

Quality Uncompromised

ROTEL®

Technical Manual

STEREO INTEGRATED AMPLIFIER **RA-870BX**

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Specifications

Continuous Power Output 80 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 150 watts per channel (1 kHz
4 ohms, 1% THD)

Peak Current 50 A
(0.1 ohms, 10 μ sec, 1 pulse)

Total Harmonic Distortion No more than 0.03% (continuous
rated power output)
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)
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 nominal
HEADPHONES 4-16 ohms

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

Input Sensitivity/Impedance:

PHONO (MC)	250 μ V/180 ohms
PHONO (MM)	2.8 mV/47 kohms
CD, TUNER	150 mV/24 kohms
AV/AUX 1, 2	150 mV/24 kohms
TAPE MONITOR 1, 2	150 mV/24 kohms

Overload Level (T.H.D. 0.5%, 1 kHz):

PHONO (MC)	20 mV
PHONO (MM)	180 mV
CD, TUNER, TAPE 1, 2	5V
AV/AUX 1, 2	5V

Frequency Response:

PHONO	20 to 20,000 Hz, \pm 0.2 dB (RIAA STD)
CD, TUNER, TAPE 1, 2	4 to 100,000 Hz, +1.0 dB, -3.0 dB
AV/AUX 1, 2	4 to 100,000 Hz, +1.0 dB, -3.0 dB

Signal-to-Noise Rated (IHF, A network):

PHONO (MC)	70 dB
PHONO (MM)	80 dB
CD, TUNER, TAPE 1, 2	102 dB
AV/AUX 1, 2	102 dB

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

Power Consumption 380 watts

Dimensions (overall) 430(W) x 109(H) x 317(D) mm
16-15/16" x 4-7/32" x 12-15/32"

Weight (net) 9.8 kg/21.56 lbs.

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

Serial No. Beginning

DEC. 28, 1987

THE ROTEL CO., LTD.
ROTEL ELECTRONICS CO., LTD.

1-36-8 OHOKAYAMA, MEGURO-KU, TOKYO 152, JAPAN
3RD FLOOR, ROTEL BLDG., NO. 35 FUSHING, NORTH
ROAD, TAIPEI, TAIWAN, REPUBLIC OF CHINA

Parts List

Schematic Location	Computer No.	Description	Schematic Location	Computer No.	Description
Q601	0322SA1016K-FG		D901	034KBPC804	Rectifier
Q602	0322SA1016K-FG		D902	034KBPC804	Rectifier
Q603	0322SA1016K-FG		D903	034DS135C	
Q604	0322SA1016K-FG		D904	034IS1588	
Q605	0322SA1016K-FG		IC401	031NE5534AN	
Q606	0322SA1016K-FG		IC402	031NE5534AN	
Q607	0322SC1941-KL		IC403	031NE5534AN	
Q608	0322SC1941-KL		IC404	031NE5534AN	
Q609	0322SB605-KL		IC501	031NE5532AN	
Q610	0322SB605-KL		IC502	031NE5532AN	
Q611	0322SB631K-EF		VR601	051SF687A-2K	Bias Adj.
Q612	0322SB631K-EF		VR602	051SF687A-2K	Bias Adj.
Q613	0322SD600K-E		VR501	0514TR-2355	Tone Volume (Bass)
Q614	0322SD600K-E		VR502	0514TR-2355	Tone Volume (Treble)
Q615	0332SD600K-EF	Driver	VR503	051C-4109	Level Volume
Q616	0332SD600K-EF	Driver	VR504	051C-4170A10	CD Direct Level Volume
Q617	0332SB631K-EF	Driver	TH601	034TD5C350D	Temperature Compensator
Q618	0332SB631K-EF	Driver	S401	0644TR-2294	Phono Selector
Q619	0332SD1047-DE	Power Driver	S501	062C-4174A07	Tone Selector
Q620	0332SD1047-DE	Power Driver	S502	064C-4175A52	Function
Q621	0332SD1047-DE	Power Driver	S503	064C-4175A52	Monitor
Q622	0332SD1047-DE	Power Driver	S504	062C-4174A04	CD Direct Selector
Q623	0332SD1047-DE	Power Driver	S505	061C-4172A08	Speaker Selector
Q624	0332SD1047-DE	Power Driver	RY-651	0630RZ-SS224L	Relay
Q625	0332SB817-DE	Power Driver			
Q626	0332SB817-DE	Power Driver	C001	044DE7150F472M	Spark Killer
Q627	0332SB817-DE	Power Driver	S001	061C-4176A02	Power Switch
Q628	0332SB817-DE	Power Driver	T001	022T-1015G01	Power Transformer
Q629	0332SB817-DE	Power Driver			
Q630	0332SB817-DE	Power Driver		011TFP-451	Front Panel
Q550	0322SC536-FG			0124TR-2176	Knob (Power)
Q551	0322SC536-FG			0124TR-2356#2	Knob (Function)
Q571	0322SD600K-EF			0124TR-2373	Knob (Volume L)
Q572	0322SD600K-EF			0124TR-2374	Knob (Volume R)
Q573	0322SB631K-EF			012C-3187#5-T	Knob (Bass, Treble, Tone Selector, CD Direct Selector, CD Direct Level, Monitor)
Q574	0322SB631K-EF				
Q651	0322SC2362K-FG			012C-3982#2	Knob (Speaker Remote)
D571	034RD18EB	Zener		0143TR-2349	Ornamental Side Plate
D572	034RD18EB	Zener		0143TUV-6#1	Upper Cover
D601	034IS1588			017C-4322A01	Heat Sink
D602	034IS1588			017C-4323A00	Sub Heat Sink
D603	034IS1588				
D604	034IS1588			062C-4175A08	Rotary Switch (Function, Monitor)
D605	034DS135C				
D606	034DS135C			0674TR-2267#1	Speaker Terminal
D607	034DS135C			069C-4304A01	Voltage Selector
D608	034DS135C			069C-4320A01	Connector
D651	034IS1588				

Adjustment

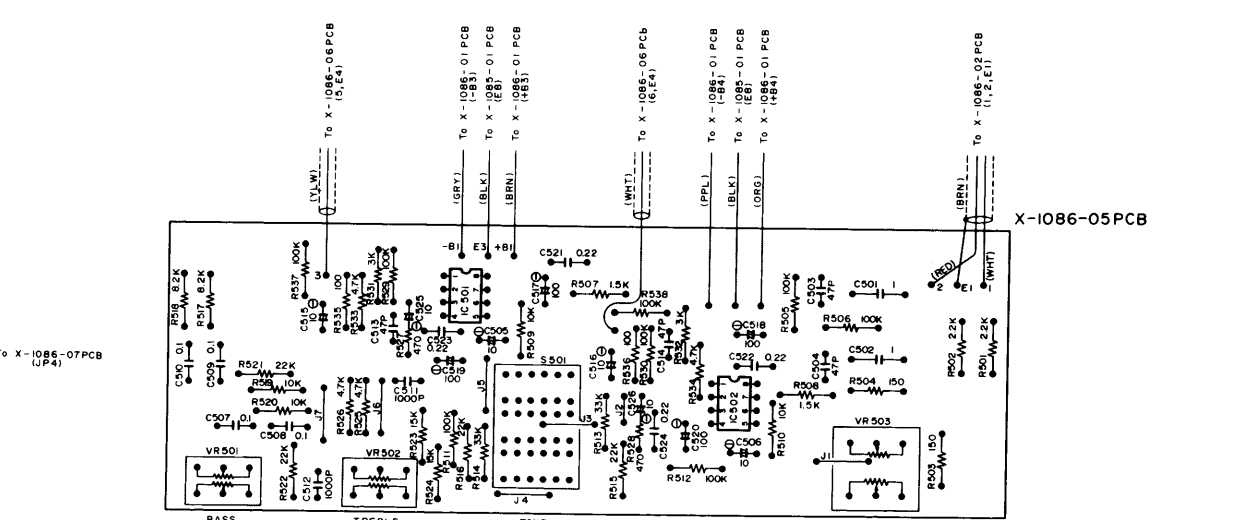
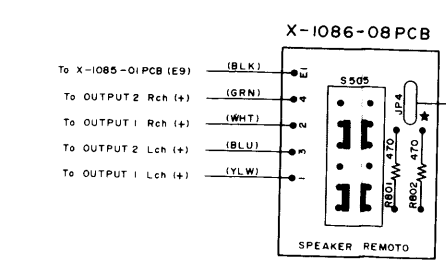
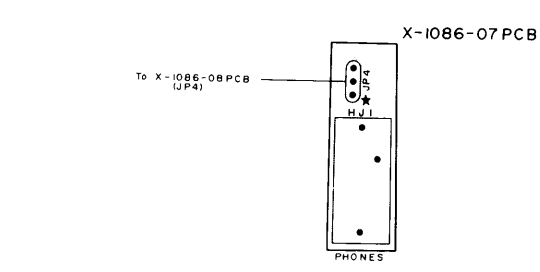
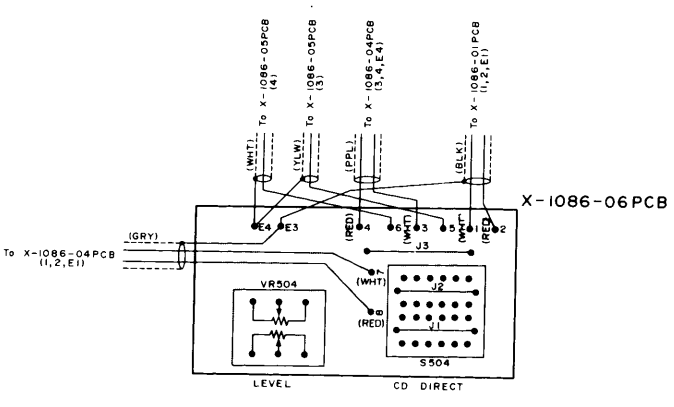
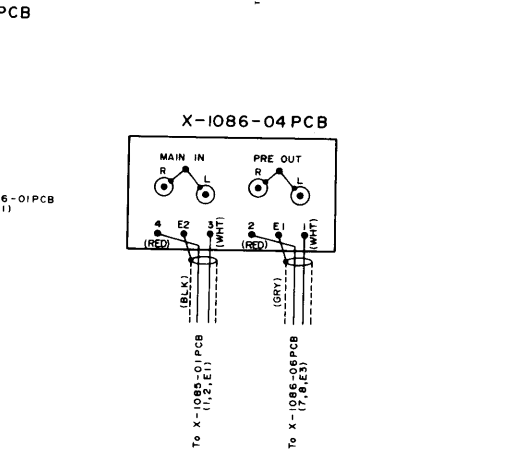
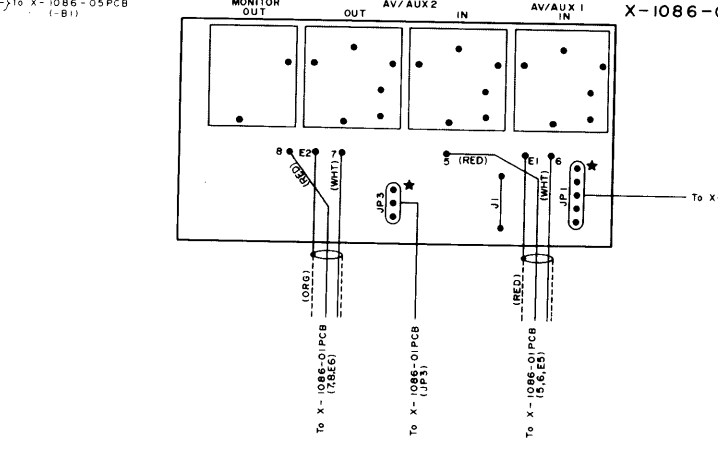
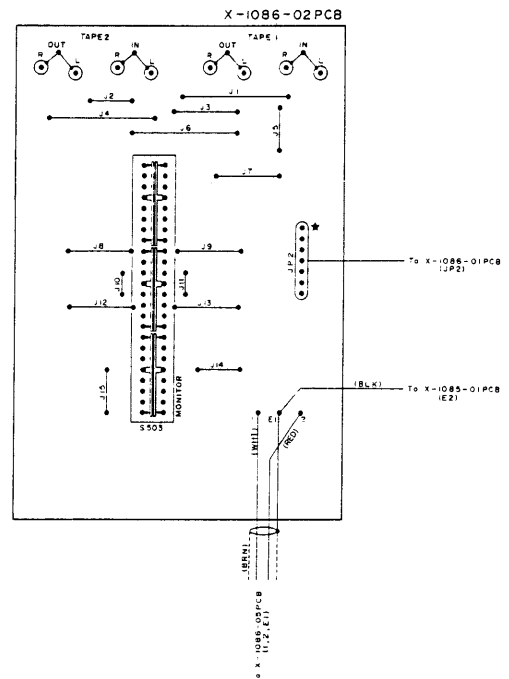
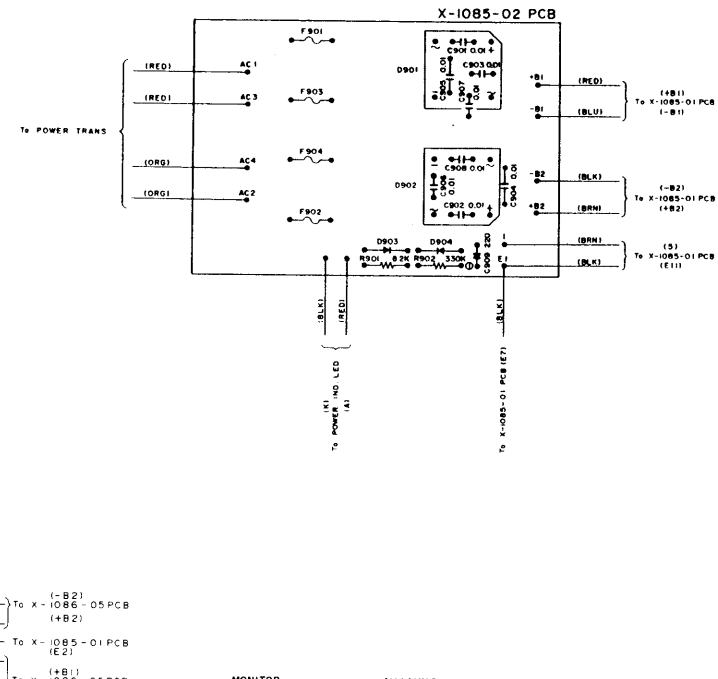
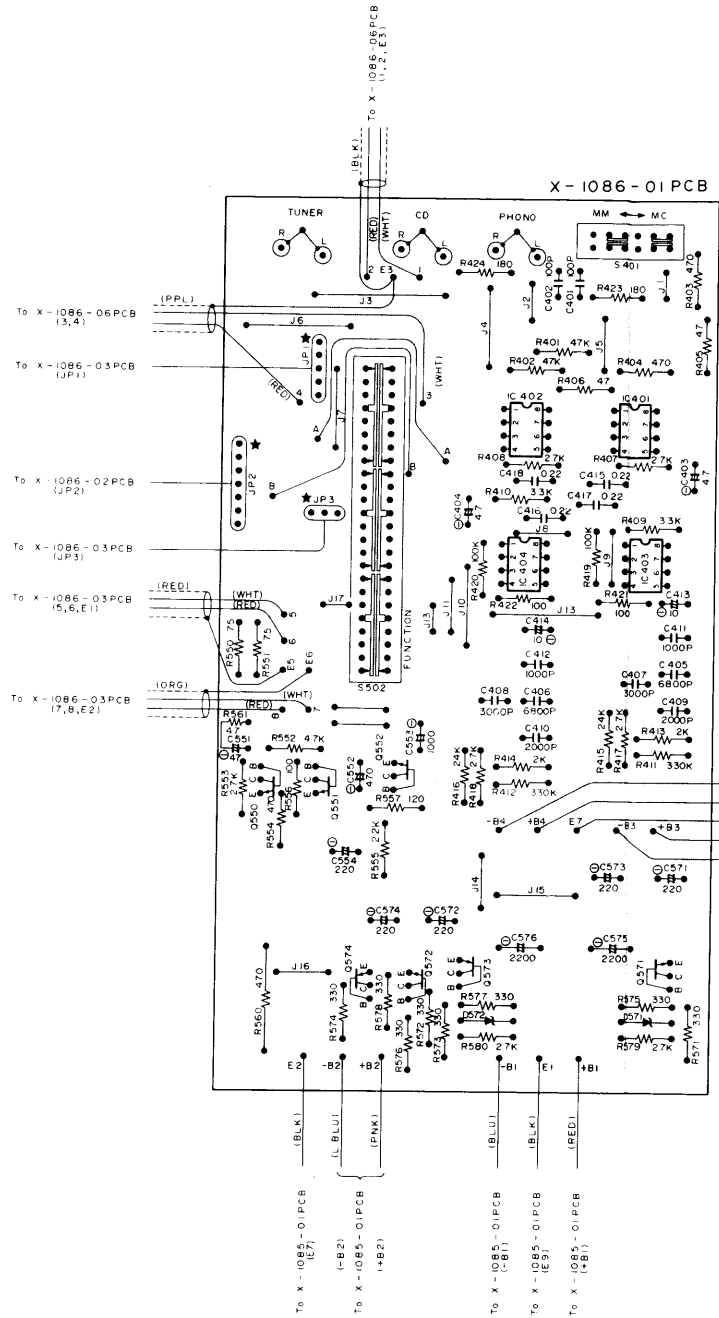
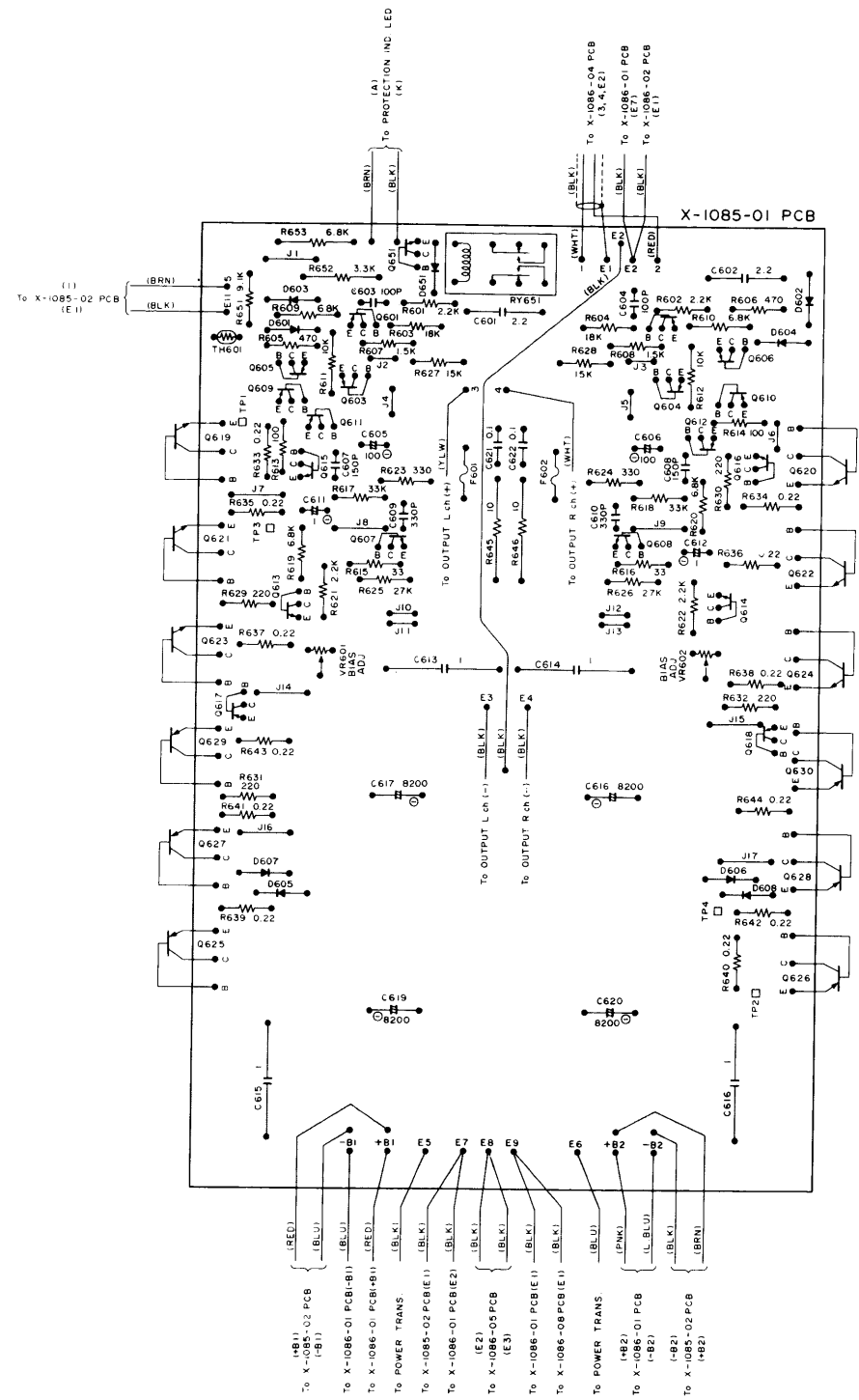
Power Amplifier Bias Adjustment

Instruments : DC milli-voltmeter

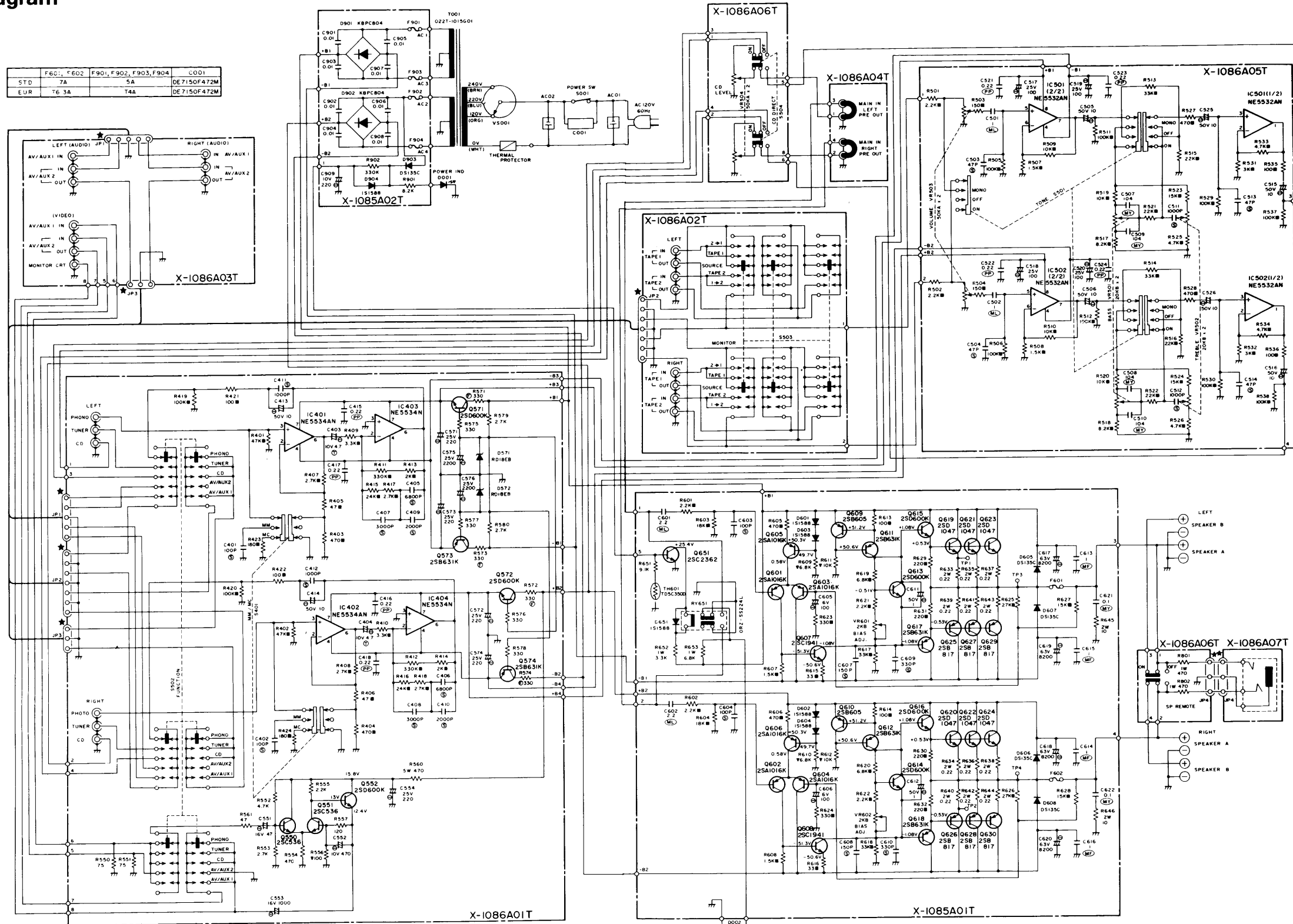
Notes : Prior to Bias Adjustment, run about 5 minutes with rated output (8 ohms) and warm up Power Transistor and Heat Sink. Set input off.

Step	Coupling		Location	Adjust	Adjust for
	Plus Lead	Minus Lead			
1	TP1	TP3	X-1085 PCB	VR601	DC milli-voltmeter reads 5 mV
2	TP4	TP2	X-1085 PCB	VR602	

Wiring Diagram



Schematic Diagram



(RESISTORS)

5% TOLERANCE UNLESS OTHERWISE NOTED.

- K KILO OHM
- ▼ NONFLAMMABLE METAL FILM RESISTORS. 1/2 WATT
- FIXED PRECISION METAL FILM RESISTORS. (F): 1% TOLERANCE
- NON MARK LOW NOISE TYPE CARBON RESISTORS. 1/4 WATT
- ⊕ FUSIBLE CARBON FILM RESISTORS. 1/4 WATT

(CAPACITORS)

- Ⓢ POLYSTYRENE FILM CAPACITORS.
- Ⓣ TANTALUM CAPACITORS.
- MY MYLAR FILM CAPACITORS.
- MP METALIZED POLYESTER FILM CAPACITORS.
- Ⓜ ELECTROLYTIC CAPACITORS.
- NON MARK CERAMIC CAPACITORS.
- ML METAL LAYER CAPACITORS.

- UNLESS OTHERWISE NOTED IN SCHEMATIC ALL CAPACITANCE VALUES ARE EXPRESSED IN MFD.
- VOLTAGE READING WITH VTVM FROM THE POINT SHOWN TO THE CHASSIS GROUND. (LINE VOLTAGE 120 VOLTS)
- VOLTAGE READING MAY ±20%

