CV490

VALVE ELECTRONIC

ADMIRALTY SIGNAL & RADAR ESTABLISHMENT

Specification AD/CV490/Issue 2.
Dated : 12.12.50.
To be read in conjunction with K1001.

SECURITY	
Specification	Valve
Unclassified	Unclassified

TYPE OF VALVE:- High Vacuum Rectifier, Damping Diode.

CATHODE:- Directly or Indirectly Heated, Oxide Coated. Amdt

ENVELOPE:- Hard Glass.

PROTOTYPE:- VX6021.

RATING			Note
Heater Voltage	(V)	4.0	A,B
Heater Current	(A)	4.0	
Max. Anode Dissipation	(W)	32	B,C
Max. Peak Inverse Voltage			
Under short pulse conditions	(kV)	27	D
Under faulty conditions	(kV)	35	E
Under rectifier conditions (no load)	(kV)	20	
Max. Peak Anode Current			
Under short pulse conditions	(A)	10	D
Under rectifier conditions	(A)	1.0	F
Max. RMS Anode Current	(mA)	350	
Internal Resistance	(ohms)	105	G

MARKING

See K1001/4.

BASE

Edison-type Screw Lamp Cap
E.40/45 (Goliath)
See K1001 ~~A14/D13.1~~ A14/D15.1 Amdt

CONNECTIONS

Base thread : H) See
" button : H) Note A.
T.C. : A

TOP CAP

See K1001/AI/D5.

Dimension	Min.	Max.
~~A~~D (mm)	9.27	9.78
~~B~~E (mm)	11.43	16.51

Amdt

DIMENSIONS

See K1001/AI/D1.

Dimension	Min.	Max.
A (mm)	-	240
B (mm)	-	58

PACKAGING

See K1005.

MOUNTING POSITION Vertical Amdt 1

NOTES

A. ~~As the cathode is connected to the centre of the filament~~ the HT return should preferably go to the centre tap of the heater transformer. If this cannot be done, the ratings for peak and mean anode current should be reduced. Amdt 5

B. The anode voltage must not be applied for 30 seconds after switching on the heater.

C. This may be increased to 38 W provided the Peak Inverse Voltage does not exceed 75% of the rated value.

D. These ratings are for pulses of the order of 2 μs or less.

E. Under short pulse conditions, provided fault does not persist for more than 50 milliseconds.

F. If necessary a resistance of up to 1600 ohms must be added to the anode circuit to limit the peak switching surge to 6 A.

G. At Ia = 8 A.

TESTS

To be performed in addition to those applicable in K1001.

	Test Conditions		Test	Limits		No. Tested	Note
	Vh (V)	Va (V)		Min.	Max.		
a	4.0	-	Ih		4.4	100%	
b	4.0	200 Applied through a resistance of 264 ohms	Ia Vacuum Test (mA)	320	450	100%	1
c	(i) 4.0	800 1 micro-second pulses at a prf not greater than 550 c/s	(i) Internal resistance at full cathode heating to be called R_1 (ohms)	85	132	100%	
	(ii) 3.6		(ii) Internal resistance at reduced cathode heating (ohms)		R_1 + 25 or 142 which ever is the smaller	100%	
d	4.0	Valve to be run for 15 minutes in a Voltage Doubler circuit at Va = 7.75 kV RMS (50 c/s sine wave), Load = 130,000 ohms, Condenser = 1 µF/Valve, Limiting resistance = 1,600 ohms.		Reject valve which shows appreciable sparking or abnormal heating of cathode or heaters.		100%	
e	4.0	35,000 pulsed P.I.V.	Pulse test : Duration 1 minute. Not rejected valves, which show tendency to spark (more than 5 times per minute) to be submitted to test 'f'.	Reject valves which spark more than 20 times per minute.		100%	2
f	4.0	27,000 pulsed P.I.V.	Pulse Test Duration 2 minutes.	No sparking permitted.		Selected in test 'e'.	2

NOTES

1. No portion of the anode may show hot spots during this test. No visible ionisation glow may occur and Va must remain constant to within ± 3% during the last three minutes of test.

2. This test is to be done in an approved pulse tester, giving pulses of 2 to 3 microseconds duration with a repetition frequency 500 c/s.

ELECTRONIC VALVE SPECIFICATIONS

SPECIFICATION AD/CV490, ISSUE 2., DATED 12.12.50

AMENDMENT No. 1

(i) Page 1. Cathode. Amend "Indirectly Heated" to read "Directly or Indirectly Heated."

(ii) Base. Amend "K1001 A14/D13.1" to read "K1001/A IV/D13.1."

(iii) Top Cap. Under "Dimension" amend "D" to "A" and "L" to "B".

(iv) NOTE A. Delete the words "As the cathode is connected to the centre of the filament."

(v) Insert additional "Box" under "PACKAGING" as follows:-

MOUNTING POSITION

Vertical

November, 1964

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T.V.C. for A.S.W.E.

JAAS 12/1/65