ADMIRALTY SIGNAL AND RADAR ESTABLISHMENT

VALVE ELECTRONIC CV214

Specification AD/CV214 Issue No.3 dated 1st April, 1955 To be read in conjunction with K1001 ignoring clauses:- 5.2, 5.3, 5.8.	SECURITY	
	Specification	Valve
	Unclassified	Unclassified

→ Indicates a change

TYPE OF VALVE: Magnetron with pre-plumbed waveguide output.

CATHODE: Indirectly heated, oxide coated.

ENVELOPE: Copper and Glass

PROTOTYPE: E.1531

MARKING

See K1001/4

Additional Marking:-

Serial No. .....

See Note D

RATINGS

			Note
Heater Voltage (A.C. or D.C.)	(V)	3.0	F
Heater Current	(A)	2.5	
Nominal Operating Frequency	(Mc/s)	9675	
Max.Permissible Mean Anode Dissipation	(W)	150	A,C
Max.Frequency Pulling for V.S.W.R. = 1.5 : 1	(Mc/s)	15	

TYPICAL OPERATING CONDITIONS

Peak Anode Voltage	(kV)	15.5	B
Peak Anode Current	(A)	10	B
Peak Output Power	(kW)	27	B

DIMENSIONS & CONNECTIONS

See Drawing on Page 3.

NOTES

A. Absolute Maximum Value.

B. These figures apply for pulse operation with:-

(i) Pulse recurrence frequency : 500 p.p.s.
(ii) Pulse length : 1 μ sec.
(iii) Pulse Shape : Sensibly square.
(iv) Field strength : 3250 Oersteds. (See Note E).

C. During operation and testing, air must be blown through a suitable fitting enclosing the cooling fins of the anode so that the block temperature does not rise above 140°C.

D. No technical information shall appear on the valve or packing.

E. The valve is expected to operate with any field in the range 3250 ± 150 oersteds. This point will be checked at Type Approval.

F. If the input power is sufficiently high, Vh = 3.0V, may be required for starting only, and during operation may be reduced or switched off. Vh must be applied for at least 1.5 minutes before Va is applied.

G. The magnetron shall be processed so as to ensure, as far as possible, that only brief ageing (of the order of 5 minutes or less) is necessary when it is put into service.

H. In use, the cathode lead side of the valve shall be adjacent to the north pole of the magnet.

TESTS

To be performed in addition to those applicable in K1001.

	Test Conditions		Test	Limits		No. Tested	Note
	Vh.(V)	Peak Ia (A)		Min.	Max.		
a	3.0		Ih (A)	2.0	3.0	100%	
b	3.0	10.0	(i) Peak Va (kV) (ii) Frequency (Mc/s)	12.5 9650	17.5 9700	100% 100%	1,2.
c	3.0	10.0	Frequency Pulling (Mc/s)	-	15	100%	
→	A mismatcher giving a V.S.W.R. of 1.5:1 is introduced into the waveguide near the magnetron and the frequency change that occurs when the mismatcher is moved through at least half a guide wavelength is measured.						
d	3.0	10.0	Efficiency (Power Out/Power in)	15%	-	100%	1,2.
e	3.0	Peak Ia to be varied from 5 to 12A	Frequency Continuity	The frequency shall vary smoothly and without discontinuity		100%	1,2.

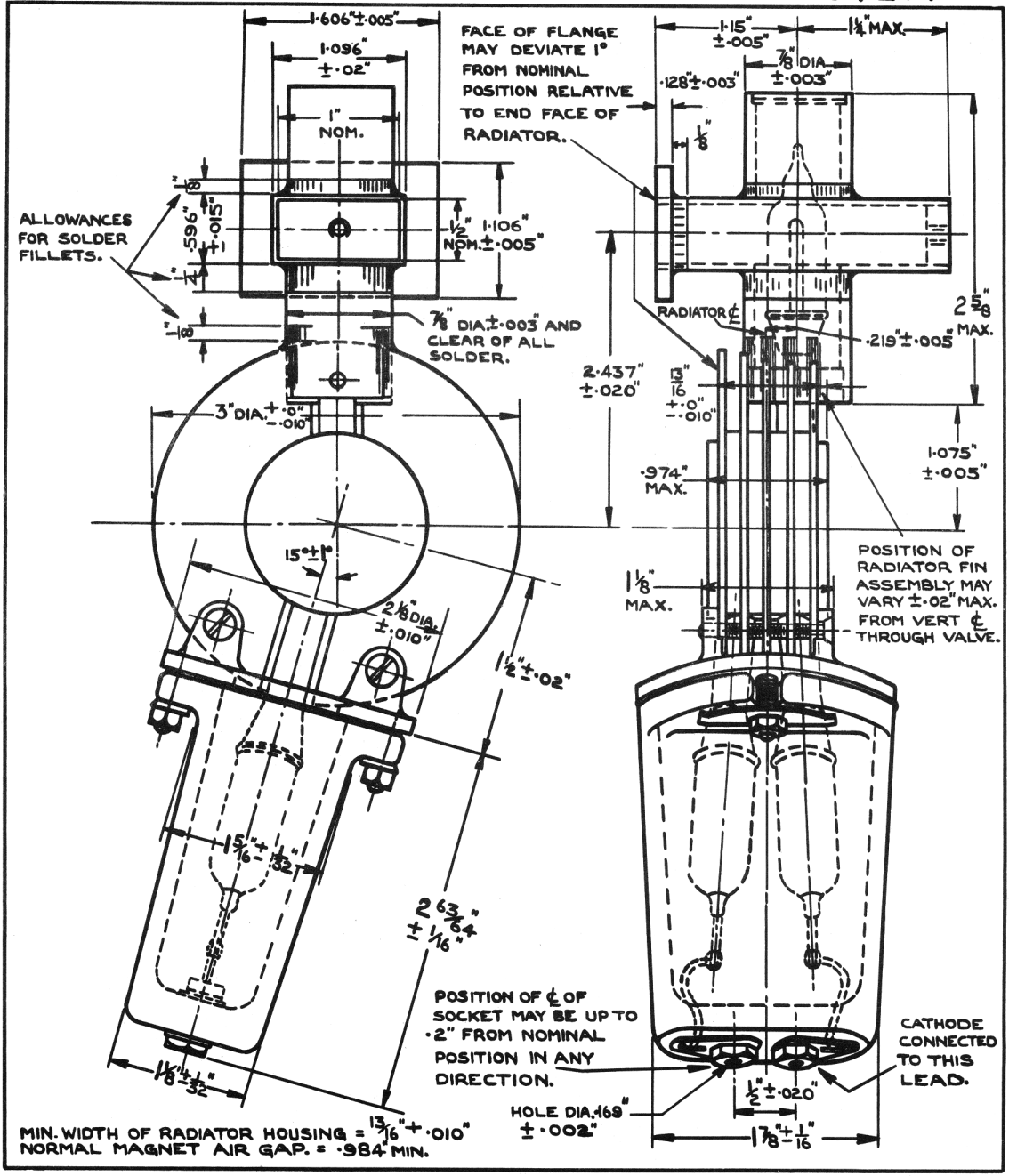
NOTES

1. The valve is to be tested, (Tests (b) to (e)), under the following conditions:-

   1.1 Pulse recurrence frequency : 500 p.p.s.
   1.2 Minimum pulse length : 1.0 μ sec.
   1.3 Pulse shape : Sensibly square.
   1.4 Field Strength : 3250 ± 30 oersteds.

2. No serious or persistent flashing (internal or external) shall occur during the tests.

CV214


1·606"±·005"
1·096" ±·02"
1" NOM.
FACE OF FLANGE MAY DEVIATE 1° FROM NOMINAL POSITION RELATIVE TO END FACE OF RADIATOR.
1·15" ±·005"
1¼" MAX.
⅞" DIA ±·003"
·128"±·003"
⅛"
ALLOWANCES FOR SOLDER FILLETS.
·599" ±·015"
½" 1·106" NOM.±·005"
⅞" DIA.±·003" AND CLEAR OF ALL SOLDER.
RADIATOR ℄
·219"±·005"
2⅝" MAX.
2·437" ±·020"
13/16" +·0" −·010"
1·075" ±·005"
·974" MAX.
3" DIA.+·0" −·010"
15°±1°
2⅛" DIA. ±·010"
1½"±·02"
1⅛" MAX.
POSITION OF RADIATOR FIN ASSEMBLY MAY VARY ±·02" MAX. FROM VERT ℄ THROUGH VALVE.
1 5/16"±1/32"
2 63/64" ±1/16"
POSITION OF ℄ OF SOCKET MAY BE UP TO ·2" FROM NOMINAL POSITION IN ANY DIRECTION.
CATHODE CONNECTED TO THIS LEAD.
½"±·020"
HOLE DIA.169" ±·002"
1⅞"±1/16"
1⅛"±1/32"
MIN. WIDTH OF RADIATOR HOUSING = 13/16"+·010"
NORMAL MAGNET AIR GAP. = ·984" MIN.