

ELECTRONIC VALVE SPECIFICATIONS

SPECIFICATION CV1997

ISSUE 3 DATED 25.3.57

AMENDMENT NO. 1

Page 2 Test Clause a. CAPACITANCES

In column headed "Limits Max.",

Amend "12" (pF) to "14" (pF).

July 1960.

ROYAL AIRCRAFT ESTABLISHMENT.

N.33426.

ELECTRONIC VALVE SPECIFICATIONS

SPECIFICATION/MOS(A) CV1997

ISSUE 3 DATED 25.3.57

AMENDMENT No. 2

Page 4 Notes

- 1) Delete all reference to Notes 1 and 2 and substitute the following as Note 1.

"Concentricity and angularity of base spigot to the tube shall fall within an axial tolerance zone of 2 m.m. diameter".

- 2) Renumber existing "Note 3" to read "Note 2" excepting the final paragraph (commencing "The pressed glass screen") which becomes "Note 3".

October, 1960

Royal Aircraft Establishment.

N.34243

Specification MOSA/CV1997 Issue 3 Dated 25.3.57 To be read in conjunction with BS.448, BS.1409 and K1001 excluding Clause 11.5.	<u>SECURITY</u>	
	Specification UNCLASSIFIED	Valve UNCLASSIFIED

—————> Indicates a change

TYPE OF VALVE - Cathode Ray Tube TYPE OF FOCUS - Electrostatic TYPE OF DEFLECTION - Electrostatic BULB - Internally coated with conductive coating SCREEN - G.G.5 PROTOTYPE - VGH.307	<u>MARKING</u> See K.1001/4 <u>BASE</u> BS.448/B9G <u>CONNECTIONS</u>																																																									
<table border="1" style="width: 100%;"> <thead> <tr> <th style="text-align: center;"><u>RATING</u></th> <th style="text-align: center;">Note</th> <th style="text-align: center;">Pin</th> <th style="text-align: center;">Electrode</th> </tr> </thead> <tbody> <tr> <td>Heater Voltage (V)</td> <td>4</td> <td>1</td> <td>Cathode, Heater k + h</td> </tr> <tr> <td>Heater Current (A)</td> <td>1.1</td> <td>2</td> <td>Grid g</td> </tr> <tr> <td>Max. Third Anode Voltage (kV)</td> <td>1.7</td> <td>3</td> <td>Heater h</td> </tr> <tr> <td>Max. Peak Cathode Current (mA)</td> <td>500</td> <td>4</td> <td>Anode 2 a2</td> </tr> <tr> <td>x-plate Sensitivity (mm/V)</td> <td>$\frac{175}{V_{a3}}$</td> <td>5</td> <td>X1 x1</td> </tr> <tr> <td></td> <td></td> <td>6</td> <td>Y1 y1</td> </tr> <tr> <td>y-plate Sensitivity (mm/V)</td> <td>$\frac{185}{V_{a3}}$</td> <td>7</td> <td>Anode 1, Anode 3 a1 + a3</td> </tr> <tr> <td></td> <td></td> <td>8</td> <td>Y2 y2</td> </tr> <tr> <td></td> <td></td> <td>9</td> <td>X2 x2</td> </tr> <tr> <td colspan="4"><u>TYPICAL OPERATING CONDITIONS</u></td> </tr> <tr> <td>Third Anode Voltage (kV)</td> <td>1.5</td> <td colspan="2" rowspan="4" style="vertical-align: top; text-align: center;"> <u>DIMENSIONS</u> See Drawing on page 4 </td> </tr> <tr> <td>Second Anode Voltage (approx.) (V)</td> <td>75</td> </tr> <tr> <td>Beam Current (mA)</td> <td>30</td> </tr> <tr> <td>Cathode Current (mA)</td> <td>40</td> </tr> <tr> <td colspan="4" style="text-align: center;"> <u>MOUNTING POSITION</u> Any </td> </tr> </tbody> </table>	<u>RATING</u>	Note	Pin	Electrode	Heater Voltage (V)	4	1	Cathode, Heater k + h	Heater Current (A)	1.1	2	Grid g	Max. Third Anode Voltage (kV)	1.7	3	Heater h	Max. Peak Cathode Current (mA)	500	4	Anode 2 a2	x-plate Sensitivity (mm/V)	$\frac{175}{V_{a3}}$	5	X1 x1			6	Y1 y1	y-plate Sensitivity (mm/V)	$\frac{185}{V_{a3}}$	7	Anode 1, Anode 3 a1 + a3			8	Y2 y2			9	X2 x2	<u>TYPICAL OPERATING CONDITIONS</u>				Third Anode Voltage (kV)	1.5	<u>DIMENSIONS</u> See Drawing on page 4		Second Anode Voltage (approx.) (V)	75	Beam Current (mA)	30	Cathode Current (mA)	40	<u>MOUNTING POSITION</u> Any			
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NOTE

- A. When viewing the screen with the tube positioned such that the keyway on the base spigot is at 30° to the left of the vertical, a positive potential on Pin 8 will deflect the spot upwards.

TESTS

To be performed in addition to those applicable in K1001

Test Conditions				Test	Limits		No. Tested	Note
Vh (V)	Va3 (KV)	Va2 (V)	Vg (V)		Min.	Max.		
All deflecting voltages shall be symmetrical								
a	See K1001/AIII							
				<u>CAPACITANCES</u> (pF)				
				1. Each x and each y plate to all other electrodes.		12	5%(5)	
				2. Each x plate to each y plate.		3.0	5%(5)	
				3. Grid to all other electrodes.		20	5%(5)	
b	4.0	0	0	Ih (A)	1.2 0.45	1.2	100% or S	
c	4.0	1.5	Adjusted for optimum focus	Vg (V) Value to be noted	-40	-100	100%	
d	4.0	1.5	ditto	Adjust			100%	
				Vg adjusted to give a light output of .009 candelas on a close raster.				
				<u>Change in value of Vg from test c.</u>				
				1. Tubes having Vg1 cut-off -40 (V)	-	20		
				2. Tubes having Vg1 cut-off -100 (V)	-	31		
				3. Intermediate values shall be proportional				
e	4.0	1.5	ditto	-				
				1. Line Width (mm)	-	0.5	100%	
				2. Va ₂ (V)	40	110		
				<u>Deflection</u> With a sine wave time base of 10 kc/s nom., and line length of 31 mm in x and y directions successively, the line width shall be measured at the centre of the trace.				
				<u>Grid</u> The grid shall be pulsed positively from cut-off with amplitude equal to the value obtained in test (d), the nom. values of pulse duration and recurrence rate being 100 per sec. and 100 c/s respectively.				

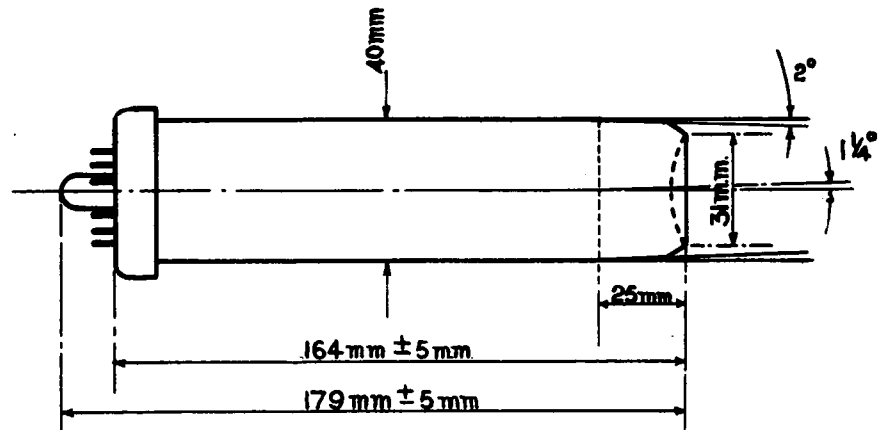
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TESTS (Contd.)

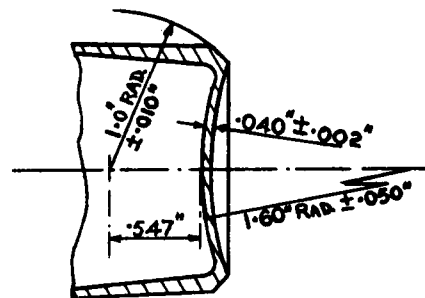
	Test Conditions				Test	Limits		No. Tested	Note
	Vh (V)	Va3 (kV)	Va2 (V)	Vg (V)		Min.	Max.		
f	4.0	1.5	Any convenient value	-120	<u>Grid Insulation</u> 1. Leakage Current (μA) 2. Increase in voltmeter reading	-	12	100%	
	For recommended method see K1001/5A. 3.2. Resistor = 10M Ω								
g	4.0	1.5	ditto	Any convenient value	<u>Deflection Sensitivities</u> 1. x Plate (mm/V) 2. y Plate (mm/V)	$\frac{155}{V_{a3}}$ $\frac{165}{V_{a3}}$	$\frac{195}{V_{a3}}$ $\frac{205}{V_{a3}}$	5%(20) 5%(20)	
h	4.0	1.5	ditto	ditto	Deviation of spot (mm) from centre of screen	-	3	100%	
j	4.0	1.5	ditto	ditto	<u>Useful Screen Area Diameter</u> (mm)	31	-	100%	
k	4.0	1.5	ditto	ditto	Angle between x and y axis of deflection	88°	92°	100%	
m	4.0	1.5	ditto	ditto	Orientation of y axis of deflection relative to axis through keyway on base spigot	20°	40°	100%	←
n					Vibration			T.A.	1

NOTE

1. With the tube operating with normal electrode potentials applied, the vibration test will be performed in accordance with:- R.A.E. Tech. Note Vib.13. "Aircraft Equipment and Instrument Vibration Panel" in equipment which shall be approved by the Design Authority.



- 1 The tube axis and base spigot shall be concentric within 2 m.m.
- 2 The angle between the C/L of the base spigot and the C/L of the tube shall not exceed 2°
- 3 Angle between C/L of tube and that of the pressed glass screen shall be not greater than 1 1/4°. The two centre lines shall not be laterally displaced by more than 1 m.m.



The finished tube shall be examined to ensure that if a line be drawn from the centre of the base spigot to the centre of the curvature of the 1" Radius, the angle between this line and a line tangential to the screen at its centre shall be $90^\circ \pm 1\frac{1}{2}^\circ$

This test shall be performed by an approved method.

The pressed glass screen is to be of such dimension that when it is registered against the inside of a 90° cone, with the centre line passing through the apex of the cone, the distance between the apex and the screen shall be 0.867 ± 0.001 .