VALVE ELECTRONIC **C.V. 217**

ADMIRALTY SIGNAL AND RADAR ESTABLISHMENT

Specification AD/CV217/Issue 4. Dated: 19.2.53. To be read in conjunction with K1001, ignoring clauses:- 5.2; 5.8.	SECURITY	
	Specn.	Valve
	Unclassified	Unclassified

→ Indicates a change

TYPE OF VALVE: Velocity modulated beam type local oscillator.
CATHODE: Indirectly heated.
ENVELOPE: Copper glass with resonator.
PROTOTYPE: KRN3.

MARKING

See K1001/4.
Additional Marking:-
Serial No. .....

RATING		Note
Vh (V)	4.0	
Ih (A)	1.3	
→ Approx. tuning range (cms)	3.04 to 3.14	
Max. resonator wattage (W)	10	
Resonator voltage (kV)	1.35	C
Reflector voltage range (V)	-210 to -300	C
Grid voltage range (V)	0 to -100	
Approx. negative Vg for oscillation cut off (V)	150	
Total AFC range (Mc/s)	20	A
Total reflector voltage change for above freq. change. (V)	20 to 40	B
Max. series grid resistance (Ω)	25,000	
Max. series reflector resistance (Ω)	25,000	
Max. temp. of resonator	140°C	

BASE

IO - See K1001/AIV/D2

Pin	Electrode
1	Grid
2	Heater
3	No connection
4	No connection
5	No connection
6	No connection
7	Heater
8	Cathode
TC	Reflector

TOP CAP

See K1001/AI/D5.2.

DIMENSIONS

See Drawing Page 4.

NOTES

A. By variation of reflector voltage. From ½ power to ½ power at any mean frequency in the range.
B. Superimposed on initial setting.
C. Va = Resonator voltage. Vr = Reflector voltage.

Finish The circuit portions of the valve are required to be silver plated. All other parts excluding the valve pins and top-cap, are to be given an approved corrosion resisting coating.

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TESTS

To be performed in addition to those applicable in K1001

	Test Conditions				Test	Limits		No. Tested	Note
	Vh (V)	Vg (V)	Vr (V)	Va (V)		Min.	Max.		
a	0	G-C potential 250 V minimum			G-C insulation (MΩ)	0.1	-	100%	
b	4.0	See K1001/5.3			H-C leakage (μA)	-	50	100%	
c	4.0				Ih (A)	1.0	1.6	100%	
d	4.0	Adjusted	Adjusted	1350	(i) Power output (mW)	15	-	100%	1
	Vg adjusted (not +ve) to give Ia = 7.4 mA, or max. available Ia if less than 7.4 mA. Valve tuned to 9870 Mc/s. Unloaded power measurement.				(ii) Vr (V)	-210	-300		
					(iii) Vg (V)	0	-100		
e	4.0	As in 'd'	Initially as in 'd'	1350	(i) Freq. change (Mc/s)	20	-	100%	1
					(ii) Vr change (V)	20	40		

Valve tuned initially to 9870 Mc/s. Power output fed through an approved form of waveguide transformer to a section of 1" x ½" O.D. waveguide terminated by a load for which the SWR is better than 0.9. Vr varied first from a value less than to value more than that observed in test 'd', and then similarly in the reverse direction; to ensure that any hysterisis effect will be revealed, the variation must be of sufficient amplitude to stop oscillation on both sides of the mean Vr. The magnitude of the frequency change which is free from any hysterisis effect, and which corresponds to output power of not less than half of the value found in test 'd' is to be observed. The change in Vr corresponding to a change in frequency of 20 Mc/s is to be observed.

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	Test Conditions				Test	Limits		No. Tested	Note
	Vh (V)	Vg (V)	Vr (V)	Va (V)		Min.	Max.		
f	4.0	As in 'd'	Adjusted	1350	(i) Power output (mW)	15	-		
→	Valve tuned to 9550 Mc/s. Unloaded power measured.				(ii) Vr (V)	-210	-300	100%	1
					(iii) Vg (V)	0	-100		
g	4.0	As in 'd'	Initially as in 'f'	1350	(i) Freq. change (Mc/s)	20	-	100%	1
→	Valve tuned initially to 9550 Mc/s. Test analogous to 'e' performed with reference to reflector voltage and power observed in 'f'.				(ii) Vr change (V)	20	40		
h	4.0	As in 'd'	Adjusted	1350					
→	Valve tuned to 9700 Mc/s. Unloaded power measured.				Power output (mW)	15	-	10% (1)	1
j	After 24 hours rest at approx. max. torque position.				Tuning Torque (inch-ozs)	-	70	100%	

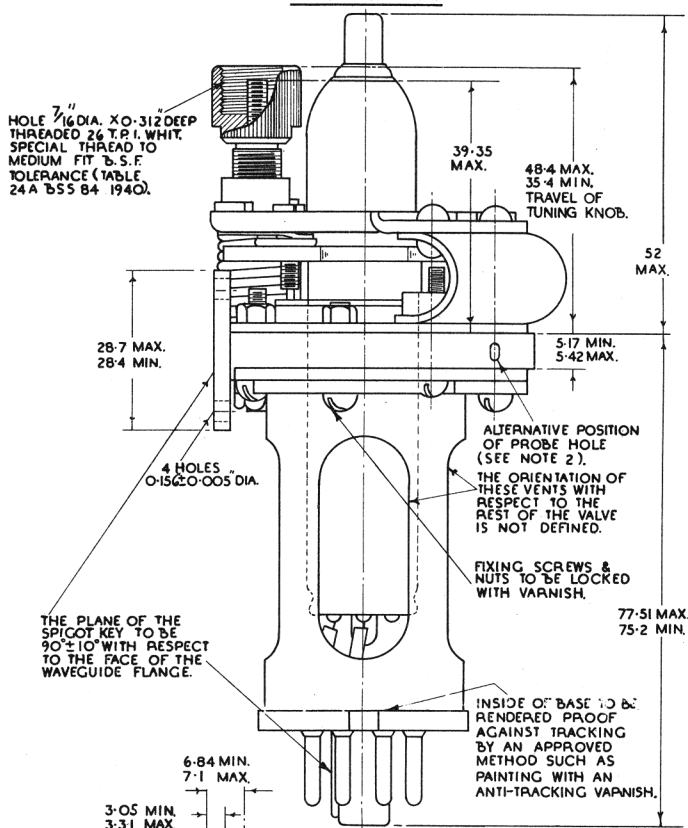
NOTE

1. Tests to be made with grid and reflector supplies whose respective total series resistance is 50,000 ohms. The Vg and Vr specified may be taken as including the voltage drop across these resistances, as this should be negligible with a good valve. Should the grid lose control of the anode current as a result of grid current flowing, the valve shall be rejected.

CV217

OUTLINE DIMENSIONS.

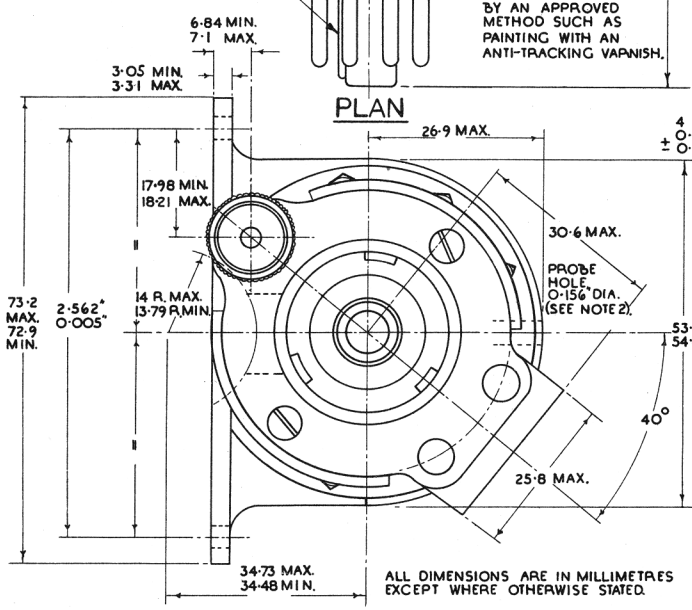
ELEVATION.



NOTES TO USER.

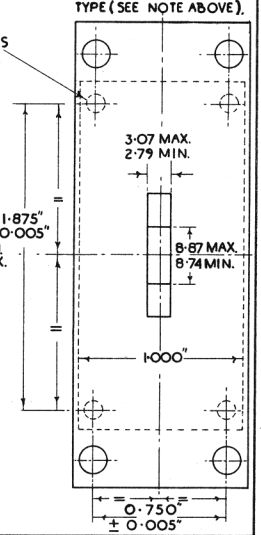
1. OWING TO A CHANGE IN DESIGN TWO SIZES OF FLANGE PLATE REQUIRING DIFFERENT FIXING CENTRES ARE BEING MADE & DESIGNERS MUST ALLOW FOR BOTH TYPES IN EQUIP-MENTS (SEE BELOW).
2. THE NORMAL POSITION OF THE 0·156" PROBE HOLE WILL BE AS INDICATED, DIAMETRICALLY OPPOSITE WAVE GUIDE OUTPUT BUT SOME VALVES ARE MADE WITH THIS HOLE TOWARDS ONE SIDE I.E. BENEATH THE 'C' SPRING.

PLAN



REAR VIEW OF FLANGE PLATE.

THE DOTTED LINES REPRESENT ALTERNATIVE TYPE (SEE NOTE ABOVE).



ALL DIMENSIONS ARE IN MILLIMETRES EXCEPT WHERE OTHERWISE STATED.

→ CHANGES THROUGHOUT DRAWING.