

Quality Uncompromised

**ROTEL**®

# Technical Manual

## STEREO POWER AMPLIFIER RB-870BX

### Table of Contents

Specifications . . . . .	1
Adjustment . . . . .	2
Parts List . . . . .	2
Wiring Diagram . . . . .	3, 4
Schematic Diagram . . . . .	5, 6

### Specifications

Continuous Power Output . . . . . 100 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 . . . . . 200 watts per channel (1 kHz, 4 ohms, 1% THD)

Peak Current . . . . . 50 A  
(0.1 ohms, 10  $\mu$ sec, 1 pulse).

Bridged Power . . . . . 300 watts (mono) min. RMS driven into 8 ohms from 20 to 20,000 Hz with no more than 0.05% 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 0.03% (1 watts per channel power output, 8 ohms)

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

Output . . . . . Speaker 8 ohms nominal

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

Input Sensitivity/Impedance. . . . . 1.0V/2 kohms

Frequency Response . . . . . 4 to 100,000 Hz, +0.5 dB, -3.0 dB

Signal-to-Noise Ratio (IHF A network) . . . . . 110 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 . . . . . 500 watts

Dimensions (overall) . . . . . 430(W) x 109(H) x 315(D) mm  
16-15/16" x 4-7/32" x 12-13/32"

Weight (net) . . . . . 9.4 kg/20.68 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
-------------------------

# Parts List

Schematic Location	Computer No.	Description
Q601	0322SA1016-FG	
Q602	0322SA1016-FG	
Q603	0322SA1016-FG	
Q604	0322SC1941-KL	
Q605	0322SB605-KL	
Q606	0322SB631K-EF	
Q607	0322SD600K-E	Idling Driver
Q608	0332SD600K-EF	Driver
Q609	0332SB631K-EF	Driver
Q610	0332SD1047-DE	Power Driver
Q611	0332SD1047-DE	Power Driver
Q612	0332SD1047-DE	Power Driver
Q613	0332SB817-DE	Power Driver
Q614	0332SB817-DE	Power Driver
Q615	0332SB817-DE	Power Driver
Q901	0322SC2362-FG	
D601	0341S1588	
D602	0341S1588	
D603	034DS135C	
D604	034DS135C	
D605	034KBPC804	Rectifier
D606	0341S1588	

Schematic Location	Computer No.	Description
D607	034DS135C	
D901	034IS1588	
TH601	034TD5C350D	Temperature Compensator
VR601	051SF687A-2K	Bias Adj.
RY901	0630RZ-SS224L	Relay
S901	064C-4173A05	
C001	044DE7150F472M	Spark Killer
S001	061C-4176A02	Power Switch
T001	022T-1016G01	Power Transformer
D001	034SEL1124R	Power Indicator
	011PF4-13A00	Front Panel
	0124TR-2176	Knob (Power)
	0143TR-2349	Ornamental Side Plate
	0143TUV-6#4	Upper Cover
	017C-4322A01	Head Sink
	017C-4323A00	Sub Heat Sink
	066C-4225A04	2P Pin Jack (Input)
	0673TR-2045#3	Output Terminal (Red)
	0673TR-2045#4	Output Terminal (Black)
	069C-4304A01	Voltage Selector

## Adjustment

### Power Amplifier Bias Adjustment

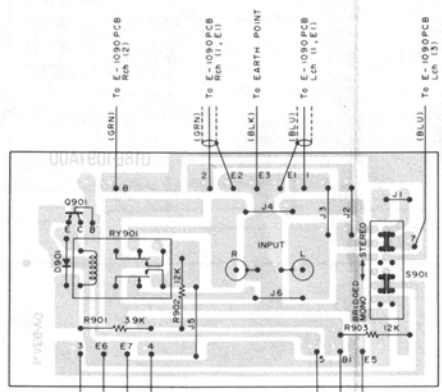
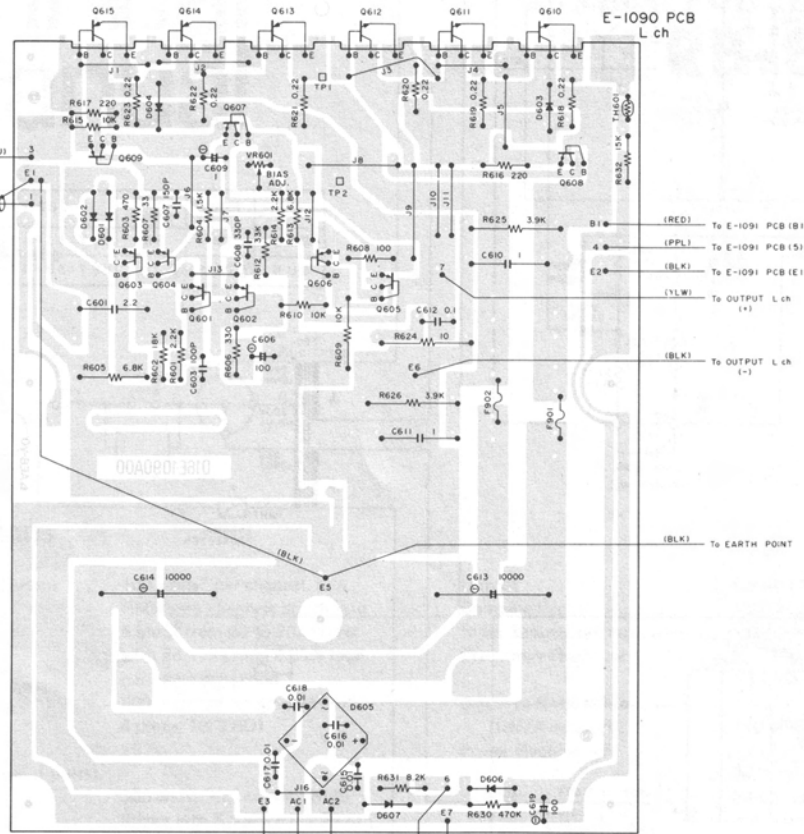
Instruments : DC milli-voltmeter

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	TP2	TP1	E-1090 PCB (Lch)	VR601	DC milli-voltmeter reads 5 mV
2	TP2	TP1	E-1090 PCB (Rch)	VR601	

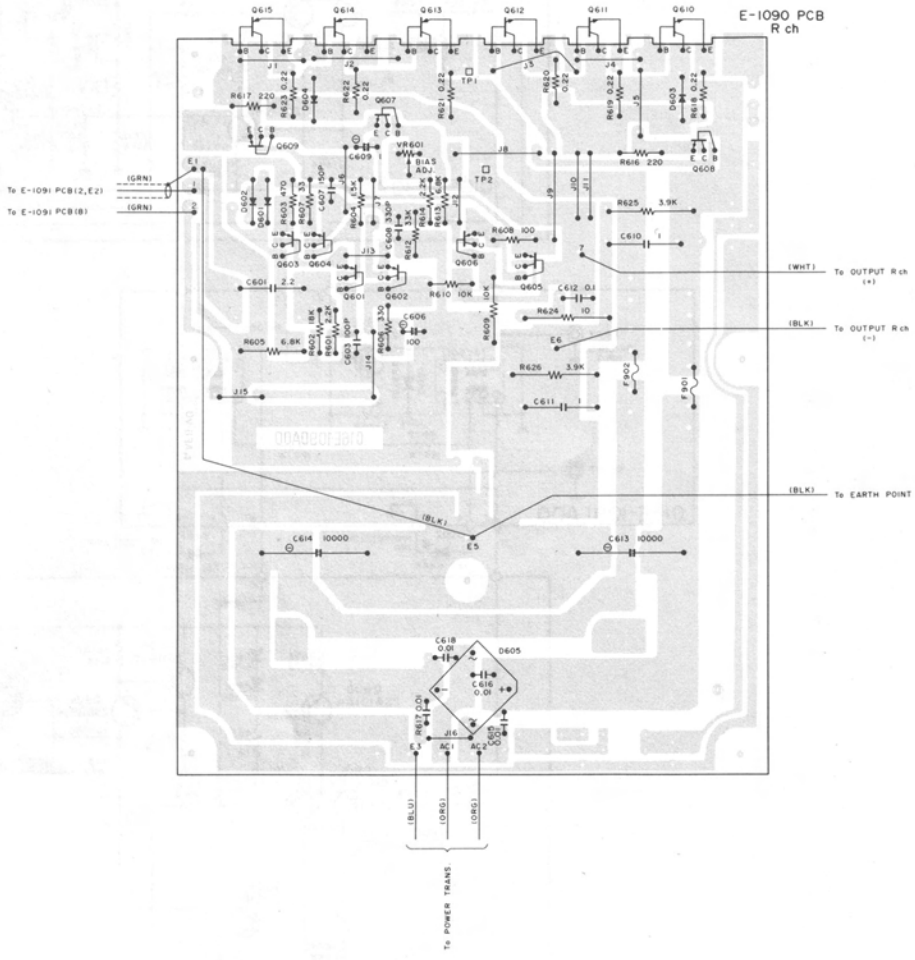
# Wiring Diagram

E-1090 PCB  
L ch

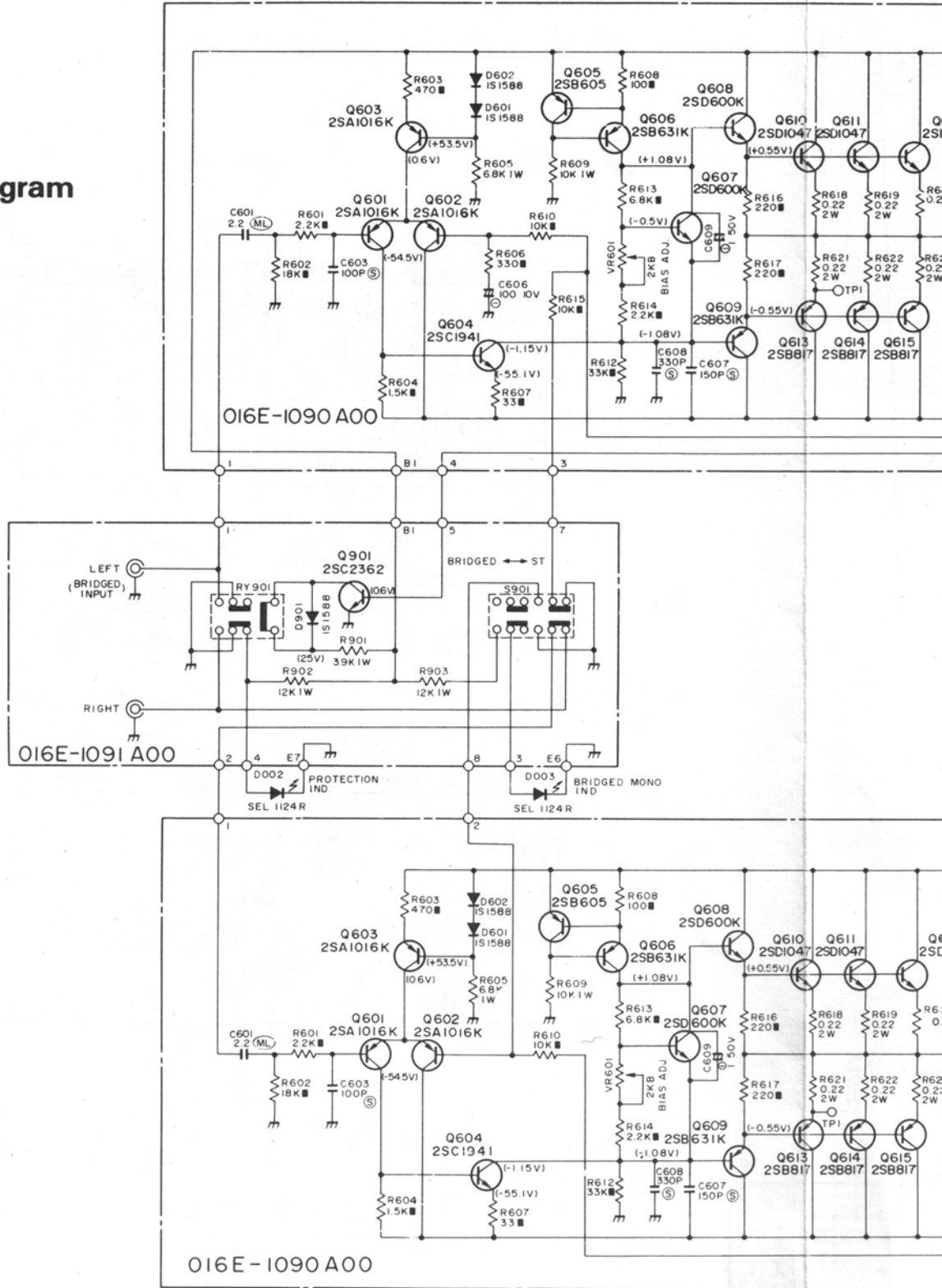


E-1091 PCB

E-1090 PCB  
R ch



# Schematic Diagram



RB-870BX

## (RESISTORS)

5% TOLERANCE UNLESS OTHERWISE NOTED.

K . . . . . KILO OHM

■ . . . . . FIXED PRECISION METAL FILM RESISTORS. (F): 1%

NON MARK . . . . . LOW NOISE TYPE CARBON RESISTORS. 1/4 WATT

## (CAPACITORS)

Ⓢ . . . . . POLYSTYRENE FILM CAPACITORS.

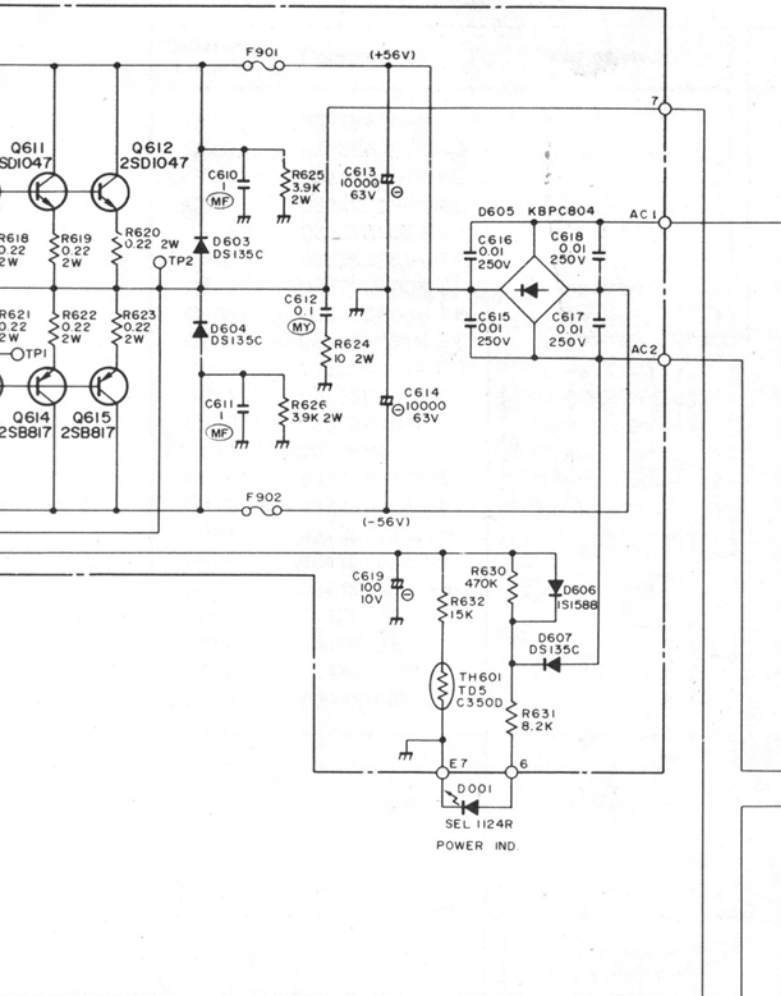
Ⓜ . . . . . MYLAR FILM CAPACITORS.

Ⓜ . . . . . METALIZED POLYESTER FILM CAPACITORS.

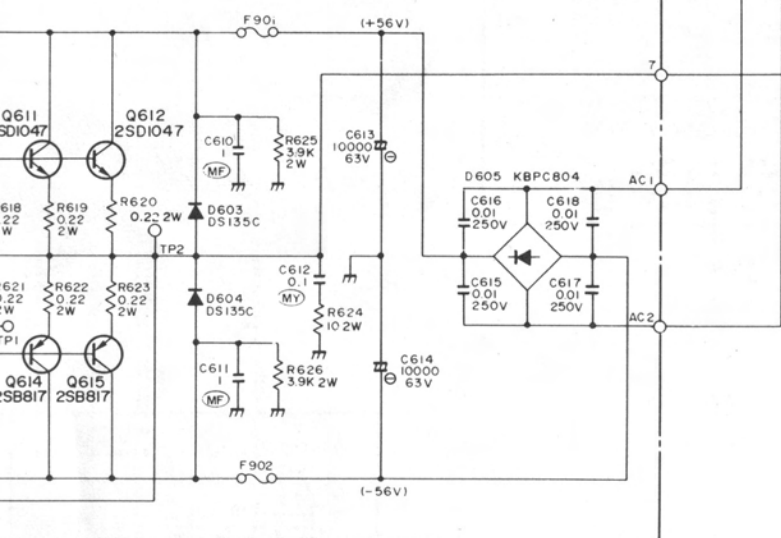
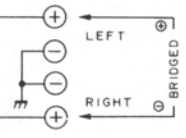
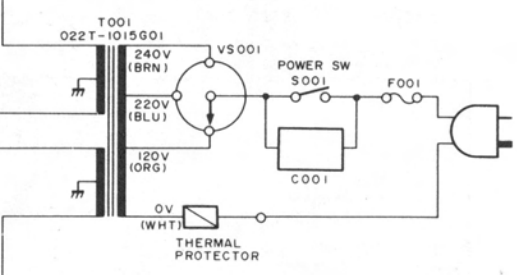
Ⓢ . . . . . ELECTROLYTIC CAPACITORS.

NON MARK . . . . . CERAMIC CAPACITORS.

Ⓜ . . . . . METAL LAYER CAPACITORS.



	F001	F901 F902	C001
STD	7A	5A	DE7150F472M
EUR	S T3.15A	S T4A	DE7150F472M



2SA1016  
2SC536  
2SC2362



2S8631  
2SD600



2S8605  
2SC1941



2S8817  
2SD1047

- 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%