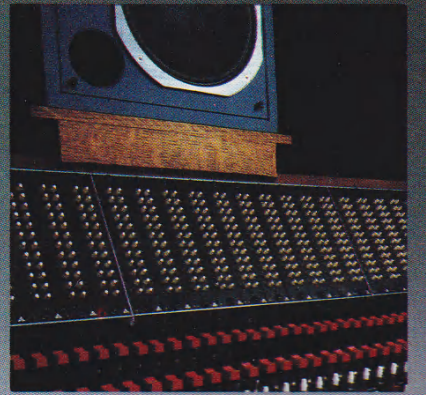
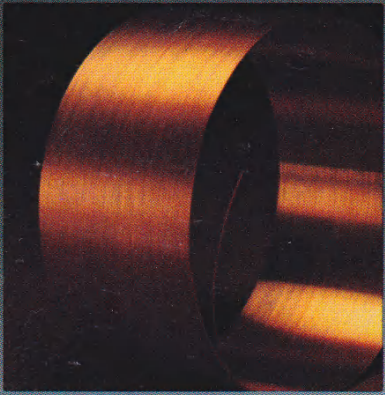
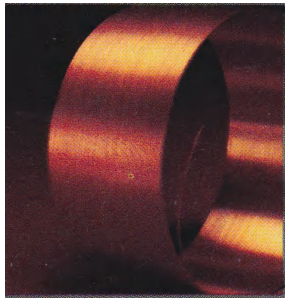


JBL L46 & L56



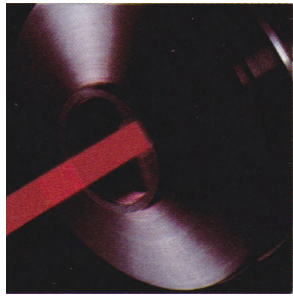


Offering smooth and accurate sound, JBL's new L46 and L56 bring the design philosophy of our renowned larger speakers to compact two-way systems.

The two new systems also share much of the larger models' technology. This includes new woofers, a new high frequency dome radiator, and advanced frequency dividing networks. The result is performance more typical of three-way designs, with flat frequency response and very low distortion. The L46 and L56 share tonal characteristics and clarity. The main difference in the sound is at the lowest frequencies, where the 10-inch woofer of the L56 will produce 3 dB more bass.

Laboratory Tests and Listening Too

We developed the L46 and L56 with the help of the most advanced research and testing techniques available, including laser interferometry and computer modeling. But even our sophisticated laboratory tests can only go so far. Only extensive listening can resolve some of the variables that separate the truly great loudspeaker from a good one. The L46 and L56 measure very well in the laboratory. Because of our long and thorough listening sessions, we're convinced that both systems produce great sound as well.



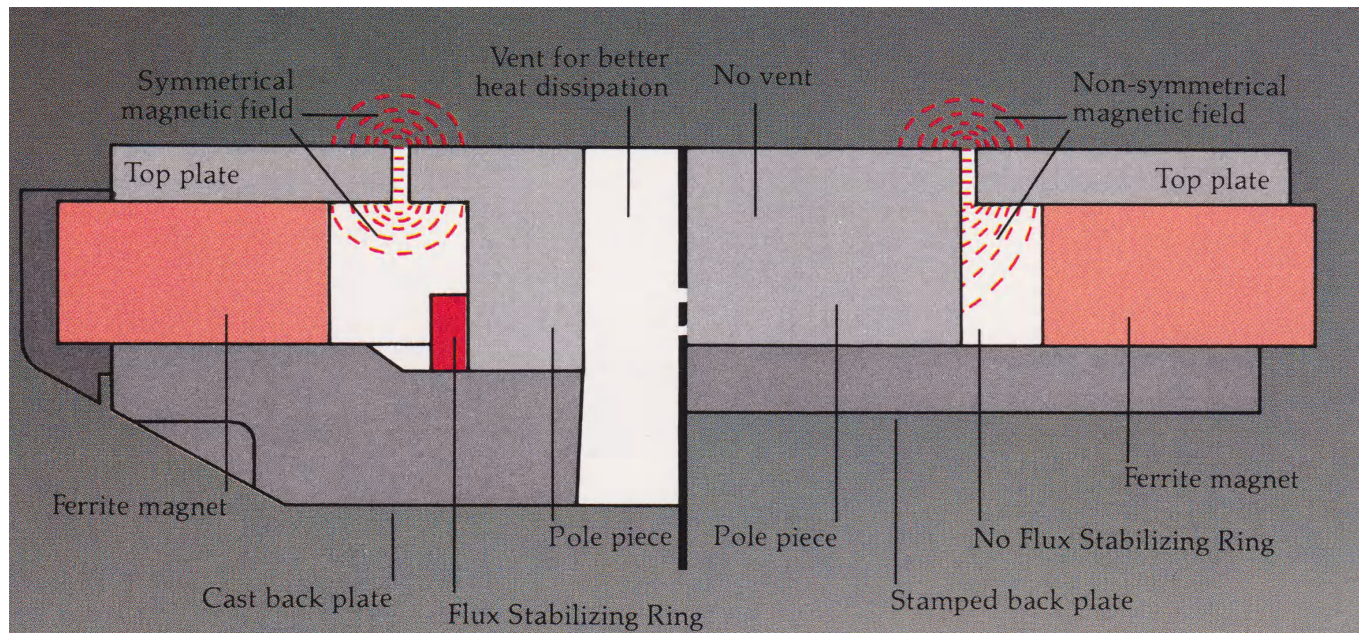
High Efficiency Plus Good Bass

By carefully designing the loudspeaker elements to work together, JBL has given the L46 and L56 both solid bass and high efficiency. An amplifier or receiver with as little as 10 watts per channel can drive

JBL L46 & L56

JBL Symmetrical Field Geometry

Conventional Magnetic Assembly



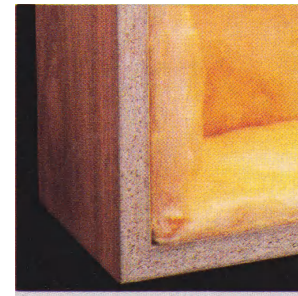
Cross-sections of the low frequency driver of the JBL L46 and L56 and of a conventional magnetic assembly.

either system to high volume levels. As with all JBL designs, the L46 and L56 combine this efficiency with high power handling. The combination gives the systems the dynamic range to reproduce the best program materials, such as the latest digital recordings. You can safely employ an amplifier or receiver rated up to 100 watts per channel with the L46, and up to 150 watts per channel with the L56.

The woofers themselves feature JBL's unique SFG (Symmetrical Field Geometry) magnetic structure. SFG creates a symmetrical field around the voice coil gap and stabilizes flux variations within the magnetic structure. The design reduces second harmonic distortion to about one-tenth the level found in drivers with conventional magnetic structures. You'll hear the improvement

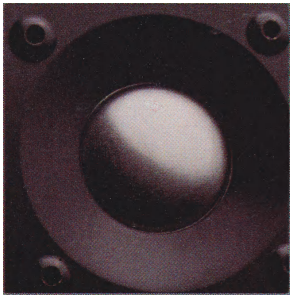
as remarkably clear, tight bass response.

We designed each woofer together with its enclosure to produce the deepest possible bass. In each system, the internal volume of the enclosure has been carefully calculated to complement the woofer's characteristics. A ducted port tunes the system to the proper response. The enclosures are constructed from dense, 3/4-inch compressed wood, a material



acoustically superior to solid wood. Internal bracing adds rigidity, and a fiberglass wool lining damps unwanted internal acoustical reflections.



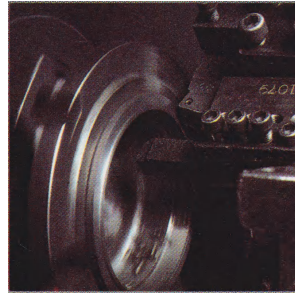


From Low to High
At the upper mid-range frequencies, a dome tweeter takes over. Another product of our laser research techniques, the dome offers very smooth,

extended response. Dispersion is excellent, as is transient response (the driver's ability to respond accurately to dynamics such as the initial attack of a musical note). The 1-inch voice coil drives the dome over its full circumference for low-distortion response across its entire operating range. The tweeter is mounted in a vertical array with the woofer, so that a pair of L46s or L56s

Better Materials and Construction

The woofers and the dome radiator all benefit from JBL's years of research into materials and construction techniques. A loudspeaker cone or dome must meet several potentially conflicting criteria. It must be rigid enough not to flex, even when driven to high volume levels. Any flexing will add distortion. The diaphragm must be of the correct mass so as not to resonate at any of the frequencies it reproduces, because such resonances will degrade the sound. And the diaphragm must also be light enough in weight to allow rapid movement, for accuracy and good transient response. In our laboratories, we have conducted exhaustive tests on every conceivable material that might meet these criteria.



The materials we chose for the L46 and L56 offer the exact performance we desire.

In each system, the woofer cone is a laminate of paper with Aquaplas, an exclusive formulation that damps spurious resonances and gives the moving assembly the optimum density

and weight for its intended frequency range. The Aquaplas allows us to hold cone weight tolerances of less than one gram, a degree of manufacturing precision not possible with other cone materials. The cone is suspended in a die-cast frame that offers greater rigidity and allows much more precise construction than a stamped frame. (High precision is especially important in achieving high efficiency.) To meet different requirements, the high frequency dome is formed of a lightweight phenolic material and coated with aluminum by means of a vapor deposition process. Despite its extremely low mass, the dome is quite rigid. This hard dome construction gives higher efficiency and higher acoustic output than a comparable soft dome. Additionally, the tweeter of the L46 and L56 has exceptionally smooth response.

The Network Brings It All Together

The drivers of the L46 and L56 have inherently excellent transient response. To take full advantage of it, JBL engineers designed a high resolution dividing network that allows the drivers to achieve their full potential. The networks make use of bypass capacitors typically found only in active high frequency electronics. Wired in parallel with the network's larger high-power capacitors, the bypass

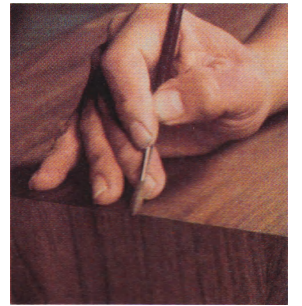
capacitors reduce the hysteresis effects (modifications of waveforms) of the large capacitors without affecting their power capacity. The result is better resolution of complex transient waveforms, and therefore clearer, more accurate sound.

The networks of the L46 and L56 also control the drivers through their full operating ranges, rather than only at the crossover frequencies. The design avoids the midrange "hole" common in many two-way systems and gives the JBL speakers a very coherent sound. The crossover frequency of the L46 is 3000 Hz. The L56 has a crossover frequency of 2200 Hz.

Fine Furniture Finish

The enclosures typify the fine furniture design that has made JBL a leader in the industry. Both the L46 and L56 make dramatic visual statements; materials are skillfully selected and carefully prepared; joints are expertly closed; scratches, dents, and gluelines are non-existent. The grilles are stretch material that is acoustically transparent.

Both the L46 and L56 are finished in oiled American black walnut veneer, hand-rubbed to bring out the grain structure of the wood. Our cabinet-making expertise makes our enclosures the equals of the finest furniture built anywhere.



Crafted in the U.S.A.

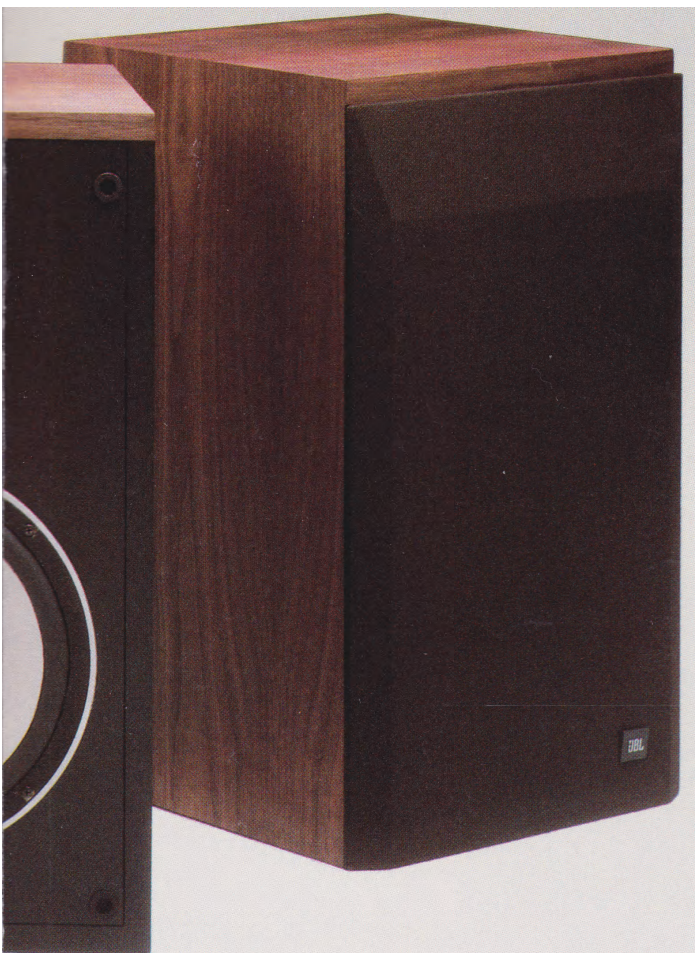
Every step in the design and construction of the L46 and L56 is done at our Northridge, California facility. We make every effort to ensure that every speaker we build matches the quality and sound of our engineering design. Incoming materials are carefully inspected, and subassemblies are inspected and tested. We give every finished product both a sound test and a thorough visual inspection before it is packed.

The enthusiastic acceptance of JBL speakers by audio professionals around the world attests to the validity of our approach. Building loudspeakers for the home requires different but equally demanding design parameters, and JBL excels at them as well. Our home systems enjoy an outstanding international reputation. In fact, in Japan, the most quality-conscious listeners in the world have made JBL the number one audiophile loudspeaker there. Through the years, JBL speakers have become classics of acoustic and visual design.

At JBL, we still think quality is important. That's why we make JBL loudspeakers the way we do.

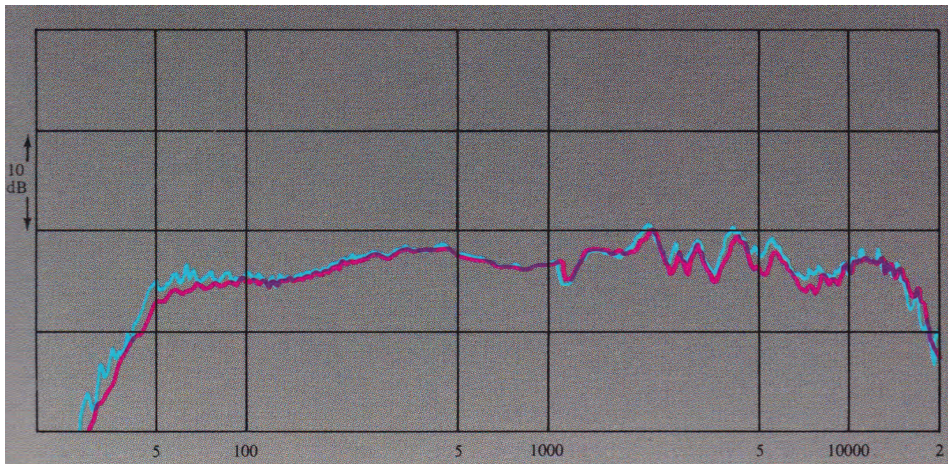


produces an uncannily accurate stereo image. Good recordings retain the spatial characteristics of the original source, including the front-to-back depth that gives the sound a lifelike three-dimensional quality.

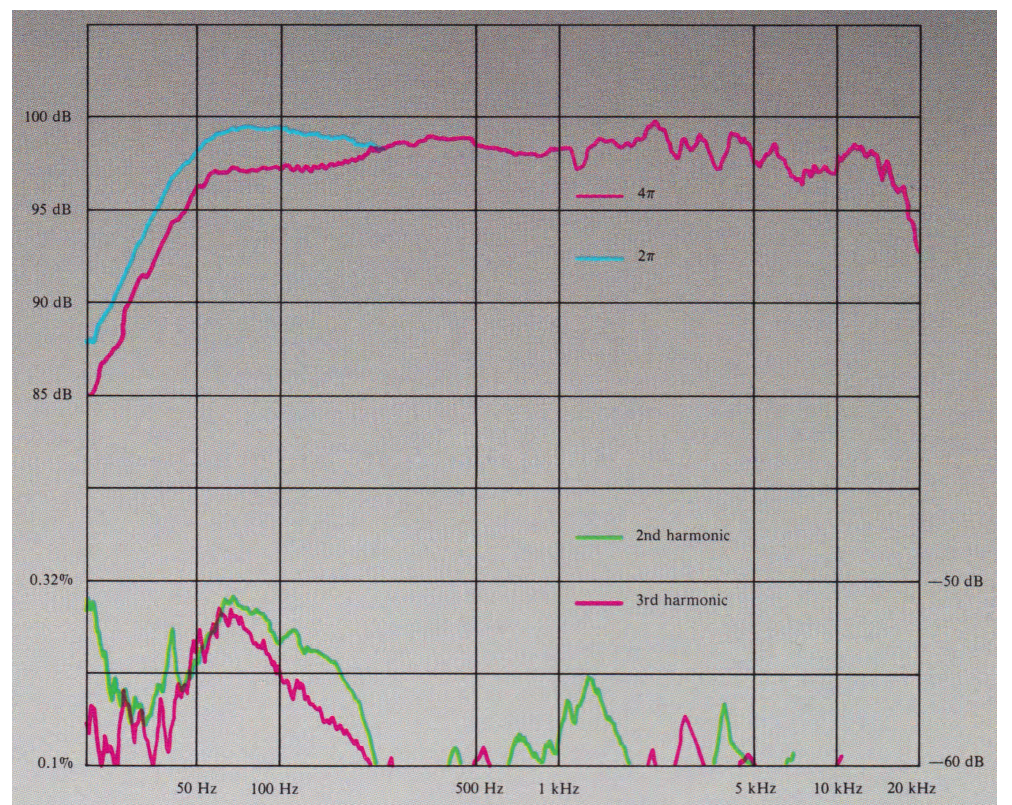


Performance Data

Although the ultimate test of a loudspeaker is in the listening, the laboratory test results can be informative as well. The graphs published here are for the L46. The L56 produces similar test results, but with 3 dB more bass and a 2 dB average increase in sensitivity.

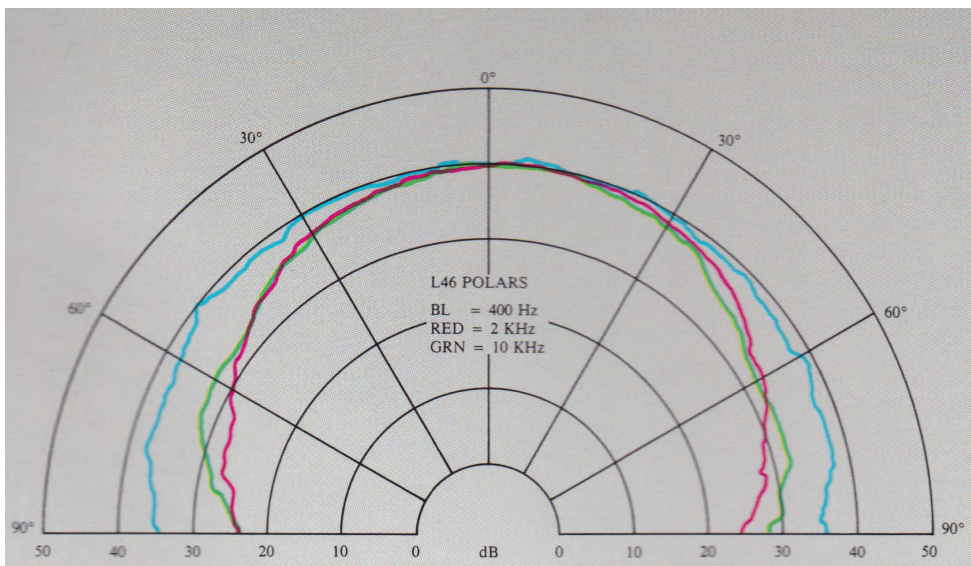


Frequency response of the L46 at 1-watt and 10-watt input levels. There are only very minor differences between the curves. These graphs illustrate the flat frequency response of the L46 at any input level. Many loudspeakers that are accurate at low volume levels become less accurate as the levels increase. The 1-watt input produces an average output level of 88 dB. Music at this volume level is loud enough to be easily heard over conversation. The 10-watt input produces an average output level of 98 dB, twice as loud.



Frequency response of the L46, measured on axis at 2 meters, with a 10-watt input. Both the free-field (4π) and hemispherical free-field (2π) results are shown. These measurements were made at our outdoor testing facility. To approximate a free-field environment in a room, place the speaker on a stand away from any walls. Placing the speaker on a stand against a wall creates a 2π environment. Placing a speaker closer to any room boundary—floor, wall, or ceiling—will increase the bass response. Corner placement on the floor adds the most bass. As the graphs show, the L46 (and L56) was designed to produce flat response in a free-field environment.

The lower curves are second and third harmonic distortion measurements. The low distortion percentages are the direct result of JBL's unique SFG magnetic structure.



Polar response of the L46 at low, mid, and high frequencies. The graph illustrates the dispersion characteristics of the L46; it is a visualization of the loudspeaker's energy distribution at the indicated frequencies. The loudspeaker is at the center of the circle and aimed at the 0° mark. Speakers that do not have good dispersion, that do not distribute energy evenly at different frequencies, produce accurate sound only on axis (directly in front of the speaker). JBL speakers are designed for wide dispersion, to distribute each frequency evenly over a wide range of listening positions.

If one word were used to summarize JBL and its loudspeaker products, that word would be "quality." From the day James B. Lansing founded the company 35 years ago, JBL has been uniquely capable of designing and manufacturing the highest quality loudspeakers for home and professional use.

James B. Lansing was a creative engineer who had been instrumental in developing the first high efficiency, high fidelity loudspeakers for movie theaters. Many of Lansing's basic designs were so advanced that they are still in use today, modified only by advances in materials and continuing to outperform other designs.

Lansing invented his own tooling to manufacture his designs. Manufacturing innovation remains a JBL tradition; we continue to design and build much of our own tooling. Our designs are so specialized that there's no other way to achieve the manufacturing quality we desire. Without this custom tooling, it is impossible to build a loudspeaker of JBL quality.

This quality has made JBL the number one choice of audio professionals. These people —recording studio engineers, musicians, concert sound contractors—depend on their loudspeakers and demand both great performance and absolute reliability. That's why you'll hear JBL speakers at concerts, why you'll find JBL speakers in the top recording studios.

Our professional experience helps us build our home loudspeakers. Because we help produce the music, we know more about reproducing it. Our professional and home systems are designed and manufactured side-by-side to the same exacting standards. Every JBL loudspeaker is part of the same 35-year tradition of high quality.

Every JBL product is also the result of thorough engineering effort, combined with exceptional care and precision in manufacture. Through these efforts, we've developed general design practices that contribute to our traditional high

performance levels, examples include the large magnets and voice coils that make our loudspeakers more efficient and help power capacity. Our machining tolerances are held to within 2 ten-thousandths of an inch —tolerances considered impossible by most of the industry. We custom-design our components for each application, rather than follow the usual practice of using off-the-shelf stock items.

In every instance, all of our design and manufacturing abilities follow our primary design philosophy: to build the most accurate loudspeakers possible. This philosophy is not unique to JBL, of course, but our definition of accuracy is.

The Many Facets of Accuracy. At JBL, accuracy is more than flat frequency response. Accuracy is also wide dynamic range, the range of loudness levels a speaker can produce. Accuracy is low distortion. And accuracy is reliability.

Flat Frequency Response. Flat frequency response is an important attribute. We design all our loudspeakers for the flattest possible response over the widest possible bandwidth. You're assured of hearing all the music with no undue emphasis on any part of it. Most manufacturers strive for flat frequency response. A few (like JBL) achieve it. But only JBL carries the concept of accuracy to cover

the other attributes necessary to perfect reproduction of the original performance.

Wide Dynamic Range. Wide dynamic range is every bit as important to the ultimate accuracy of a loudspeaker. Technically, dynamic range in a loudspeaker is the difference between the lowest audible level a speaker can produce and the highest volume level it can reach before distorting. Wide dynamic range is essential in reproducing the full range of volume levels of live music.

Dynamic range is a function of both efficiency and power capacity. The more efficient a loudspeaker, the less power it will require to reach any given volume level. The greater its power capacity, the more loudly it will play.

When high efficiency and high power capacity are combined, the result is the wide dynamic range of JBL speakers.

JBL speakers are unique in combining this wide dynamic range with flat frequency response. Unlike most systems, JBL's frequency response is just as flat at high power inputs as at low. Many loudspeakers exhibit a phenomenon known as compression: when input power is increased, the output level does not increase at the same rate across the speaker's bandwidth. This occurs most often at high frequencies. Tweeters not designed to handle high power levels exhibit a narrowing bandwidth even as their overall output increases. JBL speakers are unequalled in producing accurate sound at high volume levels.

Wide dynamic range is becoming more and more important as records and tapes improve in quality. Increasingly sophisticated noise reduction techniques, better pressings of conventional recordings, increasing numbers of digitally processed records —all offer dramatically wider dynamic range. JBL loudspeaker systems are uniquely suited to take full advantage of these improved program sources.

Low Distortion. Low distortion is also part of the overall accuracy of a loudspeaker. Ideally, the speaker should reproduce the audio signal without adding (or subtracting) anything of its own. Most loudspeakers fall far short of this ideal, producing large amounts of distortion. They are by far the weakest link in the audio chain.

But JBL loudspeakers are different. Our systems have always been known for low distortion; hence, their long-standing popularity with audio professionals. Today's JBL speakers benefit from several recent breakthroughs by our engineers, innovations that bring our distortion down to levels comparable to those of electronic components. Such low distortion levels make it worthwhile to use the very best electronics.

Reliability. How is **reliability** related to accuracy? A speaker **that isn't** functioning is the most inaccurate of **all**. **Rugged**, reliable construction is the **JBL tradition**. **JBL** speakers are built to last, built to **handle** continuous daily

use (and abuse) without strain. **Many** of the loudspeakers manufactured in the first years of **the** company are still in use today, still delivering **all the** performance designed into them.

Wide dynamic range. Flat frequency response. Low distortion. High reliability. They all add up to the JBL loudspeaker—the best investment **you** can make in your sound system.

Specifications

System	L46	L56
Minimum Recommended Amplifier Power	10 watts per channel	10 watts per channel
Maximum Recommended Amplifier Power	100 watts per channel	150 watts per channel
Nominal Impedance	8 ohms	8 ohms
Crossover Frequency	3 kHz	2.2 kHz
System Sensitivity	88 dB SPL, 1W, 1 m (3.3 ft)	90 dB SPL, 1 W, 1 m (3.3 ft)
Low Frequency Loudspeaker		
Nominal Diameter	8 in (200 mm)	10 in (250 mm)
Voice Coil	1% in (38 mm) copper	1% in (38 mm) copper
Magnetic Assembly Weight	3 lb (1.3 kg)	3 lb (1.3 kg)
Hux Density	0.95 tesla (9500 gauss)	0.95 tesla (9500 gauss)
Sensitivity ¹	88 dB SPL, 1 W, 1 m (3.3 ft)	90 dB SPL, 1 W, 1 m (3.3 ft)
High Frequency Dome Radiator		
Nominal Diameter	1 in (25 mm)	1 in (25 mm)
Voice Coil	1 in (25 mm) copper	1 in (25 mm) copper
Magnetic Assembly Weight	1 % lb (0.68 kg)	1% lb (0.68 kg)
Flux Density	1.4 tesla (14,000 gauss)	1.4 tesla (14,000 gauss)
Sensitivity ²	89 dB SPL, 1 W, 1 m (3.3 ft)	89 dB SPL, 1 W, 1 m (3.3 ft)
General		
Finish	Oiled walnut	Oiled walnut
Grille Color	Brown	Brown
Dimensions	20% in x 12% in x 10% in deep 527 mm x 317 mm x267 mm deep	22% in x 14 in x 11% in deep 565 mm x 356 mm x298 mm deep
Shipping Weight	29 lb (13 kg)	44 lb (20 kg)

1. Averaged from 100 Hz to 500 Hz, within 1 dB.

2. Averaged above 3 kHz, within 1 dB.



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