MINISTRY OF SUPPLY - D.L.R.D.(A)/R.A.E.

VALVE ELECTRONIC CV2292

Specification MOSA/CV2292 Issue 4 Dated 10.1.55. To be read in conjunction with B.S.1409 and K.1001	SECURITY Specification: UNCLASSIFIED Valve: UNCLASSIFIED

→ Indicates a change

TYPE OF VALVE	- Cathode Ray Tube
TYPE OF DEFLECTION	- Electrostatic with Radial Deflection
TYPE OF FOCUS	- Electrostatic
BULB	- Internally coated with conductive coating
SCREEN	- YYN Circular scale on inside of face (Note E)
PROTOTYPE	- VCRX.173

MARKING

See K.1001/4

BASE

B12G

CONNECTIONS ←

Pin	Electrode
1	a2
2	k
3	g1
4	h
5	h
6	IC
7	a3
8	x1
9	x2
10	y1
11	y2
12	IC
Centre Contact	Radial Deflection Cone ←

RATING

			Note
Heater Voltage	(V)	6.3	
Heater Current	(A)	0.6	
Max. Final Anode Voltage	(kV)	3	F
x-Plate Sensitivity	(mm/V)	$\frac{290}{Va3}$	
y-Plate Sensitivity	(mm/V)	$\frac{390}{Va3}$	
Radial Deflection Sensitivity	(mm/V)	$\frac{80}{Va3}$	

DIMENSIONS

See Drawing on Page 4

NOTES

A. When viewing the screen with the tube positioned such that the spigot is uppermost, a positive voltage applied to pin x1 shall deflect the spot at an angle of approx. 225° to the zero of the scale, and a positive voltage applied to pin y1 shall deflect the spot at an angle of approx. 135° to the zero of the scale.

B. The tube shall be of three anode construction with 1st anode connected internally to 3rd anode.

C. The internal conductive coating, which shall be internally connected to a3, shall be of such dimensions that it functions effectively but does not obscure the required useful screen area.

D. The tube shall be adequately free from microphony.

E. The details of scale shall be as shown on drawing on Page 4.

F. This rating applies only at atmospheric pressure.

To be performed in addition to those applicable in K.1001

	Test Conditions					Test	Limits Min.	Limits Max.	No. Tested	Note
a	See K.1001/5A.13.					Capacitances (pF)				
						Each x-Plate to all other Electrodes	-	10	5%(5)	
						Each y-Plate to all other Electrodes	-	12	5%(5)	
						Grid to all other Electrodes	-	15	5%(5)	
						One x-Plate to one y-Plate	-	2	5%(5)	
						Cathode to all other Electrodes	-	8	5%(5)	
						Cone to all other Electrodes	-	6	5%(5)	
	The deflection voltages applied to the plates shall be symmetrical and a Mumetal shield shall be used for all tests.									
	Vh	Va1+3 (kV)	Va2 (V)	Vg (V)	V Cone (kV)					
b	6.3	0	0	0	0	Ih (A)	0.54	0.66	100% or S	
c	6.3	2.5	Adjust for optimum focus	Adjust to cut off	2.5	-Vg (V)	40	100	100%	
d	6.3	2.5	ditto	-	2.5	(1) Vg (V)	-1	-	100%	
	Vg adjusted to give a beam current of 50 µA.					(2) Change in value of Vg from test (c) (V)	15	40	100%	
						(3) Ik (µA)	-	150	100%	
						(4) Light Output (Candela)	0.1	-	100%	
e	6.3	2.5	ditto	-	2.5	(1) Line Width (mm)	-	0.8	100%	
	Deflection With a linear time base of 10 kc/s nom., and a line length of 70 mm in the x and y directions successively. The line width shall be measured between the two circular scales.					(2) Va2 (V)	200	300	100%	
	Grid The grid will be pulsed positively from cut-off with amplitude equal to the value obtained in test d(2), the nominal values of pulse duration and recurrence being 100 µsecs. and 100 c/s respectively.									

TESTS (Cont'd)

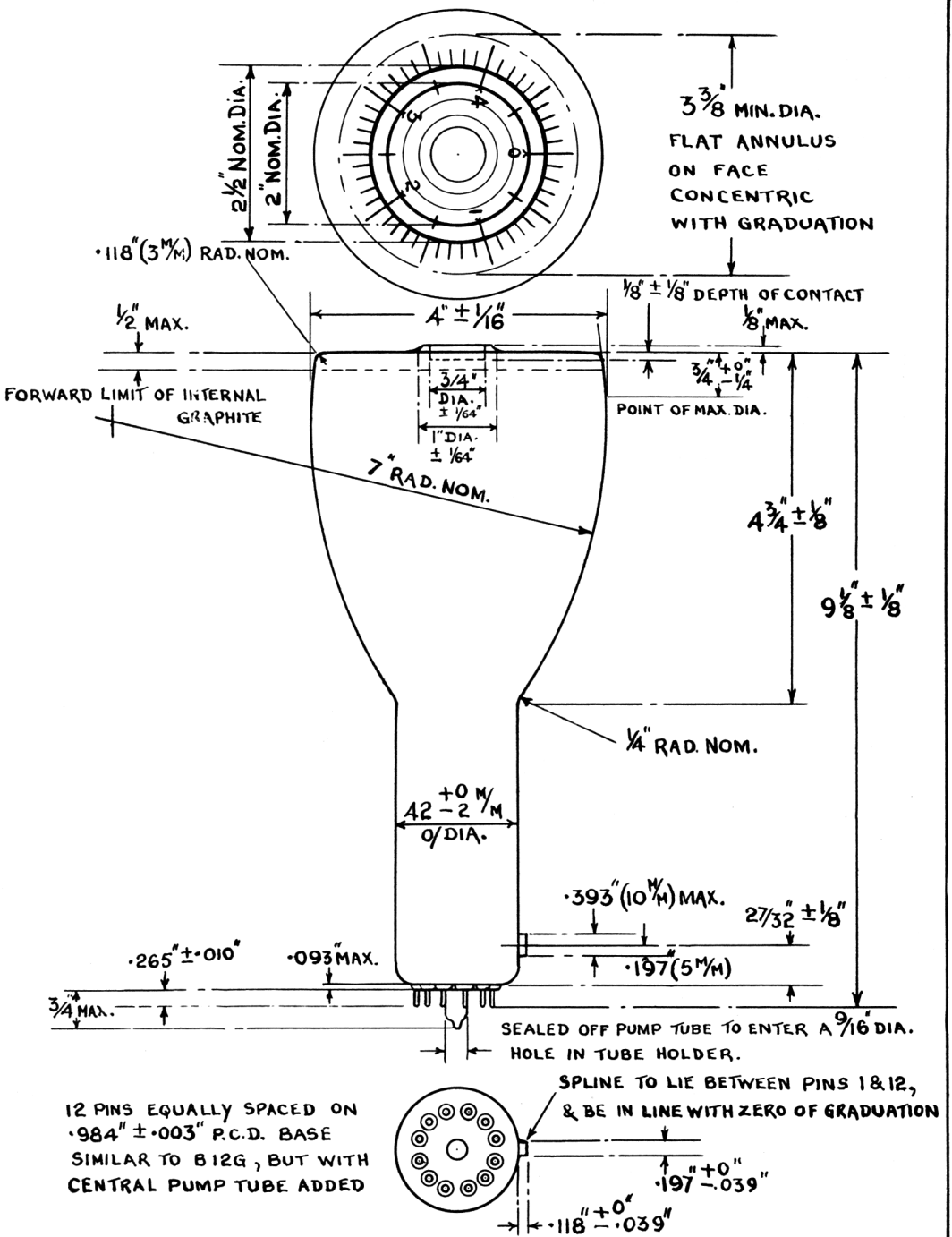
CV2292

Test Conditions						Test	Limits		No. Tested	Note
							Min.	Max.		
	Vh	Va1+3 (kV)	Va2 (V)	Vg (V)	V Cone (kV)					
f	6.3	2.5	any convenient value	-100	2.5	Grid Insulation				
						(1) Leakage Current (μA)	-	20	100%	
						(2) Increase in volt meter reading	-	100%	100%	
	Recommended method See K.1001/5A.3 Resistor = 5 megohms									
g	6.3	2.5	ditto	any convenient value	2.5	Deflection				
						Sensitivities				
						(1) x-Plate (mm/V)	$\frac{250}{Va3}$	$\frac{330}{Va3}$	5%(5)	
						(2) y-Plate (mm/V)	$\frac{340}{Va3}$	$\frac{440}{Va3}$	5%(5)	
						(3) Cone (To be measured at the mean radius of the two scale circles in the direction of both pairs of plates (mm/V)	$\frac{60}{Va3}$	$\frac{150}{Va3}$	5%(5)	←
						(4) Linearity of Deflection	Tests to be agreed			
h	6.3	2.5	ditto	ditto	2.5	Deviation of spot from screen centre (mm)	0	5	100%	1
j	6.3	2.5	ditto	ditto	2.5 Vary for Deflecn above 75 mm.	Useful flat screen area shall be not less than the annulus contained within two circles of diameter 45 mm and 85 mm.			100%	2
m	6.3	2.5	ditto	ditto	2.5	Orientation of axes of deflection.				
						X-axis to scale zero	35°	55°	100%	
						X-axis to Y-axis	85°	95°	100%	
n	See K1001/5A.3.1 Method					Insulation Test (cold)				
						x-plate - all (MΩ)	500			
						y-plate - all (MΩ)	500			

NOTE

1. The 5 mm. (max.) is calculated by the application of measured shift voltages.

2. The screen area inside the two circles specified shall be free from blemish and capable of being scanned up to the dimension of 75 mm. by means of the plates, and in the region of 75 mm. - 85 mm. by means of the cone.


2½" NOM. DIA.
2" NOM. DIA.
·118" (3 M/M) RAD. NOM.
3⅜" MIN. DIA. FLAT ANNULUS ON FACE CONCENTRIC WITH GRADUATION
⅛" ± ⅛" DEPTH OF CONTACT
⅛" MAX.
½" MAX.
4" ± 1/16"
FORWARD LIMIT OF INTERNAL GRAPHITE
¾" DIA. ± 1/64"
1" DIA. ± 1/64"
¾" +0 −¼"
POINT OF MAX. DIA.
7" RAD. NOM.
4¾" ± ⅛"
9⅛" ± ⅛"
¼" RAD. NOM.
42 +0 −2 M/M O/DIA.
·393" (10 M/M) MAX.
27/32" ± ⅛"
·265" ± ·010"
·093" MAX.
·197" (5 M/M)
¾ MAX.
SEALED OFF PUMP TUBE TO ENTER A 9/16" DIA. HOLE IN TUBE HOLDER.
12 PINS EQUALLY SPACED ON ·984" ± ·003" P.C.D. BASE SIMILAR TO B12G, BUT WITH CENTRAL PUMP TUBE ADDED
SPLINE TO LIE BETWEEN PINS 1 & 12, & BE IN LINE WITH ZERO OF GRADUATION
·197" +0 −·039"
·118" +0 −·039"