PASSIVE CROSSOVER
MODEL PC-3

INSTRUCTION MANUAL

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INTRODUCTION

Congratulations on your purchase. The model PC-3 is a 2-way, 6 dB per octave passive crossover network designed and factory preset for use ONLY with Audio Research model D-100 power amplifiers and Tympani ID loudspeakers. A bi-amplified system will provide increased dynamic range, lower distortion, and higher definition than is possible with a single power amplifier system of equal power.

The totally passive design of the PC-3 ensures negligible distortion under static and dynamic conditions and has an insertion loss of only 3 dB. The circuitry employed includes compensating networks to preserve high frequency transmission characteristics of the treble channels. High quality construction and exclusive use of precision metal film resistors and polystyrene capacitors are also features of the PC-3.

PACKAGING

Save All The Packaging - Your Audio Research component is a precision electronic instrument and should be properly cartoned any time shipment is made. You may never have occasion to return it to the factory for service, but if such should be necessary, or other occasion to ship it occurs, the original packaging may save your investment from unnecessary damage or delay.

INSTALLATION

Packaged with the PC-3 are (4) adhesive backed plastic feet. Install the feet by lifting them from the "carrier", locating, and pressing them into place near the corners of the bottom or side surface of the enclosure. This option permits vertical or horizontal use and subsequent cable positioning.

Connect the PC-3 into the system as shown in the "preferred connection" wiring diagram. Note that it is desirable (for improved bass performance) to use a power amplifier for each channel rather than one for bass and the other for treble exclusively.

IMPORTANT - Use only low capacitance type audio cables (50 pf total or less) for optimum performance when connecting the "treble" channel PC-3 outputs to the power amplifiers. Make certain that speaker wiring is properly phased as shown in the diagram. Refer to the speaker and power amplifier instruction manuals for a more comprehensive discussion of speaker phasing, placement, and wiring, etc.

OPERATION

Once installed, the PC-3 is ready for use. There are no internal adjustments necessary for proper operation.

It is recommended that the PC-3 "inputs" be connected to a high quality preamplifier such as an Audio Research model SP-4 or one capable of driving a varying impedance load. The input impedance of the PC-3 (when terminated with D-100's and 50 pf output cables - driven with typical 6' 200 pf audio cables) is 45 K ohms at 20 Hz and decreases to 7.5 K ohms at 20 KHz.
PREFERRED BI-AMPLIFIED CONNECTION
PARTS LIST: VALUES FOR USE WITH D-100 POWER AMPS & T-ID LOUDSPEAKERS ONLY

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1,2</td>
<td>12.7K, 1/4W, 1%, Metal Film</td>
<td></td>
</tr>
<tr>
<td>R3,4</td>
<td>4.64K, 1/4W, 1%, Metal Film</td>
<td></td>
</tr>
<tr>
<td>C1A,2A</td>
<td>15,000pf, 63V, 2 1/2%, Polystyrene</td>
<td>Used in both channels</td>
</tr>
<tr>
<td>C1B,2B</td>
<td>2,200pf, 160V, 2 1/2%, Polystyrene</td>
<td>Used in both channels</td>
</tr>
<tr>
<td>C1C,2C</td>
<td>Not used*</td>
<td></td>
</tr>
<tr>
<td>C3A,4A</td>
<td>2,200pf, 160V, 2 1/2%, Polystyrene</td>
<td>Used in both channels</td>
</tr>
<tr>
<td>C3B,4B</td>
<td>Not used*</td>
<td></td>
</tr>
<tr>
<td>C3C,4C</td>
<td>Not used*</td>
<td></td>
</tr>
<tr>
<td>C5A,6A</td>
<td>3,300pf, 160V, 2 1/2%, Polystyrene</td>
<td>Used in both channels</td>
</tr>
<tr>
<td>C5B,6B</td>
<td>Not used*</td>
<td></td>
</tr>
</tbody>
</table>

* Combined capacitor values
  \begin{align*}
  C_1 & = 17,200pf \\
  C_2 & = 2,200pf \\
  C_3 & = 2,200pf \\
  C_4 & = 3,300pf \\
\end{align*}

NOTES:
1) Network topology and values shown are optimized for D-100 input impedance and T-ID frequency response characteristics only.
2) The circuit shown is designed for a 3dB insertion loss and a minimum input impedance of 5K at 40KHz with a D-100 input "load" connected to each output.
3) Multiple capacitors of assorted values may be paralleled to obtain the combined value for each group.
4) Use only low capacitance type cables (<50pf total) for connecting "treble" outputs to power amplifier inputs.

MODEL PC-3 PASSIVE CROSSOVER SCHEMATIC