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

VALVE ELECTRONIC **CV1547**

Specification MOSA/CV1547 Issue 3 Dated 11.5.53 To be read in conjunction with K.1001	SECURITY Specification: UNCLASSIFIED Valve: UNCLASSIFIED

→ Indicates a change

TYPE OF VALVE - Cathode Ray Tube

TYPE OF FOCUS - Electrostatic

TYPE OF DEFLECTION - Electrostatic: symmetrical

BULB - Internally coated with conductive coating

SCREEN - 00M52

PROTOTYPE - VCR 524A

MARKING

See K.1001/4.

BASE

12 contact key.

CONNECTIONS

Pin	Electrode
1	G
2	C
3	H
4	H
5	A1
6	A2
7	Internally coated (See Note D)
8	Y2
9	X2
10	A3
11	X1
12	Y1
Side Contact	A4

SIDE CONTACT

Snap Terminal.

DIMENSIONS AND CONNECTIONS

See drawing on page 4.

RATING

			Note
Heater Voltage	(V)	4.0	
Heater Current	(A)	1.1	
Max. Fourth Anode Voltage	(kV)	6.0	A
Max. Third Anode Voltage	(kV)	4.0	A
Max. First Anode Voltage	(kV)	2.5	A
TYPICAL OPERATING CONDITIONS			
Fourth Anode Voltage	(kV)	4.0	
Third Anode Voltage	(kV)	2.0	
→ Second Anode Voltage	(V)	150	
First Anode Voltage	(kV)	2.0	
→ X-plate Sensitivity	(mm/V)	.18	
→ Y-plate Sensitivity	(mm/V)	.24	

NOTES

A - The tube shall operate satisfactorily with Va1 = 2.5 kV, Va3 = 3 kV and Va4 = 6 kV under conditions of reduced pressure equivalent to 6" of mercury at 15°C.

B - The tube shall be adequately free from microphony.

C - The tube shall be of the post deflector accelerated type, and the design shall be such that with Va1 = 2.5 kV the focus shall be substantially unaffected by varying Va4 down to the value of Va3. A change of ± 10% in Va2 shall not produce an appreciable change in cut-off voltage.

D - The tube will normally be operated with A3 and conductive coating tied and if a manufacturer so desires these electrodes may be strapped internally with the connection omitted from contact marked "internal coating".

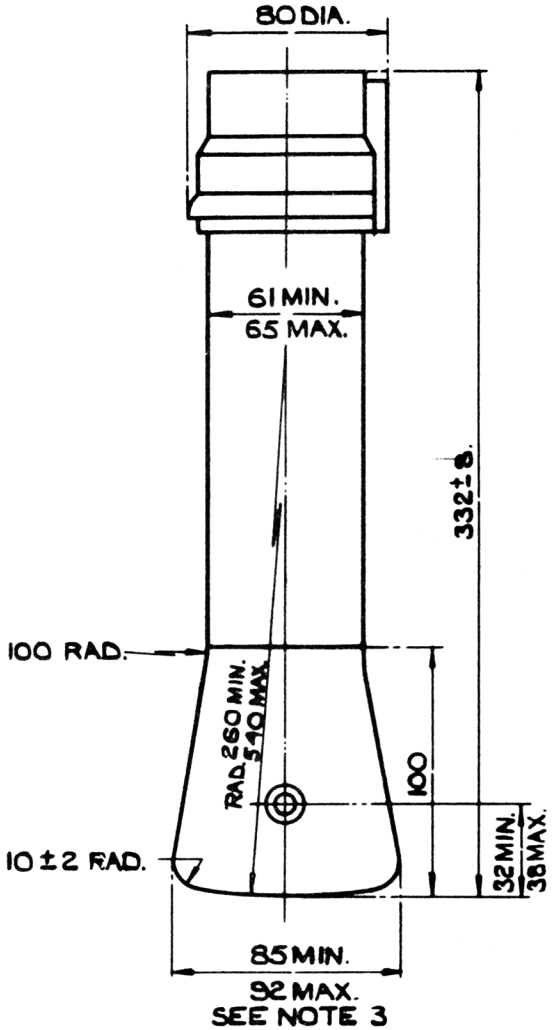
To be performed in addition to those applicable in K.1001

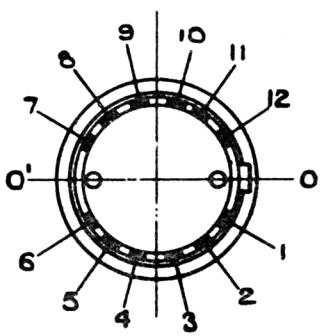
	Test Conditions						Test	Limits Min.	Limits Max.	No. Tested	Note
a	See K.1001/5A.13						CAPACITANCES (pF) (1) Each X or Y plate to all other electrodes (2) One X to one Y plate (3) Grid to all other electrodes	 - - -	 25 6 25	 5%(10) 5%(10) 5%(10)	
	Deflection voltages shall be applied symmetrically in all cases.										
	Vh	Va4 (kV)	Va3 (kV)	Va2	Va1 (kV)	Vg					
b	4	0	0	0	0	0	Ih (A)	0.8	1.3	100%	
c	4	4	2	Adjust for optimum focus	2	Adjust to cut off	Vg (V) Value to be noted	-	-100	100%	
d	4	4	2	ditto	2	-	Ib (μA)	-	10	100%	
	Adjust Vg to give a light output of 0.01 candelas..										
e	4	4	2	ditto	2	-	(1) Vg (V)	-1	-	100%	
	Spot to be deflected off usable Soreen area.						(2) Change in Vg from test (c) (V)	-	35	100%	
	Adjust Vg to give Ib = 70 μA										
f	4	4	2	ditto	2	-	(1) Line width (mm)	-	1.0	100%	
	DEFLECTION - With a sine-wave time base of 10 kc/s nom. and line length of 66 mm in the X direction and 70 mm in the Y direction 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 d(2), the nominal values of pulse duration and recurrence being 100 μsecs and 100 c/s respectively.						(2) Va2 (V)	50	250	100%	
g	4	4	2	Any convenient value	2	-80	GRID INSULATION 1. Leakage Current (μA)	-	8	100%	
	Recommended method:- See K.1001/5A.3.2 Resistor = 10 MΩ.						2. Increase in voltmeter reading	-	100%	100%	
h	4	4	2	ditto	2	Any convenient value	DEFLECTION SENSITIVITIES 1. X-plate (mm/V) 2. Y-plate (mm/V)	 .16 .21	 .20 .27	 5%(10) 5%(10)	

TESTS (Continued)

CV1547

	Test Conditions						Test	Limits		No. Tested	Note
								Min.	Max.		
	Vh	Va4 (kV)	Va3 (kV)	Va2	Va1 (kV)	Vg					
j	4	4	2	Any convenient value	2	Any convenient value	Deviation of spot from centre of screen (mm)	-	6	100%	
k	4	4	2	ditto	2	ditto	USEFUL SCREEN AREA 1. Deflections to cover stated rectangle 2. Deviation of centre of boundary lines of raster from a true rectangle (mm)	- -	 ±2	100% 5%	
	Measurement to be made on a raster of 50 mm x 55 mm in the X and Y directions successively.										
l	4	4	2	ditto	2	ditto	1. Orientation of X-axis of deflection relative to 00' on drawing 2. Orientation of the diameter through the centre of the snap terminal relative to 00'	80° 80°	100° 100°	100% 100%	
m	4	4	2	ditto	2	ditto	Angle between X and Y axes of deflection	88°	92°	100%	
n	4	4	2	ditto	2	ditto	The variation of brightness over any part of the area shall not exceed a 2:1 ratio			100%	
	Deflection voltages 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.										
o	Test to be performed in Test Set 331.						Afterglow (secs)	12	-	10%	





VIEW OF UNDERSIDE OF BASE.

NOTES

1. THE INTERNAL CONDUCTIVE COATINGS SHALL BE OF SUCH DIMENSIONS THAT THEY FUNCTION EFFECTIVELY BUT DO NOT OBSCURE THE REQUIRED USEFUL SCREEN AREA.
2. WHEN VIEWING THE SCREEN WITH THE TUBE POSITIONED SUCH THAT THE SPIGOT IS UPPERMOST, A POSITIVE VOLTAGE APPLIED TO TERMINAL X_1, SHALL DEFLECT THE SPOT TO THE LEFT, AND A POSITIVE VOLTAGE APPLIED TO TERMINAL Y_1, SHALL DEFLECT THE SPOT UPWARDS.
3. THIS DIA. SHALL INCLUDE ANY PROTRUSION DUE TO SIDE CONTACT.
4. WHEN VIEWING THE SCREEN UNDER THE SAME CONDITIONS AS IN 'NOTE 2' THE SNAP TERMINAL SHALL BE ON THE LEFT HAND SIDE OF THE TUBE ←

ALL DIMENSIONS IN MILLIMETRES.