Active Subwoofer

SW3600/17S

Service
Service
Service

Service Manual

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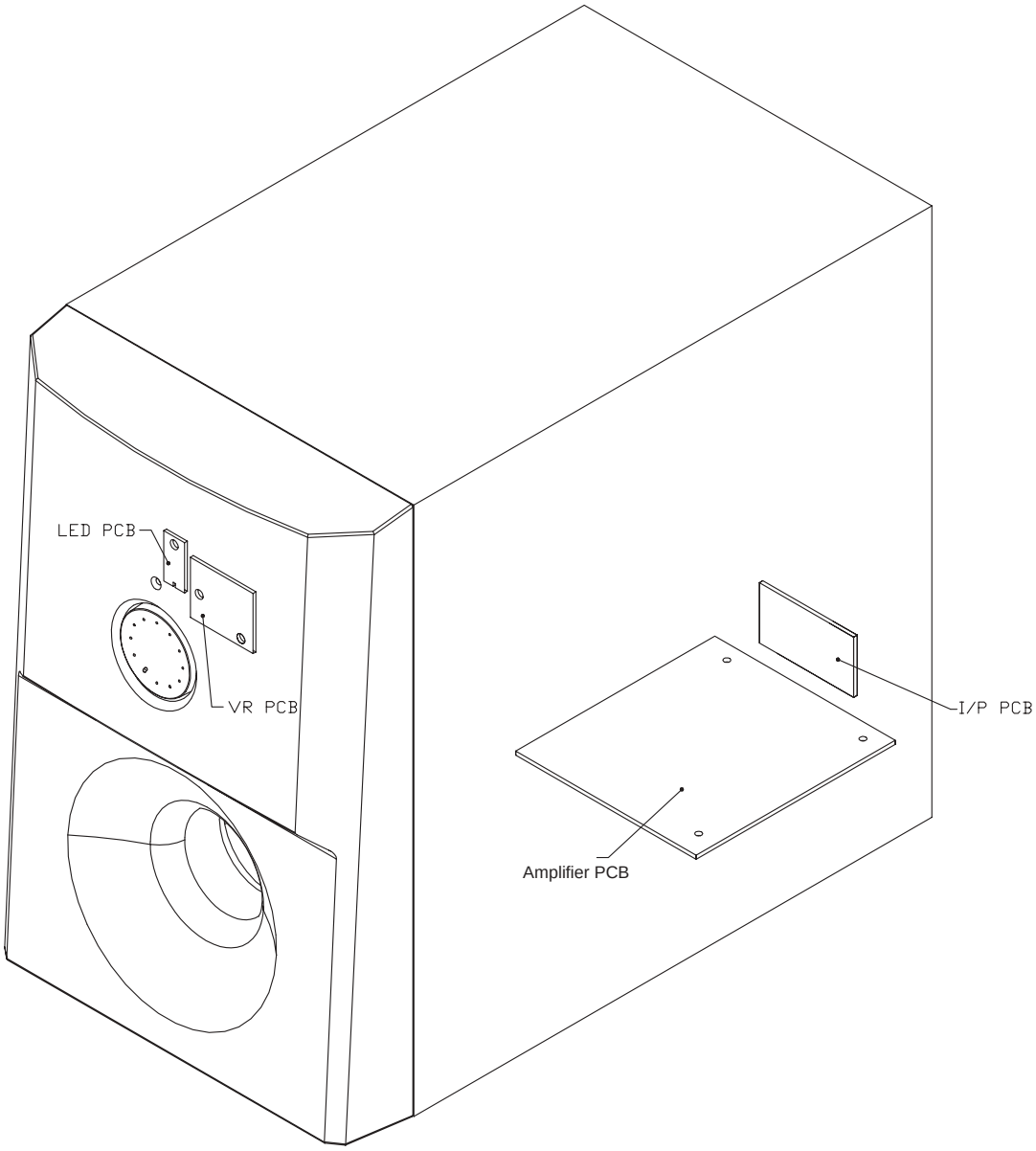
Version 1.0

PHILIPS

LOCATION OF PC BOARDS

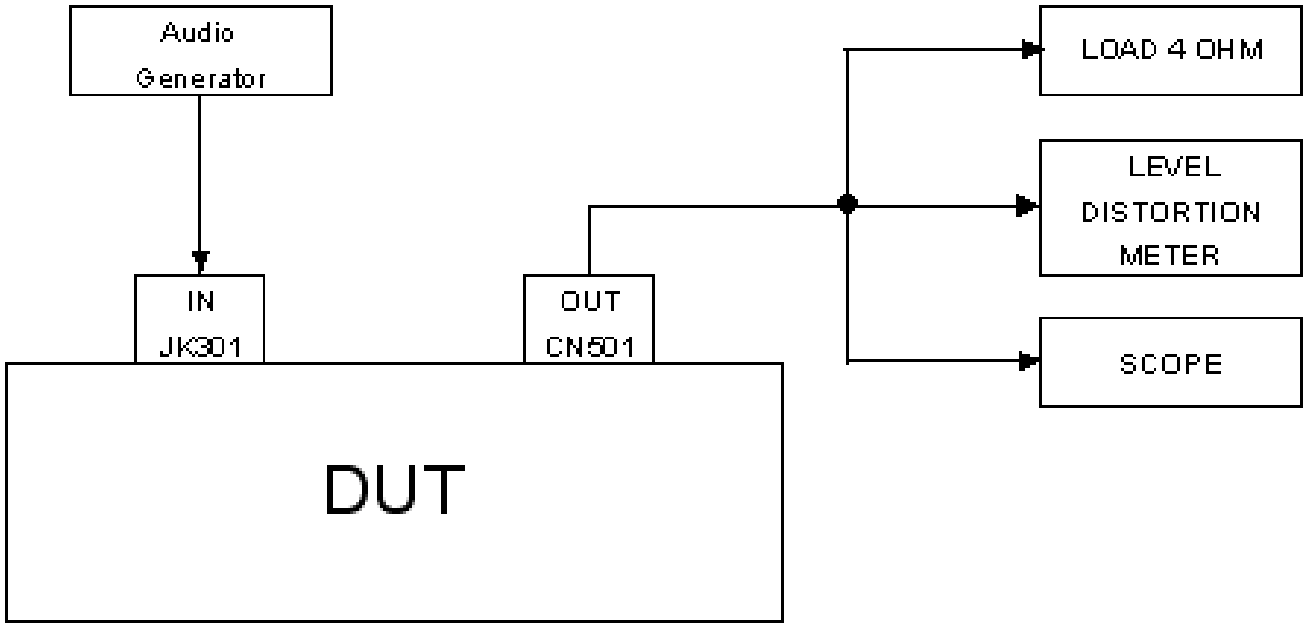


SPECIFICATIONS

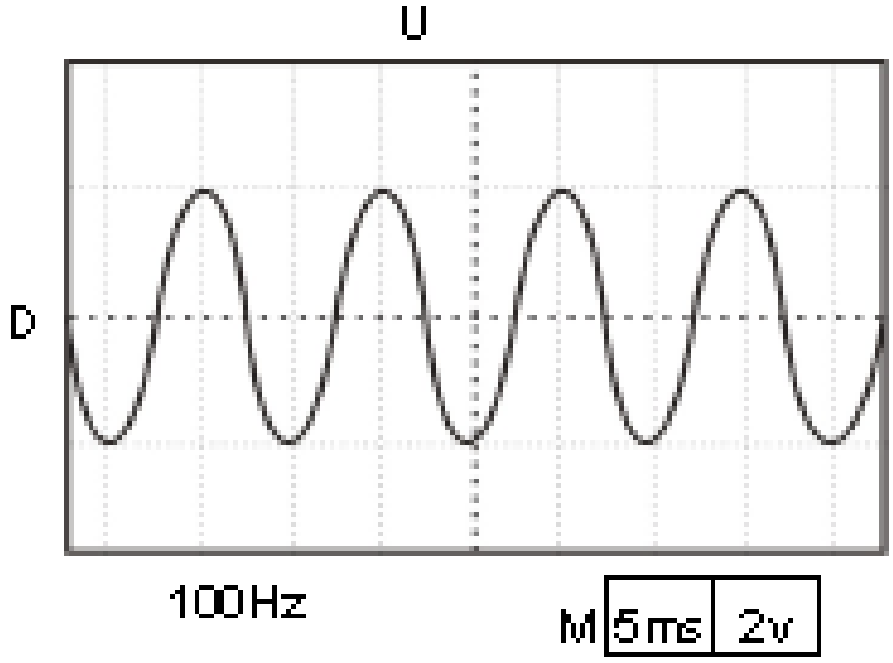
SUBWOOFER

Subwoofer (not magnetically shielded design).....6.5"
Output Power.....50W (4Ω,DIN)
THD (Total Harmonic Distortion) .....10% at 55 Hz
Reproduction Frequency Response.....40 Hz-150 Hz
Phase Switch.....0^{0},180^{0}
Input Sensitivity (Subwoofer In).....500 mVrms
AC Power .....120V / 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.....6.8 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 Grill Base & Speaker Driver

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

Caution: Take care the surface when take out the Grill Base of Subwoofer

Picture 1

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

WARNING: ONLY THE LED & VR PCBS ARE BETWEEN THE FRONT PANEL AND WOOD BOX. UNLESS NECCESSARY, DON'T TRY TO OPEN THE FRONT PANEL!!!

Picture 3

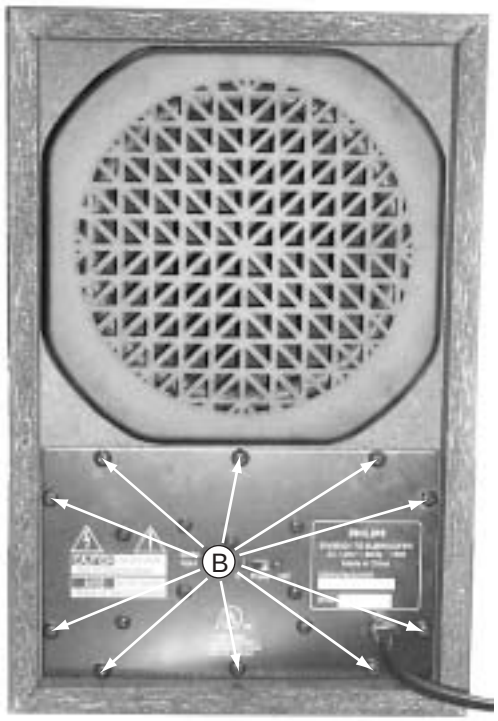
2. Place the Subwoofer Box as shown in the Picture 2 and loosen 4 screws A to remove the Speaker Driver.

Picture 2

Dismantling the 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.

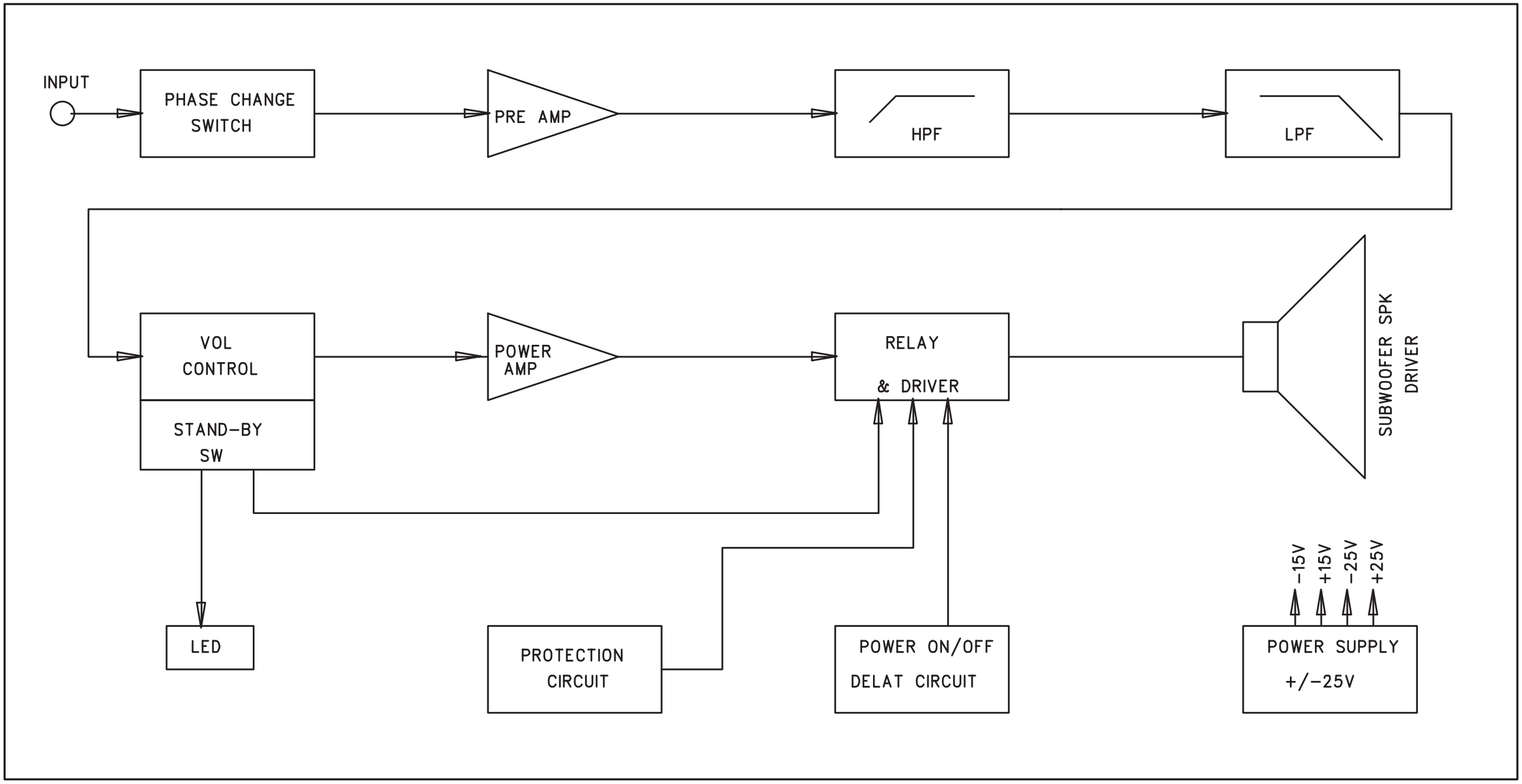


Picture 4

SERVICE POSITION

3-1

SET BLOCK DIAGRAM



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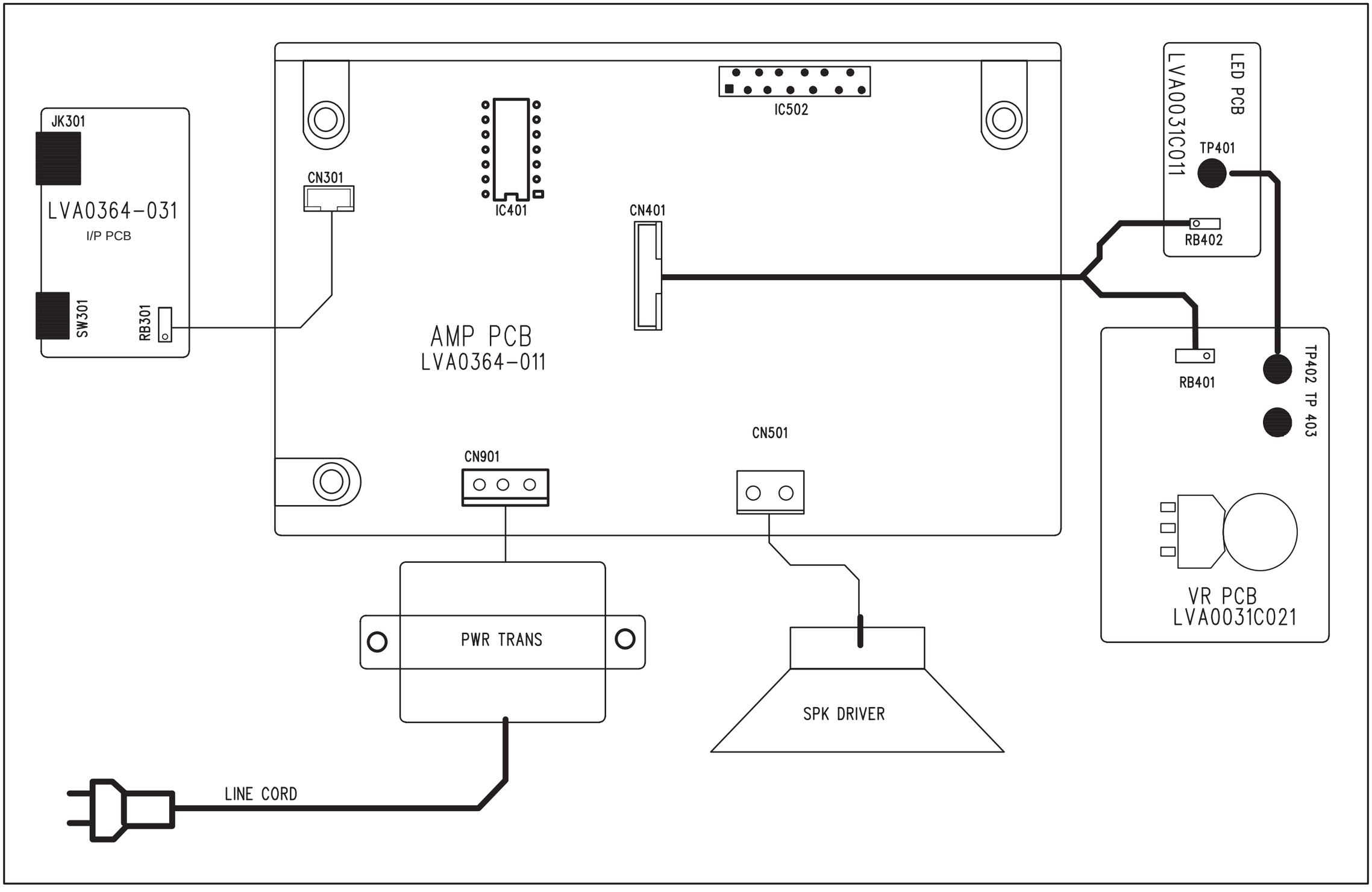
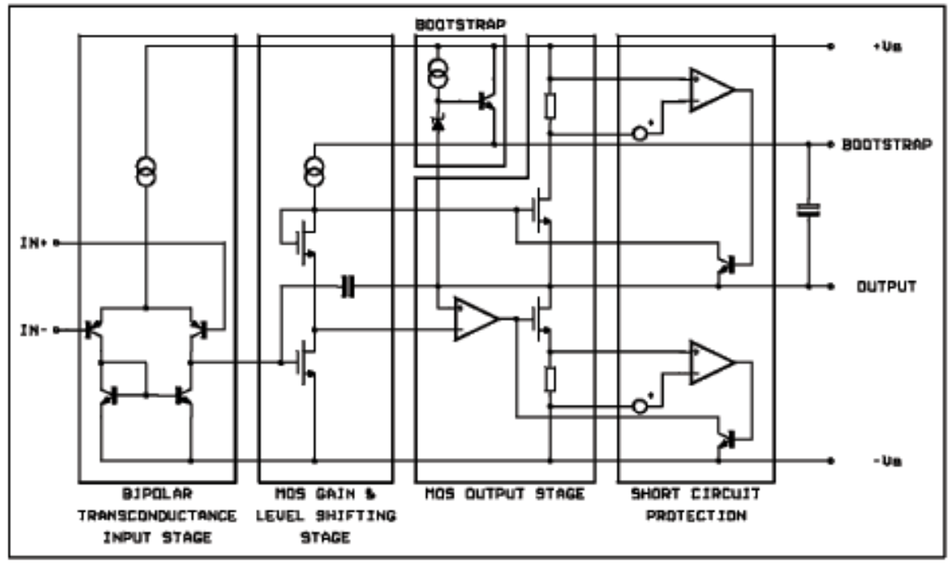
SET WIRING DIRGRAM



AMPLIFIER, I/P & LED / VR BOARD

4-1

TDA7296 INTERNAL IC DIAGRAM



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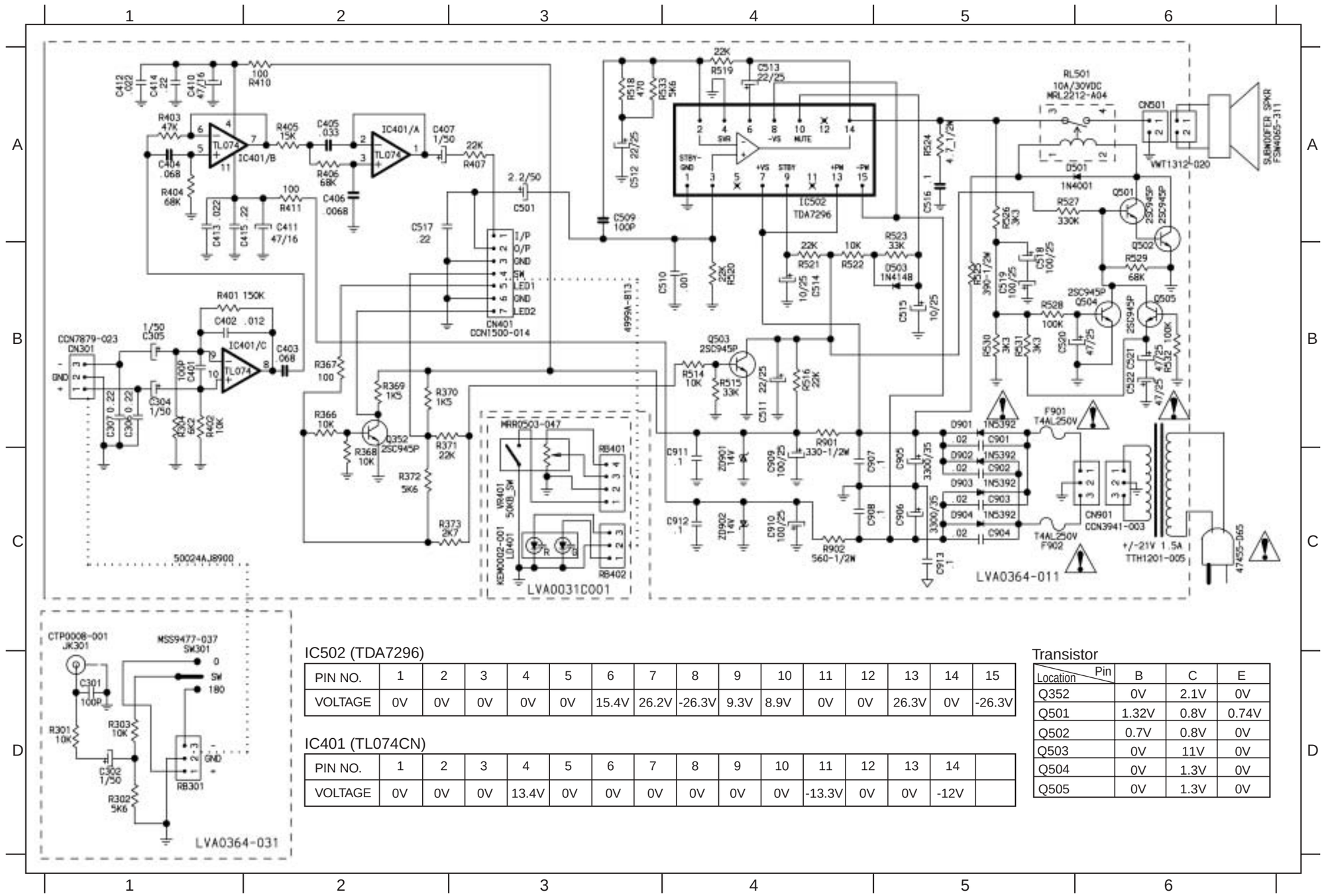
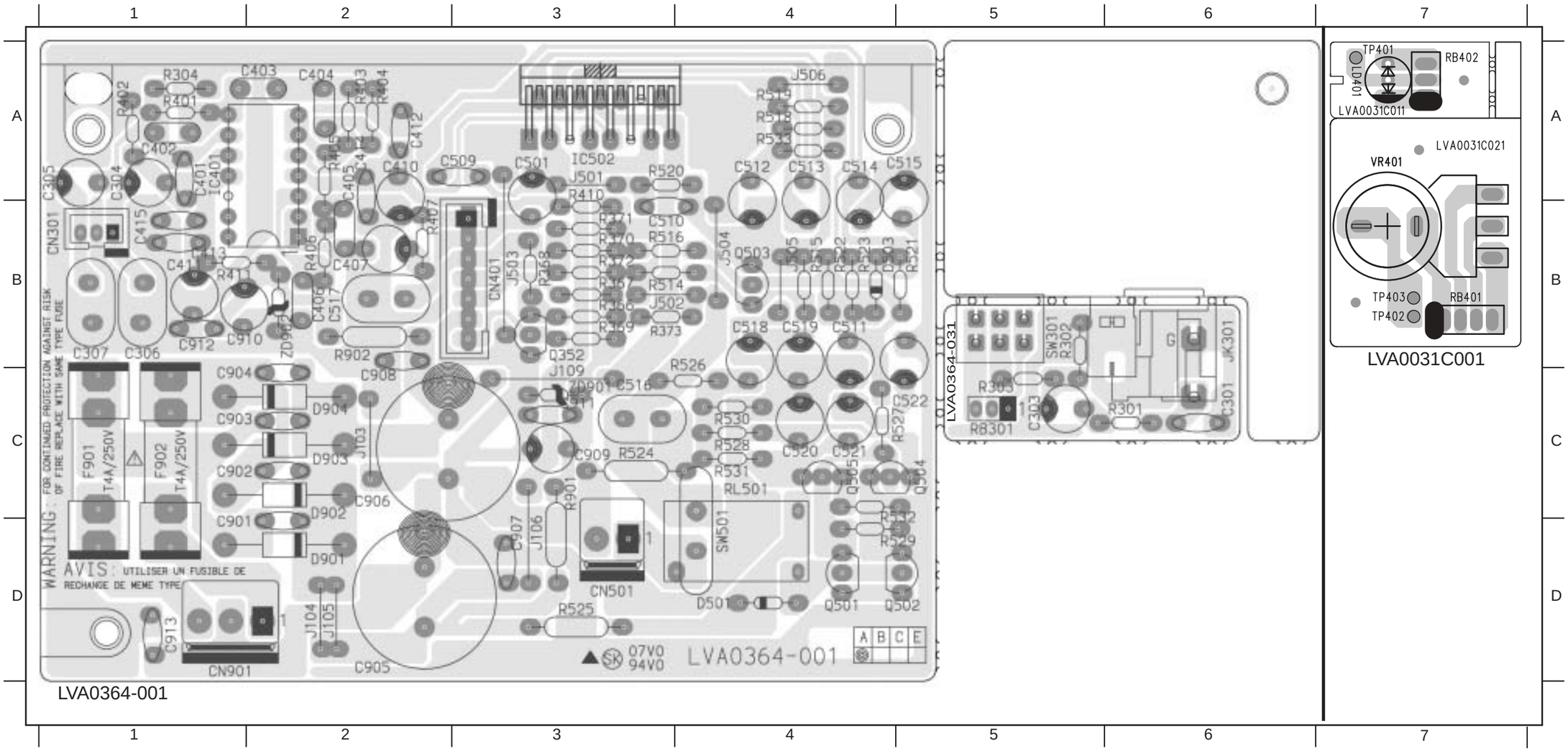
CIRCUIT DIAGRAM



4-3

PCB LAYOUT VIEW

C301	C6	C405	A2	C509	A2	C520	C4	C908	C2	D501	D4	J103	C2	J506	A4	R301	C6	R372	B3	R411	B1	R524	C3	R901	C3	RB401	B7
C303	C5	C406	B2	C510	B3	C521	C4	C909	C3	D503	B4	J104	D2	JK301	B6	R302	B5	R373	B3	R514	B3	R525	D3	R902	B2	RB402	A7
C304	A1	C407	B2	C511	B4	C522	B5	C910	B1	D901	D2	J105	D2	LD401	C6	R303	C5	R401	A1	R515	B4	R526	C4	RB301	C5	TP401	A7
C305	A1	C410	A2	C512	A4	C901	C2	C911	C3	D902	C2	J106	D3	P401	C5	R304	A1	R402	A1	R518	A4	R527	C4	RB401	D6	TP402	B7
C306	B1	C411	B1	C513	A4	C902	C2	C912	B1	D903	C2	J109	C3	Q501	D4	R366	B3	R403	A2	R519	A4	R528	C4	RL501	C4	TP403	B7
C307	B1	C412	A2	C514	A4	C903	C2	C913	D1	D904	C2	J501	A3	Q502	D4	R367	B3	R404	A2	R516	B3	R529	D4	SW301	B5	LD401	A7
C401	A1	C413	B1	C516	C3	C904	C2	CN301	B1	F901	C1	J502	B3	Q503	B4	R368	B3	R405	A2	R520	A3	R530	C4	SW501	D4	VR401	A7
C402	A1	C414	A2	C517	B2	C905	D2	CN401	B3	F902	C1	J503	B3	Q504	C4	R369	B3	R406	B2	R521	B5	R531	C4	VR401	D5		
C403	A2	C415	B1	C518	B4	C906	C2	CN501	D3	IC401	A1	J504	B4	Q505	C4	R370	B3	R407	B2	R522	B4	R532	C4	ZD901	C3		
C404	A2	C501	A3	C519	B4	C907	D3	CN901	D1	IC502	A3	J505	B4	Q352	B3	R371	B3	R410	A3	R523	B4	R533	A4	ZD902	B2		



LVA0364-001

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ELECTRICAL PARTS LIST - AMPLIFIER, I/P, LED & VR BOARDS

ELECTRICAL PARTS LIST - AMPLIFIER, I/P, LED & VR BOARDS

MISCELLANEOUS

CN901	9965 000 12617	⚠	CONNECTOR 3PIN PITCH=3,96 M
F901	9965 000 14288	⚠	FUSE T4A 250V SLOW
F902	9965 000 14288	⚠	FUSE T4A 250V SLOW
JK301	4822 267 41238		JACK 1T GREEN
RL501	9965 000 09708		RELAY GJ-SH-112DM 320R
SW301	4822 277 11821		SLIDE SWITCH
VR401	4822 101 11919		50KB POTM+SWITCH

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 07093	0,22uF 100V 5%
C307	9965 000 07093	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	4822 124 23056	47uF 20% 16V
C411	4822 124 23056	47uF 20% 16V
C412	4822 122 30103	22nF 80% 63V
C413	4822 122 30103	22nF 80% 63V
C414	9965 000 03366	0,22uF 50V +80/-20%
C415	9965 000 03366	0,22uF 50V +80/-20%
C501	4822 124 22652	2,2uF 20% 50V
C509	4822 122 33293	100pF 5% 50V
C510	5322 122 32331	1nF 10% 100V
C511	5322 124 41945	22uF 20% 35V
C512	5322 124 41945	22uF 20% 35V
C513	5322 124 41945	22uF 20% 35V
C514	4822 124 40248	10uF 20% 63V
C515	4822 124 40248	10uF 20% 63V
C516	5322 121 42578	100nF 5% 250V
C517	9965 000 07093	0,22uF 100V 5%
C518	4822 124 40207	100uF 20% 25V
C519	4822 124 40207	100uF 20% 25V
C520	4822 124 40248	10uF 20% 63V
C521	4822 124 40433	47uF 20% 25V
C522	4822 124 40433	47uF 20% 25V
C901	4822 122 30103	22nF 80% 63V
C902	4822 122 30103	22nF 80% 63V
C903	4822 122 30103	22nF 80% 63V
C904	4822 122 30103	22nF 80% 63V
C905	4822 124 42402	3300uF 35V 20%
C906	4822 124 42402	3300uF 35V 20%
C907	2038 554 00065	100nF +80/-20% 50V
C908	2038 554 00065	100nF +80/-20% 50V
C909	4822 124 40207	100uF 20% 25V
C910	4822 124 40207	100uF 20% 25V
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

RESISTORS

R301	4822 050 21003	10K 1% 0,6W
R302	4822 050 25602	5,6K 1% 0,6W
R303	4822 050 21003	10K 1% 0,6W
R304	4822 050 26202	6,2K 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	1,5K 1% 0,6W
R370	4822 050 21502	1,5K 1% 0,6W
R371	4822 050 22203	22K 1% 0,6W
R372	4822 050 25602	5,6K 1% 0,6W
R373	4822 050 22702	2,7K 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	4822 050 26803	68K 1% 0,6W
R405	4822 050 21503	15K 1% 0,6W
R406	4822 050 26803	68K 1% 0,6W
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	9965 000 14289	10K 1/6W 5% CF
R523	4822 050 23303	33K 1% 0,6W
R524	4822 116 81753	4,7R 5% 0,5W
R525	4822 050 23901	390R 1% 0,6W
R526	4822 050 23302	3,3K 1% 0,6W
R527	4822 050 23304	330K 1% 0,6W
R528	4822 050 21004	100K 1% 0,6W
R529	4822 050 26803	68K 1% 0,6W
R530	4822 050 23302	3,3K 1% 0,6W
R531	4822 050 23302	3,3K 1% 0,6W
R532	4822 050 21004	100K 1% 0,6W
R533	4822 050 21003	10K 1% 0,6W
R901	9965 000 12592	330R 1/6W 5% CF
R902	4822 050 25601	560R 1% 0,6W

DIODES

D501	4822 130 31438	1N4001G
D503	4822 130 30621	1N4148
D901	4822 130 31878 ⚠	1N4003G
D902	4822 130 31878 ⚠	1N4003G
D903	4822 130 31878 ⚠	1N4003G
D904	4822 130 31878 ⚠	1N4003G
ZD901	4822 130 34195	BZX79-B13
ZD902	4822 130 34195	BZX79-B13

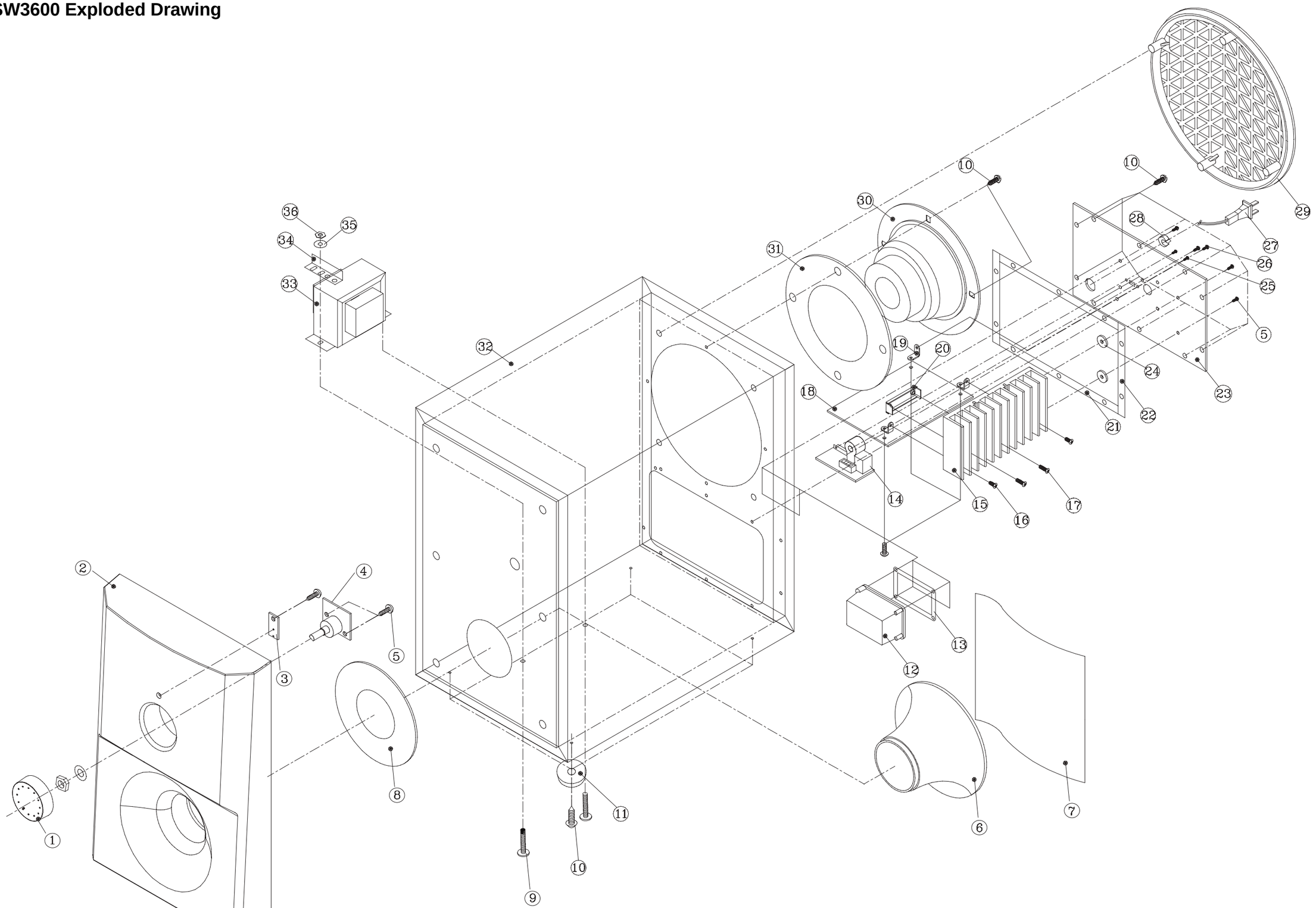
TRANSISTORS & INTEGRATED CIRCUITS

IC401	4822 209 32742		TL074IN
IC502	4822 209 16935	⚠	TDA7296
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

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

5-1

SW3600 Exploded Drawing



5-2

MECHANICAL & ACCESSORIES PARTS LIST - MAIN UINT

1	9965 000 14284		VOLUME KNOB
2	9965 000 14285		FRONT CAB
6	9965 000 14286		PORT
7	9965 000 03365		CLOTH (185 X 185MM)
11	9965 000 03360		FOOT
27	9965 000 14296	⚠	MAINS CORD, FIXED
28	9965 000 07092		BUSHING
29	4822 458 10658		SPEAKER GRILLE
30	9965 000 03361		SPEAKER DRIVER 6,5 4OHM 40W
31	4822 532 13065		WASHER
33	9965 000 03362	⚠	POWER TRANSFORMER 120V

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

SCREW LIST - MAIN UINT

5	D3 x 8
9	M4 x 20
10	D3.5 x 14
16	D3 x 8
17	M3 x 14
25	M2 x 6
26	D3 x 10