VALVE ELECTRONIC

ADMIRALTY SIGNAL AND RADAR ESTABLISHMENT

CV2302

Specification AD/CV2302 Issue No. 2 dated 19th November, 1958. To be read in conjunction with K1001	SECURITY Specification: Unclassified Valve: Unclassified

→ Indicates a change

TYPE OF VALVE: Cathode Ray Tube

TYPE OF DEFLECTION: Electrostatic: symmetrical for X-plates, asymmetrical for Y-plates.

TYPE OF FOCUS: Electrostatic: Fixed

BULB: Internally coated with conductive coating

SCREEN: GG5: See Note B

PROTOTYPE: 1CP1 1CP31

MARKING

See K1001/4

BASE

B8G (See BS.448; 1953)

BASE CONNECTIONS

Pin	Electrode
1	H
2	A1, A3, Y2 and conductive coating
3	Y1
4	X2
5	G
6	X1
7	C and A2
8	H

RATINGS			Note
Heater Voltage	(V)	6.3	
Heater Current	(A)	~~0.6~~ 0.3	
→ Max. A3 Voltage	(V)	1000	A
→ Min. A3 Voltage	(V)	350	C
Max. Vhc (Heater positive or negative to cathode)	(V)	250	A
Max. Rgc	(MΩ)	1	A
Max. Resistance between any deflecting electrode and A3	(MΩ)	5	A
Average X-Plate Sensitivity	(mm/V)	$\frac{95}{Va3}$	
Average Y-Plate Sensitivity	(mm/V)	$\frac{110}{Va3}$	

DIMENSIONS

See drawing page 3

MOUNTING POSITION

Any

NOTES

A. Absolute maximum value.

→ B. Between the glass face-plate and the screen phosphor there is a transparent conducting film which is connected to A3. This film enables the tube to be operated with A3 at other than earth potential without the trace on the screen being distorted when an earthed body is brought near the screen. It also enables the tube to be used at low A3 voltages without the trace being disturbed or obliterated by charges accumulating on the screen.

→ C. Because trace brightness and definition decrease rapidly with decreasing A3 voltage, the recommended minimum A3 voltage is 350V. However, an A3 voltage as low as 250V may be used when the ambient light level is low; but, at such low anode voltages, the brightness of the trace and, hence, the beam current, should always be kept as low as possible because such low-energy electron beams are particularly liable to "burn" the screen.

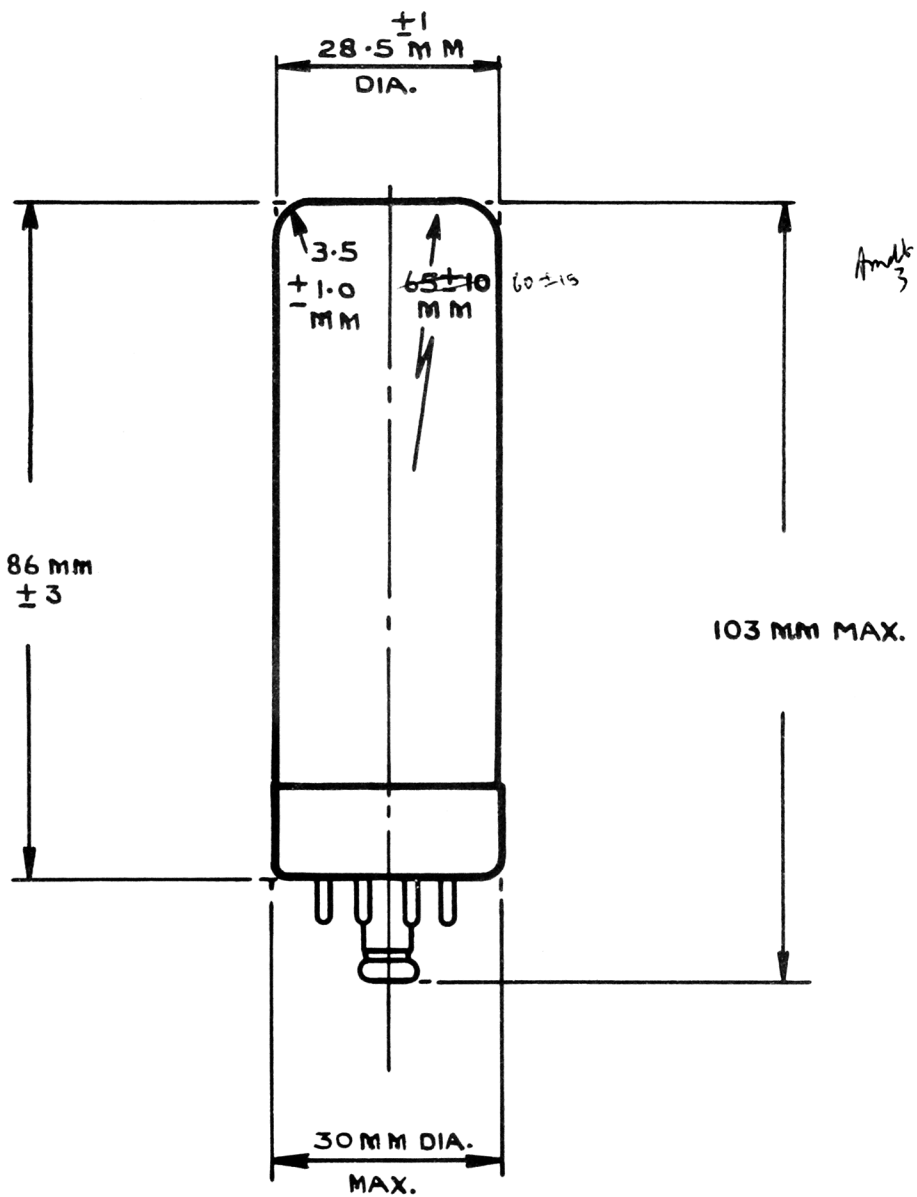
D. When the screen is viewed with the tube axis horizontal and the tube positioned so that Pin 5 is uppermost, a positive voltage applied to Pin 6 deflects the spot horizontally to the left and a positive voltage applied to Pin 3 deflects the spot vertically upwards.

TESTS

To be performed in addition to those applicable in K1001

	Test Conditions			Test	Limits		No. Tested
	Vh (V)	Va1 and Va3 (V)	Vg (V)		Min.	Max.	
a	See K1001/5A.13			**Capacitances (pF)**			
				i. Grid to all other electrodes	~~5.0~~ 5.5	~~7.5~~ 6.7	
				ii. Cathode to all other electrodes	~~8.0~~ 8.5	~~10.5~~ 10.5	
				iii. Y1 to all other electrodes	2.5	4.5	
				iv. X1 to all other electrodes	~~5.0~~ 3.5	~~7.0~~ 5.5	
				v. X2 to all other electrodes	~~5.0~~ 3.5	~~7.0~~ 5.5	5%
				vi. Y1 to X1 (other electrodes earthed)	-	0.2	
				vii. Y1 to X2 (other electrodes earthed)	-	0.3	
				viii. X1 to X2 (other electrodes earthed)	0.5	2.0	
b	6.3	0	0	Ih (A)	~~0.5~~ 0.27	~~0.6~~ 0.3	100%
c	6.3	500	Adjust to cut-off	**Grid Cut-Off Voltage** Negative Vg (V)	-	25	100%
d	6.3	500	Adjust	**Light Intensity**			
	Vg adjusted to give a light output of 0.004 candela on a close raster of area 18 mm x 18mm			1. Negative Vg (V)	1	-	100%
				2. Note, for use in test "e", the value of Vg for a light output of 0.001 candela.			
e	6.3	500	Adjust	**Line Width**			
	Spot to be deflected by a 10 kc/s (nom.) linear time-base voltage along lines 30 mm long in the X and in the Y directions successively, with Vg adjusted to the value for 0.001 candela noted in test "d" (2).			Measured at centre of each trace (mm)		0.8	100%
f	6.3	500	-25	**Grid Insulation**			
	Or, 2 with recommended method of K1001/5A.3.2 and with 1 megohm resistor.			1. Leakage current (/uA)	-	25	100%
				2. Increase in voltmeter reading.	-	100%	100%
g	6.3	500	Adjust to any convenient value	**Deflection Sensitivities**			
				X-Plate (mm/V)	$\frac{70}{Va3}$	$\frac{120}{Va3}$	10%
				Y-Plate (mm/V)	$\frac{80}{Va3}$	$\frac{140}{Va3}$	
h	6.3	500	- do -	**Deviation of Spot from Screen Centre** (mm)	-	1.5	100%
j	6.3	500	- do -	**Useful Screen Area**			
	Deflection to cover circle of stated diameter centred on centre of screen			Diameter (mm)	24	-	100%
k	6.3	500	- do -	Angle between X and Y axes of deflection	85°	95°	100%

CV2302


±1
28·5 MM
DIA.
3·5
+1·0
−
MM
65±10
MM
60±15
Amdt 3
86 MM
±3
103 MM MAX.
30 MM DIA.
MAX.

ELECTRONIC VALVE SPECIFICATIONS

SPECIFICATION AD/CV2302

ISSUE 2 DATED 19.11.58.

AMENDMENT No.1.

Page 2 Clause (a) Capacitances (pF)

In the columns headed "Limits Min." and "Limits Max." Amend the following capacitances as shown:-

i	Grid	to all - from 5.0 min., 7.5 max.	to 4.5 min., 6.7 max. pF.
ii	Cathode	to all - from 8.0 min., 10.0 max.	to 8.5 min., 10.5 max. pF.
iv	X1	to all - from 5.0 min., 7.0 max.	to 3.5 min., 5.5 max. pF.
v	X2	to all - from 5.0 min., 7.0 max.	to 3.5 min., 5.5 max. pF.

May, 1960 Admiralty Surface Weapons Establishment

N.17173/D

AAS 7/60

ELECTRONIC VALVE SPECIFICATIONS

SPECIFICATION AD/CV2302
ISSUE 2 DATED 19TH NOVEMBER, 1958

AMENDMENT NO. 2

Page 1

PROTOTYPE
Amend "1CP1" to "1CP31"

March, 1961

Admiralty Surface Weapons Establishment

N.56396,D

ELECTRONIC VALVE SPECIFICATIONS

SPECIFICATION AD/CV2302 ISSUE 2 DATED 19-11-58

AMENDMENT NO.3.

1. Page 2

(i) Test (a) Capacitances

Delete all figures in Limits - Min. column.

(ii) Test (b) Ih

Amend "0.5" in Limits - Min. column to read "0.27".

2. Page 3 Outline Drawing

Amend face curvature of 65 ± 10 mm to read 60 ± 15 mm.

July, 1965. T.V.C. for A.S.W.E.

N.229263

ELECTRONIC VALVE SPECIFICATIONS

SPECIFICATION AD/CV2302 ISSUE 2, DATED 19.11.58

AMENDMENT NO.4

Page 1 Ratings

Amend "heater current, (A)" to read "0.3" in lieu of "0.6"

Page 2 Test (b) Ih

Amend "0.6" in Limits max column to read "0.33".

May, 1968

TVC for ASWE

25/9/68