VALVE ELECTRONIC **CV989**

ADMIRALTY SIGNAL ESTABLISHMENT

Specification AD/CV989/Issue 2 Dated 8.1.46. To be read in conjunction with K1003.	SECURITY Specification Restricted	Valve Restricted

TYPE OF DEFLECTION:-	Electrostatic, suitable for symmetrical operation.
BULB:-	Internally coated with conductive coating (See Note B).
SCREEN:-	GGN1; to give a green trace.
PROTOTYPE:-	CV1131 (VCR131); see Note C.

MARKING

See K1003/7.

PACKAGING SEE K1003

RATING

			Note
Heater Voltage	(V)	4.0	
Heater Current	(A)	1.0	
Max. Final Anode Voltage	(kV)	5.0	
"X" deflection sensitivity	(mm/V)	$\frac{1025}{Va3}$	
"Y" deflection sensitivity	(mm/V)	$\frac{900}{Va3}$	
Desirable spot size	(mm)	0.75	
Typical Operating Conditions :-			
Final Anode Voltage	(kV)	4.0	
Second Anode Voltage	(V)	800	
Grid Voltage	(V)	-18	
Cut-off Voltage	(V)	-33	
Beam Current	(μA)	20	

BASE

12 side-contact type.

DIMENSIONS AND BASE CONNECTIONS

See Page 3.

NOTES

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

B. The distance between the face of the tube and the edge of the coating must be within limits as specified on drawing (page 3).

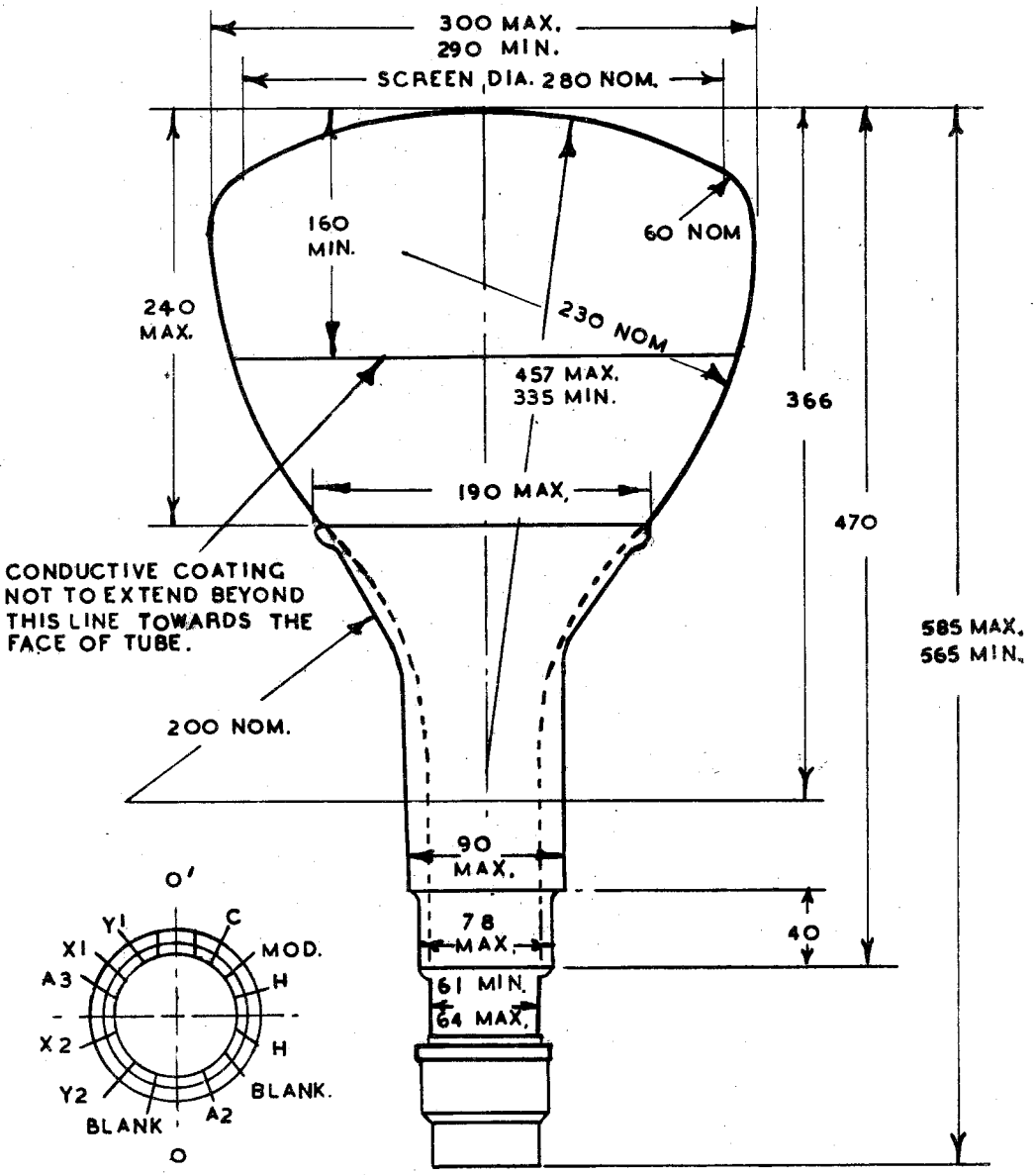
C. The tube is electrically identical to the CV1131 (VCR131); it differs only in respect of the screen calibrations (see page 4).

TESTS

To be performed in addition to those applicable in K1003.

	Test Conditions				Test	Limits		No.
	Vh	Va3(kV)	Va2	Vg		Min.	Max.	Tested
a	See K1003, Clause 5.12.				Capacitances			
					1. Each X or Y plate to all other electrodes.	-	20	5%
					2. Grid to all other electrodes.	-	20	(10)
					3. One X to one Y plate.	-	5	
b	4.0	0	0	0	Ih (A)	0.75	1.2	100%
c	4.0	4.0	-	-	1. Line width shall not exceed that of a standard tube.	-	-	
	Adjust Va2 for optimum focus and Vg to give a spot brilliance equal to that of a standard tube on a scan length of 200 mm in the X direction and 100 mm in the Y direction successively.				2. Va2 (V)	600	1200	100%
					3. Vg (V)	To be at least 3 V negative to Cathode		
d	4.0	4.0	As in (c)	Adjusted to give cut off.	1. Vg	-23	-60	
					2. Increase in negative Vg compared with value found in (c) 3.	-	25	100%
e	4.0	4.0	As in (c)	Any convenient value.	1. Grid leakage current (uA)	-	6.0	
	Recommended method; See K1003, Clause 5.4.2. Insert resistor = 10 megohms.				2. Increase in voltmeter reading.	-	100%	100%
f	4.0	4.0	As in (c)	Any convenient value.	Deflection Sensitivities			
					1. X plate (mm/V)	$\frac{800}{Va3}$	$\frac{1250}{Va3}$	100%
					2. Y plate (mm/V)	$\frac{550}{Va3}$	$\frac{1250}{Va3}$	
g	4.0	4.0	As in (c)	Any convenient value.	Deviation of spot from centre of screen (mm)	-	10	100%
h	4.0	4.0	As in (c)	Any convenient value.	Useful screen area			
					1. X deflection (mm)	+ 105	-	100%
					2. Y deflection (mm)	∓ 50	-	
j	4.0	4.0	As in (c)	Any convenient value	Orientation of axis of deflection			
	Angle measured relative to axis 00' on drawing on page 5.				1. Y axis	-	±10°	100%
k	4.0	4.0	As in (c)	Any convenient value.	Angle between X and Y axes.	88°	92°	100%
l	4.0	4.0	As in (c)	-	Life Test			
	Normal beam current and continuous spot movement over a raster 210 mm x 100 mm.				Life (hrs).	1000		1%

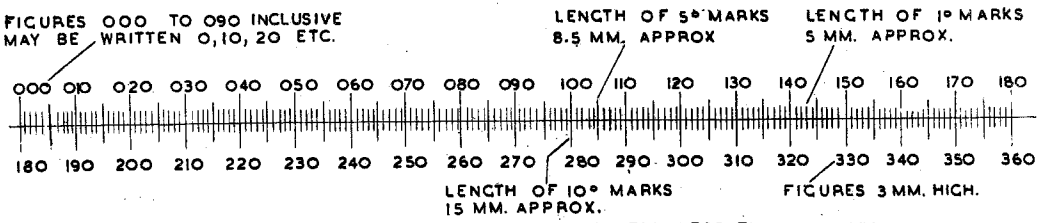
CV989.



NOTES. 1. VIEWING THE SCREEN OF THE TUBE WITH BASE SPIGOT UPPERMOST, A POSITIVE VOLTAGE APPLIED TO THE TERMINAL X1 SHALL DEFLECT THE SPOT TO THE RIGHT, AND A POSITIVE VOLTAGE APPLIED TO THE TERMINAL Y1 SHALL DEFLECT THE SPOT DOWNWARDS.

2 ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.

SCREEN CALIBRATIONS AND TOLERANCES.



ALL DEGREE MARKS TO BE OF UNIFORM THICKNESS LESS THAN 0.25 MM.

The screen scale (see above) shall be applied photographically by coating the face of the tube with photo-sensitive emulsion and projecting the scale from a slide through a suitable optical system. After processing, the face of the tube is to be given a protective coating of transparent varnish suitable for tropical conditions.

The calibration of the scale shall be within the tolerances as specified below :-

(1) The horizontal base line of the scale must be parallel to a trace drawn on the face of the tube by an alternating potential between the X deflector plates, the Y deflector plates being connected together, within the limitations imposed by the effect of the earth's magnetic field.

(2) The centre of the scale, i.e. the intersection of the 90° - 270° division with the scale base line, shall coincide with the mean geometrical centre of the face end of the cathode-ray-tube, both in a horizontal and vertical direction, within $\pm$ 2 mm.

(3) The overall length of the scale, measured along the end surface of the cathode-ray-tube shall be 210 mm. $\pm$ 1 mm.

(4) If an accurate linearly divided scale of the same overall length as the scale imprinted on the face of the cathode-ray-tube be applied over the imprinted scale, so that the end divisions of the two scales coincide exactly, then any degree mark on the imprinted scale shall coincide with the corresponding degree mark in the applied scale to within one half of one scale degree.

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