

ROTEL *hi-fi*

RB-976

6/5/4/3 Channel Power Amplifier
With Input Link Capability

Technical Manual

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THE ROTEL CO.,LTD.

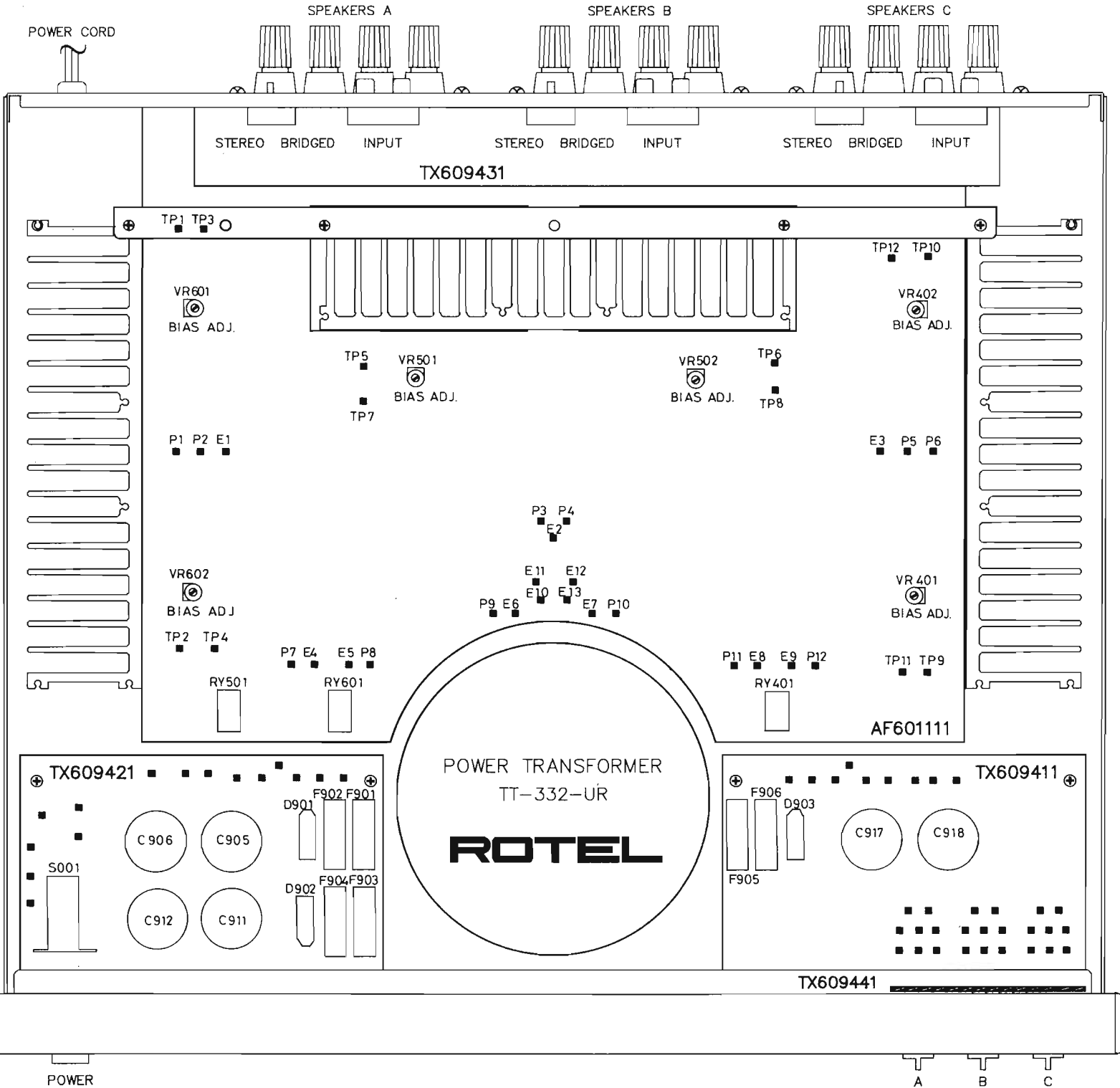
4F,BUNZAN-SHINSEN-BLDG 10-10, SHINSEN-CHO, SHIBUYAKU TOKYO JAPAN

ROTEL ELECTRONICS CO.,LTD.

3F-2, NO.35, FU HSING NORTH ROAD, TAIPEI, TAIWAN, REPUBLIC OF CHINA

MN20002371

Chassis Layout



SPECIFICATIONS:

Continuous Power Output (20-20 kHz, $\leq 0.03\%$, 8 ohms)	60 watts/ch.
(20-20 kHz, $\leq 0.05\%$, 4 ohms)	100 watts/ch.
Bridged Mono Power Output (20-20 kHz, $\leq 0.1\%$ THD, 8 ohms)	150 watts
Total Harmonic Distortion (20 Hz-20 kHz, 8 ohms)	$\leq 0.03\%$
Intermodulation Distortion (60 Hz : 7 kHz, 4:1)	$\leq 0.03\%$
Frequency Response	15-100,000 Hz, ± 1 dB
Damping Factor (20-20,000 Hz, 8 ohms)	150
Speaker Impedance (Normal mode)	4 ohms minimum
(Bridged mode)	8 ohms minimum
Signal to Noise Ratio (IHF A network)	116 dB
Input Impedance/Sensitivity	22 k Ohms/1.5 volt
Power Requirements	115 Volts, 60 Hz or 230 Volts, 50 Hz
Power Consumption	700 Watts
Dimensions (W, H, D)	440 x 121 x 400 mm 17.38 x 4.76 x 15.75"
Weight (net)	11.8 kg, 26 lb.

All specifications are accurate at the time of printing. Rotel reserves the right to make improvements without notice.

Power Amplifier Bias Adjustment

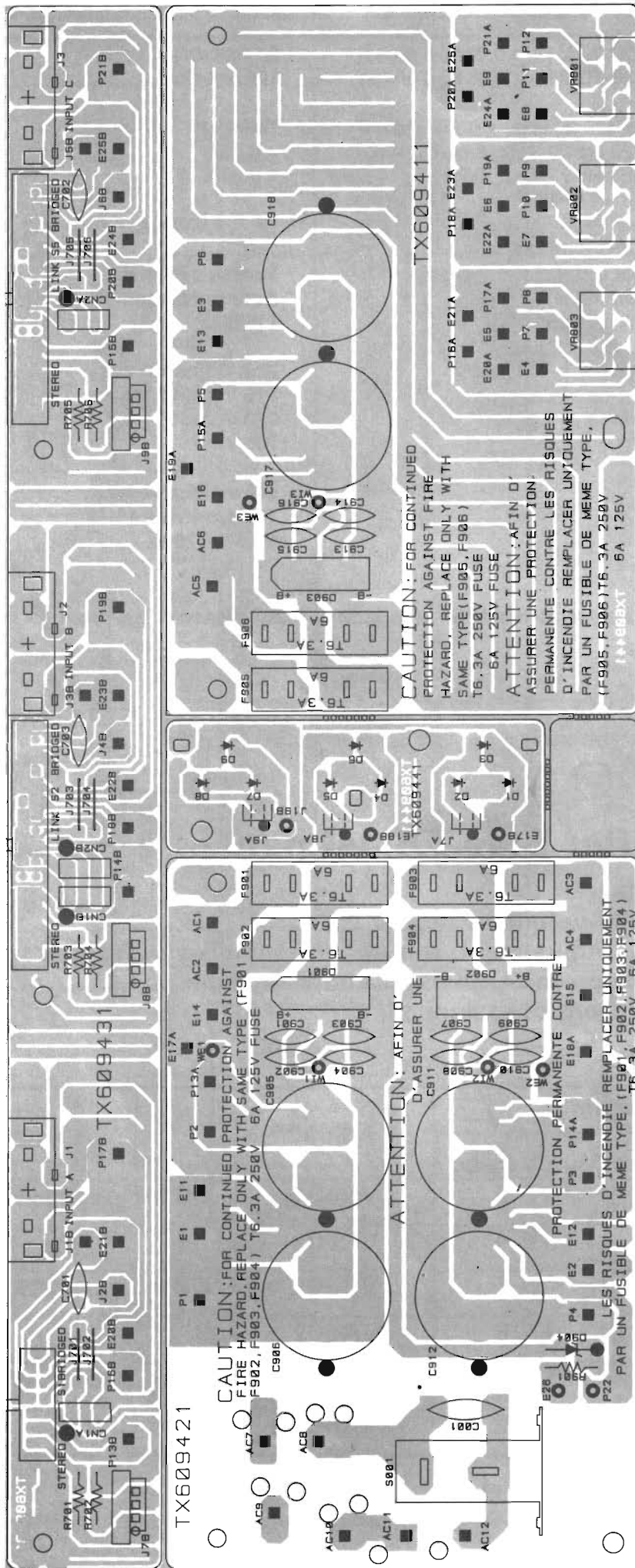
Instruments : DC milli-voltmeter

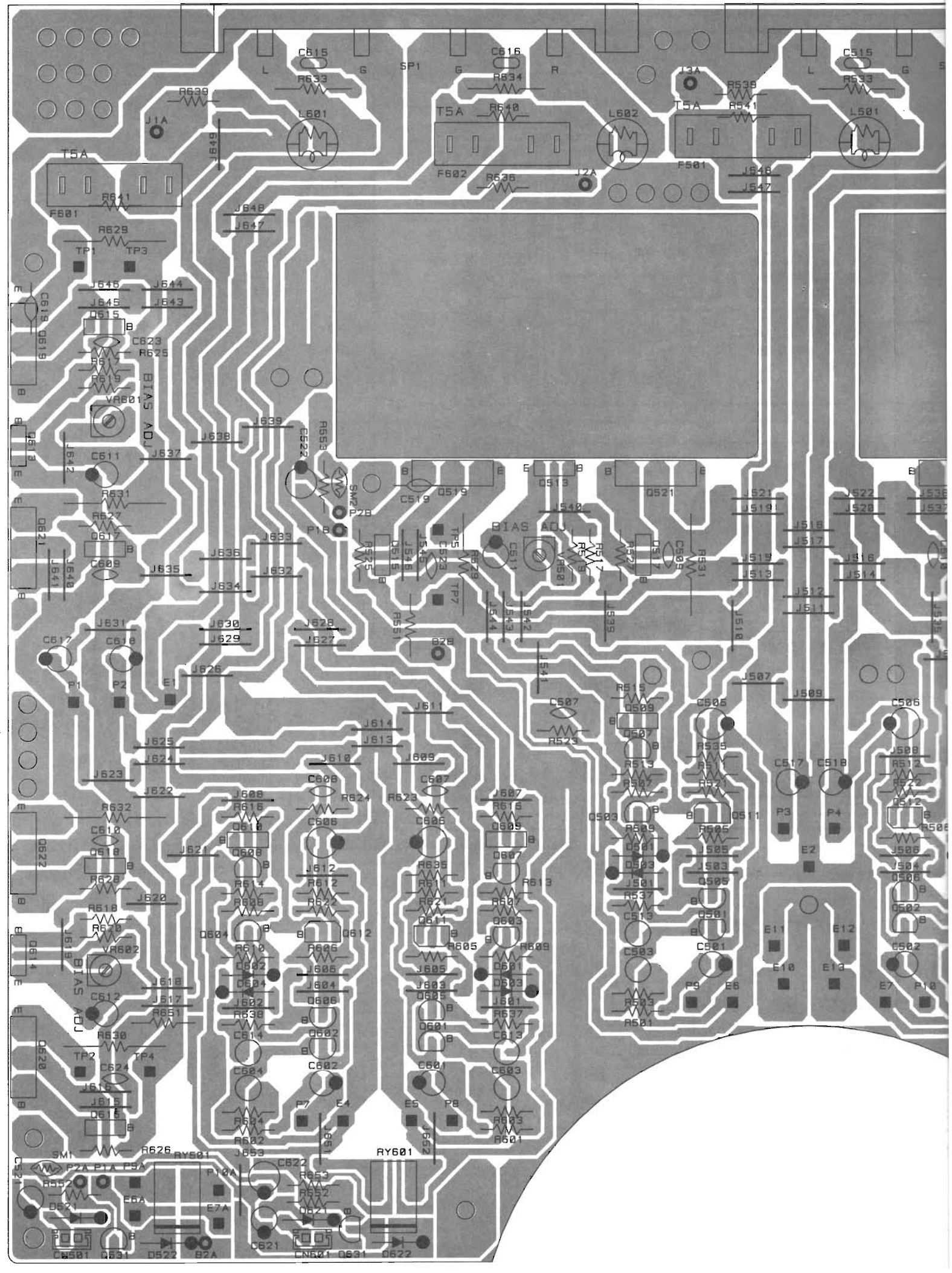
Notes : Prior to Bias Adjustment, run about 5 minutes with rated output (8 ohm) and warm up power Transistor and Heat Sink.

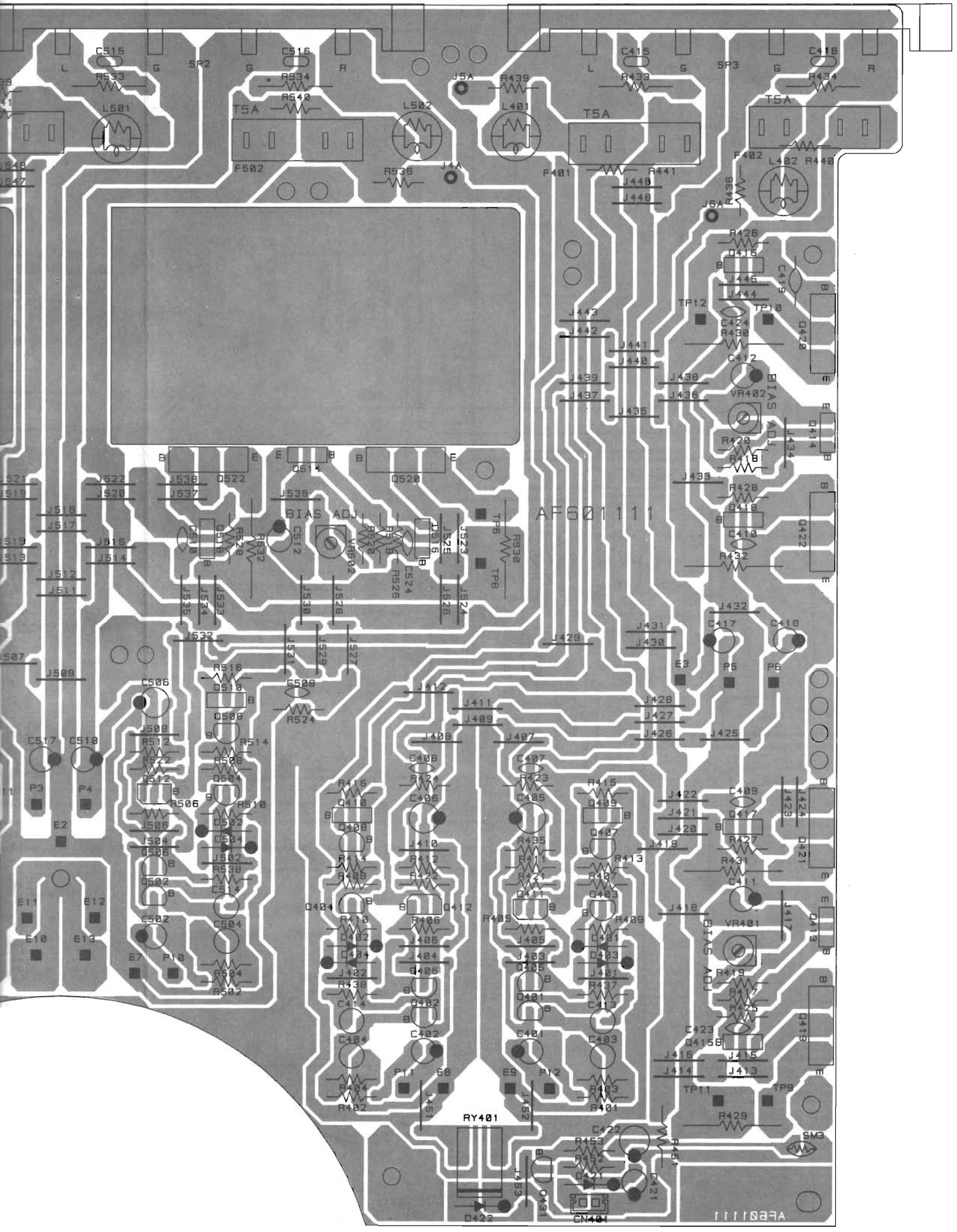
Set Volume Control to minimum.

Step	Coupling		Adjust	Adjust for
	Plus Lead	Minus Lead		
1	TP 1	TP 3	VR601	DC milli-voltmeter reads 4 mV
2	TP 2	TP 4	VR602	
3	TP 5	TP 7	VR501	DC milli-voltmeter reads 4 mV
4	TP 6	TP 8	VR502	
5	TP 9	TP11	VR401	DC milli-voltmeter reads 4 mV
6	TP10	TP12	VR402	

Printed Circuit Boards





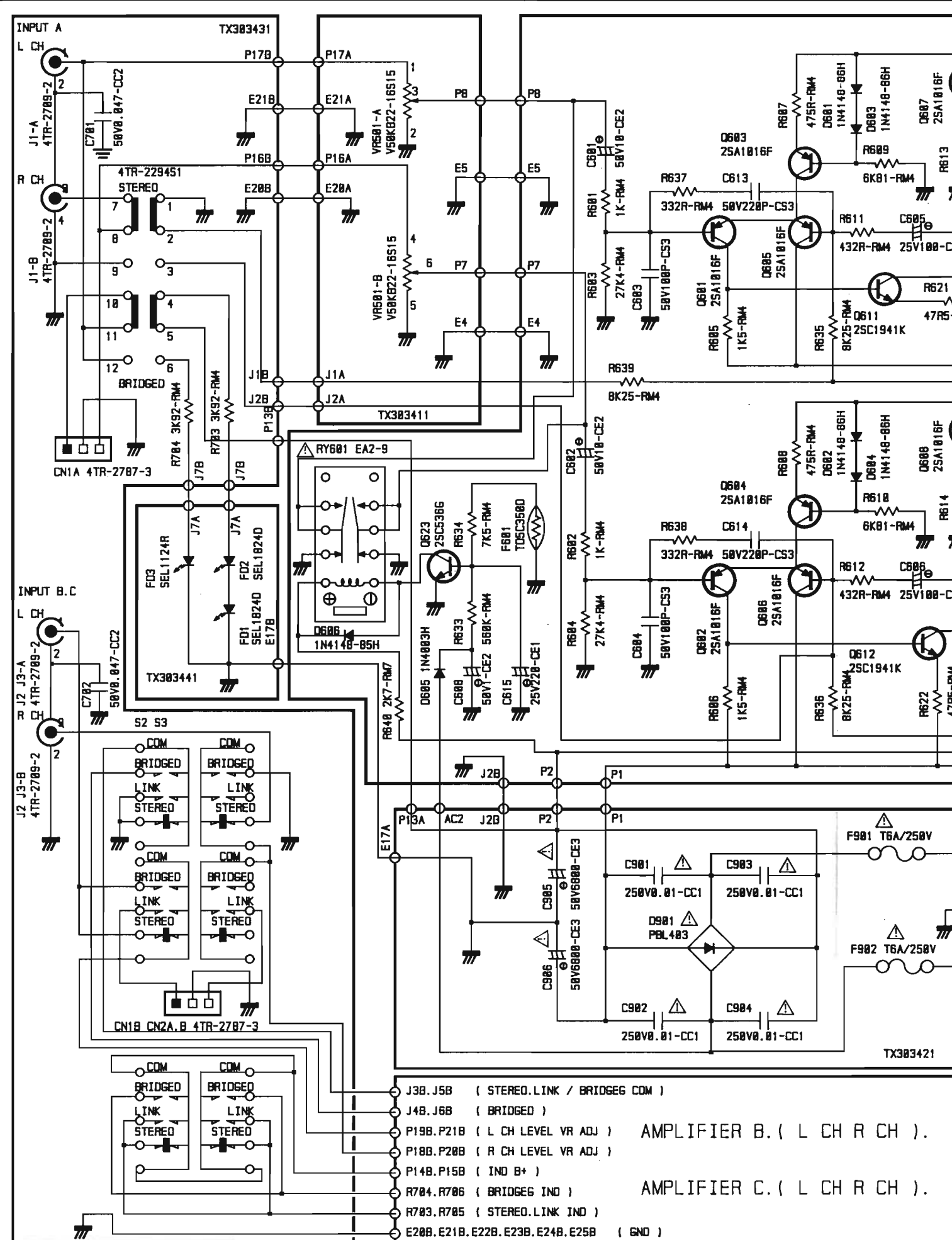


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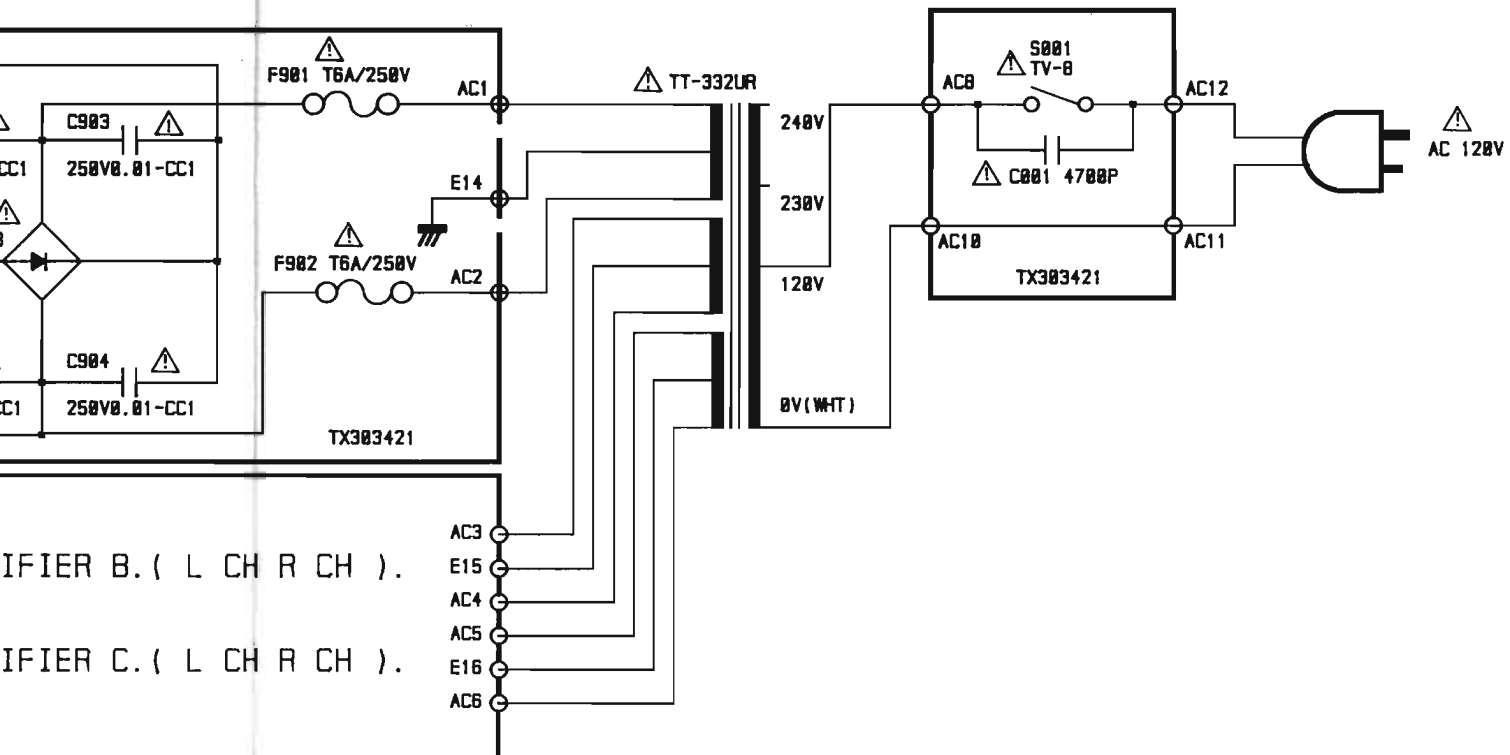
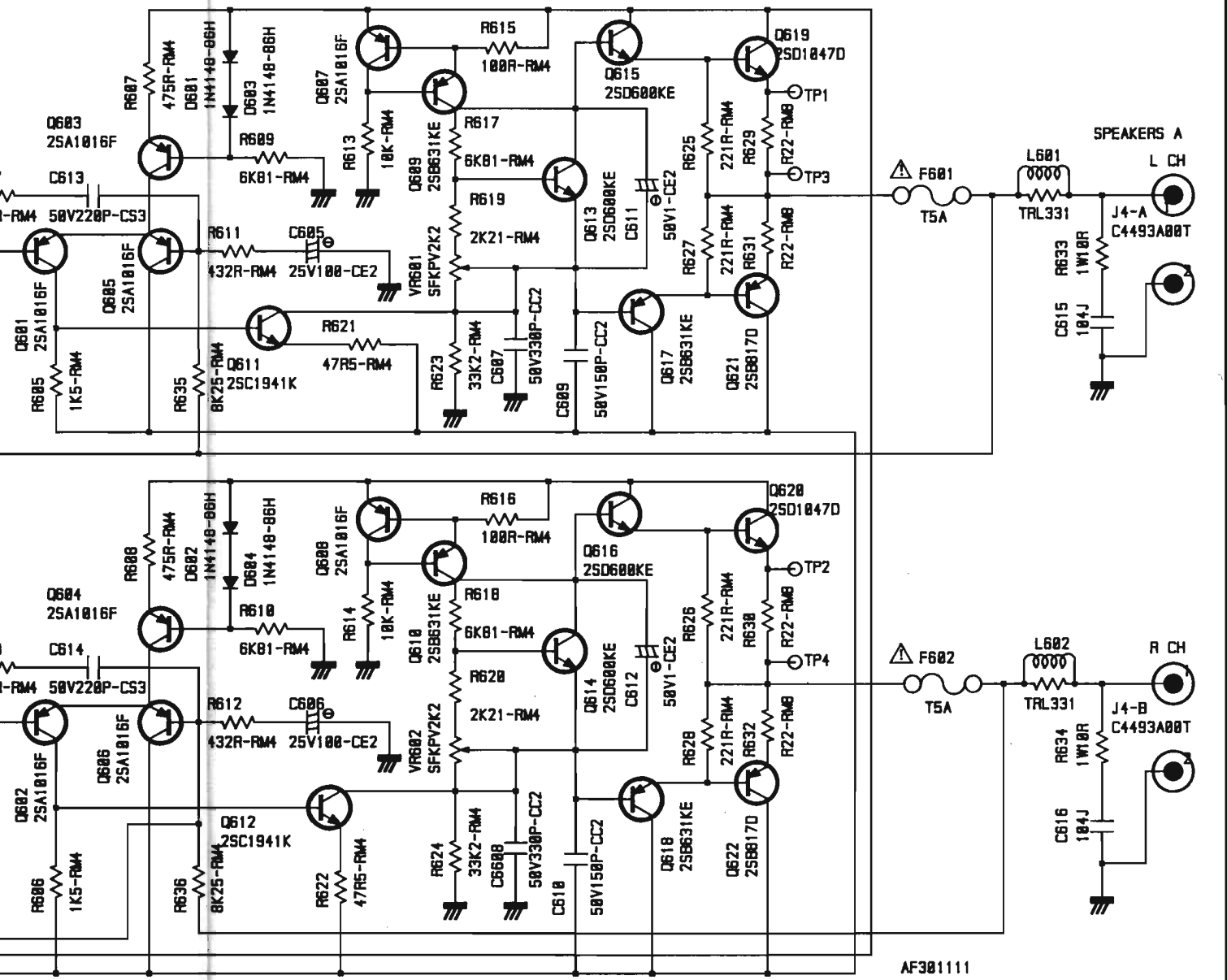
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Schematic Diagram

SCHEMATIC DIAGRAM MODEL NO. RB-976 (1/3)



- J3B, J5B (STEREO, LINK / BRIDGES COM)
 - J4B, J6B (BRIDGED)
 - P19B, P21B (L CH LEVEL VR ADJ)
 - P18B, P20B (R CH LEVEL VR ADJ)
 - P14B, P15B (IND B+)
 - R704, R706 (BRIDGES IND)
 - R703, R705 (STEREO, LINK IND)
 - E20B, E21B, E22B, E23B, E24B, E25B (GND)
- AMPLIFIER B. (L CH R CH).
- AMPLIFIER C. (L CH R CH).



IFIER B. (L CH R CH).

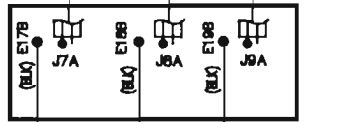
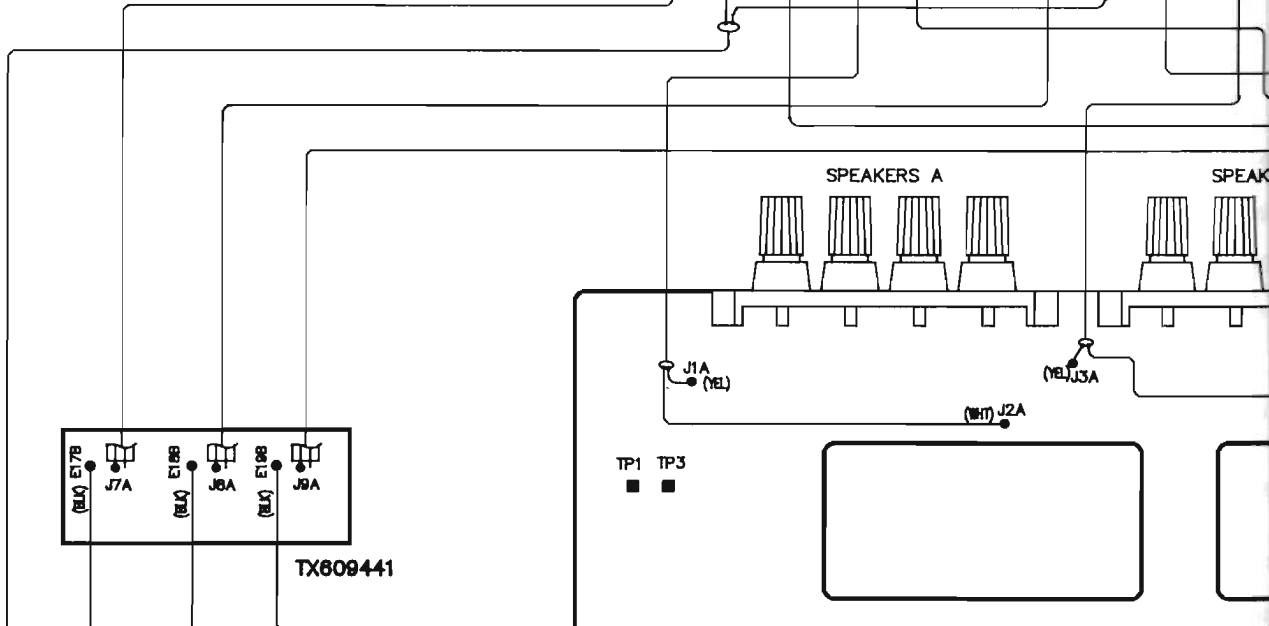
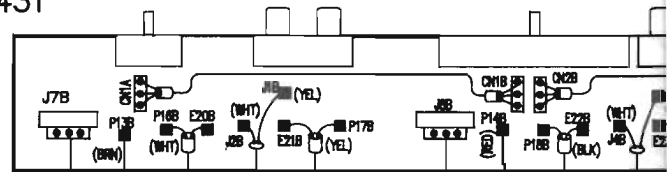
IFIER C. (L CH R CH).

Wiring Diagram

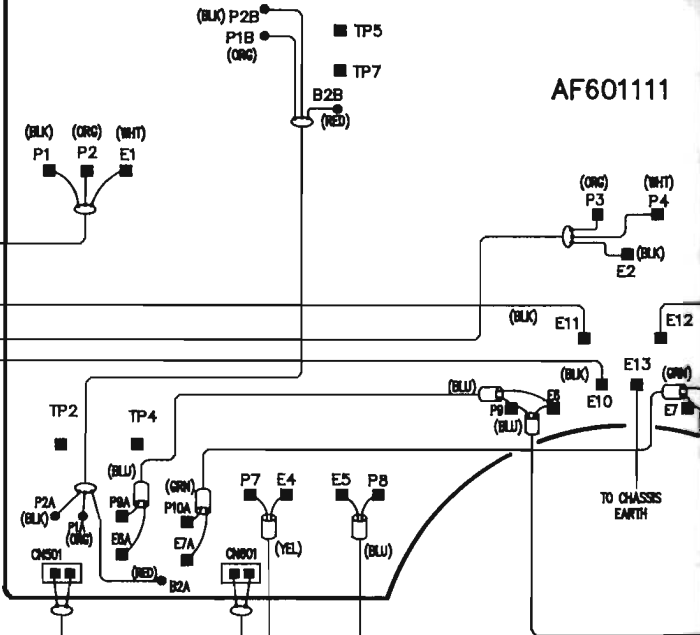
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STEREO BRIDGED INPUT

STEREO BRIDGED

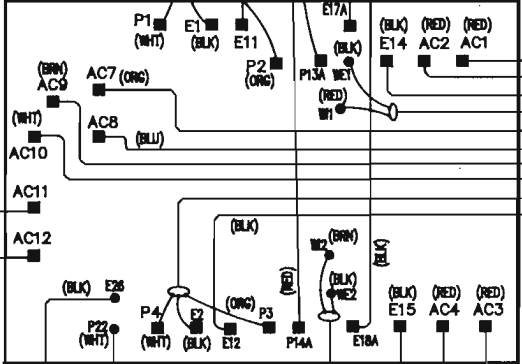


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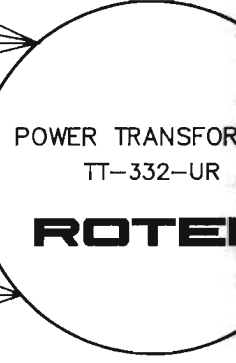


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TX609421



AC120V



POWER TRANSFORMER
TT-332-UR

ROTEL

Parts List

NOTE : THE COMPONENTS INDENTIFIED BY  MARK ARE FOR SAFETY. REPLACE ONLY WITH ORIGINAL PARTS DO NOT SUBSTITUTE.

SYMBOL	PARTS NO.	DESCRIPTION
AF601111 PCB ASSEMBLY		
R401,402	RM51001816	R,METAL 1K 1/4W F
R403,404	RM52742812	R,METAL 27.4K 1/4W F
R405,406	RM51501813	R,METAL 1.5K 1/4W F
R407,408	RM54750812	R,METAL 475 1/4W F
R409,410	RM56811816	R,METAL 6.81K 1/4W F
R411,412	RM54320817	R,METAL 432 1/4W F
R413,414	RM51002810	R,METAL 10K 1/4W F
R415,416	RM51000812	R,METAL 100 1/4W F
R417,418	RM56811816	R,METAL 6.81K 1/4W F
R419,420	RM52211818	R,METAL 2.21K 1/4W F
R421,422	RM54759815	R,METAL 47.5 1/4W F
R423,424	RM53322818	R,METAL 33.2K 1/4W F
R425-428	RM52210814	R,METAL 221 1/4W F
R429-432	RM90228220	R,METAL 0.22 2W J
R433,434	RM91009127	R,METAL 10 1W J
R435,436	RM58251814	R,METAL 8.25K 1/4W F
R437,438	RM53320810	R,METAL 332 1/4W F
R439	RM58251814	R,METAL 8.25K 1/4W F
R440,441	RM53322818	R,METAL 33.2K 1/4W F
R442	RM53328810	R,METAL 3.32 1/4W F
R451	RM92701134	R,METAL 2.7K W
R452	RM55623810	R,METAL 562K 1/4W F
R453	RM57501811	R,METAL 7.5K 1/4W F
R501,502	RM51001816	R,METAL 1K 1/4W F
R503,504	RM52742812	R,METAL 27.4K 1/4W F
R505,506	RM51501813	R,METAL 1.5K 1/4W F
R507,508	RM54750812	R,METAL 475 1/4W F
R509,510	RM56811816	R,METAL 6.81K 1/4W F
R511,512	RM54320817	R,METAL 432 1/4W F
R513,514	RM51002810	R,METAL 10K 1/4W F
R515,516	RM51000812	R,METAL 100 1/4W F
R517,518	RM56811816	R,METAL 6.81K 1/4W F
R519,520	RM52211818	R,METAL 2.21K 1/4W F
R521,522	RM54759815	R,METAL 47.5 1/4W F
R523,524	RM53322818	R,METAL 33.2K 1/4W F
R525-528	RM52210814	R,METAL 221 1/4W F
R529-532	RM90228220	R,METAL 0.22 2W J
R533,534	RM91009127	R,METAL 10 1W J
R535,536	RM58251814	R,METAL 8.25K 1/4W F
R537,538	RM53320810	R,METAL 332 1/4W F
R539	RM58251814	R,METAL 8.25K 1/4W F
R540,541	RM53322818	R,METAL 33.2K 1/4W F
R542	RM533228810	R,METAL 3.32 1/4W F
R551	RM92701134	R,METAL 2.7K 1W
R552	RM55623810	R,METAL 562K 1/4W F
R553	RM57501811	R,METAL 7.5K 1/4W F
R601,602	RM51001816	R,METAL 1K 1/4W F
R603,604	RM52742812	R,METAL 27.4K 1/4W F
R605,606	RM51501813	R,METAL 1.5K 1/4W F
R607,608	RM54750812	R,METAL 475 1/4W F
R609,610	RM56811816	R,METAL 6.81K 1/4W F
R611,612	RM54320817	R,METAL 432 1/4W F
R613,614	RM51002810	R,METAL 10K 1/4W F
R615,616	RM51000812	R,METAL 100 1/4W F
R617,618	RM56811816	R,METAL 6.81K 1/4W F
R619,620	RM52211818	R,METAL 2.21K 1/4W F
R621,622	RM54759815	R,METAL 47.5 1/4W F
R623,624	RM53322818	R,METAL 33.2K 1/4W F
R625-628	RM52210814	R,METAL 221 1/4W F
R629-632	RM90228220	R,METAL 0.22 2W J
R633,634	RM91009127	R,METAL 10 1W J

SYMBOL	PARTS NO.	DESCRIPTION
R637,638	RM53320810	R,METAL 332 1/4W F
R639	RM58251814	R,METAL 8.25K 1/4W F
R640,641	RM53322818	R,METAL 33.2K 1/4W F
R642	RM53328810	R,METAL 3.32 1/4W F
R651	RM92701134	R,METAL 2.7K 1W
R652	RM55623810	R,METAL 562K 1/4W F
R653	RM57501811	R,METAL 7.5K 1/4W F
C401,402	CE41006500	CAP,ELEC. 50V 10uF
C403,404	CS41011422	CAP,STYROL 50V 100P
C405,406	CE41005257	CAP,ELEC. 25V 100uF
C407,408	CC42711462	CAP,CERAMIC 50V 270P
C409,410	CC41511430	CAP,CERAMIC 50V 150P
C411,412	CE41007503	CAP,ELEC. 50V 1uF
C413,414	CS42211420	CAP,STYROL 50V 220P
C415,416	CM11008422	CAP,MYLAR 50V 104 J
C417,418	CE41006500	CAP,ELEC. 50V 10uF
C419	CC41009176	CAP,CERAMIC 500V 0.01uF
C421	CE41006500	CAP,ELEC. 50V 10uF
C422	CE02205255	CAP,ELEC. 25V 220uF
C423,424	CC41511430	CAP,CERAMIC 150P 50V
C501,502	CE41006500	CAP,ELEC. 50V 10uF
C503,504	CS41011422	CAP,STYROL 50V 100P
C505,506	CE41005257	CAP,ELEC. 25V 100uF
C507,508	CC42711462	CAP,CERAMIC 50V 270P
C509,510	CC41511430	CAP,CERAMIC 50V 150P
C511,512	CE41007503	CAP,ELEC. 50V 1uF
C513,514	CS42211420	CAP,STYROL 50V 220P
C515,516	CM11008422	CAP,MYLAR 50V 104 J
C517,518	CE41006500	CAP,ELEC. 50V 10uF
C519	CC41009176	CAP,CERAMIC 500V 0.01uF
C521	CE41006500	CAP,ELEC. 50V 10uF
C522	CE02205255	CAP,ELEC. 25V 220uF
C523,524	CC41511430	CAP,CERAMIC 150P 50V
C601,602	CE41006500	CAP,ELEC. 50V 10uF
C603,604	CS41011422	CAP,STYROL 50V 100P
C605,606	CE41005257	CAP,ELEC. 25V 100uF
C607,608	CC42711462	CAP,CERAMIC 50V 270P
C609,610	CC41511430	CAP,CERAMIC 50V 150P
C611,612	CE41007503	CAP,ELEC. 50V 1uF
C613,614	CS42211420	CAP,STYROL 50V 220P
C615,616	CM11008422	CAP,MYLAR 50V 104 J
C617,618	CE41006500	CAP,ELEC. 50V 10uF
C619	CC41009176	CAP,CERAMIC 500V 0.01uF
C621	CE41006500	CAP,ELEC. 50V 10uF
C622	CE02205255	CAP,ELEC. 25V 220uF
C623,624	CC41511430	CAP,CERAMIC 150P 50V
Q401-408	TR11000040	TRANSISTOR 2SA1016G
Q409,410	TR10000047	TRANSISTOR 2SB631KE
Q411,412	TR31000125	TRANSISTOR 2SC1941K
Q413,414	TR40000069	TRANSISTOR 2SD600KE
Q415,416	TR40000069	TRANSISTOR 2SD600KE
Q417,418	TR10000047	TRANSISTOR 2SB631KE
Q419,420	TR30000686	TRANSISTOR 2SC3281
Q421,422	TR10000400	TRANSISTOR 2SA1302
Q431	TR31000034	TRANSISTOR 2SC536KE
L401,402	LC23310002	ANTI-PARASITIC COIL TRL-331
VR401,402	RV40000022	R,SEMI-FIXED VM6CKPV-1S-B 2.2K
F401,402	FU25000030	FUSE 125V 5A UL/CSA 
	FU23000141	FUSE 250V T5A S 
RY401	LY00000370	RELAY EA2-9 
D401-404	DD80000021	DIODE IN4148-86

SYMBOL	PARTS NO.	DESCRIPTION
D421	DD80000010	DIODE IN4003
D422	DD80000021	DIODE IN4148-86
Q501-508	TR11000040	TRANSISTOR 2SA1016G
Q509,510	TR10000047	TRANSISTOR 2SB631KE
Q511,512	TR31000125	TRANSISTOR 2SC1941K
Q513,514	TR40000069	TRANSISTOR 2SD600KE
Q515,516	TR40000069	TRANSISTOR 2SD600KE
Q517,518	TR10000047	TRANSISTOR 2SB631KE
Q519,520	TR30000686	TRANSISTOR 2SC3281
Q521,522	TR10000400	TRANSISTOR 2SA1302
Q531	TR31000034	TRANSISTOR 2SC536KE
L501,502	LC23310002	ANTI-PARASITIC COIL TRL-331
VR501,502	RV40000022	R,SEMI-FIXED VM6CKPV-1S-B 2.2K
F501,502	FU25000030	FUSE 125V 5A UL/CSA ⚠
	FU23000141	FUSE 250V T5A S ⚠
RY501	LY00000370	RELAY EA2-9 ⚠
D501-504	DD80000021	DIODE IN4148-86
D521	DD80000010	DIODE IN4003
D522	DD80000021	DIODE IN4148-86
Q601-608	TR11000040	TRANSISTOR 2SA1016G
Q609,610	TR10000047	TRANSISTOR 2SB631KE
Q611,612	TR31000125	TRANSISTOR 2SC1941K
Q613,614	TR40000069	TRANSISTOR 2SD600KE
Q615,616	TR40000069	TRANSISTOR 2SD600KE
Q617,618	TR10000047	TRANSISTOR 2SB631KE
Q619,620	TR30000686	TRANSISTOR 2SC3281
Q621,622	TR10000400	TRANSISTOR 2SA1302
Q631	TR31000034	TRANSISTOR 2SC536KE
L601,602	LC23310002	ANTI-PARASITIC COIL TRL-331
VR601,602	RV40000022	R,SEMI-FIXED VM6CKPV-1S-B 2.2K
F601,602	FU25000030	FUSE 125V 5A UL/CSA ⚠
	FU23000141	FUSE 250V T5A S ⚠
RY601	LY00000370	RELAY EA2-9 ⚠
D601-604	DD80000021	DIODE IN4148-86
D621	DD80000010	DIODE IN4003
D622	DD80000021	DIODE IN4148-86
TX609411 PCB ASSEMBLY		
C913-916	CC41009176	CAP,CERAMIC 500V 0.01uF
C917,918	CE56804451	CAP,ELEC. 50LPSS6800M ⚠
D903	DD10000020	DIODE KBL-02 ⚠
VR001-003	RV10001759	R,VARIABLE 4TR-2972 50KBx2
F905,906	FU25000041	FUSE 125V 6A UL ⚠
	FU23000219	FUSE 250V T6.3A S ⚠
TX609421 PCB ASSEMBLY		
C901-904	CC41009176	CAP,CERAMIC 500V 0.01uF
C905,906	CE56804451	CAP,ELEC. 50LPSS6800M ⚠
C907-910	CC41009176	CAP,CERAMIC 500V 0.01uF
C911,912	CE56804451	CAP,ELEC. 50LPSS6800M ⚠
C001	CK00000035	SPARK KILLER DE7150F 472M ⚠
R901	RM53921817	R,METAL 3.92K 1/4W F
D901,902	DD10000020	DIODE KBL-02 ⚠
D904	DD20000600	DIODE RD20JS-T1
F901-904	FU25000041	FUSE 125V 6A UL ⚠
	FU23000219	FUSE 250V T6.3A S ⚠
S001	SH40000167	POWER SW C-4176A02 TV-8 ⚠
TX609431 PCB ASSEMBLY		
C701,702	CC45009456	CAP,CERAMIC 50V 0.05uF
R701-706	RM53921817	R,METAL 3.92K 1/4W F

SYMBOL	PARTS NO.	DESCRIPTION
S1	SH20000319	SLIDE SW 4TR-2294
S2,S3	SH20000587	SLIDE SW SS010-P863BGM-PA6
TX609441 PCB ASSEMBLY		
D1,D2	DD40001282	LED SEL1824D
D3	DD40000095	LED SEL1124R
D4,D5	DD40001282	LED SEL1824D
D6	DD40000095	LED SEL1124R
D7,D8	DD40001282	LED SEL1824D
D9	DD40000095	LED SEL1124R
OTHERS		
	AB00000717	BOTTOM BOARD 3TQZ-5#1
	AF20000325	FRONT CHASSIS 2TQZ-2
	AM00002086	CHASSIS BODY 2TQZ-2-4C
	AR20000899	PRINTED REAR CHASSIS TRP-723
	BC00000258	CYLINDER BUSH 4TVL-7#4 9.5MM
	BC00000465	CYLINDER BUSH 4TR-2187#4 6Fx10.9H
	FT00000229	PLASTIC FOOT 4TSH-19#2 50Fx14H
	SB00000972	P.V.C. SHIELD PLATE 4TQZ-13
	SC00000120	AC CORD STOPPER SR-5KN-4
	SG00000845	EVA SPONGE 4TR-2871 80F
	SP10006909	P.T SUPPORT 4TR-3001A#2
	SP10007604	P.T SUPPORT 3TQZ-14A#1
	SR00000043	SILICON RUBBER SPACER 4TR-3000A#2 2.0T 75F
	CD00000220	AC CORD SPT-2 AWG#16 4TR-670#5 ⚠
	CD00000589	AC POWER CORD 4TR-3370 ⚠
	CD00000115	AC POWER CORD C-3763-T ⚠
	CD00000516	AC CORD HO5VV-F 3x0.75MM 4TR-3061/13A ⚠
	CD00000565	AC CORD HO3VVH2-F 2x0.75MM 4TR-3300/13A ⚠
	CD00000322	AC POWER CORD 4TR-2757 ⚠
	NP00001949	NAME STICKER AC 120V 4TR-2828A#1 TNP-382
	NP00002012	NAME STICKER AC 100V 4TR-2828A#6 TNP-391
	NP00002188	NAME STICKER AC 220-240V 4TR-2828A#15 TNP-402
	NP00002140	NAME STICKER AC 220-240V 4TR-2828A#11 TNP-398
	PT33216205	POWER TRANSFORMER TT-332-UR ⚠
	AA20000890	FRONT PANEL 2TQZ-1#1
	BU00001145	POWER RING W/LED 4TQF-13
	KB20002681	POWER BUTTON 4TQF-15
	OM10001284	ORNAMENTAL SIDE BOARD 4TR-2797#3
	DD40000095	LED SEL1124R
	BU00001364	LED RING 3TQZ-12
	OM70000065	PUSH CONNECTOR 4TTL-15
	SN00000179	BUTTON SPRING 4TR-1988A#2
	AU00001353	TOP COVER 3TQZ-8
	KB10001813	KNOB 11F 4TSA-7#2
	FE00000067	FELT 4TR-1083B#1 22F
	SR00000882	UPPER COVER SPACER
	MN10004170	OWNER'S MANUAL RB-976
	PL00001245	STYROL SIDE MOULDING 3TQZ-10 TZ-190
	TN10005169	INSIDE CARTON RB-976