VALVE ELECTRONIC **CV5402**

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

Specification: G.P.O./CV5402/Issue 1

Dated: 20-4-65

To be read in conjunction with K 1001, BS 448 and BS 1409

SECURITY	
Specification	Valve
Unclassified	Unclassified

→ indicates a change

TYPE OF VALVE: Medium Power Travelling Wave Amplifier

CATHODE: Indirectly Heated

ENVELOPE: Glass

PROTOTYPE N 1032

MARKING

See K 1001/4

Ratings and Characteristics
All limiting values are absolute

			Notes
Max. Heater Voltage	(V)	6.6	
" Collector Voltage	(V)	2000	
" Collector Current	(mA)	4.0	
" Helix Voltage	(V)	1800	
" Helix Current	(μA)	500	
" Grid 3 Voltage	(V)	1900	
" Grid 3 Dissipation	(W)	0.1	
" Grid 2 Voltage	(V)	900	
" Grid 2 Dissipation	(W)	0.1	
" Grid 1 Voltage (always negative)	(V)	150	
" Grid 1 Dissipation	(W)	0.1	
Heater Voltage	(V)	6.3	
Heater Current	(A)	0.36	
Cathode heating time	(Mins.)	2	
Frequency range	(Gc/s)	3.8 to 4.2	
Gain (Low level)	(db)	38	
Noise factor	(db)	19	
Output Power (Saturated)	(mW)	300	
Magnetic field	(Gauss)	350	

Base
T.O.

Connections

Pin	Electrode
1	K & H
2	H
3	g^2
4	g^3
5	helix
6	Omitted
7	g^1
8	N.C.
Cap	Collector

Dimensions

See drawing page 4

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TESTS

To be performed in addition to those applicable in K 1001

Test conditions unless otherwise stated					Notes
V_h	V_{g2}	V_{g3} and V_{col} strapped together	I_{col}	Frequencies	
6.3V ±5%	650V	1800V	3.5mA	3.8, 4.0 and 4.2 Gc/s	1

Test Clause	Operating Conditions			Test & Units		Limits		Notes
	Freq.	V_{g1}	$V_{hel.}$			Min.	Max.	
a	-	-	-	Heater Current	A	0.33	0.39	2
b		Adj.	Adj.	Focusing & Centering				3
				Grid 2 Voltage	V	0	-80	
				Helix Voltage	V	1300	1650	
				Helix Current	µA		200	
c	Adj.	Adj.	Adj.	Gain, Power and Noise Factor				4
				Grid 1 Voltage	V	0	-65	4
				Helix Current	µA		200	4
				Input Match	V.S.W.R.		1.25:1	5
				Output Match	V.S.W.R.		1.25:1	5
				Max. Gain at 25mW Output	db	36		6
				Helix Voltage for Max. Gain	V	1350	1500	6
				Helix Voltage for 21 db Gain	V		1650	7
				Saturation Output Power	mW	250		8
				Noise Factor	db		20	8

Notes.

1. The tests are to be performed in a circuit approved by the Type Approval Authorities.

   A pre-heating time of two minutes is required before any test is made.

2. Only the heater voltage shall be applied for this test.

3. Initially grid 1 voltage should be set at about -80 volts and the helix voltage about the middle of the range indicated. Grid 1 voltage is then adjusted until the collector current attains its correct value. The tube is then rotated for minimum helix current. When the helix voltage is adjusted over the range indicated, the helix current should not exceed the limiting value stated.

4. Tube to be set up as in Note 3 and then rotated for minimum helix current.

5. The matching adjustments on the mount shall be so set that the V.S.W.R. looking into the input or output R.F. connections of the tube is a minimum at the specified frequency. Leaving these adjustments set, the V.S.W.R. should remain within the limits stated over a band of ±10 Mc/s relative to the specified frequency. This limit holds for all degrees of rotation of the tube in the mount.

6. The helix voltage shall be adjusted for maximum gain with an output power of 25 mW.

7. The helix voltage shall be increased until the gain falls to 21 db at 25 mW output.

8. The saturation power and noise factor shall be measured with the conditions obtained in Note 7.

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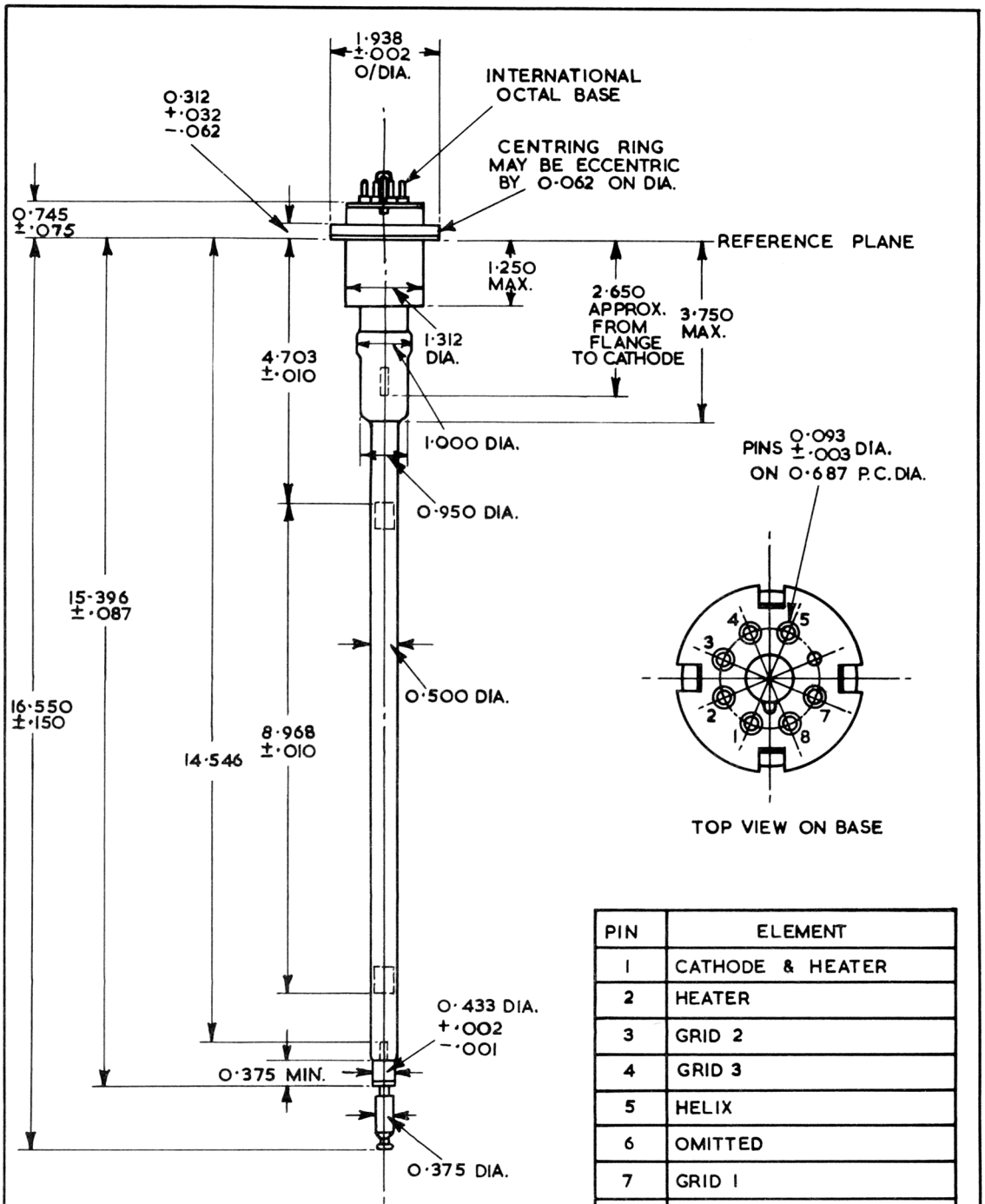

PIN	ELEMENT
1	CATHODE & HEATER
2	HEATER
3	GRID 2
4	GRID 3
5	HELIX
6	OMITTED
7	GRID 1
8	NO CONNECTION
CAP	COLLECTOR