CV1514

MINISTRY OF AIRCRAFT PRODUCTION (DCD)

CATHODE RAY TUBE TYPE

VCR514

Specification MAP/CV1514/Issue 3 Dated 20.7.45. To be read in conjunction with K.1003.	SECURITY Specification: RESTRICTED Tube: RESTRICTED

TYPE OF DEFLECTION - Electrostatic, suitable for symmetrical operation.

BULB - Internally coated with conductive coating.

SCREEN - G(M)1/28/35

MARKING

VCR514

CV1514

RATING		NOTE
Heater Voltage (V)	4.0	
Heater Current (A)	1.0	
Maximum Final Anode (kV)	2.5	
X - plate sensitivity (mm/v)	$\frac{380}{Va_3}$	
Y - plate sensitivity (mm/v)	$\frac{580}{Va_3}$	
Maximum peak beam current (/uA)	500	
TYPICAL OPERATING CONDITIONS		
Final Anode Voltage (kV)	1.6	
Second Anode Voltage (V)	210	
First Anode Voltage (V)	500	

BASE

12 contact key base.

CONNECTIONS

Pin	Electrode
1	G
2	C
3	H
4	H
5	A_1
6	A_2
7	Internal Conductive Coating (See Note E)
8	Y_2
9	X_2
10	A_3
11	X_1
12	Y_1

NOTES

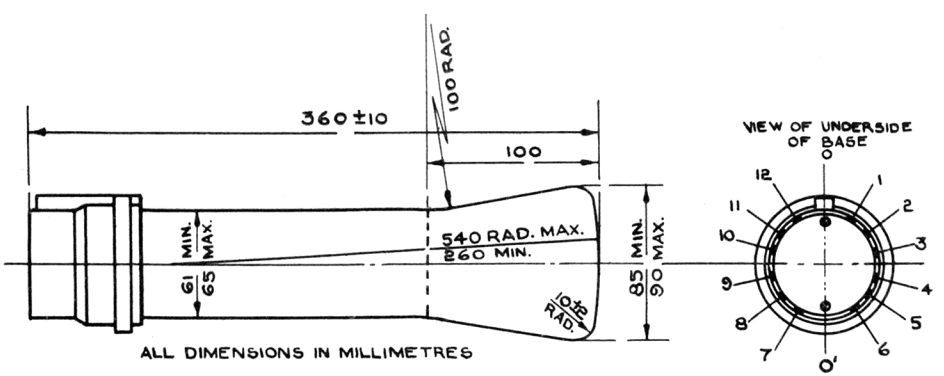
A - No objectionable fluorescence shall be produced at the screen or glass by ultra-violet light of the wavelength transmitted by nickel oxide glass.

B - The tube shall be adequately free from microphony.

C - 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.

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

E - 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".



→ Indicates a change.

To be performed in addition to those applicable in K.1003.

Clause	Test Conditions					Test	Limits		No. Tested
	V_h	V_{a_3} (kV)	V_{a_2}	V_{a_1} (kV)	V_g		Min.	Max.	
(a)						INTER-ELECTRODE CAPACITANCES (pF)			
						1. Each X or Y-plate to all other electrodes	-	20	5%(10)
						2. Grid to all other electrodes	-	25	5%(10)
						3. One X to one Y-plate	-	15	5%(10)
(b)	4.0	0	0	0	0	I_h (A)	0.8	1.3	100%
(c)	4.0	2.0	Adjust for optimum focus	0.8	Adjust	1. Line Width (mm)	-	3	100%
	Adjust Vg to give I_b = 500 uA on a line of length 64 mm in the X and Y directions successively.					2. V_{a_2} (V)	150	400	100%
(d)	4.0	2.0	ditto	0.8	ditto	V_g (V)	To be at least IV (-)ve to cathode.		100%
	Adjust Vg to give a light out-put of 0.5 candles on a closed raster.								
(e)	4.0	2.0	ditto	0.8	Adjust to cut off	1. Vg (V)	-	-150	100%
						2. Change in value of Vg from test (d) (V)	-	70	100%
(f)	4.0	2.0	Any convenient value	0.8	-150	GRID INSULATION			
						1. Leakage Current (uA)	-	15	100%
						2. Increase in voltmeter reading	-	100%	100%
	Recommended method:- See K1003/5.4.2 Resistor = 10 megohms								
(g)	4.0	2.0	Adjust for optimum focus	0.8	Any convenient value	DEFLECTION SENSITIVITIES			
						1. X-plate (mm/V)	$340/V_{a3}$	$420/V_{a3}$	10%(10)
						2. Y-plate (mm/V)	$520/V_{a3}$	$640/V_{a3}$	10%(10)
						3. Ratio of X to Y-plate sensitivities	1.31	1.78	100%
(h)	4.0	2.0	ditto	0.8	ditto	Deviation of spot from centre of screen (mm)	-	6	100%
(j)	4.0	2.0	ditto	0.8	ditto	USEFUL SCREEN AREA			
	Deflections to cover stated circle centred on centre of screen					Diameter (mm)	64	-	100%
(k)	4.0	2.0	ditto	0.8	ditto	1. Orientation of X axis of deflection relative to 00' on drg.	80°	100°	100%
						2. Angle between X and Y axes of deflection.	85°	95°	100%
(l)	4.0	2.0	ditto	0.8	ditto	The brightness of the trace shall increase continuously when Vg is reduced from cut-off to the value found in test (d)	-	-	100%