

ROTEL*hifi*

SIX CHANNEL POWER AMPLIFIER

RB-956AX

TECHNICAL MANUAL

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THE ROTEL CO., LTD.

1-36-8, OHOKAYAMA, MEGURO-KU, TOKYO 152, JAPAN

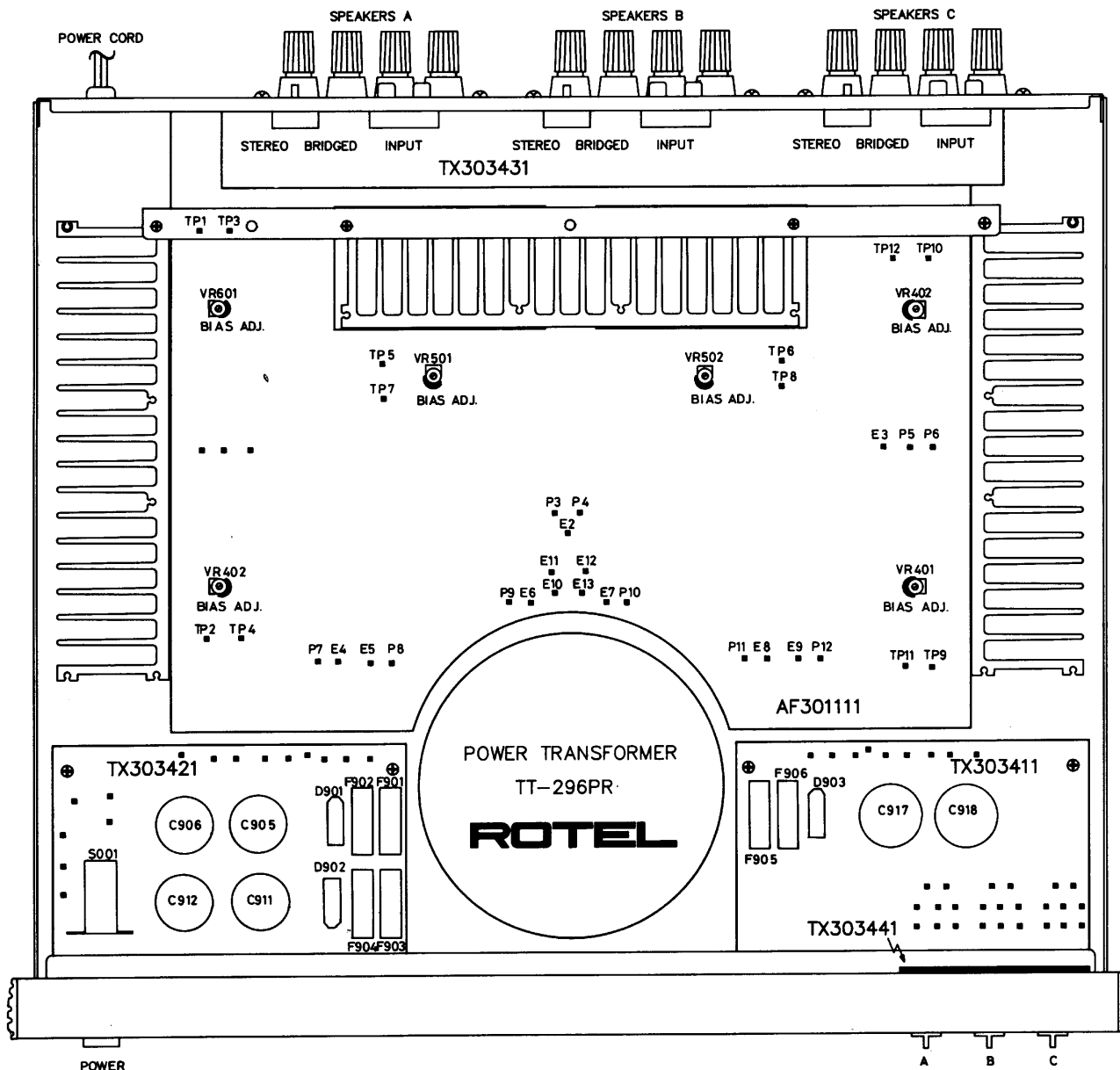
ROTEL ELECTRONICS CO., LTD.

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

MN20002097

DEC 20 1993

Chassis Layout



Specifications

Continuous Power Output	30 watts* per channel, min. RMS both channels driven into 8 ohms from 20 to 20,000 Hz with no more than 0.03% THD.
DIN Output	50 watts per channel (1kHz, 4 ohms, 1% THD)
Peak Current	20A (0.1 ohms, 10 μ sec, 1 pulse)
Power Output (BTL).....	90 watts (bridged) min. RMS driven into 8 ohms from 20 to 20,000Hz with no more than 0.03% THD.
Total Harmonic Distortion (THD).....	No more than 0.03% (continuous rated power output).
(20 to 20,000Hz)	No more than 0.03% (continuous 1/2 rated power output).
	No more than 0.05% (1 watt per channel power output, 8 ohms).
Intermodulation Distortion.....	No more than 0.05% (continuous rated power output)
(60 Hz : 7 kHz = 4:1)	No more than 0.05% (continuous 1/2 rated power output).
	No more than 0.05% (1 watt per channel power output, 8 ohms).
Output (Speakers)	8 ohms min (bridged mode); 4-16 ohms (stereo mode)
Damping Factor.....	180 (20 to 20,000 Hz, 8 ohms)
Input Sensitivity/Impedance.....	1.0 V / 27 kohms
Overload Level (THD 0.5 %, 1 kHz).....	5 V
Frequency Response	10 to 80,000 Hz, +1 dB, -1.0 dB
Signal to Noise Ratio (IHF, A network).....	105 dB

GENERAL

Power Requirement	120 V/60 Hz, 230-240 V/50 Hz (depending on destination)
Power Consumption.....	400 watts
Dimension (overall)	440 (W) x 92 (H) x 396 (D) mm
	7-3/8" x 3-5/8" x 15-5/8"
Weight (net).....	10.5 kg / 23.1 lbs

* Measured pursuant to the Federal Trade Commission's Trade Regulation Rule or, Power Claims for Amplifiers (applicable to the USA only).

NOTE: Specifications and design are subject to possible modification without notice.

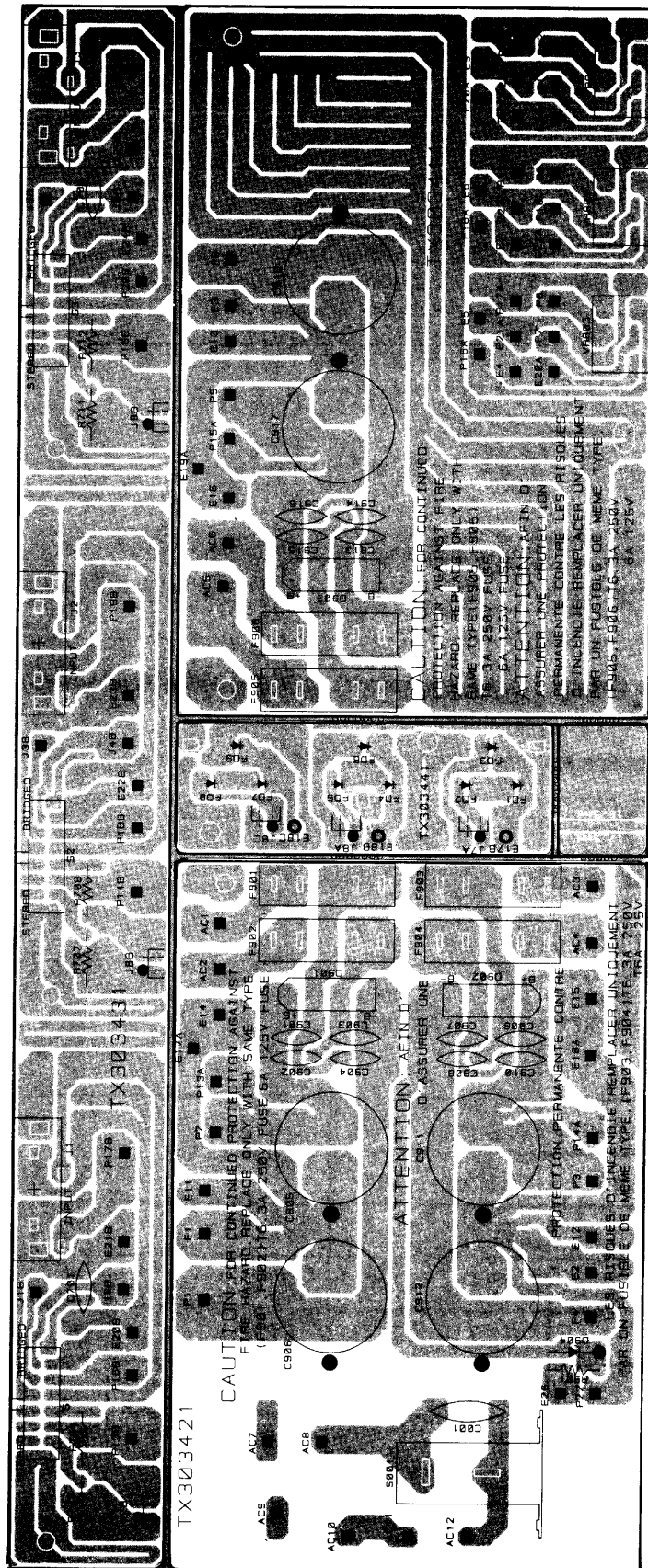
Power Amplifier Bias Adjustment

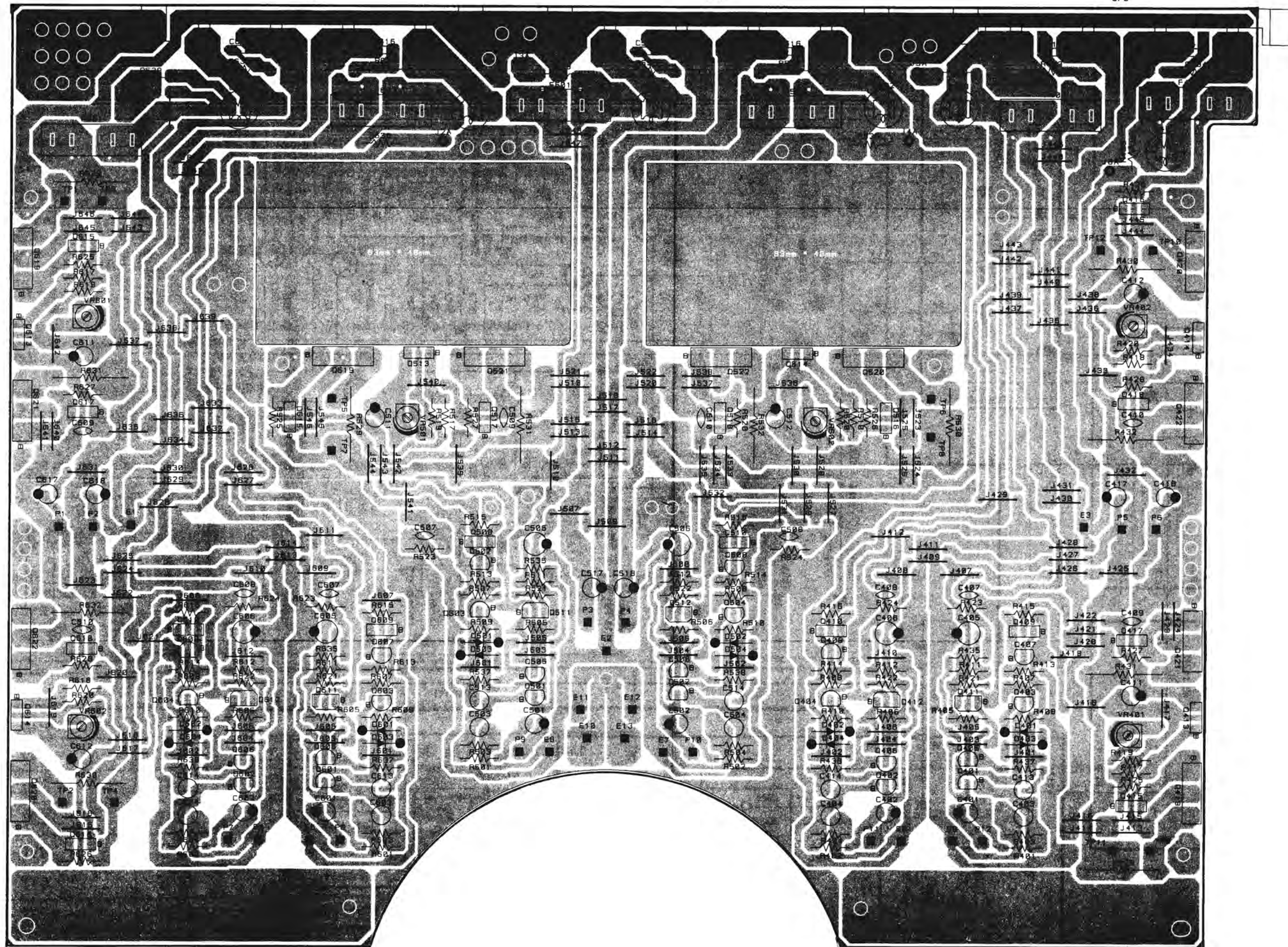
Instruments: DC milli-voltmeter

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	TP1	TP3	VR601	DC milli-voltmeter reads 4 mV
2	TP2	TP4	VR602	
3	TP5	TP7	VR501	DC milli-voltmeter reads 4 mV
4	TP6	TP8	VR502	
5	TP9	TP11	VR401	DC milli-voltmeter reads 4 mV
6	TP10	TP12	VR402	

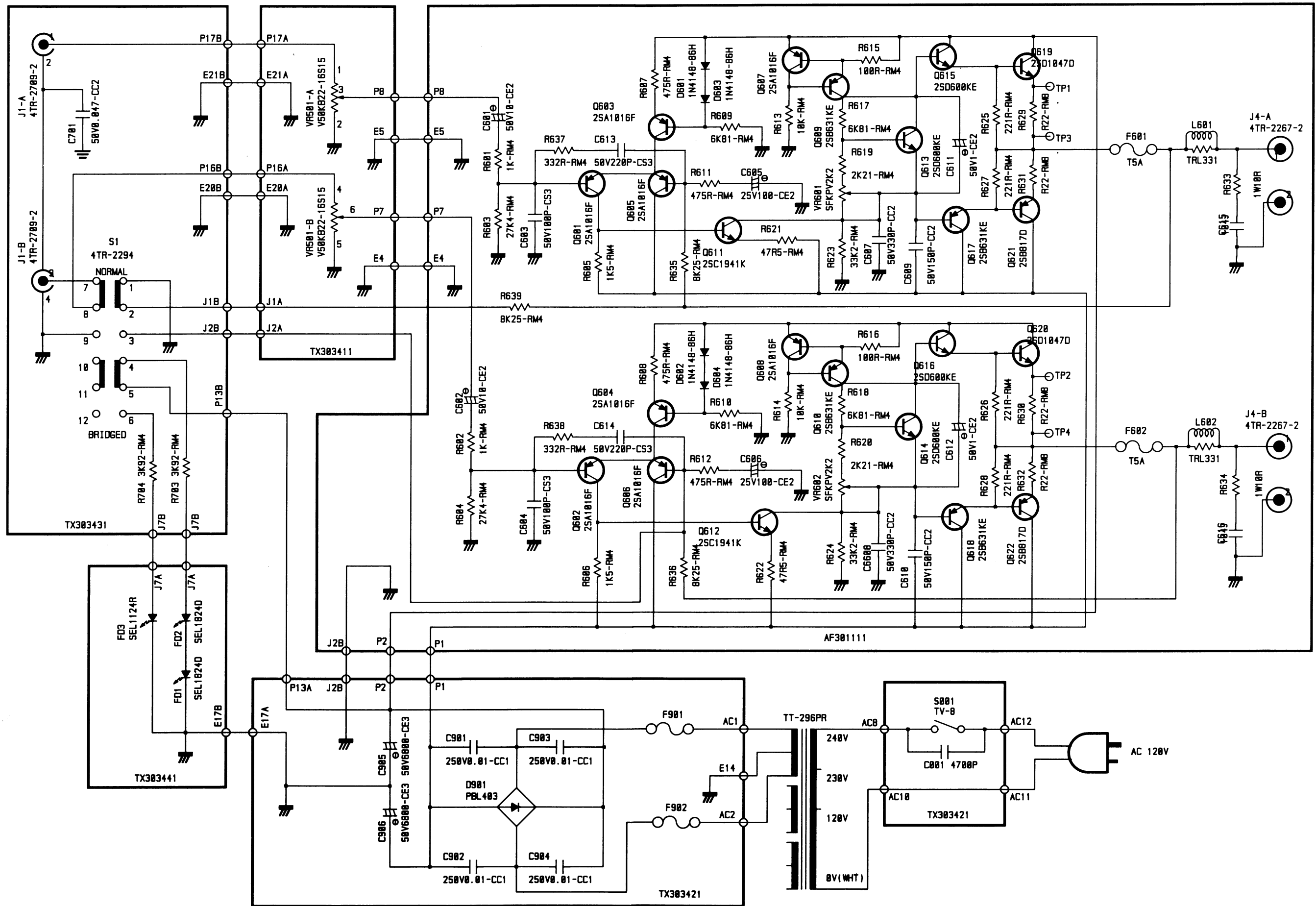
Printed Circuit Boards



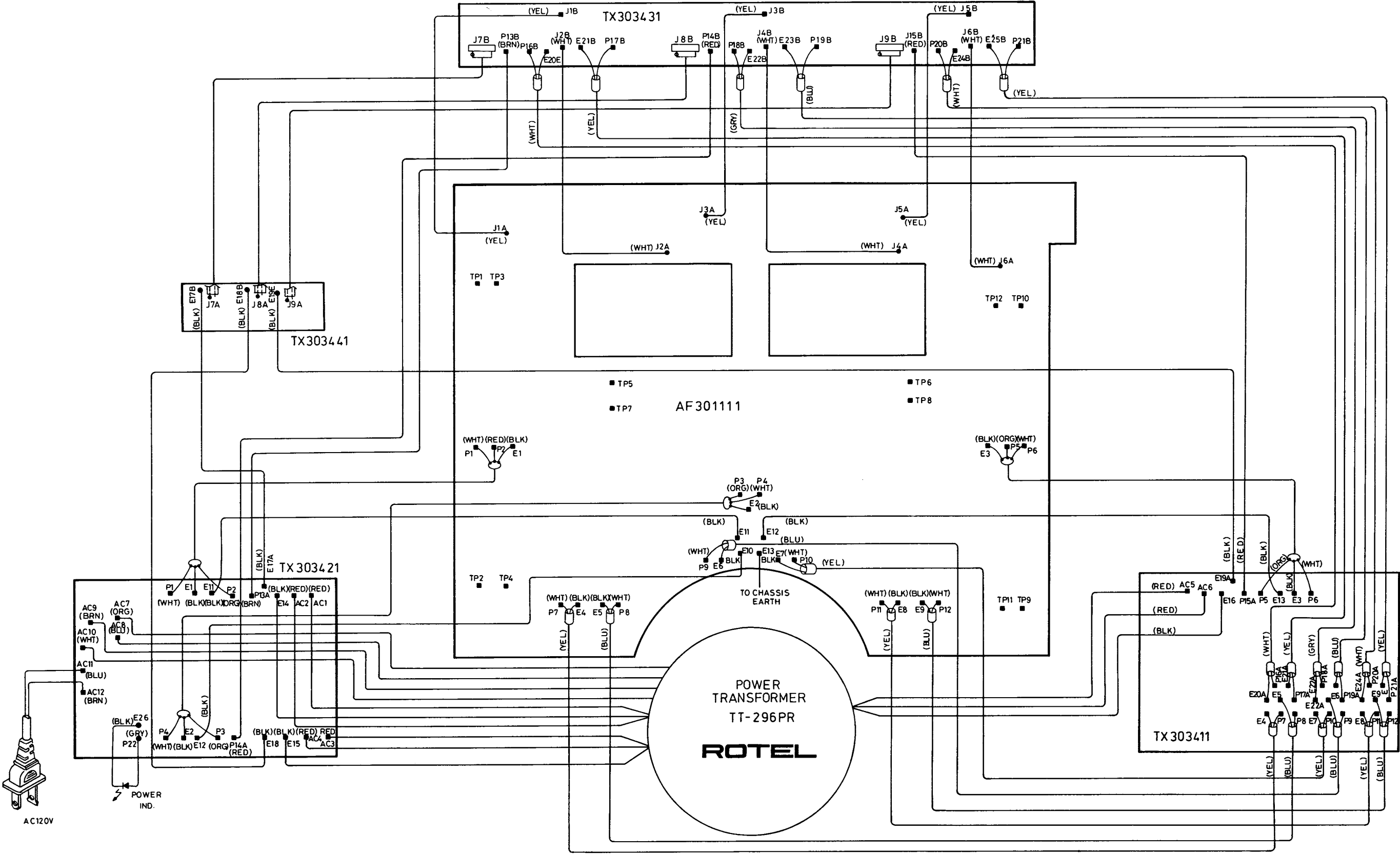


Schematic Diagram

SCHEMATIC DIAGRAM RB-956AX (1/3)



Wiring Diagram



Parts List

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

SYMBOL	PARTS NO.	DESCRIPTION
TX303411 PCB ASSEMBLY		
C913-916 C917,918 VR801-803 F905,906	CC01009256 CE56804451 RV10001759 FU25000041 FU23000219	CAP,CERAMIC 250V 0.01uF Δ CAP,ELEC. 50LPSS6800M Δ R,VARIABLE 4TR-2972 50KBx2 FUSE 125V 6A UL U,C,A,J Δ FUSE 250V T6.3A S Δ
TX303421 PCB ASSEMBLY		
C901-904 C905,906 C907,910 C911,912 R901	CC01009256 CE56804451 CC01009256 CE56804451 RM53921817	CAP,CERAMIC 250V 0.01uF Δ CAP,ELEC. 50LPSS6800M Δ CAP,CERAMIC 250V 0.01uF Δ CAP,ELEC. 50LPSS6800M Δ R,METAL 3K92 1/4W F
D901,902 D904 F901-904 S001	DD10000020 DD20000028 FU25000041 FU23000219 SH40000167	DIODE PBL403 Δ DIODE RD-20E FUSE 125V 6A UL(U,C,A,J) Δ FUSE 250V T6.3A S Δ POWER SW C-4176A01 TV-8 Δ
C001	CK00000035	SPARK KILLER DE7150F472M Δ
TX303431 PCB ASSEMBLY		
R701-706 C701,702 S1-S3	RM53921817 CC05009457 SH20000319	R,METAL 3K92 1/4W F CAP,CERAMIC 0.047uF 50V SLIDE SW 4TR-2294
TX303441 PCB ASSEMBLY		
D1,D2 D3 D4,D5 D6 D7,D9 D9	DD40001282 DD40000095 DD40001282 DD40000095 DD40001282 DD40000095	LED SEL824D LED LN224R LED SEL824D LED LN224R LED SEL824D LED LN224R
AF301111 PCB ASSEMBLY		
R401,402 R403,404 R405,406 R407,408 R409,410	RM51001816 RM52741812 RM51501813 RM54750812 RM56811816	R,METAL 1/4W F R,METAL 27K4 1/4W F R,METAL 1K5 1/4W F R,METAL 475 1/4W F R,METAL 6K81 1/4W F
R411,412 R413,414 R415,416 R417,418 R419,420	RM54750812 RM51002810 RM51000812 RM56811816 RM52211818	R,METAL 475 1/4W F R,METAL 10K 1/4W F R,METAL 100 1/4W F R,METAL 6K81 1/4W F R,METAL 2K21 1/4W F
R421,422 R423,424 R425-428 R429-432 R433,434	RM54759815 RM53322818 RM52210814 RM90228220 RM91009127	R,METAL 47.5 1/4W F R,METAL 33K2 1/4W F R,METAL 221 1/4W F R,METAL 2W 0.22 J R,METAL 1W 10 J
R435,436 R437,438 R439 R440,441 C401,402	RM58251814 RM53320810 RM58251814 RM53322818 CE01006500	R,METAL 8K25 1/4W F R,METAL 332 1/4W F R,METAL 8K25 1/4W F R,METAL 33K2 1/4W F CAP,ELEC. 50V 10uF
C403,404 C405,406 C407,408 C409,410 C411,412	CS41011422 CE01005258 CC33311434 CC31511432 CE01007504	CAP,STYROL 50V 100P CAP,ELEC. 25V 100uF CAP,CERAMIC 50V 330P CAP,CERAMIC 50V 150P CAP,ELEC. 50V 1uF
C413,414 C415,416 C417,418 D401-404 Q401-408	CS42211420 CM01008423 CE01006500 DD80000021 TR10000310	CAP,STYROL 50V 220P CAP,MYLAR 50V104 J CAP,ELEC. 50V 10uF DIODE IN4148 TRANSISTOR 2SA1016G
Q409,410	TR10000047	TRANSISTOR 2SB631KE

SYMBOL	PARTS NO.	DESCRIPTION
Q411,412 Q413-416 Q417,418 Q419,420	TR30000169 TR40000069 TR10000047 TR40000045	TRANSISTOR 2SC1941KL TRANSISTOR 2SD600KE TRANSISTOR 2SB631KE POWER TRANSISTOR 2SD1047D/E
Q421,422 VR401,402	TR40000040 RV40000022	POWER TRANSISTOR 2SB817D/E R,SEMI-FIXED VM6CKPV-1S-B 2K2
L401,402 F401,402	LC23310002 FU25000030 FU23000141	ANTI-PARASITIC COIL TRL-331 FUSE 5A UL/CSA Δ FUSE 250V T5A S Δ
R501,502 R503,504 R505,506 R507,508 R509,510	RM51001816 RM52741812 RM51501813 RM54750812 RM56811816	R,METAL 1/4W F R,METAL 27K4 1/4W F R,METAL 1K5 1/4W F R,METAL 475 1/4W F R,METAL 6K81 1/4W F
R511,512 R513,514 R515,516 R517,518 R519,520	RM54750812 RM51002810 RM51000812 RM56811816 RM52211818	R,METAL 475 1/4W F R,METAL 10K 1/4W F R,METAL 100 1/4W F R,METAL 6K81 1/4W F R,METAL 2K21 1/4W F
R521,522 R523,524 R525-528 R529-532 R533,534	RM54759815 RM53322818 RM52210814 RM90228220 RM91009127	R,METAL 47.5 1/4W F R,METAL 33K2 1/4W F R,METAL 221 1/4W F R,METAL 2W 0.22 J R,METAL 1W 10 J
R535,536 R537,538 R539 R540,541 C501,502	RM58251814 RM53320810 RM58251814 RM53322818 CE01006500	R,METAL 8K25 1/4W F R,METAL 332 1/4W F R,METAL 8K25 1/4W F R,METAL 33K2 1/4W F CAP,ELEC. 50V 10uF
C503,504 C505,506 C507,508 C509,510 C511,512	CS41011422 CE01005258 CC33311434 CC31511432 CE01007504	CAP,STYROL 50V 100P CAP,ELEC. 25V 100uF CAP,CERAMIC 50V 330P CAP,CERAMIC 50V 150P CAP,ELEC. 50V 1uF
C513,514 C515,516 C517,518 D501-504 Q501-508	CS42211420 CM01008423 CE01006500 DD80000021 TR10000310	CAP,STYROL 50V 220P CAP,MYLAR 50V104 J CAP,ELEC. 50V 10uF DIODE IN4148 TRANSISTOR 2SA1016G
Q509,510 Q511,512 Q513-516 Q517,518 Q519,520	TR10000047 TR30000169 TR40000069 TR10000047 TR40000045	TRANSISTOR 2SB631KE TRANSISTOR 2SC1941KL TRANSISTOR 2SD600KE TRANSISTOR 2SB631KE POWER TRANSISTOR 2SD1047D/E
Q521,522 VR501,502	TR40000040 RV40000022	POWER TRANSISTOR 2SB817D/E R,SEMI-FIXED VM6CKPV-1S-B 2K2
L501,502 F501,502	LC23310002 FU25000030 FU23000141	ANTI-PARASITIC COIL TRL-331 FUSE 5A UL/CSA Δ FUSE 250V T5A S Δ
R601,602 R603,604 R605,606 R607,608 R609,610	RM51001816 RM52741812 RM51501813 RM54750812 RM56811816	R,METAL 1/4W F R,METAL 27K4 1/4W F R,METAL 1K5 1/4W F R,METAL 475 1/4W F R,METAL 6K81 1/4W F
R611,612 R613,614 R615,616 R617,618 R619,620	RM54750812 RM51002810 RM51000812 RM56811816 RM52211818	R,METAL 475 1/4W F R,METAL 10K 1/4W F R,METAL 100 1/4W F R,METAL 6K81 1/4W F R,METAL 2K21 1/4W F
R621,622 R623,624 R625-628 R629-632 R633,634	RM54759815 RM53322818 RM52210814 RM90228220 RM91009127	R,METAL 47.5 1/4W F R,METAL 33K2 1/4W F R,METAL 221 1/4W F R,METAL 2W 0.22 J R,METAL 1W 10 J
R635,636 R637,638 R639 R640,641	RM58251814 RM53320810 RM58251814 RM53322818	R,METAL 8K25 1/4W F R,METAL 332 1/4W F R,METAL 8K25 1/4W F R,METAL 33K2 1/4W F

Parts List

SYMBOL	PARTS NO.	DESCRIPTION
C601,602	CE01006500	CAP,ELEC. 50V 10uF
C603,604 C605,606 C607,608 C609,610 C611,612	CS41011422 CE01005258 CC33311434 CC31511432 CE01007504	CAP,STYROL 50V 100P CAP,ELEC. 25V 100uF CAP,CERAMIC 50V 330P CAP,CERAMIC 50V 150P CAP,ELEC. 50V 1uF
C613,614 C615,616 C617,618 D601-604 Q601-608	CS42211420 CM01008423 CE01006500 DD80000021 TR10000310	CAP,STYROL 50V 220P CAP,MYLAR 50V104 J CAP,ELEC. 50V 10uF DIODE IN4148 TRANSISTOR 2SA1016G
Q609,610 Q611,612 Q613-616 Q617,618 Q619,620	TR10000047 TR30000169 TR40000069 TR10000047 TR40000045	TRANSISTOR 2SB631KE TRANSISTOR 2SC1941KL TRANSISTOR 2SD600KE TRANSISTOR 2SB631KE POWER TRANSISTOR 2SD1047D/E
Q621,622 VR601,602	TR40000040 RV40000022	POWER TRANSISTOR 2SB817D/E R,SEMI-FIXED VM6CKPV-1S-B 2K2
L601,602 F601,602	LC23310002 FU25000030 FU23000141	ANTI-PARASITIC COIL TRL-331 FUSE 5A UL/CSA Δ FUSE 250V T5A S Δ
OTHERS		
AB00000717 AF20000325 AM00002086 AR20000693		BOTTOM BOARD 3TQZ-5#1 FRONT CHASSIS 2TTZ-2 CHASSIS BODY 2TQZ-4A PRINTED REAR CHASSIS TRP-628
PT29611200		POWER TRANSFORMER TT-296-PR Δ
BC00000258 BC00000313		CYLINDER BUSH 4TVL-7#4 9.5MM CYLINDER BUSH 4TVL-7#5 18MM
BC00000465		CYLINDER BUSH 4TR-2187#4 6Fx10.9H
FT00000229		PLASTIC FOOT 4TSH-19#2 50Fx14H
SB00000972		P.V.C SHIELD PLATE 4TQZ-13
SC00000120 CD00000220		AC CORD STOPPER SR-5KN-4 Δ AC CORD SPT-2 AWG#16 4TR-670#5 (U,C,A,J) Δ
CD00000322 CD00000048		AC POWER CORD 4TR-2757(D) Δ AC POWER CORD 4TR-1037 (H,E,Y1,Y2,S1) Δ
CD00000085 CD00000115 NP00001949		AC POWER CORD C-2504A(K1) Δ AC POWER CORD C-3763-T(G) Δ NAME STICKER 4TR-2828#1 TNP-382 AC120V
NP00001974		NAME STICKER 4TR-2828#4 TNP-385 AC120V-C
NP00001962		NAME STICKER 4TR-2828#3 TNP-384 AC240V
NP00001998		NAME STICKER 4TR-2828#5 TNP-389 AC230V
NP00002012		NAME STICKER 4TR-2828#6 TNP-391 AC100V
NP00001950		NAME STICKER 4TR-2828#2 TNP-383 AC220V
AH20000990 AA20000737 BU00001145		HEAT SINKER BOARD 4TQX-6#1 FRONT PANEL 2TQZ-1 TFP-694 POWER RING 4TQF-13 14X14
KB20002681 OM10001284		POWER BUTTON 4TQF-15 14x14 ORNAMENTAL SIDE BOARD 4TR-2797#3
DD40000095 OM70000065		LED SEL1124R PUSH BUTTON CONNECTOR 4TTL-15

SYMBOL	PARTS NO.	DESCRIPTION
SN00000179		BUTTON SPRING 4TR-1988A#2 10F
AU00001353 KB10001813 FE00000067		TOP COVER POLY 3TQZ-8 KNOB 11F 4TSA-7#2 FELT 4TR-1083B#1 22F
SR00000882 MN10003049 PL00001245		UPPER COVER 4TR-2418 OWNER'S MANUAL RB-956AX STYROL SIDE MOULDING 3TQZ-10 TZ-190