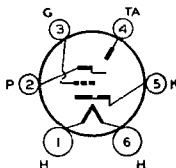


# RCA-6E5

## ELECTRON-RAY TUBE

(Indicator Type)



The 6E5 is a high-vacuum, heater-cathode type of tube designed to indicate visually, by means of a fluorescent target, the effects of a change in the controlling voltage.

The tube, therefore, is essentially a voltage indicator and as such is particularly useful as a convenient and non-mechanical means to indicate accurate tuning of a receiver to the desired station. The 6E5 is similar to the 6G5 except that the 6G5 triode unit is designed with a remote plate-current cut-off characteristic. For discussion of Electron-Ray Tube considerations, refer to page 30.

### CHARACTERISTICS

HEATER VOLTAGE (A. C. or D. C.).....	6.3	Volts		
HEATER CURRENT .....	0.3	Ampere		
PLATE-SUPPLY VOLTAGE .....	250 max.	Volts		
TARGET VOLTAGE* .....	250 max.	Volts		
<b>TYPICAL OPERATION</b>				
Plate and Target-Supply Voltage..	100	200	250	Volts
Series Triode-Plate Resistor.....	0.5	1	1	Megohm
Target Current (Approx.).....	4.5	4.5	4.5	Milliamperes
Triode-Plate Current (For zero triode-grid voltage) .....	0.19	0.19	0.24	Milliampere
Triode-Grid Voltage (For shadow angle of 0°) (Approx.).....	-3.3	-6.5	-8.0	Volts
Triode-Grid Voltage (For shadow angle of 90°) (Approx.).....	0	0	0	Volts
BULB .....				ST-12
BASE .....				Small 6-Pin

\* Minimum target voltage should not be less than 90 volts.

### INSTALLATION

The base pins of the 6E5 fit the standard six-contact socket which may be installed to hold the tube in any position. For convenience, the tube is usually mounted horizontally so that the fluorescent screen is readily visible when the receiver circuit is tuned. A small hood, placed over the dome and fluorescent target, will help to eliminate external light reflections.

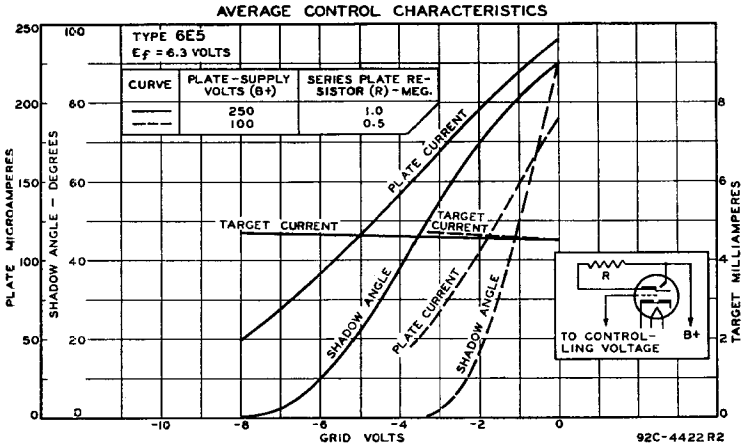
For heater operation and cathode connection, refer to type 6A8. The bulb of this tube becomes hot under certain conditions of operation. Sufficient ventilation should be provided to prevent overheating.

### APPLICATION

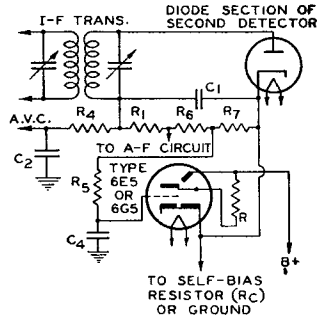
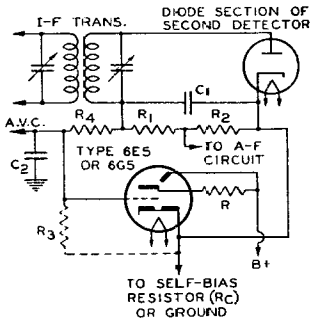
The visible effect is observed on the fluorescent target located in the dome of the bulb. The pattern on the target varies from a shaded angle of 90° with zero bias (off tune) to a shaded angle of approximately 0° at resonance with a strong carrier. Exact tuning is indicated by the narrowest shaded angle that can be obtained. The stronger the carrier, the narrower is the shadow.

The diagrams on the next page show typical tuning-indicator circuits employing the 6E5. If the strongest carrier received produces sufficient AVC voltage to exceed the cut-off bias value of -8 volts, the shadow area of the fluorescent target will overlap. To overcome this effect, resistor R<sub>3</sub> should be connected, as shown, between the triode-unit grid and cathode in order to reduce the control voltage.

The value of  $R_3$  may easily be determined by applying a strong signal and adjusting  $R_3$  until the shadow-angle is nearly zero. If the resultant value of  $R_3$  is so low as to reduce the avc voltage appreciably, the d-c controlling voltage for the 6E5 should be obtained from a tap on the diode load resistor as shown in the diagram at the right.



**TYPICAL ELECTRON-RAY TUBE CIRCUITS**



- $R = \begin{cases} 1.0 \text{ MEGOHM FOR } B+ = 250 \text{ VOLTS} \\ 0.5 \text{ MEGOHM FOR } B+ = 100 \text{ VOLTS} \end{cases}$
- $R_1 = 0.05 \text{ MEGOHM (R-F FILTER)}$
- $R_2 = 0.2 \text{ MEGOHM}$
- $R_3 = \text{DETERMINED BY TEST. SEE TEXT.}$
- $R_4 = \text{AVC FILTER RESISTOR}$

- $R_6 = R_4$
- $R_6 + R_7 = 0.2 \text{ MEGOHM}$
- $C_1 = 100 \text{ TO } 200 \mu\text{f}$
- $C_2 = \text{AVC FILTER CONDENSER}$
- $C_3 = 0.05 \text{ TO } 1.0 \mu\text{f}$
- $C_4 = C_3$



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1	73	1937
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3	FP	1999.10.10