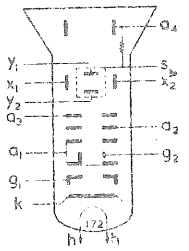
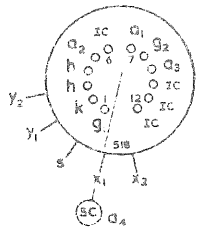


OSCILLOSCOPE TUBE



Base B12F. Cap CT8

GENERAL

This 3 in. diameter tube has an intense spot and high sensitivities. A means of beam blanking at anode potential is incorporated which avoids d.c. coupling to the grid. The screen is not aluminised. The standard phosphor for this tube is P31, but P2, P7 and P11 are available to special order.

Heater Voltage	V_h	6·3	V
Heater Current	I_h	0·3	A

ABSOLUTE RATINGS

Maximum Fourth Anode Voltage	$V_{a4(max)}$	7·0	kV
Minimum Fourth Anode Voltage	$V_{a4(min)}$	1·5	kV
Maximum First Anode Voltage	$V_{a1(max)}$	1·5	kV
Maximum Second Anode Voltage	$V_{a2(max)}$	500	V
Maximum Third Anode Voltage	$V_{a3(max)}$	2·0	kV
Minimum Negative Control Grid Voltage	$-V_{g(min)}$	1·0	V
Maximum Negative Control Grid Voltage	$-V_{g(max)}$	300	V
Maximum x plate to Third Anode Voltage	$V_{x-a3(max)}$	500	V
Maximum y plate to Third Anode Voltage	$V_{y-a3(max)}$	500	V
Maximum Peak Heater to Cathode Voltage	$V_{h-k(pk)max}$	250	V
Maximum x plate to Third Anode Resistance	$R_{x-a3(max)}$	5·0	MΩ
Maximum y plate to Third Anode Resistance	$R_{y-a3(max)}$	100	kΩ
Maximum Control Grid to Cathode Resistance	$R_{g1-k(max)}$	1·5	MΩ
Minimum Helix Resistance		40	MΩ
Maximum P.D.A. Ratio		4 : 1	

All voltages referred to cathode unless otherwise stated.

INTER-ELECTRODE CAPACITANCES

Grid 1 to all	C_{g1-all}	7·0	pF
Cathode to all	C_{k-all}	6·0	pF
x_1 plate to x_2 plate	C_{x1-x2}	1·7	pF
y_1 plate to y_2 plate	C_{y1-y2}	1·05	pF
x_1 and x_2 plates to y_1 and y_2 plates	$C_{x1,x2-y1,y2}$	0·1	pF
x_1 plate to all, less x_2 plate	$C_{x1-all,\ less\ x2}$	3·6	pF
x_2 plate to all, less x_1 plate	$C_{x2-all,\ less\ x1}$	3·6	pF
y_1 plate to all, less y_2 plate	$C_{y1-all,\ less\ y2}$	3·4	pF
y_2 plate to all, less y_1 plate	$C_{y2-all,\ less\ y1}$	3·4	pF
Grid 1 and Cathode to x_1 and x_2 plates	$C_{g1,k-x1,x2}$	0·1	pF
Grid 1 and Cathode to y_1 and y_2 plates	$C_{g1,k-y1\ y2}$	0·1	pF

Net Tube Weight (approx)—1¼ lb (0·57 kg)

TYPICAL OPERATION—Voltages with respect to cathode.

Fourth Anode Voltage	V_{a4}	2·0	4·0	6·0	kV
Mean Deflector Plate Potential		500	1000	1500	V
Third Anode Voltage for astigmatism correction	V_{a3}	470 to 530	970 to 1030	1450 to 1550	V
Second Anode Voltage for Focus	V_{a2}	40 to 150	60 to 180	80 to 250	V
First Anode Voltage	V_{a1}	1000	1000	1000	V
Interplate Shield Voltage for optimum raster shape	V_s	470 to 530	970 to 1050	1470 to 1575	V
Control Grid Voltage for cut-off of raster	V_{g1}	−35 to −65	−35 to −65	−35 to −65	V
Beam Blanking Voltage for cut-off	V_{g2}	950*	930*	900*	V
Minimum x plate Sensitivity	$S_{x(min)}$	15	30	45	V/cm
Minimum y plate Sensitivity	$S_{y(min)}$	3·75	7·5	11·5	V/cm
Maximum Second Anode Current	$I_{a2(max)}$	5·0	10	10	μA
Maximum Fourth Anode Current	$I_{a4(max)}$	50	100	150	μA
Minimum Screen Area (y × x)		5 × 6	5 × 6	5 × 6	cm²
Line Width		0·45	0·35	0·35	mm

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

Raster Distortion

At the recommended P.D.A. ratios, over the nominally useful screen area, raster distortion will not be greater than 2 per cent. Raster geometry can be adjusted by varying the interplate shield voltage (V_s) with respect to the mean deflector plate potential. The interplate shield voltage (V_s) for optimum raster shape will be within ± 30V of the mean deflector plate potential, though differing from the third anode voltage (V_{a3}). It is essential to ensure that the correct raster shape has been achieved by this means before adjusting for optimum focus.

Deflection of the spot is proportional to the voltage applied to the deflector plates within ± 2 per cent.

Rectangularity of x and y axes is 90° ± 1°.

The Deflector System

Both x and y plates are designed for symmetrical operation. Should the tube be required to operate asymmetrically, some degradation of focus and trace geometry will result.

If the mean plate potentials for both x and y plates are the same, the third anode voltage for astigmatism correction will be within ± 50V of the mean plate potential.

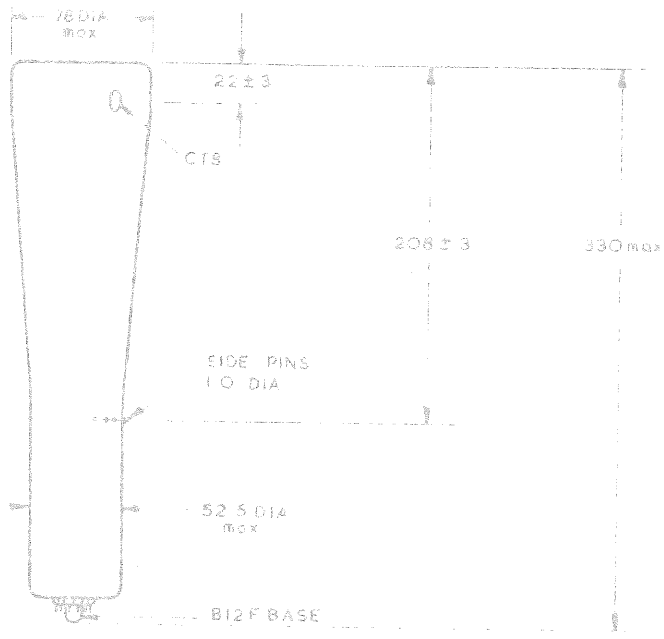
If the x plate mean potential differs considerably from that of the y, greater variation of the third anode voltage (V_{a3}) and the interplate shield voltage (V_s) will be required, and the x and y sensitivities will decrease.

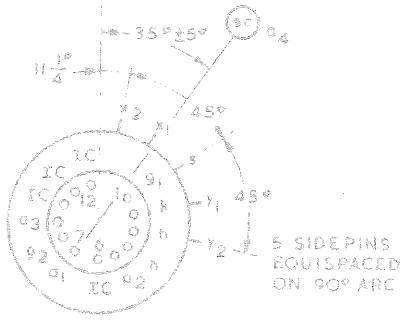
The y plate mean potential should not be allowed to become greater than that of the x or severe deflection defocusing will result.

The deflection system is designed to intercept part of the beam, so that low impedance deflector plate drive is desirable.

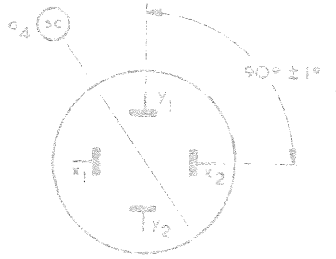
Magnetic Shielding

Adequate magnetic shielding is required. In addition due attention should be paid to the position of the tube relative to transformers and chokes.





VIEW 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. Connecting leads should not be soldered directly to the tube pins.

Tolerance on all side pin positions ±5°

All dimensions in mm. (Not to be scaled)