ADMIRALTY SIGNAL ESTABLISHMENT

VALVE ELECTRONIC **CV224**

Specification AD/CV224/Issue 3.
Dated 1.2.46.
To be read in conjunction with K1001, ignoring clauses :- 5.2; 1.2; 5.2.2; 5.3; 7.2.

SECURITY

Specification	Valve
~~Confidential~~ Unclass	~~Restricted~~ Unclass

TYPE OF VALVE:- Velocity modulation.
CATHODE:- Indirectly heated.
ENVELOPE:- Glass with metal resonator.
PROTOTYPE:- CV129 for different frequency.

MARKING

See K1001/7.
Additional Marking:-
Serial No. .....

RATING

			Note
Heater Voltage	(V)	4.0	B
Heater Current	(A)	1.4	
Tuning range:	(Mc/s)	9710-9645	
	(approx:cm)	3.09-3.11	
Max. resonator wattage	(W)	10	C
Resonator Voltage	(kV)	1.6	A
Reflector voltage range	(V)	-300 to -550	A
Grid voltage range	(V)	0 to -100	
Max. neg. Vg for oscillation cut-off	(V)	150	D
Max. grid series resistance	(Ω)	25,000	
Max. reflector series resistance	(Ω)	25,000	
Max. temp. of resonator		140°C	

BASE

IO - See K1001/A.IV/D1.

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

(Direct connection to resonator)

TOP CAP

See K1001/A.I/D5.2

DIMENSIONS

See Fig. 1.

NOTES

A. Va = resonator voltage, Vr = reflector voltage.

B. The valve must operate satisfactorily with any Vh within the range 4.0 ± 0.2 V.

C. With convection cooling in free air.

D. This figure is not necessarily the same as that for starting oscillation, as there is an hysteresis effect which varies from valve to valve; it should therefore be used with caution.

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.

TESTS

To be performed in addition to those applicable in K1001.

	Test Conditions				Test	Limits		No. Tested	Note
	Vh(V)	Ia(mA)	Va(kV)	Vr(V)		Min.	Max.		
a	0	Cathode-grid potential 250 V minimum.			Insulation C-G (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	6.25	1.6	Adjusted					
	Vg adjusted between 0 and -100 V. Frequency varied by means of tuner.				i. Vr (V) ii. Range of oscillation (Mc/s)	-300 9710 to 9588	-550 -	100%	1
e	4.0	6.25	1.6	Adjusted	Power output (mW) at :- i. 9710 Mc/s ii. 9588 Mc/s	 75 75	 - -	100%	 1 2
f	4.0	6.25	1.6	Adjusted	Frequency drift (Mc/s)	-	10	1%	2
	Frequency drift from cold to stable temperature (i.e. after 20 mins. in free air after switching on) observed.								
g	See K1001/A.III				Interelectrode capacity grid to heater + cathode + resonator (pF.)	-	15	Type Approval	

NOTES

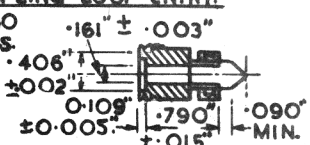
1. Tests to be made with grid and reflector supplies whose respective total series resistances are 50,000 ohms. The Vg and Vr specified may be taken as including the voltage drop across these resistances, as this should be negligible with a good valve. Should the grid lose control of the anode current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

2. In tests "d" and "e", Vg and Vr must lie within the limits given in test "c".

OUTLINE DIMENSIONS

DETAIL OF COUPLING LOOP ENTRY.

THREAD TO BE ½"X 40 T.P.I. TO TABLE 24A B.S. 84-1940. AFTER PLATING.



THESE DIAMETERS TO BE CONCENTRIC WITHIN·010"

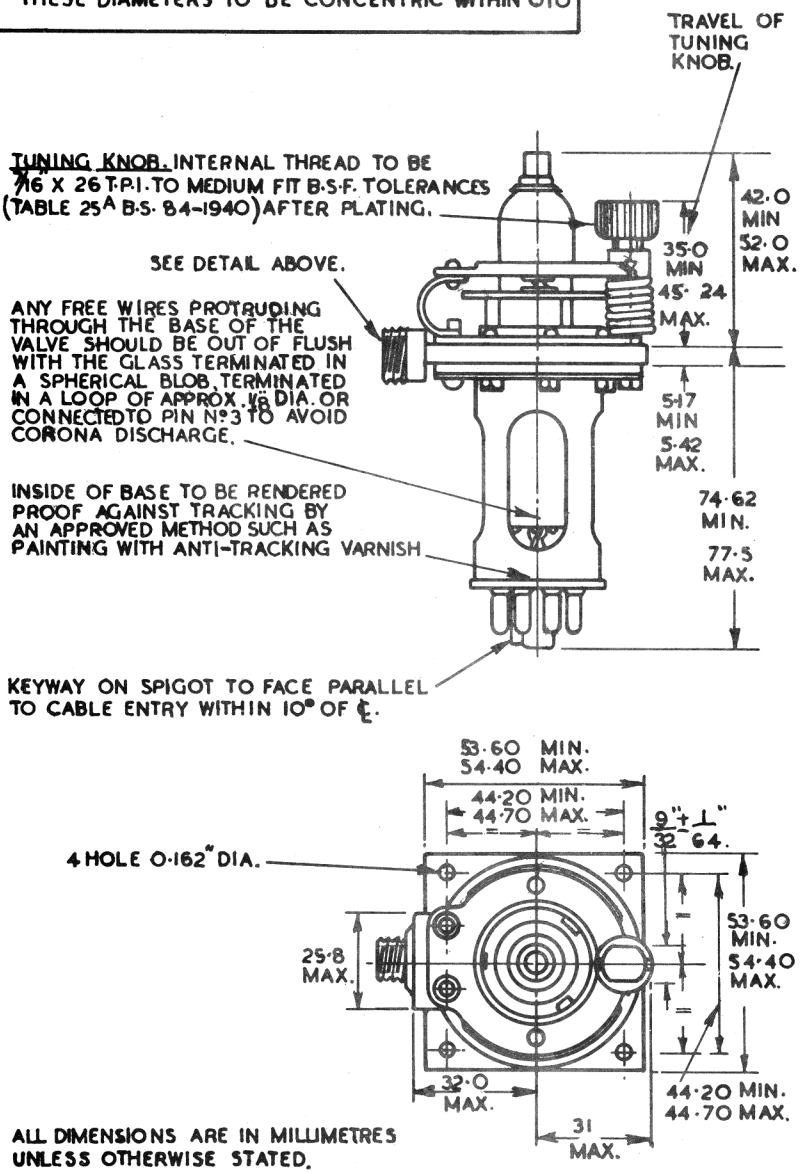
TUNING KNOB. INTERNAL THREAD TO BE 7/16 X 26 T.P.I. TO MEDIUM FIT B.S.F. TOLERANCES (TABLE 25A B.S. 84-1940) AFTER PLATING.

SEE DETAIL ABOVE.

ANY FREE WIRES PROTRUDING THROUGH THE BASE OF THE VALVE SHOULD BE CUT OF FLUSH WITH THE GLASS TERMINATED IN A SPHERICAL BLOB, TERMINATED IN A LOOP OF APPROX. ⅛ DIA. OR CONNECTED TO PIN No 3 TO AVOID CORONA DISCHARGE.

INSIDE OF BASE TO BE RENDERED PROOF AGAINST TRACKING BY AN APPROVED METHOD SUCH AS PAINTING WITH ANTI-TRACKING VARNISH

KEYWAY ON SPIGOT TO FACE PARALLEL TO CABLE ENTRY WITHIN 10° OF ℄.



ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.