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

VALVE ELECTRONIC **CV1519**

Specification MOSA/CV1519
Issue 3 Dated 8.11.54
To be read in conjunction with B.S.448,B.S.1409 & K1001

SECURITY

Specification	Valve
UNCLASSIFIED	UNCLASSIFIED

------► Indicates a change

TYPE OF VALVE - Cathode Ray Tube

TYPE OF DEFLECTION - Electrostatic, suitable for symmetrical deflection

BULB - Internally coated with conductive coating.

CATHODE - Indirectly heated

SCREEN - To give a green trace

PROTOTYPE - VCR.519

MARKING

See K1001/4

BASE

B.S.448/B12D

CONNECTIONS

Pin	Electrode
1	g
2	k
3	h
4	h
5	a1
6	a2
7	NC
8	yN
9	yS
10	a3
11	xW
12	xE

RATING			Note
Heater Voltage	(V)	4	
Heater Current	(A)	0.715	
Max. First Anode Voltage	(V)	500	
Max. Second Anode Voltage	(kV)	1	
Max. Third Anode Voltage	(kV)	4	
x-plate Sensitivity	(mm/V)	720/Va3	
y-plate Sensitivity	(mm/V)	720/Va3	
Max. Peak Beam Current	(μA)	500	
Max. Cut-off Voltage	(V)	90	
TYPICAL OPERATING CONDITIONS			
First Anode Voltage	(V)	450	
Second Anode Voltage	(V)	460	
Third Anode Voltage	(kV)	2.2	
CAPACITANCES (pF)			
C in		9.7	
xE to xW plate		4.6	
xE to all other electrodes		16	
xW to all other electrodes		16	
yN to yS plate		4.4	
yN to all other electrodes		15	
yS to all other electrodes		16	
(xE & xW) to (yS & yN) plates		3.3	

DIMENSIONS

See Drawing on Page 4

NOTES

A. The screen calibration markings shall be made by sticking on an approved transparent material (e.g. celluloid) printed with the markings shown on page 5.

The calibration shall be sufficiently accurate to pass the relevant tests given.

Z.8687.R.

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

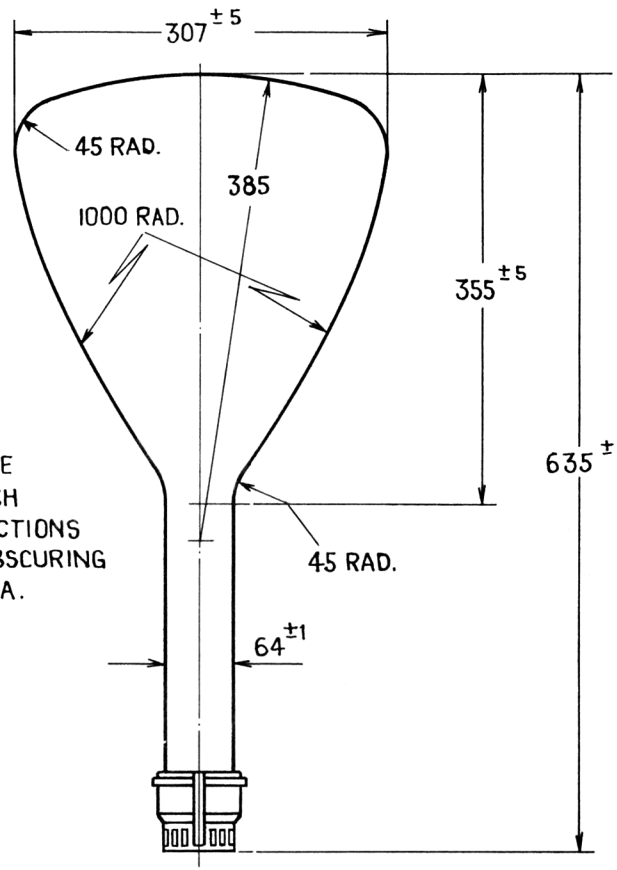
	Test Conditions					Test	Limits Min.	Limits Max.	No. Tested	Note
	Deflection voltages shall be applied symmetrically in all cases									
	Vh	Va_3 (kV)	Va_2	Va_1	Vg					
a	4	-	-	-	-	Ih (A)	0.64	0.79	100%	
b	4	2.2	Adjusted	450	Adjusted	(1) Line width (mm)	-	1.5	100%	
	Adjust Va_2 for optimum focus on a line of length 6". The line width is measured at the extremities at intervals of 45° by an approved microscope. V_g is adjusted till the microscope graduations are just clearly visible in a dimly lit room.					(2) Va_2 (V)	395	525	100%	
c	4	2.2	As in test (b)	450	Adjusted to give cut-off	(1) Vg (V)	-30	-90	100%	
d	4	2.2	ditto	450	Adjusted	Voltage change (V)	-	9.0	100%	
	See K.1001/5A.3.2 Vg adjusted for Ib = 6.0 μA Insert resistor = 3 megohms, and re-set Ib to 6.0 μA									
e	4	2.2	ditto	450	Any convenient value	PLATE SENSITIVITIES				
						(1) Less sensitive pair (mm/V)	655/Va3	785/Va3	100%	
						(2) Amount by which the more sensitive pair of plates may differ from 1.	-	6%	100%	
f	4	2.2	ditto	450	ditto	Deviation of the spot from the mechanical centre of the screen (mm)	-	12	100%	
g	4	2.2	ditto	450	ditto	Angle between x axis (E - W) and y axis (N - S)	89°	91°	100%	
	Deflection voltages applied to x and y plates successively, the pair of plates not in use being earthed.									
h	4	2.2	ditto	450	ditto	Deviation of bearings from calculated values	-	± 1°	100%	
	Deflection voltages calculated from known characteristics of the tube to give bearings at intervals of 22.5° with a 6" trace, are applied to the x and y plates.									

TESTS (contd.)

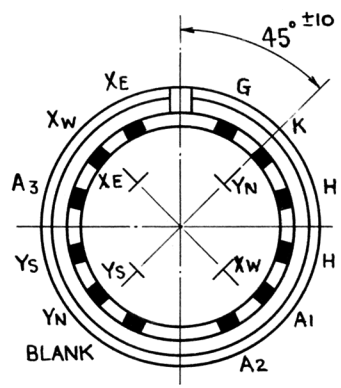
CV1519

	Test Conditions					Test	Limits		No. Tested	Note
							Min.	Max.		
	Vh	Va_3 (kV)	Va_2	Va_1	Vg					
j	4	2.2	As in test (b)	450	Any convenient value	Angle between N - S trace and diameter of the base through the spigot. The North end of the N - S trace shall correspond to the spigot end of the diameter mentioned above	-	$45^\circ \pm 10^\circ$	100%	
k	4	2.2	ditto	450	ditto	CALIBRATION Divergence of x and y scan lines from N.S.E.W. markings.	-	$\pm 1/4$ ●	100%	
	Deflection voltages applied to x and y plates independently.									

FIG 1.

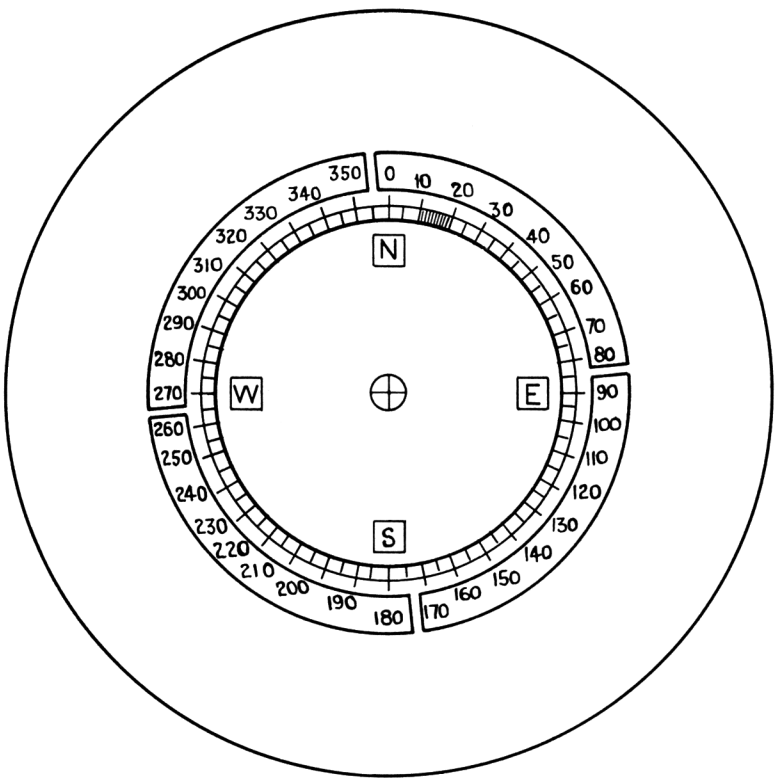


THE INTERNAL CONDUCTIVE COATING SHALL BE OF SUCH DIMENSIONS THAT IT FUNCTIONS EFFECTIVELY WITHOUT OBSCURING THE USEFUL SCREEN AREA.



ALL DIMENSIONS IN MILLIMETRES.

FIG. 2.



NOTES

THE SCALE SHALL CONSIST OF FOUR QUADRANTS AND EACH QUADRANT SHALL BE SUB-DIVIDED INTO NINETY EQUAL DIVISIONS. THE SCALE SHALL BE CENTRED ON THE MECHANICAL CENTRE OF THE SCREEN.
ALL MARKINGS ON THE SCALE SHALL BE BLACK.