

Kronos Audio Turntable

by Joey Weiss, 10 May 2013

Enter the Kronos; the turntable with two counter-rotating platters.

If we assume that the purpose of an audio component is to, ideally, replicate the exact signals captured within the recording, then the goal of any component is to translate those signals correctly. Since analog playback must begin with the analog source, a turntable aiming for the absolute must provide an environment perfectly suited for the cartridge's retrieval of information. In the world of turntable design, the two main obstacles have always been that of speed and isolation. If you are shooting for the stars, a turntable must be unspeakably quiet, free from any foreign artifacts, and the speed absolute.

To eliminate vibration, one popular approach is to employ a suspended design. A suspended platter has the great benefit of isolation, but will be exposed to issues that corrupt the sound of the LP, such as; speed variations and torque.

A few years ago, Mr. Louis Desjardens – the man behind the Kronos – happened to come across an article explaining torsional forces and the effects they have upon a suspended turntable. “It came to me that the way to fix these issues would be to have two platters that went opposite from each other. The outcome would be a cancelling out of the torque effect”. For every force a counter force of equal value. In a fraction of a second Desjardens had the crux of his turntable design. Two years later he had his first working prototype.

Torsional forces result from the fact that a spinning platter will set the suspended turntables' platform in motion. The torque created by this energy imbalance causes the suspension itself to move opposite of the platter, thereby creating drag. This motion will potentially impart an unwanted smearing or blurring effect to the sound.

The idea behind the Kronos is that the counter-rotating platters will cancel out each other's displaced energy, thereby eliminating the torque effect, as well as relaxing the suspension itself. Desjardens built the Kronos because he wanted to hear the benefits of using a secondary platter as a dynamic stabilizer cancelling out these forces. Although Kronos is not the first turntable to employ counter-rotating platters, the implementation of counter-rotating platters within a suspended system makes the Kronos design unique.

The first question is whether the addition of a secondary rotating platter introduced more complexities than benefits to the turntable. Desjardens told me this is "the most important question, and possibly the reason no one has successfully tried it". Desjardens decided to forge ahead and work to remove excess noise or vibration introduced by the second platter.

Although one might assume that a turntable consisting of two, counter-rotating platters would be a monstrosity of over-engineering, the Kronos is anything but. A closer look at the Kronos reveals a simple, yet elegant design. The turntable answers the essentials – vibration, speed, and noise – with efficient engineering and well-chosen materials.



The entire platter system on the Kronos is floating, with twenty-four O-rings (a composite of three materials including Biton and Silicone) holding the weight. Each platter is engineered to eliminate vibration and is constructed in a “clam-shell” like fashion. Twenty-four fasteners force the top and bottom layers (made of aluminum) to compress the material inside (phenolic). Basically, the platter is a vice that squeezes itself to eliminate resonance.

To limit the amount of mechanical vibration and noise transferred from one platter to the other each platter has its own individual motor, rotor, and independent bearings. Each motor is individually housed in a box composed of Delrin (for the material’s vibration-resistant qualities) and the suspension is designed so that the motor boxes are completely isolated from the platters. The Kronos also uses an inverted bearing design with double hydraulic isolation to further dampen vibration and reduce drag.

If there is one LP that was essential to the development of the turntable, it was a recording by Rene Lafleme on the Fidelio Audio record label. Lafleme recorded an arrangement of Gustav Holst’s, *The Planets*, for brass quintet and church organ (Holst, *The Planets*, Buzz Brass & Melanie Barney, Fidelio Audio) – a great sounding recording with wide dynamics, extreme frequency range, and an abundance of low-frequency information. Desjardens brought the Kronos prototype to Lafleme’s studio to hear the test pressing and compare the sound with the original master tape played back on the machine it was recorded on (not to mention having the recording engineer in the room). Desjardens told me that he didn’t “voice the Kronos blindly. I had a goal in mind. This turntable should be able to sound as close to that master tape as possible.” After six months of tweaking the turntable, using this master tape as a reference, the Kronos was complete.

In our system, the organ and brass instruments on this LP are presented with captivating dynamic power. The horns are richly textured and harmonically dense. The first time I put this LP on the Kronos, I was astonished at the amount of low-end information coming through (so was HP). The lower registers of the organ were clearly articulated. On the big Scaena system, with the six independent woofers blazing, the bottom end of the organ shook me to my core, pushing enough air to pressurize my chest.

Since I can't hear the Kronos as a one-platter turntable, I also cannot discern the precise effect (or effects) the counter-rotating platters actually have upon the sound. Yet, I can confidently report that the turntable presents a fulfilled and vivid sonic image. A combination of balance, stability, *and* neutrality allows the music to flow with what you might call an effortless grace. This effortlessness, as if the music was a shoreless ocean, is one of the turntable's most enchanting characteristics.

The first qualities you notice are the extremely wide-reaching dynamics and dead silent background. Paired with a revealing phono preamp and cartridge, you will quickly notice the turntables' other specialties –vivid imaging, full-range harmonic expansion, and tonal purity. The Kronos produces a stability of the instruments within the soundstage, as well as an independently stable soundstage itself. This affords the music the ability to exist within a realistic framework.

When it comes to analog, I want living presence. Not only Mercury, I want the lifeblood held captive within every recording broadcasted into the listening room. Besides three-dimensional imaging, harmonic richness, and dynamics, the sound *must* be stable to achieve this sensation – floating images just won't do. The Clearaudio Statement is King when it comes to providing a concrete image and the Kronos comes very close to matching it; an impressive feat, considering the Kronos is quieter and more dynamic. On the Munch/BSO performance of Berlioz's, *Symphonie Fantastique* [RCA LSC-1900], the Statement produces a bold, in-your-face presentation. The Kronos, on the other hand, allows for a more fluid sound, one that is less confrontational, yet still presents a secure image of the orchestra and the individual instruments within.¹

We had the opportunity to hear the Kronos with two separate tonearms: the Tri-Planar Ultimate 12" and the brand new Graham Phantom Supreme Elite. Both tonearms are excellent companions for the Kronos and easily retrieve all the necessary information. In the end, I preferred the Graham Elite on the Kronos for the astonishing sense of musical transparency the combination provided. (I must also admit that none of these realizations would be as

¹ On this musical example, a Clearaudio Goldfinger V2 cartridge was used with both turntables.

apparent without the help of the Burmester 100 Phono and the Allnic H3000-V phono preamplifiers, fed into the Veloce LS-1 Line Stage; completing a front end system that translates the music with power, transparency, and depth.)



The Graham Supreme Elite is Bob Graham's newest offering to the analog domain. The "Elite" has an even more refined main pivot assembly than its predecessors and uses custom-designed internal wiring licensed from Nordost. The sonic presentation is simply more grandiose, with a bigger and quite bolder soundstage; and if you pressed me hard enough I would admit that it sounded quieter, the background noise that is, perhaps this is why the ambient Hall sound on *Symphonie Fantastique* is airier than ever before. Low-end information, and the entire frequency range for that matter, comes flying through this tonearm without any hints of coloration.

With the Graham Elite mounted on the Kronos there was such an elevated level of clarity that it allowed me to appreciate the finer distinctions amongst the cartridges themselves. The Lyra Atlas (moving coil) is a lively cartridge, a bit more apparent with the truths it wants to tell, and the result is a sound that is as thrilling as it is honest. Vocals through the Atlas are revelatory, full-bodied and harmonically accurate. This cartridge is confident, bold, and shockingly lifelike in presence. The Atlas gobbles up every last bit of detail and presents the information with passion. This is the most fruitful combination of soul and detail I have found hiding within a cartridge. It is explosive, and will surely give dynamic warriors the sustenance they desire.

Translating a grand piano’s wide range of dynamics and complex harmony is a difficult task. Maintaining coherency and scope is of severe importance when you desire authenticity. Listening to Rachmaninoff’s *Piano Concerto No. 3* [Mercury Living Presence, SR-90283], Byron Janis’s passionate command on even the most difficult passages were graceful and pure. The piano was ravishing – growling, shimmering, and delicate – with extended notes resembling an organ-like resonance.

The song “Laughing”, from the David Crosby album, *If I Could Only Remember My Name*, will test any analog playback system. Not only should the music be presented with a highly developed soundstage, the instruments must be richly texturized and clearly defined – requiring the ultimate combination of detail, resolution, and warmth. Upon the Kronos (with the Graham Elite and Lyra Atlas), the sound was so impressive it warranted profanities. Instead of appearing thin and wispy, Crosby’s voice was complex – clearly sounding as though it was coming from the body of a man, not just a throat. After a recent listening session, as the band faded into the floor, HP broke the silence with reverence: “Now that’s a sound that would be hard, if possible, to be improved upon.”

The Kronos is so quiet, if there are any drawbacks to the dual-platter design, noise is definitely not one of them. Each and every LP benefited from the silent background. Put on the new Nick Drake pressing of *Pink Moon* [Universal Island Records, Box Set, 2012], or the Lightnin’ Hopkins LP, *Goin’ Away* [Analogue Productions, APB-014, 45-rpm], and all you hear is the music -- unrestrained, intimate and pure. The Analogue Productions Blue Note reissue of John Coltrane’s, *Blue Train* [AP-81577, 45-rpm], has a lively presence with enough tonal complexity to send shivers down your spine. Even the new Nick Cave & The Bad Seeds LP, *Push The Sky Away* [Bad Seed Ltd., BS001CE], is heard with an improved soundstage, easily translating the lonesome, yet, expansive sound.

Desjardens believes that “a turntable is a musical instrument that should never make any music of its own.” The philosophy is to create an environment (the turntable) where all things relax and operate with minimal stiffness, or simply, operate with ease. To never “overload” or push any element in the design more than it requires; the Kronos does not use a vacuum system or a heavy outer-rim record clamp, because these accessories

introduce unnecessary tension and stress into the environment. Desjardens even goes so far as to suggest using lightweight phono cables (we use the Nordost Odin to great results, Desjardens also recommends the Crystal Cable), so as to avoid “pulling” on the tonearm adaptor, thereby introducing stress to the tonearm mechanism itself.

The result is a turntable that presents the music with little, if any, audible restraint. This sense of ease was none more apparent than on Doug Erickson’s Fidelity First recording, *Pigs Eye Jass*. Erickson carefully recorded, mixed, and mastered these live improvisations to ensure supreme sonic fidelity (hence, the label name). The liner notes are fantastic. In them, Erickson describes listening enjoyment as a function of correct “transient linearity”, which he goes on to define as “the component’s ability to recreate sound in the exact proportion it originally existed”.

The Kronos – along with the Graham tonearm and ZYX UNiVerse II cartridge – translated the lively sounds of the ragtime instruments with a fluid transparency. When I say translated, I mean recreated. Hearing the LP in this setting, I know exactly what Erickson was reaching for. The bass clarinet was texturized with full-range coherency. Each and every note was confidently alive. Spatial dimensions were on full display – with a front-to-back, side-to-side extension that blurred the distinctions between the recorded space and the listening room. Overall dynamics were unrestrained, easily reproducing the natural, and often elusive details of a live performance.

Desjardens brought along the new ZYX UNiVerse II cartridge (mentioned above) when he first arrived with the turntable. After living with the cartridge for a month or so, it is easy to see why he recommends it. The ZYX has little, if any, audible weaknesses. If there is coloration to the ZYX’s sound, I have not found it (and I have tried). This cartridge is even-keeled, never pushing the image forward by highlighting more desired frequencies.

During the course of our evaluation, Desjardens installed the new, updated speed controller to the Kronos.² If the original controller provided efficient speed stability, the updated version was the Rock of Gibraltar.

The Kronos uses coreless, Swiss-made DC motors to rotate the platters. These motors are desirable because they produce minimal vibration, but they are also difficult to control. With a turntable, you want both speed stability and no vibration. If speed is stable and it has vibration, then it creates flutter and you lose all the texture in the music. If speed is unstable, then you have a mess. To control these inertia-less motors (they won't hold their speed on their own), the Kronos employs the two following sensors for each moving platter: one optical sensor (attached to the motor itself) and one optical platter speed reader (the sensor monitors the platter as it rotates). The controller, located below the speed display, processes both of these readings (the speed information) as a dual-loop system with a 32-bit microprocessor that continuously controls the speed of the motor (the first version was only a one-loop system). Therefore, the speed of the motor is always dictated by the speed of the platter itself – and the controller analyzes the information in real time and is constantly correcting the speed.

Adding the secondary loop magnified the turntables' speed stability and the improvement is clearly audible. Images seem to exist with unwavering harmonic accuracy. This tonal "correctness" allows the listener to be thrust into the substance of the music itself. Speed accuracy may not be perfectly audible, but the more correct the speed, the more accurate the sound will likely be.³ The less our minds have to work to interpret the sounds conjured into the air, the more fulfilling the experience.

It is always a pleasure to put on Janos Starker's vivid interpretation of Bach's *Suites for Unaccompanied Cello* (Speakers Corner reissue, Mercury Living Presence SR3-9016). The late, great, cello master produces a tone that will captivate any listener. The notes are pitch perfect, without any

² As it happened, the only way we found out the original controller could be improved upon was when we heard the update.

³ This argument understands that although the lathe cutting the original lacquer may introduce speed fluctuations onto the LP, there is nothing we can do to correct this. A turntable's job is to allow the information on the LP the best fighting chance, as is.

sense of harmonic fluctuation outside of Starkers' own vibrato. Sustained notes remain steadfast with a pocket of air surrounding them as they decay. The baritone textures of the cello are richly colored, inviting one to hear past the notes and into the infinite spirituality of Bach's compositional genius. Harmonic overtones exist without restraint; as Starker put it so eloquently, "a lovely string instrument should sing as much as possible."⁴

The Kronos has an uncanny ability to illuminate subtle dynamic information. Listening to Paul Paray conduct Ravel's, *Bolero* (Mercury Living Presence, SR-90005), I was shocked at how much new information I heard in the opening section – instruments appearing with a clarity and placement that I have obviously been missing. The piece begins with the orchestra playing at the lowest of volumes -- the instruments first appearing as if shadows in the distance, carefully inching closer as the theme develops with a calculated passion. The smooth Hall ambience, the crispness of the snare drum, the romantic plucking of the strings – it's all there. As the piece lures you in, the delicate orchestral dynamics are infectious. The horn and woodwinds float effortlessly – with glorious overtones – the notes dangling on top of the pulsating rhythm. Detailed imaging and the resolution of harmonic overtones are exquisite -- as each individual instrument in the orchestra is just that, an individual.

Listening to The Weaver's "Goodnight Irene" on the live recording, *Reunion at Carnegie Hall: 1963*, the Hall itself is resurrected through the speakers. Everything is heard with more clarity -- the voices, the guitars, the audience singing-a-long, the cascading laughter, the ambience, and the curvature of the back wall. An improved sense of detail reveals an even more pronounced differentiation of the audience's applause than we thought possible, from the top balcony down to the orchestra. After a rather long listening session, in which we played a few of our favorite LP's, including this one, HP turned to me saying; "This is the best turntable I've never heard".

⁴ Written by Janos Starker, April 2004. Quotation taken from the liner notes of the Speakers Corner reissue of the Mercury Living Presence recording, SR3-9016, *Bach Suites For Unaccompanied Cello*.



I can't stop from wondering if the effects of the counter-rotating platters produce this elevated sense of balance. As if the cancelling-out of the torsional forces somehow allow the dynamics to extend far and wide, as if lacking any limitation. My general conclusion is that the Kronos is among the most pure (read: least evident in the system) turntables I have ever experienced. Yet, the Kronos distinguishes itself with an effortless presentation of the music, never forcing or straining the sound, providing the recordings an unceasing parade of sonic possibilities.

With so many audio components receiving daily glorification; the monthly denomination of the latest and greatest – the “advancement of the state-of-the-art” – there is cause for skepticism as to what actually constitutes a revolutionary (or evolutionary) advancement in playback design. The most appropriate question we ask ourselves is whether or not we are getting the performance we desire, and for that, the monetary value affixed to performance is a highly personal matter. Lest I ignite a tirade on the law of diminishing returns and how it may apply to high-end audio, the performance of this turntable demands that it *must* be compared with ‘tables costing twice, three times its already steep price.

Kronos is not a one-and-done company; they are here to stay. Desjardens already has plans for the next turntable in the Kronos line; rumored to be a Spartan version of the flagship model (with an equally stripped-down price tag). The first 250 Kronos turntables, including the one reviewed herein, are among the “limited edition” set. According to Desjardens, Kronos will always employ the use of counter-rotating platters in their designs. This is the Kronos way; there are two platters built right into their logo.

We have never had better sound in our main listening room as we do today, and the Kronos is a major factor. The music has never come through with such an ease, appearing as if limitless, and with a sound that inspires. It took HP nearly forty years to get here, and I am surely reaping the benefits. To hear it is to fall in love with audio all over again, and again, and again...

~ Joey Weiss