



## PEN.DD.4021

### BEAM POWER OUTPUT VALVE FOR A.C./D.C. MAINS

#### RATING.

|                             |     |     |     |     |     |     |
|-----------------------------|-----|-----|-----|-----|-----|-----|
| Heater Voltage              | ... | ... | ... | ... | ... | 45  |
| Heater Current (amps.)      | ... | ... | ... | ... | ... | 0.2 |
| Maximum Anode Voltage       | ... | ... | ... | ... | ... | 200 |
| Maximum Screen Voltage      | ... | ... | ... | ... | ... | 200 |
| Maximum Dissipation (watts) | ... | ... | ... | ... | ... | 10  |
| *Mutual Conductance (mA/V)  | ... | ... | ... | ... | ... | 12  |

\*At  $V_a = 100$  ;  $V_s = 100$  ;  $V_g = 0$ .

#### OPERATING CONDITIONS.

|                         |     |     |     |       |       |       |
|-------------------------|-----|-----|-----|-------|-------|-------|
| Anode Voltage           | ... | ... | ... | 138   | 150   | 160   |
| Screen Voltage          | ... | ... | ... | 150   | 150   | 175   |
| Grid Bias               | ... | ... | ... | 8.7   | 8.75  | 10    |
| 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  |
| Bias Resistance (ohms.) | ... | ... | ... | 145   | 145   | 130   |

\*For 5 per cent. 3rd harmonic, and 2nd harmonic not exceeding 5 per cent.

#### INTER-ELECTRODE CAPACITIES.

|                    |     |     |     |     |      |                   |
|--------------------|-----|-----|-----|-----|------|-------------------|
| *Anode to Earth    | ... | ... | ... | ... | 9.25 | $\mu\mu\text{F.}$ |
| *Grid to Earth     | ... | ... | ... | ... | 18.0 | $\mu\mu\text{F.}$ |
| Anode to Grid      | ... | ... | ... | ... | 1.1  | $\mu\mu\text{F.}$ |
| *Diode 1 to Earth  | ... | ... | ... | ... | 4.0  | $\mu\mu\text{F.}$ |
| *Diode 2 to Earth  | ... | ... | ... | ... | 4.0  | $\mu\mu\text{F.}$ |
| Diode 1 to Diode 2 | ... | ... | ... | ... | 0.1  | $\mu\mu\text{F.}$ |

\*"Earth" denotes the electrodes of any second valve section and the remaining earthy potential electrodes of the section under measurement, H and M joined to cathode.

#### DIMENSIONS.

|                        |     |     |     |     |         |
|------------------------|-----|-----|-----|-----|---------|
| Maximum Overall Length | ... | ... | ... | ... | 140 mm. |
| Maximum Diameter       | ... | ... | ... | ... | 54 mm.  |

#### GENERAL.

The Pen.DD.4021 is an indirectly heated "beam power" output valve, incorporating a double diode, for use in A.C./D.C. receivers. It is primarily intended for use in radio receivers requiring greater volume than that given by the normal pentode. The diode section is completely screened within the valve from the beam power section, so that both sections may be treated as separate valves as far as circuit considerations are concerned. The bulb is partly metallised and the valve is fitted with a standard 7-pin base, the connections to which are given overleaf.

#### APPLICATION.

The valve should always be self-biased, and the bias resistance by-passed by a 50 mfd. condenser. The grid-cathode circuit resistance should

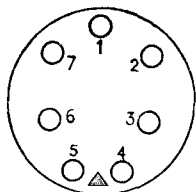


not exceed 1 megohm for an anode dissipation of 10 watts. It is advisable to connect a resistance of about 50 ohms in the anode circuit to prevent parasitic oscillation.

The diode connected to Pin No. 1 should be used for detection, and the diode connected to Pin No. 3 should be used for A.V.C. A delay voltage of 15—18 volts is recommended.

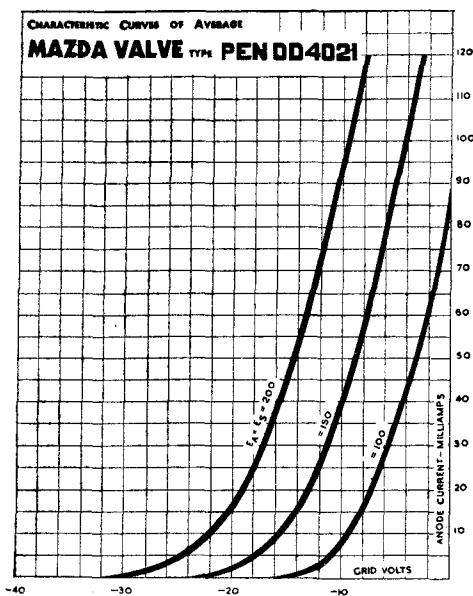
The anode load should not drop below the optimum value recommended.

### BASING.



- |            |                          |
|------------|--------------------------|
| Pin No. 1. | Diode 1.                 |
| 2.         | Anode.                   |
| 3.         | Diode 2.                 |
| 4.         | Heater.                  |
| 5.         | Heater.                  |
| 6.         | Cathode and Metallising. |
| 7.         | Screen.                  |
| Top Cap.   | Control Grid.            |

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.