

Specification ^{MOS} CV 4097 Issue 1, Dated 20.5.59 To be read in conjunction with K1001, B448 and BS1409	<div style="text-align: center;"><u>SECURITY</u></div> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> Specification Unclassified </div> <div style="width: 45%;"> Valve Unclassified </div> </div>
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—————→ Indicates a change

Type of Valve - R.F. Power Amplifier Beam Tetrode Cathode - Directly Heated Envelope - Glass, Unmetallised Prototype - VX6137				<u>MARKING</u> K1001/4	
<u>RATING</u> (All limiting values are absolute)				<u>BASE</u> BS. 448/B9A	
				<u>CONNECTIONS</u>	
				<u>PIN</u>	<u>ELECTRODE</u>
Filament Voltage (//)	(V)	2.5		1	a
Filament Voltage (Series)	(V)	5.0		2	NC
Filament Current (//)	(mA)	460		3	bp
Filament Current (Series)	(mA)	230		4	f(-), f(+)//
Max. Anode Voltage	(V)	150		5	f(+)
Max. Anode Dissipation	(W)	5.0		6	g2
Max. Screen Voltage	(V)	150		7	g1
Max. Screen Dissipation	(W)	2.0		8	bp
Anode Current	(mA)	28	A	9	ftap, f(-)//
Screen Current	(mA)	2.0	A		
Mutual Conductance	(mA/V)	4.3	A		
Max. Operating Frequency	(mc/s)	100			
Max. Shock (Short Duration)	(g)	500			
Max. Acceleration (Continuous operation)	(g)	2.5			
				<u>DIMENSIONS</u> See BS. 448/B9A/2.1 Size Reference No. 3	
<u>Capacitances (pF)</u>				<u>Dimensions (millimetres)</u>	<u>Min.</u> <u>Max.</u>
C _{in} (nom.)		8.5		A. Seated Height	- 60.5
C _{out} (nom.)		4.6		C. Diameter	19.0 22.2
C _a , g ₁ (max.)		0.17		D. Overall Height	- 67.5
				<u>MOUNTING POSITION</u> ANY	

NOTEA. Measured V_f = 5.0, V_a = V_{g2} = 150, V_{g1} = -10, V_{bp} = 0

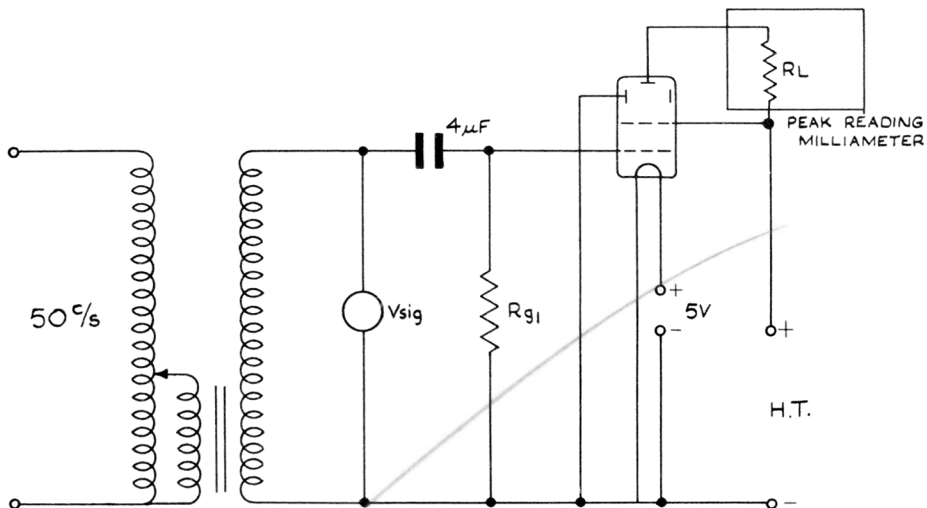
To be performed in addition to those applicable in K1001. Tests shall be performed in the specified order unless otherwise agreed with the Inspecting Authority.

Test Conditions - unless otherwise specified								
		Vf(V) 5.0 DC	Va(V) 150	Vg ₁ (V) -10	Vg ₂ (V) 150	Vbp(V) 0		
K.1001 Ref.	Test	Test Conditions	AQL %	Insp. Level	Sym- bol	Limits		Units
						Min.	Max.	
7.1	Glass Strain	No voltages	6.5	I				
	<u>GROUP A</u>							
	Electrode Insulation	Vf = 0 Vg ₁ - all = -100V Vg ₂ - all = -300V Va - all = -300V Vbp - all = -300V		100% 100% 100% 100%	R R R R	100 100 100 100		MΩ MΩ MΩ MΩ
	Reverse Grid Current			100%	Ig ₁	-	2	μA
	<u>GROUP B</u>	Combined AQL	1.0	II				
	Filament Current		0.65	II	If	210	250	mA
	Anode Current		0.65	II	Ia	26 24	35	mA
	Screen Current		0.65	II	Ig ₂	0	4.0	mA
	Mutual Conductance		0.65	II	gm	3.2	5.4	mA/V
	g ₁ Cut-off voltage	Ia = 2 mA	0.65	II	-Vg ₁	-	25	V
	Peak Anode Current	Va(b) = Vg ₂ = 120V R _L = 320Ω Vf = 5.0V D.C. V _{sig} = 20V r.m.s. Rg ₁ = 22kΩ Vg ₁ = 0 (Note 1)	0.65	II	Ia(pk)	110	-	mA
	<u>GROUP C</u>							
	Change in Peak Anode Current	Va(b) = Vg ₂ = 120V R _L = 320Ω Vf = 4.5V D.C. V _{sig} = 20 V r.m.s. Rg ₁ = 22kΩ Vg ₁ = 0 (Note 1)	2.5	I	ΔIa(pk)	-	25	mA
11.1	Vibration Noise	Va(b) = Vg ₂ = 150V Vg ₁ = -10V Vf = 5.0 V D.C. R _L = 2kΩ (Note 2)	2.5	I	Va(AC)	-	500	mVrms

K.100 Ref.	Test	Test Conditions	AQL %	Insp. Level	Sym- bol	Limits		Units
						Min.	Max.	
7.2	<u>GROUP D</u>							
	Base Strain		6.5	IA				
	Capacitances	Measured on 1 Mc/s Bridge with the valve mounted in a fully screened socket. No shield or skirt.	6.5	IC	Ca, g1 Cin Cout	- 6.5 5.6	0.17 10.5 7.6	pF pF pF
	Functional Test			TA		The valve shall operate satisfactorily in W.S. A.41 and A.42.		
11.2	<u>GROUP E</u> Resonance Search	Va(b) = Vg2 = 150V Vf = 5.0V Vg1 = -10V RL = 2kΩ (1) 25-200 c/s (2) 200-500c/s (Note 2)	2.5	IC				
11.3	Fatigue	Vf = 5.0V r.m.s. Va = Vg2 = 150V Vg1 = -10V Voltages switched 1 min on 3 min. off. Frequency = 170 c/s Min. peak acceleration=5g Duration = 30, 39, 30 hrs.		IA	Va(AC) Va(AC)	To be recorded mV rms To be recorded mV rms		
	<u>Post Fatigue Tests</u>							
11.4	Reverse Grid Current		2.5		Ig1	-	4	μA
	Peak Anode Current	As in Group B			Ia(pk)	To be recorded		mA
	Vibration Noise	As in Group C	2.5		Va(AC)	-	1000	mVrms
	Shock	Hammer angle = 30° No voltages		IA				
	<u>Post Shock Tests</u>							
	Reverse Grid Current		2.5		Ig1	-	4	μA
	Peak Anode Current	As in Group B			Ia(pk)	to be recorded		mA
	Vibration Noise	As in Group C	2.5		Va(AC)	-	1000	mVrms

K.1001 Ref.	Test	Test Conditions	AQL %	Insp. Level	Sym- bol	Limits		Units
						Min.	Max.	
A VI/ 5	<u>GROUP F</u> Life	Va = 150 V Vg1 = Adjust to give Ia = 33mA Vg2 = 150 V Vf = 5.0 V r.m.s.						
A VI/ 5.1	<u>Stability</u> <u>Life Test</u> Change in Peak Anode Current	As in Group B	1.0	I	Ia(pk)	-	20	%
	<u>Life Test</u> <u>End point</u> <u>(250hrs.)</u> <u>5%</u>	Combined AQL	6.5	IA				
A VI/ 5.6	Inoperatives		2.5					
	Reverse Grid Current		2.5		Ig1	-	4	μA
	Peak Anode Current	As in Group B	2.5		Ia(pk)	100 85	-	mA
11.2	Electrode Insulation	Vf = 0 Vg1-all = -100V Vg2-all = -300V Va-all = -300V Vbp-all = -300V	4.0		R R R R	50 50 50 50		MΩ MΩ MΩ MΩ
A IX/ 2.5	<u>GROUP G</u> Electrical re-test after 28 days holding period			100%				
A VI/ 5.6	Inoperatives		0.5					
	Reverse Grid Current		0.5		Ig1	-	3	μA

1. Test in circuit:-



All power supplies shall have negligible impedance to operating frequency.
Grid signal impedance shall be less than 5 ohms; voltage sinusoidal.

2. Preheat for 15 minutes before testing under the following conditions:-

$V_a = V_{g2} = 150V$
 $V_{g1} = -10V$
 $V_f = 5.0V$

SPECIFICATION MOS/CV.4097

Issue No. 1 dated 20.5.59

AMENDMENT NO. 1

Page 4. LIFE

Under Life Test End Point delete "250 hours"
insert "500 hours"

Same Test against Peak Anode Current
delete 100 ma (min)
insert 85 ma (min)

T.V.C.
for Signals Research and
Development Establishment

May, 1961
N.56928/D

✓APB
28/6/61

ELECTRONIC VALVE SPECIFICATIONS

SPECIFICATION MOS/CV4097, ISSUE 1, dated 20.5.59.

AMENDMENT No. 2.

1. Page 1.

- (i) Specification Heading. Amend "Ministry of Supply - D.L.R.D./S.R.D.E." to read "Ministry of Aviation - DLRD/SRDE".
- (ii) Specification Title. Amend, "Specification MOS/CV4097" to read "Specification MOA/CV4097".

2. Page 2, Group B, Anode Current.

Amend minimum limit of '21' to read '26' (The maximum limit of '35' remains unchanged).

January 1966.

T.V.C. for S.R.D.E.

N.319543

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31/66