Beam Power Tube

NOVAR TYPE

For Horizontal-Deflection-Amplifier
Service in Black-and-White TV Receivers

Electrical:

Heater Characteristics and Ratings:
- Voltage (AC or DC) .................. 6.3 ± 0.6 volts
- Current at heater volts = 6.3 ........ 1.200 amp
- Peak heater-cathode voltage:
  - Heater negative with respect to cathode, 200 max. volts
  - Heater positive with respect to cathode, 200 max. volts

Direct Interelectrode Capacitances (Approx):^b
- Grid No.1 to Plate .................. 0.26 pf
- Input: G1 to (K+G3,G2,H) ............ 15.0 pf
- Output: P to (K+G3,G2,H) ........... 6.5 pf

Mechanical:

Operating Position .................. Any
- Type of Cathode .................. Coated Unipotential
- Maximum Overall Length ............ 2.880"
- Seated Length .................. 2.250" to 2.500"
- Diameter .................. 1.438" to 1.562"
- Dimensional Outline ............. See General Section
- Bulb .................. T12
- Base .................. Large-Button Novar 9-Pin with Exhaust Tip (JEDEC No.E9-88)

Basing Designation for BOTTOM VIEW .................. 9NZ

Pin 1 – Grid No.2
Pin 2 – Grid No.1
Pin 3 – Cathode,
  Grid No.3
Pin 4 – Heater
Pin 5 – Heater
Pin 6 – Grid No.1
Pin 7 – Grid No.2
Pin 8 – Do Not Use
Pin 9 – Plate

Characteristics, Class A1 Amplifier:

<table>
<thead>
<tr>
<th>Triode Connection</th>
<th>Pentode Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plate Voltage ....</td>
<td>150 .................</td>
</tr>
<tr>
<td>Grid-No.2 Voltage</td>
<td>150 150 ...........</td>
</tr>
<tr>
<td>Grid-No.1 Voltage</td>
<td>-22.5 0 -22.5 ......</td>
</tr>
<tr>
<td>Amplification Factor</td>
<td>4.4 - -</td>
</tr>
<tr>
<td>Plate Resistance (Approx.)</td>
<td>- - 15000 ohms</td>
</tr>
<tr>
<td>Transconductance</td>
<td>- - 7100 µmhos</td>
</tr>
<tr>
<td>Plate Current</td>
<td>- 390d 70 ma</td>
</tr>
<tr>
<td>Grid-No.2 Current</td>
<td>- 32d 2.1 ma</td>
</tr>
<tr>
<td>Grid-No.1 Voltage (Approx.) for plate ma = 0.1</td>
<td>- - -42 volts</td>
</tr>
</tbody>
</table>

RADIO CORPORATION OF AMERICA
Electronic Components and Devices
Harrison, N. J.

DATA 1
10-64
### HORIZONTAL-DEFLECTION AMPLIFIER

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

For operation in a 525-line, 30-frame system:

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC Plate-Supply Voltage</td>
<td>770 max. volts</td>
</tr>
<tr>
<td>Peak Positive-Pulse Plate Voltage</td>
<td>6500 max. volts</td>
</tr>
<tr>
<td>Peak Negative-Pulse Plate Voltage</td>
<td>1500 max. volts</td>
</tr>
<tr>
<td>DC Grid-No.2 (Screen-Grid) Voltage</td>
<td>220 max. volts</td>
</tr>
<tr>
<td>DC Grid-No.1 (Control-Grid) Voltage</td>
<td>-55 max. volts</td>
</tr>
<tr>
<td>Peak Negative-Pulse Grid-No.1 Voltage</td>
<td>330 max. volts</td>
</tr>
</tbody>
</table>

**Cathode Current:**

- Peak: 550 max. ma
- Average: 175 max. ma

**Grid-No.2 Input:** 3.5 max. watts

**Plate Dissipation:** 17.5 max. watts

**Bulb Temperature** (At hottest point on bulb surface): 240 max. °C

**Maximum Circuit Values:**

Grid-No.1-Circuit Resistance: 1 max. megohm

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*a* The dc component must not exceed 100 volts.
*b* Without external shield.
*c* With grid No. 2 connected to plate.
*d* This value can be measured by a method involving a recurrent wave form such that the maximum ratings of the tube will not be exceeded.
*e* As described in "Standards of Good Engineering Practice Concerning Television Broadcast Stations", Federal Communications Commission.
*f* This rating is applicable where the duration of the voltage pulse does not exceed 15 per cent of one horizontal scanning cycle. In a 525-line, 30-frame system, 15 per cent of one horizontal scanning cycle is 10 microseconds.
*g* An adequate bias resistor or other means is required to protect the tube in the absence of excitation.