



# Cunningham RADIO TUBES

CX-380

## FULL-WAVE RECTIFIER

The '80 is a full-wave rectifying tube intended for use in d-c power supply devices which operate from the a-c supply line.

### CHARACTERISTICS

FILAMENT VOLTAGE (A. C.)	5.0	Volts
FILAMENT CURRENT	2.0	Amperes
1 { A-C VOLTAGE PER PLATE (RMS)	350	Volts
{ D-C OUTPUT CURRENT	125 max.	Milliamperes
2 { A-C VOLTAGE PER PLATE (RMS)	400 max.	Volts
{ D-C OUTPUT CURRENT	110 max.	Milliamperes
3* { A-C VOLTAGE PER PLATE (RMS)	550 max.	Volts
{ D-C OUTPUT CURRENT	135 max.	Milliamperes
MAXIMUM OVERALL LENGTH		5 $\frac{3}{8}$ "
MAXIMUM DIAMETER		2 $\frac{3}{16}$ "
BULB (See page 42, Fig. 10)		S-17
BASE		Medium 4-Pin

\* This rating is permissible only with filter circuits having an input choke of at least 20 henries.

### INSTALLATION

The base pins of the '80 fit the standard four-contact socket which should be mounted preferably to hold the tube in a vertical position. If it is necessary to place the tube in a horizontal position, the socket should be mounted with both of the filament pin openings, either at the top or at the bottom. This precaution locates the filament plane vertical for most satisfactory performance. For socket connections, see page 39, Fig. 2. Provision should be made for free circulation of air around the bulb since it becomes quite hot during operation.

The coated filament of the '80 is designed to operate from the a-c line through a step-down transformer. The voltage applied to the filament terminals should be the rated value of 5.0 volts under operating conditions and average line voltage.

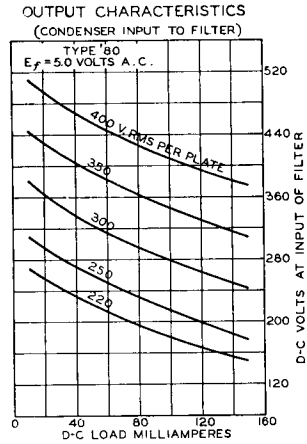
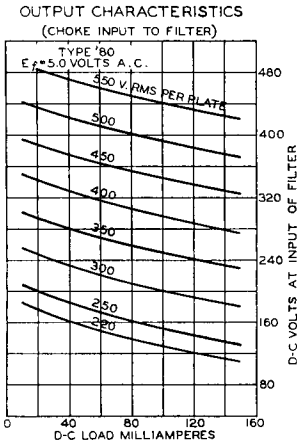
The approximate d-c output voltage of the '80 for various values of a-c input voltages may be obtained from the curves. For the d-c voltage available at the radio set, it is necessary to subtract the voltage drop across the filter from the value read from the curves.

The filter may be of either the condenser-input or choke-input type. If an input condenser is used, consideration must be given to the instantaneous peak value of the a-c input voltage. The peak value is about 1.4 times the RMS value as measured by most a-c voltmeters. Filter condensers, therefore, especially the input condenser, should have a rating high enough to withstand the instantaneous peak value, if breakdown is to be avoided. When the input-choke method is used, the available d-c output voltage will be somewhat lower than with the input-condenser method for a given a-c plate voltage. However, improved regulation together with lower peak current will be obtained.

### APPLICATION

As a full-wave rectifier, the '80 may be operated with condenser-input or choke-input filter under conditions not to exceed the ratings given under CHARACTERISTICS.

As a half-wave rectifier, two '80's may be operated in a full-wave circuit with reasonable serviceability to deliver more d-c output current than can be obtained from one tube. For this use, the plates of each '80 are tied together at the socket. The allowable voltage and load conditions per tube are the same as for full-wave service.



TYPICAL FULL-WAVE RECTIFIER CIRCUIT

