MINISTRY OF AIRCRAFT PRODUCTION (DCD)

CATHODE RAY TUBE TYPE ~~CV1517~~ VCR517 &A-E

Specification MAP/CV1517; CV1591; CV1592; CV1593; CV1594; CV1595/Issue 4 Dated 15.6.45 To be read in conjunction with K.1003	SECURITY Specification: RESTRICTED Tube: RESTRICTED

TYPE OF DEFLECTION - Electrostatic, suitable for either symmetrical or asymmetrical operation.

TYPE OF FOCUS - - Electrostatic

BULB - Internally coated with conductive coating

SCREEN - Afterglow. VCR517 - BYM44 or YYM5
VCR517A - YYM5
VCR517B - YYM36
VCR517C - GGM7
VCR517D - GGM27
VCR517E - YYM31

MARKING

VCR517 10CV/1517	VCR517A 10CV/1591	VCR517B 10CV/1592
VCR517C 10CV/1593	VCR517D 10CV/1594	VCR517E 10CV/1595

RATING		Note
Heater Voltage (Volts)	4.0	
Heater Current (amps)	1.0	
Maximum Final Anode Voltage (kV)	6.0	A
Maximum First Anode Voltage (kV)	2.0	
'X' Plate Sensitivity (mm/v)	$\frac{720}{Va_3}$	
'Y' Plate Sensitivity (mm/v)	$\frac{880}{Va_3}$	
TYPICAL OPERATING CONDITIONS		
Final Anode Voltage (kV)	3.0	
Second Anode Voltage (v)	525	
First Anode Voltage (kV)	2.0	

BASE

12 contact key base

CONNECTIONS

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

NOTES

A :- This rating applies only at normal atmospheric pressure

B :- The tube shall be adequately free from microphony

C :- The neck diameter may be reduced provided that rubber rings or other approved packing is supplied with the tube to bring the overall diameter within the stated tolerance.

D :- 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.

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

——► Indicates a change

VCR517&A-E

TESTS

To be performed in addition to those applicable in K1003

Clause	Test Conditions Vh	Va (kV)	Va_2	Va_3 (kV)	Vg	Test	Limits Min.	Limits Max.	No. Tested
(a)						INTER ELECTRODE CAPACITANCE			
						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 to one Y - plate	-	5	5% (10)
(b)	4.0	0	0	0	0	Ih(A)	0.7	1.3	100%
(c)	4.0	3.0	Adjusted	2.0	Adjusted	1. Line Width	Not greater than standard tube		100%
	Adjust Va_2 for optimum focus and Vg to give a spot brilliance equal to that of a standard tube, on a line of length 130 mm in the X and Y directions successively.					2. Va_2(V)	375	675	100%
(d)	4.0	3.0	Adjust for optimum focus	2.0	Adjust	Vg(V)	To be at least 1V (-)Ve to cathode		100%
	Vg adjusted to give a light output of 0.032 candles on a closed raster.								
(e)	4.0	3.0	ditto	2.0	Adjust to cut off.	1. Vg(V)	-	-80	100%
						2. Change in value of Vg from test (d)	-	40	100%
(f)	4.0	3.0	Any convenient value	2.0	-80	GRID INSULATION			
	Recommended method:- K1003/5.4.2.		Resistor = 5 megohms			1. Leakage Current (uA)	-	16	100%
						2. Increase in voltmeter reading	-	100%	100%
(g)	4.0	3.0	Adjusted for optimum focus	2.0	Any convenient value	DEFLECTION SENSITIVITIES			
						1. X plate (mm/V)	650/Va_3	790/Va_3	10% (10)
						2. Y plate (mm/V)	790/Va_3	970/Va_3	10% (10)
(h)	4.0	3.0	ditto	2.0	ditto	Deviation of spot from centre of screen (mm)	-	10	100%
(j)	4.0	3.0	ditto	2.0	ditto	USEFUL SCREEN AREA			
	Deflections to cover stated circle centred on centre of screen.					Diameter (mm)	130	-	100%
(k)	4.0	3.0	ditto	2.0	ditto	TRAPEZOIDAL DISTORTIONS			
	A screen area of at least 80 mm X 80 mm to be scanned with asymmetrical deflection.					1. Angles between adjacent sides.	85°	95°	100%
						2. Angles between opposite sides	175°	185°	100%
(l)	4.0	3.0	ditto	2.0	ditto	1. Orientation of X axis of deflection relative to 0.0' on drg.	80°	100°	100%
						2. Angle between X & Y axes of deflection	85°	95°	100%
(m)	4.0	3.0	Unfocussed	2.0	ditto	The screen shall not be worse for graininess and non-uniformity than a standard tube or pattern.			100%
(n)	4.0	3.0	Adjusted for optimum focus	2.0	ditto	The afterglow characteristic shall be satisfactory when examined by an approved method.			100%

TESTS (Contd)

VCR517 &A-E

Clause	Test Conditions					Test	Limits		No. Tested
	Vh	Va (kV)	Va_2	Va_1 (kV)	Vg		Min.	Max.	
(p)	4.0	3.0	ditto	2.0	ditto	Spectral Distribution Ratio:- Light Output " " Thro' C2 filter	-	3	100% (Note 1)
	Vg and raster size adjusted to give a brightness of 8±2½% EFC								

Note 1:- It will normally be satisfactory to make a visual examination of the colour of the screen and to apply test (p) only in cases of doubt.