

SEEBURG

TRANSISTORIZED STEREO AMPLIFIER

TYPE TSA1

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This is a fully transistorized dual channel stereo, low distortion, wide frequency range, constant voltage type amplifier. It is part of the Seeburg Stereophonic Sound System that includes the Seeburg stereo pickup, one or more pairs of Seeburg twin stereo speakers, as well as a speaker coupling network and speakers mounted in the cabinet.

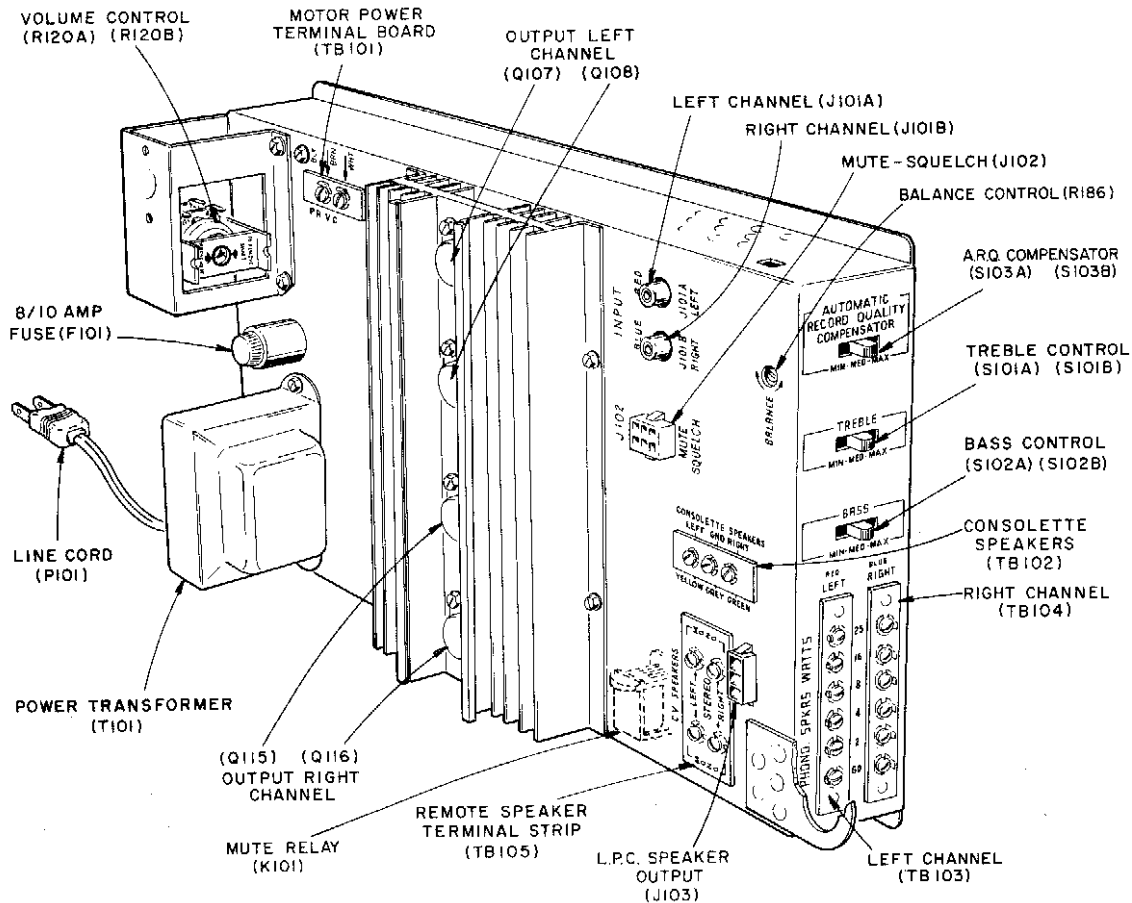
The two output signals of the low impedance magnetic pickup of the Select-O-Matic mechanism are connected to the amplifier through the input sockets and have a nominal signal level for each channel of five millivolts. Both signals are independently amplified, one in the left channel, one in the right channel. Each channel is complete with the tone controls and the volume control mechanically linked to provide equal and simultaneous positioning.

The output transformers of each channel have low and high impedance terminals. Each low impedance winding drives the phonograph speak-

ers whose connections are made through the speaker terminal boards, TB103 and TB104. On some phonograph models, the low impedance winding also drives a 16-ohm directional speaker (accessory) mounted on the phonograph and connected to socket J103. Stereo Consolette 32-ohm speakers are connected to the low impedance winding through terminal board TB102.

The high impedance secondaries of the output transformers are 70-volt C.V. outputs that terminate at A and B terminals of the remote speaker terminal strip, TB105. These outputs drive the side channels of one or more external stereo speakers that have, in their enclosure, a highpass network. External speakers for monaural operation may be connected to the remote speaker terminal strip, terminals A1 and B2 or to A2 and B1.

The total output power for each channel is divided between the directional speakers (on some phonograph models), the Stereo Consolette



NOTE: CONSOLETTA SPEAKERS, 32 OHMS; ALL OTHERS 16 OHMS; REFLECTED IMPEDANCE OF CABINET SPEAKERS AND COUPLING NETWORK, 16 OHMS EACH CHANNEL.

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speakers, the cabinet speakers in the phonograph and the external stereo speakers. The output power to the speakers in the phonograph and the external stereo speakers can be varied by positioning the phonograph speaker terminals and the loading taps on the external speakers. The phonograph speaker terminals are calibrated in watts with reference to the power delivered at full output by each output transformer to the 16-ohm phonograph speaker load. The output power to the directional speakers, when used, is fixed at 4 watts for each channel. The output to the Console speakers is connected to the 2 watt transformer tap; however, since the speaker impedance is 32 ohms, the effective power is one watt per speaker. The total load of the cabinet speakers in the phonograph as indicated on the speaker terminals and the load of remote speakers must not be greater than 25 watts for each channel.

Automatic volume compensation is incorporated in this amplifier to compensate for variations in the average volume levels of different records and makes possible a volume control setting for normal records without danger of "blasting" or high volume due to exceptionally loud records.

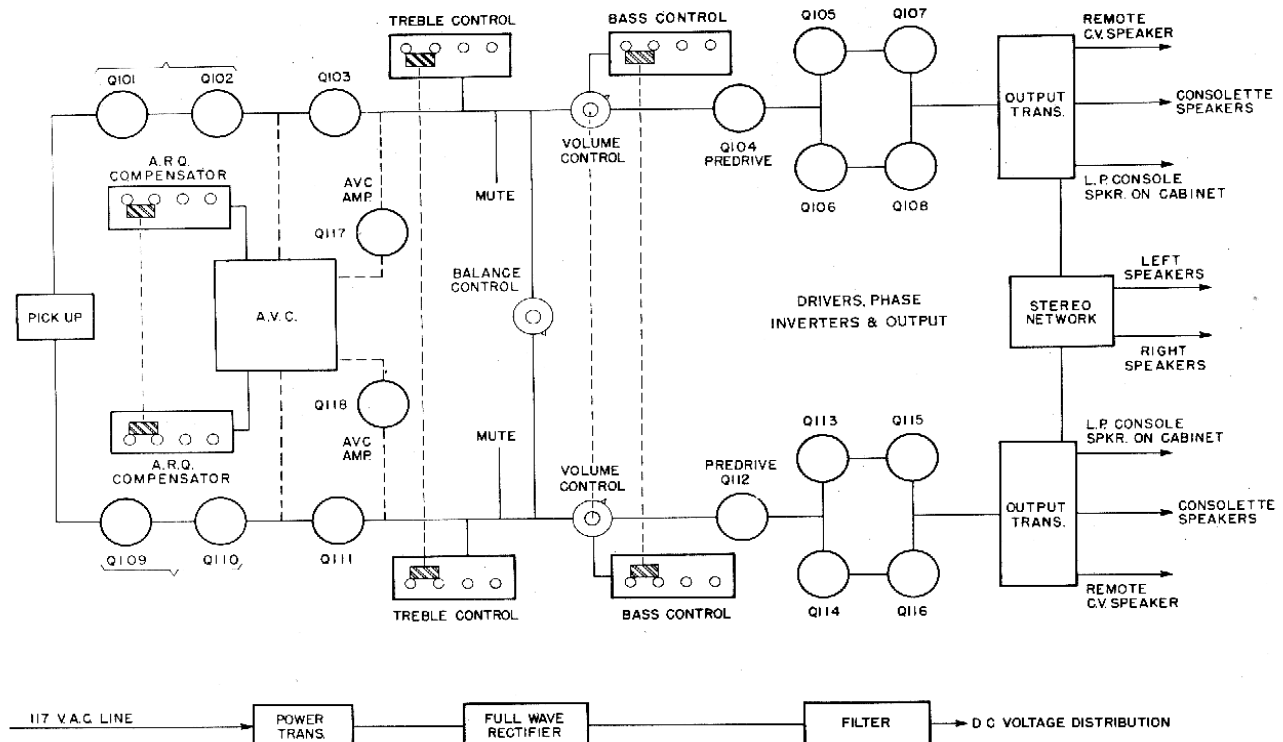
The output of the AVC amplifier transistors Q117 and Q118 is rectified by the back-to-back selenium rectifier (CR105) the output of which is applied as a varying DC bias to two pairs of matched selenium diodes (CR103) and

CR104). Varying the DC bias on these diodes varies inversely the AC reactance and consequently controls the signal level at the bases of voltage amplifier transistors Q103 and Q111. The back-to-back selenium rectifier (CR105) also permits squelch voltage to be applied when a record is not being played.

A mute relay (K101) located in the amplifier is energized through the trip switch and allied circuits in the phonograph. It serves to mute the amplifier by grounding the signal circuits, to control the amplifier squelch operation and initiate transfer of a record from playing position.

An Automatic Record Quality Compensator switch (S103A and S103B) controls attenuation in the AVC circuit. Its use permits full range operation of the amplifier, but automatically reduces record surface noise when music is at low level.

The volume control adjusts the level of sound from the Select-O-Matic speakers and the remote speakers. It is located on the amplifier so it is accessible from the back of the cabinet. A Powered Remote Volume Control, Type PRVC2 or PRVC3, may be used by installation of a motor on the amplifier volume control. The motor is remotely controlled to increase or decrease the phonograph volume.

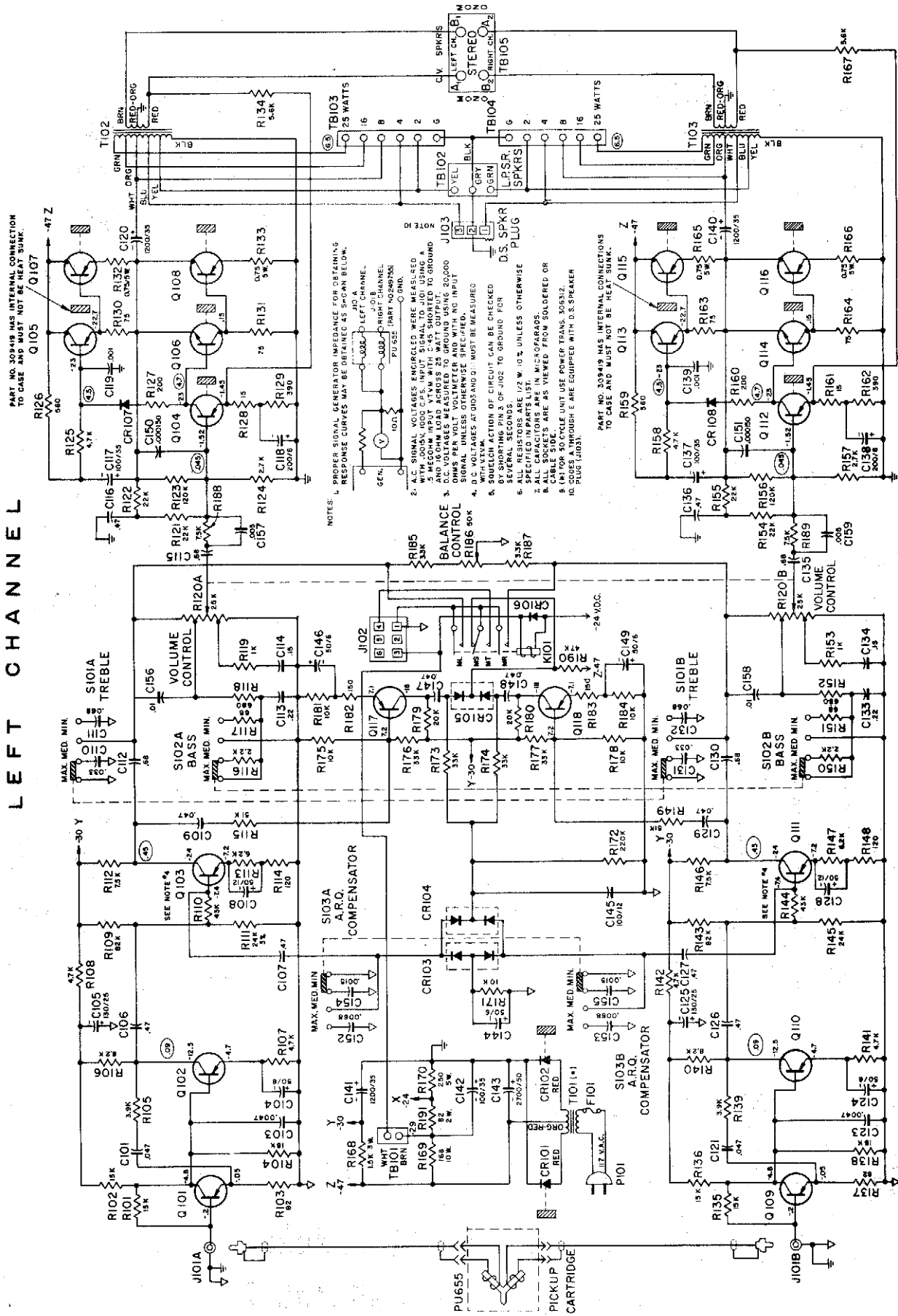


Amplifier Block Diagram.

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LEFT CHANNEL

RIGHT CHANNEL



Schematic Diagram for Transistorized Stereo Amplifier, Type TSA1.

