THIS VALVE MAY BE RADIOACTIVE TO CLASS 1 (See K1001 Appendix XX) Amdt 2

~~THIS VALVE MAY BE RADIO-ACTIVE~~ Amdt 1

MINISTRY OF AVIATION - DLRD/RRE

VALVE ELECTRONIC **CV 6086**

Specification MOA/CV 6086 Issue 1 dated 16th September, 1961 To be read in conjunction with K1001	SECURITY Specification: UNCLASSIFIED Valve: UNCLASSIFIED

TYPE OF VALVE - Pre TR. Tube
ENVELOPE - Silica
PROTOTYPE - VX9204

MARKING

K1001 4.1.1 except d, and g.

RATING

			Note
Operating Frequency Range	(kMc/s)	2.5-12	A
Max. Peak Power	(kW)	250	B.D
Max. Mean Power	(W)	250	B
Min. Peak Power	(kW)	2-25	C

DIMENSIONS

See drawing on Page 4.

MOUNTING POSITION

Any. (Note E)

NOTES

A. The tube is intended to be inserted across a suitable waveguide mount at any frequency in the range 2.5-12 k Mc/s. The bandwidth and the matching are determined by the mount.

B. For a single tube operating across both waveguides of a balanced duplexer the power quoted is that value incident on the balanced duplexer.

C. Minimum breakdown power depends upon mount design. When the tube is mounted across W.G.16 breakdown occurs at peak incident power levels above 10 k.W., the ionisation time being about 0.02 microsecond. At S-band, mounted across a resonant iris having a loaded Q of 2, breakdown occurs at less than 2 k.W. incident power when a short circuit is placed $\lambda/4$ behind the tube.

D. In all high power applications adequate choking is required where the tube passes through the waveguide walls. If the power incident on any part of the tube exceeds 125 k.W. peak, provision must be made for the tube to be in contact with the transmitter face of the mount.

E. The hole through which the tube is mounted should be 0.3576 inches $\pm$ 0.0005 DIA.

TYPICAL OPERATION

Primary Switch at 9 - 10 kMc/s Balanced Duplexer

A single tube mounted across W.G.16 gives a v.s.w.r. of less than 1.1 over a band in excess of 1,000 Mc/s with an insertion loss of less than 0.1 dB. For a line power of 250 k.W. peak leakage to the receiver is about 200 ergs spike and 200 W peak flat. Life is in excess of 3,000 hours and recovery time less than 8 microseconds.

Power Limiter at S Band

A single tube may be used as a power limiter in a waveguide iris and with a Q of 2 will breakdown at about 1 k.W. peak line power with a short circuit $\lambda/4$ behind the tube.

J. S. Catalogue No. 5960-99-037-2432

CV 6086

TESTS

To be performed as applicable in K1001

TEST CONDITIONS - UNLESS OTHERWISE SPECIFIED

The valves shall be tested in an approved balanced duplexer in W.G. 16. The maximum v.s.w.r. looking outwards from the balanced duplexer shall not exceed 1.2:1 on any arm.

tp (usecs)	Duty Cycle	Freq. (k Mc/s)
0.2 ± 10%	0.0002 ± 10%	9.5 ± 0.5

K1001	TEST	TEST CONDITIONS	AQL %	Insp. Level	Sym-bol	LIMITS Min.	LIMITS Max.	UNITS
	GROUP A							
5H.4.2.5	Recovery Time to 3 dB	Peak RF power input = 50 kW ± 10% Notes 1 and 2		100%		2	8	usecs
5H.4.2.8	Firing Power	Adjust RF power from a low value until the valve fires		100%		-	20	k.W.
	GROUPS B, C and D omitted							
	GROUP E	Note 3						
7.1	Glass strain	No Voltages		10%				
11.3	Fatigue	No Voltages Frequency any within range 40-200 c/s. Min peak acceleration = 5g Duration = 96 hrs.						
11.4	Shock	Note 4 No Voltages Hammer Angle = 30°						
	Temperature Cycling	No Voltages Three cycles between -40° C and 100°C						
	Post Fatigue Shock and Temp. cycling tests							
	Firing Power	As in Group A				-	20	k.W.

TESTS Cont'd

K1001	TEST	TEST CONDITIONS	AQL %	Insp. Level	Sym-bol	LIMITS Min.	LIMITS Max.	UNITS
	GROUP F omitted							
	GROUP G Re-test after 28 days holding period.	Note 5						
	Recovery Time	As in Group A	1	100%		2	8	usecs
	Firing Power	As in Group A	1	100%		-	20	k.W.

NOTES

1. The power measured or quoted shall be that which is incident on the balanced duplexer.

2. The valve shall be moved up and down in the duplexer through all portions for which the accurately dimensioned section of the valve (active length, see p.4) is completely through both waveguides.

3. The sample size used for the purpose of the tests contained in Group E shall comprise of 10% of the lot size taken to the nearest whole number above the 10% value. Where the production rate is less than 30 per calendar month, a lot shall be considered as comprising the total production of that month.

   The criterion of acceptance shall be that there shall not be more than one failure in any ten consecutive samples tested. During the initial period of any contract following a non-production period exceeding six months, valves may be despatched without awaiting the cumulation of the ten samples provided that the results of tests made do not preclude acceptance under the criterion. Where rejection is incurred production shall cease and the approval authority informed.

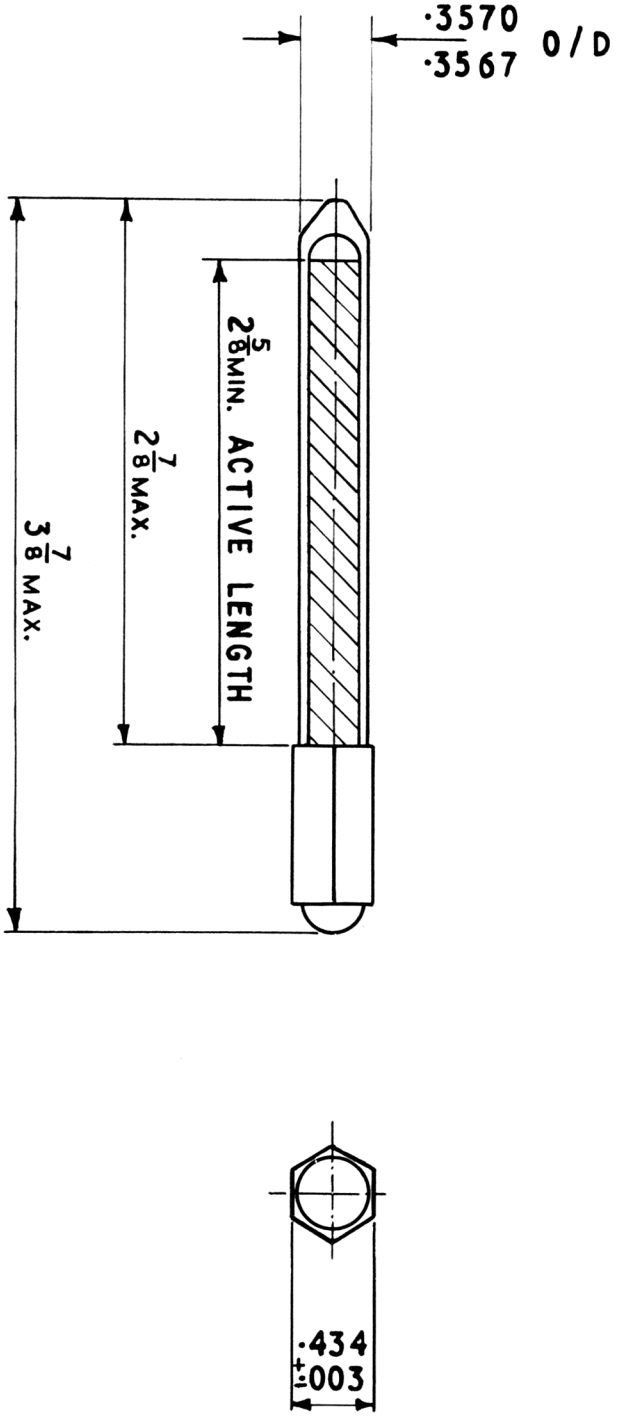
   The manufacturer may, at his discretion, test additional valves or apply more than one test to each sample.

   At least half of the samples taken for Group E shall be subjected to the mechanical tests.

4. The valve shall be vibrated in the horizontal plane only.

5. This test excludes any life test requirement.

CV 6086



DIMENSIONS IN INCHES.

ELECTRONIC VALVE SPECIFICATIONS

SPECIFICATION MOA/CV6086 ISSUE 1. DATED 16th SEPTEMBER, 1961

AMENDMENT No. 1

Page 1. Top of Page

Delete: 'THIS VALVE MAY BE RADIOACTIVE'.

April, 1964. T.V.C. for R.R.E.

(222300)

ATS 28.5.64

ELECTRONIC VALVE SPECIFICATIONS.

SPECIFICATION MOA/CV6086, ISSUE No.1., Dated 16th September 1961.

AMENDMENT No.2.

Page 1. Top of Page (inserted by Amendment No. 1.)

Amend the not to read "THIS VALVE MAY BE RADIOACTIVE TO CLASS 1. (See K1001 Appendix XX)".

October 1966

N. 445217

TVC for RRE

22/11/66