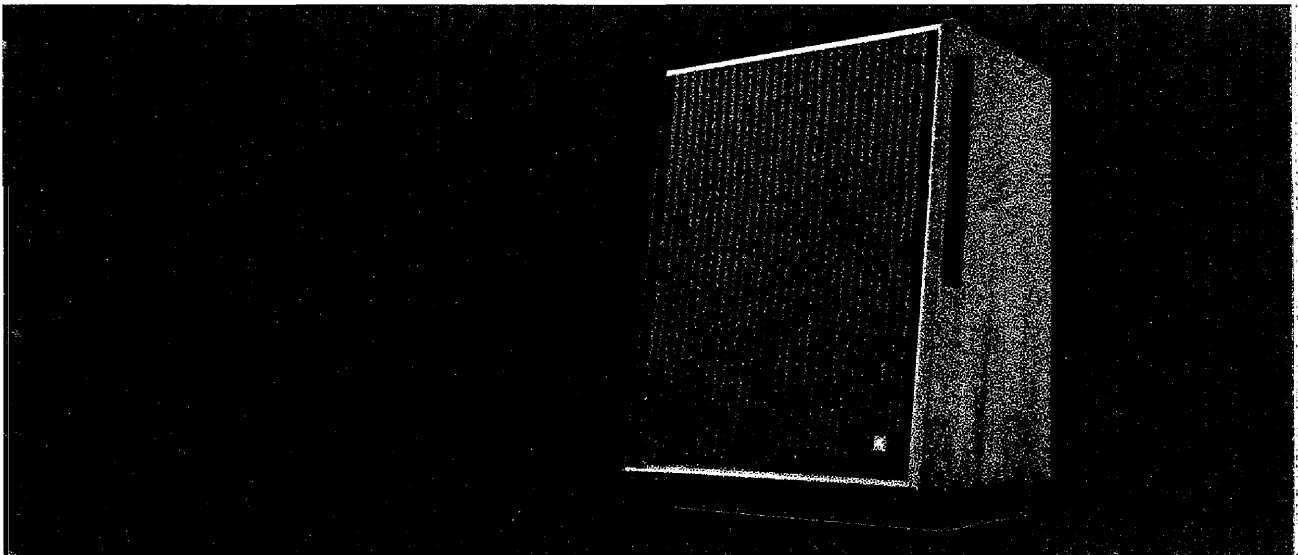
Owner's Manual

L200 Studio Master

JBL



Excellence is an elusive quality. It is so easy to recognize and 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.

Index

Development of the Studio Master

The most demanding requirements for excellence in loudspeakers come from recording studios. The monitor loudspeaker is the standard by which recordings are judged.

JBL's reputation for building the ultimate in accurate monitor loudspeaker systems for recording studios, characterized by unprecedented power-handling capacity, high acoustic output, uniform spatial distribution and smooth frequency response, prompted the introduction of a comparable unit provocatively styled for the home environment.

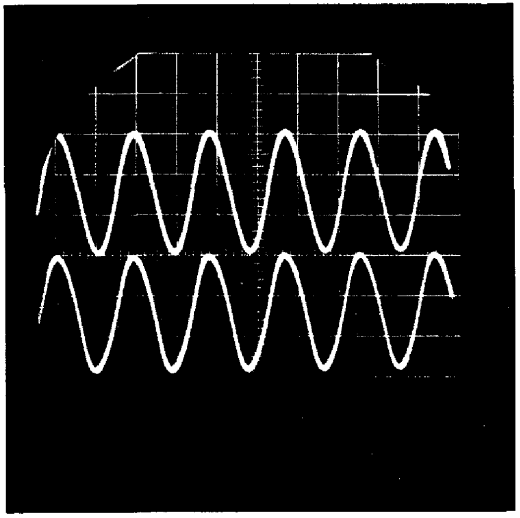
The Studio Master perpetuates JBL's reputation for unequalled music reproduction and leadership in acoustic and visual design. The vertical fluted Crenelex grille pattern dramatizes the unique lineage and advanced engineering of the L200. New methods of sculpting semi-rigid foam have given JBL the freedom to explore texture, color and shape. This reticulated (open-pore) foam—substantially the same material used for professional microphone windscreens—has proved to be even more acoustically transparent than cloth.

Performance Characteristics

Whether played at background music levels or at concert hall volume, the performance of the Studio Master is full, rich and robust. Low frequencies are solid and well defined, avoiding unnatural accentuation. Midrange frequencies are reproduced with the incredible crispness and presence which have long been JBL hallmarks. Highs are delineated with utter clarity and transparency. Clear transient response 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 using standard test techniques. The L200 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, and all electronic equipment was checked and calibrated before tests were run.

Due to the wide-angle dispersion characteristic of the loudspeaker system of the L200, frequency response measured up to 60° off-axis horizontally does not deviate more than 6 dB from on-axis response.



A dual-trace oscilloscope was utilized to compare a 75 Watt rms input at 30 Hz directly with the acoustic output of the system. A laboratory microphone was connected directly to the oscilloscope and the display photographed. The upper waveform, representing the generated low frequency input, is identical to the output trace, demonstrating the verbatim signal reproduction of the L200.

Sustained performance at this intensity would not be encountered during normal use. A 75 Watt rms test signal is far more difficult for a speaker to reproduce than its rated capacity of 100 Watts program material, particularly in the lowest frequency range. Nevertheless, it can be seen that the L200 produces a virtually perfect replica of the input signal.

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 L200, for example, will convert

a 1 Watt input of "white noise"[1] into a sound pressure level of 80 dB at a distance of 15 feet. This is approximately twice as loud as ordinary conversation and represents a comfortable listening level, demonstrating that the L200 delivers substantial output from very little input power.

Specifications indicate that the Studio Master has impressive performance characteristics, yet they cannot convey the full impact of an extensive listening experience. The powerful bass fundamentals and life-like voice projection exhibited by the L200 are qualities found in few loudspeaker systems, regardless of size and price.

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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.

Specifications

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 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; laboratory data are an integral part of the process, but 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	100 Watts continuous program
Nominal Impedance	8 ohms
Dispersion	120° horizontal, 40° vertical
Crossover Frequency	1200 Hz
Efficiency	1 Watt input products 80 dB Sound Pressure Level at a distance of 15'. (Note: 75-80 dB is a comfortable listening level.)
Finish	Oiled Walnut
Grille	Crenelex pattern foam
Grille Color Options	Smoke, Raven, Aegean or Burgundy

Dimensions	32¾"x23⅞"x21¼" deep 83 x 61 x 54 cm deep
Shipping Wt.	125 pounds 57 kg

Low Frequency Loudspeaker

Nominal Diameter	15 inches
Voice Coil	4-inch edgewound copper ribbon
Magnetic Assembly Wt.	19½ pounds
Flux Density	11,500 gauss
Total Flux	265,000 Maxwells
BI Factor*	5 pounds per ampere
EIA Sensitivity	47 dB

High Frequency Compression Driver	
Throat Diameter	1 inch
Voice Coil	1¾-inch edgewound aluminum ribbon
Magnetic Assembly Wt.	11 pounds
Flux Density	17,000 gauss
Total Flux	80,000 Maxwells
BI Factor*	2 pounds per ampere
EIA Sensitivity	61 dB

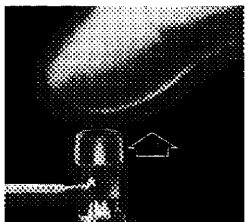
**BI Factor is a measurement of the loudspeaker's ability to convert electrical energy to mechanical force.*

Connecting the L200

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.[2]

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.



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.

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]

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.

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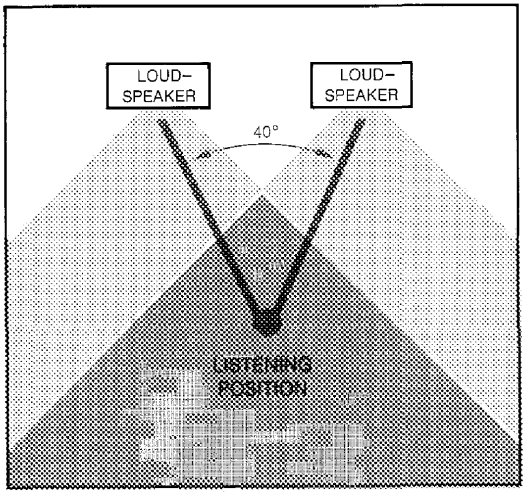
2. Both speakers must be connected as described to insure proper "in phase" operation, i.e., their cones should respond to a monophonic signal by moving simultaneously in the same direction, and not opposite to each other. Inadvertent out-of-phase connection will not harm the loudspeaker system, but may cause some acoustical "cancellation" which will have the audible effect of reducing low frequency response.

3. 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.

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.

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 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 transparency. Large, flat wall surfaces should be broken up with bookshelves, drapes, screens or tapestries.

Adjusting the System

The frequency dividing network is provided with a High Frequency Level control to permit adjustment of the L200 to specific room acoustics and personal listening preference. It does not affect the crossover frequency, nor does it limit the upper frequency response of the loudspeaker system.

Adjustment should be made while the system is reproducing normal program material with the amplifier tone controls set at the middle (generally referred to as "flat") position. Begin by setting the dividing network control at one of the two Laboratory Standard positions and listening to the system long enough to become accustomed to its performance at this setting. When the control is set at Laboratory Standard, the high frequency compression driver is operating at maximum volume.

The High Frequency Level control, conveniently located on the front of the enclosure behind the removable grille, allows adjustment of the system to accommodate a variety of specific room acoustics and personal listening preferences.

If high frequency material (such as violin overtones, bells, triangles or chimes) seems over-emphasized, turn the control knob to the -2 dB setting. This will lower high frequency output of the system by two decibels.[4] In a like manner, listen to the L200 with the control set at the -4 and -6 dB settings. After each adjustment, listen to a variety of program material until the ear becomes attuned to the new sound and can compare it to the previous performance of the system. Experimentation with positioning of the loudspeakers, as previously outlined, will also be beneficial.

Once loudspeaker positioning and the network control have been set for optimum balance in the listening environment, compensation for differences in individual recordings should be made with the tone controls on the audio power source.

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4. A decibel, in this context, is a unit expressing relative loudness of sound. 1 dB is approximately equal to the smallest degree of change in loudness ordinarily detectable by the human ear.

Power Capacity

The Studio Master 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.[5] However, reproduction of the full dynamic range of contemporary recordings at high volume, a quality amplifier delivering from 60 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 system will become noticeably discomforting before it 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 other 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 midrange and high frequency units. Similarly, powerful low frequency pulses extending down into the subsonic range can eventually damage the low frequency loudspeaker. If the phonograph pickup is accidentally dropped with the volume control 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.

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5. 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" (IHF) would be 160 Watts.

System Components

The components used in every JBL product are designed and produced by JBL personnel to exacting standards. JBL loudspeaker frames are massive aluminum castings. Magnetic structures are precisely machined of low-reluctance iron, energized by high grade Alnico V magnets. Voice coils are fabricated of wire drawn to a flat ribbon wound on the ribbon's edge by hand. Stamped frames, punched ceramic magnetic structures 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 superior transient response—qualities that have become JBL hallmarks.

Avoid moving the cone assembly 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—Low frequencies are reproduced by a 15-inch loudspeaker having a massive 19½-pound low-loss magnetic assembly and a 4-inch edgewound copper ribbon voice coil, providing bass performance that is clean, crisp, effortless, inherently linear and distortion-free. The 4-inch voice coil is exactly centered in an intense magnetic field allowing precise control of the specially damped cone. 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. Equally important is the low frequency transducer's smoothness of response near the upper limits of its range, as it approaches the crossover frequency.

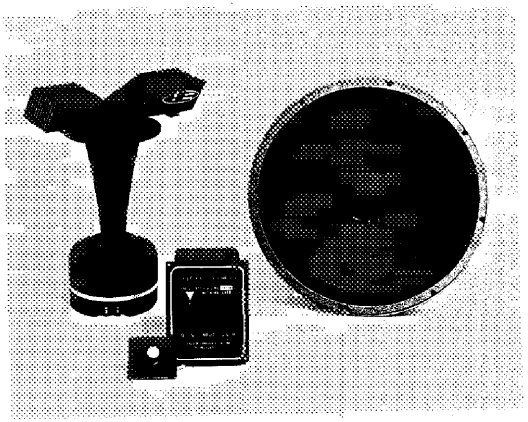
The low-frequency cone is suspended by a ring termination, which increases bass response and allows extreme excursion with perfect linearity. Large radiating area, extreme linear travel, optimum cone density and edgewinding of the voice coil are important engineering advances that enable the 15-inch transducer to reproduce clean, solid low frequencies without audible distortion, even at very high power levels. Efficiency and dynamic range are further increased by the use of an enclosure having two ducted ports, carefully tuned for optimum bass performance.

High Frequency—Above the crossover frequency of 1200 Hz, the high frequency compression driver operates smoothly through a range extending to the limits of audibility. The diaphragm is pneumatically drawn to shape from .002-inch aluminum alloy and is driven by a 1¾-inch edgewound aluminum ribbon voice coil operating in an intense magnetic field. A pure silver impedance-controlling ring counteracts voice coil inductance, resulting in greatly improved efficiency through the highest audible frequencies. Energy from the diaphragm is directed through the precisely engineered concentric channels of a phasing plug insuring that sound waves are conducted to the horn throat in perfect phase relationship.

Output from the high frequency compression driver is projected through a cast aluminum exponential horn and dispersed by a slant-plate acoustic lens. The acoustic lens is a sophisticated device, pioneered by JBL, designed according to advanced sound wave propagation theory and functions in a manner similar to an optical lens. Its precise hyperbolic curvature spreads sound evenly over a 120° horizontal arc, restricting vertical dispersion to approximately 40°.

Dividing Network—Smooth, imperceptible transition between components is controlled by a computer-designed frequency dividing network carefully engineered and tested to complement the specific 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 components through the transition frequencies.

JBL network tolerances are much more stringent than normal industry practices. For example, JBL networks use non-inductive Mylar dielectric capacitors—not electrolytic types—individually tested to meet rigid production tolerances. The network used in the L200 includes special reactive components to compensate for the complex impedance characteristics of the transducers and to maintain the desired 12 dB per octave attenuation curve related to their actual acoustic output. A 5-position switch allows balancing the intensity of the high frequency compression driver to listening room acoustics and personal preference.



15-inch Low Frequency Loudspeaker
Horn-Loaded High Frequency Compression Driver
Acoustic Lens
Matched Frequency Dividing Network

Removal of Components

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

Grille—Place the enclosure on its back on a clean, padded surface to remove the grille assembly. The grille material is mounted on a light frame which provides physical support and assures optimum acoustical transparency. The grille frame is secured to the enclosure by strips of hook-and-pile mounting tape. Grasp a small portion of the grille material at both upper or both lower corners, (where the assembly is anchored) and gently draw the grille directly away from the enclosure. A "ripping" sound will be heard, indicating the normal disengagement of the mounting tape. This procedure may be repeated many hundreds of times without damage.

Low Frequency—The low frequency loudspeaker is held in place by eight Phillips screws threaded into T-nut fasteners attached to the back of the baffle panel. Carefully unscrew these 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 out of the baffle panel, disconnect the wires at the binding posts and remove the loudspeaker from the enclosure.

Acoustic Lens—The acoustic lens is secured with mounting tape. Remove the lens by firmly lifting it from the tape. The lens can be replaced by lightly pressing it back into its original position.

High Frequency—The high frequency compression driver and horn are removed as an assembly. Reach into the enclosure through the low frequency loudspeaker opening, depress the push button terminals to disconnect the lead wires at the compression driver and remove the two self-tapping screws securing the support bracket to the brace at the rear of the enclosure. While supporting the compression driver/horn assembly with one hand, remove the four Phillips screws that extend from the front of the enclosure through the baffle panel to hold the horn in place. Finally, rotate the complete assembly (to clear the brace at the rear of the enclosure) and lift it from the enclosure.

After removal, the horn and support bracket can be disassembled from the compression driver by removing the three 7/16-inch cap screws at the rear flange of the horn. Save the white gasket on the mounting flange of the horn and the fiber gasket on the face of the compression driver for reinstallation.

Dividing Network—Remove the low frequency loudspeaker as previously described. Use firm pressure to pull the control knob from its shaft, remove the retaining nut and disengage the control from the baffle panel. The dividing network itself is mounted on the back of the enclosure. Disconnect the lead wires at the components or at the push button terminals on the dividing network. Remove the retaining screws and lift out the complete network and control assembly. The white gasket used to maintain an airtight seal between the network and the enclosure should be retained for reinstallation.

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

Wiring—When reconnecting the wire leads between the dividing network and the components, observe the following polarity:

Low Frequency: Green wire to the red terminal, black wire to the black terminal.

High Frequency: Red wire to the red terminal, black wire to the black terminal.

Although JBL loudspeakers are extremely rugged, the cone and other moving parts are subject to accidental damage. Exercise extreme caution whenever using a screwdriver or other tools in their immediate vicinity. Whenever the horn is removed from the compression driver, the mouth of the driver should be covered with plastic tape. An intense magnetic field exists in the mouth of the driver, and it is extremely important that foreign objects such as iron chips, mounting hardware, tools or other metal items be kept from the area.

The Studio Master Enclosure

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 installed in it, the L200 enclosure features tight, wood-welded, lock-mitered joints, internal bracing and acoustic padding to eliminate undesirable resonance and warpage. Only the very best 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: compound miters on the solid walnut edge molding are hand-fitted; all joints are expertly closed; edge veneering is done by hand; 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 Studio Master enclosure is finished in hand-rubbed oiled walnut. Occasional dusting with a clean, soft cloth will maintain the original beauty of the finish. Since moisture cannot penetrate the oiled surface, most household stains can be easily removed with a damp cloth. The use of furniture wax, polish or cleaner is not recommended. The grille can be cleaned by gently dusting it with a vacuum cleaner.

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 sanding them out with 500 grit wet/dry sandpaper 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 low frequency 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 a 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.

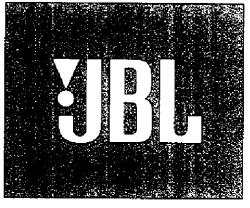
In addition to the established two-year warranty, JBL will, at its option, repair the speakers free of charge during their entire normal life if factory inspection discloses an original manufacturing defect. To establish the warranty, fill out and mail the warranty card, packed with every JBL loudspeaker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

Summary

The L200 Studio Master exemplifies JBL's reputation for leadership in acoustic and visual design. It establishes a standard for music reproduction in the home, just as it has in the recording studio. It is our sincere belief that the L200 Studio Master —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.



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