

Cunningham RADIO TUBES

CX-301A, CX-112A and CX-371A

FIVE VOLT FILAMENT TUBES

This group of tubes includes all those having filaments designed to operate at 5.0 volts with a current drain of .25 amperes. Of these, the CX-301A and CX-112A are general purpose tubes while the CX-371A is a power amplifier tube.



CX-301A

GENERAL PURPOSE TUBE

The CX-301A is a general purpose tube designed for use as a detector or an amplifier. This tube employs a thoriated tungsten filament rated at 5 volts, .25 amperes, and is designed for operation with a 6 volt storage battery.

Circuit Recommendations

AS A DETECTOR

When the CX-301A is used as a detector with grid leak and condenser, the plate voltage should preferably be not more than 45 volts. The grid condenser should have about 0.00025 mfd. capacity and the grid leak should have a resistance of 2 to 9 megohms, the latter giving greater sensitivity on very weak signals but with somewhat inferior fidelity.

AS AN AMPLIFIER

The CX-301A, when used as an amplifier, should have the following recommended grid biases applied whenever the plate voltage is over 45 volts.

<i>Plate Voltage</i>	<i>Negative Grid Bias</i>
67.5	3.0
90.0	4.5
135.0	9.0

In radio-frequency circuits there is little advantage in using more than 90 volts on the plate and when used for loud-speaker operation, the plate voltage should be 135 volts with suitable bias.

RATING

Filament Voltage	5.0 volts
Filament Current	.25 amperes
Plate Voltage (maximum)	135 volts

AVERAGE CHARACTERISTICS

Plate Voltage	90	135 volts
Grid Bias Voltage	-4.5	-9.0 volts
Amplification Factor	8.0	8.0
Mutual Conductance	725	800 micromhos
Plate Resistance	11000	10000 ohms
Plate Current	2.5	3.0 milliamperes
Undistorted Power Output	15	55 milliwatts
Grid-Plate Capacitance	8.1 mmf.	
Grid Filament Capacitance	3.1 mmf.	
Plate-Filament Capacitance	2.2 mmf.	

DIMENSIONS

Maximum Overall Length	4 $\frac{11}{16}$ "
Maximum Overall Diameter	1 $\frac{3}{16}$ "
Base	Large CX

AVERAGE CHARACTERISTIC CURVES

(Pages 21 and 22)

Filament and Emission Characteristics—Fig. 1 shows the change of filament current and electron emission with various filament voltages.

Grid Characteristics—Fig. 2 shows the relation between grid current and voltage.

Plate Characteristics—Fig. 3 shows a family of plate voltage-plate current curves at various grid bias voltages.

Mutual Characteristics—Fig. 5 shows a family of grid voltage-plate current curves for various plate voltages.

Dynamic Characteristics—Fig. 4 shows the effect of grid voltage upon the amplification factor, mutual conductance and plate resistance.