

# MAZDA

## AC/SG.VM.

### A.C. Mains Screened Grid Variable-Mu Valve



#### RATING.

Filament Voltage	... ..	4.0
Filament Amps.	... ..	1.0
Maximum Anode Voltage	... ..	200
Maximum Screen Volts	... ..	80
Mutual A.C. Conductance (mA/V)	... ..	3.0
at Ea=200 Es=80 Eg=0		
Amplification Factor	... ..	1,400
Mutual A.C. Conductance (mA/V)	... ..	2.0†
(μA/V)	... ..	5‡
† Ea=200 Es=60 Eg=-2		
‡ Ea=200 Es=60 Eg=-35 approx.		

#### INTER-ELECTRODE CAPACITIES.

Anode to Grid (μμF)	... ..	0.0015
Anode to Cathode (μμF)	... ..	11.5
Grid to Cathode (μμF)	... ..	10.5

#### DIMENSIONS.

Maximum overall length	... ..	130 m.m.
Maximum overall diameter	... ..	45 m.m.

PRICE ~~19/-~~ 17/6

#### GENERAL.

The AC/SG.VM. is an indirectly heated 4 volt screened grid valve for A.C. mains operation. It is solely for use in sets where the volume is controlled by adjustment of grid bias. The greatest care, however, has been taken to overcome the disadvantages usually associated with this method of volume control. Its characteristics are such that with an increase of negative bias they follow a shape which minimises the factors responsible for cross-modulation and amplitude distortion. At high values of grid bias, the valve can handle a large input signal without amplitude distortion or cross-modulation. The bulb of the AC/SG.VM. has a metallised coating which, in addition to giving a very low anode-grid capacity, greatly simplifies screening arrangements. This metal coating is connected to the centre (cathode) pin.

#### APPLICATION.

The AC/SG.VM. will be found very suitable for use as an H.F. amplifier in either the signal or intermediate stages. It can also be used in the frequency changing (first detector) stages of super-heterodyne receivers. The provision of a bias volume control in the frequency changer helps to control the volume of the set and allows the reception of strong local stations without distortion. Owing to the special shape of its characteristic, this valve is not in general suitable for use in signal frequency detector stages.



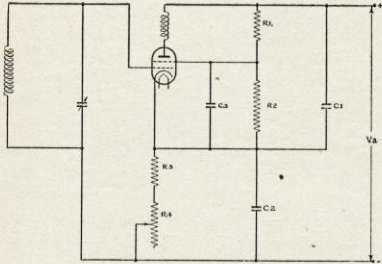
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R723-43  
4/33

# MAZDA

## AC/SG. VM.



Circuit for Potentiometer adjustment of grid bias—Mazda Variable Mu A.C. Mains Valves. R4 should be tapered at the start to ensure smooth volume control.

### RECOMMENDED OPERATING CONDITIONS.

The valve should be operated with an anode voltage of 200 and a screen potential of 75, the minimum bias being about  $-2.0$  volts. Care should be taken in designing the feed circuits to prevent the screen potential rising to a high value with low bias values.

The recommended method of obtaining bias is given in the above circuit and suitable values of resistance in the table below.

Anode Volts 200.	R1 (ohms)	R2 (ohms)	R3 (ohms)	R4 (ohms)
One H.F. Stage	30,000	20,000	150	15,000
Two H.F. Stages	15,000	10,000	75	7,500

The variable resistance R4 should be tapered at the start to ensure smooth volume control. The condenser C1 should have a value of at least 4 mfd. C2 and C3 should be non-inductive and 1.0 mfd. each.

### HEATER SUPPLY.

It is recommended that the voltage across the heater pins should be 4 volts  $\pm$  5% under working conditions.

### CHARACTERISTICS.

Average values for anode current, amplification factor and mutual conductance at different operating conditions are given in the curves.

