

ROTEL*hi-fi*

AM / FM STEREO RECEIVER

RX-950AX

TECHNICAL MANUAL

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THE ROTEL CO., LTD.

1-35-8, OHKAYAMA, MEGURO-KU, TOKYO 152, JAPAN

ROTEL ELECTRONICS CO., LTD.

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

MN20001998

Specifications

RX-950AX

AMPLIFIER SECTION

Continuous Power Output...50 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 Power Output...65 watts per channel (1 kHz, 4
ohms, 1 % THD)

Total Harmonic Distortion...No more than 0.03 % (contin-
(20 to 20kHz from CD) uous rated power output)

Intermodulation Distortion...No more than 0.03 % (contin-
(60 Hz, 7 kHz - 4:1) uous rated power output)

Output: Speaker...4 ohms minimum

Headphone...8 - 2,000 ohms

Damping Factor...100 (20 to 20,000 Hz, 8 ohms)

Input Sensitivity/ Impedance:

PHONO...2.5 mV/ 47 kohms

CD, A/TAPE 1,2...150 mV/ 20 kohms

Overload Level (THD 0.5% 1 kHz):

PHONO...200 mV

CD, A/TAPE 1,2...5 V

Frequency Response:

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

CD, A/TAPE 1,2...20 to 20,000 Hz + 0 dB, - 1 dB

Tone Control:

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

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

Signal-to-Noise Ratio (JHF, A network):

PHONO...82 dB

CD, A/TAPE 1,2...100 dB

FM TUNER SECTION

Usable Sensitivity...10.8 dBu/ 0.95 uV (75 ohms)

50 dB Quieting Sensitivity:

Mono...14.8 dBu/ 1.5 uV (75 ohms)

Stereo...37.2 dBu/ 20 uV (75 ohms)

Signal-to-Noise Ratio (at 65 dB):

Mono...80 dB

Stereo...75 dB

Harmonic Distortion (at 65 dB):

1 kHz...0.07% (mono), 0.25% (stereo)

Frequency Response...30 to 15,000 Hz + / - 1.0 dB

Capture Ratio...1.0 dB

Alternate Channel Selectivity:

(+ / - 400 kHz)...63 dB

Spurious Response Ratio...95 dB

Image Response Ratio...45 dB

IF Response Ratio...95 dB

AM Suppression Ratio...58 dB

Stereo Separation:

100 Hz/1 kHz/10 kHz...43 dB/ 46 dB/ 38 dB

Subcarrier Product Ratio...60 dB

Antenna Input...75 ohms unbalanced

AM TUNER SECTION

Sensitivity...350 uV/ m

Selectivity...35 dB

Signal-to-Noise Ratio...55 dB

Image Response Ratio...40 dB

IF Response Ratio...60 dB

Antenna...Loop Antenna

MISCELLANEOUS

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

Power Consumption...280 watts

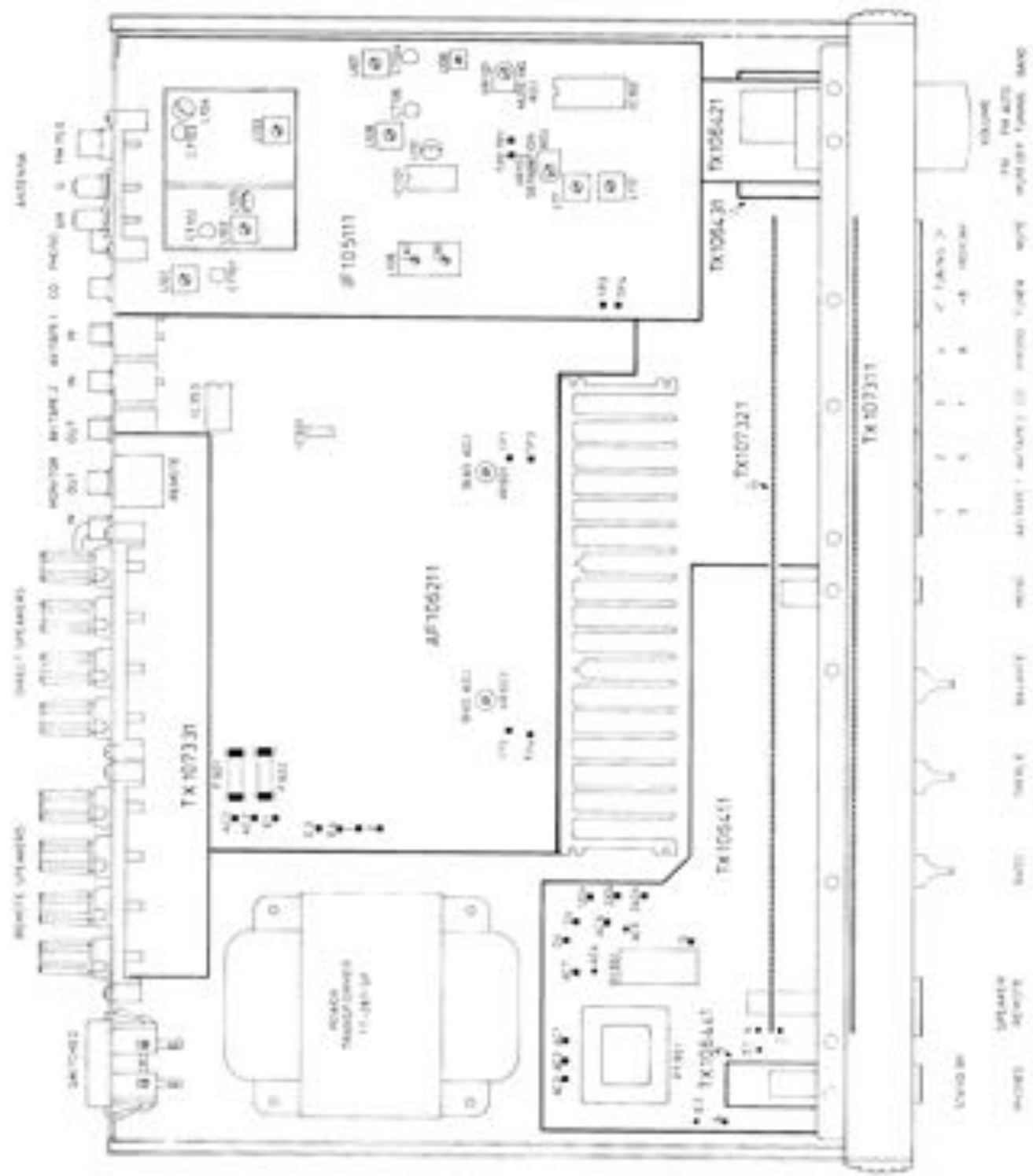
Dimension (overall)...440 (W) x 121 (H) x 340 (D)mm
17-3/8" x 4-13/16" x 13-3/8"

Weight (net)...9.0 kg/ 19.8 lbs

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

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

Chassis Layout



FM IF and RF Alignment

Instruments: FM Signal Generator (400Hz,100% Modulated), THD Analyzer, Oscilloscope, AC VTVM, DC Voltmeter, Tuning Meter.

Terminated : DC Voltmeter---Between TP3 and TP4 on IF-105111 P.C.B.
Tuning Meter---Between TP1 and TP2 on IF-105111 P.C.B.

Step	Generator		Tuning Dial Setting	Adjust	Adjust for
	Coupling	Frequency			
1	No use		87.5 MHz	L104	1.6V +/- 0.1 reading on DC Voltmeter
2			108 MHz	CT103	9V +/- 0.2V reading on DC Voltmeter
3	Repeat steps 1 and 2 unit no further improvement is noticed.				
4	Antenna terminal	90 MHz	90 MHz	L101,102	Maximum reading on AC VTVM.
5				L103	Adjusting balance of wave form
6		105 MHz	105 MHz	CT101, CT102	Maximum reading on AC VTVM.
7	Repeat steps 4,5 and 6 unit no further improvement is noticed. (Muting OFF)				
8	Antenna terminal 1mV input	90 MHz	90 MHz	L106(A)	Adjust center on Tuning Meter
9				L106(B)	Minimum reading on THD Analyzer
10	Repeat steps 8 and 9 unit no further improvement is noticed (Muting OFF)				
11	Antenna terminal 5uV input	90 MHz	90 MHz	VR101	Muting Level (Muting ON)
12	Antenna terminal 1mV input	90 MHz	90 MHz	VR231	Signal Indicator Level 3th LED light On (Muting OFF)

FM MPX Alignment

Instruments: FM Stereo Generator, AC VTVM, Oscilloscope, Frequency Counter, and TND Analyzer.

Step	Generator		Tuning Dial Setting	Adjust	Adjust for
	Coupling	Frequency			
1	Antenna terminal 1mV input	98 MHz Pilot--10% 1 kHz--90% Mod.	98 MHz	VR102	Beas separation

MW IF and RF Alignment

Instruments: AM Signal Generator (400kHz, 30% Modulated), AC VTVM, Oscilloscope, DC Voltmeter.

Terminated : DC Voltmeter---Between TP3 and TP4(E) on IF-105111 P.C.B.

Step	Generator		Tuning Dial Setting	Adjust	Adjust for
	Coupling	Frequency			
1	No use		530 kHz (531 kHz) Europe	L108	About 1.5V+/-0.1V on DC Voltmeter
2			1600 kHz (1602kHz) Europe	CT105	About 10V+/-0.2V on DC Voltmeter
3	Repeat steps 1 and 2 unit no further improvement is noticed.				
4	Test loop radiate signal into loop antenna	450 kHz	530 kHz	L109	Maximum reading on AC VTVM.
5		600 kHz	600 kHz	L107	
6		1400 kHz	1400 kHz	CT104	
7	Repeat steps 4 to 6 unit no further improvement is noticed.				

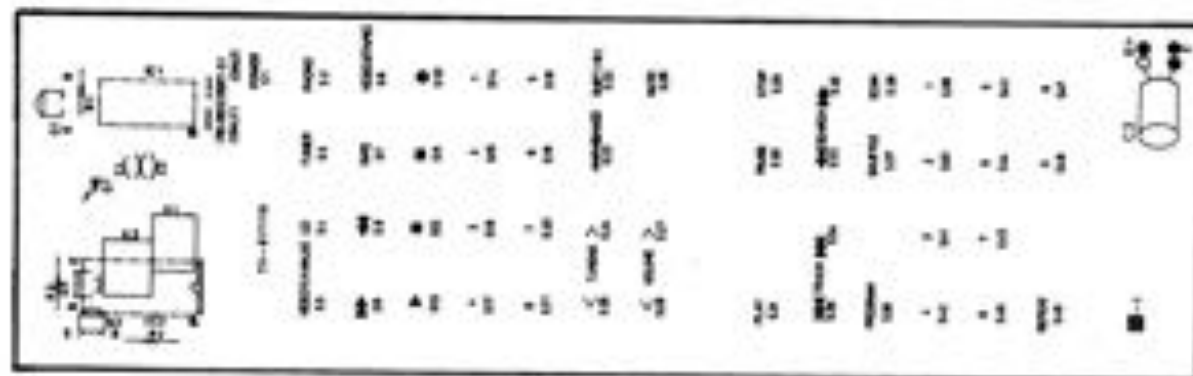
Power Amplifier Bias Adjustment

Instruments: DC milli-voltmeter

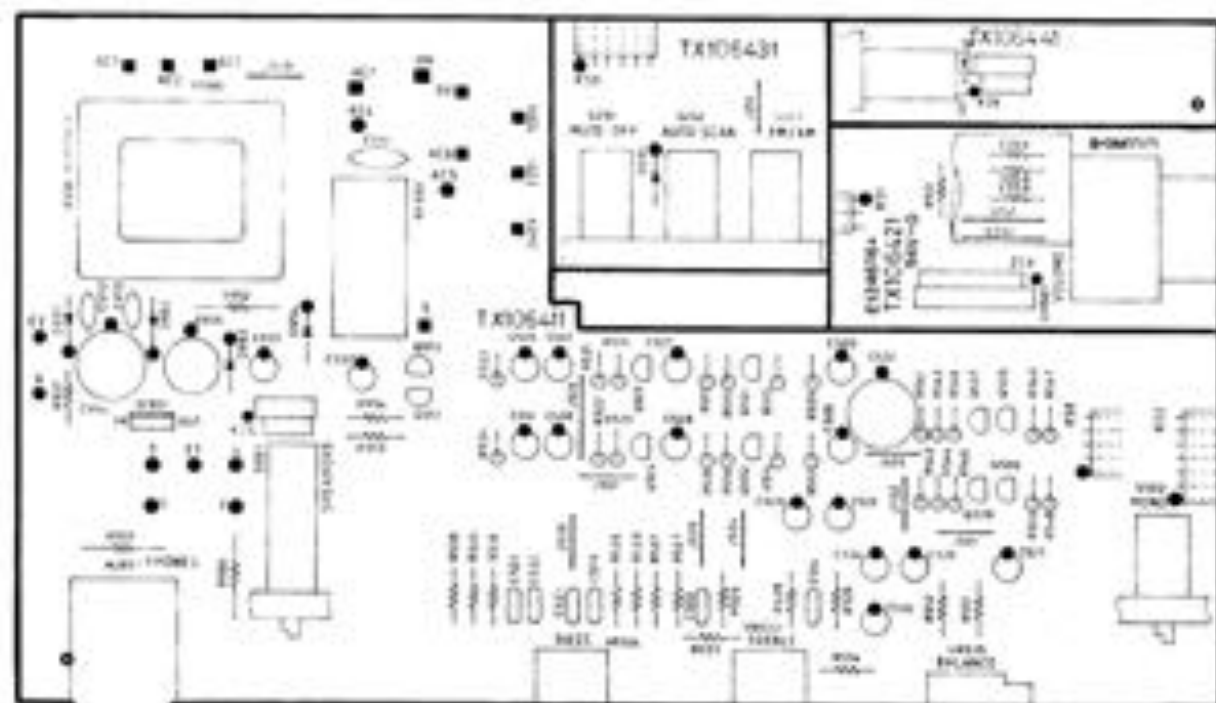
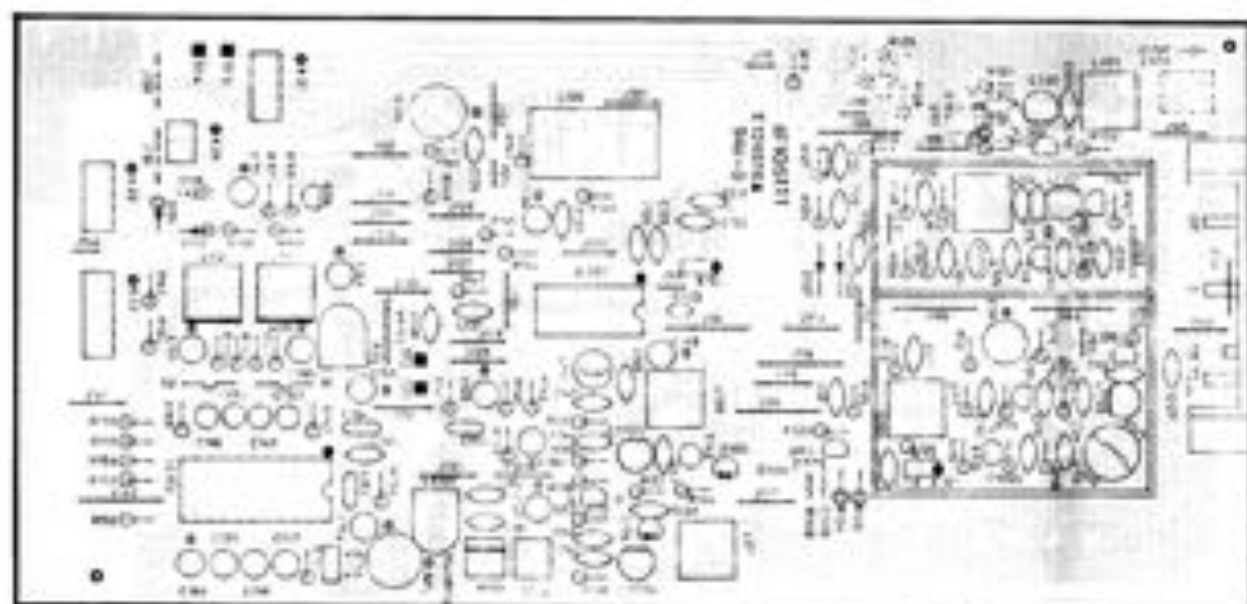
Notes: Prior to Bias Adjustment, run about 5 minutes with rated output (8 ohm) and warm up Power Transistor and Heat Sink.
Set Volume control to minimum.

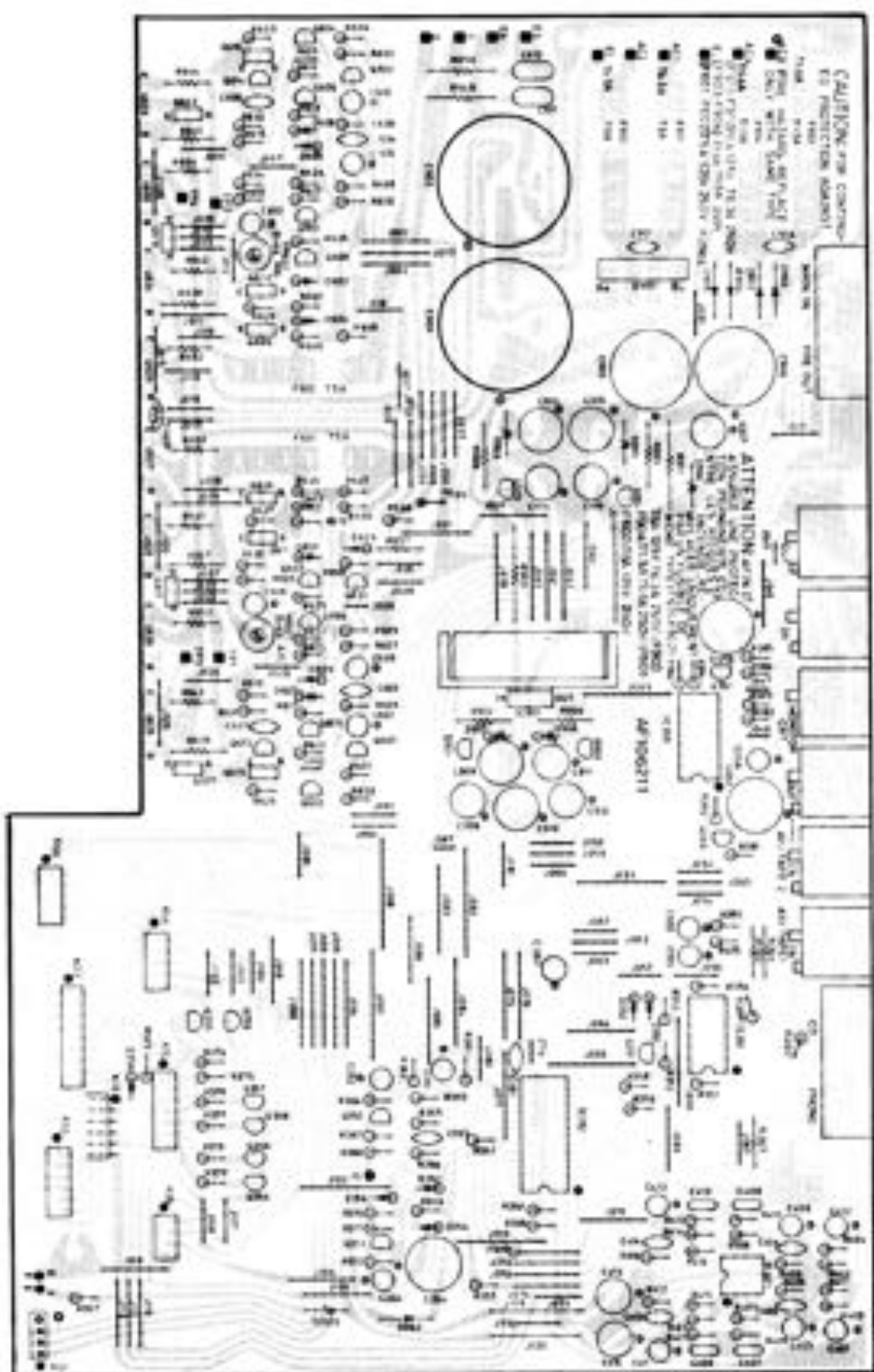
Step	Coupling		Adjust	Adjust for
	Plus lead	Minus lead		
1	TP3	TP1	VR601	DC milli-voltmeter reads 2.5mV
2	TP4	TP2	VR602	

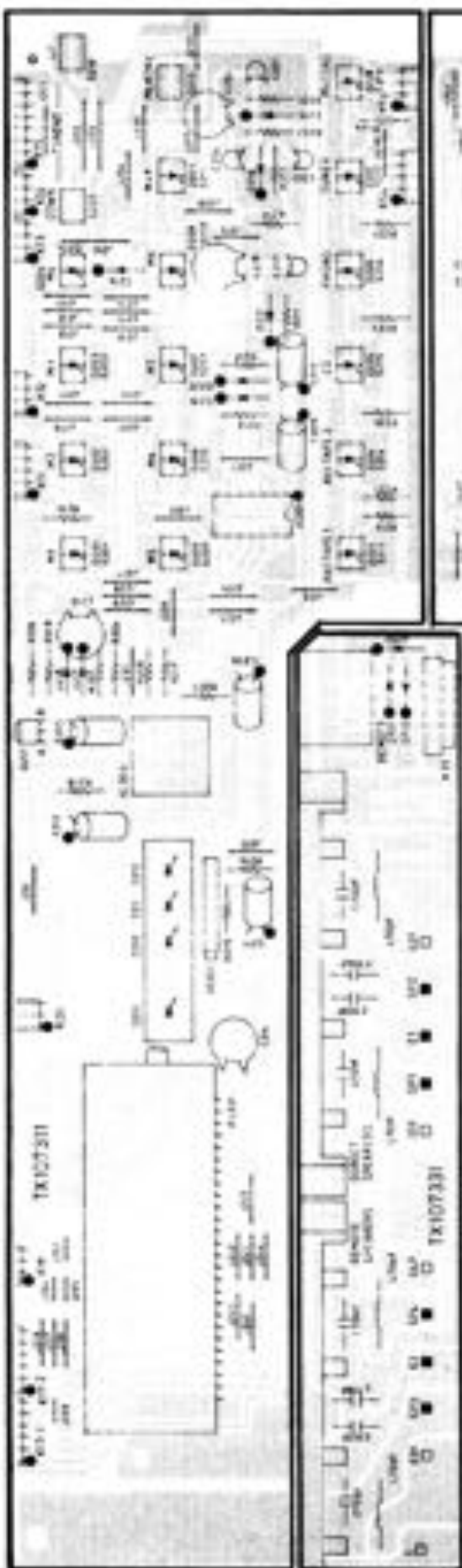
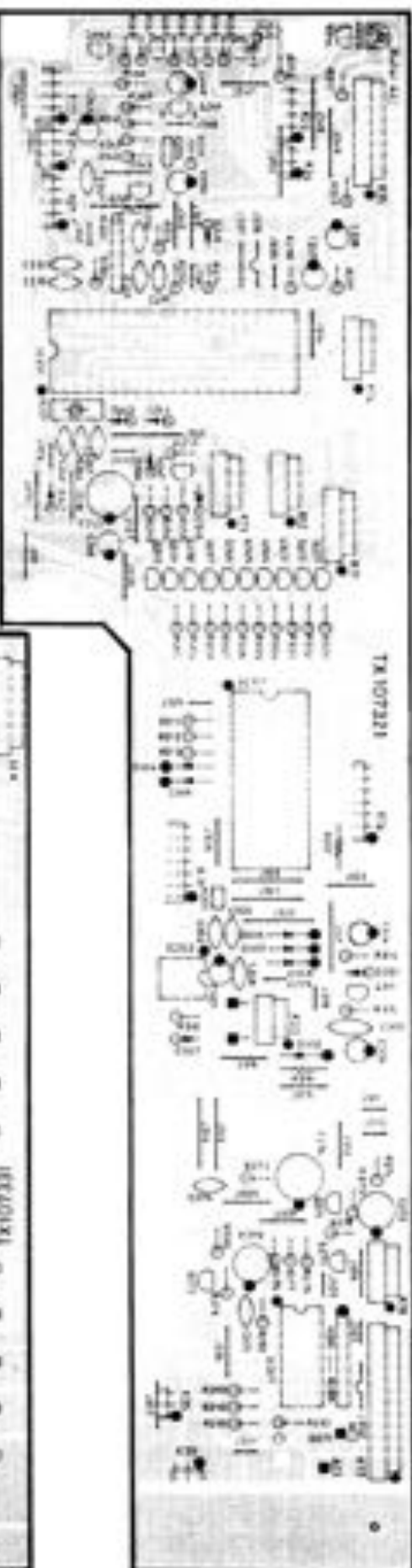
REMOTE CONTROL HANDSET



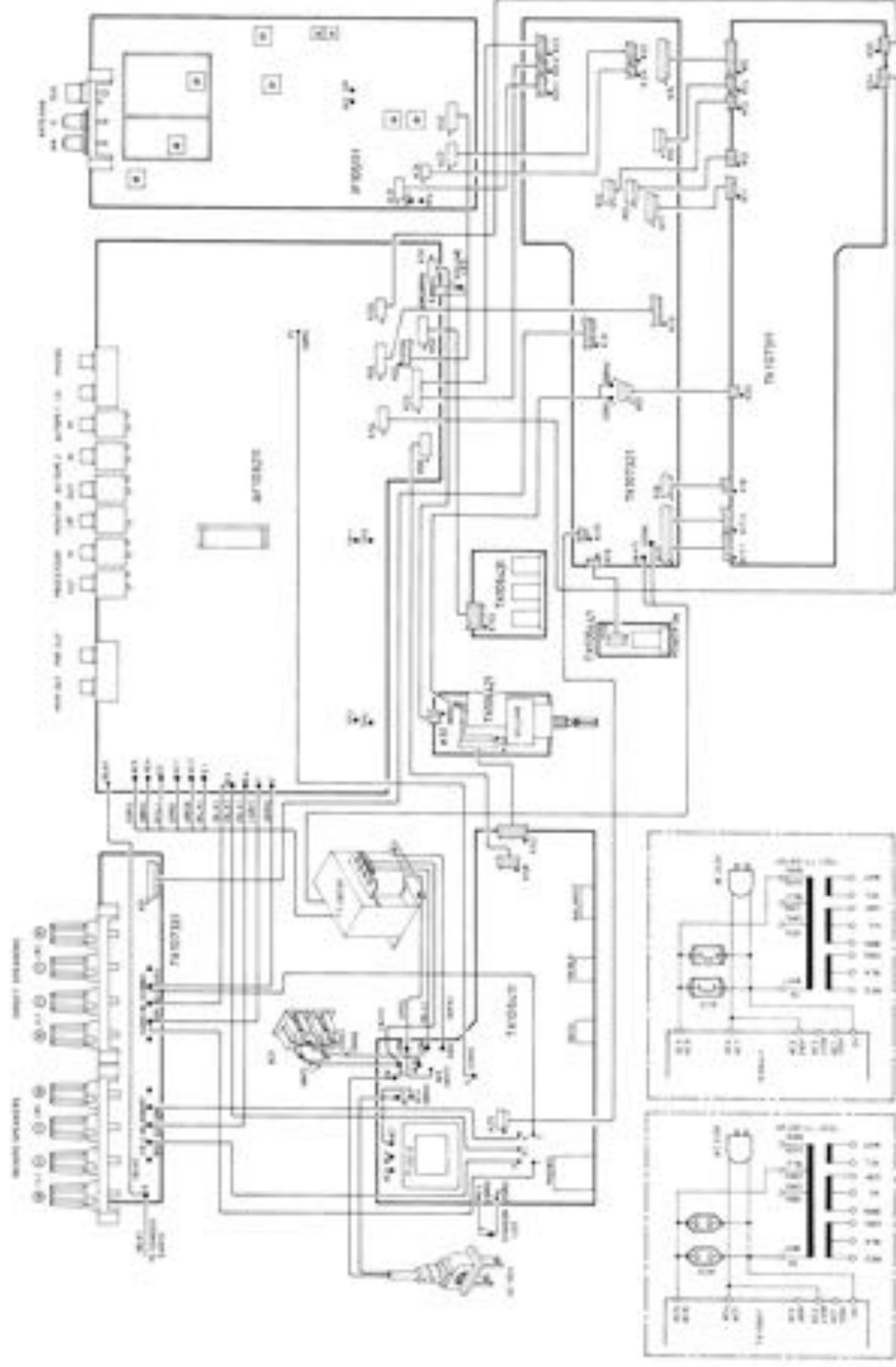
Printed Circuit Boards







Wiring Diagram



Schematic Diagram

SCHEMATIC DIAGRAM W-950 (REV. 1/73)

INSTRUCTION FOR SERVING PERSONNEL:

1. DO NOT REPAIR OR REPLACE ANY PART OF THE SYSTEM
UNLESS IT IS SPECIFICALLY AUTHORIZED BY THE INSTRUCTIONS
IN THIS MANUAL. ANY REPAIR OR REPLACEMENT OF PARTS
NOT SPECIFICALLY AUTHORIZED MAY CAUSE DAMAGE TO THE
SYSTEM AND VOID THE WARRANTY.

