

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

Specification: MOS/CV160/Issue 4	<u>SECURITY</u>	
Dated:- 17.8.48.	<u>Specification</u>	<u>Valve</u>
To be read in conjunction with K1001.	Restricted	Unclassified

→ indicates a change

<u>TYPE OF VALVE:-</u> Magnetron <u>CATHODE:-</u> Indirectly heated <u>ENVELOPE:-</u> Metal, glass		<u>MARKING</u>
		See K1001/4. Additional marking:-Serial No....
<u>RATING</u>	Note	<u>BASE</u> None
Heater voltage (V) 6.0		<u>CONNECTIONS AND DIMENSIONS</u>
Heater current (A) 1.25		
Frequency (Mc/s) 3000-3125	A	See Fig. 1 page 4.
Max. mean input power 500	2	
Max. frequency pulling for k = 0.2 (Mc/s) 7	3(a)	
<u>Typical operating conditions</u>		<u>NOTES</u>
(1) Peak anode voltage (kV) 22.5		A. The spot frequency of each magnetron to lie within this range.
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		

CV160

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

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.

