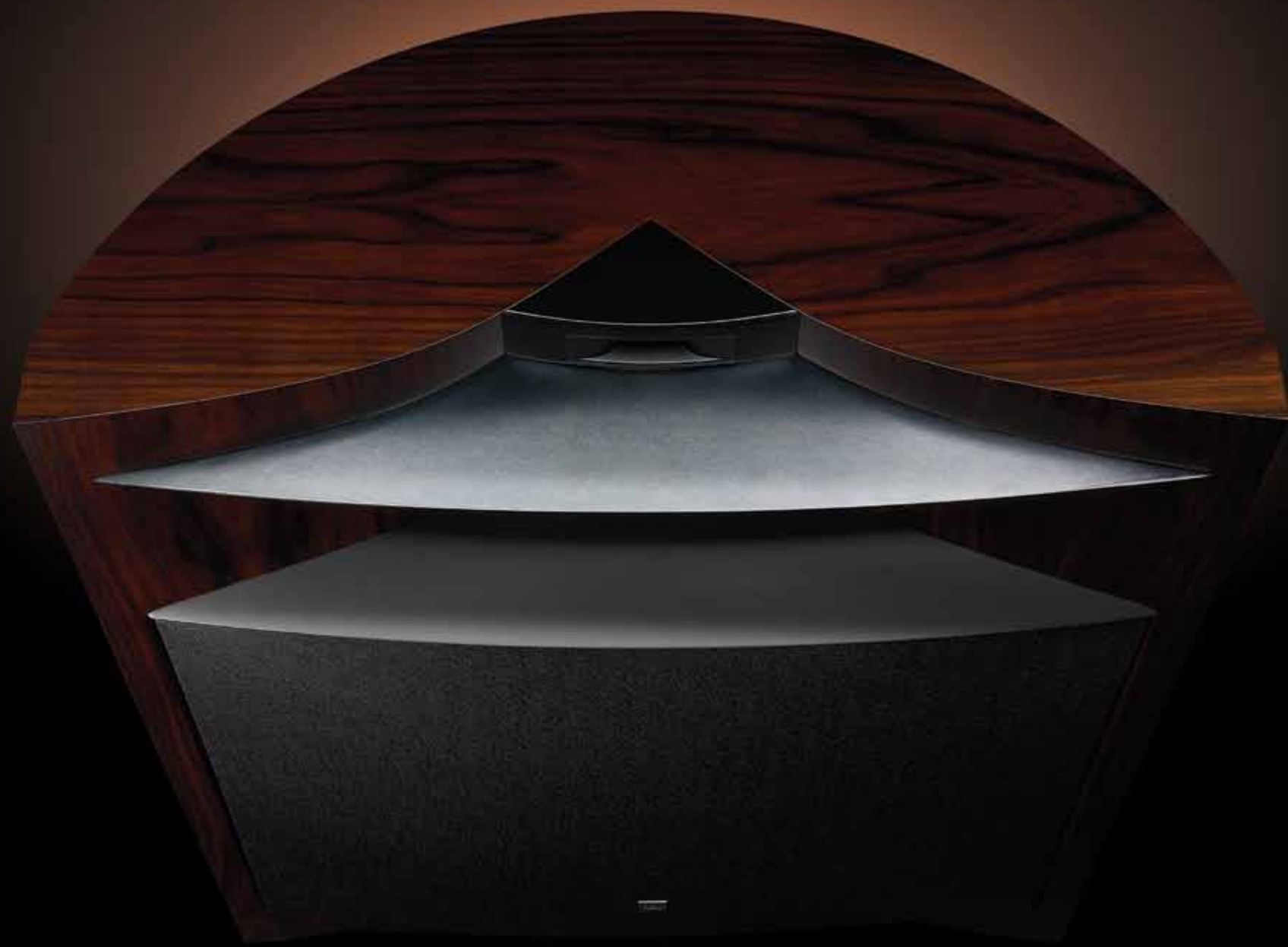




# PROJECT EVEREST DD65000 & DD67000

PRODUCT COMMENTARIES AND USER GUIDE



Thank you for purchasing a  
JBL Project Everest loudspeaker system.

Before using the system, please take the time  
to read through this user guide to understand  
this loudspeaker well and also to use it properly.

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## PREFACE

Thank you for selecting a Project Everest DD65000 or DD67000 loudspeaker system. These loudspeakers represent the culmination of our research and developmental efforts in sound reproduction over the last half century. We have endeavored to create loudspeaker systems with no acoustical or electrical limitations whatsoever.

However, it is the level of your listening pleasure that ultimately determines how successful we are in this endeavor. To ensure a perfect listening experience, we ask you to carefully follow the setup and operation procedures outlined in this Project Everest User Guide.

This guide serves several purposes. It contains all necessary background information and detailed instructions for setting up your Project Everest loudspeaker system, including unpacking the loudspeaker, selecting the correct location, choosing speaker wire, wiring method and amplification, and connecting the speakers to their associated electronics. This information is found in Chapters 3 through 8. In addition, we have included a detailed description of your Project Everest loudspeakers in Chapter 2, so that you may become thoroughly acquainted with their unique design and technical features.

Despite the formidable nature of Project Everest, the setup procedure for these loudspeaker systems is relatively simple. Again, we strongly urge you to read this guide thoroughly before you begin, and then consult it frequently throughout the process. Certain considerations must be made in placing the speakers; their physical characteristics make it imperative that you become familiar with the entire setup process in advance.

Also, we believe that the historical and technical information included will add immeasurably to your complete enjoyment of your system. As a loudspeaker, the Project Everest DD65000 and DD67000 are unparalleled in the field of sound reproduction. The story and principles behind them are an interesting, informative and fitting start to a lifetime of musical enjoyment.

# 1

## LEGACY

### THE HISTORICAL DEVELOPMENT OF THE JBL PROJECT LOUDSPEAKERS

Of those who have sought perfection in sound reproduction, only a few have actually come close. For one thing, it is a costly process. It is rare indeed when an individual or group is able to triumph over the constraints of economic and technological realities even once.

At JBL, this has happened nine times. In each case, our engineers were told to build the speaker system they had always wanted to build. Whatever resources were required would be made available. Thus began an ongoing search for new frontiers in sound reproduction, beginning in the mid-1950s and continuing to the present day.

The products that have resulted from this venture are now known as the JBL Project loudspeakers. Each represents the absolute peak of every technological, material and engineering innovation available at the time, combined into a single loudspeaker system. They are Hartsfield, Paragon, Everest DD55000, K2 S9500/7500, K2 S5500, K2 S9800, K2 S5800, Project Everest DD66000 and K2 S9900.

Although differing in performance details and physical attributes, all of the Project loudspeakers have shared a common objective – to elevate sound reproduction to levels defined only by the limitations of existing materials and technology. The fact that all Project loudspeakers have many common features, despite their having been created over a span of nearly sixty years, is a testimony to the excellence of the technology and manufacturing techniques upon which JBL was built.

#### DEFINING THE PROJECT CONCEPT

The Hartsfield began a tradition at JBL that continues today. First, engineer a product as close to perfection as possible. When it reaches that level, make it better.

In 1954, the Hartsfield was significant in that it represented not new technology, but rather a new level of technical manufacturing, in the spirit of the approach pioneered by James B. Lansing some twenty years before. Like its Project series successors, it was a high-efficiency system incorporating compression driver technology and combining the qualities of high-output, low-distortion, exceptional stereo imaging and fatigue-free listening. Most important, it was the first loudspeaker system available to consumers to do all this.

JBL's president in 1954, William Thomas, described the Hartsfield as the "speaker system we have always wanted to build [with] the finest components ever made available to serious listeners."



He went on to describe the process behind the creation of the Hartsfield: "Most people who own and appreciate fine sound reproduction equipment look forward to the day when they will be able to assemble a system without limitation in just exactly the way they think it should be done. Periodically a manufacturer gets this same feeling. The science of acoustics has provided us with the basic principles available to all for achieving precision reproduction. It is only a matter of incorporating these methods into a system design, and then taking every bit of trouble necessary to build a system precisely to the design."

He added, "It isn't easy, but that's the way it is done."

The Ranger-Paragon, JBL's second Project system, was the first serious attempt at a reflecting speaker system, and broke ground in what was at the time, the new concept of stereo imaging. Basically two independent full-range speaker systems installed in a handsome, curved cabinet nearly 9 feet (2.7 meters) wide, the Paragon's enclosure was treated as an extension of its transducers. In essence, the system had its own "built-in acoustics." In many respects, the Paragon anticipated loudspeaker developments that would occur years and even decades later. This "built-in acoustics" concept was present in the Project Everest DD66000 and has now been further refined in the DD65000 and DD67000.

For nearly 30 years, the Paragon remained one of the world's most highly-regarded home loudspeaker systems. Today, along with the Hartsfield, the Paragon is still the most sought-after speaker in the world.

In 1986, JBL introduced a new Project system that retained the Paragon's overall sense of musicality while upgrading its character by incorporating three decades' worth of continuous development in every facet of its design. Its name – Project Everest – reflected

the pinnacle of achievement it represented. This was the original Project Everest DD55000.

For the first time, the rest of the sound reproduction chain – and not the loudspeaker or its transducers – would impose limits on overall system performance. Like the Paragon and Hartsfield, Project Everest was built around compression driver technology and addressed a more refined stereo image than was previously considered technically feasible.

Since the original Project Everest was introduced, sound recording and playback technology has undergone a revolution of its own. With the advent of the CD, extremely demanding recorded signals became the rule rather than the exception – the typical source material used by the average audio enthusiast became superior to the best demonstration material of even just a few years prior. In overall dynamics and transient response, transducers became once again a potentially weak link in the high-end audio reproduction chain.

It was in this environment that JBL set out to create its fourth and fifth Project loudspeakers, K2 S9500 and K2 S5500. As with Hartsfield, the simplicity of a two-way system was considered the most promising design track. Advances in transducer design and low-frequency alignment would make possible the construction of a two-way system of unprecedented physical and acoustical scale. Our engineers took the core components – the low-frequency and high-frequency transducers – and optimized them by redesigning their magnetic structures, diaphragms and framework for greater linearity, dynamic capability and transient response.

In the years following the introduction of the K2 S9500 and K2 S5500, sound reproduction technology underwent another series of revolutionary changes, with the introduction of DVD-Video,

Dolby® Digital, DTS®, DVD-Audio and Super Audio CD (SACD™). Frequency responses to 50kHz, as well as three-digit dynamic range and signal-to-noise ratio specifications have now become commonplace. To faithfully reproduce such robust sonic properties, the loudspeaker needed to undergo drastic improvements to its transducer, network and enclosure technologies.

The K2 S9800 employed a three-way design, incorporating an ultrahigh-frequency (UHF) compression driver and horn to reproduce high frequencies up to 50kHz. With the UHF driver handling the higher frequencies, the high-frequency (HF) transducer could then be upgraded to a new design using a 3-inch (75mm) diaphragm, which improved reproduction of lower frequencies and blended better with the woofer than the older generations' 2-inch (50mm) diaphragm did. Both of these

new compression drivers utilized newly developed beryllium diaphragms to provide the lowest distortion and flattest frequency response possible.

To recreate the extremely high dynamic range provided by today's audio sources, a brand-new low-frequency transducer was developed from the ground up, utilizing an Alnico magnet, a 4-inch (100mm) edge-wound voice coil, and a 15-inch (380mm) cone. Extensive computer-aided engineering and design effort was necessary to develop the optimized port tuning employed in Project K2 S9800, and resulted in a significant advance in the concept of state-of-the-art acoustic reproduction. As a result of these efforts, a loudspeaker system with higher sensitivity and a wider dynamic range became a reality without power compression or distortion, even at extremely high drive levels.





JBL K2 S9500



JBL K2 S9800

The development of the Project Everest DD66000 loudspeaker system was undertaken as a celebration of JBL's 60th anniversary and as a realization of the potential engendered by the breakthroughs discussed above. The stately character of the Hartsfield, exceptional wood craftsmanship of the Paragon, the "built-in acoustics" which treat the enclosure as an extension of the transducers, and the state-of-the-art transducer technologies that were built up from two generations of the Project K2 developments were all poured into this new challenge to extend the acoustic and electrical possibilities in this Project Everest model.

Despite its 21st century power and sophistication, Project Everest DD66000 was a synthesis of tradition and technology. It reflected the design, material, engineering and manufacturing expertise developed and refined through nearly six decades of experience that are the exclusive legacy of one loudspeaker builder – JBL. And now, with the introduction of the Project Everest DD65000 and DD67000 JBL presents additional refinements that enable these loudspeakers to outshine even the stellar performance standard set by the DD66000 system.

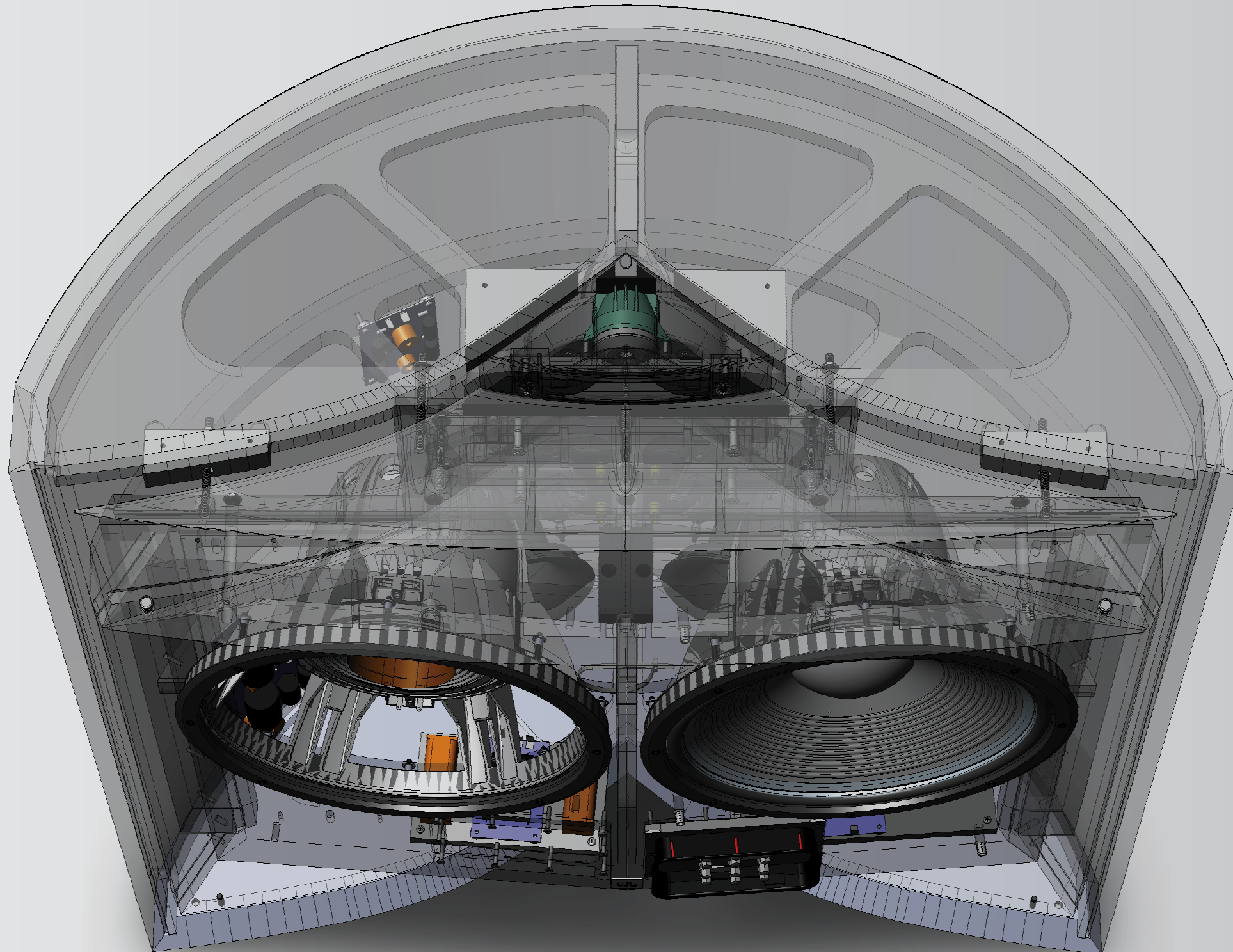


JBL Project Everest DD66000

# 2

# PROJECT EVEREST

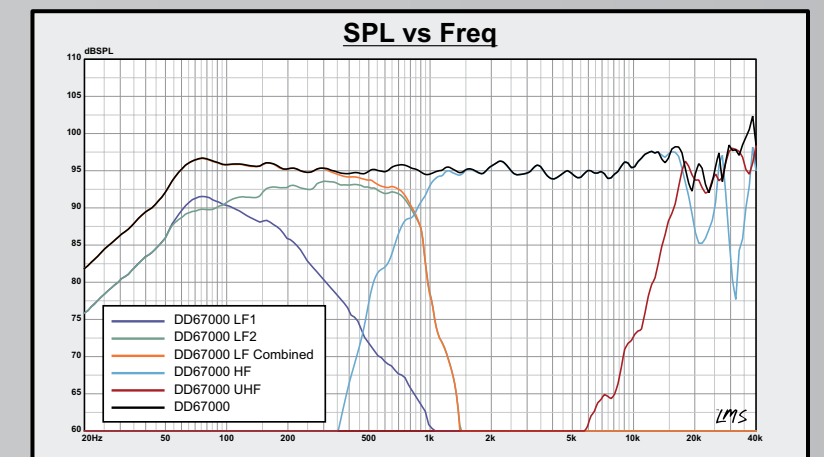
A TRIUMPH IN ACOUSTICS  
AND TECHNOLOGY



This chapter describes the primary features and components of the Project Everest DD65000 and DD67000 loudspeaker systems.

The basic system configuration is what JBL historically has referred to as an "augmented two-way". In the 1950s and 1960s, JBL primarily built two-way systems with a 12-inch or 15-inch (305mm or 380mm) woofer crossed over to a large-format compression driver/horn combination. Some of the systems would be "augmented" by a UHF device, usually the 075 ring radiator which would operate above 8kHz. These systems would have only a single crossover point in the middle of the audio range, to minimize any sonic degradation caused by the dividing network.

The DD65000 and DD67000 both have a single midrange crossover point – the DD65000 at 750Hz and the DD67000 at 850Hz – blending one 1501 woofer to the 476 compression driver and horn combination. The 045 UHF driver is brought in at 20kHz to cover an octave and a half of ultrasonic frequencies. A second 1501 woofer operates in the bass frequency range from below 30Hz to around 150Hz, where it is rolled off at a gradual 6dB/octave. This first-order slope ensures proper amplitude and phase summing between the two woofers over their entire operating range. Both woofers operate below 150Hz, but only one of them extends up to the midrange crossover point. This is done to achieve proper directivity control throughout the entire woofer operating range, while delivering powerful and extended low-frequency performance. Above the midrange crossover point, the HF compression driver and horn combination operates unassisted, all the way to 20kHz (see graph, below).



On-axis response of the DD67000 system and of each transducer through its crossover network (2.83V @ 1m)

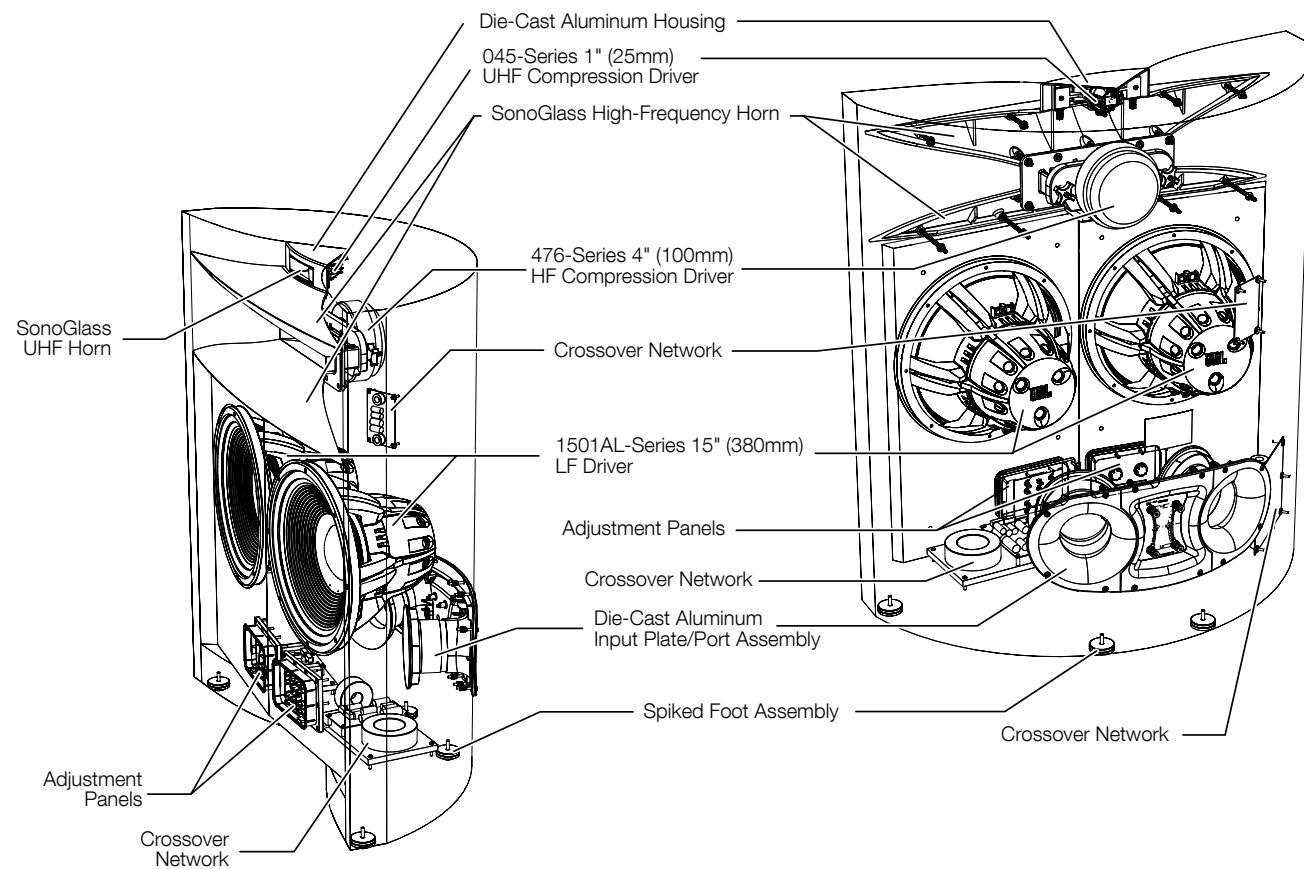


The transducers, horns and crossover networks are housed in a visually stunning enclosure that is reminiscent of both the Hartsfield and Paragon systems. The specially curved baffle provides the sidewalls for the main high-frequency horn. The top and bottom horn flares are accomplished by the attachment of precision-molded SonoGlass® horn "lips" to the enclosure's upper surface. The UHF driver is mounted to a SonoGlass horn which is itself mounted to a die-cast aluminum housing.

The entire Everest DD65000 and DD67000 enclosure is constructed of MDF. The curved panels are formed out of two thicknesses of MDF with an inner, outer and middle skin. The MDF is internally grooved, allowing the panels to curve to the desired dimensions. The voids in the material are filled with a foam damping compound. The panels are held in place using a complex internal bracing scheme and external fixturing during the curing process. The woofer baffle module is a six-sided 3/4 inch (19mm) thick shell, constituting an extremely rigid and secure structure. The DD65000 has a 1 inch (25mm) thick veneer-covered outer baffle, giving the total combined woofer baffle a thickness of 1-3/4 inch (45mm). The DD67000 has an inner 3/4 inch (19mm) baffle constructed of Finland birch plywood and an outer 1-inch thick baffle that is covered in carbon fiber woven cloth. The outer baffles of both models are removable (bolted from the inside of the enclosure) to enable repair or replacement of the covering surface, should that ever be necessary.

The system is ported on the rear with a tuning frequency of 32Hz for the DD65000 and 31Hz for the DD67000. Two large 4-inch (100mm)-diameter flared ports are combined with the input connections on a massive three-piece die-cast aluminum structure. The entire enclosure rests on four stainless-steel foot assemblies. Stainless-steel coasters are included to protect wood and tile floors from damage from the spiked feet. The grille assembly is constructed of MDF and uses a thick, perforated metal sheet to provide the curved shape. The grille securely attaches to the enclosure with metal pins and rubber cups.

The low-frequency and high-frequency transducers for the Project Everest systems are designed to be absolute minimum-distortion drive units. Although they are capable of tremendous acoustic output, they are designed to be nearly linear in every way, up to a reasonably high drive level. This enables the system to sound the same regardless of playback level. In addition, a great deal of attention was paid to minimizing distortions and non-linear effects occurring around signal zero-crossings. The result of this is that Project Everest systems are able to play at very low levels and still present realistic response and detail to a degree unattained by other loudspeaker systems.



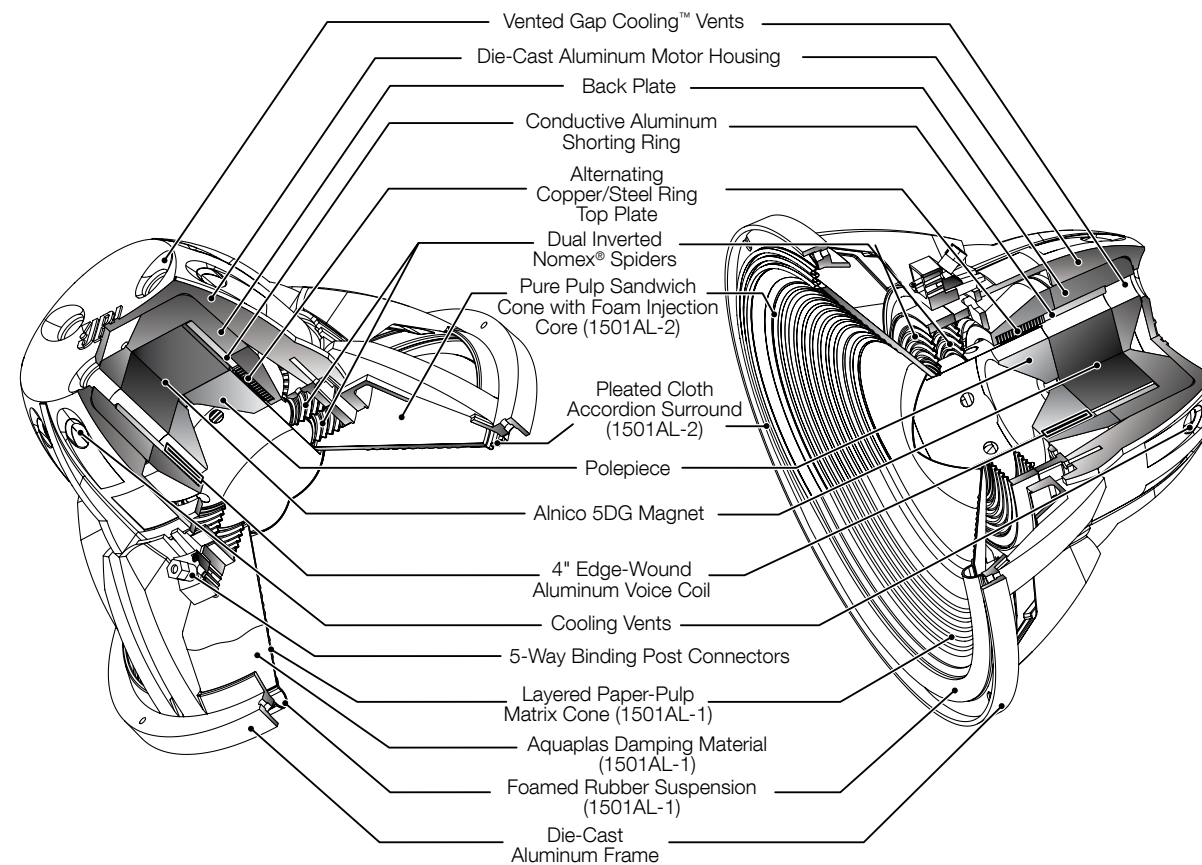
Project Everest DD65000/DD67000 System Major Components

## PROJECT EVEREST TRANSDUCERS THE 1501AL FAMILY OF LOW-FREQUENCY TRANSDUCERS

The 1501AL-1 (DD65000) and 1501AL-2 (DD67000) low-frequency drivers are very similar to the 1501AL used in the DD66000, and 1500AL and 1500AL-1 used in the K2 S9800 and K2 S9900 systems. They all share a common motor assembly and they all use a long 4-inch (100mm) diameter voice coil with edge-wound aluminum wire. The 1501 family voice coil is wound double impedance so that the pair of woofers in a Project Everest system still allows an 8-ohm system impedance. Their voice coils are completely immersed in an underhung radial magnetic field generated by an Alnico 5DG magnet. This underhung design is a significant feature because even at high output levels, the coil will always see a constant drive force and will be more thermally coupled to the motor than is possible with conventional designs.

Alnico was chosen for the magnet material because of its stable operating point. This material is insensitive to temperature changes and back EMF from the voice coil. JBL has overcome Alnico's tendency to demagnetize with high drive by utilizing a massive shorting ring at the base of the motor assembly. In addition to this, the top plate is constructed of alternating copper-steel laminations. The presence of the copper rings linearizes the magnetic properties of the gap to all but eliminate both eddy current distortion and local flux modulation.

A thick-wall, cast-aluminum frame is used to rigidly support the motor structure. This fully vented frame and motor design also serves to minimize the back pressure under the dome and spider, helping to reduce harmonic distortion to even lower levels. JBL's Vented Gap Cooling™ (VGC) is incorporated within the motor structure, and lowers the operating temperature of the coil during moments of high power operation.



1501AL-Series Woofer Section View

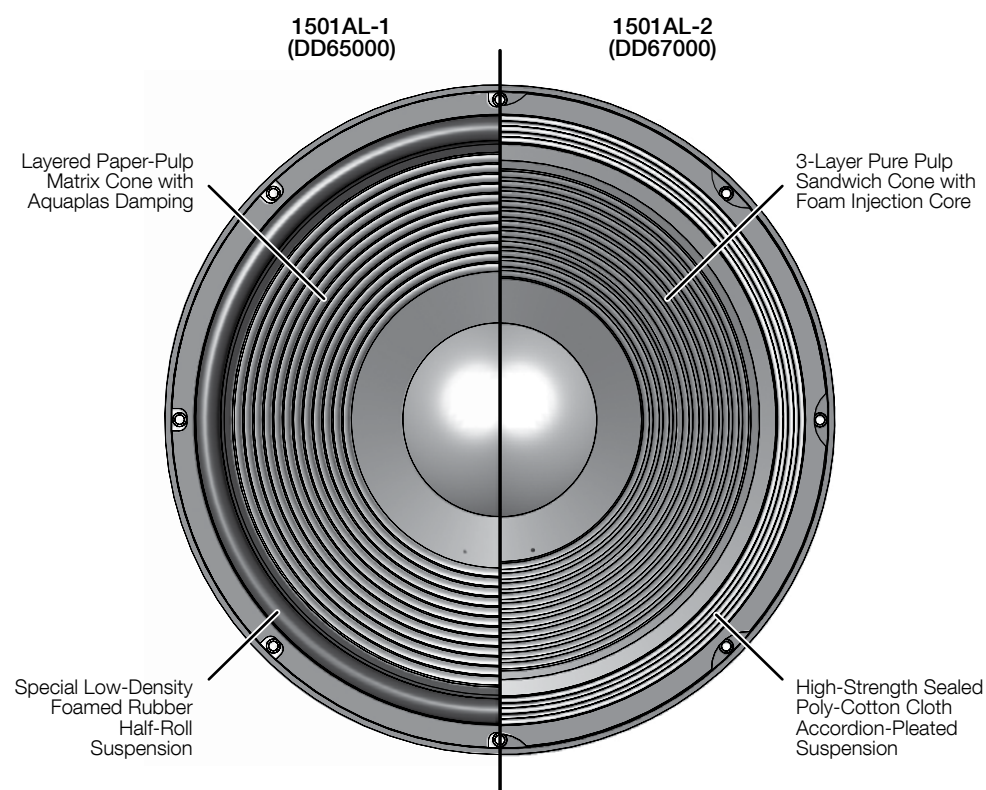
The 1501AL-1 employs a pure pulp straight sided cone body attached to an outer suspension made of special foamed rubber. This suspension material has the longevity and frequency-response characteristics of traditional rubber surrounds, but with a low density very close to that of foam surrounds. This material was chosen to preserve the transient detail of musical signals while still providing the movement required for high output at low frequencies. Unlike traditional foam surrounds, the foamed rubber has a very long service life and will not deteriorate. The cone consists of a special layered paper-pulp matrix with proprietary Aquaplas damping, which offers more pistonic behavior throughout the woofer's operating bandwidth, and controlled cone breakup beyond it.

The 1501AL-2 uses an "accordion pleated" high strength Poly-Cotton cloth outer suspension. This material is then coated with a sealing/damping compound to render it air-tight and provide the appropriate amount of damping control. This surround is attached

to a composite cone body consisting of an inner and outer layer of pure pulp stock with an inner foam injection core. This sandwich construction creates an incredibly stiff, but still relatively light cone body with extremely good distortion characteristics.

Both woofers employ dual inverted Nomex® spiders for the cancellation of even-order distortion components. The design and material of these spiders have been further optimized for the DD65000 and DD67000 systems to offer even greater freedom of motion and dynamic range, specifically at low playback levels. All suspension elements are tailored for maximum mechanical displacement linearity.

All together, these design factors provide reduced harmonic distortions at very low and very high acoustic output, improved power handling, reduced power compression, and more consistent spectral balance with varying input drive level.



1501AL-1/1501AL-2 Cone and Suspension Comparison

#### 476Mg, 476Be HIGH-FREQUENCY COMPRESSION DRIVER

The 476 family of high-frequency compression drivers make use of a 4-inch (100mm)-diameter formed diaphragm with a 4-inch (100mm) aluminum edge-wound voice coil, operating into JBL's existing rapid-flare-type, coherent-wave phasing plug. The 476Mg (DD65000) has a 95% pure magnesium alloy diaphragm. The 476Be (DD67000) has a 98% pure beryllium diaphragm. The use of an efficient neodymium rare-earth motor structure with a new copper-sleeved polepiece maintains maximum gap flux and reduced coil inductance at a minimal size and weight. The combination of these features has resulted in drivers that can deliver superior sound quality with very little distortion and power compression, regardless of acoustic power output.

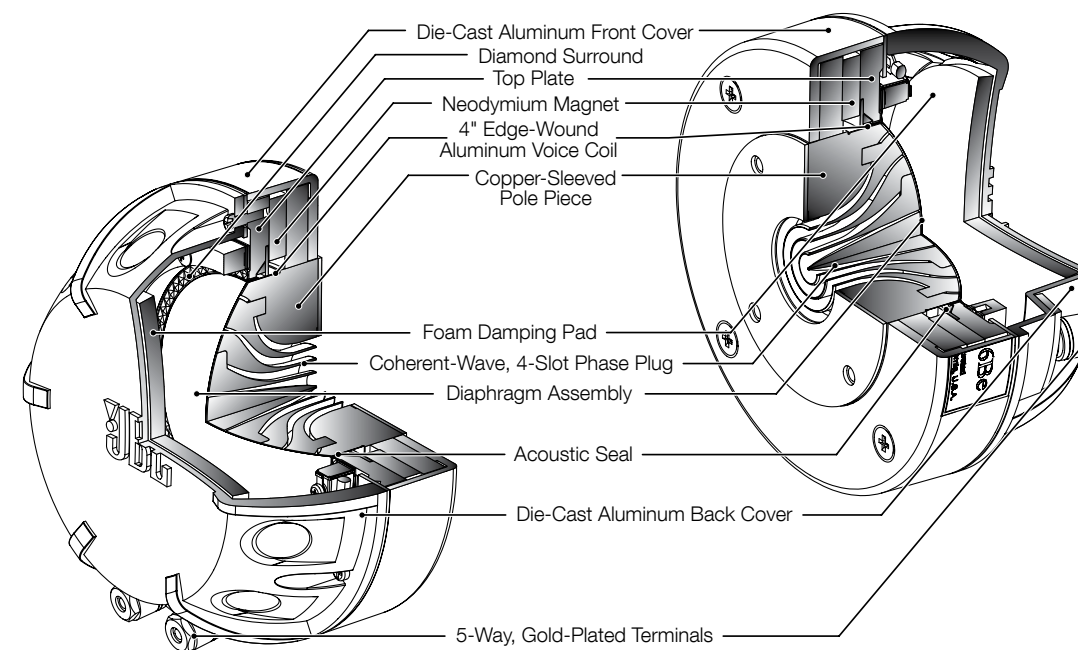
A high-purity copper sleeve is used for the polepiece. This greatly improves the electrical conductivity of the polepiece for lower coil inductance and thus greater high-frequency output at 15kHz and above. The copper-sleeved pole piece quickly wicks away heat generated by the voice coil, thereby contributing to a reduction in dynamic power compression. To compensate for the higher resistance caused by the use of the copper-sleeved polepiece, a new magnet with special high-grade and high-temperature-grade neodymium has been used.

The phasing plug is of JBL's traditional rapid-flare, coherent-wave four-slot design. This coherent-wave design shapes the wave output, producing a truly coincident wave front as the sound enters the Bi-Radial horn.

The diaphragm is formed of very high purity magnesium alloy foil (476Mg, DD65000) or pure beryllium foil (476Be, DD67000) that is manufactured with a proprietary high-temperature and pressure-forming process. This process enables the integrated JBL diamond-pattern surround to be formed as one piece with the dome. Compared to other methods, forming the diaphragms out

of sheets of magnesium or beryllium foil yields greater reliability and resistance to failure due to fatigue. If breakage ever does occur, the diaphragm does not shatter into pieces or harmful dust. Beryllium has a very high stiffness-to-density ratio of about five times that of aluminum, magnesium, titanium or iron. This maintains pistonic behavior up to 20,000Hz, eliminating diaphragm modal breakup and keeping the upper frequency response very smooth, with minimal distortion spikes. Compared to the 475Nd compression driver used in JBL's original K2 S9500 system, this is about a 45 percent reduction in moving mass. With such a low mass, the moving assembly is able to respond even more quickly to musical transients, further enhancing the reproduction of musical detail and microdynamic nuances.

Like the beryllium diaphragm in the 476Be, a proprietary thermal forming process is used to form thin magnesium alloy sheets into a 100mm magnesium dome shape of exacting dimensions for the 476Mg. This includes the integrated JBL diamond surround. The 95% pure magnesium alloy diaphragm of the 476Mg also uses small percentages of aluminum, zinc, and other alloys to improve characteristics such as diaphragm forming, fatigue strength, corrosive and acoustic properties. Magnesium has very low density, slightly lower than even beryllium, but with much lower stiffness. However, with such a low density the thickness of the magnesium alloy diaphragm can be increased to 130 microns, greatly improving its stiffness. In fact, when compared to the titanium diaphragms used in JBL's original K2 S9500 and M9500 systems, this new magnesium alloy diaphragm is 2.5 times thicker but maintains about the same moving mass of 3.4 grams. This is beneficial because with high stiffness, pistonic behavior extends up to higher frequencies than is possible with current aluminum or titanium diaphragms. Another benefit of the magnesium alloy is greater internal loss or damping when compared to aluminum or titanium diaphragms. This greater internal loss quickly minimizes the amplitude of resonances when the driver is asked to produce frequencies beyond its acoustic limits.



476-series Compression Driver Section View

JBL's proprietary diamond-pattern surround is utilized to maintain proper control and tuning of the diaphragm's second resonance (the surround resonance mode). The proper control and placement of this surround resonance is critical for good high-frequency shape, extension and level.

These features, when taken as a whole, create a new large-format compression driver with the greatest high-frequency extension, lowest distortion, smoothest response and greatest sonic detail.

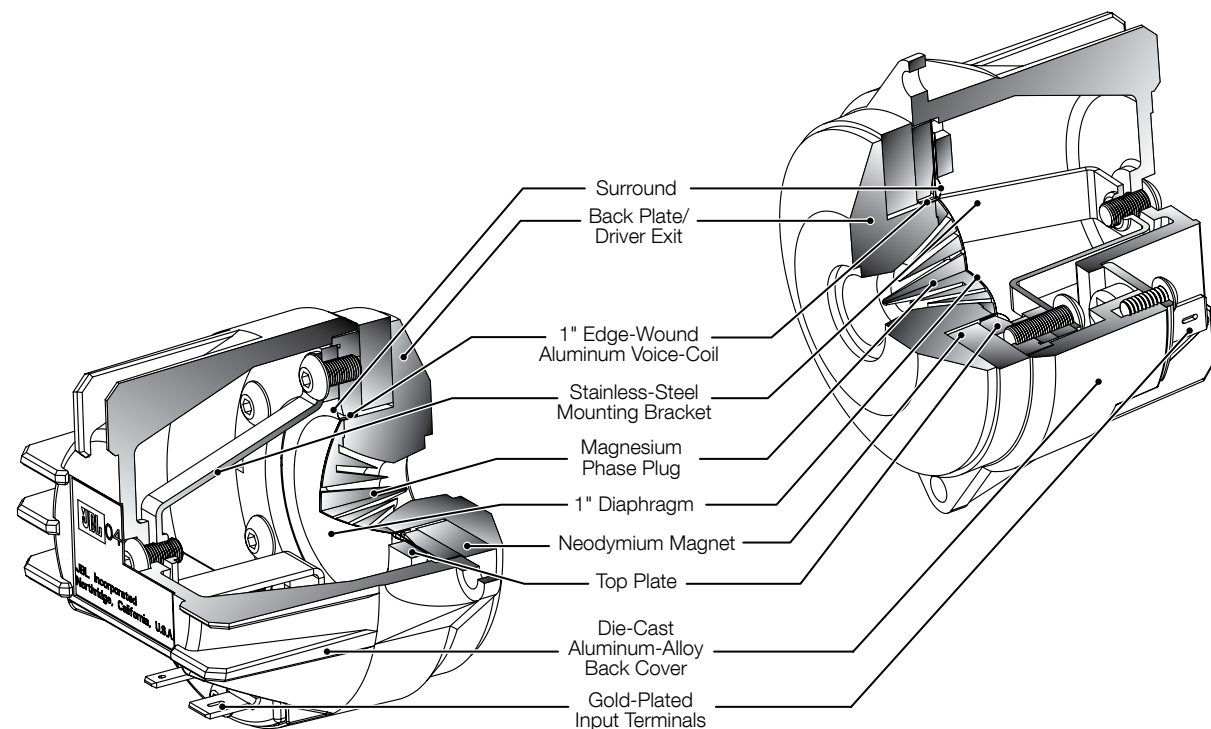
#### 045Be-1 AND 045Mg ULTRAHIGH-FREQUENCY COMPRESSION DRIVER AND BI-RADIAL® HORN

Like the original 045Be used in the Everest DD66000, the 045Be-1 used in the Everest DD67000 incorporates a 1-inch (25mm) beryllium diaphragm and 2-inch (50mm) neodymium magnetic structure. The pure-beryllium diaphragm is less than 0.04mm thick and has a mass of only 0.1 gram. The single-layer aluminum-ribbon voice coil is wound without a former and is attached directly to the diaphragm. This driver employs the smallest annular-slit phasing plug that JBL has ever designed. The 045Be-1 has been re-designed to improve manufacturing efficiency and consistency. Small changes have been made to the top plate and some significant improvements were made to the surround shape

and clamping methodology. As a result, the driver's output above 30kHz has been increased by nearly 5dB.

Newly created for Everest DD65000, the 045Mg incorporates a very high purity magnesium diaphragm – the same material used on the 476Mg. This material was selected to maintain acoustic consistency between the high-frequency and ultra-high-frequency drivers. Also new to the 045 family is a new precision cast magnesium phasing plug. Compared with the plastic phasing plug used in the previous design, this new magnesium phasing plug offers improved stiffness and better ability to wick heat away from the voice-coil/diaphragm assembly. The extremely low mass of the moving system combined with the high magnetic flux density and high rigidity of diaphragms produces response that is very smooth from below 8kHz to beyond 50kHz in the DD65000, and beyond 60kHz in the DD67000.

The response curve has a slight downhill tilt, due to the constant-directivity nature of the horn used in this system. The Bi-Radial® horn used with the 045-series driver is properly scaled to maintain a coverage angle of 60 degrees in the horizontal plane and 30 degrees in the vertical plane over the frequency interval from 10kHz to 50kHz.



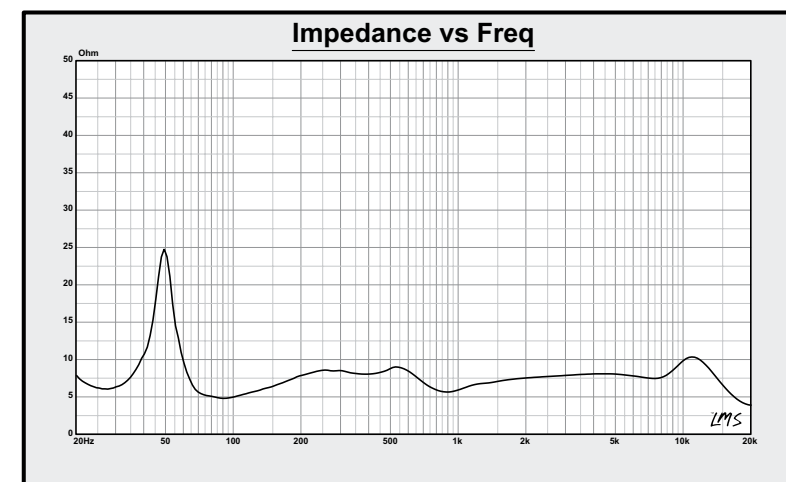
045-Series Compression Driver Section View

#### INTERNAL CROSSOVER NETWORK

The circuit topology, combined with the acoustic behavior of the 1501-series and 476-series transducers, provides a 24dB-per-octave transition at 750Hz in the DD65000 and at 850Hz in the DD67000. This is the primary crossover point of the system. Additionally, the 045-series transducer is active above 20kHz to provide extended response to beyond 50kHz in the DD65000, and beyond 60kHz in the DD67000. A second 1501AL woofer is active from below 30Hz to around 150Hz, at which point it is gently rolled off at 6dB per octave. The design intent is to use both woofers in the bass frequencies and slowly transition to a single woofer in the midrange. This technique allows a primary crossover point between just two drivers and permits proper control of the system's directivity pattern, while providing tremendous power and air movement capabilities at the lower frequencies. As a result, the speed and power of the Project Everest systems are unmatched from the lowest to the highest frequencies.

All of the electrical components are of the highest quality and exhibit the lowest internal loss. Air core inductors are incorporated to avoid nonlinear hysteresis effects. Capacitors are constructed using polypropylene foil, which is known for having minimal distortion caused by dielectric absorption nonlinearities. The mid-, high- and ultrahigh-frequency networks employ DC voltage bias to operate the capacitors effectively in a Class A mode. Every attempt is made to present as smooth a system impedance as possible to the driving amplifier. This design element is often overlooked in many loudspeaker systems, yet amplifiers work their best when they are given a smooth, level load impedance in which to deliver current.

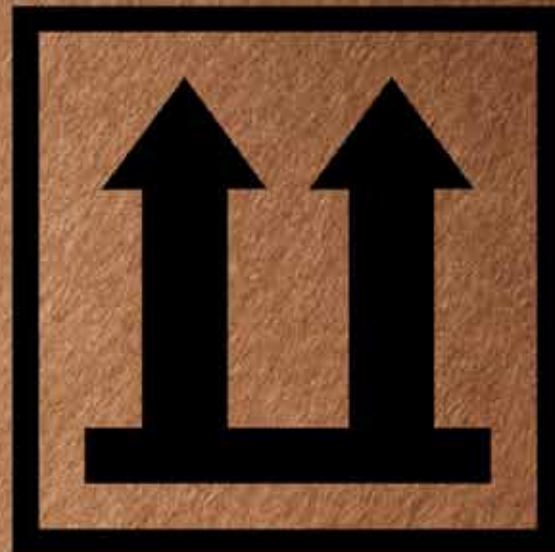
The aggregate of these attributes allows the DD65000 and DD67000 systems to translate the electrical signal from source material into an accurate and unencumbered three-dimensional sound field. These systems can do this at any desired listening level, from whisper-quiet to big-band loud, while at the same time maintaining unchanged acoustic characteristics.



DD65000 System Impedance

# 3

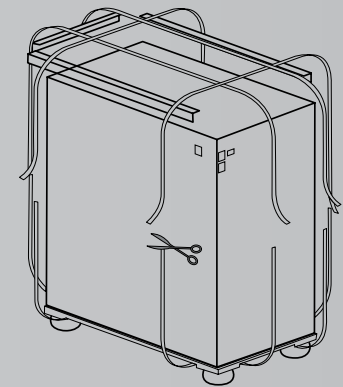
## UNPACKING THE PROJECT EVEREST SYSTEM



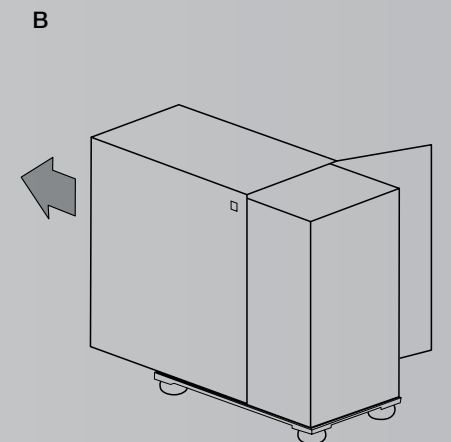
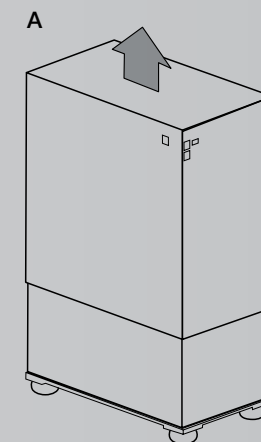
All components of the Project Everest system have been very carefully packed for maximum protection against damage. As with any superior audio product, it is advisable to keep the original packing materials, in case it is necessary to transport the Project Everest system. Because of the bulk and weight of this loudspeaker, at least two people are required to unpack it.

NOTE: Stainless-steel round feet are installed on the bottom of the speaker cabinet. To avoid damage to your floor, we strongly advise unpacking the speakers on a well-protected surface, such as a thick carpet or cardboard. (Note: Your loudspeaker system is packed with a protective wrapping, but this is omitted for clarity in the drawings below.)

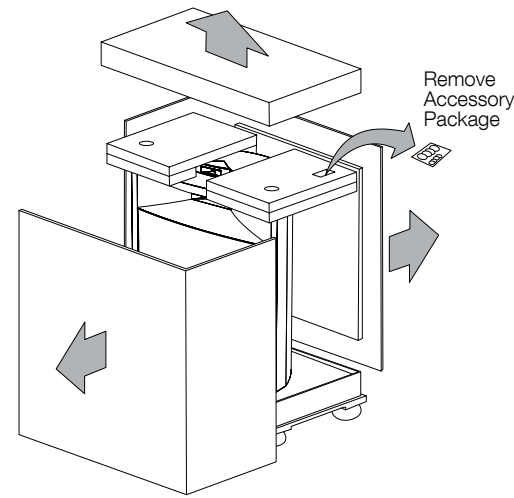
1. Cut the straps securing the carton with scissors or a knife. (Please be careful so that the cut straps don't spring up and hit your face or hand.)



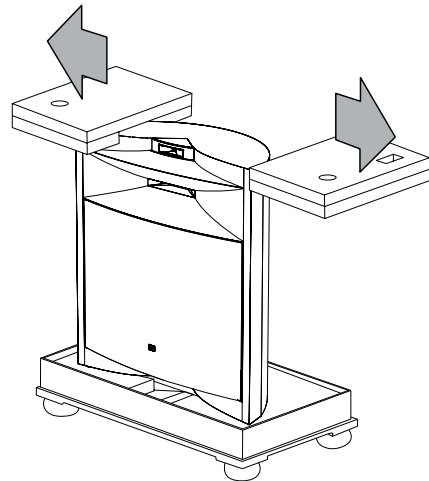
2. a) Slowly lift the top cover up and remove it. b) If there is not enough room above the box to pull off the top cover, carefully cut the side and top of it with a knife and pull it horizontally.



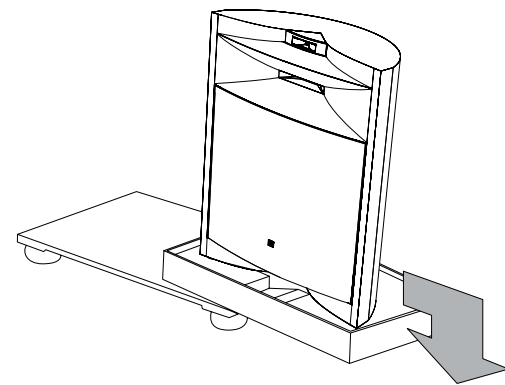
3. Remove the cardboard and packing materials. Remember to take the accessories out from the upper endpads.



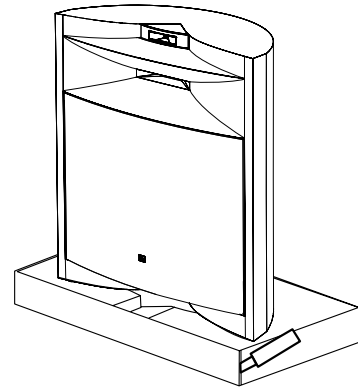
4. Remove the upper endpads.



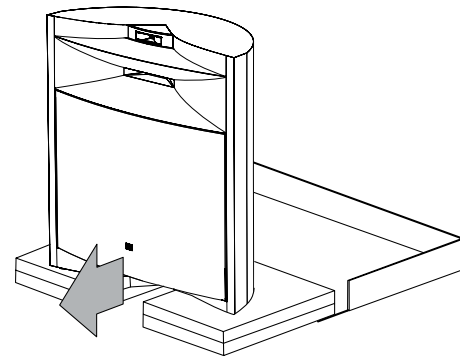
5. Together with the bottom cardboard, slide the loudspeaker system down from the bottom board



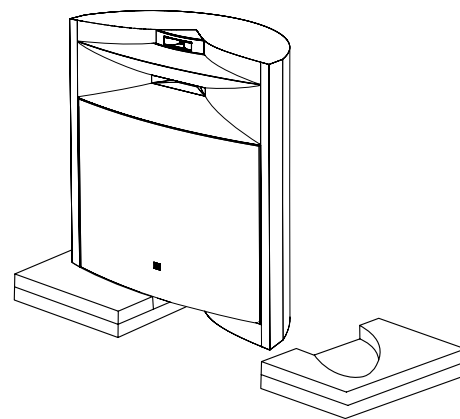
6. Cut tapes at the corners of the bottom cardboard.



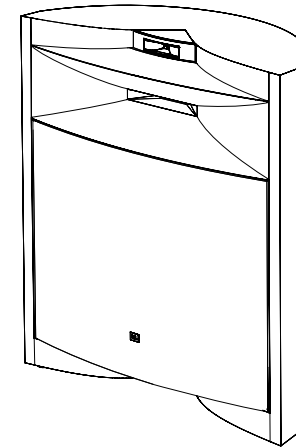
7. Slide the loudspeaker system together with bottom endpads out toward you.



8. Lift the system slightly on the right and left, in turn, to remove the bottom endpads.

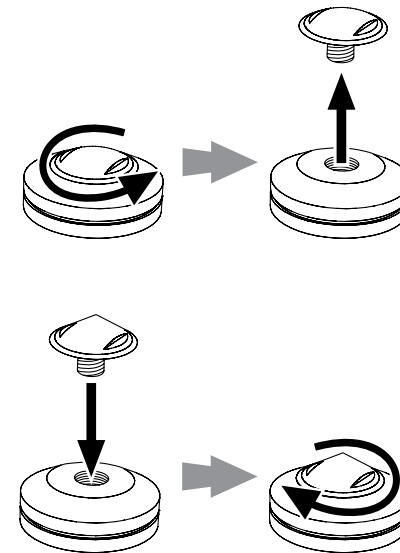


9. Remove the protective wrapping.



### INSTALLING SPIKES

Project Everest speakers are shipped with round-tipped feet on the bottom of the cabinet. If you would like to use pinpoint spikes, remove the round-tipped feet and replace them with the supplied pinpoint spikes. If the round-tipped feet are hard to loosen, use an 11/16-inch (18mm) wrench.

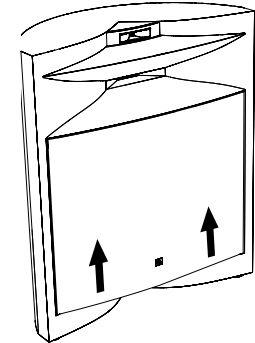


**IMPORTANT:** To prevent damage (scratches, indentations, etc.) to wood or linoleum floors due to the weight of these speakers, always use the included coasters. Be especially sure to use the coasters on tile surfaces to prevent cracking the tile.

### REMOVING THE GRILLES

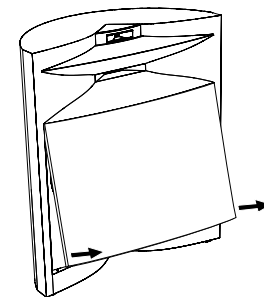
Project Everest loudspeakers are shipped with their grilles installed on the enclosures. You will need to remove the grilles to access the adjustment panels when you set up your speakers. You can remove the grilles with the following procedures.

1. Hold the lower part of the grille with both hands and push it up.



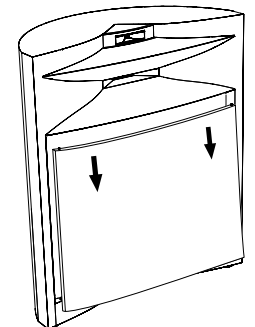
Push bottom of grille UP

2. Pull the bottom of the grille toward you to remove the grille from the lower pins on the enclosure.



Pull bottom of grille OUT

3. Pull the grille down and remove it from the enclosure.



Pull grille DOWN and remove

Repeat the above steps in reverse order in order to install the grilles back on the enclosures.

# 4 | SELECTING SPEAKER WIRE



Speaker wire and interconnecting cables are an important component in any audio system. With a system like Project Everest, they assume an increased level of importance.

Project Everest loudspeakers are internally wired using high-quality oxygen-free copper wiring. The same care that was given to the selection of the loudspeakers' internal system wiring should be afforded to the selection and application of the wires that will connect the Project Everest loudspeakers to your other system components.

Many manufacturers produce audiophile speaker wire worth considering for Project Everest loudspeakers. As with all electronics and associated components, however, every manufacturer offers products of varying quality to suit a range of budgets and applications. We advise that you use high-quality wire and to select the highest grade of wire available from the manufacturer.

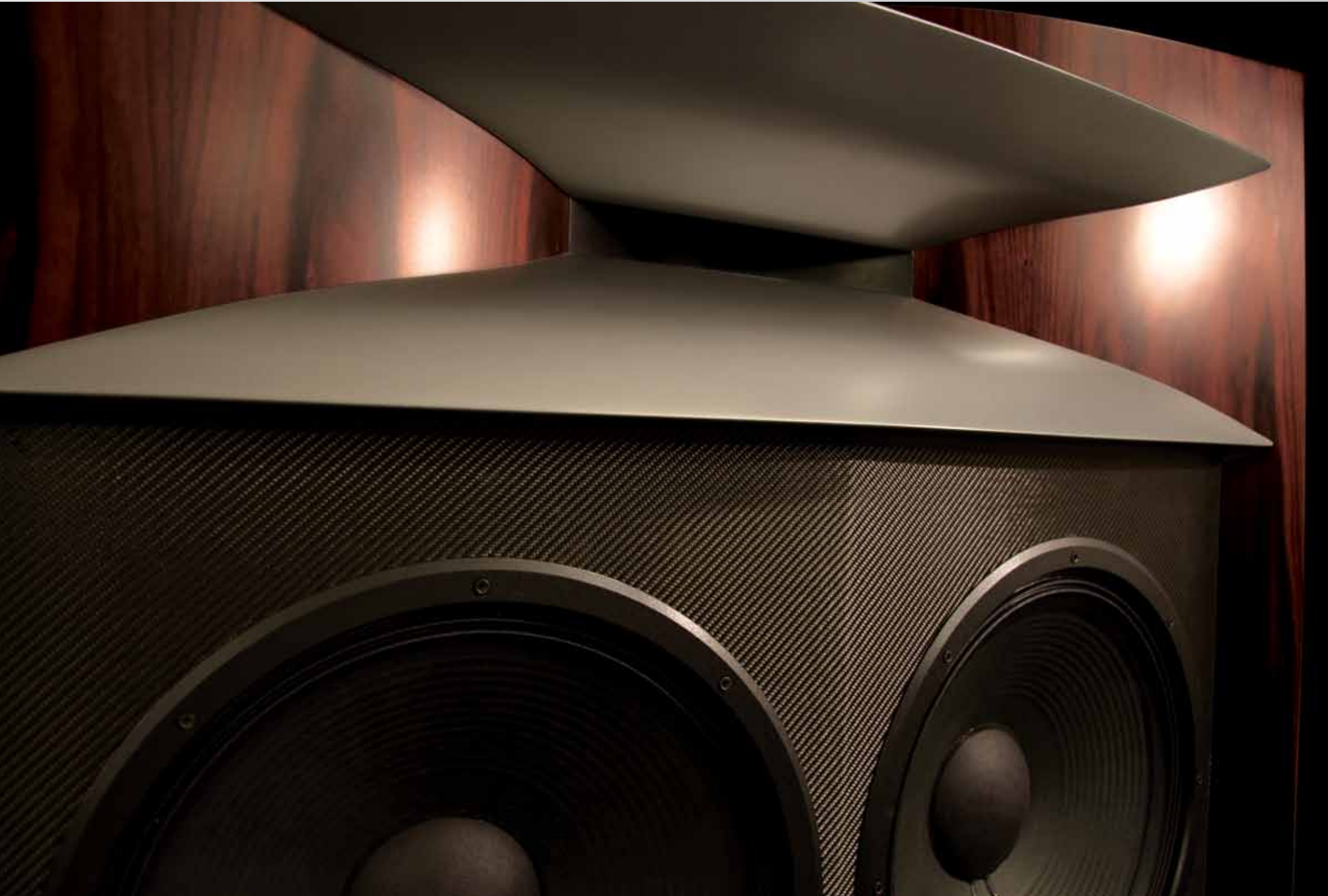
Project Everest specialist dealers have the experience and knowledge to recommend suitable speaker wire to best complement your particular system. We recommend using an audiophile-quality speaker wire of not less than 16-gauge for connections of up to 15 feet (5 meters) as a minimum requirement.

For maximum signal purity, we advise that you place the amplifier(s) as close as possible to the loudspeakers, even if this means that a longer distance will be needed between the amplifier(s) and preamplifier.

The connections between the left and right amplifiers and speakers should be the same length. If the distance between one speaker and its amplifier(s) is greater than the distance between the other speaker and its amplifier(s), use the longer length of wire for both connections.

For bi-wire connections, the same type of wires may be used for both low-frequency and high-frequency sections to reduce wire effects (resistance, inductance, etc.) and to avoid intermodulation of low and high frequencies in the wires. Specialized wires for low-frequency and high-frequency sections may yield excellent results. Whatever wires you select, be sure that the low-frequency wires are as short as possible, and that the left and right wires for each section are the same length.

# 5 | AMPLIFIER RECOMMENDATIONS



No single type of amplifier is specified for use with Project Everest Loudspeaker systems. The speakers are highly efficient and will operate adequately with an amplifier or receiver of 70 – 100 watts.

However, the transient response and audio definition of a high-end system such as Project Everest will expose all the inaccuracies and distortion in the electronic chain that precedes it. For full-range operation, Project Everest loudspeaker systems should not be used with an amplifier/receiver of less than 100 watts. High-quality amplifiers/receivers of 100 – 500 watts will ensure optimal system performance.

There is no effective limit to the power handling capabilities of the Project Everest loudspeakers when driven by consumer audio amplifiers. No damage will occur when used with high-powered components. The selected amplifier(s) should have a very high current capacity and must be capable of driving a low-impedance load. Low output impedance is also an important criterion in selecting an appropriate amplifier.

For bi-wiring or bi-amplification applications, four identical amplifiers or two dual-channel units may be used, although specialized low-frequency and high-frequency amplifiers offer clear advantages. (If four amplifier channels are used, the high-frequency amplifier may be up to 6dB less powerful than the low-frequency amplifier. Due to the power-versus-frequency distribution of music, the loudspeaker's low-frequency section requires approximately four times the power of the high-frequency section.)

Project Everest dealers can recommend amplification to best suit your individual needs. In all cases, the left and right amplifiers for each section must be identical. When bi-amping or bi-wiring, make sure 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.

If you are bi-amping the loudspeakers, a separate electronic crossover network (not included) must be connected to the outputs of the preamp/processor and to the inputs of the amplifiers that are powering the loudspeakers' low-frequency and high-frequency sections. Refer to HF Drive/LF Drive in Chapter 7, for more information.

# 6

# PLACEMENT AND SETUP

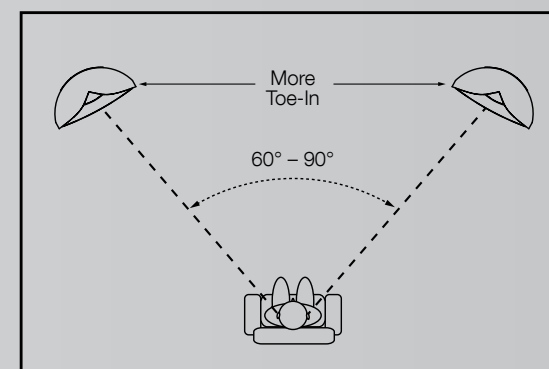
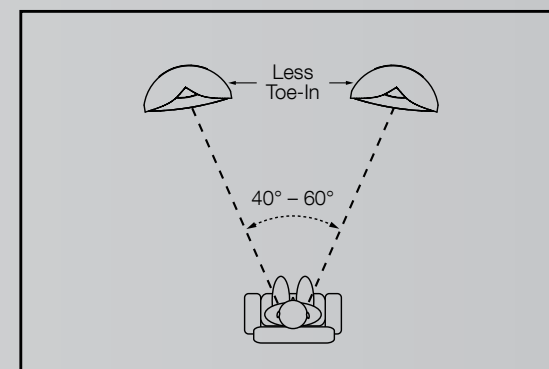


Project Everest loudspeaker systems are designed to be less affected by room acoustics than conventional direct-radiator systems. However, they are still sensitive to the overall symmetry of their locations relative to the listening position, and their proximity to walls, ceilings and corners.

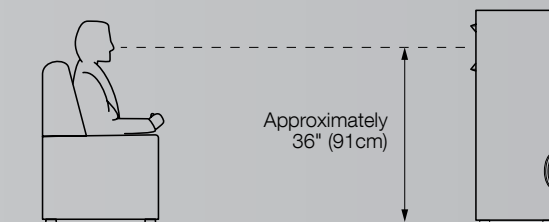
Ideally, any listening room should contain a combination of live surfaces (e.g., walls and windows) and absorbent surfaces (e.g., drapes, carpets, upholstery). If the distance between the floor and ceiling is minimal, it is preferable that one surface has an absorbent covering.

To obtain the best stereo effect, each speaker should be placed an equal distance from the listening position.

- The distance between the right and left speakers is determined by the relationship between the distance from the listening position to the speakers and the angles of the speakers. The Project Everest loudspeakers' imaging qualities enable them to be placed relatively far apart from each other, but this weakens the imaging of sounds such as vocals, that are typically mixed to the center of the stereo soundstage. In such an installation, increasing the inward angle (toe-in) of the speakers toward the listener will improve the center imaging.



- The listener should be centered in front of the speakers, and furniture should be of an appropriate height so that when the listener is sitting, their ear level is about the same height as the high-frequency horn (approximately 36 inches/91cm from the floor),



- Placing the speakers closer to the wall behind them or to the side walls will result in an abundance of bass, but placing them too close will result in dull sounding bass. On the other hand, too much distance between the loudspeakers and the nearest wall will reduce the bass output but result in fast and sharp sounding bass. The loudspeakers' low-frequency alignment feature enables placing the loudspeakers near (or even in) a corner without producing an overabundance of bass. This corner placement allows optimal performance, even in small rooms. Careful listening using various source materials will enable you to find the most suitable location for your loudspeakers in your listening room.

Each Project Everest loudspeaker in a stereo pair needs to be designated as the right or left speaker, depending on its installed location. Once speaker locations are decided upon, please refer to **System Orientation**, in Chapter 7, to set them up.

**CAUTION:** Project Everest is a massive loudspeaker, consisting of materials chosen for their density, with its weight concentrated in a relatively narrow area. Verify the integrity of the floor surface before placing and setting up the speakers. See **Floor Requirements** (below). Remember that these loudspeakers cannot be easily moved once they are installed.

### FLOOR REQUIREMENTS

The floor at the locations you select for your Project Everest loudspeakers must be capable of supporting a load of 310 lb (141kg). Because of the coupling effect of the stainless-steel feet, a flat, hard surface such as wood or linoleum is preferable. However, the design of the loudspeakers' coupling system, along with the speakers' substantial weight, should result in excellent performance on any surface, even on carpets.

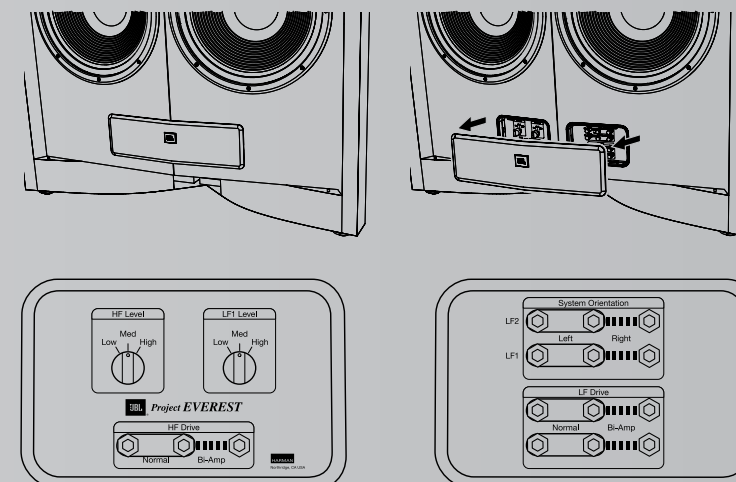
To prevent indentations on wood or linoleum floors caused by the weight of the loudspeakers, always utilize the enclosed coasters. **IMPORTANT:** Do not set up the Project Everest loudspeaker directly on a ceramic tile floor; the concentrated weight might cause the tiles to crack.



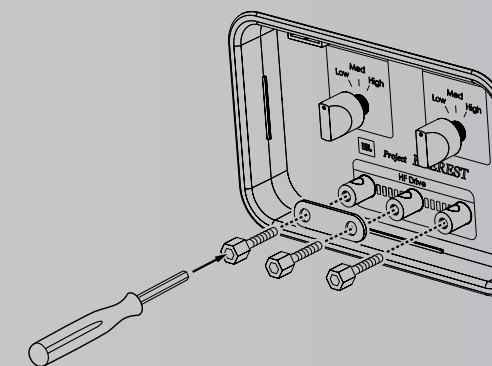
# 7 | PROJECT EVEREST ADJUSTMENTS



The DD65000 and DD67000 have two control panels under the cover at the center bottom of the front baffle. Shorting bars and switches on the control panels allow you to switch orientation of the system, engage bi-amplification if desired and adjust woofer and high-frequency levels. After removing the grille (see *Removing the Grilles*, in Chapter 3), remove the control panel cover to expose the adjustments.



To change setups using shorting bars, use the supplied hexagonal driver to remove the screws securing the bar. Move the bar according to the setup you require and then re-install the screws.



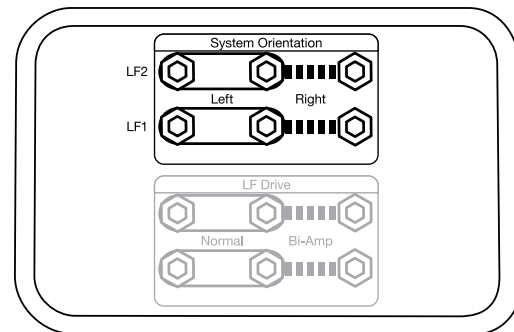
**ATTENTION:** To avoid poor electrical contact caused by loose shorting bar mounting screws, make sure that the screws are firmly installed. However, if you overtighten, there is a risk of damaging the terminals themselves. Please use the supplied hexagonal driver and tighten screws with reasonable torque, by hand only. **DO NOT USE POWERED SCREWDRIVERS OF ANY TYPE.**

The following adjustments are made using the above procedure:

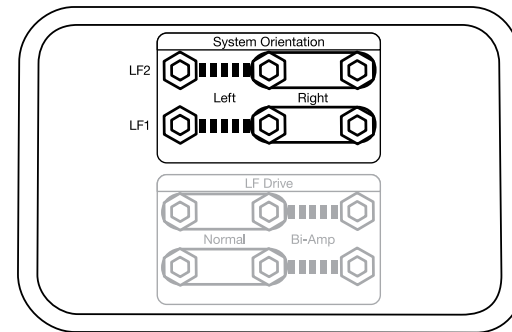
### SYSTEM ORIENTATION

As described earlier, the loudspeaker's two low-frequency drivers operate over different frequency ranges. For proper stereo imaging, it is necessary that the midrange woofer (LF2) be in the inboard position (closer to the other speaker). The proper setting of the system orientation jumper bars can configure a single Project Everest system as either a "left" or "right" system. It is necessary that both bars be set in the same position. Improper sound will result from staggering the bars. The bars select which woofer receives the low-frequency signals and which woofer receives the midrange signals. One system should be set to "left" and positioned as the left speaker. The other system should be set to "right" and positioned as the right speaker.

**System Orientation:  
Left Speaker**



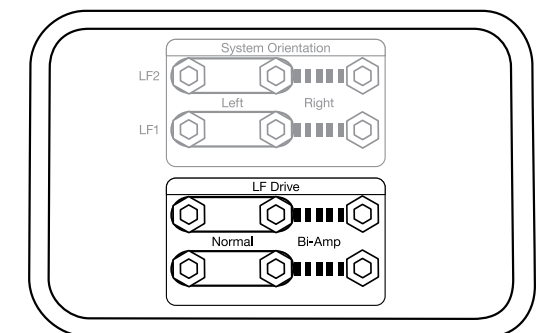
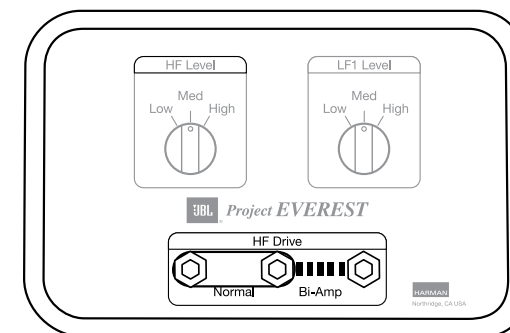
**System Orientation:  
Right Speaker**



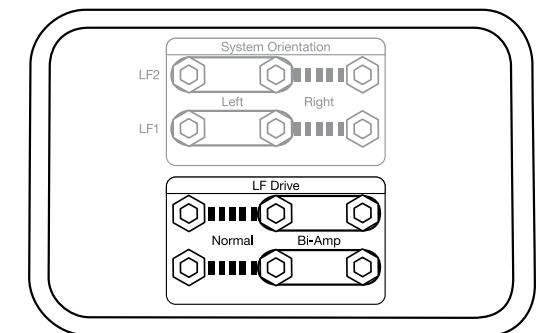
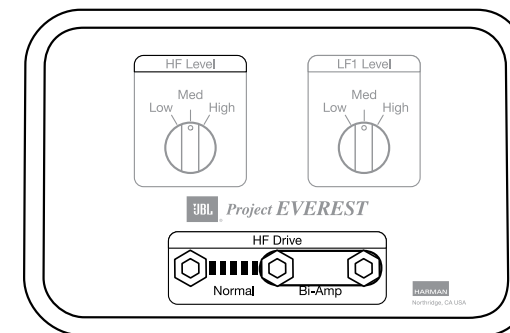
### HF DRIVE/LF DRIVE

These jumper bars allow you to set the loudspeakers for normal operation (using a single stereo amplifier or pair of mono amplifiers) and bi-amp operation (using two sets of stereo amplifiers and an external dividing network). The shorting bars are set at the factory for Normal (single-amplifier) operation, so move the shorting bars only if you are bi-amping the loudspeakers.

**Normal Operation**



**Bi-Amp Operation**

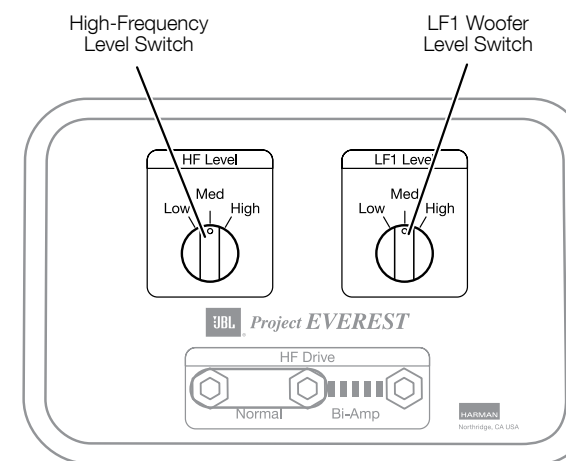


Setting the LF- and HF Drive shorting bars in the Bi-Amp position bypasses the speaker's crossover function for the full-range woofer and the high-frequency driver. The low-frequency woofer and the ultrahigh-frequency drivers are unchanged. Setting the shorting bars in the Bi-Amp position requires the addition of an external dividing network (electronic crossover) to provide the 750Hz (DD65000) or 850Hz (DD67000) primary crossover point for the system. The built-in attenuation and equalization for the 476-series high-frequency driver remains in place. The high-frequency level trim control remains operational, as does the diode biasing for both the low-frequency and high-frequency network sections.

Normally, all three sets of shorting bars (two LF and one HF) would be moved together to set the loudspeaker for bi-amping. It is possible to operate the system with just the low-frequency system or the high-frequency system set for bi-amping. In this circumstance, it would be necessary to use a combination of an external dividing network and the internal network. However, this is not generally recommended.

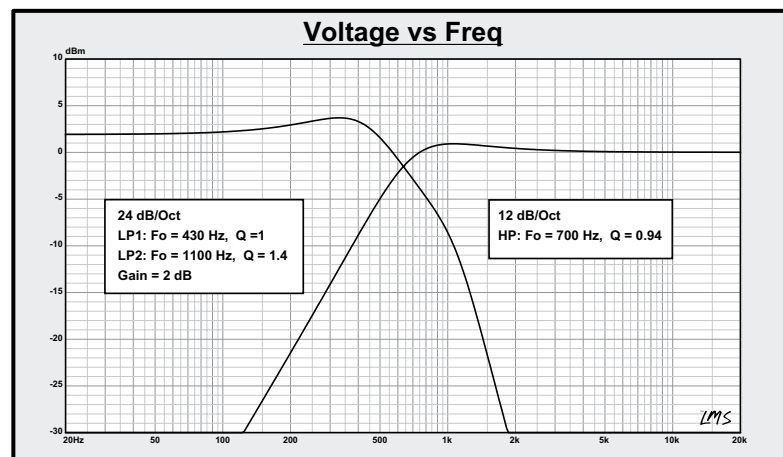
The graphs below shows the low-frequency and high-frequency voltage drive functions necessary to properly bi-amplify a DD65000 or DD67000 system using an external dividing network and two amplifier channels. Neither the low-pass nor the high-pass drive is a standard Butterworth alignment or, for that matter, a standard alignment at all. The provided drive curves were derived using the internal passive network and resulting acoustic low-pass and high-pass shapes. Duplicating these shapes will result in the same frequency response and directivity pattern as the passively driven system. The low-pass section is made up of two cascaded second-order sections and the high pass is a single high-pass section. The values within a high-quality analog dividing network can usually be modified to achieve these results. Recent digital crossover units will have no problem duplicating these curves.

### HF AND LF1 LEVEL SWITCHES

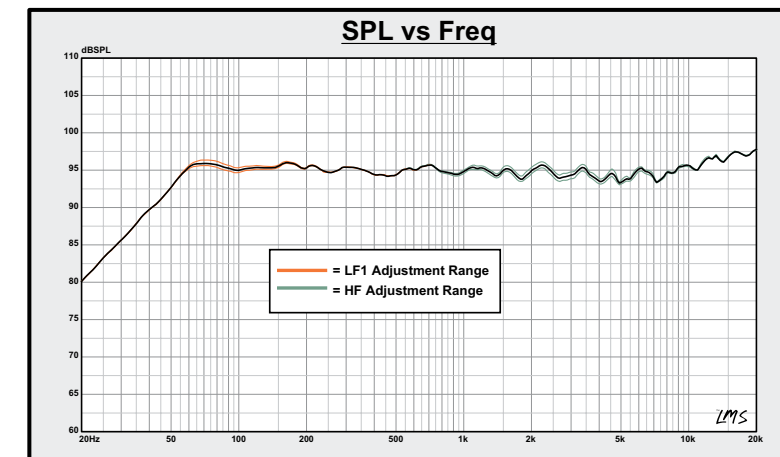


The HF Level switch adjusts the attenuation applied to the 476-series high-frequency transducer by approximately  $\pm 0.4\text{dB}$  over the range of 1,000Hz to about 8,000Hz. The action is accomplished by trimming the main attenuation resistors. Midrange sound becomes softer by reducing the level and stronger by increasing the level. No additional parts are inserted in the signal path and there is no sonic deterioration by position or adjustment functions.

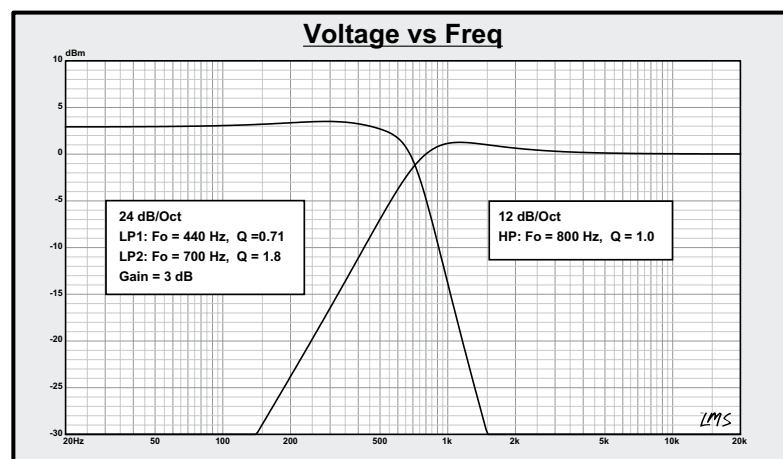
There is also a level trim switch available for the LF1 woofer. LF1 is the low-range woofer (that operates up to 150Hz), and each position will affect the output level in the range of 40Hz to 120Hz by about  $\pm 0.5\text{dB}$ . The purpose of this adjustment is to allow fine-tuning of the bass to mid-bass response of the system to better integrate with different room characteristics. The adjustment is accomplished by a change in value of a parallel damping resistor in the LF1 woofer circuit. No insertion loss is caused by this control.



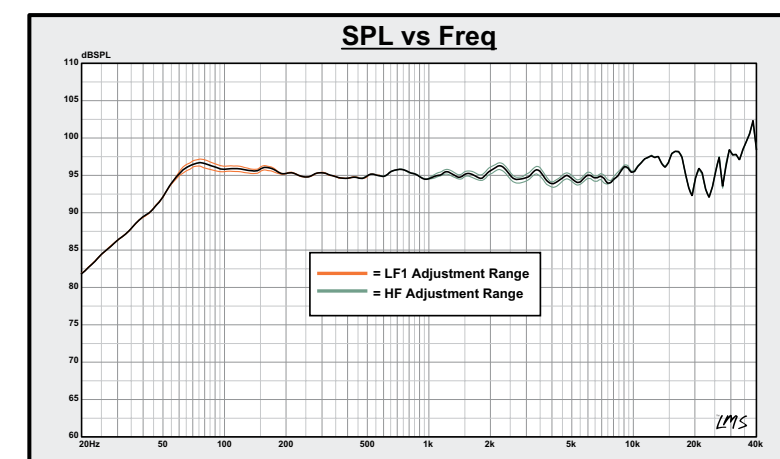
DD65000 Voltage Drive



DD65000 Control Adjustment Range



DD67000 Voltage Drive



DD67000 Control Adjustment Range

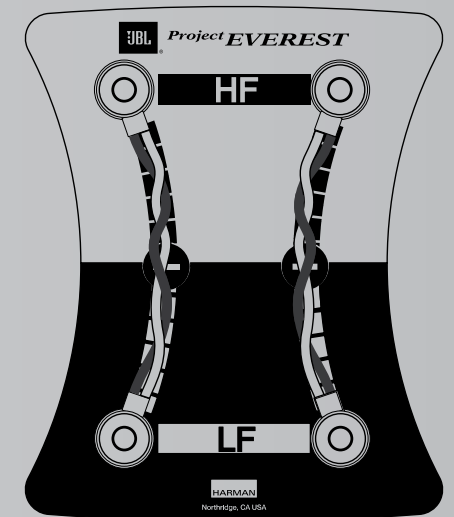
# 8

# PROJECT EVEREST CONNECTIONS



**CAUTION:** Turn off all amplifiers before connecting or disconnecting Project Everest loudspeakers. Making connections while an amplifier is operating could seriously damage the loudspeaker system and void the warranty. All amplifiers must also be turned off before connecting or disconnecting cables at the amplifier or preamplifier inputs.

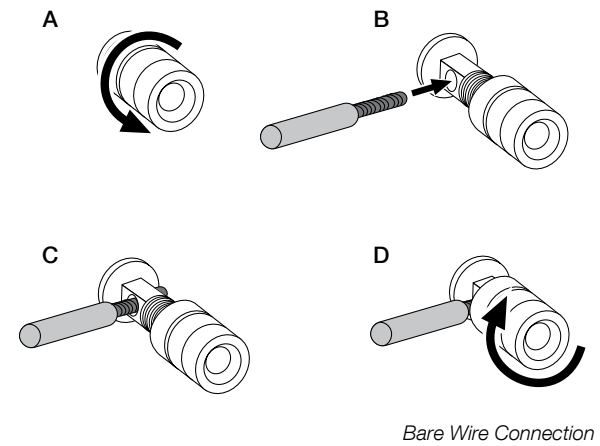
All connections between the amplifier(s) and the Project Everest loudspeaker system are made at the terminals located on the rear of the enclosure. The left-hand terminals (black rings and black logos on the terminal knobs) are negative, and the right-hand terminals (red rings and red logos on the terminal knobs) are positive. Twisted-pair shorting straps connect the negative terminals together and the positive terminals together.



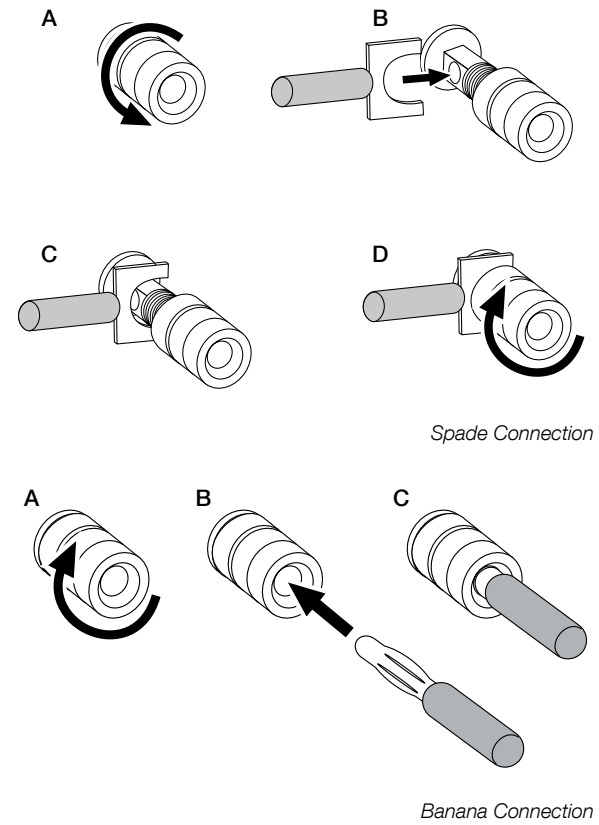
Assign one of the two speaker wire conductors as the negative conductor and the other as the positive conductor. These should correspond to the negative and positive speaker terminals on the speaker and amplifier. Use these same designations for all system wiring. Always connect the conductors of the speaker wire appropriately to the corresponding negative and positive terminals on all system components: amplifier "+" to speaker "+"; amplifier "-" to speaker "-". This will ensure that all components will work together in proper polarity (sometimes referred to as "in phase"). Refer to your receiver's or amplifier's instruction manual to confirm its connection procedures. Connecting the loudspeakers with improper polarity (sometimes referred to as "out of phase") will not damage them but will result in reduced low-frequency output and impaired stereo effect.

Speaker wires may be fastened to the loudspeaker terminals by several methods. The most positive connection is usually made by directly connecting clean, bare wire (exposed by stripping the insulation from the ends of the wire) to the terminal posts.

For this type of connection, loosen the knobs on the terminals to expose the holes in the terminal shafts and insert the bare end of each speaker wire into the hole exposed on the terminal shaft. (Again, make sure to connect amplifier "+" to speaker "+" and amplifier "-" to speaker "-.") Tighten the knob on each terminal so that a snug positive connection is achieved. Do not apply excessive force and do not overtighten. To avoid a short circuit that could damage the loudspeakers or your amplifier(s), trim off any excess wire that is not in contact with the binding post contact surfaces.



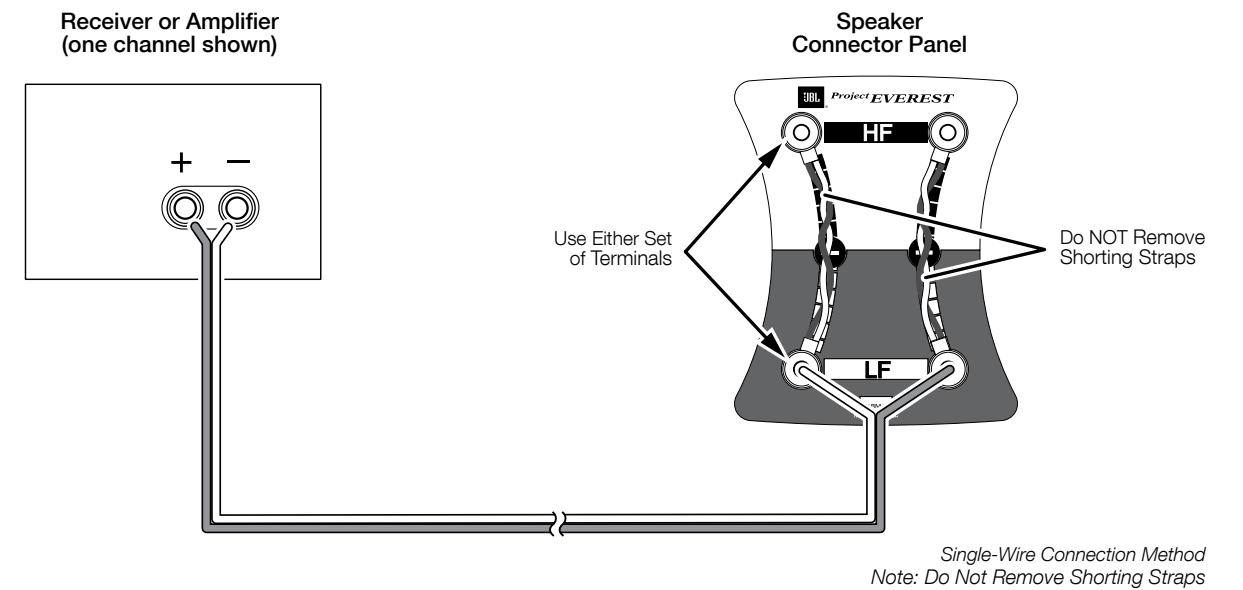
Project Everest loudspeaker terminals are also designed to accept spade connectors or banana connectors, which are fastened to the ends of the wires and, in turn, are attached to the terminal posts.



Project Everest loudspeaker connector panels have two sets of terminals that provide a choice of three different connection methods: single-wire, bi-wire and bi-amp. Use the most suitable method for your audio system.

**SINGLE-WIRE CONNECTION METHOD**

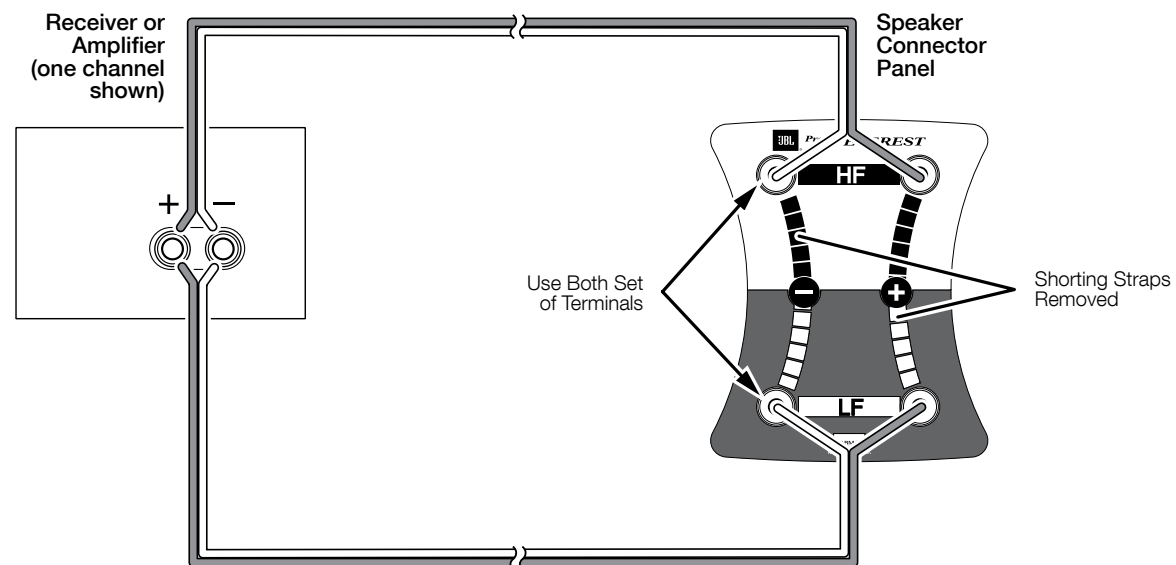
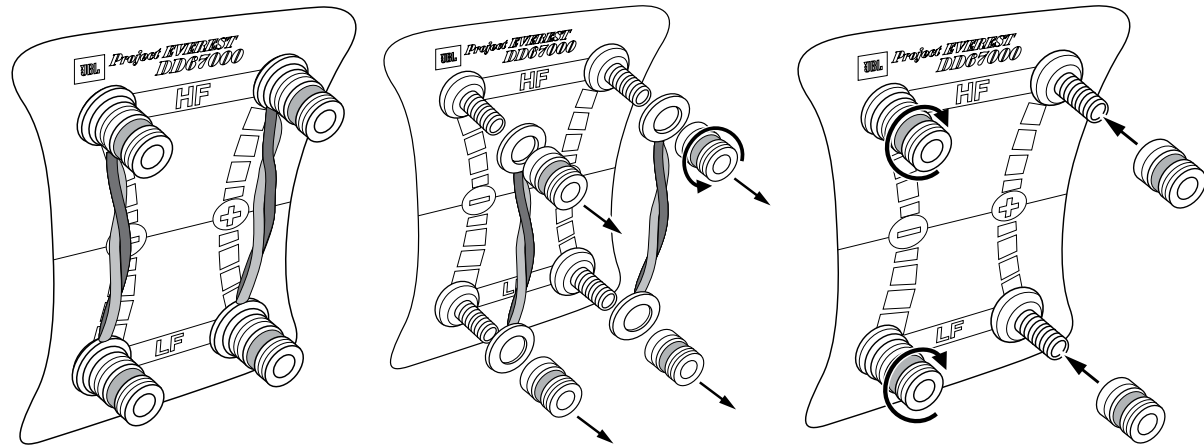
The single-wire method requires one amplifier channel and one set of wires for each loudspeaker. You can make the connections to either the loudspeaker's upper set of terminals or its lower set of terminals. **IMPORTANT: DO NOT REMOVE THE SHORTING STRAPS.** Make sure the conductors and sleeves of the shorting straps are firmly fastened at the terminals.



## BI-WIRE CONNECTION METHOD

**IMPORTANT:** When you use the bi-wire or bi-amp connection method, remove the shorting straps from the terminals (referring to the figures below) and re-tighten the knobs on the terminals. If the amplifiers are connected to the Project Everest loudspeakers in the bi-wire or bi-amp mode with the shorting straps still on, the amplifier outputs will be shorted, which could result in costly amplifier damage when power is switched on.

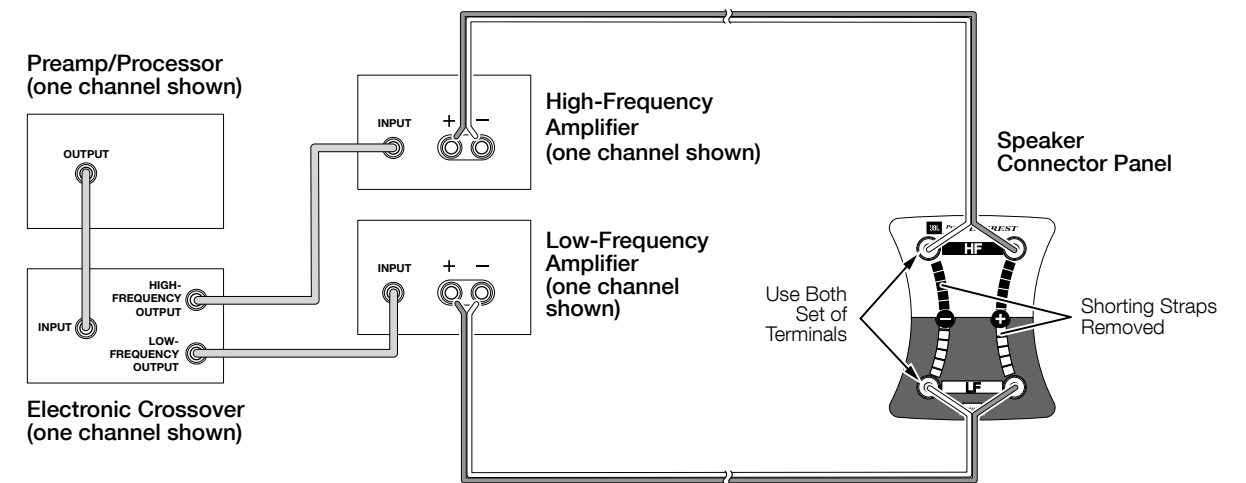
The bi-wire connection method requires one amplifier channel and two sets of speaker wires for each loudspeaker. After removing the shorting straps, you can make connections to the individual network sections using all four connectors, with one set of wires to the upper (high-frequency) terminals and another set of wires to the lower (low-frequency) terminals.



*Bi-Wire Connection Method  
Note: Remove Shorting Straps*

## BI-AMP CONNECTION METHOD

The bi-amp connection method requires two amplifiers, one for the low-frequency transducers and one for the high-frequency transducers, and an external dividing network (electronic crossover). After removing the shorting straps on the loudspeaker connector panels, wires from the high-frequency amplifier are connected to the upper terminals, and wires from the low-frequency amplifiers are connected to the lower terminals.



*Bi-Amp Connection Method  
Note: Remove Shorting Straps*

Each of these connection methods described above has its own advantages – your Project Everest loudspeaker system will deliver superb performance with any of the methods described.

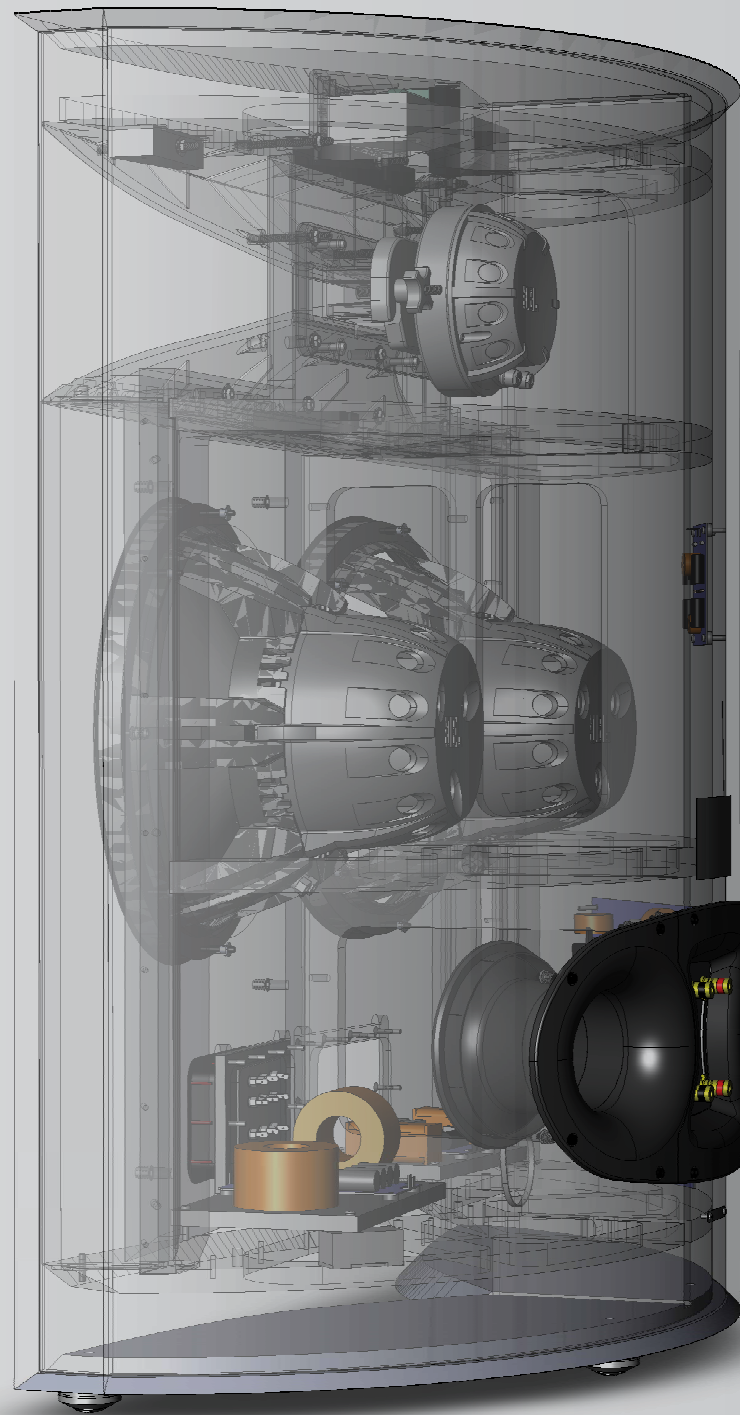
### FINAL CHECKLIST:

- Connect all other system electronics and plug into AC power outlets.
- Check all connections. In case of bi-amping or bi-wiring, make sure both shorting straps are removed.
- Make sure the system orientation and HF/LF drive jumper bars on the control panels are correctly set.

The loudspeakers are now ready for use. The Project Everest loudspeaker system is fully functional as soon as it is set up. There may be subtle tonal changes in bass output over the first week to 10 days of operation. These are caused as the movement of the low-frequency drivers becomes more fluid and the parts settle in. This process is completely normal and natural with transducers of this caliber. Even during this initial period, there is no restriction on the amount of amplification that may be applied. Enjoy!

# 9

## CARE AND MAINTENANCE



Project Everest loudspeakers require no maintenance other than occasional dusting with a soft, dry, lint-free cotton cloth. The horns may also be wiped with a soft cloth. Treat the lacquered surface very carefully to avoid scratching the finish. To remove fingerprints and smudges, apply a small amount of diluted ammonia-free or alcohol-free neutral detergent to the cloth and gently clean the surface.

- Never use any abrasive cleaners or chemicals to clean the enclosure. If the enclosure becomes noticeably scratched or otherwise damaged, consult a qualified furniture repair shop.
- Do not spray insecticide near the cabinet.
- To remove dust from the grille fabric, use a vacuum cleaner set to low suction.
- Do not wash the grille in water, as water may fade the grille's color or make it uneven.
- Never apply suction or pressurized air to the high-frequency or ultrahigh-frequency horn.
- If the surfaces of the low-frequency driver cones become dusty, you can carefully sweep them clean with a soft, dry calligraphy brush or paint brush. Do not use a damp cloth.

All wiring connections should be inspected and cleaned or remade periodically. The frequency of maintenance depends on the metals involved in the connections, atmospheric conditions, and other factors. Consult your Project Everest dealer for specific recommendations.

### TROUBLESHOOTING AND SERVICE GUIDE

Project Everest loudspeakers are designed to provide years of trouble-free service. No maintenance is required.

If a problem occurs, make sure that all connections are properly made and clean. If a problem exists in one loudspeaker, reverse the speaker wires to the left and right speakers. If the problem appears in the opposite speaker, the cause is in another component or cable. If the problem remains in the same speaker, then the fault is in the loudspeaker. In this event, consult your Project Everest dealer for assistance.

# PROJECT EVEREST SYSTEM SPECIFICATIONS

## DD65000

Low-frequency transducer:	15" (380mm) Layered paper/pulp matrix cone woofer (1501AL-1) x 2
High-frequency transducer:	4" (100mm) Magnesium compression driver (476Mg)
Ultrahigh-frequency transducer:	1" (25mm) Magnesium compression driver (045Mg)
Maximum recommended amplifier power:	500 Watts
Frequency response (-6dB):	30Hz – 50kHz (half space), 40Hz – 50kHz (anechoic)
Nominal impedance:	8 ohms 5.0 ohms @ 80Hz 3.8 ohms @ 40kHz
Sensitivity (2.83V@1m):	96dB
Horn directivity (horizontal x vertical)	100° x 60°
High-frequency:	60° x 30°
Ultrahigh-frequency:	
Crossover frequency:	150Hz (LF1 6dB/octave) 750Hz (LF2 24dB/octave) 20kHz (UHF 24dB/octave)
Control functions:	HF level control (Low, Mid, High) LF level control (Low, Mid, High) LF/HF drive mode bars (normal/bi-amp) System orientation bars (left/right)
Dimensions (H x W x D): (including feet)	38" x 43-5/8" x 18-1/2" (965mm x 1109mm x 469mm)
Weight:	302 lb (137kg) without grille 312 lb (142kg) with grille
Package weight:	383 lb (174kg)

## DD67000

Low-frequency transducer:	15" (380mm) Pure pulp sandwich/foam core cone woofer (1501AL-1) x 2
High-frequency transducer:	4" (100mm) Beryllium compression driver (476Be)
Ultrahigh-frequency transducer:	1" (25mm) Beryllium compression driver (045Be-1)
Maximum recommended amplifier power:	500 Watts
Frequency response (-6dB):	30Hz – 60kHz (half space), 45Hz – 60kHz (anechoic)
Nominal impedance:	8 ohms 5.0 ohms @ 85Hz 3.0 ohms @ 40kHz
Sensitivity (2.83V@1m):	96dB
Horn directivity (horizontal x vertical)	100° x 60°
High-frequency:	60° x 30°
Ultrahigh-frequency:	
Crossover frequency:	150Hz (LF1 6dB/octave) 850Hz (LF2 24dB/octave) 20kHz (UHF 24dB/octave)
Control functions:	HF level control (Low, Mid, High) LF level control (Low, Mid, High) LF/HF drive mode bars (normal/bi-amp) System orientation bars (left/right)
Dimensions (H x W x D): (including feet)	38" x 43-5/8" x 18-1/2" (965mm x 1109mm x 469mm)
Weight:	302 lb (137kg) without grille 312 lb (142kg) with grille
Package weight:	383 lb (174kg)





Thank you for purchasing a  
JBL Project Everest loudspeaker system.

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To promote variety and creativity, JBL operates independently in research and development. When it comes to translating the results of these efforts into actual consumer and professional products, JBL draws on the full combined strength of HARMAN International's resources, which include one of the world's most advanced manufacturing facilities. The result of this teamwork is that JBL's renowned excellence in engineering is successfully carried through to each individual product, regardless of its application or price range.

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