

CV2349

Specification MOSA, CV2349 Issue 1 Dated 22.8.55 To be read in conjunction with BS448, BS1409 & K1001	<u>SECURITY</u> <u>Specification</u> <u>Valve</u> <u>UNCLASSIFIED</u> <u>UNCLASSIFIED</u>
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TYPE OF VALVE - Gas-filled arc discharge Tetrode				<u>MARKING</u>	
CATHODE - Cold				See K1001/4	
ENVELOPE - Glass - Unmetallised				<u>BASE</u>	
PROTOTYPE - EN.30				BS448/B7G	
<u>RATING</u>				<u>TOP CAP</u>	
				BS448/GT1	
				<u>CONNECTIONS</u>	
				Pin	Electrode
Max. D.C. Voltage to Anode (V)	400	A	1	g1	
Min. D.C. Voltage to Anode (V)	250		2	IC	
Max. Peak Anode Current (A)	250		3	IC	
Max. Mean Anode Current (mA)	50		4	k	
Peak Inverse Anode Voltage (V)	350	B	5	k	
Trigger Voltage (V)	80-130		6	IC	
Max. Average Grid Current (mA)	10		7	g2	
Max. Flashing Frequency (per sec)	250		TC	a	
Ambient Temperature Range (°C) -35° to +60°					
<u>STARTING CHARACTERISTICS</u> (See Note B)					
Min. Trigger Current (Va = 400) (μA)	50	C	<u>DIMENSIONS</u>		
Min. Trigger Current (Va = 250) (μA)	300		See BS448/B7G/2.2.		
Max. Delay Time (μsecs)	40		Size Ref. No.4		
<u>TYPICAL OPERATING CONDITIONS AS A STROBOSCOPIC SOURCE</u>					
D.C. Supply Voltage (V)	330	D	Dimensions (mm)	Min.	Max.
Screen Voltage (V)	70		A. Seated Height	55.5	65.0
Trigger Pulse Amplitude (V)	150		C. Diameter	16.0	19.0
Charging Resistor (ohms)	6000		D Overall Length	-	72.5
Discharge Capacitor (μF)		<u>MOUNTING POSITION</u>			
for operation at (c/s)	6 - 35	Any			
	30 - 50				
	45 - 80				
	80 - 150				
	140 - 250				

NOTES

- A minimum of 5 amps is necessary for the formation of an arc discharge with a tube drop of approximately 20 volts. If the main gap current is less than 5 amps peak, a glow discharge is likely to form with a 70 volt drop and result in excessive cathode dissipation.
- For triggering between g2 and g1, with g2 positive with respect to g1. (See Fig.4).
- Less than 40 μ secs dependent on circuit conditions. With higher energy pulses the delay time can be considerably reduced.
- With 100 μ secs square pulses, negative with respect to g2 voltage. Narrower pulses require a higher amplitude.

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TESTS

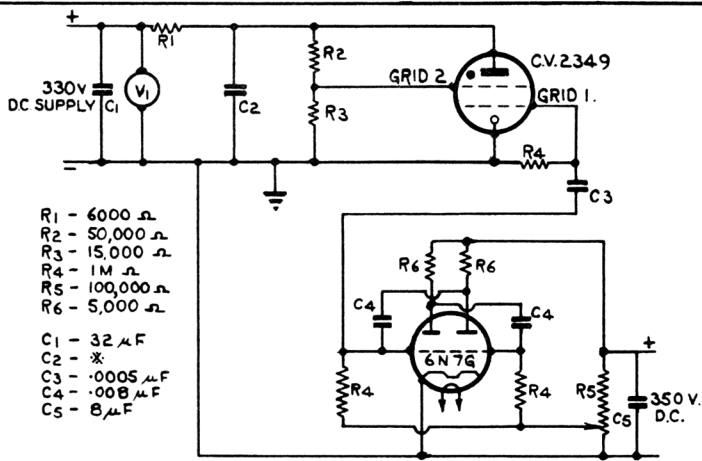
To be performed in addition to those applicable in K1001

	Test Conditions	Test	Limits		No. Tested	Note
			Min.	Max.		
a	In the test circuit of Fig.1 the valve is triggered at frequency 50 p.p.s. with 330V D.C. across reservoir condenser C1. The accuracy of the valve to be tested by an approved method. Duration of test 5 to 15 secs.	<u>Frequency Test</u> The valve shall flash steadily at 50 p.p.s. $C_2 = 1.5 \mu F$			100%	1
b	In the test circuit of Fig.2 switch in position (b); 330V D.C. shall be applied across the reservoir condenser. The voltage on g_2 shall be increased until the valve fires.	<u>Grid 2 Starting Potential</u> Grid 2 breakdown potential (measured just before conduction starts). (V)	80	130	100%	
c	In the test circuit of Fig.1 the valve is triggered at frequency 250 p.p.s. with 330V D.C. across reservoir condenser C1. The accuracy of the valve to be tested by an approved method. Min. duration of test 1 minutes.	<u>Frequency Test</u> The valve shall flash steadily at 250 p.p.s. $C_2 = 0.5 \mu F$			100%	1
d	In the test circuit of Fig.2 switch in position (b): 330V D.C. shall be applied across the reservoir condenser. The voltage on g_2 shall be increased until the valve fires. This test to be done immediately after test "c".	(1) <u>Grid 2 Starting Potential</u> Grid 2 breakdown potential (measured just before conduction starts) (V) (2) Change of g_2 starting potential from value in test "b" (V)	80 -	130 +20	100%	
e	With the valve operating in the test circuit shown in Fig.2 and the switch set to position (a).	<u>Anode - Grid 2 Breakdown Voltage</u> (V)	330	-	100%	
f	The valve shall be operated in the test circuit shown in Fig.3 and adjusted initially to 180 p.p.s.	<u>Life</u> (hrs)	300	-	T.A.	

NOTES

1. A recommended method is to use an oscilloscope with a split phase 50 c/s supply for producing an elliptical image.

The output pulses are superimposed on a deflector plate to enable pulses at 50 and 250 cycles to be examined.



* FOR TEST (a), $C_2 = 1.5 \mu F$. FOR TEST (c), $C_2 = 0.5 \mu F$.

FIG. 1.

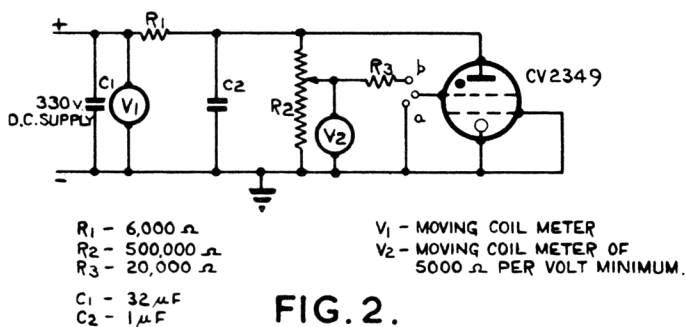
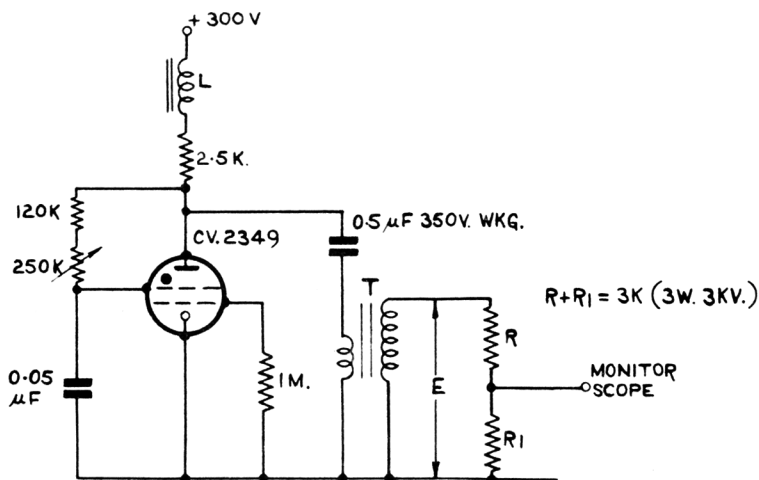


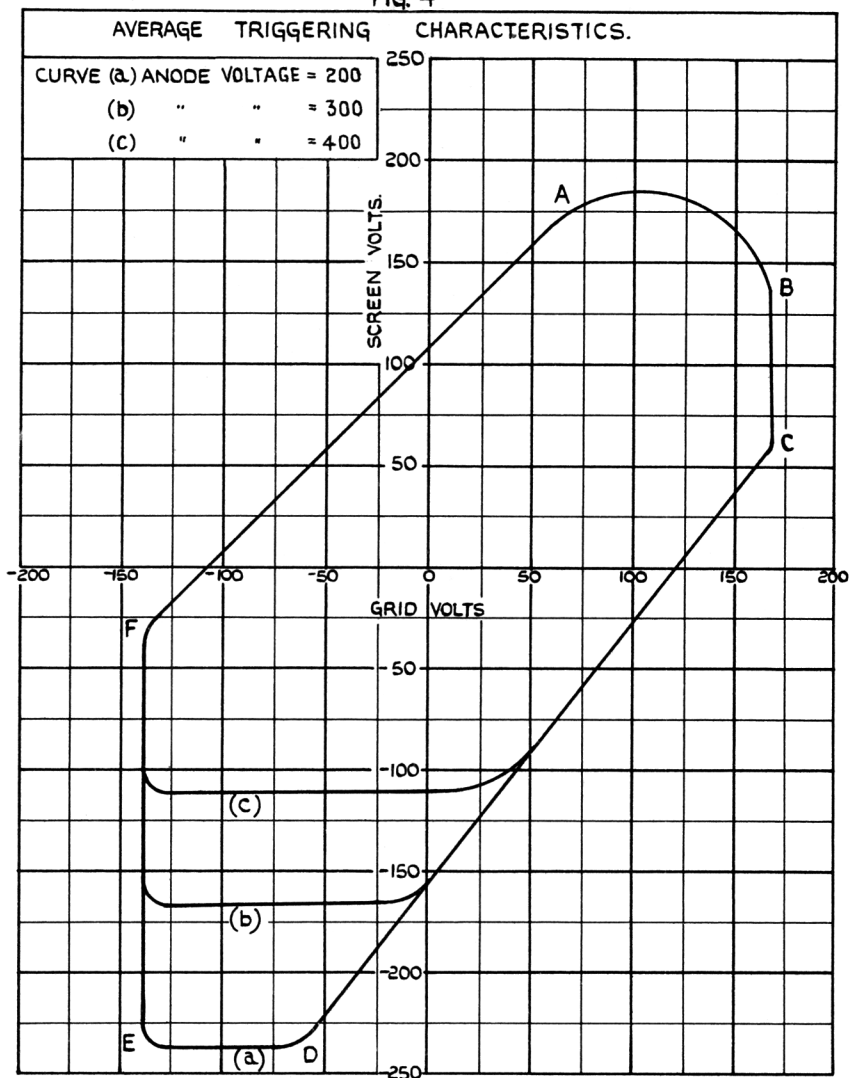
FIG. 2.



CHOKE L AND TRANSFORMER T ARE CONTAINED IN INDUCTOR TYPE 2389 (AM. REF. N° 10C/21152)

FIG. 3.

FIG. 4



The area enclosed by the loops is an area of non-conduction. If the vector sum of the voltages on two electrodes lies within the loop the valve will not fire. Any increase or decrease of either or both of these voltages which causes the vector sum to fall outside the loop will initiate a discharge which will in turn cause breakdown of the main gap.

As the triggering impulse carries the vector sum of the applied voltages outside the loop the point at which it crosses the loop indicates the manner in which the valve is triggered as follows:-

Between AB Screen to Cathode Breakdown	DE Cathode to Screen Breakdown
BC Grid to Cathode Breakdown	EF Cathode to Grid Breakdown
CD Grid to Screen Breakdown	FA Screen to Grid Breakdown

For the best triggering condition the vector sum of the two grid voltages should cross the loop between A and F and the grid pulse should be negative.

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AMENDMENT No.1

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Clause f

DELETE the whole of clause f.

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Figure 3

DELETE the circuit diagram shown in
fig 3.

T.V.C. Office
for Director

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