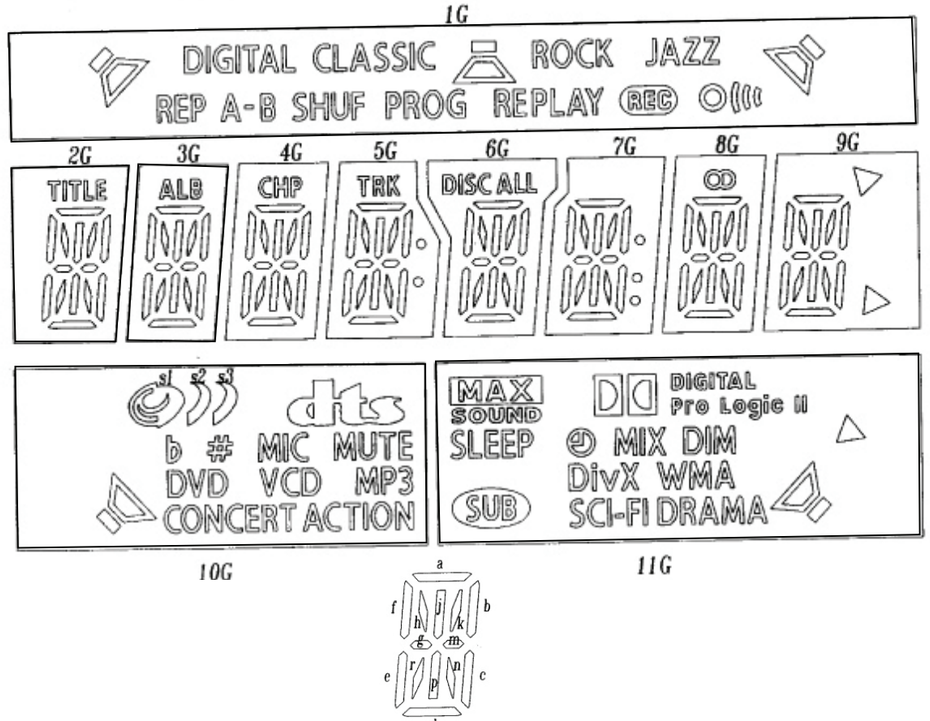
FTD DISPLAY PIN ASSIGNMENT



(2G~9G)

	1G	2G	3G	4G	5G	6G	7G	8G	9G	10G	11G
P1	▽	a	a	a	a	a	a	a	a	s1	DD
P2	DIGITAL	b	b	b	b	b	b	b	b	s2	DIGITAL
P3	CLASSIC	h	h	h	h	h	h	h	h	s3	Pro Logic
P4	⚗	j	j	j	j	j	j	j	j	dts	II
P5	ROCK	k	k	k	k	k	k	k	k	b	MAX SOUND
P6	JAZZ	f	f	f	f	f	f	f	f	#	△
P7	▽	g	g	g	g	g	g	g	g	MIC	SLEEP
P8	REP	m	m	m	m	m	m	m	m	MUTE	⊙
P9	A	c	c	c	c	c	c	c	c	DVD	MIX
P10	-B	r	r	r	r	r	r	r	r	V	DIM
P11	SHUF	p	p	p	p	p	p	p	p	CD	DivX
P12	PROG	n	n	n	n	n	n	n	n	MP3	WMA
P13	RE	e	e	e	e	e	e	e	e	♫	SUB
P14	PLAY	d	d	d	d	d	d	d	d	CONCERT	SCI-FI
P15	CD	TITLE	ALB	CHP	TRK	DISC	Col	CD	▽	ACTION	DRAMA
P16	⊙				Col	ALL	Dp		△		♫

PIN CONNECTION

PIN NO.	42	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22~16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
CONNECTION	F2	NP	F2	NP	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16	NX	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G	NP	F1	NP	F1

o Notes o

1) Fn : Filament pin
2) nG : Grid pin
3) Pn : Anode pin
4) NX : No extended pin
4) NP : No pin

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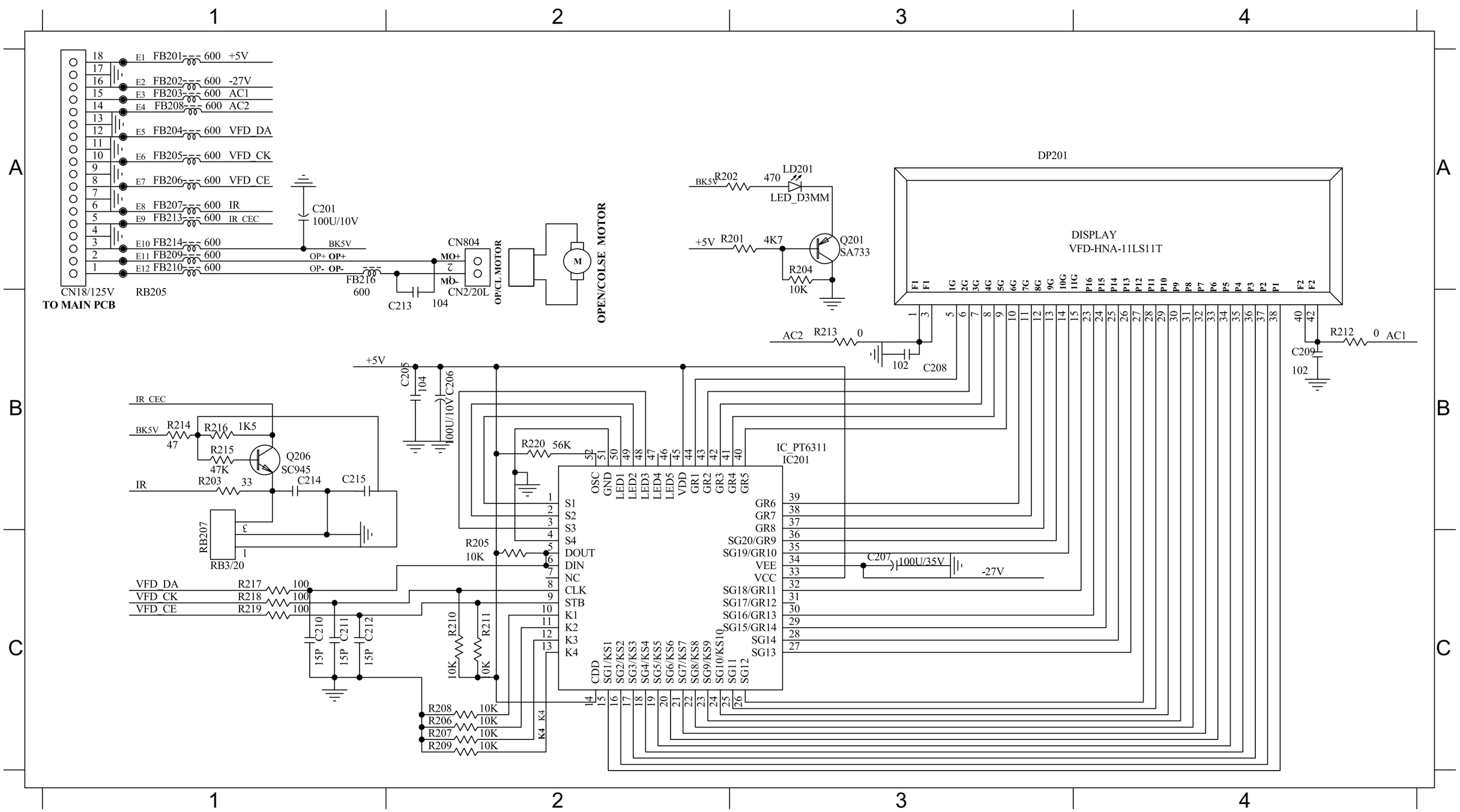
CIRCUIT DIAGRAM

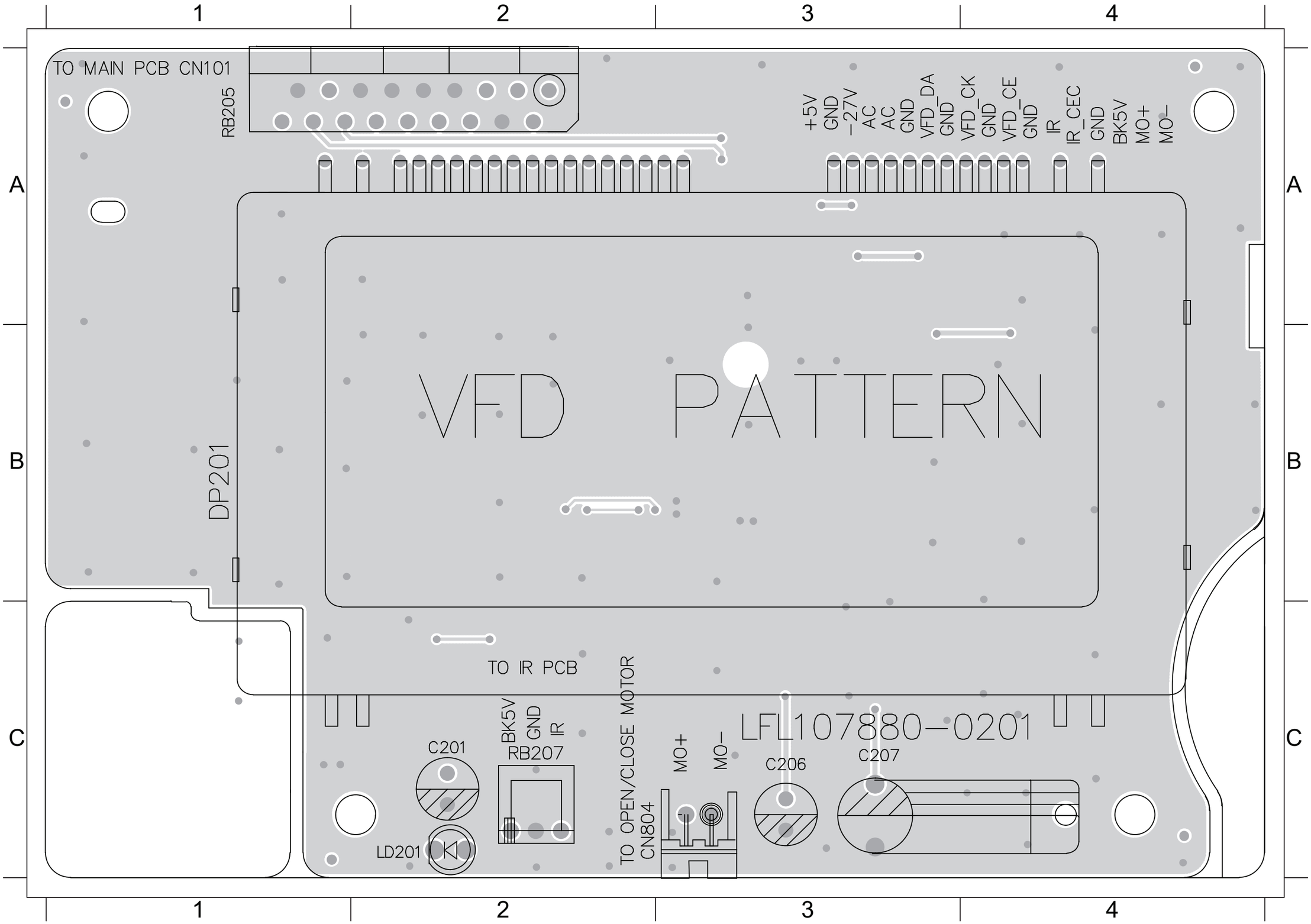
C201	A1	C207	C3	C210	C1	C213	B2	CN804	A2	FB202	A1	FB205	A1	FB208	A1	FB213	A1	IC201	B3	R201	A2	R204	A3	R207	C2	R210	C2	R213	B3	R216	B1	R219	C1	RB207	B1
C205	B2	C208	B3	C211	C1	C214	B1	DP201	A3	FB203	A1	FB206	A1	FB209	A1	FB214	A1	Q201	A3	R202	A2	R205	C2	R208	C2	R211	C2	R214	B1	R217	C1	R220	B2		
C206	B2	C209	B3	C212	C1	C215	B1	FB201	A1	FB204	A1	FB207	A1	FB210	A1	FB216	A1	Q206	B1	R203	B1	R206	C2	R209	C2	R212	B3	R215	B1	R218	C1	RB205	B1		



5 - 3

PCB LAYOUT - TOP VIEW

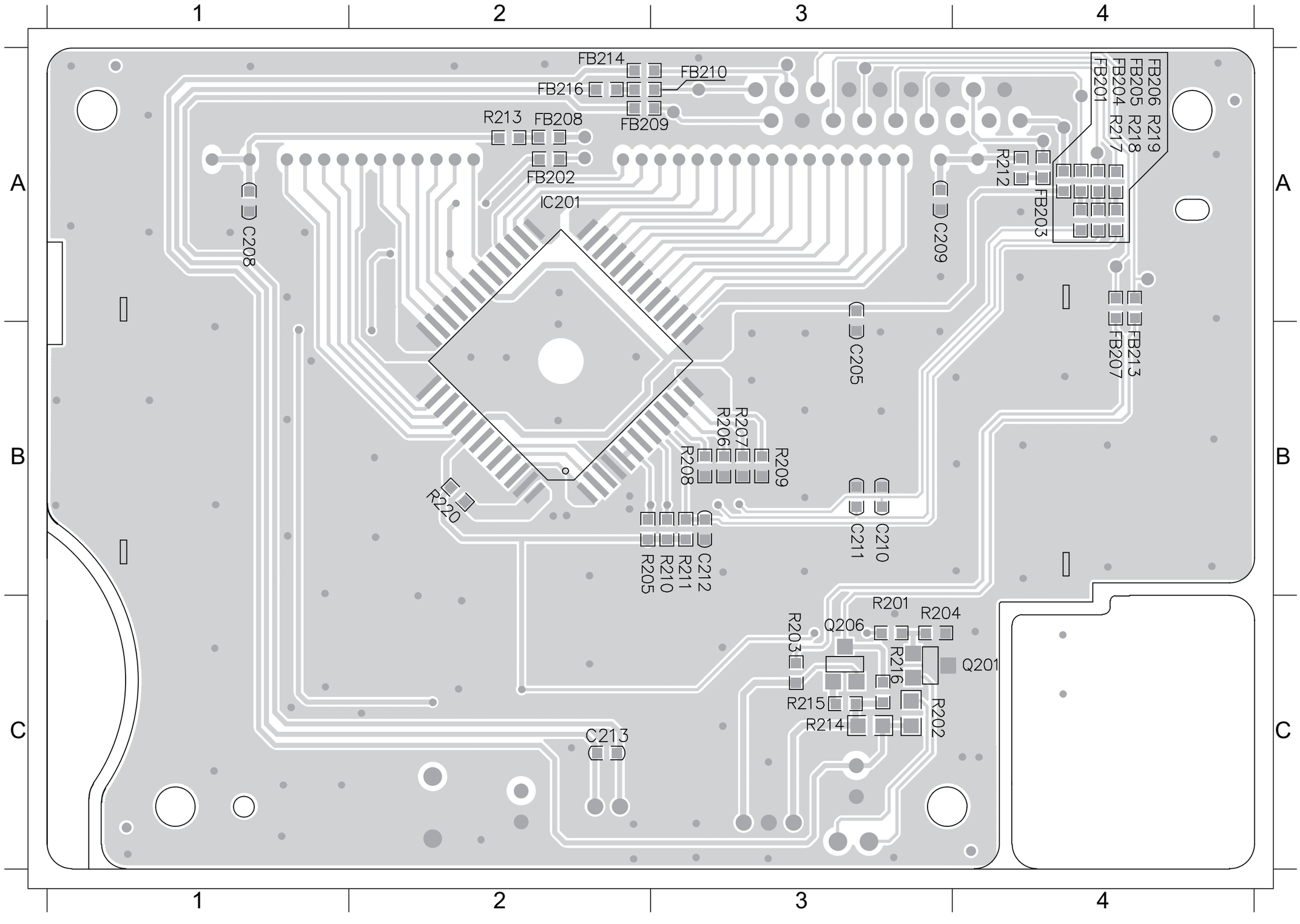
C201 C2 C206 C3 C207 C3 CN804 C2 DP201 B1 RB205 A1 RB207 C2



5 - 4

PCB LAYOUT - BOTTOM VIEW

C205	B3	C210	B3	C213	C2	FB201	A4	FB204	A4	FB207	B4	FB210	A3	FB216	A2	Q206	C3	R203	C3	R206	B3	R209	B3	R212	A4	R215	C3	R218	A4
C208	A1	C211	B3	C214	C3	FB202	A2	FB205	A4	FB208	A2	FB213	B4	IC201	A2	R201	C3	R204	C3	R207	B3	R210	B3	R213	A2	R216	C3	R219	A4
C209	A3	C212	B3	C215	C3	FB203	A4	FB206	A4	FB209	A2	FB214	A2	Q201	C4	R202	C3	R205	B2	R208	B3	R211	B3	R214	C3	R217	A4	R220	B2



MAIN BOARD

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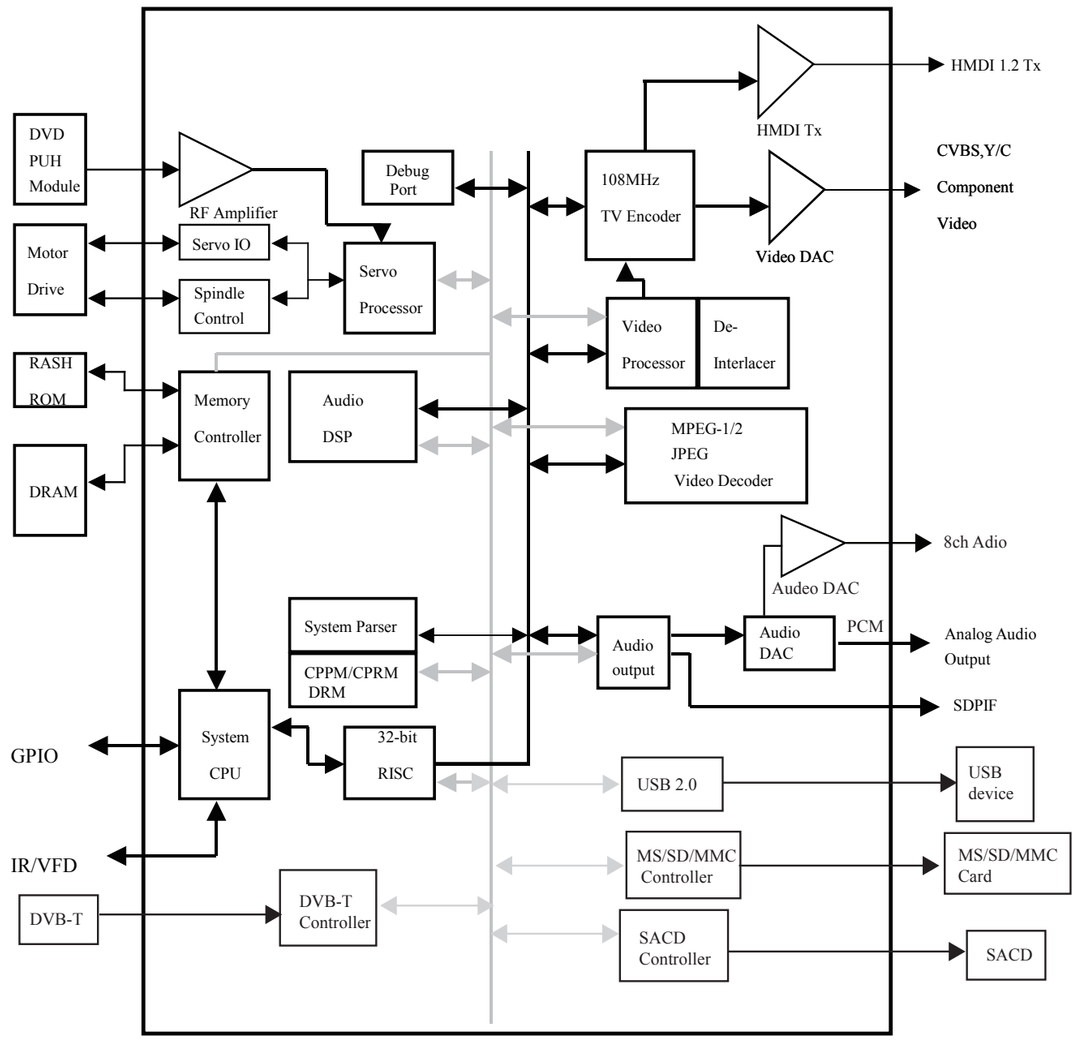
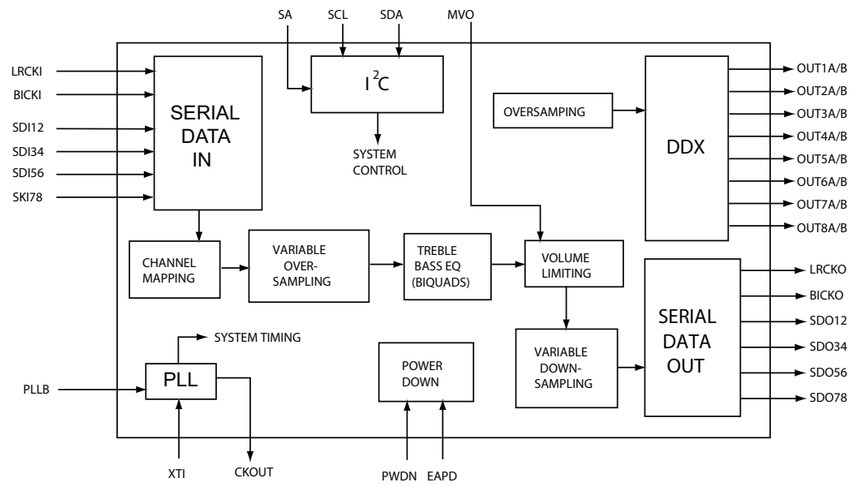
INTERNAL IC DIAGRAM - MT1389S

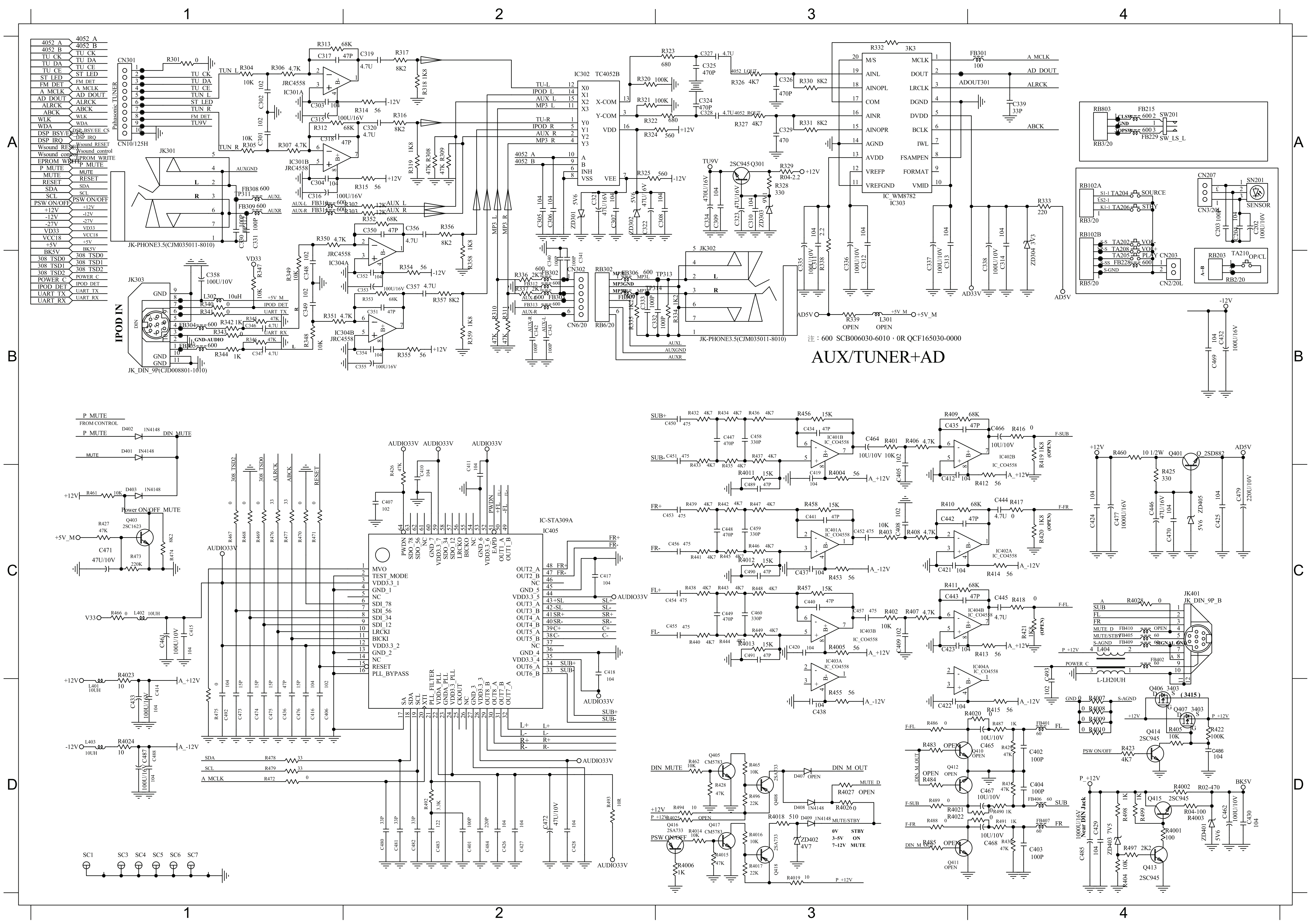


INTERNAL IC DIAGRAM - STA309A



CIRCUIT DIAGRAM - part one

C202 B4	C311 B3	C324 A3	C337 B3	C352 B2	C407 C2	C423 C3	C437 C3	C451 B3	C466 B4	C482 D2	CN207 A4	FB302 B2	FB402 C4	JK301 A1	Q407 D4	R306 A1	R319 A2	R332 A3	R346 B1	R4002 D4	R4014 D3	R4026 D3	R414 C4	R428 D3	R441 C3	R458 C3	R474 C1	R493 D2	TA206 A4
C203 B4	C312 B3	C325 A3	C338 B4	C353 B2	C410 C2	C424 C4	C438 D3	C452 C3	C469 B4	C483 D2	CN301 A1	FB303 B2	FB405 C4	JK302 B3	Q408 D3	R307 A1	R320 A2	R333 A4	R347 B1	R4003 D4	R4015 D3	R4028 C4	R415 D4	R429 D4	R442 C3	R460 B4	R475 D1	R496 D3	TA208 A4
C204 B4	C313 B3	C326 A3	C339 A4	C354 B2	C411 C2	C425 C4	C440 C3	C453 C3	C470 C4	C484 D2	CN302 B2	FB304 B1	FB406 D4	JK401 C4	Q413 D4	R308 A2	R321 A2	R334 B3	R348 B1	R4004 C3	R4016 D3	R403 C3	R416 B4	R430 D4	R443 C3	R461 C1	R476 C1	R497 D4	TA210 B4
C301 A1	C314 B4	C327 A3	C340 B2	C355 B2	C412 B3	C426 D2	C441 C3	C454 C3	C471 C1	C485 D4	D401 B1	FB305 B1	FB407 D4	L302 B1	Q414 D4	R309 A2	R322 A2	R335 B2	R349 B1	R4005 C3	R4017 D3	R404 D4	R417 C4	R431 D4	R444 C3	R462 D3	R477 C1	R498 D4	ZD301 A2
C302 A1	C315 A1	C328 A3	C341 B2	C356 A2	C414 D1	C427 D2	C442 C3	C455 C3	C472 D2	C486 D4	D402 B1	FB306 B2	FB409 C4	L401 D1	Q415 D4	R310 B2	R323 A3	R336 B2	R350 A1	R4006 D3	R4018 D3	R405 D4	R418 C4	R432 B3	R445 C3	R465 D3	R478 D1	R499 D4	ZD302 A2
C303 A1	C316 A1	C329 A3	C342 B2	C357 B2	C415 C1	C428 D2	C443 C3	C456 C3	C473 D1	C487 D1	D403 C1	FB307 B2	IC301 A1	L402 C1	Q416 D3	R311 B2	R324 A2	R337 B2	R351 B1	R4007 D4	R4019 D3	R406 B3	R419 C4	R433 B3	R446 C3	R466 C1	R479 D1	RB203 B4	ZD303 A3
C304 A1	C317 A1	C330 A1	C343 B2	C358 B1	C416 D1	C429 D4	C444 C4	C457 C3	C474 D1	C488 D1	D407 D3	FB308 A1	IC302 A2	L403 D1	Q417 D3	R312 A1	R325 A2	R338 B3	R352 A2	R4008 D4	R402 C3	R407 C3	R420 C4	R434 B3	R447 C3	R467 C1	R486 D3	RB302 B2	ZD304 A4
C305 A2	C318 A1	C331 A1	C346 B1	C401 D2	C417 C2	C430 D4	C445 C4	C458 B3	C475 D1	C489 C3	D408 D3	FB309 A1	IC303 A3	L404 C4	Q418 D3	R313 A1	R326 A3	R340 B1	R353 B2	R4009 D4	R4020 D4	R408 C3	R421 C4	R435 B3	R448 C3	R468 C1	R487 D4	RB803 A4	ZD401 D4
C306 A2	C319 A1	C332 B3	C347 B1	C402 D4	C418 C2	C432 B4	C446 C4	C459 C3	C476 D1	C490 C3	D409 D3	FB310 A1	IC401 B3	Q301 A3	R301 A1	R314 A1	R327 A3	R341 B1	R354 B2	R401 B3	R4021 D3	R409 B3	R422 D4	R436 B3	R449 C3	R469 C1	R488 D3	SN201 B4	ZD402 D3
C307 A2	C320 A1	C333 B2	C348 B1	C403 D4	C419 B3	C433 D1	C447 B3	C460 C3	C477 C4	C491 C3	FB215 A4	FB311 A1	IC402 B4	Q401 B4	R302 A2	R315 A1	R328 A3	R342 B1	R355 B2	R4010 D4	R4022 D3	R410 C3	R423 D4	R437 B3	R453 C3	R470 C1	R489 D3	SW201 A4	ZD405 C4
C308 A3	C321 A2	C334 A3	C349 B1	C404 D4	C420 C3	C434 B3	C448 C3	C461 C1	C479 C4	C492 D1	FB228 B4	FB312 B2	IC403 C3	Q403 C1	R303 A2	R316 A1	R329 A3	R343 B1	R358 B2	R4011 C3	R4023 D1	R411 C3	R425 C4	R438 C3	R455 D3	R471 C1	R490 D4	TA202 A4	
C309 A3	C322 A2	C335 B3	C350 A2	C405 B3	C421 C3	C435 B3	C449 C3	C462 D4	C480 D2	C493 C4	FB229 A4	FB313 B2	IC404 C3	Q405 D3	R304 A1	R317 A1	R330 A3	R344 B1	R359 B2	R4012 C3	R4024 D1	R412 C4	R426 C2	R439 C3	R456 B3	R472 D1	R491 D4	TA204 A4	
C310 A3	C323 A3	C336 B3	C351 B2	C406 D1	C422 D3	C436 D1	C450 B3	C464 B3	C481 D2	CN203 A4	FB301 A4	FB401 D4	IC405 C2	Q406 D4	R305 A1	R318 A2	R331 A3	R345 B1	R4001 D4	R4013 C3	R4025 D3	R413 C4	R427 C1	R440 C3	R457 C3	R473 C1	R492 D2	TA205 B4	



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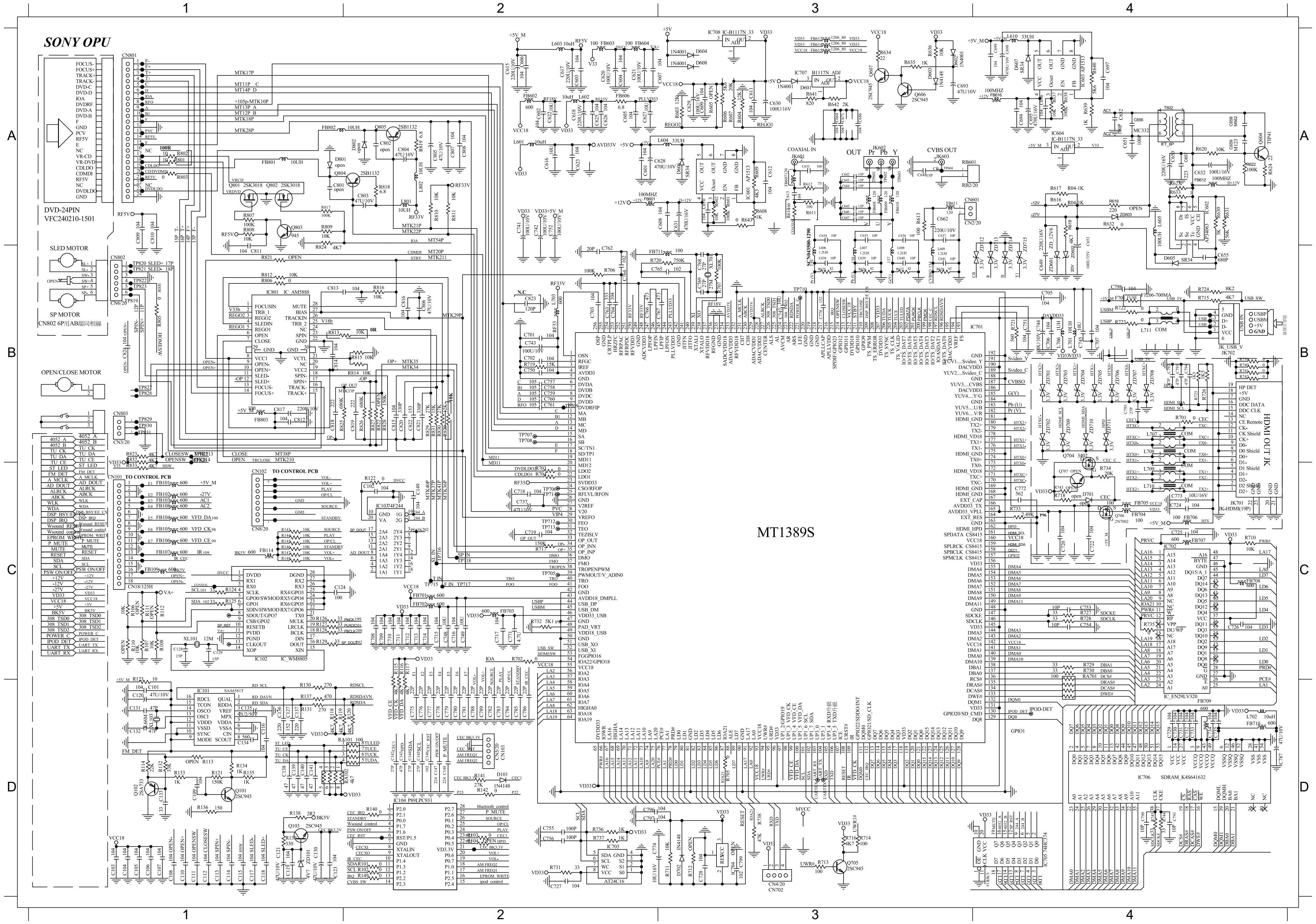
CIRCUIT DIAGRAM - part two

C101	D1	C119	D1	C141	D1	C610	A3	C631	A3	C649	B4	C701	B2	C719	C2	C744	B4	C763	B2	C782	D2	C801	A1	C819	B2	D605	A3	FB602	A2	FB705	C4	IC701	B3	L605	A4	Q102	D1	R108	C1	R131	D1	R602	A3	R625	B3	R701	B4	R723	B4	R741	B4	R816	B2	RA701	C4
C102	C2	C120	D1	C142	D2	C611	A3	C632	A4	C650	A4	C702	B2	C720	C4	C745	B4	C764	B2	C783	D2	C802	A2	C820	B2	D606	A3	FB603	A2	FB706	C4	IC702	C4	L606	B3	Q103	D1	R114	D1	R132	D1	R603	A3	R626	B3	R702	C2	R724	B4	R742	B4	R817	A1	RB601	A3
C103	D1	C121	D1	C143	D2	C612	A3	C633	A3	C651	A4	C703	B2	C722	C4	C747	B3	C765	B2	C784	D2	C803	A2	C821	B2	D607	A4	FB604	A2	FB707	C4	IC703	D2	L607	B3	Q604	A4	R115	C2	R133	D1	R604	A3	R627	B3	R703	C2	R725	B4	R744	D4	R818	A2	T602	A4
C104	D1	C123	D1	C144	D2	C613	A3	C634	A3	C652	A4	C704	B2	C724	C4	C748	C2	C766	B2	C785	D2	C804	A2	C822	B2	D701	C1	FB606	A2	FB708	C4	IC704	D3	L608	B3	Q606	A3	R116	C2	R134	D1	R606	A3	R628	B3	R704	C2	R726	B4	R745	D4	R819	A2	XL101	C1
C105	D1	C124	C1	C145	D2	C615	A2	C635	A3	C653	A4	C705	B4	C725	C4	C749	C2	C767	B2	C786	D2	C805	A2	C823	B2	D801	A1	FB607	A3	FB709	D4	IC705	D4	L609	B3	Q607	A3	R117	C2	R135	D1	R607	A3	R630	A4	R705	D3	R727	C4	R801	A1	R820	B2	XL103	D1
C106	D1	C127	D1	C146	D2	C616	A2	C636	A3	C655	B4	C706	B4	C726	C4	C750	B2	C768	B3	C787	D4	C806	B2	C824	B1	D802	A2	FB608	A3	FB710	D4	IC706	D4	L610	A4	Q704	B4	R118	D1	R136	D1	R608	A3	R631	A4	R706	B2	R728	C4	R802	A1	R823	B1	XL701	B2
C107	D1	C128	C1	C147	D2	C617	A2	C637	A3	C656	A4	C707	B4	C727	D2	C751	B4	C769	B3	C788	D2	C807	A2	CN101	C1	F701	B4	FB609	A3	FB711	B2	IC707	A3	L701	B4	Q705	D3	R119	D1	R137	D1	R609	A3	R632	A4	R707	B3	R729	C4	R803	A1	R824	A1	ZD101	D1
C108	D1	C129	C1	C148	D2	C618	A2	C638	B3	C657	A4	C708	C2	C728	D3	C752	A2	C770	B3	C789	D2	C808	A2	CN102	C1	FB101	C1	FB610	A3	FB801	A1	IC708	A3	L702	D4	Q706	C4	R120	D2	R138	D1	R610	A3	R633	A4	R710	C4	R730	C4	R805	B1	R825	B1	ZD601	B4
C109	D1	C131	D1	C149	C2	C620	A2	C639	B3	C658	A4	C709	C2	C729	D4	C753	C4	C771	C2	C790	D4	C809	A1	CN103	D2	FB102	C1	FB611	A3	FB802	A1	IC801	B1	L703	B2	Q801	A1	R121	D1	R139	D1	R612	A3	R634	A3	R711	D3	R731	D2	R806	B1	R826	B2	ZD602	B4
C110	D1	C132	D1	C601	A2	C621	A2	C640	B3	C659	A4	C710	C1	C730	D4	C754	C4	C772	C4	C791	D4	C810	A1	CN601	A3	FB103	C1	FB612	A4	FB803	B1	JK601	A3	L706	B4	Q802	A1	R122	C2	R140	D2	R613	A3	R635	A3	R713	D3	R732	C2	R807	A1	R827	B2	ZD603	A4
C111	D1	C133	D1	C602	A2	C622	A2	C641	B3	C662	A3	C711	C1	C731	D4	C755	D2	C773	C4	C792	B4	C811	A1	CN702	D3	FB104	C1	FB613	A3	IC101	D1	JK602	A3	L707	B4	Q803	A1	R123	C1	R141	D2	R616	A4	R636	A3	R714	D3	R733	C4	R808	A1	R828	B2	ZD712	A4
C112	D1	C134	D1	C603	A2	C623	A2	C642	A3	C693	A3	C712	C1	C732	D4	C756	D2	C775	D2	C793	B4	C812	B1	CN801	A1	FB105	C1	FB614	A3	IC102	C1	JK603	A3	L708	B4	Q804	A1	R124	C1	R143	C1	R617	A4	R637	A4	R715	B4	R734	C4	R809	A1	R829	B2	ZD713	A4
C113	D1	C135	D1	C604	A2	C625	A2	C643	A3	C694	A4	C713	C1	C733	D4	C757	B2	C776	D2	C794	B4	C813	B1	CN802	B1	FB106	C1	FB615	A3	IC103	C2	JK701	C4	L709	C4	Q805	A2	R125	C1	R144	C1	R618	A4	R638	A4	R716	D3	R735	C4	R810	A2	R830	B2	ZD714	A4
C114	D1	C136	D1	C605	A2	C626	A2	C644	A3	C695	A4	C714	C1	C734	D4	C758	B2	C777	D2	C795	B4	C814	B1	CN803	B1	FB107	C1	FB616	A4	IC104	D2	JK702	B4	L710	C4	R101	D2	R126	C1	R145	C1	R619	A4	R639	A4	R717	C2	R736	D2	R811	A2	R831	B2	ZD715	A4
C115	D1	C137	D1	C606	A2	C627	A2	C645	A3	C696	A4	C715	C1	C735	D4	C759	B2	C778	D2	C796	D2	C815	B2	D101	D2	FB108	C1	FB701	C2	IC601	A3	L601	A2	L711	B4	R102	D2	R127	C1	R146	C1	R620	A4	R640	A4	R719	B2	R737	D2	R812	B1	R832	B1		
C116	D1	C138	D1	C607	A3	C628	A2	C646	A3	C697	A4	C716	C2	C737	C2	C760	B2	C779	D2	C797	D2	C816	B2	D601	A3	FB109	C1	FB702	C2	IC602	A4	L602	A2	L801	A2	R103	D2	R128	C1	R147	C1	R622	A4	R641	A3	R720	B2	R738	D3	R813	B1	R833	C1		
C117	D1	C139	D1	C608	A2	C629	A3	C647	A3	C698	A4	C717	C2	C742	A2	C761	B2	C780	D2	C798	B4	C817	B1	D602	A3	FB114	C1	FB703	C2	IC603	A4	L603	A2	L802	A2	R106	C1	R129	C1	R148	C1	R623	A4	R642	A3	R721	B4	R739	B4	R814	B2	RA101	D1		
C118	D1	C140	D1	C609	A3	C630	A3	C648	A3	C699	A4	C718	C2	C743	B2	C762	B2	C781	D2	C799	D3	C818	B1	D603	A3	FB601	A2	FB704	C4	IC604	A4	L604	A2	Q101	D1	R107	C1	R130	D1	R601	A3	R624	A4	R643	A3	R722	B4	R740	B4	R815	B2	RA102	D1		



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PCB LAYOUT - TOP VIEW

C101 B4 C315 C4 C347 B4 C420 A3 C448 B2 C484 A3 C631 A1 C693 A1 C751 B2 C805 A2 CN302 C3 FB101 A1 FB406 C4 FB803 A2 IC801 A2 L703 B2 Q416 A3 R119 B2 R141 A1 R316 B4 R342 B4 R4009 B4 R404 A2 R427 A3 R449 A3 R478 B3 R617 A1 R642 A1 R727 C1 R813 B1 RB302 C4 ZD602 A1
C102 B3 C316 C4 C348 B4 C421 A3 C449 A3 C485 A4 C632 A1 C694 A3 C752 B1 C806 B2 CN601 C1 FB102 A1 FB407 C4 IC101 B3 JK301 C3 L706 B2 Q417 A3 R120 B2 R142 A1 R317 B4 R343 B2 R401 B3 R405 B4 R428 A3 R453 A3 R479 B3 R618 A1 R701 C1 R728 C1 R814 A2 RB601 C1 ZD603 A1
C109 B4 C317 B4 C349 B4 C422 A3 C450 B2 C486 C4 C633 C3 C695 A3 C757 B2 C809 A2 CN702 B1 FB103 A1 FB409 C4 IC102 B3 JK302 C4 L707 B2 Q418 A3 R121 B4 R143 A2 R318 B4 R344 B4 R4010 A4 R406 B3 R429 A4 R455 A3 R486 A3 R619 A1 R703 B2 R731 B1 R815 A2 RB803 B4 ZD712 C1
C116 C4 C318 B4 C350 B4 C423 A3 C451 B2 C487 A4 C634 C2 C698 A3 C758 B2 C811 A2 CN801 A2 FB104 A1 FB601 A1 IC103 B3 JK401 C4 L708 B2 Q604 B1 R122 B3 R144 A2 R319 B4 R345 B4 R4011 B2 R407 A3 R430 A4 R456 B3 R487 A4 R620 A1 R704 A2 R732 B2 R816 A2 SN201 A4
C120 B4 C319 B4 C351 B4 C427 A3 C452 B3 C489 B2 C635 C2 C699 A3 C759 B2 C812 A2 CN802 A3 FB105 A1 FB603 B2 IC104 A1 JK602 C2 L709 B2 Q606 A1 R123 B4 R145 A2 R320 B3 R346 B4 R4012 B2 R408 B3 R431 B4 R457 A3 R488 B3 R622 A1 R705 B1 R734 C1 R817 A2 SW201 B4
C121 A2 C320 B4 C352 B4 C428 A3 C453 B2 C490 B2 C636 C3 C701 B2 C760 B2 C813 B1 CN803 A2 FB106 A1 FB604 C3 IC301 B4 JK603 C1 L710 B2 Q607 A1 R124 B3 R146 A2 R321 B3 R347 B2 R4013 A3 R409 B3 R432 B2 R458 B3 R489 B3 R624 B1 R706 B2 R736 B1 R818 B2 T602 B1
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C308 B3 C337 B2 C412 B3 C444 B3 C472 B3 C621 B3 C656 B1 C741 C1 C801 A2 CN103 A2 D701 C1 FB311 B4 FB710 B1 IC703 B1 L608 C2 Q408 A3 R108 B3 R137 B3 R312 B4 R337 B4 R4005 A3 R4025 A3 R422 C4 R445 B2 R474 A3 R610 B2 R638 A3 R723 B1 R809 A2 RA101 B2 ZD304 B3
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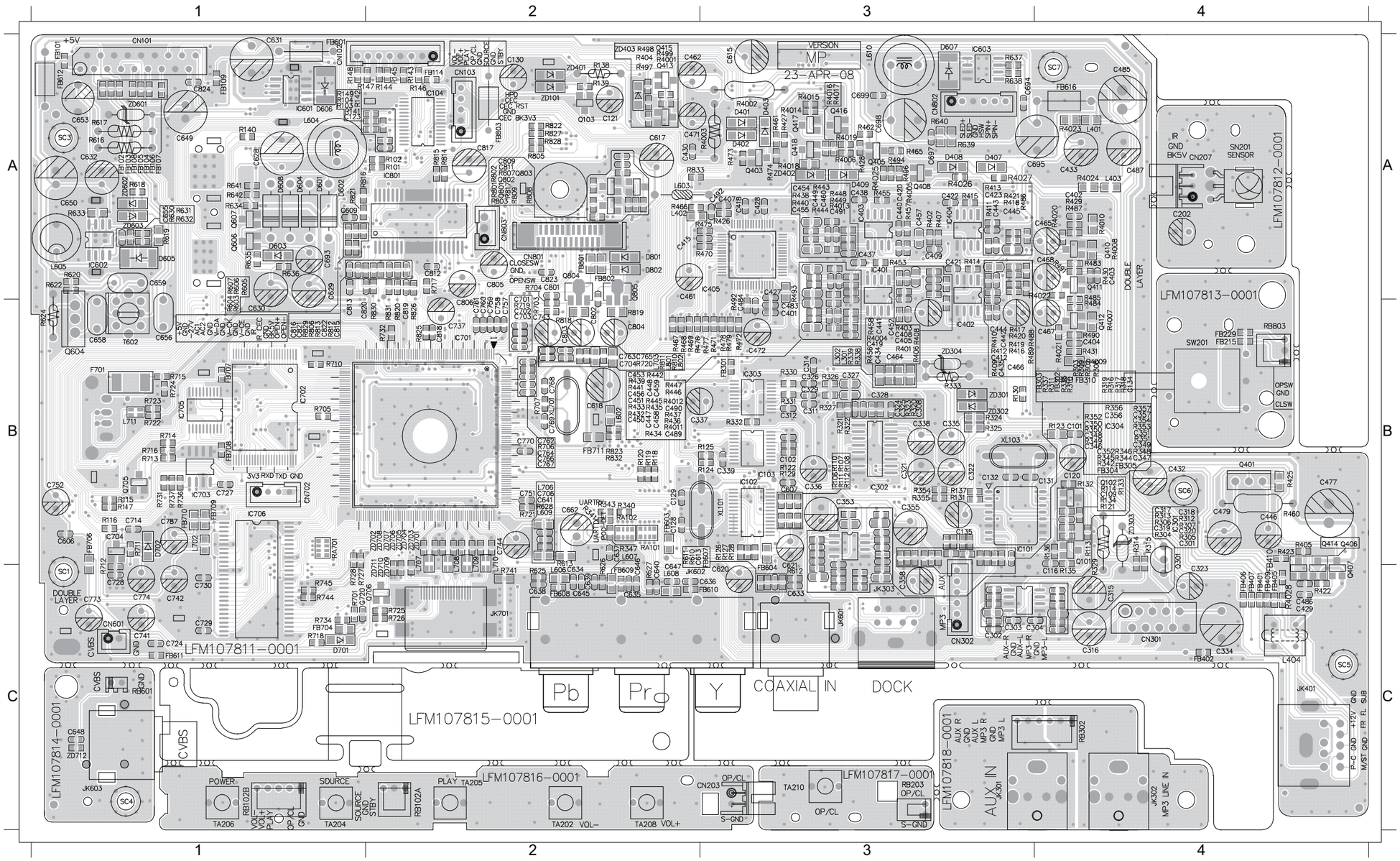

PCB LAYOUT - BOTTOM VIEW

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C103	B3	C113	A2	C136	B1	C145	A3	C307	B2	C340	C2	C417	A2	C475	B3	C603	A3	C623	B3	C657	A4	C713	B4	C732	B4	C750	B3	C777	A4	C786	A4	C797	B4	FB306	C1	FB614	B3	JK702	B4	R358	B2	R729	C4	ZD713	C3
C104	B3	C114	A2	C137	B2	C146	A3	C309	C1	C341	C2	C424	B1	C476	A3	C604	B2	C625	B3	C696	A2	C715	B4	C733	B4	C753	B4	C778	A4	C788	A4	C798	B4	FB307	C1	FB615	B3	L601	B3	R359	B2	R730	B4	ZD714	C3
C105	B3	C115	A2	C138	B3	C147	A3	C310	B1	C342	C2	C425	B1	C480	A2	C605	B3	C626	B3	C705	B3	C716	B3	C734	C4	C754	B4	C779	A4	C789	A4	C799	B4	FB308	C2	FB701	B3	L701	B3	R601	A4	R733	B3	ZD715	C2
C106	A4	C117	A2	C139	B3	C148	A3	C313	B2	C343	C2	C426	A2	C481	B2	C608	A4	C627	B3	C707	B3	C717	B3	C735	B4	C755	B4	C780	A4	C790	C4	C807	A3	FB309	C2	FB702	B4	Q704	C4	R602	A4	R735	B4		
C107	B4	C118	A2	C140	B3	C149	B4	C330	C2	C406	A2	C436	A3	C482	A2	C610	A4	C642	C3	C708	B4	C718	A2	C742	C3	C756	B4	C781	A4	C791	C4	C808	A3	FB312	C2	FB703	B3	R117	A2	R608	A4	R738	B4		
C108	A4	C119	A3	C141	B3	C203	A1	C331	C2	C410	B2	C469	B1	C488	A1	C611	B4	C643	C3	C709	A4	C719	B3	C745	B3	C771	B3	C782	A3	C792	C4	C810	A3	FB313	C2	FB705	B3	R301	C1	R609	A4	R739	B3		
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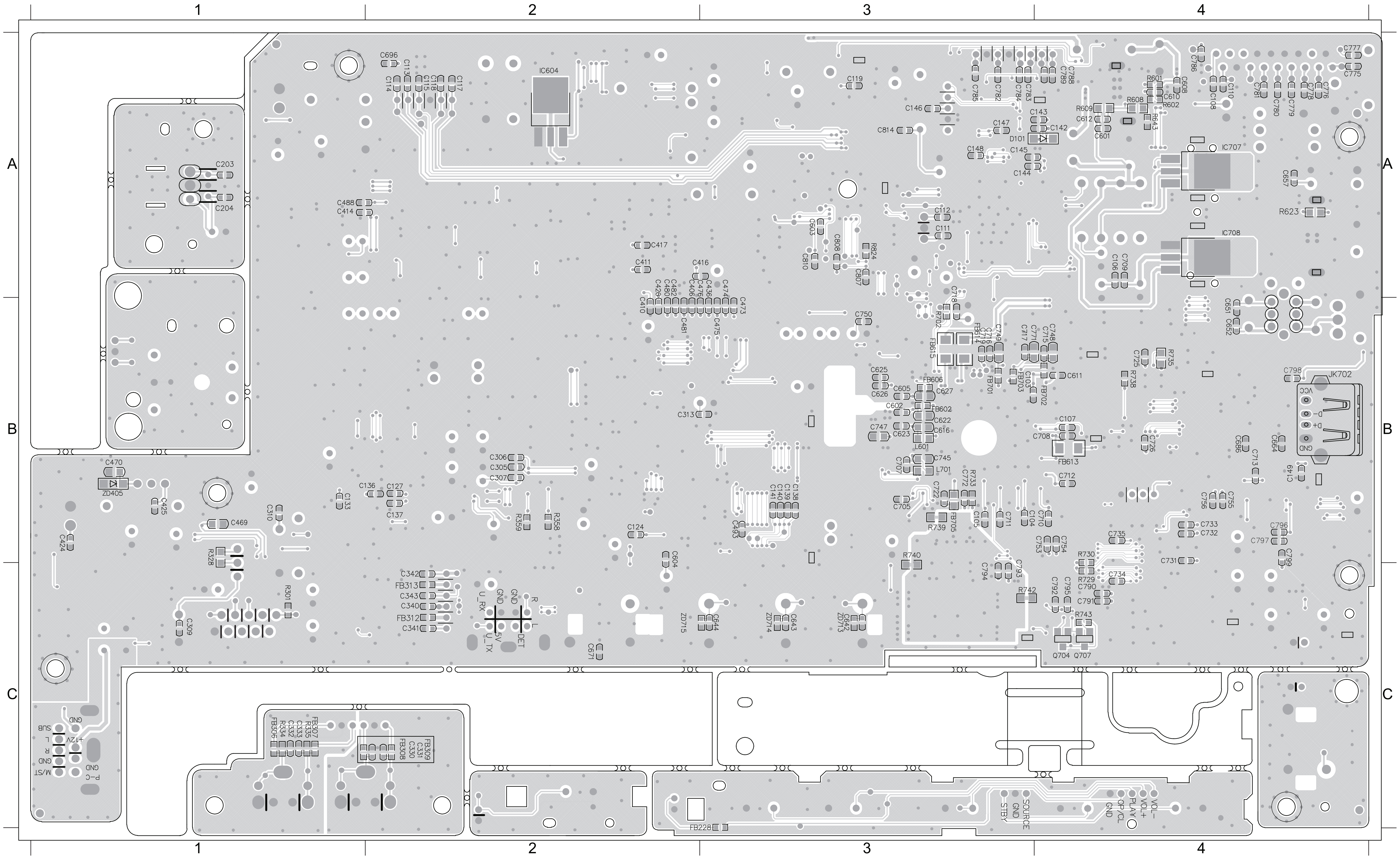
C111	A3	C127	B2	C143	A3	C305	B2	C333	C1	C414	A1	C473	B3	C601	A4	C616	B3	C651	B4	C711	B3	C725	B4	C748	B4	C775	A4	C784	A3	C795	C4	D101	A3	FB606	B3	IC707	A4	R334	C1	R643	A4	R824	A3		
C112	A3	C133	B1	C144	A3	C306	B2	C334	C1	C416	A2	C474	A3	C602	B3	C622	B3	C652	B4	C712	B4	C726	B4	C749	B3	C776	A4	C785	A3	C796	B4	FB228	C2	FB613	B4	IC708	A4	R335	C1	R702	B3	ZD405	B1		



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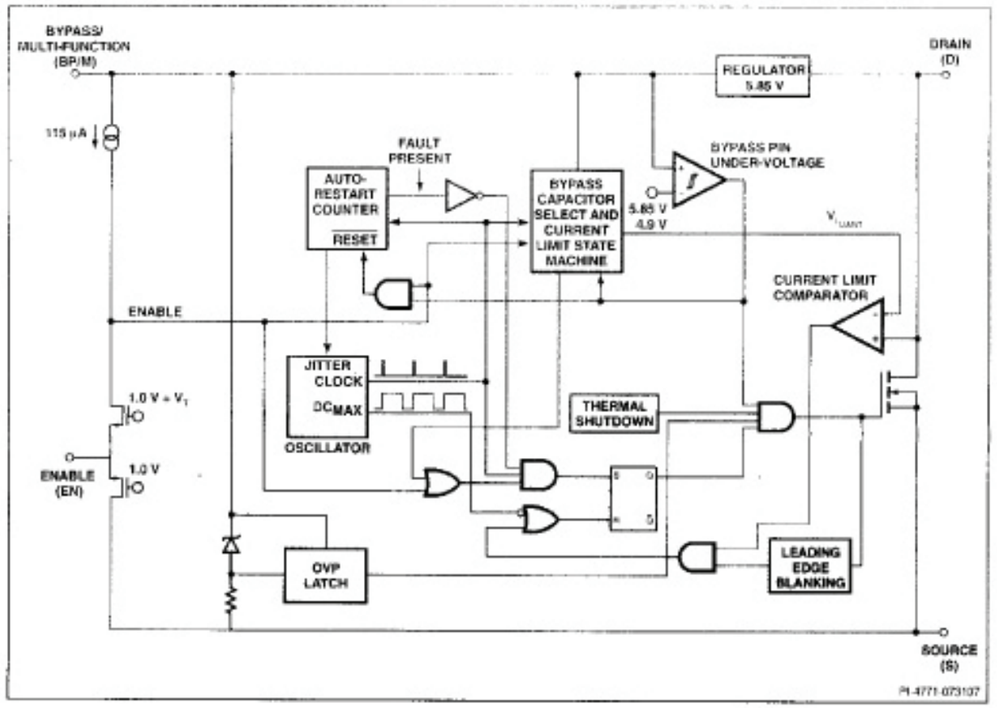
INTERNAL IC DIAGRAM - TNY178PN



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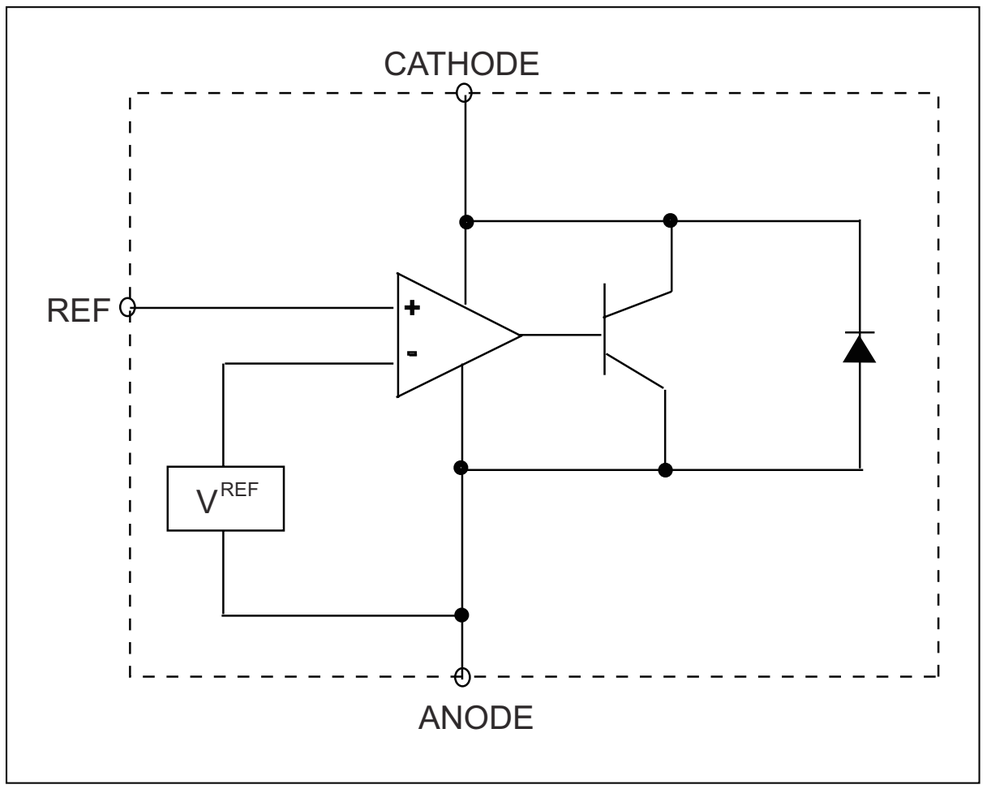

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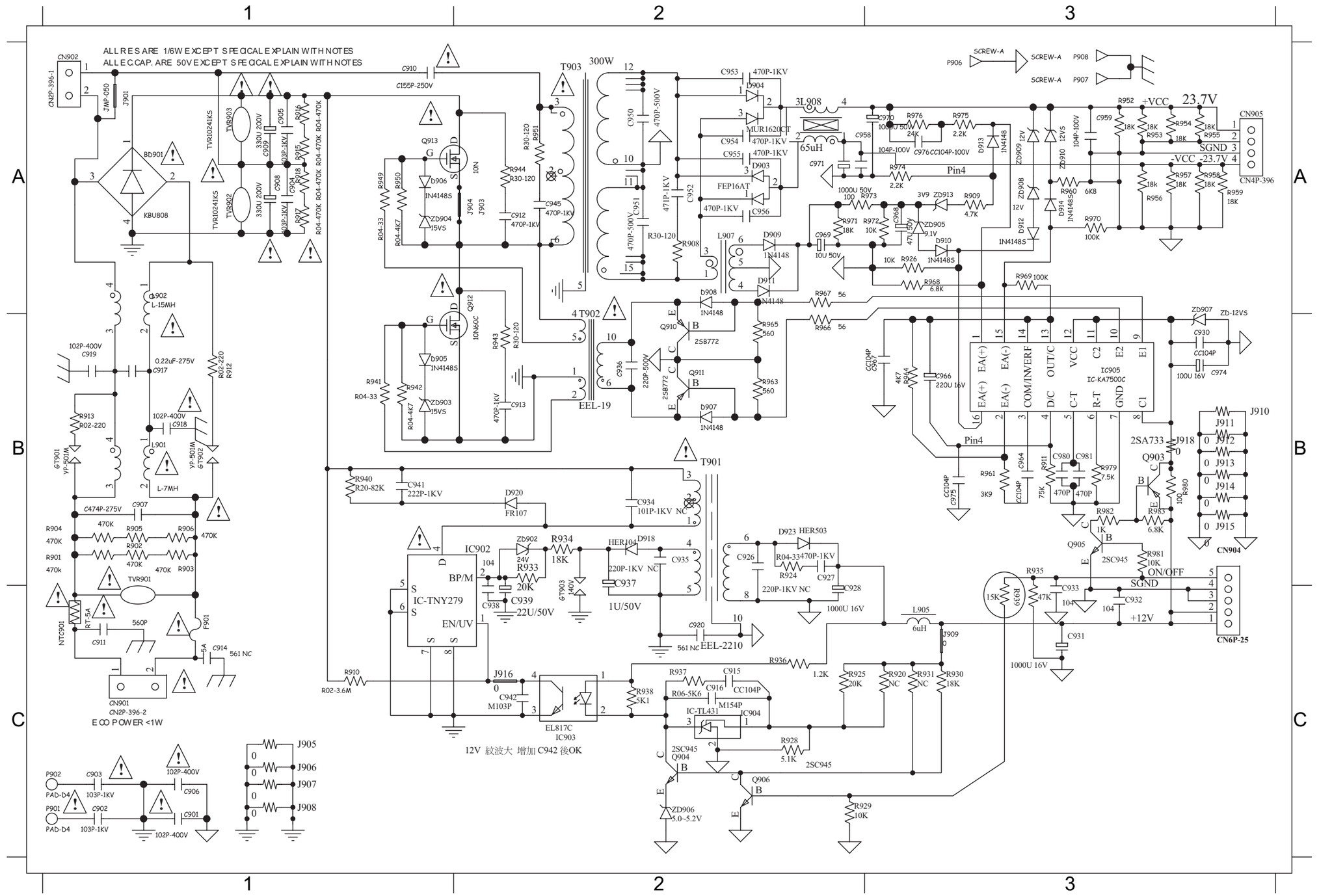
CIRCUIT DIAGRAM

BD901	A1	C909	A1	C927	B2	C939	C2	C956	A2	C971	A2	D903	A2	D912	A3	IC902	B2	J908	C1	L901	B1	Q911	B2	R908	A2	R924	B2	R936	C2	R949	A1	R959	A3	R969	A3	R980	B3	ZD904	A1
C901	C1	C910	A1	C928	B2	C941	B1	C958	A2	C974	B3	D904	A2	D913	A3	IC903	C2	J909	C3	L902	A1	Q912	A2	R909	A3	R925	C2	R937	C2	R950	A1	R960	A3	R970	A3	T901	B2	ZD905	A3
C902	C1	C912	A2	C930	B3	C942	C2	C959	A3	C975	B3	D905	B1	D914	A3	IC904	C2	J910	B3	L905	C3	Q913	A1	R910	C1	R926	A3	R938	C2	R952	A3	R961	B3	R971	A3	T902	B2	ZD906	C2
C903	C1	C913	B2	C931	C3	C950	A2	C964	B3	C976	A3	D906	A1	D918	B2	IC905	B3	J911	B3	L907	A2	R901	B1	R911	B3	R928	C2	R939	C3	R953	A3	R963	B2	R972	A3	T903	A2	ZD907	A3
C904	A1	C915	C2	C932	C3	C951	A2	C966	B3	C980	B3	D907	B2	D920	B2	J903	A2	J912	B3	L908	A2	R902	B1	R912	B1	R929	C2	R940	B1	R954	A3	R964	B3	R973	A2	TVR901	B1	ZD908	A3
C905	A1	C916	C2	C933	C3	C952	A2	C967	B3	C981	B3	D908	A2	D923	B2	J904	A2	J913	B3	NTC901	C1	R903	B1	R915	A1	R930	C3	R941	B1	R955	A3	R965	B2	R974	A3	TVR902	B1	ZD909	A3
C906	C1	C917	B1	C936	B2	C953	A2	C968	A3	CN901	C1	D909	A2	F901	C1	J905	C1	J914	B3	Q904	C2	R904	B1	R916	A1	R933	B2	R942	B1	R956	A3	R966	B2	R975	A3	TVR903	A1	ZD910	A3
C907	B1	C918	B1	C937	B2	C954	A2	C969	A2	CN904	B3	D910	A3	GT902	B1	J906	C1	J915	B3	Q906	C2	R905	B1	R917	A1	R934	B2	R943	B2	R957	A3	R967	A2	R976	A3	ZD902	B2	ZD913	A3
C908	A1	C919	B1	C938	C2	C955	A2	C970	A3	CN905	A3	D911	A2	GT903	C2	J907	C1	J916	C2	Q910	B2	R906	B1	R918	A1	R935	B3	R944	A2	R958	A3	R968	A3	R979	B3	ZD903	B1		



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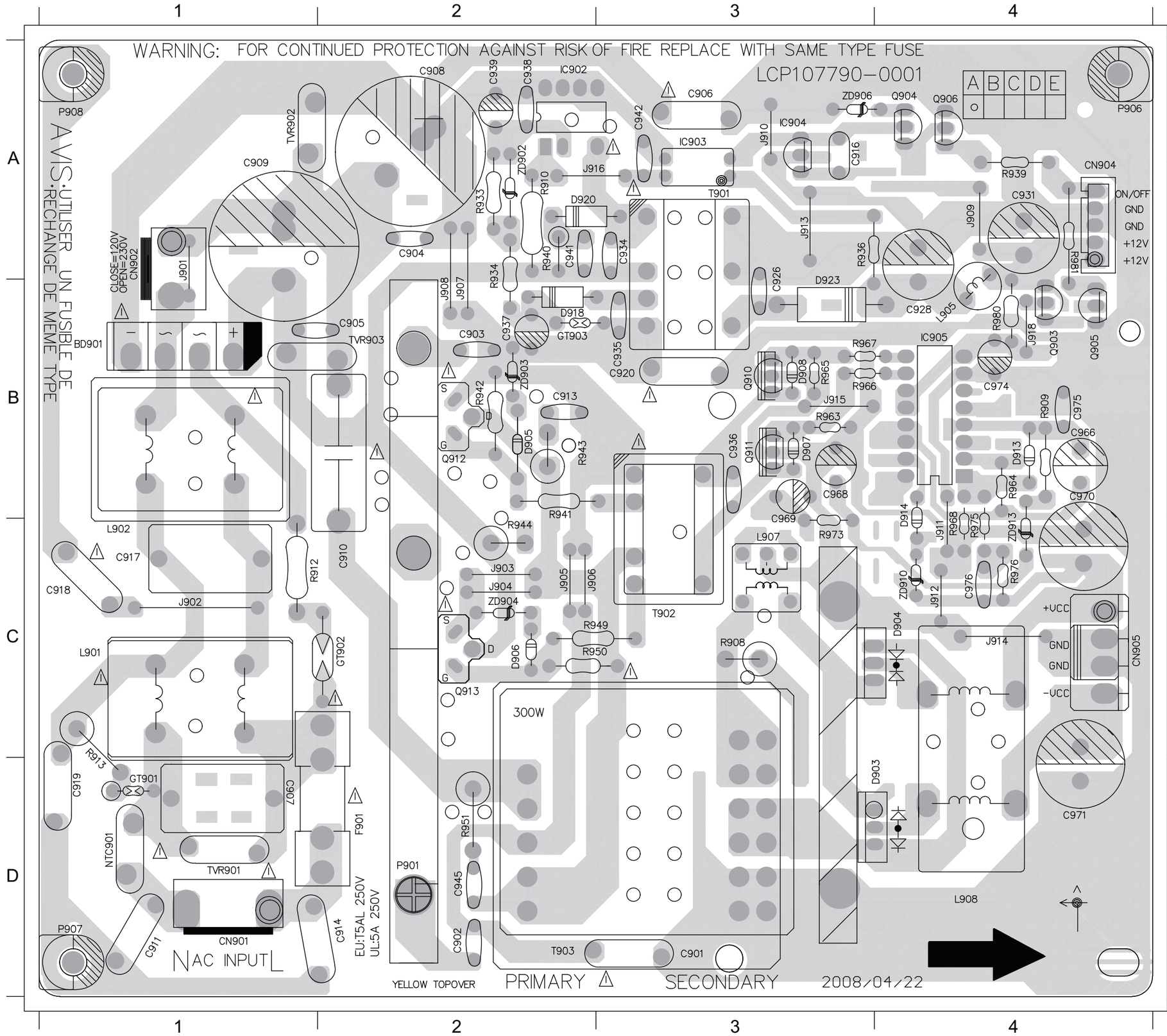
PCB LAYOUT - TOP VIEW



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C906	A3	J914	C4	C907	D1	J915	B3
C908	A2	J916	A2	C909	A1	L901	C1
C910	C2	L902	C1	C913	B2	L905	B4
C916	A3	L907	C3	C917	C1	L908	D4
C918	C1	NTC901	D1	C919	D1	Q904	A4
C928	B4	Q906	A4	C931	A4	Q910	B3
C936	B3	Q911	B3	C937	B2	Q912	B2
C938	A2	Q913	C2	C939	A2	R908	C3
C941	A2	R909	B4	C942	A3	R910	A2
C966	B4	R912	C1	C968	B3	R933	A2
C969	B3	R934	A2	C970	B4	R936	A3
C971	D4	R939	A4	C974	B4	R940	A2
C975	B4	R941	B2	C976	C4	R942	B2
CN901	D1	R943	B2	CN904	A4	R944	C2
CN905	C4	R949	C2	D903	D3	R950	C2
D904	C4	R963	B3	D905	B2	R964	B4
D906	C2	R965	B3	D907	B3	R966	B3
D908	B3	R967	B3	D913	B4	R968	B4
D914	B4	R973	C3	D918	B2	R975	B4
D920	A2	R976	C4	D923	B3	R980	B4
F901	D2	T901	A3	GT902	C2	T902	C3
GT903	B2	T903	D2	IC902	A2	TVR901	D1
IC903	A3	TVR902	A1	IC904	A3	TVR903	B2
IC905	B4	ZD902	A2	J902	C1	ZD903	B2
J903	C2	ZD904	C2	J904	C2	ZD906	A3
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J907	B2						

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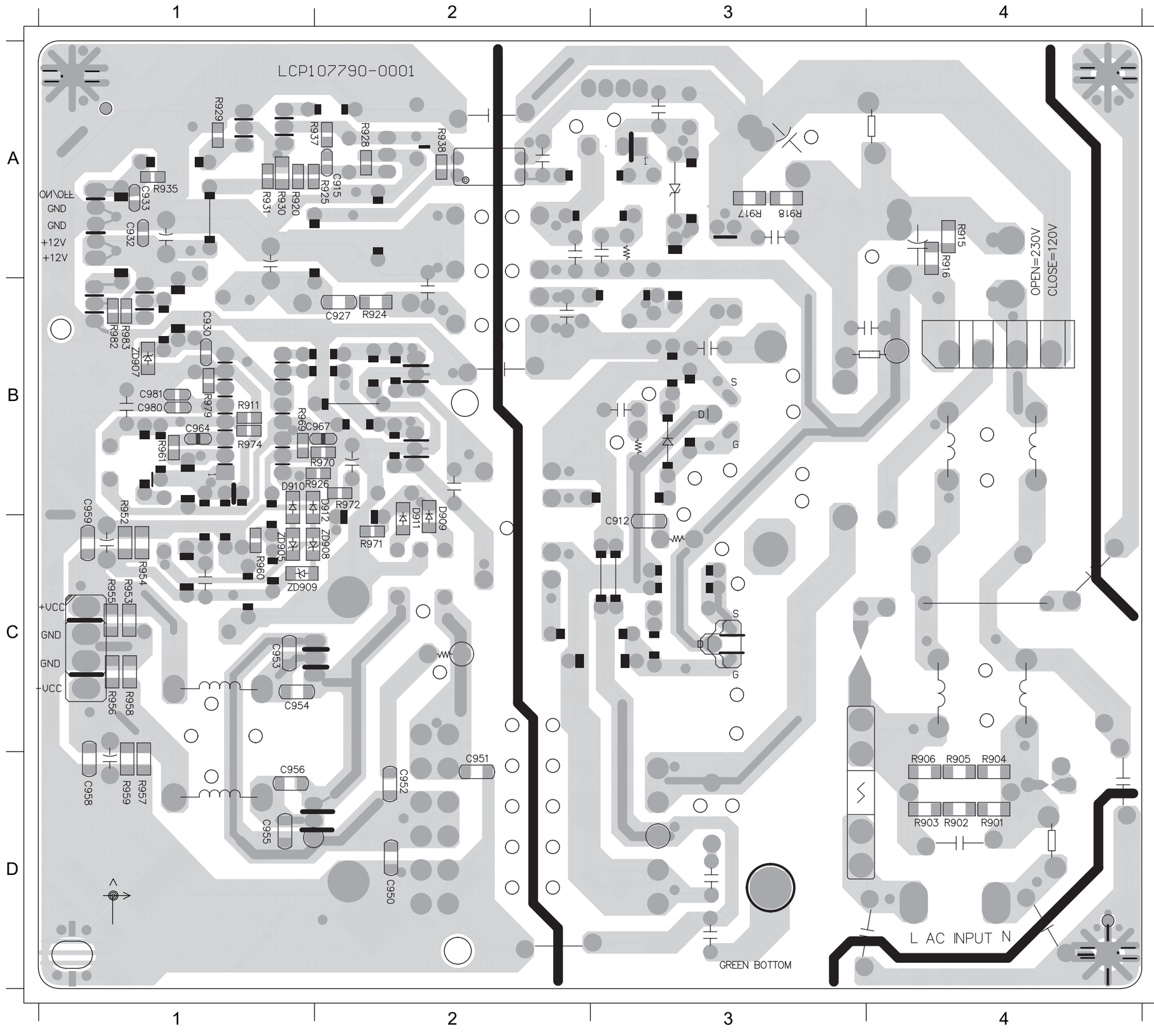
PCB LAYOUT - BOTTOM VIEW



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C951	D2
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R956	C1
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R958	C1
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R961	B1
R969	B1
R970	B1
R971	C2
R972	B2
R974	B1
R979	B1
ZD905	C1
ZD907	B1
ZD908	C2
ZD909	C1

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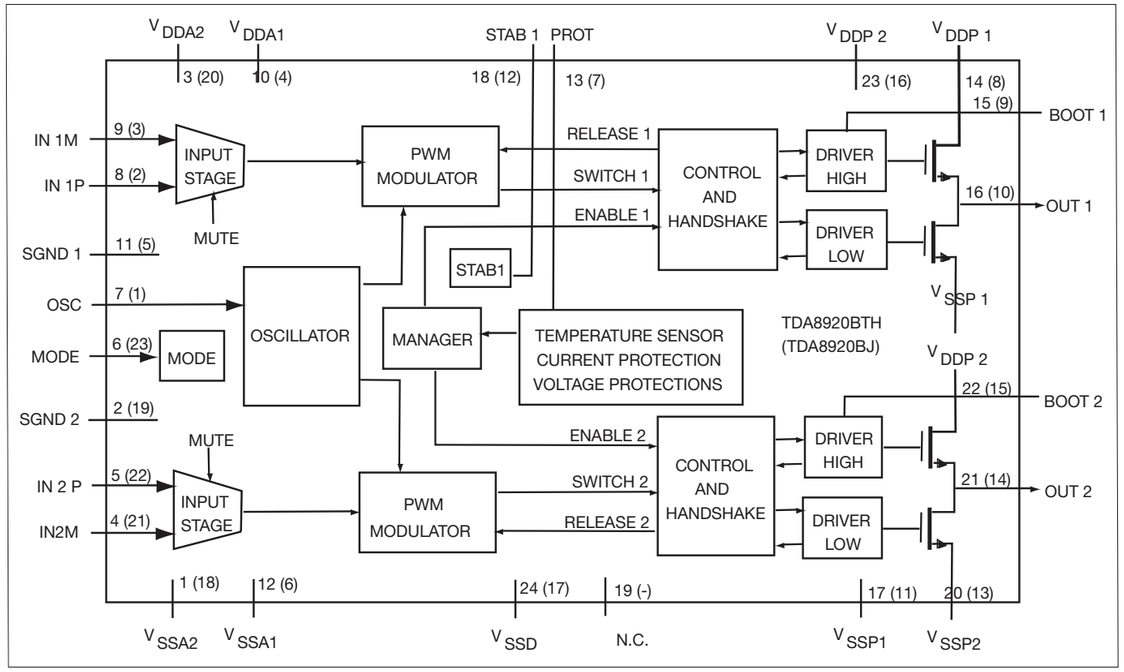
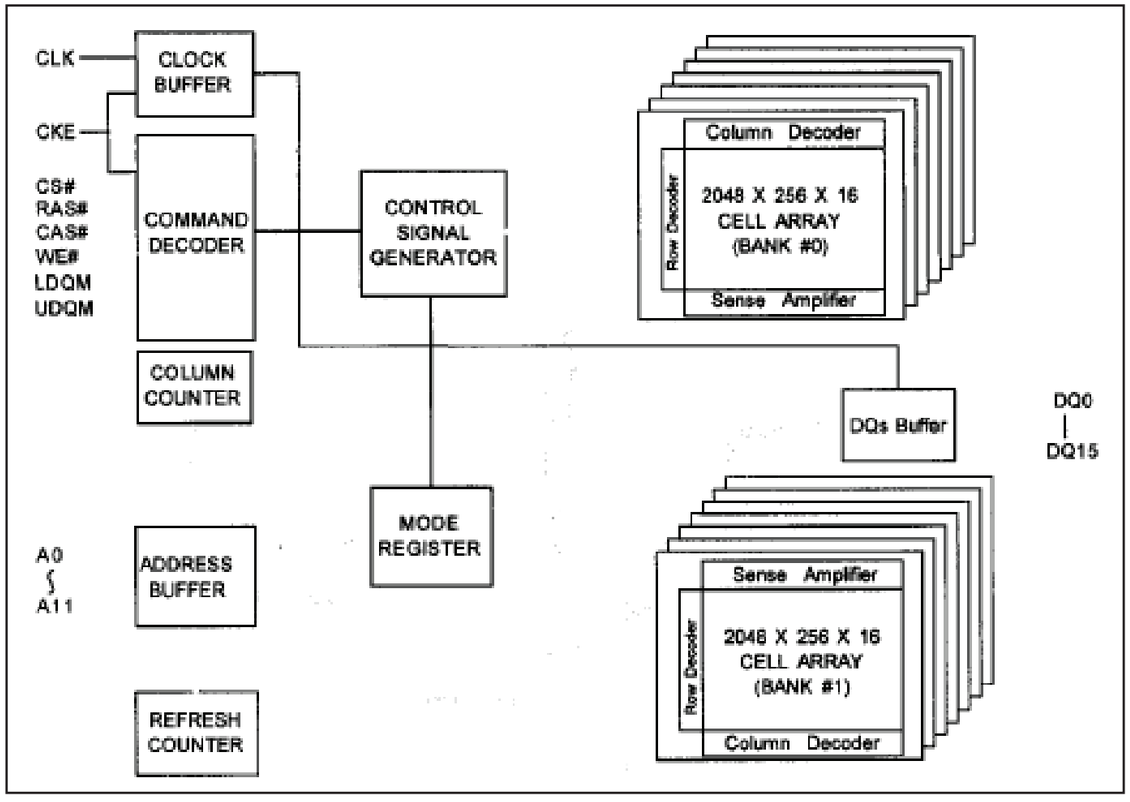
PCB Layout Bottom View 8-4

INTERNAL IC DIAGRAM - TDA8920B



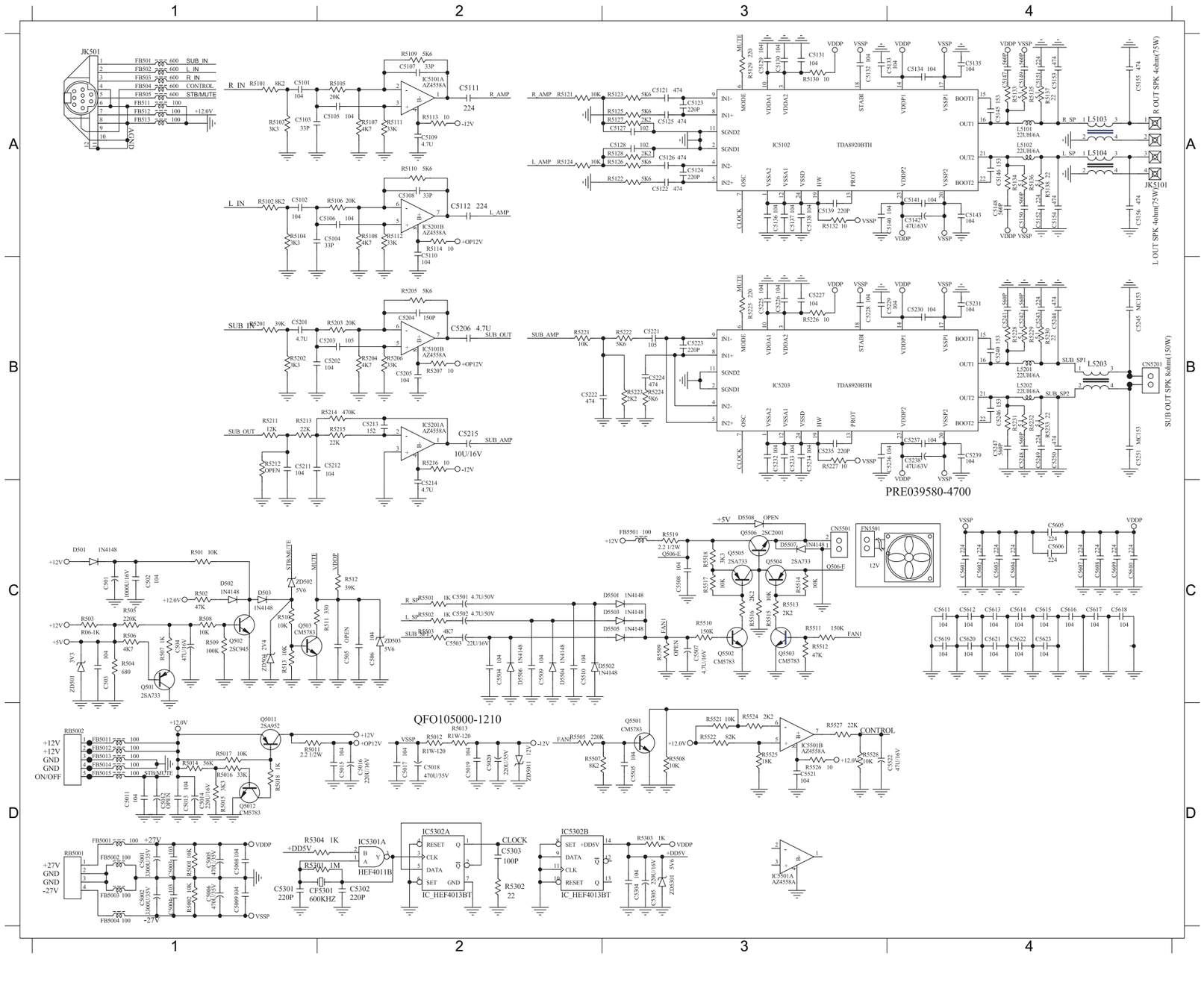
INTERNAL IC DIAGRAM - CO4558A



8 - 2

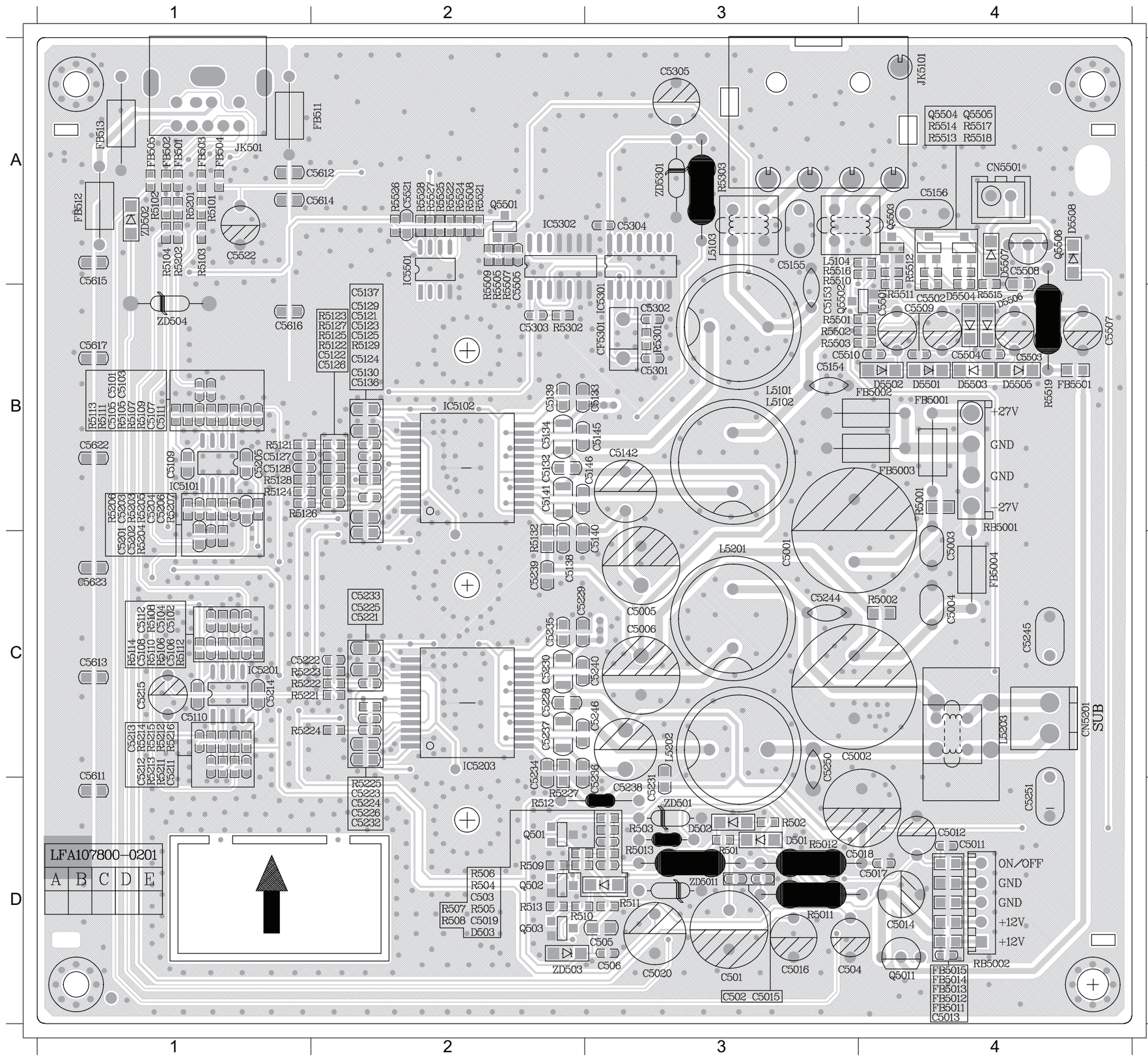
CIRCUIT DIAGRAM

C5001 D1 C5017 D2 C5107 A2 C5129 A3 C5143 A4 C5202 B2 C5225 B3 C5239 B4 C5302 D2 C5522 D4 C5614 C4 D502 C1 FB5011 D1 IC5102 A3 L5203 B4 R501 C1 R507 C1 R5110 A2 R5129 A3 R5205 B2 R5227 B3 R5505 D2 R5522 D3
C5002 D1 C5018 D2 C5018 A2 C5130 A3 C5145 A4 C5203 B2 C5226 B3 C5240 B4 C5303 D2 C5601 C4 C5615 C4 D503 C1 FB5012 D1 IC5201 A2 Q501 C1 R5011 D1 R508 C1 R5111 A2 R513 C1 R5206 B2 R5228 B4 R5507 D2 R5524 D3
C5003 D1 C5019 D2 C5109 A2 C5131 A3 C5146 A4 C5204 B2 C5227 B3 C5241 B4 C5304 D3 C5602 C4 C5616 C4 D5501 C3 FB5013 D1 IC5203 B3 Q5011 D1 R5012 D2 R509 C1 R5112 A2 R5130 A3 R5207 B2 R5229 B4 R5508 D3 R5525 D3
C5004 D1 C502 C1 C5110 A2 C5132 A3 C5147 A4 C5205 B2 C5228 B3 C5242 B4 C5305 D3 C5603 C4 C5617 C4 D5502 C2 FB5014 D1 IC5301 D2 Q5012 D1 R5013 D2 R510 C1 R5113 A2 R5132 A3 R5211 B1 R5230 B4 R5510 C3 R5526 D3
C5005 D1 C5020 D2 C5111 A2 C5133 A4 C5148 A4 C5206 B2 C5229 B4 C5243 B4 C5501 C2 C5604 C4 C5618 C4 D5503 C3 FB5015 D1 IC5302 D2 Q502 C1 R5014 D1 R5101 A1 R5114 A2 R5133 A4 R5213 B1 R5231 B4 R5511 C2 R5527 D3
C5006 D1 C503 C1 C5112 A2 C5134 A4 C5149 A4 C5211 B1 C5230 B4 C5244 B4 C5502 C2 C5605 C4 C5619 C4 D5504 C2 FB502 A1 IC5501 D3 Q503 C1 R5015 D1 R5102 A1 R512 C2 R5134 A4 R5214 B2 R5232 B4 R5512 C3 R5528 D3
C5008 D1 C504 C1 C5121 A3 C5135 A4 C5150 A4 C5212 B2 C5231 B4 C5245 B4 C5503 C2 C5606 C4 C5620 C4 D5505 C3 FB503 A1 JK501 A1 Q5501 D3 R5016 D1 R5103 A1 R5121 A2 R5135 A4 R5215 B2 R5233 B4 R5513 C3 RB5001 D1
C5009 D1 C506 C2 C5122 A3 C5136 A3 C5151 A4 C5213 B2 C5232 B3 C5246 B4 C5504 C2 C5607 C4 C5621 C4 D5506 C2 FB504 A1 JK5101 A4 Q5502 C3 R5017 D1 R5104 A1 R5122 A3 R5136 A4 R5216 B2 R5301 D1 R5514 C3 RB5002 D1
C501 C1 C5101 A1 C5123 A3 C5137 A3 C5152 A4 C5214 C2 C5233 B3 C5247 B4 C5505 D3 C5608 C4 C5622 C4 D5507 C3 FB505 A1 L5101 A4 Q5503 C3 R5018 D1 R5105 A2 R5123 A3 R5137 A4 R5221 B2 R5302 D2 R5515 C3 ZD501 C1
C5011 D1 C5102 A1 C5124 A3 C5138 A3 C5153 A4 C5215 B2 C5234 B3 C5248 B4 C5507 C3 C5609 C4 C5623 C4 FB5001 D1 FB511 A1 L5102 A4 Q5504 C3 R502 C1 R5106 A2 R5124 A2 R5138 A4 R5222 B3 R5303 D3 R5516 C3 ZD5011 D2
C5013 D1 C5103 A1 C5125 A3 C5139 A3 C5154 A4 C5221 B3 C5235 B3 C5249 B4 C5508 C3 C5610 C4 CF5301 D1 FB5002 D1 FB512 A1 L5103 A4 Q5505 C3 R503 C1 R5107 A2 R5125 A3 R5201 B1 R5223 B3 R5304 D1 R5517 C3 ZD502 C1
C5014 D1 C5104 A2 C5126 A3 C5140 A4 C5155 A4 C5222 B2 C5236 B4 C5250 B4 C5509 C2 C5611 C4 CN5201 B4 FB5003 D1 FB513 A1 L5104 A4 Q5506 C3 R504 C1 R5108 A2 R5126 A3 R5202 B1 R5224 B3 R5501 C2 R5518 C3 ZD503 C2
C5015 D2 C5105 A2 C5127 A3 C5141 A4 C5156 A4 C5223 B3 C5237 B4 C5251 B4 C5510 C2 C5612 C4 CN5501 C3 FB5004 D1 FB5501 C3 L5201 B4 R5001 D1 R505 C1 R5109 A2 R5127 A3 R5203 B2 R5225 B3 R5502 C2 R5519 C3 ZD504 C1
C5016 D2 C5106 A2 C5128 A3 C5142 A4 C5201 B4 C5224 B3 C5238 B4 C5301 D1 C5521 D3 C5613 C4 D501 C1 FB501 A1 IC5101 B2 L5202 B4 R5002 D1 R506 C1 R511 C2 R5128 A3 R5204 B2 R5226 C3 R5503 C2 R5521 D3 ZD5301 D3



8 - 3

PCB LAYOUT - TOP VIEW



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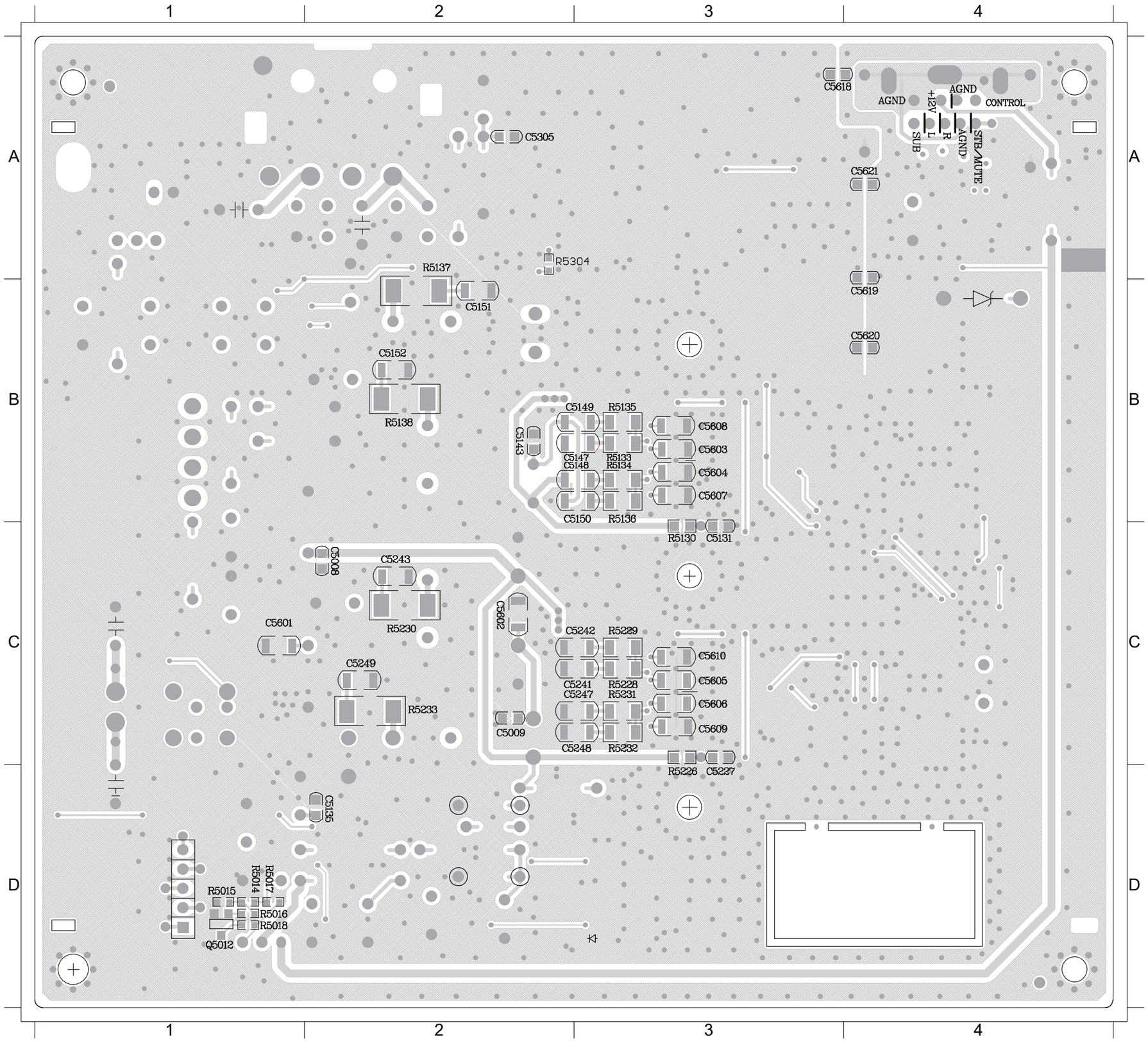
C5002	C3	C5215	C1	FB5011	D4	R5113	B1
C5003	C4	C5221	C2	FB5012	D4	R5114	C1
C5004	C4	C5222	C1	FB5013	D4	R512	D2
C5005	C3	C5223	D2	FB5014	D4	R5121	B1
C5006	C3	C5224	D2	FB5015	D4	R5122	B2
C501	D3	C5225	C2	FB502	A1	R5123	B2
C5011	D4	C5226	D2	FB503	A1	R5124	B1
C5013	D4	C5228	C2	FB504	A1	R5125	B2
C5014	D4	C5229	C2	FB505	A1	R5126	B1
C5015	D3	C5230	C2	FB511	A2	R5127	B2
C5016	D3	C5231	D3	FB512	A1	R5128	B1
C5017	D4	C5232	D2	FB513	A1	R5129	B2
C5018	D3	C5233	C2	FB5501	B4	R513	D2
C5019	D2	C5234	C2	IC5101	B1	R5132	B2
C502	D3	C5235	C2	IC5102	B2	R5201	A1
C5020	D3	C5236	C3	IC5201	C1	R5202	A1
C503	D2	C5237	C2	IC5203	C2	R5203	B1
C504	D3	C5238	D3	IC5301	B3	R5204	C1
C506	D3	C5239	C2	IC5302	B3	R5205	B1
C5101	B1	C5240	C3	IC5501	A2	R5206	B1
C5102	C1	C5244	C3	JK501	A1	R5207	B1
C5103	B1	C5245	C4	JK5101	A4	R5211	C1
C5104	C1	C5246	C3	L5101	B3	R5213	C1
C5105	B1	C5250	C3	L5102	B3	R5214	C1
C5106	C1	C5251	D4	L5103	A3	R5215	C1
C5107	B1	C5301	B3	L5104	A3	R5216	C1
C5018	D3	C5302	B3	L5201	C3	R5221	C1
C5109	B1	C5303	B2	L5202	C3	R5222	C1
C5110	C1	C5304	A3	L5203	C4	R5223	C1
C5111	B1	C5501	B4	Q501	D2	R5224	C1
C5112	C1	C5502	B4	Q5011	D4	R5225	D2
C5121	B2	C5503	B4	Q502	D2	R5227	D2
C5122	B2	C5504	B4	Q503	D2	R5301	B3
C5123	B2	C5505	A2	Q5501	A2	R5302	B2
C5124	B2	C5507	B4	Q5502	B3	R5303	A3
C5125	B2	C5508	A4	Q5503	A4	R5501	B3
C5126	B2	C5509	B4	Q5504	A4	R5502	B3
C5127	B1	C5510	B3	Q5505	A4	R5503	B3
C5128	B1	C5521	A2	Q5506	A4	R5505	A2
C5129	B2	C5522	A1	R5001	B4	R5507	A2
C5130	B2	C5611	C1	R5002	C4	R5508	A2
C5132	B2	C5612	A2	R501	D3	R5510	A3
C5133	B3	C5613	C1	R5011	D3	R5511	B4
C5134	B2	C5614	A2	R5012	D3	R5512	A4
C5136	B2	C5615	A1	R5013	D3	R5513	A4
C5137	B2	C5616	B1	R502	D3	R5514	A4
C5138	C2	C5617	B1	R503	D3	R5515	B4
C5139	B2	C5622	B1	R504	D2	R5516	A3
C5140	C3	C5623	C1	R505	D2	R5517	A4
C5141	B2	CF5301	B3	R506	D2	R5518	A4
C5142	B3	CN5201	C4	R507	D2	R5519	B4
C5145	B3	CN5501	A4	R508	D2	R5521	A2
C5146	B3	D501	D3	R509	D2	R5522	A2
C5153	B3	D502	D3	R510	D2	R5524	A2
C5154	B3	D503	D2	R5101	A1	R5525	A2
C5155	A3	D5501	B4	R5102	A1	R5526	A2
C5156	A4	D5502	B4	R5103	A1	R5527	A2
C5201	C1	D5503	B4	R5104	A1	R5528	A2
C5202	C1	D5504	B4	R5105	B1	RB5001	B4
C5203	B1	D5505	B4	R5106	C1	RB5002	D4
C5204	B1	D5506	B4	R5107	B1	ZD501	D3
C5205	B1	D5507	A4	R5108	C1	ZD5011	D3
C5206	B1	FB5001	B4	R5109	B1	ZD502	A1
C5211	C1	FB5002	B4	R511	D3	ZD503	D2
C5212	C1	FB5003	B4	R5110	C1	ZD504	B1
C5213	C1	FB5004	C4	R5111	B1	ZD5301	A3

8 - 4

PCB LAYOUT - BOTTOM VIEW



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C5009 C2
C5131 C3
C5135 D2
C5143 B2
C5147 B2
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C5151 B2
C5152 B2
C5227 D3
C5241 C2
C5242 C2
C5243 C2
C5247 C2
C5248 C2
C5249 C2
C5305 A2
C5601 C1
C5602 C2
C5603 B3
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C5606 C3
C5607 B3
C5608 B3
C5609 C3
C5610 C3
C5618 A3
C5619 B4
C5620 B4
C5621 A4
Q5012 D1
R5014 D1
R5015 D1
R5016 D1
R5017 D1
R5018 D1
R5130 C3
R5133 B3
R5134 B3
R5135 B3
R5136 B3
R5137 A2
R5138 B2
R5226 D3
R5228 C3
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R5232 C3
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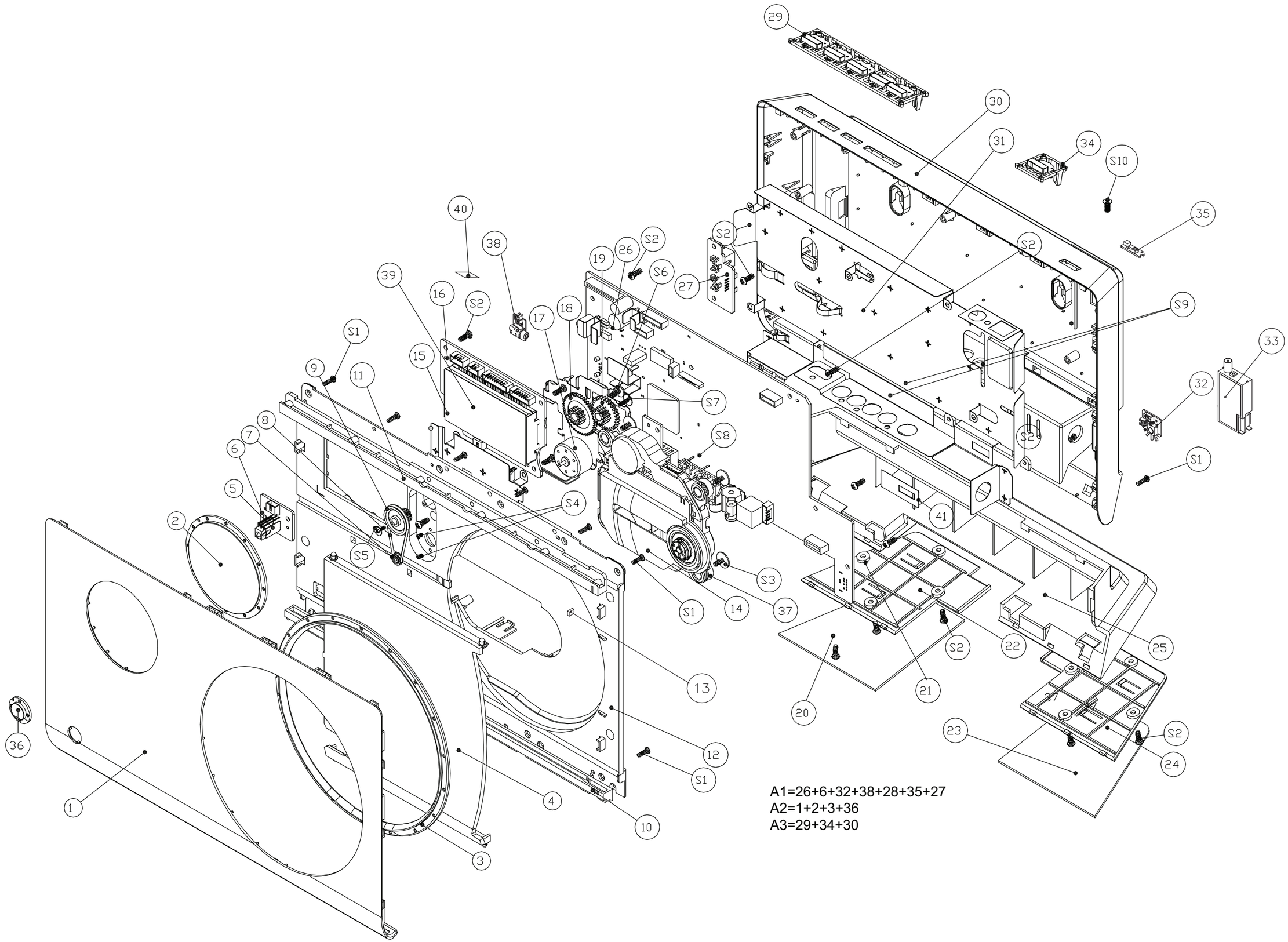
R5304 A2

MECHANICAL EXPLODED VIEW

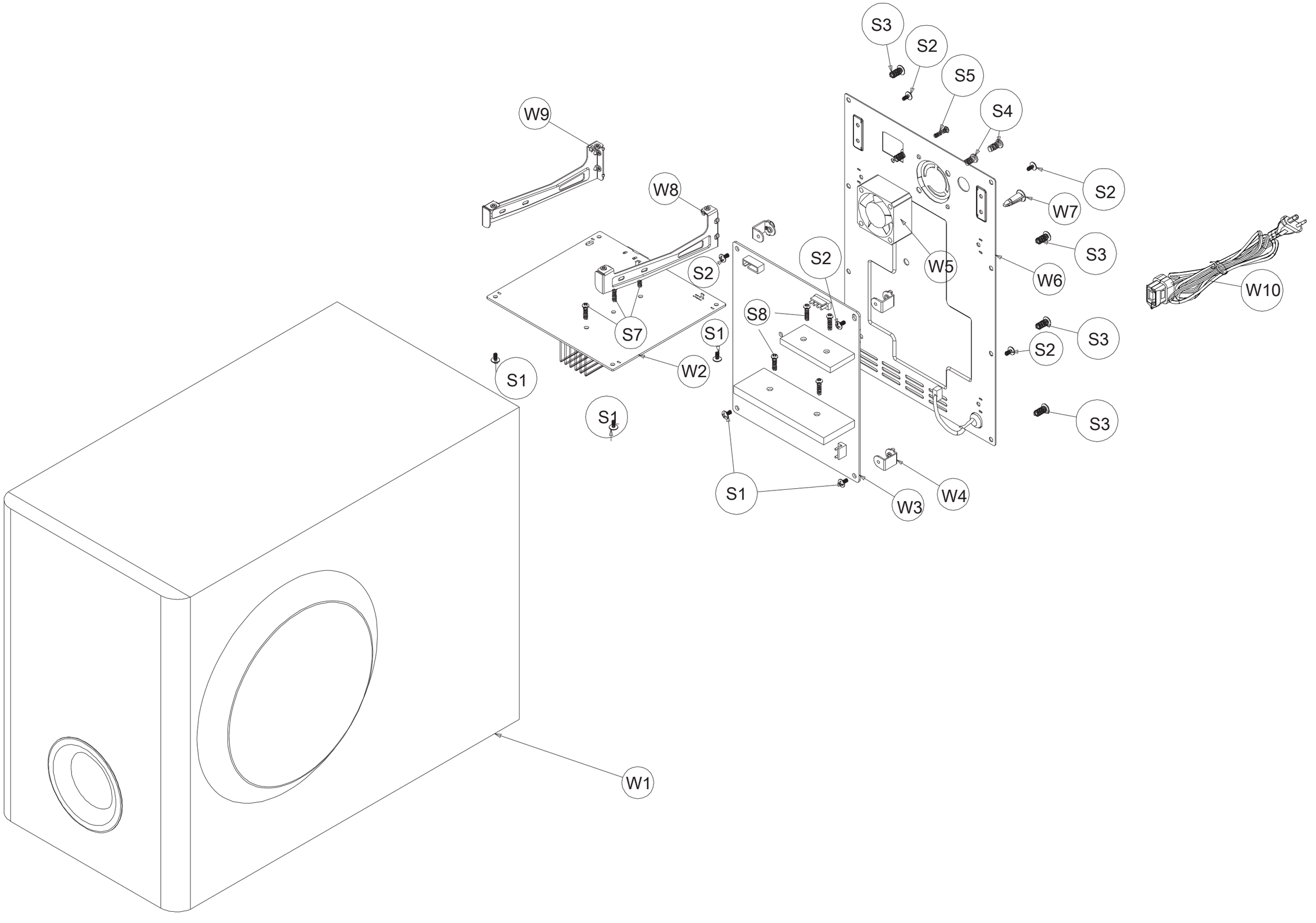
9 - 1



A1=26+6+32+38+28+35+27
A2=1+2+3+36
A3=29+34+30

MECHANICAL EXPLODED VIEW

9 - 2



MECHANICAL PART LIST

9 - 3

Loc.	Part No.	Description
MAIN		
4	996510017025	CD SLIDING DOOR PC
7	996510017032	PULLEY POM
8	996510017037	RUB-BELT OD32.9XID30.5CHLOROPR
9	996510017033	PULLEY GEAR POM
10	996510017031	BOTTOM DOOR SLIDE POM
11	996510017029	TOP DOOR SLIDE POM
12	996510017024	MIDDLE BASE HIPS
13	996510010347	RUBBER PAD SI T4xL10xW5mm
14	996510013538	PICKUP SONY KHM-313AHD
16	996510017023	VFD PCB ASSY
17	996510017056	MOTOR DC2V(TRAY MOTOR LIAN YA)
18	996510017027	MIDDLE GEAR EL630
19	996510017026	DOOR GEAR POM
20	996510017035	RUBBER FOOT_L SILICON RUB T=2.
21	996510017028	METAL HOLDER_L HIPS
23	996510017036	RUBBER FOOT_R SILICON RUB T=2.
24	996510017030	METAL HOLDER_R HIPS
25	996510017034	BASE SUPPORT HIPS
33	996510011275	TUNER PACK
37	996510014257	RUBBER CUSHION GRAY
39	996510017057	VFD SHEET PET
40	996510017055	PVC SHEET L17xW13xT0.3mm
41	996510017054	PVC SHEET L35xW13xT0.3mm
A1	996510017022	MAIN+IR+SW+CVBS+FCC+K1K2+MP3IN
A2	996510017052	FRONT CABINET+LENS+OTHERS ASSY
A3	996510017053	FUNCTION BUTTON+OTHERS ASSY
DIN	996510017038	DIN CABLE 9P 3500mm D6.5mm BLK
FM	996510017043	FM ANT
RC	996510011293	REMOTE CONTROL 39 KEYS
V1	996510017039	FFC CABLE 10P130mmUL20798 P=1.
V2	996510017040	FFCCABLE18P80mmUL20798P=1.25mm
V3	996510017041	FFCCABLE24P240mmUL20798P=0.5mm
VIDEO	996500038741	RCA CABLE AUDIO (R/W)
SCART	996510017042	SCART CABLE 1000mm OD2.6mm BLK
SPEAKER		
RFF	996510017046	RUBBER FOOT-FRONT FRONT/REAR
RFR	996510017046	RUBBER FOOT-FRONT FRONT/REAR
RFS	996510013306	RUBBER FOOT -SUB
SPKFL	996510017044	SPEAKER BOX -FRONT LEFT
SPKFR	996510017045	SPEAKER BOX - FRONT RIGHT
SUBWOOFER		
W1	996510017048	WOOD BOX
W10	996510002650	POWER CORD (FOR:/12)
W10	996510002665	POWER CORD (FOR:/05)
W2	996510017050	AMP PCB ASSY
W3	996510017049	POWER PCB ASSY
W5	994000002073	DC FAN 12V 70MA 0.8W
W6	996510017051	REAR PANEL SECC (FOR:/12)
W6	996510017127	REAR PANEL SECC (FOR:/05)

REVISION LIST

Version 1.0
*Initial release

Version 1.1
*Add chapter 6