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VALVE ELECTRONIC

C.V.6073

MINISTRY OF AVIATION. DLRD/RAE

Specification MOA/CV 6073 Issue No. 1 Dated 1.2.61 To be read in conjunction with K1001, K114,	SECURITY SPECIFICATION: Unclassified VALVE: Unclassified

TYPE OF VALVE:- Power Limiting Gas Cell

PROTOTYPE:- VX1046 (Modified CV6006)

MARKING

See K1001/4

RATINGS			NOTES
Max. Operating Frequency Range	(Mc/s)	7000-11500	
Max. Peak Power	(W)	100	
Min. Primer Supply Voltage	(V)	-600	B
Primer Current	(μA)	100	A

CONNECTIONS

See drawing on Page 6

DIMENSIONS

See drawing on Page 6

PACKAGING

K1001/14

NOTES

A. The primer current shall be limited by a series resistance of 4 M.Ohms, 1 M.Ohm of which is incorporated in the cell terminal.

B. The primer supply voltage to be negative with respect to the cell body.

C. The Joint Services Catalogue Number is 5960-99-037-2327.

C.V.6073

TESTS

To be performed in addition to those applicable in K1001.
The tests (clauses a to e inclusive) are to be performed after a minimum holding period of 7 days.

TEST CONDITIONS:

For all electrical tests Vprimer = -600v. Note 1.

	TEST	TEST CONDITION	Insp Level	Limits Min	Limits Max	Units
a.	Primer Breakdown	Note 6	100%	-	30	Secs
b.	Primer Operating Voltage		100%	260	360	V
c.	Insertion Loss	The valve shall be mounted between matched impedances (V.S.W.R. better than 1.1:1). The line shall be energised by R.F. power not exceeding 10 mW. Primer Current adjusted to 100µA.	100%			
	1.f=7000 Mc/s			0.75	1.25	db
	2.f=7500 Mc/s			0.55	1.05	db
	3.f=8000 Mc/s			0.20	0.70	db
	4.f=8500 Mc/s			0.40	0.90	db
	5.f=9000 Mc/s			0.50	1.00	db
	6.f=9500 Mc/s			0.85	1.35	db
	7.f=10000 Mc/s			0.60	1.10	db
	8.f=10500 Mc/s			0.20	0.70	db
	9.f=11000 Mc/s			0.70	1.30	db
	10.f=11500 Mc/s			1.75	2.75	db
d.	Pulse Recovery Time	The frequency of the simulated echo pulse shall be within the range 9000 Mc/s to 9500 Mc/s and its power incident on the cell shall not exceed 10 mW Pulse length=½µSec and p.r.f. = 1000 p.p.s The frequency of the transmitter pulse shall be within the same range and the peak power 10 W. Notes 2, 3.	100%	-	50	µSecs
e.	Leakage Power	Vary peak input power from 10 mW to 10 W. Pulse length = ½µSec. and p.r.f. = 1000 p.p.s. Note 2	100%			
	1.f=9000 Mc/s				300	mWpk
	2.f=9400 Mc/s				300	mWpk
	3.f=9800 Mc/s				300	mWpk

	TEST	TEST CONDITIONS	Insp. Level	Limits Min	Limits Max	Units
f.	Life Tests	The valves to be run for a minimum period of 1500 hrs. under the following conditions. Min. Peak input power = 1 W. Pulse length = 1 μ Sec and p.r.f. = 1000 p.p.s. Note 2. f = any convenient frequency within the range 9000-9800 Mc/s. Each cell to be fed into a matched load (V.S.W.R. better than 1.1:1)	5% or 6 Samples Note 5			
	Life Test End Points (1500 hours) Repeat test clauses "a" to "e" inclusive			The limits as specified in test clauses "a" to "e" incl. shall apply Note 4		
	Mechanical and Environmental Tests.					
g.	Vibration Endurance	The valves to be vibrated in three mutually perpendicular planes for 8½ hrs. (total 51 hours) at each of the following frequencies and acceleration. 1) f=20 c/s, g = 1.3 2) f=50 c/s, g = 3.0	T.A.			
	Post Vibration Endurance Tests 1) Visual Inspection 2) Repeat test clauses "a" to "e" incl.			There shall be no visual defects. The limits as specified in test, clauses "a" to "e" incl. shall apply		
h.	Resonance Search	K1001 Section 11.2 The valves to be vibrated in three mutually perpendicular planes over the frequency range 5c/s to 2kc/s at a constant acceleration of 2g. Rate of sweep of frequency shall not exceed one octave per minute from 5 c/s to 200 c/s.	T.A.			
	1) Resonances			No resonance shall be detected		
	2) Modulation of Primer Current				1	μA/g

	TEST	TEST CONDITIONS	Insp. Level	Limits Min	Limits Max	Units
j.	Shock Post Shock Tests 1) Visual Inspection 2) Repeat test clauses "a" to "e" incl.	K1001 Section 11.4 Hammer Angle = 30° No voltages			There shall be no visual defects. The limits as specified in test clauses "a" to "e" incl. shall apply.	
k.	Linear Acceleration (Centrifuge) Post Acceleration Tests 1) Visual Inspection 2) Repeat test clauses "a" and "b"	The valves to be subjected to a linear acceleration of 13 g in each of three mutually perpendicular planes. Duration of max.g = 1 min.	T.A.		There shall be no visual defects. The limits specified in test clauses "a" and "b" shall apply.	
l.	Climatic Post Climatic Tests 1) Visual Inspection 2) Repeat test clauses "a" to "e" incl.	The valves to be subjected to the following environments in the sequence specified. 1) Dry Heat K114/5.9 T=90°C t = 12 hrs. 2) Low Temp.K114/5.20 T= -65°C t = 12 hrs. 3) Damp Heat K114/5.11 T=40°C R.H.=95% t = 12 hrs. 4) Low Temp/Low Pressure K114/5.21 T= -65°C P = 5mm Hg, t = 12 hrs. 5) Repeat tests 3 and 4 sequentially, three times. 6) Tropical Life K114/5.13 T.vary 20°C-35°C, R.H.=95% t = 28 days. 7) Fine Mist K114/5.16	T.A.		There shall be no visual defects. The limits specified in test clauses "a" to "e" incl. shall apply.	

NOTES

1. The primer supply shall be D.C. having a ripple voltage less than 1% and shall be negative with respect to the body of the cell. The regulation of the supply shall be negiligible at load currents up to 300μA. The supply shall be connected to the primer through resistances totalling 4 M.Ohms ± 5%, 1 M.Ohm of which is incorporated in the cell terminal.

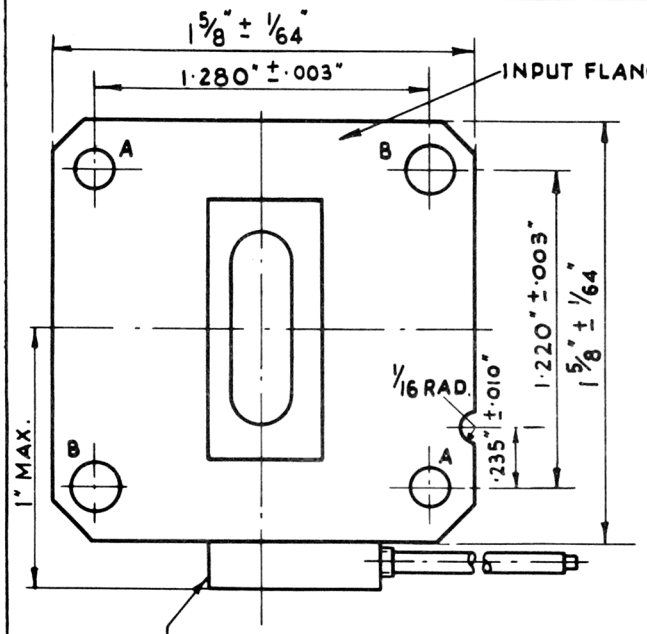
2. An approved tunable magnetron of suitable frequency shall be used (CV2421 or suitable frequency variant).

3. The time shall be measured from the trailing edge of the transmitter pulse to a point where the insertion loss exceeds that immediately before the transmitter pulse by 6 db.

4. At the conclusion of the Post Life Tests, the batch shall be acceptable if not more than 1 valve fails to meet the limits specified in test clauses "a" to "e" inclusive. If more than 1 failure occurs the batch shall be rejected.

5. To enable further Life Test information to be obtained Post Life Test records will be submitted to the Specification Authority.

6. To be performed at least seven days after any previous discharge.

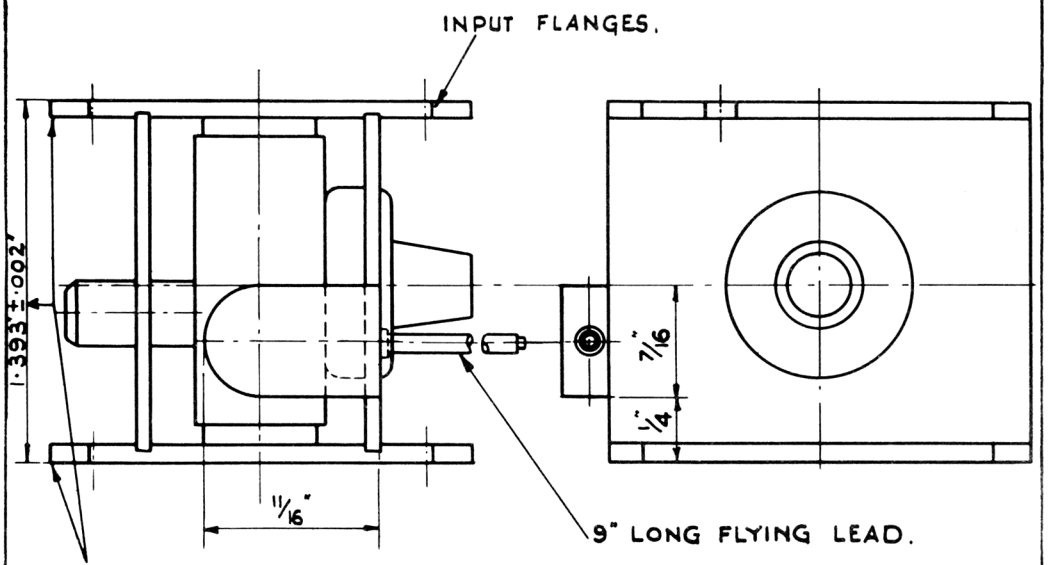


A HOLES – 2 HOLES IN EACH FLANGE ·150" DIA ± ·002" COAXIAL TO EACH OTHER.

B HOLES – 2 HOLES IN EACH FLANGE ·170" DIA ± ·002" COAXIAL TO EACH OTHER.

THESE HOLES ARE POSITIONED AS SHOWN & ARE ON A 1·768" ± ·004" PITCH CIRCLE DIAMETER.

PRIMER ENCAPSULATION BLOCK. (INCLUDES A 1 MΩ RESISTOR.)



OUTLINE DRAWING.