MINISTRY OF SUPPLY (DCD)

VALVE ELECTRONIC **CV192**

Specification MAP/CV192/Issue 4
Dated 16.1.49
To be read in conjunction with K1001
ignoring clauses:- 5.2, 5.3, 5.8.

SECURITY

Specification	Valve
~~RESTRICTED~~ Unclassified	UNCLASSIFIED

→ Indicates a change

TYPE OF VALVE	Magnetron
CATHODE	Indirectly heated
ENVELOPE	Copper
PROTOTYPE	Modified CV64 for high power and for use in a pressurised box.

MARKING

See K. 1001/4 and Note B.

PACKING

See K. 1005

BASE

None

DIMENSIONS AND CONNECTIONS

See Drg. on Page 4.

RATING			Note
Heater Voltage	(V)	6.0	
Heater Current	(A)	1.25	
Nom. Operating Frequency	(Mc/s)	3300	
Max. Anode Dissipation	(W)	250	A
TYPICAL OPERATING CONDITIONS			
Peak Anode Voltage	(kV)	21.5	A
Peak Anode Current	(A)	23	A
Field Strength	(gauss)	1880	
Peak Power Output	(kW)	225	A

NOTES

A:- When operating under these conditions, with heat extracted from the fine machined face, the magnetron must be cooled so that the maximum temperature of the cooling block does not exceed 140°C.

B:- Under the type number shall appear a figure 1, 2, 3, or 4, which shall correspond with the position of the adjustable matching section giving 80% max. power as determined in test (c).

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TESTS

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

Clause	Test Conditions				Test	Limits		No. Tested	Notes
						Min.	Max.		
	Field Strength (gauss)	Vh	Modulator H.T. Line Voltage (kV).	Peak Ia(A)					6
(a)	0	6.0	0	0	Ih(A)	1.0	1.5	100%	
(b)	1880 ± 25	6.0	7.25 ± 0.1	23	Peak Output Power (kW)	160	-	100%	2 and 4
(c)	1880 ± 25	6.0	7.25 ± 0.1	23	Peak Va (kV)	19	24	100%	2 and 5
(d)	1880 ± 25	6.0	7.25 ± 0.1	23	Output Frequency (Mc/s)	3288	3312	100%	2 and 5
(e)	1880 ± 25	6.0	Varied to give required range of Ia.	Varied over range 19 to 24.	The Output frequency shall vary smoothly with input current, and shall show no discontinuities over this range.			100%	2 and 5
(f)	1880 ± 25 Phase of Standing Wave at Wavelength of 7 cm. is to be varied through 180° at valve by means of line lengthener	6.0	7.25 ± 0.1	23	There shall be no continuous base line or multiple trace on the pulse form.			5% (10)	2, 3 and 5

NOTES

1. For the above tests the maximum temperature of the cooling block shall not exceed 140°C.

2. This test shall be carried out using a modulator type 158 (pulse length 1 μsec. and P.R.F. of 800 per sec.), a transformer type 160, ref. no. 10KB/6158, with a capacitance of 1400 pF. across the primary, and a standard output circuit as used in the H.F. box of TR. 3519, ref. no. 10DB/6206, and a feeder, tubular, type 88 ref. no. 10AB/6586 (adjustable matching section) or other approved apparatus. The waveguide shall be terminated in a resistive load giving S.W.R. better than 0.9 to 1.0 after the feeder, tubular, type 88. The waveguide shall be modified in such a manner as to allow for the attachment of the wavemeter. The modulator type 158 must deliver 500 kW. ± 10% to the valve under test, when the H.T. line voltage is adjusted to 7.25 kV.

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TESTS

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

NOTES Contd.

3. For this test is required, in addition to the apparatus described in Note 2, a mismatch section to give S.W.R. greater than 10 to 1 in the 7 cm. band without affecting appreciably the impedance at 9.1 cm. i.e. - S.W.R. still better than 0.9 to 1.0after the feeder tubular, type 88, together with a line lengthener which will vary the phase of the 7 cm. standing wave through 180° at the valve under test. This test shall be carried out using a high speed oscilloscope with a wide band amplifier connected to the output of the wavemeter. During this test the magnetic field distribution must be such as would be obtained with an average magnet, type 6.

4. With matching adjusted for max. output power with feeder, tubular, type 88 in position 4.

5. With matching adjusted for 80% of max. power with feeder, tubular, type 88 in position 1, or if this is not possible, in positions 2, 3 or 4, the positions to be tried in order of ascending numbers.

6. The manufacturer may set up valves under test to modulator line voltage or peak Ia as preferred.

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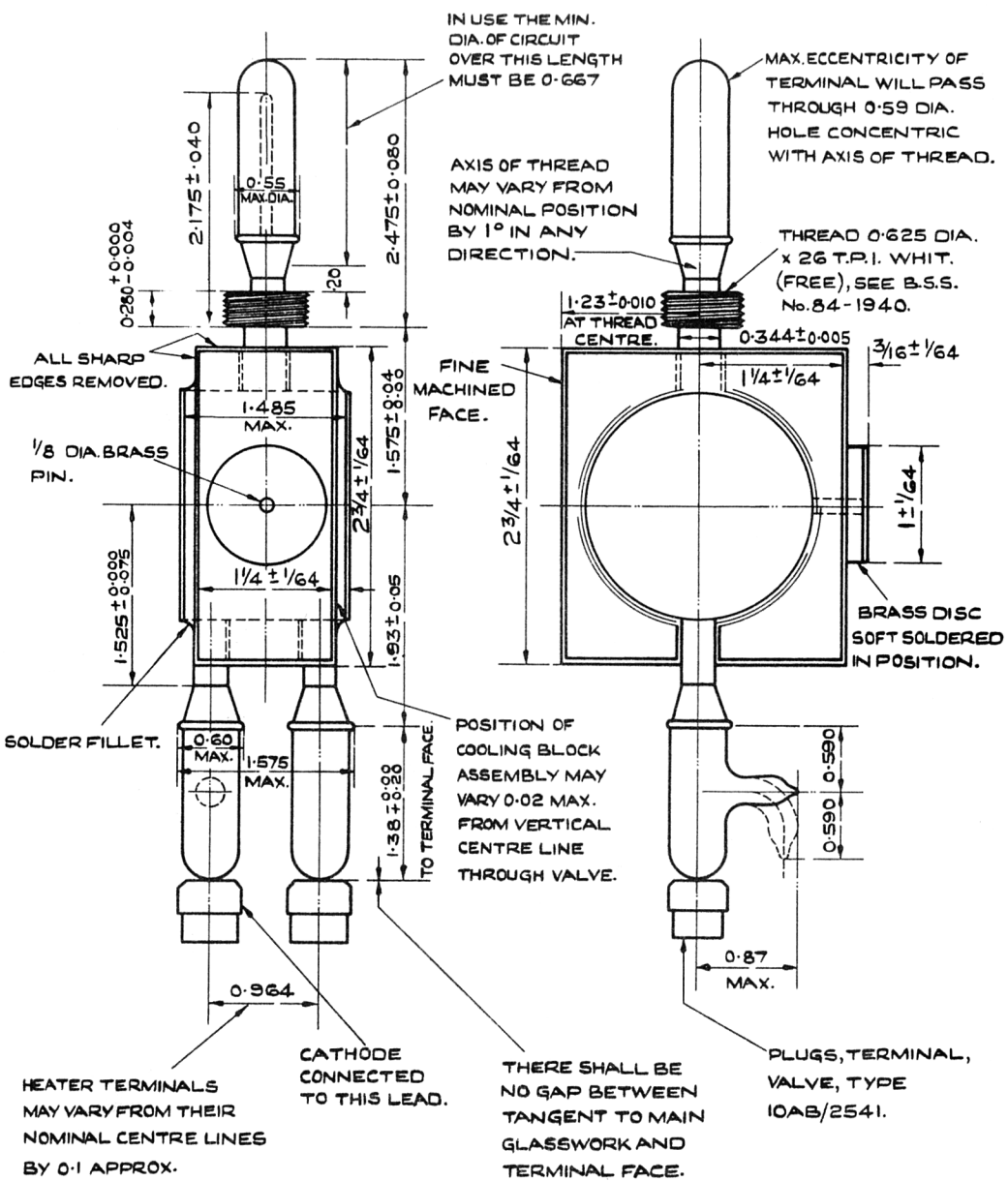

NOTE:- NORMAL MAGNET AIR GAP IS 1·496 ± 0·004.

ALL DIMENSIONS ARE IN INCHES