Bean Power Tube

GENERAL DATA

Electrical:

Heater Characteristics and Ratings (*Design-Center Values*):

- Voltage (AC or DC) .................. 6.3 ± 0.6 volts
- Current at heater volts = 6.3 ........ 1.600 amp
- Peak heater-cathode voltage:
  - Heater negative with respect to cathode .................. 300 max. volts
  - Heater positive with respect to cathode .................. 200 max. volts

Direct Interelectrode Capacitances (Approx.):^c

- Grid No.1 to plate .................. 0.85 \(\mu\)f
- Grid No.1 to cathode & grid No.3, grid No.2, base sleeve, and heater ........ 14.0 \(\mu\)f
- Plate to cathode & grid No.3, grid No.2, base sleeve, and heater ........ 12.0 \(\mu\)f

Characteristics, Class A\, Amplifier:

\[
\begin{array}{cccc}
\text{Triode} & \text{Connection} & \frac{5}{4} & \frac{5}{4} \\
\text{Plate Voltage} & 250 & 450 & 400 \text{ volts} \\
\text{Grid-No.2 Voltage} & 250 & 450 & 225 \text{ volts} \\
\text{Grid-No.1 Voltage} & -14 & -46 & -16.5 \text{ volts} \\
\text{Amplification Factor} & 8 & 7.5 & - \\
\text{Plate Resistance (Approx.)} & 12000 & - & 27000 \text{ ohms} \\
\text{Transconductance} & 11000 & - & 9000 \mu\text{hos} \\
\text{Plate Current} & 140 & 150 & 87 \text{ ma} \\
\text{Grid-No.2 Current} & 12 & - & 4 \text{ ma} \\
\text{Grid-No.1 Voltage (Approx.)} & -40 & - & -35 \text{ volts} \\
\end{array}
\]

Mechanical:

- Operating Position ............................................ Any
- Type of Cathode ........................................ Coated Unipotential
- Maximum Overall Length ..................................... 4-3/4"
- Maximum Seated Length .................................... 4-3/16"
- Maximum Diameter ........................................ 2-1/16"
- Bulb ..................................................... ST16
- Base .................................................. Large-Wafer Octal 8-Pin with Sleeve (JEDEC Group 1, No.B8-86)

Basing Designation for BOTTOM VIEW ................................... .7S

Pin 1-Base Sleeve
Pin 2-Heater
Pin 3-Plate
Pin 4-Grid No.2
Pin 5-Grid No.1

Pin 6-No Internal Connection
Pin 7-Heater
Pin 8-Cathode, Grid No.3

RADIO CORPORATION OF AMERICA
Electron Tube Division
Harrison, N. J.

DATA 1
5-62
AF POWER AMPLIFIER — Class A

Maximum Ratings, Design-Center Values:

- PLATE VOLTAGE: 600 max. volts
- GRID-No.2 (SCREEN-GRID) VOLTAGE: 400 max. volts
- GRID-No.1 (CONTROL-GRID) VOLTAGE:
  - Negative-bias value: 300 max. volts
  - Positive-bias value: 0 max. volts
- CATHODE CURRENT: 175 max. ma
- GRID-No.2 INPUT: 6 max. watts
- PLATE DISSIPATION: 35 max. watts
- BULB TEMPERATURE (At hottest point on bulb surface): 250 max. °C

Typical Operation and Characteristics:

- Plate Voltage: 250 400 volts
- Grid-No.2 Voltage: 250 225 volts
- Grid-No.1 Voltage: -14 -16.5 volts
- Peak AF Grid-No.1 Voltage: 14 16.5 volts
- Zero-Signal Plate Current: 140 87 ma
- Max.-Signal Plate Current: 150 105 ma
- Zero-Signal Grid-No.2 Current: 12 4 ma
- Max.-Signal Grid-No.2 Current: 28 18 ma
- Plate Resistance (Approx.): 12000 27000 ohms
- Transconductance: 11000 9000 μmhos
- Load Resistance: 1500 3000 ohms
- Total Harmonic Distortion: 7 13.5 %
- Max.-Signal Power Output: 12.5 20 watts

Maximum Circuit Values:

- Grid-No.1-Circuit Resistance:
  - For fixed-bias operation: 0.05 max. megohm
  - For cathode-bias operation: 0.25 max. megohm

PUSH-PULL AF POWER AMPLIFIER — Class A

Maximum Ratings, Design-Center Values:

Same as for AF POWER AMPLIFIER — Class A

Typical Operation and Characteristics:

Values are for 2 tubes

<table>
<thead>
<tr>
<th></th>
<th>Fixed Bias</th>
<th>Cathode Bias</th>
</tr>
</thead>
</table>
| Plate Supply Voltage | 400        | 400          | volts
| Grid-No.2 Supply Voltage | 275       | 300          | volts
| Grid-No.1 Voltage   | -23        | -31          | volts
| Cathode Resistor    | -          | 140          | ohms
| Peak AF Grid-No.1-to-Grid-No.1 Voltage | 46       | 53           | volts
| Zero-Signal Plate Current | 180      | 115          | ma
| Max.-Signal Plate Current | 270      | 190          | ma
| Zero-Signal Grid-No.2 Current | 9        | 7.5          | ma
| Max.-Signal Grid-No.2 Current | 44       | 39           | ma
| Effective Load Resistance (Plate to plate) | 3500 | 5000 | 4500 | ohms
Total Harmonic Distortion...... 3 2.5 4 %
Max.-Signal Power Output...... 55 100 41 watts

**Maximum Circuit Values:**

Grid-No.1-Circuit Resistance:
- For fixed-bias operation........ 0.05 max. megohm
- For cathode-bias operation...... 0.25 max. megohm

**PUSH-PULL AF POWER AMPLIFIER — Class A**

*Triode Connection*

**Maximum Ratings, Design-Center Values:**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLATE VOLTAGE</td>
<td>495 max. volts</td>
</tr>
<tr>
<td>GRID-No.2 (SCREEN-GRID) VOLTAGE</td>
<td>440 max. volts</td>
</tr>
<tr>
<td>GRID-No.1 (CONTROL-GRID) VOLTAGE:</td>
<td></td>
</tr>
<tr>
<td>Negative-bias value</td>
<td>330 max. volts</td>
</tr>
<tr>
<td>Positive-bias value</td>
<td>0 max. volts</td>
</tr>
<tr>
<td>CATHODE CURRENT</td>
<td>192.5 max. ma</td>
</tr>
<tr>
<td>GRID-No.2 INPUT</td>
<td>6.6 max. watts</td>
</tr>
<tr>
<td>PLATE DISSIPATION</td>
<td>44 max. watts</td>
</tr>
<tr>
<td>BULB TEMPERATURE (At hottest point on bulb surface)</td>
<td>250 max. °C</td>
</tr>
</tbody>
</table>

**Typical Operation and Characteristics:**

*Values are for 2 tubes*

<table>
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<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plate Voltage</td>
<td>450 volts</td>
</tr>
<tr>
<td>Grid No.1 Voltage</td>
<td>–46 volts</td>
</tr>
<tr>
<td>Peak AF Grid-No.1-to-Grid-No.1-Voltage</td>
<td>92 volts</td>
</tr>
<tr>
<td>Zero-Signal Plate Current</td>
<td>150 ma</td>
</tr>
<tr>
<td>Max.-Signal Plate Current</td>
<td>220 ma</td>
</tr>
<tr>
<td>Effective Load Resistance (Plate to plate)</td>
<td>4000 ohms</td>
</tr>
<tr>
<td>Total Harmonic Distortion</td>
<td>2.5 %</td>
</tr>
<tr>
<td>Max.-Signal Power Output</td>
<td>28 watts</td>
</tr>
</tbody>
</table>

**Maximum Circuit Values:**

Grid-No.1-Circuit Resistance:
- For fixed-bias operation........ 0.05 max. megohm
- For cathode-bias operation...... 0.25 max. megohm

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*The dc component must not exceed 300 volts.*

*The dc component must not exceed 100 volts.*

*Without external shield.*

*Grid No.2 connected to plate.*