



AC/TP

A.C. MAINS TRIODE PENTODE

RATING.

Heater Voltage	4.0
Heater Current (amps.)	1.25

Pentode Section.

Maximum Anode Voltage	250
Maximum Screen Voltage	250
Conversion Conductance (Maximum) ($\mu\text{A}/\text{V}$)	900
*Mutual Conductance (mA/V)	3.4

*At $E_a=250$; $E_s=200$; $E_g=0$.

Triode Section.

Maximum Anode Voltage	200
Recommended Anode Voltage (approx.)	150
Maximum Mean Anode Current (mA)	2.0
*Amplification Factor	30
*Mutual Conductance (mA/V)	1.4

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

TYPICAL OPERATION.

Anode Voltage	250
Screen Voltage (Initial)	200
Grid Bias Voltage	5.0
Heterodyne Peak Voltage	3.0
Impedance (ohms) (approx.)	900,000
Anode Current (mA)	6.5
Screen Current (mA)	2.5
Oscillator Anode Current (mA)	1.5
Conversion Conductance ($\mu\text{A}/\text{V}$)	700
*Conversion Conductance at $E_g=40$ ($\mu\text{A}/\text{V}$) (approx.)	8
*Input Signal Handling Capacity (Peak Carrier Voltage)	12

*Screen Voltage rising to 250

INTER-ELECTRODE CAPACITIES.

Pentode.

*Anode to Earth	8.0 μF .
*Grid to Earth	7.75 μF .
Anode to Grid	0.06 μF .

Triode.

*Anode to Earth (less G. to A.)	4.0 μF .
*Grid to Earth (less G. to A.)	5.25 μF .
Anode to Grid	2.5 μF .

* "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	124 mm.
Maximum Diameter	45 mm.

GENERAL.

The AC/TP is an indirectly heated triode pentode valve which is designed for operation as a self oscillating frequency changer. The pentode section has variable-mu characteristics and can handle a 12-volt peak carrier

MAZDA

without distortion ; in addition it has a high working impedance. The triode oscillator and pentode frequency changer sections are screened from each other, and are, except for a common cathode connection, completely independent of each other, and both functions may, therefore, be carried out with circuit arrangements giving the best possible operation. For signal frequencies above 2 Mc/second, the AC/THI should be employed in preference to the AC/TP. The bulb is metallised, and the valve is fitted with a standard 9-pin base, the connections to which are given below.

APPLICATION.

When operating as a self-oscillating frequency changer, the AC/TP has variable- μ characteristics suitable for use with diode or amplified automatic volume control.

It possesses all the advantages usually associated with the use of a separate oscillator and frequency changer, including low oscillator harmonic content and minimum noise from leakage and Schrott effect.

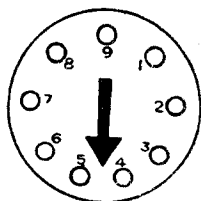
It is recommended that frequency changing should be accomplished by heterodyne injection in the common cathode circuit as shown in Fig. 1.

The variable- μ characteristic has been specially shaped to reduce whistles, repeat points and cross-modulation, and to ensure minimum interference the heterodyne peak voltage should not appreciably exceed 3 volts. A 12-volt peak carrier modulated at 60 per cent. can be handled with 5 per cent. distortion with a heterodyne voltage of 3 volts and screen voltage of 250 volts.

The screen of the pentode section can be operated at 250 volts, but it is advantageous to limit the initial screen volts to 200 volts at maximum gain by a series resistance. A common decoupling resistance (R_2 in Fig. 1) may be used and should not be less than 5,000 ohms. The suppressor grid should be returned to cathode, and the screen and anode circuits must be decoupled to cathode and not to earth.

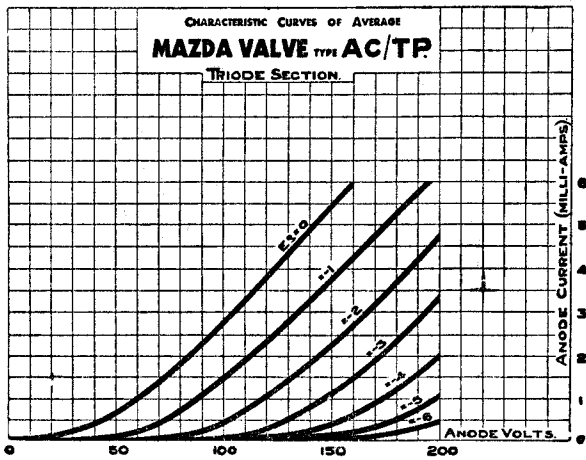
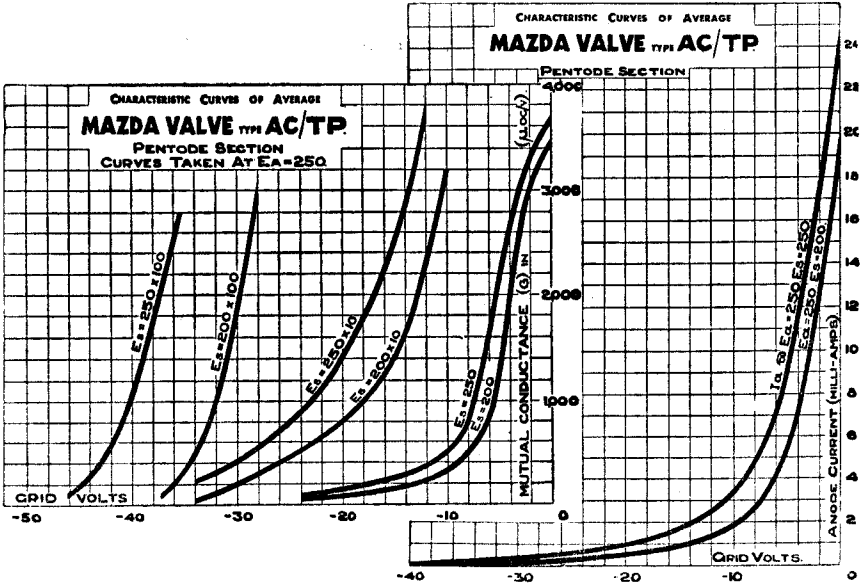
It is recommended that the voltage across the heater pins should be 4.0 volts ± 5 per cent. under normal working conditions.

BASING.



- | | |
|------------|------------------|
| Pin No. 1. | Screen. |
| 2. | Pentode Anode. |
| 3. | Suppressor Grid. |
| 4. | Heater. |
| 5. | Heater. |
| 6. | Cathode. |
| 7. | Oscillator Anode |
| 8. | Oscillator Grid. |
| 9. | Metallising. |
| Top Cap. | Pentode Grid. |

Viewed from the free end of the base.





**SUGGESTED CIRCUIT DIAGRAM USING
AC/TP**

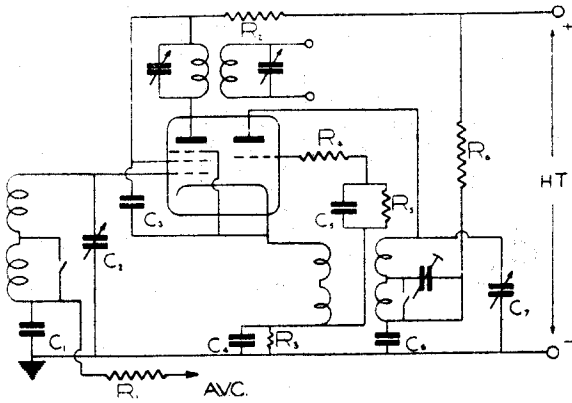


Fig. 1.

- R1 1 megohm.
- R2 5,000 to 7,000 ohms.
- R3 500 ohms.
- R4 1,500 to 2,000 ohms.
- R5 50,000 ohms.
- R6 50,000 ohms.

- C1 0.1 μ F.
- C2 .0005 μ F
- C3 0.5 μ F.
- C4 0.1 μ F.
- C5 .0005 μ F
- C6 0.1 μ F.
- C7 .0005 μ F.
(var.).

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