

MINISTRY OF SUPPLY (S.R.D.E.)

|                                      |      |   |                       |               |              |             |
|--------------------------------------|------|---|-----------------------|---------------|--------------|-------------|
| Specification MOS/CV1758/Issue 3     |      |   | <u>SECURITY</u>       |               |              |             |
| Dated:- 15.1.53                      |      |   | <u>Specification</u>  |               | <u>Valve</u> |             |
| To be read in conjunction with K1001 |      |   | Unclassified          |               | Unclassified |             |
| → indicates a change                 |      |   |                       |               |              |             |
| TYPE OF VALVE: H.F. Pentode          |      |   | <u>MARKING</u>        |               |              |             |
| CATHODE: Directly heated             |      |   | See K1001/4           |               |              |             |
| ENVELOPE: Glass-unmetallised         |      |   | Additional marking :- |               |              |             |
| PROTOTYPE: 1L4                       |      |   | 1L4                   |               |              |             |
| <u>RATING</u>                        |      |   | Note                  | <u>BASE</u>   |              |             |
|                                      |      |   |                       | B7G           |              |             |
| Filament voltage (V)                 | 1.4  | A | Pin                   | Electrode     |              |             |
| Filament current (mA)                | 50   |   | 1                     | F-ve, G3, Sh. |              |             |
| Max. anode voltage                   | 120  |   | 2                     | Anode         |              |             |
| Max. screen voltage                  | 100  |   | 3                     | Screen grid   |              |             |
| Mutual conductance (mA/V)            | 1.03 |   | 4                     | No connection |              |             |
| Anode impedance (approx) (MΩ)        | 0.17 |   | 5                     | F-ve, G3, Sh. |              |             |
| Anode current (mA)                   | 4.5  |   | 6                     | Control grid  |              |             |
| Screen current (mA)                  | 2.0  |   | 7                     | F+ve          |              |             |
| Max. cathode current (mA)            | 6.5  | B | <u>DIMENSIONS</u>     |               |              |             |
| <u>CAPACITANCES</u> (pF)             |      |   | See K1001/AI/D4       |               |              |             |
| Cag (max.)                           | 0.01 |   | <u>Dimensions</u>     |               | <u>Min.</u>  | <u>Max.</u> |
| Cae                                  | 7.5  |   | A mm                  |               | -            | 54          |
| Cge                                  | 3.6  |   | B mm                  |               | -            | 19          |

NOTES

- A. Measured at  $V_a = V_{g2} = 90V$ ,  $V_{g1} = 0$   
 B. With close fitting shield connected to negative end of filament.

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CV1758/3/1

To be performed in addition to those applicable in K1001

| Test Conditions |                |               |                    |      | Test                     | Limits |      | No. Tested |
|-----------------|----------------|---------------|--------------------|------|--------------------------|--------|------|------------|
|                 |                |               |                    |      |                          | Min.   | Max. |            |
| a               | See K1001/AIII |               |                    |      | <u>Capacitances</u> (pF) |        |      |            |
|                 | Links to H.P.  | Links to L.P. | Links to E         |      |                          |        |      |            |
|                 | -              | -             | -                  |      | (i) Cag (Note 1)         | -      | 0.01 | T.A.       |
|                 | 2              | 1,3,4,5,7     | 6,8,9,10, TC1, TC2 |      | (ii) Cae                 | 5.3    | 9.7  | 6 per week |
|                 | 6              | 1,3,4,5,7     | 2,8,9,10, TC1, TC2 |      | (iii) Cge                | 2.9    | 4.3  |            |
| b               | Vf             | Va            | Vg2                | Vg1  |                          |        |      |            |
|                 | 1.4            | -             | -                  | -    | If (mA)                  | 44     | 56   | 100% or S  |
| c               | 1.4            | 90            | 70                 | -1.0 | Rev.Ig1 ( $\mu$ A)       | -      | 1.0  | 100%       |
| d               | 1.4            | 90            | 70                 | 0    | Ig2 (mA)                 | 0.5    | 1.8  | 100% or S  |
| e               | 1.4            | 90            | 70                 | 0    | Ia (mA)                  | 2.05   | 4.25 | 100%       |
| f               | 1.4            | 90            | 70                 | -9   | Ia (tail) ( $\mu$ A)     | -      | 20   | 100% or S  |
| g               | 1.4            | 90            | 70                 | 0    | gm (mA/V)                | 0.69   | 1.2  | 100% or S  |
| h               | 1.1            | 90            | 70                 | 0    | gm (mA/V)                | 0.65   | -    | 100%       |
| i               | 1.4            | See Note 2    |                    |      | Microphony (See Note 2)  | -      | 32   | 1% (20)    |

NOTES

1. Cag will be measured on the Western Electric Capacitance Bridge at 465 kc/s. Details of the bridge may be obtained from the Type Approving Authority, who will test production valves in this apparatus if the manufacturer so desires.
2. Method of test as JAN1AF-6e(3).

|            |     |   |                            |
|------------|-----|---|----------------------------|
| Conditions | R1  | = | 1.0 megohms                |
|            | Rg1 | = | 1.5 megohms                |
|            | Rg2 | = | 4.7 megohms                |
|            |     |   | by-passed with 0.1 $\mu$ F |
|            |     |   | capacitor to F-ve.         |

Anode supply voltage = g2 supply voltage = 135V.D.C.

Amplifier sensitivity 200 mV A.C. input for 50 mW output.  
Valves to be rejected if on tapping, output meter reads greater than 32 mW.

When operating under the above conditions no objectionable noise or microphonism shall be evident either with the valve at rest or when it is tapped. Objectionable noise or microphonism shall be defined as:-

- (a) Background noise, sustained microphonies, or oscillation over 2 seconds in duration having greater than  $\frac{1}{2}$  milliwatt output power level.
- (b) Clicks or scratchy noises of any sort.

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Valve Electronic Type **CV 1758**

## TYPICAL OPERATING CONDITIONS

### As Class A1 Amplifier

|                                     |       |       |        |
|-------------------------------------|-------|-------|--------|
| Anode Voltage                       | 90    | 90    | Volts  |
| Anode Current                       | 2.9   | 4.5   | mA     |
| Screen (G2) Voltage                 | 67.5  | 90    | Volts  |
| Screen (G2) Current                 | 1.2   | 2.0   | mA     |
| Grid (G1) Voltage                   | 0     | 0     | Volts  |
| Anode Impedance                     | 0.6   | 0.35  | Megohm |
| Mutual Conductance                  | 0.925 | 1.025 | mA/V   |
| Grid bias for $I_a = 10 \text{ uA}$ | -6.0  | -8.0  | Volts  |

### Resistance Coupled Operation

|                                  |      |      |     |          |
|----------------------------------|------|------|-----|----------|
| Anode and Screen Supply Voltages | 45   | 67.5 | 90  | Volts    |
| Anode Load Resistor              | 0.5  | 0.5  | 1.0 | Megohm   |
| Screen Series Resistor           | 0.66 | 1.5  | 2.0 | Megohm   |
| Control Grid Resistor            | 1.0  | 1.0  | 1.0 | Megohm * |
| Peak Output                      | 17   | 30   | 35  | Volts    |
| Voltage Gain                     | 30   | 45   | 55  | -        |

(For 6 volts peak output, distortion 2%)

\* The Grid return should be made to negative filament (pin 1) via a resistance of at least 0.5 megohm to minimize variations due to contact potential.

### Mounting Position - Any

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