PENTAGRID CONVERTER
SUBMINIATURE TYPE

GENERAL DATA

Electrical:
Filament, Coated:
Voltage .................. 1.25 .................. dc volts
Current .................. 0.04 .................. amp

Direct interelectrode Capacitances:
Grid No.3 to All Other
Electrodes (RF Input) . 6 .................. µf
Plate to All Other Elec-
trodes (Mixer Input) . 5 .................. µf
Grid No.1 to All Other
Electrodes (Osc.Input) . 2.4 .................. µf
Grid No.3 to Plate . 0.4 max. .................. µf
Grid No.3 to Grid No.1 . 0.2 max. .................. µf

0 with no external shield.

Mechanical:
Mounting Position .................. Any
Maximum Overall Length .................. 1-3/4"
Maximum Seated Length .................. 1-1/2"
Length, Base Seat to Bulb Top (excluding tip) 1.200" ± 0.060"
Maximum Diameter .................. 0.4"
Bulb .................. T-3
Base .................. Small-Button Sub-minar 8-Pin

BOTTOM VIEW

Pin 1- Internal Connection— Do Not Use
Pin 2—Grid No.1
Pin 3— No Connection
Pin 4—Filament (−), Grid No.5
Pin 5—Filament (+), Pin 6—Plate
Pin 7—Grid No.2, Grid No.4
Pin 8—Grid No.3

CONVERTER

Maximum Ratings, Design-Center Values:
PLATE VOLTAGE .................. 67.5 max. volts
GRIDS-No.2 & No.4 (SCREEN) VOLTAGE .................. 45 max. volts
GRIDS-No.2 & No.4 SUPPLY VOLTAGE .................. 67.5 max. volts
TOTAL CATHODE CURRENT .................. 4.0 max. ma

Characteristics — Separate Excitation:
Plate Voltage .................. 30 45 67.5 volts
Grids-No.2 & No.4 Supply Voltage .................. 30 45 67.5 volts
Grids-No.2 & No.4 Resistor .................. 10000 15000 20000 ohms

# The characteristics shown under separate excitation approximate those obtained in a self-excited oscillator operating with zero bias.
Grid-No.3 (Control-Grid)
  Voltage .............. 0 0 0 volts
Grid-No.1 (Oscillator-Grid)
  Resistor .............. 0.1 0.1 0.1 megohm
  Plate Resistance (Approx.) ....... 0.3 0.4 0.4 megohm
  Conversion Transconductance ....... 115 140 150 \(\mu\)hos
Grid-No.3 Voltage (Approx.)
  for conversion transconductance of 5 \(\mu\)hos ............... -7 -8 -9 volts
Plate Current .............. 0.3 0.6 1.0 ma
Grids-No.2 & No.4 Current .............. 0.8 1.1 1.5 ma
Grid-No.1 Current .............. 30 50 70 \(\mu\)amp
Total Cathode Current .............. 1.1 1.7 2.5 ma

NOTE: The transconductance between grid No.1 and grids No.2 & No.4 connected to plate (not oscillating) is approximately 730 micromhos under the following conditions: Signal applied to grid No.1 at zero bias; grids No.2 & No.4 and plate at 30 volts; and grid No.3 grounded. Under the same conditions, the total cathode current is 3 milliamperes and the amplification factor is 3.9.
### Operation Characteristics with Separate Oscillator Excitation

**Curve** | **Plate Volts** | **Grids No. 2 & No. 4 Supply Volts** | **Series Resistor Ohms** | **Grid-No. 1 Resistor Megohms**
---|---|---|---|---
A, D | 67.5 | 67.5 | 20000 | 0.1
B, E | 45 | 45 | 15000 | 0.1
C, F | 30 | 30 | 10000 | 0.1

*Recommended minimum value of $V_t$.

---

**Conversion Transconductance ($g_c$ - Microhms)**

**Cathode Milliamperes ($I_t$)**

**Grid-No. 1 Microamperes ($I_c$)**

---

JAN. 24, 1949  
TUBE DEPARTMENT  
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY
OPERATION CHARACTERISTICS
WITH SEPARATE OSCILLATOR EXCITATION

<table>
<thead>
<tr>
<th>CURVE</th>
<th>PLATE VOLTS</th>
<th>GRID No. 2 &amp; No. 4 SUPPLY VOLTS</th>
<th>SERIES RESISTOR OHMS</th>
<th>GRID No. 1 RESISTOR MEGOHMS</th>
<th>GRID No. 1 CURRENT ( \mu )AMP*</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>30</td>
<td>30</td>
<td>10000</td>
<td>0.1</td>
<td>30</td>
</tr>
<tr>
<td>B</td>
<td>45</td>
<td>45</td>
<td>15000</td>
<td>0.1</td>
<td>50</td>
</tr>
<tr>
<td>C</td>
<td>67.5</td>
<td>67.5</td>
<td>20000</td>
<td>0.1</td>
<td>70</td>
</tr>
</tbody>
</table>

* Obtained by adjustment of oscillator grid voltage to give indicated values
\( \Delta \) Applied through series resistor of value indicated

---

JAN. 25, 1949
TUBE DEPARTMENT
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

92CM-7166