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the ToneQuest Report™

The Player's Guide to Ultimate Tone

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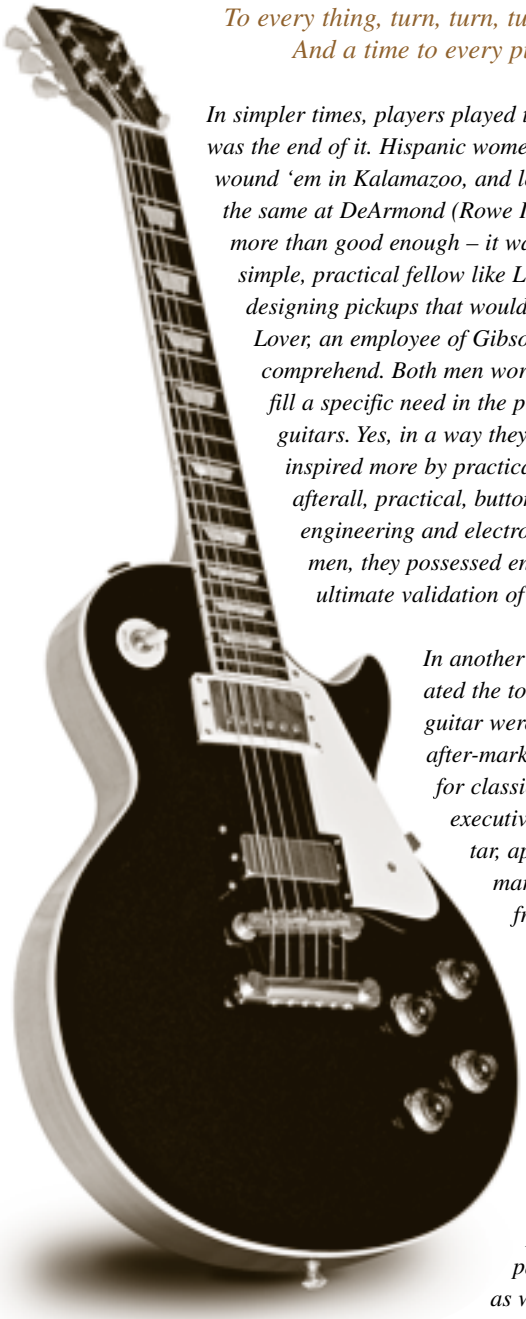
INSIDE

Turning Coils



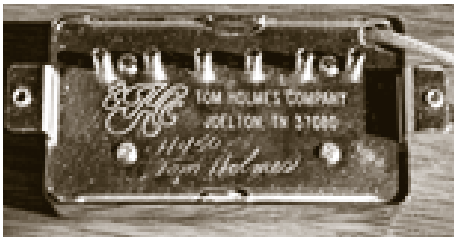
To every thing, turn, turn, turn, There is a season, turn, turn, turn,
And a time to every purpose under heaven – Pete Seeger

In simpler times, players played the pickups that came in their guitars and that was the end of it. Hispanic women wound coils in Fullerton, Latvian women wound 'em in Kalamazoo, and less celebrated workers of undetermined origin did the same at DeArmond (Rowe Industries) in Toledo, Ohio. Whatever you got was more than good enough – it was all there was. The irony in the idea of such a simple, practical fellow like Leo Fender, who never played an instrument, designing pickups that would define the sound of the electric guitar, or Seth Lover, an employee of Gibson accomplishing the same, is nearly impossible to comprehend. Both men worked to build a product that was simply intended to fill a specific need in the pursuit of a higher goal – to build and sell more guitars. Yes, in a way they were the original tonefreaks... but their work was inspired more by practical necessity than altruistic vision. These were, afterall, practical, buttoned up men with a far better understanding of engineering and electronics than music, and since they were practical men, they possessed enough common sense to defer to musicians for the ultimate validation of their work.

In another twist of irony, the very same companies that created the tones that defined the early sound of the electric guitar were also ultimately responsible for launching the after-market pickup industry. The public's reverent affection for classic tone was badly underestimated by corporate executives and accountants (they also didn't play the guitar, apparently), and their indifference to tone created a market for entrepreneurial, second-generation tonefreaks like Larry DiMarzio and Seymour Duncan. As the early pickups made by Gibson and Fender began to achieve cult status, the sound of current production pickups grew steadily less spectacular, and players who cared about tone (as well as guitar companies like Hamer) enthusiastically embraced new alternatives to stock pickups with dubious tone.

Today we are confronted with hundreds of proprietary pickup designs created by familiar companies like Fender, Gibson, DiMarzio and Duncan, as well as established names such as Lindy Fralin,

Bill Lawrence, Kent Armstrong, Harmonic Design, Suhr, Joe Barden, Van Zandt, TV Jones, Rio Grande, Kinman and Lace. Within the past decade, even smaller, lesser known pickup winders have acquired cult status among guitarists... Pickups made by Alan Hamel, Tom Holmes and Tim White (Timbuckers) are among the most coveted, hard to find and pricey. Why? When demand exceeds supply, some of you will



pay as much as $750.00 for a set of pickups that normally sell for less than half as much. And there are plenty of other "custom" builders winding pickups today, each with a dedicated and vocal group of fans, including WCR, Lollar, Voodoo, Amalfitano, O.C. Duff, Wolftone and Don Mare, among others.

But how many truly different variations of Stratocaster, Telecaster, P90 or humbucking pickups can be built? To make a difference, there must be a difference, but a difference to whom? When we embark on the quest for tone, are we buying into subtle nuances that are ultimately irrelevant and undetectable to the listening audience? Can the same be said for every link in the chain, from guitars, amps, tubes, speakers, cables and effects, to pots, caps and resistors? Probably, by varying degrees, of course. But that's not the point... The quest for tone has never been about wowing the audience with anything but great music. Fighting a rig with bad tone does not inspire great performances, however, and we've all seen guitarists struggle through a set when their gear wasn't cooperating. Pros push through it, but the fine line between a smile and a grimace blurs equally for everyone.

Yes, your pickups matter – first and foremost to you, and that's reason enough to change them when you feel so inspired. The sunburned Earth Momma beckoning you with a 40 ounce can of Schlitz from stage left has her own idea of a humbucker (and it ain't in your guitar.) But that's more than OK, and as it should be. When you sound better, you play better... Earth Momma abides... and what could be more important than that? Everybody deserves a good humbucker.

Repeatedly installing and evaluating pickups requires care and prolonged concentration over multiple listening sessions, but describing the results is a mental marathon in which resorting to shop worn adjectives and redundancy will get you disqualified as fast as a dropping a hot soldering iron on a gold top. Have you ever been shopping for wine where they post mini-reviews like this on the shelves? "*Deep-in-the-woods aroma, an almost mossy spice that lies just beneath a heady, dark black cherry fruit character. Its flavors are powerful, with notes of deep black cherries, cocoa, and espresso. It shows a rich oak imprint, but is nimble enough for duck.*"

Like the humble and tipsy cork sniffer searching for hints of something worth $20 a bottle, digesting pickups and communicating the results ain't easy. The fact that people will send us pickups to review while you will pay for them isn't lost on us, either. It's *your* money, and there a few things you might want to consider when contemplating a pickup swap. For instance...

Unless you are blessed with lots of free time and easy money, it would be prudent to follow the advice of Junior Watson and really "think out your tone." What amp do you play most often? Is it dark, bright, super clean with big headroom or dirty on '3'? What type of guitar tone will compliment your favorite amplifiers best? No one ever seems to mention the role your choice of amplifiers plays in the chain, and it *is* a chain... What do you want to achieve with a pickup swap? What don't you like about the pickups you are replacing? What do you want to lose or gain in the process?

Reading ads for all kinds of gear would lead you to believe there are zero variables affecting the outcome of your quest for tone. Every product is presented as a final solution, luring you into the momentary suspension of prudent skepticism and outright disbelief. But proceed with caution, hombré… They want your money, and not even the most conscientious and inspired tone heads will call to inquire how happy you are with your purchase after the sale. Ultimately, you're on your own. Our shared goal is to help you make the right decision *the first time*, but you'll have to do a little work, too.

Here's something to think about… Are you looking for new pickups when you really need to change guitars? Look, we're

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capable of being as geeky as the next geek, but if you want your Stratocaster to sound like a Les Paul or an SG, get one of those, *please*. Jonesing for the tone of a Junior? That Tele with P90's may not cut it. With a little open-minded experimentation, you may well decide that the tone you're seeking already exists in a different guitar and pickup design. *Think out your tone*.

Do you want to sound like someone else? Why? That's already been done. Strive to be different... unique… memorable. Believe it or not, it's still possible.

Do you need to patronize custom builders to achieve nirvana? Maybe. Maybe not. Big guitar companies are generally building (or choosing) far better sounding pickups today than they were in the '70s and '80s. However, as you are about to discover, the parts used to manufacture pickups can and often do deviate from their specified values. If a company building pickups with such parts fails to measure and screen them, the sound of their products will vary as well. At the very least, listening to current production guitars with stock pickups will enable you to acquire an informed point of view. Here are some resistance measurements taken from a sampling of new Fender Stratocasters recently that may help you gain a perspective on the range in which Fender operates based on our samples:

Fender Stratocaster Pickup Specs (Original Equipment)

	Bridge	Middle	Neck
'50s Mary Kay	5.89	5.91	5.77
'56 Custom Shop	8.46	8.52	8.40
'55 Kendrick Masterbuilt	5.99	6.24	6.44
'57 USA Reissue	5.87	5.87	5.88
'56 Relic	5.95	5.95	5.95
'60s Kendrick Ltd. Ed.	6.10	6.17	6.10
'58 Kendrick Ltd. Edition	5.89	5.91	5.89
'60 Chris Fleming Relic	6.09	6.18	6.09
'57 USA Reissue	6.57	5.74	5.9
'62 USA Reissue	5.87	5.82	5.89
'60 NOS Custom Shop	5.78	5.79	5.78
'58 Kendrick Closet Classic	5.89	5.91	5.89

Don't fall for the incorrect assumption that higher resistance numbers automatically promise the *killingest* killer tone...

You *might* assume that slightly higher numbers introduce enhanced midrange presence and less treble than those with lower numbers, but the shortest route to a happy outcome in the quest for *your* tone is to experience different pickups first-hand rather than solely relying on numbers. If you have a multi-meter and a good guitar cord, you can easily take DC resistance readings on any set of pickups simply by plugging your cord into the guitar, placing the negative probe of your meter on the shaft of the opposite plug and the hot probe on the tip with the multi-meter set to measure ohms in the 'k' range and you're there. Keep in mind that DC resistance measurements taken from pickups installed in a wiring harness will read slightly lower than the same pickups measured directly from the coil. DC resistance numbers will mean more when you have directly observed the correlation between higher and lower readings and tone as *you* hear it.

Time is the great equalizer. Have you ever noticed how online reviewers fresh from taking the plunge on a new guitar, amp, pickups or a pedal invariably gush over their new find? Rarely do they return later to confess that what once seemed so perfect eventually lost its appeal, yet this happens to everyone. The only way to discover your sound is through experimentation, but understand that favorable first impressions can and do change. That's why we repeatedly go back and re-evaluate guitars, amps, speakers, pickups and effects in multiple, separate sessions before we put a nail in our reviews. We don't automatically trust our first impressions either. Once you've made up your mind, however, resist sticking with things that don't speak to you merely because they are *supposed* to be cool, collectible, or a hot player uses them. If it doesn't work for you, move on. And when you do find something that completes you, slow down long enough to notice. We have actually held crisis

interventions on broken tone over the telephone, helping people admit that they really do prefer the sound of something they think they aren't *supposed* to like – as if spending

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more money is a guarantee of superior tone. That's just wrong. If you like it, screw the "experts." We'll never fault you for it here.

There are also plenty of misconceptions surrounding guitar pickups and the technical terminology employed to impress (or confuse) you. So grab a beverage and settle back while we endeavor to de-mystify them with the assistance of TQR advisory board member Jason Lollar...

TQR: DC Resistance... Lower values are perceived as being cleaner, clearer and weaker, while higher values are interpreted as "hot" and less bright. What do these numbers really mean in determining how a pickup might sound?

Speaking in general terms, the more turns you apply, the more bottom end you get and the top end can drop off or it


Bobcat

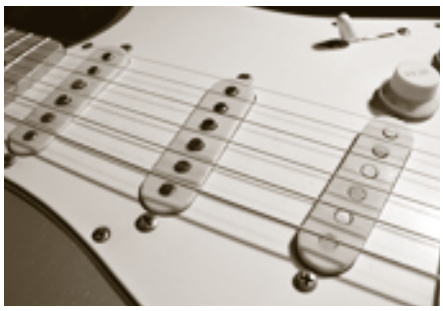
can become buried in the mix. If you go beyond a certain point and wind extremely high turn counts, you will get diminishing returns and the output and tone will be choked off. Fewer turns generally translate into less bottom, less output, and more top end in identical pickup designs. An interesting thing that can happen with a lower resistance pickup (fewer turns) is that because of the increased top end and presence, it can actually seem to sound louder than the higher resistance pickup… But listen closely and you'll notice that the lower resistance pickup is not driving the amplifier as hard as the higher resistance pickup – at least in the mids and bottom end, which are the frequencies that tend to overdrive an amplifier.

TQR: Fender also quotes inductance specs in units of henries... What do inductance numbers reveal?

Unfortunately, in this industry there no universal standards, so the inductance numbers could vary depending on the method used to obtain them. Inductance won't mean anything to the prospective buyer that has no experience relating the numbers to a particular design or little experience comparing one pickup to another using this method. It means very little to me, too. I use other methods to measure and determine outcomes. But a short explanation as I understand it is this – inductance is a measurement of the coil and the core, which could be a single magnet or multiple magnets like a typical Fender pickup, or it could be a steel blade or steel screws such as those found in a typical Gibson pickup. The core of the pickup has an effect on tone in two ways – the strength of the magnet and the composition of the core. Take two coils wound the same with the same dimensions, load one with Alnico magnets and one with steel, and the steel will often have more inductance than the Alnico, yielding a higher henrie number and more output, bottom and midrange.

Alnico 5 is stronger than Alnico 2, but a lot of people overlook the fact that the difference in the composition of magnetic material also has an effect on "inductance." If the level of magnetism were the same between the Alnico 2 and 5, by partially discharging the 5 to make it the same strength as the Alnico 2 you would still hear a difference between the coils due to the makeup of the materials. Remember the ToneQuest Strat set I made for you? I loaded the coils with steel in between the Alnico magnets to increase the inductance. But what does inductance mean to the average person? I'll stick my neck out and say "very little."

TQR: Wire gauge... We often see builders proudly boasting about their use of #43 or #42 gauge wire, Formvar coated, etc., etc. How many different gauges of wire were predominantly used in vintage pickups and why should we really care if it's #42 or #43, for example?



Generally you'll only find #42, #43 and #44 used today, and most often it's #42 gauge. There are a lot of considerations that determine why you would use #42, #43 or #44, but let's just say the selection of wire gauge is often dependent on how much output you are trying to achieve within a stock pickup size. If you have a Gibson humbucker bobbin, which is fairly small, and you are trying to get a hotter pickup than normal, you would go up a gauge or two (smaller diameter wire) than the standard #42 gauge used in a PAF to get more turns on the bobbin and generate more voltage. More voltage going to the amp = more volume, and more distortion out of the

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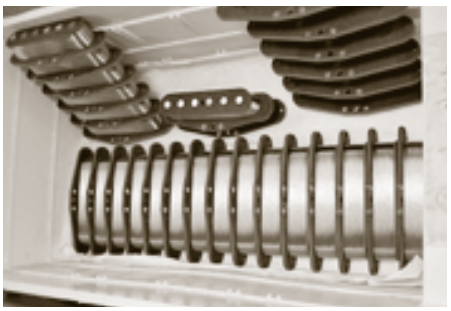
amplifier faster. The coating of the wire makes a difference in the tone produced for two reasons; one is the thickness of the insulation, and the other is the composition, much like capacitors made with various materials. Vintage pickups often used either Formvar, which is typically a coppery-gold color, or plain enamel, which is a dark brown or reddish black color. A lot of the early Formvar that was used had a thicker insulation, and thicker insulation generally produces a brighter, spankier tone. But there are also circumstances where you could get an opposite result!



Plain enamel has a little darker tone in which the root fundamental tone is more prominent than the overtones in the harmonics. It sounds a little "woodier" with less spank than other types of insulation. But I'm talking about fairly subtle differences here… You can *hear* it, but you may not once you get a drummer in the mix. I often prefer poly-nylon insulation for my coil wire, and I only use Formvar and plain enamel for a small portion of my product line. I really like the tone of poly-nylon.

Talking about subtleties… When I design or compare pickups, I use two guitars that are as close to each other as they can be in every way. I match all the pots in both guitars and use the same length of hook up wire for the volume and tone pots. I can install different pickups in each guitar and really hear a small difference. Once I note the difference, I'll take the pickups out of both guitars and switch them so the set of pickups in guitar A is now in guitar B and I test them again to rule out any difference in the guitars. The average person may have two different Les Pauls for instance, with pots in each that are for off spec from each other. That alone will skew the results and lead to erroneous conclusions. Even with matched electronics, guitars of the same design made of the same materials can have very noticeable differences in tone and dynamics. There are people that claim to wind each pickup for an exact result according to what the guitar is made of, what amp you play it through and for the style of music you play… Taken to that extent, this is pure bullshit. Collecting information to help the customer decide what they need is one thing, but by no means can that go as far as predicting what a particular piece of korina will sound like paired with a rosewood board, maple neck with stainless steel frets and Callaham saddles played through a '66 Twin Reverb used for playing "blues…" (whatever they mean by "blues"). Take ten Les Pauls, install the same set of pickups in each one and they are all going to sound somewhat different and occasionally, dramatically different.

TQR: Magnets... We've never heard anyone actually *brag* about using ceramic magnets, but Alnico II, III and V are referenced freely as if they are the keys to vintage tone. Why is Alnico better (if it is), which types were used in various well-known pickup designs and why? Do the different types sound different? Is today's Alnico the same as the stuff that was made 40 years ago?

Well, we were talking about inductance earlier, and each type of Alnico has a different effect on tone. I'm not going to share everything I've learned about that – let the other pickup makers do their own homework – but let's examine the effect of inductance – I call it *coil loading*, referring to how magnet type, size, or how a steel core affects tone. I don't know if it's a legit technical term based on science, but it works for me. You may have seen the Seymour Duncan pickup called the Quarter Pounder… They use a ¼" diameter Alnico rod rather than the standard 5/16" diameter rod in a Fender-type coil. The larger diameter rod increases loading of the coil, which increases inductance. The other effect is the relative strength of the magnets. When fully charged, Alnico 5 has the strongest pull, followed by Alnico 2 and then Alnico 3,

which is the weakest. A stronger magnet generates more voltage than a weaker magnet. Alnico is easily discharged to various levels, and pickup builders with the chops may use various grades of Alnico and discharge the magnets to specif-

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ic levels to get a specific result. I do this, and one reason is to achieve a distinctly different sound between different types of pickup sets. Also, just because a magnet is sold as Alnico 5 doesn't mean that every manufacturer makes exactly the same formulation – there are also impurities that vary from batch to batch. Not all Alnico 5 sounds the same. More magnet strength produces more signal, *period*, and more bass, mids and treble. It also can make the pickup sound punchier and more dynamic until you reach the point where there is so much voltage being produced that it continually overloads the front end of the amp.

Old magnets from 40 or 50 years ago are also different from what we get today. I read something in the Blackguard Telecaster book where they analyzed the magnets in a '50s Tele and found the mix of impurities was different than what is made today. No surprise there, as they vary between manufacturers anyway, but I typically find that the old magnets weigh more than new magnets, and if you fully charge the old ones they don't quite correspond to any magnet grade made today. The old magnets are just a little different. Making a pickup that sounds exactly the same as an old one is a lot more involved than just winding a coil to a matching resistance using the "equivalent" magnet and wire type.

As far as ceramic magnets go, they are far cheaper than Alnico, so they tend to be used in budget pickups, which has given them a bad name. I make my Chicago Steel pickups with ceramic magnets and they work great in that context. But some people just throw buzz words around and use terms that they really don't understand. It's easier to make a bad or average sounding pickup than it is to make a good or outstanding pickup, and there *are* bad sounding pickups. A lot of times pickups just sound different and there is no real good or bad. I think most people would agree that a muddy, boxy and undefined pickup just plain sounds bad when you compare it to one that has more fidelity.

TQR: Scatter wound... What does this mean and why does it matter whether a pickup is scatter wound or not?

Scatterwinding just means there is a random pattern or a wide spread between each turn of wire on the pickup – you don't have layer after layer of wire laying next to each other. It can also mean that each layer of wire has a different amount of

turns before it changes direction and laps back over the previous layer, such as 10 winds to the left, 15 winds to the right, etc. All other factors being equal, you'll generally get a little brighter tone in a scatterwound pickup and it also has some effect on how punchy or compressed the pickup feels. In some cases you may not want a wide scatterwound pattern. I make some pickups with more turns per layer for specific purposes.

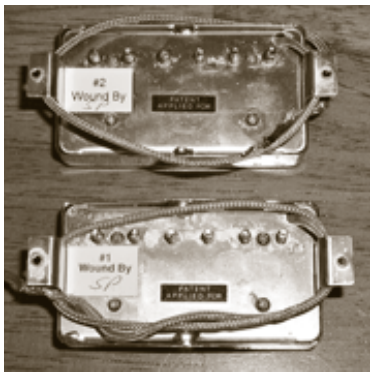
In my opinion, there is a big myth about "handwinding…" People throw that term around as if it's a magic act, but you can still make a bad sounding, hand-wound pickup. The overall design of the pickup and the materials used have more

effect on the outcome than whether it is hand-wound or not. Rewinding pickups of dubious origin just so they can now be hand-wound is often an exercise in futility – you may or may not get any improvement. More important is paying attention to all the details, from the magnets to the pickup cover. I can wind a pickup on a commercial machine and wind one by hand, analyze them for frequency peak, inductance, resistance and have two matched coils based on what the test equipment reads.

TQR: Mudrange... What makes a pickup sound muddy?

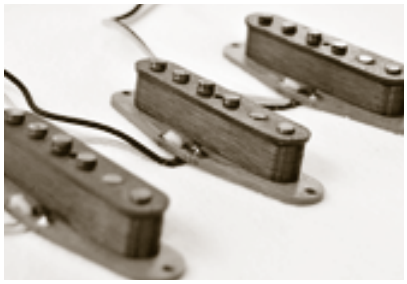
Oh, well, there are a lot of reasons, starting with overwinding! The big mistake that many people make getting started is that they tend to put too much wire on the coil, which can make the bottom end too blatty and the midrange overwhelm the presence that should be there. A "hot" pickup might seem unique and get your attention during the initial period of discovery, but they tend to lack the detail that a lower-wind pickup will have played clean. Sometimes you won't even notice how dark or muddy a pickup sounds until you compare it to something better.

Parts of inferior quality also can contribute to a muddy, indis-



tinct sound and poor string separation. Generally with humbuckers, if you wind both coils equally you'll get a very creamy top end – at least you can if you do everything else right – but matched coils also tend to make the bottom end a little spongier than if you had biased (mismatched) one of the coils. Winding the slug side hotter than the screw side can make it sound muddy in comparison to biasing the screw side hotter. Too many turns per layer of wire can also bleed off presence, and winding too tight or applying too much wax potting can take some of the sparkle out of a pickup.

TQR: Materials vs. technique... How much variation exists in the materials (wire, magnets, covers) available to pickup builders today?



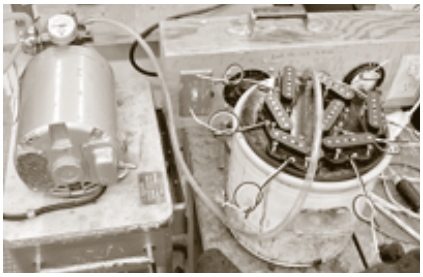
Inconsistency in materials will stop you dead in your tracks, and I constantly monitor it. I have resorted to having wire made specifically for me in large quantities because it was the only way to ensure consistency from spool to spool. Previously, if I wound a Strat coil off one spool to 8000 turns and 6.2K resistance and wound another from a different spool to the same turn count it might read 7K – too much of a variation for me.

As I mentioned before, magnets are not all made the same, and neither are pickup covers. I have them made to my specs now rather than buying off-the-shelf parts because I would get things like humbucker covers that were different thicknesses from batch to batch. I thoroughly test everything that comes in my shop, including actual, controlled listening tests. You might think of these things as minor differences, but they all add up. If you don't have consistency, you don't have much. I have to be confident that when you a buy a pickup, it is exactly what I designed – not an acceptable approximation. "Close enough for rock & roll" doesn't cut it. Are you OK with being "almost" in tune? I have a small balance scale that I use to make sure my parts are the same, and I measure all of the magnets we use and weigh them. In the past I have made identical pickups with magnets from different manufacturers to determine which manufacturer to use, and this is typical for any part I use. And I never wind just one coil – I wind a large batch of the same type in order to determine the actual specs for each spool. I check each batch against previous batches to ensure consistency. If a batch of 30 coils comes out at 5.6K and another measures 4.9K, I'll strip them all and wind them again.

China and Korea are making guitars better than ever, but I have yet to find an overseas company that really 'gets' pickups. Their materials are never consistent. If you contact a manufacturer and ask them to build a part to a specific spec and if they perform you'll buy thousands of them, they don't seem to care. "Close enough for Seoul" isn't close enough for me. There is a company advertising Korean or Chinese pickups that are supposedly "boutique" and they like to suggest that buying American-made custom pickups is a rip off. If you consider that they pay about $6 for a humbucker and sell it to you for $60, maybe it's not such a good deal. You know, it seems if you advertise something enough in print or on a web site, someone will believe it no matter how off base it is. There is so much bad information being spread about pickups that I can easily sympathize with players trying to wade through it all. Most of the guys that really know what they are doing don't hang out on the Internet very much – they are way too busy and don't have the time or an interest in perpetuating useless dogma.

TQR: Potting... To what extent does potting affect the sound of a pickup?

Unpotted pickups usually have a funkiness about them – an extra vibe or presence that disappears once you use wax potting or a solvent-based film coating like shellac. Humbuckers



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will have some pick click – you can hear the pick hit the cover. With Teles, they must have some funk on the bridge pickup, but one has to be careful not to make it so microphonic that's its actually hard to use. I can tell very quickly if a pickup is microphonic, and I like that sound. It *really* belongs on a Telecaster. I wind my coils pretty tight and use minimal potting, and in the past I *never* used potting. You can pot a pickup so completely that it produces a very dull sound with no liveliness to it. Wax will dampen microphonics pretty efficiently, and the film coating used in late '60s Fender pickups will have less of an effect. Potting also helps hold the pickup together, keeping the outside layer of the coil from shifting over time and becoming more microphonic, which is pretty common with older pickups.

The other day I had some unpotted humbuckers in my rig. Understand that Clapton and all of those guys playing through Marshall stacks back in the '60s weren't playing potted pickups… I was playing a set through a brown Pro cranked with no problems, and then I handed the guitar to one of the other guys and *screech weeee zhannng*! He couldn't control it, don't ask me why. It's really odd that there would be such a difference between the two of us, but there is no way to tell except for the acid test.

TQR: Small builder versus mass production... What are the most significant differences between pickups made in smaller numbers by custom builders versus big manufacturers?

Some places – big and small – pot way more than I would in an effort to avoid getting any complaints about microphonics.

TQR: What are the challenges in achieving consistent results building pickups from one set to the next?

Wire diameter and wire quality – some spools will have defects in the insulation and you can get shorts in the coils. For example, a bare spot occurs in the wire, 400 turns go by and another bare spot in the wire just happens to touch the previous bare spot, shorting out maybe 500 turns, so instead of 6.3K you get a far lower reading like 5.6K. If you only wind only one coil you might miss the fact that you have a bad one. Wire tension also affects the size of the coil and how it interacts with the magnetic field, the resistance to some extent, and the level of microphonics that will be present.

Potting penetration – it's all got to be regulated if you want consistency with the level of microphonics present. You have to time how long the pickup is being potted, regulating the pre-potting temperature of the coil and the wax. You also need to use a vacuum set to a specific strength for specific penetration of the coil.

Magnet strength – you'd better have a gauss meter if you want to have any idea of what your magnets are really doing. Cover thickness and composition are also very important. Then there are just dimensional things like do your Strat bobbins fit in your pickup covers and do they fit in a stock Fender pickguard? Basic things. How about the import Filtertron-looking pickup that was here a few months ago that sounded nothing like the real deal… I had it in my hand and turned it over to look at the bottom and all the screw poles fell out on the ground. Nice! Consistency is probably the hardest and most challenging single thing to achieve. Not everyone really tries to get a 5% or less tolerance, because it's not always needed. On a cheap guitar, what manufacturer really cares about it?

TQR: Covers... To what extent does the material used for pickup covers affect tone?

Well this is something that people often disagree on. I believe it does make a difference and I can say that because of the way I test things. A thicker nickel silver cover is going to dampen more highs than a thinner cover – I know this for sure. Brass and aluminum dampen even more, so its an important part of the mix to me. I know of a company making "exact reproductions" of PAF pickup covers and I can tell

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you if you are looking for a more transparent-sounding cover, this is a case where following an old formula doesn't get you where you want to be.

TQR: What's your advice on discovering new sounds from pickup swaps?

Figure out what you don't like about what you have now and list the qualities you want. Start out generalizing and narrow the focus as you go. You may want more bottom end with a smoother feel between each note, or you may want the opposite – tighter bass with more "spank." Perhaps you want more midrange with some growl or grit to it, or less, for a scooped "Fendery" sound. Do you want top end with some body to it or more treble cut? Could be you are just after one thing, like a hotter or lower output pickup… Think about what you want, but also realize that you may not get everything all at once. Voicing pickups can be like squeezing a balloon… If you want less bottom end, you'll get more top. The more you think and plan ahead before consulting with a pickup builder or a spec sheet, the better your results will be.TQ

ToneQuest Review

Have you ever stared into a restaurant menu, agonizing over your selection and when the food arrives you immediately realize you should have ordered what one of your companions was served? Well, unlike a $30 pan-seared pork chop, making the wrong choice with pickups can result in a much larger investment being thrown in a box or sold off at a loss on eBay. It's also time consuming swapping pickups out, and even more expensive and time consuming if you are solder-impaired and have to pay someone to do the work for you. But that wouldn't be you, would it?

Look, if you're hellbent on exploring the mystery of magnetism, get yourself a decent soldering station (not one of those 25W nightmares at Ace), download and print out your wiring diagrams (www.acme guitarworks) and practice flowing solder on some old pots. You can do this. Just get in the habit of draping your precious pet guitars with a small drop cloth, and by all means, don't set up your work area in the same room where your kids zone out on the Cartoon Network. Distractions = Disaster.

Custom builders often spend years experimenting with different wire gauges, magnet types, winding patterns, wire tension, potting techniques, wax formulations and cover materials in their quest for superior tone, and like inspired chefs, they all create different recipes that can produce distinctly different outcomes. For this edition of the Quest we have chosen to introduce some new and exotic flavors in the ever-expanding world of custom coils, as well as a few time-tested standbys with staying power. Burn forth…

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Jason Lollar

Tele Specials

The big wooly mammoth of the Telecaster world… crack cocaine for toneheads… the 28 oz. bone-in rib eye of Tele pickups. Now, before you get carried away, understand that the Lollar bridge pickup is voiced with a distinct emphasis in the upper mids and lower high frequencies and it drives amplifiers harder than typical Telecaster bridge pickups. Clarity, harmonic content and string definition are outstanding, but you won't hear the upper treble frequencies heavily dominating the mix. Like a good choir, all the voices come through equally thanks to the flat-pole design. Lollar's bridge is also perfectly microphonic, which defines much of the magic of a great Telecaster. If you play through a bright amp like a vintage Fender, the Lollar Special fattens up the mix beautifully without sounding too dark. The neck pickup shares the exceptional characteristics of Fred Stuart's – uncannily so – and again, a 4-way switch is essential to get all the meat off the bone. Just keep in mind that with this set, your top three strings will politely blend with the lower three rather than rudely screaming over them. Treble tones are clearly audible, but not dominating. The Lollar Specials aren't for everyone, but this is the fattest set of Tele pickups we've played that still retain the chime and character of a Telecaster, and they have been standard equipment in our pawnshop gold Nash TQ Tele.

Lollar '52 Tele bridge and Alnico 3 Neck Pickup

This is a hybrid Telecaster rig that delivers an unusually clear and punchy neck Tele pickup that is unlike any other we have ever heard. With so many neck pickups of all types hobbled by woofy, indistinct and muffled tone for anything but easy-listening, mellow tones, the Alnico 3 is a giant step up; it's crisp, well-defined and tight, but you can still warm it up with the tone control on the guitar.

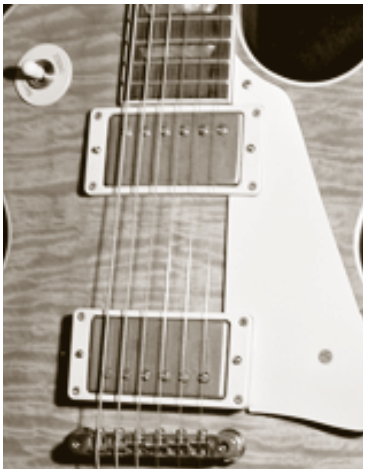
The flatpole '52 bridge features a low turn count and output that produces the clarity and bite of an old Fender Champion lap steel with its clangy, cowbell attack and penetrating clarity. Players skilled at fingerpicking will particularly revel in the staccato attack this pickup offers. Rather than producing a ton of heavy sustain, the '52 brings back a simpler, less complex tone that seems no less legitimate or desirable within the long and varied historical context of the Telecaster pickup design. This pickup is best played cleanly, as all Telecasters surely were in 1952. TQ

www.lollarguitars.com, 206-463-9838

Jason Lollar Peter Green Set

Jason Lollar's Peter Green pickups produce slightly lower output than the WCR Moore-Green set, with less compression and a slightly brighter, cleaner tone in the neck and bridge. The out of phase middle position is best mined by setting the volume of either the neck or bridge pickup higher than the other. Working this rig is similar to having a toggled coil tap, but in this case you're accessing the out-of-phase setting through the 3-way pickup toggle, coloring and shaping tone with varied volume settings on the neck and bridge, mixing the two. Like the WCR Moore-Greens, Lollar's Green set departs from the stereotypical sound of modern humbuckers by delivering more sparkle and brighter, more defined harmonic content that borders on the sound of a polite, humless P90. It's a sound we like, and for those that can get their head out of their past... you will too.

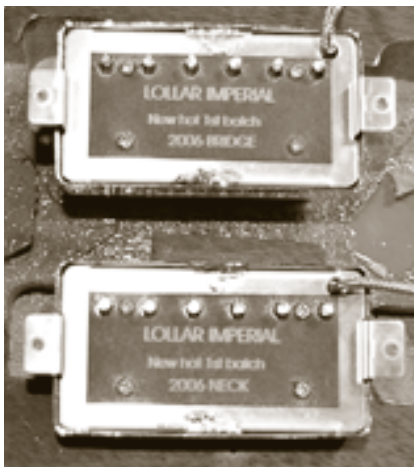
Lollar Imperial Humbuckers



The single characteristic that separates Lollar Imperials from all the others we have evaluated and reviewed over the years can be described with one descriptive term – *air*. The Imperials sound opened up – less compressed, tight and linear than many modern humbuckers. The bridge pickup is exceptionally balanced with solid upper mids sweetening a very distinct and musical top-end. Critics might complain that the Imperial bridge is too high-fi… lacking the raw edge some associate with "true vintage tone," but we continue to find that the Imperials shine over the long haul, played through all types of amplifiers – large, small, clean and distorted – offering a versatile alternative for a broad range of musical styles.

The neck pickup is warm, round and especially useful for creating varied tones with the bridge pickup. Played alone, it's mellow and warm unless you really dig into the strings just in front of the bridge. And don't forget – altering your proximity to the bridge with pick attack changes tone more effectively than the tone pot! You may have noticed that we routinely turn neck pickups around to move the pole pieces closer to the bridge in an effort to squeeze more midrange and clarity from what is, by default, a very bassy position. Try it. You can also order the Imperials with or without potting... We recommend them unpotted for even more air, unless you are playing through an extremely high-gain rig at very high volumes.

Lollar 'Hot' Imperial Humbuckers



A hotter Imperial for you hotter guitar players... If that saucy, jaunty, taunting SG tone found all over Disraeli Gears plucks your heartstrings, you need to get you some of this. The heat might even shrink your prostate gland, butt and belly, grow hair where you want it, kill it where you don't, and fortify you with the stamina to play a couple of encores in the horizontal rehearsal room. Who knows what miracles such tone might inspire? But the term "hot" is such a misused descriptive term for pickups… What does it really mean? Distorted? Sizzling? Powerful? Nasty? In our experience, it often simply means "bad." There is a fine line between pickups that offer just enough extra dynamic juice to make the notes jump from your fingers and drive your amp harder, and those that go too far, producing muddy compression that masks harmonic depth and detail, single string definition in chords and sparkle on the top. Anyone remember Gibson "Dirty Fingers" humbuckers? Awfullest of the awful… The Lollar 'Hot' Imperials retain some of the airiness and balanced tone of the original Imperials, while pushing your amplifier into distortion harder and faster. We should mention that we preferred the 'Hot' Lollar Imperials in our SG over our Les Paul. The inherently brighter, bouncier tone of our featherweight SG created a less linear, beamy and smoother tone with the hot Imperials, while the same pickups in our heavier-sounding '58 Les Paul were more distorted, edgy and threatening. Many of the humbucking sets built by WCR also fall in a similar "hot" category as the Imperial.

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Lollar Firebird

Lollar started out as a guitar builder, and he has the shop equipment necessary to create some offbeat rigs when he feels like it. You might recall our Nocaster with a Charlie Christian neck pickup, or the double Charlie TQ Kingdaddy we're building now. Gordon Kennedy has been playing his on tour with Peter Frampton since the summer.

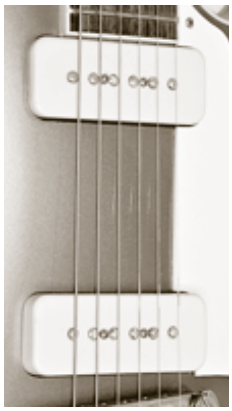
After our overview of Neil Young's "Old Black" Les Paul equipped with a Firebird bridge pickup, Lollar called to tell us he had made a Firebird bridge drop-in for a standard Les Paul. To date, he hasn't managed to come up with a cream pickup ring for the Firebird, so this setup in black wouldn't make a pretty picture with your flame-o-rama 'burst, but it's a fine, fine look (and sound) with our Blacktop. According to Lollar, a true Firebird pickup is not the same as a mini-humbucker… We popped the Firebird in the Blacktop and immediately copped the cutting vibe of a Bird without the clunky acrobatics imposed by the original reverse-Firebird design. Let's admit it…most players can't handle a Firebird comfortably, and even for those that can (the mighty Kal David excluded), it's a struggle. The foremost ambassador for the Firebird was Johnny Winter, and our little Les Paul hangs all the fire of a vintage Firebird, not to mention the burning tone of Neil's Old Black. For rock and blues, this pickup scorches with old-school, single-coil intensity, and if you play blues, this pickup in a Les Paul may ice your signature tone. The mids are diminished compared to a bridge humbucker, and the tone is not too distant from a fat Tele bridge, but there is also something more lurking in the mix – a thick, penetrating attitude and mysterious blend of trebly harmonics that aren't so easily categorized with easy comparisons. All we can say is, it's one hell of a rippin' rig, with powerful overtones that smell older than dirt.

Gibson Firebird

Our experience with the Firebird pickup in the Blacktop (now *Blackbird*) got us thinking about how it might stack up against a current production Firebird, and we were lucky enough to spy a rare 2006 Historic Firebird V at Midtown Music. We immediately noticed that unlike the reissue reverse Firebirds we've played from the main Gibson factory, the Historic sported a neck that could have been carved for a Thunderbird bass. It's huge, with a nice C shape rather than the slim taper on the Gibson USA models in which the back of the neck flattens out similar to the neck on a Les Paul Classic. The Historic V is a luscious axe, beautifully built, one of the most complex and difficult designs to produce in the entire Gibson line, and we lusted for it until we heard the pickups. A bridge pickup pumping 24K ? Why? Somebody needs to re-think the specs for the Firebird pickups. At $3500.00, a Historic Firebird V ought to sound as good as it looks and plays. Gibson has stepped up to the plate and created solid, stock versions of the PAF humbucker and P90, and we're confident they can do the same for the Firebird. It's time.

www.gibson.com

Gibson P90



The current production, stock Gibson P90 is among our favorites offered in production guitars – powerful, clean and lively with sharp harmonic detail at modest volume while spewing thick gushers of sweet crude through a cranked amp. A good P90 should produce 3-dimensional depth, detail and harmonic content, brightness on the top, powerful mids, and solid low end that cuts through the mix far more effectively than a typical humbucker. The Gibson P90 is anything but bashful – tone and feel are authentically raw and mix equally well with hollow, semi-hollow and solidbody guitars. We also find the neck P90's to be one of the most usable when played alone for rock and blues. You can easily do a lot worse than the stock Gibson P90.

Lollar P90

Lollar P90's are a bit less brash and brassy than the stock Gibson – slightly clearer and smoother with more midrange and upper mid detail. The Lollar P90 is powerful, lush and still trebly, but a cat hair more balanced overall. Choosing between these two is not a matter of which is "best," but more about personal taste. In our non-top-boosted '63 AC30 we like the additional treble in the Gibson P90, and with our Fender amps, we prefer the slightly deeper tone of the Lollar P90. Both pickups are worthy of an "essential" ranking in your tool chest – just different. Duncan P90's by comparison have always seemed a little sterile and lacking depth.

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