

MINISTRY OF SUPPLY R.R. E.

Specification MOS/CV1391/Issue 3 Dated:- December 1957. To be read in conjunction with K1001 and BS.448	<u>SECURITY</u>	
	<u>Specification</u> Unclassified	<u>Valve</u> Unclassified

← Indicates a change

<u>TYPE OF VALVE:-</u> Cathode Ray Tube <u>TYPE OF DEFLECTION:-</u> Electrostatic suitable for either symmetrical or asymmetrical voltages. <u>TYPE OF FOCUS:-</u> Electrostatic <u>BULB:-</u> Glass, internally coated with conductive coating. <u>SCREEN:-</u> BB3		<u>MARKING</u> See K1001/4	
		<u>BASE</u> BS.448, B 12 D	
		<u>CONNECTIONS</u>	
		<u>Pin</u>	<u>Electrode</u>
		1	g
		2	k
		3	h
		4	h
		5	a1
		6	a2
		7	Internal coating
		8	y2
		9	x2
		10	a3
		11	x1
		12	y1
<u>RATING</u>			
Heater Voltage	(V)	4	
Heater Current	(A)	1.0	
Max. Final Anode Voltage	(KV)	5	
X plate sensitivity	(mm/V)	<u>620</u> Va3	
Y plate sensitivity	(mm/V)	<u>1160</u> Va3	
<u>TYPICAL OPERATING CONDITIONS</u>			
Final Anode Voltage	(KV)	3	
Second Anode Voltage	(V)	475	
First Anode Voltage	(KV)	2	
Beam Current	(uA)	30	
		<u>DIMENSIONS</u> See drawing, Page 4	
		<u>PACKAGING</u> See K1005	

NOTE:-

A:- The focussing system shall be of the three electrode type .

B:- The tube must be adequately free from Microphony and Deflection Defocus. These tests will be covered by Type Approval.

TESTS

CV1391

To be performed in addition to those applicable in K1001

Page 2

Clause	Test Conditions	Tests	Limits		No. Tested
			Min.	Max.	
a	See K1001/5A.13	<u>Capacitances</u> (pf) 1. Each X plate to all other electrodes. 2. Each Y plate to all other electrodes. 3. Grid to all other electrodes. 4. Each X plate to each Y plate.	-	25	2%(5)

FOR ALL TESTS GIVEN BELOW $V_h = 4.0V$

b		I_h (A)	0.66	1.2	100%
c	Cathode 100 volts positive to heater. Cathode 50 volts negative to heater.	<u>Heater Cathode Current</u> 1. Current (uA) 2. Current (uA)	-	100	100%

FOR ALL TESTS GIVEN BELOW EXCEPT CLAUSE (K) $V_{a1} = 2 \text{ kV}$, $V_{a3} = 3 \text{ kV}$

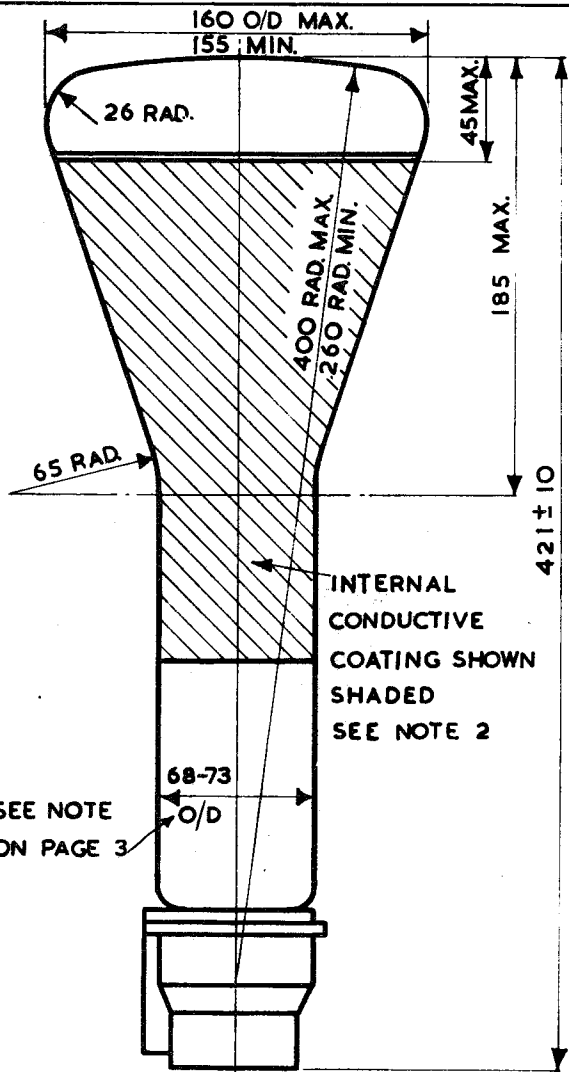
d	With a raster scan of convenient size adjust V_{a2} for optimum focus and V_g for a light intensity of 0.7 "orthochromatic candela." See K1001.5A.9.	1. $-V_g$. Value to be noted (V) 2. Useful screen area. X direction (mm) Y direction (mm)	5	± 60 ± 52	100% 100%
e	V_g as in test "d". With an elliptical scan of length 100 mm. in the X and Y directions successively adjust V_{a2} for optimum focus. The minor axis of the ellipse should not exceed 5 mm.	1. L line width (mm) 2. V_{a2} (V)	325	0.9 625	100% 100%
f	V_{a2} adjusted for optimum focus and V_g for cut-off.	1. $-V_g$. (V) 2. Increase in negative value of V_g compared with value noted in test "d" #1. (V) 3. Within the range of grid voltage from cut-off to that obtained in clause d1 the beam current shall increase continuously.	5	80 35	100% 100% 100%

TESTS (Contd)

	Test Conditions	Tests	Limits		No. Tested
			Min.	Max.	
g	See K1001/5A.3.2. (a) Vg-80V. (b) Alternative method Resistor 10 meg.	<u>Grid Insulation</u> (a) Leakage Current (uA) (b) Increase in voltmeter reading. (%)	- -	8 100	100%
h		<u>Deflection Sensitivities</u> 1. X plate (mm/V) 2. Y plate (mm/V)	$\frac{540}{V_{a3}}$ $\frac{1026}{V_{a3}}$	$\frac{700}{V_{a3}}$ $\frac{1300}{V_{a3}}$	10%(10)
j	See K1001/5A.11.1.	Deviation of spot from centre of screen (mm)	-	10	100%
k	With Va3 at 5 kV See K1001/5A.14.	Over Voltage Test			100%
l		<u>Orientation of deflection Axes</u> 1. Orientation of X axis of deflection relative to OO' on dwg. 2. Angle between X and Y axes of deflection	80° 85°	100° 95°	100% 100%
m	A screen area of at least 100 mm. x 100 mm. to be scanned with asymmetrical deflection.	<u>Trapezoidal Distortions</u> 1. Angles between adjacent sides 2. Angles between opposite sides	85° 175°	95° 185°	10%(10)
n	See K1001/11.5.	Vibration.			T.A.

DRAWING NOTE

The neck diameter may be less than 68 mm. if the manufacturer provides two rings of an approved material of outside diameter within the specified tolerances.



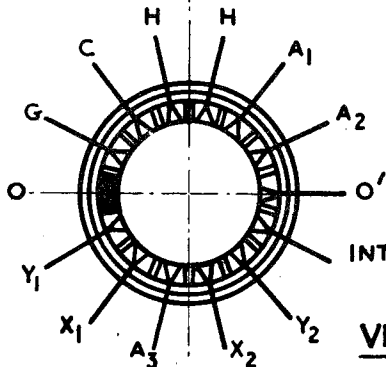
ALL DIMENSIONS IN MILLIMETRES

NOTES

1. THE TUBE WILL NORMALLY BE OPERATED WITH A3 & CONDUCTIVE COATING TIED. IF A MANUFACTURER SO DESIRES THESE ELECTRODES MAY BE STRAPPED INTERNALLY, WITH THE CONNECTION TO CONTACT MARKED: "INTERNAL CONDUCTIVE COATING" OMITTED.
2. INTERNAL CONDUCTIVE COATING SHALL BE OF SUCH DIMENSIONS THAT IT FUNCTIONS EFFECTIVELY, BUT DOES NOT OBSCURE THE USEFUL SCREEN AREA.
3. LOOKING AT SCREEN WITH THE TUBE POSITIONED SUCH THAT THE BASE SPIGOT IS UPPERMOST, A POSITIVE VOLTAGE APPLIED TO THE TERMINAL XI SHALL DEFLECT THE SPOT TO THE LEFT & A POSITIVE VOLTAGE APPLIED TO THE TERMINAL YI SHALL DEFLECT THE SPOT UPWARDS.

SEE NOTE ON PAGE 3

INTERNAL CONDUCTIVE COATING SHOWN SHADED SEE NOTE 2



INTERNAL CONDUCTIVE COATING

VIEW OF UNDERSIDE OF BASE