

Wilson Audio Specialties, Inc

CUB Series II



Owner's Manual

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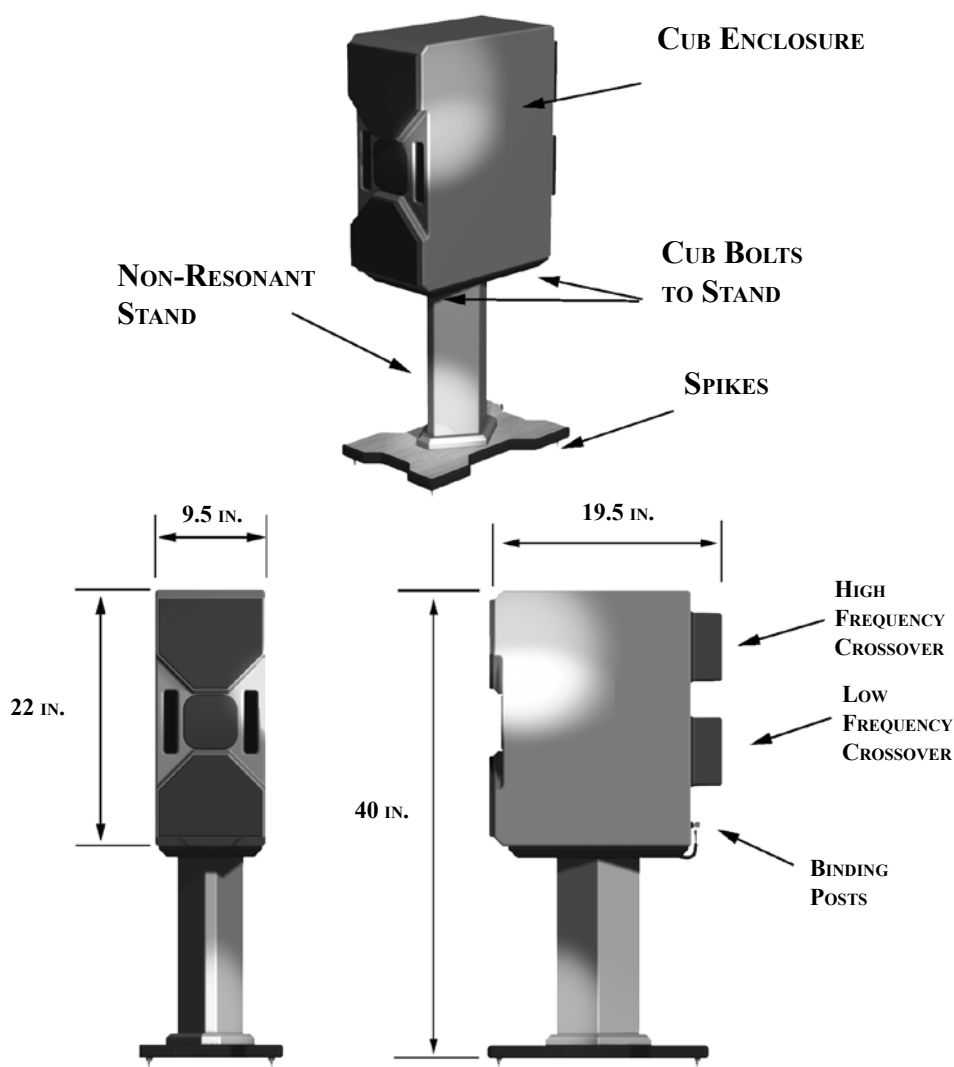
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CUB SERIES II:

COMPONENTS AND DIMENSIONS



CUB SERIES II:

SPECIFICATIONS

Nominal Impedance	4 ohms
Minimum Amplifier Power	10 Watts per channel
Woofer	2 - 6.5 inch double front ported
Overall Dimensions	
	Height - 22 inches
	Width - 9.5 inches
	Depth - 19.5 inches
Tweeter	1 - 1 inch inverted Titanium Dome
Weight	(approx.): 75 lbs
Frequency Response	
(with port contribution)	39 Hz - 22 kHz
Sensitivity	94 dB (2.83 volts at 1 meter)



CLUB Series II

APPLICATIONS

Your CUB precision loudspeaker has been carefully designed to provide superb, uncolored, limited full frequency range response in a single enclosure. Due to our very successful research on the WATT/PUPPY and X-1 Grand SLAMM systems, the CUB has a sonic character quite similar to its larger predecessors.

Using structural enclosure, speaker driver, and time alignment technologies developed for the WATT/PUPPY and the X-1 Grand SLAMM the CUB is truly the thoroughbred of its class, and is well suited to carrying on the heritage of Wilson Audio speakers.

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 critical music listening. Therefore, the CUB has been designed to deliver all of the speed, dynamics and musical accuracy to satisfy even the most demanding music lovers.

The CUB has also 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 CUB will provide the speed, dynamic impact and realism you have come to expect in a high performance home theater systems.

DESIGN CONSIDERATIONS

Your CUB has been designed to perform all of the specific functions of a high performance studio monitor in a less costly, scaled version of the WATT/PUPPY. This was a difficult task, because a small enclosure is needed for high speed and linearity in lower-mid to high frequency playback, yet the CUB needed to convincingly suggest the size and weight of full scale, full range music. To accomplish this task David Wilson and his engineering department used some extraordinary materials and enclosure techniques. The discussion of a few of these materials follows.

ENCLOSURE MATERIALS TECHNOLOGY

The enclosure of the CUB uses the same proprietary techniques as 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 material that is highly-cross braced to further reduce cabinet resonance. The front baffle of the CUB, its most critical surface, is machined from our proprietary Phenolic based structural material developed for the X-1 Grand SLAMM.

ADHESIVE

What's in an adhesive? Everything. This often over looked element is 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.

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 industry, allow us to design an enclosure with unmatched performance. The Cub has been designed to eliminate vibration and cabinet signature, while maintaining an internal acoustical integrity that is simply, the best.

Further, the Cub loudspeaker has over 340 constraining relationships defining the placement of over 75 parts. These relationships ensure both dimensional stability and repeatability. In short, the first Cub built will be as good as the thousandth.

CONCLUSION

All of these structural aspects combine to allow Wilson Audio to deliver a product that maintains the strictest structural tolerances, durability and reliability. This also means that you will have consistent, repeatable performance, unaffected by the climatic conditions, anywhere in the world.



CUB Series II

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CARE OF THE FINISH OF YOUR CUBS

Your Cub loudspeaker enclosures are hand-painted with Wilsongloss™ 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 Cubs during final manufacturing, shipment, and setup in your listening room, we have applied a removable layer of protective film over the finish. We recommend that this film be left in place until the speakers are in their final location in your listening room. Once you have determined their final position, remove the film by 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 Cub 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. Always use the dust cloth. Stronger solvents are not recommended under any circumstances. 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 all woofers and mid-range drivers for a 12 hour period. All drivers are then tested, calibrated, and matched for their acoustical properties. In your listening room, expect 25-50% of break-in to be complete after two hours of playing music fairly loudly. Ninety percent of break-in is complete after 24 hours of playing. Playing a “disc repeat” overnight can accomplish this task quickly. Wilson Audio recommends chamber music for this task.

BINDING POSTS

The binding posts used with the Cub are specifically made for Wilson Audio. David Wilson and his engineering team spent many hours listening to a variety of binding posts and making modifications to each until the most musical combination was achieved.

Note: The binding posts should be tightened only snugly. Over tightening can result in the breakage of the posts. Please take care when attaching the spade lugs to the Cub.

TECHNICAL - NOTE

If the user wishes to test the polarity of the Cub with a battery, the plus (+) terminal of the battery is connected to the RED (+) input terminal of the Cub and the negative (-) terminal of the battery is connected to the BLACK (-) terminal of the Cub. The results of this test will show the Cub woofers to move outward. This is the correct driver movement in response to a D.C. signal.



CLIP Series II

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 the 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 soundstage 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 reveration 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 of 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 mid-range and lower higher 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 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

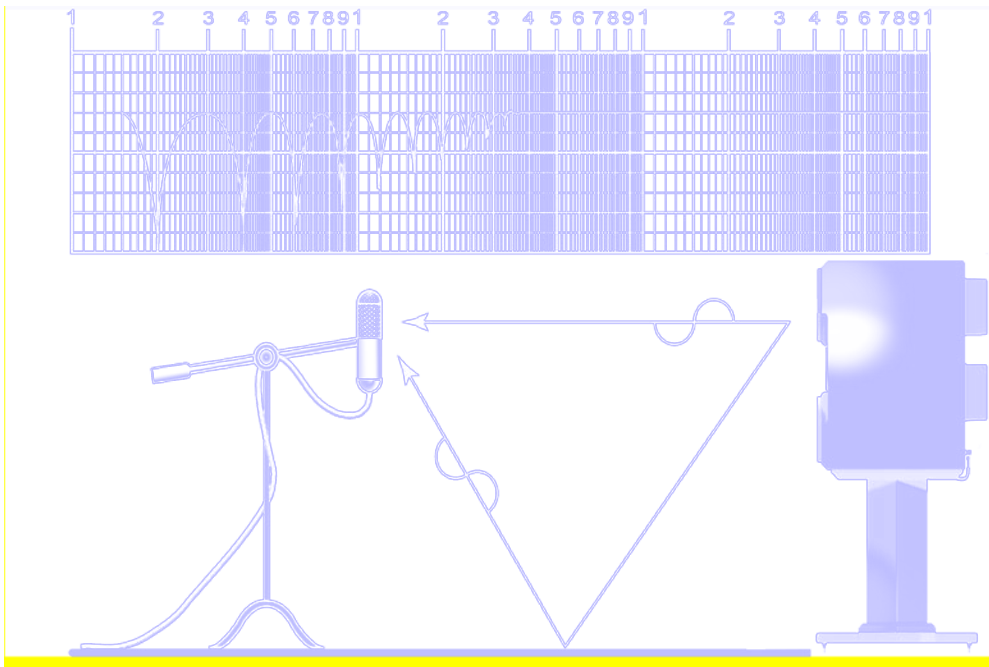


FIGURE 1

RESONANCES

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 RESONANCES

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.

ROOM SHAPES

There are three basic shapes for most rooms: square, rectangular, and L-shaped (see Figure 2). A perfectly square room is the most difficult room in which to set up speakers because, by virtue of its shape, square rooms are the perfect medium for building and sustaining standing waves. Standing waves are pressure waves created by the integration of sound and opposing, parallel walls which accentuate particular frequencies. They heavily influence the music played by loudspeakers, greatly diminishing the quality of the listening experience.

Long, narrow rectangular rooms also pose their own special acoustical problems for speaker setup. They have the ability to set up several standing wave nodes, which will have different 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, albeit not predictably, by speaker placement on the short walls.

In many cases L-shaped rooms 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 bend, or they should be along the longest wall, with the speaker furthest to the bend being inside of the bend. 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.

COMMON ROOM SHAPES: OPTIMUM SPEAKER PLACEMENTS

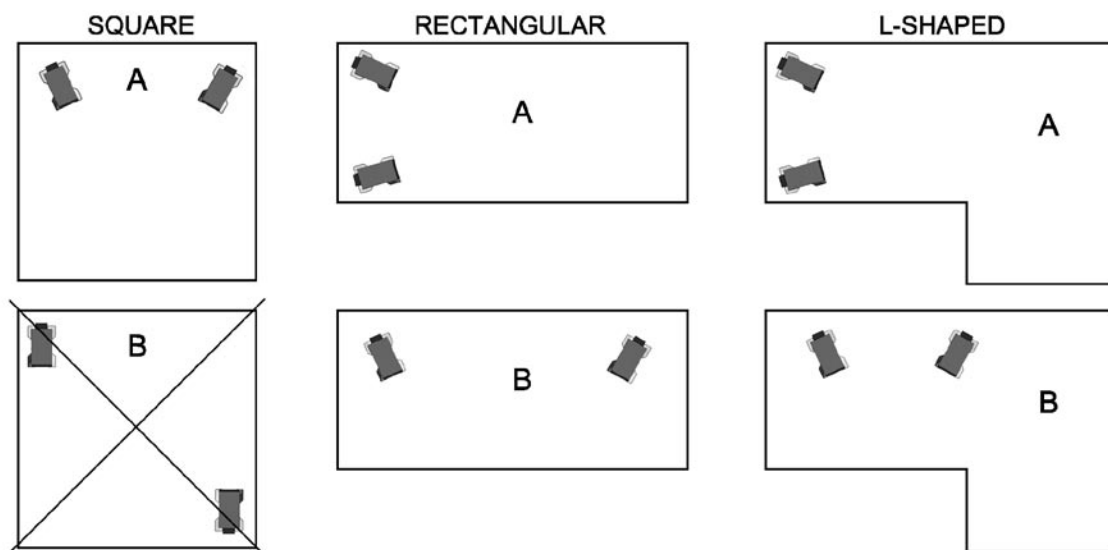


FIGURE 2

SPEAKER PLACEMENT VS. LISTENING POSITION

The location of your listening position is as important as the careful setup placement of your Cub speakers in your room. 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 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.

CHOOSING A LISTENING POSITION

Decide where you want your listening position to be. Please remember that your Cub can fill most rooms with beautiful sound. However, for the time aligning advantage, we want to ensure that you get all the benefits possible with the group delay adjustment features that are built into this design. For this purpose we ask you to consider the following questions:

What is the main purpose of your Cubs? Is it for a listening room dedicated to 2-channel audio? If yes, you should choose your position carefully to yield the finest sound.

Are your Cubs dedicated for a home theater?

Are you going to sit on a couch, or will there be multiple rows of chairs?

If it is a couch, you should center the loudspeakers on the center position of the couch.

Multiple rows of chairs - In this case you should calculate the 1.2 times equation on your second row of seating. Now more people will enjoy the power of your Cubs.

Do you still want to listen to 2 channel music at its highest quality? In this way you can enjoy optimized sound from that second seat.

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.

A very important aspect of speaker placement is how far to place the speakers 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, but 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.

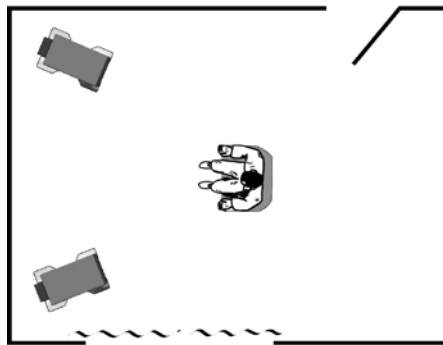


FIGURE 3- CUBS TOED IN

The Cub is designed for maximum phase coherence and pulse replication accuracy when they are aimed directly at the listener or microphone. Thus, your Cubs should be “toed in.” (see Figure 3) In other words, the listener, when seated in the listening position, should just barely see the surface of the inner side of the Cub. Toeing in the speakers provides dramatic improvements in resolution of low level detail in the mid-range, as well as dramatic improvements in sound staging performance.

SUMMARY

Ideally, the speakers should not be positioned too far from the listener, if maximum resolution of low level detail is required (near-field monitoring). If possible, the speakers should be positioned out into the room, slightly asymmetrically away from side and rear walls. The speakers should be toed-in toward the listener, preferably so that the listener at his seated position can barely see the surface of the inner side panel of the Cub as he faces the speaker. It is recommended that a distance of 2-3 feet, and possibly more, be maintained between the Cub and the rear walls and a distance of at least 1 1/2 feet be maintained between the front panel of the Cub and reflective side walls. Use of sound absorbent materials may reduce the space requirement somewhat. Experiment for each room.

By following the guidelines in this manual and your own common judgement, your new Cub speakers will provide you with a lifetime of pure music reproduction.



CLIP Series II

Note: Before setting up the Cub System II study carefully the previous section on room acoustics. It provides valuable information on determining the ideal room location for your speakers.

PREPARATION

You will need the following items:

- Supplied hardware kit
- Tape measure
- Known listening position

SETUP PROCEDURE

1. Stand the unit up (inside the crate) and *gently* walk/slide the CUB out of the crate. Remove the plastic outer bag by tilting the CUB over and opening the bag at the base of the CUB. Stand the CUB up and remove the bag.

Note: Do not cut the bag off of the CUBs. You may mark the cabinet or damage a driving element. Additionally, you will need this bag, if you need to repack the CUBs. Save your shipping crates and all packing materials, they are specifically designed to prevent harm from coming to your CUBs.

2. Move the CUBs into the desired location.

Note: Be careful not to touch the driving elements when you are moving your CUBs!

Note: If you did not purchase the optional stand skip to step 5.

3. Set the stands in the desired listening location and attach the spikes.
(see Figure 4 below)

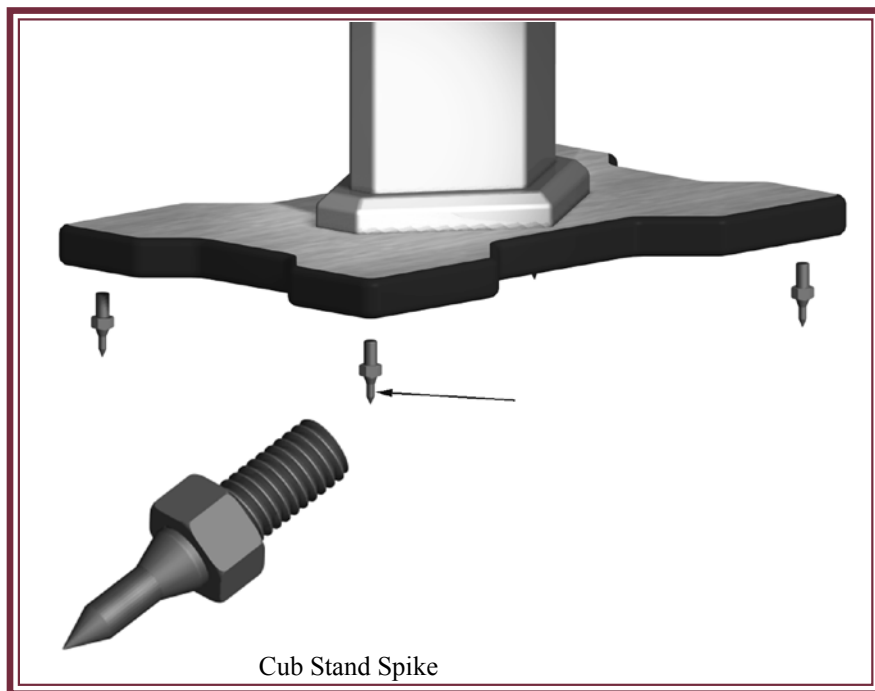


FIGURE 4- INSTALLING THE CUB STAND SPIKES

PROTECT YOUR FINISH

Note: Your CUB loudspeaker enclosures are hand-painted with Wilsongloss 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 four weeks. To protect the finish of the CUBs during final manufacturing, shipment, and setup in your listening room, we have installed a removable layer of protective film, over the finish. We recommend that this film be left in place until the speakers are in their final location in your listening room. Once you have determined their final position, remove the film by gently peeling it off. Do not leave the film on indefinitely, as it may leave impressions on the paint.

4. Bolt the Cub to the stand using the four 1/4-20 threaded bolts provided. (see Figure 5)

Note: Do not over tighten the bolts, a snug fit is all that is required to secure the Cub to the stand.

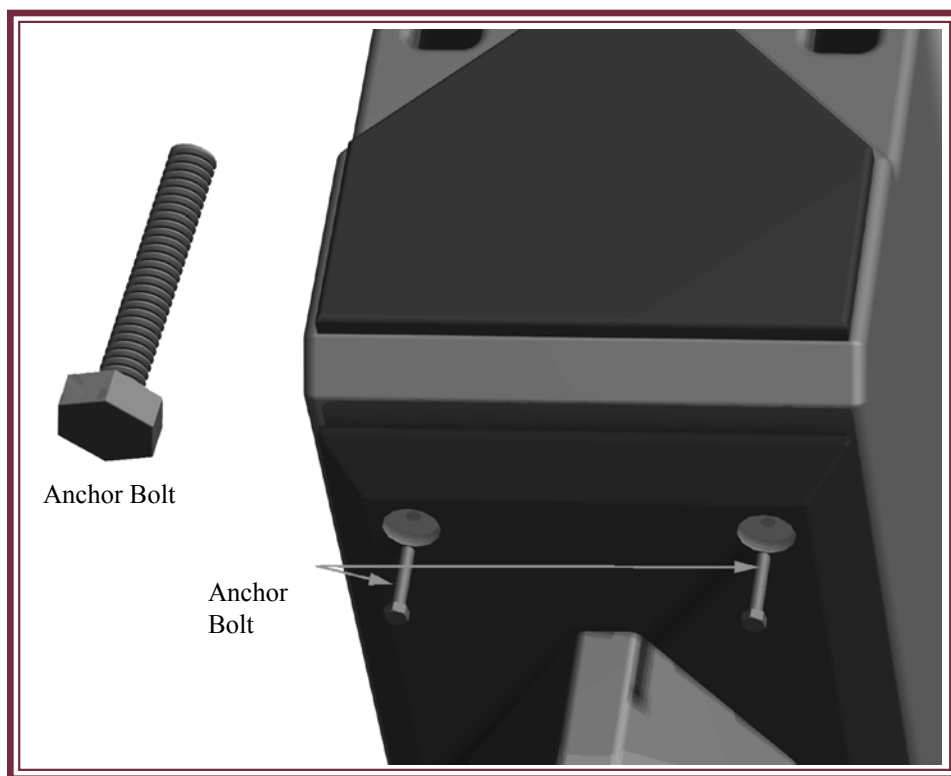


FIGURE 5- BOLTING THE CUB TO THE STAND

SPEAKER CABLES

The very high current input terminals located on the rear of your Cub loudspeaker are color coded with a small plastic plug, so that RED corresponds to positive and black to negative, common, or ground on the amplifier output. Be sure to connect the loudspeakers in phase with each other. 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 the sound from your Cubs, 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 Cub 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 Cub's connectors (see Figure 6). 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.

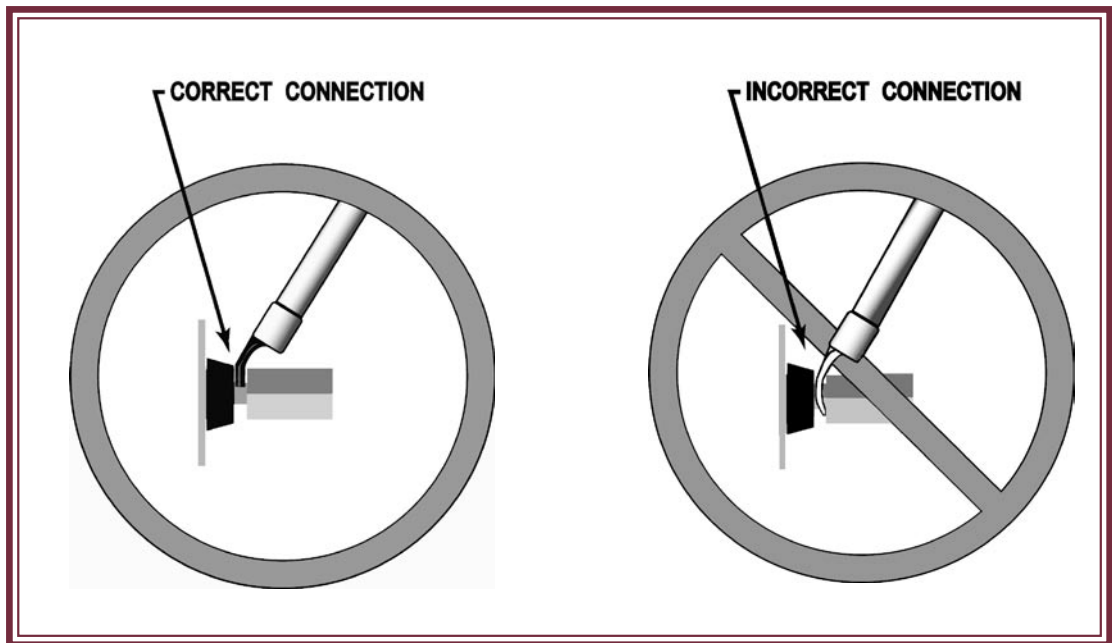


FIGURE 6- SPADE LUG ATTACHMENT

Connection of the Cub to the Power Amplifier

1. Turn off the power amplifier(s) and remove the AC power cord from the wall outlet.
2. Lay out the speaker cables before hooking them up to the CUBs. 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-angle bend.
3. Connect the negative (normally Black) end of the speaker cable to the high current speaker binding post with the engraved “-” above it (see Figure 7).

***Note:** Do not over tighten the binding posts, overtightening can cause the posts to break off.*

4. Connect the positive (normally Red) end of the speaker cable to the high current speaker binding post with the engraved “+” above it.
5. 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, by traveling the same distance to each speaker.*



COMPLETED SETUP

The setup of the Cub series II loudspeaker is now completed. If you are in need of further assistance contact your local dealer and they can answer any further setup questions that you may have.

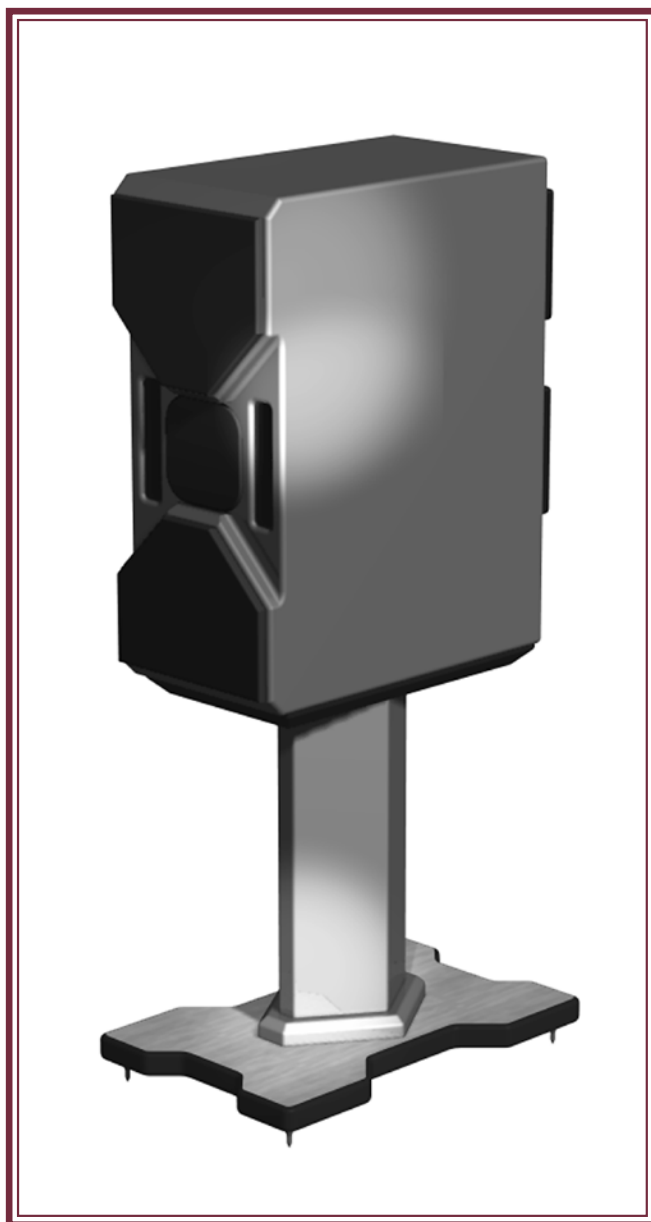


FIGURE 8- COMPLETED SETUP

C U B S Y S T E M I I S E T U P



CLIP Series II

Wilson Audio Warranty Information

LIMITED WARRANTY

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

Requirement No. 1. No later than 30 days after product delivery to the customer, the 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 or 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

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CLIR Series II

SECTION 6.0 TROUBLESHOOTING SETUP DIFFICULTIES

Problem

Reason

One channel is not operating... Check inter-connects from source.

Check the connections on the speaker cables. Both at amplifier and speaker ends. Watch especially for connector touching each other.

Imaging is off center...

Check your connections. When a tweeter or mid-range driver is not working, or is out of phase, the imaging will be off. Double check your connections for red-to-red and black-to-black.

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

A chronic lack of bass energy... Check the input cable connections on your woofer enclosure. If one channel is out of phase (connections reversed), bass will be cancelled.

Driver not playing after connections have been verified.

Note: Turn off your amplifier, and unplug it from the wall.

If you have found a driver that would not play, move to the rear of this particular loudspeaker.

Using the 1/8" Allen wrench remove the crossover for the driver that is out (upper crossover is for tweeter, lower crossover is for the midrange)

Locate the resistor and remove the resistor using a soldering iron. Replace the resistor and solder the new resistor in the old ones place.

Note: An improper resistor value will deteriorate your speaker performance

Plug your amplifier into the wall and turn it on.

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

Amplifier shuts off as soon as it is turned on:

Check to see if your speaker cables are properly secured. Look for frayed ends, loose connections, 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 back on the amplifier.

If the problem is solved: There is something wrong with your preamplifier or interconnect. Call your dealer.

If the problem persists: Leave the pre-amp leads disconnected and continue on to the next step.

Turn the amplifier off and disconnect it from the AC wall outlet. Disconnect the speaker leads **at the main input to the speaker** . Now turn the amplifier on.

If the problem is solved: Call your Wilson Audio dealer. There may be a problem with the cross-over or the speaker's internal wiring.

If the problem persists continue on 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.



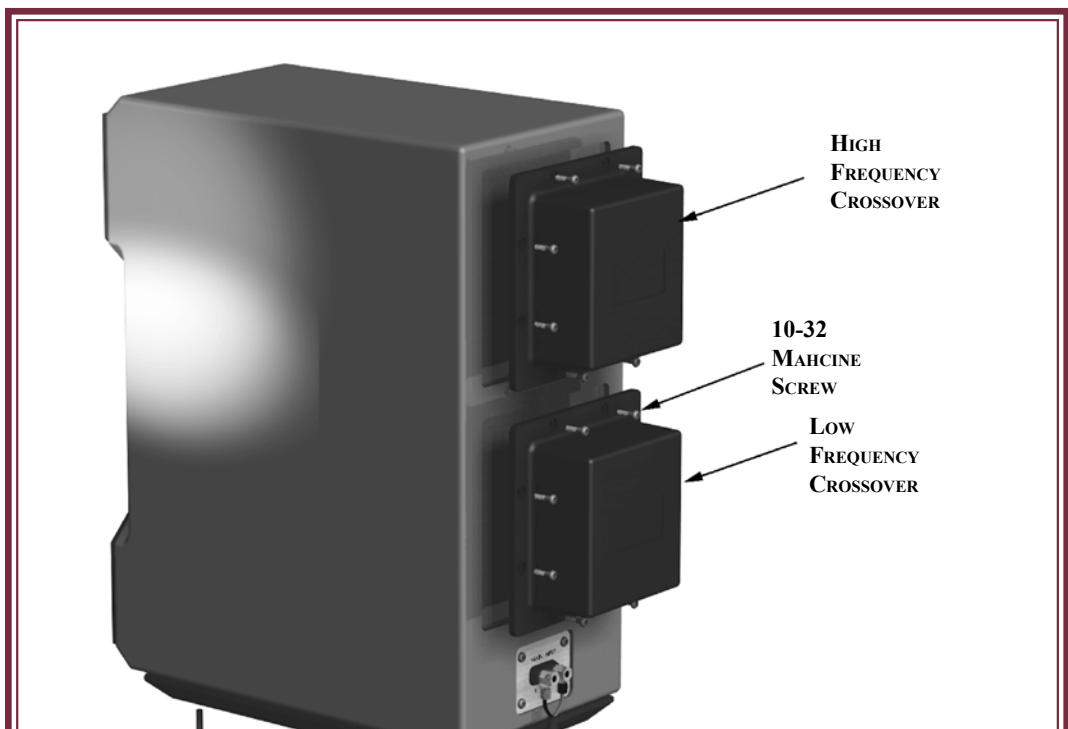
CLIP Series II

REPLACING A BLOWN RESISTOR

The cub loudspeaker has protective resistors that will blow if the speaker is over-driven, or if a power surge moved through the system. This is done so that the driver is not damaged. Replace a resistor on the cub as follows:

1. Determine which driver is not playing music.
2. Remove the appropriate crossover can from the back of the cub enclosure by removing each of the 10-32 button head machine screws from the crossover see figure below.

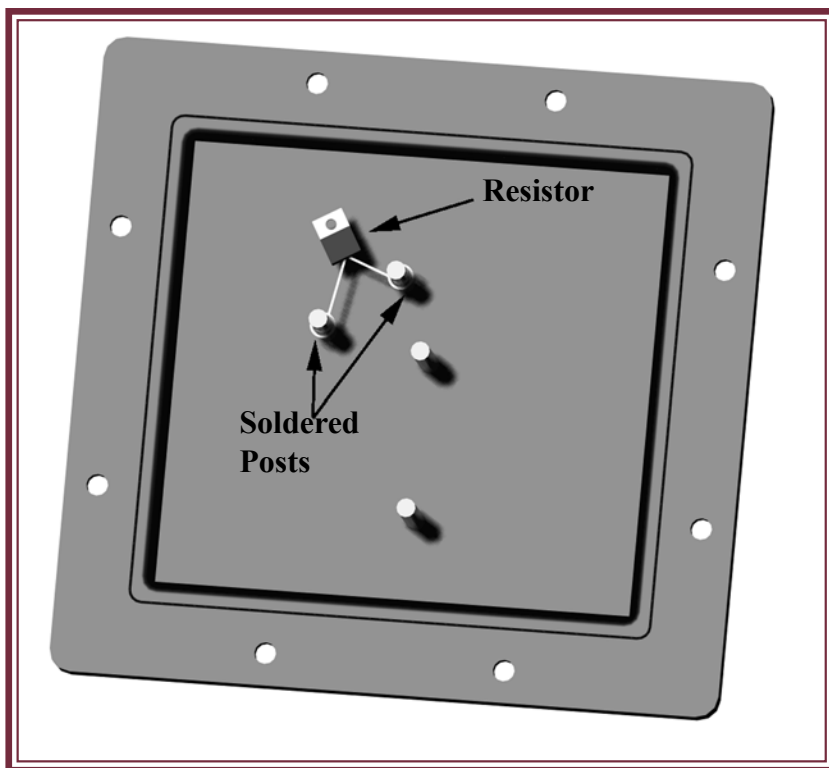
Note: Support the crossover as you remove the screws so that it does not fall and damage the internal wiring.



3. Heat up the leads of the resistor with a 45 watt soldering pencil and remove the faulty resistor (see figure below).
4. Wrap the leads of the new resistor around the ends of the posts and re-solder the leads.

*Note: The tweeter resistor value is 4.2 ohms
The low frequency resistor value is 1 ohm*

5. Re-attach the crossover can 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 follow:

- 1 Using the supplied Allen wrench, remove the machine screws holding the driver in place.
- 2 Insert the Allen wrench into one of the driver screw holes 1/8". Gently lift out the driver and place it onto the foam pad covering the front baffle.

Note: it is best to place an old towel under the driver so that you will not damage the enclosure when unsoldering the driver.

- 3 Using a 900 degree F soldering iron heat, up the solder joints and remove the driver.
- 4 Melt a small 1/8" diameter bead of solder onto the tip of each wire, heat the wire up until you see the solder wick into the copper.
- 5 Place the replacement driver onto the cloth and solder on the wires to the driver. White wire to the positive side and black 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.
- 6 Replace the driver foam gasket.
- 7 Place the driver into the machined recess.
- 8 Replace the machine screws, tightening them to 20 inch/ pounds of torque.

Note: Be careful not to over tighten the screws, it may cause the brass insert to spin.

