**POWER TRIODE**

**FORCED-AIR-COOLED, GROUNDED-GRID TYPE**

**GENERAL DATA**

**Electrical:**

Heater, for Unipotential Cathode:
- Voltage: $3.3 \pm 0.2$ ac or dc volts
- Current: 11.5 amp
- Minimum Heating Time: 2 minutes
- Amplification Factor: 25

Direct Interelectrode Capacitances (Approx.):
- Grid to Plate: 10.3 μf
- Grid to Cathode: 26 μf
- Plate to Cathode: 0.5 μf

**Mechanical:**

Terminal Connections:
- H: Heater
- G: Grid Terminal (Flange)
- K: Cathode
- P: Plate Terminal (Radiator)

Mounting Position: Vertical, with radiator up or down
Overall Length: 4-25/32" $\pm$ 3/32"
Greatest Diameter: 2.056" $\pm$ 0.006"
Radiator: Integral Part of Tube

Air Flow:
- Through Radiator - The specified airflow for various plate dissipations, as indicated in the tabulation below, should be delivered through the radiator toward the bulb before and during the application of any voltages.
- Plate Dissipation: 150 200 250 watts
- Air Flow: 9 13 18 cfm
- Static Pressure: 0.14 0.27 0.45 in. of water

Incoming Air Temperature: 45 max. °C
Radiator Temperature (measured on the core of radiator, at end away from incoming air): 180 max. °C
Glass Temperature: 180 max. °C
Grid-Terminal Temperature: 140 max. °C

**RF POWER AMPLIFIER & OSCILLATOR - Class C Telegraphy**

Key-down conditions per tube without modulation

**Maximum CCS* Ratings, Absolute Values:**

- DC PLATE VOLTAGE: 1500 max. volts
- DC GRID VOLTAGE: $-250$ max. volts
- DC PLATE CURRENT: 300 max. ma
- DC GRID CURRENT: 50 max. ma
- PLATE INPUT: 450 max. watts
- PLATE DISSIPATION: 250 max. watts

- With 3.3 volts on heater. This time may be shortened by increasing the heater voltage during the interval required for the cathode to reach normal operating temperature. Increasing the heater voltage to 4 volts reduces the heating time to 1 minute, while 5 volts reduces it to 40 seconds. After this heating interval, the heater voltage must be reduced to 3.3 volts.
- Continuous Commercial Service.

SEPT. 30, 1948
TUBE DEPARTMENT
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY
TENTATIVE DATA
**Typical Operation in Grounded-Cathode Circuit:**

- DC Plate Voltage: 1500 volts
- DC Grid Voltage*: -175 volts
- Peak RF Grid Voltage: 510 ohms
- DC Plate Current: 210 ma
- DC Grid Current (Approx.): 300 ma
- Driving Power (Approx.): 8 watts
- Power Output (Approx.): 290 watts

**Typical Operation in Grounded-Grid Circuit at 220 Mc:**

Same values as for Grounded-Cathode Circuit with the following exceptions:

- Driving Power (Approx.)#: 65 watts
- Power Output (Approx.): 325 watts

**Characteristics Range Values for Equipment Design**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Note</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
</table>
| Heater Current          | 1    | 10.8 | 12.2 | amp
| Amplification Factor    | 1,2  | 19   | 29   |
| Grid-Plate Capacitance  | -    | 9    | 11.6 | μf   |
| Grid-Cathode Capacitance| -    | 23   | 29   | μf   |
| Plate-Cathode Capacitance| -    | 0.39 | 0.65 | μf   |
| Grid Voltage            | 1,3  | -    | -90  | volts|
| Grid Voltage            | 1,4  | -41  | -70  | volts|
| Peak Cathode Current    | 1,5  | 40   | amp  |
| Power Output            | 1,6  | 290  | -    | watts|

Note 1: Heater volts = 3.3.
Note 2: With 1000 volts on plate, and plate ma. = 150.
Note 3: With 1500 volts on plate and plate ma. = 20.
Note 4: With 1500 volts on plate and plate ma. = 150.
Note 5: Represents maximum usable cathode current (plate current plus grid current) for tube, for any condition of operation.
Note 6: With 1500 volts on plate, plate ma. = 350, grid ma. = 50 to 60, grid resistor of 4000 ± 10% ohms, and frequency of 20 Mc.

# Required by tube and input circuit. A portion of this power appears in the load circuit.

* Obtained from fixed supply or from a cathode resistor of value shown.

Data on operating frequencies for the 5713 are given on the sheet TRANS. TUBE RATINGS vs FREQUENCY.

SEPT. 30, 1948

TUBE DEPARTMENT
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

TENTATIVE DATA
NOTE 1: MAXIMUM ECCENTRICITY OF θ (AXIS) OF GRID-TERMINAL FLANGE WITH RESPECT TO θ (AXIS) OF PLATE RADIATOR IS 0.040", MEASURED WITHIN 1/32" OF BOTTOM OF RADIATOR.

NOTE 2: MAXIMUM ECCENTRICITY OF θ (AXIS) OF HEATER TERMINAL WITH RESPECT TO θ (AXIS) OF CATHODE-HEATER TERMINAL IS 0.020".

NOTE 3: MAXIMUM ECCENTRICITY OF θ (AXIS) OF CATHODE-HEATER TERMINAL WITH RESPECT TO θ (AXIS) OF GRID-TERMINAL FLANGE IS 0.020".

NOTE 4: SURFACE OF ANNULAR AREA INDICATED BY "A" ON BOTTOM OF RADIATOR IS IN SAME PLANE WITHIN 0.005", AS DETERMINED BY GAUGE 1/16" WIDE AND 0.005" THICK. THIS GAUGE WILL NOT ENTER MORE THAN 1/16" WITH BOTTOM OF RADIATOR RESTING ON FLAT PLATE.

NOTE 5: SURFACE OF ANNULAR AREA INDICATED BY "B" ON GRID-TERMINAL FLANGE IS IN SAME PLANE WITHIN 0.008", AS DETERMINED BY GAUGE METHOD DESCRIBED IN NOTE 4.

NOTE 6: SURFACE OF ANNULAR AREA INDICATED BY "A" ON BOTTOM OF RADIATOR IS PARALLEL WITHIN 0.030" TO SURFACE OF ANNULAR AREA INDICATED BY "B" ON GRID-TERMINAL FLANGE.
COOLING REQUIREMENTS

$E_f = 3.3$ VOLTS MAXIMUM RADIATOR TEMPERATURE = $180^\circ$C

<table>
<thead>
<tr>
<th>CURVE</th>
<th>PRESSURE DROP INCHES OF WATER</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>0.17</td>
</tr>
<tr>
<td>B</td>
<td>0.33</td>
</tr>
<tr>
<td>C</td>
<td>0.55</td>
</tr>
<tr>
<td>D</td>
<td>0.82</td>
</tr>
</tbody>
</table>

CURVES TAKEN ACCORDING TO NAFM* STANDARDS - BULLETIN NO 103

* NATIONAL ASSOCIATION OF FAN MFRS., GENERAL MOTORS BLDG., DETROIT, MICH.

MAX ALLOWABLE TEMPERATURE RISE WITH $45^\circ$C AMBIENT AIR

RADIATOR TEMPERATURE RISE ABOVE AMBIENT TEMPERATURE - $^\circ$C

PLATE DISSIPATION - WATTS

MAR.22,1948 TUBE DEPARTMENT
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY 92CM-6947
AVERAGE PLATE CHARACTERISTICS

$E_p = 3.3\ \text{VOLTS}$
TYPICAL GRID CHARACTERISTICS

$E_f = 3.3 \text{ VOLTS}$