VALVE ELECTRONIC

ADMIRALTY SURFACE WEAPONS ESTABLISHMENT

CV6130

Specification AD/CV6130 Issue 1 Dated 1/10/63 To be read in conjunction with K1001 and BS448	SECURITY Specification: Unclassified Valve: Unclassified

TYPE OF VALVE:-	Cathode Ray Tube
TYPE OF DEFLECTION:-	Magnetic
TYPE OF FOCUS:-	Magnetic
TYPE OF ELECTRON GUN:-	Tetrode
BULB:-	Glass, internally coated with conductive coating
SCREEN:-	007 Aluminium backed
PROTOTYPE:-	12/08L3M, CV429 mod.

MARKING

See K1001/4

SIDE CONTACT

BS448 - CT2 (Note B)

BASE

BS448 - B12A

With short metal shell or approved alternative

RATING

			Note
Heater Voltage	(V)	6.3	
Heater Current	(A)	0.3	
Max. A_2 Voltage	(kV)	15.5	A
Min. A_2 Voltage	(kV)	9.0	
Max. A_1 Voltage	(V)	600	
Min. A_1 Voltage	(V)	250	
Max. negative Heater/ Cathode Voltage	(V)	200	
TYPICAL OPERATING CONDITIONS			
Max. negative Grid Voltage for cut-off	(V)	90	
Second Anode Voltage	(kV)	15	
First Anode Voltage	(V)	300	

CONNECTIONS

Pin	Electrode	
1	Heater	h
2	Grid	g
3	No pin	
4	No pin	
5	No pin	
6	No connection	
7	No connection	
8	No pin	
9	No pin	
10	First anode	a_1
11	Cathode	k
12	Heater	h
Side Contact	Second anode	a_2

DIMENSIONS

See drawing on page 6

NOTES

A. Absolute maximum value.
B. Side Contact BS448 - CT8 may be used if each tube is fitted with an adaptor.
C. The Joint Services Catalogue Number is 5960-99-037-3523

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TESTS

To be performed in addition to those applicable in K1001.

Tests are to be performed in the specified order unless otherwise agreed with the Inspecting Authority.

Test conditions - unless otherwise stated:-

V_h(V)	V_{a1}(V)	V_{a2}(kV)
6.3	300	15

	Test	Test Conditions	AQL %	Insp. Level	Symbol	Limits Min.	Limits Max.	Units
a	Capacitances	See K1001/5A 4.6		5% or 20	C_g-all	-	3.8	pF
				5% or 20	C_k-all	-	12.8	pF
b	Heater Current	No voltages except V_h		100%	I_h	280	320	mA
c	Heater/Cathode Leakage Current	See K1001/5A 4.1.3. Apply 150V between heater and cathode.		100%	I_{h-k}	-	50	µA
d	Grid Cut-Off Voltage	See K1001/5A 4.3. See Note 1.		100%	$-V_g$	30	90	V
e	Grid Drive Change in V_g from that in test "d" above.	See K1001/5A 4.4. Beam current = 50µA		100%		10	30	V
f	Line Width	See K1001/5A 5.7.2.2. Scan length = 250 mm. Grid drive = 50 p.p.s. Peak beam current = 50µA.		100%		-	0.25	mm
g	Spot Position	See K1001/5A 6.4.2. See Note 2.		100%			10	mm
h	Unfocussed Spot Diameter	See K1001/5A 5.7.3. Pulse grid as in test "f" above.		100%		-	15	mm

TESTS

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	Test	Test Conditions	AQL %	Insp. Level	Symbol	Limits Min.	Limits Max.	Units
j	Useful Screen Area	See K1001/5A 6.3. With deflection to cover useful screen and at optimum focus, adjust V_g to give a light intensity of 0.12 candela.		100%	Dia.	250		mm
k	Screen Efficiency Measured in terms of beam current.	See K1001/5A 5.1.2. V_{a2} = 9 kV Light intensity = 0.12 candela.		100%		-	~~8~~ 16	µA
l	Afterglow (i) Time to fall to 80% (ii) Time to fall to 10%	See K1001/5A 5.5. Excite screen for 60 seconds. Initial luminance 82 e f c measured with an eye-corrected selenium photocell 7 through a filter, Wratten No. 22.		10% 10%		100 -	400 7	m.sec secs.
m	Flash-Over and Stray Emission	See K1001/5A 4.2. V_{a1} = 600V V_{a2} = 18 kV V_g = -200V Pre-heat the cathode at V_h = 6.3V for 10 minutes, before applying other potentials. Hold tube with screen horizontal and uppermost. Focus field for optimum focus. View the tube in darkened conditions for 10 seconds whilst the tube neck is being tapped with an approved forked rubber covered wooden hammer at a minimum of four taps per second. See Note 3.		100%				

TESTS

	Test	Test Conditions	AQL %	Insp. Level	Symbol	Limits Min.	Limits Max.	Units
n	Grid Insulation Leakage current or Increase in voltmeter reading.	R_g = 10M ohm V_g = -110V See K1001/5A 4.1.2. Resistor 10M ohm.		100%		- -	11 100%	µA -
p	Microphony	Adjust focusing field for optimum focus and V_g for a faintly lit screen using a convenient sized raster. Lightly tap the bakelite base of the tube with an approved rubber hammer.		100%	There shall be no dark band or lines on the screen.			
q	Blemishes	With no focus field and a raster of any convenient brightness to cover useful screen area.		100%	Blemishes shall be in accordance with chart on page 5.			

NOTES

1. In order to avoid spot burns and flashover, the tube must be free from stray emission before measuring cut-off, etc.

2. Mark position of spot, rotate the tube through 180° and mark new position of the spot. Midway between the marks is the electrical centre of the screen. Spot deviation is the distance between geometrical centre of neck shadow area and the electrical centre of the screen.

3. Any flashover or stray emission during the first five seconds when the beam shall be deflected off the screen shall be ignored.

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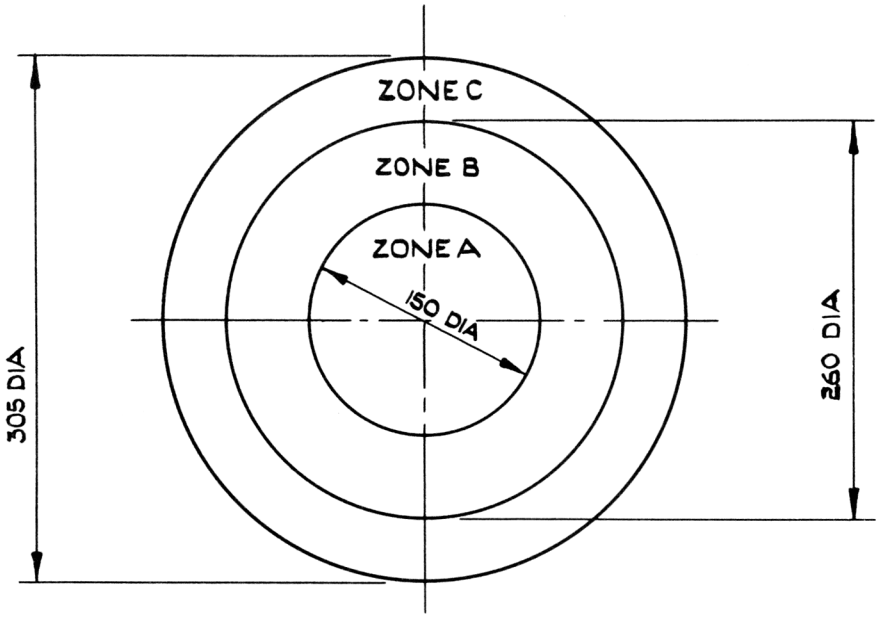
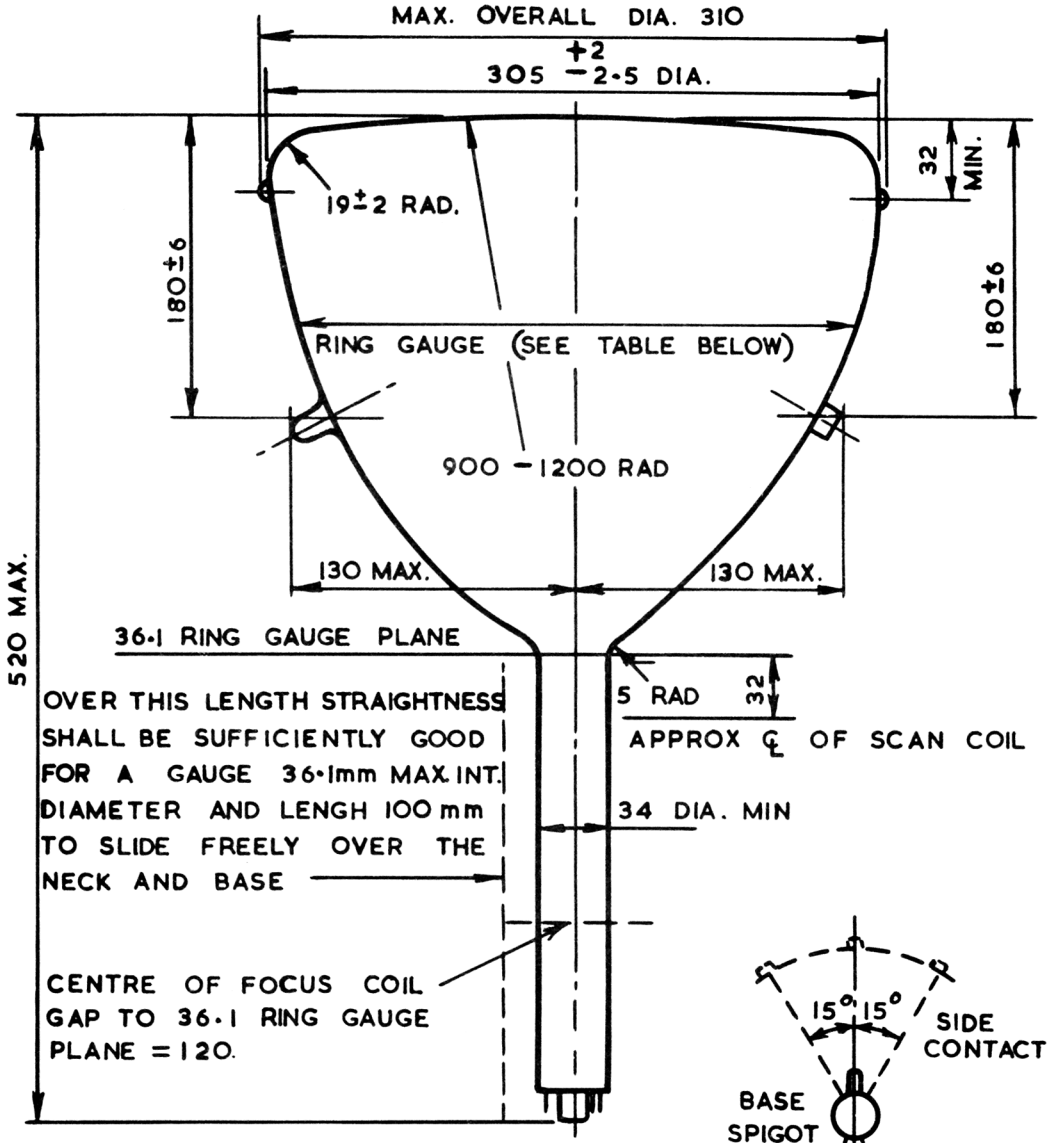


ZONE 'C' EXTENDS OVER EDGE OF SCREEN DOWN TO MOULD MATCH LINE.
SCREEN WALLS EXTEND FROM MOULD MATCH LINE TO WELD LINE.

		A		B		C
BUBBLES, OPEN BUBBLES BLACK SPECS, INNER & OUTER INDENTATIONS & BRUISES	SIZE	LESS THAN 0·5	0·5 – 0·75	LESS THAN 0·5	0·5 – 1·0	NO LIMIT ON BUBBLES, BLACK SPECS, INNER & OUTER INDENTATIONS. ALL BRUISES & CRACKS TO BE REJECTED.
	No. PER SIZE	NO LIMIT	3	NO LIMIT	3	
	MIN. DISTANCE	NO LIMIT Ⓐ	25	NO LIMIT Ⓐ	25	
		A & B				SCREEN WALLS
ELONGATED BUBBLES	WIDTH	LESS THAN 0·25	0·25–0·5	MORE THAN 0·5		BRUISES NO LIMIT UP TO 4 DIA & 1 DEEP
	MAX. LENGTH	NO LIMIT	13	SEE BUBBLES OF SAME DIA. ABOVE		
	No. PER SIZE	NO LIMIT				
		A & B				C & SCREEN WALLS
SCRATCHES	WIDTH	LESS THAN 0·05	0·05 – 0·10	0·10 – 0·15		NO LIMIT PROVIDED THEY DO NOT IMPAIR STRENGTH.
	SUM TOTAL LENGTH	NO LIMIT	50	13		

Ⓐ IF CLOSELY GROUPED SEE LIMIT SAMPLE.

DIMENSIONS IN MILLIMETRES.



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 MM.

ELECTRONIC VALVE SPECIFICATIONS
SPECIFICATION AD/CV 6130 ISSUE 1 DATED 1.10.63
AMENDMENT No.1

Page 3 Test Clause 'k'.

In the column headed "Limits, Max.",
delete '8' and substitute '16'

October, 1964

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

JAB 12/64

(229063)

ELECTRONIC VALVE SPECIFICATIONS

SPECIFICATION AD/CV6130 ISSUE 1 DATED 1.10.63

AMENDMENT NO.2.

Page 2. Test (a) Capacitances

Amend Max limits for Cg-all and Ck-all to read "12" instead of "8".

7th July, 1965

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

15/11/65

N.229262