ADMIRALTY SIGNAL ESTABLISHMENT

VALVE ELECTRONIC **CV959** (NC10)

Specification AD/CV959/Issue 2. Dated 1.2.46. To be read in conjunction with K1003.	SECURITY	
	Specification	Valve
	Restricted	Restricted

TYPE OF DEFLECTION:- Electrostatic.
TYPE OF FOCUS:- Electrostatic.
BULB:- Internally coated with conductive coating.
SCREEN:- WWN23 or YYN2 (See Note A).
PROTOTYPE:- 3220K.

MARKING

See K1003/7.

RATING		Note
Heater Voltage (V)	4.0	B
Heater current (Approx) (A)	1.1	
Max. Va1 (kV)	3.0	
Max. Va2 (focus) (V)	700	
Max. Va3 (kV)	3.0	
Modulator voltage (Vg) (V)	-30	
X-plate sensitivity (mm/V)	600/Va3	
Y-plate sensitivity (mm/V)	675/Va3	

BASE AND CONNECTIONS

6-clip base.

Pin	Electrode
1	Cathode
2	Modulator
3	Heater
4	Heater
5	Anode 2
6	Anode 1

TOP CAP AND DIMENSIONS

See drawings; page 5.

NOTES

A. The construction of the screen shall be such that, when it bears two superimposed traces with any recurrence frequency up to 3,000 per second, the building up of electric charges on the screen shall not cause any appreciable distortion of one trace by another.

B. The first accelerating anode may be omitted, if desired.

TESTS

To be performed in addition to those applicable in K1003.

	Test Conditions					Test	Limits		No. Tested
	Vh (V)	Va3 (kV)	Va2	Va1 (kV)	Vg (V)		Min.	Max.	
a	See K1003/5.12.					Capacitances (pF) (i) Each X-plate to all others. (ii) Each Y-plate to all others. (iii) Either X-plate to either Y-plate.	 - - -	 16 12 4	10% (20)
b	4.0	-	-	-	-	Ih (A)	0.7	1.2	100%
c	4.0	3.0	Adjusted	3.0	Adjusted	(i) Va2 (V)	400	700	100%
	Adjust Va2 for optimum focus and Vg to give a spot brilliance equal to that of a standard tube. Deflecting voltages applied to give an open raster traversing the working area of the screen. Values of Va2 and Vg to be noted.					(ii) Line width (to be within 2.5 cms of centre of tube)	Not to be greater than twice that of a standard tube.		
						(iii) Uniformity of focus and brilliance.	The focus and brilliance must be uniform over the area within 2.5 cms of centre of screen		
In all tests below, unless otherwise stated, conditions shall be as in test 'c'.									
d	Vg adjusted for visual cut-off, or to give a cathode current, neglecting leakage, of 0.1 μA.					(i) Vg (V)	-	-30	100%
						(ii) Change in Vg from value found in test 'c'.	4	15	

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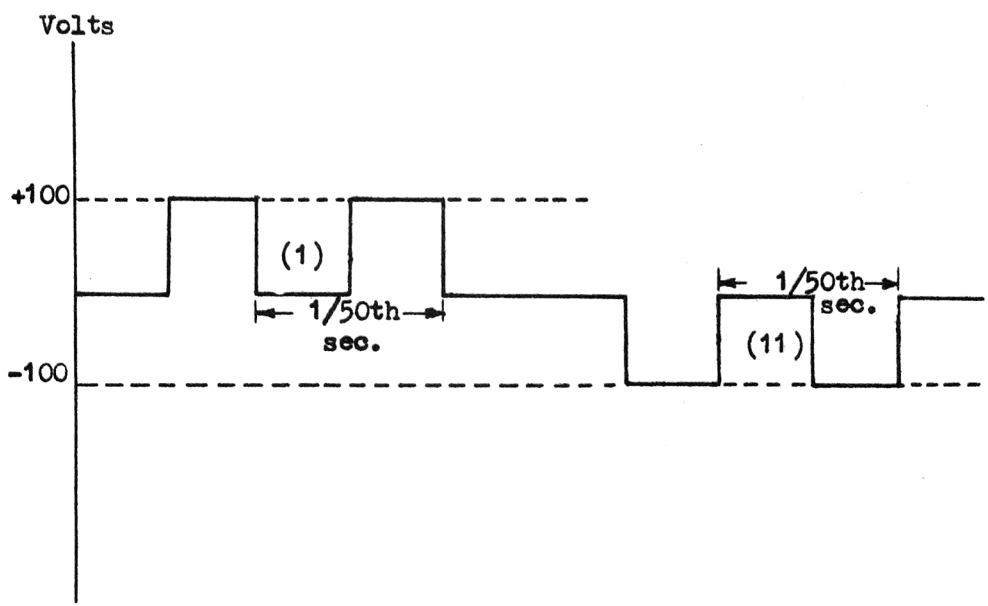
TESTS (Contd.)

	Test Conditions					Test	Limits		No. Tested
	Vh (V)	Va3 (kV)	Va2	Va1 (kV)	Vg (V)		Min.	Max.	
e	See K1003/5.4.2.					Modulator Insulation (MΩ)	5	-	100%
f						Plate sensitivities (mm/V)			
						(i) X-plates.	$\frac{550}{Va3}$	$\frac{650}{Va3}$	5% (2)
						(ii) Y-plates.	$\frac{550}{Va3}$	$\frac{800}{Va3}$	
g						Angle between X- and Y-plate axes.	85°	95°	100%
h	See K1003/5.10.					Centring (mm deviation).	-	7.5	100%
i	(i) Brilliance varied from min. to max. (ii) Va3 altered between 2,700 and 3,300 V. (iii) VX1 = VX2 = +10 V. (iv) Waves of form shown on page 4 applied to one X-plate. (v) Tube tapped vigorously.					Deviation of spot position (mm)	During operation (i)-(v) the spot shall not move in the X axis direction more than 2.0 mm.		100%
j	± 4,000 V to be connected between any one deflecting plate and final anode; the remaining three deflecting plates being connected to the final anode.					High deflecting plate voltage.	No internal breakdown or deterioration shall occur.		100%

TESTS (Contd.)

	Test Conditions					Test	Limits		No. Tested
	Vh (V)	Va3 (kV)	Va2	Va1 (kV)	Vg (V)		Min.	Max.	
k	(i) X raised to -2000 V with respect to A3 & X2. (ii) X2 raised to -200 V with respect to X1. (iii) X1 raised to +5 V with respect to X2 (iv) X2 raised to +5 V with respect to X1					Deflector plate conductivity (μA)	-	10.0	100%



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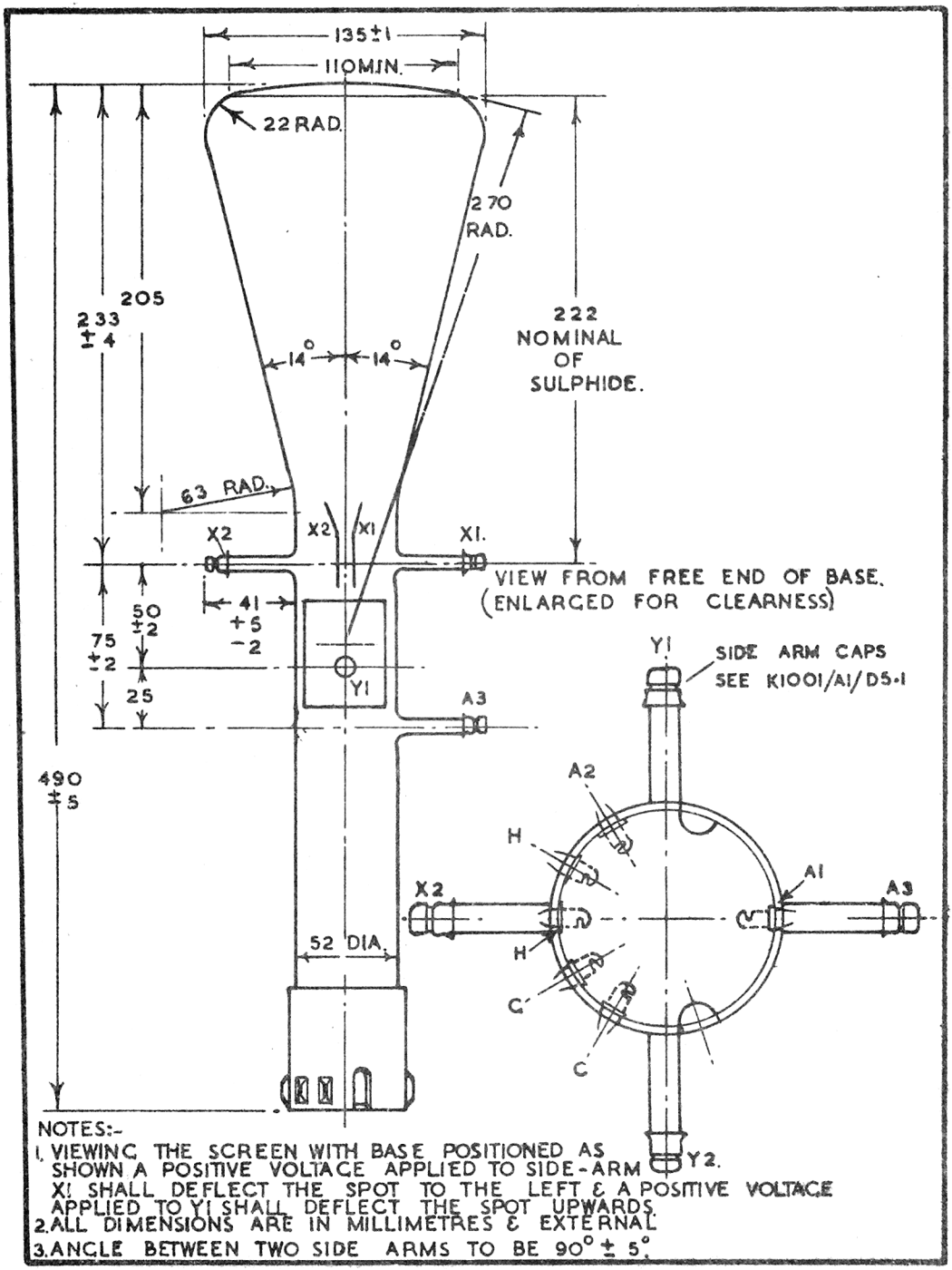

NOTES:-

1. VIEWING THE SCREEN WITH BASE POSITIONED AS SHOWN A POSITIVE VOLTAGE APPLIED TO SIDE-ARM X1 SHALL DEFLECT THE SPOT TO THE LEFT & A POSITIVE VOLTAGE APPLIED TO Y1 SHALL DEFLECT THE SPOT UPWARDS.
2. ALL DIMENSIONS ARE IN MILLIMETRES & EXTERNAL
3. ANGLE BETWEEN TWO SIDE ARMS TO BE 90° ± 5°