

# CV2111-4

VALVE ELECTRONIC

Page 1 (No. of pages:- 4)

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	<u>SECURITY</u> Specification      Valve Unclassified      Unclassified
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<u>TYPE OF VALVE:-</u> Magnetron with pre-plumbed waveguide output. (Waveguide No. 16). <u>CATHODE:</u> Indirectly heated, oxide coated. <u>ENVELOPE:</u> Copper and Glass <u>PROTOTYPE:</u> VX3127, VX3128, VX3129, VX3130	<u>MARKING</u> See K1001/4 Additional Marking:- Serial No. .... See also Note C.
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<u>RATING</u> All limiting values are absolute	<u>DIMENSIONS AND CONNECTIONS</u> See pages 3 and 4.
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<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 40%;">Heater Voltage A.C. (r.m.s.) (V)</td> <td style="width: 10%;">6.3</td> <td style="width: 10%;">E</td> <td style="width: 10%;"></td> </tr> <tr> <td>or D.C.</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Heater Current (A)</td> <td>1.3</td> <td></td> <td></td> </tr> <tr> <td>Nominal Frequency CV2111 (Mc/s)</td> <td>9855</td> <td>C</td> <td></td> </tr> <tr> <td>CV2112 "</td> <td>9780</td> <td></td> <td></td> </tr> <tr> <td>CV2113 "</td> <td>9700</td> <td></td> <td></td> </tr> <tr> <td>CV2114 "</td> <td>9625</td> <td></td> <td></td> </tr> <tr> <td>Max. Frequency Pulling (Mc/s)</td> <td>15</td> <td></td> <td></td> </tr> <tr> <td>Max. Anode Dissipation (W)</td> <td>150</td> <td>B</td> <td></td> </tr> </table>	Heater Voltage A.C. (r.m.s.) (V)	6.3	E		or D.C.				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		<u>PACKAGING</u> See K1005
Heater Voltage A.C. (r.m.s.) (V)	6.3	E																																			
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<u>Typical Operating Conditions</u>																																					
Peak Anode Voltage (kV)	15	A																																			
Peak Anode Current (A)	10	A																																			
Peak Power Output (kW)	30	A																																			

- NOTES
- A. These figures are for pulse operation:-
    - (i) Pulse repetition frequency: 1500 p.p.s.
    - (ii) Pulse length :  $\frac{1}{2}$   $\mu$ S.
    - (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  $\pm$  150 oersteds.
  - E. If the input power is sufficiently high  $V_h = 6.3V$  may be required for starting only, and during operation may be reduced or switched off.  $V_h$  must be applied for at least  $1\frac{1}{2}$  mins. before  $V_a$  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  $V_a$  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            Ia  
(V)            (A)  
6.3V           10 peak

	Test	Test Conditions	AQL %	Insp. Level	Sym- bol	Limits		Units
						Min.	Max.	
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	CV2111 CV2112 Notes 1 and 2 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

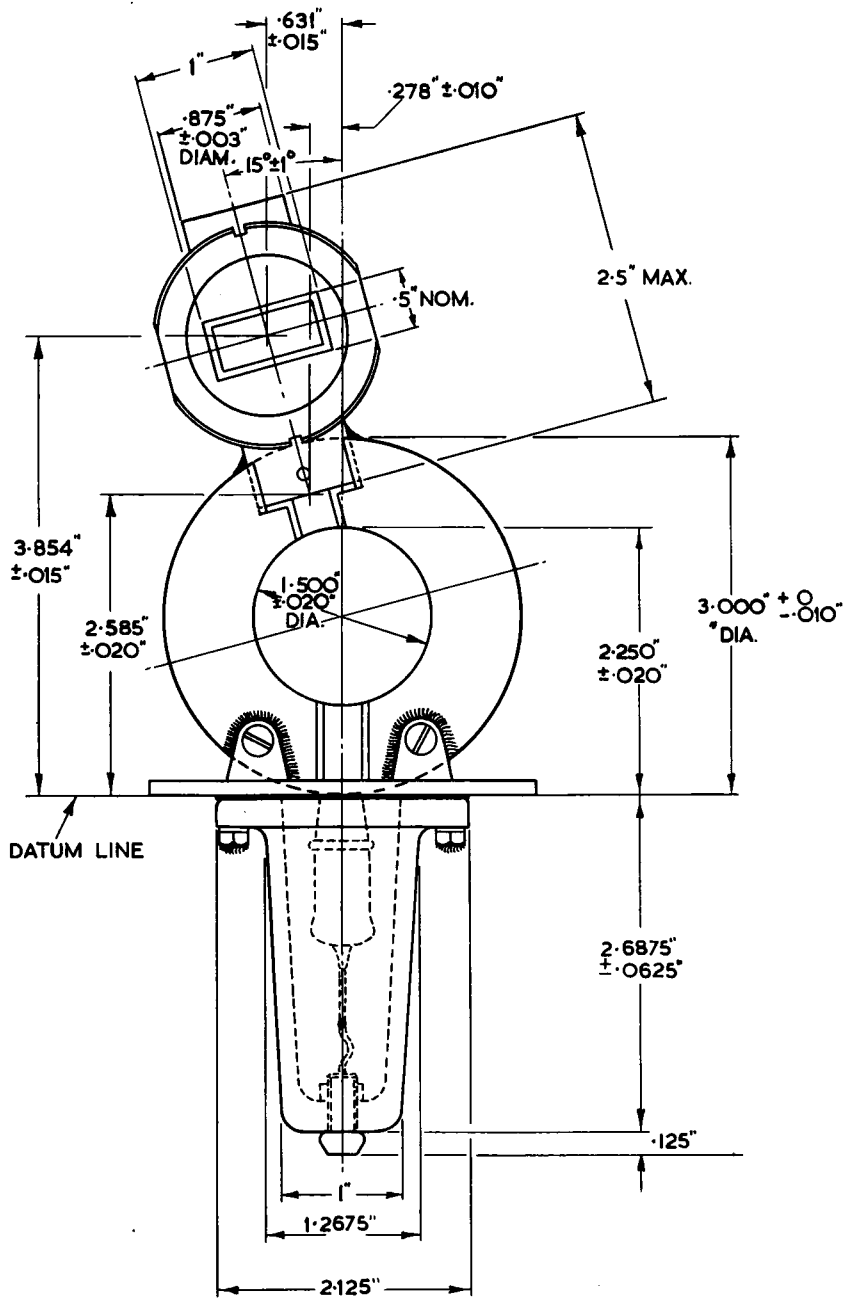
1. The valve is to be tested under the following test conditions:-
  - (i) Pulse repetition frequency : 500 p.p.s.
  - (ii) Min. pulse length : 1  $\mu$ S
  - (iii) Pulse shape : Sensibly square.
  - (iv) Field strength : 3250  $\pm$  30 oersteds.

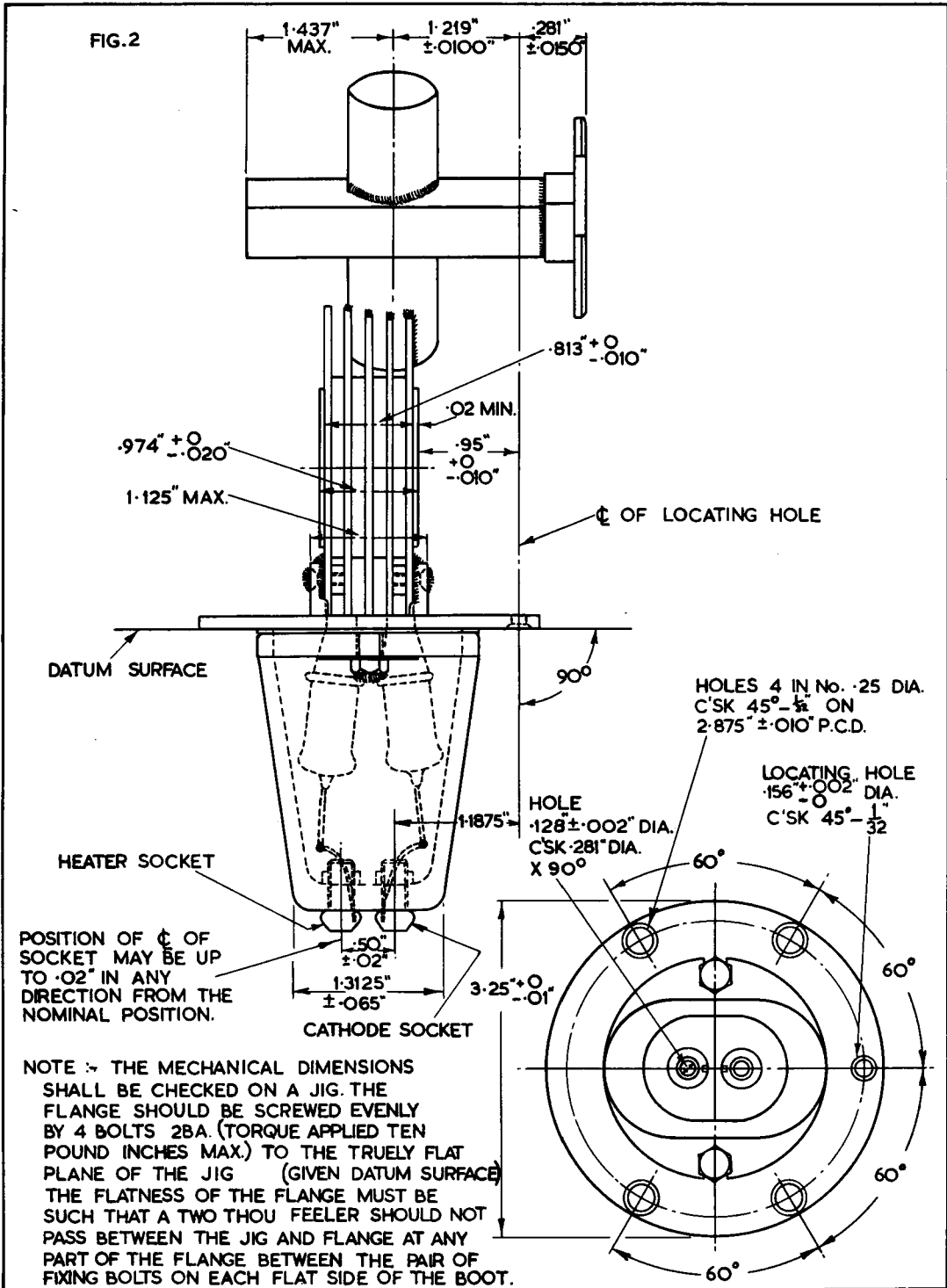
No serious or continued flashing (internal or external) shall occur during the tests.

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.





CV2111, CV2112, CV2113, CV2114 / 2A/4.