

Thorn-A.E.I. Radio Valves & Tubes Ltd.

552

Thorn-A.E.I. Applications Laboratory

Brimdawn, Enfield, Middlesex.

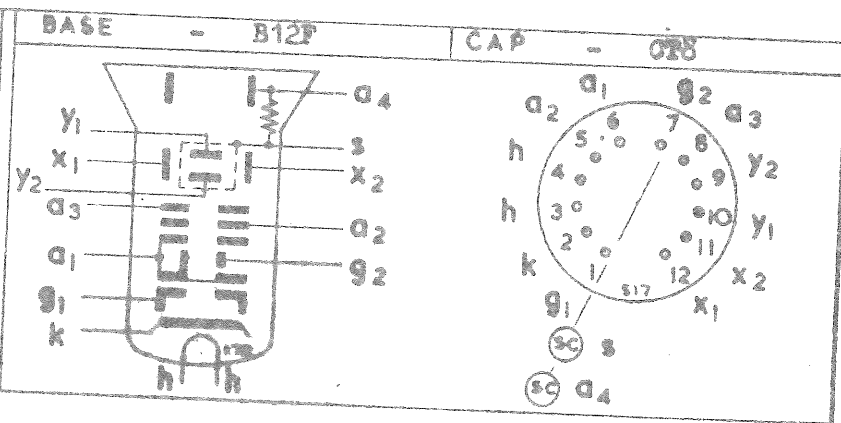
DATE: 26th August, 1964.  
TDS No. 6-D13/30GH-Q-1A

SUBJECT General

D13-30GH		<b>GENERAL</b>		Oscilloscope Tube	
This 5 in. diameter, all electrostatic cathode ray tube has a large display area and is intended for use as an x-y plotter. It has a spiral post deflection accelerator and a means of beam blanking at anode potential. The standard phosphor is GH, but GL, GM and BE can be supplied to special order.					
Heater Voltage	$V_h$	6.3 V	<b>RATINGS</b>	Heater Current	$I_h$
			<u>Absolute Values</u>		
				max	min
Fourth anode voltage	$V_{a4}$	6.0			1.5
Third anode voltage	$V_{a3}$	2.5			0.7
Second anode voltage	$V_{a2}$	1.0			0
First anode voltage	$V_{a1}$	2.5			0.7
Negative grid voltage	$-V_{g1}$	200			1.0
Beam blanking voltage	$V_{g2}$	2.5			0.6
x-plate to third anode voltage	$V_{x-a3}$	500			-
y-plate to third anode voltage	$V_{y-a3}$	500			-
x-plate to third anode resistance	$R_{x-a3}$	5.0			-
y-plate to third anode resistance	$R_{y-a3}$	100			-
Control grid to cathode resistance	$R_{g1-k}$	1.5			-
Second anode current (leakage)	$I_{a2}$	10			-
P.D.A. ratio ( $V_{a4}/V_{a3}$ )		3:1			-
Post deflection helix resistance		-			50

All voltages referred to cathode unless otherwise stated.

CAPACITANCES		PF
$g_1$ /all		10.8
$k$ /all		5.2
$x_1/x_2$		2.6
$y_1/y_2$		1.3
$x_1$ /all, less $x_2$		6.7
$x_2$ /all, less $x_1$		6.7
$y_1$ /all, less $y_2$		5.9
$y_2$ /all, less $y_1$		5.9
$E_1, k/x_1, x_2, y_1, y_2$		2.25



Black

No. 172  
No. 517

V304

TYPICAL OPERATION

All voltages referred to cathode unless otherwise stated.

Fourth anode voltage	$V_{a4}$	2.0	2.5	4.0	kV
Mean deflector plate potential		1.0	1.25	2.0	kV
Third anode to mean y-plate voltage for astigmatism correction	$V_{a3-y(av)}$	$\pm 50$	$\pm 50$	$\pm 50$	V
Second anode to mean y-plate voltage for focus	$V_{a2}$	80 to 240	100 to 300	160 to 480	V
First anode voltage	$V_{a1}$	1.0	1.25	2.0	kV
Interplate shield to mean x-plate voltage for optimum raster shape	$V_{s-x(av)}$	$\pm 50$	$\pm 50$	$\pm 50$	V
Control grid voltage for spot cut-off	$V_{g1}$	-36 to -68	-45 to -85	-72 to -135	V
Maximum beam blanking to first anode voltage for $I_k = 500 \mu A$	$V_{g2-a1}$	$-45^\circ$	$-45^\circ$	$-50^\circ$	V
Minimum x-plate sensitivity	$S_x(min)$	11 to 13.5	14 to 17	22 to 27	V/cm
Minimum y-plate sensitivity	$S_y(min)$	10 to 12.5	12.5 to 15.5	20 to 25	V/cm
Minimum screen area		10 x 10	10 x 10	10 x 10	cm <sup>2</sup>
Line width at centre	} For $I_b = 5 \mu A$	0.65	0.6	0.5	mm
Line width at edge		0.8	0.7	0.6	mm

\* The beam is unblanked when  $V_{g2} = V_{a1}$

Notes

At the recommended P.D.A. ratios, over the nominally useful screen area, the raster distortion will not be greater than 2%.

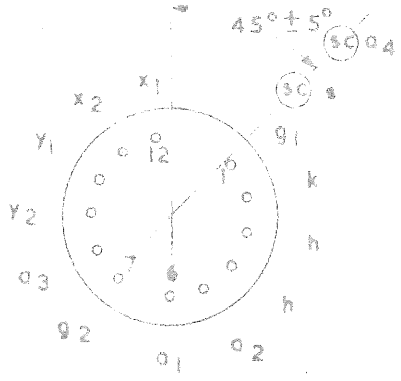
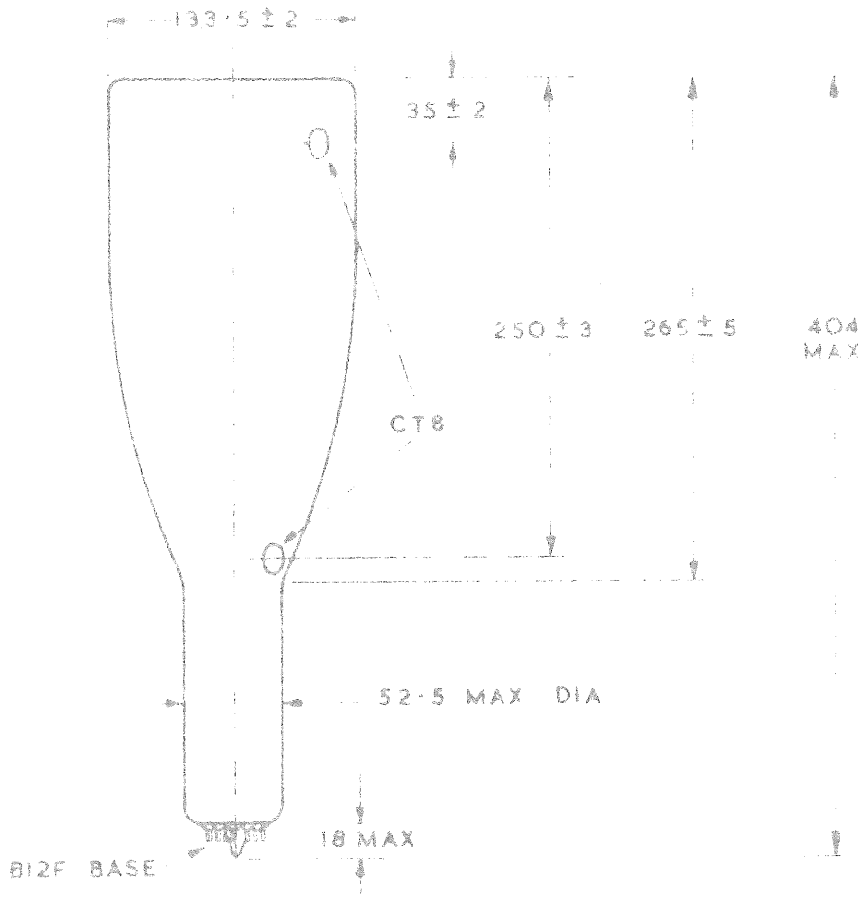
It is not advisable that the deflector plates be run asymmetrically, or severe raster distortion could result and the focus quality could not be guaranteed. It is preferable that the tube be operated with mean x and y potentials equal, otherwise the raster distortion and focus quality would suffer and the limits for  $V_{a3}$  and  $V_s$  will differ from specification.

Black

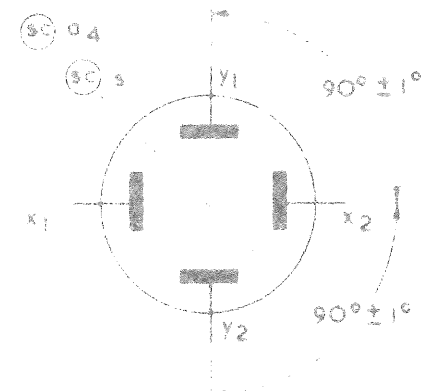
V3154

SUBJECT: Outline Drawing.

# D13 - 30GH



VIEWED FROM PINS FREE END



VIEWED FROM SCREEN END  
PIN 6 AT BOTTOM

### Mounting Position - Unrestricted.

It is advisable to support the tube near the screen, and at a second point on the parallel neck near the base, the tube should not be subjected to any stress from the use of clamps and should not be suspended by the base.

NOT TO BE SCHEDED

Black

V3154