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

VALVE ELECTRONIC **CV1587**

Specification MOSA/CV.1587 Issue 4 Dated 12.6.1953 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 symmetric or asymmetric deflection.

BULB - Internally coated with conductive coating.

SCREEN - GGN1/28/35

PROTOTYPE - VCR.138A

MARKING

See K.1001/4

BASE

12 Contact Key Base

RATING			Note
Heater Voltage	(V)	4	
Heater Current	(A)	1	
Max. Final Anode Voltage	(kV)	5	
"X" plate Sensitivity	(mm/V)	357/V_{a3}	
"Y" plate Sensitivity	(mm/V)	780/V_{a3}	
TYPICAL OPERATING CONDITIONS			
Final Anode Voltage	(kV)	1.2	
Second Anode Voltage	(V)	200	
First Anode Voltage	(kV)	1.2	
Beam Current	(μA)	15	

CONNECTIONS

Pin	Electrode
1	G
2	C
3	H
4	H
5	A_1
6	A_2
7	Int. Coating (note D)
8	Y_2
9	X_2
10	A_3
11	X_1
12	Y_1

DIMENSIONS

See Drawing on Page 4.

NOTES

A. The tube shall be adequately free from microphony.

B. 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.

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

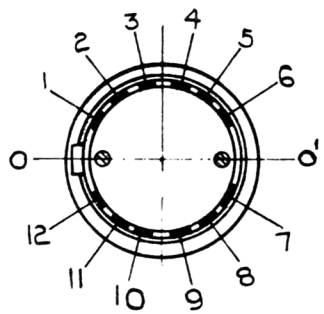
D. The tube will normally be operated with A_3 and conductive coating tied, and if a manufacturer so desires, these electrodes may be strapped internally, with the connection omitted from contact marked - "Internal conductive coating".

Z.4642.R.

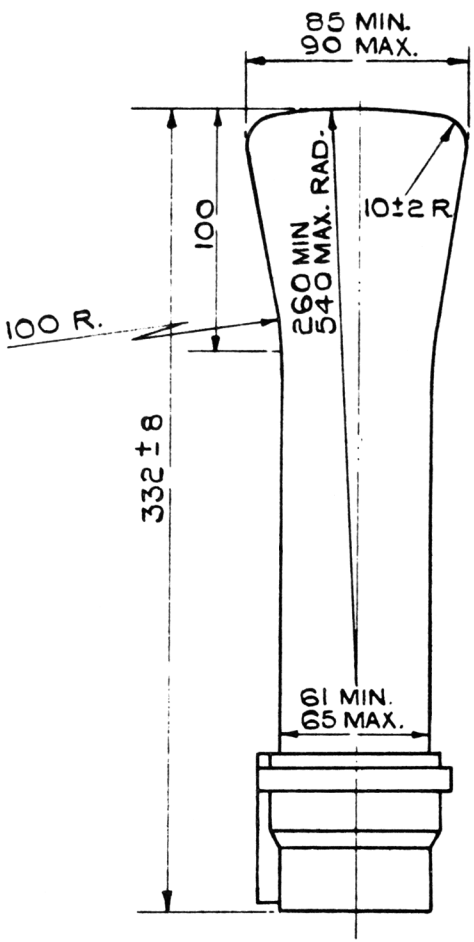
To be performed in addition to those applicable in K.1001

	Test Conditions					Test	Limits Min.	Limits Max.	No. Tested	Note
	Deflection Voltages shall be applied asymmetrically in all cases.									
a	See K.1001/5A.13.					CAPACITANCES (pF) 1. Each X or Y plate to all other electrodes. 2. Grid to all other electrodes. 3. One X to one Y plate	 - - 	 25 25 6	 5% (10) 	
b	Cathode 80V positive to heater					Ih-c (μA)	-	100	100%	
	Vh	Va3	Va2	Va1	Vg					
c	4	0	0	0	0	Ih (A)	0.8	1.3	100%	
d	4	1200	Adjust for optimum focus	1200	Adjust to cut-off	Vg (V)	-	-48	100%	
e	4	1200	ditto	1200	Adjust	Vg (V) (2) Change in value of Vg from test (d) (V)	-1 -	- 25	100% 100%	
	Adjust Vg to give a light output of 0.01 candelas on a closed raster.									
f	4	1200	ditto	1200	ditto	(1) Line width (mm)	-	0.8	100%	←
	DEFLECTION - With a sine-wave time base of 10 Kc/s nom. and line length of 70 mm. in the X and Y directions successively, the line width to be measured at the centre of the trace.									
	GRID - The grid will be pulsed positively from cut-off with amplitude equal to the value obtained in test e.(2), the nominal values of pulse duration and recurrence being 100 μsecs. and 100 c/s respectively.					(2) Va2 (V)	130	270	100%	
g	4	1200	Any convenient value	1200	-48	GRID INSULATION (1) Leakage current (μA) (2) Increase in voltmeter reading	 - -	 5 100%	 100% 100%	
	Recommended method - See K.1001/5A.3.2 Resistor = 10 megohms									
h	4	1200	Adjust for optimum focus	1200	Any convenient value	DEFLECTION SENSITIVITIES (1) X-plate (mm/V) (2) Y-plate (mm/V)	 300/Va3 660/Va3	 415/Va3 900/Va3	 10% (10)	

Test Conditions						Test	Limits		No. Tested	Note
	Vh	Va3	Va2	Va1	Vg		Min.	Max.		
j	4	1200	Adjust for optimum focus	1200	Any convenient value	Deviation of spot from centre of screen (mm)	-	6	100%	
k	4	1200	ditto	1200	ditto	USEFUL SCREEN AREA				
	Deflections to cover stated circle, centred on centre of the screen.					Diameter (mm)	70	-	100%	
l	4	1200	Adjusted for optimum focus	1200	Any convenient value	TRAPEZOIDAL DISTORTIONS (1) Angles between adjacent sides.	85°	95°	100%	
	A screen area of at least 70 mm x 45 mm to be scanned.					(2) Angles between opposite sides.	175°	185°	100%	
m	4	1200	ditto	1200	ditto	(1) Orientation of X axis of deflection relative to 0.0' on drawing.	80°	100°	100%	
						(2) Angles between X and Y axes of deflection.	85°	95°	100%	



VIEW OF UNDERSIDE OF BASE



ALL DIMENSIONS IN MILLIMETRES

NOTES

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.