Acme Sound
Low B Series III
10″ 3-Way Systems
Owner's Guide

Low B-2

Low B-1

Low B-1 Wedge

Rev 10/2/2014
Acme Sound LLC USA

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Paper Owners Manual vs. Website:

Believe it or not, much of the content in the earlier owner's manuals was written in the early nineties, before the internet made information so easy to get. In updating the manuals for the Series III models, it has become clear that they could be more useful if focused squarely on practical suggestions, and less on history, philosophy, background and theoretical considerations. All of that fluff can easily be made available on the web, and has, so this manual will attempt to focus on taking the cabinet to the gig, and sounding good when you get there.

The earlier manuals are available there in the "Support" section of our website (www.acmebass.com), and do contain a wealth of information, make no mistake. But this document will be about using the speaker.

So, let's get to work.

Quickstart: Guidelines for Use:

IMPORTANT TO READ BEFORE YOUR FIRST USE!

Two very important points of information which will optimize your woofers for maximum power handling, and increase your speaker's chances for a long, trouble-free life:

Break-In:

The 10" woofers in our Acme Low B 3-way models have a short break-in period. The surrounds on these woofers have a higher stiffness new-out-of-the-box than they do after several hours of use. This has two real-world consequences.

The first is that the ability of the systems to reproduce the lowest notes doesn't reach it's full capability until the surrounds have been loosened up by being used. During the first few hours of use, the transient response improves, the full low-end extension comes to life, and power handling is optimized.

The second, and perhaps more important consequence, is that when driven to their maximum excursion, the woofers are much easier to damage when they are new, than after they've been broken in. It is more likely that the cones will be overstressed the when the speakers are brand new, than at any time after they've been used.

How much break-in time is necessary? We have broken them in using a sine-wave generator in an hour or two. I believe that whan playing bass, it is very difficult to predict how long it would take for a specific person to do it. It depends on your style, and how loudly you play. A few hours in your living room will generally do it. My best advice is to start slowly, and work you way into it. Within reason, of course, the longer, and the more gradual the better. But please do your best to loosen up the woofers before you get into any serious slammin.'

The reason to point out these concerns about breaking the speakers in, is because a number of years ago, a customer damaged his woofers within the the first five minutes. He unpacked his new speaker, and started at full volume "out-of-the-box." Something like this is an unfortunate experience for all involved. I believe that the availability of incredibly powerful amplifiers, even more than just a few years ago, has sort of changed the landscape. The good news is that this has never happened since these warnings about breaking the woofers in have been made.

Which brings me to the second IMPORTANT warning...

On Amplifier Level Controls:

A little bit of information about the level controls on power amps:

I've had unfortunate conversations with an alarming number of people who have made the same mistake:

A great many people, I've learned, believe that a 1000 watt amplifier becomes a 500 watt amplifer once the level controls are set to "halfway up," "12 o'clock," or "only at 5," if you catch my meaning.

I would prefer not to have this conversation any more, because it usually is with some well-intentioned kid whose woofers are in tatters, and who can't understand what he did wrong.

So, read this twice if you have to: Lowering the setting of the Level, or Volume control on your power amplifier does not limit it's ability to produce its full power! If a 1000 watt amplifier is only turned halfway up, it does not become a 500 watt amplifer! It is still able to produce it's full 1000 watts if it gets a "hot" enough input signal.

Read it again.

Thank you.

Impedance and Amplification:

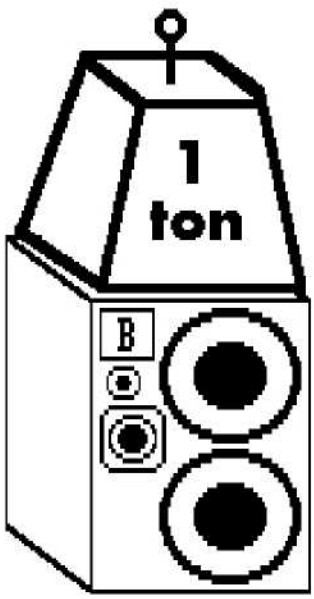
These speakers have a reputation for being power hungry, handling large amounts of power, and being very loud for their size. All of these things are true.

The Low B-1 and Low B-1 Wedge models are rated at 175 watts RMS continuous. We recommend 200-250 watts. The Low B-2 is rated at 350 watts RMS continuous. We recommend 400-500 watts.

Grown-ups can be trusted to use more power than that, and those who choose to do so will be rewarded with a very loud and very clean sound. Just be careful, and listen for distortion, which will be an indicator that your reaching some limits somewhere. More on this later.

Connections:

All Series III models use twin Neutrik "Dual Connectors," which accept both Speakon connectors and standard 1/4" phone plugs.



Quick Notes on Placement:

The ports on the Low B-2 are on the back of the loudspeaker, and the port is on the side of the Low B-1 amd the Low B-1 Wedge. It is vitally important that these surfaces not be placed less that 6" or so from the nearest wall or obstruction, so the ports can operate correctly.

If you can find a way to anchor the loudspeaker to the floor, by using a heavy amplifier or similar mass on top of it, you will be able to achieve a slightly cleaner and more authoritative bass end. More about this on the website.

Experience has shown that musicians "in the field" will often adjust their positioning and placement to their circumstances. Depending on room characteristics, band volume, and balancing between stage and room volume, some will stack a pair of speakers column-style, some will stack them placed horizontally, and some prefer a side-by-side, orientation. Don't be afraid to experiment, and don't be afraid to be flexible.

END QUICKSTART GUIDE

Acme Low B Series III 10" 3-Way Systems Owner's Guide

Introducing the Series III Models:

Since the introduction of the original Acme Low B-2 in December, 1993, and the Low B-4 in September, 1994, the speakers have remained essentially unchanged. The Series II models were not much different from the original so-called "Series I" units, and the new Series III models are also only nominally different. Our website, at www.acmebass.com has a description of the specific changes made Series I to II, and needn't be repeated here.

What's New: The Series III Template:

The Series III models (including the 12" models not specifically addressed here) share some new features, as compared to the earlier Series II models. These include:

Enclosures:

Duratex finish standard. Most people hated the carpet covering on the earlier models. (See notes on the Duratex finish later in this document.)

The Low B-2 Series III enclosure is constructed using a new bracing configuration. It is a tiny bit lighter, uses the port as part of the bracing mechanism, and uses a single port instead of a pair. The tuning is still optimized.

The Low B-1 Series III enclosure is minimally changed, as well. The most important difference is that the front panel has been rotated ninety degrees, such that multiple enclosures can be stacked with all midranges and tweeters aligned on a common vertical axis.

The Low B-1 Wedge enclosure is new, and only available in the Series III line. It is based on the traditional Low B-1, and is identical in all respects except the obvious: the shape.

Crossovers:

The Series III models no longer use variable attenuators, but use fixed-attenuation crossovers, optimized for superior accuracy, consistency, and just good-old quality. All midranges, tweeters, and heat-dissipating crossover components are protected by self-resetting solid-state Polyswitches.

Handles:

The new Series III Low B-2 is equipped with a recessed hinge-type handle on top. Most people hated the recessed plastic handles on the Series I and II B-2 model. Such a handle was impossible to use on the earlier Low B-2 enclosures, but a more advanced bracing scheme in the new enclosure made a more user-friendly handle solution possible. (See the rant about handles on the website, in the Series III section.)

The Low B-1 Wedge system uses the same recessed handle as the Low B-2 model.

The traditional Low B-1 is still equipped with a Fender-type strap handle, on the same side as the port, to encourage proper cabinet placement, with the port unobstructed.

Internal Connections:

The new Series III systems use solderless "Fast-On" type connectors for the woofers and crossovers. This allows easy replacement and/or service. See "Service and Component Replacement."

Fasteners:

The woofers in the new Series III systems are installed using actual bolts and machined, threaded "inserts," instead of the self-tapping screws in previous models. This is sort of expensive, but it allows the woofers to be removed and re-installed without any wear and tear to the front panel.

Further Owner's Notes

Concept: Deep Bass, Low Efficiency, Low Coloration:

If you've come this far, you probably know the concept: There are two main characteristics which distinguish the Acme Sound Acme Low B loudspeakers for bass guitar from every other product in the bass guitar loudspeaker industry:

First, these are compact loudspeakers capable of delivering low-distortion, extended low bass. This is made possible by sacrificing efficiency in favor of such bass performance, which makes it necessary to use higher-power amplifiers than is normally the case with loudspeakers of this size.

Second, they are designed to reproduce a signal with low coloration, such that they are useful for not only bass guitar, but for both other instruments, including keyboards and acoustic stringed instruments, and even for reproduction of vocals. Most "bass guitar" speakers don't go there, or even try to.

Amplifiers:

These systems are aligned using Thiele-Small technology to minimize distortion in the lowest half-octave (down to the "Low B") but this alignment increases amplifier current requirements at these frequencies. As a general rule, when distortion is heard from these speakers, it will be eliminated by increasing amplifier power. This is the unfortunate price we pay for low distortion extended bass from a compact enclosure. High damping factor solid state amps are recommended for greatest cone control, but if you have a tube amp, results will generally be acceptable. Several users report excellent results with the Ampeg SVT head and large Mesa-Boogie tube amps, with no negative consequences resulting from the high internal amplifier resistance associated with all tube amps.

Cables:

As a design goal, internal system resistance has been kept to a minimum. To maintain the same level of electrical integrity, short, heavy gauge cables are best. Don't run out and spend a fortune however, unless you're certain that what you have is inadequate. I recommend a cable of under .3 Ohms, and the larger the cable the better.

I'm very conservative in the area of cables, and I believe the benefits of expensive cables are sometimes exaggerated by those who offer them. See "James Clerk Maxwell."

Placement: Low B-2:

Because of the position of the midrange and tweeter, a vertical placement is suggested for the Low B-2, with those drivers up off the floor. For people who want to use a single speaker in a horizontal configuration, it is recommended that you elevate the system on a chair or similar object, with the midrange and tweeter toward the top, and with a heavy amp or other mass on top, for stability.

When using two Low-B-2 boxes together, we have recommended placing them side by side in the vertical orientation. Several customers have tried stacking them end-wise, column style, and have really liked the raised midrange speaker, and the way it disperses very evenly around the room.

In either case, place your amp or other heavy object on top to help anchor your system to the floor, as mentioned previously. As the speaker cones move in and out, they will have a tendency to cause the enclosure to vibrate in opposition to the movement of the cones. (Newton's second law of motion.) This effect is present in competing designs as well, and this is good advice when using any speaker, not just these Acme models. It is to your advantage to minimize this effect by using as much weight as is available on top of the speaker.

Also, as the ports are located on the back of the box, you should leave at least 6" between the speaker and any wall. Restricting the port will increase distortion and decrease power handling.

Placement: Low B-1:

At first glance, the Low B-1 looks a little strange. As was mentioned above, the speaker uses a Fender-type strap handle. The port is apparently located on the top, next to the handle. Don't be fooled.

In fact, the port and the handle are located on the side of the speaker. They are placed on a common surface to discourage the user from stacking another speaker (or anything else) over the port, thereby ruining the operation of the port, and placing the woofer at great risk. As was mentioned in the section on placement of the B-2, blocking the port(s) greatly reduces system power-handling, and is to be avoided at all costs.

As was mentioned before, the Series III Low B-1 has been reconfigured to allow stacking of multiple cabinets with the midranges and tweeters aligned.

Placement: Low B-1 Wedge:

The difference between the traditional Low B-1 model and the new Low B-1 Wedge is what you see: the shape. The reason for the new shape is simply to provide flexibility in placement. They can be stacked, column style, just as the Low B-2 model can, or used on their side, like a foldback floor monitor. Also, the standard stand-mount receptacle makes it possible to elevate the speaker on a tripod, for use as PA speakers, or whatever use you have in mind.

Troubleshooting:

As questions have come in about potential trouble, we have attempted to compile some answers to possible concerns in this section. Please visit the website a www.acmebass.com and other internet resources for more information.

Distortion:

Distortion, when introduced by any part of a sound system, will be heard from the speaker. If, for example, an amplifier has a weak tube, the effects of that weakness will be heard as distortion from the speaker. Sometimes, then, to say "the speaker is distorting," can present a false picture.

A couple of gents had their Low B speaker disassembled before they realized that their effects processor had a low battery. Another fellow sent frantic email asking help in diagnosing his faulty speaker, before realizing the battery in his bass was nearly spent, and he hadn't noticed with his old speaker. A new battery fixed his speaker!

The point, then, is that when you hear distortion, you must isolate the cause of it. If your instrument is at one end of a chain, and your speaker is the other end, distortion occurs when any link in the chain is overdriven. To overdrive any component is to expose it to an input signal of sufficient strength to exceed it's capabilities.

Sometimes, when faced with a speaker of lower efficiency, such as the Low B systems, a player will, without thinking, boost the volume control on his/her instrument to compensate. To do this though, is to risk overdriving the preamplifier, by exceeding its input capability. Similarly, to turn the volume control to levels that would try to squeeze 200 watts from a 100 watt amplifier is to (over)drive the amplifier into distortion. To push 1000 watts into a 500 watt speaker will obviously overdrive the speaker.

So, having explained that, if you hear distortion, proceed as follows:

(1) Increase the level control on your power amplifier to maximum. The only reason to use a setting less than the maximum is to match levels between several amps or speakers.

(2) If distortion persists, increase the setting on your preamp's volume control, and compensate by decreasing the setting on your instrument's volume control.

(3) If distortion persists, check all of your batteries, and make sure any ancillary equipment is operating properly.

(4) If distortion persists, and you're not playing very loud, you might not have enough power. If you're playing quite loud, you might have too much power, and could be overdriving the speaker (Yes, it is possible.) Try with another amp.

(5) If distortion persists, call Acme, and we'll talk about it.

Tweeter:

The tweeter in these speakers is crossed over at a very high frequency. In some circumstances, there will very little output from the tweeter, because there will be no substantial signal from the instrument in the very-high harmonics. This has led to the conclusion by some that their tweeter is either blown or malfunctioning.

Before you jump to this conclusion, listen to a wide-range program source through your speaker, such as a CD. With this source, the output from the tweeter will be much more obvious than with some bass guitars, particularly older, passive models.

The very high crossover point makes it nearly impossible to damage this tweeter. It is very unlikely that you will destroy it no matter what you do. If you suspect damage, please perform the test described above before making up your mind.

Duratex Finish, Maintenance:

The Duratex finish on the Series III models solves most of the problems associated with the "rat fur" carpet on the previous models. It it not without its disadvantages, however, the most obvious of which is it's tendency to chip or scratch, when exposed to the rigors of the road.

We supply a simple "touch-up" kit with each unit, to facilitate easy repair of light damage. The material is easy to apply, using Q-tips, or even your finger, and cleans up with water.

Service and Component Replacement:

The Series III models use faston, or "Quick-Connect" connectors to make electrical connections to crossovers and drive units.

Long a devotee of soldered connections, for obvious reasons, we finally caved. I saw connectors of this type inside my favorite studio monitor speakers. If it's good enough for them, it's good enough for me.

We love the easy serviceability and upgrade. You will too. That's it in a nutshell.

When and if, for whatever reason, a driver has to be replaced, it will no longer be necessary to have soldering equipment, just a Phillips head screwdriver.

Warranty:

Acme Sound LLC warrants this speaker to be free from defects in materials and workmanship for a period of ten years from date of purchase. This warranty includes cost of any covered repairs and shipping one way. Warranty not to cover repairs necessary as a result of abuse. Warranty voided by any attempt to modify, improve, or reverse engineer the speaker.

A speaker which is blown or worn out is not replaceable under warranty. Exceptions would be when a crossover fails, resulting in a damaged driver.

If you experience any problems, it is in the best interest of Acme to have your unit working correctly and back onstage as quickly as possible.

When warranty issues have arisen, the policy has generally been to give the customer the benefit of the doubt. More specifically, if we sold you a bad part, obviously it should be replaced for free. Several customers have sent back woofers that didn't fail for any evident reason. Our policy has been to replace them for free as well.

Issues not covered:

Blown Speakers: A woofer which was shipped to you with a defect of some kind will not show signs of physical destruction when it fails. If, for example, you can see a "creasing" around the circumference of the cone, your speaker has been overdriven, exposed to a DC component, or been fed a distorted signal by an overdriven amplifier. This is not a defective woofer. If your voice coil has been burned to carbon, please don't bother to make your case that it was received with a defect.

Pounding on your strings with your palm. Yes, it sounds cool, but that's not the point. Power handling decreases drastically below 31 Hz (B), and string pounding can send near-DC through the poor thing. If pounding is an integral part of your playing style, you shouldn't be using a vented cabinet, but would be better off with a sealed-box system, such as an SVT.

Burnt voice coil: The best way to destroy a voice coil is to continue to play at a higher volume than either the amplifier or speaker will handle. If either is pushed beyond its limits, damage to the speaker could occur. Listen to your system carefully. Inordinate distortion, regardless of the source, is a sign that you're pushing the envelope, and could damage your amp, speakers, or both.

Drop/smash. No explanation necessary.

Please remember that if you have any trouble, we're mostly interested in solving your problem as quickly as possible, and saving whatever money can be saved by either or both of us!

Warranty and Service Notes:

What's most important is to get the speaker operating properly, so all the world will know how great it sounds! But we're unable to subsidize destructive behavior by replacing for free anything you can find a way to damage. If, for example, your amplifier fails, and sends something hideous through the speaker, or you like to pound on your strings at full volume to massage your back, please, don't send back woofers whose cones are in tatters with the expectation that they will be replaced for free, because this type of horrible damage cannot be construed to be a "defect" in the product you were sold.

Specifications:

Frequency Response:	**Frequency response:**	**+/-3 dB 41Hz to 22 kHz** **-6 dB at 31 Hz**
Sensitivity:	**Low B-1:**	**90 dB 1 watt/1 meter**
	Low B-1 Wedge:	**90 dB 1 watt/1 meter**
	Low B-2:	**93 dB 1 watt/1 meter**
Dimensions:	**Low B-1:**	**15.75"H x 15.75"W x 16.5"D**
	Low B-1 Wedge:	**23"H x 15.75"W x 13.125"D**
	Low B-2 :	**23"H x 15.75"W x 16.5"D**
Power Handling:	**Low B-1:**	**175 watts RMS continuous** **150 watts sine wave @ 30.87 Hz**
	Low B-1 Wedge:	**175 watts RMS continuous** **150 watts sine wave @ 30.87 Hz**
	Low B-2:	**350 watts RMS continuous** **300 watts sine wave @ 30.87 Hz**
Impedance:	**4 or 8 ohms**	
Weight:	**Low B-1 Series II:**	**28 lbs/13 kg**
	Low B-1 Wedge:	**30 lbs/14 kg**
	Low B-2 Series II:	**50 lbs/23 kg**
Connection:	**Neutrik NLJ2MD-V dual connectors (2 parallel)** **accepts Neutrik Speakon and/or standard USA 1/4" phone plug**	
Rohs compliance:	**Compliant**	

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