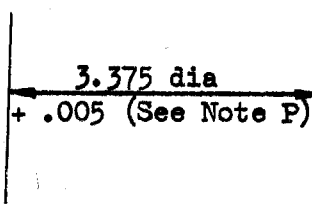


Amendment 'A'

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.

Specification MOS(A)/CV2319 Issue 1 Dated 23.6.54 To be read in conjunction with K1001	<u>SECURITY</u>	
	<u>Specification</u>	<u>Valve</u>
	UNCLASSIFIED	UNCLASSIFIED

TYPE OF VALVE - Magnetron CATHODE - Indirectly-heated ENVELOPE - Metal-glass PROTOTYPE - VX4061		<u>MARKING</u>
		See K1001/4 and Note E
<u>RATING</u>	Note	<u>BASE</u>
Heater Voltage (V)	8.5	None
Heater Current (A)	9.0	
Max. Mean Input Power (kW)	4.5	<u>CONNECTIONS AND DIMENSIONS</u>
Max. Permissible Mean Anode Dissipation (kW)	3.0	See Drawing on Page 3
Nom. Operating Frequency (Mc/s)	3000	
Max. Frequency Pulling for VSWR = 1.5 to 1 (Mc/s)	7	
<u>TYPICAL OPERATING CONDITIONS</u>		<u>MOUNTING POSITION</u>
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.  $T_p = 5 \mu\text{secs}$  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.

CV2319/1/1

Z.6616.R.

To be performed in addition to those applicable in K1001

Test Conditions			Test	Limits		No Tested	Note	
Vh (V)	Field Strength (Gauss)	Peak Ia (A)		Min.	Max.			
a	8.5	-	-	Heater Current (A)	8	10	100%	1 & 2
b	8.5 See Note 3	1375 ±25	70	1. Peak Anode Voltage (kV) 2. Frequency (Mc/s) 3. Efficiency (%) 4. Frequency Pulling (Mc/s) 5. Spectrum Width (Mc/s)	34 2980 45 - -	38 3020 - 7 0.6	100% 100% 100% 10% TA	2,3 2,3 2,3 2,3,4 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%	

NOTES

- The magnetron shall be operated for a minimum period of 3 mins. with Vh = 8.5V from a 50 c/s supply.
- 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.
- These tests shall be performed using an approved modulator. The minimum rate of rise of pulse voltage at the magnetron operating voltage shall be 80 kV/usoc.

$$T_p = 5 \text{ usecs. } \pm 10\%$$

$$PRF = 300 \text{ pps. } \pm 10\%$$

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. WEL10 Waveguide, Inter-Services Cat. No. Z830068 terminated in a load giving a VSWR less than 1.1 to 1.

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

