~~MINISTRY OF AVIATION - DLRD/RRE~~
PROCUREMENT EXECUTIVE, MINISTRY OF DEFENCE

VALVE ELECTRONIC **CV4116**

Amdt 1

Specification ~~MOA/CV4116~~ MOD (PE) CV4116	SECURITY
Issue 1A dated 1st April 1965	Specification: Unclassified / Valve: Unclassified
To be read in conjunction with K1001, BS448 & BS1409	

← Indicates change

TYPE OF VALVE - Reliable High Voltage, Half Wave Rectifier

CATHODE - Indirectly heated

ENVELOPE - Ceramic

PROTOTYPE - UR 45

RATINGS AND CHARACTERISTICS
(Absolute, non-simultaneous and not for Inspection purposes)

			Note
Heater Voltage	(V)	4.0	B
Heater Current	(A)	1.5	
Max. RMS Anode Voltage	(kV)	6.0	A
Max. Working PIV	(kV)	16.0	C
Max. No Load PIV	(kV)	17.5	C
Max. DC Rectified Current	(mA)	50	A
Max. Peak Anode Current	(mA)	300	
Max. Peak Pulse Anode Current	(A)	3.0	
Reservoir Condenser (optimum)	(µF)	0.25	A
Min. HT Switch Delay period for Full Rating	(secs)	60	
Min. Limiting Source Resistance	(ohms)	7500	A
Max. Envelope temperature	(°C)	225	B
Max. Shock (short duration)	g	500	
Max. acceleration (continuous operation)	g	2.5	

MARKING
See K1001/4

BASE
BS448/B8-0/1.1

CONNECTIONS

Pin	Electrode
1	Internal Connection
2	Heater
3	Internal Connection
4	Internal Connection
5	Internal Connection
6	~~Internal Connection~~ omitted
7	~~omitted~~ Internal Connection
8	Heater and Cathode
T.C	Anode

Amdt 1

TOP CAP
BS448/CT1

DIMENSIONS
See pages 4 and 5

Dimension (mm)	Min.	Max.
A overall length		118
B diameter (nom)		26.5

MOUNTING POSITION
Any - See also Note C

NOTES

A. Ratings apply to condenser input filter and 50 cps.

B. Caution to Electronic Equipment Design Engineers: Special attention should be given to the temperature of valves to be operated in aircraft. Reliability will be seriously impaired if the maximum envelope temperature is exceeded. The life expectancy may be reduced if conditions other than those specified for life test are imposed on the valve and will be reduced appreciably if absolute maximum ratings are exceeded. Both reliability and performance will be jeopardised if heater voltage ratings are exceeded: life and reliability performance are directly related to the degree that regulation of the heater voltage is maintained at its centre-rated value.

C. Designers should ensure that sufficient clearance exists between the anode and adjacent components to avoid flash-over. Particular care should be taken to remove any adjacent sharp edges, and attention should be paid to the ambient pressure under operating conditions to avoid corona.
It is recommended that "Retainer, Electronic Valve" Nato Stock No. 5960-99-952-7107 be used.

D. NATO Stock No. 5960-99-037-3115.

TESTS

To be performed in addition to those applicable in K1001
Tests shall be performed in the specified order unless otherwise agreed with the Inspecting Authority.

Test Conditions - unless otherwise specified

Vh(V) 4.0 — Ia(mA d.c.) 120

K1001	Test	Test Conditions	AQL %	Insp. Level	Sym-bol	Limits Min.	Limits Max.	Units
	GROUP A							
	Heater Current			100%	Ih	1.35	1.65	A
	Anode Voltage			100%	Va	-	120	V
	Rectification (1)	Input voltage = 6.6 kV rms f = 50 c/s; Cres = .25μF Source Res = 7.5K Load current = 50mA (nom)		100%		Note 1		
	GROUPS B & C	Omitted						
	GROUP D							
	Rectification (2)	as for Rectification (1) in Group A but f = any frequency in the range 1.5 - 2.4 Kc/s Note 2	6.5	IA		Note 1		
	GROUP E							
	Functional Fatigue	Input voltage = 6 kV rms Load resistance = 125kΩ C res = 0.01μF f = 50 c/s Note 3		IC				
	Post Functional Fatigue							
	Rectification (1)	as for Group A test	6.5			Note 1		
11.3	Fatigue	Vh = 4.0V switched 1 min. on and 3 mins off Va = 0 frequency = 170 c/s Min. peak accel. = 5g Duration = 100 hrs (min) divided into 2 planes		IA				
	Post Fatigue Test							
	Rectification (1)	as for Group A test	6.5			Note 1		
11.4	Shock	Hammer angle = 30° No voltages		IA				
	Post Shock test							
	Rectification (1)	as for Group A test	6.5					

K1001	Test	Test Conditions	AQL %	Insp. Level	Symbol	Limits Min.	Limits Max.	Units
	GROUP F							
AVI/5.3	Life (intermittent)	Half wave rectifier Input voltage = 6.6kV rms f = 50c/s, C res = .25 µF Source resistance = 7.5kΩ Load current = 50mA nom		IA				
	Life test end point- 500 hrs.							
	Rectification (1)	As for Group A test	6.5%			Note 1		
	Life test end point- 1500 hrs.							
	Rectification (1)	As for Group Atest	10%			Note 1		
	GROUP G							
AXI/2.5	Re-test after 28 days holding period			100%				
AVI/5.6	Inoperatives		0.5%					

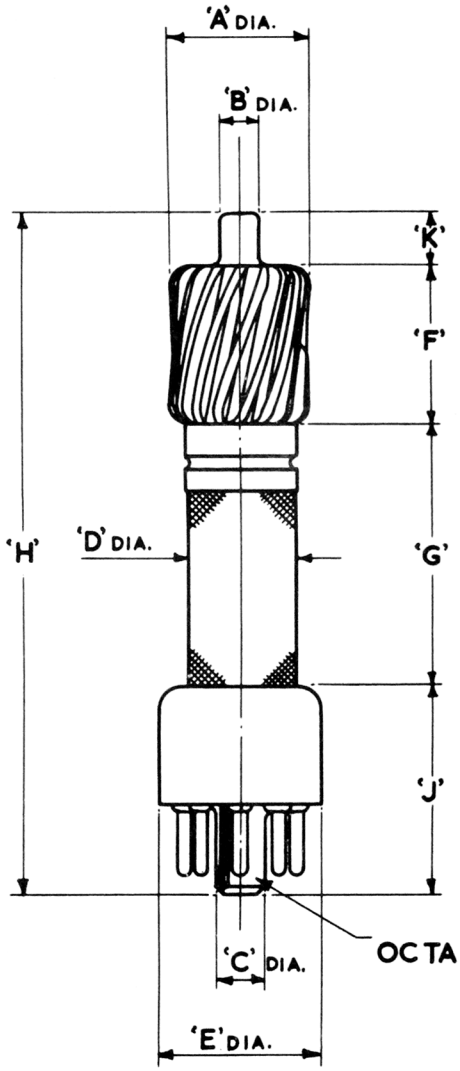
NOTES

Note 1. Run for 40 secs. After first 10 secs. switch AC HT supply 3 times - 5 secs off and 5 secs. on. Reject for softness or persistent flash-over.

Note 2. With C reservoir to suit supply frequency.

Note 3. The valve shall be vibrated sinusoidally in a direction normal to the axis of the valve with a linear change of acceleration with frequency starting at 1g (peak) at 25 c/s and rising to 30g (peak) at 500 c/s. The minimum rate of sweep shall be 1 min/octave. The valve shall complete one full traverse up and down.

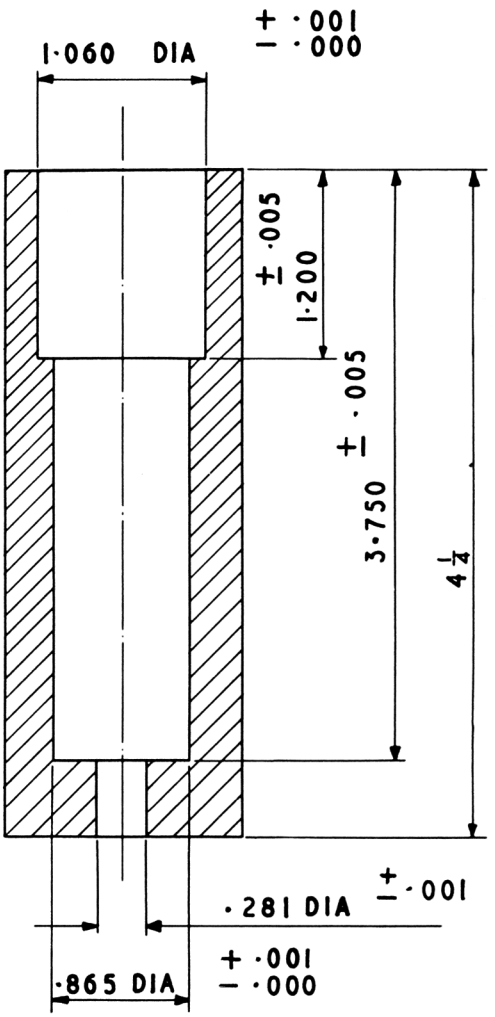
DIMENSIONAL OUTLINE



OCTAL BASE B8-O/1.1

DIMENSIONS IN INCHES			
REF	MAX	MIN	
A	.855	.845	
B	.255	.245	
C	.317	.300	
D	.705	.703	
E	1.040 nom		
F	1.050	.950	
G	1.950	1.600	
H	4.450	4.200	←
J	1.350	1.200	←
K	0.350	0.300	←

CONCENTRICITY GAUGE



SECTION ON ℄ OF GAUGE

DIMENSIONS IN INCHES

ELECTRONIC VALVE SPECIFICATIONS

SPECIFICATION MOS/CV4116, ISSUE 1A, DATED 1.4.65

Amendment No 1

Insert the following manuscript amendments:-

1 Page 1

i SPECIFICATION AUTHORITY

Delete "Ministry of Aviation - DLRD/RRE"
Insert "PROCUREMENT EXECUTIVE, MINISTRY OF DEFENCE".

ii SPECIFICATION TITLE

Delete "SPECIFICATION MOA/CV4116"
Insert "SPECIFICATION MOD(PE)CV4116"

iii CONNECTIONS

AMEND entries for electrodes against Pins 6 and 7 to the following:-

PIN	ELECTRODE
6	Omitted
7	Internal Connection

JAB 29/4/72