MINISTRY OF SUPPLY (D.L.R.D.(A)/R.A.E.)

VALVE ELECTRONIC CV2810

Specification MOSA/CV.2810 Issue 3, Dated 25.1.55 To be read in conjunction with B.S.448,B.S.1409 & K1001	SECURITY Specification: UNCLASSIFIED Valve: UNCLASSIFIED

→ Indicates a change

TYPE OF VALVE - Cathode Ray Tube

TYPE OF DEFLECTION - Electrostatic suitable for symmetrical or assymmetrical operation.

TYPE OF FOCUS - Electrostatic

BULB - Internally coated with conductive coating.

SCREEN - B.Y.8

PROTOTYPE - VCRX.263. CV.2137.

MARKING

See K.1001/4 with the addition of a serial number

BASE

BS.448/B12D

CONNECTIONS

Pin	Electrode
1	g1
2	k
3	h
4	h
5	a1
6	a2
7	m
8	y2
9	x2
10	a3
11	x1
12	y1

RATING

			Note
Heater Voltage	(V)	4.0	
Heater Current	(A)	1.0	
Max. Final Anode Voltage	(kV)	6.0	A
Max. First Anode Voltage	(kV)	2.0	
x Plate Sensitivity	(mm/V)	$\frac{720}{Va3}$	
y Plate Sensitivity	mm/V	$\frac{880}{Va3}$	

TYPICAL OPERATING CONDITIONS

Final Anode Voltage	(kV)	3.0
Second Anode Voltage	(V)	495
First Anode Voltage	(kV)	2.0
Spot Size	(mm)	1.0

DIMENSIONS

See Drawing on pages 4 & 5.

NOTES

A. This rating applies at normal atmospheric pressure.

B. The tube shall be adequately free from microphony.

C. The neck diameter may be reduced provided that rubber rings or other approved packing is supplied with the tube to bring the overall diameter within the stated tolerance.

D. When viewing the 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, and a positive voltage applied to y1 shall deflect the spot upwards.

E. The internal conductive coating shall be of such dimensions that it functions effectively but does not obscure the useful screen area.

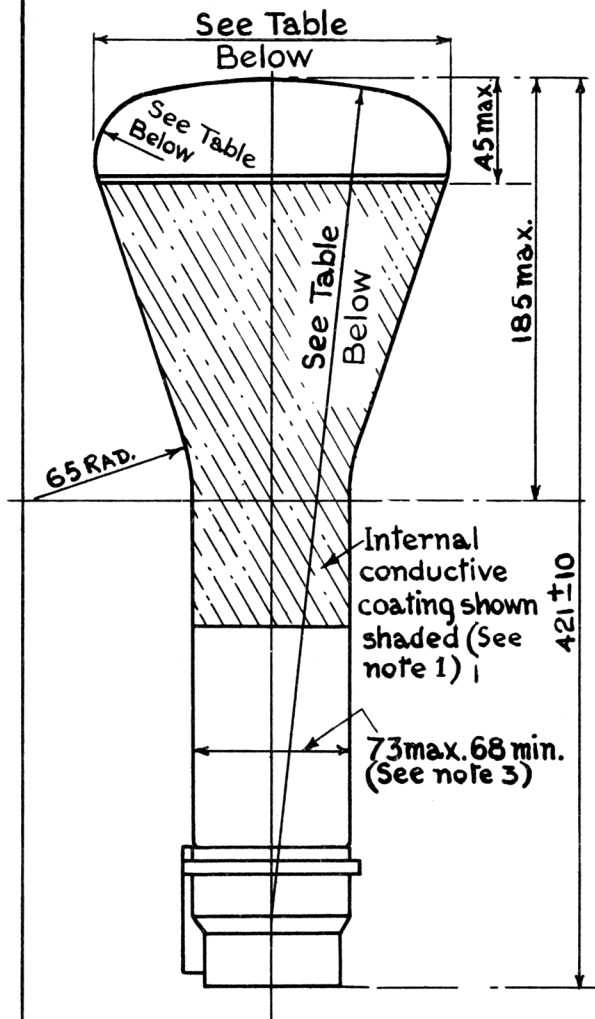
To be performed in addition to those applicable in K.1001

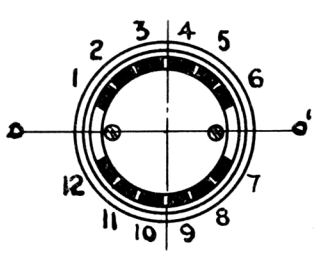
	Test Conditions					Tests	Limits Min.	Limits Max.	No. Tested	Note
	Vh(V)	Va3 (kV)	Va2 (V)	Va1 (kV)	Vg (V)					
a	See K.1001/5A.13.					Inter-electrode Capacitances (pF) 1. Each x Plate to all others 2. Grid to all others. 3. One x Plate to one y Plate	 - - -	 25 25 5	 5% (20)	
b	4.0	0	0	0	0	Ih (A)	0.7	1.3	100% or S	
c	4.0	3.0	Adjust for optimum focus	2.0	Adjust to cut-off	Vg (V)	-	-80	100%	
d	4.0	3.0	Adjust for optimum focus	2.0	-	1. Vg (V) 2. Change in Vg from value found in Test c 3. Within the range of Grid Voltage from cut-off to standard light the beam current shall increase continuously	- -	-1 40	100% 100% 100%	
	Vg adjusted to give Light Output = 0.035 candela, measured through a C2 filter.									
e	4.0	3.0	Adjust for optimum focus	2.0	As in Test (d)	1. Line Width (mm) 2. Va2 (V)	- 450	1.2 530	100% 100%	
	With focus adjusted for optimum and with symmetrically deflected sine wave line trace of 50 c/s nom. recurrence, and a line length of 130 mm in x and y directions successively, the line width will be measured at the centre of the trace.									
f	4.0	3.0	Any convenient value	2.0	-80	Grid insulations Leakage (μA)	 -	 16	 100%	
	Recommended method - K.1001/5A. 3.2 Resistor = 5 megohms					Voltmeter Reading	-	100%		

TESTS - contd.

CV2810

Test Conditions						Tests	Limits		No. Tested	Note
							Min.	Max.		
	Vh(V)	Va3 (kV)	Va2 (V)	Va1 (kV)	Vg (V)					
g	4.0	3.0	Any Convenient value	2.0	Any convenient value	Deflection Sensitivities 1. x Plate (mm/V) 2. y Plate (mm/V)	$\frac{650}{Va3}$ $\frac{790}{Va3}$	$\frac{790}{Va3}$ $\frac{970}{Va3}$	5% (20)	
h	4.0	3.0	Ditto	2.0	Ditto	Deviation of Spot from centre of screen (mm)	-	10	100%	
j	4.0	3.0	Ditto	2.0	Ditto	Useful Screen Area Diameter (mm)	130	-	100%	
k	4.0	3.0	Ditto	2.0	Ditto	Orientation of Axis of Deflection 1. Orientation of x axis of deflection relative to 0.0' on drg. on page 4. 2. Angle between x and y axes of deflection	80° 85°	100° 95°	100% 100%	
l	4.0	3.0	-	2.0	Ditto	The screen shall not be worse for graininess than a standard pattern			100%	
	Deflecting field to give a raster covering the useful screen area. The spot shall be defocussed such that separate lines shall not be discernible on the raster									
m	4.0	3.0	Any convenient value	2.0	Ditto	Afterglow (Secs)	8	-	100%	
	Test to be performed in Test Set 331.									
n	4.0	See K.1001/5A.3.3.				Heater-Cathode Insulation Leakage Current (μA)	-	200	100%	





View of underside of base

NOTES

1 The internal conductive coating shall be of such dimensions that it functions effectively but does not obscure the required useful screen area.

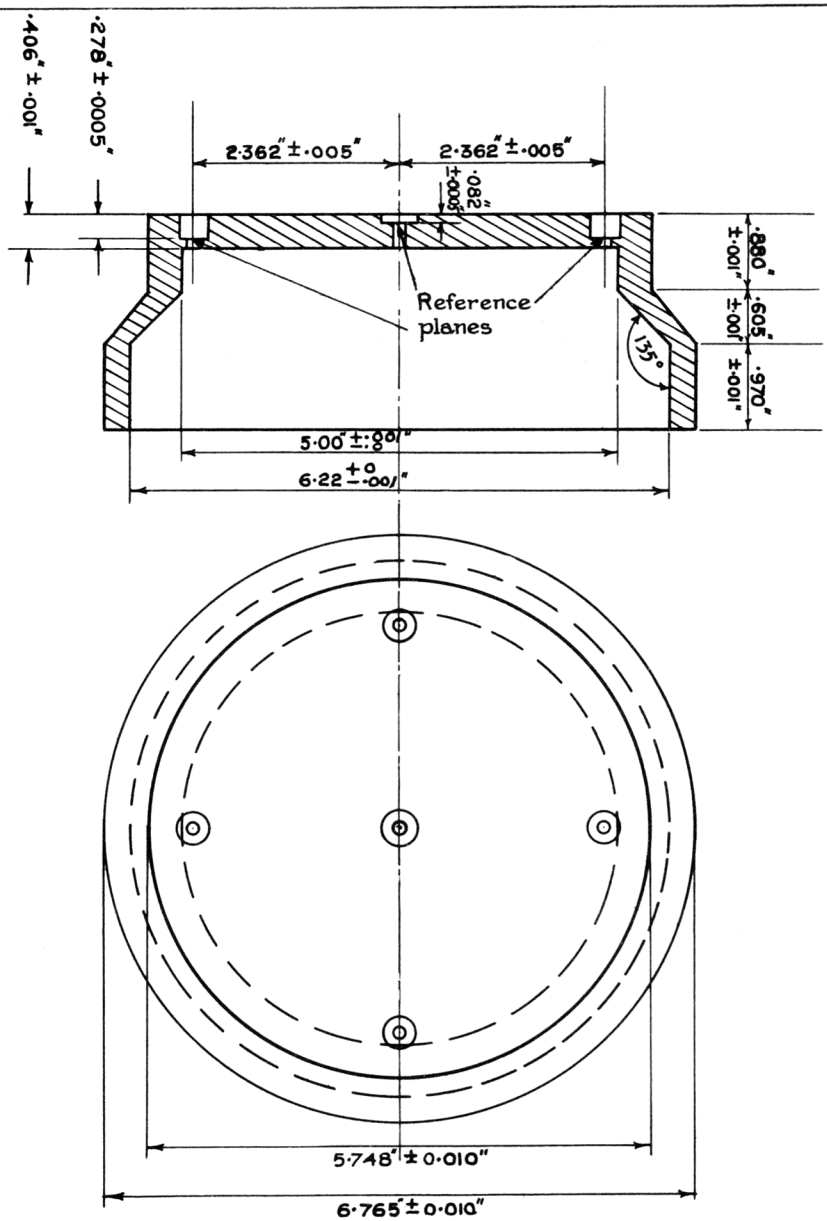
2 When viewing the screen with the tube positioned such that the base spigot is uppermost, a positive voltage applied to the terminal X_1 shall deflect the spot to the left and a positive voltage applied to the terminal Y_1 shall deflect the spot upwards

3 The neck diameter may be reduced provided that rubber rings or other approved packing is supplied with the tube to bring the overall diameter within the stated tolerances.

All dimensions in millimetres

Face-Cone radius (mm)	Overall diameter (mm)	Face radius (mm)
23 - 26	155-156	300 - 400
24 - 26	155-158	300 - 400
26 - 27	155-158	350 - 400
24 - 27	156-158	400 - 450

An alternative method of checking these dimensions may be made by using the gauge as shewn on page 5.



METHOD OF OPERATION OF GAUGE:- Insert C.R.T. into body of gauge. By means of a suitable dial gauge, the design of which must be approved by the T.A. Authority, measure the distance of the screen from the five reference planes. The dimensions at the centre and the average of the four other dimensions must be within the limits of 8.7 mm (min) to 10.7 mm (max). The size of the holes will depend upon the design of the dial gauge.