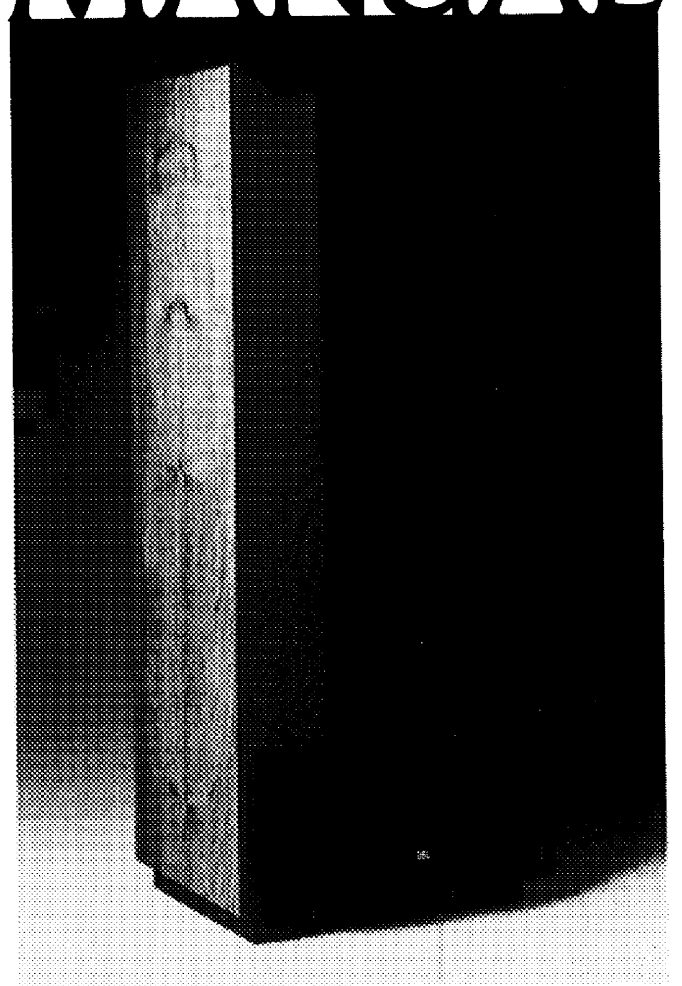


L150 INSTRUCTION MANUAL



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The JBL L150 is a floor-standing loudspeaker system which exhibits exceptional accuracy and outstanding deep bass performance. Each component is designed to provide extended power-flat frequency response, controlled dispersion, wide bandwidth, and high efficiency. The system incorporates a newly developed low frequency loudspeaker, the first large JBL driver to utilize a ferrite magnet. The unique design of its massive magnetic assembly is the result of over two years of concentrated research by JBL engineers and significantly improves on conventional designs in critical performance aspects. The impressive sound of the JBL L150 belies its modest size; the slim, columnar design occupies little floor space and will fit comfortably into any home environment.

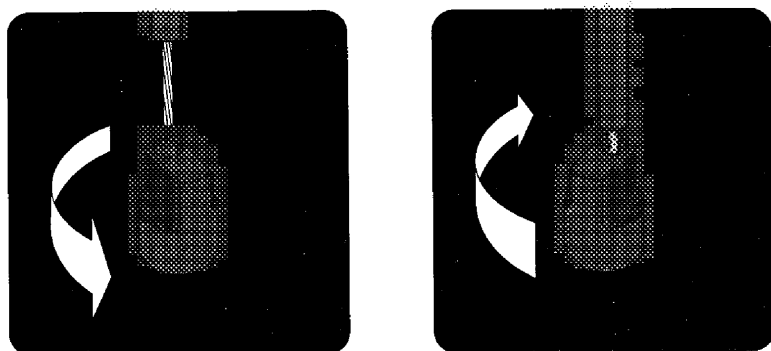
The amplifier or receiver should be turned off before making any loudspeaker connections.

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).

CONNECTING THE L150

Connections to the loudspeaker system are made at the two terminals located on the back of the enclosure, near the bottom. 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 Ω," (+), or colored red. If lamp cord is used, the wires can be distinguished from one another by noting that one insulating jacket is smooth, while the other has a distinct ridge. Connecting both systems as described will ensure in-phase operation; i.e., their diaphragms will respond to a monophonic signal by moving simultaneously in the same direction, and not opposite 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.)

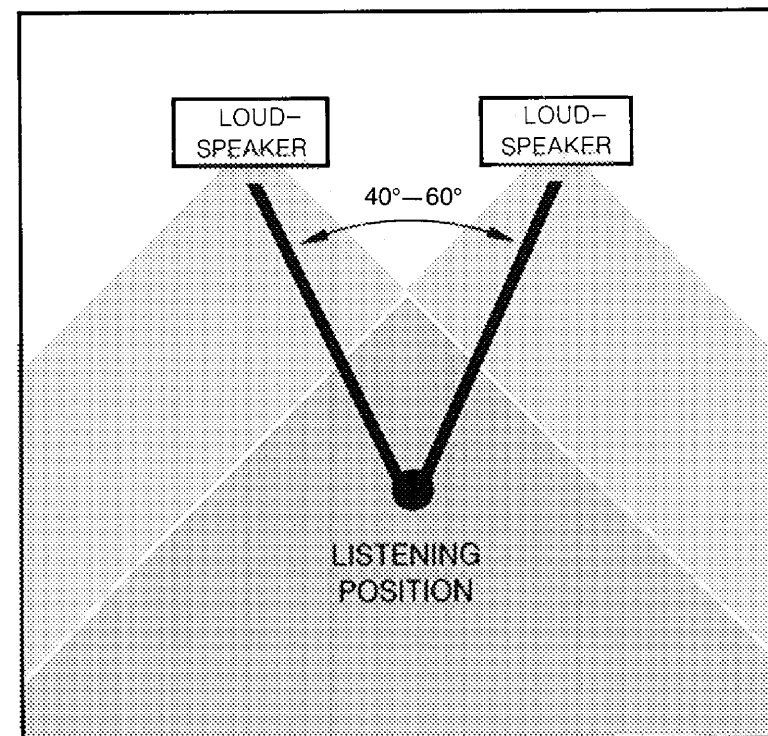


1. Strip approximately 20 mm (3/4 in) of the insulation from the end of the wire. Twist the wire strands together.
2. Turn the terminal fully counterclockwise, insert the wire, then turn the terminal clockwise until the wire is secured. Rotate the terminal by hand—do not force it.

PLACEMENT

The performance of any loudspeaker system is affected by room placement. For example, bass response will be augmented if the enclosures are placed near adjoining room surfaces (i.e., in a corner, or near a wall). If possible, experiment with placement before deciding on a final arrangement.

For the best possible stereo performance, the systems should be arranged symmetrically in front of the listener. As a general rule, a person sitting in the usual listening position should be at the apex of a 40°-to-60° angle to the two systems. The distances between the systems should be determined by their distance from the listener and by the listening angle.

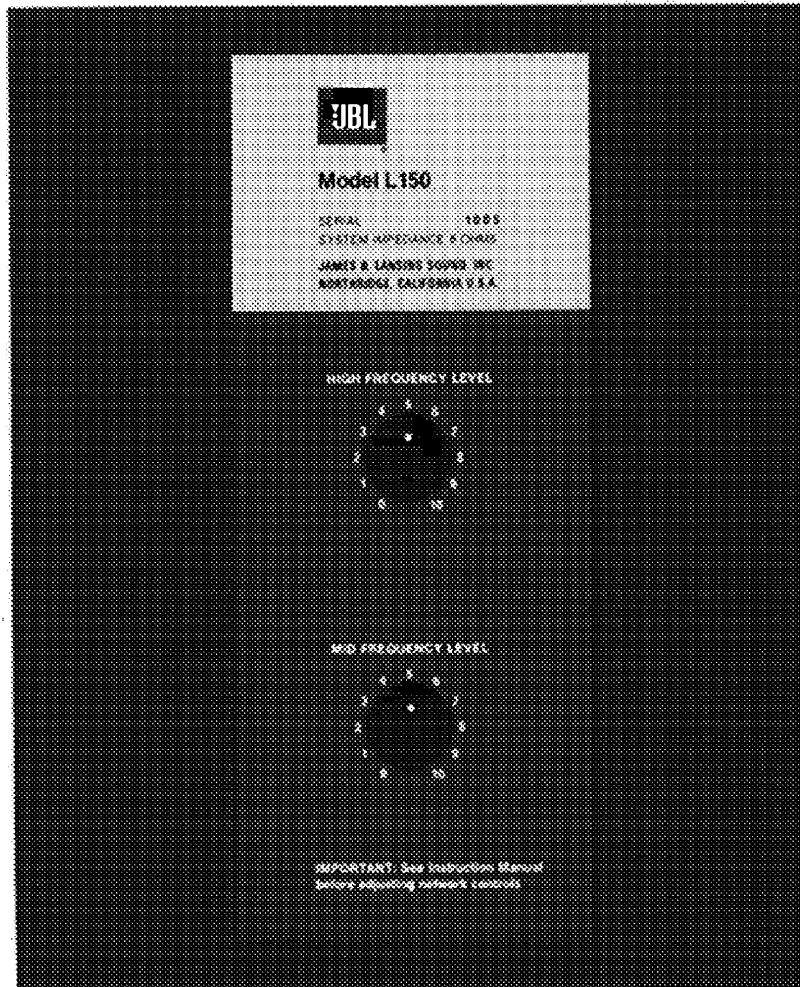


40°-60° Listening Angle

Sound energy from the loudspeaker systems blends to form a stereo "image." This image will be more stable and the area of the best stereo perception increased if the two systems are turned slightly toward the preferred listening position.

Although the L150 is designed to ensure maximum flexibility of placement within the listening room, some adjustment will usually be desired to accommodate personal preferences or specific room acoustics. Level controls for the midrange and high frequency drivers are located on the front panel of the L150, behind the removable grille. The numbers surrounding each control are for reference only; variations in room acoustics usually result in control settings between 3 and 7. However, the settings could fall outside this range in unusually live or dead rooms. The system should be adjusted while playing typical program material, with the amplifier or receiver tone controls set at the center (generally referred to as "flat") position. Evaluations should be made while seated in the normal listening location. Once all adjustments have been made and the exact placement of the systems has been determined, compensation for differences in individual recordings should be made with the tone controls on the amplifier. Note: The best stereo imaging will usually result when the level control settings on one loudspeaker system match those on the other.

ADJUSTING THE SYSTEMS



High Frequency and Mid Frequency level controls are located on the front panel of the enclosure, behind the removable grille.

POWER CAPACITY

JBL loudspeaker systems are unique in combining high efficiency with the ability to handle large amounts of power. The L150 produces 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, for reproduction of the full dynamic range of contemporary recordings at high volume, an amplifier delivering up to 300 watts continuous sine wave per channel will provide optimum 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. In any case, an amplifier should be chosen with an output power rating that is greater than that required to produce the loudest output desired. The margin of reserve power will help ensure that the amplifier will not attempt to deliver more power than its design

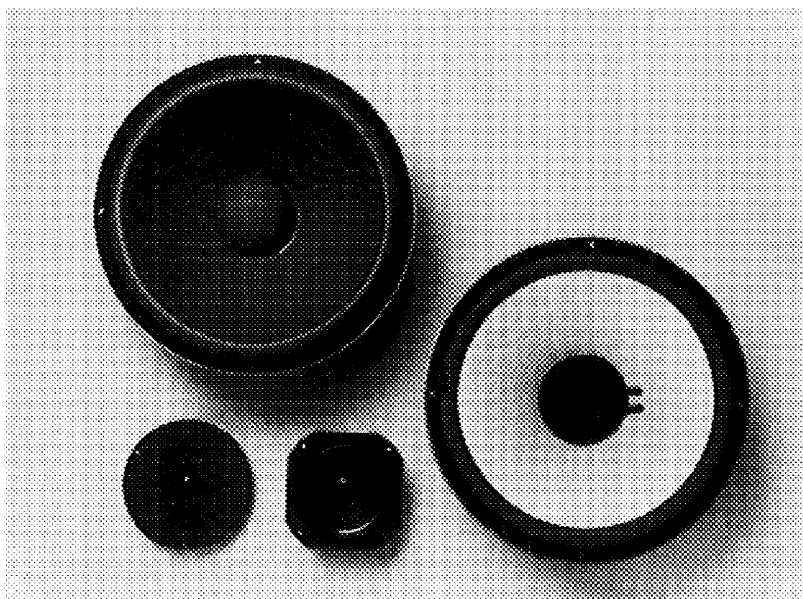
*The continuous sine wave rating of amplifier power is the most stringent method currently used in the audio industry. Many amplifier manufacturers use the term "watts rms" as a direct equivalent to the more meaningful "watts continuous sine wave"

allows. When overdriven, most amplifiers will clip signal waveforms, a condition of severe distortion which may damage the high frequency radiators in the systems.

If distortion is heard, at least one of the sound system components is operating beyond its capacity (assuming each component is properly adjusted), and the overall volume level of the sound system should be reduced. In almost all cases, the acoustic level generated by the JBL L150 will become noticeably objectionable to the ear before the loudspeaker can become damaged by excessive power from the amplifier. There is virtually no danger of damaging the JBL L150 if it is operated within the following guidelines: 1) the signal from the amplifier, regardless of its rated power, is not distorted; 2) the amplifier is not driven into clipping; and 3) audio connectors are not inserted or unplugged while the amplifier is operating.

However, a powerful wide-range amplifier can accidentally damage any loudspeaker under certain conditions. For example, fast winding a tape recorder with the playback volume turned up can generate "squeals" powerful enough to burn out the high frequency driver. Similarly, powerful low frequency pulses extending down into the subsonic range can eventually damage the low frequency loudspeaker. If the phonograph pickup is accidentally dropped with the volume control at maximum, or if the system is played very loudly with excessive bass boost, nearly the full rated power of the amplifier can be channeled into dangerous subsonic energy.

Each component of the JBL L150 loudspeaker system is designed and produced by JBL to meet the most rigorous standards in the industry. The loudspeaker frames are massive cast structures, produced to exacting tolerances. Magnetic assemblies are precisely manufactured of low-reluctance iron, energized by large, high-grade magnets. Voice coils are held to 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 withstand a series of stringent quality control tests and inspections during assembly. **LOW FREQUENCY**—A newly developed 300 mm (12 in) driver provides deep, powerful bass reproduction. The 4.7 kg (10¼lb) magnetic assembly features the first ferrite magnet to be used in a large JBL driver. JBL engineers spent over two years developing this loudspeaker, and its unique design results in substantially lower levels of second- and third-order harmonic distortion that are present in drivers using conventional ferrite assemblies. The cone is coated with a precisely controlled amount of a specially formulated material that provides optimum mass and also better damping, for smooth performance at the upper end of the driver's range.



Loudspeaker System Components

300 mm (12 in) Passive Radiator

300 mm (12 in) Low Frequency Loudspeaker

25 mm (1 in) High Frequency Dome Radiator

130 mm (5 in) Midrange Loudspeaker

A 75 mm (3 in) edgewound copper voice coil helps produce the high efficiency and remarkable transient response of the driver.

A 300 mm (12 in) passive radiator extends reproduction to the lowest portion of the frequency spectrum. The radiator is capable of high amplitude excursions generating high volume velocity—that is, it can move a lot of air very quickly. This provides extremely low-distortion response even at very high acoustic levels.

MIDRANGE—The 130 mm (5 in) midrange loudspeaker, housed within an isolated sub-chamber to prevent interaction with the low frequency loudspeaker, also delivers undistorted reproduction even at extreme volume levels. Its 22 mm (7/8 in) copper voice coil is large for a loudspeaker of this size, yielding exceptional transient response and efficiency. A very stiff cone reduces the possibility of cone breakup at very high power levels.

HIGH FREQUENCY LOUDSPEAKER—The 25 mm (1 in) high frequency loudspeaker is small enough for excellent dispersion and light and strong enough to provide high output easily. The voice coil, which follows the circumference of the radiating surface, is large for a high frequency driver and provides high power handling capacity and exceptional transient response. Special clamping rings on the compliance ensure linear motion and prevent extraneous reflections. High frequency performance extends beyond the upper limit of human hearing.

FREQUENCY DIVIDING NETWORK—The frequency dividing network allocates each portion of the audio spectrum to the appropriate component of the loudspeaker system. Transitions from one loudspeaker to the next are imperceptible, and the output of the drivers blends smoothly; the loudspeakers thus present uniform coverage throughout the room. The L150 network incorporates impedance-leveling and phase-correcting circuitry, ensuring that the network operates in a nearly ideal manner through the transition frequencies while attenuating rapidly outside each individual driver's operating range to prevent interference. All of the complex dividing network circuitry of the L150 is mounted on a printed circuit board.

The network incorporates controls that adjust the output of the midrange and high frequency drivers to compensate for listening room acoustics.

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.

SERVICE

Should it become necessary to remove the loudspeaker system components for testing or repair, turn off the power at the amplifier or receiver, disconnect the loudspeaker system, and follow the described procedures.

GRILLE—The grille is secured to the enclosure by dowel pins located along the edges of the baffle panel. To remove the grille, grasp it by both top or both bottom corners and pull gently. To replace it, reposition it on the dowel pins and press lightly.

All of the loudspeakers are held in place by screws threaded into T-nuts. When removing or installing these screws, be careful not to apply excessive pressure that could dislodge the T-nuts.

LOW FREQUENCY—The low frequency loudspeaker is held in place on the front of the baffle by four Phillips-head screws. Place the enclosure on its back on a clean, padded surface, and carefully remove the screws. Grasp the loudspeaker by the edge of its frame, lift it away from the baffle panel, disconnect the wires at the binding posts, and remove the loudspeaker.

PASSIVE RADIATOR—Because of its inherent simplicity, the passive radiator is unlikely to require service. However, if removal is required, the procedure is the same as for the low frequency loudspeaker, except that there are no wires to disconnect.

COMPONENT REMOVAL

MIDRANGE—The midrange loudspeaker is held in place by Allen-head screws at each corner of its frame. Remove the screws with a $\frac{5}{64}$ -inch Allen wrench, lift the unit from the enclosure, and disconnect the leads at the tab connectors.

HIGH FREQUENCY—The high frequency loudspeaker is secured by three Allen-head screws threaded into T-nuts. Carefully take out the mounting screws using a $\frac{3}{32}$ -inch Allen wrench and lift the assembly out of the enclosure. Disconnect the two leads from the dividing network at the tab connectors on the back of the frame.

DIVIDING NETWORK—Remove the loudspeakers and pull the wire leads from the midrange sub-chamber so that they fall into the enclosure. Before removing the network, disconnect the leads from the level controls at the tab connectors on the network. The network is mounted to the rear panel of the enclosure and held in place by four Phillips-head screws. Support the network as you remove the screws (this procedure is best accomplished by two people) and lift the network out through the low frequency loudspeaker opening.

Note that it is not necessary to remove the level control assembly in order to remove the network. If, for any reason, it becomes necessary to remove the level controls, carefully peel the serialized foil nameplate from the baffle panel, remove the three mounting screws, and lower the assembly out through the low frequency loudspeaker opening. (Because the nameplate is generally destroyed during removal, it is not recommended that the level control assembly be removed simply for inspection. If the assembly must be returned for service, enclose the original nameplate; a new serialized nameplate will be provided.)

REPLACEMENT—Reverse the removal procedure to replace the loudspeaker components. Mounting screws should be tightened evenly to avoid the possibility of frame warpage and just enough to prevent air leaks between components and the enclosure.

Although JBL loudspeakers are extremely rugged, the cone and other moving parts are subject to accidental damage. Exercise caution when using a screwdriver or other tools in their immediate vicinity.

ENCLOSURE

The L150 enclosure panels are made of dense compressed wood (also known as particle board), superior to solid wood in its acoustic properties. For maximum strength and resistance to vibration, all panels are cut from 19 mm ($\frac{3}{4}$ in) stock, the structure is extensively braced, and all joints are hand-fitted.

The finish veneer is American black walnut, treated with an oil/wax preparation and hand rubbed to a rich, lustrous finish.

As the oil penetrates deeply into the walnut, the finish may appear to be drying out. Many owners find it desirable to re-oil the enclosure surface from time to time. With each application, the beauty of the finish will become more apparent and a warm, rich patina will eventually be obtained.

To re-oil a JBL finish, use any one of the several clear oil finishing preparations available through furniture or hardware outlets. Apply a liberal amount of the preparation over the entire finished surface of the enclosure. In ten to fifteen minutes wipe off the remaining oil with a soft, clean, dry cloth. Small surface scratches can usually be removed by gently rubbing them out with very fine steel wool (4/0 grade) and applying oil to the entire panel. When using steel wool, apply light pressure and rub only in the direction of the grain. Very deep scratches, dents, or other serious damage should be repaired only by a qualified furniture refinisher.

The grille cloth can be cleaned by gentle dusting with a vacuum cleaner. Stains can be removed by using a soft bristle brush moistened with mild soap and water. Do not use any cleaning fluids or solvents of any kind, as they could damage the grille.

If you have difficulty in achieving the fine performance of which your JBL loudspeaker system is capable, consult the franchised JBL dealer from whom the system was purchased. He is equipped with 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.

FOR ADDITIONAL
INFORMATION

Rather than repeat the ambiguity of most technical specifications, JBL has traditionally refrained from listing data for which no widely accepted test procedure has been established. In the absence of such standards, any well-equipped laboratory can legitimately produce a variety of frequency response curves for a loudspeaker, depending on the conditions selected.

At JBL the final analyses are comprised of extensive listening sessions. Although laboratory data are an integral part of the process, the trained ear is the ultimate criterion. The success of this philosophy is reflected in the enthusiastic acceptance of JBL systems by recording studio engineers, producers, and performers—professionals whose artistic achievements are closely related to the equipment they use.

SPECIFICATIONS

Low Frequency Loudspeaker

Nominal Diameter	300 mm	12 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	1⅝ lb
Flux Density	1.4 tesla (14,000 gauss)	
Sensitivity ²	91 dB SPL, 1 W, 1 m (3.3 ft)	

High Frequency Loudspeaker

Nominal Diameter	25 mm	1 in
Voice Coil	25 mm (1 in) aluminum	
Magnetic Assembly Weight	0.68 kg	1½ lb
Flux Density	1.4 tesla (14,000 gauss)	
Sensitivity ³	90 dB SPL, 1 W, 1 m (3.3 ft)	

General

Finish	Oiled walnut	
Grille	Brown, rust, or camel fabric	
Dimensions	1054 mm x 43mm x 330 mm deep	
	41½ in x 17 in x 13 in deep	
Shipping Weight	41 kg	90 lb

System

Maximum Recommended Amplifier Power	300 W per channel	
Nominal Impedance	8 ohms	
Crossover Frequencies	1 kHz, 4 kHz	
System Sensitivity	88 dB SPL, 1 W, 1 m (3.3 ft)	

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

2. Averaged from 1 kHz to 3 kHz, within 1 dB.

3. Averaged from 5 kHz to 20 kHz, within 1 dB.

LOUDSPEAKER SYSTEM WIRING

