PUSH-PULL RF BEAM POWER AMPLIFIER
UNLESS OTHERWISE SPECIFIED, VALUES ARE ON A PER-TUBE BASIS

GENERAL DATA

Electrical:
Heater, for Unipotential Cathodes:
Heater Arrangement  Series  Parallel
Voltage  12.6 ± 10%  6.3 ± 10% ac or dc volts
Current  0.8  1.6  amp
Transconductance (Approx., each unit)  For grid-No.2 volts = 135 and plate ma. = 30  3500 μmhos
Mu-Factor, Grid No.2 to Grid No.1  (Approx., each unit)  For grid-No.2 volts = 250 and plate ma. = 30  6.5
Direct Interelectrode Capacitances (Each Unit):
Grid-No.1 to Plate  0.07 max. μμf
Input  8.0  μμf
Output  3.8  μμf
Grid-No.2-to-Cathode Capacitance including internal grid-No.2 bypass capacitor (Approx.)  65  μμf

Mechanical:
Mounting Position  Any
Overall Length  3-3/16" ± 1/8"
Seated Length  2-3/4" ± 1/8"
Maximum Diameter  See Outline Drawing
Bulb Terminals  See Outline Drawing
Base  Medium Molded-Flare Septar 7-Pin (JETEC No.E7-2) Basing Designation for BOTTOM VIEW  7BP

Bulb Temperature (At hottest point)  200 max. °C

PLATE-MODULATED PUSH-PULL RF POWER AMP. - Class C Telephony
Carrier conditions per tube for use with a max. modulation factor of 1.0

Maximum Ratings, Absolute Values:

| DC PLATE VOLTAGE | 600 max. | 600 max. volts |
| DC GRID-No.2 (SCREEN) VOLTAGE | 250 max. | 250 max. volts |

Note: See next page. Indicates a change.
PUSH-PULL RF BEAM POWER AMPLIFIER

<table>
<thead>
<tr>
<th>DC GRID-No.1 (CONTROL-GRID) VOLTAGE</th>
<th>CCS*</th>
<th>ICAS**</th>
</tr>
</thead>
<tbody>
<tr>
<td>175 max.</td>
<td>-175 max.</td>
<td>volts</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DC PLATE CURRENT</th>
<th>75 max.</th>
<th>95 max.</th>
<th>ma</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC GRID-No.1 CURRENT</td>
<td>6 max.</td>
<td>6 max.</td>
<td>ma</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PLATE INPUT</th>
<th>22 max.</th>
<th>36 max.</th>
<th>watts</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRID-No.2 INPUT</td>
<td>3.4 max.</td>
<td>5 max.</td>
<td>watts</td>
</tr>
</tbody>
</table>

| PLATE DISSIPATION                   | 10 max. | 15 max. | watts |

PEAK HEATER-CATHODE VOLTAGE:

- Heater negative with respect to cathode: 100 max. 100 max. volts
- Heater positive with respect to cathode: 100 max. 100 max. volts

Typical Operation

<table>
<thead>
<tr>
<th>DC Plate Voltage</th>
<th>425 600 600</th>
<th>volts</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC Grid-No.2 Voltage</td>
<td>200 200 200</td>
<td>volts</td>
</tr>
</tbody>
</table>

From series resistor of 140000 25000 20000 ohms

<table>
<thead>
<tr>
<th>DC Grid-No.1 Voltage</th>
<th>-60 -65 -70</th>
<th>volts</th>
</tr>
</thead>
<tbody>
<tr>
<td>From grid resistor of 25000 25000 23000 ohms</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Peak RF Grid-No.1-to

<table>
<thead>
<tr>
<th>Grid-No.1 Voltage</th>
<th>140 150 160</th>
<th>volts</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>DC Plate Current</th>
<th>52 36 60 60</th>
<th>ma</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC Grid-No.2 Current</td>
<td>16 16 20 20</td>
<td>ma</td>
</tr>
<tr>
<td>DC Grid-No.1 Cur. (Approx.)</td>
<td>2.4 2.6 3.0</td>
<td>ma</td>
</tr>
</tbody>
</table>

Driving Power (Approx.)               | 0.15 0.18 0.21 | watt |

Power Output (Approx.)                | 16 17 26 26 | watts |

PUSH-PULL RF POWER AMPLIFIER & OSCILLATOR-Class C Telegraphy

Key-down conditions per tube without modulation

Maximum Ratings, Absolute Values:

<table>
<thead>
<tr>
<th>DC PLATE VOLTAGE</th>
<th>750 max. 750 max.</th>
<th>volts</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC GRID-No.2 (SCREEN) VOLTAGE</td>
<td>250 max. 250 max.</td>
<td>volts</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DC GRID-No.1 (CONTROL-GRID) VOLTAGE</th>
<th>-175 max. -175 max.</th>
<th>volts</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC PLATE CURRENT</td>
<td>90 max. 115 max.</td>
<td>ma</td>
</tr>
<tr>
<td>DC GRID-No.1 CURRENT</td>
<td>6 max. 6 max.</td>
<td>ma</td>
</tr>
<tr>
<td>PLATE INPUT</td>
<td>36 max. 50 max.</td>
<td>watts</td>
</tr>
<tr>
<td>GRID-No.2 INPUT</td>
<td>5 max. 5 max.</td>
<td>watts</td>
</tr>
<tr>
<td>PLATE DISSIPATION</td>
<td>15 max. 20 max.</td>
<td>watts</td>
</tr>
</tbody>
</table>

# Obtained from a separate source modulated with the plate supply, or from the modulated plate supply through a series resistor of the value shown.

*** Obtained from a grid resistor of value shown (per tube) or by partial self-bias methods.

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

See next page. → Indicates a change.
PUSH-PULL RF BEAM POWER AMPLIFIER

**PEAK HEATER-CATHODE VOLTAGE:**
- Heater negative with respect to cathode: 100 max. volts
- Heater positive with respect to cathode: 100 max. volts

**Typical Operation:**
- DC Plate Voltage: 500 | 750 volts
- DC Grid-No.2 Voltage: 200 | 200 volts
- From series resistor of: 21000 | 37000 ohms
- DC Grid-No.1 Voltage: -65 | -65 volts
- From grid resistor of: 25000 | 23000 ohms
- From cathode resistor of: 730 | 1000 ohms
- Peak RF Grid-No.1-to-Grid-No.1 Voltage: 150 | 150 | 130 volts
- DC Plate Current: 72 | 48 ma
- DC Grid-No.2 Current: 14 | 15 ma
- DC Grid-No.1 Current (Approx.): 2.6 | 2.8 | 4.0 ma
- Driving Power (Approx.): 0.18 | 0.19 | 0.24 watt
- Power Output (Approx.): 26 | 26 | 35 watts

**CHARACTERISTICS RANGE VALUES FOR EQUIPMENT DESIGN**

<table>
<thead>
<tr>
<th>Note</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heater Current (Each section)</td>
<td>1</td>
<td>0.76</td>
</tr>
<tr>
<td>Grid No.1—Plate Capacitance (Each unit)</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>Input (Each unit)</td>
<td>-</td>
<td>6.6</td>
</tr>
<tr>
<td>Output (Each unit)</td>
<td>-</td>
<td>2.8</td>
</tr>
<tr>
<td>Plate Current (Each unit)</td>
<td>3</td>
<td>18</td>
</tr>
<tr>
<td>Grid-No.2 Current (Each unit)</td>
<td>3</td>
<td>0.1</td>
</tr>
<tr>
<td>Positive Grid-No.1 Current (Each unit)</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Useful Power Output (Per tube)</td>
<td>5</td>
<td>14</td>
</tr>
</tbody>
</table>

**Note:**
1. With 6.3 volts on heater section under test.
2. With external shield in plane of seal flange.
3. With 6.3 volts on heater sections in parallel, dc plate voltage of 250 volts on unit under test, dc grid-No.2 voltage of 135 volts, dc grid-No.1 voltage of -10 volts on unit under test, and dc grid-No.1 voltage of -100 volts on unit not under test.
4. With 6.3 volts on heater sections in parallel, dc plate voltage of 90 volts on unit under test, dc grid-No.2 voltage of 90 volts, dc grid-No.1 voltage of +20 volts on unit under test, and dc grid-No.1 voltage of -100 volts on unit not under test.
5. In a push-pull self-excited oscillator circuit with 11 volts on heater sections in series, dc plate voltage of 400 volts on each unit, max. dc grid-No.2 voltage of 250 volts, total dc plate current of 90 ma., total dc grid-No.1 current of 2 to 6 ma., grid-No.1 resistor of 8000 to 18000 ohms, and frequency of 200 megacycles per second.

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*Note:* See next page. Indicates a change.

MARCH 1, 1951
TUBE DEPARTMENT
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

DATA 2
PUSH-PULL RF BEAM POWER AMPLIFIER

- Continuous Commercial Service.
- Intermittent Commercial and Amateur Service.
- The grid-circuit resistance should never exceed 25000 ohms (total) per tube; or 50000 ohms per unit. Any additional bias required must be supplied by a cathode resistor or a fixed supply.
- Obtained from a separate source, or from the plate-voltage supply with a voltage divider, or through a series resistor of value shown. The grid-No. 2 voltage must not exceed 600 volts under key-up conditions.

Data on operating frequencies for the 832-A are given on the sheet TRANS. TUBE RATINGS vs FREQUENCY

OPERATING NOTES

Shielding of the 832-A in an rf amplifier is required for stable operation. A convenient method of shielding is to mount the tube with one end through a hole in a metal plate so that the edge of the hole is close to the internal shield of the tube. Due to the importance, at the ultra-high frequencies, of obtaining the shortest leads possible, rf bypassing must be accomplished close to the tube terminals. Ribbon leads acting as plates of the bypassing capacitors are effective. All circuit returns should be made to the common cathode connection. Rf chokes may be advisable in the voltage-supply leads.
PUSH-PULL RF BEAM POWER AMPLIFIER

MEDIUM MOLDED-FLARE SEPTAR
7-PIN BASE

NOTE 1: ANGULAR VARIATIONS BETWEEN PINS AND VARIATION IN PIN-CIRCLE DIAMETER ARE HELD TO TOLERANCES SUCH THAT PINS WILL ENTER TO A DISTANCE OF 0.375" A FLAT-PLATE BASE-PIN GAUGE HAVING SIX HOLES 0.0800" ± 0.0005" AND ONE HOLE 0.1450" ± 0.0005" ARRANGED ON A 1.0000" ± 0.0005" CIRCLE AT SPECIFIED ANGLES WITH TOLERANCE OF ± 5' FOR EACH ANGLE. GAUGE IS ALSO PROVIDED WITH A HOLE 0.500" ± 0.010" CONCENTRIC WITH PIN CIRCLE WHOSE CENTER IS ON THE AXIS YY'.

MARCH 1, 1951 TUBE DEPARTMENT RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

CE-6374R3A
PUSH-PULL RF BEAM POWER AMPLIFIER

NOTE 2: THE PLATE LEADS WILL ENTER A FLAT-PLATE PLATE-LEAD GAUGE HAVING MINIMUM THICKNESS OF 0.375" AND HAVING TWO HOLES 0.2000" ± 0.0005" WHOSE CENTERS ARE LOCATED AT A DISTANCE OF 0.424" ± 0.001" FROM THE AXIS YY' AND WHOSE AXES ARE PARALLEL TO YY'. THE PLANE THROUGH THESE AXES WILL BE 90° ± 5' FROM THE PLANE THROUGH YY' AND PIN No.4.

NOTE 3: WHEN THE TUBE IS SEATED IN THE BASE-PIN GAUGE AND CONSTRAINED BY THE PLATE-LEAD GAUGE OF NOTE 2, THE MAXIMUM RADIUS'M'I IS DETERMINED BY LOWERING OVER THE TUBE A CYLINDER GAUGE HAVING A RADIUS OF 1.156" ± 0.000" - 0.003" WHOSE AXIS IS COINCIDENT WITH THE YY' AXIS.

NOTE 4: THE PLATE LEADS WILL ENTER A FLAT-PLATE PLATE-LEAD GAUGE HAVING MINIMUM THICKNESS OF 0.375" AND HAVING TWO HOLES 0.2000" ± 0.0005" WHOSE CENTERS ARE SPACED 0.848" ± 0.001" FROM EACH OTHER.

NOTE 5: MINIMUM DIAMETER OF TUBE-SEAL FLANGE WILL BE SUCH THAT A RING GAUGE HAVING I.D. OF 2.125" - 0.000" ± 0.003" AND THICKNESS OF 0.125" ± 0.010" WILL NOT PASS THE FLANGE WHEN TRIED AT ANY ANGLE.

NOTE 6: A FLAT-PLATE FLANGE GAUGE WITH HOLE 2.063" - 0.000" ± 0.003" IS LOWERED OVER TUBE SEATED IN BASE-PIN GAUGE SO THAT THE HOLE AXIS IS COINCIDENT WITH AXIS YY' WITHIN 0.150", AND SO THAT THE BOTTOM SURFACE OF THE FLANGE GAUGE IS PARALLEL TO THE TOP SURFACE OF THE BASE-PIN GAUGE, AND UNTIL THE FLANGE GAUGE RESTS ON THE TUBE-FLANGE SEAL AT POSITION XX'. THE PERPENDICULAR DISTANCE BETWEEN THE TWO GAUGES WILL BE AS SHOWN.

NOTE 7: EXHAUST TIP WILL NOT EXTEND BEYOND THE PLANE WHICH PASSES THROUGH THE ENDS OF THE THREE LONGEST PINS.
TYPICAL CHARACTERISTICS
FOR EACH UNIT

TYPE 832-A
$E_C = 12.6 \text{ VOLTS}$
GRID-N² 2 VOLTS = 250
SERIES HEATER ARRANGEMENT

GRID- Nº 1 MILLIAMPERES

GRID - Nº 1 VOLTS $E_C = +15$

+10

+5

0 100 200 300 400
PLATE VOLTS

92CM-4910T1

MARCH 1, 1951
AVERAGE PLATE CHARACTERISTICS
FOR EACH UNIT

$E_f = 12.6$ VOLTS  GRID-N° 2 VOLTS = 250
SERIES HEATER ARRANGEMENT

PLATE (I_b) OR GRID-N° 2 (I_c2) MILLIAMPERES

FEB. 27, 1951
TUBE DEPARTMENT
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

92CM-4912 R2