MINISTRY OF SUPPLY D.L.R.D.(A)/R.A.E. VALVE ELECTRONIC **CV1597**

| Specification MOSA/CV.1597<br>Issue 5 Dated 12.6.53<br>To be read in conjunction with<br>K.1001, ignoring clause 5A.3.3. | SECURITY | |
|---|---|---|
| | Specification | Valve |
| | UNCLASSIFIED | UNCLASSIFIED |

→ Indicates a change

TYPE OF VALVE - Cathode Ray Tube
TYPE OF DEFLECTION - Electrostatic, suitable for symmetrical deflection
TYPE OF FOCUS - Electrostatic
BULB - Internally coated with conductive coating
SCREEN - GGN35
PROTOTYPE - VCR522A

**MARKING**

See K.1001/4

Additional marking:- $\frac{X\phi}{Y\theta}$

$\phi$ and $\theta$ - See Note D

| RATING | | | Note |
|---|---|---|---|
| Heater Voltage | (V) | 4.0 | |
| Heater Current | (A) | 1.1 | |
| Max. Final Anode Voltage | (kV) | 1.0 | A |
| **Plate Sensitivity** | | | |
| X-plate | (mm/V) | 90/Va3 | |
| Y-plate | (mm/V) | 90/Va3 | |
| **TYPICAL OPERATING CONDITIONS** | | | |
| Final Anode Voltage | (V) | 800 | |
| Second Anode Voltage | (V) | 135 | |
| First Anode Voltage | (V) | 800 | |
| Beam Current | (uA) | 2-4 | |

**BASE**

British standard 9-pin

**CONNECTIONS**

| Pin | Electrode |
|---|---|
| 1 | $X_1$ |
| 2 | $Y_1$ |
| 3 | Second Anode |
| 4 | Heater and cathode |
| 5 | Heater |
| 6 | Grid |
| 7 | First and final anodes internally connected |
| 8 | $Y_2$ |
| 9 | $X_2$ |

**DIMENSIONS**

See Drawing on Page 3

**NOTES**

A - The tube shall be capable of operating with first and final anode voltages of 900V at a pressure equivalent to 7.36" mercury at 15°C.

B - The tube shall be of three-anode construction, and shall be adequately free from microphony.

C - The gun assembly shall be sufficiently robust to withstand considerable mechanical shocks without suffering displacement.

D - The tube is required to be graded and marked according to the values of the deflection plate sensitivities. The tube marking shall be of the form $\frac{X\phi}{Y\theta}$ where $\phi$ and $\theta$ represent the grades of X and Y plate sensitivities respectively as given in the table below.

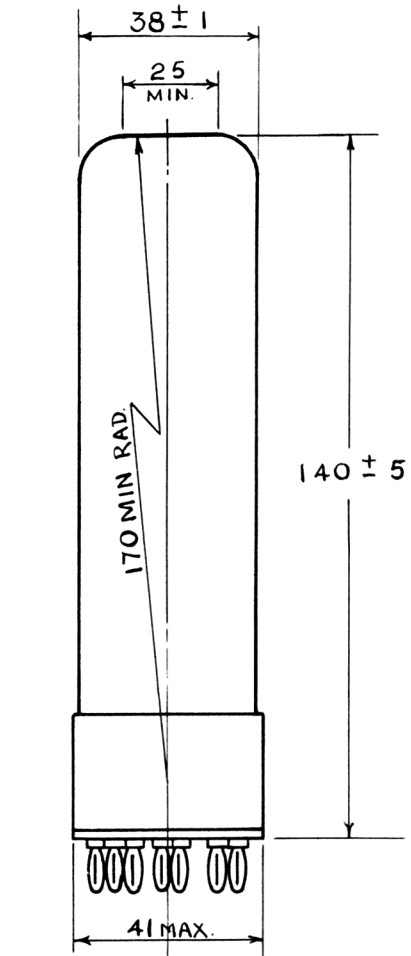
| MARKING | PLATE SENSITIVITY mm/Volt/Va3 |
|---|---|
| L | 70-80 inclusive |
| A | Over 80 but not greater than 90 |
| B | Over 90 but not greater than 100 |
| C | Over 100 but not greater than 110 |
| D | Over 110 but not greater than 120 |

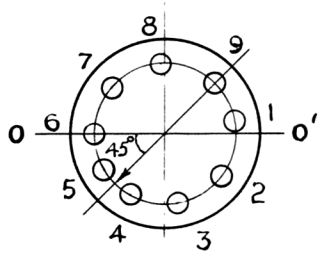
E - Viewing the screen of the tube, with pin number 6 at the top, a positive potential applied to pin number 9 shall deflect the spot to the right, and a positive potential applied to pin number 8 shall deflect the spot upwards.

To be performed in addition to those applicable in K.1001

| | Test Conditions | | | | | Test | Limits Min. | Limits Max. | No. Tested | Note |
|---|---|---|---|---|---|---|---|---|---|---|
| a | See K.1001/5A.13. | | | | | INTER-ELECTRODE CAPACITANCES (pF)<br>1. Each X or Y-plate to all other electrodes.<br>2. Grid to all other electrodes.<br>3. One X-plate to one Y-plate. | <br><br>-<br>-<br>- | <br><br>15<br>20<br>5 | <br><br>T/A<br>T/A<br>T/A | |
| Deflection voltages shall be applied symmetrically in all cases | | | | | | | | | | |
| | Vh | Va3 | Va2 | Va1 | Vg | | | | | |
| b | 4 | 0 | 0 | 0 | - | Ih (A) | 0.95 | 1.25 | 5%(10) | |
| c | 4 | 800 | Adjusted for optimum focus | 800 | Adjust to give cut-off | Vg (V) | -7 | -20 | 100% | |
| d | 4 | 800 | ditto | 800 | Adjust | Vg (V) | -1 | | 100% | |
| | Vg adjusted to give a light output of .001 candelas on a closed raster. | | | | | | | | | |
| e | 4 | 800 | ditto | 800 | Adjust | (1) Line Width (mm) | - | 0.8 | 100% | |
| | DEFLECTION. With a sine-wave time-base of 10 kc/s nom. and a line length of 30 mm. in the X and Y directions successively, the line width will be measured at the centre of the trace. | | | | | (2) Focussing voltage (V) | 50 | 175 | 5%(10) | |
| f | 4 | 800 | Any convenient value | 800 | -20 | GRID INSULATION<br>Leakage current (uA)<br>Increase in voltmeter reading | <br>-<br>- | <br>4<br>100% | <br>100%<br>100% | |
| | See K.1001/5A.3.2. Resistor = 5 megohms. | | | | | | | | | |
| g | 4 | 800 | Adjusted for optimum focus | 800 | Any convenient value | DEFLECTION SENSITIVITIES<br>(1) X-plate<br>(2) Y-plate<br>(3) Ratio of X to Y-plate | <br>70/Va3<br>70/Va3<br>0.85 | <br>110/Va3<br>110/Va3<br>1.15 | <br>100%<br><br>100% | |
| h | 4 | 800 | ditto | 800 | ditto | Deviation of spot from centre of screen (mm) | - | 3 | 100% | |
| j | 4 | 800 | ditto | 800 | ditto | USEFUL SCREEN AREA<br>Diameter (mm) | 30 | - | 100% | |
| | Deflection to cover the stated circle centred on the centre of the screen. | | | | | | | | | |
| k | 4 | 800 | ditto | 800 | ditto | Angle between X and Y axes of deflection | 85° | 95° | 100% | |
| m | 4 | 800 | ditto | 800 | ditto | Orientation of Y axis of deflection | - | 10° | 100% | |
| | Angle measured relative to axis O-O' (drawing, page 3) | | | | | | | | | |
| n | 4 | 800 | ditto | 800 | varied | Spot movement (mm) | - | 0.5 | 5%(20) | |
| | Resistor -5MΩ in each deflector lead.<br>Vg varied from working brightness to cut-off. | | | | | | | | | |

# CV1597




VIEW OF UNDERSIDE OF BASE

ALL DIMENSIONS IN MILLIMETERS

ELECTRONIC VALVE SPECIFICATIONS

SPECIFICATION CV.1597 ISSUE 5 DATED 12.6.1953

AMENDMENT NO. 1

Page 2

Clause "b" Ih Limits:-

DELETE: MIN. 0.95
INSERT: MIN. 0.85

November, 1963

T.V.C. for
R.A.E.

NP.152580

AAB
14/4/64