

MOJO ZINE

THE DIY ZINE
FOR DIY BUILDERS

VOLUME 1
ISSUE 5

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PART I**

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OF TUNGSTEN AMPLIFICATION**

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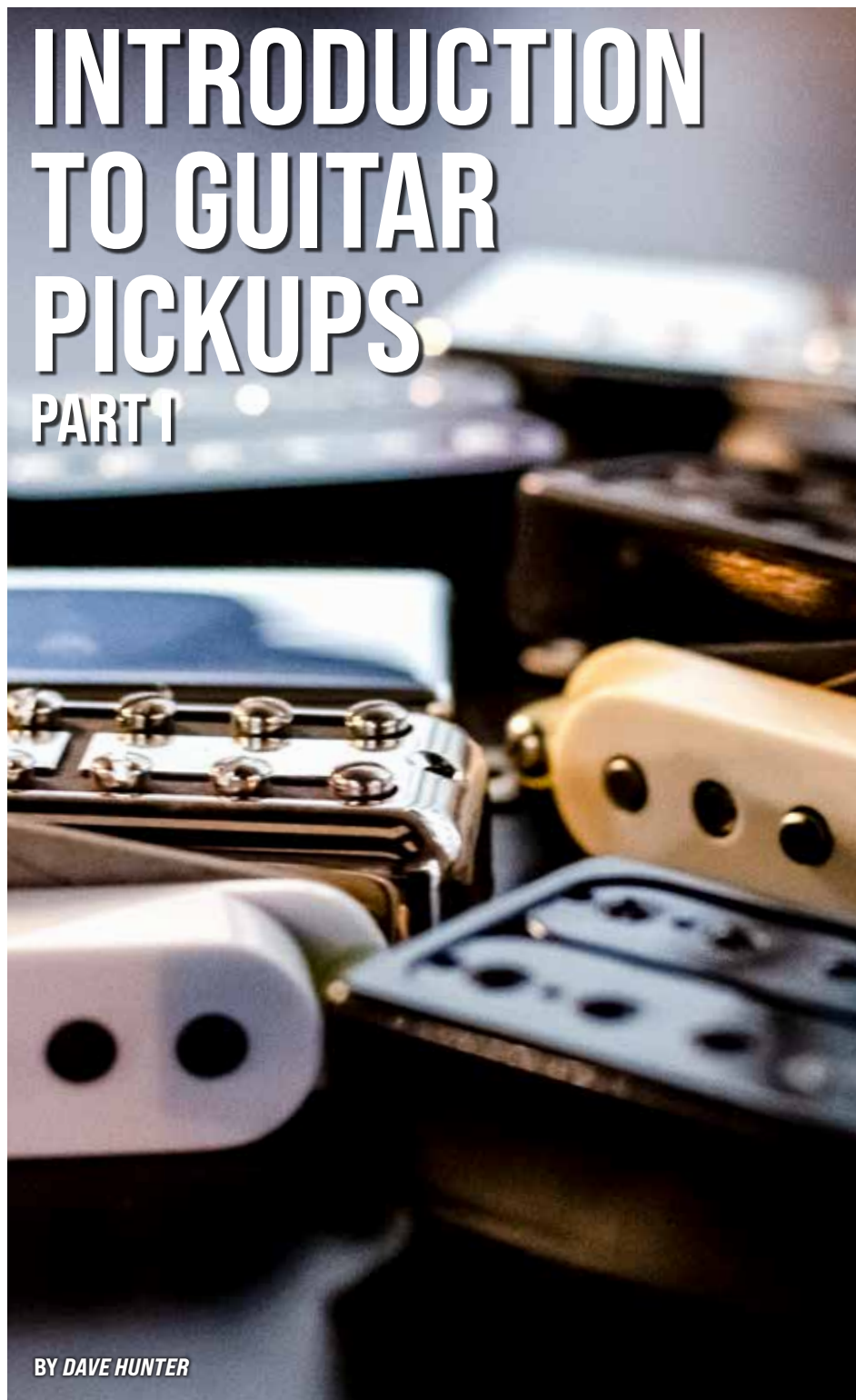
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INTRODUCTION TO GUITAR PICKUPS

PART I



BY *DAVE HUNTER*

In the first of a two-part series for Mojotone's tech-savvy readers, we take a deep dive into the basics of how guitar pickups work, and what helps them do their thing. We will also look at coil variables and how they play a part in the final sound of the pickup.

HOW THEY FUNCTION

Guitarists today know more about pickups than ever before, yet there are still so many variables in the world of these passive electronic devices that the details can sometimes make your head spin. Pickups are broadly akin to other electromagnetic devices employed in music electronics, and are really among the simpler of such things. Like a dynamic microphone, they translate sound waves (in this case, in the form of a vibrating steel string) into an electronic signal, but while even the simplest mic—think Shure SM58—has a moving diaphragm, they use no moving parts to do so.

As simple as they may be, however, any handful of pickups you test will sound anywhere from subtly to dramatically different, and that's all down to the materials they're made from, and the way those are put together. This issue we'll look at some of the basics that influence these alterations in tone and response, then move on to a deeper dive into individual specifications in further installments.

How They Work

Let's kick it off with a quick look at how these things work in the first place. Most musicians understand that a speaker produces sound when the electrical signal hits an electromagnetic coil that's attached to a flexible paper cone and suspended in proximity to a fixed magnet, causing the coil to move and the cone to vibrate along with it. Pickups work somewhat in the reverse, but without the moving-part element of the equation.

A pickup is an electromagnetic device that produces a magnetic field above the position where it's mounted. And we all know, of course, that our guitar strings pass

through this field. When you pick a string, its disruption of this magnetic field translates that motion into an electrical signal in a coil of thin wire wound within the pickup, which then travels down further lengths of wire to your amplifier. In short, electromagnets can translate an electrical signal into motion by exerting magnetic force, or do the reverse and translate motion into an electrical signal; pickups do the latter.

A Pickup's Major Components

There are two primary parts required to make any traditional electromagnetic pickup function: a source of magnetism, and a coil of wire. Some are as simple as a coil wrapped around a magnet, usually with some inert fiber or plastic base or bobbin to hold everything in place. Fender Stratocaster and Telecaster pickups, for example, use six individual magnets—one for each string—with a coil wound around them. Gibson's Firebird Mini-Humbuckers or original Melody Maker single-coil pickups similarly have a bar magnet within a coil (or two, in the humbucker's case).

The other and more common Gibson types, though, the P-90 and the full-sized PAF-style humbucker, have steel pole pieces within the coils themselves rather than magnets. These screw-like poles are threaded through the bobbin around which the coil of wire is wound, and into a base structure that puts them in contact with magnet(s) mounted below the coil.

Almost all pickup designs merge these components in ways similar to these. Which is to say, the topologies outlined in the above paragraph—pickups made with magnets within the coils vs. those made with steel pole pieces within the coils in contact with magnets mounted below—describe virtually every type of pickup made for electric guitar, while also defining two of the most significant variables in pickup making, whether you're talking humbuckers or single-coils. Gretsch Filter'Trons or Charlie Christians? Magets below, with steel poles or blades threaded through the coils. Gretsch Dynasonics (aka DeArmond Model

200] or the popular DeArmond “S-cover” gold foils? Magnets within the coils.

Furthermore, each of these two basic topologies has what we might call a “core sound,” and these simple differences in construction help to define how they sound different as a result. Obviously, there will be enormous differences between pickups depending on a wide range of other factors—more of which below—but here are the broad characteristics identifiable in these two main approaches to pickup making:

Magnet within coil: Articulate, bright, clear, with enhanced treble. With individual magnet pole pieces single-string definition is improved further; with bar magnets it's often slightly “blurrier”.

Steel within coil, magnet below: Round, thick, a touch gritty at times, a little snarlier and gnarlier, and often with more aggressive midrange.

Note that these aren't absolutes, but they are pretty consistent starting points for defining the core sound of differently constructed pickups. Consider types of pickups that you might already hear in your “mind's ear,” and you're likely to see how they follow suit. Also consider, for example, that when Gibson wanted more clarity out of the gnarly, thick, slightly gritty sounding P-90 in 1954 engineers Seth Lover and Walter Fuller simply replaced the threaded steel screws with individual bar-magnet sections within the coil of what was otherwise essentially a P-90 to create the Alnico (aka “staple top”) pickup. Voila! Improved clarity and enhanced treble content—exactly what Gibson president Ted McCarty was asking for. Naturally, humbucking and single-coil pickups of each kind sound a little different, but they still share these basic characteristics.

Notable Variables

Once you understand these basic templates, it's important to be aware that there are many variables at play which can make even pickups that are seemingly of the same type sound quite different.

Examine the number of different mix-and-match combinations of all of the following, for starters, and you begin to see how many nuanced alternatives there are in the world of pickup making.

Different types of magnet structures (or magnet-and-pole piece structures in many designs, as above) will respond differently, because they are creating different types and shapes of magnetic fields.

Differently sized or differently structured pickups will create different magnetic fields and will “read” string vibration differently, which leads to different translations of the strings' vibrations within the coil.

Different coil designs—pickup wound in different shapes, in different patterns, with different gauges of wire, or with more or less wire—will translate the disrupted magnetic field differently, and therefore differently shape the signal sent to the amp.

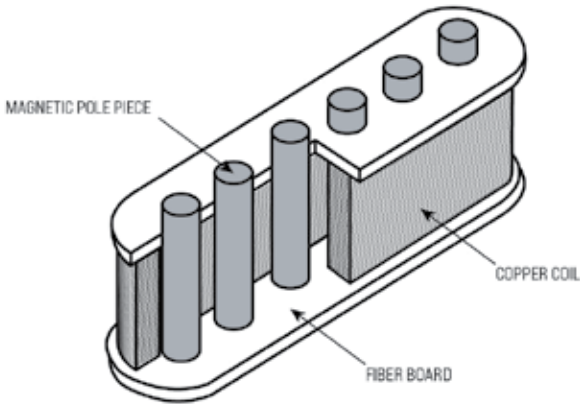
Different formulations of steel components such as pole pieces, slugs, or base plates will contribute to subtle differences in different pickups' sound and performance.

And lest we forget... different string types will affect the magnetic field differently, according to the type of steel they are made from, any coating or plating on the wound strings, their condition, their gauge, and other factors, resulting in a different performance from any given pickup.

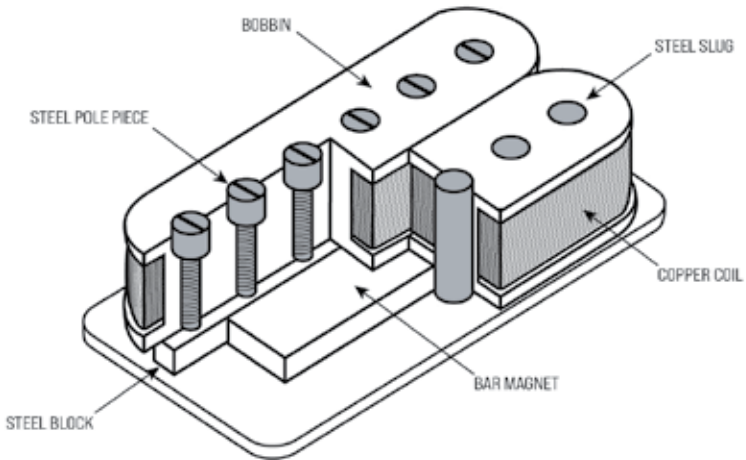
Considering all the potential variables, it's easy to see why makers' efforts to chase the “Hole Grail” of various vintage pickups has proved a major endeavor even for the most skilled practitioners. Alter one variable, and another begins to behave differently. Tweak that one, and still further variables alter their impact upon the design.

I'll go deeper into related categories in future installments, hoping to build a reference base that helps you determine in advance what types and variations of pickup

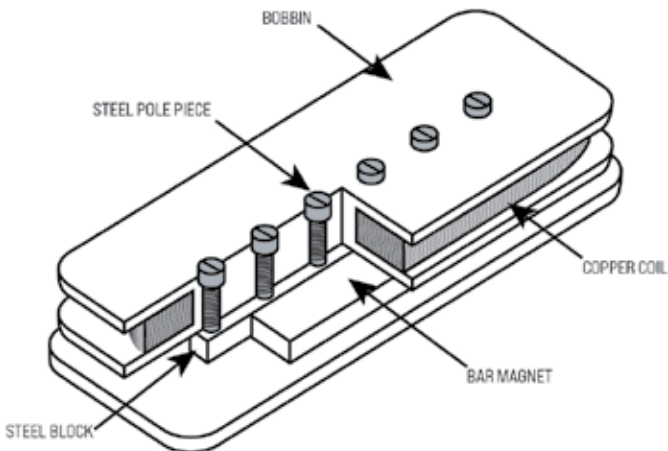
FENDER STRAT STYLE SINGLE COIL CONSTRUCTION



P.A.F. STYLE HUMBUCKER CONSTRUCTION



P.A.F. STYLE HUMBUCKER CONSTRUCTION



might be best suited to any sound you seek. In the meantime, be aware that these variables exist, and that the slightest little tweak in the outwardly simple recipe of any given electromagnetic pickup might leave you wailing the blues rather than twanging out honky-tonk.

COIL VARIABLES

Length Of Wire

One of the biggest determining factors in any pickup coil's performance is found in the amount of wire wound onto the coil; that is, the overall length of the wire used, and the amount of wraps around the bobbin or coil former that it takes to complete the coil. Considering pickups that are otherwise similar in all other ways, the more wire you have in any given coil, the stronger the signal it will produce when you pick a note, and the more powerful it will sound. More wire doesn't just mean a more powerful pickup to drive the amp harder, though, it also brings a change to the pickup's frequency spectrum, and players who feel they want a "hotter" pickup might not also want tonal changes that come hand in hand with it.

Increasing the amount of wire wrapped around a coil increases midrange response but attenuates treble and bass along with it; the reverse applies for removing turns of wire from a "standard" number of turns in any given design, in relative turns (and keep in mind, this stuff is all relative!). Up to a point, increasing a pickup's midrange emphasis by adding more wire can work to the advantage of a weak pickup with a harsh, brittle treble response, as the high strings will sound smoother and fuller with an increase in output coupled to a decrease in pure highs. Coupled to this, however, the wound strings—which perhaps sounded just right as they were—will round out too, possibly becoming muddy or flabby or indistinct sounding if the increase in winds is taken to extremes.

One of the main considerations in all of this is that you usually can't have it both ways: if you love the sound of a vintage-style, lower-wind pickup but also want a hot pickup

to drive your amp harder, chances are you'll have to compromise a little somewhere... or just step on an overdrive pedal. These are all relative and "just for example," but you get the idea: any change in spec will often alter different performance factors. The amount of wire is far from the only factor to consider here. The type of wire and the way it is wound into a coil are also of huge significance.

Wire Gauge

Manufacturers in the earlier decades used different gauges of wire to achieve different ends: thinner wire to squeeze more onto a thin or compact bobbin, for example, or thicker where room allowed. These days, makers will tend to use the wire that most closely matches the type of pickup they intend to emulate—or in an entirely original design, the wire best suited to their purpose—although 42-gauge (also called 42 AWG for "American wire gauge") is the most common.

A typical vintage-spec Stratocaster pickup coil wound with wire until it's full might accommodate, for example, get to 8,000 turns of 42-gauge wire before you run out of room. If you want even more than that for a "hotter" pickup you might be able to squeeze a little more on there, or you need to use thinner 43-gauge wire instead, which lets you increase the length of wire and to wind it on more tightly too. Alternatively, if you're designing a pickup from the ground up and space is too tight to allow enough 42-gauge wire for an acceptable output, you might use 43- or 44-gauge instead, just to get enough signal out of it without necessarily trying to make it "hotter". Higher gauges were used in many old DeArmond pickups for just this reason, while several high-output pickups also use it to achieve their desired ends, and Fender's petite Telecaster neck pickup has traditionally used 43-gauge wire to get enough output from the design, which is notably smaller than a Telecaster bridge pickup or a Strat pickup.

Worth noting here is the fact that a change in wire gauge doesn't just allow you to pack on more wire; it introduces a change in sound, too. This change is likely to

affect the balance of highs, mids and lows, the pickup's relative clarity or snarl, and other factors. Exactly how it affects these depends on other aspects of the design and how the coil is constructed, but be aware it will make a difference. For one example, Fender's very early 1950 Broadcaster bridge pickup used 43-gauge wire and had a bright, fat, somewhat gnarly-edged bite to it, whereas standard Telecaster bridge pickups that followed were otherwise largely similar in construction but used 42-gauge wire, and their flavor of twang was somewhat clearer and tighter as a result, yet still meaty and bold.

Insulation Formulation

What happens when you wind several thousand revolutions of uninsulated wire around something? It becomes one big electric contact, and unending short. For this reason, all pickup coil wire is insulated to keep the entire length isolated from its neighboring wraps as it coils round the bobbin.

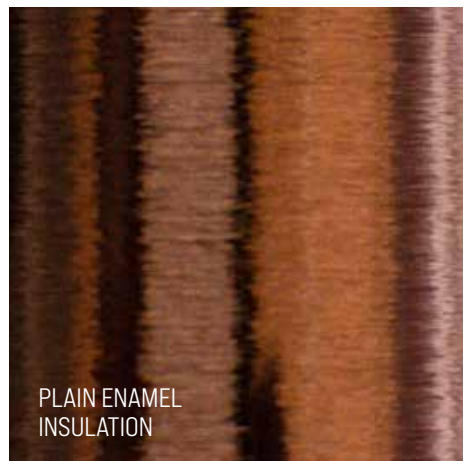
Why should the type of insulation matter? It's just the stuff that coats the wire, and the wire's what generates the signal, right? True, but every minute variable in the way a pickup is made can have an (often surprising) effect on how it creates a signal, so it's conceivable that different insulation materials might introduce different characteristics to the coil.

The most commonly used insulating coatings are Formvar, plain enamel, and polyurethane, and each results in a slightly different thickness of insulation, and different degrees of relative stiffness or flexibility in the wire, too. Formvar-coated wire was used in Fender Stratocaster pickups until about 1964, when the company changed to plain enamel, and this slightly thicker, heavier Formvar therefore is the coating material you will hear bragged about most in the literature of contemporary winders keen to point out how rigidly they adhere to vintage Fender Strat specs. That being said, plenty of players have discovered the sonic charms of Fender's so-called "gray bottom"

pickups (named for their gray fiber bottom plates) that came into use around 1964 and into the '70s, so often it's not a matter of better or worse, but of "different."



On the other hand, Gibson used plain enamel-coated wire for both its P-90 single coils and PAF humbucking pickups, while Fender was always using plain enamel for its Telecaster pickups, so this type of wire has come to be an essential ingredient of any repro PAF or vintage-style Tele pickup. On one hand, many great pickup makers will tell you "wire is wire." On the other, many will also expound at length on the fact that insulation will both vary in thickness according to the material it is





POLYURETHANE
INSULATION

made from and will affect the inductance and capacitance of the coil according to that thickness.

Arguably, the insulating material also affects mechanical vibration, and therefore resonance within the pickup, according to how hard/brittle or absorbent it is. In these ways a change of insulation coating material can indeed change the sound of the pickup in a very real way. As for what is better or worse, that will depend on the overall design of the pickup, and the tone you seek to achieve, so it's best to read makers' specs and descriptions regarding their individual designs, and to trust the best pickup winders to use materials that they feel are right for the job.

Coil Winding Technique

Even when the same coil wire and components are used to make otherwise similar pickups, the way in which the coils in those pickups are wound will have an effect on their final sound. Which is to say, the even- or unevenness, tightness or looseness, regularity or irregularity with which the wire is wound onto a pickup's bobbin or coil former will impact the results in different ways.

All of these factors are introduced into the pickup's construction by the winding technique, which is often influenced by whether the coil is wound on an automated machine (and what type of machine), on a

machine with the wire hand-guided onto the coil as it builds up, or with even more hand work (few pickups are truly "hand wound," however, which is no surprise when you consider how much time it would take to turn a coil by hand 8,000 to 10,000 times to get all the wire on there! Instead, the hand element usually involves how the wire is fed or guided onto the coil as it spins on some motorized device).

Today, many pickups are wound in a specific attempt to replicate the "happy accidents" found in the randomness or irregularity of the best sounding vintage pickups. Aficionados often attribute some of the magic of good vintage-style reproduction pickups to a degree of looseness in the wind, which translates to a slightly microphonic pickup. By "looseness" we're not talking about wire that's flopping around to the extent that the coil is changing shape, or producing excessive feedback howl even at moderate volumes. But a touch of microphony can contribute to a lively sounding pickup, and when a coil is acting both as a microphone that pickups up direct guitar-body resonance in addition to its electromagnetic sensing of string vibration, it's conceivable that it is producing a richer, more complex signal. Alongside this, the neatness and consistency with which the turns of wire are laid into the coil, or layered, is also responsible for certain sonic properties. The term "scatter wound" describes a coil that has been wound with a degree of calculated randomness, if you will. Manufacturers that employ this technique cite the arguably sloppy winding of some vintage pickups, where wire was not layered up wrap upon wrap, precisely, as it formed around the bobbin, but occasionally made skips and jumps up and down the coil's vertical plane. Coils might also be built up unevenly, with the wire stacked more widely or heavily toward the bottom or the center. Sloppy or not, scatter winding is also accredited with a liveliness of tone, and many modern manufacturers seek to reproduce it.

Counter to this, other makers will promote the precision and regularity of their turns, and credit this with superior sounding

pickups. A more tightly, evenly wound pickup is often considered smoother and clearer sounding, less prone to feedback, and might genuinely be the preferred choice for players seeking singing contemporary high-gain lead tones, for example.

And all of this goes double for humbuckers, where the effects of coil winding are compounded because two coils will interact to produce a signal. In recent years, for example, many makers have discovered that one of the keys to creating an accurate-sounding reproduction of the hallowed Gibson PAF is to combine coils with different numbers of winds—one with 3,800 turns of wire, for example, with another of 4,300 turns. Since these mismatched coils result in slightly less phase cancellation when their signals are combined, they are attributed with enhancing the bite, edge, and high-end complexity of the pickup, and lending a certain single-coil-like depth to the midrange and a clarity to the lows. Less phase cancellation also means a little less hum cancellation, however, so evenly matched coils excel in noise rejection, while also being more smooth and even sounding, where that might be desirable.

Wax Potting

Too much microphony can lead to squealing feedback, especially from guitars played via high-gain amps or pedals. To quell this, many pickups are “potted” (dipped in melted wax or paraffin) to provide an overall dampening insulation within the coil windings to subdue unwanted vibration at high volumes. Akin to what is discussed above, an un-potted pickup’s microphony can be another vintage-associated characteristic, enhancing bite, edge, complexity and harmonic content. For smoother overdrive and less squeal at high volumes, though, potting is usually desirable. While potting is essential for some pickups intended for certain playing styles, others will benefit from being left unpotted.

Coil Shape

Given the “everything makes a difference” premise that we’ve worked on thus far, it won’t surprise you to hear that the basic physical shape of the coil will also influence

how it sounds. Whether the same type and amount of coil wire is stacked up in a tall, narrow, vertical oval like a Stratocaster pickup (which tends to sound brighter and more focused) or a wider, fatter, more horizontally inclined oval like a P-90 (which tends to sound thicker and warmer), this shape can make a big difference in the final tone.

As we know from earlier however, Strat pickups and P-90s have differences other than mere coil shape, so let’s compare two designs that are closer to being alike in all other ways. Consider Fender’s Jazzmaster and Stratocaster pickups: both have six alnico rod-magnet pole pieces and are held together by fiber top and bottom plates. Now, wind the same amount of wire around both configurations and you will get pickups with similar output levels, but significantly different sonic signatures: the narrow, tall Strat pickup will be tighter and brighter; the wide, thin Jazzmaster pickup warmer and thicker (though, of course, still pretty bright too).

Much of this goes back to the basics of the electromagnetic device: building this structure around a different framework, and thereby rendering the ultimate shape of the device differently, also changes the structure of the magnetic field and results in pickups that read string vibration slightly differently. And that is compounded by the fact that differently shaped coils also simply behave differently, even when loaded with the same type and amount of wire, because the wire is spread along a different geometrical pattern.

The wider pickup shape contributes to a wider magnetic window, which samples vibrations from a wider region along the length of the strings. A longer sample of the vibrating strings means more competing frequencies which, when blended, lead to a little phase cancellation and, therefore, a slightly warmer, less defined, less brightly focused sound. I’m talking extremes here, but you get the picture—and anyone who’s played a Jazzmaster and a Stratocaster side by side has heard the sonic differences that result from very similar ingredients. ◻

HANG TIME WITH

ADAM PALOW

OF TUNGSTEN AMPLIFICATION

BY LOGAN TABOR

Tungsten
AMPLIFICATION



In today's Mojozine interview, we're sitting down with **Adam Palow of Tungsten Amplification** to talk about his journey through the world of tube amps. Adam is a self-taught, highly-skilled builder, designer, and tinkerer of all sorts. We're pumped to have him as a Mojozone customer, and even more excited to be able to have a chat with him.

And guess what, like always, we started from the beginning...

"I've been obsessed with sound since I was a small child and was exposed to FM radio in the mid 70's, but my obsession with music started around age 13 with albums like Appetite for Destruction (GnR) and Kiss Me, Kiss Me, Kiss Me (the Cure). Though very different, each one featured a wide range of tones that inspired me to pick up my first guitar. Not too long after, I heard the Sex Pistols and that Steve Jones sound was seared into my brain for good."

Naturally, I'm sure this hits home with plenty of us. So now that we know how Adam got into music in the first place, let's dive into his gear journey. My understanding is that once Adam bought his first ever tube amp, he dove in head first and never looked back.

Let's find out more about the mystical amp responsible for all of this...

"The first amp I purchased was a used 1965 Fender Vibro Champ that was regrilled and missing the faceplate. The glow of the tubes, the broken in alnico 8" speaker and the mystical tremolo cast a sort of spell over me & I could not stop playing the thing. I was 16 years old, and the entire course of my life changed that day. Not too long after, I acquired a 1970 non-reverb Princeton. Then there were Bassman, Bandmasters, Deluxe Reverbs, Twin Reverbs. It was the early 90's, and these amps were relatively cheap. \$250 for a Bassman head was average then. These amps needed maintenance and I didn't know any qualified technicians, so

I built a workbench and started reading books and internet forums. One of those forums (Music Electronics forum) had a "Tweed Amp Builders" section that was loosely moderated by Bruce Collins of Mission Amps. I learned so much by lurking on that forum and absorbing good info from the many members there. It's something that's lost a bit in the social media age, but the forums were a cool place to hang out with like minded people and exchange technical info."

We know SO many DIYers who got their start almost exactly like this; their interest was piqued by an epic piece of gear and then they just started reading everything they possibly could and tinkering away at all hours of the day. We love hearing this kind of story.

Alright, so besides that first amp, what other gear kept adam so fascinated?

"When amp prices began to increase in the mid to late 90's, I stumbled into the world of Hammond Organs and Leslie speakers. They sounded amazing, were extremely undervalued, and quite abundant on the West coast. This forced me to expand my electronics knowledge as well as reach out to master Hammond Organ tech, Bob Schleicher in Oakland, CA. At the time, I still knew comparatively little about electronics and Bob was extremely generous with his knowledge. I learned how to make a perfect solder connection by watching over his shoulder at his shop one Sunday morning."

That is an intensely rad story to all of us here in the shop; what a cool mentorship.

By now you all know I like to ask our subjects how they overcome stress and periods of time where they find themselves lacking inspiration; so, let's find out how Adam breaks through the walls...

"The only time I feel uninspired is when the business side of the business takes over. Inventory, paperwork, website

management, it's just not my thing. I love to sit at my bench and build amps, that was the dream when I was 20 years old and still is now. In 2019, I got burned out, decided to take a break and went to be a grower for a local Medical Marijuana farm. Within the space of a year I got promoted, got fired, and regained perspective on just how blessed I am to be able to build these amps for players around the world. Over the past three years, I've built out five new prototype designs and have expanded my footprint beyond "just tweed," to the gray areas between late tweed, early Marshall, and some of the "off brands."

Sometimes it does get hard to see, but we are all very lucky to be in this field and to help others find the sound they've been seeking out. And we all have different philosophies on how to go about helping others find their sound.

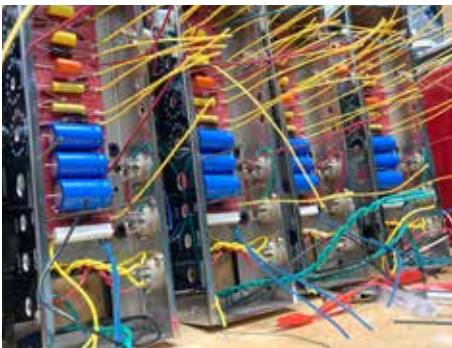
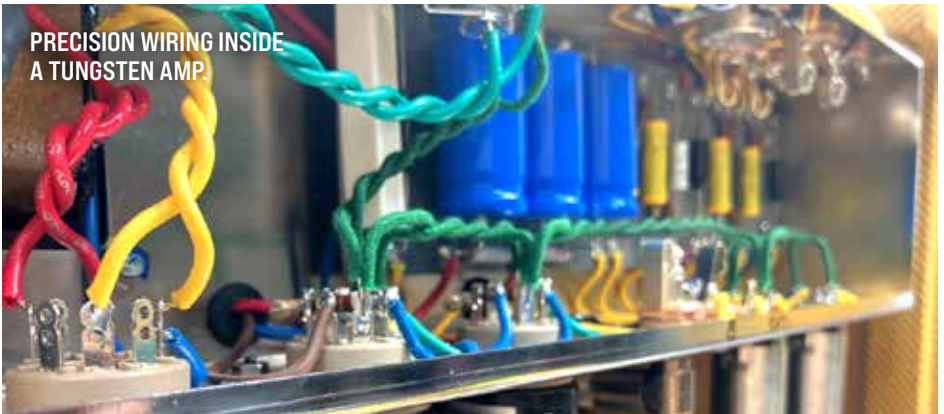
So what are the building blocks for our buddy adam?

"My philosophy is pretty simple. To preserve harmonics and response, you just want a simple signal path. Every resistive element in line is going to affect your tone. I generally prefer tube rectifiers for the feel, and careful selection of power supply filtering is also crucial to right hand bounce. Amp design (which I am still a student of) is a tightrope act and balancing act at the same time. Anything you change on either end of the circuit can throw off everything else, and oftentimes in ways you did not expect. I like surprises and happy accidents, sometimes they are innovations."

Love it. This is the way.

Alright, we have to wrap this up soon but I wanted to share some of Adam's plans for the rest of the year because it sounds like he has some really cool ones in mind...

"I'm really focused on getting The Odessa Project amp line out into the world."





FROM CLASSIC TO PSYCHEDELIC. HERE ARE A FEW OF ADAM'S BEAUTIFUL CABINET AESTHETICS.



It's a semi-custom amp that delves into the tweed/JTM/JMP gray zone. Each one is a little different and built with input from the player. I'm really enjoying the custom color cabs and grill cloths lately. Lots of new ideas percolating. Outside of the shop, my girlfriend and I own a small farm and nursery that specializes in superhot peppers, Hemp/CBD, and gourmet mushrooms."

Yeah that sounds like a nice way to live,

folks. Definitely make sure you check out Tungsten Amplification online here:

<http://www.tungstenamp.com>

instagram: @tungstenamplification

And if you're looking for some new tunes, go check out Adam's old band:

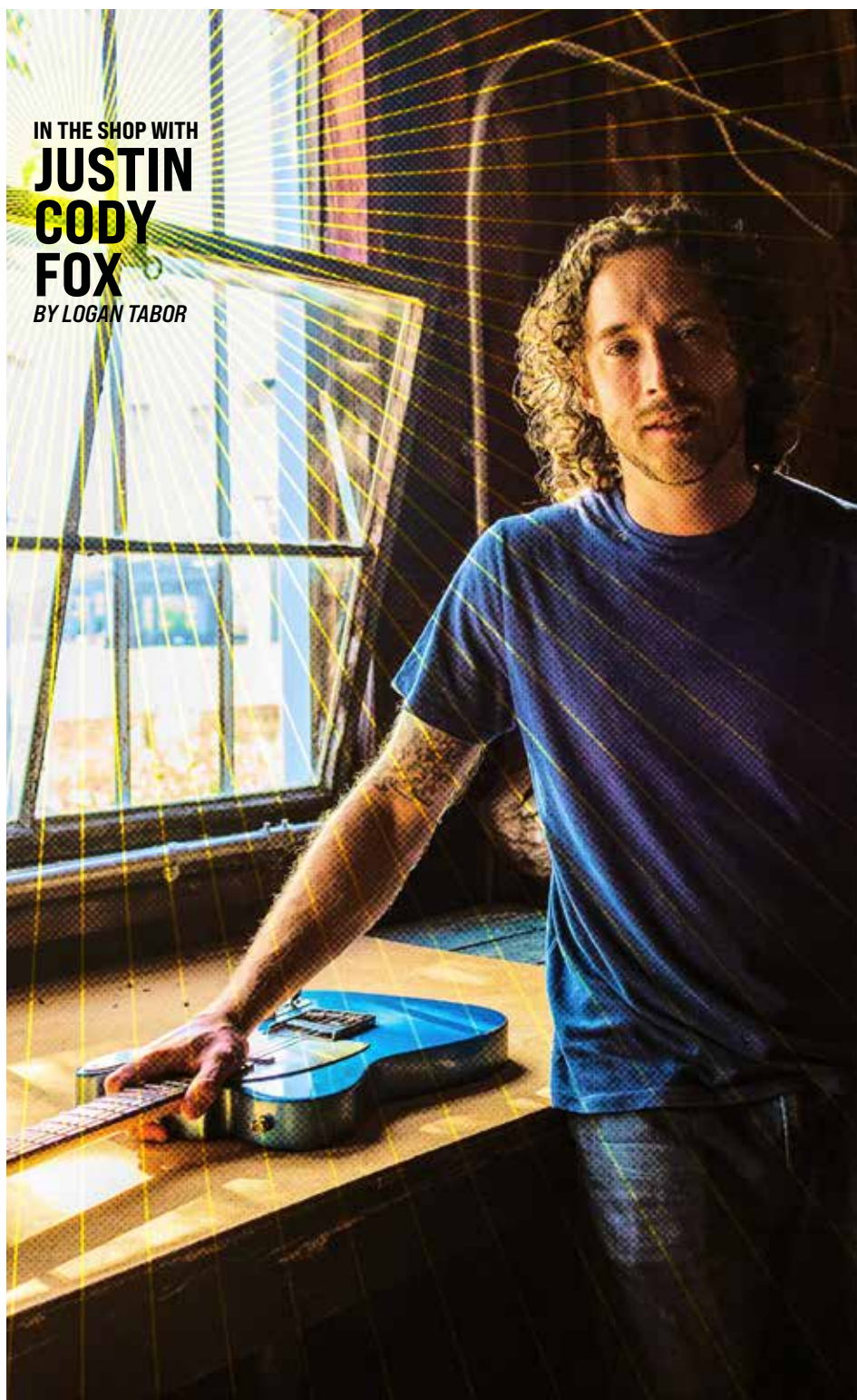
Black Android on Bandcamp.

We want to thank Adam for sitting down with us and taking time out of his day to share all of this great information.

IN THE SHOP WITH

JUSTIN CODY FOX

BY LOGAN TABOR



Over the past couple of years, we've spoken to a number of tone junkies who hail from all over the world and come from all walks of life. Until now, we've yet to explore and share this type of insight from WITHIN Mojotone; I think it's time we take a dive into the knowledge base that is our headquarters, and see what Mojotone's own Justin Fox has to say about his journey through music, sound, time, and space.

Yep, you guessed it, we started from day 1...

"I grew up on a farm in Statesville, NC and my Grandfather (Papaw) almost always had a radio on, aside from the fact that my Father was an active musician when I was born. He had a music room in our house and I remember him showing me 'Abbey Road' by the Beatles and 'Rumors' By Fleetwood Mac. I was probably 4 or 5 then and we always had family sing alongs on Holidays. Each family member would learn a harmony line and eventually pick an instrument. I settled on guitar after many years of listening and watching. It really kicked into gear when my Dad started teaching my best friend guitar when I was 11. I think I was a little jealous so I joined in and became immediately obsessed."

Sounds like the start to any good story. But with Justin being one of the most gear-obsessed people we've ever met, we thought it fitting to see how this fascination with music soon turned into an equal fascination with gear.

"Early on I was learning on a 1972 Martin D-28 that was my Dad's. It was strung with medium strings and needed a setup so I was quite a bear to play. When I really got into Hendrix and SRV I asked for an electric guitar and my parents obliged. I had become so dedicated to the craft that they agreed to buy me a vintage amp when I was 14. We went to Gregg's Guitars in Raleigh, NC and I picked out a 1967 Fender Pro Reverb amp. That really set me off on a quest! I loved everything about it. The

look, the smell and of course the sound. My buddies and myself would spend hours taking turns playing our favorite licks and looking at the amp, by the time I was 16 I was playing full time and spending most of my show pay on gear."

Nothing like a good old-fashioned Pro Reverb to get you fired up! Now, we've all known and known of Justin for quite some time, but he didn't always work with us here at the shop.

Let's see how he got involved in the mojotone world...

"I was working and teaching guitar lessons at a guitar shop called Tony's Guitars. Through word of mouth we started hearing about this musical supply company right down the road. After a few months of ordering parts I realized a good friend, David Shepherd, worked there. David was really the catalyst to my relationship with Mojotone. He was always advocating for the products and keeping me informed on the pickups he was designing. Eventually he suggested that I come up to Mojotone and make some demo videos for the new Quiet Coil Pickups, and I enthusiastically jumped at that opportunity. From then on I began making more and more frequent trips to make videos and started using more and more Mojotone gear for my live shows. Mojotone was a really important sponsor for my 2017 'Homemade Still' Tour; they provided amps, pickups, and swag for the tour. When the pandemic shut the live music scene down I was dead in the water and Michael McWhorter offered me a position within the company. I was excited to jump in the fold and we've been rocking steady ever since."

Ah yes, Michael McWhorter to the rescue; a familiar story to many of us here. Like I mentioned previously, Justin is a massive gearhead.

So now comes the time where we just let him talk about his gear. Seems fitting...



Justin, take it away dude...

"Over the past year and a half I've been in the studio finishing up my 2nd full length album as a solo artist. We did 3 albums as Medusa Stone and it feels surreal to be catching up to my younger efforts. This new record was recorded partially in Nashville, TN with North Carolina's own Audley Freed handling production. Audley is not only a wizard guitarist and producer but a great guy as well. Tommy Brothers of Shoreline Studio recorded and produced the other half of the record with Audley overseeing the project remotely. The album will be out in late fall and I think we have decided on "New Southern" for the name. In the meantime, I have released a

"So, I'm a vintage amp and guitar nut. I started on Stratocasters so I still have a lot of Strats and Teles but, in the past few years I've been on a Gibson obsession and have been lucky enough to get my hands on a 1961 Gibson SG Special as well as a 1964 Gibson SG Junior. There is something different about finding the rock warriors, getting them playing right and putting them into service on the stage. In my opinion a guitar that I can't play a gig with doesn't really light any fires for me. I also have a small army of vintage Fender Tweed, Brown and Black panel amps which I love every one of them. I've used Wilmington, NC made Quidely amps for years and of course a wide variety of Mojotone amps. I'm really excited to get the new Mojotone British 50 with the master volume out on stage."

Yeah Justin really is one of those mildly insane individuals who is constantly making gear trades, upgrades, and the like. He always has something new cooking. Speaking of "something new cooking," we're about out of time here, so I think we should probably see what Justin has planned for the next little while.

few singles from the record and you can check them out on all streaming music platforms. For a direct link to the latest release check out <https://justincodyfox.hearnow.com/>

I'm really excited about the album as a whole and it was just a really fun project from start to finish. I enlisted the talents of not only my band but some outstanding guest talents as well, including Audley himself, Robert Kearns, Fred Eltringham, Jen Gunderman and Rhett Huffman. The album is chock full of Mojotone pickups, amps, and speakers as well! We featured the Mojotone Blackout Tweed on a song called Show Me Your Light. I hope over the next 2 years to continue promoting the album and playing more and more higher quality shows. I appreciate everyone involved with the entire process and I extend a huge thank you to Mojotone!"

You heard it folks. I know most of you have seen Justin jam in our Warehouse Session and our gear demos, which means you're aware that Justin is a world-class ripper. Turns out, he's an incredible songwriter as well. So do yourselves a big favor and go check out his latest release(s). ◻



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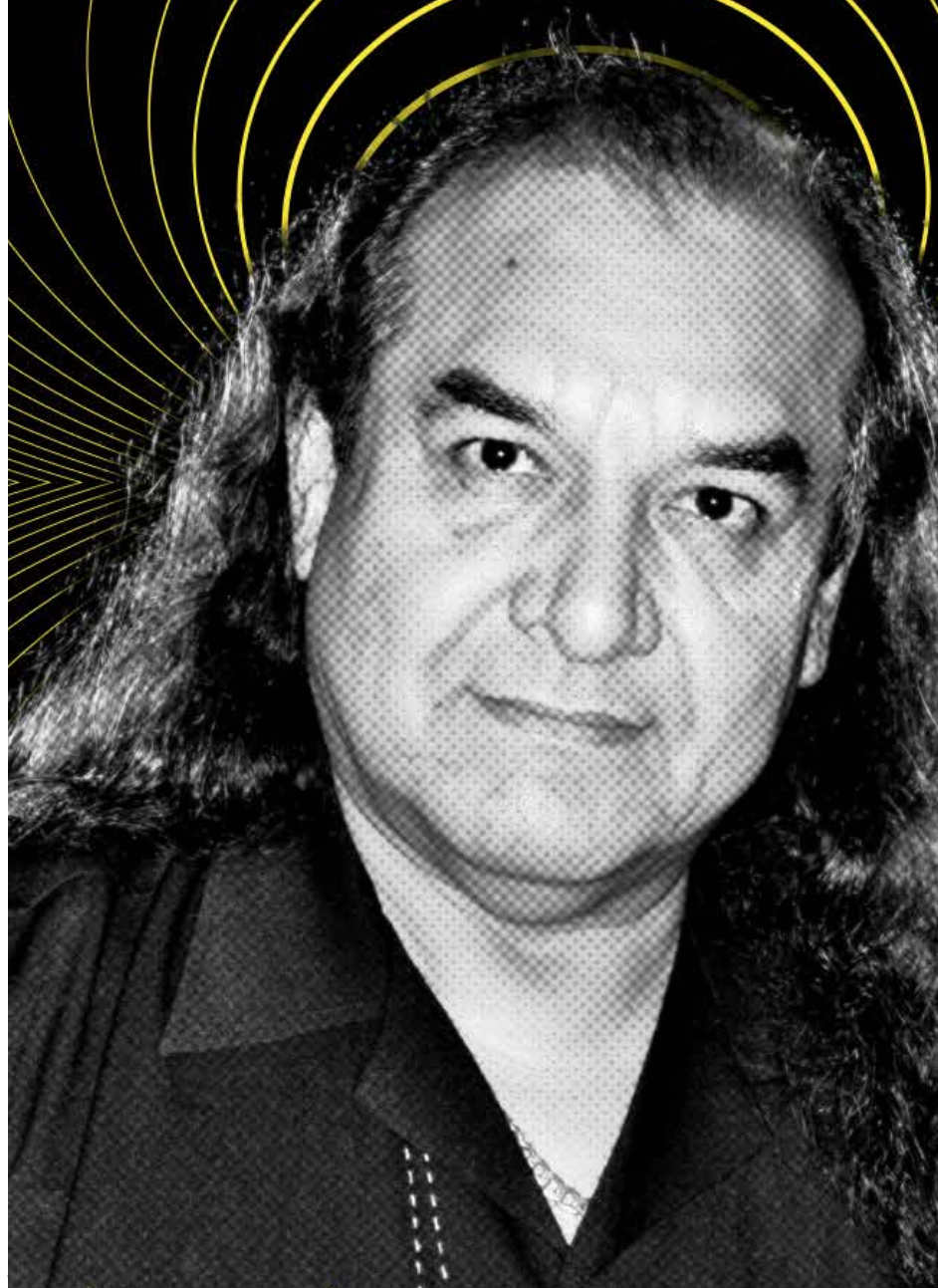
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BY RENÉ MARTINEZ: THE TEXAS GUITAR WHIZ



“One small moment can make all the difference to your life.”

One night when I was about nine years old, my brothers and I were playing around after we'd finished homework. My dad was sitting and strumming his guitar, singing along, as he often did. But this time, something caught my ear. I said: Hey guys, I'm going to go listen to dad.

This was the moment that turned out to be the start of everything for me. It was the start of my life with the guitar, as a musician, as a repairman, and as a tech working with everyone from Stevie Ray Vaughan to Prince – from Carlos Santana to John Mayer. One small moment can make all the difference to your life.

I sat there and watched my dad, how he moved his fingers. When he finished the song, I looked at him and said: How do you do that on a guitar?

He showed me three chords, C major, F major, and G major. Soon, my mom ushered us off to bed. After a while I got up, snuck out, grabbed that guitar, and went back to my bedroom. Dad's guitar was really hard to play – the strings on it were so high. But I sat there and learned those chords.

I couldn't wait to wake up the next morning and show him what I'd done. He said: Okay, you want to learn more, we'll call your cousin. He plays a little guitar.

That afternoon, my cousin showed up with a Fender electric guitar and amplifier. He showed me the blues, the boogie-woogie. He told me he couldn't show me any more – that was all he knew. But I didn't want to put it down. I had to continue.

From then on, I always had guitar in my head.

Beatles chords

“I had no idea you could put new strings on a guitar.”

I grew up in Dallas, Texas, where I was born in 1952. I'm second generation Mexican-American. My parents always wanted the best for us – my grandparents even more so. They would say: you don't need to be a bricklayer, you don't need to be a manual worker, you need to get a job with a suit and tie. That kind of notion. When Mexican people came over to the States, they wanted to have a better life for their family, for their children.

Then in 1963, the Beatles showed up and shook radio waves across the US. I started taking guitar lessons at a YMCA, and I brought my dad's guitar along. The teacher took one look at it and said: I think you need to get this string replaced.

A string had broken, and dad had just tied it together in a knot, which meant I couldn't play the note on that one fret. When I went back and told dad, he took me down to the drug store. I thought we were going to get medicine or something. But when we get there, my dad says we are here for guitar strings. I had no idea you could put new strings on a guitar. This was another step in my guitar education.

I was getting good at moving my fingers to the next chords without looking at my hands. But I wanted more. I wanted to learn how to play 'I Want To Hold Your Hand' and other songs besides The Beatles. But I couldn't get that at the YMCA: I was on my own.

The Ventures and a Maxitone

“I was transposing in my head a song that nobody ever taught me.”

I was determined to learn how to play the songs I heard on my transistor radio as we rode the city bus back and forth to home from school. So I worked out the chords in my head by starting on the C chord I knew. When they changed the tone, I'd say to myself: This has got to be a G, this has got to be an F, this has got to be



an A. And so on. I was transposing in my head a song that nobody ever taught me.

Once I got home, I'd wait for the song to come back on the radio, and lo and behold, I'd learned it! I thought: Oh, this is easy. But not every song started out with a C chord, and I knew I had to go further.

One day, I was going through some LPs at a store, and a little booklet caught my eye. "Play Guitar With The Ventures!" was splashed across the cover. Inside, it contained finger patterns for four tunes. It had recordings to help you play along on rhythm guitar, lead guitar, or bass guitar. There was even a guy who'd introduce each part. I bought it and took it home immediately.

By now I had a cheap Maxitone guitar, which kind of looked like a Stratocaster. My father had bought it for me along with a tiny Kent amplifier. I tuned up my Maxitone and played along to 'Walk, Don't Run' by The Ventures. I was so excited that I ran

into the kitchen and told my mother: Look, I can do it!

That was the start of discovering music through books.

Hello cars

"Although I didn't know it, this was the beginning of guitar repair for me."

When I got to high school, I wanted to go to the private Jesuit College Preparatory in Dallas that all my mates attended. But private has a price tag, and at first, I didn't think I'd be able to go. My dad was running a car repair business, and he said he would put me through this school if that's what I wanted. I told him I'd do whatever I could to help him pay for my education. And he agreed.

My dad showed me how to do body work and fender repairs, which was alright. I didn't like hitting things with hammers. But what I really enjoyed was painting the cars.

We painted with what was called straight lacquer – or nitro-cellulose lacquer – which of course is what the great old guitars used. Although I didn't know it, this was the beginning of guitar repair for me. I got so good that my dad told me I could do all the paint jobs and he'd do the body work.

While I was working for him, my dad got a contract with a General Motors company to fix up repossessed cars. I started earning good money painting after that. With the extra cash, I decided to get some real guitar lessons, and I knew exactly what I wanted to learn: ever since a neighbor showed me an album by Los Romeros, flamenco was a done deal in my head.

Hello guitars

"I took him outside to look at Darryl's Benz, and the guy asked if I'd ever thought about refinishing guitars."

I was about 19 when I found my teacher, Darryl Saffer, at Frets & Strings. It was the only classical-guitar shop in Dallas. Turns out that Darryl personally knew the Romeros. I remember thinking: How strange is that? Of all the shot-in-the-dark teachers I could meet, I find this one.

Well, that's how my life has unfolded.

One day at a lesson, Darryl asked me what I did for a living. I told him about the car painting. A week or two later, I drove a customer's car to Frets & Strings for my lesson so I could deliver it afterward. Darryl was impressed with my handiwork. He asked me to paint his old Mercedes-Benz, and I agreed.

When I went to deliver the refinished car to Darryl, he was in a lesson. While I waited, the guy at the register asked for my name. Oh, he said, so you're René. Let's go take a look at the car. I took him outside to look at Darryl's Benz, and the guy asked if I'd ever thought about refinishing guitars. I said: Well, I don't know how to do that. What kind

of paint would I need?

He smiled. The same kind of paint that you put on this car.

That's when I said goodbye to cars and hello guitars.

There wasn't much refinishing work at first, so I'd just go into the store and hang out. The owner there was David Caron, who I later found out was the principal violin maker in Dallas. He'd been making fiddles forever. When there wasn't much going on, he and the other guy working there would take me on tours around the shop.

At first it was the tools. I'd learn about sharpening chisels and knives and stuff. Next we got into french polishing, then working with color and matching cosmetic work. I got really good at putting color back after a repair and making it look like nothing had happened. I had been mixing paints with cars, so it came pretty naturally. I realize now that this was where I started getting into guitar repair. I told my dad this what I wanted to do, and he said: Go right ahead.

Charley's guitar shop

"I was moonlighting, playing the guitar and working at Charley's."

Frets & Strings changed hands, and when David Caron left, I knew it was my time too. At first I started doing guitar repairs in the little apartment I had. I wasn't getting a lot of business. This was going to take time.

One day in 1976, a guy called me and said he needed a guitar repaired. He said his name was Charley Wirz and he'd just opened a guitar shop. He came over with a 12-string Fender acoustic, said there was something wrong with it. I told him you can't fix these necks, they're either good or they go bad.

I was already proficient in repairing from my time at Frets & Strings. I could do anything: re-fretting and refinishing,



THE "RIGHT HAND MAN" WITH HIS FORMER EMPLOYER.

setting up, re-gluing bridges, even fixing fiddles. Charley must have realized I knew what I was doing, and he hired me to do repairs at the new shop.

There was no other store in Dallas like Charley's Guitar Shop. It was just him and me. We'd do guitar repair, we bought and sold, we traded – used instruments only.

My other big dream at the time was to be a concert classical guitar player, so my days were stacked. I was moonlighting, playing the guitar and working at Charley's. I'd be at the repair shop from 10 to 6, then go and play in a hotel lounge from 6:30 to 9. The work was hard, but I didn't mind – I was doing what I wanted to do.

The SRV moment

"I got to work on Jimmie's guitar, and he told us about his little baby brother, Stevie Ray Vaughan."

I was at Charley's for 13 years, and we met a whole lot of people during that time

– people from all over Dallas, musicians who didn't have a whole lot of money, well known stars, guitar rock'n'rollers, bands who rolled into the city from out of town like Thin Lizzy or Chuck Mangione. They'd all heard you could get a good used guitar or get yours fixed at Charley's. We were fairly priced, and we did good work.

In 1981, I met Jimmie Vaughan there. He did some business with Charley, who waved at me, said: That's René back there, he does all the guitar repair. I got to work on Jimmie's guitar, and he told us about his little baby brother, Stevie Ray Vaughan.

One day, Stevie came into town to play at a local bar, and Charley said: Let's go down there and check him out.

This was the first time I saw Stevie Ray Vaughan play.

...but that's a story for another time. ▣

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