

# VIV Labs Rigid Float - Why Everything You Thought You Knew Is Wrong, Or . . . If Dr. Frankenstein Created a Tonearm - The Audio Beat - [www.TheAudioBeat.com](http://www.TheAudioBeat.com)

very area of audio-equipment design has conflicting technologies and approaches competing for attention and falling in and out of fashion. But does the revolving door of popularity spin any quicker than it does for tonearm design? The sheer variety of different approaches and materials is mind-boggling, the rate at which one tonearm type can be adopted, established, achieve momentary market dominance and then just as quickly be forgotten never ceases to amaze me. Of course, at least some of that is down to us members of the press, leaping on the latest, greatest thing to the exclusion of all others. But longstanding tonearm designers, must feel like the balls in a lottery hopper, constantly being bubbled to the top, only to plunge back down into anonymity. I've lost track of the number of times that 'arms like the Tri-Planar and Graham have been in (and out of) fashion. Their designers could be forgiven for wondering which way is up.

This bizarre, constantly changing tonearm landscape was brought home to me recently by several almost simultaneous arrivals. The Audio Origami PU7, a radical evolution of the original Syrinx PU3, served as a timely reminder that gimbal-bearing tonearms aren't dead -- ironic, given that when I bought my first PU3, gimbal was God and nobody (and I do mean *nobody*) was using anything else. The sense of *deja vu* was immediately reinforced by the STST Vertex tonearm, a Borg-like clone of the Mission Mechanic with carbon-fiber grafts, all honed, muscular shapes with sharp edges and high-tech materials in place of the original's more voluptuous, organic profile. Then came Kuzma's latest 4Point, making a welcome return to my system, bringing its own clever, bilateral variation on the knife-edge bearing, while a modified Jelco 750D, the Isokinetic Silver Melody, reintroduced me to SME-type detachable headshells. With the recent almost obsessive emphasis on 12" 'arms and unipivot bearings, often used in tandem, this sudden rash of 9" and 10" tonearms seemed like a real blast from the past. It makes you think that there really is nothing new under the tonearm sun. Let's face it -- linear tracking is old hat; the self-adjusting geometry of the Thales has been done before; an increasing number of 'arms (Audio Origami, STST, Brinkmann) are modern developments of older designs; and those designs that can make some claim to novelty tend to be evolutionary rather than revolutionary (the Kuzma and AMG). In fact, there's a fair case for saying that the last really innovative tonearm was the Well Tempered, a design that introduced a whole new bearing type, its string-suspended/critically damped approach having since inspired multiple other

iterations.

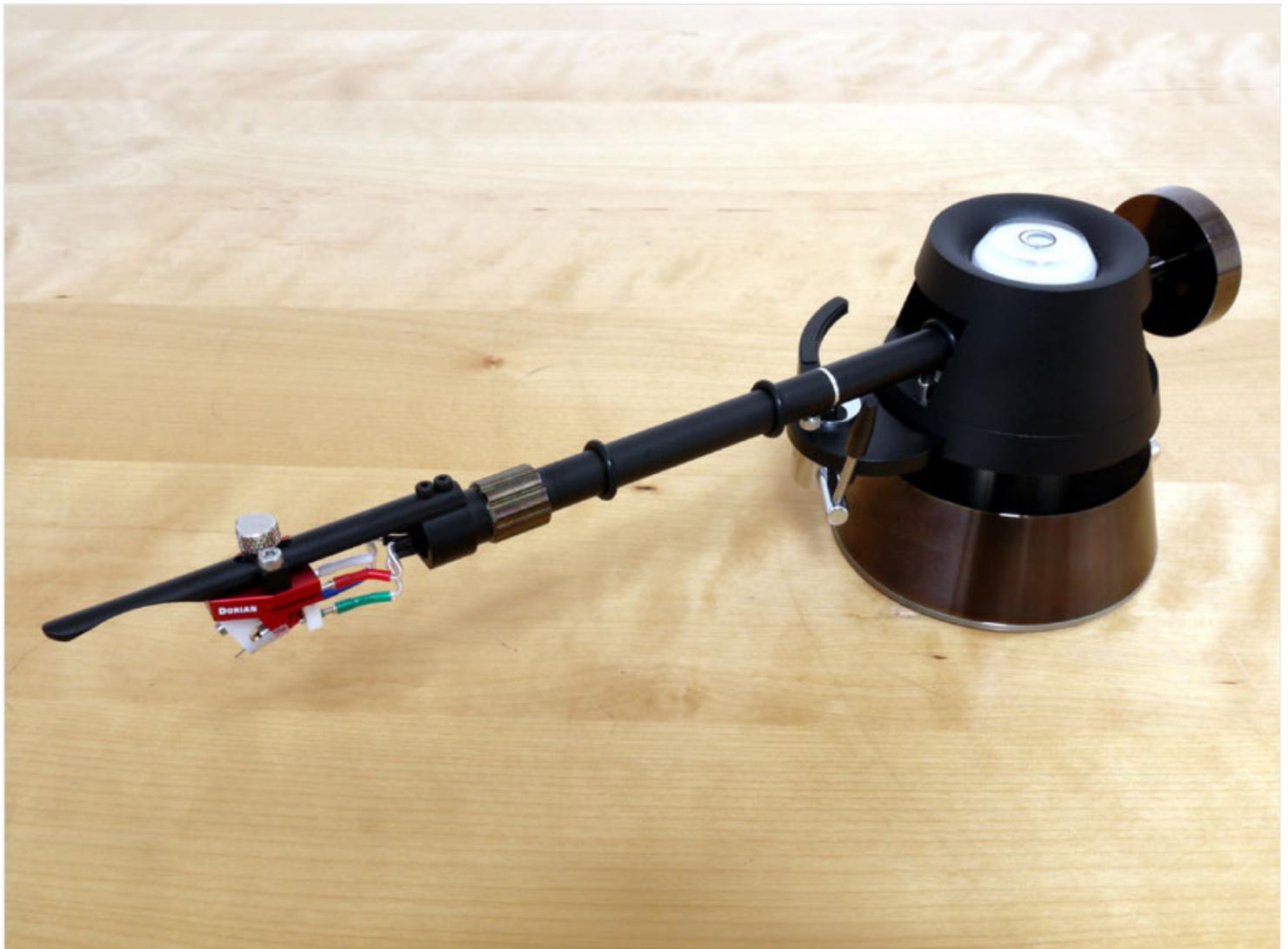
Lulled into a false sense of security, I was unprepared for the arrival of the VIV Labs Rigid Float, an 'arm that is so totally outside the accepted norms of "good tonearm practice" that it breaks more rules than it obeys. The shock of the new doesn't even begin to cover it -- more like a case of *why everything you thought you knew is wrong!*

Recent experience with first the Feickert protractor and then the Acoustical Systems SMARTractor has convinced me of the huge musical gains to be had from really accurate cartridge alignment and careful selection of tracing geometry. It goes hand in hand with the logic that dictates 12" tonearms, so there's a pleasing philosophical continuity that adds to the overall sense of a coherent (or maybe that should be *complacent*) approach. But another side effect of increasing a tonearm's effective length is to reduce the offset angle at the headshell and the corresponding requirement for a compensatory bias force. While we've all been assuming that the superior sound of foot-long armwands is down to reduced tracing distortion, there were those in Japan who began to wonder if it might, just might, be down to the reduced offset angle and bias forces involved. Well, it's not that hard to find out: just build an 'arm with zero offset angle and have a listen -- which is pretty much what VIV Labs did. Having said that, the 'arm they built wasn't exactly standard, and that's part of this story too.

The problem with eliminating offset in a tonearm's headshell is both theoretical and practical. The purpose of all those various alignment curves is to use geometry to fool the cartridge into moving on a much shallower arc than it really is, thus minimizing angular distortion caused because the stylus is less than perpendicular to the groove walls. But if you dispense with headshell offset, then you reduce the tracing radius to the effective length of the 'arm itself, in turn increasing tracing distortion. But there's a second, practical issue. Headshell offset allows designers to reduce pivot-to-spindle distance significantly, moving the armbase closer to the platter, thus reducing the footprint of the turntable.

Faced with the desire to maintain minimal tracing distortion, VIV Labs opted for a 14" tonearm, a decision that places the armbase 14" from the spindle. That's a *long* way! Way farther than a conventional 12" 'arm with a typical offset base. Apart from a few skeletal designs, the turntable with an armboard that big hasn't been built, forcing VIV to make their first "You what?" design decision. The 'arm would be freestanding. In fact, it wouldn't even be sat on the turntable, but on some convenient, adjacent surface!

Not only is this approach playing fast and loose with the accepted low-tracing-distortion route to analog nirvana, it's arguably sacrificing the precision relationship between the turntable and tonearm, normally ensured by exactly drilled mounting holes and firmly fixed armbases. Instead, the 'arm is simply plonked down, and the distance from deck to pivot fixed using a simple perpendicular protractor -- rather similar in operation to the one supplied with the SME tonearms. Aware that locational security and geometrical consistency might well be issues, VIV Labs opted for a heavy, conical base, with a choice of silicon feet or small spikes to keep it planted in place. Despite the massively long armtube and the bizarre appearance, the musical results were promising enough to warrant further investigation of the principle and a rather more practical implementation. Indeed, they went beyond promising, inviting the designers to question the very basis and assumptions on which we base record replay. Bring on the sacred cows and sharpen the axe!



Listening to a VIV Labs 'arm, there's no doubt that it is doing something that's fundamentally and musically very appealing indeed, something that was immediately apparent from that 14" prototype. Which in turn raised the question, If the absence of

offset and elimination of bias force are responsible for the engaging, communicative sound quality of this 'arm design, have we overestimated the importance of tracing distortion? And if that's the case, maybe shorter versions of the 'arm, now dubbed the Rigid Float for reasons that will become clear, might well be viable and considerably more practical. A 9" version of the 'arm proved the point, reputedly sounding considerably better than the 14" one. That in turn led to a 7" version, an 'arm so short that even with zero offset it can still fit within the confines of most record players. That's the product that turned up, out of the blue, just when I thought I had a pretty good handle on tonearm optimization.



Now, 7" is short -- *really short*. Just how short isn't really apparent until you see the 'arm in the flesh. That's partly down to the massive, truncated cone of its base, which distorts the sense of proportion, and partly down to the Rigid Float's headshell, where the finger lift actually extends forward rather than sideways, significantly increasing the apparent length of the 'arm. Want to know just how short this 'arm really is? By way of a visual experiment, just replace the VIV Labs Nelson Hold headshell with a conventional one -- as per the accompanying photograph -- and it all becomes weirdly, wackily clear. It looks

short enough to stand on its own. Place it beside a conventional 9" 'arm (like the Isokinetic Silver Melody) and you really get the picture.

One beauty of this 'arm is its literally plonk-and-play nature: mount a cartridge, position the 'arm and off you go. A detailed description of the inner workings can wait for the full review. Needless to say, they're nearly as distinctive as the 'arm's geometry. But even the physical differences, the astonishing mass (deployed to keep the 'arm firmly where it's put) and the strangeness of such a short pivot-to-stylus distance don't prepare you for the sonic disconnect that's about to assail your ears.

Hearing the Rigid Float for the first time is a little like hearing a horn speaker after a lifetime spent listening to low-efficiency, sealed-box designs. Not in terms of sonic character or relative levels of distortion, but in the way it shifts the sonic priorities. Take your average three- or four-way floorstander, with its heavy cabinet, complex subtractive crossover and high-tech driver materials. It seeks a combination of low coloration, flat frequency response and extended bandwidth -- a classic model of neutrality. Now, compare that to a single-driver horn design, devoid of crossover and almost equally devoid of deep bass. Instead it offers speed, dynamic range and coherence to put the big box in the shade. Which is right? Neither. Which gets closer? Which gets the order of priorities nearer to correct? That's down to the listener, but the very fact that the horn speaker is doing even one thing so obviously correct that the conventional box doesn't even get close to (and vice versa) should be cause for considerable thought -- which brings us back to VIV Labs and the Rigid Float.

Let me be totally clear about this -- the 7" 'arm doesn't *sound like* a horn speaker. However, the obviousness of the analogy tells its own story. VIV Labs have discarded concerns over tracing distortion and dispensed with offset and bias compensation, instead prioritizing structural simplicity with their short armtube and absence of extraneous clutter. The sonic results are musically and rhythmically direct and unequivocal. Hearing a record with the Rigid Float has a gloriously unimpeded sense of energy and momentum. Dynamics are quick and crisp, and forward motion has the sort of speed, freedom and grace that I normally associate with sliding on ice. If a really good conventional tonearm is able to corner better, like a sports car on low-profile tires, the Rigid Float makes it seem like there are no corners at all. Musically speaking, this thing just glides through the track.

But surely it matters which track you play. The first and last tracks will sound worse than those at the middle of the disc, due to higher tracing distortion -- at least so you might

assume. Not obviously and bizarrely, that doesn't seem to alter with different stylus profiles either. It's almost as if that by ignoring the problem of tracing distortion the Rigid Float makes it go away -- but that's patently crazy. What makes more sense is the notion that it gains more on the structurally simple swings than it loses on the offset and mechanically complex roundabouts. Either way, it confronts me with a considerable conceptual challenge. Given an 'arm like the 12" VPI JMW 3D or the Kuzma 4Point, I can clearly hear the benefits of improved precision in alignment, just as I can hear the sound of different alignment geometries. At the same time there's no ignoring the musical appeal of the Rigid Float's vivid presentation. Ultimately these examples represent very different approaches to the same problem. They produce different answers, each with its own appeal -- rather like the different solutions that a V8 and a rotary engine offer when it comes to burning hydrocarbons. I have both the 7" and the 9" Rigid Floats in-house at present, and to further add to the confusion, they each offer a slightly different perspective -- and not in the ways you might predict.

This is one review that's going to take some time, and I'm still not sure quite where it's leading. I'm intrigued, but at the same time I'm disconcerted by what I'm hearing. But perhaps the fact that I'm still listening to and enjoying the Rigid Floats tells its own story. There really is another world that's shone on by the tonearm sun.☺