VALVE ELECTRONIC

MINISTRY OF AVIATION - D.L.R.D./R.A.E.

CV2496

SPECIFICATION MOA/CV.2496 Issue 2A Dated 1.12.61 To be read in conjunction with K.1001 excluding clauses 5.2, 5.3 and 6.8	SECURITY	
	SPECIFICATION	VALVE
	Unclassified	Unclassified

→ Indicates a change

TYPE OF VALVE - Klystron Amplifier

CATHODE - Indirectly Heated

ENVELOPE - Glass/Metal

PROTOTYPE - VX 9167

MARKING

See K.1001/4

BASE

See Drawing on Page 3

RATINGS

			NOTES
Heater Voltage	(V)	5.0	
Heater Current	(A)	40	E
Max. Beam Voltage	(kV)	12	F
Max. Beam Current (peak)	(A)	3.2	A, B
Max. R.F. Output Power (peak)	(kW)	5	
Max. R.F. Input Power	(W)	120	C
Frequency Range	(Mc/s)	960-1215	
Min. Total Air Cooling	(c.f.m.)	220	D

INPUT CONNECTION

B.N.C. Type bayonet to mate with Jack, U.S. Army-Navy Designation UG.88/U.

OUTPUT CONNECTION

Coaxial UG. 45/U to mate with Jack, U.S. Army-Navy Designation UG.1126/U

DIMENSIONS

See Drawing on Page 3

MOUNTING POSITION

Any

NOTES

A. Pulsed supply 3600 pairs/second maximum. 12 μse c. Minimum between pulses in a pair, 30 usec. minimum between pulse pairs. Pulse length to be adjusted to give mean beam current of 150 mA maximum.

B. Magnetic focussing not required.

C. Pulsed or C.W.

D. 20 c.f.m. free air at base seats, 100 c.f.m. at 0.1 inch H20 distributed over tube body and 100 c.f.m. at 0.4 inch H20 for collector.

E. Heater Current must not exceed 70 Amps, on initial switching on.

F. If new valves or stored valves require a special start up procedure this should consist of applying the Beam Voltage in steps of 33, 60 and 100 per cent of the rated Beam Voltages. The rated power output shall be attained in 2 hours.

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TESTS

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

	Test Conditions				Tests	Limits		No. Tested	Notes
	Vh(V)	Beam Volts (kV)	P in (W)	f (Mc/s)		Min.	Max.		
a	5.0	0	0	-	Heater Current (A)	37	43	100%	
b	5.0	10	0	0	Peak Beam Current (A)	1.8	3.0	100%	1
→ c	5.0	10	25	1167 ± .2%	Peak Power Output (1) (kW)	4	-	100%	1
→ d	5.0	10	25	960 ± .2%	Peak Power Output (2) (kW)	4	-	100%	1
→ e	5.0	10	25	1215 ± .2%	Peak Power Output (3) (kW)	4	-	100%	1
f	5.0	10	Adjust		RF Power out (5kW) / RF Power in	Record		100%	1,3
→ g	5.0	10	25	1167 ± .2%	Pulse shape	Note 2		100%	1 & 2

NOTES

1. The valve shall be run in an approved test rig. R.A.E. to retain test rig details.

2. The valve shall be deemed a failure when the output pulse shape has deteriorated such that it is outside the limits specified for the standard pulse shape defined as follows:-

   The pulse shall have a pulse duration of 3.5μ secs. ± 0.5μ secs. The pulse rise time shall be 2.5μ secs. ± 0.5μ secs. and the pulse decay time 2.5μ sec.s ± 0.5μ secs. The instantaneous amplitude of the pulse shall not, at any instant between time that it reaches 95 per cent of max. amplitude on the leading edge and 95 per cent of max. amplitude on the trailing edge, fall below 95 per cent of max. amplitude of the pulse.

   From 90 to 95 per cent of peak amplitude on the leading edge of the pulse, the slope of the pulse shall not be negative. The pulse shall reach 95 per cent of peak amplitude in not more than 0.5μ secs. after reaching 90 per cent.

   From 95 to 90 per cent of peak amplitude on the trailing edge of the pulse, the slope of the pulse shall not be positive. The pulse shall reach 90 per cent of peak amplitude in not more than 0.5μ secs. after falling to 95 per cent.

   Definition of Terms
   For the purpose of the specification the following definitions shall apply:-

   (a) Pulse Rise Time - The rise time of the pulse is the time required for the leading edge of the pulse to rise from 10 per cent to 90 per cent of the max. amplitude.

   (b) Pulse Decay Time - The decay time of the pulse is the time required for the trailing edge of pulse to decay from 90 per cent to 10 per cent of the max. amplitude.

   (c) Pulse Duration - The pulse duration shall be the time measured between points on the leading and trailing edges of the pulse which are at 50 per cent of the max. amplitude of the pulse.

3. This test provides an indication of the efficiency of the valve and to enable limits to be set the results on the first twelve valves shall be recorded.

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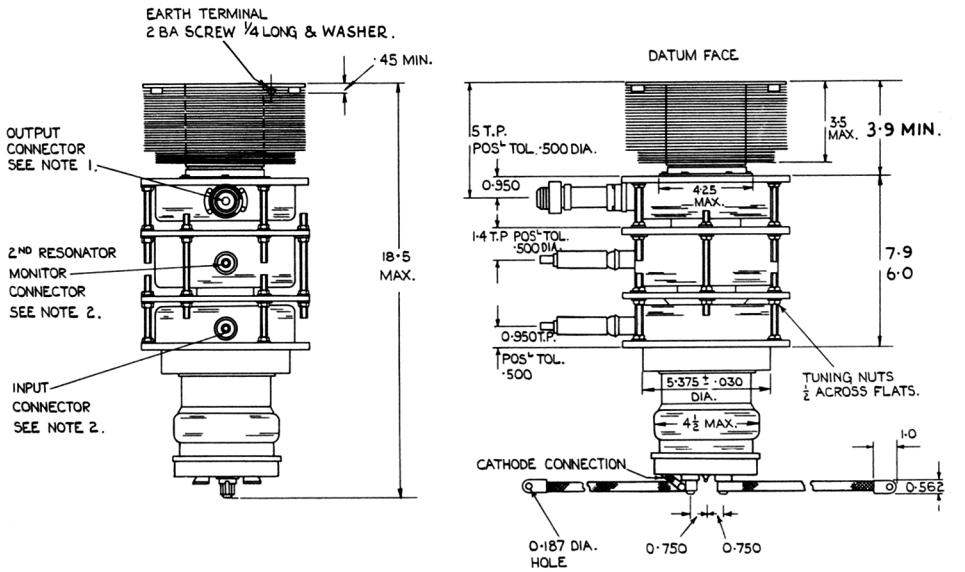

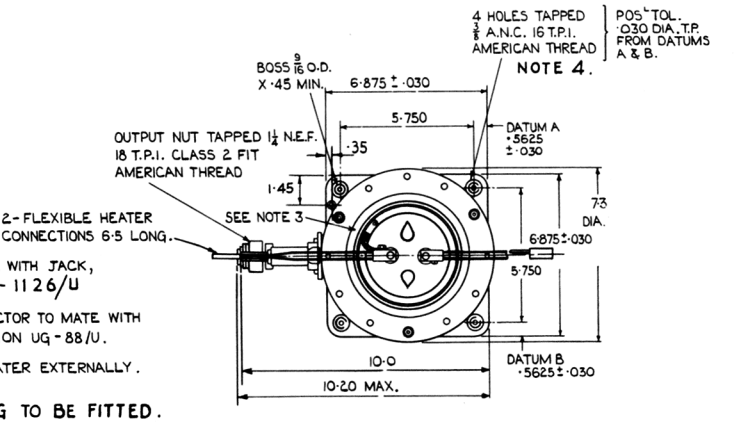

NOTES:- 1. OUTPUT CONNECTOR TO MATE WITH JACK, ARMY - NAVY DESIGNATION UG - 1126/U

2. B.N.C. TYPE BAYONET CONNECTOR TO MATE WITH JACK, ARMY - NAVY DESIGNATION UG - 88/U.

3. CATHODE CONNECTED TO HEATER EXTERNALLY.

4. MATING BOLTS 1" LONG TO BE FITTED.

ALL DIMENSIONS IN INCHES.