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Acme Sound Low B Series III 1x12" Systems Owner's Guide

112 Full Range



112 "Flat Wound"

Rev 10/2/2014
Acme Sound LLCUSA
www.acmebass.com

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Please note that this Owner's Guide has a revision date on the first page. Check for later revisions in pdf format in the Support section of our website at www.acmebass.com

**Owner's Notes
Acme Low B Systems
Series III 1x12" Models
Acme Sound LLC USA**

Paper Owner's 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!

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 amplifier 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 amplifier! 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-112 models are rated at 350 watts RMS continuous. We recommend 300-400 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.

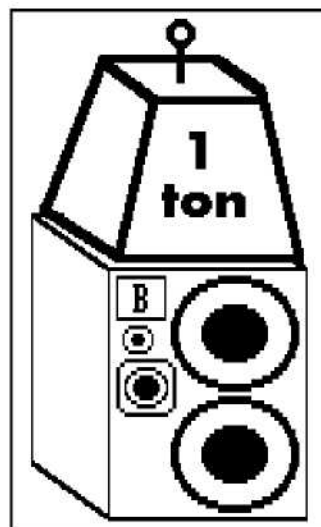
Placement Low B-112:

The 112 System has rubber feet on the bottom, which implies a way to stand it up. The handle is on top.

Whenever possible, place your amp or other heavy object on top to help anchor your system to the floor. 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.

This is more important with a lightweight neo loudspeaker than a traditional, heavier, ferrite model. An unfortunate side effect of a lightweight speaker is the loss of inertia associated with a heavy, back breaking magnet.

I hope you enjoy the diagram I made in 1993 on an Apple IIGS for the original B-2!



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 1x12" 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 these 12" models, share some new features, as compared to the earlier Series II units. 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-1 12 Series III enclosure is constructed using a new bracing configuration. It is quite lightweight, uses the port as part of the bracing mechanism, and uses a single front-located port. The tuning is optimized.

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.

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

Handles:

The new Series III Low B-1 12 is equipped with a recessed hinge-type handle on top. Most people hated the recessed plastic handles on the Series I and II models.

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.

What are the Acme Series III Neo Systems?

The Acme Low B-112 "Flat Wound" and Full Range Systems are compact, lightweight, high performance loudspeakers which, like the classic Acme Low B systems using 10" drivers, achieve superior low-end output, extension, and transient response by manipulating the Thiele-Small parameters in order to optimize for these qualities at the expense of efficiency.

The Acme Low B-112 "Flat Wound" and Full Ranges Systems use a special, proprietary twelve inch woofer. They represent a synergistic marriage of classic design principles, and cutting edge materials and techniques, executed with great precision, attention to detail, and craftsmanship.

The Acme Low B-112 "Flat Wound" System is a one-way system, with no tweeter, and no crossover. Its surprisingly extended top end, for a twelve inch bass driver, makes it an excellent solution for a great many bass players, particularly those who don't need an extended studio-monitor type of high end.

It is simplicity itself. No whistles, no bells. It is a nearly perfect distillation of the essence of what a classic Helmholtz Resonator can do. And it weighs 37 lbs.

It is a stand-alone witness to the ability of a modern neodymium woofer to fill a big room with a big sound, in a small, lightweight loudspeaker.

The Acme Low B-112 Full Range System is similar to the "Flat Wound" System, but with a smoothed midrange, and an added high-output, high-accuracy shallow horn tweeter. It is similar to the "Flat Wound" unit, but with high end which extends to the limits of audibility. The Full Range System is a relatively low-coloration, high accuracy speaker, much in the tradition of the classic Acme models, but with lighter weight made possible by the availability of lighter high-performance neodymium magnets.

The Full Range System comes in a little heavier, at 38 lbs.

Why were they created?

I might rephrase that question: What, if anything, is lacking in the traditional Acme Low B systems, which might be addressed in these new models?

In a word, weight. The Acme Low B-2 system, based on the ten-inch woofers, is the same size as these 112 models. It is loud, clear, uncolored, has a massive bottom end, and is as relevant today as it was when it was introduced in 1993. It is probably the second most imitated loudspeaker in the industry, after the ubiquitous Ampeg SVT. It was named one of the "Ten Most Important Products of the Decade" by Bass Player Magazine, has a fanatical following around the world, and is not in need of substantive improvement. So why bother?

Neodymium magnets were not available in 1993. They are now. My back is older. So is yours. How much heavy stuff do you need to carry around in order to make music? As little as possible, that's how much.

The first choice would have been to introduce the traditional models using a ten-inch neo woofer which would be a direct replacement for my classic woofer. But no such woofer is available yet. It may be later. I haven't given up. The traditional Acme systems will continue to be available, more-or-less unchanged, and when and if such a woofer is available, we'll let you know.

In the meantime, Eminence has a template for a truly great twelve-inch neo woofer, and the willingness to modify it to my specifications. The resulting bass driver is unique in the world, and for people who are willing to use more power to drive a less efficient loudspeaker, provides an opportunity to fill a room with loud, extended bass using a system of unprecedented compactness and light weight.

Most companies in this business introduce a great many new models, year in and year out. We don't. We've never had a compelling reason to do so before. Neodymium magnets provide one.

The "Flat Wound" System was the first model to use this new woofer. The pleasing nature of the woofer's high end was discovered, almost by accident, en route to a standard, Acme-style full range-system. But when we heard how good the simple one-way cab sounded, we knew right away that it was worthy of introduction as a stand-alone model. The Full Range System realizes the full potential of the Acme twelve-inch woofer in a full-range context.

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.

As with earlier Acme models, greater than average power is required.

A 200 watt amplifier, which is more than adequate to power a JBL, can seem gutless when used with these speakers, the 8 ohm models in particular. Low power can obviously be a source of trouble. Even with higher-power amps, a slightly different approach to using your equipment can be helpful. See the section on "Distortion."

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.

In fact, please let us know if a particular amp really pleases you, or not...

More on Power Amplifiers and Their Level Controls:

We recommend that you use your power amplifier with the level control set to their highest setting, or "full blast," if you will. There are common sense reasons for this, that are even more important when using a lower-efficiency loudspeaker.

In short, when you "max" the levels on your power amp, you are less likely to overload any of the earlier stages in your signal chain, which would cause distortion.

Please see the "Quickstart Guide" earlier in this document.,

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."

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 at 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 a 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 its 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 volume setting on your power amp, if you have one. Compensate by decreasing the volume on your preamp.
- (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.

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 is not without its disadvantages, however, the most obvious of which is its 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, I finally caved. I saw connectors of this type when I was snooping around inside my favorite studio monitor speakers. If it's good enough for them, it's good enough for me.

I 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.

Forms of abuse not covered:

Bown 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 if you have any trouble, that 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!

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I hope this information makes it possible for you to get the most from your speaker. Again, if you have ideas to make this guide more useful, please let us know.

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:	
"Flat Wound" System:	31 Hz to 4 kHz
Full Range System	31 Hz to 20 kHz
Sensitivity:	91.1 dB 1 watt/1 meter
Loading Method:	Helmholtz Resonator
Dimensions:	23 x 15.75 x 16.5 (D) inches 58 x 40 x 42 (D) cm
Power handling:	350 watts RMS
Recommended amplifier power:	400-500 watts
Impedance:	4 or 8 ohms
Weight:	37 lbs "Flat Wound" System 16.8 kg 38 lbs Full Range System 17.3 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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