CV 2418

MINISTRY OF SUPPLY - RRE

Specification MOS/CV2418/Issue 1 Dated 5/5/57.

SECURITY

To be read in conjunction with Kioui

Specification Valve
UNCLASSIFIED UNCLASSIFIED

		*				
TYPE OF VALVE - Hydrogen Thyratr CATHODE - Directly heated. EWELOPE - Glass				MARKING See K1001/4		
PROTOTYPE - VX3222						
			Note	BASE		
Filament voltage	(V.AC)	2.5+74%	A	See Drawing Fig. I		
Reservoir voltage	(V.AC)	2.5+74%	À	Note D		
Filament current	(A)	40				
Reservoir current	(A)	2.65	·	CONNECTIONS		
Max. Peak Anode Voltage	(KV)	18		Flying Leads		
Max. " " Current Max. mean anode Current	(A) (A)	700		LTAINE PAURE		
Max. & x VA x IA x p.p.s.	(Mw c/s)	1.25 5000	В	Black : Cathode and		
Max rate of rise of pulse our e		5000	Ð	filament		
Max. (peak current & rate of ris		2x10 ⁶		Yellow: filement		
MCX. pulse length	(us)	5		Red : reservoir		
	per sec)	2500	·	Brown .		
Max. Jitter	(mus)	30	C	Blue : taffle White : grid		
Ambient temperature range	min oc	-25		Top connection: anode		
Ambiont temperature range	weż _o c	→70	·	Top commosion, Gioge		
fin, heating time filement and	***		·			
reservoir before application and voltage		240				
din. time to reach max. enode	(sec)					
voltage from application of anoda	4					
voltage	(sec)	60				

NOTE

- A. It is recommended that cathode and reservoir be supplied from separate transformers since no pulse voltages must be applied to the reservoir circuit.
- B. The temperature of the glass to metal seal of the anode must not exceed 140°C. This can be achieved by cooling the anode with an air stream of about 2 inches water head, depending on the inlet air temperature.

- C. To achieve this jitter the following trigger arrangements must be provided,
 - (a) Grid drive.

 D.C. bias 100 volts negative.

 Min. trigger pulse 500 volts

 Rate of rise of grid drive to be between 2000 and 4000 volts/usec.

 Trigger pulse duration 1 usec. to 3 usec.

 Source impedance of pulse generator 250 to 500 ohms.

 Max. D.C. resistance grid to cathode. 2000 ohms.
 - (b) Baffle drive.

 As grid drive but with zero bias, and preceding the grid trigger pulse by 1.0 \pm 0.25 us.

The jitter may be sensibly reduced by increasing the grid and baffle drive to 1000 volts,

A simpler method of triggering which results in increased jitter (of approx. 0.2 usec) is shown in Fig. 2.

D. The supporting clarp must be insulated from earth.

To be performed in addition to those applicable in K1001

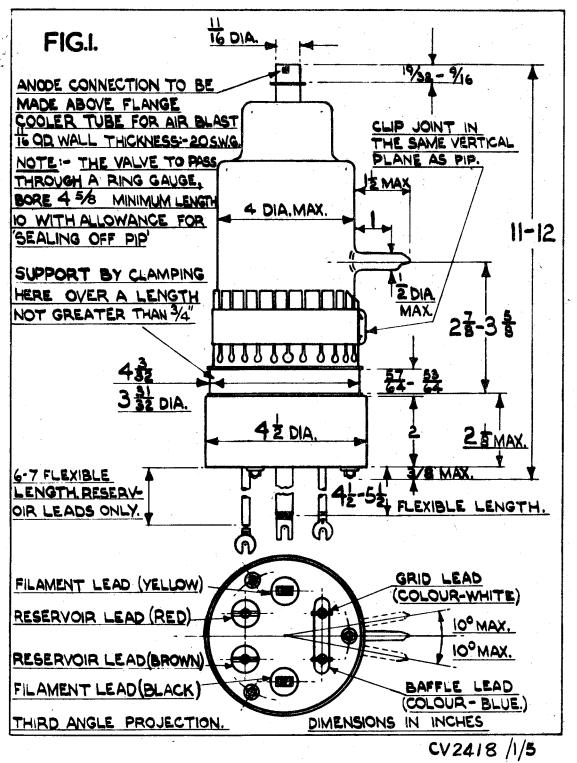
	Test Conditions				Test	Limits		No. Tested	Notes
		Vf volts	Vr volts	Va kV		Mino	Maxo	Testeu	
-	a	2.5	2.5		If (A)	36	44	100%	1
<u> </u>	ъ	2.5	2.5	Raise to	HT. Run up time (mins)		1	100%	2.3.
-	O	2.5	2.5	18	Operational test. Time of trip-free operation(mins)	10		100%	2.4. 9.
	đ	2.7	2.7	18	Operational test. Time of trip-free operation (mins)	5		10%	2•5• 9•
	ę	2.3	2.3	18	Rate of rise (A/us)	4000		100%	2.6. 9.
	f	2.5	2.5	18	Jitter (usecs)		•03	100%	2.7. 8.9.
	g	2.5	2.5	18	Life (hours	2000		AT	2.10.

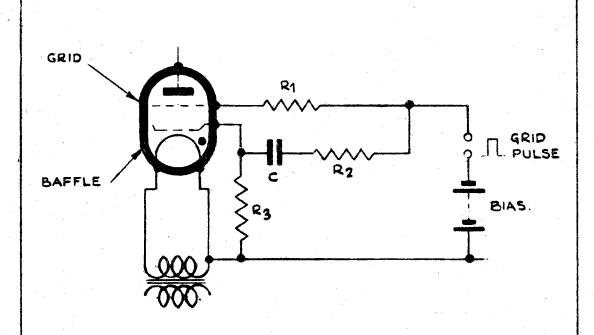
NOTE

- 1. The filament voltage should be measured at the tag end of the cathode leads after 10 minutes heating time.
- 2. The valve must be tested in the circuit shown in Fig. 3.
- 3. This test to be made after a cathode and reservoir heating time of four minutes.
- 4. This test to immediately follow test (b).
- 5. This test to immediately follow test (c).
- 6. The filament voltage to be reduced immediately after test (d) and the rate of rise to be measured five minutes thereafter.

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- 7. This test to be made at least fifteen minutes after reaching full H.T.
- 8. The jitter to be measured under conditions specified in note C. The frequency of the filament supply shall be between 45 and 60 cycles/sec.
- 9. In tests (c), (d), (e) and (f) together a total of one trip is permitted. A trip shall be deemed to have occurred if the valve loses control for a period longer than 0.1 sec.
- 10. The valve shall be considered to have reached the end of life when, under the conditions of test (d) or (e) it trips four or more times in a period of five hours, or catastrophically fails.

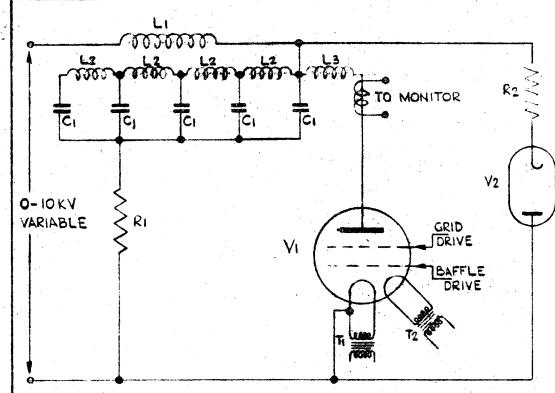




C = 0.005 μ F R1 = R2 = R3 = 500 Ω

GRID PULSE AS DEFINED IN NOTE C SECTION (a)

FIG 2
GRID AND BAFFLE TRIGGERING CIRCUIT



VI = CV V2 = SUITABLE REVERSE DIODE Zo = 12.85 1 PULSE LENGTH = 1.8 4 SEC. PR.F. = 800 CYCLES MEAN CURRENT = 1AMP RATE OF RISE = 5,000 A/U SEC.

HOLD OFF VOLTAGE = 18KV. PEAK CURRENT = 700 AMPS RI = 12.85 a + .25 a

 $R2 = 250 \Omega$ L1 = 2.8 H

L2 = 2.28 UH

C1 = .01384F

L3 IS ADJUSTED TO GIVE 5000 NU SEC. WITH AN APPROVED SAMPLE VALVE

TI = FIL TRANSFORMER.
T2 = RES, TRANSFORMER.

FIG 3 RECOMMENDED TEST CIRCUIT