

# HI-FI WORLD

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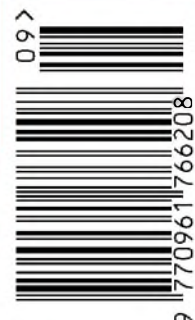
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## Q ACOUSTICS CONCEPT 500

**loudspeakers**

QUADRAL BREEZE M PORTABLE LOUDSPEAKER  
NAIM POWERLINE LITE POWER CABLE  
SONY TC377 REEL TO REEL FEATURE  
ONIX DNA 50 AMPLIFIER

SEPTEMBER 2017



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Chord Shawline Analogue  
Hi-Fi Choice July 2016

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# welcome

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Paul Rigby, Jon Myles, Martin Pipe,  
David Tutt.



**K**arl-Heinz Fink is a German loudspeaker engineer I speak to often at shows. Karl well knows not only about the engineering of loudspeakers, he understands "the British sound" (a standard and an expectation set by the BBC long ago). You may find his consulting website interesting, it's at <http://www.fink-audio.net>. There Karl talks about what he's been saying animatedly to me at the last few shows we met, namely cabinet vibrations. I like to keep away from such troublesome

things so his concerns were not my concerns, but I realise I should have been concerned after listening to the new Q Acoustics Concept 500 loudspeakers Jon Myles reviews on page 11 – designed by Mr Fink. Their cohesive smoothness was almost a shock to me because this is electrostatic territory – something that eludes most multi-driver loudspeakers in resonant boxes. The Concept 500s may look conventional, but appearances deceive here. I hope you enjoy reading Jon's review of them in this issue.

As Editor it's my business to try and wheedle in those with something valuable and hopefully entertaining to say about high-fidelity. Dave Tutt has been e-mailing me with a barrage of information on treasured subjects – like Leak valve amplifiers – for a long time. He's risen to the challenge of providing us all with regular insights into real-world issues, like the truth behind that bit of tat you see and irrationally fall in love with at a car boot sale. Lie on the couch and listen to Dave Tutt's ministrations – available on p92 – or become poorer!

For me as a reviewer, this issue has been a tad frustrating. Audeze in the USA went silent when, after a long technical discussion by e-mail, I asked them to tell me which was the right way to connect their headphones I review on p21: the analogue lead or the digital lead. No response.

And a reader enthusiastic about recording DSD from Sony's PS-HX500 turntable was taken aback to learn it offers no such thing, as explained on p83. 'Misleading' was his view – and perhaps so. Yet it still delivers hi-res.

High Fidelity is never a dull subject. From spinning tape reels to smoothie loudspeakers, and the questionable behaviour of manufacturers. I hope you enjoy reading what we bring you in this issue.

**Noel Keywood**  
*Editor*



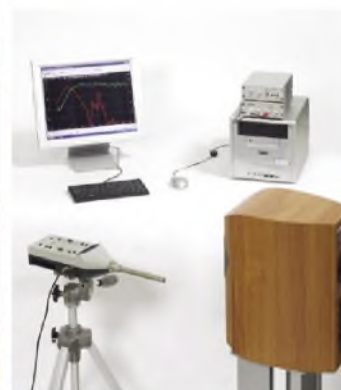
## testing (see [www.hi-fiworld.co.uk](http://www.hi-fiworld.co.uk) for full explanations of all our tests)

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.



## verdicts

- OUTSTANDING
- EXCELLENT
- GOOD
- MEDIOCRE
- POOR
- £ VALUE

amongst the best  
extremely capable  
worth auditioning  
unremarkable  
flawed  
keenly priced

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## Bowers & Wilkins 600 Series

For a limited time, we are offering a system bundle with our friends at Rotel, allowing you to get more of the Hi-Fi you want, for less than you may expect.

Featured system: Bowers & Wilkins 686  
Rotel A10 / Rotel CD14.



Available at participating retailers. Find out more at your nearest Bowers & Wilkins or Rotel stockist: [bowers-wilkins.co.uk/store](http://bowers-wilkins.co.uk/store)

Bowers & Wilkins

email:news@hi-fiworld.co.uk

# news

## McINTOSH MA9000

Legendary American manufacturer McIntosh has launched its biggest and most powerful integrated amplifier yet.

The MA9000 can deliver 300 Watts of power per channel – enough to drive any loudspeaker – and it also features McIntosh's proprietary Autoformer technology to ensure full current is always available despite a speaker's impedance.

Measuring a whopping 24cm x 44.5cm x 55.8cm (H/W/D) and weighing in at 10 lbs, the MA9000 features the traditional McIntosh look with a glass front panel, green glowing logo and two blue power meters.

There are 10 analogue connections, comprising two balanced, six unbalanced plus moving coil and moving magnet phonos, both of which have adjustable loading.

The MA9000 also has a high-performance built-in DAC – the DA1 Digital Audio Module – featuring USB, two coax, two optical and McIntosh's own MCT input for connecting to other components from the company. The coax and optical inputs accept file sizes up to 24bit/192kHz while DSD256 and DXD384 are available with the USB.

The DA1 module can also be swapped out for an upgrade to accommodate future digital formats or technologies.

The MA9000 is available now in America priced at \$10,500 with UK pricing expected to be announced shortly. For more information contact McIntosh's UK distributor Jordan Acoustics on McIntosh on 01202 911886, e-mail [mcintosh@jordanacoustics.co.uk](mailto:mcintosh@jordanacoustics.co.uk) or visit [www.jordanacoustics.co.uk](http://www.jordanacoustics.co.uk).

McIntosh has also announced their new MB50 streamer is now available on these shores in selected retailers. For a full low-down see our exclusive review on page 55 of this issue.



## DEVIALET TAKES THE TRAIN

Paris-based audio expert Devialet - maker of the distinctive powered Phantom loudspeakers and Expert Pro amplifiers which combine Class A and Class D technology - has expanded its presence in the UK.

The company is bringing its innovative technology to the commuting masses with the opening of a new store at London's bustling St Pancras International rail station.

Located in the Arcade close to the Eurostar departure area, Devialet has dubbed the new space an "immersive room" allowing customers to hear the full range of Phantom loudspeakers at their best.

A number of similar stores are believed to be planned for the UK over the coming months.

Devialet's UK and Ireland General Manager Victor D'Allance said "St Pancras is the place where London and Paris meet making it the perfect location for our new UK store. We are delighted to be opening at one of London's most iconic and busiest stations, offering the public a new listening experience".

The Devialet store is open from 7.30am to 8pm daily.

## SOUL OF THE MUSIC

From Korea comes a relatively inexpensive linear power supply unit for high-end audio components. The SotM (which stands for Soul Of The Music) s-PS 500 is a fan-less model costing just £550 and designed to eliminate noise generated by other powered devices in the home as well as to simply remove noise coming from an AC power source.

It can handle a range of AC power inputs and features selectable output voltages of 7Vdc, 9Vdc, 12Vdc and 19Vdc – enough to meet most requirements – while it has a healthy 50 Watts rating. Other features include input, output, overcurrent and overheat protection circuits.

For more information visit [www.sotm-audio.com/sotmwp/english/](http://www.sotm-audio.com/sotmwp/english/) or the UK distributor Elite Audio at [www.eliteaudiouk.com](http://www.eliteaudiouk.com).



## ACOUSTIC ENERGY

Acoustic Energy's classic AE100 bookshelf/standmount loudspeaker is back in a new guise. The little 'speaker debuted way back in 1996 and proved a hit with critics and buyers alike. Now the Gloucester-based company has unveiled an update which they say is aimed at getting the highest sound pressure levels from a small enclosure.

Measuring just 270mm x 160mm x 240mm (HxWxD), it features 4-inch mid-bass paper cone drive unit built around an ultra high force, long throw motor system with low frequencies augmented by a slot-shaped port which is said to minimise air turbulence.

This is allied to a 28mm soft dome tweeter which features Acoustic Energy's own Wide Dispersion Technology. Available in satin black or walnut finishes, the AE100 costs £200.

Look out for an exclusive review in a forthcoming issue of Hi-Fi World or visit [www.acoustic-energy.co.uk](http://www.acoustic-energy.co.uk) for further information.



## SOUNDCLOUD STRUGGLE

Music sharing service SoundCloud has announced it is to make 173 of its 420 staff redundant as well as closing its London and San Francisco offices. The German-based company will consolidate its remaining employees in its offices in Berlin and New York.

The service allows musicians, producers and DJs across the world to share and promote their work on-line but has struggled to turn its large user-base into a profit, making regular losses. But in a blog post recently, co-founder Alex Ljung said revenues were growing and the job losses were aimed at keeping SoundCloud independent.

He wrote "We need to ensure our path to long-term, independent success. This requires cost-cutting, continued growth of our existing advertising and subscription revenue streams, and a relentless focus on our unique competitive advantage - artists and creators."

"We are extremely grateful for the contributions of each and every staff member who will be leaving SoundCloud. Without them, we would not be where we are today".

## APPLE AIRPLAY 2

Apple is set to roll out a new version of its AirPlay wireless music streaming protocol. The next update to Apple's operating system – iOS 11 – will usher in Airplay 2 which promises multi-room support and the ability to stream between compatible loudspeakers.

The development was announced at Apple's keynote 2017 Worldwide Developers Conference (WWDC), where it was also announced the company had already signed-up a number of heavyweight hi-fi manufacturers for Airplay 2. They include Naim, Devialet, Dynaudio, Bluesound and Bowers & Wilkins.

It's not yet known if all currently AirPlay-enabled devices will be able to be upgraded to AirPlay 2, which is expected to arrive in September.



## CANADIAN INNOVATION

Canada's Muraudio is looking to make waves with its new PX2 loudspeakers, a full range omni-directional design. It's an interesting 'speaker that features a rounded electrostatic panel at top, allied to three 8.75" bass units in a separate, sealed bass cabinet – one firing forward, the other two left and right.

Muraudio say the 360-degree continuous curve ESL panels have a total area of 5000 square cm for perfect coherence and precise response.

The configuration is said to produce an immersive sound with no sweet spot, so are ideal for large rooms.

They were unveiled at the Munich High End Show earlier this year where Hi-Fi World had a listen and came away impressed.

Downside? Well, they cost £73,500 a pair.





## NEW GOLDRING STYLUS RANGE

Looking to upgrade your cartridge? Goldring may have the answer. The company has unveiled three new moving magnet cartridges in the £60-£100 price range.

The Goldring E Series models are all optimised for the medium to high-mass tonearms found on the majority of reasonably-priced turntables.

They all feature a special dual magnet arrangement dubbed Magnetic Duplex Technology which uses two low mass magnets to more accurately trace the record groove.

The £60 E1 features a bonded, spherical (0.6 mil) stylus with a round shank which should make it more forgiving of set-up adjustment.

Next up is the E2 with same stylus profile but the additional benefit of an upgraded aluminium cantilever allowing it to more accurately trace medium to high frequencies.

Top of the range is the £100 E3 which has the same aluminium cantilever as the E2 but benefits from a superior bonded, super-elliptical (0.3 x 0.7 mil) stylus to extract extra information from your vinyl.

For more information visit Goldring's website at [www.goldring.co.uk](http://www.goldring.co.uk)



## BLACK RHODIUM STREAM

The Derby-based cable manufacturer has unveiled a new power cable named Stream. They say the design was optimised after exhaustive tests on best cable length - which revealed the optimum sound was obtained by cable lengths of 1.7 metres - which aligns closely to the quarter wavelength of the 50Hz mains frequency.

The Stream features high-quality silver-plated copper conductors, low loss silicone rubber insulation for low dielectric absorption, RFI noise reduction technology including a tightly-braided metal screen. Two separate and complementary materials were also used in the construction to damp Mechanical vibrations within the cable.

Stream is available now priced £450 per 1.7 metre length with either a UK 13 amp or Schuko plug fitted. Longer lengths are available at an extra £100 per metre.

For further details telephone Black Rhodium on 01332 342233 or go their website at [www.blackrhodium.co.uk](http://www.blackrhodium.co.uk).

## SONY BACK IN BLACK

The vinyl revival continues apace. Almost three decades after abandoning the production of LPs in favour of CD Sony has decided to – er – get back to it because of heightening demand.

The Japanese giant has revealed it is to open its own record pressing plant south-west of Tokyo next March. Its announcement comes 28 years after it shut down its in-house vinyl production in 1989 to focus on the then dominant CD format.

It's believed output will include popular Japanese artists from the past, as well as big-selling contemporary artists from Sony Music's own stable.

The move comes as sales of vinyl are predicted to reach \$1 billion this year and current production facilities are struggling to meet demand, while CD sales are falling due to the popularity of digital downloads.

Vinyl sales topped 3.2 million in the UK last year – a rise of 53% on the previous 12 months, while stores such as John Lewis and on-line retailer Amazon also reported a surge in sales of turntables.



## ROBERTS TURNTABLE

They may be best known for their classic radios – but 85-year-old Roberts is joining the vinyl renaissance with a new turntable.

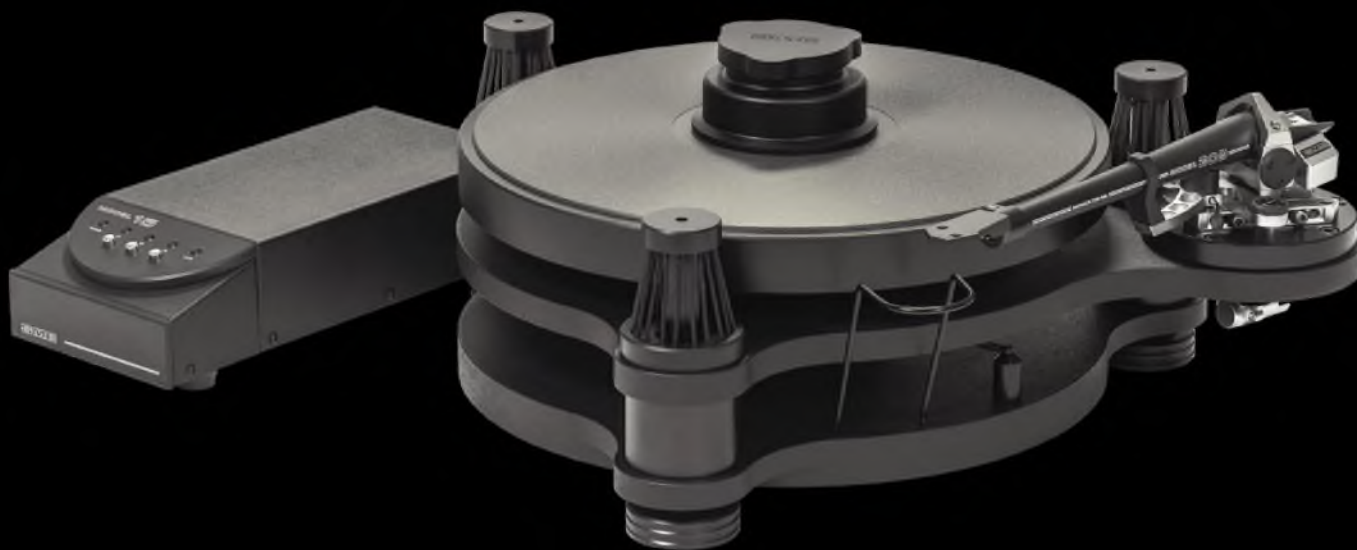
The RT100 Turntable includes a USB Connection and built-in amplifier and boasts a real wood veneer unit and clear Perspex removable dust cover.

Other features include an auto-stop function and two-speed switch to move between 33 and 45rpm. The USB connection also means it is possible to rip albums or singles to MP3/WAV/FLAC to digitise music collections.

The RT100 should be in the shops shortly priced at £249.99.

# SME

## MODEL 15



## Experience a New Dimension in Sound

The Model 15 could be described as "the ultimate in recovery vehicles", allowing the cartridge to retrieve the last nth of recorded material whether digital or analogue, from the vinyl disc and thus approaches the ultimate in perfection.

Receiving its inspiration from the superb Model 10 precision turntable the Model 15 seeks to emulate the excellence of our Models 20/3 & 30/2 turntable whilst retaining the more compact footprint preferred by many of our enthusiasts.

The Model 15 has been designed with the same attention to detail combined with simplicity of operation that has come to be expected from all SME products. Its superb performance together with laid back styling make it a glamorous addition to your sound system that will astound and amaze listeners for many years to come.

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# Special Q



**Q Acoustics' new Concept 500 loudspeaker may be its most expensive model yet – but produces a performance out of all proportion to its price.**

**Q** Acoustics has built a deserved reputation for producing excellent loudspeakers at realistic, value-for-money prices. Their range stretches from the small but potent 2010i bookshelf model at just £99.95 to the 3050 floorstander for a very reasonable £550.

But what happens when you push the envelope a little and decide to enter a higher price-point with all the extra expectation that entails in terms of sound quality?

That's the big question with the company's new Concept 500 – the most expensive loudspeaker Q Acoustics has produced at £3995 a pair. That puts it in competition with models from KEF, Wharfedale, Quad and Quadral, to name a few.

The good news is that the Concept 500 has – like other Q Acoustics products – been developed in collaboration with respected loudspeaker designer Karl-Heinz Fink and his audio consulting team based in the German city of Essen.

The larger budget available with this 'speaker means it features

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## Introducing our new Black II Speaker Cable

"Tellurium Q have surpassed themselves here. It is often said that all cables colour the sound of a system to some extent, but the Silver Diamonds do it to a lesser extent than any other product I've heard so far."

John Myles, HI-FI World

"If you're looking for a major jump in your system's performance, I'd suggest buying a pair of these instead of considering a hardware upgrade. Before you write this advice off to cable delusion, expectation bias, or the recent Mercury retrograde phase, please take note: I have never said this in TONE's 11-year history"

Jeff Dorgay, Tone Audio

"Well, I have just stumbled upon a speaker cable that I'm very tempted to put in a class of its own"

Mono & Stereo



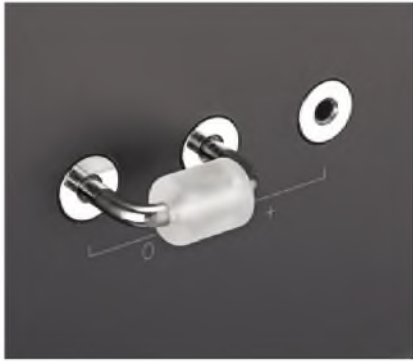
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== TQ ==

improved drive units and a new cabinet design aimed at making it as inert as possible. The latter features three layers of MDF sandwiched by a flexible gel which absorbs internal vibrations and turns them into



**Supplied jumper connections for each loudspeaker allow buyers to tune the treble response to suit individual tastes and room characteristics.**

heat. Q Acoustics maintain that this, combined with point to point bracing, reduces unwanted noise from the cabinet by 30dB, improving stereo imaging by reducing colouration.

The drivers consist of two 16.5cm mid/bass units allied to a 28mm soft dome tweeter arranged in

**From the front the Concept 500 follows Q Acoustics' traditional look – but with a deep gloss finish that looks superb.**



a D'Appolito configuration where the high-frequency unit sits between the two larger transducers. That tweeter is also mechanically decoupled, mounted in its own rubber gasket to isolate it from vibrations.

Size-wise the Concept 500 measures 1150mm x 400mm x 350mm Size (H/W/D) which is a decent size but not too imposing in a room thanks to the gently curving front fascia.

Stability is provided by a large, round aluminium frame-plinth, while the rear panel includes twin binding posts for bi-wiring or bi-amping, situated below a large reflex port.

One other feature of note is the ability to tune the tweeter response. Jumper plugs can be inserted in sockets at the back to give a +/- 0.5dB attenuation. Alternatively, leave them out to give a flatter response (see Measured Performance for full details).

From the front the Concept 500s look a fairly typical Q Acoustics model available in both gloss black or white finish. But in a nod to their more up-market price if you look from the side there's a wood veneer section at the sides – rose wood for the black or light oak for the white.

### SOUND QUALITY

I first heard the Concept 500s at Q Acoustics' research and development facility in Woking some months ago before their official launch – and



**The 28mm soft dome tweeter sits between the two mid/bass drivers in a classic D'Appolito configuration.**

Playing Art Ensemble of Chicago's complex 'Theme De Yoyo' the first impression was of a well-rounded and sonically even loudspeaker. This is a difficult track to replay properly – a combination of dissonance, melody, sweet vocals and deep bass.

But the elements are blended together admirably well. Bass is strong and goes lower than you'd expect considering the size of the drivers, but it was controlled and tuneful with no evidence of the

"No matter what I threw at the 500s they refused to be phased – simply turning in a thrillingly accomplished performance. That marks them out as something rather special"

they sounded excellent on the end of some Naim electronics with good, deep bass and excellent treble definition.

Over a longer testing period in the Hi-Fi World listening room the same characteristics were on show. This time I connected them to a McIntosh MC152 power amplifier connected by Q Acoustics' sister company QED's latest Supremus cable (£150 a metre).

cabinet joining in. The whole piece was projected into the room with extremely wide left-to-right imaging, allowing these speakers to envelop even large rooms.

But the Concept 500s were not all about low-end power. There was also a smooth mid-range on offer and a detailed but never harsh or zingy treble. The tweeter did not have quite the bite or extension of a metal-domed or ribbon-equipped



Pro-ject  
● AUDIO SYSTEMS



## ESSENTIAL III

The Essential III turntable takes the design of the multi-award winning Essential II and expands on almost every aspect to produce a stunning piece of affordable audiophilia.

The stylish, modern design of the MDF plinth stands out thanks to the high-gloss paint finish and is accented by the Essential III logo. Available with a gloss-black MDF platter or with an upgraded Acrylic platter, the turntable is sure to grab attention in any environment.

The 9V motor is powered by a built-in generator, for a consistent performance, and is isolated from external interferences by a new integrated ground link cable. A high-quality drive-belt links the motor to the perimeter of the main platter.

The 8.6" aluminium tonearm allows for accurate tracking of the vinyl groove with the supplied Ortofon OM 10 cartridge. The end result is an awe-inspiring, simple to operate vinyl record player that defies belief.

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**A large, circular aluminium plinth adds stability and also helps decouple the loudspeaker from the floor.**

model, but it was explicit enough to reveal tiny details which sometimes go unheard on other speakers.

Inserting the supplied links at the rear to give a +0.5dB boost did bring the treble forward a little – but on the whole I preferred the sound with no artificial enhancement as it had a smoother, more natural sound. That said, personal taste and hearing acuity vary so it's a nice option to have.

The drive units worked seamlessly together. They're placed in a D'Appolito configuration so – while not quite a point source – sounded all of a piece and in harmony.

On Philip Glass's opera 'Akhnaten' (24/96) the massed chorus of the English National Opera had all the requisite power, while Emma Carrington's mezzo-soprano dripped with emotion when she entered the performance.

It was this ability across the sonic spectrum that makes the Concept 500 such a joy. Listening to the quiet saxophone reflections at the start of Kairos 4Tet's '99 Suite' the speakers captured the relaxed, almost ethereal atmosphere of the recording, I found.

Moving immediately to something with a bit more (well, a lot more) energy, such as Primal Scream's 'Shoot Speed/Kill Light' the speakers pounded out the descending bass line and piercing guitar with enough force to almost knock me off my seat.



**Two-part bungs are supplied to dampen the bass reflex port depending on how close you position against a rear wall.**

In fact, no matter what I threw at the 500s they refused to be phased – simply turning in a thrillingly accomplished performance. And that marks them out as something rather special.

**CONCLUSION**

The Concept 500 may be a new price-point for Q Acoustics, but it represents the same value-for-money concept as its other models. In terms of bass response, mid-range smoothness, treble detail and all-round musicality this is a loudspeaker that can go up against some rivals costing twice as much. I urge you to give it a listen.

**MEASURED PERFORMANCE**

Our pink-noise third-octave analysis of frequency response shows a remarkably flat response from the Q Acoustics Concept 500. This is with the measuring microphone slightly off-axis (15degrees) and no lift applied; on-axis, treble rises a little. So for best accuracy the Concept

500s should be pointed straight down a room, not at listeners. With treble lift applied using the supplied jumper upper frequencies were raised by +2dB, enough to give a subtly brighter sound.

The smoothness of our analysis across the audio band is due to absence of local resonances that produce colouration; the Concept 500 will sound clean and uncoloured.

At low frequencies bass lifts a little to add some weight, if by a small amount.

Sensitivity was a high 90dB from one nominal Watt (2.8V) of input. Impedance measured 6.5 Ohms overall, but the bass unit has a low DCR of 3.5 Ohms so it draw current. The loudspeaker will go loud at low volume control settings and needs no more than 40 Watts to reach very high volume.

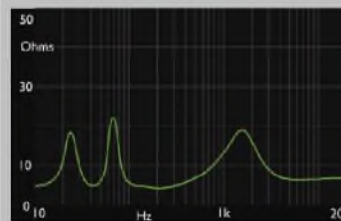
The Concept 500 measured well all round. Its almost-flat frequency response suggests levels of colouration well below most other loudspeakers, as well as an even tonality that few other loudspeakers through our doors approach. **NK**

**FREQUENCY RESPONSE**

**Green - driver output**  
**Red - port output**



**IMPEDANCE**



**Q ACOUSTICS**  
**CONCEPT 500**  
**£3995**



**OUTSTANDING - amongst the best**

**VALUE - keenly priced**

**VERDICT**

Q Acoustics' Concept 500 is its most accomplished loudspeaker yet. It combines a big sound with brilliant musicality and sophisticated engineering. Destined to be a future classic.

**FOR**

- deep, controlled bass
- smooth mid-range
- detailed treble
- inert cabinet

**AGAINST**

- nothing at the price

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# Back to the eighties!

Will the real Onix please stand up? Martin Pipe auditions the DNA-50 integrated amp, which it makes with pride on the South Coast

**B**etween the mid-1980s and early-1990s, Onix produced a number of well-received amps and the respected BWD-1 FM tuner in a Brighton factory. Disputes between the firm's partners alas occurred and ownership of the Onix name was disputed.

Consequently, there are two Onixes today. One is Onix Hi-Fi, a brand of Chinese audio giant Shanling; its products are made in Shenzhen. The other is Onix GB and resides not far from Portsmouth (UK). Its CEO and chief designer is Adam

Worsfold, one of the original Onix partners.

One can currently count seventeen products from the Chinese Onix Hi-Fi, but for Onix GB the number is currently two. Both of its DNA-branded products are integrated amplifiers. Number one, which I'll examine here, is the £1980 DNA-50 – which the website is billing as the first new (Onix) model for 30 years. It's quoted as producing 100W per channel RMS, into 8 ohms (but see Measured Performance) and boasts a user-upgradeable phono stage, as well as five line inputs.

In time, Onix will offer DAC and Bluetooth upgrades for the unit. The second model, due imminently, is the 'scaled down' DNA-45.

Appearance-wise, the DNA-50 reminds me slightly of Naim's classic Nait 3 – although you don't get the source-selection buttons (or, for that matter, a balance control). It's rather thinner too, standing a mere 45mm tall. As standard the DNA-50 is finished in black, although different colours are available to special order. It's rather heavy (10 or so kg), thanks in part to a substantial 350VA toroidal transformer, although much





use is made of substantial aircraft-grade aluminium. The case – which acts as a heatsink for the output transistors – is CNC-machined. If steel had been used rather than aluminium, Onix estimates that the DNA-50 would have weighed 35kg! The result certainly looks good, the DNA logo being machined into the top lid, and there's a definite luxury aura to its minimal design and feel.

Such minimalism extends to the usage simplicity. The only controls are volume, rotary source-selection and – on the rear panel – a power switch. Maybe that's why there's no need for legends. A row of differently-coloured LEDs indicate which of the inputs is currently-selected. Remote control is also provided for – a beautifully-machined handset toggles through inputs, and raises or lowers volume. All inputs are phono sockets, no balanced inputs having been provided. You won't find a headphone output or auxiliary 3.5mm input on that uncluttered front-panel either. Outputs are recessed speaker terminals (banana plugs) – no binding posts for bare wire.

Disturbingly, given that we now live in the 21st century, no short-circuit protection seems to be incorporated. If there is an accidental short, warns the manual, "the



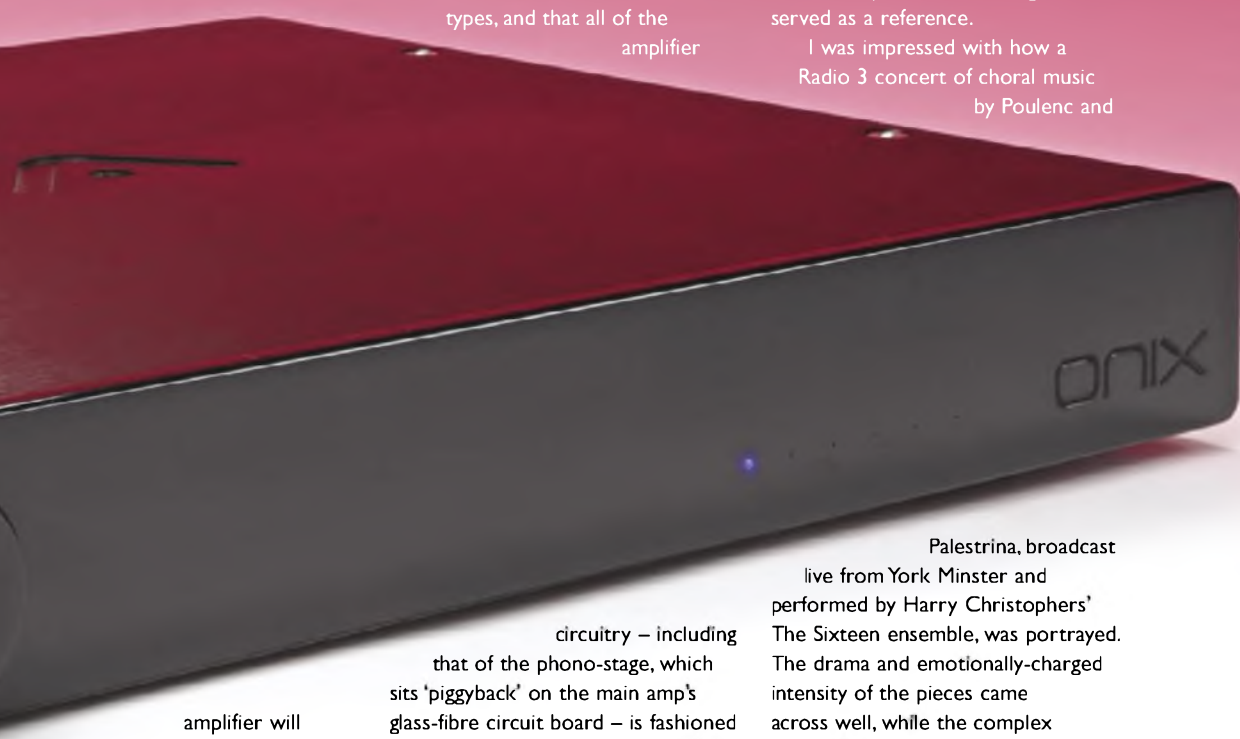
*A classic design, implemented with modern components and production techniques. Note the four metal-cased power transistors of the output stage, which are to the left of the toroidal mains transformer. Above the motorised volume control can be seen the phono stage.*

is not provided.

Internal construction is impeccable, much of the case being occupied by the massive mains transformer and blocks of smoothing capacitors. I note that the power transistors are metal-canned T03 types, and that all of the amplifier

a Rega Planar 3 turntable and a Cambridge CXN network player streaming the 320kbps BBC Radio 3 AAC stream and various music stowed away on a NAS. An Arcam A49 integrated amplifier, another solid-state powerhouse integrated, served as a reference.

I was impressed with how a Radio 3 concert of choral music by Poulenc and



amplifier will suffer and consequently require service". Maybe that's why the DNA-50 has two sets of line outputs – these can be used to drive external power amps, as well as recorders. Note that, as with so many amps of recent vintage, a genuine 'tape loop'

circuitry – including that of the phono-stage, which sits 'piggyback' on the main amp's glass-fibre circuit board – is fashioned from discrete components. There's not an op-amp in sight.

**SOUND QUALITY**

My trusty Quadral Wotan VIII speakers were placed in the care of the DNA-50 - the sources being

Palestrina, broadcast live from York Minster and performed by Harry Christophers' The Sixteen ensemble, was portrayed. The drama and emotionally-charged intensity of the pieces came across well, while the complex harmonies and vocal textures were communicated with ease.

The DNA-50 delivers a worthy performance with the range of human voices – which cover the mid-bands and presence region of human hearing. At the lower and higher

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**To avoid the possibility of short-circuits, which could damage the output stage, the speaker sockets are recessed and only accept the banana-plugs.**

ends of the audible spectrum, though, things aren't so clear-cut.

Take for example a 12in. 33rpm single of 'Mystery', by American house/garage producer Todd Edwards. This track lacked the low-end punch that you would expect. You can certainly make out the bass; articulate and tight, yes, but it's just not delivered in the expected quantities. I expect that aggressive subsonic filtering in the phono stage is to blame; after all, the DNA-50 can serve up a lot of power that shouldn't be wasted flapping bass speaker-cones inaudibly.

The Arcam A49 also includes such filtering but it's not as dramatic. With line-level sources, though, much of that slam is restored; the dynamic potential of this amplifier is not in question. Never once was it heard to lose control.

It's also somewhat reticent at the other end of the frequency range – for line sources, as well as phono. The percussion of the Todd Edwards track I tried didn't have the edge I expected. That said the DNA-50 fares very well in terms of timing; it's not too dissimilar in that regard to the Naim Nait 3 I mentioned earlier. Indeed, in many respects the sound is classically British.

That means a smooth, detailed, clear and musical presentation – attributes that were claimed of the original Onix OA-20. Only here, there's a lot more power at the music's disposal.

I enjoyed spinning a vintage (1971) Decca performance of Holst's 'Planets' (Mehta/L.A. Philharmonic). Although the 1982 Viva! Reissue LP is spoilt by some audible compression, especially on the 'Mars' movement, there's plenty of layered detail and a decent stereo image – all of which are done justice by the DNA-50.

I was particularly impressed with the brass instruments, which are bestowed with bite and attack – it's just that further up the scale, the impact diminishes somewhat. Yet for

all this the phono stage was judged to be surprisingly noisy, although the hiss is nearly always masked by surface noise. This is ironic, considering that a noisy head-amp apparently led to the foundation of the original Onix! Line sources like the CXN are not affected, and all you'll hear when music isn't playing is a reassuringly inky blackness of silence.

The communicative nature of the DNA-50 also helped to make

a wide range of music – from complex productions like The Flying Lizard's brilliantly-eccentric 1981 LP 'Fourth Wall' to funky numbers like Brass Construction's iconic 'Movin' (both FLAC CD rips) – such a joy to listen to. The DNA-50 may not be the most neutral-sounding of amps, but one cannot fault its musical prowess. It's worthy of audition, especially if your sources and speakers lean towards the bright.



### MEASURED PERFORMANCE

The Onix DNA-50 amplifier delivered 50 Watts into 8 Ohms and 90Watts into 4 Ohms; it has good power supply regulation. The 100 Watts claimed is approached only into a 4 Ohm load.

Although distortion in the midband was acceptably low at 0.03%, classic crossover distortion with an extended harmonic structure increased this figure tenfold to 0.3% at 10kHz – a high value by today's standards where less than 0.1% is common. Anything above 0.2% or so will add some slight roughness, sharpness or similar 'character' into the sound. However, frequency response

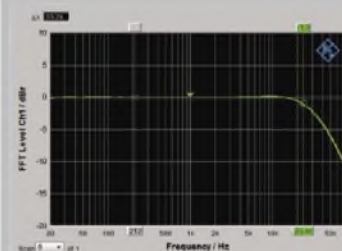
rolls down fast above 20kHz and will counter this by giving a soft sound balance.

Sensitivity was low at 400mV for full output, fine for silver disc players but not enough for insensitive external phono stages.

The internal MM phono stage was insensitive too, 8mV being needed for full output from the amplifier. Noise (IEC A weighted) was unusually high at -65dB and will be audible. A strong warp filter rolls off low bass below 100Hz and will effectively suppress loudspeaker cone flap, but also audibly lighten bass from LP. This phono stage could be better.

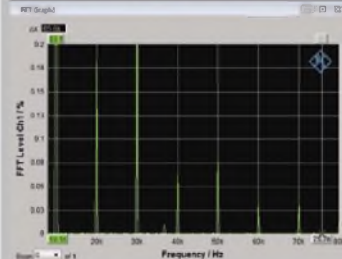
This is not an especially modern or distinguished design (no output protection), embodying old weaknesses such as crossover distortion. The MM phono stage in particular needs improvement. NK

### FREQUENCY RESPONSE



### DISTORTION

Total	Level (dB)	Frequency
0.3159 %	2.0931 V	10.000 kHz
OFF	OFF	OFF



**Power** 50 Watts

**LINE**  
**Frequency response** 7Hz- 23kHz  
**Distortion (10kHz, 1W)** 0.3%  
**Separation** 88dB  
**Sensitivity** 400mV  
**Noise** -73dB

**PHONO**  
**Frequency response** 60Hz- 20kHz  
**Distortion (1kHz)** 0.1%  
**Separation** 82dB  
**Sensitivity** 8mV  
**Noise** -65dB  
**Overload** 38mV

### ONIX DNA-50 INTEGRATED AMPLIFIER £1980



**GOOD - worth auditioning**

### VERDICT

Classic Brit analogue tech brought into the streaming age.

### FOR

- detailed and musical
- beautifully-built
- firm bass

### AGAINST

- noisy phono stage
- no output-stage protection
- can be rather dull-sounding

www.onixdna.com

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# Astral Planar

**Audeze has squeezed planar magnetic drivers into an in-ear headphone with the promise of cutting-edge sound quality. Noel Keywood tests them out and comes away impressed.**

**A**udeze (USA) make a range of planar magnetic headphones close to 'as good as it gets'. Their open backed LCD-3 reminds me of the Eminent Technology LFT-8b planar magnetic loudspeaker: both are smooth and clean, with no overhang and smear caused by a surrounding enclosure. Both use leading edge planar magnetic technology to achieve this. Now the company have released two in-ear planars in their iSine series, the i10 and i20. They promise cutting-edge sound quality from in-ear phones – a nice idea!

I favour the sound of open panel loudspeakers, so the thought of open panel planar 'phones that don't weigh heavily on the head instantly appealed to me. How do Audeze do it? They have developed a tiny magnetic planar drive unit, small and light enough to push sound into the moulding shaped to fit your ear. In the i10 and i20 then, you get the best high-fidelity audio can offer through in-ear phones at a not-impossible price of £349 and £549 respectively.

Audeze offer two drive options: drive them direct from a headphone socket or connect via the digital output of an iPhone (Lightning socket), through a special Cipher cable with volume control, working in conjunction with a free downloadable app.

Simple – except it isn't! Audeze have complicated this to the point that I have to explain it separately later, since these two connection methods offer very different results – an anomalous situation.

In-ears, or IEDs (in-ear devices)

normally come as small buds that you fit and forget. The i10 and i20 are too large for this; they come with over-ear flexible plastic clips to hang them off the bits that stick out (pinna) – and you have to use these clips. They take some fitting – not something I'd find easy on a crowded London Tube train; over-ear phones with a headband are easier to fit. Both clear and black plastic clips are supplied.

Once in place the phones are comfortable enough, weighing a light 12gms apiece on our scales, rubber ear-tip and clip included. Absence of a headband makes them easily portable and the 150cm (5ft) long headphone leads will reach down to an iPhone or portable player in the leg pocket of cargo trousers.

The analogue lead has a 3.5mm jack plug at one end and tiny, lightweight proprietary connectors at the other (not the usual 2.5mm mono jack plugs) so only Audeze leads can be used.

The Cipher digital lead has an Apple Lightning connector and an in-line volume control. The tiny volume control unit carries a DAC and digital signal processing to provide correction for in-ear use, something the analogue lead lacks – so they are not the same and do not give the same results, but Audeze fail to make this clear.

With an iPhone 7 you must use the digital lead since it has no analogue headphone socket; analogue

output is available only through an adaptor. Also you get no sound to the 'phones via digital until the Audeze app is installed, or any other app that does a similar job; I used an alternative Denon headphone app (£1.99 with EQ). The Audeze app has a simple graphic equaliser but works only through the digital output, whilst the EQ within Denon's app works via digital and analogue outputs (of my iPhone 6S). This is of consequence as I will explain.

Both the i10 and i20 come packed with the parts I have described, the main difference being the i20 has a drive unit that gives more low frequency information and a fuller sound.

And now to some not so simple bits I will try to keep simple. Audeze make much of their iPhone digital cable with 24bit digital to analogue convertor (DAC), digital signal processor (DSP) and amplifier with up/down volume buttons, all packed into a tiny, lightweight enclosure.

*The iSINE i10 in-ear 'phones. They employ Audeze's own planar magnetic drive units, shrunk down to in-ear proportions. The backs are open, to avoid internal reflections – and this gives an open sound too.*





*The iSINE i20 in-ears are distinguished by a gold finish. Note that the ear pieces are 'handed' - Left or Right. The leads are similarly handed.*

Technologically it is a marvel, using micro-miniature surface mount devices (SMD) – so small only a robot can handle them.

I plugged this cable into an iPhone 6S, downloaded the app and started listening. It wasn't long before I also started to wince at harsh and exaggerated treble; something wasn't right. From prior measurement I suspected the DAC or DSP were responsible. Fishing out the analogue cable and using it instead, the sound returned to a normal balance.

The digital cable applies significant equalisation via DSP that the analogue cable cannot do, explaining why they sound obviously different. But this equalisation is unnecessary and wrong – hence the harsh sound. The analogue connection is fine, the digital connection is not. Audeze did not offer a reply when asked about the difference between the leads and which one was correct, in their view.

What to do if you want the digital lead? It worked well enough, if not perfectly, by setting the 2k and 4k equaliser sliders in Audeze's app to minimum to negate the EQ. But I preferred to use Denon's headphone drive app that offers more sophisticated methods of adjustment. By pulling down level from 2k to 4k on this app I got a smoother sound and one that was more easily adjustable to taste.

Denon's app could change the analogue sound to suit taste, whilst Audeze's app does not work in analogue, so is no use here.

**SOUND QUALITY**

I initially ran the i10s from the supplied digital iPhone connector and got a shock, as explained above.



It wasn't totally unexpected because prior measurement warned of both limitations and peculiarities.

via a QED Quartz glass cable optical interconnect to avoid cable-imposed jitter. No EQ was used in the AK120.

The sound was largely what I expected from using magnetic planar and electrostatic loudspeakers. You get a superb sense of open yet smooth clarity; there's no darkness, no warmth, just a sound that is machine-washed to perfection it seems. Meaning stain free.

This is because planar drivers are largely distortion free, so in my much used classic Rock test of 24/96 tracks from Fleetwood Mac's Rumours with 'Go Your Own Way' sped along, leaving nothing in its wake.

It was light and fast and so superbly clean in the time domain I could clearly appreciate what the planar drivers were doing.

They have deep insight, providing a swathe of fine detail that allowed me to hear right into what was happening, with hard images coming at me from across a wide soundstage, as strong at left and right as at centre.

**JON MYLES SAYS...**

First off, full marks to Audeze for producing something genuinely new in an in-ear monitor (IEM). Squeezing planar magnetic drivers into such a small space is a real achievement – and a unique one too.

In use they are markedly different to any other in-ear I've heard. The silicone tips do not isolate like other IEMs but do concentrate the sound into the ear, while the open-back design lets in ambient sound but brings a tremendously wide soundstage – actually better than some over-ears.

The sound, though, is heavily dependent on which cable is used - either the analogue or the Cipher designed for Apple devices.

With the former there's tremendous bass punch and a rich, warm treble. Using the iSine20 with a FiiO X5 Led Zeppelin's 'When The Levee Breaks' had overwhelming impact. There were vast sonics and John Bonham's pounding drums had real power but without overwhelming the guitar, vocals and harmonica.

Switching to the supplied Cipher cable plugged into the Lightning connection of an iPhone 7 Plus, however, significantly altered the sound. This cable by-passes the iPhone's digital-to-analogue converter and sends a 24-bit signal to its own built-in DAC.

Here the treble was pushed much more forward and could veer into edginess on some tracks – not something I'd associate with planar magnetic headphones. Fiddling around with the DSP settings on Audeze's free app for idevices (version 0.0.3) ameliorated this somewhat but failed to totally solve the issue. Yes, the sound was crisp and clear but to my ears lacked warmth.

Switching to the SuperLoud equaliser (£4.99) brought a much better response with a few tweaks to the levels - the Led Zeppelin track sounding much more organic although it still lacked some of the power displayed by the analogue out of the FiiO.

That said, these Audezes - both the iSine 10 and 20 - are a considerable engineering feat and definitely worth an audition if you want something different from traditional in-ears.

To get a handle on fundamental sound quality from Audeze's magnetic planar IEDs, unhindered by DAC and DSP issues in the digital headphone lead, I reviewed them from a high quality analogue source comprising Audiolab M-DAC+ (ESS ES9018 Sabre32 DAC) acting as a headphone amplifier, fed hi-res digital by an Astell&Kern AK120 portable player

Hard and concise soundstaging remained a stand out feature throughout listening. The whole delivery in 'Silver Springs', with its vocal multi-tracking and slow instrumental solos was grabbing in its pure simplicity; I was into panel territory here. Then as 'The Chain' started a little fiddling in the studio on the left channel made itself subtly known



Some of the parts supplied with the iSine in-ear phones. At left is the Apple Lightning connector, then four lightweight two-pin connectors to the 'phones, and finally a 3.5mm stereo jack for size comparison. At top right are ear clips (black) then below ear tips.

because the planars are so quiet in themselves.

The London Symphony Orchestra playing 'Mars, Bringer Of War', stretched wide through my head, the emphatic ending with big kettle drums and staccato horns making their point strongly.

With this unequalised analogue connection there was little deep bass and sparse warmth or body in the sound, explaining why Audeze add some low frequency boost in their DSP. All the same, I was hooked by the speed and purity, but others may understandably want more kick. I applied lower and upper bass boost and the sound gained body.

Using an iPhone 6S I then ran the same suite of hi-res music test files as 24/48s, via both its analogue and digital outputs.

Analogue from the headphone socket was similar in balance to the M-DAC+ but inevitably without the dynamic contrasts, giving a flatter rendition.

Adding a little bass boost and a modicum of lift around 2kHz in the Denon app gave more body and subtly more midrange insight without obviously upsetting tonal balance and this was the best result. The iPhone's own internal EQ setting labelled Acoustic offers similar results.

Moving on from there to the digital lead produced a sound that was subjectively unacceptable; I don't know how Audeze got to this place. A track with mid-forward balance like Tom Petty's 'Refugee' screeched at me and was unlistenable; horns and strings in Rimsky Korsakov's 'Snow Maiden' had hacksaw edge.

That the DSP EQ is excessive and wrong is subjectively obvious; pulling the 2k and 4k equaliser sliders to minimum helped but there was still sharpness in the sound.

A better solution, I found, was to use Denon's headphone drive app and reduce midband level from 2k to 4k. Even at flat, this app gives a smoother sound than Audeze's and it has better facilities.

### CONCLUSION

Audeze's i10 and i20 in-ear magnetic planar headphones are, in themselves, superb in every way, having the basic

open and airy presentation you get from lightweight on-ear (supra-aural) 'phones – meaning they are smooth and even in nature, so more natural. Yet they also have deep insight and a remarkable sense of cleanliness.

Deep bass and warmth are lacking; you still need closed-back over-ears (circumaural) for this, but a little bass lift in EQ is easy to apply and helps. I prefer a headband to fiddly ear clips but this compromises portability.

There was minimal sound leakage, by the way; they can be used in public space.

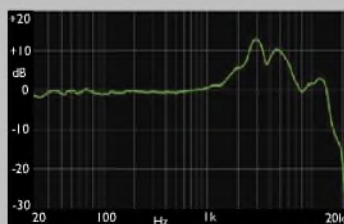
Audeze's equalisation in DSP within their optional digital headphone lead is wrong and a misunderstanding I believe – obvious by listening to it. This was the only sticking point, one best avoided by using the analogue connection or Denon's professional headphone app with the digital connection to null the EQ.

Overall then, the i10s and i20s are great in-ears, and a revelation within their market sector. They're a step ahead of available technology. If you have a hi-res portable (Astell&Kern, FiiO, et al) and need the best possible sound from small portable phones, these are the ones you should hear.

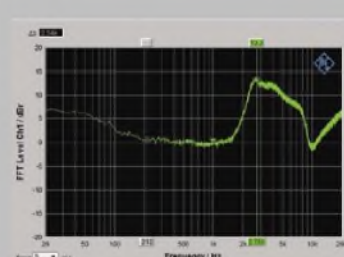
### MEASURED PERFORMANCE

Our frequency response analysis of the i10 looks poor, in that it is far from flat. However, this is what the inner ear needs (HRTF) to perceive a flat external

#### FREQUENCY RESPONSE



#### FREQUENCY RESPONSE DSP



response and is, broadly speaking, correct for a natural sound balance. The i20 was similar.

The optional headphone-lead DAC/DSP inserts an additional +15dB peak in response between 2kHz and 8kHz. It means the digital lead will sound far brighter and sharper than the simple analogue lead. There is also bass lift. Pushing the 2kHz and 4kHz sliders to minimum in their app brought this peak down a useful -10dB, but a +5dB lift still remained to differentiate the sound of the digital lead to the analogue lead.

Maximum output of the digital lead was modest at 320mV so noise was inevitably an issue and this resulted in a mediocre distortion value (24bit) of 0.44%, our analysis shows. Dynamic range measured 93dB, below CD (102dB).

The i10 and i20 measure well when used with an analogue connection. The digital lead is best avoided. **NK**

**iSINE 10 £349**  
(WITH LIGHTNING £399)

**iSINE 20 £549**  
(WITH LIGHTNING £599)



**EXCELLENT - extremely capable**

#### VERDICT

A superb in-ear headphone, best used with its analogue connection.

#### FOR

- light and comfortable
- portable
- detailed and revealing analogue sound

#### AGAINST

- awkward to fit
- sharp digital sound

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# NEW ST 30se Single Ended KT150 Amplifier

HI-FI WORLD said:



**OUTSTANDING** - amongst the best.

**VERDICT**

Combines all the benefits of single-ended valve operation with a healthy dose of power for a superb listening experience.

**FOR**

- power
- clean, open sound
- detail
- easy operation

**AGAINST**

- nothing at the price

Read the full review [Now Read](#)

Awarded 5 gobes in:



Frequency response was wide, the upper limit being 50kHz (+10dB) at all volume control positions. The low frequency response extends down to 6Hz before falling away rapidly, the small hump being due to feedback time constants. The ST 30se will not sound dull or warm: it is flat across the audio band and even beyond.

The ST 30se produces high power as pure SEs go. It has unusually wide bandwidth too, so will not have a warm sound texture. A clean and pure, but relatively fast sound is really, NK Noel Keywood Editor HI-FI World

Power	28W
Frequency response	6Hz-50kHz
Separation	83dB
Noise	88dB
Distortion	0.2%
Damping factor	6
Sensitivity (L/H)	800 / 400mV

*Innovative Designs From Icon Audio*

*designed by David Shaw*

**BEST VALVE AMPLIFIER**



ICON AUDIO STEREO 30SE

Reviewed: November 2016 issue

14

HI-FI WORLD JANUARY 2017 [www.hifiworld.co.uk](#)

## A Versatile Affordable SE Solution!

For those not familiar with the term, "Single Ended" (SE) is the original design of valve amplifiers in its simplest form using only one power valve per channel. used long before two valve "Push-Pull" designs were developed. Single Ended enables the production of a very simple amplifier with 100% "Class A" performance. When SE is refined using modern design and audiophile components the audio presentation has no equal in terms of smoothness, listening quality and is very easy to listen to, without the "listening fatigue" so prevalent amongst solid state designs. But as reviewers have found to their delight the ST30se is no slouch at speed or lacking in bass weight. True "high end"!

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**H**ere's your chance to win the superb pair of Piëga Classic 3 loudspeakers we reviewed in our April 2017 issue. Read the review excerpt below and answer the questions.

"Swiss company Piëga has, since its inception in 1986, been using in-house designed ribbon drivers in most of their range. The company is now making a concerted effort to woo British listeners with its Classic series, of which the 3.0 standmount is the smallest model, the rest of the range featuring five floorstanders and

a centre 'speaker.

The Classic 3.0 is certainly a handsome-looking loudspeaker. Measuring 340mm x 210mm x 280mm (H/W/D) our samples come in a beautiful gloss Macassar finish which simply oozed quality out of the box. On first sight I estimated their price at around £2000 due to their fit, finish and construction. But no, they come in at £899 – a plus point considering their up-market looks.

In terms of design they are a traditional two-way, rear reflex-ported model with an 18cm mid/bass driver above which sits Piëga's proprietary AMT-1 tweeter.

There's a single pair of binding posts at the rear and impedance is a quoted 4 Ohms with a claimed frequency range of 38Hz to 40kHz (see Measured Performance for our authoritative results). The supplied grilles attach magnetically so there are no ugly fixing points on the fascia if you choose not to use them. As the Classic 3.0s are a relatively large standmount and weigh in at around 8kg, a solid pair of stands is essential to getting the best from them".

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## QUESTIONS

- [1] Piëga use -**  
 [a] fast drivers  
 [b] dangerous drivers  
 [c] ribbon drivers  
 [d] pile drivers
- [2] The Classic 3s weigh -**  
 [a] 0.8kg  
 [b] 8kg  
 [c] 8lbs  
 [d] Bounces
- [3] They need -**  
 [a] solid stands  
 [b] support girders  
 [c] concrete base  
 [d] wobbly foundations
- [4] The grilles attach using -**  
 [a] glue  
 [b] string  
 [c] 6in nails  
 [d] magnetically

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# Mail



## LETTER OF THE MONTH PRIZE

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 Quadral Argentum 520 loudspeakers.

Answers by: **NK** - Noel Keywood; **JM** - Jon Myles; **PR** - Paul Rigby; **MP** - Martin Pipe, **DT** - Dave Tullt.



### QUADRAL ARGENTUM 520

<http://www.quadral.com/en/loudspeaker/argentum-520>

For more advice see Letters from earlier issues at [www.hi-fiworld.co.uk/letters](http://www.hi-fiworld.co.uk/letters)

**A pair of QUADRAL ARGENTUM 520 loudspeakers are on their way to JAMES ATKINSON, Letter of the Month winner in our August 2017 issue.**

## Letter of the Month

### HI-RES AUDIO THROUGH MAINS

I read with interest your and Jon Myles's article in the July HFW on "Streaming", as it's something that I'm frequently asked to explain to friends and colleagues. In future, I will certainly refer people to your diagram on p57, as it nicely outlines how all the components fit together.

However, the reason I'm writing is that I do take exception to your blanket statement "avoid sending ethernet over the mains at all costs", a recommendation you also made to correspondent Paul Goodwin in Letters in the April and July issues. While I agree that there are circumstances in which problems will occur in using your house mains wiring to double as an ethernet network, if it's done properly then it can be a very convenient and effective way of providing home computer connectivity.

This is particularly true in my case, as I have a reasonably large and old (~100 yrs) house with thick walls, through which it would be a messy and painful job to lay long ethernet cables. Consequently, when I obtained my streamer (Cambridge Audio Stream-Magic 6V2 – forerunner to the CXN you mention and an outstanding unit), I decided to install a mains wiring solution for networking around the

house.

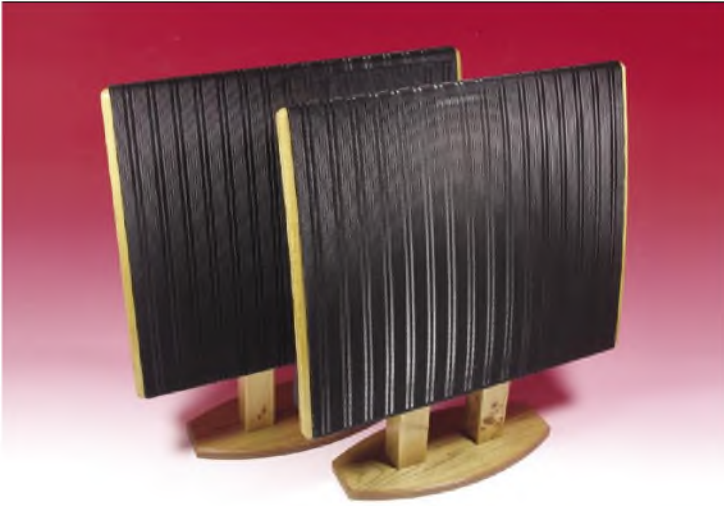
A quick description of my setup: we have Virgin as our internet provider, with fibre-optic cable entering the house in my study upstairs, where our home (Windows 10) PC is located. As with Jon's, the Virgin cable connects to a Super Hub, but I then use my own TP-LINK wifi/ethernet router to disperse this around the house. Also in my study, and connected via cable to the router, is my Vortexbox which contains my ripped CD collection (I now mostly use Exact Audio Copy – also a superb facility), and while Vortexbox is a Linux PC in its own right, it appears just like a NAS on my network.

The CA streamer has wi-fi connectivity, but I decided against this route for sound quality reasons – our wi-fi is used



**The TP-Link AV1200 Powerline Adaptor that sends digital through the mains. "A very convenient and effective way of providing home computer connectivity", says Phil Charles.**

heavily by other devices in the house (mobiles, tablets, etc), and hi-res audio streaming is a demanding application. I therefore use a TP-LINK AV1200 PowerLine Adaptor to connect to my router. The TP-LINK includes an app (tpPLC) that allows you to "see" on your PC your mains-connected network of attached devices. I have three, including the Stream-Magic and tpPLC shows you the actual connection speed that is being achieved through your mains wiring.



**Quad ESL-57 One Thing Audio-modified 'speakers – working superbly with Phil Charles's Cambridge Audio streamer and his Prima Luna valve amplifier.**

Now, it may be called "AV1200", indicating a top speed of 1200 Mbps, but you'll never get anywhere near that! I'm achieving typically 250 Mbps to the living room hi-fi (through at least 30-40 feet of wiring), and even 150 Mbps to the kitchen's Roberts radio (more like 50 feet away).

In case, readers feel that this may make their internet connection visible to neighbours, they are right! But all these powerline systems come with 128-bit encryption applied by the base unit and then you simply "tie" each powerline adaptor to the base unit with a switch, making it impossible for anyone outside your network to access or hack your system.

I went for this high-speed solution because my music collection now includes about a dozen Studio Masters (all obtained from Linn and CORO - superb sites for hi-res music by the way), all of them either 24/96 or 24/192 recordings. The latter amounts to approx 5 Mbps (ordinary CD is about 5x less than this). So my mains-ethernet has far greater capacity than this.

In our living room, the CA streamer feeds my PrimaLuna Prologue 2 and thence my OTA-modded ESL-57s. The result? Stunning sound (e.g. Phantasm's glorious "Lachrimae" or "Seven Tears" on Linn), rock solid and completely stable. And it has been stable ever since I set it up more than a year ago.

I said at the beginning that mains-wiring can work "if done properly" and that means following the instructions! In particular, always connect your powerline adaptors directly to wall-mounted mains sockets. Never use extension leads or 2-/3-way mains adaptors, as they will degrade the signal.

As with Jon, I would also recommend not using your internet provider's hub as a router, get a higher-spec separate one. And use Windows 10 on the host PC, being sure to implement all regular updates! I don't know why it didn't work for Paul Goodwin, but I suspect he didn't have the setup I've described here.

The bottom line is that the best solution is obviously dedicated Cat6 ethernet cable strung around your house. But if that is impractical, as I'm guessing it will be for many of your readers, then I hope these notes will be useful in helping them consider what option to use.

Best wishes

**Phil Charles (retired astrophysics professor).**

Hi Phil. Thanks for your experiences. It's good to hear that someone has had success with sending digital ethernet signals over the mains, because for technical reasons it often causes problems. Impulsive interference, especially if it is regular, will inevitably corrupt a digital signal. Whether you suffer this or not, however, depends entirely upon your local conditions, especially whether heavy current is being drawn from the supply by industrial motors, such as those in refrigeration equipment, pumps, agricultural equipment and what have you. Lighting dimmers chop the mains too, and it appears the mains is commonly voltage clipped, all being processes that add rubbish able to affect digital.

Add to this capacitance in long cable runs that increases jitter through time domain indeterminacy of the zero crossing point and you

end up with conditions that can and often do cause digital havoc at worst, degrade sound quality at best. Using a high-quality, high-speed and interference free ethernet cable is always the best solution and it will give a better sound too, through lower jitter.

Another issue rarely mentioned is that noise in the digital domain falls through as noise in the analogue domain, as dither demonstrates. So a noisy mains environment can appear as noise in your analogue audio signal. Whilst re-clocking and interleaving are used to ameliorate the problem they can only achieve so much.

If, as you say, "extension leads or 2-/3-way mains adaptors will degrade the signal" then so will a lot of house wiring, since most of it passes through simple mechanical screw connectors. But this depends upon your house of course; in your case perhaps you enjoy sturdy, well-terminated cable runs between rooms but others may not be so fortunate. I participated in the re-wiring of my house (told the electricians what to do!) but still have to dangle ethernet cables between floors, down chimneys and all sorts of things to get good, reliable comms with decent sound quality when piping audio. You may want to jury-rig a Cat6 run and have a listen! **NK**

Hi Phil, I'm glad to hear your mains ethernet set-up is working well and you are getting good sound. I know of other people who use the mains for their ethernet connection and report no problems. However, I also know of more who have suffered no end of difficulties and also reported inferior sound reproduction from their kit. A number of manufacturers recommend using Cat cable for best results when wiring in a streamer. However, obviously this is not feasible for everyone and if your system works well then enjoy! **JM**

**OPEN REEL AND CAVIAR**

Thanks Dave Tutt for your recent detailed articles on restoring open reel decks. Of course I respect your experience and skills – but it seems like you had a lot of bad luck with Revox decks!

I know some local repair shops that refuse to repair anything else than Revox open reels, because of the suboptimal construction and/or

unavailable parts of many Japanese models. Most late models from Uher and Philips have a bad reputation as well.

Most important – it is a true necessity for me to answer your question: "... what do people do with a tape deck now anyway...?".

Firstly, there's a growing number of master tape copies available, some of them sound simply fantastic on a proper open reel deck.

Secondly – not just in my opinion – digitalising pure analogue LPs is like freezing Caviar: you destroy its character and taste. So I preserve some rare records on tape.

Thirdly, people like me create their own strictly analogue "samplers" on reel-to-reels (for the same reason as above).

Last but not least: why do some people drive classic cars, wear mechanical watches or (unbelievable!) listen to analogue records? Because it's fun!

Even if I like digital high-res files unfortunately a typical DAC or Streamer has the same sex appeal like a brick: they are convenient, but boring.

And now think of something like a Sony TC-880-2! ;-)

Thanks again. Best regards from Franconia!

**Guido Puttkammer  
Germany**

P.S. This may surprise you: <http://www.ballfinger.de/tape-recorder-m-063> (yes, it's a new open reel deck!). Revox works on a new deck, too.

Hi Guido. There is a market for reel-to-reel here in the UK, as well



**A J-Corder (USA) restored Technics RS-1500 open-reel recorder on show at Denver's Rocky Mountain Audio Fair, USA, 2016. Price \$11,000.**

as across the world, but I have yet to find anyone who is prepared to pay for master tape quality music in excess of £200 a copy, even if it is new or previously unavailable music

– it is a bit of a stretch.

My customers are looking to access old tapes so the requirement is somewhat different. I am dealing with the opposite end of the market where most of the units are from boot fairs and eBay scrap, so the equipment is very different from a machine that may have been looked after all its life, or for that matter a machine fully renovated, cost no object.

The Revox machines I have dealt with have generally been quite good but that one particular model, the A700, has its unfair share of bugs and I really wouldn't recommend it based on my knowledge and the hundreds of hours spent fixing them. I own a



**"I own a Studer PR99 Mk2 half track Varispeed which is a good machine, but with nowhere near the issues of the A700" says Dave Tutt. Pictured is a PR99 for sale at [www.gbaudio.co.uk](http://www.gbaudio.co.uk).**

Rubber rot is the most serious issue for many decks. The chemical process creating the rubber in some circumstances was flawed but then I doubt the factory was expecting the machines to still be here almost half a century later.

The other big issue for most



**The Ballfinger M 063 tape recorder is "yes, a new open reel deck!" says Guido Puttkammer. And what a gorgeous looking machine it is.**

Studer PR99 Mk2 half-track Varispeed which is a good machine from the same family but with nowhere near the issues of the A700.

I too love the sound of analogue. My customers do too as they keep bringing me no end of old gear. I would love to bring every tape deck that arrives with me back from the brink, though from both a commercial and practical standpoint it just isn't viable.

I always inspect the equipment before deciding if it is possible to restore it but as you say the Philips and Uher tend to be too far gone.

tape users is the deterioration of the tape itself, many old tapes are falling to pieces.

I wonder what sort of cost a new reel-to-reel deck will be? I can't see there being many sales unfortunately, no matter how good. They are just going to be a niche product, be it for studio or home use. The days of everyone having one are long gone I think!

Nice to see someone is using tape though Guido. The cost of the consumables for many is going to be an issue as is the storage of 10inch reels of tape. But a few here in the

UK have their studios, their den, even their shed to enjoy the music, which is why I repair the machines. **DT**

Yes, it does seem like a small market, but the numbers may add up worldwide. Since the USA and Europe both seem to be using open-reel recorders ever more seriously at shows, where a good sound is essential, and since the music business may even be persuaded that advanced analogue is more convincing than digital, a large Japanese manufacturer (Technics or



**“I also have the 2-disc 45rpm version of Brothers In Arms” Jon Malcolm tells us. “I’m too deep in this quagmire for salvation!”**

Sony?) looking for kudos – a high-end flagship product that will see little competition – may just possibly dust of their (DD) motors and set to work producing an open reel recorder. At around £5k as a semi-pro item it could sell well enough to turn a profit. Restored machines sell for \$10k+ these days. The first room I visited at THE Show (Irvine, California) was full of restored Pro machines and it was a bit overwhelming. Here’s a picture for all those who dream of such things! **NK**

### VERSION CONFUSION

Congratulations to Martin Pipe for his article on the NAD M50.2 and M32 devices/computers. That must have been a hard one to write with all the technical specs to mention coherently as well as (the easy bit) reviewing the sound and I hope he’s recovered OK afterwards. Unfortunately, due to the detailed listing of the features it wasn’t an easy article to read - it took me two goes to get my head around some of the concepts involved – partly because I’m a bit thick but also because of the wide (and necessary) use of acronyms, jargon and detailed specs.

Jargon may be the simplest

way of expressing/explaining some concepts and OK, so the NADs are a specialised and expensive pair, but the result doesn’t reflect well on hi-fi when, basically, these are full-blown computers (especially the M50.2) and understanding them (or setting them up) is akin to programming in assembler and using the command prompt (DOS or Terminal) when GUIs like Windows and Mac OS have been around for many years. Surely there is a case for just burying the complexities well away from the user with sensible auto-setup defaults (not like 48kHz sample rate when 96kHz would make much more sense) instead of bamboozling with technical specs, most of which would melt the average listener’s brain who just wants good sound? User friendly it isn’t; even the remote for the M32 suffers from the Arrgghh! factor.

Talking of technical eccentricities, I have the SACD of Dire Straits’ Brothers In Arms (Vertigo 9871497), the 20th Anniversary Edition. I mention the serial number because there is also a release numbered 9871498 (which sounds a bit worse apparently), a Mobile Fidelity release (a bit better) and also a Japanese SHM SACD release (the best of all). The phrase (again) is Arrgghh! CD was meant to offer “perfect sound forever” (is that the quote, or is it just a myth these days?), so logically SACD was not needed...

However, SACD appeared, offering Super Audio, implying a definitive sound. So why are there four versions of this album, which was recorded at 44.1kHz/16-bit resolution anyway? OK, so modern techniques can improve the sound of this level of digital encoding (which actually can be very good, assuming a good ADC at work), but four different types (flavours to suit all tastes possibly?!) of SACD?! No wonder people run away screaming from the madness of it all.

It’s easy to just buy a 1950s/1960s Dansette and play records; it’s value, so none of those nasty transistors here, and no digital conversions in sight, just wonderful analogue, 33.33-spinning, vinyl-gouging mono simplicity. This logic fails (a bit) because I also have the 2-disc 45rpm version of Brothers In Arms, which

proves comprehensively that I’m too deep in this quagmire of craziness for any hope of salvation – an Asylum Of Audio possibly? And can you get HDMI on the NHS? Nurse, more medication needed over here...

It’s all good fun really. Honest(!)

Yours sincerely

**John Malcolm**

Hi John. Er - yes. Perhaps too much medication was always the problem. It lead to bizarre behaviour that in turn lead to multiple issues of everything we know (knew) and loved. Result: confusion.

Agonisingly, you didn’t say what Brother in Arms sounds like in a 2 disc 45rpm version – guess I’ll have to buy it. Mark Knopfler cares about quality and his LPs always sounded superb as a result. Since most of my 12in 45s blow digital out of the water for visceral power, thrust and excitement (on a Garrard 401 that chimes with these qualities), 45s from Mark Knopfler sound good to me.

On the NAD front, as you rightly say they are complicated products at every level and it is difficult for us to convey what they do in a simple manner without becoming misleadingly simplistic. **NK**

### FAULTY DOWN UNDER

I’ve been a 25-year reader of Hi-Fi World and I’m expecting some consideration when I ask you a question: I’d like you to give me an answer.

If I’m tough with you it is just that I consider Hi-Fi World as the best hi-fi magazine.

The question you didn’t answer is the relationship between reviewers and manufacturers. It happened that I bought second-hand a pair of Spatial Hologram M1 which obviously are faulty in the region of the crossover. The



**The Spatial Hologram M1 bought second-hand by Jean-Christophe Xerri.**

retailer claims that it is a trade-in device and therefore is not responsible for the faults on the device. The device is faulty.

What are my defense? Should I go to the internet and make bad publicity to this un-honest vendor? Please tell me what the best action can be done.

Cheers,

**Jean-Christophe Xerri  
Australia**

Hi Jean Christophe. If the loudspeakers are still within warranty then you should contact the manufacturers and see whether they are prepared to help, perhaps by supplying parts or backup to the retailer that supplied them to you.

Whether your retailer can, under Australian law, supply faulty goods when they have seen previous use, I do not know. I think you will need to contact those responsible for consumer protection in your state. Go to <http://www.australia.gov.au/information-and-services/public-safety-and-law/consumer-protection> to find who to contact. You need to get local advice.

Alternatively, contact Australia's Spatial importer: Mcleans Shop 1, 41-45 Victoria Street (on the Central Coast Highway), East Gosford, New South Wales 2250. Phone: 1300 995 448 or email [sales@mcleans.info](mailto:sales@mcleans.info). They may well be able to help. Sometimes issues like this are easily fixable: it may be a broken wire or dodgy connector. **NK**

### GET IT STRAIGHT

To my surprise you covered a reader's letter about a seemingly misaligned cartridge cantilever and your reply really piqued my interest. Below, in sequence, are the exchanges with those nice people at Ortofon, could be explanatory and might be of interest.

"Hi. I am a long time user of your cartridges. Several Kontrapunkt models, Cadenza Bronze and a Cadenza Black that I am currently using. I love them! I wonder if you can solve a little mystery for me. I have noticed that the cantilever on my Black is at a slight angle – to the right – and is not parallel with the cartridge body. I have always wondered whether I should have queried this with the supplier. However, it sounds just fine. Curious" Anyway, I have just read an interesting comment by the editor of *Hi-Fi World*, a well established magazine here in the UK, in answer to a reader's letter. He states that while this could indeed be a misaligned generator, it is also possible that this is deliberate by the manufacture because outward bias force will to some extent correct this – and is even more likely if the cantilever

is angled to the right! Indeed, I have noticed that while the stylus is tracking a record this angle is corrected and the cantilever seems perfectly centred. Can you clarify the matter for me?"

Many thanks  
**Clive Kerr**

Hello Clive. Thank you for being loyal to Ortofon, we really appreciate that. Briefly answering your question:

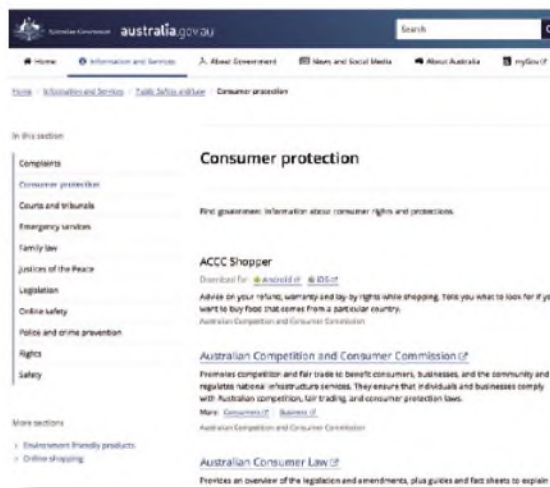
our cartridges are constructed so that cantilever angle corresponds to the 20 deg. record cutting angle, when the cartridge is loaded with recommended tracking force and the cartridge base is parallel with the tonearm and this again is parallel to the record surface.

If the cantilever is off-centre, it is not deliberate, that can affect both sound reproduction and tracking. How long have you been using Cadenza Black? Was it brand new when you purchased the cartridge? Where have you bought the cartridge? We are dealing through a network of our authorized dealers <https://www.ortofon.com/where-to-buy>, and our authorized partners comply with Ortofon warranty and after sales service <https://www.ortofon.com/support?section=4440>.

**Katarina H. Nielsen  
Ortofon A/S**

Hi Katarina. Thank you so much for your detailed response. But I think there maybe some misunderstanding – I am sure my fault is not about how the cartridge is mounted in the headshell, the arm alignment, nor the tracking weight, correct or not.

When you look at the cartridge head-on, unmounted, the cantilever does not appear parallel with the inside walls of the cartridge body. It is at a very slight angle. But as explained, when the cartridge is mounted correctly into my SME IV tonearm and with the correct 2.3gm tracking weight set, then as soon as the stylus makes contact with a spinning record groove this slight visual



**Consumer advice is available in Australia from  
[www.australia.gov.au](http://www.australia.gov.au).**

*misalignment is immediately corrected. Does this help clarify the matter?*

*Just to clarify then...when a record is playing this slight angled cantilever is dead centre and parallel with the inside walls of the cartridge shell.*

*In answer to your questions. I have owned the Black for about 18 months. It was bought from a London dealer who has since gone out of business, but I know that he sourced it from your UK distributor, Henley Designs.*

*I look forward hearing from you.  
Regards*



**Ortofon's Cadenza Black moving coil cartridge, at the top of their Cadenza range. "The cantilever on my Black is at a slight angle – to the right" says Clive Kerr.**

Hello Clive. As far as I understand, there is no distortion during playback, which confirms that the cartridge is perfectly all right and aligned correctly. Distortion usually indicates that the stylus has been damaged due to faulty alignment or care, or worn out, and you hear it: there is a growing distortion when you listen to voices and strings,



especially at the inner grooves, and the highest frequencies are not clear and transparent anymore, you really start to miss them. That is not the case, and thus your Cadenza is not defect.

Best regards

**Katarina H. Nielsen**  
**Ortofon A/S**

*Hi Katarina. Sounds good to me...It may well be that when your assembly staff put a cartridge together they must use some very accurate instruments to ensure that everything is aligned perfectly. Therefore, if there appears to be a slight visual anomaly with the naked eye it does not necessarily mean that there is a construction issue with the item. Just a thought. In event, thank you for your time and trouble.*

Regards

**Clive Kerr**

Hi Clive. Interesting that you have noticed what others, including myself, have noticed – that a slight bias to the right can be corrected when the stylus hits the groove. This suggests the inward force generated by the arm's geometry and supposedly counteracted by outward bias isn't being fully counteracted I guess. But as long as the stylus sits at dead centre of the cartridge body, often marked by a notch, when looked at head-on whilst playing, all is well. The curious can twiddle bias a bit to see what effect it has on the situation.

**NK**

### **SLOW PLAY**

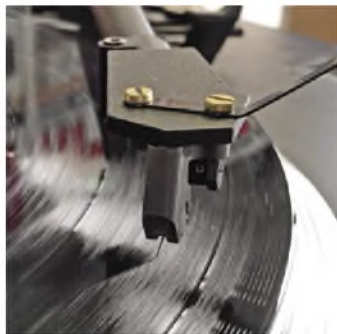
*I've just re-read Martin Pipe's Olde Worlde article (March 2017) on radio and it set off a chain of thought about my old valve radiogram and, in particular, the 16 rpm speed its record deck could handle – again, thanks to Mr Pipe's piece on playing old quad records.*

*Having none of these 16rpm mono spoken word discs it was mostly ignored, but I've just read about (yes, via the dreaded internet) that there were once even 8 1/3rpm discs and cadmium styli, along with car record players (presumably only for use when parked or cruising on long, straight and empty roads). Could be an interesting subject for an article maybe?*

You're sincerely

**John Malcolm**

Chances are that more machines capable of playing 16 2/3rpm discs were sold than the discs themselves! It came into its own - or could have done - whenever long uninterrupted



**Viewed from the front, a cartridge's cantilever should be centred when an LP is playing.**

playing-times (up to an hour per 12in. LP side) were required. The vast majority of 16 2/3 rpm discs, marketed mostly in the USA, were 'talking books'. At that time few turntables had 16 2/3 rpm speed, and the Audio Book Company's solution was ingenious - if a little worrying. Many of its discs were supplied with a plastic adaptor, shaped like a human finger. It was designed to rub against the edge of a turntable rotating at 33rpm, slowing it down so that the actors on the disc didn't sound like chipmunks. But tape - first reels, then cassettes, eventually became the format of choice for this sort of material. There was however a handful of music discs that spun at 16 2/3rpm - such as the Prestige compilation 'Miles Davis and the Modern Jazz Giants'.

In 1959 Seeburg of the USA, famous for its jukeboxes, launched a 16 2/3 rpm-capable record changer for use in restaurants, factories and offices. Today, the Seeburg 1000 has its own website: <http://seeburg1000.com>. Its non-standard discs, which were 9in. in diameter with a 2in. central hole, played for up to 40 minutes per side. Few discs survive, because the batches had to be returned to Seeburg - where they were destroyed. However, you can listen to (and indeed buy) some of the music via the aforementioned website.

Also in the USA, car maker Chrysler marketed the Highway Hi-Fi – an automotive record player developed by LP inventor Peter Goldmark at CBS – between 1956 and 1959. The discs, which spun at 16 2/3rpm and were specially-made by Columbia Records and seven inches in diameter. Thanks to the slow speed

and a high track-density it could offer 45 minutes per side. Some models were slot-loading, while others retracted from their shock-proof housing (which doubled as a record store) when in use. Despite its adoption by celebrities (Muhammad Ali and George Harrison had cars equipped with them), Highway Hi-Fi wasn't an enormous success. It was none too reliable, and - certainly for the 16rpm original - the choice of music was somewhat restricted. **MP**

### **BASE ISSUES**

*There has been recent discussion on the letters page about mains quality. Recently the mains supply in my neighbourhood failed, to be replaced overnight by a free-standing generator. I have for a long time used a PS Audio mains re-generator, an isolation transformer and special cables to improve the mains quality.*

*The impact of this event on the hi-fi was fascinating with greater depth, more powerful bass and a delicacy of detail – certain things seems to have been masked before. Being connected to a very localised supply obviously has benefits – the generator had its own earth spike for example. My sympathies*



**Yes, an LP record player did once exist for cars. It was made by Highway Hi-Fi of the USA, and was fitted to Chryslers in the 1950s.**

*however go to the home owners who had to endure the noise of generator for about a week.*

*Until recently I thought my system was adequately supported with a Relaxa Support table for example (which works on opposing magnets), other support platforms, cones etc. As an experiment I tried an Audiophile Base under an Hitachi FT 5500 II FM tuner. As with these things, more detail emerged, greater depth and more tuneful bass.*

*More or less the same happened to a power supply (including a battery power supply) to a Clearaudio Balance Plus disc stage, which sits on top of the tuner.*



**“An Audiophile Base under a Hitachi FT 5500 II FM tuner gave more detail, greater depth and more tuneful bass” says Peter Graves.**

Encouraged by this I tried a further Base under a home made battery power supply (on which I have written to you before) which had a massive impact on the performance of the items it powers. A Teufel surround sound decoder, for example, needed the sub woofer settings altered, due to a substantial increase in output.

I finally bought another Base for the



**“Come Brexit, we’ll be able to measure speakers in their natural units – Furlongs!” Steve Fenton suggests in response to our metric error of Quadral’s Rubin.**

Clearaudio disc stage itself and a Cambridge DacMagic Plus, the latter being most impacted, with more definition and detail and oddly greater silence between tracks.

This outcome was a surprise, indicating you can never have too much support. I will get back to looking at replacement speakers, but given what I have stumbled on, I am glad this was not my first move.

Yours  
**Peter Graves**

**BACK TO FURLONGS**

I doubt I’m the first to point this out. From the review of the Quadral Rubin in the July issue.

The Rubin is a relatively large floorstander, exact dimensions being 100.6mm x 20.84mm x 34.5mm (H/W/D). That’s about 4 x 1 x 1.5 in inches! This brings to my mind that scene in This Is Spinal Tap movie where a 18 inch high Stonehenge is lowered on to the stage.

Come Brexit, we’ll be able to measure speakers in their natural unit – Furlongs!

Cheers,  
**Steve Fenton, Cambridge.**

Whoops! That should have been cm then, not mm. Please accept our apologies.

In forthcoming Brexit units, the Rubin should perhaps be quoted as 0.005 x 0.001 x 0.0017 (H/W/D) furlongs long. Gentlemen – start your ploughs! **NK**

**DSD iPHONE**

I read with interest your review of the Oppo HA-2 SE in Hi-Fi World last issue. On page 17 you explain how to circumvent iOS restrictions in order to extract 24/48 PCM files from an iPhone. In fact there is a way to play PCM files up to 384kHz and DSD files from an iOS device, using Hibiki or Onkyo HF Player (paid version) apps, as the proper Oppo Digital explains in its website. See <https://www.oppodigital.com/KnowledgeBase.aspx?KBID=107&ProdID=HA-2>.

I own an OPPO HA-2 (first series) and use with success the Onkyo HF Player. To my ears DSD files sound rounder. I employ several headphones from Sennheiser: PX-100 II, HD-580 and HD-650 (no problem to drive these



**Knowledge Base**

**High Resolution Audio Playback From iOS Devices**

One of the HA-2’s most impressive features is its ability to receive high resolution audio content from iOS devices without the use of the Camera Connection Kit. Since the internal iOS Music application is limited to 24-bit, 48 kHz output, you will need to make use of 3rd party applications such as Hibiki (for DSD files only, \$4.99 in the App Store) and Onkyo HF Player (for DSD and FLAC, WAV, etc. files free in the App Store, \$3.99 purchase required to enable high resolution playback). In the example below, a DSD64 file is being played by an iPhone 6 running Hibiki connected to an HA-2 without the use of the Camera Connection Kit (CCCK). The application is capable of either outputting the audio files as 352.8 kHz PCM or as 2.8 MHz DSD. The application supports up to DSD256.



**“There is a way to play PCM files up to 384kHz and DSD files from an iOS device” says Jose Luis Prez. Go to Oppo’s Knowledge Base to find out.**

last two, with their high impedance). I purchase high-res files and DSD files from Linn Records, HD tracks USA, Highresaudio Germany and Native DSD. Kind regards from Buenos Aires.

**Jose Luis Prez**

Hi Jose. You are indeed correct regarding Hibiki for DSD and the Onkyo HF app for DSD and high-resolution Flac, Wav etc. I’ve used the latter myself with excellent results. It’s available for free in the Apple app store but requires an in-app purchase to activate the high-resolution facility. **JM**

**THINK BIG**

I am in the process of moving from Yamaha speakers to a new company, so thinking of floor standing speakers. But kinda been in the Yamaha camp for nearly eighteen to twenty years and finding it confusing. I am thinking of Bowers and Wilkins, Dali, KEF, Linn, Elac or Rega. What would you recommend?

The sound I like is a vastness, with a good warm round bass with a great punch but in a natural non overstated manner. What would you recommend? Yours sincerely

**John Keenan**

Hmmm... I would recommend you listen to Tannoys for that sort of sound – the bigger the better. The most impressive Tannoys use the company’s 12in Dual-Concentric drive unit in a large-volume cabinet, GRF90s being the latest and greatest example.



***“The sound I like is a vastness, with a good warm round bass” says John Keenan. Then Tannoy GRF90s are worth hearing.***

Otherwise, head toward B&W and some of their larger models, but they are closer to the mainstream in balance. **NK**

### GOOD GROUND

*I wonder if you could give an explanation of the concept of grounding hi-fi equipment. I understand (safety) earthing. However, I’m astonished that one could spend hundreds, even thousands, of pounds on wires and wooden boxes filled with “magic minerals”. I use an audiophile multiway socket from an isolation transformer, so I assume my gear is grounded to the same point.*

Kind regards,

**Raz Shankar**

Hi Raz. Grounding in its simplest form means holding all exposed metal bits at earth potential (0V) so if a power line touches this metalwork by accident there is a bang and a flash, a fuse blows, and power is cut off. It is a basic safety mechanism in lethal-voltage systems (above 100V).

Connecting together hi-fi products that are grounded like this raises a serious issue in sensitive electronic equipment. Ground currents enter the audio signal (that shares ground) degrading it. At one level you get to hear a loud hum

from your turntable, at another subtler effects send digital DACs dotty, causing them to produce large amounts of spurious output. I have encountered and measured this particular problem – and it is significant; dynamic range can be slashed by 10dB-20dB.

In your case, working from an

– and transformers including yours produce ground currents through leakage.

Your equipment is likely safely grounded in a satisfactory manner. Safety earthing is a subject quite different from hi-fi earthing but the two live in happy and equal partnership in fully-balanced systems – where they are kept apart. So you may be safe – but not necessarily happy! **NK**

### SWITCH-ON THUMP

*When I switch my amplifier on and off I get a thump through the loudspeakers. This has never caused any damage, as far as I am aware, to my current speakers but I am now considering buying new speakers which contain ribbon units and I am concerned that such a thump might damage them. Do you know of any piece of equipment is available which I could use that would suppress this effect?*

Many thanks,

**John Arnold.**

Hi John. If your amplifier was silent at switch-on when you first bought it, it needs to be looked at because something has gone wrong.

The high-pass network that feeds a tweeter, including a ribbon tweeter, will ensure no damage occurs from a switch-on thump. So from this perspective you do not have to worry.

A thump at switch-on is usually due to asymmetric run up of the



***One way to avoid grounding problems such as hum is to use balanced connections; they keep the audio away from the hum. McIntosh offer a balanced Phono input on their upmarket MP1100 phono stage for this reason.***

isolating transformer does not help, because all the products you buy have an isolating transformer in them even when the PSU is switch-mode. The issue lies in ground currents

internal voltage lines, caused by mismatched charging time constants – avoidable in the design process. Also, it will appear if an electrolytic capacitor fails. **NK**

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# Power To The People

**Naim has introduced a new power lead for its products - but it works well with other components, says Jon Myles.**



**N**aim is rightly renowned for the attention to detail it puts into all its products. This even extends to the mains cables it packs with its electronic components.

Their high-end 500 series and Statement products get the in-house designed Power-Line – that sells for £530 separately – while the rest of the range gets leads manufactured to the Salisbury-based company's careful specifications.

Times are changing, though – and there's a new kid on the block in the shape of the Power-Line Lite. It will come with all of the new Uniti range, integrated separates and Classic series.

But existing Naim owners need not worry as it is also available as a standalone product priced at £95.

As ever with Naim, the product has been in development for quite a while and subjected to careful listening tests before release.

Take a Power-Line Lite out of its box and it looks fairly standard. But examine it closer and you'll start to see the differences from Naim's previous power leads. Most obvious is that the mains plug features a thermoset resin case which feels exceptionally robust and houses

floating pins which are claimed to give a superior electrical contact.

Push the pins and, yes, they do wiggle. It's rather disconcerting at first but don't worry, that's what they are supposed to do.

There's also another floating cable retainer finished in high-gloss. Taken together all of this is meant to provide better power delivery and eliminate micro-dynamic vibrations entering components.

The cable itself is the same one Naim has used for the past 15 years – selected, they say, after exhaustive listening tests.

## SOUND QUALITY

Starting off I removed the Naim stock leads from an NDX streamer and Supernait 2 and plugged in Power-Line Lites to both.

Was there a night and day change? No. Was there a difference? Yes. After a few hours listening it became clear that the low-end had firmed up and I could hear my Neat lota Alpha loudspeakers sounding a little more expansive at the top end.

On Beats International's 'Dub

Be Good To Me' (24/96) Lindy Layton's voice was sweeter while the sampled bass line had extra tightness. It was a subtle difference but nonetheless an obvious improvement.

Taking out the Supernait and replacing it with a Creek Audio Evolution 100A proved interesting. The Power-Line Lite may have been designed for Naim equipment but the Creek also benefitted by being plugged into it.

Again it was subtle but noticeable. Tom Waits' vocals on 'Blue Valentine' growled deeper while the piano's left-hand keys had more body and depth.

With Haim's 'Something To Tell You' the acoustic guitars seemed to shimmer better than with a standard power lead, bringing improved definition and greater punch to the sound.

## CONCLUSION

If you are already an owner of Naim components below the 500 and Statement range then I'd say the new Power-Line Lite should be a mandatory listen for an upgrade. Owners of other components may also want to take a listen as for £95 it provides good value for money.

### NAIM POWER-LINE LITE £95



**OUTSTANDING** - amongst the best.

**VALUE** - keenly priced

#### VERDICT

Recommended upgrade for users of Naim gear. Also makes a good case for itself when used in a non-Naim system.

#### FOR

- opens up soundstage  
- improved bass  
- treble clarity

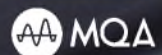
#### AGAINST

- differences are subtle

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### INTONA TECHNOLOGY'S USB 2.0 HI-SPEED ISOLATOR EUROS 264.18

Digital music is about ones and zeros, but it is also subject to noise of various types that can reduce sound quality. The Intona Technology USB 2.0 Hi-Speed Isolator offers a one-box solution.

This little box wasn't initially designed for hi-fi use but the science community, who were complaining about noise issued by the computer when trying to measure something in

the nanovolts area.

Intona discarded external switching wall-warts and designed a galvanic isolated supply. "It's realised with two monolithic ICs provided by Silicon Labs. These ICs carry out the data transfer by using a modulated radio communication via a dielectric within the ICs" said the company.

I began sound tests with vocal jazz vocalist Carol Kidd and 'A Nightingale Sang in Berkeley Square' WAV via a pair of Sennheiser HD800 headphones into my ATC HDA-PI DAC. While I did hear

sonic enhancements, I did expect to hear greater improvements across the board, especially at the price. Nevertheless, the little box removed a sonic veil from the presentation and opened the soundstage.

I turned to 'Big Bad Girl' by the blues shouter Harry 'Big Daddy' Hypolite at 24bit/96kHz. Improvements were beneficial and obvious. Still, I wanted the Intona to push a bit harder. Again, though, from the first couple of strums on Hypolite's guitar you could hear the drop in noise and the extra air and space around the instrument.

The Intona USB 2.0 Hi-Speed Isolator is successful at stripping away the often debilitating noise that surrounds a digital source. I would have liked the Isolator to have worked harder for me but, even so, if you want to enhance the sound quality of your digital music then the Isolator can be relied upon to do the job. **PR**

[[intona.eu/en/products](http://intona.eu/en/products)]

# SOUNDBITES



### MELODIKA MDPJ30 HEADPHONE CABLE EXTENSION EUROS 42

The problem with many of today's headphones is that their cable length is not long enough. Hence, some sort of extension lead is not only desirable but, on occasion, absolutely essential.

This particular example, from

Melodika, features a full-size 6.3mm jack plug, plus a lockable socket at the other end for a secure fit to your headphones.

The main job of such a cable is not to change the sound or, in fact, improve it. No, it's job is basically not to let the side

down or change the character of the sound. It needs to allow all of the musical information through to the headphones that was present via the direct connection. In short, it needs to preserve the status quo.

The tested a 3m MDPJ30 made from 22AWG wire. Plugs and sockets arrived in solid metal jackets while all solder was solid silver.

I tried the tracks Warsaw, from Joy Division, plus a slice of vocal jazz from the husky voice of Eydie Gorme during sound tests and I'm happy to report that no detail was lost during the transition from standard to extended cable lengths.

In fact, if anything, the Melodika cable actually improved the sound a touch in that the upper mids were a fraction more open. Now, look, when I say "improved", I'm talking tiny, tiny levels here. Most people, it has to be said, will never hear any variance at all.

The fact that, in a broad sense, there was no real change in sound quality is good and fine and the bottom line is 'mission accomplished', there is no reduction in terms of sound quality while using this cable. If you need a headphone extension, then give this one a try. I, for one, would use this example with full confidence. **PR**

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

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**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 Sodek 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  
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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  
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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 E945**  
Highly finished Swiss moving coil that plays music with riflebolt precision.

**DENDON 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  
Breathtaking 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 PS3 MKII** £2,500  
All valve MM phono stage with MC transformer option, graced by big, spacious and relaxed sound.



**IFI IPHONO** £350  
Multi EQ phono stage from British manufacturer that punches well above its weight. Substantial bass and open midband.



**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, oodles 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**

**ARIAND 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 U.S. 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 VS175** £7,498  
Powerful, fast valve sound that makes everything else look weak at times. Needs careful matching but well worth the effort.

**AUDIO RESEARCH VS115** £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  
Brings a big stage, plenty of detail and rich, deep colours to the sonic spectrum.



**OPPO HA-2** £250  
Remarkable performance and sound from ESS Sabre32 DAC in a slim portable package.

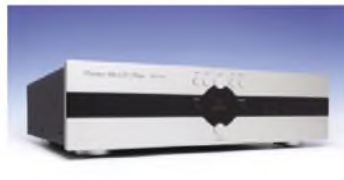


## CD PLAYERS

**AUDIOLAB 8200CDQ** £949  
Inspired CD player and DAC with price-performance ratio like no other. Capable of matching designs costing much more.



**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.



**ESOTERIC K-03** £9,495  
Superb high-end silver disc spinner that is beyond criticism. Devoid of its own character but has a flawless presentation.



**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  
Universal player and DAC that makes CD and Blu-ray (+DVD) sound deep, spacious and full bodied. Reference quality that's affordable.



**REGA APOLLO-R** £550  
Rega comes up with a fine CD player again. Tremendous detail and an easy, unforced sound at all times. Few bells and whistles but made up for by its superb sonic ability.



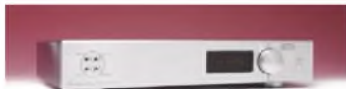
**ROKSAN KANDY K2** £900  
A charmingly musical performer at the price - this is a surprisingly sophisticated CD player for the money.

**TUNERS**

**CAMBRIDGE AUDIO AZUR 651T** £299  
Value-packed AM/FM/DAB and DAB+ ready tuner. Precise and detailed with excellent resolution of spoken word.



**CREEK DESTINY 2** £550  
Creek's tuner expertise shines through in the Destiny 2. This AM/FM receiver is wonderfully three-dimensional and smooth.



**MAGNUM DYNALAB MD-90T** £1,900  
Exceptionally able, but commensurately priced, audiophile tuner that cannot fail to charm.



**DACS**

**AUDIOLAB M-DAC** £600  
Excellent sound from ESS Sabre32 DAC and impressive flexibility with a unique range of filter options make this a stand-out product. Low price is the icing on the cake.



**AUDIOLAB Q-DAC** £250  
Stripped-down version of Audiolab's M-DAC loses some features but retains much of the sound, making it a veritable bargain.

**ANTELOPE ZODIAC GOLD/VOLTIKUS** £3,095  
DAC/preamp/power supply combination majors on detail but has a remarkable un-digital sound. One of the best at its price.



**CHORD 2QUOTE HD** £990  
Superb build quality and exceptional sound from this compact unit. Boasts the ability to handle DSD direct via USB and has an exceptional soundstage. One of the best DACs you can buy.



**DCS DEBUSSY** £8,000  
DCS's bespoke 'Ring DAC' circuit gives a beautifully-fluid, almost analogue sound that encourages long listening sessions. Not cheap but worth every penny.

**NORTHERN FIDELITY DAC** £650  
Packed full of features, including Bluetooth and USB, this ESS Sabre32 equipped DAC offers crisp, insightful sound at low price.



**METRUM OCTAVE** £729  
Unique two-box digital-to-analogue converter with great sound at a great price. Cuts upper treble, though.

**NAIM DAC** £2,400  
Superb high-end digital converter with a probing, punchy and forensically-detailed sound.



**TEAC UD-501** £699  
Feature-packed DAC with benefit of DSD playback. Superb sound means little to touch it at the price.



**RESONESSENCE INVICTA MIRUS** £4,499  
One of the most highly spec'd DACs available, with a smooth yet enthralling presentation. Few approach it.



**NETWORK PLAYERS**

**CHORD DSX100** £7,500  
Chord's proprietary DAC circuit shines in their top-of-the-range streamer. Hear-through clarity with a sound rich in detail, dynamics and soundstage.



**CAMBRIDGE AUDIO NP30** £399  
Budget offering from Cambridge offers a great introduction to network streaming.

**CYRUS STREAM X** £1,400  
Gorgeous sound quality even from compressed digital music. New control app makes everyday operation a doddle.



**CONVERT TECHNOLOGIES PLATO** £2999.00  
A network player with amplifier that does it all, including turn LP to hi-resolution digital, and add cover artwork from the 'net.



**NAIM NDX** £2,995  
Clean, incisive and very detailed sound with Naim's traditional pace and timing make this one of the best network music players around.

**NAIM ND5XS** £2,175  
Great sound quality with traditional Naim heft. A wonderful DAC with full 24/192 handling. Only the display could be better.



**NAIM NAC-N172 XS** £1,650  
A pre-amp/DAC/streamer package provides a taught, rock-solid presentation with a tonally rich midband and a superior sense of rhythm.



**PRO-JECT STREAM BOX RS** £1,095  
Unusual valve-based streamer/preamp with variety of inputs and a lovely liquid sound. Not the most detailed but compensates with sheer musical verve.

**QUAD PLATINUM DMP** £2,500  
Combined CD/network player has all the usual Quad elements but with added zest and detail that brings life to everything you care to play.



**DIGITAL SOURCES**

**ASTELL&KERN AK100 MKII** £569  
Portable high-definition digital player with superb sound quality. Punchy and fast.



**FiiO X3** £150  
Fabulous value player with nice easy sound and full range of abilities. Small and light. For newbies.

**LOT00 PAW GOLD** £1,500  
Reference quality sound; it's like carrying your hi-fi in your pocket. Equivalently large too, but stunning headphone quality.



**NAIM HDX** £4,405  
Interesting one-box network-enabled hard-disk music system that gives superb sonics together with impressive ease of use.

**NAIM UNITILITE** £1,995  
A 50W amplifier with traditional Naim heft, a CD player and vhf/fm radio, plus network input and Bluetooth make this a great all-in-one.



**PORTABLE SPEAKERS**

**BAYAN SOUNDBOOK** £149.99  
Superb design and great sound make for one of the best portable Bluetooth speaker/radios on the market. Not the cheapest – but worth every penny.



**IRIVER IBA-50** £69  
Big, warm sound with plenty of volume and clean at high levels. Muscular sound compared to many rivals.

**CABLES**

**BLACK RHODIUM TWIST** £71/3M  
Twisted to fight off radio frequency, the Black Rhodium speaker cable is easy on the ear with a fine sense of clarity and focus. A remarkable performer at the price.



**MAINS CABLES R US NO.27** £95  
Offers a sprightly pace with a precise nature. Fast performance enhance frequencies and beautifully etched detail.



**CHORD SIGNATURE REFERENCE** £900  
Majors on timing, detail and openness. Capable of getting the best from most systems and a recommended upgrade.



**TELLURIUM Q BLACK** 280/3M £804/M  
A deep, dark, velvety performer that's nevertheless highly musical, it represents excellent value as mid-price cables go.

**TELLURIUM Q SILVER DIAMOND** £804/M  
An open, natural and transparent sound that is difficult to beat, from these great loudspeaker cables.



**HEADPHONES**

**AUDEZE LCD-3** £1,725  
A planar magnetic 'phone that offers monitor quality. Strong sound with silky, dark quality that others struggle to match.



**B&W P3** £170  
Beautifully presented headphones from the loudspeaker specialists. Feed them a good quality source signal and they reward with excellent sound.

**JAYS V-JAYS** £49  
Wonderful little budget over-ear portable 'phones with a clean, clear sound to beat the best of the rest at the price.



**NOBLE K10 INC. FITTING** £1,279  
Custom fit in-ear phones with 10 drivers deliver a sound that is out of this world. Personal and perfect.



**OPPO PM-1** £950  
Planar magnetic phones with a warm, easy but big bodied sound that draws you in. Need a lot of drive, but deliver superb bass.



**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.



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# Bravo to Rio

**Diamond Multimedia's Rio PMP300 was the world's first commercially-successful MP3 player, paving the way for devices like the Apple iPod. Martin Pipe was there at the beginning...**

**T**he first portable digital player to sell well was made by a company that had enjoyed worldwide success with its computer products. And no, it wasn't Apple! The operation in question was Diamond Multimedia, which was famous for PC peripherals like graphics cards, dial-up modems and audio hardware.

Costing just \$200, the Diamond Rio PMP300 MP3 player was hardly expensive. Software needed to convert CDs into MP3 files (MusicMatch) and copy them to the player (Rio Manager) was supplied. The unit came with some sample tracks, and encouraged you to obtain legitimate MP3s from pioneering online retailers like mp3.com. All heady stuff – in the days before iTunes!

A mere 32MB of memory was offered. Its storage could however be expanded with the flat 'SmartMedia' memory-cards associated with another transformative product genre – the digital camera.

The PMP300 generated much interest, not all of it positive. In September 1998, the RIAA applied for a temporary restraining order in US courts to stop sales, claiming that the device violated the 1992 Home Audio Recording Act. Diamond temporarily halted shipment of its player.

The US court of appeals found in Diamond's favour, on the basis that 'non-commercial' copying of music files to the PMP300 constituted 'fair

use', and the device resumed selling. By 1999, the Rio carnival had come to these shores – and Maplin was offering the PMP300 for £150. I got to review the player through my 'Technology Watch' column in the retailer's magazine, comparing it with what I considered to be its nearest competitor – a state-of-the-art Sony MZ-E55 personal Minidisc player.

And what a lot of fun I had with the PMP300! Music was crunched down to 96kbps MP3 in order to get a vaguely-acceptable running time from its 32MB of memory. The Musicmatch software may have been able to identify CDs by interrogating the online CDDB database but only offered fixed 64, 80 and 128kbps

MP3 bitrates.

So I switched to a more flexible encoder, the name of which escapes me. The encoded files were then slowly-uploaded to the device with the Rio management software (you couldn't transfer content any other way).

The belt-clippable PMP300 was remarkably easy to use, with no complex menu systems to wade through. Turn on, hit Play, select a preset-equaliser mode if desired (it was better turned off!) and enjoy. Its limited capacity meant a complex content-selection system wasn't necessary – simply jump back or forward until what you wanted was heard. Its simple LCD screen doesn't





**The PMP300's top panel. An equaliser – with 'jazz', 'rock' and 'clas(s)ic' presets, plus normal' mode. All the 'menu' button does is reveal total/remaining internal/external memory capacity and the internal software version.**

display track/album names, whether from filenames or ID3 tag metadata. But arguably it's not necessary, as you'll know and love the music you've ruthlessly picked. You do get a MP3 bitrate readout, though, and total/remaining memory capacity can be confirmed. Playback features like random, repeat, intro-scan and A-B (section repeat) are identified on the screen, too.

Horrible-sounding earbuds were supplied so I switched to Sennheiser HD470s (£35 in 1999). I hacked my Rover's Kenwood radio-cassette to include a line input, which I fed from the PMP300's audio jack. A similar arrangement allowed me to audition the player through my hi-fi system.

Sound levels from headphones were reasonable, thanks in part to the PMP300's internal use of a DC-DC converter to boost the 1.5 volts of the single AA cell power-source (which could yield 12 hours of playback) to five volts. That gave the

single-chip headphone amplifier the ability to deliver a wider 'voltage swing'.

Sensibly, Diamond embedded the DAC and low-level analogue circuitry within a screened compartment to reduce pickup of digital noise; as a result, it was free of the clicks and whirrs that often spoil PC music playback if the motherboard's integral audio system is used.

At the time, I found myself preferring Minidisc to the PMP300. Playing times were longer, it was easier to change the music (Minidiscs were much cheaper than SmartMedia cards), and Sony's ATRAC codec (which streamed at 292kbps) was audibly-superior to 96kbps or 128kbps MP3.

The Rio device suffered from a rather muddled soundstage,

lacked insight and offered a musical experience that I summed up as 'rather flat and uninteresting'. There was little body – and no 'soul' to speak of! And that was with material that I had carefully encoded myself; the MP3 cause wasn't helped by the fact that so many of the MP3 tracks available for download at the time sounded dire!

In my column, I told readers that MP3 would stand more of a chance with more sensible storage capacities – Microdrives (mini hard-disks, pioneered by computer giant IBM) or CD-ROM readers. Looking back from a viewpoint nearly two decades on, that prediction was pretty much on the ball. The Apple



**The use of flash-memory reduced power consumption, made players impervious to shock and provided instantaneous track access – which must have impressed CD and cassette listeners. But the era's technology had its limitations. The PMP300 alas offered a mere 32 Megabytes (MB), or around 0.03GB.**



**One of the two internal circuit boards of the PMP300. This one contains the power supply electronics (including the DC-DC converter) and the analogue circuitry (such as the headphone amplifier).**

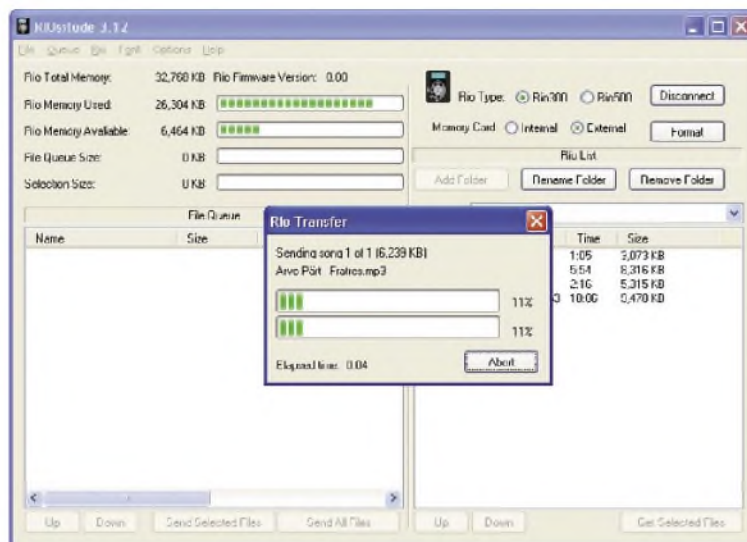
iPod, which was to revolutionise how we consumed music two years down the line, stored content on a tiny hard drive.

Diamond remained loyal to the solid-state cause. It finally pulled out of the by-now Apple-dominated market in 2005. Since then, cheap flash memories (notably SD cards) have made capacious high-grade audio players – and the use of superior lossless audio compression

– a mere formality.

But was I being too cruel to the PMP300? I retrieved my carefully-boxed sample from the loft. Incredibly, the music stored on the device still played glitch-free – in other words, the flash memory hadn't become corrupted over time.

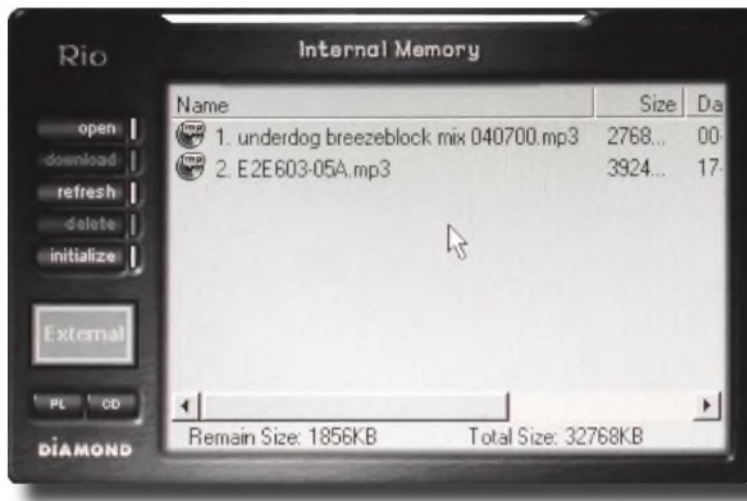
The supplied CD-ROM software was Windows 98, meaning I had to dig out my old Toshiba laptop. I ripped tracks from CDs at Musicmatch's highest 128kbps rate and transferred them to the player. And yes, the sound was a disappointment. But then I discovered a Rio transfer program – RIOsitude – that would work with newer versions of Windows (even the latest 10 is supported). RIOsitude enabled



**The original software, supplied on CD-ROM, only runs under Windows 98. But the free RIOsitude program, which also supports the later Diamond Rio500 player, will work under later versions of Windows.**



**The basic controls of the PMP300 – they're closer to what you'll find on a CD player than one of today's touchscreen marvels. The simple LCD screen is incapable of showing the name of the currently-playing track, but it will reveal its MP3 bitrate (here, 128kbps).**



**This is the Rio Manager software. Running under the long-obsolete Windows 98 operating system, it allows music to be slowly copied to the PMP300 over the parallel-printer cable link.**

me to reformat a 32MB Smartmedia card that the 'official' Rio software wouldn't recognise. The capacity of my PMP300 was doubled to 64MB as a result.

Time to try higher bitrates – and damn the measly capacity! Incredibly, the device took 320kbps and even variable bit-rate (VBR) MP3 files in its stride. With 320kbs bitrates, you'd struggle to get four of those three-odd minute songs into

32MB, and so Diamond's engineers were presumably future-proofing their development.

I also tried 128kbps content, encoded with today's MP3 codecs. And guess what? The sound was transformed. It was cleaner, more communicative of details and more solid at the frequency extremes.

MP3 encoders algorithms have been refined over time. But even though you can find Windows and Linux software to manage it, the miniscule-memored Diamond Rio PMP300 is today little more than an electronic curiosity – much like the Yamaha MusicCast server I examined a couple of months ago. It's of historical importance, but no more – something to play with out

of curiosity, and then put back into the museum.

Because a fair few PMP300s were sold, they're common eBay sights even today – especially on the auction site's American portal. Prices can range from £10 to £100, depending on condition. On which subject the PMP300 suffered through wear and tear – the flimsy battery-cover clip tended to break, control legends would flake off and in some cases the control disc would make a break for freedom. It's nevertheless fascinating to take a PMP300 and compare it with vastly-more powerful descendants from the likes of FiiO and Astell and Kern! This was a seminal portable digital player, one that set a pattern for all to follow.



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# Stream On Baby

**Legendary American manufacturer McIntosh's new compact MB50 is aimed at adding streaming to existing hi-fi systems. Jon Myles likes what he hears.**

**T**here's probably never been more ways to listen to music. You can choose vinyl or CD, plump for headphone listening through a digital audio player, store and playback on a laptop – and there's even reel-to-reel tape and

cassettes for the real enthusiasts.

The latest technology to join the list is streaming with more and more users choosing to store music off-board – whether it be on a network attached storage (NAS) device, computer or subscription service such as Spotify and Tidal – and send

it to their hi-fi via a dedicated device.

Given streaming's growing popularity it is little wonder that ever more manufacturers are entering the market, the latest being venerable American brand McIntosh with their MB50.

It's a compact device measuring



8.9cm x 11.5cm x 39.4cm (H/W/D) and weighing 3.9kg. But despite its small form factor the MB50 is classic McIntosh in looks with a glass front panel and glowing green logo matching the rest of the company's components.

The front panel contains small buttons for selecting the input, network source and volume along with standby/on at right and headphone socket at left. However, as is usual nowadays, full functionality is only achieved via a free dedicated app for Android or Apple iOS smartphones and tablets (more of which later).

On the rear you'll find both balanced and unbalanced analogue outs for connecting to an amplifier or pre-amp, coaxial and optical outputs for linking to a separate DAC, alongside similar digital inputs for connecting the likes of a CD player or DAP. Two wi-fi antennae are provided for a secure network connection.

There's also a USB input for firmware updates which can also be pressed into action for hardwiring the device to a home network if desired, although this requires the purchase of a special USB-to-ethernet connector. At higher bit rates a wired connection is preferable to lessen the chance of drop-outs, but in my hours of listening the McIntosh worked flawlessly via wi-fi both from a NAS drive some 18 feet away and with streaming music from Tidal over the internet.

Do note, though, that there are two playback modes – the standard which downsamples files to provide a more robust wi-fi connection and Critical Listening Mode which retains bit rate and frequency up to 24/192. If your wi-fi is struggling it might be best to engage the former. I had the MB50 in the latter mode most of the time with no problems. Switching to the standard setting did see a slight diminution in outright detail on the highest bit rate files although there was little change on anything up to 24bit/96kHz.

The MB50's streaming capabilities are provided via the Play-Fi system developed by DTS – the American company better known for its



**The MB50 has two antennae for a secure wi-fi connection plus balanced and unbalanced analogue outputs as well as a full range of digital in and out connections.**

multi-channel technology. Download the app to your Apple or Android device and the MB50 will discover all digital music stored on devices attached to your home network, as well as giving you access to streaming music and radio services from the likes of Amazon, Deezer, Pandora®, Rhapsody®, SiriusXM, Spotify® and Tidal – with their apps built into Play-Fi (just sign-in with your username

you (personally, I can take it or leave it).

### SOUND QUALITY

The MB50 may be relatively small but it has the traditional big, bold, beautifully solid McIntosh sound. Connected to Hi-Fi World's reference McIntosh MC152 power amplifier the combination immediately brought the new Q Acoustics Concept 500

"There's a lovely organic sound to the presentation which brings the band to life and weaves the instruments together into a coherent, totally captivating whole"

and password).

The app has all the usual features such as volume control, album artwork, genre, search etc, and is easy to set-up. I had the MB50 up and running and was playing music from my cloud-based Amazon collection within five minutes. This is one system where there's no need to elicit the help of an IT specialist or teenage son or daughter to get it going.

The only thing seemingly missing in the MB50's spec sheet is Bluetooth – which may or may not be important to

loudspeakers (see review this issue) to life.

With the testing low frequencies of James Blake's 'Limit To Your Love' (24/96) there was firmness and punch to the bass – with impact that hits me in the chest. Blake's plaintive, high-pitched vocals were clear and above the rolling electronic backing, pitched perfectly between the 'speakers with both height and depth.

Moving to CD-quality streaming from Tidal with Django Bates and the 14-piece Frankfurt Radio Big Band and their





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The neatly laid-out circuitry of the McIntosh MB50. Note the two wi-fi antenna on the rear for a more stable network connection.

jazz reinterpreting of The Beatles' most famous album with 'Saluting Sgt Pepper', Tony Lakatos's tenor saxophone solo in 'With A Little Help From My Friends' pressed along at a furious pace, the McIntosh capturing all the nuances of his fingering, as well as the hard-edged timbre of the instrument.

There was a lovely organic sound to the presentation that brought the band to life, weaving the instruments together into a totally captivating whole.

In its overall sound the McIntosh doesn't have the outright detail of something like a Resonance Invicta Mirus DAC, nor the propulsive thrust of a Naim NDX streamer (both of which are dearer). Instead it has a warmer, richer sound but is none the worse for it, relaying music in a mellifluous, flowing manner without a hint of digital sharpness. So on Ars Nova Copenhagen's 'First Drop' the vocal ensemble's reworking of various choral pieces had a deep, vibrant tone with the individual voices picked out beautifully to create a sensuous sound palette.

It's a trick the McIntosh reproduced on all forms of music, from acoustic jazz to pounding rock and dance music – even reigning in the more searing guitar parts on Oasis's 'Definitely Maybe' to present a less abrasive sound, without losing any of the excitement.

Streaming Spotify's lower bit rate offering, the McIntosh showed it doesn't unduly highlight the lower

quality of the service. There was less definition and bite, but again the innate musicality of the MB50 means it doesn't come over as bland or without punch.

On Elton John's 'Goodbye Yellow Brick Road' piano came over with body and a good presence – perhaps

not as great as via CD but still with enough tonality to make it highly enjoyable.

Overall, then, it seems this little streamer from McIntosh has most of the bases covered and could be one of the brand's most innovative products for a good few years.

In fact, it is one of those components that can turn even the most die-hard sceptic of streaming music into a convert, as it makes it so simple to browse through your digital collection once you have transferred it to a NAS drive or computer, or listen to music via one of the many subscription services on offer.

Which means that if you are looking to add high-quality streaming to your existing system then the McIntosh MB50 is one of the best ways to go about it.

### CONCLUSION

Yes, there are cheaper ways to stream music to an existing hi-fi set-up than the £3000 MB50, but in terms of flexibility, ease of use and sound quality it more than justifies its price.

It's smooth, rich, and powerful in its sound and boasts McIntosh's renowned build quality, making it a joy to own and use I found.

### MEASURED PERFORMANCE

Frequency response of the McIntosh MB50 was characterised by an unusual lift in low frequency output. It was small, just +0.7dB at 40Hz our analysis shows, but covering the whole bass region it will bring a subtle degree of extra weight or

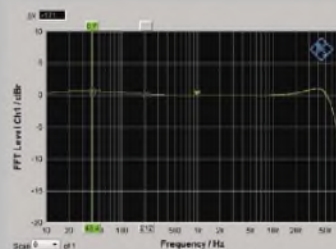
body to the sound.

The optical input accepted 192kHz sample rate digital (some reach 96kHz max) and analogue frequency response extended to 96kHz, as our analysis also shows.

Maximum output from the balanced XLR sockets was very high, measuring 16V. All the same, dynamic range measured a good if not exceptional 114dB, where top DACs exceed 120dB. The cause was the presence of a little distortion and noise, the former measuring 0.09% where 0.02% is possible nowadays. Again, the result is good, far better than CD (0.22%) but not up with the best.

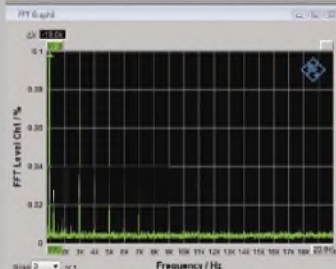
The MB50 offers a good set of measured performance figures, in line with other streamers, if not up with top quality DACs. NK

#### FREQUENCY RESPONSE



#### DISTORTION

TID (dB)	Linearity	Frequency
0.0906 %	11.703 mV	996.98 Hz
OFF	OFF	OFF



Frequency response	4Hz-91Hz
Separation	98dB
Noise	-112dB
Distortion	0.09%
Dynamic range (24bit)	114dB
Output (XLR)	16V

### MCINTOSH MB50 STREAMER/PREAMP £3000



**OUTSTANDING - amongst the best**

**VALUE - keenly priced**

#### VERDICT

Great sounding network streamer which can access most digital music services as well as your own stored files.

#### FOR

- powerful sound
- easy-to-use, intuitive app
- robust wi-fi connection
- build quality

#### AGAINST

- no Bluetooth

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SARAH VAUGHAN

Live at Laren Jazz Festival 1975:  
The Lost Recordings  
Fondamenta

**F**eatured last issue, I examined this Phoenix restoration/mastering system from French-based record label Fondamenta, supported by Devialet. It's a previously lost jazz recording of Sarah Vaughan, presented here as a limited-edition, 900 copies, two-disc package.

At £110 it costs, principally because of the time-consuming and expensive Phoenix system. Is it worth it?

Well, you've got to take the occasion into consideration here. No matter how good the audiophile process, this was a live recording, which means sonic compromises before we even get to the question of hi-fi. Hence, vocal clarity is good but not top-notch, the upright bass is slightly masked while the hall itself is a touch smeary, with a slight bite to the midrange. That's the location and the venue – and history.

Fondamenta has done a

splendid job all the same. The pressing is beautifully quiet, the percussion is delicate in terms of cymbal taps, bass is rhythmic and can easily be tracked by the ear, while the piano is melodious. But it's Vaughan's vocal delivery, sitting in a 3D space, that is the star here. The vinyl tracks every detail available from the compression of her vocal chords, the effort and amount of air she expels. You can even hear how wide her mouth is and how she quickly manipulates that 'instrument' to vary pitch and to shape notes.

I'm not convinced by the price tag for a live recording that can only ever give you 70% or less of all musical information, which means you begin with a crippled situation from the off but, nevertheless, this LP remains a terrific release of a rare and precious archival tape document.

As for Fondamenta's Phoenix system? I'd like to see it applied to a quality studio recording.

AUDIOPHILE VINYL



GONG

...Est Mort, Vive Gong  
Tiger Bay

**G**ong is Dead, Long Live Gong. Originally released in 1977 in France on the Tapioca label with different art, this double disc reissue features a live recording that was placed on tape on 28 May 1977 as part of a 24-hour festival, along with other acts such as Tim Blake and Strontium 90 (itself featuring future The Police man Andy Summers).

This LP was a bit special because it brought back together the band line-up from the earlier Angel's Egg (1973) and You (1974) period. This meant that David Allen, Gilli Smyth, Steve Hillage and Miquette Giraudy all returned to the fold to merge - albeit temporarily - with the more fusion textured line-up of Pierre Moerlen. Hence, you hear a lot from the famed Radio Gnome Invisible trilogy of LPs.

That said, despite the double album nature of the package, this is not the entire set from Gong. That

carried on for a lot longer, double the time actually.

I have heard, in some circles, lots of criticism pointed at this LP as a basic recording. Some critics have labelled it nothing more than a bootleg in sonic terms and a pretty poor one at that. This LP version via Tiger Bay takes issue with that assertion. It ain't half bad. In fact, for a live recording, one of the hardest of all recording tasks to perform, it's very reasonable indeed. One significant pointer was the treble performance throughout. I was impressed by the delicacy of this percussive corner: delicate and fragile, in fact. Yes, the venue provided a boxy and cramped frame to the recording but within those confines, the vocal was relatively clear (well, for David Allen), bass was expansive and the synth effects atmospheric. A distinctly admirable edition and one well worth grabbing for anyone with a penchant for Gong.

**T**aking its name from the metaphysical concept of a person's mind's eye, the music here is a lighter version of the grunge genre that this band quickly followed.

As you might expect by the self-titled approach, this LP was their debut. Released in 1997, it offers plenty of melodic hooks and actively moves away from any suggestion of a depressive or overly dramatic grunge-type style approach.

In fact, you might say that the band moved more towards an arena-rock type of delivery.

This can be good in terms of the music's immediate digestion but, like the diced Chinese meal, it could be accused of being rather light, lacking in a touch of depth.

Hence, you can get in this album a slightly frustrating mixture of elements that give you a great hook, submerged into a simplistic song. You end up singing along but

you also wonder why you're singing along. And you do this with a smile. And you also wonder if something is wrong. Do you see what I mean here? You feel caught between two stools, trapped between two artistic extremes.

In mastering terms, this reissue oozes quality. The general presentation is full of detail and it's presented in an organic manner. If there is any compression on this disc then it's subtle and gently applied while the soundstage is carefully constructed. So much so that the stereo image pushes the music backwards offering an impressive 3D effect.

Acoustic guitar string plucks and rim shots feature their own delicate reverb tails, while the vocal is sensitive and affecting.

This edition is available as an attractive 3LP set, a die-cut '20' on the cover alluding to the recording's 20th anniversary, and it also includes an extra disc of previously unreleased tracks and demos.



## THIRD EYE BLIND

Third Eye Blind  
Rhino

# AUDIOPHILE VINYL

**T**his triple vinyl multi-gatefold edition features all of the band's singles (some fascinating, some very silly indeed, some rare – but all worthy). In fact, it collects all of the tracks in one place for the first time. These include the more familiar 'Halleluwah', 'Vitamin C' and 'I Want More' to the lesser known 'Silent Night' and 'Turtles Have Short Legs'.

That said, some of the singles were also shorter version of the magnificent full-sized versions that were often found on the original LPs. That track 'Halleluwah' being just one of those.

Sometimes, singles collections like this can be a little bit smirk-inducing because, well, Can were completely brilliant as an innovative and creative Krautrock band but they were hardly chart favourites. That said, tracks like 1972's 'Spoon' was a resident in the German Top 10, hitting No.6 (possibly because it was the theme tune to 'Das Messer',

a German TV thriller). And, while we're about it, anyone remember 'I Want More'? The band's only UK hit launched into the Top 30 and reached 26! Can even appeared on 'Top of the Pops'! An event worthy of an exclamation mark in anyone's books.

In mastering terms the tracks are variable in quality, particularly because they are singles and each has been subject to widely different studio attention. So, while 'Soul Desert's vocal has a spotlight shined upon it in midrange terms, the overall quality from 'Spoon' and the bizarre 'Turtles Have Short Legs' are far more balanced with a wide soundstage, while 'Vitamin C' sounds positively mature and rich in midrange terms with a punchy bass and a vocal delivery full of emotive texture.

So, a superb collection contained in a nicely constructed gatefold, which is an essential collection for any Can fan.



## CAN

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**Information**

Developer	audio web publishing ltd
Category	Entertainment
Updated	7 Dec. 2014
Version	1.0
Size	9 MB
Rating	Rated 4+
Family Sharing	Yes
Compatibility	Requires iOS 5.0 or later. Compatible with iPhone, iPad, and iPod touch.
Languages	English

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# Life's A Breeze

From German audio experts Quadral comes a new portable Bluetooth loudspeaker. Jon Myles selflessly soaks up the sunshine to put it through its paces.

**W**ith summer upon us thoughts turn to the great outdoors and enjoying the sunshine. But what to do if you want to take music with you to enjoy with friends? A portable Bluetooth loudspeaker is the answer – and there's a plethora of them to choose from nowadays,

some good and some not so good.

What to look for before handing over your cash? A respected manufacturer helps and in Europe they don't come much more respected than German outfit Quadral, so its new Breeze M portable I'm looking at here deserves serious consideration.

Quadral hit the mark with elegant design. The Breeze M is a freestanding, round, tower-like device - 198mm x 65mm x 66mm (H/W/D) - with drive units on both sides and an elegant rotary knob at the top for volume control. Two silicone rubber strips run down the front and the back – one housing the on/off button and the other acting as a stand if you want to use the Breeze lying flat. Charging is through a USB cable and estimated battery life is 8 hours - although this is dependent on volume.

In terms of build it's pretty sturdy for a portable weighing in at 560g, being well bolted together. It is also water resistant to the IPX4 standard, which basically means it will withstand occasional splashes.

Inside, power comes from a 12 Watts per channel amplifier (Class D, naturally) while other features include indoor and outdoor listening modes and a 3.5mm auxiliary input socket for connecting other devices, apart from Bluetooth-enabled ones connecting wirelessly. Quadral puts its Bluetooth operating range at 10 metres – plenty far enough although I achieved slightly more outdoors.

## SOUND QUALITY

The bane of many portable loudspeakers is their tendency

to rattle and shake at anything approaching the volume needed for outdoor listening. Thankfully, the Breeze M is robust enough not to suffer these deficiencies.

Pumping up the volume on Led Zeppelin's 'Dazed And Confused' via an iPhone 7 Plus it stayed composed with a firm, meaty bass and tonally rich mid-range. OK, it doesn't go wall-shakingly low, but neither does it sound thin and weedy.

Up top the treble has enough resolution to bring out the detail in good recordings but is not so extended that it reveals the harshness of compressed pop and rock.

Some of Quadral's expertise in hi-fi 'speakers also comes through in the Breeze's sense of timing and rhythm - not something Bluetooth portables traditionally shine at.

The 5/4 time signature drumming on Dave Brubeck Quartet's 'Take Five' comes through as joltingly different to the usual jazz metre - just as it should.

Switching between the outdoor and indoor settings brought a subtle but significant difference. The former enhances the bass a certain degree and also brings a wider soundstage but does so at the expense of overall detail. I preferred the outdoor mode while sitting further away from the 'speaker during a sunny afternoon in the garden but for absolute resolution the indoor setting won the day. Still, it's nice to be able to take your pick.

And whichever one you choose you can be confident the Breeze M will give you a good, even sound that is amongst the best for portable Bluetooth loudspeakers at this price.

## CONCLUSION

The Breeze M is a well designed, quality-sounding Bluetooth loudspeaker that can go loud enough to satisfy both indoors and out – without sounding harsh. It's a perfect companion for the music on your smartphone.



## QUADRAL BREEZE M £119



**OUTSTANDING** - amongst the best

**VALUE** - keenly priced

### VERDICT

A robust, detailed portable Bluetooth loudspeaker that looks as good as it sounds.

### FOR

- good bass
- rich midband
- design
- can play loud

### AGAINST

- nothing significant

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# "Analogue engineering of the sort found in amplifiers and phonostages is a receding art form"



Noel Keywood

**A** long time ago I looked forward to reading *In Your Workshop*, a series published by *Radio Constructor* magazine. All the erudite stuff in *Wireless World* was alright, but – hey! – we all had soldering irons to use and Dick and Smithy got down to real live business on the workbench. I stumbled upon the series re-published on the 'net recently at <http://www.vintageradio.me.uk/radconnav/iywindex.htm>, if you are interested.

Although entertaining and easy to understand, it was a series written to gently educate, with discussion of one issue at a time, but often in good detail and with strong knowledge of basic principles. The author was all but anonymous at the time but is identified now as J.R. Davies, an engineer at Ferguson Radio in Enfield in Middlesex. His writing style was more ornate than today's. But it was of the period – proper and correct with no slang either British or American.

As I went on from reading articles like that in my teens to study electrical engineering, a subject that has always immersed me and I still enjoy immensely today, I realise the educational and – for me – vocational value of those articles.

Quite often when you look back at what impressed you long ago it can be a little embarrassing: "did I really like that?". You know, a lifetime's experience later makes you realise that you might have been a little – well – naive at the time. But *In Your Workshop* is in fact painstakingly detailed in its coverage of the physical practicalities that concerned service engineers at the time, like wave wound coils, IF transformers and failing electrolytics.

J.R. Davies was the practical side of another author, M.G. Scroggie, who had a superb grasp of fundamental

electronic principles and wrote profusely about them in *Wireless World* and a series of books – the most intriguing and engaging being *Second Thoughts on Radio Theory*. That was the world of analogue electronics, one including hi-fi amplifiers and tape decks.

Nowadays we have digital instead! And, I am told, digital engineers don't understand analogue of the sort J.R. Davies and M.G. Scroggie talked about so eloquently. Analogue engineering of the sort you find in amplifiers and phonostages is a receding art form with too many obscure variables. Which is partly why Dick and Smithy were so busy in their workshop. Their world was as much mechanical as it was electrical and with analogue you are a chef, mixing all these bits together (we are now told by digital engineers!).

The juxtaposition of the old and the new intrigues me because I personally experience it, using a 1970s Garrard 401 turntable one minute and an Astell&Kern AK120 portable digital player the next.

It is also coming back to haunt us all, it seems, as big simple things that chuff, like steam locomotives and Harley Davidsons, make a return to the modern world. My son (17) loves this stuff, even though he has no real interest in its functionality; his appreciation is simply that the machine expresses its purpose. A black box expresses nothing. Are we not talking record decks versus CD players here?

What inspired me to write this particular and perhaps a-little-personal column was Dave Tutt's fascinating musings from his workshop as they affect readers interested in vintage products, which he accepts for service, repair and restoration. In this issue the approaching subject of analogue recording and open-reel tape recorders is discussed, but Dave copes

with valve and transistor amplifiers too – Leaks, Quads, etc – plus much else that I hope we will be able to feature in future.

The juxtaposition is against modern digital; a reader in *Letters* this month says it took two passes to understand Martin Pipe's review of NAD's M32 amplifier and M50.2 streamer last issue. Ironically, Martin is a hands-on engineer like Dave Tutt but modern digital is becoming so fiercely complex in background form and complicated in its user interface it cannot be simply explained.

I had to think twice about how the NAD M32 amplifier had been configured to work in a real world; it isn't an amplifier "as we know them". That's because it is based on a very unusual piece of signal processing where normal digital (PCM) is converted in software to feed a Class D output stage (PWM). The benefit is an amplifier that offers superb digital performance – but is unable to accept analogue without an ADC being added into the scheme of things. It all gets complicated very quickly, as digital tends to do, eluding everyday users unless they read a description at least twice!

By way of contrast Dave Tutt looks back to old 1970s analogue where mechanical things went round and round, at least in tape recorders – and we all feel we can understand roughly what is going on.

Digital, as exemplified by NAD's amplifiers, is slowly slipping away from simple everyday understanding. There's no Dick and Smithy at Intel, only highly qualified design teams.

But hope springs forth eternal and you'll see in our *Letters* pages a discussion about the possibility of an analogue tape recorder revival. In which case we may well be able to bring you Dave and Dick *In The Workshop* in future. Let's all keep our fingers crossed for this one. ●

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WDPSU3 High performance choke power supply

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# "Some countries create economic recovery plans. We create David Bowie"



Paul Rigby

There is something really odd about England. And England as opposed to any other part of the UK, England is a weird place indeed. It is full – and I mean full – of clearheadedly and proactively eccentric people. Some are outlandishly, strikingly bohemian, while others range from being a bit odd to being worryingly disturbing.

England is also constantly made to feel inferior (for too many reasons to recount here) because it isn't Wales, Scotland or Ireland. This has been going on for hundreds of years. The latter three bits of land stuck onto – or near – England are constantly having a dig and English people end up smiling a bit and taking it. Or they shuffle their feet and stare at the ground. Or they change the subject and talk about the weather.

English people also love to queue – love it! And we are experts at it. Italians are completely bemused and don't even realise where the queue starts, ends or even what the point is. French people throw up their hands and walk off muttering. Americans believe it's a possible prelude to the playing of a national anthem and so stand to attention...just in case. English people, though, are true masters of the queue. Our patience is quite breathtaking.

English people hate revolutions. Americans find them useful. Germans don't even know they're having them and then deny they knew anything about it afterwards. The French have one every other weekend and Italy has had one long consistent one for ages. We can't be bothered, though. It's too much trouble. We can't take politics seriously enough. We'd end up putting a Monster Raving Looney dictator on the throne... just for a laugh. And then we'd all go off to the chippy and laugh some more and then forget we'd

done it the next morning. We tried it with Cromwell, became rather embarrassed soon after, gave the throne back to Charles II and drank flagons and flagons of beer and partied for 25 years, to try to forget that a revolution had ever actually happened.

England is also one of the few countries in the world to be completely sarcastic about patriotism. Americans are so extraordinarily serious about patriotism: anthems, authority, flags, etc. English people tend to snigger a lot.

England also tends to apologise to everyone. A lot. And all the time. About lots of things. You try getting on/off a train without hearing it.

Even when someone barges violently into an English person, that same English person will apologise for it. English people are also constantly apologising about the Empire or to French TV chefs because we survived for years on Brown Windsor soup, Plum Duff and Steak & Kidney pie.

Because of the above and because we are still basically emotionally stunted, we have no natural emotional outlet.

Stress, anger, bitterness? It goes nowhere. Bottled up. This is why we make superb music. This is where the tension, distress and anxiety actually goes to.

Other people shout and scream. We invent The Beatles and The Rolling Stones.

Entering a period of financial stagnation? Some countries create economic recovery plans. We create David Bowie.

This is how we cope. Brilliant, inventive, creative, music. It doesn't always work out but, hey, that's often why English music is the best. It dares.

Looking at the new batch of CD releases from Esoteric ([www.cherryred.co.uk](http://www.cherryred.co.uk)), it's full of...

strangeness which wouldn't stand a chance just about anywhere else but was left to flower here.

Second Hand's 'Death May Be Your Santa Claus' (1971) is an over-the-top, outlandish, pantomime of a prog album that would be derided anywhere else but becomes a serious cult treasure here. I love its Arthur Brown-like excess.

Carolanne Pegg's shakily-voiced self-titled album of folk-rock and singer-songwriter ditties is innocent, primitive and endearingly amateurish from a woman who sounds like she has absolutely no confidence at all. It's like an English Rose painted in psychedelic colours. Lovely, odd and makes you scratch your chin. Great stuff.

Clear Blue Sky's 1970 blues-blazed hard rock and jazz and prog from the legendary Vertigo label is an all-out attack on the senses and sounds like early Deep Purple or Steamhammer. More amateurism but charming and winsome and funny. Funny in that you wonder what Vertigo were thinking when they paid the band money for this. Hard rock fans should take a listen, though. It's part of NWOBHM history.

Unicorn have two releases out: 'Too Many Crooks' (1976) and 'One More Tomorrow' (1977). Beautiful songs, deliriously lovely melodies, stunning harmonies. One of the great unsung bands who, like a lot of English things, were quietly great.

Stand an Englishman in front of you. Shout and scream at him. Threaten him. Promise to take away everything he holds dear. Belittle him and, as long as he's not a Millwall fan (in which case, he'll remove your face), he'll walk away.

Then he'll return later and completely take over your music industry with a new art form.

English people, you see. Weird. ●

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SME Turntables & Tonearms - Oyaide - Furutech - Klipsch - 78rpm - SL1200 Mods

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# “Forget The Beatles, Kraftwerk are the most influential band of all time”



Jon Myles

It's a discussion that is frequently trotted out whenever music lovers gather around the dinner table – which band or artist has been the most influential of all time?

Inevitably, due to their worldwide popularity, The Beatles are frequently cited. But – at the risk of provoking a mailbag full of dissenting letters – it has to be said that before 'Sgt Pepper's Lonely Hearts Club Band' there was nothing exceptionally groundbreaking about the Fab Four's output. Most of it was a facsimile of the sounds coming out from America except filtered through an English sensibility.

For evidence, take a listen to their first million-sellers 'I Want To Hold Your Hand' and 'She Loves You' – both pleasant pop ditties but hardly radically new in either musical structure or lyrical content.

So how about The Rolling Stones then? The band's sheer longevity is testament to their legendary status. They also had a dangerous edge and rebellious nature that the clean-cut Beatles could never match. Yet again, though, their musical output borrowed heavily from the catalogue of the great American bluesmen of whom Keith Richards was such a fan.

The same can be said of Led Zeppelin – who deserve a mention for almost single-handedly inventing the genre that is Heavy Metal. Without Robert Plant, Jimmy Page, John Bonham and John Paul Jones we'd probably never have seen the likes of Black Sabbath, Judas Priest, Deep Purple, AC/DC and even Motorhead. Except, yet again, Zeppelin frequently plundered classic blues riffs to create their distinctive sound.

Moving forward in time – and bearing in mind I'm talking about influence here – it would be remiss

to ignore The Sex Pistols. They seemingly came out of nowhere with a big, bad, beautiful sound that blew away the prog-rock behemoths that reigned supreme at the time and inspired a whole generation to pick up instruments and form a band (even if most of them weren't all that good and didn't last too long).

Their first, rather sparsely attended, concert in Manchester at the city's Lesser Free Trade Hall led to the formation of classic groups including The Smiths, Joy Division, The Fall, The Buzzcocks and even Simply Red. It also so energised the late TV presenter Tony Wilson he went on to found Factory Records and later open legendary nightclub The Hacienda. That's some legacy from one 45-minute set in a small room on an ordinary Friday night.

The Pistols also inspired The Clash who can lay claim to raising the political consciousness of their legions of followers through their lyrics and actions. Their greatest achievement – the double album 'London Calling' – was a glorious amalgam of pop, rock, soul, ska, reggae, jazz and even a slice of Phil Spector's Wall of Sound. Good as it still is there's no denying songwriters Joe Strummer, Mick Jones and Paul Simonon were musical magpies, happy to borrow from the greats who preceded them, so there's nothing on the record you haven't heard before (and I say that as an avowed Clash fan).

So where to look? Well, how about Germany – not somewhere traditionally associated with having a great influence on music outside the classical oeuvre. But there's one band from there who can lay claim to having laid the groundwork for a whole host of new soundscapes and have inspired countless other artists over the past 40-plus years. Step forward Kraftwerk – and most

especially sole remaining founder member Ralf Hutter.

As the band embark on a world tour – which in its own way is also groundbreaking in terms of staging – it's sobering to think that they ushered in a whole new genre of music with their seminal *Autobahn* album way back in 1974. It paved the way for some of the main developments in Western popular music in the decades following – including hip-hop, Detroit techno, electro, EDM, dance and acid house. Without them there'd be no Daft Punk, Radiohead, Human League, Aphex Twin or the likes of Eurythmics and New Order. Even stadium giants Coldplay raided their catalogue for the opening of 'Talk'.

After 'Autobahn' came a series of albums that cemented their reputation as true pioneers on a grander scale than anything that had come before. 'Radioactivity', 'Trans-Europe Express', 'The Man-Machine' and 'Computer World' were ahead of their time – futuristic soundscapes that experimented with time signatures and tempo.

And, lest it be forgotten, they were also shimmering with melodic innovation, creating emotion from what had previously been viewed as cold, impersonal electronic instruments.

And Kraftwerk are still pushing the boundaries with their latest live shows which feature robots, radio waves and passing traffic beamed towards the audience in 3D and other tricks to create a true multimedia experience. It's doubtful any other band on the planet would have the wit or imagination to attempt such a spectacle and then pull it off in such an accomplished fashion.

So forget The Beatles and all the others...for me Kraftwerk are the most influential band of all time. ●



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# "The Sanyo RD-XM1 from 1981 far exceeded my expectations"



Martin Pipe

**E**ighteen months or so back my *Olde Worlde* feature focused on the microcassette audio format. Conceived as an alternative to Philips own Minicassette (a scaled-down version of its Compact Cassette), it was developed by Japanese firm Olympus.

Olympus note-takers, pocket-sized so that they could be carried by busy executives the world over, were branded Pearlcoders. Their tape ran at half the speed of a compact cassette – i.e. less than an inch per second. Surely insufficient for hi-fi? Not necessarily. In 1979 another Japanese firm – Nakamichi – introduced the 680ZX half-speed capable cassette-deck, capable of recording continuously for up to 1.5 hours on each side of a C90.

Great for taping opera broadcasts or for long uninterrupted playback sessions. At the lower speed, its electronics and heads could yield a 15kHz response – sufficient for FM radio. Wow-and-flutter, meanwhile, met the specs of lesser cassette-decks running at standard speed. But we are talking Nakamichi here and their products were in a different class to those of the competition.

Other Japanese firms, among them Olympus, pondered whether the microcassette had quality stereo potential. In 1981 Sanyo made the RD-XM1 stereo cassette deck featured in that *Olde Worlde* article and similar hardware came from Sony, JVC, Hitachi and others.

In the early 1980s Sony's Walkman became a global phenomenon, the public eagerly-accepting music-on-the-move. The Japanese may have been obsessed with making things smaller (micro hi-fi, pocket TVs, calculator wristwatches, bonsai trees...) but the portability advantages of microcas-

settes were obvious.

An early attempt to harness their music-carrying potential was the unfortunately-named Music-Muff – a lumpy pair of headphones with a playback deck built into one earcup. Also mentioned in my article was the SR11 Road Runner, from no less an authority than Olympus. Launched in 1982, the SR11 was a pocketable microcassette recorder with in-built stereo FM radio. It was based around a Pearlcoder mechanism and as such could be switched to run at half-speed for terrible-fidelity economy use (yes, one quarter the speed of a compact cassette!).

For improved fidelity the stereo head fitted to the SR11 could cope with metal tape, a slider on the machine configuring it for this or ferric formulations. Headphones plugged into a Walkman-type stereo 3.5mm socket, there being no integral Pearlcoder-type speaker. Two mono 3.5mm sockets permitted recording from external sources like microphones or hi-fi equipment; a mono mike was supplied, but bootleggers would have upgraded to stereo. Whenever FM listening (or recording) was required, a telescopic aerial clipped onto the unit's base.

I recently came across an SR11, still boxed, and bought it. A strip-down was necessary to replace its tiny drive-belt. Not an enviable task as much is crammed into that tiny case. Desoldering was required in order to partially remove the crammed circuit-board. I also discovered that the miniature drive-motor was actually glued to the rubber couplings that isolate it from the mechanism metalwork!

The Sanyo RD-XM1 from 1981 far exceeded my expectations. The sonics of my SR11, alas, leave much to be desired – and that was after realigning the incorrect head-azimuth. Sanyo-recorded tapes were

rather hissy during quiet passages, because the SR11 lacks Dolby. Playback frequency-response proved acceptable, especially with metal tape, but recording is compressed, noisy and lacks sparkle. What really lets the side down, though, is pitch stability. It's awful. The piano chords, guitar-solos and saxes of Al Stewart's classic 1976 album 'Year Of The Cat' recorded on the Sanyo slur like a drunk uncle at a wedding.

It's not difficult to understand why the SR11 didn't succeed. The Walkman and its rivals were cheaper, and performed better. Their inability to record wasn't a hurdle given the abundance of pre-recorded material. Not even the SR11's radio facility (which does a good job) drew punters, for in 1982 Sony launched its WM-F2 – a Walkman with built-in stereo FM tuner. The SR11's battery life was also notoriously-bad but I wasn't affected as a pair of 2650mAh NiMH cells provided plenty of listening/recording time.

The SR11 was one of Olympus's earliest consumer audio products. Thankfully, its SR11 experiences didn't put it off. Today Olympus markets wonderful little solid-state stereo recorders – pitched at the market served by, amongst others, Zoom and Tascam. Olympus also owns the Keymed medical-equipment manufacturer and sells some fine digital cameras. It still serves the dictation market but technology has moved on; among its key business-audio products are USB microphones for speech-recognition applications. Olympus's latest RecMike II models employ two mike capsules and DSP to reject ambient noise. On a recent demo, I was surprised how well this worked with Dragon NaturalSpeaking software. Speech-recognition technology has come a long way! ●

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# "One company threatened to take me to court for defamation"



Dave Tutt

**B**eing a technician has some advantages. Now I cannot say I have the paperwork or the qualifications to call myself an engineer, as the methods to prove you are of engineer status are protracted and not exactly helpful in my line of work. I would probably have to be registered with the IEE the IET and any number of similar august bodies, none of which are set up for the repair industry.

Most people in my line of work are loners, or are the geek in the cupboard within larger companies, so we occupy a unique niche in the daily workings of the world. Many of my fellow technicians work on only one piece of hardware, mobile phones for instance, or Apple Mac hardware perhaps, having only the skills to deal with that technology. They may be highly skilled in that field but wouldn't dream of touching anything else outside their realm of knowledge.

I have always thought that much electronic technology derives from the same set of standard and expanding hardware, based on what the likes of Texas Instruments, National, Cyrus Logic or Burr Brown throw at us. This is very much the reason why, to my eyes a DAC is no different to a digital piano, to an ancient valved guitar amp or a transistor amplifier. It is the hardware most suited to meet the criteria laid down by the specification of the final product.

If you look at the design of transistor based amplifiers, once we got past the capacitively coupled output stages and output transistors became available in both N and P channel at the same power, we then had a design that hasn't changed drastically for the past 30 years. No matter what the manufacturers tell you, a Class AB amplifier is more

or less the same, be it in a guitar amp, a PA amp or your receiver or hi-fi amp. In fact even the amp in the stacking system so popular in some parts of the community has integrated circuits based on the same basic circuit. So my main advantage is the diversity of hardware I get to see, not novel or challenging circuitry on the repair bench.

For the most part manufacturers are keen to ensure their product is not only fit for purpose when it arrives with you, but most are also keen to ensure that, should there be a problem they identify it and either issue suitable messages on their web site or, through the registration process, recall the product. This is very helpful and it is to no detriment to the company as it exposes potential problems that could damage their reputation. One reason why many are only too happy to take things back under warranty and repair. There are some who even provide service manuals, schematic diagrams, spare parts, helpful engineers at the end of a phone line – you name it, they go out of their way to ensure the customer and by proxy myself, have all the knowledge we need.

However, there are some who should not be in the game, if their aftercare is anything to go by. You can have no idea how difficult it can be dealing with some company support departments. One company threatened to take me to court for defamation of their name because I told my customer that his active speaker was electrically dangerous and should never have been allowed out of the factory. Informing the company, I was told I didn't know what I was talking about. Seems its okay to electrocute someone – provided you put a sticker on the back that says its safe! Six months

later a new model arrived on the shelves and was just as unreliable but the design flaw had been fixed! Shame they didn't make it generally better as there might just be more of them still working.

This week I have an active stereo pod type speaker that just needs a new auxiliary mini jack socket. Not much to ask really, except it is a double switched part with a very specific pin out that has to fit a tiny pcb not available from any other source.

If I had gone to a company with good service the chances are the part may have been shipped to me free of charge or an upgraded complete board shipped to me, again free of charge. But no, this company insists that it has to be returned to them and they would diagnose and cost the fix, and inform the owner before carrying out the work. Apparently they do not like others repairing their hardware. And yet internally it is nothing spectacular. If it had been a cruise missile I might have stepped back for 10 minutes or so – but come on! It's a little speaker with a broken socket!

Electronic repairs are very much a reverse engineering process and the cost can be in the diagnosis as much as in the parts themselves, or the process of replacing them. But that's if I am working with a co-operative manufacturer. In the real world the process is sometimes unfortunately complicated by unco-operative manufacturers who frustrate easy and quick repair by inordinately complicated procedures thought up to please the Ministry of Industrial Compliance Procedures, set up in 1948 and still alive today because no one understands what purpose they serve. But for companies like this my life as a repair technician would be a lot easier and my repairs much cheaper! ●

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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, peppy 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 VOLVERE 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 SE** 2005 £1,115  
Design icon with superlative build. Sound is beautifully smooth, effortless and exceptionally expensive.

**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.

**TECHNICS SL-P1200** 1987 £800  
CD version of the Technics SL-1200 turntable. Massively built to withstand the rigours of 'pro' use and laden with facilities - a great eighties icon.

**ROKSAN XERXES** 1984 £550  
Super light and clean sound, with excellent transients. Less musical than the Sondek, but more neutral. Sagging plinth top-plates make them a cubious 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 R3300, which added detail at the expense of warmth. Superb budget buy.

**SONY PS-B80** 1978 £800  
First outing for Sony's impressive 'Biotracer' electronic tonearm. Built like a tank with a clean and tidy sound, albeit lacking involvement. Scarcily complicated and with no spares support - buy with caution!

**TRIO LO-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  
Bonters 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 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.

**HELLIUS 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 Synrax 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 TECNODARM A** 2003 £442  
Clever reworking of the Rega theme, using blasting drilling and rewiring!

**SME 309** 1989 £767  
Mid-price SME comes complete with cast-out aluminium armtube and detachable headshell. Tight, neutral sound with good tonality, but lacks the IV's pace and precision.

**NAIM ARD** 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 ARD** 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 musical, 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 scales - 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 oodles 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 Supramat 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, 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.

**MELDYO 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 semi-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 1990s 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 firmness 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-50D AMPLIFIERS** 1973 £110  
Simple design with easily available components, solid build quality and fine sound make for a surprisingly overlooked bargain

**LECSON 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, TL12 PLUS** 1949 £28  
Early classics that are getting expensive. Overhauling is de rigueur 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.

**LECSON 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-fil

**QUAD 22** 1958 £25  
The partner to the much vaunted Quad II mono-blocks - 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&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.

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

**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 loudness 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. Partner 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.

**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.



**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.

**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.

**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



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

**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 NVO** 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 fluid 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-JE555ES** 2000 £900  
The best sounding MD deck ever, thanks to awesome build and heroic AT-RAC-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 15x4 chipset with serious attention to power supplies equal's grin-inducing sonics

**MARANTZ CD73** 1983 £700  
A riot of gold braided 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

**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

**CAMBRIDGE AUDIO CD1** 1986 £1500  
Inspired Stan Curtis' redesign of Phillips CD104, complete with switcheable digital filter. Lean but tight and musical performer.



**MERIDIAN MCD** 1984 £600  
The first British 'audiophile' machine was a sweetie, more detailed Phillips 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 15x2 DAC to provide a clinically incisive sound, supreme build quality allied to the pure unadulterated luxury of a paperback-sized remote control.

**YAMAHA CD-X1** 1983 £340  
Nicely built 15x2 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 15x2 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/play 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 PD** 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 DACAPD** 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  
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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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SEPTEMBER 2017

[www.hi-fiworld.co.uk](http://www.hi-fiworld.co.uk)

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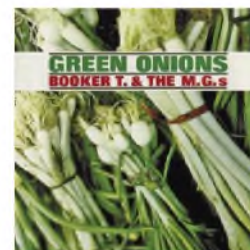
Sony's new budget turntable comes complete with a digital output and built-in phonostage. Noel Keywood takes it for a spin.

### CLASSIC CUTS 87

ZZ Top - Tes Hombres, 1973 by Paul Rigby.

### AUDIOPHILE BOOK 91

Paul Rigby delves into a new book on Punk pioneers The Damned.



# news

## DISCO ANTHEMS

Eighteen tracks are exclusively packed onto three slabs of vinyl. And packed is true because the tracks from Disco Anthems ([www.demonmusicgroup.co.uk](http://www.demonmusicgroup.co.uk)) are all extended 12" mixes. And what a line-up! McFadden & Whitehead's 'Ain't No Stoppin' Us Now', Odyssey's 'Native New Yorker', Gary's Gang's 'Keep On Dancin', Heatwave's 'Boogie Nights', Cerrone's 'Supernature'. My favourites? The Jacksons' 'Shake Your Body (Down To The Ground)' and Earth, Wind & Fire's 'Boogie Wonderland'.



## STAX ON WAX

Stax's sixtieth anniversary continues with a batch of newly reissued classic vinyl via Rhino/Concord.

Arguably their best LP, Sam & Dave's 'Soul Men' (1967) was a great album, not just a container for singles and filler. Packed with high energy and passionate performances.

Rufus Thomas was an important Stax pioneer. 'Walking the Dog' (1964) was typically raw and gritty. It's an absolutely essential Memphis soul LP.

Stax's house band, Booker T. & The M.G.s' 'Green Onions' (1962) is one of the best instrumental LPs you can get. Only 35 minutes but what minutes!

Carla Thomas and Otis Redding's 'King & Queen' (1967) is a lighter suite of duets. Full of soul classics from two singers full of collective chemistry.



## TIGER BAY

Two from this new label, the first is Bill Laswell's solo debut 'Baselines' (1982). A combination of the groovy and the plain experimental, it features a host of notables: avant-garde trombone man George Lewis, Henry Cow man Fred Frith, Tom Waits horn player Ralph Carney and Golden Palamino David Moss.

Tangerine Dream's 'Alpha Centauri' (1971) is raw space music, pre-'Phaedra'. Three tracks of kraut-ambience with experimental thought processes all over it. Presented here as a 2LP edition: a black disc original edition plus a picture disc with three bonus tracks from the same session.



## FUNKY CHIMES

All the way from...Belgium is 'Funky Chimes' (Sdban; [www.sdbanrecords.com/](http://www.sdbanrecords.com/)) two 2LP editions that collect

70s grooves from adventurous session men vaulting latin, funk, jazz and other genres previously hidden within library music from the likes of André Brasseur, The Chakachas and many others. It's surprisingly brilliant.





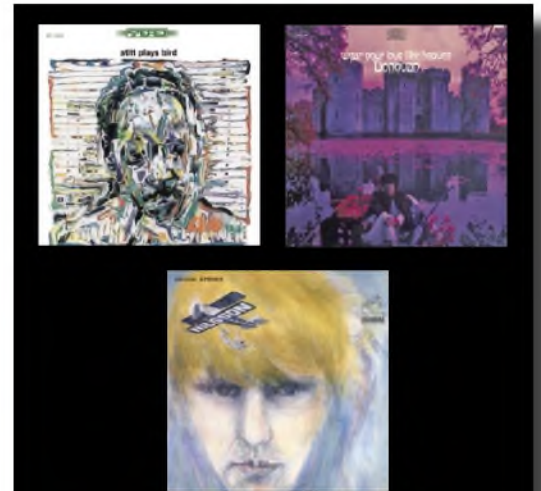
## RICHARD WEIZE ARCHIVES

Ex-Bear Family owner has his own little operation going at [www.rock-star-records.co.uk](http://www.rock-star-records.co.uk) with intriguing releases including these 10" vinyl releases. The Cochran Brothers' 'Latch On With The Cochran Brothers' Hank and Eddie were not related and they disbanded in 1956 after recording for Ekko and Cash. This 10" features country on the A-side and rock'n'roll on the flip. Fun and entertaining.

Ray Campi 'Austin, Texas 1949-1950' offers eight country tracks before he adopted rockabilly. Slightly innocent and naive yet ideal for early country fans.

Also look out for Billy Mize's '1958 demos for Cash'. Here, for the first time, are the demos of all six songs that Billy Mize wrote for Johnny Cash.

Actually, Mize's delivery sounds like Cash-lite. Cash fans will love them!



## SPEAKERS CORNER

Audiophile vibes from Germany and Speakers Corner ([www.speakerscornerrecords.com](http://www.speakerscornerrecords.com)) covering a host of genres begins with 'Stitt Plays Bird' (1963), a brilliant tribute to Charlie Parker with an on-form Stitt covering ten Parker tracks.

Donovan's 'Wear Your Love Like Heaven' (1967) was one of his very best. There isn't a dud on this LP while the man himself is in fine voice.

Nilsson's 'Aerial Ballet' (1968), featuring 'Everybody's Talkin'' continues the quality. One of the man's finest moments, it's charming pop with a smile and a wink.



## DISCOVERY

Three from UK distributor, Discovery ([www.discovery-records.com](http://www.discovery-records.com)) 'Det Flimrende Lys Over Brabrand Sø' via Nicolai Munch-Hansen, Peter Laugesen (Stunt) is Danish swamp rock. Honestly. Easy-going, laid-back, yet dark and foreboding with a rich vocal delivery.

Also via Discovery is Record Store Day special, AMJ Collective mixed by Rob Smith mixing reggae and dub-lite. Bathe in the bass with occasional brass overtones but also lighter upper mid tones to keep this dub floaty.

Also look out for Konkylhie's self-titled piece (Ilk). Avant jazz experiments takes a free jazz, unstructured miasma and builds it into a grand, epic blow-out! Features Christian Kyhl.



## ...AND FINALLY

New from Anathema is the 2LP 'The Optimist' (*Kscope; [kscope.com](http://kscope.com)*), which looks back to 2001's 'A Fine Day To Exit' providing an aggressive conglomeration of guitars and electronics but with a prog-like frame. Epic.

Sixth's 'The Future in Whose Eyes?' ([www.sixth.band](http://www.sixth.band)) is third LP from this prog-metal outfit, mixing rhythmic melodies, aggressive guitars and doom-laden lyrics – but always rewarding.

'Mulatu of Ethiopia' is an Ethic jazz reissue LP from 1972 via Mulatu Astatke, adding funky soul vibes to the mix. Full of angular rhythms and adventurous constructions.

Mark Templeton's 'Gentle Heart' (*Graphical; [www.graphicalrecordings.com](http://www.graphicalrecordings.com)*), the third instalment in his Heart trilogy, offers moody, low key electronics. Restrained and shy with muffled beats.

Chris Merrick Hughes' first material in 23 years, the ex-Adam and the Ants drummer and Tears for Fears producer offers ruminative, meditative, cyclic, ambient piano-based experimentalism on 'Eirenic Life' (*Helium; [www.heliumrecords.co.uk](http://www.heliumrecords.co.uk)*).

# 2NDHANDHIFI.CO.UK

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**Sony rejoins the budget turntable market with a deck that also includes a digital output. Noel Keywood puts it through its paces.**

# Vinyl Revival

**S**ony's handbook – for a turntable that even they must be surprised at producing – has plenty of amusing giveaways about its intended audience. You must first assemble the turntable Sony warn – this is no CD player! It doesn't have a loudspeaker and you musn't reverse rotation of the vinyl record as it will cause malfunctions – oh, and a drive belt is wound around its backside. Yes, the handbook says this. Welcome to a new world where

an archaic device is a technological challenge!

So Sony have kept their PS-HX500 turntable simple, given it a handbook that provides a few good laughs and – most surprisingly – have brought it bang up to date by fitting a digital output that, I thought mistakenly, delivers DSD, or Direct Stream Digital. Radical – except that it doesn't do this at all. More later.

Amongst the many budget turntables hitting the market nowadays, most of which have an

optional digital output, provision of DSD sets this one well apart. No one else can compete with Sony because this digital code scheme is unique to them, developed initially for music archiving, then adopted for SACD. Nowadays however, Sony are seeking to revive interest in DSD essentially for its original purpose – musical archiving using a digital code that doesn't compromise original analogue quality.

The turntable is a simple two-speed, all-manual affair. It spins at



**The rear panel has a small Phono / Line output switch that selects the phono stage, or bypasses it. There are analogue outputs, an earth terminal, a USB output for a computer and a 5V power supply input.**

33 or 45 rpm, selected by a front mounted rotary control. This alters rotational speed of a small d.c. servo-motor fitted with a single pulley, so there's no need to move the belt manually from one pulley diameter to another. What you don't get is 78rpm to play old shellac discs.

The arm must be manually cued onto a record and manually lifted off; there is no auto-shut off mechanism unlike modern rivals from Audio Technica, Lenco, et-al. There is a damped cue platform and associated lever to the right of the arm to facilitate this, for those who don't

unit from Audio Technica that also tracks at 3gms, looking much like an AT95 variant (V magnets) but with a conical stylus and locating tab.

Size-wise the plinth is as compact as possible, measuring 366mm deep, meaning a 15in deep shelf or table top is needed. Weight is low at 5.4kgs (12lbs). The plinth is lightweight in build but being solid MDF, not a plastic moulding, does not resonate when tapped. The feet have rubber pads that move to allow height adjustment to ensure the plinth doesn't wobble around.

As I have seen on other turntables out of China – where this one is made – there is no on-board mains power supply. Instead, power comes from a small external unit that delivers 5V d.c. at 2A down a slim cable. Consequently, with no high voltages, it is not earthed to the mains only to the amplifier thus eliminating hum problems.

The PS-HX500 includes an on-board phonostage, allowing it to be connected to an amplifier's Line input; a special Phono input is not needed. There is a small rear mounted slide switch, however, that bypasses this stage providing an output direct from the cartridge. It's for those who already have a higher quality external phonostage, perhaps in an amplifier, and worth using if a higher quality cartridge is fitted.

Will the arm take a better cartridge? Yes it will. The arm floated freely on its bearings and there was little play in them so any moving magnet (MM) cartridge tracking down to around 1.7gms will suit. But because the headshell is fixed, cartridge changing is not easy. I wrestled with jewellers pliers to get tight fitting connectors off the cartridge output pins. Rivals for your pocket – most out of the same Chinese factory I believe – come with bayonet-fitting removable headshells that are far easier to cope with when cartridge changing.

Do you need to change the cartridge? Ideally, yes. The one fitted looks like a variant of Audio Technica's AT95, made in Japan, although the body says Made in

China; perhaps it is made under license by the Chinese factory. It is a budget design as measurement confirmed and at odds with the aim of producing a high-quality audio output. The turntable can accept better but for most users this means a visit to the nearest Sony Centre.

Finally, there's a digital output via USB so LP can be recorded to a computer. Sony's literature nowhere clearly states the digital spec of this turntable, talking instead about their DSD recording software (free download). Perhaps that's because



**The fitted cartridge is budget design with V magnets and is similar to an Audio Technica AT-95, but with conical stylus and 3g tracking force. Yet it is made in China for Sony and only a Sony replacement stylus can be used. Note the fixed headshell.**

it doesn't produce DSD but normal PCM – this isn't a DSD turntable, even if it might appear so.

There are complex reasons. DSD can't be sent over a USB connection except by special arrangement (DoP) and this the Sony has not got. It declared a massive list of available options to my Mac but all PCM up to 24bit/384kHz – no sign of DSD/DoP.



**The motor spindle has a single pulley diameter, since speed is changed electronically, with 33rpm and 45rpm options.**

Audacity worked with all of them up to 24/192 so they are PCM not DSD/DoP because Audacity cannot accept the latter.

Sony's free recording software accepts this PCM stream and records it up to 24/192 resolution, or

**RECORDING DSD**

Sony's Direct Stream Digital (DSD) format has a justifiably good reputation for fine sound quality. Think smooth, spacious and organic. It doesn't come at you with that hard, mechanical quality of normal digital (PCM) and nor does it sound edgy or hard. Our measurements show it delivers very low distortion, partly explaining why. And a DSD digital-to-analogue converter is a very simple device without the issues of its PCM equivalent.

That's the good bit. The bad bit is that DSD – Sony's variant of Delta-Sigma modulation (1 bit) – is impossible to work with. It cannot be edited in raw form: it can only be recorded 'as is' then played back. The professional DSD recordings you commonly hear will have been through DSD-Wide or DXD intermediate quasi-PCM formats; they are rarely pure DSD.

Sony's PS-HX500 doesn't produce pure DSD either! The reason is that computers and USB hubs work only with PCM, they don't understand DSD. Clever people have come up with a work-around for this. DSD is packaged into PCM code in a format called DoP: go to [www.dcslltd.co.uk/support/what-is-dop-dsd-over-pcm](http://www.dcslltd.co.uk/support/what-is-dop-dsd-over-pcm) for more detail.

For this to work both sender and receiver must respectively package then unpackage DoP. Or raw DSD can be sent over S/PDIF. But doing this in a turntable would increase complexity and raise cost – and the computer also has to run special software to handle DoP or raw DSD.

Once you have recorded DSD into a .dsf file using Sony's DSD recording software you then need to play it. A free DSD player for your computer is available from Teac, Sony and others, but they only work with a limited range of external DACs that they recognise as having DoP: look out for their compatibility listings.

So getting DSD to play on (out of) your computer can be a challenge. Sony recommend transferring their .dsf files to a portable Sony player, but Fiio et al also make portables that handle DSD well.

In a nutshell then, don't get too misty eyed about DSD. It does sound lovely but you'll pay to enjoy it! **NK**

want to grab the finger-lift on the headshell (difficult).

Sony fit a budget MM pick-up cartridge that tracks at 3gms, with no model name or number stated, even for the stylus assembly. If you bend the stylus then "consult a Sony dealer" they say. The removable stylus has an unusual tab on it, so isn't the ubiquitous AT-3600 OEM

converts it to DSD (64/128) if you so wish. You don't get raw DSD from the turntable's Burr Brown PCM4202 analogue-to-digital converter (ADC) even though it can produce it.

What I will say in Sony's favour is that the Burr Brown PCM4202 ADC chip delivers high-resolution PCM (24bit) of very good quality, measurement showed, with a dynamic range of 99dB – that is well above most other budget turntables with digital outputs using cheap 16bit ADCs delivering 76dB or so. Sony have put some effort into all this then, even if their literature says nothing about what is going on inside.

## SOUND QUALITY

Running the Sony direct into an Icon Audio PS3 phono stage feeding a McIntosh MC152 power amplifier connected to our reference Martin Logan ESL-X hybrid electrostatic loudspeakers revealed a sound dominated by Sony's budget cartridge. In broad outline it has a soft midband but clattery upper treble that became obvious with our harder sounding LPs such as The Zutons 'Tired of Hanging Around'. Guitars and cymbals had a metallic quality more reminiscent of CD than LP and were forward in the mix. This correlated with the resonant peak around 12kHz the cartridge displayed under measurement – and with mediocre separation between instruments the PS-HX500 sounded brighter, more forward and less analogue than budget turntables fitted with Audio Technica's simple but smooth AT-3500 cartridge, for example.

Fitting a Goldring 1012GX gave an altogether more cooth delivery and is one option, whilst Denon's DL-110 would give better results all round.

Speed stability was satisfactory in subjective terms, free from obvious shakiness of tone but not as stable and grippy as the rival Lenco and Audio Technica turntables.

Running the fitted phono stage through an Icon Audio Stereo 30SE gave a slightly tighter, faster sound than through the PS3, albeit with less stage depth and none of the sense of effortless lows. It's a good phono stage by any standards – fully able to support the use of a higher quality cartridge.

Sony's use of a high quality 24bit ADC gave digital recordings little different from the sound of the phono stage plus cartridge – so again the support electronics are capable



*The PS-HX500 is a simple design with manual arm lift/ lower lever at right and a fixed headshell that makes cartridge changing difficult.*

of fully revealing the sonic qualities of a better MM cartridge.

## CONCLUSION

The PS-HX500 is a competent turntable as a package but buyers need to be aware that the cartridge fitted is the limiting factor to its

sound. Changing the cartridge for something better isn't easy, except for experienced vinylistas with suitable tools and a steady hand. Otherwise a visit to a Sony Centre is required. The internal phono stage and digital output both worked well so are able to support a cartridge upgrade.

## MEASURED PERFORMANCE

The PS-HX500 ran 2.2% fast as delivered and this will be just audible with those having a keen sense of pitch as a tad fast, but it has speed adjusters beneath the motor housing so the error can be nulled – which we did before auditioning.

There was some speed wander and this resulted in a high-ish 0.3% wow figure at worst. It slowly and cyclically changed from 0.3% to 0.1% wow over 30 seconds or so, moving from very stable to mediocre in terms of wow – not uncommon in budget turntables.

Our spectrum analysis of wow and flutter components up to 20Hz shows variation at rotational rate at 0.55Hz (33rpm) with wow and flutter components.

A DIN weighted Wow and Flutter value of 0.15% (0.1% using Japanese JIS weighting) was good all the same so

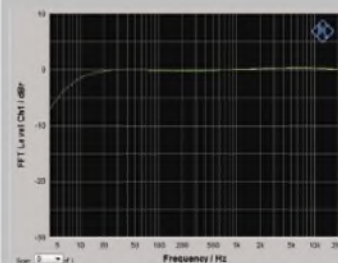
the final outcome was satisfactory, but unexceptional. Some slight vagueness of pitch will be apparent subjectively.

Phono stage equalisation was accurate and gain rolls off below 20Hz, helping minimise loudspeaker cone flap from LP warps. The phono stage shares this feature and low gain of x58 with the phono stages of its rivals from the same Chinese factory, but Sony have altered some parameters. Overload has been more than doubled from 30mV to 70mV. Input noise (e.i.n.) was on the high side at 4.3µV (A wtd.) but this isn't of much consequence against the noise an MM cartridge produces in its coils. On the digital side, maximum recording level (0dB) was a sensible 30mV in from the cartridge – high enough to avoid digital overload. Distortion was a low 0.15% at -60dB from the Burr Brown PCM4202, a low value compared to CD's gives 0.22%, so 24bit resolution is well exploited, dynamic range measuring a high 99dB.

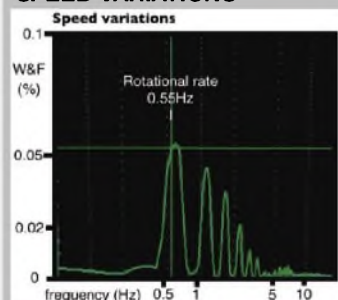
The Sony cartridge tracked well. Frequency response shows the usual upper mid-band roll off with small tip mass resonance peak at 10kHz so it will sound smooth and easy, but will have obvious high treble.

The PS-HX500 is competent as a budget turntable/cartridge combination, about as expected at the price. The analogue phono stage was good and the digital stage better than most rivals, due to its ability to deliver hi-res 24bit digital, against the 16bit (CD quality) of most others. **NK**

## FREQUENCY RESPONSE PHONO



## SPEED VARIATIONS



<b>Speed error</b>	<b>+ 2.2%</b>
<b>Wow</b>	<b>0.3%</b>
<b>Flutter</b>	<b>0.8%</b>
<b>Total (DIN wtd)</b>	<b>0.15%</b>
<b>Total (JIS wtd)</b>	<b>0.1%</b>

## SONY PS-HX500 £275



**EXCELLENT - extremely capable**

### VERDICT

A competent budget turntable with potential to give a good vinyl sound, providing a better cartridge is fitted – but this isn't so easy.

### FOR

- low cost
- easy to use
- hi-res digital output

### AGAINST

- poor cartridge
- mediocre speed stability
- fixed headshell

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## ZZ TOP

## TRES HOMBRES

1973

**A** blues rock trio from Texas. Already sound quintessentially American, don't they? This rock is greasy and dirty and leery and growly. They've been travelling along the frets of their guitars since their formation in 1970 in Houston (after a number of different incarnations before the final, settled, lineup). Billy Gibbons was and is the principle songmeister, but he is ably accompanied by Dusty Hill on bass and Frank Beard (who really doesn't have one at all) on drums.

The band are generally described as a blues band. A term that Gibbons likes to ruminate upon: "Is ZZ Top a blues band? Are the Rolling Stones a blues band? Well, we're interpreters of blues bands. The wave of blues we enjoyed, not only being a part of but influenced by, was ushered in by the English guys. The Stones, Clapton, Beck, which is kind of what got us thinking, 'Hey, we can hot rod this stuff and make it really fun to play for ZZ Top'. However, the examples that were set before us laid a challenge to say, 'Hey, this is art.' There's a handful of Americans, a handful of guys from England, a handful of guys from points around the world that recognised the value of the impact of this strain of music that goes all the way back to Africa. And I'll be honest with ya, I still dig it."

The two albums prior to this LP were caked in blues roots explorations, "...a lot of our earlier work was chronicles of Texana and events that were of substance for the guy living in Texas; certain things you experienced when you're coming up there," said Gibbons.

This LP is their breakout, though. It was the album where the nation looked in their general direction and raised an eyebrow or two.

'Tres Hombres' is sleazy. It's quite happily sleazy but it's sleazy none the less. If you glance over the LP, there really isn't too much to get excited about. After all, what is this LP? It's just a blues rock LP. Ten a penny, eh?

The more you listen, though, the more infectious it becomes. It's like a virus gone wrong...or right, I suppose. The songs themselves are very accomplished, very professionally put together while the dirty blues groove is quintessential – and then there's the humour that sets it apart. The mixture of

these elements gives this ordinary album a distinct Tex Mex genius ingredient. Whether you're talking about 'Waitin' for the Bus' or 'Jesus Just Left Chicago' or 'Move Me on Down the Line' or even 'La Grange'.

"'Tres Hombres'...that's the famous Mexican food album. We stretched out and went down the boundary, if you will. Although the song 'La Grange' was the first ZZ Top, Top 10, it remained well within the reaches of the blues, capital B, on which we base the band to this very day," said Gibbons.

You can now find this album on Rhino's 'Cinco: the First Five LPs', all pressed on heavyweight 180g vinyl, presented in a box made to look like the custom Nudie Suits. The five albums featured were released between 1971 and 1976: 'ZZ Top's First Album', 'Rio Grande Mud', 'Tres Hombres', 'Fandango!' and 'Tejas'.

In mastering terms, the latest pressing of 'Tres Hombres' is well balanced. There's no obvious negatives here, even at high volume. No shrieking brightness, no offensive compression or excessive peak limiting to have you rushing from the listening room. That said, the music isn't overly warm either. Guitars are acceptably aggressive while treble-based cymbals offer a clear, metallic yet fragile aspect.

Gibbons' vocal is clear and easily heard, there's no smearing from the midrange to mask his delivery while the guitars themselves sit within a broad and open soundstage that is spacious, allowing each performer full expression. Drums, meanwhile are powerful with a 'dry thump' and restrictive reverb, presumably to add a claustrophobic punch. Subtle effects such as delicate rim taps are effectively portrayed, backing up the feeling that this is a well disciplined and organised master.

It took the group three tries but this LP encapsulated the sound and the style that fans know so well, combined with lots and lots of sleaze. It's a rich and entertaining mixture that has been kind to the band, while the infectious songs have been kind to the fans. An album with no tricks, no highfalutin studio knob twiddles, just blues done boogie. **PR**



"This LP encapsulated the sound and the style that fans know so well"

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### BLACK RHODIUM STYLUS CABLE £350

The cable that runs from the arm of your turntable to your phono amplifier is often ignored and yet is probably the most important of all cables within your hi-fi chain as it forms part of the music source.

This Stylus cable, complete with SME-type DIN plug utilises, said the company, thicker insulation than is usual in interconnect cables, increasing the distance between conductors. It also features separate coaxial screened cables for each

channel.

The cable uses two silver plated copper cores, insulated in low loss PTFE dielectric, while termination is taken care of with rhodium-plated plugs. The rhodium-plated DIN connectors have been specially designed for use in Black Rhodium tone-arm cables while the RCA end is terminated with Graham Nalty Legacy Range GN-3 RCA connectors.

I tested the cable on my SME IV arm. Via Bruce Brubaker's solo piano piece via his Glass Piano LP and the Philip Glass composition 'Mad Rush',

I felt that the Stylus was digging right into the core of the mix to excavate detail. There was also a sense of air. The dynamics seemed to freely roam, producing extended reverb tails that hung above the music to then crash against the details of the next note, forming a cloud of music.

Via the Electric Light Orchestra and 'First Movement' from 1971, the big, bold, heaving bass remained but the Stylus cleaned it up, adding punch, heft and slam to the weight.

In terms of midrange and treble, the introductory Spanish guitar was precise, bouncy and accurate but retained the richness of the golden analogue elements of the organic instrument.

My Stylus-toting SME IV enhanced clarity and accuracy to deliver a sonically interesting performance but also lowered noise, providing a relaxed yet still vibrant performance. **PR**

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# SOUNDBITES



upon sound quality, skew the sonic response or cause damage to the cartridge or the vinyl.

The new 9V

battery-powered, rocker switch-operated, Rega

Atlas tracking force gauge looks to provide an accurate measurement, featuring a hard-wearing aluminium chassis with a stable load cell and precision amplification circuitry. It's a full bridge, shear beam construction. There is also a custom-designed front guard to protect the measuring element and aid alignment. The gauge is resistant to temperature variations and shocks. All in all, this is a design that looks as though it is meant to last and I've no reason to doubt it.

After switch on and a brief self-test, the gauge is ready to operate while the Rega logo glows green. You position the stylus on the pad, wait three seconds and take the reading. If not operated for forty-five seconds, the Atlas enters Sleep mode and the Rega logo glows red.

I was impressed by the solidity of the build, the curved guard, which allowed me to place the gauge in the same position time after time and the pressure pad. This is an inverted dome so the stylus tip can be positioned in a consistent position. Readings can vary, otherwise.

Some might balk at the price but, apart from the superior build, the Atlas is accurate and will reduce tracking force measurement variations. Ideal for those who are on the upgrade path or who wish to periodically check their set-up or those who are purchasing a very expensive cartridge and/or arm and do not want to leave anything to chance. **PR**

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# A Damned good read

Paul Rigby continues his series on music-related books with a tome on punk pioneers *The Damned*

## Smashing It Up: A Decade of Chaos With The Damned

Author: **Kieron Tyler**

Price: **£20**

**T**here are too many people out there who still believe that punk began with the Sex Pistols when, in fact, that band appeared late in the scene. America was doing punk way before the UK even heard of the word.

The essence of the scene was – whisper it quietly – hippie-like in its form. That is, US-based ‘punk’ formed a protective home to people who lived outside of the system and really, truly, didn’t give a damn. Bankrupt and decaying New York provided that ideal home. It was a place to share ideas, to be wild, to experiment in art and sex and to have fun. Real fun. No holds barred, drug-fuelled, dangerous fun.

US punks were, frankly, uncomfortable around UK punks and the UK scene as a whole. Part of the reason was because the UK version of punk was a whole lot darker. It was far more political. It was way too infused with Prime Minister of the time Margaret Thatcher – punk’s own favourite Moriarty.

It fell to *The Damned* to inform the UK public just what pure, undiluted punk was really all about. What the essence of Mk. I punk was. It was not about destruction, that was happening all around – punk or no punk – and it was government sponsored. Being a punk was about living for today. It was about FUN. Not the Sex Pistol’s ‘No Fun’. I say

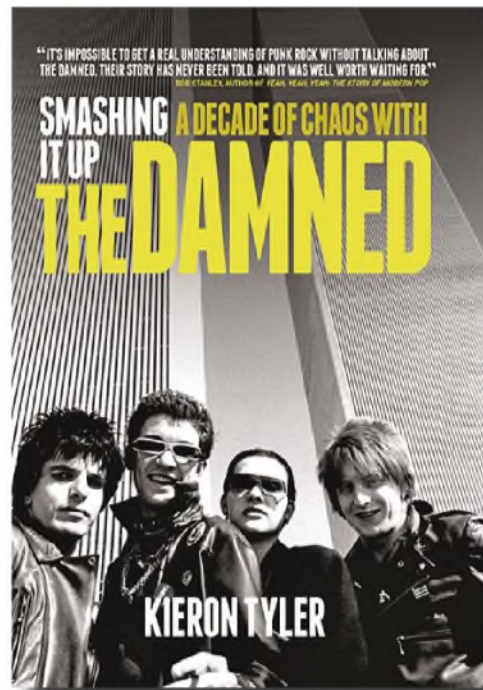
again, FUN.

This book is all about the UK punk band that ‘got it’. The first punk band to release a single in the UK (‘New Rose’) and an album too (‘Damned Damned Damned’). The original outfit was formed by Brian Robertson (later Brian James), the frustrated founder of the early 70s outfit Bastard, Christopher John Miller (Rat Scabies) and, later Raymond Ian Burns (Captain Sensible), plus lead singer, David Lett (David Vanian).

After a useful introduction in which the reader is offered a potted band history, including the varying line-up changes, we dive into the deep history and how the group members were forged into the band, including some interesting nuggets in which the future punk glitterati mixed and flowed and danced around each other, much like the rocky detritus post-Big Bang, before the bands coalesced and formed into the institutions (oh, the irony) we know today.

It’s at this stage of the book that you perk up a bit because Vanian is quoted via interviews. That, in itself, is a plus for the book. The shy lead singer normally avoids interviews of this type.

The story follows the early scene, the chaos, the violence, the blood and the arrests, as well as the politics, whether that be touring with *The Dead Boys* or Marc Bolan.



Although as the book describes, the USA didn’t accept the band.

Accusations that *The Damned* were sloppy, unprofessional, wild and not ‘arty’ enough, prevented *The Damned* making it big. Even some of the US-based outfits were uncomfortable appearing with *The Damned*.

“[Television’s] Tom Verlaine didn’t fancy working with us” said Captain Sensible. “Obviously the word had got to him that we were a bit, um, ha ha. It was pretty mad at times. Maybe he was right. If you want an easy life, I wouldn’t work with the Damned”.

Full of detail and insight (from their connections to producer, Shel Talmy to working with Pink Floyd’s Nick Mason).

“It’s a difficult thing to say you like Pink Floyd because of what they became” said Sensible. “Two totally different bands, they became a bucket of s\*\*t when Gilmore stopped copying Syd. Syd Barrett was inspired.”

An entertaining read that focuses on the early years and skips a fair bit towards more recent times later in the tome, this book focuses on the meat of the band’s career and does so with a fast-paced, journalistic zip.

# Fair deal

**Hoping to pick up a bargain at a car boot fair? Dave Tutt takes a close look at Sony's TC377 open reel recorder from the 1970s, an item that attracts eager buyers nowadays.**

**M**any of my customers are boot fair buyers thinking they are going to make money selling on the equipment they buy, provided of course I can repair it for them. Now there are things at boot fairs that can be profitable but you do have to understand how things work, well before you part with your money.

Tape decks are a typical example. This week I have a Sony TC377 machine in the workshop. This is a reasonably decent single motor machine with heads that, even after 30 years of life are likely to still be in good condition. The tapes that were supplied with the machine though are well past it.

Renovation of one of these machines is not difficult but there are some odd things that take time to understand. First, the cloud of smoke that comes out at first switch-on is fortunately only a mains filter capacitor on the back of the mains voltage selector – so it isn't anywhere near as serious as it looks. Very pretty though – and it only happens once!

The mechanics of this machine needed a delicate clean and oil, especially around the linkages of the single function knob as it won't engage Play correctly without it.

The belts are liable to be a little loose and a new set can be purchased for £12 or so and are easy to fit. The supply reel table on my example was low and was missing a washer. This isn't easy to gauge as it varies depending on what reels of tape you use. Plastic ones will wind slightly off centre if you fit a washer to suit just metal reels. It is a compromise to some extent but provided the tape doesn't rub on the reels during winding it will be okay.

The electronics are rather more difficult to get to. There are many



***A worse for wear Sony TC377 open reel recorder (1972-1976), lacking tape reels and a control knob. This is tech. from 40 years ago! Expect to encounter more than just spiders.***

old capacitors that should really be changed. I start with those in the playback board, run a known tape back through the machine then move on to the record side. The circuit boards of this Sony remind me of those first generation pocket radio's from the 1960s. Very small and difficult to deal with and in this instance wired in place quite tightly. However, there are no on-board mechanical switch interlinks so they do come out of the machine.

Very low bias is an issue and it results in distorted low level recordings. You can see this when in Record by switching between Tape and Source – the recorded output will be almost invisible on the meters when listening to the tape. The cure is simple, although rather difficult to get to, as it's a hidden tantalum bead capacitor in the bias board.

A similar though different fault also occurs due to the tape lift arm

not moving away far enough, so that the tape doesn't quite touch the heads enough, making for a similarly weak recording.

These are all small problems that can be rectified, although it does take time to do so. Tape deck issues are not always so straightforward though.

Another customer rang me asking about the Brennell Mk5 he had just paid £50 for. These machines from experience are really not worth playing with. Many an hour spent sorting out the electronics and trying to source heads would be a waste, because doing a PAT test at the start confirms that at least one of the three motors is too electrically leaky due to the old shellac used as an insulant, whilst the Paxolin insulation and switches through which the mains passes are all suspect.

The cost of sorting these machines could actually exceed £500. Some owners say when I plug it in,

it all goes round and I have heard people say "just disconnect the earth" Oh dear! You see, one duty of a repairer is that the equipment you return to use is 100% safe, so compromising safety for convenience is not the answer.

Finally, tape deck number three is a Pioneer RT909. It's a quite beautiful looking piece of engineering and very much semi-pro in its design, being dual capstan with great meters, digital tape counter and logic controlled

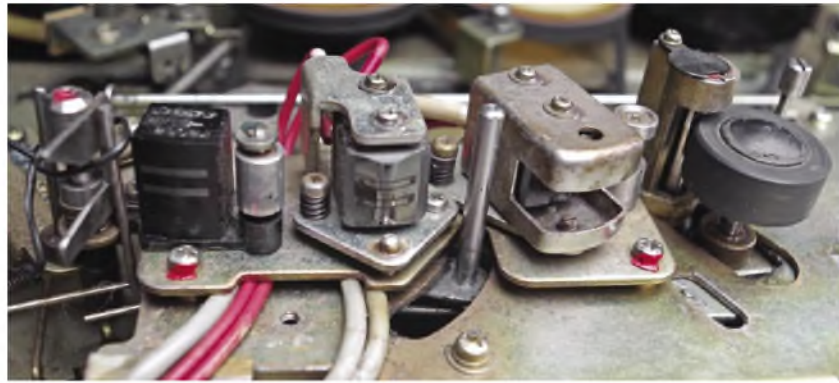


**This mains capacitor in the voltage selector fails and produces smoke. The one here is a replacement.**

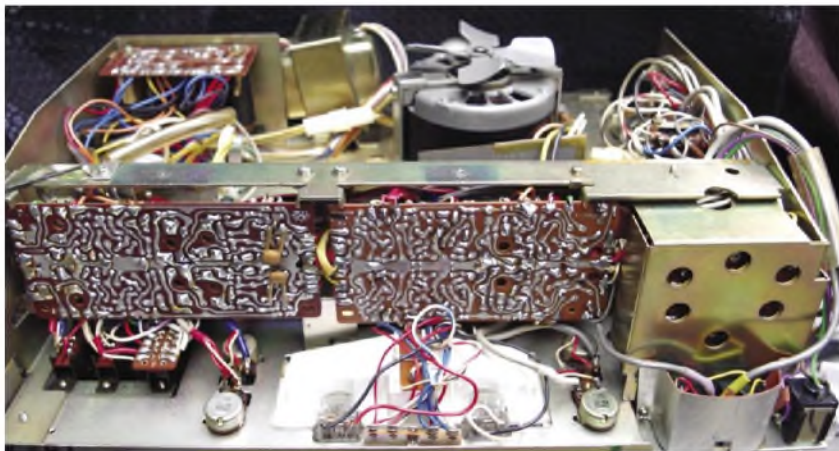
mechanism. It has it all it would seem. But in the last one I had, both pinch rollers were dripping black goo as they reverted back to the liquid that made them. Likewise, the capstan belt that wound around the pulleys had



**The motor run capacitor (polyprop). The original is a 1.5µF+0.5µF so 2µF is fine as a replacement.**



**The Sony's headblock with (L to R) record, playback and erase heads. There is a tape lift bar and at right the single tape capstan and its associated pinch roller.**



**These old 1970s circuit boards are easily accessed for repair. Access is very difficult to the steel screening can (right) that shields the bias and erase oscillator circuits and a troublesome capacitor. The metalwork is cadmium plated – not used nowadays because cadmium is poisonous.**

to be unstuck from everything. There is a company in the USA who make those unobtainable pinch rollers if you can give them accurate sizes. I was quoted £75 each!

A quick test of other bits in this Pioneer confirmed that even with the mechanics fixed it would require at least another £200 of work to make it function properly as the control logic was dead, as were the mic line preamps.

I am sure there will be those who would still love to own a reel-to-reel. Indeed, there are those with digital home studios who are looking for good decks to act as filters to turn their digital outputs to analog. However, the cost of resurrecting the many machines still hidden in lofts and cupboards is high – and pristine models on sale demand very high prices. It is easy to pick those. I would not buy, but at the same time there are many out there that may not have had much use and could be a complete bargain. It is a lottery!

Equipment that is a mix of analog

electronics, specialist mechanics and motor drives like a reel-to-reel recorder is bound to wear out and have complex repair requirements. So buyer beware. There might be renewed interest in all things analogue, including master recordings on tape and what have you, but the reality of getting a reel-to-reel running again is often costly. Best to give me a call first!

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This is a selection of what we hope to bring you, not a complete list. We regret that due to a wide range of issues, we cannot guarantee that all products listed above will appear.



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# GRATEFUL DEAD

TITLE: CORNELL 5.8.77

LABEL: RHINO



"A superb Grateful Dead live show. In fact, a superb live show, period."

**G**rateful Dead live shows are numerous on the 'net, with multiple variations of the same show in circulation around their fan bases, as well as in other Internet locations, archive.org being the principle source for all Grateful Dead live show recordings.

The reason was down to the band's open and laissez faire approach to fan recordings. God bless them that they had such an enlightened approach to the fans too. Because of it, the band has not only stayed in the public eye but their reach and presence is far larger than would 'normally' be the case. Their music is played more often and more widely and the live sources are perfect fodder for the Internet in terms of specialist group discussions, podcasts and the like and – in karmic terms – the live shows have provided a source of income for the surviving band members and their respective estates. Set the music free and treasures will return to you from the Universe...and PayPal.

This show – Cornell 5.8.77 – stands out amongst the hundreds available. I'm aware of 21 different recordings of this one show and there's probably more out there that I'm not aware of. Even on archive.org, this one show has been downloaded or listened to well over two million times from its various recording variations. Why?

Firstly because the quality of the recordings is generally high and the show is one of the best circulated shows in GD fandom.

Secondly and far more importantly, the band was on fire in terms of their performance. As one fan exclaimed, "The band played like a well oiled machine seeming to hit every progression, peak, low, transition and climax perfectly."

Allied to this was the general capabilities and performance of each band member. The mix of songs were seen as fan favourites. So what you've got here is a perfect storm of Deadness. A copy has even been added to the Library of Congress' National Recording Registry.

The 40th anniversary CD edition arrives in a fold out digipak and features three CDs that

cover the entire show. The recording source is the respected and legendary 'Betty Board' which Jeffrey Norman has mastered in HDCD.

For the CD version, what compression there may be has been applied delicately and with care. If anything, it's actually quite warm in general tonal terms but that warmth never dominates. 'Dancing in the Streets', for example, has enough upper midrange detail to provide an engaging listen.

While I was impressed by the mastering on the CD version, for the 'real thing', you'll need the five disc vinyl collection that arrives in a pizza-style box set with large format booklet included. The booklet includes a reproduction of the concert poster plus extensive liner notes plus images and a picture of the original master tape.

This version sounds as if it's compression free with an 'as is' feel that gives the concert more air and space.

Listeners not used to GD live gigs might be slightly perturbed at how subsumed some of the lead vocals (e.g. 'New Minglewood Blues') are within the surrounding instrumentation. That's not to say that these vocals are inaudible, far from it, just quelled a tad. GD fans will be used to this. There's no masking though.

This is a true live show. As such, the quality of the finished recording is top notch while many of the vocal performances are far better balanced in terms of positioning. Actually, the next track after 'Minglewood', 'Loser', is perfectly balanced in terms of vocals and instrumentation.

As for the actual instrumental quality here? Dynamic reach is rolled off through every frequency but again, a mid-70s live event will do that to you every time. What you get instead is good quality tonal recognition and a busy soundstage that provides a full and active presentation without any smearing or blooming. Hence, any Jerry Garcia guitar solo is easily found and is never subsumed by the bass guitar or percussion, for example.

This collection is a worthy addition to the Cornell concert roster and is the 'go to' version for all Grateful Dead fans. A superb Grateful Dead live show. In fact, a superb live show, period. **PR**

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