MINISTRY OF SUPPLY - D.L.R.D.(A)/RAE VALVE ELECTRONIC

CV2137

Specification MOSA/CV2137 Issue 3, Dated 16.7.1953 To be read in conjunction with K.1001	SECURITY Specification: UNCLASSIFIED Valve: UNCLASSIFIED

→ Indicates a change

TYPE OF VALVE - Cathode Ray Tube
TYPE OF DEFLECTION - Electrostatic, suitable for symmetrical or asymmetrical operation.
TYPE OF FOCUS - Electrostatic
BULB - Internally coated with conductive coating.
SCREEN - B.Y.8
PROTOTYPE - VCRX.263

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

BASE
B.12.D

CONNECTIONS

Pin	Electrode
1	G
2	C
3	H
4	H
5	A1
6	A2
7	Internal Coating
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)	720 Va2	
"Y" Plate Sensitivity	(mm/V)	880 Va3	

TYPICAL OPERATING CONDITIONS

Final Anode Voltage	(kV)	3.0
Second Anode Voltage	(V)	525
First Anode Voltage	(kV)	2.0
Spot Size	(mm)	1.0

DIMENSIONS
See Drawing on page 4

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.

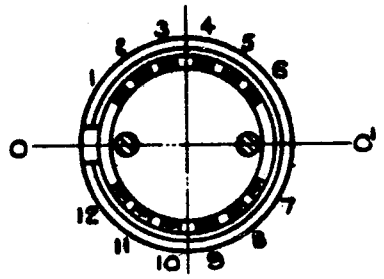
To be performed in addition to those applicable in K.1001

	Test Conditions					Test	Limits		No	Note
							Min.	Max.	Tested	
	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	- -	0 40	100% 100% 100%	
	Vg adjusted to give Light Output = .00325 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)	- 375	1.2 675	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 102mm in X and Y directions successively, the line width will be measured at the centre of the trace.									

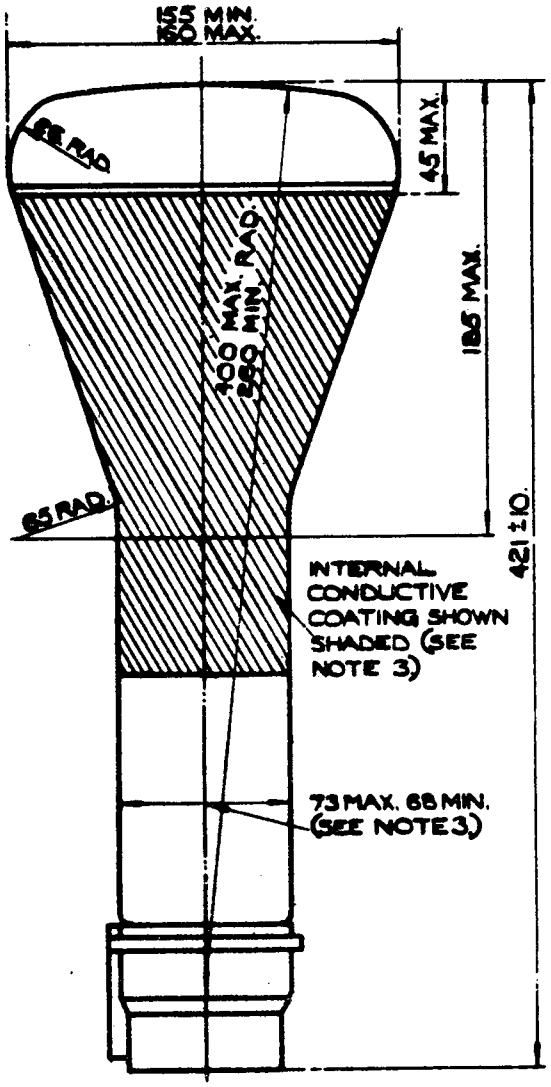
TESTS - contd.

CV2137

	Test Conditions					Test	Limits		No	Note
							Min.	Max.	Tested	
	Vh(V)	Va3 (kV)	Va2 (V)	Va1 (kV)	Vg (V)					
f	4.0	3.0	Any convenient value	2.0	-80	Grid insulations Leakage (μA)	-	16	100%	
	Recommended method - Resistor = 5 megohms			K.1001/5A.3.2		Voltmeter Reading	-	100%		
g	4.0	3.0	Ditto	2.0	Any convenient value	Deflection Sensitivities 1. X Plate (mm/V)	650 Va3	790 Va3	5%	
						2. Y Plate (mm/V)	790 Va3	970 Va3	(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.	80°	100°	100%	
						2. Angle between X and Y axes of deflection	85°	95°	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