VALVE ELECTRONIC

ADMIRALTY SIGNAL AND RADAR ESTABLISHMENT

CV482.

Specification AD/CV482 Issue No. 1 dated 27. 5. 57. To be read in conjunction with K1001	SECURITY Specification: Unclassified Valve: Unclassified

TYPE OF VALVE: High Vacuum, High Voltage, Half-Wave Rectifier.

CATHODE: Directly Heated, Thoriated Tungsten.

ENVELOPE: Glass

PROTOTYPES: CV312, CV74

MARKING

See K1001/4

BASE

G.E.S.

(See Note C)

RATINGS

All limiting values are absolute.

			Note
Filament Voltage.	(V)	4.0	
Filament Current.	(A)	12.0	
Max. Mean Anode Power Dissipation.	(W)	100	B
Max. Peak Anode Inverse Voltage.	(kV)	65	A
Min. Total Emission	(A)	2.5	

CONNECTIONS

Base Thread - f
Base Button - f
T.C. - a

DIMENSIONS

See K1001/A.1/D.1 and Note C.

Dimension	Min.	Max.
A (mm)	-	250
B (mm)	-	60

TOP CAP

See K1001/A.1/D.5.7.

N O T E S

A. The valve will operate satisfactorily at the maximum rated value of peak anode inverse voltage even when the mean anode power dissipation is at the maximum rated value of 100 watts.

B. With the peak anode inverse voltage limited to 40 kV the max. mean anode power dissipation is 120 watts with natural convection cooling and 160 watts with forced air cooling provided that no point of the glass envelope reaches a temperature exceeding 200°C.

C. No part of the valve, including its base and any corona ring that may be present as an integral part of the base, will exceed 60 mm in diameter. The overall height of the G.E.S. base will not exceed 75 mm.

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TESTS

To be performed in addition to those applicable in K1001, and after a holding period of at least 14 days.

	Test Conditions		Test	Limits		No. Tested	Note
	Vf (r.m.s) (V)	Va		Min.	Max.		
a	4.0	0	If (A)	11.5	12.5	100%	1
b	0	-80 kV for 2 mins. (See Note 2)	Inverse Voltage (i) Sparking (ii) Field Emission (μA)	- -	Nil 5	100%	2
c	4.0	350 volts for 3 mins.	Ia (mA)	300	380	100%	3
d	4.0	3kV applied briefly - See K1001/A.5	Emission (A)	2.5	6.0	100%	
e	4.0	See Note 4	Life Test (i) Sparking during test. (ii) Emission after 1000 hours. (A)	- 2.0	Nil -	Type Approval and as in Note 5	4,5

NOTES

1. The filament shall be heated at Vf = 4 volts for at least 2 minutes before If is measured.

2. The anode voltage shall vary sinusoidally with time from 0 to the peak value of -80 kV, at a frequency of 50 c/s. The "Field Emission" is the maximum value of the current indicated by a d.c. microammeter in the anode circuit.
There shall be no sign of arc-back or sparking during the test.

3. The anode voltage shall be maintained at 350 volts for 3 mins. During the last minute of this period the anode current shall be constant to within ± 5 mA.

4. The valve shall be operated for at least 1,000 hours in a half-wave rectifier circuit at 50 c/s, with peak anode inverse voltage of 65 kV, and with a mean anode power dissipation of 100 watts. This operation may be done in a "cheater" circuit in which the inverse anode voltage is supplied by a low-current high-voltage transformer and in which the forward anode voltage is supplied by a medium-current medium-voltage transformer. A permissible alternative life test procedure shall be to subject the valve to short periods of operation at a specified mean anode dissipation and negligible inverse anode voltage, alternating with short periods of operation at zero anode dissipation and the maximum rated peak inverse anode voltage. Thus, with the circuit shown in Fig. 1 , it will be permissible to operate the valve during the test as follows:-

   (a) S shall be connected to A for 1 minute with the transformer T_1 adjusted to give a mean anode dissipation of about 150 Watts in the valve. (The anode dissipation will be about 150 Watts when the rectified current as indicated by the D.C. ammeter M is 0.25 amps.)

/(b) .....

(b) At the end of the minute as in (a), S shall be switched rapidly from A to B and left connected to B for 1 minute with the transformer T_2 adjusted to provide a peak inverse anode voltage of 65 kV in the valve.

(c) At the end of the minute as in (b), S shall be switched rapidly from B back to A, and the operation as in (a) repeated.

The operations (a), (b) and (c) shall be repeated in this sequence thirty times an hour throughout the period of the test.

During the test there shall be no sign of arc-back or sparking in the valve, and thermionic emission from the anode during the periods when the anode is dissipating 150 watts shall be less than 1 microampere.

5. One valve from each lot of 100 valves shall be life tested. If this valve satisfies the specified requirements for 1000 hours, the lot shall be accepted; however, if this valve fails under 1000 hours, four other valves from the same lot shall be life tested. If more than one of these four fails under 1000 hours, the lot shall be rejected, but if not more than one of the four fails in this time the lot shall be accepted.

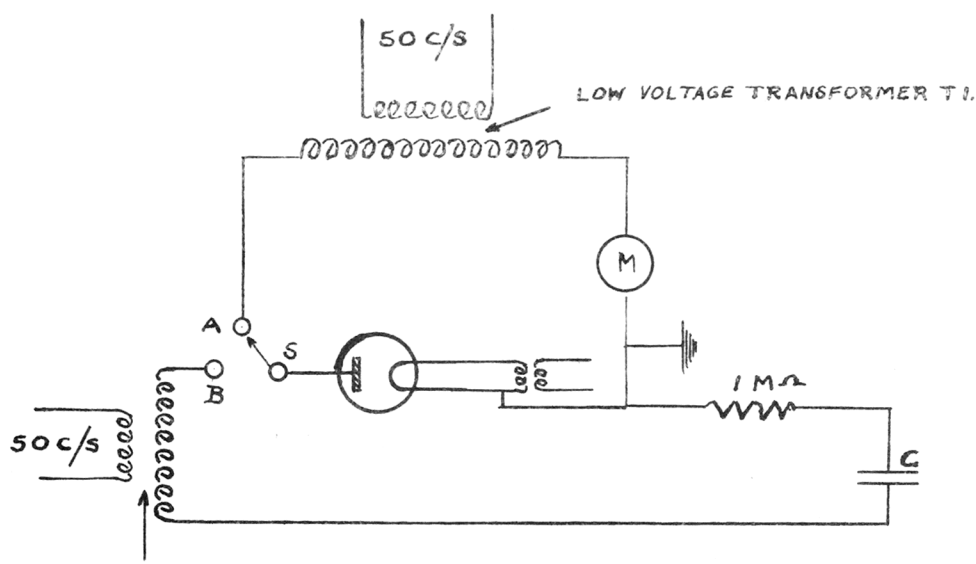

FIG. 1

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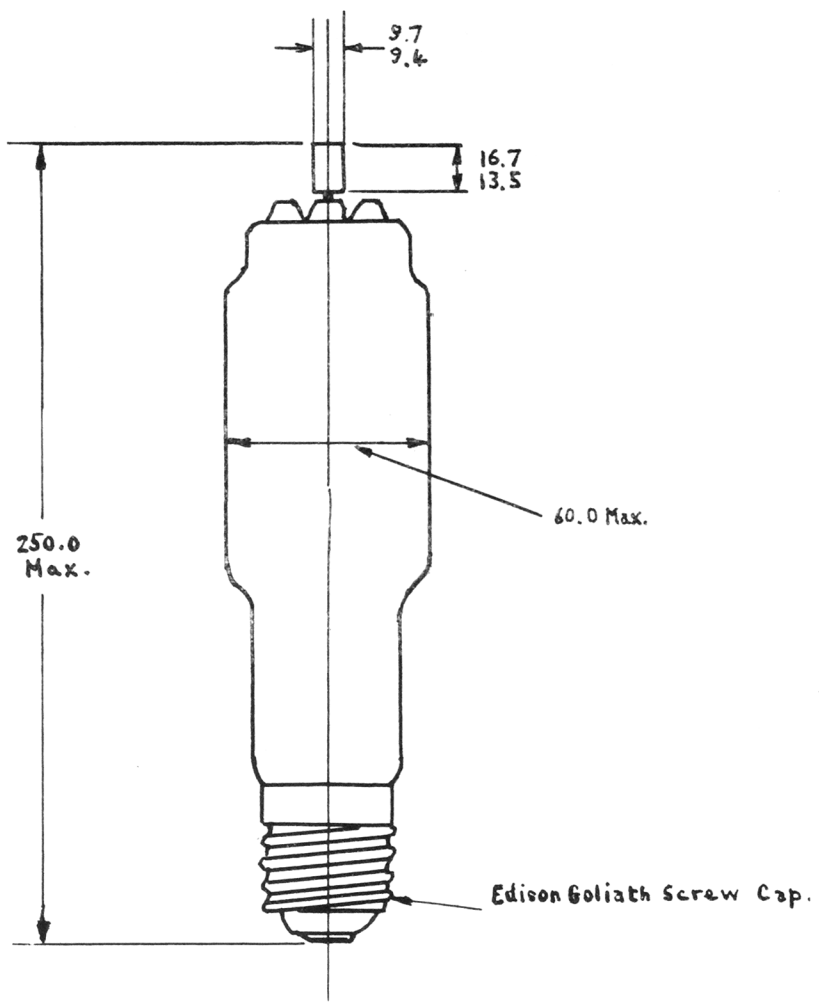

ALL DIMENSIONS IN MILLIMETRES.