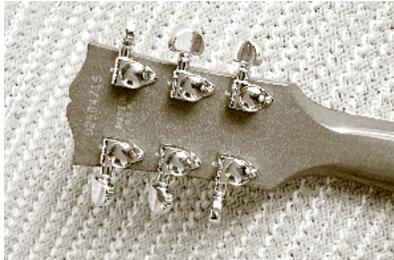


a pearloid headstock inlay, pickguard or gloss finish. Online research turned up a cleaner and polish by Virtuoso that has been used successfully by owners of Les Paul Studio guitars with similar dull matte finishes to buff them out. You use the cleaner to buff the finish and apply the polish as a final step. We bought a cotton buffing pad on Amazon that fits a cordless drill, buffed out the entire 333, and the finish now looks more like a well-aged full gloss.



The next step was to replace the not-so-great tuners with the Grovers, which were a drop-in replacement, although you can fill the leftover mounting holes

with round Diamond toothpicks if you wish. Next came the pots, tone caps and pickups. As we suspected, the seller overlooked or mistook the pickups for original Gibson 490R and 490Ts, which are far hotter, muddier and middy than whatever were in the 333. Aside from generic 'PAF' repro stickers, the pickups in the 333 were unmarked measuring 8.06K/8.17K and remain a mystery. We also used the heavier TonePros nickel-plated stop tailpiece tumbled in our big coin can, and the original ABR-1 bridge.



The trap door in the back of the 333 is a godsend. Still, getting the original pots out of that harness was a bitch due to the amount of solder used at the factory. Patience pays. We

used a '50s .022 Grey Tiger tone cap for the neck and a Cornell Dubilier .022 for the bridge. Pickups, Jim Rolph's '58 set, repeatedly recommended here in the past. With the new amber knobs, switch tip and Grovers, the 333 now looked really fine – comparable to a much more expensive blonde.

Tone

Don't doubt us now – the 333 is every bit as alive and animated as *any* 335 we have ever reviewed in these pages. Granted, you may not be a fan of early '60s slim taper neck shapes, but we actually find that it offers an exceptionally effortless playing experience. We've got plenty of guitars with big-ass necks, but we like the neck on the 333 just fine as is. Weight is 8.4 pounds, and we can only speculate that the light finish, time and materials all contribute to its extraordinary resonance and classic semi-hollow voice. The maple center block is truly the heart of the guitar, and with so little



finish on the neck and body, plus 7 years of curing (most of it in the case), the 333 is what you might call *ripe with tone*. This is a truly great guitar in every respect, one fully worthy of your

consideration, regardless of whether you could easily spend 2-3 times as much. With the money you save, even after our upgrades, you could... buy a new amp! **to**

Humphrey Amplification

Espresso 15



What's the greatest oxymoron ever created by man? An 'acoustic' amplifier! For those of us who routinely revel in the lush tones of an elegantly amplified electric guitar, embracing the sound of an amplified acoustic

can be a difficult leap. Sure, you can get a decent strumming tone for backing vocals with an acoustic guitar, but the last 30% that gets you from 'good' to 'great' is a tough crawl, littered with jagged little compromises. We've recounted our own tortured path on the road to acoustic salvation in great detail recently, but we're happy to report that progress has continued apace. One of our best finds came, again, from the lips of a loyal ToneQuest reader, who steered us to a Scotsman living in Minnesota. Gerry Humphrey is rapidly building a fine reputation for having created truly stellar and unique acoustic amplifiers. We tracked him down, requested a review sample and a little time to tell his story, and it is our pleasure to present the results for your consideration. Enjoy...

TQR: What's your background, Gerry? How did you initially become involved in music, electronics and amplification early on? Did you begin as a musician with an interest in electronics or were you more technically minded with a secondary interest in music?

I got my first guitar about 40 years ago, when I was 12-ish, along with a little 10 watt Marshall tube amp. It's a little frustrating that I've not risen above the low-mediocre level as

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a player in all that time, but I still enjoy it immensely nonetheless. For a while, I actually thought I was maybe above average, but then I got into the business of making amplifiers and had the humbling experience of meeting a lot of folks that can really play well. It gave me a whole new perspective on my own playing. The experience actually got me fired up enough to get some guitar lessons, which was in itself another humbling experience.



My interests were always technical in nature, so after graduating in electrical/electronics engineering from the West of Scotland University I naturally fell into a high-tech career path. That took us on an interesting journey, through several differ-

ent companies, countries and states before eventually landing us in Minnesota. My last gig was at a major hard disc drive company as a senior executive. I'd put in about 18 years of hard work there, and enjoyed it, but when the opportunity arose to escape and do something on my own, I grabbed onto it. Thankfully, I'm lucky to have an awesome wife that supports me 100% and shares the same vision.

TQR: How did your initial interest in amplifiers evolve and develop?



At a party about 6 years ago, I met a new neighbor – Brian Applegate (www.applegateguitars.com). At that time, I had little knowledge of the business of making guitars beyond the mass-manufacturers. It was quite enlightening to discover there was a pretty large market for high-end custom guitars being served by hundreds of skilled luthiers.

When Brian learned my background was in electronics, he asked me to build him an amplifier. I was pretty busy working at my high-tech job and suggested he check out Guitar Center – ‘they have hundreds of them,’ I said. Not quite the kind I'm thinking about though, he replied. He went on to describe the dilemma . . . he makes beautiful acoustic guitars that sound as amazing as they look, and although there's some pretty good acoustic amps out there, they all look like typical amps and almost all of them are solid state. He talked about the virtues of vacuum tubes

and wondered why he couldn't find a tube-amp designed specifically for acoustic guitars – one that also complements the looks of a nice guitar. I think most guitarists have experienced the ‘get your crap out of the living room, we have visitors coming over’ syndrome at some point. The idea was planted in my mind, and a few years later I had the chance to take some time out, do some research and figure out if it made any sense.



Music has always been an important part of life, and as much as I love to find great new artists and songs,

I'm still listening to the musicians that inspired me in my teens. I was fortunate to meet one of my greatest inspirations recently – Roger Hodgson – and you can imagine how thrilling it was to hear him play ‘Give A Little Bit’ on his 12-string Guild through a Humphrey amp. Although he's rarely given endorsements during his career, he didn't hesitate to offer one as soon as he was done playing around with the amp. That was pretty amazing – we had absolutely no expectations and we were completely surprised.

Another of my all-time favorite musicians, David Gilmour, has a Humphrey Amp. We were invited to supply one to The Astoria studio by Phil Taylor, for evaluation, on condition there would be no publicity and no strings attached whatsoever – all perfectly understandable and acceptable. That's an invitation that obviously should not be turned down by any aspiring amp builder. We're not able to put his name on any customer list, or imply there's any kind of endorsement whatsoever, but we're happy to say that Mr. Gilmour now has the amp at his home studio and we do have permission to mention that we supplied one.



A wonderful acoustic guitarist of many styles and great talent, Al Petteway, has been a fantastic supporter, adviser, promoter and endorser from the early stages. I think he became enamored with the sound from the first time he tried an amp at Dream Guitars in North Carolina, and we've been connected ever since.

TQR: In regard to acoustic amplifiers specifically, what did you want to accomplish with your own amplifier designs? What was the sound you were chasing in your head, and what were the specific shortcom-

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ings in acoustic amps that you wanted to improve on, and how?

I wanted the design to faithfully recreate the ‘whole’ sound of the guitar more effectively than anything else on the market. The phrase ‘whole’ sound perhaps needs a little explaining... When you play a guitar that’s sitting on your lap, your ears are picking up some nuances, harmonics, spatial separations, and other more complex sounds that can’t be reproduced by a single pickup amplified by solid state circuitry. I’m not slamming that approach – as I said, there are many wonderful amplifiers on the market. Certainly, you can get a great amp for a few hundred bucks. That said, there is a reason



some folks want to own that special custom-built acoustic guitar, whether it’s an Olson, Applegate or a high-end Martin. It’s the sound, or maybe we should say *the sound*. They’re buying something special, handcrafted, using carefully chosen

tone woods and incredible skills. For them, it sounds better than anything they’ve ever played, and they’re right, it is. The sound experience is totally subjective, of course.

So, our thinking was that with so many folks having a discerning ear, wouldn’t they appreciate having the option of plugging into an amp that did justice to the sound quality of their guitar? A large part of the approach was to do with using vacuum tubes. There’s a reason some of the very best (and most expensive) hi-fi amplifiers on the market today still use tubes. If you want to debate the pro’s and con’s with an audiophile, you’d better take a chair, snacks and drinks with you because they’ll be happy to explain and debate it at length.

TQR: Can you describe the trial and error prototype phase in the development of your designs?

I’d say it was a sometimes frustrating journey of discovering things that are now obvious and common sense to me. It took more than a year of 100 hour weeks to get from the initial concept to the final design. Most of the up-front time was spent on the circuitry because the number one goal was to have something that sounded great – looks were a distant second at that time.

The first stage was deciding on the type of tubes, whether to go single-ended or push-pull and if we should stick to Class A or maybe A/B. Although we changed it up after a few months, picking a starting point helped get the other aspects

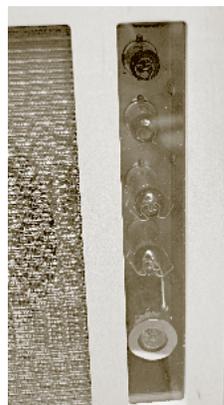


of design going, which paid off in the long run. Every piece of the design was started with paper and calculations, but ultimately decided by trying it out, measuring it, seeing how it sounded. The whole design evolved in cycles. For example, even although we were satisfied at one point with how the gain stage was working, we went back and tweaked it again (and again) as we made changes to the phase-inverter.

Once we got to a point that was close, but still not quite right, we pulled in Brian Applegate to be our guinea-pig and asked that he check it out with various guitar/pickup setups and be brutally honest about what he was hearing. We affectionately called it ‘death by Brian’. He was brutally honest, and that helped us tremendously. He has a great ear for detail, knows how his guitars should sound and could tell us exactly what was or wasn’t coming across well. We would go through a process of sound-testing, taking a bunch of notes, running off the studio to make some changes, then doing it all over again. Sometimes two or three times a day.

I’d say it probably took about two months of that type of testing to totally flesh out the design. We reached a point where one day, he just started smiling, kept playing, and smiled more and more.

TQR: How does the circuit in your amp resemble and depart from typical electric guitar amp designs?



That’s a great question, and therein lies some of the secret sauce. Obviously, with technology as old as this, and with so many amp designs on the market it’s difficult to do anything radically different with the topology. It has a preamp stage, gain stage, tone stack, phase inverter and power amplifier just like most of the guitar amps out there. It comes down to the choice of components, some subtleties in how certain parts are spec’d and a little borrowing from

hi-fi tube amp design methodology. Electric guitar amplifiers are designed to intentionally add color, change the tone, over-drive, distort, break-up, sag... all those other nuances that make for a great guitar sound. It’s true that an electric guitar

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amp is an extension of the instrument, and designing in the right tone-shaping for that application is an art form itself.

My challenge was to design the circuitry to eliminate or avoid any potential sources of distortion, but without losing the ‘magic’ that tubes inherently have. We wanted clarity, not color, and we wanted to take advantage of the tubes natural ability to generate harmonics, allowing us to add back some of the critical sound properties that get stripped out by traditional guitar/pickup/amp setups. You could look on it as hybrid of guitar and hi-fi amp design using the best and most appropriate practices from each.

TQR: Clearly, the physical design of your chassis layout and cabinet are unmistakably unique and intriguing. How did the cabinet design occur to you and perhaps been refined?

The first consideration was ‘living-room friendly’, and given the natural beauty of the wood used for the acoustic guitars it would be used with, the simple choice was to lose the tolex and use some nice hardwood. That was a great starting point, but we didn’t want to simply make a typical amp cabinet, only with hardwood instead of tolex.

We wanted to take advantage of the cabinet design to help in compensating for some of the natural sound that normally gets lost. There’s a complex timing and spatial element to the sound we hear from a guitar, and our ears pick up all kinds of stuff coming not just from the bridge or sound hole, or wherever a pickup may be placed, but also from the sides, the back, the strings and from different areas of the soundboard. We obviously couldn’t replicate that exactly, but we could compensate a little by careful speaker placement, where the horn sits relative to the plane of the driver and by having a side-firing port for the main driver.



The effect is a little eerie – it gives a slight 3D-ish effect to the sound and it comes across very naturally, especially when you add in the harmonic detail that the tubes deliver. Some customers that would normally use reverb as a compensating tool tell me they don’t use it now, unless they’re using the amp to drive a PA.

Then, for aesthetics, we decided to show off the tubes by having them behind a small glass window – which does look pretty cool. Also, the speaker and port arrangement meant that

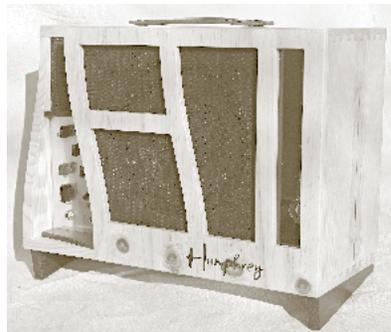
we could get creative and use curves and scoops that borrow some from the curvature of a guitar, to give us something more visually appealing than a box with straight lines.

TQR: Did you experiment with different types of wood?



Yes, but only with different hardwoods. After the circuitry was nailed down, and it was time to figure out what the real chassis had to look like (we were using cake pans for the

prototypes), I realized we couldn’t complete that until we had the cabinet design finalized, so that gave us an opportunity to experiment with different wood as we built some concept cabinets. It was also an opportunity to figure out what special tools, jigs and templates we’d need.



After that, we then built the first pre-production units out of wood with varying levels of hardness (maple, bubinga, ash, leopardwood, mahogany and Peruvian walnut) so we could check

to see what, if any, effect there could be on the sound. I’m sure a true audiophile would have a lot of good stuff to say on the subject of wood overall, but we really couldn’t tell if there was a difference between the samples. The cabinet, which has a relatively small top, bottom and side panels, is built from 3/4” thick hardwood, solidly connected with dovetail joints. The back panel and the speaker baffles, which might have the greatest impact on coloring the tone, are actually made from 3/4” thick 15-ply Baltic birch – fairly inert at the power levels we’re dealing with.

One customer actually convinced me to use pine for his cabinet against my better judgement. I tried to talk him out of it – offered some cool alternatives, but I became curious about how it might look and if there would be a tonal difference (there really isn’t). I have to say, working with a soft wood and getting good results is a lot trickier than using a nice solid hardwood.

The rigidity of the cabinet and the strength of the joints and fasteners was a concern with pine, so we took a belt and sus-

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penders approach to anything that might possibly move or vibrate. Everything looked and sounded great when it left the shop, but I wasn't totally surprised to get a call about 'the buzz' after it was received

by the customer. In spite of all the extra fasteners, glue etc., we found that one screw had backed out a quarter of a turn – just enough to cause the chassis to buzz on a G note. That was a great learning exercise and, thanks to a patient customer, we figured out some design changes that were an overall benefit. Still, even although it looks awesome, we're not going to make any with knotty pine again, just to be sure.

TQR: To what extent did you also experiment with and evaluate different types and brands of speakers and horns?

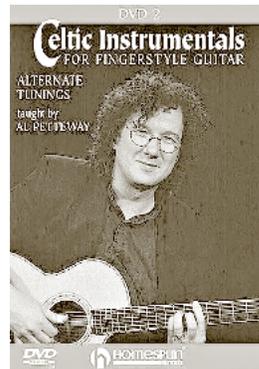
That part was relatively straightforward. Knowing the end-result we were looking for, and the fact that they had to be good quality hi-fi speakers, we were able to sort through a lot of it online, doing 'paper' comparisons before touching any hardware. Technical info is very easy to find and specs are standard across the industry. The trick is to know what you're looking for, and why, before deciding what to test. We'd still be experimenting otherwise.

For the initial testing, we selected somewhere around five or six speakers that came close to our specs, planning to thin that down to one or two and bring in more if we weren't satisfied. Fortunately, in that first batch there was one that really stood out. We're always keeping our eyes open for something else that might work better, so it's possible we'll change it out in the future. If anyone is interested in having a speaker evaluated, please send specs first and save us all some time.

TQR: As a designer, in hindsight what are the most significant and unique considerations and challenges that must be taken into account when considering the amplification of acoustic instruments? What have you learned? What do you do differently, how and why, and how would you describe the unique sound of your amplifiers versus other 'acoustic' amplifiers?

It became clear, at an early stage I'm so glad to say, that we couldn't expect any kind of 'standard' source when it comes to what people are going to plug in. In the world of custom acoustic guitars, even with the incredible craftsmanship and levels of precision employed, there's such a variance between

pickup systems from different manufacturers that when you couple that with the differences in the tone-woods that are used, the tolerances and methods in installing pickups along with a host of other variables, it's sometimes a wonder anything works at all.



We designed the preamp stage in our amp to accommodate, and optimize a wide range of input signals. It's not unusual to get a call from someone that now loves a guitar they were ready to burn because of the way it used to sound amplified.

Al Petteway gave us a great endorsement when explaining to an audience how he loved the natural sound of the McIntyre 'feather' pickups, but had to boost the signal and mess with the EQ to get a sound he liked – that was until he got his first Humphrey. Now he can plug straight in without a separate preamp, quickly find the right tone and he's blown away with how it sounds. That's another key area to consider: tone control. There's a huge bandwidth of instruments you need to allow for, from baritone guitars to mandolins and everything in between. Providing the appropriate level and subtlety of tone control to work with that range initially took a lot of research and testing with customers.

I'm not surprised that some people prefer to use microphones to amplify their guitars. There are a lot of horror stories out there. Take a guitar that sounds truly beautiful acoustically, then install an average pickup, but not in precisely the right spot, with the right adhesive/clamping force etc. What might you expect when you then plug it into an average 'acoustic' amp that only costs a few hundred dollars? Strangely, a lot of folks are OK with the sound they get. It's louder, not unpleasant, and it has a built-in reverb, chorus etc. to compensate, so although it doesn't sound like their guitar, it still sounds OK.

Many people are dissatisfied, however, and keep looking for and hoping to find that special piece of gear or combination of things that let them amplify how their guitar truly sounds. I think that's how I would go about comparing our amp to other acoustic amps. The way it's designed, from the ground up, is to not get in the way of how your guitar sounds, and to compensate for the shortcomings of a single (or dual) point pickup system in more natural ways – enhancing the harmonic content and driving the sound thoughtfully with a well conceived cabinet and speaker design. It sounds like your guitar, only louder.

TQR: What do you want to accomplish in the future in terms of your own designs?

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We certainly want to introduce new products – there is no shortage of ideas and there are several concepts on

the drawing board. We have one prototype getting worked on as time allows. I guess we have the same problem that many small companies have – we struggle to bring out new products because we're busy building the current one. The first product took more than a year of more than full-time work, so it's tricky to get the next product through that same cycle without scaling up, and we're not quite ready to bite the bullet on that. That said, leverage can help a lot. If you design something the right way, you can easily leverage pieces of it into a different (but related) product. In my earlier high-tech career, the big deal was platform engineering – designing core modules that can be put together in slightly different ways to create different products. Although we're dealing with *very* old technology here, the same concepts can be applied. For various reasons, I think the next thing you'll see coming is a professional grade all tube acoustic preamp. I'd like to have it ready before the Woodstock Invitational guitar show, but I'm not 100% sure it will be. Yes, we're doing something quite unique with our acoustic amp at the moment, and the market for preamps may appear to be fully covered, but I think we'll be able to offer something that addresses a real unmet need.

Humphrey Espresso 15 Review



The Espresso 15 clearly won't be confused with any other guitar amplifier ever made, past or present. And once you plug in your favorite acoustic guitar, it's equally unlikely that you'll be

confusing it with the sound of any other acoustic guitar amp. In terms of style and aesthetics, it seems to us that Humphrey has succeeded in creating a design that complements the craftsmanship and unique visual appeal of the acoustic world. The all-wood, retro design reminds us of vintage radio and TV cabinet with modern lines, and it will certainly turn heads on stage while no doubt becoming a favorite of discriminating spouses at home. For gigging musicians, the only obvious negative might be the risk of inflicting unintentional damage

to the hardwood cabinet in transit, but Humphrey has anticipated those concerns by providing a heavy duty cover, and he also references a suitable Gator road case by stock number at Guitar Center in the owner's manual. Over several weeks we have come to appreciate the Espresso 15 as an impressive work of art in both form and function.

Of course, the big variable with any amplified wooden box is the pickup or pickup system used. We have reported our experiences with K&K Mini and JJB bridge plate transducers, the Sunrise soundhole magnetic, the Duncan SA-6 Mag-Mic, Fishman Ellipse Blend and the L.R. Baggs M1 in the past. For this issue and our review of the Espresso 15, we acquired one of the new L.R. Baggs M-80 soundhole magnetic pickups courtesy of WD Music Products. Our full review of the M-80 follows our evaluation of the Espresso 15.

Setting the controls for optimum tone is quick and easy with the Humphrey, because there isn't that much to deal with. Since the amp is essentially designed to be neutral, you're more likely to hear the unique personality of your guitar emerge unless your pickup is mucking things up. Input Level is exactly what the term implies and similar to level controls found on all outboard acoustic preamps. Volume sets the volume of the amp, and the idea is to get the loudest, cleanest sound possible using both controls and then setting the desired volume as needed. Bass, Mid and Treble controls are smooth, even and precise. The Bright switch is designed to be used at low volume levels when treble presence can seem diminished. The Horn control switches the hi-frequency tweeter in and out of the signal, and we preferred the horn on at all times with acoustic guitars. You can also use the Espresso 15 with an electric guitar or other acoustic instruments that can benefit from the fatter, warmer tones produced with the horn off.



Maximum volume and depth were achieved using the Baggs M-80 in active mode with our Martin 000-18GE. Per the instructions in the Espresso manual, we set the adjustable volume control on the M-80 pickup high for the best signal-to-noise ratio. An optional Line Out is also available as a 1/4" mono jack or balanced XLR output tapped directly from the output transformer.

Tone

Our main complaint and source of frustration when evaluating the amplified tone of our Martin 000-18GE is that nothing we tried fully revealed the extraordinary acoustic depth and harmonic complexity of the guitar. The Martin possesses a

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stunning voice and an old, woody character, and while we were able to produce what most would agree to be very good amplified tones, they failed to do justice to the

true acoustic voice of the guitar experienced in a room. With the Baggs pickup and Espresso 15 we are much closer – close enough to finally hear the acoustic depth and complexity of the instrument coming through the speaker. Used alone, the Espresso can adequately fill a small to medium-sized room. The threshold for feedback is determined by your pickup type, proximity to the amp and volume and input settings. For the kind of maximum volume levels that can hold up with other instruments in a band using the Espresso alone without PA reinforcement, we would use the L.R. Baggs Acoustic Para DI filtering capabilities to eliminate howl at specific frequencies. Again, the most important factor in defeating feedback is the distance between your guitar pickup and the amp or stage monitors when running through a PA. The bottom line on the Espresso 15 is this: It captures and amplifies the true sound of your acoustic guitar with the lush musical character of a hand-wired tube amplifier rather than a stiff and sterile piece of modern sound reinforcement. Percussive fingertip dynamics shine through in vivid detail, and most importantly, the woody depth of the guitar is captured and amplified. A simple yet elegantly built tool that does what we need with understated poise, the Espresso 15 gives as good as it gets, which is precisely what we've needed in an acoustic amplifier. Well done, Gerry.^{to}

*Espresso 15 base model \$2495 plus shipping
www.humphreyamps.com, 612-770-5012*

L.R. Baggs M-80



When it comes to acoustic guitar pickups, there are fans of both under-saddle transducers, perhaps

with an added internal condenser mic, and sound hole-mount-

ed magnetics. Some people don't mind paying for an under-saddle installation with a battery mounted inside the guitar, while others prefer the convenience of a removable soundhole pickup. In all cases, installing a 1/4 inch endpin jack is inevitable unless you want to hang a cable out of the soundhole or spend the extra money for a Tapastrung jack that requires no modification to the existing endpin hole. Decisions, decisions... Or you can buy a guitar that has been equipped for amplification at the factory, such as the impressive Martin Performing Artist Series previously reviewed here. As we said in our review, Martin and Fishman have taken the amplified guitar about as far as it can go with the Performing Artist Series guitars.

You have read enough by now to know that we have had a hard time embracing the über-microphonic character of under-saddle and bridge plate transducers. In addition to picking up direct string vibrations, both amplify external noise from the guitar top and finger noise from the fretboard. The hard sound of a piezo just can't sound the same as what's happening within the soundhole of the guitar. This isn't the fault of the manufacturers – blame it on physics. On the other hand, magnetic soundhole pickups don't exactly reproduce an accurate acoustic sound either, but they are less prone to feedback and external noise, and they lack the quack and hard sharpness of a piezo. The Sunrise is pretty cool to our ears, but it's big and clunky, heavy enough to be jarred loose in transit, and it's passive, so you must control volume from a preamp. Speaking of preamps, no matter what type of pickup you choose, we have to agree with Tommy Malone – the Baggs Acoustic Para DI is an essential and very affordable tool. Its tone-shaping and feedback-damping capabilities make it the acoustic guitarist's all-purpose security blanket in our opinion. *Don't leave home without it...*

When the L.R. Baggs M-80 was initially announced at Winter NAMM 2012, we read the press release with hopeful anticipation. Described as a “*magnetic pickup with “full-range body sensitivity utilizing a floating secondary coil that acts as both a humbucking pickup and a “3D body sensor, the floating coil interacts with the magnets to sense a ‘body signal’ that is added to the string signal for a richer, more complex and realistic acoustic tone.”*”

We had the Baggs M-80 mounted in minutes, already encouraged by the well-designed clamps, light weight, and the presence of a compact, 300-hour CR2032 disc battery. We have to think that bulky 9 volt batteries with plastic and Velcro mounts for acoustic guitar pickups will become obsolete very, very soon.

The M-80 functions in both active and passive modes that can be selected with a small switch on the bottom bass side of the pickup. This is our only complaint with the M-80. We love

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