VALVE ELECTRONIC

CV2191

GENERAL POST OFFICE E-IN-C (S)

Specification: GPO/CV 2191/Issue 1.	SECURITY	
	Specification	Valve
Dated: January 1955.	Unclassified	Unclassified
To be read in conjunction with K 1001		

⟶ indicates a change

TYPE OF VALVE: Cathode Ray Tube with post-deflection accelerator

TYPE OF DEFLECTION: Electrostatic, Symmetrical.

TYPE OF FOCUS: Electrostatic

BULB: Glass internally coated with conductive coating

SCREEN: GGN.

PROTOTYPE: DG 13-2

MARKING

See K 1001

BASE

B14A with 12 pins.

SIDE CONTACT

CT 7

RATING

			Note
Heater voltage	(V)	6.3	
Heater current	(A)	0.3	
Max. post deflecting voltage	(kV)	5.0	
Max. A1, A3 voltage	(kV)	2.5	
Max. A2 voltage	(kV)	1.0	
Max. A1, A3 dissipation	(W)	4.0	
Max. voltage between X plates	(V)	450	
Max. voltage between Y plates	(V)	450	
Max. screen dissipation	(mW/cm^2)	3.0	
Max. resistance between deflecting plates & A3	(MΩ)	5.0	
Max. grid resistance	(MΩ)	1.5	

TYPICAL OPERATING CONDITIONS

	Without Acceleration	With Acceleration	
Va4	2.0	4.0	(kV)
Va1, Va3	2.0	2.0	(kV)
X plate sensitivity	0.40	0.30	(mm/V)
Y plate sensitivity	0.45	0.35	(mm/V)

CONNEXIONS

Pin	Electrode
Side contact	A4
1	H
2	C
3	Grid
4	Internal connexion
5	A2
6	No pin
7	Y1
8	Y2
9	A1, A3
10	X2
11	X1
12	Internal connexion
13	No pin
14	H

DIMENSIONS

See drawing on page 4

TESTS

To be performed in addition to those applicable in K1001

	Test Conditions	Test	Limits Min.	Limits Max.	No. Tested
	Deflection voltages shall be applied symmetrically in all cases.				
a	See K1001/5A.13	CAPACITANCES (pF)			
		1. Each X plate to all other electrodes except other X plate which shall be earthed.	-	5.5	5% (5)
		2. Each Y plate to all other electrodes except other Y plate which shall be earthed.	-	6.5	5% (5)
		3. Grid to all other electrodes	-	8.0	5% (5)
		4. Both X plates to both Y plates	-	0.25	5% (5)
b	V_h = 6.3V	Ih (A)	0.275	0.325	100%
c	Cathode 100V positive to heater	Heater-cathode current (/uA)	-	100	100%
	For all the following tests Va1=Va3=Va4=2. OKV & Vh=6.3V.				
d	No deflection voltages applied. Va2 adjusted for optimum focus. Adjust Vg for cut off.	-Vg (V) Value to be noted.	47	96	100%
e	As in test (d) spot just visible	Deviation of spot from centre of screen. (mm)	-	8	100%
f	1. Circular trace at 50 c/s diameter 50 mm. Va2 adjusted for optimum focus. Vg adjusted to give Ia4=0.5/uA.	1. Line width (mm)	-	0.5	5% (5)
	2. Repeat with Ia4=10/uA & measure focus volts Va2.	2. Va2 (V)	400	750	100%
	3. Note max & min values of Va2 at which focus occurs on different points on the circle. Their difference = ΔVa2.	3. Astigmatism ΔVa2 (V)	-	40	100%

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TESTS (Continued)

	Test Conditions	Test	Limits Min.	Limits Max.	No. Tested
g	With a raster size 100X100 mms, Vg = 0, Va2 as in test (d)	Total current Ia1+Ia3+Ia4 (μA)	1450	-	100%
h	Set raster to 100x100 mms, adjust Vg to give Ia4=10μA & Va2 for optimum focus. Increase Va4 to 4KV.	Post deflection accelerator. Raster size in both X & Y directions (mm)	71	87	100%
j	Recommended method - See K1001/5A 3.2 Vg = -100V Resistor = 5 megohms.	Grid insulation 1. Leakage current (μA) 2. Increase in voltmeter reading	- -	20 100%	100% 100%
k		Deflection sensitivities 1. X-plate (mm/V) 2. Y-plate (mm/V)	740/ Va3 840/ Va3	860/ Va3 960/ Va3	5% (5) 5% (5)
l	Deflections to cover stated circle centred on centre of the screen	Useful screen area Diameter (mm)	124	-	100%
m		Orientation of deflection axes 1. Orientation of X-axis of deflection relative to 00' on drawing. 2. Angle between X & Y axes of deflection.	- 88°	15° 92°	100% 100%
n	With Vh=6.3v Va1=Va3=2KV Va2 adjusted for optimum focus, & Vg adjusted to give Ia1 + Ia3 of 100μA. Raster size 100 x 100 mms. Overload Va4 to 5.5 KV.	There shall be no breakdown	-	-	100%
p	Conditions as in test (n) but with Va4 = 4KV.	Stray emission No stray rays shall be detected	-	-	100%

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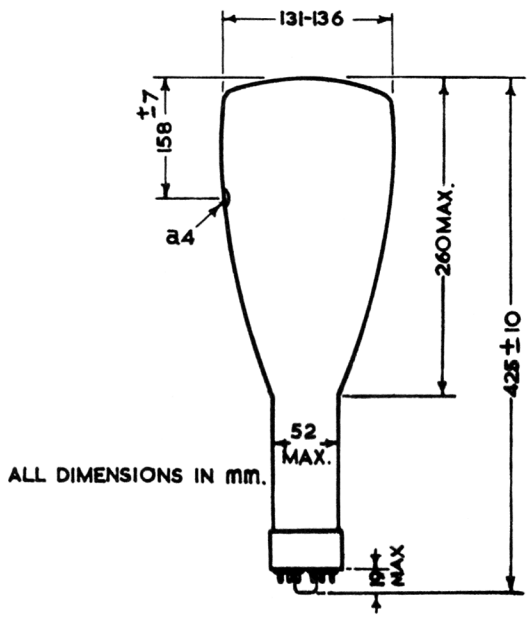

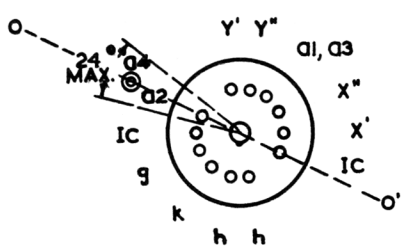

B14A (DIHEPTAL) BASE

SPECIFICATION CV.2191. ISSUE 1. dated January 1955

AMENDMENT NO.1

Page 3. Test "m"

Orientation of deflection axes

Item 1 should read "Orientation of X-axis of deflection....."

(This may already have been altered by hand on some copies)

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N51166