

# ROTEL *hi fi*

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STEREO INTEGRATED AMPLIFIER

# RA-935BX

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# TECHNICAL MANUAL

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**THE ROTEL CO., LTD.**

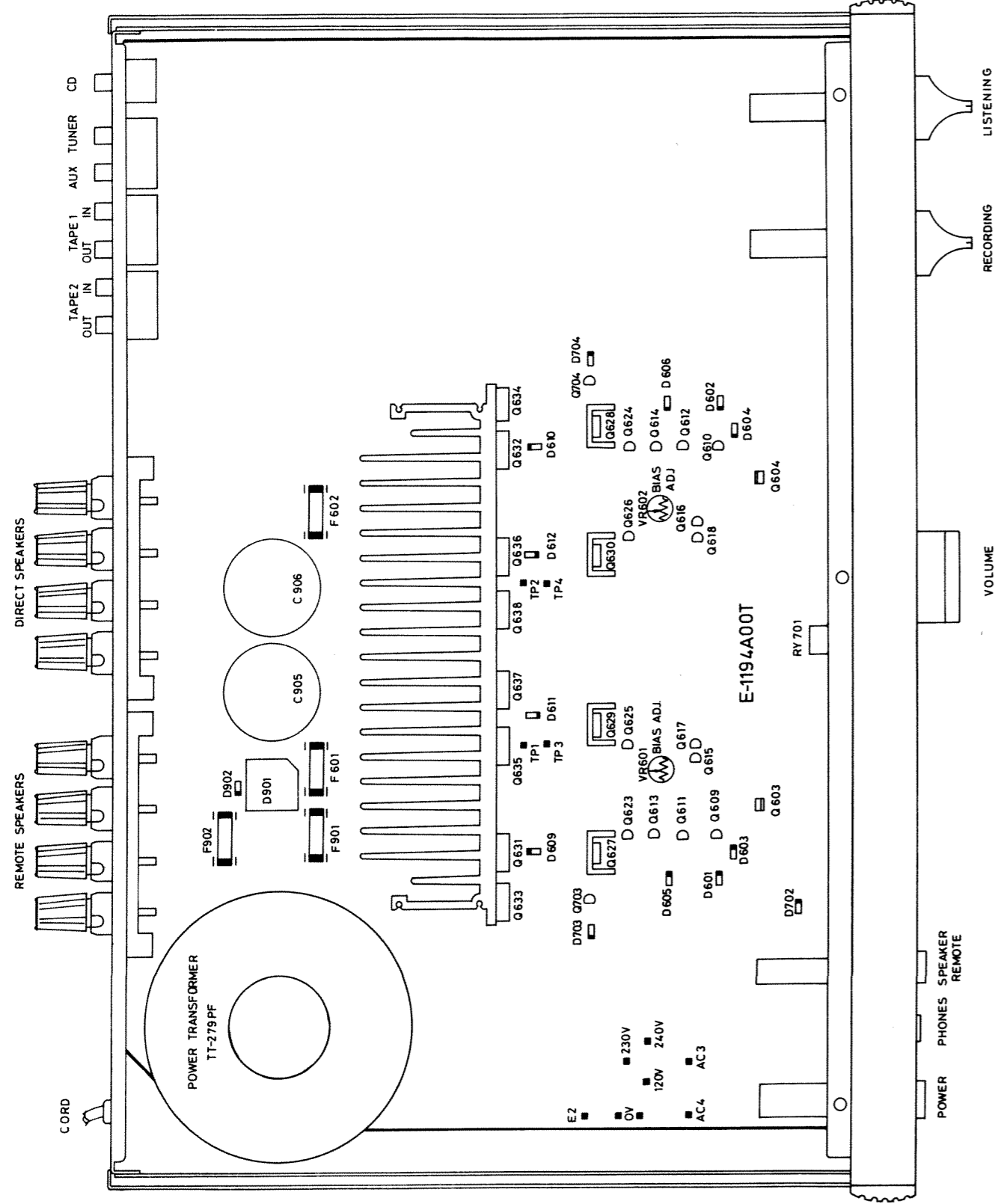
1-36-8, OHOKAYAMA, MEGURO-KU, TOKYO 152, JAPAN

**ROTEL ELECTRONICS CO., LTD.**

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

MN20002061

# Chassis Layout



# Specifications

RA-935BX

**Continuous Power Output** ..... 40 watts\* per channel, min. RMS both channels driven into 8 ohms from 20 to 20,000 kHz with no more than 0.05% total harmonic distortion.

**DIN Output** ..... 60 watts per channel (1 kHz, 4 ohms, 1% THD)

**Music Power** ..... 110 watts

**Total Harmonic Distortion (20 to 20 kHz from AUX)** ..... No more than 0.05% (continuous rated power output) No more than 0.03% (continuous 1/2 rated power output) No more than 0.03% (1 watt per channel power output, 8 ohms)

**Intermodulation Distortion (60 Hz : 7 kHz = 4:1)** ..... No more than 0.03% (continuous rated power output) No more than 0.01% (continuous 1/2 rated power output) No more than 0.02% (1 watt per channel power output, 8 ohms)

**Output: Speakers** ..... 4 ohms minimum

**Headphone** ..... 8 - 2,000 ohms

**Damping Factor** ..... 150 (20 to 20,000 Hz, 8 ohms)

**Input Sensitivity/Impedance:**

CD, TUNER ..... 210 mV/ 15 kohms

AUX, TAPE 1, 2 ..... 210 mV/ 15 kohms

**Overload Level (THD 0.5%, 1 kHz):**

CD, TUNER ..... 5 V

AUX, TAPE 1, 2 ..... 5 V

**Frequency Response:**

CD, TUNER ..... 10 to 100 kHz, + 1.0 dB, -3.0 dB

AUX, TAPE 1, 2 ..... 10 to 100 kHz, + 1.0 dB, -3.0 dB

**Signal to Noise Ratio (IHF, A network):**

CD, TUNER ..... 105 dB

AUX, TAPE 1, 2 ..... 105 dB

## MISCELLANEOUS

**Power Requirement** ..... 120 V/60 Hz, 230 V/50 Hz, 240 V/50 Hz (depending on destinations)

**Power Consumption** ..... 300 Watts

**Dimension (overall)** ..... 440 (W) x 92 (H) x 347 (D) mm  
17-3/8" x 3-5/8" x 13-11/16"

**Weight (net)** ..... 6.1 kg/ 13.4 lbs

- Specifications and design subject to possible modification without notice.
- \*Measured pursuant to the Federal Trade Commission's Trade Regulation Rule or, Power Claims for Amplifiers (applicable to the U.S.A. only).

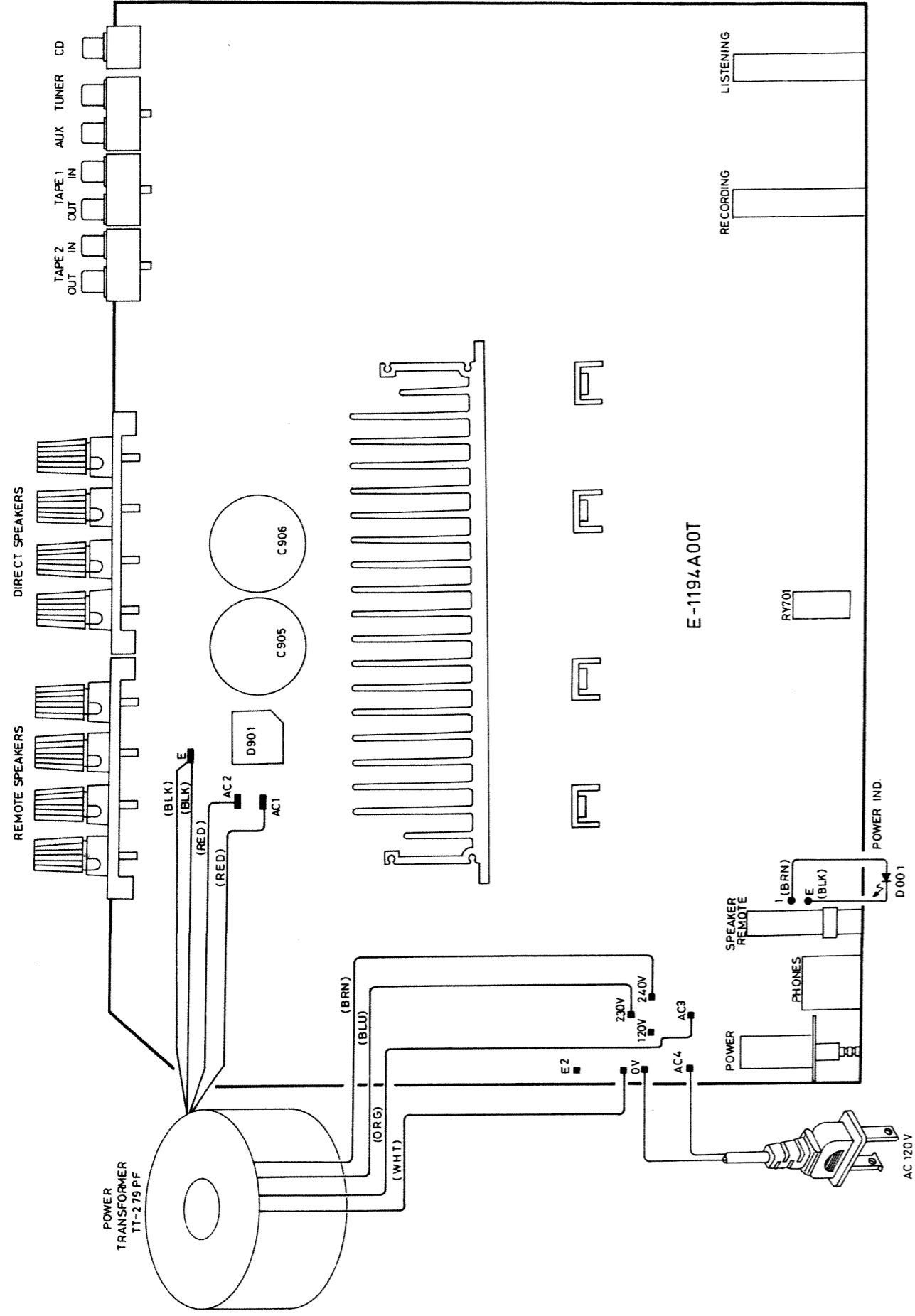
## Power Amplifier Bias Adjustment

**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.

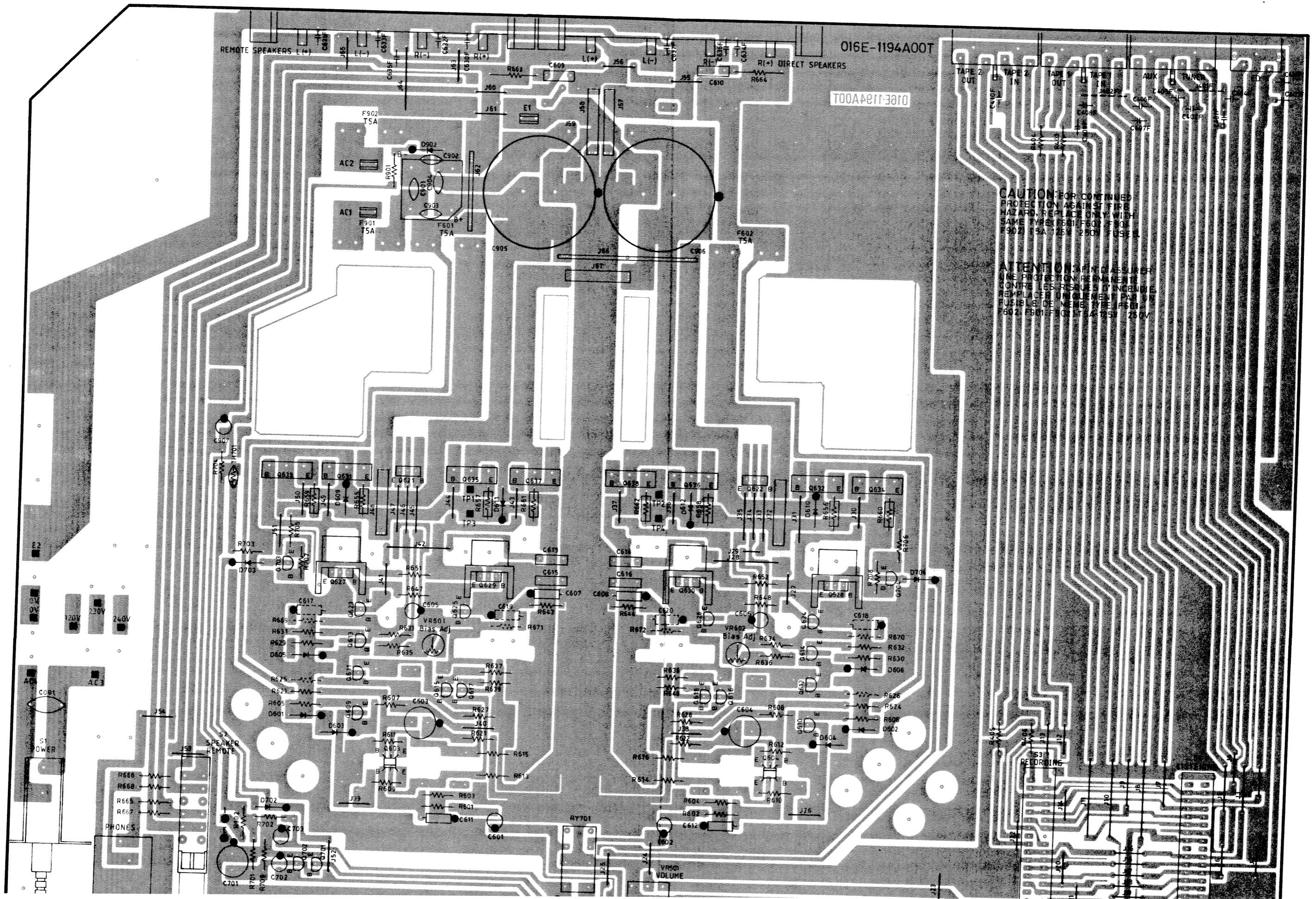
Step	Coupling		Adjust	Adjust for
	Plus Lead	Minus Lead		
1	TP3	TP1	VR601	DC milli-voltmeter reads 6 mV
2	TP4	TP2	VR602	

# Wiring Diagram





# Printed Circuit Boards



O16E-1194A00T

00A9111-380

**CAUTION:** FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH SAME TYPE F601, F602, F603, F901, F902, F903, F904, 25V, 250V FUSE.

**ATTENTION:** POUR ASSURER UNE PROTECTION PERMANENTE CONTRE LES RISQUES D'INCENDIE, REMPLACER UNIQUEMENT PAR UN FUSIBLE DE MEME TYPE F601, F602, F901, F902, F903, F904, 25V, 250V.

120V 230V 240V

PHONES

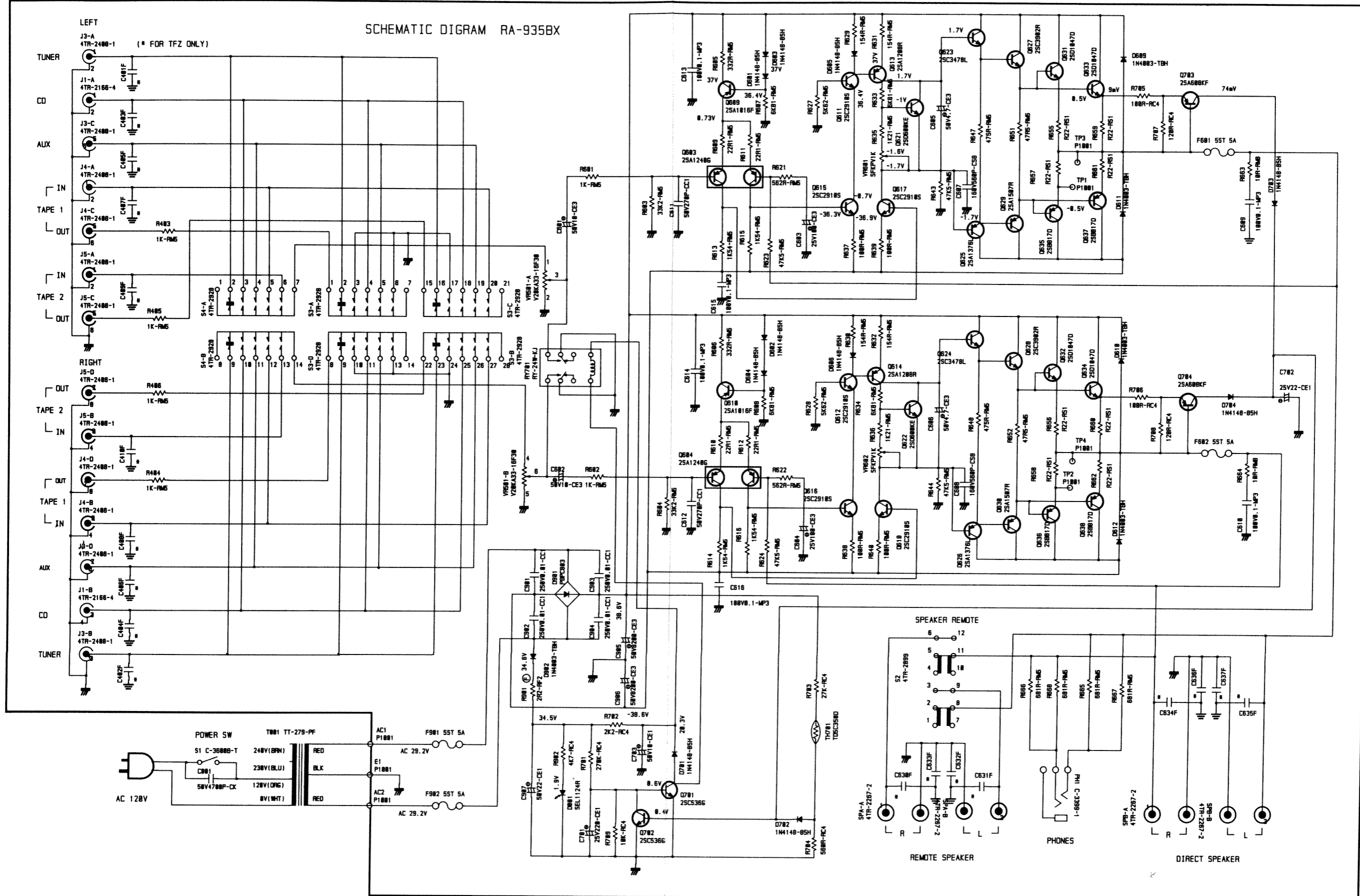
VR501 VOLUME

RECORDING



# Schematic Diagram

## SCHEMATIC DIGRAM RA-935BX



# Parts List

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

SYMBOL	PARTS NO.	DESCRIPTION
	E-1194A00T	PCB ASSEMBLY
R403-406	RM81001612	R, METAL MK2001KFECZ.
VR501	RV10001711	R, VARIABLE 4TR-2930 20KAx2
R601,602	RM81001612	R, METAL MK2001KFECZ.
R603,604	RM83322614	R, METAL MK233K2FECZ.
R605,606	RM83320617	R, METAL MK2332RFECZ.
R607,608	RM86811612	R, METAL MK26K81FECZ.
R609,610	RM82219613	R, METAL MK222R1FECZ.
R611,612	RM82219613	R, METAL MK222R1FECZ.
R613,614	RM81541618	R, METAL MK21K54FECZ.
R615,616	RM81541618	R, METAL MK21K54FECZ.
R621,622	RM85620616	R, METAL MK2562RFECZ.
R623,624	RM84752616	R, METAL MK247K4FECZ.
R627,628	RM85621610	R, METAL MK25K62FECZ.
R629,630	RM81540614	R, METAL MK2154RFECZ.
R631,632	RM81540614	R, METAL MK2154RFECZ.
R633,634	RM86811612	R, METAL MK26K81FECZ.
R635,636	RM81211618	R, METAL MK21K21FECZ.
R637-640	RM81000619	R, METAL MK2100RFECZ.
R643,644	RM84752616	R, METAL MK247K5FECZ.
R647,648	RM84750619	R, METAL MK2475RFECZ.
R651,652	RM84759611	R, METAL MK247R5FECZ.
R655-662	RS20228230	R, SQUARE TYPE MPC70-0.22F
R663,664	RM91009220	R, METAL OXIDE FILM 2W 10 J
R665-668	RM86810619	R, METAL MK2681RFECZ.
C601,602	CE51006477	CAP, ELEC. 50BGF10M
C603,604	CE51005679	CAP, ELEC. 25BGF100M
C605,606	CE54707478	CAP, ELEC. 50BGF4R7M
C607,608	CS35611319	CAP, POLYSTYRENE 160V 560P
C609,610	CP61000832	CAP, M.P. 100V 104K
C611,612	CS32711315	CAP, POLYSTYRENE 160V 270P
C613-616	CP61000832	CAP, M.P. 100V 104K
D601-606	DD80000021	DIODE IN4148-86
D609-612	DD80000010	DIODE IN4003-TB
Q603,604	TR10000321	TRANSISTOR 2SA1240G
Q609,610	TR10000023	TRANSISTOR 2SA1016F
Q611,612	TR30000479	TRANSISTOR 2SC2910S
Q613,614	TR10000242	TRANSISTOR 2SA1208-RST
Q615-618	TR30000479	TRANSISTOR 2SA2910S
Q621,622	TR40000069	TRANSISTOR 2SD600K
Q623,624	TR30000558	TRANSISTOR 2SC3478
Q625,626	TR10000308	TRANSISTOR 2SA1376
Q627,628	TR30000613	TRANSISTOR 2SC3902R
Q629,630	TR10000345	TRANSISTOR 2SA1507R
Q631-634	TR40000045	POWER TRANSISTOR 2SD1047D $\Delta$
Q635-638	TR20000040	POWER TRANSISTOR 2SB817 $\Delta$
VR601,602	RV10001711	R, SEMI-FIXED VM6CKPV-1S-B 1KB
F601,602	FU25000030	FUSE 125V 5A UL/CSA $\Delta$
	FU23000141	FUSE 250V T5A S $\Delta$
R701	RD22703823	R, CARBON 270K 1/4W
R702	RD52201820	R, CARBON 2.2K 1/4W
R703	RD52702821	R, CARBON 27K 1/4W J
R704	RD55600828	R, CARBON 560 1/4W J
R705,706	RD51000820	R, CARBON 100 1/4W J
R707,708	RD51200820	R, CARBON 120 1/4W J
R709	RD51002827	R, CARBON 10K 1/4W J
C701	CE02205255	CAP, ELEC. 25V 220uF
C702	CE02206259	CAP, ELEC. 25V 22uF
C703	CE01006500	CAP, ELEC. 50V 10uF
Q701,702	TR30000327	TRANSISTOR 2SC536G
Q703,704	TR10000126	TRANSISTOR 2SA608K
D701	DD80000021	DIODE IN4148-86
TH701	DD60000260	THERMISTOR TDS-C350D $\Delta$
RY701	LY00000277	RELAY RY24W $\Delta$
R901	RF12208823	R, FUSIBLE TYPE FRQ14AJ2R2P
C901-904	CC01009256	CAP, CERAMIC 250V 0.01uF $\Delta$
C905,906	CE58204517	CAP, ELEC. 50V 8200uF $\Delta$
C907	CE02206508	CAP, ELEC. 50V 22uF

SYMBOL	PARTS NO.	DESCRIPTION
D901	DD10000147	DIODE KBPC802 $\Delta$
D902	DD80000010	DIODE IN4003-TB
F901,902	FU25000030	FUSE 125V 5A UL/CSA $\Delta$
	FU23000141	FUSE 250V T5A S $\Delta$
C001	CK00000035	SPARK KILLER DE7150F472M $\Delta$
S1	SH40000120	POWER SW C-3600B-T $\Delta$
S2	SH11000434	1 KEY PUSH SW 4TR-2899
S3,S4	SH30000572	FUNCTION SW 4TR-2928
OTHERS		
	AB00000547	BOTTOM BOARD 1TQF-5
	AF20000258	FRONT CHASSIS 2TQF-2
	AR20000668	PRINTED REAR CHASSIS TRP-622
	AS01000270	SIDE CHASSIS 3TQF-4A
	DD40000095	LED SEL1124R
	PT27911100	POWER TRANSFORMER TT-279-PF $\Delta$
	BU00001236	INSULATION BUSH 4TR-2841
	FT00000217	PLASTIC FOOT CAP 4TR-2807
	SB00000601	P.V.C SHIELD PLATE (A) 4TR-2824
	SB00000613	P.V.C SHIELD PLATE (B) 4TR-2825
	SB00000625	ALUMINUM PAPER 4TR-2826
	SP10006363	P.T SUPPORT 3TQF-9A
	SR00001151	P.V.C SPACER 4TR-2842
	SP10005437	P.C.B SUPPORT 4TTU-13
	NP00001949	NAME STICKER 4TR-2828A#1 TNP-382 AC120V
	NP00001974	NAME STICKER 4TR-2828A#4 TNP-385 AC120V (C)
	NP00001962	NAME STICKER 4TR-2828A#3 TNP-384 AC240V
	NP00001998	NAME STICKER 4TR-2828A#5 TNP-389 AC230V
	NP00002012	NAME STICKER 4TR-2828A#6 TNP-391 AC100V
	NP00001950	NAME STICKER 4TR-2828A#2 TNP-383 AC220V
	CD00000218	AC CORD SPT-2 AWG#18 4TR-670#4(U,C,A,J) $\Delta$
	CD00000292	AC POWER CORD 4TR-2631#1 (D) $\Delta$
	CD00000048	AC POWER CORD 4TR-1037 (H,E,K2,Y) $\Delta$
	CD00000085	AC POWER CORD C-2504A(K1) $\Delta$
	CD00000115	AC POWER CORD C-3763-T (G) $\Delta$
	SC00000131	AC CORD STOPPER SR-5N-4 (K1) $\Delta$
	SC00000039	AC CORD STOPPER SR-6W-1 (D) $\Delta$
	SC00000027	AC CORD STOPPER SR-4N-4 $\Delta$
	AH20000813	HEAT SINKER BOARD 3TQF-6#2
	SP10006387	H.S SUPPORT 4TQG-4A
	AA20000701	FRONT PANEL 2TQF-1#5
	BU00001145	POWER RING W/LED 4TQF-13 14x14
	BU00001157	PUSH BUTTON RING 4TQF-14 5x10
	BU00001169	KNOB RING 4TQF-17 39F
	KB20002681	POWER BUTTON 4TQF-15 14x14
	KB20002693	PUSH BUTTON 4TQF-16 5x10
	OM10001272	ORNAMENTAL SIDE BOARD 4TR-2797 H=80MM
	OM70000065	PUSH BUTTON CONNECTOR 4TTL-15
	SN00000179	BUTTON SPRING 4TR-1988A#2 10F
	AU00001201	TOP COVER POLY 3TTF-5#7

# Parts List

SYMBOL	PARTS NO.	DESCRIPTION
	KB10001734	KNOB 4TQF-19 24F
	KB10001746	KNOB 4TQF-20 33F (WR)
	KB10001758	KNOB 4TQF-21 33F (WF)
	FE00000079	FELT 4TR-1083B#3 46F
	FE00000092	FELT 4TR-1083B#2 30F
	SR00000882	UPPER COVER SPACER 4TR-2418
	MN10002975	OWNER'S MANUAL RA-935BX
	PL00001051	STYROL SIDE MOULDING 2TR-2800 TZ-183