

SPECIFICATION MOS/CV4092
ISSUE 1 DATED 8.1.59

AMENDMENT NO.1

Page 3 Group F Stability Life Test

In Column headed "Test Conditions"

Amend "As power output (1) but $V_f = 0$ "
 to read:--

"As power output (1) but $V_f = 1.0V$ "

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

April 1959
N.54677D

ELECTRONIC VALVE SPECIFICATION

CV.4092 Issue 1 Dated 8.1.59

AMENDMENT NO. 2

Page 1 Base

Delete:-- See Appendix I to CV.2237

Dimensions

Delete:-- See Appendix I to CV.2237

Signals Radio Development Establishment.

DECEMBER 1961.
(7729)

Specification MOS/CV4092 Issue 1, Dated 8.1.59. To be read in conjunction with K.1001, BS 448 and BS1409	<u>SECURITY</u>	
	<u>Specification</u> Unclassified	<u>Valve</u> Unclassified

→ Indicates a change

Type of Valve - Reliable Audio Output Beam Tetrode Cathode - Directly Heated Envelope - Glass. Unmetallised Prototype - VX9184		<u>MARKING</u>	
		See K.1001/4. Except that the valve shall only be marked with the CV No. Factory and Date Code.	
<u>RATING</u> (All limiting values are absolute)		<u>BASE</u>	
		See App. I to CV 2237. BS448/B5G/F	
		<u>NOTE</u>	<u>CONNECTIONS</u>
Filament Voltage (V) 1.25 Filament Current (mA) 20 Max. Anode Voltage (V) 100 Max. Screen Voltage (V) 100 Max. Cathode Current (mA) 5.5 Max. Bulb Temperature (°C) 100 Max. Shock (Short Duration) (g) 450 Max. Acceleration (Continuous Operation) (g) 5	A	PIN	<u>ELECTRODE</u>
		1	a (red dot)
		2	g ₂
		3	f (+), bp ₂
		4	g ₁
		5	f (-), bp ₁
<u>Typical Operating Conditions</u>		<u>DIMENSIONS</u>	
Measured at $V_a = V_{g2} = 67.5V$ $V_{g1} = -6.5V$		See B.S.448/B5G/F Size Ref. No. 1 See App. I to CV2237	
Anode Current (mA) 3.1 Screen Current (mA) 0.95 Mutual Conductance (mA/V) 0.65 Power Output (mW) 65 ($R_L = 20\text{ k ohms } V_{sig} = 4.55V\text{ rms}$)		Dimensions (millimetres)	Min. Max.
		A. Overall Length	- 38.15
		Diameter	
		B. Minor	- 7.264
		C. Major	- 9.804
		Lead Length	38.1
		<u>MOUNTING POSITION</u> ANY	

NOTES

A. Do not use series filament circuits. Filament voltage must never exceed 1.55V.

TESTS

To be performed in addition to those applicable in K.1001. Tests shall be performed in the specified order unless otherwise agreed with the Inspecting Authority.

Test Conditions - unless otherwise specified								
		Vf(V) 1.25	Va(V) 67.5	Vg ₂ (V) 67.5	Vg ₁ (V) -6.5			
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 = -100V Va - all = -100V		100% 100% 100%	R R R	100 100 100		MΩ MΩ MΩ
	Reverse Grid Current	Rg ₁ = 500KΩ Max.		100%	Ig ₁	-	0.8	μA
	<u>GROUP B</u>	Combined AQL	1.0	II				
	Filament Current		0.65	II	If	18	22	mA
	Anode Current		0.65	II	Ia	2.1	4.1	mA
	Screen Grid Current		0.65	II	Ig ₂	0.35	1.1	mA
	Mutual Conductance		0.65	II	gm	0.475	0.825	mA/V
	Power Output (1)	R _L = 20KΩ V _{sig} = 4.55V rms	0.65	II	P _{out}	50		mW
	<u>GROUP C</u>	Combined AQL	6.5	I				
	Power Output (2)	As Power Output (1) but Vf = 1.0V	2.5	I	P _{out}	25		mW
	Power Output (3)	As Power Output (2) but take readings after 15 minutes	2.5	I	P _{out}	25		mW
	Microphony	Note 1 Va = Vg ₂ = 30V Vg ₁ = 0 Rg ₁ = 4.7 MΩ Delay time 3.5 sec.	2.5	I	V		500	mVrms
5.12	<u>GROUP D</u>		6.5	IA				
	Lead Fragility							
	Filament Anode Short	Note 2		T.A.				
	Functional Test			T.A.	The valves shall operate satisfactorily in W.S. A.40 and A.41			

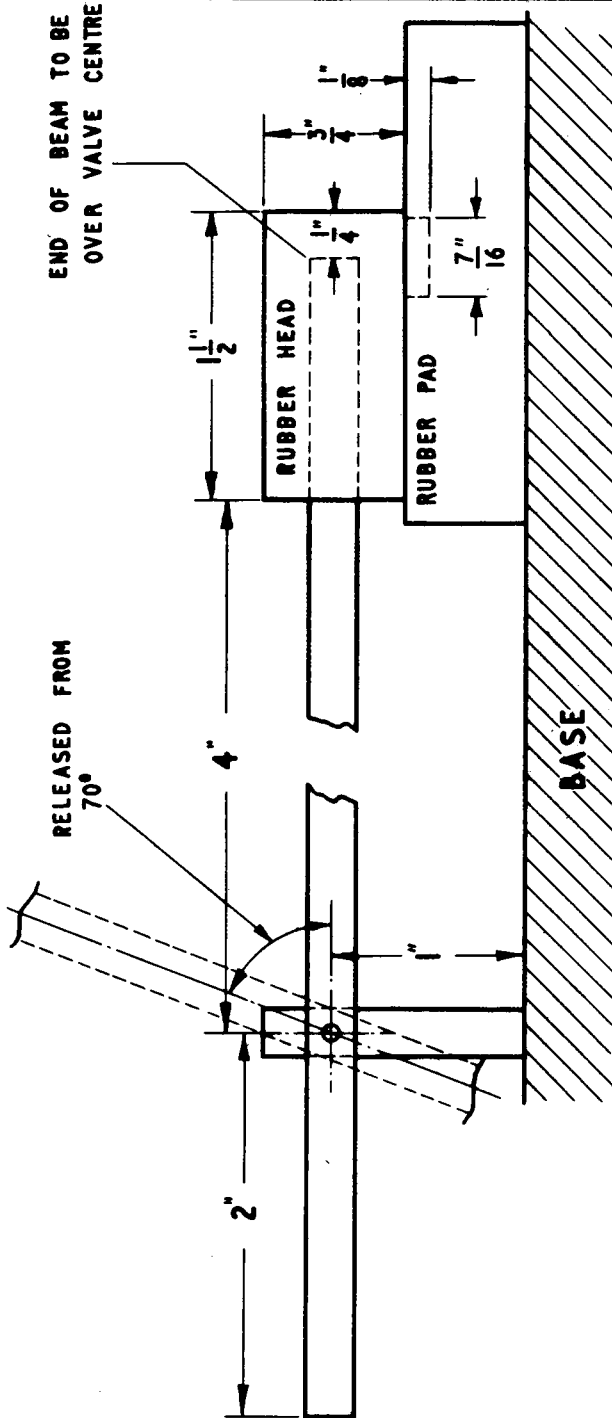
K.1001 Ref.	Test	Test Conditions	AQL %	Insp. Level	Sym- bol	Limits		Units
						Min.	Max.	
11.3	<u>GROUP E</u> Fatigue	Acceleration 5g peak min. Time = 99 hours Note 3		IA				
	<u>Post Fatigue Tests</u>	Combined AQL	4.0					
	Microphony	As in Group C	2.5	V		500	mVrms	
	Reverse Grid Current	As in Group A	2.5	Ig ₁	-	1.0	μA	
	Power Output (1)	As in Group B	2.5	P _{out}	40		mW	
	11.4	Shock	Hammer angle 30° No voltages		IA			
		<u>Post Shock Tests</u>	Combined AQL	4.0				
Microphony		As in Group C	2.5	V		500	mVrms	
Reverse Grid Current		As in Group A	2.5	Ig ₁	-	1.0	μA	
Power Output (1)		As in Group B	2.5	P _{out}	40		mW	
A VI/5 A VI/ 5.1		<u>GROUP F</u> Life						
	<u>Stability Life Test</u>							
	Power Output (2)	As power output (1) but Vf = 0	1.0	I	P _{out}	25	mW	
	A VI/ 5.3	<u>Intermittent Life Test</u>						
		<u>Life Test End Point (500 hrs.)</u>	Combined AQL	6.5	IA			
	A VI/ 5.6	Inoperatives		2.5				
		Power Output (1)	As in Group B	2.5		P _{out}	35	mW
		Reverse Grid Current	As in Group A	2.5		Ig ₁	-	1.5 μA
Electrode Insulation		Vg ₁ - all = -100V	4.0	R	50	MO		
		Vg ₂ - all = -100V		R	50	MO		
	Va - all = -100V		R	50	MO			
	Vf = 0							

K. 1001 Ref.	Test	Test Conditions	AQL %	Insp. Level	Sym- bol	Limits		Units
						Min.	Max.	
A VI/ 5.6	<u>GROUP F</u> (Cont'd)							
	<u>Life Test End Point (1000 hrs.)</u>	Combined AQL	10	IA				
	Inoperatives		4.0					
	Power Output (1)	As in Group B	4.0		P _{out}	30		mW
	Reverse Grid Current	As in Group A	4.0		I _{g1}	-	1.5	μA
	Electrode Insulation	V _f = 0 V _{g1} - all = -100V V _{g2} - all = -100V V _a - all = -100V	6.5		R R R	30 30 30		MΩ MΩ MΩ
A IX/ 2.4 & 2.5	<u>GROUP G</u> Electrical Retest after 28 days holding period			100%				
A VI/ 5.6	Inoperatives		0.5					
	Mutual Conductance				gm	0.475	0.825	mA/V
	Reverse Grid Current	As in Group A	0.5		I _{g1}	-	0.8	μA

NOTES

- The microphony output from the valve shall be measured 3.5 secs. after the hammer is released. Details of the hammer used are shown on page 5. The anode load consists of choke, G.P.O. Type L1440.
- Raise V_f until filament opens. Test for filament to anode short only. After performance of the filament burn out test, if the short circuit shall pass in excess of five times the rated filament current without burning out the short circuit, the valve shall be deemed a failure. This test shall be performed by a Service Laboratory on three valves which shall be in addition to the required number for Type Approval samples. Manufacturers' data are not required for this test.
- Filament voltage and H.T. voltage switched simultaneously 1min. on 3 mins. off throughout duration of test. Frequency = 170 cps. The valves to be vibrated in each of three mutually perpendicular planes in turn for periods of 30, 30 and 39 hours. One plane to include the longitudinal axis of the valve.

HAMMER FOR MICROPHONY TEST GEAR



NOTE

BEAM TO BE LEVEL WHEN RESTING ON PAD

MATERIAL - $\frac{1}{4}$ " SQ. MILD STEEL BEAM WITH $1\frac{1}{2}$ " X $3\frac{3}{4}$ " DIA. RUBBER HEAD
 $\frac{5}{8}$ " X $2\frac{5}{8}$ " X $1\frac{1}{2}$ " RUBBER PAD