The 19BRP4 is a 19" 114° lightweight Cathode Tube, laminated with a Pittsburgh facepanel, 4 3/8" neck length. This tube has electrostatic focus, magnetic deflection and a metal backed screen with a straight gun which requires no ion trap and a 600 milliamphere, 6.3 volt filament.

**ELECTRICAL DATA**

- **Focusing Method**: Electrostatic
- **Deflection Angles, approximate**
  - Horizontal: 102 Degrees
  - Vertical: 86 Degrees
  - Diagonal: 114 Degrees
- **Direct Interelectrode Capacitances**
  - Cathode to all other electrodes, approximate: 5 uuf
  - Grid #1 to all other electrodes, approximate: 6 uuf
  - External Conductive Coating to Anode: 1500 max. uuf
    - 1000 min. uuf
- **Heater Current at 6.3 Volts**: 600 ± 5%ma
- **Heater Warm-up time**: 11 Seconds

**OPTICAL DATA**

- **Phosphor Number JEDEC Designation**: P4 Aluminized
- **Light Transmittance at Center, approximate**: 52%

**MECHANICAL DATA**

- **Overall Length**: 11 7/8 ± 6/16 inches
- **Greatest Diameter of Tube**
  - Greatest Dimensions of Tube
    - Diagonal: 18 5/8 +3/32 -1/32 inches
    - Width: 16 13/32 +3/32 -1/32 inches
    - Height: 13 11/32 +3/32 -1/32 inches
- **Minimum Useful Screen Diameter (Projected)**: 17 3/4 inches
- **Minimum Useful Screen Dimensions (Projected)**
  - Diagonal: 15 5/16 inches
  - Vertical axis: 12 1/16 inches
  - Area: 174 sq. inches
- **Neck Length**: 4 3/8 ± 1/8 inches
- **Bulb EIA designation or equivalent (including shield designation)**: C-149 Exp. #5 or Equiv.
- **Bulb Contact**: JEDEC Designation J1-21
- **Base**: JEDEC Designation B7-208
- **Basing**: JEDEC Designation 8HR
MECHANICAL DATA (Cont'd)

Weight, approximate laminated 18 Lbs.  
Implosion Panel FP149A1

RATINGS (Design Maximum System)

Unless otherwise specified, voltage values are positive and measured with respect to cathode

Maximum Anode Voltage 23,000 Volts  
Minimum Anode Voltage 12,000 Volts  
Maximum Grid #4 (Focusing Electrode) Voltage  +1100 -550  
Maximum Grid #2 Voltage 550 Volts  
Minimum Grid #2 Voltage

Grid #1 Voltage
  Maximum Negative Value 155 Volts DC  
  Maximum Negative Peak Value 220 Volts  
  Maximum Positive Value 0 Volts DC  
  Maximum Positive Peak Value 2 Volts

Maximum Heater Voltage 6.9 Volts  
Minimum Heater Voltage 5.7 Volts  
Maximum Heater-Cathode Voltage
  Heater negative with respect to cathode
    During warm-up period not to exceed 15 seconds 450 Volts  
    After equipment warm-up period 200 Volts  
  Heater positive with respect to cathode 200 Volts

TYPICAL OPERATING CONDITIONS

GRID DRIVE SERVICE

Unless otherwise specified, all voltage values are positive with respect to cathode.

Anode Voltage 16,000 Volts DC  
Grid #4 Voltage (Focusing Electrode) (Notes 3 & 4)  0 to +400 Volts DC  
Grid #2 Voltage 300 Volts DC  
Grid #1 Voltage (Note 1)  +35 to +72 Volts DC

MAXIMUM CIRCUIT VALUES

Maximum Grid #1 Circuit Resistance 1.5 Megohms

GRAPHS AND DRAWINGS

Tube Outline with essential dimensions and tolerances.  
Pin Connections

<table>
<thead>
<tr>
<th>Pin 1</th>
<th>Heater</th>
<th>Pin 6</th>
<th>Grid #1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pin 2</td>
<td>Grid #1</td>
<td>Pin 7</td>
<td>Cathode</td>
</tr>
<tr>
<td>Pin 3</td>
<td>Grid #2</td>
<td>Pin 8</td>
<td>Heater</td>
</tr>
<tr>
<td>Pin 4</td>
<td>Grid #4</td>
<td></td>
<td>Bulb Contact Ultor</td>
</tr>
</tbody>
</table>
NOTES

1. Visual extinction of focuses raster.

2. For JEDEC Focus coil #____, or equivalent, with the combined grid #1 bias voltage and video-signal voltage adjusted to produce a highlight brightness of ____ foot lamberts on a ___" X ___" picture size. Distance from reference line to center of air gap on focus coil shall be ____ inches.

3. With the combined grid #1 bias voltage and video-signal voltage adjusted to give an anode current of 100 microamperes on a 12 1/16" X 15 5/16" pattern from RCE 2F21 Monoscope or equivalent.

4. Individual tubes will have satisfactory focus at some value between 0 and +400 Volts.

5. Ion trap positioned with trailing edge of pole pieces over the G1 - G2 gap and oriented to give maximum brightness.

DIAGRAM NOTES

1. Reference line is determine by plane G-G' of JEDEC No. 126 Reference Line gauge, when the gauge is seated against the bulb.

2. Base Pin No. 4 aligns with horizontal centerline (A-A') within 30° and is on same side as anode contact, J1-21.

3. Planes perpendicular to tube axis and passing through points X, Y and Z are located as follows:
   
   Plane tangent to crown of face to plane of X: 0.500" Nominal
   Plane of X to Plane of Y = .429" ± .030"
   Plane of X to Plane of Z = .749" ± .030"

4. The area around the button is covered with an insulating coating.

WARNING

X-ray radiation shielding may be necessary to protect against possible danger of personal injury from prolonged exposure at close range if this tube is operated at anode voltages higher than 16,000 volts.