VALVE ELECTRONIC **CV160**

MINISTRY OF SUPPLY (S.R.D.E.)

Specification: MOS/CV160/Issue 4 Dated:- 17.8.48. To be read in conjunction with K1001.	SECURITY Specification [redacted] Unclassified Valve Unclassified

→ indicates a change

TYPE OF VALVE:- Magnetron
CATHODE:- Indirectly heated
ENVELOPE:- Metal, glass

MARKING
See K1001/4. Additional marking:-Serial No....

RATING		Note
Heater voltage (V)	6.0	
Heater current (A)	1.25	
Frequency (Mc/s)	3000-3125	A
Max. mean input power	500	2
Max. frequency pulling for k = 0.2 (Mc/s)	7	3(a)
Typical operating conditions		
(1) Peak anode voltage (kV)	22.5	
Peak anode current (A)	22.5	
Field strength (gauss)	2050	
Peak power output (kW)	200	
(2) Peak anode voltage (kV)	18.0	
Peak anode current (A)	17.5	
Field strength (gauss)	1750	
Peak power output (kW)	100	

BASE
None

CONNECTIONS AND DIMENSIONS

See Fig. 1 page 4.

NOTES

A. The spot frequency of each magnetron to lie within this range.

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TESTS

To be performed in addition to those applicable in K1001

	Test Conditions See notes 1 and 2.			Test	Limits		No. Tested	Notes
	Field (gauss)	Vh (V)	Peak Ia (A)		Min	Max		
a	-	6.0	-	If (A)	1.0	1.5	100%	
b	2050±25	6.0	22.5	Frequency (Mc/s)	3000	3125	100%	
c	2050±25	6.0	22.5	Peak Va (kV)	21.0	24.0	100%	3(b)
d	2050±25	6.0	22.5	Efficiency	35%	-	100%	3(c)
e	2050±25	6.0	22.5	Frequency Pulling (Mc/s)	-	7	100%	3(a)
f	-	6.0	-	Cold impedance test (TR distance in cms.)	10.0	11.0	T.A. test	4

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NOTES

1. Tests (b) to (f) inclusive shall be carried out with B.T.H. modulator Type AS.2132 and a Magnetron Feed Section of approved type, terminated in a resistive load having a standing-wave-ratio in voltage of less than 1.1. It shall be a condition of type approval that the magnetron operates satisfactorily with the same feed section, but with A.A. No. 2, Mk.IX Modulator Unit No. 9 and test conditions as listed under Typical Operating Conditions "2".

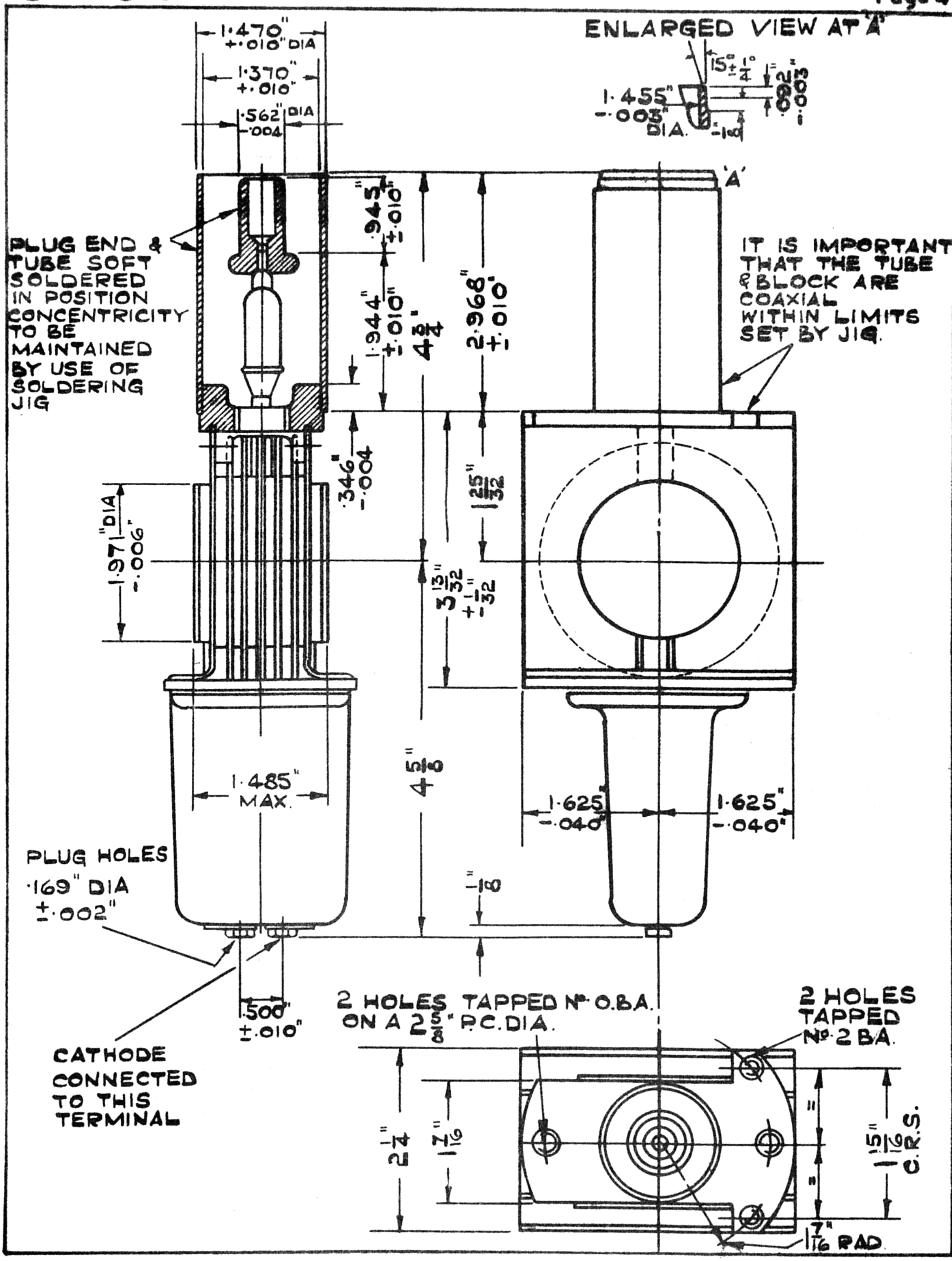
2. In operation, the valve must be air-cooled to maintain the temperature of the anode block below 140°C. Under test the anode block temperature should approach 140°C.

3. (a) Frequency pulling shall be measured by moving a slug, having a reflection co-efficient K of 0.2 through a half-wavelength in the line and observing the maximum and minimum frequency of the magnetron by means of a spectrometer or by an approved alternative method. There should be no discontinuity of frequency during the movement of the slug.

   (b) For convenience of test the peak Va test (c) may be made with the K = 0.2 slug set at the position giving maximum kV. In this case the modified limits are 21.5 - 24.5 kV.

   (c) Likewise the efficiency (test d) may, for convenience, be measured with the K = 0.2 slug set for maximum kV. The modified minimum efficiency limit is then 40%.

4. Type approval feature only. For the cold impedance test (f) a source of C.W. oscillation of frequency equal to that of the magnetron is injected into the standard feed section. The position of the standing wave voltage minimum in this line must be within 10.0 and 11.0 cms. of the front surface of the mounting plate of the magnetron. The magnetron frequency for this test is to be determined in an approved manner. It is that which would obtain if the valve were working into a purely resistive load with the block temperature at the value in fact occurring during the cold impedance test.


ENLARGED VIEW AT 'A'
15° ± 1°/4
1·455" -·003" DIA.
'A'
1·470" +·010" DIA
1·370" +·010"
·562" DIA -·004
PLUG END & TUBE SOFT SOLDERED IN POSITION CONCENTRICITY TO BE MAINTAINED BY USE OF SOLDERING JIG
·945" ±·010"
1·944" ±·010"
4 3/4"
2·968" ±·010"
IT IS IMPORTANT THAT THE TUBE & BLOCK ARE COAXIAL WITHIN LIMITS SET BY JIG.
·346" -·004
1 25/32"
1·971" DIA -·006"
3 13/32" +1/32 -1/32
1·485" MAX.
4 5/8"
1·625" -·040"
1·625" -·040"
1/8"
PLUG HOLES ·169" DIA ±·002"
·500" ±·010"
CATHODE CONNECTED TO THIS TERMINAL
2 HOLES TAPPED Nº O.B.A. ON A 2 5/8" P.C. DIA.
2 HOLES TAPPED Nº 2 BA.
2 1/4"
1 7/16"
1 15/16" C.R.S.
1 7/16" RAD