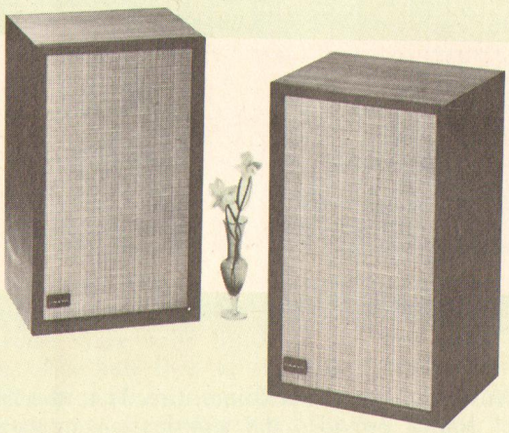
Onkyo Model 20 speaker system



MANUFACTURER'S SPECIFICATIONS
System Type: Three-way, acoustic suspension. **Components:** 12-in. woofer; 2-in. dome midrange, and 1-in. dome tweeter. **Maximum Power Capacity:** 50 watts. **Minimum Amplifier Power:** 10 watts rms/channel. **Woofer Free-Air Resonance:** 28 Hz. **Nominal Impedance:** 8 ohms. **Level Controls:** High and Mid-Range in 5 steps, each +2 dB. **Crossover Frequencies:** 700 and 7,000 Hz. **Dimensions:** 23¼ by 13½ by 11⅝ in. **Weight:** 40 lbs. **Price:** $199.95.

Onkyo is only beginning to get a reputation here but they are one of the largest organizations of their kind in Japan. They were established in 1946 and some idea of their size can be gleaned from the 1971 sales figures of $60 million and that the monthly production of stereo systems is 2,000 and loudspeakers—two million! Loudspeakers were, in fact, their first products more than 20 years ago, and Onkyo now has a most extensive range. Model 20, the system tested, uses a 12-in. bass speaker, a 2-in. mid-range dome, and a 1-in. high frequency dome. The first impression was rather favorable—the packing carton comes complete with handles for easy lifting—a feature that other manufacturers could copy with advantage! Then the first item we saw on opening the box was a pair of long connecting wires packed away in a plastic bag—not many manufacturers do this these days! The cabinet itself appears to be very well made; it is beautifully finished and solidly constructed throughout. The bass unit has a rubber surround and both domes are made of aluminum alloy—duraluminum, in fact. As can be seen from the photograph, they are protected by metal grilles. Separate level controls for mid-range and treble are provided. These are step types, giving variations of 2 dB. Figure 2 shows the arrangement. Crossover frequencies are 700 and 7,000 Hz.

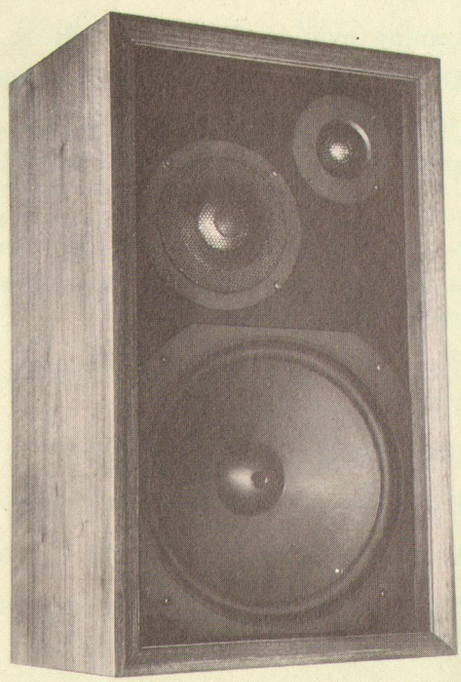


Fig. 1—Model 20 with grille cloth removed.

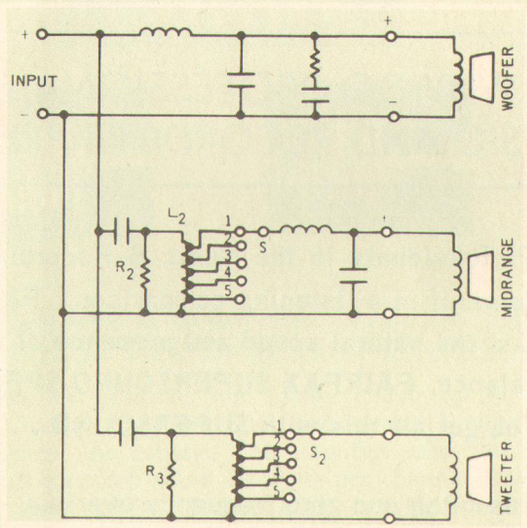


Fig. 2—Crossover and attenuator arrangement.

Listening Tests

Initial tests using a Sony 2000F preamplifier with a Phase Linear 400 amplifier showed the overall sound to be relatively uncolored but a little on the bright side. Reducing the mid-range control by two steps, or 4 dB made for a better balance—at least to our ears. Although the suspension of the bass unit was relatively stiff, low frequency performance was very good, with a tight, well-controlled bass with no trace of boom. As might be expected from a 1-in. dome, high frequency dispersion was excellent.

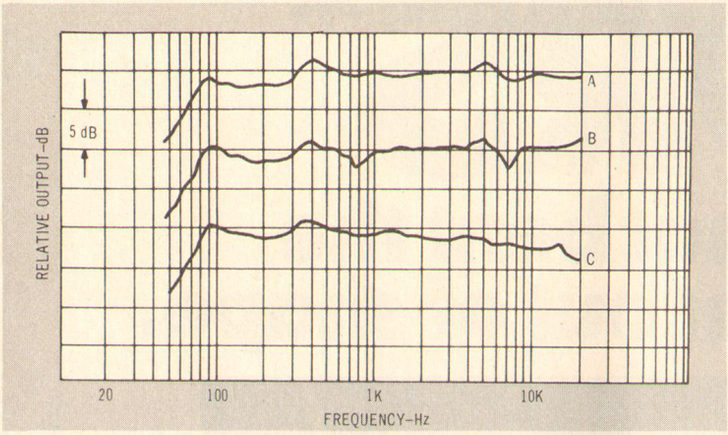


Fig. 3—Response curves taken with one-third octave pink noise.

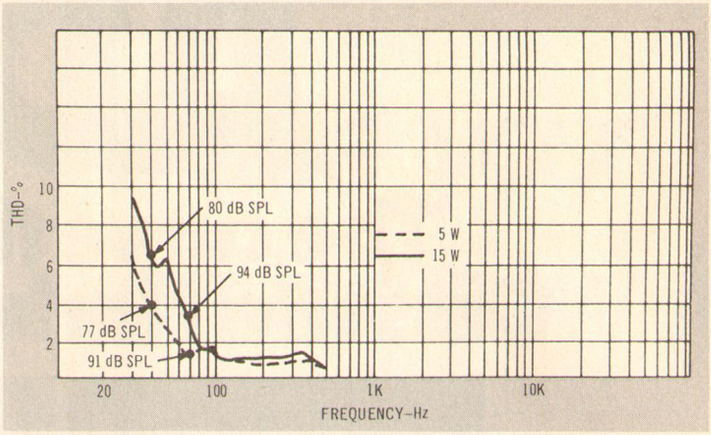


Fig. 4—Low frequency distortion and SPL.

Measurements

The frequency response curves taken with one-third octave pink noise is shown in Fig. 3. Curve A shows the response with both level controls at maximum; B shows the response at 45 degrees off-axis. Dispersion is very good indeed. The small dips at 700 and 7,000 Hz are caused by phase-cancelations. Curve C is the response on-axis with the treble control at minimum and E gives the response measured at the preferred position of the mid-range control—minus 2. Distortion measurements are shown in Fig. 4, and the impedance curve in Fig. 5. Lowest point is 5.2 ohms with an average of around 8. The tone burst characteristics at 100, 1,000, and 5,000 are shown in Fig. 6. White noise tests confirmed a slight

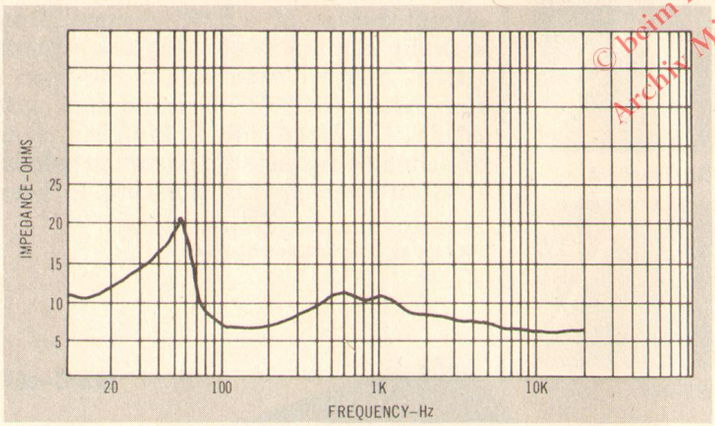


Fig. 5—Impedance versus frequency.

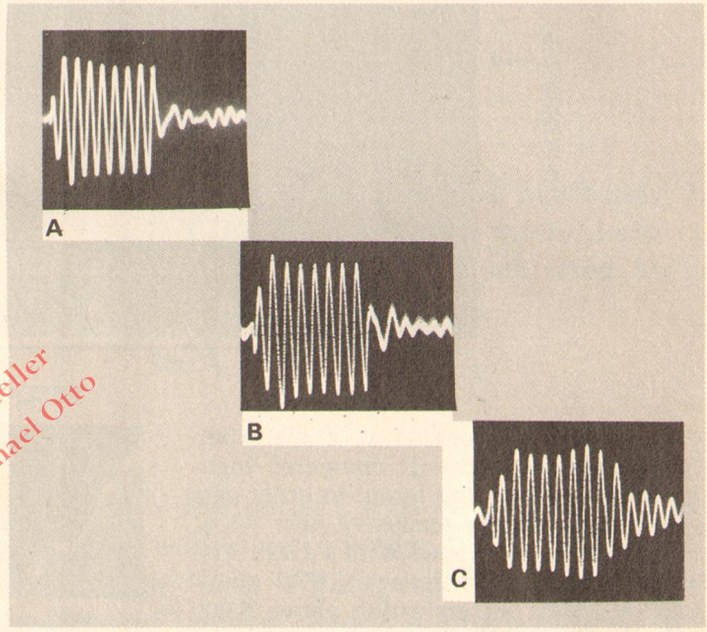


Fig. 6—Tone burst performance at **A**, 100 Hz; **B**, 500 Hz, and **C**, 5,000 Hz.

hard coloration with the mid-range control at maximum. This gives a rather forward character to the sound and the general impression was that minus 1 or 2 gave a more natural sound. Frequency doubling did not commence until 44 watts was applied at 70 Hz and the system would handle 9 watts continuous power at 35 Hz before doubling. System resonance was 57 Hz, and sensitivity was slightly above average—a power of 20 watts per channel should be adequate for most amplifier requirements. Summing up: An exceptionally well-made system with good all-around performance.

T.A. & G.W.T.

Footnote—We have just read a statement by Onkyo President Takeshi Godai which we print without comment, "We build the Onkyo speaker to be a musical instrument. It isn't just for reproducing sound. It should have a sound itself that will appeal to music tastes."