

Specification MOSA/CV1524 Issue 5 Dated 18.5.54 To be read in conjunction with K1001	<u>SECURITY</u> Specification Valve <u>UNCLASSIFIED</u> <u>UNCLASSIFIED</u>
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—————> Indicates a change

TYPE OF VALVE - Cathode Ray Tube TYPE OF DEFLECTION - Electrostatic; asymmetrical TYPE OF FOCUS - Electrostatic BULB - Internally coated with conductive coating SCREEN - BYL46 PROTOTYPE - VCR524	<u>MARKING</u> See K1001/4
	<u>BASE</u> 12 Contact Key Base

<u>RATING</u>		Note	<u>CONNECTIONS</u>	
			Pin	Electrode
Heater Voltage	(V) 4.0		1	G
Heater Current	(A) 1.1		2	C
Maximum Fourth Anode Voltage	(KV) 6	A	3	H
Maximum Third Anode Voltage	(KV) 4	A	4	H
Maximum First Anode Voltage	(KV) 2.5	A	5	A1
			6	A2
			7	Internal Coating (See Note E)
<u>TYPICAL OPERATING CONDITIONS</u>			8	Y2
Fourth Anode Voltage	(KV) 4		9	X2
Third Anode Voltage	(KV) 2		10	A3
Second Anode Voltage	(V) 150		11	X1
First Anode Voltage	(KV) 2		12	Y1
X-Plate Sensitivity	(mm/V) .18		Side	A4
Y-Plate Sensitivity	(mm/V) .24		Contact	
			<u>SIDE CONTACT</u> Snap Terminal	
			<u>DIMENSIONS & CONNECTIONS</u> See drawing on page 4.	

NOTES

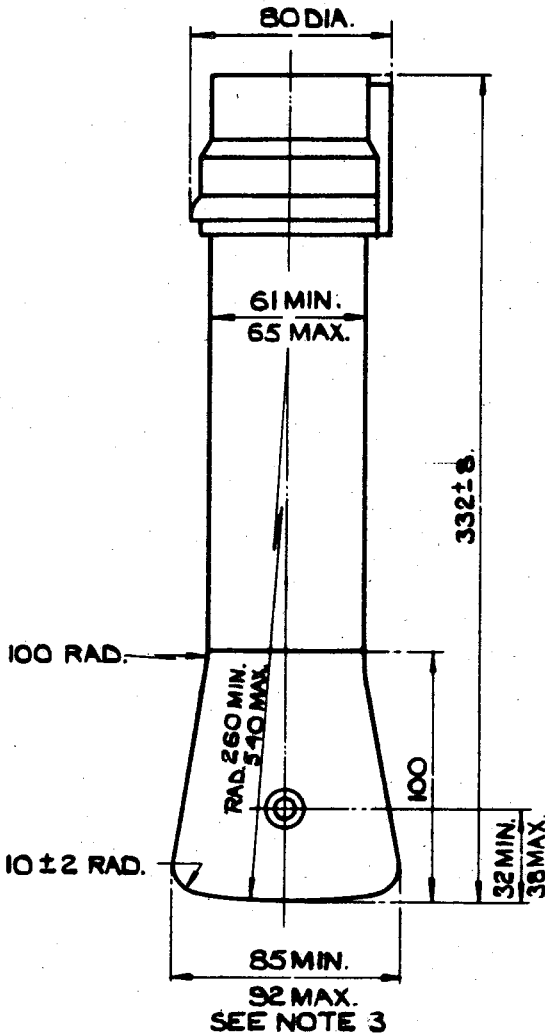
- A. The tube shall operate satisfactorily with $V_{a1} = 2.5KV$, $V_{a3} = 3KV$ and $V_{a4} = 6KV$ under conditions of reduced pressure equivalent to 6" of mercury at 15°C.
- B. The tube shall be adequately free from microphony.
- C. The tube shall be of the post deflector accelerated type, and the design shall be such that with $V_{a1} = 2.5KV$ the focus shall be substantially unaffected by varying V_{a4} down to the value of V_{a3} . A change of +10% in V_{a2} 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 the manufacturer so desires these electrodes may be strapped internally with the connection omitted from contact marked "internal coating".
- E. The internal conductive coatings shall be of such dimensions that they function effectively but do not obscure the required useful screen.

To be performed in addition to those applicable in K1001

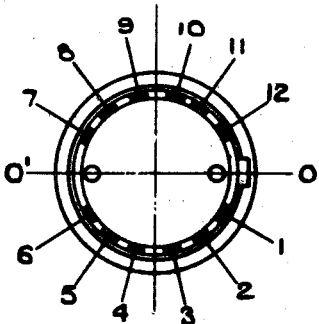
Test Conditions		Test		Limits		No. Tested	Note
				Min.	Max.		
a	See K1001/5A.13	<u>Capacitances (pF)</u>					
		1. Each X or Y plate to all other electrodes.	-	25	5% (10)		
		2. Grid to all other electrodes.	-	25	5% (10)		
		3. One X plate to one Y plate.	-	6	5% (10)		
Deflection voltages shall be applied symmetrically in all cases.							
	Vh (KV)	Va4 (KV)	Va3 (KV)	Va2 (V)	Va1 (KV)	Vg (V)	
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 cutoff	Vg value to be noted (V) - -80 100%
d	4	4	2	ditto	2	ditto	(1) Vg (V) -1 - 100%
							(2) Change in Vg from test (c) (V) - 35 100%
e	4	4	2	ditto	2	ditto	(1) Line width (mm) - 1.0 100%
							(2) Va2 (V) 50 250 100%
<p><u>DEFLECTION</u>-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.</p> <p><u>GRID</u>- 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 microseconds and 100 c/s respectively.</p>							
f	4	4	2	Any convenient value	2	-80	<p><u>GRID INSULATION</u></p> <p>(1) Leakage current (μA) - 8 100%</p> <p>(2) Increase in voltmeter reading - 100% 100%</p>
Recommended method:- K1001/5A.3.2. Resistor = 10 megohms							
g	4	4	2	ditto	2	Any convenient value	<p><u>DEFLECTION SENSITIVITIES</u></p> <p>(1) X plate (mm/V) 0.16 0.20 5% (10)</p> <p>(2) Y plate (mm/V) 0.21 0.27 5% (10)</p>
h	4	4	2	ditto	2	ditto	Deviation of spot from centre of screen (mm) - 6 100%

Test Conditions							Test	Limits		No. Tested	Note
								Min.	Max.		
j	Vh (V)	Va4 (KV)	Va3 (KV)	Va2 (V)	Va1 (KV)	Vg (V)	<u>USEFUL SCREEN AREA</u> Deflections to cover stated rectangle. Deviation of centre of boundary lines of raster from a true rectangle. (mm)	-	+2	100%	5%
	4	4	2	Any convenient value	2	Any convenient value					
Measurement to be made on a raster of 50 mm x 55 mm in the X and Y directions successively.											
k	4	4	2	ditto	2	ditto	(1)Orientation of X-axis of deflection relative to 00' on drawing.	80°	100°	100%	
							(2)Orientation of the diameter through the centre of the snap terminal relative to 00'.	80°	100°	100%	
l	4	4	2	ditto	2	ditto	Angle between X and Y axis of deflection	88°	92°	100%	

CV1524/5/3



SEE NOTE 3



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 X₁, SHALL DEFLECT THE SPOT TO THE LEFT, AND A POSITIVE VOLTAGE APPLIED TO TERMINAL Y₁, 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.