

No. 118-A AMPLIFIER

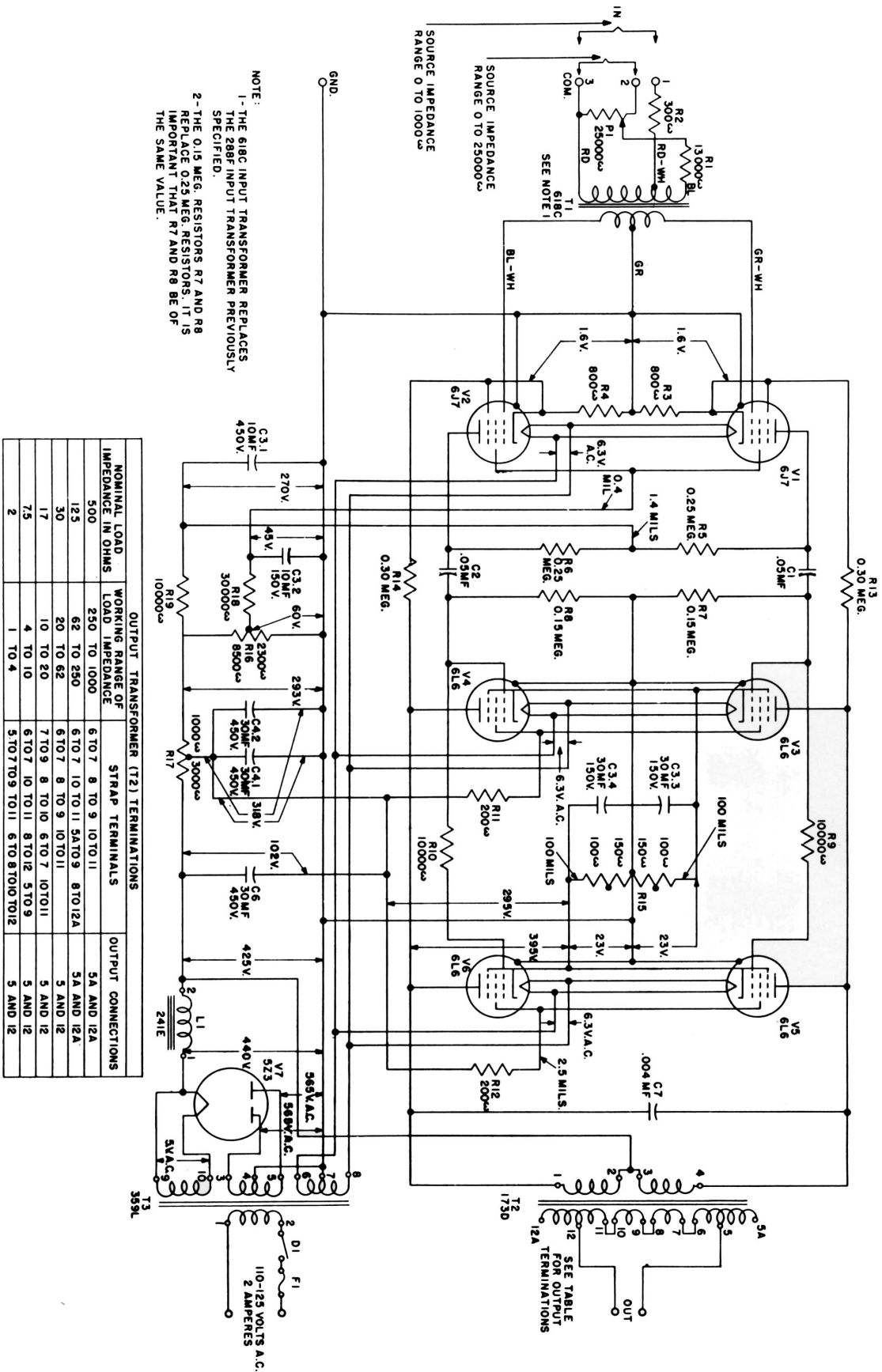


Figure 1—Schematic

Western Electric Company

No. 118-A AMPLIFIER

DEALER'S SERVICE MANUAL

The 118A Amplifier is a medium gain, audio frequency, power amplifier provided with a high impedance bridging type of input connection to facilitate its use in all types of sound systems.

IMPORTANT

118A amplifiers manufactured after June 1, 1939 are provided with a 618C input transformer which gives improved gain-frequency response and improved shielding against electromagnetic pickup. The 618C input transformer is not mechanically interchangeable with the previous transformer specified (288F) and mounts by means of a 1½" mounting ring. In addition, Resistors R7 and R8 have been changed from 0.25 meg to 0.15 meg. Characteristics and performance described in this manual pertain to the improved amplifier.

SUMMARY OF TYPICAL ELECTRICAL CHARACTERISTICS

Operates from	1 to 25,000 ohms (nominal range of bridging connection). 1 to 1,000 ohms (nominal range of high gain connection).
Internal Input Impedance	25,000 ohms, bridging connection. 1,500 ohms, high gain connection.
Gain at 1,000 cycles	48 db (bridging connection). (From 600 ohm circuit) 60 db (non-bridging—high gain).
Frequency Characteristic	35 to 15,000 cycles.
Gain Control	The gain control provides continuous adjustment over a 40 db range.
Operates into	Any impedance from 1 to 1,000 ohms.
Internal Output Impedance	Approx. ½ nominal load impedance.
Output Power	50 watts with less than 5% total harmonic distortion or 25 watts with less than 1% total harmonic distortion into a nominal load impedance.
Output Noise Level	—27 dbm, or 74 db below 50 watts output.* (Unweighted)
Power Supply	A.C. 50-60 cycle—110 to 125 volts.
Power Required	250 watts (line voltage 125 at 50 cycles). 200 watts (line voltage 115 at 60 cycles).

*dbm = level in db referred to 0.001 watt.

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<u>Designation</u>	<u>Apparatus</u>
C1, C2	Cornell Dubilier Cond. Type TVC 6S5CD-3, .05 mf. 600V. D.C.W.V. less mounting strap.
C3	Mallory No. 101425-O Type FP Cond. 10 mf. 450 V. \triangle , 30 mf. 150 V. \square , 30 mf. 150 V. \triangle , 10 mf. 150 V. plain. Can size 1 $\frac{3}{8}$ " dia., 3" high, with metal mtg. plate.
C4	Mallory No. 101209-O Type FP Cond. 30 mf. 450 V. \triangle , 30 mf. 450 V. \triangle . Can size 1 $\frac{3}{8}$ " dia. 3" high, with metal mtg. plate.
C6	Mallory No. 93727-O Type FP Cond. 30 mf. 450 V. with aluminum finished wax impregnated cardboard insulating cover glued on can and bakelite mtg. plate. Can size 1" dia., 3" high.
C7	Aerovox Mica Cond. No. 1456, .004 mf. $\pm 20\%$, molded in XM262 bakelite (yellow).

IRC Resistances

R1	Type BT- $\frac{1}{2}$ —13,000 ohms
R2	Type BT- $\frac{1}{2}$ —300 ohms
R3, R4	Type BT- $\frac{1}{2}$ —800 ohms
R5, R6	Type BT- $\frac{1}{2}$ —0.25 meg.
R7, R8	Type BT- $\frac{1}{2}$ —0.15 meg.
R9, R10	Type BT-1—10,000 ohms
R11, R12	Type BT- $\frac{1}{2}$ —200 ohms
R13, R14	Type BT-1—0.3 meg.
R15	MW5, 4 section, 500 ohms total, Tapped 100 ohms 2 watts, 150 ohms 4 watts, 150 ohms 4 watts, 100 ohms 2 watts, $\pm 10\%$, No. 2 terms.
R16	MW5, 2 section, 10,800 ohms total, wattage evenly distributed. Tapped 8,500 ohms, 2,300 ohms, $\pm 10\%$, No. 2 terms.
R17	MW5, 2 section, 4,000 ohms total, wattage evenly distributed. Tapped 3,000 ohms, 1,000 ohms, $\pm 10\%$, No. 2 terms.
R18	Type BT- $\frac{1}{2}$ —30,000 ohms
R19	Type BT- $\frac{1}{2}$ —10,000 ohms
VS1 to VS6 (Incl.)	39-1-E Eby Vacuum Tube Socket
VS7	33-1-A Eby Vacuum Tube Socket
T1	618C Input Transformer
T2	173D Output Transformer
T3	359L Power Transformer
P1	Allen-Bradley 25,000 ohm, Type "JS", Curve "A", Potentiometer, with shaft 1 $\frac{1}{2}$ " long
D1	H&H 20510 SPST Tumbler Switch, $\frac{3}{8}$ " lg. mtg. sleeve, bakelite laminations, 2 hex. nuts and 8" long leads. Long pear-shaped lever, and lockwasher
L1	241E Retard Coil