

Cunningham RADIO TUBES

C-327

DETECTOR, AMPLIFIER

The '27 is a three-electrode general purpose tube containing a 2.5 volt heater-cathode of the equi-potential type which permits operation from alternating current.



CHARACTERISTICS

HEATER VOLTAGE (A. C. or D. C.)	2.5	Volts
HEATER CURRENT	1.75	Amperes
PLATE VOLTAGE*	90 135 180 250	Volts
GRID VOLTAGE	-6 -9 -13.5 -21	Volts
PLATE CURRENT	2.7 4.5 5.0 5.2	Milliamperes
PLATE RESISTANCE	11000 9000 9000 9250	Ohms
AMPLIFICATION FACTOR	9 9 9 9	
MUTUAL CONDUCTANCE	820 1000 1000 975	Micromhos
GRID-PLATE CAPACITANCE	3.3	$\mu\mu\text{f.}$
GRID-CATHODE CAPACITANCE	3.5	$\mu\mu\text{f.}$
PLATE-CATHODE CAPACITANCE	3.0	$\mu\mu\text{f.}$
MAXIMUM OVERALL LENGTH		$4\frac{1}{16}''$
MAXIMUM DIAMETER		$1\frac{3}{16}''$
BULB (See page 42, Fig. 8)		S-14
BASE		Medium 5-Pin

* Maximum plate voltage = 275 volts.

INSTALLATION

The base pins of the '27 fit the standard five-contact socket. The socket may be mounted to hold the tube in any position. For socket connections, see page 39, Fig. 8.

The heater of the '27 is intended for operation from a 2.5 volt winding of the power transformer. The voltage applied to the heater terminals should be the rated value of 2.5 volts under conditions of operation and average line voltage.

The cathode connection to the heater should be made (1) to the movable arm of a potentiometer connected across the heater winding of the power transformer, or (2) to a mid-tapped resistor across the heater winding, or (3) to the mid-point of the heater winding itself. Recommended practice is to have no potential difference between heater and cathode. If this practice is not followed, the heater may be biased preferably negative, but allowably positive, with respect to the cathode by not more than 45 volts.

APPLICATION

As an amplifier, the '27 is applicable to the audio- or the radio-frequency stages of a receiver. Recommended plate and grid voltages are shown under CHARACTERISTICS.

As a detector, the '27 may be operated either with grid leak and condenser or with grid bias. The recommended plate voltage for grid leak and condenser detections is 45 volts (see page 16). A grid leak of from 1 to 5 megohms used with a grid condenser of 0.00025 $\mu\text{f.}$ is suitable. For grid bias detection, a plate voltage of 250 volts or less may be used. The corresponding grid bias should be adjusted so that the plate current when no signal is being received is approximately 0.2 milliamperes. For the conditions of 250 volts on plate and transformer coupling, the grid bias will be approximately -30 volts.

THE CUNNINGHAM RADIO TUBE MANUAL

As an **oscillator**, the '27 may be operated with a plate voltage of approximately 90 volts and zero grid bias. A lower value of plate voltage may be found desirable in some applications.

