MAZDA

PEN.231 and PEN.220

BATTERY OUTPUT PENTODES

RATINGS.	PEN.231	PEN.220
Filament Voltage	2·0	2·0
Filament Current (amps.)	0·3	0·2
Maximum Anode Voltage	150	150
Maximum Screen Voltage	150	150
*Mutual Conductance (mA/V)	5·3	2·5

*At Ea=100 ; Es=100 ; Eg=0.

TYPICAL OPERATING CONDITIONS.	PEN.231	PEN.220	
Anode Volts	110	120	120
Screen Volts	110	120	120
Grid Bias	2·2	2·5	4·5
Anode Current (mA)	4·6	5·0	5·0
Screen Current (mA)	0·9	1·0	1·0
*Anode Load (ohms)	19,000		17,000
*Power Output (watts)	·29	·37	·35
*Input Swing (Volts RMS)	1·4	1·65	3·1

*For no individual harmonic exceeding 10 per cent.

DIMENSIONS.		
Maximum Overall Length	117	112 mm.
Maximum Diameter	39	45 mm.

GENERAL.

The Pen.231 and Pen.220 are output Pentodes for use in battery operated receivers. They have been designed to give a large power output with economy when used with H.T. batteries of between 100 to 120 volts. Under these conditions, the anode current consumption is approximately 5 milliamps only.

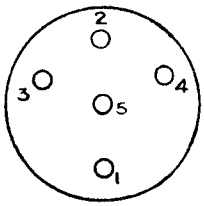
APPLICATION.

The filament should be operated off a 2-volt accumulator, and no series resistance must be used. Pin No. 3 should be connected to LT—ve and HT—ve. The anode or screen voltage should not be allowed to exceed 150 volts.

The Pen.231 must always be used under self-bias conditions, i.e., the bias must be obtained by means of a common resistance in the H.T. negative lead and this resistance should be by-passed with a large condenser. If the resistance is not by-passed with a large condenser, the individual stages should be decoupled in the screen, anode and grid circuits, in order to prevent backcoupling which might cause degenerative effects or instability.

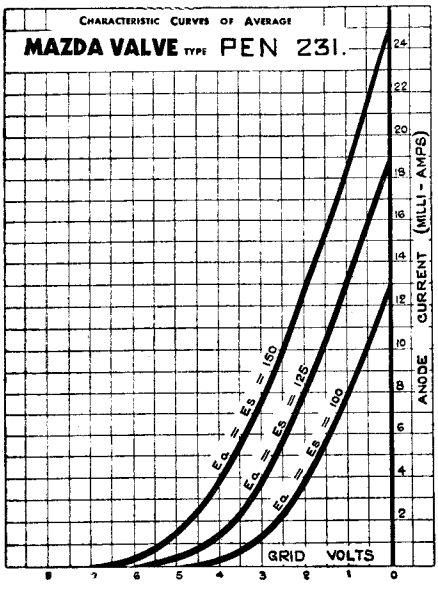
The Pen.231 valve gives a larger power output than the Pen.220, but with a larger percentage distortion. This however, can be permitted at the moderate power outputs available even with the use of high sensitivity speakers having flux densities up to 11,000 lines. The Pen.220 may be used with fixed bias, although self bias is to be preferred.

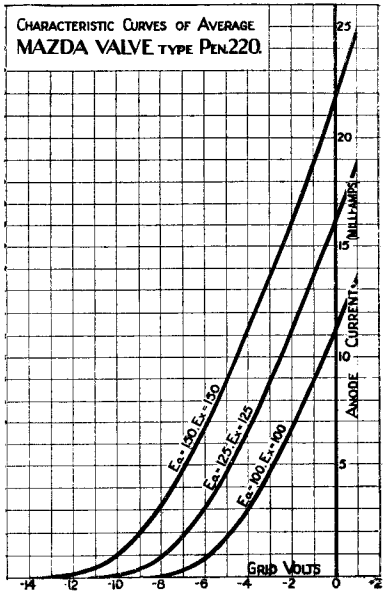
BASING (Both Types).



Viewed from the free end of the base.

Pin No. 1. Anode.
2. Control Grid.
3. Filament.
4. Filament.
5. Screen.





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