

# Owner's Manual

L1

L3

L5

L7



**JBL**

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### **IMPORTANT: L3, L5, AND L7 MODELS REQUIRE SOME ASSEMBLY.**

For proper stability, it is strongly recommended that you use the molded base provided with each L3, L5, and L7 speaker.

Instructions begin on the next page, third column.

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## The Right Choice

All of us at JBL would like to congratulate you on choosing JBL L Series Loudspeakers. There are a bewildering array of speakers on the market today and we know that the choice to purchase ours was probably not an easy one. We're confident that the new speakers you've just unpacked will exceed your expectations.

Your state-of-the-art L1, L3, L5 or L7 speakers continue in the long tradition of precise studio monitor sound for which JBL is famous. Each model incorporates considerable advanced technology. You will enjoy the benefits of pure titanium dome high frequency transducers, die cast low frequency transducers with vented pole pieces and proprietary Symmetrical Field Geometry magnet design, as well as high-definition dividing networks with quality electronic components.

The narrow front profile of your new L Series speakers is designed to maximize dispersion and thus contribute to better stereo imaging and a more open, spacious sound. The slanted front surface of the speaker not only aligns each transducers' voice coil for proper phase and better sound stage depth, but also eliminates parallel internal surfaces to eliminate associated standing wave resonances.

Finally, all L Series cabinets are constructed with lock-mitre joinery, high density fiberboard baffles and internal bracing to reduce colorations which can occur in an ordinary enclosure.

### **The Right Company**

We're able to apply technology and materials such as these because of our preeminent position in the demanding world of professional sound reproduction. JBL loudspeakers are a key part of more large superstar touring sound systems, surround sound stereo theaters and the actual recording studios where your favorite music is created than any other single company. No other audio company in the world can make that claim.

The same U.S.-based engineering and production facility that earned JBL this top position in professional sound reproduction has also designed and created your new L Series home loudspeaker system.

### **Maximizing Performance**

As with any well-engineered product — be it a car, a computer or a loudspeaker — your L Series monitors will benefit from careful set-up and installation. Follow the directions in this manual as closely

as possible to insure that your new JBL speaker systems will produce their best sound performance.

### **An important (often overlooked) step**

Your sales receipt should be stored in a safe place. It establishes *when* you bought the loudspeakers (for warranty validation) and *how much* you paid for them (for insurance purposes). Also please take a minute to fill out the enclosed customer profile card and mail it back to us.

If you have purchased L1 speakers, skip the next section and begin on page 4, PLACEMENT.

## **ATTACHING SCREWS AND BASE (L3, L5, & L7 ONLY)**

The molded base provided with the L3, L5 and L7 are not only intended to enhance the speaker's appearance, but to stabilize the speaker as well.

### **Attaching the base**

1. After removing them from the cartons, lay your L3, L5 or L7 speakers on their backs on a soft surface such as carpeting.
2. Locate the speaker base and eight Phillips-head screws packed in each speaker carton.
3. Slip the base onto each speaker.
4. Secure the base with the eight screws. Do not over-tighten.
5. After returning both speakers to upright positions, they are ready for placement in your listening room.

# PLACEMENT

## The best positioning produces the best sound

Where you put your JBL L Series Loudspeakers can actually accentuate their already impressive music reproduction capabilities.

Because different speaker brands and models have different placement requirements, simply

placing your L Series speakers where a previous pair were may not represent the best choice for your new JBL speaker system.

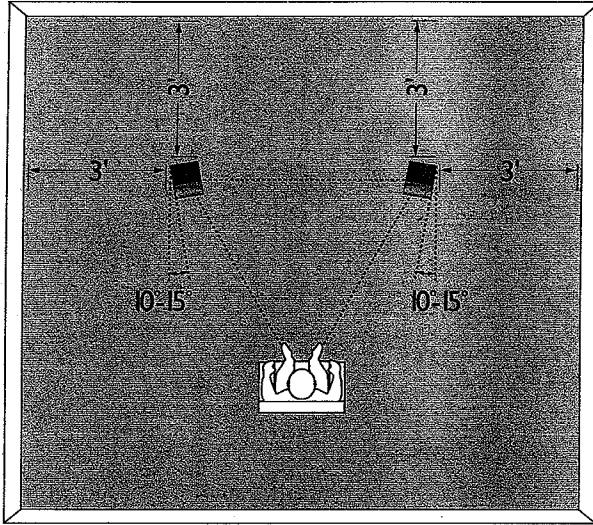
While JBL L Series loudspeakers sound good anywhere, some positions in the average listening room will maximize the technology incorporated into these designs.

Included on the following pages are drawings showing the ideal

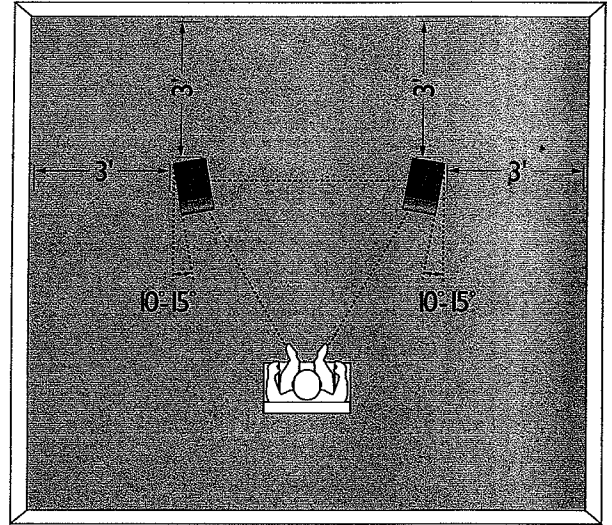
placement for each L Series model.

The closer to our drawings you can come within your own particular room, the better. However, even if you cannot fully follow every dimension and detail due to room size and furniture layout, you will still be able to enjoy excellent fidelity.

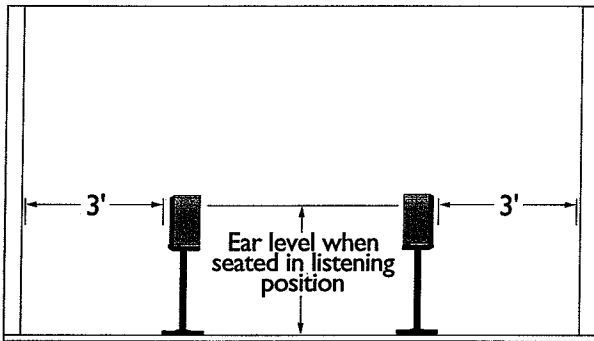
Many factors affect speaker performance. Some may be important to you and others may not. Thus



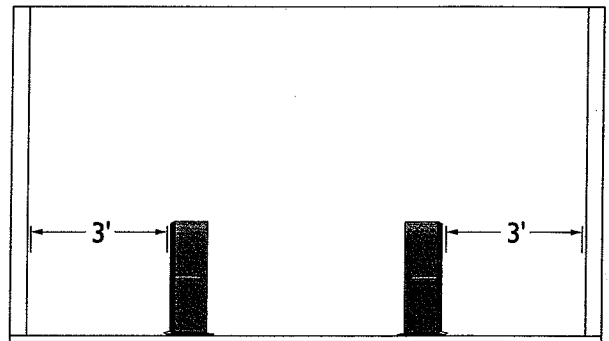
Drawing IA - L1 position top view



Drawing IC - L3 position top view



Drawing IB - L1 position front view



Drawing ID - L3 position front view

the ultimate decision on where you put your L Series speaker system depends as much on your musical priorities as it does on room layout.

Where you put your new speakers can affect:

**Imaging** — When the performers seem to appear *between* the loudspeakers, creating a spacious, three-dimensional sound stage that

seems to fill your room. In fact, under ideal conditions, the image can actually extend beyond the boundaries of your room!

**Bass** — The visceral impact of music created by bass drums, string bass, electric bass guitar or synthesizer.

**Treble** — High-frequency detail such as the sheen of a cymbal stroked with a brush, the

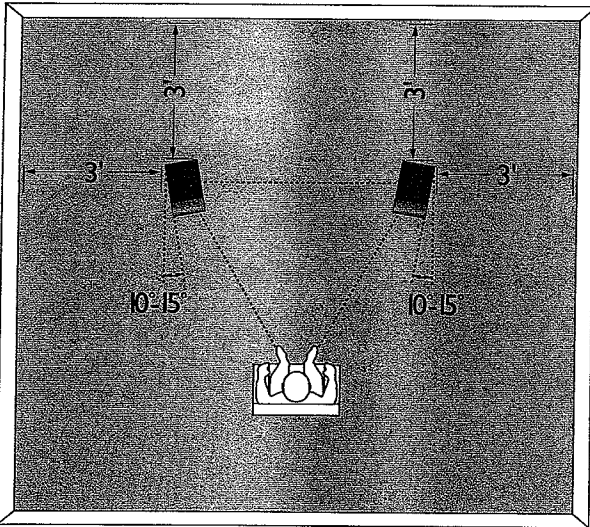
breathiness of a singer or the texture of a violin bow drawn across a string.

### Placement for best stereo imaging

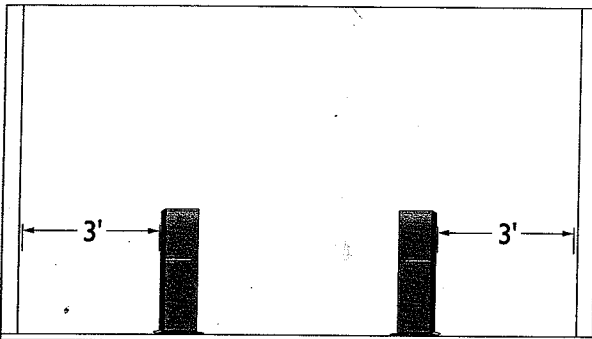
The JBL engineers who created your L Series speaker's designed a system so accurate that virtually everything you hear on a tape, record or CD can appear on a "sound stage" centered between and extending well beyond the two loudspeakers. To achieve this exciting effect requires careful speaker positioning.

Most important are the dimensions which determine the angles of an imaginary triangle formed between both speakers and your main listening position as shown in Figure 1A, 1C and 1E. Note: L7 owners see L7 Supplement for placement drawings.

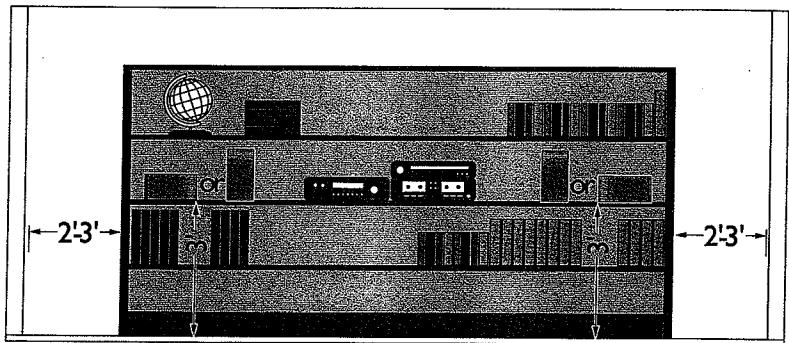
Try to achieve an angle between the speakers and the main listening



Drawing 1E — L5 position top view.



Drawing 1F — L5 position front view.



Drawing 2A — L1 bookshelf placement, front view. If L1's are placed on their sides, make sure that the tops face inward.



Drawing 2B — L1 bookshelf placement, top view. Speaker should be at least two inches from back of the bookshelf.

position of about 60 degrees (see Drawings 1A, 1C, and 1E). Notice that in each case, the speakers should be angled inward 10 to 15 degrees.

Note that we recommend the use of speaker stands with L1 speakers. Many styles and brands are available; consult your JBL dealer for more information. Alternatively, you can place L1's on a bookshelf as shown in Drawing 2 on the previous page. Note that the high frequency transducers should be towards the inside when the L1's are placed on their sides. Make sure to leave at

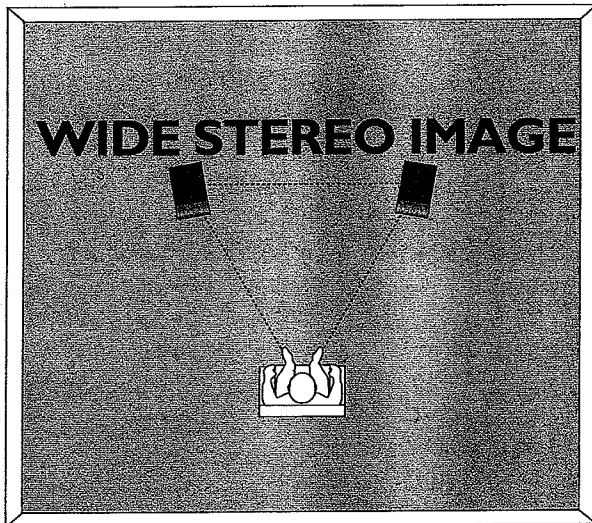
least two inches of room between the back of the speakers and the back wall of the bookcase.

What if you can't position the speakers as shown in Drawing 1? Drawing 3B shows the result of a narrow angle between the speakers and your main listening position. The L Series speakers image well in this configuration, but will have a slightly narrower sound stage.

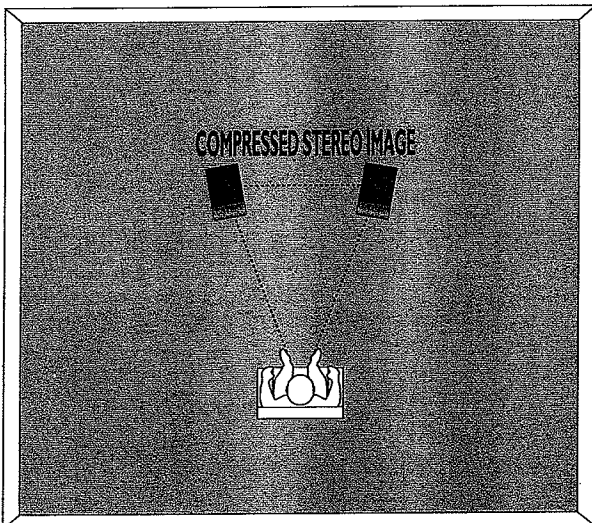
The placement in Drawing 4 should be avoided unless you want only background music with little stereo imaging effect.

#### Placement for best bass response

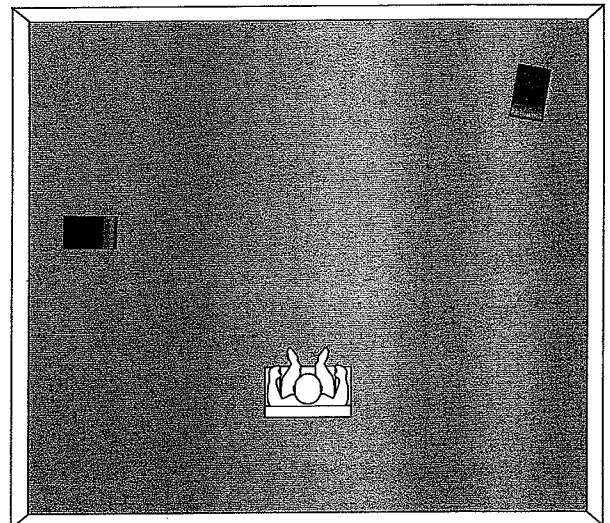
No matter what kind of music you enjoy, bass is an important part of the tonal spectrum. L Series



Drawing 3A – Wide stereo image through optimal spacing



Drawing 3B – Reduced stereo image if speakers are close together



Drawing 4 – Avoid asymmetrical positioning

speakers can reproduce surprisingly high quality bass under any condition and exceptionally low bass when positioned optimally.

Two modifiable room factors affect L Series bass: 1) proximity to room corners and 2) distance from the rear wall.

How close your L Series speaker systems are to the back wall determines how they will "couple" to that surface, resulting in increased bass at certain frequencies. The optimal distances from a back wall (as shown in Figures 1A, 1C, 1E and the L7 Supplement) will produce well-balanced bass in a normal-sized room.

**NOTE:** You can increase or decrease this distance by about one foot without seriously affecting low frequency balance.

The closer the speakers are placed to room corners, the more mid-bass (boomy bass) they will produce. If your listening room is extremely narrow, you may not be able to place your L Series speakers at least three feet from side walls as shown in Drawings 1A, 1C and 1E. If this is the case, decrease the distance between the two speakers to allow at least some distance from side walls.

### **Placement for best treble dispersion**

High musical sounds create the fine details of a musical experience. High-frequency sounds such as female vocals, violins, lead guitars, upper piano octaves and cymbals are more directional than bass and midrange. In other words, these treble sounds are best heard when they can project directly in an unencumbered path from the speaker to your ear.

Thanks to their titanium dome high frequency transducers, L Series speakers are less sensitive to placement for best treble than almost any other speaker model. However, you will enjoy your best musical experience when the L Series' tweeters are at or near "ear level" as shown in Drawings 1B, 1D, 1F and L7 Supplement (another reason why we recommend placing L1's on speaker stands).

## **CONNECTION**

### **You will need...**

- 3 Speaker wire
- 3 A tape measure\*
- 3 One of the following, depending on wire type and thickness:  
Wire strippers, diagonal pliers, a knife or a pair of scissors

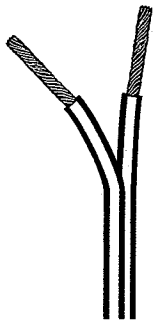
### **What kind of wire to use**

For best results, we recommend the use of specially designed heavy-gauge, ultra-low resistance speaker wire. Available from your JBL dealer, it is able to conduct the maximum power and frequency bandwidth of your amplifier or receiver.

However, any insulated, multi-stranded copper wire may be used, provided it is of the proper gauge (thickness). The easiest to obtain is ordinary lamp cord (also called "zipcord"), available at hardware and home improvement stores.

The minimum size of wire to use depends on the length of the wire between the amplifier and your L Series Speakers.





Drawing 5

The following chart shows the maximum lengths for different wire gauges as measured *one way* from your amplifier to the speaker<sup>1</sup>.

WIRE LENGTH	GAUGE <sup>2</sup> OF COPPER WIRE
Up to 20 ft	16 gauge
Up to 30 ft	14 gauge
Up to 50 ft	12 gauge
Almost any length	Special speaker cable

### Preparing the hookup wire

1. First determine the distance between the most distant speaker and your stereo system. If you want to conceal the speaker wires along baseboards, this could be quite a few feet.
2. Now make the hookup wires for *both* speakers **this length**, even if one L Series Loudspeaker is much closer to your amplifier than the other. You may need to *loosely* coil up part of one channel's wire behind the amplifier if one speaker is quite close and the other far away from the amp or receiver. . . **HOWEVER**, keeping both wire

<sup>1</sup> Technical note: In effect, we are recommending wire gauges which yield less than 0.5dB loss with a 4-ohm load over the distances specified. The gauges indicated represent 0.182-ohm, 0.172-ohm and 0.181-ohm resistances, respectively.

<sup>2</sup> Gauge number decreases as wire diameter increases. In other words, the lower the gauge number, the thicker the wire.

lengths the same will help maintain proper signal balance and imaging.

3. Next, separate the two conductors that comprise each wire for a distance of about one inch. Then strip off 3/8" of insulation from both ends of each conductor using a wire stripper, diagonal pliers or knife as shown in Drawing 5.
4. Twist each set of thin wires into a tightly-bunched spiral. If your wire is exceptionally thick (12-gauge zipcord or special speaker interconnect cable), divide the strands into three equal bundles and twist each into a spiral.
5. At this point you need to identify a visual difference between the two twisted wire bundles that make up each speaker wire. This may be done in various ways depending on the type and brand of wire you're using. Differentiating marks can be a different color wire (copper or "silver"), a strand of yarn in one conductor, thin, raised ribs on one part of the outer insulation, or a printed "+" marking on one of the insulators. It does not make any difference which of the two strands of wire go to (+) and (-) on the speakers and amplifier, as long as both speakers are connected identically.

### Connecting your amplifier to your L-Series Speakers

Note: L7 owners see L7 Supplement for additional hook-up drawings and instructions.

1. Before hooking up the prepared speaker wires, make sure that your receiver, power amplifier or integrated amplifier is turned off.
2. Look on the back of your amp/receiver. You'll see individual + (red) and - (black) speaker output terminals for both right and left speakers.
3. Connect both conductors of each speaker wire to the speaker output terminals. Note: In some cases, the amp/receiver has two complete sets of speaker terminals, marked "A" and "B". If you're just connecting one set of speakers, we suggest you use the "A" set of terminals.
4. Each L Series speaker also has corresponding + and - terminals on their back sides. It is important to hook both speakers up to the left and right amp/receiver speaker terminals in an identical manner (+red to +red and -black to -black) so that they are "in phase". Follow Drawing 6 closely when connecting the speaker wires. If you mix up the + and -



connections, thin sound with poor stereo image and less bass will result.

First unscrew each terminal far enough to expose the hole in the terminal's center shaft. If your wire is thin enough, simply insert it through the hole and gently tighten the knob. If you are using thicker wire, first separate the strands into three equal bundles. Then insert the center bundle through the terminal shaft hole and wrap the outer bundles around the shaft before tightening.

5. Finally, make sure that none of the strands which make up either of the two speaker wire

conductors cross between terminals and touch the opposite connection. Out of place strands can cause a short circuit. If you're only connecting one set of speakers, you may now skip ahead in this manual to the OPERATION section.

### Hooking up multiple sets of speakers

If your receiver has two complete sets of speaker terminals ("A" and "B"), it's possible to hook up an additional pair of speakers, for example JBL Pro III personal monitors, for *simultaneous* sound in another room.

However, some speakers may

not be useable as a second pair if you want to play both sets at once.

Before hooking up another set of speakers besides your L Series, check the following specifications:

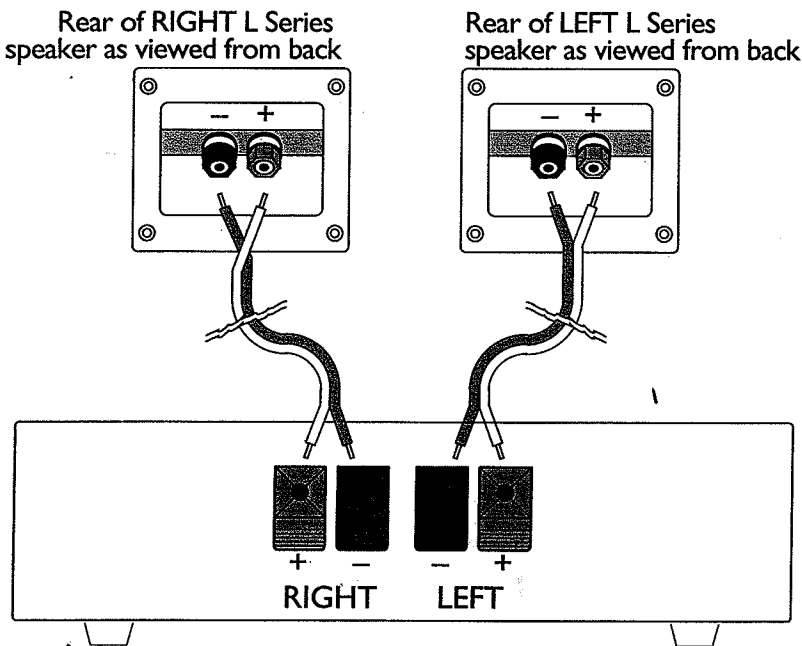
1. Your amplifier's **MINIMUM LOAD** impedance
2. The **NOMINAL IMPEDANCE** of the second set of speakers

Both of these specifications are expressed in ohms and both can be found in the owner's manuals which came with your amp/receiver and speakers. The receiver's minimum load impedance is determined by whether or not power ratings are given for 4 ohms and 2 ohms. For example, the following entry in an amplifier owner's manual...

#### POWER:

- A) 100 watts RMS into 8 ohms, both channels driven, 20-20kHz with less than 0.02% THD
- B) 160 watts RMS into 4 ohms, both channels driven, 20-20kHz with less than 0.02% THD

Part B indicates that the amplifier can handle 4-ohm combined impedances created by two sets of speakers. If only an 8-ohm rating is given, assume that the amp/receiver isn't designed to handle 4-ohm combined ratings even if it *does* have two sets of speaker terminals on its back side.



Drawing 6 - L Series / amplifier connection

Through an algebraic formula<sup>1</sup>, combined nominal speaker impedances (created by connecting two sets of speakers to an amplifier) produce a *lower* total impedance than just one set. For example, two sets of 8-ohm speakers result in a 4-ohm *combined* impedance.

If the combined impedance of one L Series speaker and one extension speaker is *lower than the recommended minimum load*, your amp/receiver may not be able to produce any appreciable volume before triggering its internal protection circuits or fuse.

After determining the *Nominal Impedance* of the extension speakers and the minimum allowable load impedance that the amp/receiver can handle, consult the chart at right. It indicates the impedance of extension speakers which can be played at normal volumes *simultaneously* with the L Series speakers in your main listening room.

If your amplifier is rated for just **8-ohm** loads...combine

- L1's with 16-ohm extension speakers only.
- L3's with 16-ohm extension speakers only.
- L5's with 16-ohm extension speakers only.
- L7's with 16-ohm extension speakers only.

$$\text{Specifically, } \frac{(R_1 \times R_2)}{(R_1 + R_2)} = R_t$$

If your amplifier is rated for **4-ohm** as well as **8-ohm** loads, combine . . .

- L1's with 16-ohm or 8-ohm extension speakers.
- L3's with 16-ohm or 8-ohm extension speakers.
- L5's with 16-ohm extension speakers only.
- L7's with 16-ohm extension speakers only.

If your amplifier is rated for **2-ohm**, **4-ohm** and **8-ohm** loads, combine . . .

- L1's with 16-ohm, 8-ohm or 4-ohm extension speakers.
- L3's with 16-ohm, 8-ohm or 4-ohm extension speakers.
- L5's with 16-ohm or 8-ohm extension speakers.
- L7's with 16-ohm or 8-ohm extension speakers.

**NOTE:** If your receiver is not rated for the kind of extension speakers you'd like to add, or if you want to power many sets of speakers at once all over your house, you will need a special impedance matching/switching box. Consult your JBL dealer for more information. Also, avoid the temptation to hook any more than one set of speakers up to each set of amp/receiver speaker terminals no matter what the amp/receiver's minimum rated load impedance is.

Where  $R_1$  is the nominal impedance of the main speaker,  $R_2$  is the nominal impedance of the extension speaker and  $R_t$  is the combined impedance presented to the amplifier.

## OPERATION

### Amplifier power

Each L Series speaker has a maximum and minimum power rating. Using more power than the rating listed on page 12 of this manual for your particular model can lead to potential damage. That doesn't mean you can't use, for example, 200-watt-rated L1's with a 250-watt amplifier. It DOES mean that you must be careful and not turn up the volume so high that its output exceeds the maximum recommended power for your particular L Series speakers.

While using a very low powered amplifier at high volumes probably won't damage L Series speakers, it can produce an unpleasant, audible effect called "clipping." If the speakers sound fuzzy or distorted when the amp's volume control is turned up, you're hearing advanced clipping. If this effect occurs and you wish to regularly enjoy your new JBL speakers at extremely high volume levels, invest in an amplifier with more RMS wattage output. The extra reserves of power will reduce clipping, improve overall sound and let you get the loudness you want without unpleasant distortion.

## A short "test drive"

At this point, it's time to make sure you made the amplifier-to-speaker connections correctly — and then start enjoying them!

1. With the amp/receiver still turned off, confirm that its volume control is turned all the way DOWN. Next, set the BALANCE control to its center position. Also, if the amp/receiver has A/B speaker switch, set it to correspond to the set of speaker output terminals connected to the L Series speakers.
2. Now turn on your amp/receiver and a music source such as CD player, cassette deck or FM station.
3. Select that source on the amp/receiver front panel and press PLAY on the music source component.
4. GENTLY turn up the volume control until you hear sound from both L Series speakers. (If one or both channels do not produce sound, consult "Troubleshooting").
5. Rotate the amp/receiver BALANCE control all the way to the LEFT. Sound should only come from the left speaker. If the sound comes from the RIGHT speaker with the balance control LEFT, the speaker wires have been reversed during

hook-up. Turn the amp/receiver off and switch both sets of speaker wires.

6. If sound moves to the appropriate speaker when the BALANCE control is rotated in the corresponding direction, you're ready to enjoy your new L Series speakers. If not, consult "Troubleshooting".

## Caring for your L Series speakers

In general, a light dusting should be all the care necessary since the L Series' cabinet finish does not need waxing or oiling. However, if the enclosure surfaces become dirty, they may be cleaned with a damp cloth or a cleaner suitable for a sealed wood finish. Never use a pump or spray cleaner directly on the speakers since the over-spray could be harmful to the L Series' speaker cones. Instead, apply cleaner to a soft rag and then wipe it onto the cabinet.

To remove dust from the grille cloth, use a vacuum with a brush attachment. Spots may be removed with a commercial spot remover.

## Troubleshooting

The vast majority of new speaker "malfunctions" end up being traced to connections or switch settings. To avoid packing

up correctly functioning speakers and sending them off, only to find that they're not really at fault, check the following tips first, before requesting service.

### No sound at all from either speaker

1. Amp/receiver tape monitor button pushed in while using CD, FM or phono inputs.
2. Wrong speaker switch is pressed if the amp/receiver has both "A" and "B" sets of speaker outputs.
3. Sound source (CD, cassette deck, turntable) not turned on, not activated or not selected on amp/receiver front panel.

### No sound from one speaker

1. Balance control turned all the way left or right.
2. Speaker wire to that speaker has become disconnected at either the speaker or the amp/receiver.
3. One of the connections between sound source and amp/receiver is faulty or has become disconnected.

### Both speakers play at low volumes but shut off as volume is increased OR sound turns on and off intermittently

1. A few strands of speaker wire may be shorting out at either the speakers or amp/receiver. Re-check connections.

**Bass is very weak AND/OR sound seems to come only from the speakers, instead of between them.**

1. The polarity (+ & -) of one speaker has been reversed relative to the other. Double-check connections.
2. Speakers are too far away from back and side walls or too far apart. Review Drawing Series I on pages 4 and 5.

If you are still encountering problems, consult your JBL dealer.

### Service

Should your JBL L Series loudspeakers need service, return them to the dealer from whom they were purchased. Remember to bring the sales receipt or invoice with you. If this is not practical, call 1-800-336-4JBL any time, 24 hours a day, seven days a week for the authorized service center nearest you. Personnel at each service center warranty station have been trained at JBL's factory to insure expert service.

## SPECIFICATIONS

	<b>L1</b>	<b>L3</b>	<b>L5</b>	<b>L7</b>
<b>High Frequency Transducer</b>	1" titanium dome	1" titanium dome	1" titanium dome	1" titanium dome
<b>Midrange Transducer</b>	N/A	N/A	5" die-cast frame	5" die-cast frame
<b>Mid-bass Transducer</b>	N/A	N/A	N/A	8" die-cast frame
<b>Low Frequency Transducer</b>	6.5" die-cast frame	8" die-cast frame	6.5" & 8" die-cast frames	12" die-cast frame
<b>Crossover Frequency</b>	3kHz	3kHz	170Hz/900Hz/4kHz	180Hz/900Hz/4Hz
<b>Frequency Response</b>	47Hz-27kHz	35Hz-27kHz	35Hz-27kHz	30Hz-27kHz
<b>Sensitivity (1 watt/1 meter)</b>	87dB	89dB	90dB	91dB
<b>Nominal Impedance</b>	8 ohms	8 ohms	6 ohms	6 ohms
<b>Minimum Recommended Amplifier Power</b>	35 watts	35 watts	35 watts	35 watts
<b>Maximum Recommended Amplifier Power</b>	200 watts	250 watts	350 watts	450 watts
<b>Dimensions (HxWxD)</b>	15.82"x8.25"x10" (401mm x 209mm x 254mm)	32.9"x9.625"x12" (835mm x 244mm x 304mm)	35.9"x9.625"x12" (912mm x 244mm x 304mm)	45.9"x9.625"x17.6" (1165mm x 244mm x 447mm)
<b>Weight (each)</b>	20 lbs (9.1 kg)	30 lbs (13.6 kg)	68 lbs (30.9 kg)	75lbs (34.1kg)

JBL continually strives to improve its speakers. New materials, production methods and design refinements are introduced into existing models without notice as a routine expression of our design philosophy. For this reason, L Series speakers may differ in some respect from their published description, but will always equal or exceed the original design specifications unless otherwise stated.

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