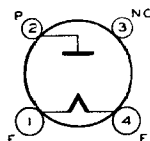


RCA-81

HALF-WAVE RECTIFIER

The 81 is a half-wave rectifier tube of the high-vacuum type for use in d-c power-supply 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 max.	Volts
D-C OUTPUT CURRENT.....	85 max.	Milliamperes
BULB		S-19
BASE	Medium	4-Pin Bayonet

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. 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 voltage, may be obtained from the curves on the preceding page. 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.

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 both halves 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.

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.

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. See page 25.