VALVE ELECTRONIC

CV4104

MINISTRY OF AVIATION - D.L.R.D.(T)

Specification: MOA/CV 4104 Issue 1 dated 14th September 1960. To be read in conjunction with BS448, BS1409, & K1001 excluding clauses 5.2 & 5.8	SECURITY Specification: Unclassified Valve: Unclassified

→ Indicates a change

TYPE OF VALVE: Reliable gasfilled Voltage stabiliser

Cathode: Cold
Envelope: Glass, Unmetallised
Prototype: VX 8163C, CV2225

MARKING

K1001/4

BASE

See BS448/B7G

RATINGS
(All limiting values are absolute)

			Note
Min.Supply Voltage	(V)	180	A
Max.Cathode Current	(mA)	15	
Min.Cathode Current	(mA)	5	
Max. Acceleration (Continuous operation)	(g)	2.5	
Max.Shock (short duration)	(g)	500	

CHARACTERISTICS

			Note
Nominal Maintaining Voltage	(V)	150	
Max.Striking Voltage	(V)	180	B
Max. Voltage Regulation over the Current Range	(V)	5	

CONNECTIONS

Pin	Electrode	
1	Anode	a
2	Cathode	k
3	Internally connected	IC
4	" "	IC
5	" "	IC
6	" "	IC
7	" "	IC

DIMENSIONS

See B.S.448/B7G/2.1.
Size Ref. No. 2.

Dimensions (mm)	Min.	Max.
A. Seated Height	-	47.5
C. Diameter	16	19
D. Overall Length	-	54.5

MOUNTING POSITION

Any

NOTES

A. This is the minimum supply voltage which will ensure that the valve will strike in darkness or in the presence of some ambient light.

B. This applies in darkness or in the presence of some ambient light.

C. JOINT SERVICE CATALOGUE NUMBER 5960-99-037-2292

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TESTS
TO BE PERFORMED IN ADDITION TO THOSE APPLICABLE IN K1001

Except in Group A, tests in any one group are to be performed in the specified order unless otherwise agreed with the Inspecting Authority.

TEST CONDITIONS - UNLESS OTHERWISE SPECIFIED
Rlim = 5K Ia = 10mA

K1001	TEST	TEST CONDITIONS	AQL %	INSP. LEVEL	SYMBOL	LIMITS MIN.	LIMITS MAX.	UNITS
	GROUP A							
5.G.13	Leakage Current	Vsupply = 55V Rlim = 1MΩ		100%		-	5	µA
5.G.1.1.	Striking Time (1)	Va = 180V		100%	ts	-	300	mSec
	GROUP B							
5.G.3	Maintaining Voltage	Note:1	0.65	II	Vm	146	154	V
5.G.4	Regulation	Ia = 5mA, Ia = 15mA	0.65	II		-	5	V
5.G.8	Microphonic Noise	Note:2	0.65	II		-	30	mV(pk-pk)
	GROUP C							
5.G.7	Voltage Jumps	Ia varied from 15mA to 5mA. Time of sweep 5±1 secs. Ra = 2KΩ min	2.5	I		-	250	mVpk
5.G.2 5.G.1.1.	Striking Time (2)	Valve in complete darkness Va = 180V Note: 3	2.5	I	ts	-	300	mSec
	GROUP D							
5.G.6.	Oscillation (T/A only)	Ia varied from 15mA to 5mA. Time of sweep 5±1 secs. Ra = 2KΩ min.	2.5	1A		-	10	mVpk
	GROUP E							
AIX/ 2.4.2.1.	Glass Strain		6.5	1				
AIX/ 2.4.2.2.	Base Strain		6.5.	1A				
AIX/ 2.4.2.4.1.	Resonance Search (1)	Frequency 20 - 400 c/s	2.5	1A		-	4	mV rms ~~mV(pk-pk)~~

Amdt 1

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TESTS (Cont'd)

K.1001	TEST	TEST CONDITIONS	AQL %	INSP. LEVEL	SYMBOL	LIMITS MIN.	LIMITS MAX.	UNITS
AIX/ 2.4.2.4.1	Resonance Search (2)	Frequency 400-2000 c/s	2.5	1A		-	20	mV rms ~~mV (pk-pk)~~ [Amdt. 1]
AIX/ 2.4.2.4.2	Fatigue	No Voltages Duration 30 + 30 + 39 hours Acceleration = 5g Frequency = 170 c/s		1A				
	POST FATIGUE TESTS							
5.G.1.1.	Striking Time (1)	Va = 180V	2.5		ts	-	300	mSec.
5.G.3.	Change in Maintaining Voltage	Notes: 1 & 5	2.5		ΔVm	-	±1.5	V
5.G.4	Regulation	Ia = 5mA Ia = 15mA	2.5			-	5.5	V
AIX/ 2.4.2.4.3.	Shock	No Voltages Hammer Angle = 30°		1A				
	POST SHOCK TEST							
5.G.1.1.	Striking Time (1)	Va = 180V	2.5.		ts	-	300	mSec.
5.G.3	Change in Maintaining Voltage	Notes: 1 & 5	2.5		ΔVm	-	±1.5	V
5.G.4	Regulation	Ia = 5mA Ia = 15mA	2.5			-	5.5	V
	GROUP F							
AIX/ 2.4.3.	Life Test	Note 4		1A				
	END POINT 500 HOURS	Combined AQL	6.5					
5.14	Inoperatives		2.5					
5.G.1.1.	Striking Time (1)	Va = 180V	2.5		ts	-	300	mSec.
5.G.3	Change in Maintaining Voltage	Notes: 1 & 5	2.5		ΔVm	-	±1.5	V.
5.G.4	Regulation	Ia = 5mA Ia = 15mA	2.5			-	5.5	V.

K.1001	TEST	TEST CONDITIONS	AQL %	INSP. LEVEL	SYMBOL	LIMITS MIN.	LIMITS MAX.	UNITS
	END POINT 1000 HOURS	Combined AQL	10.0					
5.14	Inoperatives		4.0					
5.G.1.1	Striking Time (1)	Va = 180V	4.0		ts		300	mSec.
5.G.3	Change in Maintaining Voltage	Notes: 1 & 5	4.0		ΔVm	-	±1.5	V
5.G.4	Regulation	Ia = 5mA Ia = 15mA	4.0			-	5.5	V
AIX/ 2.5	GROUP G Electrical Re-test after 28 days holding period			100%				
5.14	Inoperatives		0.5					
5.G.1.1.	Striking Time (1)	Va = 180V	0.5		ts	-	300	mSec.
5.G.3	Maintaining Voltage	Note 1			Vm	146	154	V

NOTES

1. The valve shall be operated for 3 minutes at Ia = 10mA before maintaining voltage is measured.

2. The valve shall be tapped using an approved device and the noise shall not exceed the limit specified.
   The G.E.C. tapper is an approved device.

3. The valve shall be held inoperative in total darkness for 24 hours before application of voltage.

4. This life test shall be run continuously for the specified period.
   A Stability Life Test is not required.

5. This is the change in maintaining voltage from the initial value.

EIECTRONIC VALVE SPECIFICATIONS

Specification CV 4104 Issue 1 dated 14.9.60

Amendment No. 1.

Pages 2 and 3. Group E Tests. Resonance Search (1) & (2)
Under column headed "Units", amend "mV(pk-pk)" to read "mVr.m.s."

July, 1962. T.V.C. for R.R.E.

N.40601