ELECTRONIC VALVE SPECIFICATIONS

SPECIFICATION MOA/CV372

Issue No.3 dated 9.7.59

Amendment No.1

Page 1 Connections : Add Pin Electrode

T.C. a

Page 3 Test (f) : Amend "Ambient temperatures = °C"

to "Ambient temperature = 90°C"

Page 3 Test (g) : Delete "To be agreed later"

Substitute

Min	Max	Units
-	30	µsecs

N.16719/D

/P.T.O.

Page 4	Note 3 first line:	Amend "page 6", to "page 3"
	Note 4 line 3:	Delete "(min)" in both places
	Note 6 line 5:	Amend "page", to "page 3".

April, 1960

R.R.E.

CV372

Specification MOA/CV372 Issue 3, dated 9.7.59 To be read in conjunction with K1001	SECURITY Specification: Unclassified Valve: Unclassified

Type of Valve - Hydrogen Thyratron
Cathode - Unipotential, Indirectly Heated
Envelope - Glass
Prototype - VX4027

MARKING

See K1001/4

Ratings and Operating Conditions			Note
Heater Voltage	V.r,m.s	6.3±5%	A
Heater current (Nom.)	I.r.m.s	2.7	
Max. Peak Anode Voltage	(kV)	3.0	
Max. Anode Peak Inverse Voltage (no load)	(kV)	2.0	B
Min. Anode Striking Voltage for Reliable Operation	(V)	800	
Max. Grid Peak Inverse Voltage	(V)	200	
Max. Peak Anode Current D.C. (Amps)	(ipk)	35	
Max. Mean Anode Current D.C. (M/A)	(I)	45	
Max. Pulse Duration (/usecs)	(Tp)	6	
Pk Anode Volts x Pk Anode Current x P.R F.		0.3×10^9	Max
Max.Rate of rise of Anode Current (A/ /usec)		750	
Max.Grid Resistor	Ohms	5000	
Min.Trigger Voltage (Volts)	(Vpk)	150	C
Min.Trigger Current (Amps)	ipk	0.1	
Min.Trigger Pulse Length (/usecs)	(tp)	1.0	D
Min.Cathode Heating Time	(Sec)	120	
Ambient Temperature range	°C	-50 to +90	

BASE

US14 and US14B

CONNECTIONS

Pin	Electrode
1	h
2	k
3	g
4	h & k

TC

DIMENSIONS

See K1001/A1/D1

Dimension	Min.	Max
A	102	127
B	37	39

NOTES

A. If the heater voltage falls outside the tolerance, the valve may fail to operate.

B. In pulsed operation the anode peak inverse voltage shall not exceed 1.5kV during the first 25 /usecs after the pulse.

C. Measured across the valve socket with the valve removed; maximum time of rise = 1 /usec.

D. Measured at 150V amplitude

Z.20075.

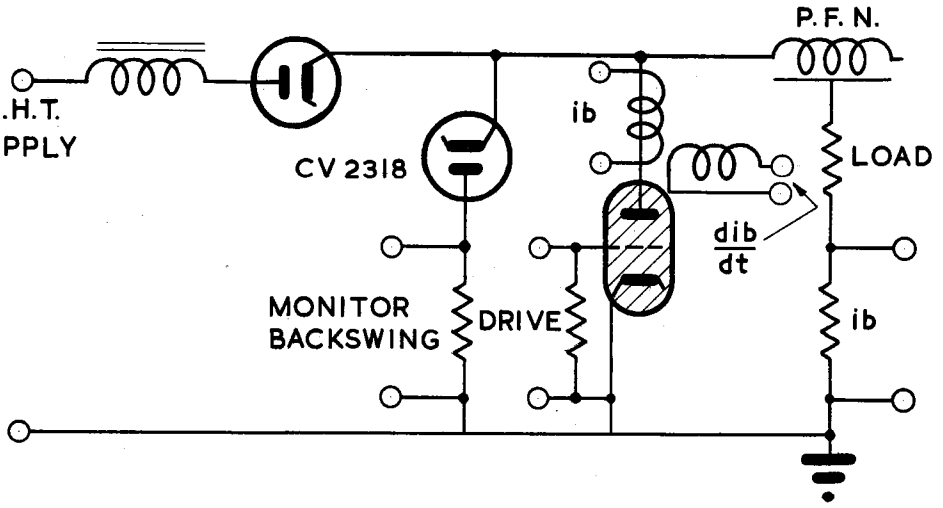
TESTS

To be performed in addition to those applicable in K1001
Group A: 100% Acceptance Tests. $V_h = 6.3 \pm 0.1$ volts
except where otherwise stated

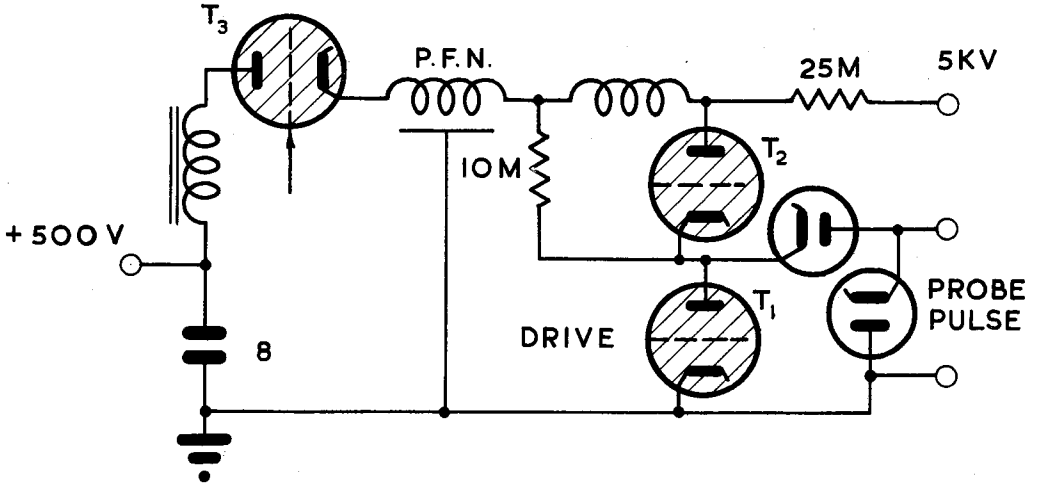
	Test	Test Conditions	Symbol	Limits Min	Limits Max	Units
(a)	Heater Current Note 1	$V_h = 6.3 \pm 0.1$ volts	I_h	2.35	3.0	Amps
(b)	Holding Period			96		Hrs.
(c)	Wind up start Notes 2,3,4.	V_h = 5.9 volts(max) applied for 2 minutes (max), then V_a increased from zero to 3 kV peak (min)				
		1. Anode striking voltage	$V_a$peak		500	Volts
		2. Grid-cathode voltage during flat part of pulse	V_g peak		150	Volts
		Test condition maintained for 2 minutes (min.) Valve to operate continuously without arc-back, or misfiring, or evidence of anode heating.				
(d)	Run. Note 3	V_h = 6.7 volts (min.)				
		V_a peak = 3 kV (min) Valve to operate without evidence of arc-back, misfiring, or anode overheating				
Group B. Life Test						
(e)	Life Test Notes 3,4.	Two life test sockets to be maintained		1000		Hrs.
		Life test end point:- Repeat test (c)				
		1. Anode striking voltage	$V_a$peak		800	Volts
		2. Grid cathode voltage during flat part of pulse	$V_g$peak		150	Volts

	Test	Test Conditions	Symbol	Limits Min	Limits Max	Units
(f)	Five hour T.A. Test Notes 3, 5	Ambient temperatures=°C V_a peak = 3 kV (Min)				
(g)	Recovery T.A.Test Notes 3, 6	Grid resistance 1500 ohms (min)	T_R	To be agreed later		

Test Circuit



Recovery Circuit



A probe pulse is applied to the Anode of the thyratron T1 under investigation. Thyratron T2 isolates the pulse forming network from the probing pulse. Thyratron T3 prevents the charging of the network until this is desired. The circuit possesses no dissipative elements, inevitable losses are made good from the 500V. supply.

NOTES

1. At the discretion of the Inspecting Authority, this test may be reduced to a sample test.

2. This test shall be the first to be carried out after the holding period.

3. The valve shall be tested in the circuit shown on page 6. Tests performed at repetition rates less than the resonant repetition rate shall be made with a hold-off diode in the charging circuit. The circuit constants shall be chosen so that Va peak = 3 0 kV, Ia peak = 35 ± 2 amps, Ia mean = 45 mA (min), Tp = 0.5 ± 0.1 /usecs, $\frac{dIa\ peak}{dt}$ = 750 amps per microsecond (min.) An overswing diode, such as the CV2318 shall be connected into the circuit, with the cathode to the charging terminal of the line, and the anode grounded through a non-inductive voltage measuring resistor, value 100 ohms (max). The deflection sensitivity of the measurement system which shall be checked regularly, shall be such that a 250V negative pulse at the diode cathode deflects the cathode ray tube trace by $\frac{1}{2}$ cm (min). If necessary, the main load, which is a nominal match, shall be adjusted in value so that there is no negative voltage remaining at the cathode of the overswing diode 6 /usecs (max) after the initiation of the main pulse.

The grid constants shall be:- Vg peak = 150 volts (max), time of rise = 0.5 /usec (min.) Tp = 2 /usecs (max) measured at 50 volts (min). The internal impedance of the trigger source should be such as to give 0.25 amps (max) trigger current.

4. At the discretion of the Approving Authority, for non-reservoir valves the following alternative test will be substituted for test (c). Notes 2 and 3 will apply and V_h = 6.7 volts (min), Va peak = 3.0 kV (min.)

Up to 3 attempts to push-button start shall be made with an interval of 20 ± 10 seconds between. The anode voltage, (Va peak) shall rise to the required value within .0.05 seconds.

5. The valve shall be mounted in a vertical position inside a suitably lagged inclosure. The temperature shall be measured by means of a thermometer in the horizontal plane of the top of the base cap, with the tip of the bulb not nearer than $\frac{1}{2}$" away from the top of the base cap.

6. Reference is made to R.R.E. Technical Note 604, June 1957. A probe pulse of amplitude 1 kV (max), with a rise time of 3-4 /usecs shall be applied, after a suitable delay to the valve anode. The manufacturer may use any suitable circuit, subject to R.R.E. approval, one circuit is shown on page . The grid bias shall be zero and the driver impedance, as seen from the grid terminal, shall be 1500 ohms (min.) The time tR between the instant when the cathode current falls to zero and when the valve just re-strikes shall not be greater than that specified.