



XPL140 XPL160

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."

JBL XPL Series loudspeakers are the ultimate expression of over forty years experience creating loudspeakers that are the first choice of professionals worldwide. This experience, teamed with an extensive development program of comparisons, experiments, testing and listening, has resulted in loudspeaker systems displaying truly exceptional performance.

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.

Connections

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. The amplifier must also be turned off before connecting or disconnecting cables at the amplifier or pre-amplifier inputs.

1 mm² (18 AWG) insulated wire is the minimum size recommended for loudspeaker connections up to 5 meters (15 feet). Beyond this distance, heavier gauge wire is recommended: 1.5mm² (16 AWG) up to 10 meters (30 feet) and 2 mm² (14 AWG) up to 25 meters (75 feet). These recommendations are given as **minimum** requirements. Speaker wire and interconnecting cables are an important component in an audio system. XPL Series loudspeakers are internally wired with specially designed cable manufactured for JBL by Monster Cable®. The same care that was given to the selection and application of the cables that will connect the various system components. Your JBL XPL Series dealer has the experience and knowledge to recommend suitable interconnects and speaker wire to best complement your system.

The length of the speaker wire will depend on the location of the loudspeakers and amplifier. Since the final positioning of the loudspeakers will be determined by careful listening, you may want to arrange a temporary wiring layout that allows moving the loudspeakers to experiment with placement. When the best loudspeaker placement is determined, permanent connections may be made using the shortest cable runs possible. Both left and right speaker wires should be the same length. In some systems, the amplifier may be located near the loudspeaker system and connected using a short length of wire. Although a relatively long cable between the pre-amplifier and main amplifier is required by such a hook-up, the benefit of a short amplifier-to-loudspeaker connection will often outweigh the drawbacks.

Connections to the loudspeaker system are made at the two terminals located on the back of the enclosure. These terminals permit a variety of connection methods. The most positive connection is made by directly connecting clean, bare wire. Connection is made by first separating the wire into three equal bundles, then passing the center bundle through the hole through the binding post exposed when the plastic knob is turned counter clockwise. The remaining bundles should then be wrapped around the post and twisted together with the center strands. The knob can now be tightened down securely using the tool provided with the system. Excessive force should not be applied; a snug, positive connection engaging a maximum amount of contact area is the objective. Do not overtighten. Trim off any excess wire that is not in contact with the binding post contact surfaces to avoid a short circuit.

Other possible methods of connection involve fastening the ends of the wires to spade connectors or banana-type connectors, which are then, in turn, attached to the binding posts. Bear in mind, however, that there is an advantage to keeping the number of contacts to a minimum. If this type of connection is desired, we recommend using the highest quality terminals, expertly connected to the selected cables. The terminals are located on standard 19 mm (3/4 inch) center-to-center spacing and will accept dual banana connectors as well as single terminals. Any connection in an audio system should not be considered "good forever." All connections should be inspected and cleaned or remade periodically. Frequency of maintenance depends on the metals involved in the connection, atmospheric conditions and other factors. Consult your dealer for specific recommendations.

The loudspeaker wire should incorporate some method for identifying the positive (+) and negative (-) conductors. Polarity is generally indicated by a ridge, printed marking or color stripe on one conductor. The designated conductor should be assigned a polarity (either positive or negative) and connected to the respective amplifier and loudspeaker terminal. Make sure that both loudspeakers are connected in the same manner. This will ensure that the loudspeaker will work together (in phase) rather than in opposition. Connecting the loudspeakers out of phase will not cause damage but will result in reduced low frequency output and lack of stereo effect. JBL XPL Series loudspeakers are designed to produce a positive pulse when a positive voltage is applied to the positive (red) terminal. Some audio amplifiers invert polarity, that is, reverse the polarity of both channels. It is recommended that before final connections are made that the system be auditioned carefully with both normal (+ amp to + speaker) as well as reversed (+ amp to - speaker) connections to determine the best choice. The "correct" connection is the one that yields the best audible results. Be sure to reverse both left and right connections to keep the systems in phase.

The system may also be connected to the amplifier using two lengths of wire. The "bi-wire" connection method offers several options and advantages. Experimentation and the advice of your JBL XPL Series dealer will be helpful in choosing the best method for your system.

The system's internal dividing network is electrically separated at the low frequency to midrange transition. External strapping bars connect the networks when a single wire connection method is used. The system is shipped from the factory with the strapping bars in place. By removing the bars, connections may be made to

the individual network sections using two wires (four conductors) as shown in Figure 1. The wires used may be of the same type for both low frequency and high frequency sections. The advantages are that wire effects (resistance, inductance, etc.) are reduced and intermodulation of low and high frequencies in the cables is avoided. Specialized wires for low frequency and high frequency sections may yield excellent results in some systems. In either case, low frequency cables should be as short as possible and the left and right cables for each section must be the same length.

FIGURE 1

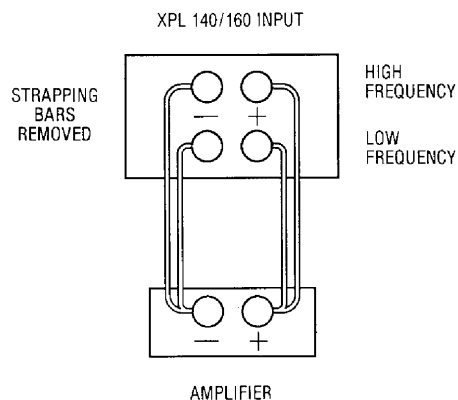
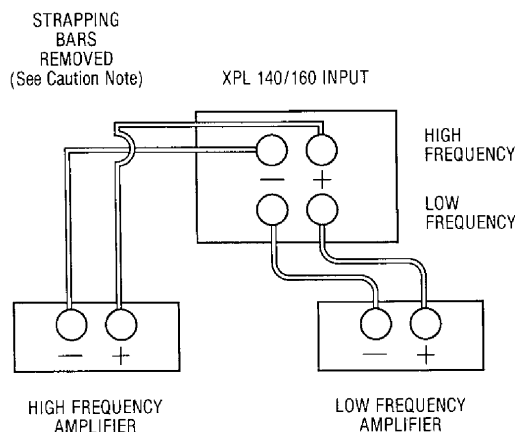


FIGURE 2



CAUTION: Never connect two amplifier channels to the same loudspeaker without first removing the strapping bars. Operating two amplifier channels with the bars in place will seriously damage the amplifiers and void the warranty.

The bi-wire option also permits powering the system with two amplifiers as shown in Figure 2. Four identical amplifiers (or two dual channel units) may be used although specialized low and high frequency amplifiers offer clear advantages. Your JBL XPL Series dealer can recommend amplification to best suit your needs. In all cases, the left and right amplifiers for each section must be identical. Ensure that the input sensitivity of the two amplifiers is equal or that input level controls are provided to maintain the proper low to mid/high balance. If two identical stereo amplifiers are chosen, each amplifier may be located near a loudspeaker and drive low frequency and high frequency sections through short wire runs.

Beware that some amplifiers invert polarity. Input polarity must be the same for both low and high frequency sections. If the polarity is reversed to one section, a discontinuity in response will be apparent in the crossover region. Reverse the polarity to either high or low frequency sections of both loudspeakers if a problem is suspected. Amplifier polarity markings may not ensure correct polarity connections.

Amplifier Power Recommendations

The XPL 140 is capable of handling 125 watts continuous with peaks of up to 500 watts. The XPL 160 is rated at 150 watts continuous and 600 watts peak. The continuous rating is based on an eight hour test using broadband noise shaped to simulate the power distribution of music. The peak rating indicates the system's ability to handle transient peaks well above average power levels.

Amplifier power ratings are an *indication* of how loud the system will play without distortion. Unfortunately, the amplifier power rating generally refers only to continuous, steady state power levels measured with a test signal. *Dynamic power capability* is important to how powerful an amplifier will *sound*. For this reason, an amplifier should be chosen only after careful listening. If it is possible to achieve the desired volume level without distortion, then the amplifier has sufficient power regardless of the rating. More important than the power rating is the quality of sound the amplifier is capable of. Unfortunately, amplifier specifications are not a reliable indicator of sound quality. Your JBL XPL Series dealer can make recommendations and arrange auditions to aid selection of suitable amplification.

If four amplifier channels are used, the high frequency amplifier may be up to 6 dB less powerful than the low frequency amplifier. Due to the power vs. frequency distribution of the music, the low frequency section requires approximately four times the power of the high frequency section. As an example: if a 200 watt low frequency amplifier is used, a 50 watt high frequency amplifier will "run out of power" at approximately the same level when playing music.

Fuses or circuit breakers of any kind should not be used between the amplifier and loudspeaker. All such devices will seriously degrade the sound quality and do not ensure protection from loudspeaker damage. The key to safe operation is adequate amplifier power to avoid distortion at the highest sound levels 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 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.

Consult your JBL XPL Series dealer for information regarding the use of products or materials designed to control certain acoustic problems caused by room size, shape or construction. In many cases, significant improvement in performance can be achieved by careful attention to room acoustics.

Placement

The location of the loudspeakers within the room affects bass response, imaging, clarity and overall quality of sound. Several possible locations should be tried before choosing the best placement. Locating the system near the intersection of walls will increase the quantity but not necessarily the quality of bass. Placing the loudspeakers near reflective surfaces (bare walls, glass) will result in a loss of stereo localization. In general, placing the loudspeakers at least 75 cm (25 inches) from the rear wall and at least 1 meter (36 inches) from side walls will minimize the effects of reflected energy.

If the system is to be placed on a carpeted floor, install the two adjustable feet by threading them into holes provided near the front edge of the base. These feet provide stability on a soft surface and allow adjusting the vertical angle of the system. Your dealer can provide alternate adjustable spikes that may be used in place of the feet. On hard surfaces feet or spikes may be used to adjust the vertical angle of the system as required but are not necessary to ensure stable placement.

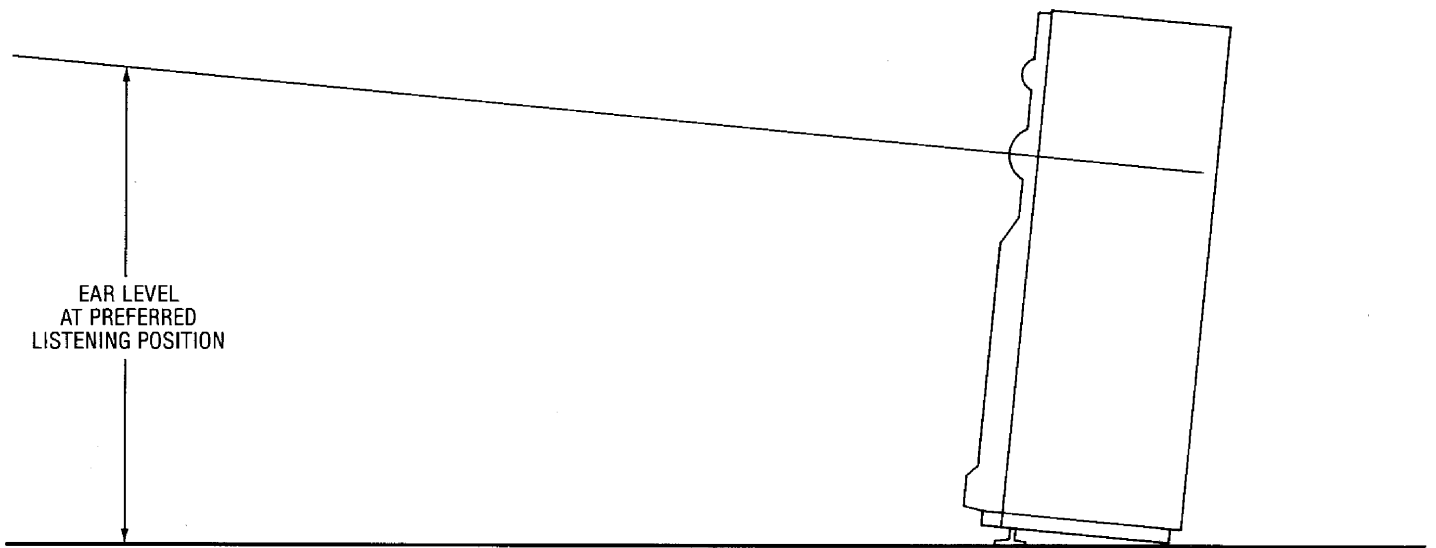
Although the systems are designed to be placed directly on the floor, some installations benefit from raising the loudspeakers a few centimeters. By moving the low frequency driver away from the floor, "heavy" or "fat" bass response caused by room effects may be eliminated or greatly reduced. Only the specialized JBL stand should be used for this purpose since the height, angle and stability of the stand is critical to preserving overall system performance. If you suspect your system might benefit from the use of stands, consult your JBL XPL Series dealer and follow the instructions included with the stands carefully.

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° to 60° 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 listening angle.

XPL Series systems are the result of careful attention to time dispersive effects of loudspeakers. The relative "speed" of the drivers has been considered in the design of the enclosure and dividing network. The two pure titanium drivers having almost identical "time signatures" are located together on a plane behind the low frequency driver. This physical mounting design combined with well chosen crossover characteristics helps equalize the "speed" of the low frequency driver with the mid/high group. The audible benefit is the ability of the system to recreate the original soundstage accurately by preserving, not smearing, the time cues contained in the recording. Of course the program material is a major factor in determining the quality of soundstaging and localization. A loudspeaker must not randomly generate a generic soundstage with all program material. The best loudspeaker will faithfully reveal the quality of each recording.

To achieve the best results, the interaction of the loudspeakers and the listening room must be optimized. Experimentation and careful listening will produce the best results. Once the general placement is chosen according to the guidelines above, the final small adjustments may be made. By adjusting the feet, the system may be tilted away from the listener. This tilt directs the systems' beam angle and adjusts the timing relationship of the drivers. In general the best results are achieved when the system is aimed as shown in Figure 3. Experimentation, however, will reveal the best angle for your particular acoustic environment. Recordings known to have accurate spatial information must be used when adjusting the vertical angle.

FIGURE 3



In some cases, stereo localization can be improved by rotating the loudspeakers slightly toward the listening position. Positioning the loudspeakers this way will also improve extreme high frequency response at a listening position centered between the left and right system.

To allow the system to better integrate into a variety of environments, a two position switch controlling the high frequency contour is provided. The system should be auditioned carefully using recordings having extended, well balanced high frequency response. Change the position of the high frequency contour switch on both systems and listen to the same recordings again. The correct setting is the one which yields the most natural high frequency response. Be sure that the left and right systems have the high frequency contour switch set in the same position.

The XPL 160 is supplied in mirror image pairs. In general the systems should be placed so that the drivers are located at the outer edges of the stereo pair. If the left and right systems are unusually far apart, reversing the systems may provide better center fill.

JBL XPL Series loudspeaker systems are finished in select wood veneers. Cabinet construction is of dense fiberboard, superior to solid wood in its acoustic properties. For maximum strength and control of resonance, all panels are cut from 19 mm (3/4 inch) stock and all joints are lock-mitred and glued. The baffle panel consists of laminated stock contained within a structural foam capsule to produce a dense, energy dispersive structure.

The baffle panel and absorptive foam surrounding the drivers may be cleaned by occasional dusting. Never apply solvent based cleaners. A mild detergent in water may be used to clean the baffle as required. The foam material may be cleaned using a soft brush. No solvents or chemical cleaners should be used on the foam pad.

Veneer finishes are treated with a wax/oil solution to enhance the natural beauty of the wood and to protect the surface from damage. Occasional dusting with a clean, soft cloth will maintain the original beauty of the finish. Commercial polish or wax treatments may be used according to the manufacturers' instructions.

The XPL 140 and XPL 160 are also available in a high gloss lacquer finish. The beautiful deep gloss finish is the result of a meticulous multi-step painting and polishing procedure. The surface should be treated very carefully to avoid scratching the finish. Only lint-free cotton cloths should be used for dusting. To remove fingerprints and smudges, an ammonia-free window cleaner may be used. Apply a small amount to a lint-free cotton cloth and gently clean the surface. Never use any abrasive cleaners or strong chemicals to clean the enclosure. In case of deep scratches or damage, please consult a qualified furniture repair shop.

Grille

The XPL 140 and XPL 160 grille is held in place by a pin located at each corner. To remove the grille, grasp two corners and gently pull the grille away from the enclosure. To replace the grille, position the mounting pins on the cups and gently press until the grille meets the enclosure. Although the grille has been engineered to minimize acoustical interference, high frequency response and stereo imaging will be improved by removing the grille.

Service

JBL XPL Series loudspeakers are designed to give years of trouble-free service. No periodic maintenance is required. If a problem is suspected, first make sure all connections are properly made. If a problem exists in one loudspeaker, reverse the speaker wires to the left and right system. If the problem remains in the same system, then the fault is in the loudspeaker. If the problem appears in the opposite system, the cause is in another component or cable.

Loudspeaker cones or diaphragms should not be moved by hand. The voice coil assembly is located with extreme precision and the clearance is very small. Any attempt to move the assembly by hand can easily force the coil out of alignment and cause distortion or failure.

Should your loudspeaker system ever need service, return it to the JBL dealer from whom it was purchased. If for some reason this is impractical, write directly to the JBL Customer Service Department, describing the problem as fully as possible. Do not return products to the JBL factory without prior authorization. Address correspondence to: JBL Customer Service, 240 Crossways Park West, Woodbury, NY 11797. Telephone: 1-516-496-3400 or 1-800-645-7292. Outside the United States, contact your local JBL distributor.

XPL 140

Low Frequency:	200 mm (8 inch)
Midrange:	75 mm (3 inch) Titanium Dome
High Frequency:	25 mm (1 inch) Titanium Dome
Frequency Response:	± 2 dB 50 Hz – 21 kHz
Usable Response (–6 dB):	35 Hz – 25kHz
Sensitivity:	88 dB, 2.83 volts @ 1 m
Power Handling Capacity:	125 watts continuous 500 watts peak
Nominal Impedance:	6 ohms
Crossover Frequency:	900 Hz, 4 kHz

XPL 160

Low Frequency:	250 mm (10 inch)
Midrange:	75 mm (3 inch) Titanium Dome
High Frequency:	25 mm (1 inch) Titanium Dome
Frequency Response:	± 2 dB 55 Hz – 21 kHz
Usable Response (–6 dB):	40 Hz – 25kHz
Sensitivity:	90 dB, 2.83 volts @ 1 m
Power Handling Capacity:	150 watts continuous 600 watts peak
Nominal Impedance:	6 ohms
Crossover Frequency:	800 Hz, 4 kHz

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.