

WATCH DOG

Owner's Manual

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SECTION 1.0 WATCH DOG INTRODUCTION

WATCH DOG™

The WATCH Dog powered subwoofer is the culmination of over a quarter century 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 as the LFE channel in a surround system.

Like other WATCH products, along with music system applications, the WATCH Dog was designed to take advantage of today's multichannel formats. The unique tune-ability of the WATCH Dog via its comprehensive control panel allows the WATCH Dog to be optimized for both music and multichannel applications, even within the same system. The control panel's adjustments allow critical setup ensuring the best possible performance in a wide range of rooms and with a variety of speakers.

SECTION 1.1 APPLICATIONS

APPLICATIONS

For more than a quarter century, Wilson Audio loudspeakers have set the standard for performance in a wide variety of 2 channel audio and multichannel home theater applications. The WATCH (Wilson Audio Theater Comes Home) Dog powered subwoofer ensures the most seamless integration with your Wilson Audio stereo loudspeakers. The WATCH Dog system is the only powered sub designed specifically to match the inherent quality of the Cub, WATT/Puppy, MAXX and in many instances the X-1 Grand SLAMM.

The WATCH Dog enclosure is constructed of MAXX and "X" composite materials. The ultra-long throw 12" driver is powered by a high current amplifier designed specifically for the WATCH Dog by Richard Marsh. A unique control center adds the flexibility and tune-ability that truly redefines powered subwoofer performance in its class.

One of David Wilson'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 sound track listening. Therefore, the WATCH Dog has been designed to deliver all of the speed, dynamics and musical accuracy to satisfy even the most demanding music lovers. The WATCH Dog will provide years of satisfaction whether listening to two channel audio, multichannel audio or to the latest movie sound track.

The WATCH Dog has been engineered to take full advantage of today's multichannel surround formats, especially the latest AC-3 (Dolby Digital) and DTS (Digital Theater Systems) formats. The WATCH Dog will provide the speed, dynamic impact and realism inherent to all Wilson Audio products.

DESIGN CONSIDERATIONS

Your WATCH Dog powered Subwoofer has been designed to augment and extend the bottom octave performance of music and home theaters systems. This was a difficult task because of the inherent speed, phase coherency, and dynamics typical of Wilson Speakers. Because the WATCH Dog powered subwoofer was designed in-house and voiced with a variety of Wilson speakers the WATCH Dog is uniquely capable of providing seamless, coherent, and dynamic bass extension to your existing Wilson Speakers. To accomplish this task David Wilson and his engineering department used a state of the art subwoofer driver, sophisticated electronic crossovers, phase and equalization controls, and sophisticated enclosure materials. The discussion of a few of these follows.

ENCLOSURE MATERIALS TECHNOLOGY

Only the very best in materials are used in the WATCH Dog enclosure. The enclosure of the WATCH Dog uses the same proprietary techniques that have been very successfully used in the X-1 Grand SLAMM, MAXX and the WATT/PUPPY systems. The enclosure is made from a non-resonant composite materials which is then highly-cross braced to further reduce cabinet resonance. In the most critical areas, the WATCH Dog uses our proprietary "X" material, a very dense, strong composite, developed for the X-1 Grand SLAMM.

ADHESIVE

The engineers at Wilson have performed extensive research to arrive upon the adhesives used to construct our enclosures. This often over looked element is crucial to the proper performance and longevity of a loudspeaker. Correct modulus of elasticity, coefficient of thermal expansion and natural frequency response are just a few of the important elements.

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.

DEPTH OF DESIGN

The combination of the best in composite materials and adhesive technology, provided to us by the leaders in their industries, allows us to design enclosures with unmatched performance. The WATCH system has been designed to eliminate vibration and cabinet signature, while maintaining an internal acoustical integrity that is simply the best.

SECTION 1.2 WATCH PACKAGE

WATCH CENTER

Specifically designed to excel at center channel functions, WATCH-Center is extremely dynamic with high sensitivity and strong power handling. Unlike most center channels, it provides listeners not only with optimal on-axis response, but also smooth, linear, off-axis response. This is in part a result of Wilson PDC™ technology first developed for the WAMM and X-1 Grand SLAMM systems, and later applied to the rest of the Wilson Line. PDC (Phase Delay Correction) allows for optimal tuning of a loudspeaker for various listening distances and heights, and gives listeners much greater control over their sound.



FIGURE 1.1 WATCH CENTER

The WATCH center channel 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 multichannel audio setup.

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

WATCH SURROUND

WATCH-Surround is a perfect example of performance disproportionate to size. With strong power handling capacity and low end frequency response reaching 45Hz, this speaker will take your surround sound to new heights. Unlike most surround speakers, WATCH-Surround is more than a noisemaker. It brings accuracy, dynamics, and emotion to your theater, and with its gorgeous Mirrorgloss™ finish, it looks right at home on your wall.

WATCH-Surround also minimizes wall/ceiling resonant interactions through its advanced mounting system. Perhaps the greatest challenge for a mounted speaker, these interactions cause coloration of sound; accentuating some frequencies and effectively masking others. Using state of the art materials technology first developed for the X-1 Grand SLAMM, WATCH-Surround provides stunning results.

The Surround wall mounting bracket allows the Surround to be spiked to the bracket, 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.



**FIGURE 1.2 WATCH
SURROUND**

CONCLUSION

Finally, a subwoofer designed and manufactured with the same commitment to excellence that has existed for over a quarter century in all products from Wilson Audio. As a part of a truly high-end multichannel system, or in a music system, the WATCH products offer unparalleled performance, quality of build, and longevity. Combine the structural and design considerations with the superior sonic quality and finish and you find what makes Wilson Audio special and unique. 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. The WATCH Dog, as well as the other WATCH products, will provide an experience with film or music only obtainable through Wilson products.

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SECTION 2.0 CARE OF THE FINISH

Your WATCH Dog subwoofer enclosure is hand-painted with Wilson gloss™ paint and hand-polished to a high luster. While the paint seems quite dry to the touch, final curing and complete hardening takes place over a period of several weeks. To protect the finish of the WATCH Dog during final manufacturing, shipment, and setup in your listening room, we have applied a removable layer of protective film over the painted surface. We recommend that this film be left in place during the positioning process to prevent damage to the painted surface of your subwoofer. Once you have determined the WATCH Dog's final position, remove the film by peeling it off. **Do not leave this film on indefinitely, as it will leave impressions on the paint.**

It is important that the delicate paint finish of the WATCH speakers 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 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 finger prints and other minor smudges may be removed with a glass cleaner. When cleaning the painted surface of your subwoofer, always use the dust cloth. Stronger solvents are not recommended under any circumstances, as they may damage the paint. Consult your dealer for further information if required. Periodic polishing may be desired over the years to maintain the high luster of the finish. We recommend a nonabrasive carnauba-based wax and soft cloth.

BREAK IN PERIOD

All audio equipment will sound its best after the components have been broken-in for some period of use. Wilson Audio breaks in the woofer of your WATCH Dog for a 12 hour period. All drivers are then tested, calibrated, and matched for their acoustical properties. Some break-in is also required of the Control Panel and the amplifier. Wilson Audio recommends that you begin final positioning of your WATCH Dog subsequent to the break-in process. In your listening room, expect 25-50% of break-in to be complete after two hours of playing music at a moderate volume. Ninety percent of break-in is complete after 24 hours of playing. Playing a "disc repeat" overnight can accomplish this task quickly. Wilson Audio often uses chamber music to accomplish this process.

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IN YOUR ROOM

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Note: The following section presents important information on room acoustics. These important concepts for two channel audio become even more important when dealing with multi-channel audio or home theater. The presence of two or more speakers in a room only increase the amount of setup difficulties and speaker interactions. Through careful study of the concepts herein, followed by evaluating your own room configuration, will result in a marked improvement in the performance of your multichannel system.

SECTION 3.0 ROOM REFLECTIONS

There are 3 commonly encountered room reflection problems, slap-echo, standing waves, and comb filter effects.

SLAP-ECHO

Probably the most obnoxious form of reflection is called “slap echo”. In slap echo, primarily mid-range 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 primarily in two ways:

- Adding harshness to the upper mid-range and treble through energy time storage.
- Destroying the delicate phase relationships which help to establish sound stage and image localization clues.

Nonparallel walls do not support slap echo, but rather allow the sound to diffuse.

Slap echo is a common acoustical problem in the typical domestic listening room, because most of these rooms have walls of a hard, reflective nature, usually being only occasionally interrupted by curtains or drapes. Slap echo can be controlled entirely by the application of absorptive materials to hard surfaces, such as:

- Sonex
- Airduct board
- Cork panels
- Large ceiling to floor drapes
- Carpeting to wall surfaces

In many domestic listening environments, heavy stuffed furnishings are the primary structural control to slap echo. 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”, much heavier in bass tonal balance, 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. Diffusers, on the other hand, tend to not change the high frequency tonal balance characteristic of the room, but make the sound more “open”. A combination of absorptive and diffusive treatments is usually the best approach.

STANDING WAVES

Another type of reflection phenomenon is standing waves. Standing waves cause the unnatural boosting of certain frequencies, typically in the bass, at certain discreet locations in the room. A room generating severe standing waves will tend to make a loudspeaker sound one way when placed in one location and entirely different when placed in another. The effects of standing waves on a loudspeaker's performance are primarily, as follows:

- Tonal balance- bass too heavy
- Low-level detail- Masked by long reverberation time LF standing waves
- Sound staging- LF component of image shifted

Standing waves are more difficult to correct than slap echo because they tend to occur at lower frequencies, whose wave lengths are long enough to be ineffectively controlled by absorbent materials such as Sonex. Moving speakers about slightly in the room is, for most people, their only control over standing waves. Sometimes a change of placement as little as one inch can dramatically alter the tonal balance of a system because of standing wave problems. Fortunately, minor low frequency standing waves are sometimes well controlled by positioning 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 large window and door areas.

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 so that 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

A special type of standing wave, noticeable primarily in the midrange and lower high frequencies is the so-called "comb filter effect".

Acoustical comb filtering occurs when sound from a single source, such as a loudspeaker, is directed toward a microphone or listener at a distance. The first sound to reach the microphone will be the direct sound, followed by 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 are 180 degrees out of phase. There is augmentation at other frequencies where the direct and the reflected sounds arrive in phase. Because it is a function of wave length, the comb filter effect will notch out portions of the audio spectrum at regular octave-spaced intervals.

The subjective effect of comb filter effects, (such as is shown in Figure 3.1) is as follows:

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

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

REFLECTIVE ACOUSTICAL COMB FILTER EFFECT

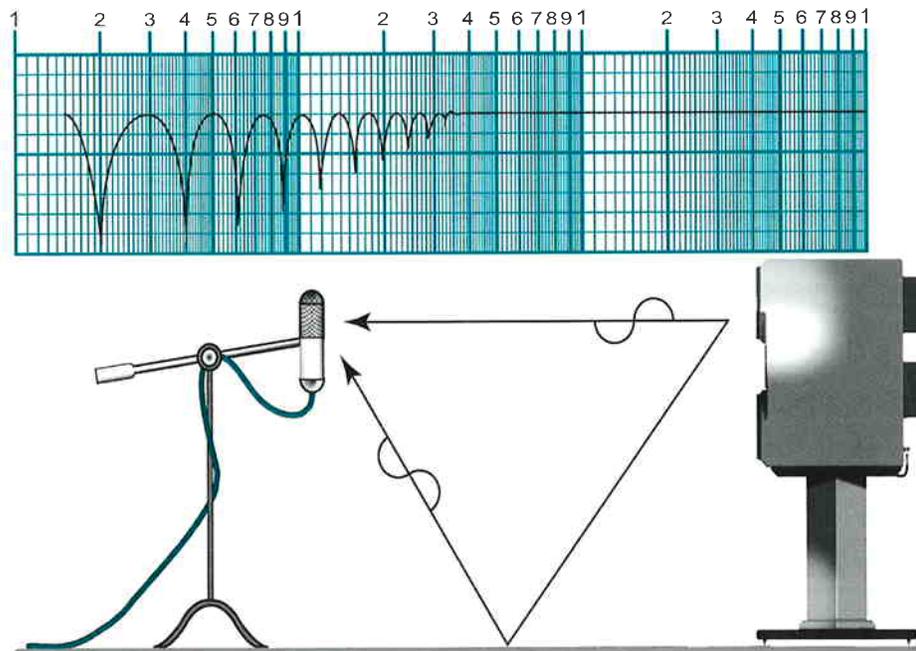


FIGURE 3.1 COMB FILTER EFFECT

SECTION 3.1 RESONANCE

Resonance in listening rooms are generally caused by two sources:

- The structures within the listening room
- The volume of the air itself in 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 heel of your hand or stomping on the floor. If it is a wooden floor, this is done to detect the primary spectral center of the resonance. 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 tonal balance fullness to any system played in that room. 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. Short of actually adding additional layers of sheet rock or book shelves, to flimsy walls, however, there is little that can be done to eliminate wall resonances.

AIR VOLUME RESONANCE

The volume of air in a room will also resonate at a frequency determined by the size of the room. Larger rooms will resonate at a lower frequency than will smaller rooms. Air volume resonances, wall panel resonances, and low frequency standing waves, together, 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. Tube traps manufactured by the ASC corporation have been found to be effective in reducing some of these low frequency room colorations. While custom designed and constructed bass traps, such as perforated Helmholtz resonators, provide the greatest degree of low frequency control.



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SECTION 4.0 INITIAL SYSTEM SETUP

We strongly recommend that a trained and certified Wilson Audio dealer assist you in your home with the set up and placement of your WATCH Dog subwoofer. They are well versed in our set up procedures and methods best used with our products to provide you with the most satisfying results. In this section you will find the necessary tools and information in the event dealer assistance is not available.

If you have not read the previous section on room acoustics, we recommend that you do so now. It will provide you with valuable information for determining the overall best speaker placements and listening position. It will also instruct you as to how to fully evaluate the acoustical qualities of your existing room in the proper placement of your WATCH Dog, as well as the placement of other speakers in your listening environment.

SYSTEM SETUP PROCEDURE

We recommend that you setup your multichannel system as follows:

- Perform an acoustical analysis of your existing room.
- Find and mark the zones of neutrality for each of the speakers in the WATCH system (more specific details are found below).
- Follow the setup procedures outlined in section 5 and your left and right channel owners manual.
- Perform the final system setup and fine tuning steps outlined in section 6.

ZONE OF NEUTRALITY

The zone of neutrality is a location in your room where the speakers will sound most natural. This location is where the speakers interact the least with the room. (We realize that the location of your WATCH speakers are not very flexible.) We recommend that you wait to spike your speakers them until the final system setup is completed in section 6.

To find the zone of neutrality do as follows:

- 1 Stand against the wall BEHIND the speakers. Speaking in a moderately loud voice and a constant volume, project your voice out into the room.
- 2 As you slowly walk out from 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 rear wall boundary.
- 3 When you hear the voice “free up” from this artifact, place a piece of tape on the floor to mark this location. You will now be entering the “zone of neutrality”.
- 4 Continue to walk slowly away from the wall. You will hear the beginning of a new artifact - the interaction with the opposite wall. This will manifest itself in a sound that loses focus and appears to “slap” off of the wall back to you.
- 5 When you begin to hear this artifact, place a piece of tape on the floor and mark this location.
- 6 Repeat the procedure coming off of the side walls, again listening for your voice to lose the added bass energy from the wall behind you, and continuing until there is an obvious interaction with the opposite wall in front of you. Do each side or speaker location individually. What you should have at the end of this procedure are two rectangles on the floor (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 4.1 CHOOSING A LISTENING POSITION- HOME THEATER OPTION

Decide where you want your listening position to be. Please remember that your WATCH System can fill most rooms with beautiful sound. However, for the PDC advantage, we want to ensure that you get all the benefits possible with the group delay adjustment features that are built into this design. Listening positions that are too close to a boundary will deteriorate the overall system performance.

LEFT AND RIGHT SPEAKERS

SPEAKER PLACEMENT VS. LISTENING POSITION

The location of your listening position is as important as the careful setup placement of your speakers in your room. The listening position should ideally be no more than 1.1 to 1.25 times the distance between the left and right channel 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 about halfway down the long axis of the room. Experiment carefully for best low frequency response. Some people place the speakers on one end and sit at the other end of the room. Needless to say, this will not yield the finest sound. Carefully consider your listening position for optimal performance. Our experience has shown that any listening position which places your head closer than 14" to 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 minimize the influence of the side walls on the sound of your system. Speakers placed too close to the side walls 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. A good place to start is 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.

Another important aspect of speaker placement is how far the speakers are positioned from the wall behind them. The closer 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. Remember, if you are partial to bass response or air and bloom, do not overcompensate your adjustments to maximize their effects. Overbalanced systems are sometimes pleasing in the short term, but long term satisfaction is always achieved through proper balance.

CENTER CHANNEL

After determining the general area for the Left and Right Channel, determine the best place for your center channel, the following center channel configurations are possible:

- Set on the floor with speaker angled up towards the listener.
- Mounted on stand with no rotation.
- Mounted on stand with longer spikes in the front of stand and shorter spikes in the back allowing the stand and speaker to be rotated up toward the listener.
- Mounted above TV on a custom made bracket.
- Mounted upside down on the ceiling with speaker angled down towards the listener.

All of the above arrangements will allow for some fine tuning of speaker placement once the entire system is set up except for the ceiling mounted option. If you are mounting the speaker to the ceiling be sure to choose the location carefully as you will not be able to move the center channel once it is bolted to the ceiling. A poor placement will lower overall system integration and performance. As a general rule, the distance from the main left and right tweeters to the listening position should ideally be equal to the distance from the center channel tweeter to the listening position. This maintains the time coherency of the three front loudspeakers. The phase delay correction will be made via the sliding tweeter module on the center channel.

Our testing has shown that a floor or stand mounted center channel is more easily integrated with the main speakers when centered between the left and right speaker and aligned horizontally with the front inner edge of the left and right speakers or slightly behind. Experimentation with the center channel distances will help you find the location that offers the smoothest left, right and center channel integration. More information on this process is included in Section 6.

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 they are placed. The mounting bracket and the careful design of the surround channel has 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 the wall mounting location we suggest that you perform a zone of neutrality test and find the area along the wall where your voice sounds the most natural and has the least amount of reflections or standing waves. Be sure to listen for room modes and frequency response peaks or dips.

WATCH DOG 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. To assist in moving the WATCH Dog about, it is recommended that you leave the casters attached while positioning your subwoofer.

The ideal position of the WATCH Dog subwoofer is somewhat dependent on its primary use. In systems where the WATCH Dog is used as the Low Frequency Effects (LFE) Channel in a home theater system, it may be located in the front or back of the room, depending on architectural considerations. In general, the lower frequency range will be reinforced by the 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 on the WATCH Dog Control Panel 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 Control Panel. This procedure will be described in section 6.

SECTION 4.2 WATCH DOG SETUP IN A MUSIC SYSTEM

The WATCH Dog subwoofer was designed in conjunction with the Wilson Audio Cub II, WATT/Puppy, MAXX and the X-1 Grand SLAMM, and therefore is uniquely suited to extend the low frequency performance of Wilson Audio loudspeakers in music system applications.

All Wilson Audio Loudspeakers are designed to be audibly phase and time coherent. The WATCH Dog subwoofer was engineered to extend and enhance the low frequency performance of music systems without compromising the phase and time accuracy of Wilson Loudspeakers. The powerfully versatile Phase control on the Control Panel allows the WATCH Dog to be optimized in the time domain within the listening environment. Correct Phase setup of the WATCH Dog allows proper integration in the time domain between the WATCH Dog and the main loudspeakers, resulting in greater frequency linearity, dynamic impact, sound-stage accuracy, and speed. See section 6 for detailed instruction on the setup of Control Panel.

In music systems, to achieve the most coherent spacial and tonal presentation, it is best to position the WATCH Dog behind the plane of the main speakers. Placement in front of the main loudspeakers, or behind the listener, can potentially compromise the phase accuracy in two channel music systems. This will result in a less coherent presentation of the spatial, dynamic, and tonal information. Successful integration with the main loudspeakers is more easily achieved when the WATCH Dog is placed between and behind the two main speakers, or in the left or right corners behind the main loudspeakers. Corner placement provides the greatest low frequency reinforcement but care is required to avoid upper bass colorations resulting in less coherent integration with the main speaker. By lowering the crossover frequency on the crossover point set on the Low Pass Filter Frequency control, corner induced upper bass colorations can be minimized. Further correction of room induced anomalies in the in-room bass response can be minimized with the WATCH Dog's unique Bass Equalization Control. See section 6 for detailed information on critical setup of the WATCH Dog Control Panel.

The WATCH Dog can be used simultaneously as both the LFE channel subwoofer in the surround mode and as the subwoofer to the main speakers when listening to music. This is achieved by switching between the "Line" and "Processor" inputs on the Control Panel. Low and High Pass filter settings are also switchable allowing the WATCH Dog to be optimized for both Music and Home Theater - even in the same system.

See section 6 for detailed information on the switching facility of the WATCH Dog Control Panel.

SECTION 4.3 INITIAL SETUP SUMMARY

When used in a home theater system as the LFE channel, the WATCH Dog can be positioned in a variety of areas within the room successfully. Room boundaries and corners enhance low frequency coupling with the room, but care is required in attending to resulting upper bass colorations.

When used in a music system, the subwoofer integrates more consistently with the main speakers when placed behind the plane of the speakers, or in a corner of the room behind the main speakers. Careful setup using the Phase Control, the Low and High Pass filters is necessary to optimize low bass performance and to ensure proper integration with the main loudspeakers.



WATCH DOG SUBWOOFER SETUP

5

WATCH DOG

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Note: Before setting up the WATCH Dog study carefully the previous sections on room acoustics and initial setup information. They provide valuable information on determining the ideal room locations for your subwoofer.

SECTION 5.0 PREPARATION

You will need the following items:

- Supplied hardware kit
- Tape measure
- Known listening position
- Electric Screw driver
- Phillips head drive bit

UNCRATING THE WATCH DOG

A minimum of two strong adults are required to set up the WATCH Dog. The WATCH Dog is very heavy, and care should be taken to prevent injury.

1. With the crate lid facing up, unscrew the wood screws securing the lid. Remove the lid and remove the foam packing material beneath the bottom of the WATCH Dog that is placed between the casters.
2. Set the crate up so that the casters on the WATCH Dog are toward the floor.
3. While one person holds the crate, the other person should gently roll the WATCH Dog out of the crate. Be careful not to scratch the sides of the painted enclosure.
4. Move the WATCH Dog into the desired location. It is recommended that you leave the casters attached to the bottom of the WATCH Dog during the positioning process.

Note: Be careful not to touch the driver element when you are moving your WATCH Dog!

SECTION 5.1 CONNECTING THE WATCH DOG - HOME THEATER

The WATCH Dog can be connected in a variety of ways depending on your system needs. It can be used as the LFE (Low Frequency Effects) channel for a dedicated home theater system. Or it can be used to extend the bass in a two channel music system. In systems where it is desirable to use the WATCH Dog with both surround modes and two channel music mode, you can switch between the two via the WATCH Dog's Control Panel.

The WATCH Dog is also capable of accepting either balanced (XLR) or single ended (RCA) cable connection from your preamplifier or surround processor. Your choice will depend on the configuration of your particular preamp or surround processor.

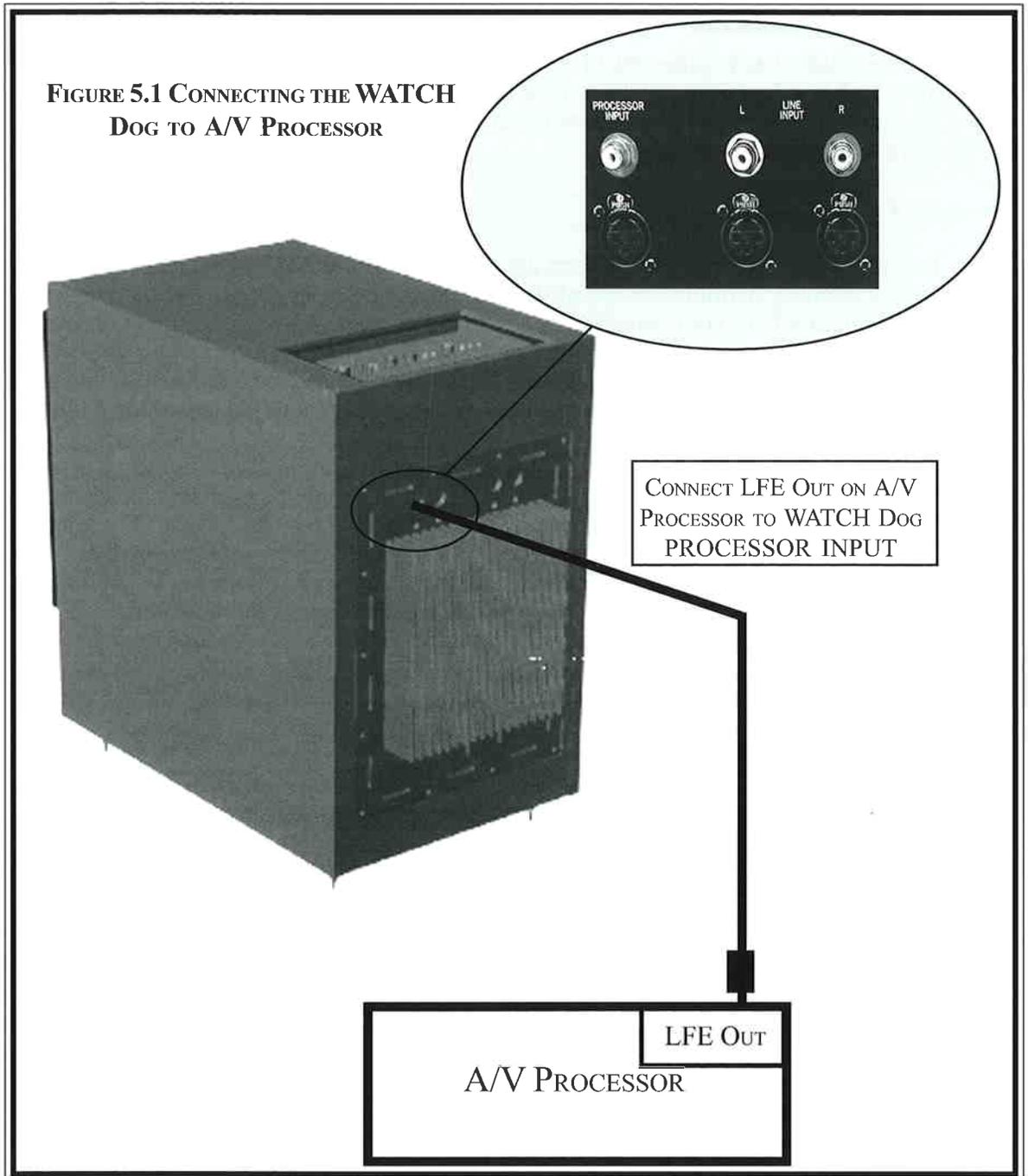
CONNECTION WITH A SURROUND PROCESSOR

Make sure the WATCH Dog power is "off" and the Level Control on the WATCH Dog Control Panel is in the "MIN" position during the connecting process. Locate the input section of the WATCH Dog on the rear of the subwoofer (see figure 5.3). The Processor Input of the WATCH Dog is designated for use with the LFE (Low Frequency Effects) outputs of a surround processor. Balanced (XLR) or Single Ended (RCA) connecting cables may be used, depending on the connector type used on your surround processor. Connect the LFE output of the processor to the "Processor Input" of the WATCH Dog.

On the WATCH Dog Control Panel, locate the "INPUT SELECT" section. Select "BAL" for use with balanced cables, or "SINGLE" for use with single ended cables (See figure 5.1). In the same section of the Control Panel, locate the switch labeled "PROCESSOR" and "LINE". Select the "PROCESSOR" input. (See figure 5.1) Locate on the Control Panel the switch label "HP IN" and "HP OUT." Select "HP OUT." Locate on the Control Panel the switch labeled "LP IN" and "LP OUT." Select "LP OUT." (See figure 5.2)

Proceed to Section 6, Control Panel Setup and Final Tuning to continue the setup of your subwoofer.

FIGURE 5.1 CONNECTING THE WATCH DOG TO A/V PROCESSOR



SECTION 5-2 CONNECTING THE WATCH DOG IN A TWO CHANNEL SYSTEM

Wilson Audio has engineered, in conjunction with Marsh Design, very flexible and high quality high and low pass crossover filters for the WATCH Dog. Setup and configuration of these filters is discussed in Section 6 entitled Control Panel Setup and Final Tuning of the WATCH Dog.

BYPASSING THE HIGH PASS FILTER

In systems where the main speakers are full range, the WATCH Dog can be configured more successfully without the use of the High Pass Filter. There is a normal bass roll-off that occurs naturally in your listening room. This effect acts like a six dB per octave low pass filter. By carefully using the WATCH Dog's Low Pass filter controls, along with the Bass Equalization and Phase controls (discussed in section 6), you can successfully integrate the main loudspeakers in your system with the WATCH Dog without the use of the High Pass Filter.

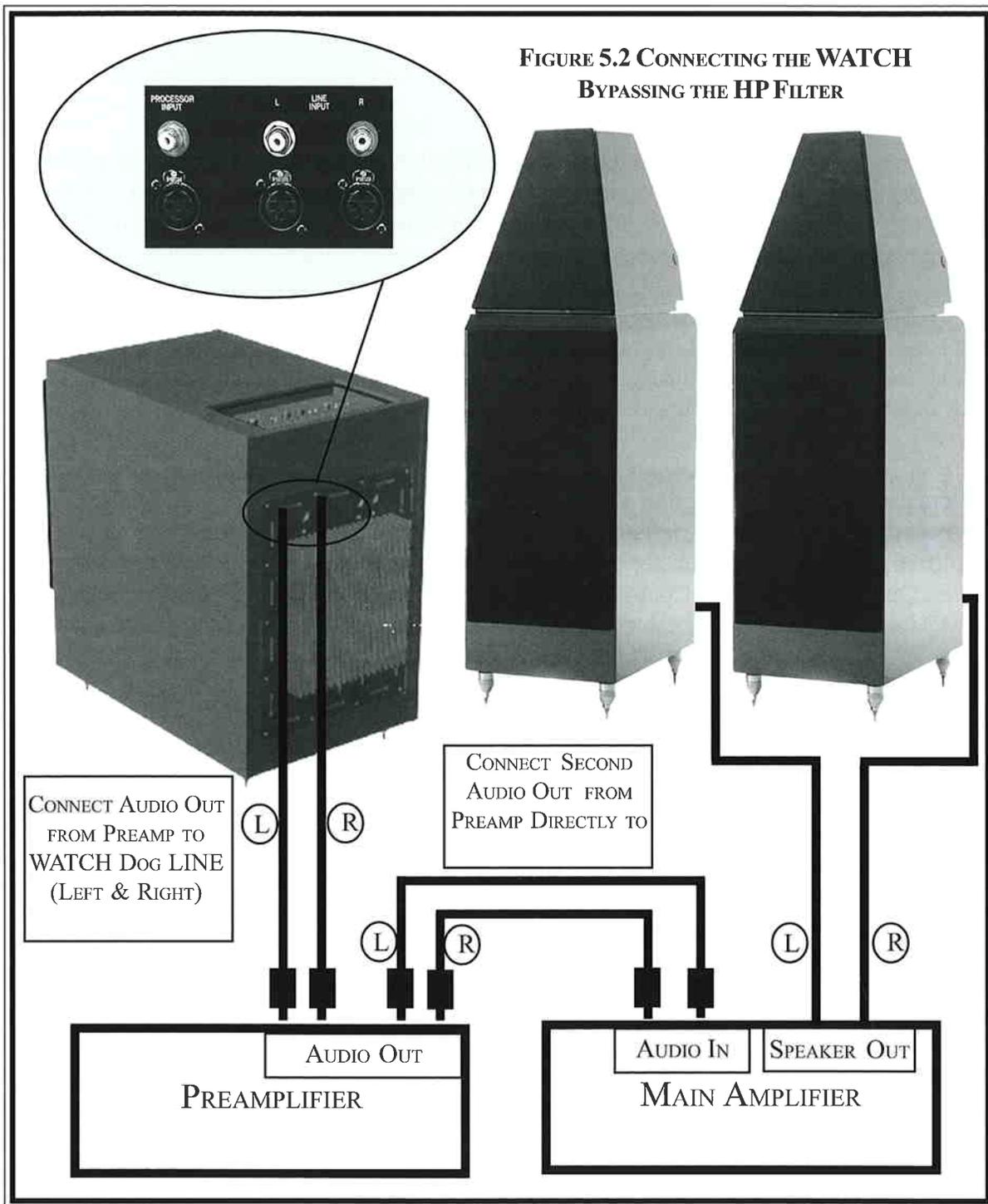
Make sure the WATCH Dog power is off during the connecting process. Locate the input section of the WATCH Dog on the rear of the subwoofer (see figure 5.2). The left and right "Line Level" inputs are used when the WATCH Dog is the subwoofer to two main loudspeakers. The WATCH Dog automatically sums the information from the left and right channels for the subwoofer. The WATCH Dog inputs are configured for both Balanced (XLR) and single ended (RCA).

When connecting the WATCH Dog without the use of the High Pass Filter, a second output from your preamplifier is required. If your preamplifier does not have two sets of outputs, consult with your dealer about using high quality "Y" connectors to facilitate connecting your subwoofer. Using the one set of outputs, connect your preamp directly to your main amplifier. From a second set of preamp outputs, connect both left and right channels to the Line Level Input of the WATCH Dog.

On the WATCH Dog Control Panel, locate the "INPUT SELECT" section. Select "BAL" for use with Balanced cables, or "SINGLE" for use with single ended cables (See figure 5.3). In the same section of the Control Panel, locate the switch labeled PROCESSOR and LINE. Select the "LINE" input. Locate on the Control Panel the switch label "HP IN" and "HP OUT." Select "HP OUT." Locate on the Control Panel the switch labeled "LP IN" and "LP OUT." Select "LP IN."

Proceed to Section 6, Control Panel Setup and Final Tuning to continue the setup of your subwoofer.

FIGURE 5.2 CONNECTING THE WATCH
BYPASSING THE HP FILTER



UTILIZING THE HIGH PASS FILTER

The WATCH Dog employs a high quality High Pass Filter as a part of its crossover design. The High Pass Filter can be used to filter bass from the main loudspeakers. This can be desirable in systems where the main loudspeakers have limited bass dynamics, or if the main power amplifier is low power.

Make sure the WATCH Dog power is off during the connecting process. On the rear of the subwoofer, locate the Line Level inputs of the WATCH Dog. Connect the preamplifier output, left and right, to the Line Level input of the WATCH Dog. (See figure 5.6) Use the XLR inputs for balanced cables, or the RCA inputs for single ended cables.

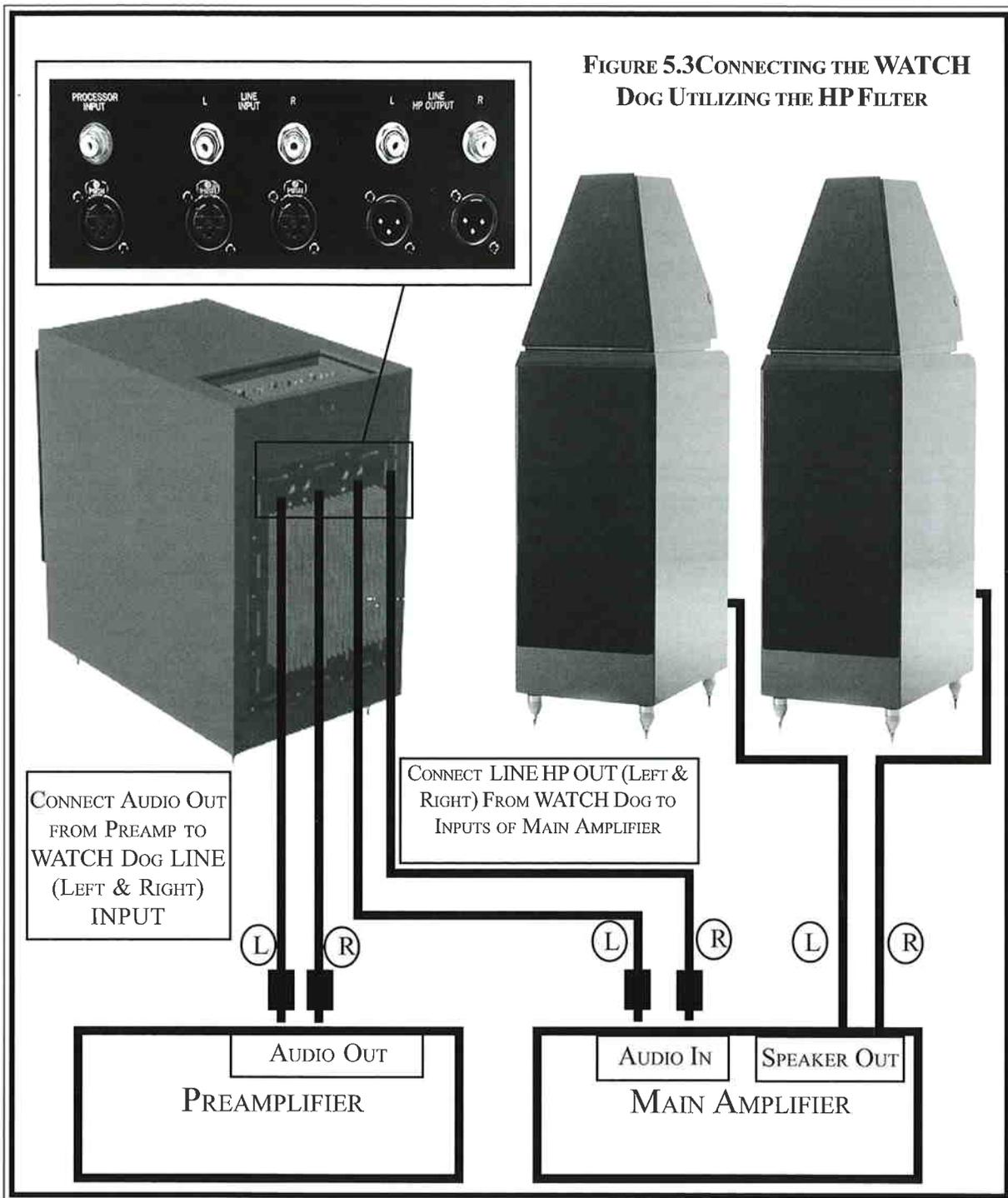
Locate the Line HP Output (see figure 5.6) on the rear of the amplifier. These connectors pass the high pass section of the signal to your main amplifier for your loudspeakers. Connect the Line HP Output, left and right, of the WATCH Dog to the inputs of your power amplifier. Use the XLR inputs for balanced cables, or the RCA inputs for single ended cables. On the WATCH Dog Control Panel, locate the "INPUT SELECT" section. Select "BAL" for use with Balanced cables, or "SINGLE" for use with single ended cables (See figure 5.1). In the same section of the Control Panel, locate the switch labeled "PROCESSOR" and "LINE." Select the "LINE" input.

Locate the switch on the Control Panel labeled "HP IN" and "HP OUT" (see figure 5.5). This switch defeats and engages the high pass filter. Turn the switch to the HP IN position.

Locate the switch on the control panel labeled "HP 6 dB" and "HP 12 dB" (see figure 5.5). This switch changes the slope of the high pass filter to either 6 decibels per octave or 12 decibels per octave. The position of this switch will be set in its final position in the final tuning stages of the WATCH Dog. For now, set the switch to the 6 dB per octave position.

Proceed to Section 6, Control Panel Setup and Final Tuning to continue the setup of your subwoofer.

FIGURE 5.3 CONNECTING THE WATCH DOG UTILIZING THE HP FILTER



Locate the switch on the Control Panel labeled "HP IN" and "HP OUT" (see figure 5.4). This switch switches defeats and engages the high pass filter. Turn the switch to the HP IN position.

Locate the switch on the control panel labeled "HP 6 dB" and "HP 12 dB" (see figure 5.4). This switch changes the slope of the high pass filter to either 6 decibels per octave or 12 decibels per octave. The position of this switch will be set in its final position in the final tuning stages of the WATCH Dog. For now, set the switch to the 6 dB per octave position.

Proceed to Section 6, Control Panel Setup and Final Tuning to continue the setup of your subwoofer.

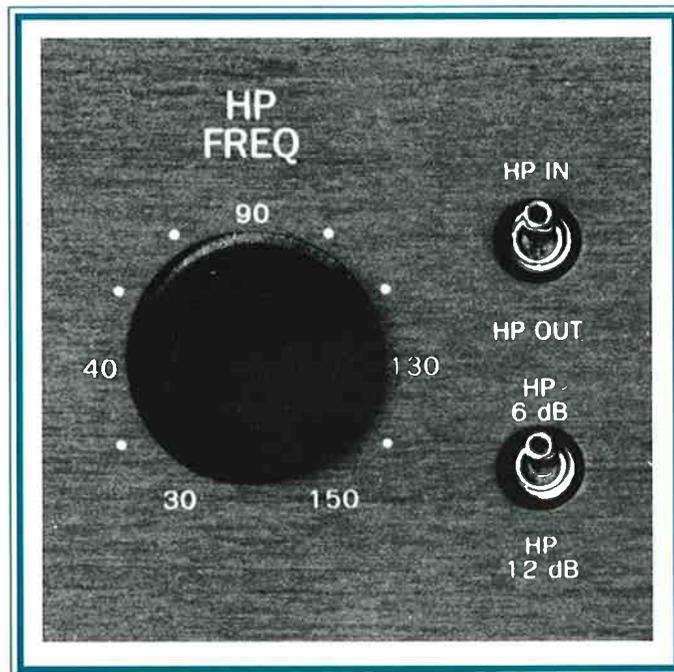


FIGURE 5.4 HIGH PASS SECTION OF CONTROL PANEL

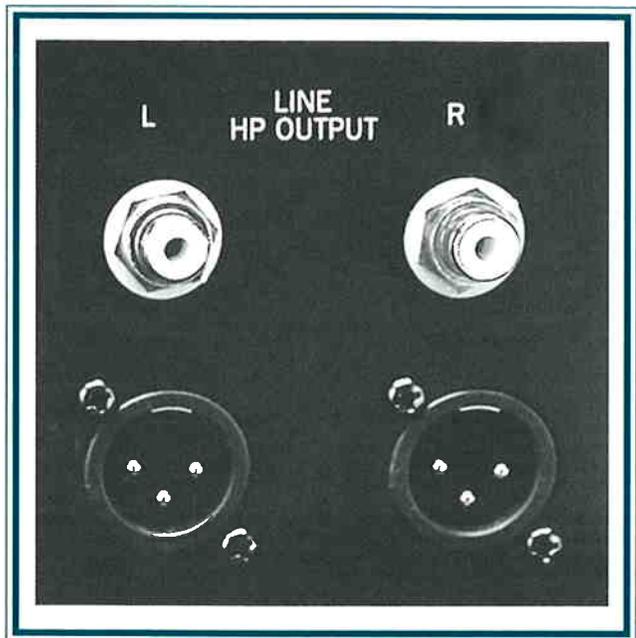


FIGURE 5.6 LOW PASS CONTROL SECTION

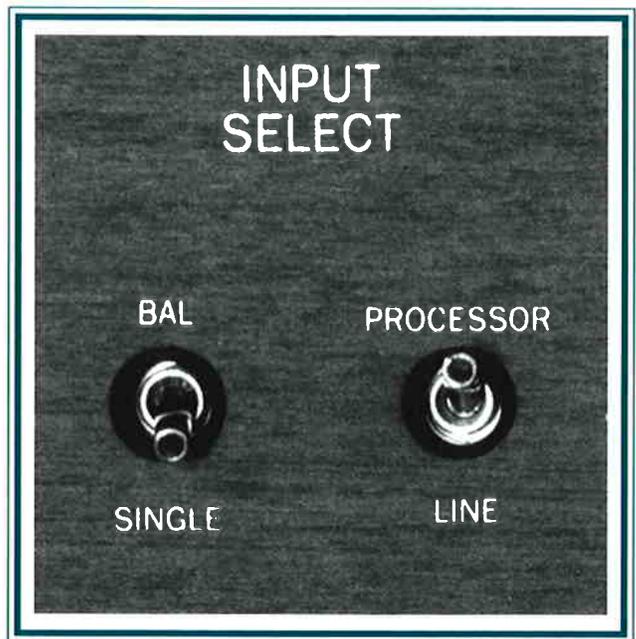


FIGURE 5.7 CONTROL PANEL INPUT SELECT



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Note: Before proceeding with the Control Panel setup and configuration, please connect your system as outlined in Section Five, which contains valuable information needed before proceeding further.

SECTION 6.0 PREPARATION

In order to realize the full potential of your WATCH Dog we recommend that you have a trained Wilson Audio Specialist install and perform the final adjustment and setup of your subwoofer. Your dealer will have personnel trained in the art of WATCH Dog setup. If you choose to do the installation yourself, here are some guidelines to assist you. These guidelines come from many years of experience and should be followed closely to ensure the best possible result from your WATCH Dog.

You will need the following items:

- Supplied WATCH Dog Setup CD
- Supplied 5/32 T-handled Allen Wrench
- Radio Shack dB Meter
- Pen and paper to make notes

Remove the top clear acrylic cover plate that protects the Control Panel using the Allen Wrench. Double check switch and control settings to ensure that they are in the proper positions as outlined in section five. In this section, you will be adjusting and fine tuning the WATCH Dog Control Panel.

Locate the main power switch on the rear of the WATCH Dog, below the amplifier heatsinks. Toggle the switch to the “on” position. This powers the WATCH Dog into the “standby” mode, and can be left on. Locate the power switch on the front of the WATCH Dog, behind the grill. Depress the switch and check to see that the front panel LED is illuminated.

Note: We recommend that you turn the main power switch on the rear of amplifier to the off position and disconnect the power cord during lightning storms, or when you are away.

SECTION 6.1 NOTES FROM DAVID A. WILSON ON THE USE OF THE TEST CD

First of all, I would like to thank you for your purchase of the Watchdog® subwoofer. I hope that it will contribute to the satisfaction you feel from your music or home theatre system.

The following set up comments and recommendations refer most precisely to the use of the Watchdog subwoofer in a two-channel music system. However, these procedures can also be used to optimize the Watchdog to the left and the right channels of a multichannel home theater system.

INITIAL COMMENTS:

SUBWOOFER PLACEMENT

Because of the very low frequency low pass filter options, as well as the continuously variable phase control available with the Watchdog subwoofer, placement is not as critical as it is with most other designs. We have enjoyed excellent results with the Watchdog placed between and slightly behind the left and right speakers, off to one side behind the L or R speakers as well as off the right side of the audience area midway along and against the side-wall.

FILTERING OF LF TO THE L & R SPEAKERS

With two channel music systems in moderate sized rooms, where frequent very large output capability is not required, it is often decided to run full range signal to the L & R speakers. This is particularly true when Wilson Audio speakers, with their low distortion, robust power-handling capabilities, are used. The usual rationale for this approach is that the "full-range" signal will lose some of its midrange and high frequency transparency going through the active high pass crossover. While this is theoretically, albeit possibly insignificantly, true, what also needs to be considered is the more complex low frequency room interaction that will occur between the subwoofer's output and the full range output of the L and R channels. This LF interaction is greatly reduced if LF to the L & R speakers is filtered out. For the greatest finesse in music reproduction you should experiment with both approaches.

INITIAL PLACEMENT OF THE L & R SPEAKERS

If both the Watchdog and the main speakers are new to the system, we recommend that the main speaker positions be carefully optimized for overall sound quality before introducing the subwoofer. To prevent equipment damage and facilitate movement, keep the Watchdog out of the listening area during the two-channel setup phase.

1. If your playback electronics have signal level metering facilities, use track 1 (1 kHz tone) to assure equal signal levels to both left and right loudspeakers. If it is physically and electrically in the system at this point, the subwoofer's output level control should be turned all the way down.
2. Assure that the left and right loudspeakers are in phase by using track 4, (bandwidth limited noise (BLN)). The noise should appear to come from exactly between your left and right loudspeakers.

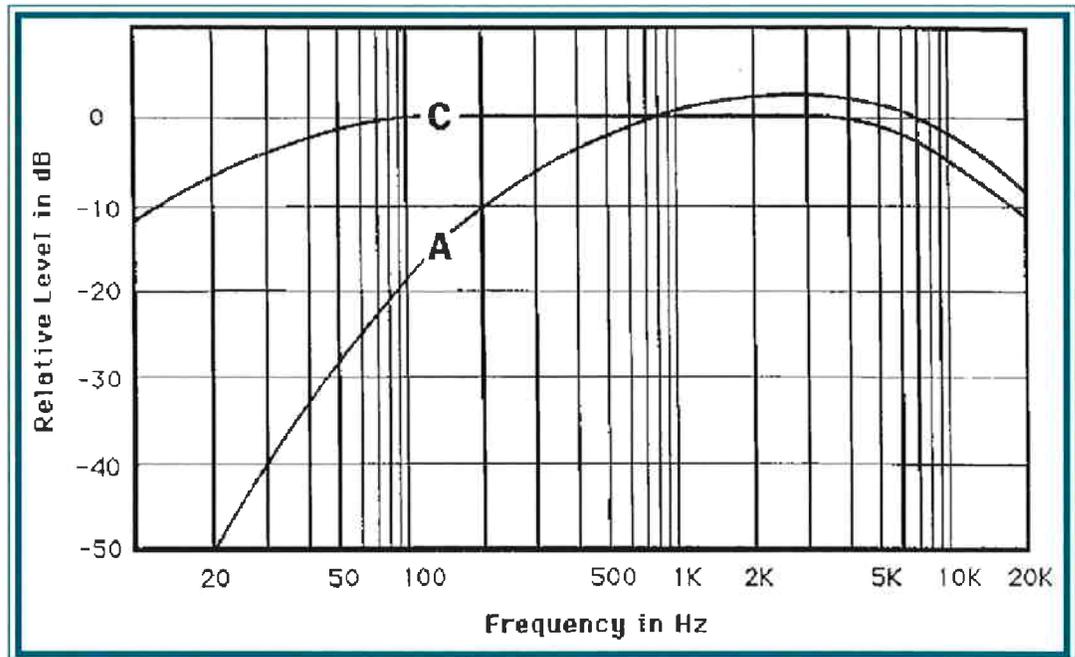


FIGURE 6.1 A & C METER WEIGHTING COMPARISON

3. If you have either a spectrum analyzer or a sound pressure level (SPL) meter, you should measure and document the in room response of your L & R loudspeakers, running full-range, without subwoofer contribution. This will give you a baseline measurement. While you can measure each channel individually, it is more expedient to measure both simultaneously using the (Mono) test signals. Measurement locations for the microphone should include one at ear height at the main listening location. Additional locations could include 2 meters, both left and right, of the primary listening position, as well as halfway between the primary position and the back wall. These readings must be averaged together. Expect measurements taken close to walls to show substantially more LF energy than those taken near the center of the room. Use the dB-C weighting or better yet, if available, the "Flat"/ non-weighted scale of your instrument. See figure 6.1 which compares dB-A & dB-C weighting. The more commonly used dB-A scale, on the other hand, is intended to correspond to the ear's "frequency response" at low SPL, and should never be used to calibrate low frequency levels. Please note that, even at 50 Hz, the dB-C scale is still down approximately 2 dB relative to 800 Hz.' Don't be disappointed, therefore, if your dB-C scale measurements show a gradual roll off in the bass. If your measurements do follow the profiled roll off; it indicates a very linear (even an impossibly linear) speakers/room response. Use track 2, (pink noise), for spectrum analysis measurements. For measurements using a SPL meter, use tracks 6 through 16, (1/3 octave BLN beginning at 200 Hz and going down to 20 Hz). Document your measured results.

Warning: Tracks 17 through 27 are sine wave tones at the 1/3-octave center frequencies. These should not be used to perform in-room frequency response estimates due to gross inaccuracies which will be created by standing waves. Pure tones are included to scan for mechanical resonances and other distortions.

Notes Regarding the Interpretation of Measurements:

- A. Use "slow" meter response ballistics to help average out the reading... and to keep from going crazy trying to read it!*
- B. Ears and meters are not directly interchangeable. They neither sample nor process the sound in a completely analogous manner.*

4. If you choose to use the high pass section of the Watchdog controller to roll off bass to your main speakers, you can use your measured data to select a low pass (LP) frequency. Look for that part of the curve where the response is falling off and does not return back up the level exhibited higher in frequency. Pick the frequency where it is down 3-6 dB. If specific measurements are not available, as a general rule, I like to start at 50 Hertz with an 18-dB/octave LP slope. I believe that the vast majority of loudspeakers with which the Watchdog will likely be partnered should have enough clean output and power handling in the 40-50 Hz region to allow this approach. However some rooms exhibit so much loss in the LF that the L & R speakers may have difficulty in that region and need help from the subwoofer up to 60-80 Hz. Another scenario might include problematic room acoustics, with a significant upper bass peak. In such a case, correction may be achieved by running the Watchdog up to 120-140 Hz and using its EQ to notch out the room peak. This is one area where acoustical measurements, as described above, are of great benefit.

INTRODUCTION OF THE WATCH DOG INTO YOUR SYSTEM

5. Check to see that the L & R loudspeaker power amps are “Off” or on “Standby”.
6. Assure that all system cabling is correct and secure, with the signal routing controls of your Watchdog regarding input selection correctly set according to instructions elsewhere in this manual, it is now time to optimize level, Phase and EQ setting.
7. If you are filtering the bass to your L & R speakers, select HP in, and set the HP freq. according to the acoustical measurements you have taken. Start with HP 12 dB per octave slope.
8. Initially select the LP freq. 10 % lower than the setting for HP freq.
9. Select LP in and LP 18-dB / octave slope.
10. Initially set the Phase control at 90°.
11. Select EQ Out at this point in the calibration.

12. The output level control should be in its min. position.
13. Turn on the program source components and pre-amplification.
14. After two minutes stabilization time, turn on your Watchdog subwoofer.
15. After two minutes stabilization time, turn on your L & R channel power amplifiers.
16. Using track 2 (pink noise) turn the L & R speakers up to 75 dBC; note the level setting.
17. While the L & R speakers are playing the pink noise, slowly advance the output level control on the Watchdog until the low frequencies seem to be in balance with the rest of the spectrum. If you have a spectrum analyzer, adjust the output level for greatest linearity and extension.
18. Note the output level setting.
19. Next, slowly rotate the Phase control, from 90° ccw to 0° and notice how LF levels will change; Note the position between 0° & 90° where the LF output is greatest.

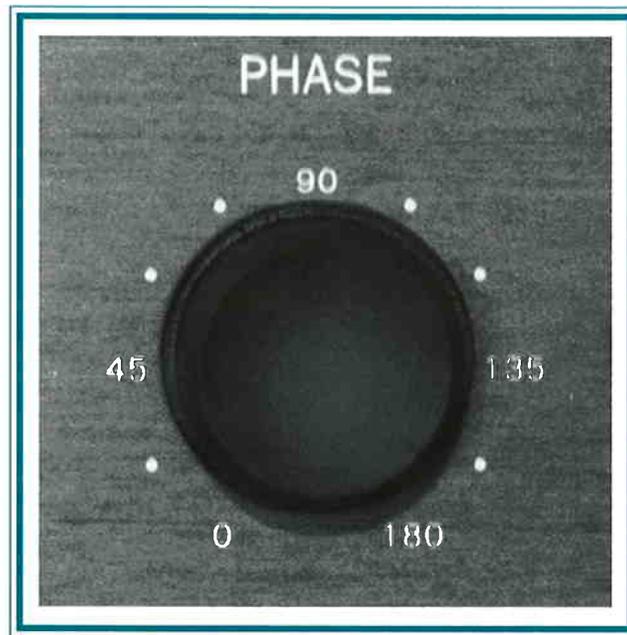


FIGURE 6.2 PHASE CONTROL SECTION

20. Repeat this process from 90° to 180°, again noting the position where LF output is greatest. These two settings become your “semifinalists”.
21. Go to track 28 (drum and guitar music) and compare the sound of your two Phase “semifinalists.” Listen for cleaner LF attack and greater weight to select your “winner”. Note the winning setting.
22. Use two tracks; 29 and 32 to establish the Watchdog’s upper frequency limit with the LP frequency control setting. What you are looking for is a setting, which is low enough to keep from adding artificial chestiness to the male voice in track 32, yet high enough to provide convincing, linear low frequency continuity in track 29. Note the setting.
23. Using the same tracks (29 & 32) and similar listening-judgment criteria, optimize the setting of HP frequency control, which establishes the low frequency limit of your L & R speakers. Note the setting.
24. It is instructive to, again, measure the acoustic response of the combined L & R system, but this time with the addition of the subwoofer, and compare them with your prior measurements made without the subwoofer. Document these new measurements. Clearly you should now observe more output below 40 Hz, as well as good linearity.
25. Now is a good time, if you want to experiment with different filter slopes. Simply follow the same procedures as above, being careful to note all settings. This second experiment can then be compared with the first, using music and measurements. Pick the approach, which gives the most satisfying musical results.

To EQ OR NOT TO EQ

Equalization (EQ), to optimize the performance of a loudspeaker, is somewhat like a medicine, which is useful, but has serious potential side effects. Carefully and minimally used, it can moderate some serious acoustical problems, with little or no down side. However, applied without good judgment it will cause more problems than it will cure.

The EQ circuitry in the Watchdog operates only in the Low Pass (LP) function; i.e. it only EQ’s

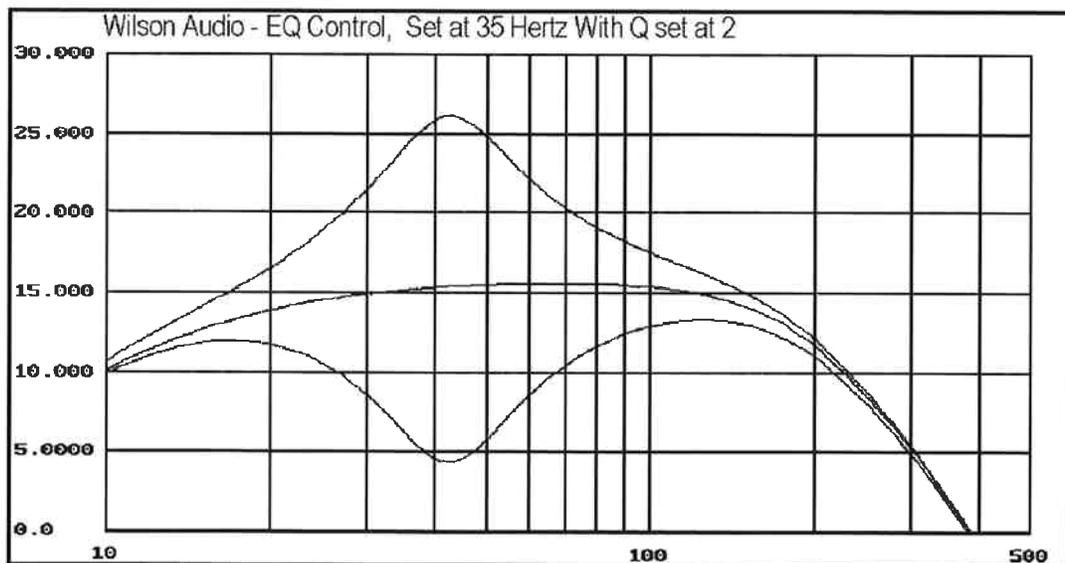
the Watchdog. Therefore, it will have no direct effect on the L & R (or other channel) loudspeakers.

Indications for the use of the Watchdog EQ would include the following:

- A. Large LF peak caused by compounded room modes or interaction with a nearby boundary. Corner placement of the Watchdog is more likely to excite modes than a placement at least 1 meter from a corner.
- B. Significant narrow dip in LF response caused by acoustical losses in the room, i.e. very large ceiling to floor, window/door areas (particularly near corners or at the middle of a long wall) or a small, non load-bearing, wall which could act as a panel resonator bass trap.

These anomalies would show up in the measurements which you have taken above.

26. Set the EQ level control at its "12:00" position, indicating zero gain.



27. Switch the EQ in.
28. Set the EQ freq. to correspond with where you believe the problem frequency is.
29. Set the Q control at its “12:00” position.
30. Depending on whether the acoustical anomaly is a LF response peak or a dip, either cut or boost the EQ with the level control. If you use track 2 (pink noise), and a spectrum analyzer, you can make these adjustments and see (as well as hear) the results in real time. If you do not have a spectrum analyzer, you can still listen to the changes in pink noise. Adjust for greatest smoothness, then measure and document your results.

It has been my experience that adjusting to achieve perfect flatness of response is not the best approach. Possibly some of this might be because the test signal (i.e., pink noise) causes a relatively continuous excitation of resonances, which allow their amplitude to build up and measure as a large deviation from optimum. Much music on the other hand, because of its more transient nature, may not cause these non-linearities to build up as much. Hence, the tendency to over correct relative to what the musical signal really requires. Therefore I suggest correcting about half the amplitude of the peak or dip, documenting your results, then listening to see if it makes more musical sense. Apply corrections only as needed. To quote J. Gordon Holt, “If it measures good, but sounds bad... It is bad”.

Advancing the EQ Q control allows you to narrow and sharpen the EQ boost or cut. At the maximum Q setting of 2, the equalization is pretty specific, but can also alter harmonic structures. Turning the Q control CCW to 0.2 results in a very broad, less frequency-selective adjustment, which usually will not provide enough specific correction.

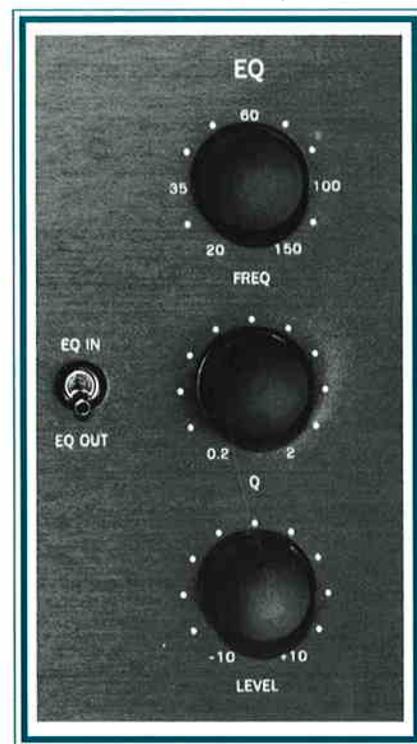


FIGURE 6.3 EQ CONTROL

SECTION 6.2 WATCH DOG SPIKES

The WATCH Dog comes with a set of heavy duty spikes. These spikes also provide acoustical isolation as well as optimal height placement for your WATCH Dog. Brass disks that fit beneath the spikes are also included for installations where spikes might damage the floor surface (such as wood floors).

After determining the WATCH Dog's position, assemble the spikes as follows:

ASSEMBLY

1. Insert threaded bolts in the bolt holes in the front of the subwoofer until they are flush with inner surface visible through the acoustic port. Make sure the Allen key end is facing downward.
2. Screw the acoustical diode onto the bolt until it fits snugly against the bottom of the WATCH Dog. Do not overtighten.
4. Screw the spike (with nut) all the way in until it just touches the bolt. Do not tighten the nut at this time.
5. Repeat steps 1 through 4 with the other spikes.
6. Using a bubble level, adjust the spikes so that the WATCH Dog is level and so that all of the spikes are making equal contact to the hard surface beneath.

The spikes, installed properly, decouple the WATCH Dog from the floor, reducing resonances within the room. They also provide a stable platform for the WATCH Dog to launch bass energy into the room. The result is cleaner, faster, more dynamic bass, with improved extension and linearity.

WATCH DOG SPIKES ASSEMBLY DIAGRAM

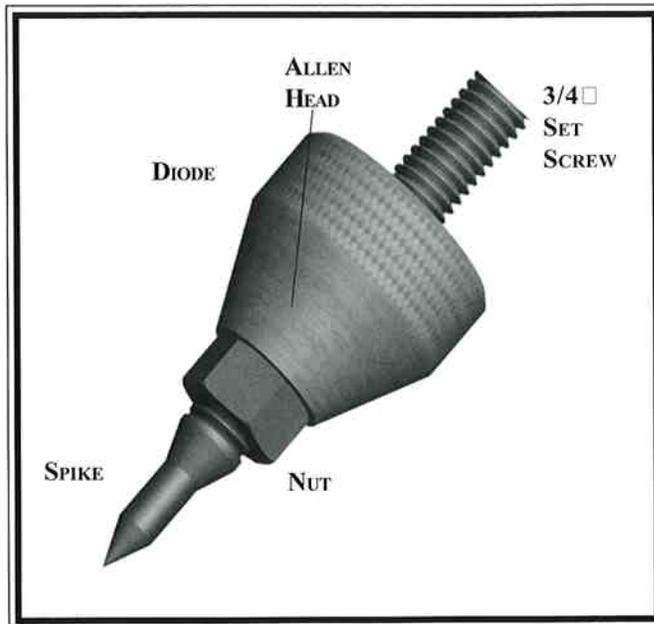


FIGURE 5.1 SPIKE ASSEMBLY



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SECTION 7.0 WATCH DOG SPECIFICATIONS

Port: Front Firing

Frequency Response: 20-30/150Hz Adjustable

Low Pass Filter: Level adjustable, switchable in/out; 12dB/octave or 18dB/octave

High Pass Filter: Switchable in/out; 6dB/oct; or 12dB/octave

Phase: Continuously variable from 0-180 degrees

EQ: Switchable in/out, +10dB boost to -10dB cut; variable Q from .2 to 2; variable frequency selector from 30 to 150Hz

Finish: Standard Wilsongloss finishes, Custom finishes available at additional cost

Amplifier:

Power: 400 Watts

Input Impedance: 56 K ohms single ended, 4 K ohms balanced

Inputs: Balanced and single ended for Right, Left and Processor/LFE

Outputs: Balanced and single ended for Right, Left, High Pass filter outputs

Drive Unit: 12 inch long throw

Height: 27 1/2 inches

Width: 18 inches

Depth: 27 1/2 inches (add 3 1/2 inches for grill & heat sink)

Product Weight: 283 lbs



WATCH DOG

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WILSON AUDIO LOUDSPEAKER

LIMITED WARRANTY

TERMS AND CONDITIONS

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 Warranty Registration Form must have been returned by the customer to Wilson Audio;

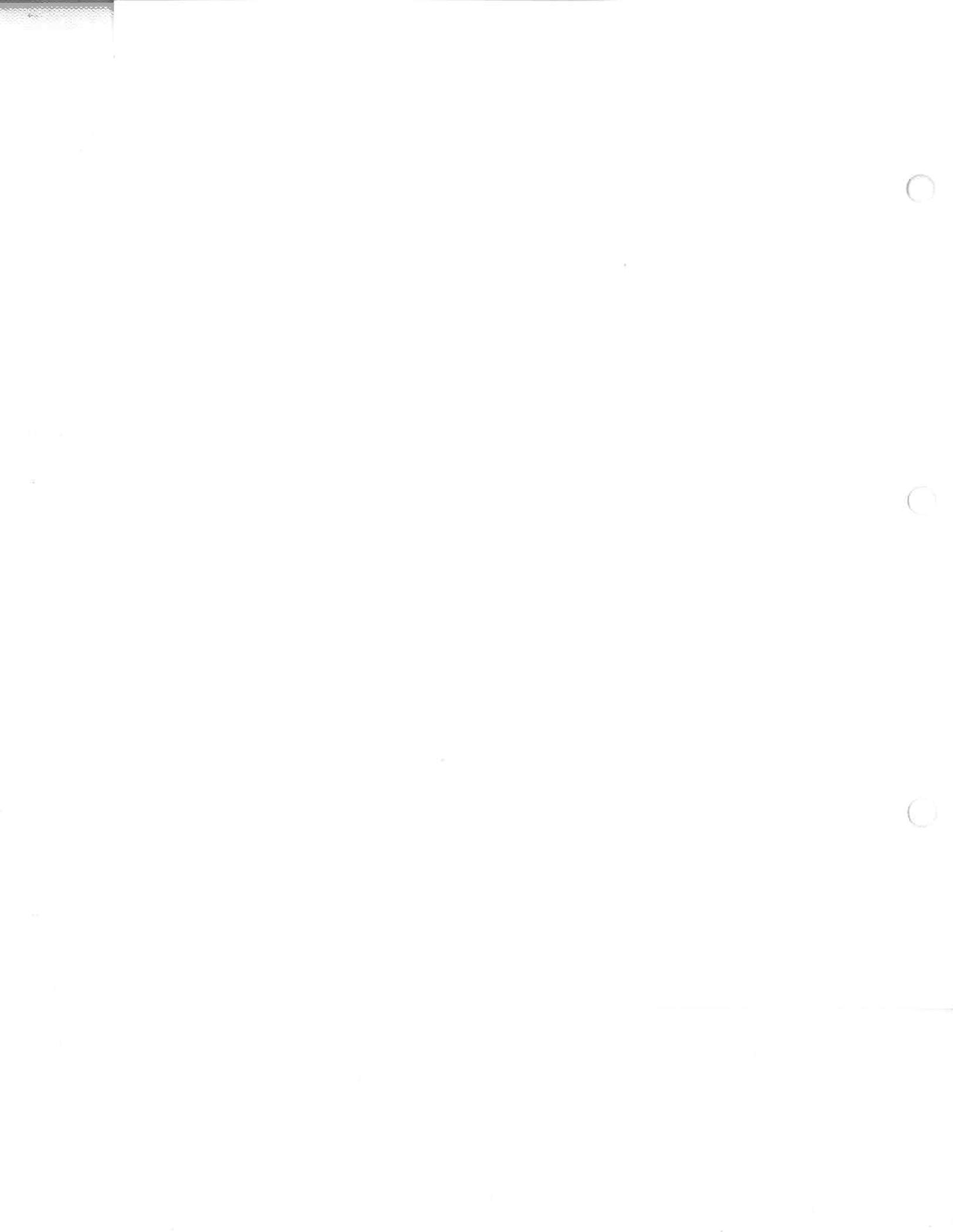
Requirement No. 2. The product must have been professionally installed by the Wilson Audio dealer that sold the product to the customer.

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 the product has been attempted or performed by anyone other than

WILSON AUDIO SPECIALTIES, INC.



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 the 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 the 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.

WILSON AUDIO SPECIALTIES, INC.

