POWER TRIODE
WATER & FORCED-AIR COOLED

GENERAL DATA

Electrical:
Filament, Multistrand Thoriated-Tungsten:
Excitation ........ Single Phase AC or DC
Voltage ................ 7.5 ± 0.4 ... ac or dc volts
Current ................ 170 ......... amp
Starting Current: The filament current should never exceed 800 amperes, even momentarily.
Cold Resistance ..... 0.0055 ........ ohm
Minimum Heating Time 15 ........... seconds
Amplification Factor 20
Direct Inter-electrode Capacitances (Approx.):
Grid to Plate ........ 24.5 ............ μuf
Grid to Filament .... 47 ............. μuf
Plate to Filament .... 3 .............. μuf

Mechanical:
Terminal Connections:
F - Filament
G - Grid
P - Water-Cooled Plate

Mounting Position .......... Vertical, Filament End Up
Maximum Overall Length . 11-5/16"
Maximum Diameter .......... 7"
Water Flow ................. 12 to 20 gpm
The specified water flow must start before application of any voltages, and may be removed simultaneously with the filament and plate power.
Air Flow .................. 20 min. cfm
The specified air flow should be directed vertically from a 3"-diameter nozzle onto the top portion of the bulb before and during the application of any voltages.
Outlet Water Temperature .. 70 max. °C
Bulb Temperature .......... 180 max. °C
Seal Temperature (Filament, grid, plate) 165 max. °C

Components:
Water Jacket ................. RCA MI-19461
Jacket Wrench ............... RCA MI-19436
Gasket ........................ RCA MI-7441
Terminal-Post Chuck Connector (4 required) .... RCA MI-19466
Chuck Wrench (2 required) .. RCA MI-19424
Filament Transformer ........ RCA-203T1

AF POWER AMPLIFIER & MODULATOR - Class B

Maximum CCS® Ratings, Absolute Values:
DC PLATE VOLTAGE .......... 12500 max. volts

*See next page.
POWER TRIODE

MAX.-SIGNAL DC PLATE CURRENT* ................. 5 max. amp
MAX.-SIGNAL PLATE INPUT* .................... 45 max. kw
PLATE DISSIPATION* ......................... 22.5 max. kw

Typical Operation:
   Values are for 2 tubes
DC Plate Voltage ................. 12500 volts
DC Grid Voltage ................. -600 volts
Peak AF Grid-to-Grid Voltage .............. 1900 volts
Zero-Signal DC Plate Current ............. 1 amp
Max.-Signal DC Plate Current .......... 6.4 amp
Effective Load Resistance
   (Plate-to-plate) .................... 4400 ohms
Max.-Signal Driving Power (Approx.)# ........ 430 watts
Max.-Signal Power Output (Approx.) ....... 55 kw

* Averaged over any audio-frequency cycle of sine-wave form.
# The driving stage should have good regulation and should be capable of
supplying considerably more than the specified driving power.

RF POWER AMPLIFIER - Class B Telephony

Carrier conditions per tube for use with a max. modulation factor of 1.0

Maximum CCS Ratings, Absolute Values:
DC PLATE VOLTAGE ...................... 12500 max. volts
DC PLATE CURRENT .................... 4 max. amp
PLATE INPUT ......................... 33 max. kw
PLATE DISSIPATION ................... 22.5 max. kw

Typical Operation:
DC Plate Voltage ..................... 12500 volts
DC Grid Voltage .................... -625 volts
Peak RF Grid Voltage ............. 625 volts
DC Plate Current .................. 2.4 amp
DC Grid Current .................. 0 amp
Driving Power (Approx.)# ........ 1070 watts
Power Output (Approx.) .......... 12 kw

* At crest of audio-frequency cycle with modulation factor of 1.0.

PLATE-MODULATED RF POWER AMPLIFIER - Class C Telephony

Carrier conditions per tube for use with a max. modulation factor of 1.0

Maximum CCS Ratings, Absolute Values:
DC PLATE VOLTAGE .................... 10000 max. volts
DC GRID VOLTAGE .................-1600 max. volts
DC PLATE CURRENT .................. 4 max. amp
DC GRID CURRENT ................ 0.8 max. amp
PLATE INPUT ......................... 40 max. kw
PLATE DISSIPATION ................ 15 max. kw

* See next page.

FEB. 1, 1949
TUBE DEPARTMENT
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY
TENTATIVE DATA 1
POWER TRIODE

Typical Operation:
- DC Plate Voltage: 10000 volts
- DC Grid Voltage: -840 volts
- DC Plate Current: 1075 ohms
- Peak RF Grid Voltage: 1440 volts
- DC Plate Current: 3.8 amp
- DC Grid Current (Approx.): 0.78 amp
- Driving Power (Approx.): 1010 watts
- Power Output (Approx.): 29 kw

* Obtained by grid resistor or value shown or by partial self-bias methods.

RF POWER AMPLIFIER & OSCILLATOR—Class C Telegraphy

Key-down conditions per tube without modulation

Maximum CCS Ratings, Absolute Values:

<table>
<thead>
<tr>
<th></th>
<th>Above 1.6 Mc</th>
<th>Below 1.6 Mc</th>
</tr>
</thead>
</table>
| DC PLATE VOLTAGE | 12500 max.   | 15000 max.   | volts
| DC GRID VOLTAGE  | -1600 max.   | -1600 max.   | volts
| DC PLATE CURRENT | 6 max.       | 6 max.       | amp
| DC GRID CURRENT  | 0.8 max.     | 0.8 max.     | amp
| PLATE INPUT      | 60 max.      | 67.5 max.    | kw
| PLATE DISSIPATION| 22.5 max.    | 22.5 max.    | kw

Typical Operation:
- DC Plate Voltage: 10000 10000 12500 15000 volts
- DC Grid Voltage: (-720 -770 -630 -990 volts
- DC Grid Voltage: 140 115 115 185 ohms
- Peak RF Grid Voltage: 1290 1440 1230 1240 ohms
- DC Plate Current: 4.5 6 4.8 4.5 amp
- DC Grid Current (Approx.): 0.69 0.77 0.75 0.8 amp
- Driving Power (Approx.): 800 1000 1050 1160 watts
- Power Output (Approx.): 33 40 44 53 kw

* Continuous Commercial Service.

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

For effect of load resistance on grid current and driving power, refer to TUBE RATINGS—Grid Current and Driving Power in the General Section.

Obtained from cathode resistor (14C, 115, 115, 185), or grid resistor (1040, 1000, 840, 1240) or by partial self-bias methods.

CHARACTERISTICS RANGE VALUES FOR EQUIPMENT DESIGN

<table>
<thead>
<tr>
<th></th>
<th>Note</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filament Current</td>
<td>1</td>
<td>160</td>
<td>180</td>
</tr>
<tr>
<td>Amplification Factor</td>
<td>1,2</td>
<td>17</td>
<td>23</td>
</tr>
</tbody>
</table>

† Indicates a change.

MAY 20, 1949
TUBE DEPARTMENT
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY
TENTATIVE DATA 2
<table>
<thead>
<tr>
<th>Note</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grid-Plate Capacitance</td>
<td>20</td>
<td>28 ( \mu \text{f} )</td>
</tr>
<tr>
<td>Grid-Filament Capacitance</td>
<td>39</td>
<td>55 ( \mu \text{f} )</td>
</tr>
<tr>
<td>Plate-Filament Capacitance</td>
<td>2.3</td>
<td>3.7 ( \mu \text{f} )</td>
</tr>
<tr>
<td>Plate Voltage</td>
<td>1,3</td>
<td>5900 7900 volts</td>
</tr>
<tr>
<td>Plate Voltage</td>
<td>1,4</td>
<td>2100 3100 volts</td>
</tr>
<tr>
<td>Peak Cathode Current</td>
<td>1,5</td>
<td>35 - amp</td>
</tr>
<tr>
<td>Useful Power Output</td>
<td>1,6</td>
<td>33 - kw</td>
</tr>
</tbody>
</table>

Note 1: With 7.5 volts ac on filament.
Note 2: With dc grid voltage of -100 volts, and with plate voltage adjusted to give dc plate current of 2 amperes.
Note 3: With dc grid voltage of -200 volts, and with plate voltage adjusted to give dc plate current of 2 amperes.
Note 4: With dc grid voltage of 0 volts, and with plate voltage adjusted to give dc plate current of 2 amperes.
Note 5: Represents the maximum usable cathode current (plate current and grid current) for the tube under any condition of operation.
Note 6: With dc plate voltage of 12500 volts, dc plate current of 4.8 amperes, dc grid current of 0.6 to 0.9 ampere, grid resistor of 1600 \( \pm 10\% \) ohms, and frequency of 22 Mc.

Data on operating frequencies for the 5771 are given on the sheet TRANS. TUBE RATINGS vs FREQUENCY.
AVERAGE PLATE CHARACTERISTICS

$E_T = 7.5$ VOLTS AC

PLATE AMPERES

PLATE KILOVOLTS ($E_b$)

OCTOBER 28, 1948
TUBE DEPARTMENT
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

92CM-7106