

the ToneQuest

The Player's Guide to Ultimate Tone Report™

Tungsten Amplification



Like the pedal business, the number of amplifiers being built by smaller builders has mushroomed into a garage and basement Skunkworks industry that is constantly changing. New guys pop to the surface and ride

the momentum created by chat rooms and social media, while others quietly slip beneath the surface in an unfortunate imitation of Beach Boys drummer Dennis Wilson, never to be heard from again. The desire amongst certain guitarists and collectors to own the latest, supposedly greatest new amplifier is a power drug, and for some, a hard habit to kick. We enjoy discovering small batch alternatives to familiar archetypes and affordable production amps, too, but since we're doing so on your behalf, our initial evaluation process lacks the unbridled enthusiasm of a new owner who has already made the plunge financially and emotionally. Still, when a giddy reader calls or writes asking us to review their new killer amp, we routinely hit the builder's website, send an introductory email and wait for a response. Such was the case with the Tungsten Cremawheat and builder Adam Palow.

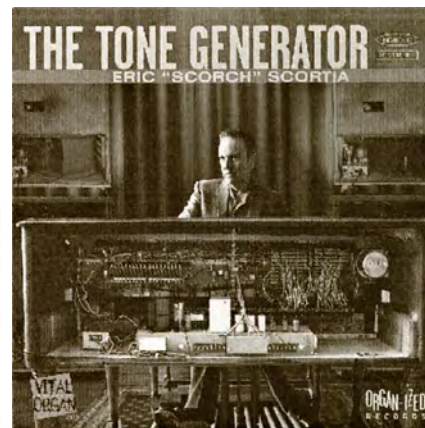
Ultimately, the Cremawheat turned out to be another exceptional amplifier as our review reflects, but as is so often the case, the story behind the name on the faceplate is as interesting as the amp. Listen....

TQR: You mention on your website that you were inspired and intrigued many years ago by your first tube amp. Do you recall what it was?

It was a 1965 Fender Vibro-Champ that was missing the faceplate, and the grill cloth had been replaced with a red and black check material that looked like it had been on a sofa. I think I was around 16 when I got it, and no matter what I played through it, the amp sounded very musical compared to the solid state practice amps I

had used before. It was the beginning of an obsession. I started chasing down vintage Fender amps wherever I could, and I met a guy who showed me how to safely drain the stored voltage in an amp, how to use a soldering iron, and he explained how bigger caps produced more low end. From that point forward I was on my own, and everything I have done since has been the result of trial and error and experimentation. I'm limited in some areas because I don't necessarily understand *all* the theory, but in another sense it's empowering because I am chasing feel and working in an intuitive way rather than strictly by the "book." My favorite part of the build is constructing the board and wiring the chassis. If there is any artistic expression in building an amplifier it's in the way the board is constructed. Of course, in the larger picture, it's completely meaningless.

TQR: What were the most significant things you learned through hands-on experience working with guitar amps, and the five years you spent working on Hammond organs with Bob Schleicher?



The thing that blew my mind the most once I had acquired multiple identical models of the same amplifier like the Fender Blackface Bassman and Bandmaster was how different they could sound from each other even though they were built with the same components. That also carried

over into my work with Hammond organs, because every large Hammond console also had its individual voice, and I attribute that to the accepted variance in parts values, and individual and very unpredictable drift in these values over time. You also see random parts stacking where some of the capacitors may have been oriented the correct way and others not. When all the caps are pointing the right way you can have an amp that sounds faster, and when they are oriented the wrong way the amp can sound slower. On the old caps there was usually a band marking

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the outer foil, and whether or not they were oriented correctly often just seems like chance. Some companies paid strict attention to that and others did not. Even if I am building ten identical amplifiers in my own line, there are going to be variances between them – not only in the tolerance stacking, but in the way the tubes bias to the cathode resistor. I have an absolute minimum standard – it has to inspire me or I’m not going to ship it out, but every once in a while you drop in the right rectifier and the right power tubes and they just match up perfectly with the cathode resistor and it makes your hair stand up on end. Magical. Yet that same amplifier with a different set of tubes may not do the same thing.



The Hammond organs are unique because not only do they have an extremely rich and harmonically complex signal, but they have infinite sustain with no transient attack unless you’re using the percussion feature, so when you’re dealing with Leslie power amplifiers you’re not

dealing with sag. You’ve got compression going on because you’re driving it with a very wide band signal, but because there is no transient, you’re not experiencing sag, compression and release in that order. I spent a lot of time rebuilding Leslie amplifiers, and there was a very specific type of distortion coming from those 6550 Tung-Sols – a low, grinding, wooly distortion kind of like the Marshall of the organ world in a lot of ways, and I caught that sound in my head. It was very musical, and it had a lot of clean qualities, but also an outrageous amount of overdrive on tap, and even when it was driving hard there was still enough clarity to retain a musical quality in the distortion. You could really hear the notes and the intervals between them, and that’s the complaint I had with a lot of amplifiers outside the vintage world.... They swung so far into breakup and distortion that you lost the clarity of the notes. There was more noise than tone, and the place I’m coming from is a more musical place. The other aspect of my work with Hammonds is that I gained a huge amount of experience with vintage Jensen Alnico speakers.

TQR: We have always wondered if the Jensen speakers used in Hammond cabinets were similar to those made for guitar.

In the Leslie, the Alnico P15LL and later C15NLL bass driver that shoots down into the rotating horn were definitely not guitar speakers by any stretch. The 12 inch Jensens I’ve seen bear all the same markings as standard Jensens for guitar, the differences being that they have black frames with no Jensen sticker, and the Hammond code starting with the letters “AO” have been silk-screened on the frame. I have pulled P12Ns out of old Hammond A100s, as well as P12Qs, and if they were specifically designed for organ, they are also the best sounding guitar speakers I have ever heard, and I have used them to base my own speakers on made by Weber.

TQR: Which prompted the development of your own line of proprietary speakers?

Yes, and I didn’t really have to start from the ground up because they had already come close to the mark, but I wasn’t hearing the same extended frequency response that I was hearing from the vintage speakers, and it was just a matter of developing a different recipe. Fortunately, when Ted was still alive we went through the process of mixing and matching components, just trying to get that sound. I didn’t care if the parts were period-correct – I just wanted them to sound right. I tried to do the same thing with the ceramic line, but we just never nailed it and I never put them into production. Of course, the goal in developing the Alnico speakers was to produce the low-wattage, medium fidelity, \$6 replacement speakers that they were originally.

TQR: Looking at the different models you build today, it’s obvious you prefer the sound of tweed-era amplifiers.

Yes, I cut my teeth on blackface amps, but when I built my first tweed Champ I became one of those guys that ditched my pedalboard and plugged straight in. For me it’s all about that very alive midrange, and the dynamic response you get out of the power section. I was instantly hooked. I also have a fondness for the lower power brown amps as well, but when it comes to what I personally want to plug in to and play, I really need to feel the response of a tweed power section.

TQR: What’s your approach to specific types of capacitors used in building your amps?

You have to let your ears be the guide, and everyone hears things differently. Every quality capacitor has its place, but I personally prefer the sound of Mallory 150s in tweed amps. Other people feel that they are too bright in the upper mids until they break in. I tend to break in my amplifiers for 72 hours and when I take breaks from building I’ll plug into every amp that’s burning in. The truth is, everything matters. In the Cremawheat, for example, there different capacitors are used in the tone circuit to color the tone in a certain way. It’s one recipe. I also use custom-wound **Mercury Magnetics** transformers in everything. Some of them are custom-wound because I wanted a different gauge of wire, and others because I wanted a different secondary



voltage. When we’re talking about power transformers, voltage that you’re sending out to the circuit makes much more difference than the brand

you’re using. With output transformers it becomes more critical. Some people want to hear a darker transformer, others high-end clarity.... Some people want a smaller core so it saturates sooner, and others want enough iron so that it never saturates. All of those factors play not only into the sound, but they hugely affect feel.

TQR: Can you briefly summarize each model you build?

The 8 inch version of the Mosaic comes with either the stock



5F1 (Champ) output transformer or the oversize version, which nets you perhaps an additional 2 watts. You get more punch rather than volume. I also build a 12 inch Mosaic Mark II with an additional tone knob, which gives you more bass.

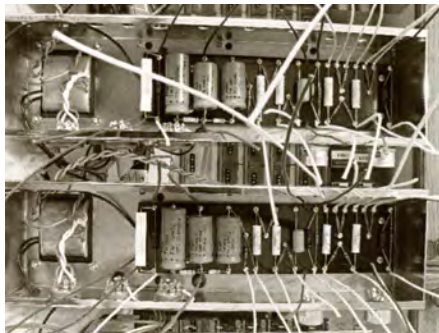
The Cortez was intended to be my flagship model until the Cremawheat came out. The name was inspired by Neil Young's



Suma album – you can just hear the tweed all over it. Its 12W-15W with 6V6s and it bumps up to about 18W with 5881s or 6L6s. It's basically a straight-ahead 5E3 design.

The Cremawheat is my attempt to

retain the tone and feel of a great 5E3 Deluxe, while giving you the dynamic range that would otherwise be lost in the output transformer and speaker with that amp. Those were two choke points on the 5E3, and the third being the massive amount of bass that's being sent through the circuit, which causes it to distort so early. The other significant feature in this amp is the British-voiced Scumback speaker. It adds punch to the dynamic range, and enough bass, but not the ragged and loose 5E3 style low end.



The T35 covers the 5F4, 5E5-A and 5E7 circuits for the Bandmaster, Pro and Super. They were basically the same chassis with a couple of minor resistor changes and three different speaker configurations, and I tend to prefer the 1x15 and 3x10 versions. It's the only fixed bias amp I offer. I like the T35 series, but I tend to gravitate toward the cathode biased amps and most of my customers seem to as well.

If you took the 2-input '55 Bassman, which shares a lot with the Super, Bandmaster and Pro amps of that era, and cathode biased it in a 2x12 speaker format, that's kind of where the Blue Point sits.



When you pay it clean, it sounds very American in the style of a mid-'50s Bassman, and as you turn it up, you get more coloration from the British-voiced speakers. It starts to cross the Atlantic into that early JTM-45 Bluesbreaker tone, but stops short of a later Plexi amp.

The Buckwheat is the follow up to the Cremawheat. It's a 6L6-based, 30 watt with the Scumback H-75, which is their version of the pre-Rola G12H. It has a significant amount of headroom over the Cremawheat, and the speaker produces a glassier, high-headroom tone with a bigger transformer and a larger cabinet that leaves more air around the notes. If you're a Telecaster player, for example, who wants more headroom with just a little hair, this is that amp.

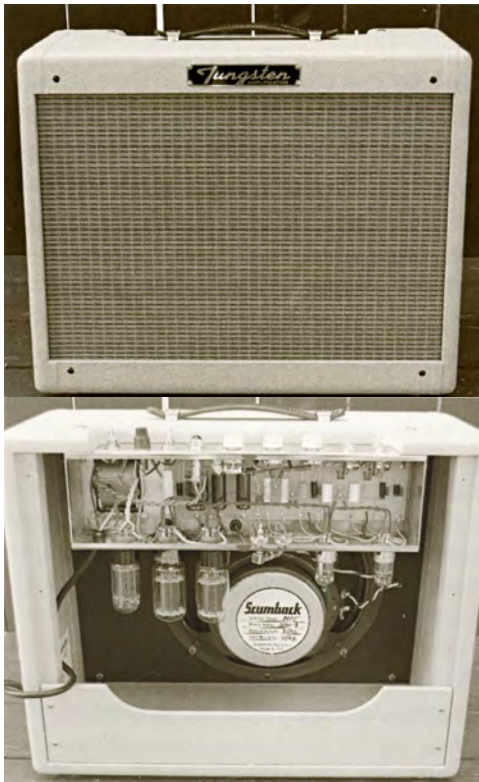
TQR: Will you build specific amps with different speaker configurations as a head or combo, and what is the current lead time for an amp?

Sure, I'll absolutely build variations on the stock models – I actually really like the 16 inch Mosaic and I have built several of them. I want to know that I'm building exactly what a customer wants. The lead time right now is eight weeks, and I always try to keep it under three months. I sell direct, and through a small dealer network, but I do enjoy working directly with customers. Depending on what a customer wants, I may suggest a specific change to the stock circuit, and I find that interaction very rewarding.

REVIEW

Cremawheat

Introducing another 15W–20W amp in these pages is nothing new – in the past year we've invested a log of ink highlighting amps like Jeff Beck's choice of a Pro Junior, our vintage '59 Deluxe and '76 Princeton Reverb, the Retro-King 18W and the Trace-Elliott Velocette. Why? Because we understand that such friendly decibel levels offer adequate volume for use in small clubs, mic'd on bigger stages, yet till fill your house, studio or practice room with a mighty roar when needed. Small amps just make more sense today for most players, but like us, you might be wondering just how many ways a smallish guitar amplifier can be designed and built to produce a genuinely unique voice and



vibe. You know what you've already got, but what might you be missing, and at what point does your quest to discover the ultimate low power amp become redundant, at best? A fair question, and given the nearly infinite variables created by the marriage of different components within different circuit designs, we are happy to report that we haven't reached

the end of the road in the quest for tone quite yet.

Viewed within the board context of the booteek amp landscape, the Tungsten Cremawheat emerges from the box as an uncommonly attractive natural blonde. Offset with gold grill cloth, it scores big in style points without even being lit up. Nor will you find any self-conscious bells and whistles added to an otherwise classic design, as if the builder wanted to get noticed by adding the kind of stuff we seldom really use – like Selmer-style rotary tone switches, pentode/triode modes and toggled boost switches (although Carr has always done those right by bypassing the tone stack). Indeed, this amp is so outwardly attractive, approachable and comely that pulling the back panel off might inspire distant memories of an anticipation experienced in concert with a one-handed thumb and forefinger bra removal technique. (We now



pause to allow a moment of fond reflection. Please take your time.) Adam Palow's skill in assembling and soldering up a circuit

board culminates in nothing less than a work of art. Flip the chassis over and the custom-wound **Mercury Magnetics** trannies provide further evidence of Palow's commitment to following his muse. In practical terms, you get four inputs into two channels (bright and normal), volume/volume and tone, plus a standby switch and extension speaker jack.

Tone

Our first session with the Cremawheat was agreeable enough, but repeat visits left us with a nagging impression that something was either missing, or perhaps technically present, but not being fully reflected in the sound of the amp. Naturally, we used our tweed Tremolux and Deluxe for benchmarks, and the Tungsten sounded subdued and restrained by comparison. We tried different tubes first with no appreciable change, and that's when we focused our attention on the Scumback speaker. Admittedly, we had suspected it from the beginning, so with the original tubes back in the amp, we connected the Celestion G12H30 70th Anniversary in our '59 Deluxe cabinet to the Cremawheat, fired it up, hit a big E chord raking a heavy Pyramid pick over the strings slowly, followed by ten minutes of unbridled delirium. Paired with the Celestion, the Tungsten bowed up with increased volume, clarity, dynamic punch, and a gloriously rich tone that easily rivals that of our Deluxe, but with a little more added sparkle. Swapping the stock Electro-Harmonix 6V6s for a pair of RCA 6L6s brought the Cremawheat to climax with an even bigger, more imposing voice, precisely in the style of our '59. If anything, the Tungsten offered a slightly more defined and chiseled tone as a new amp should when compared to one that has undergone a half century break-in period.



To be fair, we called Adam Palow to inform him that while we absolutely loved the Cremawheat, we were not feeling the Scumback. He agreeably acknowledged that the Scumback was indeed somewhat more subtly endowed than the Celestion, which is why he offered the G12H as an alternative for players desiring maximum girth, power and growl. Any number of modern speakers would surely sound outstanding in the Cremawheat – but we clearly preferred the more vivid soundstage created by the Celestion when the choice is narrowed to one of the two stock speakers offered. Would we buy and play the Cremawheat? Absolutely. It now reigns among the best on temporary boutique twenty watters, and in four important respects (tone, overall clarity, availability and price), the Tungsten impressed us as an irresistible alternative to a vintage Deluxe and any and all modern replicas.

www.TunstenAmp.com, (352) 250-3939



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