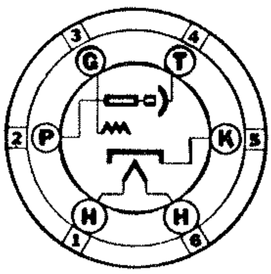
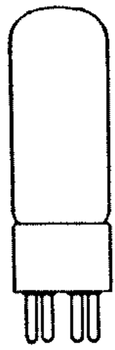


6R-0-0



Sylvania Type 6E5

ELECTRON RAY INDICATOR TUBE

PHYSICAL SPECIFICATIONS

Base	Small 6 Pin
Bulb	T9
Maximum Overall Length	4 3/16"
Maximum Seated Height	3 9/16"
Mounting Position	Any

RATINGS

Heater Voltage AC or DC	6.3 Volts
Heater Current	0.3 Ampere
Maximum Plate Supply Voltage	250 Volts
Maximum Target Voltage	250 Volts
Minimum Target Voltage	100 Volts
Maximum Heater-Cathode Voltage	90 Volts

TYPICAL OPERATION

Heater Voltage	6.3	6.3	6.3 Volts
Plate Supply Voltage	100	200	250 Volts
Target Supply Voltage	100	200	250 Volts
Plate Current (Triode Unit)*	0.19	0.19	0.24 Ma.
Target Current (Approximate)*	1.0	3.0	4.0 Ma.
Grid Voltage (Triode Unit) † Approximate.	0.0	0.0	0.0 Volt
Grid Voltage (Triode Unit) ‡ Approximate.	−3.3	−6.5	−8.0 Volts
Triode Plate Resistor	0.5	1.0	1.0 Megohm

*With triode grid voltage of zero volts.
†For shadow angle of 90 degrees.
‡For shadow angle of zero degrees.

APPLICATION

Sylvania Type 6E5 consists of a triode, which functions as a d-c amplifier, and an electron ray device. This latter consists of a portion of the heated cathode as a source of the electrons which are attracted to the target by the positive potential on it. The shaded or unlighted sector is produced by the shadow of a control electrode which is attached to the plate of the triode.

This tube is designed primarily for use as a visible tuning indicator of the electron ray type. It contains a round conical plate or "Target" which fluoresces during operation, and is viewed through the top of the bulb. The visible indication is in the form of a fluorescent lighted sector covering about three-quarters of the area of the target when no voltage is applied to the control grid of the tube. When a negative voltage is applied to the control grid, the edges of the lighted portion close in over the previously unlighted or shaded 90° sector with a fan-like movement until the voltage is increased to a value such that the shaded portion is eliminated and the entire top surface of the target becomes uniformly illuminated.

If the control grid is made negative, the plate and therefore the electron ray-control electrode become more positive with respect to the cathode due to decreasing the voltage drop in the resistor which is connected externally between the target and the plate. As this control element becomes more positive its shadow on the target is reduced and the edges of the lighted portion close in as mentioned above.

In actual circuit use the varying negative voltage for controlling the shadow may be obtained from some point in the a-v-c circuit, thus giving an indication of resonance when the unlighted portion of the target is at minimum.

The principal difference between Type 6E5 and Type 6U5/6G5 is in the plate current cut-off characteristics, which are —8 volts and —22 volts respectively. Where difficulty is experienced due to complete closing of the shadow of the 6E5 it is recommended that the 6U5/6G5 be used. If no difficulty exists due to closing of the shadow from only a portion of the a-v-c voltage being used, increased indications on weak signals may be obtained by using a Type 6U5/6G5 and applying the total a-v-c voltage. Type 6U5/6G5 may be used to replace the 6E5 in nearly all present applications, and in general no circuit changes will be necessary.