MINISTRY OF SUPPLY R.R.E.

VALVE ELECTRONIC **CV1391**

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

← Indicates a change

TYPE OF VALVE:- Cathode Ray Tube

TYPE OF DEFLECTION:- Electrostatic suitable for either symmetrical of asymmetrical voltages.

TYPE OF FOCUS:- Electrostatic

BULB:- Glass, internally coated with conductive coating.

SCREEN:- BB3

RATING		
Heater Voltage	(V)	4
Heater Current	(A)	1.0
Max. Final Anode Voltage	(kV)	5
X plate sensitivity	(mm/V)	620 Va3
Y plate sensitivity	(mm/V)	1160 Va3
TYPICAL OPERATING CONDITIONS		
Final Anode Voltage	(kV)	3
Second Anode Voltage	(V)	475
First Anode Voltage	(kV)	2
Beam Current	(uA)	30

MARKING

See K1001/4

BASE

BS.448. B 12 D ←

CONNECTIONS

Pin	Electrode
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

DIMENSIONS

See drawing, Page 4

PACKAGING

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

To be performed in addition to those applicable in K1001

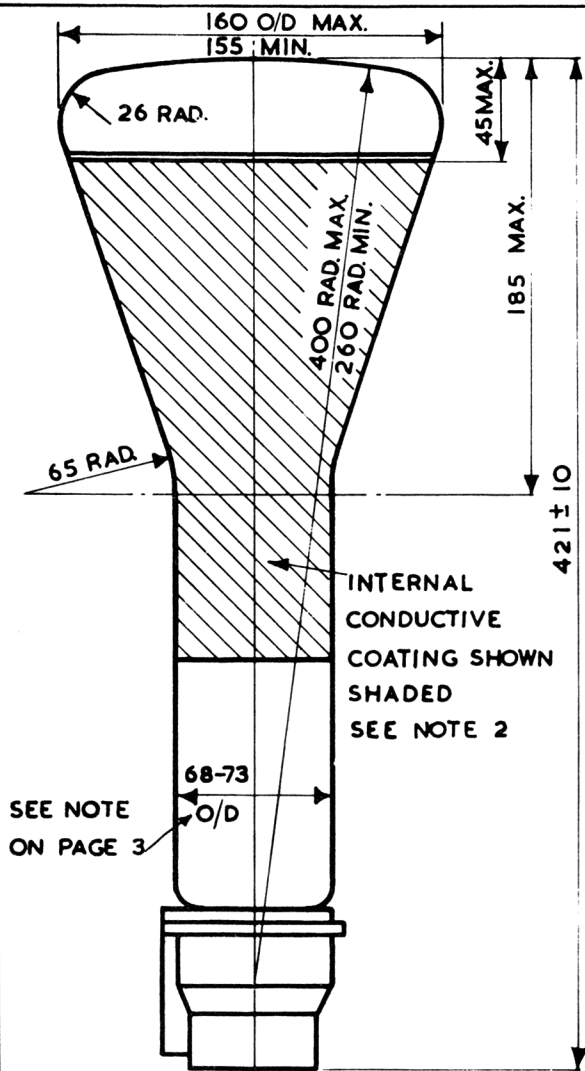
Clause	Test Conditions	Tests	Limits Min.	Limits Max.	No. Tested
a	See K1001/5A.13	Capacitances (pf)			2%(5)
		1. Each X plate to all other electrodes.	-	25	
		2. Each Y plate to all other electrodes.	-	25	
		3. Grid to all other electrodes.	-	25	
		4. Each X plate to each Y plate.	-	3	
	FOR ALL TESTS GIVEN BELOW V_h = 4.0V				
b		Ih (A)	0.66	1.2	100%
c		Heater Cathode Current			
	Cathode 100 volts positive to heater.	1. Current (uA)	-	100	100%
	Cathode 50 volts negative to heater.	2. Current (uA)	-	50	100%
	FOR ALL TESTS GIVEN BELOW EXCEPT CLAUSE (K) V_{a1} = 2 kV, V_{a3} = 3 kV				
d	With a raster scan of convenient size adjust Va2 for optimum focus and Vg for a light intensity of 0.7 "orthochromatic candela." See K1001.5A.9.	1. -Vg. Value to be noted (V)	5		100%
		2. Useful screen area.			100%
		X direction (mm)	±60		
		Y direction (mm)	±52		
e	Vg as in test "d". With an elliptical scan of length 100 mm. in the X and Y directions successively adjust Va2 for optimum focus. The minor axis of the ellipse should not exceed 5 mm.	1. L ine width (mm)		0.9	100%
		2. Va2 (V)	325	625	100%
f	Va2 adjusted for optimum focus and Vg for cut-off.	1. -Vg. (V)		80	100%
		2. Increase in negative value of Vg compared with value noted in test "d"1. (V)	5	35	100%
		3. Within the range of grid voltage from cut-off to that obtained in clause d1 the beam current shall increase continuously.			100%

TESTS (Contd)

	Test Conditions	Tests	Limits Min.	Limits Max.	No. Tested
g	See K1001/5A.3.2. (a) Vg-80V. (b) Alternative method Resistor 10 meg.	Grid Insulation (a) Leakage Current (uA) (b) Increase in voltmeter reading. (%)	 - -	 8 100	100%
h		Deflection Sensitivities 1. X plate (mm/V) 2. Y plate (mm/V)	 540/Va3 1026/Va3	 700/Va3 1300/Va3	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		Orientation of deflection Axes 1. Orientation of X axis of deflection relative to 00' 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.	Trapezoidal Distortions 1. Angles between adjacent sides 2. Angles between opposite sides	 85° 175°	 95° 185°	10%(10)
m	See K1001/11.5.	Vibration.			T.A.

DRAWING NOTE

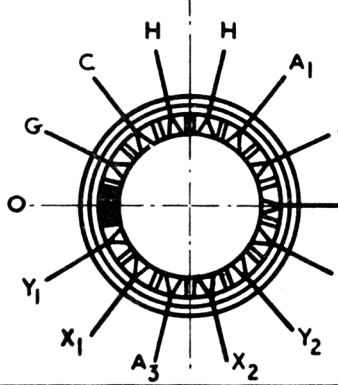
The neck diameter may be less than 68 mm. if the manufacturer provides two rings of an approved material of outside diameter within the specified tolerances.



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 X1 SHALL DEFLECT THE SPOT TO THE LEFT & A POSITIVE VOLTAGE APPLIED TO THE TERMINAL Y1 SHALL DEFLECT THE SPOT UPWARDS.



VIEW OF UNDERSIDE OF BASE