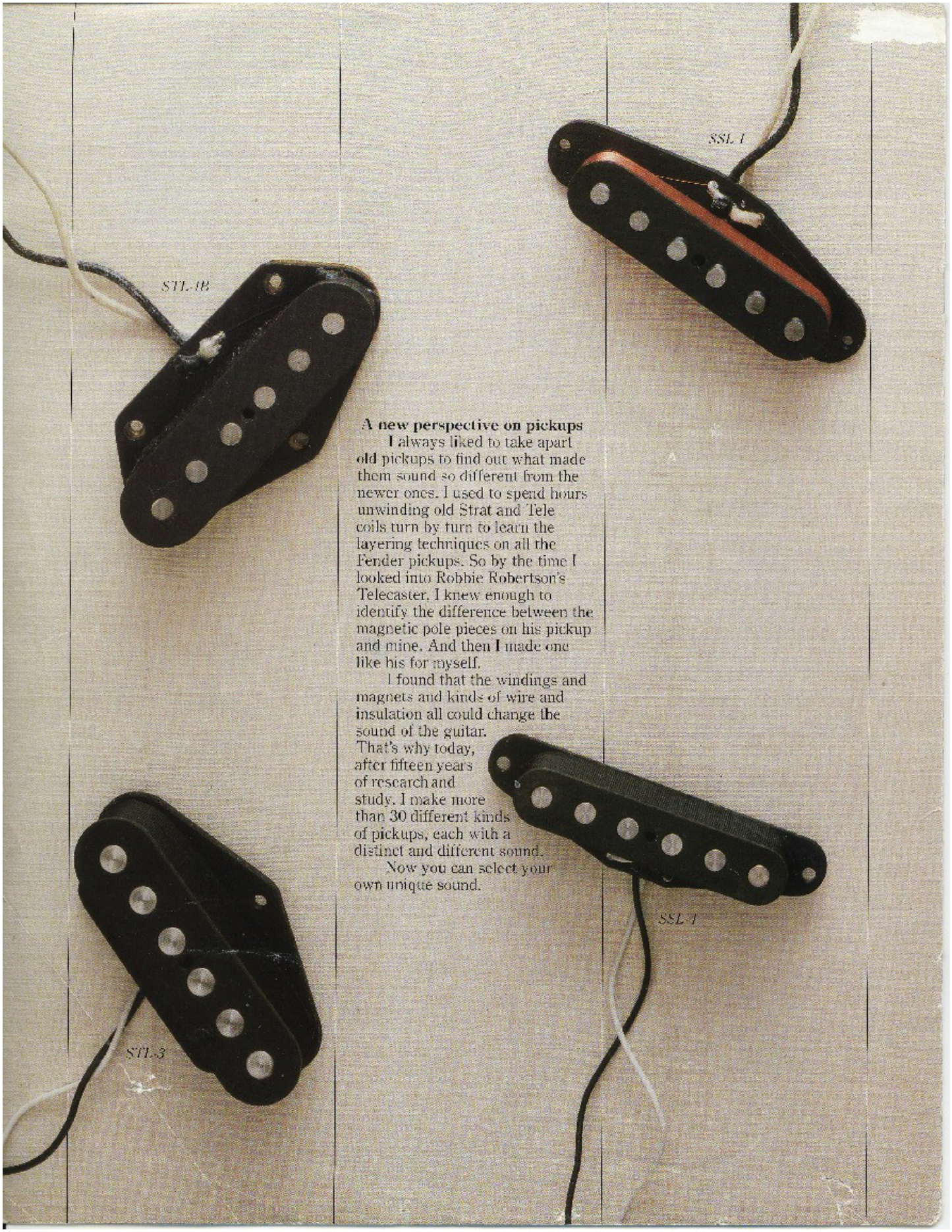
Seymour Duncan

Talks About Electric Guitar Pickups

By the time I was sixteen I was playing guitar eight or ten hours a day. I played lead at clubs and in concerts on the East Coast, but I was frustrated because I couldn't get the sounds I wanted out of my Telecaster.

Then one night we played on the same billing with another group that had Robbie Robertson on lead. He was a fantastic player, and soon after that became famous as a member of The Band. He had a Telecaster, too, but when we played between sets, trading off licks, I couldn't match his unique sound.

I asked him if he would open up his guitar and show me what he had inside. He did, and the first thing that I noticed was that his pickups were different from mine.



A new perspective on pickups

I always liked to take apart old pickups to find out what made them sound so different from the newer ones. I used to spend hours unwinding old Strat and Tele coils turn by turn to learn the layering techniques on all the Fender pickups. So by the time I looked into Robbie Robertson's Telecaster, I knew enough to identify the difference between the magnetic pole pieces on his pickup and mine. And then I made one like his for myself.

I found that the windings and magnets and kinds of wire and insulation all could change the sound of the guitar. That's why today, after fifteen years of research and study, I make more than 30 different kinds of pickups, each with a distinct and different sound.

Now you can select your own unique sound.

Telecasters and Stratocasters®

STL-1B: Vintage "Broadcaster" Tele Lead
STR-1: Vintage Tele Rhythm

Leo Fender's 1948 Broadcaster solid-body guitar revolutionized music. The magnetic pole pieces in the pickup magnetized the strings, so when the strings vibrated, they moved a magnetic field through the coil windings at the same frequency. That set up an alternating current that went to the amplifier to be changed back into sound.

Today those vintage instruments are in great demand. Masters like Roy Buchanan and James Burton like the rich distinctive sound they get from their ancient Telecasters (for legal reasons, Fender dropped the name "Broadcaster" in 1950).

The pole pieces in the pickups on those vintage instruments have slowly lost magnetic strength over the years, and that's part of the reason for the perfect blend of top and bottom frequencies.

If a pickup is supposed to be a "vintage", it should be exactly like the original, down to the smallest detail. That's why I magnetize all my pole pieces myself, instead of using pre-magnetized Alnico, and I've developed a two-stage *Duncan Aged* process that gives my pickups the same field strength as the originals.

The Broadcaster had a ferrous elevator plate on the bottom of the pickup to reflect the magnetic field up to the strings, and so my STL-1B does, too. The STL-1B duplicates the fatter, most sought-after early Telecaster sound.

STL-1: Vintage '54 Tele Lead
STR-1: Vintage Tele Rhythm

In 1954, Fender made some changes in the Telecaster lead pickup. He extended the two center pole pieces closer to the strings. He used smaller diameter magnets, too; the result was a strong clear response to higher notes, a bright and biting sound.

The STL-1 has the same distinctly vintage look as the "Broadcaster", with black waxed string wrapped around the coil and fibreboard bobbins lacquered for insulation. And the magnets are *Duncan Aged*. The STR-1 rhythm pickup is wound and magnetized to perfectly balance either the STL-1 or the STL-1B.

STL-2: Hot Tele Lead
STR-2: Hot Tele Rhythm

I worked for a few years at the Fender Service Center in London back in the early 1970's, and repaired guitars and pickups for musicians like Jeff Beck and David Gilmore. I learned how to wind a really hot Tele, one with high resistance and high output. My STL-2 sends a lot of current into the amp. It delivers a fat full punch on the low frequencies, while still retaining "the edge" many players want. The coil is extra sensitive and, combined with custom-length flat pole pieces, it picks up the faintest string vibrations for great sustain.

STL-3: Quarter Pound Tele Lead
STR-3: Quarter Pound Tele Rhythm

I wanted a Tele pickup with enough power to compete with humbuckers, and so did a lot of other musicians. I tried many methods, but all the extra windings necessary changed the size and shape of the pickup. The ideal unit would plug into an ordinary Telecaster without modification.

I found a way to do it, after a lot of research. I discovered that the stronger and wider magnetic field created by quarter-inch-thick pole pieces increased the output, while letting me use a special winding that wouldn't sacrifice the high end or make the sound muddy.

The STL-3 has great treble bite and a full powerful midrange; it's the sound I always knew I wanted but couldn't get, and it's one of my most popular pickups today. It's unmistakably different. I hand polish the Quarter Pounder pole pieces so people can *see* the difference.

SSL-1: Vintage Staggered Strat

Fender introduced his 3-pickup Stratocaster in 1954. The modern guitars look the same, but the pickups – and the sound – haven't been the same since CBS bought Fender out in the early 60's. Fender cut the pole pieces to different lengths for each string to get the maximum of both sustain and tone; the unexpected interphasing of the staggered magnetic fields gave birth to the unique vintage Strat sound.

My SSL-1 has the exact appearance and the elusive sound of those early Strat pickups. I hand grind a bevel on each pole piece. I wind the coil with the same gauge wire Fender used, with the same film insulation, and I keep the wire tension balanced during

each carefully-counted turn. Every detail is important to get the fat full sound, the smooth unharsh top end, that made the vintage Strat famous. The magnets are *Duncan-Aged.*

SSL-1L: Vintage Staggered Strat, Left

I designed the SSL-1L for the right-handed guitarist who is after the classic Jimi Hendrix-type sound. The SSL-1L has a left-handed staggered magnet pattern. Other than that it's exactly like the SSL-1.

SSL-5: Custom Staggered Strat

This is my "Seymourized" version of the vintage Strat – it looks like the SSL-1, but it has stronger magnets and a custom coil to pick up the most subtle string movements – great for harmonics. The SSL-5 really growls. It's not as bright as the SSL-1, but has a fuller tonal range.

SSL-5L: Custom Staggered Strat, Left

See SSL-1L.

SSL-2: Vintage Flat Strat

The pole pieces on SSL-2 are all the same length, and project slightly above the flatwork. So the magnetic field is smooth and even. The sound is warm and fat, not as bright as the SSL-1 and with less midrange. Complete vintage appearance.

SSL-6: Custom Flat Strat

Looks just like the SSL-2, but is "Seymourized" (like the SSL-5) with custom magnets and coil. It's not as hot as the SSL-3 or SSL-4, but it has more punch than the standard Strat pickup and a more balanced response.

SSL-3: Hot Strat

This is the next step up: hotter than the vintage models, with longer Alnico V pole pieces flush with the top of the bobbin and extra coil for extra power. More sustain, more output than SSL-1 and SSL-2.

SSL-4: Quarter Pound Strat

Big quarter-inch polished magnets and a powerful coil winding give the SSL-4 more than twice the power of a stock Strat pickup. This is just about my most popular Strat; it has a punchy sound, clean at lower volumes and it delivers high output when cranked. Leads with this pickup easily cut above a humbucker.

Tapped Strats and Teles:

STL-2T: Hot Tele Lead-Tapped
STL-3T: Quarter-Pound Tele Lead-Tapped
SSL-3T: Hot Strat-Tapped
SSL-4T: Quarter-Pound Strat-Tapped

I make tapped versions of my hot pickups. Partway into the winding I stop and bring a lead wire out, then finish the winding. Tapping has been common in transformers since the 1920's, because it lets you change the voltage output at the flick of a switch. You can use part of the coil or all of it to change the sustain and tone and volume.

I stock STL-2T, STL-3T, SSL-3T and SSL-4T, but I can also custom-tap most of my models. And I can bring more than one tap out, too, at extra cost. Full wiring instructions are included.

My pickups are potted

When I took apart old Fender pickups, I saw a waxy substance on the wires. Fender soaked the pickups in hot wax to squelch microphonic feedback, which happens when sound waves penetrate the pickup and vibrate the coil wires. I've improved on the process by using a multiple-saturation temperature-staged method that permeates a special wax-based solution all the way to the center of the coil. I call it the *Dunsqueel* process. It gives your pickup the full exploding power and accurate response you want without microphonic feedback.

Reverse winding and reverse polarity

My Strat and Tele pickups may be ordered with a RW/RP (reverse winding/reverse polarity) specification. By using a RW/RP pickup simultaneously with one of our regular pickups a humbucking effect will be achieved which considerably reduces extra noise and hum. When used alone, the RW/RP pickup will sound exactly as its standard winding, standard polarity counterpart.

You can also order my pickups with a RW (reverse polarity formation. The guitarist will occasionally encounter a pickup which was produced with either an 'N' top polarity or a reverse (non-standard) winding direction. Using one of these pickups with any of our standard 'S' top polarity pickup will result in a thin, "out of Phase" sound. These 'N' top polarity pickups are not typically encountered, but the problem does exist. Only one of my pickups made with a RW specification will provide a solution.

*Telecaster, Stratocaster, Tele and Strat are registered trademarks of CBS, Inc. Seymour Duncan is not in any manner associated with CBS, Inc.

SSL-4T

Humbuckers

The '59
SH-1B: Bridge
SH-1N: Neck

The most important thing about the vintage "Patent Applied For" pickup was its warm smooth sound and sustain unlike anything heard before. I wanted to make a humbucker that would duplicate it in every way.

Before I went into production with the SH-1, I talked to Seth Lover about his original models. He used a small-diameter wire with a dark brown enamel coating; but after the early 60s, Gibson started using a different film insulation. Seth said he wrapped more turns of wire in the old days, and used a longer magnet. So I made mine like his.

If you look down through the square pin hole in the bobbin of the SH-1, you can see the dark enameled wire. Seth's kind of bobbin wasn't available any more, so I had to track down a manufacturer who could mold them the right way. And then I had a long search to find the right adjustable pole pieces: *HI-HAT* fillister head screws, which have more mass. You can move the magnetic field closer or further from your strings to make the pickup more responsive to your personal picking style.

You can order my '59 humbucker in either neck or bridge models. The neck model is designed so that its volume output is balanced with the '59 bridge humbucker, and so its tone has just the right amount of bass.

The Jazz
SH-2N: Neck
SH-2B: Bridge

The ferrous pole pieces and studs on humbuckers aren't actually magnets. They conduct magnetism up from a single bar magnet nestled under the coils. The screws touch one pole, and the flat nickle-plated studs touch the other. The SH-2 has a specially designed magnet and coil to capture and reproduce the clean, clear tones and fast runs that the jazz player is after.

It can be ordered in either neck or bridge models. The Jazz neck humbucker sounds great when used with my JB or Duncan Custom models in the bridge position.

The Mag
SH-3: Recommended For Bridge Position

After I put the '59 and the Jazz models into production, I couldn't help tinkering with the design. I wanted to blend the advantages of a single coil pickup with the full-toned warmth of the humbucker.

I took out the bar magnet and replaced the screws and studs with .188" rod magnets. I used four-strand shielded cable instead of single conductor wire so you can split the coils electrically: out of phase or in phase, series or parallel, with or without the humbucking effect for additional variations in tone.

The result is my SH-3: a brawny versatile humbucker with the edgy brightness of a single-coil pickup, with the option of humbucker tone and warmth.

Full wiring instructions are enclosed with every pickup.

The JB Model
SH-4: Recommended for Bridge Position

My favorite all-around humbucker is the JB Model. That's the one I use myself. It has a specially-designed Alnico bar magnet, similar to the SH-1. And like all my humbuckers, each coil has exactly the same number of turns of wire so the output is perfectly balanced.

The SH-4 is very sensitive with the best harmonics you ever heard. It gives you the best of both worlds: from sweet warm tones to raw rock and roll. Try it with our Jazz neck humbucker as your rhythm pickup for a great combination.

Duncan Custom
SH5: Recommended For Bridge Position

I wanted to beef up the sound of the old "Patent Applied For" humbuckers—make the sound a bit brighter without losing the warmth and response. It was a challenge: I had to make it mild and strong at the same time.

I found a way to wind extra turns without destroying the tone, but then I had to develop a thin ceramic magnet that would enhance the brightness of this new winding. The SH-5 has perfect balance of power, sustain, and distortion.

In June, 1955, an inventor named Seth Lover applied for a patent on what he called a hum neutralizing magnetic pickup. It had two coils wired together and two opposing poles. The patent was granted to the Gibson company in 1959, and that original pickup is now famous as the "Patent Applied For" humbucker.

The humbucker eliminates annoying interference hum caused by nearby amps and other electric equipment, because the two coils pick up the interference as equal but opposite currents, which cancel each other before the interference reaches the amp.

You can order any of my humbuckers from stock in your choice of double cream, double black, or zebra (one cream, one black) bobbin colors.


SH-1B

Duncan Distortion
SH-6: Recommended for Bridge Position

There are all kinds of tradeoffs in pickup design. The strength of the magnet and the resistance of the coils must be carefully balanced. A pickup with lots of windings and a strong magnetic field generates high voltage — the hot sound — which gives you a lot of sustain and output.

You also lose some clarity of tone on the high end. And the signal moves through a lot of wire and the frequency gets distorted. Lots of people love this solid raw rock & roll sound.

The Duncan Distortion has the highest output of all my stock pickups. I gave it a massive ceramic magnet and symmetrical coils with tremendous power. And it has four-strand shielded cable so you can use it in phase or out of phase, series or parallel, with or without the humbucking effect. This is one of the most sought-after humbucker sounds.

Seymourizer II
SH-7: Recommended for Bridge or Neck Position

The Seymourizer II used in the neck position is designed to balance with the Duncan Distortion as the bridge pickup. The SH-7 is almost like the SH-6, but with fewer coil windings so it delivers more of the high end, along with a bit less volume. It has the four-strand cable, too. I send complete wiring diagrams with all my pickups, so you don't have to be an electronics engineer to install them.

SCPB-1: Vintage Single Coil Precision Bass*
SCPB-2: Hot Single Coil P-Bass
SCPB-3: Quarter Pound Single Coil P-Bass

The electric bass guitar was another of Leo Fender's inventions. He brought out the Precision Bass in the early 50's and revolutionized music. The pickup looked much like the Telecaster pickup — the same black fibre flatwork, the same black string wrapped around the coil, and waxed cotton lead wires. It had a full warm sound with unusual brightness. My SCPB-1 duplicates it down to the smallest detail of vintage appearance, and it has *Duncan-Aged* magnets for the authentic vintage sound.

I also make the SCPB-2, a *hot* model with higher output and a guttier bottom end, and the SCPB-3 Quarter Pound model, with bigger magnets and the hottest sound.

*Precision Bass, P-Bass and Jazz Bass are registered trademarks of CBS, Inc. Seymour Duncan is not in any manner associated with CBS, Inc.

SPB-1: Vintage P-Bass*
SPB-2: Hot P-Bass
SPB-3: Quarter Pound P-Bass

In 1957, Fender changed the Precision Bass to a two-coil pickup, wired together like a humbucker to eliminate interference hum. He also put in two pole pieces for each string, because the greater side-to-side vibration of the bulky and massive bass strings tended to take them too far out of the magnetic field, causing a fade in the signal. My SPB-1 is a look-alike and sound-alike of the vintage pickup, with balanced coils for the distinctive smooth output, increased treble and full midrange response.

The SPB-2 is a hotter model, with increased output and greater low end response for a full sound.

The Quarter Pound SPB-3 has larger pole pieces to expand the magnetic field and extend the frequency range from low to high end for a fat full and punchy sound. The Seymourized design balances the coils against the stronger magnets for great sustain and harmonic register.

Vintage Jazz Bass:*
SJB-1B: (Bridge), SJB-1N (Neck)

Hot Jazz Bass:
SJB-2B (Bridge), SJB-2N (Neck)

Quarter Pound Jazz Bass:
SJB-3B (Bridge), SJB-3N (Neck)

Pickups vary in the amount of resistance they have, measured in ohms. A typical single-coil guitar pickup has a resistance somewhere in the neighborhood of 6,000 ohms, but a bass pickup can be nearly twice as high, over 10,000 ohms. Generally, the

Custom Rewinding

SCPB-1

higher the resistance, the greater the bass response. My SJB-1 gives you the mellow sound of a rare early-60's Fender Jazz Bass, with two sizes offered so the magnets are perfectly spaced for even string response.

The SJB-2 is hotter and gives you more punch and output—more resistance for an increased low-end response.

I developed the SJB-3 for the studio or concert player who needs a strong attack. I designed the coil to balance with the larger quarter inch magnets to deliver great sustain and that fuller sound.

I started rewinding pickups out of necessity. I was on the road with only one guitar back in 1965 and at a gig in New Jersey a girl country singer used my Telecaster and strummed so hard that she caught the high E string on the back pickup and broke the wires in the coil. So I had to play lead with just a rhythm pickup, which didn't work so well.

Nobody knew how to fix it. Finally I went to a transformer shop and learned enough to try to rewind it for myself. Then I checked the resistance and the coil was overwound by a thousand ohms, which made a hot smooth tone with extra sustain. Friends liked it, and I started rewinding pickups for other people, and I've never quit.

Some people think that the higher the resistance, the hotter the output, but it's more complicated than that. It's not just the number of turns or ohms that make a pickup sound right. The layering of the wire is equally important. You need the perfect combination of wire gauge and insulation. Winding tension, pitch, and traverse are critical. It takes a lot of skill, technical knowledge, and the best coil winding equipment and tools.

My pickups have been used and tested by professional musicians in every situation, on the road and in the studio. My research goes on. My collection of technical papers and historical data reaches far back into the past. I'm in the shop nearly every day trying out new ideas and searching for new electronic approaches to sound.

A lot of unique sounds are still waiting to be discovered—new combinations of coils and magnets and controls and switches. Over the years I've helped a lot of guitarists find their own sound with my replacement pickups and custom rewinding service; I'll rewind any pickup to stock, vintage, or to your personal specifications.

Or I can Seymourize your pickup: rewind it to *my* personal specs.

If you have a question or an idea, please don't hesitate to write me. Or give me a call.

SPB-3

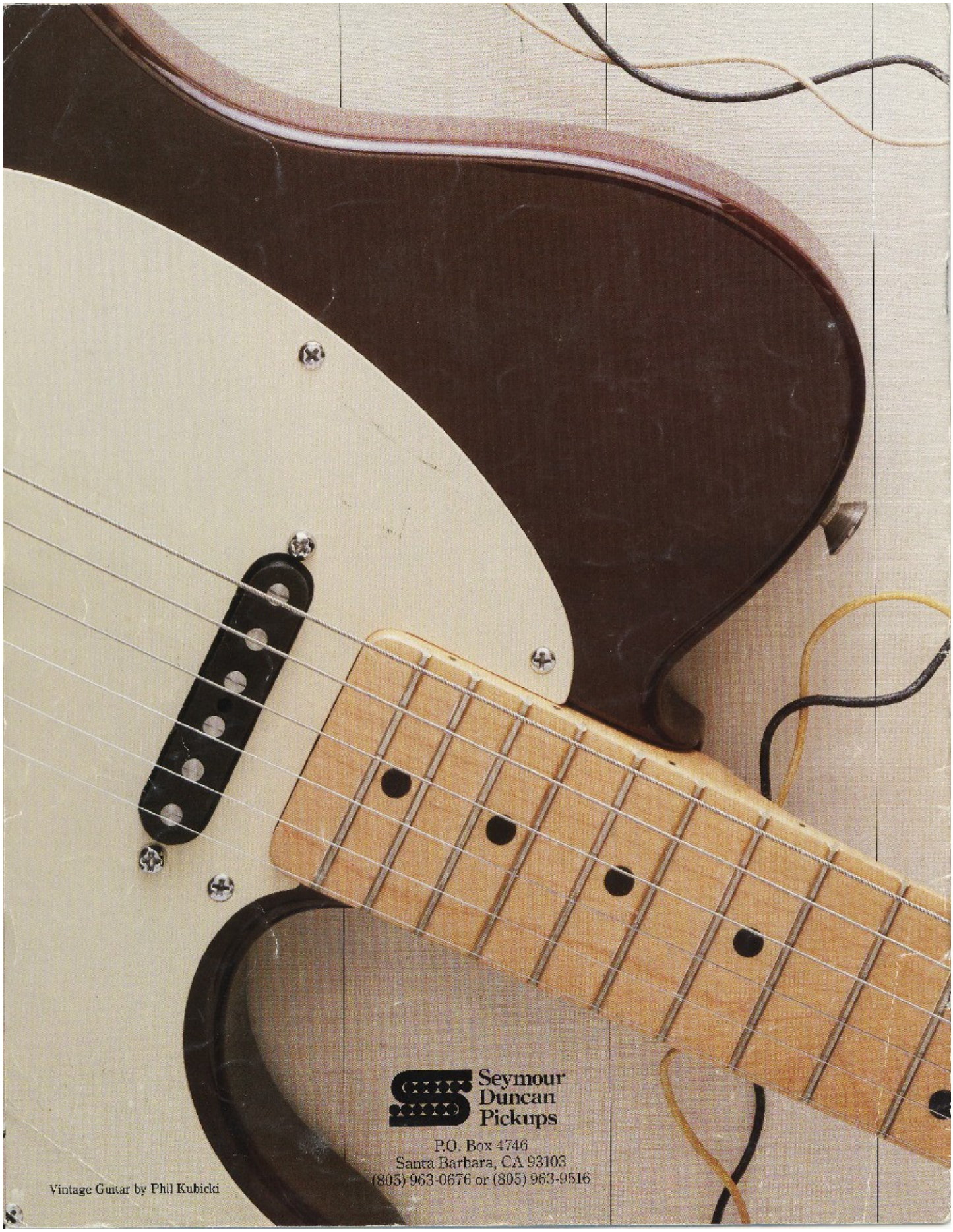
SJB-1N

SJB-3B

My guarantee

I know you'll be pleased with my pickups. But if for any reason you are not satisfied with the sound or the construction, return the pickup and your receipt to your dealer within 21 days for exchange with another pickup of equal value. (Sorry, I can't guarantee against neglect, abuse or alteration.)

Seymour Duncan
Santa Barbara



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