The Eimac 3ST is a high-mu triode having a maximum plate dissipation of 50 watts. It is intended for use as an amplifier, oscillator or modulator, and can be used at its maximum ratings at frequencies up to 100 Mc.

The 3ST is cooled by radiation and by free circulation of air around the envelope. The plate operates at a visible red color at full dissipation.

GENERAL CHARACTERISTICS

**ELECTRICAL**

- **Filament:** Thoriated tungsten
- **Voltage:** 5.0 volts
- **Current:** 4.0 amperes
- **Amplification Factor (Average):** 39
- **Direct Inter-electrode Capacitances (Average):**
  - Grid-Plate: 1.8 \( \mu \)fd
  - Grid-Filament: 4.1 \( \mu \)fd
  - Plate-Filament: 0.3 \( \mu \)fd
- **Transconductance (Ig=100 ma., E5=2000V, E6=30V):** 2850 \( \mu \)hos
- **Frequency for Maximum Ratings:** 100 Mc.

**MECHANICAL**

- **Base:** UX Medium 4-pin. Fits E. F. Johnson Co. 122-224, or National XC-4 or CIR-4 sockets.
- **Basing:** See outline drawing
- **Mounting:** Vertical, base down or up.
- **Cooling:** Convection and radiation.
- **Recommended Heat Dissipating Plate Connector:** Eimac HR-3
- **Maximum Overall Dimensions:**
  - Length: 5.5 inches
  - Diameter: 1.8 inches
  - Net weight: 2.5 ounces
  - Shipping weight (Average): 1.25 pounds

**AUDIO FREQUENCY POWER AMPLIFIER AND MODULATOR**

- **Class-A, (Sinusoidal wave, two tubes unless otherwise specified):**
  - **MAXIMUM RATINGS:**
    - D-C Plate Voltage: 2000 MAX. VOLTS
    - D-C Plate Current: 150 MAX. MA.
  - **PLATE DISSIPATION:** 50 MAX. WATTS
  - **GRID DISSIPATION:** 15 MAX. WATTS

**RADIO FREQUENCY POWER AMPLIFIER AND OSCILLATOR**

- **Class-C Telegraphy or FM Telephony**
  (Key-down conditions, per tube)
  - **MAXIMUM RATINGS:**
    - D-C Plate Voltage: 2000 MAX. VOLTS
    - D-C Plate Current: 150 MAX. MA.
  - **PLATE DISSIPATION:** 50 MAX. WATTS
  - **GRID DISSIPATION:** 15 MAX. WATTS

**PLATE MODULATED RADIO FREQUENCY POWER AMPLIFIER**

- **Class-C Telegraphy (Carrier conditions, per tube)**

**Typical Operation**

- **D-C Plate Voltage:** 1000 1500 2000 Volts
- **D-C Grid Voltage:** 40 120 150 Volts
- **D-C Plate Current:** 125 125 125 Ma.
- **D-C Grid Current:** 40 40 40 Ma.
- **Peak R-F Grid Input Voltage:** 165 250 285 Volts
- **Driving Power (approx.):** 9 12 14 Watts
- **Grid DISSIPATION:** 4.2 5.0 6.8 Watts
- **Plate DISSIPATION:** 125 188 250 Watts
- **Plate Power Output:** 87 141 200 Watts

**POWER AMPLIFIER**

- **Class-C Telegraphy (Carrier conditions, per tube)**

**Typical Operation**

- **D-C Plate Voltage:** 750 1000 1500 Volts
- **D-C Grid Voltage:** 100 125 150 Volts
- **D-C Plate Current:** 95 100 90 Ma.
- **D-C Grid Current:** 40 40 40 Ma.
- **Peak R-F Driving Voltage (approx.):** 210 240 270 Volts
- **Driving Power (approx.):** 9 10 11 Watts
- **Plate DISSIPATION:** 20 25 30 Watts
- **Plate Power Output:** 70 100 150 Watts
- **Plate Power Output:** 50 75 105 Watts

1 The performance figures listed under Typical Operation are for radio frequencies up to the VHF region and are obtained by calculation from the characteristic tube curves and confirmed by direct tests. The driving power given includes power taken by the tube grid and the bias circuit. The driving power and output power do not allow for losses in the associated resonant circuits. These losses are not included because they depend principally upon the design and choice of the circuit components.

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Indicates change from sheet dated 5-1-45.
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 1000, 1500 and 2000 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 1000, 1500, and 2000 volts respectively.