BEAM POWER TUBE
9-PIN MINIATURE TYPE
For use in automobile radio receivers
operating from 12-volt storage batteries

GENERAL DATA

Electrical:
Heater*, for Unipotential Cathode:
Voltage range: 10.0 to 15.9 dc volts
This voltage range is on an absolute basis. For longest life, it is recommended that the heater be operated within the voltage range of 11 to 14 volts.
Current (Approx.), at 12.6 volts: 0.2 amp
Direct Inter-electrode Capacitances:®
Grid No.1 to plate: 0.7 max. μf
Grid No.1 to cathode & grid No.3, grid No.2, and heater: 8 μf
Plate to cathode & grid No.3, grid No.2, and heater: 8.5 μf

Mechanical:
Mounting Position: Any
Maximum Overall Length: 2-5/8"
Maximum Seated Length: 2-3/8"
Length, Base Seat to Bulb Top (excluding tip): 2" ± 3/32"
Maximum Diameter: 7/8"
Dimensional Outline: See General Section
Bulb: T-6-1/2
Base: Small-Button Noval 9-Pin (JETEC No.E9-1)
Basing Designation for BOTTOM VIEW: 9EU

Pin 1 - Grid No.2
Pin 2 - No Connection
Pin 3 - Grid No.1
Pin 4 - Heater
Pin 5 - Heater
Pin 6 - Grid No.1
Pin 7 - Cathode
Pin 8 - Grid No.2
Pin 9 - Plate

AF POWER AMPLIFIER - Class A1

Maximum Ratings, Design-Center Values:
For application of these design-center ratings to storage battery operation, see Operating Considerations

PLATE VOLTAGE: 315 max. volts
GRID-No.2 (SCREEN) VOLTAGE: 285 max. volts
PLATE DISSIPATION: 12 max. watts
GRID-No.2 INPUT: 2 max. watts
PEAK HEATER-CATHODE VOLTAGE:
Heater negative with respect to cathode: 90 max. volts
Heater positive with respect to cathode: 90 max. volts
BULB TEMPERATURE (At hottest point
on bulb surface): 250 max. °C

*®, see next page.

SEPT. 1, 1955
TUBE DIVISION
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY
TENTATIVE DATA 1
BEAM POWER TUBE

Characteristics with 12.6 volts on heater:

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value 1</th>
<th>Value 2</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plate Voltage</td>
<td>250</td>
<td>250</td>
<td>volts</td>
</tr>
<tr>
<td>Grid-No.2 Voltage</td>
<td>200</td>
<td>250</td>
<td>volts</td>
</tr>
<tr>
<td>Grid-No.1 (Control-Grid) Voltage</td>
<td>-</td>
<td>-12.5</td>
<td>volts</td>
</tr>
<tr>
<td>Cathode-Bias Resistor</td>
<td>270</td>
<td>-</td>
<td>ohms</td>
</tr>
<tr>
<td>Peak AF Grid-No.1 Voltage</td>
<td>10.5</td>
<td>12.5</td>
<td>volts</td>
</tr>
<tr>
<td>Zero-Signal Plate Current</td>
<td>33.5</td>
<td>45</td>
<td>ma</td>
</tr>
<tr>
<td>Max.-Signal Plate Current</td>
<td>36</td>
<td>47</td>
<td>ma</td>
</tr>
<tr>
<td>Zero-Signal Grid-No.2 Current (Approx.)</td>
<td>1.6</td>
<td>4.5</td>
<td>ma</td>
</tr>
<tr>
<td>Max.-Signal Grid-No.2 Current (Approx.)</td>
<td>3.2</td>
<td>7</td>
<td>ma</td>
</tr>
<tr>
<td>Plate Resistance (Approx.)</td>
<td>75000</td>
<td>50000</td>
<td>ohms</td>
</tr>
<tr>
<td>Transconductance</td>
<td>4000</td>
<td>4100</td>
<td>μhmhos</td>
</tr>
<tr>
<td>Load Resistance</td>
<td>6000</td>
<td>5000</td>
<td>ohms</td>
</tr>
<tr>
<td>Total Harmonic Distortion</td>
<td>8</td>
<td>8</td>
<td>%</td>
</tr>
<tr>
<td>Max.-Signal Power Output</td>
<td>3.3</td>
<td>4.5</td>
<td>watts</td>
</tr>
</tbody>
</table>

Maximum Circuit Values:

- Grid-No.1-Circuit Resistance:
  - For fixed-bias operation: 0.1 max. megohm
  - For cathode-bias operation: 0.5 max. megohm

PUSH-PULL AF POWER AMPLIFIER - Class AB

Maximum Ratings, Design-Center Values:

For application of these design-center ratings to storage-battery operation, see Operating Considerations

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value 1</th>
<th>Value 2</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLATE VOLTAGE</td>
<td>315</td>
<td>max.</td>
<td>volts</td>
</tr>
<tr>
<td>GRID-No.2 (SCREEN) VOLTAGE</td>
<td>285</td>
<td>max.</td>
<td>volts</td>
</tr>
<tr>
<td>PLATE DISSIPATION</td>
<td>12</td>
<td>max.</td>
<td>watts</td>
</tr>
<tr>
<td>GRID-No.2 INPUT</td>
<td>2</td>
<td>max.</td>
<td>watts</td>
</tr>
<tr>
<td>PEAK HEATER-CATHODE VOLTAGE:</td>
<td>90</td>
<td>max.</td>
<td>volts</td>
</tr>
<tr>
<td>Heater negative with respect to cathode.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heater positive with respect to cathode.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BULB TEMPERATURE (At hottest point on bulb surface)</td>
<td>250 max.</td>
<td>0°C</td>
<td></td>
</tr>
</tbody>
</table>

Characteristics with 12.6 volts on heater:

Values are for 2 tubes

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value 1</th>
<th>Value 2</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plate Voltage</td>
<td>250</td>
<td></td>
<td>volts</td>
</tr>
<tr>
<td>Grid-No.2 Voltage</td>
<td>250</td>
<td></td>
<td>volts</td>
</tr>
<tr>
<td>Grid-No.1 (Control-Grid) Voltage</td>
<td>-15</td>
<td></td>
<td>volts</td>
</tr>
<tr>
<td>Peak Af Grid-No.1-to-Grid-No.1 Voltage</td>
<td>30</td>
<td></td>
<td>volts</td>
</tr>
<tr>
<td>Zero-Signal Plate Current</td>
<td>70</td>
<td></td>
<td>ma</td>
</tr>
<tr>
<td>Max.-Signal Plate Current</td>
<td>79</td>
<td></td>
<td>ma</td>
</tr>
</tbody>
</table>

*Operation of heater in series with other heaters is not recommended.
*Without external shield.

SEPT. 1, 1955
TUBE DIVISION
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY
TENTATIVE DATA 1
**BEAM POWER TUBE**

Zero-Signal Grid-No.2 Current (Approx.)... 5 ma
Max.-Signal Grid-No.2 Current (Approx.)... 13 ma
Effective Load Resistance
(Plate to plate) .................. 10000 ohms
Total Harmonic Distortion ............. 5 %
Max.-Signal Power Output ............. 10 watts

**Maximum Circuit Values:**

Grid-No.1-Circuit Resistance:
For fixed-bias operation ............. 0.1 max. megohm
For cathode-bias operation ........... 0.5 max. megohm

**OPERATING CONSIDERATIONS**

The maximum ratings in the tabulated data for the 12AB5 are working design-center maximums established according to the standard design-center system of rating electron tubes. Tubes so rated will give satisfactory performance in storage-battery-operated equipment provided the following stipulations are observed:

In the case of storage-battery-with-charger supply or similar supplies, the normal battery-voltage fluctuation may be as much as 35 per cent or more. This fluctuation imposes severe operating conditions on tubes. Under these conditions, the equipment should be designed so that 90 per cent of the design-center maximum values of plate voltage, grid-No.2 voltage, plate dissipation, and grid-No.2 input is never exceeded for a battery terminal potential of 13.2 volts. Although the operating voltages of the 12AB5 in this service will, at times, exceed the design-center maximum values, satisfactory performance with probable sacrifice in life will be obtained.
E_F = 12.6 VOLTS
GRID-N°2 VOLTS = 250

GRID-N°1 (I_C1) MILLIAMPERES

PLATE (I_B) OR GRID-N°2 (I_C2) MILLIAMPERES

AUGUST 18, 1955
TUBE DIVISION
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY
92CM-8754
Average Characteristics
Triode Connection

E_f = 12.6 Volts
Grid No. 2 Connected to Plate

Plate (I_b) or Grid (I_c) Milliamperes

AUG. 19, 1955
Tube Division
Radio Corporation of America, Harrison, New Jersey