

OWNER'S GUIDE



PROJECT
K2 S5800

3-WAY
FLOORSTANDING
SPEAKER SYSTEM

JBL

®

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P R E F A C E

Thank you for selecting a *Project K2 S5800* loudspeaker system. It represents the sum total of our research and developmental efforts in sound reproduction over the last half century. We have labored to create a loudspeaker system with no acoustical or electrical limitations whatsoever. While the *Project K2 S5800* loudspeaker is itself a new development, the goal behind it goes right back to the earliest days of the original James B. Lansing Sound Company. But it is your listening pleasure that ultimately determines how successful we are in this endeavor. It is solely in the interest of ensuring a perfect listening experience that we ask you to faithfully follow the setup and operation procedures outlined in this owner's guide.

This guide exists for several purposes. As your owner's manual, it contains all necessary background information and detailed instructions for setting up your *Project K2 S5800* loudspeaker system, including unpacking the loudspeaker, selecting the correct location, speaker wire, wiring scheme and amplification, and connecting it to its associated electronics. This information will be found in Chapters 3 through 7. In addition, we have included a detailed description of *Project K2 S5800* loudspeakers (Chapter 2) so that you may become thoroughly acquainted with its unique design and technological features.

Although physically and materially imposing, the setup procedure of the *Project K2 S5800* loudspeaker system is relatively simple. We strongly urge you to read this manual thoroughly before you begin, and consult it frequently throughout the process. Considerations must be made in placing the speakers; their stature makes 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 total enjoyment of the loudspeaker system. *Project K2 S5800* is unparalleled in the field of sound reproduction. The story and principles behind it are an interesting, informative and fitting precursor to a lifetime of musical enjoyment.

Please take a moment to register your product online at www.jbl.com. Registration enables us to keep you posted on our latest advancements, and helps us to better understand our customers and build products that meet their needs and expectations.

CHAPTER 1 – LEGACY: THE HISTORICAL DEVELOPMENT OF THE JBL *PROJECT* LOUDSPEAKERS

Of those few who seek perfection in sound reproduction, only a handful have actually achieved it. The price is always high. It is a rare occurrence indeed when an individual or group is able to triumph over the constraints of economic and technological reality even once.

At JBL, this has happened eight times. In each case, its 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 investigation into new frontiers of sound reproduction, beginning in 1950, 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 that time, combined into a single system. They are *Hartsfield*, *Paragon*, *Everest*, *K2 S9500/7500* and *K2 S5500*. The newest models are the *K2 S5800* and *K2 S9800*.

Although differing in performance details and physical attributes, each of the *Project* loudspeakers has shared a common objective: to elevate sound reproduction to levels defined only by the limitations of existing materials and technology. And despite a spread of nearly 50 years, all *Project* loudspeakers have shared many common features – testimony to their foundation on 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, it is time to make it better.

In 1954, the *Hartsfield* was significant in that it represented not *new* technology, but rather a new level of the all-technical manufacturing approach pioneered by James B. Lansing some 20 years before it. Like its *Project* series successors, it was a high-efficiency system incorporating compression driver technology, one combining the qualities of high output, low distortion, exceptional stereo imaging and fatigue-free listening. Most important, it was the first consumer-available listening system to do so.

In this respect, *Project K2 S5800* is at once the most advanced and sophisticated loudspeaker in the world today (save for the *Project K2 S9800*) and a speaker whose technology is deeply rooted in more than 50 years of tradition. JBL's president in 1954, William Thomas, described the *Hartsfield* as "...the speaker system we have always wanted to build...the finest components ever made available to serious listeners."

He went on to describe the process behind his creation: "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 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. 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 new ground in the concept of stereo imaging. Essentially two independent full-range speaker systems installed in a handsome curved cabinet nearly 9 feet long, 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.

For nearly 30 years, the *Paragon* remained the most acoustically viable sound system for the home. Today, along with the *Hartsfield*, it 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 reflected the pinnacle of achievement it represented: *Project Everest*.

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.

After *Project Everest* was introduced, sound recording and playback technology underwent a revolution of its own. With the advent of CD, extremely demanding recorded signals had become the rule rather than the exception – the average source material used by the typical audio enthusiast had become superior to the best demonstration material of even just a few years ago. In overall dynamics and transient response, transducers were once again a potential 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 the construction of a two-way system of unprecedented physical and acoustical scale possible. Engineers took the core components – the low- and high-frequency drivers – 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 has undergone 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 and 3-digit dynamic range and signal-to-noise ratios have now become commonplace. In order to faithfully reproduce such robust sonic properties, the loudspeaker needed to undergo drastic improvements to its transducer, network and enclosure technologies.

See Figure 1.

Unlike the earlier *Projects* K2 S9500 and K2 S5500, the new K2 S5800 employs a 3-way, four-driver design, incorporating an ultrahigh-frequency (UHF) compression driver and horn to reproduce high frequencies up to 50kHz. With the UHF handling the high frequencies, the high-frequency (HF) transducer could then be upgraded to a new design using a 3-inch diaphragm for better reproduction of lower frequencies and better blend with

the dual woofers than the older generations' 2-inch diaphragm. Both compression drivers are mounted in a unique combination Bi-Radial® horn structure, precision-molded from JBL's proprietary SonoGlass™ material, an extremely dense and mechanically inert substance that is easily molded into the unusual shapes required for superior acoustic performance.

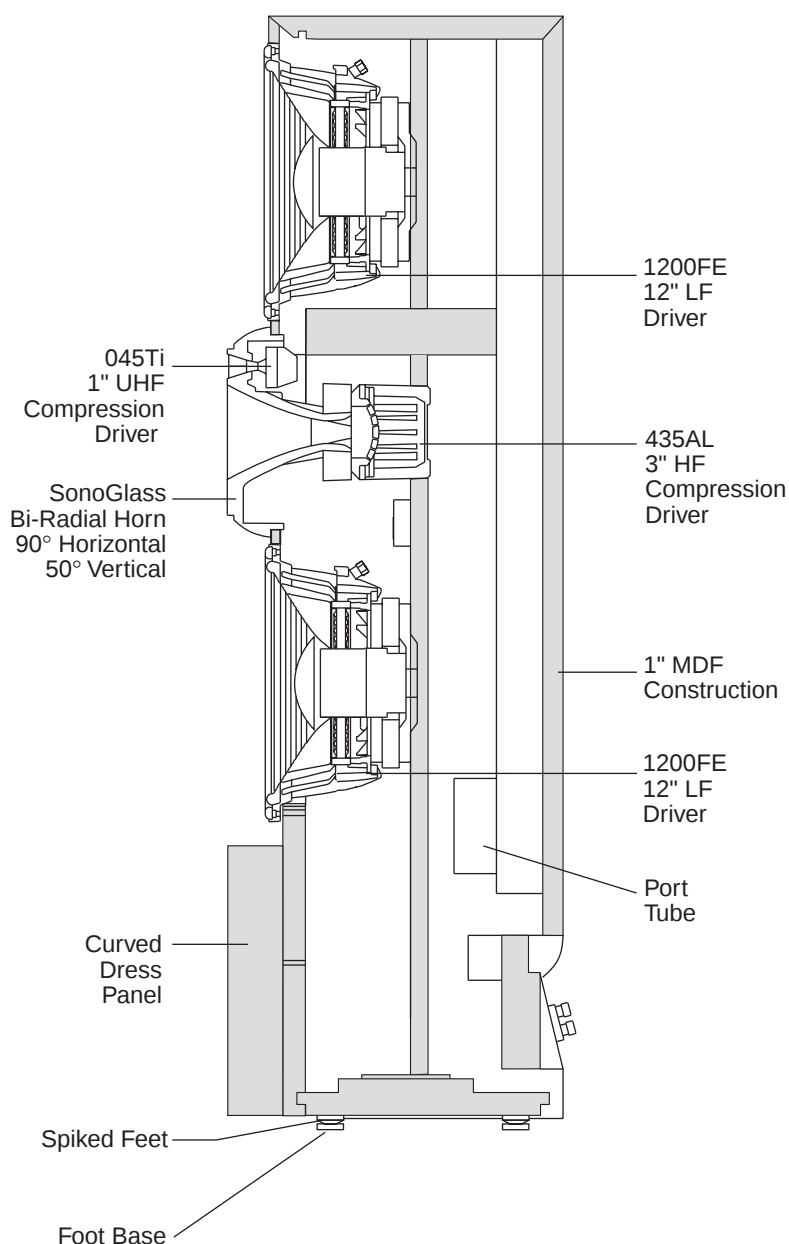


Figure 1. Cutaway view of *Project* K2 S5800 speaker system.

In order to re-create the extremely high dynamic range provided by today's audio sources, a new low-frequency transducer was used, incorporating a ferrite magnet, 3-inch edge-wound voice coil, and an Aquaplas™-coated 12-inch cone made of Kevlar® composite, a mixture of Kevlar fiber and pulp material that provides increased rigidity. An EPDM rubber surround was chosen for both its flexibility and long life. The Symmetrical Field Geometry™ (SFG) magnetic structure minimizes second harmonic distortion by providing a uniform flux field that avoids uneven cone movement. The rigid cast-aluminum frame is also designed to minimize distortion, as aluminum has no effect on the magnetic field. Extensive computer-aided engineering and design effort made to develop the optimized port tuning employed in *Project K2 S5800* has resulted in a significant advance in the concept of state-of-the-art bass reproduction. This proprietary alignment method offers the best damping characteristics and provides extremely fast alignment, eliminating the typical "bass-reflex" sound of a ported system.

All three transducers are built using the most advanced materials and precision manufacturing techniques refined from renowned JBL professional sound systems.

High power-handling capability results in no limitations on the types of source material. *Project K2 S5800* has very high input sensitivity; even a relatively small high-end amplifier can provide full dynamic range without compression.

Despite its power and sophistication, *Project K2 S5800* is a marriage of tradition and technology. It reflects the design, engineering and manufacturing expertise derived and refined through nearly six decades of experience that are the exclusive province of one loudspeaker builder: JBL.

CHAPTER 2 – THE *PROJECT K2 S5800* LOUDSPEAKER: A TRIUMPH IN ACOUSTICS AND TECHNOLOGY

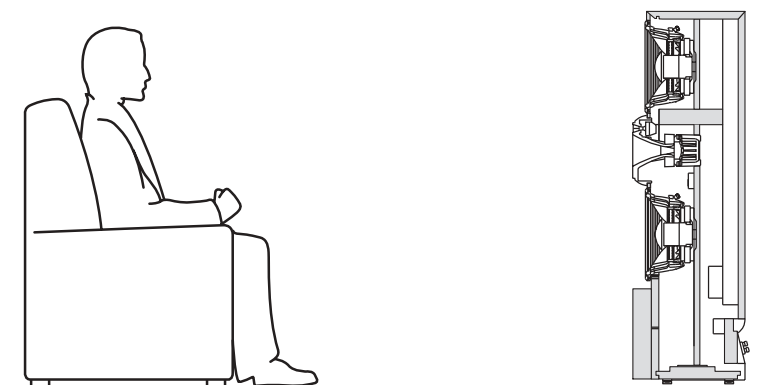


Figure 2. Height of K2 S5800 speaker system in relation to listener.

The following sections describe the primary features and components of the *Project K2 S5800* loudspeaker system.

The enclosure of the K2 S5800 is specially designed to transfer unwanted mechanical energy away from any acoustically active surfaces, virtually eliminating coloration.

The massive enclosure, along with its specially designed brass modular feet, couples directly to the floor, and the system literally becomes a structural part of its environment. Any vibration is transmitted harmlessly down the channel provided by the ring/disc axes and into the floor. The SonoGlass combination horn maintains a smooth energy transmission path.

The *Project K2 S5800* transducer/enclosure arrangement represents the best possible balance of the various tuning options and avoids the mid-bass response buildup found in other vented systems. Response works with, rather than against, the effects of “room loading.”

The unique design of the *Project K2* system is the platform for its equally unique acoustical attributes.

Thanks to the centrally mounted combination horn, both the UHF (ultrahigh-frequency) and HF (high-frequency) drivers are located at the ear level of the listener.

See Figure 2.

The large 3-inch HF transducer allows the two 12-inch woofers to be crossed over at a frequency low enough to eliminate any audible effects of their exact location and proximity.

Full image coherency is maintained, resulting in an acoustically

stable pinpointed stereo image. All the sound seems to come from the combination horn in the center. Music imaging is more realistic since the sound appears to emanate from one point and not from multiple points at different times.

Project K2 is a constant-angle system without regard to frequency. Careful horn design enables the loudspeaker to strictly adhere to a 60° horizontal/30° vertical coverage pattern. This Controlled Coverage arrangement precisely defines the optimum listening area and minimizes room effects. At the same time, it provides a generous “sweet spot” for more comfortable critical listening sessions.

THE DUAL 1200FE LOW-FREQUENCY DRIVERS

See Figure 3.

In order to achieve the lowest possible distortion and compression along with the high linear excursion necessary, the 1200FE is equipped with a ferrite magnet. As with earlier *Project K2* low-

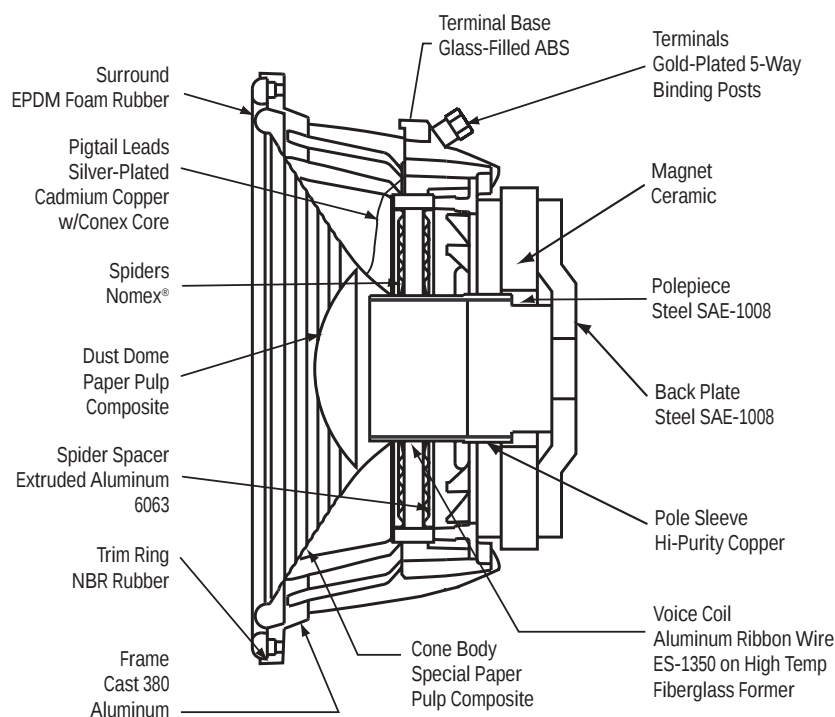


Figure 3. Cutaway view of 1200FE low-frequency transducer.

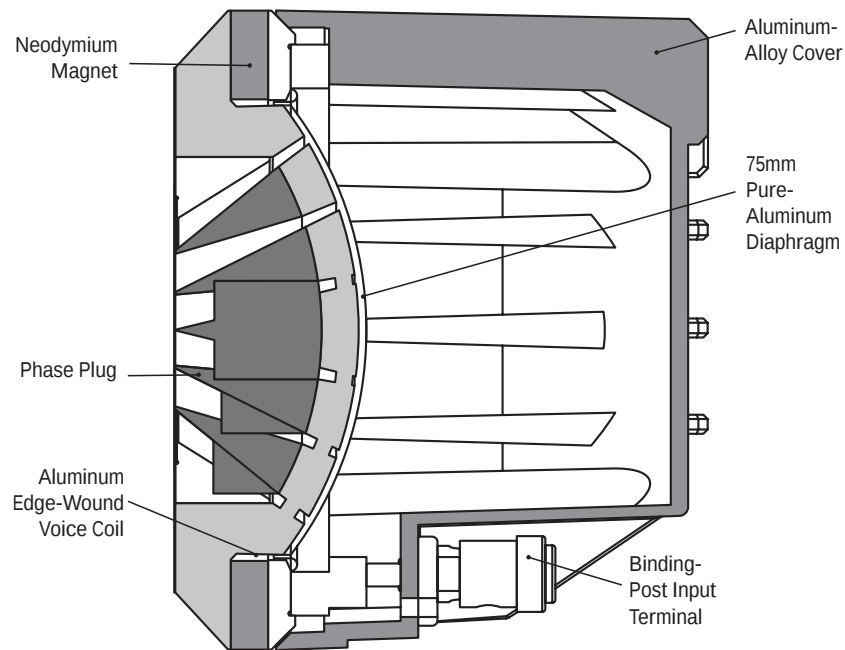


Figure 4. Cutaway view of 435Al high-frequency transducer.

frequency drivers, it utilizes forced-air cooling. The entire magnetic structure is attached to a die-cast aluminum-alloy frame. This provides accurate, rigid support for the motor and cone mounting points, as well as doubling as a massive heatsink by providing a huge surface area for heat dissipation.

The 1200FE has a central cooling duct which effectively cools the voice coil and reduces the likelihood of hot spots. By reducing the operating temperature of the voice coil, power compression is significantly reduced, which enables the low-frequency driver to operate in a more linear fashion over a wider sound pressure level (SPL) range.

The voice coil itself is constructed from edge-wound aluminum wire on a massive 3-inch-diameter fiberglass former. This configuration provides for further cooling ability in conjunction with the motor design.

The Aquaplas-coated, Kevlar-composite cone, along with the EPDM rubber surround, provides excellent damping and transient response characteristics.

435AL ALUMINUM
DIAPHRAGM/
NEODYMIUM MAGNET
HIGH-FREQUENCY
COMPRESSION DRIVER
See Figure 4.

The 435Al neodymium high-frequency compression driver is based on the professional JBL 2430 device. It incorporates a rare-earth neodymium magnet structure, designed by extensive computer modeling, including finite element analysis, which combines the attributes of efficiency, strength, low mass and compact size. This motor structure is coupled with a 3-inch aluminum diaphragm. Aluminum provides improved low-distortion characteristics and flat frequency response.

High-temperature materials and adhesives allow the driver to handle extremely high power levels over extended periods of time. The SonoGlass horn is acoustically inert and precision-molded to exacting tolerances.

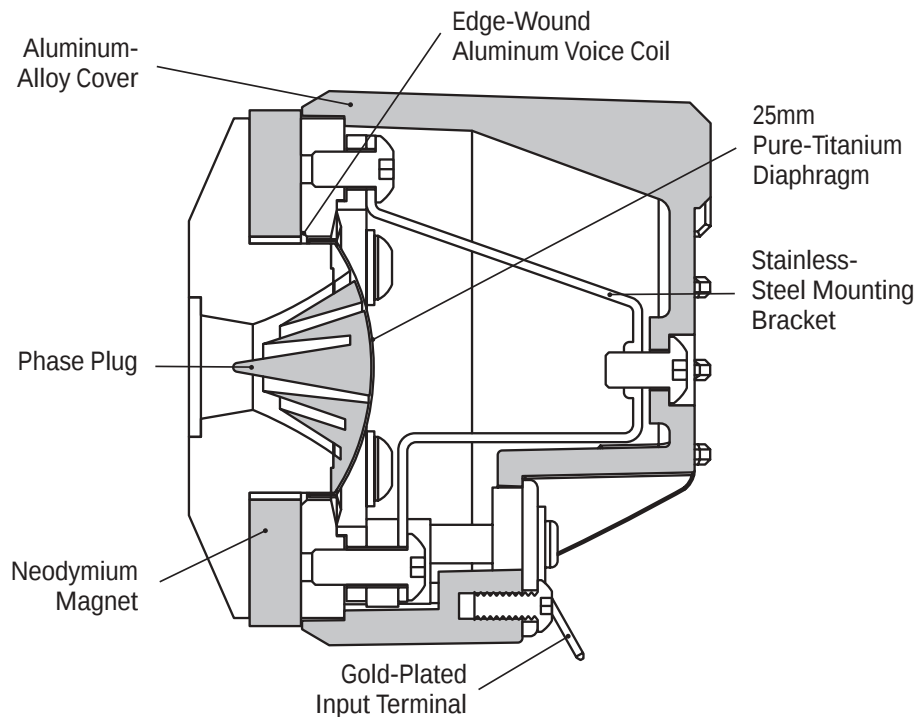


Figure 5. Cutaway view of 045Ti ultrahigh-frequency transducer.

**045Ti PURE-TITANIUM
DIAPHRAGM /
NEODYMIUM MAGNET
ULTRAHIGH-FREQUENCY
COMPRESSION DRIVER**
See Figure 5.

The 045Ti utilizes the same principles as the 435Al, in a smaller footprint so that a frequency response up to 40kHz can be achieved.

INTERNAL CROSSOVER NETWORK

Each loudspeaker unit has two internal dividing networks, one for the LF transducers and one for the combined HF and UHF transducers. The low-frequency section interfaces with the external main control panel for input connections and switch functions. They also employ massive air core inductors for best possible sonic characteristics and lowest possible coloration.

All internal connections are of proprietary Monster Cable®, and all critical connections are gold-plated for long life. Capacitors are ultra-high-grade polypropylene for extremely low loss. Network plates and the port bezels are metal to eliminate vibration and help conduct unwanted heat away from the network. All switches and components are of the highest quality for long life and reduced distortion of all types.

The network also utilizes JBL's proprietary Charge-Coupled Linear Definition™ topology, which effectively "charges" the network at all times so that all components are constantly on and do not generate distortion while switching between the on and off stages. This is accomplished by a battery that biases the components in the network. The network also facilitates bi-amping and bi-wiring as necessary, using a configuration switch and shorting bars.

The HF level control allows fine-tuning of the high-frequency output level to the acoustics of the listening space as well as to the listener's liking.

EXTERNAL CONNECTIONS

The all-metal, gold-plated, 5-way binding-post input connectors provide for both bi-amplification and bi-wiring, which are explained in detail later in this guide.

ENCLOSURES

The enclosure design of the *Project K2 S5800* minimizes coloration by dramatically reducing panel radiation. It is constructed from 1-inch (25mm)-thick MDF.

The enclosure's unusual thickness, along with the SonoGlass horn assembly, add up to the lowest vibration, most acoustically inert loudspeaker enclosure presently possible to construct. Enclosures are finished with a high-gloss polyurethane lacquer.

CHAPTER 3 – UNPACKING THE *PROJECT K2 S5800* SYSTEM

All components of the *Project K2* 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 K2 S5800* system.

Because of the bulk and weight of this loudspeaker, at least two people are required to unpack it in the following manner: Open the front as well as the top of the carton. Slowly

and carefully “walk” the loudspeaker in its Styrofoam™ end pads out of the carton. Two people may then lift the system out of the end pads.

The four spiked feet are pre-installed in the bottom of the *K2 S5800* in four locations. Four metal coasters are packed in the end pad. These are to be placed between the foot and the floor for further protection of the floor coverings. See Figure 6.

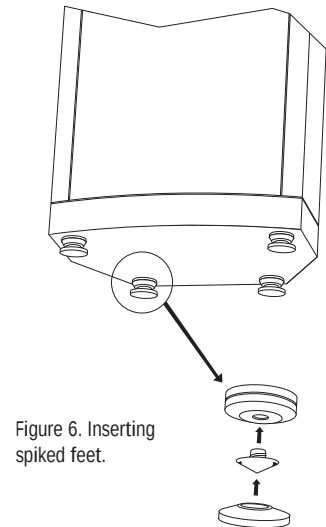


Figure 6. Inserting spiked feet.

CHAPTER 4 – SELECTING CABLE

Speaker wire and interconnecting cables are an important component in any audio system. With a system such as the *Project K2 S5800*, they assume a new level of criticality.

The *Project K2 S5800* loudspeakers are internally wired with high-quality copper Monster Cable, specially designed for JBL. The same care that was given to the selection of internal system wiring should be afforded to the selection and application of the cables that will connect *Project K2 S5800* loudspeakers to other system components.

It is advisable to use high-quality wire, such as Monster Cable, and to select the highest-grade wire available from the manufacturer. Many manufacturers produce audiophile cables worth considering for *Project K2 S5800*. As with all electronics and associated components, however, every manufacturer offers products of varying quality to suit a range of budgets and applications.

We recommend using an audiophile-quality speaker wire of not less than 16 gauge for connections up to 15 feet (5 meters) as a **minimum** requirement. If your connections will be longer, heavier-gauge wire is recommended. *Project K2* specialist dealers have the experience and knowledge to recommend suitable speaker wire to best complement a particular system.

The amount of speaker wire required will depend on the distance between the loudspeakers and amplifier(s), how many amplifiers will be used, and the method you select for connecting the amplifier(s) and loudspeakers (passive, bi-wire, or bi-amp; see Chapter 7). For maximum signal purity, it is advisable to locate 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.

Both the left and right speaker/amplifier connections should be the same length. If the distance between one speaker and the amplifier(s) is greater than the other speaker and amplifier(s), use the longer length for both connections.

For bi-wire connections, the same type of wires may be used for both the 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 are used, be sure that the low-frequency wires are as short as possible, and the left and right wires for each section are the same length.

No single type of amplifier is specified for use with the *Project K2 S5800* system. 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 K2 S5800* will pick up all inefficiencies and distortion in an amplifier system. For full-range operation, the *Project K2 S5800* system can be used with an amplifier/receiver of as little as 30 watts. Amplifiers/receivers of 100–300 watts will ensure optimum system performance.

There is no effective limit to the power handling capabilities of the *Project K2 S5800* loudspeakers when driven by consumer audio amplifiers. No damage will occur when used with high-powered components. Source impedance is an important criterion in selecting an appropriate unit; the selected amplifier(s) should have a very high current capacity and must be capable of driving a low impedance load.

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 the music, the low-frequency section requires approximately four times the power of the high-frequency section.)

Project K2 S5800 specialist dealers can recommend amplification to best suit individual needs. In all cases, the left and right amplifiers for each section must be identical. 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.

The *Project K2 S5800* loudspeaker system is designed to be less affected by room acoustics than conventional imaging systems. However, it is very sensitive to overall symmetry, and 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 from floor to ceiling is short, it is preferable that one surface has an absorbent covering. With *Project K2 S5800*, it is most important to be able to accommodate the optimum listening area that is defined by the 60° horizontal/30° vertical coverage pattern of the horn.

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, the ear level is on a vertical plane with the horn (approximately 32 in/80cm) as illustrated in Figure 2.

CAUTION: *Project K2 S5800* is a massive system comprising 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**.

If possible, the distance between the speakers should be the same as the distance between each speaker and the listening area. Angle the speaker in toward the listener so that when seated, the listener could look straight into the center of the speaker (Figure 7). As the distance increases between the speakers, increase the inward angle of the speaker.

The imaging qualities enable the speakers to be placed relatively far apart from each other. In addition, the low-frequency alignment feature enables placing the speakers near or even in a corner without producing an overabundance of bass. This corner placement ability allows optimum performance even in small rooms.

The *Project K2 S5800* system can operate fairly close to the wall. Allow enough clearance between the back of each speaker and the wall to allow making the connections on the back of the speaker (approximately 2"–3" is sufficient), and to avoid interference with the performance of the tuned port.

Remember that these speakers weigh close to 185 lb (84kg) each and cannot be easily moved.

FLOOR REQUIREMENTS

The floor in the location selected for setting up the *Project K2 S5800* speakers must be capable of supporting a load of 185 lb (84kg). 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 loudspeaker's coupling system, along with the speaker's extreme 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 loudspeaker, always utilize the enclosed coasters. Do not set up the *Project K2 S5800* system directly on a ceramic tile floor; the concentrated weight might cause the tiles to crack.

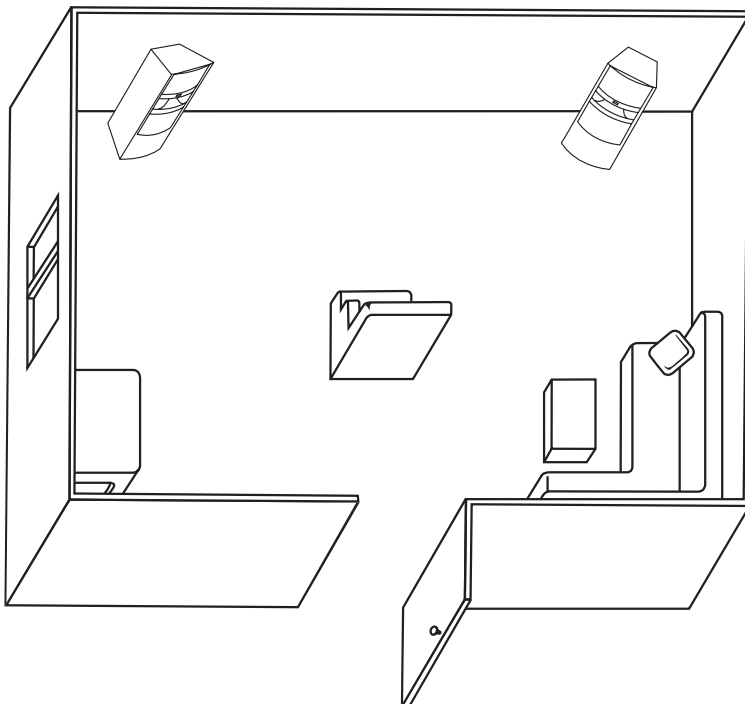


Figure 7. Room placement of *K2 S5800* speaker system.

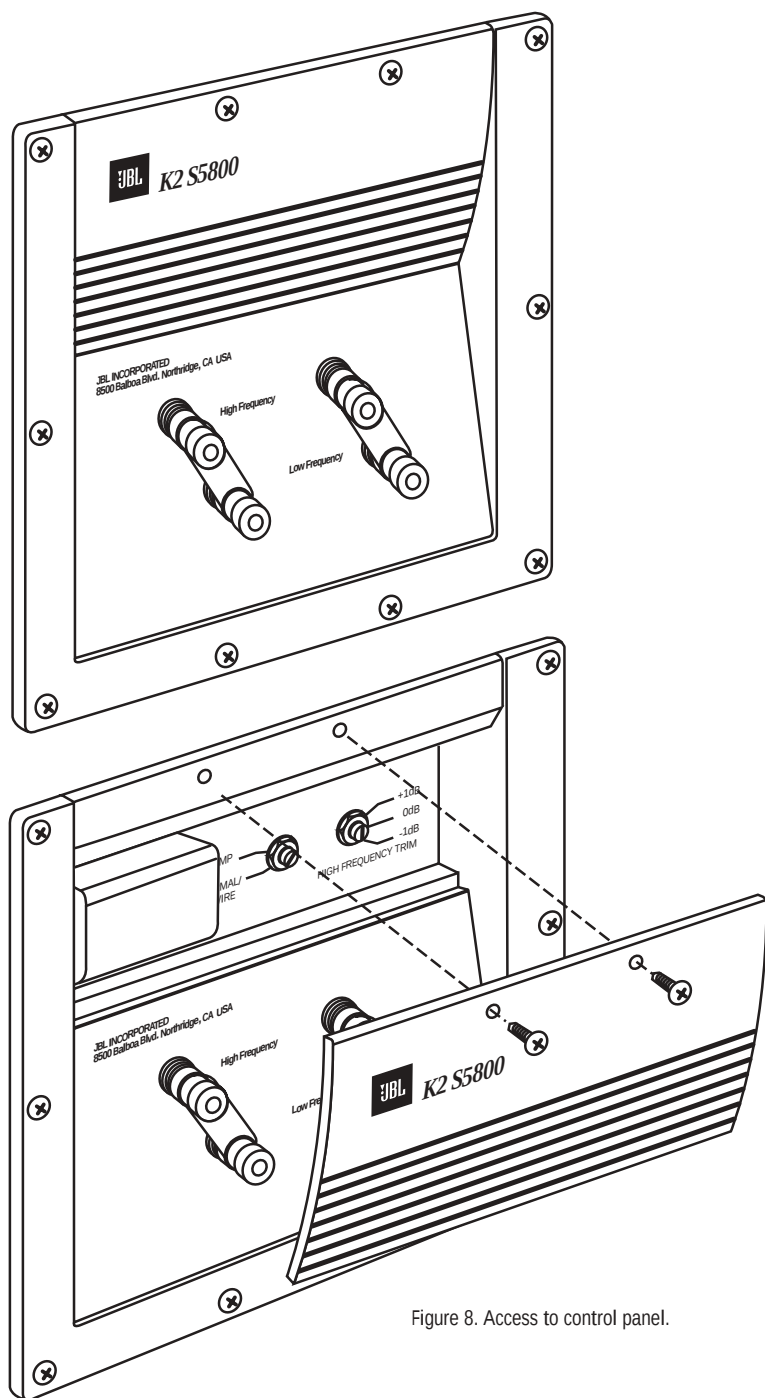


Figure 8. Access to control panel.

The K2 S5800 has two switches mounted on the network panel on the rear of the enclosure. The switches are covered by an access plate which is easily removed by unscrewing the two mounting screws. See Figure 8.

The **Network Mode (Bi-Amp)**

Switch ② (center) should be left in the Normal position except when bi-amplification with an external electronic crossover is to be employed. The necessary crossover slopes for the K2 S5800 are very specific and bi-amping the system should only be done using factory-approved electronics.

The **HF Trim Switch ③** (right) adjusts the high-frequency level over the range of approximately 1000Hz to 10kHz. The +1dB position gives the highest HF output and measures the most level. 0dB reduces the HF level by 1dB and the -1dB position reduces the HF level by an additional 1dB.

Although the range of these controls is rather small, each of them operate over a reasonably wide frequency range and thus have a noticeable effect on the overall tonal balance of the system. It is recommended that the system first be played with the switch in the middle position. This setting gives the most uniform measurements in a controlled environment. Of course, we are interested in producing the most pleasing sound in your environment with your choice of program material. It is, therefore, recommended that the **HF Trim Switch ③** be tested in its various settings on a variety of program material. Once you become familiar with their individual character, you should have no difficulty determining the setting which produces the most pleasing, natural sound in your room with your equipment.

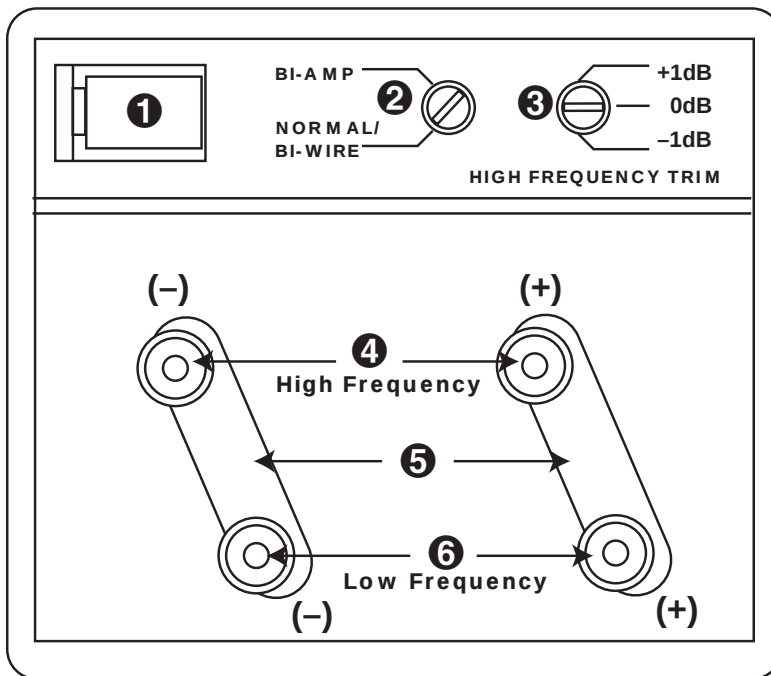


Figure 9. K2 S5800 controls and connections.

1 Bias Battery: The bias battery supplies constant DC bias to the crossover capacitors, eliminating crossover distortion at zero electric potential. Replace the test battery supplied with your system with a 9-volt, 006P rectangular battery as soon as possible. Thereafter, although the speaker will function without the battery, JBL recommends that you replace the battery every two years for best performance. Access the battery by unscrewing the cover. Make sure to observe proper polarity when installing the replacement battery.

2 Network Mode Switch: This switch should be left in the “Normal/Bi-Wire” position unless you are connecting the speaker in a bi-amp configuration using two power amplifiers and an external electronic crossover. Access the switch by unscrewing the battery cover. The switch may be adjusted using a flat-head screwdriver.

3 HF Trim Switch: This switch allows you to adjust the output of the high-frequency transducers to compensate for the acoustics of your room. The +1dB position increases the output, the 0dB position is a flat-level position, and the -1dB position decreases the output. Each position will affect the tonal balance over a wide frequency spectrum. Experiment by placing the switch in each position while listening to familiar program material and choose the position that suits your room acoustics and listening preferences. You may find that after a few months, once the transducers have settled in, that another adjustment is necessary. This is normal. Access the switch by unscrewing the battery cover. The switch may be adjusted using a flathead screwdriver.

4 Mid/High-Frequency Input Terminals: For bi-wire or bi-amp configurations, connect the speaker wires for the mid- and high-frequency ranges to these terminals.

5 Shorting Bars: Leave the shorting bars in place only if you are using the passive single-wire connection option described on page 15. Otherwise, remove the bars to prevent possible damage to the speakers or your electronics.

6 Low-Frequency Input Terminals: For bi-wire or bi-amp configurations, connect the speaker wires for the low-frequency range to these terminals.

SHORTING BARS

The K2 S5800 is shipped with shorting bars installed between its low-frequency and high-frequency terminals. Please see Figure 10. To prepare the K2 S5800 for bi-wire or bi-amp operation, these bars must be removed by completely unscrewing each binding post, removing the bars, and replacing the binding posts. Wires can then be connected to each set of terminals (see Figures 10 and 12).

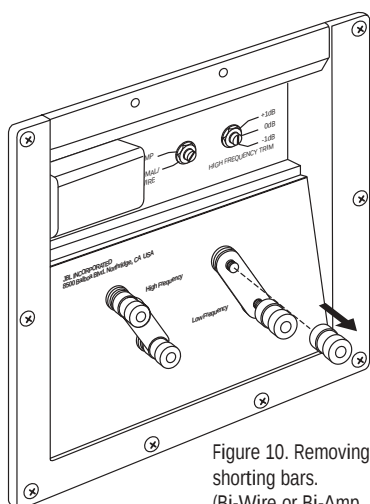


Figure 10. Removing shorting bars. (Bi-Wire or Bi-Amp Connection Method)

AMPLIFIER CONNECTIONS

IMPORTANT: Turn all amplifiers off before connecting or disconnecting *Project K2 S5800* 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 pre-amplifier inputs.

All connections between the amplifier(s) and the *Project K2 S5800* loudspeaker system are made at the terminals located on the back of the enclosure (see Figures 10 through 13). The left-hand terminals (black stripe) are negative, and the right-hand terminals (red stripe) are positive. These correspond to the negative and positive conductors in the speaker wire.

Each speaker wire contains two conductors, one of which will have a stripe, color markings, or a ridge.

Assign one of the two conductors as the negative conductor and the other as the positive conductor. 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. This will ensure that all components will work together (“in phase”). Connecting the speakers 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 terminals by several methods. The most positive connection is made by directly connecting clean, bare connectors (exposed by stripping the ends of the wire) to the terminal posts.

For this type of connection, loosen the knobs on the terminals and insert the exposed (bare) ends of each speaker wire into the hole exposed on the terminal shaft (+ to +, – to –) (see Figure 13). Refasten the knob on each terminal so that a snug connection is achieved. Do not apply excessive force and do not overtighten. To avoid a short circuit, trim off any excess wire that is not in contact with the binding post contact surfaces.

Project K2 S5800 terminals are also designed to accept spade or banana-type connectors which are fastened to the ends of the wires and, in turn, are attached to the terminal posts.

WIRING CONFIGURATIONS

As mentioned earlier, the *Project K2 S5800* speakers may be connected to the amplifier(s) by one of three methods: passive, bi-wire and bi-amp. Each method, described below, has its own advantages, and the *Project K2* loud-

speaker system will deliver superb performance with all methods.

Each speaker is shipped with external shorting bars in place (see Figure 10), connecting the upper and lower terminal posts on the left and right sides. These bars must remain in place for passive connections but must be removed for all bi-wire and bi-amp connections.

IMPORTANT: If the amplifiers are connected to the *Project K2 S5800* loudspeakers in the bi-wire or bi-amp mode with the shorting bars still on, the amplifier outputs will be shorted, which could result in costly amplifier damage when power is switched on.

PASSIVE CONNECTION METHOD

The passive method requires one amplifier and one set of wires. Connections are made to the lower terminals (one black, one red). Do not remove the shorting bars. Loosen the lower terminal caps. Connect the positive conductor to the right (red) terminal and the negative conductor to the left (black) terminal (see Figures 11 and 13). Refasten the terminal caps.

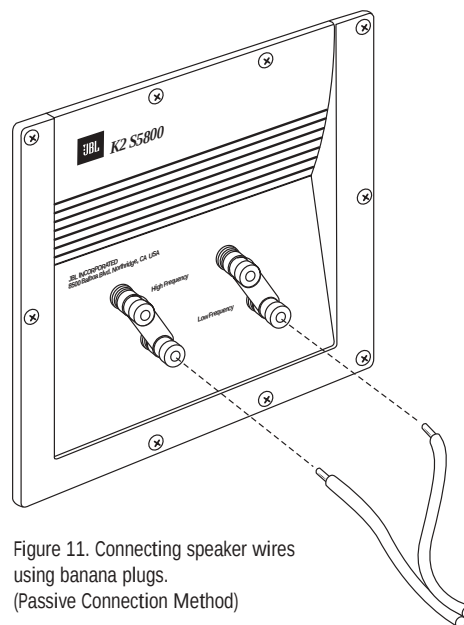


Figure 11. Connecting speaker wires using banana plugs. (Passive Connection Method)

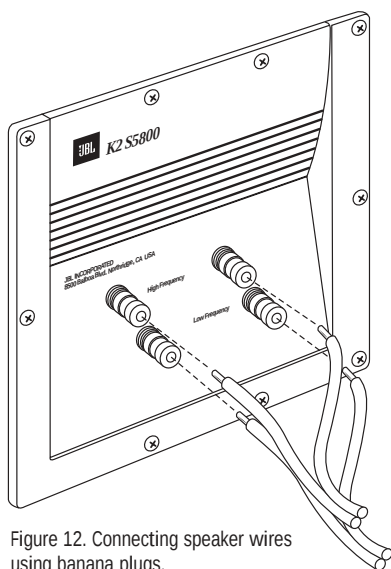


Figure 12. Connecting speaker wires using banana plugs.
(Bi-Wire or Bi-Amp Connection Method)

BI-WIRE CONNECTION METHOD

The bi-wire connection method requires one amplifier and two sets of speaker wires. By removing the shorting bars, connections may be made to the individual network sections using four conductors, one for each of the four terminals (see Figures 10, 12 and 13).

BI-AMP CONNECTION METHOD

The optimal method of powering the *Project K2* system is with two amplifiers, one for the low-frequency and one for the high-frequency unit, and a crossover network. Since each amplifier drives only one speaker, this method allows the user to select amplifiers with the desired sonic character for low and high frequencies (see Figures 10, 12 and 13).

Four identical amplifiers (or two dual channel units) may be used, although specialized low- and high-frequency amplifiers offer clear advantages. The *Project K2* specialist dealer can recommend the amplification that will best suit individual needs.

In all cases, the left and right amplifiers for each section must be identical. Make sure that the input sensitivity of the amplifier for each section is equal, or that input level controls are provided to maintain the proper low-to-mid/high balance. If two identical stereo amplifiers are used, one may be located near each loudspeaker and drive low- and high-frequency sections through short wire runs.

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

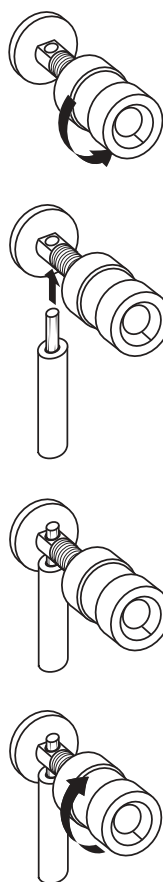


Figure 13. Connecting speaker wires using bare-wire method.

THE WOOFER GRILLE:

The grilles on the *Project K2 S5800* loudspeaker system have been designed for maximum acoustical transparency. For the most critical listening, however, JBL suggests removing the grilles. The grilles are connected by four pins inserted into four holes on the face of the cabinet.

To remove each grille, hold the grille edges with your fingers and gently pull the grille away. Do not use any tools to pry the grille off; this will damage the finish of the cabinet. To replace the grille, position the mounting pins over the holes and gently press until the grille meets the enclosure.

PROJECT K2 FINAL CHECKLIST

- Connect and plug in all other system electronics.
- Check all connections. If bi-amping or bi-wiring, make sure both shorting bars are removed.
- Make sure the controls on the crossover panel are correctly set.

The system is now ready for use. The *Project K2 S5800* speaker system is fully functional as soon as it is set up. The amplifier power should not exceed 300 watts (RMS). There may be some 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 with transducers of this caliber.

The *Project K2 S5800* loudspeaker system is sprayed in a polyurethane finish and requires no maintenance other than an occasional dusting with a soft, dry, lint-free cotton cloth.

The horns may also be wiped with a soft cloth. Treat the surface very carefully to avoid scratching the finish. To remove fingerprints and smudges, apply a small amount of ammonia-free window cleaner to the cloth and gently clean the surface.

Never use any abrasive cleaners or chemicals to clean the enclosure. If the enclosure becomes perceptibly scratched or otherwise damaged, consult a qualified furniture repair shop.

The grilles should never be washed in water, which might cause discoloration or sagging. The grilles may be cleaned using a vacuum cleaner with the suction set extremely low.

Should you wish to clean the woofer surfaces, use a soft, dry paint brush to carefully sweep the dust away. Never use a damp cloth.

JBL's unique Charge-Coupled Linear Definition system is used for the crossover network, in which a direct (DC) bias current is constantly applied to the capacitors in the network circuit to activate the elements, eliminating crossover distortion at zero electric potential.

The battery has a life of about two years. Even if the battery voltage drops, the network will continue to function. However, in order to maintain superior sound quality, we recommend that you test and change the battery once a year. Note that the battery may leak and damage the holder and other parts if it is left in the speaker for a long period after exceeding the suggested duration.

To access the battery, unscrew the battery cover at the top of the terminal board and remove it. Always use a 9V, rectangular 006P-type battery and install it with the proper polarity.

The battery included in the shipped system is for testing purposes only. We recommend that you replace it as soon as possible.

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 the *Project K2* specialist dealer for specific recommendations.

Project K2 S5800 loudspeakers are designed to provide years of trouble-free service.

If you are experiencing difficulties, we suggest you check these possibilities before contacting your *Project K2* specialist dealer for assistance.

IF THERE IS NO SOUND FROM ANY OF THE SPEAKERS:

- Check that the receiver/amplifier is on and a source is playing.
- Check all wires and connections between the receiver/amplifier and the speakers. Make sure all wires are connected, and are not frayed, cut or punctured. No wires or strands should be touching each other or the shorting bars connected to other terminals.
- Review proper operation of your receiver/amplifier.

IF THERE IS NO SOUND COMING FROM ONE SPEAKER:

- Check the “Balance” control on your receiver/processor.
- Check all wires and connections between the receiver/amplifier and the speakers. Make sure all wires are connected, and are not frayed, cut or punctured. No wires or strands should be touching each other or the shorting bars connected to other terminals.
- In digital surround sound modes, make sure that the receiver/processor is configured so that the speaker in question is enabled.

- Switch the speaker wires between the speaker with the problem and one that is working correctly. If the problem remains in the same speaker, then the fault is in the loudspeaker. In this event, consult your *Project K2 S5800* specialist dealer for assistance. If, however, the problem has moved to the other speaker, then the cause is in either a cable or an electronic component.

IF THE SYSTEM PLAYS AT LOW VOLUMES BUT SHUTS OFF AS VOLUME IS INCREASED:

- Check all wires and connections between the receiver/amplifier and the speakers. Make sure all wires are connected, and are not frayed, cut or punctured. No wires or strands should be touching each other or the shorting bars connected to other terminals.
- If more than one pair of main speakers is being used, check the minimum impedance requirements of your receiver/amplifier.

IF THERE IS LOW (OR NO) BASS OUTPUT:

- Make sure the connections to the left and right speaker terminals have the correct polarity.
- In digital surround modes, consider adding a powered subwoofer to play the LFE (low-frequency effects) channel of the program.

IF THE SPEAKERS SOUND QUALITATIVELY DIFFERENT IN AN INDEFINABLE WAY:

- Test the batteries and replace them if necessary.

NOTE: The batteries should be tested once a year in any event.

K2 S5800 SPECIFICATIONS

POWER HANDLING:	300W (RMS)**
FREQUENCY RESPONSE:	50Hz – 40kHz (–6dB)
LOW-FREQUENCY EXTENSION:	28Hz (–10dB)
SENSITIVITY:	95dB (2.83V/1m)
NOMINAL IMPEDANCE:	8 Ohms
CROSSOVER FREQUENCY:	800Hz, 10kHz
LOW-FREQUENCY DRIVERS:	Dual 12-inch (300mm) Kevlar-composite cone woofers (1200Fe)
HIGH-FREQUENCY DRIVER:	3-Inch (75mm) aluminum compression driver (435Al) in 1-1/2-inch (38mm) throat Bi-Radial horn
ULTRAHIGH-FREQUENCY DRIVER	1-Inch (25mm) pure-titanium compression driver (045Ti) in 0.35-inch (8.9mm) throat Bi-Radial horn
DIMENSIONS (H X W X D):	49" x 17" x 16-1/4" (16-3/4" with grille) 1245mm x 432mm x 413mm (425mm with grille)
WEIGHT:	185 lb (84kg) per speaker

JBL AND HARMAN INTERNATIONAL

JBL is part of the Harman International audio companies, a group with a common purpose: combining technology with a love of music to manufacture audio products that provide new levels of satisfaction, performance and value.

To promote diversity 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 the Harman compa-

nies, which includes 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.

As new audio concepts and technologies are pioneered, the partnership of JBL and Harman International guarantees that consumer and professional audio users everywhere will be able to enjoy their full range of benefits.

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** The maximum recommended amplifier power rating will ensure proper system headroom to allow for occasional peaks. We do not recommend sustained operation at these maximum power levels.

All features and specifications are subject to change without notice.

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