



RADIO MANUFACTURERS ASSOCIATION
ENGINEERING DEPARTMENT

ELECTRONIC
TUBE CHARACTERISTICS

Registration No. 293

CATHODE RAY TUBE

Type 5GP1

Heater

Voltage	ac or dc	6.3	volts
Current		0.6	amperes

Deflection

Electrostatic

Focus

Electrostatic

Screen

Phosphor	P1
Flourescence	Green
Persistence	Medium

Mechanical Characteristics

Overall Length	16-3/4" \pm 3/8"
Diameter of greatest Transverse Section	5-1/4", +1/16", -3/32"
Bulb	J-42-C2
Base	11 Pin
Basing	11A

The basing is such that:

1) The direction of the trace produced on the screen by deflecting electrodes D_3 and D_4 will not deviate more than $\pm 10^\circ$ from a plane through pin No. 1 and the axis of the tube while the angle between the direction of this trace and that of the trace produced on the screen by deflecting electrodes D_1 and D_2 will be $90^\circ \pm 5^\circ$.

2) With deflection electrode D_3 (Pin No. 9) positive with respect to D_4 (Pin No. 6) the spot will be deflected approximately toward pin No. 1; while with deflection electrode D_1 (Pin No. 3) positive with respect to D_2 (Pin No. 8) the spot will be deflected approximately toward Pin No. 4.

Direct Interelectrode Capacitances

Control Electrode (grid) to all other electrodes	9.0 uuf..
Deflecting Plate D_1 to D_2	2.4 uuf.
Deflecting Plate D_3 to D_4	1.0 uuf.
" " D_1 to all others	11.0 uuf.
" " D_3 " " "	12.0 uuf.
" " D_1 " " " except D_2	8.0 uuf.
" " D_2 " " " " D_1	8.0 uuf.
" " D_3 " " " " D_4	12.0 uuf..
" " D_4 " " " " D_3	8.0 uuf.

Ratings

Heater Voltage	6.3 volts
Heater Current	0.6 \pm 10% amp
High Voltage Electrode (Anode #2) E_{b2}	2000 volts (max)
Focu sing Electrode (Anode #1) E_{b1}	1000 volts (max)
Control Electrode (Grid) Voltage, E_{c1}	Never Positive

R-421-D-1

5GP1

April 20, 1942

From EIA registration # 293, May 7, 1942.

No sponsor manufacturer specified.

Ratings, (Continued)

Peak Voltage Anode #2 and any deflecting Electrode	500 volts (max)
Resistance of Circuit to Grid	1.5 megohms (max)
Impedance of circuit of any deflecting electrode at heater supply frequency	1.0 megohm (max)

Typical Operation

Heater Voltage (E_f)	6.3 volts
Anode #2 (E_{b2})	2000 volts
Range of E_{b1} to focus with values of E_{c1} between 0 and cut-off	*425 volts (+20%, -30%)
Anode No. 1 Current, I_{b1} at $E_{c1} = 0$ and E_{b1} adjusted for focus.	1000 ua (max)
Grid Voltage, E_{c1} , for cut-off; i.e. visual extinction of an undeflected, focused spot.	-40 volts ($\pm 40\%$)

Deflection

	<u>Factor</u>	<u>Sensitivity</u>
D_1 D_2	$18v / (in \cdot kv) \pm 20\%$	1.4 mm.kv/v (av)
D_3 D_4	$36v / (in \cdot kv) \pm 15\%$.7 mm.kv/v (av)

The voltage required for any deflection within the useable screen area shall depart from linear relation to the deflection by not more than $\pm 5\%$ of the voltage required for full scale deflection.

Spot Position

When the tube is operated at (1) normal heater potential; (2) E_{b2} at 2000 volts; (3) E_{b1} for focus of spot and (4) control grid voltage is set at such a value as will avoid damage to screen and (5) with each of the deflecting electrodes connected to Anode No. 2 through a one megohm resistor and (6) with the tube shielded against external influences:

The spot will fall within a rectangle, the centre of which coincides with the geometric centre of the face of the tube; one side of which is 12 mm. long and parallel to the trace produced by deflecting electrodes D_3 and D_4 ; the other side of which is 15. mm. long and parallel to the trace produced by deflecting electrodes D_1 and D_2 .

Useable Screen Area

The trace produced by deflection electrodes D_3 and D_4 shall not be less than 4-1/2" long.

The trace produced by deflection electrodes D_1 and D_2 shall not be less than 3-1/2" long.



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