THIS VALVE MAY BE RADIOACTIVE Amdt 3

MINISTRY OF AVIATION - DLRD/RRE

VALVE ELECTRONIC

CV 6028

Specification MOA/CV6028 **Issue 1** dated March 1959 To be read in conjunction with K1001	SECURITY Specification: Unclassified Valve: Unclassified

→ Indicates a change

TYPE OF VALVE - MICROWAVE GAS SWITCH (PRE TR CELL)
ENVELOPE - SILICA
PROTOTYPE - VX 9196

MARKING
See K1001/4, except that the valve shall be marked CV Factory Identification and date code only.

RATING

All limiting values are absolute

		Note
Operating Frequency range (k.Mc/s)	2-4	A
Max. Peak Power input (MW)	2.5	B
Max. Mean Power input (kW)	3	B
Max. pulse width (μS)	2.5	

DIMENSIONS
See Drawing on page 3

MOUNTING POSITION
Any (Note C)

PACKAGING
See K1005

NOTES

A. The valve may be used in a suitable waveguide mount at any frequency within this range. The bandwidth and matching are determined by the design of the mount.

B. The quoted power is that which is measured incident on a balanced duplexer where two valves are each operating across both arms of the duplexer.

C. The hole through which the tube is mounted should be 0.3576 inches ± 0.0005 inches diameter.

TYPICAL OPERATING CONDITIONS

Primary switch at 3kMc/s Balanced Duplexer

Two valves may be used side by side in a mount having a Q of 0.7 (see drawing on page 4). Applying a 1 μs pulse having peak power within the range 100 kW to 2.5 MW at 500 p.p.s gives a substantially constant leakage in the unbalanced output arm of 1.5 watts mean. The recovery time to 3 db is about 25 μs. For powers of 100 kW the arc loss is 0.2 db and for those in excess of 1 MW the arc loss is less than 0.1 db. Breakdown occurs at approximately 20 kW and at 2.5 MW the life expectation is 2000 hours.

JOINT SERVICE CATALOGUE 5960-99-037-2162

Z.20421.

TYPICAL OPERATING CONDITIONS (Cont'd)

Primary switch in W.G.11 Balanced Duplexer

A single valve when used across W.G.11 gives a VSWR of 1.1 at 3.3kMc/s. When irises 0.145" wide are used a bandwidth of 20% to a VSWR better than 1.05 can be obtained for an insertion loss less than 0.2 db.

Applying a 1.5 µs pulse of 600 kW peak power at 500 p.p.s. to the duplexer, the leakage into the unbalanced arm is approximately 18 W mean.

Primary switch at 3.3 k Mc/s Balanced Duplexer

Using a single valve in a mount of the cone and plate iris type having a Q of 2.6 and applying a 1.5/us pulse of 600 kW peak power at 500 p.p.s. gives a leakage of 3.2 W mean into the unbalanced arm.

TESTS

To be performed in addition to those applicable in K1001

TEST CONDITIONS

The valves shall be tested in an approved balanced duplexer in WG16. The maximum VSWR looking outwards from the balanced duplexer shall not exceed 1.2:1 on any arm.

tp (µsecs)	Du	f (kMc/s)
0.2 ± 10%	.0002 ± 10%	9.5 ± 0.5

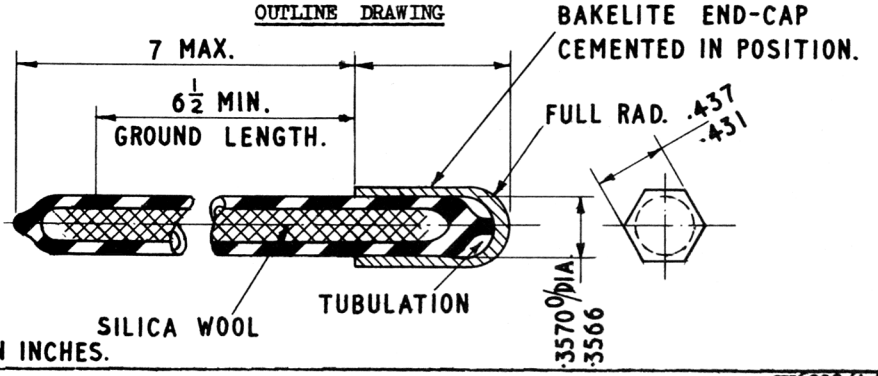
K1001	TEST	TEST CONDITIONS	AQL %	INSP. LEVEL	SYM-BOL	LIMITS MIN.	LIMITS MAX	UNITS
	GROUP A Breakdown power	Adjust rf input power from a low value until the valve strikes Notes 1 and 2		100%		-	20	kW
	Recovery time to 3 db	Peak rf power input = 50 kW ± 10% Notes 1 and 2		100%		-	25	µSec
	GROUPS B, C and D omitted							
	GROUP E							
	Glass strain	No voltages	6.5	IA				
11.3	Fatigue	No voltages		IA				

K1001	Test	Test Conditions	AQL %	Insp. Level	Symbol	Limits Min.	Limits Max.	Units
	GROUP E (Cont'd)							
11.3	Fatigue (cont'd)	Frequency, any within range 40-200 c/s. Min. peak acceleration = 5g Duration = 96 hrs.						
11.4	Shock	No voltages Hammer angle = 30°		IA				
	Temperature Cycling	No voltages Three cycles between -50°C and 100°C		IA				
	Post Fatigue, Shock and Temperature Cycling tests							
	Breakdown power	As in Group A	4.0			-	20	kW
	GROUP F omitted							
	GROUP G Re-test after 28 days holding period							
	Breakdown power	As in Group A	1.0	100%		-	20	kW
	Recovery time	As in Group A	1.0	100%		-	25	μSec

NOTES

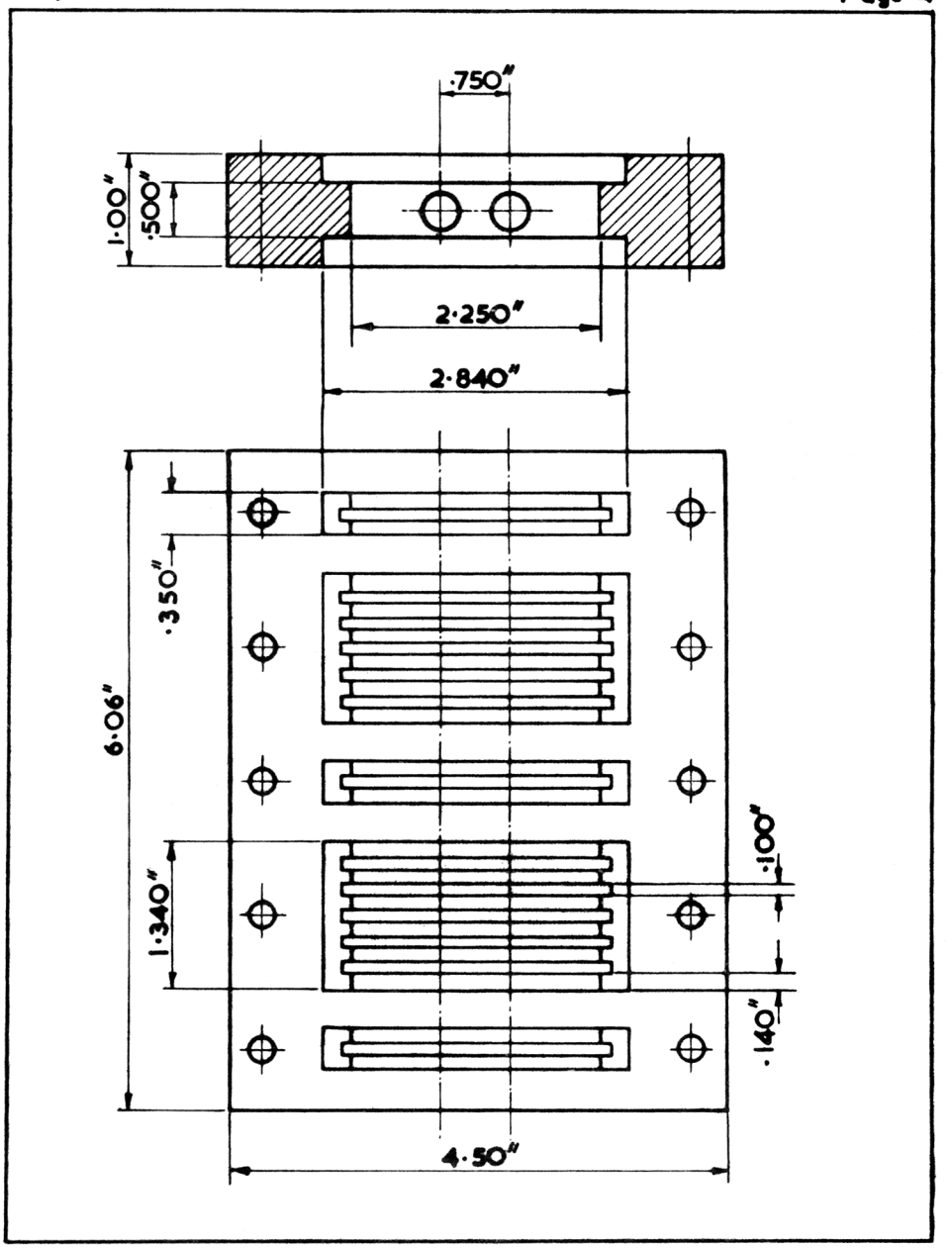
1. The power measured or quoted shall be that which is incident on the balanced duplexer.
2. The valve shall be moved up and down in the duplexer through all positions for which the ground length (see outline drawing) is completely through both waveguides.

OUTLINE DRAWING



DIMENSIONS IN INCHES.

CV6028



TYPICAL MOUNT FOR 3K Mc/s DUPLEXER (Page 1)

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ELECTRONIC VALVE SPECIFICATIONS

CV.6028 Issue 1 dated March, 1959

Amendment No. 1

At the bottom of Page 1 insert:-
Joint Service Catalogue No. - 5960-037-2162.

November, 1961. Royal Radar Establishment.

(5008)

6-2-1962

ELECTRONIC VALVE SPECIFICATIONS

CV.6028 Issue 1 dated March, 1959

Amendment No. 2

Page 1.

Amend Joint Service Catalogue No. to read

5960-99-037-2162.

R.R.E.

DECEMBER, 1961

(7564)

1-562

ELECTRONIC VALVE SPECIFICATIONS

SPECIFICATION MOA/CV6028 ISSUE 1. DATED MARCH, 1959

AMENDMENT No. 3.

Page 1. Top of Page

Insert: 'THIS VALVE MAY BE RADIOACTIVE

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

(222301)

28/4/64