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## BOZAK B-4000 SPEAKER SYSTEM

**THE EQUIPMENT:** Bozak B-4000, a full-range speaker system in an enclosure. Dimensions: 44 inches high, 27 13/16 inches wide, 16 inches deep. Price, in oiled walnut, \$495. Manufacturer: R. T. Bozak Manufacturing Company, 587 Connecticut Ave., South Norwalk, Conn. 06854.

**COMMENT:** The Bozak B-4000, known as the Symphony No. 1, is an infinite-baffle speaker system. That is to say, the drivers are installed in a completely sealed, nonresonant cabinet so that only the front radiation is permitted to emanate into the listening area. This design approach depends, for its bass response, on well-constructed, low-resonance speakers and a very solid, internally braced, and acoustically dead enclosure.

The Bozak system qualifies admirably on all counts. It actually employs a total of eleven speakers: a 12-inch woofer is mounted fairly near the bottom of the front baffle-board; another 12-inch woofer is mounted nearer its center; an 8-inch midrange driver is installed near the top of the baffle; and an array of eight 2-inch tweeters is found in a vertical column nearer to one edge of the baffle, starting near its top and running down for about two-thirds its length. A dividing network, also housed inside the enclosure, provides frequency crossovers at 400 Hz (cps) and at 1,500 Hz (cps). The rate of crossover is 6 db per octave, intended to function as a "slow" or "gradual" crossover to lend tonal continuity from one range to the next.

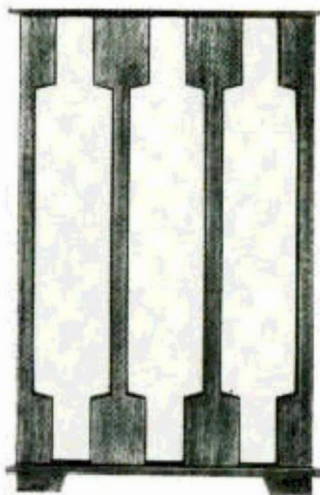
An interesting, and useful, design departure in the B-4000 is the vertical column of tweeters. Known as a "line radiator," this array of drivers feeds into a narrowing opening, or slot, which—because of its inverted taper—helps spread the highs and load them to the room with a broad and smooth dispersion pattern.

The enclosure itself is of oiled walnut, faced with shaped walnut strips over a neutral-tint grille cloth to present a neat and attractive appearance. The same system, in an alternate style enclosure featuring a double-arch design, is available for \$510. Connections are made by screw terminals at the rear, marked for polarity. Input impedance is 8 ohms. Efficiency is on the low side, and the B-4000 is recommended for use with a high-quality amplifier capable of delivering at least 30 watts per channel over the entire audio range, and with a damping factor of 8 to 20. When bought in twos as a matched stereo pair, each B-4000 is—as far as the arrangement of speakers on each baffle is concerned—a mirror image of the other. That is to say, the high-frequency columnar array of the left-channel system is toward the right-hand side of the baffle-board as you face the system; the column for

the right-hand system is on the left-hand side. This arrangement assures a satisfactory balance between stereo separation and stereo blending for a broad "wall of sound" effect with no "hole in the middle." A control, on the rear of the enclosure, adjusts the relative level of the highs to suit the system to different room acoustics.

In our tests, the B-4000 has proven to be one of the cleanest, most transparent speaker systems yet auditioned, irrespective of size, type, or price. Full and clean bass is audible down to 30 Hz (cps); response continues somewhat below this frequency with some doubling when driven very hard. Upward from the bass, response is outstandingly smooth and uniform through the midrange and extreme highs to beyond audibility. It also is quite nondirectional, and produces a very wide and broad dispersion pattern that does not seem to diminish until well above 10K Hz (kc). Actually, a 10K-Hz test tone is completely audible from any spot around the system, and even 14 K-Hz test tones could be heard well off-axis of the system. White noise response was very smooth, subdued, and, again, perceptible as a fairly broad spread throughout the listening area.

On program material, the B-4000 is quickly discerned as one of the top-performing speaker systems currently available. Its over-all quality can be described as full, clean, well-articulated, musically balanced, transparent, and eminently honest. It comes as close as any we have auditioned to providing a sense of "listening through" to the program material, and is in fact a system that helps reveal, rather than blur over, subtle differences in program sources including record-



ings and broadcasts. On stereo, the pair provide a satisfying combination of breadth and depth so that the "wall of sound" seems to have some dimension forward and back as well as from side to side. On solo material, the sound is nicely "focused" between the pair; on complex ensemble material, the presentation of the blend, combined with a revealing of inner musical detail, is superb.

The B-4000 does not emphasize one portion of the audible range over any others; nor does it favor one type of instrument over others. Its "sound" is essentially the sound of the program source, the music, itself. To a great degree of course the performance of the B-4000 depends on the quality of the associated equipment used for driving it. The B-4000 almost demands, and certainly merits, being teamed up with a low-noise turntable, sensitive pickup, and high-powered wide-range amplifier. In this sense, the B-4000 suggests use as a professional monitor as well as for installation in the finest of home music systems.