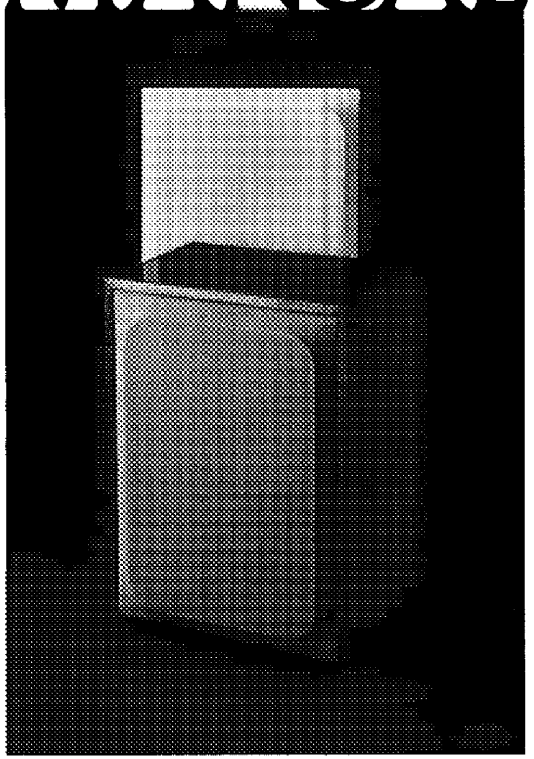
L65 INSTRUCTION MANUAL



Excellence is an elusive quality. It's so easy to recognize yet so difficult to attain.

JBL craftsmen have been involved in the art of sound for more than a generation—signal and source, wood and fabric, transducers and acoustics—all of it.

Today these craftsmen continue to perform to the most rigid standards any craftsmen can submit to: those they impose upon themselves.

JBL loudspeakers are carefully engineered instruments, painstakingly crafted and assembled to watchmakers' standards. JBL enclosures express the excitement of creative design; they are elegant, solid and flawlessly finished. JBL transducers and electronics offer what has been characterized by devoted music listeners as the "incomparable JBL sound."

By following the few simple suggestions contained in this booklet, you can look forward to superb high fidelity reproduction that will retain its clarity and realism year after year.

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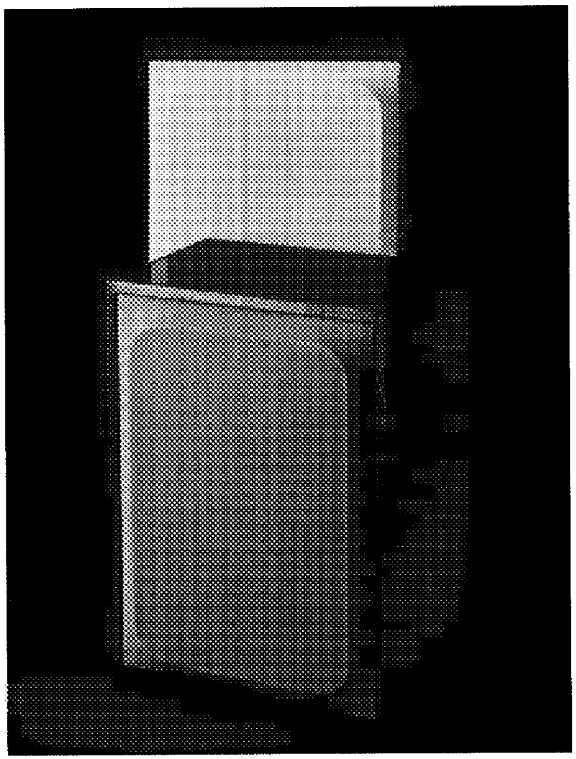


The L65 provides unequalled performance within the confines of a compact, free-standing enclosure. It exhibits impeccable accuracy, wide bandwidth, definition and excellent high frequency dispersion—a combination of performance characteristics typically associated with much larger loudspeaker systems.

The system consists of three drivers—a long excursion, 12-inch low frequency loudspeaker; a powerful, 5-inch midrange transducer; and a wide dispersion, ultra-high frequency driver—all controlled by a sophisticated frequency dividing network. The low frequency loudspeaker provides bass performance that is clean and solid, the midrange unit contributes the clarity and presence characteristic of vocals or solo instrumentation, and the ultra-high frequency driver faithfully reproduces the overtone structure lying above musical fundamentals for the sparkle and crispness so essential to realism.

PERFORMANCE CHARACTERISTICS

The L65 maintains its outstanding performance characteristics at all volume levels, from background music to the loudness approaching a live event. Of particular note is the loudspeaker system's reproduction

of the overtones and harmonics lying above musical fundamentals. Such overtones and harmonics, which are multiples of the fundamental frequency, quite often extend beyond the range of conscious perception, yet their presence is essential to preserve acoustic realism. The accuracy and extended bandwidth of the ultra-high frequency driver can be easily heard when listening to the clarity of a muted trumpet or the sizzle of brushed cymbals that often underlie a jazz performance.

A number of loudspeaker systems can handle large amounts of power; others are highly efficient. JBL products are unique in their ability to combine both attributes. The L65, for example, will convert a 1-watt input of "white noise"[1] into a sound pressure level of 76 dB measured at a distance of 15 feet. This is approximately twice as loud as ordinary conversation and represents a comfortable listening level, demonstrating that the L65 delivers substantial sound output from very little input power.

SPECIFICATIONS

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.

1. "White noise" is a rigorous test simulating average musical program material under laboratory conditions. It provides a controlled means of energizing all the transducers of a loudspeaker system simultaneously. "White noise" encompasses all audible frequencies just as white light includes all the colors of the visible spectrum. Produced in the laboratory by a signal generator, "white noise" sounds very much like the hiss heard between FM radio stations.

Power Capacity[1]	75 watts continuous program
Nominal Impedance	8 ohms
Dispersion[2]	130° horizontal x 40° vertical at 15 kHz 110° horizontal x 40° vertical at 20 kHz
Crossover Frequencies	1 kHz, 6.5 kHz
System Sensitivity[3]	89 dB, 1 watt, 1 m (3.3 ft)
Low Frequency Loudspeaker	
Nominal Diameter	300 mm 12 in
Voice Coil	76-mm (3 in) edgewound copper ribbon
Magnetic Assembly Weight	3.4 kg 7½ lb
Flux Density	1.1 tesla (11,000 gauss)
Sensitivity[4]	89 dB, 1 watt, 1 m (3.3 ft)
Midrange Loudspeaker	
Nominal Diameter	130 mm 5 in
Voice Coil	22-mm (⅞ in) edgewound copper ribbon
Magnetic Assembly Weight	0.7 kg 1⅝ lb
Flux Density	1.5 tesla (15,000 gauss)
Sensitivity[5]	95 dB, 1 watt, 1 m (3.3 ft)
Ultra-High Frequency Ring Radiator	
Horn Mouth	79 mm x 18 mm 3.125 in x 0.725 in
Voice Coil	44-mm (1¾ in) edgewound aluminum ribbon
Magnetic Assembly Weight	1.5 kg 3¼ lb
Flux Density	1.65 tesla (16,500 gauss)
Sensitivity[6]	105 dB, 1 watt, 1 m (3.3 ft)
General	
Finish	Oiled walnut
Grille	Three-dimensional stretch fabric
Grille Color Options	Blue, brown or red
Top Surface	6-mm (¼ in) gray plate glass with ground and seamed edges; black foam cushioning
Dimensions	622 mm x 445 mm x 333 mm deep 24½ in x 17½ in x 13⅛ in deep
Shipping Weight	30 kg 67 lb

1. Based on a laboratory test signal. See Power Capacity section for amplifier power recommendations.
2. The angle through which system output diminishes no more than 6 dB relative to output on axis.
3. All sensitivities are measured under hemispherical free-field conditions. In a room, an additional 1 to 3 dB SPL would be achieved.
4. Averaged from 100 to 500 Hz, within 1 dB.
5. Averaged from 1 to 3 kHz, within 1 dB.
6. Averaged above 7 kHz, within 1 dB.

CONNECTING THE L65

IMPORTANT: When connecting or disconnecting loudspeakers from an amplifier, the amplifier must be turned off. Making connections while the amplifier is operating could seriously damage the loudspeaker system and void the warranty.

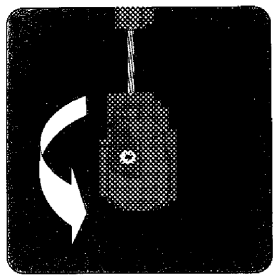
WIRE GAUGE–The minimum wire size recommended for loudspeaker connections up to 50 feet (15 m) is #18 AWG (1 mm) insulated wire. Beyond this distance, heavier gauge insulated wire is recommended; #16 AWG (1.3 mm) from 50 to 100 feet (15-30 m) and #14 AWG (1.6 mm) from 100 to 200 feet (30-60 m). If lamp cord is used, wires can be differentiated by noting that one of the insulating jackets is smooth, while the other has a distinct ridge. By considering the ridged jacket "red" and the smooth jacket "black," wiring connections can be made as if using color-coded wire.

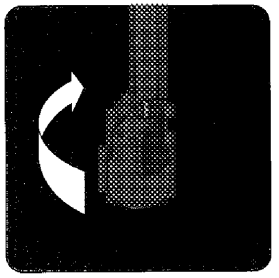
CONNECTIONS TO THE LOUDSPEAKER SYSTEM–Connections to the loudspeaker system are made at the two terminals located on the back of the enclosure. The terminals will accept either stranded or solid wire up to #12 AWG (2 mm). Two wires, up to #16 AWG (1.3 mm), can be accepted simultaneously if they are first twisted together into a single wire and then inserted as illustrated.

CONNECTIONS TO THE POWER AMPLIFIER OR RECEIVER–Locate the loudspeaker output terminals on the back of the power amplifier or receiver. For each channel, connect the wire from the black terminal of the loudspeaker system to the output terminal labeled "common," "ground" or (–), and the wire from the red terminal to the remaining 8-ohm output.[2] The specified 8-ohm impedance rating is a nominal figure which suggests a connection giving the most efficient power transfer between the amplifier and the loudspeaker system.

Note that many amplifiers have a chassis grounding terminal which is usually separated from the other connectors. This should not be confused with the "ground" designation sometimes used to describe one of the two terminals for each loudspeaker system connection.

2. Connecting the two loudspeaker systems as described will ensure that they are in phase, i.e., the component loudspeakers will respond to a monophonic signal by moving simultaneously in the same direction, and not opposite to each other. Inadvertent out-of-phase operation (which occurs when one set of wires is reversed with respect to the other) will not harm the system, but will cause some acoustical cancellation, which has the audible effect of reducing low frequency output and degrading stereo imaging.





1. Strip approximately ¾ inch (19 mm) of the insulation from the end of the wire. Twist the wire strands together, as shown. (Soldering is not required.)
2. Rotate the terminal fully counterclockwise to the open position. Insert the wire, then rotate the terminal clockwise until the wire is secured. Rotate the terminal by hand–extreme force is not required.

LISTENING ROOM ACOUSTICS

In addition to placement, the sound reflecting or sound absorbing qualities of the listening room will affect sound quality. Room acoustics can be tested by listening to the echo of a sharp sound, such as hand clapping.

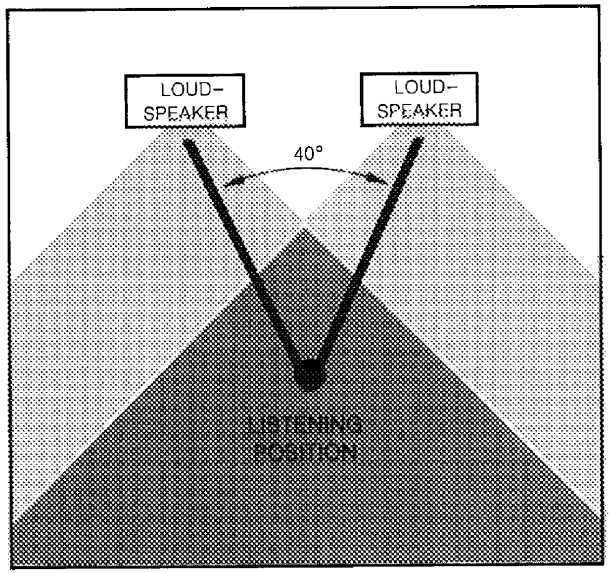
A room having large windows, paneled walls and a hardwood floor or ceiling will be acoustically "live" and will echo noticeably. A room containing overstuffed furniture, carpeted floors or draped windows will be acoustically "dead" and will echo very little or not at all.

Ideally, there should be a reasonable balance between absorption material and sound reflecting surfaces. If there are two large reflecting surfaces facing each other, the "bounce" between them will make sounds run together and the music will lack definition. Large, flat wall surfaces should be broken up with bookshelves, drapes, screens or tapestries.

PLACEMENT

Although JBL loudspeakers have a wide sound dispersion pattern, the final sound of the completed installation is affected by the location of the enclosure within the listening environment. If possible, experiment with placement of each loudspeaker system before deciding on a final arrangement.

For the best possible stereo performance, the two loudspeaker systems should be arranged symmetrically on each side of the listener. As a general rule, a person sitting in the usual listening position should see an angle of about 40° between the two sound sources. The distance from one loudspeaker enclosure to the other is determined by their distance from the listener and by the 40° "listening angle." Bass response will be augmented if the enclosures are placed near adjacent room surfaces, such as in a corner.



40° "Listening Angle"
Sound energy from each loudspeaker blends to form a stereo "wall of sound." The stereo image will be intensified and the area of best stereo perception increased if the two systems are rotated slightly toward the preferred listening position.

ADJUSTING THE SYSTEM

The L65 is provided with a Presence control to regulate the relative loudness of the midrange transducer and a Brilliance control to adjust the volume of level of the ultra-high frequency driver. These controls adjust the output of the component loudspeakers to achieve realistic tonal balance in a variety of room conditions.

The controls are calibrated in terms of a reference level, indicated by a "5" on the instruction plate. When both the Presence and Brilliance controls are set at this level, the loudspeaker system will be adjusted for balanced performance characteristics in a reverberation-free environment. Since most listening rooms possess varying degrees of reverberation, some adjustment of the controls is usually preferred.

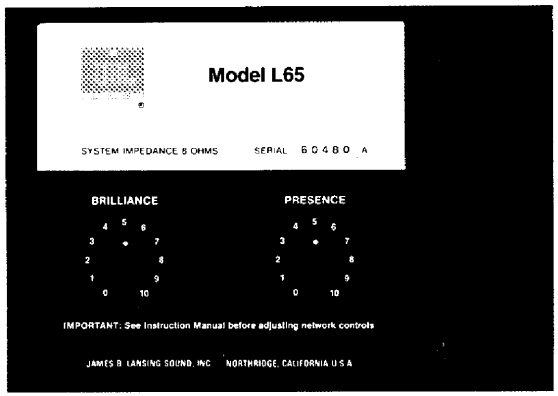
The loudspeaker system should be adjusted while reproducing normal program material with the amplifier tone controls set at the middle (generally referred to as "flat") position. Begin by using a coin or screwdriver to set both the loudspeaker system controls at their reference levels and then listening to a variety of program material long enough to become accustomed to the system's performance.

After the ear has become attuned to the "5" settings, evaluate the presence and brilliance qualities of the loudspeaker's performance. The most valid evaluation will be obtained using various types of material played monaurally. (This can be accomplished in stereo or quadraphonic installations by setting the amplifier mode control for monaural reproduction and using the balance control to select the individual loudspeaker system to be adjusted.) The evaluation should be made while seated in the normal listening position.

To arrive at the specific setting for each of the loudspeaker system controls, proceed as follows:

1. Set the Presence control at "5" and rotate the Brilliance control to the extreme left of its travel. This will attenuate high frequency performance so that the ear will perceive only the balance between the low frequency loudspeaker and the midrange transducer.
2. If midrange material—such as violin, piano or guitar—seems too close or overemphasized, reduce the setting of the Presence control by rotating it to the left. Conversely, if midrange material seems too distant, increase the output of the midrange transducer by rotating the control clockwise.
3. Once the Presence control has been adjusted to provide the most pleasing balance between the low frequency and midrange transducers, set the Brillance control at "5." If high frequency material—such as cymbals, bells, triangles, violin overtones or vocal sibilants—seem too prominent, lower the setting of the Brilliance control. If greater high frequency output is desired, increase the setting of the control.

After each set of adjustments, again listen until the ear has become attuned to the new sound characteristics and can compare them to the previous performance of the system. Once the Presence and Brilliance controls have been set for the most pleasing overall results, and the exact placement of each loudspeaker has been determined, compensation for differences in individual recordings should be made with the tone controls on the amplifier or receiver.



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

The specified power capacity indicates the continuous program power level that can be accepted by a JBL loudspeaker system without damage. Its peak power capacity is considerably greater than the continuous rated value, as indicated by the remarkable transient response of JBL loudspeaker system components. The L65 will reproduce sound at comfortable listening levels when driven by an amplifier having an output of as little as 10 watts continuous sine wave per channel.[3] However, for reproduction of the full dynamic range of contemporary recordings at high volume, a high quality amplifier delivering up to 150 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.

If distortion is heard, one or more 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 a JBL loudspeaker will become noticeably discomforting to the ear before the loudspeaker can be damaged by excessive power from the amplifier. There is virtually no danger of damaging a JBL loudspeaker 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 (another form of distortion which occurs when the power output limitations of the amplifier circuitry are exceeded); and 3) the power cord or 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, rewinding 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 into the subsonic range can eventually damage the low frequency loudspeaker. If the phonograph pickup is accidentally dropped with the volume control near its maximum setting, 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.

3. The continuous sine wave rating of amplifier power is the most stringent method currently used in the audio industry. It should be noted that many amplifier manufacturers use the term "watts rms" as a direct equivalent to the more meaningful "watts continuous sine wave."

Each component of every JBL loudspeaker system is designed and produced by JBL personnel to the most rigorous standards in the industry. JBL 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. Stamped frames and mass-produced voice coils would be less expensive; however, the resultant loss of structural integrity, magnetic force and acoustic efficiency would tend to degrade low-distortion performance and transient response—qualities that have become JBL hallmarks.

Do not move the cone by hand. The clearance between the voice coil and magnet assembly is so small that any attempt to move the cone manually can easily force it out of alignment.

LOW FREQUENCY–The 12-inch, long excursion loudspeaker operates through the lowest registers of the audio spectrum. It utilizes a precisely machined, low-loss magnetic assembly weighing 7½ pounds. The closed construction of the assembly concentrates all of the energy supplied by a powerful Alnico V magnet in the one place where it contributes to loudspeaker performance—the voice coil gap. Suspended within the intense magnetic field is a 3-inch diameter voice coil fabricated of copper wire milled to a flat ribbon, then wound on the ribbon's edge by hand. Edgewinding and the large diameter of the voice coil maximize the amount of conductor in the magnetic field, contributing to efficiency, power handling capacity and accurate transient response. The voice coil drives a shallow cone having carefully controlled mass and stiffness for extended bass response and smooth performance. A single-roll, closed cell polyurethane foam cone termination provides damping and support with the flexibility necessary for long, linear excursion, thus allowing greater volume capability without distortion.

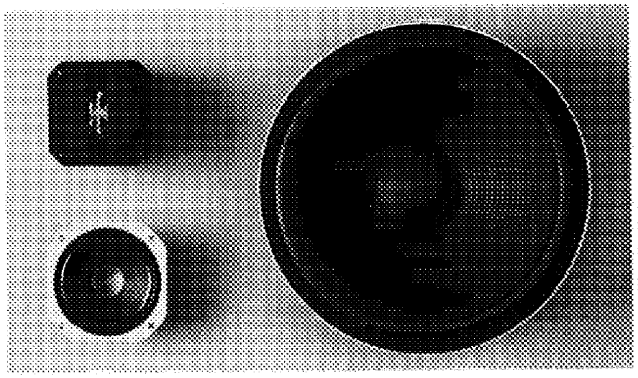
MIDRANGE–Smooth, dynamic midrange reproduction is the product of a 5-inch transducer capable of considerable acoustic output. It utilizes a ⅞-inch diameter edgewound copper ribbon voice coil suspended within a powerful field generated by a 1⅝-pound magnetic assembly. The voice coil is unusually large in relation to cone size for exceptional transient response and acoustic efficiency. The midrange transducer is housed in a separate sub-chamber within the L65 enclosure to prevent acoustical interaction with the low frequency loudspeaker.

HIGH FREQUENCY–Sparkling high frequency reproduction is provided by an ultra-high frequency driver exhibiting smooth performance well beyond the highest recorded musical overtones. Its 3¼-pound low-loss magnetic assembly, energized by an Alnico V magnet, drives a 1.75-inch edgewound aluminum ribbon voice coil affixed to a ring diaphragm. The diaphragm, pneumatically formed of aluminum foil, is treated for resistance to moisture and

other atmospheric contaminants. Acoustic energy from the diaphragm radiates through a diffraction horn having its aperture on the front surface of the enclosure. Die cast of solid aluminum with a transparent acrylic internal dispersion element, the horn controls distribution of high frequency sound throughout the listening room, achieving an inclusive horizontal arc of 130°at 15 kHz (and 110°at 20 kHz) while restricting vertical dispersion to 40°. The controlled distribution pattern plus the driver's exceptional transient response and bandwidth contribute to the realism and natural transparency associated with the loudspeaker system.

DIVIDING NETWORK—Distributing the incoming signal among the component loudspeakers is the function of a frequency dividing network. Smooth, imperceptible operation of the network is vitally important to the total performance of a loudspeaker system. JBL network design considers the specific drivers of the system as well as their physical location on the enclosure baffle panel; it even takes the acoustic properties of the grille material into account. To accomplish this, JBL network tolerances are much more stringent than general industry practices. For example, the capacitors used are non-inductive types with high AC current capacity built expressly for use in dividing networks and individually tested for conformity to rigid performance standards. The special inductors have extremely low insertion loss so that none of the driving power to the loudspeaker system is dissipated in the network. Each inductor is calibrated on a sensitive electronic bridge and its value set precisely.

The network installed in the L65 has two continuously variable controls permitting adjustment of the relative loudness of the midrange and high frequency components to satisfy individual preferences and the acoustic properties of the listening room. The controls do not affect the crossover frequencies, nor do they limit the upper frequency response of the loudspeaker system.



Loudspeaker System Components
12-inch Low Frequency Loudspeaker
5-inch Midrange Transducer
Ultra-High Frequency Driver

If it should be necessary to remove the loudspeaker system components for testing or repair, disconnect the amplifier and proceed as follows:

GRILLE—The grille is secured to the enclosure by strips of hook-and-pile mounting tape located at each corner of the assembly. To remove the grille, grasp it at the bottom edge and gently lift it from the enclosure. A "ripping" sound will be heard, indicating normal disengagement of the mounting tape. This procedure may be repeated hundreds of times without damage. To replace the grille, reposition it on the enclosure and apply light pressure at the corners.

LOW FREQUENCY—Place the enclosure on its back on a clean, padded surface. The low frequency loudspeaker is mounted from the front of the baffle panel and held in place by four Phillips-head screws threaded into T-nut fasteners which are attached to the back of the panel. Carefully unscrew the machine screws without applying pressure that might dislodge the T-nuts. When the mounting screws have been removed, gently lift the edge of the loudspeaker frame from the baffle panel, disconnect the wires at the binding posts and remove the loudspeaker.

MIDRANGE—The midrange transducer is held in place by screws and T-nuts at each corner of its frame. Carefully remove the screws, lift the unit from the enclosure and disconnect the leads at the tab connectors.

HIGH FREQUENCY—The ultra-high frequency driver is secured to the back of the baffle panel by four machine screws extending through the panel from the front of the enclosure. Removal is accomplished by taking out the low frequency loudspeaker, reaching into the enclosure to support the driver while removing the mounting screws, and lowering the unit from the baffle panel; the leads can then be disconnected at the binding posts and the unit lifted from the enclosure. Important: When reinstalling the driver, the horn opening should be positioned vertically.

DIVIDING NETWORK—Take out the transducers as previously described, remove the wire leads from the midrange sub-chamber so that they fall into the enclosure and disconnect the leads from the input terminals at the rear of the enclosure. The Presence and Brilliance controls are mounted as an assembly secured to the back of the baffle by three screws and T-nuts. To gain access to the controls, carefully peel off the serialized foil nameplate, remove the mounting screws and lower the assembly into the enclosure. The network itself is mounted on the bottom panel of the enclosure and is held in place by six screws extending through the panel and threaded into T-nuts on the network. After removing the mounting screws, the network and control assemblies can be lifted out of the enclosure through the low frequency loudspeaker opening. (Note: Malfunction of the network is highly unlikely. Since the nameplate is generally destroyed during removal, it is not recommended that the network be removed simply for the purpose of

inspection. If the network must be returned for service, enclose the original nameplate; a new serialized nameplate will be provided.)

WIRING–When reconnecting the wire leads between the dividing network and the midrange transducer, proper polarity is assured by the shape-coded connectors. Wire leads and connections to the other components are color coded as shown on page 16.

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

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

ENCLOSURE

Moderate size, exquisite proportions and a selection of grille colors contribute to the versatility of the L65 enclosure, facilitating its use with almost any decor. The L65 embodies the advantages of a free-standing, floor system, yet is compactly scaled to fit easily into today's smaller living spaces. The delicate interplay of highlight and shadow across the face of the three-dimensional grille creates subtle changes as the lighting is varied; and the smoked glass top adds a note of sparkling elegance while providing a durable, easily maintained surface.

The L65 enclosure, embodying the principles of fine furniture design and construction that have made JBL a leader in the industry, complements the acoustic characteristics of the loudspeaker system. It utilizes a ducted port extending through the baffle panel to provide proper loading for the low frequency loudspeaker and optimize power handling capacity. The enclosure panels are constructed of dense compressed wood. This material, also known as particle board, is preferred to solid wood for its acoustic properties. The trim strips and finish veneer are solid American Black Walnut. All walnut surfaces are hand rubbed to a rich lustrous finish enhancing the natural beauty of individual grain structure and color. Detail work is obvious: joints are expertly closed; scratches, dents, gluelines and other defects are non-existent. Acoustic damping material is applied to the interior surfaces of the sides, top, bottom and back panels to attenuate standing waves within the enclosure. To achieve maximum strength and resistance to vibration, all panels are constructed of ¾-inch stock with additional bracing along the corners for increased rigidity.

The grille cloth is a double knit polyester fabric selected for acoustic transparency, beauty, physical strength, color fastness and soil resistance. It can be cleaned by gently dusting it with a vacuum cleaner. Stains can be removed by using aerosol cleaners, such as Texize *K2r,* Goddard's *Dry Clean,* or Pen Champ *Quick 'n Easy,* according to each manufacturer's instructions.

Warning: Cleaning fluids or other solvents should not be used. Although they may appear to remove a stain, liquid cleaners will dissolve the base paint on the grille frame beneath the cloth, resulting in permanent discoloration of the material.

Occasional dusting with a clean, soft cloth will maintain the original beauty of the walnut finish. Since moisture cannot penetrate the oiled surface, most household stains can be removed with a damp cloth. The surface should be treated only with wax specifically formulated for use on oiled finishes. Conventional furniture waxes, polishes or cleaners are not recommended.

As the oil penetrates deeper and deeper 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.

Caution: Improper storage of wiping rags could result in spontaneous combustion. They should be thrown away or spread out to dry in a well-ventilated area before storage or disposal.

IN CASE OF TROUBLE

A JBL loudspeaker system responds accurately to the signal supplied by the audio power source; it will therefore produce extraneous noises just as accurately as it produces desired program material. Noise seldom originates in the loudspeaker system. Its presence usually indicates that one of the other components of the music system, or the program material itself, is faulty. In rare instances when something does go wrong with the loudspeaker system, one or more of the component

loudspeakers will stop working altogether or a distinct rattling or scraping sound (indicating a rubbing voice coil) will be heard whenever the system is operating.

If one channel of a stereo installation is not operating, examine the loudspeaker wiring and check the balance control. If wiring instructions were followed correctly, if the connections are clean and tight, and if centering the balance control does not remedy the situation, reverse the right and left loudspeaker connections at the amplifier, taking care to turn the amplifier off before each connection or disconnection. If the previously non-functional loudspeaker system operates, the amplifier or one of the component program sources (tuner, phono, tape deck, etc.) is malfunctioning. In the event that the suspect loudspeaker system is still inoperative, it is probably defective.

To determine whether the defect lies in the amplifier or in one of the component program sources (after verifying that the loudspeaker systems are not defective) reverse the right and left cables from the program source at the amplifier. If the original channel is still inoperative, the amplifier is defective; if the previously inoperative channel functions, the program source is defective. If the amplifier is not faulty, alternately check each program source until the defective unit has been isolated. It is unlikely that more than one program source will be faulty at any given time.

Extraneous interference such as static or radio broadcast signals can be picked up by the component devices. When this occurs, the troublesome unit can be identified by disconnecting inputs from the receiver or amplifier until the interference stops. Again, if the interference persists with none of the input devices operating through the power source, the receiver or amplifier itself is probably defective. Shorting plugs, available from your JBL Audio Specialist, should be inserted in unused phono inputs to help eliminate stray hum or signal pickup.

Hum may be caused by locating a turntable or tape recorder directly over or underneath the amplifier or receiver. The farther the audio power source is located from the phonograph cartridge or tape heads, the less chance there will be of picking up hum. The AC leads and shielded cables should be as widely separated as possible; AC lines should never cross cables or speaker wiring. Power line interference can be further attenuated by using a heavy duty line interference filter between the audio power source and the AC wall outlet.

Fuzzy or indistinct high pitched sounds can usually be traced to the recording itself, a defective cartridge, a worn stylus or insufficient tracking force. Problems with low frequency reproduction are usually the result of room acoustics or placement of the speaker system. Excessive bass boost or incorrect loudness compensation tend to give a muddy or "boomy" quality to reproduced music. The music system can be checked for turntable rumble or other extraneous low frequency signals by removing the loudspeaker grille assembly and observing the motion of the low frequency cone while the system is playing at high volume. If the cone continually moves in and out more than ½-inch or so, excessive low frequency power is being fed to the loudspeaker system.

Acoustic feedback is the result of mechanical vibrations produced by excessive bass at very high volume levels. The loudspeaker system can produce enough energy to vibrate other objects in the room—including the record player and, by direct mechanical transmission, the stylus itself. These vibrations are reamplified again and again, producing very loud "rumble," or even sustained howl that increases in intensity as the volume or bass control is turned up. Possible solutions: 1) locate the speaker cabinets as far as possible from the turntable, 2) adjust or replace the turntable shock mountings, 3) place the turntable on a rubber or sponge mat to further absorb vibrations. If the low frequency tone is still audible, it is probably the result of inherent turntable rumble rather than acoustic feedback.

SERVICE

If your JBL product ever needs service, simply return it to the JBL dealer from whom it was purchased. He will arrange for necessary repairs. If for some reason this is impractical, please write to us at James B. Lansing Sound, Inc., (ATTN: Customer Service Department), 8500 Balboa Boulevard, Northridge, California 91329.

SUMMARY

The L65 exemplifies JBL's reputation for leadership in acoustic and visual design. It is our sincere belief that the L65—like all JBL products—will provide undiminished listening pleasure for many years to come.

Like all fine loudspeaker systems, the L65 will reveal the quality of program material as well as the quality of the other components in your music system. It is recommended that you choose every component for its ability to provide a standard of performance, quality and reliability comparable to that of your JBL loudspeakers. The reward will be a level of enjoyment of the highest order.

FOR ADDITIONAL INFORMATION

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.

LOUDSPEAKER SYSTEM WIRING