RCA-2A7

PENTAGRID CONVERTER

The 2A7 is a multi-electrode type of vacuum tube designed to perform simultaneously the functions of a mixer (first detector) tube and of an oscillator tube in superheterodyne circuits. Through the use of this type, the independent control of each function is made possible within a single tube. The 2A7 is intended especially for use in a-c receivers having a 2.5-volt heater supply. For general discussion of pentagrid types, see FREQUENCY CONVERSION, page 31.

CHARACTERISTICS

Heater Voltage (A. C. or D. C.) ................. 2.5 Volts
Heater Current .................................. 0.8 Ampere

Other characteristics of this type are the same as for type 6A7.

INSTALLATION AND APPLICATION

The base pins of the 2A7 fit the seven-contact (0.75-inch pin-circle diameter) socket which may be installed to hold the tube in any position. For heater operation and cathode connection, refer to the type 2A5. Complete shielding of the 2A7 is generally necessary to prevent intercoupling between its circuit and the circuits of other stages. Refer to APPLICATION on type 6A8.

Since the capacity between grid No. 4 and plate is in a parallel path with the capacity and inductance of the plate load, it is important to use a load capacity of sufficient size to limit the magnitude of the r-f voltage built up across the load. If this is not done, r-f voltage feed-back will occur between plate and grid No. 4 to produce degenerative effects. For this reason, the size of the load condenser in the plate circuit should be not less than 90 µfd.

TYPICAL PENTAGRID CONVERTER CIRCUIT

C = GANGED TUNING CONDENSER

40 TO 350 µfF

C1=C2=C5=C6 = 0.1 µf

C3 = 0.00025 µf

C4 = SEE TABLE BELOW

R1 = 250,000 OHMS, 0.1 WATT

R2 = 10,000-50,000 OHMS, 0.1 WATT

R3 = OSCILLATOR-AMOE (GRID No. 2)

VOLTAGE-DROPPING RESISTOR

R4 = 150-300 OHMS, 0.1 WATT

R5 = SCREEN (GRIDS No. 3 & 5), FILTER RESISTOR

L = 60-WILLIAMS R-F CHOKE

T = 465-KC I-F TRANSFORMER

COIL-DESIGN DETAILS

<table>
<thead>
<tr>
<th>FREQUENCY BAND</th>
<th>0.15 TO 0.40</th>
<th>0.55 TO 1.5</th>
<th>1.5 TO 4.0</th>
<th>4.0 TO 10</th>
<th>10 TO 25</th>
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<tbody>
<tr>
<td>ASSEMBLY NB</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<tr>
<td>RF COIL (L1)</td>
<td>422 36.55E6</td>
<td>118 30.55E6</td>
<td>108 32.15E6</td>
<td>115 36.2E6</td>
<td>105 36E6</td>
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<tr>
<td>OSC. GRID COIL (L2)</td>
<td>196 36.55E6</td>
<td>80 30.55E6</td>
<td>92 32.15E6</td>
<td>85 36.2E6</td>
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<td>OSC. PLATE COIL (L3)</td>
<td>60 36.55E6</td>
<td>30 30.55E6</td>
<td>20 32.15E6</td>
<td>30 36.2E6</td>
<td>30 36E6</td>
</tr>
<tr>
<td>OSC. TRACKING COND (C4)</td>
<td>117 1.1E-6</td>
<td>400 400 µf</td>
<td>1070 700 µf</td>
<td>2900 2900 µf</td>
<td>7300 7300 µf</td>
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