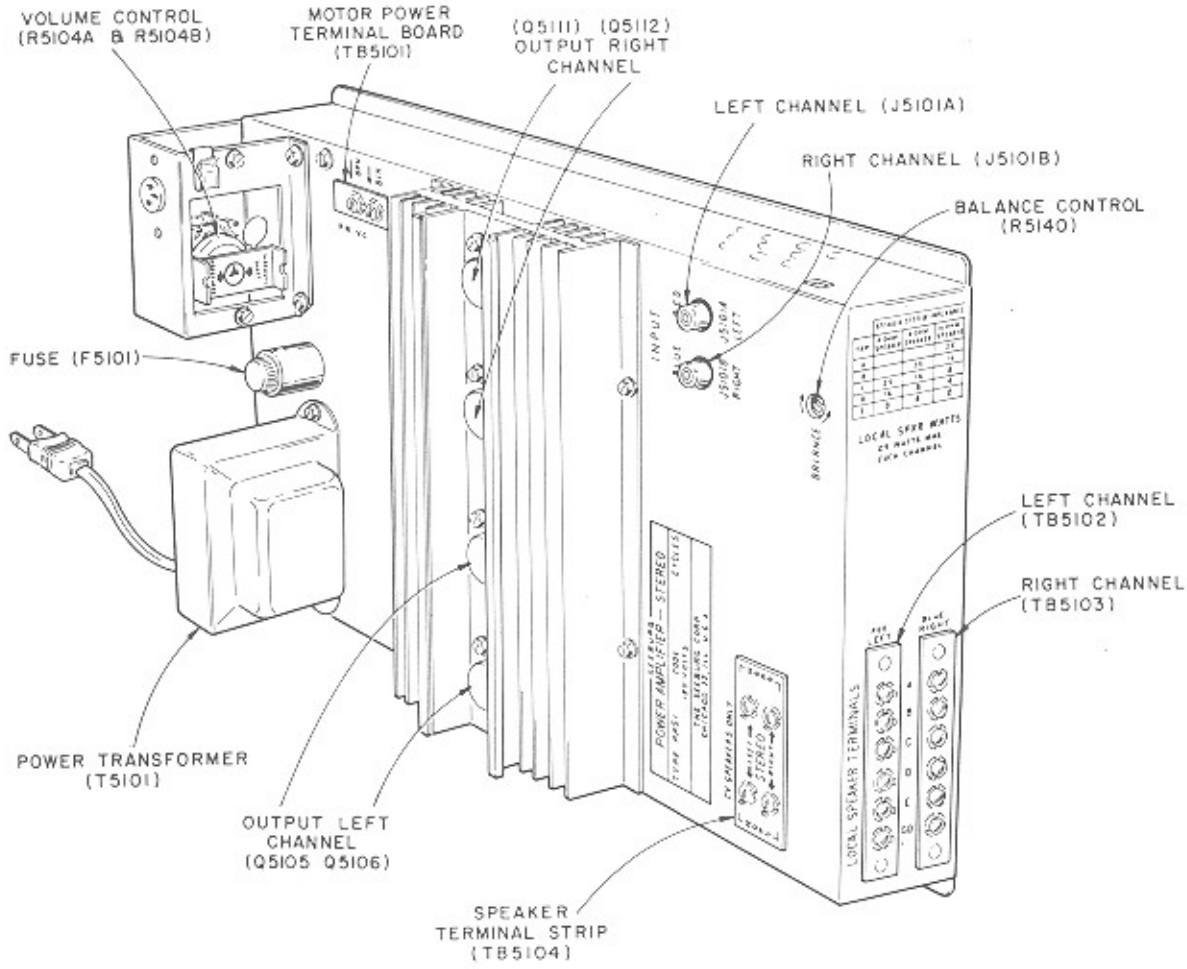
SEEBURG

STEREO POWER AMPLIFIERS TYPES PAS1, PAS1-H5 and PAS1-5

GENERAL

The Seeburg Stereo Power Amplifiers, Types PAS1, PAS1-H5, and PAS1-5 are fully transistorized, dual channel stereo, low distortion, wide frequency range, constant voltage type units. They are specifically intended for use with LPC480D, PFEA1, and APFEA1 model phonographs when additional power is required for remote speakers. Preamplification and tone controls are supplied by the associated master amplifier, Type TSA3 or TSA4 used in the phonograph.

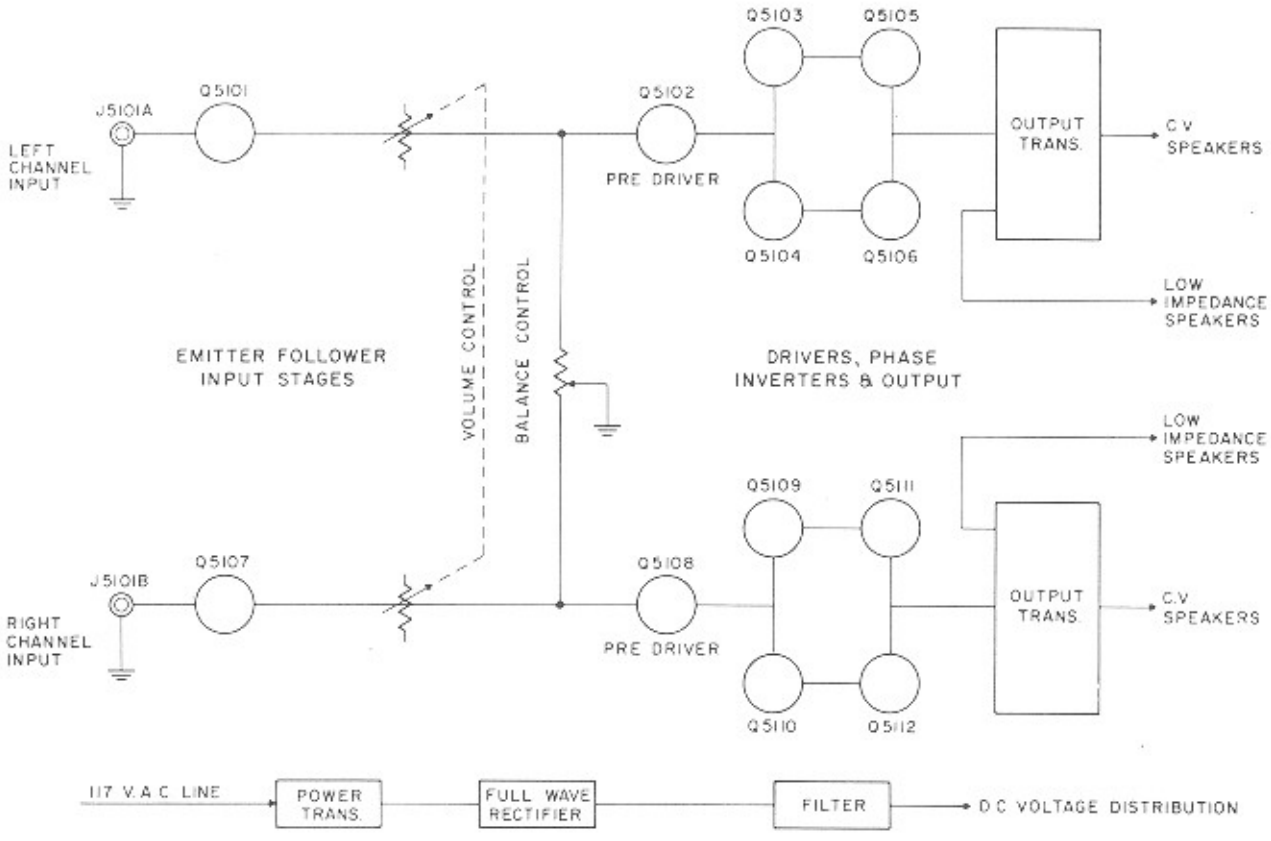
An a.c. power switch and Volume Control are provided for controlling the a.c. power to the amplifier, and the output volume to remote speakers. A Powered Remote Volume Control, Type PRVC3 may be used in conjunction with the volume control to remotely increase or decrease the phonograph volume.



Amplifier Component Identification

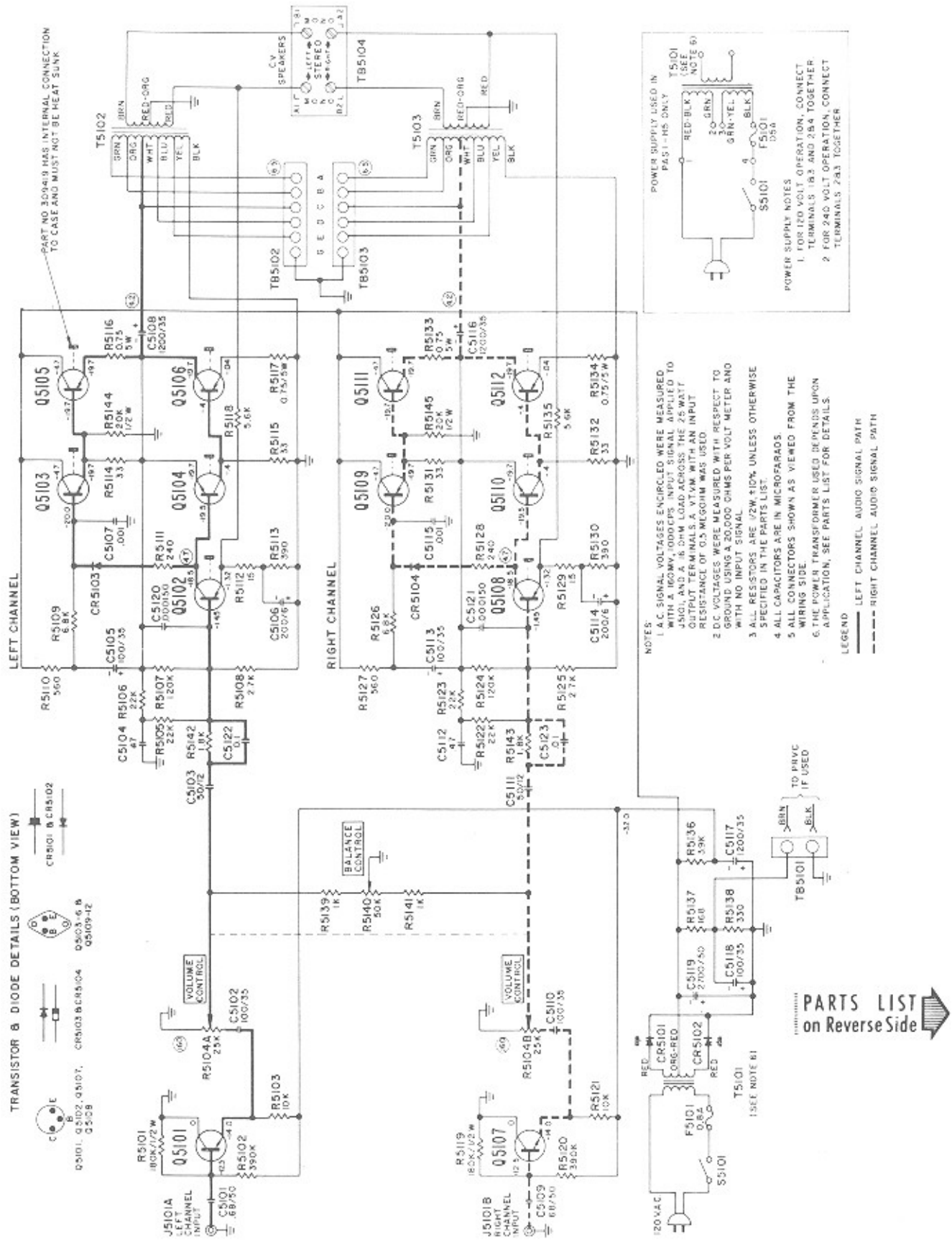
CIRCUIT DESCRIPTION

For purposes of discussion, the audio signal path is traced only through the right channel. Referring to the schematic diagram, output signals which have a nominal signal level of 400 mv are coupled to J5101B from the TSA3 or TSA4 amplifier where tone and record quality compensation, and preamplification have taken place. The signals are coupled to the base of Q5107 which serves as an emitter follower input stage. The low impedance output of this stage is coupled via capacitor C5110 to Volume Control R5104 which determines the listening level for the speakers connected to this amplifier. BALANCE CONTROL R5140, connected between both audio channels and ground at this point in the circuit compensates for any variations in gain there may be between channels. These variations are due to component tolerances. The audio signal is then coupled via capacitor C5111 to the base of predriver transistor Q5108. This transistor increses the level of the reproduced audio signals to a point sufficient to drive phase inverter driver transistors Q5109 and Q5110. Transistor Q5109 is connected as an emitter follower type driver stage. The output of this stage is direct coupled to output transistor Q5111. No phase inversion takes place in this stage. Transistor Q5110 is connected in a common emitter circuit configuration, to produce signals of opposite polarity to those of Q5109. The audio signal from both of the phase inverter driver transistors is then coupled to quasi complementary output stage, Q5111 and Q5112, and then to output transformer T5103 for distribution. The secondary of T5103 is intended for use with 70 volt, constant voltage speaker systems. The taps on the primary are for connection to low impedance speakers. Taps are provided for power outputs of 2, 4, 8, 16 and 25 watts.



Amplifier Block Diagram.

RELATED PUBLICATIONS — For information regarding the connection of these amplifiers to speaker systems having various impedances and power requirements, refer to Installation Manual No. 306611. Refer to Installation Manual No. 509222 for connection of Powered Remote Volume Control, Type PRVC3 to Stereo Power Amplifiers, Types PAS1, PAS1-H5, and PAS1-5.



PARTS LIST on Reverse Side

Parts List for Stereo Power Amplifiers

Item	Part No.	Description
C5101	86354	.68 MFD 50 V. Mylar
C5102	87700	100 MFD 35 V Lytic
C5103	87703	50 MFD 12 V. Mylar
C5104	86329	.47 MFD 50 V. Mylar
C5105	87700	100 MFD 35 V. Lytic
C5106	87702	200 MFD 6 V. Lytic
C5107	86309	.001 MFD Ceramic
C5108	87718	1200 MFD 35 V. Lytic
C5109	86354	.68 MFD 50 V. Mylar
C5110	87700	100 MFD 35 V. Lytic
C5111	87703	50 MFD 12 V. Mylar
C5112	86329	.47 MFD 50 V. Mylar
C5113	87700	100 MFD 35 V. Lytic
C5114	87702	200 MFD 6 V. Lytic
C5115	86309	.001 MFD Ceramic
C5116	87718	1200 MFD 35 V. Lytic
C5117	87718	1200 MFD 35 V. Lytic
C5118	87700	100 MFD 35 V. Lytic
C5119	87721	2700 MFD 50 V. Lytic
C5120	86243	.000150 MFD Ceramic
C5121	86243	.000150 MFD Ceramic
C5122	86313	.01 MFD Ceramic
C5123	86313	.01 MFD Ceramic
CR5101	309387	Silicon Rectifier U212
CR5102	309387	Silicon Rectifier U212
CR5103	309384	Semi-conductor Rectifier (Silicon)
CR5104	309384	Semi-conductor Rectifier (Silicon)
F5101	306316	0.8 Amp Slow Blowing (PAS1 and PAS1-5)
	306369	0.5 Amp Slow Blowing (PAS1-H5)
J5101A	306306	Input Socket
J5101B	306306	Input Socket
Q5101	654008	2N2926 Small Signal Silicon Transistor
Q5102	309421	RCA 34573 PNP Germ. Transistor
Q5103	309419	SC-365 PNP Silicon Transistor
Q5104	309418	SC-350 NPN Silicon Transistor
*Q5105	309412	SC-114 PNP Germ. Power Transistor
*Q5106	309412	SC-114 PNP Germ. Power Transistor
Q5107	654008	2N2926 Small Signal Silicon Transistor
Q5108	309421	RCA 34573 PNP Germ. Transistor
Q5109	309419	SC-365 PNP Silicon Transistor
Q5110	309418	SC-350 NPN Silicon Transistor
*Q5111	309412	SC-114 PNP Germ. Power Transistor
*Q5112	309412	SC-114 PNP Germ. Power Transistor
*	375074	Mica Insulator
*	53015	Silicone Grease (2 oz. tube)
R5101	82451	180,000 Ohm 1/2 W. 10%
R5102	82455	390,000 Ohm 1/2 W. 10%
R5103	82436	10,000 Ohm 1/2 W. 10%
R5104A	306318	Volume Control 25,000 Ohm
R5104B	306318	Volume Control 25,000 Ohm
R5105	82639	22,000 Ohm 1/2 W. 5%
R5106	82639	22,000 Ohm 1/2 W. 5%
R5107	82899	120,000 Ohm 1/2 W. 5%
R5108	82670	2,700 Ohm 1/2 W. 5%
R5109	82630	6,800 Ohm 1/2 W. 5%
R5110	82421	560 Ohm 1/2 W. 5%
R5111	82686	240 Ohm 1/2 W. 5%
R5112	82402	15 Ohm 1/2 W. 10%
R5113	82688	390 Ohm 1/2 W. 5%
R5114	82406	33 Ohm 1/2 W. 10%
R5115	82406	33 Ohm 1/2 W. 10%
R5116	81231	0.75 Ohm 5 W. 10%
R5117	81231	0.75 Ohm 5 W. 10%
R5118	82433	5,600 Ohm 1/2 W. 10%
R5119	82451	180,000 Ohm 1/2 W. 10%
R5120	82455	390,000 Ohm 1/2 W. 10%
R5121	82436	10,000 Ohm 1/2 W. 10%
R5122	82639	22,000 Ohm 1/2 W. 5%
R5123	82639	22,000 Ohm 1/2 W. 5%
R5124	82899	120,000 Ohm 1/2 W. 5%
R5125	82670	2,700 Ohm 1/2 W. 5%
R5126	82630	6,800 Ohm 1/2 W. 5%
R5127	82421	560 Ohm 1/2 W. 5%
R5128	82686	240 Ohm 1/2 W. 5%
R5129	82402	15 Ohm 1/2 W. 10%
R5130	82688	390 Ohm 1/2 W. 5%
R5131	82406	33 Ohm 1/2 W. 10%
R5132	82406	33 Ohm 1/2 W. 10%
R5133	81231	0.75 Ohm 5 W. 10%
R5134	81231	0.75 Ohm 5 W. 10%
R5135	82433	5,600 Ohm 1/2 W. 10%
R5136	82431	3,900 Ohm 1/2 W. 10%
R5137	81243	168 Ohm 10 W. 10%
R5138	81264	330 Ohm 5 W. 10%
R5139	82424	1,000 Ohm 1/2 W. 10%
R5140	306319	50,000 Ohm Balance Control
R5141	82424	1,000 Ohm 1/2 W. 10%
R5142	82427	1,800 Ohm 1/2 W. 10%
R5143	82427	1,800 Ohm 1/2 W. 10%
R5144	82485	20,000 Ohm 1/2 W. 10%
R5145	82485	20,000 Ohm 1/2 W. 10%
S5101	374463	Toggle Switch
T5101	306365	Power Transformer 235 V. 50 C.P.S. (PAS1-H5)
	306312	Power Transformer 117 V. 50 C.P.S. (PAS1-5)
	306311	Power Transformer 117 V. 60 C.P.S. (PAS1)
T5102	306314	Output Transformer
T5103	306313	Output Transformer
TB5101	306343	2 Lug Terminal Board
TB5102	306304	6 Lug Terminal Board
TB5103	306304	6 Lug Terminal Board
TB5104	306338	4 Lug Terminal Board

* Use a mica insulator coated with a liberal amount of silicone grease on both sides when replacing power transistors.