

Ministry of Aviation D.L.R.D./R.A.E.

CV 5847

SPECIFICATION M.O.A./CV.5847 ISSUE NO. 1 dated 2.7.62 To be read in conjunction with K1001, BS448 & BS1409	<table border="1"> <tr> <th colspan="2">SECURITY</th></tr> <tr> <th>SPECIFICATION</th><th>VALVE</th></tr> <tr> <td>Unclassified</td><td>Unclassified</td></tr> </table>	SECURITY		SPECIFICATION	VALVE	Unclassified	Unclassified
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TYPE OF VALVE: Double R.F. Beam Tetrode CATHODE: Indirectly - Heated ENVELOPE: Glass, unmetallised PROTOTYPE: QQV07-50	<table border="1"> <tr> <th colspan="2">MARKING</th></tr> <tr> <td colspan="2">See K.1001/4</td></tr> <tr> <th colspan="2">BASE</th></tr> <tr> <td colspan="2">BS.448/B7A</td></tr> </table>	MARKING		See K.1001/4		BASE		BS.448/B7A																																																									
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NOTES (cont'd.)

D. The Joint Service Catalogue Number is 5960-99-037-2925

TYPICAL CHARACTERISTICS AND OPERATING CONDITIONSCHARACTERISTICS (each section)

I_a = 30 mA
 g_m = 4.5 mA/V
 u_{g1-g2} = 8.0

PUSH PULL OPERATIONRATINGSCLASS 'C' TELEGRAPHY ORF.M. TELEPHONYTYPICAL CONDITIONS

Max. f	(Mc/s)	500	f	(Mc/s)	200	475
Max. V_a (f= 250 Mc/s)	(V)	750	V_a	(V)	600	500
(f= 500 Mc/s)	(V)	600	V_{g2}	(V)	250	250
Max. P_a	(W)	2 x 25	- V_{g1}	(V)	80	60
Max. V_{g2} (b)	(V)	600	I_a	(mA)	2 x 115	2 x 115
Max. V_{g2}	(V)	300	I_{g2}	(mA)	2 x 8.0	2 x 4.0
Max. P_{g2}	(W)	2 x 3.5	I_{g1}	(mA)	2 x 4.0	2 x 3.0
Max. P_{g1}	(W)	2 x 1.0	P_{load} (driver)	(W)	4.0	12.0
Max. I_{g1}	(mA)	2 x 5.0	P_a	(W)	2 x 17.5	2 x 23
Max. I_k	(mA)	2 x 150	P_{out}	(W)	103	69
Max. I_k pk	(mA)	2 x 875	η_a	(%)	75	60
Max. - V_{g1}	(V)	100	P_{load}	(W)	87	59
			$\eta_{transfer}$	(%)	85	85

SUPERSEDED

TESTS

CV5847

TEST CONDITIONS:- Unless otherwise stated.

Vh
(V)
6.3Va
(V)
600Vg2
(V)
250

Note 1, 11

K.1001 Ref.	Test	Test Conditions	AQL %	Insp. Level	Symbol	LIMITS		Units
						Min.	Max.	
AV	<u>GROUP A</u>							
	Reverse Grid Current	Adjust Vg1 for Ia=4.0mA Note 2	-	100%	-Igl	-	6.0	μA
	Anode Current (1)	Vg1 = -24V	-	100%	Ia(1)	18	52	mA
	Screen Current	Adjust Vg1 for Ia=4.0mA	-	100%	Ig2	-	6.0	mA
	Anode Current (2)	Vg1 = -40V	-	100%	Ia(2)	-	5.0	mA
	Heater Current		-	100%	Ih	1.6	2.0	A
	Emission	a + g2 + g1 (strapped) = 225v. Note 3	-	100%	Is	1.8	-	A
	<u>GROUP B</u>							
	Heater-Cathode Leakage Current	Vhk = + 100 V.	0.65	II	Ihk	-	40	μA
	Change in Grid Voltage	Set Vg2=250V. Adjust Vg1 for Ia=4.0mA, reduce Vg2 to 200V and readjust Vg1 for Ia=4.0mA.	0.65	II	ΔVg1	5.2	7.5	V
	Mutual Conductance	Vg1 = -24V ΔVg1 = 0.5 V Max.	0.65	II	gm	3.5	6.5	mA/V
	<u>GROUP C</u>							
	Power Output (200 Mc/s)	Va = 700V Vg1 = -90V Ia = 225mA Igl = 4-10mA Ig2 = 20mA max. Note 4	6.5	IC	Pout (load)	95	-	W
	Vibration Noise	Va = 250V Adjust Vg1 for Ia = 10mA RL = 2k Vibration Amplitude = +0.01" Note 5	6.5	IC	Va (pk/pk)	-	800	mV
	Change in Mutual Conductance	Vh = 5.7V Notes 6 and 7	6.5	IC	Δgm	-	15	%

K.1001 Ref.	Test	Test Conditions	AQL %	Insp. Level	Symbol	LIMITS		Units.
						Min.	Max.	
AIII	<u>GROUP D</u>							
	Capacitances	The valves shall be measured on a 1 Mc/s R.F. bridge in a fully shielded socket, Top cap connectors to be screened. Note 10	6.5	L5	Ca'gl ¹	-	0.015	pF
			6.5	L5	Ca"gl'	-	0.015	pF
			6.5	L5	Ca"gl" ¹			
			6.5	L5	Ca'gl"			
			6.5	L5	C'in	9.0	11.5	pF
			6.5	L5	C"in	9.0	11.5	pF
			6.5	L5	C'out	2.8	3.8	pF
11.3 11.4	<u>GROUP E</u>							
	Fatigue	No voltages applied. The valves shall be vibrated sinusoidally on the axis perpendicular to the planes of the anodes at a frequency = 50 c/s. amplitude = +0.02" Duration = 15 mins.	-	IC	-	-	-	-
	Shock	Hammer angle = 30° The Valve shall be struck at an angle of 45° to the press seal. Three blows.	-	IC	-	-	-	-
	<u>Post Fatigue & Shock Tests</u>	Combined A.Q.L.	6.5					
	Inoperatives		2.5	-	-	-	-	-
	Reverse Grid Current	As in Group A	2.5	-	-Igl	-	7.5	μA
	Vibration Noise	As in Group C	2.5	-	Va (pk/pk)	-	1.0	V
	Power Output (200 Mc/s)	As in Group C	2.5	-	Pout	90	-	W
	<u>GROUP F</u>							
	Life Test	Note 8, 9		IC				
	Life Test (<u>End Point 500 hrs.</u>)							
	Inoperatives		2.5	-	-	-	-	-
AVI/3 AVI/3.6	Reverse Grid Current	As in Group A	2.5	-	-Igl	-	7.5	μA
	Power Output	As in Group C	2.5	-	Pout (load)	90	-	W

K.1001 Ref.	Test	Test Conditions	AQL %	Insp. Level	Symbol	LIMITS		Units
						Min.	Max.	
	<u>GROUP G</u>							
AIX/2.4	Electrical Retest after 28 days Holding Period			100%				
AVI/5.6	Inoperatives		0.5	-	-	-	-	-
	Reverse Grid Current	As in Group A	0.5	-	-Igl	-	7.5	uA

NOTES

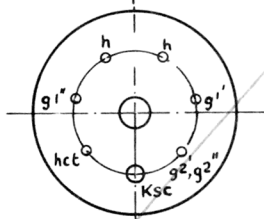
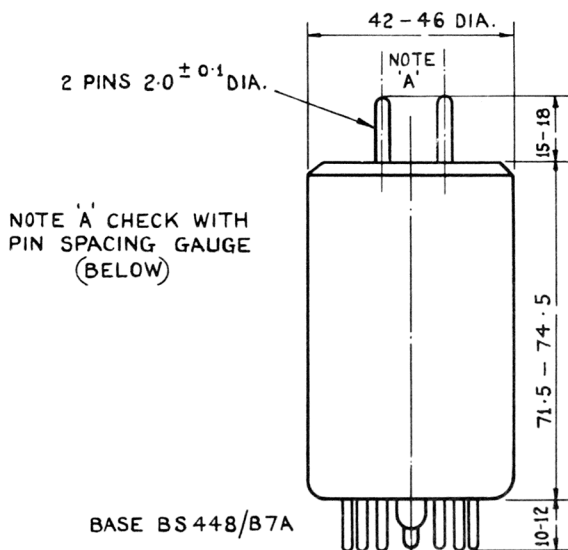
- Test each section separately with gl of the non-active section biased to -100v. Heaters parallel connected.
- Read after a minimum period of three minutes operation when the measurement shall neither be rising nor out of limit.
- The two sections connected in parallel.
- At a circuit efficiency of 80%.
- The valve shall be vibrated sinusoidally at $f = 50$ cps. in each of the following planes:-
 - Major axis
 - Transversely in the planes of the anodes.
 - Transversely, perpendicular to the planes of the anodes.
- The change in mutual conductance is expressed as:

$$\frac{gm \text{ at } 6.3v - gm \text{ at } 5.7v}{gm \text{ at } 6.3v} \times 100\%$$
- Preheat the valves for five minutes under the test conditions before making the test.
- The life test is to be performed in an approved dynamic circuit.
- The Inspection Level of IC is applicable to production quantities in excess of 1000 valves. Where orders are for less than this quantity, the life test specified in K1001 Section 13 shall apply.
- The connections for the capacitance test shall be as follows:-

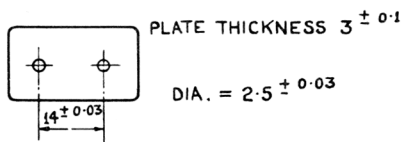
TEST	H.P	LP	E
Ca'gl"	TC1	6	123457 TC1
Ca"gl'	TC2	13457C	TC1, TC2 6
Ca"gl"	TC2	13457C 2	TC1, TC2 2 134, 56, 7, TC1
Ca"gl"	TC1	6	123457C TC1
C'in	2	13457C	134567C TC2
C'in	6	13457C	TC1, TC2 6
C'out	TC1	13457C	TC1, TC2 2
C'out	TC2	13457C	2, 6, TC2
Ca'a"	TC1	TC2	2, 6, TC1
			1234567C

Andt. 1

- Readings to be made after a minimum of 3 mins. operation.



VIEW LOOKING ON TO PINS.
BASE - B7A (ACC. TO BS448)



PIN SPACING GAUGE

NOTE :- ALL DIMENSIONS IN MILLIMETRES.

ELECTRONIC VALVE SPECIFICATIONS

SPECIFICATION MOA/CV.5847 ISSUE NO. 1. DATED 2.7.62.

AMENDMENT NO. 1.

(i) Page 4 Group D, Capacitances

Under the column headed "Symbol", amend

- (a) Ca'g1" - Ca"g1' to read Ca'g1' ~ Ca"g1'
- (b) Ca"g1" - Ca'g1' to read Ca"g1" ~ Ca'g1"
- (c) Ca'-a" to read C' out - C" out

SUPPLEMENTED

(ii) Page 5 Note 10. Table of Connections

Amend the Ca'g1" and Ca"g1' connections as follows:-

	HP	LP	E
Ca'g1"	TC1	6	1,2,3,4,5,7, TC2
Ca"g1'	TC2	2	1,3,4,5,6,7, TC1

T.V.C. Office
for R.A.E.

MR.
22/7/62

(22535)