

DU MONT

CATHODE-RAY TUBES

Types 5LP1, 5LP2, 5LP4, 5LP5

Formerly designated as Types 2511A5, 2511B5, 2511D5, 2511C5

The Type 5LP cathode-ray tubes are designed for oscillographic and television picture tube applications. The four types differ only in the characteris-

tics of the fluorescent screens. The intensifier principle is used to provide a maximum deflection sensitivity for a given final accelerating voltage.

CHARACTERISTICS

HEATER

Voltage, a.c. or d.c.
Current

6.3 volts
0.6 ampere

DEFLECTION

Electrostatic

FOCUS

Electrostatic

SCREEN

Phosphor
Fluorescence
Persistence

5LP1	5LP2	5LP4	5LP5
P1	P2	P4	P5
Green	Green	White	Blue
Medium	Long	Medium	Short

MECHANICAL CHARACTERISTICS

Overall length
Maximum diameter
Bulb
Base
Basing

16 3/4" $\pm$ 3/8"
5 5/16" $\pm$ 1/16"
C42 1/2 YIC
Medium magnal
RMA Basing Designation 11F

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. 6 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 $90^\circ \pm 3^\circ$.
2. With deflecting electrode D_1 (pin No. 3) positive with respect to D_2 (pin No. 8) the spot will be deflected approximately toward pin No. 3, while with deflecting electrode D_4 , (pin No. 6) positive with respect to D_3 (pin No. 9) the spot will be deflected approximately toward pin No. 6.

DIRECT INTERELECTRODE CAPACITANCES (NOMINAL)

Control electrode (grid) to all other electrodes	8.0 uuf
Deflecting Plate D_1 to Deflecting Plate D_2	2.6 uuf
Deflecting Plate D_3 to Deflecting Plate D_4	1.9 uuf
D_1 to all other electrodes	8.2 uuf
D_3 to all other electrodes	5.6 uuf
D_1 to all other electrodes except D_2	5.6 uuf
D_2 to all other electrodes except D_1	5.6 uuf
D_3 to all other electrodes except D_4	3.7 uuf
D_4 to all other electrodes except D_3	3.7 uuf

RATINGS

Heater voltage	6.3 volts
Heater current	0.6 amp. $\pm$ 10%
Anode No. 3. (Intensifier electrode) voltage (E_{b3})	4000 volts max.
Anode No. 2 (Accelerating electrode) voltage (E_{b2})	2000 volts max.
Anode No. 1 (Focusing electrode) voltage (E_{b1})	1000 volts max.
Grid (Control electrode) voltage (E_{c1})	Never positive
Peak voltage between Anode No. 2 and any deflecting electrode	500 volts max.
Grid (Control electrode) voltage (E_{c1})	1.5 megohms max.
Impedance of any deflecting electrode circuit at heater supply frequency	1.0 megohms max.

TYPICAL OPERATION

Heater voltage	6.3	6.3	6.3	volts
Anode No. 3 voltage (E_{b3})	2000	3000	4000	volts
Anode No. 2 voltage (E_{b2})	1000	1500	2000	volts
Anode No. 1 voltage (E_{b1}) for focus when E_{c1} is 75% of cut-off value	250	375	500	volts $\pm 20\%$
Grid voltage (E_{c1}) for beam cut-off	—30	—45	—60	volts $\pm 50\%$
Deflection Sensitivity:				
D_1D_2	0.49	0.33	0.25	mm/d.c. volt (av.)
D_3D_4	0.56	0.37	0.28	mm/d.c. volt (av.)
Deflection Factor:				
D_1D_2	52	77	103	d.c. volts/inch $\pm 20\%$
D_3D_4	45	68	90	d.c. volts/inch $\pm 20\%$

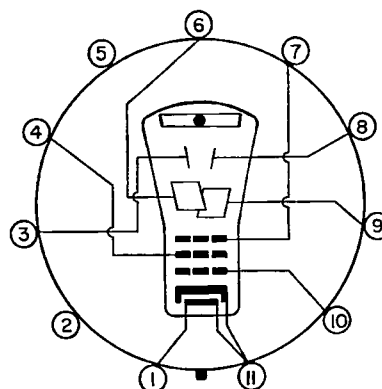
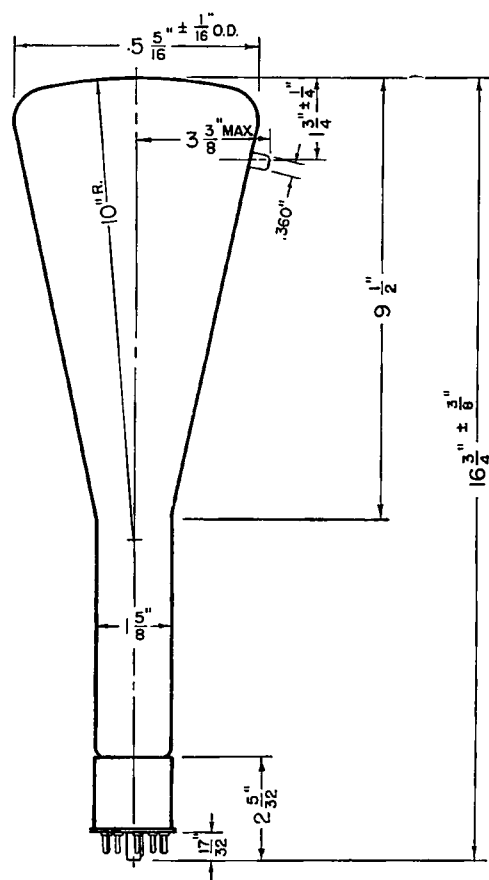
Deflection with Intensifier at Second Anode Potential:

	FACTOR	SENSITIVITY
D ₁ D ₂	42 d.c. volts/kv. in. $\pm$ 20%	0.60 mm. kv./d.c. volt (av.)
D ₃ D ₄	38 d.c. volts/kv. in. $\pm$ 20%	0.67 mm. kv./d.c. volt (av.)

SPOT POSITION

When the tube is operated at (1) normal heater voltage; (2) E_{b2} 2000 volts; (3) E_{b1} , adjusted for focus; (4) E_{c1} set at such a value as will avoid damage to the screen; (5) with each of the deflecting electrodes connected to Anode #2 through a one megohm resistor; and (6) with the tube shielded against external influences;

The spot will fall within a 30 mm. square, the center of which coincides with the geometric center of the tube face, and the sides of which are parallel to the traces produced by deflecting electrodes D_1 and D_2 and by deflecting electrodes D_3 and D_4 respectively.



Bottom View of Base

- | | | |
|---------|----|----------------------------------|
| Pin No. | 1 | Heater |
| | 2 | No Connection |
| | 3 | Deflection Plate D1 |
| | 4 | Focusing Electrode |
| | 5 | Internal Connection. Do not use. |
| | 6 | Deflection Plate D4 |
| | 7 | Accelerating Electrode |
| | 8 | Deflection Plate D2 |
| | 9 | Deflection Plate D3 |
| | 10 | Control Electrode |
| | 11 | Heater and Cathode |

Terminal A Intensifier Electrode

The intensifier terminal is within $\pm 10^\circ$ of the plane through the D3 D4 trace and the tube axis and is on the same side of the tube as the locating key.

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