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

VALVE ELECTRONIC **CV1521**

SPECIFICATION MOSA/CV.1521	SECURITY	
	SPECIFICATION	VALVE
ISSUE NO. 4 DATED 1.10.57.		
To be read in conjunction with K1001, BS.448, BS.1409.	Unclassified	Unclassified

→ Indicates a change

TYPE OF VALVE:-	Cathode Ray Tube
TYPE OF DEFLECTION:-	Electrostatic. Suitable for both symmetrical and asymmetrical deflection.
BULB:-	Internally coated with conductive coating.
SCREEN:-	BYL.46 (BY8)
PROTOTYPE:-	VCR.521.

MARKING

See K1001/4 ←

BASE

BS.448/B12D. ←

RATINGS
(All limiting values are absolute)

			NOTES
Heater Voltage	(V)	4.0	
Heater Current	(A)	1.1	
Maximum Final Anode Voltage	(kV)	5.0	
Maximum First Anode Voltage	(kV)	2.0	
"x" Plate Sensitivity	(mm/V)	357 / Va3	
"y" Plate Sensitivity	(mm/V)	780 / Va3	

TYPICAL OPERATING CONDITIONS

Final Anode Voltage	(kV)	4.0
Second Anode Voltage	(V)	700
First Anode Voltage	(kV)	1.8
Beam Current	(μA)	50

CONNECTIONS

Pin	Electrode
1	g
2	k
3	h
4	h
5	a1
6	a2
7	Internal Conductive Coating (Note B)
8	y2
9	x2
10	a3
11	x1
12	y1

DIMENSIONS

See drawing on page 4

NOTES

A. The tube shall be adequately free from microphony.

B. 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 the contact marked "Internal Conductive Coating". ←

To be performed in addition to those applicable in K1001.

	Test Conditions					Test	Limits Min.	Limits Max.	No. Tested
a	See K1001/5A.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	See K1001/5A.3.3 Test Voltage = 100 V.					Ihk (μA)	-	50	100%
	Vh (V)	Va3 (kV)	Va2 (V)	Va1 (kV)	Vg (V)				
	Deflection voltages shall be applied asymmetrically in all cases.								
c	4.0	0	0	0	0	Ih (A)	0.8	1.3	100%
d	4.0	4.0	Adjust for optimum focus	1.8	Adjust to cut off	-Vg (V)	-	72	100%
e	4.0	4.0	Adjust for optimum focus.	1.8	-	(1) Vg (V) (2) Change in value of Vg from test (d).	-1 -	- 35	100% 100%
	Adjust Vg to give a light output of 0.04 candelas when viewed through a C2 filter (10AB/474) on a closed raster.								
f	4.0	4.0	Adjust for optimum focus.	1.8	-	(1) Line width. (mm) (2) Va2 (V)	- 430	0.9 900	100%
	Deflection With a 10 Kc/s line of length 70 mm in the x and y directions successively. The line width to be measured at the centres. Grid The grid to 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 frequency being 100 μsecs. and 100 c/s respectively.								

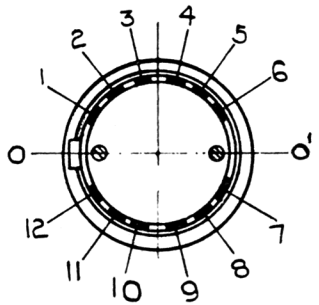
TESTS (contd.)

CV1521

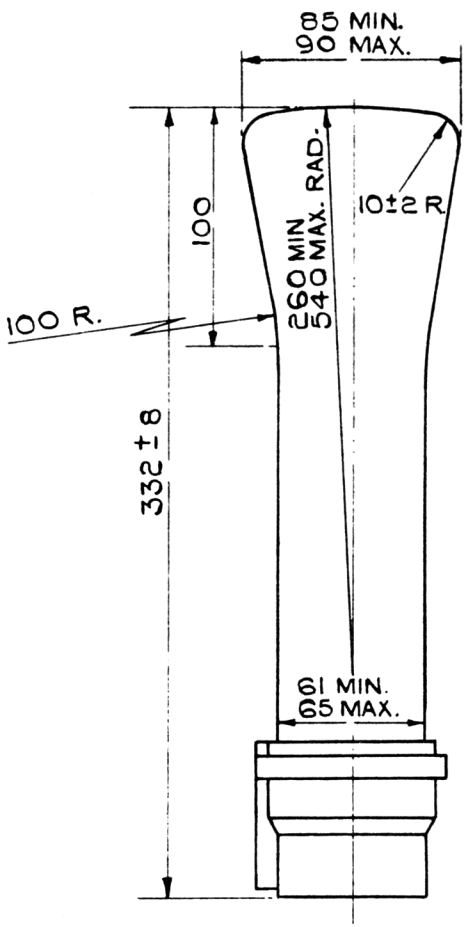
	Test Conditions					Test	Limits Min.	Limits Max.	No. Tested
	Vh (V)	Va3 (kV)	Va2 (V)	Va1 (kV)	Vg (V)				
g	4.0	4.0	Any convenient value	1.8	-72	GRID INSULATION (1) Leakage Current (μA) (2) Increase in voltmeter reading	- -	7.2 100%	100%
	For recommended method See K1001/5A.3.2 Resistor = 10MΩ.								
h	4.0	4.0	Adjust for optimum focus	1.8	Any convenient value	DEFLECTION SENSITIVITIES (1) x plate (mm/V) (2) y plate (mm/V)	$\frac{300}{Va3}$ $\frac{660}{Va3}$	$\frac{415}{Va3}$ $\frac{900}{Va3}$	10% (10) 10% (10)
j	4.0	4.0	Adjust for optimum focus	1.8	Any convenient value	Deviation of spot from centre of screen (mm)	-	6	100%
k	4.0	4.0	Adjust for optimum focus	1.8	Any convenient value	USEFUL SCREEN AREA Diameter (mm)	70	-	100
	Deflections to cover stated circle centred on centre of screen.								
l	4.0	4.0	Adjust for optimum focus	1.8	Any convenient value	TRAPEZOIDAL DISTORTION (1) Angles between adjacent sides (2) Angles between opposite sides	85° 175°	95° 185°	100% 100%
	A screen area of at least 70mm x 45mm to be scanned.								
m	4.0	4.0	Adjust for optimum focus	1.8	Any convenient value	(1) Orientation of x axis of deflection relative to OO' on drawing. (2) Angle between x and y axes of deflection	80° 88°	100° 92°	1100% 100%
n	4.0	4.0	Adjust for optimum focus	1.8	-	Afterglow. (secs) Time taken for brightness to decay to 0.55% of initial value. See Note 1.	8		
	Adjust Vg2 to give a raster brightness of ~~2~~ 8 Foot Lamberts when viewed through a C2 filter.								

NOTES

1. This test may be performed using Test Set Type 331 A.M. Reference 10S/696 fitted with an N4 filter. The specified limit applies.



VIEW OF UNDERSIDE OF BASE



ALL DIMENSIONS IN MILLIMETRES

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.

Amendment No. 1

to Specification CV1521, Issue 4, dated 1.10.57

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Test Conditions

Test Clause "n"

Amend raster brightness 2.38 foot Lamberts
to read 1.75 foot Lamberts.

December, 1957.

T.V.C.
for R.A.E.

N.5926;