CHARACTERISTICS

GENERAL DATA

Focusing Method .............................................. Electrostatic
Deflection Method .............................................. Magnetic
Deflection Angles (Approx.)
  Horizontal ................................................. 102 Degrees
  Diagonal .................................................. 114 Degrees
  Vertical .................................................. 86 Degrees
Phosphor ...................................................... Aluminized P4
Fluorescence .................................................. White
Persistence ..................................................... Short to Medium
Faceplate ...................................................... Bonded Shield
  (Gray Filter Glass Safety Plate Laminated
  Directly to Face of Tube)
Light Transmittance of Faceplate Assembly
  (Approx.) .................................................. 44 Percent
19BQP4: External Surface of Safety Plate
  Treated to Reduce Specular Reflection

ELECTRICAL DATA

Heater Voltage ................................................. 6.3 Volts
Heater Current ................................................. 0.60 ± 5 % Ampere
Heater Warm-up Time1 ........................................ 11 Seconds
Direct Interelectrode Capacitances (Approx.)
  Cathode to All Other Electrodes ......................... 5 µF
  Grid No. 1 to All Other Electrodes ...................... 6 µF
  External Conductive Coating to Anode2 ................ 1500 µF Max.
                               1000 µF Min.

MECHANICAL DATA

Minimum Useful Screen Dimensions (Maximum Assured)
  Height ................................................... 121/16 Inches
  Width .................................................... 15 3/4 Inches
  Diagonal .................................................. 173/8 Inches
  Area ....................................................... 172 Sq. Inches
Neck Length ................................................. 53/8 ± 1/8 Inches
Overall Length .............................................. 125/8 ± 5/8 Inches
Bulb ......................................................... J149C
Safety Plate
  19BNP4 .................................................. FP159A
  19BQP4 .................................................. FP159B
Bulb Contact
  (Recessed Small Cavity Cap) .............................. J1-21
Base ......................................................... B7-208
Basing ....................................................... 8HR
Weight (Approx.) ............................................ 18 1/2 Pounds
RATINGS

MAXIMUM RATINGS (Design Maximum Values) Cathode Drive Service

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Anode Voltage</td>
<td>20,000 Volts dc</td>
</tr>
<tr>
<td>Minimum Anode Voltage</td>
<td>12,000 Volts dc</td>
</tr>
<tr>
<td>Grid No. 4 Voltage (Focusing Electrode)</td>
<td>-550 to +1100 Volts dc</td>
</tr>
<tr>
<td>Grid No. 2 Voltage</td>
<td>70 Volts dc</td>
</tr>
<tr>
<td>Cathode Voltage</td>
<td></td>
</tr>
<tr>
<td>Negative Bias Value</td>
<td>0 Volts dc</td>
</tr>
<tr>
<td>Negative Peak Value</td>
<td>2 Volts dc</td>
</tr>
<tr>
<td>Positive Bias Value</td>
<td>155 Volts dc</td>
</tr>
<tr>
<td>Positive Peak Value</td>
<td>220 Volts</td>
</tr>
<tr>
<td>Peak Heater-Cathode Voltage</td>
<td></td>
</tr>
<tr>
<td>Heater Negative with Respect to Cathode</td>
<td></td>
</tr>
<tr>
<td>During Warm-up Period Not to Exceed 15 Seconds</td>
<td>450 Volts</td>
</tr>
<tr>
<td>After Equipment Warm-up Period</td>
<td>200 Volts</td>
</tr>
<tr>
<td>Heater Positive with Respect to Cathode</td>
<td>200 Volts</td>
</tr>
</tbody>
</table>

TYPICAL OPERATING CONDITIONS, Cathode Drive Service

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anode Voltage</td>
<td>16,000 Volts dc</td>
</tr>
<tr>
<td>Grid No. 4 Voltage for Focus</td>
<td>0 to +400 Volts dc</td>
</tr>
<tr>
<td>Grid No. 2 Voltage</td>
<td>50 Volts dc</td>
</tr>
<tr>
<td>Cathode Voltage Required for Cutoff</td>
<td>+32 to +50 Volts dc</td>
</tr>
</tbody>
</table>

CIRCUIT VALUES

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grid No. 1 Circuit Resistance</td>
<td>1.5 Megohms Max.</td>
</tr>
</tbody>
</table>

NOTES:

1. Heater warm-up time is defined as the time required for the voltage across the heater to reach 80% of the rated heater voltage after applying four (4) times rated heater voltage to a circuit consisting of the tube heater in series with a resistance equal to three (3) times the rated heater voltage divided by the rated heater current.

2. External conductive coating must be grounded.

3. Voltages are positive with respect to Grid No. 1 Voltage, unless otherwise indicated.

4. Visually extinction of focused raster. Extinction of stationary focused spot will require that these values be about 5 volts more positive.

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 higher than the manufacturer's Maximum Rated Anode Voltage or 16,000 volts, whichever is less.
DIAGRAM NOTES:

1. Reference line is determined by plane C'C' 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: 0.531" Nominal
   - Plane of X to plane of Y = .421" ± .025"
   - Plane of X to plane of Z = .738" ± .045"