

2019
PRODUCT
OF THE
YEAR
AWARDS

Our Top Picks in High-End Audio Gear

the absolute sound

THE BEST FOR LESS

CLEARAUDIO MASTER INNOVATION TURNTABLE



Clearaudio Master Innovation Turntable and Statement TT1-M1 Tonearm

The Best For Less

By Jonathan Valin

Photography by Matt Wrightsteel

WHEN IT COMES TO TURNTABLES AND TONEARMS, I've been on a roll (well, a centrifugal spin) of late. Just a few months ago I had the pleasure of reviewing the superb Acoustic Signature Invictus Jr. with TA-9000 pivoted tonearm, which turned out to be a good deal more than a chip off the old Invictus Sr. block. (Indeed, in most ways it was sonically superior to Sr.—and to every other pivoted 'arm record player I've heard or tested—and for a lot less money, to boot.) Comes now an entirely different but no less worthy rotary contraption from the highly experienced folks at Clearaudio Electronic GMBH.

Though I've been using cartridges from Clearaudio's Peter Suchy as my references for better than two decades, up until now I haven't tried any of his turntables or linear-tracking tonearms. There are really no good excuses for this, since (as most of you already know) I've been relying on an air-bearing turntable with air-bearing linear-tracking tonearm—the mighty Walker Audio Proscenium, now in its greatly improved fifth edition—for almost twenty years, and before the Walker used several other air-bearing linear-trackers, the Versa Dynamics chief among them.

The reason for my preference for air bearings and linear tracking is simple. The enemy of vinyl playback is noise, much of it generated and transmitted by tonearms and turntables themselves. To my ear, linear-tracking air-bearing tonearms and air-bearing turntables have, until recently, created and conducted markedly less of this noise than pivoted 'arms and conventional turntables, which is why the Walker, *par excellence*, has always sounded more expansive, powerful, and finely detailed than its competition. Since they travel in a straight line across the record, radial-tracking 'arms are always in perfect tangency with the groove walls—with none of the tracking error (and consequent diminution of soundstage dimensionality, transient clarity, and instrumental/vocal detail) of even the best pivoted challengers—while the low friction and high stiffness and damping of an air-bearing platter (and, in the Walker's case, of integral air-bearing feet) effectively keep floorborne, airborne, and self-generated vibration from reaching the LP and being fed back as noise via the cartridge and phonostage.

Air bearings are, indeed, highly effective devices, which is why they're so commonly used in high-precision tools such as CNC machines and electron microscopes. [*Some CD mastering machines are built on a table supported by air-bearing legs, with the platter that spins the glass master floating on another air bearing.* —RFH] But there are other ways of addressing the noise-generation/transmission problems that afflict turntables.

The Acoustic Signature Invictus and Invictus Jr., for example, used select materials, tremendous mass, and constrained-layer damping to block noise—and did this so effectively that they didn't suffer from the usual pivoted-'arm losses of soundstage dimensionality, transient clarity, and inner detail. Indeed, as I noted in my review, the amount of information (of every kind) Invictus Jr. reproduced was so high that, with better recordings, the mind/ear was readily able to accomplish that gestalt shift between the perception of exceptional parts and the perception of lifelike wholes upon which the whole edifice of the absolute sound is built.

Though they share some technologies with the Invictus and the Walker, the Clearaudio Master Innovation turntable and Statement TT1-M1 linear-tracking tonearm take an essentially different path to solving the inevitable noise problem. Almost all high-end record players use physical isolation of component parts (as, for example, locating the drive motor in an outboard chassis, where its noise and vibration are less likely to be transmitted to the platter, cartridge, and tonearm) as part of their design brief, but the Master Innovation uses isolation in a most ingenious and comprehensive way. In the Clearaudio, it is not merely the motor that is effectively separated from the platter; virtually *every* part of the Master Innovation is physically and mechanically isolated. Think of it as a bit like an air-bearing turntable without a pump.

The turntable has two entirely separate platters, one of which "drives" the other without any physical contact between the two.

Here's how the Master Innovation works. The turntable has two entirely separate platters, one of which "drives" the other without any physical contact between the two. The lower platter assembly—the drive platter—is mounted in a constrained-layer-damped (CLD), three-lobed, *Panzerholz* (bulletproof wood) and aluminum chassis. Its working parts comprise a stainless-steel flywheel and a 40mm-thick polymer (Delrin) platter with a circle of powerful neodymium "button" magnets embedded in its top surface. The flywheel/Delrin platter are fitted to a high-quality inverted bearing and connected via a supplied belt to a low-noise, high-torque, DC motor, housed in one lobe of the chassis. After being initially set via a strobe, a test record, and three small "trim" buttons, the turntable motor's speeds (33, 45, and 78rpm) are automatically adjusted by Clearaudio's

Optical Speed Control (OSC)—a microscopic reflective strobe and infrared sensor mechanism that continuously monitors the 1500-bar speed-scale printed on the bottom of the lower platter's stainless-steel flywheel.

The dynamically balanced upper platter—the “playback platter” upon which your records rest, fastened down with a central clamp and a periphery ring—is an 85mm-thick, CNC-machined, CLD sandwich of high-density polymer and stainless-steel. It fits on a sophisticated version of Clearaudio's patented ceramic-magnetic bearing (CMB) also used in the Clearaudio Statement and is housed in its own three-lobed, constrained-layer-damped, *Panzerboltz* and stainless-steel chassis, identical to that holding the lower drive platter. (When assembled, the combo looks like two separate but nearly identical turntables stacked atop each other—which, in essence, is what it is.)

Attached beneath the upper platter's CMB with a diamond-coated axle which is also used in the Statement turntable, and separated from the lower drive platter assembly by a few millimeters of air, is a 30mm-thick Delrin driven platter (or flywheel), with a circle of neodymium “button” magnets embedded in its bottom surface (of the same polarity as the magnets embedded in the top face of the drive platter immediately beneath it).



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The “attracting” force field of the two sets of magnets acts like a “clutch,” allowing the motion of the belt-driven lower platter to be transferred to the magnetically driven upper one—without any points of physical contact between the two to generate wear, friction, or noise. Like I said, the Master Innovation works like an air-bearing turntable, using magnetism instead of air pressure to create a friction-free operating environment.

In the Master Innovation, the brilliant use of air gaps to keep moving parts from making direct contact with one another (and thereby creating and transmitting noise) is not confined to the two platter assemblies. The ceramic-magnetic bearing in the upper platter also uses a magnetically induced air gap to prevent direct contact between the platter and the bearing base. The CMB employs two completely shielded ring magnets of *opposing* polarity—one on the bottom lip of the bearing housing and the other on the top lip of the bearing base (where the ceramic axle in its sintered-bronze sleeve contacts the thrust plate). The opposing forces of the magnetic fields raise the bearing housing and the platter resting on its lip a few millimeters above the base, effectively floating the platter and your records on a cushion of air rather than allowing them to rest on a journal grinding against a thrust plate. The product of many years of research, this ingenious, patented design is claimed to reduce friction and lower rumble to new lows.

If using one turntable to drive another in order to prevent the transmission of noise and vibration from the motor to your vinyl, or raising the record-bearing platter on a cushion of air to prevent chatter from being transmitted from the bearing to the LP, isn't innovative enough for you, consider Clearaudio's linear-tracking tonearm.

Based on the Souther Linear design (the rights to which Clearaudio acquired many years ago), the Statement TT1-M1 is the first purely mechanical version of a linear-tracking tonearm I've ever reviewed (even the Rabco SL-8e and the Goldmund T3F used a servo-motor, while every other linear-tracker—from the ET to the Versa to the Walker—used an air bearing). Like all linear tonearms, the Statement TT1-M1 travels across your record in a straight line (which is the same way that the grooves in a lacquer are cut on a cutting lathe). But in the TT1-M1, the tonearm doesn't “float” on a cushion of pressurized air generated by a pump; instead, it rides on a pair of extremely high-precision sapphire ball-bearings that travel along a calibrated, diamond-polished glass tube enclosed in a sealed bearing carriage that extends from just ahead of the run-in grooves to the spindle. (The entire bearing assembly, which Clearaudio calls the “arm bridge,” comes pre-assembled and pre-mounted on the TT1-M1's bearing towers—all you have to do is attach the armwand to an aluminum block that depends from the bearing assembly and screw the entire TT1-M1 apparatus, via mounting bolts, to the rear two lobes of the turntable chassis.)

Unlike many of the tonearms used in other linear-trackers (such



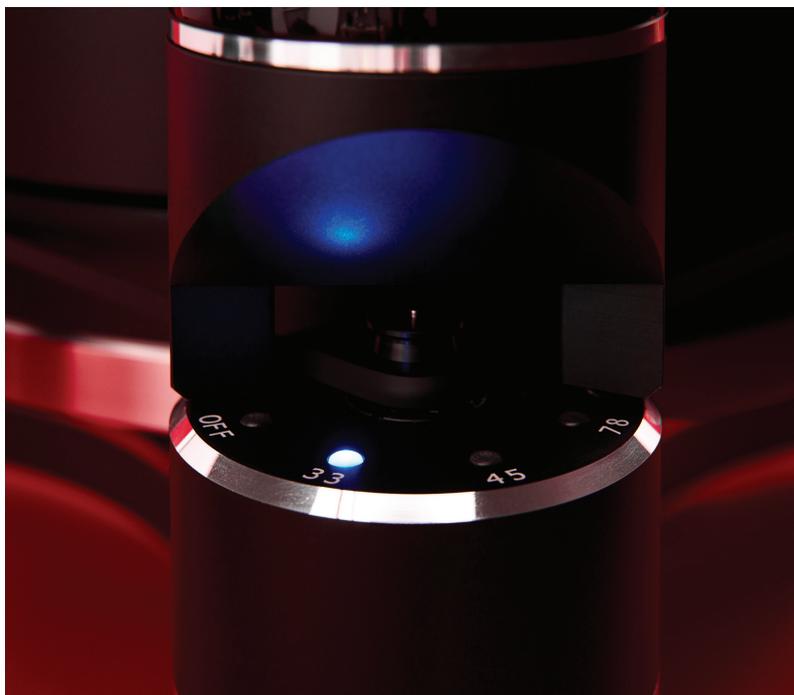
as the ET or the Walker), the Clearaudio armwand is a vestigial thing—a conical carbon-fiber rod with the usual cartridge-mounting bracket on its tapered front and enough length at the rear (beyond where the armwand attaches to the bearing assembly) to accommodate screw-mount counterweights. Friction is so low that the 'arm is propelled across the surface of your record by centrifugal force (as it is with a pivoted 'arm), though gravity also plays a small part.

Despite its vestige of a tonearm, the TT1-M1 is rather massive—for several reasons, the most important of which is to make room for seating and removing LPs. Like the Souther (and unlike 'arms whose air-bearing mechanism is fixed well behind the platter), the TT1-M1's bearing assembly is situated right above the surface of the record when an LP is being played, so the entire arm bridge has to be moved "out of the way" to put a record on the platter (or to take one off).

As should come as no surprise at this point, Clearaudio has developed an ingenious way of doing this: Instead of pivoting upwards as the original Souther did, the entire arm bridge assembly slides backward and forward, riding on two thick stainless-steel rods that run along either side of the platter. To change, remove, or place a record, you slide the arm bridge mechanism back (using a hand at either end of the bridge), well past the platter, until you hear the slight "click" of a magnetic lock, which marks the end of the arm bridge's travel. To play that record, you move the arm bridge forward over the record's surface to the "play" position, which is also indicated by the "click" of a magnetic lock marking the end of travel.

The TT1-M1 has two precision knobs (on either side of the arm bridge) for adjusting VTA and two set screws where the conical carbon-fiber armwand mounts to the carriage to fix overhang and azimuth. The tonearm also comes with a cartridge-alignment gauge for ensuring precise tangency in setup.

As I said earlier, properly aligned a straight-line tracking 'arm is always tangent with the groove, which is to say that from run-in to run-out the stylus rides precisely "squared up" between the groove walls, rather than being cocked at an angle vis-à-vis one wall or the other as the styli of cartridges in pivoted tonearms always are (save for two spots in the 'arm's arc-like travel across a record's surface). Moreover, a straight-line tracking 'arm doesn't suffer from "skating" forces, as pivoted arms do, and thus never leans "harder" against one groove wall than the other. When you add to this the relative shortness and lightness of its armwand (as in the TT1-M1, *par excellence*), which keep the 'arm from being as perturbed by powerful bass transients as longer, heavier pivoted tonearms can be, you can see the reasons why soundstaging, transient response, and resolution of fine detail are so often superior with a linear-tracker. It is simply reading and reproducing



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many more coarse and fine modulations than the majority of pivoted 'arms, and doing so without any error, offset, or mistracking.

The Clearaudio Master Innovation and the Statement TT1-M1 are truly works of inspired engineering, in which, as noted, every design innovation is intended to prevent noise and vibration from reaching the record on the playback platter. How well does all this industrial prowess work? As you can probably guess, extraordinarily well. Indeed, from the very first notes on the very first LP I played on the Master Innovation/TT1—the great 1959 Verve recording *Gerry Mulligan Meets Ben Webster* (in the superb Acoustic Sounds 200-gram reissue)—the Clearaudio set a new standard of three-dimensional presence for analog playback. Both Mulligan's baritone sax and Webster's tenor were simply there in the room with me—not in marvelously recorded bits and pieces but as astonishingly robust and solid wholes.

Now to be fair, I'm currently using a reference speaker—the MBL 101 X-treme (reviewed elsewhere in this issue)—that all by itself sets new standards of 3-D presence on analog or digital sources. (Indeed, if you want to at least partially re-inflate the instruments on typically "flat"-sounding digital recordings, simply play them back on *Radialstrablers*.) But the fat, rich, rooted-in-ambient-space, three-dimensional sound of Mulligan's bari sax (and the realistically leaner in timbre, higher in pitch, but no less three-dimensional sound of Webster's tenor) went well beyond what I'd grown to expect on the X-tremes—and what I'd heard before via almost every other turntable.

To repeat what I said in my review of the fabulous Acoustic Signature Invictus Jr. several issues ago, I've struggled for decades with explaining which sonic qualities make for a "real" or life-

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like presentation, and keep coming back to the fact that I know “real” when I hear it. (So do you.) Indeed, I know it instantly without analysis or reflection (which is part of what makes subsequent analysis difficult). The reason for this, I think, is that perceiving a recorded copy as the real thing isn’t merely a matter of superior parts (like more low-level details or greater “slam”) but of what psychologists call the gestalt grouping of those parts, wherein the many variables that we reviewers (and you readers) ascribe to real and recorded sound (i.e., true-to-life timbre, pitch, dynamics, duration, soundstaging, imaging, bloom, dimensionality, etc.) are no longer perceived as separable (or even as outstandingly well-reproduced) ingredients but as a collectively realistic representation of a whole. Thanks, I believe, to its marked reduction of noise and consequently fuller, more faithful, and more neutral reproduction of the information inscribed in both walls of the groove, the Clearaudio Master Innovation/TT-1, like the Acoustic Signature Jr., is capable of facilitating this gestalt shift and conjuring up what seem like real instruments and real instrumentalists/vocalists in real venues in your listening room on a wide variety of recordings.

It just happened that the next disc I played, after the great Ellington-like Mulligan/Webster LP, was gifted to me by the boys of Audiodata in Munich last year—a 180-gram Blue Groove (an Austrian label) copy of guitarist/vocalist Hans Theessink’s 2011 *Jedermann Remixed—The Soundtrack*. Now, I’m fairly confident that this great recording, like the Mulligan LP, will sound more or less fabulous on any really first-rate turntable. Like

Specs & Pricing

Master Innovation turntable

Type: Belt-driven turntable with magnetic decoupling of turntable and drive platter
Drive: High-torque DC motor with optical speed control
Bearing: Inverted (drive platter); ceramic magnetic (main platter)
Speed: 33, 45, and 78rpm
Speed variation: <0.05%
Weight: Approx. 60kg (without tonearm and power supply)
Dimensions: Approx 18.11" x 15.58" x 19.09" (without tonearm)
Price: \$54,000 (with Statement TT1-M1 tonearm)

Statement TT1-M1 tonearm

Type: Mechanical tangential tonearm
Weight: Approx. 8.6 kg (including tonearm)
Dimensions: Approx. 20.51" x 9.06" x 7.83"
Price: Included in above price

As tested with:

Statement clamp
Price: \$1000

Outer Limit peripheral ring clamp
Price: \$1350

Smart Power 24v battery power supply
Price: \$3000

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MUSICAL SURROUNDINGS (U.S. Distributor)

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JV’s Reference System

Loudspeakers: MBL 101 X-treme, Magico M3, Voxativ 9.87, Avantgarde Zero 1, MartinLogan CLX, Magnepan 1.7 and 30.7
Subwoofers: JL Audio Gotham (pair), Magico QSub 15 (pair)
Linestage preamps: MBL 6010 D, Soudation

725, Constellation Audio Altair II, Siltech SAGA System C1, Air Tight ATE-2001 Reference
Phonostage preamps: Soudation 755, Clearaudio Absolute Phono, Walker Proscenium V, Constellation Audio Perseus
Power amplifiers: MBL 9008 A, Soudation 711, Constellation Audio Hercules II Stereo, Air Tight 3211, Air Tight ATM-2001, Zanden Audio Systems Model 9600, Siltech SAGA System V1/P1, Odyssey Audio Stratos, Voxativ Integrated 805
Analog source: Clearaudio Master Innovation, Acoustic Signature Invictus Jr./T-9000, Walker Audio Proscenium Black Diamond Mk V, TW Acoustic Black Knight/TW Raven 10.5, AMG Viella 12
Tape deck: United Home Audio Ultimate 5 OPS
Phono cartridges: Clearaudio Goldfinger Statement, Air Tight Opus 1, Ortofon MC Anna, Ortofon MC A90
Digital source: MSB Reference DAC, Berkeley Alpha DAC 2,
Cable and interconnect: Crystal Cable Ultimate Dream, Synergistic Research Galileo UEF, Ansz Acoustics Diamond, Synergistic Foundation
Power Cords: Crystal Cable Ultimate Dream, Synergistic Research Galileo UEF, Ansz Acoustics Diamond, Synergistic Foundation
Power Conditioner: AudioQuest Niagara 5000 (two), Synergistic Research Galileo UEF, Technical Brain
Support Systems: Critical Mass Systems Olympus, MAXXUM, and QXK equipment racks, amp stands, and Center Stage²
Room Treatments: Stein Music H2 Harmonizer system, Synergistic Research UEF Acoustic Panels/Atmosphere XL4/UEF Acoustic Dot system, Synergistic Research ART system, Shakti Hallographs (6), Zanden Acoustic panels, A/V Room Services Metu acoustic panels and traps, ASC Tube Traps
Accessories: Symposium Isis and Ultra equipment platforms, Symposium Rollerblocks and Fat Padz, Walker Prologue Reference equipment and amp stands, Walker Valid Points and Resonance Control discs, Clearaudio Double Matrix Professional Sonic record cleaner, Synergistic Research RED Quantum fuses, HiFi-Tuning silver/gold fuses

a musical Christmas tree, it is lit up with marvelous instrumental ornaments, from the thrilling bottleneck glissandos of slide guitar to the coffee-pot burble of Hammond organ vamps, but the centerpiece is Theessink's husky, Johnny Cash-like baritone (backed up by the vocals of Terry Evans and Bobby King). Folks, I doubt if you've heard a more realistic vocal/guitar recording than this collection of truly inspired covers (Theessink's acoustic version of The Stone's "Sympathy for the Devil" ranks right up there with Tracy Nelson's cover of Memphis Slim's "Mother Earth" as one of the best re-castings of a great blues song I've heard). But if you want to hear this LP at its very best—which is to say, if you want to hear it as if Theessink and his slide guitar, that Hammond B-3, those backup vocalists, and the studio space in which they were recorded are right there in your room—give a listen to this record through the Clearaudio Master Innovation and Statement TT1-M1.

The parade of 3-D presences—of seemingly real musicians marching through my listening room—continued with virtually every well-recorded LP I slapped on the Master Innovation. On the terrific 1954 Pacific Jazz mono *Chet Baker Sings* (in a very good Record Day pressing), the 1961 Melodiya *Richter Plays Prokofiev* wherein the great Sviatoslav Richter (than whom no one is better on this repertoire) plays Prokofiev's Sonatas Nos. 2 and 9, the classic 1977 MCA LP *Rough Mix* with Pete Townsend, Ronnie Lane, John Entwistle, Ian Stewart, Charlie Watts, Eric Clapton, et al., and many many other LPs, singers, instrumentalists, entire ensembles sounded wholly there, with none of the fatal timbral or temporal overemphases—the top-down or bottom-up balance, the added accent on starting transients, steady-state tones, or decays—that clue the mind/ear that it is listening to a well-recorded fake rather than the real thing. As is the case with my reference Walker Proscenium V and Acoustic Signature Jr., I just didn't hear a sonic weakness.

I guess I don't have to tell you that there is a rush of joy that comes with highest-fidelity playback. And it is most intense when, for a moment or two (or, in the Clearaudio's case, an entire cut), you can forget that you're listening to a copy and feel as if you've been transported to an actual concert. With high-quality recordings, the Master Innovation turntable and Statement TT1-M1 tonearm are



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gateways to this kind of bliss—surely high among the very best record players that any amount of money can currently buy, demonstrably brilliant works of industrial design, and now (alongside the Walker and the Acoustic Signature Jr.) one of my three analog-playback references. Oh, there may be little differences between the Clearaudio and my other reference turntables: The air-bearing Walker may have a smidgeon more detail in the midrange, and the Acoustic Signature Jr. with TA-9000 tonearm may be a tiny bit more transparent in the bottom octaves (though neither bests the Clearaudio in solidity and dimensionality). Nonetheless, if you're into vinyl, this is one of the tables you have to listen to. It will give you the same fabulous illusion that you're in the presence of actual musicians as the Walker or the Acoustic Signature gives you, and it will do so for \$30,000 to \$50,000 less dough. **tas**