Active Subwoofer

SW3660/00

Service
Service
Service

Service Manual

TABLE OF CONTENTS

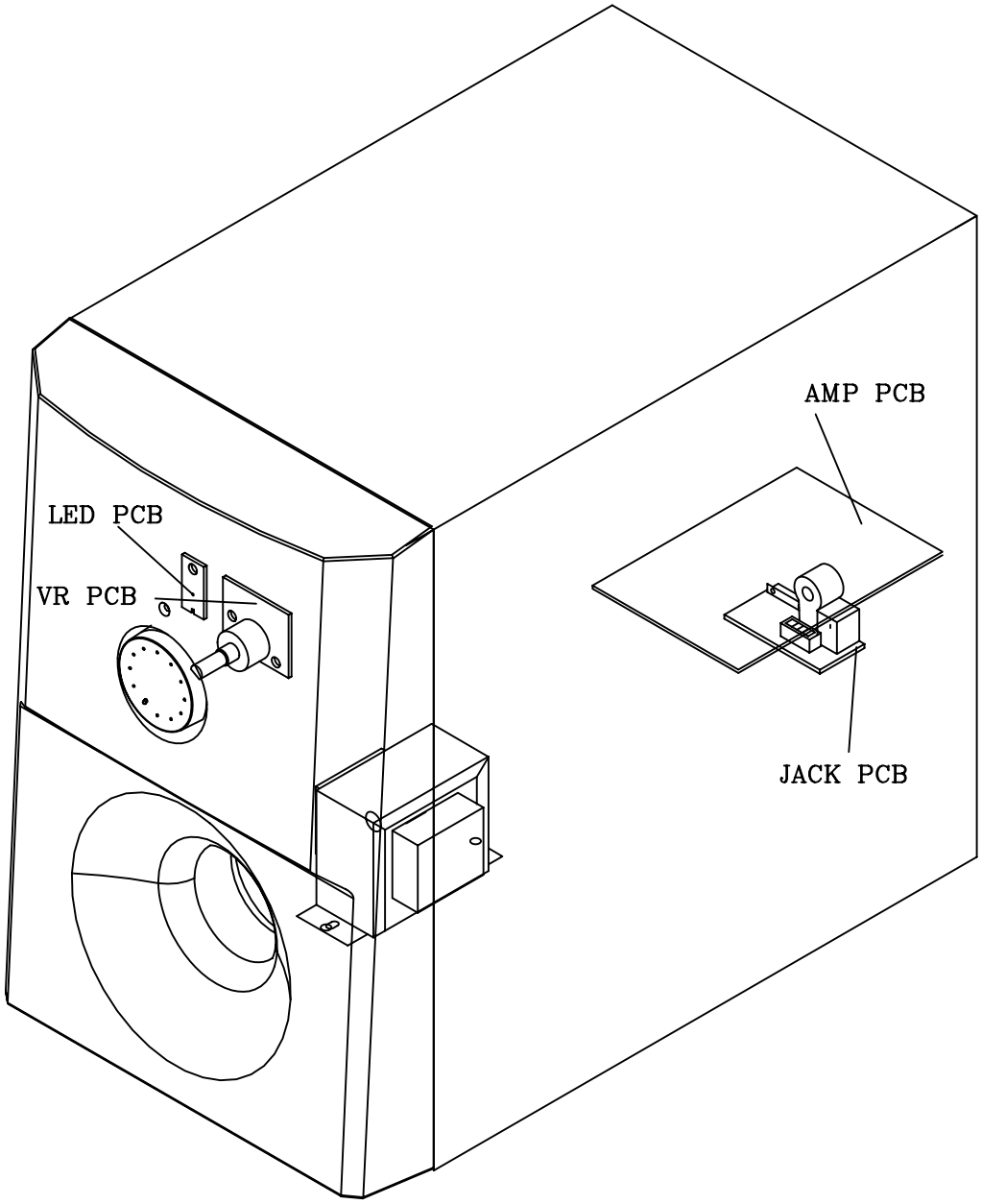
Published by BB-ET0326 Service Audio Printed in The Netherlands Subject to modification

GB 3139 785 30420

Version 1.0

PHILIPS

LOCATION OF PC BOARDS

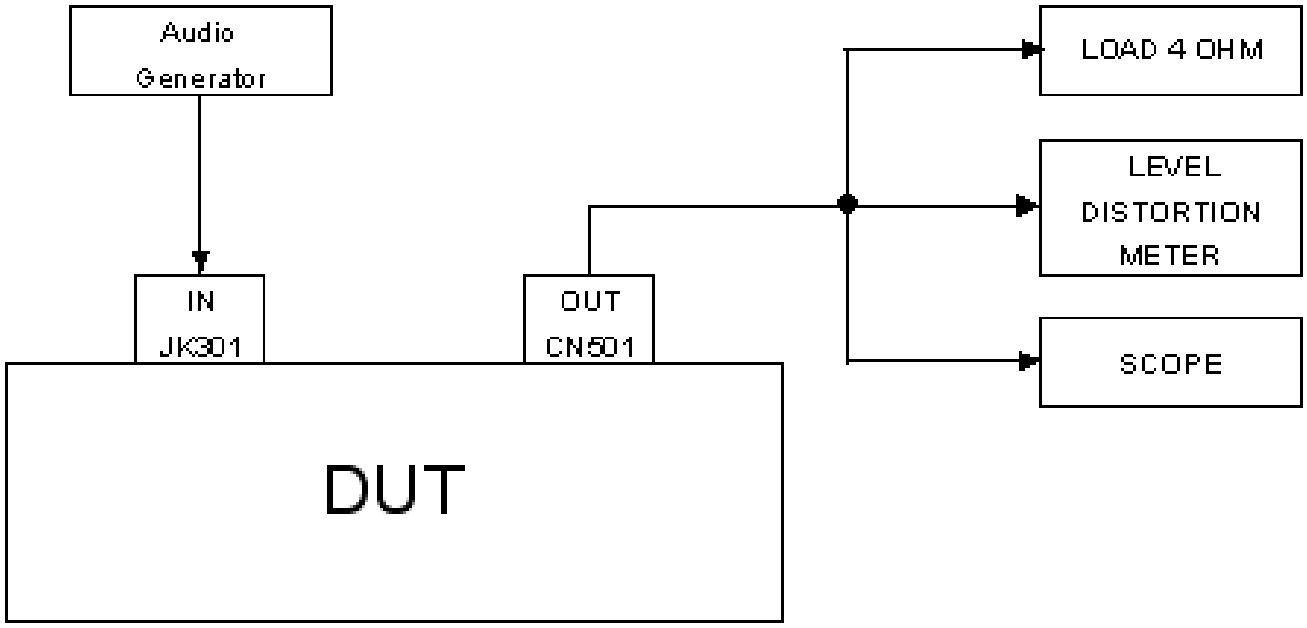


SPECIFICATIONS

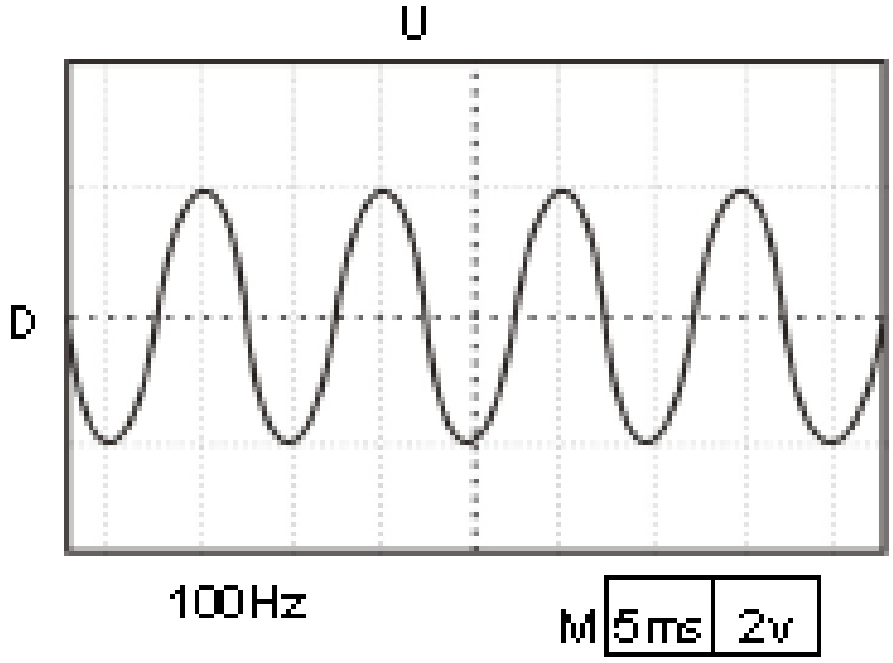
SUBWOOFER

Subwoofer (not magnetically shielded design).....6.5"
Output Power.....40W(4 Ω,DIN)
THD (Total Harmonic Distortion) .....10% at 55Hz
Reproduction Frequency Response.....37Hz-145 Hz
Phase Switch.....0^0, 180^0
Input Sensitivity (Subwoofer In).....460 mVrms
AC Power .....220 - 240V / 50 - 60 Hz
Power Consumption.....32 W (at 1/8 Rated Power)
Dimensions (w x h x d).....200 mm x 310mm x 350 mm
Weight.....6.5 Kg

MEASUREMENT SETUP



Audio Test Signal



ESD & SAFETY INSTRUCTION

GB **WARNING**

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically.
When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance.
Keep components and tools also at this potential.

ESD

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

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified, be used.

NL

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

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.

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.

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.

"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."

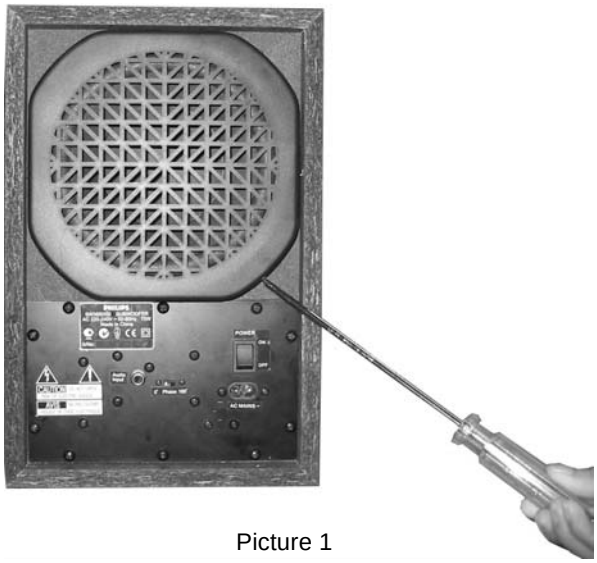
"Pour votre sécurité, ces documents doivent être utilisés par des spécialistes agréés, seuls habilités à réparer votre appareil en panne".

DISASSEMBLY INSTRUCTIONS

Dismantling the Speaker Grille & Speaker Driver

1. Place the Subwoofer Box as shown in the Picture 1 and use a screw driver to force open the Speaker Grille.

Caution: Take care the surface when take out the Speaker Grille of Subwoofer



Picture 1

2. Place the Subwoofer Box as shown in the Picture 2 and loosen 4 screws A to remove the Speaker Driver.

Picture 2

Dismantling the Front Assembly

1. Place the Subwoofer Box as shown in the Picture 3 and use a screw driver to force open the front assembly.

Caution: Do not break the bundle of wires to the front. Take care the surface when take out the front panel of subwoofer

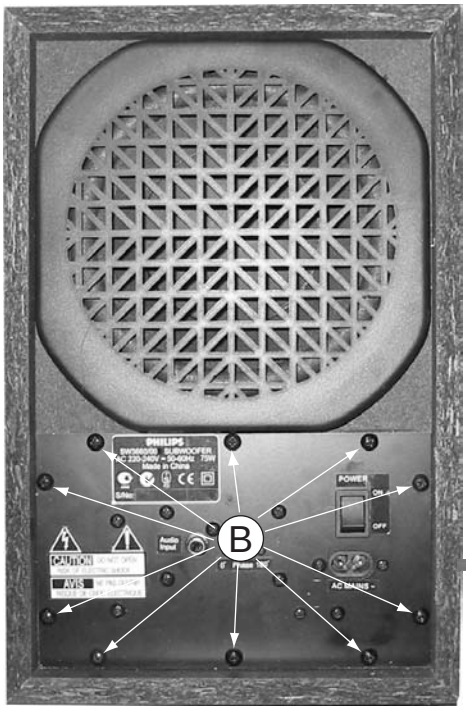
Picture 3

WARNING: THERE IS ONLY A LED BETWEEN THE FRONT PANEL AND WOOD BOX. IF NOT NECCESSARY, PLEASE DON'T TRY TO OPEN THE FRONT PANEL!!!

Dismantling the Rear assembly

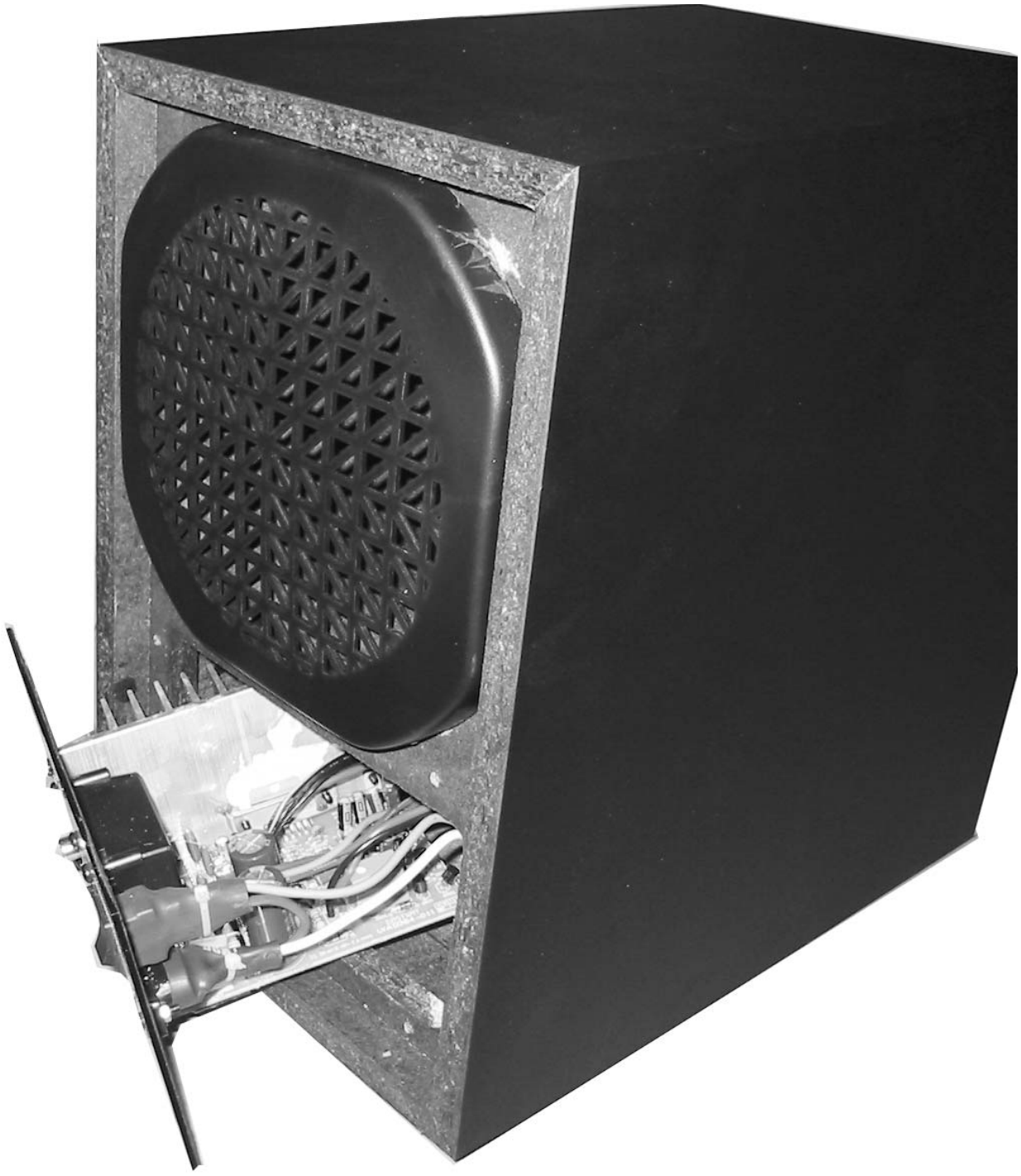
1. Loosen 10 screws B as shown in the Picture 4 (Rear View) to pull out the Printed Circuit Board assembly.

Caution: Do not break the bundle of wires to the front.



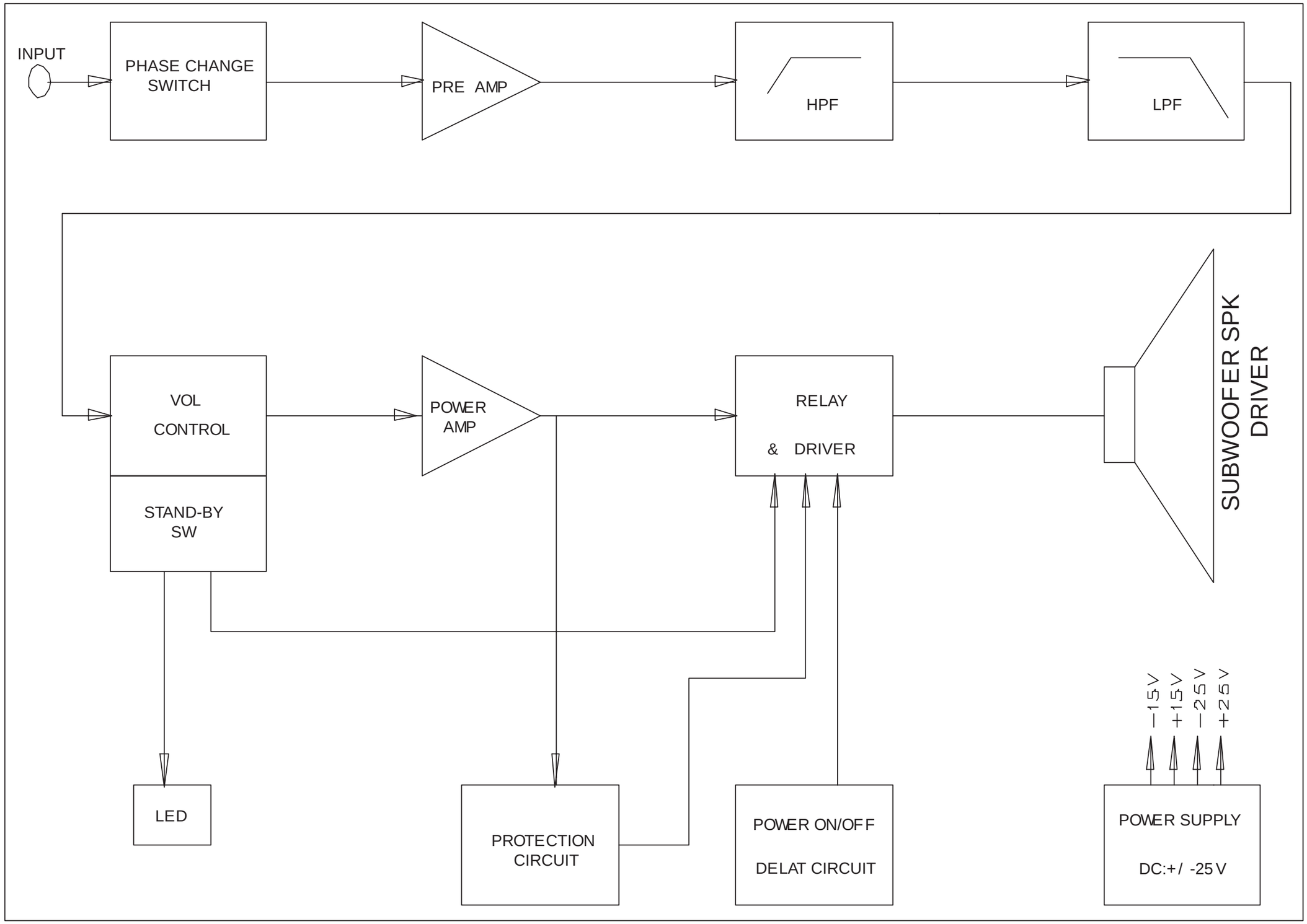
Picture 4

SERVICE POSITION



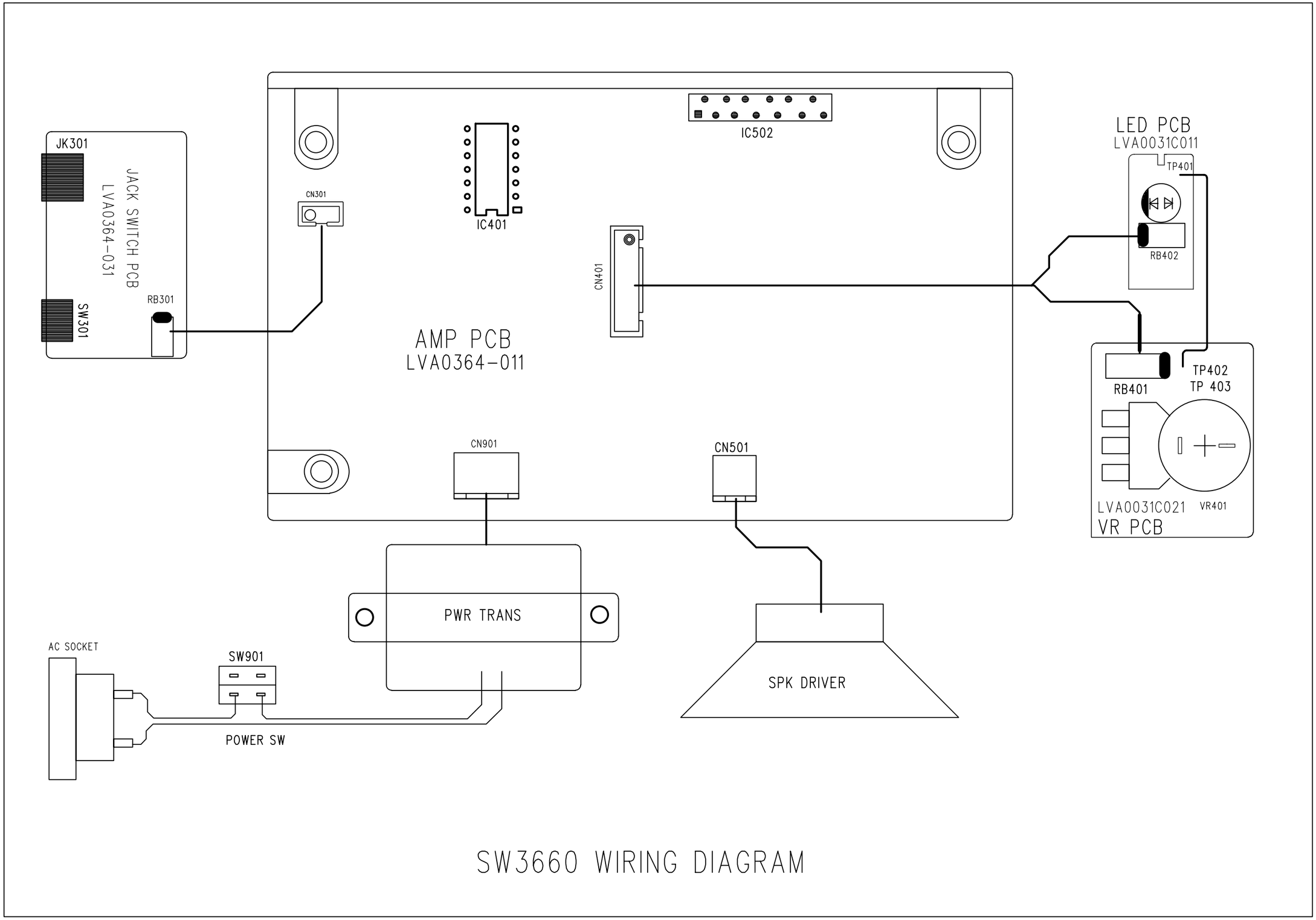
3-1

BLOCK DIAGRAM



3-2

WIRING DIRGRAM



SW3660 WIRING DIAGRAM

AMPLIFIER, JACK & LED / VR BOARD

TDA7296 INTERNAL IC DIAGRAM

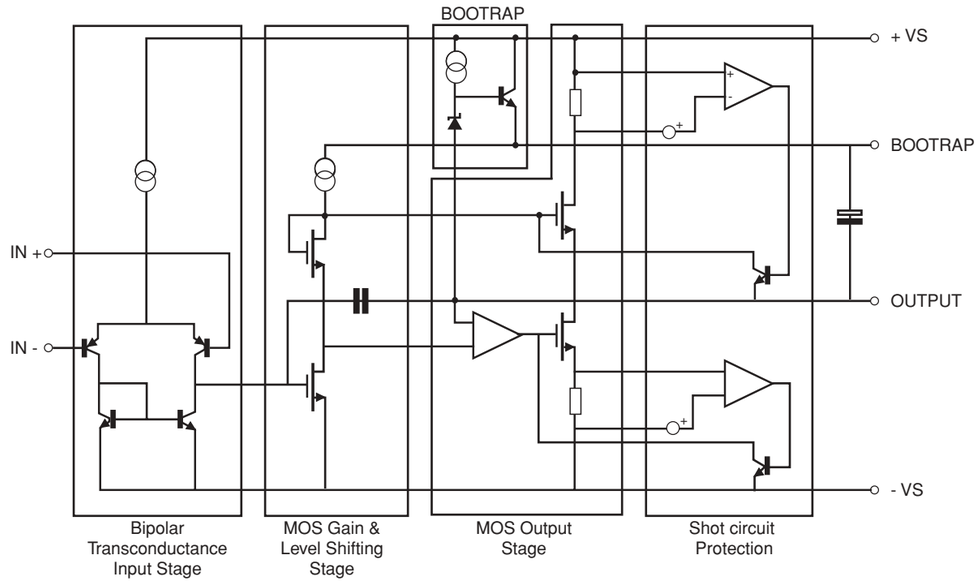
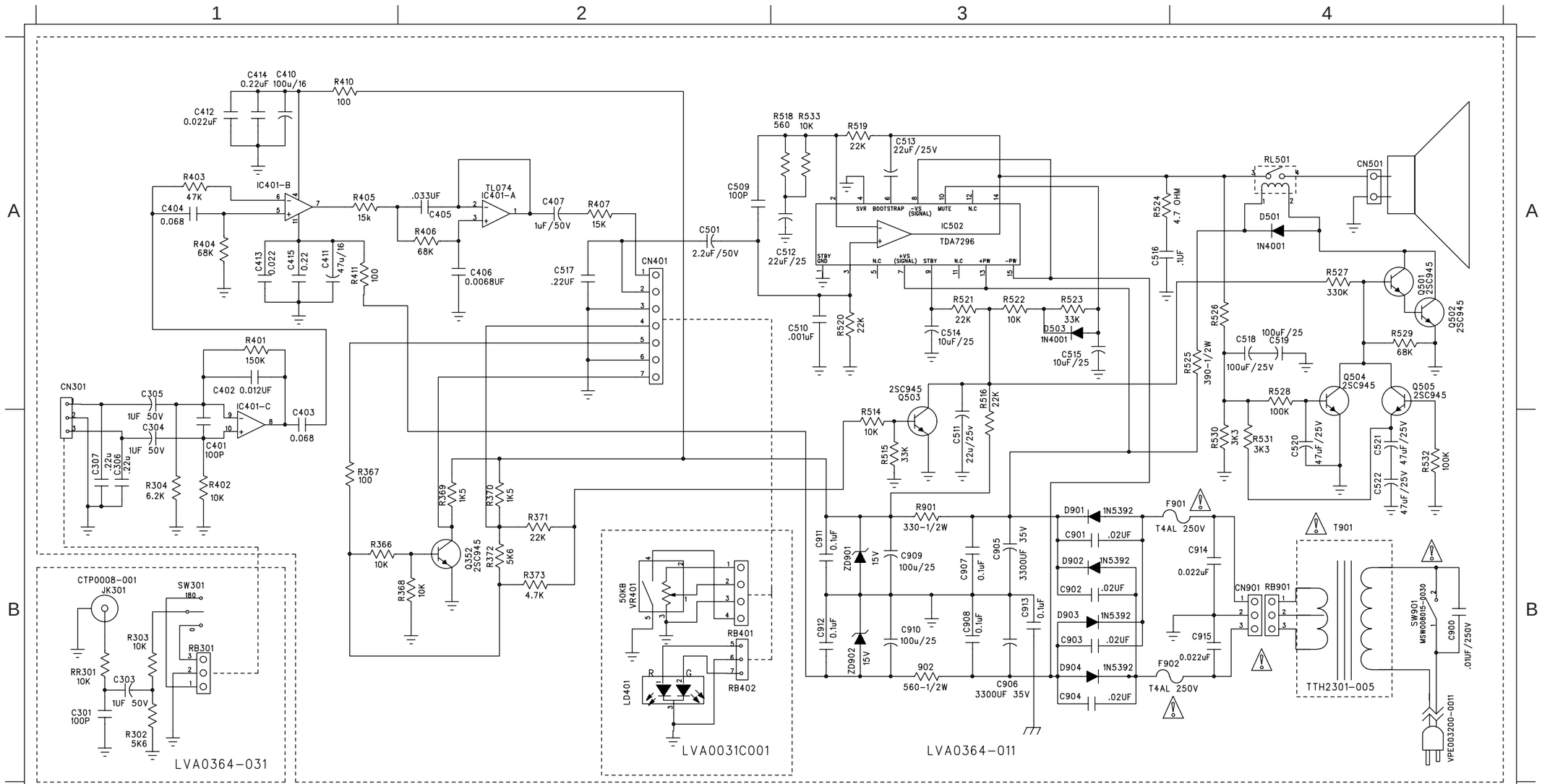


TABLE OF CONTENTS

4-2

CIRCUIT DIAGRAM

C301	B1	C403	B1	C413	A1	C513	A3	C521	B4	C906	B3	C914	B4	D901	B3	IC401/C	A1	Q504	A4	R368	B2	R403	A1	R515	B3	R524	A3	R532	B4	RL501	A4
C303	B1	C404	A1	C414	A1	C514	B3	C522	B4	C907	B3	C915	B4	D902	B3	IC502	A3	Q505	A4	R369	B2	R404	A1	R516	A3	R525	A4	R533	A3	SW301	B1
C304	B1	C405	A2	C415	A1	C515	A3	C900	B4	C908	B3	CN301	A1	D903	B3	JK301	B1	R301	B1	R370	B2	R405	A1	R518	A3	R526	A4	R901	B4	SW901	B4
C305	A1	C406	A2	C501	A2	C516	A3	C901	B3	C909	B3	CN401	A2	D904	B3	LD401	B3	R302	B1	R371	B2	R406	A2	R519	A3	R527	A4	R902	B3	T901	B4
C306	B1	C407	A2	C509	A2	C517	A2	C902	B3	C910	B3	CN501	A4	F901	B4	Q352	B2	R303	B1	R372	B2	R407	A2	R520	A3	R528	A4	RB301	B1	VR401	B2
C307	B1	C410	A1	C510	A3	C518	A4	C903	B3	C911	B3	CN901	B4	F902	B4	Q501	A4	R304	B1	R373	B2	R410	A1	R521	A3	R529	A4	RB401	B2	ZD901	B3
C401	B1	C411	A1	C511	B3	C519	A4	C904	B3	C912	B3	D501	A4	IC401/A	A2	Q502	A4	R366	B1	R401	A1	R411	A1	R522	A3	R530	B4	RB402	B2	ZD902	B3
C402	A1	C412	A1	C512	A3	C520	B4	C905	B3	C913	B3	D503	A3	IC401/B	A1	Q503	A3	R367	B1	R402	B1	R514	B3	R523	A3	R531	B4	RB901	B4		



IC502 (TDA7296)

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
VOLTAGE	0V	0V	0V	0V	0V	15.4V	26.2V	-26.3V	9.3V	8.9V	0V	0V	26.3V	0V	-26.3V

IC401 (TL074CN)

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
VOLTAGE	0V	0V	0V	13.4V	0V	0V	0V	0V	0V	0V	-13.3V	0V	0V	-12V	

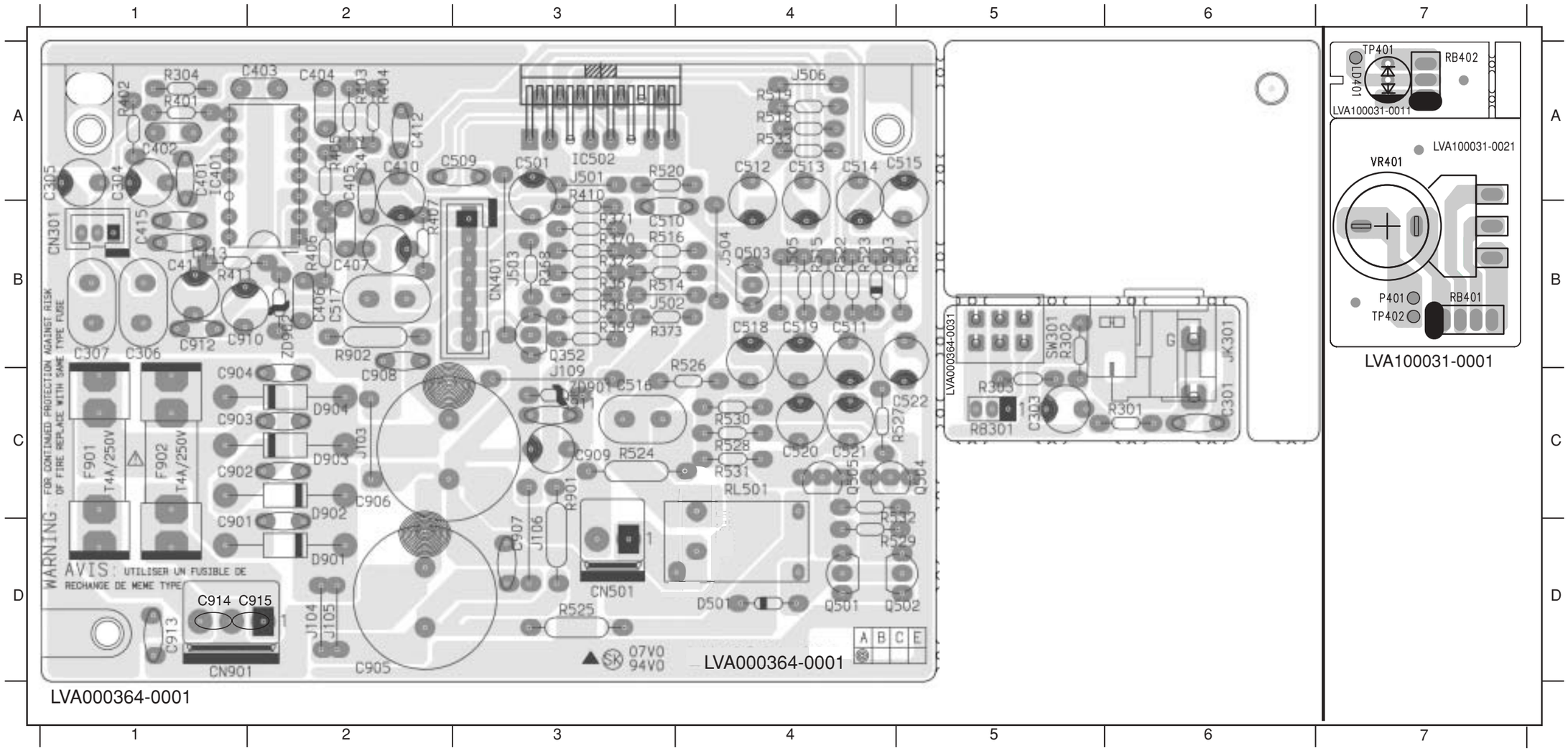
Transistor

Location \ Pin	B	C	E
Q352	0V	2.1V	0V
Q501	1.32V	0.8V	0.74V
Q502	0.7V	0.8V	0V
Q503	0V	11V	0V
Q504	0V	1.3V	0V
Q505	0V	1.3V	0V

4-3

PCB LAYOUT VIEW

C301	C6	C405	A2	C509	A2	C519	B4	C907	D3	CN401	B3	F902	C1	J503	B3	Q505	C4	R371	B3	R410	A3	R523	B4	R533	A4	P401	B7
C303	C5	C406	B2	C510	B3	C520	C4	C908	C2	CN501	D3	IC401	A1	J504	B4	R301	C6	R372	B3	R411	B1	R524	C3	R901	C3	RB401	B7
C304	A1	C407	B2	C511	B4	C521	C4	C909	C3	CN901	D1	IC502	A3	J505	B4	R302	B5	R373	B3	R514	B3	R525	D3	R902	B2	RB402	A7
C305	A1	C410	A2	C512	A4	C522	B5	C910	B1	D501	D4	J103	C2	J506	A4	R303	C5	R401	A1	R515	B4	R526	C4	RB301	C5	TP401	A7
C306	B1	C411	B1	C513	A4	C901	C2	C911	C3	D503	B4	J104	D2	JK301	B6	R304	A1	R402	A1	R516	B3	R527	C4	RL501	C4	TP402	B7
C307	B1	C412	A2	C514	A4	C902	C2	C912	B1	D901	D2	J105	D2	Q352	B3	R366	B3	R403	A2	R518	A4	R528	C4	SW301	B5	LD401	A7
C401	A1	C413	B1	C515	A5	C903	C2	C913	D1	D902	C2	J106	D3	Q501	D4	R367	B3	R404	A2	R519	A4	R529	D4	ZD901	C3	VR401	A7
C402	A1	C414	A2	C516	C3	C904	C2	C914	D2	D903	C2	J109	C3	Q502	D4	R368	B3	R405	A2	R520	A3	R530	C4	ZD902	B2		
C403	A2	C415	B1	C517	B2	C905	D2	C915	D2	D904	C2	J501	A3	Q503	B4	R369	B3	R406	B2	R521	B5	R531	C4				
C404	A2	C501	A3	C518	B4	C906	C2	CN301	B1	F901	C1	J502	B3	Q504	C4	R370	B3	R407	B2	R522	B4	R532	C4				



4-4

ELECTRICAL PARTS LIST - AMPLIFIER, JACK SWITCH, LED & VR BOARDS

ELECTRICAL PARTS LIST - AMPLIFIER, JACK SWITCH, LED & VR BOARDS

MISCELLANEOUS

CN901	9965 000 12617	⚠	CONNECTOR 3P PITCH=3.96mm
F901	9965 000 20663	⚠	FUSE 4A 250V SLOW
F902	9965 000 20663	⚠	FUSE 4A 250V SLOW
JK301	4822 267 41238		RCA JACK 1P
LD401	9965 000 19944		LED 3 DIA GREEN/RED
RL501	9965 000 15937		RELAY
SW301	4822 277 11821		SLIDE SWITCH
VR401	9965 000 19945		CONTROL ROTARY 50K OHM B

CAPACITORS

C301	4822 122 33293	100pF 5% 50V
C303	4822 124 21913	1uF 20% 63V
C304	4822 124 21913	1uF 20% 63V
C305	4822 124 21913	1uF 20% 63V
C306	9965 000 16360	COND MYLAR 0.22uF 100V 5%
C307	9965 000 16360	COND MYLAR 0.22uF 100V 5%
C401	4822 122 33293	100pF 5% 50V
C402	4822 121 41935	12nF 5% 250V
C403	5322 121 42662	68nF 5% 250V
C404	5322 121 42662	68nF 5% 250V
C405	5322 121 42489	33nF 5% 250V
C406	4822 121 42077	6,8nF 10% 400V
C407	4822 124 21913	1uF 20% 63V
C410	9965 000 19946	COND ELECT 47uF 16V 20%
C411	9965 000 19946	COND ELECT 47uF 16V 20%
C412	4822 122 30103	22nF +80/-20% 63V
C413	4822 122 30103	22nF +80/-20% 63V
C414	9965 000 19962	COND DISC 0.22uF 50V +80/-20%
C415	9965 000 19962	COND DISC 0.22uF 50V +80/-20%
C501	9965 000 16318	COND ELECT 2.2uF 50V 20%
C509	4822 122 33293	100pF 5% 50V
C510	5322 122 32331	1nF 10% 100V
C511	9965 000 16324	COND ELECT 22uF 25V 20%
C512	9965 000 16324	COND ELECT 22uF 25V 20%
C513	9965 000 16324	COND ELECT 22uF 25V 20%
C514	9965 000 16356	COND ELECT 10uF 50V 20%
C515	9965 000 16356	COND ELECT 10uF 50V 20%
C516	5322 121 42578	100nF 5% 250V
C517	9965 000 16360	COND MYLAR 0.22uF 100V 5%
C518	9965 000 16327	COND ELECT 100uF 25V 20%
C519	9965 000 16317	COND ELECT 100uF 16V 20%
C520	9965 000 16356	COND ELECT 10uF 50V 20%
C521	9965 000 16323	COND ELECT 47uF 25V 20%
C522	9965 000 16323	COND ELECT 47uF 25V 20%
C900	9965 000 15941	COND SAFTY 0.01uF 250V 20%
C901	4822 122 30103	22nF +80/-20% 63V
C902	4822 122 30103	22nF +80/-20% 63V
C903	4822 122 30103	22nF +80/-20% 63V
C904	4822 122 30103	22nF +80/-20% 63V
C905	9965 000 19963	COND ELECT 3300uF 35V 20%
C906	9965 000 19963	COND ELECT 3300uF 35V 20%
C907	2038 554 00065	100nF +80/-20% Y5V 50V
C908	2038 554 00065	100nF +80/-20% Y5V 50V
C909	9965 000 16317	COND ELECT 100uF 16V 20%
C910	9965 000 16327	COND ELECT 100uF 25V 20%
C911	2038 554 00065	100nF +80/-20% Y5V 50V
C912	2038 554 00065	100nF +80/-20% Y5V 50V
C913	2038 554 00065	100nF +80/-20% Y5V 50V
C914	9965 000 20664	COND DISC 0.022uF 100V +80/-20%
C915	9965 000 20664	COND DISC 0.022uF 100V +80/-20%

RESISTORS

R301	4822 050 21003	10k 1% 0,6W
R302	4822 050 25602	5k6 1% 0,6W
R303	4822 050 21003	10k 1% 0,6W
R304	4822 050 26202	6k2 1% 0,6W
R366	4822 050 21003	10k 1% 0,6W
R367	4822 050 21001	100R 1% 0,6W
R368	4822 050 21003	10k 1% 0,6W
R369	4822 050 21502	1k5 1% 0,6W
R370	4822 050 21502	1k5 1% 0,6W
R371	4822 050 22203	22k 1% 0,6W
R372	4822 050 25602	5k6 1% 0,6W
R373	4822 050 22702	2k7 1% 0,6W
R401	4822 050 21504	150k 1% 0,6W
R402	4822 050 21003	10k 1% 0,6W
R403	4822 050 24703	47k 1% 0,6W
R404	9965 000 19964	RESISTOR 68k OHM 1/6W 5% CF
R405	4822 050 21503	15k 1% 0,6W
R406	9965 000 19964	RESISTOR 68k OHM 1/6W 5% CF
R407	4822 050 22203	22k 1% 0,6W
R410	4822 050 21001	100R 1% 0,6W
R411	4822 050 21001	100R 1% 0,6W
R514	4822 050 21003	10k 1% 0,6W
R515	4822 050 23303	33k 1% 0,6W
R516	4822 050 22203	22k 1% 0,6W
R518	4822 050 25601	560R 1% 0,6W
R519	4822 050 22203	22k 1% 0,6W
R520	4822 050 22203	22k 1% 0,6W
R521	4822 050 22203	22k 1% 0,6W
R522	4822 050 21003	10k 1% 0,6W
R523	4822 050 23303	33k 1% 0,6W
R524	4822 116 81753	4R7 5% 0,5W
R525	9965 000 19965	RESISTOR 390 OHM 1/2W 5% CF
R526	9965 000 19966	RESISTOR 3.3k OHM 1/6W 5% CF
R527	9965 000 19967	RESISTOR 330k OHM 1/6W 5% CF
R528	4822 050 21004	100k 1% 0,6W
R529	9965 000 19964	RESISTOR 68k OHM 1/6W 5% CF
R530	9965 000 19966	RESISTOR 3.3k OHM 1/6W 5% CF
R531	9965 000 19966	RESISTOR 3.3k OHM 1/6W 5% CF
R532	4822 050 21004	100k 1% 0,6W
R533	4822 050 21003	10k 1% 0,6W
R901	9965 000 19968	RESISTOR 330 OHM 1/2W 5% CF
R902	9965 000 19969	RESISTOR 560 OHM 1/2W 5% CF

DIODES

D501	4822 130 31438		1N4001G
D503	4822 130 30621		1N4148
D901	9965 000 19970	⚠	DIODE 1N5392 1.5A 100V
D902	9965 000 19970	⚠	DIODE 1N5392 1.5A 100V
D903	9965 000 19970	⚠	DIODE 1N5392 1.5A 100V
D904	9965 000 19970	⚠	DIODE 1N5392 1.5A 100V
ZD901	9965 000 19971		DIODE ZENR 13.5-14.0V 0.5W
ZD902	9965 000 19971		DIODE ZENR 13.5-14.0V 0.5W

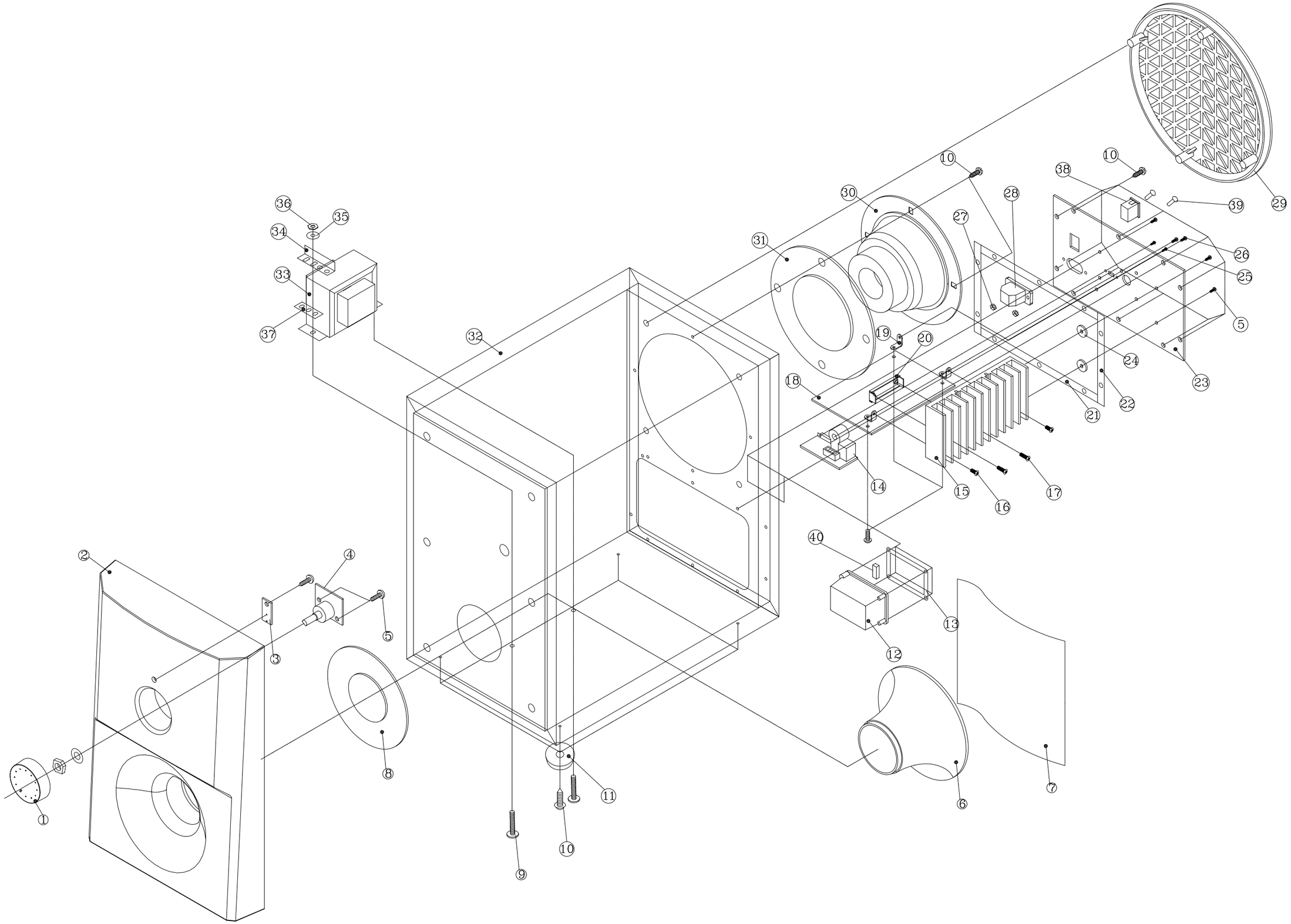
TRANSISTORS & INTEGRATED CIRCUITS

Q352	4822 130 41198	2SC945P
Q501	4822 130 41198	2SC945P
Q502	4822 130 41198	2SC945P
Q503	4822 130 41198	2SC945P
Q504	4822 130 41198	2SC945P
Q505	4822 130 41198	2SC945P
IC401	4822 209 32742	TL074CN
IC502	4822 209 16935	TDA7296

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

5-1

SW3660 Exploded Drawing



5-2

MECHANICAL & ACCESSORIES PARTS LIST - MAIN UNIT

1	9965 000 19938		VOLUME KNOB
2	9965 000 19939		FRONT CABINET
6+7	9965 000 19940		PORT TUBE & NET CLOTH ASSEMBLY
11	9965 000 15951		FOOT
28	9965 000 20576	⚠	AC SOCKET SO-222-PC-S (TECX)
29	9965 000 15949		SPEAKER GRILLE
30	9965 000 19942		SPEAKER DRIVER 40W 6.5" 4 OHM
31	4822 532 13065		SPEAKER SPONGE
33	9965 000 20661	⚠	POWER TRANSFORMER EI-66 230V 40W
38	9965 000 20662	⚠	SW ROCKER 16A/250V
	9965 000 16314		RCA CABLE 3000mm BLK D2.44mm
	9965 000 15983	⚠	MAINS CORD (For /21H version)
	9965 000 18375	⚠	MAINS CORD (For /30 version)

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

SCREW LISTS - MAIN UNIT

5	D3 x 8
9	M4 x 25
10	D3.5 x 14
16	M3 x 8
17	M3 x 14
25	M2 x 6
26	D3 x 10
39	M3 x 12