



Bozak 104T Crossover

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Parts List

- (4) - 25uF Capacitors (2 25uF wired in parallel to get the required 50uF)
- (2) - 8.2uF Capacitors
- (2) - 2.0uF Capacitors
- (6) - .1uF Capacitors
- (6) - .01uF Capacitors
- (4) - 4ohm 10 watt Ceramic Resistors
- (2) - 7.5ohm 10 watt Ceramic Resistors (if building factory tweeter attenuation)
- (2) - 8ohm 15 watt 1" Shaft L-Pads (if building updated variable attenuation tweeter attenuation)

Resistors should be non-inductive.

Tweeter Attenuator: Tobin's modification specifies a fixed-value resistor for the tweeter attenuator balancing the B-200Y tweeter's higher output than the B-200X which the B-209 B/Bc/C midrange and B-199 woofer were designed to match. The difficulty with a fixed-sized attenuator is (a) too much at lower volume levels and (b) not enough at higher volume levels. We must speculate as to why Tobin selected a fixed value: Tobin's hearing characteristics, his room dynamics, avoiding drilling holes in existing cabinets, or creating an adjustment many owners would not want to make. We do not know. Jac Chandross suggested (in his words) the obvious, but not previously used, choice of swapping the fixed value for a variable, but constant-impedance, L-Pad. The L-Pad's impedance maintains the overall impedance but permits the tweeter volume to be adjusted based upon room dynamics, music dynamics, and personal preference including hearing loss in the upper registers.

The implementation is straightforward:

(1) Remove the 7.5 ohm attenuating resistor from the tweeter network.

(2) Add an 8 ohm, 15 watt, single-shaft L-Pad such that its variable portion replaces the attenuating resistor which was removed.

Capacitor Selection: Whenever possible use smaller values to create the capacitors. Using, for example, two 25 uF capacitors instead of a single, larger unit. The reason has to do with how higher frequency signals move in and out of the capacitor. This is why bypass capacitors (see below) improve the sound.

Bypass Capacitors: Each capacitor receives two bypass capacitors, one 0.1 uF and one 0.01 uF, to improve characteristics at higher frequencies. This change was suggested by Jac Chandross. Ordinary film capacitors may be used or the higher quality Audyn variety may be used.

Inductor Lugs: The Bozak inductors have a full-value connector and a half-value tap. Choose inductor lugs marked N-102. Selecting the incorrect value will move the inductor down in frequency which may leave large gaps in the spectrum. If your upgrade sounds terrible this is likely a cause.