

Cunningham RADIO TUBES

BULLETIN

Type CX-326

General Purpose Amplifier For A. C. Filament Operation

The CX-326 is a general purpose amplifier tube for use in radio frequency or audio frequency amplifier circuits. It is ordinarily not suited for use as a detector when A. C. is used on the filament. A specially selected coated ribbon filament is employed to permit operation from an A. C. source of supply of 1.5 volts and requiring 1.05 amperes filament current.



BULB

The bulb provided for the CX-326 is the standard S-14 having a maximum diameter of $1\frac{13}{16}$ ". The maximum overall length from the bottom of the base pins to the top of the bulb is $4\frac{11}{16}$ ".

BASE

The standard four prong base is employed with pins in the same position as in the CX-301A. The position of the pins is shown in figure 6.

FILAMENT

The filament is of the ribbon coated type arranged in the form of an inverted V, this design permitting operation from an A. C. source of power. The filament is of the low voltage high current type requiring 1.5 volts at a current of 1.05 amperes.

Filament leads should be of twisted pair being as short as possible. It is advisable to note that filament leads are not placed too near high potential leads in the circuit.

ELEMENTS

The same structural arrangement as employed in the CX-301A is utilized in the CX-326, that is, the surface of the grid and plate is oval shape with the grid placed next to the filament and the plate placed symmetrically about the grid. A mica disc is provided at the top of the construction which maintains rigid alignment of the elements.

OPERATING CONDITIONS

Filament Volts	1.5		
Filament Amperes	1.05		
Plate Volts	90	135	180
Grid Voltage	-6.0	-9.0	-13.5

AVERAGE TUBE CHARACTERISTICS

Plate Voltage.....	90	135	180
Grid Voltage.....	-6.0	-9.0	-13.5
C Bias Resistor.....	1700	1500	1800 ohms
Amplification Factor.....	8.2	8.2	8.2
Plate Resistance.....	8600	7200	7000 ohms
Mutual Conductance.....	955	1135	1170 micromhos
Plate Current.....	3.8	6.3	7.4 milliamperes
Undistorted Output.....	30	80	180 milliwatts

The higher plate voltages are recommended only where the signal input to a particular stage might be large enough to cause overloading or a flow of grid current.

USE—AS AN AMPLIFIER

Operation as an amplifier for either A.F. or R.F. is essentially the same as for the CX-301A. The electrical characteristics are substantially the same and ordinarily do not require any changes in the characteristics of the A.F. and R.F. transformers as previously employed with the CX-301A. Grid and plate return leads should be connected to the moveable arm of a low resistance potentiometer connected across the filament and in operation this arm should be adjusted for minimum hum.

The CX-326 cannot be used satisfactorily as a bias detector when operated from alternating currents as the hum present under such conditions is objectionable.

CURVES & DIAGRAMS—(Pages 41, 42 and 43)

The variation of filament current with filament voltage is shown in figure 1.

The relation between plate current and plate voltage at several values of bias is shown in figure 2. From this curve it is possible to determine approximately the plate current under given conditions of grid and plate voltage.

Figure 3 shows the variation of plate current with grid voltage for various values of plate voltage.

The effect of plate voltage upon amplification factor, plate resistance and mutual conductance at various grid bias voltages is shown in figure 4.

Figure 5 shows a suggested circuit arrangement for the use of the CX-326.

Socket connections are shown in figure 6.

CX-326 AVERAGE CHARACTERISTICS

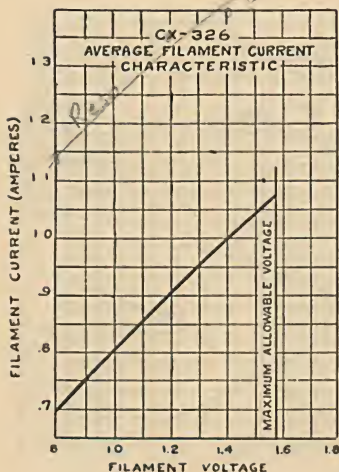


FIG. 1

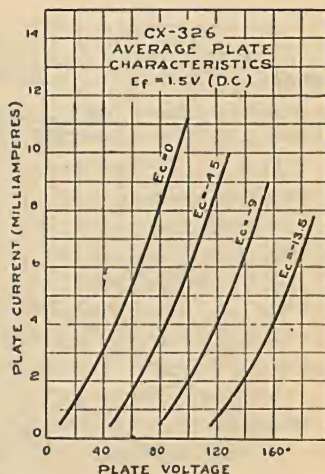


FIG. 2

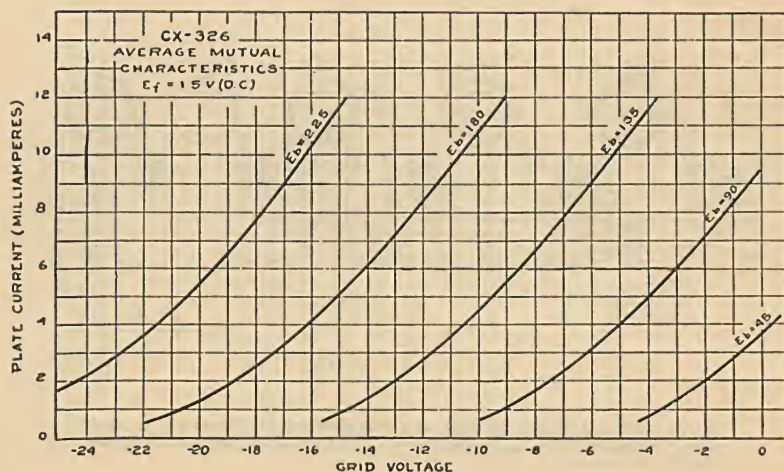


FIG. 3

CX-326 AVERAGE CHARACTERISTICS

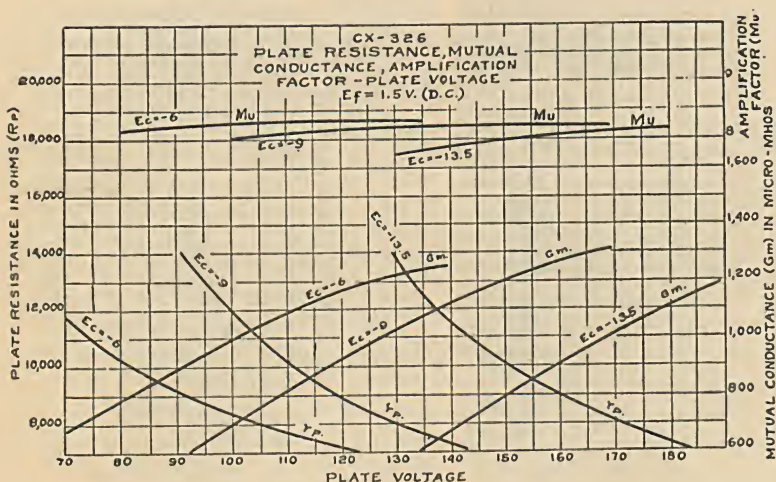
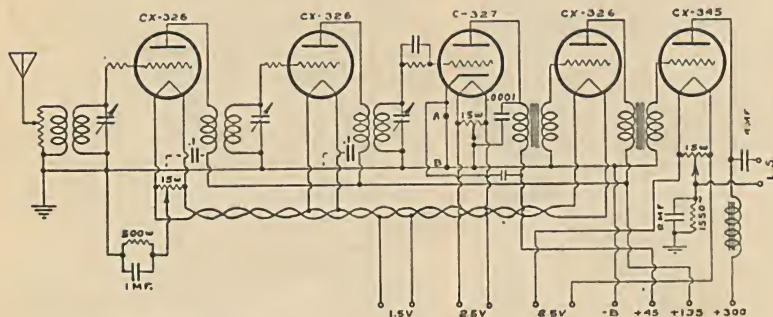
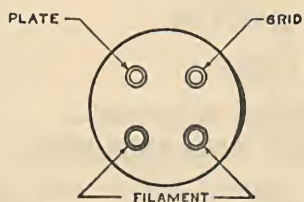


FIG. 4



Note: The C-327 may be used as a bias detector by connecting a 20,000 ohm resistance between the points A-B. The grid-leak and grid-condenser should be removed.

FIG. 5



BOTTOM
OF BASE



SOCKET
CONNECTIONS

FIG. 6