APRIL 2013 WWW.HIFINEWS.CO.UK

hi-fi news & Record Review

THE HOME OF REAL HI-FI

STEREO SCI-FI

Exclusive: Light Harmonic's Da Vinci DAC

NEIL YOUNG
HARVEST

GamuT on guard
M'inenT M5 floorstander

Universal player
Cambridge 752BD – the ultimate digital hub?

TAD pre/power
600-series powerhouse

Hi-res music
£1-2k Group Test: Five top USB DACs

'I lost brain cells here'
Jerry Garcia on The Fillmores, p78

Clean your mains
PS Audio's P10 regenerator

- **PLUS** 18 pages of music reviews and features • **VINTAGE REVIEW** 1st-Gen Fisher AD 800 CD player
- **OPINION** 10 pages of letters and comment • **VINYL RE-RELEASE** Sugarcubes' *Life's Too Good* LP
- **AUDIO MILESTONE** Canada's Oracle turntable • **READERS' CLASSIFIEDS** Hi-fi bargains galore

UK £4.00 US $9.99 Aus $9.95
9 771472 256226 04

Magnetically-stabilised, fluid-damped unipivot tonearm
Made by: Graham Engineering Inc, USA for EAT, Prague
Supplied by: Absolute Sounds Ltd, UK
Telephone: 0208 971 3909
Web: www.euroaudioteam.com; www.absolutesounds.com
Price: £6300

AUDIO FILE

Euro Audio Team E-Go

Needing a 12-inch arm to match its spectacular Forte turntables, Czech-based EAT calls on US tonearm guru Bob Graham for this 'personalised' version of his top design
Review: **Ken Kessler & Steve Harris** Lab: **Paul Miller**

It's a safe bet that unipivot tonearm designs outnumber every other kind. Why? Because the concept is both elegant and simple. To support the cartridge as the stylus endeavours to follow the record groove, the arm must pivot freely, vertically and laterally.

And having the arm supported on a single pivot point is the easiest way of arranging this – but it also has advantages from an engineering point of view. The bearing is pre-loaded by the mass of the tonearm, so it achieves the desired condition of zero play with low friction. The big disadvantage is that the arm is free to wobble around, impairing performance and making it less easy to handle.

The fact remains that some of the world's most expensive, highly-developed tonearms *are* 'unipivots', though in some cases they have additional bearings. Mørch, for example, has long used a dual pivot to give lateral stability, while Kuzma has its cunning four-point system. Another fairly elaborate variation is found in Continuum's Cobra arm, which uses a secondary outrigger pivot mounted on its own bearing.

However, it was left to Bob Graham of Graham Engineering to come up with what is arguably the most elegant way of maximising the benefits of the unipivot concept and smoothing away its disadvantages. He explains the central problem of a unipivot arm as a question of attaining 'neutral balance' [see *www.graham-engineering.com*]. With his earlier tonearms, Graham used outrigger weights to provide stability, but even with careful design this approach could not reach this ideal condition. The breakthrough came with his 'Magneglide' magnetic stabiliser system – the major innovation of the first, B-44, Phantom arm.

Graham lists six separate benefits of the Magneglide device: increased lateral stability, easy azimuth adjustment, a higher lateral inertia component for improved bass reproduction, augmentation of system damping, true vertical pivoting of the stylus with no rotation as the arm is raised, and easily adjusted anti-skate compensation.

MAGNETIC ATTRACTION

The really clever part of this system is its azimuth tower, mounted on a swivelling collar which allows it to rotate about the arm pillar. Looking from the rear [see below], you can see a cylindrical projection on the right side of the arm bearing housing, and this contains a neodymium magnet which is centred at the same height as the arm pivot (fulfilling the requirement of 'neutral balance'). There is a powerful attraction between this and a second similar magnet attached to the azimuth adjustment tower, which in turn is connected to the fixed arm base. The azimuth tower follows the lateral movement of the arm as it tracks across the record, keeping the arm exactly in position and preventing it from wobbling or tilting.

> 'The E-Go delivers guitar heroics by the bucketload'

With the current Phantom II Supreme the stabiliser has been improved, there is new internal wiring and a new titanium arm wand, available in 9in, 10in and 12in lengths. Which brings us to the EAT E-Go. EAT's version of the Phantom II Supreme comes only in a 12in version, appropriate for use with the EAT Forte and its oversized platter. E-Go means 'EuroAudioTeam Graham Original' and it's described as 'personalised for EAT applications'. The arm is now resplendent in a matt chrome, looking rather more assertive than Graham's usual classy, restrained finish of black with chrome highlights.

In essence, the Graham bearing is a simple point and cup arrangement, but the design and materials have been refined over the years. Both point and cup are precision-made in Switzerland from tungsten carbide. In the latest iteration, used in the Phantom II Supreme, the downward-facing point is housed in a strong square shank. The bearing is easily accessible, and also easy to protect from transit damage, because the point is mounted in the screw-on cap that tops the massive bearing housing.

RIGHT: Seen far right is the Magneglide stabiliser, using magnets in line with the arm's pivot point. The outrigger magnet can be moved up or down for azimuth correction

RIGHT: The titanium arm wand is attached by a screw connector to the massive bearing housing, whose knurled top cap can be unscrewed to access the bearing cup and add the viscous damping fluid. Seen right is the VTA adjuster with its Vernier scale for fine tuning

On first installation, having removed the blue plastic transit sleeve from the unipivot point, you fill the cup with an appropriate quantity of damping oil, then replace the cap. Alongside, the anti-skate compensation is not magnetic but achieved by a time-honoured thread-and-weight system. But here, from a bell-crank that carries the adjustable weight, the thread runs round a small but exquisite pulley and is attached to the swivelling foot of the azimuth tower, avoiding the need for a direct connection to the arm.

Azimuth adjustment is carried out by raising or lowering the magnet via a screwthread on its swivelling tower, this causing the arm to tilt as required. While you must not adjust azimuth during play, you can adjust the arm height and hence the vertical tracking angle – 'VTA on the fly' has been a feature of Graham arms from the very start.

Although the arm looks complicated and even mysterious in its many adjustments, it's actually quite user friendly and comes with clear instructions. Our EAT E-Go had the SME base, which of course made installation a painless procedure.

As with previous models, it's supplied with a neat device that registers the headshell with the turntable spindle to set the arm overhang correctly, and there is a special holder to provide accurate cartridge alignment.

KEN SPINS SOME VINYL

As the E-Go has a short back, it fitted the SME 30/12 without hitting the rear right pillar (as did my elderly SME 3012). Setup, despite the clever design, made me appreciate the genius of the SME Series V's simplicity – but then the SME isn't a unipivot. Thus, as far as 'unis' go, the E-Go is one of the most user-friendly, as SH states. The removable wand makes it easy to change cartridges too: I settled on Air Tight's PC1.

Having just reviewed Gram Parsons' *Grievous Angel* as a MoFi SACD [*HFN* May '13], I dug out the vinyl [Reprise K54018] for more of the same. All was – how shall I put this? – wonderfully comprehensible until the end of 'I Can't Dance'.

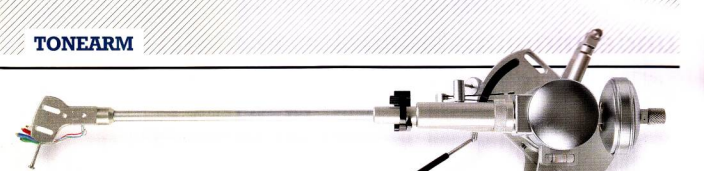
We all have favourite tracks, parts of tracks even, we know so well that they serve as handy short-cuts for illustrating whether a system sounds convincingly realistic. They'll be significant enough to convey a broad sensation, like voice, lead guitar, a strings section. As Parsons' voice was so anodyne, that wasn't gonna do it. What made me sit up and take notice was the drum-roll at the end of that track.

It wasn't mere impact: for that I'd turn to Kodo. It was about space and a lack of artifice. The sound of what is just a standard LP possessed the air and three-dimensionality of the crafted-to-a-millimetre sound of the notorious *Sheffield Drum Record*. The crispness, the kick, lasts no more than a second, but the three that followed were to mere 'air' what Dyson is to dryers. I rubbed my eyes in disbelief.

This confoundedness lasted only the length of the silence between tracks: it was followed by the delicate piano opening of 'Brass Buttons', compounded by pedal steel and crisp, but discreet percussion. A snare, a cymbal, a woodblock, Parsons' vocals in the centre – the sound belied the title, for there was nothing brassy about it whatsoever. It managed, despite a surfeit of terse transients, to sound silky. And hearing it next to the admittedly classy SACD was an object lesson in why analogue remains more convincing than digital, for so many music lovers.

GRAHAM ENGINEERING

American engineer and designer Bob Graham can trace his passion for audio right back to the end of the mono era, when Weathers had its capacitance cartridge mounted in a viscous-damped tonearm, tracking at a then-unprecedented one gram. Graham recalls how salesmen would impress buyers by casually tossing the arm on to the record, an act that would have caused serious damage with any other arm of the period. In the 1980s Graham took inspiration from SME's superb engineering and finish and set out to build his own arms to similar standards. While adopting the unipivot principle, he paid careful attention to the issues of resonance and dynamic stability, which he felt had been ignored by the designers of many other arms. The Graham 1.5 arm was launched in 1990, and this evolved into the 2.0 model and then the 2.2. But in 2005 came the Phantom, a completely new design incorporating Graham's patented Magneglide stabilisation system. Further enhancements brought the Phantom II and the current Phantom II Supreme, the basis of the EAT E-Go.



However dismissive I may be about Parsons' pipes, the duet on 'Love Hurts' with his muse, Emmylou Harris, is so achingly gorgeous that you begin to appreciate a system's abilities with vocal textures and spacing. The two stand extreme left and right, the instruments filling in the space in-between, but this is not a stereo-circa-1956 ping-pong effect. It simply reflects the song's title by using physical separation to convey the angst of love.

Gram's voice contrasts with Emmylou's crystalline instrument, singing that is almost a country cliché. Again, the instruments exhibit speed and clarity, but never with any intrusiveness. The E-Go perfectly resolved what is one of the most challenging of paradoxes: reproducing bags of information while creating what appears as a sparse soundscape. It's precisely the kind of recording and playback that charms you back again and again, the deception of simplicity covering up genius-level complexity.

HOW CAN IT DO THIS?

Probably the most tragically-overlooked, blues-based hard rock LP ever is Leslie West's 1969 solo debut, *Mountain* [Windfall 4500] – the title of which would become the name of his band. As far as post-Cream power trios go, this was one of the best, West aided and abetted by Felix Pappalardi on bass and N D Smart II on drums, the latter so underappreciated that it simply makes me furious.

'Long Red' is a curious number that has all the hallmarks of a heavy metal classic, yet the sound is light and subtle, almost unplugged. What throws you is West's voice, a fiery rasp that contradicts and challenges the instrumentation – a circus-like organ and an acoustic guitar, for goodness' sake!

It's the antithesis of Parsons' tentative, plaintive, I-wish-I-was-George-Jones whisper. Having met West, and seen Mountain live, I can think of no other New York *Yiddishe bocher* who can sound as convincingly like a 1950s R&B wailer.

West, of course, is famed more for his powerful fluid guitar work than his singing, and the E-Go delivers guitar heroics by the bucketload. Once you get past the disparity between the vocal style and the song it's conveying (the same effect as when Joe Cocker sings a ballad) you can lean back and marvel at the way it all coalesces. It is a demonstration of balancing textures that should, by any definition, compete with each other to the point of self-defeat. Instead, it's sound is so 'of a whole' that you wonder how just an arm can do this.

Not that I would ditch the SME Series V 12in. It offers superior lower bass solidity, more tactile than the E-Go's deepest registers, but it's down to taste and partnering equipment. If you can handle a 12in arm, the E-Go joins a select group of top contenders. ⏱

ABOVE: Plan view shows thread-and-weight bias compensator and neat clock-pendulum-shaped counterweight, designed for good operating clearances

HI-FI NEWS VERDICT

As the E-Go was preceded by the Graham tonearms' substantive reputation, and I'd heard Bob's tonearms so many times that I knew to expect with certainty both refinement and finesse, EAT's version merely confirmed my experience. This is an estimable arm, as genuinely a 'high-end' purchase as one could make, bristling with clever details and sounding gorgeous. Best of all, it's a unipivot free of masochism.

Sound Quality: 85%

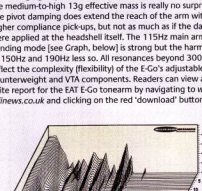
0 – – – – – – – – – 100

LAB REPORT

EURO AUDIO TEAM E-GO

The addition of Graham's 'Magneglide' stabilisation regime to its Phantom platform makes this the most stable unipivot design that we've tested, damping any rotational displacement without adding obvious friction to either vertical or horizontal movement. Because the unipivot 'bearing' is positioned within a well of oil, measureable friction – fluid viscosity – rather depends on the frequency of movement, but with the slow arm movements encountered during replay this amounts to <10mg in both planes. Downforce and bias are uncalibrated although with the small threaded weight wound to the end of its cantilevered arm, maximum side-thrust amounts to around 3g.

EAT's version of the Phantom features a titanium arm wand, combining rigidity with low density although, in 12in guise, the medium-to-high 13g effective mass is really no surprise. The pivot damping does extend the reach of the arm with higher compliance pick-ups, but not as much as if the damping were applied at the headshell itself. The 115Hz main arm bending mode [see Graph, below] is strong but the harmonics at 150Hz and 190Hz less so. All resonances beyond 300Hz reflect the complexity (flexibility) of the E-Go's adjustable bias, counterweight and VTA components. Readers can view a QC Suite report for the EAT E-Go tonearm by navigating to *www.hifinews.co.uk* and clicking on the red 'download' button. **PM**



ABOVE: Cumulative resonant decay spectrum, illustrating various bearing housing, pillar and arm vibration modes spanning 100Hz-10kHz over 40msec

HI-FI NEWS SPECIFICATIONS

Bearing / bias type	Uni-pivot / thread and weight
Effective mass (vertical/lateral) / **length**	13g/13g / 305mm
Offset angle / overhang	17.5 degrees / 12.7mm
Friction (vertical/lateral)	<10mg / <10mg
Downforce accuracy (at 2g)	uncalibrated
Cartridge weight/compliance range	5-20g / 8-20cu
Mounting Type / total weight	SME / 1100g