

ELECTRONIC VALVE SPECIFICATIONS

SPECIFICATION CV.2485

ISSUE 1 DATED 1.10.58

AMENDMENT NO.1

Page 4 Note (middle left hand side of page)

Amend to read:

"The area of datum face "A" (shown shaded) is that on which the tube must seat without rock. The screen face must lie within .020 of the datum face. The tube axis, passing through the centre of the tapered diameter shall be square with the datum face within $3/4^{\circ}$ M.M.C. as determined by the gauge shown on page 6.

The envelope must be accepted by the gauge."

Director,
Royal Aircraft Establishment.

July, 1959.

N.70912

ELECTRONIC VALVE SPECIFICATIONS

SPECIFICATION CV 2485 ISSUE 1 DATED 1.10.58

AMENDMENT NO. 2

Page 5 Amend the sentence (situated between the base-end view and the table) to read as follows:-

"20 Pins moulded in base at 2.30" P.C.D. Pins 1-10 and 14-22 equispaced, Pins 11, 13, 23 and 24 omitted"

Table

Pin 21, Amend the electrode connection to read "X2"
Pin 22, " " " " " " " " "X1"

MARCH, 1962.

(10533)

ROYAL AIRCRAFT ESTABLISHMENT

Specification MOS/CV.2485 Issue 1 Dated 1.10.58 To be read in conjunction with K1001	<u>SECURITY</u>	
	<u>SPECIFICATION</u>	<u>VALVE</u>
	UNCLASSIFIED	UNCLASSIFIED

TYPE OF VALVE - Cathode Ray Tube with two Guns TYPE OF DEFLECTION - Electrostatic TYPE OF FOCUS - Electrostatic ENVELOPE - Glass: internally coated with conducting coating. SCREEN - BY 8 PROTOTYPE - VCRX426	<u>MARKING</u> See K1001/L
	<u>BASE</u> B24A/A Special 20 Pin for soldered connections. See Drawing on Page 5.

<u>RATING</u> (All limiting Values are absolute)	Note	<u>CONNECTIONS</u> See Drawing on Page 5.
Heater Voltage (V) 6.3 AC Heater Current (A) 1.0 AC Max. Anode 1 Voltage (KV) 2.5 Max. Anode 2 Voltage (KV) 1.0 B Max. Anode 3 Voltage (KV) 5.0 X Plate Sensitivity (mm/V) 780/VA3 B Y Plate Sensitivity (mm/V) 750/VA3 B Grid Cut off Voltage (V) -50		<u>DIMENSIONS</u> See Drawing on Page 4.
<u>TYPICAL OPERATING CONDITIONS</u>		<u>MOUNTING POSITION</u> Any
Anode 1 Voltage (KV) 2.0 Anode 2 Voltage (KV) 0.33 Anode 3 Voltage (KV) 3.0		

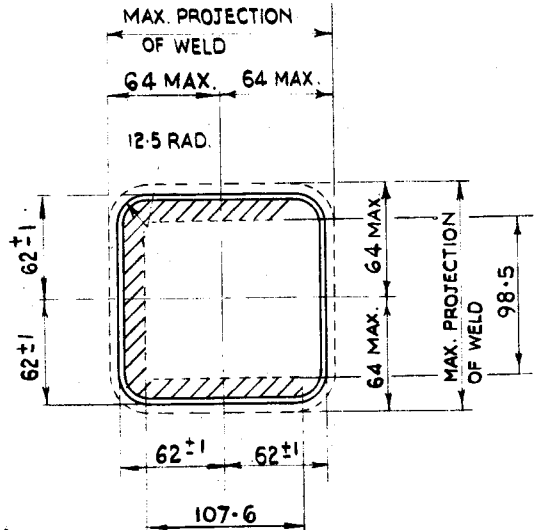
<u>NOTES</u>
A. Both heaters in parallel. B. Per section. C. The two heater systems are designed for parallel operation only.

To be performed in addition to those applicable in K1001

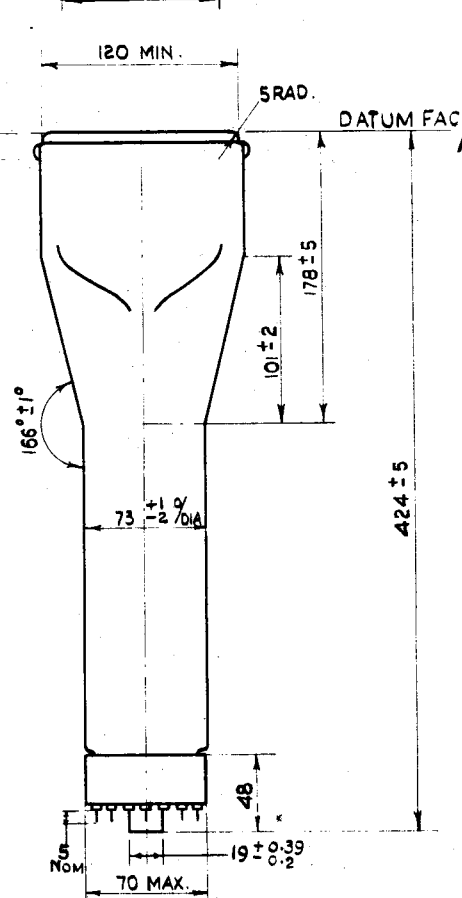
	TEST CONDITIONS					TEST	LIMITS		No. Tested	Notes
							Min.	Max.		
a	See K1001/5A. 13					<u>CAPACITANCES (pF)</u> (1) Each X or Y plate to all other electrodes (2) Each X plate to each Y plate (3) Grid to all other electrodes (4) Cathode to all other electrodes	-	20	T.A.	1
b	See K1001/5A. 3.3 Test Voltage = $\pm 100V$.					Heater-Cathode Leakage (μA)	-	100	100%	1
c	Vh	Va3 (KV)	Va2 (V)	Va1 (KV)	Vg (V)	Heater Current (A)	0.8	1.2	100%	2
	6.3	0	0	0	0					
d	6.3	3.0	Adjust for optimum focus	2.0	Adjust for cut-off	Negative Grid Voltage (V)	30	70	100%	1
e	6.3	3.0	Adjust for optimum focus	2.0	Adjust	(1) Vg. (V)	-1	-	100%	1
						(2) Change in value of Vg (V) from test (d)	-	30	100%	1
						(3) Difference in value of Vg (V) between each gun.	0	10	100%	
f	6.3	3.0	Adjust for optimum focus	2.0	Adjust to 10V above cut-off.	(1) Line width (mm) (2) Va2 (V)	-	0.8 340	100% 100%	1 1
	Deflection. A 5 Kc/s line of length 104 mm in the X and Y directions successively. The line width measured at the centre.									
g	6.3	3.0	Any convenient value	2.0	-50	<u>Grid Insulation</u> (1) Leakage Current (μA)	-	10	100%	1
	OR See recommended method K1001/5A. 3.2 Resistor = 5 M Ω					(2) Increase in voltmeter reading	-	100%	100%	1
h	6.3	3.0	Adjust for optimum focus	2.0	Adjust for convenient brightness	Deviation of focussed and (mm un-deflected spots from radius) nominal positions, one 14 mm above face centre and one 14 mm below face centre.	-	5	100%	1
i	6.3	3.0	Adjust for optimum focus	2.0	Adjust for convenient brightness	Orientation of deflection axes with respect to Vertical and horizontal face centre lines.	-	$\pm 3^\circ$	100%	1
k	6.3	3.0	Adjust for optimum focus	2.0	Adjust for convenient	Rectilinearity measured as mean angle between adjacent sides of a nominal 100 mm x 100 mm. raster, symmetrically deflected.	88 $^\circ$	92 $^\circ$	100%	1

	TEST CONDITIONS					TEST	LIMITS		No. Tested	Note
	Vh	Va3 (KV)	Va2 (V)	Va1 (KV)	Vg (V)		Min.	Max.		
l	6.3	3.0	Adjust for optimum focus	2.0	Adjust for convenient brightness	Pincushion distortion, measured as the difference in height between the centre and sides of a nominal 100 mm x 100 mm (mm) raster, symmetrically deflected.	-	3	100%	1
m	6.3	3.0	Adjust for optimum focus	2.0	Adjust for convenient brightness	Orthogonality between Vertical and horizontal axis of deflection.	88°	92°	100%	1
n	6.3	3.0	Adjust for optimum focus	2.0	Adjust for convenient brightness	<u>Useful Screen Area</u> (1) X deflection (mm) (2) Y deflection (mm)	104 104	- -	100%	1
o	6.3	2.0	Adjust for optimum focus	2.0	Adjust for convenient brightness	<u>Deflection Sensitivity</u> (1) X-plate (mm/V) (2) Y-plate (mm/V)	$\frac{680}{Va3}$ $\frac{650}{Va3}$	$\frac{880}{Va3}$ $\frac{850}{Va3}$	100%	1
p	6.3	2.0	Adjust	2.0	Adjust for convenient brightness	<u>Screen and face plate Blemishes</u> Deflecting voltages to give a raster covering the useful screen area. The spot shall be defocused such that separate lines shall not be discernible on the raster.	-	-	100%	3
q	6.3	3.0	Adjust for optimum focus	2.0	-	Afterglow (secs) Time taken for brightness to decay to 0.5% of initial value. See Note 4.	15	-	100%	1.4
<p><u>NOTES</u></p> <ol style="list-style-type: none"> Each Gun considered separately. Both heaters in parallel. There shall be no dead spots greater than 1.5 mm diam. The number of dead spots greater than 0.5 mm. diam. shall not exceed 10. This test may be performed using Test Set 331. A.M. Ref. No. 108/696. fitted with an N4 filter. The specified limit applies. 										

WHEN VIEWING THE SCREEN WITH THE TUBE POSITIONED SUCH THAT PIN No.12 IS NETHERMOST, A POSITIVE VOLTAGE APPLIED TO THE XI. TERMINAL OF GUN A SHALL DEFLECT THE SPOT TO THE LEFT & A POSITIVE VOLTAGE APPLIED TO THE YI TERMINAL OF GUN A SHALL DEFLECT THE SPOT UPWARDS SIMILARLY FOR XI & YI TERMINALS OF GUN B.



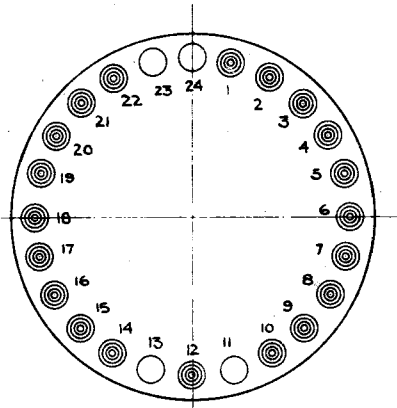
THE AREA OF DATUM FACE 'A' (SHOWN SHADED) IS THAT ON WHICH THE TUBE MUST SEAT WITHOUT ROCK. THE SCREEN FACE MUST LIE WITHIN .020 OF THE DATUM FACE. THE AXIS OF THE TUBE SHALL BE NORMAL WITHIN $\pm 3/4^\circ$ TO THE DATUM FACE AND PASSING THROUGH THE CENTRE OF THE TAPERED DIAMETER OF THE TUBE AS DETERMINED BY THE GAUGE SHOWN ON PAGE .6. THE ENVELOPE MUST BE ACCEPTED BY THE GAUGE.



DIMENSIONS IN MILLIMETRES.

CV2485/1/4.

BASE CONNECTIONS.

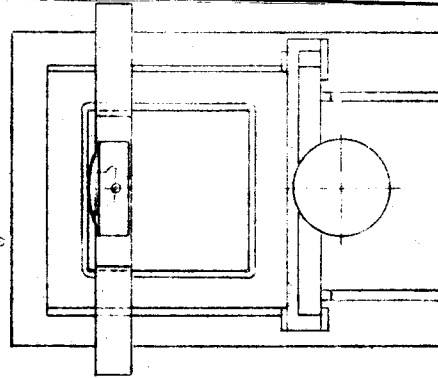


20 PINS MOULDED IN BASE AT 2.30" P.C.D. PINS 1-10 AND 14-22 EQUISPACED, PINS 11, 13, 22 AND 24 OMITTED.

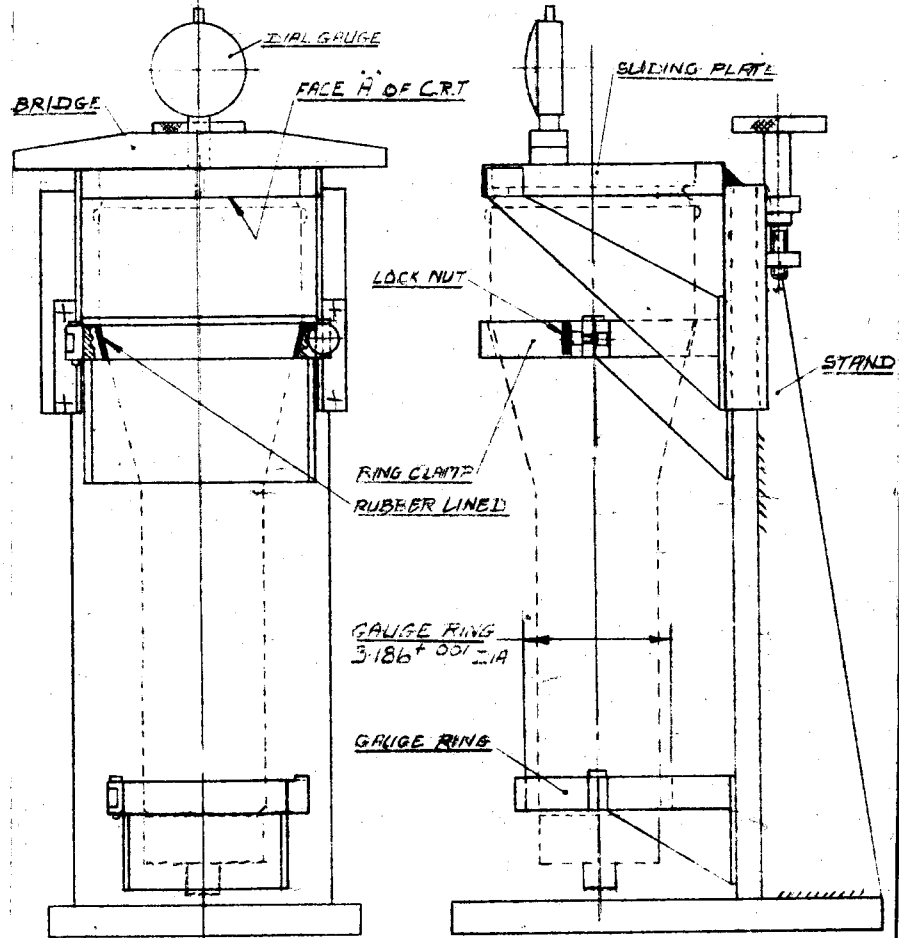
ELECTRODE		
PIN	GUN A	GUN B
1	CATHODE	
2	GRID	
3	ANODE 2	
4	HEATER	
5	HEATER	
6		CATHODE
7		GRID
8		ANODE 2
9		HEATER
10		HEATER
11	NO CONNECTION	
12	ANODE 1	
13	NO CONNECTION	
14		X1
15		X2
16		Y2
17		Y1
18	ANODE 3	
19	Y2	
20	Y1	
21	X1	
22	X2	
23	NO CONNECTION	
24	NO CONNECTION	

CV2485/15

3rd A. PROJECTION



1. POSITION CRT LOCK RING CLAMP. CLOSE GAUGE RING.
2. DATUM FACE A OF CRT TO BE SQUARED UP BY BRINGING SLIDING PLATE DOWN ON TO FACE "A".
3. CHECK THAT FACE "A" IS MAKING SUFFICIENT CONTACT WITH SLIDING PLATE TO STOP ROCKING.
4. IF CRT DOES NOT MAKE CONTACT WITH GAUGE RING THEN THE AXIS OF TUBE IS WITHIN ACCEPTABLE LIMITS.
5. CHECK SCREEN SURFACE WITH D.T.I. ALLOWABLE F.I.M. ± 0.02 FROM DATUM FACE "A".



GAUGE FOR CHECKING SCREEN FACE AND ANGULARITY OF AXIS

CV2485/1/6.