



SP. 215 and VP. 215

H.F. SCREENED PENTODES

RATINGS	S.P. 215	V.P. 215
Filament Voltage	2.0	2.0
Filament Current (Amps.)	0.15	0.15
Maximum Anode Volts	150	150
Maximum Screen Volts	150	150
Mutual Conductance (mA/V)... ..	2.3*	1.8*

* Ea=120; Es=80; Eg=0.

OPERATING CONDITIONS

(a) As an Amplifier :

Anode Voltage	120	120
Screen Voltage	60	60
Grid Bias	-1.5	-1.5
Anode Current (mA)	0.8	1.1
Screen Current (mA)	0.28	0.385
Mutual Conductance (mA/V)... ..	0.9	0.82

OPERATING CONDITIONS.

(b) As Frequency Changer.

Anode Voltage	120	150
Screen Voltage	60	80
Peak Heterodyne Volts	3	3.5
Bias Volts	Self*	3.5
Anode Current (ma)	1.3	1.7
Screen Current (ma)	0.45	0.6
Conversion Conductance	650	825

* Biassed through a 2 meg lead returned to L.T.—ve.

INTER-ELECTRODE CAPACITIES

Grid—Anode	0.007 μ mf.	0.007 μ mf.
Input	10.0 μ mf.	10.0 μ mf.
Output	8.5 μ mf.	8.5 μ mf.
Grid to Filament+Suppressor Grid	5.5 μ mf.	—

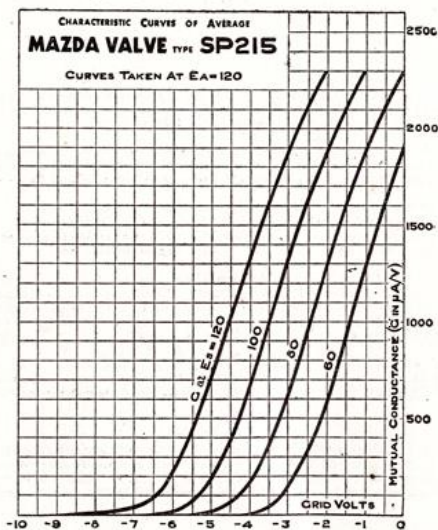
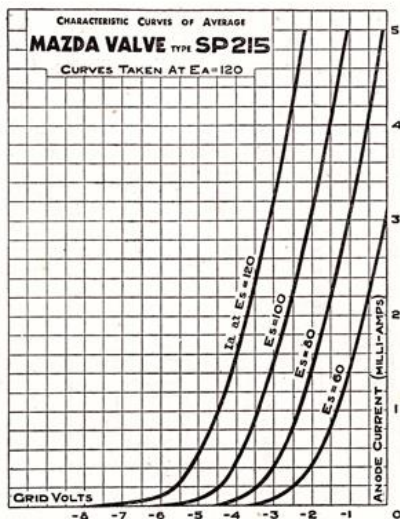
DIMENSIONS

Maximum Overall Length	114 mm.	114 mm.
Maximum Diameter... ..	45 mm.	45 mm.

PRICE	13/6	13/6
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GENERAL

The MAZDA valve Type **SP. 215** is a screened pentode valve for battery operation and is suitable for use as a self oscillating frequency changer, high frequency amplifier or a detector.

The Mazda **VP.215** is a screened pentode valve having variable-mu characteristics, with a high signal handling capacity suitable for use as an H.F. or I.F. amplifier or frequency changer with separate oscillator. Both valves are metal-coated to reduce undesirable coupling and to improve the stability of the circuit.

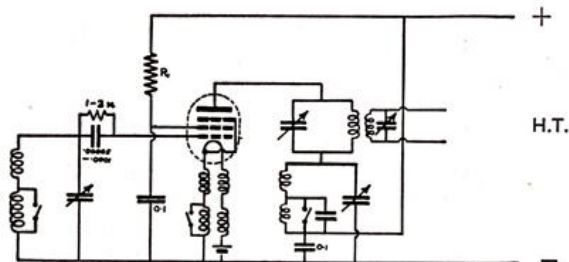


Fig. 1

APPLICATION.

The Mazda Valve Type **SP.215** is suitable for use either as an anode bend or cumulative grid detector. It may also be employed as a radio frequency amplifier in circuits where an aerial volume control is used instead of bias control, or as an I.F. amplifier with fixed bias.

It is particularly suitable for use as a self-oscillating frequency changer. Cathode injection is recommended—a suitable circuit is indicated in Fig. 1—though other forms of injection may be employed. The total resistance of the cathode coupling coils should not exceed two thirds of an ohm.

The actual value of the initial heterodyne voltage employed will depend to a large extent upon the variation in the dynamic resistance of the oscillator coil over the frequency band covered by each wavelength range, and also on the percentage of the initial H.T. voltage at which the battery will be replaced. The values given in the table of operating conditions are representative only.

The Mazda Valve Type **VP.215** is especially suitable for use as a R.F. or I.F. amplifier. The valve has been given a large signal handling capacity by allowing the screen volts to rise to the H.T. battery voltage as bias is applied to the control grid. The characteristics have been so designed that when used with the Mazda Valve Type **TP.22** the full rectified voltage of the A.V.C. diode may be applied to the two valves from a common bias circuit. (See circuit on page 113).

It can be used as a variable-mu frequency changer with the Mazda HL.2 as a separate oscillator. In this case the heterodyne injection can be in the cathode peak circuit. A heterodyne peak voltage of 3 is suitable with an initial screen voltage of 40-70, depending on whether the valve is self-biased or separately biased.

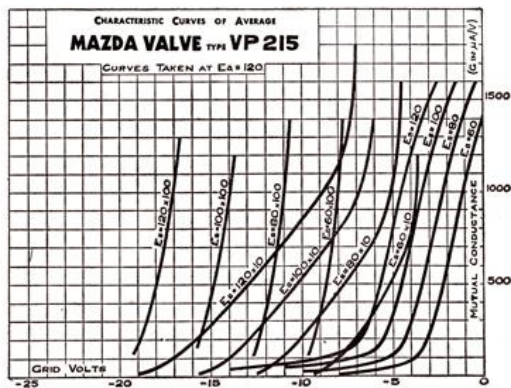
The screen volts supply for the above valves may be obtained from a separate tapping on the H.T. battery, but it is recommended that they should be obtained through a series resistance from the anode voltage, as this method gives greater uniformity in performance and anode current feed between valves and reduces to a minimum the effect of wide fluctuations in H.T. voltage. For calculating the screen resistance, the screen current may be assumed to be approximately 35% of the anode current.

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CHARACTERISTIC CURVES OF AVERAGE
MAZDA VALVE TYPE VP21S
 CURVES TAKEN AT $E_a=120$

Y-axis: ANODE CURRENT (MILLIAMPS) (0 to 5)
 X-axis: GRID VOLTS (-20 to 0)

Curves for E_s values:
 $E_s=120$
 $E_s=100$
 $E_s=80$
 $E_s=60$



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