VALVE ELECTRONIC

ADMIRALTY SIGNAL AND RADAR ESTABLISHMENT

CV5

Specification AD/CV5 Issue No. 8 dated 4.9.58. To be read in conjunction with K1001, ignoring clauses:- 5.2 and 5.8	SECURITY Specification: Unclassified Valve: Unclassified

⟶ Indicates a change

TYPE OF VALVE: Half wave, mercury vapour rectifier.

CATHODE: Directly heated.

ENVELOPE: Glass, clear

PROTOTYPE: GU21 (sp.)

MARKING

See K1001/4

BASE

Goliath Edison Screw

Connections

Thread - Filament
Button - Filament
Top Cap - Anode

RATING

(All limiting values are absolute)

		Note
Filament Voltage (V)	4.0	A, D
Filament Current (A)	11.0	
⟶ Max. Peak Inverse Anode Voltage (kV)	20	B
⟶ Max. Peak Anode Current (A)	5.0	B
⟶ Max. Average Anode Current (A)	1.25	
Max. Permissible condensed mercury temperature range. (°C)	25 to 50	C

TOP CAP

Dimensions	Min.	Max.
Dia. mm.	9.27	9.78
Length mm.	11.43	16.51

DIMENSIONS

See K1001/A1/D1

Dimensions	Min.	Max.
A mm.	235	270
B mm.	55	63

PACKAGING

K1005

NOTES

A. Range of Vf: 4.0 ± 0.1V

⟶ B. These figures apply to conventional rectifier circuit applications at 50 c/s. For other uses, approval may be given to higher values of peak anode current.

⟶ C. The "condensed mercury temperature" is the temperature of the coldest part of the bulb. This part should be just above the metal base. Air should be blown on to the bulb at this part to keep the condensed mercury temperature within the specified limits.

⟶ D. Before operation from cold, the heater should be switched on for 30 mins. before the H.T. is applied.

⟶ E. Mounting Position: Vertical, screw-base down.

CV5

TESTS

To be performed in addition to those applicable in K1001

	Test Conditions		Test	Limits		No. Tested	Note
	Vf(V)			Min.	Max.		
a	4.0		If (A)	10	12	100%	
b	4.0	Valves to be operated in pairs for 10 mins. in circuit of Fig.1. Peak output volts measured at V=10kV. Mean output current measured at A=1A. Va may be increased gradually to required value. See Notes 1 and 2.	Operation Test	Valves must operate satisfactorily and, during the last 3 mins., without sign of arc-back or flashing.		100%	
c	4.0	D.C. Voltage applied to anode for not more than 2 secs. to give Ia=6A. Test not to be repeated within 1 minute. See Note 1.	Va (V)	-	15	2% (6)	

NOTES

1. Before applying Va in tests 'b' and 'c', or in any permissible variant of test 'b', Vf must be at 4.0V for at least 30 mins., and air must be blown at a small area of the bulb about $\frac{1}{4}$" above the metal base to ensure that the condensed mercury temperature is not less than 50°C for at least 5 mins. immediately before the test begins as well as during the test.

2. Test 'b' may be done as follows instead of as specified above. The valve under test shall be operated for 10 mins. in a half-wave rectifier circuit with the operating frequency = 50 c/s, the d.c. output current = 1.25A, the peak Ia = 5A and the anode P.I.V. = 20 kV. The valve must operate satisfactorily and, during the last 3 mins., without sign of arc-back or flashing.
   Alternatively, test 'b' may be done with the valve under test operated in a half-wave "cheater" circuit, in which the inverse Va is applied through a high resistance from a separate high-voltage low-current transformer, provided that the circuit includes an arc-back indicator to record any arc-backs that may occur in the valve during the test. If test 'b' is done using such a "cheater" circuit the test shall last for 5 mins., with the operating frequency = 50 c/s, the d.c. output current = 1.25A, the peak Ia = 5A and the anode P.I.V. = 20 kV. The test requirement shall then be that the valve operates satisfactorily with no sign of arc-back or sparking throughout the test period.

CV5

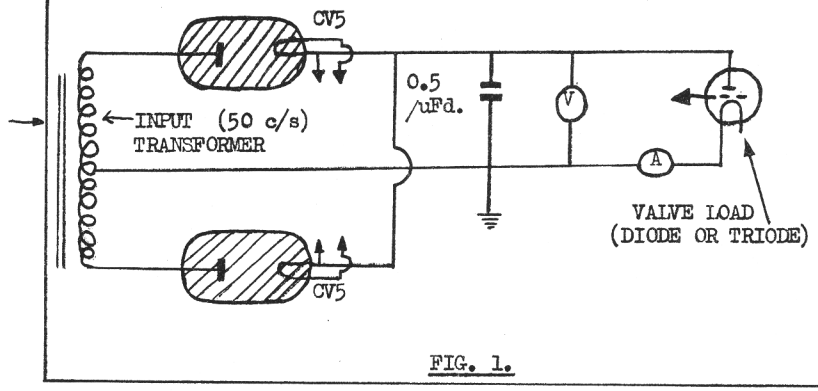
CV5
0.5
/uFd.
V
A
INPUT (50 c/s)
TRANSFORMER
VALVE LOAD
(DIODE OR TRIODE)
CV5

FIG. 1.