

GENERAL POST OFFICE: E-IN-C (S)

Specifications: GFO/CV2188/Issue 1. Reprint A	<b>SECURITY</b>	
Dated: April, 1959	<u>Specification</u>	<u>Valve</u>
To be read in conjunction with K 1001, BS 1409 and BS 448	Unclassified	Unclassified

→ indicates a change

<u>TYPE OF VALVE:</u> Travelling wave amplifier		<u>MARKING</u>	
<u>CATHODE:</u> Indirectly heated		See K1001/4	
<u>ENVELOPE:</u> Glass		<u>BASE</u>	
<u>PROTOTYPE:</u> W7/2D		BS448/B8-0	
<u>RATING</u>		Note	<u>CONNECTIONS</u>
Heater voltage (V)	6.3		Pin      Electrode
Heater current (nom) (A)	0.95		
First anode Voltage $V_{a1}$ (nom) (KV)	1.3	A	1      No Connection
2nd Anode and Helix voltage (max.) $V_{a2}$ (KV)	3.2	B	2      Heater
Collector voltage $V_{a3}$ (nom) (KV)	$V_{a2} + 0.05$		3      No Pin
Cathode current (max.) (mA)	18		4      1st Anode
Collector current (mA)	14		5      No Pin
→ First anode current (max.) (mA)	500		6      No Pin
→ Second anode and helix current (max.) (mA)	4		7      No Pin
→ Pre-heating time (min.) (Sec)	120		8      Heater and Cathode
Output (max.) (W)	2		S.C.      2nd Anode & Helix
Bandwidth (min) (M/cs)	1000	C	T.C.      Collector
Wavelength (cms)	6.5 to 8.5		
Focusing field (oersteds)	300		
Amplification (db)	20	D.E.	
Cold Transmission loss (min) (db)	32		
Air Cooling (cu. ft/min)	4		
			<u>SIDE CAP</u>
			See K1001/A1/D5.2
			<u>DIMENSIONS</u>
			See Drawing on Page 3 ←
<p>NOTES. A. The first anode draws negligible current and may be supplied by a potentiometer connected between the helix supply and cathode.</p> <p>B. The optimum helix voltage for individual valves lies between 2.8 and 3.2KV.</p> <p>C. Between 3db power points.</p> <p>D. With collector current of 14 ma and helix voltage within <math>\pm 20v</math> of the optimum value.</p> <p>E. For small signal levels. At maximum output it is approximately 4 db lower.</p>			

TESTS**CV2188**

To be performed in addition to those applicable in K 1001

	Test Conditions						Test	Limits		No. Tested	Notes
	Vh (V)	Va1 (V)	Va2 (V)	Va3 (V)	Ic (mA)	Ia3 (mA)		Min.	Max.		
→ a	6.3						Heater current (A)	0.75	1.05	100%	1,2
→ b	6.3		3000	3050		14	Cathode current (focusing) (mA)	-	17	100%	1,3
c	6.3		3000	3050		14	1st anode current (μA)	-	250	100%	1,6
d	6.3		3000	3050	18		1st anode voltage (V)	950	1650	100%	1,6
→ e	5.5	As in test d.	3000	3050			Cathode current (emission) (mA)	10	-	100%	1,4
f	6.3		3000	3050		16	No oscillation should be detected	-	-	100%	1,5
g	6.3			Va2 (opt) +50		14	Optimum 2nd anode voltage (V) (Va2 opt.)	2800	3200	100%	1,6 7
h	6.3		Opt.	Va2 (opt) +50		14	Output at 25 mW input (mW)	750	-	100%	1,6
i	6.3		Opt.	Va2 (opt) +50		14	Max. power output (mW)	1400	-	100%	1,6
j	0	0	0	0	0	0	Cold attenuation (db)	32	-	100%	1

NOTES

- The tests are to be performed with the valve in a circuit approved by the Type Approval Authority.
- Heater current should be read at least 1 minute after switching on heater.
- Ia3 shall be gradually increased to 14 mA by increasing Va1. The current in the deflector coils shall be adjusted to keep Ia2 to a minimum throughout the test.
- The reading of Ic should not be taken until 1 minute after reducing Vh to 5.5 volts.
- In this test Va2 and Va3 shall be swept at 50 cps by 200 volts rms and the output from a crystal as the vertical deflection shall be viewed on a cathode ray oscilloscope with a voltage of the same phase and frequency providing the horizontal deflection. The matching flags shall be mistuned and the valve tapped during this test.
- Ia2 shall not exceed 4 mA during the test.
- The optimum 2nd Anode Voltage is that giving maximum small signal gain. The test shall be performed with an input of less than 5 mW and with the matching adjusted for maximum gain.

CV 2188/1/2

