

JBL's 60 years of monitoring

JBL is celebrating 60 years in monitoring design — a period that has seen remarkable shifts in work methods and environments.

JBL's **JOHN EARGLE** says that from its earliest transducer designs to its high-tech studio monitors it has remained at the leading edge.

JBL'S HISTORICAL ASSOCIATION with studio monitors actually began before the company was formed. Jim Lansing, the company founder, had originally gone into business in Los Angeles in 1927 as Lansing Manufacturing Company. His first professional products were large-scale 2-way systems for MGM Studios and the burgeoning sound motion picture industry, and as that business grew a need for a more modest system for use in small screening and review rooms eventually arose. For that specific purpose Lansing developed the Iconic loudspeaker, truly the world's first monitor system. This design established monitoring directions for many years to come, and the basic approach is still in use today, as you can see in Figure 1. The original Iconic system made use of electrically-powered magnetic field coils, because the permanent magnet materials of the day could not provide the field strength that Lansing needed. The 15-inch low frequency driver in the Iconic had a round wire 2-inch voice coil, which was pretty much state of the art at that time. The high frequency compression driver and its associated multicellular horn were scaled down versions of Bell Telephone Labs designs from the early 1930s.

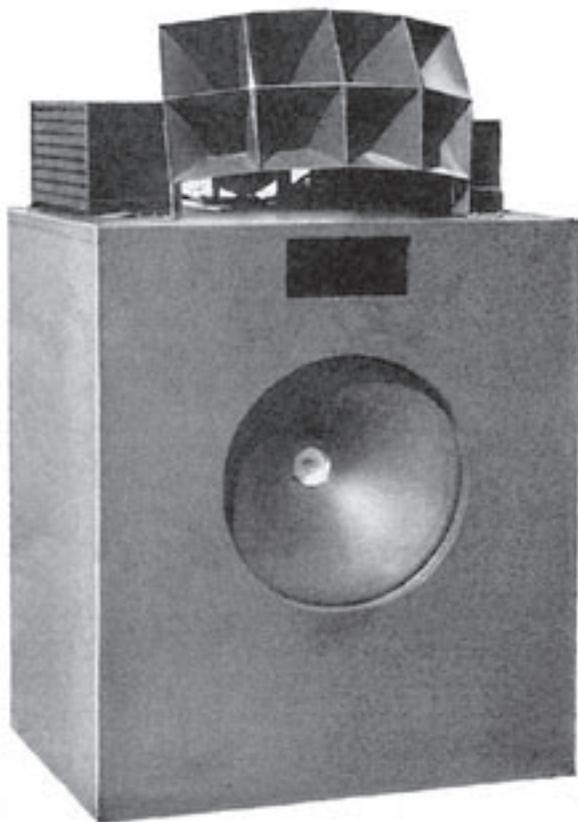


Figure 1. A utility version of the Lansing Manufacturing Company's Iconic system.



Figure 2. JBL D50SMS7 powered monitor system.

A little over a decade later in 1946, Lansing founded the company we know today as JBL and continued building components of the same power class that had characterized the original Iconic. In the progression upward, the original multicells were replaced by a new acoustical lens design, and the low frequency driver was redesigned with the industry's only 4-inch, ribbon wire voice coil. By this time magnetic technology had advanced substantially, and Alnico V material had taken the place of the old field coil approach.

During the early 1960s Capitol Records in Hollywood approached JBL with the idea of building a 2-way state of the art monitoring system. Capitol's engineering department worked closely with JBL's Transducer Engineering group and a new monitor system was soon on the drawing board. The new monitor eventually became known as the model 4320 and consisted of a high efficiency 15-inch cone driver with high linear excursion capability, along with a compression driver horn/lens assembly. The crossover frequency was 800Hz, and the enclosure volume was only 6 cubic feet.

Another variation of this system was the model D50SMS7, which was the industry's first powered monitor. In Figure 2 you can see front baffle details as well as the JBL T-Circuit 'energizer' mounted on the rear of the enclosure.

The 4320, and variations of it, immediately caught the attention of the recording industry domestically and in the overseas market. What made the 4320 so attractive was its near flat on-axis frequency response and its uniform horizontal coverage angle which extended out to the highest frequencies. (By allowing

the high frequency vertical coverage angle to decrease linearly with rising frequency, JBL could maintain a fairly constant drive voltage to the compression unit, ensuring low distortion.) It was certainly a boost to JBL's international prestige when EMI Records of Britain (Capitol's parent company) standardised on the 4320 for its studios worldwide.

Toward the end of the 1960s, renowned New York pop and classical engineer Robert Fine, of Mercury Records fame, approached JBL regarding a small system that could be used in multiples in the control room. Fine was in the process of converting his main studio in the big ballroom at the Great Northern Hotel to 8-track recording. He insisted on retaining separate monitor loudspeakers for each recording channel, and he soon found that all existing monitors were way too large to fit over the control room window. The result of the Fine-JBL collaboration was the JBL 4310 'bookshelf' monitor, a 3-way system built around a 12-inch LF unit, a 5-inch midrange unit, and small cone high frequency unit. The system was rugged, quite sensitive for its size, and voiced to resemble, to the extent possible, the former monitoring systems Fine had been used to.

Obviously, eight of anything is a lot, and the ensemble of 4310s produced a very healthy acoustical output level with relatively moderate input power-per-system. The 4310 was a great success and soon became one of JBL's biggest selling professional products. JBL's management took a good look at this success and immediately brought out the consumer version, the Century L100, likewise a best-seller. Figure 3 shows the original 4310 as well as the subsequent 4311 version, both with grilles removed.



Figure 3. JBL 4310 and 4311 with grilles removed.



Figure 4. Partial group of JBL 4300-Series monitors. The four-way systems are shown with grilles removed.

Before long, the 4311 was adopted for nearfield use on the console meter bridges of the world's top recording studios. As such, it is said to be the earliest nearfield studio monitor, and its white woofer cone established a visual paradigm that finds descendants through to the present day.

The success of both the Capitol Records and Fine Recording Company ventures kept JBL's engineering department busy during the decade of the 1970s. Other monitors in the 4300-Series included 3- and 4-way systems, many of which found their way into various non-recording professional installations as well as into the homes of Japanese audio aficionados. Figure 4 shows a partial group of 4300-Series products, including the small 4-way 4315B and the giant dual LF 4-way 4350B.

The big monitors were clearly aimed at large control rooms during an era of multitrack expansion in the recording industry. In the last two decades we have seen a remarkable change in the way recordings are created. Digital recording has slowly but surely edged out analogue technology, and recording machinery has shrunk to the size of your computer. While most tracking activities take

place in studios, those studios are likely to be much smaller than they were three decades ago. A great many postproduction operations now take place in homes, or in very small studio spaces, and the need for smaller monitor loudspeakers has become clearly evident.

Another important factor here is the ready availability of advanced digital signal processing capability at reasonable costs. This means that we can now build into our loudspeaker systems all the necessary tools for system setup, room and boundary equalisation, and time/level alignment. We can also design these systems so that format conversion is as simple as pointing a remote control unit at one of the loudspeakers and this brings us right up to date with the LSR4300-Series products shown in Figure 5. The series includes two full-range units (8-inch and 6-inch LFs) as well as a subwoofer, all of which can be accessed via a remote unit and visually monitored over a computer.

JBL's rich heritage in studio monitors and its current offerings demonstrate its commitment to providing the creative tools required by the industry in the new millennium. ■



Figure 5. JBL LSR4300-Series monitors.