POWERS TRIODE
FORCED-AIR COOLED

GENERAL DATA

Electrical:
Filament, Thoriated Tungsten:
Voltage.................. 11.0 ................ ac or dc volts
Current.................. 12.1 ..................... amp.
Starting Current: The filament current must never exceed,
even momentarily, 24 amperes.
Resistance (Cold)...... 0.13 ...................... ohms
Amplification Factor..... 30
Direct Interelectrode Capacitances (Approx.):
Grid to Plate........... 4.4 ...................... µµf
Grid to Filament........ 4.6 ...................... µµf
Plate to Filament........ 3.2 ...................... µµf

Mechanical:
Terminal Connections:
F-Filament
FM-Filament
Mid-Tap
G-Grid Cap Terminal
P-Plate Cap Terminal
(Air-Cooled Radiator)

Mounting Position... Vertical only, Filament or Grid End Up
Overall Length........ 8-17/32" ± 3/16"
Diameter................ 1-7/8" ± 1/32"
Radiator................ Integral Part of Tube

Cooling: See following pages for cooling methods. Under any circum-
stances, sufficient air must be supplied to the radiator so that the
rated maximum radiator temperature of 180°C measured at the base of an
end fin, on the side away from the air supply, will not be exceeded.
In addition, a small amount of air is required on the filament and grid
seals to limit their temperature at the hottest part to 150°C. Air flow
must start before the application of any voltages.

AF POWER AMPLIFIER & MODULATOR - Class B

Cooling
Method I
Method II

Maximum CCS* Ratings, Absolute Values:

DC PLATE VOLTAGE .............. 3000 max. 3000 max. volts
MAX.-SIG. DC PLATE CURRENT** 400 max. 400 max. ma.
MAX.-SIG. PLATE INPUT** ....... 1200 max. 1200 max. watts
PLATE DISSIPATION** ......... 400 max. 600 max. watts

Typical Operation:

DC Plate Voltage............. 3000 ....... volts
DC Grid Voltage...................... -95 ....... volts
Peak AF Grid-to-Grid Voltage ...... 470 ....... volts

* See drawings on following pages.
** CCS = Continuous Commercial Service.
** Averaged over any af cycle of sine-wave form.
* Obtained from fixed or well-regulated supply.
** Use separate bias supply for each tube for balancing currents.
# Zero-Signal DC Plate Current
75 ma.

# Max.-Signal DC Plate Current
800 ma.

# Effective Load Resistance
(plate-to-plate) 8600 ohms

# Max.-Signal Driving Power (Approx.)
30 watts

# Max.-Signal Power Output (Approx.)
1640 watts

## RF POWER AMPLIFIER—Class B Telephony

| Carrier conditions per tube for use with a max. modulation factor of 1.0 |
|---------------------------------|-----------------|
| **Cooling Method I**            | **Cooling Method II** |
| **Maximum CCS* Ratings, Absolute Values:** |                 |
| DC PLATE VOLTAGE                | 3000 max.       |
| DC PLATE CURRENT                | 250 max.        |
| PLATE INPUT.                    | 600 max.        |
| PLATE DISSIPATION               | 400 max.        |

## Typical Operation:

| DC Plate Voltage                | 3000 volts       |
| DC Grid Voltage*                | -95 volts        |
| Peak RF Grid Voltage            | 130 volts        |
| DC Plate Current                | 200 ma.          |
| DC Grid Current (Approx.)##     | 5 ma.            |
| Driving Power (Approx.)###     | 16 watts         |
| Power Output (Approx.)            | 210 watts        |

* Obtained from a fixed or well-regulated supply.
### At crest of a-f 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 |
|---------------------------------|-----------------|
| **Cooling Method I**            | **Cooling Method II** |
| **Maximum CCS* Ratings, Absolute Values:** |                 |
| DC PLATE VOLTAGE                | 2500 max.       |
| DC GRID VOLTAGE                | -500 max.       |
| DC PLATE CURRENT                | 400 max.        |
| DC GRID CURRENT.                | 150 max.        |
| PLATE INPUT.                    | 1000 max.       |
| PLATE DISSIPATION               | 255 max.        |

## Typical Operation:

| DC Plate Voltage                | 2500 volts       |
| DC Grid Voltage:###            | -350 volts       |
|                                | 2600 ohms        |
| Peak RF Grid Voltage            | 620 volts        |
| DC Plate Current                | 400 ma.          |

### See drawings on following pages.
#### CCS—See next page.
#### Subject to wide variations as explained on sheet TUBE RATINGS in General Section.
#### obtained by grid resistor of value shown, or by partial self-bias methods.
### 6C24 POWER TRIODE

DC Grid Current (Approx.)##           135           ma.
Driving Power (Approx.)###           75           watts
Power Output (Approx.)              810           watts

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

*Key-down conditions per tube without modulation.*

<table>
<thead>
<tr>
<th></th>
<th>Cooling Method I*</th>
<th>Cooling Method II*</th>
</tr>
</thead>
<tbody>
<tr>
<td><em><em>Maximum CCS</em> Ratings, Absolute Values:</em>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DC PLATE VOLTAGE</td>
<td>3000 max.</td>
<td>3000 max.</td>
</tr>
<tr>
<td>DC GRID VOLTAGE</td>
<td>-500 max.</td>
<td>-500 max.</td>
</tr>
<tr>
<td>DC PLATE CURRENT</td>
<td>500 max.</td>
<td>500 max.</td>
</tr>
<tr>
<td>DC GRID CURRENT</td>
<td>150 max.</td>
<td>150 max.</td>
</tr>
<tr>
<td>PLATE INPUT</td>
<td>1500 max.</td>
<td>600 max.</td>
</tr>
<tr>
<td>PLATE DISSIPATION</td>
<td>400 max.</td>
<td>600 max.</td>
</tr>
</tbody>
</table>

**Typical Operation:**

DC Plate Voltage: 3000 volts

DC Grid Voltage:
- From fixed supply of: -250 volts
- From grid resistor of: 1700 ohms
- From cathode resistor of: 400 ohms

Peak RF Grid Voltage: 520 volts

DC Plate Current: 500 ma.

DC Grid Current (Approx.)###: 150 ma.

Driving Power (Approx.)###: 75 watts

Power Output (Approx.): 1100 watts

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* See drawings on following pages.

* 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 TUBE RATINGS in General Section.

* Continuous Commercial Service.

**NOTE:** When the 6C24 is used in the final amplifier or a preceding stage of a transmitter designed for break-in operation and oscillator keying, a small amount of fixed bias must be used to maintain the plate current at a safe value. With plate voltage of 3000 volts, a fixed bias of at least -90 volts should be used.

Data on operating frequencies for the 6C24 are given on the sheet TRANS. TUBE RATINGS vs FREQUENCY.

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*APRIL 1, 1946* 
RCA VICTOR DIVISION  
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY
COOLING METHOD I
Suggested Mounting

AIR DUCT
(SEE NOTE 3)

FILAMENT CONNECTORS

CLAMPING AND SUPPORTING PLATES (SEE NOTE 1)

INSULATING SUPPORTS (SEE NOTE 2)

NON-RIGID SUPPORT FOR GRID CONNECTOR

GRID CONNECTOR—SCREW OR COLLET TYPE

NOTE 1: SUPPORTING PLATE AND CLAMPING PLATE HAVE HOLES LARGE ENOUGH TO PERMIT PASSAGE OF THE GLASS BULBS OF THE TUBE.

NOTE 2: TWO OR MORE INSULATORS MAY BE USED. INSULATORS MUST BE PLACED SO AS TO NOT INTERFERE WITH AIR FLOW ONTO GRID TERMINAL.

NOTE 3: AIR DUCT MUST BE HORIZONTAL AND MUST BE DIRECTED AT CENTER OF RADIATOR.
RADIATOR COOLING REQUIREMENTS
FOR COOLING METHOD I

E_P = 11 VOLTS
MAXIMUM RADIATOR TEMPERATURE = 180°C
RADIATOR TEMPERATURE MEASURED AT BASE OF END FIN ON SIDE OPPOSITE NOZZLE.

NOZZLE TO NEAREST EDGE OF RADIATOR = 2"

AIR FLOW - CUBIC FEET PER MINUTE

PLATE DISSIPATION - WATTS

NOZZLE TO NEAREST EDGE OF RADIATOR = 1/2"

AIR FLOW - CUBIC FEET PER MINUTE

PLATE DISSIPATION - WATTS

APRIL 1, 1946
TUBE DIVISION
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

92CM-6595
TENT. DATA 3
COOLING METHOD II
Suggested Mounting

NOTE: AIR DUCT MAY BE PART OF HIGH-FREQUENCY TRANSMISSION LINE. UPPER AND LOWER FACES OF RECTANGULAR DUCT HAVE SLOTS TO PERMIT PASSAGE OF TUBE. MEANS SHOULD BE PROVIDED TO LOCK TUBE IN POSITION.
RADIATOR COOLING REQUIREMENTS
FOR COOLING METHOD II

\[ E_f = 11 \text{ VOLTS} \]

MAXIMUM RADIATOR TEMPERATURE = 180°C
RADIATOR TEMPERATURE MEASURED AT BASE OF END FIN ON SIDE OPPOSITE DUCT.

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AIR FLOW THROUGH FINS - CUBIC FEET PER MINUTE

PLATE DISSIPATION - WATTS

AIR PRESSURE DROP ACROSS RADIATOR - INCHES OF WATER

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AIR FLOW - CUBIC FEET PER MINUTE

92CM-6596

APRIL 1, 1946  TUBE DIVISION  RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY
TYPICAL CHARACTERISTICS

$E_P = 11$ VOLTS AC

GRID AMPERES

0 1000 2000 3000
PLATE VOLTS ($E_B$)

SEPT. 5, 1945
TUBE DEPARTMENT
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY
92CM-6594