MINISTRY OF AVIATION R.R.E.

VALVE ELECTRONIC **CV2162**

Specification MOA/CV2162
Issue 2A Dated 22 February 1960
To be read in conjunction with K1001 and BS448

SECURITY	
Specification	Valve
Unclassified	Unclassified

→ indicates a change

TYPE OF VALVE:- Cathode Ray Tube
TYPE OF DEFLECTION:- Magnetic
TYPE OF FOCUS:- Electrostatic
BULB:- Internally coated with conductive coating.
SCREEN:- 009 (Aluminium backed)
PROTOTYPE:- 12L01A

MARKING
See K1001/4

BASE
B.S. 448 B 8-0

RATING			Note
Heater Voltage	(V)	4.0	
Heater Current	(A)	0.8	
Max. a1 voltage	(kV)	2.2	A
Max. a3 voltage	(kV)	13.0	A
TYPICAL OPERATING CONDITIONS			
a1 voltage	(kV)	2.1	
a2 voltage	(kV)	1.95	
a3 voltage	(kV)	12.0	

CONNECTIONS

Pin	Electrode
1	No connection
2	a1
3	a2
4	No connection
5	g
6	k
7	h
8	h
Side Contact	a3

CAPACITANCES		
Max. Cg to all other electrodes	(pf)	12
Max. Cc to all other electrodes	(pf)	12

SIDE CONTACT
B.S. 448 CT1

DIMENSIONS
See drawing, page 4

NOTES

A. Absolute maximum value.

B. The first anode voltage shall always be at least 50V positive with respect to the second anode voltage.

C. To prevent damage to the screen material the tube should be operated at its minimum useful brightness.

D. The fluoride screen shall not contain beryllium.

E. Since the screen has an aluminium backing the tube may be operated with either anode or cathode at earth potential.

Z.20622.

CV2162

TESTS

To be performed in addition to those applicable in K1001

TEST CONDITIONS unless otherwise specified	Vh(V)	Vg(V)	Va1(KV)	Va3(KV)	Va2
	4.0	Adjust	2.1	12	Optimum focus

K1001	TEST	TEST CONDITIONS	Insp. Level	Symbol	LIMITS Min.	LIMITS Max.	UNITS	
5A.1	General Inspection - Dimensions	No Voltages No Voltages, See drawing on page 4	100% 100%					
5A.2	Loose Particles	No Voltages	100%					
5A3.2	Grid Insulation Leakage Current or Increase in Voltmeter Reading	Vg = -126V Rg = 10 M.ohms	100% 100%	Igl	-	12.6 100	uA %	
5A3.3	Heater - cathode Leakage Current Heater Current	Vhk = 150V Va1,2,3 = 0	100% 100%	Ihk Ih	- ~~0.75~~ 8.45	150 1.0	uA A	Amdt 1
5A.10	Negative Grid Cut - off Voltage (V1)		100%	Vg	70	126	V	
	Negative Grid Voltage (V2)	Ib = 50 uA Defocussed beam scanned or deflected off useful screen area. Note 2.	100%	Vg			V	
	Grid Drive (V1-V2)		100%		-	35	V	
5A.7	Focus, Line width at centre of trace and Anode 2 voltage for focus	Linear line scan traced in two directions at rt. angles successively. 250 mm long and 100 uS duration. Grid drive from cut-off by 100 uS pulse of amplitude V1-V2. f = 100 pps max.	100%	Va2	1850	2050	V	
	Anode 2 current for focus		100%	Ia2	-	6	μA	Amdt 2
5A.12	Useful Screen Area, diameter on geometric centres	Optimum focus Ib = 50 uA	100%		265	-	mm	
5A.11	Displacement of spot from geometric centre of screen	Vg = any convenient value	100%		-	10	mm	
	Screen Efficiency measured in terms of beam current	Adjust Vg for a light intensity of 0.15 candela using a focussed raster of convenient size	100%	Ib	-	6	uA	

TESTS (Continued)

CV2162

K1001	TEST	TEST CONDITIONS	AQL %	Insp. Level	Sym-bol	LIMITS Min.	LIMITS Max.	UNITS
5A.17	Persistence, measured as decay time to 0.014 ft. lamberts at 15°C. Note 3.	Screen to be scanned with interlaced 405 line raster of convenient size. Vg adjusted to give screen luminance of 2 ft. Lamberts. Uniform screen excitation Excitation time = 120secs.	6.5	1B		208	-	Secs ←
5A1.1	Screen Blemishes; stones, bubbles and screen defects	Scan over useful screen area with a defocussed raster of convenient brightness.						
	Limit size	Ignore blemishes				-	1.5	mm
	No. of blemishes within any circle of 50 mm dia.	of less than 0.5 mm dia. Note 1.				-	5	
	No. of blemishes between 1.0 and 1.5 mm.					-	4	
	Total No. of all blemishes					-	10	
	Separation between blemishes					20	-	mm
5A.13	Capacitances		6.5	IC	Cg-all	-	~~12~~ 15	pF Amdt 3
					Ck-all	-	12	pF
5A.21	Resistance to external pressure			TA				

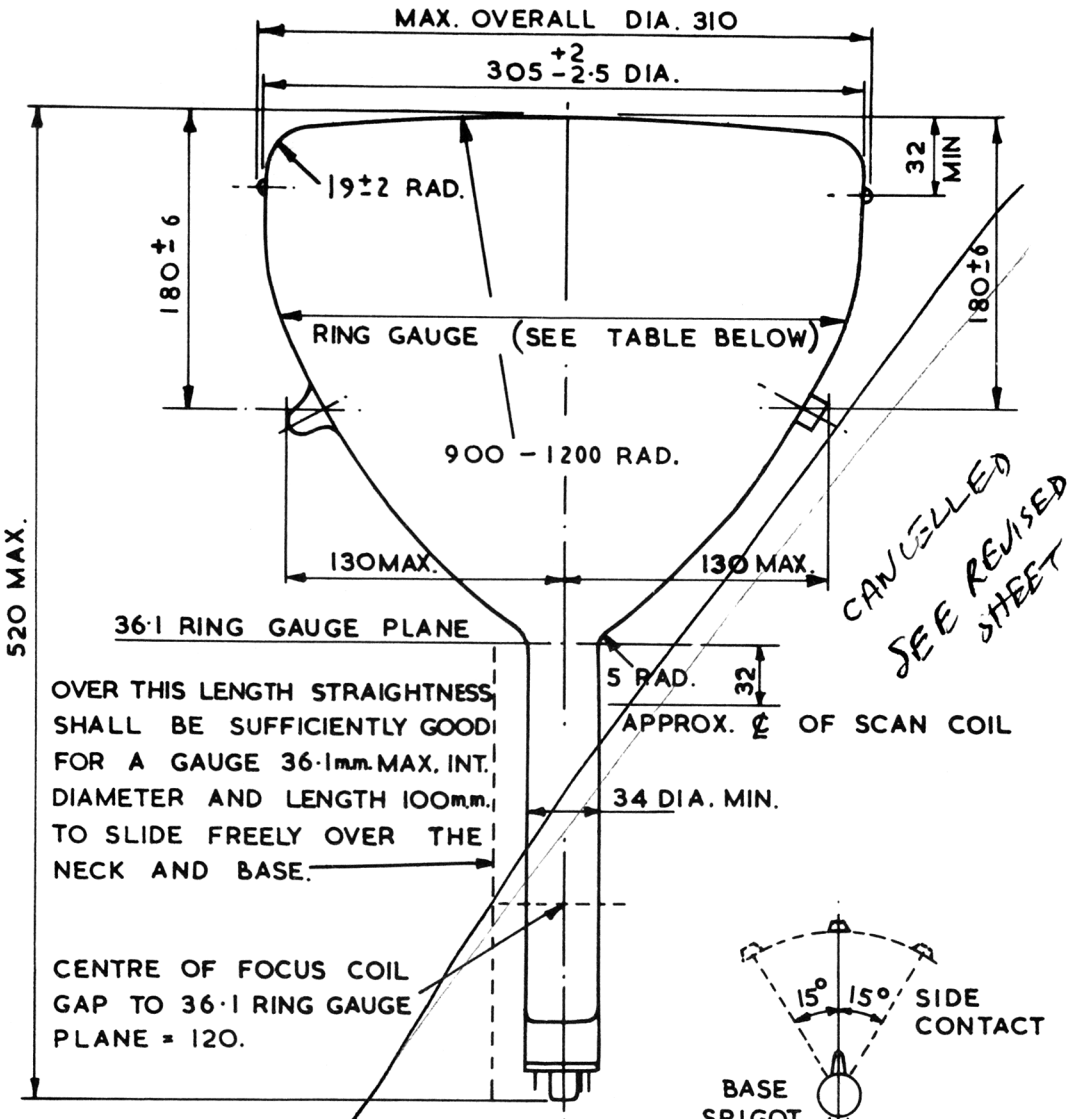
NOTES

1. If two or more blemishes, including those below 0.5 mm are separated by a distance not greater than the maximum dimension of the largest blemish in the group, then the group of blemishes shall be considered as one blemish of dimension equal to the maximum overall dimension of the group.

2. The beam current shall increase continuously over the range of grid voltage V1 to V2.

3. To allow for screen temperature coefficient, the minimum decay time limit at any temperature between 15°C and 30°C which is "n" °c above 15°C is :-

$$208(1-0.04)^n$$

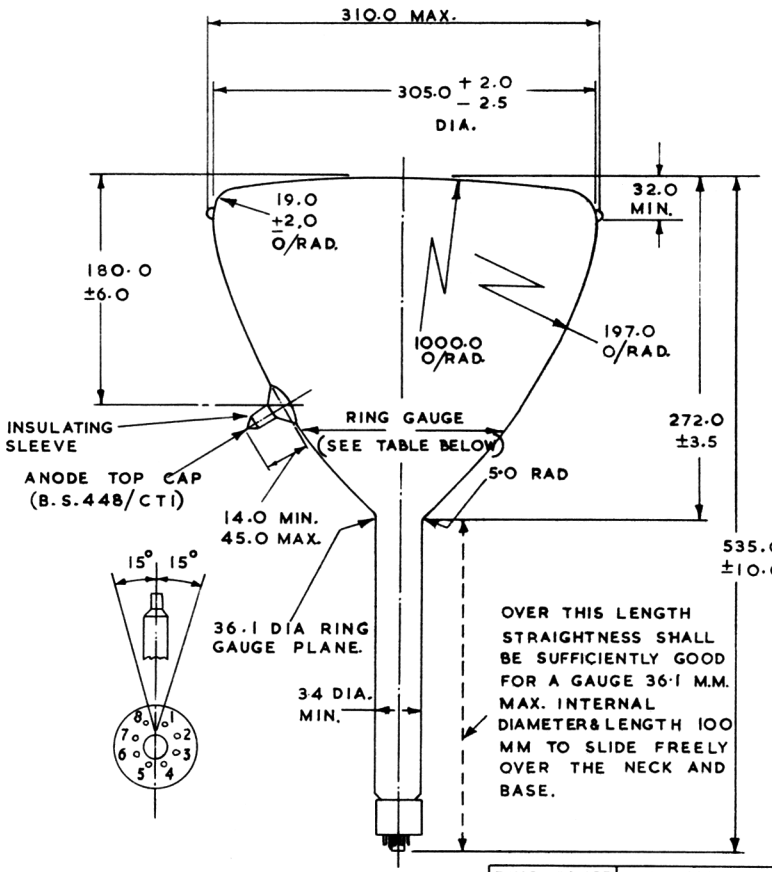


CANCELLED SEE REVISED SHEET

RING GAUGE (m.m.)	DISTANCE FROM CENTRE OF SCREEN (m.m.)
280	93 ± 10
230	150 ± 9
180	191 ± 8
130	222 ± 7
80	249 ± 6
36·1	272 ± 3·5

ALL DIMENSIONS IN M.M.

DIMENSIONAL OUTLINE



RING GAUGE (MM)	DISTANCE FROM CENTRE SCREEN (MM)
280.0	93.0 ±10.0
230.0	150.0 ± 9.0
180.0	191.0 ± 8.0
130.0	222.0 ± 7.0
80.0	249.0 ± 6.0
36.1	272.0 ± 3.5

ALL DIMENSIONS IN MILLIMETRES.

175391

ELECTRONIC VALVE SPECIFICATIONS

SPECIFICATION MOA/CV2162 ISSUE 2A. DATED 22nd February, 1960

AMENDMENT NO.1.

Page 2. Heater Current. (Situated beneath the K1001 reference 5A3.3).

Amend the "Limits Min" Column to read "0.45" in lieu of "0.75" quoted.

Page 4.

Cancel but do not destroy this page and substitute new page 4 dated 1st April, 1963. attached hereto.

April, 1963.
N.175391

T.V.C. for
R.R.E.

5/63

ELECTRONIC VALVE SPECIFICATIONS

SPECIFICATION MOA/CV2162 ISSUE 2A DATED 22nd February, 1960

AMENDMENT NO. 2

Page 2 Test Clause 5A.7

Immediately following the existing information add the following test.

K1001	Test	Test Conditions	Insp. Level	Sym Col	LIMITS Min	LIMITS Max.	Units
	Anode 2 current for focus		100%	Ia2	-	6	µA

February, 1964.

N.222035

T.V.C. for R.R.E.

ELECTRONIC VALVE SPECIFICATIONS

SPECIFICATION MOA/CV.2162 ISSUE 2A DATED 22nd FEBRUARY 1960

AMENDMENT No.3.

Page 3, 5A.13 Capacitances

In the column headed "LIMITS, Max." against "Cg-all", delete "12" and substitute "15".

T.V.C. for R.R.E.

November, 1964.

NP.222419

JAMS 12/1/65