MINISTRY OF SUPPLY R.R.E.

VALVE ELECTRONIC

# CV2352

| Specification MOS/CV2352 Issue 3<br>Dated:- February 1956.<br>To be read in conjunction with K1001 | SECURITY<br>Specification: Unclassified<br>Valve: Unclassified |
|---|---|

← Indicates a change

| | |
|---|---|
| TYPE OF VALVE:- | Cathode Ray Tube |
| TYPE OF DEFLECTION:- | Electrostatic Symmetrical or Asymmetrical |
| TYPE OF FOCUS:- | Electrostatic |
| BULB:- | Glass. Internally coated with conductive coating. |
| SCREEN:- | GG4 |
| PROTOTYPE:- | VCRX 390 |

**MARKING**

See K1001/4

**BASE**

B14A.
See B.S.448: 1953

**CONNECTIONS**

| Pin | Electrode |
|---|---|
| 1 | h |
| 2 | k |
| 3 | g |
| 4 | a2 |
| 5 | No connection |
| 6 | Internal coating |
| 7 | $y_1$ |
| 8 | $y_2$ |
| 9 | $a_3$ |
| 10 | $x_2$ |
| 11 | $x_1$ |
| 12 | No connection |
| 13 | $a_1$ |
| 14 | h |

**RATING**

| | | |
|---|---|---|
| Heater voltage | (V) | 6.3 |
| Heater current | (A) | 0.3 |
| Max. Va1 | (kV) | 2.5 |
| Max. Va2 | (kV) | 1.1 |
| Max. Va3 | (kV) | 6.0 |
| Sensitivity, x plates | (mm/V) | $\frac{925}{Va3}$ |
| Sensitivity, y plates | (mm/V) | $\frac{1000}{Va3}$ |

**TYPICAL OPERATING CONDITIONS**

| | | |
|---|---|---|
| Va1 | (kV) | 1.8 |
| Va2 | (kV) | 0.65 |
| Va3 | (kV) | 5.0 |

**DIMENSIONS**

See drawing, page 5

**NOTES**

A. For optimum focus quality the potential between the internal conductive coating and a3 must not exceed 10 volts. ←

To be performed in addition to those applicable in K1001

| Clause | Test Conditions | Test | Limits Min. | Limits Max. | No. Tested |
|---|---|---|---|---|---|
| a | See K1001/5A.13 | Capacitances (pF) | | | 2% |
| | | 1. Each x plate to all other electrodes | - | 20 | (5) |
| | | 2. Each y plate to all other electrodes | - | 16 | |
| | | 3. Grid to all other electrodes | - | 10 | |
| | | 4. Each x plate to each y plate | - | 1.5 | |
| | | 5. Cathode to all other electrodes | - | 10 | |
| | FOR ALL TESTS GIVEN BELOW Vh = 6.3V | | | | |
| b | | Ih (A) | 0.28 | 0.66 | 100% |
| c | Cathode 100 volts positive to heater | Heater-cathode current (uA) | - | 100 | 100% |
| → | FOR ALL TESTS GIVEN BELOW Va1 = 1.8kV, Va3 = Vm = 5.0kV WITH ASYMMETRICAL X AND Y DEFLECTION VOLTAGES | | | | |
| d | With a raster scan of convenient size adjust Va2 for optimum overall focus and Vg for a light intensity of 0.06 candela measured through a Wratten 61N colour filter. | 1. -Vg (V) | 1 | - | 100% |
| | | 2. Useful screen area. | | | 100% |
| | | X direction (mm) | 125 | - | |
| | | Y direction (mm) | 35 | - | |
| | | 3. $I_k$ (uA) | | 200 | 100% |
| → e | With an elliptical scan nominally 100 mm x 30 mm adjust Va2 for optimum focus and Vg as in (d). | 1. Line width (mm) | | 0.7 | 100% |
| | | 2. Va2 (V) | 600 | 700 | 100% |
| f | Va2 as in (e) Adjust Vg for cut-off See K1001/5A.10. | 1. -Vg (V) | 25 | 70 | 100% |
| | | 2. Increase in negative value of Vg compared with value noted in test (d1) (V) | - | 30 | 100% |
| | | 3. Within the range of Vg found in test f.1 to that in test d.1 the beam current shall increase continuously | | | 100% |

TESTS (Contd)

# CV2352

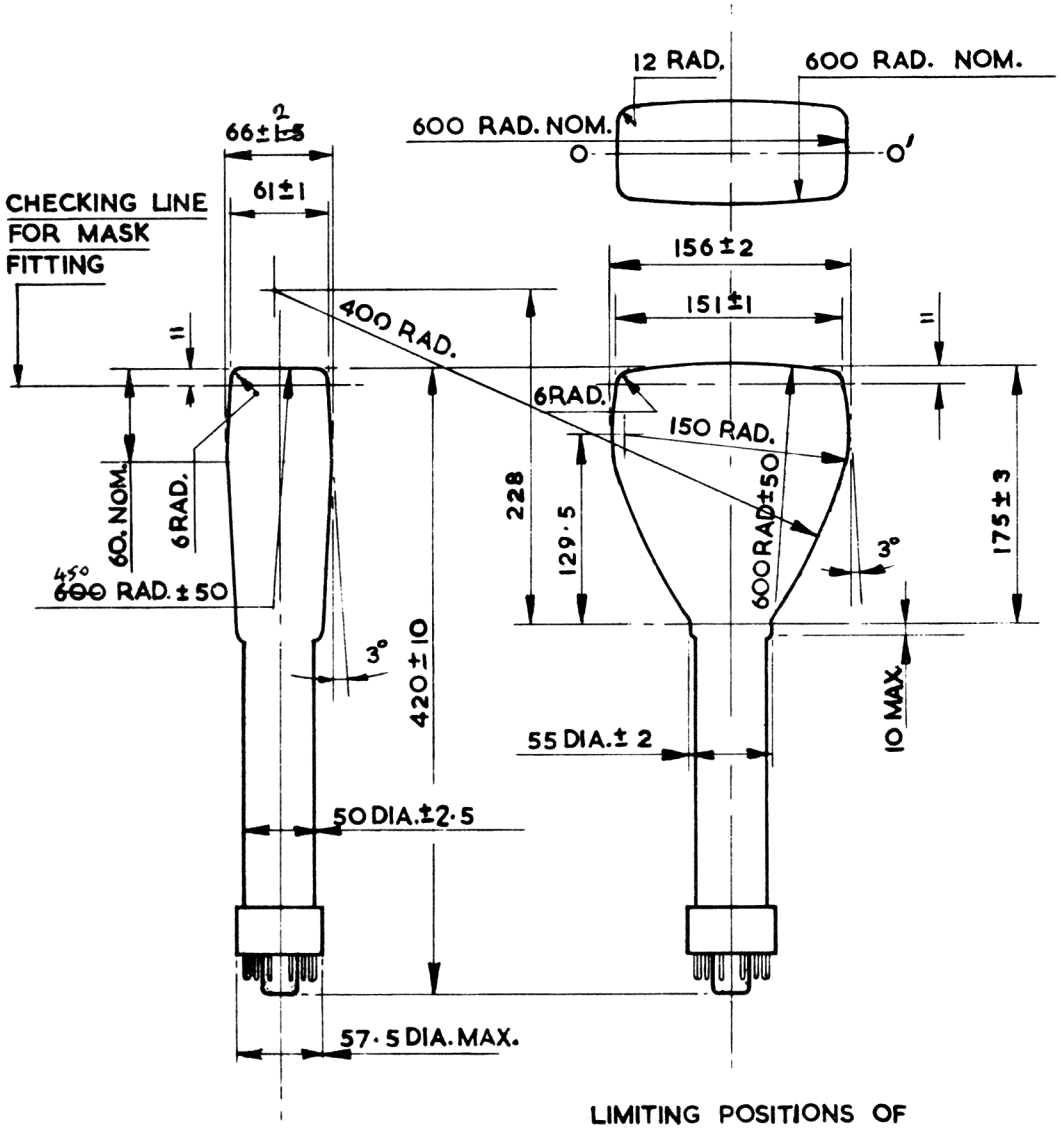
| Clause | Test Conditions | Test | Limits Min. | Limits Max. | No. Tested |
|---|---|---|---|---|---|
| g | See K1001/5A.3.2.<br>(a) Vg -80V<br>(b) Alternative method. Resistor 5MΩ | Grid Insulation<br>(a) Leakage current (uA)<br>(b) Increase in volt-meter reading | -<br>- | 16<br>100% | 100% |
| h | | Deflection Sensitivities<br>1. x plates (mm/V)<br>2. y plates (mm/V) | 850/Va3<br>900/Va3 | 1000/Va3<br>1100/Va3 | 10% (10) |
| j | See K1001/5A.11.1. | Deviation of spot from centre of screen (mm) | - | 7.5 | 100% |
| k | | Orientation of Deflection Axes<br>1. Orientation of x axis of deflection relative to 00' on drawing<br>2. Angle between x and y axes of deflection | -2°<br>88° | +2°<br>92° | 100%<br>100% |
| l | A screen area of at least 100 mm x 30 mm to be scanned. | Trapezoidal Distortions<br>1. Angle between adjacent sides.<br>2. Angle between opposite sides | 87°<br>177° | 93°<br>183° | 10% (10) |
| m | With a defocussed raster scan to cover the useful screen (see test d.2), adjust Vg for any convenient light intensity. See Note 1. | Blemishes<br>Bubbles and Dead Spots<br>0.25 to 0.6 mm.<br>0.6 to 1.0 mm.<br>greater than 1.0 mm. | | <br>10<br>5<br>0 | 100% |
| n | Air Ministry Test Set 42<br>See K1001/11.5. | Vibration | | | T.A. |
| o | All conditions as in clause "e" but with the internal conductive coating + and - 10 volts with respect to a3 | Line width (mm) | | 0.7 | T.A. ← |

NOTE

1. If two or more blemishes are separated by a distance not greater than the maximum dimension of the largest blemish in a group, then the group of blemishes shall be considered as one blemish of dimension equal to the maximum overall dimension of the group.

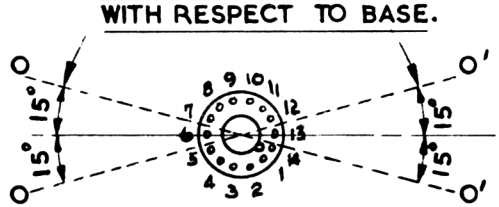
# CV 2352

## ALL DIMENSIONS IN MILLIMETRES.




LOOKING AT THE SCREEN WITH THE OO' LINE HORIZONTAL AND PINS 9 & 10 OF THE BASE UPPERMOST A POSITIVE VOLTAGE APPLIED TO TERMINAL X1 SHALL DEFLECT THE SPOT TO THE LEFT & A POSITIVE VOLTAGE APPLIED TO TERMINAL Y1 SHALL DEFLECT THE SPOT UPWARDS.

LIMITING POSITIONS OF ORIENTATION OF OO' WITH RESPECT TO BASE.



Amendment No. 1
to Specification CV2352 - Issue 3 - dated July, 1956

Page 5.

Amend radius of screen curvature on the "Y" axis (short axis) to read 450 ± 100 mm instead of 600 ± 50mm radius.

Amend overall bulb height to read 66 ± 2mm instead of 66 ± 1.5mm.

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

July, 1957.

N.88393R.