



## PEN. 384

### BEAM POWER AMPLIFIER FOR AC/DC MAINS

#### RATING.

Heater Voltage	...	...	...	...	...	...	...	38.0
Heater Current (amps.)	...	...	...	...	...	...	...	0.2
Maximum Anode Voltage	...	...	...	...	...	...	...	250
Maximum Screen Voltage	...	...	...	...	...	...	...	250
Maximum Anode Dissipation (watts)	...	...	...	...	...	...	...	10
*Mutual Conductance (mA/V)	...	...	...	...	...	...	...	12.5

\*Taken at  $V_a=100$  ;  $V_s=100$  ;  $V_g=0$ .

#### TYPICAL OPERATION.

Anode Voltage	...	...	...	...	...	...	85	110
Screen Voltage	...	...	...	...	...	...	95	110
Grid Bias	...	...	...	...	...	...	7.0	7.0
Anode Current (mA.)	...	...	...	...	...	...	27	40
Screen Current (mA.)	...	...	...	...	...	...	2.0	2.9
*Anode Load (ohms)	...	...	...	...	...	...	2,600	2,200
*Power Output (watts)	...	...	...	...	...	...	1.0	1.9
*Input Swing Volts (RMS)...	...	...	...	...	...	...	3.9	4.8
Bias Resistance (ohms)	...	...	...	...	...	...	240	160

\* For 7 per cent. Third Harmonic, and Second Harmonic not exceeding 7 per cent.

#### INTER-ELECTRODE CAPACITIES.

*Anode to Earth	...	...	...	...	...	...	11.5	$\mu\mu\text{F.}$
*Grid to Earth	...	...	...	...	...	...	22.0	$\mu\mu\text{F.}$
Anode to Grid	...	...	...	...	...	...	0.4	$\mu\mu\text{F.}$

\* "Earth" denotes the remaining earthy potential electrodes and metallising joined to cathode.

#### DIMENSIONS.

Maximum Overall Length	...	...	...	...	...	...	120	mm.
Maximum Diameter	...	...	...	...	...	...	54	mm.

#### GENERAL.

The PEN. 384 is an indirectly-heated beam power amplifier for use in A.C./D.C. receivers operating on 110 v. mains. A band of metallising covers the lower portion of the bulb, and the valve is fitted with a British octal base, the connexions to which are given overleaf.

#### APPLICATION.

It is intended that the valve be used with Permanent Magnet Loud-speaker in view of the low H.T. voltage available.

# MAZDA

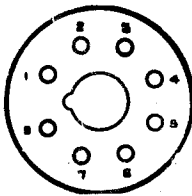
The valve should always be self-biased, and the value required is given on the preceding page. The grid to cathode circuit should be kept as low as possible and should not exceed 1 megohm for an anode dissipation limit of 10 watts. The grid circuit must be efficiently decoupled, and this may be achieved either by connecting an electrolytic condenser of 50 to 75  $\mu$ F. across the self-bias resistance, or decoupling the grid circuit in the usual manner. An anti-parastic resistance of the moulded type, and of a low self-capacity should be connected in the grid or anode circuit, and mounted close to the actual valve terminals. A value of 50 ohms is satisfactory in the case of an anode resistance.

The anode load should be accurately determined, and kept reasonably constant by the provision of suitable condenser filter.

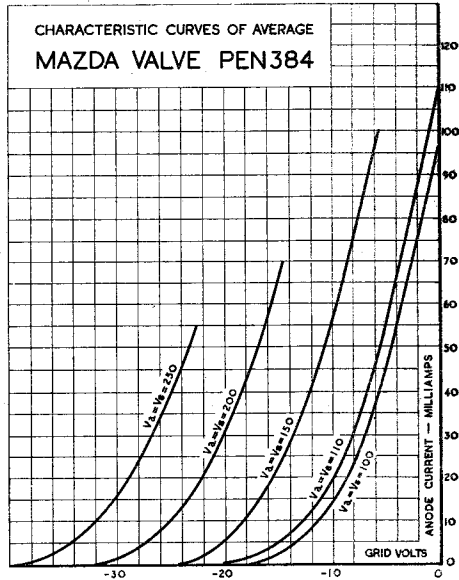
The heater is designed to operate at 0.2 amps. and the series heater resistance should be such that the heater current has this value at average line voltage.

## BASING.

- Pin No. 1. Heater.  
 2. Cathode.  
 3. Anode.  
 4. Screen.  
 5. Control Grid.  
 6. Metalising.  
 7. Omitted.  
 8. Heater.



Viewed from the free end of the base.



Mazda Radio Valves are manufactured in Great Britain for the British Thomson-Houston Co., Ltd., London and Rugby, and distributed by

**THE EDISON SWAN ELECTRIC CO., LTD.,**  
 155, CHARING CROSS ROAD, LONDON, W.C.2

