MINISTRY OF SUPPLY DLRD(A)/TRE

VALVE ELECTRONIC **CV2184**

Specification MOS(A)/CV2184
Issue 2 Dated 29.4.53
To be read in conjunction with K1001

SECURITY	
Specification	Valve
UNCLASSIFIED	UNCLASSIFIED

→ Indicates a change

TYPE OF DEFLECTION - Electrostatic

BULB - Internally coated with conductive coating

SCREEN - YYM.36

PROTOTYPE - VCRX.298

RATING			Note
Heater Voltage	(V)	4.0	
Heater Current	(A)	1.0	
Max. Fourth Anode Voltage	(kV)	3.0	A
Max. Third Anode Voltage	(kV)	1.5	A
TYPICAL OPERATING CONDITIONS			
Fourth Anode Voltage	(kV)	2.5	
Third Anode Voltage	(kV)	1.3	
Second Anode Voltage	(V)	100	
(Peak) Working Beam Current	(μA)	200	
Peak Cathode Current	(μA)	1000	
X-plate Sensitivity	(mm/V)	0.215	
Y-plate Sensitivity	(mm/V)	0.215	

MARKING
See K1001/4

BASE
12-pin spigot

CONNECTIONS

Pin	Electrode
1	C
2	G
3	H
4	H
5	A2
6	Pin omitted
7	Y2
8	X2
9	A1, A3, and conductive coating
10	X1
11	Y1
12	Pin omitted
Side Contact	A4

SIDE CONTACT
Snap Terminal

DIMENSIONS
See Drawing on Page 5

NOTES

A. The tube shall be capable of operating with first and third anode voltages of 1500V, and fourth anode voltage of 3.0 kV, at a pressure equivalent to 5.77"ins of mercury at 15°C.

B. The tube shall be of the post deflector accelerated type and of a design such that a change of ± 10% in the Va2 voltage shall not produce an appreciable change in the cut-off voltage.

C. The tube shall be adequately free from microphony.

To be performed in addition to those applicable in K1001

	Test Conditions					Test		Limits		No. Tested
	Vh (V)	Va4 (kV)	Va1 Va3 (kV)	Va2 (V)	Vg (V)			Min.	Max	
	In all cases symmetrical deflecting voltages shall be applied to the Y-plates and asymmetrical deflecting voltages to the X-plates.									
a	See K1001/5A.13					CAPACITANCES (pF) 1. Each X or Y-plate to all other electrodes. 2. One X to one Y-plate 3. Grid to all other electrodes		- - -	21 4 ~~13~~ 21	5% (5)
b	4.0	0	0	0	0	Ih	(A)	0.9	1.1	5% (10)
c	4.0	2.5	1.3	Adjust for optimum focus	Adjust to cut-off	Vg Value to be noted	(V)	-	105	100%
d	4.0 Vg adjusted to of 0.3 candela	2.5	1.3	As for Test (c) give a light output on a close raster.	-	1. Vg 2. Change in value of Vg from Test (c) 3. Within the range of grid voltage from cut-off to standard light output the beam current shall increase continuously	(V) (V)	-1 -	- 45	100% 100%
e	4.0	2.5	1.3	As for Test (c)	-	1. Line width 2. Va2	(mm) (V)	- -	1.2 200	100% 5% (10)

DEFLECTION With a sine-wave time-base of 10 kc/s nom. and a line length of 55 mm. in the X and Y directions successively, the line width to be measured at the centre of the trace.

GRID The grid will be pulsed positively from cut-off with amplitude equal to the value obtained in Test (d.2), the nominal values of pulse duration and recurrence being 100 µsecs and 100 c/s, respectively.

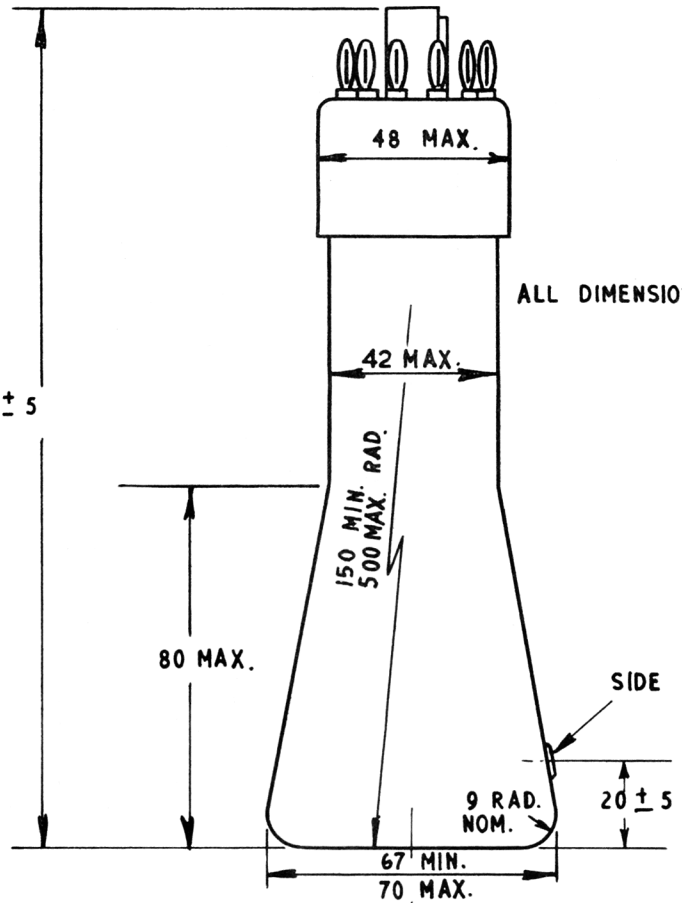
Tests (Cont'd)

CV 2184

	Test Conditions					Test	Limits		No. Tested
	Vh (V)	Va4 (kV)	Va1 Va3 (kV)	Va2 (V)	Vg (V)		Min	Max	
f	4.0	2.5	1.3	Any convenient value	-105	GRID INSULATION 1. Leakage current (μA) 2. Increase in voltmeter reading	- -	21 100%	100% 100%
	Recommended method:- See K1001/5A.3.2 Resistor = 5 megohms								
g	4.0	-	-	As for Test (f)	-	HEATER CATHODE LEAKAGE Leakage current (μA)	-	200	100%
	See K1001/5A.3.3 100 volts shall be applied between heater and cathode								
h	4.0	2.5	1.3	As for Test (f)	Any convenient value	DEFLECTION SENSITIVITIES 1. X-plate (mm/V) 2. Y-plate (mm/V)	 0.17 0.17	 0.26 0.26	5% (10)
j	4.0	2.5	1.3	As for Test (f)	As for Test (h)	Deviation of spot from centre of screen (mm)	-	7.0	100%
k	4.0	2.5	1.3	As for Test (f)	As for Test (h)	USEFUL SCREEN AREA Diameter (mm)	 55	 -	100%
	Deflection to cover stated circle centred on centre of screen.								
m	4.0	2.5	1.3	As for Test (f)	As for Test (h)	Angle between X and Y axes of deflection	85°	95°	100%
n	4.0	2.5	1.3	As for Test (f)	As for Test (h)	1. Orientation of Y axis of deflection relative to OO' on drawing. 2. Orientation of diameter line through snap terminal relative to Y axis	- -	±10° ±10°	100% 100%

	Test Conditions					Test	Limits		No. Tested
	Vh (V)	Va4 (kV)	Va3 Va5 (kV)	Va2 (V)	Vg (V)		Min.	Max	
p	4.0	2.5	1.3	As for Test (f)	As for Test (h)	1. The screen shall be no worse for graininess than a standard pattern.			100%
	Deflecting voltages to give a raster covering the useful screen area. The spot shall be defocussed such that separate lines shall not be discernible on the raster.					2. The variation of brightness over any part of the area shall not exceed a 2 : 1 ratio.			100%
q	4.0	2.5	1.3	As for Test (f)	As for Test (h)	Persistence (secs)	5	-	100%
	Test to be performed using approved test gear and a close raster of convenient size.								

CV 2184



NOTES

1 VIEWING THE SCREEN OF THE TUBE WITH THE KEY OF THE BASE UPPERMOST, A POSITIVE POTENTIAL APPLIED TO PIN X_2 SHALL DEFLECT THE SPOT TO THE RIGHT, AND A POSITIVE POTENTIAL APPLIED TO PIN Y_2 SHALL DEFLECT THE SPOT DOWNWARDS.

2 THE INTERNAL CONDUCTIVE COATINGS SHALL BE OF SUCH DIMENSIONS THAT THEY FUNCTION EFFECTIVELY BUT DO NOT OBSCURE THE USEFUL SCREEN AREA.

Amendment No.1
to Specification CV 2184 - Issue 2 - dated 29.4.53

Page 2.

Test Clause (a) "3" - Grid to all other electrodes (Capacitance)

Amend 13pf max. to read 21pf max.

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

January, 1958
N.24629R