

# —Standard Valves—

4212-E  
Valve

## 4212-E VALVE

TRIODE.

The 4212-E valve employs a molybdenum anode and hard glass bulb.

### SPECIFICATION.

#### Cathode.

Thoriated tungsten filament.

Constant voltage type.

#### Base.

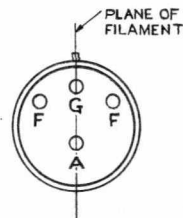
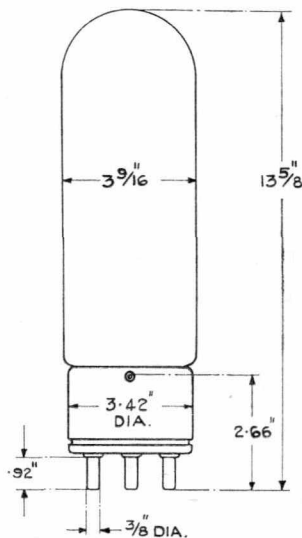
Extra large 4-pin bayonet.

#### Dimensions.

|                     |                              |
|---------------------|------------------------------|
| Max. overall length | $13\frac{5}{8}"$ (34.6 cms.) |
| Bulb diameter       | $3\frac{9}{16}"$ (9.1 cms.)  |
| Net weight          | 1.6 lbs. (725 gms.)          |

#### Constants.

|                                              |                         |
|----------------------------------------------|-------------------------|
| Filament voltage                             | 14 volts                |
| Nominal filament current                     | 6 amps.                 |
| Total emission                               | 4 amps.                 |
| *Impedance                                   | 1,900 ohms              |
| *Amplification factor                        | 16                      |
| *Mutual conductance                          | 8.4 mA per volt         |
| Grid-anode capacity                          | 18.8 $\mu\mu\text{F}$ . |
| Anode-filament capacity                      | 8.6 $\mu\mu\text{F}$ .  |
| Grid-filament capacity                       | 14.9 $\mu\mu\text{F}$ . |
| * at $V_p = 2,000$ volts. $V_g = -90$ volts. |                         |



### LIMITING CONDITIONS FOR SAFE OPERATION.

|                                                |             |
|------------------------------------------------|-------------|
| Maximum direct anode voltage                   | 3,000 volts |
| Maximum direct anode current                   | 350 mA.     |
| Maximum anode dissipation                      | 275 watts   |
| Maximum direct grid current                    | 75 mA.      |
| Maximum frequency for above ratings            | 1.5 Mc.     |
| Maximum anode voltage for frequency of 4.5 Mc. | 1,000 volts |

Note :—This valve should be mounted so that the plane of the filament is vertical.

V.4212-E.1  
Sept. 1938

# —Standard Valves—

## TYPICAL OPERATING CONDITIONS.

|                      | Class A<br>AF Amp. and Mod. |       |           |
|----------------------|-----------------------------|-------|-----------|
| Direct anode voltage | 1,500                       | 1,250 | volts     |
| Grid bias            | —57                         | —40   | volts     |
| Direct anode current | 170                         | 200   | milliamps |
| Load impedance       | 5,000                       | 3,000 | ohms      |
| Undistorted output   | 50                          | 40    | watts     |

|                                        | Class B AF Amp. and Mod.<br>For balanced 2 valve circuit |       |       |
|----------------------------------------|----------------------------------------------------------|-------|-------|
| Direct anode voltage                   | 2,000                                                    | 1,500 | volts |
| Grid bias                              | —105                                                     | —75   | volts |
| Anode current per valve—zero signal    | 40                                                       | 50    | mA.   |
| Anode current per valve—maximum signal | 300                                                      | 300   | mA.   |
| Anode dissipation                      | 250                                                      | 200   | watts |
| Load resistance—anode to anode         | 8,000                                                    | 5,900 | ohms  |
| Maximum output, 2 Valves               | 650                                                      | 500   | watts |

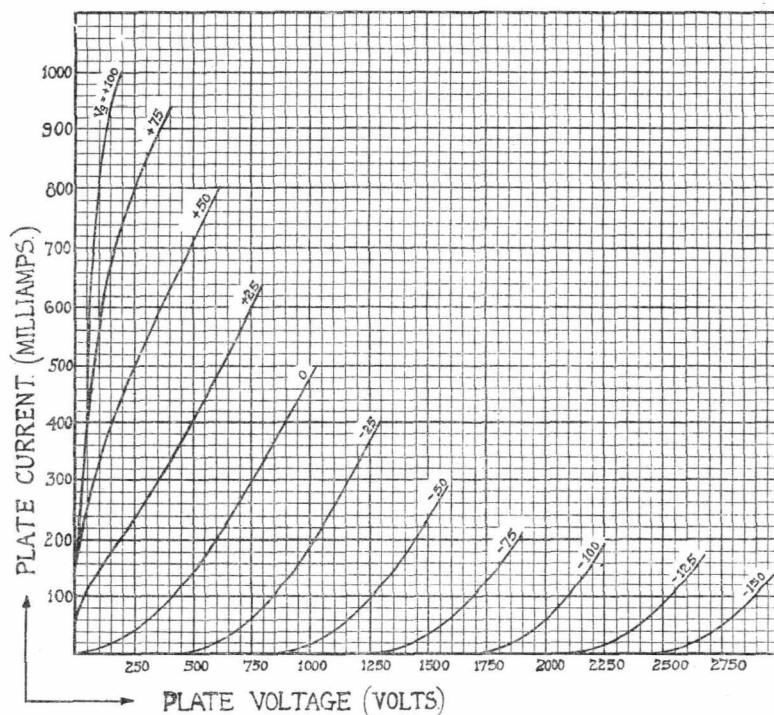
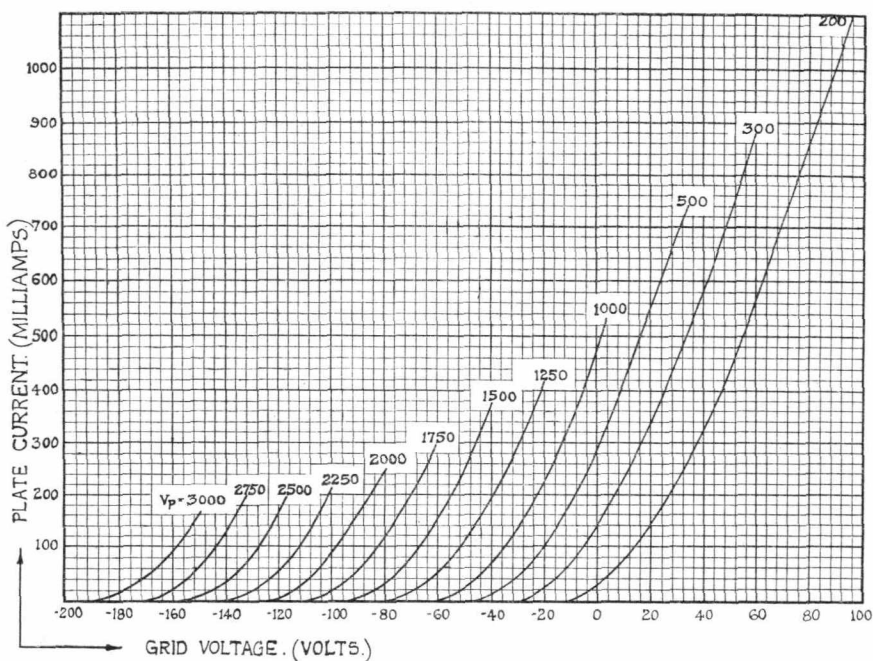
## RADIO FREQUENCY OPERATION

|                      | Class B<br>Telephony                    |       | Class C<br>Telephony              |       | Class C<br>Telegraphy |                       |
|----------------------|-----------------------------------------|-------|-----------------------------------|-------|-----------------------|-----------------------|
|                      | Modulated<br>carrier<br>applied to grid |       | Subject to<br>anode<br>modulation |       | Unmodulated           |                       |
| Direct anode voltage | 2,000                                   | 1,500 | 1,500                             | 1,000 | 2,000                 | 1,500 volts           |
| Direct anode current | 0.206                                   | 0.275 | 0.300                             | 0.300 | 0.300                 | 0.300 amps.           |
| Grid bias            | —120                                    | —90   | —200                              | —125  | —185                  | —150 to<br>—200 volts |
| Anode dissipation    | 275                                     | 275   | 150                               | 100   | 200                   | 150 watts             |
| Carrier output       | 137                                     | 137   | 300                               | 200   | 400                   | 300 watts             |

The curves shown on sheet V.4212-E.2 are taken with direct filament heating, grid and anode voltages being referred to the negative end of the filament.

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