R-F POWER AMPLIFIER, OSCILLATOR, A-F VOLTAGE AMPLIFIER

Filament: Thoriated Tungsten
Voltage: 7.5 a-c or d-c volts
Current: 1.25 amp.
Amplification Factor: 30

Direct Inter-electrode Capacitances:
- Grid to Plate: 7 µµf
- Grid to Filament: 4 µµf
- Plate to Filament: 3 µµf

Maximum Overall Length: 5-5/8"
Maximum Diameter: 2-3/16"
Bulb: S-17
Base: Medium 4-Pin Bayonet

MAXIMUM RATINGS and TYPICAL OPERATING CONDITIONS

A-F VOLTAGE AMPLIFIER (Resistance-coupled) - Class A

D-C Plate Voltage: 425 max. volts
D-C Plate-Supply Voltage*: 1250 max. volts
Plate Dissipation: 12 max. watts

Typical Operation and Characteristics:
- Filament Voltage: 7.5 d-c volts
- D-C Plate-Supply Voltage*: 425 1000 volts
- D-C Grid Voltage: -6 -9 volts
- Peak A-F Grid Voltage: 6 9 volts
- D-C Plate Current: 0.7 2.2 ma.
- Plate Resistance: 63000 40000 ohms
- Transconductance: 450 750 µµhos
- Load Resistance: 250000 250000 ohms
- Voltage Output (5% second harmonic): 126 225 volts

* Voltage effective at plate is less than the plate-supply voltage by an amount equal to the voltage drop in the load resistance caused by the plate current.

A-F POWER AMPLIFIER & MODULATOR - Class B

D-C Plate Voltage: 425 max. volts
Max-Signal D-C Plate Current*: 60 max. ma.
Max-Signal Plate Input*: 25 max. watts
Plate Dissipation*: 15 max. watts

Typical Operation - 2 tubes:
- Unless otherwise specified, values are for a tube.

D-C Plate Voltage: 350 425 volts
D-C Grid Voltage: -5 -5 volts
Peak A-F Grid-to-Grid Voltage: 176 180 volts
Zero-Signal D-C Plate Cur.: 7 13 ma.
Max-Signal D-C Plate Cur.: 114 120 ma.
Load Resistance (per tube): 1300 1750 ohms
Effective Load Res. (plate to plate): 5200 7000 ohms
Max-Signal Driving Power: 3.2 3.6 approx. watts
Max-Signal Power Output: 21 28 approx. watts

* Averaged over any audio frequency cycle of sine-wave form.

APRIL 5, 1937

RCA RADIotron DIVISION
RCA MANUFACTURING COMPANY, INC.
### R-F POWER AMPLIFIER, OSCILLATOR, A-F VOLTAGE AMPLIFIER

(continued from preceding page)

**R-F POWER AMPLIFIER - Class B Telephony**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-C Plate Voltage</td>
<td>450 max. volts</td>
</tr>
<tr>
<td>D-C Plate Current</td>
<td>50 max. ma.</td>
</tr>
<tr>
<td>R-F Grid Current</td>
<td>4 max. amp.</td>
</tr>
<tr>
<td>Plate Input</td>
<td>22.5 max. watts</td>
</tr>
<tr>
<td>Plate Dissipation</td>
<td>15 max. watts</td>
</tr>
</tbody>
</table>

**Typical Operation:**

- Filament Voltage: 7.5 a-c volts
- D-C Plate Voltage: 350 volts
- D-C Grid Voltage: 450 volts
- Peak R-F Grid Voltage: 60 volts
- D-C Plate Current: 45 ma.
- D-C Grid Current**: **4 approx.ma
- Driving Power**: **3.5 approx.watts
- Power Output: 4.25 6 approx.watts

*At crest of a-f cycle with modulation factor of 1.0.*

**PLATE-MODULATED R-F POWER AMPLIFIER - Class C Telegraphy**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-C Plate Voltage</td>
<td>350 max. volts</td>
</tr>
<tr>
<td>D-C Grid Voltage</td>
<td>60 max. ma.</td>
</tr>
<tr>
<td>D-C Plate Current</td>
<td>20 max. ma.</td>
</tr>
<tr>
<td>R-F Grid Current</td>
<td>4 max. amp.</td>
</tr>
<tr>
<td>Plate Input</td>
<td>21 max. watts</td>
</tr>
<tr>
<td>Plate Dissipation</td>
<td>10 max. watts</td>
</tr>
</tbody>
</table>

**Typical Operation:**

- Filament Voltage: 7.5 a-c volts
- D-C Plate Voltage: 250 volts
- D-C Grid Voltage: 40 volts
- Peak R-F Grid Voltage: 125 volts
- D-C Plate Current: 50 ma.
- D-C Grid Current**: **15 approx.ma
- Driving Power**: **2 approx.watts
- Power Output: 7 11 approx.watts

**R-F POWER AMPLIFIER & MODULATOR - Class C Telegraphy**

**Key-down conditions per tube without modulation**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-C Plate Voltage</td>
<td>450 max. volts</td>
</tr>
<tr>
<td>D-C Grid Voltage</td>
<td>60 max. ma.</td>
</tr>
<tr>
<td>D-C Plate Current</td>
<td>20 max. ma.</td>
</tr>
<tr>
<td>R-F Grid Current</td>
<td>5 max. amp.</td>
</tr>
<tr>
<td>Plate Input</td>
<td>27 max. watts</td>
</tr>
<tr>
<td>Plate Dissipation</td>
<td>15 max. watts</td>
</tr>
</tbody>
</table>

**Typical Operation:**

- Filament Voltage: 7.5 a-c volts
- D-C Plate Voltage: 350 volts
- D-C Grid Voltage: 450 volts
- Peak R-F Grid Voltage: 120 volts
- D-C Plate Current: 50 ma.

**#* See next page**

**indicates a change**

APRIL 5, 1937
R-F POWER AMPLIFIER
A-F VOLTAGE AMPLIFIER

(continued from preceding page)

D-C Grid Current**
15 approx. ma.
Driving Power**
1.8 1.8 approx. watts
Power Output
11 15 approx. watts

** Modulation essentially negative may be used if the positive peak of the audio-frequency envelope does not exceed 115% of the carrier conditions.

** Subject to wide variations as explained on sheet TRANS.TUBE RATINGS.

For the use of the 841 at the higher frequencies refer to sheet TRANS. TUBE RATINGS vs FREQUENCY.

BOTTOM VIEW OF SOCKET CONNECTIONS

AA=PLANE OF ELECTRODES
pin 1=Filament +
pin 2=Plate
pin 3=Grid
pin 4=Filament -
BP=Bayonet Pin

TUBE MOUNTING POSITION
VERTICAL: Base down
HORIZONTAL: Plate in vertical plane (on edge)

AVERAGE PLATE CHARACTERISTICS

<table>
<thead>
<tr>
<th>PLATE VOLTS</th>
<th>PLATE MILLIAMPERES</th>
</tr>
</thead>
<tbody>
<tr>
<td>400</td>
<td>0.5</td>
</tr>
<tr>
<td>600</td>
<td>1.0</td>
</tr>
<tr>
<td>800</td>
<td>1.5</td>
</tr>
<tr>
<td>1000</td>
<td>2.0</td>
</tr>
</tbody>
</table>

Indicates a change.

Jan. 1, 1943
RCA VICTOR DIVISION
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY