

ELECTRONIC VALVE SPECIFICATIONS

SPECIFICATION AD/CV5819 ISSUE 1. DATED 11.9.63
AMENDMENT No.1.

Page 3 Test Clause (m). In column headed 'Test Conditions' insert " $V_{a3} = 0$ ".

Page 4. Note 3. Amend '208' to read '60'.

Page 5. Outline Drawing. Remove and destroy existing Page 5 and substitute new Page 5 dated March 1964 attached hereto.

March 1964.

T.V.C. for
A.S.W.E.

N.222067

ADMIRALTY SURFACE WEAPONS ESTABLISHMENT

CV 5819

Specification AD/CV5819 Issue 1 Dated 11/9/63 To be read in conjunction with K1001 and BS448.	<u>SECURITY</u>	
	<u>Specification</u> Unclassified	<u>Valve</u> Unclassified

<u>TYPE OF VALVE:</u> - Cathode Ray Tube <u>DEFLECTION:</u> - Magnetic <u>FOCUS:</u> - Low Voltage Electrostatic <u>ENVELOPE:</u> - Glass <u>SCREEN:</u> - 008 (Aluminium backed) <u>PROTOTYPE:</u> - T957Y, 12/10LB	<u>MARKING</u> See K1001/4
	<u>BASE</u> See BS448. B12A or an approved alternative.

<u>RATING</u> <u>All limiting values are absolute</u>		<u>CONNECTIONS</u>	
		Pin	Electrode
	Note		
Heater Voltage (V)	6.3	1	Heater h
Heater Current (A)	0.3	2	Grid g
Anode 1 Voltage Max. (V)	500	6	Anode 3 a3
Min. (V)	200	7	Internal Connection
Anode 3 Voltage Max. (V)	500	10	Anode 1 a1
Min. (V)	-500	11	Cathode k
Anodes 2 and 4 Voltage Max. (KV)	18	12	Heater h
Min. (KV)	8	Side Contact	Anodes 2 a2 and 4 a4
Negative Grid Voltage Max. (V)	200		
Min. (V)	1		
Heater - Cathode Voltage (V)	150		
Heater - Cathode Resistance (Megohm)	1		
			<u>SIDE CONTACT</u> BS448. G76

<u>TYPICAL OPERATING CONDITIONS</u>		<u>DIMENSIONS</u> See Drawing on Page 5.	
Anode 1 Voltage (V)	300		
Anode 3 Voltage range (to pass through focus) (V)	-300 to +300		
Anodes 2 and 4 Voltage (KV)	12		
Anode 3 Current (µA)	-15 to +15		
Grid Voltage for cut-off (V)	-30 to -70		

<u>NOTES</u>	
A. Shielding for X-ray radiation is necessary at anode voltages greater than 16 KV.	
B. With separate heater transformer. Otherwise 100 K ohms.	

To be performed in addition to those applicable in K1001. Tests are to be performed not less than 7 days after completion of manufacture and in the specified order unless otherwise agreed with the Inspecting Authority.

The Cathode pre-heating time is to be 5 Minutes at 7.3 Volts.

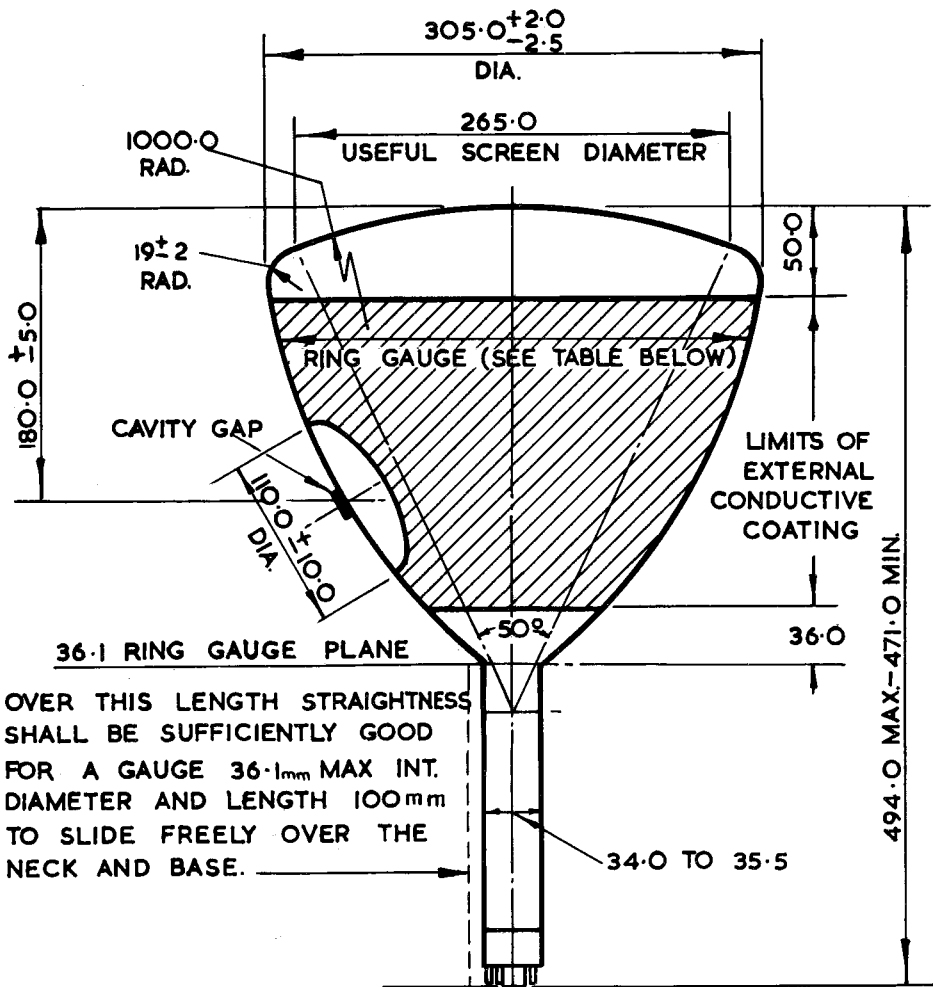
Test Conditions - unless otherwise stated								
V_h	V_g	V_{a1}	V_{a3}	$V_{a2 \& 4}$	V_{hk}			
(V)	(V)	(V)	(V)	(KV)	(V)			
6.3	Adjust	300	Adjust	12	0			
	Test	Test Conditions	AQL %	Insp. Level	Symbol	Limits		Units
						Min.	Max.	
(a)	Insulation other than Grid and Heater-Cathode.	See K1001/5.A.4.1.1.		100%				
(b)	Grid Insulation Leakage Current.	See K1001/5.A.4.1.2. $R_g = 10$ Megohms Note 1.		100%	I_g	-	5	μA
(c)	Heater-Cathode Leakage Current.	See K1001/5.A.4.1.3. Cathode positive Cathode negative $V_h = 7.0V$ $V_{hk} = 172V$ No other voltages $R_k = 2.75$ Megohms		100%	I_{hk}	-	40	μA
				100%	I_{hk}	-	20	μA
(d)	Heater Current.			100%	I_h	0.27	0.33	A
(e)	Stray Emission.	See K1001/5.A.4.2.2. $V_{a 2 + 4} = 18$ KV		100%				
(f)	Negative Grid Cut-Off Voltage.	See K1001/5.A.4.3.		100%	V_g	30	70	V
(g)	Focus. Line Width. <u>or</u> Spot diameter	See K1001/5.A.5.7.2.2. Pulsed line, $I_{a 2 + 4} = 50 \mu A$ peak Line length = 250 mas $f = 100$ pps max. Pulsed spot. Note 5.		100%		-	0.4	mm
				100%		-	0.8	mm
(h)	Useful Screen Area. Diameter on geometric centre.	See K1001/5.A.6.3.		100%		265	-	mm
(j)	Spot position	See K1001/5.A.6.4.2.		100%		-	10	mm

	Test	Test Conditions	AQL %	Insp. Level	Symbol	Limits		Units
						Min.	Max.	
(k)	Light Intensity.	See K1001/5.A.5.1. Va 2 + 4 = 9 KV Vg adjusted to give a light intensity of 0.12 candela using focussed raster of convenient size. Measure the beam current.		100%		-	8.0	μA
(l)	Persistence.	See K1001/5.A.5.5. Va3 = -2000V Vg adjusted to give screen luminance of 2 foot-lamberts with a linear raster of convenient size and uniform screen excitation. Excitation time 120 + 20 secs. Measure decay time to 0.014 foot-lamberts. Note 3.		QA		60	-	Secs.
(m)	Gas ratio.	See K1001/5.A.4.5. Va 2 + 4 = -25V Va1 = 300V Ik = 400 to 1000 μA.		100%		-	2x10 ⁻⁴	
(n)	Screen defects.	See K1001/Appendix XV Scan over useful screen area with defocussed raster of convenient brightness. Note 4. Number of defects within 75 mm radius of centre of screen. Exceeding 0.75 mm Dia. Exceeding 0.5 mm Dia. Number of defects in zone between 75 mm radius and 132 mm radius from centre of screen. Exceeding 1.0 mm Dia. Exceeding 0.5 mm Dia. Separation of defects		100%		- - - - 25	0 3 0 3 -	 mm

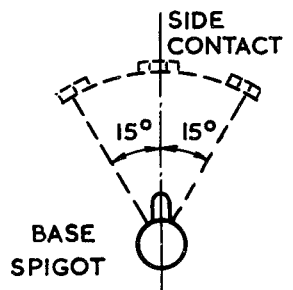
	Test	Test Conditions	AQL %	Insp. Level	Symbol	Limits		Units
						Min.	Max.	
(p)	Capacitances.	See K1001/5.A.4.6. Grid to all other electrodes.		QA	Cg- all	-	8.0	pF
		Cathode to all other electrodes.			Ck- all	-	8.0	pF
(q)	Mechanical. Alignment.	See K1001/5.A.7.1.1. No Voltages. See drawing on page 5.		100%				

NOTES

1. The leakage current is change of cut-off voltage (V_g) divided by R_g .
2. Before measuring cut-off voltage the tube must be free from stray emission.
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 given by $208(1 - 0.04)^n$ secs.
4. Defects below 0.5 mm equivalent diameter shall be ignored except where the separation between them is less than the maximum dimension of the largest defect in the group. Equivalent diameter is the mean of the major and minor axes.
5. With $I_a 2 + 4 = 100 \mu A$ peak, pulse length 0.2 μS , $f = 50$ pps. The spot is to be focused. If the spot is not circular the major axis shall be regarded as the diameter.



RING GAUGE (mm)	DISTANCE FROM CENTRE OF SCREEN (mm)
280	93 ± 10
230	150 ± 9
180	191 ± 8
130	222 ± 7
80	249 ± 6
36.1	272 ± 3.5



ALL DIMENSIONS IN MILLIMETERS