MINISTRY OF ~~SUPPLY~~ TECHNOLOGY - DLRD/RRE (South) - VALVE ELECTRONIC

CV 2319

Specification ~~MOS(A)~~ Min Tech/CV2319 Issue 2 Dated 8.9.54 To be read in conjunction with K1001	SECURITY Specification: UNCLASSIFIED Valve: UNCLASSIFIED

→ Indicates a change

TYPE OF VALVE - Magnetron CATHODE - Indirectly-heated ENVELOPE - Metal-glass PROTOTYPE - VX4061	MARKING See K1001/4 and Note E

RATING			Note	BASE
				None
Heater Voltage	(V)	8.5		
Heater Current	(A)	9.0		
Max. Mean Input Power	(kW)	4.5	A,B,C	CONNECTIONS AND DIMENSIONS
Max. Permissible Mean Anode Dissipation	(kW)	3.0	A	See Drawing on Page 3
Nom. Operating Frequency	(Mc/s)	3000		
Max. Frequency Pulling for VSWR = 1.5 to 1	(Mc/s)	7		
TYPICAL OPERATING CONDITIONS			A,B,C, & D.	MOUNTING POSITION
Peak Anode Voltage	(kV)	36		Any
Peak Anode Current	(A)	70		
Peak Power Output	(MW)	1.25		
Rate of Rise of Pulse Voltage	(kV/μsec)	100		
Field Strength	(gauss)	1375		

NOTES

A. During operation the anode shall be water-cooled such that the outlet temperature does not exceed 90°C.

B. Tp = 5 μsecs and PRF = 300 pps.

C. The heater voltage shall be applied for at least 3 mins. before the application of HT voltage.

D. Under these conditions the heater voltage shall be reduced to zero after the application of HT voltage.

E. The word 'cathode' and an arrow shall be clearly and indelibly marked on the valve to indicate to which of the filament leads the cathode is connected.

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TESTS

To be performed in addition to those applicable in K1001

	Test Conditions: Vh (V)	Test Conditions: Field Strength (Gauss)	Test Conditions: Peak Ia (A)	Test	Limits: Min.	Limits: Max.	No Tested	Note
a	8.5	-	-	Heater Current (A)	8	10	100%	1 & 2
b	8.5 See Note 3	1375 ±5% See Note 6	70	1. Peak Anode Voltage (kV)	34	38	100%	2,3
				2. Frequency (Mc/s)	2980	3020	100%	2,3
				3. Efficiency (%)	45	-	100%	2,3
				4. Frequency Pulling (Mc/s)	-	7	10%	2,3,4
				5. Spectrum Width (Mc/s)	-	0.6	TA	2,3,4,5
c	As for Test (b) but peak Ia varied over the range 60-80A			Pulses missed from pi-mode (%)	-	1	100%	2,3 & 4
d	Rate of flow of cooling water through the anode block at 5ft. head (litres/min)				1.5	-	100%	

Amdt 2

NOTES

1. The magnetron shall be operated for a minimum period of 3 mins. with Vh = 8.5V from a 50 c/s supply.

2. During the performance of these tests the magnetron shall be cooled with a minimum flow of 1 litre/min. of water having a maximum input temperature of 50°C.

3. **These tests shall be performed using an approved modulator. The rate of rise of voltage on the magnetron shall exceed 80 kV/usec.**

   Tp = 5 μsecs. ± 10%
   PRF = 300 pps. ± 10%

   The magnetron shall be operated with Vh = 8.5V for a minimum period of 3 mins. when the HT voltage shall be applied and the heater voltage reduced to zero, simultaneously. All subsequent testing shall be performed at Vh = 0.

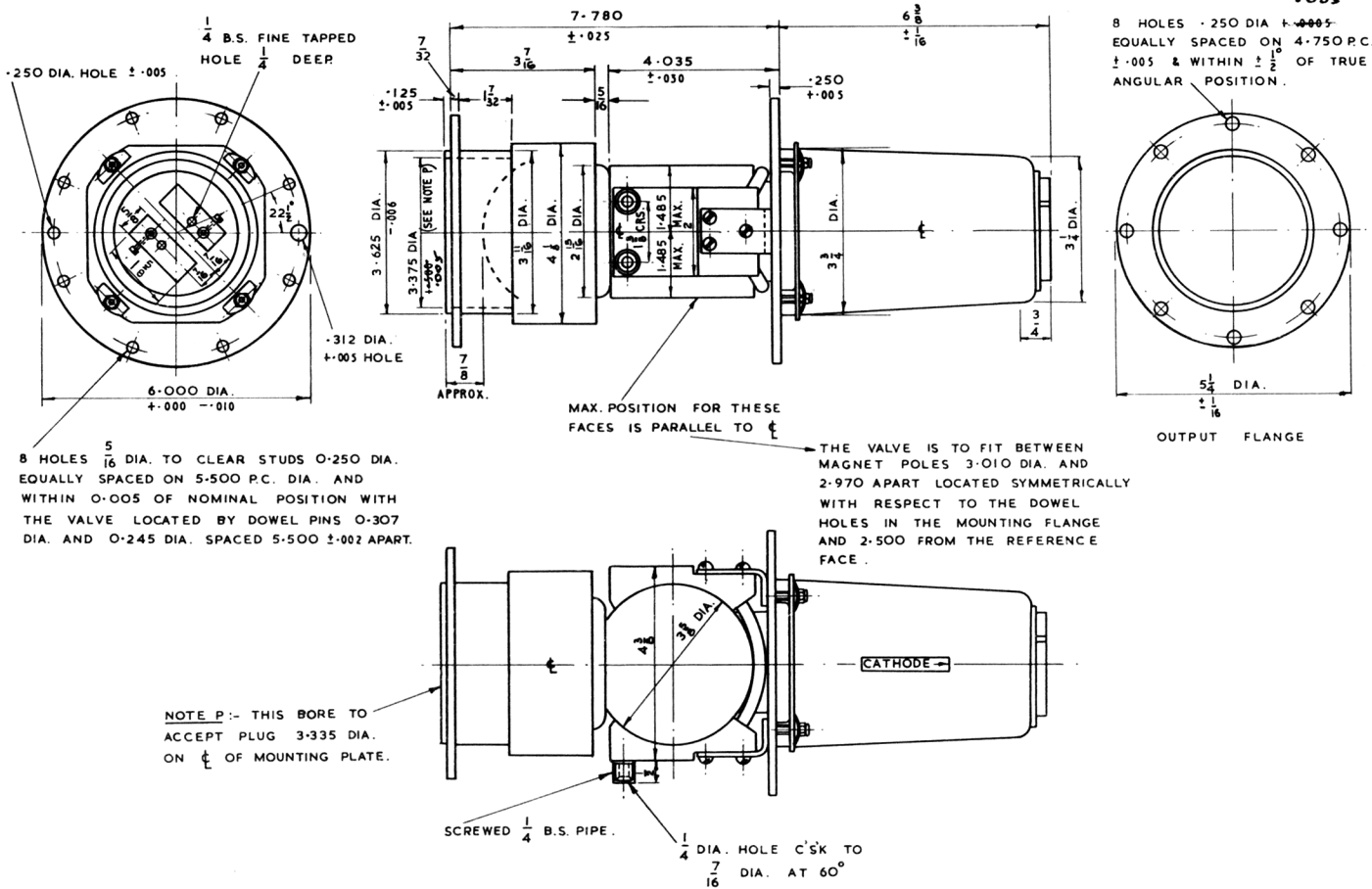
   The magnetic field strength specified shall be measured at the centre of the magnet gap. The overall variation in field strength within a **cylinder** 1½ ins. dia. and 2 ins. in length situated centrally and coaxial within the poles, shall not exceed 10%. The north pole of the magnet shall be adjacent to the cathode lead of the valve.

   The tests shall be performed with the magnetron coupled directly through an approved taper section into No. **WG10** Waveguide, Inter-Services Cat. No. Z830068 terminated in a load giving a VSWR less than 1.1 to 1.

4. **The mismatch used for this test shall be located not more than 5 ft. from the magnetron and shall develop a VSWR of 1.5 to 1, and phase varied through 180°.**

5. The spectrum width shall be measured at ¼-power. The spectrum shall be contained within the specified limits for a minimum period of one second.

6. The "±5%" tolerance on the magnetic field strength allows for measurement uncertainties of ±2% and a setting tolerance of ±3%



ALL DIMENSIONS IN INCHES.

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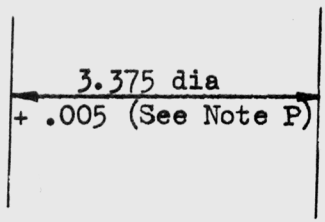
Amendment ~~'A'~~ No1. Amdt 2

Drawing on Page 3

Side elevation - Amend dimension of bore diameter to read



January, 1955

T.V.C. Office
for R.R.E.

Z.8310.R.

ELECTRONIC VALVE SPECIFICATIONS

SPECIFICATION MOS(A)/CV2319, ISSUE 2, DATED 8.9.54

AMENDMENT No. 2

1. Amendment 'A', dated January 1955.

Change the amendment from "Amendment A" to "Amendment No. 1".

2. Page 1.

(i) Specification Authority (top of page).

Delete "MINISTRY OF SUPPLY - DLRD(A)/RRE (South)" and substitute "MINISTRY OF TECHNOLOGY - DLRD/RRE".

(ii) Specification Title (top left hand box).

Delete "Specification MOS(A)/CV2319" and substitute "Specification Min. Tech./CV2319".

3. Page 2.

(i) Test Clause (b)

In the column headed "Field Strength (Gauss)", delete "1375 ±25" and substitute "1375 ±5%, See Note 6".

(ii) Notes

Insert new note 6, as follows:-

"6. The "±5%" tolerance on the magnetic field strength allows for measurement uncertainties of ± 2% and a setting tolerance of ± 3%".

ELECTRONIC VALVE SPECIFICATIONS
SPECIFICATION CV 2319, ISSUE 2 DATED 8.9.54
AMENDMENT No 3

PAGE 3 OUTLINE DRAWING

VIEW OF OUTPUT FLANGE (top left hand side of page)

The first line of the text states "8 holes, .250 dia + .0005"

amend this to read "8 holes, .250 dia + .005"

Ministry of Technology/RRE

August 1970

JAB 12/4/71