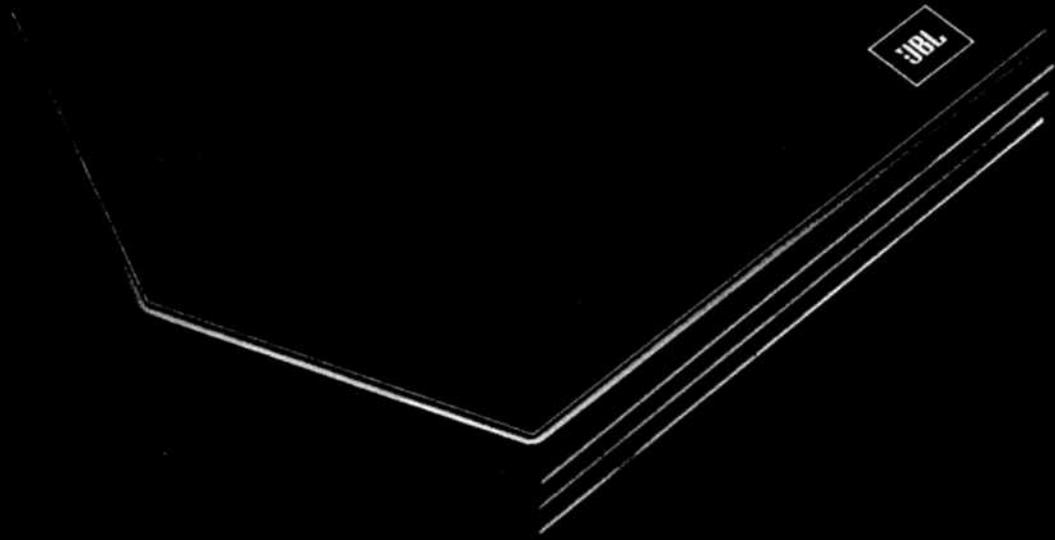




HP SERIES LOUDSPEAKER SYSTEMS
OWNER'S MANUAL/BETRIEBSANLEITUNG



Congratulations on purchasing JBL HP series loudspeakers. These high accuracy floor-standing home loudspeakers represent a bold engineering accomplishment based on decades of JBL's continually advancing expertise in the professional sound industry. Incorporating a professional quality internal low frequency reproduction system housed in an unprecedented low-profile enclosure, the HP series combines the power of the prestigious JBL professional theater and concert systems with the finesse of JBL renowned studio monitors.

The technological innovations incorporated in the HP series loudspeakers including the Double Chambered Bandpass (DCB) low-frequency system and pure titanium diaphragms enable them to sound as good as your equipment and program source will allow. Frequency response is essentially flat to an amazing 27,000 Hz. The configuration of the low frequency transducers virtually eliminates parasitic enclosure vibration. Compound transducers in DCB arrangement improve damping, output characteristics and power handling, resulting in more precise control over the full range of music. A low frequency omnidirectional venting system and built-in switchable Room Compensation equalization switch free the HP series loudspeakers from the typical environmental acoustical setup constraints of conventional speakers.

Despite their sophistication, HP series loudspeakers are no more difficult to set up properly than conventional designs. However, please read this manual thoroughly before beginning. The instructions and information it contains will ensure a trouble-free setup and will allow you to realize the full potential of your system.

1. INSTALLATION AND PLACEMENT

Combining JBL professional low frequency technology and studio mid and high frequency technology in a specially designed enclosure for imaging and dispersion, the JBL HP series are engineered to reconcile the requirements of acoustics with environmental considerations. In short, the JBL HP series will sound close to their best wherever you chose to place them – which is not necessarily where convention dictates.

Caution: JBL HP series are supplied with provisions for the use of spikes instead of standard rubber feet. The spiked feet are extremely sharp and can cause personal injury if not handled properly or if misused any way. It is not recommended to mount the spikes on the speakers or handle the speakers with the spikes fitted with children in presence. It may be safest to reposition the speaker when the spikes are removed.

The spiked feet on each loudspeaker are designed to dissipate any extraneous vibration by tightly couple the loudspeaker to the floor. This option gives the possibility of a more defined stereo image and a more solid and detailed bass response.

If used on a carpeted floor, make sure the spikes penetrate the carpet and padding and firmly contact the hard floor surface beneath. Placed properly, the spikes will not damage the carpeting, and any indentations that may remain when the loudspeaker is removed can be brushed or vacuumed out. Using the spikes on an un-protected surface (including wood or tile floors) can mar the floors finish. A coin under the tip of each spike will protect the floor.

Important: Any fine tuning, or »voicing« of the sound from the speaker in the room is easier if it is accomplish-

ed without the spiked feet. Once the desired position has been determined, the feet can be installed.

The fundamentals of environmental acoustics dictate that the bass response is dependent of the loudspeakers proximity to the boundaries of the room. Various regions of the bass is either boosted or cut by the presence of a room boundary close to the speakers, the boundary being walls, floor or ceiling, or any combinations of these. A position close to 3 boundaries, i.e. in the corner of the room, will give the strongest bass boost, while a placement out in the room will give the least bass boost. A placement close to a wall will give some bass boost.

However, because the JBL HP series loudspeakers' DCB-system radiates low frequencies through a venting system at the top of the enclosure, the speaker is, in effect, removed from the floor. And since the HP loudspeakers incorporates a switch that optimizes sound for speaker placement nearby one or two walls, or out in the room, overall dependency on room boundaries is significantly reduced. The $\pi/2$ position is for speaker positions close to the corners, the π -position is for position close to one wall, while the 2π -position is for a speaker position more than 1 m from the walls.

The reason this is crucial is that generally the proper placement of a high-end loudspeaker is invariably a balance of opposing factors, with regard to the best bass response and stereo imaging. Like the lows are partly determining the proper tonal balance, the mid and high frequencies which dictate the quality of the stereo image are affected by room considerations. The mids and highs are reflected by »hard« surfaces as windows and naked walls, and absorbed by carpets and upholstery. The JBL HP series speakers can be placed for the best reproduction of mid and high frequencies and consequently the most desirable and precise stereo image, with any abundancies or deficiencies compensated for by adjusting the equalization with the room compensation switch.

Although you can set up your HP series speaker in the traditional position (roughly 1 m, 3 feet, from any walls and equidistant from your listening position, at a 40 to 60-degree angle), the speakers can also with good results be placed asymmetrically to the primary listening position, and as close to or as far from the walls as your room layout or aesthetic considerations dictate. Considering the great variety of listening room arrangements, the HP series loudspeakers are probably the only passive speaker designs on the market eliminating the lopsided soundfield effect produced when one speaker is closer to a corner than the other.

With any setup, you should aim the front of each loudspeaker towards the primary listening position to obtain a satisfactory coverage of mid and high frequencies, and consequently a precise and focused stereo image. You can to some degree widen the listening area by spacing the loudspeakers further apart, if you do, be careful to angle the speakers toward the listening area. When you have finished setting up the speakers and have completed all electrical connections, you can use the Room Compensation Switch (located at the bottom of each speaker) to correct for any imbalances in the tonal character produced by the effect of loudspeaker placement and/or room acoustics. Refer to the section entitled »Using the Room Compensation Switch« for instructions.

2. SPEAKER WIRE

Speaker wire and interconnecting cables are important

components in an audio system. Although the overall quality of the reproduced sound is determined by loudspeakers, amplifiers and the signal source in use, the choice of loudspeaker cables, and interconnects, have important effects on the perceived sound. The HP series loudspeakers are built with heavy grade input terminals and internal wiring for an optimum electrical connection to the amplifier. The same care that JBL has taken in selecting the internal wiring should be taken in selection and applying the cables that will connect the loudspeakers to your amplifier, to ensure that your loudspeakers will receive the highest quality signals possible. JBL recommends the use of audiophile-quality speaker cable such as Monster Cable® or an equivalent. Your HP series dealer has the knowledge and experience to recommend suitable interconnects and speaker wire to best complement your system.

The following gauge wires are recommended as a minimum:

Gauge	Distance
1,5 mm ² (16 AWG)	Up to 5 meters (15 feet)
2,5 mm ² (14 AWG)	Up to 10 meters (30 feet)
4 mm ² (12 AWG)	Up to 15 meters (45 feet)

Heavier speaker wire is recommended for longer cable runs, but you should always keep the speaker cable run as short as possible. You may want to arrange a temporary wiring layout that allows you to move the loudspeakers and experiment with their placement. After you have determined the best location for the system, permanent connections may be made using the shortest possible cable runs. It is preferable to use the same length wires for both speakers.

In some systems, a power amplifier may be located near the loudspeaker system and connected using a short length of wire. Although such a hook-up requires a relatively long cable between the preamplifier and the power amplifier, the benefits of short amplifier-to-speaker connection often outweighs the drawbacks.

3. CONNECTIONS

Warning: Be sure your amplifier is turned off before connecting or disconnecting the loudspeakers. Making connections while the amplifier is on may seriously damage the amplifier and void the warranty. The amplifier must also be turned off before connecting or disconnecting cables at the amplifier input.

Note: The HP series input terminals are located at the bottom of the speaker enclosure. Therefore carefully lay the speaker down prior to make any connections.

Do not lay the loudspeaker on its grille!

It is very important that you consider the polarity of your loudspeaker system. Make sure that the positive terminal (Red) on the loudspeaker is connected to the corresponding positive output terminal on the amplifier. Consequently the negative terminal (Black) should be connected to the corresponding negative output terminal on the amplifier. This will ensure that the signals from the loudspeakers will be of the same polarity, which is necessary to create a believable stereo image. Connecting the loudspeakers with opposite polarity, «out of phase», will not damage either the loudspeaker or the amplifier, but will result in reduced low frequency output and lack of stereo effect.

The connection terminals at the bottom of the HP speakers are designed to permit a variety of connection methods. Depending on your choice it is possible to use

banana plugs, spade lugs or stripped wires. Experimentation, with the help of your HP dealer, will be useful in choosing the best method for your system. Also, your dealer will help you in fitting the banana plugs or spade lugs. Should you chose to use stripped wires be sure to avoid any short circuits between the red and the black terminal, as this could possibly damage your amplifier.

Maintaining Connections: 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.

4. AMPLIFIER POWER RECOMMENDATIONS

Being a derivative from the chambered bandpass system used in professional applications, the HP series' DCB system is capable of handling very large amounts of power ~ more than typically demanded in home use. (Refer to the «specifications» section for specific ratings.) Amplifier power ratings generally refer only to continuous, steady state power levels measured with a test signal. The power specification is only an indication of how loud the system will play without distortion. Amplifier specifications are not always a reliable indicator of sound quality, and an amplifier should only be chosen after careful listening, preferably in the system it is intended to be used. If the system can reach the desired playback levels without distortion, then the amplifier has sufficient power, regardless of its rating.

Your JBL HP Series dealer is qualified to make recommendations to help you to select the most suitable amplification for use with your HP series loudspeaker system.

Note: Any loudspeaker can be damaged by an amplifier driven to distortion. Especially the high frequency drivers are prone to damage when the amplifier in use is driven beyond its limits. No external protection devices can prevent this. The key to safe operation is having adequate amplifier power to avoid any distortion due to amplifier clipping at the highest sound levels required. If additional safety is a requirement, you may wish to consider using fuses or other protecting devices between the amplifier and your HP series loudspeaker. Consult your HP series dealer for guidance and assistance.

5. USING THE ROOM COMPENSATION SWITCH

The three-position rotary Room Compensation Switch at the bottom of each HP loudspeaker enclosure allows you to adjust the sound of your HP series speaker to your particular living room acoustics or personal taste. The Room Compensation Switch is furthermore able to correct for asymmetrical placement of the loudspeakers in the room.

For example, if one speaker is placed close to or in a corner, while the other is in the center of the room, the one in the corner will produce stronger bass than the other. Even loudspeakers set up symmetrically but affected by differences in the composition of the walls, floor and ceiling may produce different level of bass. Adjusting the Room Compensation Switch to correspond to the differences in room acoustics or loudspeaker placement will balance the bass output of the two speakers. Do not hesitate to experiment with different settings, as the aim is to let you achieve a balance to your taste.

Note: You can set the switch on each speaker to different positions to accommodate differences in the acoustical environment. But doing so will create different loads for the left and right channels of your amplifier. This should not create any problems with high quality amplifiers, but may affect the performance of amplifiers with special output configurations. If in doubt you should consult your HP series dealer.

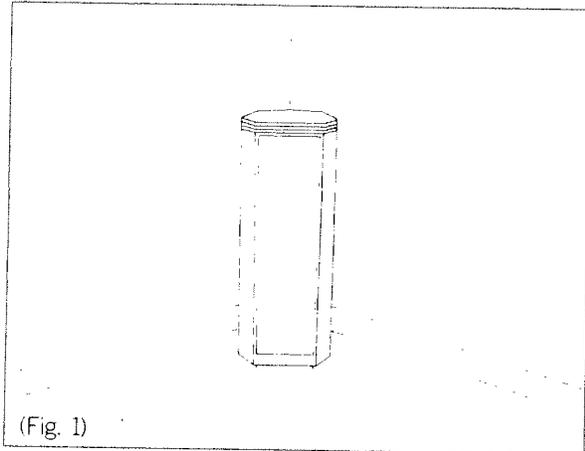
6. GENERAL CARE

JBL HP series loudspeakers are Lock Mitre constructed, using MDF composite materials for maximum strength and resonance control. All models are available in genuine wood veneers or high gloss lacquer finishes. Veneer finishes are treated with a wax/oil-solution to enhance the natural beauty of the wood and to protect the surface from damage. Dust occasionally with a clean, soft cloth to maintain the original beauty of the finish. Commercial polish or wax treatments may be used according to the manufacturers' instructions.

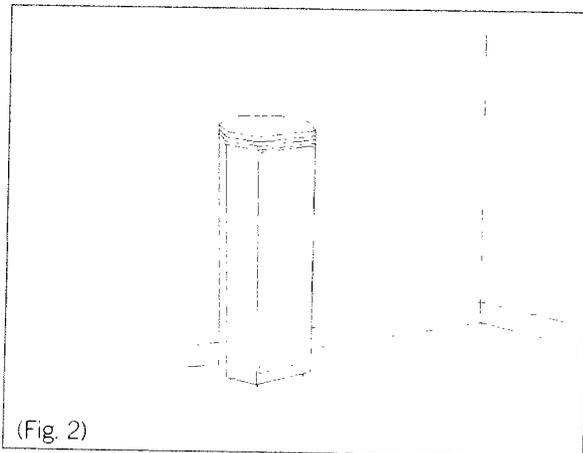
Use only lint-free cotton cloths for dusting. Never use any abrasive cleaners or strong chemicals to clean the enclosure. In case of deep scratches or damage please consult a qualified furniture repair shop.

The grille may be removed and gently vacuumed. To remove the grille, pull gently at the top and bottom. Stains may be removed with an aerosol cleaner, following its instructions. Do not use solvents on the grille.

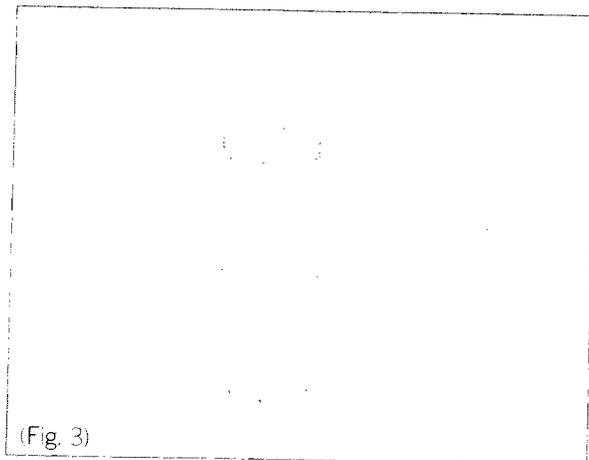
(- 6 dB) $\pi/2$ – This setting is recommended if the loudspeaker is placed in a corner, where the bass reinforcement is strongest. (Fig. 1)



(- 3 dB) π – This setting is recommended if the speaker is placed against one wall, where moderate bass reinforcement is derived. (Fig. 2)



(- 0 dB) 2π – This setting is recommended if the speaker is placed out in the room, away from the wall, where bass is reinforced least. (Fig. 3)



7. SERVICE

JBL HP series loudspeakers are designed to provide years of trouble-free service. No maintenance is required. If you suspect a problem, first make sure that all connections are properly made and clean. If you hear a problem in one loudspeaker, you should reverse the speaker cables to the left and right loudspeaker systems to make sure that the fault is in the loudspeaker. If by reversal of the speaker cable the fault appears in the other system, the fault is caused by another component in the system, the amplifier, the signal source or the cables.

You should not attempt to move the loudspeaker cones or diaphragms by hand. The voice coil assembly is aligned with extreme precision, and the clearance is very small. Any attempt to move the assembly by hand can easily force the voice coil out of alignment and later on cause distortion or failure.

Should your HP series loudspeaker system ever need service, contact your JBL dealer or distributor from whom it was purchased. Do not return products to the JBL factory in the United States without prior authorization.

SPECIFICATIONS

HP series	HP 420	HP 520	HP 580
Maximum recommended amplifier power:	150 watts	200 watts	250 watts
Nominal impedance:	4 ohms	4 ohms	4 ohms
Frequency range:	40 - 27,000 Hz	34 - 27,000 Hz	30 - 27,000 Hz
Sensitivity: (1 watt @ 1 meter)	89 dB	90 dB	91 dB
DCB crossover frequency:	140 Hz	120 Hz	100 Hz
Crossover frequencies:	3.5 kHz	1200 Hz/4 kHz	800 Hz/3.5 kHz
DCB drivers (2 in compound configuration):	165 mm (6.5 in)	203 mm (8 in)	254 mm (10 in)
Midbass driver:	—	165 mm (6.5 in)	203 mm (8 in)
Midrange driver:	127 mm (5 in)	127 mm (5 in)	127 mm (5 in)
High frequency driver:	25 mm (1 in) pure titanium dome	25 mm (1 in) pure titanium dome	25 mm (1 in) pure titanium dome
Dimensions			
Height:	85 cm (33.1 in)	97 cm (37.8 in)	110 cm (42.9 in)
Width:	29.6 cm (11.5 in)	35.6 cm (13.8 in)	42.4 cm (16.5 in)
Depth:	26 cm (10.1 in)	31 cm (12 in)	37.5 cm (14.6 in)
Net weight:	17 kg (37 lbs)	24 kg (52.8 lbs)	30 kg (66 lbs)
Shipping weight:	19 kg (41.8 lbs)	26.5 kg (58.3 lbs)	33 kg (72.6 lbs)

JBL continually engages in research related to product development and improvement. Because of this, new materials, production methods and design refinements may be introduced into existing products without notice. For this reason, any current JBL product may differ in some respect from its published description, but will always equal or exceed the original design specifications unless otherwise stated.