

CV5143

Specification MOS/CV5143 Issue 1 dated 21st October, 1958. To be read in conjunction with B.S.448, B.S.1409 and K1001 excluding clause 5.2	<div style="text-align: center;"><u>SECURITY</u></div> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <u>Specification</u> UNCLASSIFIED </div> <div style="width: 45%;"> <u>Valve</u> UNCLASSIFIED </div> </div>
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TYPE OF VALVE - High Speed Decade Scaling Tube				<u>MARKING</u>	
CATHODE - Cold				See K1001/4	
ENVELOPE - Glass - unmetallised				<u>BASE</u>	
PROTOTYPE - GC10D				BS448/B8-0/1.1	
<u>RATING</u> (All limiting values are absolute)				<u>CONNECTIONS</u>	
				Note	Pin Electrode
Max. Counting Speed	(digits/sec)	20,000	A	1	Common Cathodes k1-9
Nom Maintaining Voltage at 800 μ A	(V)	215		2	Third Guides GD3
Min. Anode Current	(μ A)	700		3	First Guides GD1
Max. Anode Current	(μ A)	1,200		4	Anode a
Max. Striking Voltage	(V)	420		5	Not Connected N.C.
Max. P.D. between Guides and Cathodes	(V)	180		6	Output Cathode ko
Max. Input Signal				7	Output Third Guide GD3o
Sine wave drive	(Vrms)	100		8	Second Guides GD2
Rectangular pulse drive	(V)	-194			
<u>TYPICAL OPERATING CONDITIONS</u>				<u>DIMENSIONS</u> See K1001 A1/D1 and Drawing on Page 5	
				Dimension (mm)	Min. Max.
				L	81.5 88.5
				B	27.5 29.5
				C	28.0 29.9
				<u>MOUNTING POSITION</u>	
				Any	

				C
Supply Voltage	(V)	475	475	
Anode Resistor	(kohms)	330	330	
Signal Amplitude	(V)	-(144 \pm 50) (-12)	65-100	
				B
Pulse Duration	(μ sec)	25		
Positive Guide Bias Voltage	(V)	+72 \pm 12	+12 \pm 2	
Bias Voltage Ko	(V)	-15	-15	
Forced Resetting Pulse	(V)	-140	-140	
Output Cathode Load	(kohms)	82	82	

NOTES

- A. Measured with normal room illumination (5-50 foot candles).
- B. Output Cathode must not rise higher than +10V with respect to commoned cathodes.
- C. To reduce the effect of stray capacity to a minimum it is essential that the anode resistors be wired not more than $\frac{1}{4}$ inch from tag 4 on the valve holder.

Joint Services Catalogue Number

To be carried out in addition to those applicable in K1001 and in the specification order

	Test (Notes 1 and 2)	Test Conditions	AQL %	Insp. Level	Limits		Units
					Min.	Max.	
a	Time to strike and position of discharge.	$V_a(b) = 420V \pm 1\%$; $R_L = 330K \pm 10\%$ Test is performed between Anode and Output Cathode (Note 4).		100%	-	10	Secs
b	Insulation	170 volts shall be applied between each electrode and all others connected together in parallel. 7 Tests.		100%	100	-	Mohms
c	Scaling Accuracy (1)	$V_a(b) = 440V$ Notes 3 and 5		100%			
d	Scaling Accuracy (2)	$V_a(b) = 510V$ Notes 3 and 6		100%			
e	Life (continuous) <u>Life Test End Point</u> <u>1000 hours</u> Scaling Accuracy (1) Scaling Accuracy (2)	See circuit on page 3. Note 7	6.5	IC			

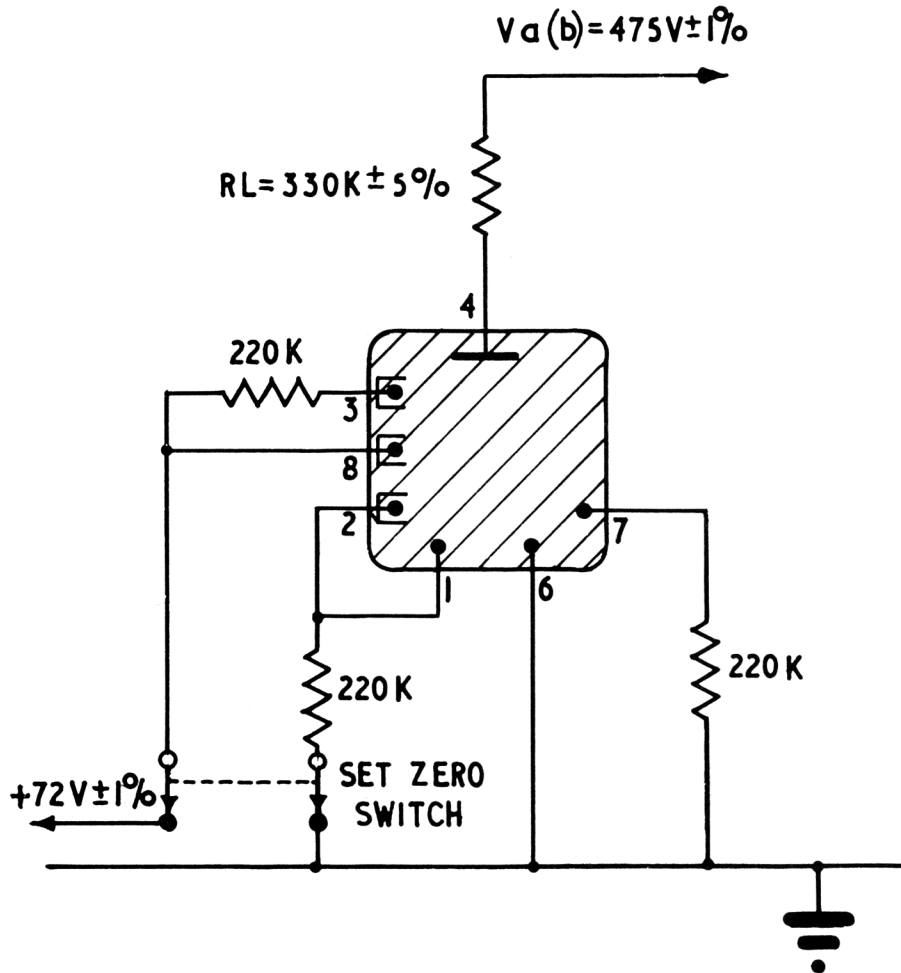
NOTES

- Tests a,b,c, and d above shall be applied directly after completion of manufacture.
- After the completion of tests listed in Note 1 above all valves shall be held for at least 4 weeks during which no tests or ageing processes shall be applied.
- After the completion of the holding period of Note 2 tests c and d as specified above shall be performed in order.
- K_{1-9} electrodes to be disconnected. Valve to be in normal room illumination. (5-50 foot candles). See test circuit on page 4.
- After adjusting the value of $V_a(b)$ to the value shown in test c above, arrange the glow to invest the output cathode (K_0). Apply 16 pulses, at a repetition frequency of 20K p.p.s., as shown in figure 2 on Page 4 to the circuit shown in figure 1. Check that the glow invests the appropriate cathode. Repeat this process four more times, when the glow should again invest K_0 .

Step the glow one position to K_1 and apply a further five "trains" of pulses, when the glow should again invest K_1 .

If the glow does not occur on the appropriate cathode at any time during the 10 tests, the valve is to be rejected.
- Repeat the 10 tests described in Note 5 above with $V_a(b)$ adjusted to the value shown in test d above.

If the glow does not occur on the appropriate cathode at any time during the tests, the valve is to be rejected.
- If three consecutive lots have satisfactorily completed 1000 hours life test subsequent lots shall only be tested for 500 hours. If any failures occur at 500 hours, testing shall revert to 1000 hours test until three more lots have proved satisfactory.



LIFE TEST CIRCUIT

TOLERANCES $\pm 20\%$ UNLESS OTHERWISE STATED

FIG.1
SCALING ACCURACY TEST.

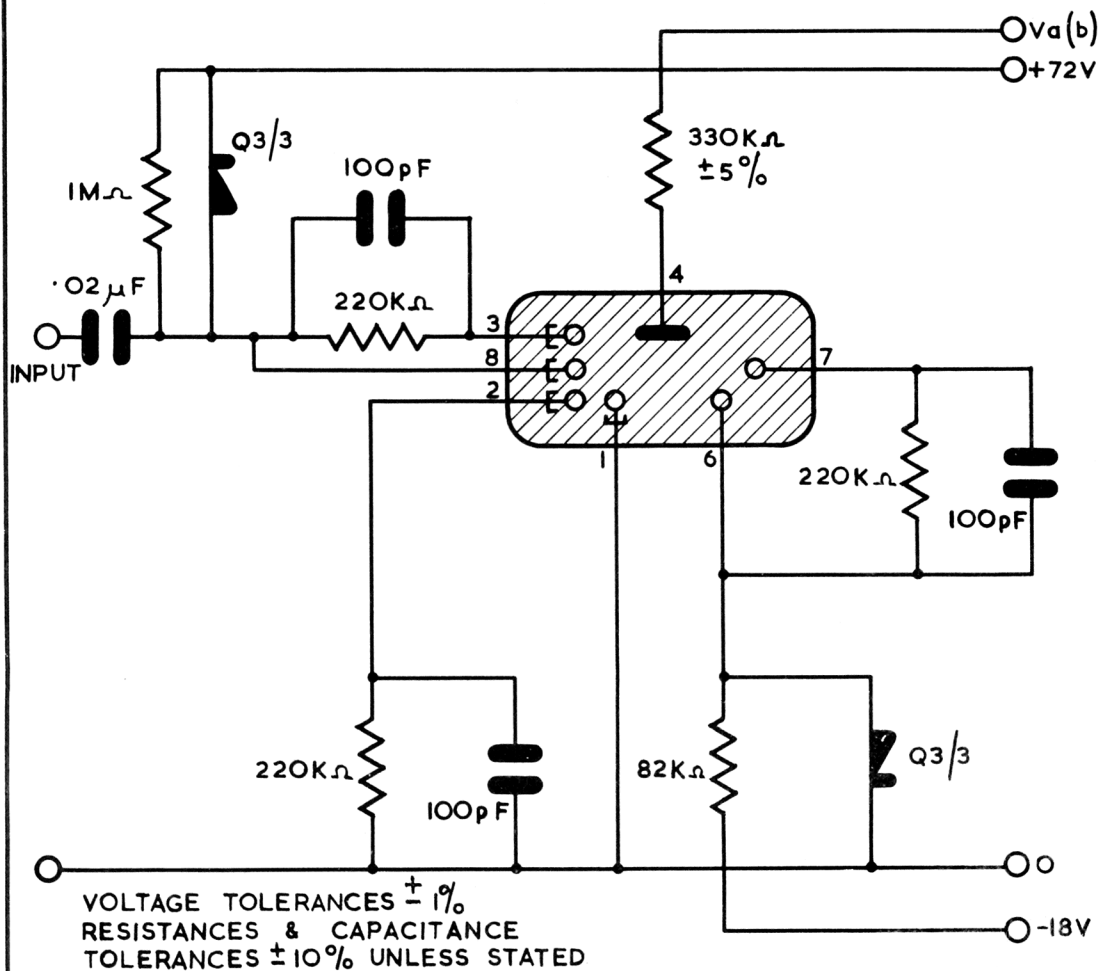
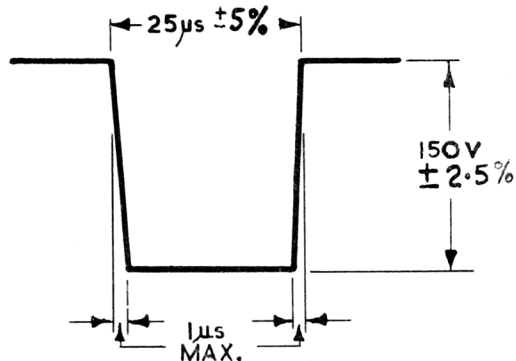
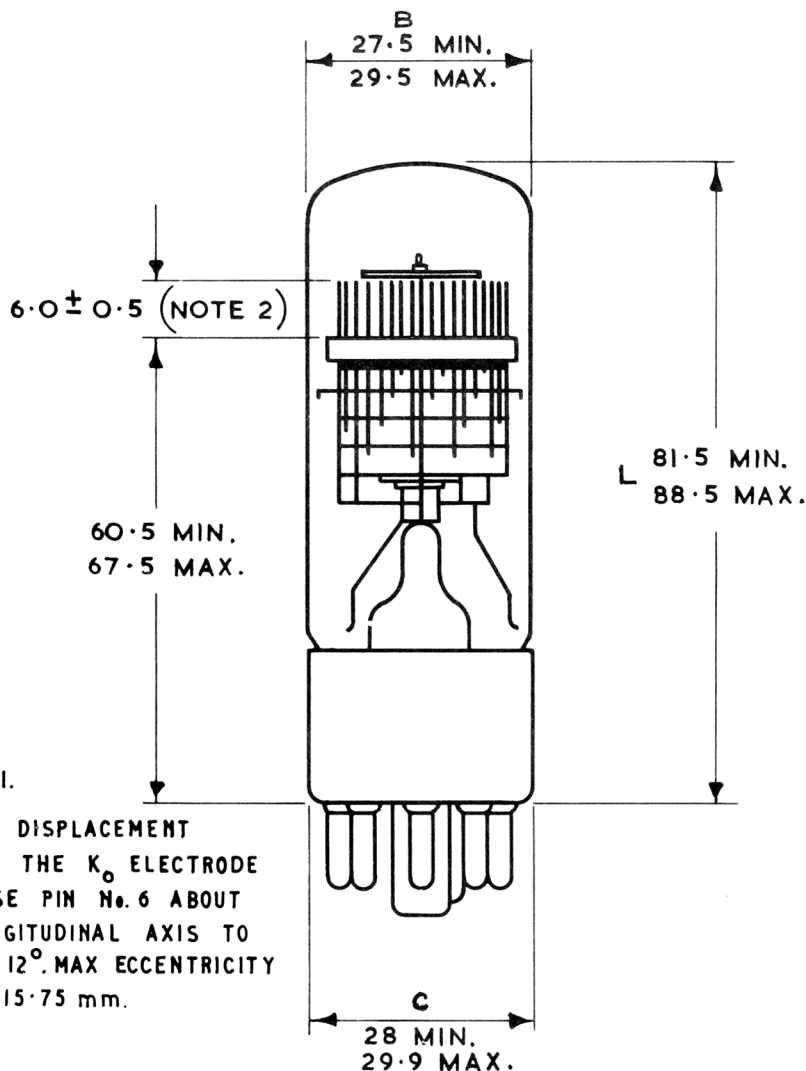


FIG. 2.



OUTLINE DRAWING.

DIMENSIONS IN mm.
MAXIMUM ECCENTRICITY RADIUS 15.75 mm.



NOTE 1.

ANGULAR DISPLACEMENT
BETWEEN THE K_0 ELECTRODE
AND BASE PIN No. 6 ABOUT
THE LONGITUDINAL AXIS TO
BE $0^\circ \pm 12^\circ$. MAX ECCENTRICITY
RADIUS 15.75 mm.

NOTE 2.

THIS DIMENSION IS DETERMINED BY THE ASSEMBLY JIGS. FACILITIES MUST
BE AVAILABLE FOR THESE JIGS TO BE CHECKED BY THE
INSPECTING AUTHORITY AT WEEKLY INTERVALS.