



5BP1-A

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## HIGH-VACUUM CATHODE-RAY TUBE

Supersedes Type 5BP1

## General:

Heater, for Unipotential Cathode:

Voltage . . . . .  $6.3 \pm 10\%$  . . . . . ac or dc volts  
 Current . . . . . 0.6 . . . . . amp.

Direct Interelectrode Capacitances (Approx.):

Grid No.1 to All Other Electrodes . . . . . 8.0 . . . . .  $\mu\text{f}$   
 DJ<sub>1</sub> to DJ<sub>2</sub> . . . . . 1.3 . . . . .  $\mu\text{f}$   
 DJ<sub>3</sub> to DJ<sub>4</sub> . . . . . 1.2 . . . . .  $\mu\text{f}$   
 DJ<sub>1</sub> to All Other Electrodes . . . . . 9.5 . . . . .  $\mu\text{f}$   
 DJ<sub>3</sub> to All Other Electrodes . . . . . 12.0 . . . . .  $\mu\text{f}$   
 DJ<sub>1</sub> to All Other Electrodes except DJ<sub>2</sub> . . . . . 8.0 . . . . .  $\mu\text{f}$   
 DJ<sub>2</sub> to All Other Electrodes except DJ<sub>1</sub> . . . . . 7.5 . . . . .  $\mu\text{f}$   
 DJ<sub>3</sub> to All Other Electrodes except DJ<sub>4</sub> . . . . . 10.0 . . . . .  $\mu\text{f}$   
 DJ<sub>4</sub> to All Other Electrodes except DJ<sub>3</sub> . . . . . 7.5 . . . . .  $\mu\text{f}$

Phosphor (For Curves, see front of this Section) . . . . . No.1

Fluorescence . . . . . Green

Persistence . . . . . Medium

Focusing Method . . . . . Electrostatic

Deflection Method . . . . . Electrostatic

Overall Length . . . . .  $16\frac{3}{4}'' \pm \frac{3}{8}''$ 

Greatest Diameter of Bulb . . . . .  $5\frac{1}{4}'' + \frac{1}{16}''$   
 . . . . .  $- \frac{3}{32}''$

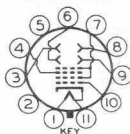
Minimum Useful Screen Diameter . . . . .  $4\frac{1}{2}''$ 

Mounting Position . . . . . Any

Base . . . . . Medium Shell Magnal 11-Pin

Basing Designation for BOTTOM VIEW . . . . . 11N

Pin 1-Heater  
 Pin 2-No Connection  
 Pin 3-Deflecting Electrode DJ<sub>1</sub>  
 Pin 4-Anode No.1  
 Pin 5-Internal Con. Do not use  
 Pin 6-Deflecting Electrode DJ<sub>4</sub>



Pin 7-Anode No.2,  
 Grid No.2  
 Pin 8-Deflecting  
 Electr.DJ<sub>2</sub>  
 Pin 9-Deflecting  
 Electr.DJ<sub>3</sub>  
 Pin 10-Grid No.1  
 Pin 11-Heater,  
 Cathode

*DJ<sub>1</sub> and DJ<sub>2</sub> are nearer the screen**DJ<sub>3</sub> and DJ<sub>4</sub> are nearer the base*

With DJ<sub>1</sub> positive with respect to DJ<sub>2</sub>, the spot is deflected toward pin 4. With DJ<sub>3</sub> positive with respect to DJ<sub>4</sub>, the spot is deflected toward pin 1.

The angle between the trace produced by DJ<sub>3</sub> and DJ<sub>4</sub> and its intersection with the plane through the tube axis and pin 1 does not exceed 10°.

The angle between the trace produced by DJ<sub>3</sub> and DJ<sub>4</sub> and the trace produced by DJ<sub>1</sub> and DJ<sub>2</sub> is 90° ± 3°.

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(continued from preceding page)

## Maximum Ratings, Absolute Values:

|                                                                 |      |      |       |
|-----------------------------------------------------------------|------|------|-------|
| ANODE-No.2 & GRID-No.2 VOLTAGE. . . . .                         | 2200 | max. | volts |
| ANODE-No.1 VOLTAGE. . . . .                                     | 1100 | max. | volts |
| GRID-No.1 (CONTROL ELECTRODE) VOLTAGE:                          |      |      |       |
| Negative Value. . . . .                                         | 125  | max. | volts |
| Positive Value. . . . .                                         | 0    | max. | volts |
| PEAK VOLTAGE BETWEEN ANODE No.2 AND<br>ANY DEFLECTING ELECTRODE | 550  | max. | volts |

## Typical Operation:

|                                                                               |      |      |       |       |
|-------------------------------------------------------------------------------|------|------|-------|-------|
| Anode-No.2 & Grid-No.2 Voltage* . . . . .                                     | 1500 | 2000 | . . . | volts |
| Anode-No.1 Volt. for Focus at 75%<br>of Grid-No.1 Volt. for Cutoff* . . . . . | 337  | 450  | . . . | volts |
| Grid-No.1 Volt. for Visual Cutoff#. . . . .                                   | -30  | -40  | . . . | volts |
| Max. Anode-No.1 Current Range <sup>▲</sup> . Between -50 and +10              |      |      |       | μamp. |

## Deflection Sensitivity:

|                                               |       |       |       |         |
|-----------------------------------------------|-------|-------|-------|---------|
| DJ <sub>1</sub> and DJ <sub>2</sub> . . . . . | 0.404 | 0.303 | . . . | mm/v dc |
| DJ <sub>3</sub> and DJ <sub>4</sub> . . . . . | 0.446 | 0.334 | . . . | mm/v dc |

## Deflection Factor:\*\*

|                                               |    |    |       |          |
|-----------------------------------------------|----|----|-------|----------|
| DJ <sub>1</sub> and DJ <sub>2</sub> . . . . . | 63 | 84 | . . . | v dc/in. |
| DJ <sub>3</sub> and DJ <sub>4</sub> . . . . . | 57 | 76 | . . . | v dc/in. |

\* Brilliance and definition decrease with decreasing anode-No.2 voltage. In general, anode-No.2 voltage should not be less than 1500 volts.

● Individual tubes may require between +25% and -30% of the values shown with grid-No.1 voltages between zero and cutoff.

# visual extinction of stationary focused spot. Supply should be adjustable to ± 50% of these values.

▲ See curve for average values.

\*\* Individual tubes may vary from these values by ± 17%.

## Spot Position:

The undeflected focused spot will fall within a 15-mm square centered at the geometric center of the tube face and having one side parallel to the trace produced by DJ<sub>1</sub> and DJ<sub>2</sub>. Suitable test conditions are: anode-No.2 voltage, 1500 volts; anode-No.1 voltage, adjusted for focus; deflecting-electrode resistors, 1 megohm each, connected to anode-No.2; the tube shielded from all extraneous fields. To avoid damage to the tube, grid-No.1 voltage should be near cutoff before application of anode voltages.

## Maximum Circuit Values:

|                                        |     |      |         |
|----------------------------------------|-----|------|---------|
| Grid-No.1-Circuit Resistance . . . . . | 1.5 | max. | megohms |
| Impedance of Any Deflecting-Electrode  |     |      |         |
| Circuit at Heater-Supply Frequency     | 1.0 | max. | megohm  |
| Resistance in Any Deflecting-          |     |      |         |
| Electrode Circuit <sup>▲▲</sup>        | 5.0 | max. | megohms |

▲▲ It is recommended that all deflecting-electrode-circuit resistances be approximately equal.