VALVE ELECTRONIC

ADMIRALTY SURFACE WEAPONS ESTABLISHMENT

CV6136

Specification AD/CV6136 Issue 1 dated 4-11-64 To be read in conjunction with K1001	SECURITY	
	Specification Unclassified	Valve Unclassified

Type of Valve: Low impedance Tetrode (Transmitting)
Cathode: Indirectly Heated
Envelope: Glass
Prototype: DDT527

RATINGS

(All limiting values are absolute)

			NOTE
Heater Voltage	(V)	6.3	
Nominal Heater Current	(A)	5.0	
Max. Anode Voltage	(V)	700	
Max. Anode Voltage, Peak	(V)	1400	
Max. Screen Voltage	(V)	250	
Max. Negative Grid Voltage	(V)	150	
Max. Heater-Cathode Voltage	(V)	90	
Max. Bulb Temperature	(°C)	250	
Max. Base Temperature	(°C)	180	
Max. Anode Seal Temperature	(°C)	220	
For Continuous Operation			
Max. Anode Current	(A)	1.6	
Max. Anode Dissipation	(W)	150	
Max. Screen Dissipation	(W)	20	
Max. Grid Dissipation	(W)	3	
For Pulsed Operation			A
Max. Anode Current	(A)	2.0	
Max. Anode Dissipation	(W)	750	
Max. Screen Dissipation	(W)	40	
Max. Grid Current, Peak	(mA)	400	
Max. Grid Dissipation	(W)	3	
Max. Cathode Current, Peak	(A)	7	

MARKING

See K1001/4

BASE

BS448/B5F

TOP CAP

Diameter	9 mm
Length	9 mm

CONNECTIONS

Pin	Electrode
1	Heater h
2	Cathode k
3	Grid g1
4	Screen g2
5	Heater h
T.C.	Anode a

DIMENSIONS

Overall Height	140 mm max.
Seated Height	122 mm max.
Diameter	77 mm max.

MOUNTING POSITION

Vertical, base up or down

NOTES

A. For periods not exceeding 5 seconds and duty cycle not exceeding 1/6.

B. The Joint Services Catalogue Number is 5960-99-037-3745.

CV6136

To be performed in addition to those applicable in K1001.

Tests are to be performed in the specified order unless otherwise agreed with the Inspecting Authority.

Tests (b) to (f) inclusive are to be performed without interruption following a ten minute period of operation under test (b) conditions.

Test conditions - unless otherwise stated:-

Vh(V)	Vg2(V)
6.3	220

	Test	Test Conditions	AQL %	Insp. Level	Sym-bol	Limits		Units
						Min.	Max.	
a	Heater Current			100%	Ih	4.5	5.7	A
b	Peak Grid Voltage (1)	Va = 300V Ia = 6A peak. Note 1		100%	Vg1	-	18	V
c	Peak Grid Current	As for test (b)		100%	Ig1	-	400	mA
d	Peak Screen Current (1)	As for test (b)		100%	Ig2	-	450	mA
e	Peak Grid Voltage (2)	Va = 90V Ia = 3A peak. Note 1		100%	Vg1	-	1.5	V
f	Peak Screen Current (2)	As for test (e)		100%	Ig2	-	700	mA
g	Reverse Grid Current (1)	Va = 150V, Vg2 = 150V Ia = 1.25A		100%	-Ig1	-	25	µA
h	Anode Current	Va = 600V, Vg1 = -45V		100%	Ia	-	180	mA
j	Anode Dissipation	Va = 375V, Ia = 2A Note 2	6.5	I				
k	Reverse Grid Current (2)	As for test (g) Note 3	6.5	I	-Ig1	-	25	µA
l	High Voltage	Va = 2.5 kV Vg1 = -100V, with 1 Megohm, 10W resistor in series with anode supply. Note 4		100%				
m	Pressure	Note 5		QA				

	Test	Test Conditions	AQL %	Insp. Level	Sym-bol	Limits		Units
						Min.	Max.	
n	Shock	No voltages except as in Note 8 Notes 6 and 8	6.5	I				
p	Swept frequency short circuit test	No voltages except as in Note 8 Notes 7 and 8	6.5	I				
q	Fatigue	No voltages. Note 9	-	QA				
r	Life	Va = 95V, Vg2 connected to anode through 50 ohms resistance. Ia = 1.6A		Note 10		1000	-	Hours
	Life test end points (1000 hrs.)							
	(i) Peak Grid Voltage	As for test (b) except Ia = 5A			Vg1	-	18	V
	(ii) Peak Grid Voltage	As for test (e) except Ia = 2.5A			Vg1	-	1.5	V

NOTES

1. The valve shall be tested in the circuit shown in Fig. 1 on page 5.

2. The valve shall be run for three hours minimum at an anode dissipation of 750 watts. Throughout this test the valve shall be switched five seconds on, twenty-five seconds off.

3. This test shall be performed immediately after test (j).

4. The anode current observed on an oscilloscope shall not change by more than 1.0 mA from the mean value during a period of five minutes after switching on.

5. The valve shall be subjected to a pressure of 50 lbs./sq. inch absolute followed by a holding period of twenty-four hours. The valve shall then satisfy the requirement of test (g).

6. The valve shall be subjected to shock maintained at 45g to 55g for a minimum period of 12 mS in each direction along three mutually perpendicular axes. The shock shall be attained within a period of 0.25 to 0.5 milliseconds. After this test the valve shall satisfy the requirements of tests (b), (c), (d) and (h).

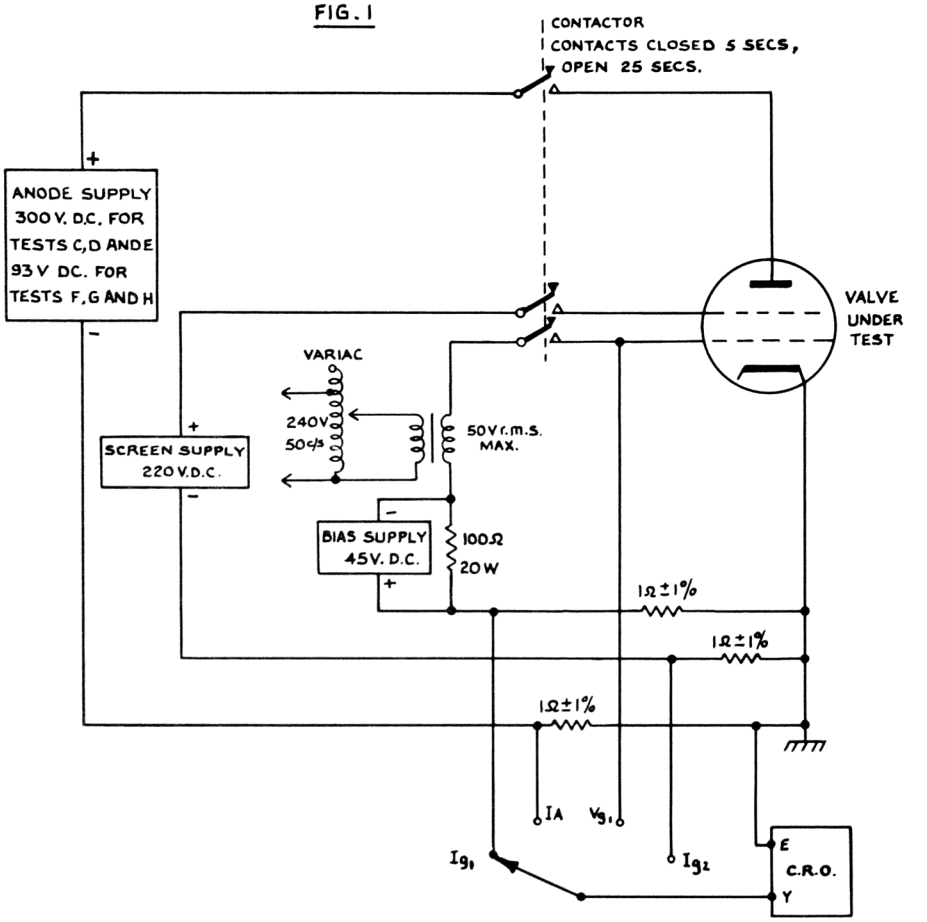
7. The valve shall be subjected to vibration over the frequency range 5 c/s to 500 c/s swept at a rate not less than one octave per minute with amplitude of vibration 0.1 ins. peak to peak below 45 c/s and constant acceleration of 10g above 45 c/s. One sweep shall be made with the vibration applied along each of three mutually perpendicular axes. After this test the valve shall satisfy the requirements of tests (b), (c), (d) and (h).

8. The equipment described in S.V.T.L. Technical Report No. 124/61 shall be used to detect inter-electrode short circuits during these tests. With screen grid joined to cathode there shall be no shorts between these electrodes and the grid of duration greater than the limits stated in paragraph 5 of the report.

9. The valve shall be subjected to vibration for thirty hours at 20 c/s at 2g, thirty hours at 50 c/s at 5g and thirty hours at 170 c/s at 5g, the testing time at each frequency being equally divided between three mutually perpendicular directions of vibration. After this test the valve shall satisfy the requirements of tests (b), (c), (d) and (h).

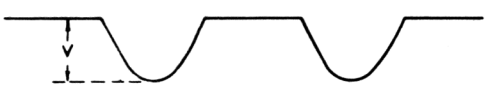
10. One valve of each twenty completed shall be tested. If this valve fails a second sample from the batch shall be tested. If this valve also fails the action to be taken on the remainder of the batch is to be discussed with the Qualification Authority. The results of all life tests are to be reported to the Qualification Authority.

FIG. 1



CURRENT MEASUREMENTS :-

THE WAVEFORM WILL BE :-
THE CURRENT IN AMPS IS
NUMERICALLY EQUAL TO THE
VOLTAGE V IN VOLTS.



VOLTAGE MEASUREMENTS :-

THE WAVEFORM WILL BE :-