ADMIRALTY SIGNAL AND RADAR ESTABLISHMENT

VALVE ELECTRONIC CV2160

Specification AD/CV2160 Issue No.4 dated 13/9/57 To be read in conjunction with K1001	SECURITY Specification: Unclassified Valve: Unclassified

→ Indicates a change

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

CATHODE: Directly heated, Thoriated Tungsten.

ENVELOPE: Glass

PROTOTYPE: VX374

MARKING

See K1001/4

BASE

G.E.S.

RATINGS

All limiting values are absolute

		Note
Filament Voltage (V)	4.0	
Filament Current (A)	12.0	
Max. Mean Anode Power Dissipation (W)	130	
→ Max. Peak Anode Inverse Voltage (kV)	40	A
→ Min. Total Emission (A)	2.5	

CONNECTIONS

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

DIMENSIONS

See K1001/A.1/D.1

Dimension (mm)	Min.	Max.
A	220	~~250~~ 240 ← Amdt
B (see note B below)	-	60 ←

TOP CAP

See K1001/A.1/D.5.7

MOUNTING POSITION

Vertical with Top Cap Uppermost.

NOTES

→ 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 130 Watts.

B. No part of the valve, including its base and any corona ring is to exceed 60mm in diameter

TESTS

To be performed in addition to those applicable in K1001, and after a Holding Period of 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	-70kV for 2 mins. (see note 2)	Inverse Voltage (i) Sparking (ii) Field Emission (μA)	- -	Nil 20	 100%	 2
c	4.0	300V for 3 mins.	Ia (mA)	425	575	100%	3
d	4.0	3 kV 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 -	T.A. and as in Note 5	 4,5

NOTES

1. The filament shall be heated at Vf = 4V 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 -70kV 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 300V for 3 minutes. 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 1000 hours in a half-wave rectifier circuit at 50 c/s, with peak anode inverse voltage of 40 kV, and with a mean anode power dissipation of 130W. This operation may be done in a "cheater" circuit in which the inverse anode voltage is supplied by a high-voltage low-current transformer and in which the forward anode voltage is supplied by a medium-voltage medium-current transformer. ~~During the test there shall be no sign of arc-back or sparking in the valve.~~ See Amendment 2. Aug 1960

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; but if this valve fails under 1000 hours another valve from the same lot shall be life tested. If this valve also fails under 1000 hours, the lot shall be rejected; but if it is satisfactory for this time, the lot shall be accepted.

ELECTRONIC VALVE SPECIFICATIONS

SPECIFICATION AD/CV2160

ISSUE NO. 4 DATED 13. 9. 57

AMENDMENT No. 2

Page 2. Note 4.

Delete last sentence and add following:-

A permissible life test procedure shall be to subject the valve to short periods of operation at the 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 T1 adjusted to give a mean anode dissipation of about 130 watts.

(b) At the end of 1 min. as in (a), S shall be switched rapidly from A to B and left connected to B for 1 minute with the transformer T2 adjusted to provide a peak inverse anode voltage of 40 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 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.

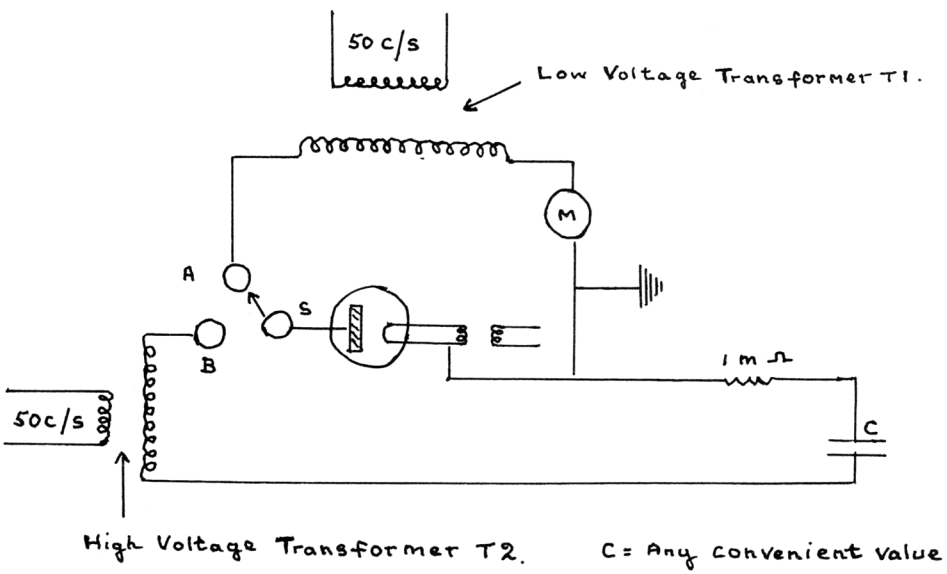

FIG. 1.

ELECTRONIC VALVE SPECIFICATIONS

SPECIFICATION AD/CV2160
ISSUE NO.4 DATED 13.9.57

AMENDMENT NO. 1

Page 1

DIMENSIONS

Under "Dimension (mm)" against 'B'
Insert "(see Note B below)"

Under NOTES add new note:-

"B. No part of the valve, including its base and any Corona ring, is to exceed 60 m.m. in diameter".

May 1960

Admiralty Surface Weapons Establishment

N.17174/D

ATS 11/60

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For complete contents of Amendment No.2,

see CV 2160 page 3.

August, 1960.

Admiralty Surface Weapons Estab.

Z.21296.

ELECTRONIC VALVE SPECIFICATIONS

SPECIFICATION AD/CV2160, ISSUE No. 4, DATED 13.9.57

AMENDMENT No. 3

Page 1. Dimensions:

Against 'Dimension A' in the column headed "Min" insert "200" and in the column headed "Max" amend "250" to read "240".

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

August 1966
(.445254)

29/9/61