GENERAL DATA

Electrical:
Filament, Multistrand Tungsten:
Voltage ........ 11 ........ ac or dc volts
Current ........ 176 ........ amp
Starting current: The filament current must never exceed a value of 270 amperes, even momentarily.
Cold resistance .... 0.0052 ........ ohm
NOTE: This tube can often be operated with reduced filament voltage as explained on the sheet TYPES OF CATHODES in the General Section.

Amplification Factor, for 
plate current = 1.25 amp
and grid volts = -100 ........ 20

Direct Interelectrode Capacitances:
Grid to plate ........ 24 ........ μμf
Grid to filament .... 27 ........ μμf
Plate to filament .... 1.25 ........ μμf

Mechanical:
Terminal Connections:

F - Filament
G - Grid

Top View

Mounting Position ........ Vertical, filament end up
Maximum Overall Length ........ 13-3/4"
Maximum Diameter (including radiator handles) .... 11"
Radiator ........ Integral part of tube

Air Flow:
Through Radiator—Typical flow values of incoming air at a temperature not exceeding 45°C for various plate dissipations, are indicated in the tabulation below. The air should be delivered by a blower vertically upward through the radiator during the application of any voltages. Under any condition, the air flow must be adequate to limit the temperature of the radiator to its specified maximum value. See Cooling Requirements curves.

Percentage of max. rated plate dissipation for each class of service: 100 80 60 per cent
Air flow ........ 650 460 310 cfm
Static pressure ........ 2 1 0.45 in. of water
**To Bulb and Seals**—At frequencies below 15 Mc, adequate cooling of the bulb and seals is provided by the air flow through the radiator. At frequencies above 15 Mc, however, additional air flow directed onto the filament end of the tube should be supplied by a blower providing 50 cfm through a 3" nozzle in order to limit the temperature of the grid seals, filament seals, and bulb to 160°C.

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incoming-Air Temperature (To radiator)</td>
<td>45 max. °C</td>
</tr>
<tr>
<td>Radiator Temperature (Measured on core at end adjacent to bulb)</td>
<td>230 max. °C</td>
</tr>
<tr>
<td>Bulb Temperature</td>
<td>160 max. °C</td>
</tr>
<tr>
<td>Seal Temperature (Filament, grid, and plate)</td>
<td>160 max. °C</td>
</tr>
<tr>
<td>Weight (Approx.)</td>
<td>32 lbs</td>
</tr>
</tbody>
</table>

**Fittings:**
- Air Jacket
- Connector Wrench (2 required)
- Grid or Filament Connector (4 required)
- Bracelet
- Air Manifold

**AF POWER AMPLIFIER & MODULATOR—Class B**

**Maximum CCS Ratings, Absolute Values:**
- DC PLATE VOLTAGE | 12500 max. volts |
- MAX.-SIGNAL DC PLATE CURRENT* | 2.75 max. amp |
- MAX.-SIGNAL PLATE INPUT* | 32500 max. watts |
- PLATE DISSIPATION* | 10000 max. watts |

**Typical Operation:**

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC Plate Voltage</td>
<td>8000 10000 12000 volts</td>
</tr>
<tr>
<td>DC Grid Voltage</td>
<td>-370 -480 -600 volts</td>
</tr>
<tr>
<td>Peak AF Grid-to-Grid Voltage</td>
<td>1620 2020 2380 volts</td>
</tr>
<tr>
<td>Zero-Signal DC Plate Current</td>
<td>0.4 0.5 0.6 amp</td>
</tr>
<tr>
<td>Max.-Signal DC Plate Current</td>
<td>2.6 3.7 4.5 amp</td>
</tr>
<tr>
<td>Effective Load Resistance (Plate to plate)</td>
<td>7200 6100 5900 ohms</td>
</tr>
<tr>
<td>Max.-Signal Driving Power (Approx.)</td>
<td>140 150 160 watts</td>
</tr>
<tr>
<td>Max.-Signal Power Output (Approx.)</td>
<td>14500 25000 36000 watts</td>
</tr>
</tbody>
</table>

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

---

*: see next page.
RF POWER AMPLIFIER--Class B Telephony

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

Maximum CCS® Ratings, Absolute Values:

- DC PLATE VOLTAGE: 12500 max. volts
- DC PLATE CURRENT: 1.4 max. amp
- PLATE INPUT: 16000 max. watts
- PLATE DISSIPATION: 10000 max. watts

Typical Operation:

- DC Plate Voltage: 8000 10000 12000 volts
- DC Grid Voltage: -400 -500 -610 volts
- Peak RF Grid Voltage: 410 490 590 volts
- DC Plate Current: 0.6 0.8 1.0 amp
- DC Grid Current (Approx.): 0 0 0 amp
- Driving Power (Approx.): 75 70 65 watts
- Power Output (Approx.): 1700 2800 4400 watts

---

PLATE-MODULATED RF POWER AMPLIFIER--Class C Telegraphy

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

Maximum CCS® Ratings, Absolute Values:

- DC PLATE VOLTAGE: 8000 max. volts
- DC GRID VOLTAGE: -2000 max. volts
- DC PLATE CURRENT: 1.5 max. amp
- DC GRID CURRENT: 0.45 max. amp
- PLATE INPUT: 12000 max. watts
- PLATE DISSIPATION: 6600 max. watts

Typical Operation:

- DC Plate Voltage: 6000 8000 volts
- DC Grid Voltage: -740 -1000 volts
- Peak RF Grid Voltage: 1140 1540 volts
- DC Plate Current: 0.7 1.1 amp
- DC Grid Current (Approx.): 0.09 0.13 amp
- Driving Power (Approx.): 100 200 watts
- Power Output (Approx.): 3400 7100 watts

---

RF POWER AMPLIFIER & OSCILLATOR--Class C Telegraphy

Key-down conditions per tube without amplitude modulation

Maximum CCS® Ratings, Absolute Values:

- DC PLATE VOLTAGE: 12500 max. volts
- DC GRID VOLTAGE: -2000 max. volts

* Continuous Commercial Service.

**$: See next page.

SEPT. 1, 1955

TUBE DIVISION
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

TENTATIVE DATA 2
POWER TRIODE

DC PLATE CURRENT: 3 max. amp
DC GRID CURRENT: 0.45 max. amp
PLATE INPUT: 32500 max. watts
PLATE DISSIPATION: 10000 max. watts

Typical Operation:
DC Plate Voltage: 8000 10000 12000 volts
DC Grid Voltage: -680 -870 -1170 volts
Peak RF Grid Voltage: 1300 1620 2130 volts
DC Grid Current (Approx.): 0.19 0.20 0.22 amp
Driving Power (Approx.): 250 320 470 watts
Power Output (Approx.): 9200 15000 22500 watts

CHARACTERISTICS RANGE VALUES FOR EQUIPMENT DESIGN

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Note</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filament Current</td>
<td></td>
<td>1</td>
<td>168</td>
</tr>
<tr>
<td>Amplification Factor</td>
<td></td>
<td>1.2</td>
<td>17.5</td>
</tr>
<tr>
<td>Grid-Plate Capacitance</td>
<td></td>
<td>-</td>
<td>21</td>
</tr>
<tr>
<td>Grid-Filament Capacitance</td>
<td></td>
<td>-</td>
<td>23</td>
</tr>
<tr>
<td>Plate-Filament Capacitance</td>
<td></td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>DC Grid Voltage</td>
<td></td>
<td>1.3</td>
<td>-480</td>
</tr>
<tr>
<td>DC Plate Voltage (1)</td>
<td></td>
<td>1.4</td>
<td>3000</td>
</tr>
<tr>
<td>DC Plate Voltage (2)</td>
<td></td>
<td>1.5</td>
<td>6700</td>
</tr>
<tr>
<td>Peak Cathode Current</td>
<td></td>
<td>6</td>
<td>11.5</td>
</tr>
<tr>
<td>Power Output</td>
<td></td>
<td>1.7</td>
<td>22.5</td>
</tr>
</tbody>
</table>

Note 1: With 11 volts rms on filament.
Note 2: With dc grid voltage of -100 volts and dc plate current of 1.25 amperes.
Note 3: With dc plate voltage of 10000 volts, and dc plate current of 0.020 ampere.
Note 4: With dc grid voltage of 0 volts, and dc plate current of 1.25 amperes.
Note 5: With dc grid voltage of -200 volts, and dc plate current of 1.25 amperes.
Note 6: Designers should limit the maximum useable cathode current (plate current and grid current) to this value under any condition of operation.
Note 7: In amplifier or oscillator service at a frequency of 1.6 Mc, and with dc plate voltage of 12500 volts, dc plate current of 2.6 amperes, grid resistor of 6000 ± 10% ohms, and dc grid current of 0.225 ampere.

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

MAXIMUM RATINGS vs OPERATING FREQUENCY

<table>
<thead>
<tr>
<th>FREQUENCY</th>
<th>25</th>
<th>35</th>
<th>50</th>
<th>Mc</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class B Telephony</td>
<td>100</td>
<td>85</td>
<td>70</td>
<td>per cent</td>
</tr>
<tr>
<td>Class C Telephony</td>
<td>100</td>
<td>80</td>
<td>50</td>
<td>per cent</td>
</tr>
<tr>
<td>Class C Telegraphy</td>
<td>100</td>
<td>80</td>
<td>50</td>
<td>per cent</td>
</tr>
</tbody>
</table>

SEPT. 1, 1955
TENTATIVE DATA 2

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY
POWER TRIODE

PLANE THROUGH \& OF FILAMENT POSTS WILL NOT DEVIATE MORE THAN 15° FROM PLANE THROUGH \& OF HANDLES.

FILAMENT POST (SHORT) JETEC NO JI-1

PLATE TERMINAL

53/8" ± 1/8" R.

GRID POST JETEC NO JI-8

5/16" DIA. SCREW

PLATE TERMINAL

7 1/16" ± 1/16"

4 POSTS .437" ± .007" DIA.

AIR-COOLED RADIATOR

5/8" MIN. STRAIGHT SIDE

3/4" MIN.

7 1/16" MIN. STRAIGHT SIDE

13 3/32" MAX.

15 1/16" MAX.

5 1/4" MAX. DIA.

13 3/4" MAX.

8" ± 1/8" DIA.

7 9/16" MAX. DIA.

2 1/8" ± 3/16" ± 8 1/4" MAX.

3 7/8" ± 1/8"

92CM-8568

SEPT. 1, 1955

TUBE DIVISION

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

CE-8568A
NOTE: ANGULAR VARIATIONS BETWEEN POSTS AND VARIATION IN POST-CIRCLE DIAMETER ARE HELD TO TOLERANCES SUCH THAT THE ENTIRE STRAIGHT-SIDE LENGTH OF THE POSTS WILL ENTER A 5/8" THICK FLAT-PLATE GAUGE HAVING 4 HOLES 0.536" ± 0.001" DIAMETER ARRANGED ON A 2.125" ± 0.001" DIAMETER CIRCLE AT ANGLES OF 90° ± 1°, AND HAVING A CENTER CLEARANCE HOLE WITH DIAMETER OF 1" APPROX.
AVERAGE FILAMENT CHARACTERISTIC

COLD RESISTANCE OF FILAMENT = 0.0052 OHM

FILAMENT VOLTS

FILAMENT AMPERES

MAR. 2, 1955
TUBE DIVISION
S quadratic CORPORATION OF AMERICA, HARRISON, NEW JERSEY

92CM-8554
COOLING REQUIREMENTS

MAXIMUM RADIATOR TEMPERATURE = 230°C

<table>
<thead>
<tr>
<th>CURVE</th>
<th>PRESSURE DROP INCHES OF WATER</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>0.2</td>
</tr>
<tr>
<td>B</td>
<td>0.7</td>
</tr>
<tr>
<td>C</td>
<td>2.0</td>
</tr>
<tr>
<td>D</td>
<td>2.6</td>
</tr>
</tbody>
</table>

RECOMMENDED ALLOWABLE TEMPERATURE RISE WITH INCOMING-AIR TEMP. OF 45°C

MAX. ALLOWABLE TEMPERATURE RISE WITH INCOMING-AIR TEMP. OF 45°C
AVERAGE CONSTANT-CURRENT CHARACTERISTICS

$E_F = 11$ VOLTS AC
$\mathbf{I}_C = $ GRID AMPERPES
$\mathbf{I}_b = $ PLATE AMPERPES

MAR. 7, 1955
TUBE DIVISION
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

92CM - 8558RI