RCA-6JT6, 12JT6, and 17JT6 are single-ended, high-perveance beam power tubes of the novar type having a T12 bulb. These types are useful in high-efficiency horizontal-deflection-amplifier circuits of black-and-white television receivers.

These tubes have exceptionally good knee-current characteristics, permitting them to draw a plate current of 390 milliamperes with zero grid-No.1 bias and only 60 volts on the plate. The 6JT6, 12JT6, and 17JT6 also have a high ratio of plate current to grid-No.2 current. These features, in addition to high voltage ratings and high dissipation ratings, permit the design of horizontal-deflection-amplifier circuits capable of providing full deflection for systems employing wide-angle or high-voltage picture tubes.

A separate base-pin terminal is provided to permit the application of a positive voltage to grid No.3 to minimize interference from "snivets" which may occur in both vhf and uhf television receivers.

Two base-pin terminals are provided for grid No.2 to increase the grid-No.2 dissipation capability and to provide added flexibility in circuit design.

The 6JT6, 12JT6, and 17JT6 utilize the RCA Dark Heater for long life and dependable performance.

The 6JT6 has a 6.3-volt/1.200-ampere heater. The 12JT6 and 17JT6 are identical to the 6JT6 except that the 12JT6 has a 0.600-ampere/12.6-volt heater and the 17JT6 has a 0.450-ampere/16.8-volt heater. The heaters of the 12JT6 and the 17JT6 have a controlled 11-second warm-up time for use in series heater-string arrangements.

<table>
<thead>
<tr>
<th>T12 Bulb</th>
<th>For Horizontal-Deflection-Amplifier Service in Black-and-White TV Receivers</th>
<th>Controlled Heater Warm-Up Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCA Dark Heater</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### GENERAL DATA

#### Electrical:

**Heater Ratings and Characteristics:**

<table>
<thead>
<tr>
<th>Type</th>
<th>Voltage (AC or DC)</th>
<th>Current at 1.200 V</th>
<th>Warm-up Time (Average)</th>
<th>Peak Heater-Cathode Voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>6JT6</td>
<td>6.3 ± 0.6a</td>
<td>0.606b</td>
<td>11 sec</td>
<td>Heater negative with respect to cathode: 200 max. volts</td>
</tr>
<tr>
<td>12JT6</td>
<td>12.6</td>
<td>0.450b</td>
<td></td>
<td>Heater positive with respect to cathode: 200 max. volts</td>
</tr>
<tr>
<td>17JT6</td>
<td>16.8</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Direct Intergate Capacitances (Approx.):

<table>
<thead>
<tr>
<th>Type</th>
<th>Grid-No.1 to Plate</th>
<th>Input: G1 to (K, G3, G2, H)</th>
<th>Output: P to (K, G3, G2, H)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.26 pf</td>
<td>15.0 pf</td>
<td>6.5 pf</td>
</tr>
</tbody>
</table>

#### Characteristics, Class A1 Amplifier:

<table>
<thead>
<tr>
<th>Grid-No.1 Voltage</th>
<th>Amplification Factor</th>
<th>Plate Resistance (Approx.)</th>
<th>Transconductance</th>
<th>Plate Current</th>
<th>Grid-No.2 Current</th>
<th>Grid-No.1 Voltage for plate ma = 1.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-22.5</td>
<td>4.4</td>
<td>15000 ohms</td>
<td>7100 μhos</td>
<td>390f</td>
<td>32f</td>
<td>-32f</td>
</tr>
</tbody>
</table>

a For operation of the heater of this tube in parallel with the heaters of other tubes.
b When the heater of this tube is operated in series with the heaters of other tubes, the heater current of the 12JT6 must be limited to 0.600 ± 0.040 ampere; that of the 17JT6 to 0.450 ± 0.030 ampere.
c The dc component must not exceed 100 volts.
d Without external shield.
e With grid No.2 connected to plate at socket.
HORIZONTAL-DEFLECTION AMPLIFIER

Maximum Ratings, Design-Maximum Values:
For operation in a 525-line, 30-frame system:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC Plate Supply Voltage</td>
<td>770 max. volts</td>
</tr>
<tr>
<td>Peak Positive-Pulse Plate Voltage</td>
<td>6500 max. volts</td>
</tr>
<tr>
<td>Peak Negative-Pulse Plate Voltage</td>
<td>1500 max. volts</td>
</tr>
<tr>
<td>DC Grid-No. 3 (Suppressor-Grid) Voltage</td>
<td>70 max. volts</td>
</tr>
<tr>
<td>DC Grid-No. 2 (Screen-Grid) Voltage</td>
<td>220 max. volts</td>
</tr>
<tr>
<td>DC Grid-No. 1 (Control-Grid) Voltage</td>
<td>330 max. volts</td>
</tr>
<tr>
<td>Negative-bias value</td>
<td>55 max. volts</td>
</tr>
<tr>
<td>Peak Negative-Pulse Grid-No. 1 Voltage</td>
<td>550 max. ma</td>
</tr>
<tr>
<td>Cathode Current: Peak</td>
<td>175 max. ma</td>
</tr>
<tr>
<td>Average</td>
<td>3.5 max. watts</td>
</tr>
<tr>
<td>Plate Dissipation</td>
<td>17.5 max. watts</td>
</tr>
<tr>
<td>Bulb Temperature (At hottest point on bulb surface)</td>
<td>240 max. °C</td>
</tr>
</tbody>
</table>

Maximum Circuit Values:

Grid-No. 1-Circuit Resistance:

For grid-resistor-bias operation, 1 max. megohm

f This value can be measured by a method involving a recurrent waveform such that the maximum ratings of the tube will not be exceeded.
g As described in "Standards of Good Engineering Practice Concerning Television Broadcast Stations", Federal Communications Commission.
h This rating is applicable where the duration of the voltage pulse does not exceed 15 per cent of one horizontal scanning cycle. In a 525-line, 30-frame system, 15 per cent of one horizontal scanning cycle is 10 microseconds.

i A positive voltage may be applied to grid No. 3 to reduce interference from "snivets" which may occur in television receivers. A typical value for this voltage is 30 volts.

k An adequate bias resistor or other means is required to protect the tube in the absence of excitation.

DIMENSIONAL OUTLINE
Dimensions in Inches

For Type 6JT6, and for Types 12JT6 (Ef = 12.6 V) and 17JT6 (Ef = 16.8 V).

TERMINAL DIAGRAM
Bottom View

Pin 1 - Grid No. 2
Pin 2 - Grid No. 1
Pin 3 - Cathode
Pin 4 - Heater
Pin 5 - Heater
Pin 6 - Grid No. 3
Pin 7 - Grid No. 2
Pin 8 - Do Not Use
Pin 9 - Plate

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