

ROTEL *hifi*

STEREO INTEGRATED AMPLIFIER

RA-920AX

TECHNICAL MANUAL

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THE ROTEL CO., LTD.

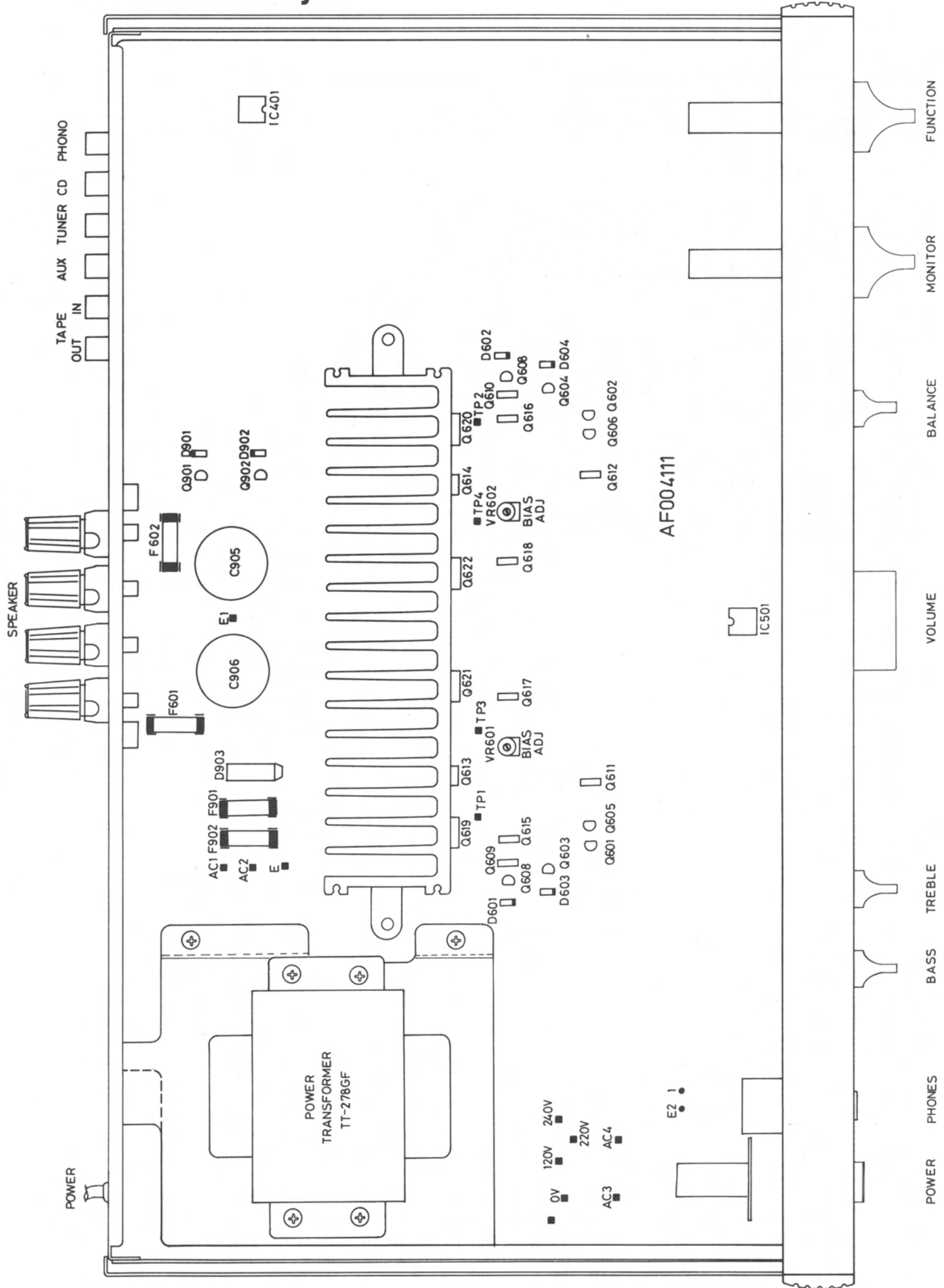
1-36-8, OHOKAYAMA, MEGURO-KU, TOKYO 152, JAPAN

ROTEL ELECTRONICS CO., LTD.

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

MN20001860

Chassis Layout



Specifications

SPECIFICATIONS RA-920AX

Continuous Power Output...20 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.....35 watts per channel (1 kHz, 4
ohms, 1% THD)

Music Power.....75 watts

Total Harmonic Distortion...No more than 0.03% (contin-
(20 to 20kHz from AUX) uous 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...No more than 0.03% (contin-
(60 Hz: 7 kHz = 4:1) uous rated power output) No
more than 0.03% (continuous
1/2 rated power output) No
more than 0.03% (1 watt per
channel power ouput,8 ohms)

Output: Speaker.....4 ohms minimum
Headphone.....8 - 2,000 ohms

Damping Factor.....180 (20 to 20,000 Hz,8 ohms)

Input Sensitivity/ Impedance:

PHONO.....2.5 mV/ 47 kohms

CD, TUNER.....150 mV/ 20 kohms

TAPE, AUX.....150 mV/ 20 kohms

Overload Level (THD 0.5% 1kHz.):

PHONO.....180 mV

CD, TUNER.....5 V

TAPE, AUX.....5 V

Frequency Response:

PHONO.....20 to 15,000 Hz, +/- 0.3 dB
(RIAA STD)

CD, TUNER.....10 to 40,000 Hz, +/- 1.0 dB

TAPE, AUX.....10 to 40,000 Hz, +/-1.0 dB

Tone Control:

BASS..... +/- 6.0 dB (100 Hz)

TREBLE..... +/- 6.0 dB (10 KHz)

Signal to Noise Ratio (IHF, A network):

PHONO.....78 dB

CD, TUNER.....98 dB

TAPE, AUX.....98 dB

MISCELLANEOUS

Power Requirement.....120 V/ 60 Hz, 220 V/ 50 Hz,
240 V/ 50 Hz (depending on
destinations)

Power Consumption.....120 watts

Dimension (overall).....440 (W) x 92 (H) x 304 (D)mm
17- 3/8" x 3-5/8" x 12"

Weight (net).....5.1 kg / 11.2 lbs

● Specifications and design subject to possible modifica-
tion without notice.

● *Measured pursuant to the Federal Trade Commis-
sion's Trade Regulation Rule or, Power Claims for
Amplifiers (applicable to the U.S.A. only).

Power Amplifier Bias Adjustment

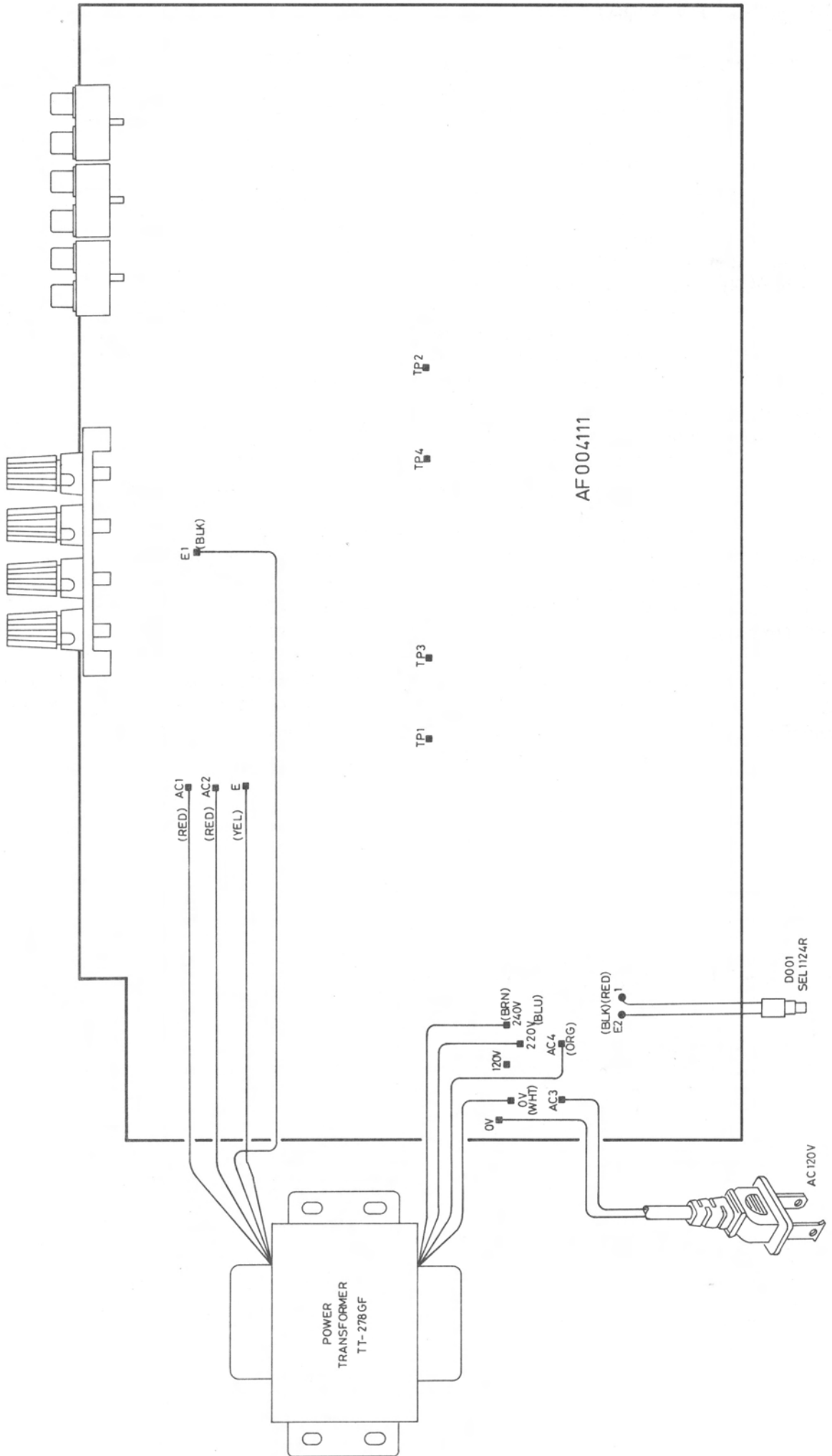
Instruments:DC milli-voltmeter

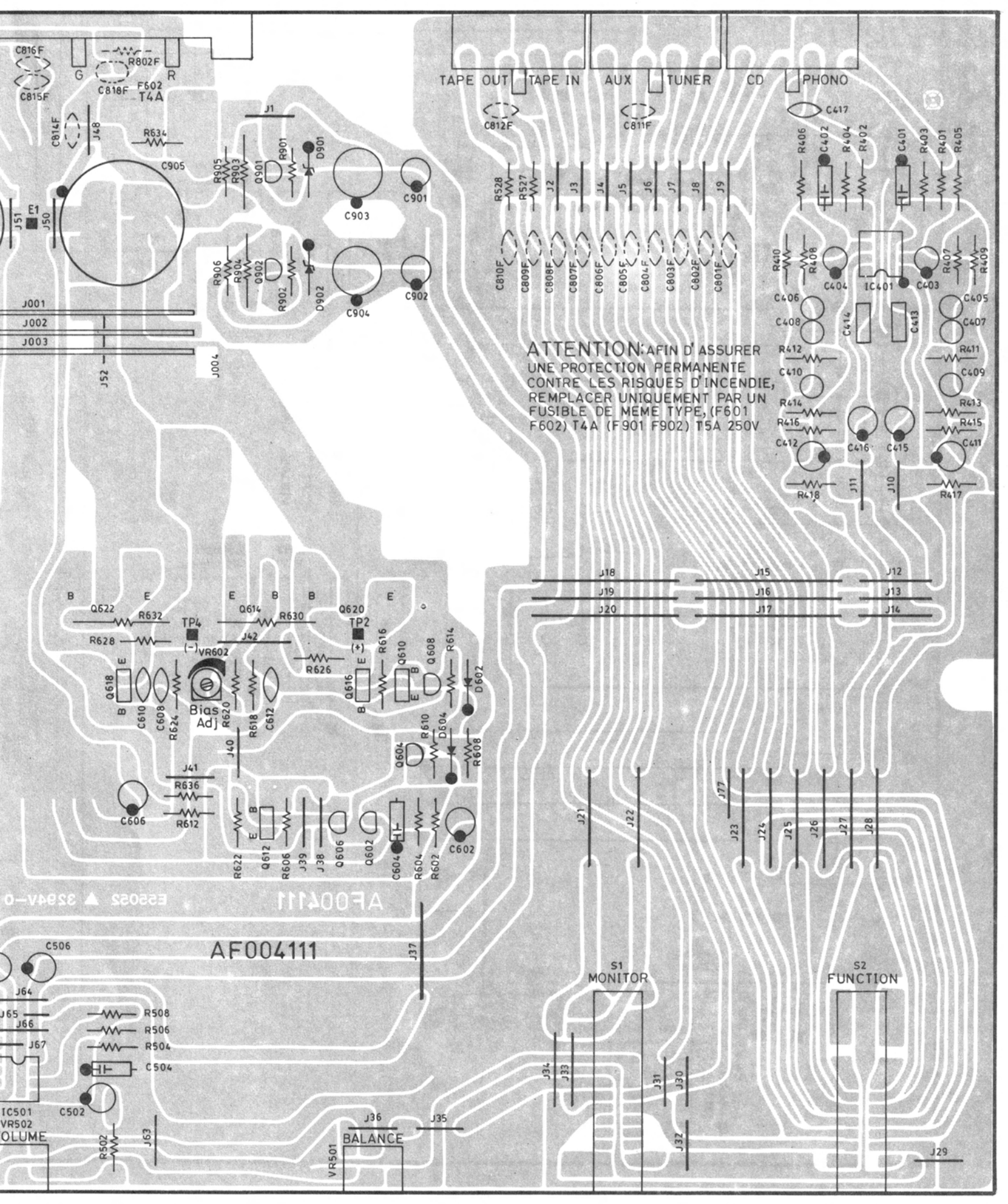
Notes:Prior to Bias Adjustment,run about 5 minutes with rated output (8 ohm)
and warm up power Transistor and Heat Sink.

Set Volume Control to minimum.

Step	Coupling		Adjust	Adjust for
	Plus Lead	Minus Lead		
1	TP1	TP3	VR601	DC milli-voltmeter reads 4 mV
2	TP2	TP4	VR602	

Wiring Diagram





TAPE OUT TAPE IN AUX TUNER CD PHONO

ATTENTION: AFIN D'ASSURER
 UNE PROTECTION PERMANENTE
 CONTRE LES RISQUES D'INCENDIE,
 REMPLACER UNIQUEMENT PAR UN
 FUSIBLE DE MEME TYPE, (F601
 F602) T4A (F901 F902) T5A 250V

AF004111

AF004111

S1
MONITOR

S2
FUNCTION

IC501
VR502
OLUME

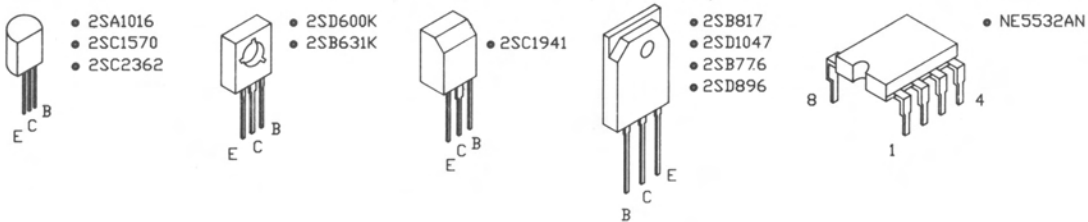
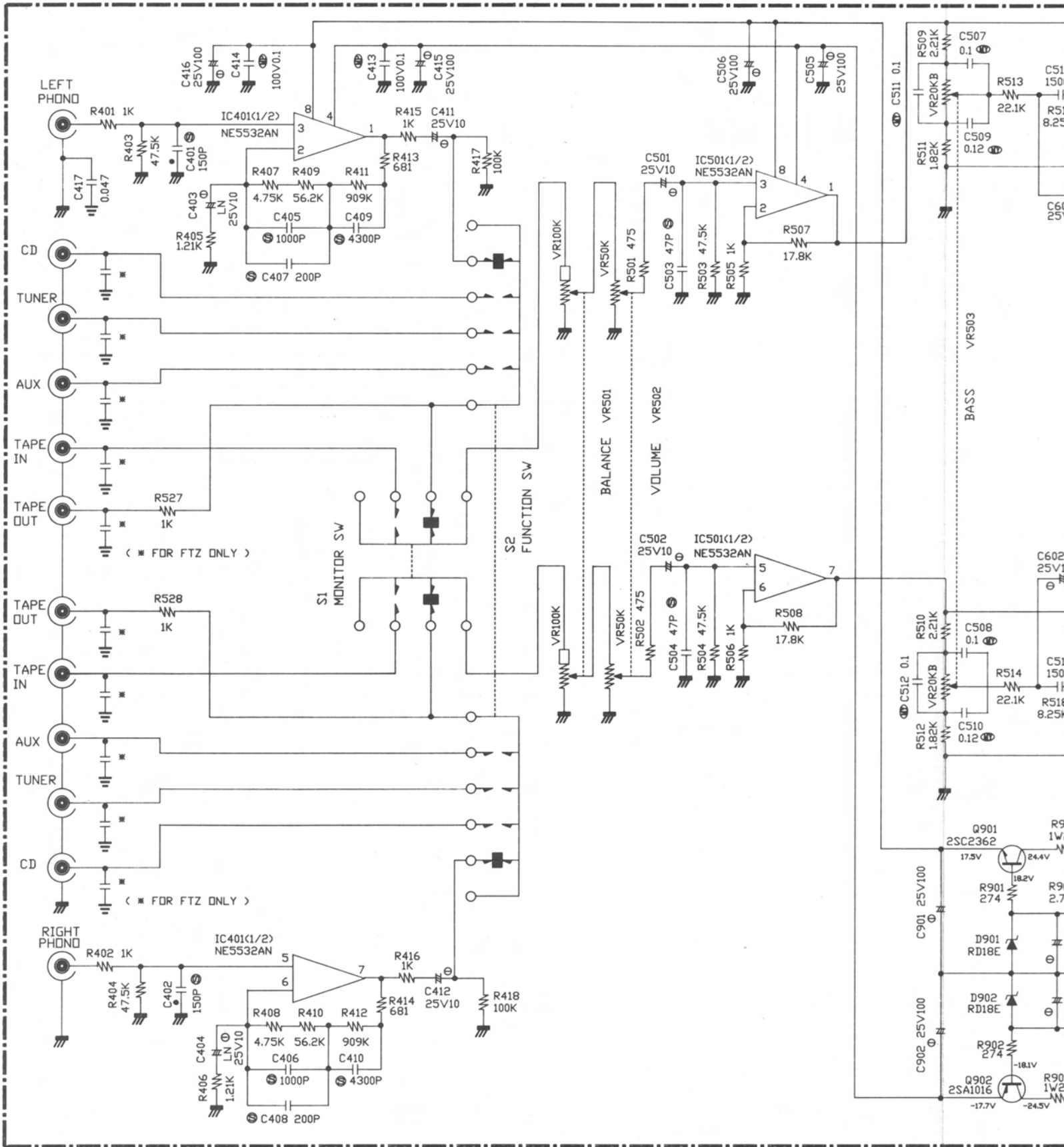
VR501
BALANCE

J29

Schematic Diagram

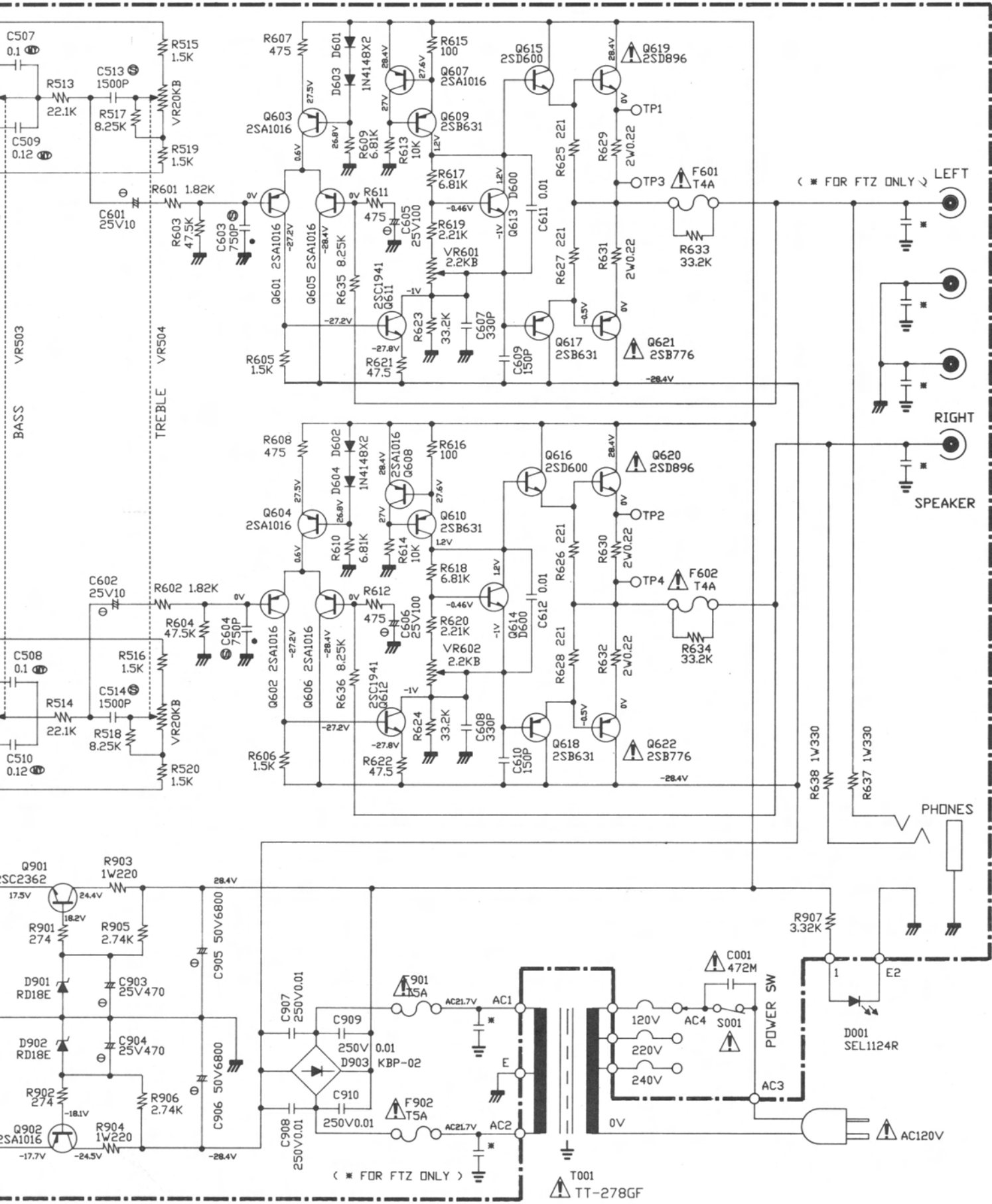
MODEL RA-920AX

(NOT)



INSTRUCTION FOR SERVICING

- 1). USE ONLY REPLACEMENT PARTS THAT HAVE CHARACTERISTICS RECOMMENDED BY MANUFACTURER.
- 2). MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ADEQUATELY INSULATED FROM THE AC SUPPLY CIRCUIT BEFORE RETURNING THE UNIT TO THE CUSTOMER.



SERVICING PERSONNEL:
 PARTS THAT HAVE THE CRITICAL
 INDENED BY MANUFACTURER.
 OR RESISTANCE MEASUREMENTS
 USED PARTS ARE ACCEPTABLY
 SUPPLY CIRCUIT BEFORE RETURNING
 MER.

Parts List

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


SYMBOL	PARTS NO.	DESCRIPTION
AF004111 PCB ASSEMBLY		
R401,402	RM21001811	R, METAL 1K F 1/4W
R403,404	RM24752818	R, METAL 47.5K F 1/4W
R405,406	RM21211817	R, METAL 1.21K F 1/4W
R407,408	RM24751814	R, METAL 4.75K F 1/4W
R409,410	RM25622815	R, METAL 56.2K F 1/4W
R411,412	RM29103818	R, METAL 909K F 1/4W
R413,414	RM26810810	R, METAL 681 F 1/4W
R415,416	RM21001811	R, METAL 1K F 1/4W
R417,418	RM21003819	R, METAL 100K F 1/4W
C401,402	CS41511420	CAP, STYROL 150PF 50V
C403,404	CE31006258	CAP, LOW NOISE 041 U25V10LN
C405,406	CS41010417	CAP, STYROL 1000PF 50V
C407,408	CS42011417	CAP, STYROL 200PF 50V
C409,410	CS44310412	CAP, STYROL 4300PF 50V
C411,412	CE01006251	CAP, ELEC. 10uF 25V
C413,414	CP61008321	CAP, M.P 0.1uF 100V
C415,416	CE01005258	CAP, ELEC. 100uF 25V
C417	CC05009457	CAP, CERMAIC 0.047uF 50V
IC401	IC00001693	IC NE5532AN
R501,502	RM24750810	R, METAL 475 F 1/4W
R503,504	RM24752818	R, METAL 47.5K F 1/4W
R505,506	RM21001811	R, METAL 1K F 1/4W
R507,508	RM21782810	R, METAL 17.8K F 1/4W
R509,510	RM22211810	R, METAL 2.21K F 1/4W
R511,512	RM21821814	R, METAL 1.82K F 1/4W
R513,514	RM22212814	R, METAL 22.1K F 1/4W
R515,516	RM21501819	R, METAL 1.5K F 1/4W
R517,518	RM28251812	R, METAL 8.25K F 1/4W
R519,520	RM21501819	R, METAL 1.5K F 1/4W
C501,502	CE01006251	CAP, ELEC. 10uF 25V
C503,504	CS44712423	CAP, STYROL 47PF 50V
C505,506	CE01005258	CAP, ELEC. 100uF 25V
C507,508	CM01008423	CAP, MYLAR 104 J 50V
C509,510	CM01208424	CAP, MYLAR 124 J 50V
C511,512	CM01008423	CAP, MYLAR 104 J 50V
C513,514	CS41510414	CAP, STYROL 1500PF 50V
IC501	IC00001693	IC NE5532AN
VR501	RV10001565	R, VARIABLE 4TR-2776 100KMN K-20 (BALANCE)
VR502	RV10001553	R, VARIABLE 4TR-2775 50Kax2 K-30 (VOLUME)
VR503,504	RV10001541	R, VARIABLE 4TR-2774 20KBx2 K-20 (BASS, TREBLE)
R601,602	RM21821814	R, METAL 1.82K F 1/4W
R603,604	RM24752818	R, METAL 47.5K F 1/4W
R605,606	RM21501819	R, METAL 1.5K F 1/4W
R607,608	RM24750810	R, METAL 475 F 1/4W
R609,610	RM26811814	R, METAL 6.81K F 1/4W
R611,612	RM24750810	R, METAL 475 F 1/4W
R613,614	RM21002815	R, METAL 10K F 1/4W
R615,616	RM21000818	R, METAL 100 F 1/4W
R617,618	RM26811814	R, METAL 6.81K F 1/4W
R619,620	RM22211810	R, METAL 2.21K F 1/4W
R621,622	RM24759813	R, METAL 47.5 F 1/4W
R623,624	RM23322816	R, METAL 33.2K F 1/4W
R625,626	RM22210817	R, METAL 221 F 1/4W
R627,628	RM22210817	R, METAL 221 F 1/4W
R629-632	RM90228220	R, METAL 0.22 2W
R633,634	RM23322816	R, METAL 33.2K F 1/4W
R635,636	RM28251812	R, METAL 8.25K F /14W
R637,638	RM93300123	R, METAL 330 1W J
C601,602	CE01006251	CAP, ELEC. 10uF 25V
C603,604	CS47511428	CAP, STYROL 750PF 50V
C605,606	CE01005258	CAP, ELEC. 100uF 25V
C607,608	CC33311434	CAP, CERAMIC 330P
C609,610	CC31511432	CAP, CERAMIC 150PF 50V

SYMBOL	PARTS NO.	DESCRIPTION
C611,612	CC31009465	CAP, CERAMIC 0.01uF 50V
Q601-608	TR10000023	TRANSISTOR 2SA1016 (F)
Q609,610	TR10000047	TRANSISTOR 2SB631K (E,F)
Q611,612	TR30000169	TRANSISTOR 2SC1941 (K,L)
Q613-616	TR40000069	TRANSISTOR W/MICA 2SD600K (E,F)
Q617,618	TR10000047	TRANSISTOR W/MICA 2SB631 (E,F)
Q619,620	TR40000021	POWER TRANSISTOR W/MICA 2SD896 (D,E)
Q621,622	TR20000041	POWER TRANSISTOR W/MICA 2SB776 (D,E)
VR601,602	RV40000022	R, SEMI-FIXED VM6CKPV-1S-B 2.2K
D601-604	DD10000100	DIODE 1N4148-85
F601,602	FU24000112	FUSE (BEL 5MF) 125V 4.0A UL/CSA Δ
	FU23000049	FUSE (BEL 5SF) 250V 4A S Δ
R901,902	RM22740818	R, METAL 274 F 1/4W
R903,904	RM92200121	R, METAL 220 1W J
R905,906	RM22741811	R, METAL 2.74K F 1/4W
R907	RM23322816	R, METAL 3.32K F 1/4W
C901,902	CE01005258	CAP, ELEC. 100uF 25V
C903,904	CE04705255	CAP, ELEC. 470uF 25V
C905,906	CE56804451	CAP, ELEC. 041 50LPSS6800uF
C907-910	CC01009256	CAP, CERAMIC 0.01uF 250V
D901,902	DD20000041	DIODE RD-18E
D903	DD10000342	DIODE PBP206
F901,902	FU24000124	FUSE (BEL 5MF) 125V 5.0A UL/CSA Δ
	FU23000074	FUSE (BEL 5SF) 250V 5A S Δ
C001	CK00000035	SPSRK KILLER DE7150F472M
S001	SH40000120	POWER SWITCH C-3600B-T Δ
S1	SH30000470	FUNCTION SW 4TR-2777
S2	SH30000481	FUNCTION SW 4TR-2778
	JH00000135	HEAD PHONE JACK C-3399#1
D001	DD40000095	LED SEL1124R
Q901	TR30000212	TRANSISTOR 2SC2362 (F,G)
Q902	TR10000023	TRANSISTOR 2SA1016 (F)
OTHERS		
	AF20000258	FRONT CHASSIS 2TQF-2
	AR20000577	PRINTED REAR CHASSIS TRP-581
	AS01000282	SIDE CHASSIS 3TQG-1
	PT27807102	POWER TRANSFORMER TT-278GF Δ
	SB00000601	P.V.C SHIELD PLATE 4TR-2824
	SB00000613	P.V.C SHIELD PLATE 4TR-2825
	SP10006375	P.T SUPPORT 3TQG-3
	SR00000390	SPACER 4TR-1003
	NP00001949	NAME STICKER 120V 4TR-2828#1 TNP-382 (U,A)
	NP00001974	NAME STICKER 120V(C) 4TR-2828#4 TNP-385 (C)
	NP00001962	NAME STICKER 240V 4TR-2828#3 TNP-384 (H,E,K)
	NP00001950	NAME STICKER 220V 4TR-2828#2 TNP-383
	CD00000218	AC CORD SPT-2 AWG#18 4TR-670#4 (C,U A) Δ
	CD00000048	AC POWER CORD 4TR-815 (H,E,K2) Δ
	CD00000085	AC POWER CORD C-2504A (K1) Δ
	CD00000292	AC POWER CORD UP-401F 4TR-2631#1 H05VV-F-D Δ
	CD00000115	AC POWER CORD C-3763-T (G) Δ
	SC00000131	AC CORD STOPPER SR-5N-4 (K1) Δ

SYMBOL

PARTS NO.

DESCRIPTION

SC00000027	AC CORD STOPPER SR-4N-4 
AH20000837	HEAT SINKER BOARD 4TQG-5#2
SP10006287	H.S SUPPORT 4TQG-4
AA20000610	FRONT PANEL 2TQF-4 TFP-620
BU00001145	POWER RING 4TQF-13 14x14
BU00001169	KNOB RING 4TQF-17 39F
KB20002681	POWER BUTTON 4TQF-15 14x14
OM10001272	ORNAMENTAL SIDE BOARD 4TR-2799#2 H=80MM
OM70000065	PUSH BUTTON CONNECTOR 4TTL-15
SN00000179	BUTTON SPRING 4TR-1988#2 10MM
SR00000870	ORNAMENTAL PLATE SPACER 4TR-2411
AB00000559	BOTTOM BOARD 2TQG-2
AU00001195	TOP COVER POLY 3TTF-5#6 H=80MM
KB10001722	KNOB 4TQF-18 13F
KB10001734	KNOB 4TQF-19 24F
KB10001760	KNOB 4TQF-6 33F
FT00000217	PLASTIC FOOT CAP 4TR-2807
SR00000882	UPPER COVER SPACER 4TR-2418
PL00000782	STYROL SIDE MOULDING 4TTH-13 TZ-166
TN10003690	INSIDE CARTON 3TR-2788#1