



# MODEL 4312A CONTROL MONITOR



# JBL 4312A Control Monitor

When you listen to recorded music, you're listening to the end result of a complex process. Each instrumental and vocal track is recorded separately. Then the tracks (frequently as many as 32 or even 48) are mixed to give the right sound. The final mix is used to cut a master to allow production of LPs and compact discs.

At each step of this process, the recording engineers and producers must determine when the sound is exactly right. They depend on their studio monitor loudspeakers to give them that sound, to let them hear every note the way it was played. So recording studios are very particular about which monitor loudspeaker they use. And most U.S. studios (68.5%, according to the most recent *Billboard* magazine survey) choose JBL monitors.

While JBL makes a wide range of studio monitor loudspeakers, the most popular model has been a three-way, 12-inch control monitor. The current version of this speaker is the 4312A, which incorporates all the latest JBL advances in loudspeaker technology while retaining the classic sound that has made the model so popular.

## Why a JBL Monitor in your home?

Because most studios use JBL monitors, chances are excellent that any recording you have was recorded, mixed or mastered using JBL speakers. And with a JBL 4312A Control Monitor, you'll hear exactly what the recording engineer heard when the tracks were laid down, when the recording was mixed, when the master was cut. You'll hear your recordings the way the artists and their producers intended they should be heard.

A recording engineer would say that the JBL 4312A offers wide-band reproduction at the high sound pressure levels required for studio work. What that means for you is that you can play your music loudly and get all the punch and clarity of the original performance.

The 4312A was designed for control room installations, smaller studios, mixdown facilities, and the like. As many of these rooms are about the size of the average living room, the JBL 4312A is equally at home there. In addition, while the JBL 4312A can handle lots of power, you don't need a lot to get high volume from it. The monitor is twice as efficient as the typical home bookshelf model.

In short, a pair of JBL 4312A Control Monitors will give you recording studio sound at home, without the expense of buying the whole recording studio.

## Inside the JBL 4312A

One reason studios choose JBL (in addition to the good sound) is that JBL loudspeakers are simply built better. The attention to detail is obvious when you look at the oiled walnut

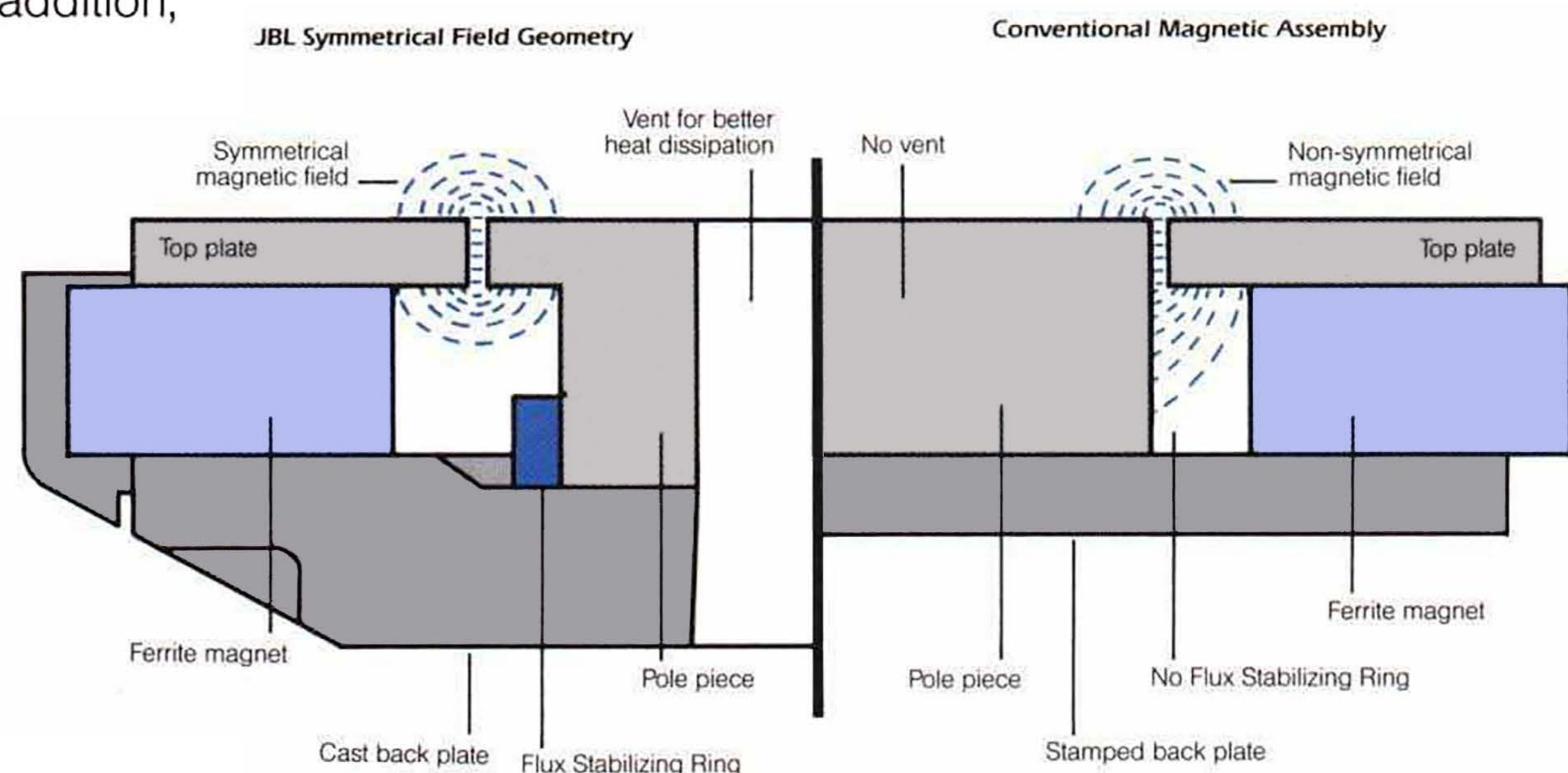


Photographed at Westlake Studio, Los Angeles, Calif.

or studio black enclosure finish, at the brushed finish of the individual drivers. This attention is more than skin deep. Throughout the speaker, only the best-quality parts are used. (Most of these parts are manufactured by JBL, because the desired quality is not available elsewhere.) Critical assembly steps are done by hand, and quality assurance checks are performed throughout the manufacturing process.

## Technical Information: Low Frequency Loudspeaker

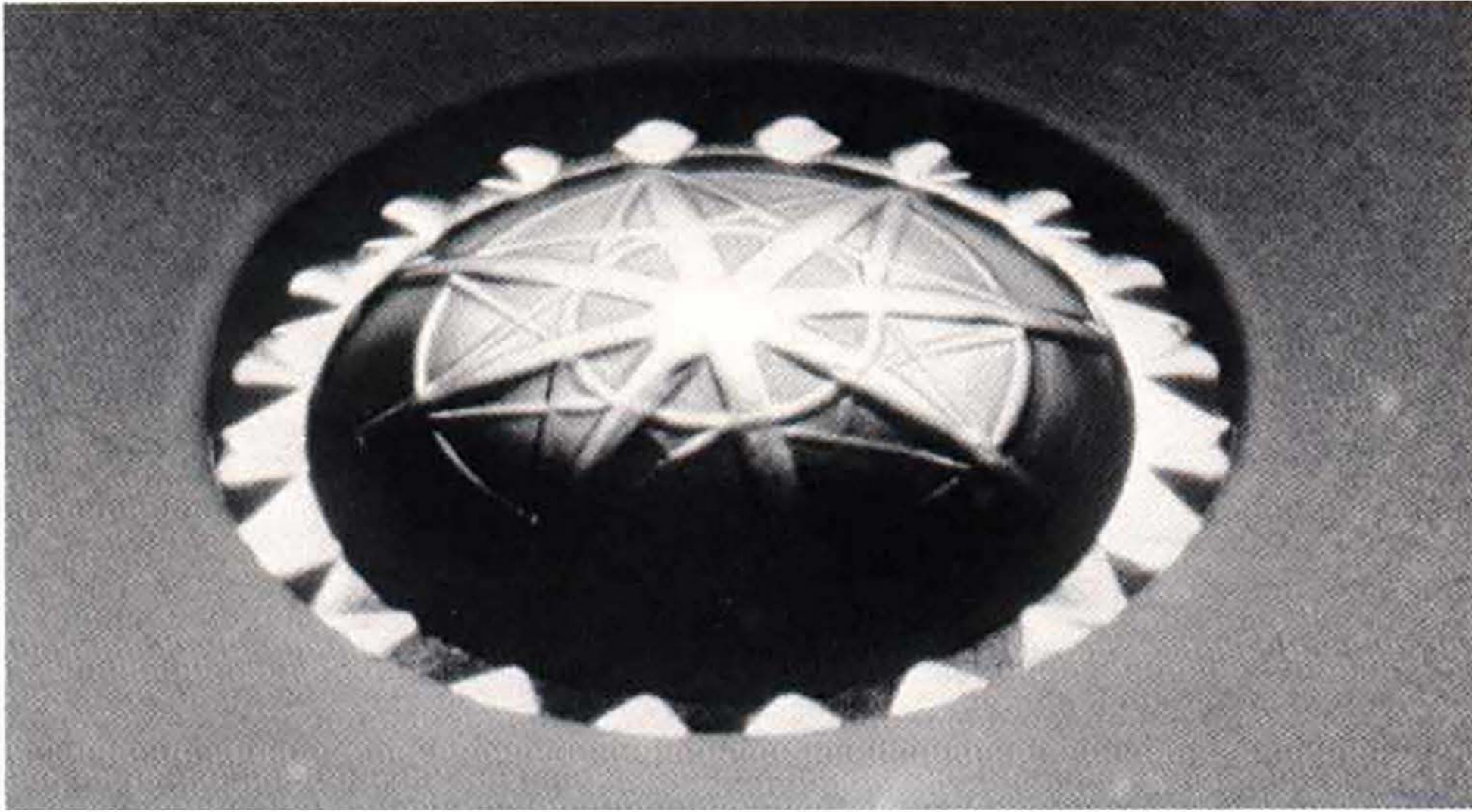
The 300mm (12 in) low frequency transducer of the 4312A utilizes JBL's unique SFG (Symmetrical Field Geometry) magnetic structure to produce deep, powerful, clean bass. The SFG innovations—the symmetrical magnetic field at the voice coil gap and the aluminum Flux Stabilizing Ring—dramatically reduce the second harmonic distortion found in conventional drivers. A powerful magnet and large 75mm (3 in) voice coil give the driver high power handling capability, further reduction of distortion, and outstanding transient response. The surface of the cone is coated with an exclusive damping formulation that provides the precise mass and density necessary to optimize bass performance and prevent spurious resonance. This results in smooth response extending into the midrange frequencies.



Cross-sections of the low frequency driver of the JBL 4312A and of a conventional magnetic assembly.

## Midrange

Transition to the midrange unit is made at a crossover frequency of 1.5 kHz. The 5-inch transducer provides clarity and freedom from audible distortion, even at the high loudness levels encountered in professional applications. The transducer is energized by a magnetic assembly having a total weight of 1.63 pounds and creating a magnetic field of 1.25 tesla (12,500 gauss). The 1-inch diameter copper voice coil drives an edge-damped cone that operates as a true piston to provide smooth frequency response and wide dispersion throughout its operating range.



## High Frequency

Reproduction above 7 kHz is accomplished by JBL's unique 1-inch pure titanium high frequency transducer. Gas pressure is used to form 25 micron thick titanium into a rugged, low mass diaphragm. The diaphragm is further stiffened by an intricate network of ribs. A pattern of diamond shaped creases or folds surrounding the dome controls resonance, extending frequency response to beyond audibility. The voice coil, suspended in a magnetic field of 1.4 tesla (14,000 gauss), is unusually large in relation to diaphragm size for high efficiency and exceptional transient response.

## Dividing Network

The frequency dividing network installed in the 4312A has been designed and tested to achieve the smoothest possible transitions between component loudspeakers. All network components are of the highest quality. Capacitors are noninductive, nonpolarized types with high AC current capacity, built expressly for use in dividing networks and individually tested for conformity to rigid performance standards. Special bypass capacitors are wired in parallel with the larger capacitors to provide improved resolution of the complex transient waveforms. Front panel controls allow separate regulation of the output from the mid and high frequency transducers. Controls are continuously variable from maximum to full off. With suitable settings of the two controls, the frequency response contour of the 4312A can be altered to compensate for almost any acoustical environment or to achieve a particular tonal balance. The control scales are marked so that special settings can be logged and easily returned to when needed.

## Billboard Magazine Studio Survey

This special Billboard survey of recording studio equipment usage was compiled from questionnaires returned by 453 U.S. recording and mastering studios from July through August 1984. Not necessarily reflecting the exact total situation in U.S. studios, the calculations show the percentage of studios using each brand and the percentage of brand responses attained by each brand.

Speakers (1,123 brand responses, 445 studios)

	% of brand responses	% of studios
JBL	27.2	68.5
Auratone	23.6	59.6
UREI	10.8	27.2
Altec	9.5	24.0
Electro-Voice	6.0	15.1
Altec-Mastering Lab	3.2	8.1
Yamaha	2.0	4.9
"Other"	17.7	44.7

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As with all JBL loudspeaker systems, the component transducers, frequency dividing network, and enclosure are designed and tested to function as a single, integrated unit. The 4312A enclosure is solidly constructed of  $\frac{3}{4}$ -inch stock throughout. Internal padding absorbs spurious reflections and standing waves. A ducted port provides proper acoustical loading of the low frequency loudspeaker. The system is offered finished in hand-rubbed American black walnut or optional black studio finish.



## Specifications

### Recommended Amplifier

Power Range	10-300 watts
Crossover Frequencies	1.5 kHz, 7 kHz
Nominal Impedance	8 ohms
High Frequency Dispersion	110° horizontal and vertical
Sensitivity <sup>1</sup>	91 dB, 1 W @ 1 m (3.3 ft)

### Low Frequency Loudspeaker

Nominal Diameter	12 inches
Voice Coil	3-inch edgewound copper ribbon
Magnetic Assembly Weight	10.25 lb
Flux Density	1.0 tesla (10,000 gauss)
Sensitivity <sup>2</sup>	89 dB, 1 W @ 1 m

### Midrange Loudspeaker

Nominal Diameter	5 inches
Voice Coil	1-inch, copper
Magnetic Assembly Weight	1.63 lb
Flux Density	1.25 tesla (12,500 gauss)
Sensitivity <sup>3</sup>	94 dB, 1 W @ 1 m

### High Frequency Loudspeaker

Nominal Diameter	1-inch
Voice Coil	1-inch, aluminum
Magnetic Assembly Weight	1.5 lb
Flux Density	1.4 tesla (14,000 gauss)
Sensitivity <sup>4</sup>	92 dB, 1 W @ 1 m

### General

Finish	Oiled walnut or studio black
Grille	Black fabric
Dimensions	23½ in x 14¼ in x 11¾ in deep
Net Weight	45 lb

<sup>1</sup> Measured with the input swept from 500 Hz to 2.5 kHz, with controls set for flattest response. Note: unlike many "theatre type" loudspeaker systems that exhibit a rise in the midrange region, the 4312A is a true monitor providing substantially the same sensitivity through the full range of audible frequencies. Measured sensitivity below 500 Hz or above 2 kHz may be considerably greater than that of other systems with higher sensitivity ratings.

<sup>2</sup> Since the major portion of the energy reproduced by the low frequency loudspeaker lies below 800 Hz, this specification has been developed using a test signal warbled from 100 Hz to 500 Hz, rather than the conventional 1 kHz sine wave test signal on which the EIA sensitivity is based.

<sup>3</sup> Averaged from 1 kHz to 3 kHz, within 1 dB.

<sup>4</sup> Averaged above 2 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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