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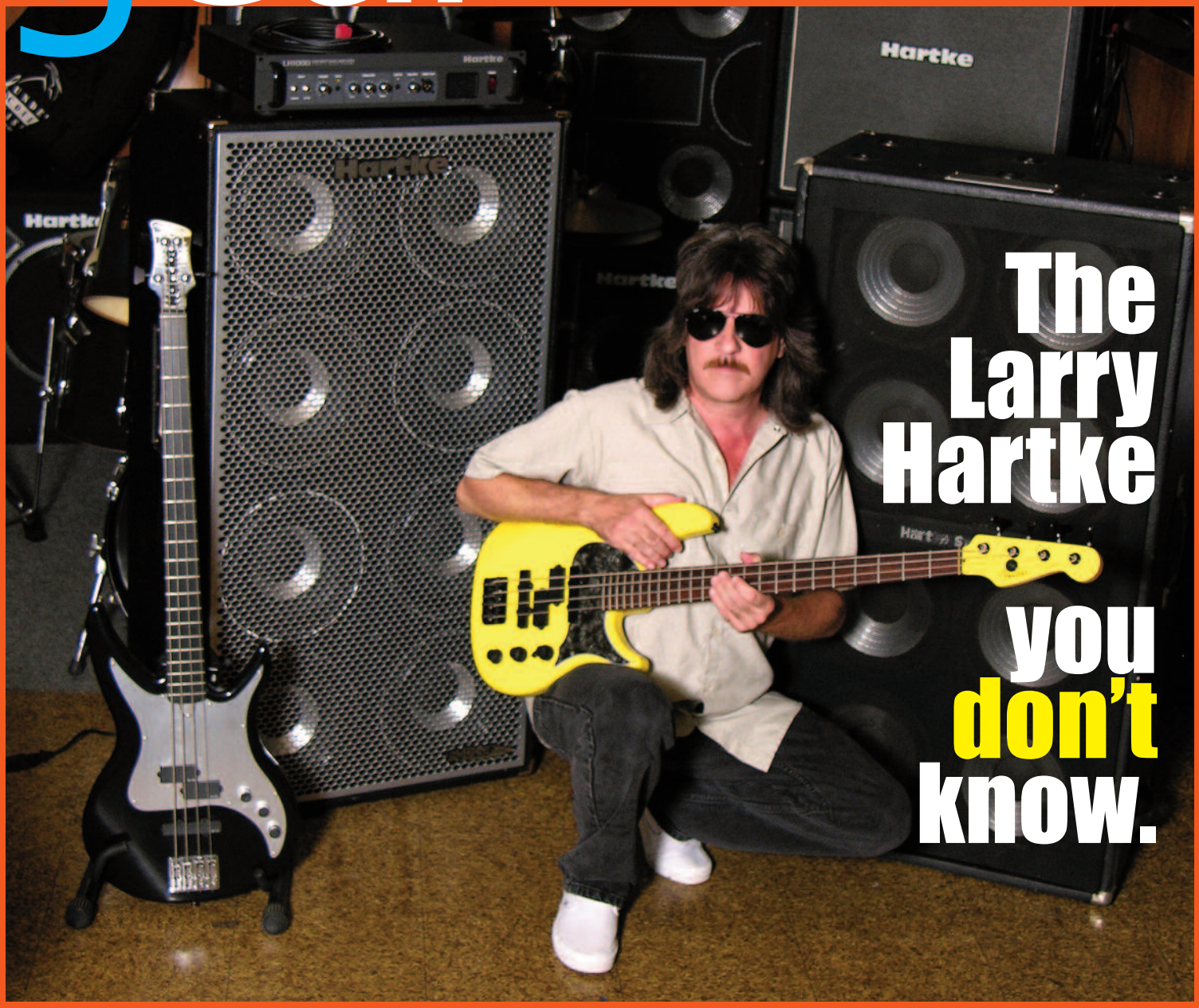

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In The Doghouse

Chris Fitzgerald

Pickup/Mic Blending Overview
(Part 1 of 2)

In every double bassist's ongoing quest for "The Sound", he or she must go through many stages and experiment for years with various aspects of the signal chain that produces the final tone. This signal chain includes, but is not limited to, many of the following elements: physical technique (the most important of all), the bass itself, the fingerboard, the bridge, string height, and string type. Physical technique aside, the interplay between all of the other elements comes together into a basic feel or set of preferences that help define the overall sound produced. There is no substitute for personal experience with these issues (but access to an experienced luthier sure helps a lot with some of them). Hopefully, once each player has done their share of experimenting, they can then get some close approximation of "The Sound" that they are hearing internally to come out of the bass when playing acoustically.

For many working bassists, there is another all-too-familiar conundrum to be dealt with, which can be pretty much summed up with the question, "Now that I've got an acoustic sound that I like, how can I amplify that sound without altering it to the point that I no longer like it?" It's an important question, and unfortunately just another part of the learning curve. A good pickup helps, but as most bassists soon discover, there's usually something missing from the sound of a pickup signal, and the louder that signal gets, the more that seems to be missing. The answer, for many, is to supplement the sound of the pickup with the sound of a microphone for live sound applications. For the purposes of the rest of this discussion, I'd like to add the disclaimer up front that I intend to talk mainly about the subject in general rather than focusing on brands of gear (although several pieces of gear will be mentioned as options to solve certain obstacles). I'd also like to state up front that this discussion will focus mainly on blending a mic and pickup through and amplifier, rather than dealing with house sound systems and soundmen, which is a whole other can of worms.

First steps – Making Connections

Assuming you have the bass, pickup, and amp and are now looking to add a mic into the mix, there are several decisions you will need to make up front:

- What kind of mic do you plan to use?
- Where do you plan to place or mount the mic to be of maximum benefit to your sound?
- What will you use to blend the pickup signal with the mic signal?

I'll attempt to deal with each of these questions on its own before moving on to the more detailed "tweaking the setup onstage" kinds of issues in the next installment of the column.

Choosing a microphone

There are two basic kinds of microphones in common use for live sound applications: dynamic mics, and condenser mics. Dynamic mics in general are more durable, less fussy, require no external power source, are usually less susceptible to feedback, and are often able to withstand higher sound pressure levels (SPL) without distorting the signal than condenser mics. The downside to dynamic mics is that they tend to be less sensitive than condenser mics, offering a somewhat less-detailed sound. Condenser mics, on the other hand, require a power source of some kind (although some run on internal batteries), but tend to be more sensitive and produce a hotter signal with more sonic detail. Most recording studios tend to use condenser mics for acoustic instruments. I've used and experimented with both types. While both can work, I've ended up settling on dynamic mics for a variety of reasons, the two main ones being the fact that dynamic mics tend to be more durable and, because they are less sensitive, tend to help control feedback a little better in my experience.

Mounting the mic

There are almost as many ways to mount a mic on a bass as there are bass players who use them. Different players like different placements on the bass, which in turn necessitates various methods of mounting the mic so that it stays in a constant relationship with the bass as it is being played. Having said that, mounting a mic on or near a bass usually falls into one of three basic categories:

- Physically attaching the mic to the bass, often by attaching it to the tailpiece or afterlength of the strings.
- Using a regular mic stand to hold the mic.
- Using a mounting device with a mic clip attached to keep the mic a set distance from the top of the bass.

I've used every one of these methods, and each one has its pros and cons. Rather than pretend that I have the answer that will work for everyone, I'll just share my personal experience with each.

Physically attaching the mic to the bass: I did this for a long time by simply cramming a dynamic mic through the afterlength of the *D* and *A* strings and

having the diaphragm end held between the bridge feet with a large rubber band or a piece of shock-mount elastic. The benefits of this were many – it was cheap, it was easy, it sounded pretty good, and I could leave the mic on the bass even when transporting it in the case. The drawbacks were that the mic was confined to one spot (which may or may not be the best sounding spot), and that the weight of the mic has a real dampening effect on the acoustic sound of the bass.

Using a regular mic stand: I tried this only briefly. It worked pretty well sonically, but carrying around the extra stand was a hassle, and if your bass moves at all when you play, the sound changes every time you move. On some stages, the stand also picked up vibrations from the floor, which can compromise the sound. In the end, these issues were more than I wanted to deal with, but it should be noted that many players use this method with great results.

"...how can I amplify that sound without altering it to the point I no longer like it?"

Using a mounting device to hold the mic: This is my current solution, and the one I like best. Some mics like the AMT SB25 (a condenser designed for the bass) come with a built-in mounting bracket that allows for variable placement options, but most do not. I currently use a device called the "H-clamp" (by explorAUDIO), which clamps onto the sides of the bass and extends an adjustable metal arm with a mic clip attached up over the body of the bass so that the mic can positioned many different ways. I'm sure there are other mounting devices out there, but I stopped looking after I found this one.

Blending the mic and pickup signals

This issue tends to be where many people run into trouble after having gone through the expense and trouble of making the decisions listed above. It sounds like a simple thing to look for – a device that will take the two signals and blend them into one beautiful mixture of the solidity of the pickup signal and the wood and air of the mic signal. Surely any small mixer could do it, or any two channel amp ... right? If only it were that easy. There are several issues to be dealt with in order to make this portion of the signal chain work toward your goal: input connections, input impedance, and EQ options. If any of these three things is lacking, your quest for "The Sound" could be seriously in jeopardy.

Input connections: Most mics attach to a cable with three-pin XLR connections on either end. Most pickups attach to a cable terminating in a 1/4" jack. Most bass amps only have inputs for 1/4" cables. The trick, then, is to find a device (or amp) that will accept both an XLR connection on one channel and a 1/4" connection on the other. Anyone who has tried to go down this road can tell you that there are fewer of these types of devices out there than you might expect. If you can find a mixer that does everything else that you need but only accepts two 1/4" connections, it is possible to use a "cannon plug" impedance transformer to make the mic compatible with the device (see below).

Input impedance: If (like me) you are not a technically minded person, this part of the story can seem like electronic voodoo. Basically, to dumb it down to the point where even I can understand it, most piezo bass pickups on the market today like to see an impedance "load" of 1-10 Meg Ohm, while mics like to see a much lower input load. For cavemen like myself, this simply means that if the device isn't designed to do what I'm trying to do, there's a good chance it won't sound very good, and might end up being the weak link in the chain. If you understand the technical issues involved in input impedance, you should be able to figure out whether a given mixing device can be made to work with what you'll be sending through it. If you don't, it might be a good idea to limit your options to devices which were intended for this purpose. Two of these that I have tried and had good sonic results with are the Clarus/Focus two-channel amps from Acoustic Image, and the Raven Labs PMB-II (no longer made). I also hear good things about the Solstice blender from D-TAR.

EQ options: Each input source will likely require some equalization to sound its best, and most often each source needs something different to optimize the sound. For this reason, a device that only blends the two sources and provides a volume control for each is usually not optimal, since once the blended sound is fed through the (single) EQ of the amp, it's likely that any adjustment made is a compromise to one source or the other. The EQ options on the blending device need not be terribly complicated, but I've found that three basic bands (i.e., low, mid, high) are useful, and a variable high-pass filter is more useful still (more on this in the next installment).

While my purpose here is not to push any brand of blender or amp, I should admit that my current blender/amp solution (the Focus 2R) offers all of the features I'm looking for in one box: combo input jacks (which accept either 1/4" or XLR connections), functional input impedance for both channels (impedance varies depending on whether you plug in an XLR or 1/4" cable), and flexible EQ options including a high-pass filter on both channels. In addition, the blender/preamp section is integrated with a powerful digital amplifier and is all contained in a box about the size of a hardback Tolstoy novel, weighing less than five pounds. While it's on the pricey side, I have to say that after all my years of experimentation, the simplicity and portability are well worth it.

In the next issue, I'll discuss many of the issues involved with the practical use of the mic/pickup blend in live playing situations from small clubs to concert halls. Until then, you can find me hanging out here in the Doghouse.