



AC/TH I

A.C. MAINS TRIODE HEPTODE

RATING.

Heater Voltage	4.0
Heater Current (Amps.)... ..	1.3
Heptode Section.	
Maximum Anode Voltage	250
Maximum Screen Voltage	250
*Mutual Conductance (mA/V)	3.1
*Taken at $E_a=250$, $E_s=100$, $E_{g1}=2$, $E_{g0}=0$.	
Triode Section.	
Maximum Anode Voltage	150
Maximum Peak Anode Current (mA)	15
*Amplification Factor	16
*Mutual Conductance (mAV)	5.3
*Taken at $E_a=100$, $E_{g0}=0$.	

TYPICAL OPERATION CONDITIONS.

Heptode.	
Anode Voltage	250 250
Screen Voltage	100 100
Grid Bias (volts)	3.0 2.5
Anode Current (mA)	3.0 3.8
Screen Current (mA)	6.0 7.5
Conversion Conductance ($\mu A/V$)	750 870
Anode A.C. Resistance (megohms)	1.6 1.2
Heterodyne Volts (peak)	9 9
Working GI-E Capacity (Hot) ($\mu\mu F$)	12.2 12.7
*Conversion Conductance ($\mu A/V$) 3.0
*Input Signal Handling Capacity (Peak Carrier Volts)... 10.0
*For 5% Total Audio Harmonic Distortion at 60% modulation. at $E_{g0}=43$, $E_s=250$ volts.	

Triode.

Anode Voltage	80 80
Anode Current (mA)	4 to 5 4 to 5

INTER-ELECTRODE CAPACITIES.

Heptode.	
*Anode to Earth	11.5 $\mu\mu F$
*Grid to Earth	9.5 $\mu\mu F$
Anode to Grid	0.0015 $\mu\mu F$
Triode.	
*Anode to Earth (less G_0 to A_0)	4.0 $\mu\mu F$
*Grid to Earth (less G_0 to A_0)	10.25 $\mu\mu F$
Anode to Grid	2.25 $\mu\mu F$

*"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	128 mm.
Maximum Diameter	39 mm.



GENERAL.

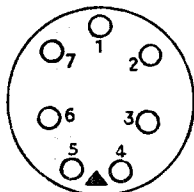
The A.C./TH.1 is a triode heptode frequency changer for use in A.C. Mains receivers. It has been specially designed to meet the requirements of all-wave receivers, and the inter-reaction between the input and the oscillator circuit has been reduced to a minimum. A high conversion conductance is provided with a large initial grid bias, thus ensuring that no grid current is taken on the short wave bands. The characteristics have been so designed as to provide large signal handling capacity with low cross modulation and low harmonic response. The valve is fitted with a standard 7-pin base, the connexions to which are given below.

APPLICATION.

The triode oscillator should be used with a parafed tuned anode circuit and the component values required are given in the circuit shown. If any trouble is experienced with "squegging" at the highest frequency the grid leak resistance may be reduced to 25,000 ohms. On the short wave bands the mean anode current of the triode will be of the order of 5 mA, while on the medium and long waves the current taken by the triode will be of the order of 3 to 3.5 mA. An average heterodyne voltage of 9 to 10 volts peak is required at the grid of the triode. The value of the grid resistance R3 will depend very largely on the design of the coils and the effect of stray capacities across the grid of the triode. On the short wave band this resistance is usually of the order of 50 or 60 ohms. The peak anode current of the triode should never be allowed to exceed 15 mA.

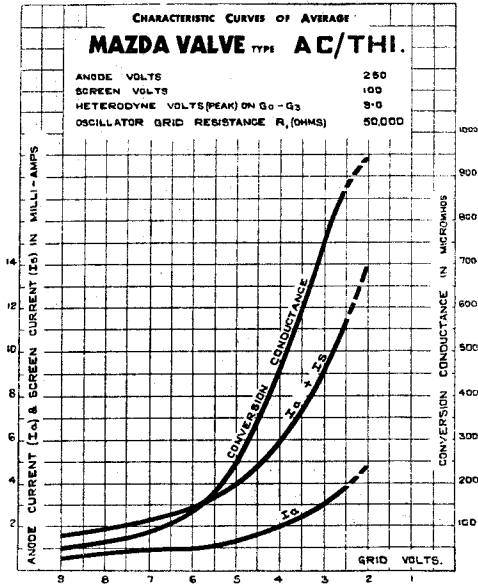
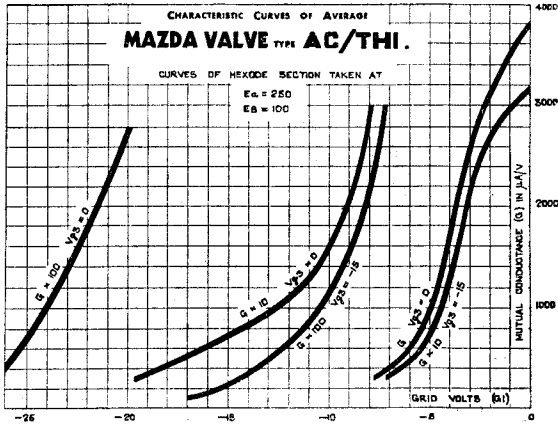
If parasitic oscillations are generated, these may be stopped by connecting a small resistance (R6) of 2.5-5 ohms close to the screen pin.

BASING.

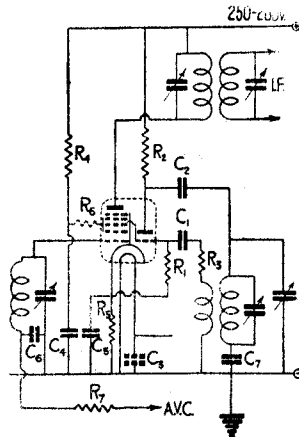


- Pin No. 1. Oscillator Anode.
 - 2. Oscillator Grid.
 - 3. Screen Grid.
 - 4. Heater.
 - 5. Heater.
 - 6. Cathode and Metallising.
 - 7. Heptode Anode.
- Top Cap. Heptode Control Grid.

Viewed from the free end of the base.

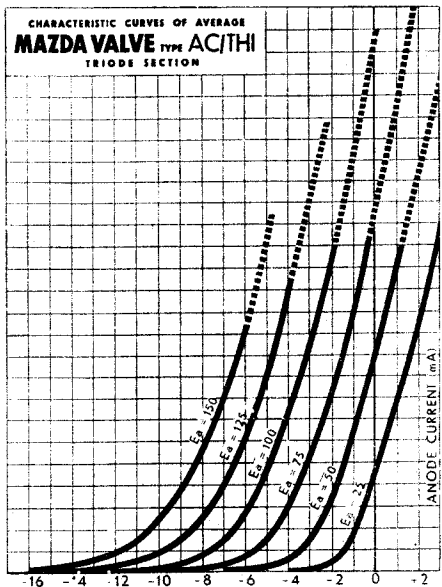


SUGGESTED CIRCUIT DIAGRAM USING A.C./THI.



Values of the components in the circuit diagram:—

- | | | | |
|------|-------------------------|------|--------------|
| R.1. | 50,000 ohms. | C.1. | .0001 mfd. |
| R.2. | 40,000 ohms. | C.2. | .0001 mfd. |
| R.3. | See above. | C.3. | .01 mfd. |
| R.4. | 25,000 ohms. | C.4. | 0.1—0.5 mfd. |
| R.5. | 230—160 ohms. | C.5. | 0.1—0.5 mfd. |
| R.6. | 2.5—5 ohms (see above). | | |



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

