

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.

N.5926;

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

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

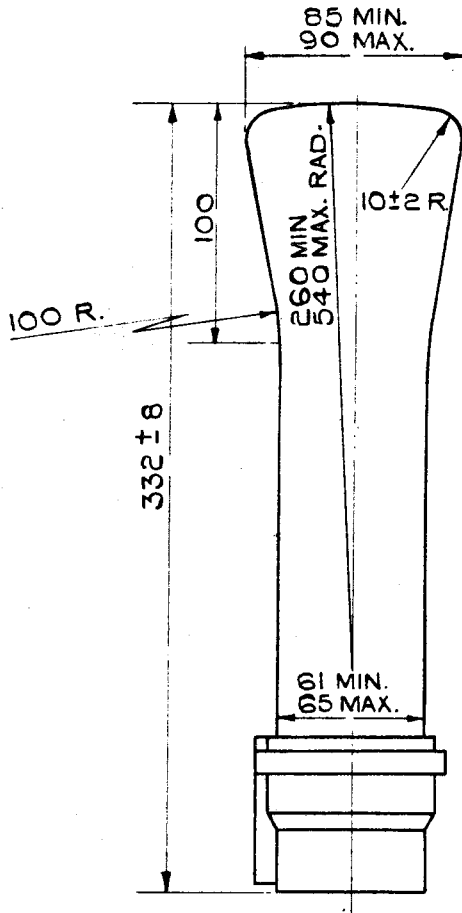
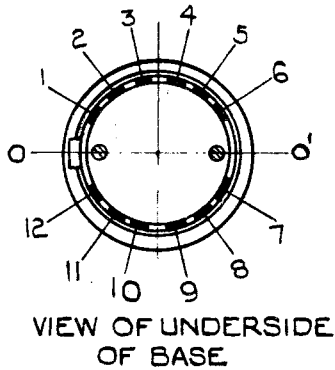
—————→ Indicates a change

TYPE OF VALVE:- Cathode Ray Tube		<u>MARKING</u>	
TYPE OF DEFLECTION:- Electrostatic. Suitable for both symmetrical and asymmetrical deflection.		See K1001/4	
BULB:- Internally coated with conductive coating.		<u>BASE</u>	
SCREEN:- BYL.46 (BY8)		BS.448/B12D.	
PROTOTYPE:- VCR.521.			
<u>RATINGS</u> (All limiting values are absolute)		<u>CONNECTIONS</u>	
		<u>NOTES</u>	<u>Pin</u>
			<u>Electrode</u>
Heater Voltage (V)	4.0		1 g
Heater Current (A)	1.1		2 k
Maximum Final Anode Voltage (kV)	5.0		3 h
Maximum First Anode Voltage (kV)	2.0		4 h
"x" Plate Sensitivity (mm/V)	257 Va3		5 a1
			6 a2
"y" Plate Sensitivity (mm/V)	780 Va3		7 Internal Conductive Coating (Note B)
			8 y2
			9 x2
			10 a3
			11 x1
			12 y1
<u>TYPICAL OPERATING CONDITIONS</u>		<u>DIMENSIONS</u>	
Final Anode Voltage (kV)	4.0	See drawing on page 4	
Second Anode Voltage (V)	700		
First Anode Voltage (kV)	1.8		
Beam Current (μA)	50		
<u>NOTES</u>			
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		No. Tested	
						Min.	Max.		
a See K1001/5A.13					<u>CAPACITANCES (pF)</u> (1) Each x or y plate to all other electrodes. (2) Grid to all other electrodes. (3) One x to one y plate.	-	25	5% (10)	
						-	25		
						-	6		
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 (10A8/474) 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%
<u>Deflection</u> 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. <u>Grid</u> 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.									

Test Conditions						Test	Limits		No. Tested	
							Min.	Max.		
g	Vh (V)	Va3 (kV)	Va2 (V)	Va1 (kV)	Vg (V)	<u>GRID INSULATION</u> (1) Leakage Current (μA) (2) Increase in volt-meter reading	-	7.2	100%	
	4.0	4.0	Any convenient value	1.8	-72					
For recommended method See K1001/5A.3.2 Resistor = 10M Ω .										
h	4.0	4.0	Adjust for optimum focus	1.8	Any convenient value	<u>DEFLECTION SENSITIVITIES</u> (1) x plate (mm/V) (2) y plate (mm/V)	-	$\frac{300}{V_{a3}}$ $\frac{560}{V_{a3}}$	$\frac{415}{V_{a3}}$ $\frac{900}{V_{a3}}$	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	<u>USEFUL SCREEN AREA</u> 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	<u>TRAPEZOIDAL DISTORTION</u> (1) Angles between adjacent sides (2) Angles between opposite sides	85°	95°	100%	
									175°	185°
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°	100°	1100%	
									88°	92°
n	4.0	4.0	Adjust for optimum focus	1.8	-	Afterglow. (secs) Time taken for brightness to decay to 0.5% of initial value.	8			
Adjust Vg to give a raster brightness of 2.38 Foot Lamberts when viewed through a C2 filter.										
<u>NOTES</u>										
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.										



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