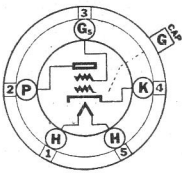


TYPE 35/51

SUPER-CONTROL TETRODE



CHARACTERISTICS

Heater Voltage AC or DC	2.5 Volts
Heater Current	1.75 Amperes

Direct Interelectrode Capacitances:

Grid to Plate (with tube shield)	0.007 μf
Input	5.3 μf
Output	10.5 μf
Maximum Over-all Length	5 $\frac{1}{2}$ "
Maximum Diameter	1 $\frac{13}{16}$ "
Bulb	ST-14
Cap	Small Metal
Base—Medium 5-Pin	5-E

Operating Conditions and Characteristics:

Heater Voltage	2.5	2.5 Volts
Plate Voltage	180	250 Volts
Grid Voltage	-3.0	-3.0 Volts Min.
Screen Voltage	90	90 Volts Max.
Plate Current	6.3	6.5 Ma.
Screen Current	2.5	2.5 Ma.
Plate Resistance	0.3	0.4 Megohm
Mutual Conductance	1020	1050 μmhos
Amplification Factor	305	420
Mutual at -40 Grid Bias Volts	15	15 μmhos

CIRCUIT APPLICATION

Sylvania 35/51 is a super-control screen grid amplifier tube designed for 2.5 volt operation. It employs an indirectly heated cathode. It is useful as a radio frequency, intermediate frequency, audio frequency amplifier and first detector.

The 35 tube is designed for volume control by variation of the control grid bias and either manual or automatic volume control may be employed. The maximum bias required for satisfactory volume control range will depend on the number of stages being controlled and will range from thirty to fifty volts with present tubes. Provision should be made so that the control grid bias will not be reduced lower than three volts.

The screen voltage for the 35/51 may be obtained from a fixed tap on the voltage divider. Under no circumstance should the screen voltage be obtained through a series resistor because the desirable cut-off characteristics will be greatly altered.

The use of a 35/51 as the first detector in superheterodyne circuits will provide a gain of approximately one-third of that possible in an i-f amplifier stage when the proper conditions of grid and local oscillator voltage exist. The gain can be controlled by variation of the d-c grid bias which may be from a separate supply or from a variable resistor in the cathode circuit.

When the first detector is self-biased the oscillator voltage may be made nearly equal to the grid bias at maximum sensitivity, because the applied signal under such conditions will be small. Nevertheless to insure that the first detector will not draw grid current, thereby loading the input circuit, it is advisable to limit the peak oscillator voltage to a value about one volt less than the grid bias.

When variable bias is not used on the first detector the peak oscillator voltage must be maintained at a somewhat lower value. This means a sacrifice in sensitivity. If used, it should be less than the grid bias by an amount equal to the largest peak signal to be received plus the peak value of any probable interference voltage.