

MINISTRY OF AIRCRAFT PRODUCTION
DIRECTORATE OF COMMUNICATIONS DEVELOPMENT.

VCR515.
CATHODE RAY TUBE
REF. NO. 10E/13026

Test Spec. No.	Date	Associated Drawings	Issued with:-
D.C.D., W.T. 1353 Issue No. 2.	17. 9. 42.		D.C.D., W.T. 1400 ←

<u>TYPE OF DEFLECTION:</u> Electrostatic <u>BULB:</u> Internally coated with conductive coating <u>SCREEN:</u> Blue or Green <u>COMMERCIAL PROTOTYPE:</u> M.X.1. of E.M.I.Ltd.		<u>MARKING</u> VCR. 515 10E/13026
<u>RATING</u> Filament Voltage (volts) 4.0 Filament Current (amps) 1.05 Maximum Second Anode Voltage (kV) 1.2 Desirable Spot Size (mm) 1.0 "X" Plate Sensitivity (mm/V) 480/Va2 "Y" Plate Sensitivity (mm/V) 400/Va2 <u>Typical Operating Conditions</u> Second Anode Voltage (kV) 1.2 First Anode Voltage (volts) 215	Noted.	<u>BASE</u> Type D. See Drg. No. W.T. 27468 of D.C.D., W.T. 1400 ← <u>DIMENSIONS AND BASE CONNECTIONS</u> See Page 4. ←
<u>CAPACITANCES $\mu\mu\text{F}$</u> Each "X" plate to all other electrodes 9.0 Each "Y" plate to all other electrodes 5.5 Grid to all other electrodes 9.5 One "X" plate to one "Y" plate 0.005		
<u>NOTES</u>		

TESTS.

CATHODE RAY TUBE

VCR515.

To be performed in addition to those applicable in D.C.D., W.T. 1400

Clause	Test Conditions				Test	Limits		No. Tested.
	Vh	Va2	Va1	Vg		Min.	Max.	
a.					<u>Direct inter-electrode capacitances (pF)</u> 1. Each X plate to all other electrodes 2. Each Y plate to all other electrodes 3. Grid to all other electrodes 4. One X plate to one Y plate.	-	15	5%(5)
b.	Cathode 50 volts positive to heater				Heater-cathode current (microamps)	-	200	100%
c.	4.0	0	0	0	Heater-current (amps)	0.8	1.3	100%
d.	4.0	1200	adjusted	adjusted	1. The line width shall not be greater than that of standard tube 2. Focusing voltage Va1 (volts)	180	250	100%
	Adjust Va1 for optimum focus and Vg to give spot brilliance equal to that of standard tube on a line of length 70 mm in the X and Y directions successively.							
e.	4.0	1200	adjusted	adjusted	Grid Voltage Vg	Shall not be positive with respect to cathode, value to be noted.		100%
	Adjust Va1 for optimum focus and Vg to give spot brilliance equal to that of standard tube. Deflection voltages to give raster of 60 mm by 60 mm, 50 cycles in one direction, and in the other, number of lines such that they cannot be resolved.							
f.	4.0	1200	as in test (d)	adjusted to give cut-off	1. Grid voltage Vg (volts) 2. Increase in negative value of Vg compared with value noted in test (e)	-25	-60	100%
	Raster as in test (e)					-	40	100%
g.	4.0	1200	as in test (d)	Within working range	<u>Grid Insulation Leakage current (microamps)</u> Increase in voltmeter reading.	-	40	100%
	Recommended method:- See Clause 4.4.2 of D.C.D., W.T. 1400 Insert 1 megohm.					-	100%	

Clause	Test Conditions				Test	Limits		No. Tested
	Vh	Va2	Va1	Vg		Min.	Max.	
→ h.	4.0	1200	as in test (d)	Any convenient value	1. X deflection plate sensitivity (mm per volt) 2. Y deflection plate sensitivity (mm per volt)	$\frac{4.10}{Va2}$ $\frac{3.40}{Va2}$	$\frac{550}{Va2}$ $\frac{4.60}{Va2}$	10% (10) 10% (10)
→ j.	4.0	1200	as in test (a)	any convenient value	Deviation of spot from centre of screen (mm)	-	12	100%
→ k.	4.0	1200	as in test (d)	any convenient value	Useful screen area Diameter (mm)	70	-	100%
→ l.	4.0	1200	as in test (d)	any convenient value	Orientation of axes of deflection Y axis	-10°	+10°	
	Angle measured relative to axis 0 - 0' shown in Drg. No. W.T.27840							
→ m.	4.0	1200	as in test (d)	any convenient value	Angle between X axis and Y axis	88°	92°	100%
→ n.	4.0	1500	See clause 4.13 of D.C.D., W.T.1400		Over Voltage Test			100%

