

# CUNNINGHAM

## CX-326

### A-C FILAMENT - AMPLIFIER

#### RATING

Filament -	-	1.5 Volts A-C	-	-	1.05 Amperes
Plate	{	Recommended	-	-	90-135 Volts D-C
		Maximum	-	-	180 Volts D-C

#### IMPORTANT

Insert Cunningham CX-326 *only* in socket calling for this type tube. Excess voltage will destroy the filament if the tube is inserted in a socket designed for a Power Amplifier tube.

When using Cunningham CX-326 in a receiver designed to operate on certain line voltages, have dealer measure line voltage and be sure that the supply line voltage is in accordance with the recommended operating voltage of the receiver. Any vacuum tube may be damaged or destroyed by excess operating voltage.

#### USE

Cunningham CX-326 is an Amplifier Tube, the A-C filament of which can be operated by alternating current direct from a power transformer. Like the CX-301-A it can be used for Radio or Transformer coupled Audio Frequency Amplification. It is not, however, ordinarily suited for Detection. A Power Amplifier Tube, the filament of which may also be A-C operated, is to be preferred for use in the last Audio Stage.

#### MOUNTING

The Large Standard CX Base of this tube fits both the new Push Type and old Navy Type sockets. Socket Connections should offer firm large surface contact to the filament prongs to minimize contact resistance.

#### FILAMENT

The A-C filament of this tube is of the coated type which operates at only a red heat. It may be supplied direct from one of the windings of a power transformer. Circuit design should be such that with normal line voltage variations the filament voltage never exceeds its rated value of 1.5 volts by more than 5%.

The filaments of all CX-326 tubes in the receiver should be connected in parallel. Due to high current and low voltage all connections in the filament circuit must be of low resistance. Filament circuit leads should be of heavy wire (twisted pair) and splices should be well soldered. Leads carrying alternating current should be of twisted pair and should be kept away from other parts of the circuit where possible, as shown in the diagram below. It is recommended that the receiver be turned off before any of the tubes are removed so that excessive voltage will not be applied to the remaining tubes.

A Potentiometer, the resistance of which may be as low as 6 ohms, should be connected across the transformer winding supplying the filaments of all CX-326 tubes. Plate and grid return leads (B- and C+) are connected to the movable arm of the Potentiometer which is adjusted for best results during operation. No further adjustment should be necessary unless tubes are changed. A mid-tapped transformer winding or resistor does not usually give as good results as a potentiometer.

#### CIRCUIT DESIGN

Transformer Coupling should be used for Audio Frequency Amplification with the CX-326 in order to secure greatest amplification per stage. The diagram below shows a typical Audio circuit with this tube as first stage amplifier and with the C-327 as Detector. Negative grid bias should be used for Radio Frequency Amplification as well as Audio Frequency Amplification, as shown in the table of Operating Voltages below.

## OPERATING VOLTAGES

Plate Voltage (Volts)	Negative Grid Bias		
	R. F. (Volts)	First A. F. (Volts)	Last A. F. (Volts)
90	4½- 6	4½- 6	.....
135	9-12	9-12	9-12
180	.....	13½	13½

High plate voltage shown is often desirable to prevent distortion where the volume passing through the stage in question is unusually great. Low plate voltage is always recommended where it does not introduce distortion since it insures long life to the tubes.

Negative Grid Bias should always be used with this tube. Bias voltages above are given with respect to the center point of the filament and thus apply to the circuit shown below.

### CUNNINGHAM QUALITY AND SERVICE

Every Cunningham Tube is subjected to rigid tests and inspections throughout its various stages of manufacture to insure the highest quality. If, however, any Cunningham Tube is believed not to function properly it should be returned to the dealer from whom it was purchased. The dealer has complete information regarding the proper disposition of such cases.

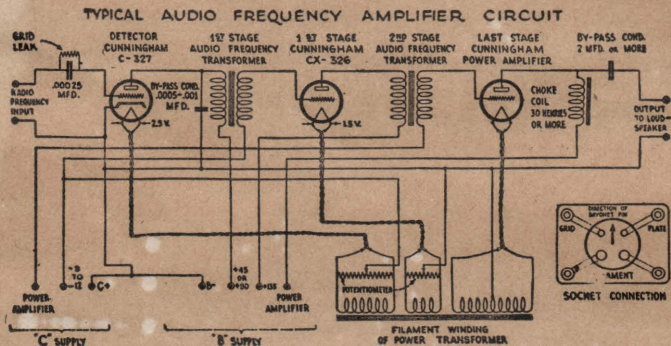
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## HANDLE CUNNINGHAM TUBE CAREFULLY INSERT TUBE IN CORRECT SOCKET ONLY



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