

Specification MOS(A)/CV.2354 Issue 2 Dated 14.9.55 To be read in conjunction with BS448 and K1001 ignoring clauses: 5.2, 5.3 and 5.8	<u>SECURITY</u>	
	<u>Specification</u> UNCLASSIFIED	<u>Valve</u> UNCLASSIFIED

TYPE OF VALVE - Velocity Modulated Local Oscillator with Tunable Internal Cavity Resonator having coaxial line output.		<u>MARKING</u> See K.1001/4			
CATHODE - Indirectly Heated		<u>TOP CAP</u> B.S.448/CT2			
ENVELOPE - Metal/Glass					
PROTOTYPE - R.6015					
<u>RATING</u>		<u>BASE</u> B.S.448/B8G			
		Note			
Heater Voltage	(V) 6.3	A,B,D B,C B,G,F	<u>CONNECTIONS</u>		
Heater Current	(A) 0.9		C	1	Cathode
Max. Resonator Voltage	(V) 300			2	Internally Connected
Normal Resonator Voltage	(V) 275			3	Grid
Reflector Voltage Range	(V) -50 to -250		4	Heater	
Grid Voltage Range	(V) 0 to -100	B	5	Grid	
Max. Resonator Current	(mA) 70	A,D	6	Heater	
Min. R.F. Power output	(mW) 40		7	Internally Connected	
Mechanical Tuning Range	(Mc/s) 4270 to 4760		8	Grid	
Min. Electronic Tuning Range	(Mc/s) 10	E	TC	Reflector	
Max. Reflector Voltage Change over 10 Mc/s range	(V) 50		Metal Envelope	Resonator	
Mean Reflector Voltage Change over 10 Mc/s range	(V) 30		<u>DIMENSIONS</u> See Drawings on pages 4 and 5		
Max. total impedance in reflector to cathode circuit	(MΩ) 0.25		<u>MOUNTING POSITION</u> Any Note H		
There shall be no appreciable potential difference between heater and cathode.					
<u>NOTES</u> See page 2					

NOTES

- A. Absolute Value.
- B. The voltages quoted in this specification are relative to cathode. The valve is normally operated with the resonator at earth potential.
- C. It is preferable that the resonator voltage is not switched on until at least 60 seconds after the heater.
- D. The temperature of the valve envelope should not at any point exceed 200°C, nor should that of the external metal parts exceed 150°C. Forced air cooling is not normally necessary.
- E. Measured at half-power points.
- F. If a high impedance reflector supply is used, the circuit must include a diode to prevent the reflector reaching a potential more positive than the cathode.
- G. The reflector voltage required depends on the frequency and mode of oscillation. Over the specified frequency range the specified power is obtained at a voltage within the limits stated.
- H. The valve is mounted on a waveguide of internal dimensions 2" x 1", terminated by a matched load. A reflecting plunger at the valve end of the waveguide is fixed at a distance from the output probe corresponding to a quarter wavelength at midband (4545 Mc/s).

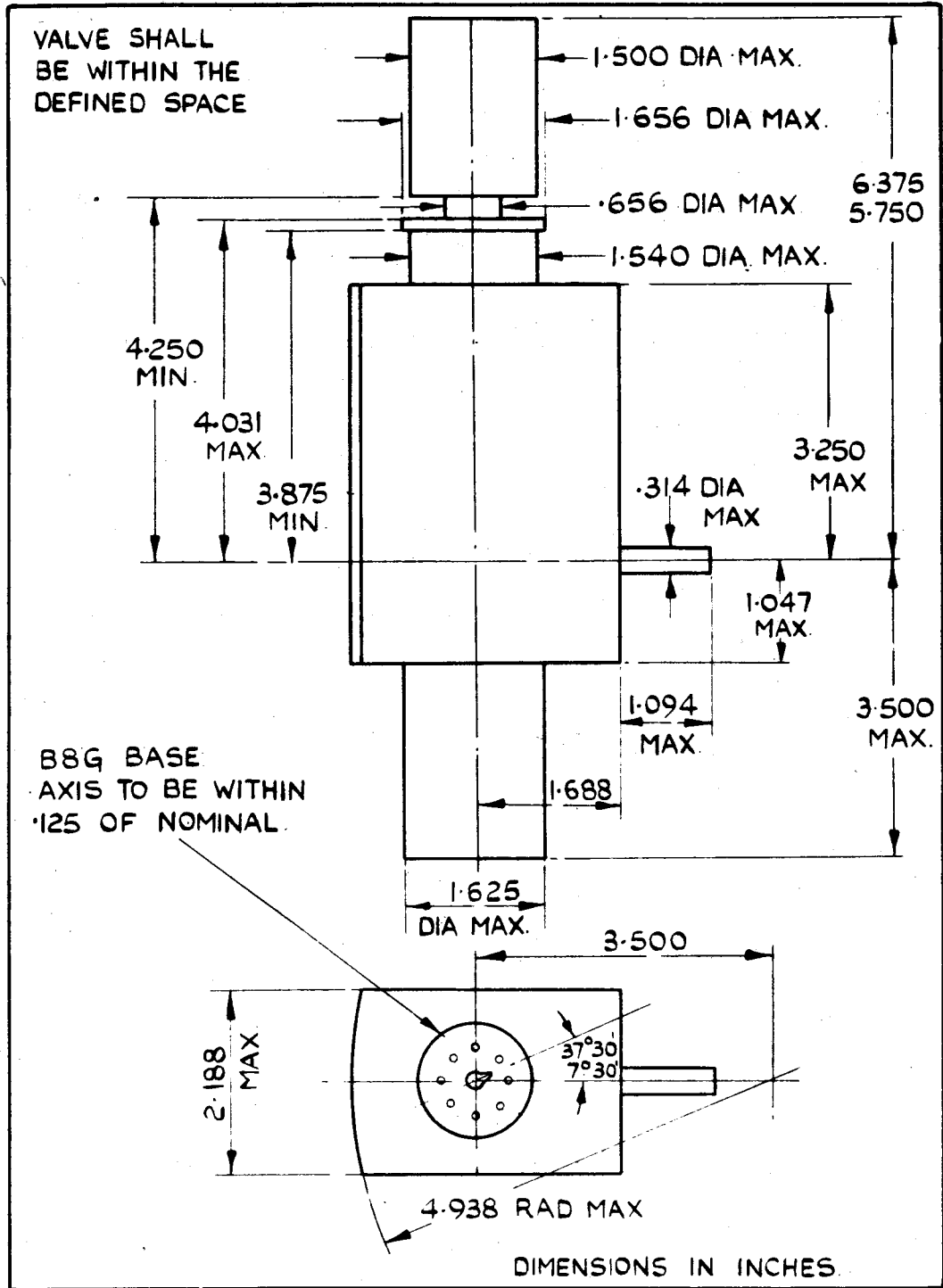
To be performed in addition to those applicable in K.1001

Test Conditions					Tests	Limits		No. Tested	Note
Vh (V)	Vg (V)	Vres. (V)	Vref. (V)	Freq. (Mc/s)		Min.	Max.		
a	6.3	0	0	0	Ih (A)	0.8	1.0	100%	1
b	6.3	0	275	Adjust for max. power	4270	(1) Ia (mA) (2) Vr (V) (3) Ir (μA) (4) Power (mW) output	- 70 -50 -250 -10 10 4.0 300	100% 100% 100% 100%	1,4
c	6.3	0	275	Adjust Vr less -ve for half power; Note value (Vr1) Adjust Vr more -ve for half power; Note value (Vr2)	f = 4270 Note value (f1) Note value (f2)	(1) f1-f (Mc/s) (2) f-f2 (Mc/s) (3) f1-f2 (Mc/s/V) Vr2-Vr1	5 - 5 - 0.2 2.2	100% 100% 100%	1,2,3
d	As test b			4760	As test b				
e	As test c			4760	As test c				
f	As test b			4515	As test b				
g	As test c			4515	As test c				
h	5.8	0	275	Adjust for max. power	Any value	Ia	observe value	100%	1
j	6.8	0	275	Re-adjust for max. power	-	Change in Ia from value in test (h) (%)	- 15	100%	1,2
k	Electrical Re-test after 28 days holding period As test b			4515	As test b 5				

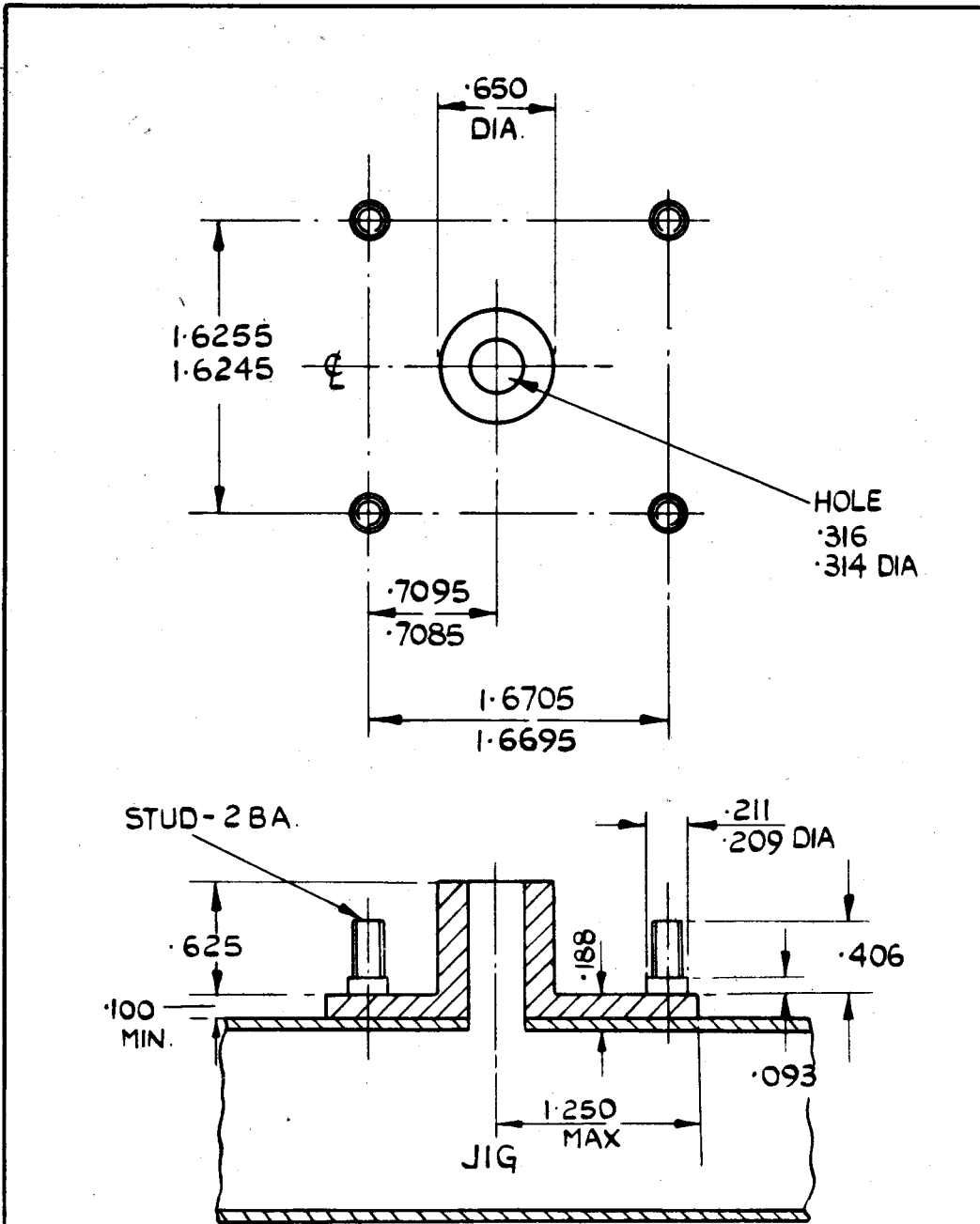
## NOTES

- The valve shall be run under normal operating conditions for a minimum period of 10 minutes before carrying out tests (a) to (k).
- Tests (c), (e), (g) and (j) are to be done with mechanical tuning set as in tests (b), (d), (f) and (h) respectively.
- There shall be no discontinuity in the rate of change of power with reflector voltage between the half power points.
- The frequency shall be adjusted by means of the mechanical tuning with the reflector voltage adjusted simultaneously for maximum power.
- That part of Ir due to the ion current shall not have increased over the original value by more than the expected error of measurement.

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CV.2354/2/4



VALVE SHALL FIT ONTO JIG BY MEANS OF 4 CAPTIVE SCREWS

DIMENSIONS IN INCHES

LIMITS UNLESS OTHERWISE STATED TO BE  $\pm .005$