CV.1399

CATHODE RAY TUBE

MINISTRY OF SUPPLY (ACR23A)

Specification MOS/CV1399/Issue 2 Dated 1.6.46. To be read in conjunction with K1003.	SECURITY Specification Restricted	C.R.T. Restricted

→ Indicates a change

TYPE OF DEFLECTION:- Electrostatic. Suitable for symmetrical operation. BULB:- Internally coated with conductive coating. SCREEN:- Afterglow. BYL46.	MARKING See K1001/4

RATING			Note	BASE
				12 contact key base
Heater Voltage	(V)	4.0		
Heater Current	(A)	1.0		
Max. Final Anode Voltage	(kV)	4.0		DIMENSIONS AND CONNECTIONS
Desirable Spot Size	(mm)	1.0		
X plate sensitivity	(mm/V)	$\frac{1000}{V_{A3}}$		
Y plate sensitivity	(mm/V)	$\frac{1000}{V_{A3}}$		See drawing on Page 4.
TYPICAL OPERATING CONDITIONS				
Final Anode Voltage	(kV)	2.0		
Second Anode Voltage	(V)	400		
Beam Current	(μA)	5		

NOTE

A:- A magnetic shield shall be supplied fitted to the tube and be such as to provide adequate screening from external magnetic fields.

B:- 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 right, and a positive voltage applied to the terminal Y_1 shall deflect the spot downwards.

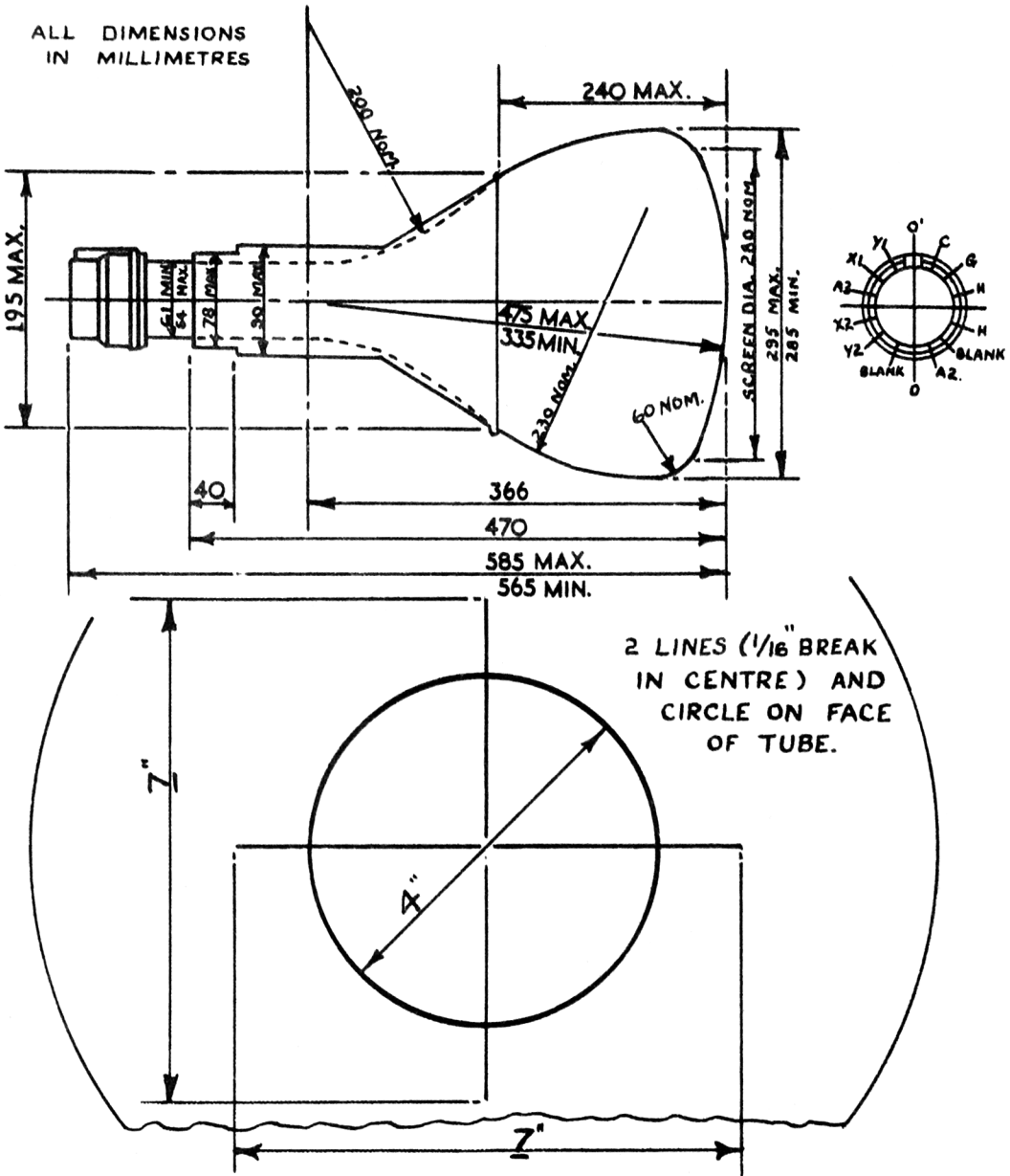
C:- CV1399 (ACR23A) and CV1398 (ACR23) differ only in that the former has the screen markings shown in drawing on page 4. ←

TESTS

To be performed in addition to those applicable in K1003.

Clause	Test Conditions V_h	V_{a3} (kV)	V_{a2}	V_g	Tests	Limits Min.	Limits Max.	No. Tested
(a)					Capacitances (pf)			
					1. Each X or Y plate to all other electrodes	-	20	Type Approval Test only
					2. Grid to all other electrodes	-	20	
					3. One X to one Y plate	-	5	
(b)	4.0	0	0	0	I_h (A)	.75	1.2	100%
(c)	4.0	2.0	-	-	1. The line width shall not be greater than that of standard tube			100%
	Adjust V_{a2} for optimum focus and V_g to give a spot brilliance equal to that of standard tube on a line of length 200 mm. in the X and 200 mm. in the Y direction successively.				2. V_{a2} (kV)	.3	.6	
					3. V_g (V)	To be at least 1v negative to cathode		
(d)	4.0	2.0	As in (c)	Adjusted to give cut-off	1. V_g (V)	-13	-31	100%
					2. Increase in negative value of V_g compared with value noted in (c) 3	-	10	
(e)	4.0	2.0	As in (c)	-31	Grid Insulation Leakage current (μA)		6.2	100%
	Recommended method:- See K1003. Clause 5.4.2. Insert resistor = 5 megohms				Increase in voltmeter reading	-	100%	
(f)	4.0	2.0	As in (c)	Any convenient value	Deflection Sensitivities	$\frac{800}{V_{a3}}$	$\frac{1250}{V_{a3}}$	10% (10)
					1. X plate (mm/V)			
					2. Y plate (mm/V)	$\frac{300}{V_{a3}}$	$\frac{1250}{V_{a3}}$	
(g)	4.0	2.0	As in (c)	Any convenient value	Deviation of spot from centre of screen. (mm)	-	15	100%

(h)	4.0	2.0	As in (c)	Any convenient value	Useful Screen Area Radius (mm)	105		100%
	Deflections to cover the stated circle centred on centre of screen							
(j)	4.0	2.0	As in (c)	Any convenient value	Orientation of Y axis of deflection		$\pm 10^{o}$	100%
	Angle measured relative to axis OO' on drawing							
(k)	4.0	2.0	As in (c)	Any convenient value	Angle between X and Y axis	88^{o}	92^{o}	10%
(l)	4.0	2.0	As in (c)	As in (c)	The screen shall not be worse for graininess, non-uniformity and afterglow than the corresponding standard tube			100%
	Test to be done by an approved method							
(m)	4.0	4.0	See Clause 5.14 of K1003		Over Voltage Test			100%
(n)	4.0	2.0	As in (c)	Adjusted to give normal brightness raster	Life Tests Life (hrs)	1000	-	1%
	Deflection to cover a raster of area 210 x 210 mm.							



LINES NOT MORE THAN 1/50" WIDE, DRAWN IN BLACK ENAMEL (SUPERIOR BERLIN BLACK FROM CHARLES TURNER & SONS, BLOOMSBURY HOUSE, HIGH HOLBORN) - WHOLE FACE OF TUBE SPRAYED AFTER MARKING WITH CLEAR VARNISH, MAKERS REF. K371 158 1 S.O. D4 2427 FROM JENSON & NICHOLSON LTD. STRATFORD, E.15. - THE CROSS LINES CORRESPOND TO THE ELECTRICAL AXES OF THE TUBE, (& ARE THEREFORE NOT NECESSARILY ACCURATELY AT 90° TO EACH OTHER), THE POINT OF INTERSECTION & THE CENTRE OF THE CIRCLE TO ITS ELECTRICAL CENTRE.