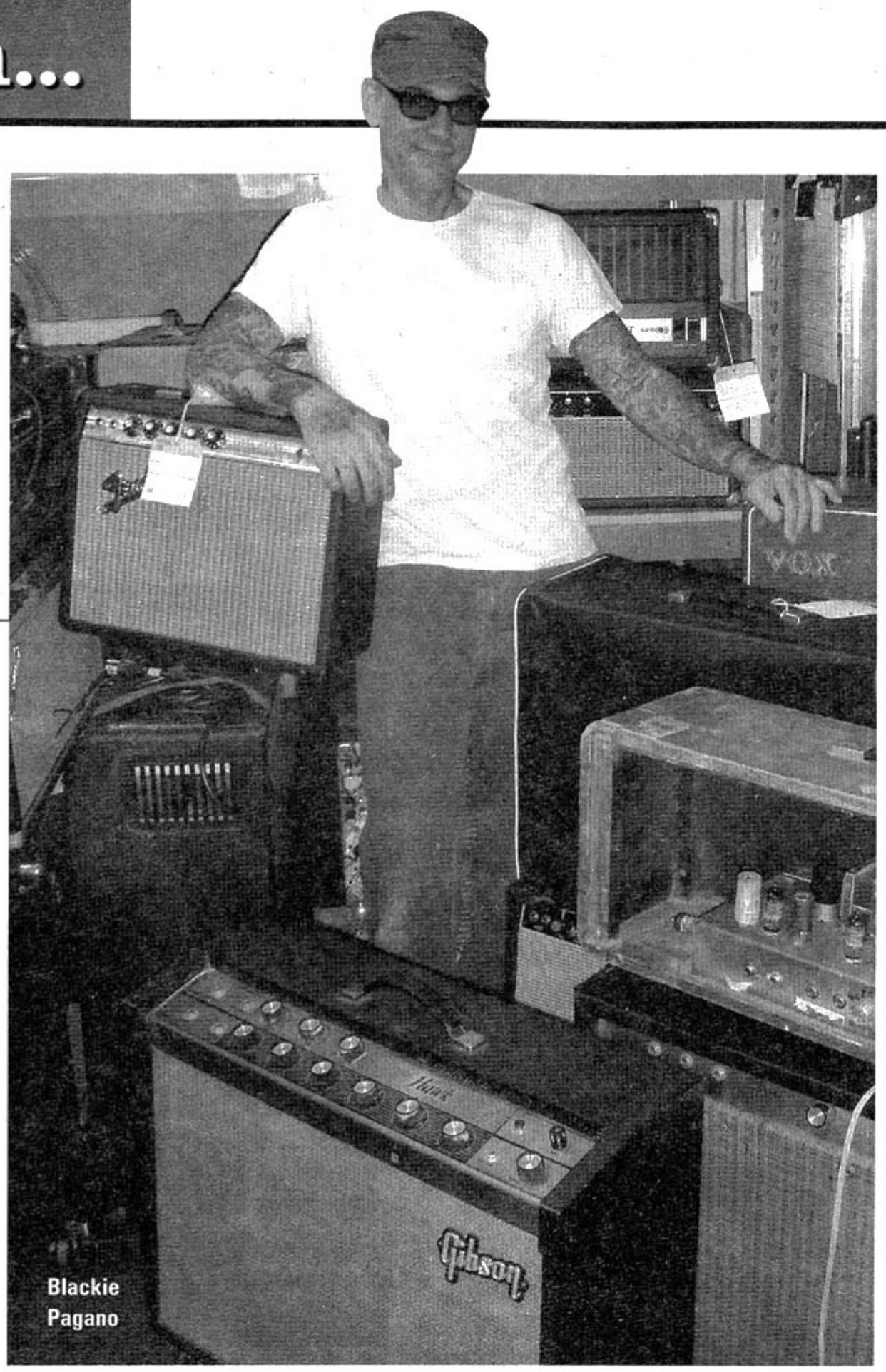
Blackie Pagano: Secrets to Vintage Tone

by DAVID JUNG



Blackie Pagano

Among the plethora of amp repairmen, Blackie Pagano stands as an anomaly. Versed in electronics, physics, and tone bending, Pagano is not just another run-of-the-mill sound man, he's an artist who can fix, upgrade, restore, or mod nearly anything that makes or produces music. Not only has he serviced amps for a respectable list of talent (Cheap Trick, Lou Reed, Sheryl Crow, The Strokes, etc.), he builds some of the sweetest custom amps on the planet.

We recently sat with Blackie in his shop in one of the hippest sections of downtown Los Angeles, to talk about the secrets of good tone.

There's something about the sound of vintage amps – their aged parts, the materials used in the '50s and '60s, etc. Is it possible to make a better amplifier today than you could in the '50s?

Here's the thing... the word "better" is tricky when it comes to musicians. Everybody has a different idea of what's better. As far as reliability goes, probably not. Guys like Leo Fender, Jim Marshall, and Nathan Daniel... they invented the sounds of rock, and were schooled in the techniques of physical amplifier design and layout. Those amps gave people the tools to create rock, and they used – and *abused* – those amps to make classic sounds.

If you plug a Les Paul into a Marshall, you know what you're going to get – a kick-ass, classic sound when everything is working and it's nicely tweaked. A Telecaster and a Twin – great country music.

Part of the evolution of musicians and designers involves wanting things to be better. But then there's that "Wait a minute" moment... Maybe we want it worse? Maybe we want to start looking at the cheap and weird stuff that makes unique sounds. A little less of what we have a lot of, and a little more "uniqueness."

Can we make amps today "better" than they were? Sure. Technology has changed. There are more variables possible today. But again, beauty is in the ear of the beholder.

Let's talk tubes.

The main problems with new tubes – and this goes for all them, whether they were made in Slovakia, China, Russia, etc. – is quality control and availability of materials. Quality control isn't what it was, for obvious reasons. Manufacturers are only interested in selling. But they sell it cheap, so at the other end, you can pick through a litter of tubes, for not a ton of cash, and hopefully find a few good ones.

There are a lot that work very well. But because of changes in materials, they don't have the longevity old ones have.

Is it just longevity, or is it also about quality of sound?

It's sound, as well. But their sound is plenty acceptable. Unfortunately, consistency is an issue. Some lots are better than others, and I have to pick and choose between various brands to find a few that are great. There are batch issues, too. There's new stuff coming out all the time, and sometimes new stuff is better or worse than the old stuff... You never know. I just keep trying everything new that comes out.

Do NOS tubes have a shelf life?

Theoretically, an unused tube would last forever. It comes down to hours of use. It's not like an electrolytic capacitor, which have a very limited shelf life. Old Astron caps actually say on the sides, "Guaranteed for one year." They were never meant to last forever. The fact a lot of them are still working in old amps is pretty amazing.

Materials are different for tubes, so they just don't last as long. Tubes originally had over 100 elements in them – tube manufacture is a complex process that involves a lot of alloys. Not all that stuff is available today. And it's just prohibitively expensive. And at one time, the largest consumer of tubes was the U.S. government. That's no longer true, so the market has become tiny. When the U.S. stopped using tubes, British and U.S. manufacturers were no longer profitable.

We're sort of riding out the end of the tube technology. But there are a few guys that are keeping it alive. They're essentially made for two niche markets – high-end audio and guitar amps.

So your best bet is obviously still NOS stuff if you can find it?

Yes. But there's a lot of re-boxing, and a lot of pulls.

Hence, you might want a tube tester?

I think they're virtually useless unless you want to test for shorts. Voltages are half of what they see in a circuit, and their tolerances are very approximate. I don't rely on tube testers to tell me what the tube is going to sound like or how it'll act in an amp. Also, they don't test for noise or microphonics. And they don't test for fidelity at all.

So, unless you know what's going on inside that amplifier, you're better off having somebody swap tubes in an amp?

It's not quite that simple. Preamp tubes, like 12AX7s, can be changed – I *encourage* guys to try different preamp tubes. But power tubes are another story – you absolutely *do not* want to swap them around.

One of the biggest causes of reliability issues in an amp is guys messing with the tubes. So many times, I've had stuff come in with broken tube sockets, tubes improperly inserted, keying pins broken off... And sockets in newer, less expensive amps are cheap and often mounted directly to a circuit board, which is *not* old-school construction.

Guitar-amp guys are less likely to swap tubes, probably because they're not quite as obsessed with the nuances of sound. And speaking of, a cable tends to have more impact on tone than a few tube swaps.

Why?

The biggest changes in an amp's sound occur at the lowest levels of signal. Anything that happens in a cable is amplified a gazillion times before it comes out of an amplifier. So the difference between a crap cable and a good cable is tremendous.

Some claim cables like the old curly ones, which are lower-fidelity and cut

more signal, are better for tone than newer high-end cables that allow everything through.

I can explain that very simply. A guitar is a high-impedance device. The interaction of pickups and cable on the first gain stage of the amp is huge. Then think about the construction of the cable. You have this high-impedance signal going through a hot core wrapped in a ground. This forms a capacitor. Between this central core and this ground is a conductor – a material, a type of plastic – and since different materials pass signal differently, the interaction will be different. Also, cables are rated at capacitance and resistance per foot.

So a 30-foot cable will have a different degree of sound loss than a 10-foot cable?

Exactly. There's a big difference. Now, a capacitor between a guitar and an amplifier forms a simple tone circuit that rolls off high-end from the top down. The more capacitance, the more it rolls off.

So the longer the cable, the more high-end you lose?

That's exactly it. But bear in mind all the variables. A lot goes on in a cable. The materials all have "sound." Copper and silver don't sound the same. The cables I build for high-end audio applications have no shield, because the shielding acts as a capacitor. I want the highest bandwidth possible going through the cable. But I wouldn't do that on a guitar cable, because there's too much chance of interference from stray noise sources. That can only be done at line level. Each cable must be suited for the signal it's going to carry.

The other thing to watch for is that cables can be microphonic. Remember, all materials sound different. The plastics they use to separate ground from hot transmit signal differently and change the interaction of ground and hot, which changes the sound of the cable.

I've experimented with this extensively, because it's one of the most important things in tone. If we want to cut out cable interaction completely, that's pretty easy to do. All we have to do is make the electronics in the guitar active – ask guitar players what they think of active electronics! So eliminating the cable is not the answer to getting good tone. But what I recommend is minimum length, because less cable is less interaction, period.

In audio, you want fewer parts and higher quality. You've got find out what suits you based on what you hear, *not* what some marketer tells you. And there's still a lot of mystery in the dynamics of signal/material interaction.

That said, what do you look for in a cable?

The quest for tone is very individual. Each musician needs to make it on their own, and you have to be judicious in the compromises you make. On stage, I don't want a cable that's microphonic. But in the studio, that cable may sound astounding.

For general purposes, you can buy good stuff at any good music store. The higher-end entry-level stuff is fine. I basically look for a braided shield rather than a foil shield because it tends to be less microphonic, and oxygen-free copper.

But compare a 10-foot and 20-foot cable – same connectors, same setup – and you'll hear a big difference, no matter the quality of cable. It's a good experiment.

Next month we'll continue our talk with Blackie, delving into speaker magnets, capacitors, and amp upgrades! Blackie can be reached via tubesville.com. VG