

JBL L96



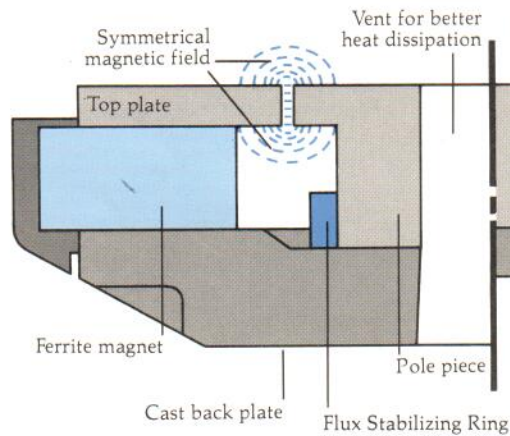
A New Expression of the State of the Art

With the L96, JBL introduces state-of-the-art loudspeaker performance to a bookshelf system of moderate size. The L96 shares the technology of our acclaimed L112 and produces much the same sound—natural and effortless, with no sense of a loudspeaker at all. The L96 will sound good on all types of music, at any volume. Its efficiency and dynamic range make it ideal for realizing the full potential of the latest digital and advanced analog recordings.

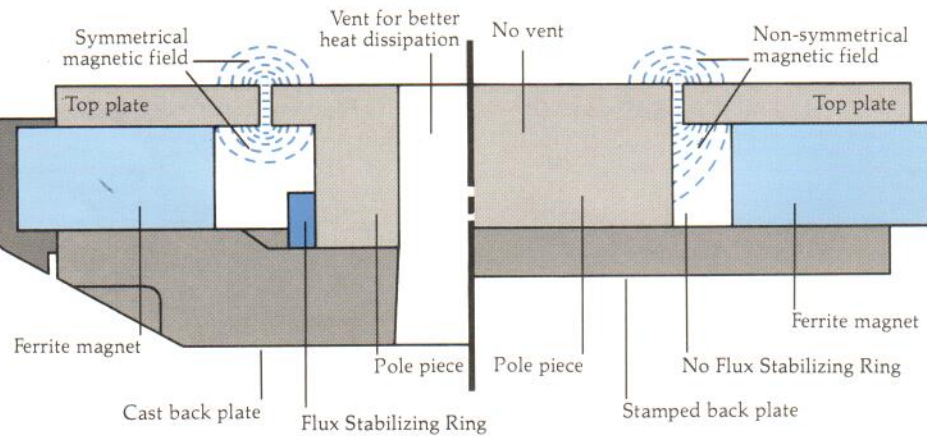
A loudspeaker as good as the L96 can come only from a company such as JBL. A combination of thorough research, imaginative yet careful design, and exceptionally high manufacturing standards makes JBL unique among loudspeaker manufacturers. (Such a combination is, in fact, rare in any industry.) Like the L112, the L96 is a synthesis of technological expertise, musical understanding, and traditional craftsmanship: another example of the state of the loudspeaker art, from JBL.

JBL L96

JBL Symmetrical Field Geometry



Conventional Magnetic Assembly



Cross-sections of the low frequency driver of the JBL L96 and of a conventional magnetic assembly.

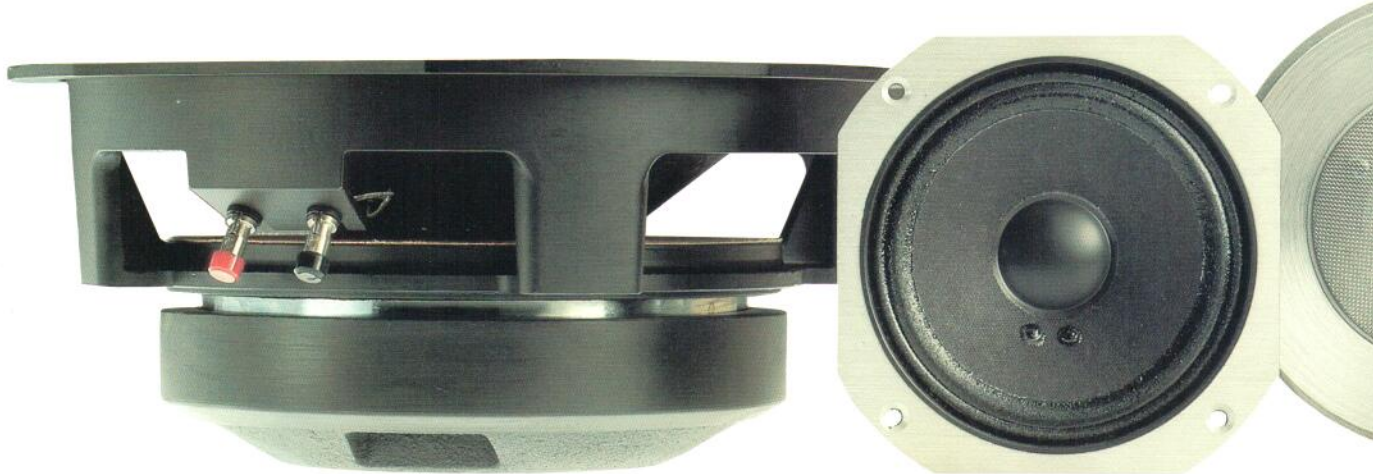
Low Frequencies— Power and Detail

Among the outstanding performance characteristics that set the L96 apart is its clean, powerful bass response. The low frequency driver responsible for this performance represents a significant JBL engineering achievement: a 10-inch (250 mm) driver that outperforms many much larger drivers, offering true deep bass performance with plenty of authority. (Contrary to popular mythology, size alone is not the determining factor in ultimate bass performance.) At a full 3 inches (75 mm) in diameter, the voice coil is much larger than is usual in a driver of this size, and it contributes to higher power handling and better transient response. You'll hear not only the full impact of the low frequencies, but also remarkable definition. The huge magnetic assembly incorporates JBL's unique SFG (Symmetrical Field Geometry) design; its innovations—the symmetrical field at the voice coil gap and aluminum Flux Stabilizing Ring—dramatically reduce the second harmonic distortion found in conventional drivers. The combination of the powerful magnet and large

edge-wound voice coil gives the driver tight control over cone movement for precise tracking of musical waveforms. To further insure the flattest frequency response, and exclusive JBL formulation coats the cone to give it the optimum mass and damping characteristics.

Midrange: Handling the Peaks with Ease

The 5-inch (130 mm) midrange driver, housed in an isolated subchamber to prevent interaction with the low frequency transducer, delivers clear, accurate reproduction. Because music has more average energy in the midrange than in the bass or treble regions, the transducer is designed to have substantial reserve dynamic range for reproducing program peaks without strain or distortion. The combination of a stiff cone and large 7/8-inch (22 mm) voice coil gives this driver excellent transient response, the ability to respond accurately to dynamics such as the initial attack of a musical note. Good transient response is necessary for natural-sounding reproduction of any music, even the soft passages.



High Frequencies:

Smooth, Extended Response

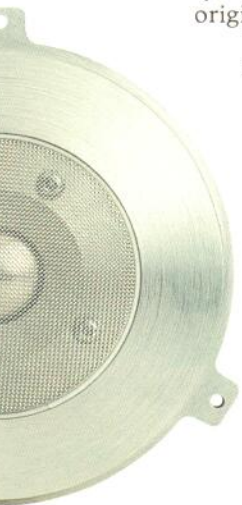
The high frequency dome radiator of the L96 has the extraordinary ability to accurately reproduce the highest harmonics—the most subtle shadings of music—with depth and detail, yet cleanly handle the loudest musical peaks as well. In developing this transducer, we utilized the capabilities of our laser-optics laboratory; using highly detailed holograms (three-dimensional photographic images) to study diaphragm motion, we can identify flaws and aberrations that might otherwise go undetected. We apply this knowledge to evaluate materials and construction techniques.

The high frequency dome is formed of a lightweight phenolic material, coated with aluminum by means of a vapor-deposition process. The dome has the optimum combination of strength, mass, and rigidity, and a copper voice coil drives it over the full circumference for smooth, low-distortion response across its entire operating range.

The High Resolution Dividing Network: Better Transients, Smoother Transitions

To take full advantage of the inherently excellent transient response of the drivers, JBL engineers designed a new dividing network with equally good transient capabilities. We achieved this superb performance through creative application of polyester capacitors typically found only in active high frequency electronics, a principle that greatly improves the resolution of complex musical waveforms. Additionally, unlike many designs that operate only at the transition frequencies, the sophisticated L96 network controls each driver throughout its operating range. Such total control smoothly blends the output of the drivers, with no perceptible shift from one to the next; the overall sound is coherent, as if produced by a single source, and the music retains the full clarity and total impact of the original performance.

The network is mounted on a heavy-duty printed circuit board to assure reliability. Level controls on the front baffle (behind the removable grille) permit adjustment of midrange and high frequency response to suit individual taste or room acoustics.



The In-Line Driver Array

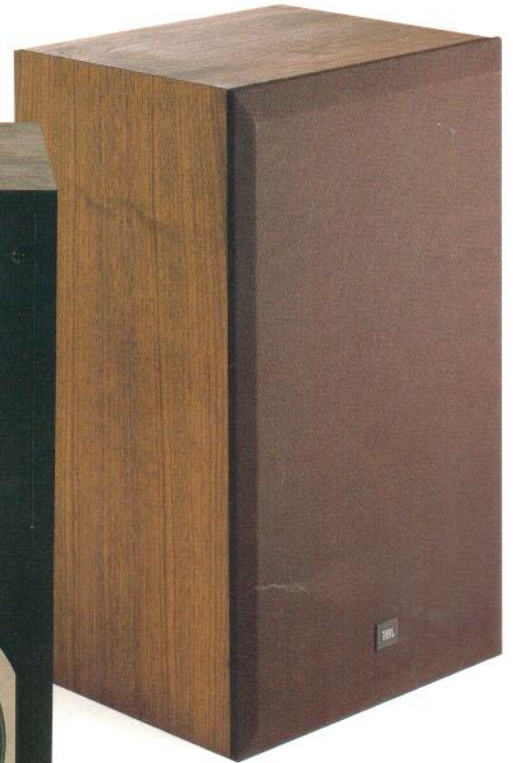
Sonic excellence requires more than accurate response; it calls for accurate imaging, the re-creation of the spatial characteristics of the original performance. One good way to achieve this is a vertical line array: in-line mounting of the drivers. This line array of the L96 balances the left-channel configuration with the right, assuring a stable, centered image. Good recordings will sound three-dimensional through the L96s, exhibiting accurate left-to-right and front-to-back placement of instruments and voices. (The drivers are slightly offset from the center line of the baffle to minimize diffraction effects from the edges of the enclosure.)



The in-line vertical array of the drivers gives the L96 exceptionally accurate imaging.

Power Capacity

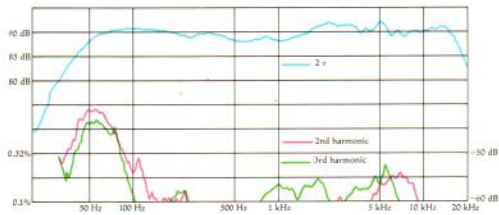
The L96 will produce sound at comfortable listening levels when driven by an amplifier having an output of as little as 10 watts continuous sine wave per channel. However, the L96 combines this efficiency with high power capacity, and an amplifier delivering up to 250 watts continuous sine wave per channel can be recommended. Such an amplifier has the reserve power necessary for accurate reproduction of transients, which can reach momentary peaks equivalent to ten times the average power level.



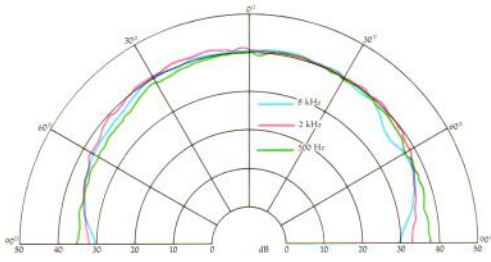
The Enclosure: Combining Strength and Style

A tightly constructed, nonresonant enclosure is important to any loudspeaker system and especially important to such a robust system as the L96. For maximum strength and resistance to vibration, the enclosure panels are cut from dense, acoustically superior 3/4-inch (19 mm) compressed wood. All joints are hand-fitted and heat-cured. A fiberglass lining absorbs unwanted reflections.

The enclosure typifies the fine furniture design that has made JBL a leader in the industry. The L96 makes a dramatic visual statement; side panels are veneered in American black walnut, oiled and hand-rubbed to a lustrous finish that enhances the beauty of the natural grain structure. Detail work is obvious; materials are skillfully selected and carefully prepared; joints are expertly closed; scratches, dents, and gluelines are nonexistent. The grille is a stretch material that is acoustically transparent.



Frequency response of the L96, measured on-axis at meter with a 1-watt input in a hemispherical free-field (2π) environment. Response in a room will vary, depending on room acoustics and system placement. The lower curves show 2nd and 3rd harmonic distortion levels.



Horizontal dispersion of the L96 at low, mid, and high frequencies. This uniform sound distribution pattern results in excellent imaging.

Crafted in the U.S.A.

Every step in the design and construction of the JBL L96, from the initial computer calculations to the final packing, is done in our Northridge, California, facility. We have complete, modern factories for transducer and furniture manufacturing, an extensively equipped scientific engineering laboratory, including a computer and an anechoic chamber, and a complete chemical laboratory. We have more test equipment devoted exclusively to quality control than many speaker companies have in their entire engineering departments, and each L96 must pass more than 50 individual quality control inspections before it can be shipped. At JBL we control all the variables, so we don't have to compromise our design goals to component availability or manufacturing expediency. We can build exactly the loudspeakers we want to build, to provide the best possible sound.

Specifications

System

Maximum Recommended Amplifier Power	250 watts per channel
Nominal Impedance	8 ohms
Crossover Frequencies	1.1 kHz, 3.7 kHz
System Sensitivity	89 dB SPL, 1 W, 1 m (3.3 ft)

Low Frequency Loudspeaker

Nominal Diameter	250 mm 10 in
Voice Coil	75 mm (3 in) copper
Magnetic Assembly Weight	4.7 kg 10¼ lb
Flux Density	1.05 tesla (10,500 gauss)
Sensitivity ¹	89 dB SPL, 1 W, 1 m (3.3 ft)

Midrange Loudspeaker

Nominal Diameter	130 mm 5 in
Voice Coil	22 mm (7/8 in) copper
Magnetic Assembly Weight	0.74 kg 15/8 lb
Flux Density	1.4 tesla (14,000 gauss)
Sensitivity ²	91 dB SPL, 1 W, 1 m (3.3 ft)

High Frequency Dome Radiator

Nominal Diameter	25 mm 1 in
Voice Coil	25 mm (1 in) copper
Magnetic Assembly Weight	0.9 kg 2 lb
Flux Density	1.4 tesla (14,000 gauss)
Sensitivity ³	89 dB SPL, 1 W, 1 m (3.3 ft)

General

Finish	Oiled Walnut
Grille Color	Brown
Dimensions	597 mm x 362 mm x 298 mm deep 23½ in x 14¼ in x 11¾ in deep
Shipping Weight	24 kg 52 lb

1. Averaged from 100 to 500 Hz, within 1 dB.
2. Averaged from 1 kHz to 3 kHz, within 1 dB.
3. Averaged above 5 kHz, within 1 dB.

JBL continually engages in research related to product improvement. New materials, production methods, and design refinements are introduced into existing products without notice as a routine expression of that philosophy. For this reason, any current JBL product may differ in some respect from its published description but will always equal or exceed the original design specifications unless otherwise stated.



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