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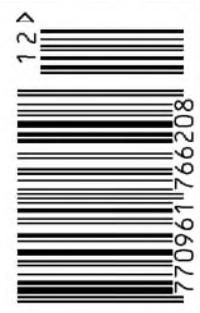
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Paul Rigby, Martin Pipe, David Tutt,  
Chris Frankland, John Pickford.



**P**eople want power and in this issue we've covered two ways of getting it. The old way, from a valve amplifier producing 80 Watts and the new way, from a transistor amplifier delivering a scorching 600 Watts. Phew!

It took two of us to lift the valve amplifier, PrimaLuna's Evo 400 (31kg) you can find on p10. But it was worth it. A wonderful sound, the Evo 400 came over as fast and filigree detailed – one reason the EL34 is popular in the Far East.

PrimaLuna also get powerful bass from their amplifier plus, of course, that liquid valve sound with convincing stage depth.

It took three of us to lift the Musical Fidelity MBxi (46kg). So no weight advantage that's for sure, but you do get a lot more oomph from modern transistors. And commonly digital too, as in the MBxi.

I wasn't aware of any power difference: both went shatteringly loud when pushed. Yet the sonic differences between a powerful valve amplifier and powerful transistor amplifier are night and day. I hope you enjoy reading about both – and I recommend you get to audition these amplifiers in a dealer showroom if possible. Let us know which you prefer, and why. Nothing like hearing what others have to say; keeps our feet on the ground!

With Wharfedale's trad. Linton loudspeaker enjoying success and Leak's new Stereo 130 amplifier upon was, old values are being re-visited. Spondor step up to the mark with their new Classic 4/5 mini-loudspeaker, what is known as a near-field monitor. That means you sit close to it, in a small room – less than 14ft long. Based on the BBC LS3/5a studio monitor designed for small outside broadcast trucks, the LS 4/5 continues the ideal of accurate sound monitoring. You can read what John Pickford thinks of this new compact loudspeaker on p16.

"Power to the people" said Citizen Smith – some time ago! – and that remains true today. Power is still a headline spec. and you can read about it in this great issue. Enjoy!

**Noel Keywood**  
*Editor*



## hi-fi world

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## verdicts

●●●●●	<b>OUTSTANDING</b>
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●●	<b>POOR</b>
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extremely capable  
worth auditioning  
unremarkable  
flawed  
keenly priced



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To ensure the upmost accuracy in our product reviews, *Hi-Fi World* has extremely comprehensive in-house test facilities, and our test equipment - from big names like Rohde & Schwarz and Hewlett Packard - is amongst the most advanced in the world.

Loudspeakers are measured using a calibrated Bruel & Kjaer microphone feeding a Clio-based computer

analyser, using pulsed and gated sinewaves, in a large room to eliminate the room's influence. Pickup arm vibration is measured with a Bruel & Kjaer accelerometer.

No other UK hi-fi magazine has in-house testing, and none has access to such advanced tests across all types of equipment. That's why you can depend on *Hi-Fi World* reviews.

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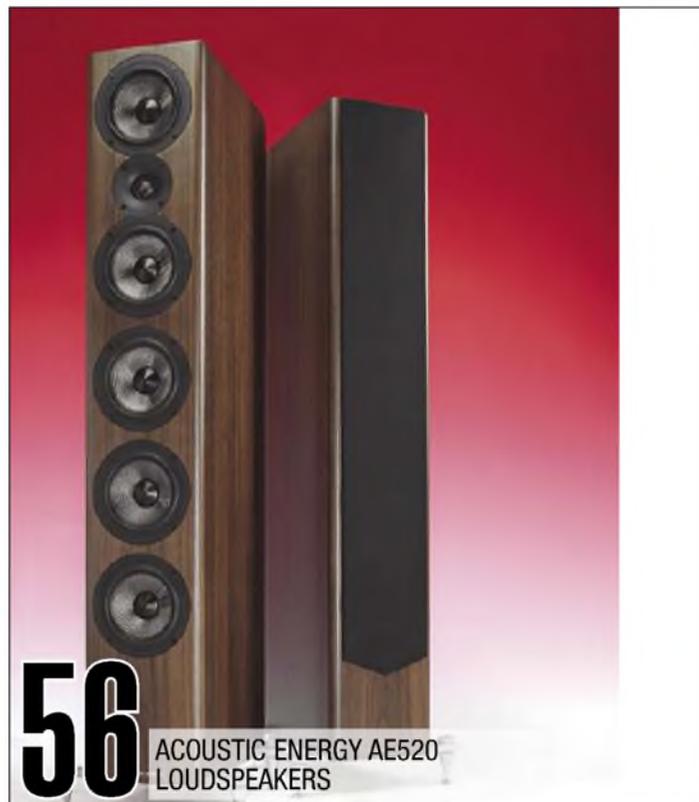
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# news

## META DATA

KEF's distinctive stand-mounted LS50 Meta 'speaker is the first in the world to use a material that will – it is alleged – absorb “99% of the unwanted sound radiating from the rear of the driver, thereby reducing distortion. Metamaterial Absorption Technology (MAT) is, we're told, a “highly-complex maze-like structure...with intricate channels that efficiently-absorb a range of specific frequencies”. In the £1,000 LS50 Meta, MAT is used behind the tweeter of a 130mm Uni-Q driver, alongside other improvements that include a new “cone neck decoupler” and motor system.

The cabinet features a “flexible bass port, low-diffraction curved baffle and rigid cross-bracing with constrained layer damping”. Claimed benefits of the compact (30cm tall) LS50 Meta include an “authentic” soundscape, tight bass, exceptional detail and the “lowest sound distortion of any speaker in its class”. The 8 Ohm LS50 Meta, which is suitable for amps rated between 40W and 100W, has a sensitivity of 85dB (2.83V/1m).

More information: [www.uk.kef.com](http://www.uk.kef.com)



## THE BEST OF BOTH WORLDS

Some like transistors, some prefer tubes. McIntosh is trying to appeal to both camps with its new C8 vacuum-tube preamplifier (£4,295) and MC830 solid-state monoblock power-amps (£4,995 each).

The compact-footprint C8 preamp has four caged 12AX7s on display, features nameable balanced and unbalanced inputs, an MC/MM phono stage with adjustable loading, a headphone amp, bypassable bass/treble tone controls and provision for an optional DA2 digital audio module with seven inputs.

The MC830 solid-state monoblock power-amps have a compact footprint, their power meters hinting to potent output – 300 Watts into 8 ohms. Monogrammed heatsinks combine visual appeal with cool running, but included are patented protective measures like Sentry Monitor and PowerGuard.

Fine Sounds UK (distributor), (+44 (0)1592) 744710. [www.finesounds.uk](http://www.finesounds.uk), [www.mcintoshlabs.com](http://www.mcintoshlabs.com)

## DIAMONDS ARE FOREVER...

...or so it seems! We first met these 'speakers – which sound better than they have any right to at the price – way back in 1982.

Now onto the “all-new” Diamond 12 Series, comprising three stand-mount 'speakers: the £199 Diamond 12.0, £249 Diamond 12.1 and £299 Diamond 12.2; two floorstanders, the £499 Diamond 12.3 and £699 Diamond 12.4 – and there is a £229 Diamond 12.C for centre-channel in home-cinema installations.

All were developed with the help of 'speaker designer Karlheinz Fink who – Wharfedale reminds us – has “an exceptional track-record of delivering class-leading sound from modestly-priced speakers”.

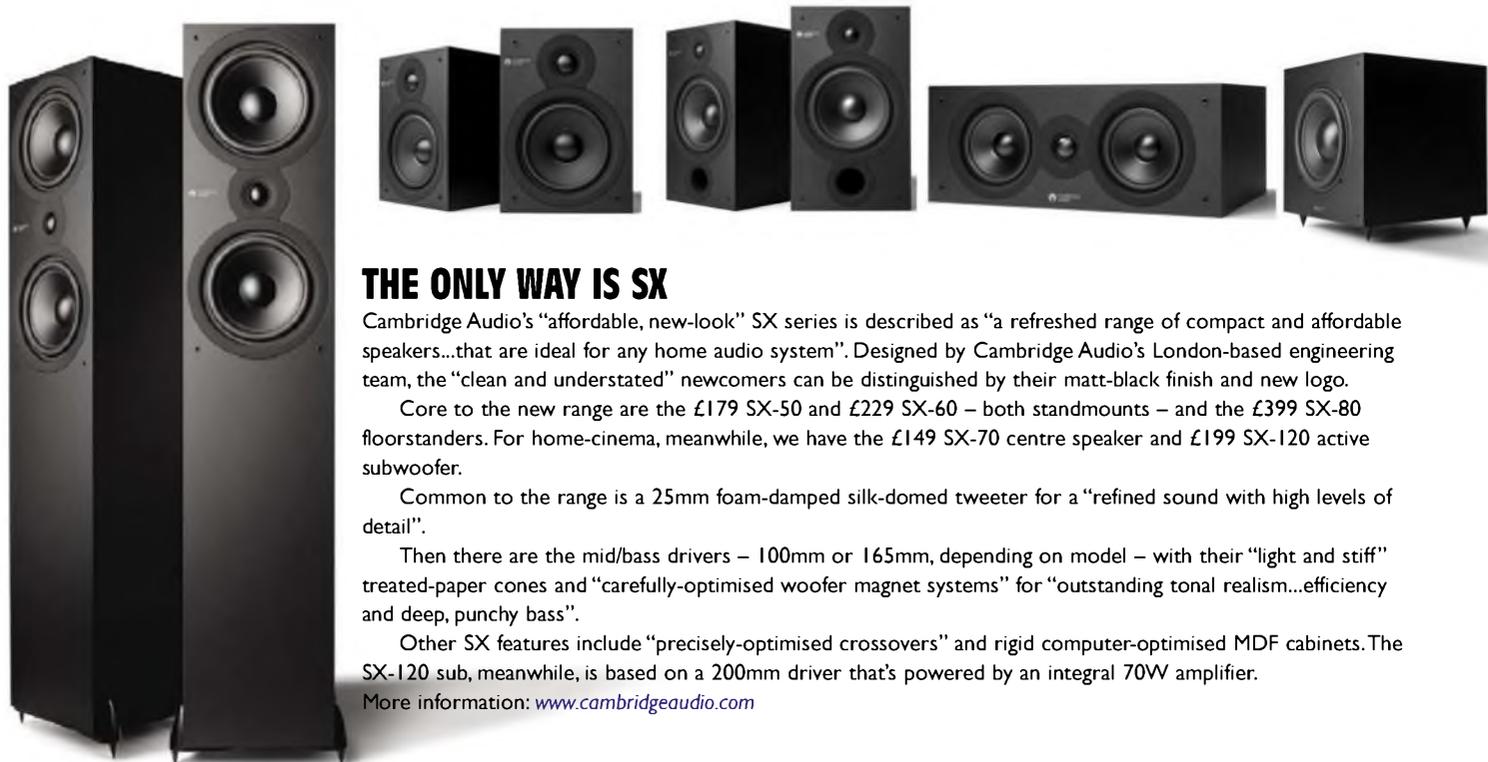
A key development is the switch from Kevlar to “Klarity”, a proprietary polypropylene-based material, for the cones of mid/bass drivers.

Diamond 12 tweeters feature a 25mm dome that's made from a woven polyester film with high-gloss coating.

Wharfedale has also paid attention to the crossover and the rear-ported fibreboard enclosures. The new models are available in four different finishes.

Further details: [www.wharfedale.co.uk](http://www.wharfedale.co.uk)





## THE ONLY WAY IS SX

Cambridge Audio's "affordable, new-look" SX series is described as "a refreshed range of compact and affordable speakers...that are ideal for any home audio system". Designed by Cambridge Audio's London-based engineering team, the "clean and understated" newcomers can be distinguished by their matt-black finish and new logo.

Core to the new range are the £179 SX-50 and £229 SX-60 – both standmounts – and the £399 SX-80 floorstanders. For home-cinema, meanwhile, we have the £149 SX-70 centre speaker and £199 SX-120 active subwoofer.

Common to the range is a 25mm foam-damped silk-domed tweeter for a "refined sound with high levels of detail".

Then there are the mid/bass drivers – 100mm or 165mm, depending on model – with their "light and stiff" treated-paper cones and "carefully-optimised woofer magnet systems" for "outstanding tonal realism...efficiency and deep, punchy bass".

Other SX features include "precisely-optimised crossovers" and rigid computer-optimised MDF cabinets. The SX-120 sub, meanwhile, is based on a 200mm driver that's powered by an integral 70W amplifier.

More information: [www.cambridgeaudio.com](http://www.cambridgeaudio.com)

## THE MAIN MARANTZ

Those who like movies as well as music might appreciate Marantz's £2,199 AV7706 surround AV pre-amplifier. It's described as "not only a superb AV processor...but also an extraordinary analogue preamplifier. This "bedrock of any system demanding masterful fidelity" boasts a HDAM MM phono stage, multi-zone capability, networked hi-res music playback, numerous control options (including mobile apps and Alexa/Google), four digital-audio inputs (two optical), six stereo line-level inputs and provision for a 7.1 analogue source.

For AV requirements, there no fewer than three HDMI outputs and eight HDMI inputs. These support 4K/60Hz, 4:4:4 Pure Color sub-sampling, Dolby Vision, HLG, HDR10, 3D, BT 2020 pass-through and the latest HDCP 2.3 copy-protection standard. One input is dedicated to 8K UHD, and can pass through 8K/60Hz or 4K/120Hz signals. Some legacy analogue video support (composite and component) is offered too.

Among the surround formats covered are Dolby Atmos (with "Height Virtualization Technology"), DTS:X, DTS Virtual:X, IMAX Enhanced and Auro-3D. There are no analogue balanced inputs, but the processed 11.2 output is available in both XLR and RCA form.

Further details: [www.marantz.com](http://www.marantz.com)



## NAIMED DRIVER

Naim's Control4 Media Driver adds "advanced music-streaming functionality" to a system that allows newer Naim kit to be operated from a "wide range of touchscreens, remote controls and apps... for integration into discreet custom installations".

Apparently, it gives custom-install professionals "even more ways to integrate Naim's award-winning range of music-streaming speakers and systems". The new features include an "enhanced browsing experience" that now gives listeners access to both personal music collections and recommended content on Tidal and Qobuz, a "Favourites" menu for quick selection of frequently-accessed content (such as playlists and internet radio stations), a search feature, browsing of music stored on Naim Uniti Core or UPnP servers, switching of inputs and inbuilt "streaming service credentials".

The upgraded software can be used as a "media driver" that allows browsing and playback of music services, or as a traditional "zone driver" for source-selection, volume-adjustment and other functions.

Naim assures us that "AirPlay 2, Chromecast built-in and Spotify Connect features continue to operate as normal...furthermore, the Naim App and individual product remote controls can still be used".

Further information: [www.naimaudio.com](http://www.naimaudio.com)



## Q GOES ACTIVE

The new Q Active speakers from Q Acoustics' are the company's first ever active speakers. They have been "designed from the ground up to play music from any source – TV, network music streamer, smartphone, tablet, laptop, and even a turntable".

Supplied with both is a central "Control Hub" configured for Google Chromecast or Amazon Alexa, allowing users to connect to a variety of wired and wireless sources via a home network.

In addition to their ability to work as UPnP media players, they support Bluetooth, Apple AirPlay 2, Roon, Spotify Connect, Amazon Music, Apple Music, Deezer, Qobuz, Spotify and Tidal. The Control Hub – that also features a HDMI ARC input for TV sound, optical digital, analogue line-in and a subwoofer output – connects to the speakers wirelessly, via a proprietary lossless 24-bit/96kHz protocol so that "tangles of speaker cables" are avoided.

Available now is the £1,499 Q Active 200, a bookshelf model. Early next year it will be joined by the Q Active 400 floorstanders. Both models feature twin "Balanced Mode Radiator" (BMR) drive units, driven by Class-D amplifiers.

Further details: [www.qacoustics.co.uk](http://www.qacoustics.co.uk)



## SECOND-HAND NEWS

Bang and Olufsen have announced their return to vinyl with the ultimate statement – an updated £9,000 version of the Beogram 4000 belt-driven linear-tracking turntable which looks as cool today as it did when launched in 1974.

Only 95 of them will be made available worldwide. A close read of the B&O bulletin reveals that this is not a brand-new Beogram 4000. They have instead acquired 95 second-hand turntables and treated each of them to a thorough overhaul. The company have applied a distinctive champagne tint, replaced the frames with hard-carved wooden affairs and fitted \$800 SMMC20CL cartridges from the American firm SoundSmith. Additionally, in the Beogram 4000c (as it's called) there is a phono stage. A bargain for B&O fans perhaps...

More information: [www.bang-olufsen.com](http://www.bang-olufsen.com)

## CLEAN SWEEP

New from Furutech is the £230 NCF Clear Line, which resembles a stylish but oversized mains plug. Plug it into "any vacant mains socket...then sit back and relish the improved performance of your audio and video systems".

So what makes it tick? Apparently, it's all down to Furutech's exclusive NCF ("Nano Crystal 2 Formula"), a special crystalline material capable of "generating negative-ions that eliminate static...and also convert thermal energy into far infrared". Also buried within are "air coils designed to draw and damp the vibrations from the socket's electrodes". Unfortunately, there's currently no version with a UK mains plug...

Further details: *Sound Foundations (UK distributor), (01189) 814238. [www.soundfoundations.co.uk](http://www.soundfoundations.co.uk), [www.furutech.com](http://www.furutech.com)*



## RADICAL RUNDSTRAHL

Coming to the UK is a range of "stunningly-unique" omnidirectional loudspeaker systems from the German high-end audio brand MBL. Its most famous product is the 'Radialstrahler'. It's basically a spherical driver with a vertical array of curved membrane segments fixed at the top, and coupled to a linear-motor system hidden in the base. The end result, it has to be said, looks stunning.

Across the past four decades, the Radialstrahler design has been "honed, perfected and advanced". Its "360 degree pulsating sound-wave design" is now available across six models. These range from a bookshelf design – the £9,500 MBL 126 – to the flagship four-tower MBL 101 X-treme that weighs a tonne and, at over £200k, is equally heavy on the pocket. Some MBL models have Radialstrahlers of different sizes to cover bass, midrange and treble.

Further details: *MBL, (0) 30 2300 5840. [www.mbl.de/en](http://www.mbl.de/en)*



# Luna Power

Prima Luna's EVO 400 valve amplifier offers big power. Noel Keywood comes away impressed.



**A**h, the path to power: I reviewed the 40 Watt Evolution 300 valve amplifier in our December 2019 issue and here is its bigger brother for those who want more power – the Evolution series EVO 400 with no less than 70 Watts available on each channel, price £4999.

Bizarrely, I said in my column last month that you don't need high power to either go loud or sound good – and PrimaLuna repeat the very same sentiment in their literature for this amplifier. How to explain?

I've been pushed in the past by requests for high power to produce a 100 Watt World Audio Design power valve amplifier and know how power attracts. If you have a big room, insensitive loudspeakers or a desire to hit 1970s Rock Stadium levels in your home to hear Led Zeppelin as they blew you away long ago – at a concert you went to in your inglorious youth! – the Evo 400 may well be the perfect choice.

What you get with the 400 is double the 300: instead of four EL34 power valves there are eight – it's as simple as that. Correspondingly, the mains transformer and output transformers need to be beefed up so weight increases, the 400 coming in at a substantial 31kg (68.2lbs). It took two of us to handle this amplifier as a result. Yet dimensionally, little has

changed, PrimaLuna shoe-horning

in the new bits onto a chassis that's relatively compact, measuring 386mm (15.2in) wide, 404mm (15.9in) deep and 206mm (8.1in) high. It will fit a standard 19in wide (483mm) rack.

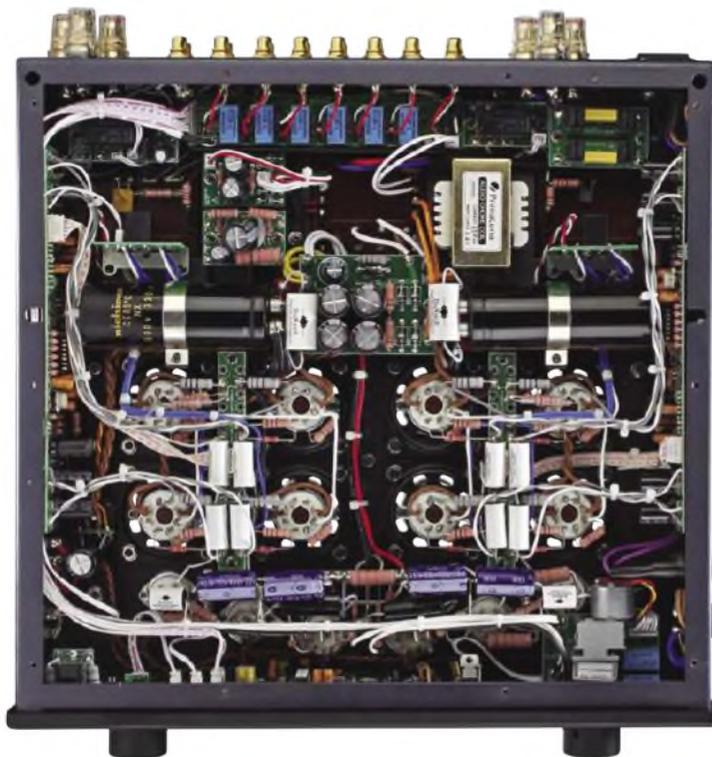
The EVO 400 is an amplifier in simple form. There are no digital inputs, but there is a moving magnet (MM) transistor phono stage slung underneath, as with the 300. PrimaLuna say that at this level it's better to buy good outboard digital sources and phono stages – and I would not disagree. Especially in a valve amplifier that is a hostile environment for low voltage transistors. There are five Aux line inputs via phono sockets, a Subwoofer output, a Tape output and a Home Theatre output that bypasses the volume control – but no balanced XLR inputs.

Loudspeaker outputs cater for 8 Ohm and 4 Ohm types in traditional fashion; nowadays most loudspeakers are rated as 6 Ohms and come with 4 Ohm bass units so technically 4 Ohm is the best match, but some feel 8 Ohm gives best sound – so best to experiment.

There's a remote control for volume and input switching, mute and the Triode/Ultralinear option, where Ultralinear gives rated power output and Triode mode gives what is



"And – oh! – what a glorious sound hit me. It's always great to hear a finely tuned valve amplifier "



**Complex interior, part hard wired, part circuit board. Visible are large black power supply smoothing capacitors (centre), a mini standby transformer (top right) and motorised Alps volume control (bottom right).**

often felt best sound quality, but with reduced power quoted as 38 Watts per channel. Volume is altered by an Alps Blue Velvet motorised potentiometer that rotates in ghostly fashion under remote control – a tried and trusted solution. There is also power on/off on a left side-mounted rocker switch. Awkwardly, to load the remote with batteries (two AAA) two rubber bands must be removed and four small Philips head screws undone, but I guess most dealers will do this.

PrimaLuna use their own adaptive auto-bias circuitry that allows the amplifier to use a range of output valve types, without need for manual bias adjustment. They quote a



**At right lie rocker switches to change bias and switch off output for headphone listening.**

wide range of types from the humble but sweet sounding 6L6, 6L6GC, 7581A, EL34, EL37, 6550, KT66, KT77, KT88, KT90, KT120 and finally KT150 that they call “monstrous”.

The EL34 is their preferred valve, fitted as standard, and it does give a lovely open sound with – as they say – airy treble. The EL34 is also inexpensive at £20 apiece (lot of variation here). I prefer the KT88 for a more solid sound, or the “monstrous” KT150 that is supremely smooth and well worth hearing (the KT90 and 120 are best avoided in my experience, whilst the 6550 is best described as ‘functional’).

Whatever, the EVO 400’s automatic bias circuits make all available for use in this amplifier (and I presume the heater supply can handle eight KT150s). Better, if a valve goes out of line, or even ‘pop’, a warning LED comes on and the output circuit goes into protection.

PrimaLuna design their mains and output transformers, as you must with valve amps, the output transformers in particular being sophisticated and difficult to build items. They are also the key to good sound quality. But fragile and in need of protection should a valve catastrophically fail – so good to see protection in this amplifier.

Internally, the EVO 400 is hard

wired and fitted with specialist components such as Takman resistors. Build quality is – as it has to be – heavy duty to carry the weight of the transformers. A protective valve cover guards against children or inquisitive cats getting burnt but is easily pulled off to put the full complement of valves on display. The standard of finish is high, all controls working smoothly.

### SOUND QUALITY

I connected the EVO 400 to our Martin Logan ESL-X hybrid electrostatic loudspeakers using Chord Company Signature Reference shielded cables. Digital sources were, alternately, an Oppo BDP-205D Universal player, and a Chord Electronics Dave DAC fed by the Oppo through a QED Quartz glass optical cable.

And – oh! – what a glorious sound hit me. It’s always great to hear a finely tuned valve amplifier with high quality components, wiring and all that, because you are immediately faced with stunning clarity and wide open sound staging – and that is



**The EL34 power output valves are arranged in push-pull pairs to achieve 80 Watts per channel.**

what I heard with the EVO 400. So generous and spacious the sound took up big presence in front of me and there was nothing to not like (well – perhaps – see later).

I fell in love immediately, being able to sit back and hear the glories of valve sound expertly wrought. Jan Ackerman singing Am I Losing You (CD) occupied a sound stage suffused with space and light, with breathtaking insight sweetly wrought. The spaciousness of a



**Large, gold plated loudspeaker sockets cater for 8 Ohm and 4 Ohm loudspeakers. A long array of solid, isolated gold plated RCA phono sockets carry inputs and outputs. An MM phono stage option is slung underneath.**

valve amplifier comes from its small component count, plus quality of components used – and here the EVO 400 immediately set out its stall, with dramatic ability. Better, it was sublimely sweet and easy on the ear in best analogue fashion – a flowing and smooth sound, like liquid water. This was using Triode mode, slightly easier and purer than Ultralinear.

I got to hear the bass power available with Josefine Cronholm's In Your Wild Garden (CD) where opening plucked lows from acoustic bass set the room going around me. Bass comes over as strong, well controlled and with subsonic threat;

there were some deep rumblings at times. But it was Josefine Cronholm's vocal that moved forward to become sensually close that I would say defined this amplifier's sheer thermionic ability. Transistors cannot do this.

As the tracks rolled by I loved listening to this amplifier, one streets ahead of most else. But it does have, as delivered with EL34s, the bright, open and airy sound of the EL34. At times I found the patina on the bright and vivid side shall I say: there are smoother if darker sounding valves than this one. KT88s of good provenance manage better and

KT150s carry more thunder but are less aggressive. So as delivered the EVO 400 is spectacular but likely capable of better – in my own valve-head opinion! Nigel Kennedy fiddling on his Stradivarius playing Vivaldi's Spring was brightly lit, that's for sure, but the liquid clarity of the 400 made a feast of his skills.

My valve talk should not detract from the basic fact that the EVO 400 offers sound quality that I revelled in: this is a proper valve amplifier. PrimaLuna like the fast and deeply detailed presentation of the EL34, its sense of airiness and space. I'd stick in a good set of KT88s in my sonic dreams but – hey ho – this is an endless thermionic debate. At least, with valve amplifiers as good as this, able to accept a wide range of valve types, the debate can be had.

**CONCLUSION**

The EVO 400 is a masterclass of valve sound finely wrought. It sets up a massively open and spacious sound stage, has liquid clarity and strong deep bass. PrimaLuna have made it resilient of valve failure with their protection circuits, and also flexible enough to accept a wide range of power valve types. With remote control and a simple MM phono stage it is an analogue power house worth hearing. A step upon from the transistor idiom.



**A rocker style power switch sits at left, along with fuses.**

**MEASURED PERFORMANCE**

Under test the EVO 400 delivered 80 Watts into 8 Ohms (1% thd) in Ultralinear mode and 40 Watts in Triode mode. The same power was delivered into a 4 Ohm load from the 4 Ohm output taps, meaning the 4 Ohm tap is efficiently coupled to deliver same power. Changing bias did not affect these figures.

As with the EVO 300, frequency response in Ultra-linear mode exhibited a +4dB bass peak at 6Hz due to feedback conditions; a reduction in open loop bandwidth usually cures this problem, something PrimaLuna should consider. Triode mode reduces the peak to a more acceptable +2dB, likely due to lower feedback. It also reduces high end extension from 44kHz (-1dB) to 34kHz, again a result of lower feedback. As I said with the 300, whichever mode is chosen the amplifier will appear to have strong low bass, especially with LP where warp signals peak at 5Hz.

Distortion in the midband measured a low 0.03% at 1 Watt and 0.2% just below full output. Distortion at high frequencies (10kHz) was low as well,

around 0.14% at 1 Watt and 1% at full output. Bass distortion was very low at 0.14% at 40Hz, 1 Watt, rising to 0.3% 12 Watts with full 80 Watts available at a 1% upper limit. This is a very clean bass performance.

Output impedance measured 2.3Ω, giving a damping factor of 3.4 in Ultralinear mode. Surprisingly, figures were a tad better in Triode mode at 2Ω and 3.8. Both are 'poorer' figures than that of transistor amplifiers, but really this is dependent upon loudspeaker acoustic damping.

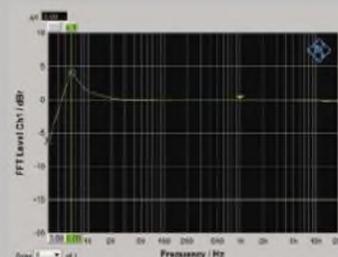
Noise measured a low -96dB, hum being all but absent.

The EVO 400 has low distortion and plenty enough power. Bandwidth is wide but the bass peak needs taming for LP use. **NK**

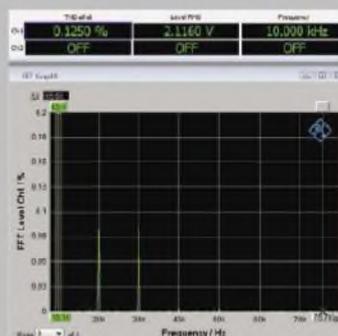
<b>Power (8 Ohms)</b>	<b>80 Watts</b>
<b>Frequency response (-1dB)</b>	<b>15Hz-44kHz</b>
<b>Separation</b>	<b>69dB</b>
<b>Noise (IEC A wtd)</b>	<b>-96dB</b>
<b>Distortion (10kHz, 1W, 4Ω)</b>	<b>0.14%</b>

<b>Sensitivity</b>	<b>0.37V</b>
<b>Damping factor</b>	<b>3.4</b>

**FREQUENCY RESPONSE**



**DISTORTION**



**PRIMALUNA EVOLUTION 400 £4999**



**OUTSTANDING - amongst the best.**

**VERDICT**

Massive sound stage, supremely lucid and detailed. An exciting sound, beyond most else.

**FOR**

- spacious sound
- powerful bass
- protection circuitry
- compact form

**AGAINST**

- very heavy
- no XLR input

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# Classic again

Spendor's new Classic 4/5 loudspeaker is an update of the renowned BBC LS3/5A mini-monitor. John Pickford enjoys.



**T**here are no prizes for spotting that Spendor's new mini-monitor is designed along the same lines as the classic BBC LS3/5a. The smallest

model in the company's Classic range, this shelf or stand mount 4/5 is similar to the legendary BBC design in several ways. It's a small two-way loudspeaker in an infinite baffle (sealed box) enclosure and

is best fed a decent chunk of clean power. We measured sensitivity as 82 dB/Watt, which is the same as LS3/5a, give or take half a decibel, yet below average even for small speakers like these. Forget driving

them with low-powered SET valve amplifiers then; you'll need something gutsier to make these 'speakers sing. I have successfully driven the LS3/5a with a Leak Stereo 20 valve amp, albeit at moderate volume levels, however I find the Naim Nait XS 3 a more comfortable fit.

Spendor doesn't trumpet the Classic 4/5's BBC heritage even though the company is steeped in its history. Founder Spencer Hughes was a BBC Research and Design Engineer in the 1960s and later, along with several other manufacturers, Spendor built the LS3/5a under licence.

There are still official LS3/5a models available today, but there are other loudspeakers – Harbeth's P3ESR springs to mind – that seek to improve on the original design, as does the Classic 4/5 I'm reviewing here.

Measuring 308mm high, 190mm wide and 165mm deep, the Classic 4/5 is almost identically proportioned to the LS3/5a, being a fraction less deep. My review samples looked traditionally smart in their Walnut finish – Cherry is also available – and the nicely angled gold-plated terminals are of a much higher quality than you would find on any of the historic BBC derived designs.

All of the Beeb's LS series of monitors were designed for use with grilles in place, however the Classic 4/5's magnetically attached grilles can be removed for critical listening. Leaving them on will not completely hamper performance but expect a slight veiling of treble frequencies, something these

speakers can do without.

Anyone who has seen an LS3/5a without its grille in place will know it's not a pretty sight, what with the ugly (yet useful) foam surrounding the tweeter, so it's a relief that Spendor's design does not call for visually unattractive components on the front baffle.

What you see is a 22mm polyamide dome tweeter sitting above a 150mm EP77 polymer woofer. These proprietary drive units are the product of Spendor's own R&D department, so as much as they owe to vintage design, the Classic 4/5 is very much its own loudspeaker.

For those who haven't previously read chapter and verse

where my Rogers LS3/5a (11 ohm version) usually sit. Positioned a tad over two metres apart with a similar distance from the listening position, this really is nearfield

"Drake's haunted vocals were presented clearly – and distinct from his fluid guitar playing"

about the BBC mini-monitor, it was designed for use primarily in the Corporation's Outside Broadcast vehicles. In other words, its

performance was tailored specifically for use in small spaces and this is also where the Classic 4/5 works best. Its petite dimensions and hunger for power means if you wish to fill a large room with fulsome sound you would be better off with one of the many larger speakers Spendor offer in their Classic and other ranges

I tested the Classic 4/5s atop solid Target stands

monitoring. Perfectly socially distanced you might say.

Partnering equipment included a Goldring Lenco GL75 turntable and a Trichord 'Clock 4' modded Pioneer CD player plugged into a Naim Nait XS 3 integrated amplifier; cabling courtesy of Chord Company's Shawline.

As this style of monitor majors on the accurate reproduction of human voice, I began by spinning Nick Drake's Pink Moon (Island 1972 vinyl), a solo voice/guitar recording with a touch of overdubbed piano here and there. The Classic 4/5 is in its element with minimalist arrangements such as this, with Drake's haunted vocals presented clearly and distinct from his fluid guitar playing. The subtleties of his fret work can be easily masked on systems built for power and projection rather than nuance and detail, so nothing was missed here as the Spendor's fall



**The 150mm polymer mid/bass driver is Spendor's own in-house creation. No out-sourced drivers are used in the Classic 4/5 mini-monitor.**



**Spendor's polyamide dome tweeter is voiced for smooth, unhyped treble. Toeing in towards the listening position gives optimum results.**

firmly in the latter category.

Switching to CD for a blast of Radiohead's *Paranoid Android* (Parlophone 1997) took the Classic 4/5s out of their comfort zone. Finely etched detail was presented starkly during the quieter passages, however when the band kicked-in with all guitars blazing, the absence of the lowest frequencies was obvious. I've heard this track reproduced through small, ported bookshelf speakers – the type voiced to sound like they've got a built-in Loudness button – and often the output from the port adds bass quantity at the expense of quality. The Classic 4/5 may have little in terms of bass extension but what you get is fast, clean and tuneful, so the vitality and integrity of the performance is not compromised.

Tonal integrity is excellent too, with a smooth, seamless transition from the speaker's low-end into the broader midrange/treble and up to the highest frequencies. Although the Classic 4/5 sounds smooth, with none of the hyped treble many modern monitors exhibit, the top end is slightly cool in character. Think of it more as a glossy sheen rather than sweetly sparkling in the range where reverb and other ambient cues reside.

I noticed this when listening to The Michael Garrick Sextet's *Prelude to Heart Is A Lotus*, recorded at the BBC's Maida Vale Studios in 1968. This is a superb stereo recording, cut on a Haeco Scully lathe for vinyl release by Gearbox Records in 2013, using an all-analogue, valve based mastering suite no less. Garrick's harpsichord and Ian Carr's muted trumpet sounded playful enough, if a little more coy than I am used to. A repeat spin through the LS3/5a presented a fruitier take on proceedings.

While both my Rogers and these new Spondors exhibit the traditionally svelte sonics of the iconic BBC mini-monitor, the Classic 4/5 proffers a drier sound. At first this style of reproduction may seem underwhelming, especially in a side-by-side test with a juicier sounding speaker, however it proves a better long-term listen than some of the more bombastic designs available; the Classic 4/5 has impeccably good manners.

No one is going to buy small loudspeakers such as these



**No bass-reflex port on the Classic 4/5 as it's an infinite baffle design. The nicely angled speaker terminals are better quality than those on ancient BBC monitors.**

expecting to hear the full scale of a symphony orchestra or the slam of heavy rock. However, if your tastes lean more towards string

quartets and singer/songwriters and you don't have a large room to fill with music, you may find Spondor's brand of honesty is the best policy.

## MEASURED PERFORMANCE

Spondor's small Classic 4/5 did have a classically smooth response under measurement, meeting BBC criterion from long ago. So no raised treble here, just a smooth result from 100Hz up to 18kHz our analysis shows (ignoring a peak at 300Hz which is a floor return in this near-field response, not evident in a far field response). High frequency dispersion from the tweeter and small cabinet were good, with small loss off-axis (our result is on-axis). This makes the 4/5 insensitive to positioning – and it was phase stable vertically too.

There is no port (hence no port output trace in our analysis) and as a result of this and the small cabinet, bass rolls off below 80Hz, being -10dB at 50Hz. There will be no deep bass

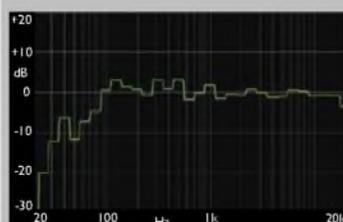
as a result, but the resonant modes of small rooms – less than 14ft long – will boost low bass to give a credible result. Lack of a port means no port problems, translating back to a damped (tight) sound lacking waffle. It also means the 'speaker is best moved back against a wall for best utilisation of 'room gain'.

Small loudspeakers are insensitive and the Classic 4/5 was no exception, delivering a mild 82dB from one nominal Watt (2.8V) of input. It will need at least a 60 Watt amplifier to go loud but much more than 100 Watts will likely be too much. Not a loudspeaker for very high volume but in a small room still able to go loud.

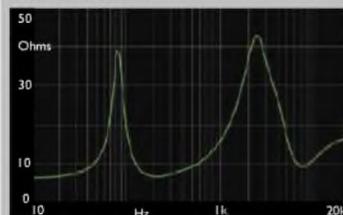
As a load, the bass unit has a relatively high d.c. resistance of 6 Ohms, as our impedance trace shows at far left (10Hz) and a multimeter confirmed. The reactive peaks, comprising bass unit at left (80Hz resonant peak) and crossover between bass and midrange (2.4kHz) at right, raise overall impedance to a high 9 Ohms, making the Classic 4/5 a very light load by today's standards, where 4-6 Ohms is common. This is, however, contributory to low sensitivity – the reason why it needs power (voltage swing) to go loud.

The Classic 4/5 measured as expected from a BBC derived classic, meaning smoothly accurate. It is insensitive and best used as a reference monitor in small rooms, as the 3/5 was originally intended. **NK**

### FREQUENCY RESPONSE



### IMPEDANCE



## SPENDOR CLASSIC 4/5 £1,600



**OUTSTANDING** - amongst the best

**VALUE** - keenly priced

### VERDICT

Accurate yet relaxing for long-term listening pleasure, music is reproduced naturally without excessive brightness or low-end flub.

### FOR

- smooth and inviting sound
- traditionally and honestly balanced
- classically elegant appearance

### AGAINST

- lacks bass weight
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# A reel life story

Martin Pipe talks to Laszlo Gaal from Tone-Pearls Records, a petite French operation that issues audiophile recordings on reel-to-reel tape.



**A**s all Hi-Fi World readers are aware, vinyl records have been doing spectacularly well for a format that was considered 'dead' in the 1990s – you can even buy LPs in supermarkets nowadays. Some may also have heard that prerecorded cassettes have recently been making a comeback too, with sales that – although tiny when compared to downloads – have been at their highest level for nearly twenty years.

But might another analogue format be due for revival? I'm referring to the original quarter-inch reel-to-reel tape, which had by the 1970s been displaced by more convenient and user-friendly

cassettes in most homes.

At the heart of both is the same magnetic recording technology. The cassette uses tape half the width of open-reel, on which are recorded narrower tracks at a slower speed, enclosed within a protective shell. The wider tracks and faster recording speed of open-reel gives it far more potential. The cassette was purposed for dictation by Philips; it only became a hi-fi medium through hard work and the application of new technology. Among the latter were noise-reduction systems like Dolby B.

Some specialist labels, such as Cookie Marenco's Blue Coast Records, capture performances on analogue tape but issue the final result as a hi-res

download. Others sell existing recordings on quarter-inch tape, using the 'professional' half-track stereo format (where the left and right channels occupy the entire tape width) and 15ips speed. These recordings can be ridiculously expensive, at £300-£400 a throw, but are claimed to be master-tape copies.

However, I recently got wind of a small European record label – Tone-Pearls Records – that not only records new music on analogue tape using the minimum of post-production trickery, but also issues the final product on analogue tape in addition to the usual formats. I recently caught up with Tone-Pearls founder Laszlo Gaal Ph.D, who was happy to put up with my questions!

**(Martin Pipe MP)**

Your latest release 'Hungarian Songs in a Chateau' consists of chamber pieces by Bartók, Dohnányi and Ligeti. They were performed by the soprano Anne Sophie Petit, accompanied by pianist Marcell Vigh. Could you please share with us details of the recording?

**(Laslo Gal LG)**

The session took place in the Château of Longecourt's grand rococo salon. It's near Dijon, in eastern France. We looked for somewhere that suits chamber music and has an excellent musical atmosphere. In our view, a venue with a long (musical) history sounds better than new and modern one! We are fortunate with this salon, which was rebuilt in the 18th century - the architect responsible used a specific variation of the golden-ratio in its design and construction. As a result, the room is ideal for chamber music.

We spent a lot of time working out the ideal positions for the Bechstein piano, singer and microphones. The process may be extremely time-consuming, but it's of crucial importance because it essentially determines the final result.

Our next step is unique. Having found the most ideal arrangement, we placed our Tone-Pearls — etheric tone generators that create an appropriate medium for musical tone — in different positions, according to the principles of music and space. More time was then spent refining the arrangement of everything in the room. Only then were we ready to record, with a small and selected audience in the salon. The pieces were recorded in one session.

**(MP)**

How were the sessions recorded? What equipment did you use?

**(LG)**

We are totally analogue! Music was captured by a single pair of AKG C 414 Limited Edition microphones (in a ORTF stereo configuration). They directly-fed a Nagra IVS reel-to-reel tape recorder, via Vovox cables. The Nagra recorder was powered by batteries, so as to avoid any electrical noise.

However, for Hungarian Songs in a Chateau, the Nagra served purely as a microphone preamp because I like its sound! The Nagra's output was connected, using Nagra cable, to a Lyrec PTR-1 "Frida" tape recorder. In my view, the Frida's sound is terrific — probably the best I've ever heard from tape. It's a half-track stereo studio machine that runs at 15ips and can be switched between the CCIR/IEC and NAB equalisation curves.

Before we started using the machine to make recordings, it was completely-refurbished and aligned for the tape stock we

use. That's RTM SM468 — and we have plenty! Recording takes place at 15ips, with CCIR/IEC equalisation. There's no noise reduction, no additional cables, no further connections. The recording was monitored with Audio Technica Raffinato headphones. After the session, we played the recordings through a VAC Avatar Super tube amp and Sonus Faber Guarneri speakers.

**(MP)**

What about editing? Was this accomplished by carefully-splicing recorded tape rather than capturing it with a workstation for easier manipulation in the digital domain?

**(LG)**

No editing or post-processing is used... we do not electronically manipulate the recording in any way. Once the recording is ready, we create a 'master' from the original tapes by splicing the tracks in the desired order as necessary. Since we record entire movements or works in one take, there is no need to piece together tracks from multiple recordings. The master is assembled from the original tapes. It is not a copy at all... it's similar to a 'direct cut'. As you know, with most commercial releases the original "master" is usually a first (or even second!) generation copy of the original tape!

**(MP)**

OK. We now have our master tape. How is it duplicated? In real-time using a bank of recorders fed from the master player, via a stereo distribution amplifier? What machines make the copies? How many copies do you run off at a time? Or is everything done 'to order'?

**(LG)**

We do indeed make copies 'to order'. As we're working from the master tapes, we can offer true first-generation copies of the original 33-minute recording. Availability is limited to 150 copies, to avoid deterioration, and copies are made on a 'one-to-one' basis. Our goal is to keep duplication as simple as possible. The original tape is played by a Studer A807, which has also been calibrated for RTM SM468. It is directly connected to our Lyrec PTR-1 — the same machine we used for the session — which we used to make the copy, on fresh SM468 tape at 15ips. I decided to do it this way round instead of the opposite (i.e. the Lyrec as player, and the Studer as recorder) because I prefer the Lyrec's recorded sound. The quality of the duplication is always the same.

We offer our tape in three different packages — NAB metal spool, 'Trident' plastic spool and NAB pancake...of course, the prices vary accordingly. These tapes are quite expensive — the plastic spool version is 179 euros — but so too is tape these days.

(Editorial note: the media alone — a Trident spool of fresh RTM SM468 — sells for nearly 40 euros!)

**(MP)**

To get the full benefit of your recording, what would you say is the minimum 'standard' for a playback machine?

**(LG)**

There is no minimum! The playback machine should be of course be quarter-inch, half-track. It should run at 15ips, and support CCIR/IEC equalisation. The better the machine, though, the better the sound! If the machine is well-maintained and the tape path is okay, there is practically no limit to the number of times a tape can be played. I have tapes that I've played back at least 100 times — with no audible deterioration.

**(MP)**

Ah yes, equalisation. Why do you use IEC, rather than NAB? If you are copying to order, then why not also offer a NAB version (this would be appreciated in the US and Japan!). Not all machines, it should be borne in mind, can be switched between the two characteristics.

**(LG)**

It's because I think IEC results in better sound — of course there is always a debate about this! This is why we use IEC EQ for the original recording. However, if requested we can use the NAB curve...or even produce 7.5ips versions!

**(MP)**

Some very expensive new machines (Ballfinger, Metaxas) are now available in miniscule quantities. Most of the high-end machines in use are vintage consumer types (e.g. Revox, Technics, Teac) or ex-broadcast/studio decks (e.g. Studer, Ampex, Nagra) sometimes with modified electronics. What are your thoughts on these? What, in your view, is the best-sounding reel-to-reel machine?

**(LG)**

I am in a very lucky position, because one of my friends has one of the world's most complete tape-recorder museums! This allowed me to try out several tape recorders. I've had no experience with the new machines you mention, and I also missed the Nagra-T and Stellavox line. My present preference is





for the Lyrec PTR-1, followed closely by the Nagra IV-S and the old 'tubed' Philips EL3501 studio recorder. Studer decks are very useful, and good-sounding as well. I have found that even a small Revox A77 or B77 can produce a super sound!

**(MP)**

How do your tapes compare with digital, in terms of sound quality? I note that you're selling hi-res (and, for that matter, CD) versions for a tenth of the tape price. What is lost, in terms of musical enjoyment?

**(LG)**

The bottom line is that tape sound is superior. I have a relatively-good CD player (Esoteric) and turntable (a Clearaudio Champion, equipped with Audiomod Series VI tonearm and Benz Micro LP MC cartridge). Nothing, in my view, compares to tape. Vinyl cannot be better, as it is an nth generation copy of the original master tape. We will however also be offering Hungarian Songs in a Chateau as a 180gm LP - we sent our first-generation tape to the pressing plant. The DMM (direct metal master) is produced directly from the tape — this is the first transformation. A stamper is

produced — the second transformation. Finally, the vinyl is pressed by the stamper — the third transformation. Of course, if you cannot find master tapes, listen to vinyl...preferably from the sixties!

Analogue versus digital is an old debate! If you are a tech guy, you will quote a lot of numbers to explain why DSDxxxx or PCM at xxxxxkHz is better. It is however not about numbers — it is about the music listening experience. How do I see digital personally? I was a brain researcher and had experimented using the brains of animals. In one experiment, we used a rat's brain that had been sliced by a micro-chopper. The brain was cut into thin slices, yet it seemed to be perfectly-intact. It's the same with digital music; it's sliced up, and seems to be intact — but it isn't, it's dead!

**(MP)**

As regards analogue, I note that you're also offering your music in cassette format. What tape are you using for this? Ferric, chrome or metal? I note that you don't appear to be using any noise-reduction. Won't hiss be problematic at this slow speed, especially when the revealing nature of the source material is factored in?

**(LG)**

The cassette is only an experiment - I'm trying to establish what the demand is for music cassettes. I've been trying RTM's new FOX C60 — this contains Type I (ferric) tape — and have found it to be excellent and reliable. We don't use Dolby, because it deteriorates the sound. As the FOX tape is not noisy, we have no need for Dolby.

**(MP)**

What other recording projects are in the pipeline?

**(LG)**

Music and recording is my passion...but this is only a hobby for me. I hope I'll find time to make new recordings. We plan to record more chamber music in the Château of Longcourt, with young musicians. The vinyl version of Hungarian Songs in a Chateau is currently in production, and will be released in December. Unfortunately, the grand rococo salon we prefer has no heating...it remains to be seen when can we make our next recording there!

*Further details: Tone-Pearls Records, [www.tonepearls.com](http://www.tonepearls.com)*

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jacket, again chosen to reduce unwanted mechanical noise.

The conductors are also twisted together in a braid-like construction – and if that makes them sound a little unwieldy then fear not. I found them easy to route even in the tightest of spaces and the quality of the banana plugs is exceptional – gripping tightly to an amplifier's 'speaker outputs.

At this price the Chord Epic XLs deserve to be used with top-notch electronics – so I plugged them into an Icon Audio Stereo 30SE valve amplifier feeding our resident Martin Logan electrostatics (a match made in audio heaven) with sources including CD, a high-resolution DAP

(digital audio player) and streaming via Spotify, Tidal and tracks stored on my laptop computer.

The first thing I noticed when plugging in the Chords was the quality of the bass. No, it's not overpowering nor overly potent but simply potent and tuneful. It provides a solid foundation for all the instruments that float above.

Which means the guitars and vocals on 'Debaser' by The Pixies took on a greater presence – indeed Black Francis' lyrics were more intelligible with a less shouty character".

For a chance to win this great prize, just answer the four easy questions at right. Send your entries on a postcard only, by 8th December 2020 to:

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## QUESTIONS

- [1] PVC minimises ..  
 [a] mechanical noise  
 [b] marauding mice  
 [c] low temperature  
 [d] ultra-violet radiation
- [2] The shield is -  
 [a] polyurethane  
 [b] mild steel  
 [c] foil  
 [d] paper
- [3] The conductors are -  
 [a] kept apart  
 [b] widely spaced  
 [c] woven tightly  
 [d] twisted together
- [4] Black Francis' lyrics were -  
 [a] vague  
 [b] more intelligible  
 [c] mellifluous  
 [d] ethereal

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**SEPTEMBER 2020 WINNER: iBASSO DX120 HI-RES PLAYER  
Mr. Len Daniel of Birmingham**

LETTER OF THE MONTH PRIZE

# Mail

Visit our website at [www.hi-fiworld.co.uk](http://www.hi-fiworld.co.uk) or send your emails to [letters@hi-fiworld.co.uk](mailto:letters@hi-fiworld.co.uk). Letter of the month wins a pair of KEF Q150 bookshelf speaker

Answers by: NK - Noel Keywood; PR - Paul Rigby; MP - Martin Pipe; DT - Dave Tutt; JP - John Pickford.



## KEF Q150 BOOKSHELF SPEAKER

<https://uk.kef.com/products/q150-bookshelf-speaker>

[subject to availability - Satin Black / Satin White]

**A PAIR KEF Q150 LOUDSPEAKERS are on their way to DR. RUSSELL SCEATS, Letter of the Month winner in our NOVEMBER 2020 issue.**

### Letter of the Month

#### I BOUGHT ESL-X

Having upgraded to a level commensurate with your august journal, meaning vinyl only LP12 turntable, EAR phono and power amplifiers and – thanks to your consistent championing – Martin Logan ESL-X hybrid electrostatic loudspeakers, I now find myself reading not about hardware, but around the subject (at least for a while, I guess). Which is where wonderful articles like Martin Pipe's this month are so educational and entertaining and afford something to aspire to. Bravo!

Incidentally, having moved house recently, I have to say that the listening room probably affects what I hear more than I would ever have imagined – so put 'how to tweak' on the slate, please.

Re last night's e-mail: too wrapped up in a glass of whisky I think. It could easily have been Paul Rigby who is every bit as entertaining.

Very best wishes

**Nick Powell.**

Hi Nick. Er – which article was that? Time to take up Alcopops methinks!

With EAR phono stage and power amplifiers driving Martin Logan ESL-X hybrid electrostatic loudspeakers you have a fantastic system. Guess you are celebrating.



Nick Powell upgraded to Martin Logan ESL-X hybrid electrostatic loudspeakers. But "I have to say that the listening room probably affects what I hear more than I would ever have imagined". See our box-out on this subject.

Just make sure the cartridge in the LP12 is a good one. And don't attempt to make a change late at night :-).

Since you – and Graham Taylor in the following letter – are both interested in the use of open panel loudspeakers at home, see the small box-out here on the issues. **NK**

### MAGNEPLANAR LRS

*I am writing to ask for some information about the Magneplanar LRS speakers. I have e-mailed you in the past and you surprised me by publishing the letter. You probably don't remember it but you titled it 'Up North' and that meant a lot to me. Thanks.*

*I would like to know the suitability of some of my equipment with these speakers before I look into buying a pair as your recommendation for them is a great start for me. I have read Hi-Fi World since issue 2 or 3 (I unfortunately missed the first couple) so I know that you and I have similar tastes in sound and equipment.*

*Here is a list of what I could use them with. A pair of Rotel RB 970 BX high current power amps (60 Watts per channel) and they are bridgeable to more than double that. Would these be OK into a 4 Ohm load?*

*I also have an Oppo BDP 105D universal player, Audiolab M DAC and Chord Mcjo/Poly DACs. The Mcjo/Poly and Philips Fidelio X2 cans are my current headphone set up and I personally think they produce a brilliant sound.*

*My audio room measures approximately 17ft long 14ft wide and 10ft high with solid walls on all sides.*

*I realise that with the current Covid 19 crisis you must be very hard pushed at the moment, so if you can't manage to reply I will understand completely but if you can I would greatly appreciate your advice. Keep up the good work on the mag.*

*Thanks and take care*

**Graham Taylor,  
Cumbria.**

Hi Graham. The RB 970 BX is rated at 110 Watts into 4 Ohms and when bridged it will be double that. So you have enough power to go loud when not bridged, but you may prefer the sound when bridged all the same. The Magneplanar LRS is a 3.5 Ohm resistive load our measurements showed (September 2020 issue) and your Rotel will handle this easily.

Thankfully we are not hard pushed by Covid 19. We all suffered "a winter bug" back in February and

## Open Panels And Room Acoustics

Open panel loudspeakers radiate sound backwards as well as forwards. And that's part of their design. Rear radiation is deliberately lost into the room; it doesn't bounce back from the inside of a box and out through the drive unit as a time-delayed echo, as in box loudspeakers. That's why open panels sound so clean.

So the rear radiation is ideally lost (in practice it is attenuated). This is something that can be controlled by simple methods. Manufacturers will advise that the panel is kept at least 1m from a rear wall and from my experience I suggest some absorption of the rear sound using a wall hanging or curtain behind the loudspeaker. Alternatively, you can buy acoustic panels from Studiospares. Absorbing sound will dampen reflected treble and darken the sound. Foam panels are cheapest at around £6 each but you may need many, or there are 1200x600x25mm floor standing StudioPANELs at £34.99 each that look suitable (I have not tried them). You could even try foam blocks.

Alternatively, you can diffuse the rear sound; this was the idea behind the use of cardboard egg boxes long ago. Look ugly but can be covered by cloth. Bookshelves are often quoted as diffusers, or you can buy diffusion panels from Studiospares. Diffusion better retains sonic balance and is preferred by many, but best to experiment. Diffusers are more expensive than absorbers. See GIK Acoustics for an interesting range, with prices from £104 for the 1200mm high FlexFusor.

Make sure any rear treatment surface is not too close to the loudspeaker or it will become audible. I once hung a rear carpet felt curtain behind Quad ESL-63s and it was clearly audible closer than 6in away – then moths ate it. Stay away from long-haired wool!

Martin Logan have two short and simple videos on their website about setting up electrostatics and they are worth watching. Note their use of sound absorbing panels behind the loudspeaker, and on side walls positioned by use of a mirror. I have successfully used small rugs on side walls, hung from picture rails – colourful and inexpensive.

A full range open panel like the Magneplanar LRS will not go low, because of low frequency cancellation that occurs around an open panel. However, if the room has a resonant length mode in the 20Hz-40Hz region this will help strengthen low bass by what is termed "room gain". Panels do not suit small rooms because of the space they take up (although a rear absorber helps keep the speaker close to a rear wall). Graham Taylor's room, at 17ft long, 14ft wide and 10ft high is just about ideal. Our analysis using a room mode calculator from Infinity/JBL (free on the 'net) shows room gain at 33Hz and 66Hz (second harmonic) – right where it is wanted. The LRS looks good for his room.

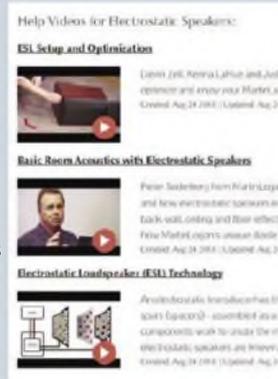
And finally a geeky point. Placing panel loudspeakers against a side wall acoustically increases panel area, deepening bass (Peter Walker, founder of Quad, told me this one long ago – so it comes from the horse's mouth!). I have heard very good bass from Quad ESL-57s placed against side walls in a long narrow room: it works. However, carpet was used to lessen high frequency wall reflections. May be worth experimenting. **NK**



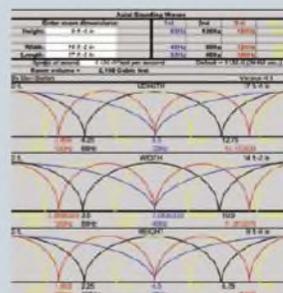
**Studiospares  
1.2m high  
StudioFANEL  
absorbs rear  
sound.**



**GIK Acoustics  
1.2m high  
FlexFusor  
panel  
disperses rear  
sound.**



**Martin Logan  
post some  
interesting  
short videos on  
their website  
about open  
panel room  
matching.**



**Room size  
analysis  
suggests  
Graham  
Taylor's room  
is suitable for  
Magneplanar's  
LRS  
loudspeaker.**



**Magneplanar LRS 'speakers. "I am writing to ask for some information" says Graham Taylor.**



**Rotel RB 970 BX power amplifier. Graham Taylor asks "Would these be OK?"**

are alive and well, as are all around us. Commercially though, the affect of lockdowns on businesses and jobs is painful to see.

Listen to the LRS before purchase, because it is a panel loudspeaker, like the Martin Logan ESL-X we use as a reference in the office. Open panels have a different presentation to closed boxes, so ensure you can make the subjective change over. You will find the LRS to be enormously revealing and cohesive however – way beyond any box at

the price, or arguably at any price. And let us/readers know what you think! **NK**

**AMPLIFIER POWER**

*I have to take issue with Noel (again). This time in relation to power and his assertion that it is given too much importance. If I read Noel correctly he believes that low power, probably valve amplification, is cheaper to build and more reliable or easier to repair than large, high output, power amplifiers.*

*I hope most readers will be aware that speakers have differing sensitivity (to power input). The average British home has, in the broadest sense, small rooms. These necessitate small, stand mounted speakers. Not only because of the space they take up, visually and practically, but also because larger boxes typically deliver better (read louder) bass. Small rooms and big bass do not mix.*

*The best system I have ever heard – and I have heard a lot –was very low output valve mono amplification into very big horn speakers. The room was Village Hall size. Absolutely fabulous and unforgettable. My very small room accommodates ATC 19 speakers. Sealed and VERY inefficient. Driven for a while by a Nord Amplifier and latterly by a Marantz KI Signature Amplifier. Both Class D. Both very high output. Quite the best reproduction I have had in 50 years of upgrading.*

*If I could get close to the reproduction I heard from the valve/horn speakers (Village Hall) in I my room using valves and high sensitivity speakers then I would bite your hand off. Many years of hi-fi shows and dealers demos suggest strongly that my wish is unobtainable. Of course. I could be wrong?*

*Kind regards*

**Andy Andrews**

Hi Andy. A typical modern stand-mount loudspeaker comes in at 86dB sound pressure level (SPL) from one Watt of input. A smaller bookshelf



**Marantz PM-66SE KI Signature amplifier, used by Andy Andrews.**

will measure 84dB or so. In a small room where the loudspeaker is close to the listener these sensitivities are sufficient for high volume from low power. And the problem with small loudspeakers is they don't accept high power in any case; small voice coils overheat and burn out. That's the most common failure mechanism.

Your ATCs may be insensitive and perhaps able to absorb high power, but they are the exception rather than the rule.

And do you know how much power you are sending into them? If you have a Marantz PM-66SE KI Signature amplifier then it is 50Watts maximum – and certainly not Class D. Designer Ken Ishiwata would have fainted at the thought. **NK**

### BENNY GOODMAN EQ

An interesting letter from Robert Parsons (October 2020, p.28) but I fear that he can't be right about the equalisation of the 1987 reissue of Benny Goodman live at Carnegie Hall 1938. This was issued on LP, CD and cassette and states on the sleeve "digitally remastered from the original analog tapes". These tapes were transferred from the original acetates most likely onto an Ampex reel-to-reel which would have used the Ampex equalisation (later to become the NAB standard). The Columbia LP EQ Curve would have been applied by the electronics of the cutting lathe to the stampers used to make the LPs. The tapes themselves would not have the Columbia LP equalisation.

Columbia themselves changed to using RIAA equalisation sometime in 1955 and the lathes they would have used for the 1987 LP reissue could only have had RIAA equalisation. If the 1950 tapes had had Columbia LP equalisation, the CDs and cassettes would have sounded most peculiar.

Best wishes

**David Mansell**

### UK DJs

It certainly seems as if the BBC are losing the plot at times. Don't get me wrong; I'm happy to pay my licence fee for advert-free telly (I just wish there weren't so many BBC adverts for other programmes – but I digress), but with the inane R1 DJs playing inane music, R2 trying to be R1, R3 moving away from the mainstream (why don't they try to compete with Classic FM just a bit?), R4 upsetting the Politically Correct brigade with this or that comment, and R5 being, well, R5, plus TV becoming more moronic and dumbed-down (apart from BBC4), I just shake my head in



**Benny Goodman live at Carnegie Hall (1938). Columbia equalisation on the LPs only, not the master tapes, says David Mansell.**

wonder, switch off and put an album on.

Such an album could be the eponymous first U.K. album (listening to as I type), taught to me by (when R1 DJs could be good, music education speaking) Alan Freeman, along with the legend that was John Peel, and Tommy Vance – alas all now long departed – making sure my knowledge of good quality rock (and electronic, reggae, some punk, and the esoteric – J.P. again) was growing happily. Now it seems to me it's simply a case of who can shout the loudest, or have the biggest posse, and is it a wonder/surprise that my music education has ground to a near



**The first U.K. album. "Quality Rock" says John Malcolm, "taught to me when R1 DJs could be good".**

halt – or is it simply my 59 years of existence?

I listen to music, on albums (be they digital, CD or vinyl), without adverts, without mindless jabber (apart from my own) and, most of all, for my pleasure. That's what music, and a good system to listen with, are for (OK so I'm missing out live music, but in the current situation...). So when young Mr Tutt name checks one of my favourite prog bands I just have to write and say 'thank you, and have you got their other studio album, the a-bit-more-commercial

Danger Money?' Ahh, great days...

Yours sincerely

**John Malcolm**

### HANA SL CARTRIDGE

I have a Hana SL cartridge with Trichord Dino MK3 phono amp. The SL cartridge has a loading of 400 Ohms. What is the best setting for the SL on the Trichord? Kind regards

**George Height**

Hi George. The Hana SL has a 30 Ohm coil and the rule of thumb is a load ten times larger than the generator, so 300 Ohms. Hana recommend 400 Ohms to be safe. On the Dino MK3 select 1000 Ohms. You could try the 100 Ohm option; this will reduce output a little but sometimes under-loading an MC cartridge gives a slightly more damped sound. **NK**



**Hana SL cartridge. "What is the best setting for the SL on the Trichord?" asks George Height.**

### INVOLVE SURROUND MASTER V2

How I got Involved during lockdown and enhanced my surroundings. The last Hi-Fi World magazine I received prior to lockdown had a small article regarding an Australian Company named Involve Audio. The Company had produced a piece of equipment called Surround Master V2 that would decode 1970s SQ LP discs as well as intelligently synthesise four or five channels from a stereo/QS/UH-J source.

I have had a long time interest in multi-channel starting with, as a teenager, experimenting with a Hafler circuit whereby the positive connections from a loudspeaker stereo pair were connected to a third rear speaker which would reproduce the difference signal from the stereo source.

I also have a sizeable collection of SQ/QS/UH-J discs so this little box from Involve was of considerable interest.

Your magazine reasonably assumed that the quoted price was in Australian Dollars making the UK price (+import

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duties) around £330 and that I was willing to spend even though I had never personally imported anything before. However, when I went to the Involve website I could only find a price of US\$ 599 which would have translated into a much higher cost to me.

I e-mailed Involve in Victoria Australia to ask where on their website was that quoted AUS\$ price. To my disappointment one of their engineers replied that the company only quoted in US\$ as this was their main market. I replied that the cost would then be too high to consider ordering the Surround Master after all.

I then had a further reply offering me two discount codes which amounted to a reduction of US\$ 150! So I went ahead and ordered one and despite serious Covid problems in the Melbourne area I finally received it after about three weeks and after paying US\$60 p&p plus £63 UK VAT.

It came to quite a lot of cash in the end but it really does work amazingly well and I am very pleased with it even after going through a rather truncated purchase process. If anybody else has a similar interest I would highly recommend this decoder as there is very little alternative in the market today.

**William Dudman**

### LOUDSPEAKER ISOLATION

Martyn Goodacre's letter about using squash balls as a method of isolation was a very popular suggestion some years ago. Some people used them under lighter items – a cut in half squash ball. They do an effective job,



**Involve Surround Master V2. "It really does work amazingly well" says William Dudman.**

with the proviso that the item you are trying to isolate, isn't too heavy! Keep an eye on the loudspeaker cabinets over time with a spirit level, if the cabinets start to go out of level, its time to rethink!

Another solution worth trying, which is a lot more stable as they don't compress, is the use of solid doggie balls sat in castor cups, I used this method under my Garrard 401 some time ago, which I found effective. The downside was trying to level the 401, it was a bit fiddly to say the least!

Regards

**Mike Bickley**

### MEA CULPA

Several months ago I was approaching my 85th birthday and decided to cancel my subscription to your mag. I am a follower from the Flat Response days. But I was feeling fed up with audio.

During the lockdown my daughter

was shopping for my wife and casually said I have collected a copy of your mag. HI-Fi World. On the front cover was a picture of the new Leak Amplifier. It all came back, my original with tuner had the wood sleeve etc. I was also able to follow the circuit diagram in the booklet. So RESULT. I have renewed my subscription and helped to safeguard your pension. Keep up your sane audio mag.

Regards

**Pat Rickwood**

Hi Pat. I think the return of Leak in original visual form will alight memories in a lot of people from the era. Better still, the re-incarnation is sonically sympathetic – no screeching treble. Just an easy yet revealing sound right up to truthful standards. And there's even wood around the amplifier – for that organic touch!

**NK**



**The new Leak Stereo 130 amplifier. Reviving memories for Pat Rickwood.**

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## LETTERS

### HISTORY OF LEAK

Thanks for the interesting article on the history of Leak. Towards the end there are some inaccuracies that I would like to clear up.

The mid-seventies Leak 2000 range of electronics was actually designed and built by Rank Hi-Fi in Bradford, England, and included the amplifiers and receivers 2000, 2100, 2200, also the 2300 tuner. The amplifiers were of advanced design using the latest circuit topologies; preamp circuits employed split-rail stabilised power supplies. The resulting low noise and lack of phase distorting coupling capacitors makes these amplifiers suitable for use with sources having a wide dynamic range today. Much of the competition used noisier single rail power supplies requiring the use of interstage



**Leak 2300 tuner. "This currently-undervalued tuner is the best sounding FM tuner I have heard to date" Andy Puutka says. Picture: [www.retrotechaudio.co.uk](http://www.retrotechaudio.co.uk)**



**"Replacing the capacitors in my Leak 3090s with high grade polypropylene types has realised their full potential" Andy Puutka explains.**

**Picture: Adam Smith.**

phase distorting capacitors. The 2000 series phono stage input was even directly coupled to the floating base of a transistor.

The Leak 2300 tuner was the latest in a long line of British designed Leak tuners and was the first to employ stabilised power supplies. This gave the 2300 very low distortion and noise; this currently-undervalued tuner is the best sounding FM tuner I have heard to date.

The unique, Bradford built, Leak 2001 turntable had patented spherodynamic suspension and main bearing tolerances similar to the Linn Sondek of the time.

The Leak 2002 cassette deck was made in Japan for Rank by Nakamichi.

The Leak 3000 range was actually launched starting with the British built 3020, 3030, 3050 & 3080 time delay compensated speakers followed by the 3090 model. The upper mid range driver in the 3090 had a much bigger magnet than those found in other Leak/Wharfedale models. A U.S. review of the 4-way 3090 claimed a measured sensitivity of 102dB for 1 watt, this is on a par with the massive equalised 2-way Tannoy Westminster horn system. Most of the in-house designed Leak drivers were



**Leak's time aligned 3080 with stepped front baffle.**

**Picture: Leak UK**

subject to world wide patents.

The planar Leak 3000 headphones used the same principle as the Isodynamic tweeter found in the 3090; other manufacturers started making similar tweeters and headphones years later once patents were defunct. The flat diaphragm of the Isodynamic tweeter, including 'area drive' voice coil, is just 25 microns thick. This tweeter has a lovely sweet sound compared with the dome units fitted to the earlier Leak 2000 range.

Rank had previously been a cash rich company and Rank Hi-Fi had invested heavily in Leak R&D but the writing was on the wall for Rank overall...

Rank Audio Visual were UK distributors for Rotel & Akai. For the Leak 3000 range some Rotel electronics were also badged as Leak, namely receivers 3200 & 3400. Later, the massive Rotel RA1312 amplifier was badged as the Leak 3900A along with the Leak 3900T tuner intended for use with the 3090 speaker. Although the 3900A was well made and housed the most expensive looking ALPS volume pot I have seen, the simple single rail preamp was an older design than that found in the 2000 range of amplifiers.

Later the Leak 3001 (Rotel) DC servo turntable was launched but this was not in the same league as the previous Leak 2001 model. The Leak 3007 cassette deck was last and included redundant FM Dolby; this deck was probably made by Teac – it does not resemble any Rotel or Akai models.

Crossover capacitors generally increase in value with age as the plates get closer due to the dielectric drying out. This results in mid & HF distortion as the drivers are fed with out-of-range lower frequencies. Replacing the capacitors in my Leak 3090 with high grade polypropylene types has realised the full potential

of what were high tech drive units. They sound fantastic used with an Esoteric SACD player coupled via Bryston BP26/4B amplifiers. It is well worth replacing the crossover capacitors in all of the Leak 2000/3000 range of speakers, the results would surprise most sceptics.

Best Regards

**Andy Puutka  
Didsbury,  
Manchester.**

Hi Andy. Thanks for your fascinating and informed reply about the Rank days of Leak. I tried to contact two senior people who were at Rank, but they are now off-radar – it was long ago. IAG could not help either. So what I wrote was from memory of my own experiences, including visiting the factory and reviewing the products. Better something than nothing, since the Rank days of Leak are little known, even though technologically illustrious. They were using laser interferometry to perfect the drive units – back in the seventies. Doesn't happen today. But sad that my recall was far from correct, it seems.

Regards

**Noel Keywood**

Something I forgot to mention was that the 3090 bass driver is actually 380mm / 15"! There was a much earlier Leak 13" Sandwich driver.

It is the case though, even more so today, that the claimed diameter is not the cone size, normally the chassis size. I have seen modern 10" drivers which have cones barely 7"!

I have a collection of vintage audio

and I use the 3090s as my main speakers again. They create a sense of drama and realism – especially when playing large scale orchestral music such as Mahler, Shostakovich, Stravinsky....

Last Christmas I was playing Fanfare for the Common Man on Reference Recording's HDCD; the sonic impact of the bass drum blew over Christmas cards across the room....

Whilst the 3090s do not need much power, most amps seem incapable of driving them properly, perhaps the large bass choke upsets small amps. The most surprising thing about the uber powerful Bryston amps I use is the previously unheard very low level resolution from the 3090s, perhaps due to the Bryston's ultra low noise floor.

I have considered writing a book about the Rank Hi-Fi and audio days; it is still a mystery to me how such a large UK company involved in all kinds of areas disappeared.

Best Regards

**Andy**

**LEAK STEREO 20**

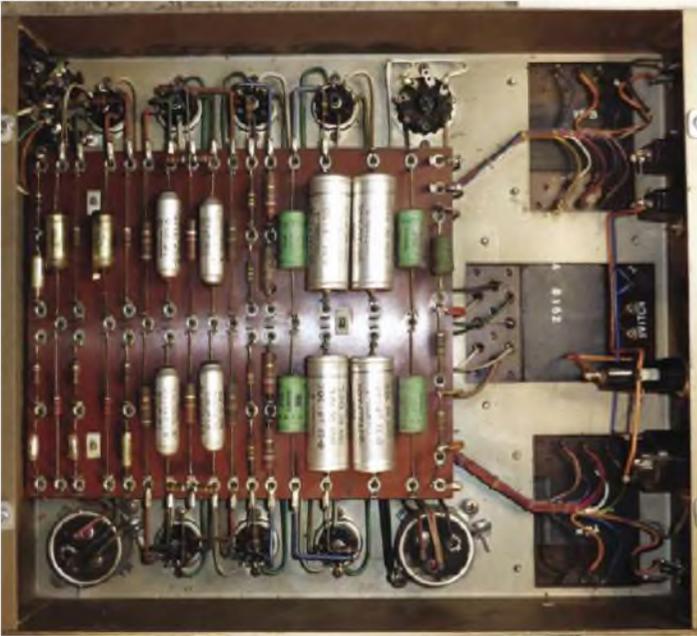
I have a Leak Stereo 20 dated January 1960 and I would very much appreciate any advice that you might be able to give on where I can have it reliably serviced.

Unfortunately, I have no history on it, having found it at a Boot Sale some years back. It does appear to have had problems, there being some old wax leakage from the mains central transformer and there is a definite lower output on the Left channel, as well as lack of bass. Otherwise it is very good. No evidence of any changing of components or valves. Capacitors not showing any leakage.



**Leak Stereo 20, owned by Malcolm Dyer. "I found it at a Boot Sale". Popular in its time (1963) this Leak amplifier pops up regularly. It has a sweet sound but produces just 10 Watts.**

**Picture: www.russelltechnologies.co.uk.**



**An underside view of the Leak Stereo 20. Very simple and potentially dangerous if you are not careful. The power transformer runs hot and there is a bizarre safety mechanism for protection.**  
Picture: [www.russelltechnologies.co.uk](http://www.russelltechnologies.co.uk)

It came with its Stereo Point One pre-amp, which is a wonderful device and again entirely original. This is just the gear to use to revive 60 year old LPs!

Many thanks,

**Malcolm Dyer,  
New Romney,  
Kent.**

Hi Malcolm. The Leak is something of a classic but it does need quite a bit of work to get really decent sounds from it. I would suggest that a general overhaul is probably long overdue as most of the passive components will be tired and the valves too will be 60 years old if they are originals. The ECC83 valves could be fine but the output pairs will be at the end of their life. Original Mullard ECC83 valves seem to last forever but you might have other makes installed.

I try to do these renovations sympathetically by only replacing that which is definitely in need and at the same time those that can be replaced to bring the sound up to date.

Although the preamp is possibly okay you might want to consider a more recent preamp with volume control as you will get a much better sound by combining new and old rather than using the old Stereo Point One, although this too can be renovated if you so wish. If you want to discuss possibilities then by all means give me a call or an email (see my Column for details).

Regards

**Dave Tutt**

Hi Malcolm. That's a rare Car Boot sale find. I am surprised you are alive after switching it on though! Insulation was often poor in the day and deteriorates over time. The safest approach with such an amp is to disconnect and measure the HT line to ensure no short, and/or insert a line fuse. Then 'raise it off the ground' electrically with a Variac to avoid bangs and flames.

It will need a safety check. Wax oozing from the mains transformer suggests heat, which in turn suggests excessive current is being, or has been drawn. That means the output valves and circuitry – especially

cathode resistors – need checking. Output transformer primaries too. Electrolytic bypass capacitors are likely to need replacement. Pertinently, the book *Firsts In High Fidelity* (now out of print but you may find it at eBay) says "the power transformer on this model has a reputation for running warmer than some other Leak amplifiers. A safety mechanism used by Leak on this amplifier was the use of a 100Ω resistor in the power supply. If excessive current was drawn from the supply, the resistor overheats and de-solders itself from the circuit board, thus protecting other components in the amplifier".

So there you are – circuit protection as it was enabled in 1963! Laughable nowadays – even worrying – but best to know about because all this may need changing for safety's sake. I always recommend the use of in-line fuses in old amps like this, easily soldered in place without causing damage and effective in protection.

Keep your fingers crossed that the output transformers and mains transformer are OK, because these will be difficult to replace. Best not to turn the amp back on, so as to protect these items – and yourself! Dave Tutt can help you I am sure. See his column for contact details. Also, peruse what Robert Russell has to say about fixing this amplifier at [www.russelltechnologies.co.uk](http://www.russelltechnologies.co.uk), but you will have to Google 'russelltechnologies/leak stereo20' as it is not home page linked. Practical advice like this is quite important when facing the dangers of old kit. **NK**



**Leak Stereo 20 side view shows clearly its small EL84 power output valves (centre) and GZ34 rectifier (right). The transformers are tightly packed and the central mains transformer was known to run "warm". Power output 10 Watts – so large, sensitive loudspeakers needed.**

Picture: [www.russelltechnologies.co.uk](http://www.russelltechnologies.co.uk)





**Massively powerful, the new M8xi amplifier from Musical Fidelity impresses Noel Keywood.**

# Power House

**L**ong ago I heaved and strained to review Musical Fidelity amplifiers of huge proportion, like the A470 we used at Hi-Fi World in the 1990s as a reference, able to drive any loudspeaker – smoothly. Here’s their latest update, the M8xi (£5649) able to deliver – gulp – up to 900 Watts per channel.

Unlike the A470, the recent M8xi is an integrated amplifier with pre-amp and

digital section too. But like the A470 it is big – a three person lift in our office: weight 46kg (101lbs). Measuring 17.4in (440mm) wide it will fit a standard 19in hi-fi rack for those able to lift it in place. A depth of 400mm (15.75in) and height of 162mm (6.5in) make it rack fitable too. Dimensions have been set to make it domestically acceptable and it can be used as a normal amplifier since there’s front panel volume control and input selection,

but I suspect its remote control will see most use since this is a big amplifier to place high up, to put front panel controls in easy reach.

The M8xi has two bridged amplifiers per channel, each with its own linear power supply in a dual-mono arrangement, meaning two large toroidal mains transformers, partly explaining weight. A single toroidal transformer able to supply such power to the output stage



would be a massive wind, making two separate transformers an easier way to go. And dual-mono gives very stable imaging I have found in the past; what happens in one channel does not affect the other – the sound stage stays rock steady even at high volume.

Bridge configuration has advantages for high power output but it means both loudspeaker output terminals are 'hot'; the negative terminal cannot be connected to earth, as Musical Fidelity warn in their manual. With most loudspeakers, no problem, but there are some that will not suit, including powered sub-woofers and some electrostatics they say. Happily, that does not include our Martin Logan ESL-X reference electrostatics.

I'll start off with what is not here. There is no Bluetooth wireless link, no Phono stage for a turntable, no ethernet link for an app. There is, however, a USB B computer link to allow music streaming from a computer, up to 24/192 PCM; DSD via DoP is not possible because the Texas Instruments PCM5242 (2014) on-board DAC cannot process DSD, unlike the ESS ES9018 (2013) and later designs. Bit of a negative because DSD playback is becoming common, from a computer equipped with the Audirvana player for example. Best to see the M8xi as a very high power all-analogue amplifier with good quality digital as an adjunct that will suit most people, if not the

digital cognoscenti.

There are electrical and optical (S/PDIF) inputs, but optical works to 96kHz sample rate maximum. There is no AES/EBU balanced digital input, nor any digital filter options.

Instead, Musical Fidelity provide two pairs of XLR balanced analogue audio inputs and even one pair of balanced XLR preamp outputs, after the volume control. There are four RCA phono socket line level inputs to accept conventional analogue sources such as an external phono stage, tuner etc. A 'home theatre' (HT) option is also provided, with suitable warning about blowing the 'speakers up (!), and a line output suitable for recording.

Two pairs of loudspeaker outputs allow for bi-wiring, not to run separate pairs of loudspeakers (so no loudspeaker switching). No output power display either to warn of high output, which would be useful considering the enormous amount available, but in real life I suspect this will be fairly obvious to anyone's ears.

In Musical Fidelity fashion, the M8xi is very strongly built and superbly finished. The large (electronic) volume control moves smoothly, offering 0.5dB steps on a scale from zero to 100, shown clearly on the blue front panel display. There's comprehensive switch-on and protection circuitry that makes turn on quiet and click free. Definitely a smooth user experience once in place;

I had no problems here.

The IEC C19 mains input socket and supplied lead have a high 16A current rating; specialist mains cables will need to be suitably terminated. Maximum consumption is quoted as 2000W, easily within the 3000W ability of a 13A socket. It all sounds a bit daunting but amplifiers even of this output power draw relatively little mains power overall. Like running a few 100W light bulbs (old variety!).

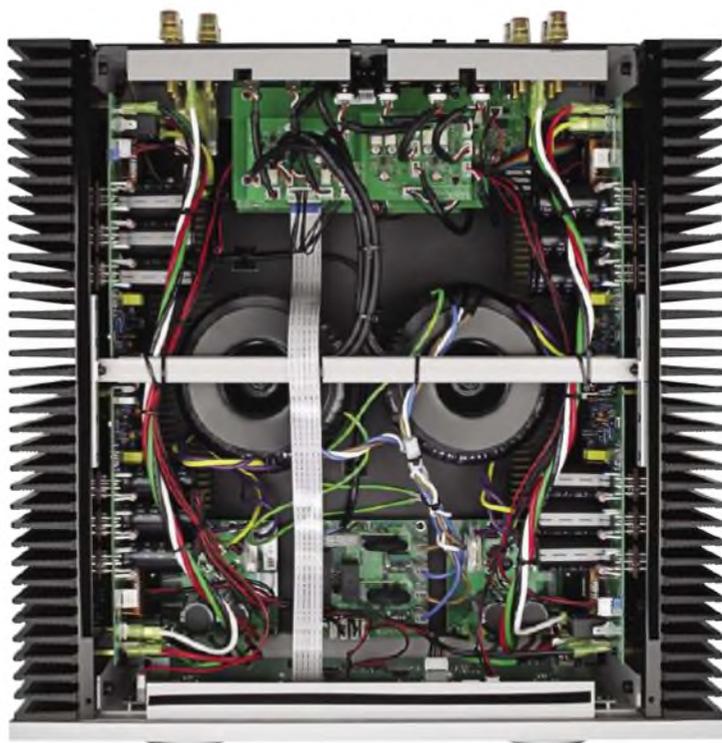
There were times when the heatsink of the channel under test became quite hot, even though test tones were applied briefly: quite how to explain this I do not know. I suspect it has a Class A sliding bias scheme, Class A giving best sound quality but known for inefficiency and heat production because both output transistors of a push-pull pair remain switched on.

The remote control lacks a power on/off function and is lacklustre in design but worked well enough I found. It has input selection, volume and mute.

### SOUND QUALITY

I coupled the M8xi to our Martin Logan ESL-X hybrid electrostatic loudspeakers, through Chord Company Signature Reference cables. It was fed from an Oppo BDP-205D Universal (CD) player, via Chord Company Epic balanced cables to analogue XLR inputs, and by a QED Quartz glass optical cable to a digital input. This allowed me to use the external DAC (ESS ES9018) within the Oppo player, as well as the amplifier's internal DAC (Texas Instruments PCM5242), switching between them conveniently on the remote control (Ball / Opt1), to eke out sound quality difference.

Running a series of high dynamic range (uncompressed) CD review tracks it was soon clear that the Musical Fidelity has what I'd call a "crisp sound". Not soft, warm or especially organic – far from the A470 we once used that was easy going but had the sonic threat of a 40 ton truck. By way of contrast the M8xi caught my attention mostly with its speed and control (aka pace and timing), great insight and sense of restrained power that came from forceful dynamics. With Jocelyn B. Smith singing When I Need You it was fast, delivering vivid drum strikes and the echo from them. Ms Smith's vocals were sparkingly fresh and clean centre stage: it was all eye popping and there was an underlying sense of power – even though I play loud enough to attract complaints from the office building, yet use no more than 40 Watts on peaks



**Large finned heatsinks at either side, with associated power transistors and drive boards. Two toroidal mains transformers at centre.**

(measurement shows).

The “crisp sound” was apparent through both the analogue balanced input and the digital input. However, with Nigel Kennedy playing Vivaldi’s Spring his Stradivarius was sheeny and forceful through the (Opt1) digital input via the Texas Instruments internal convertor and a tad more fleshed out and easier going through the (Ball) balanced analogue input. Meaning the internal Texas DAC has a brighter presentation than the ES9018 DAC in our Oppo CD player. Which isn’t surprising considering the ES9018 is known for its easy going nature.

Initially I found the M8xi’s internal DAC more vivid and viscerally engaging, but after a while moved back to the ES9018 for its more convincingly organic nature. Differences were quite subtle, but there all the same. The M8xi’s digital circuits complement the analogue stages in that they share sonic character, reinforcing the amplifiers sense of pace and timing. The internal DAC is closely coupled to the powerful and starkly clean sound of the analogue amplifier – no intervening analogue XLR cables. There was a sense of slightly better coherence as a result.

Which to choose? Very difficult to say. And a personal choice. For sheer pace, rhythm and timing – or PRAT



**XLR analogue inputs and output at top. Digital inputs at bottom left and a large IEC C19 mains socket at bottom right.**

as it was once called – this amplifier’s digital section is monumentally good.

And bass quality? Enormously tight and controlled, yet with powerful punch when delivering Mick Fleetwood’s drum kit from Dreams (Rumours, 24/96) for example, especially from the digital input via the internal DAC. There was never any doubt about massive low end resolution and dynamic sound stage stability: as I turned volume up to deafening level the M8xi maintained rock steady composure, kick drum seemingly chiselled in stone. Cymbal crashes were strong, finely detailed and obvious.

Even Renee Fleming singing Puccini’s O Mio Babbino Caro revealed the amplifier’s stark clarity, placing

her in clear space free from noise or muddle. Utter poise and a sense that the recording had been freed from murk.

**CONCLUSION**

Musical Fidelity’s M8xi is obviously powerful; it sounds it even when held in check on the volume control. Dynamically vivid yet pristine clean, it states its purpose clearly. With an internal digital section of good quality and a wide range of inputs this is an amplifier of great ability. Lack of DSD and Bluetooth may be seen as a limitation by some, as might the optical digital input’s 96kHz sample rate limit, but such niggles apart it is an amplifier that performs superbly.

**MEASURED PERFORMANCE**

The Musical Fidelity M8xi produced a massive 70V swing into 8 Ohms, amounting to 600 Watts. This figure increased to 900 Watts into a 4 Ohm load. It would take a very big loudspeaker to handle this and there’s no output power display to show how much power is being used, as a warning. It needs just 1V from XLR or 0.47mV from phono socket for full (70V) output.

Distortion levels were low across the audio band, just 0.02% at 1kHz and 0.05% at 10kHz at 1 Watt and less at full output (-1dB), so the M8xi is very linear, with no sign of crossover distortion.

Low end response rolls-off relatively early compared to most big power amplifiers, measuring -1dB at 12Hz and -8dB at 4Hz – possibly a safety measure to lessen the possibility of destructive subsonics.

The digital S/PDIF coax input (electrical) worked to 192kHz but optical input 96kHz max. with various optical cables including a QED Quartz glass optical cable; it is specified as 96kHz. Frequency response was flat to 36kHz (-1dB), rolling off to the upper theoretical limit of 96kHz. Distortion at -60dB with

24bit measured a low 0.06% from all outputs, loudspeaker, Line, Preamp and balanced XLR output – a good result from an amplifier where noise from the amplifier circuits gives a worse result than that from a stand-alone DAC.

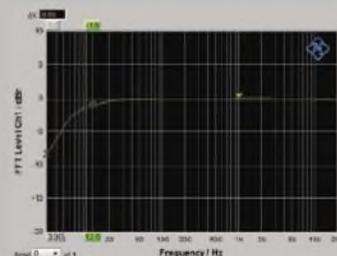
Dynamic range (EIAJ) measured 112dB from both the loudspeaker and XLR line outputs – and since loudspeaker outputs often degrade dynamic range by noise from the output transistors, this is a good real-life result. The Texas Instruments PCM5242 DAC is rated at 114dB Dynamic Range, a modest figure by today’s standards where 120dB+ is expected.

The M8xi measured well all round, but its digital section lacks DSD and has modest dynamic range. Power output is vast however, in Musical Fidelity fashion. **NK**

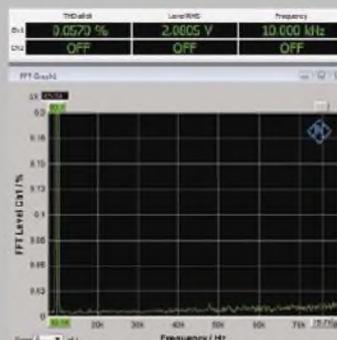
<b>Power</b>	<b>600W</b>
<b>Frequency response (-1dB)</b>	<b>12Hz-38kHz</b>
<b>Distortion (10kHz, 1W)</b>	<b>0.05%</b>
<b>Separation (1kHz)</b>	<b>90dB</b>
<b>Noise (IEC A)</b>	<b>-102dB</b>
<b>Sensitivity (phono/XLR)</b>	<b>0.47V / 1V</b>

<b>DIGITAL</b>	
<b>Frequency response (-1dB)</b>	<b>20Hz-38kHz</b>
<b>Distortion (24bit)</b>	<b>0.06%</b>
<b>Dynamic range</b>	<b>112dB</b>

**FREQUENCY RESPONSE**



**DISTORTION**



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# Killing the music

Martin Pipe discovers the SC-700 – a feature-packed ‘double casseiver’ from Sharp.

**B**y the late 1970s, the Philips Compact Cassette was no longer a sonic joke. It had transcended low-fi expectations to eclipse the reel-to-reel format at home. Not that it was ever restricted to home use; indeed the first Philips recorder, launched in 1963, was a portable.

Another portable cassette player – Sony’s Walkman, introduced in 1979 – was responsible for pushing the format’s success to a new level. Cassette players (usually combined with radios) were also available for in-car use at that time, some being factory-fit options. It’s perhaps no wonder that, by the mid-1980s, cassette albums were outselling vinyl LPs; CD had yet to go mass-market.

The Walkman and its numerous imitators may have allowed music to be enjoyed with unprecedented convenience. A niche brand doing the rounds back then was Optonica, the upmarket audio brand of the Japanese Sharp Corporation.

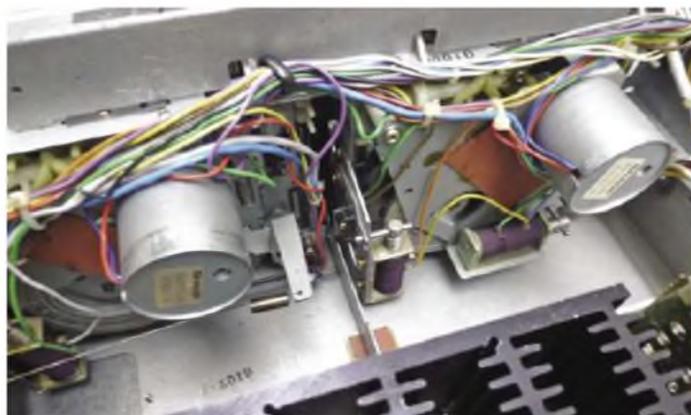
Sharp was one of the first manufacturers to build two cassette

transports into the same deck. At about the same time the UK record industry kicked off its ‘home taping is killing music’ campaign. With these machines, users could not only ‘tape’ vinyl records but copy their cassettes too!

A Sharp twin-cassette deck was spotted in Tokyo by none other than Alan Sugar, during an early-1980s business trip. He saw the potential of the concept and built it into one of

his Amstrad rack systems...complete with a warning (“It is illegal to copy copyrighted material”).

The music-publishing arm of the CBS/Sony media empire tried to make an example of Amstrad – then a major mass-market player. They lost their court case in 1988, the House of Lords ruling that “Amstrad do not procure infringement by offering for sale a machine which may be used for lawful or unlawful copying...the



*At least Sharp give each transport its own motor. By the end of the 1990s, when cassettes were on the way out, some cheap and nasty midi systems served both decks with a single motor!*

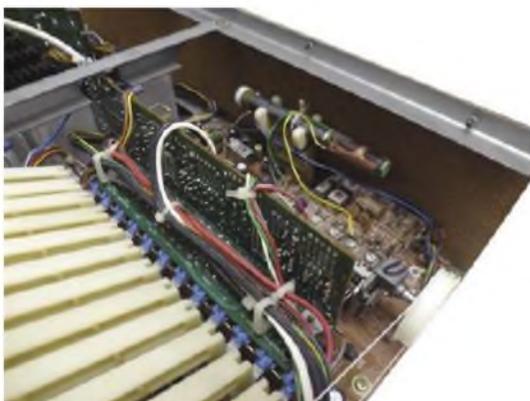


**The internal layout of the SC-700 makes servicing far from easy – especially if you’re working on the cassette decks. However, a plate on the base of the unit provides access to some circuit boards. The plastic rods seen in the bottom-right of the picture couple front-panel buttons to associated switches. Not good news if you require access to the component side of the circuit board beneath!**

purchaser will make unlawful copies because he chooses to do so”. In other words, equipment manufacturers could no more be held liable for the actions of their customers than those who made recording tape for a living.

Manufacturers were quick to exploit the Sony vs. Amstrad ruling. A good friend owned a 1990-vintage Sony ghetto-blaster that could simultaneously-copy both sides of a cassette, and at double-speed too. A ‘cloned’ C60 of dubious sound quality could thus be yours in a quarter of an hour.

Such gadgetry was not incorporated into this month’s audio artefact – a SC-700, from the aforementioned Sharp. The SC-700 is a ‘casseiver’ – a hi-fi species that



**The SC-700’s tuner is a two-band affair that covers medium-wave and VHF. It’s a simple but effective design, based around Sanyo and Hitachi chips that are still available today. With a good aerial, there’s a satisfying stereo image from Radio 3 broadcasts.**

never really took off, dying out by the end of the 1980s. It’s a single enclosure containing a cassette deck (two, in the case of the SC-700), a tuner and an integrated amp – add speakers, and play! Basically a music centre without a turntable, the casseiver was aimed at Walkman-owning consumers who relied on cassettes for their pre-recorded listening. That said, most had a basic MM phono stage in case you changed your mind; the bulky SC-700 – which could be billed a “double-casseiver” – was no exception.

Its radio is a two-band analogue fitment – AM (MW)/stereo FM – with traditional scale-and-pointer tuning and a somewhat optimistic 5-LED bar for signal strength. A ferrite rod within serves the AM section, but as with all tuners an external aerial is essential for FM; this would be the wire dipole supplied with the unit, unless you paid extra for a ‘balun’ transformer that matched the SC-700 to the rooftop aerial necessary to realise the tuner’s full potential.

The amplifier that can be fed by said tuner is built around a STK461 integrated ‘hybrid’ module. This is claimed to deliver 25 watts or so per channel to 4 Ohm ‘speakers’ interfaced via 2-pin DIN connectors. Alternative sources, selected by a row of push-buttons, are the aforementioned phono stage (5-pin DIN, or RCA/phono jacks and earthing post), an auxiliary input (5-pin DIN) or – the unit’s raison d’être – that double cassette deck.

On the left is the playback-only

machine, which features Sharp’s proprietary tape-search system (APSS, or Automatic Programme Search System) to find the next song on the tape. It does so by detecting the silent ‘gap’ between tracks; needless to say, it’s useless for some genres of music!

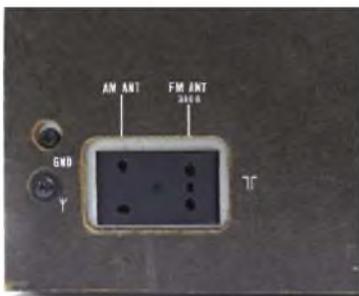
Next to it is a deck that can record as well as play. No search system here – but you do get manual control over recording level, with a pair of LED bars to help you, plus a tape counter. For those who like to sing, there’s a mixer knob that adjusts the relative levels of the selected source and the front-panel mike jacks that allow confident performers to record their efforts. Dolby noise reduction (‘B’ only) and tape type (ferric/chrome/metal) are independently-switchable for each transport; these controls – together with those responsible for setting recording level, mike mixing and amplifier



**To maintain a neat appearance, some knobs and switches are covered by a drawbridge-style flap when you don’t need to use them. They include tone, recording-level, dubbing and mixing controls. None exhibited any crackling – good for a piece of equipment that’s nearly 40 years old. The LED indicators remain visible when the flap is closed.**

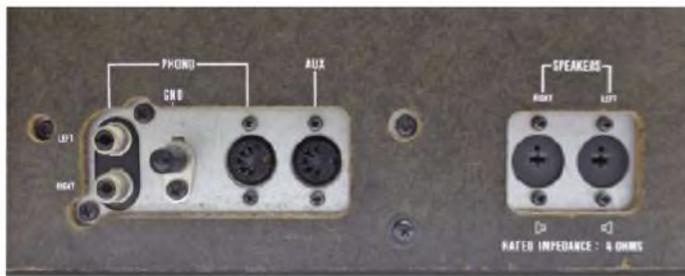
treble/bass – lurk under a flap. Also hidden there is a neat feature that allows you to mix between the two cassette decks when both are playing. Mix with the mike, and you can be a DJ.

Copying between tapes (with the ‘dub’ button engaged) is achieved in ‘real-time’ – no double-speed function, or the 4-track heads needed to copy both sides in one go. This does mean you can monitor your copy as it progresses, though. Dubbing tasks are made easier by a ‘one-touch start’ button, which releases the pause keys of both play



**A ferrite rod within serves the AM section, but an external aerial can be connected too. An external aerial is essential for VHF/FM. A wire dipole was supplied with this unit, but to fulfil the tuner's full potential a rooftop aerial should be connected via a 'balun' matching transformer.**

and record decks thereby starting them simultaneously. The 'editor' button is essentially a rec-mute function – Sharp's search function relies on gaps of at least 5 seconds between tracks. When copying Dolby tapes you're advised to turn off the noise reduction of both decks to avoid unnecessary signal-processing



**Sharp used DIN connectors for speakers as well as external sources. A turntable with moving-magnet cartridge can be connected via phono sockets or a 5-pin DIN socket. Audio from an auxiliary source can be fed to another 5-pin socket. Speakers plug into 2-pin DIN sockets, seen at right.**

and Dolby 'mistracking'.

Thanks to all this stuff, you can assemble compilations from tapes, records (if you plug in a turntable), radio programmes and an auxiliary source (an 8-track player or reel-to-reel?) with reasonable fidelity; the SC-700, which meets the 'mid-fi' DIN 45500 standard, could achieve the heights of 14kHz with chrome tape (15kHz with metal, and a mere 12.5kHz with ferrics).

This particular SC-700, a boot-sale refugee, performed reasonably-well after a service. The tuner is as good as any budget design of its time, while the phono stage gives you – with appropriate turntable – some insight into the

music. As regards the cassette decks, I consider sound quality to be fine for undemanding 'everyday' use. Treble is recessed somewhat and although most music fares well, solo piano reveals that pitch stability isn't the greatest.

The SC-700's biggest let-down, though, is probably its amplifier. It has a superficially big sound, but rather gritty and lacking control at the bass end.

Internally, the SC-700 is something of a rats-nest; servicing isn't the easiest job in the world. The decks suffer from a common Sharp problem in which a rubber roller, fitted to the capstan shaft, degrades to unpleasant black goo. This roller is important, as it controls tape motion. To get this SC-700 going I bodged a fix with multiple layers of sleeving.

If one or both channels are silent

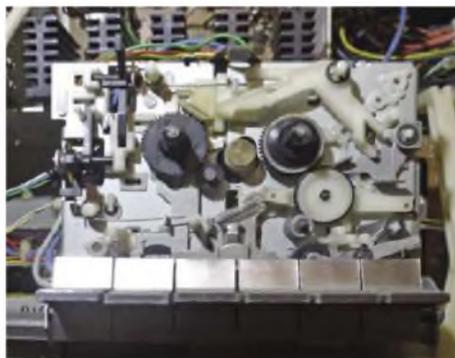


**An STK461 integrated 'hybrid' module is the SC-700's power amplifier. It's claimed to deliver 25 watts or so per channel into 4 ohms. If one or both channels are dead you may have to replace the entire integrated module. Thankfully, at £10 a shot STK461s are not expensive.**

is anything to go by. I found a 1981-1982 Sharp catalogue for the German market (courtesy of the Hi-Fi Engine website) and it featured the SC-700 prominently.

If all you want is the ability to play (or digitise!) an almost-forgotten cache of cassettes, you'd probably be better off sourcing a decent three-head deck; the SC-700's decks are, in core features and performance terms, strictly in budget territory.

For all its faults, though, this unit is a lot of fun. In its heyday, when cassettes were more important than they are now, units with the SC-700's taping flexibility were scarce. This unit was of its time but is today of little interest unless you're a cassette enthusiast, collect Sharp gear or like that distinctive early-1980s styling.



**Here's the SC-700's simple but effective record/play transport. You can see the idler that couples the take-up spool carrier to the capstan shaft, via a cutaway in its housing.**

**Another key component is the rubber roller fitted to the capstan shaft. Unfortunately, it decays over time – a common problem with Sharp transports of the time. If it's not fixed you'll get a tape 'spill'.**

and the power amp is to blame, then be prepared to replace the entire integrated module. Thankfully, these devices are not expensive at £10 a shot.

I couldn't find a UK price for the SC-700, but in early 1983 the French discounter Cibot was offering it for 3000F – which equates to approximately £300. Today, you can expect to pay around £30 for one 'as is' – more, if it's in good working order. Instruction and service manuals can be found online without too much trouble.

The SC-700 doesn't appear to have sold particularly well in the UK, but it seemed to have fared better in Europe – certainly if eBay availability

# Minimalist but Musical

**The AP10H headphone amplifier from British electronics specialist NVA may lack bells and whistles, but Chris Frankland finds it has hidden talents.**

I have a long memory when it comes to hi-fi and well recall NVA launching a pre/power amp onto the UK market back in 1982. And impressive it was too.

The company is still going strong but has expanded its range since then, now offering phono stages, cables, a balanced mains distribution unit – and the AP10H headphone amplifier

reviewed here.

NVA's ethos is all about using the simplest possible circuitry, combined with high-quality power supplies, no protection, no shielding, no filtering and no fuses.



The design is minimalist to say the least, with just a single line level input on the back that NVA suggests should be connected to your amplifier's tape output. There is a single 1/4in headphone jack output on the front along with a volume control. No adjustment is provided for headphone impedance.

The API0H measures 250mm wide by 65mm high by 205mm deep, and its bespoke acrylic case is bonded together so as to avoid electromagnetic interference from screws. That's why you'll see no photographs of what's inside the API0H here.

It uses a 50VA Toroidy 'audio grade' mains transformer and an ALPS Blue volume potentiometer. NVA says that volume matching is achieved by a high-quality ceramic Vishay padding resistor with a standard value to suit 95% of headphones, or a higher value for very sensitive models.

The headphones are driven

directly from the output stage of the amplifier board, which NVA says is identical to those used in its 'speaker amplifiers. This, it says, makes it very powerful in terms of voltage and current and the company claims it will drive "any headphones on the market, regardless of impedance".

The API0H does not have a balanced headphone output but

revealing of differences and should therefore tell me a lot about the API0H's performance. I also had to hand a pair of Sennheiser HD599s at a far more modest £179. Would they also show what the API0H could do? Let's find out...

### SOUND QUALITY

To get the NVA up and running, I connected it to Tape Out of the

"I heard a beautifully open, articulate quality to Benson's immaculate vocals"

then at this price point, £475, it is less usual than on more expensive designs.

To find out if NVA's minimalist, but rather smart-looking, headphone amp could pass muster, I reached for Focal's excellent Clear headphones at £1,399, which I like a lot. They are certainly very

excellent Rega Aethos integrated amplifier, which I reviewed in the previous issue of Hi-Fi World. As a source, I used both the Audio Note CD4.1x CD player and the Audio Note TT3 turntable with Arm2 and Io1 cartridge through an S9 transformer and the very capable Puresound P10 valve



LS50 Meta

Every note. Every word.  
Every detail.



### LS50 Meta

Introducing the successors to the iconic LS50. Building on the brilliance of the originals, the LS50 Meta speakers provide an even purer sound, which brings out subtle nuances and details you may never have noticed before. That's because our unique Metamaterial Absorption Technology eliminates the high-frequency distortion inside the speaker. So at last, you can hear music as its creators intended.



Listen and believe





The rear panel sports just a single line level input via gold-plated phono sockets and a power on/off toggle switch.

phono stage. Hooking the NVA up to the system was quick and simple.

First CD to spin up on the CD4.1x was George Benson's wonderful old classic 'Breezin'', where I kicked off by listening to This Masquerade. The NVA did not take long to show its true colours, with a beautifully open, articulate quality to Benson's immaculate vocals, while giving good bite and body to his guitar. Bass lines had real oomph and impressed me both with their weight and tunefulness.

Next up was the excellent album Blue Country Heart from ex-Jefferson Airplane and (still) Hot Tuna guitarist Jorma Kaukonen, where he went back to his country/bluegrass roots, joined by dobro virtuoso Jerry Douglas and mandolin ace Sam Bush. And a fantastic recording it is too. On Blue Railroad Train, the NVA conveyed the violin, dobro and mandolin with great openness and presence, with excellent leading edge detail and body. And Byron House's bass line was deep, tuneful and really moved along apace. All in all, the NVA conveyed it with tremendous competence and really captured the feel of the track.

Switching the mood to jazz, I loaded up The Bright Side from Dave Koz's The Dance album – a brilliant album and a fantastic, dynamic recording. On this, the NVA captured the sound of his sax superbly, without any hint of harshness or glare. It also captured the weight and movement of the bass line well and separated out the various instrumental layers

with great precision.

It only took a quick spin of the track So Amazing (which, by the way, it is!) from Luther Vandross's Give Me The Reason album to convince me that NVA has a winner on its hands with the AP10H. His vocals were packed with emotion, dynamic, subtle, heart-wrenching – the full gamut of the Luther experience. Marcus Miller co-wrote the track and his deep, powerful, sinuous bass line was all of those things.

### CONCLUSION

The NVA AP10H proved extremely capable and also acquitted itself very well with the cheaper Sennheiser HD599s. At the price, I have to say that the AP10H turned in a truly superb performance and it can more than hold its own against competitors at its price level and above. It is one not to be missed off your shortlist.

Thanks to my local dealer, Home Media, Maidstone, for loan of Rega Aethos. CF

### MEASURED PERFORMANCE

The NVA AP10H was able to deliver 9V maximum into 300 Ohm headphones, but this fell to 1.7V into 40 Ohm headphones, suggesting high output impedance. An output of 1V into headphones is enough for shatteringly high volume so these outputs are enough for most.

High output impedance affects voltage gain. A gain of x4 (12dB) was available with 300 Ohm headphones but with 40 Ohm headphones this fell to x3 under measurement, suggesting output impedance of 20 Ohms.

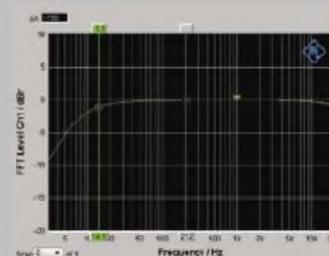
Frequency response held stable between loads, measuring 14Hz-20kHz as our analysis shows, at all volume control positions. Distortion was low at 0.02% and noise also low at -103dB.

The AP10H measured well, offering more gain with 300 Ohm headphones than 40 Ohm headphones, these being two common standards. It has sufficiently high output to go very loud, but unusually high output impedance. NK

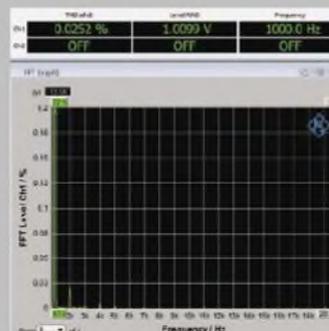
Frequency response (-1dB) 14Hz-20kHz  
Distortion (10kHz, 1W) 0.02%

Separation (1kHz) 85dB  
Noise (IEC A) -103dB  
Gain (300Ω load) x4 (12dB)

### FREQUENCY RESPONSE



### DISTORTION



### NVA AP10H HEADPHONE AMPLIFIER £475



OUTSTANDING - amongst the best.

VALUE - keenly priced.

### VERDICT

This headphone amp had a detailed, dynamic and powerful sound with great bass power and weight.

### FOR

- Detailed and dynamic with good subtlety
- Packs a real punch at the bottom end

### AGAINST

- no adjustment for headphone impedance
- no balanced outputs

NVA  
www.nvahifi.co.uk



# WORLD STANDARDS

Your guide to the best products we've heard that are currently on sale in the UK...

## TURNTABLES

**AVID INGENIUM** £800  
Great bass response and upper midrange detail allied to clarity makes this a must-hear at its price-point.



**CLEARAUDIO INNOVATION** £6400  
Expensive, but offers great results from a finely honed and beautifully finished belt drive turntable, with servo control from the platter to keep a grip on tempo like few others. Can be fitted with a Clearaudio tangential arm, or any conventional design. Awesome.



**INSPIRE MONARCH** £4,350  
A rebuilt from the ground up Technics Direct Drive, having blistering pace and dynamics allied with smoothness, sophistication and purity of tone. A true reference.



**LINN LP12SE** £3,600  
The UK's most iconic turntable, the legendary Sondek goes from strength to strength. New Keel sub-chassis and Radical DC motor add precision and grip to one of the world's most musical disc spinners. Expensive though.

**MICHELL GYRO DEC** £1700  
Wonderful styling coupled with great build and finish make this turntable a delight for friends and family. It has an attractive clear acrylic dust cover, and you can mount just about any arm. A current design standard.



**PRO-JECT ESSENTIAL DIGITAL** £300  
A budget turntable that turns in a great analogue performance, but also has a hi-res digital output. Send 24/96 across your lounge via optical cable to a DAC and get great audio quality. Or record LP to your laptop.



**REGA RP3** £550  
The first of the super-quality Regas, little compromised by price and featuring Rega's outstanding R3303 tonearm, suitable for MM and MC cartridges. A standard at the price point.

**TIMESTEP EVO** £2100  
The famous Technics SL-1210 MkII Direct Drive but with improved plinth, isolation, main bearing and power supply, plus an SME arm (add £1500). DD convenience, rock steady pitch and fab sound at a great price. Our in-house reference.



## TONEARMS

**ORIGIN LIVE ENCOUNTER MK3C** £1,745  
Origin Live combines carbon fibre and ebony to marvellous effect in its new 12-inch arm. Creamy and rich in presentation, the Encounter delves deep into the mix for a satisfying listen.

**HADCOCK GH-242 EXPORT** £810  
Consummately musical, lyrical sounding tonearm, but needs the right turntable.

**ORIGIN LIVE ONYX** £450  
Easy, smooth, creamy nature that reminds you why you're listening to vinyl in the first place. Essential audition at the price.



**REGA RB303** £300  
A one piece tapered casting makes this arm's structure almost unrivalled. Great dynamics and superb imaging, for MM and MC. Reference quality for peanuts.

**SME 312S** £1,600  
Twelve inch magnesium alloy tapered arm tube plus SME V bearings. An insightful yet smooth and relaxed sound. Superlative build completes the package. Our Editor's steed.



**SME 309** £1500  
A one-piece tapered 9in arm finished like a camera and slick to use. Superlative SME quality and sound at affordable price.

**SME V** £3000  
Offers rapid fire timing and a sense of precision, plus rock solid dynamics. Top dollar for deep pockets.

## CARTRIDGES

**AUDIO TECHNICA AT-OC9 MLIII MC** £420  
A fine sounding MC with strong bass and super fine treble from a great stylus – yet inexpensive.



**AUDIO TECHNICA AT-F3/III MC** £150  
Great value entry level moving coil with detail and grip you just can't get from similarly priced moving magnets.

**BENZ MICRO ACE SL MC** £595  
Smooth, lucid and full-bodied, award-winning, hand-made cartridge from Switzerland.

**BENZ MICRO WOOD SL MC £945**  
Highly finished Swiss moving coil that plays music with riflebolt precision.

**DENON DL-103** £180  
A popular and much loved budget MC with big bass, smooth treble and deep sound stage. Fantastic value.



**LYRA TITAN I MC** £3,500  
Breath-taking speed and dynamics from LP, helped by diamond coated, boron rod cantilever.



**ORTOFON 2M MONO SE MM** £80  
A mono cartridge purposed for The Beatles in Mono microgroove LPs. Fitted with a top quality Shibata tip. Fab for the four.



**ORTOFON 2M BLACK MM** £400  
As good as it gets from MM. Fabulous detail and insight from a Shibata stylus, good bass and excellent tracking.

**ORTOFON CADENZA BRONZE MC** £1,400  
A mid-price MC with a slightly livelier presentation than the super smooth Cadenza Black. High-end sound at midband price – great value.



**ORTOFON CADENZA BLACK MC** £1,800  
Ultra smooth and dimensional moving coil with bass and punch aplenty. Lovely stylus.

**ORTOFON A95 MC** £3,750  
Fast and extremely detailed, this is an MC cartridge that sets standards.

**REGA CARBON MM** £35  
Budget price for a competent cartridge with a fairly unflappable nature. Ideal for beginners.



**GOLDRING 1012GX MM** £250  
A glorious sounding cartridge with solid bass and strong dynamic punch, plus excellent treble from its Fritz Geiger stylus. Fun and affordable.



**SHURE M97XE** £80  
Big warm sound, but great tracking and bullet proof stylus protection from damped guard. A survivor.

**VAN DEN HUL DDT-II SPECIAL MC** £995  
Long-established cartridge from Holland with an open and dynamic sound.

**PHONO PREAMPS**  
**CAMBRIDGE AUDIO 651P** £200  
Clean, concise sound from MM and MC cartridges at a very low price. A real bargain.

**ICON AUDIO P53 MKII** £2,500  
All valve MM phono stage with MC transformer option, graced by big, spacious and relaxed sound.



**LUXMAN EQ-500 PHONOSTAGE** £4,495  
A fully-equipped phono stage from Japanese manufacturer Luxman that offers comprehensive cartridge matching allied to superb sound.



**LEEMA ACOUSTICS ELEMENTS ULTRA** £1,199  
Smooth and detailed sound with the ability to accommodate most modern cartridges. Exceptional value for money.



**PRO-JECT TUBE BOX DS** £425  
Compact MM and MC phono stage with valve output circuit and a big sound.



**QUAD QC24P** £995  
MM and MC, nodules of gain, a volume control – and valves! Looks superb and sounds even better: smooth, atmospheric and big bass.

**TIMESTEP T-01MC** £995  
New, minimalist phono stage that sonically punches well above its weight.

**PREAMPLIFIERS**  
**ICON AUDIO LA-4 MKIII** £1,400  
Uses early 6SN7 triodes for liquid sound. Has plenty of gain and a remote control into the bargain.



**MF AUDIO CLASSIC SILVER** £4,500  
One of the best preamplifiers we've heard at any price, this transformer-coupled marvel does very little wrong. It's powerful, clean and open, yet delicate. Its sound is unmatched at or near the price.

**MING DA MD7-SE** £1,520  
A valve preamplifier with an open, effortless sound and a big soundstage. It has plenty of gain so will accept any source and drive any power amp. A real beauty.



**INTEGRATED AMPLIFIERS**  
**ARIANO PRO845SE** £1,499  
Pure single-ended valve magic. Low-powered but immediately gorgeous, easy-going yet forcefully dynamic at the same time.



**AUDIO RESEARCH VS160** £3,500  
Power house sound with enormous pace and punch from traditional US muscle master Audio Research. Breathtaking, but expensive.



**CAMBRIDGE AUDIO AZUR 651A** £350  
Dual-mono construction and meaty toroidal power supply combine to produce a solid and sharp sound with sonics far beyond its price point.

**CREEK EVOLUTION 100A** £1,500  
Superb build and smooth confident sound make this powerful amplifier a benchmark.



**CYRUS 8DAC** £1,400  
Trademark shoebox-sized Cyrus integrated now offering 88Watts per channel, plus DAC. Svelte delivery from a dainty case that fits in anywhere – and isn't Class D!

**EXPOSURE 1010** £495  
Entry-level integrated from Exposure has excellent upper mid-performance with an almost valve-like sound.



**ICON AUDIO STEREO 60 MKIII** £2,800  
Excellent tube integrated with plenty of power and an expansive soundstage, plus KT150 tube option and bias meter for easy adjustment.



**NAIM NAIT 5Si** £925  
Naim's fabled entry-level integrated amplifier is updated to si status. Demos Naim's superbly muscular sound at entry level.

**SUGDEN A21SE** £2,480  
Class A amp with fantastic sound quality producing hard, sculpted images, deep detail and tight bass. Just don't expect disco-like sound levels!



## POWER AMPLIFIERS

**AUDIO RESEARCH VSI75** £7,498  
Powerful, fast valve sound that makes everything else look weak at times. Needs careful matching but well worth the effort.

**AUDIO RESEARCH VSI15** £5,000  
Oodles of power with enormous punch. Rafael Todes said it provided "shock and awe" while retaining incredible smoothness and texture.

**ICON AUDIO MB845 MKII** £7,600  
With 120W from big 845 valves right down to low frequencies, this power amplifier has massive dynamics and bass swing, yet is easy on the ear.



**ICON AUDIO MB81PP** £15,000  
Big Russian transmitter valves deliver 200W from these massive monoblock amplifiers. Frightening in every sense.

**MCINTOSH MC-152** £4,995  
Stunningly insightful sound with enormous bass punch from a uniquely designed transistor amp. Amazing audio, a league up, if expensive.



**QUAD ELITE QMP MONOBLOCKS** £2400 PR  
The proverbial iron fist in a velvet glove. Plenty of power but delivered with an assured and confident nature. Smooth on top and easy on the ear but can rock out when needed.

**QUAD II-EIGHTY MONOBLOCKS** £6,000 PR  
Powerful and expansive sound from modern design monoblocks that also look lovely. Superb – used by us as a reference.



## LOUDSPEAKER FLOORSTANDER

**B&W 803 D3** £12,500  
B&W's updated statement floorstanders deliver depth and definition with breathtaking speed and authority, aided by a diamond coated tweeter. Expensive – but enormously impressive.

**CASTLE AVON V** £1,600  
A big floorstander at a modest price that suits the average room. Refined ribbon treble and deep bass give it a great delivery.



**EMINENT TECHNOLOGY LFT-8B** £2,500  
Excellent U.S. planar magnetic loudspeaker at bargain price. Utterly superb - a must hear.

**EPOS K2** £1,000  
A fun sound that is tidy all round and very engaging, with solid bass. Music as you hope it to be.

**FOCAL ARIA 926** £1,400  
Simple, clean, neutral sound – easy going but well engineered and affordable.

**MARTIN LOGAN SUMMIT X** £16,698  
Matches Martin Logan's XStat electrostatic panel to a powerful subwoofer to provide extended, powerful bass. Dramatic sonic purity. Awesome – all but unmatched.



**MARTIN LOGAN ELECTROMOTION** £2,500  
Martin Logan's budget baby XStat hybrid electrostatic. Fits into any lounge to give electrostatic levels of clarity and imaging.



**QUADRAL CHROMIUM STYLE 8** £1,700  
A supremely smooth yet open sounding loudspeaker. Clean and detailed treble from a fine ribbon tweeter. Accurate yet informative and enjoyable. Pure class.

**QUADRAL ORKAN VIII AKTIVS** £6,200  
Active loudspeaker with tight, powerful bass, perfect accuracy and detailed treble from a ribbon tweeter.



**Q ACOUSTICS 2050i** £480  
A large floorstander at a budget price. Offers high sensitivity and big sound and has very few flaws for the price.

**SPENDOR SP100 R2** £6,495  
Retro looks but a sound that's hard to match. Spendor's 12" bass unit provides massive low-end grunt with a room-filling sound.



**SPENDOR A3** £1,300  
Fine little floorstander with a smooth, natural midband and even tonal balance. Ideal for smaller rooms.

**TANNOY DEFINITION DC10 TI** £6,000  
Enormous power with great projection. Glorious subsonics too. Need little power to go very loud and have superb finish into the bargain.



**TANNOY KENSINGTON** £9,950  
Big but not overpowering, punchy modern sound from classic cabinetry. Need little power to go very loud and suit a traditional home, or castle.



## LOUDSPEAKERS STANDMOUNT

**ACOUSTIC ENERGY NEO 1 V2** £225  
Civilised sounding speaker with fast and tuneful bass.

**ACOUSTIC ENERGY AE1 CLASSIC** £845  
Brilliantly successful remake of an iconic design; not flawless, but surely one of the most musical loudspeakers ever made.



**ELAC BS243** £1,000  
More transparent and spacious than they've a right to be at this price, these refined mid-price standmounters represent top value.



**EMINENT TECHNOLOGY LFT-16A** £1,200  
U.S. planar magnetic bookshelf loudspeaker with unrivalled mid-band and treble. Hear it before all else.

**WHARFEDALE DIAMOND 220** £200  
Builds on the success of previous Diamond ranges with better bass, more detail and a greater sense of scale.



**KEF LS50** £800  
Supremely musical mini-monitors which sound much bigger than they look.



**MARTIN LOGAN MOTION 35** £1,300  
Folded Air-Motion tweeter gives a taste of Martin Logan's electrostatic sound in a standmount. Different from the standard mini-monitor and all the better for it.



**PMC TWENTY.21** £1,575  
Transmission line loaded standmount with a big box sound from a compact cabinet. Punches well above its weight.



**Q ACOUSTICS 2020i** £165  
Great little bargain-priced stand-mounts with a friendly, fun yet surprisingly refined sound. Hard to better for a pair of starter loudspeakers.

**WHARFEDALE DENTON** £500  
A beguiling mixture of retro looks with modern, high-technology drive units. The Denton has an easy-going, big-hearted sound with a touch of trad warmth that should appeal to many.



## HEADPHONE AMPLIFIERS

**CREEK OBH11** £150  
Designed specifically for low to medium impedance (30 Ohm – 300 Ohm) headphones the little Creek has a marvelously well-judged sound.

**CHORD MOJO** £399  
Class leading portable DAC and headphone amp with ability beyond all else. Big, open spacious sound.



**EPIPHANY EHP-02** £99  
PP3 battery-powered portable gives great sound quality at an almost giveaway price. Happy with the output from an iPod or CD player, the little epiphany is a true bargain.



**ICON AUDIO HP8 MKII** £650  
The HP8 MKII valve-based headphone amplifier brings the spacious sound of valves to headphones. And it matches 'em all.



**FIDELITY AUDIO HPA 100** £350  
Great little headphone amplifier with a lively yet refined and open sound.

**MUSIC FIRST PHONE BOX** £276  
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**CANOR CD2+** £3,100  
Musically coherent and tuneful valve-driven CD player from Slovakia. Lovely liquid sound.



**CAMBRIDGE AUDIO AZUR 651C** £410  
Snappy modern presentation from this budget CD player. Cracking audiophile entry point for any digital fan.

**CHORD RED REFERENCE MKIII** £16,000  
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**ESOTERIC K-03** £9,495  
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**EXPOSURE 101** £395  
Detailed player with fine sense of timing should be an automatic entry on any demo list at this price.

**ELECTROCOMPANET EMP-1/S £4,650**

Epic in scale, lavish in tone and exuberant in its musicality - this is a memorable SACD spinner. Quirky in operation and modest in finish, though.



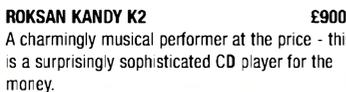
**OPPO BDP-105D £1200**

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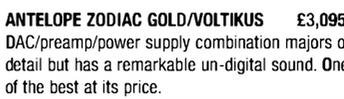
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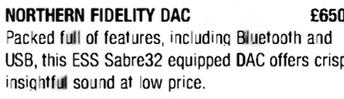
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**NAIM HDX** £4,405  
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**CHORD SIGNATURE REFERENCE** £900  
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**TELLURIUM Q BLACK** £280/3M  
A deep, dark, velvety performer that's nevertheless highly musical, it represents excellent value as mid-price cables go

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**SENNHEISER HD700** £599  
Tremendously fast with a strong, focussed, lower-frequency range and a firm bass punch.



**YAMAHA HPH-MT220** £150  
Purposed for indoor monitoring yet light and comfortable enough to be used on the move. Excellent sound quality marred only by a slight warmth to vocals



# Extra Energy

**With deep bass extension, the new AE520s from Acoustic Energy add a little extra. Noel Keywood is moved.**

**A**coustic Energy don't get it wrong. What they deliver I have found over the years is a loudspeaker that's exciting yet accurate – just as founder Phil Jones intended. Not a fiddled contrivance. And that's how their new top AE520 loudspeaker I'm reviewing here – price £3499 – panned out.

The AE520 is large – and just look at those drive units. An array of carbon fibre cones amounting to six in all. Looks good – but there's more to it. The large cabinet and multiple bass drivers – the three lower ones – all suggest this range-leader will deliver bass, and it did. They're all carbon fibre so the sound will be cohesive, not changing character from metal dome to paper for example.

The units above and below the tweeter form what's termed a D'Appolito arrangement around the tweeter, for smooth vertical dispersion. They work across the mid-band, from 370Hz to 3.5kHz. Leaving three carbon fibre drivers to handle lows and bass below 370Hz, loaded by a large cabinet with rear slot port. Since each cone is claimed to 5in diameter, together they have the cone area of a 9in bass unit – large and able to move air. That's a snap summary of what is offered in the AE520, something you can see in our pictures.

Standing 1130mm tall, 185mm wide and 320mm deep the AE520s are large, but the smooth American Walnut wood veneer of our samples made them look reasonably unimposing. At a weight of 30kg apiece they were not so easy to move, and there are aluminium out-rider feet for stability, fitted with adjustable spikes. Surprisingly, there is just one pair of terminals at rear, eliminating the possibility of bi-wiring. Grilles are held on

by magnets, so easily removed. A nicely built and finished loudspeaker all round.

## SOUND QUALITY

With high power handling from no less than six drive units the AE520s were an obvious candidate for power – so that's what they got courtesy of Musical Fidelity's M8xi (600 Watts) also in this issue. However, I did also use our Creek Evolution 100A with its easier going sound, allied to strong bass (it was a major difference).

Loudspeaker cables were Chord Company Signature Reference, a neutral but 'quiet' and revealing cable. Signal source was our Oppo BDP-205D Universal player spinning CD and connected by optical digital cable to the M8xi.

With the Creek I used the Oppo's balanced analogue output which puts into place its internal ESS ES9018 DAC for a slightly richer sound, connection by Chord Company Epic balanced analogue cables.

The AE520s are relatively dry sounding and a little bright with grilles off. But then again they are also dramatic and I stumbled away from them a bit shaken – after using the Musical Fidelity M8xi at 6am in the morning when the office building and street outside were deserted. That's when volume could be turned up – as these 'speakers demand – and I was quite literally shaken by tracks like Safri Duo's Samb Alegro where the pounding synth 'kick drum' was moving my body and the settee upon which I sat. Probably at that point there was around 100 Watts going into the 'speakers on peaks – perhaps more – but they sounded supremely relaxed, totally unfazed.

What I was assessing by doing this was bass quality and potential bass distortion (doubling) And the outcome was both thumbs up. What the AE520s offer is even,

well damped and controlled bass that comes across as correctly in balance yet of superb definition. No boom, no waffle – just brutal low end power able to move the body. Not quite big Tannoys, I thought to myself – but close.

But I haven't said anything yet, because the Acoustic Energys were impressive for many reasons. First is that they deliver a very large sound stage, with pin-point imaging. The dominant saxophone in the Pink Panther theme (CD) had height to it as well as width, and it was almost casually plucked from the background. I thought to myself "line source" and although technically they are not a classic line source their sound does have height, width and scale. The choir behind Mercedes Sosa singing Misa Criola had similar scale, and it was clearly behind Mercedes Sosa's vocals, giving good resolution of backward layering. This was helped by a dry, clean sound free from colouration. I was greatly impressed by this: the AE520s have the sort of line-source presence of our Martin Logan ESL-X hybrid electrostatics. It adds to drama.

With the classic loudspeaker balance test track of Nils Lofgren singing (and playing) Keith Don't

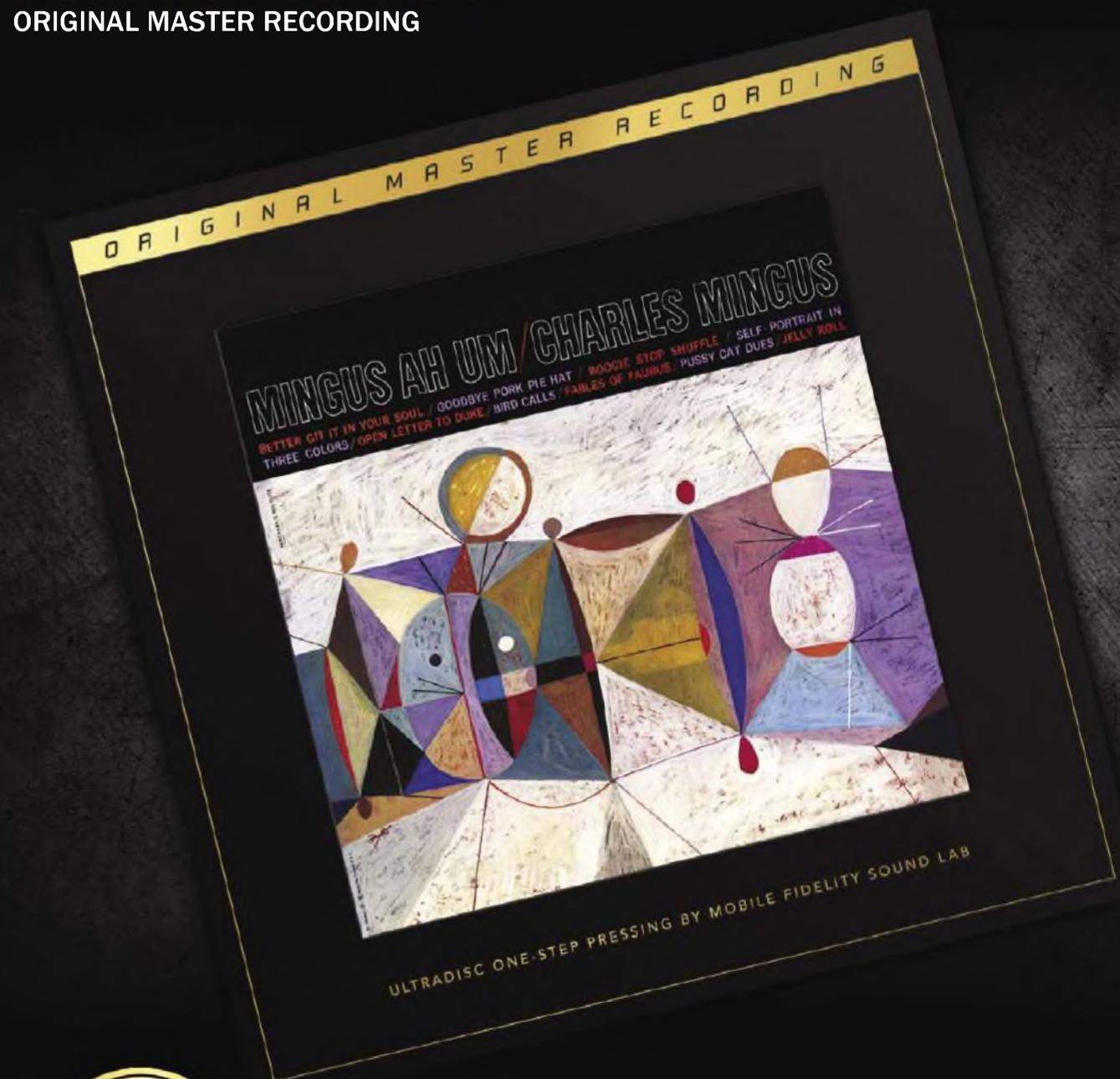


**A woven carbon fibre tweeter (1in / 25mm) sonically matches the other drive units. A shallow wave guide improves dispersion.**

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Go the tweeter's role in the scheme of things was made clear and forceful via the M8xi, his guitar strings cutting out like razor blades. Superb speed and definitive attack but arguably a bit beyond real. I listen to my son playing acoustic guitar and it doesn't sound like this. It's fast but not challenging – and there's so much more timbral richness and colour.

Connecting up our Creek Evolution 100A amplifier produced a dramatic change, beyond what I was expecting – suggesting transparency and insight from the '520s. Now there was an easier and more mellow sound, lacking fierceness. However, gone was the slam and visceral speed of the M8xi, also its cohesiveness when working from internal DAC. So amp. matching to this revealing loudspeaker is an important issue.



**The rear carries a slot port to reflex load the three bass units. One pair of terminals only, making bi-wiring impossible.**

Also, I went from listening without grilles initially to using them and this did help slightly to reduce sharpness.

It eventually struck me that these are loudspeakers that would do justice to, and benefit from, connection to our Icon Audio Stereo 30 SE valve amplifier – and so it was. The sound deepened, became more organic and flowed better: it's a good loudspeaker for valves.

### CONCLUSION

With its vertically high, focussed sound stage and enormously deep bass Acoustic Energy's AE520 comes over as dramatic. A slightly dry balance makes it work better at high volume than low volume I found; it cruised along imperiously with the wick turned up.

Excellent transparency highlighted amplifier differences quite alarmingly, and bright amplifiers I would say are best avoided, although others may think differently. This all depends upon what sort of sound you like: no doubt that with Musical Fidelity's M8xi power amplifier the AE520 was dramatic-to-frightening, according to volume control position! This is certainly a loudspeaker worth auditioning; just



**The two top units are bass/midrange drivers covering 370Hz-3.5kHz, in D'Appolito arrangement around the tweeter.**

bear in mind that to hear down to its very-low lower limit of 30Hz you need a room at least 18ft long, speakers at one end, ears at other (high pressure points). Then the settee will move – and bits of your body with it.

### MEASURED PERFORMANCE

The Acoustic Energy AE520 has almost peculiarly wide bandwidth, one of the widest and flattest of any loudspeaker. The large multi-driver cabinet reaches very low, essentially flat down to 30Hz our analysis shows. That compares to 40Hz-50Hz of most. The slot port (red trace) peaks narrowly at around 30Hz and the impedance trace shows it is tuned to 36Hz (centre of the dip). As there is no broad bass peaking, bass will be strong and deep but not over-emphasised. There may be over-drive in small rooms however (below 14ft long); it takes a room 18ft long to fully support 30Hz.

Frequency response extends smoothly up to 20kHz with a small dip at crossover (3.5kHz) to the tweeter. With grilles off the tweeter comes in hard above 5kHz and this will ensure some brightness; there's +2dB lift at 7kHz as shown. However, the grille flattens this to give a correct result, so there is some adjustability here.

Sensitivity was high at 88dB sound pressure level (SPL) from one nominal Watt (2.8V) of input (90dB quoted). Good

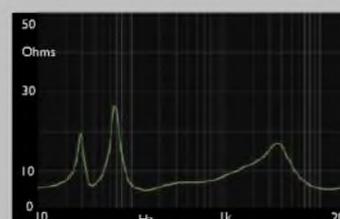
– especially when considering this is a relatively high impedance speaker, measuring 7.5 Ohms with pink noise. Around 40 Watts will be sufficient for high volume in most rooms, with 100 Watts to go extremely loud.

This is a cleverly engineered loudspeaker in classic AE fashion. It has very wide bandwidth yet is accurate. A very good set of results. **NK**

#### FREQUENCY RESPONSE



#### IMPEDANCE



### ACOUSTIC ENERGY AE520 £3499



**OUTSTANDING - amongst the best.**

#### VERDICT

A coolly accurate sound with very deep bass and great sound staging. Impressive.

#### FOR

- sound stage height
- deep bass
- very revealing

#### AGAINST

- dry tonal balance
- best at high volume
- sharpness with grille off

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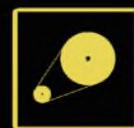
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Category	Entertainment
Updated	7 Dec. 2014
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Size	9 MB
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# Cross my palm with silver

**NVA is known for its electronics but it makes interconnects too. Chris Frankland tries out its top-of-the-range loudspeaker cable, the LS7 (TSCS).**

**N**VA is primarily a manufacturer of electronics, but it also offers a range of cables. And while billed as suitable for use with any amplifier, owners of NVA's own amps will know that using any other cables will invalidate their warranty.

Fighting talk, but apparently

because NVA purposely avoids any output protection, filters or fuses in the quest for the best sound, they say that the use of other high-capacitance cables can send the amps into oscillation.

NVA makes a range of five low-capacitance cables. The LSI sells for £90 per 2m stereo set and uses seven individually insulated,

high-purity copper cores. The LS3 at £150/2m stereo set is a 14-core version of the LSI. The LS5 at £240 has 28 cores, while the LS6 at £460 ups that to 48. Twenty of those are the same as in the LSI, 3 and 5 but the LS6 adds 28 cores of thinner, high-quality silver alloy.

But it is the LS7 (TSCS) that I'm reviewing here at £900 per 2m



stereo set. This uses 100 separately insulated silver alloy cores covered in Teflon, plus 10 pure copper cores covered in PVC. All 110 cores are sheathed in PVC. A tin-plated copper mesh is then placed around the cable, which NVA says acts as a Faraday cage as it is not connected to ground. This is then all housed in a black PVC outer sheath for protection. The positive and neutral runs are separately sheathed, NVA says, to keep capacitance low.

"detailed, dynamic, musical and without serious flaws"

The cables are terminated with gold-plated, low-mass Z-plugs, the construction of which, NVA says, makes them act like a spring to give the tightest fit and greatest area of contact. And I must say that they did indeed provide a very tight fit both into the amplifier and speaker terminals in the system used.

### SOUND QUALITY

To test the cables, I used them with

a Rega Aethos amplifier and a pair of NEAT Xplorer 'speakers. Sources included an Audio Note CD4.1x CD player, Audio Note TT3/Arm2/lo/S9 transformer through Puresound P10 phono stage, as well as the excellent Pro-Ject Stream Box Ultra S2 with its PreBox Digital S2 DAC.

First track up on the Stream Box was March Winds in February from Van Morrison's Three Chords & The Truth album. Here, the LS7

cable sounded well balanced, with good definition on drums and percussion, great intelligibility and humanity on vocals – and a tuneful, weighty bass line. The sound was blissfully free of harshness and glare.

That great old classic Groovin' is covered brilliantly by guitarist Peter White on his album of the same name and that was up next on the Stream Box. White's guitar was conveyed incisively and

precisely with great note shape and body. Percussion was detailed and dynamic and the complex musical layers of this superb track were well sorted and that weighty, melodic bass line moved well.

Bringing Ben Sidran in to help me make up my mind with Easy Street from his Old Songs for the New Depression CD, there was no doubt that the LS7 put in a fine performance. His vocals were open, articulate and characterful while his piano was sparkingly conveyed. The track had good pace and that deep, powerful bass line jogged along with purpose and control. The tenor sax solo was nicely pitched and presented with no nasty colourations or harshness.

### CONCLUSION

On balance, the NVA LS7 (TSCS) cables acquitted themselves with great finesse. They were detailed, dynamic, musical and without serious flaws. At the asking price per stereo pair, they represent good value and I would recommend them with confidence – and not just for NVA amplifiers!



**NVA LS7 (TSCS)  
LOUDSPEAKER  
CABLE  
£900 PER 2M  
STEREO SET**



**OUTSTANDING - amongst  
the best.**

#### VERDICT

Great sound, tight-fitting banana plugs and lacking serious flaws.

#### FOR

- Not too bulky or stiff
- Excellent sound quality

#### AGAINST

- Nothing to speak of

NVA  
[www.nvahifi.co.uk](http://www.nvahifi.co.uk)



PETER GABRIEL

Live in Athens 1987/Plays Live  
Realworld

**T**wo live double albums, both arriving in a single sleeve with the first from Athens. You're looking at October 1987 here and the end of Peter Gabriel's 'This Way Up' tour.

The performances captured in Athens would emerge three years later as the film 'P.O.V.' on VHS. Now the sound has been transferred to vinyl for the first time although it also starts oddly, like a reel-to-reel tape might start from a distorted, standing start.

The touring band consisted of Manu Katché (drums), Tony Levin (bass, backing vocals), David Rhodes (guitar, backing vocals) and David Sancious (keyboards). Gabriel certainly butters them all up on his intro, I have to say. Oh – and the show features a special guest appearance by the young Youssou N'Dour on 'In Your Eyes'.

This and the 'Plays Live' albums have been Half-Speed Remastered by Matt Colton at Alchemy Mastering, mastered by Tony Cousins at

Metropolis and overseen by Peter Gabriel's sound engineer Richard Chappell.

Actually, 'Plays Live' (1983) was originally compiled from live recordings made at four venues across the American Midwest in late 1982 and featured Jerry Marrotta (drums and percussion), Tony Levin (bass and stick), David Rhodes (guitar) and Larry Fast (synthesiser and piano).

Mastering quality for both releases is excellent. There is superb tonal balance here – especially on the Athens release – with strong bass and a sense of clarity that you rarely hear on a live cut. There has been real thought in terms of capturing the live experience whilst retaining sound quality. Yes, you lose information, the sort you might expect to hear on a studio release, but considering that we're in live venues here in which Gabriel's people would have had limited preparation time, the engineers have done a tremendous job.

# AUDIOPHILE VINYL



NICK MASON'S SAUCERFUL OF SECRETS

Live at the Roundhouse  
Sony Legacy

**I**'m torn by this release. I really am. Firstly, it's lovely to see Nick Mason getting a bit of attention for change. One can become a bit sick of Gilmour this and Waters that and the frictions between. It's lovely that Mason has the stage and the focus.

Secondly, I love the fact that Mason has focused on the early Floyd material. It's about time that an 'official' retrospective offering was given to this material. So you'll find 'Interstellar Overdrive' here alongside 'Arnold Layne', 'Set the Controls for the Heart of the Sun', 'Obscured by Clouds' plus many more over the four sides of this package.

I love the vinyl production set, as it is, in a die-cut outer sleeve and a colourful gatefold with similarly colourful inners highlighting each band member.

And yes...there's the band members. Mason is there. And

Guy Pratt has long-term Floyd associations. We then have ex-Spandau Ballet guitarist Gary Kemp, Blockheads guitarist Lee Harris, and The Orb associate, keyboardist Dom Beken. It's a motley crew and, listening to the performance, could be any old pub band doing a few Floyd covers, to be honest.

They do a decent job. They give it their all and I'm sure Mason was adamant that the music be treated with respect, care and attention. There's also lots of love aimed directly at Nick Mason and the final product has been treated similarly but really, what is the point of this release beyond acting as a reminder to people who were at the actual concerts?

The concerts were celebratory. Fans could pay due homage and thanks to their hero and obtain a slice of Floyd history for themselves. The concerts, I understand. Beyond that? No. Just no.

Subtitled '14 Swing and R&B Christmas Crooners' this release takes a slightly different pathway than the usual Christmas fare.

There are less than familiar names here such as Georgie Auld & his Orchestra featuring Bill Darnel and the song 'Christmas Ball', an energetically swing-based outing that's full of festive energy.

Then there's Knuckles O'Toole (oh, yes) and his Brigadiers with Jingle Bells. The track is not quite as pugnacious as you might assume but is actually close-harmony outfit backed by a suitably jaunty orchestral background interspersed in the middle eight by an oddly out-of-place piano of the sort played by Mrs Mills (UK readers might remember that portly lady).

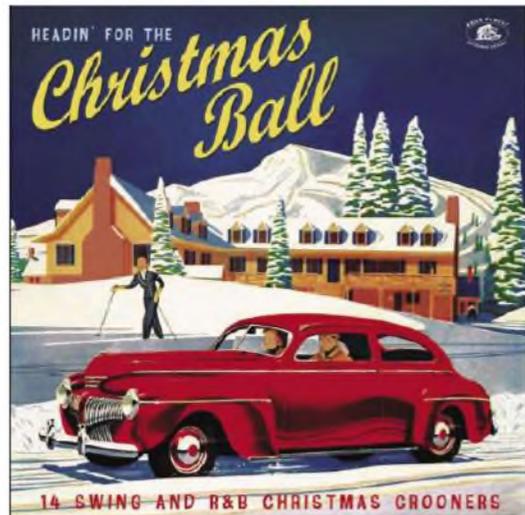
It's no surprise that The Andrews Singers take part in this release – and why not? The trio were perfectly made for Christmas songs and their presentation

offered a perfect blend of energy and romance.

The innocence of the first six tracks - place around the 1950-1955 era - comes to a crashing halt via the 1962 rendering from Kay Martin & Her Body Guards with 'Come on Santa, Let's Have a Ball'. Our Kay was a pin-up model and the LP cover included here shows why, as her ample bosoms are barely covered by a ribbon. She never had a chart hit but was, as you might imagine, a very popular night club act. This track emerges from her album entitled, would you believe 'I Know What He Wants For Christmas'.

So not quite 'White Christmas' then but this LP is certainly of great interest. Mastering is excellent despite some upper mid pinching but the original masters will have had a say in that.

I'll certainly be spinning this one on Christmas Day. Might skip the breathy Kay Martin track though, if the wife's about.



VARIOUS

Headin' For The Christmas Ball  
Bear Family

AUDIOPHILE VINYL

The band were cobbled together in 1977 around Ladbroke Grove, London and included a couple of notables such as guitarist Andy Colquhoun (ex-London R&B band, The Rockets) who would later join Tanz Der Youth and The Pink Fairies and Lucas Fox (ex-Motörhead drummer). They hit the ground running, supporting luminaries like Siouxsie & The Banshees, often at concerts marred by violence.

An intriguing release for Record Store Day, this album arrives with a free 7" single and a well constructed presentation DIY-esque package that spews high-energy punk. It was recorded 'live'. That is, direct to the cutting lathe with no tape master involved, no overdubs were accommodated and mixing was none existent.

In fact, the band apparently began recording the album at 10pm on Saturday, 26 November 1977. The entire album was finished, packaged

and was being distributed to the public by 7pm on the following day!

Andy Colquhoun commented "The idea was to bypass tape and gain a very accurate recording that would be louder and clearer than any other method then available".

Who would have thought that spittle-flowing, pogo-ing punks would also be audiophiles, eh?

Once the album was released, reportedly, 5,000 copies were sold in double quick time and then the label refused to print any more. A decision that bemuses to this day.

Colquhoun continued "Our last gig was supporting Ian Dury at Dingwalls for a homeless benefit. After that it just fizzled out".

The group disbanded in March 1978 but the album here retains plenty of flailing yet controlled energy including self-penned ditties and an aggressive version of The Who's 'It's Not True'. An aggressive R&B outfit with added zips and safety pins.



WARSAW PAKT

Needle Time!  
Munster

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Finishes Available:



# "ESS sound is on the warm and cuddly side of things"



Noel Keywood

**W**hen you read that yet another hi-fi product has an ESS DAC what does this mean? Why is everybody using this digital-to-analogue convertor? What's the benefit and are there un-talked about drawbacks? If it has a distinctive sound, will it appeal to you? Others may like 'em, but you may not. Should you follow the herd?

I'm sort of becoming bemused by the ESS obsession. I fell in love when I reviewed an Oppo BDP-105D CD player long ago (Dec14 issue) that was first to use an ESS ES9018, released January 2013. Oppo are a large Chinese manufacturer of mobile phones and had set up an office in California's Silicon Valley. Not far away were ESS and Oppo chose to use the then-new and little known ESS ES9018 DAC chip in a Universal disc player. With Oppo's global marketing machine this thing went around the world and the response to it was unanimous – wow!

That changed a lot. All of a sudden a small specialist part became the centre of attention and attracted publicity. Up 'till that time no one knew or cared about the identity of any silicon chip inside a hi-fi product. They're hardly the sexiest things to look at – unlike a 300B or KT150 valve in their glowing glory! Yet today – six years later no less – they are becoming ever more crucial in spec. sheets.

This now legendary DAC yanked us right out of nasty CD sound. It is wonderful, magically smoothing and civilising CD, to make it almost analogue-like. Dynamic and insightful – not strident or harsh. Nasties be gone.

They're not cheap – an ES9018 was around £32 last time I looked – expensive. This will raise product

price by a factor of at least four, adding around £130. I suspect bulk purchase price might be lower and ESS have now broadened their range with budget and low current versions, plus the improved ES9038 Pro version.

Should you pay attention to the quoted presence of this chip in product specs? I'd say "yes, certainly". As a piece of virtue signalling the presence of an ESS DAC from their Sabre32 series shows good design intent.

However, since the rise of this DAC chip, other manufacturers of such specialised items have come up with rival product, notably Japan's Asahi Kasei Microdevices (AKM) with their Velvet Series DACs and Cirrus Logic (USA) with their attractively named CS43198 DAC – a relatively new entrant to the field.

And here audio gets interesting. In my limited experience so far it is the CS43198 that offers equivalent dynamic range but a more lively sound, as do Chord Electronics with their own high performance DAC.

So there are alternatives to the ESS sound that you may want to hear in a showroom demo – and mostly they are less fulsome and warm. AKM Velvet sound DACs are the exception, sounding much like ESS to me, even smoother and darker.

Here's a small secret. All these chips deliver a balanced output. To best hear their abilities connect up to player with a balanced cable. The chip does not connect direct; there's a balanced line driver, commonly specified in design notes so manufacturers don't get it wrong. Use XLR for best sound quality.

If you connect up via the unbalanced RCA phono sockets then the signal has passed through another balanced-unbalanced conversion chip and you will also be welcoming in noise through the

ground connection.

Listening to balanced via XLRs always sounds cleaner and tighter than unbalanced via RCA phono sockets. It's worth bearing in mind when considering both DACs and amplifiers: can they handle a balanced signal? And if you ask for a showroom demo, which connection is being used?

There are other issues to bear in mind, when using any DAC. On the test bench I must use optical cable to a DAC to avoid earth loops. Is this the reason optical cable connection to a DAC sounds different to electrical connection? Under measurement optical can give slightly better Dynamic Range values.

To summarise then, use the XLR outputs of a DAC if possible and connect the digital input using optical cable. This applies to all DACs, not just those from ESS, since most DAC chips follow the ESS design pattern. By so connecting you are minimising earth current noise, maximising dynamic range.

Some readers have become a bit irritated to learn that the ESS sound is on the warm and cuddly side of things, seemingly imperfect in spite of adulation in reviews. Not everyone wants warm and cuddly. To me it came as a blessed relief in 2014, since CD sound can be a bit of an assault course; the ES9018 cleared away digital nasties as if by magic, making life as a reviewer a lot more pleasant! Seems like the rest of the world agrees.

But there are alternatives that may suit you better. Chord Electronics offer the most radical one, and it could well be that the relatively new Cirrus Logic chip, with its purist DSD processing, might appear as a challenge to the ESS sound in future. I'm happy listening to ESS – bit like a valve amplifier! But there are alternatives. ●

# THE VINYL REVOLUTION



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**Hi Fi World said:**

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**Hi Fi News said:**

Any great turntable gives you a certain frisson when you hear it. It's that old 'shivers down the spine' feeling, a sense of being let into a world to which you had previously not been privy. This is a remarkable turntable, and arguably the apex of vinyl playback. It's difficult to see how the SP-10R motor unit can be improved upon. It is a definitive statement of engineering prowess, and marks the return of direct drive to the top tier of turntables.

Miyajima - Stereo - Mono - Denon DL-103 - Audio Technica AT33 & OC9

Turntables & Tonearms - Technics SL-1200 & SP-10R - Furutech - Klipsch - 78rpm - SL1200 Mods

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# "a heady concoction sautéed lightly from hardened oils, release agent and other substances"



Paul Rigby

**T**alk of abrasion is not something you tend to see within editorial dedicated to hi-fi. And yet – here we are.

Don't settle down too much because I want to whisk you off to your school days for a moment. Abrasion was always that thing you talked about in Geography class as the force that transformed rocks into nicely rounded pebbles. Ready made to add a tad of textural variety to your garden or to hand paint as a ladybird or hedgehog and sell on Etsy. Isn't nature wonderful?

Abrasion is also something that's sorely needed in hi-fi. Trouble is, we ain't getting enough of it.

To explain why, I want you to picture Tony Robinson. The Baldrick of this parish and the man who would gaily bounce around a different sort of trench on the BBC TV programme 'Time Team'. Within which, he would run around terribly fast, hither and thither, securing breathless updates on the latest dig, offering wide-eyed excitement and puppy-dog enthusiasm. Fit to burst, he was.

Archeology for the masses it might have been but I want you to recall the sights inside one of those trenches.

Just ignore the wide-brimmed hat and West Country accent of Phil Harding for a sec. and look below. There you will see an eager young tike, prodding the hardened soil. A piece of pottery is partially revealed. Our intrepid urchin is carefully brushing away the friable dust and soil. There, like some remnant of the Roman version of Habitat, we can see the patterns on a fragile pot. No doubt used to contain olives. Perhaps wine. Who can tell.

Now keep looking at that pot.

This trench is actually a metaphor. A metaphor for a vinyl groove. That dust is the daily grime that builds up in the groove.

The solid, caked, baked soil? That, within an LP – or clinging to it – is a heady concoction sautéed lightly from hardened oils emanating from sweat, the fabled 'release agent' and other substances that I wouldn't like to dwell upon in a family magazine.

The pot itself? The detail you're desperately trying to access when you listen to a vinyl record on your hi-fi. But it's caked in dirt.

Time Team perfectly illustrates not just how difficult it is to properly clean your vinyl, it offers the essential clue as to why many of us vinyl fans are not cleaning our vinyl properly. Because your detail remains stuck in the trench. It's all down to abrasion. Or the lack of it.

Whenever you clean your record, the chances are that you will clean it manually with a felt pad or carbon brush or some such. If you're flush with a bit of cash, you may have spent out on a record cleaning machine (RCM). There's plenty out there, you know the brands. They range from a couple of hundred pounds to a couple of thousand.

I've tested and used most of them.

In use, you either clean 'dry' with that felt pad or brush hoping to dislodge as much dust and grime as possible.

With a RCM, you're probably looking at using the machine in conjunction with a liquid of some sort. The reckless will apply, directly to the vinyl surface, a liquid containing a high-strength alcohol that will risk immediate damage to the groove. Others will apply an enzyme-based liquid.

The upshot for both applications

is that you spread the liquid around the vinyl surface with a brush of some sort, cross your fingers then you Hoover up the liquid and then you're done.

The hope is that you will improve sound quality. You will. But the degree of improvement will only go so far and not far enough.

I've been testing record cleaning liquids and hardware for decades now. Every time I found a new toy to play with, one that did a good job "right then" I would think to myself, "This is it! I've finally found the answer! I can rest easy now and just play my vinyl!"

Then I would write about it, proclaiming how amazing liquid Y was and how much more efficient RCM X was and how System Z was truly the way to go.

Three months later, I would discover a new liquid/system/hardware and I'd have to think again.

Well, I've been doing a lot of testing of late and the one element that is becoming essential in terms of vinyl cleaning is, you guessed it, abrasion.

Liquids – whether applied directly to the vinyl surface or applied as vinyl is dunked into a machine-held bath – act like an archeologist's brush. They shine the easily accessible detail, the detail that's there yet veiled.

If you want to find the rest. The detail hiding behind the hardened oils? That trench-based hardened soil I mentioned above? The hardened stuff in the groove that won't shift by dowsing with a drop or two of liquid? You need abrasion.

For that? You need one of two things: an ultrasonic cleaner or, if you're on a hudget, the manual cleaning design genius of...the Disco Antistat. ●

# DIVIDING AUDIOPHILES SINCE 1982



**NVA**

# "would you prefer music picked by human beings... or algorithms?"



Martin Pipe

In last month's column, I recalled the story of Thameside Radio – a London pirate station active during the late 1970s and early 1980s. Lest we forget, these inner-city pirates tended to use low-powered transmitters (100W or less) feeding haphazard aerials atop tower blocks. Compare such modest hardware to the substantially-powerful equipment that radiates national BBC services to London and the south-east. The FM transmitter in Wrotham was the BBC's first, back in 1955; for many years, Radios 2, 3 and 4 have been sent on their way to listeners courtesy of an effective radiated power calculated to be 250kW (half that for Radio 1). With this in mind, it was amazing the pirates achieved their reach. Back in the '80s I enjoyed listening to soul and funk stations like TKO, LWR and JFM here in Southend – over 30 miles away, and well outside their intended service area.

To avoid obtrusive stereo hiss from London's low-power pirates I had to switch my tuner to mono. Although some broadcasts sounded terrible others were in audio terms virtually indistinguishable from legit stations. Studios featured budget hi-fi turntables and cassette decks (used to play jingles) that came from 'clearance' retailers like Hyper-Fi in Barking or – in its early days – Richer Sounds.

Some DJs clearly loved the music. Others were in it for the money or ego-stroking. These gentlemen (there were few female pirates) would happily talk over the music, leaving listeners to put up with banal observations guaranteed to annoy anyone but loyal fans. Even in the 1980s, though, this was nothing new;

witness the off-shore personality-jocks bobbing on the (air)waves two decades earlier. Some of these joined the Beeb after the 1967 Marine Offences Act sunk the pirate ships. They were brilliantly (and mercilessly!) parodied by Harry Enfield and Paul Whitehouse ('Smashie and Nicey'), ironically on a BBC TV comedy show.

Enfield outlined the backgrounds of these characters in a 1997 book. "It has always struck Paul and I that there were two main types of DJs...those who loved music (like John Peel and Alan Freeman) and those who loved the sound of their own voices (like Dave Lee-Travis). Many of the latter clearly couldn't care less about music". Peel once told Enfield that he "went to dinner at a top Radio 1 DJ's house" and noted a total lack of music or record-playing equipment. Enfield did however acknowledge that some DJs bridged the two categories, Tony Blackburn for example displaying a "passion for and expert knowledge of...soul music" while enjoying "a good natter".

If the recent correspondence of Hi-Fi World readers is anything to go by, these radio archetypes are still with us – but tempered by today's annoying social media-driven 'mateyness'. The 'chat-before-music' crowd may continue to peddle their wares on Radios 1 and 2 – and, for that matter, the garbage that has replaced the UK's once-great Independent Local Radio system – but there are alternatives, not least from the unfairly-maligned BBC.

There's little point revisiting Aunty's unique Radio 3 and the crucial role it plays in classical music, while its biggest commercial rival happily employs celebrities to pump out the same old 'toons'...day

in, day out. As most of the Hi-Fi World criticism has been levelled at the BBC's pop/rock radio output, I must ask the complainers if they have tried the digital-only 6 Music?

Its DJs are not only obvious music-lovers, but frequently musicians too. Lauren Laverne was once a singer/guitarist with the Sunderland outfit Kenickie, Don Letts (who used to make videos for The Clash) co-founded the genre-mixing 80s band Big Audio Dynamite, and Huey (Morgan) continues to front hip-hopping rockers the Fun Lovin' Criminals. Then we have Elbow's Guy Garvey, Cerys Matthews of Catatonia fame and of course the inimitable Iggy Pop. 6 Music also employs other great presenters and DJs, but their past musical careers aren't so illustrious. Craig Charles, who first came to public attention as Dave Lister in cult space comedy Red Dwarf, is as passionate about soul music as Tony Blackburn. His Saturday show follows Gilles Peterson's eclectic selection.

Is electronica more your bag? Try the programmes presented by musical psychotherapist Nemone, Mary Anne Hobbs (whose late-night Radio 1 show was essential listening for me, back in the late 1990s/early 2000s) and John Peel's son Tom Ravenscroft. It's hard to remember all the brilliant acts I have discovered (or rediscovered!) through 6 Music in recent years. They include Bodega, Sleaford Mods, Vagabon, Laura Marling, John Grant, Unknown Mortal Orchestra, Idles, Totally Enormous Extinct Dinosaurs and Michael Kiwanuka. Sure, music-streaming services like Spotify are displacing traditional radio. But would you prefer listening to music picked by human beings...or algorithms? ●

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# "What was acceptable in the 50's is not okay now!"



Dave Tutt

A couple of relics arrived at the workshop this week. I suppose relics is not the right word as the design is still just as valid today as it was when new back in 1953. But many modern hi-fi buyers would consider valve mono-blocks that look closer to industrial hardware rather undesirable – and of course there is the spouse aspect to consider too.

Bought at a local auction, a pair of Quad II power amps, with serial numbers reasonably close together, didn't look too bad but had a number of things to be done that would bring them up to date and make them work.

You have to decide at an early stage how far you are going to go with such amps. If you want to create a like-new solution then the spray booth has to come out as the rust and scratches needs to be sorted. That means a complete rebuild which I think, unless you just want to look at them, is a little extreme.

My feeling is, replace the resistors as they are easy to do and relatively cheap and will have all changed in value anyway, so it makes sense. Any capacitor that is split or looks like it has suffered due to heat should come out too.

Like a lot of these old valved amps the worse things in Quad IIs are the connections, then the resistors and capacitors that are off-value – and of course worn out valves.

The Quad II power amplifier doesn't have a simple audio line-in socket but a six pin Jones or Plessey socket carrying heater and HT as well as audio. In the modern age unless you are going for 100% authenticity this should really come out. It's a health and safety issue as much as anything; mixing high

voltage DC with everything else on the same plug isn't ever going to be used today.

Thinking of keeping the connector? Then for heaven's sake make sure it's plugged right in as exposed contacts have 300 Volts DC on them and apart from the cracks and pops those plugs going in and out will always make it just too dangerous not only for the cat, but also for unsuspecting members of the family who might just want to put some music on.

The connector can be removed and a gold plated phono socket fitted onto a metal plate which looks so much better. The original ones will be noisy so unless you are desperate to keep them looking as new it will improve safety and your listening pleasure. Otherwise the cost of an old 6 blade Jones connector is liable to be more than £30 and the phono adaptors are £65, so a pair of those makes for £150 on the bill before we start.

If, like the ones I have here, you have no mains connectors, that is also something of a problem. They are rare and only original ones from the 50's seem to be available. These are expensive as well as being hard plastic or Bakelite – neither of which inspire confidence. They really are not safe. I know that sounds rather extreme but believe me, the reason these went out was exactly because they were dangerous.

My last pair of Quad IIs with all the leads when they arrived were lethal. Damp ingress into Bakelite causes it to become conductive – and worse when it tends to arc. So you have plenty to make things nasty. I know people will say it's never going to get damp but trust me, having had all sorts of ancient hardware with this material as an insulator you very soon realise it isn't – a good insulator I mean.

Try getting a Brennell reel-to-reel tape machine to pass its earth leakage test under PAT rules and you will see Bakelite isn't a great product, especially used as an insulator inside motors over 50 years old!

There is also the issue of earthing. These amps were intended to run with the partnering preamp which earthed the power amps via the returns on the Jones connector. If you are not using one then where is your earth going to come from? Down the screen of the audio cable. Now there is another issue here as your preamp might not be earthed as is the modern way – and to have all that hardware not earthed is really not a good idea.

If you earth both there may be an issue with earth loops because of the very thing you really shouldn't leave off! Oh – and if you have them on separate mains plugs so they can be next to your speakers they really should have mains switches on them too!

I feel with these sorts of amps we should obviously maintain the basic structure of the thing but at the same time we cannot compromise the safety aspect. What was acceptable in the 50's is not okay now! So new mains connectors are a must. The resistors are an easy replacement. Capacitors are relatively few in these amps but there is really only a crucial pair of caps which can be replaced with modern equivalents but you might want to add some into the circuit to emulate the effect of the metal casing on the originals.

With all this done Quad IIs can be made to work in the modern world and give a good result. They won't blow you off the planet even with today's sensitive loudspeakers, but there's plenty of romance in those old chassis. ●

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# WORLD CLASSICS

Here is our list of the great and good from audio's glorious past, products that have earned their place in hi-fi history. You'll also see some oddities which aren't classic as such, but are great used buys. The year of introduction is given, alongside the original UK launch price.

## TURNTABLES

**EAT FORTE** 2009 £12,500

Lavishly finished two box, two motor turntable with gorgeous Ikeda 407 tonearm bundled. Exceptionally stable and unfussy performer with a relaxed but highly enjoyable gait



**FUNK FIRM VECTOR II** 2009 £860

Innovative engineering gives a nimble, pacy and musical sound that's one of the best at the price.

**REGA P2** 2008 £300

Excellent value for money engineering, easy set up and fine sound.

**MCINTOSH MT10** 2008 £8,995

Big, expensive, controversially styled and glows more than some might consider necessary, but an astonishingly good performer.

**REGA P3-24** 2008 £405

Seminal affordable audiophile deck with fine bundled tonearm. Tweakable, and really sings with optional £150 outboard power supply.

**ACOUSTIC SOLID ONE** 2007 £4,050

Huge turntable, both in terms of sheer mass and sonic dynamics. Fit up to three arms and enjoy, just don't damage your back moving it...

**AVID VOLVERFE SEQUEL** 2007 £4,600

Stylish high end vinyl spinner with industrial strength build quality and a sound to match. Sound is edge-of-the-seat stuff.

**MICHELL GYRODEC SF** 2005 £1,115

Design icon with superlative build. Sound is beautifully smooth, effortless and exceptionally expansive.

**MARANTZ TT-15S1** 2005 £1,299

Cracking all in one deck/arm/cartridge combination, this must surely be the best sound\*plug and play package at this price point.

**MICHELL TECNODEC** 2003 £579

Superb introduction to Michell turntables - on a budget. Top quality build and elegant design mean it's still the class of the mid-price field.



**MICHELL ORBE** 1995 £2,500

The top Michell disc spinner remains a superbly capable all rounder with powerful, spacious sound that's delicate and beguiling.

**SME MODEL 10A** 1995 £4,700

Exquisitely engineered deck and SME V tonearm combo that's an extremely accomplished performer with classical music.

**LINN AXIS** 1987 £253

Cut-price version of the Sondek with LVX arm. Elegant and decently performing package. Later version with Akito tonearm better.

**ROKSAN XERXES** 1984 £550

Super tight and clean sound, with excellent transients. Less musical than the Sondek, but more neutral. Sagging plinth top-plates make them a dubious used buy.

**DUAL CS505** 1982 £75

Simple high quality engineering and a respectable low mass tonearm made for a brilliant budget buy. Polished, smooth and slightly bland sound.

**MICHELL GYRODEC** 1981 £599

Thanks to its stunning visuals, this bold design wasn't accorded the respect it deserved. Clean, solid and architectural sound.

**TOWNSHEND ROCK** 1979 £ N/A

Novel machine has extremely clean and fluid sound. Substantially modified through the years, and capable of superb results even today.

**MARANTZ TT1000** 1978 £ N/A

Beautiful seventies high end belt drive with sweet and clean sound. Rare in Europe, but big in Japan.



**REGA PLANAR 3** 1978 £79

Brilliantly simple but clean and musical performer, complete with Acos-derived S-shaped tonearm. 1983 saw the arrival of the RB300, which added detail at the expense of warmth. Superb budget buy.

**SONY PS-B80** 1978 £800

First outing for Sony's impressive 'Riotracer' electronic tonearm. Built like a tank with a clean and tidy sound, albeit lacking involvement. Scarily complicated and with no spares support - buy with caution!

**TRIO LD-7D** 1978 £600

The best 'all-in-one' turntable package ever made. Clean, powerful and three-dimensional sound, ultimately limited by the tonearm.

**ADC ACCUTRAC 4000** 1976 £300

Bunkers 1970s direct drive that uses an infra red beam to allow track selection and programming. More of a visual and operational delight than a sonic stunner.

**PIONEER PLC-590** 1976 £600

Sturdy and competent motor unit that performs well with a wide range of tonearms. Check very thoroughly before buying due to electronic complexity and use of some now-obsolete ICs.

**PIONEER PL12D** 1973 £36

When vinyl was the leading source, this bought new standards of noise performance and stability to the class, plus a low friction S-shaped tonearm. Later PL112D was off the pace compared to rivals.



**TECHNICS SP10** 1973 £400

Seminal Japanese engineering. Sonics depend on plinths, but a well mounted SP10/II will give any modern a hard time, especially in respect of bass power and midband accuracy.

**LINN SONDEK LP12** 1973 £86

For many, the Brit superdeck; constant mods meant that early ones sound warmer and more lyrical than modern versions. Recent 'SE' mods have brought it into the 21st century, albeit at a price.

**ARISTON RD11S** 1972 £94

Modern evolution of Thorens' original belt drive paradigm, Scotland's original super-deck was warm and musical, albeit soft. Still capable of fine results today.

**GOLDRING LENCO GL75** 1970 £15.6S

Simple, well engineered motor unit with soft, sweet sound and reasonable tonearm. Good spares and servicing support even today.

**GARRARD 301/401** 1953 £19

Tremendously strong and articulate with only a veiled treble to let it down.



**THORENS TD124** 1959 £ N/A

The template for virtually every 1970s 'superdeck', this iconic design was the only real competition for Garrard's 301. It was sweeter and more lyrical, yet lighter and less impactful in the bass.

TONEARMS

- REGA RB251** 2009 £136  
Capable way past its price point, the new 3-point mount version of the classic RB250 serves up a taut and detailed sound. A little lean for some tastes, but responds well to rewiring and counter-weight modification.
- HELIUS OMEGA** 2008 £1,595  
Stylish and solid lump of arm with fabulous build quality, that turns in a dynamic and weighty performance.
- AUDIO ORIGAMI PU7** 2007 £1,300  
The classic Syrinx PU3 updated to spectacular effect. Hand made to order, with any mass, length and colour you care for. Fit, finish and sound truly impressive.



- GRAHAM PHANTOM** 2006 £3,160  
Sonically stunning arm with magnificent bass dexterity and soundstaging. Build quality up to SME standards, which is really saying something!
- TRI-PLANAR PRECISION** 2006 £3,600  
Immaculate build, exquisite design and one of the most naturally musical and lucid sounds around.
- MICHELL TECNOARM A** 2003 £442  
Clever reworking of the Rega theme, using blasting, drilling and rewiring!
- SME 309** 1989 £767  
Mid-price SME comes complete with cost-cut aluminium armtube and detachable headshell. Tight, neutral sound with good tonality, but lacks the IV's pace and precision.
- NAIM ARO** 1987 £1,425  
Charismatic unipivot is poor at frequency extremes but sublime in the midband; truly emotive and insightful.

- SME SERIES V** 1987 £2,390  
Vice-like bass with incredible weight, ultra clear midband and treble astound, although some don't like its matter of factness!
- NAIM ARO** 1986 £875  
Truly endearing and charismatic performer - wonderfully engaging mid-band makes up for softened frequency extremes.



- ALPHASON HR100S** 1981 £150  
First class arm, practically up to present-day standards. Buy carefully, though, as there is no service available now. Totally under priced when new, exceptional.
- SME SERIES III** 1979 £113  
Clever variable mass design complete with Titanium Nitride tube tried to be all things to all men, and failed. Charming nonetheless, with a warm and inoffensive sound.

- TECHNICS EPA-501** 1979 £ N/A  
Popular partner for late seventies Technics motor units. Nice build and Titanium Nitride tube can't compensate for middling sound.
- LINN ITTOK LVII** 1978 £253  
Japanese design to Linn specs made for a muscular, rhythmic sound with real dynamics. The final LVIII version worth seeking out.
- AUDIO TECHNICA AT 1120** 1978 £75  
Fine finish can't compensate for this ultra low mass arm's limited sonics - a good starter arm if you've only got a few quid to spend.
- HADCOCK GH228** 1976 £46  
Evergreen unipivot with lovely sweet, fluid sound. Excellent service backup.
- ACOS LUSTRE GST-1** 1975 £46  
The archetypal S-shaped seventies arm; good, propulsive and involving sound in its day, but ragged and undynamic now.

- SME 3009** 1959 £18  
Once state of the art, but long since bettered. Musical enough, but weak at frequency extremes and veiled in the midband. Legendary serviceability and stunning build has made it a cult, used prices unjustifiably high.

PHONO STAGES

- CREEK OBH-8 SE** 1996 £180  
Punchy, rhythmic character with doodles of detail makes this a great budget audiophile classic. Partner with a Goldring G1042 for an unbeatable budget combination.
- MICHELL ISO** 1988 £ N/A  
This Tom Evans-designed black box started the trend for high performance offboard phono stages. Charismatic, musical and punchy - if lacking in finesse.



- LINN LINNK** 1984 £149  
Naim-designed MC phono stage built to partner the original Naim NAIT - yes, really! Fine sound, although off the pace these days.

INTEGRATED AMPLIFIERS

- NAIM NAIT XS** 2009 £1,250  
With much of the sound of the Supernait at half the price, this is powerful, articulate and smooth beyond class expectations.
- MUSICAL FIDELITY PRIMO** 2009 £7,900  
Seriously expensive, but one listen explains why. Wonderfully exuberant sound that can only come from a top quality tube design.
- SUGDEN A21A S2** 2008 £1,469  
Crystalline clarity, dizzying speed and forensic detailing. Power limited so needs sensitive speakers.
- CREEK OBH-22** 2008 £350  
Brilliant value budget passive, with remote control, mute and input switching, plus an easy, a neutral sound.
- CAMBRIDGE 840A V2** 2007 £750  
Version 2 addresses version 1's weaknesses to turn in a mightily accomplished performance, offering power, finesse and detail.

- SUGDEN IA4** 2007 £3,650  
Goodly amount of Class A power, icy clarity and a breathtakingly fast, musical sound make this one of the very best super-integrateds.
- NUFORCE P-9** 2007 £2,200  
Impressive two box preamp with superb resolution and an engaging sound.
- MELODY PURE BLACK 101D** 2007 £3,295  
The clarity and openness of valves plus firm grip and fine detail make this a preamplifier masterclass.

- AUDIOLAB 8000S** 2006 £400  
In another life, this sold for three times the price, making it a stand-out bargain now. Very clean, powerful and tidy sound.

- MCINTOSH MA6800** 1995 £3735  
Effortlessly sweet, strong and powerful with seminal styling to match.

- DELTEC** 1987 £1900  
Fast, dry and with excellent transients, this first DPA integrated is the real deal for eighties obsessives. Ridiculously punchy 80W per channel from a tiny, half-size box. Radical, cool and more than a little strange.

- EXPOSURE VII/VIII** 1985 £625  
Seminal pre-power, offering most of what Naim amps did with just that little bit extra smoothness. Lean, punchy and musical.



- AUDIOLAB 8000A** 1985 £495  
Smooth integrated with clean MM/MC phono stage and huge feature count. Extremely reliable, too. Post '93 versions a top used buy.

- VTL MINIMAL/50W MONOBLOCK** 1985 £1,300  
Rugged, professional build and finish allied to a lively and punchy sound (albeit with limited power) make them an excellent used buy.

- MUSICAL FIDELITY A1** 1985 £350  
Beguiling Class A integrated with exquisite styling. Questionable reliability.

- MISSION CYRUS 2** 1984 £299  
Classic 1980s minimalism combines arresting styling with clean, open, lively sound. Further upgradeable with PSX power supply.



- NAIM NAIT** 1984 £350  
Superb rhythms and dynamics make it truly musical, but tonally monochromatic. Fine phono stage, very low power.

- CREEK CAS4040** 1983 £150  
More musical than any budget amp before it; CAS4140 loses tone controls, gains grip.

- MYST TMA3** 1983 £300  
Madcap eighties minimalism, but a strong and tight performer all the same.

**ROTEL RA-820BX** 1983 £139  
Lively and clean budget integrated that arguably started the move to minimalism.

**NAD 3020** 1979 £69  
Brilliantly smooth, sweet and punchy at the price and even has a better phono stage than you'd expect. The archetypal budget super-amp.

**ROGERS A75** 1978 £220  
Lots of sensible facilities, a goodly power output and nice sound in one box. The later A75II and A100 versions offered improved sonics and were seriously sweet.

**A&R A60** 1977 £115  
Sweet and musical feature-packed integrated; the Audiolab 8000A remains a classic.



**SUGDEN C51/P51** 1976 £130  
Soft sounding early Sugden combo with a plethora of facilities and filters. A sweet and endearing performer but lacking in power and poor load driving ability.

**SUGDEN A21** 1969 £ N/A  
Class A transistor integrated with an eminently likeable smoothness and musicality. Limited inputs via DIN sockets.

**ROGERS CADET III** 1965 £34  
Sweet sounding valve integrated, uses ECL86 output valves, even has a half useable phono stage, sweet, warm a good introduction to valves

**CHAPMAN 305** 1960 £40  
Smooth pre/power combo with a sweet and open sound. Not quite up to Leak/Quad standards but considerably cheaper secondhand.

## POWER AMPLIFIERS

**ELECTROCOMPANET NEMO** 2009 £4,995 (EACH)  
Norwegian power station as cool as a glacier tonally, yet impresses with sheer physicality and fleetness of foot. 600W per channel.

**NUFORCE REFERENCE 9SE V2** 2006 £1,750  
Brilliant value for money monoblocks with massive power and super-clean, three dimensional sound.

**QUAD II-80** 2005 £6,000 PER PAIR  
Quad's best ever power amplifier. Dramatic performer with silky but dark tonality, blistering dynamics, serious power and compellingly musical sound.



**QUAD 909** 2001 £900  
Current-dumper has a smooth and expansive character with enough wallop to drive most loads. Not the most musical, but superb value all the same.

**NAIM NAP 500** 2000 £17,950  
Flagship amplifier will drive just about any speaker with ease. Factor in the company's trademark pace, rhythm and timing and it all adds up to one effortlessly musical package.

**MARANTZ MODEL 9** 1997 £8000  
Authentic reproduction monoblocks still more than cut the sonic mustard. Highly expensive and highly sought after.

**MICHELL ALECTO** 1997 £1989  
Crisp, clean and beautifully controlled with gorgeous styling. Partnered with the £1650 Orca this sounds delicious!



**MUSICAL FIDELITY XA200** 1996 £1000  
200W of sweet smooth transistor stomp in a grooved tube! Under-rated oddity.

**PIONEER M-73** 1988 £1,200  
Monster stomp from this seminal Japanese power amplifier, complete with switchable Class A and Class B operation. Clean, open and assured sounding, albeit a tad behind the pace on high speed dance music. Rosewood side cheeks and black brushed aluminium completes the experience.

**KRELL KMA100 II** 1987 £5,750  
Monoblock version of the giant KSA-100 is one of the seminal 80s transistor power amplifiers. Massive wallop allied to clean and open Class A sound makes this one of the best amplifiers of its type.

**RADFORD STA25 RENAISSANCE** 1986 £977  
This reworking of Radford's original late sixties design was possessed of a wonderfully rich, old school valve sound with enough power (25W) and lots of subtlety.

**QUAD 405** 1978 £115  
The first of the current dumpers is a capable design with smooth, effortless power and a decently musical sound. 606 and 707 continue the theme with greater detail and incision.

**HH ELECTRONICS TPA-500 AMPLIFIERS** 1973 £110  
Simple design with easily available components, solid build quality and fine sound make for a surprisingly overlooked bargain.

**LECSO AP1** 1973 £ N/A  
Madcap cylindrical styling alluded to its 'tower of power' pretensions, but it wasn't. Poor build, but decently clean sounding when working.

**QUAD 303** 1968 £55  
Bullet proof build, but woolly sound. Off the pace, but endearing nonetheless. Some pipe smoking slipper wearers swear by them!

**LEAK STEREO 20** 1958 £31  
Excellent workaday classic valve amplifier with decent power and drive. Surprisingly modern sounding if rebuilt sympathetically. Irrepressibly musical and fluid.



**LEAK STEREO 60** 1958 £N/A  
Leak's biggest valve power amp offers 35 Watts per channel and more low end welly than the smaller Stereo 20. Despite concerns over reliability rarity value means high price.

**QUAD II** 1952 £22  
The all-time classic valve amplifier, with a deliciously fluid and lyrical voice. In other respects though, it sounds hopelessly dated. Low power and hard to partner properly.



**LEAK POINT ONE, TL10, TL12.1, TL/12 PLUS** 1949 £28  
Early classics that are getting expensive. Overhauling is de rigeur before use, using original parts if possible. Surprisingly crisp and musical. Deeply impressive in fine fettle.

## PRE AMPLIFIERS

**AUDIOLAB 8000C** 1991 £499  
Tonally grey but fine phono input and great facilities make it an excellent general purpose tool.



**CROFT MICRO** 1986 £150  
Budget valve pre-amp with exceptionally transparent performance.

**CONRAD JOHNSON MOTIV MC-8** 1986 £2,500  
Minimalist FET-based preamplifier is brilliantly neutral and smooth with a spry, light balance in the mould of Sugden. Something of a curio, but worthwhile nonetheless.

**AUDIO RESEARCH SP-8** 1982 £1,400  
Beautifully designed and built high end tube pre-amplifier with deliciously sweet and smooth sound. Not the last word in incision or grip.

**LINN LK-1** 1986 £499  
A brave attempt to bring remote controlled user-friendliness to hair-shirt audiophile hi-fi. Didn't quite work, but not bad for under £100.

**NAIM NAC 32.5** 1978 £ N/A  
Classic high end pre. Brilliantly fast and incisive sound that's a joy with vinyl but a tad forward for digital.

**LECSO AC-1** 1973 £ N/A  
Amazing styling courtesy of Allan Boothroyd can't disguise its rather cloudy sound, but a design classic nonetheless.

**QUAD 33** 1968 £43  
Better than the 22, but Quad's first tranny pre isn't outstanding. Responds well to tweaking/ rebuilding though...



**LEAK POINT ONE STEREO** 1958 £ N/A  
Good for their time, but way off the pace these days. Use of EF86 pentode valve for high gain rules out ultra performance. Not the highest-fi!

**QUAD 22** 1958 £25  
The partner to the much vaunted Quad II monoblocks - cloudy and vague sound means it's for anacrophiles only.

**LOUDSPEAKERS**

**WHARFEDALE DIAMOND 10.3** 2010 £290  
Great small standmounters for audiophiles on a budget; dry punchy sound with impressive sound-staging at the price.



**YAMAHA SOAVO 1.1** 2009 £3,000  
Musical, transparent with impressive dynamics and cohesion. Excellent build and finish.

**USHER BE-10** 2009 £10,500  
Clever high end moving coil design with immense speed and dizzying clarity allied to epic punch. Needs the best ancillaries to fly, though...



**SPENDOR A5** 2009 £1,695  
Multi-talented floorstanders with generous scale and punch and Spendor's classic mid-range detail. Deliver a sound that thoroughly engages whatever you care to play.

**MONITOR AUDIO PL100** 2008 £2,300  
The flagship 'Platinum' series standmounter has a lovely warm and delicate sound with superlative treble.



**MARTIN LOGAN SOURCE** 2008 £1,600  
Brilliant entry level electrostatics, giving a taste of loudspeaker esoterica for the price of most moving coil boxes. Tremendous clarity, evenness and delicacy, although not the world's most powerful sound.

**PMC OB11** 2008 £2,950  
Cleverly updated floorstanders give scale and solidity in slim and well finished package.

**ISOPHON GALILEO** 2007 £2,100  
Big standmounters that really grip the music and offer quite startling dynamics and grip.

**ONE THING AUDIO ESL57** 2007 £1,450  
One Thing Audio's modifications keep the good old ESL57 at the very top of the game.

**MOWGAN AUDIO MABON** 2007 £3,995  
Massively capable loudspeakers that offer dynamics, scale and clarity in an elegantly simple package. Wide range of finishes, too.

**B&W 686** 2007 £299  
Baby standmounters offer a sophisticated and mature performance that belies both their dimensions and price tag.

**B&O BEOLAB 9** 2007 £5,000  
Technically impressive and visually striking loudspeakers with sound quality that more than matches their looks.



**ISOPHON CASSIANO** 2007 £12,900  
Drive units featuring exotic materials allied to superlative build quality result in an immensely capable loudspeaker. Not an easy load to drive, however.

**QUAD ESL-2905** 2006 £5,995  
The old 989 with all the bugs taken out, this gives a brilliantly neutral and open sound like only a top electrostatic can; still not a natural rock loudspeaker, though.

**B&W 801D** 2006 £10,500  
In many respects, the ultimate studio monitor; dazzling clarity and speed with commanding scale and dynamics.



**REVOLVER CYGNIS** 2006 £5,999  
Revolver pull out all the stops and show what they can do with this magnificent flagship loudspeaker. A superb monitor that is like a mini B&W 801D in many ways.

**USHER BE-718** 2007 £1,600  
Beryllium tweeters work superbly, allied to a fast and punchy bass driver. The result is subtle, smooth and emotive.

**USHER S-520** 2006 £350  
Astonishingly capable budget standmounters that offer detail and dynamics well beyond their price and dimensions.

**ACOUSTIC ENERGY AE1 CLASSIC** 2006 £845  
Brilliantly successful remake of an iconic design; not flawless, but surely one of the most musical loudspeakers ever made.



**MISSION X-SPACE** 1999 £499  
The first mass production sub and sat system using NXT panels is a sure-fire future classic - not flawless, but a tantalisingly unboxy sound nevertheless!

**MISSION 752** 1995 £495  
Cracking Henry Azima-designed floorstanders combined HDA drive units and metal dome tweeters with surprisingly warm results. Benign load characteristics makes them great for valves.

**TANNOY WESTMINSTER** 1985 £4500  
Folded horn monsters which sound good if you have the space. Not the last word in tautness but can drive large rooms and image like few others.



**CELESTION SL6** 1984 £350  
Smallest two way design complete with aluminium dome tweeter and plastic mid-bass unit set the blueprint for nineteen eighties loudspeakers. Very open and clean sounding, albeit course at high frequencies and limp in the bass. Speakers would never be the same again...

**HEYBROOK HB1** 1982 £130  
Peter Comeau-designed standmounters with an amazingly lyrical yet decently refined sound. Good enough to partner with very high end ancillaries, yet great with budget kit too. A classic.



**QUAD ESL63** 1980 £1200  
An update of the ESL57, with stiffer cabinets. Until the 989, the best of the Quad electrostatics.

**MISSION 770** 1980 £375  
Back in its day, it was an innovative product and one of the first of the polypropylene designs: warm, smooth, clean and powerful sound.

**ACOUSTIC RESEARCH AR18S** 1978 £125  
Yank designed, British built loudspeaker became a budget staple for many rock fans, thanks to the great speed from the paper drivers, although finesse was most definitely not their forte...

**YAMAHA NS1000** 1977 £532  
High tech Beryllium midband and tweeter domes and brutish 12" woofers in massive sealed mirror image cabs equals stunning transients, speed and wallop allied to superb transparency and ultra low distortion. Parlaer carefully!

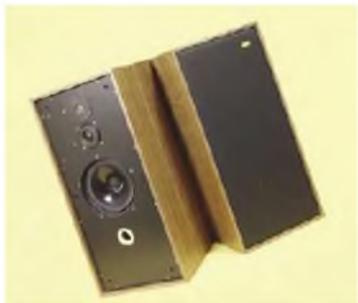


**JR 149** 1977 £120  
Cylindrical speaker was ignored for decades but now back in fashion! Based on classic KEF T27/B110 combo as seen in the BBC LS3/5a. Doesn't play loud, needs a powerful transistor amplifier, but has clarity and imaging.

**KEF R105** 1977 £785  
Three way Bextrene-based floorstander gave a truly wideband listen and massive (500W) power handling. A very neutral, spacious and polite sounding design, but rhythmically well off the pace.

**IMF TLS80** 1976 £550  
Warm and powerful 1970s behemoth with transmission loading and a mixture of KEF and Celestion drive units. Impressively physical wideband sound but rhythms not a forte.

**SPENDOR BC1** 1976 £240  
 Celestion HF1300 tweeter meets bespoke Spendor Bextrene mid-bass unit. The result is a beautifully warm yet focussed sound. A little bass bloom necessitates careful low-stand mounting.



**HH ELECTRONICS TPA-50D AMPLIFIERS** 1973 £110  
 Simple design with easily available components, solid build quality and fine sound make for a surprisingly overlooked bargain. Not exactly stylish, however.

**BBC LS3/5A** 1972 £88  
 Extremely low colouration design is amazing in some respects – articulation, stage depth, clarity – and useless in others (both frequency extremes). Came in wide variety of guises from various manufacturers building it under licence.

**LEAK SANDWICH** 1961 £39 EACH  
 Warm sounding infinite baffle that, with a reasonably powerful amplifier can sound quite satisfying.

**QUAD ESL57** 1956 £45 EACH  
 Wonderfully open and neutral sound puts box loudspeakers to shame. Properly serviced they give superb midband performance, although frequency extremes less impressive. Ideally, use in stacked pairs or with subwoofers and supertweeters.

**SYSTEMS**

**MERIDIAN SOOLOOS 2.1** 2010 £6,990  
 Crisp styling, bright, colourful touchscreen, plus excellent search facilities. This is one hard disk music system with a difference. Best partnered to Meridian active loudspeakers.



**NAIM UNITIQUE** 2010 £995  
 Great little half width one-box system with truly impressive sound allied to a wealth of source options.

**ARCAM SOLO MINI** 2008 £650  
 Half the size and two-thirds the price of a full-sized Solo, the Mini gives very little away in terms of performance to its bigger brother.

**MERIDIAN F80** 2007 £1,500  
 Fantastically built and versatile DVD/CD/DAB/FM/AM unit, designed in conjunction with Ferrari. Ignore nay-sayers who sneer that it isn't a 'proper' hi-fi product. Just listen.

**MARANTZ 'LEGEND'** 2007 £22,000  
 The combination of SA-7S1 disc player, SC-7S2 preamp and MA-9S2 monoblocks delivers jaw-dropping performance.

**SHANLING MC-30** 2007 £650  
 Quite possibly the cutest all-in-one around with fine performance from the CD player, tuner and MP3 player input. Very low power, though.



**AURA NOTE PREMIER** 2007 £1,500  
 Lovely shiny CD/tuner/amplifier with fine sound quality and dynamic abilities.



**ARCAM SOLO NEO** 2006 £1,100  
 Excellent all-in-one system, with a warm, smooth and balanced sound to match the features and style.

**PEACHTREE AUDIO IDECCO** £1,000  
 Excellent sounding iPod dock, impressive DAC and fine amplifier section make this an excellent one box style system.



**TUNERS**

**ARCAM FMJ T32** 2009 £600  
 Excellent hybrid FM/DAB+ tuner with a smooth, engaging sound. Factor in its fine build and it's a super value package.



**MAGNUM DYNALAB MD-100T** 2006 £1,895  
 One of the best ways to hear FM that we know; superbly open and musical sound in a quirky but characterful package.

**MYRYAD MXT4000** 2005 £1,000  
 Sumptuous sound and top-notch build quality make for a tempting AM/FM package. Warm and richly detailed on good-quality music broadcasts.

**NAIM NAT03** 1993 £595  
 The warm, atmospheric sound is further proof of Naim's proficiency with tuners.

**CREEK CAS3140** 1985 £199  
 Excellent detail, separation and dynamics – brilliantly musical at the price. T40 continued the theme...

**QUAD FM4** 1983 £240  
 Supreme ergonomics allied to a pleasingly lyrical sound with plenty of sweetness and detail made this one of the best tuners around upon its launch.



**NAD 4040** 1979 £79  
 Tremendously smooth and natural sound allied to low prices and good availability make this budget analogue esoterica.

**MARANTZ ST-8** 1978 £353  
 Marantz's finest radio moment. Warm, organic sound plus an oscilloscope for checking the signal strength and multipath.

**YAMAHA CT7000** 1977 £444  
 Combines sleek ergonomics, high sensitivity and an explicit, detailed sound.



**SONY ST-5950** 1977 £222  
 One of the first Dolby FM-equipped tuners, a format that came to nought. Still, it was Sony's most expensive tuner to date, and boasted good sound quality with brilliant ergonomics.

**ROGERS T75** 1977 £125  
 Superb mid-price British audiophile design, complete with understated black fascia. Smooth and sweet with fine dimensionality.

**SANSUI TU-9900** 1976 £300  
 A flagship Japanese tuner. It boasts superlative RF performance and an extremely smooth and lucid sound.



**TECHNICS ST-8080** 1976 £180  
 Superb FM stage makes for a clean and smooth listen.

**REVOX B760** 1975 £520  
 The Revox offers superlative measured performance although the sound isn't quite as staggering as the numbers. Fine nonetheless, and surely the most durable tuner here?



**SEQUERRA MODEL 1** 1973 £1300  
 Possibly the ultimate FM tuner. Massive in terms of technology, size and features dedicated to extracting every ounce of performance from radio, including impressive multi-purpose oscilloscope display.

**LEAK TROUGHLINE** 1956 £25  
 Series I an interesting ornament but limited to 88-100MHz only. II and III are arguably the best-sounding tuners ever. Adaptation for stereo easy via phono multiplex socket. Deliciously lucid with true dimensionality.

**HEADPHONE AMPLIFIERS**

**GRAHAM SLEE NOVO** 2009 £255  
Dynamic headphone amplifier with a great sense of timing. Crisp, clear treble and warm midrange gives an involving sound.



**MUSICAL FIDELITY X-CAN V8** 2008 £350  
Open and explicitly detailed sound plus serious bass wallop. A great partner for most mid-to-high end headphones.

**CD PLAYER/RECORDERS**

**MUSICAL FIDELITY TRIVISTA** 2002 £4000  
When playing SACDs, the sweetest, most lucid and lyrical digital disc spinner we've heard. Old school stereo, pure DSD design. CD sound is up in the £1000 class, too! Future classic.

**MARANTZ SA-1** 2000 £5,000  
The greatest argument for SACD. This sublime Ken Ishiwata design is utterly musically convincing with both CD and SACD, beating most audiophile CD spinners hands down.



**SONY MDS-JF555ES** 2000 £900  
The best sounding MD deck ever, thanks to awesome build and heroic ATRAC-DSP Type R coding

**PIONEER PDR-555RW** 1999 £480  
For a moment, this was the CD recorder to have. Clean and detailed.

**MARANTZ DR-17** 1999 £1100  
Probably the best sounding CD recorder made; built like a brick with a true audiophile sound and HDCD compatibility.



**CAMBRIDGE AUDIO CD4SE** 1998 £200  
A touch soft in the treble and tonally light, but outstanding in every other respect.

**SONY TCD-8 DATMAN** 1996 £599  
Super clean sound makes this an amazing portable, but fragile.

**LINN KARIK III** 1995 £1775  
The final Karik was a gem. Superb transport gives a brilliantly tight, grippy dynamic sound, albeit tonally dry.

**NAIM CDS** 1990 £ N/A  
Classic Philips 16x4 chipset with serious attention to power supplies equals grin-inducing sonics.

**TECHNICS SL-P1200** 1987 £800  
CD version of the Technics SL-1200 turntable. Massively built to withstand the rigours of 'pr' use and laden with facilities - a great eighties icon

**SONY CDP-R1/DAS-R1** 1987 £3,000  
Sony's first two boxer was right first time. Tonally lean, but probably the most detailed and architectural sounding machine of the eighties.

**MARANTZ CD73** 1983 £700  
A riot of gold brushed aluminium and LEDs, this distinctive machine squeezed every last ounce from its 14x4 DAC -super musical



**MERIDIAN 207** 1988 £995  
Beautifully-built two-box with pre-amp stage. Very musical although not as refined as modern Bitstream gear. No digital output.

**CAMBRIDGE AUDIO CD1** 1986 £1500  
Inspired Stan Curtis redesign of Philips CD104, complete with switchable digital filter. Lean but tight and musical performer.



**MERIDIAN MCD** 1984 £600  
The first British 'audiophile' machine was a sweeter, more detailed Philips CD100. 14x4 never sounded so good, until the MCD Pro arrived a year later.

**SONY CDP-701ES** 1984 £890  
Sony's first bespoke audiophile machine used a 16x2 DAC to provide a clinically incisive sound; supreme build quality allied to the pure unadulterated luxury of a paperbook-sized remote control.

**YAMAHA CD-X1** 1983 £340  
Nicely built 16x2 machine with a very sharp and detailed sound; sometimes too much so. Excellent ergonomics, unlike almost every other rival of the time.

**SONY CDP-101** 1982 £800  
The first Japanese CD spinner was powerful and involving. Brilliant transport more than compensated for 16x2 DAC, and you even got remote control!



**ANALOGUE RECORDERS**

**AIWA XD-009** 1989 £600  
Aiwa's Nak beater didn't, but it wasn't half bad nonetheless. Massive spec even included a 16x4 DAC!

**NAKAMICHI CR-7E** 1987 £800  
The very best sounding Nakamichi ever - but lacks the visual drama of a Dragon.



**SONY WM-D6C** 1985 £290  
Single capstan transport on a par with a Swiss watch, single rec/replay head better than most Naks. Result: sublime

**PIONEER CTF-950** 1978 £400  
Not up to modern standards sonically, but a great symbol of the cassette deck art nonetheless.

**YAMAHA TC-800GL** 1977 £179  
Early classic with ski-slope styling. Middling sonics by modern standards, but cool nonetheless!

**SONY TC-377** 1972 £N/A  
A competitor to the Akai 4000D open reel machine, the Sony offered better sound quality and is still no slouch by modern standards

**REVOX A77** 1968 £145  
The first domestic open reel that the pros used at home. Superbly made, but sonically off the pace these days

**COMPACT DISC TRANSPORTS**

**ESOTERIC P0** 1997 £8,000  
The best CD drive bar none. Brilliantly incisive, ridiculously over-engineered.

**TEAC VRDS-T1** 1994 £600  
Warm and expansive sound made this a mid price hit. Well built, with a slick mech.

**KENWOOD 9010** 1986 £600  
The first discrete Jap transport was beautifully done and responds well to re-clocking.

**DACs**

**DCS ELGAR** 1997 £8500  
Extremely open and natural performer, albeit extremely pricey - superb.

**DPA LITTLE BIT 3** 1996 £299  
Rich, clean, rhythmic and punchy sound transforms budget CD players.

**CAMBRIDGE AUDIO DAC MAGIC** 1995 £99  
Good value upgrade for budget CD players with extensive facilities and detailed sonics.

**PINK TRIANGLE DACAPO** 1993 £ N/A  
Exquisite: the warmest and most lyrical 16bit digital audio we have ever heard.

**QED DIGIT** 1991 £90  
Budget bitstream performer with tweaks aplenty. Positron PSU upgrade makes it smooth, but now past it.

**CABLES**

**MISSING LINK CRYO REFERENCE 2008** £495/0.5M  
High end' interconnects, with deliciously smooth, open and subtle sound without a hint of edge.

**TECHLINK WIRES XS** 2007 £20  
Highly accomplished interconnects at an absurdly low price. Stunning value for money.

**VDH ULTIMATE THE FIRST** 2004 £250  
Carbon interconnects that help you forget the electronics and concentrate on the music. Miraculous transparency. Tight and tuneful bass mixed with air and space.



**WIREWORLD OASIS 5** 2003 £99/M  
Excellent mid-price design with a very neutral, silky and self-effacing sound. Superb value for money.

**TCI CONSTRICTOR 13A-6 BLOCK** 2003 £120  
Top quality 'affordable' mains outlet block, with fine build and good sonics. Well worth the extra over standard high street specials, which sound coarse and two-dimensional by comparison

# vinyl section

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DECEMBER 2020

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A budget turntable package with 24bit digital. Noel Keywood listens closely.

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Costs little but is awesomely capable. Noel Keywood comes away impressed.

### AUDIOPHILE BOOK 93

The Beatles Finally Let it Be – a book from Fab Four expert Bruce Spizer, reviewed by Paul Rigby.



## MORE MUSIC ON VINYL

Wright – who sadly passed away earlier this year – may be live on 'Betty Wright Live' but was the recording? Or was it a studio fudge with canned applause? Nevertheless, the LP remains essential for the energetic play of soul. Features two extra tracks.

Also look out for a 2LP version of Status Quo's underrated 'Spare Parts' (1969) in both mono and stereo, limited to 2,000 copies on orange and gold vinyl.

# news

## PAUL RODGERS

The ex-Free front man produced this double album in 1993. 'Muddy Water Blues: A Tribute to Muddy Waters' ([Music on Vinyl](http://Music.onVinyl.com); [www.musiconvinyl.com](http://www.musiconvinyl.com)) sounds best when the guest guitarists (and there are many) know their blues. People like Jeff Beck and Gary Moore. David Gilmour and Brian May are, well, OK. Trevor Rabin and Neal Schon? Hmm...



## WAH WAH

From Klamm, 'Africa Roja' (Wah Wah) was originally released in Spain in 1983. Adventurous and experimental prog, this 500 copy reissue derives from the original masters.



## BANDCAMP BABES

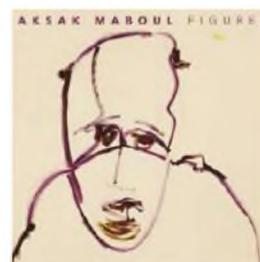
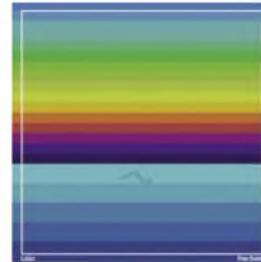
From Lotus comes 'Free Swim' (*Lotus Vibes*; [lotusvibes.bandcamp.com](http://lotusvibes.bandcamp.com)) on 2LPs (three sides plus an etching on the fourth). A suite of approachable jazz funk vibes that swing from cool, meditative vibes to funky grooves.

From Aksak Maboul comes the 2LP 'Figures' ([aksakmaboul.bandcamp.com/album/figures](http://aksakmaboul.bandcamp.com/album/figures)) via founder (and Crammed Discs boss) Marc Hollander and French lyrics via Véronique Vincent. Beats, jazz and cool lounge.

'Sing High! Sing Low!', the second album from The Silver Field ([thesilverfield.bandcamp.com](http://thesilverfield.bandcamp.com)) is an alt.folk outing with electronic fripperies that pushes a few boundaries.

Quest Ensemble's 'The Other Side' ([qensemble.bandcamp.com](http://qensemble.bandcamp.com)) combines classical, jazz, folk with minimalist structures. This vinyl edition is limited to 300 copies.

Ex-Mammoth Penguins and Standard Fare, Emma Kuper's debut, 'It Will Come Easier' ([ifikarecordings.bandcamp.com/album/it-will-come-easier](http://ifikarecordings.bandcamp.com/album/it-will-come-easier)). Simple songs, simply sung, direct and pleasing to the ear.



## IRMA THOMAS

'After the Rain' (Craft) sees this 2LP set on vinyl for the first time since its 2006 release. Thomas' home was destroyed during Hurricane Katrina that devastated New Orleans in 2005 and this album has a poignant connection to that tragedy. Planned before the hurricane hit, the songs on this LP remain spookily relevant. A significant LP and one that rests on a message of hope.



## TANGERINE DREAM

Two double album collections of so-called 'real-time compositions' from the krautrock legends now on coloured vinyl via IHM ([www.invisiblehands.co.uk](http://www.invisiblehands.co.uk)) played by the current incarnation of the group: Thorsten Quaeschning, Ulrich Schnauss and Hoshiko Yamane.

'Sessions II' via the E-Live Festival in Oirschot, The Netherlands, 2017. 'Sessions III' comes from the Elbphilharmonie in Hamburg/Germany, 2018 and the Synästhesie Festival III at Volksbühne in Berlin.

Pressed on – get this – "classic 140gm, not wasteful 180gm". Is this a sign towards the future?



## GEARBOX

New from the UK outfit ([www.gearboxrecords.com](http://www.gearboxrecords.com)) is a 2LP collection from UK sax man Alan Wakeman (Rick Wakeman's cousin, so I hear) who worked with Mike Westbrook, John Dankworth, Soft Machine, Don Rendell and Stan Tracey.

The collection, called 'The Octet Broadcasts – 1969 and 1979' features improv jazz and derives from BBC Radio 1's 'Jazz Workshop' programme (1969) and a BBC 3 'Jazz in Britain' broadcast (1979). Wakeman offers a broad brush of music and styles while the mastering quality is top notch; Gearbox has done a fine job.



## STAR WARS

It's back! Well, the Original Motion Picture Soundtrack by John Williams is back and remastered too. Spread over two discs and supported by the London Symphony Orchestra, the recording was mastered by Patricia Sullivan over at Grundman Mastering, in the USA.



## THIRD MAN

A spoken word LP spanning 47 tracks, 'Car Ma Sound Wheel' ([thirdmanstore.com](http://thirdmanstore.com)) is Alison Mosshart's companion piece to her new printed collection of paintings, photographs, short stories and poetry.

## ...AND FINALLY

From Irish anthemic pop rockers The Coronas comes 'True Love Waits' (So Far Good). Warm, cuddly, slightly tearful, life-affirming, me-too pop fodder.

My Glass World's 'A Handbook of Roses' (*Luxury Noise*, [www.myglassworld.com](http://www.myglassworld.com)). A competent singer-songwriter outing with heart-felt lyrics.

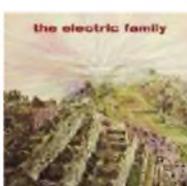
Singer-songwriter Hanne Boel's 'Between Dark & Daylight' (Stunt) combines rock with soul and blues. There's a slight Tina Turner in reflective soul mood here. Production-wise? An ideal LP for hi-fi shows.

Sinne Eeg & The Danish Radio Big Band's 'We've Just Begun' (Stunt) offers a blend of original and classic swing jazz vocal outings. Finger-snappingly jazzy with a glossy presentation.

From The Electric Family comes 'Echoes Don't Lie' (*Sireena*; [www.sireena.de](http://www.sireena.de)), a prog/psyche/folk outing and the band's sixth album.

From West End (<https://www.sparetimerecords.com/west-end>) this self-titled LP is a lyric-heavy, singer-songwriter, rock-lite/balladic outing. Capable yet uninspiring.

Finally, Andre Uhl's 'Relax and Implode' ([https://kompakt.fm/releases/relax\\_and\\_implode](https://kompakt.fm/releases/relax_and_implode)) features avant-electronica swilling in distortion, fractured synth runs and industrial washes.



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# Going Digital

The Chroma 400 RIAA BT turntable package from Elipson offers hi-res digital and Bluetooth. Noel Keywood investigates.

**A** major attraction of this turntable is low price – just £500 – combined with a massive slew of modern features, notable amongst them being a

24bit ADC to output high quality digital. The Chroma 400 RIAA BT I am reviewing here, from elipson (France) has a lot to offer.

Getting into the digital bit straight away – as well as feeding

a computer via USB the internal analogue-to-digital convertor (ADC) also feeds a Bluetooth transmitter, for wireless linking to a Bluetooth receiver in the hi-fi, or wherever. Not bad huh? Note however there is no





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**The hub shaft spins on a large ball bearing located at the bottom of the bearing assembly (centre). The long belt passes around the periphery of a pressed steel platter.**

digital (S/PDIF) optical output for those with a DAC the other side of the room, counting out use of a long optical cable link – something I find easy to set up and effective. So it's Bluetooth linking or nothing since USB is not easy to arrange as a live link.

To output digital from a turntable you need a phono stage on-board and this the Elipson has, explaining the RIAA suffix. Unusually, there is no bypass output, only a single line-level analogue output for connection to an amplifier. So high quality dedicated (external) phono stages cannot be used. Elipson seem to think their internal stage is perfectly good enough, since they give it an MC (moving coil) option – very unusual. There are budget moving coils that would suit, from Ortofon and Denon for example, but I would suggest a high output moving coil purposed for MM would be the best choice for a turntable like this, for anyone wanting to go down the MC route.

Whatever, the Chroma 400 RIAA BT is very well equipped at the price and I suspect most people will just want to plug'n'play, especially since cartridge changing is not easy due to the arm's fixed headshell.

Great to plug'n'play – but that

brings up the issue of the cartridge and its sound, which with our version was a budget Ortofon OM10. It's an old design, price around £60 nowadays. And with obviously soft-to-dull sound. This can be a good thing or a bad thing subjectively, as I explain later in Sound Quality. Irrespective, the OM10 isn't technically accurate. Accurate is the Ortofon 2M Red that comes with the Chroma 400 Carbon RIAA BT model, for which you pay more.

So our review sample came with an old clunker, as it were – but there are subtle benefits, such as a trad. warm sound and cheap stylus replacement. The OM10 tracks well too, so it will not damage records.

The turntable is two speed, 33rpm and 45 rpm, with switch selection between them – no manual belt change needed. That means it has an electronically controlled motor, suggesting accurate speed according to how well it is set up at the factory, and stable speed too. Measurement showed our sample was both accurate and stable – see Measured Performance. Flick the switch from central Off to left or right and the platter will, after a short pause, run up to speed. The platter is a heavy steel pressing, placed over a

moulded hub and topped by a felt mat. The short pause is caused by a (deliberately?) loose belt fighting for grip, since the steel platter is heavy. Also steel platters are never used because they are thought to interfere with the magnets in a cartridge. Hmmm...

There are no auto-mechanisms, such as auto-stop at the end of an LP side. Strictly a DIY job. The light, stiff carbon fibre arm must be manually cued down using a damped cueing platform, then cued up at end of side. I hand cue and managed it here, even though the straight, horizontal finger lift is far from ideal – in fact, difficult. Finger lifts must be curved upward for disc surface clearance and to stay on the finger. Sad that this simple shape from SME is rarely used nowadays, even though there's no cost penalty.

The plinth measures 450mm wide, 380mm deep and 120mm high with the clear acrylic lid closed. With it open depth increases to 45cm due to overhang from the lid rear and height increases to 42cm.

The lid can be removed for use in a shelving system with limited clearance between shelves. The feet are not height adjustable. Elipson provide an aluminium puck to place over the centre spindle as a 45 adaptor, for 45s with centre removed for jukebox use.

An external wall-wart power supply unit delivers 12V d.c. via a slim cable 130cm long. No mains earth is needed with such low voltage, avoiding the issue of hum from a mains earth loop. The metal parts should be earthed back to the amplifier to lessen hum induction but Elipson don't fit an earth terminal for this, relying on the earth within the signal leads, so the turntable may need to be connected to an amplifier even when used solely with wireless Bluetooth connection. This depends upon the strength of local hum fields.

Tracking force is applied by a



**The Ortofon OM10 budget MM cartridge of our version, synthetic headshell and straight finger lift. An Ortofon 2M Red cartridge with brighter sound is an option.**



**At rear, phono socket analogue outputs from the internal RIAA equalised preamp. for connection to an amplifier's Aux/Line input. Also a USB port and MM/MC push button (left).**

calibrated rear counterweight but it did not screw forward or back in controlled fashion to give accurate tracking force, according to our stylus scales, so an external stylus pressure gauge is needed. There is no adjustable bias compensation, just a pre-applied low outward force that was too low.

The round headshell, lacking parallel sides, made accurate adjustment of cartridge in headshell impossible. Headshells have parallel sides for good reason that elipson don't understand. Knowing the axis of the headshell is important for tracking alignment, to minimise distortion from tracking error. Bit of a boo-boo here.

Worried I wasn't hearing the potential of this turntable with the OM10 cartridge fitted I decided to replace it with an Ortofon 2M Black. This gives technically accurate sound balance and has a sophisticated Shibata stylus. I should not have done that! A pin connector fell off one of



**A gimbal bearing arm, but no bias (anti-skating) mechanism.**

the fine cables at the solder joint, a magnifying glass revealing a dry joint. I had to perform open-heart surgery with turntable stripped and turned upside down to get at the cartridge connecting cable, using a large illuminated bench magnifier to re-solder the pin connector.

I regretted trying to swap out the OM10 for the 2M Black – sort



**The simple speed change switch – 33rpm and 45rpm, with a central Off position.**

of. Sonically, it was a massive change for the better. But the point here is that cartridge changing in a fixed headshell arm like this comes with difficulties and is best left to a dealer who is suitably equipped. And I feel sorry for any dealer so involved; exquisite eyesight and soldering skills are needed, using pro bench equipment.

Build quality and finish were good at the price. There is a lightweight feel but the arm has bearings free of slack and the dust cover moved reasonably smoothly on its simple friction hinges. Weight is a light 5.8kg. Finishes are black, white or red. Options are a Chroma Carbon without phono stage, or Chroma 400 RIAA without Bluetooth. So plenty of choice, our review sample covering the basic package.

**SOUND QUALITY**

I hooked up the elipson Chroma 400 RIAA BT turntable package to our Creek Evolution 100A amplifier, connected by Chord Company Signature Reference cables to our Martin Logan ESL-X hybrid electrostatic loudspeakers.

As measurement foretold, the budget Ortofon OM10 cartridge had a soft, even dull sound where the words "detail" and "insight" don't come easily to hand (or mouth). But there was still plenty to appreciate at the price. With Fanfare For The Common Man (Two Countries, One Heart, from HiFi Direct, Italy) trumpets held steady and there was a reasonably good sense of power behind the kettle drum, due to the stiff arm. Another property of a good arm is a wide sound stage with clearly differentiated images across it and here the elipson managed well also.

Spinning Sing Sing Sing (Big Band Spectacular, the Syd Lawrence Orchestra) I was expecting the fast rolling drum work to survive nicely – and it did. Plenty of dynamic punch from cartridge and arm in combination, inevitably without the grip or power of classier (more expensive) set ups. As trumpets and

trombones joined the melee though I winced a bit at some upper mid-band harshness, likely from the cartridge stylus. But my ear is used to hearing these LPs from the Shibata stylus of our Audio Technica VM750SH (MM)



**The long belt passes around the periphery of a pressed steel platter.**

and OC9X SH (MC) many rungs up from the OM10.

With Tell Me Why from Neil Young (After the Goldrush; a re-master) strummed guitar strings were dull, but the resonant nature of his acoustic guitar's body came over nicely and vocals were firm and clear centre stage.

Fleetwood Mac's Dreams (Rumours) sounded obviously dull to the point of being muffled and quite



**The arm with an Ortofon 2M Black MM cartridge we fitted. Not a price match, but gave a fine sound. Looks good too.**

why our recent re-master should not work with the OM10 I am uncertain; it sounded like the stylus was not reading the groove. The bass line was strong but drums lacked punch.

Where a cartridge like the OM10 justifies its existence is with older, worn and noisy LPs like my much played (long ago!) World of Blues Power (Decca, 1969) where surface noise, ticks and pops were



**The rear calibrated counterweight did not move smoothly. But the arm clip was excellent.**

suppressed to being little obvious.

With Ortofon's impressive 2M Black MM cartridge in place of the OM10 there was dramatic improvement. OK, it is the same cost as the turntable but it allowed me to hear what the Chroma 400 RIAA BT was capable of. An Audio Technica VM95SH might be a more appropriate choice, also with Shibata stylus but at lower price (£160).

The 2M Black brought not only sonic balance and fine insight, it also brought sturdy bass of the sort Audio Technicas lack. Playing Mobile Fidelity's 45rpm re-master of Dire

Straits Love Over Gold, for example, bass lines were massively powerful, Mark Knopfler —deliciously clear centre-stage and cymbals starkly obvious and detailed. I became quite excited listening to this! Running through a wide selection of LPs confirmed superb sound.

With Ortofon's 2M Black in place I recorded to a MacBook Pro using Audacity, the free (and excellent) software music editor. And the result was very good. The on-board 24bit ADC suffers less of the digital harshness of cheaper 16bit converters used by most other budget spinners, allowing the sound to better approach that from LP without digital taint – that harsh tin-can sound. If you want to record digitally from LP and not buy a Furutech ADL GT40a (£550), the Chroma 400 RIAA BT is a strong choice, giving a convincing analogue result subjectively.

## CONCLUSION

Our Chroma 400 RIAA BT turntable package was limited by the outdated OM10

cartridge in sound quality. With a better cartridge it came alive and worked very well, suggesting the Chroma 400 Carbon RIAA BT with Ortofon 2M Red cartridge is a better choice. But this depends upon buyer sensibilities.

Our package gave a traditional warm sound that was easy going and stylus replacement is cheap. It's a good starter package and fine value if you want 24bit digital recording, Bluetooth wireless linking and the potential to upgrade to a moving coil cartridge. At the price, a very strong proposition for those wanting trad. sound in 24bit digital form. Within this context the Chroma 400 RIAA BT has little competition and is a top choice.



**Elipson's arm is a lightweight but stiff carbon fibre tube.**

## MEASURED PERFORMANCE

The elipson Chroma 400 RIAA BT was speed accurate and stable under test. The 3150Hz test tone of our DIN 45 545 test disc changed from 3153Hz to 3155Hz – accurate speed (3150Hz) with little speed error about the mean – and with little speed wander as belt drives go. However, there was random variability, where speed would hold at 0.1% wow (good) then suddenly fluctuate to nearly double before settling down again. Our analysis of variation, a long term average, shows basic variation at rotational rate (33rpm/0.55Hz) and some higher components (but below the 10Hz flutter threshold, so technically not flutter). A respectable result, if not quite up to what is now being achieved with modern speed locked motors. A wobbly motor suspension could be the problem, or a relatively slack belt with intermittent grip.

As expected the integral phono stage is sourced from the same factory (in China?) as most others, identified by a strong warp filter that rolls off lower bass, and has a very low output overload value of 1.7V (8-10V is common). This limitation sets input overload at a low 17mV on MM and 2mV on MC at a 1% distortion limit. However, overload is

'soft' and progressive so unlikely to be obvious on short term peaks.

Gain values were better than usual from unidentified Chinese factory, x100 (40dB) for MM and x894 (59dB) for MC – appropriate working values. Equivalent input noise measured 0.4µV for both, suggesting some slight hiss with MC.

Via USB connection the Chroma 400 RIAA BT declares itself as 24bit capable. Full digital level (0dB FS) was reached from 13mV input (MM) and 1.3mV (MC), sensible values. Overload and signal clipping may occur, if only on occasional short term musical peaks. Digital distortion from the internal ADC measured 0.01% at full level and 1% at -60dB. Importantly, the ADC resolved a -60dB signal where budget 16bit ADCs do not, due to the quantisation noise they produce. Frequency response was identical to that from the analogue output, as expected.

The Ortofon OM10 cartridge – an old design – fitted to our review sample had strongly falling treble above 6kHz pink noise our analysis shows (Adjust+ test disc) so will deliver a classically warm sound. The OM10 tracks well – no problems here.

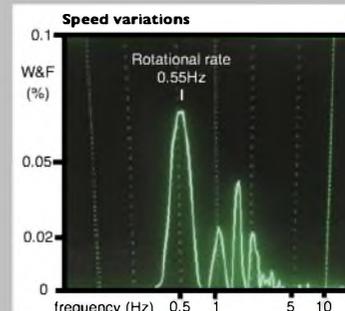
At the price, a good result all round with no flaws that will be obvious. **NK**

<b>Speed accuracy</b>	<b>+0.1%</b>
<b>Wow</b>	<b>0.15%</b>
<b>Flutter</b>	<b>0.05%</b>
<b>Total W&amp;F DIN weighted</b>	<b>0.12%</b>

## FREQUENCY RESPONSE



## WOW & FLUTTER



## ELIPSON CHROMA 400 RIAA BT £500



**EXCELLENT - extremely capable**

**VALUE - keenly priced**

### VERDICT

A budget turntable with warm sound and broad digital ability. Great value.

### FOR

- 24bit digital
- stable speed
- simple to use

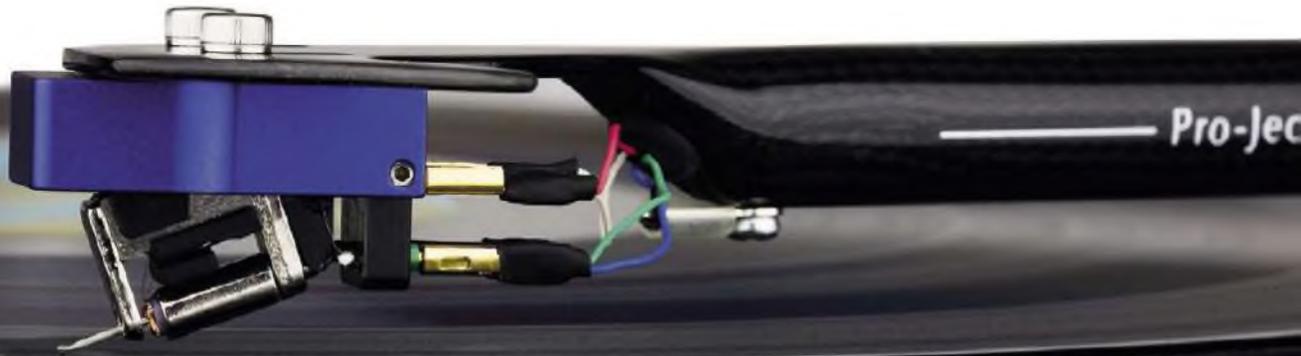
### AGAINST

- soft sounding cartridge
- poor arm headshell
- non adjustable bias

[www.en.elipson.com](http://www.en.elipson.com)

# SUMIKO

## PHONO CARTRIDGES



## REFERENCE

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### SONGBIRD

The sophisticated and smart Songbird design with its open architecture construction, new aluminium mounting body, low mass elliptical stylus and Alu coated cantilever results in a high end cartridge that lives up to its name.



### BLACKBIRD

The classic Blackbird design has a level of performance and clarity that competes with cartridges twice its price. Its been designed for exceedingly low noise levels exceptionally wide dynamic range and the highest possible fidelity.



### STARLING

No aspect of the Starling's design was left to chance. Our flagship open architecture cartridge renders the grandeur of an orchestra while still preserving air and space, also delivering responsive dynamics and deep silences.

# Zen Data

A budget phono stage with unusual ability. Noel Keywood looks closely at iFi's Zen.

**T**he stand-out feature of this little phono stage is price – just £149. Add to that a wide range of ability and some unusual internal electronic trickery, the new Zen from iFi has a lot up its sleeve, even though it appears simple.

In brief outline, the Zen is able to cope with all cartridges, from budget moving magnet (MM) types through to the lowest output moving coil (MC) types. I'll cover this slightly confusing subject later. A small slide switch at rear has four positions, numbered 1,2,3,4. Logically (to an electronics engineer) position 1 offers lowest gain and is intended for MM cartridges. Position 2 offers more gain and is for high output MC cartridges purposed for MM inputs. Then comes position 3 that iFi say is for "low output" MCs, although to my mind this is for standard MCs, all of which have low output. And finally there is position 4 to cater for "very

low output MCs" as iFi put it.

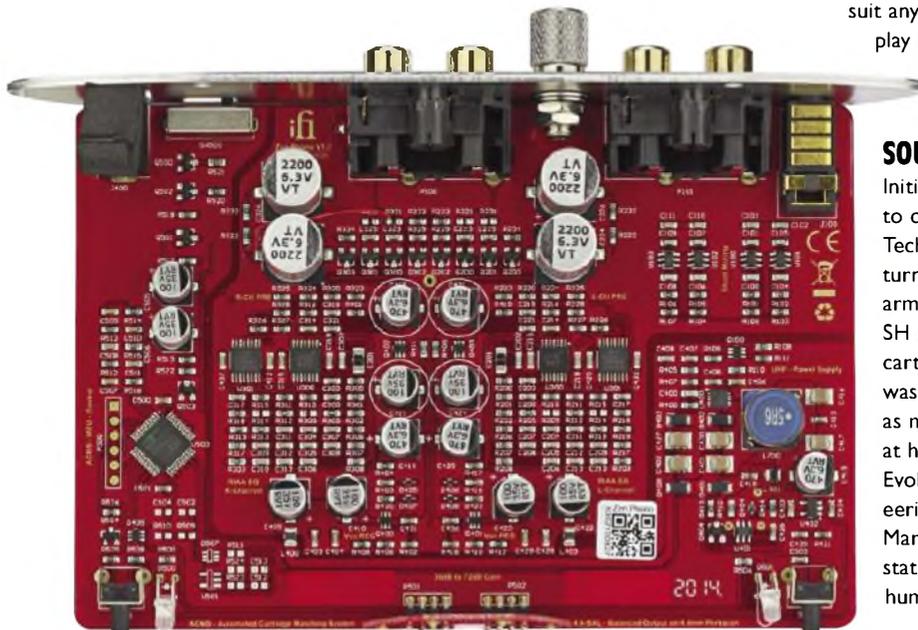
This range covers all cartridges on the market, position 4 being unusual for a phono stage at the price. Very low output MCs are esoteric and usually expensive (Goldring's being an exception). It's common to pay ten times the Zen's asking price for a stage with sufficient gain to cope with a very low output MC, so that's a plus point straight away. Achieving low noise – hiss and hum – becomes the biggest challenge because voltage gain is vast.

Seemingly simple externally, the Zen gets a little more complex and 'interesting' in behaviour when it is turned on. My interest was captured by the presence of a muting circuit that kicked in with a 20 second time delay when changing Gain settings. Why do this I wondered? It isn't usual even though changing gain can cause thumps through the 'speakers if there's d.c. floating around. Measurement suggested the Zen

was not only muting but bringing in quieter input transistors (ICs) for higher gain at Gain settings 3 & 4.

Curiously, iFi don't mention this, nor do they make any claims for low noise, even though the Zen was spectacularly – almost unbelievably – quiet via its 'low output MC' and 'very low output MC' inputs. I had to double check the measurements. Internally iFi say the Zen is fully balanced on each channel, not difficult with ICs yet uncommon practice. Running fully balanced cancels noise and distortion and – I find – in general gives a more pristine, if sometimes surgically correct sound. But the nice point here is that iFi provide a balanced output to exploit this and, they say, it is "the recommended output". Trouble is it uses a rare Pentaconn 4.4mm five-pole jack socket, requiring a 4.4mm Pentaconn five-pole jack plug to carry two balanced audio channels in this case and, I presume, an earth.





**A complex surface-mount (SMD) robot-built circuit board with gold plated 5 pole Pentaconn socket at top right. At top centre is a sturdy earth terminal.**

Currently, this socket is a rare beast from Japan, a recent design from the unfortunately named Nippon Dics Co ([www.ndics.com](http://www.ndics.com)) used by Sony. No major UK parts supplier (Farnell, Mouser, Digi-key etc) has it and Zen does not come with it, for your local dealer to solder up a lead perhaps. So how to use Zen's recommended output is an open question. iFi say they will have adaptor leads available soon.

I get the feeling from this that connecting up to the Zen's balanced output will not be so simple in real life for budget buyers. But if you have an amplifier with a balanced input it is worth doing. The Zen develops a signal twice as strong from its balanced output than from the RCA phono socket outputs and more than enough to transmit audio down a long line from turntable to distant amplifier. Great potential at the price, just difficult to exploit.

There are standard RCA phono socket inputs and outputs, plus an earth terminal. Because power comes from an external wall-wart 5V d.c. power supply vis a short (1m) cable, there is no mains earth connection, eliminating the possibility of an earth loop and hum.

The case is small, measuring 158mm wide, 117mm deep and 35mm high. With no on-board power supply it is light at 0.5kg. Not a lot to see or do either since the indicator lights are small, blue

pindots, there's an on-off button and a Subsonic filter button to suppress loudspeaker cone flap when playing warped records, should this problem arise. The subsonic filter cancels out-of-phase signals below 100Hz, leaving in-phase (lateral mono bass signals) intact and this is an idea – used by others in the past – that works.

"It was an unusual way to hear LP, with massive dynamics and supreme cleanliness"

If you are new to the whole confusing issue of phono cartridges, as a budget buyer may be, then here's what the Zen is offering. It will match a normal budget moving magnet (MM) cartridge at Gain 1, with its 47k input load. Gain 2 is for high output moving coil cartridges posing as MMs. They need more gain and a 47k load also, that the Zen provides with this setting. Things get a little unusual at Gain 3 (MC low) where Zen switches in a 1.4kΩ load, where 100Ω is standard. I suspect this is to cope with MCs that need a 300Ω load (Clearaudio, Hanna). Gain setting 4 does switch in a conventional 110Ω load, but this extreme gain setting is best not used unless necessary because of potential overload. All-in-all though, there is

massive range here, enough to suit any cartridge, all brought into play by internal switching when the rear slide switch is moved.

### SOUND QUALITY

Initially, Zen was connected to our Timestep Evo modified Technics Direct Drive SL-1210 turntable, fitted with SME309 arm and Audio Technica OC9X SH (Shibata) moving coil (MC) cartridge. The gain switch was set to 3 (MC low) and, as measurement suggested, at high volume on our Creek Evolution 100A there was eerie silence from attached Martin Logan hybrid electrostatic loudspeakers: no hiss or hum. A distinct plus point.

My kick-off LP, Two Countries One Heart (HiFi Direct, Italy), chosen for its good quality and sense of balance, showed the Zen to be dry in its sound, detailed and revealing in the mid-band, and with unobtrusive treble. Opening kettle drum strikes in Fanfare for the Common Man were clean and taut, if not especially powerful. Rosella Caporale singing Time To Say Goodbye sounded distinct centre-stage, but the delivery was more revelatory than cuddly.

Time to spin "heavier" LPs like

Mobile Fidelity's 45rpm of Dire Straits Love Over Gold that has bottom-end wellie. Great vocal clarity: I could hear every word from Mark Knopfler in Walk Of Life and the track came over as fast-tempo'd because of Zen's clear cut timing; no slur or blur here. There was low end clarity if not much low end weight to bass. However, OC9X cartridge has lighter bass than our Ortofon Cadenza Bronze (now in its twilight years so not used).

The warmth of Knopfler's LP Kill to Get Crimson was similarly lessened; Zen was revealing and upper plucked guitar strings were surprisingly sweet in tonality.

Hugh Masekela's Hope LP had hand drums sounding light but fast in Uptownship and the following track,

Mandela, stretched the background chorus clearly across the sound stage. There was a little hardness and glare here.

All the above were using the RCA phono socket outputs. To assess the balanced Pentaconn output it was fed to a Musical Fidelity MBxi amplifier with balanced input and volume control (our Creek amplifier has balanced input direct – no volume control). I could only get a Pentaconn connector from Shenzhen, China, to solder up my own cable; iFi preferred I use a high quality cable, sent by Forza Audioworks (Poland), price £150.

The reason I wanted to hear the balanced output is that balanced circuitry offers clear benefits with low level, high gain signal circuits – I know from designing and building all-discrete fully balanced phono stages. And I was thankfully right in this case. Turning up volume there was no noise, no hiss or hum. Such was the silence I worried something was not working. But all was working and the sound that emanated from our ever wonderful electrostatics was many steps up on that from the unbalanced phono socket outputs. Primarily it grew in dynamic stature and control. The first quick-check LP, our re-master of Fleetwood Mac's Rumours, came

over as having a cleanly outlined sound – even in the time domain where I suspect absence of noise and smear improved definition. But now the bass output of our Audio Technica OC9X SH MC cartridge took up a firmer and more visceral presence, putting controlled power into Mick Fleetwood's drum kit.

As I worked through a wide selection of LPs these primary qualities remained. And so good was the Zen, in this particular and specialised arrangement, that I was a little taken aback. It was almost an unusual way to hear LP, with massive dynamics and supreme cleanliness. Musical Fidelity's MBxi amplifier, also in this issue, contributed to the final sonic outcome, that's for sure. And

to use Zen's balanced output an amplifier with a balanced input that runs through a volume control is needed (not all do).

## CONCLUSION

This is an almost weird phono stage for LP. There's utter silence from high quality moving coil cartridges from an ultra low noise input stage – and a balanced output that delivers extraordinary sound quality, for just £149. The low price barely equates to what's on offer here. Run as standard it is very good, run from its balanced output into an amplifier's balanced input it is quite extraordinary. Not a warm or bass heavy sound but dryly correct and coolly impressive.



At left the Pentaconn balanced output jack. At centre a sturdy earth terminal that accepts bare wire, spades or 4mm plugs – a nice touch. At right the tiny slide switch with four gain settings.

## MEASURED PERFORMANCE

Frequency response measured flat at all gain settings, even at highest gain ((gain 4) where phono stages sometimes run out of puff, due to insufficient gain to maintain the 318 $\mu$ S curve at low frequencies. The Subsonic filter rolls off slowly below 100Hz, with a -1dB point at 50Hz. There is some useful attenuation of -8dB at 5Hz where warps are most problematic. iFi says out-of-phase LF signals are cancelled to suppress vertical warp signals from the cartridge.

Gain values were x70 (37dB) at Gain 1 (MM), x277 (49dB) at Gain 2 (high output MC), x1134 (61dB) at Gain 3 (low output MC) and x4314 (73dB) at Gain 4 (very low output MC). These are standard and expected values, but all the same it is a massive gain range, especially Gain 4 that can handle the very lowest output MCs. The Zen will work with all cartridges available.

A high output overload value of 10V results in satisfactory input overload (output/gain) values of 145mV (Gain1, MM), 36mV (Gain2 MC), 9mV (Gain 3 MC) and 2.3mV for very low MC.

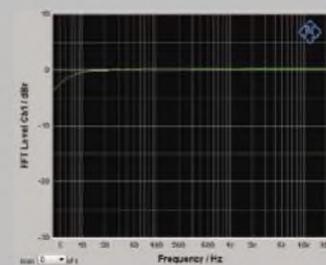
Gain and overload figures doubled for the Pentaconn balanced output, except 18V out was maximum, not 20V.

Noise (equivalent input noise, or e.i.n.) measured 0.5 $\mu$ V for Gain 1 & 2, then descended to an astonishingly low 0.04 $\mu$ V for MC low and very low. I use 0.1 $\mu$ V as a quality threshold for MC, input transformers giving typically 0.08 $\mu$ V – lower than transistors. How iFi have managed half this (-6dB) I don't know since it's pushing the theoretical noise limit of transistors: either a new super-quiet transistor or IC is used, or they are paralleling them. Whatever, no hiss will be audible with any MC cartridge at any gain.

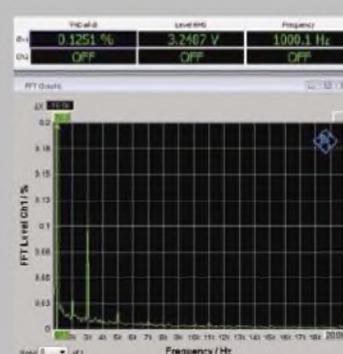
A good set of figures all round, especially at the price – and from the balanced output. **NK**

Frequency response	10Hz-20kHz
Separation	65dB
Noise (e.i.n.)	0.04 $\mu$ V
Distortion	0.1%
Gain (MM, MC)	37dB – 73dB
Overload	10V out

### FREQUENCY RESPONSE



### DISTORTION



iFi ZEN PHONO  
£149



**OUTSTANDING - amongst the best**

**VALUE - keenly priced**

#### VERDICT

Weirdly good phono stage: quiet and extraordinary via its balanced output.

#### FOR

- accepts all cartridges
- balanced output
- no hiss or hum
- very low price

#### AGAINST

- lacks warmth

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# Let It Be

The Beatles Get Back/Let it Be sessions from Bruce Spizer, a book reviewed by Paul Rigby.

## THE BEATLES FINALLY LET IT BE

Author: Bruce Spizer

Publisher: 498 Productions

Price: from \$20

If you're reading this in the UK or elsewhere in Europe and you've never heard of Bruce Spizer then think of him as the UK's version of Mark Lewisohn...or vice versa, depending on your loyalties. That is, Spizer is one of the world's premier Beatles experts.

Recently, Spizer committed to a series of books he terms 'The Album Series'. Earlier productions have included 'Get Back to Abbey Road', 'The Beatles and Sgt. Pepper: A Fan's Perspective' and 'The Beatles White Album and the Launch of Apple'.

This new release covers the 'Get Back'/'Let It Be' sessions, the unreleased 'Get Back' albums, the 'Let It Be' album and film, the noteworthy 'Get Back' bootlegs, the 'Anthology' tracks from the sessions and the more recently released 'Let It Be... Naked'.

What you will also find here are the album and related releases from the American, British and Canadian perspectives, there's newsworthy events of 1970 and the music and films from the first half of 1970. There are also chapters on the 'Hey Jude' and 'In The Beginning' albums released in 1970 plus fan recollections.

I pre-ordered mine and (shock, horror) actually gave Spizer money for this review copy. Oh, how the moths did fly from my wallet. More than that, I ordered the collectors'

hardback edition which costs a princely \$100. That features a poster, an art print of the roof-top concert from an aerial perspective, a Beatles book mark and the book resides in a sleeve. The book is numbered, dated and signed by Spizer too.

Which is all rather nice but if you do order just be aware that the Customs man will kidnap and ransom your desired book until you give him something like £50. The rascal. So I ended up buying this book for round £150 in the end. I still feel a little dizzy.

Presented in a square format and spanning 200 pages, you might be forgiven for thinking that you don't get a lot for your money but scanning the contents, your mind is changed pretty pronto because there's closely packed text and a gamut of images and photographs in there, plus a heap of choice information that you'll be pushed to find anywhere else.

There's an excellent track-by-track examination with plenty of rare information and insight, recording information such as who was in and around the studio and even what each Beatles member was playing at the time. The evolution of the album from its original 'Get Back' incarnation is thorough and again, detail packed and in the section 'Let it Bootleg' there is an explanation of

how the bootleg recordings emerged.

For the book, the standard hardback edition costs \$30 while a digital version retails at \$20.

One note: this book was due to feature information on a new Peter Jackson film of the Get Back/Let It Be sessions, 'The Beatles: Get Back'. Disney has pushed the release back to 27 August 2021.

Spizer has said that a supplement will be added to feature information from this film "...the Beatles album series books are intended to be as complete as possible and cover all releases through the date the book goes on sale. So while the print edition of 'The Beatles Finally Let It Be' cannot cover something released a year after its publication, 498 Productions can supplement the book in late August 2021. The digital edition of the supplement will be available for free download. The print edition can be ordered separately. And, for those who order the Collector's Edition, the print edition of the supplement will be mailed to you free of charge. It will be called 'The Beatles Finally Finally Let It Be'.

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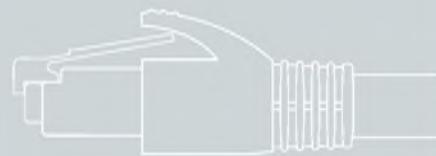
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and flagrant  
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became entangled with the works of Elliott Smith later than many when a promo of his album 'Either/Or' fell through my letterbox for review back in 1997.

Then 'XO' (1998) and 'Figure 8' (2000). I wandered away from his music and onto other things. Then I heard of his death by suicide...or was it murder? The coroner's verdict remained open.

It seemed a crazy loss. Especially so when you come across a singer-songwriter who didn't sound like every other singer-songwriter out there (and my goodness, there's plenty of those around, let me tell you).

Smith offered an oddly melancholic and melodic presentation with hooks to drag you onwards. That almost muted and soft presentation appeared to be tinged with sadness and introspection. Which is not to say that Smith was a sad person. As he said to the NME "Everybody's got their problems. But I don't play music because I'm a tortured person. I play music because I enjoy it. Because...Because it sounds really good. I'm no sadder than anyone else I know. I also think it's not all true: there's things about my songs that are sad but that's not the point of them. People overlook the happiness. It all depends on your point of view: something that makes you feel sad might make someone else feel happy, because they're like 'Well, that's how I feel now.' There's a million ways people can feel".

Which is also not to say that Smith was a wholly centred, balanced individual with no problems.

Founder of the label, Kill Rock Stars' Slim Moon, a friend of Smith and a chap who also recorded the band Nirvana, sees similarities between Kurt Cobain and Smith. As he told The Guardian newspaper "Kurt was the most talented songwriter I'd ever met. But he was the same way [as Elliott]. He appeared really fragile, in a lot of ways was really stubborn, and he internalised everything. He would go on and on in his songs about how nothing was going to relieve his pain. But at the same time he was searching hard for something to relieve it".

Smith's low-key delivery sounded like he'd just sidled up to you in the street and was passing on secret information before 'they' caught up with him. He is much missed.

Which is why I smiled to see this new box set on an album I missed. A self-titled release, originally issued in 1995, it is as much of a classic as that first album I heard 'Either/Or'. In fact, it's arguable as to which is the better of the two (actually, all of Smith's work is of a high standard).

Being Smith and a guitar (broadly speaking, that is) Smith's self-titled second album has been issued as a 25th anniversary.

Two LPs arrive in a large 52-page format book including handwritten lyrics and thoughts from Smith's friends.

One of the main features of this set is the gamut of large format, previously unseen, photographs by JJ Gonson. Portia Sabin, described as the emeritus president of the label, Kill Rock Stars said "During the time I ran KRS, there was a constant demand for more pictures of Elliott and his world. On a whim, I asked JJ if she might have taken any more around the time that she shot the cover photo for the self-titled album. We're all incredibly lucky that she had, and that she's decided to share them with the world".

Early recordings are included in the box set entitled 'Live at Umbra Penumbra' on 17 September 1994 via a recording provided by Casey Crynes.

Close mic'd, I wonder if the source was from a digital original because there is a slight sheen to the presentation but the mastering has done a good job to move the emphasis away from that. There's plenty to like here with space around the vocals that adds an attractive sense of intimacy to the songs.

The mastering plays second fiddle to the content though which is full of insight and wonder. As Slim Moon commented for this set "The thing that stood out when you hung out with Elliott was his sense of humour. A spontaneous humour made possible by physical worldliness, fathomless insight, fearless honesty and flagrant humility".

This is an excellent collection, well presented and produced that highlights a rare thing, a unique singer-songwriter. **PR**

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