WATCH Surround

WATCH Surround Series 2 Owner's Manual

WILSON AUDIO

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WATCH Surround

Section 1 – Introduction

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Section 1.1 – WATCH System Introduction

If your passion is home theater, and you have sought the full sensory experience created as your eyes absorb the vision and your skin awakens to the power of the sound, Wilson Audio has your answer. Introducing WATCH – Wilson Audio Theater Comes Home.

While all Wilson speakers are designed to take full advantage of today's popular multi-channel formats, WATCH is the first Wilson system designed from the ground up to excel specifically at home theater performance. Best of all, it comes in a package as small or as large as you desire.

The fact is, you haven't truly experienced home theater until you've felt the impact, power, and passion of a film score the way the director intended it, and no company will deliver this passion like Wilson Audio. That's why, in the past decade, more blockbuster hits have been mixed, composed, or recorded using Wilson Audio than any other loudspeaker.

Design Considerations

Your WATCH System has been designed to perform all of the specific functions of a high performance home theater system. This was a difficult task because of the many interactions that occur in a home theater environment. Because the WATCH system was designed in-house and voiced with a variety of Wilson speakers, you can be sure that the driver blend will be excellent whether your system includes Sophia Series 2 or the X-2 Alexandrias. Wilson Audio loudspeakers have set the standard for performance in a wide variety of two-channel audio and multi-channel home theater applications. The WATCH Surround ensures the most seamless integration with your Wilson Audio loudspeakers. The WATCH Surround is the only surround channel designed specifically to match the inherent quality of the Sophia, WATT/Puppy, MAXX, and, in many instances, the Alexandria X-2.

Applications

One of Wilson Audio's most important criteria in speaker development is that a speaker meets the accuracy and dynamic demands of studio monitoring, analytical hardware and software evaluation, and of course, critical music and theater soundtrack listening. The WATCH Surround has been designed to deliver all of the speed, dynamics, and musical accuracy to satisfy even the most demanding music lovers.

The WATCH Surround has been engineered to take full advantage of today's multi-channel surround formats, including the latest AC-3 (Dolby Digital) and DTS (Digital Theater Systems) formats.

It will provide years of satisfaction whether listening to two-channel audio, multi-channel audio, or the latest movie sound track.

Section 1.2 – WATCH Package

WATCH Center Series 2

Specifically designed to excel at center channel functions, WATCH Center is extremely dynamic with high sensitivity and robust power handling. Unlike most center channels, it provides listeners not only with optimal on-axis response, but also smooth, linear, off-axis performance. This is, in part, a result of Wilson PDC (Propagation Delay Correction) technology first developed for the WAMM® and X-1 Grand SLAMM® systems and later applied to the rest of the

Figure 1 – WATCH Center Channel Series 2

Wilson Line. PDC allows for optimal tuning of a loudspeaker for various listening distances and heights and gives listeners much greater control over their sound.

The WATCH Center was designed from the ground up as a center channel. It is not merely a standard speaker that was tipped onto its side. The Center channel was voiced and optimized to truly represent dialogue for movies as well as music and vocals when used in a multi-channel audio setup.

Of course, WATCH Center Series 2 lives up to Wilson's high standards of cutting edge design, superior build quality, and stunning sonic performance. The WATCH Center Series 2 is available with a matching stand.

WATCH Dog Passive Subwoofer

The WATCH Dog Passive Subwoofer is the culmination of over twenty years of experience at Wilson Audio in building high output, ultra-low distortion woofer and subwoofer products. It was designed to further extend and enhance the bottom octave performance of music and theater systems without compromising speed, tonal accuracy, or phase coherency. The WATCH Dog will seamlessly and coherently integrate with any loudspeaker, whether you are augmenting a two-channel system or using the Dog as the LFE channel in a surround system.

FIGURE 2 – WATCH DOG PASSIVE SUBWOOFER

WATCH Controller

Like other WATCH products, along with music system applications, the WATCH Dog was designed to take advantage of today's multi-channel formats. The unique tuneability

Figure 3 – WATCH Controller

of the WATCH Dog is greatly enhanced when used with the Wilson Controller active crossover. The controller's comprehensive control allows the WATCH Dog to be optimized for both music and multi-channel applications, even within the same system. The Controller's adjustments allow critical setup, ensuring the best possible performance in a wide range of rooms and with a variety of speakers.

WATCH Surround Series 2

The WATCH Surround Series 2 is a perfect example of performance disproportionate to size. With strong power handling capacity and low end frequency response reaching 40 Hz, this speaker will take your surround sound to new heights. Unlike most surround speakers, WATCH Surround is more than a noise-maker. It brings accuracy, dynamics, and emotion to your theater, and with its gorgeous WilsonGloss™ finish, it looks right at home on your wall.

The greatest challenge for any wall-mount loudspeaker is accounting for the

Figure 4 – WATCH Surround Series 2

deleterious interaction with the wall and ceiling, as well as degradation caused by the mount itself. This causes frequency nonlinearities – accentuating some frequencies and effectively masking others. WATCH Surround minimizes wall/ceiling resonant interactions through its advanced mounting system. Using state-of-the-art materials technology first developed for the X-1 Grand SLAMM, WATCH Surround provides stunning results.

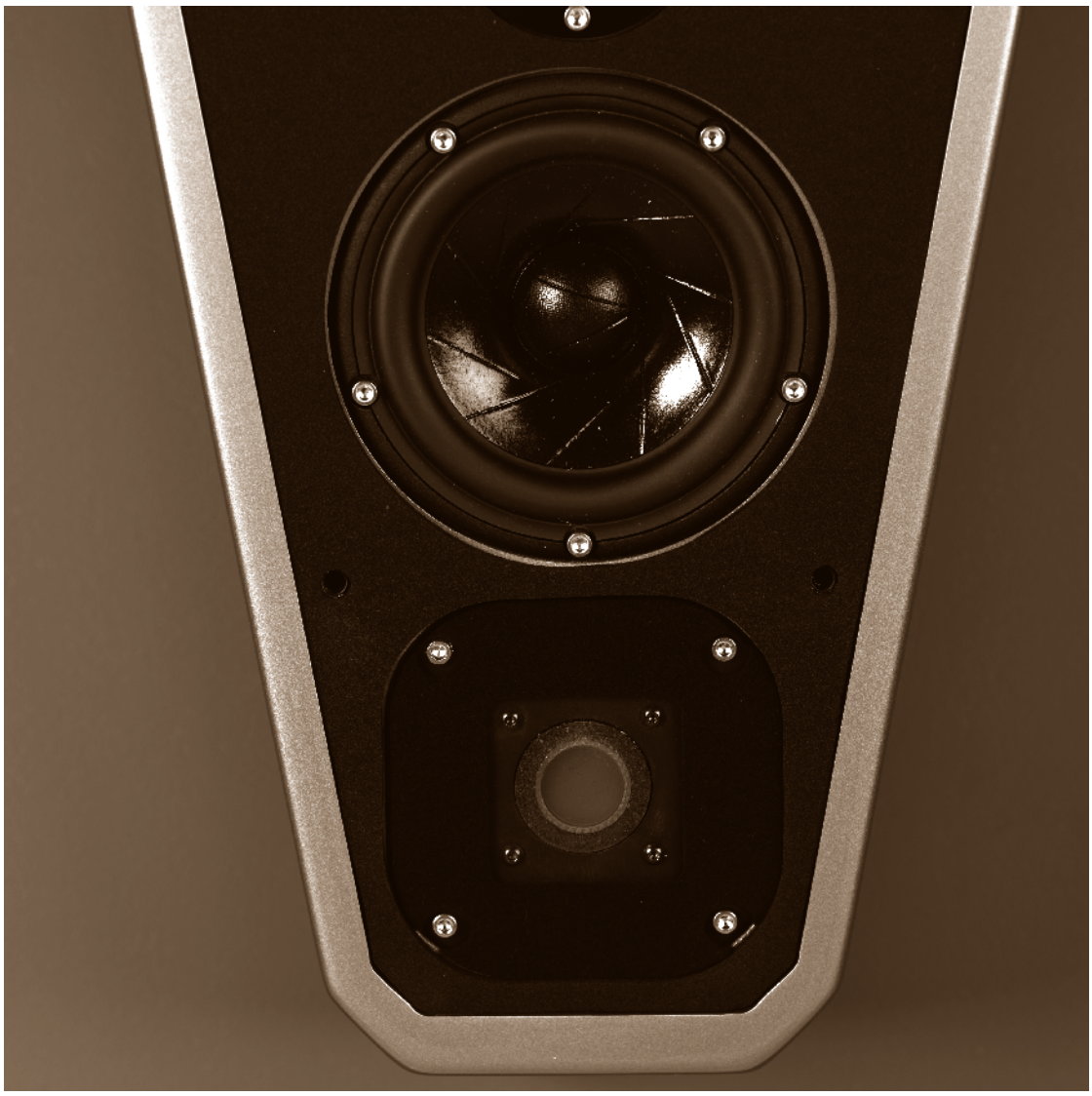
The Surround is mounted to its bracket by strategically located spikes, further reducing wall interaction and resonance. The Surround can also be rotated towards the listening position, offering improved integration with the front speakers and better imaging.

Conclusion

Finally, a home theater, designed from the ground up as multi-channel, that is truly high-end. Combine the structural and design considerations with the superior sonic quality and finish, and you find what makes Wilson Audio the leader in the industry. Wilson Audio delivers a product that maintains the strictest structural tolerances, durability and reliability. You will have consistent, repeatable performance, unaffected by the climatic conditions, anywhere in the world. You are about to experience multi-channel audio/home theater like you never thought possible, except from Wilson ....

WATCH Surround

Section 2 – Uncrating your WATCH Surround



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Section 2.1 – Uncrating the WATCH Surround

Initial Check

The WATCH Surround Series 2and its mounting bracket are shipped in a wooden crate. Upon receiving the crates, please check their condition. If there is any damage, please report it to the shipping company immediately for insurance verification.

The following items are recommended for this procedure:

- Supplied hardware kit
- Tape measure
- Known listening position
- Electric screwdriver/drill
- Phillips head drive bit

Unpacking the WATCH Surround

Gently lift the Surround channel out of the crate. Remove the plastic outer bag by tilting the Surround channel over on one side and opening the bag at the base of the Surround channel. Slide the bag off the loudspeaker. Do not remove the protective film until you are ready to place the Surrounds onto the mounting bracket.

Note: Do not cut the bags off of the Surround channels. By using scissors or a knife, you could unintentionally mark the cabinet or damage a driving element. Keep the bags in case you need to repackage the Surround channels. Likewise, save your shipping crates and all packing materials. They are specifically designed to prevent harm from coming to your WATCH Surrounds.

Move the Surround channel into the desired location.

Note: Be careful not to touch the driving elements when you are moving your Surround.

Section 2.2 – Crate Content Checklist

Now that you have unpacked your WATCH Surround, you can inventory all the additional items in the crate. With each pair of Surrounds, you will receive the following:

Surround Crate

1 - Owner's Manual

1 - Warranty Registration

1 - Template Guide

2 - Mounting Brackets

2 - Grills

8 - 1/4 x 2 1/2″ Lag Bolt

8 - 1/4 x 1 3/3″ Rawl Bolt

8 - 5/16 x 3/4 Stainless Steel Flat Washer

4 - B Spike

2 - #4 Spike

1 - 5/16 Socket

1 - 7/16 Socket

1 - 1/4″ Rachet

1 - 3″ Masonry Bit

1 - 3/16 x 3″ Drill Bit

1 - 5/32 Allen Wrench

1 - 1/8 Allen Wrench

1 - Blue Polishing Cloth

WATCH Surround

Section 3 – In Your Room

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Section 3.1 – The Wilson Audio Setup Procedure

You are surely excited about setting up your WATCH Surrounds 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)

Wilson Audio loudspeakers are unmatched in their ability to reproduce the musical event. The WATCH System 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 WATCH Surrounds, 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. What follows is an outline of the Wilson Audio Setup Procedure (WASP). When carefully followed, the process has been shown to be the most effective method for setting up Wilson loudspeakers. WASP works equally well for left and right channels, which are set up first, and for additional speakers such a Center channel, Surrounds, or the WATCH Dog Passive subwoofer.

Zone of Neutrality: Main Left and Right Channels

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 lis-

tening environment:

1. Stand against the wall BEHIND the location where you intend to position your loudspeaker. 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.

Zone of Neutrality: WATCH Surround Channels

The Zone of Neutrality is the speaker location where your speakers sound most natural and interact the least with the room. We realize that the location of your on-wall speakers is not very flexible. Nevertheless, careful selection of the mounting location will improve the performance of the speakers. To find the Zone of Neutality, do as follows:

1. Stand on a chair against the wall in the general location where you would like to place the speakers. Speaking in a moderately loud voice and at a constant volume, project your voice out into the room.

2. As you move down the wall, (You will need to have another listener seated in the listening position to aid you in the evaluation), listen to how the voice "frees up" from the added bass energy imparted by the ceiling boundary.

3. When you hear the voice "free up" from this artifact, place a piece of tape on the wall to mark this location.

4. Repeat the procedure coming off of the side walls. Again, listen for your voice to lose the added bass energy from the wall behind you and continue until there is an obvious interaction with the opposite wall in front of you. Do each side of speaker location individually. What you should have at the end of this procedure are two recetangles on the wall (usually near the corners), which is your Zone of Neutrality for each channel.

Note: The more reflective or "live" sounding the room is, the more difficult it will be to detect the changes in your voice. Thus, you may have to repeat this process until the zones have been determined.

Section 3.2 – Room Acoustics

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 your WATCH Surrounds.

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 midrange. 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 5) is a common acoustical problem in the typical domestic 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:

- Illbruck 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 sidewalls 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 Illbruck 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

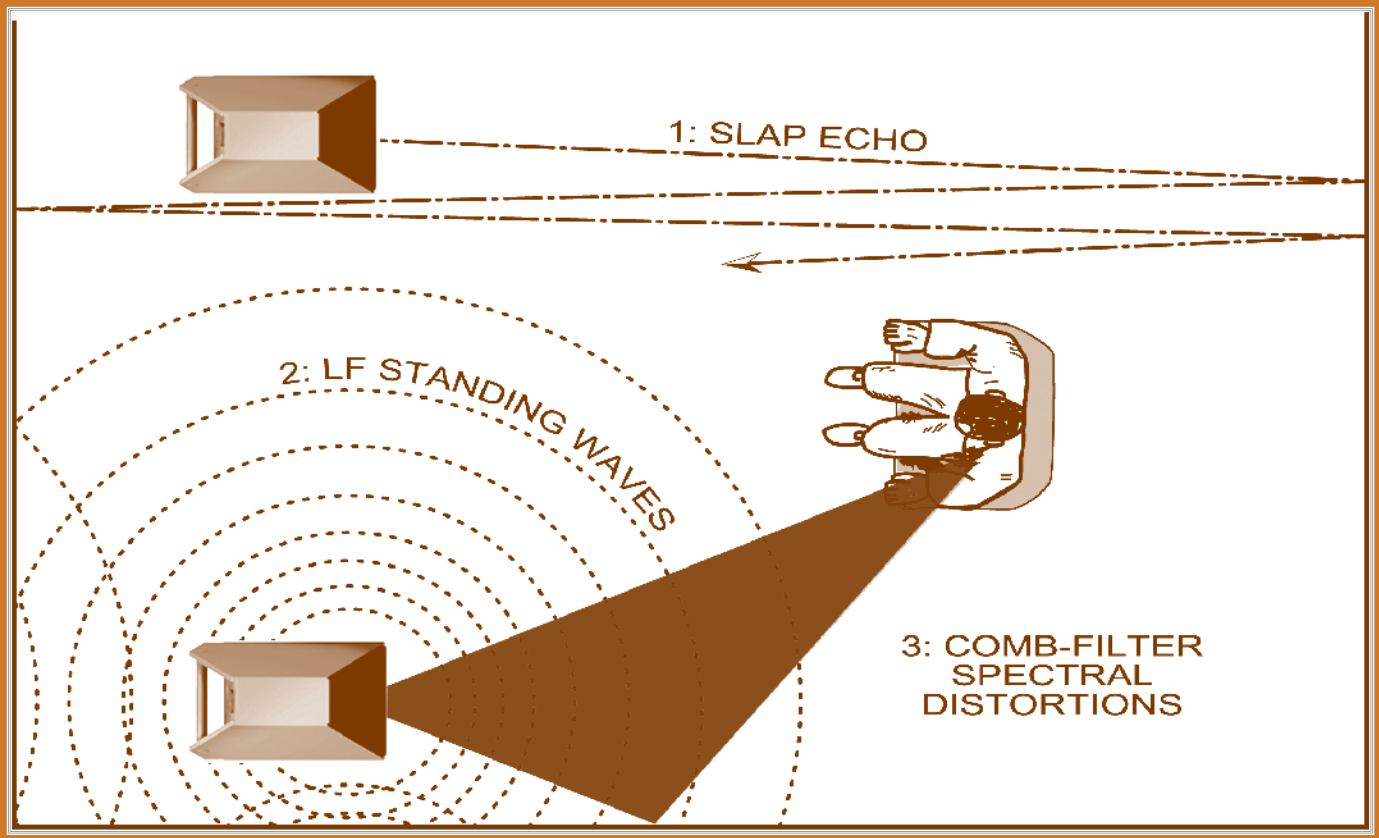

FIGURE 5 – COMMON ROOM REFLECTION PROBLEMS

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 Illbruck Sonex® or air duct panels applied to that part of the wall where the reflection occurs.

Section 3.3 – 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.

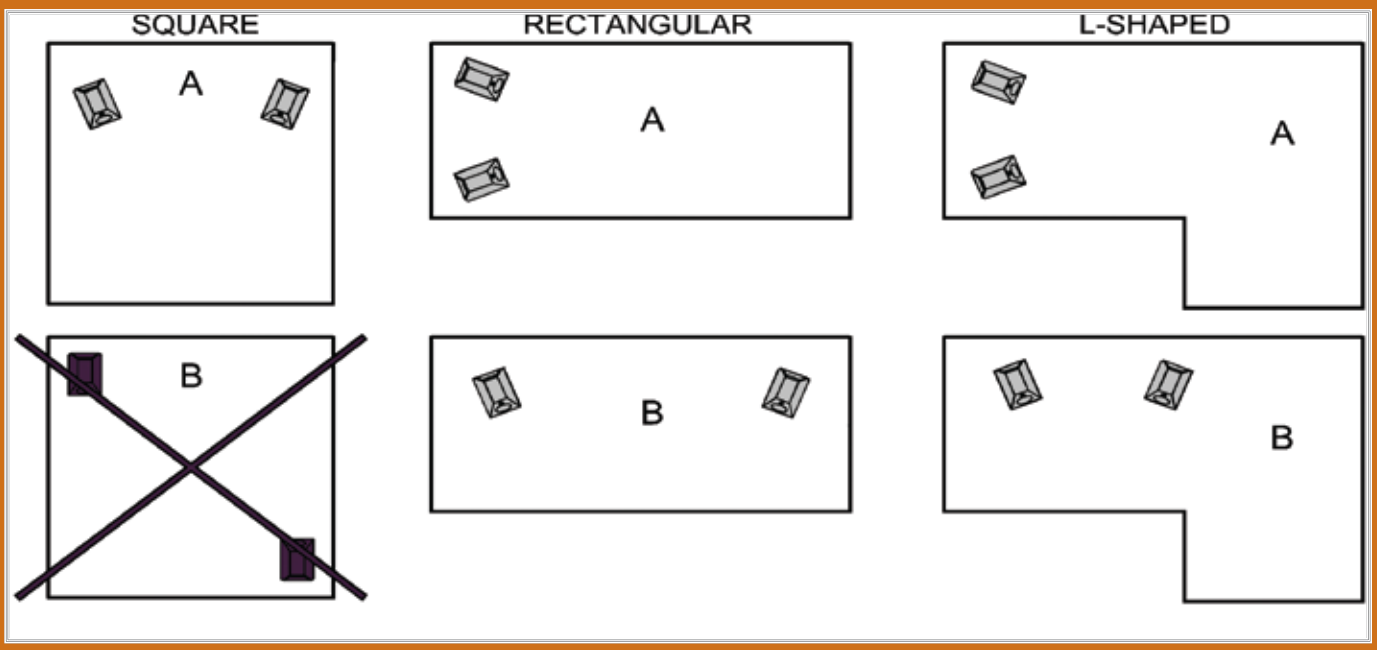

Figure 6 – Possible Loudspeaker Placement within Various Room Shapes

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 3.4 – 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 6).

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 6) 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-shaped rooms resists the buildup of standing waves (see Figure 6).

WATCH System 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 middle 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 your Wilson Audio loudspeakers. 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.

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 3.1) is the best method with

which to position your loudspeakers. Start with the main left and right channels 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.

WATCH Center Channel

After determining the general area for the Left and Right Channels, determine the best place for your Center channel. The following Center channel configurations are possible:

- On the floor with the speaker angled up towards the listener.
- Mounted on a stand with no upward rotation.
- Mounted on a stand with longer spikes in the front of the stand and shorter spikes in the back, allowing the stand and speaker to be rotated up toward the listener.
- Mounted upside down on the ceiling, angled down towards the listener.

With the exception of Center channels mounted on the ceiling, each of these options allow for some fine tuning of the Center channel placement. If you are mounting the Center channel on the ceiling, be sure to choose the location carefully as you

will not be able to easily adjust it once it is mounted. A poor placement of the Center channel will hamper its integration with the rest of the system. As a general rule, the distance from the main Left and Right channels, as well as the Center channel (as measured from the tweeters), should be equal in their relationship to the listening position. This maintains the time coherence of the three front loudspeakers. Ultimately, the Center channel propagation delay correction will be made via the sliding tweeter module.

Wilson recommends that the Center channel be positioned as centrally between the Left and Right speakers as possible. Using the Wilson Audio Setup Procedure, experiment with the fore to aft placement of the Center channel. This process will help you find the location that offers the smoothest left, right, and Center channel integration.

WATCH Surround Channel

Wilson Audio has done everything possible to eliminate the boundary interactions caused by mounting a speaker onto the wall. The mounting bracket allows for significant improvements in detail, speed, and clarity. The Surround channels will perform well in almost any location in which they are placed. The mounting bracket and the careful design of the Surround channel have eliminated most of the sonic problems encountered when placing a standard speaker too close to a boundary. Nevertheless, we have performed extensive testing on the Surround channel and found that significant improvement on speaker linearity and integration can be achieved by careful selection of the Surround channel mounting location.

We realize that the location of the Surround channel is generally set by the architecture of the room. However, if you have some flexibility in locating your Surrounds, we suggest that you use WASP to find the Zone of Neutrality. Be sure to listen for room modes and frequency response peaks or dips.

WATCH Dog Passive Subwoofer

Because the WATCH Dog's frequency range is limited to the sub-frequency bass range, its placement requirements are slightly different than for a full frequency speaker. The WATCH Dog is shipped with casters installed on the bottom of the cabinet. Leave the casters on the Dog as you move it to its desired location.

The ideal position of the WATCH Dog subwoofer is somewhat dependent on its primary use. In home theaters, where the WATCH Dog is used as the Low Frequency Effects (LFE) Channel, it may be located in a variety of positions, depending on architectural considerations. In general, the lower frequency range will be reinforced by room boundaries and corners. Since most of the information contained in the LFE channel is in the sub-frequency bass range, with little information in the mid and upper bass, there are some advantages to placing the WATCH Dog near the room boundaries or near a corner. Some care is needed to avoid introducing upper-bass colorations caused by corner placement. While surround processors provide the low frequency equalized signal for the LFE Channel, it has been our experience that in some systems it is desirable to use the Low Pass crossover (via the Wilson Controller) to additionally limit upper bass range. This is particularly important and useful when the WATCH Dog is placed in the corner. Since all Wilson Audio Speakers are phase and time coherent, it is very important to time align the WATCH Dog in the room using the Phase Control on the Controller (see Controller owner's manual).

WATCH Surround

Section 4 – Mounting the WATCH Surround

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Note: Before setting up the Series 2 WATCH Surround channels, study carefully Section 3, "In Your Room." It provides valuable information on determining the ideal room location for your speakers.

Section 4.1 – Mounting the Surround

You will need the following items:

- Supplied hardware kit
- Tape measure
- Known listening position
- Hand Drill

Your dealer is trained in the art and science of the Wilson Audio Setup Procedure (WASP) outlined in Section 3, and Wilson Audio recommends dealer installation of your new loudspeakers.

Section 4.2 – Safety Warning

Serious injury may occur if you do not follow these instructions carefully.

This wall mounting bracket was designed to be mounted into wood or concrete. Each Surround channel weighs over 40 lbs. and requires that the mounting plate be firmly attached to the wall. We recommend that you have your professional home theater installers mount the Surround channel to the wall. They can make sure that the mounting plate is properly attached to the wall. Before any holes are drilled, you must make sure that there are no electrical wires in the wall behind the speaker. If you cannot verify the location of all of the electrical wiring, do not proceed with the installation. Contact your contractor or an installation specialist.

Mounting Surface Evaluation

Wilson Audio has provided two different wall anchors depending on whether you are mounting into wood or concrete. We have evaluated these anchors and found them to securely attach the wall mounting bracket to the wall in most domestic environments in the U.S.A. (specifically to cement foundations, 2'x 4' studs, or 2 layers of reinforced plywood). These attachments may also work well in other countries. Because of the large variation in wall construction from country to country, we cannot predict their performance outside of the U.S.A. We recommend that you have a professional evaluate your particular wall construction and determine the ideal mounting hardware.

Section 4.3 – Mounting the Wall Bracket

The Surround channel mount has been designed to mount into concrete or at least 1.5" thick wood. Depending your wall, you may need to reinforce the wall before attaching the mount to the wall. Use care when attaching the wall mount. If it is not attached correctly, it may fall and cause injury.

Marking Location

- Decide how the speaker cables will be routed to the speaker. An opening in the mounting bracket makes it possible for cables to run from inside the wall directly to the Surround channel.

Using the template provided, mark the mounting holes on the wall according to Figures 7 and 8 below.

- If you are mounting into concrete, mark the outer 5 holes.
- If you are mounting into a wood surface, mark the 3 center holes.
- If you are not mounting into a wall stud but into a wood support, mark the outer 5 holes.

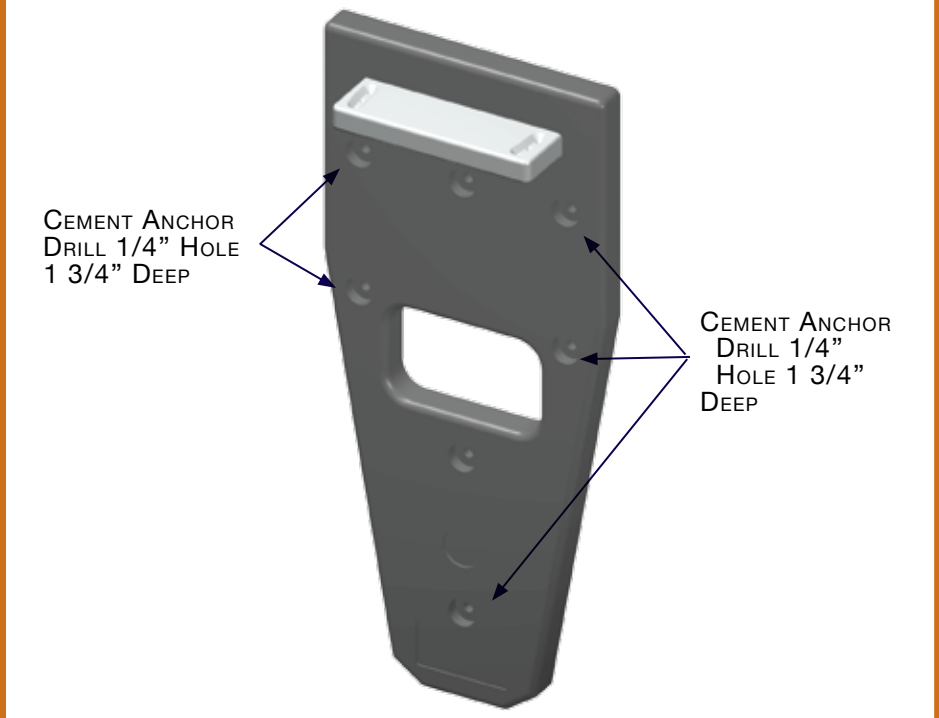


Figure 7 – Mounting Locations for for a Concrete Wall

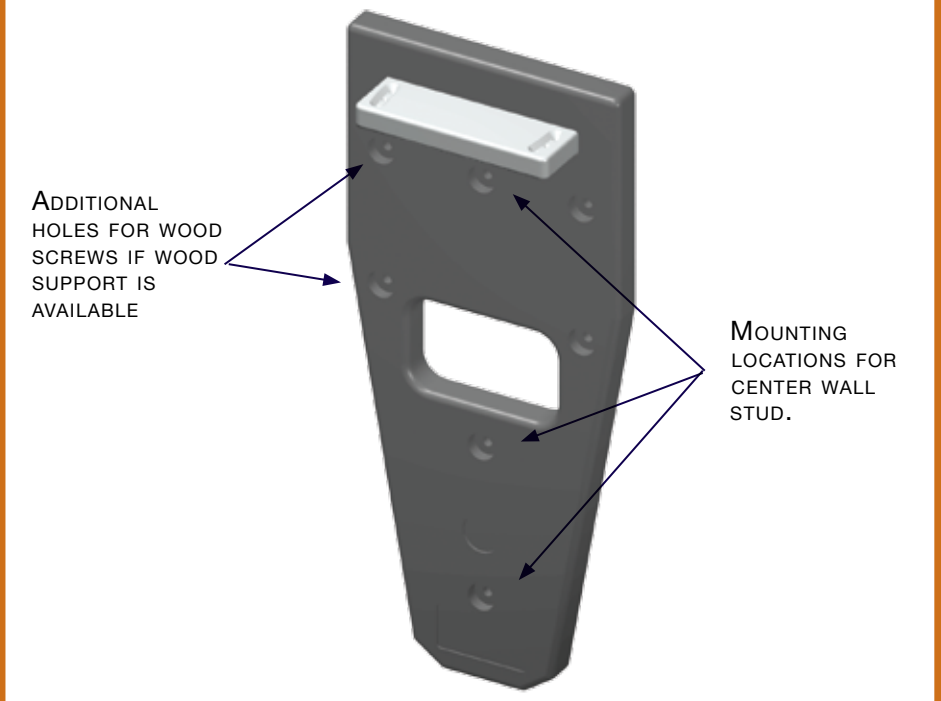


Figure 8 – Mounting Locations for Wall Stud or Wood Support

Important: Know the location of all internal wall electrical wiring in order to avoid problems.

Drilling Pilot Holes

Drill the mounting pilot holes into the marked wall locations as follows:

- Concrete: drill a pilot hole 1/4″ in diameter and 1 3/4″ deep using the provided cement drill bit and a hammer drill.
- Wood: drill a 3/16″ diameter by 1 3/4″ deep pilot hole.
- Using the provided wall anchors (lag bolt or concrete anchor), washers, and ratchet with socket, position the correct mounting bracket (CW or CCW) onto the wall and screw into place.
- Check that the mounting bracket is securely attached to the wall by pulling on the bracket. If properly attached, the bracket should be able to support 200+ lbs.

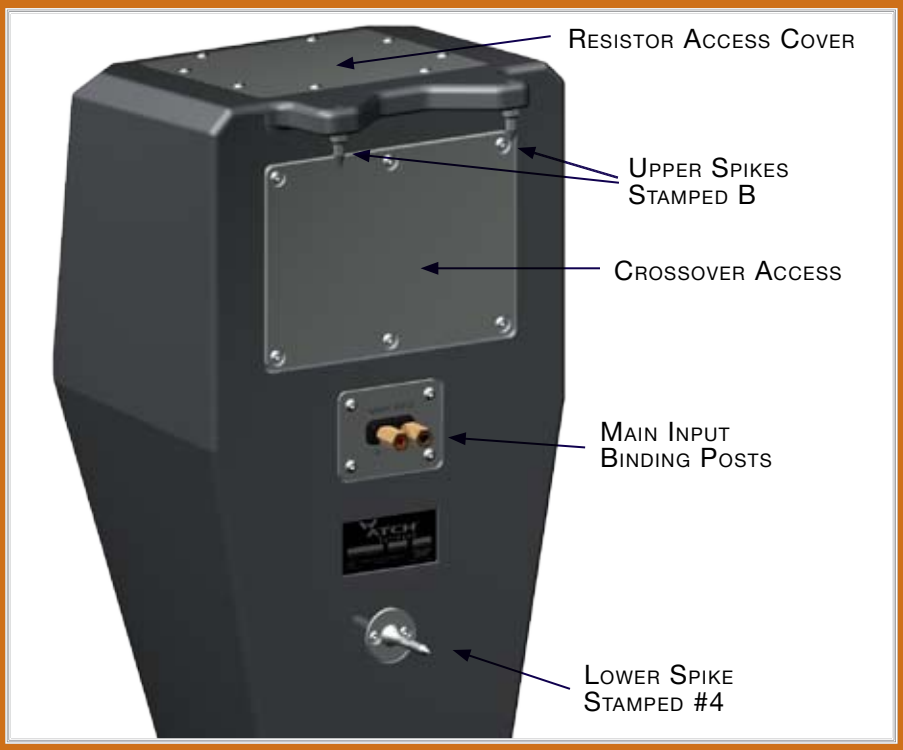


Figure 9 – Surround Hardware Attachment

Section 4.3 – Placing Surround

Attach the mounting spikes, as indicated in Figure 9, by screwing them into place until snug. Note the other hardware shown in the figure.

Placing Surround on Bracket

Place the WATCH Surround onto the bracket by lifting it up and sliding the spikes into the upper spike holes nearest to the wall. Position the speaker so the spikes are located in the indents closest to the wall. The inside spike (the spike located closest to

FIGURE 10 – PLACING THE SURROUND ONTO THE MOUNTING BRACKET

the other Surround channel) becomes the pivot point for rotation into the room. The inside spike will always remain in the indent closest to the wall.

Finally, position the lower spike into the lower spike hole located on the mounting bracket (see Figures 10 and 11).

Note: The upper spike location has 3 possible locations, allowing for some rotation in towards the listening position. Place the spike into the spike hole that is closest to the wall. The final location will be determined during the final setup and voicing performed in Section 5.

Figure 11 – Lowering Surround Channel onto Upper Spikes

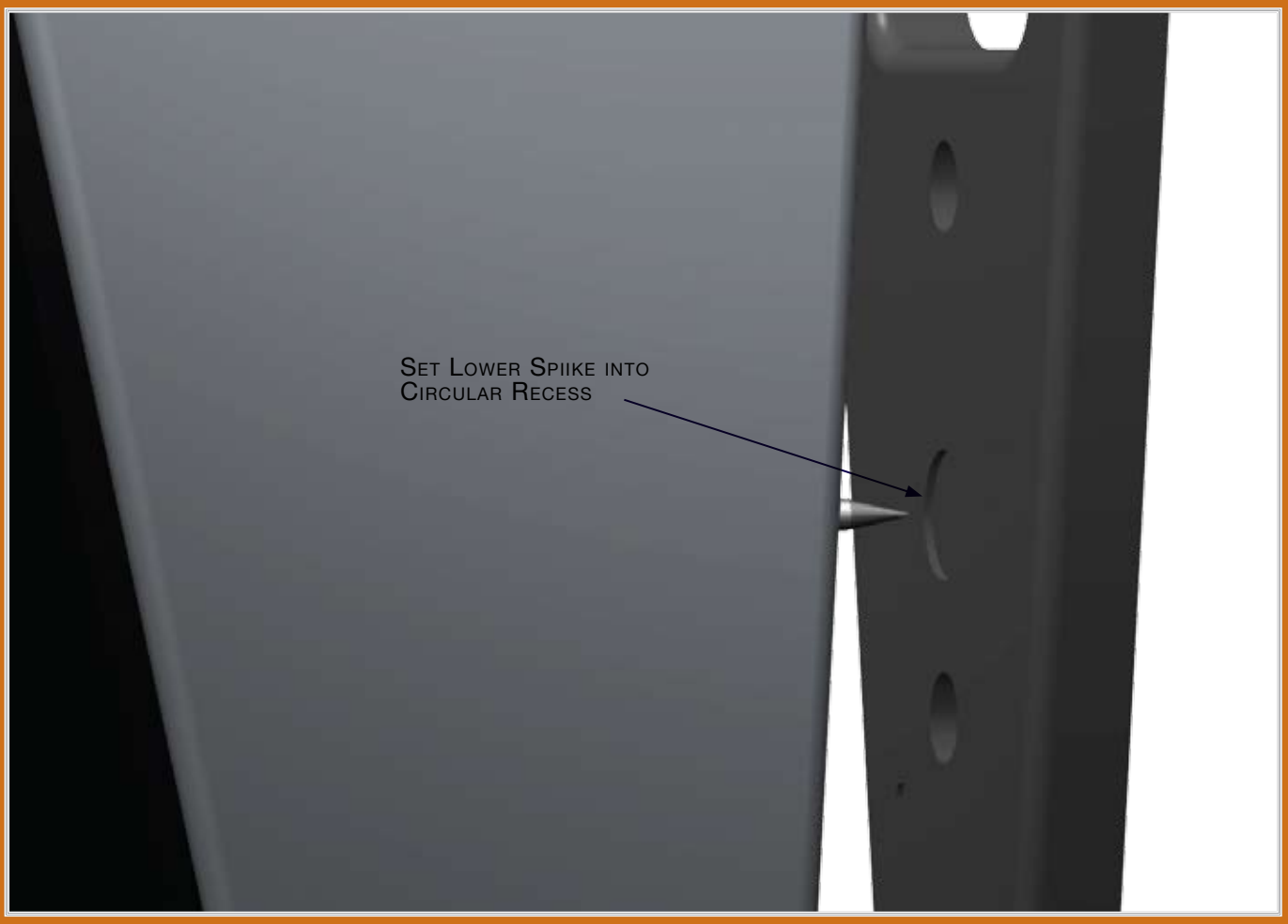


Figure 12 – Positioning the Lower Spikes

Section 4.4 – Connecting Speaker to Amplifier

- Turn off the power amplifier(s) and remove the AC power cord from the wall outlet.

- Lay out the speaker cables before hooking them up to the Surround channel. Make sure that there are no *kinks, twists,* or *right angle bends* in the cable. If you need to turn corners, attempt to use a gradual curve as opposed to a severe right-angled bend.

- Connect the negative (normally black) end of the speaker cable to the high current speaker binding post with the engraved "-" above it.

Note: Do not over tighten the binding post. Over tightening can cause the posts to break off.

- Connect the Positive (normally red) end of the speaker cable to the high current speaker binding post with the engraved "+" above it.

- Plug your amplifier(s) AC power cord into the wall outlet.

Note: Always attempt to keep your pair of speaker cables the same length. This will ensure that the signals arrive at each speaker in the proper time frame as the signals travel the same distance to each speaker.

Speaker Cables

We recommend the use of the very highest quality loudspeaker cables, particularly those designed for high frequency propagation correction and phase linearity. Beware of "zip cord" type speaker cables, which will smear sound from your Surround channels and limit their effective bandwidth. Also, do not use braided litz-type loudspeaker cables as they will cause an unnatural brightness to the sound, compromise sound staging performance, and may cause instability, oscillation, and damage in wide bandwidth solid state amplifiers.

Spade Lugs

The spade lugs of some of the high quality cables often used with the Surround channel are angled to reduce pressures on the cable during installation. Avoid the instinct to push the cable's spade lug ends all the way into the Surround channel's connectors (see Figure 13). Partial insertion of these angled spade lugs will actually improve the reliability of the connection. Flat lugs may be fully inserted to connectors before tightening.

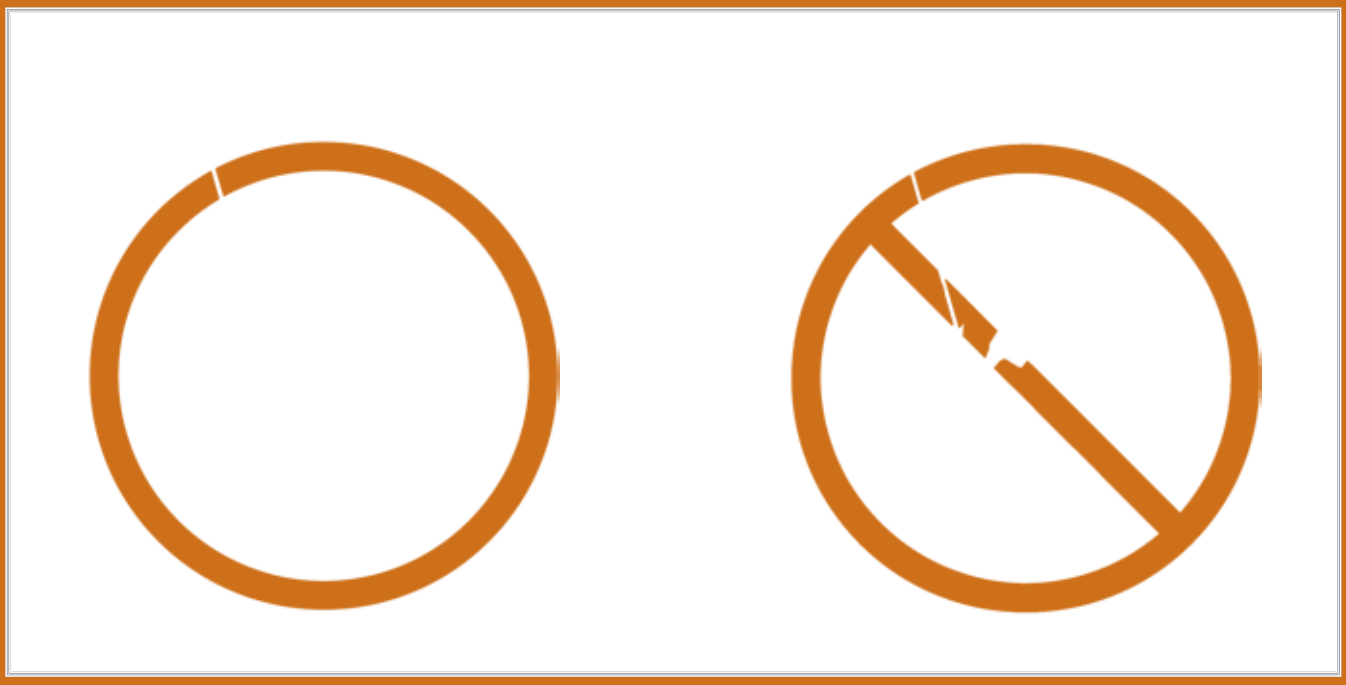


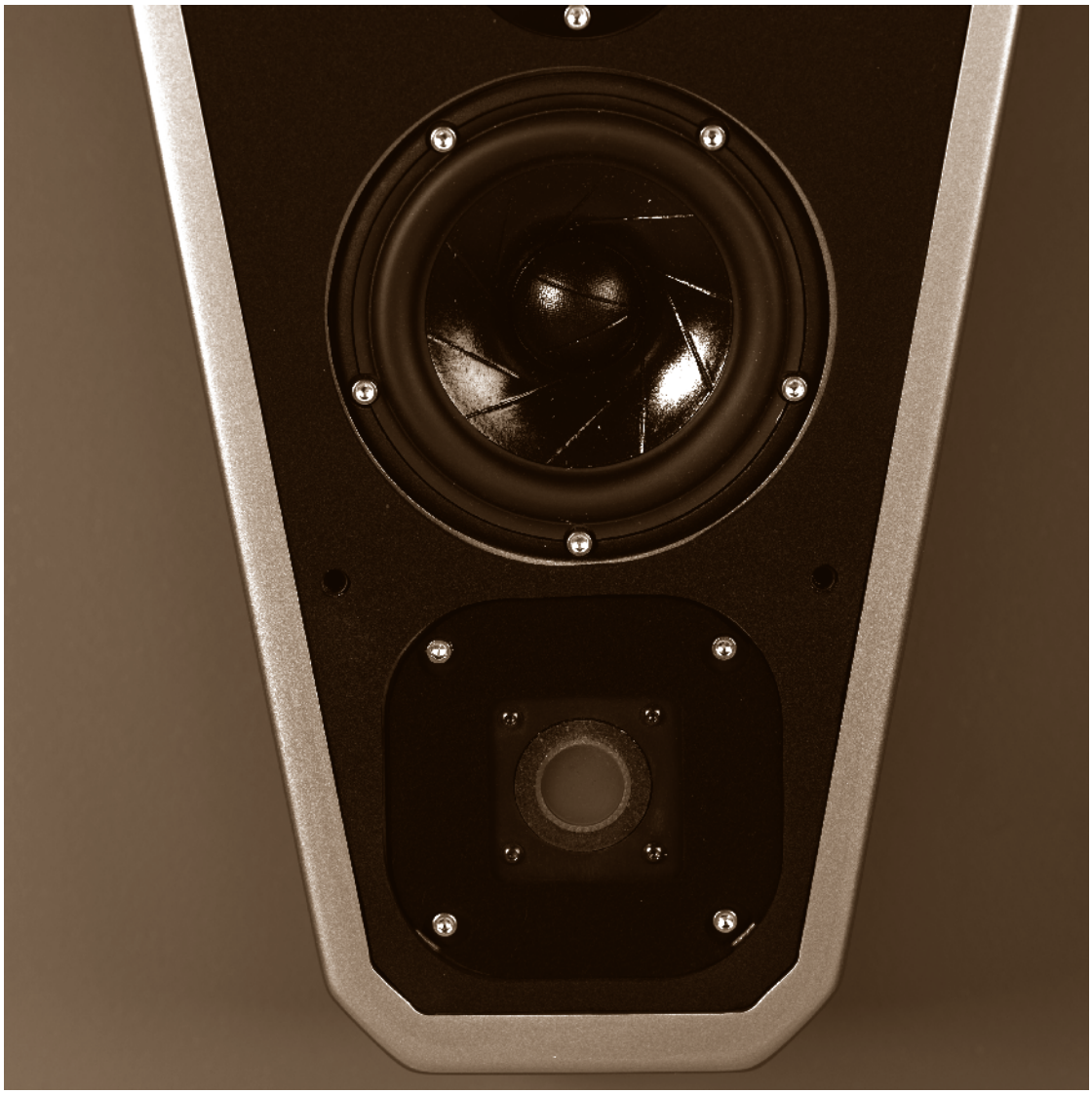
Figure 13 – Spade Lug Attachment

Section 4.5 – Surround Setup Completed

This completes the initial setup of your Series 2 WATCH Surround channels. Final system tuning and voicing should be performed as outlined in Section 5. Section 5 will evaluate your entire speaker setup and allow you to make small modifications in speaker rotation and location (except, of course, the Surround Channel), which will greatly improve the performance of your multi-channel audio or home theater system.

WATCH Surround

Section 5 – Final System Tuning and Voicing



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Section 5 – Final System Tuning and Voicing

This loudspeaker placement method was developed by David A. Wilson, for Wilson Audio Specialties, to find optimum loudspeaker location in any given room within one hour. Participating in numerous audio/multi-channel/home theater shows with very different and difficult acoustic environments necessitated this procedure. Currently, all Wilson Audio dealers employ this setup procedure for their customers, in order to quickly and predictably achieve the best performance from their systems (this procedure can be used successfully with ANY moving coil speaker system).

Proper system calibration is the most important step in the setup of your multi-channel/home theater system. The WATCH system offers increased resolution and overall system performance. This increased resolution allows you to fine tune your system, thus increasing overall performance, more than any other system available.

Fine tuning and "voicing" generally involve only small changes in location and rotation (or toe) of your multi-channel system. With proper calibration you will find that changes as small as 1 inch will have an impact on the performance of your system. The following sections step you through this fine tuning process. Sections 7.1 and 7.2 will cover a multi-channel setup. Section 7.3 will cover two-channel audio. The multi-channel setup will be done as follows:

- Set up of Left and Right Channels, with all other speakers disconnected.
- Add the Center Channel
- Add the Surround Channels
- Add the Subwoofer

Adding one speaker at a time will allow you to easily evaluate the integration with the system and make the necessary adjustments to fine tune the setup.

Section 5.1 – Left and Right Channels

Determining Front to Back Distance

The proper setup of the left and right channels is crucial for optimum system performance. If these speakers are not set up correctly, the entire system will suffer from poor integration. Please follow these steps carefully:

- Place the speaker in an appropriate location relative to your screen and listening area. Make certain to remove the grilles and spikes.
- Toe the speakers in so that you can just barely see the inside edge when seated in the primary listening position.
- Using removable masking tape, graph off the floor so that you can accurately move both speakers forward and backward in 1/2 inch increments.
- Place your multi-channel processor into stereo mode.
- Using a piece of full range music (dynamic with a lot of low frequency information) played at a moderately high level, take notes on the sound quality. Pay specific attention to upper and lower bass quality, dynamic contrasts, image height and focus.
- Move the speakers back or forward in 1 inch increments and then 1/2 inch increments.

Note: Moving the speakers BACK will generally increase low bass, sharpen focus, lower image height, and increase dynamics up to the point where you go too far, in which case the sound will start to lose these qualities in addition to becoming boomy and slow sounding. Moving the speakers FORWARD will increase air and bloom, raise image height, and generally increase the sense of space. Moving too far forward will

cause the soundstage to become unnaturally high with a lack of focus, dynamics and low end extension.

- Find the front to back location where the bass is tight, dynamics are correct, and image is well focused, and you find the best sound staging.

- Mark this as your final front to back location.

Determining Side to Side Distance

The distance the speakers are from the side walls is very important. This distance determines the amount of comb filtering you will hear. In effect, you are "tuning" the comb filter interaction between the speaker and the wall. Perform the side to side analysis as follows:

- Place a piece of tape on the floor parallel to the front edge of the speake- and again mark off 1/2" increments side to side.

- Using only one channel/speaker at a time, you will now determine the optimum position with regard to the side walls.

Note: A high quality, solo piano recording works well for this step.

- While the music is playing, slowly move the speakers left or right 1" then 1/2" at a time until you achieve the best harmonic integrity.

You should not need to move the speaker any more than one inch left or right from the original location. Do this independently for each channel. What you will hear when the speaker moves into the correct location is a reduction of hardness and muddied harmonics from the piano.

Note: If you continue moving the speaker past this point, you will begin to hear again this fatiguing artifact.

When you have determined the optimum location for each speaker, mark it carefully, and make certain the toe-in is correct. When installing the spikes, the speakers

may shift slightly, but you can move them precisely back to the correct location again using your tape markers.

Section 5.2 – Integrating the WATCH System

Note: Many processors offer a setup guide that steps you through the integration of each of the speakers, specifically, setting speaker distances, delays, and phase rotation. These adjustments are made via internal electrical adjustments. We have found that actual geometric changes, that is, moving the speaker location and rotation, offer improved results when integrating speakers. We recommend that you follow the steps outlined below, evaluate your system performance, and then make adjustments in the processor. Ultimately, you will, of course, need to make level adjustments via the processor.

Integrating the WATCH Center

The next step in the setup process is to fine-tune the location and rotation of the Center channel. Do as follows:

- Place the Center channel centered between the main speakers and even with the front inner edge. Set the spikes as indicated in the Center channel manual.

- Follow the processor instructions on level adjustment. Adjust the level on the Center channel so it matches in level with the left and right channels. Do not be surprised if the Center channel requires 7-10 dB lower adjustment than the left and right channel.

- Make sure that only the front left, right, and Center channels are connected.

- With the Center channel spiked, put on a multi-channel audio track or movie scene with which you are familiar.

- Play the selection and listen for the integration with the main speakers. As

the audio moves across the three front speakers, listen for a smooth transition from one speaker to the next. You should not hear any voids in the sound stage.

- Make 1/2″ changes in front to back location until you find the Center channel location that offers the best integration.

Image Height

Check the image height. Does the dialogue of a movie have the correct height? Is it too low or too high?

If needed, adjust the amount of rotation until the image height is correct. On a stand or floor mounted Center channel, raising the front spikes will raise the image height; lowering the front spikes will lower the image height. (You may need to add or remove a spacer to get the correct image height.)

Center Rotation

Our testing has shown that a stand-mounted Center channel, at listening distances greater than 6-7 feet, requires the front of the Center channel to be raised about 1″. This is because the effects of comb filtering are more noticeable the further away you are from the Center channel. This comb filtering reveals itself as a slight nasal sound in the voice. If you notice this in the sound, you should raise the front spikes of your Center channel until the comb filtering is reduced. Often, raising the front spikes as little as 1/2″ will eliminate the comb filtering.

Resetting the Propagation Delay Control (PDC)

Once the final rotation has been determined, you will need to reset the PDC. Please refer to the Center Channel Series 2 Owner's Manual for correct tweeter alignment.

Every system has a unique time and phase character, which can affect the PDC ac-

curacy. Because of this, you may find that sliding the tweeter forward or backwards a few positions increases the clarity and correctness of your Center channel. If you like, experiment with the tweeter position, and lock it in position when you find the location you feel to be most accurate.

Integrating the Surround Channels

- Follow the processor instructions on level adjustment. Adjust the level on the Surround channels so they match in level with the front channels.

- Play a DVD that has a scene with something moving around the room. Listen for the correct spatial imaging. A correctly adjusted Surround channel will have good imaging characteristics, will be seamlessly blended, and should be just as transparent as the front channels.

- Adjust the rotation of the Surround channel until you find the best integration.

Note: The Surround channel rotates on the upper two spikes. Carefully examine this rotation and the mounting bracket before trying to adjust the angle of rotation. Be careful when rotating the speaker as it is very heavy and could fall off of the mounting bracket.

Integrating the WATCH Dog

The subwoofer will perform well in almost any location in the room. In general, the closer you place the subwoofer to a wall or corner, the greater the augmentation of the bass. However, the increase in bass comes at a cost of perceived speed, dynamics, and bass clarity. We recommend that you experiment with placement of the subwoofer to find a balance of the above mentioned items. For complete information on integrating a Wilson Audio subwoofer, please refer to your subwoofer owner's manual.

Section 5.3 – Two-Channel Final Setup Procedure

The final step in setting up your on-wall stereo speakers is to set the rotation. Remember that the mounting bracket allows for the speaker to rotate on the upper spikes. This rotation allows the speaker to be toed-in towards the listening position. Careful evaluation of the rotation will significantly improve the performance of your speakers. Determine the correct rotation as follows:

- Sit in your listening position. Make certain to remove the grilles.
- Adjust the rotation of the speakers so that they are firing straight forward.
- Using a piece of full range music (dynamic with a lot of low frequency information) played at a moderately high level, take notes on the sound quality. Pay specific attention to upper and lower bass quality, dynamic contrasts, image height, and focus.
- Find the rotation where the bass is tight, dynamics are correct, image is well focused, and you find the best sound staging.
- Play a simple piece of music with one vocal only. The selection should be one that you are familiar with and know to have clean and well-focused vocals.
- Set this as your final location.

WATCH Surround

Section 6 – Care of the Finish

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Section 6.1 – Care of the Finish

The WATCH Surround Series 2 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 WATCH Surround

It is important that the delicate paint finish of the WATCH Surround be dusted carefully with the dust cloth, which has been provided. 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 WATCH Surround'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 your WATCH Surrounds.

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 woofers and mid-range 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 6.2 – Enclosure Technology

Materials

With the development of each new product, Wilson Audio has focused intensive research on the impact materials have 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 WATT and continuing with the further development of proprietary materials for X-1 Grand SLAMM and WATCH Dog. Even the best materials are not

suited to all aspects of enclosure construction. Therefore, like all Wilson loudspeakers, the WATCH Surround is constructed of several exotic materials chosen for their specific performance attributes relevant to different portions of the enclosure.

The WATCH Surround is constructed using non-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, thermo-set 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.

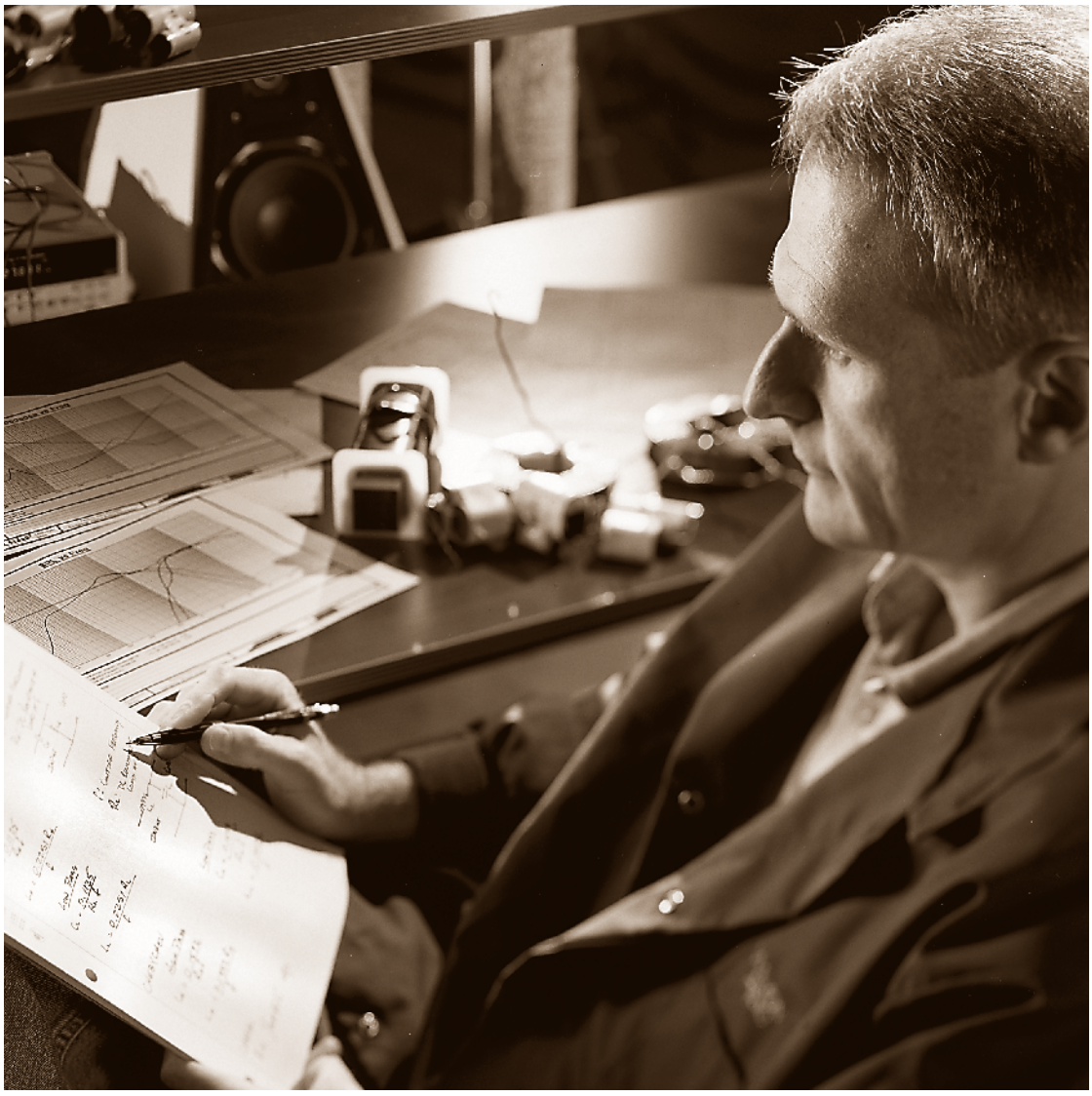
Section 6.3 – Depth of Design

WATCH Surround'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 the WATCH Surround 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 WATCH Sur-

round will have consistent, repeatable performance, unaffected by the climatic conditions, anywhere in the world. Finally, like all Wilson products, the WATCH Surround is hand-crafted with meticulous attention to detail, with an unwavering commitment to excellence. Thus, the WATCH Surround will impart to her owner beauty and pleasure for many years to come.

WATCH Surround

Section 7 – Troubleshooting



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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.

Imaging is off-center:

This could be a phase problem. When a tweeter or mid-range is not working, or is out of phase, the Surround 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.

Driver out or not playing after connections have been verified:

If you have found a driver with no output, turn off your amp and disconnect the speaker cable. Locate the aluminium access door on the top of the Surround. **Note: The enclosures are quite heavy. Please take care when moving.**

Using the appropriate Allen key, open the access door.

You will find two resistors connected to the crossover. Replace the resistor with the matching resistor obtained through your Wilson Audio dealer. Tighten the new resistor in the old one's place.

Note: Use only Wilson Audio replacement resistors in your Surround. 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 connected to the binding posts. 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.

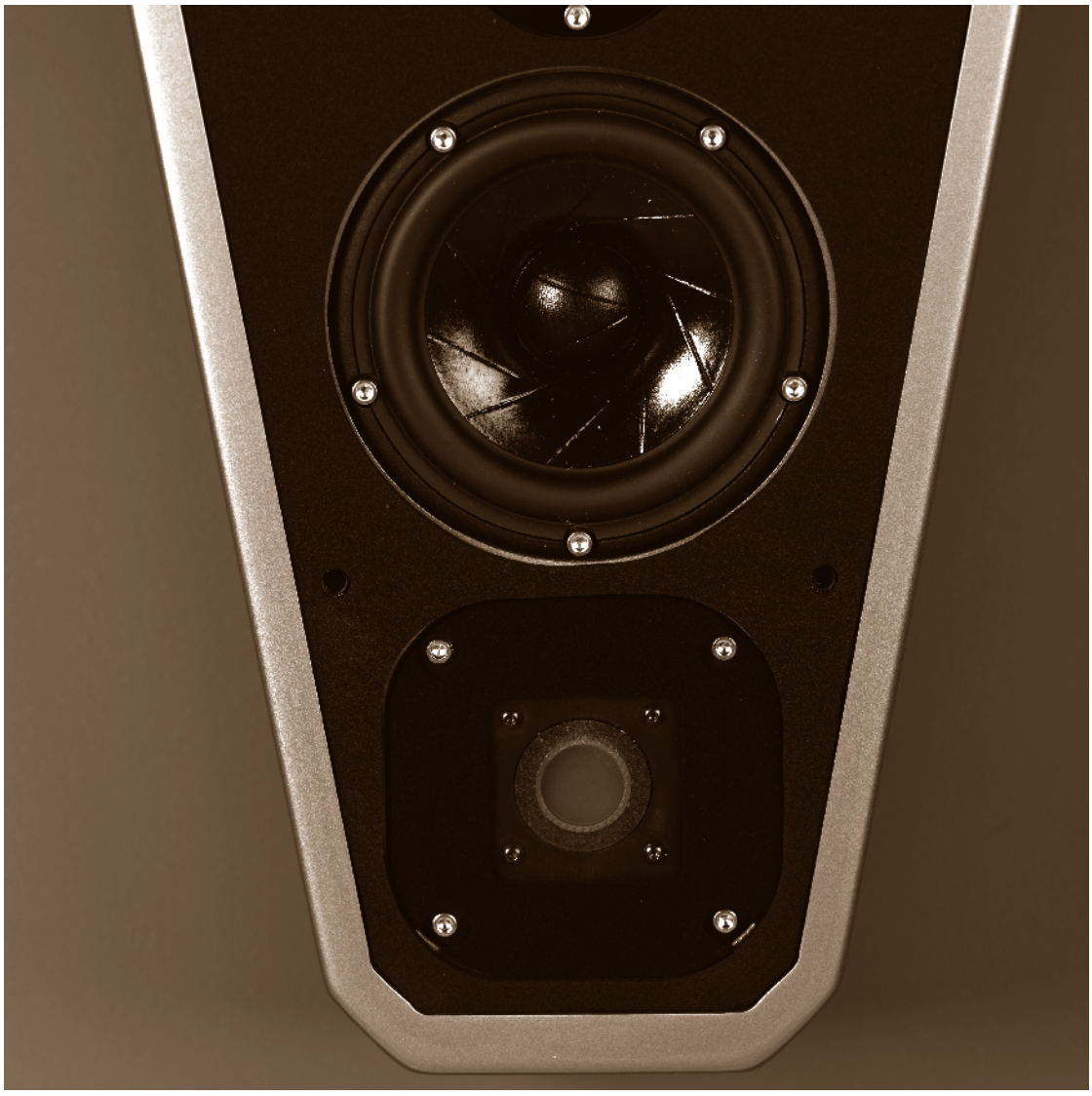
If the problem is solved:

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.

WATCH Surround

Section 8 – Repairs



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Section 8.1 – Repair Procedures

Replacing a Blown Resistor

The WATCH Surround Series 2 loudspeaker has a resistor that will protect the tweeter, in most cases, if the speaker is over driven during normal operation. This is done so that the driver is not damaged. Replace a blown resistor as follows:

1. Turn off the amp.

2. Disconnect the speaker cables and remove the Surround from the wall.

3. Place the speaker on its side on a comfortable working surface.

Note: It is best to place a cloth towel under the driver so that you will not damage the enclosure when unsoldering the driver.

4. Remove the resistor access cover from the enclosure by removing each of the button head screws (see Section 4 for resistor cover locations).

5. Heat up the leads of the resistor with a 45 watt (approx. 1100 degrees F) soldering pencil and remove the faulty resistor.

3. Wrap the leads of the new resistor around the ends of the posts and re-solder the leads.

4. Re-attach the resistor access cover to the enclosure, making sure not to over tighten the screws.

Replacing a Bad Driver

If you believe that a driver is blown, make sure that you have tried replacing the protective resistor before you replace the driver. No sound coming from a driver is often a blown resistor and not a bad driver. If you need to replace a driver, do so as follows:

1. Turn off the amp.

2. Disconnect the speaker cables and remove the Surround from the wall.

3. Place the speaker on its side on a comfortable working surface.

Note: It is best to place a cloth towel under the driver so that you will not damage the enclosure when unsoldering the driver.

4. Using an Allen wrench, remove the screws holding the driver in place.

5. Insert the Allen wrench into one of the driver mounting holes 1/8″. Gently lift out the driver and place it onto the foam pad covering the front baffle.

6. Using a 1100 degree F soldering iron, heat up the solder joints and remove the driver.

7. Melt a small 1/8″ diameter bead of solder onto the terminal posts of the driver.

8. Slide the driver foam gasket over the wires before soldering the driver.

9. Place the replacement driver onto the cloth and solder the wires onto the driver. The white wire connects to the positive side, and the black wire connects to the negative. The positive side is generally indicated by a red dot. Make sure to heat up the solder joint completely and hold firmly in place until the solder sets.

10. Place the driver into the driver location.

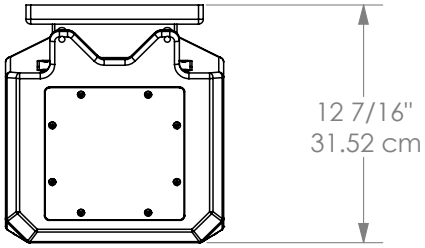
11. Replace the machine screws, tightening them to 15 inch-pounds of torque.

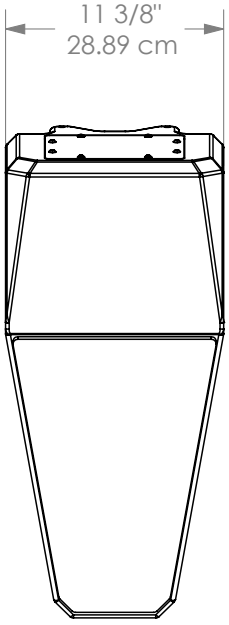
12. Re-install the Surround Channel on its wall-mount.

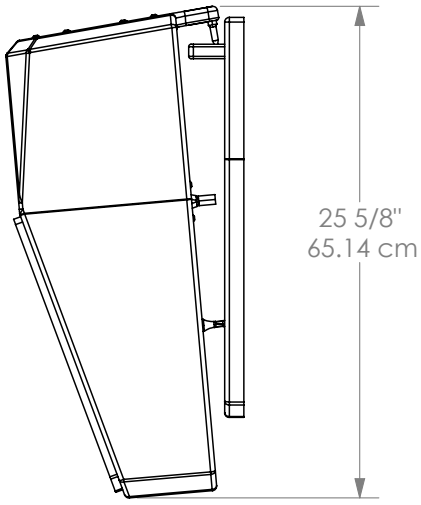
Note: Be careful not to over tighten the screws as you may damage the enclosure

or break a screw.

Section 9 – Specifications







Section 9 – WATCH Surround Specifications

Measurements:

Impedance: 8 Ohms

Sensitivity: 89dB, 2.38 V at one meter

Frequency Response: 40 Hz to 22 kHz

Dimensions:

Height: 25 3/16″ (63.98 cm) with spike

Depth Unmounted: With Grill: 1 9/16″ (29 . 36 cm)

Depth Mounted: 12 3/8″ (31.43 cm)

Width at Top: 11 3/8″ (28.89 cm)

Width at Bottom: 6 3/8″ (16.19 cm) – at widest part before angle

Weight Uncrated:

Speaker Weight: 41 lbs. (18.6 kg)

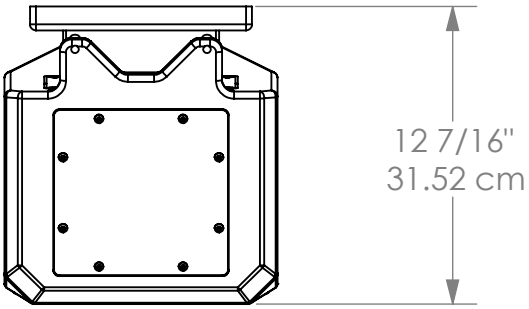
Mount Weight: 8.5 lbs. (3.86 kg)

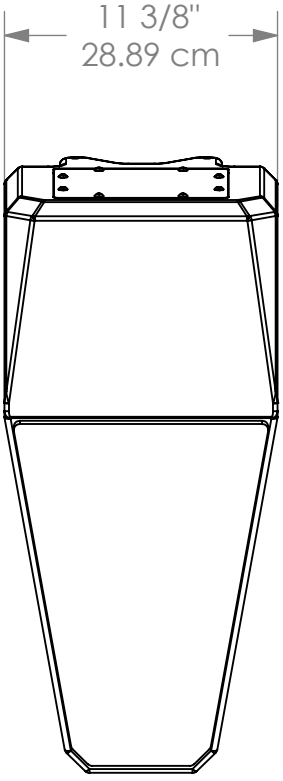
Shipping Weight (approximate):

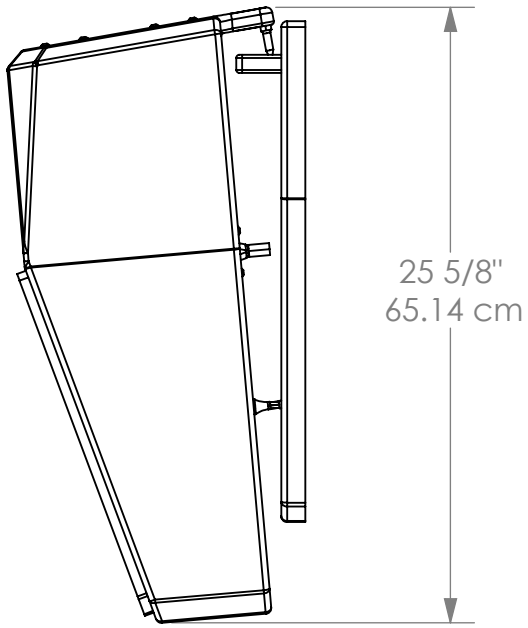
Per Crate: 90 lbs. (40.82 kg)

Pair of Crates: 180 lbs. (81.65 kg)

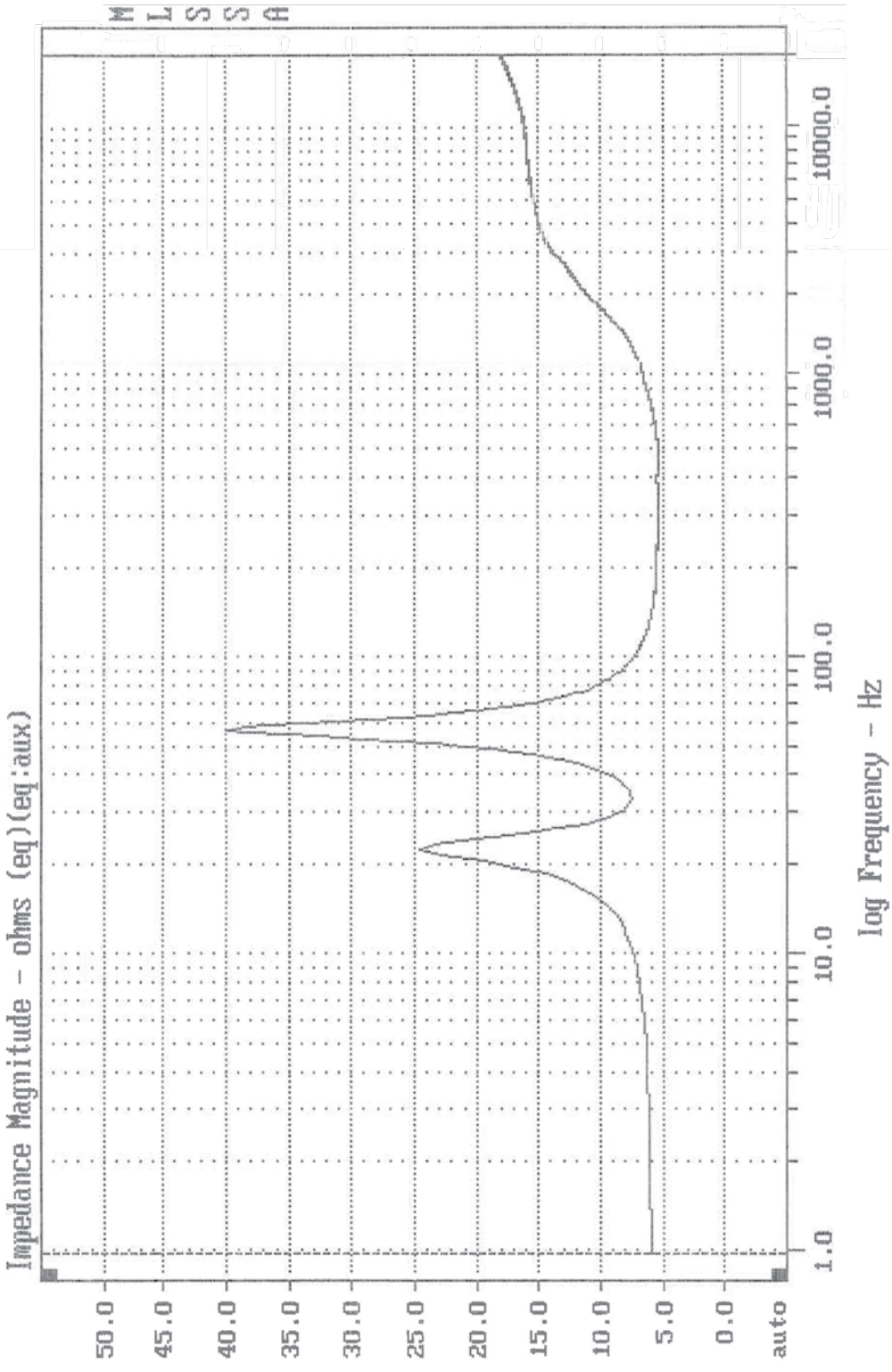
Surround Dimensions Illustrated







Impedance Curve



WATCH Surround

Section 10 – Warranty Information

WILSON AUDIO

Section 10.1 – Warranty Information

Limited Warranty

Subject to the conditions set forth herein, Wilson Audio warrants its electronics 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

ALL EXPRESS AND IMPLIED WARRANTIES NOT PROVIDED FOR HEREIN ARE HEREBY EXPRESSLY DISCLAIMED. ANY LEGALLY IMPOSED IMPLIED WARRANTIES RELATING TO THE PRODUCT SHALL BE LIMITED TO THE DURATION OF THIS LIMITED WARRANTY. THIS LIMITED WARRANTY DOES NOT EXTEND TO ANY INCIDENTAL OR CONSEQUENTIAL COSTS OR DAMAGES TO THE PURCHASER.

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.