ADMIRALTY SURFACE WEAPONS ESTABLISHMENT

Specification AD/CV2111, CV2112, CV2113, CV2114 Issue 2A dated 15. 9. 1961. To be read in conjunction with K1001 ignoring clauses:- 5.2, 5.3, 5.8	SECURITY Specification: Unclassified Valve: Unclassified

TYPE OF VALVE:- Magnetron with pre-plumbed waveguide output. (Waveguide No. 16).
CATHODE: Indirectly heated, oxide coated.
ENVELOPE: Copper and Glass
PROTOTYPE: VX3127, VX3128, VX3129, VX3130

MARKING

See K1001/4
Additional Marking:-
Serial No. .....
See also Note C.

RATING

All limiting values are absolute

			Note
Heater Voltage A.C. (r.m.s.) or D.C.	(V)	6.3	E
Heater Current	(A)	1.3	
Nominal Frequency CV2111	(Mc/s)	9855	C
CV2112	"	9780	
CV2113	"	9700	
CV2114	"	9625	
Max. Frequency Pulling	(Mc/s)	15	
Max. Anode Dissipation	(W)	150	B
Typical Operating Conditions			
Peak Anode Voltage	(kV)	15	A
Peak Anode Current	(A)	10	A
Peak Power Output	(kW)	30	A

DIMENSIONS AND CONNECTIONS

See pages 3 and 4.

PACKAGING

See K1005

NOTES

A. These figures are for pulse operation:-
(i) Pulse repetition frequency: 1500 p.p.s.
(ii) Pulse length : $\frac{1}{2}$ µS.
(iii) Pulse shape : Sensibly square
(iv) Field strength : 3250 oersteds (See Note D).

B. During operation and testing, air must be blown through a suitable fitting enclosing the cooling fins of the anode so that the block temperature does not rise above 140°C.

C. No technical information shall appear on the valve or packing.

D. The valve is expected to operate with any field in the range 3250 ±150 oersteds.

E. If the input power is sufficiently high Vh = 6.3V may be required for starting only, and during operation may be reduced or switched off. Vh must be applied for at least 1½ mins. before Va is applied.

F. The magnetrons shall be processed so as to ensure, as far as possible, that only brief aging (of the order of 5 mins. or less) is necessary when full Va is instantaneously applied, as in service.

G. In use, the cathode lead side of the valve shall be adjacent to the north pole of the magnet.

TESTS

To be performed in addition to those applicable in K1001.

Tests to be performed in the specified order unless otherwise agreed with the Inspecting Authority.

Tests conditions unless otherwise stated:-

Vh (V)	Ia (A)
6.3V	10 peak

	Test	Test Conditions	AQL %	Insp. Level	Symbol	Limits Min.	Limits Max.	Units
a	Heater Current			100%	Ih	1.2	1.4	A
b	Peak Anode Volts	Note 1		100%	Va (pk)	12.5	16.5	kV
c	Frequency	Notes 1 and 2 CV2111 CV2112 CV2113 CV2114		100%		9820 9740 9660 9590	9890 9820 9740 9660	Mc/s
d	Frequency Pulling	Notes 1 and 2		100%		-	15	Mc/s
e	Efficiency	Note 1		100%		20	-	%
f	Frequency Continuity	Ia peak to be varied from 5 to 12A. The change of frequency is to be observed. Note 1.		100%		The frequency shall vary smoothly and without discontinuity.		

NOTES

1. The valve is to be tested under the following test conditions:-

   (i) Pulse repetition frequency : 500 p.p.s.
   (ii) Min. pulse length : 1 μS
   (iii) Pulse shape : Sensibly square.
   (iv) Field strength : 3250 ± 30 oersteds.

   No serious or continued flashing (internal or external) shall occur during the tests.

2. A mismatch producing a v.s.w.r. of 1.5:1 shall be moved through a distance of a half a guide wavelength. Continuous observation of the frequency spectrum shall be made during this operation, and the two extreme frequencies noted.

   The mean between the two extreme frequencies reached during frequency pulling should be taken as magnetron frequency. (Frequency Grouping K1001, Sec. 5F2.8.1).

FIG.1.

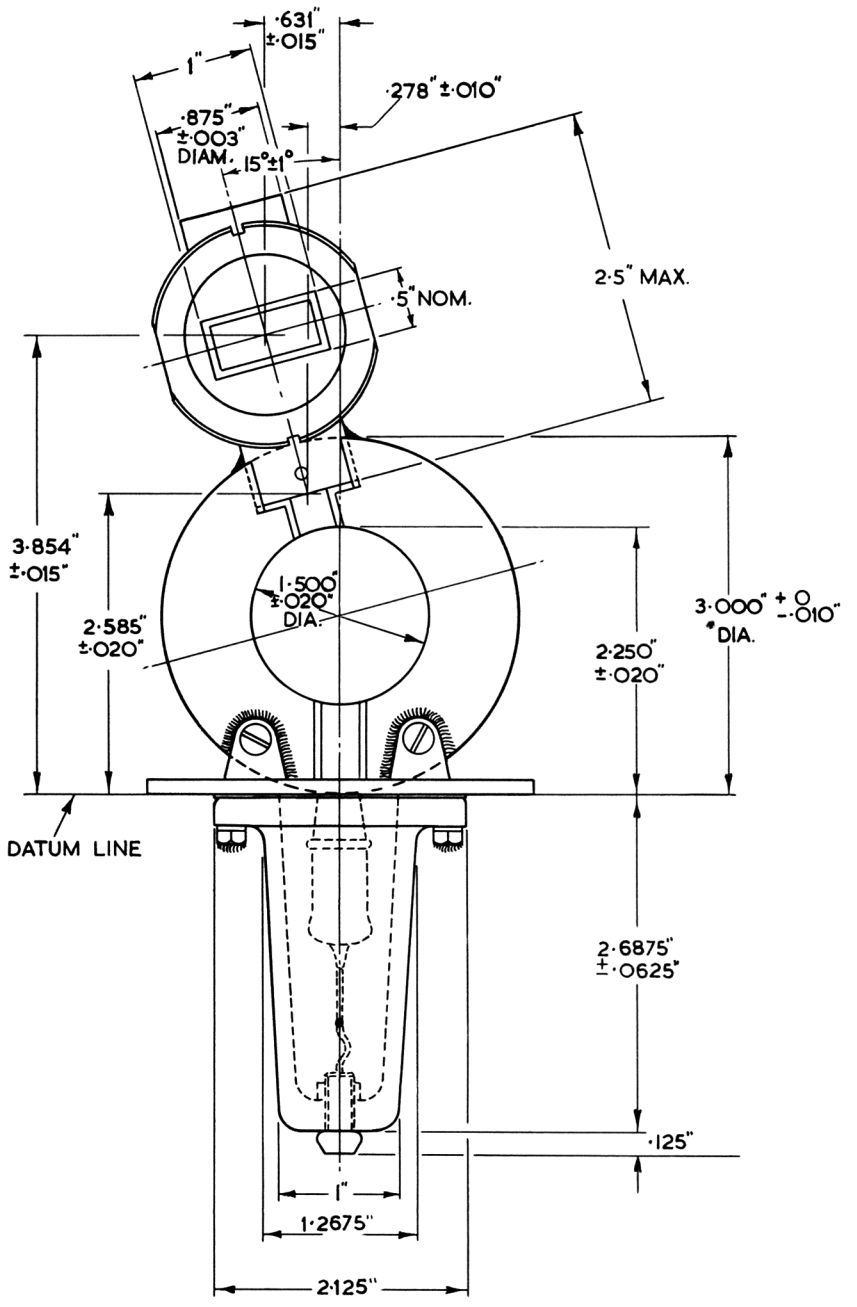
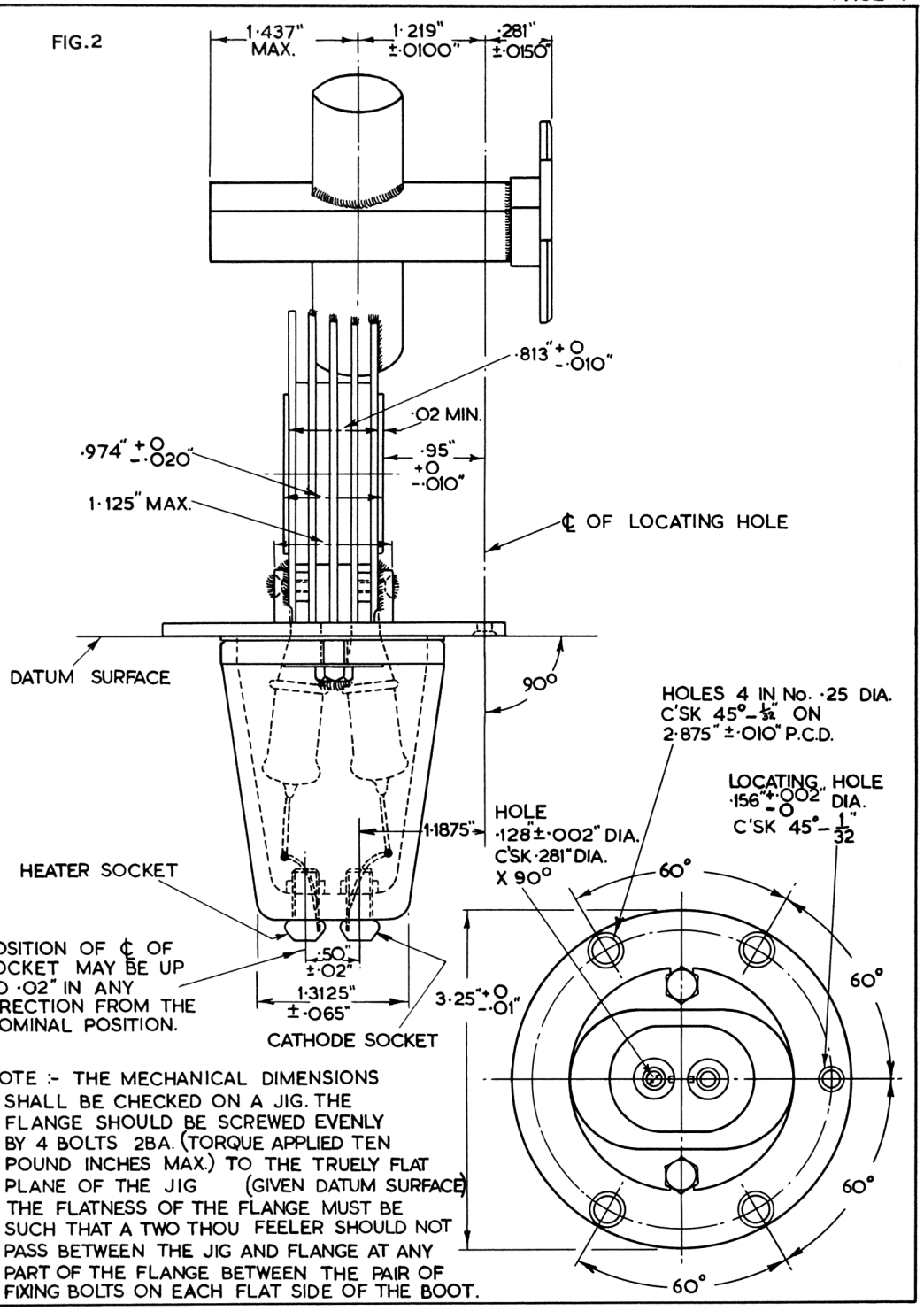

·631" ±·015"
1"
·278" ±·010"
·875" ±·003" DIAM.
15° ±1°
·5" NOM.
2·5" MAX.
3·854" ±·015"
2·585" ±·020"
1·500" ±·020" DIA.
2·250" ±·020"
3·000" +0 -·010" DIA.
DATUM LINE
2·6875" ±·0625"
·125"
1"
1·2675"
2·125"

FIG.2



NOTE :- THE MECHANICAL DIMENSIONS SHALL BE CHECKED ON A JIG. THE FLANGE SHOULD BE SCREWED EVENLY BY 4 BOLTS 2BA. (TORQUE APPLIED TEN POUND INCHES MAX.) TO THE TRUELY FLAT PLANE OF THE JIG (GIVEN DATUM SURFACE) THE FLATNESS OF THE FLANGE MUST BE SUCH THAT A TWO THOU FEELER SHOULD NOT PASS BETWEEN THE JIG AND FLANGE AT ANY PART OF THE FLANGE BETWEEN THE PAIR OF FIXING BOLTS ON EACH FLAT SIDE OF THE BOOT.