



## Sales Talk (and some Myths Busted)

I put all the sales talk kinds of things here in one place so you can have it if you like but don't have to wade through it unless you want to. Naturally this is just my opinion on all this. If you're interested, read on and I will explain my thinking on some of the more controversial areas of pickup lore, and try to bust a couple of myths along the way.

**About Tone (Myth #1)** - The most important contributor to tone is not about pickups at all. It is about the players and their fingers and skill. Pickups are only one tiny piece of the whole puzzle. Don't ever let anyone kid you about that. In fact it isn't even all that much about the guitar or effects either, though that does make some difference most everyone can hear. To illustrate this properly, I need to mention some artists and manufacturer trademarked names so please see [disclaimer](#). BB King for example, would still be just as recognizable playing on an Esquire (Tele) or an acoustic J200 if he wanted to, and in fact, he has done so. Just because he has owned a hundred Lucilles doesn't mean that when he plays his one Strat that doesn't have a name he won't sound close to the same if he wants to. Similarly, Eric Clapton or Jimmy Page still sound like themselves playing on a Telecaster, Danelectro or Gretsch. They have done that and still have their own very recognizable tone. Check out the guitars Eric used in the Yardbirds (Tele, Gretsch) or Cream (LP) vs. his Strat now, or Jimmy in Stairway to Heaven (Tele), Kashmir (Danelectro). Same with any number of other great players. Most fans wouldn't need a dog's hearing to tell it is their playing pretty much no matter what instrument or amp they happened to pick up. On the other hand, you might have some trouble telling say, Luther Allison or Buddy Guy's playing from BB King's on some of the staple blues tracks but again that's the player – not so much the gear. They have their own work and tones, but I'd bet they specifically wanted to get that kind of tone for those tracks, and were able to get it even though they used completely different gear.

Also, maybe even before pickups, the amp makes a huge difference. Nobody's pickups are going to sound great with the wrong amp. A decent tube amp is a big plus in my opinion. It doesn't have to be a Dumble or a Trainwreck, though that would be incredibly nice if you can afford it, but it ought to be a good tube type such as one based on a vintage Fender or Marshall circuit. This is just my opinion, but to me, even the best solid state or hybrid ones don't compare that well to the tube types. In testing, even my lowly 1990's red knob Fender Super 112 sounds better to me than my top of the line Cyber Twin, though that one sounds pretty good for some things, and miles away from my G-Dec. I do know there are some solid state models available now that can sound pretty convincing though, particularly with some of the better made pedals.

The guitar itself and its wiring contribute substantially to the tone. If you are seeking to duplicate a particular sound, you need to install similar tone capacitors to the original as well as pot values and the pickups. As an example, I made a set of 1965 Stratocaster replica pickups to some very precise and demanding tone criteria for a songwriter customer, who was looking for some specific Hendrix type tones. At first, he came back and said the neck pickup was perfect, exactly what was in his head, but the bridge and middle were not quite there. I sent him a correct 1965 type capacitor, and a wiring diagram which he installed and was immediately completely satisfied. In fact he was so pleased that he talked it up among his friends, posted on facebook, and sent me many demo MP3 files. You can hear some of them on the demo page. Within a



month his brother ordered a duplicate set. With that set I included the proper capacitor and a wiring diagram. The brother had his own ideas about the wiring, and at first had a similar experience, i.e. it was close but not quite there, until he updated the wiring on his guitar with vintage correct pots and capacitors. After that the tone was virtually identical between the two sets, though installed in different guitars, and was exactly what he was looking for as well.

There is an incredible amount of hype and BS out there on the internet and in advertising. A lot of gear makers want you to think that some particular thing that they and they only do makes all the difference in tone. This is often exaggerated or just plain not true. On the other hand, many great players *can* tell the subtlest differences in gear. I've read that for example Eric Johnson can reliably tell the kind of wood in a guitar in a blind test, or even has been known to notice a difference in the kind of batteries used in effects pedals. He's not the only one, but though most folks don't have such legendary ears, it shows that small details *do* have *some* discernable influence on tone. In fact some pedal makers have implemented a circuit to emulate the differences between partially discharged carbon-zinc and fresh alkaline batteries. And no player's technique is going to be able to - for example - add back in the trebles or harmonics that are wasted in a poorly made pickup or change the tonal spectrum of one designed for some other tone than what you might be seeking. Having the right pickup can definitely help in your quest for that signature tone. Just don't think that buying a high end pickup made to some vintage specifications is going to suddenly make you sound like someone famous that used that kind of gear. So, though I could make you a set of Stratocaster type pickups to near perfect 1959 specifications you are still on your own to sound like Hank Marvin or Buddy Holly.

**Why are the vintage pickups so desirable? A little history** - In the 1950's and 60's a player had to pretty much use the pickups that came in the guitar or keep trying out different guitars and amps. This was one of the main ways that the guitar factories competed with one another too - on the basis of their unique sounds. There wasn't much available in the way of a pickup replacement market. The late 50's was a time when great progress was being made in the music electronics realm and many of the classic sounds we have come to love and expect were developed. The players then who developed those great sounds had to work mainly with what was available: relatively few designs of pickups and amplifiers mostly made by hand in small shops inside the guitar manufacturers' factories, and designed to complement the guitars they made. Those factories were much smaller than their counterparts are today, and were run by strong personalities that fiercely guarded their signature sounds.

Guitar fans all know the rest of the story, most of the manufacturers were bought out by conglomerates, and gradually tonal quality suffered as the new owners changed the methods and cheapened the materials, focusing on the bottom line and running on their old reputations. So T-tops don't sound quite the same as P.A.F.'s, grey bottom CBS strat pickups are different from '59's etc. The replacement pickup market began about that time. But many of those early replacement pickups were more about higher output to fill ever larger arenas using the gear available in those days, and about making higher output pickup designs the major manufacturers didn't provide. Of course this created a different kind of sound which the bands not only lived with but began to exploit. Because of the amplification gear available then, often high output was more important than anything else, including clarity and tone. To get the volume needed for live performances, they wanted lots of output to run those walls of sound stacks of amps. Groups



such as The Who, Hendrix and Cream would do things like connect to two amps simultaneously with a y-splitter cable. Next they began to stack up three or four Marshall Super Leads (the 100 watt version of the Plexi's) and chain them by plugging into the first one then running a cable from an adjacent input on the first amp to the input on the next one and so on, which of course divided the guitar's output among the amps. This progressed to the point where some bands (Blue Öyster Cult, Slayer, Yngwie Malmsteen, etc.) had 20 or more amps and cabinets on stage, though sometimes with some of them not even having speakers or being connected up. Nowadays the gear is different, there are plenty of good high power (even multi-megawatt) amps to handle that kind of chore, and lots of choices of good pedals and effects to add in distortion and gain when needed. So it is no longer necessary to sacrifice tone and clarity for output. In the 60's and 70's the classic old guitars were still to be found cheap enough hanging on the walls of pawn shops and in the "used" sections of guitar stores everywhere. Literally there were hundreds of them, old beat up strats and teles, Les Pauls, 335's and and assorted other Gibsons, and tweed looking amps by the dozens for nearly nothing. I remember them well. I bought an old Epiphone amp back then for \$40 that was not much at the time, but which I will forever wish I still had. Of course, had I only known I would have hocked everything else, borrowed money, and bought them all. I still wish I could have been their best customer and bought even a tiny percent of the ones I saw, even in my tiny little east Texas neighborhood back then. Imagine what it must have been like someplace bigger like in Dallas or Houston at the time. That's when Charley was selling his old beat up strats to the likes of Stevie Ray. And in the studios those old guitars were still the first choice. There wasn't very much demand to duplicate the old pickups which were easily available. Nowadays, prices of those guitars and the pickups that came in them are today sky high, far beyond the reach of the average player.

**About Quality** - There was another very important trend that happened in the late seventies, which was a general redefining of the meaning of quality. Pressed by competition from Japan and guided by big corporation business consultants such as Juran, Deming, and Crosby who were much in vogue at the time, the manufacturing executives in most companies all jumped on the bandwagon of 'Quality means conformance to specifications.' This replaced the previously accepted concept which wasn't often stated in so many words but really meant the degree of usefulness to purpose. Of course, the specifications of the time didn't often quantify much of anything about usefulness. And like all fads, it was often overdone. The ideas of 'Lasting Quality' or 'Superior Quality' became gradually more or less replaced by meeting more precisely some redefined specifications that also often just happened to result in lower manufacturing costs. This trend happened across all industries and the musical instrument manufacturers - by then mostly controlled by big conglomerates - were no exception.

The musicians looking for great tone still preferred the way the old instruments sounded. Their ears were not so much impressed by the new 'improvements'. They kept their old guitars and bought the used ones. And the so called 'boutique industry' began and thrived, small shops supplying them with hot-rodged pickups, amps and pedals. As the supply of vintage instruments began to dry up this came to include vintage reproductions as well. Eventually the manufacturers began to catch on and offered 'reissues' to meet the demand, competing with their own histories. Some of those reissues are better than others, and some are really quite good, but players still complain some of the reissues don't quite capture the complete vintage sound. Part of the reason for this is economics - which dictate many reissues still get made in offshore factories and with



newer equipment and materials that aren't quite the same, and often with shortcuts that aren't quite reversed. This leaves room for the independent makers to offer their own handmade versions of the classics to a smaller but ready market. Compare and you will find there is a distinct difference in the sound and versatility of a quality made pickup compared to most of the current mass market and imported offerings.

**About Value** - The pickup choices available in the replacement marketplace to today's guitarist are practically overwhelming. I can't offer everything so I try to focus on a few of the classic great designs, and emulate the old methods as closely as I can. I aim to produce a very high quality product suited for the average player that wants that old tone, and to have gear to be proud of, but doesn't like the idea of having to spend more to get a new set of pickups than they probably paid for their guitar. Having a one man shop with limited production and direct sales means I don't have a big bunch of overhead, advertising, and distribution costs and I can put more effort, testing, better materials and craftsmanship into each pickup than the big makers can afford. That also means I can afford to undo most of those cost cutting shortcuts taken over the years by the big makers, which little by little have compromised the original tones. You get to reap the benefits of that business model. I think you will find my pickups to be a good value when compared to similar high quality pickups.

Still, I don't try to compete on a price basis with some of those cheap imported pickups you might find. That's a completely different market. In a way, I am glad that some of the mainstream guitar builders do use them because those are the pickups that create the market for upgrading that I aim for. Frequently, I find that the guitars are much better made than the pickups that end up going in them. Sometimes I think the makers must be thinking "why spend much money on the pickups, they'll probably replace them anyway." A good setup and replacing the stock pickups in a lower price to mid-range guitar with high quality ones is the first, best, and most cost effective thing anyone can do to improve those guitars. Other improvements such as high quality bridges and tuners can help too, but don't have as big an impact on tone. Since I also deal in repairs and custom guitar builds, and use those kinds of top quality parts and accessories - I also offer some of them for sale, pricing them as attractively as possible, because I have to move enough volume to maintain my wholesale discounts. If you don't see what you need here, ask - I can probably get it. All of this means more value for you.

Building in limited production in a small shop with old methods doesn't necessarily mean the equipment or methods I use have to be crude. For a one man operation, I have a considerable investment in machinery, tooling, test equipment and research. I have spent the time and effort to develop and obtain the equipment and techniques to optimize each manufacturing step for each model. My signature on them is your assurance that each one was made by me and no one else.





CNC Coil Winding Machine

**About Handwinding (Myth #2)** - I use various manufacturing methods depending on the type of sound desired and the intended use. I never try to hype up or push any given method above all others. I'd rather just be straightforward about it or offer you a choice. I started out hand winding and still do for some designs. But I also have a commercial Computerized Numerical Control (CNC) winder and I can program it to simulate just about any winding pattern, including those done by hand by myself or some highly advertised hand winder, and then repeat that pattern precisely over and over again. I also believe there are some winding patterns that do affect tone and can only be done accurately by a machine, humans just aren't consistent enough. There are advantages and disadvantages to either method. Except for a few prototypes, the esteemed Gibson P.A.F. pickups were always machine wound. But the vintage Fenders were famously hand wound, and it is widely known that Leo preferred hand winding of pickups at Fender. Now, before jumping to the seemingly obvious conclusion that a Strat pickup has to be hand wound to sound good, remember that Jimi Hendrix primarily played late 60's CBS era Strats with original pickups which were almost certainly machine wound, and he made just about every hall of fame, not to mention number 1 on the Rolling Stone list of 100 greatest Guitarists.

The winding method imparts certain tonal qualities because of the way it affects inductance, eddy currents, capacitance, and other electrical and sonic properties of the coils. That doesn't mean one technique is always superior to all others, or that someone couldn't hand wind a good sounding P.A.F. replica, or machine wind a good sounding strat or tele style pickup. It's easy enough to find good sounding examples of both. Many come from some of the better-known makers, and they aren't having much trouble finding customers. A lot of variables and skill



affect the outcome in either case. For my vintage replicas I just try to use the same winding method as the originals did, and try my best to match what I've learned about the vintage winding patterns for that style. I know this does affect the sound. My 50's vintage strat style pickups are carefully hand wound just as the originals were, and the P.A.F. copies are machine wound, carefully programmed through lots of research to match the original windings. I can't take this idea as far as a couple of pickup makers out there that have even obtained and restored some of the original winding machines that were used in the old Gibson factory to make the P.A.F.'s. Both of them make some really great sounding products, and I have a lot of respect for their research and their work. Actually, I might want to take it someday to that level of accuracy and faithfulness to the original methods if I could, except for one thing - they already have those original machines and there aren't any more. If that level of historical accuracy is a big goal for you, I'll tell you who they are if you haven't guessed. For those kinds of machine winds, I meticulously research the winding patterns of originals and good copies and then program the CNC winder to approximate the same pattern. I fine tune the programs by matching electronic test results and sound comparisons. You are going to need some pretty good ears to notice much difference if there is one. Not every P.A.F. was the same and there were many variations along the way, and I can't afford to own very many, so I also leverage on others' research by including some of the best sounding copies to study as well as vintage examples.



Sewing Machine Conversion Winder for Handwinding





I have several handwinding machines. Though it looks a little crude, I'd bet Leo might have liked my sewing machine winder best. After all he used a sewing machine motor for his own winders. So did Seth Lover for his prototypes and others before him, like Paul Barth for the early horseshoe pickups. Simple is best for this kind of machine. I didn't destroy this vintage 50's model that belonged to my mom to convert it to a winder. It still sews just fine. I just restored it and designed a removable electronic turns counter for it. Hand winding takes more time, technique, concentration, and patience than machine winding to get consistent results. One really does have to pay attention 100% to get it right. So it costs a little more, but often is well worth the trouble. There is nothing like the feel of the magnet wire running through your fingers on the first coil of the day for pure satisfaction and complete control of randomness and tension in the winding process. A majority of winders with much experience will probably say the same. (They will also say there is nothing like the feeling of numbing, exhausting pain when you are half way through your sixth coil in a row and the wire tangles or breaks.)



This is my other handwinding machine. Lately I use it more than the sewing machine.

I have a great respect for the tradition and history of hand winding and I have to agree with Leo, Seymour and others with many years of experience in the business that hand winding will always have its place in making the greatest pickups. I won't quite go so far as to say, as Leo did, that no machine can match it, but with a thorough and complete understanding of the electrical factors involved, careful hand winding can surely make a good design turn out great, especially on the single coil types such as strats and teles. To be fair, there are also plenty of well-respected



winders out there that say handwinding is too inconsistent from one pickup to the next, takes too long and isn't worth it so they use only machine winds. Some of them have some pretty strong things to say about that. Others say equally strong things about machine winding. Then there are the ones like me that do both. Most all of them argue endlessly with the others about it. I think really the argument comes down to what they listen for and hear when they play them and how each of them views, defines, and values consistency. No two coils are going to be precisely wound alike or sound exactly the same regardless of whether they are done by hand or machine. And yes, the machine wound ones are going to be more consistently the same from one to the next, and the hand wound ones are going to vary some. But if you look at the history of what has worked in the marketplace over time, well done handwinding has always been valued by players. If it didn't work it would have disappeared by now, yet it is as popular as ever more than 60 years later. That's too long to be just a fad. I handwind because I like doing it, like the tone I hear when I use it to wind certain styles, it's authentic for those styles, and people seem to want it. On the surface hand winding is a simple thing, but the key is in understanding how the many variables affect the final outcome, and in consistently paying close attention to them while winding.

Scatterwinding is a term that is used a lot, mostly it just means hand guiding of the wire with an emphasis on getting a certain randomness in the winding pattern. I just call it handwinding. I don't have clever names for it that are intended to get you to think of some particularly skilled old lady that was just doing a day job at some factory in the 50's. (Mine are hand wound by an old guy that is just doing the same thing 60 years later in his garage at night.) Those ladies like Abby and Rosie or whoever did have some good techniques and it does matter what they did in their windings. I don't have anywhere near the experience of them but at least I have carefully unwound some of their work so I'm not completely ignorant about it. The important thing is that whether they knew it or not at the time they were consistently winding a pattern that positively affected the tone. I suspect it was mostly just good luck, and then being able to go back and repeat it. And that kind of control is definitely possible because of skill. The fact remains that outside of a few very narrowly defined applications, there hasn't been a computer made yet that can match the human brain for rapidly reacting to complex inputs. (If there was one, it would be on a top secret warplane and certainly wouldn't be wasted by being used on a coil winding machine.) There is good reason to believe that particular winding patterns shape the tone. This is true for machine winding as well. 50's machines were far from perfect. I have to get into a little theory here for a paragraph or two, but hang on – it isn't too hard to follow and if you really want to understand how the winding method changes the tone you have to think of this stuff a little bit.

There is a lot of agreement that imperfections in the winding pattern contribute importantly to tonal qualities. There's plenty of theory to back this up. Capacitance is one key to understanding it. A capacitor blocks a direct-current but lets some of an alternating-current pass through. The higher the frequency the more alternating the current is. So more high frequency signal passes through than low. That's how the tone control works – the capacitor is letting more of the higher frequencies bleed off to ground and out of the signal path, and less of the lower ones. In its most basic form a capacitor is two conductors next to each other separated by a thin insulating film. In a pickup, how the magnet wire with its thin insulation lays in the coil next to its neighbors creates a distributed capacitance, and randomness or different amount of turns per layer changes





the amount of that distributed capacitance, which works a little like a built-in permanently set tone control.

There is another thing going on with the winding method that affects tone – mutual inductance. One way to understand this is to think of each turn in the coil as an independent wire connected in series to the next turn and so on. A single wire with a current flowing will generate a magnetic field around itself which results in a certain property called self-inductance (more about inductance later). But that same tiny magnetic field extends out and affects its neighbor wires in the coil, and vice-versa their magnetic fields affect the first wire. That is called mutual inductance. The total of all of the self-inductances and all of the mutual inductances of each on the others is the property that the coil sees and it is a very big contributor to the tone. Even though the mutual inductances are tiny, there are a lot of them. For example, if a wire has six neighbors side to side and top to bottom, that amounts to twelve mutual inductances to add in for each turn in the coil. So how tightly the wires are packed together and whether they cross or not determines the amount of mutual inductance. The winding density and pattern affects the total inductance and the tone. There are also some theories about the effect of coil shapes such as bulging in the middle, lumpy on one side and so on, which puts parts of the coil in areas where the magnetic field from the permanent magnet or polepieces is stronger or weaker. And the tension in the wind is important too. Every handwinder has a different idea based on their experience of what pattern works best for a given type. One thing just about everyone agrees with is that the worst sounding pickups have what is called in the trade a perfect wind. Each wire is laid down exactly beside the next one, tightly and with no ‘air’ in the coil. That’s great for relays and solenoids, it looks good, it’s compact and neat, but it often sounds bad in a pickup. By the way, this same theory explains a lot about why the different kinds of magnet wire change the tonal spectrum of a pickup, it’s because of their different types and thicknesses of insulation that affect both the distributed capacitance and mutual induction factors.

**Materials** - The materials that I use are the best I can obtain. Some of the materials that were commonly available fifty or sixty years ago cannot be had at all today, and some others are rare and expensive when found. For my vintage style pickups, out of respect for history, tradition, and the ideal of creating the best reproductions, I try to come as close as I can, within reason, to using the same materials that went into those glorious sounding vintage pickups. Of course not all of them were all that glorious either. Maybe even a lot of them weren’t. (That’s one reason I include the best sounding copies in my reference library. But that’s another story.) For one thing, tolerances for manufacturing specifications were often +/- 20% in the fifties. And substitutions in material grades were common enough. What that means is I have to understand those differences and their effects, then look harder and pay more for my materials than might be necessary just to crank out a pickup that would work but just doesn’t have the tonal qualities and details I am seeking. It is a little like guitar pickup archeology. I may have to pay twice or even three times the price for the wire, magnets, or some of the other components to get the vintage style quality I want to use. Sometimes I have to make my own components, for example keeper bars or slugs. But the result is that you can see and hear the difference when you take out the pickup that probably came in your guitar and replace it with one of mine. I don’t rush or try to make too many. Each one is thoroughly tested, serialized and hand signed. And I will stand behind them. You will receive an individual test report by serial number with every pickup. Why



does this all matter? Because the tiniest differences in materials, methods and tolerances make plenty of difference in tonal quality. And after all, the tone is what really matters.

**Science vs. Hoodoo (Myth #3)** – There are a couple of basic schools of thought among pickup consumers and makers. To oversimplify it a little, some only want to believe in the artistic side of things, and others only want to believe in the scientific side of it. The artsy types say tone is all about their skill, secret materials, and experience, and the scientist types basically say the opposite, that if it can't be measured, or proved in theory it doesn't exist. To me, neither side is fully correct- it takes both approaches to get the best results. The art isn't all black magic, yet the science alone isn't enough either.

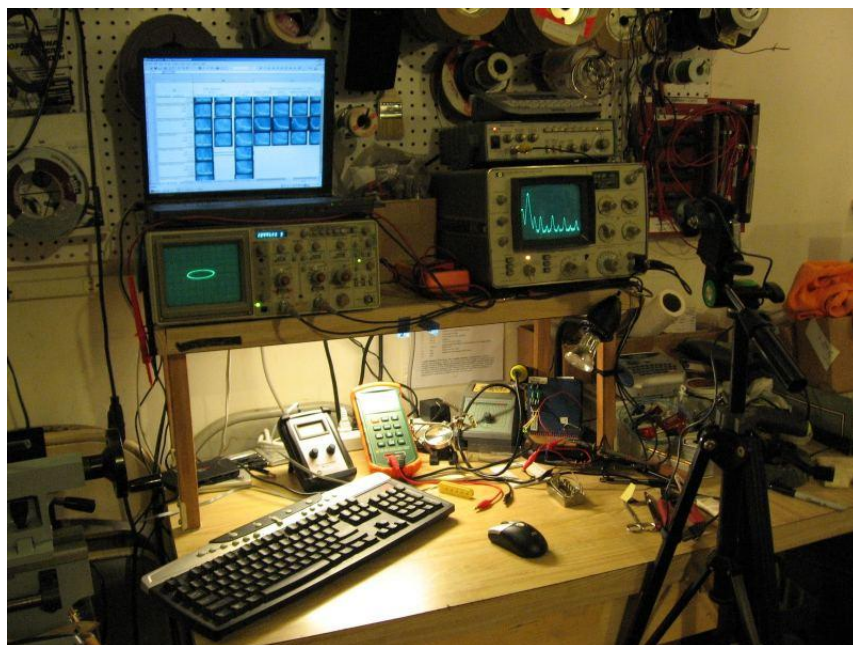
A guitar pickup is simply a transducer. It converts some of the energy of the vibrating strings to a very tiny electrical voltage that goes to your amp. Simply put, the pickups' windings work like a generator when the vibrating strings disturb the magnetic field. The magnetized moving strings are creating an alternating magnetic field changing at the string's vibration frequencies that the coil sees, and responds to by creating a corresponding alternating voltage because of inductance. (Technically, the magnetized strings vibrations are changing the reluctance of the magnetic circuit, which produces variations in the intensity of magnetic flux in the coil. The changing flux induces a corresponding voltage in the coil. It's the same thing, just stated differently.) But in any case, the very tiny resulting signal is multiplied many thousands of times through your amp. So anything that changes that initial signal at all gets magnified immensely. Different magnet alloys and the strength to which they are magnetized, pickup placement, and the size of the magnetic window (which is how much of which part of the string length is in the magnetic field) size of wire, type of insulation, number and pattern of turns, winding tension, bobbin dimensions, magnetic properties of metal alloys in the baseplate, cover, polepieces, and the properties of the strings themselves all make significant contributions to tone, because of the specific ways in which they affect that signal generating process. That's science - it can be measured with meters, oscilloscopes and spectrum analyzers, and does make a discernable difference that can be heard. I do measure those things. I use my test equipment to make about 20 different electrical and magnetic measurements on most designs, and compare them to the reference library. I even sometimes look at my magnet wire under a high power microscope, to compare it to other lots and vintage examples. I am an engineer by training, and personally I enjoy making those comparisons.

I admit there are also subtle differences in pickups that can be heard when they are played, but not so easily measured scientifically. But I think some people get a little carried away about how much difference to expect out of a pickup's minor details and it turns into a marketing version of hoodoo. They either overemphasize one design factor or another or else start throwing around a lot of hype about some really pretty much trivial things - bobbin colors and stickers, secret potting wax, maple spacers, and such. Some of those things do add value for appearance sake and most definitely are useful markers for identifying specific variations in authentic historical pickups, but for new construction they cannot have any appreciable effect on tone. They mostly just happened to coincide with other changes - intentional or not, made in the original pickups at the time. For example, cream bobbins or grey flatwork versus black can't change a thing about tone, but magnet size, wire insulation, and winding method can. Association with a famous player may have collector value for a historical item, but cannot transfer any of that player's skill



(read mojo) to the next person that uses it much less to a copy of it. Mostly this kind of talk happens on the street and in internet guitar forums, and it is in user's postings, not so much the pickup makers advertising itself, though some of them play into it. I'm not knocking the use of the word mojo, in fact I like that, and respect the blues associations of the concept. (I'm a Mojotone dealer by the way) I love the delta blues and the history of it all. I just hate it when some folks mess it up by abusing the concept in hopes of their own gain. As one guitar maker once aptly put it some people want to sell words not sounds. Too many guitar fans feed the frenzy by buying into the hype overzealously. About the only scientific way to look at these kinds of things is to use quantum bogodynamics. In itself there is nothing at all wrong with searching out all the smallest details about the gear used by famous players. It's fun and I like to do it too. But my sense is that these things ought to supplement, not override everything else, and too often along the way things get blown out of proportion and myths get created that sometimes scarcely even resemble the facts or the real reasons why the famous players chose and set their gear up a certain way.

All that said, I believe there is still some value in using both approaches – measuring and listening, and there is a certain synergy in combining the two. The more practice I get at reading the spectrums and measurements and comparing to the sounds I hear, the more I am able to tweak the tonal spectrum in the direction the customer wants, and also to prove the changes are moving things the correct direction and to be able to repeat them.



I have worked out a test procedure using these instruments that makes it easier to verify that the tonal character we want to achieve is going to be there when it comes time to play and listen. This doesn't mean I can measure every tonal nuance, but it helps. Instead of keeping all this data to myself, I decided to provide it to the customer as a way to facilitate future copies and to show that the customizing is moving the tone in the direction desired.

**Test Reports by Serial Number** – Nobody's pickup, even a pricey vintage one, is going to sound its best with a poor setup or played through the wrong amp. Most good players realize this, it almost goes without saying. A pickup is one part of a total gear setup and there is still the matter of working out the choices of amp and settings, maybe pedals, or whatever that make your tone your own. Not to mention talent and practice. That takes a lot of effort. So once you do get





there, you don't want to lose that magic. Grab just about any guitar magazine and look in the classified ads. Skip past the dealer's ads for vintage burst's and goldtops and old strats and nocasters going for more than the prices of luxury cars or even average houses. Look in the wanted to buy ads and you will nearly always find one or maybe a few where someone wants to buy back their old guitar. "Sorry I sold it" or "it was stolen", or whatever the reason given in the ad, what that person really wants is to get back their old tone and feel they worked hard for. That's one reason I decided to serialize my pickups and make available the individual test reports. Getting the exact same tone from a replacement pickup or rewind if something happens to one you have grown accustomed to is never going to be a piece of cake, even for the best pickup builder. Depending on your ears and definition of how close is enough, it might not even be possible at all. Every pickup is a little different. But with detailed original test data it is much easier for me or another pickup builder to at least have a place to start from. The same goes for a custom wind based on a known design to get a slightly different sound, maybe brighter, darker, clearer, more output, etc.

Here's more detail on [how to read your test report](#).

**Custom vs. Mass Market** - My goal is to make every pickup I sell become one of your favorites, to last for years, and to be the one that you go to first and would definitely want to replace if something happens. I put as much care into each and every one as if it was going to a guitar show or famous player. After all, who knows who the next famous player is going to be? Maybe it will be you or another of my customers. It could happen. Even if it doesn't you still are buying a custom shop pickup and deserve the best, so I test every pickup thoroughly or it doesn't leave my shop, period. And that means all the tests, not just making sure they have continuity, then putting them in the box. This takes extra time and effort, which the big makers can't afford to do. Remember I am not trying to flood the market, just produce fine vintage style clones and customs. Since they have signature on them I want them to be just right or I do them over, because I don't want to see them coming back. I have my reputation to build and protect and I sell only the best I can make. I don't mind giving out enough of the test data to facilitate a rewind or copy. These pickups, unless greatly abused, should easily last longer than I will probably be alive anyhow, and I'm not trying to be the world's biggest supplier. So you might as well have the winding and test data, instead of me just keeping it secret. And the data itself is an integral part of the custom shop aspect of my products. I'm not going to worry too much about giving away all my secrets to other pickup makers. I already know that the best of them can figure most of that stuff out anytime they want to invest the time. That doesn't mean I freely give out *all* my secrets or anyone else's I might stumble onto either for that matter. I still have a few that are unique to me and no others. And there's a lot left to technique that can't be easily written down. If another builder wants to try to copy my designs I will just take it as a compliment and a sale. Besides, if they are big enough to seriously hurt my sales by copying my designs they probably already have too much built in overhead to compete with my pricing.

The other side of that coin is that if you are asking for something that I already know another builder can do a better job on, I am not going to hesitate to send you to them. Many competitors specialize in certain styles and have lots of experience to bring into play. There is a fairly small community of independent and commercial pickup makers worldwide, who share a lot in



common and communicate with each other more often than you might expect, offering their products online and maybe through a select few luthiers or in their own guitars. Each of them have their specialties and areas where they have spent incredible amounts of time and effort. Research, Wind, Install, Play. Listen. Change one thing and repeat it all some more. You get the idea. That brings up another thing that gets hyped up sometimes. It isn't really necessary to be a gigging guitarist to make a great pickup. Leo wasn't a player and neither were the workers that made all those P.A.F.'s everyone covets so much. Of course it is necessary to play them and listen and compare. I do that a lot. I enjoy my guitars and play enough to barely entertain myself and do my testing but gigging won't be happening for me and the music world is better off for it. I still have my first guitar that I bought new in 1967, and well over a dozen others but I am the first to admit I am not a great player. You might say I went down to the crossroads but the devil wasn't there. Most of my solos end in the middle with 'dangit, I hate it when that happens'. But I keep trying. Would it help my pickup making if I was a better player? Maybe a little, or maybe not. Quite a few pickup makers are good players and like to advertise that it helps them understand more about players' needs. More power to them, I'd happily join them if I could, but really gigging is not a fundamental requirement and anyway in my case it just isn't in the cards so I don't let that stop me. Really, I feel the best way to understand a musician's requirements is to ask them instead of just assuming. The marketplace will quickly enough sort out what works well and what doesn't.

The big name manufacturers have to worry about the bottom line and quarterly results. They have little choice except to focus mainly on the mass market. They have their stockholders and distributors to worry about. The biggest mass market seems to be based on price and emphasizing the association with whichever rockstar is currently hitting the charts. But aiming for the average and skimping on cost will pretty much guarantee a mediocre result. That's exactly what happened in the 60's and 70's and created the replacement pickup market in the first place. Now I'm not saying the big manufacturers didn't ultimately learn from that experience. Mostly they did, or at least the current owners did, and there are plenty of great products on offer these days, if you look, try them out, and are willing to pay up for the higher end models. Several of my personal favorites are just good higher end recent guitars coming from the big name makers and I didn't change much about them except to set them up. My point is simply that those high end products are in the minority, not the mainstream. Those are \$1500 to \$2000 and up street price guitars, not the everyday ones. When I get the more typical mid-range and lower end models, say around \$400-\$700, I find plenty of room to improve things, and pickups are almost always at the top of the list. That's how I got into this to begin with. Once I upgrade the pickups, and do a good setup, the rest of the differences between them and the ones that cost twice and three times the price are pretty minor in impact. Lots of everyday folks who are players that I talk to have the same kinds of experiences, and most of them have the mid-range models, not the high end ones. And the tonal spectrum that many of those mass market pickups are designed for that come in them may not be for everyone's taste. Use your ears, talk to your guitar friends, then do the math, and I think you will discover that a good set of pickups, whether you get them from me or another custom builder, will get you farther for the money than jumping up to the next level in price. Spending, let's say two or three hundred for custom pickups in a four to six hundred dollar guitar is still a lot less than the cost difference to move up to a twelve or fifteen hundred dollar model or higher, and you can get them made for you in top quality almost any way you like. If you have read this far, it makes sense that you are probably



not all that satisfied with the mass market offerings. This isn't a click it and put it in your shopping basket kind of operation, it is a custom job from the get go.

**How to order** - As far as designs go, I have three basic offerings. If you can find what you are looking for in the [online store](#), then it is a simple matter to choose the options you need, put it in your shopping cart, and I will make it and send it out. In the case of a custom model, submit an [inquiry](#) and I will work with you by phone or email and then if I think what you need is do-able I will send you a bid or estimate. In most cases, choosing options is a straight forward thing. I have included lots of explanation on the effects to be expected of the various option choices. This may sound a bit complicated, but is really quick with simple variations on classic designs. Or if you have in mind some commonly available pickup design for me to compare to, and work from and if I have access to an example of that design we can work from that. If I feel that what you say you need is not achievable, I will tell you straight up that I don't think it can be done. But if you agree to the estimate, then pay me, I order any needed materials, make them, test them, sign them, and ship them out to you as soon as possible. If I have access to the model of pickup you want to modify from, your test results will be in comparison to that model. You have a reasonable time to install them and play them. In most cases that's it, but if after you play them you still think some changes are needed, explain the issues, being specific about what kind of tone change is needed and then you pay the shipping both ways and I will do one rewind for 25% of the normal rewind price and or do a magnet swap or magnet charge adjustment for free. Simple as that. After that if more changes are needed we negotiate, and I'll try to keep the cost low. The current going rate for rewinds is \$100 so that would be \$25 plus shipping at cost if a rewind is necessary. At those prices I am losing some money on the adjustments, and you have some cost too, so we both have an incentive to get it right the first time. But I recognize that won't always happen and I am also trying to bend over backwards to be fair and make sure that the tone is what you had in mind, and the only way to really tell is for you to play them in your guitar. I'm willing to bet you won't find any other makers that will work with you to this level. The basic designs are:

**Vintage Style** - close copies of the best examples I can find of proven popular classic designs, custom made to your order. You can choose among many available options for how I build them, or pick a stock design, tested to compare favorably with vintage examples and the best contemporary vintage reproductions.

**Updated** – my own take on popular classic styles, but using different geometry or more modern materials where I think it makes better tone or more sense given changes over time in playing styles, guitar designs, and string gauges. These are variations of stock models or made to order with various option selections. (The terms “modern” and “contemporary” are frequently used to describe only pickups designed for a high output hot distortion tonal spectrum, so I use the word “updated” instead to also include pickups that have been redesigned but are still intended to have a more vintage tone.)

**Custom** – If you still can't find what you need by choosing among the many available options I offer, we can discuss a true custom new untested design instead of variations on proven ones. You get to help with the design based on your own ideas, experiences with other pickups, and your tonal requirements. I may have to design and make parts or get component parts made. We





both take a little risk on the outcome. These take a lot of time so based on my workload I may not do them very often. I can't guarantee any specific tone or results. We probably still need to start from an established baseline design and modify from that, based on your tonal requirements. The baseline can be one of my models, or another maker's as long as I have or can get one for testing. Developing a new pickup design is extremely labor intensive, which can be sort of like funding a research project. But if you have a good idea of what you need, want to try different ideas, designs or windings that I don't already offer, and you have the experience, patience, resources, and time commitment needed for such a project I may be open to working with you. I welcome working with experienced players that have specific needs, as long as you realize that this is definitely a trial and error procedure, with likely several iterations needed to get desired results. If you are interested in this type of order, see the FAQ page [here](#). Then submit an inquiry on the [Contact Us](#) page. I'll get back with you by email or phone to discuss.

Some pickup makers have many dozens or even hundreds of choices. This is not a bad thing, as some of them have been in business for a long time and have spent the time and effort to work out their designs. I may be there myself someday, but for now my selection is smaller, because I want to make sure each design is just right and the quality is there. It takes lots of time to search out the best materials and do the testing and comparisons. So, though my own selection may be limited, if I don't offer exactly what you need, I can probably help you to find it. There are many reputable small winders out there that offer really good quality well thought out and crafted products. Because of their business models, these can be excellent values compared to much of what is coming out of the mass production factories these days. In one sense there is some truth in the old adage, 'you get what you pay for', but don't ever forget there will always be some who expect you to pay as much or more and still end up getting less.

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