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

VALVE ELECTRONIC

CV 5401

Specification: G.P.O./CV5401/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: Low Noise Travelling Wave Amplifier

CATHODE: Indirectly Heated

ENVELOPE: Glass

PROTOTYPE N 1031

MARKING

See K1001/4

Ratings and Characteristics
All Limiting Values are absolute

		Notes
Max. Heater Voltage	(V)	6.6
* Collector Voltage	(V)	1000
* Collector Current	(μA)	300
* Helix Voltage	(V)	600
** Helix Current	(μA)	5
* Grid 4 Voltage	(V)	600
* Grid 4 Dissipation	(W)	0.1
* Grid 3 Voltage	(V)	80
** Grid 3 Dissipation	(W)	0.1
* Grid 2 Voltage	(V)	80
* Grid 2 Dissipation	(W)	0.1
* Grid 1 Voltage (always negative)	(V)	75
* Grid 1 Dissipation	(W)	0.1
Heater Voltage	(V)	6.3
* Current	(A)	0.36
Cathode Heating Time	(Mins.)	2
Frequency Range	(Gc/s)	3.8 to 4.2
Gain (Low Level)	(db)	25
Noise Factor	(db)	8.5
Output Power (Saturated)	(mW)	2.3
Magnetic Field	(Gauss)	550

Base
T.O.

Connections

Pin	Electrode
1	K & H
2	H
3	g^2
4	g^4
5	helix
6	Omitted
7	g^1
8	g^3
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	Vg^1	Vg^3	Vcol	Icol	Frequencies	
6.3V ±5%	-5V	45V	700V	250µA	3.8, 4.0, 4.2 Gc/s	1

Test Clause	Operating Conditions				Test & Units		Limits		Notes
	Freq.	Vg^2	Vg^4	Vhel			Min.	Max.	
a	-	-	-	-	Heater Current	A	0.33	0.39	2
b		Adj.	Adj.	Adj.	Focussing & Centering				3
					Grid 2 Voltage	V	0	80	
					Grid 4 Voltage	V	300	500	
					Helix Voltage	V	460	530	
					Helix Current	µA	0	2	
c	Adj.	Adj.	Adj.	Adj.	Gain, Power and Noise Factor				4
					Grid 2 Voltage	V	0	80	4
					Grid 4 Voltage	V	300	500	4
					Helix Voltage	V	460	530	4
					Helix Current	µA		2	4
					Input match	V.S.W.R.		1.25:1	5
					Output match	V.S.W.R.		1.25:1	5
					Gain	db	20		6
					Noise factor	db		9	7
					Saturation Output Power	mW	2		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 to be applied for this test.

3. Initially grid 2 voltage should be set at zero, helix and grid 4 voltages to be set to the mid value of the range. Grid 2 voltage should then be made more positive until the collector current attains its operating value. The tube shall then be rotated until the helix current is a minimum.

4. Tube to be set up as in Note 3 and 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 and output R.F. connections is a minimum at the specified frequency. Leaving these adjustments set, the V.S.W.R. should remain within the limit stated over a frequency range ±10 Mc/s relative to the specified frequency. This limit holds for all degrees of rotation of the tube within the mount.

6. The gain of the tube shall be measured with a power input of -30 dbm.

7. For the noise factor measurement the gain shall be set to 23 db or the maximum gain, whichever is the least, and grid 4 adjusted for best noise factor.

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

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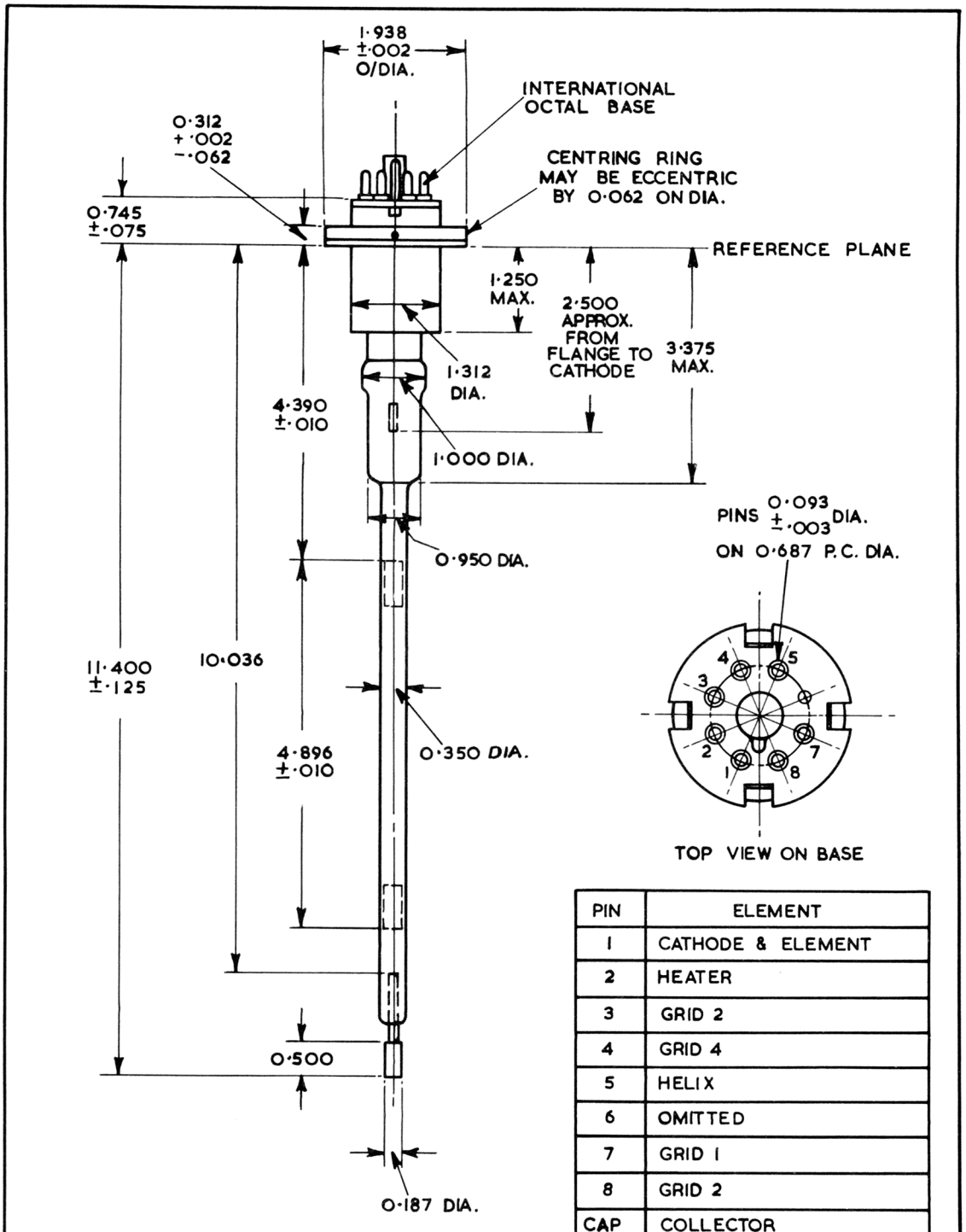

PIN	ELEMENT
1	CATHODE & ELEMENT
2	HEATER
3	GRID 2
4	GRID 4
5	HELIX
6	OMITTED
7	GRID 1
8	GRID 2
CAP	COLLECTOR

ALL DIMENSIONS IN INCHES