

No. 121-A LINE AMPLIFIER

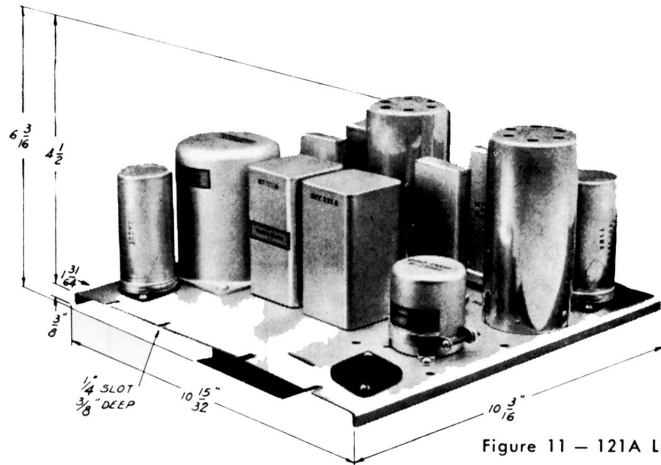


Figure 11 - 121A Line Amplifier.

**Use** — An adaptable 78 db fixed gain amplifier unit for use as an intermediate or microphone-to-line level main amplifier in FM and AM speech input and sound distribution systems.

**Description** — It is a three stage 78 db fixed gain amplifier having low distortion and high signal-to-noise ratio. Input impedances of 30, 250, or 600 ohms can be selected by arranging the strapping to the input transformer. The output impedance is 600 ohms. Each cathode circuit is arranged for checking the tubes through the use of the KS-10003 type or equivalent meter. The total d-c power required is 0.03 amperes at 275 volts. The filaments require 2 amperes at 6.3 volts.

The construction is compact and rugged resulting in a small chassis size for this type of amplifier.

**Features**

- Three-stage fixed gain amplifier.
- Intermediate or microphone-to-line amplifier.
- Ready checking of tubes.
- Ease and variety of mounting.
- Electrical and mechanical isolation.
- Stabilized feedback.

**Specifications**

**Frequency Response:** Uniform within  $\pm 1$  db over the range 50 to 15,000 cycles.

**Output Noise:** (Weighting follows normal ear sensitivity curve).

Gain	78 db	70 db	45 db
<b>Noise Level:</b>			
Unweighted	-42 dbm	-50 dbm	-75 dbm
Weighted	-52 dbm	-60 dbm	-85 dbm
<b>At + 18 dbm output level signal-to-noise ratio:</b>			
Unweighted	60 db	68 db	93 db
Weighted	70 db	78 db	103 db

**Source Impedance:** 30, 250 or 600 ohms matching. For bridging add proper input pad.

**Load Impedance:** 600 ohms.

**Maximum Gain:** 78 db; 70 db by internal connection change; 45 db by restrapping to eliminate the first stage.

**Output Power:** Single frequency output power for less than 1 per cent total harmonics: +28 dbm (600 milliwatts) for fundamental frequency of 400 cycles; +25 dbm (300 milliwatts) for fundamental frequency of 50 cycles.

**Power Required:** Filaments, 6.3 volts, 2 amperes; plates, 275 volts, d-c, 30 ma.

Power normally obtained from Western Electric 18 or 20 type Rectifiers.

VACUUM TUBES

Quantity Required	Western Electric	Commercial Receiver Types
1	347A or	6J7 (or 1620)
1	348A or	6J7 (or 1620)
1	349A or	6F6 (or 6V6)
3		

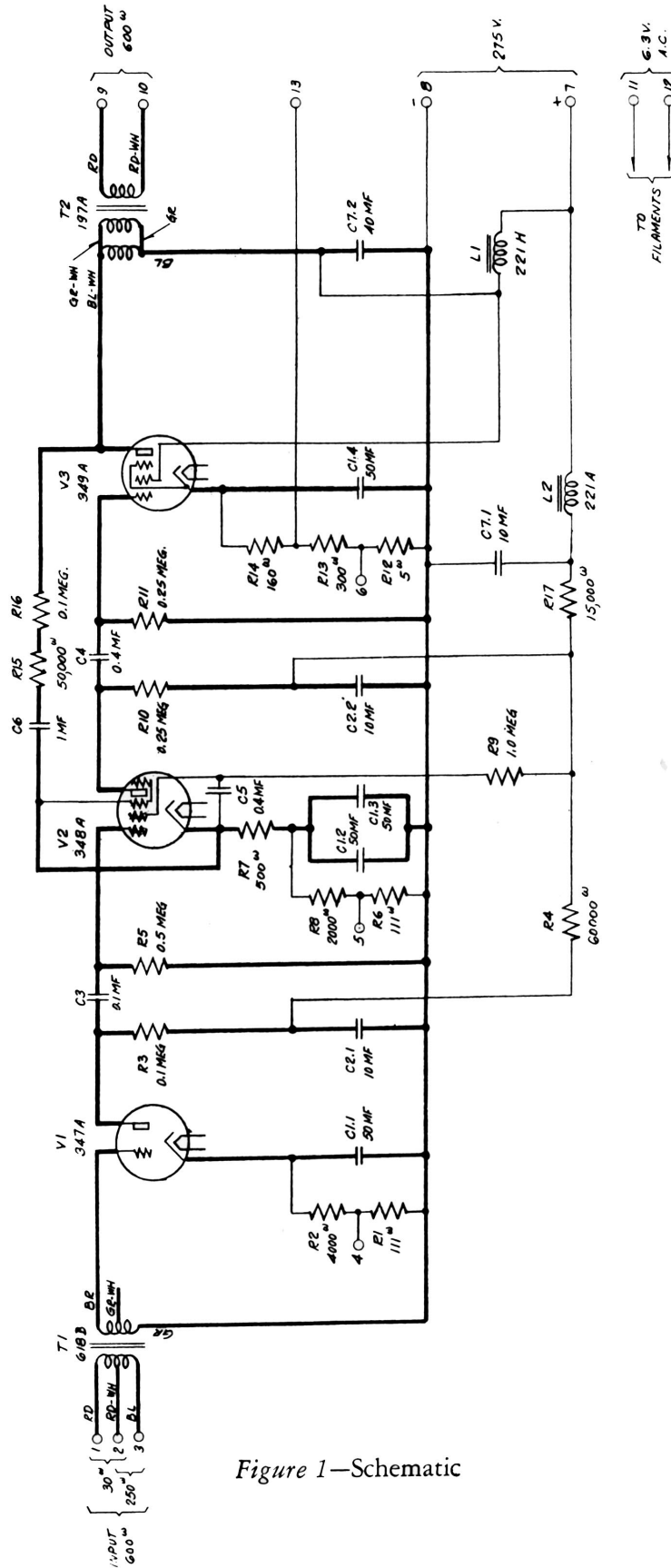
**Mounting:** This basic amplifier unit is designed for mounting in desks or other structures; also adaptable for relay rack or bay cabinet mounting through the use of 177 or 190 type mounting plates and 296 type panels. Isolation, both electrically and mechanically, is accomplished by using rubber supports which are furnished with the amplifier.

**Dimensions:** 10-3/16" wide, 10-15/32" deep and 6-3/16" high.

**Weight:** 10 pounds.

**Finish:** Light gray.

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# Western Electric Company

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### Apparatus List

<u>Designation No.</u>	<u>Apparatus</u>
T1	618B Input Transformer
T2	197A Output Transformer
L1	221H Retardation Coil
L2	221A Retardation Coil
C1.1, C1.2 C1.3, C1.4	Mallory Type FP Electrolytic Condenser 50-50-50-50 MF, 150 Volts DC Working Voltage 1-3/8" Dia. x 3" Can, or Sprague Type FP Equiv.
C2.1, C2.2	Special Mallory Type FP Electrolytic Condenser 10-10 MF, 450 Volts DC, Working Voltage 1-3/8" Dia. x 2" Can, or Sprague Type FP Equiv.
C3	234C Condenser 0.1 MF
C4, C5	230A Condensers 0.4 MF
C6	229C Condenser 1.0 MF
C7.1, C7.2	Mallory Type FP Electrolytic Condenser 10-40 MF, 450 Volts DC Working Voltage 1-3/8" Dia. x 3" Can, or Sprague Type FP Equiv.
International Resistance Company Type BW-1 Resistances, Resistance Values As Specified $\pm 5\%$	
R1	111 Ohms
R2	4000 Ohms
R6	111 Ohms
R7	500 Ohms
R8	2000 Ohms
R12	5 Ohms
R13	300 Ohms
R14	160 Ohms

All apparatus is Western Electric unless otherwise Specified.

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<u>Designation No.</u>	<u>Apparatus</u>
	International Resistance Company Type BT-1 Resistances, Resistance Values As specified $\pm 5\%$
R4	60,000 Ohms
R5	0.5 Megohm
R9	1.0 Megohm
R10, R11	0.25 Megohm
R15	50,000 Ohms
R16	0.1 Megohm
R17	15,000 Ohms
R3	International Resistance Company Type WW-3 Resistance, with Lug Terminals, 100,000 Ohms
VS1, VS2, VS3	Vacuum Tube Socket per KS-13364 List 1
Clamp for VS1, VS2	Clamping plate per BA-73238
Base for VS1, VS2	Vacuum tube base per ESO-680336-1
Shield for VS1, VS2	Vacuum tube shield per ESO-677879-5

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