

# **ROTEL***hi-fi*

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**STEREO POWER AMPLIFIER**

# **RB-970BX**

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2x 8 amp Rail Fuses (FU10032) &

2x 6.3 amp Speaker fuses (FU10031)

# **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

# Specifications

Continuous Power Output .....	60 watts* per channel, min. RMS both channels driven into 8 ohms from 20 to 20,000 Hz with no more than 0.03% total harmonic distortion.
DIN Output .....	110 watts per channel (1kHz, 4 ohms, 1% THD)
Peak Current .....	30A (0.1 ohms, 10-μsec, 1 pulse)
Power Output (BTL) .....	180 watts (mono) min. RMS driven into 8 ohms from 20 to 20,000 Hz with no more than 0.03% total harmonic distortion.
Total Harmonic Distortion .....	No more than 0.03% (continuous rated power output)
(20 to 20,000 Hz)	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 mono mode); 4-16 ohms (stereo mode)
Damping Factor	280 (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 .....	15 to 100,000 Hz, +0 dB, -1.0 dB
Signal to Noise Ratio (IHF, A network) .....	116 dB

## GENERAL

Power Requirement .....	120 V/60 Hz, 220-240 V/50 Hz (depending on destination)
Power Consumption	300 watts
Dimension (overall) .....	440 (W) x 92 (H) x 334 (D) mm
	17-3/8" x 3-5/8" x 13-3/16"
Weight (net) .....	6.8 kg / 15.0 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.

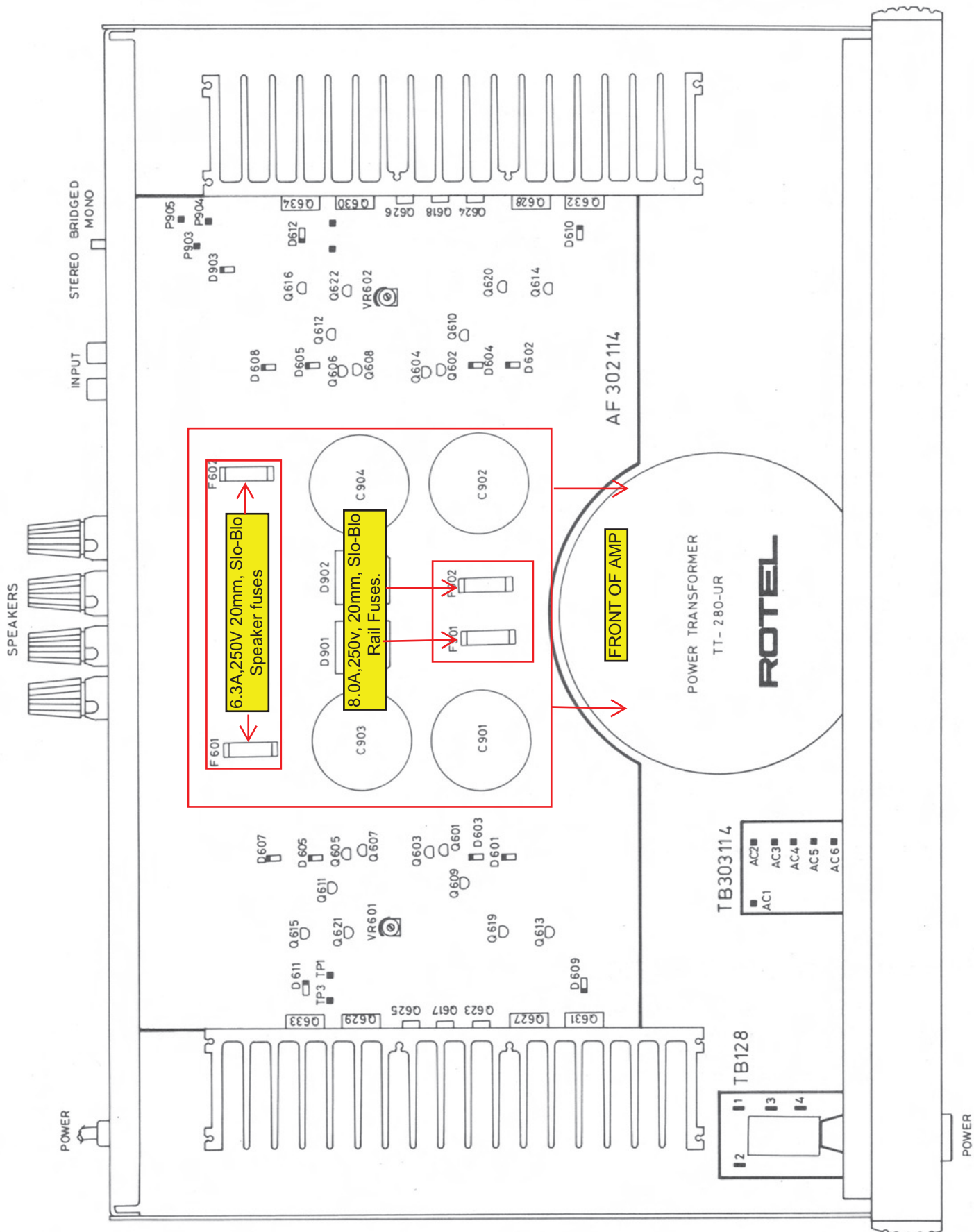
## Power Amplifier Bias Adjustment

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.

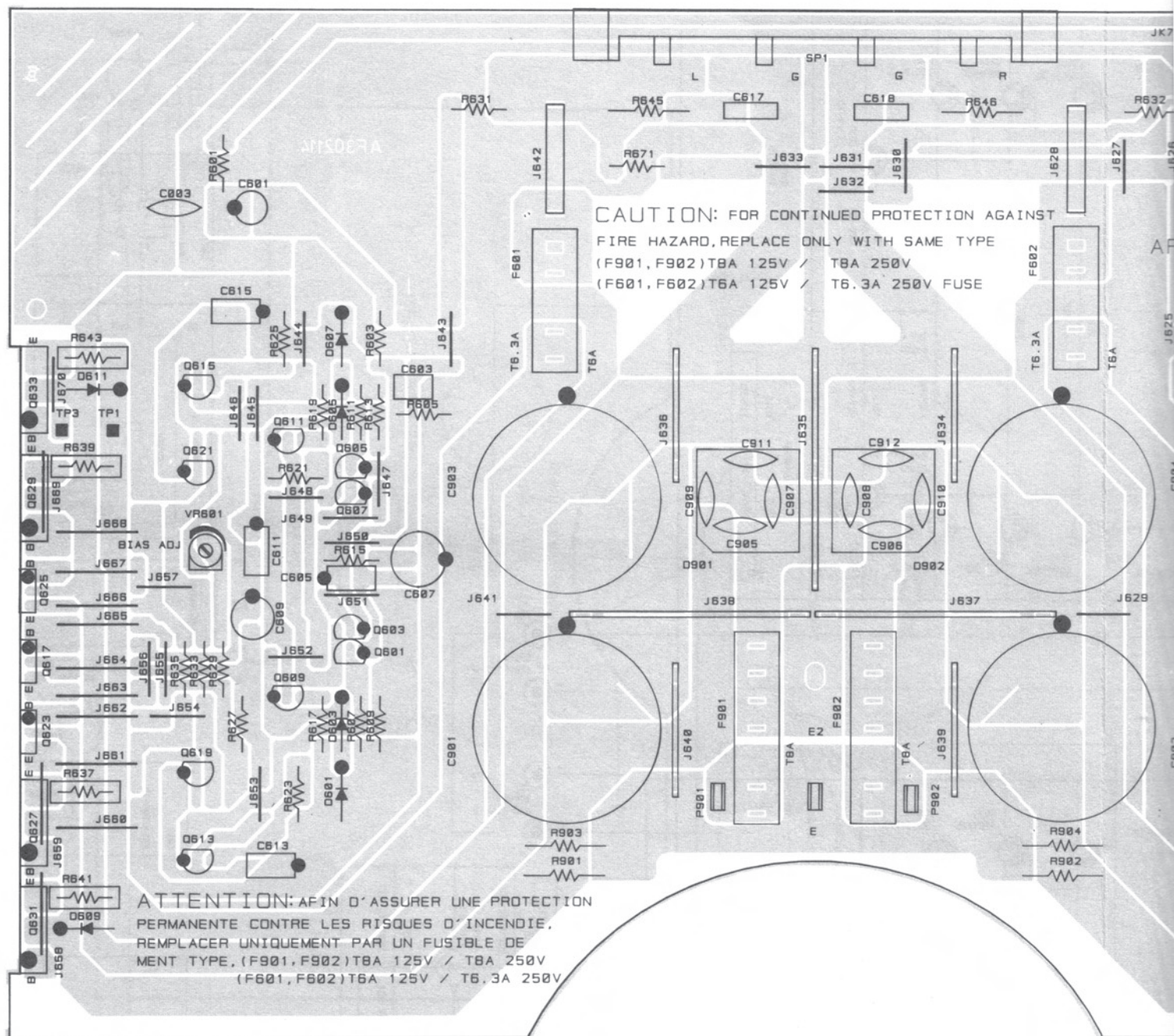
Step	Coupling		Adjust	Adjust for
	Plus Lead	Minus Lead		
1	TP1	TP3	VR601	DC milli-voltmeter reads 8 mV
2	TP2	TP4	VR602	

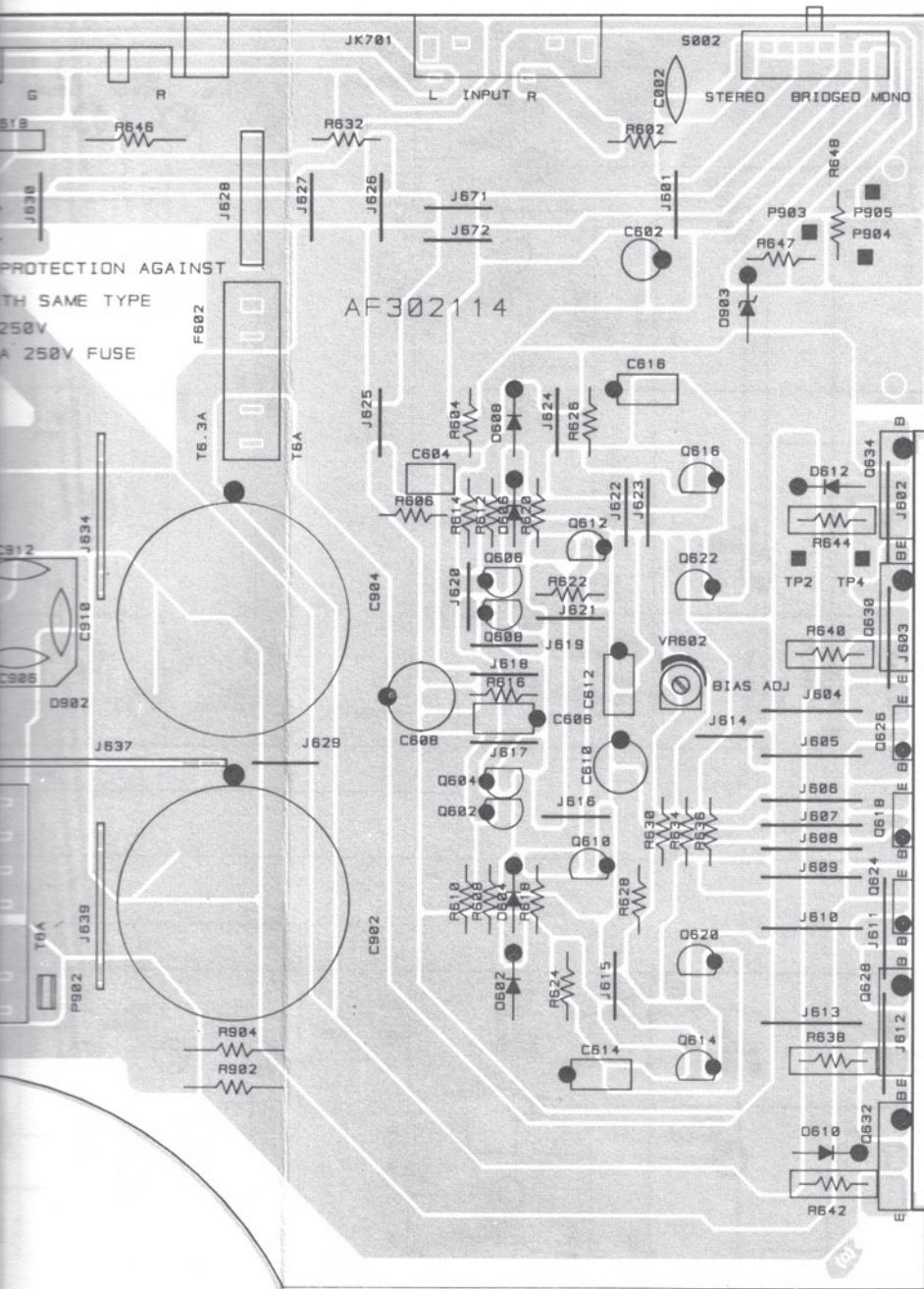
# Chassis Layout





# Printed Circuit Boards



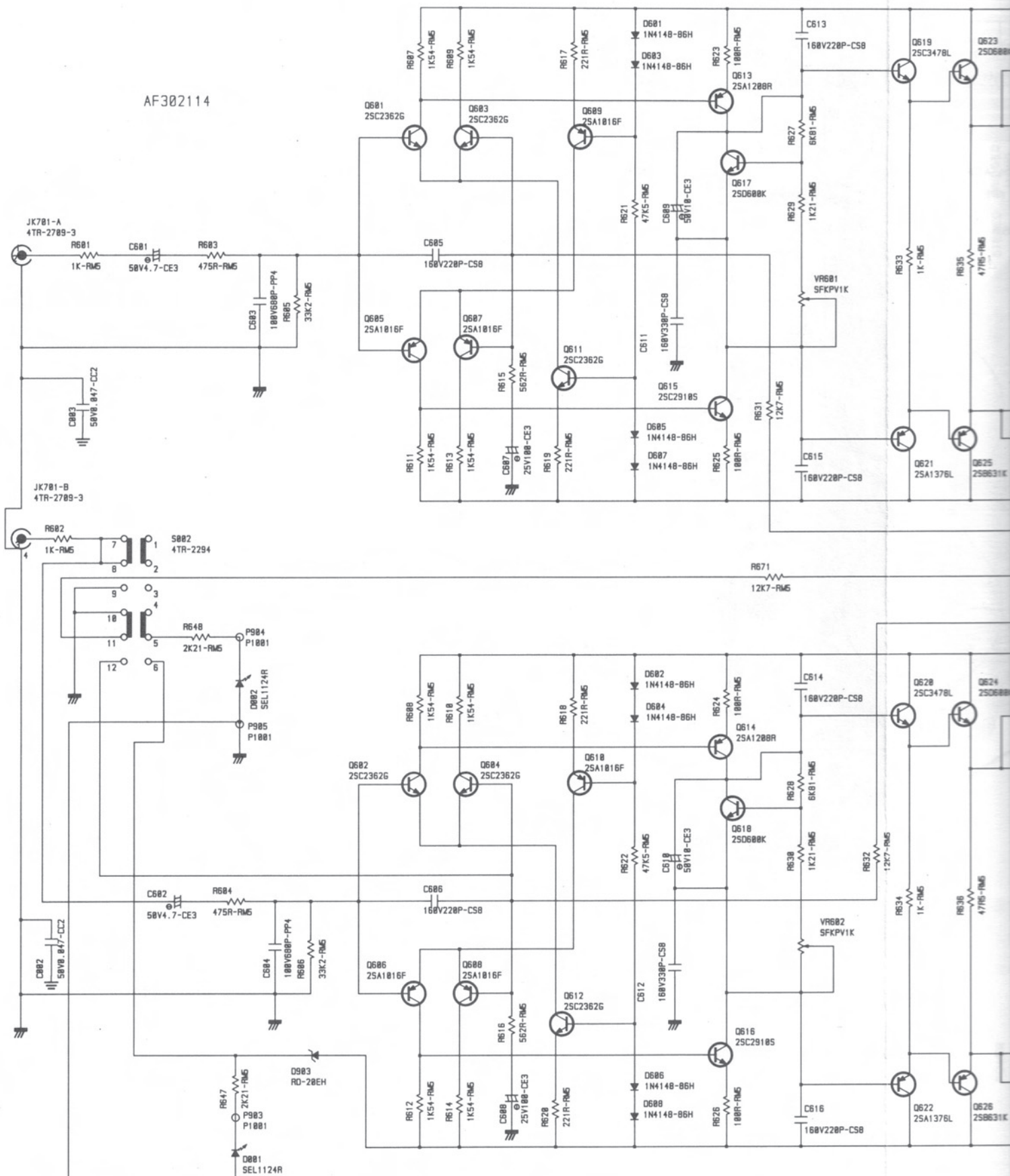


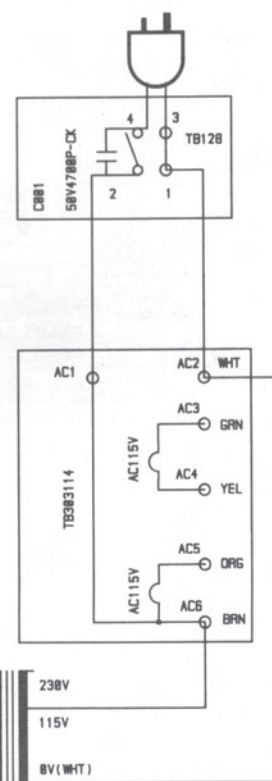
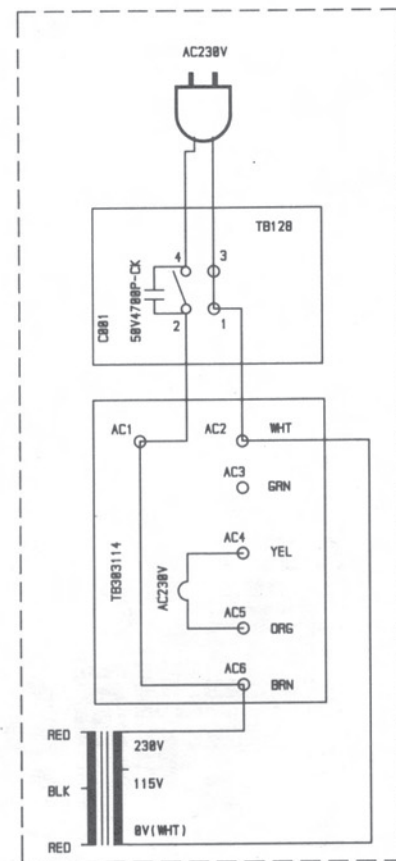
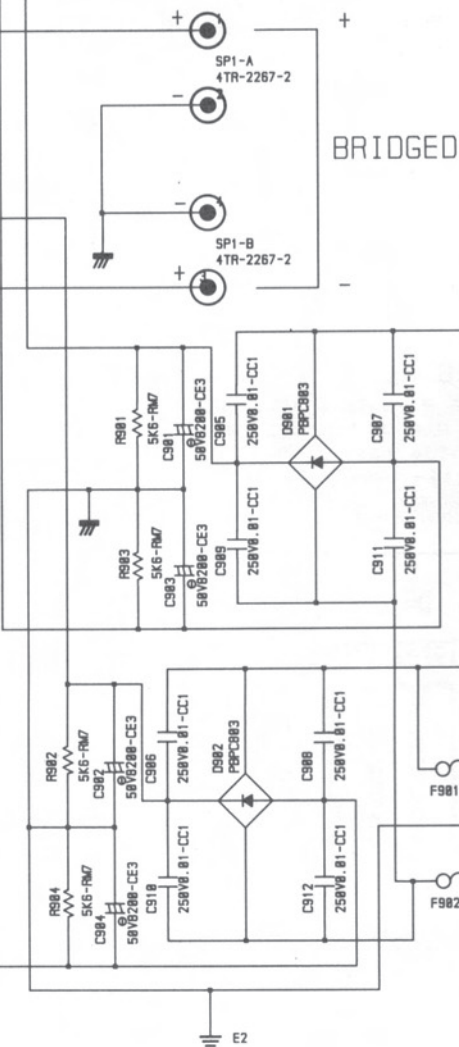
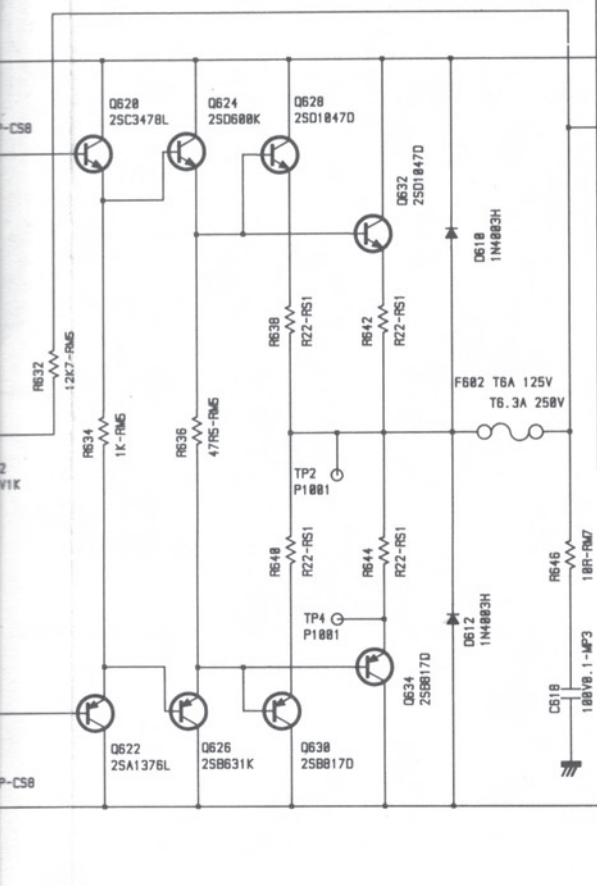
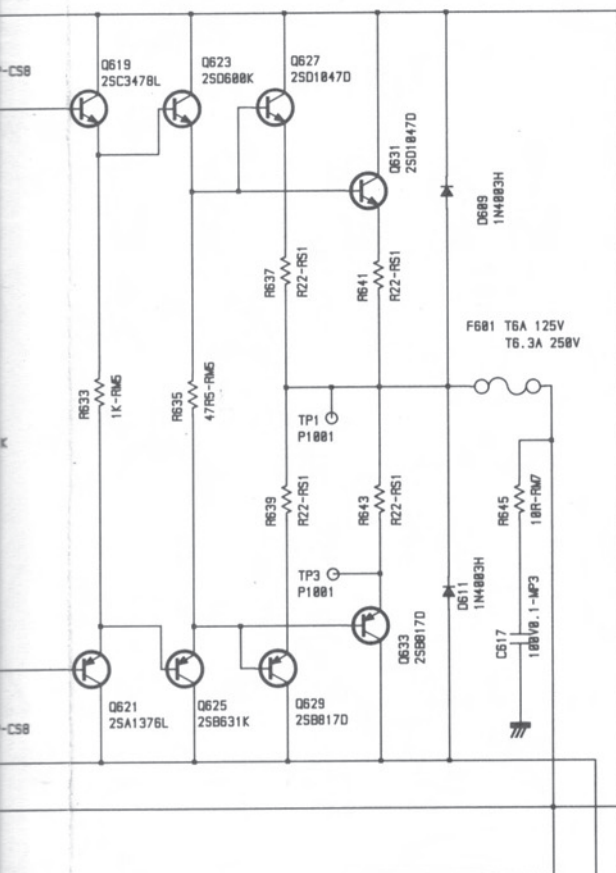


# Schematic Diagram

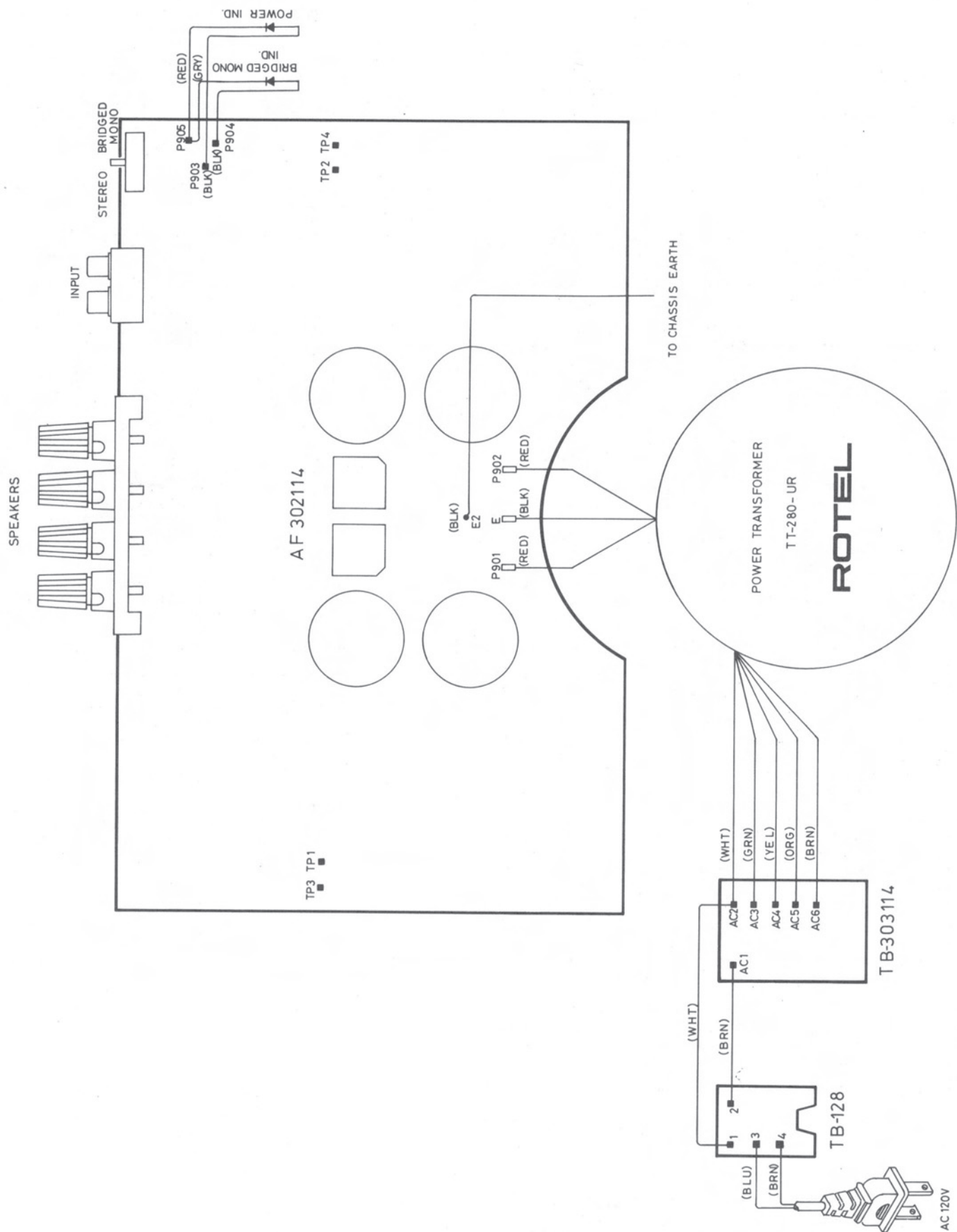
SCHEMATIC DIAGRAM MODEL NO. RB-970BX

AF302114





# Wiring Diagram





# Parts List

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

SYMBOL	PARTS NO.	DESCRIPTION	SYMBOL	PARTS NO.	DESCRIPTION
PCB ASSEMBLY					
C001	CK00000035	SPARK KILLER DE7150F472M $\Delta$	BC00000817	CYLINDER BUSH 4TVL-7#8	
C002-3	CC45009456	CAP. 50V 0.047UF CERAMIC	FT00000229	PLASTIC FOOT 4TSH-19#2	
C601-602	CE54707478	CAP. 50BGF4R7M ELEC.	FT00000242	50Fx14H	
C603-604	CP76811359	CAPACITOR FKP2-100V681H P.P		FOOT 4TR-2823#2 24Fx14H	
C605-606	CS32211306	CAP. 160V 220PF STYROL	SC00000027	AC CORD STOPPER SR-4N-4 $\Delta$	
			SR00001266	SILICON RUBBER SPACER	
C607-608	CE51005679	CAP. 25BGF100M ELEC.		4TR-3000A#2	
C609-610	CE51006477	CAP. 50BGF10M ELEC.	CD00000218	AC CORD SPT-2	
C611-612	CS33311310	CAP. 160V 330PF STYROL		4TR-670#4(U,C,A,J) $\Delta$	
C613-616	CS32211306	CAP. 160V 220PF STYROL	CD00000322	AC POWER CORD	
C617-618	CP61008321	CAP. MKT18-100V104K M.P		4TR-2757(D) $\Delta$	
			CD00000048	AC POWER CORD 4TR-1037	
C901-904	CE58204475	CAP. 50LPSS8200M ELEC.		(H,E,Y1,Y2,S1) $\Delta$	
C905-912	CC01009256	CAP. 250V 0.01UF CERAMIC $\Delta$	CD00000085	AC POWER CORD C-2504A	
D001-2	DD40000095	DIODE SEL1124R 1X5 RED		(K1) $\Delta$	
D601-608	DD80000021	DIODE 1N4148 1A 75V TAPED	CD00000115	AC POWER CORD C-3763-T $\Delta$	
D609-612	DD10000068	DIODE 1N4003 1A 140V RTFR	NP00001949	NAME STICKER AC120V	
				4TR-2828A#1 TNP-382	
D901-902	DD10000147	DIODE PBPC803 BRIDGE $\Delta$	NP00001974	NAME STICKER AC120V-C	
D903	DD20000028	DIODE RD-20E (B3) ZENER		4TR-2828A#4 TNP-385	
F601-602	FU25000041	FUSE 125V 6A UL $\Delta$	NP00001962	NAME STICKER AC240V	
	FU23000219	FUSE 250V T6.3A S $\Delta$		4TR-2828A#3 TNP-384	
F901-902	FU23000189	FUSE BEL 5ST 250V 8A $\Delta$	NP00001998	NAME STICKER AC230V	
	FU25000053	FUSE T8A $\Delta$		4TR-2828A#5 TNP-389	
			NP00002012	NAME STICKER AC100V	
JK701	JPO2000260	2P PIN JACK 4TR-2709#3		4TR-2828A#6 TNP-391	
Q601-604	TR30000212	TRANSISTOR 2SC2362(G)	NP00001950	NAME STICKER AC220V	
Q605-610	TR10000023	TRANSISTOR 2SA1016(F.G)		4TR-2828A#2 TNP-383	
Q611-612	TR30000212	TRANSISTOR 2SC2362(G)	AH20001015	HEAT SINKER BOARD 4TR-3002	
Q613-614	TR10000242	TRANSISTOR 2SA1208(R.S.T)	AA20000725	FRONT PANEL 2TQH-1#2	
				TFP-695	
Q615-616	TR30000479	TRANSISTOR 2SC2910(S.T)	BU00001145	POWER RING W/LED 4TQF-13	
Q617-618	TR40000069	TRANSISTOR 2SD600KE/KF		14x14	
Q619-620	TR30000558	TRANSISTOR 2SC3478(L.K.U)	KB20002681	POWER BUTTON 4TQF-15 14x14	
Q621-622	TR10000308	TRANSISTOR 2SA1376(L.K.U)	OM10001272	ORNAMENTAL SIDE BOARD	
Q623-624	TR40000069	TRANSISTOR 2SD600KE/KF		4TR-2797#2 H=80MM	
			OM70000065	PUSH BUTTON CONNECTOR	
Q625-626	TR10000047	TRANSISTOR 2SB631KE/KF		4TTL-15	
Q627-628	TR40000045	TRANSISTOR 2SD1047(D.E) $\Delta$	SN00000179	BUTTON SPRING 4TR-1988A#2	
Q629-630	TR20000040	TRANSISTOR 2SB817(D.E) $\Delta$		10F	
Q631-632	TR40000045	TRANSISTOR 2SD1047(D.E) $\Delta$	AU00001201	TOP COVER POLY 3TTF-5#7	
Q633-634	TR20000040	TRANSISTOR 2SB817(D.E) $\Delta$		H=80MM	
			SR00000882	UPPER COVER SPACER 4TR-2418	
R601-602	RM81001612	RESISTOR MK2001KFECZ. METAL	MN10003027	OWNER'S MANUAL RB-970BX	
R603-604	RM84750619	RESISTOR MK2475RFECZ. METAL	PLO0001142	STYROL SIDE MOULDING	
R605-606	RM83322614	RESISTOR MK233K2FECZ. METAL		2TTF-9A#3 TZ-165-1	
R607-614	RM81541618	RESISTOR MK21K54FECZ. METAL			
R615-616	RM85620616	RESISTOR MK2562RFECZ. METAL			
R617-620	RM82210610	RESISTOR MK2221RFECZ. METAL			
R621-622	RM84752616	RESISTOR MK247K5FECZ. METAL			
R623-626	RM81000619	RESISTOR MK2100RFECZ. METAL			
R627-628	RM86811612	RESISTOR MK26K81FECZ. METAL			
R629-630	RM81211618	RESISTOR MK21K21FECZ. METAL			
R631-632	RM81272619	RESISTOR MK212K7FECZ. METAL			
R633-634	RM81001612	RESISTOR MK2001KFECZ. METAL			
R635-636	RM84759611	RESISTOR MK247R5FECZ. METAL			
R637-644	RS20228230	RES. 0.22 J 2W SQUARE TYPE			
R645-646	RM91009127	RES. 10 J 1W METAL FORMING			
R647-648	RM82211614	RESISTOR MK22K21FECZ. METAL			
R671	RM81272619	RESISTOR MK212K7FECZ. METAL			
R901-904	RM95601126	RES. 5.6K J 1W METAL FORMING			
S002	SH20000319	SLIDE SW 4TR-2294			
SP1	TP20000286	4P SPEAKER TERMINAL			
		4TR-2267#2			
VR601-602	RV40000060	RES. SEMI-FIXED VM6CKPV-1K			
OTHERS					
	AB00000729	BOTTOM BOARD 3TQZ-5#2			
	AF20000179	FRONT CHASSIS 2TTF-2C			
	AM00002074	CHASSIS BODY 2TR-2966A#1			
	AR20000681	PRINTED REAR BCHASSIS			
		TRP-627			
	PT28016209	POWER TRANSFORMER			
		TT-280-UR $\Delta$			