

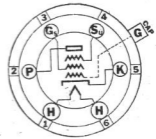
Sylvania

# TYPE 77

## TRIPLE GRID

### AMPLIFIER AND

### DETECTOR



### CHARACTERISTICS

Heater Voltage AC or DC . . . . .	6.3 Volts
Heater Current . . . . .	0.3 Ampere

### Direct Interelectrode Capacitances:

Effective Grid to Plate (with tube shield) . . . . .	0.007 $\mu$ f Max.
Input . . . . .	4.7 $\mu$ f
Output . . . . .	11.0 $\mu$ f
Maximum Over-all Length . . . . .	4 $\frac{1}{2}$ "
Maximum Diameter . . . . .	1 $\frac{3}{8}$ "
Bulb . . . . .	ST-12
Cap . . . . .	Small Metal
Base—Small 6-Pin . . . . .	6-F

### Operating Conditions and Characteristics:

#### AMPLIFIER (CLASS A)

Heater Voltage . . . . .	6.3	6.3 Volts
Plate Voltage . . . . .	100	250 Volts Max.
Grid Voltage . . . . .	-1.5	-3 Volts
Screen Voltage † . . . . .	60	100 Volts
Suppressor . . . . .	Tie to Cathode	
Plate Current . . . . .	1.7	2.3 Ma.
Screen Current . . . . .	0.4	0.5 Ma.
Plate Resistance . . . . .	0.65	1.5 Megohms Approx.
Mutual Conductance . . . . .	1100	1250 $\mu$ mhos
Amplification Factor . . . . .	715	1500 Approx.
Grid Volts for Cathode Current Cut-off . . . . .	-5.5	-7.5 Volts Approx.

†Maximum = 125 Volts.

#### BIASED DETECTOR

Heater Voltage . . . . .	6.3	6.3	6.3 Volts
Plate Voltage . . . . .	100	250	250 Volts Max.
Grid Voltage . . . . .	-2	-2	-4.3 Volts
Screen Voltage . . . . .	36	50	100 Volts Max.
Suppressor . . . . .	Tied to Cathode		

Plate Load—250,000 ohms or a 500 henry choke shunted by 0.25 megohm for resistance load.

Plate Current—Adjust to 0.1 milliampere (Approx.) with no a-c input signal.

### CIRCUIT APPLICATION

The use of a Type 77 as an r-f amplifier should be restricted to cases in which relatively low r-f signals are to be applied to the control grid; otherwise there will result an undue amount of cross-modulation and modulation distortion whenever larger signals are applied. This limitation is imposed by the sharp cut-off characteristic of the 77. In cases where a wide range of input signal must be handled a Type 78 should be used. This is a super-control amplifier designed especially for such service and particularly suitable in sets having automatic volume control.

The highest practical plate circuit load should be used with the 77. For i-f amplifiers at a fixed frequency a tuned impedance load will be found very satisfactory. A gain of 200 per stage can be realized at 175 kilocycles provided i-f transformers of good quality are employed. Where uniform sensitivity is necessary over a wide band of frequencies the type of coupling will be governed by the specific requirements.

Due to its excellent sensitivity, Type 77, when properly coupled, is capable of furnishing a large a-f output voltage with but slight distortion when a small r-f signal is applied to the control grid. This property makes it especially suitable as a biased detector.

Several methods for obtaining the bias voltage are adaptable—the choice may be a bleeder circuit arrangement, a cathode resistor circuit, or the use of a partial self-biasing combination. The second device permits higher output for low percentage modulation because the input signal may be increased almost in inverse proportion to the modulation without objectionable distortion.

From a quality standpoint the most satisfactory performance will result if resistance coupling is employed. When higher output and increased sensitivity are desired a high impedance choke shunted by a suitable resistor is recommended.