ALEXIA™

Alexia Owner's Manual

This manual was produced by the Wilson Audio Engineering and the Sales and Marketing Department. The information contained herein is subject to change without notice. Current Revision 1.8. If you are in need of a more recent manual, please contact your dealer.

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Section 1—In Your Room

Section 1.1—Room Acoustics

You are surely excited about setting up Alexia™ loudspeakers and doing some listening, but before you begin, we would like to discuss some of the important room acoustical information that will help you set up your loudspeakers properly.

Final Listening Room Setup (Voicing)

For a speaker system its size, the Alexia is unmatched in its ability to reproduce the musical event. It is truly state of the art. However, room acoustics and boundary interactions affect the sound of a loudspeaker to such a large degree that poor setup can seriously degrade your enjoyment of even the finest loudspeaker.

Therefore, we offer the following section, which will present some guidelines on room acoustics and their interactions with loudspeakers. While we will also outline some detailed suggestions on the setup of the Alexia, we strongly suggest that you have your local Wilson Audio dealer perform the final speaker "voicing" with you. Wilson dealers are specially trained in setting up Wilson loudspeakers and will ensure that you realize the full value of your purchase.

Section 1.2—Wilson Audio Setup Procedure (WASP)

Zone of Neutrality

The "Zone of Neutrality" is an area in your room where the speakers will sound most natural. This location is where the speakers interact the least with adjacent room boundaries. It is important to have a clear working space while determining the Zone of Neutrality.

The following is a simple method to locate the Zone of Neutrality within your listening environment:

1. Stand against the wall BEHIND the location where you intend to position Alexia. Speaking in a moderately loud voice and at a constant volume, project your voice out into the room. Your voice will have an overly heavy, "chesty" quality because of your proximity to the rear wall.

2. While speaking, slowly move out into the room, progressing in a direction parallel to the sidewall. It is helpful to have another listener seated in the listening position to assist you during this process. Listen to how your voice "frees up" from the added bass energy imparted by the rear wall boundary. Also notice that your voice is quite spatially diffuse (to your assistant, your voice will sound spatially large and difficult to localize) as you begin to ease away from the rear wall.

3. At some point during your progression forward into the room, you will observe a sonic transition in your voice; it will sound more tonally correct and less spatially diffuse (your assistant can now precisely localize the exact origin of your voice). When you hear this transition, you have entered the inner edge of the Zone of Neutrality. Place a piece of tape on the floor to mark this location. Although it will vary from room to room, the zone in most rooms begins between two and a half to three feet from the rear wall.

4. Continue to walk slowly away from the rear wall. After some distance, usually one to two feet past the first piece of tape, you will begin to hear your voice lose focus and appear to reflect (echo) in front of you. This is caused by the return of the room's boundary contribution; your voice is now interacting with the opposite wall. At the point where you begin to hear the reflected sound of your voice, you have reached the inner edge of the Zone of Neutrality. Place a piece of tape on the floor and mark this location. The distance between the "inner" and "outer" edge tape marks is usually between eight inches (for small, interactive rooms) and three feet (for large, more neutral rooms).

5. Now position yourself against the side wall perpendicular to the intended

speaker location. Stand between the two tape marks. Using the same procedure as above, begin moving into the room toward the opposite sidewall, progressing between the two pieces of tape. As above, listen for the point in the room where your voice transitions from bass-heavy and diffuse to neutral. Mark this point with tape. Continue your progression until there is an obvious interaction with the opposite wall in front of you and mark this point with tape. The four pieces of tape now form a rectangle that establishes the Zone of Neutrality for the loudspeaker located on that side of the room. Using the four marks as your guide, tape an outline to define the boundaries of the rectangle.

6. Repeat this process for each speaker location individually. These are your Zones of Neutrality, one for each channel.

Theoretically, the Zone of Neutrality for any room runs like a path, parallel to the walls all around the room. Adjacent to very large windows and open doors, the outer edge of the Zone of Neutrality moves closer to the wall and becomes wider. If you were to extend the inner and outer boundaries of the Zone for the sidewalls and the front wall (behind the speakers), they would intersect. After you complete this procedure for the other loudspeaker, you will now have two rectangles, one on the floor on either side of the room.

Section 1.3—Room Reflections

Note: The following section contains general information on room acoustics and loudspeaker/room interaction. The concepts outlined below are equally relevant when dealing with multi-channel audio or home theater. The careful application of these concepts, as you evaluate the acoustical characteristics of your own room configuration, will allow you to optimize the performance of Alexia.

Slap Echo

Probably the most obnoxious form of reflection is called “slap echo.” With slap-

echo, primarily midrange and high frequency sounds reflect off of two parallel hard surfaces. The sound literally reverberates back and forth until it is finally dissipated over time. You can test for slap echo in any room by clapping your hands sharply in the middle of the room and listening for the characteristic sound of the echo in the mid-range. Slap echo destroys the sound quality of a stereo system in two ways:

- It adds harshness to the upper midrange and treble by storing time-domain smearing energy.
- It destroys the delicate phase relationships, which help to establish an accurate soundstage.

Slap echo (see Figure 1) is a common acoustical problem in the typical domestic

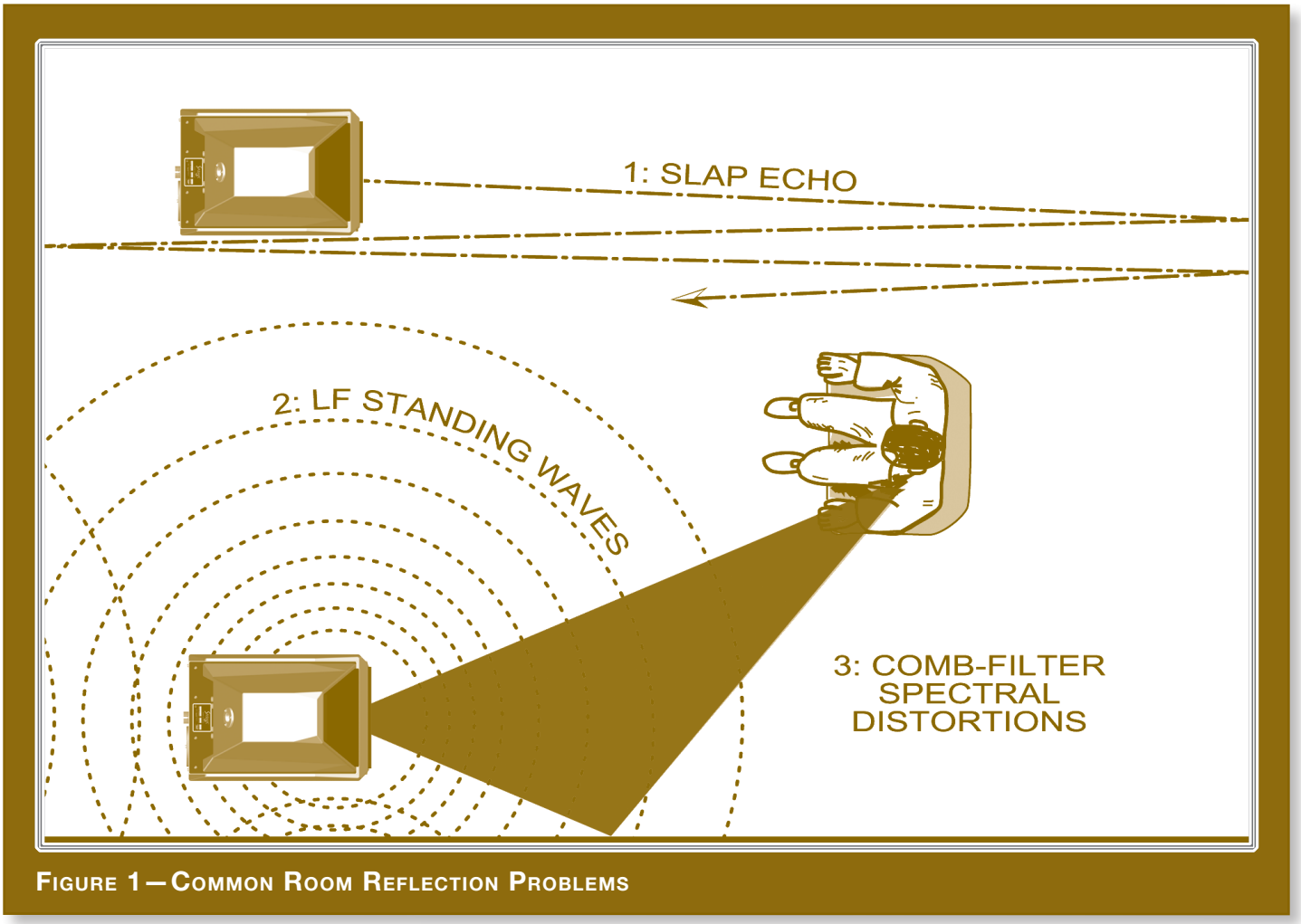

Figure 1—Common Room Reflection Problems

listening room because most of these rooms have walls with a hard, reflective nature, only occasionally interrupted by curtains, wall art, or drapes. The best (but least practical) solution to eliminate slap echo is nonparallel walls. This is because, rather than support slap-echo, nonparallel walls allow the sound to diffuse. This approach can be accounted for during the construction process. For existing rooms, slap echo can also be controlled entirely by the application of absorptive materials to the hard surfaces. These are absorptive materials that can be used to ameliorate slap echo:

- Pinta Acoustic Sonex®
- Air duct board
- Cork panels
- Large ceiling to floor drapes
- Carpeting to wall surfaces

In many domestic listening environments, heavy stuffed furnishings reduce slap echo somewhat. Unfortunately, their effectiveness is not predictable. Diffusers are sometimes also used to very good subjective effect, particularly in quite large rooms. Sound absorbent materials such as described above will alter the tonal characteristic of the room by making it sound "deader," less "bright and alive," and "quieter." These changes usually make the room more pleasant for conversation, but sometimes render it too dull in the high frequencies to be musically involving. Soundtrack effects will be more localized. However, over-damping the room can render reproduced sound that is lacking in musical involvement and "aliveness."

Diffusers, on the other hand, do not affect the tonal balance characteristic of the room as much. Placed properly, diffusers create a smoother and more open sound. Some diffusers, due to their construction, create narrow midrange peaks and suck-out the warmth region. Do not use diffusers on the wall behind the speakers or on the side-

walls directly beside the speakers. It is our experience that all of these room treatment devices should be used judiciously.

Standing Waves

Another type of reflection phenomenon is "standing waves." Standing waves cause the unnatural boosting or accentuation of certain frequencies, typically in the bass, to be found at certain discreet locations in the room. These locations differ according to room dimension and size. A room generating severe standing waves creates difficulty in setup. In these rooms, the speaker will sound radically different as it is moved around. The effects of standing waves on a loudspeaker's performance are primarily in the areas listed.

- Tonal balance
- Resolution of low-level detail
- Soundstaging

Standing waves are more difficult to correct than slap echo because they tend to occur at a lower frequency. Absorbent materials, such as Pinta Acoustic Sonex®, are ineffective at controlling reflections in the bass region. Moving speakers about slightly in the room is, for most people, their only control over standing waves. Sometimes a change of placement of as little as two or three inches can dramatically alter the tonal balance of a small system.

Fortunately, minor low frequency standing waves are well controlled by positioning ASC Tube Traps™ in the corners of the room. Very serious low frequency accentuation usually requires a custom-designed bass trap system.

Low frequency standing waves can be particularly troublesome in rooms constructed of concrete or brick. These materials trap the bass in the room unless it is allowed to leak out of the room through windows and doors.

In general, placement of the speaker in a corner will excite the maximal number of standing waves in a room and is to be avoided for most direct radiator, full-range loudspeaker systems. Some benefit is achieved by placing the stereo pair of loudspeakers slightly asymmetrically in the listening room. This is so the standing waves caused by the distance between one speaker and its adjacent walls and floors are not the same as the standing wave frequencies excited by the dimensions in the other channel.

Comb Filter Effect

The "comb filter" effect is a special type of standing wave noticeable primarily at higher frequencies and shorter wavelengths.

Acoustical comb filtering occurs when sound from a single source, such as a loudspeaker, is directed toward a microphone or listener from a distance. The first sound to reach the microphone is the direct sound, followed by a delayed, reflected sound. At certain frequencies, cancellation occurs because the reflected sound lags in phase relative to the direct sound. This cancellation is most apparent where the two frequencies are 180 degrees out of phase. Further, there is augmentation at other frequencies where the direct and the reflected sounds arrive in phase. Because it is a function of wavelength, the comb filter effect will notch out portions of the audio spectrum at linearly spaced intervals. Subjectively, comb filter effect evidences itself as follows:

- Added roughness to the sound
- Reduction of harmonic richness
- Smearing of lateral soundstage image focus and placement

Comb filter effects are often caused by side wall reflections. They are best controlled by very careful speaker placement and by the judicious placement of Pinta Acoustic Sonex® or air duct panels applied to that part of the wall where the reflection occurs.

Section 1.4—Resonances

Resonance in listening rooms is generally caused by two sources:

- Structures within the listening room.
- The volume of air itself within the listening room.

Structural Resonance

Structural resonances are familiar to most people as buzzes and rattles, but this type of resonance usually only occurs at extremely high volume levels and is usually masked by the music. In many wood frame rooms the most common type of structural resonance problem is "booming" of walls and floors. You can test for these very easily by tapping the wall with the palm of your hand or stomping on the floor. Most rooms exhibit mid-bass "boom" when struck. The loudspeaker playing in the room also excites these resonances. To give you an idea of what the perfect wall would sound like, imagine rapping your hand against the side of a mountain. Structural wall resonances generally occur in the low to mid-bass frequencies and add a false fullness to the tonal balance. They, too, are more prominent at louder levels, but their contribution to the sound of the speaker is more progressive. Rattling windows, picture frames, lamp shades, etc., can generally be silenced with small pieces of caulk or with blocks of felt. However, short of actually adding additional layers of sheet rock to flimsy walls, there is little that can be done to eliminate wall resonances.

Volume Resonance

The physical dimensions and volume of air in a room will also support standing wave modes and resonances at frequencies determined by the size of that room. Larger rooms will resonate at a lower frequency and have more complex (better) modal distributions than will smaller rooms. Volume resonances, wall panel resonances, and low

frequency standing waves combine to form a low frequency coloration in the sound. At its worst, it is a grossly exaggerated fullness, which tends to obscure detail and distort the natural tonal balance of the speaker system.

Occasionally, however, there is just enough resonance to give a little added warmth to the sound—an addition some listeners prefer. Careful placement of loudspeakers in the room can dramatically reduce the speakers' destructive interaction with low frequency modes. ASC Tube Traps™ are effective in reducing some of this low frequency room coloration. Custom designed bass traps, such as perforated Helmholtz resonators, provide the greatest degree of low frequency control.

Section 1.5—Your Room

Room Shapes

Standing waves are pressure waves propagated by the interaction of sound and opposing parallel walls. This interaction creates patterns of low and high acoustical pressure zones that accentuate and attenuate particular frequencies. Those frequencies are dependent on room size and dimension.

There are three basic shapes for most rooms: square, rectangular, and L-shaped (see Figure 2).

A perfectly square room is the most difficult room in which to set up speakers. By virtue of its shape, a square room is the perfect medium for building and sustaining standing waves. These rooms heavily influence the music played by loudspeakers, greatly diminishing the listening experience.

Long, narrow, rectangular rooms also pose their own special acoustical problems for speaker setup. They have the ability to create several standing wave nodes, which will have different standing wave frequency exaggerations depending on where you

are sitting. Additionally, these long rooms are often quite lean in the bass near the center of the room. Rectangular rooms are still preferred to square rooms because, by having two sets of dissimilar length walls, standing waves are not as strongly reinforced and will dissipate more quickly than in a square room. In these rooms, the preferred speaker position for spatial placement and midrange resolution would be on the longer walls. Bass response would be reinforced by speaker placement on the short walls.

In many cases, L-shaped rooms (See Figure 2) offer the best environment for speaker setup. Ideally, speakers should be set up along the primary (longest) leg of the room. They should fire from the end of the leg (short wall) toward the L, or they should be along the longest wall. In this way, both speakers are firing the same distance to the back wall. The asymmetry of the walls in L-

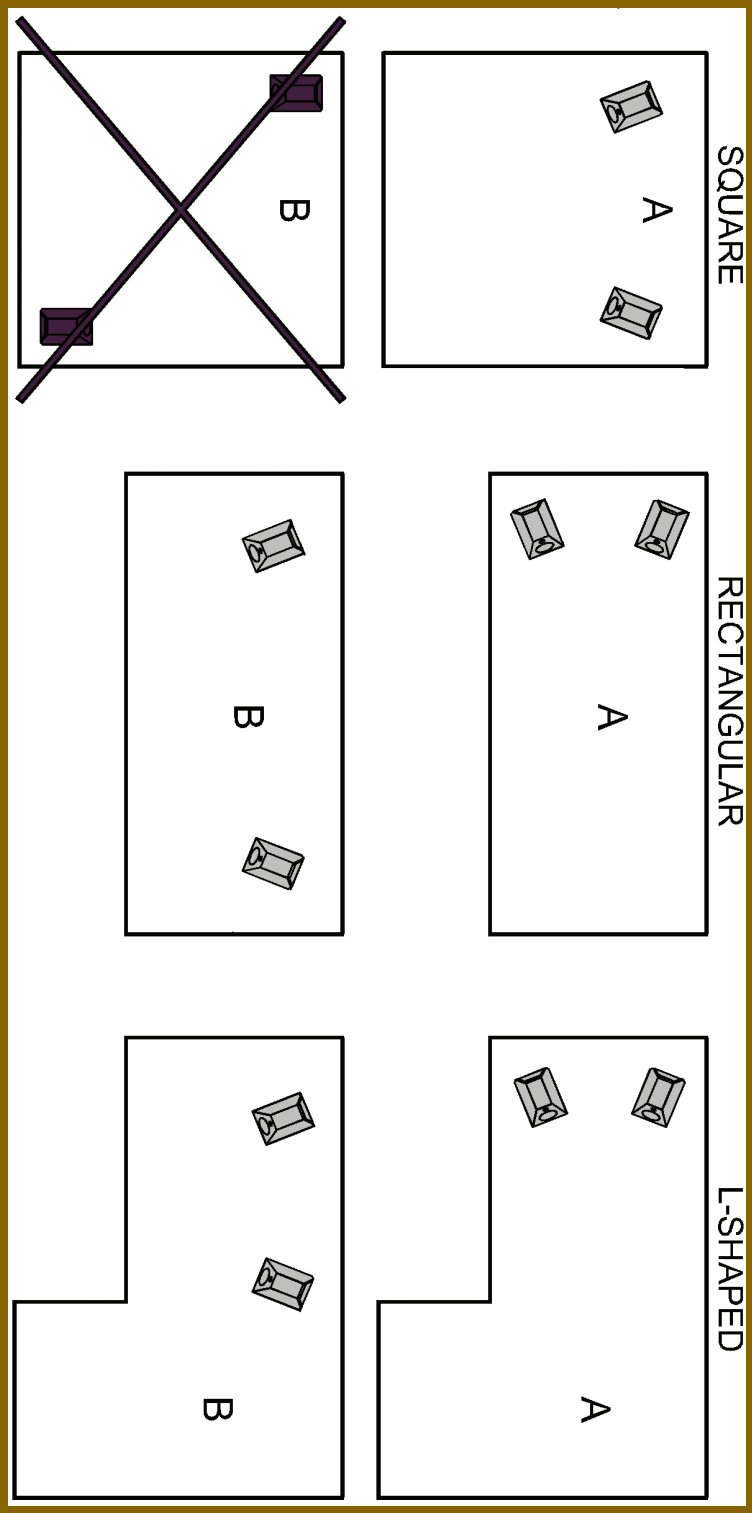

FIGURE 2—POSSIBLE LOUDSPEAKER PLACEMENT WITHIN VARIOUS ROOM SHAPES

shaped rooms resists the buildup of standing waves (see Figure 2).

Alexia In A Dedicated Home Theater

Home theaters can be organized many different ways. Some use rows of couches. Others use rows of multiple chairs.

In addition to watching movies, most users want to listen to two-channel music at the highest quality possible. It is desirable, therefore, to choose a single optimum seating position in a home theater and build the rest of the seating positions around this position.

If your optimum position is located on a couch, you should center the loudspeakers on the center position of the couch.

If the seating area consists of multiple rows of chairs, the second row should be optimized for the best sound quality. Odd numbers of chairs arranged in rows work best as this will allow a single chair to be positioned in the center. This approach will also provide the best overall sound for the greatest number of seats.

Speaker Placement Versus Listening Position

The location of your listening position is as important as the careful setup of Alexia speakers. The listening position should ideally be no more than 1.1 to 1.25 times the distance between the tweeters on each speaker. Therefore, in a long, rectangular room of 12′ x 18′, if the speaker tweeters are going to be 9′ apart, you should be sitting 9′11″ to 11′3″ from the speaker. This would be more than halfway down the long axis of the room.

Many people place the speakers on one end and sit at the other end of the room. This approach will not yield the finest sound. Carefully consider your listening position. Our experience has shown that any listening position that places your head closer

than 14″ from a room boundary will diminish the sonic results of your listening. Sitting directly in the center of the room will noticeably reduce the perception of low frequencies.

Decide where you want your favorite listening position to be. Please remember that Alexia will fill almost any room with the most beautiful sound available. Because the propagation delay is adjustable on the Alexia, if you take care in placing your new speakers, you will optimize Alexia's performance in your room.

Speaker Orientation

Speaker placement and orientation are two of the most important considerations in obtaining superior sound. The first thing you need to do is eliminate the sidewalls as a sonic influence in your system. Speakers placed too close to the sidewalls will suffer from a strong primary reflection. This can cause out-of-phase cancellations, or comb filtering, which will cancel some frequencies and change the tonal balance of the music. The Wilson Audio Setup Procedure (Section 1.2) is the best method with which to position your loudspeakers. Start with the speakers about 18″ from each wall and, if you need to move them relative to the side wall, move them away from the wall, not closer.

A very important aspect of speaker placement is how far from the back wall to place the speakers. The closer a loudspeaker is to the back wall, the more pronounced the low bass energy and centering of the image will be. However, this comes at a definite reduction in stage size and bloom as well as a deterioration of upper bass quality. You must find the proper balance of these two factors, but remember, if you are partial to bass response or air and bloom, do not overcompensate your adjustments to maximize these effects. Overcompensated systems are sometimes pleasing in the short-term, but long-term satisfaction is always achieved through proper balance.

The Alexia is designed for maximum phase coherence and pulse replication accuracy when each speaker is aimed directly at the listener or microphone. Thus, Alexia should be "toed in." In other words, the listener, when seated in the listening position looking forward with his/her head in a rested position, should just barely see through the gap created by the woofer blade and the lower side of the Upper Array. Alexia. Toeing in the speakers provides meaningful improvements in resolution of low-level detail in the midrange as well as appreciable improvements in soundstaging performance.

Summary

In summary, for optimal tonal balance accuracy, resolution of low level detail, and soundstaging performance, the Alexia should be positioned as outlined in this section. Ideally, the speakers should not be positioned too far from the listener if maximum resolution of low-level detail is required. If possible, the speakers should be positioned out into the room, slightly asymmetrically vis-a-vis the side and rear walls. The speakers should be "toed in" toward the listener, preferably so that the listener, at his seated position, can barely see the surface of the inner side of the Alexia as he/she faces the speaker. It is recommended that a distance of two to three feet, and possibly more, be maintained between the Alexia and the rear walls and that a distance of at least two feet be maintained between the front panel of the Alexia and reflective side walls. Depending on the room, judicious use of sound absorbent materials will reduce the space requirement.

By following the guidelines in this manual, your new Alexia loudspeakers can provide you with a lifetime of pure music reproduction.

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Section 2—Uncrating Alexia

Note: You will have two Upper Array enclosures as well as two Woofer Module enclosures to unpack. The two modules will need to be separated into right and left channels. Clear out two spaces, one for your left and one for your right channels. Place the ODD numbered modules in the LEFT channel section and the EVEN in the RIGHT channel position.

Section 2.1—Uncrating the Alexia

Initial Check

The Alexia is shipped in three wooden crates. Upon receiving these crates, please check their condition. If any of the crates are damaged, please report it to the shipping company immediately for insurance verification.

The following items are recommended for this procedure:

- Electric Screwdriver
- Phillips head drive bit
- Masking tape (for use in speaker setup)

Uncrating the Woofer Module

A minimum of two strong adults is required to set up the Alexia. Locate the two largest crates labeled "Woofer Module." These contain the woofer enclosures and are the first components of the system to unpack.

1. With the crate lid facing up, unscrew the wood screws securing the lid. Remove the lid.

2. Carefully rotate the crate upright so that the Woofer Module is now vertical. With the Woofer Module's bottom toward the floor, reach in and gently roll the Woofer Module out of the crate, carefully, so as not to hit the Woofer Module on the crate and scratch the paint.

3. Place the Woofer Module with an odd serial number on the left side of the

room and the Woofer Module with an even serial number on the right side of the room.

Note: These two woofer enclosures are very heavy and care should be taken to prevent injury. Roll the Woofer Module with drivers facing forward for the best stability.

Uncrating the Upper Array

The Upper Arrays are contained in a single crate. Unpack the modules using the following procedure:

1. With the crate lid facing up, unscrew the wood screws securing the lid. Remove the lid.

2. The Upper Array crate contains the owner's manual and tool kit. Remove these.

3. Make sure the thumb bolt that secures the Tweeter is tight before moving.

4. When removing the upper modules, take care so as not to hit the modules on the crate and scratch the paint. Using the small shelf on the rear of the module, tilt it so there is access to the bottom side. Slide the other hand under the Upper Array for support, and carefully lift the enclosure out of the crate.

5. The cloth grilles are attached to the modules. Detach the grilles from the module and remove the protective plastic covering the grill.

6. Place the Upper Array with an odd serial number on the left side of the room and the Upper Array with an even serial number on the right side of the room.

Section 2.2—Crate Content Checklist

Now that you have unpacked your Alexias, you can inventory all the additional

items in the crates.

1 - Owner's Manual

1 - Warranty Registration

2 - sets of three grills, Pin Style Grilles (1 set per enclosure)

4 - "AA" Spikes

2 - #2 Spikes

2 - #3 Spikes

2 - #4 Spikes

1 - 1/2" Nut Driver

1 - Polishing Cloth

8 - Woofer Module Spike assembly (with conical diode)

8 - Aluminum Disk Spike Floor Protectors

1 - Allen Driver Handle

1 - 3/32" Allen Insert

1 - 5/32 Allen Insert

1 - 1/8" Allen Insert

1 - 7/16" Combination Wrench

1 - 9/16" Combination Wrench

1 - Caster Wrench

1 - 3/8" Allen Wrench

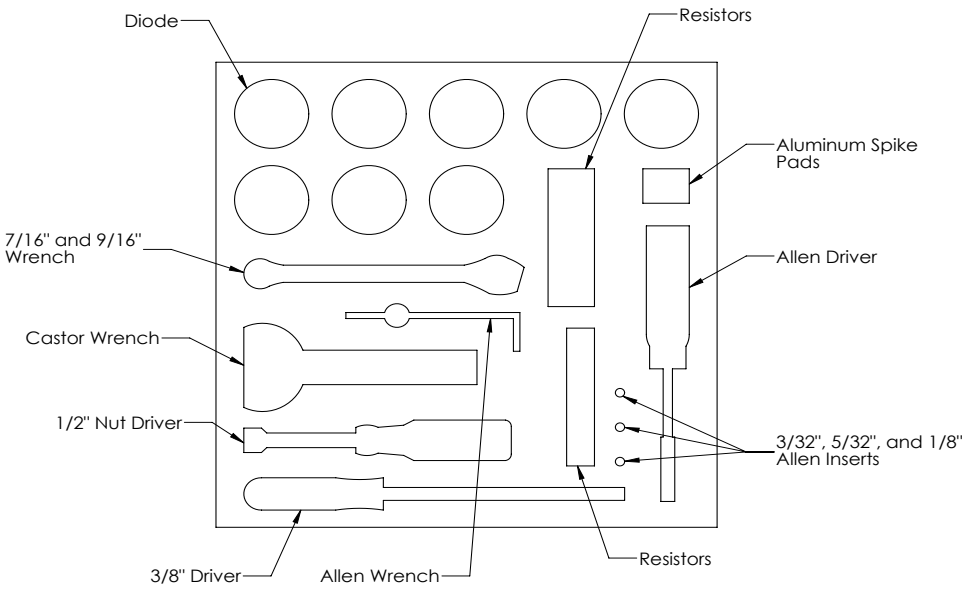
1 - 3/16" L-shaped Allen Wrench

2 - 9.0 Ohm Resistors

2 - 5.1 Ohm Resistors

Note: After set up of the system, keep the shipping crates in case of future shipping needs.

Alexia Tool Kit



Alexia Spike Kit

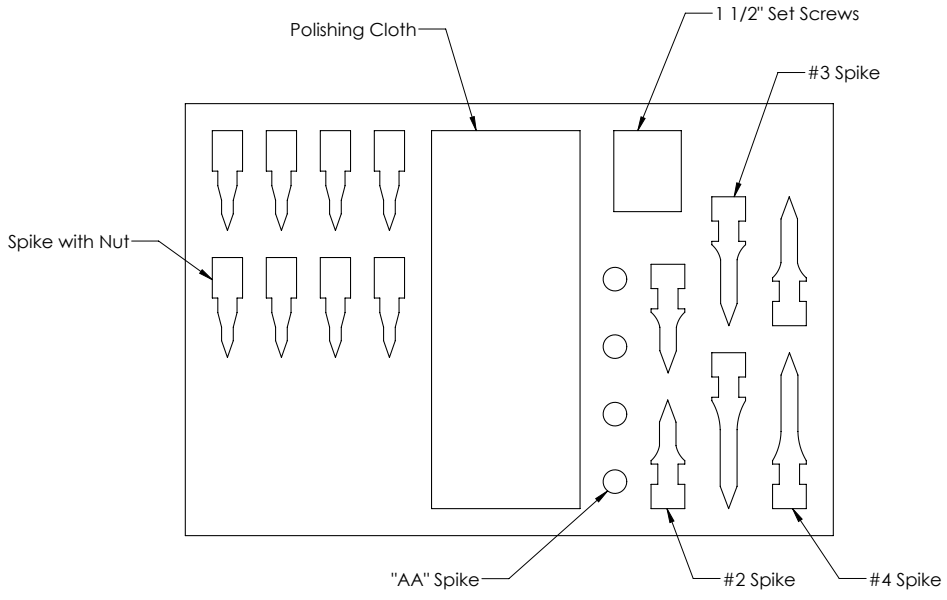


FIGURE 3—TOOL KITS

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Section 3—Initial Setup

Note: Before setting up the Alexia, study carefully Section 1, "In Your Room." It provides valuable information on determining the ideal room location for your speakers.

Section 3.1—Initial Assembly

Preparation

You will need the following items:

- Supplied hardware kit
- Tape measure
- Propagation Delay Correction Tables (Section 8)
- Known listening position
- Masking Tape

Take a moment to familiarize yourself with the top of the Woofer Module. A complete set of Propagation Delay Correction Tables is located in Section 8.

Upper Array Assembly

The Upper Array uses the combination of a captive spike or the addition of one of three different length accessory spikes installed into the bottom of its enclosure. The spikes rotate the Upper Array to a scribed position as a part of the Alexia's propaga-

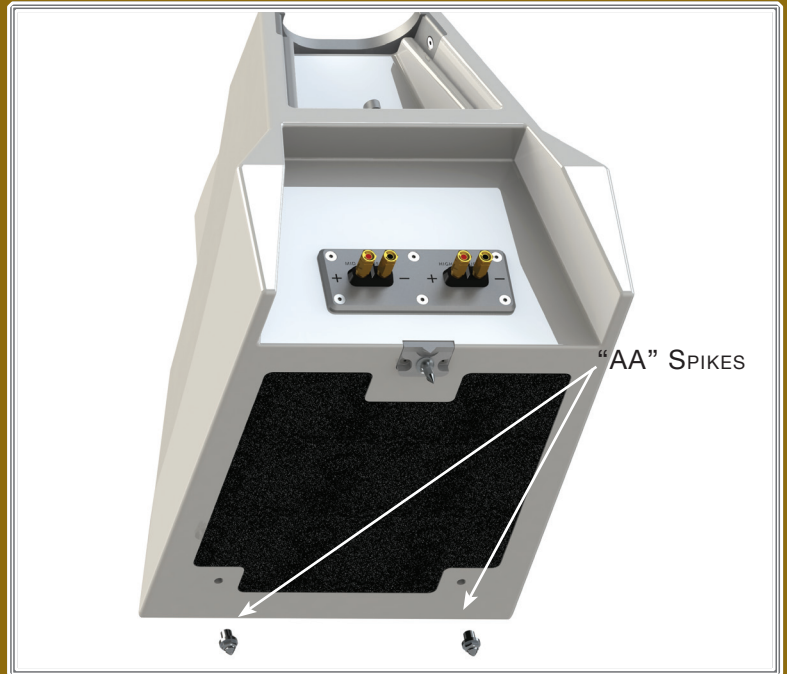


Figure 4—Install "AA" spikes in front. Install appropriate alignment spike in the rear of Upper Array.

tion delay adjustment. The spike also provides proper coupling of the Upper Array to the Woofer Module. Shorter "AA" spikes are always installed in the front two positions (the threaded holes located near the bottom front of the enclosure). The spike-type is stamped in the round top of the spike. The two "AA" spikes screw into the Upper Array as shown in Figure 4. The spikes should be screwed in all the way, until they are hand tight. Do not over tighten spikes.

Section 3.2—Alexia Propagation Delay Adjustment

Room Setup

As indicated in Figure 6, the Alexia system allows for different listening distances (away from the speakers) and listening ear heights (measured distances from the floor to your ear). For each distance/ear height combination there is a unique alignment geometry.

To make correct in-home set up of the Alexia possible without test equipment, Wilson Audio has measured the correct

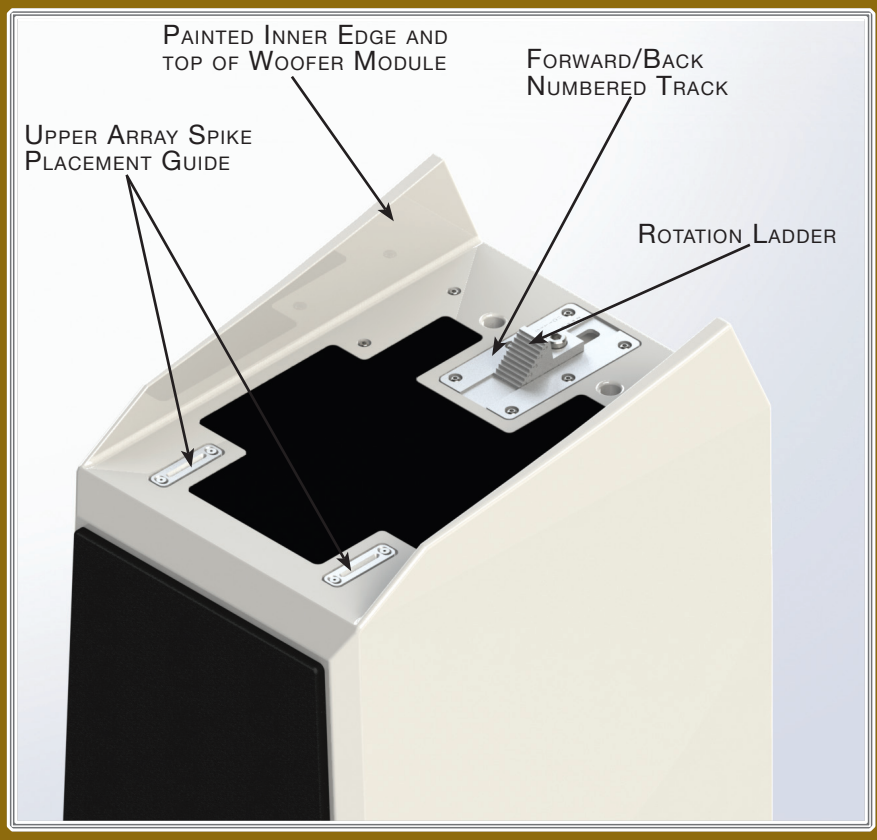


Figure 5—Top of the Woofer Module, with spike guides and rear spike receptacle.

geometric time domain alignment for different distance/ear height combinations. This information is provided in the Propagation delay Tables in Section 8. By measuring the ear height and the distance from the speaker to the listening position, you will be able to align the system for your listening position.

Alignment Procedure

Locate the Alignment tables in Section 8. These tables contain critical information that will guide you to position the Upper Arrays for optimized propagation delay adjustment.

The rear of the Upper Array assembly rests on a specific step in the Alignment Block. The alignment tables also contains information on the front-to-back alignment of the Upper Array. The position of the Upper Array is facilitated by the Alignment Block

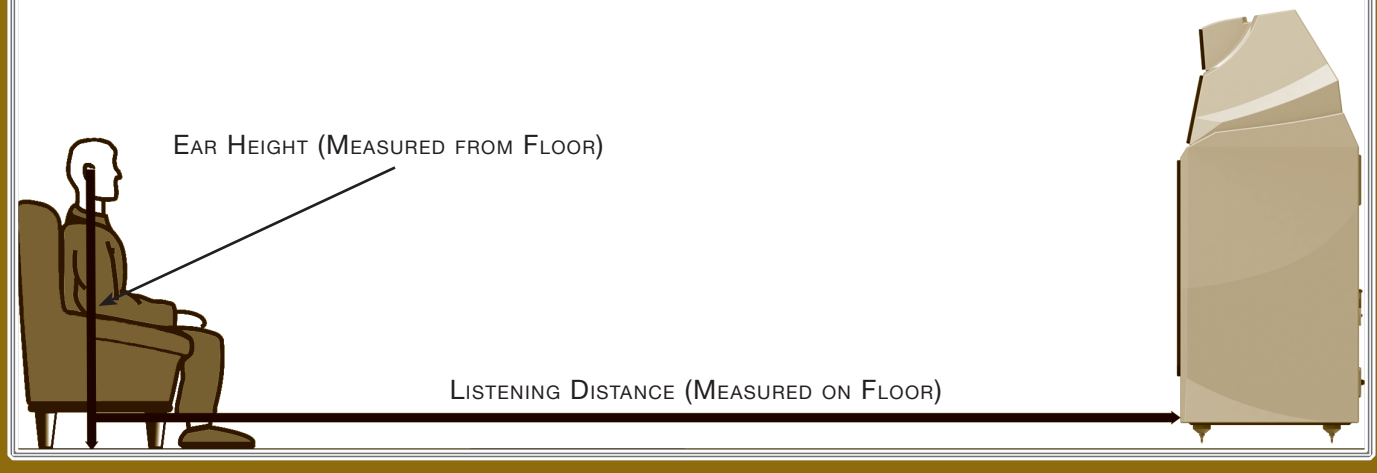


Figure 6—Measure Listening Distance and Ear Height.

steps (rotation) as well as front-to-back—the position of the Alignment Block. The position is designated by the engraved numbers in the Alignment Block mounting plate. Position the Alignment Block by aligning the rear of the Alignment Block to the number engraved on the plate as indicated in the chart in Section 8. There are also four spike configurations, the use of which are determined by the distance/ear relationship of the installation. The three configurations are: no spike, or either a number 1, 2, or 3 spike. The table in Section 8 also contains information on the appropriate length spike to be used in the rear of the Upper Array.

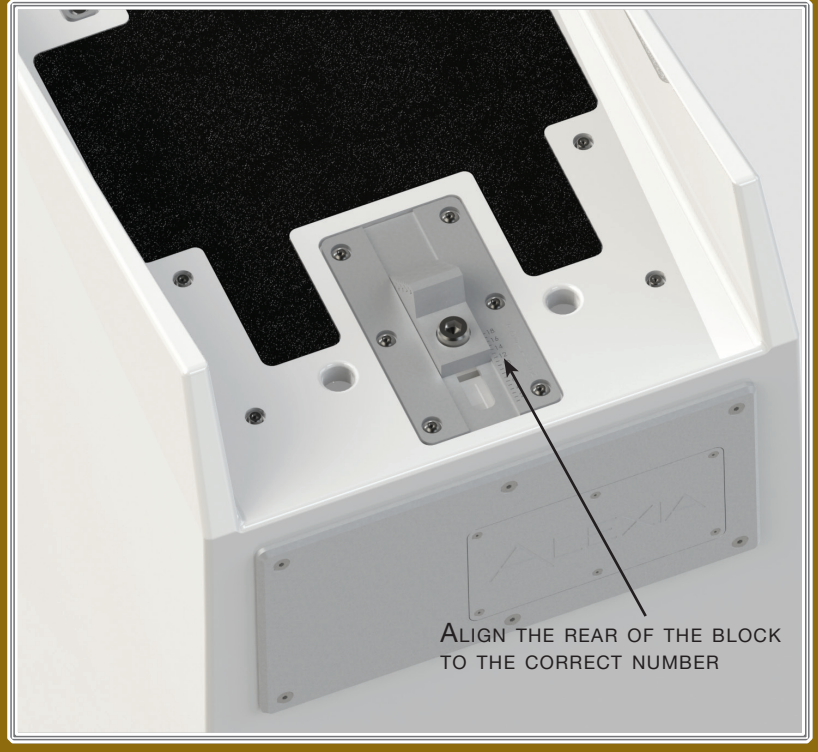


FIGURE 7—SLIDE THE ALIGNMENT BLOCK TO ITS PROPER POSITION

The Tweeter module's upper plate features detents that correspond to a spike built into the front of the upper cross member located above the tweeter module (see Figure 7), the specific location of which determines the propagation delay position of the tweeter module within the Upper Array. The alignment plate contains numbered indents. The alignment tables in Section 8 contain the information for positioning the tweeter module in the array, determined by the indent in which the cross member's spike rests.

Determine the alignment of each Upper Array and the Tweeter Module as follows:

1. Repeat each step of this procedure on the left and right channels simultane-

ously.

2. Remove the Propagation Delay Tables from Section 8 in this booklet and place them close by for easy reference. Propagation Delay Tables are also available on Wilson Audio APP, which is available on iTunes.

3. Make sure that you are in your intended listening position.

4. While sitting, have someone measure your ear height from the floor directly below your ear canal. You should be relaxed in your chair, as you would be when listening to music (see Figure 7).

5. Now measure the distance (on the floor) from the point on the floor below your ear to the base of the loudspeaker, as shown in Figure 6.

6. Refer to the Propagation Delay Tables (Section 8) and locate the corresponding ear height for each module. There are four charts for the Upper Array. The first: "Alexia Upper Array Spike Length" is a table determining the rear spike length. The second is the table: "Alexia Upper Array Alignment Block Position" determining the blocks front-to-back location (see Figure 7). The third table: "Alexia Upper Array Alignment Block Step" specifies the step on which the rear spike will rest (see Figure 7). The

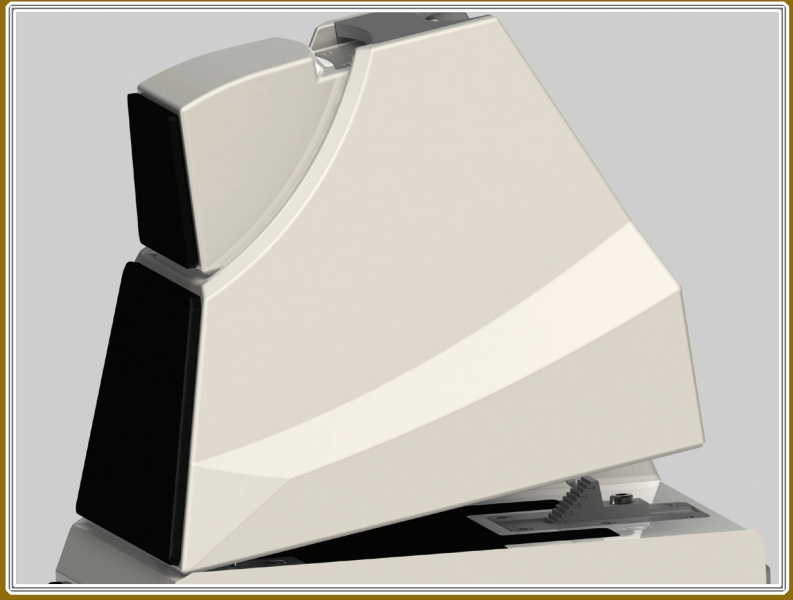


Figure 8—Position Rear Spike of the Upper Array into the Proper Block Step

fourth table: "Tweeter Module Detent Position" specifies the position of the bridge spike into the detent on the top of the tweeter module (see Figure 7).

7. Make a mark on the chart Number 1 "Alexia Upper Array Spike Length" indicating the proper rear spike for this module as determined by the ear height and distance from listening position.

Note: The shortest spikes (labeled AA) are always used at the front of the Upper Array.

8. Make a mark on the second chart labeled "Alexia Upper Array Alignment Block Step Position" indicating the block location for that module. Set this information aside as you will refer to it in the next section. (See Figure 7.)

9. Make a mark on the third chart labeled "Alexia Upper Array Alignment Block Step" indicating Upper Array spike's resting position on the alignment block. Set this information aside as you will refer to it in the next section. (See Figure 7.)

10. Refer to Table Number 4 labeled "Alexia Tweeter Detent Location." This table indicates the detent location in which the cross member spike rests (see Figure 9).

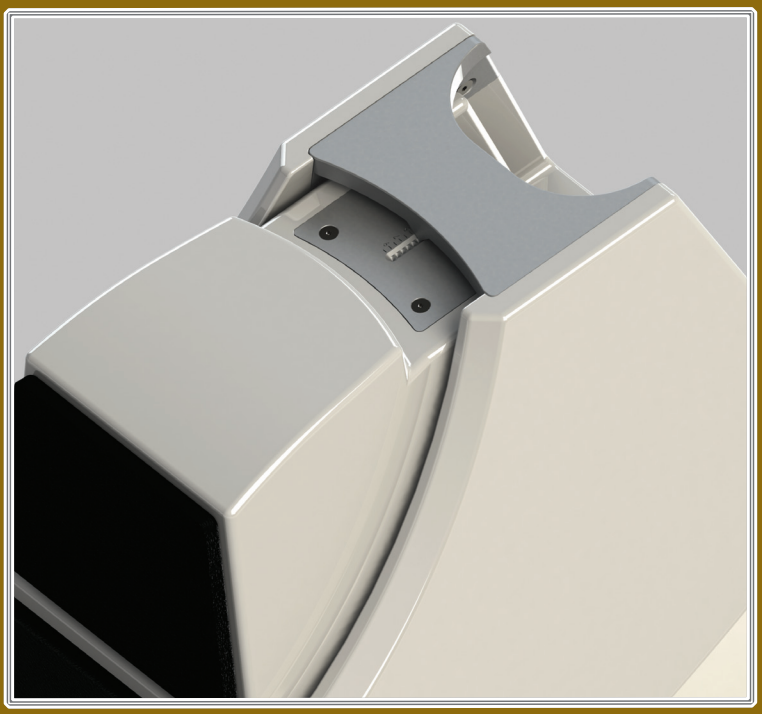


Figure 9—Tweeter Bridge Spike Position in the Propagation Delay Detent

Section 3.3—Mounting the Upper Array

Materials Required:

- Correct spikes for the modules.

- The pages from Section 8 front-to-back location of each module, along with the use of the proper length of rear spike of the upper modules. Refer to the Alexia Propagation delay Tables and the procedure in the previous section to determine the correct Aspherical Propagation delay spikes as necessary,

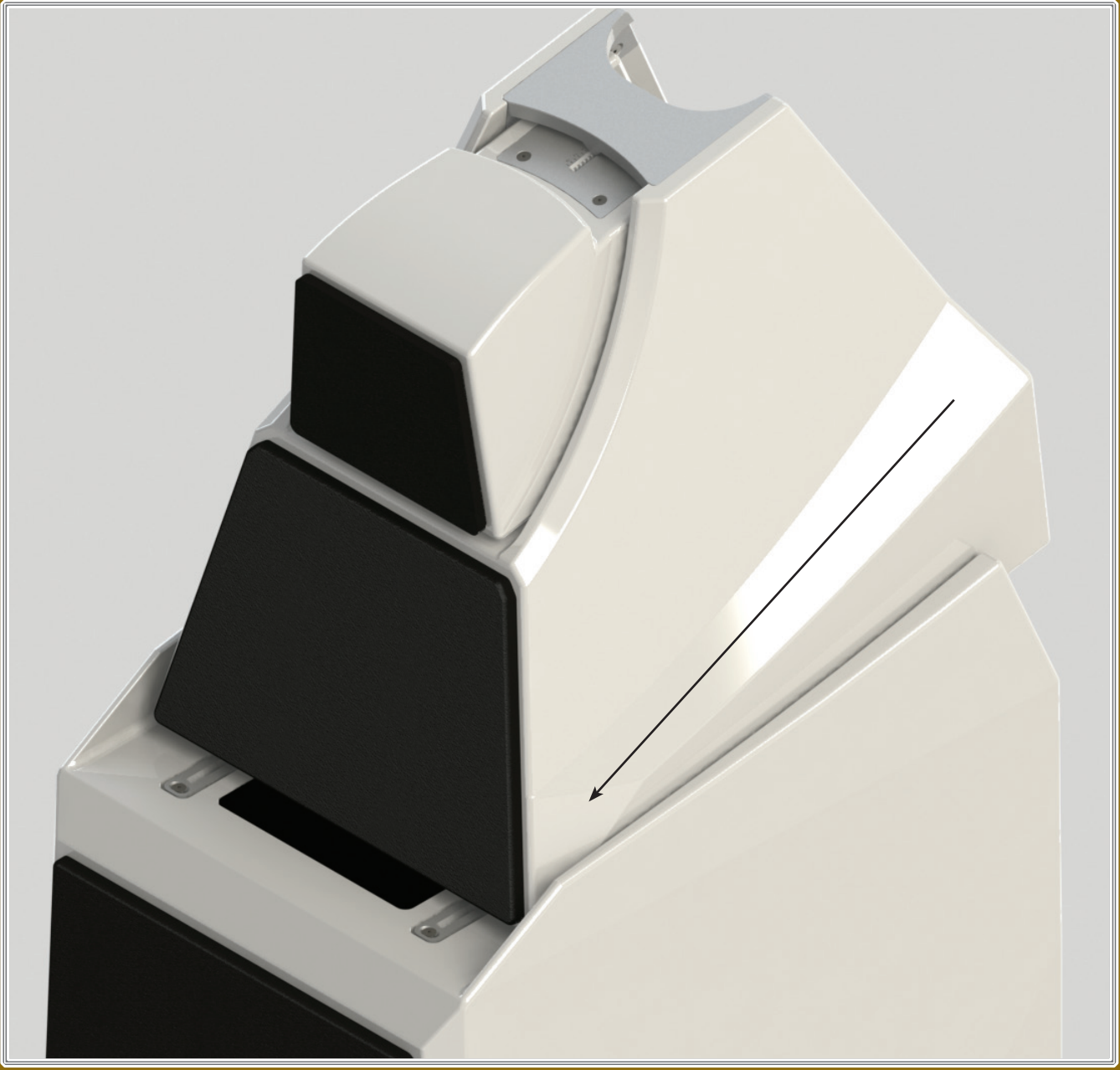


Figure 10—Slide the Upper Array's front spikes along the guides in the top of the Woofer Module, keeping the rear of the Upper Array elevated to avoid scratching the Woofer Module.

the Alignment Block position, and the proper step location of the step.

Install the Upper Array As Follows:

1. Install the front pair of short (AA length) spikes into the bottom of each module (see Figure 7).

2. Refer to the table labeled "Alexia Upper Array Spike Length" and install the appropriate rear spike if necessary.

3. Refer to table labeled "Alexia Upper Array Alignment Block Step Position." Using the rear edge of the Alignment Block as the guide, align the block to the proper front-to-back setting for the Upper Array. (Figure 7). Once the block is in its proper position, lock it down using the 3/8" Allen wrench.

4. Refer to the table labeled "Alexia Upper Array Alignment Block Step" Block Position table. With the front spikes pointing down, carefully lower the Upper Array between the alignment wings and set it on top of the woofer enclosure (see Figure 10). There are alignment tracks that accommodate the spikes and guide the Upper Array toward its appropriate resting place. Rest the rear spike on the appropriate step on the ladder.

Figure 11—Tighten thumb bolt to secure the Tweeter Module.

NOTE: Take caution not to scratch the painted surface with the alignment spike as you install the Upper Array.

Section 3.4—Tweeter Module Propagation Delay

Refer to Table Number 4 labeled "Alexia Tweeter Spike Detent Location." Loosen the oval bolt on the rear of the tweeter module enough that it can freely move front-to-back.

5. Locate the number on the plate on the upper plane of the tweeter that corresponds to the detent indicated in the table (see Figure 9).

6. Slide the tweeter such that the downward pointing spike of the Array bridge aligns with the appropriate numbered detent.

7. Retighten the oval thumb bolt, ensuring that the spike rests properly in its appropriate detent (see Figures 9 and 11).

Figure 12—Connect the umbilicals to the two Upper Array inputs, observing correct polarity.

Section 3.5—Umbilical Connections

The correct connection of the two umbilicals to the Upper Array is as follows (see Figure 12):

1. Locate the connection labeled "Mid Frequency."

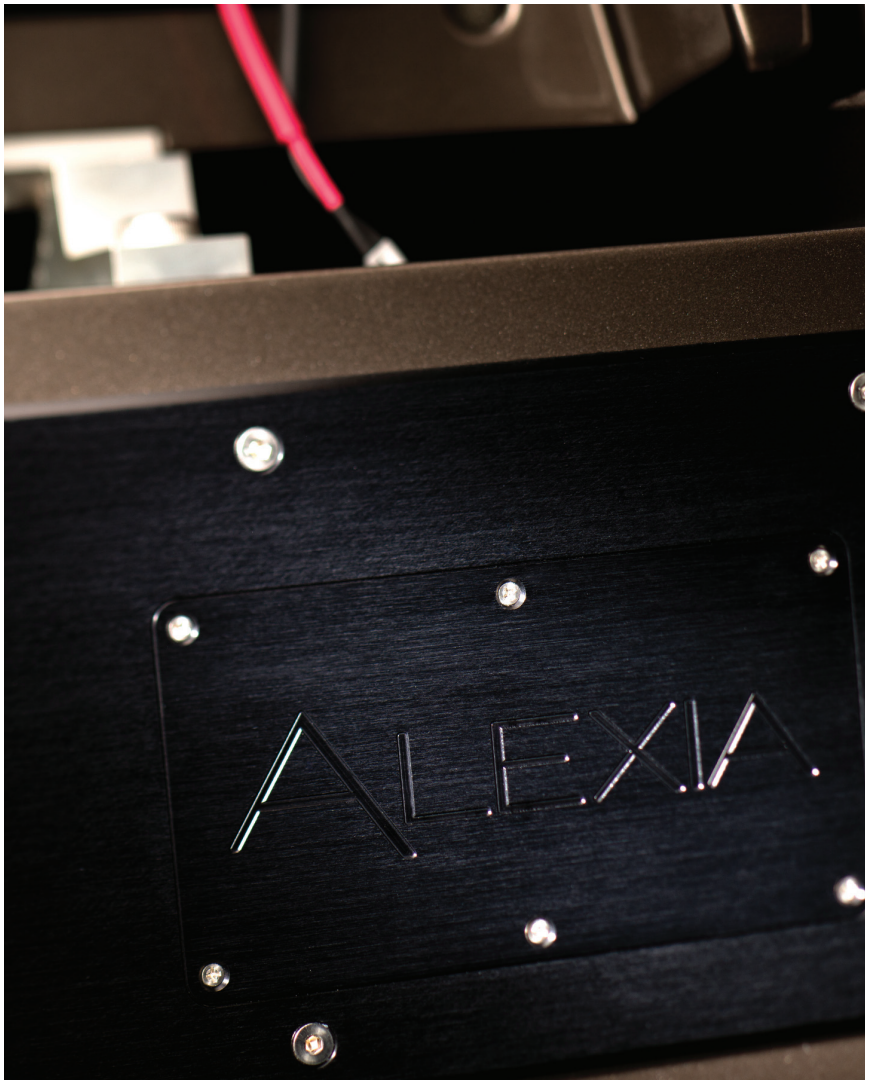
2. Locate the cable marked “MID FREQ.” This cable exits the top of the Woofer Module just below the appropriate connector. Connect the RED lug of the cable to the RED (positive) terminal on the terminal labeled “Mid-range.” Connect the black lug of the cable to the BLACK (negative) terminal.

3. Locate the cable marked “High Freq.” Connect the RED lug to the RED terminal on the connection labeled “High Frequency” on the Upper Array. Connect the black lug of the cable to the BLACK (negative) terminal.

Note: Please ensure that you do not invert the polarity of the umbilicals in the Alexia. Such an inversion will produce entertaining ambient effects, but destroys the linearity and harmonic structure of the system.

ALEXIA™

Section 4—Final Setup



Section 4.1—Spiking the Alexia

Your dealer is trained in the art and science of the Wilson Audio Setup Procedure (WASP) outlined in Section 1.1. Before the spike/diode assemblies are attached to the bottom of Alexia, the set up and fine tuning of your loudspeaker should be completed. Before spiking Alexia, use masking tape to carefully mark their location.

Spike Assembly

1. Remove the mechanical diodes and move the nut to about two threads from the point. This will allow for greater movement when leveling the loudspeaker system.

2. Screw the spikes into the diode until the nut is against the diode. Be careful that the nut does not turn while inserting and threading spikes into the diode.

3. Place the set screw into the other end of the diode with the Allen head toward the spike. This will ensure that if for any reason you have to remove your Alexia spikes, you will be able to withdraw the set screw safely using the supplied Allen wrench. Screw the set screw into the diode until it meets the spike (see Figure 13).

4. Assemble the rest of the spikes/diodes

5. Place the assemblies out of the traffic pattern until they are needed during the installation.

Note: Do not tighten these assembled spikes. You will need to unscrew them when you level the Alexia. This will ensure that if for any reason you have to remove Alexia spikes, you will be able to withdraw the set screw using the supplied Allen wrench.

Installation Procedure

6. Take care to mark the exact location of the Alexias with masking tape to ensure the speakers can be returned to their set up position.

7. Remove the Upper Array from the Woofer Module.

8. Carefully lay the Woofer Module on its side.

9. Using the caster wrench, remove the casters.

10. Insert the diode/spike assemblies into the four holes located on the bottom of each Woofer Module. Tighten until the top surface of the Woofer Module Diode touches the bottom surface of the "X" material plate.

11. Taking care observe the location of the woofer module to the masking tape marking the precise location of Alexia's position, return the module to an upright position.

12. Re-install the Upper Array atop the Woofer Module.

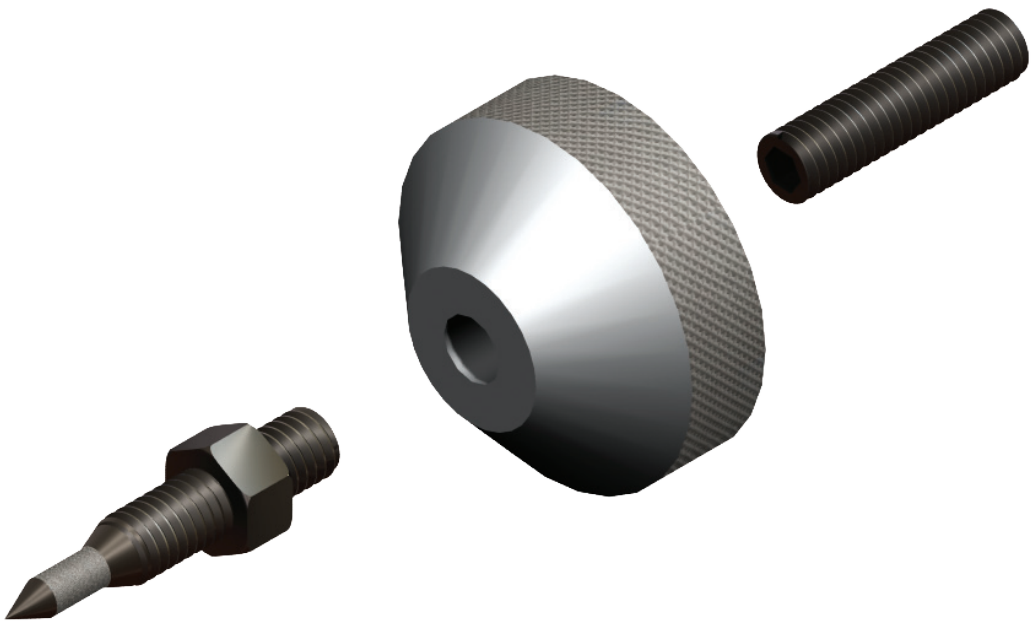


Figure 13—Spike/Diode Assembly

Note: The spike receptacles are tapped directly into the "X" material plate on the bottom of the Woofer Module. Be very careful NOT TO CROSS THREAD the spikes (see Figure 14).

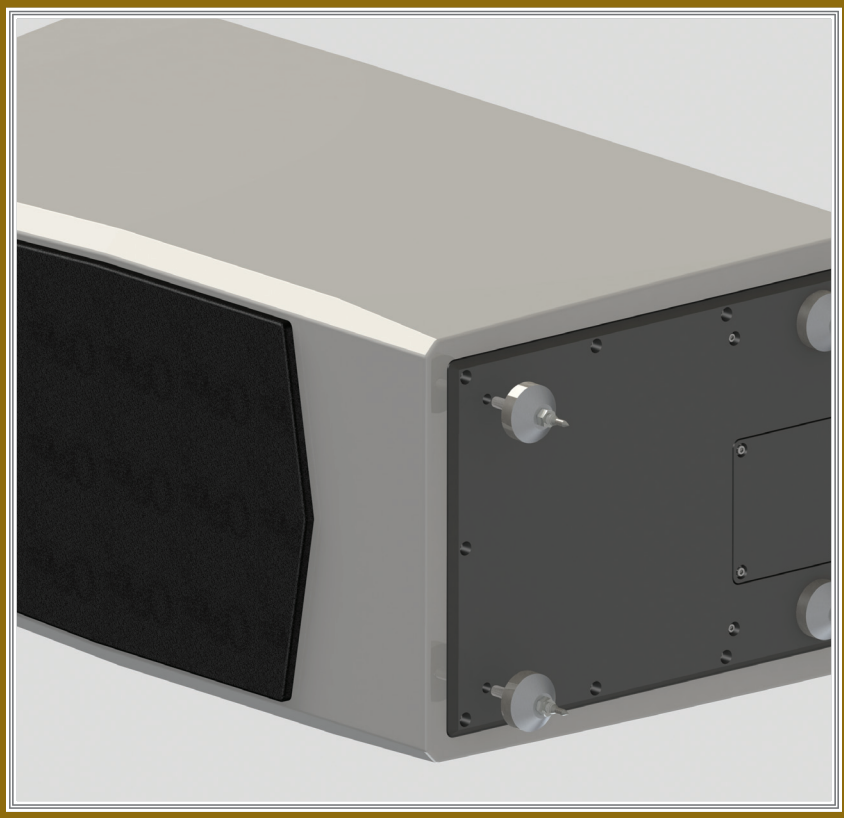


Figure 14—Install the assembled Woofer Module Spikes by removing the Upper Array and turning the Woofer Module on its side.

Section 4.2—Leveling the Alexia

1. Place a level on the left to right oriented axis in the flat area atop the woofer behind the Upper Array. If it is level, move to the next step.

2. You may rotate the spike tips in place by using a vice-grip or toothed pliers.

3. Lengthen the appropriate spike or spikes (not the Woofer Module Spike diode on the set screw) on the lower side until the Alexia is level.

4. If the speaker is leaning to the left, lengthen both Woofer Module spikes on the right hand side of the speaker. If the speaker is leaning right, lengthen the left hand spikes. Lengthen the spikes incrementally, checking and rechecking the level until the Alexia is level left to right.

5. Place a level on the front to back oriented axis. If it is level, then Alexia is level. If the Alexia is leaning one way or the other, following the same

process as above, lengthen the appropriate spikes on the front or rear of the Woofer Module until the Alexia is level.

6. To find out which spike to lower, grasp the Alexia channel and gently rock it back and forth. This will identify the spike that is out of level from the other three. If there is movement, lengthen the appropriate spike until the Alexia sits solidly on the floor. Make sure the spike is penetrating the carpet surface and is resting on the solid floor beneath. Alternatively, if is desirable to protect the surface beneath the spike, the aluminum spike disks can be installed. There is a conical detent in the disk in which the spike rests.

7. Once all adjustments have been made, with the 9/16" wrench provided, tighten the nut on the spike to the diode. DO NOT OVERTIGHTEN! "Snug" is tight enough.

Section 4.3—Removing the Protective Film

To protect the finish of the Alexia during final manufacture, shipment, and setup in your listening room, we have applied a removable layer of protective film over the finish. We recommend that this film be left in place until the speakers are in their final location in your listening room. Once you have determined their final position, remove the film by following this procedure:

1. Ensure the speaker surface is room temperature before removing the protective film.

Note: Removing the protective film when the speaker surface is cold can damage the paint surface.

2. Slowly remove the film from the top down, large sections at a time, gently pulling the film downward and outward.

Note: Tearing the film aggressively can damage the paint.

3. Take care in removing the protective film near edges and corners to prevent paint damage in these areas.

4. The protective film should not be left on the painted surface for extended periods of time nor exposed to heat sources and direct sunlight.

Figure 15—The resistors are located under the plate on the rear of the woofer enclosure.

Section 4.4—Resistors

By removing the large aluminum back cover on the rear of the woofer module of your Alexias, you may gain access to the resistor plate (see Figures 15 and 16). These resistors serve several functions.

Note: Only Wilson Audio replacement resistors should be used in your Alexias. Changing the value or brand of resistor will have a deleterious affect on the sonic performance of your loudspeakers and will void your Wilson Audio Warranty.

Midrange and Tweeter Resistors

The Midrange Level, which consists of a 2.55 ohm (2x5.1 in parallel) (See Figure 16) resistor assembly for the mid, and Tweeter Level, which consists of 4.5 ohm (2x9.0 in parallel) resistor assembly for the tweeter, resistors provide precise level matching for the midrange and tweeter drivers correspondingly. The resistors also act as ultra high quality fuses which open before a driver can be damaged by excess power. See Section 6.0 for details in replacing these resistors in the event one of these resistors is damaged.

Woofer Damping Resistor

There is a 18.6 ohm barrel resistor for woofer level. The 3.56 ohm Q resistor affects Woofer Damping, which in turn affects the way the Alexia's woofers couple to the amplifier. Both of these resistors are pre-installed in the base of the Bass Module and should not be changed by the end user.

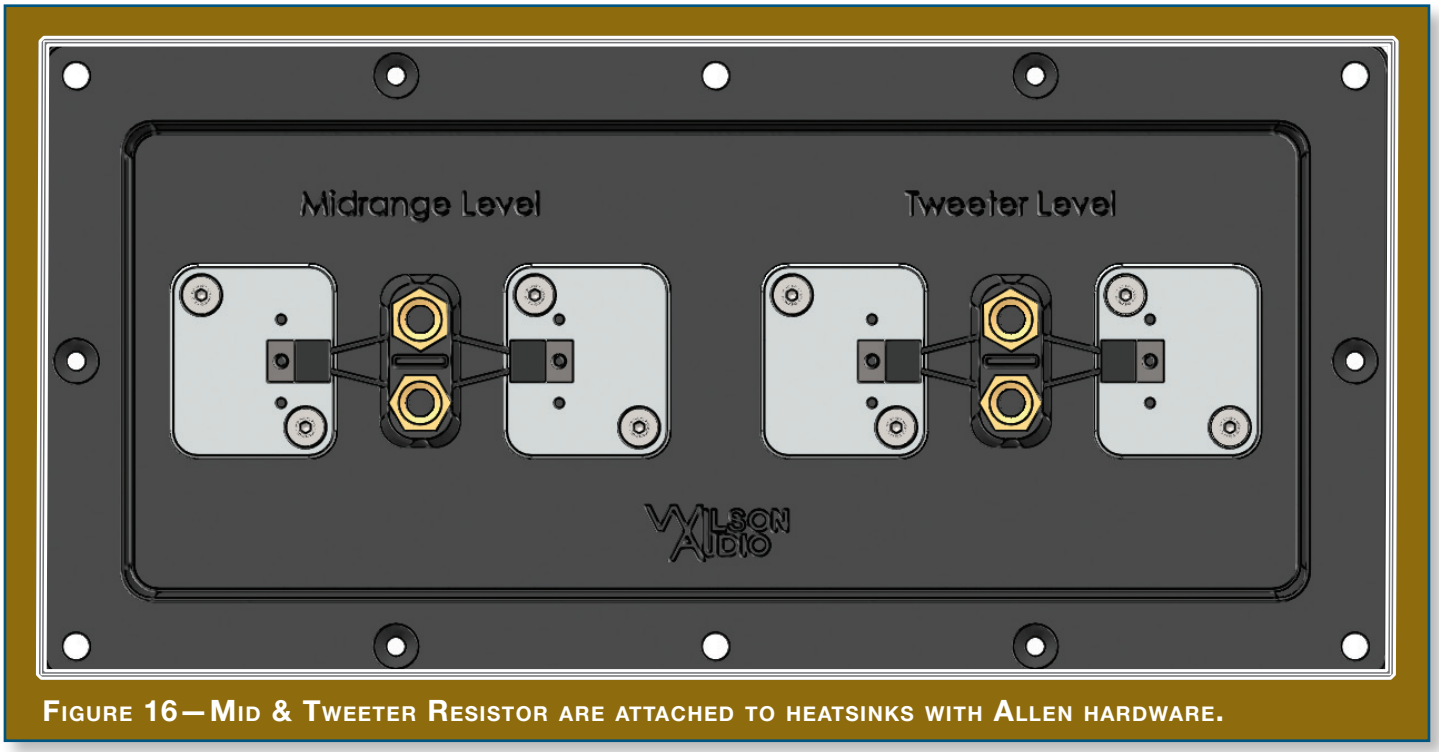


Figure 16—Mid & Tweeter Resistor are attached to heatsinks with Allen hardware.

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Section 5—Care of Your Alexia

Section 5.1—Care of the Finish

The Alexia loudspeakers are hand painted with WilsonGloss™ paint and hand polished to a high luster. While the finish seems quite dry to the touch, final curing and complete hardening takes place over a period of several weeks.

Dusting the Alexia

It is important that the delicate paint finish of the Alexia be dusted carefully with the provided dust cloth. We recommend that the following procedure be observed when dusting the speakers:

- Blow off all loose dust.
- Using the special dust cloth as a brush, gently whisk off any remaining loose dust.
- Shake out the dust cloth.
- Dust the finish, using linear motions in one direction parallel to the floor. Avoid using circular or vertical motions.

Because the paint requires a period of several weeks to fully cure, we recommend that no cleaning fluids, such as glass cleaners, be used during this initial period of time. When the paint is fully cured, heavy fingerprints and other minor smudges may be removed with a glass cleaner. Always use the dust cloth. Stronger solvents are not recommended under any circumstances. Consult your dealer for further information if required. To maintain the high luster of the finish, periodic polishing may be desired.

We recommend a nonabrasive carnauba-based wax and a soft cloth.

Care of the Grilles

Periodically, you will want to clean the Alexia's grilles. This is best done by using the round brush attachment on a vacuum cleaner hose. Gently vacuum the front surface of the grille. Be careful not to apply too much pressure. Do not use a hard plastic attachment against the grille. The grille cloth is stretched tightly over the grille frame. Too much pressure or use of a hard plastic attachment could cause the grille material to tear, especially in the corners.

Often Wilson speaker owners desire to change the look of their listening room by changing the color of their speaker grilles. In addition to basic black, Wilson Audio offers a variety of grille colors to match most WilsonGloss finishes. Contact your local dealer for grille cloth samples or to order replacement grilles for Alexia.

Break-in Period

All audio equipment will sound best after its components have been broken in for some period of use. Wilson Audio breaks in all drivers for approximately 12 hours. All drivers are then tested, calibrated, and matched for their acoustical properties. In your listening room, expect 25 to 50 percent of break-in to be complete after two hours of playing music at normal listening levels. Ninety percent of break-in is complete after 24 hours of playing. Playing a CD on repeat overnight can accomplish this task quickly. Wilson Audio recommends chamber music for this task.

Section 5.2—Enclosure Technology

Materials

Wilson Audio continues to conduct many hours of research on the impact of ma-

terials on speaker enclosure performance. Through this effort, Wilson pioneered the use of non-resonant materials, first with the use of mineral-filled acrylic in the WAMM and WATT and continuing with the further development of proprietary materials for X-1 Grand SLAMM and the original WATT/Puppy. Even the best materials are not suited to all aspects of enclosure construction. Therefore, like all Wilson loudspeakers, the Alexia is constructed of several exotic materials chosen for their specific performance attributes relevant to different portions of the enclosure.

Alexia is constructed using utlra-low-resonant, high-density, composites which are then cross-braced to further reduce cabinet resonance. Each of these composites meets and exceeds the highest of ANSI test standards for its use, while offering very tight tolerances, high hardness, uniform density, and dimensional stability.

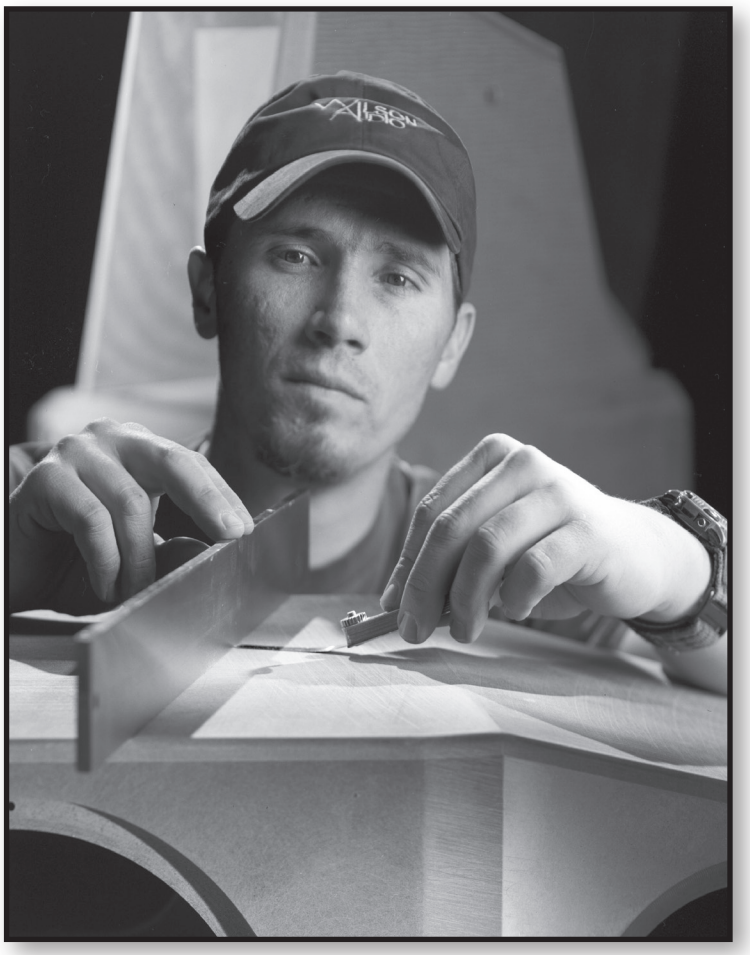
Adhesive

Wilson Audio has conducted exhaustive research into the best adhesives to permanently bond our speaker enclosures. This is often an overlooked element crucial to the proper performance of a loudspeaker. Correct modulus of elasticity, coefficient of thermal expansion, and natural frequency response are just a few of the important elements of adhesives.

A highly cross-linked, thermoset adhesive is used for the construction of the enclosure. It was also chosen for its excellent bond strength, solvent resistance, hardness, and optimum vibrational characteristics.

Section 5.3—Depth of Design

Alexia's compellingly authentic performance and lasting value are achieved through careful implementation of cutting edge design and engineering and then executed using the highest performance materials. Wilson Audio's use of proprietary



enclosure materials and adhesives are employed to achieve truly exceptional speaker cabinet performance. The use of these materials in Alexia results in an enclosure that is inherently inert and non-resonant. All of these structural aspects are combined, allowing Wilson Audio to deliver a product that maintains the strictest structural tolerances, durability, and reliability. This also means that the Alexia will have consistent, repeatable performance, unaffected by the climatic conditions, anywhere in the world. Finally, like all Wilson products, Alexia is hand-crafted with meticulous attention to detail, with an unwavering commitment to excellence. Thus, Alexia will impart to her owner beauty and pleasure for many years to come.

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Section 6—Troubleshooting

Section 6.1 – Troubleshooting

One channel is not operating:

Check the interconnects from source.

Check the connections on the speaker cables, both at the amplifier and speaker ends. Watch especially for connectors touching each other.

Check the umbilicals that connect the two modules. You may have forgotten to connect them, or they may have shorted or come loose during setup.

Imaging is off-center:

Check your connections. A connection to one of the modules may have come loose. When a tweeter or midrange driver is not working, or is out of phase, the Alexia will not "image" properly. Double check your connections for red-to-red and black-to-black.

Play music at a low level and listen to each driver in each channel. You may have a driver that is not operating correctly. If you find a driver that is silent, please go to the "Driver Out" section of this troubleshooting guide.

A chronic lack of bass energy:

Check the input cable connections on your woofer enclosure. If one channel is out of phase (connections reversed), bass will be cancelled. Note: Turn off your amplifier and unplug it from the wall.

Driver out or not playing after connections have been verified:

If you have found a driver with no output, move to the rear of this particular loudspeaker.

Using the appropriate Allen key, open the X-material door on the bottom of the Upper Array module.

You will find some resistor connections. Replace the resistor with the supplied matching resistor. Tighten the new resistor in the old one's place. The woofer resistor may be replaced in the same manner and is located behind the access door in the bottom of the Woofer Module.

Note: Use only Wilson Audio replacement resistors in Alexia. These resistors were carefully chosen for the overall sonic and thermal performance.

Plug your amplifier into the wall and turn it on.

Listen to the channel at a low level. The driver should now be operating correctly.

Amplifier shuts off as soon as it is turned on:

Check to see if your speaker cables are properly secured. Look for frayed ends, loose connections, or a conductor contacting the amplifier chassis.

Turn the amplifier off and disconnect it from the AC wall outlet. Disconnect the preamplifier leads to the amplifier. Now turn on the amplifier.

If the problem is solved:

There is likely something wrong with your preamplifier or interconnect. Contact your dealer.

If the problem persists:

Leave the preamp leads disconnected and continue to the next step.

Turn the amplifier off. Disconnect the speaker leads at the main input to the speaker. Now turn on the amplifier.

If the problem is solved:

Call your Wilson Audio dealer. There may be a problem with the crossover or the speaker's internal wiring.

If the problem persists:

Continue to the next step.

Turn the amplifier off and disconnect it from the AC wall outlet. Disconnect the speaker cable leads to the amplifier and turn the amplifier on again.

If the problem is solved:

You have a short in your speaker cables. Check for frayed ends, holes (from spike feet), or make sure that your spade lug is not touching the chassis while it is connected to the binding post.

If the problem persists:

Call the dealer where you bought your amplifier. You appear to have a problem with this component.

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Section 7—Specifications

Enclosure Type Tweeter Module:	Sealed, X-Material
Enclosure Type Midrange Module:	Rear Vented, X- & S-Material
Enclosure Type Woofer Module:	Rear Ported, X-Material
Woofers:	One—8 inch (20.32 cm) Paper Pulp One—10 inches (25.4 cm) Paper Pulp
Midrange:	7 inch (17.78 cm) Paper Pulp Composite
Tweeter:	1 inch (2.54 cm) Doped Silk Fabric
Sensitivity:	90 dB (one watt at one meter at 1Khz)
Nominal Impedance:	4 ohms/minimum 2 ohms @ 80 Hz
Minimum Amplifier Power:	20 watts per channel
Frequency Response:	20 Hz—32 kHz +/- 3 dB (with port contribution)
Overall Dimensions:	Height—53 1/4 inches (135.29 cm) Width—15 1/4 inches (38.74 cm) Depth—21 1/8 inches, (53.7 cm)
Alexia Weight Per Channel:	256 lbs (116.12 kg)

Section 7.2—Alexia Dimensions

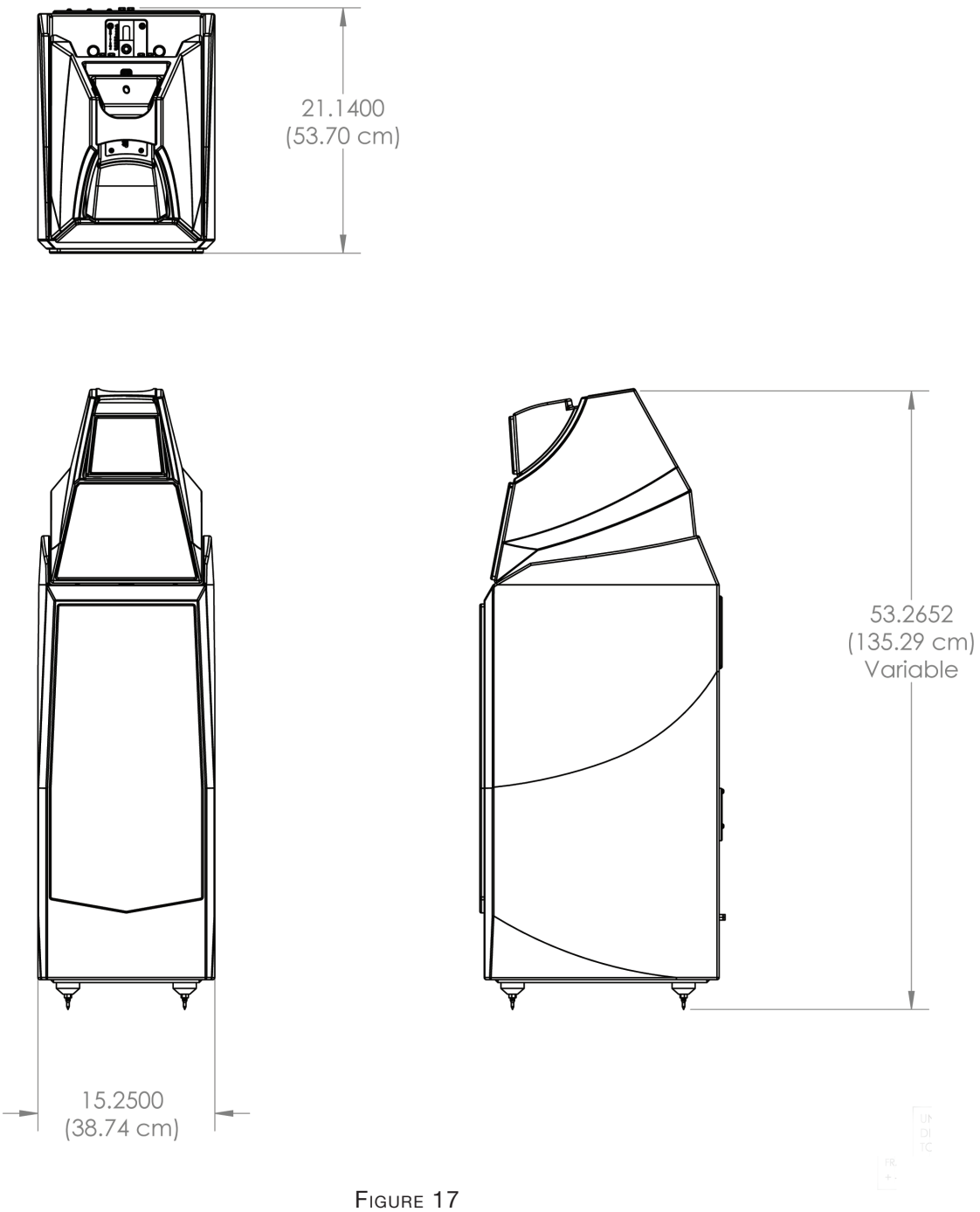
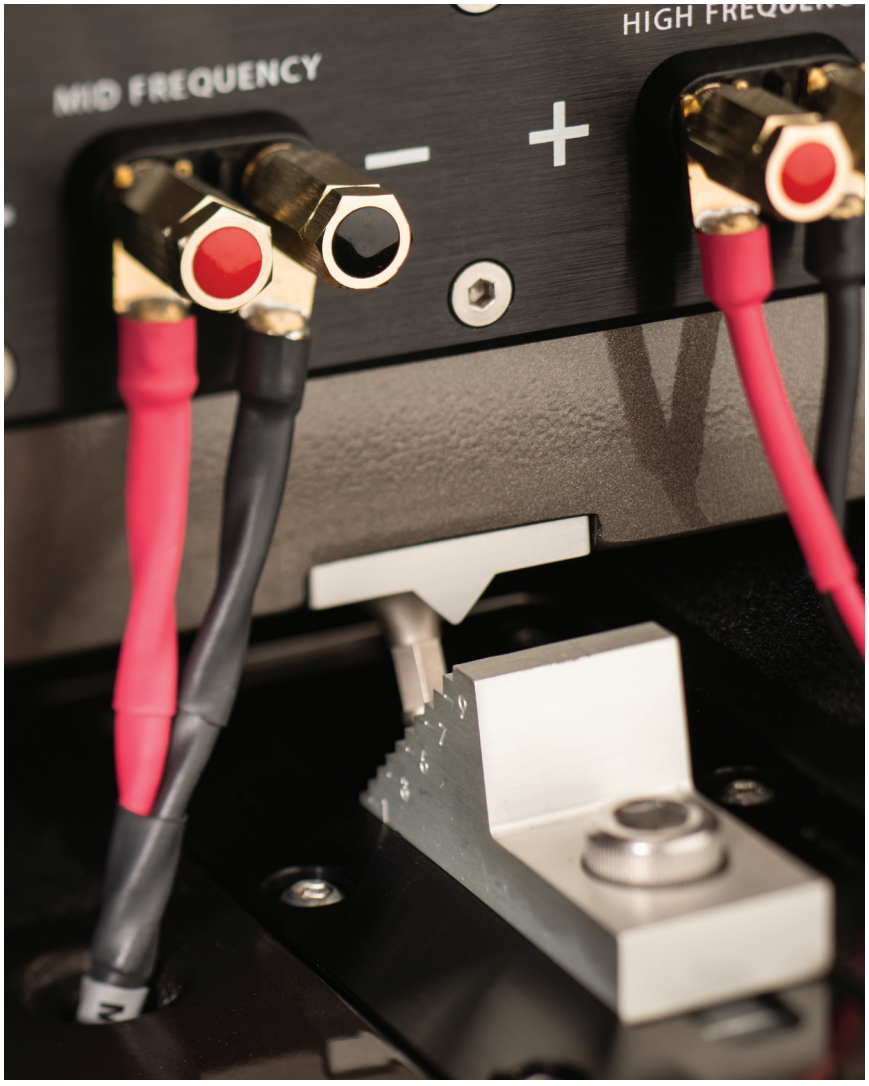


FIGURE 17

ALEXIA™

Section 8—Propagation Delay Tables



Section 8.1—Propagation Delay Tables

Alexia Upper Array Spike Length

Listening Distance

Ear Height (inches)	8'	9'	10'	11'	12'	14'	16'	18'	20'	22'	24'	26'
48	No Spike	No Spike	No Spike	2	2	2	2	3	3	3	3	4
46	No Spike	2	2	2	2	2	2	3	3	3	4	4
44	2	2	2	2	2	2	2	3	3	3	4	4
42	2	2	2	2	2	3	3	3	3	4	4	4
40	3	2	2	2	2	3	3	4	4	4	4	4
38	3	2	3	3	3	3	4	4	4	4	4	4
36	3	3	3	3	4	4	4	4	4	4	4	4

Alexia Upper Array Alignment Block Position

Listening Distance (feet)

Ear Height (inches)	8'	9'	10'	11'	12'	14'	16'	18'	20'	22'	24'	26'
48	2	5	7.5	3	4.5	7	9	7	8	8.5	9.5	5
46	5.5	2	3.5	5	6.5	9	10.5	8.5	10	10	11	6.5
44	3	4	7	8	9.5	11	12	10	10.5	11.5	6.5	6.5
42	6	7.5	9	10	11.5	9.5	10.5	12	12	7	8	8.5
40	5	11	12	13	13	11	12	7.5	8.5	8.5	8.5	10
38	8.5	14	11	12	12	13	8	9	9	10	10	10
36	12	13	14	14	9	10	10	11	10.5	10.5	12	12

Alexia Upper Array Alignment Block Step

Ear Height (inches) \ Listening Distance	8'	9'	10'	11'	12'	14'	16'	18'	20'	22'	24'	26'
48	6	8	10	3	4	6	7	6	7	7	8	5
46	8	2	3	4	5	7	8	7	8	8	9	6
44	2	3	5	6	7	8	9	8	8	9	6	6
42	4	5	6	7	8	7	8	9	9	6	7	7
40	3	7	8	9	9	9	9	5	7	7	7	8
38	5	9	7	8	8	9	6	7	7	8	8	8
36	7	8	9	9	7	7	7	8	8	8	9	9

Alexia Tweeter Detent Position

Ear Height (inches) \ Listening Distance	8'	9'	10'	11'	12'	14'	16'	18'	20'	22'	24'	26'
48	2	3	4	4	5	6	7	7	8	8	8	9
46	2	3	4	4	5	6	7	7	8	8	8	9
44	2	3	4	4	5	6	7	7	8	8	8	9
42	2	3	4	4	5	6	7	7	8	8	8	9
40	2	3	4	4	5	6	7	7	8	8	8	9
38	2	3	4	4	5	6	7	7	8	8	8	9
36	2	3	4	4	5	6	7	7	8	8	8	9

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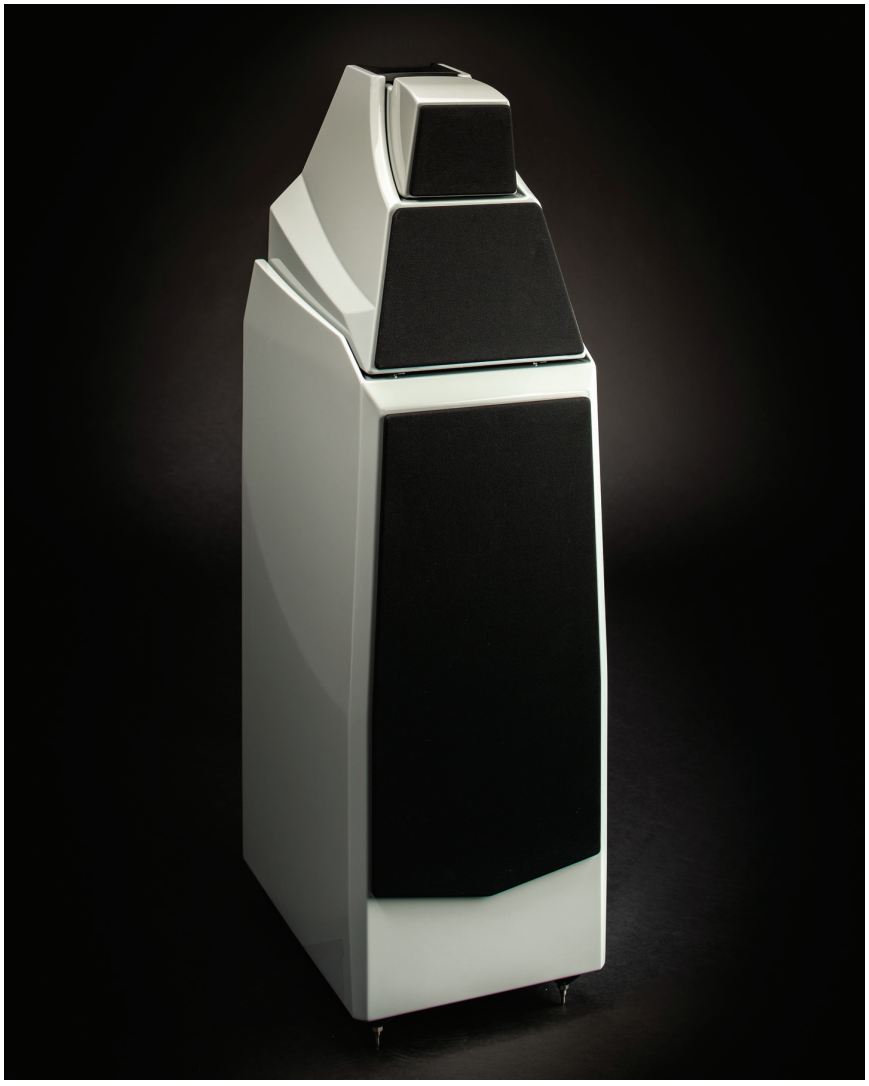
Section 9—Warranty Information



Section 9.1—Warranty Information

Limited Warranty

Subject to the conditions set forth herein, Wilson Audio warrants its loudspeakers to be free of manufacturing defects in material and workmanship for the Warranty Period. The Warranty Period is a period of 90 days from the date of purchase by the original purchaser, or if both of the following two requirements are met, the Warranty Period is a period of five (5) years from the date of purchase by the original purchaser:

Requirement No. 1. No later than 30 days after product delivery to the customer, the customer must have returned the Warranty Registration Form to Wilson Audio;

Requirement No. 2. The product must have been professionally installed by the Wilson Audio dealer that sold the product to the customer.

FAILURE TO COMPLY WITH EITHER REQUIREMENT NO. 1 OR REQUIREMENT NO. 2 WILL RESULT IN THE WARRANTY PERIOD BEING LIMITED TO A PERIOD OF 90 DAYS ONLY.

Conditions

This Limited Warranty is also subject to the following conditions and limitations. The Limited Warranty is void and inapplicable if the product has been used or handled other than in accordance with the instructions in the owner's manual, or has been abused or misused, damaged by accident or neglect or in being transported, or if the product has been tampered with or service or repair of the product has been attempted or performed by anyone other than Wilson Audio, an authorized Wilson Audio Dealer Technician or a service or repair center authorized by Wilson Audio to service or repair the product. Contact Wilson Audio at (801) 377-2233 for information on location

of Wilson Audio Dealers and authorized service and repair centers. Most repairs can be made in the field. In instances where return to Wilson Audio's factory is required, the dealer or customer must first obtain a return authorization. Purchaser must pay for shipping to Wilson Audio, and Wilson Audio will pay for shipping of its choice to return the product to purchaser. **A RETURNED PRODUCT MUST BE ACCOMPANIED BY A WRITTEN DESCRIPTION OF THE DEFECT.** Wilson Audio reserves the right to modify the design of any product without obligation to purchasers of previously manufactured products and to change the prices or specifications of any product without notice or obligation to any person.

Remedy

In the event that the product fails to meet the above Limited Warranty and the conditions set forth herein have been met, the purchaser's sole remedy under this Limited Warranty shall be to: (1) contact an authorized Wilson Audio Dealer within the Warranty Period for service or repair of the product without charge for parts or labor, which service or repair, at the Dealer's option, shall take place either at the location where the product is installed or at the Dealer's place of business; or (2) if purchaser has timely sought service or repair and the product cannot be serviced or repaired by the Dealer, then purchaser may obtain a return authorization from Wilson Audio and at purchaser's expense return the product to Wilson Audio where the defect will be rectified without charge for parts or labor.

Warranty Limited to Original Purchaser

This Limited Warranty is for the sole benefit of the original purchaser of the covered product and shall not be transferred to a subsequent purchaser of the product, unless the product is purchased by the subsequent purchaser from an authorized Wilson Audio Dealer who has certified the product in accordance with Wilson Audio standards

and requirements and the certification has been accepted by Wilson Audio, in which event the Limited Warranty for the product so purchased and certified shall expire at the end of the original Warranty Period applicable to the product.

Demonstration Equipment

Equipment, while used by an authorized dealer for demonstration purposes, is warranted to be free of manufacturing defects in materials and workmanship for a period of five (5) years from the date of shipment to the dealer. Demo equipment needing warranty service may be repaired on-site or, if necessary, correctly packed and returned to Wilson Audio by the dealer at dealer's sole expense. Wilson Audio will pay return freight of its choice. A returned product must be accompanied by a written description of the defect. Dealer owned demonstration equipment sold at retail within two (2) years of date of shipment to the dealer is warranted to the first retail customer to be free of manufacturing defects in materials and workmanship for the same time periods as if the product had originally been bought for immediate resale to the retail customer. Wilson Audio products are warranted for a period of 90 days, unless extended to 5 years, as provided above, by return and filing of completed Warranty Registration at Wilson Audio within 30 days after product delivery to customer and the product was professionally installed by the Wilson Audio Dealer that sold the product to the customer.

Miscellaneous

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Some states do not allow limitations on how long an implied warranty lasts or

an exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you. This Limited Warranty gives you specific legal rights, and you may also have other rights, which vary from state to state.