The Eimac 1000T is a high-mu power triode intended for use as a modulator, oscillator, or Amplifier. The tube has a maximum plate dissipation rating of 1000 watts, and a maximum plate voltage rating of 7500 volts at frequencies up to 50 Mc. Cooling is by forced air and radiation.

The 1000T in Class-C r-f service will deliver up to 3000 watts plate power output with 60 watts driving power. Two 1000T's in Class AB, modulator service will deliver up to 4600 watts maximum signal plate power output with 60 watts driving power.

**GENERAL CHARACTERISTICS**

- **Filament:** Thoriated Tungsten
  - Voltage: 7.5 volts ± 5%
  - Current: 15.5 amperes
- **Amplification Factor (Average):** 35
- **Direct Interelectrode Capacitances (Average):**
  - Grid-Plate: 5.1 μf
  - Grid-Filament: 9.3 μf
  - Plate-Filament: 0.5 μf
- **Transconductance (I_g=750ma, E_n=6000v):** 9050 μhos
- **Highest Frequency for Maximum Ratings:** 50 Mc

**MECHANICAL**

- **Base:** 50-watt jumbo, 4-pin with air-conduction pipe
- **Connections:** See outline drawing
- **Socket:** Johnson type No. 123-211 or equivalent
- **Mounting Position:** Vertical, base down or up
- **Cooling:** Forced air and radiation
- **Maximum Temperature of Grid and Plate Seals:** 225°C
- **Recommended Grid and Plate Heat Dissipating Connectors:** Eimac HR-9
- **Maximum Dimensions:**
  - Seated Height: 12.3 inches
  - Diameter: 5.13 inches
  - Net Weight: 1.25 pounds
  - Shipping Weight (Average): 6.25 pounds

**AUDIO-FREQUENCY POWER AMPLIFIER OR MODULATOR**

<table>
<thead>
<tr>
<th>Class-AB</th>
<th>MAXIMUM RATINGS (Per tube)</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-C PLATE VOLTAGE</td>
<td>7500 MAX. VOLTS</td>
</tr>
<tr>
<td>D-C PLATE CURRENT</td>
<td>750 MAX. MA</td>
</tr>
<tr>
<td>PLATE DISSIPATION</td>
<td>1000 MAX. WATTS</td>
</tr>
<tr>
<td>GRID DISSIPATION</td>
<td>80 MAX. WATTS</td>
</tr>
</tbody>
</table>

**TYPICAL OPERATION (Sinusoidal wave, two tubes unless otherwise specified):**

- D-C Plate Voltage: 4000 5000 6000 volts
- D-C Grid Voltage: -85 -125 -160 volts
- Zero-Signal D-C Plate Current: 335 270 220 ma
- Max-Signal D-C Plate Current: 725 114 105 ma
- Effective Load, Plate-to-Plate: 6250 9200 13,300 ohms
- Peak A-F Grid Voltage (per tube): 240 290 335 volts
- Max-Signal Driving Power*: 35 37 40 watts
- Max-Signal Plate Power Input: 500 5700 6300 watts
- Max-Signal Plate Power Output: 3000 3700 4600 watts

*Adjust to stated Zero-Signal Plate Current.

**RADIO-FREQUENCY POWER AMPLIFIER OR OSCILLATOR**

<table>
<thead>
<tr>
<th>Class-C</th>
<th>MAXIMUM RATINGS (Frequencies up to 50 Mc.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-C PLATE VOLTAGE</td>
<td>7500 MAX. VOLTS</td>
</tr>
<tr>
<td>D-C PLATE CURRENT</td>
<td>750 MAX. MA</td>
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</tr>
<tr>
<td>GRID DISSIPATION</td>
<td>80 MAX. WATTS</td>
</tr>
<tr>
<td>TYPICAL OPERATION (Frequencies up to 50 Mc.):</td>
<td></td>
</tr>
</tbody>
</table>
- D-C Plate Voltage: 3000 4000 5000 6000 volts
- D-C Grid Voltage: -150 -150 -225 -350 volts
- D-C Plate Current: 750 713 667 667 ma
- D-C Grid Current*: 90 87 110 ma
- Peak R-F Grid Voltage: 350 365 420 610 volts
- Driving Power*: 30 30 30 60 watts
- Grid Dissipation*: 21 19 14 25 watts
- Plate Power Input: 2250 2850 3335 4000 watts
- Plate Power Output: 1350 1800 2335 3000 watts

**PLATE-MODULATED RADIO-FREQUENCY AMPLIFIER**

<table>
<thead>
<tr>
<th>Class-C</th>
<th>MAXIMUM RATINGS (Frequencies up to 50 Mc.):</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-C PLATE VOLTAGE</td>
<td>6000 MAX. VOLTS</td>
</tr>
<tr>
<td>D-C PLATE CURRENT</td>
<td>600 MAX. MA</td>
</tr>
<tr>
<td>PLATE DISSIPATION</td>
<td>665 MAX. WATTS</td>
</tr>
<tr>
<td>GRID DISSIPATION</td>
<td>80 MAX. WATTS</td>
</tr>
</tbody>
</table>

*Approximate values

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IF IT IS DESIRED TO OPERATE THIS TUBE UNDER CONDITIONS WIDELY DIFFERENT FROM THOSE GIVEN UNDER "TYPICAL OPERATION," POSSIBLY EXCEEDING THE MAXIMUM RATINGS GIVEN FOR CW SERVICE, WRITE EIMAC DIVISION OF VARIAN ASSOCIATES, FOR INFORMATION AND RECOMMENDATIONS.

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APPLICATION

MECHANICAL

Mounting—The 1000T must be mounted vertically. The base may be either down or up. The leads to the plate and grid terminals should be flexible, and the tube must be protected from vibration and shock.

Cooling—The envelope and seals of the 1000T require forced-air cooling. Air-conduction pipes are provided in the base of the tube and in the HR-9 plate and grid Heat-Dissipating Connectors. Two cubic feet of air per minute supplied to each of these pipes will satisfy the cooling requirements of the seals. An 8- or 10-inch fan located approximately a foot from the tube will provide sufficient cooling air for the envelope. Air must be supplied to the tube when plate and grid voltages are applied, and must be continued until these voltages are removed. In some cases, particularly in locations where the ambient temperature is high, or where the free circulation of air is impeded, cooling air must be supplied when filament voltage is applied, and continued for two or more minutes after all voltages are removed.

The temperature of the grid and plate seals must not be allowed to exceed 225°C. A convenient accessory for the measurements of these temperatures is “Templaq”, a temperature-sensitive lacquer manufactured by the Temple Corporation, 132 W. 22nd St., New York 11, N. Y.

ELECTRICAL

Filament—All four socket terminals should be used, putting two in parallel for each filament connection.

Bias Voltage—The maximum limit on bias voltages which may be used with the 1000T is considerably above those listed in “Typical Operation.” Where bias is obtained by a grid leak, suitable protective means must be provided to prevent excessive plate dissipation in the event of loss of excitation.

Plate Voltage—The rated maximum d-c plate voltage of 7500 volts applies at frequencies up to 50 Mc. Above that frequency the tube must be operated at lower d-c voltages. In most cases there is little advantage in using plate supply voltages higher than those given under “Typical Operation” for the power output desired.

Grid Dissipation—Grid dissipation may be assumed to be the product of the d-c grid current and the peak positive cathode-to-grid voltage. This assumption is sufficiently accurate for the purpose of determining that the 1000T is operating within its maximum rated grid dissipation of 80 watts.

Plate Dissipation—Under normal operating conditions, the power dissipated by the plate of the 1000T should not be allowed to exceed 1000 watts. Plate dissipation in excess of the maximum rating is permissible for short periods of time, such as during tuning procedures.
DRIVING POWER vs. POWER OUTPUT

The three charts on this page show the relationship of plate efficiency, power output and grid driving power at plate voltages of 4000, 5000 and 6000 volts. These charts show combined grid and bias losses only. The driving power and power output figures do not include circuit losses. The plate dissipation in watts is indicated by $P_p$. Points A, B, and C are identical to the typical Class C operating conditions shown on the first page under 4000, 5000, and 6000 volts respectively.