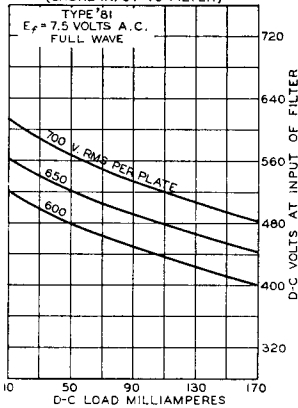
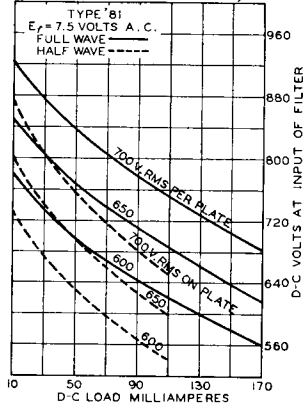


OUTPUT CHARACTERISTICS  
(CHOKE INPUT TO FILTER)



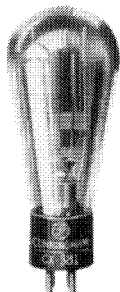
OUTPUT CHARACTERISTICS  
(CONDENSER INPUT TO FILTER)



# Cunningham RADIO TUBES

CX-381

## HALF-WAVE RECTIFIER



The '81 is a half-wave rectifier tube for use in d-c socket-power devices operating from the alternating current supply line. Full-wave rectification may be accomplished by two '81's.

### CHARACTERISTICS

FILAMENT VOLTAGE (A. C.) .....	7.5	Volts
FILAMENT CURRENT .....	1.25	Amperes
A-C PLATE VOLTAGE (RMS) .....	700 <i>max.</i>	Volts
D-C OUTPUT CURRENT .....	85 <i>max.</i>	Milliamperes
MAXIMUM OVERALL LENGTH .....		6 $\frac{1}{4}$ "
MAXIMUM DIAMETER .....		2 $\frac{7}{16}$ "
BULB (See page 42, Fig. 12) .....		S-19
BASE .....		Medium 4-Pin

### INSTALLATION

The base pins of the '81 fit the standard four-contact socket which should be mounted to hold the tube in a vertical position. For socket connections, see page 39, Fig. 3. Provision should be made for free circulation of air around the bulb since it becomes quite hot during operation.

The coated filament of the '81 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 7.5 volts under operating conditions and average line voltage.

The approximate d-c output voltage of the '81 in half-wave and full-wave connection 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 on preceding page.

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. For this reason, filter condensers, 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 half-wave rectifier, the '81 may be operated under conditions not to exceed those given under CHARACTERISTICS.

In full-wave circuits, two '81's are required to rectify each half of the a-c voltage. Operating voltages per tube are the same as for the half-wave circuit, but twice the d-c output current may be obtained.

For special applications, it is possible to obtain a d-c output voltage approximately double that to be expected from conventional rectifier circuits, without exceeding the recommended maximum a-c input voltage per tube. This is accomplished by means of a voltage doubling system designed for each particular application.