MINISTRY OF SUPPLY (S.R.D.E.)

VALVE ELECTRONIC CV81

Specification: MOS/CV81/Issue 3 Dated:- 21.4.48 To be read in conjunction with K1001 ignoring clauses:- 5.8 to 7.2.	SECURITY Specification: Restricted Valve: Unclassified

→ indicates a change

TYPE OF VALVE:- Klystron
CATHODE:- Indirectly heated
ENVELOPE:- Glass metal, water cooled.
PROTOTYPE:- VF08

MARKING

See K1001/4

RATING

		Note
Heater voltage (V)	4.0	
Heater current (A)	5.0	
Max. anode voltage (KV)	6.0	
Mean anode current (mA)	250	
Max. input Power C.W (KW)	2.0	
Power output (W)	100	
Grid volts normal	zero	
Grid volts oscillation cut-off	-200	A
Wavelength (cms)	7.4	
Anode voltage range for oscillation (KV)	5.7 to 6.3	B
Cooling flow (min. litres per minute)	1.5	

BASE

5-amp., 3-pin

Pin	Electrode
1	Heater/cathode
2	Heater
3	Grid
Metal Body	Anode

DIMENSIONS

See Fig. 3, page 5.

NOTES

A. Matching adjusted for maximum output at zero grid volts.

B. Figures are normal operational range and do not relate to voltage limits for oscillation cut-off.

CV81

TESTS

To be performed in addition to those applicable in K1001

	Test Conditions				Test	Limits Min	Limits Max	No. Tested	Notes
	Vh	Va	Vg						
a	Test voltage 20(min)				G-C insulation (MΩ)	1.0	-	100%	
b	4.0	6000	-		Ih (A)	4.0	6.0	100% or S	
c	4.0	6000	0		Ia (mA)	180	300	100%	1
d	4.0	6000	0		λ (cm)	7.25	7.55	100%	1
e	4.0	6000	0		Power output (W)	80	300	10%(5)	1,2,3
f	4.0	6000	Vg=0.50% of time. Vg=-Vgx 50% of time		Vg for oscillation cut-off PRF50-500 c.p.s.			10%(5)	1,3,4
	With Vgx ▷ 400 adjust matching until oscillation is just maintained in the positive cycle. Reduce Vgx to such a value that oscillation is just maintained in the negative cycle.				Hysteresis loop length (V)		300		
	Vh	Va	Vg	Ig					
g	4.0	-50	Vary +ve	5.0 (mA)	Back lash (Va applied through 100,000 ohms) Read Ia when stable (μA)	Record		100%	1,5
g (a)	4.0	-50	open circuit		Read leakage Ia (μA)	Record			
g (b)	Subtract values found in (g) and g(a)				Ion current (μA)	-	15		

NOTES

1. Apply heater voltage for 1 minute before application of anode voltage, or grid voltage in test (g).

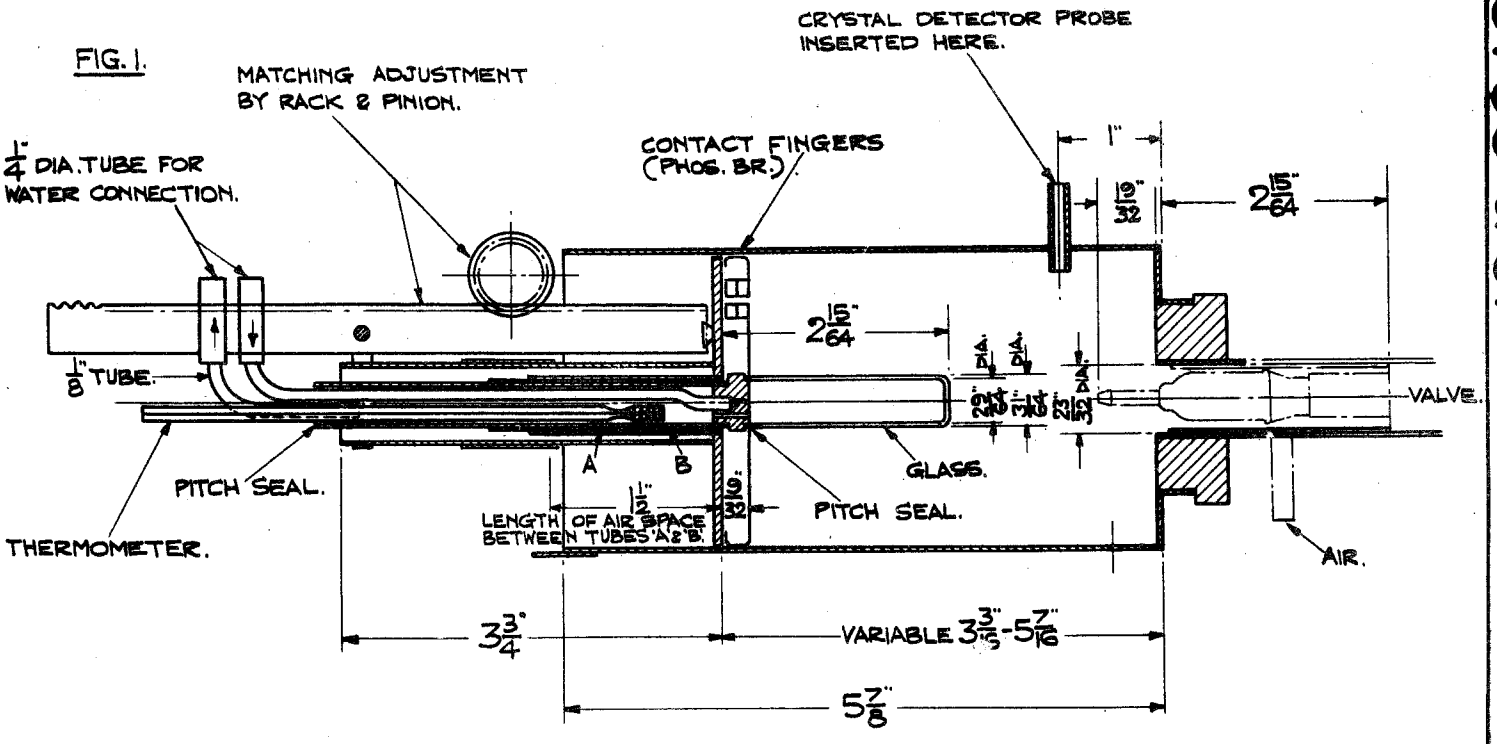
2. Power output measured by means of probe calorimeter in conjunction with Eo waveguide (see Fig. 1, page 4).

3. Ripple on Va not to exceed ± 100 volts peak.

4. This variation may be obtained by use of the circuit shown in Fig. 2, page 4, S, being a contact breaker driven by an electrical motor or other suitable means. The D.C. voltmeter (V) may be used to set the contact breaker so that it is open or closed for 50% of the time by making the mean reading with the breaker running 50% of that with the breaker closed.

5. The tubes shall be re-tested for gas after a period of at least 7 days. The tube shall not be operated between the completion of test 'g' and this re-test. Any tubes showing a marked increase in ion current shall be held for a further period of 7 days and shall be the subject of consultation before acceptance or rejection.

FIG. 1.



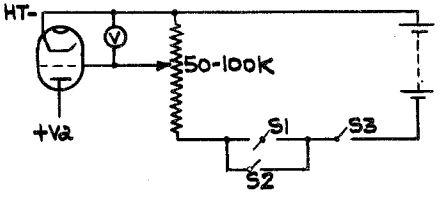


FIG. 2.

NOTE:- TO BE MADE FROM BRASS OR COPPER EXCEPT WHERE SPECIFIED.
DRG. NOT TO SCALE.
WATER FLOW - 6C.C./SEC. APPROX.

CV80 & 81

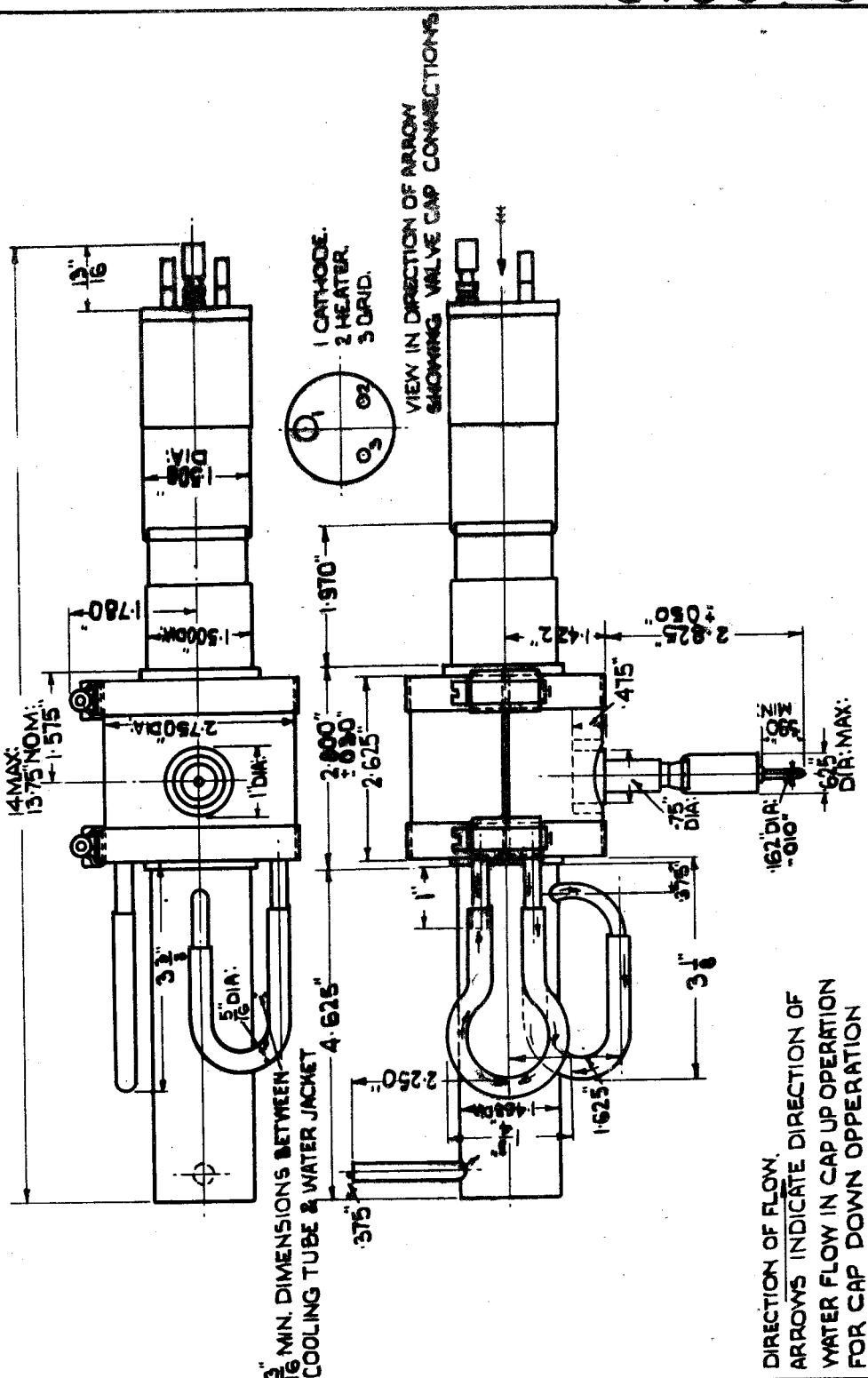

1 CATHODE.
2 HEATER.
3 GRID.
VIEW IN DIRECTION OF ARROW SHOWING VALVE CAP CONNECTIONS
1.780"
1.500" DIA.
2.750 DIA.
1" DIA.
1.4" MAX. 13.75" NOM. 1.575"
3 1/2"
5/16" DIA.
3/16" MIN. DIMENSIONS BETWEEN COOLING TUBE & WATER JACKET
4.625"
1.970"
2.800" ±.050"
2.625"
.375"
2.250"
1.625"
1.422"
2.825" ±.050"
.475"
.75" DIA.
.162" DIA. -.010"
.625" DIA. MAX.
1"
.375"
3 1/8"
DIRECTION OF FLOW.
ARROWS INDICATE DIRECTION OF WATER FLOW IN CAP UP OPERATION FOR CAP DOWN OPPERATION ARROWS SHOULD BE REVERSED.

FIG. 3.