

Amendment No.1

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Group B.

Mutual Conductance

Amend max. of 3.8 mA/V to read 4.3 mA/V.

March, 1959.

Admiralty Surface Weapons Establishment

N.54427/D

VALVE ELECTRONIC

ADMIRALTY SIGNAL AND RADAR ESTABLISHMENT

CV2465

Specification AD/CV2465 Issue No. 1 Dated 28-4-58 To be read in conjunction with K1001, BS448 and BS1409.	<u>SECURITY</u>	
	<u>Specification</u>	<u>Valve</u>
	<u>Unclassified</u>	<u>Unclassified</u>

<u>TYPE OF VALVE:</u> Output Tetrode with flying leads. <u>CATHODE:</u> Indirectly heated. <u>ENVELOPE:</u> Glass <u>PROTOTYPE:</u> CV428, VX7110 <u>RETMA DESIGNATION:</u>	<u>MARKING</u>	
	K1001/4	
	<u>BASE</u> B8G/F	
	<u>CONNECTIONS</u>	
<u>RATING</u> (All limiting values are absolute)	Lead	Electrode
	Heater Voltage (V) 6.3 Heater Current (A) 0.9 Max. Anode Voltage (V) 600 Max. Anode Voltage ($I_a = 0$) (V) 750 Max. Screen Voltage (V) 300 Max. Anode Dissipation (W) 25 Max. Screen grid Dissipation (W) 4.5 Max. Heater/Cathode Voltage (V) ± 135 Max. Anode Current (mA) 120 Max. D.C. Control Grid Voltage (V) -200 Max. Grid/Cathode resistance (fixed bias) (K Ω) 100 Max. Grid/Cathode resistance (cathode bias) (K Ω) 500 Mutual Conductance (mA/V) 6 Inner μ 9 Max. shock (short duration) (g) 100 Max. acceleration (continuous operation) (g) $\frac{1}{2}g$	1 Heater (Cathode and Beam plates) h 2 (plates) k, bp 3 Grid No. 2 (Cathode and Beam plates) g2 4 (Plates) k, bp 5 Grid No. 1 (Cathode and Beam plates) g1 6 (plates) k, bp (Cathode and Beam plates) 7 (plates) k, bp 8 Heater h Top Anode a Lead
<u>Capacitances (pF)</u> C in (max.) 12.0 B C out (max.) 10.0 B C -g1 (max.) 0.2 B	<u>DIMENSIONS</u>	
	See BS448	
	Dimensions mm	Min. Max.
	A. Seated height	- 92.1
	B. Diameter	27.8 29.2
	C. Lead length	50.8 -
	<u>MOUNTING POSITION</u>	
	Any	
<u>NOTES</u>		
A. Measured at $V_a = 250V$; $V_{g2} = 250V$; $V_{g1} = -14V$.		
B. Measured on a 1 Mc/s bridge with the valve mounted in a fully screened and approved socket. No shield.		

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TESTS

To be performed in addition to those applicable in K1001 and in the specified order unless otherwise agreed by the Inspection Authority.

Test conditions - unless otherwise specified

Vh	Va	Vg1	Vg2	Ia
(V)	(V)	Adjust	(V)	(mA)
6.3	500		300	2R

K1001	Test	Test Conditions	AQL %	Insp. Level	Sym-bol	Limits		Units
						Min.	Max.	
	<u>GROUP A</u>							
	Insulation	Vg1 - all = -100V D.C. Vg2 - all = -500V D.C. Va - all = -500V D.C.		100% 100% 100%	R R R	100 100 100	- - -	MΩ MΩ MΩ
	Reverse Grid Current	IA = 50 mA. See Note 1		100%	Ig1		3.5	μA
	<u>GROUP B</u>	<u>Combined AQL</u>	1.0					
	Heater Current	Vh = 6.3V	0.65	II	Ih	0.8	1.0	A
	Heater/Cathode leakage Current	Vhk = ± 130V D.C. in series with 1MΩ	0.65	II	Ihk	-	15.0	μA
	Control Grid Voltage		0.65	II	Vg1	-25	-40	V
	Screen Grid Current		0.65	II	Ig2	-	2.5	mA
	Mutual Conductance		0.65	II	gm	2.5	3.8	mA/V
	<u>GROUP C</u>	<u>Combined AQL</u>	6.5	I				
	Out-off Grid Voltage	Ia = 1 mA	2.5	I	Vg1) c/o)	-40	-58	V
	Emission	See Note 2	2.5	I	Ik	3.5	-	A
	<u>GROUP D</u>							
5.12	Lead fragility Capacitance	No Voltages Measured on a 1 Mc/s bridge with the valve mounted in a fully screened and approved socket. No shield.	6.5 6.5	IA IC	Ca-g1 C in C out	- 9.5 7.5	0.2 12.0 10.0	μ/uF μ/uF μ/uF

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TESTS (Contd.)

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K1001	Test	Test Conditions	AQL %	Insp. Level	Sym- bol	Limits		Units
						Min.	Max.	
11.3	<u>GROUP E</u>	<u>Combined AQL</u>						
	Fatigue	Vh = 6.3V switched 1 minute on, 3 minutes off. Va = Vg2 = 0 Acceleration = 1g Frequency = 170 c/s Duration = 23 hrs. Note 3.		IA				
	<u>POST FATIGUE TESTS</u>							
	Heater/Cathode Leakage Current	Vhk = \pm 130V D.C. in series with 1 M Ω	4.0		Ihk	-	30	μ A
11.4	Reverse Grid Current	Ia = 50 mA. See Note 1.	4.0		Ig1	-	4.0	μ A
	Mutual Conductance		4.0		gm	2.5		mA/V
	Shock	No voltages Hammer angle 20°		IA				
	<u>POST SHOCK TESTS</u>							
11.4	Heater/Cathode Leakage Current	Vhk = \pm 130V D.C. in series with 1 M Ω	4.0		Ihk	-	30	μ A
	Reverse Grid Current	Ia = 50 mA	4.0		Ig1	-	4.0	μ A
	Mutual Conductance		4.0		gm	2.5		mA/V

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TESTS (Contd.)

K1001	Test	Test Conditions	AQL %	Insp. Level	Symbol.	Limits		Units
						Min.	Max.	
AV1/5.3	<u>Life Test</u>	Va = 400V Vg2 = 300V Rk = 300Ω		IA				
AV1/5.6	<u>Life Test End Point</u> (500 hours)	Inoperatives	4.0					
	Control Grid Voltage		4.0		Vg1	-20	-45	V
	Mutual Conductance		4.0		gm	2.5	-	mA/V
	Reverse Grid Current	Ia = 50 mA See Note 1	4.0		Ig1	-	4.0	/uA
	Emission	See Note 2	4.0		Ia	2.5	-	A
A1X/2.5	Electrical re-test after 28 day holding period.			100%				
AV1/5.6	Inoperatives		0.5					
	Reverse Grid Current	Ia = 50 mA. See Note 1.			Ig1	-	4	/uA
<u>NOTES</u>								
1. After 2 minutes, reverse current to control grid must not exceed the value specified and must not be rising.								
2. The test shall be carried out by application of a 2 /u second pulse of 300 volts amplitude of 50 p.p.s. repetition frequency between cathode and all other electrodes.								
3. This test shall be carried out with the direction of acceleration at 45° to the three main axes of the valve.								

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