

ADMIRALTY SIGNAL ESTABLISHMENT

Specification AD/CV964/Issue 7. Dated:- 12/6/47. To be read in conjunction with K1003.	<u>SECRET</u>	
	<u>Specn.</u> Restricted	<u>Valve.</u> Unclassified

<p><u>TYPE OF VALVE:-</u> Cathode ray tube. <u>TYPE OF DEFLECTION:-</u> Electrostatic; symmetrical. <u>TYPE OF FOCUS:-</u> Electrostatic. <u>BULB:-</u> Glass. Internally coated with conductive coating. <u>SCREEN:-</u> GGN35. (Green; Willemite; no appreciable after-glow after 100 milliseconds.) <u>PROTOTYPE:-</u> "VCRX22". Tube similar to VCR139A but has better quality focus and focus uniformity.</p>	<u>MARKING</u> See K1003/7	
	<u>BASE</u> 12-pin Spigot type.	
	<u>Pin</u>	<u>Electrode</u>
	1	Cathode
	2	Modulator
	3	Heater
	4	Heater
	5	2nd Anode (A2)
	6	Pin omitted
	7	Plate Y2
	8	Plate X2
	9	3rd Anode (A3) and graphite
	10	Plate X1
	11	Plate Y1
	12	Pin omitted
	<u>RATING</u>	<u>Note</u>
Heater Voltage (V)	4.0	A
Heater Current (A)	1.1	
Max. 1st and 3rd Anode Voltage (kV)	1.5	
Average Working 2nd Anode Voltage (V)	250	
Working Beam Current (µA)	3 to 5	
	<u>DIMENSIONS</u> See Fig.1, Page 4.	
	<u>PACKING</u> See K1003/8 K1005	

NOTES

- A. At $V_{a3} = 1.5$ kV.
- B. The design of the tube is to be such that the focus ratio is substantially independent of beam current. This feature will be checked at Type Approval.

TESTS

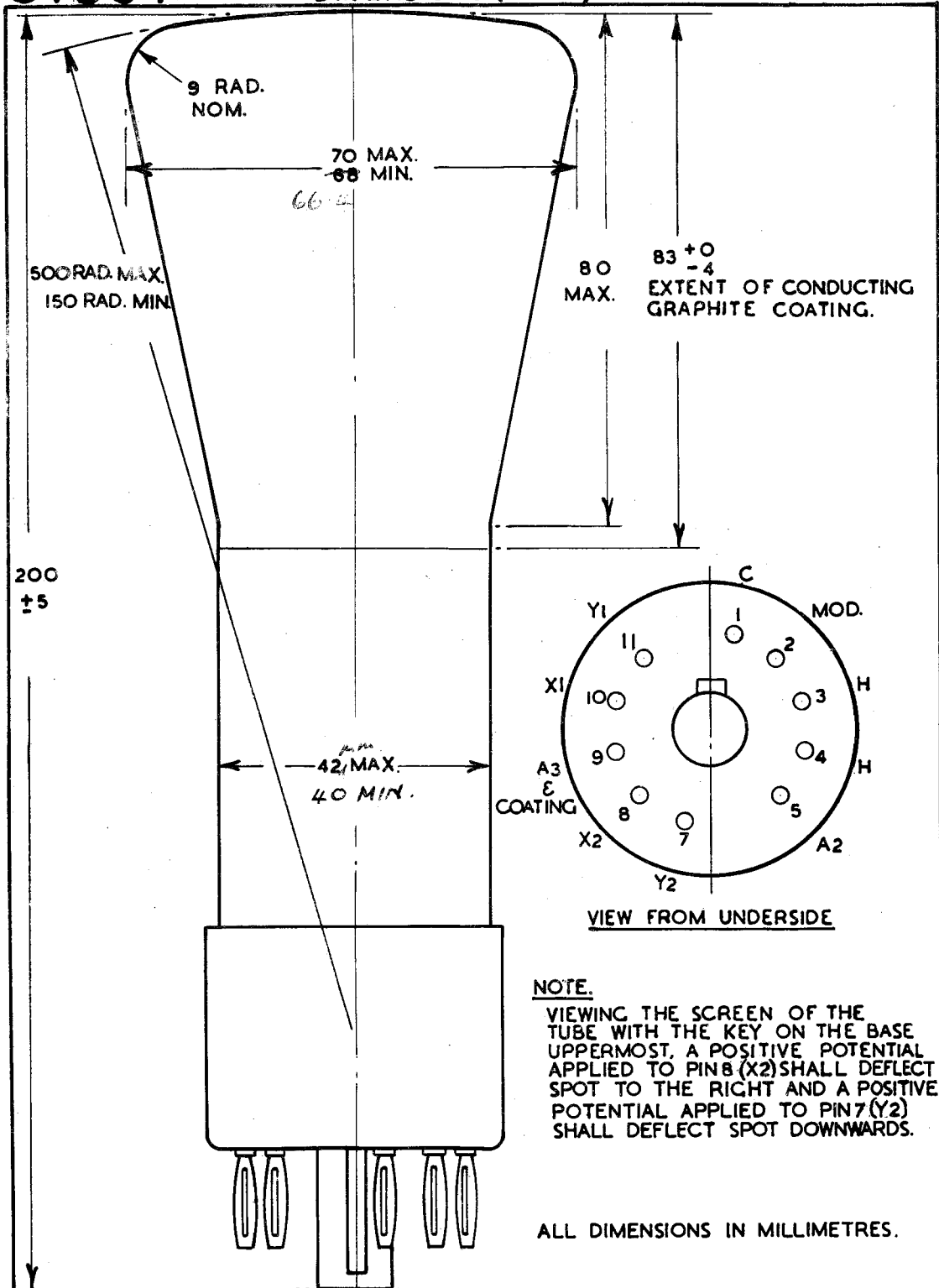
To be performed in addition to those applicable in K1003.

	Test Conditions	Test	Limits		No. Tested
			Min.	Max.	
a		<u>Capacitances (pF.)</u>			
		(i) Each X or Y plate to all other electrodes.	-	15	T.A.
		(ii) Mod. to all other electrodes.	-	20	T.A.
		(iii) Either X-plate to either Y-plate.	-	3	0.5% (5)
For all tests given below $V_h = 4.0$ V.					
b		I _h (A)	0.95	1.25	100% or S
c	(i) $V_{a3} = 1.5$ kV. or (ii) $V_{a3} = 800$ V. See K1003/5.9	<u>V mod. for cut off</u>			
		(i) (V) (ii) (V)	-13 -7	-38 -20	100%
d	(i) $V_{a3} = 1.5$ kV. or (ii) $V_{a3} = 800$ V. in both cases $V_{mod} = -1$ V	<u>I beam</u>			
		(i) (μ A) (ii) (μ A)	15 10	- -	100%
e	(i) $V_{a3} = 1.5$ kV. or (ii) $V_{a3} = 800$ V. Tube operated with an approved raster, or 2 lines at right angles.	Useful screen (mm) diameter.	55	-	100%
f	As test 'e'.	(i) V_{a2} for optimum focus (V)	150	339	100%
		(ii) Relative focus (V)	80	178	100%
		Over the whole scan area, this shall not be worse than that of a standard tube.			

TESTS (Contd.)

CV964

	Test Conditions	Test	Limits		No. Tested
			Min.	Max.	
g	(i) $V_{a3} = 1.5 \text{ kV.}$ or (ii) $V_{a3} = 800\text{V.}$	Modulator electrode insulation (M Ω)	5	-	100%
	See K1003/5.4.2.				
h	As test 'g'.	X and Y plate sensitivities (mm/V)	$\frac{145}{V_{a3}}$	$\frac{195}{V_{a3}}$	100%
j	As test 'g'	<u>Centring</u> deviation (mm)	-	5	100%
	See K1003/5.10.				
k		Angle between X- and Y-plate axes.	85°	95°	1%
l		Angle between Y-plate axis and base diameter passing thro' centre of base spigot.	-	10°	100%



NOTE.

VIEWING THE SCREEN OF THE TUBE WITH THE KEY ON THE BASE UPPERMOST, A POSITIVE POTENTIAL APPLIED TO PIN 8 (X2) SHALL DEFLECT SPOT TO THE RIGHT AND A POSITIVE POTENTIAL APPLIED TO PIN 7 (Y2) SHALL DEFLECT SPOT DOWNWARDS.

ALL DIMENSIONS IN MILLIMETRES.