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GUIDE TO

VINYL PLAYBACK

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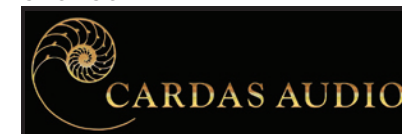
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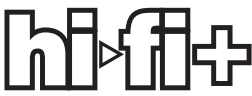
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GUIDE TO

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FROM THE Editor

Welcome to this special *Guide to Vinyl Playback*, presented by *The Absolute Sound* and *Hi-Fi Plus*. To someone who hasn't been following high-end audio lately, a buyers' guide to turntables, cartridges, tonearms, phono preamplifiers, and the best-sounding vinyl records in the second decade of the 21st Century might seem odd. But analog is the hottest category of high-performance audio—and getting hotter all the time. In 2009, sales of vinyl records doubled the 2008 figures. In fact, vinyl records were the only packaged music format to show a sales increase over the previous year. More companies are offering analog gear at all price levels than ever before.

But why is this 134-year-old technology, based on dragging a chip of diamond through a squiggle in a round piece of plastic, flourishing in the age of iPods, Internet downloads, MP3 files, and music servers?

The answer is simple: The sound quality of LPs fosters a sense of realism, musicality, and intimacy with the performance that is unmatched by standard-resolution digital audio. And compared with MP3, analog playback is light years ahead. This isn't to say that vinyl playback isn't flawed. But its sonic shortcomings are completely different than the distortions that plague digital reproduction. In my experience, analog's distortions seem to exist "on-top" of the music, while digital's distortions are "woven into" the music's fabric and thus more difficult to overlook. If you haven't heard a great LP playback system lately, you're in for quite a surprise.

But it's more than LP's sound quality that is fueling analog's amazing renaissance. Playing a record represents a return to the days when we sat down with a single-minded focus on listening to an entire record. The ritual of putting a record on a turntable, cleaning it and the stylus, and tuning out everything but the music is the antithesis of track-skipping or "shuffle-mode" listening to MP3 files through headphones while engaging in some other activity. If listening to random tracks through headphones and a portable music player is analogous to eating fast food delivered through your car window, then playing a record is

akin to lovingly preparing and leisurely savoring a gourmet meal.

Our special *Guide to Vinyl Playback* is chock-full of everything you need to know to start enjoying vinyl playback, or to upgrade your current rig to extract even more music from the grooves in your record collection. We feature reviews of ?? Turntables, ranging from the outstanding classic Rega P3 at \$395 to the mighty \$57,000 Walker Procenium Black Diamond Mk II. Cartridges are equally represented, with great-sounding models starting at \$99 and reaching the state-of-the-art in the \$9000 Air Tight PC-1 Supreme. We've also included our top picks in phono preamplifiers and tonearms with capsule reviews of those products which have earned our highest recommendation. If you're new to vinyl, Wayne Garcia's feature article "Vinyl Lives! A Guide to LP Playback" is the perfect starting point for getting you into (or back into) the groove. Long-time readers will appreciate a walk down memory lane as the TAS editors name the "12 Most Influential Analog Products of All Time." All this great playback gear isn't much use without music to play on it, so we've included our list of the 100 best—and best-sounding—LPs in every musical genre.

It all adds up to your essential companion to enjoying the music on vinyl records. Keep 'em spinning.

Robert Harley

Click here to turn the page.

ON THE HORIZON

Neil Gader

The turntable wizards at Pro-Ject are releasing their European bestseller, the RM-1.3, in the U.S. for the first time. A small wonder, it features a boomerang-shaped plinth, a decoupled motor, an MDF platter, and, in a final flourish, a factory-fitted Sumiko Pearl cartridge, a \$95 value. It hits our shores in high-gloss red, white, or black.

Price: \$499.

sumikoaudio.net



The Xtension is Pro-Ject's no-holds-barred design and features a massive, 12-pound, damped-aluminum/vinyl sandwich platter that uses a unique opposing-magnet inverted bearing. In addition, the entire turntable comes equipped with four height-adjustable Sorbothane-damped feet in a magnetic field for exceptional isolation. The ultra-quiet AC motor employs electronic speed control via a built-in Speed Box SE II. An external power supply further reduces any potential for electro-mechanical interference. A Pro-Ject 12cc EVO 12-inch tonearm is factory installed. Constructed of a single piece of conical carbon fiber, the 12cc EVO offers easy adjustment of VTA, azimuth, anti-skating, and height.

Price: \$4999.

sumikoaudio.net



The Pro-Ject Xperience Classic uses a traditional rectangular plinth, but adds a snazzy 9cc tonearm fashioned from a single piece of carbon fiber and a newly designed encased-motor. Overall performance is said to be improved over the Xpression III through the addition of a larger, denser plinth with level-adjustable and damped conical feet and the inclusion of a resonance optimized composite MDF/vinyl platter. A factory-mounted Sumiko Blue Point 2 cartridge adds the finishing touch.

Price: \$1499.

sumikoaudio.net



ON THE HORIZON



Think of the new Clearaudio Innovation Compact as a single-plinth version of the majestic Innovation Wood without the latter's massive subplatter. Like its bigger brother, it's dual-tonearm-capable and it shares the Tri-star Panzerholz/aluminum-sandwich plinth, a 70mm-thick Delrin platter, and an inverted Ceramic Magnetic Bearing (CMB) with DC motor and Optical Speed Control.

Price: \$7000.

musicalsurrroundings.com

The Clearaudio Concept turntable package is a soup-to-nuts spinner that arrives completely factory-preset with a stunning, friction-free, magnetic-bearing Magnify tonearm and a Maestro moving-magnet cartridge. Clearaudio has infused the Concept with much of the decoupled-DC-motor technology from its classy Innovation Wood turntable—a move that lets one switch easily from 33-1/3, 45, or 78 rpm at the touch of a button and provides great speed stability. In fact, the only set-up skill needed is the ability to pluck the Concept from its carton and plug it in. Just add a record and start spinning.

Price: \$1400.

musicalsurrroundings.com



The Lyra Delos is a medium-compliance, low-impedance moving-coil cartridge (0.6mV) that introduces a real-world solution for keeping the signal coils optimally aligned within the magnet circuit when tracking force is applied. Using a new body structure and pre-angled damping system, the dampers work together with the angle of the body structure so that, when a record is being tracked, the signal coils retain correct alignment and are always symmetrical in position and proximity to the magnets. The Delos cantilever system sports a solid boron rod and microridge stylus for outstanding groove stability, a non-parallel solid metal body for low resonances, and nude construction for greater clarity. The result is clearly improved sound quality, particularly resolution, dynamic range, transient impact, and immediacy.

Price: \$1500.

immediasound.com

ON THE HORIZON

Helius Designs took the wraps off its new-generation Scorpio IV tonearm, which is now available in two lengths. Conveniently, mounting geometry is the same as that of the Omega and Aurora arms, so swapping out arms is a breeze. In another nod to convenience, Helius has also incorporated a cue device into the main pillar. The standard Scorpio uses copper internal wire, but silver litz wire may be ordered for a \$250 up-charge.

Price: \$950 for the 9" version and \$1100 for the 10" version.
musicalsurrroundings.com



No sooner had Jim Fosgate introduced his stunning Signature Phonostage than he began applying his lifelong passion for analog and his extensive engineering experience to the creation of the Fozgometer (Azimuth Range Meter). Designed to adjust cartridge azimuth (axial tilt), it's battery-powered, incorporates operating principles similar to those in surround-processor logic-steering circuits, is simple to use, and reads channel separation and channel balance as well as signal direction.

Price: \$250.
musicalsurrroundings.com



Reflecting his passion for analog and tube sound, audio designer Jim Fosgate (renowned for his work on surround-sound Dolby Pro-Logic II) has built and tested more than 100 different phono preamps over the past thirty years. The culmination of all this experience is the Fosgate Signature. This design features all-tube amplification and rectification with no solid-state devices in the signal path, switchable moving-magnet (42.5dB)/moving-coil (60.5dB) gain settings, and variable loading settings from 100 ohms to 100k ohms. The industrial design of the Fosgate Signature is both contemporary and proudly retro: It displays its seven tubes without a cage and has real wood end caps.

Price: \$2500.
musicalsurrroundings.com



ON THE HORIZON



The Parasound JC-3 phonestage completes the Parasound package that began with JC-1 and JC-2—the standard-setting electronic separates designed for Parasound by John Curl. The JC-3's stunning, vault-like, full-size chassis features independent circuit boards for each well-isolated channel, line conditioners at the AC input, and a nifty AC polarity switch. There are toggles for mc and mm gain, and loading figures of 47k ohms and 100 ohms for moving coils. Circuit board design is credited to Carl Thompson, familiar to many for his work with Curl on the classic Vendetta phonestage.

Price: \$2000 est.
parasound.com

The “R.E.A.L.” in Merrill/Williams’ R.E.A.L. turntable stands for Rubber Elastomer Acoustic Laminate, and represents a fresh approach to non-suspended turntable design. All of the R.E.A.L.’s key elements—the Elastomer-suspended synchronous motor, the tonearm, and the graphite-impregnated nylon spindle/bearing assembly—are positioned on an acoustically neutral three-point Isolation Damping Elastomer Plinth Core. The feet provide damped suspension (like a suspended plinth), while a second layer of isolation is provided by the plinth’s Elastomer. The R.E.A.L. also features a rubber cork mat, a nine-pound Bakelite cellulose composite platter, and an azimuth-adjustable energy-absorbing tonearm-mounting platform.

Price: \$4495.
realturtable.com



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ON THE HORIZON



The Air Tight ATE-2005 tube phono stage is a model of hand-wired elegance and flexibility. It offers three switchable inputs—two mm and one mc. Vinyl lovers who spin with multiple arms should take note. The ECC83 tubes have been carefully selected and aged, virtually guaranteeing low noise and high stability. For even lower-noise operation, the circuitry is divided on its rigid chassis into four independent sections: mc amp, valves, EQ amp, and power supply. The amp circuit is specially mounted on the copper-plated portion to reinforce resistance to magnetism. While the mc input is coupled to the built-in head amp, an available mc step-up transformer, the Air Tight Optimal, or another separate head amp can be connected to the two mm inputs. There's also a demagnetizer circuit, which will remove accumulated magnetism in cartridge cores during playback of a record.

Price: \$6500.
axissaudio.com

The Oracle Delphi turntable celebrates its 30th anniversary with the introduction of the MK VI. Developed around the control of micro-vibrations and micro-calibration it features the Micro-Vibration Stabilizer System (MVSS), a trio of small, ultra low-viscosity silicone filled reservoirs that are secured to the acrylic base beside each suspension tower. Adjustable, they work in concert with the suspension to further quell the tiniest vibrations. Other advancements include Delrin adjustable footers and a bigger sub-chassis which features a massive under-platter counterweight for improved weight distribution and rigidity—qualities that also make the table compatible with a larger selection of tonearms. Naturally the advanced electronics and synchronous motor system of the legendary MK V are standard equipment.

Price: \$7700 (base price).
oracle-audio.com



Analog Lives!

A Guide To LP Playback

Wayne Garcia

So the kids are off to college, you have more free time, and maybe, if you're lucky, at least a little more disposable income. And you're getting back into one of your first true passions: listening to music over a high-quality sound system. But somewhere along the way you either put your old turntable in the attic to gather cobwebs with other outdated stuff—you know, like compact discs—or you got rid of it altogether when it became obvious that LPs were finished—you know, like compact discs.

Okay, I'm exaggerating the demise of the CD for effect, but it is more than a little ironic that the generation that grew up with compact discs has largely abandoned the format in favor of MP3 players, while simultaneously embracing the once again flourishing vinyl LP. And while not every twenty-something spins black plastic, I've recently advised more than one young friend on his first turntable purchase.

But if you're reading this magazine chances are you probably owned a turntable way back when, or maybe got into audio with the CD's ascendance and never took the vinyl plunge. Either way, it's reasonable to ask if all the buzz about an analog renaissance is true, and, if so, if it's worth the considerably greater effort it takes to operate and maintain an LP playback system.

As vinyl enthusiasts, we at TAS can confirm that, yes, the analog resurgence is very real, as are the accompanying musical rewards. Even if you haven't visited a CES, Rocky Mountain Audio Fest,

or other recent audio show, the evidence is in plain sight—not only between the pages of magazines such as this one but also in mainstream media as well as catalogs and on-line sales sites.

Turntables are cool!

Vinyl is hot!

Moreover, with the exception of classical record companies, pretty much every other major label has jumped on the LP bandwagon (and why not, with CD sales plunging and vinyl sales rising?), issuing new pop releases while also mining deep back catalogs. Those doing it well, like Warner and Sony, have learned their lessons from reissue specialists such as Analogue Productions, Classic, and Mo-Fi, and are releasing LPs cut with superior mastering techniques on quality vinyl.

But even with the demise of brick-and-mortar record stores, purchasing vinyl is in some ways easier, via the Web, if not cheaper, than it's ever been (see our accompanying sidebar: Where to Buy Vinyl).

And while I've not attempted a formal census, I would venture to say that there are actually more LP playback choices available today than ever before—and at an ever-widening, even wilder range of price points.

WHERE TO BEGIN?

Let's assume you already own a fairly decent audio system. Although it may be obvious to say so, it is absolutely critical that whichever record playing devices you choose fit into that system's overall quality in both build and sound.

Practically speaking, if you have a fairly high-end system you shouldn't purchase a lower

quality turntable because you think you want to check out vinyl but aren't yet committed. Likewise, if you're lusting after a fine LP playback system but the rest of your system needs a makeover, then spending a lot of money on a great record player doesn't make much sense—unless, that is, it's the beginning of an upgrade path you're already in the process of mapping out. In other words, go about selecting your record player thoughtfully.

Hah, you might be thinking, that's easy to say, but where do I find dealers for such products? This is the one area where making an informed purchasing decision by way of hands- and ears-on experience is much more difficult than it was





twenty years or so ago. Back then you could walk into any number of high-end audio retailers, such as the one I worked at, and, over the course of one or more listening sessions, actually hear the difference between, say, a Rega Planar 2 and 3; what your money bought if you graduated to a Linn Sondek (and is the Ittok arm that much better than the Basik?); the difference between a Linn and a Sota and an Oracle; and, if you had the bucks, the musical ecstasies (and attendant mechanical agonies) awaiting if you could reach for that Goldmund or Versalab.

Today, even if you live in a major city, quality high-end dealers are increasingly hard to find. And those willing to invest the money, time, and commitment it takes to set up, maintain, and properly demonstrate even a handful of turntable, arm, and cartridge selections are rarer still.

But they do exist and are well worth seeking out.

And even though ideally you will find yourself within reasonable driving distance of a good dealer—because, make no mistake, proper turntable setup, cartridge alignment, and fine tuning are critical if you're going to get the performance you paid for—the best on-line dealers now offer expert consultation and setup before shipping.

Without claiming to be a thorough explanation of all things analog, or an exhaustive survey of available products—we won't, for instance, be delving too deeply into the super-pricey gear we review as Cutting Edge (though we do touch on it)—this article's aim is to guide you through the options, identify the major players, explain what you get as you move up the chain, and, we trust, make your journey into vinyl a fun one that will bring years of musical pleasure, whether you're getting into it for the first time or perhaps a second go-round.

PRE-PACKAGED TURNTABLE-ARM-AND-CARTRIDGE COMBOS

Once aimed at those on slimmer budgets, these packages were also generally, though not exclusively, aimed at novice users. That was then. Today, with serious players in the game, and a range of fine models ranging up to several thousand dollars to choose from, these pre-packaged turntable, arm, and cartridge combinations are perfect for folks—and that would be most of us—who want to enjoy LPs while fussing as little as possible with the mechanical side of the equation. When a turntable is delivered with a pre-selected and installed arm and cartridge, the remaining setup is a relative breeze that usually involves nothing more than mounting the platter, belt, and tonearm counterweight, and adjusting the cartridge's tracking force to the manufacturer's spec. These packages are often a deal, too, selling for less than the sum of their collective parts.

For \$395, Rega's excellent P1 comes mounted with the Ortofon OM-5e moving-magnet (mm) cartridge, which is also bundled with the likewise impressive Pro-Ject Debut III turntable and arm (\$379). Another fine contender in the under-\$500 range is Music Hall's \$449 MMF-2.2, which sports the company's Tracker mm cartridge.

Crossing the \$500 price point, at \$559, the TD170 from the venerable Swiss firm Thorens—which has been building phonographs since 1903—includes another Ortofon cartridge, the OMB10.

What you should expect to hear from packages in this range are the fluidity, rhythmic pulse, and musically satisfying qualities people so love about analog, if not the widest dynamic range, subtlest nuance, or most extended bass and treble response. But as I suggested, these limitations will more than likely match those of the systems

these designs will be paired with. Also assume that build-quality is going to be necessarily less heavy-duty, and bearing and other tolerances (though quite good) less precise than those of costlier designs.

While any generalization is just that, figure that to get a significant step up in audible performance—the kind that you can hear the moment the stylus hits the grooves—as well as better build quality, which of course also affects sound, you're going to start looking at roughly doubling your budget.

At \$875 Music Hall offers the MMF-5.1 with Goldring's G1012 mm cartridge, as well as the MMF-7.1, which goes for \$1495 with Goldring's Eroica H, itself a \$450 value. At \$999 Pro-Ject's RM-5 SE comes mounted with importer Sumiko's highly regarded Blue Point 2 high-output moving-coil (mc) cartridge, while at \$1159 Thorens moves up to the TD 295 with an Audio Technica AT-95E. Finally, Sota will package its fine Comet 'table and s301 arm with Dynavector's high-output 10x5 moving coil (\$1545, \$1150 sans cartridge).

Reaching the outer limits of our combo category, we come to the German company Clearaudio's Emotion turntable, which includes the Satisfy tonearm and Maestro cartridge (\$1999), as well as two teardrop-shaped models from Pro-Ject: the RM-9.1 with Sumiko Blue Point Special cartridge (\$2049), and the RM-10, which relies on an air-assisted bearing for its acrylic platter, (\$3499 with Sumiko Blackbird cartridge, \$2999 without).

As you climb the ladder, expect these designs, with their more massive platters and less resonant bases, more sophisticated materials, and more finely tuned tonearms and cartridges, to retrieve more information from LPs' miniscule grooves, resulting in deeper, tighter, more tuneful bass; airier, more extended and detailed highs; a richer, more fleshed out and vivid midrange; more precise

imaging; a bigger, airier, more three-dimensional soundstage; wider as well as more finely defined dynamics; and, ultimately, an experience that is that much more emotionally involving and that brings you that much closer to the sound of live music.

TURNTABLES WITH (AND WITHOUT) TONEARMS

This category offers far and away the most diverse range of options. Potentially confusing is the fact that some manufacturers package their 'tables and arms together, while also offering them separately. In an attempt at clarity we've created a separate category you'll find below for separate arms.

Also, rather than repeat earlier generalizations, assume that the differences in build- and sound-quality described above will keep stepping up as these models become more refined—turntable design is as much art as science—more precisely engineered and built, and, concurrent with that, more costly.

While following the company's long-held philosophy that low mass plus rigidity equal low resonance, Rega's line of entirely British-built models runs from the \$545 P2 up through the \$4995 P9. The many stops in-between include the \$1295 P3c and \$2695 P7. In some cases separate power supply options further improve performance.

VPI Industries has been one of the U.S.'s premier manufacturers for 30 years. It also builds some of the strongest values to be found in analog playback, starting with the Aries Scout, \$1850 with JMW-9 arm, and extending to the new Classic, which may be the company's highest value yet—\$2500 with the JMW-10.5i arm.

Basis Audio builds a range of beautifully

engineered acrylic-based turntables, which can be purchased either with or without the Vector Model 4 arm. As you advance through the entry-level model 1400 Signature (\$2900) up through the Debut Signature (\$15,900), which with refinements has been in production for 20 years, these designs gain in mass, in the refinement of suspension, bearings, and all parts, and in some cases in the capability to mount extra arms, as well as a vacuum system which couples LPs to the platter.

Another prominent user of acrylic, Clearaudio makes a wide range of turntables. The Performance model includes a ceramic-magnetic main bearing that floats the platter on a pillow of air to reduce friction and improve isolation, \$2799 with Satisfy arm; while the Ambient, which ranges between \$5000-\$10,000, depending on options, incorporates layers of compressed wood in the unit's base, which adds warmth to its traditionally somewhat cool sound.

Sota's line tops out at the \$8700 Millennea, but for \$2400 you can get the Sapphire, which utilizes Sota's now classic four-point hung suspension and vacuum LP-hold-down system.

At \$2800, Well Tempered Lab's Amadeus redefines another classic of American design, the \$6600 Reference. Perhaps the only arm of its kind, the Amadeus' sports a "precision"-made golf-ball "bearing" floating in silicon fluid.

Nottingham's well-regarded Studio Space 294 turntable (\$3999) comes equipped with the Space Ace 294 arm, a 12-inch carbon-fiber unipivot design, which makes for an excellent mid-level point of reference.

Known for its staggering engineering capabilities, the British maker SME builds outstanding turntables and arms that are usually sold in tandem. The \$9900 Model 10A/309 arm

is followed by the Model 20/II (\$17,000 with IV.Vi arm), the 20/12 (\$28,000 with 12" transcription arm), and the \$36,000 Model 30/2, which is one of the world's most desirable record players paired with the classic Series V arm (\$5300 when sold alone).

Another British firm, Avid, builds an impressive range of 'tables using 3-point suspension systems using elastomer or springs, including the \$2499 Diva II, the \$5000 Volvere, and the \$12,500 Acutus and Reference (\$19,995).

TW Acoustic's Raven One (\$6500) is a cleverly engineered and very well made German design that's considered a strong value in expensive record players. It, like its \$18,000 sibling the three-motor AC-3, has the ability to accept up to three tonearms.

SEPARATE TONEARMS

As noted, many of the models listed above come without tonearms, which isn't necessarily better or worse than a 'table designed with its own specific arm, but does allow the analog lover to engage in the time-honored sport of mixing and matching a favorite arm to a turntable of choice.

As it happens, two of the finest tonearms ever made come from manufacturers that, at least as of this writing, do not make a turntable.

The Graham Phantom B-44 MK II (\$4700) is a classic of unipivot design that has evolved to peak performance over two decades of intense design development. An engineering marvel, the Phantom is one of the greats.

And so is the equally excellent but very different Tri-Planar Ultimate VII, which has been duking it out with the Graham for years. At their current levels of excellence, it's almost like having to choose between Grace Kelly and Rita Hayworth.

WHERE TO BUY VINYL

With Tower and now Virgin up in proverbial smoke, I'm lucky to live in one of the few cities that still has a truly great brick-and-mortar record store (Amoeba Music, here in San Francisco, as well as Berkeley and Hollywood), let alone any brick-and-mortar music store. Although it's not the same experience, Internet sales of new and used vinyl are just a few clicks away. The main sources are: Acoustic Sounds, Audiophile International, Better Records, eBay, Elusive Disc, Music Direct, The Needle Doctor, and Todd the Vinyl Junkie.

(See what I mean?)

At the entry-level, Rega's \$495 RB301 not only graces the firm's own 'tables, it can be purchased separately and has also become something of a *de facto* OEM choice for several turntable companies that do not build their own arms.

VPI's fine unipivot arms straddle the gap between Rega's and high-end examples, starting with the \$1400 JMW-9 Signature and its longer brethren, the 10.5 and 12.5 (as in inches), which sell for \$2300 and \$2600 respectively.

SME's superb arms were touched on above, and have long been industry standards. If the \$5300 Series V or IV.V1 (\$3995) are out of reach, check out the titanium 309 (\$2195), which offers a detachable magnesium headshell to aid in cartridge swapping.

Another superb unipivot, Basis Audio's Vector



PHONO CARTRIDGES

With literally dozens of models to choose from, the following list merely glimpses at some of the available choices, while touching on a wide range of price points.

Thankfully, cartridges, especially of the high-output moving-magnet and moving-coil varieties, are an area in which many fine values are to be had.

Grado, which focuses on moving-magnet designs, begins at a mere \$60 for the Black, and nails pretty much every price point until it hits the moving-coil Statement (\$3000). Notable stops on the way are the Prestige Gold 1 (\$220), the Reference Sonata (\$600), and the Reference 1 (\$1500).

While its range of offerings is now limited, Shure's M97XE (\$89) is a remarkable value, and one of the finest entry-level mm cartridges on the market.

Denon alone makes three high-output mc's under \$250 (the DL-110, -160, and -102); Clearaudio's notable "wood" series ranges from \$400 to \$725; Benz makes the MC 20E II (\$250), Ace (\$700), Glider, (\$1000), and Wood S (\$1500); Shelter now offers the 201 mm (\$250); while Sumiko, a standard-bearer for quality budget models, racks 'em up with the \$55 Oyster, the \$75 Pearl, the \$95 Black Pearl, the \$299 Blue Point 2, and the \$399 Blue Point Special.

As it is with specialty audio in general, there's almost no limit to what you can spend on a

high-end cartridge. However, before hitting the stratosphere there's also a large middle ground of, say, \$1000–\$3000 where you can find really great cartridges that won't break the bank. Most, by the way, will be of the low-output moving-coil type.

Besides those already mentioned, other noteworthy contenders include the Lyra Dorian (\$1100), Argo 1 (\$1675), and Helikon (\$2780); the Shelter 301II (\$895), 5000 (\$1950), and 7000 (\$2800); Clearaudio's Talisman (\$1200), Symphony (\$1800), and Concerto (\$2400); Transfiguration's Axia (\$1500) and Phoenix (\$2500); Sumiko's Celebration (\$2000); the Benz "Gullwing" (\$3000), and from Koetsu, maker of the \$20,000 Blue Lake Platinum, the Black (\$1800) and Rosewood (\$2600).

PHONOSTAGES

In days of yore, all preamps came with built-in phono preamplification. As CDs replaced LPs in the 80s, manufacturers started eliminating phonostages from their preamps, creating a whole new component category—the dedicated phonostage. In actuality, this has brought phono preamps to staggeringly high levels of performance, which in turn has resulted in the likewise huge advancements in all aspects of LP playback.

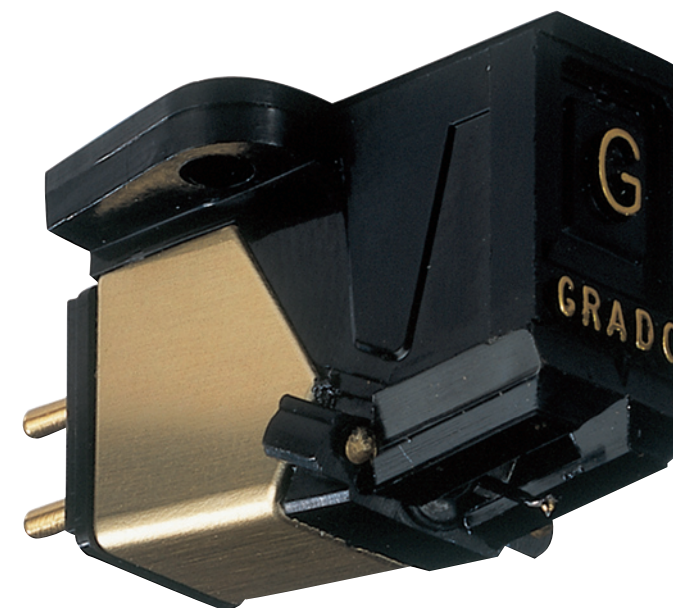
As you might expect, the proliferation of good affordable analog gear has included phonostages, but do be sure that whichever model you choose is compatible with your cartridge (some handle only moving-magnet or moving-coil cartridges, and some accept both).

England's Creek Audio has long championed good low-priced phono playback. Its OBH-18 (\$250) accepts only mm models, while the OBH-15 also plays moving coils. Grado offers the nifty PH-1

(\$500); Parasound, the ZPhono (\$200); Pro-Ject, the Phono Box MKII (\$159) and Phono Box USB (\$199) for use with computers, and the \$499 Tube Box II and SE version (\$699). Bellari also makes a tiny tube model, the \$250 Rolls VP 130; Clearaudio offers the Smart (\$600) and Basic (\$900); Rogue Audio's Stealth goes for \$795; Simaudio builds the fine Moon LP3 (\$500) and LP5.3 (\$1500); PS Audio has the versatile GCPH (\$995); and Musical Surroundings markets the Phenomena II (\$600) and Nova Phenomena (\$1000).

Stepping up—er, no pun intended—Sutherland's battery-powered Ph3D (\$1000) and PhD (\$3000) offer terrific sound with very low noise; as does the tiny Benz Lukaschek (\$1750).

Finally, it should be noted that Audio Research is again building a full-function tube preamp with built-in phono capability, the \$3495 SP17. *tas*



4 uses a clever stabilizing method to solve an inherent "roll" problem with unipivot bearings.

Finally, should cost be no object, the extraordinary wood-and-metal-sculpted Da Vinci Grandezza "Grand Reference" may be your ticket, albeit an expensive one at \$9700.

Twelve Analog Components That Shook the Audio World

TAS EDITORS AND SENIOR WRITERS WEIGH IN ON THE TWELVE MOST INFLUENTIAL PIECES OF ANALOG GEAR IN THE STEREO ERA

Chris Martens, Harry Pearson, Paul Seydor, Jonathan Valin

THE GOLDEN AGE OF EARLY STEREO RECORDING

It isn't possible to do honor here to the sonic masterworks that followed the introduction of the stereo LP (1958). But the minimalist miking techniques then and the philosophy that a recording should sound like a live performance gave rise to a series of records still viable a half-century later: Mercury "Living Presence," RCA "Living Stereo," Columbia Records (most notably its recordings of American composers), and British Decca and EMI. A host of smaller labels jumped into the fray, from Great Britain's Lyrita to America's Sheffield (direct-to-disc, a category unto itself), Mobile Fidelity, and Reference Recordings. What these LPs had in

common was a natural truthfulness largely lost in today's compressed, multimiked digital wonders. Invaluable for those testing sound systems, Golden Age discs have inspired modern remasterings of the original tapes by Classic Records, Speakers Corner, Acoustic Sounds, and many more. **HP**



ACOUSTIC RESEARCH XA INTEGRATED TURNTABLE

Introduced in 1961, Edgar Villchur's classic is the progenitor of all tuned-suspension belt-drives—still the best way to isolate, support, and spin vinyl. Thorens, Linn Sondek, SOTA, SME, and countless others all stand on the XA's shoulders. I don't know a single serious audiophile from my generation who didn't own one: not necessarily because it cost only \$78, but because it was as good as you could get, demonstrating that turntables sounded different long before Ivor Tiefenbrun made a dog-and-pony show of it. I can't tell you how many direct-drives I tried—some of them highly praised in TAS—only to discover that none of them, even with arms superior to the XA's, sounded as good. Elegantly beautiful

in mid-century Modern style, the XA occupies a permanent place in the Museum of Modern Art's industrial-design collection. **PS**

SME 3009 TONEARM

My friend and colleague Ken Kessler calls Alastair Robertson-Aikman the "da Vinci of high-end audio" and "the 3009 his Mona Lisa." Introduced in 1960, the 3009 was not the first arm to be marketed *sans* turntable, but it is unquestionably the one that established arms as separate components. Flawlessly engineered, precision built with knife-edge bearings, the 3009 was the first arm I ever bought, its purchase representing for me a kind of passage, symbolizing that,



whether blessed or cursed, I had become at last, finally, and irrevocably a real audiophile. The rise of moving coils in the seventies mandated a different design, which Robertson-Aikman eventually supplied in another statement product, the magnificent Series V, arguably the definitive rigid, fixed-bearing arm. But it is doubtful that any arm will ever achieve or surpass the twenty-year reign his *Mona Lisa* enjoyed **PS**

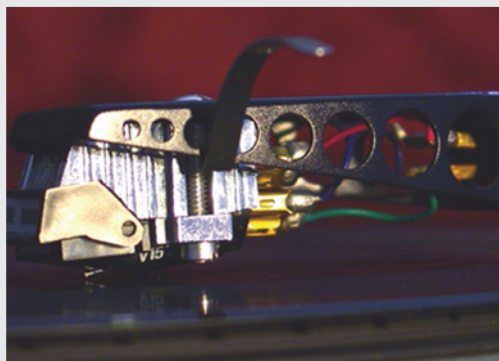
RABCO SL8-E TANGENTIAL TONEARM

Since LPs are mastered with cutter heads that move in a straight line across the disc, it has always seemed logical to play them back in the same fashion to achieve lowest tracking error and highest fidelity. Most audiophiles were introduced to the joys (and pitfalls) of tangential tracking in the late 1960s, when the Rabco SL8 and SL8-E came on the market. Equipped with a bead-chain drive and motion sensor that kept the arm moving in a straight line across the record (and an overly energetic lift device that could put your eye out if you weren't careful), the SL8 was something of a Rube Goldberg contraption.

But like the girl with the curl, when it was good it was very, very good. It was also very, very influential, prompting the development of several generations of straight-line tracking arms, right down to today's masterpieces from Kuzma and Walker. **JV**

SHURE V15 PHONO CARTRIDGE

The early sixties were a fertile period for vinyl that set design trends for the next fifteen years, especially phono pickups. Despite a few moving coils, the Deccas, and some oddballs, it was low-mass, high-compliance moving-magnets that had the market cornered. With the V15, introduced in 1964, Shure coined the term "trackability," because it tracked anything at a VTF as low as a gram. Although hugely popular, the V15 was considered by some audiophiles to be grainy and lacking in transparency and dynamics. But nobody could gainsay its low distortion, tonal neutrality, and tracking ability. Beginning with the Type III and climaxing with the xMR, the V15 eventually won back even many audiophiles addicted to moving coils. As well it should have: Of its kind and type, there was none better and, frankly, none as good. **PS**



KEITH MONKS RECORD CLEANING MACHINE

By the time the Keith Monks professional record cleaning machine (circa 1967) came into wider currency, serious LP collectors had tried a host of wonders to keep their discs in good shape—the Discwasher, Ball Sound Guard, the Vac-O-Rec, etc. But the Monks did something none of these "toys" did: It improved imaging specificity and allowed greater stage width and ambience retrieval, while increasing the sense of dynamic contrast and harmonic subtleties. In other words, its kind of cleaning showed there were unsuspected wonders buried deeply in the vinyl grooves. In spite of its sky-high price for the time (\$1500), it became the reference standard for the serious audiophile, even though it was klutzy in the British design way. I'm not sure any of its descendants from Nitty Gritty, VPI, or Clearaudio have had a more dramatic sonic effect. **HP**

DECCA LONDON INTERNATIONAL PICK-UP ARM

Nowadays, unipivot tonearms are widely available. This was not the case when Decca Special Products began exporting its London International tonearm (to go with its Decca cartridges) to the U.S. The idea of using a single contact point for a bearing did not originate with Decca—12" and 16" unipivot arms from companies like Audak were around in the 50s and early 60s—but Decca's ingenious solutions to the problems of maintaining proper azimuth through lateral and vertical viscous damping and of isolating the arm from vibration through the use of magnets (what Decca called "magnetic floating action") were novel. Never a snap to set up and an ongoing trial to maintain in running order, the London International was, nonetheless, the first successful stereo-era unipivot, paving the way for the current plethora of unipivot designs from brilliant contemporary engineers like Harry Weisfeld, A. J. Conti, and Bob Graham. (Rumor has it that the London arm may itself return in improved form in the not-too-distant future.) **JV**



LINN SONDEK LP12

Linn's Sondek LP12 belt-driven turntable with suspended subchassis was released in 1972 and—many revisions later—is still going strong today. Here we recognize the LP12 not only for its performance, which seemed eye-opening in the 1970s, but also because it introduced two ideas that have influenced audio ever since. First, the LP12 introduced the notion that, apart from measurable attributes such as rumble, wow, and flutter, turntables affect qualitative aspects of vinyl playback in myriad other ways. To prove this point, Linn founder Ivor Tiefenbrun equipped LP12s and competing tables with identical phono cartridges, and conducted comparative "listen offs." Surprised participants often found the LP12 more *emotionally* engaging than 'tables offering theoretically superior specifications—a revelation. Second, the LP12 introduced a "source-first" mindset—that hi-fi system performance hinges, first and foremost, upon high-quality source components—which continues to influence high-end enthusiasts today. **CM**



AUDIO RESEARCH CORPORATION SP3 PREAMPLIFIER

One could almost say that the ARC SP3 put *The Absolute Sound* on the map. It is certainly one of the small handful of classics that will forever be associated with the “high end” as freshly defined by HP in 1973. No one had heard a 12AX7 tube preamp quite as remarkable as this one before—one with such neutrality, extension, transparency, resolution, soundstaging, and low distortion. Its designer, William Zane Johnson, labeled it a “High Definition Stereo Control” unit, and this was no idle boast. Today, phonostages are optional; back then they were a preamplifier’s (and a preamplifier designer’s) chief glory. If you listened to LPs (and who didn’t in the early 70s?), the SP3 was the preamp to listen through. ARC went on to better the SP3—indeed, Johnson bettered it with the SP3a-1—but from the moment it first appeared it raised our expectations about vinyl playback (and what was engraved in those grooves) for good. **JV**

SUPLEX SD900 MOVING-COIL CARTRIDGE

When it came to phono cartridges, the high end was a moving-magnet or moving-iron world until the arrival in the mid-1970s of the Supex SD900 from Japan (which, at that time, would automatically have been followed by the words “of all places”—so little-known and poorly regarded was the Japanese high end). Designed by the late Yoshiaki Sugano, who famously went on to design the Koetsu cartridges, the Supex wasn’t the first moving coil—that honor belongs to Ortofon’s monophonic AB, marketed in 1948 (alongside the earliest LPs)—but it was the first to fire American audiophiles’ imaginations. Never a brilliant tracker, not particularly high in output (though considerably higher than the unfeasibly-low-output Ortofons), and tending toward a beguiling brilliance in the upper-mids and treble, the Supex SD900 was simply (and excessively) gorgeous-sounding, and so fast, clear, and detailed that it showed up the moving-magnet competition for what it was—veiled. The SD900 (and its Koetsu brethren) not only changed the way we thought about moving coils; it changed the way we viewed Japanese high-end audio and marked the beginning of the mc’s ascendance. **JV**

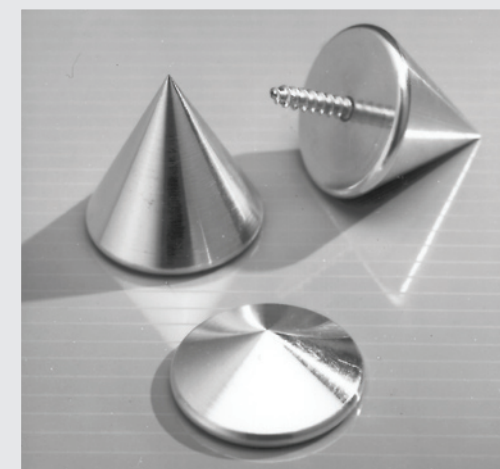


GOLDMUND STUDIO INTEGRATED TURNTABLE

This was the first of the massive turntables, often integrated with a sophisticated pickup arm. The \$2300 Goldmund was designed with the T-3B straight-line tracking arm (sold separately for \$2900—and this more than two decades ago), the first, in my view, successful application of a technology introduced by Marantz and Rabco in the late 1960s. Oddly enough, in an era when belt-drive was all the rage, Goldmund chose direct-drive and the table sounded none the worse for its use, thanks to the superior isolation strategies. The Goldmund spawned the less massive Versa Dynamics, the widely admired Rockport system, the 350+-pound Walker, down to the British Blue Angel (*sans* arm) and Australian Continuum of today. Some of the benefits of such heavyweights are intuitively obvious: freedom from induced external noise; far deeper bass response; and extremely low distortions of speed, wow, and flutter. This design showed many that there was more potential inside the record grooves than we had thought. Then came the Compact Disc. **HP**

ACCESSORIES

Analog audio has exhibited such staying power that, over the years, an entire industry has evolved to produce analog-specific accessories. Vinyl fans have looked to keep records (and styli) in pristine condition, at first using old-school cleaning pads and brushes, and then moving up to high-tech record-cleaning machines and other cleaning devices. Clean sound starts with clean records and gear. Analog sound quality invariably goes up as noise floors go down, so whole families of accessories attempt to address noise and vibration problems. First there were record clamps and weights, platter mats and damping devices, and now there are turntable mounting aids ranging from tip-toes to NASA-grade vibration-isolation platforms. And through it all, analog sound quality continues to improve. Finally, thanks to specialized turntable set-up tools such as stylus-force gauges, alignment protractors, test records, and instructional “how-to” videos, analog audio is more accessible than ever. **CM tas**



RUNNER-UPS

Paul Seydor's Runner-Ups

Despite the ingenuity of specialty mats, clamps, weights, and outer-rings to deal with the ubiquitous problem of warps, only one method is consistently effective: low-level, constant-pressure vacuum hold-down. The first company to make this work reliably and safely is SOTA, which offers it as an option for most of its turntables, including the flagship Cosmos. Others followed, notably Basis, but SOTA's designer David Fletcher got there first with a system that worked. As the record is bound intimately to the platter, a happy by-product is efficient dissipation of nasty resonances that becloud vinyl playback.

Our list singles out knife-edge, unipivot, and straight-line arms, but not fixed-bearing types, which, thanks to Rega, are arguably in greater use than any other. Fletcher's The Arm set the first real benchmark for this kind of arm and remained unsurpassed until the SME V, with its one-piece arm cast from magnesium.

Jonathan Valin's Runner-Ups

Though it didn't really "lead" anywhere, the Decca cartridge has been around for so long (since the mono era) that it rather constitutes a path of its own. The idea of making a "cantilever-less" cartridge that placed the stylus directly in the magnetic field was, for all its foibles, brilliant. And the results still speak for themselves—the London Reference (the latest "Decca") still offers an amalgamation of virtues that no other cartridge delivers.

Over the years I've been privileged to hear any number of great record players, but none better than the Walker Black Diamond. Designed (with infinite patience) as a system, using principles that are well-established and parts that have been tested and re-tested (right down to screws and nuts), it is a contemporary masterpiece that isn't so much an influence on other designs as it is a culmination of other design influences.

Chris Martens' Runner-Up

ADC's mid-1970s XLM phono cartridge sounded noticeably more rich, vibrant, articulate, and alive than competitors of its day. Though eventually eclipsed by low-output moving coils, in its heyday the XLM served as a beacon of musicality, illuminating the path toward greater things to come.



Nagra phono preamplifiers

Discover the full potential of your LP's



Nagra BPS

Nagra VPS

- Nagra BPS: solid state compact preamplifier
- Nagra VPS: valve preamplifier
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- Dead-quiet operation: external power supply (VPS) and battery powered (BPS)

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Goodwin's High End
Waltham, MA
(781) 893-9000

Music Lovers Audio
Berkeley, CA
(510) 558-1000

Music Lovers Audio
San Francisco, CA
(415) 345-8111

Ne Plus Ultra
Austin, TX
(512) 241-0000

Pro Musica
Chicago, IL
(773) 883-9500

The Audio Salon
Beverly Hills, CA
(800) 900-1563

Manufacturer Spotlight

PRO-JECT

Robert Harley

Pro-Ject is the world's largest manufacturer of turntables, with significant market share all over the world—40% of all turntables sold in Germany bear the Pro-Ject name, for example.

The company was founded in 1990 by Heinz Lichtenegger, Austria's leading high-end audio importer. He built his distribution business by creating extremely high-value "starter" systems with the idea that entry-level customers would discover the joys of high-end audio and eventually upgrade (a strategy that turned out to be very successful). In the late 1980s, Thorens and Dual, his two main suppliers of budget turntables, shifted their emphases to higher-end models. Lichtenegger was looking for a new supplier when, by chance at a party, he met the owner of a Czech Republic manufacturing company that had once made turntables. Reviving turntable manufacturing at the factory, Lichtenegger turned Pro-Ject into a major international brand. The company is based on offering high value via simple solutions to technical problems. A good example is Pro-Ject's use of an elastomeric material that decouples the motor from the plinth, greatly increasing performance at minimal cost. Pro-Ject has recently expanded its line to include magnetic suspension of platters (the RM10) and of the sub-chassis (the new PerspeX).

The line is distributed in the U.S. by Sumiko, which for more than 30 years has specialized in importing analog gear

Where the Nottingham line starts at \$1999, Pro-Ject offers five models below that price and just one above. The line ranges from the \$349 Debut III (also available with a USB output) to the \$2999 RM10. All six Pro-Ject 'tables are supplied with integral tonearms.



Debut III

Although an entry-level model, the Debut III features a silicon-damped arm lift, a steel platter with a bonded-felt mat, and an aluminum tonearm. It comes complete with a Ortofon OM-5E cartridge already mounted on the headshell. The Debut III is available in eight bright colors (for a \$30 premium). The Debut III USB (\$499) adds a USB output and an integral moving-magnet phonostage for simple conversion of your LPs to digital. **\$349**

Xpression III

The Xpression III is a major upgrade over the Debut III, with machined cone feet, a quieter motor, machined acrylic platter, carbon-fiber tonearm tube, improved tonearm bearings, and greater tonearm adjustability (VTA, azimuth, and tangency). The belt is also ground to tighter tolerances. The Xpression III is supplied with a Sumiko Oyster cartridge mounted in the headshell. (Reviewed this issue) **\$699**

RM5 SE

The RM5 SE offers a big step up in performance by virtue of its machined MDF plinth and platter. In addition, the motor assembly is suspended for greater isolation. The 9 tonearm is made from carbon-fiber and features Swiss bearings. The supplied cartridge is Sumiko's upgraded Blue Point No.2. Detachable interconnects and a screw-down record clamp round out the package. (Reviewed in Issue 180) **\$999**

RM9.1

The RM9.1 is defined by its high-mass acrylic platter set on an inverted thrust bearing and a

motor that is physically separated from the base for greater isolation. The unit sits on three machined feet with Sorbothane inserts. The tonearm is an upgrade over lower models, featuring a conical carbon-fiber arm tube with integral headshell and higher-precision bearings. This arm allows use of low-compliance cartridges. Note that no cartridge is included with the RM9.1, but special 'table-and-cartridge packages are available: \$2049 with the Sumiko Blue Point Special Evo III; \$2299 with the Sumiko Blackbird; and \$3299 with the Sumiko Celebration III. (Reviewed in Issue 164) **\$1799**

PerspeX

This latest addition to the Pro-Ject line features a clear acrylic plinth above which floats a Corian sub-chassis suspended by a magnetic field. The PerspeX uses an entirely new 9 tonearm, the 9cc Evolution, which is made from a single piece of conical carbon fiber with integral headshell and ultra-rigid bearings. A record clamp is included, and the unit sits on Sorbothane-damped aluminum cones. **\$1999**

RM10

The RM10's dual-layer acrylic platter has fully double the mass of the RM9.1's platter for greater speed stability. The plinth is made from metal-dust-impregnated MDF covered by a steel plate. The platter is suspended above the plinth by magnetic repulsion to reduce bearing friction and thus noise. A 10 carbon-fiber weave tonearm features Swiss-built bearings. The RM10 is supplied with a brass record clamp and isolation platform. **\$2999**

REGA RESEARCH

Robert Harley

England's Rega is one of the great and venerable names in analog. For decades, if you wanted a high-quality turntable that didn't cost a lot of money, Rega was undoubtedly on your short list.

The company was founded in 1973 by Roy Gandy, then a technical editor for *Ford*. He repaired hi-fi equipment as a sideline and, after becoming intimately familiar with how turntables were built, decided he could make a better one. His first product was the Planet, a moderately successful turntable for the day.

But it was the Rega Planar 2 in 1975 and the Planar 3 in 1977 that put the company on the map. The Planar offered so much performance and value that it quickly became the budget turntable. For the next eight years, various versions of the Planar were fitted with tonearms sourced from Japan or Denmark. But Rega wanted its own tonearm, and in 1983 developed the revolutionary RB300. Working with a casting company, Rega developed an entirely new method of creating a one-piece aluminum arm-tube. The RB300 soon became ubiquitous on turntables from a wide range of manufacturers; Rega has sold more than 250,000 RB300-derived tonearms to date.

Rega now makes seven turntables and five tonearms, along with a full range of electronics, loudspeakers, cables, and accessories.



P1

Rega's entry-level turntable comes complete with the new RB100 tonearm and Ortofon OM5e moving-magnet cartridge. The modern version of Rega's classic 'table. (Reviewed in Issue 171) **\$395**

P2

This step-up model features a thicker platter for greater speed stability, an upgraded tonearm (Rega's RB251), and a higher-quality main bearing and motor than the P1. The P1 and P2 use the same MDF-sandwich plinth structure. The P2 is also available with a Bias 2 cartridge for \$645. **\$545**

P3-24

The P3-24 ups the ante with a higher-grade MDF plinth sheathed with a phenolic-resin laminate, an upgraded motor used in the more expensive P5 and P9, and an RB301 tonearm. The result is greater dynamic range, lower noise, richer tonality, and improved bass. Performance can be taken to the next level with the worthwhile \$375 TTPSU power supply. Can be ordered with an Elys 2 cartridge for \$1095. (Reviewed in this issue) **\$895**

P5

The P5 marks a major upgrade to the plinth; rather than being made from medium-density fiberboard (as in the P1 and P2) or phenolic-resin laminate (as in the P3-24), the P5's plinth is CNC-machined in a skeletal structure that combines rigidity with light weight. The P5 uses the same

12mm-thick glass platter as the P3-24, but the main improvement is the P5's upgraded RB700 tonearm. **\$1395**

P7

Employing the same skeletal plinth structure as the P5, the P7 adds a phenolic-resin laminate casing and an extruded-aluminum casing around the plinth. The P7 shares the top-of-the-line bearing with the P9. Other refinements include a ceramic platter, the outboard TTPSU power supply, and a dual-drive belt. The P7 shares the RB700 tonearm with the P5. **\$2695**

P9

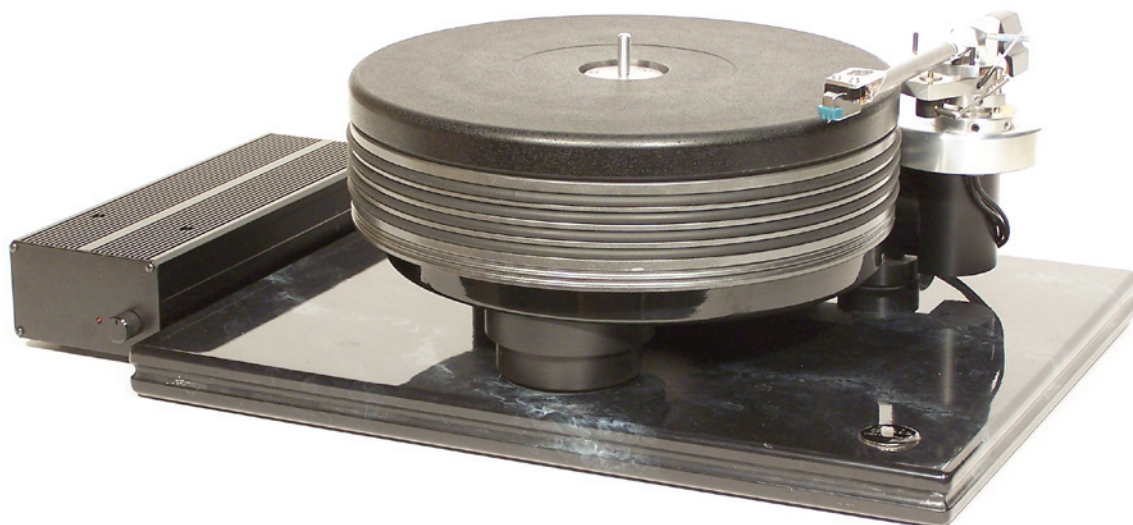
Rega's top model features all the technology of the P7 along with the RB1000 tonearm. The P9's plinth, made from yet a different density of MDF, actually has lower mass than that of the P7, but greater structural rigidity. The RB1000 arm features hand-fit "zero tolerance" bearings, which are housed in a platform of machined stainless steel. Tonearm wiring is upgraded, as is the external cable. The ceramic platter is machined by a diamond hone for three days to achieve perfect balance. The phase offset in the motor power supply's AC signal is hand-tuned for each 'table-and-motor combination to eliminate motor vibration and achieve high speed stability. Finally, the P9 can be ordered in a variety of metal and solid hardwood decorative panels. **\$4995**

NOTTINGHAM ANALOGUE

Robert Harley

Founded in 1972 by engineer Tom Fletcher, Nottingham Analogue has long been a mainstay of the British hi-fi industry. The company's turntables employ some unconventional design elements including unsprung chassis (even in their \$38k statement product), a feature that Nottingham believes reduces resonances. The motors have very low torque which, combined with high-mass platters, requires the user to spin the platter up to speed by hand. Many of the parts and techniques in Nottingham's upper-end turntables are also found in the lower-end models, including a very high quality bronze bearing.

The company made its mark with the original Space Deck turntable, which enjoyed sales of more than 10,000 units. The turntables are built by hand in an old farmhouse in Sherwood Forest, with virtually every component made in house. The company boasts that its milling machines are run by humans rather than computers. The Nottingham line comprises seven models, from the \$1999 Interspace Jr. to the massive \$38,495 Deco. Four tonearms are offered.



Interspace Jr. Turntable with Ace Interspace Arm

The Interspace Jr. turntable and Ace Interspace arm are Nottingham's entry-level package. The deck is based on a sturdy plinth that houses the motor and bearing. Although it's Nottingham's entry-level 'table, the Interspace Jr. sports a high-mass platter. The Ace Interspace arm is a unipivot design featuring a carbon-fiber arm tube. (Reviewed this issue) **\$1999**

Ace Space Turntable with Ace Space Arm

The Ace Space features a higher-quality bearing, arm board, and motor mount than the Interspace. In addition, the motor, platter, and armboard are mounted above the plinth for greater isolation from vibration. Note that the Wave Mechanic outboard power supply (\$1599) can be added to any Nottingham turntable. **\$3599**

Space 294 Turntable with Ace-Space 294 Arm

The 294 in the model name refers to the pivot-to-spindle distance in millimeters of the new 12-inch version of the Ace Space 294 tonearm, which produces less tracking error than conventional-length tonearms. The Space 294 also uses a 14-inch platter, improving the platter's rotational stability by adding mass and placing it outside the record's perimeter. (Reviewed in Issue 172) **\$4699**

Hyperspace Turntable

The Hyperspace is the least expensive turntable in the Nottingham line to incorporate a graphite mat and an oil-pumping bearing. Its platter is nearly double the thickness and mass of the lower-line turntables. **\$4499**

Dais Turntable and Wave Mechanic Power Supply

This second-from-the-top-of-the-line package includes the Wave Mechanic power supply, an option on Nottingham's other 'tables. The platter is noteworthy in that it weighs a whopping 65 pounds. **\$7999**

Deco Turntable with Ace-Anna Arm and Deco Power Supply

The Deco is Nottingham's all-out assault on the state of the art. It features a massive platter, extreme isolation from vibration, and Nottingham's reference-grade tonearm, the Ace-Anna. **\$38,499 (\$34,999 without arm)**

Anna Log Turntable

Tom Fletcher's classic design piece featuring sapele wood or oak log base as part of the structural plinth of the table. **\$11,999**

EQUIPMENT REVIEWS

Turntables and Record Players



A New Entry-Level Model from a Classic Brand

Rega P1 Turntable and Ortofon OM5e Cartridge

Wayne Garcia

It was just about, uh, 30 years ago that I bought my first “serious” turntable. Which meant a belt-drive, English-made design. Before then I’d dabbled with direct-drive units from Technics and lusted for a Linn Sondek LP12 (then the ultimate English belt-drive). But lacking the cash to buy one, I instead bought a Rega Planar 3 from a local dealer who swore it was the next best thing. I enjoyed that Rega for years and eventually did “upgrade” to a Linn. To this day Rega seems destined to be the “poor man’s” this or that, when in reality Rega turntables needn’t play second fiddle to any other. They never tried to be anything other than what they are, which is simply the best value going in vinyl playback.

For the unfamiliar, Rega is an acronym for the name of the company’s founders, Tony RElph and Roy GAndy (Relph left the company in the early 70s, Gandy remains Mr. Rega). But what even initiates may not know is that Gandy’s first audio designs were not turntables but loudspeakers, built when he was 18 years old. It wasn’t until he started modifying a hand-me-down Connoisseur model that Gandy began tinkering with record players. The original Rega ‘table was dubbed the Planet—a name that eventually found its way to Rega’s first CD player—but it was the introduction of the Planar 2 in 1975 that put Rega on the map.

A study in simplicity, the Planar 2 was a thin slab of veneered MDF, topped by a 12V AC

synchronous motor, a dual-rimmed pulley that drove a small plastic subplatter, and a glass platter damped by a felt mat. The original Rega arms were S-shaped, with a removable bayonet-mount headshell, and the ‘table’s only control was a rocker switch to power up the motor. Three rubber feet and an O-ring decoupling the motor from the plinth provided minimal isolation, and switching speeds from 33 to 45rpm meant—and still does—moving the drive belt from the pulley’s top rung to its lower one. The idea behind the design was to minimize resonance via low mass and selected materials. Aside from a major arm upgrade in 1983, when Rega introduced the standard-setting and now ubiquitous RB250 and RB300 arms, the P2 and slightly more expensive



P3 remained virtually unchanged until recently. (The P2 just underwent a platter upgrade, and the P3 is in the process of an overhaul.)

At a glance the \$350 Rega P1 is virtually indistinguishable from earlier models. And as Rega proudly points out, the P1 is entirely British-made. It uses the classic Rega motor,

drive system, and main bearing, but instead of glass the platter is made of MDF. The arm is the new RB100, which comes pre-mounted with the Ortofon OM5e moving-magnet cartridge. The only setup required is to attach the counterweight and thread it all the way to the front of the mounting post to reach the recommended 1.75 grams of

EQUIPMENT REVIEW - Rega P-1 Turntable and Ortofon OM5e Cartridge

vertical tracking force. I checked the accuracy of this placement with AcousTech's electronic stylus gauge (reviewed elsewhere this issue), and got a reading of 1.92 grams. Not a huge amount off, but you might want to back the counterweight off a quarter turn or use a similar gauge to get a more accurate VTF.

I enjoyed a great many LPs with the P1, including The White Stripes' *Elephant* [V2], Stravinsky's *L'Histoire du Soldat* Suite [Columbia], Sinatra's *The Voice* [Classic Records reissue], and Milt Jackson and Cannonball Adderley's *Things Are Getting Better* [Acoustic Sounds 45RPM Series]. Like other Regas, the P1 runs ever so slightly fast,

which gives the music a fine sense of energy and pace—two hallmarks of the Rega sound. This also brought out the unique phrasing in a Sinatra vocal line, the dynamic snap and insistent march beat to the opening passage of the Stravinsky, the interplay of the Adderley-Jackson group, and the rhythmic starts and stops of the White Stripes. These are, of course, many of the qualities vinyl lovers cherish, and ones harder to find in digital audio sources. The Rega/Ortofon combo also displayed excellent focus and three-dimensionality in Gerhard's *Libra* [Decca].

Being an entry-level design—and one I might add dropped into a very expensive reference system—what you won't get from this combo is much in the way of extended highs or lows, or the wide dynamic range heard from more costly rigs (I suspect a cartridge upgrade would help, but reviewed the unit only as delivered). That minor criticism aside, because it is destined for less revealing systems, the Rega P1 continues the company's tradition of offering the musical pleasures of analog playback in a very attractively priced package. If you've been tempted to give analog a try but have been put off by the price of admission, Rega has just made it that much harder to resist. **tas**

SPECS & PRICING

Rega P-1 turntable and Ortofon OM5e Cartridge

Type: Belt-drive turntable with factory-mounted Ortofon OM5e mm cartridge

Speeds: 33.3 and 45 rpm (manually selected)

Dimensions: 17" x 5.25" x 13"

Weight: 20 lbs.

U.S.

Price: \$395

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Pro-Ject Xpression

Point-and-Shoot Analog

Paul Seydor

Music Hall's MMF-2.2 turntable is a badge-engineered version of Sumiko's Pro-Ject Xpression III, both originating from Pro-Ject's plant in the Czech Republic. Despite differences in materials, cosmetics, and pickups, the basic turntables are identical, their dust covers, felt mats, wall-wart power supplies, motors, motor suspensions, and belts interchangeable (the MMF's belt even has "Pro-Ject" imprinted on it). The MMF's platter is metal alloy, the Xpression's acrylic; the gimbal arms are identical except that the MMF's is metal alloy while the Xpression's has a carbon-fiber tube. The MMF's feet are a rubber-like compound, the Xpression's machined cones. The Xpression's plinth is finished in a high-gloss smoky grey, the MMF's in a hot Ferrari Red (of which Music Hall's Roy Hall is inordinately proud in his amusing YouTube video). Music Hall supplies its own Tracker pickup, Sumiko's one of its Oyster models. Music Hall's package costs \$450, Sumiko's \$699.

The tonal balance of the MMF, which comes via the UK, is weighted squarely in the midrange, albeit with a little more upper-midrange, lower-highs energy than I like, but which seems to appeal to contemporary British tastes for a little extra brilliance. The low end plumbs no depths—probably a good thing, given the lack of suspension—but is well balanced with nice enough definition. I went immediately to the demanding Bernstein *Carmen* on DG, the beginning of Act IV, the festivities outside the bullring. My notes run to “very pleasing,” bass “a little whumpy,” “excellent lateral soundstage, foreshortened depth.” Despite a tendency to homogenize textures and colors in this most colorful of recordings, I found myself caught up in the sweep of the performance.

Switching to the Xpression III brought an all around improvement, not dramatic but noticeable: more precision in the imaging, wider, deeper soundstage, better clarity and rendition of tone color. Tonal balance is also more natural. Neither setup can boast an especially wide dynamic envelope, but the Xpression's opens out a bit more.





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The strength of the both the MMF and the Xpression is that they embody the analog warmth that many like, their limitations for the most part subtractive rather than additive, always the preferable compromise. tas

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Trickle-Down Technology At its Finest

VPI Aries Scout and JMW-9 Tonearm

Jacob Heillbrunn

Were an audiophile Rip van Winkle to wake up today after a decade or so of sleep, the most astounding development for him would probably be the proliferation of turntables. An increasingly ferocious arms race has been taking place among the turntable set as it seeks to remain a step ahead of digital formats. Magnetic drive, belt drive, direct drive, linear-tracking arm, gimbal arm, pivoting arm—all of these technologies continue to be drastically revised in the pursuit of better sound. One consequence of that pursuit, however, has also been steep prices for statement turntables, ranging from Walker Audio to Continuum Labs, from Brinkmann to Clearaudio. How many of these improvements have actually been trickling down to the new, less expensive turntables that have also appeared in the past few years?

VPI's \$1650 Aries Scout turntable offered a fine opportunity to investigate that question. VPI's Harry Weisfeld, who makes no secret of his dismay at the soaring prices demanded by his competitors, has always tried to hold the line on cost. He believes that by manufacturing his 'tables in the U.S., he can offer the most bang for the buck. The longevity of his company suggests that he may be on to something.

Weisfeld's determination to offer value hardly means that he has been sitting still. On the contrary, he obsessively seeks to refine his turntables. In the past few years, he has enjoyed a creative resurgence, retooling his entire line while

continuing to provide upgrade paths for owners of earlier models. The HR-X, which I have used and enjoyed since it was introduced, is VPI's most expensive 'table. The Scout is its least. It was thus with more than a pinch of curiosity that I settled in to hear how they compared.

When I opened up the box, I have to admit that I was immediately smitten by the Scout's looks. Here was no fussy, tweaky turntable, but a slender, elegant creation that could fit most equipment racks. The plinth and feet display admirable rigidity. The JMW-9 arm comes with an anti-skate device. And a small single motor drives the acrylic platter (speed can be adjusted from 35rpm to 45rpm by

moving the belt downward to a larger section of the spindle). Still, I was a little unsure about how the Scout would actually sound. The HR-X, with its new 12.7 arm, had reached such a level of performance the previous evening that I was hard-pressed to see how the Scout could even remotely compete. To keep the playing field level, I installed the Dynavector XV1-S cartridge that I had been using on the HR-X in the Scout's JMW-9 tonearm.

The first LP that I played was a Columbia pressing of Duke Ellington's *Piano in the Background*. As the orchestra launched into "Happy Go Luck Local," I was initially perplexed. I was expecting something like what my first turntable, the Linn LP12, had

produced—a pleasant but somewhat congested sound that bogged down when passages became extremely complex. The Scout did nothing of the kind. It zipped through crescendos and reproduced Ellington's last chord, a kind of thunderous exclamation mark, with depth and authority. The nuances and inflections of the saxophones were captured with eerie precision.

Initially, I thought I must be deluded. So I went on to pull out trumpeter Harry Edison's Verve LP *Mr. Swing*. Now my perplexity began to turn to admiration. Seldom have I heard the smoothness of Edison's trumpet conveyed as well as it was by the Scout. Its ease and freedom were obvious.



EQUIPMENT REVIEW - VPI Aries Scout and JMW-9 Tonearm

There was no sense of overhang; Edison's trumpet limpidly soared, hesitated, and then plunged back into the musical fray on "Baby, Won't You Please Come Home." Fascinated, I began pulling out album after album. Benny Goodman? The Three Sounds? Not a problem for the Scout. Again and again, I was impressed by its clarity. If you wanted to use a fancy term, I suppose you would say that it explored the interstices of the music with great finesse. This was particularly evident

on jazz recordings, where the musicians love to play ahead of or behind the beat to keep things swinging properly.

The thing that impressed me most about the Scout was its effervescent character. Perhaps its low mass and acrylic platter are responsible for the sense that it just wants to boogie. While the less expensive 'table doesn't convey a feeling of grandeur like the HR-X, which does a magnificent job of conveying hall space, I couldn't help feeling

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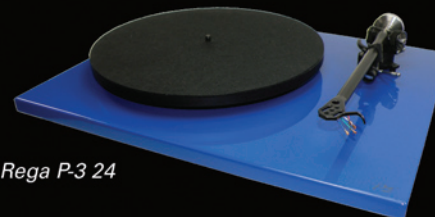
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EQUIPMENT REVIEW - VPI Aries Scout and JMW-9 Tonearm

that the Scout might be nimbler than its big brother. The notes just popped out of it with no sense of delay. I also wondered whether the presentation of the Scout might not be more coherent. Perhaps this was because it doesn't try to portray as large a sonic portrait as the HR-X.

Nevertheless, I didn't feel that the Scout was lacking in this regard. For example, I thought that the Scout might falter on a big orchestral piece. But it didn't. I was deeply moved by its rendering of the wonderful recording of Fritz Reiner conducting the Chicago Symphony in Brahms Piano Concert No. 2, played by the Russian pianist Emil Gilels. In the Andante, the Scout beautifully evoked the initial interplay between clarinet and cellos before

the piano makes its understated and dignified entrance. Would the HR-X have presented this even more vividly and powerfully? Absolutely. But the Scout drew me into the music so much that I never thought about what might be missing.

If all you're hearing is mechanical reproduction, you're on the fastest road to audiophile frustration, unless you can achieve that sense of emotional connection to the music. For me that moment came most poignantly listening to the youthful Dietrich Fischer-Dieskau's performance of the "Grecian Gods" on a mono Angel blue label. The song, which exemplifies the 19th-century German infatuation with ancient Greece, is one of Schubert's most moving. At its conclusion, Dieskau mourns, "Lovely world, where are you?" and then, in triple pianissimo haltingly murmurs, "Where are you?" I was mesmerized by the Scout's ability to capture this haunting passage by maintaining Dieskau's incredibly subtle dynamics.

How much of this was due to the exemplary Dynavector XV1-S cartridge? Oh, probably a lot. I continue to think that it's one of the best cartridges available. Still, to my mind, there is no doubt that the Scout is a frighteningly good performer. In boxing lingo, it fights way above its weight class.

The Scout will not satisfy everyone, but then that's why VPI has a whole upgrade path. Just going from the acrylic to the new 35-pound "super platter" on the HR-X, for example, endowed it with a weight and power and a sense of black backgrounds that it had not previously possessed. What the Scout does show, however, is that, yes, more costly innovations are indeed filtering down to budget 'tables. The result is that audiophiles have more options than ever before. And without a doubt, the Scout is a fabulous one. **tas**

SPECS & PRICING

VPI Aries Scout and JMW-9 Tonearm

Type: Belt-driven turntable

Wow and flutter: Less than .02%

Speed accuracy: Within .1%

Dimensions: 18 1/2" x 14" x 6"

Weight: 32 lbs.

U.S.

Price: \$1650

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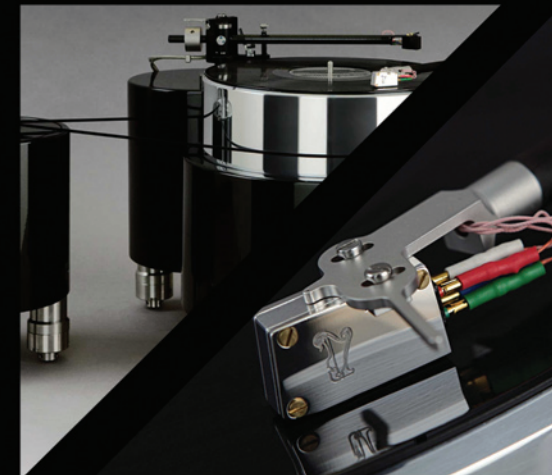
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A Magnetic Performer

Clearaudio Performance Turntable System

Jim Hannon

Floating the platter of a turntable on a cushion of air has been an approach used by some designers of high-performance turntables to reduce bearing friction, improve speed stability and isolation, and lower the noise floor. Although air jets were employed decades ago in turntables from Micro Seiki and Maplenoll, among others, reference turntables from Forsell, Rockport, and Walker Audio have used them to great effect in more ambitious and fully realized designs. Another technique to float the platter is to use magnetic repulsion, as in the Verdier Platine, introduced more than twenty years ago. Two rings of magnets with the same polarity are precisely aligned in opposition in the base and the underside of the bearing. The magnetic repulsion supplies the lift. Yet magnetic bearings have not been widely employed, perhaps because of concerns that the magnetic field used to float the platter can harm sensitive cartridges, the challenge of floating the platter evenly, and the problem of effectively dissipating the energy created by the stylus in the groove.

But times are changing, largely due to advances in materials science, precision mechanical engineering, and, yes, in making thicker platters to contain the magnetic field. The Pro-Ject RM-10 was my first direct experience with a turntable using magnetic repulsion, and it was a honey. While it does not completely float the platter (a design choice so that energy in the pickup/platter is dissipated via a single point through the bearing), it takes most of the platter's weight off the bearing, yielding a lower noise floor, enhanced clarity, greater dynamic impact, and a more natural presentation. Now comes

Clearaudio using a ceramic magnetic bearing (CMB) across its entire line of turntables, save for the entry-level Emotion. I wondered how the new Clearaudio Performance turntable with its floating platter might compare to the older, more expensive Ambient without it, and to the Pro-Ject RM-10 that I nominated for a 2007 Editors' Choice award.

The short answer is that the Performance, with its wonderful clarity and naturalness, sounds like a mini-Ambient and shares many of the best sonic attributes of the RM-10, too. Coupled with the Maestro, Clearaudio's top moving-magnet

EQUIPMENT REVIEW - Clearaudio Performance Turntable System

cartridge, the sound of the Performance was highly engaging, rich, and dynamic. The noise floor was very low, allowing more low-level information to emerge and helping to draw me into the music. Coleman Hawkins' tenor sax on *In a Mellow Tone* [Prestige OJC] was seductive, with its sweet, airy tone. On Mark Knopfler's *Kill to Get Crimson* [Warner] and Eric Bibb's *Rainbow People* [Opus 3], music flowed naturally, with a notable absence of stress and strain, and surprisingly good detail. It's enough to make folks seriously consider moving-magnet cartridges. While falling somewhat short of the superlative SME 20/12, the Performance's sense of ease and engagement made me think, at times, that I was listening to a reference 'table.

While the Performance and Maestro make for a synergistic and highly cost-effective combination, using a first-rate moving coil is not out of place on this turntable system and can elevate its performance still further. The included Satisfy tonearm, which boasts an aluminum armtube with a vaporized layer of carbon fiber and a three-point bearing with hardened steel points into ruby thrust-pads, certainly seemed up to the task. Unfortunately, I didn't have the Clearaudio Concerto that worked so well with the Ambient on hand, but I was able to mate the Performance with the Benz Ebony H, the best high-output moving coil I have heard. The sound was clean and clear without being sterile, and images were quite stable. As with the original Ambient, the leading edge of transients was very well preserved and the percussion section came alive on Stravinsky's *Petrushka* [Decca/Speakers Corner] and *The*

Rite of Spring [London]. Tympani strikes, in particular, were reproduced with thrilling impact and explosiveness, and without any blurring. This level of transient quickness, coupled with a lot of fine inner detail and that wonderful clarity, helped me to appreciate the artistry of drummer Philly Joe Jones even more on Ben Webster's and the late Joe Zawinul's collaboration, *Soulmates* [Riverside/OJC]. Webster's haunting tenor sax had me floating away.

The Performance and Benz combo produced a wide, open soundstage, providing a good sense of the recorded space, like the effect of the dome overhead on Berlioz's *Requiem* [Vanguard/Classic Records]. The sound was rich and full without feeling bloated or slow, and massed strings sounded both gorgeous and realistic. Indeed, this combination lets the natural timbre of instruments fully bloom, like David Oistrakh's Guarneri viola on Mozart's *Sinfonia Concertante* [Decca/Speakers Corner]. Its exquisite tonal richness might fool you into thinking that he is playing a cello. Vice nice, indeed.

Although the original Ambient had very good transparency, the Performance may be even more transparent, making this 'table very special. On Prokofiev's *Symphonic Suite of Waltzes* [Cisco Music], veils were lifted, and it was almost as if one could reach out and touch the orchestra. This level of transparency is simply stunning in a turntable system in this price range. Undoubtedly this clear window on the soundstage is related to the Performance's magnetic bearing. The good news is that most Clearaudio 'tables can be upgraded to include the CMB, but the acrylic platter must be at

least 30mm thick, as it is part of the overall "system," along with a high-precision ceramic shaft that fits perfectly into a bronze bearing and special shielding material that helps protect your expensive cartridge. If I owned an original Ambient, adding the CMB is the first upgrade I'd make!

The Performance does fall short of the original Ambient in a couple of areas. First, it doesn't have the degree of isolation from external vibrations afforded by the Ambient's lightweight yet extremely dense Panzerholz plinth. The Performance uses a highly compressed MDF core, sandwiched by a top and bottom plate made of a synthetic-marble material called Staron. Like Corian, it is used in a lot of kitchen countertops and has found its way into high-end audio. However, the Performance absolutely must be placed upon a stable, rigid platform or you won't get close to the remarkable performance this 'table can yield. On my CWD rack, which served me well when I owned a SOTA Star, the Performance's bass was bloated and the sound was muddled. However, adding the Gingko isolation platform really helped clean up these problems, and when I transferred the Performance to my Rix Rax, a very rigid and stable platform, they disappeared.

Second, the Performance lacks the Ambient's precise outboard speed controller/motor. With most 'tables that don't have external speed controllers, I go running for my trusty VPI SDS, but with the Performance I didn't feel compelled to use it. Indeed, this CMB-outfitted Clearaudio has the best native speed stability of any belt-drive table without an external speed controller

SPECS & PRICING

Clearaudio Performance Bearing: Ceramic magnetic Type of drive: Belt Tonearm: "Satisfy" (aluminum and carbon-fiber) Motor: External synchronous motor Speeds: 33-1/3 and 45 rpm Dimensions: 16.55" x 13" x 5.12" Weight: 22.05 lbs. (including motor)	Clearaudio Maestro cartridge Type: Moving-magnet Output: 3.6mV Weight: 6.0 grams (with Satine body) Recommended tracking force: 2.2 grams
Clearaudio Performance Type: Moving-coil Output: 2.5mV Weight: 10.7 grams Recommended tracking force: 1.8 to 2.2 grams	

U.S. Clearaudio Performance Price: \$2799 (with arm) Clearaudio Maestro cartridge Price: \$1000 (sold separately, but \$900 with Performance) Benz Ebony H cartridge Price: \$3000	U.K. Clearaudio Performance Price: £2540 Clearaudio Maestro cartridge Price: £685 Benz Ebony H cartridge Price: £1995
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EQUIPMENT REVIEW - Clearaudio Performance Turntable System

I've experienced. It totally trumps my VPI Aries (sans SDS) here. Admittedly, if you listen to a lot of solo violin or piano (and I do), you can occasionally hear some minute pitch wobble on sustained notes on masterful recordings like Johanna Martzy's *Bach* and Clifford Cuzon's *A Liszt Recital* [Decca/Alto]. With the addition of Clearaudio's own external speed controller, the Syncro Power Generator, the Performance's speed stability equaled that of the excellent Ambient.

At a minimum, Clearaudio's Performance turntable system, with its outstanding ceramic-magnetic-bearing technology, certainly rivals the Pro-Ject RM-10, another 'table that uses

magnetic repulsion. By dramatically reducing bearing friction and isolating the stylus in the groove, this new Clearaudio 'table allows lots of low-level information to emerge and produces a transparency, clarity, and speed stability that are pretty shocking in a modestly priced unit. The music flows effortlessly, with an engaging and addictive openness and palpability. Since most Clearaudio turntables will benefit from the addition of the CMB technology, floating the platter will no longer be the exclusive province of exotic and expensive turntables. That's great news for analog lovers everywhere! **tas**



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Nottingham Analogue Studio-Space 294 turntable and Ace-Space 294 tonearm

Chris Martens

I first became curious about Nottingham Analogue Studios (NAS) turntables and tonearms after reading Stephan Harrell's favorable 2002 review of the NAS Space Deck 'table/arm combo in Issue 138. What appealed to me was Harrell's description of the Space Deck as an analog playback system that was highly three-dimensional, richly detailed, yet not excessively analytical, sterile, or bright. I enjoy audio products that offer ample resolving power as much as the next fellow, but not if resolution comes at the expense of sound that is persistently brighter than the real thing. Eager to learn more about Nottingham, I began to do background reading and gradually to form a mental picture of Tom Fletcher, the company's founder and chief designer. Fletcher, as near as I can tell, is roughly equal parts inventor, materials scientist, and audio pragmatist, with a bit of iconoclast thrown in for good measure—a man who, in his own words, wants “music, not hi-fi.” Not surprisingly, Fletcher's Nottingham turntables and tonearms are models of functional simplicity, yet they incorporate unconventional design touches in subtle but purposeful ways. Two good examples would be Nottingham's Space 294 turntable and Ace-Space 294 tonearm (\$4699 for the pair), which combine elements of simplicity and innovation to serve music in a rare and beautiful way.

The Space 294 is a large belt-driven turntable designed specifically for use with 12-inch tonearms such as the Ace-Space 294, whose pivot-to-spindle length happens to be 294 millimeters (hence the “294” appellation). Constructed with an eye toward maintaining consistent rotational speed, the Space 294's features an oversized, 14-inch metal platter that is damped by two large rubber O-rings that fit in grooves on the platter's rim. During my listening sessions the Space 294 exhibited virtually no audible speed fluctuations—not even on passages that tend to reveal speed instabilities. When I played the “Three Cowboy Songs” medley from Dave Grusin's *Discovered Again* [Sheffield Labs], a track whose solo piano sections often expose speed problems, the Nottingham made Grusin's piano sound as stable as the



Rock of Gibraltar. Nottingham's optional Wave Mechanic outboard power supply might improve speed stability even more, but I think most audiophiles would be well satisfied with the Space 294 in standard form.

To ensure low-noise operation, the Space 294 features a hardened steel spindle that rides within an oil-pumping lead-bronze main bearing.

Machining tolerances are so precise that, upon initial installation, the platter/spindle assembly takes several minutes to settle to the bottom of the bearing well. Friction is so low that when I gave the platter a gentle push I found it continued to rotate for more than three minutes before slowing to a stop. To make the most of the Space 294's main bearing and platter, Fletcher deliberately equips

EQUIPMENT REVIEW - Nottingham Analogue Studio-Space 294 turntable and Ace-Space 294 tonearm



the turntable with an ultra-low-torque synchronous motor. Because the motor cannot (and does not attempt to) bring the turntable’s platter up to speed from a dead stop, Nottingham foregoes a traditional on/off switch. Instead, the motor remains plugged in at all times, while the platter must be started and stopped *by hand*. Why this unorthodox approach? Fletcher believes turntable motors should supply “just enough energy to keep the platter spinning; any motor with enough power to start a heavy platter has too much to properly play records.”

Initially I had misgivings about the Nottingham’s always-on motor and kick-start platter, but once I heard the Space 294 in action I had to concede that it produced quieter backgrounds than any other turntable I’ve had in my home. In fact, the Space 294’s noise floor was so low that it became easy to discern minute variations in levels and textures of tape hiss and record surface noises. The Space 294 reveals that blank grooves on 1970s vintage Columbia discs typically exhibit more grit and grain than those on EMI discs of the same period. Similarly, the Nottingham shows how eerily silent the disc surfaces on Analogue Productions’ 45rpm LPs really are. The point is that the Space 294 is so quiet that it effectively removes itself from the playback equation; all you hear is the record, and nothing but the record.

Complementing the Space 294 is the Ace-Space 294 tonearm, which features a long-grain carbon-fiber arm tube and an underslung counterweight. Unlike most unipivot arms, the Ace-Space 294 does not use eccentric counterweights or side-weights of any kind for azimuth control. Instead, Nottingham says, the arm uses internal “stabilizer bars and tiny ball bearing chases to maintain azimuth,” with the bars and central pivot bearing

both coated with a proprietary, highly viscous damping material that “does not flow and does not require ‘settling time’.” The arm also incorporates a so-called “in-line” headshell that features no finger lift and no offset, and is positioned directly in line with the arm tube. As a result the Ace-Space 294 arm exhibits minimal side-to-side rocking motion and requires little if any azimuth adjustment, at least with some cartridges.

Should azimuth tweaking be required, as was the case with the Shelter 7000 cartridge I used,

SPECS & PRICING

Nottingham Analogue Studio Space 294 turntable, Ace-Space 294 tonearm

Turntable type: Belt-drive, synchronous motor, 14" platter

Tonearm type: Unipivot, internally damped

Tonearm length: 12" (294mm, pivot to spindle)

Overall dimensions: 22" x 16" x 9"

Weight: 58 lbs.

U.S.

Price: \$4699

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EQUIPMENT REVIEW - Nottingham Analogue Studio-Space 294 turntable and Ace-Space 294 tonearm

another surprise awaits. Unlike tonearms whose headshells are made of one piece with the arm tube, the Ace-Space 294 provides a milled aluminum headshell that is coupled to its carbon-fiber arm tube via a tight but *hand-adjustable* press fitting. To fine-tune azimuth, users grasp the arm tube in one hand and the headshell in the other, then carefully rotate the headshell into the desired position. On paper this might sound somewhat imprecise, but in practice it works like a charm. This arm pays huge sonic dividends for those who take the time to get azimuth and vertical tracking angle properly dialed in. Though it takes a fair amount of trial and error to reach an optimal setup, the good news is that the Ace-Space 294 makes the effects of even minor adjustments easy to assess, so that when you reach the sonic “promised land” you’ll know it. And once that happens, here’s what you can expect.

First, on good recordings, the Nottingham produces soundstages of exceptional depth, width, and overall three-dimensionality—arguably the turntable’s greatest strength. I put on the Von Karajan/Berlin recording of Stravinsky’s *Apollon Musagète* [Deutsche Grammophon] and was dumbstruck by the way the ’table captured the sheer size and physical stage presence of the Berlin Philharmonic. The Nottingham let me hear how individual orchestra sections interacted with one another and—especially—with the hall, conveying a sense of the orchestra as a living, breathing organism. This is not one of those polite turntables that presents soundstages in miniature; on the contrary, the aptly named Space 294 sounds appropriately big and full-bodied, always letting you hear and appreciate the acoustics of the recording venue.

Second, the Nottingham produces rock-solid images that are consistently stable and tightly focused. On “Missile Blues” from the Wes Montgomery Trio’s eponymous album [Riverside, Analogue Productions reissue, 45rpm], I was floored by the vivid illusion that Montgomery’s sweet-sounding guitar amp was located only a few feet away and directly across the room from my listening chair. The illusion was further enhanced when, as Montgomery emphasized certain notes and phrases, I was able to hear the *acoustic* sound of his picking and fingering noises as separate and distinct from the amplified sound of the guitar. A thousand and one small sonic details have to come together in unison to produce images this believable, and the Nottingham captures them effortlessly.

Finally, the Nottingham delivers a carefully balanced combination of resolution and detail on the one hand, and natural warmth on the other. Tom Fletcher is on record as saying that “our (Nottingham’s) turntables are generally on the warm side of neutral,” though I think his statement is somewhat misleading. If we use the sound of live music as our standard, then I would argue the Space 294/Ace-Space 294 sound is truly neutral, where many “definition-driven” products sound colder, brighter, and more clinical than the real thing. Let me provide a concrete example to illustrate the point. As I write this paragraph, I am listening to the Michael Tilson Thomas/Boston recording of Debussy’s *Images pour Orchestre* [Deutsche Grammophon]. Many analog systems capture the basic beauty of this recording yet impart a cold, steely quality over the top of the strings, which spoils the effect I believe Debussy was after. But the Nottingham is different; though

very detailed in its overall presentation, it nails the rich, almost buttery-smooth quality of the Boston strings in a way that brings the entire composition alive and lets it sing.

If I might borrow Jonathan Valin’s helpful “truth vs. beauty” distinction, I would say the Space 294/Ace-Space 294 combo deliver sonic truths aplenty (more than many analog systems can), but that it is, at heart, a machine whose primary purpose is revealing the beauty of well-recorded music. That works for me. **tas**





Wilson Benesch Full Circle Analog System

A complete LP playback rig that incorporates carbon fiber throughout

Chris Martens

Those of you who own and enjoy analog systems would probably agree that entering the world of vinyl playback is a little like joining an underground fraternal organization. Members of the analog brotherhood seek one another out to ask questions, exchange suggestions on equipment, recommend good music, and discuss and debate new discoveries. Certain components trigger waves of commentary almost as soon as they are released, while others stimulate ongoing interest yet remain shrouded in mystery, even after they have been on the market quite a while. One such component is the Wilson Benesch Full Circle analog system from the UK, which just might qualify as the coolest analog rig that most enthusiasts have never seen nor heard in action.

The Full Circle system consists of Wilson Benesch's Circle belt-drive turntable, A.C.T. 0.5 tonearm, and Ply high-output moving-coil cartridge, offered at the special package price of \$3495. Wilson Benesch specializes in fabricating carbon-fiber components for use in audio applications, so it comes as no surprise that the Circle, A.C.T. 0.5, and Ply incorporate key structural elements made from that light, stiff composite material. Upon opening the Full Circle's shipping carton, the first thing new owners will discover is that system components

are exceptionally well packed, and the second is that the Full Circle rig is gorgeous—even more attractive than it appears in the sleek photos found on the Wilson Benesch Web site.

Overall fit and finish are exemplary; the elegantly tapered tonearm looks like a fine piece of industrial sculpture, featuring some of the most delicate, glass-smooth carbon-fiber work you could ever hope to see. Ironically, the only problem is that the arm tube is so smooth that it sometimes skids sideways over the hard rubber surface of the table's cueing arm, making precise cueing a hit-

EQUIPMENT REVIEW - Wilson Benesch Full Circle Analog System

or-miss affair. I'd encourage Wilson Benesch to fit the cueing arm with a material that has more grip.

Assembly and setup were simple and straightforward, thanks to the generally well-written manual and superb cartridge-alignment protractor provided with the system. Oddly enough, the protractor is also meant to serve as a VTA-adjustment shim that would be inserted between the turntable platter and mat. The concept is to use the shim when playing records of normal thickness, and then to remove it when playing thicker, 180-gram discs. I found the protractor worked beautifully as an alignment tool, but I would not recommend using it as a shim, since it dulls the sound of the table to an objectionable degree. Stick with the standard felt mat sans shims, and you'll be happier in the long run.

Orchestra sections and solo instruments are perfectly positioned from left to right and front to back on the stage

One other point I should mention is that my review sample arrived with a slightly flawed acrylic platter and felt mat, both of which were promptly replaced by the manufacturer. Given Wilson Benesch's traditional attention to detail, and the fact that other Full Circles I have seen have been flawless, I think the minor quality-control glitches I encountered were a fluke, but readers should be aware of them.

Wilson Benesch claims the system takes only about an hour to assemble, which proved true in my case, and once I got the Full Circle together and

put about 50 hours of run-in time on the cartridge and turntable main bearing, I was ready to begin critical listening.

From the start it struck me that the Full Circle neatly fills the need for an analog system that at once sounds more sophisticated and refined than any entry-level system could, yet is comfortably priced thousands of dollars below today's best mid-level analog "giant killers" (many of which run \$6000 or more by the time you add the cost of an appropriate phono cartridge). While the Full Circle may not be a state-of-the-art contender, it still reaches toward a goal that is set pretty high, and in the process delivers exceedingly well-balanced performance that taps most of the strengths of the analog format in the here and now, while offering clear-cut upgrade options for the future.

The Full Circle's balanced sound starts with a very quiet background that helps the turntable get out of the way and lets the music float free of the noise floor. The Circle produces noticeably less noise than good entry-level turntables such as the Clearaudio Emotion, though it cannot quite match the even more silent backgrounds of higher-end tables such as the VPI Super Scoutmaster. One factor working in its favor, however, is that its noise spectrum is unobtrusive, mimicking the hush of a concert hall, so that your ear is rarely drawn to what little noise the turntable does produce. This remains true even on solo piano recordings, such as Keith Jarrett's Solo-Concerts, Bremen/Lausanne [ECM], which can ruthlessly expose turntable rumble, wow, or flutter. The Circle, whose frame parts are made of rigid, unidirectional carbon-fiber rods, features a two-piece, double-decker plinth that helps isolate motor noise from the audio signal path. The plinth also gives the

THE TECHNOLOGY BEHIND THE A.C.T. 0.5 TONEARM

One of the most striking aspects of the Full Circle system is the A.C.T. 0.5 tonearm with its curved, tapered, carbon-fiber arm tube. Of course Wilson Benesch doesn't use carbon fiber simply because it looks pretty, but for four more important reasons. Specifically, Wilson Benesch points out that this arm tube is "torsionally ten times stiffer than titanium, half the mass of aluminum, [offers] five times the specific stiffness of steel, [and provides an] order of magnitude better damping than most engineering metals."

Additionally, the A.C.T. 0.5 is based on a unique kinematic bearing, which behaves much like a unipivot, though in fact its internal structure is quite different. Wilson Benesch reports that its kinematic bearing "exhibits stiction-free operation, will last indefinitely, [is] unaffected by temperature," and promotes excellent unit-to-unit consistency between A.C.T. tonearms.

...and a Tasteful Tweak

While listening to the Full Circle, I had the opportunity to try out a None-Felt Mk-2/Speed platter mat from ExtremePhono. TAS Editor Wayne Garcia reviewed the original None-Felt mat as a tweak for the popular Rega turntables, and as he indicated, the None-Felt is a donut-shaped mat made of a soft, synthetic material molded in a waffle-pattern. Now, however, the Mk-2 version comes with a top cover said to improve the sound. The standard None-Felt Mk-2 comes with a cover called the Skin, while the deluxe version comes with a cover called the Speed, which is made—wouldn't you know it?—from carbon-graphite material. Together, the None-Felt Mk-2 and Speed increased the Full Circle's already very good three-dimensionality, and improved definition and transient speed significantly. Stylistically, this mat and cover look as if they were made expressly for the Full Circle. **CM**

table some measure of isolation from structure-borne vibrations, though I suspect this essentially suspension-less table will always sound best when used on a sturdy, vibration-resistant stand.

The synergistic A.C.T. 0.5 tonearm and Ply cartridge combination produces an overall sound that is marked by very good resolution, excellent image focus and stability, terrific three-dimensionality, and natural warmth. The Ply is a "naked" moving coil that looks much like a Benz Micro Glider equipped with a carbon-fiber frame.

As I listened to it, I couldn't help but compare it to two other great sub-\$1000 moving-coil cartridges I've had in my system, the \$750 Sumiko Blackbird and the \$800 Shelter 501 Mk II (both reviewed in Issue 147). In a sense, the Ply combines elements of both cartridges' signature sounds, offering a good bit of the liveliness and focus of the Blackbird with a taste of the compelling three-dimensionality of the Shelter. While the Ply perhaps serves up a touch less transparency and inner detail than the Blackbird, it certainly comes close and is much

EQUIPMENT REVIEW - Wilson Benesch Full Circle Analog System

less prone to moments of occasional edginess. Similarly, the Ply may not equal the almost shockingly holographic sound of the Shelter, but it nevertheless produces wide, deep soundstages, while throwing tightly focused, rock-solid stereo images that stay put no matter how boisterous the music may become.

When you hear good orchestral recordings through the Ply, such as the Colin Davis/Stephen Bishop/London Symphony Orchestra performance of Bartók's Piano Concerto No. 1 [Philips], three characteristics stand out. First, orchestra sections and solo instruments are perfectly positioned from left to right and front to back on the stage, and they remain rooted in place no matter how loud or soft a given passage may be. Second, individual instruments, and especially Bishop's solo piano, are faithfully rendered with compelling transient and textural details. While you won't hear the extraordinary detail you might enjoy with, say, one of the top-tier Clearaudio cartridges, there is more than enough resolution for listeners to be able to suspend disbelief, forget about the equipment, and simply enjoy the performance. Third, the cartridge sounds highly focused, so that when you close your eyes and listen, Bishop occupies a specific position onstage with a certain "reach-out-and-touch" vividness. I frankly don't know whether to attribute the Full Circle's focused

sound to the Ply cartridge, the A.C.T. 0.5 tonearm, or the combination of the two, but there's no denying that together they pull off the "palpable presence" trick with real authority.

Good though the system is with the high-output version of the Ply installed, I do wish Wilson Benesch gave customers the option of ordering the Full Circle with the low-output version of the Ply instead. Though I've not heard the low-output Ply, my instinct (based on comparing equivalent high- and low-output moving-coil cartridges from other manufacturers) is that the low-output Ply just might capture that elusive "nth" degree of inner detail that would help put the Full Circle over the top.

Interms of tonal balance, the Ply retains just a slight hint of the Blackbird's subtle midrange forwardness, but supports the midrange with a rich and substantial midbass foundation reminiscent of the sound of the Shelter. The upshot of this is that the Ply can sound energetic and full of life in the mid-to-upper midrange, without ever sounding thin, ragged, or aggressive. On the contrary, it reproduces instruments such as tympani, cello, and acoustic basses with real heartiness and gusto. Note, though, that the Ply takes a good bit of run-in time before its midbass develops fully.

Put all these qualities together and you've got a great-looking, highly accomplished analog rig that takes you far beyond entry-level sound at

a more than fair price. In my eyes, the Full Circle passes the "show me better for less" test with flying colors, in that I can't really name a superior-sounding alternative that would sell for less than \$3495.

What is more, the Full Circle system gives users future upgrade paths, because it offers more performance potential than at first meets the eye. For example, I recently visited a local Wilson Benesch retailer only to discover that he had installed a very costly Cardas moving-coil cartridge in his Full Circle demo system. How did that exotic combo work? Like a charm. Isn't it nice to know that, if you invest in a Full Circle system, it's not an analog platform you will soon outgrow? **tas**

SPECS & PRICING

Circle Turntable

Drive mechanism: Belt

Rumble: Not specified

Wow and flutter: Not specified

Platter: 12" acrylic with felt mat

Suspension: None; main structural frame members made of uni-directional carbon-fiber rods

Main bearing: Phosphor bronze plain bearing with tool-steel spindle

A.C.T. 0.5 Tonearm

Length: Approx. 9"

Arm tube: Tapered carbon fiber

Bearing: Kinematic

Tracking force & azimuth adjustment: Via sliding, rotating underslung counterweight

Anti-skating adjustment: Via weighted, monofilament pull-string

Ply High-Output Moving Coil Cartridge

Stylus: Nude elliptical diamond

Cantilever: Solid Boron

Body/frame: Solid woven carbon fiber

Recommended tracking force: 1.8-2 grams

Output: 1.58mV

U.S.

Full Circle Turntable

Price: \$3495

A.C.T. 0.5 Tonearm

Price: \$120

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A.C.T. 0.5 Tonearm

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Two Decades of Research Produce a Masterpiece

Basis Audio 2800 Signature Turntable and Basis Vector Tonearm

Robert Harley

I've met quite a few fanatical design engineers in my 18 years of full-time audio reviewing, but Basis Audio founder A.J. Conti is among the most obsessed with engineering detail. For the past 23 years, he has attacked every subsystem in LP playback with a missionary zeal, pursuing tighter bearing tolerances, greater mechanical precision, ever-thinner and more precise drive belts, lower speed instability, and less noise and vibration reaching the platter and arm. Conti believes that turntable performance is very much an exact science, and that better measurable mechanical performance directly correlates with better sound.

The culmination of his decades-long obsessive quest for engineering perfection in turntable design is the Basis 2800 system reviewed here. Although the 2800 has been in the Basis line for some time, many of the turntable's subsystems are either new or significantly upgraded from previous versions. Moreover, this is the first U.S. review of the Basis Vector tonearm, a device that employs an innovative yet elegantly simple bearing that solves a fundamental problem in LP playback.

OVERVIEW AND PRICING

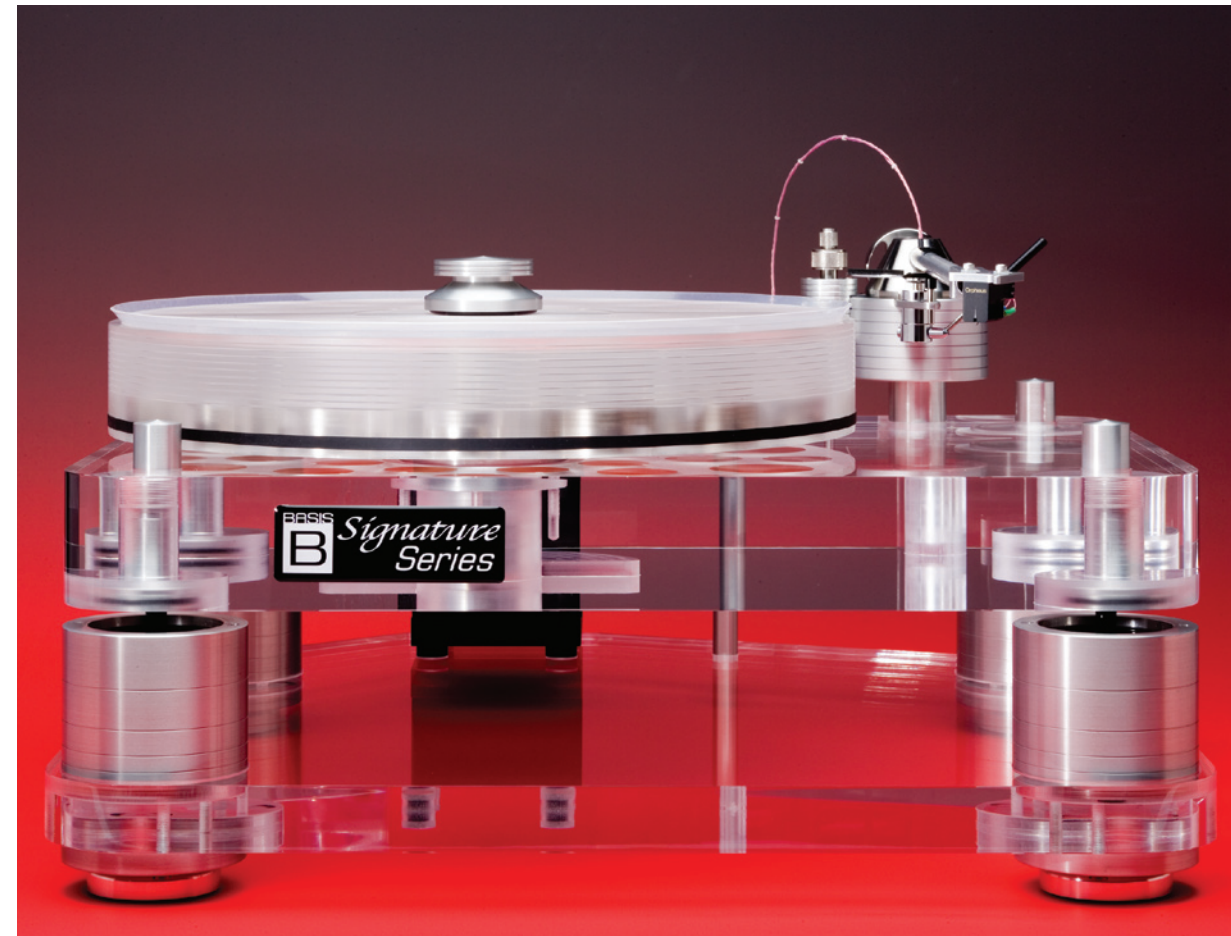
The 2800 Signature is part of the "High-Mass" Series of turntables that includes the 2500 and Debut. The 2800 is identical to the model 2500, but with the addition of a vacuum hold-down system. The base price of the 2800 is \$12,900. Options include the Calibrator Base (\$1800), a 1"-

thick piece of machined acrylic that increases the turntable's isolation from vibration; the Synchro-Wave Power Supply (\$3600), an outboard box that drives the motor; and the VTA Micrometer (\$800), a VTA measurement and calibration system. My review sample was fully loaded and mounted with the Vector Model 4 tonearm (\$3450). I actually had two Vectors along with an external tonearm mount that holds the unused tonearm, thus allowing very fast switching of tonearms and cartridges.

The accompanying sidebar and interview with A.J. Conti provide more details of the engineering behind the 2800 and Vector.

LISTENING

Most of my listening was through a Transfiguration Orpheus cartridge supplied by Basis. After auditioning several cartridges, the Orpheus



turned out to be the best musical match for my system. Although it didn't quite have the dynamics of the other contenders, it was the most musically involving and had the greatest sense of ease.

I don't have anywhere near the experience with mega-buck LP front ends as, for example, Jonathan Valin (who, incidentally, owns a Basis Debut). But I have a fair amount of experience listening to microphone feeds and analog mastertapes made from those mike feeds, as well as to LPs cut from

those tapes.

Listening to records on the 2800/Vector was revelatory; the sonic shortcomings of the LP format (which are readily apparent when LPs are compared with analog tape) seemed to disappear. The 2800/Vector had an astonishing transparency to the source and lack of coloration, tonally and dynamically. It was like hearing music—for the first time—without the turntable and arm in the playback chain.

EQUIPMENT REVIEW - Basis Audio 2800 Signature Turntable and Basis Vector Tonearm

DESIGN DETAILS

A.J. Conti set up the 2800/Vector in my home, took me through the design details, and showed me some of the techniques he uses at Basis in both the design process and production.

A fundamental design goal is to reduce as far as possible relative motion not caused by groove modulation between the LP groove and the stylus. The cartridge can't distinguish between relative motion caused by the signal in the groove (music) and motion caused by resonances (tonearm, record, platter, etc.), air- or structure-borne vibration, motor noise, and other forces. These spurious movements add non-musical colorations to the signal, reducing realism in timbre, dynamics, soundstaging, rhythmic drive, and many other qualities that separate a reproduction from the live sound. Once these colorations become part of the signal at the phono cartridge, nothing downstream can remove them.

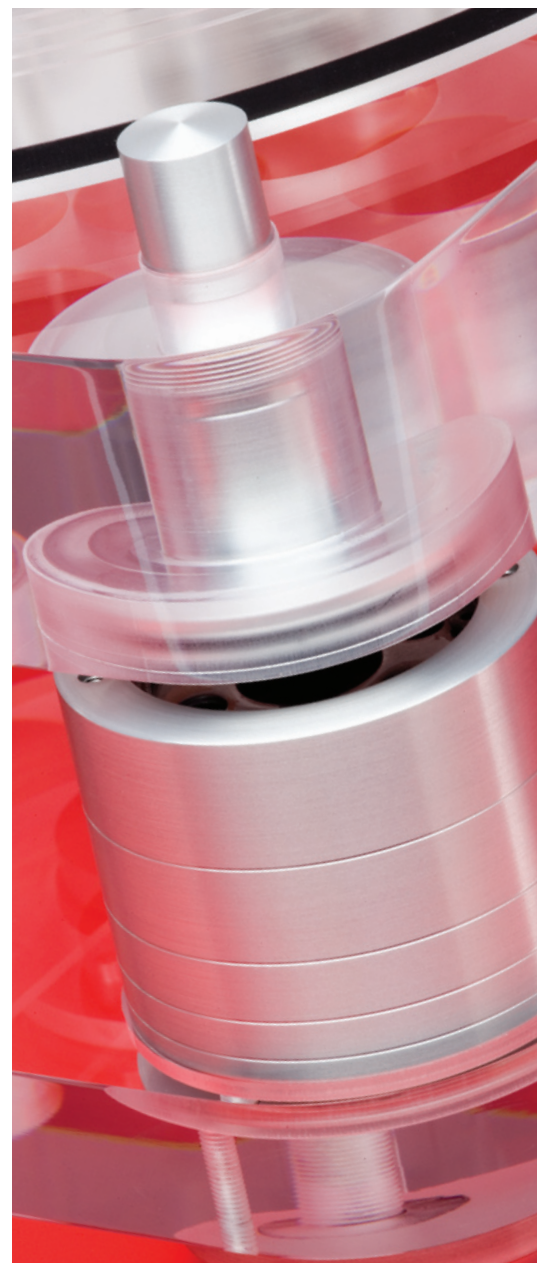
Vibration Isolation and Damping

The 2800's main line of defense against spurious vibration is the four fluid-damped "Resonance Annihilators" on which the 2"-thick subchassis is suspended. These pods contain series and parallel springs and dampers that not only isolate the subchassis, but also damp vibration. The optional Calibrator Base (\$1800) precisely aligns the pods with the subchassis, adds another layer of vibration isolation, and supports and aligns the free-standing motor. The Calibrator Base

also comes with a tonearm cable isolation system (for use with the Vector tonearm) that further decouples the turntable and arm from vibration that might travel along the tonearm cable.

The 20-pound, 2"-thick acrylic platter is riddled with 32 holes into which brass plugs are inserted, a technique that reduces platter resonances and spreads them out in frequency. A vacuum hold-down system tightly couples the record to the platter to prevent the record from vibrating. This system consists of a small control unit, a larger vacuum pump, tubing, and a raised rubber ring along the platter's outer diameter to hold the vacuum. A multi-turn knob and vacuum gauge on the control box allow highly precise adjustment of the vacuum. The spindle bearing is part of the vacuum system, passing the vacuum to the platter without compromising the bearing's performance. The vacuum system is designed to rapidly pull a vacuum, yet maintain a minimal vacuum level of just 0.5PSI of negative pressure to prevent dust on the record underside from being pressed into the vinyl.

The result of this heroic engineering effort is a turntable that is extremely inert, damped, and isolated from vibration. After setting up the 2800, Conti conducted a number of tests demonstrating the turntable's freedom from vibration. With the stylus on a lead-out groove on a stationary record and the gain turned up quite high, Conti struck a pencil



Even compared with the Basis 2500 (which I reviewed about 10 years ago), the 2800/Vector took LP playback to new heights. The descriptions that kept coming up in my listening notes share a commonality: "clean," "transparent," "crystalline clarity," and "pristine." All describe the Basis' lack of a signature sound—no false midbass warmth, no thickness through the midrange, and no patina overlaying the music. As a result of this startling clarity, instrumental timbres

Conti believes that turntable performance is very much an exact science

were reproduced with stunning realism. But the naturalness of instrumental timbre was not just the result of the Basis' transparency; it was also related to its retrieval of inner detail. This front end digs way down and resolves the finest musical nuances. I've heard Peter McGrath's wonderful recording of *Water Musick* [Harmonia Mundi] on many different systems over the years, but when I played this record on the Basis, I sat slack-jawed at the richness of texture and vivid palpability of the period instruments. There was simply another level of micro-detail in the timbres that transformed their sounds from good hi-fi to pure music.

One would think that realism of instrumental timbre is important on period baroque instruments and less so on distorted electric guitar. But the Basis reproduction of timbre was no less stunning when resolving the beautifully textured distortion of Steve Morse's guitar on the Dixie Dregs' *Dregs of the Earth*. His expressive and moving solo on

EQUIPMENT REVIEW - Basis Audio 2800 Signature Turntable and Basis Vector Tonearm

firmly on the record an inch away from the stylus with absolutely no sound from the loudspeakers—the vacuum hold-down and platter combination effectively damped the impact’s energy. We also placed a stethoscope on the subchassis and hit the top of my equipment rack—I heard no hint of sound through the stethoscope. (The stethoscope is quite sensitive; when it is placed on the equipment rack itself, gently running a finger over the rack’s surface produced an intolerably loud noise.)

Mechanical Precision

In addition to this obsession with vibration isolation, Conti is fanatical about mechanical precision. He pursues smaller and smaller numbers—numbers such as bearing tolerances, platter run-out (out of round), and platter-speed variations. For example, we measured the platter run-out on my review sample at ± 5 microns, or 0.0002". This measurement shows the sum of all rotational errors, including an out-of-round platter, bearing-centering error, or oil-film float ("shaft walk"). (You can get a rough idea of a platter’s run-out on some turntables by holding the edge of a business card against the spinning platter and looking at variations in the gap width.) The bearing tolerances are at the limits of mechanical precision; the bearing shaft diameter tolerance is just ± 1.2 microns (one one-thousandths of an inch is 25.4 microns; a human hair is about 75 microns in diameter). The bearing’s oil gap is 6 microns, and each platter is hand-matched to the bearing. The bearing and platter are

marked for the most precise orientation, so that the dealer or customer can repeat the optimum orientation. Note that these tolerances are achieved on a production basis in currently made turntables, and represent an improvement over previous Basis ‘tables.

Revolution Drive Belt

The drive belt is a story in itself. Five years ago, Conti discovered, to his great surprise, that a turntable with a smoother belt had a two-to-one speed-stability advantage over a similar turntable with a platter four times heavier and with one-third the platter run-out. Since then he’s pressed belt manufacturers around the world for tighter and tighter tolerances in the belts’ thickness variations. Although this approach yielded smoother belts, Conti finally bought precision grinding machines to build the belts to his specification. The result is the new Revolution Belt, a drive belt with a thickness variation along its length of just ± 0.6 microns, an astonishing achievement for a compliant material. Why is such precision necessary when the belt is connected to 20 pounds of rotating mass? Variations in belt thickness along its length modulate platter speed because the effective outer surfaces of the two pulleys (the motor pulley and platter) are in the middle of the curved belt. Belt thickness variations momentarily change the effective ratio of the two pulley sizes, introducing speed variations. According to Conti, we hear such speed instability not overtly as pitch fluctuation, but as a reduction in instrumental

“Hereafter” had a palpability that fostered the impression of sitting directly in the presence of a guitar amplifier. Because of the Basis’ resolution of low-level decay I could even hear the studio’s rather dry acoustic surrounding the amplifier’s sound. The distortion now had a beautiful complexity that made perfect musical sense. It’s odd to describe distortion as beautiful, but when reproduced with such resolution, there’s no better description. Listening to this record, I heard for the first time the subtle (and not so subtle) differences in the guitar’s sound from track to track, recognizing how each

It was like hearing music—
for the first time—
without the turntable and
arm in the playback chain

sound perfectly fit the composition. It gave me a new appreciation for this record, which I’ve been listening to on a regular basis for the past 25 years. (Incidentally, Neil Young’s main complaint against CD-quality digital audio was that it destroyed the distortion of his guitar.)

This experience of discovering greater expression in familiar music is the overriding reason for owning this LP playback system. The level of musical involvement fostered by the 2800/Vector was unparalleled in my experience as a reviewer. It’s been said that great hi-fi allows you to immediately become involved in the music, at a greater depth of immersion and for a longer period of time. That definition fits the Basis; as soon as I started playing music, my attention was immediately rapt. As for the depth of involvement,

I can say that I had many listening moments that transcended the threshold from musical enjoyment to euphoria.

Getting back to specific sonic description, the 2800/Vector also excelled at dynamics, transient fidelity, and bottom-end impact. I thought I had reached the edges of the Wilson MAXX 2’s performance envelope in these areas, but the 2800/Vector revealed that this remarkable loudspeaker is capable of even greater dynamic coherence, bottom-end resolution, and sheer visceral slam. I just had to pull out the direct-to-disc Sheffield 23, *James Newton Howard and Friends*, for its explosive drum dynamics and bottom-end punch. This record has one of the best drum sounds ever captured, but I didn’t realize how great the drum sound was until I heard it on the 2800/Vector. The steepness of the snare’s leading-edge transient and equally sudden decay was mind blowing. The



EQUIPMENT REVIEW - Basis Audio 2800 Signature Turntable and Basis Vector Tonearm

system resolved the initial “pop” of the drumstick hitting the head as well as the weight behind the initial transient created by the drum’s resonance. In fact, playing this record on this system rendered the most realistic and startling reproduction of dynamics I’ve ever heard in reproduced music.

In addition to this macro-scale “jump factor,” the presentation had a resolution and clarity in a micro-sense that let me hear fine shadings of pitch and small-scale dynamic contrasts. As a result, the music also had a flow and rhythmic

bounce; the previously mentioned *Water Musick* was reproduced with a playful dance-like rhythmic interplay between the instruments on the Minuet of the Suite in F Major.

I was struck by the sonic similarity between the 2800/Vector and the results of the 2002 acoustic upgrade of my listening room (which I had built from the ground up). Acoustic Room Systems installed a computer-modeled acoustics package that, among other attributes, dramatically tightened up the music’s bottom end. After the ARS installation,

low frequencies had much better pitch definition, steeper transient reproduction, quicker decay, less bloat, greater dynamic agility, more upper-bass and lower-midrange clarity, and the feeling that the music wasn’t being dragged down by a weight. These impressions are all fostered by a

reduction in room resonance. Room resonances are nothing more than vibrations of the air within the room that are not parts of the signal produced by the loudspeakers. Room resonances cause transient information to be spread out over time, prevent sudden decay of transient energy, add

realism, a less convincing soundstage, and degradation of low-level decay. (Incidentally, there’s a company using DSP to remove speed variations in analog master tapes that has reached similar conclusions about the effects of speed instability. Watch for a full report in an upcoming issue.)

Conti also discovered that when the material from which his belt is made is thinner, the sound was better. Although he couldn’t measure any improvement in speed stability, he did measure greater isolation from motor noise. This led to the Microthin version of the Revolution belt, which is so thin it is translucent.

Synchro-Wave Power Supply

The Syncho-Wave power supply (\$3600) drives the turntable motor’s two coils with two sinewaves 90° phase-shifted, each powered by separate amplifiers. These two sinewaves are independently generated, in contrast with the more common technique of using a

capacitor to create a phase-shifted replica of a single signal. The benefit of this approach is smoother motor rotation, something one can demonstrate by simply holding the running motor; it is impossible to tell if the motor is spinning or stationary. Conti claims the 2800’s motor has the smoothness of a DC motor (which has no cogging) without a DC motor’s servo-related problems. The Synchro-Wave power supply has been shipping since May, 2006, and can be added to any Basis turntable.

Vector Tonearm

This is the fourth-generation Vector that includes Basis’ newly developed tonearm cable that reportedly eliminates phase distortion and incorporates “High-Mu” electromagnetic shielding. The Vector is a variation on the unipivot arm in that it does have a single-point bearing rather than gimbals. But Conti has eliminated a source of distortion in LP playback by devising an ingenious new design

SPECS & PRICING

2800 Signature Turntable

Dimensions: 17.25" x 15.75" x 7"

Weight: 51 lbs.

Warranty: Ten years parts and labor

Vacuum Hold-down

Dimensions: 5.85" x 2.25" x 10.25" (control unit)

Dimensions: 8" x 5" x 8" (pump)

Weight: 6 lbs. (control unit)

Weight: 15 lbs. (pump)

Warranty: Ten years parts and labor

Calibrator Base with Cable Isolation System

Weight: 13 lbs.

Warranty: Ten years parts and labor

Synchro-Wave Power Supply

Dimensions: 13" x 2.25" x 10.5"

Weight: 12 lbs.

Warranty: Ten years parts and labor

Vector Model 4 Tonearm

Effective mass: 11-15 grams

Warranty: Ten years parts and labor

U.S.

2800 Signature Turntable

Price: \$15,100

Calibrator Base with Cable Isolation System

Price: \$1800

Synchro-Wave Power Supply

Price: \$3900

Vector Model 4 Tonearm

Price: \$3800 (\$4600 with VTA adjust)

BASIS AUDIO

26 Clinton Drive, Unit 116
Hollis, New Hampshire
03049
(603) 889-4776
basisaudio.com

U.K.

2800 Signature Turntable

Price: £14,495

Calibrator Base with Cable Isolation System

Price: £1,695

Synchro-Wave Power Supply

Price: £3,750

Vector Model 4 Tonearm

Price: £3,695 (£4,495 with VTA adjust)

SELECT AUDIO

10 School Drive,
Filmbay, Maryport,
Cumbria CA15 8PL
+44 (0) 1900 813064
selectaudio.co.uk

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EQUIPMENT REVIEW - Basis Audio 2800 Signature Turntable and Basis Vector Tonearm

that is unique in tonearms. That innovation is to asymmetrically weight the arm (with a cutout in the counterweight) so that it “leans” over onto a second bearing. This technique completely eliminates the possibility of dynamic azimuth error despite the fact that the vertical load rests on a point-loaded pivot. (Azimuth is the perpendicular relationship between the stylus and the groove; an angle less than or greater than 90° is azimuth error. Record warps can cause conventional pivoted tonearms to “roll” or constantly change their azimuth alignment.) In addition, Conti claims that this design completely eliminates audible tracking error, even on the most difficult-to-track passages.

A cup holds silicon damping-fluid in which

the upper portion of the bearing and arm tube rests. Conti personally assembles the pivoting assembly of each Vector, and signs off the QC form (the arm is also QC’d by another person). The optional VTA Micrometer (\$800) allows you to precisely measure and repeat VTA settings. (Note that the VTA Micrometer is a measurement system, not a VTA adjustor.)

The Vector has a unique quality; when playing a record with the volume turned down, the arm is perfectly silent. You can hear other tonearms “talk” or “chatter” as they vibrate in response to the stylus movement. This phenomenon appeared to translate into the complete absence of mistracking during the auditioning. **RH**

tonal coloration, reduce pitch articulation, and overlay the music with a bass thickness that masks midrange clarity and transparency.

I think a parallel phenomenon is happening with the 2800/Vector; the dramatic reduction in spurious vibration at the stylus/groove interface confers a reduction in the same distortions that cause listening rooms to color the sound. The resonances in LP playback are mechanical and occur at the micro level; the resonances in listening rooms are acoustical and occur at the macro level. (The effects of micro-level resonances in

LP playback, however, become macro-level distortions when amplified.)

The 2800/Vector system’s portrayal of space, depth, and air around instrumental outlines, and particularly the interplay between instruments, was simply peerless. The impression of individual instruments separated by air and surrounded by an acoustic space greatly added to the sense of musical realism.

Finally, the 2800/Vector combination had another quality that is unique in my experience—a sense of ease, particularly on loud and complex

passages. A shortcoming of the LP format is the tendency for the sound to congeal and harden at high signal levels. A related phenomenon is the “shattering” sound on forte piano passages played in the instrument’s upper register. Both are caused by the imperfect tracking of the groove by the stylus (the stylus momentarily loses contact with the groove)—a phenomenon exacerbated at the inner grooves where tangent error is the greatest and the linear velocity as seen by the stylus is the lowest.¹ Several times I found myself “tighten up” to brace for passages I knew would sound hard and distorted, only to discover that the Vector sailed right through them with a sense of ease and composure. I heard no tracking error on any LP. This freedom from distortion on challenging passages fostered a deeper and more sustained immersion in the music.

CONCLUSION

The Basis 2800 Signature Turntable and Vector tonearm are models of insightful design and exquisite execution. I don’t know of any turntable—at any price—that is designed and built to the level of precision exhibited in the Basis 2800. I think of the 2800 as the “thinking person’s turntable”—it’s short on bling but long on substance. Although nearly \$22k is a substantial chunk of change by any measure, I think there’s no wasted money in the design. It is possible to pay far more for a turntable and get far less performance.

I’m hard pressed to recall a component that has



A.J. Conti measures the thickness of each belt by hand.

elevated the musical experience for me as much as the Basis 2800/Vector combination. Playing records on this turntable was nothing short of exhilarating, leaving me counting the hours until the next listening session. I can think of no higher praise for an audio component. **tas**

¹ Tangent error is a difference in orientation to the groove between the cutting and playback styli. (Tangent error occurs in pivoted tonearms but not in tangential-tracking arms.)

As the stylus moves toward the inner grooves, the linear velocity as seen by the stylus gradually decreases. The recorded wavelengths become shorter and shorter, making it increasingly difficult for the playback stylus to accurately track high frequencies as well as high groove modulation. A CD, by contrast, varies its rotational speed as a function of recording radius to maintain a constant linear velocity of 1.2–1.4 meters per second. This translates to about 500 rpm at the innermost tracks to about 200 rpm at the outermost tracks.

It’s an unfortunate coincidence that LP technology performs at its worst on the climaxes most prevalent in Western classical music—the climax of a symphony’s fourth movement occurs nearly invariably on the innermost grooves. It also coincides with the point in the music where the intrusion of distortion is least welcome.

Acoustic Solid Solid One, The Cartridge Man The Conductor, and MusicMaker Classic LE

Alan Sircom

What's amazing about vinyl is that it doesn't just refuse to die, it positively thrives in the face of seeming adversity. The music business may have written the format off two decades ago and yet it looks like it will outlast its polycarbonate replacement. But best of all, the products used to replay vinyl just keep getting better and better.

This trio of Acoustic Solid Solid One turntable with two products from The Cartridge Man — The Conductor parallel tracking air-bearing tonearm and the MusicMaker Classic LE cartridge — explains why. Were you to have tried to achieve what this system can do when vinyl was in its heyday, the cost would have been truly astronomic... and you wouldn't have got near what these products can do. And yet, although not exactly bargain-basement prices, we're far from pushing the boundaries of LP playback costs.

The Solid One lives up to the name; 'Bloody Heavy One' might be more appropriate. Acoustic Solid makes a range of non-suspended turntables, all from the drawing board of German engineer Karl Wirth. For an industry filled with 'interesting' takes on good engineering, the Solid One is a paragon of

down-to-earth mechanical principles. Think mass meets high quality, almost interference fit bearing. Most of the deck is solid aluminium alloy. The non-inverted bearing is a plastic-coated oversized brass affair and turns on a highly-polished ceramic ball. It all sits on three adjustable feet with a fixed position outrigger for the tonearm and two free-space components for the motor and the speed control. You can use two extra arm bases if you want to multi-task your vinyl replay and almost any arm can be accommodated. The only deviation from the Solid One norm was that the supplier HiAudio chose to forgo the suede leather mat and go instead for The Cartridge Man's own £85 Music Mat, which is very good, but feels like you are plonking your music on a slice of carefully-cut liver.

The deck is joined by The Conductor; a low mass airbearing parallel tracking arm. Simple in execution, the carbon fibre armtube sits atop an aluminium collar and this floats along the tangential air beam, which is connected to a low-pressure air pump (with a smoothing tank) that you can locate somewhere in the house. This fishtank pump is smaller, easier to hide and a lot less noisy than the usual compressor option. The arm 'floats' on a series of holes atop the air beam — think 'air hockey'. The advantage to this system is it's essentially self-cleaning, as dust is pushed out of the air holes in the beam. The output wires poke out of the top of the arm and these look deceptively thin, but work well.

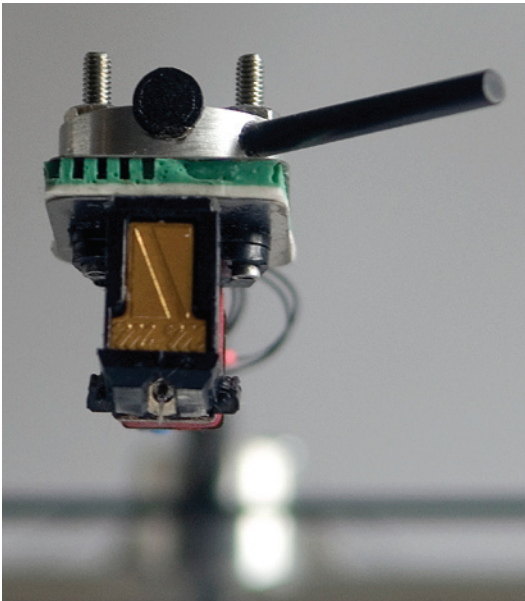
The last link in the chain was the MusicMaker Classic LE cartridge. A moving iron design

combining the output of moving magnet with the lower moving mass of a moving coil, the Classic is unique among non-moving coil cartridges in its use of pure silver conductors, hand wound by Len Gregory himself (The Cartridge Man of the title). It is based — like the MusicMaker III — on a Grado Prestige cartridge. Again, like the deck and arm, there's a sense of no-nonsense rightness to this. Even the Isolator (two slivers of stainless steel separated by a compliant material, designed to sit between cartridge and arm) helps push arm resonance out of band.

The whole shebang took several days to run in, then the outside world got cold, and it took several days to run in again, and again. Even from semi-frozen, the sound was remarkable, the sluggishness of the deck notwithstanding. When



EQUIPMENT REVIEW - Acoustic Solid Solid One, The Cartridge Man The Conductor, and MusicMaker Classic LE



the ambient temperature was high enough not to have ice form on the cartridge tags over this winter, it turned into something remarkable, and when those 50-60 hours of record playing were over, it went into world-class mode.

In some respects, this is a package that dare not be separated. It's almost dynamically balanced to work and work brilliantly, but change one of the parameters and you risk losing all in the process. For example, change the Music Mat with something more felt and less squidgy and the sound pitches toward the treble — not badly, just enough to make Frank Sinatra's voice slightly edgy in his Paris concerts, and Frank Black's Telecaster go from 'brrrrang' to 'Brrranggg' on the Pixies *Surfer Rosa* album. In other words, not a deal-breaker, but not totally accurate. On the other hand, even without the Music Mat in

place, the sound was still possessed of excellent bass depth, dynamics and definition.

The whole package though, that's a different thing altogether. There's a sense of active balance going on, a synergy that makes all the components add up to more than the sum of their parts. And that's saying a lot, because the individual parts are pretty damn wonderful. Taken individually, the cartridge delivers a consummately musical performance, one that doesn't grace or favour any aspect of the performance and comes across as fundamentally neutral and accurate. There might be better cartridges out there, but you really need to do some searching to find them... and they won't come cheap.

There's a sense of active balance going on, a synergy that makes all the components add up.

Then, the arm. You have to remember, most vinyl fans have an automatic reaction to air bearing arms; they are either crushingly expensive or should come with a maintenance engineer on 24 hour call-out. Or both. Then along comes Len Gregory and makes one that is neither; OK, £1,500 is not exactly loose change, but compared to the likes of Air Tangents or Forsells, it's virtually being given away. Even keeping the arm clean is relatively easy — if dust gets into the airholes (and it will), simply pushing the collar over the holes a couple of times when the air pressure is on will fix most problems (failing that, a quick wipe with a sable

SPECS & PRICING

Acoustic Solid Solid One turntable

- Suspensionless design
- Platter: 50mm aluminium billet
- Plinth: 80mm aluminium body, on three adjustable feet
- Motor: synchronous 24v AC motor, with separate speed control
- Drive system: thread drive, independently housed motor
- Optional additional tonearm outriggers
- Dimensions (in cm): 43 x 43
- Weight: 37kg

The Cartridge Man Conductor arm

- Air-bearing parallel tracking pickup arm
- Spindle centre to centre of mounting pillar distance: 215-225mm

- Arm tube mass: low
- Cartridge fixing: standard two hole (untapped)
- Total assembly weight: 560g
- Air inputs: 2
- MusicMaker Classic LE
- Variable-reluctance stereo phono cartridge with line-contact stylus and silver coils.
- Output: 4.0mV output
- Loading: 47K ohms (not capacitance sensitive.)
- Tracking force: 1.6 grams.
- VTA/SRA alignment: Front face of cartridge perpendicular to record surface (viewed from the side).

U.K.

Acoustic Solid Solid One turntable	ACOUSTIC SOLID acoustic-solid.de
The Cartridge Man Conductor arm	THE CARTRIDGE MAN thecartridgeman.com
MusicMaker Classic LE	HI AUDIO hiaudio.co.uk
Price: £4,750	Price: £1,500 (£2,000 with Cardas wire)
Price: £1,650	+44(0) 208 688 6565
	+44(0)4850 525259

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EQUIPMENT REVIEW - Acoustic Solid Solid One, The Conductor Man The Conductor, and MusicMaker Classic LE

brush should do the trick). The Conductor arm is simply excellent — managing to deliver the sort of bass energy and dynamics pivoted bearings are best known for, with most of the musical ‘bounce’ you’d attribute to a unipivot, all the while making an incredibly precise sound completely free from end of side distortion. And it doesn’t stop tracking properly when faced with a record with some warp. What’s not to love?

The tired cliché of a floor strewn with album covers is unfortunately based in truth. This deck did end up making a lot of albums come out of their sleeves, many for the first time in years. What was particularly attractive about the combination was just how quiet the background noise was... unless you had a disc that had been through the wars in its former life.

A particular strength of the package was its solidity, and the way it could pick individual instruments out of the soundstage. Vocals in particular were spectacular; detailed, accurate, and possessed of a feeling of a singer sitting right in front of you. This applied whether the singer was the late Kate McGarrigle singing *a capella* or a massed choir backed up by an orchestra; the sense of individual voices in their own real spaces was hard to miss.

There’s not much to hold this back. OK, those who want every tonearm to look like an SME will find the ‘utility’ appeal of The Conductor hard to stomach. Finally, those with pets may find they get strangely obsessed with the put-put-put sound of the fish pump; my two cats dug up some atavistic need to connect with a fishtank and were found trying to chew through the blue air pipes. These are not what you’d call ‘criticisms’, though.

There is no one answer to the turntable question. But you could roll out a hundred different combinations of turntable, arm and cartridge and not have as great a hit as this combo. It all balances perfectly.

It would be hard to pick out a star from this firmament, because they are all in extremely good company. On the other hand, perhaps the true star of the show is the MusicMaker LE cartridge, because it manages to combine the best properties of a range of excellent cartridges without introducing any weaknesses and tracks like a masterpiece. In comparison, the Conductor is merely ‘excellent’ and the Solid One barely makes it past ‘fantastic’. Or, if you look at it from another angle, the Conductor makes air bearing arms a practical (and excellent sounding) reality for more people than ever before and that makes it the best of the bunch. Then there’s the Solid One, which shows just fine good but basic engineering can sound, without any of the BS that surrounds many high-end decks. Put it this way, if you are looking for a great turntable, tonearm or cartridge, all three are here. If you are looking for a great turntable package, this is it. +



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SME Model 30/2 Turntable

SME's top turntable, a treatise on turntable, arm, and cartridge matching, and a list of new and upcoming vinyl releases.

Paul Seydor

Good, better, best. A logical lead for this review, I thought, pleased with my cleverness. I may be the only audio critic who has formally reviewed all three SME turntables—in the same system and in the same room, no less. And as I reviewed them in reverse order to their introduction—beginning with the newest (and least expensive) Model 10A (Issue 129), proceeding to the Model 20/2 (Issue 141), and now arriving at the Model 30/2, SME's first and still flagship—my cleverness has the additional virtue of being literally accurate both to my experience and to the products' ascending excellence.

Well...maybe not quite literally. For true though they may be with respect to the 30/2's position in the SME line, "good" and "better" hardly do justice to the 10A and 20/2, easily among the finest turntables available. And as applied to the 30/2, the appellation "the best" gained much notoriety not long ago, owing to its rather liberal use by a reviewer not exactly known for restraint when it comes to all things vinyl. Perhaps "best" is an adjective wisest left unused or so severely qualified as to render it useless. I've had occasion

to hear all the contenders for "Best Turntable in the World," but I can't confer that title upon any of them—too many different setups, settings, associated gear, and source materials to start making global pronouncements.

That said, there is undeniably something about the 30/2 that seduces even temperate men into using superlatives. One German reviewer called it "the best turntable of all time." An intelligent, articulate gentleman, and the designer of what is regarded as one of the best pivoted tonearms, was

nearly at a loss for words when he started talking to me about the 30/2 a couple of years ago at CES. As I recall he all but struck a pose and blew a fingered kiss to the sky, mumbling something like "the best, nothing like it, just the best there is."

Is there some basis in reality for such reactions?

Despite a breathtaking \$28,499 ('table only) pricetag, the Model 30/2 is in such demand that its importer, Sumiko, could spare only the demo it uses to train dealers, and that for just a few weeks.

The turntable was delivered with a Series IV.Vi arm (see my 20/2 review for details) and a new Celebration moving-coil pickup already mounted.

I don't need a lot of words to discuss the sound. For tonal neutrality, pitch accuracy, highest resolution, transparency, clarity, control, rhythmic grip, attack and release, reproduction of ambience, breadth and depth of soundstaging, ease and freedom from stress, and the whole litany of desirable audiophile clichés, this setup is unsurpassed by any I've used and equaled



EQUIPMENT REVIEW - SME Model 30/2 Turntable

MATCHING A TURNTABLE, TONEARM, AND CARTRIDGE

Matching a turntable, tonearm, and cartridge involves some technical decisions, not just aesthetic choices about which combinations sound the most musical. First, the tonearm must be able to fit the turntable’s arm-mounting area. Many turntables have an arm-mounting board on which the tonearm is fastened. The arm-mounting board must be at least as big as the arm’s base and be able to securely hold the arm. Any looseness will seriously degrade the sound. When mounted to the armboard, the tonearm’s cartridge end should be positioned within a range that allows the cartridge to be positioned at exactly the correct distance from the tonearm’s pivot point, a parameter called overhang. Overhang can be set using the turntable manufacturer’s template or a third-party alignment protractor.

The turntable’s suspension should be stiff enough to support the tonearm’s weight. If the tonearm is too heavy for the turntable’s suspension, the turntable won’t be level. Manufacturers will specify a range of tonearm weights appropriate for their turntables.

Next, the tonearm’s effective mass must be matched to the cartridge’s compliance. Let’s define these terms before examining how they interact.

An arm’s effective mass isn’t the tonearm’s weight, but the mass of the moving parts, and where along the tonearm’s length that mass is distributed. Any body has a certain amount

of inertia: A body at rest tends to stay at rest, and a body in motion tends to stay in motion. The amount of a body’s inertia is its mass. If this body is rotated, however, the amount of its inertia in the rotational direction is called its moment of inertia. The effective mass of a rotating or pivoting object is the amount of mass that object would have if all of its mass were located at its “center of mass.”

For example, adding one gram to the armtube near the pivot point would increase only slightly the effective mass; adding that same gram to the cartridge end of the armtube would greatly increase the effective mass. If you imagine pushing down on the counterweight side of the tonearm to lift the cartridge end of the arm, you can see how that one gram would require more force to lift when it is far away from the pivot point.

Less than 10 grams of effective mass is considered low mass, 11 to 20 grams is considered mid-mass, and more than 20 grams is high mass.

A cartridge’s compliance describes how stiffly or loosely the suspension holds the cantilever. The cantilever is the thin tube that emerges from the cartridge body and holds the stylus. If the cantilever is easily moved, the cartridge is high-compliance. If the cantilever is stiffly mounted, the cartridge is said to have low compliance.

Compliance is expressed as a number

by almost none, with colorations reduced to unimaginably low levels.

But what specifically accounts for the special effect this turntable seems to have on even the most jaded listeners lies in three related areas of sonic performance: background silence, dynamics, and that elusive impression of liveliness, vitality, and whatever terms you use to describe that sense of involvement that persuades you the music has come alive in your living room and/or transported you to the venue of its making.

It wasn’t long after cueing up the first LP—my trusty Bernstein Carmen on DG—that Melville’s famous description of the dark side of Hawthorne’s imagination crossed my mind: “shrouded in a blackness, ten times black.” This turntable does background black like no other I’ve heard. (Only the Sota Cosmos and SME’s 20/2 might be its equal.)

Since any good turntable already has a lower noise floor than even the best vinyl, I got to wondering what accounts for the darker backgrounds you hear with some, and that seems to exist apart from the noisiness of the source. David Fletcher, the retired designer of The Arm and the Sota turntables, believes it has something to do with bearing noise or lack thereof. Bearings that are beginning to wear or that aren’t as precisely machined or well-designed will generate a certain amount of sub-Hertz (i.e., below 1Hz) noise that, although extremely low in amplitude, manifests itself as a kind of vague background grunge.

This in turn leads us to the sensational dynamic range of which the 30/2 is capable—the ’table’s fabulously wide whisper-to-roar window. Its dynamics are probably no better than those of several other fine turntables, but in combination

with the incredibly low noise floor, they simply emerge in greater relief. The final movement of the Reiner Scheherazade [Chesky] shows this off to hair-raising effect.

The last thing I put on before the 30/2 had to be boxed up and taken away is my nomination for the greatest-sounding LP ever made: Ken Kreisel’s direct-to-disc masterpiece For Duke [M&K], so palpable in its sheer physical impact that, a quarter of a century after first hearing it, “Take the A-Train” still drops my jaw. Such is the level of attention commanded by this setup that no activity other than listening was possible, because the musicians seemed to be in the room. When

SPECS & PRICING

SME Model 30/2 Turntable

Speeds: 33, 45, 78

Dimensions: 17.75" x 8.66" x 13.75"

Weight: 92 lbs.

U.S.

Price: \$36,000 table only; \$40K with SME V tonearm

SUMIKO

2431 Fifth Street
Berkeley, California 94710
(510) 843-4500
sumikoaudio.net
sme.ltd.uk

U.K.

Price: £13,650 (table only); £15,995 (with SME V arm)

SME LTD.

Mill Road,
Steyning,
West Sussex,
BN44 3GY
+44 (0) 1903 814321
sme.ltd.uk

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EQUIPMENT REVIEW - SME Model 30/2 Turntable

indicating how far the cantilever moves when a force is applied. Specifically, a force of 10-6 dynes is applied, and the cantilever's movement in millionths of a centimeter is the cartridge's compliance. For example, a low-compliance cartridge (a stiff suspension) may move only ten millionths of a centimeter; we say the cartridge has a compliance of 10. Because this method of expressing compliance is standardized, the reference to millionths of a centimeter is dropped, leaving only the value 10. Moderately compliant cartridges have compliances of 12 to 20, and high-compliance cartridges are of any value above 20.

A cartridge's compliance and the tonearm's effective mass form a resonant system. That is, the combination will vibrate much more easily at a particular frequency than at other frequencies. When a bell is struck, it rings at the bell's resonant frequency. Similarly, a tonearm and cartridge will resonate when put into motion. Energy is imparted to the tonearm and cartridge by record warp, turntable rumble, the turntable's resonance, record eccentricity (the center hole isn't exactly centered), and footfalls (the vibrations of someone's footsteps transmitted from the floor to the turntable). These energy sources are all of very low frequencies, perhaps below 8Hz. Higher in frequency, the tonearm and cartridge can be set in motion by the musical signal in the grooves, with the lowest frequency being about 20Hz. Although we can't avoid resonance in the tonearm and cartridge, we can adjust it so that their

resonant frequency falls above the very low frequency of rumble and record warp, but below the lowest musical pitch recorded in the record grooves. By matching the arm's effective mass to the cartridge's compliance, we can tune the resonant frequency to fall between the sources of vibration.

Preventing the tonearm and cartridge from resonating is of utmost importance. The audio signal is generated in the phono cartridge by the motion of the cantilever relative to the cartridge. If the arm and cartridge are vibrating even slightly, that vibration is converted into an electrical signal by the cartridge. Because the cartridge can't distinguish between groove modulation (the musical information) and tonearm resonance, distortion is mixed in with the music. Tonearm resonance distorts the music's tonal balance, colors instrumental timbre, changes the music's dynamic structure (the way notes start and stop), and destroys the sense of space and imaging on a recording.

Excerpted from *The Complete Guide to High-End Audio, Third Edition* © 2004 by Robert Harley (hifibooks.com)

the music finished, I saw that the only note I had scribbled read, "VIVID!!!"

The Model 30/2 represents a damn-the-torpedoes approach to every parameter of vinyl playback that SME founder Alastair Robertson-Aikman deems important, including potential and theoretical ones. Despite its relatively compact size, the 'table weighs 92 pounds. The subchassis and base are manufactured from 3/4-inch-thick aluminum alloy plate, ensuring high mass and stiffness—the cornerstones of SME's philosophy—to sink all spurious vinyl resonances and other unwanted energies to ground.

But bulk isn't the whole story. The 30/2 also employs a unique suspension that seeks to resist acoustic feedback through a combination of tuning and fluid damping. A theoretical liability of all suspended turntables is their relatively high Q; that is, if sufficiently excited, they vibrate up and down or laterally. Because the stylus-groove interface is effectively filtered from structurally induced feedback above the tuning frequency, this is rarely a real-world concern. Still, in all sprung suspensions, compliance is controlled to some extent by damping the springs with foam inserts. SME goes a giant step further. While the subchassis is suspended from 48 custom-molded rubber "O" rings that are distributed over stanchions placed at each of the four corners of the base, the stanchions themselves rest in cylinders filled with a highly viscous damping fluid. Together, SME claims, "These eliminate overshoot

and give almost zero 'Q' recovery."

One point SME's literature leaves unmentioned is that the motor is mounted on the base rather than on the subchassis along with the belt-driven platter (e.g., the Sota Cosmos). Without fluid damping, the potential for occasional speed instability would exist since the subchassis/platter can move independently of the base/motor. The likelihood of this happening outside of an earthquake or a construction site is freakishly remote. But, as noted, the 30/2 is designed to address potential as well as actual problems.

The most novel and perhaps most controversial aspect of the 30/2's design is how the fluid damping is employed in combination with the suspension; because in so stiffening the compliance, the damping must also work to some extent against the effectiveness of suspension. I asked a couple of experts about this. One of them feels that, owing to the high overall suspended mass and extreme viscosity of the damping fluid, SME's is a valid and extremely effective solution to excessive compliance. The other, however, feels that the real-world advantages of filtering from a properly-tuned suspension far outweigh any theoretical benefits that might accrue from reducing compliance. If your turntable is mounted on a sturdy platform that doesn't rock or respond to footfalls, there are few domestic disturbances that should cause even an undamped suspension to vibrate, and most of them would be so disruptive to listening as to render momentary speed irregularities beside the point.

It wasn't long after cueing up the first LP that Melville's famous description of the dark side of Hawthorne's imagination crossed my mind.

EQUIPMENT REVIEW - SME Model 30/2 Turntable

When experts disagree, the amateur must make up his or her own mind. The SME 30/2 is the only turntable I have used apart from the Sotas that does not require after-market platforms or other Band-Aids to ensure effective isolation from the listening environment. Indeed, though the turntable was situated within three feet of one speaker, there was never even a hint of acoustic breakthrough. No turntable I've used has bested the 30/2 in this regard, and only the Cosmos has equaled it (SME's 20/2 did about as well, but only if mounted on a Townshend Seismic Sink).

In the face of several competitors' offerings, with their oil-rig-in-your-living-room dimensions and Rube- Goldberg assortment of multiple motors, pulleys, belts, rings, pods, cones, line conditioners, and other contraptions, Robertson-Aikman evidently decided that his version of the Best Turntable in the World must be compact and elegant enough to fit gracefully into a domestic setting and be complete in and of itself, ready to use as is—apart, of course, from arm and pickup selection—with no additional purchases required to perform as claimed. He has succeeded without apparent compromise.

Whether all of the expense and overkill involved in the SME 30/2 are necessary for the turntable to achieve its level of performance is a question that remains debatable. One expert I know strongly believes as extravagantly wasteful all turntable/arm designs that cost tens of thousands of dollars are, noting that with creative engineering and clever design, improvements to real-world performance are achievable at much lower costs. It must also be observed that not everybody frames the problems or prioritizes the issues of vinyl playback like Robertson-Aikman.

But once this is said, it is impossible to fault any aspect of this magnificent instrument's execution. Everything I said in my review of the 20/2 applies even more to the 30/2, a masterpiece of mechanical engineering and industrial design that inspires the greatest confidence while rendering criticism principally a matter of confirming the realization of its high goals. **tas**



INCOMING HOT WAX: SELECT NEW AND FORTHCOMING LPS

A Frames: Black Forest

Patricia Barber: Companion and Nightclub (45rpm)

Beck: Guero

Berlioz: Requiem (Abavanel/Utah)

Bloc Party: Silent Alarm

Dave Brubeck: Time Out (45rpm)

Eva Cassidy: Time After Time

Johnny Cash: Original Sun Singles 1954-1958

Ray Charles: Genius Loves Company

Crooked Fingers: Dignity and Shame

Miles Davis: The Complete 1963-64 Columbia Recordings

Dead Meadow: Feathers

Nick Drake: A Treasury

Esquivel and Orchestra: Exploring New Sounds in Stereo

Fischerspooner: Odyssey

Ben Harper and the Blind Boys of Alabama: There Will Be A Light

Jimi Hendrix: Band of Gypsys

Hidden Hand: Mother, Teacher, Destroyer

John Lee Hooker: That's My Story

Hot Hot Heat: Elevator

Magnolia Electric Company: What Comes After the Blues

Stephen Malkmus: Face the Truth

The Mars Volta: Frances the Mute

Jackie McLean: Swing, Swang, Swingin'

Thelonious Monk: Mulligan Meets Monk

The National: Alligator

Of Montreal: The Sunlandic Twins

Alan Parsons: Turn of a Friendly Card

Pit Er Pat: Shakey

Ponys: Celebration Castle

Sam Prekop: Who's Your New Professor

The Royal Ballet Gala Performance (45rpm)

Sonny Red: Out of the Blue

Simon and Garfunkel: Bridge Over Troubled Water (45rpm)

Spirit: Model Shop

Spoon: Gimme Fiction

Unsane: Blood Run

William Elliott Whitmore: Ashes to Dust

Lucinda Williams: Live at the Fillmore West

Wilco: a ghost is born

Link Wray: Jack the Ripper

Neil Young: Greatest Hits



Hats Off, Gentlemen!

AAS Gabriel/Da Vinci Turntable and Da Vinci Grandezza Tonearm

Jonathan Valin

Sometimes people ask me what I listen for first when I review a new piece of equipment. Usually I tell them “a closer analog to the sound of live music,” which is true enough in an official-TAS-decoder-ring sort of way. But if I were being less high-minded, I’d simply say: “More.”

More of what? What I haven’t heard before. To me, hearing new things in old-favorite recordings means that what I was listening through before (sometimes for decades “before”) was somehow veiling these things and that what I’m listening to now has lifted that veil. Of course, if I’m hearing more of some things I’ve never heard before and less of others I’ve heard many times before, then veils are being lifted *and* dropped, and the trick is to weigh the balance.

Frankly, until fairly recently this last was almost always the case. Audio gear, even great audio gear, tends to giveth and taketh away in almost equal measures. For instance, the TW Acoustic Raven AC-3 turntable (with Graham Phantom arm) that I reviewed so favorably in last year’s analog issue was and is a paragon of beguiling musicality, reproducing timbres with a richness that made great recordings sound even greater. That was the “more” part. The “less” was that it made recordings I know for a fact to be problematical or

downright mediocre sound semi-great, too.

Or take the MartinLogan CLX that I reviewed in our last issue. Here was a speaker that set a new standard (in my experience) of colorless transparency to sources—kind of the polar opposite of the TW Acoustic in that it told you precisely how well or how poorly a performance was recorded, making great LPs or CDs sound astoundingly realistic and lousy ones sound astoundingly artificial. That was the CLX’s (quite considerable) “more.” (Actually, there is a good deal more to its more—for which see my review.) Its “less” was that it had virtually no deep bass, rolling off abruptly below about 55–60Hz.

In both of these cases the “more” substantially outweighed the “less,” and a high recommendation was easy to make. Indeed, in spite of its lack of low bass the CLX has joined my little pantheon of the greatest loudspeakers I’ve heard (which, for the record and the moment, includes the Rockport Hyperion, the Magico Mini II, the Symposium

EQUIPMENT REVIEW - AAS Gabriel/Da Vinci Turntable and Da Vinci Grandeeza Tonearm

Acoustics Panorama, the MBL 101 X-Treme, and the Kharma Grand Exquisite, with the Magico M5 waiting in the wings).

All of this brings me to the subject at hand, the drop-dead-gorgeous, Ferrari red \$48,500 AAS Gabriel/Da Vinci turntable with the \$11,635 Da Vinci Grandeeza twelve-inch tonearm. Why the lengthy preface? Because the Da Vinci record player delivers not just more but *so much* more I've never heard before from LPs—good, bad, or indifferent—that it has to be counted the most remarkable non-linear-tracking record player I've heard in forty or so years of listening. Obviously the Gabriel/Da Vinci is lifting veils or, to put this differently, substantially lowering noise. (I will get to the kinds of noise and the manifold effects this has on LP playback in a short bit.) Why it is doing this can be explained, I think, by differences in the way it works.

First, the AAS (Analog Audio System) Gabriel is a magnetic-bearing turntable; indeed, after the pioneering Platine Verdier, it is the oldest magnetic-bearing design, dating back to the 1980s when a music-loving Swiss engineer named Hans-Peter Gabriel, frustrated by the limitations of the 'tables then on the market, developed one of his own. Although it has gone through three revisions since the original iteration—the current Model 3's bearings, motor, motor controller, and feet are entirely Da Vinci's work—the fundamentals have stayed pretty much the same.

A massive (57-pound, four-inch-high) platter, made of a dense aluminum alloy with a high copper content (shades of TW Acoustic), with a powerful ferrite ring-magnet inset into its base sits on a thick lubricated vertical bearing set into the 'table's massive, cylindrical, Birch plywood

“plinth”—like a cylinder sitting inside a slightly larger cylinder. Another ring-magnet, inset into the wooden “floor” of the plinth, repels the ring-magnet in the bottom of the platter, causing the entire platter to rise a good 4mm up the bearing. This “levitation act” decouples the platter from the bearing around which it rotates, greatly lowering or eliminating the transmission of noise from axle to platter. Although some have argued that springs or fluids are the only ways to isolate a turntable platter (or tonearm) from vibration and prevent bearing chatter, an air gap is clearly another.

Second, the Gabriel uses Da Vinci's twelve-inch Grandeeza tonearm on a separate cylindrical arm pillar, also made of dense Birch plywood.

(Although separate outboard arm pillars are not uncommon today, they were when Gabriel first designed his 'table. Indeed, part of the reason he decided to make his own analog playback system was that he owned three arms and couldn't find a 'table that would accommodate all three.) Those of you already deeply into vinyl probably know about the Grandeeza tonearm. It has a helluva reputation—and, at nearly \$12k, a helluva price tag. Though there is a little “bling” involved in this pricing (the gorgeous Grandeeza can be had in a 24k gold or, as in the case of the one supplied to me, a rhodanized platinum finish), most of the cost is for materials and precision assembly. Why those materials are so important has to do, in part,

with the length of the arm.

It is well known that a twelve-inch arm, with its smaller arc of travel across the surface of a record, substantially reduces tracing distortion and tangency error, which is a very good thing to do. However, it also increases the arm's effective mass (it *is* three-inches longer, after all, than a typical nine-inch arm) and changes its resonance characteristics. To optimize mass distribution and control resonances, Da Vinci uses a unique combination of materials chosen to achieve the utmost musicality: an arm tube made of tapered Brazilian rosewood (also called “tonewood” because of its historical use in the bodies of fine violins and guitars), a bronze and steel bearing block, a bronze headshell, and copper/tungsten counterweights, all manufactured and assembled with fanatical care. Perhaps the literal jewel in the Grandeeza's crown is its incredibly high-precision double-gimbaled arm-bearing. This is not a conical device but something very much akin to what you would find in a Patek or a Breuget wristwatch—a timepiece-like bearing that uses eight rubies and steel bearing-bolts handfitted to the highest tolerances by one of Switzerland's foremost watchmakers.

Although the Grandeeza has a surprisingly-high-sensitivity magnetic anti-skate mechanism (a simple screw that you literally turn by hand, in and out), that antiskate screw and the counterweights are the only functional adjustments on an arm that otherwise deliberately forgoes any other loose or loosenable parts, which Da Vinci regards as potential sources of resonance and user-error. If you think that missing out on an azimuth adjustment or some elaborate VTA mechanism—here adjusted by unscrewing the high-precision



EQUIPMENT REVIEW - AAS Gabriel/Da Vinci Turntable and Da Vinci Grandeeza Tonearm

bolts that hold the Grandeeza arm-pillar to its arm-mount collar and then physically moving the arm up and down by hand within the limit of its pillar's travel (it sounds best and is designed to be used when set within the first third of the pillar's length)—then do what Da Vinci suggests you do: Listen to the arm and decide for yourself if what's been left out compromises the sound.

Third, the Gabriel uses an unusual belt-drive system. The highly stable and exceptionally quiet stepper motor and motor controller, designed by Da Vinci's chief engineer and CEO Peter Brem, are milled from a solid aluminum block that is set in a third cylindrical Birch plywood cylinder, with the hollow spaces filled with a special damping compound. What makes this design unusual is its astoundingly low tension. Da Vinci's belt (made of a special compound also of Brem's design) is intended to be set so that it makes the loosest contact I've ever seen between a belt and a platter—you know you have the motor-to-platter distance right when the belt is just a finger-push away from slipping off. The motor is designed to take advantage of this low-tension interface, ramping the platter up to designated speed when it is first turned on almost as quickly as the standard-setting TW Acoustic did, and then reducing current flow to the motor to a level that is precisely enough to keep the (levitated) platter rotating at the right number of rpms. Although Peter considered a magnetic-drive engine (and every other kind of motor), he came to the conclusion that this low-tension/loose-belt solution best prevented vibration from the motor being transmitted to the platter.

Fourth, the Gabriel uses extremely-heavy-duty “vertical damping” feet made of what appear to be thick cylinders of steel, aluminum, tungsten, and

God knows what else. The design is again Brem's, and as he is currently seeking a patent on it, he is loath to talk about it in detail. On their bottoms the feet have large rounded tips, and, after three of these feet are screwed into the underside of the turntable plinth, motor pillar, and arm pillar, these tips are easily rotated to level the table, motor, and arm. (Da Vinci supplies you with bubble-levels and an Allen wrench to facilitate this.)

As effective as the feet are—and they are far more effective than the massive, ball-bearing Finite Elemente feet that were supplied originally with the Gabriel—I would still recommend that the entire record player be placed on a suitable isolation stand (I use a Symposium Isis with a huge Symposium Ultra sitting atop it), to further enhance the substantial reduction in noise and coloration and distortion that this record player achieves. (But then I recommend that any turntable, suspended or not, be put on a stand that prevents floorborne vibration from disturbing it.)

How does this lowering of bearing noise, arm resonance, and motor vibration affect the Gabriel/Da Vinci's sound? Well, if you read my CLX review in our last issue you already know. Much of the standard-setting transparency to sources that so distinguished the CLX was due to the Gabriel/Da Vinci's own standard-setting transparency to LPs. Indeed, I've never heard a more transparent turntable and tonearm in all my years and days.

The Gabriel simply passes through more information about how recordings were made than any other analog source I've heard (though the Walker Black Diamond is very close and has its own strong set of virtues, which I will come to in a bit, I'd have to say that the Gabriel outdoes it here).

Through the Gabriel overdubbed voices or multi-miked instrumentalists, such as those on the Joni Mitchell album *Hejira* [Warner], won't just sound artificial; they will sound like individual soundstages within the overall soundstage—little spots of time and space that are unmistakably different in miking, tone, ambience, and even shape than the other spots of time and space that make up the rest of the stage. Obviously, I've heard the effects of multi-miking many times before with other turntables, but I've never heard them turned so clearly into the auditory equivalent of photographic double (or triple or quadruple) exposures. The effect is uncanny—like peering over the mastering engineer's shoulder as he mixes down the mastertapes.

This is a leap in low-level resolution such as I've never experienced before from a turntable/tonearm, and it isn't just reflected in the true transcription-level reproduction of engineering and mastering effects. The Gabriel/Da Vinci has several other just-as-spectacular tricks up its roomy sleeve.

I mentioned one of these in the CLX review—the incredible expansion of dynamic range that the Gabriel/Da Vinci seems to effect on all recordings, particularly on *pianissimo* (soft) passages. When it comes down to it, I've long felt that LPs (and CDs to a far greater degree) don't reproduce *pianissimo* passages of music with anything approaching lifelike realism. Indeed, what we think of as a *pianissimo* on a typical record player is really closer to a *mezzopiano*—yeah, it may not be as loud as what precedes or what follows it, but in an absolute sense (rather than a relative one) it doesn't come close to the breathtaking whispery softness and clarity of a true *pianissimo* in a concert hall.

To be honest, I always thought that this compression of *pianissimo* passages was part and parcel of listening to recorded music—that the accumulated noise floors of microphones and tape players and mixing consoles and cutting lathes and the plating/pressing process (not to mention those of stereo systems themselves) were simply too high to accommodate a cello playing a *pianissississimo* (*ppp*) at around 50dB SPL or a horn's *pianissississimo* at about 47dB SPLs. When all this accumulated noise was combined

SPECS & PRICING

AAS Gabriel/Da Vinci Turntable and Da Vinci Grandeeza Tonearm

Type: Belt-driven magnetic-bearing turntable with free-standing motor/motor controller and free-standing 12-inch double-gimballed tonearm

Weight: 194 lbs. with one tonearm pillar; 313 lbs. with four tonearm pillars

U.S.

Price: \$60,135 as tested (\$48,500 for turntable in Ferrari red with one motor and one arm pillar; \$11,635 for Grandeeza 12 tonearm in rhodanized platinum finish)

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EQUIPMENT REVIEW - AAS Gabriel/Da Vinci Turntable and Da Vinci Grandeeza Tonearm

with our own tendency to “turn up the volume” because of the ear’s relative insensitivity to certain frequencies at low levels, you inevitably ended up with *pianissimos* that sound more like freight trains than feathers.

That’s what I thought—until I heard the Gabriel/Da Vinci. But I was wrong—and this has been one of the most incredible revelations in all my years as a listener. The Gabriel/Da Vinci has proven to me conclusively that vinyl and stereo systems are capable of a dynamic range I didn’t dream was possible. Here, folks, for once is a record player that can capture and reproduce a *pianissimo* not just with utter clarity but also with genuinely lifelike whisper-softness (provided, of course, that the overall playback level is properly set). I mentioned Sylvia Tyson’s sweet nearly inaudible accompaniment on the refrain of the old folk song “Blue” (from *Ian and Sylvia* [Vanguard]) in my CLX review—a passage that, in the past, I had to turn up to hear clearly (and in so doing destroyed the musical effect that she and her husband Ian were aiming for—destroyed the delicacy of the performance by making loud passages too loud and aggressive). On the Gabriel/Da Vinci, for the first time the recording can be played back at a level that makes both soft and loud just right, preserving the dynamic inflections of the performers as they were intended to be heard. Both delicacy and power are reproduced intact, as they are on countless other recordings from things as small as the beautifully crafted Semmler Trio for Violin, Cello, and Piano [CRI] to things as vast, busy, and colorful as Stravinsky’s *Petrushka* [Decca].

The truth is you simply can’t get overall dynamics right unless you get *piano-to-pianississississimo* passages right; as soon as you turn the volume

up to make the soft passages more audible, you make loud passages too loud, altering the range of contrast between them. The Gabriel/Da Vinci gets *p-to-pppp* right, making the outbursts of *f-to-ffff* that much more dramatically effective. This was brought home to me to sensational effect when I listened to Hungaraton’s absolutely world-class recording of Attila Bozay’s eerie (and slightly nutsy) *Improvisations* for zither. (Yeah, I know—this isn’t one you easily or regularly reach for on your record shelf.) Most of us associate the zither with *The Third Man* theme or *Tales from the Vienna Woods*, and I have to admit that it is not an instrument I listen to on an ordinary basis. But this superb recording is a *tour de force* of sound and performance. In addition to being an interesting classical composer, Bozay was apparently the Jimi Hendrix of zitharists, and on *Improvisations* he shows off what I take to be every possible effect this chiming dulcimer-like instrument is capable of—stinging pizzicatos, eerie glissandos, tinkly *sul* (and what I think may be *supra*) *ponticellos*, weirdly gorgeous chordal effects—making every sound the zither is capable of from the dying away of the airiest harmonics to the full-bodied tone of very strongly plucked notes available to the ear. The thing of it is, the Gabriel/Da Vinci makes them available to the ear, too—making *fortissississimos* sound startling *fff* and *pianississississimos* (and this record’s one of the few that’s got ‘em) truly *pppp*. And it does this all with utter clarity and lifelike duration, holding even the most softly sounded notes for what can seem like the eternity that they last before dying off into silence.

This brings me to the third of the Gabriel/Da Vinci’s astonishing virtues: its recovery of low-level detail. Although it is implicit in the ‘table and

arm’s other two great strengths, the Gabriel Da Vinci’s resolution—its ability to lower a noise floor you thought was unlowerable and dig out minutiae never heard before—is truly standard-setting in my experience. Quite honestly, I’ve never listened to a record player that is this finely and clearly detailed, and I’ve never listened to an LP through it—recent or ancient—on which I did not hear not just one or two new things but a plethora of *piñatas* I’d never heard before.

There is—dare I say it?—a tape-like quality to this masterpiece of a record player. Not just in the detail it digs up, not just in its astonishingly expanded dynamic range, and not just in its transcription-level revelation of engineering and mastering techniques, but in its—to use HP’s great word—continuousness. Its even-handed, undistorted, unforced, uncompressed ease. It just doesn’t seem to have any of the emphases—the hot spots—that other ‘table/arms have—those wide or narrow bands of pitch and dynamic that get extra accent (perhaps due to extra noise and resonance). It is one utterly smooth, utterly transparent, utterly lucid, utterly neutral, utterly lifelike customer.

Some of you are probably wondering at this point where my long-time reference, the \$40k Walker Black Diamond air-bearing linear-tracking record player, fits into all of this. Well, side-by-side with the \$60k Gabriel/Da Vinci I would say. The linear-tracker is better (as linear-trackers are) at the tail ends of records; it has a more expansive soundstage, bigger images, more air (or at least air that is more audible) between those images, fuller bass, denser tone color, and more body and dimensionality. If the Gabriel/Da Vinci sounds like a CLX (without the rolled-off bass and dynamic

range limitations), then the Walker Black Diamond Sounds like an MBL X-Treme. In other words, they are both great. The two most lifelike analog sources I’ve ever heard.

So which should you buy? Well, which do you want? The Ferrari or the Lamborghini? I can’t answer this for you (or the few of you who still have change in your pockets). I can say this with utter confidence, however: If you don’t want to deal with the complexities of an air-bearing turntable—the large pump, the elaborate plumbing, the routines of maintenance—and you have an extra \$20k lying about, then, IMO, you really don’t have an option. The AAS Gabriel/Da Vinci turntable with Da Vinci Grandeeza twelve-inch tonearm is the best non-linear-tracking record player I’ve ever heard (and by a country mile). If I were in the market for the state of the analog art and didn’t want to futz with the Walker, it would be my only choice.

Hats off, gentleman, a work of genius! tas



Long-Time Companion

Walker Proscenium Black Diamond Mk II Record Player

Jonathan Valin

For almost ten years, every time I've listened to LPs I've listened through some version of the Walker Proscenium belt-driven record player with integral air-bearing, straight-line-tracking arm, air-bearing platter, and air-suspension feet. No matter what else has changed in my stereo (and everything else has changed in my stereo), it has remained a constant reference, for one simple reason: It has always sounded just that much more like the real thing than any other analog front end I've compared it to (and I've compared it to some very fine 'tables and arms). I've reviewed previous versions of this classic twice (last time in Issue 167). Now, Walker Audio has released a new iteration, the Proscenium Black Diamond Mk II, that is its best effort yet. (Owners of older Walkers can easily upgrade.)

There are good reasons for the Walker's persistent superiority as an analog front end. First, in a segment of the high end where "well made" is taken for granted, it is *extremely* well made of durable, painstakingly tested, often cryogenically treated, ultra-high-quality parts that don't or have yet to fail. (There is an exception to this that I will discuss below, but the problems I've had with it are my doing, not the Walker's.) Once it is set up—and setup by its designers, Lloyd Walker and Fred Law, is included in the purchase price—every standard adjustment from VTA to VTF to azimuth to viscous damping of the arm (straight-line-trackers do not need anti-skating compensation) is simple to make or unmake in precisely repeatable increments. For instance, if you're into tweaking VTA for each and every LP, which I am not, the Walker makes the procedure a snap. Just loosen a setscrew on the tonearm pillar via the supplied Allen wrench (a toolkit, complete with everything from precision

electronic VTF meter to cartridge-alignment tool to rotational-speed-setting strobe and test record to spare belts and assorted other tools and parts, comes with every Walker); turn two knurled knobs on the pillar up or down, depending on whether you want to lower or raise the rear end of the tonearm (there are markers on the knobs which allows you to return to your starting point); re-tighten the set screw; and that's it. Setting VTF is even simpler. Most non-engineering types, including me, are intimidated by elaborate devices such as the Walker and shy away from making adjustments, lest they screw something up irreparably. Short of tearing off the tonearm or dropping the 'table from a height, you literally can't screw something up irreparably on this record player. You don't have to leave a trail of breadcrumbs behind you because you'll never get lost in the woods; there is always an easy way back to wherever you started.

But the Walker's excellence isn't just a matter of

EQUIPMENT REVIEW - Walker Proscenium Black Diamond Mk II Record Player

the precision, durability, intuitive simplicity of use, and repeatability of settings of all of its adjustable parts. This is also a record player that exemplifies a certain take on the reproduction of music via LPs—what might be called the “transparency-to-the-mastering-lathe” approach.

Though there is a great deal to be said for pivoted arms—and I myself am a huge fan of several, particularly the twelve-inch Da Vinci Grandezza—one thing that can’t be said for them is that they track the undulations inscribed in the grooves of records in the same way those undulations were originally cut into those grooves. As I’m sure most of you already know, the stylus (or chisel) of the cutting head on an LP mastering lathe moves across a lacquer blank in a straight line, traveling from the outer perimeter to the run-out grooves along a radius rather than in an arc. Assuming arm and cartridge are properly aligned, when an LP is played back via a straight-line-tracker like the Walker Black Diamond, your stylus is traversing the exact same radius that the stylus of the cutting head traversed when it cut the record. Your cartridge is never at a slightly offset angle to that ideal radius, as it necessarily is with a pivoted arm (save for the two points in its arc where the stylus transects that radius). What this means in practice is that straight-line-trackers eliminate the tracking and skating distortions, and consequent uneven stylus and groove wear, of pivoted arms.

If tracking a record in a straight line were all there were to it, all record players would track in straight lines. But, of course, that isn’t all there is to it. To explain the problems, I’m going to borrow (well, steal) a point from a well-written article on tonearm design that Geoff Husband penned for the Web-zine *TNT-Audio* some years ago. (Go

to <http://www.tnt-audio.com/int.html> to read the entire piece.)

As Husband points out, you wouldn’t have a problem keeping your stylus tracking correctly if LPs were truly flat and if the grooves in them unfolded in one long straight line, like tape does through a tape recorder. You could just fix the

cartridge in some extremely durable non-resonant medium above the record, as tape heads are fixed above tapes, and let that long straight groove play out beneath it. The only movement the stylus would then see would be the movements induced by the modulations cut into the groove walls.

Unfortunately, records aren’t flat and their

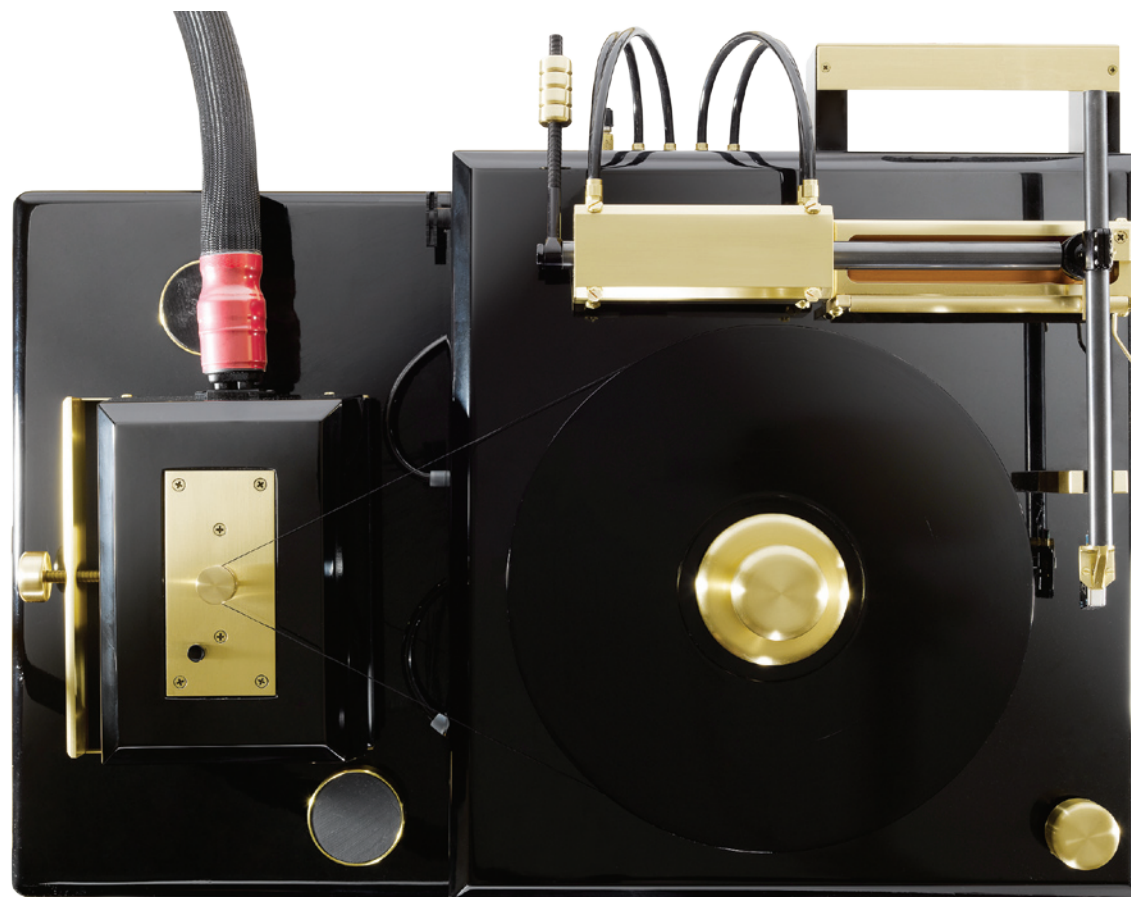
grooves aren’t cut in straight lines. The surfaces of LPs are all warped to some extent (even the best of them) and their grooves are cut in spirals. What this means is that you can’t fix a stylus and cartridge in one position, like tape heads are fixed, and let the record just “unfurl” beneath it; stylus and cartridge are going to have to be attached to something that allows them to move freely both up and down (to handle warps) and side-to-side (to follow that spiraling road from the perimeter of the disc to the run-out grooves). In other words, the cartridge is going to have to be attached to a tonearm with a bearing at the other end that permits these vertical and lateral movements.

Bearings mean friction; tonearms mean mass; together they mean resonances that get added to the musical signal.

Creating a truly resonance-and-friction-free arm and bearing is the major challenge for any tonearm designer. In fact, completely eliminating all friction and resonances are impossibilities. With tonearms, the best that can be hoped for is to reduce their resonances to minims and to ensure that those resonances occur at some place where they won’t play havoc with the musical signal or be exacerbated by record warps (roughly somewhere below 15Hz and above 7Hz). With bearings, the best that can be hoped for is to make ones that freely permit the requisite amount of up/down and side-to-side movement without twisting and without “chattering in their races” (ringing like little bells and therefore sending their own resonances and those that get reflected to them from the arm and the cartridge back down the tonearm to the stylus).

Tonearm bearings come in several conventional forms, the most common of which are damped

Creating a resonance-and-friction-free arm and bearing is the major challenge





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- Proscenium Black Diamond II Turntable

*J. Valin/TAS June/July 2010
Twice TAS Analog Product of the Year,
plus 16 other awards including PFO Brutus,
TAS Golden Ear and Editor's Choice.*

- Walker Reference Phono Amp
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EQUIPMENT REVIEW - Walker Proscenium Black Diamond Mk II Record Player

single-point bearings (as in uni-pivot arms) and multi-point bearings (as in gimbaled arms). Though more complex, expensive, and difficult to execute, there is a third way of creating a relatively frictionless, non-resonant tonearm bearing, and that is by using a gas (usually pressurized air) to fill the tiny gap between the bearing and the parts whose movements it is facilitating and constraining. This so-called air bearing is what the Walker Proscenium Black Diamond Mk II is equipped with. (The Walker also uses an air bearing on the massive platter of its turntable.)

Here's how Walker's air-bearing arm works. The Black Diamond tonearm, which is a medium-mass arm made in a single piece of uniform diameter from some secret ceramic-composite so hard it can only be cut with diamond saws (thus the name), is attached at its far end to a spindle made of the same material as the tonearm. (The arm can be viscously damped and its center of gravity can be adjusted to suit the compliance of your cartridge.) As the Black Diamond travels across a record, that spindle passes through a five-and-a-half-inch-long hole in a large rectangular brass block at the back of the 'table. The walls of this hole fit around the spindle so tightly that the arm virtually cannot be moved when the arm's

air pump is off. When it is on, however, air is injected at high pressure through tiny jets inside the bronze bearing block; that air forms a lubricant film between the outer surface of the spindle and the inner surface of the hole in the bronze block. *Voilà*, an air bearing.

The first time you use an air-bearing tonearm like the Black Diamond you will be amazed that the arm, which previously resisted movement, suddenly seems to move effortlessly in the lateral and vertical planes, as if it is floating on air (which it quite literally is). That film of air has all sorts of other mechanical advantages (including damping resonances), which is why air bearings are so often used in very-high-tech industrial applications (for instance, under electron microscopes [*and in the support structure and turntable of CD mastering machines—RH*]). However, air bearings, at least when they're used in tonearms, can also have their downsides. The air-bearing arm on a turntable I used to own some twenty years ago was so finicky that the slightest bit of dust or even a single fingerprint on the spindle would cause the arm to freeze when the "dirty" segment passed through the air bearing, instantly producing a tic on the LP being played. It is this kind of behavior that gave air-bearing tonearms a bad name. The Walker, I am delighted

to say, *has never done this*. Not once in nearly ten years. Whether its tolerances are different, its air pressure higher, or its design (which provides a bearing along a much longer length of the spindle) simply more successfully executed, the Walker arm never freezes up.

The Walker's turntable, as noted, is also an air-bearing design. Here pressurized air is piped into the miniscule gap between platter and subplatter, creating (as is the case with the arm) a gas bearing. It is even more amazing to see the Walker's air-bearing turntable at work than it is to see the arm, for the platter weighs seventy pounds and is almost literally locked in place when the air pump is off. When it's on, the massive platter floats like the tonearm on a microscopically thin layer of air which, thin as it is, is still sufficient to lift the platter off the subplatter and allow it to rotate so freely that even after you turn off the motor the thing keeps rotating for half-a-minute or longer. That's how low in friction the Walker's air-bearing turntable is.

One of the chief differences, by the way, in the Mk II version of the Walker that I am reporting on is the number of jets in the arm's bronze bearing block, which has gone up from eight to sixteen. The entire air-supply system for arm and platter has been enhanced. So has the damping of the outboard motor block, which drives the single belt that powers the seventy-pound platter. (The



The latest Walker has taken the lead in low-level detail, dynamics, and transparency to sources

EQUIPMENT REVIEW - Walker Proscenium Black Diamond Mk II Record Player

accuracy and reliability of Walker's motors and motor controllers are legend, which is why so many non-Walker-owners use Walker controllers with their 'tables.) I can't say for certain whether the increase in the number of jets and the better air supply have made for "stiffer" air bearings, but I can say that the sound of the Mk II version of the Walker Proscenium Black Diamond has improved over the last version that I reported on in Issue 167. And the last version was the most lifelike record player I'd ever heard.

You may recall from that review, in which I compared the Walker to the Kuzma Stabi XL with Kuzma Stabi Air Line straight-line-tracking air-bearing arm, that I gave the prize in overall realism to the Walker. The Walker was also superior in neutrality, timbre, soundstaging, and lifelike imaging. But the darkish Stabi did hold an edge in detail and large-scale dynamics. When I reviewed the AAS Gabriel/Da Vinci magnetic-bearing turntable with Da Vinci's superb twelve-inch Grandezza gimbaled arm in Issue 191, I also found that it had a slight edge in low-level resolution, in softer passages (where it set a new standard of dynamic scaling), and overall transparency, and was pretty close to being the Walker's equal (or superior) in overall neutrality.

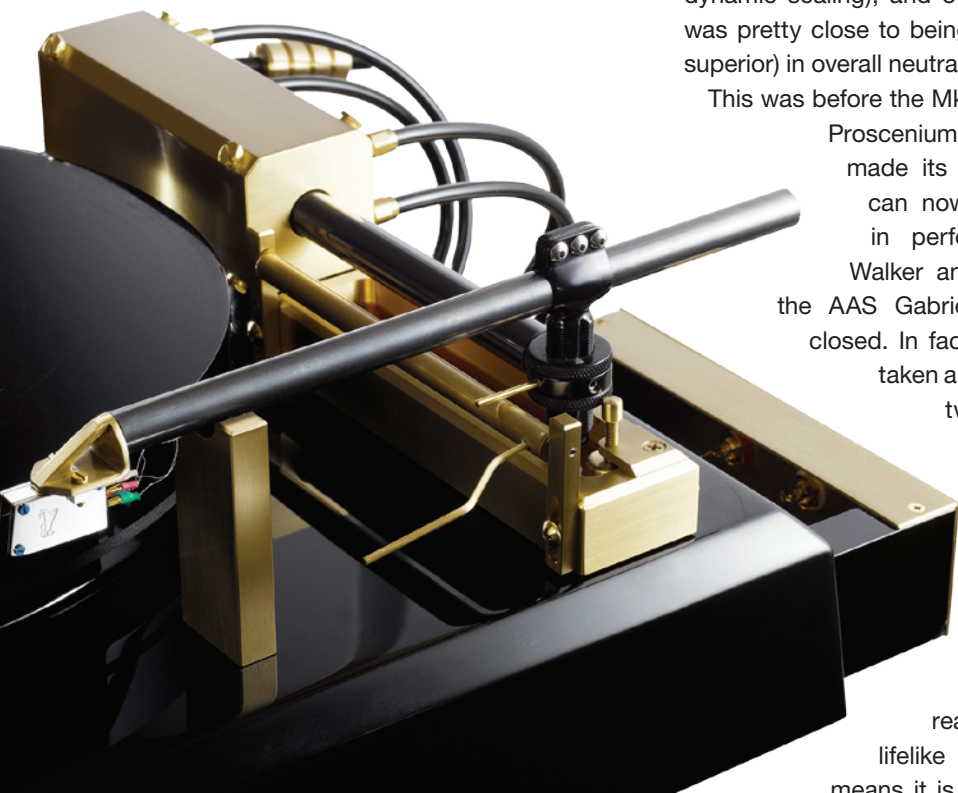
This was before the Mk II version of the Walker Proscenium Black Diamond had made its way into my system. I can now report that any gaps in performance between the Walker and either the Kuzma or the AAS Gabriel/Da Vinci have been closed. In fact, the latest Walker has taken a slight lead over the other two in low-level detail, dynamics (large and small-scale), and transparency to sources, while maintaining its advantages in timbre, soundstaging, imaging, and overall realism. This is the most lifelike Walker yet, which means it is the most lifelike source

I've heard—yet. (There is a 15 ips reel-to-reel tape player on the horizon that could upset the applecart, and later in the year I'm expecting a Mk II version of the Gabriel/Da Vinci, which may prove competitive judging from past experience.)

Musically, what the improvements in the Walker's low-level resolution buy you is a small but audible increase in the clarity of inner lines. Details that were just a bit more difficult to hear in the past—like those harps doubling the doublebass pizzicatos in the Passacaglia of Lutoslawski's Concerto for Orchestra [EMI] or the notes of the basso ostinato in the third movement of Riccardo Malipiero's beautiful Quartet No. 3 [Italia], which uses the same series that Berg used at the beginning of the Sixth Movement of his *Lyrical Suite*—are now clearly audible. Being able to hear, for instance, that the bass line in the Malipiero piece is an ostinato rather than a more random walking bass increases your appreciation of the composer's skill and your understanding of the structure of the composition and of the effect the music is intended to have on you.

This small increase in resolution, coupled with the Walker's slightly improved dynamics, also has a magical effect on your appreciation of the skill with which a performer is playing a piece. The pleasure you take in something like Attila Bozay's bravura (albeit nutsy) *Improvisations for Zither* [Hungaroton], for instance, depends entirely on your ability to hear (and enjoy) how skillfully and wittily that zither is being played—and it is being played in ways that make deliberate use of all the sounds this chiming lute-like instrument is capable of producing. Through the Walker the sound of the Bozay piece is a thing of mouth-clapping wonder. Any advantages that the AAS Gabriel/

Da Vinci had on the softer side—on *pppp*-to-*mf* passages—any advantages the Kuzma had on the louder side—on *mf*-to-*ffff* passages—have been mitigated or eliminated. From crashing fortissimos on massive chords to flickering pianissimos on single strings, the Walker makes every note fully audible. Moreover, its way with the durations of tone colors is very nearly as impressive as that of the TW Acoustic Raven AC-3 (though the Walker was and is less dark and Technicolored in balance, and more realistically neutral and transparent than the AC-3). The Black Diamond Mk II hangs onto the lovely little partials of those plucked and strummed zither strings right down to the brief silences that follow their dying out with a completeness that makes other 'tables' (the



SPECS & PRICING

Walker Proscenium Black Diamond Mk II Record Player

Type: Belt-driven record player with integral air-bearing arm, air-bearing platter, air-suspension feet and outboard motor, motor controller, and air-supply box

U.S.

Price: \$57,000 (including installation)

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EQUIPMENT REVIEW - Walker Proscenium Black Diamond Mk II Record Player

AC-3 excepted) utterance of harmonics sound foreshortened. Likewise, on “Gospel Ship” or “Pretty Boy Floyd” from *In Concert* [Vanguard], you’ll hear the amount of tremolo Joan Baez adds to (or subtracts from) her delivery of each word of a lyric in precisely the way she wanted you to hear it. (If you’ve ever read *Positively Fourth Street*, you’ll know that this tremolo did not come easily to Baez; she cultivated it to add expressive softness, sweetness, and lilt to passages where her pure keen soprano might otherwise have been too powerful or overwhelming.)

In addition to clarifying music and performance, the new Walker’s increased resolution and dynamic range has a third effect: It clarifies engineering. You may recall from my review of the AAS Gabriel/Da Vinci ’table how impressed I was with its transparency to sources, which I attributed in part to a lower noise floor. Well, the Walker Proscenium Black Diamond Mk II now equals the Gabriel/Da Vinci in this regard, revealing the same details of engineering and mastering without losing its superior grip on the sound of the real thing. All of the examples I noted in my review of the Gabriel/Da Vinci—the potting in of Joni Mitchell’s backup vocals on “California” from *Blue* [Warner] and the clipping of a mike preamp on Leon Redbone’s *Branch to Branch* [Warner], for instance—are now made as fully present through the Walker as they were through the Swiss ’table.

The Walker’s soundstaging and imaging have always been nonpareil, and this hasn’t changed. Equipped with a cartridge capable of superior width, height, and depth of stage, the Proscenium has not been equaled by any other ’table/arm I’ve had in house. It simply goes wall-to-wall, floor-to-ceiling with a really expansive LP. More

importantly—*most* importantly, actually—with a really great LP, the Walker now sounds even more like the absolute than it did in the past, and in my experience it was always the champ in this key regard. Instruments simply sound just a bit more like themselves through the Proscenium Black Diamond Mk II.

Downsides? Well, it’s expensive—at \$57k (including delivery and installation), more

With a great LP, the new Walker sounds even more like the absolute sound

expensive than ever, though not as expensive, as Lloyd points out in the interview that follows this review, as the highest-priced ’tables on the market. It is bigger, heavier, and more complex than a non-air-bearing device. You must find a place for its air pump, which is housed in a large separate box and you must cope with the air-supply tubes and air-return tubes that run from the pump box to the plumbing underneath the ’table’s chassis. (It is easy to tape these small-diameter tubes to baseboards, making them virtually invisible.) In its favor, the pump in its large pump box is very quiet. For years, I kept it in the listening room nearby the ’table and was seldom aware of its presence. Finally, there is some periodic maintenance involved with the Walker. Every couple of months you must empty a bottle in the pump box that collects the oily condensate expelled by the pump; you must add oil to the pump every two-to-three months to ensure that it is fully lubricated; and, most importantly, you must remember to turn

that pump off after every listening session. I can’t emphasize this last point enough. If, late at night, you forget and leave the motor running for several days, you stand the risk of burning the pump motor out, although, speaking from experience, the damn thing is sturdy enough to take a good deal of unintended abuse. To avoid any possibility of catastrophe, I would suggest plugging the pump into one of those wall-outlet timers and setting the timer for, oh, four-to-eight hours tops (depending on how long you think you’ll be listening). This way, if you forget to turn off the pump (as I and every other Walker owner have on occasions), the timer will turn the pump box off for you.

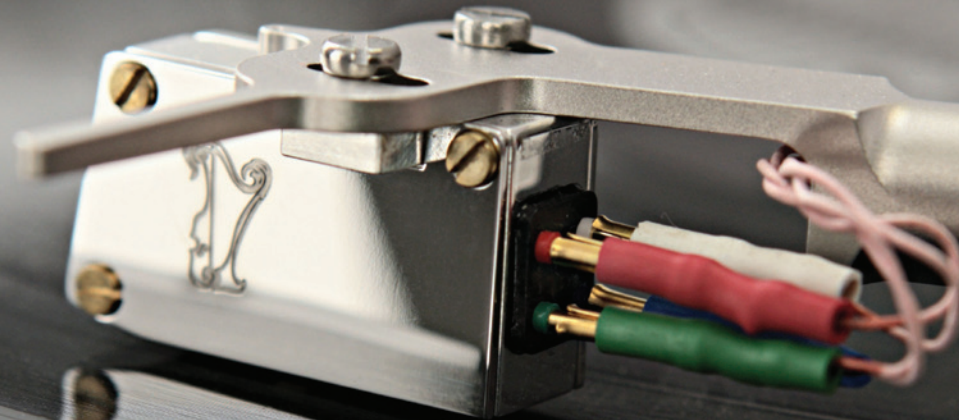
When the Walker is first unboxed and installed, it may strike you as an unusually and intimidatingly

complex device. It is not. The complexity and number of its parts are, as Lloyd rightly says, designed to make it easier to use. And once installed, it *is* easy to use. It is, also, the single most neutral and lifelike source component I’ve yet heard or had the pleasure of using.

The Walker has been my analog-source reference ever since I started writing for TAS again. In its newest and best iteration, it will remain my reference for the foreseeable future. I cannot recommend it highly enough. For LP lovers, for devotees of the absolute sound, it is the very stuff that dreams are made of. **tas**



EQUIPMENT REVIEWS Phono Cartridges



An Heir to The Shure?

Ortofon 2M Red and 2M Black Cartridges

Neil Gader

I've been a moving-magnet loyalist for years. Not always an easy proposition, incidentally, with trash-talking colleagues extolling the virtues of their own lightening-fast moving-coil thoroughbreds. I have my own counter-arguments—in high-end audio journalism, that goes with the territory.

Most recently my cartridge was the Shure V15VxMR. It was a choice built on the Shure's sonic profile, particularly its expressive midrange. In retrospect, I was instinctively responding to its uncanny frequency coherence in much the same way we unconsciously react to the rightness of a speaker that seems to project music as if from a single point. The V15 wasn't the most detailed or the most extended, but it tracked well and mercifully steered clear of the kind of treble rise that throws a follow-spot on harmonics and pricks the ear with a false sense of detail. However, a few months ago my V15VxMR began failing. It may have been age related. Or likely the tubular beryllium cantilever had taken too many smacks from an errant Swiffer. But when the left-channel output began drooping, I had to face facts. The *coup de grace* was the news that the V15 had also been discontinued.

As if on cue, Ortofon, the Danish cartridge-maker, released a new line of moving-magnet cartridges, the 2M Series. The swansong designs of Ortofon's former chief engineer Per Windfield, the 2Ms (word play for the moving magnet's universal abbreviation "mm") are available in four high-output models, bedecked in gumdrop colors to

distinguish them. I evaluated the entry-level 2M Red and the flagship 2M Black. Also available are the 2M Blue (\$199), and 2M Bronze (\$349). All models share the same general engine architecture and 47k ohm loading, as well as a diamond stylus mounted on an aluminum cantilever. But there are differences. The Bronze and Black get upgraded engines with silver-plated copper wire and a cartridge body manufactured of Noryl plastic/glass composite to reduce resonances. But the key technical distinction regards the stylus profile. The Red uses a tipped elliptical, while the Black wields a formidable Shibata stylus—the same used on the vaunted MC Jubilee. The Shibata has a wider contact area with the groove and better stability, all of which extends frequency response and also reduces record wear.

Thanks to the 2Ms' slender body design and pre-threaded mounting holes, set-up hassle was minimal. Overhang was nearly a match to the Shure, but the additional mass of the 2M (7.2 grams versus the 6.6 grams of the V15) required me to rebalance the SME V tonearm slightly (on a Sota Cosmos Series III). VTA was set with the arm tube parallel to the platter surface and pretty much remained in that neutral position. For the record, so to speak, I routed the



EQUIPMENT REVIEW - Ortofon 2M Red and 2M Black Cartridges

signal through the superb JR Transrotor Phono II phonostage.

The 2M Black (and to a lesser degree, the Red) may have been born a moving magnet, but its performance is not so easily typecast. Overall, it's the balance of the Black that carries the day. It's neither dark nor slow off the mark. Yet like the Shure it doesn't go in for extremes. It has a lighter touch and certainly a faster one. It has a more resolved character irrespective of frequency. And the V15 on its best day never reproduced a soundstage with such precision and dimension.

Coincidentally with this review, Cisco Records sent me a three-disc 45-rpm set of test pressings of Jennifer Warnes' hallmark album *Famous Blue Raincoat*. It arrived shortly after I'd reviewed the beautifully remastered 25th anniversary CD [Shout Records]. Interestingly, the Black hews quite closely to the CD's tonal balance. On a song like "If It Be Your Will" the cartridge conveys the intimacy of the hovering acoustic guitars and the plunging bass as they dance in a way akin to an air-and-water ballet. Compared to the CD, the Ortofon has greater harmonic delicacy on string and a willowy signature off the transient. The CD, on the other hand, has a slightly more grounded midrange, but lacks the 2M's ethereal space and air in this cut. The Ortofon produced bass extension that was arguably fuller and more naturalistic than the CD, but not as tight. Comparing the LP to the disc reminded me of the commonly expressed distinctions between tube and transistor amplification—the former a little warmer and less defined, the latter offering greater extension but lacking in musicality.

During the final movement of the Solti-conducted Beethoven Ninth Symphony [Decca], the 2M Black

differentiated voices in tightly packed chorales impressively, easily sifting through the layers of a symphony orchestra and allowing the listener to peer over each music stand. Depending on the recording it could skew toward the analytical in the treble, adding a shimmer of brilliance to Anna Netrebko's upper register and some glare in brass or winds. Nothing off-putting, but if your ear tends to key on these things, they're clearly there. The Black's greatest attribute, however, was how it provided a more transparent window into the world of micro-energies—all the tiny things we listen for which coalesce to create the inner life of a great recording. These include (but aren't limited to) amplitude gradations, dynamic and transient information, and timing differences. They can be heard in the depth of Marilyn Horne's vibrato as she beats back the orchestra during "Somewhere" [West Side Story, Bernstein, DG], or the way that the 40-piece string orchestra is juxtaposed against James Hetfield's razor-rasp vocal and Lars Ulrich's bone-crushing drum track during Metallica's "Nothing Else Matters" [Vertigo]. Compared with the V15, the Black resides in its own world, plumbing the complexities of orchestral depth and dimension.

Tonally the Red is cut from the same midrange cloth as the Black and captures the gist of the Black's personality. It's even more like the V15—forgiving of harsh recordings and enriched with a stronger midrange orientation and a slight treble roll-off. During the final movement of the Ninth, it distances the violin section slightly and brings the celli and bass viols a row or two closer to the audience. Bass quality is excellent, the near-equal of the Black.

The Red easily resolves the inner detail of the

brass ensemble during Holly Cole's "The Briar and the Rose" [Temptation, Alert]. This section can sound brittle and synthesized on the CD but one of the 2M's strengths is the lower midrange, which is critical to imparting the energy of these instruments. In comparison to the 2M Black, the Red clocks in as a little drier and sounds as if it's making more of an effort in the upper treble. Keep in mind that, although it lacks some of the velvety finesse and smooth harmonic finish of the Black, this is one sophisticated and musical cartridge—for the price of a nice dinner for two.

In a market where moving coils get most of the buzz, the 2M Black is a superb performer and value. It deserves to garner the attention of bereaved V15 aficionados and make converts of the more curious moving-coil devotees. Likewise, the 2M Red has nothing to be red-faced about, either. In a hobby not noted for bargains the Red is a screaming deal—an entry-level cartridge at its finest. In both instances these are worthy heirs to the Shure. *tas*

SPECS & PRICING

2M Black	2M Red
Type: Moving-magnet	Type: Moving-magnet
Output: 5mV	Output: 5.5mV
Stylus: Nude Shibata	Stylus: Elliptical
Tracking force: 1.5 grams	Tracking force: 1.8 grams
Weight: 7.2 grams	Weight: 7.2 grams

U.S.	U.K.
2M Black	2M Black
Price: \$669	Price: £460
2M Red	2M Red
Price: \$99	Price: £80
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500 Executive Blvd Ste.,	Unit 11, Moorbrook,
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Grado Prestige Gold

Chris Martens

Though I've used Grado cartridges in the past, it had been quite a while since I had one in my system, so I was in for a pleasant surprise when I began to spin vinyl via the Prestige Gold. Within seconds of settling into my listening chair to evaluate the cartridge, I thought to myself, "Wow, that little Grado sounds remarkably *alive*." In more analytical terms, this meant the Grado offered many of the virtues that impressed me in Shure's bargain-priced M97xE, while taking substantial steps forward in three important areas.

First, the Grado's frequency response sounded more extended than the Shure's at both frequency extremes, albeit at the expense of a small region of well-controlled lower midbass emphasis. Suddenly, high-frequency harmonics and the "air" surrounding instruments became easier to hear, even as basses and kick drums received a touch of added weight and punch. Second, the Grado offered a striking, across-the-board increase in resolution and detail. Third, the Grado captured fast-rising transient sounds, such as the sound of a drumstick striking the rim of a snare drum, with lifelike energy and "snap."

Put all of these factors together, and the Grado serves up a livelier, more you-are-there presentation than it has any right to given its modest price. To appreciate what

I mean, try "Spain" from Chick Corea and Return to Forever's *Light As A Feather* [Polydor]. The most exuberant moments of the song are punctuated by handclaps and even occasional hoots from the players, all of which—through the Prestige Gold—fairly jumped off my speakers. The only drawback, however, is that on *extremely* heavily modulated passages, the Grado sometimes exhibited faint traces of hardness or coarseness—warning signs that its tracking limits had been reached.

While the Prestige Gold cannot provide quite the same ultra-refined, take-you-to-the-mountaintop listening experiences that big-buck moving coils can, it takes you a long way up the path toward analog excellence, and for a pennies-on-the-dollar price. **tas**

SPECS & PRICING

Grado Prestige Gold

Type: Moving magnet

Output: 4mV

Weight: 6 grams

Stylus: Elliptical diamond

Tracking force: 1.5 grams

U.S.

Price: \$180

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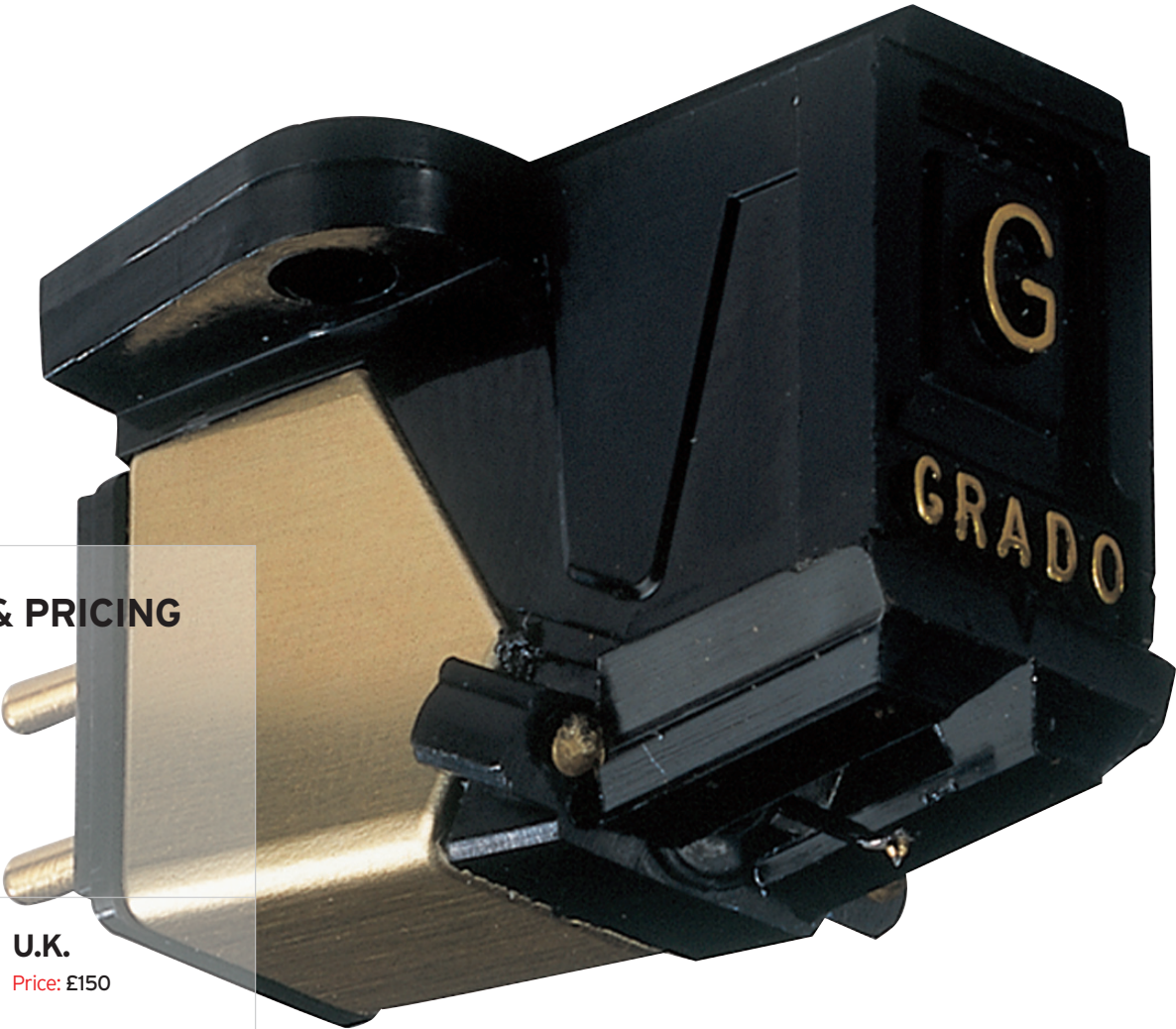
Price: £150

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Sumiko Bluepoint No. 2

Chris Martens

For many years Sumiko’s original Bluepoint Oyster enjoyed a reputation as the go-to choice among entry-level, high-output moving-coil cartridges. Even so, I felt the original model left plenty of room for improvement—improvement that has arrived in the form of the new Bluepoint No. 2. As a first step toward understanding the Bluepoint No. 2, it might be useful to summarize the general benefits moving-coils cartridges are thought to provide.

Relative to moving-magnet designs, moving-coil cartridges are said to offer superior resolution of low-level details, faster and more precise transient response, and a heightened ability to produce broad, spacious, three-dimensional soundstages. The extent of these benefits will vary from design to design, but as a general rule all three are present to some degree in most moving coils—even in relatively inexpensive ones.

Sure enough, the Bluepoint No. 2 improves upon the already good performance of Grado’s moving-magnet Prestige Gold in the three areas outlined above, though the Grado is sufficiently good that the gap does not at first seem large. Over time, however, the Bluepoint No. 2 distinguishes itself through superior resolution of textures and, especially, through superior three-dimensionality. Put on a record known for 3-D sound, such as

harpist Andreas Vollenweider’s *Down To The Moon* [CBS], and there will come moments when the Bluepoint No. 2 causes the back wall of the room to “melt,” confronting the listener with the dark, rich sound of Vollenweider’s harp reverberating within a giant acoustic space.

Relative to the original Bluepoint Oyster, the Bluepoint No. 2 offers richer, more potent bass and smoother, less aggressive highs. Together, these improvements transform Sumiko’s entry-level moving coil into a cartridge that even finicky listeners might enjoy for hours on end.

Though the Bluepoint No. 2 offers somewhat less purity, focus, and refinement than top-tier moving coils, it supplies most of the essential ingredients necessary for superlative analog sound, which is quite an achievement. **tas**



SPECS & PRICING

Sumiko Bluepoint No. 2
Type: High-output moving coil
Output: 2.5mV
Weight: 6.3 grams
Stylus: Elliptical diamond
Tracking force: 1.6-2.0 grams

U.S. Price: \$299	U.K. Price: £150
SUMIKO AUDIO 2431 Fifth St. Berkeley, California 94710 (510) 843-4500 sumikoaudio.net	SYMMETRY Suite 5, 17 Holywell Hill, St. Albans, Hertfordshire, AL1 1DT +44 (0) 1727 865488 symmetry-systems. co.uk

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Sweet Talker

Clearaudio Maestro Wood Cartridge

Neil Gader

Moving-coil cartridges get a lot of ink in TAS. These low-output, high-performance thoroughbreds are built to run. They can, however, be finicky about associating with anything less than the upper crust in phonostages, and they remain sensitive to setup. Moving magnets, on the other hand, are blue-collar cartridges. Easy to handle, their high-output designs don't require pricey high-gain phono preamps, and they often have user-replaceable cantilever/stylus assemblies. What could be more Pep Boys than that?

In Issue 182 I intended to assess a collection of mm contenders in my search for an heir to the now-defunct Shure V15mX. To this end, I reviewed the Ortofon 2M Red (\$99) and 2M Black (\$599). I had wanted to include the Clearaudio Maestro Wood to flesh out the upper end of the survey, but the Maestro wasn't available until now. So, in a manner of speaking, this article is the conclusion of a survey begun a few months ago. Part Two was, however, worth the wait.

The Maestro Wood utilizes the same general design as Clearaudio's Virtuoso Wood, but with the addition of a one-piece, satiné wood body. Significantly, it also shares the solid boron cantilever and the Trygon P2 stylus of the esteemed Insider mc cartridge. The wood body completely encloses the motor assembly but the stylus itself is fully exposed, so butterfingers with feather dusters should beware. At 3.6mV, the Maestro Wood's output wasn't quite up to the 5.5mV of the 2M Red or the 5mV of the 2M Black; nonetheless, noise was never an issue when

the Clearaudio was paired with the excellent JR Transrotor Phono II phonostage.

Sonically, the Clearaudio Maestro Wood will be no stranger to those familiar with the virtues of the late, lamented Shure. Across most criteria, the easygoing balance of the V15 has been channeled into the Maestro Wood. Only there's more. More dimensionality, and greater soundstage width—areas where the Shure didn't especially excel. The Maestro Wood gushes sweet sonics like squeezing a ripe, red plum. It has a warm, darkly sensuous tonal balance, but it's not a softy in the dynamics department, nor does it smear inner details. There's more treble air to the Wood than to the Shure, but the slightly zippier Ortofon seems ultimately the more extended in this regard. Like the Shure, the Clearaudio is also a good tracker.

The Maestro seems to savor harmonic information a bit more than the Shure and Ortofon 2m Black—the more analytical offering in the survey. It seems to allow the natural decay

characteristics of acoustic instruments to linger an instant longer rather than drinking them down in short gulps. It's a trait that serves the Maestro well on LPs made in realistic venues and classical settings. Where mc (or 2M Black) fans might differ with the Maestro Wood is whether it rounds transient detail and blunts rhythms a bit too much. And here they might have a point. The Ortofon 2M Black resolves low-level orchestral details and does layering with ease. The Black is lightning-quick, with an energy that digs deep

into a bass line. During Metallica's "Nothing Else Matters" [Vertigo 45rpm EP], its transient character just drinks up the percussion-attack from Lars Ulrich's sticks. Fact is, music can be aggressive and pointed. I like the traditional mm sonics and neutrality of the Clearaudio, but the liveliness and jump factor of the Ortofon are addicting.

In comparing reference LPs with their digital versions, a couple consistent differences were revealed. For example, during Holly Cole's "Train"



EQUIPMENT REVIEW - Clearaudio Maestro Wood Cartridge

[Metro Blue], the shaker percussion rhythms were more finely grained and height cues were better expressed. At the end of each chorus there's a plummeting bass note and drum wallop that sustains and resonates a couple bars. The Clearaudio reproduces a terrific amount of this information (although it was not quite the match of a CD player with the Esoteric X-05's breeding). Even more significantly, it does so with an image focus and soundstage placement that actually betters the CD. During "Jersey Girl" Cole's back-up "sha-la-la" chorus was less strident, just a little rounder on top with less etch when compared with the CD. In a perfect world I'd opt for a bit more transient speed and presence magic, but

given a choice I'd take the cartridge that shades off slightly like the Maestro rather than one that cuts through the mix with an overly aggressive edge. And then there's that moment during "How Can I Be Sure," the last cut on Shelby Lynne's *Just A Little Lovin'* [Lost Highway], where the tape is rolling and guitarist Dean Parks let's out a breath to calm his nerves and swallows a quick gulp of air before launching into the intro. It's only ambience and dark atmosphere in the grooves, but it's the kind of recorded information that transports the listener into another world. The Maestro Wood takes you *there* beyond the CD, and like none of the other mm cartridges I've recently heard.

The Clearaudio Maestro Wood is a sweet-talker and an addictively balanced performer. For those who hear the clarion call of the moving coil, more power to you. For little-old blue collar me, the Maestro Wood is the kind of component that keeps its eye on the big picture—exactly how I like my music. *tas*

SPECS & PRICING

Clearaudio Maestro Wood Cartridge

Output voltage: 3.6mV

Channel separation: >35dB

Tracking force: 2.0 grams

Cantilever/stylus: Boron/Trygon P2 diamond

Weight: 7 grams

U.S.

Price: \$995

U.K.

Price: £685

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Gemütlichkeit

Shelter 5000 and 7000 Moving-Coil Phono Cartridges

Chris Martens

Over the years Shelter's moving-coil phono cartridges have consistently found favor in our pages. When I reviewed Shelter's \$850 501 Mk II in issue 147, for example, I found it delivered "treble air without brightness, transient speed without overshoot, definition without edginess, focus without sterility, and bass weight without any thick or syrupy colorations." Similarly, Jonathan Valin gave Shelter's then-flagship model 90X cartridge a TAS Golden Ear award, noting that it provided "superior transparency, timbral beauty, and dynamics, with the added bonuses of exceptionally deep, solid bass, and a big transparent soundstage." Finally, Wayne Garcia reviewed the 90X in issue 160 and praised its "transient speed with rich and fully articulated timbres, which reach deep into the bass." Together these comments paint a coherent picture of Shelter's house sound, which could be described as the intersection between traditional audiophile virtues and an elusive quality best summarized by the German word *gemütlichkeit*, which means "atmosphere of comfort, peace and acceptance."

Having earned accolades like these, you might think Shelter would take an "it-ain't-broke-so-don't-fix-it" stance toward its product line, but company founder Yasuo Ozawa is not one to rest on his laurels. Instead, he set out to replace the top two models in his original lineup (the well-liked 901 and 90X) with three new cartridges designed to offer "more life." The new cartridges are called the Model 5000 (\$1500), 7000 (\$1995), and 9000 (\$2995), and all three have generated considerable buzz among analog enthusiasts. In fact, the word on the street was that the 5000 could handily outperform the previous 901, while the 7000 was said to be competitive with (and

perhaps even better than) the original 90X, which is saying a mouthful. My curiosity thus piqued, I arranged to borrow samples of the 5000 and 7000 to see how they performed.

What does Ozawa's objective of adding "more life" really mean? I believe it means finding ways to give Shelter cartridges more detail, greater transient speed, and more explosive dynamics, without disturbing that quintessential quality of *gemütlichkeit*. In pursuit of these goals Ozawa has given the 5000/7000/9000 Series cartridges larger and more rigid anodized aluminum bodies, new front yoke assemblies, redesigned bobbins, and improved internal wiring. The 5000



and 7000 feature boron cantilevers fitted with identically-sized-and-shaped "nude" elliptical styli. Published specifications for the three models are similar; in fact, the only obvious differences between them are minor variations in DC resistance ratings. (Web mavens take note: Many Shelter-related sites incorrectly show the 5000 and 7000 as having *identical* specifications, which is not the case.) Importer Arturo Manzano of Axiss Audio confirmed that there are subtle but sonically significant differences between the motor assemblies of the 5000 and 7000. Eager to learn what the sonic impact of those differences might be, I set up the Shelters in my reference 'table and began making comparisons. Here's what I learned.

First, the 5000 offers significant performance improvements relative to the next model down in Shelter's product line—the award-winning \$850 501 Mk II. Specifically, the 5000 surpasses its less costly little brother by delivering more detail, more sharply drawn dynamic contrasts, and a more fully fleshed out, three-dimensional soundstage.

To enjoy the 5000's superior detail, I put on "Wolves (Song of the Shepherd's Dog)" from Iron and Wine's *The Shepherd's Dog* [Sub-Pop], a track that offers densely layered acoustic and electric instrumentation, along with Sam Beam's soft, breathy multi-layered vocals. What makes the track so challenging is that so many human and instrumental voices are simultaneously vying for attention within the same spectral space. You might expect this would lead to congested midrange mush, but instead the Shelter 5000 cleanly delineates the timbres of individual voices and, just as importantly, shows each one is originating from its own specific location within the soundstage. As a result the 5000 emphasizes the track's tapestry-like complexity and richness, inviting listeners to follow individual musical threads as they wish.

The only area where the 5000 left me wanting more resolution involved delicate, high-frequency textures on extremely well-recorded discs. For example, Louis Bellson's high percussion work on "Red Bank Blues" from *Basie Jam* [Pablo/

EQUIPMENT REVIEW - Shelter 5000 and 7000 Moving-Coil Phono Cartridges

Analogue Productions, 45rpm LP] sounded sweet and beautiful through the 5000, though it lacked the nth degree of treble air and resolution that might have made the cymbals sound more lifelike. While the 5000 consistently provides sweet-sounding highs with little (if any) apparent roll-off, it narrowly misses capturing fine, low-level textures and details the way top-tier cartridges can. Even so, other sonic strengths build a compelling case for the 5000.

Put on material full of fine dynamic shadings and brute-force contrasts, such as the opening “Naissance de Kijé” movement from Prokofieff’s *Lieutenant Kijé* Suite [Abbado/Chicago, Deutsche Grammophon], and the 5000 will wow you with its dynamic prowess. The movement opens with a soft, just barely audible woodwind theme, expands as higher wind instruments and snare drums enter, and then—in less than a minute—moves forward to a crescendo marked by humungous bass drum thwacks. If you are accustomed to listening through digital players, hearing this passage through the Shelter 5000 will prove a real eye-opener, because the contrasts between the quiet opening passage and the massive drum beats that follow is gloriously shocking—enough to make even the most passive listeners sit bolt upright in their seats. Better still, the Shelter 5000 not only dramatizes large-scale dynamic transitions (almost as if signals were somehow routed through a dynamic range expander), but it also catches all the subtle dynamic shadings in between. Part of the 5000’s performance hinges on its potent bass, which, while not “state-of-the-art” in the strictest sense, is far better weighted and defined than that of any number of premium-priced moving coils I’ve heard.

The only areas where the 5000’s dynamic capabilities show noticeable weaknesses involve *extremely* heavily modulated upper midrange/treble and low bass passages. A good example would be the intense sibilant sounds heard on Christine Collister’s rendition of “Who Knows Where the Time Goes?” from *Love...* [Rega]—a track that leaves the 5000 sounding ever-so-slightly ragged or overtaxed at times. In truth, the 5000 handles overwrought passages better than many cartridges at its price, but some higher-priced numbers—including Shelter’s own model 7000—handle them with even greater smoothness and grace.

To summarize, Shelter’s 5000 is a pleasingly musical performer that offers a significant step up from the firm’s already very good 501 Mk II. The only catch is that the 5000 offers so many top-tier attributes that it may inspire you to climb even further up the performance ladder, which is where the model 7000 comes in.

At first blush the 5000 and 7000 seem structurally and sonically similar, but the longer I listened the more subtle (and not so subtle) differences began to accrue, all of them arguing in the 7000’s favor. First, I heard worthwhile increases in resolution and transient speed, especially at both frequency extremes. Second, I observed increased midrange openness, which made for more focused and three-dimensional soundstaging. And finally, I noted that the 7000 produced deeper and better-defined bass, especially on heavily modulated low-frequency passages.

The 7000’s improved resolution and openness became obvious when I sampled the Von Karajan/Berlin performance of Bartók’s *Music*

for Strings, Percussion, and Celeste [Deutsche Grammophon]—a record that is a bellwether disc of sorts. Through many cartridges this record sounds shrill and hard-edged, but through really good cartridges it sounds rich, vibrant, and lavishly complex (in much the same way that great wines meld multiple flavors that take a while to sort out). The 7000 proved to be a real spellbinder on the Bartók piece, pulling tons of detail from the individual instruments—especially the luminous voice of the celeste, yet without veering into cold, analytical, electron-scanning-microscope sterility. While I would never call the 7000 a “lush-sounding” cartridge, it almost always manages to convey the natural warmth inherent in most instruments (this in contrast to cartridges that can suck the life out of instruments with icy, blueprint-like precision). And thanks to heightened midrange openness, the 7000 also does a great job of placing instruments precisely within a believable 3-D space, again improving realism. The only tradeoff is that the 7000 makes upper midrange/treble flaws in recordings more apparent than the model 5000 does. But that’s a small price to pay for all the extra information that the 7000 retrieves.

In terms of bass performance, the 7000 does everything the 5000 can do and more. To appreciate what this means, listen to the title track from Sara K’s *Water Falls* [Stockfisch], which features some prodigiously modulated low-frequency accent notes that can shatter the composure of most cartridges. Those bass passages push the model 5000 right up to (and perhaps beyond) its tracking limits, whereas the 7000 handles the same wildly undulating grooves with almost frightening power and muscular grace

(just take care not to bottom out your woofers). Is the 7000 worth \$495 more than the 5000? If your system offers sufficient resolution to reveal the 7000’s benefits, it most certainly is. What is more, you could build a strong case that the 7000 is even more detailed and revealing than the original 90X was, though it sells for much less. While the 90X might still enjoy a small edge in terms of overall smoothness and panache, the Shelter 7000 delivers a heaping helping of sonic sophistication for the money. It beautifully fulfills Ozawa’s vision for a cartridge that remains grounded in musical *gemütlichkeit*, yet offers a more lively and lifelike sound. **tas**

SPECS & PRICING

Shelter 5000 and 7000
Type: Low-output moving coil
Output: 0.5mV
Weight: 11 grams
Tracking force: 1.4-2.0 grams

U.S.	U.K.
Price: \$1500 (5000), \$1995 (7000)	Price: £999 (5000), £1450 (7000)
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Da Vinci Grand Reference Cartridge Grandezza

Grander Yet!

Jonathan Valin

In Issue 193, I sang the praises of Peter Brem’s wonderful very-low-output moving-coil cartridge, the Da Vinci Reference Grandezza, ranking it—alongside the Clearaudio Goldfinger v2 and the Air Tight PC-1 Supreme—as one of the three most lifelike transducers I’ve heard in my system.

Now, a year later, Peter and Da Vinci have come up with a revised version of that cartridge designated the “*Grand* Reference” that directly and successfully addresses several areas in which the original Reference was a bit weak or, at least, weaker than the competition, and does so without sacrificing any of the original’s strengths, which is an altogether good thing.

You may recall from my first review that I thought the Reference was a virtual paragon of neutrality and transparency, with less “character” in the midband than my other “pantheon” mc phono cartridges (This reduction in character, or noise and coloration, is perhaps the most salient feature of the new-generation moving coils.) The Reference simply wasn’t “there” in the way moving coils used to be. It didn’t add scintillant brightness to the treble, didn’t lend midrange timbres an oil-paint gloss and glow, didn’t turn

the soundfield dark or grainy, didn’t hype details or transients (although it was incredibly detailed and fast). As a result, it sounded to my ear less like an electro-mechanical device and more like the real thing—at least when the real thing was well recorded. When it wasn’t, it told you that, too, although thanks to a sweet and forgiving treble it never made poor discs unlistenable.

Of course, one man’s sweet and forgiving is another’s polite and enervated. Even a fan of the Da Vinci cartridge, like me, would concede that other cartridges outdid it in large-scale dynamics. The Da Vinci Reference Grandezza (especially mounted in Da Vinci’s great turntable and tonearm) may have set a new standard of naturalness and articulation on *mezzopiano*-to-*pianississimo* passages but it wasn’t a world-beater on *mezzoforte*-to-*fortississimo* passages; nor did it have the deepest, most

EQUIPMENT REVIEW - Da Vinci Grand Reference Cartridge Grandezza

powerful bass of all the contenders. It wasn't as good a soundstager as some of its competitors, either, sacrificing a little stage width for superior depth and front-to-back clarity and perspective.

Now, if you were to try out the new Da Vinci Grand Reference on some of the same recordings that I mentioned in my review in Issue 193, you would at first be hard put to hear a difference between it and the original. Take Bruno Maderna's *Serenade No. 2* [Supraphon]. With the new cartridge you would hear, once again and with the exact same limpid clarity of line and neutrality of timbre as the old Da Vinci, the way Maderna lets the freshly sounded timbre of one instrument (such as a flute) harmonize with the decaying harmonics of the previously sounded timbre of another instrument (such as a violin), turning the piece into a kind of a gentle, magical, melting sound world in which eleven disparate instruments seemingly "complete" each other's utterances in *almost* the same voice. On Leon Redbone's mumbly-grumbly *Branch to Branch* [Warner], you would hear, yet again, the same hard-to-decipher lyrics made perfectly understandable (and you would hear that microphone preamp clipping, too, on "Sweet Mama, Papa's Done Gone Mad").

Even on a new LP, like Dan Hicks' superb and superbly recorded *Tangled Tales* [Surf Dog LP], you'll hear this same clarity of line, high resolution, and neutrality of timbre, here in the service of the marvelous way Hicks and the Hot Licks turn the 1919 fox trot "The Blues My Naughty Baby Gave to Me" into something straight out of psychedelic-cowboy/gypsy-bebop heaven, complete with Django-like mandolin, Grapelli-like violin, and those marvelous chirping ("Hi, Bill!") Lickette backups. (FYI, a current Lickette, Darla Cohen, is

married to one of *us*! Her husband is none other than The Lotus Group's Joe Cohen—the guy largely responsible for the Granada speaker.)

But... if you were to put something less relaxed on the turntable, something with tremendous energy, like, say the Czech Philharmonic's performance of compatriot Leos Janáček's incomparable *Sinfonietta* [Denon], the differences between the two cartridges would immediately become obvious.

Throughout this piece, Janáček uses huge wind and brass ensembles: a piccolo, two flutes, two oboes, an English horn, an E-flat clarinet, two B-flat clarinets, a bass clarinet, four horns in F, three trumpets in F, two bass trumpets, four trombones, two tenor tubas, a tuba, and nine—count 'em—trumpets in C. Friends, when this assemblage cries out in full voice, as it does so memorably in the first, third, and last movements, it achieves an almost barbaric martial splendor that leaves something like Respighi and his evocation of the Roman Legions in the piney dust. There is very little else in modern music as thrilling, beautiful, savage, and awe-inspiring as these great wind and brass fanfares—and very few pieces of music that rise to this glorious and fearsome height.

The first version of the Da Vinci cartridge would have given you all of these instruments (and everything else in the orchestra from strings to percussion) with utter clarity and natural timbre. But it would also have robbed you of some of their power, which robs the *Sinfonietta* of some of its goosebump-raising majesty.

Mounted on the Walker Black Diamond Mk II (reviewed in Issue 202), the Grand Reference gives you Janáček's orchestra *and* its dynamics

without limitations. The huge fanfares are, indeed, huge, and mind-bogglingly powerful right through quadruple forte. The Grand Reference tracks and traces so perfectly that even the loudest trumpet blasts never turn shrill or incoherent (assuming, of course, that your speakers and amplifiers are capable of handling all the energy this cartridge is feeding them at lifelike volumes). Indeed, I don't think I've heard the *Sinfonietta* to better effect on any record player.

In addition, the Grand Reference has added weight on the bottom. By this I don't mean that it adds any spurious darkness or phony lushness to the sound; I just mean that when the timpani go off in the *Sinfonietta* (or any other piece) they will shake the walls and floors as they do in life. Add to this a newfound breadth of stage, a wall-to-wall width that makes antiphonal passages that much more, well, antiphonal, and what was already a great cartridge is now an even greater one (and, though my no means cheap, still the least expensive option among the Big Three).

Do remember that this is a very low output mc (0.17mV), which means you're going to need a phonostage capable of boosting its output to line level without inviting excessive hum or RFI. I highly recommend the Audio Research Corporation Reference Phono 2, the Audio Tekne TEA-2000, and the Soulution 750. *tas*

SPECS & PRICING

Da Vinci Grand Reference Cartridge Grandezza

Type: Low-output moving-coil cartridge

Output: 0.17mV

Coil impedance: 3 ohms

Matching impedance: 3 ohms

Recommended stylus force: 2-2.2 grams

Weight: 20 grams

U.S.

Price: \$7750

DA VINCI AUDIO LABS GMBH.

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World's Best?

Air Tight PC-1 Supreme

Jonathan Valin

I've reviewed a number of very fine moving-coil cartridges over the past couple of years. Among the first was the Air Tight PC-1, TAS's 2006 Cartridge of the Year, which I reported on very favorably in Issue 173. What set the PC-1 apart was its transient speed and clarity.

The PC-1 and PC-1 Supreme were designed by Y. Matsudaira in conjunction with Atsushi Muira of Air Tight. Mr. Matsudaira—the engineer largely responsible for some of the legendary coils from Koetsu and Miyabi—and Mr. Muira have been audio friends for the past 50 years. When Mr. Miura decided to design a cartridge, he went to Mr. Matsudaira for his expertise in cartridge building.

The original PC-1 used a new high- μ core and winding material (designated SH- μ X) that was said to have three times the saturation flux-density and initial permeability of conventional core materials. In plain English, SH- μ X allowed the PC-1's magnets to saturate more quickly at much higher levels with fewer losses, greatly lowering noise and coloration and greatly increasing resolution in every regard. Details were clearer, timbres were truer, air was more plentiful, dynamics were more lifelike, and stage width, depth, and height were expanded.

Air Tight is now marketing a greatly improved, considerably more expensive version of the \$6000 PC-1, the \$9000 PC-1 Supreme. Some of the differences between the two cartridges you won't be able to see, such as the reduction in internal impedance in the Supreme's magnetic engine (down now to 1 ohm, according to Air Tight, thanks to almost 40% fewer windings in the coils). Some—like the changes in the cartridge body, now much heavier and plated in gold to reduce susceptibility to resonance—you will. What I am certain you'll be able to do is *hear* the difference between the two, which is not small.

Air Tight says that its internal and external improvements have led to improved bandwidth, dynamic range, transient response, and phase behavior, and I can affirm by ear that each of these claims is true. The new cartridge goes lower with much better timing, focus, and resolution, goes higher with greater incisiveness, detail, and speed, plays big dynamic passages

EQUIPMENT REVIEW - Air Tight PC-1 Supreme

SETTING UP THE PC-1 SUPREME

The more experience I have with different turntables and arms and cartridges, the more obvious it has become to me that when someone says, "I think Cartridge A is better than Cartridge B," he should always add, "in my turntable with my tonearm." For me, it is virtually impossible to isolate the way any one of these three items "sounds" from the way they interact. For me, you are always and inescapably listening to a "system" when you listen to a record player and cartridge.

Because of its own weight, its compliance, and its sensitivity to resonance, the Air Tight PC-1 will, in my opinion, do better in a medium-to-high-mass straight-tracking tonearm like a Walker Black Diamond on the Walker air-bearing 'table or in a medium-to-high-mass double-gimbaled arm like the Da Vinci Grand-eeza on a magnetic-suspended 'table like the AAS Gabriel/Da Vinci. It may not fare as well on something like a uni-pivot Graham Phantom on a lower-mass, unsuspended 'table like a TW Acoustic Raven AC-3. The Supreme also likes to be loaded down to 500 ohms or less (I prefer 200 ohms with the ARC Reference 2) and tracks and sounds best at around 2.1 to 2.2 grams with the tonearm parallel to the record surface.

JV

with greater power and control, and stages with even greater width and depth and focus than the PC-1 (which, let me remind you, was and is no slouch in any of these regards). It is also a *much* more neutral cartridge than the PC-1, which sounds a bit dark (a bit weighted toward the bass and softened in the treble) by comparison, with considerably higher low-level resolution at both of the frequency extremes (and in the middle).

For an illustration of just how improved this new Air Tight is, put on a choral piece, like the Sanctus of the Stravinsky Mass [Columbia], and listen to the choir. The sheer width and depth of the stage, the count-the-heads clarity of the many individual singers ranged across the back and sides of it, the almost physical dimensionality with which the soloists at stage front are imaged, the comparative realism of the entire presentation are truly exceptional. There are other cartridges with this kind of staging and resolution—the Clearaudio Goldfinger v2, for instance—but the Air Tight's see-into transparency is really quite special. In the right arm (the Walker or the Da Vinci Grandeeza) with the right phonostage (the ARC Reference 2 or Audio Tekne TEA-2000) and with speakers capable of very high resolution and neutrality themselves, it is almost like the moving-coil equivalent of the MartinLogan CLX loudspeakers.

As of this writing, the Air Tight PC-1 Supreme has

greater transparency than other moving-coils I've tested, making it, *possibly*, the best cartridge I've yet tested. I say "possibly" because if a component's transparency (in the sense of getting out of the way of the music, of disappearing as a sound source) isn't your foremost priority, then there are other cartridges that may outdo the Supreme or certainly run close alongside it in sheer dynamic excitement and that will definitely outdo it in sheer density of tone color (the gorgeous-sounding Koetsu Onyx Platinum, for example), although the Air Tight is nothing like a cool or analytical-sounding device. (I guess I should note that there is a new cartridge, the Grandeeza from Da Vinci of Switzerland, which looks like *[and, indeed, proved to be, for which see pp. 68-69]* a very promising contender.)

The truth is that there are simply too many terrific moving coils on the market to declare one the all-purpose winner. Too much depends on listener biases and equipment compatibilities



You are here

(for which see my set-up sidebar). I can say this, however, with certainty. This is a *markedly* improved cartridge. If you liked the PC-1 (as I very much did), you will love the PC-1 Supreme. And if top-to-bottom speed, clarity, and transparency are what you most prize, you would be foolish not to audition this moving coil. Come what may, it is a world-class transducer. tas

SPECS & PRICING

- Type: Ultra-low impedance moving-coil cartridge
- Frequency response: 10Hz-50kHz
- Output: 0.4mV
- Internal impedance: 1 ohm
- Magnet: Neodymium #50
- Recommended stylus force: 1.9 to 2.2 grams
- Channel balance: within 0.5dB (1kHz)
- Weight: 12 grams

U.S.

Price: \$9000

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Deutsch Delights

Clearaudio Goldfinger v2 Moving-Coil Cartridge and Clearaudio Double Matrix Record-Cleaning Machine

Jonathan Valin

It was only a few months ago that I declared the innovative Air Tight PC-1 cartridge my new mc reference, because of its standard-setting transient speed and astonishing low-level detail. Comes now the Clearaudio Goldfinger, and I'll be darned if it isn't a standard-setter in its own right.

For years the knock against Clearaudio moving coils was that they were too lean, bright, and analytical. Of course, the flip side of this was that they were also fabulously high in resolution, as well as fabulous soundstagers and imagers. How to make them fuller, more lifelike, more *gemütlich* in timbre without sacrificing that resolution, soundstaging, and imaging has been the problem that has occupied Clearaudio's brain trust—the Suchys, *Vater und Söhne*—for the past decade or so. From the Discovery moving coil on, each subsequent iteration of Clearaudio mc has moved a little farther away from “too lean” and a little closer to “just right.” (“Too fat” was never an issue.) And with the Goldfinger v2 the balance problem has been effectively solved.

All you have to do is listen to a violin, like Nadia Salerno-Sonnenberg's Strad on her thrilling performance of the Prokofiev First Violin Sonata

[MusicMasters], or the top octaves of *Mr. John Cage's Prepared Piano* [Decca Head] to hear that exceptionally lifelike tone color is now mixed with Clearaudio's extraordinary resolution, transient response, and imaging and 'staging. Indeed, with the proper preamplification, amplification, and speakers, the instruments on these two records (and many others) can sound disarmingly realistic—not just “there,” but there without (or with a much reduced) sense that they're being generated by a phonograph.

I'm not exactly sure what is happening with the Goldfinger (and with the PC-1), although I am sure that flat (or flatter) frequency response is not the explanation. It's not that the PC-1 or the Goldfinger don't have the old familiar rising top end of mc's—both do. It's that instead of shouting their foibles at us, they've begun to whisper. What seem to be going away are



EQUIPMENT REVIEW - Clearaudio Goldfinger v2 Moving-Coil Cartridge and Clearaudio Double Matrix Record-Cleaning Machine

familiar distortions, and as noise, ringing, color casts, and resonances are reduced so is the electromechanical signature of the cartridge.

With a cartridge, some customary distortion is obviously traceable to the interface between stylus and LP. Like the PC-1, the Goldfinger seems to “lock into” the grooves more firmly. Clearaudio would undoubtedly point to its new hyper-parabolic Micro-HD-Diamond stylus—with a mass (0.00016g) one-fifth that of previous Clearaudio diamond styli. Be that as it may, the hashy background noises and swimmy imaging artifacts of mistracking and mistracing are much less audible in the Goldfinger, and this in itself adds to the non-mechanical sound of the cartridge (particularly in the treble). However, it isn’t just better tracking/tracing that makes the Goldfinger “disappear” more as a sound source.

Clearaudio claims that the twelve tabs of the mounting plate at the top of the cartridge—the “fingers” that give the Goldfinger one half of its name (the other half comes from its gold chassis)—minimize cartridge-body resonances. Having heard a similar reduction in coloration (and improved “disappearing act”) in Clearaudio’s Titanium Fingers mc, I have reason to think this might be true. On top of which, as with the Air Tight PC-1, the magnetic engine that translates mechanical movements of the stylus into the electrical signals fed to your phonostage has been greatly beefed up. The Goldfinger uses twice as many “Super Neodymium” magnets as previous Clearaudios, so its lighter-weight coils are operating in a much stronger magnetic field. Not only is the cartridge’s electrical output raised (0.8mV),

but dynamic range is now claimed to exceed 100dB, which is another way of saying that noise has been significantly reduced.

The lessening of mechanical tracking/tracing distortion, the lowering of cartridge-body and cartridge/arm resonances, the increase in signal strength and dynamic range (or the decrease in electrical distortion), all add up to an mc that makes music sound more “there” (and its own electro-mechanical signature less “there”).

The Goldfinger is stronger (almost CD-strong on big transients, like the trumpet blasts and bass drum strikes toward the end of the second-movement Vivace of Lutoslawski’s Concerto for Orchestra [EMI]), more discerning (dig the color, detail, and definition on the harp and pizzicato doublebass seconds, thirds, and fifths at the start of the third-movement Passacaglia of the Lutoslawski Concerto or the uncanny colors and weird little “bent” pitches of Mr. Cage’s prepared piano), more natural (the timbres of voices, strings, brass, winds, and percussion are so much closer to lifelike that, with the right records, it’s almost like listening to the real deals), and more self-effacing than virtually any other mc’s I’ve heard [*prior to the PC-1 Supreme and the Da Vinci Grand Reference*].

How does it compare to the Air Tight PC-1? Well, when all is said and done, the Goldfinger probably isn’t quite as “fast” as the PC-1. A violin pizzicato, such as one of the many in Nadia Salerno-Sonnenberg’s performance of the Prokofiev First Sonata, doesn’t have quite the uncannily realistic “snap” with the Goldfinger that it has with the PC-1. Ditto for other hard transients. On the other hand, the Goldfinger has somewhat more neutral timbres, and equals

the great PC-1 in resolution and ‘staging, so I guess that choosing between them depends on whether you prioritize transients or timbres. You certainly won’t be trading off much in either case.

Clearaudio recommends a tracking force somewhere around 2.8 grams; I prefer 2.75 grams in the Walker Black Diamond record player, 2.85 in the Graham Phantom/TW Acoustic Raven AC-3.

PC-1 or Goldfinger or Da Vinci? I can’t choose for you, but I can say with confidence that any of these is reference quality—and that all will “disappear” as transducers better than any moving coils you’ve previously heard.

That disappearing act can be aided considerably by the second item I’m going to recommend—Clearaudio’s Double Matrix record-cleaning machine.

If you’re like me, cleaning LPs is like going to the dentist—a necessary evil. Indeed, I could happily skip both ordeals on most occasions, and regularly do with LPs. Yeah, records “sound” different when they’re cleaned, and different when you clean them with different fluids and devices. But different isn’t always better; sometimes it’s just different.

Let’s face it: No record cleaner on earth is going to heal a deep scratch, make a poorly recorded record sound like a great one, or prevent lousy vinyl from acquiring fresh ticks. What it can do, however, is loosen the rubble that has accumulated in the grooves of years-old LPs and, if you’re lucky, wash it away. Records definitely play more easily after bathing, scrubbing, and vacuuming—with fewer stumbles and lower background hashiness—and to this

SPECS & PRICING

Clearaudio Goldfinger V2

Output: 0.8mV
Impedance: 50 ohms
Compliance: 15
Weight: 16 grams

Clearaudio Double Matrix

Type: Two-sided record-cleaning machine, with bi-directional “platter” and two levels of vacuum
Dimensions: 470 x 370 x 235mm
Weight: 22 kg.

U.S.

Clearaudio Goldfinger V2

Price: \$10,000
Clearaudio Double Matrix
Price: \$5200

MUSICAL SURROUNDINGS (U.S. DISTRIBUTOR)

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(510) 547-5006
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U.K.

Clearaudio Goldfinger V2

Price: £7950
Clearaudio Double Matrix
Price: £3520

AUDIO REFERENCE

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EQUIPMENT REVIEW - Clearaudio Goldfinger v2 Moving-Coil Cartridge and Clearaudio Double Matrix Record-Cleaning Machine

extent cleaning is a definite improvement.

Up until the Double Matrix, I'd been using Clearaudio's original Matrix to clean vinyl. It was quite good—and built like a tank. However, when push came to scrub, I'd be hard-pressed to say that the Matrix cleaned a lot better than other machines. Most of them work more or less the same way—cleaning fluid is pumped from a reservoir onto the record's surface; a micro-fiber brush is lowered onto the LP; in combo with the liquid the brush loosens the dirt in the grooves (the Matrix's “turntable” rotates in two directions, facilitating scrubbing); and the debris is then vacuumed up along with the cleaning fluid through a slot in the brush's wand, via a suction pump that on the Matrix operates at two different levels of vacuum. Aside from being very noisy, the Matrix never gave me a problem.

Well, one problem, actually, which is endemic to single-sided record-cleaning machines. While you're cleaning the dusty, dirty upside of the LP, the dusty, dirty downside is necessarily pressed against the record-cleaner's cushioned platter via a clamp. To clean the downside, you then have to turn the record over. Now the newly cleaned and vacuumed side of the LP is clamped against the same cushioned platter—pressed down into whatever dust, dirt, or grime has been deposited there by the dirty side of the record. This doesn't make much sense from a sanitation standpoint, but what's an analog maven to do?

There didn't seem to be an answer to this conundrum until the Double Matrix came along.

Here's the thing: The Double Matrix cleans *both sides* of a record simultaneously. Through an ingenious clamping mechanism, the record is suspended on both sides, only at the label; neither the A-grooves nor the B-grooves ever touch a

platter. Two micro-fiber wands—one for the upside of the disc and one for the down—are affixed above and below the LP, which is sandwiched between them. Cleaning fluid is dispensed equally over each record side. You might think the fluid would drip off the bottom of the LP, but surface tension apparently prevents this from happening. Both sides of the record are then scrubbed and vacuumed clean via the pair of micro-fiber wands. (Like the Matrix, the “platter” is bi-directional, allowing you to scrub and vacuum clockwise and then counterclockwise, and the vacuum pump has two levels of vacuum—roughly strong and Hoover.) The Double Matrix also includes a static-reducing brush (not on the Matrix), which runs over both sides of the record simultaneously (after vacuuming, please). Not only is cleaning time cut roughly in half, but the chance (or should I say, the certainty) of cross-contamination when you flip the clean side onto the dirty platter is eliminated!

It may be my imagination, but I actually think that records sound better—more like fresh vinyl—cleaned via the Double Matrix than they do via the Matrix. It could be the cross-contamination thing; it could be superior brushes or vacuuming; it could be wishful thinking, although I kind of doubt it. After all these years of playing with record-cleaning machines, I think I can tell when an LP sounds “clean” and when it sounds “closer to new.” To my ear, records cleaned on the Double Matrix sound closer to new. As a result, ever since acquiring the Double Matrix I've been cleaning up a storm, which, trust me, is not my usual habit.

Now for the bad news. All of this incredible technology and convenience costs. The Double Matrix is a \$4500 accessory. However, if you are heavily invested in vinyl, I cannot think of a better way to spend your money. **tas**



Our Top Picks in Phono Preamplifiers



Parasound Zphono

\$200

The mc/mm Z-Phono phonostage rendered PS's all-purpose demonstration disc, Act III of the Bernstein *Carmen*, with a large, well-dimensioned soundstage, excellent front-to-back layering, and wonderful bloom. Boasting remarkably high neutrality, dynamic range, and detail, the presentation, to be sure, was also a little veiled, a little lacking in ultimate detail and definition; densely scored passages thickened a bit; and the preamp could sometimes seem "slow." But let's keep our eyes on the ball: The Zphono costs \$200, is superbly built, and performs very nicely indeed. You really can't complain.

[parasound.com](#). (TAS 172)

Simaudio Moon LP3

\$500

While it's easy to spend a lot of money on a great phonostage, finding one that fits today's relatively thinner wallets is more challenging. Cue Simaudio's LP3, a diminutive and very convincing performer, says WG, and quiet too. This flexible phono preamp boasts military-spec parts, provides 40dB gain for moving-magnets and 60dB gain for moving-coil cartridges, and either 100 Ohm or 47k Ohm loading. Though its frequency extremes aren't particularly extended (which also describes most systems it's likely to fit into), and its midrange is a touch hooded, this remains an excellent mid-entry-level phonostage.

[simaudio.com](#) (180)



PS Audio GCPH Phono

\$995

PS Audio's GCPH phonostage is one of the best-sounding and most versatile offerings in its price class. Notable strengths include killer bass, natural warmth, a highly three-dimensional sound, and silent backgrounds. Welcome design touches include a sophisticated passive RIAA EQ stage, fully balanced circuit topology from inputs to outputs, externally adjustable gain and load controls, and a remote control with volume and absolute-polarity adjustments. (Note: On some records, polarity-reversal adjustments yield unexpectedly dramatic and beneficial results.) The GCPH provides both balanced (XLR) and single-ended (RCA) outputs and, yep, it can directly drive power amps.

[psaudio.com](#) (191)

Nova Phonomena

\$999

This is PS's reference phono preamp. Gain and loading options allow for optimal matching to any pickup. Its sonic personality consists in a lack of personality—a neutrality and freedom from coloration judged by PS to be state of the art. Some find it a bit colorless (an odd criticism, in PS's view) and lacking in wide dynamics, but he prefers to take its Apollonian restraint and objectivity on their own terms: fidelity to the source, rather than to some imposed aesthetics of "good" sound. Performance comparable to units priced three times and more its slender cost.

[musicalsurrroundings.com](#) (172)



OUR TOP PICKS IN PHONO PREAMPLIFIERS

JR Transrotor Phono II

\$1500

Splendidly machined from a heavy chunk of non-resonant aluminum with enough heat-sinking for a reactor, the fully adjustable Phono II has yet to meet a cartridge it can't convincingly drive. The character of the Phono II is neither warm nor retiring but it isn't lean either, just focused and persuasively honest. While preserving midrange clarity and authority, the Transrotor drops a veil of darkness over the top octaves. The pace and transient energy of the Transrotor will put a skip in the step of your cartridge with a greater illumination of images and unfettered dynamics—and a new brand of urgency and liveliness.

axissaudio.com (172)



Simaudio Moon LP5.3

\$1500

At this price point one should expect if not quite state of the art, then at least something that gives a taste of it. And Simaudio's LP5.3 delivers on that expectation. As WG reported, this stellar performer has a low noise floor and excellent transparency, and is tonally neutral, capable of not only recreating a remarkable sense of the space in which an LP was recorded but also of the subtlest interactions of the musicians who occupied it. The LP5.3 is flexible, too, with four levels of impedance loading and single-ended and balanced outputs.

simaudio.com (180)

Aesthetix Rhea/Rhea Signature

\$4000/\$7000

With three inputs, variable cartridge-loading—adjustable at the listening chair via remote control—and a front-panel display of gain and loading, the Rhea is the Swiss Army Knife of phonostages. Although it has tons of gain, the noise level is relatively low, making it compatible with a wide range of cartridge outputs. The Rhea's family resemblance to the Calypso lineage is unmistakable: transient quickness and speed without etch, a feeling of effortlessness on crescendos, and a deep layered soundstage. Our 2003 Product of the Year. The Signature version of Aesthetix's Rhea vividly demonstrates the value of component quality. Although the circuit is identical to that of the Rhea, the Signature uses ultra-premium parts throughout. The sonic result is a much better-defined bottom end, even smoother timbres, and (surprisingly) greater dimensionality. Rhea owners can upgrade to the Signature for the difference in retail price. An expensive upgrade over the \$4k Rhea, but well worth it.

musicalsurroundings.com (151, 196)



Naim SuperLine Reference

\$5950 (with SuperCap 2)

Naim Audio takes a somewhat different approach to its gear by allowing customers to upgrade performance via a choice of several outboard power supply options. And according to WG, who has reviewed quite a few Naim items for this magazine, as you step up the sonic rewards are not just easily audible; they also spell the difference between good and truly wonderful sound. The SuperLine Reference, as the name implies, is Naim's top-of-the-line phonostage. A deep sense of silence is one of this model's main characteristics, as is its superb dynamic tracking and transparency to the recorded event. Tonal balance is neutral in the best sense of the word, and doesn't leave you thinking of either warmly glowing tubes or coolly cooking transistors, but instead invites the listener to become lost in whatever music he happens to be in the mood for.

naimaudio.com (194)

Audio Research PH7

\$5995

Until the recent arrival of ARC's fabulous Reference 2, the remote-controlled PH7 was the best phonostage JV had heard—and next to the (more-than-twice-as-expensive) Ref 2 and the Audio Tekne TEA-2000, it still is. To ARC's characteristic upper-octave air and light, its lifelike image size and soundstage breadth, its incomparable bloom, the PH7 adds superior bandwidth, transient speed, dynamic impact, and low-level resolution. If you can imagine a remote-controllable phono preamp with the air, color, and bloom of the Aesthetix Io and the dynamics and soundstaging of the Lamm LP2 Deluxe, then you've got an idea of what ARC's all-tube PH7 phonostage sounds like. That said, you really have to hear this one for yourself to get a true sense of its transparency and the magical way it images. Relatively immune to RFI, it has enough gain to handle all but the very lowest-output mc's.

audioresearch.com (172)



OUR TOP PICKS IN PHONO PREAMPLIFIERS

Lamm LP2 Deluxe

\$7290

World-class audio engineer Vladimir Lamm lives and works in Brooklyn, where RFI is a genuine problem. Unlike certain other designers of phonostages, who seemingly live on mountaintops far from urban broadcast towers and who simply don't appreciate how irritating it is to listen to an LP while a radio program intermittently drones on in the background, Vladimir feels your pain. Thanks to what is unquestionably the best step-up transformer around (the unit is made by Jensen Transformers) and elaborate RFI filtering of the AC voltage, he has seen to it that JV doesn't have to "tune out" some evangelist praising the Lord over the airwaves while Messaien praises Him after his own fashion on the turntable. Generally step-up devices rob you of transparency, and they do this at the very first link in the Great Chain of Reproduction, which means there is no way of compensating for what's been lost. JV doesn't know what's different about the Jensen transformer, but it is phenomenally transparent, and, since it isolates the signal from RFI/EMI contamination, phenomenally quiet, making the (all-tube) LP2 deluxe *the* best phonostage for city-dwelling vinylphiles.

lammindustries.com (157)



Manley Steelhead

\$7500

The Steelhead has been on so many recommended lists for so many years (since 2001, to be exact) that this superb phonostage is now a bona fide classic—right up there with the greats as a true reference design. The sound of this tube-based unit, which is driven by an outboard solid-state power supply, is simply superb: tonally rich but not fat, highly detailed yet musically natural, extended at the frequency extremes, and confidently controlled yet musically involving. The main chassis sports six tubes and offers one moving-magnet and two moving-coil inputs, a line input, and both fixed and variable outputs. Which means that, if your sources are only phono and CD, you can use the Steelhead as your main preamp because it also has the *cajones* to drive an amp directly. Moreover, its exceptional range of settings makes it a vinyl-tweaker's fantasy rig.

manleylabs.com (152)

Audio Research Corporation Reference 2 Phono

\$12,000

When it comes to designing and building phonostage preamplifiers, ARC has perhaps the most distinguished pedigree of all high-end manufacturers. With the Ref Phono 2, it has outdone itself, producing the single most natural-sounding phonostage in company history. The thing is a wonder of lifelike timbre, low-level detail, and wall-to-wall soundstaging, with the best bass and treble speed, extension, and definition yet in an ARC tube-hybrid design. In addition to the RIAA standard, the Ref Phono 2 also offers—for the first time in an ARC unit—alternative EQ curves for Decca and Columbia recordings. JV's reference phonostage.

audioresearch.com



Zanden 1200

\$19,625

Designed for use with moving-coil cartridges, the Model 1200 contains two separate step-up transformers for both high and low impedance cartridges. While most phono playback equalization circuits in preamplifiers are CR (capacitor and resistor) or NF (negative feedback) designs, Zanden has chosen another method—a fixed impedance circuit called a bridged T, constructed from a capacitor, resistors, and an inductor. This, says Zanden, has been the method of choice in professional playback systems for years and the most accurate. To achieve the optimum playback of all stereo LPs the 1200 allows the user to choose between RIAA, Columbia, and Decca equalization curves by the turn of a mercury rotary switch. The Zanden's sound is *sui generis*. JV has never heard another phonostage (or, frankly, any other piece of electronics) that puts as much space between instruments as this one does. What seems like a few inches of separation through other phonostages sounds like distances measurable in feet or yards through the Zanden. It is also gorgeous in timbre, billowy in bloom, and altogether ravishing in presentation. There may be more "accurate" phonostages out there; there is none that is more beautiful sounding.

zandenaudio.com

CLEAR



cardas.com



*"Clear will be my most
enduring statement"*
- George Cardas

Our Top Picks in Tonearms

Rega RB301

\$495

For decades, turntable manufacturers who don't build their own arms frequently packaged their models with Rega's terrific-sounding and affordable RB300 tonearm. Musically compelling, with excellent balance and good detail, if not the final word in any one category, it is still around and still a superb buy.

[soundorg.com](#) (127)

VPI JMW-9 Signature

\$1400

Compared to the standard JMW-9, the Signature version offers worthwhile upgrades such as a stainless-steel bearing assembly, Nordost Valhalla wiring, variable fluid-damping, mechanical anti-skate control, and a higher effective-mass design. HP praised this arm on the Super Scoutmaster Signature package for its "considerable dynamic 'jump'" and "musical authenticity."

[vpiindustries.com](#) (159)



SME 309

\$2195

A black tapered titanium beauty, the 309 is a rarity in today's high-performance models—an arm with a removable head shell for easier cartridge-swapping. The 309 is made with all the precision of SME's more expensive models and embodies their rigidity and sonic virtues: superior tracking and neutrality, deep and ample bass, and a balance that for some leans toward the yin rather than the yang (that is, a bit dark, rich, and warm). PS doesn't necessarily concur with that evaluation, finding, rather, that SME's superior suppression of spurious resonances and other vinyl detritus simply translates into an extraordinarily fatigue-free presentation of exceptional smoothness and imperturbability. Best used with pickups of medium or lower compliance, the 309 is supplied already mounted on SME's Model 10 turntable, the combination a superb vinyl setup that leaves little to be desired.

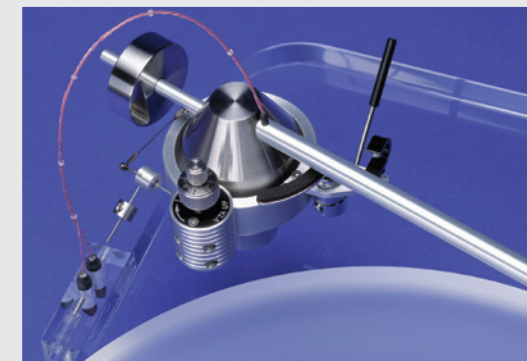
[sumikoaudio.net](#) (129)

Basis Audio Vector Model 4

\$3800

Basis Audio's A.J. Conti has solved a fundamental problem with unipivot tonearms—dynamic azimuth error. (Azimuth is the perpendicular relationship between stylus and groove.) Rather than allowing the arm to "roll" when the cartridge encounters record warp, the Vector maintains perfect azimuth alignment via an asymmetrical weighting of the arm so that it "leans" over onto a second bearing. The result is an extremely neutral-sounding arm that RH has yet to hear mistrack on any LP. Although auditioned only on Basis 'tables (the 2200 and 2800), the Vector 4 is tonally neutral, dynamically alive, and rich in timbre. When playing records, the arm is perfectly silent, with no "talk" or "chatter" emanating from the arm itself. Beautifully built and finished, each Vector's pivoting mechanism is personally assembled and checked by Conti.

[basisaudio.com](#) (172)



Graham Phantom B-44 Mk II

\$4900

The culmination of all that Bob Graham has learned about tonearm design over the past few decades, the Phantom utilizes Graham's trademarked "Magne glide" stabilization system to eliminate the "rolling" effect that has traditionally plagued unipivot arms. The Phantom's tracking is exceptional, creating a sound that is extremely smooth and detailed, with a large soundstage, extended highs, and a deep, nuanced bottom end. In his review, HP said: "The Phantom was audibly tracking the recorded frequencies top to bottom with the kind of fidelity I hadn't heard before from any moving-coil in any pickup arm, pivoted or straight-line. My impression was that it now was equally excellent in extracting hidden information at any frequency." The Graham seems to be relatively non-picky when it comes to the turntables with which it is mated (WG tried it on his Redpoint B and TW Acoustic Raven One; JV tried it on the TW Acoustic Raven AC-3; and HP used it on his Clearaudio Statement). It is also an easy match with any moving-coil.

[graham-engineering.com](#) (173, 196)

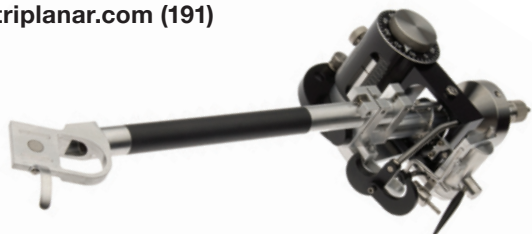
OUR TOP PICKS IN TONEARMS

Tri-Planar Ultimate VII

\$4700

Originally designed by Herb Papier, Tri-Planar has been under the well-trained leadership of an enthusiastic Vietnamese-American named Tri Mai for over seven years now. (Tri was Papier's handpicked successor, and bought the company from his mentor before Papier's death). And while it's hard to improve on greatness, Tri Mai's latest thoughts on this classic of tonearm design have, indeed, improved on Papier's final version. While it was always well-built, the Ultimate VII edition is better finished than ever before. Tolerances have been tightened from 0.001 to 0.0001 on all critical parts, and more environmentally friendly materials are employed throughout: lead in the damping trough and headshell has been replaced by an alloy with similar weight and properties, and the brass counterweights have been changed to surgical-grade stainless steel to increase longevity. In addition, the arm tube has eight layers of internal damping, the new VTA-gauge is laser-etched (rather than silk-screened), and there's a new micro-weight at the rear of the counterweight mounting tube. If earlier models were characterized by tremendous solidity, focus, dynamic agility, bottom-end reach, overall neutrality, and transparency to the source, then the Ultimate is all that multiplied by many degrees.

triplanar.com (191)



SME Series V

\$5300

Robust and dynamic-sounding, the now-and-forever iconic SME V will transform anyone's expectations of what analog playback is about. Beyond its stunning and aggressive aerospace profile it's rich with features that include a cast-magnesium one-piece arm tube, van den Hul mono-crystal internal wire and 501 tonearm cable, ABEC 7 bearings, dynamic tracking force, and fluid-controlled lateral damping. The V projects a ripe, soothing character with unsurpassed bass resolution, excellent inner detail, and great tracking ability. Cherished LPs—and the cartridge that's tracking them—suddenly reveal inner detail and micro-dynamic information that would only have been hinted at with other tonearms. With the Series V in the equation suddenly your system is quieter, more relaxed, stable, and focused—even LPs seemed flatter, their surfaces growing more silent as forgotten low-level details begin emerging as if from a long sleep. Some may quibble—usually fans of unipivots or straight-trackers—that the V is too old school, but they likely have not heard the Series V on one of SME's own stunningly neutral turntables. Also available in a twelve-inch variant, the V-12, whose additional length reduces the already vanishingly low tracking-error distortion of the standard nine-inch version by an astonishing 27%. Either way, a work of art.

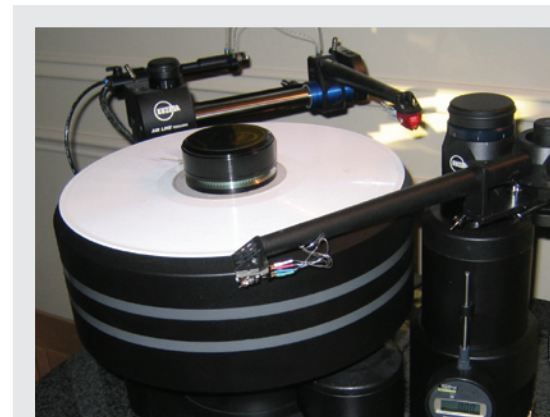
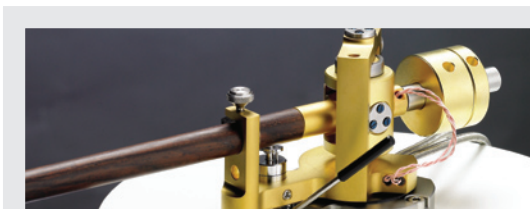
sumikoaudio.net

Da Vinci Grandezza "Grand Reference"

\$9700

This 12" transcription tonearm is a genuine work of audio art. A gorgeous concoction of tone wood, wolfram, platinum- or gold-plated bronze and stainless steel, it is a thing of indescribable loveliness, and sounds as wonderful as it looks. As neutral and as nearly invisible as air, it is a truly *transparent* tonearm, capable of revealing tremendous detail with tremendous energy, within a tremendously large, beautifully laid-out soundstage. Though something like the linear-tracking Walker Black Diamond tonearm may deliver a bit more oomph and articulation in the bottom octave than the Da Vinci (or any other pivoted tonearm of any length), the Grandezza is easily its equal in every other regard and may be its superior in sheer colorless transparency to sources. A superb match with Da Vinci's own magnetic-suspension AAS Gabriel and Unison turntables, the Da Vinci also seems to go just as well with any high-quality rig (JV has seen it mated up successfully with direct-drive Continuum 'tables and belt-drive TW Acoustic 'tables). Easy to set up, the arm is best used with a high-mass moving-coil cartridge, going particularly well with the Air Tight PC-1 Supreme and Da Vinci's own superb Reference Grandezza mc cartridge. Costly, but worth it, the Grandezza is the best pivoted arm JV has heard or used.

da-vinci-audio.com (191)



Kuzma Air Line

\$10,950

The gorgeous Kuzma Air Line air-bearing, radial-tracking tonearm uses what JV calls a "traveling air bearing," in that its sleeve-like bearing glides (with the tonearm, which is attached to it) on a cushion of air along a fixed, polished, large-diameter, short-travel (a mere two inches across) spindle. Lined on the inside with a highly porous material and supplied with air from an outboard pump at extremely high pressures (65psi), this bearing is so stiff that it's virtually immune to mistracking caused by the centripetal forces that "pull" the cartridge through the grooves of an LP and that tend, simultaneously, to twist it away from its ideal straight-line course. Sonically, designer Frank Kuzma's engineering speaks for itself: Gorgeous timbres, incredibly fast transients, and resolution as high as any tonearm JV has heard. With the proper mounting hardware, the Air Line can be fitted on any (large) 'table, giving you the indisputable advantages of straight-line tracking.

eliteavdist.com (172)

EQUIPMENT REVIEWS Vinyl Accessories & LPs



THIS SECTION
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The 16 Essential LP Accessories



AcousTech Electronics Stylus Brush

\$9.99

The most basic tool for the analog enthusiast, this little stylus brush will help keep your stylus clean.

AcousTech Stylus Force Gauge

\$129

Maintaining correct tracking force is crucial not only to audio reproduction but also to the longevity of your stylus and record collection. AcousTech has distilled the essential elements of a great gauge into a clean, compact, and easy-to-read digital package that's accurate to within .002-gram increments.

Aesthetix ABCD-1 MC Cartridge Demagnetizer

\$199

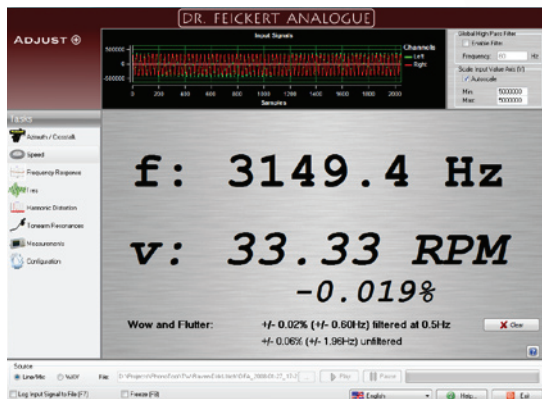
This battery-operated device sends a special signal through your moving coil cartridge, removing stray magnetism in the coils. Used every two weeks or so, the ABCD-1 will restore tone colors and soundstage clarity.

AVID Level 45 45RPM Adapter and Level

\$99

This two-piece kit combines a precision machined steel 45-rpm adaptor and a bubble level, which together weigh 180 grams—exactly the same as a high-quality LP for accurate leveling.

THE 16 ESSENTIAL LP ACCESSORIES



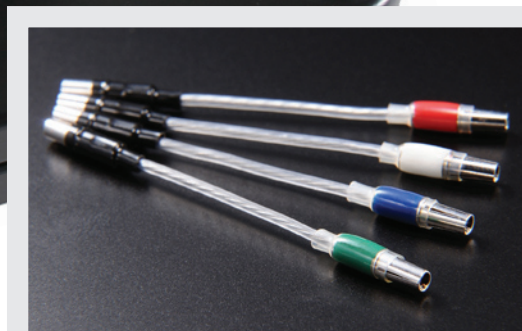
Feickert Adjust+ \$350

If you've ever wondered whether you've gotten your cartridge's azimuth just right and, thereby, maximized channel separation, here's a solution that doesn't entail an oscilloscope or guesses by mirror. Dr. Feickert—he who makes that fabulous cartridge-alignment protractor—has come up with a nifty bit of software (PC-only) that will tell you when azimuth is dead on (and all sorts of other useful things about your cartridge, turntable, and phonostage).



Feickert Universal Protractor \$249

The standard cartridge-alignment tool, this precision aluminum device allows you to maximize tonearm and cartridge geometry, thereby reducing distortions caused by tangency errors. A snap to use and built to last.



Furutech La Source Headshell Leads \$280 (long)/\$250 (short)

Everyone knows how well pure silver conducts a signal, so when you've already gone the extra mile to find the optimal tonearm and cartridge matchup, don't cheat by scrimping on the headshell leads. Available in two lengths.



Furutech Monza LP Stabilizer \$480

Piezoelectric effects are the key to the performance of the exotic Monza LP Stabilizer. Using a combination of nano-level materials, including piezoelectric resonance materials, bonded to a stainless-steel and carbon-fiber body, the Stabilizer damps both mechanically and electrically, eliminating resonant colorations. Your treasured vinyl plays back cleaner, micro-dynamics and transients are more persuasive, and backgrounds are quieter.

THE 16 ESSENTIAL LP ACCESSORIES



Lyra SPT Stylus Performance Treatment \$30

A non-alcohol-based stylus cleaner (with applicator) that will loosen and remove the debris and residue that a brush like the Acoustech can't get to.

Mobile Fidelity Geo-Disc \$50

This classic cartridge-alignment tool is as useful today as it was in the 1970s upon its introduction. Now in a newly re-issued form by Mobile Fidelity, the Geo-Disc is a simple and effective template for setting a cartridge's overhanging and offset.



Your Vinyl Accessory Resource for Everything Analog

All of us at Music Direct know which accessories you need for turntable set-up, which are imperative for vinyl cleaning, and which ones just make things sound better. How do we know? We use these accessories every single day—in our homes and here at the shop. Call us to discuss how to get more enjoyment from your irreplaceable vinyl collection.



*The VPI 16.5:
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THE 16 ESSENTIAL LP ACCESSORIES



Mobile Fidelity Rice Inner Sleeves (50 pack) \$20

A precious collection of LPs is only as good as its scratch-free surfaces. Offered for decades, Mobile Fidelity's familiar rice-paper inner sleeves are renowned for their anti-static properties, which help prevent dust and grit from being drawn into the delicate grooves. They remain the sleeves to beat.



Shelter Carbon-Fiber Cartridge Screws \$190 (8mm x 2mm in sets of two); \$200 (10mm)

Precision is the name of the game when it comes to cartridge setup. These carbon-fiber cartridge screws from Shelter are not only low in resonance but their rigid, precision threading means they are less likely to strip a headshell or cartridge. Cheap insurance for that extra-special rig. Includes two polycarbonate nuts.



Sutherland Timeline Strobe \$100

When placed on your turntable (over an LP) this ingenious device, which also acts as a record clamp, projects a moving segmented line of lights on the wall behind your 'table. When the turntable's speed control is properly adjusted, the lighted line stops drifting to the right or the left—and you have just set rotational speed to a precise 33 (or 45) rpm. Like all of Ron's work, the damn thing is brilliant, fool-proof, and accurate. (It is also a lot simpler than using a strobe disc.)



VPI 16.5 Record Cleaner Bundle w/Fluids/Brushes/Sleeves \$550

All vinyl lovers need a record-cleaning machine, and there's no greater "bang for the buck" in cleaners than VPI's classic 16.5. Simple to use and highly effective, the 16.5 produces quieter surfaces from even heavily soiled LPs. The Bundle adds two bottles of Mobile Fidelity cleaning fluid, a Mobile Fidelity Record Brush, and 100 inner sleeves for just \$10 more than the 16.5.

THE 16 ESSENTIAL LP ACCESSORIES



Walker Audio Prelude Deluxe Record Cleaning System (includes brushes)

\$145

Applied manually in a four-step cleaning process, Walker's Prelude RCS enzymatic cleansers and ultra-pure water do a better job of cleaning records than any machine-applied fluids. A bit time-consuming but worth it to the LP ultra-enthusiast.



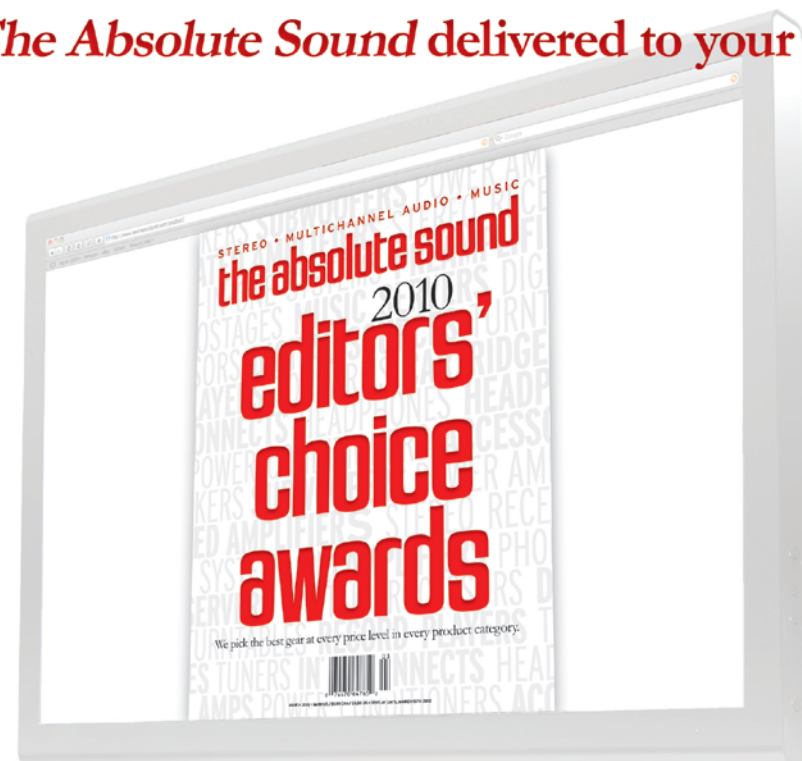
Zerodust Stylus Cleaner

\$69

Not a fluid- or brush-based stylus cleaner, the Zerodust uses a polymer bubble that gathers stylus dust and debris onto its ultra-soft surface. A winning alternative for those concerned with overusing liquid cleaners that can leave residues which build up over time. Zerodust can be cleaned with tap water and a magnifier is included.

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The 100 Best—and Best Sounding—LPs

The TAS Staff

ROCK, POP, AND FOLK

Allman Brothers Band, *At Fillmore East*. Classic (two 180g LPs).

Duane, Greg, Dickey, et al. positively smoke on “Statesboro Blues,” “In Memory of Elizabeth Reed,” and “Whipping Post.” Recorded live at the Fillmore East in 1971.

Joan Baez, *In Concert*. Vanguard-Cisco (180g LP).

Now-iconic performances, recorded live at college concerts throughout 1961-62.

Joan Baez, *Joan Baez*. Vanguard-Pure Pleasure (mono 180g LP).

The album that carried the folk music craze of the late Fifties to a peerless peak. Joanie’s first and best, with gorgeous renditions of “Silver Dagger,” “Fare Thee Well,” “All My Trials,” etc.

Johnny Cash, *American IV: The Man Comes Round*. Lost Highway (two LPs).

The fourth of Cash’s elegiac, Rick Rubin-produced albums, with haunted and haunting versions of “Wichita Lineman,” “Tear-Stained Letter,” and the heartbreaking closer “We’ll Meet Again.”

Johnny Cash, *Johnny Cash At San Quentin*. Columbia-Speakers Corner (180g LP).

40-year-old live recording captures Cash at his rawest in front of a crowd of inmates.

Marc Cohn, *Marc Cohn*. Mobile Fidelity (180g LP).

Witty, urban-folksy, tuneful pop-rock by a gifted singer/songwriter.

Holly Cole, *Temptation*. Blue Note-Metro Blue (LP).

The distinctive Canadian songstress and her loyal combo in smoky, jazz-fired takes on the songs of Tom Waits.

Sam Cooke, *One Night Stand! Live At The Harlem Square Club*. Legacy-RCA (180g LP). What more could you want? The great Sam Cooke in a staggering live set with great sound.

Creedence Clearwater Revival, *Green River*. Analogue Productions (180g LP).

One of five classic Creedence LPs issued in a 2-1/2 year period that spawned almost twenty hit singles. These LPs capture that magic beautifully.

Crosby, Stills, Nash & Young, *Déjà Vu*. Atlantic-Classic (200g LP).

A classic: Great songs, great performances, great sound.

Bob Dylan, *Blonde on Blonde*. Columbia-Sundazed (180g mono LP).

One of Dylan’s finest, beautifully realized in the original and terrific-sounding mono mix.

Marvin Gaye, *What’s Goin’ On*. Mobile Fidelity (180g LP).

The passionate soul singer’s Motown classic, as relevant today as it was 38 years ago.

Jimi Hendrix, *Axis: Bold as Love*. Track-Classic (200g mono LP).

JH’s marvelous, trippy, and jazzy second LP reissued in the rare monophonic mix never sounded better.

Jimi Hendrix, *Band of Gypsys*. Capitol-Classic (200g LP).

Mature Hendrix in one of his most original sets, live at the Fillmore; the music and sound will astonish.

Lightnin’ Hopkins, *Lightnin’*. Prestige-Analogue Productions (two 45rpm LPs).

The great blues singer and guitarist in a terrific acoustic set, featuring lively covers of “Back to New Orleans,” “Mean Old Frisco,” and “You Better Watch Yourself.”



THE 100 BEST-AND BEST SOUNDING-LPS

Mississippi John Hurt, *Today*. Vanguard-Pure Pleasure (180g LP).

The sweet-natured, soft-voiced old Mississippi bluesman does himself proud with “Candy Man,” “Make Me a Pallet on the Floor,” “Corrina, Corrina,” etc.

Ian and Sylvia, *Four Strong Winds*. Vanguard-Cisco (180g LP).

This great Canadian duo’s high-lonesome harmonies convey unvarnished emotion in “Katy Dear,” “Long Lonesome Road,” and “Royal Canal.”

Rickie Lee Jones, *Pop Pop*. Geffen-ORG (LP). From one of music’s most unpredictable artists, an offbeat 1991 collection of blues, jazz, and rock standards.

Alison Krauss and Union Station, *Live*. Mobile Fidelity (three 180g LPs).

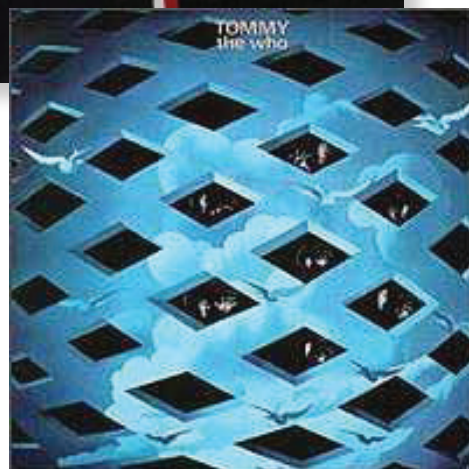
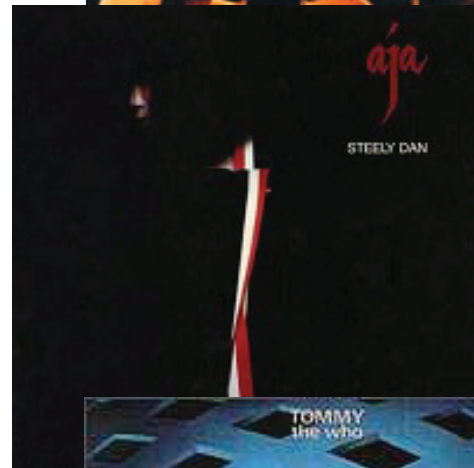
The finest bluegrass singer in the world, backed up by her great band, mixes traditional and pop in a three-disc live set. Standouts include “Ghost in the House,” “Forget About It,” and “Down to the River to Pray.”

Led Zeppelin, *I, II, III, IV*. Atlantic-Classic (200g LPs).

Yo—here it is, the first four Zeppelin albums reissued with sound that will raise the hairs on the back of your neck!

John Mayall and the Bluesbreakers with Eric Clapton, *Blues Breakers*. Decca-Speakers Corner (180g LP).

The album that gave Clapton, coming off The



Yardbirds and heading for Cream, the showcase he needed. Terrific Brit-blues, with great covers of “All Your Love,” “Little Girl,” “Parchman Farm,” etc.

Joni Mitchell, *Blue*. Rhino-Warner (180g LP). Maybe Joni’s greatest. “Carey,” “Blue,” “California,” and “The Last Time I Saw Richard” are among the highest of the highlights.

Keb’ Mo’, *Keb’ Mo’*. Okey-Epic-Pure Pleasure (180g LP).

His distinctive mix of traditional blues and pop make Keb’ Mo’s debut album special. Standouts include two Robert Johnson covers, “Come On In My Kitchen” and “Kind-Hearted Woman Blues.”

Van Morrison, *Astral Weeks*. Rhino-Warner (180g LP).

The definitive version of Van the Man’s first solo record. Timeless, one-of-a-kind jazz-flavored performances, near mystical singing, amazing sound quality.

Roy Orbison, *The All Time Greatest Hits Of Roy Orbison*. Monument-Mobile Fidelity (two 180g LPs).

The honey-toned tenor’s finest work, neatly packaged in this great sounding Mo-Fi reissue.

Pink Floyd, *The Dark Side of the Moon*. EMI (180g LP).

Reissued for its 30th anniversary, Pink Floyd’s masterpiece in mind-bendingly superior sound.

Jimmy Reed, *Jimmy Reed at Carnegie Hall*. Vee Jay-Analogue Productions (two 180g 45rpm LPs). The title may be bogus (this was actually cut in a studio), but the music and sound are as authentic as the blues gets.

Santana, *Abraxas*. Columbia-Mobile Fidelity (180g LP and CD).

Santana’s great and great sounding sophomore record reissued and better than ever, with left/right channels restored to original placement.

Steely Dan, *Aja*. Cisco (180g LP).

Approved by Donald Fagan and Walter Becker, this is one of the best-sounding LP reissues in memory. The disc features no compression (unlike previous masterings), tremendous sense of air, and precise soundstage focus.

Stevie Ray Vaughan, *Texas Flood*. Pure Pleasure-Sony (two 180g LPs).

The monster Texas guitarist knocked the Top 40 on its ear with this rampageous debut of blues covers and originals.

Jennifer Warnes, *Famous Blue Raincoat*. Shout-Cisco (three 200g 45rpm LPs).

The 20th Anniversary reissue of Warnes’ stunning renditions from the songbook of Leonard Cohen. The Cisco 45 rpm LPs define the state of the art in vinyl playback.

Jennifer Warnes, *The Hunter*. Private-Cisco (200g LP).

Warnes’ post-*Famous Blue Raincoat* release that also showcases her own vivid songwriting talents in an exquisite performance and recording.

THE 100 BEST-AND BEST SOUNDING-LPS

Doc Watson, *Home Again*. Vanguard-Cisco (180g LP).

The best country guitar-picker of his day plays folk ballads, bluegrass, and gospel classics.

Muddy Waters, *Folk Singer*. Chess-Classic (200g LP).

“Good Morning School Girl,” “You Gonna Need My Help,” “Big Leg Woman,” and “Country Boy” highlight this famous blues album by Chicago’s most famous bluesman.

The Who, *Tommy*. Track-Classic (two 180g LPs). Classic’s reissue of *Tommy* must be heard to be believed—it brings this still amazing rock “opera” to astonishing life.

The Who, *Who’s Next*. Classic (200g LP). Arguably The Who’s best LP with arguably The Who’s best song—the bitter, timeless, and, alas, time-and-again-tested anthem “Won’t Get Fooled Again.”

Wilco, *Yankee Hotel Foxtrot*. Sundazed-Nonesuch (two 180g LPs). A modern masterpiece, in glorious analog sound. Wilco, *a ghost is born*. Rhino-Nonesuch (two 180g LPs). The follow-up to YHF, *a ghost is born* conjures Wilco from deep in the vinyl grooves right into your listening room.

Sonny Boy Williamson, *Keep It To Ourselves*. Analogue Productions (180g LP). The legendary Mississippi bluesman sings “Keep It To Ourselves” and “The Sky Is Falling.”

Neil Young, *Live at Massey Hall 1971*. Rhino-Classic (two 200g LPs).

This awesome sounding 1971 concert album from Neil’s vault features a solo Young with just a guitar, a piano, and a microphone, debuting some of his now-famous new songs of the time.

CLASSICAL

Bach, Cello Suites. Starker. Mercury-Speakers Corner (three 180g LPs).

Starker’s incisive performances of these intimate, introspective works for solo cello are famously wonderful. So is the sound.

Bartók, Concerto for Orchestra. Reiner, CSO. RCA-Classic Records (200g LP).

Arguably the finest concertante work of the past century. Reiner’s and Chicago Symphony’s performance—in some of RCA’s finest sound—generates tremendous excitement.

Bartók, Divertimento for Strings. Barshai, Moscow Chamber Orchestra. King Super Analogue (180g LP).

Written just before the Second World War, this isn’t merely light and diverting; in the nightmarish second movement Bartók utters a riveting scream of horror at the coming catastrophe. The performance by Barshai and the MCO is perhaps the most powerful on disc.

Beethoven, *Kreutzer Sonata*. Heifetz, Smith. RCA-Cisco (180g LP).

While Heifetz’s quick tempi and flawless technique sometimes seem like mere showing



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off, they rise to the level of poetry in Beethoven's astonishingly original, rhythmically innovative sonata. Great sound, too.

Beethoven, Violin Sonatas Nos. 5 and 9. Oborin, Oistrakh. Philips-Speakers Corner (180g LP). Another superb *Kreutzer*, coupled with a wonderful Fifth, from two more passionate but no less accomplished players.

Brahms, Cello Sonatas. Starker, Sebok. Mercury-Speakers Corner (180g LP). Starker plays with his usual intelligence and strength, and Sebok matches him note for note in these magisterial sonatas.

Brahms, Violin Concerto. Heifetz, Reiner, CSO. RCA-Classic Records (180g LP). When this 1955 recording session was finished, Reiner and his orchestra agreed that they had never heard a better performance of Brahms' concerto. Neither have we. Though the violin is spotlighted, Heifetz's playing makes it worthy of the spotlight. One of the great RCAs.

Brahms, Violin Sonata No. 1. Abel, Steinberg. Wilson Audio (180g LP). One of the best-sounding chamber music recordings ever. The two players are palpably present in your room, their instruments sized exactly right. Solid and direct performances of the Brahms G Major Sonata, plus works of Debussy and Bartók.

Cantaloube, *Songs of the Auvergne*. Davrath. Vanguard-Classic (two 200g LPs). By consensus, this 1960s recording of

Cantaloube's uncannily beautiful folk song arrangements is definitive. One of those rare instances when the finest performance of a work just so happens to be—by a wide margin—the best-sounding.

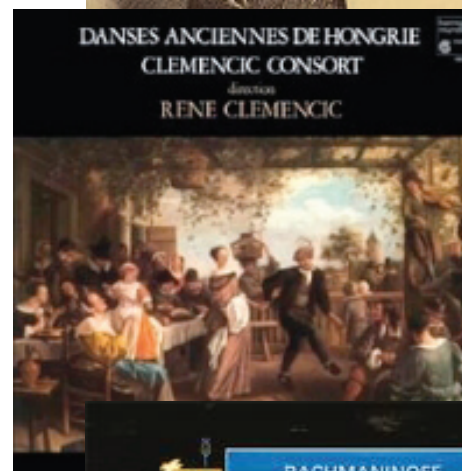
Danses Anciennes de Hongrie et Transylvanie. HM-Speakers Corner (180g LP). Unusual baroque-period instruments—the bombarde, or bagpipe, for instance—make this collection of Eastern European dances especially treasurable.

Debussy, Three Nocturnes. Paray. Mercury-Speakers Corner (180g LP). Three lovely, languorous impressions of clouds, festivals, and the seductive song of the sirens. Paray's idiomatic performances are given some of Mercury's most exquisite sound.

Hindemith, Violin Concerto. Fuchs, Goossens, LSO. Everest-Classic Records (180g LP). A big, tuneful concerto beautifully played, and captured in clear, spacious, detailed, dynamic sound.

Holst, *The Planets*. Mehta, LA Philharmonic. Decca-Speakers Corner (180g LP). Famously well-recorded rendition of the colorful Holst warhorse, with superb timbre, dynamics, and low end.

Mussorgsky, et al., *Witches' Brew*. Gibson, NSOL. RCA-Classic Records (200g LP). Orchestral showpieces by Mussorgsky, Saint-Saëns, et al. The sound is as spectacular as Golden Age stereo gets.



Rachmaninoff, Piano Concerto No. 3. Janis, Dorati, LSO. Mercury-Speakers Corner (180g LP).

Gorgeously tuneful, ferociously challenging, unabashedly Romantic, the Rach 3 has been assayed by most of the greats. None plays it better than Byron Janis does here. And none gets superior sound.

Rachmaninoff, *Symphonic Dances*. Johanos, Dallas. Turnabout-Analogue Productions (180g LP).

This, the last and best of Rachmaninoff's orchestral works, has an almost Prokofiev-like feel to harmonies, dynamics, and rhythms. Johanos' performance may not be the very best recorded to disc, but it is one of the best sounding.

Ravel, *Daphnis and Chloe* Suite No. 2. Paray/Munch. Mercury-Speakers Corner (180g LP). This relatively little-known Paray LP is one of the finest Mercurys. The suites, extracted by Ravel from his ballet for Diaghilev, are diaphanously beautiful, and so are the sonics.

Rimsky-Korsakov, et al., *Espana!* Argenta, LSO. Decca-Speakers Corner (180g LP). Colorful and exciting "Spanish" music, played with genuine exuberance by Argenta and the LSO and recorded in some of Decca's most vivacious sound.

Schoenberg, Five Pieces for Orchestra. Dorati, LSO. Mercury-Speakers Corner SR (180g LP). A landmark of early twentieth-century music, these five highly chromatic, intensely evocative

THE 100 BEST-AND BEST SOUNDING-LPS

pieces for orchestra are a headfirst plunge into the realms of dissonance, dream, and the unconscious. Dorati's performance is superb, as are Mercury's sonics.

Shostakovich, String Quartet No. 8. Borodin Quartet. Decca-Speakers Corner. (180g LP). Shostakovich's most celebrated quartet is intensely sad and elegiac; the Borodin Quartet plays with somber beauty.

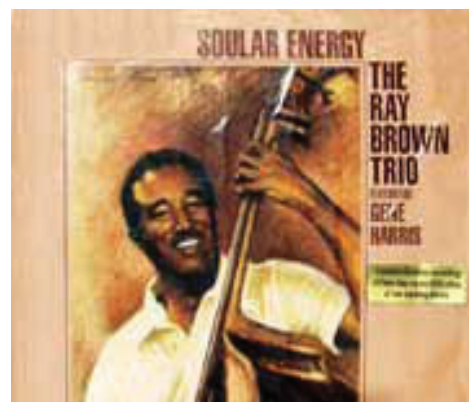
Sibelius, Symphony No. 2. Royal Philharmonic, Barbirolli. Chesky (LP). Perhaps the greatest performance on record of the glorious Finnish masterpiece, captured by sonic wizards Wilkinson and Gerhardt at fabled Walthamstow Hall.

Stravinsky, *Firebird* Suite. Dorati, LSO. Mercury-Classic Records (200g LP). Arguably Mercury's single most beautiful recording. The sound is stunning, and the music, taken from Stravinsky's ballet score, exquisite and exquisitely well played.

JAZZ

Cannonball Adderley, *Somethin' Else*. Blue Note-Analogue Productions (two 180g 45rpm LPs). Though the personnel is mostly different, Adderley teams again with Miles Davis for something of a modal follow-up to *Kind of Blue*.

Louis Armstrong, *Satchmo Plays King Oliver*. Audio Fidelity-Classic (180g LP). Classic New Orleans jazz in stunningly lively sound.



Art Blakey And The Jazz Messenger's, *The Big Beat*. Blue Note-Music Matters (two 180g 45rpm LPs).

The Messengers soar with Lee Morgan and Wayne Shorter. The sound of this reissue will floor you.

Tina Brooks, *Back To The Tracks*. Blue Note-Music Matters (two 180g 45rpm LPs). In a short career, Brooks proved to be an imaginative composer, leader, and sideman. He's worth knowing.

The Ray Brown Trio, *Soular Energy*. Concord-Pure Audiophile (two 180g 45rpm LPs). A gorgeous set led by one of the great bassists, in legendarily terrific sound.

Kenny Burrell, *Midnight Blue*. Blue Note-Analogue Productions (two 180g 45rpm LPs). Famously wonderful sounding, *Midnight Blue* is a classic, and as moody as the title suggests.

Donald Byrd, *The Cat Walk*. Blue Note-Music Matters (two 180g 45rpm LPs). Lyrical and inventive, trumpeter Byrd is joined by a superb lineup, in lifelike sound.

The Sonny Clark Memorial Quartet, *Voodoo*. Black Saint (LP). Led by John Zorn, this terrific quartet tears through seven Sonny Clark compositions, captured in a vivid, dynamic recording.

John Coltrane, *Blue Train*. Blue Note-Analogue Productions (two 180g 45rpm LPs). The music speaks for itself, and these top even other fine reissues.

John Coltrane and Johnny Hartman. Original Recordings Group (two 180g 45rpm LPs). From a relatively new player in the reissue game, this superb pairing of like-minded musicians finds Coltrane at his most lyrical.

The Bill Cunliffe Trio, *Live at Bernie's*. Groove Note (LP). Ex-Sinatra sideman and friends play jazz standards. Knockout sonics available on direct-disc LP or silver discs.

Miles Davis, *Kind of Blue*. Columbia-Classic (200g LP). For many this is the desert island jazz record.

Miles Davis, *Sketches of Spain*. Columbia-Classic (200g LP). Miles and Gil Evans team for another great set, with more multiple-choice editions, including an upcoming Classic 4-LP 45rpm version.

Eric Dolphy, *Out To Lunch!* Blue Note-Music Matters (two 180g 45rpm LPs). The great multi-instrumentalist shines in his own compositions, beautifully recorded months before his death.

Duke Ellington, *Ellington Jazz Party in Stereo*. Columbia-Classic (180g LP). The title says it all: superbly detailed sound, playful big band jazz, great soloists, and Ellington.

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Duke Ellington and Ray Brown, *This One's for Blanton*. Analogue Productions (two 180g 45rpm LPs).

A remarkable duet presented in “you-are-there” sound.

Bill Evans, *Sunday at the Village Vanguard*. Riverside-Analogue Productions (180g LP).

The classic jazz piano trio disc, captured in a superb live recording.

Gil Evans, *Out of the Cool*. Impulse-Analogue Productions (two 180-gram 45rpm LPs).

Showcasing Gil Evans’ brilliance as a writer

and arranger, a set of lovely, cerebral jazz meditations in excellent sound.

Ella Fitzgerald, *Sings Songs From Let No Man Write My Epitaph*. Verve-Classic (200g LP).

This intimate and excellent recording pairs the great singer with only a piano accompanist.

“Black Coffee,” “Angel Eyes,” and more never sounded so good.

Ella Fitzgerald and Louis Armstrong, *Ella and Louis*. Verve-Speakers Corner (180g vinyl).

Ella and Louis live again in vivid sound—‘nuff said!

Dexter Gordon, *Dexter Calling*. Blue Note-Analogue Productions (two 180g 45rpm LPs).

One of this great tenor’s finest sessions, the sound really pops on this modal-themed outing.

Dexter Gordon, *One Flight Up*. Blue Note-Cisco (180g LP).

With Donald Bryd on trumpet, a gorgeous session in sumptuous sound.

Billie Holiday, *Songs for Distingué Lovers*. Verve-Classic (200g LP).

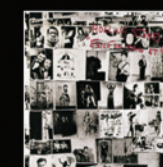
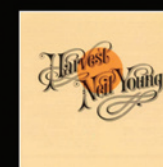
A rare stereo Holiday album, this late recording finds her in great form with a small group and superb sound.

Milt Jackson Sextet, *Invitation*. Riverside-Mobile Fidelity (180g LP).

Surrounded by a small group of exceptional players, Jackson and his vibes spin pure beauty.

It's All About the Music

Can you envision today without all the music that helped to define every aspect of your life? Neither can we. That’s why we’ve had the same slogan for the last two decades: ***It's the Music That Matters™***. It’s really all the amazing, unforgettable music that built our business—without music... who needs a stereo system? That is why we dedicate ourselves to helping you get the most performance from all the music you love.



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Jackie McLean, *Jackie's Bag*. Blue Note-Analogue Productions (two 180g 45rpm LPs). McLean shows great talents as composer, arranger, and soloist in a series of rhythmically complex tunes that leave you just a little off guard.

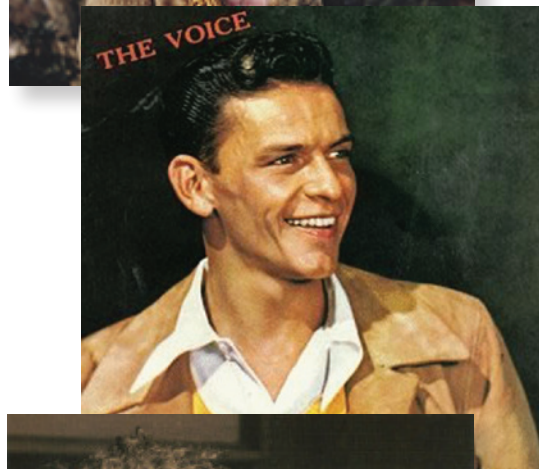
Gil Melle, *Patterns in Jazz*. Blue Note-Music Matters (two 180-gram 45rpm mono LPs). The first 12-inch platter Rudy Van Gelder recorded for Blue Note is a musically delightful and little-known gem. The mono sound is focused, warm, and beautiful.

Charles Mingus, *Ah Um*. Columbia (180g rpm LP). Columbia did a terrific job with this recent edition of one of Mingus' finest and funkiest albums.

Charles Mingus, *Mingus Mingus Mingus Mingus Mingus*. Impulse-Analogue Productions (two 180g 45rpm LPs). Mingus gathers a 10-piece group to revisit some of his very best compositions—featuring the great Eric Dolphy.

Thelonious Monk Septet, *Monk's Music*. Riverside-Analogue Productions (two 180g 45rpm LPs). Yo! Monk, Coltrane, and Coleman Hawkins, in a superb set with astonishing sound.

Thelonious Monk Quartet with Johnny Griffin, *Thelonious in Action*. Riverside-Analogue Productions (two 180g 45rpm LPs). Recorded at the Five Spot, one of the funkiest, fieriest, and most alive sounding of all jazz records.



The Wes Montgomery Trio, *A Dynamic New Sound*. Riverside-Analogue Productions (two 180g 45rpm LPs). A terrific set with organ and drums, this legendary jazz guitarist captured in a rich sonic brew.

Lee Morgan, *Candy*. Blue Note-Music Matters (two 180g 45rpm LPs). One of the great classic Blue Note LPs, Music Matters' mono reissue sounds absolutely fabulous.

Oliver Nelson, *The Blues and the Abstract Truth*. Impulse-Speakers Corner (180g LP). A gorgeous record—wonderful playing, great tunes, luscious and detailed sonics. Soon to be issued by Analogue Productions on 45rpm LP.

Horace Parlan, *Speakin' My Piece*. Blue Note-Music Matters (two 180-gram 45rpm LPs). This truly beautiful record displays this funky and soulful pianist's bluesy side.

Art Pepper, *Meets The Rhythm Section*. Contemporary-Analogue Productions (180g LP). From Miles Davis' classic quintet (Jones, Chambers, Garland), one of the greatest sounding of all jazz reissues.

Sonny Rollins, *Our Man in Jazz*. RCA-Classic (180g LP). Rollins at his best, improvising in concert with Don Cherry and a fine rhythm section in lifelike sound.

Sonny Rollins, *Way Out West*. Blue Note-Analogue Productions (180g LP). Rollins dons his chaps for this classic jazz makeover of cowboy tunes. Awesome sound.

The Horace Silver Quintet Plus J.J. Johnson, *The Cape Verdean Blues*. Blue Note-Music Matters (two 180g 45rpm LPs). Arguably Silver's crowning achievement, this hard-bop brew of Cape Verdean/Portuguese folk music and blues never sounded better.

Frank Sinatra, *Only the Lonely*. Mobile Fidelity (180g LP). This glorious sounding mono reissue unveils Sinatra's unmatched phrasing, impeccable timing, and emotional expressiveness.

Frank Sinatra, *The Voice*. Columbia-Classic (180g LP). Originally released in 1955, this mono recording captured Sinatra's voice at its most lovely and lyrical. This reissue is exceptionally intimate and natural sounding.

Gabor Szabo, *Spellbinder*. Euphoria-Sundazed (LP). In more than good enough sound, Budapest-born Szabo's gypsy-style standards made a huge impression on Carlos Santana.

Anthony Wilson Trio, *Jack of Hearts*. Groove Note (two 180g 45rpm LPs). With Wilson on guitar, accompanied by drums and a Hammond B-3, Groove Note has a stunningly real sounding and funky in-the-studio success.