



## PEN. 3820

### BEAM POWER AMPLIFIER FOR AC/DC MAINS

#### RATING.

Heater Voltage	...	...	...	...	...	...	38.0
Heater Current (amps.)	...	...	...	...	...	...	0.2
Maximum Anode Voltage	...	...	...	...	...	...	200
Maximum Screen Voltage	...	...	...	...	...	...	200
*Mutual Conductance (mA/V)	...	...	...	...	...	...	12
Maximum Anode Watts	...	...	...	...	...	...	10

\*At  $E_a=100$  ;  $E_s=100$  ;  $E_g=0$ .

#### TYPICAL OPERATION.

Anode Voltage	...	...	...	138	150	160
Screen Voltage	...	...	...	150	150	175
Grid Bias	...	...	...	8.7	8.75	10.0
Anode Current (mA)	...	...	...	50	50	64
Screen Current (mA)	...	...	...	10	10	13
*Anode Load (ohms)	...	...	...	2,800	2,900	2,600
*Power Output (watts)	...	...	...	2.65	2.95	3.75
*Input Swing Volts (RMS)	...	...	...	4.7	4.8	5.5
Bias Resistance (ohms)	...	...	...	145	145	130

\* For 5 per cent. Third Harmonic and Second Harmonic not exceeding 5 per cent.

#### DIMENSIONS.

Maximum Overall Length	...	...	...	...	129 mm.
Maximum Diameter	...	...	...	...	54 mm.

#### GENERAL.

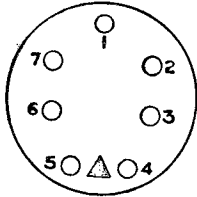
The Pen.3820 is an indirectly heated beam power amplifying valve. It is primarily designed to provide a power output of the order of 3 watts, when used with a series speaker field in AC/DC receivers. It may also be used to provide a higher power output with parallel speaker field circuits. The valve is based in a standard 7-pin base, the connections to which are given overleaf.

#### APPLICATION.

The valve has been designed for use in the output stage of AC/DC receivers where the diode sections included in the Pen. DD.4021 are not required. The characteristics of the valve have been adjusted to provide adequate power output in receivers employing a speaker field for smoothing. Under these conditions, the dissipation on the anode does not exceed 10 watts, and a grid leak resistance of one megohm may be employed, provided the valve is self-biased. The heater is designed to operate at 0.2 ampere, and the resistance placed in series with the heaters should be such that the heater is operated at this current at average line voltage. Every precaution should be taken to see that the valves are operated at the correct heater current to enable them to withstand the variations which will be met in practice.

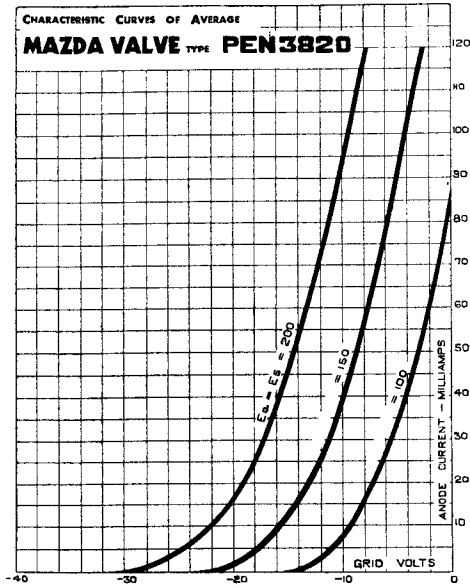


**BASING.**



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

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.