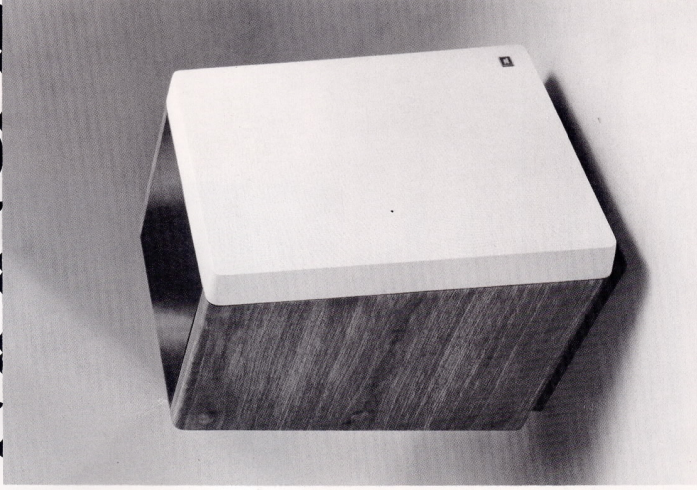


# L300 INSTRUCTION MANUAL



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The home version of one of the most successful studio monitor systems JBL has ever produced, the L300 combines high efficiency and extremely accurate transient response with high power handling capability. Its smooth, distortion-free response covers the entire range of human hearing.

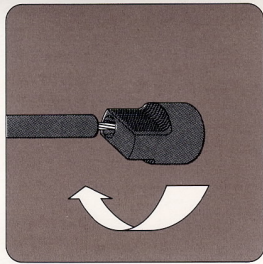
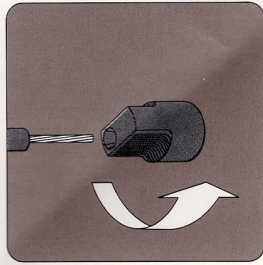
To connect loudspeaker systems placed up to 15 m (50 ft) from the amplifier, 1 mm (#18 AWG) insulated wire (ordinary household lamp cord) is the minimum size recommended. For greater distances, heavier wire is desirable: 1.3 mm (#16 AWG) for distances up to 30 m (100 ft) and 1.6 mm (#14 AWG) for distances up to 60 m (200 ft).

Connections to the loudspeaker system are made at the two terminals located on the back of the enclosure. The terminals will accept stranded or solid wire up to 2 mm (#12 AWG).

For each loudspeaker system, connect the wire from the black terminal to the amplifier output terminal labeled "common," "ground," (-), or colored black,

and the wire from the red terminal to the amplifier terminal labeled "8 ohms," "8  $\Omega$ ," (+), or colored red. If lamp cord is used, the two wires can be told apart by noting that one of the insulating jackets is smooth, while the other has a distinct ridge. Connecting both systems as described will ensure in-phase operation; i.e., their cones will respond to a monophonic signal by moving in unison rather than in opposition to each other. (Note: some amplifiers have a chassis grounding terminal, which is usually isolated from the other connectors. This should not be confused with the "ground" designation sometimes used to describe one of the terminals in each set of loudspeaker connections.)

The specified 8 ohm impedance rating is a nominal figure which suggests a connection giving the most efficient power transfer between amplifier and loudspeaker system.

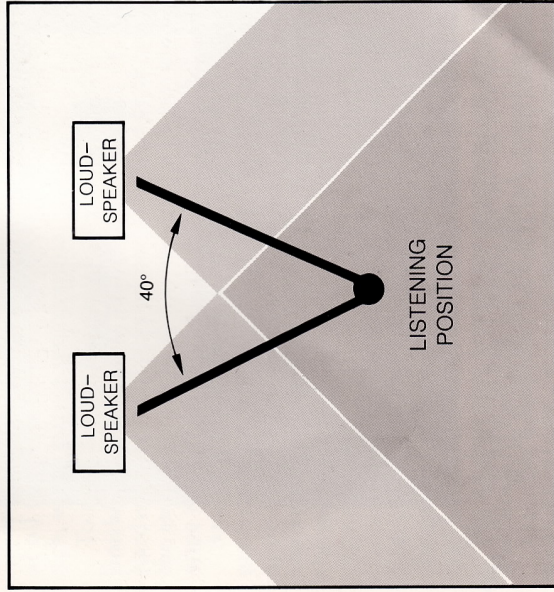


1. Strip approximately 20 mm ( $\frac{3}{4}$  in) of the insulation from the end of the wire. Twist the wire strands together.
2. Turn the terminal fully counter-clockwise, insert the wire, then turn the terminal clockwise until the wire is secured. Rotate the terminal by hand - do not force it.

#### PLACEMENT

Although JBL loudspeakers have wide dispersion, their sound is affected by their location. For example, bass response will be augmented if the enclosures are placed near adjoining room surfaces. Experiment before deciding on a final location for each system.

For the best possible stereo performance, the two loudspeaker systems should be arranged symmetrically on each side of the listener. As a general rule, the ideal listening location should be at the apex of an angle of 40° between the two systems. The distance between the enclosures should be determined by their distance from the listener and by this 40° listening angle.

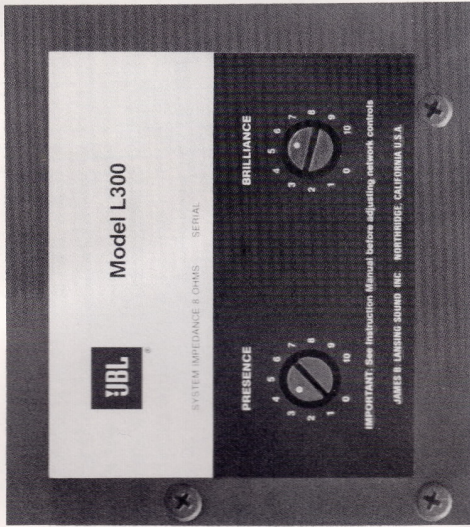


#### 40° Listening Angle

Sound from each loudspeaker blends to form a stereo image. The stereo image will be intensified and the area of best stereo perception increased if the two systems are turned slightly toward the listener.

Presence and Brilliance controls on the L300 frequency dividing network adjust the output of the midrange and high frequency drivers to compensate for listening room acoustics.

Adjust the L300 while playing typical program material with the preamplifier or receiver tone controls set for flat response. Begin by setting the Presence and Brilliance controls at "5." Turning the controls counter-clockwise will diminish midrange and high frequency levels; turning them clockwise will increase response in these ranges. Adjust the Presence control first. Once the controls have been set for the most pleasing overall results, compensation for differences in program material should be made with the tone controls on the preamplifier or receiver.



*Presence and Brilliance controls are located on the front of the enclosure, behind the removable grille.*

#### POWER CAPACITY

The L300 produces sound at comfortable listening levels when driven by an amplifier with an output of as little as 10 watts continuous sine wave per channel.\* However, JBL products combine high efficiency with high power capacity; therefore, in reproducing the full dynamic range of contemporary recordings, a high quality amplifier capable of delivering up to 400 watts continuous sine wave per channel will provide the best performance. 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 continuous sine wave rating of amplifier power is the most stringent method currently used in the audio industry. Many amplifier manufacturers use the term "watts rms" as a direct equivalent to the more meaningful "watts continuous sine wave."

#### ENCLOSURE

The L300 enclosure, which uses a ducted port to provide proper loading for the low frequency loudspeaker, is made of dense compressed wood, superior to solid wood in its acoustic properties. The rounded corners of the enclosure and the veneer on the side panels are solid American black walnut. To achieve the greatest strength and resistance to vibration, all panels are made of 19 mm (3/4 in) or 25 mm (1 in) stock, and all joints are hand-fitted and wood-welded.

The foam cushion beneath the smoked glass top can be turned to complement the grille color: grey side up for a blue or black grille, brown for a brown or camel grille. Remove the glass top and foam cushion whenever the enclosure is moved or tilted. The enclosure features a hand-rubbed oil finish. As the oil penetrates into the walnut, the veneer may

appear to be drying out. Many owners therefore re-oil the enclosure from time to time. With each application of oil the beauty of the finish will be enhanced, and a rich, warm patina will eventually appear.

To re-oil the enclosure, use any of the several clear oil finishing preparations available at furniture or hardware stores. Apply a liberal amount of the oil over the entire surface of the veneer. After fifteen minutes, wipe the surface with a clean, soft, dry cloth.

Small surface scratches can usually be removed by gently rubbing them out with #4/0 steel wool and applying oil to the entire panel. When using steel wool, use very light pressure and rub only in the direction of the grain. Deep scratches or serious damage should be repaired only by a qualified furniture refinisher.

Every component of every JBL loudspeaker system is designed and produced to meet the most rigorous standards in the audio industry:

JBL loudspeaker frames are massive cast structures, machined to exacting tolerances.

Magnetic assemblies are made of low reluctance iron and energized by large, high grade magnets.

Voice coils are hand wound and held within one turn of design specifications.

Cones are designed for the best possible combination of stiffness, density and weight.

Each component, the enclosure, and finally the system as a whole must withstand a series of uncompromising quality control tests and inspections.

**LOW FREQUENCY**—The 380 mm (15 in) low frequency loudspeaker provides solid, exceptionally accurate bass reproduction. A large 100 mm (4 in) voice coil and massive 8.5 kg (18½ lb) magnetic assembly allow it to combine high efficiency with high power capacity. The magnetic assembly utilizes JBL's innovative Symmetrical Field Geometry (SFG) to reduce second harmonic distortion to extremely low levels.

The loudspeaker also features the JBL Mass Controlling Ring, a die-cast ring that provides the precise amount of additional mass for extreme low frequency accuracy.

**MIDRANGE**—The midrange compression driver—a massive 4.5 kg (10 lb) magnetic assembly driving a 44 mm (1¾ in) hand-wound voice coil and an aluminum diaphragm—is designed to handle large amounts of power while remaining highly efficient. The combination of a lightweight diaphragm, large voice coil and powerful magnetic structure ensures exceptional transient response and accurate, transparent reproduction.

Sound from the compression driver moves through an exponential horn and slant-plate acoustic lens, which disperse it uniformly through a horizontal arc of 120° while restricting vertical dispersion to 40°.

**HIGH FREQUENCY**—A slot-loaded ring radiator provides the L300's brilliant, transparent highs. Powered by a 1.5 kg (3¼ lb) magnetic assembly that drives a 44 mm (1¾ in) voice coil affixed to a ring diaphragm, the unit combines high efficiency, high power handling capacity, and wide dispersion with a frequency range extending beyond the upper limit of human hearing.

An unusual diffraction horn, made of cast aluminum with an acrylic dispersion element, maintains horizontal dispersion above 110° to 20 kHz, while limiting vertical dispersion to 40°.

**FREQUENCY DIVIDING NETWORK**—The signal from the amplifier encompasses a wide range of frequencies. The frequency dividing network transmits each portion of the audio spectrum to the appropriate component of the loudspeaker system. Smooth, imperceptible operation of the network is vitally important.

The L300 dividing network ensures optimum performance through the transition frequencies. Its tight control of the drivers gives the L300 its studio-quality accuracy.

#### SERVICE

Should your JBL loudspeaker system require service, return it to the JBL dealer from whom it was purchased. If this is not possible, write directly to the JBL Customer Service Department, describing the problem as fully as possible. Products returned to the factory must be sent prepaid to JBL Customer Service Department, 8500 Balboa Boulevard, Northridge, California 91329 U.S.A.

#### COMPONENT REMOVAL

Should it become necessary to remove the loudspeaker system components for testing or repair, disconnect the system from the amplifier or receiver and proceed as follows:

**GRILLE**—The grille is secured to the enclosure by dowel pins located near the corners of the enclosure. To remove the grille, grasp it by the top or bottom corners and pull gently. To replace the grille, reposition it on the enclosure and press lightly to re-seat it on the dowel pins.

**LOW FREQUENCY**—The low frequency loudspeaker is held in place on the front of the baffle panel by eight Phillips-head screws threaded into T-nuts on the back of the panel. With the enclosure on its back on a clean, padded surface, carefully unscrew the screws without applying pressure that might dislodge the T-nuts. Then gently lift the edge of the loudspeaker frame from the baffle panel, disconnect the wires at the binding posts, and remove the loudspeaker.

**MIDRANGE**—Begin by removing the acoustic lens, which is held in place by hook-and-pile mounting tape. Simply pull it away from the baffle panel. When remounting the lens, center its mounting pads over the

mounting tape on the enclosure with the lens plates slanting downward and press lightly.

The compression driver/horn assembly is bolted to the baffle panel and supported by an access cover on the back of the enclosure. Remove the acoustic lens and the low frequency loudspeaker and, with the enclosure upright, remove the six screws around the access cover, but do not remove the four screws in the center.

Remove the cover and disconnect the leads to the compression driver. Then reach into the enclosure through the low frequency loudspeaker opening and support the driver and horn while removing the four screws that hold the horn to the baffle panel. Move the assembly to the rear until it is clear of the baffle, and lift it out of the enclosure. Then unbolt the horn from the compression driver. These units are quite heavy. Take special precautions against dropping them.

**HIGH FREQUENCY**—Remove the low frequency loudspeaker and reach into the enclosure to support the high frequency driver while removing the four screws that hold it on the baffle panel. Lower the unit, disconnect the leads, and lift the unit from the enclosure. When replacing it, make sure the horn opening is vertical.

**FREQUENCY DIVIDING NETWORK**—Remove the transducers and disconnect the input leads from the tab connectors at the back of the enclosure. Peel off the foil nameplate and unscrew the Presence and Brilliance assembly from the back of the enclosure, lowering it into the enclosure. The network is mounted to the bottom of the enclosure by four screws threaded into T-nuts. Remove the screws and lift the network and controls out through the low frequency loudspeaker opening. (Note: Because the nameplate is often destroyed during removal, it is not recommended that the network be removed simply for inspection. If the network must be returned for service, enclose the nameplate; a new serialized nameplate will be provided.)

**REPLACEMENT**—Reverse the removal procedure to replace the loudspeaker system components. Mounting screws should be tightened evenly in several stages to avoid warping the frame, and only enough to prevent air leaks between the components and the enclosure. Avoid using excessive force. Follow the wiring diagram on page 10.

FOR ADDITIONAL  
INFORMATION

If you have difficulty in achieving the fine performance of which your JBL loudspeaker system is capable, consult the JBL dealer from whom the system was purchased. He has the knowledge required to provide expert advice and assistance. If for some reason the JBL dealer is unable to assist you, write directly to the JBL Technical Services Department, explaining the difficulty in detail.

SPECIFICATIONS

JBL has traditionally refrained from publishing data for which no widely accepted test procedure has been established. In the absence of such standards, any laboratory can legitimately produce a variety of values, depending on the conditions selected.

**Low Frequency Loudspeaker**

Nominal Diameter	380 mm	15 in
Voice Coil	100 mm (4 in) copper	
Magnetic Assembly Weight	8.5 kg	18½ lb
Flux Density	1.2 tesla (12,000 gauss)	
Sensitivity <sup>1</sup>	93 dB SPL, 1 W, 1 m (3.3 ft)	

**Midrange Compression Driver**

Throat Diameter	25 mm	1 in
Dispersion	120° horizontal, 40° vertical	
Voice Coil	44 mm (1¾ in) aluminum	
Magnetic Assembly Weight	4.5 kg	10 lb
Flux Density	1.9 tesla (19,000 gauss)	
Sensitivity <sup>2</sup>	108 dB SPL, 1 W, 1 m (3.3 ft)	

**High Frequency Radiator**

Horn Mouth	79 mm x 18 mm	3 1/8 in x 3/4 in
Dispersion	110° horizontal, 40° vertical at 20 kHz	
Voice Coil	44 mm (1¾ in) aluminum	
Magnetic Assembly Weight	1.5 kg	3 1/4 lb
Flux Density	1.6 tesla (16,000 gauss)	
Sensitivity <sup>3</sup>	105 dB SPL, 1 W, 1 m (3.3 ft)	

**System**

Nominal Impedance	8 ohms
Crossover Frequencies	800 Hz, 8.5 kHz
Sensitivity <sup>4</sup>	93 dB SPL, 1 W, 1 m (3.3 ft)
Maximum Recommended Amplifier Power	400 watts per channel

**General**

Finish	Oiled walnut
Grille	Stretch fabric, blue, black, brown or camel
Top Surface	6 mm (¼ in) tinted glass; polyester foam cushion
Dimensions	803 mm x 584 mm x 572 mm deep 31 5/8 in x 23 in x 22 1/2 in deep
Shipping Weight	69 kg 152 lb

1. Averaged from 100 to 500 Hz, within 1 dB.  
 2. Averaged from 1 kHz to 7 kHz, within 1 dB.  
 3. Averaged above 7 kHz, within 1 dB.  
 4. All sensitivities are measured under hemispherical free-field conditions. In a room, an additional 1 to 3 dB would be realized.

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.

