MINISTRY OF SUPPLY (D.C.D.) VALVE ELECTRONIC

CV109

Specification MAP/CV109/Issue 4
Dated 31.12.46.
To be read in conjunction with
K1001 ignoring clauses:- 5.2, 5.3.

SECURITY	
Specification	Valve
~~RESTRICTED~~ Unclass.	UNCLASSIFIED

→ Indicates a change

TYPE OF VALVE - Transmitting Klystron
CATHODE - Indirectly heated
ENVELOPE - Glass-unmetallised
PROTOTYPE - 9.P.K.5.

MARKING
See K1001/4

PACKING
See K.1005

RATING		Note
Heater Voltage (V)	4.0	
Heater Current (A)	2.5	
Max.Peak Anode Voltage (kV)	10.0	
Max.Collector Dissipation (W)	170	
Operating Frequency for which valve is set up (Mc/s)	3280	

BASE
I.O.

Pin	Electrode
1	No connection
2	Heater
3	No connection
4	No connection
5	No connection
6	No connection
7	Heater & Cathode
8	No connection

Connection to collector electrode is made via the diffuser.

DIMENSIONS
See drawing on page 4.

NOTES

A - The terms anode and resonator are synonymous.

B - In operation this valve should be supplied with forced air cooling such that the temperature of the edge of the collector disc does not exceed 100°C.

To be performed in addition to those applicable in K1001.

	Test Conditions			Test	Limits		No. Tested	Note
	Vh	Vc(kV)	Vr(kV)		Min.	Max.		
a	4.0	0	0	Ih (A)	2.25	2.75	100%	
b,1	4.0	7.0	7.0	Collector + resonator current say Ia Value to be noted (mA)	280	380	100%	
2	4.0	7.0	7.0	Note value of collector current say Ib (mA)			100%	1
c	From measurements made in test b.			Value of Ib/Ia	0.9 ± 4%		100%	
d	4.0	7.0	7.0	Peak power output at frequency of 3280 Mc/s. (W)	250	-	100%	1,2.
e	4.0	-0.1	Adjusted to give 10mA resonator current. Current in collector circuit read on sensitive galvanometer (say 30/uA full scale reading) with valve cold (Vh =0) and then with valve hot, Vr being left on.	Change in collector current (/uA)	-	2.0	100%	
f	4.0	2.5 approx.	2.5 approx. Vc=Vr= value required to give 170W. dissipation in collector.	No beam or other signs of softness shall be visible.			10%	
g	4.0	7.0	7.0 Other conditions as in test clause 'd' except that P.R.F. = 13,000 per second. 1. After setting up, the H.T. supply is switched off for a period of 10 mins. The H.T. supply is then reapplied and the P.R.F. re-set to 18,000 per second. 2. The H.T. supply is again switched off for a period of 10 mins. and then re-applied with P.R.F. re-set to 1000 per second.	1. Frequency of oscillation (Mc/s) 30 secs. after applying H.T.	3280 ± 2		100%	
				5 mins. after applying H.T.	3280 ± 2			
				2. Frequency of oscillation (Mc/s) 30 secs. after applying H.T.	3280 ± 2		100%	
				5 mins. after applying H.T.	3280 ± 2			

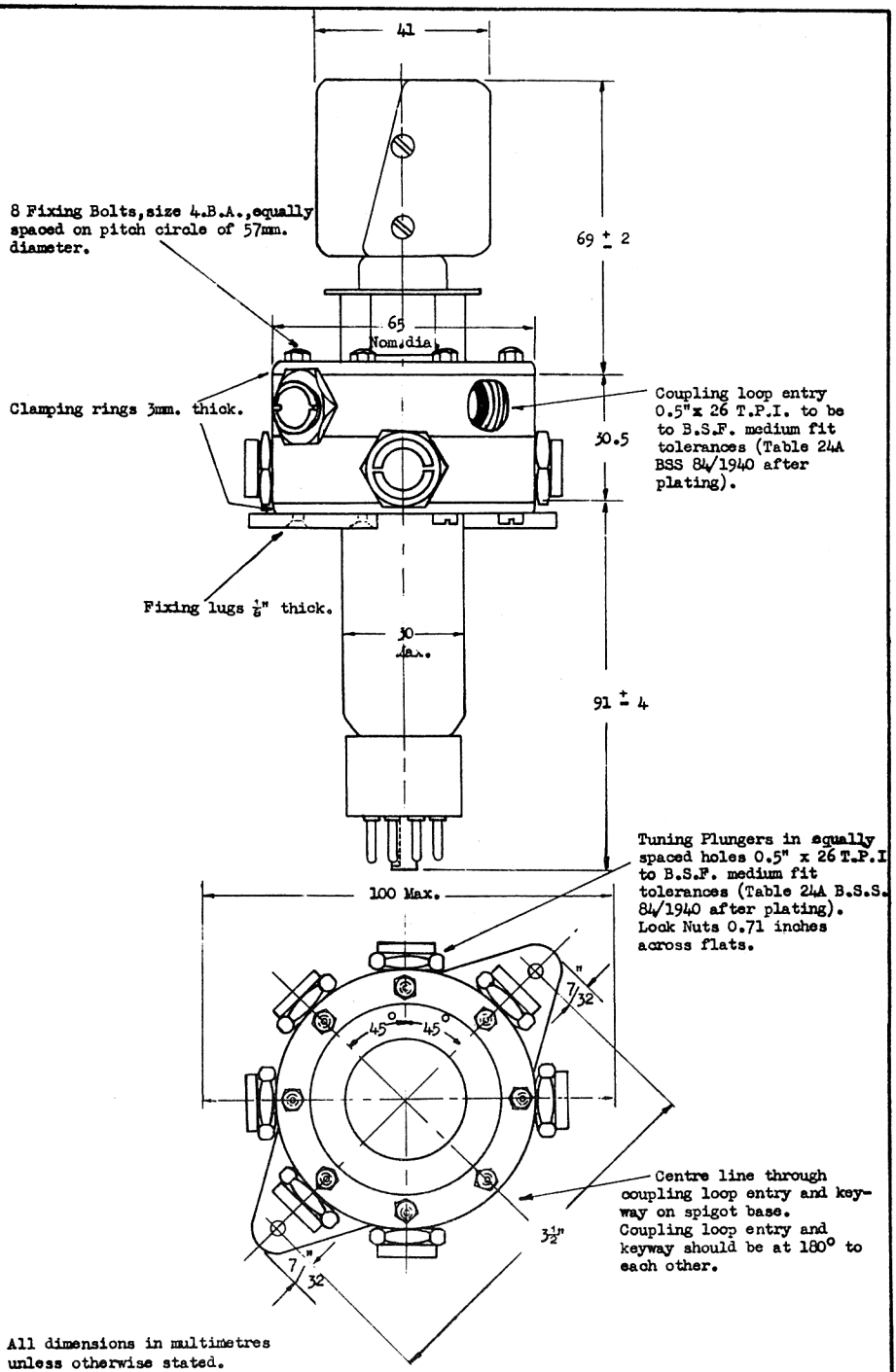
NOTES

1 - In test 'd' above, the anode voltage shall be pulsed with a pulse length of 3 μsec. and a P.R.F. of 18,000 per second. In tests 'b' and 'c' modulation conditions may be similar to those in test 'd' or other conditions may be submitted for approval.

2 - Comparative measurements of output should be made by means of a lamp. For this measurement the size of coupling loop should be such that maximum output is obtained with the loop oriented to a position such that its plane is at an angle of 10° to a plane containing the principal axis of the resonator and the centre line of the coupling loop entry.

3 - V_c = collector voltage, V_r = resonator voltage.

C.V.109.



All dimensions in multimetres unless otherwise stated.