

MAZDA

S.G. 215

Screened Grid Valve

[DUPLEX SCREEN]



RATING.

Filament Voltage	...	...	...	2.0
Filament Amps.	...	...	...	0.15
Maximum Anode Voltage	...	...	...	150
Maximum Screen Voltage	...	...	...	80

Ea=120 ; Ea=150

Amplification Factor	...	500	860
Anode A.C. Resistance (ohms)	...	455,000	782,000
Mutual A.C. Conductance (mA/V)	1.1	1.1	

Constants taken at Es=60 ; Eg=0.

INTER-ELECTRODE CAPACITIES.

Anode to Grid ($\mu\mu\text{F}$)	...	...	...	0.003
Anode to Cathode ($\mu\mu\text{F}$)	...	...	...	10.5
Grid to Cathode ($\mu\mu\text{F}$)	...	...	...	10.5

DIMENSIONS.

Maximum overall length (mm.)	...	...	128
Maximum diameter (mm.)	...	...	45

PRICE ~~16/6~~ 12/6

GENERAL.

The Mazda S.G. 215 Valve is a high-frequency amplifying valve, having a fourth electrode between the control grid and the anode. This electrode serves as a screen to reduce inter-electrode capacity, permitting a higher ratio of amplification than is obtainable with a 3-electrode valve. The duplex screen employed provides the following advantages:—

1. The inter-electrode capacity is reduced to the exceedingly low value of 0.003 cms.
2. The valves are extremely uniform in capacity, thus allowing replacements to be made without materially affecting the operation of the receiver.
3. The screen-grid current consumption is very low, resulting in longer life for the H.T. battery.



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The S.G. 215 has been designed for direct operation from a 2-volt accumulator, but a filament rheostat may be employed if desired.

APPLICATION.

High-Frequency Amplifier.

As the A.C. resistance of the S.G. 215 is relatively high, the impedance of the coupling in the anode circuit should be made as high as possible, if large amplification is to be obtained. Either a tuned-anode, tuned-grid or a H.F. transformer of 1 : 1 ratio will therefore prove most suitable. Owing to the combination of high mutual conductance, high amplification factor and low inter-electrode capacity, a very high amplification per stage can be obtained. Care must therefore be taken to screen, as completely as possible, all external circuits from stray electromagnetic and electrostatic couplings which might lead to instability. The S.G. 215 may also be used as an anode-bend or cumulative-grid detector.

GRID BIAS.

Under normal conditions no grid bias will be required provided the grid return is taken to the negative end of the filament supply, though in some cases a small amount of grid bias may be desirable. When used as a cumulative-grid detector, the grid return should be connected to the positive L.T. terminal. From the accompanying curves the variation of mutual conductance and amplification factor with operating voltages may be obtained.

