PEN 44

BEAM POWER AMPLIFIER FOR A.C. MAINS

RATING.

Heater Voltage	4.0
Heater Current (Amps.)	2.1
Maximum Anode Voltage	275
Maximum Screen Voltage	275
*Mutual Conductance (mA/V)	11
Maximum Anode Dissipation (watts)	18

*Taken at Ea=100; Es=100; Eg=0.

TYPICAL OPERATION

	Push-Pull	Single Stage			
Anode Volts	260	240		260	
Screen Volts	270	250		270	
Grid Bias	11.1	10.1		11.1	
Anode Current per valve (mA)	70	64		70	
Screen Current per valve (mA)	12	11		12	
Power Output (watts)	20‡	*6.9	7.85†	*8.0	9.25†
Anode Load (ohms.)	—	*3,000	2650†	*3,000	2650†
Anode to Anode Load (ohms.)	4,000‡	—	—	—	—
Input Swing Volts per valve (RMS)	7.5‡	*5.3	6.1†	*5.65	6.7†
Anode Current with Input Swing (mA)	83‡	*67	70†	*73	76†
Input Swing (RMS) for 50 mW output	—	0.39	0.41	0.38	0.4
Input Swing (RMS) for 250 mW output	—	0.88	0.92	0.86	0.9

‡ For 4% Third Harmonic.
* For 5% Third Harmonic and Second Harmonic not exceeding 5%.
† For 7% Third Harmonic and Second Harmonic not exceeding 7%.

INTER-ELECTRODE CAPACITIES.

*Anode to Earth	11.0 $\mu\mu$F.
*Grid to Earth	24.0 $\mu\mu$F.
Anode to Grid	0.9 $\mu\mu$F.

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

DIMENSIONS.

Maximum Overall Length	119 mm.
Maximum Diameter	54 mm.

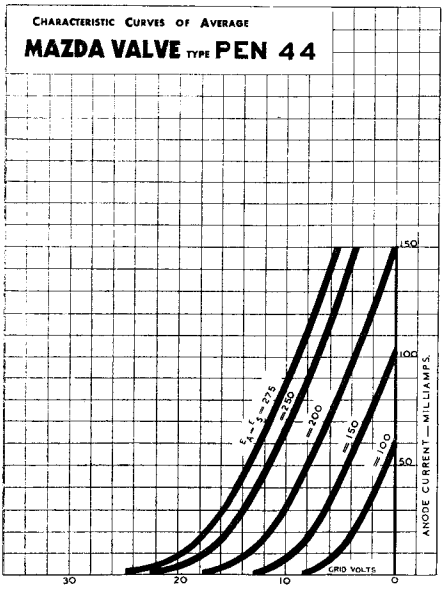
GENERAL.

The Pen 44 is a high power indirectly heated beam power amplifier for use in the output stages of A.C. Mains receivers requiring a larger power output than that available with the Pen 45. The lower portion of the valve is metallised, and the valve is fitted with a Mazda Octal base, the connexions to which are given overleaf.

APPLICATION.

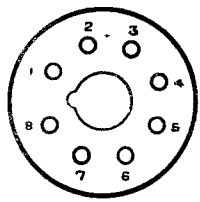
The valve may be used with an anode dissipation up to 18 watts and is equally suitable for use in either single or push-pull output stages. The valve should always be self-biased. The grid circuit must be efficiently decoupled, and this may be achieved either by connecting an electrolytic condenser of 50 to 75μF across the self-bias resistance, or decoupling the grid circuit in the usual manner. An anti-parasitic resistance of the moulded type and of 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 grid to cathode circuit resistance must not exceed $\frac{1}{2}$ megohm.

When using two valves in push-pull it is desirable to keep the load low, as in this case the second harmonic is mainly cancelled out, and the low load would tend to keep the third harmonic down. In all cases the recommended anode load should be the lowest reflected anode load at the primary of the output transformer, and should include resistance losses in the transformer as well as grid bias net-work if cathode degeneration is employed.



BASING.

Pin No. 1. Heater.
2. Cathode.
3. Anode.
4. Screen.
5. Control Grid.
6. Metallising.
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