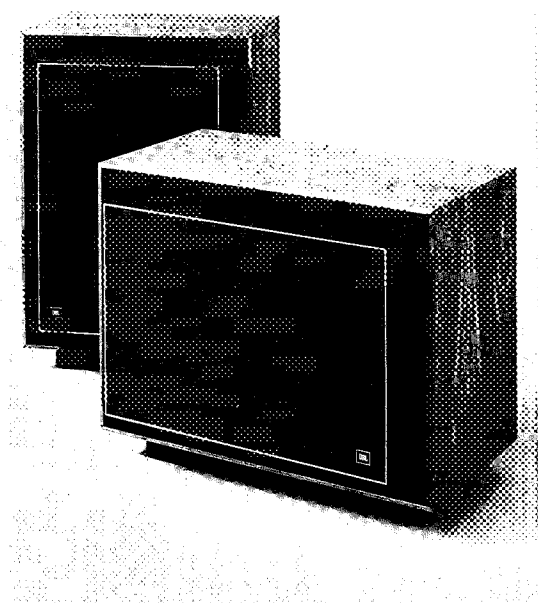


L45 FLAIR INSTRUCTION MANUAL





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.

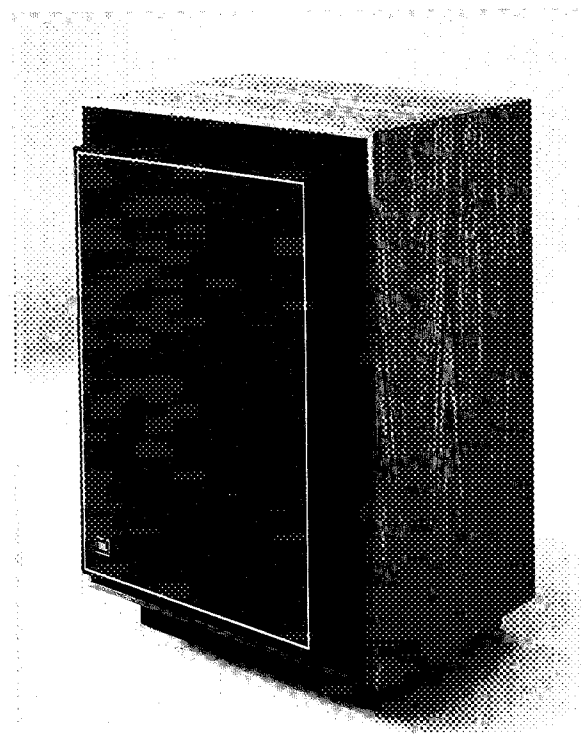
JBL loudspeakers are carefully engineered instruments, painstakingly crafted and assembled to watchmakers' standards. JBL enclosures express the excitement of creative design; they are elegant, solid and flawlessly finished. JBL transducers and electronics offer what has been characterized by devoted 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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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 is always warranted to equal or exceed the original design specifications unless otherwise stated.



JBL's leadership in acoustic and visual design is clearly expressed in this exciting loudspeaker system. Components and enclosure are painstakingly crafted of the finest raw materials, utilizing special manufacturing and quality assurance techniques found only at JBL. Free, open bass; smooth midrange and precise delineation of even the highest overtones provide realism and presence. The outstanding performance of the L45 Flair is provided by a 15-inch low frequency loudspeaker, exceptionally large for an enclosure of moderate size, a 5-inch midrange transducer, 1.4-inch high frequency direct radiator and precision frequency dividing network.

The Flair is unmistakably contemporary in feeling, yet deliberately understated to enhance a wide variety of home interiors. Its striking three-dimensional grille was created to preserve, without compromise, the superior sound dispersion characteristics of the loudspeaker system. Acoustically transparent on all five surfaces, the grille employs open-cell foam material to form the sculptured border, with a rich charcoal brown fabric panel, set apart by an elegant accent of polished aluminum, completing the face of the enclosure. The L45 Flair is designed for use as either a lowboy or in the space-saving vertical configuration.

From background levels to concert hall volume, the Flair exhibits natural bass response that is clean and well-defined. High frequency reproduction is characterized by

unwavering smoothness, clarity and the brilliance and presence that are characteristic of JBL loudspeakers.

The powerful 15-inch low frequency loudspeaker is capable of recreating the most elusive and complex bass waveforms. Bass reproduction is not only solid, it has the free, spacious quality associated with a live performance. Midrange material is reproduced with incredible crispness and presence; highs are delineated with utter clarity and transparency. The inherent smoothness, spatial distribution, clear transient reproduction and lack of distortion virtually eliminate aural fatigue, even after listening to the system for many hours.

To accurately test the loudspeaker system a set of evaluation parameters was developed, and specifications derived from measurements made under standard laboratory test conditions. The L45 was mounted in the measured center of a large flat baffle in a reverberation-free environment. A calibrated condenser microphone was suspended at a specified distance from the sound source. All electronic equipment was checked and calibrated before tests were run.

Due to the wide-angle sound dispersion characteristic of the loudspeaker system, frequency response measured up to 45° off-axis does not deviate more than 6 dB from on-axis response.

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 L45, for example, will convert a 1 Watt input of "white noise"¹ into a sound pressure level of 80 dB measured at a distance of 15 feet². This is approximately twice as loud as ordinary conversation and represents a comfortable listening level, demonstrating that the L45 delivers substantial output from very little input power.

JBL attributes major importance to the validity of published 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

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.

2. A decibel (dB), in this context, is a unit expressing relative loudness of sound. Three dB is approximately equal to the smallest change in loudness of program material ordinarily detectable by the human ear.

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. In every critical listening situation—wherever the sound of the loudspeaker must be depended upon—JBL is the overwhelming professional choice.

Power Capacity*	75 Watts continuous program
Nominal Impedance	8 ohms
Dispersion	90° horizontal and vertical
Crossover Frequencies	1200 and 7500 Hz
Efficiency	1 Watt input produces 80 dB Sound Pressure Level at a distance of 15'.

(Note: 75-80 dB is a comfortable listening level.)

Low Frequency Loudspeaker

Nominal Diameter	15 inches	38 cm
Voice Coil	4-inch (10.2 cm) edgewound copper ribbon	
Magnetic Assembly Weight	12 pounds	5.4 kg
Flux Density	12,000 gauss	
Sensitivity**	44 dB	

Midrange Transducer

Nominal Diameter	5 inches	13 cm
Voice Coil	7/8-inch (2.2 cm) edgewound copper ribbon	
Magnetic Assembly Weight	1.6 pounds	0.7 kg
Flux Density	15,000 gauss	
Sensitivity (averaged 1-3 kHz)	46 dB	

High Frequency Direct Radiator

Nominal Diameter	1.4 inches	3.6 cm
Voice Coil	5/8-inch (1.6 cm) copper	
Magnetic Assembly Weight	1.6 pounds	0.7 kg
Flux Density	15,000 gauss	
Sensitivity (averaged above 2 kHz)	47 dB	

Finish	Oiled Walnut	
Grille	Sculptured foam and Charcoal Brown fabric	
Dimensions (without base)	21-3/4" x 29-5/8" x 17-3/4" deep	55x75x45 cm deep
Base	2-1/4" (6 cm) high	
Shipping Weight	108 lbs.	49 kg

*Based on a laboratory test signal. See Power Capacity section for amplifier power recommendation.

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

SPECIFICATIONS

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.

Eighteen-gauge insulated wire (ordinary household lampcord) is the minimum size recommended for loudspeaker connections up to 50 feet. Beyond this distance, heavier gauge insulated wire is recommended; 16-gauge from 50 to 100 feet and 14-gauge from 100 to 200 feet. If lampcord 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 audio power source are made using the two pushbutton terminal posts located on the back of the loudspeaker system enclosure. The holes in JBL terminal posts do not allow the connecting wire to pass all the way through, preventing the possibility of a short to the other terminal post or to nearby electrical conductors.

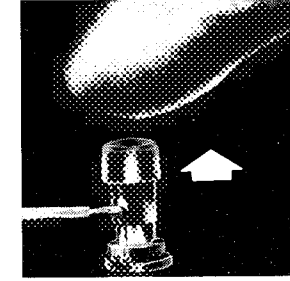
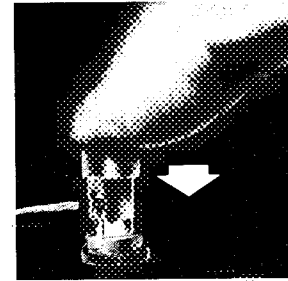
To make a secure connection, strip approximately ¼ inch of the insulation from the end of the wire, push down the spring-loaded terminal post cap, insert the bare wire into the exposed opening of the terminal post and release. (Insertion of the wire into the opening will be easier if the stripped wire is first tinned with a soldering tool and solder.)

Locate the loudspeaker output terminals on the back of the receiver or power amplifier. For each loudspeaker system, connect the wire from the black terminal post to the amplifier output terminal labeled "common," "ground" or (—), and the wire from the red terminal post to the remaining 8-ohm speaker output.³

Note that many 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 two 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. However, 4- or 16-ohm amplifier terminals can be used without danger.

3. Connecting both speakers as described will insure proper "in phase" operation; i.e., their cones 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 speaker wires is reversed with respect to the other) will not harm the system, but may cause some acoustical "cancellation" which will have the audible effect of reducing low frequency response.



1. Depress colored button, exposing hole in terminal post.
2. Push stripped end of lead wire into hole and release button. Never apply twisting force to the terminal post.

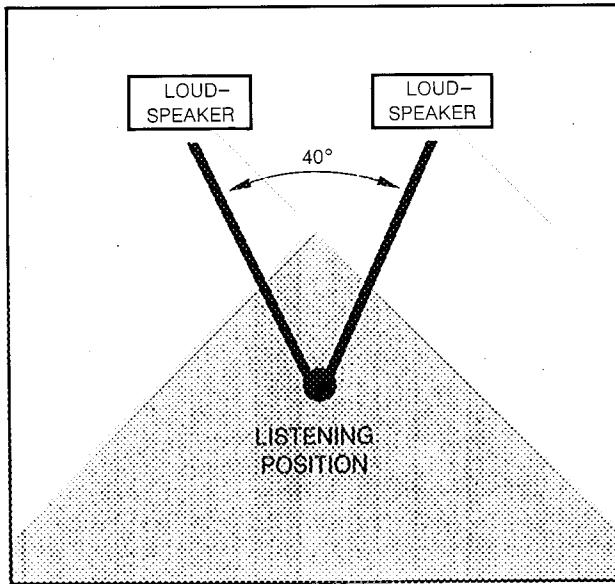
In addition to placement, the sound reflecting or sound absorbing qualities of the listening room will affect sound quality. Room acoustics can be tested by listening to the echo of a sharp sound, such as hand clapping.

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 absorptive 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.

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 Flair 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 high frequency direct radiator. 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 "0" 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.

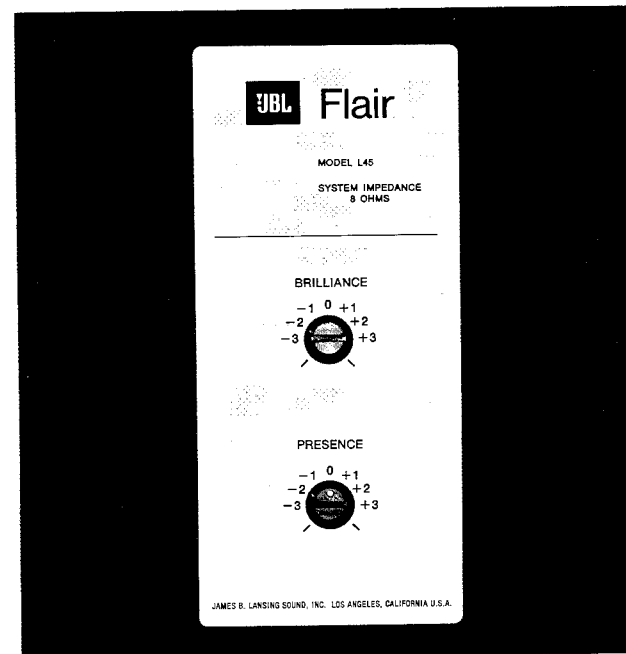
The loudspeaker system should be adjusted while reproducing normal program material with the amplifier tone controls set at the middle (generally referred to as "flat") position. Begin by placing both of the loudspeaker system controls at the reference level and listening to a variety of program material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

After the ear has become attuned to the "0" setting, 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 "0" 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 Brilliance control at "0." If high frequency material—such as cymbals, bells, triangles, violin overtones or vocal sibilants—seems too prominent, lower the setting of the Brilliance control. If greater high frequency output is desired, increase the setting of the control.



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

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.

POWER CAPACITY

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 L45 Flair will reproduce clean sound at comfortable listening levels when driven by an amplifier having an output of as little as 10 Watts RMS per channel.⁴ However, for reproduction of the full dynamic range of contemporary recordings at high volume, a quality amplifier delivering up to 150 Watts RMS 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 rated power handling capacity of the loudspeaker system.

In almost all cases, the volume 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 unit. Similarly, powerful low frequency pulses extending down into the subsonic range can eventually damage the low frequency loudspeaker. If the phonograph pickup is

4. The RMS (root mean square) rating of amplifier power is the most stringent method currently used in the audio industry. An amplifier rated at 60 Watts RMS per channel, for example, is generally considered to be a high-powered unit. The same output expressed in terms of "Music Power" would be 160 Watts.

accidentally dropped with the volume control full up, 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.

SYSTEM COMPONENTS

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.

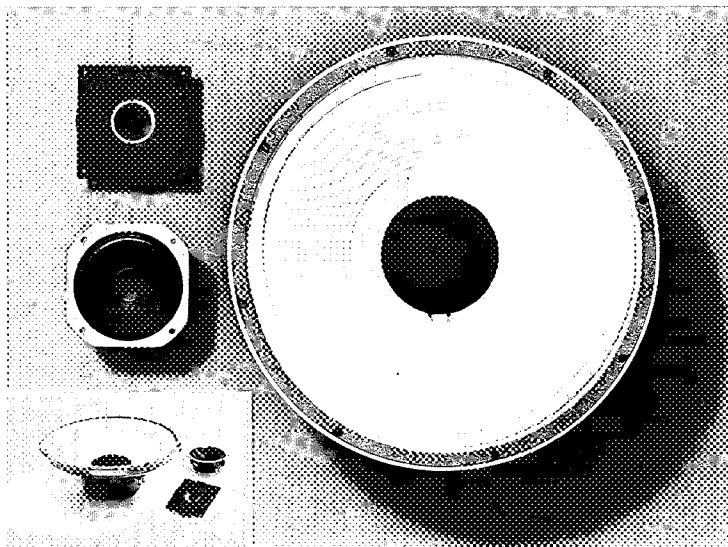
Do not move the cone by hand. The clearance between the voice coil and magnet assembly is so small that any attempt to move the cone manually can easily force it out of alignment.

LOW FREQUENCY—Bass reproduction is accomplished by a 15-inch loudspeaker having a massive 12-pound low-loss magnetic assembly and a 4-inch edgewound copper ribbon voice coil, providing low frequency performance that is clean, crisp, effortless, inherently linear and distortion-free. The 4-inch voice coil is exactly centered in an intense magnetic field affording precision control of the cone. Precise assembly tolerances insure linear cone excursion while maintaining minimal spacing between coil and pole pieces. All of the essential magnetomotive energy provided by the powerful Alnico V magnet is concentrated in the one place where it contributes most to loudspeaker performance—the voice coil gap.

The cone is suspended at its edge by a highly flexible material developed by JBL to extend bass response, allow extreme cone excursion with perfect linearity and absorb spurious sound waves traveling within the cone itself. The cone surface is damped with an exclusive JBL formulation, Lansaplas, which adds stiffness and mass for accurate bass response and smooth performance through the vital midrange region. Heat generated in the magnetic assembly is rapidly dissipated, allowing the loudspeaker to handle sustained signals at high power levels without danger of mechanical damage due to overheating. Efficiency and dynamic range are further increased by the use of a ported enclosure, carefully tuned for optimum bass performance.

MIDRANGE—Program material in the region which includes vocal overtones and strings is reproduced by a 5-inch cone transducer noted for its extreme sensitivity and high power handling capacity. Its viscous-damped cone, driven by a 7/8-inch diameter voice coil and energized by a 1.6-pound magnetic assembly, provides peak-free, uniform sound distribution both on- and off-axis. The light, rigid

moving assembly, combined with a voice coil that is large in relation to cone diameter, is responsible for the outstanding transient response of the device and allows greater undistorted acoustic output than any other small cone loudspeaker. To optimize its superior response characteristics and to prevent acoustical interaction with the low frequency driver, the midrange unit is mounted in a sealed sub-chamber within the Flair enclosure.



Loudspeaker System Components
 15-inch Low Frequency Loudspeaker
 5-inch Midrange Transducer
 1.4-inch High Frequency Direct Radiator

HIGH FREQUENCY—Transparent, distortion-free reproduction of delicate treble fundamentals, overtones and harmonics extending beyond the range of human audibility is provided by a 1.4-inch direct radiator. Its cone is suspended with an impregnated cloth termination to insure linearity and absorb spurious resonance. The unit is driven by a 5/8-inch copper voice coil suspended in an intense magnetic field generated by a 1.6-pound magnetic assembly. The radiating surface is surrounded by a dense foam ring to eliminate unwanted radiations and reflections.

The small diameter of the cone and center dome results in a wide high frequency sound distribution pattern; thus, each listener hears the same tonal balance and ratio of direct to reflected sound, regardless of location within the listening area.

DIVIDING NETWORK—Smooth, imperceptible transition between loudspeaker components is controlled by a frequency dividing network carefully engineered and tested to complement the specific electrical and acoustic

characteristics of the system. The function of a precision dividing network is considerably more complex than merely feeding low frequencies and high frequencies to their respective transducers. Vitally important to the total sound of a JBL loudspeaker system is the way the network distributes electrical energy for optimum control of the system components through the transition frequencies.

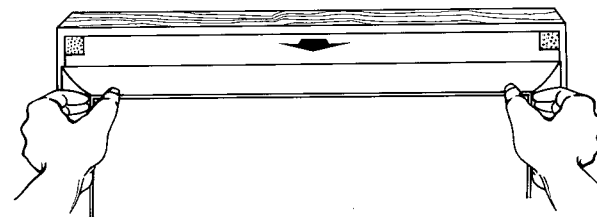
JBL network component tolerances are much more stringent than normal industry practices. For example, the capacitors used are non-inductive, non-polarized types with high AC current capacity built expressly for use in dividing networks and individually tested for conformity to rigid performance standards. The special inductors have extremely low insertion loss so that none of the driving power to the loudspeaker system is wasted in the network. Each inductor is calibrated on a sensitive electronic bridge and its value set precisely.

The dividing network is provided with Brilliance and Presence controls which allow balancing performance of the system to listening room acoustics and personal preference. The controls do not appreciably affect the crossover frequency, nor do they limit the upper frequency response of the loudspeaker system.

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 Flair enclosure by hook-and-pile mounting tape located at each corner of the assembly. To remove the grille, grasp it gently at both top or bottom corners, near the aluminum molding, and carefully lift it away from the enclosure. The grille is replaced by positioning it on the enclosure so that the semicircular cutout on the underside of the grille frame follows the contour of the low frequency loudspeaker. Apply light pressure at the corners to reseat the assembly on the mounting tape. The JBL emblem can be rotated to read correctly whether the loudspeaker system is placed horizontally or vertically.

COMPONENT REMOVAL



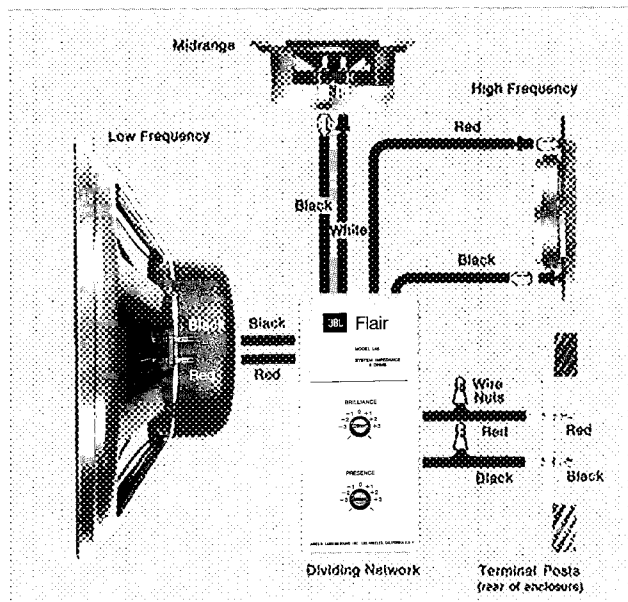
When removing the grille, always grasp it as shown. Serious, and visible, damage could result from attempting to lift the grille by the unsupported foam molding.

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 eight 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 four wood screws 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—Like the midrange transducer, the high frequency direct radiator is also secured to the enclosure baffle panel by four wood screws at each corner of its frame. To remove the unit, carefully take out the screws and lift the transducer from the enclosure. The two leads from the dividing network can then be disconnected at the tab connectors on the back of the frame.

DIVIDING NETWORK—The dividing network is installed behind the baffle panel and held in place by six screws threaded into T-nuts. To gain access to the network, remove the transducers as previously described, remove the wire nuts connecting the network leads to the leads attached to the binding post terminals at the back of the enclosure, remove the mounting screws, and lift the network out through the low frequency loudspeaker opening.



WIRING—When reconnecting the wire leads between the dividing network and the midrange or high frequency units, proper polarity is assured by the connectors. Wire leads and the low frequency loudspeaker connections are color-coded as shown:

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.

The Flair is supplied with either of two pedestal bases—one proportioned for use with a vertically-oriented enclosure; the other designed specifically for the horizontal configuration. The enclosure should be centered on the base when viewed from the front and brought forward so that the rear edges line up, leaving a 2-inch front overhang. Since it is not necessary to affix the base permanently, orientation of the Flair system can be changed at any time. For ordering purposes, the vertical base may be identified by the model number V45; and the horizontal version by the model number H45.

JBL cabinetry represents the finest quality available in the high fidelity industry, uniquely styled and solidly constructed to last a lifetime. Designed to complement the characteristics of the loudspeaker components, JBL enclosures feature tight, wood-welded, lock-mitered joints and acoustic padding to eliminate undesirable resonance and warpage. Only the finest compressed woods, furniture hardwoods and hardwood veneers are used—carefully selected, skillfully prepared and hand-rubbed to a rich, lustrous finish enhancing the natural beauty of individual grain structure and color. Detail work is obvious: hand-fitted joints are expertly closed; edge veneering is flawless; scratches, dents, gluelines and other defects are non-existent. Typical assembly line procedures are not followed. Each cabinet receives all of the personal attention it must have before it can bear the JBL medallion—the symbol for quality throughout the world.

The Flair enclosure represents a study in controlled proportion. Elegantly scaled and finished on all four sides, it offers a handsome silhouette in either vertical or horizontal placement. To insure optimum dispersion of the sound field, JBL created a unique three-dimensional grille, acoustically transparent on all surfaces. The sculptured coves forming the four sides of the grille provide a contemporary echo of the rich bolection moldings found in traditional architectural treatments. Subtle changes of plane; the interplay of light and shadow on the curved grille section; the varied textures of walnut, foam and fabric; and the

BASE INSTALLATION

THE FLAIR ENCLOSURE

grace note of bright aluminum combine to make the Flair a distinguished addition to any listening room decor.

Occasional dusting with a clean, soft cloth will maintain the original beauty of the Flair enclosure. The grille can be cleaned by gently dusting it with a vacuum cleaner. Since the oiled walnut finish is moisture resistant, a damp cloth will remove most household stains. 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 obvious, 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. 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 with verbatim accuracy to the signal supplied by the audio power source; it will therefore reproduce extraneous noises just as accurately as it reproduces 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 a 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

Should your JBL loudspeaker system require service, return it to the JBL dealer from whom it was purchased. If it is not possible to contact a dealer, write directly to the JBL Service Department describing the difficulty as fully as possible. Products returned to the factory must be sent prepaid and will not be accepted unless written authorization has first been obtained. The warranty is recognized only when the unit is repaired by JBL or an authorized JBL Service Agency and if the serial number of the unit has not been defaced or removed.

In addition to the established five-year warranty, JBL will, at its option, repair the speakers free of charge during their entire normal life if factory inspection discloses an original manufacturing defect. To establish the warranty, fill out and mail the warranty card, packed with every JBL loudspeaker system, within ten days of purchase.

SUMMARY

The L45 Flair exemplifies JBL's reputation for leadership in acoustic and visual design. It is our sincere belief that the Flair—like all JBL products—will provide undiminished listening pleasure for many years to come.

FOR ADDITIONAL
INFORMATION

If you have difficulty in achieving the fine performance of which your JBL loudspeaker system is capable, consult the JBL Audio Specialist 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 Information Department explaining the difficulty in detail.