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# welcome

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## verdicts

●●●●● OUTSTANDING  
●●●● EXCELLENT  
●●● GOOD  
●●● MEDITOCRE  
●● POOR  
£ VALUE



I read dire warnings about HMV's health and future as a retailer of those spinning discs we have known and loved for so long. First they were black and shattered if you dropped them – not a great idea. They then got modern, flexy and durable and sounded rather good. Then we stepped into the modern world with lasers and now – puff – it has all gone. Well, it is going fast.

In the place of the physical comes the ephemeral.

Is a digital file there, or not? I suppose it is. Music was encoded as wiggles on one disc and as bumps and pits on its successor and then as, well, something on a memory stick or hard drive. The faster the storage mediums change the more ephemeral music seems to become, at least to me. And to poor old HMV. As I walk down aisles of CDs in their flagship Oxford Street store, as I like to do every now and then, I wonder who buys all those CDs. The answer is of course – virtually no one. Downloads overtook CD sales long ago and now you get music from Spotify, not HMV. Blu-ray music discs remain a curiosity and I doubt whether Blu-ray will ever be anything more than a movie medium, even though Blu-ray players do a great job with high resolution 24/96 digital audio of Rock concerts.

Music disappeared long ago from High Street record shops of any name. Virgin, Tower Records and others have all shut down, leaving HMV to struggle to the end. It's a sad tale in a fast-changing world, but the simple truth is digital technology of baffling complexity nowadays has a quiet grip around our unknowing throats. In a world of electronics indecipherable to all except an engineering elite, companies like Broadcom and Mediatek rule the roost, and Wolfson Microelectronics are amongst them, engineering high quality audio. This is where we are going – fast. Chips of alarming complexity now exist inside cables no less – I feel faint! These chips lie behind products from Naim, Halide, Exposure and Meridian we review this month. Outside there may be little to catch the eye. Inside high resolution digital audio is the name of the game and it's ramping up fast. We may be losing the silver disc, but we are entering a new more flexible world where sound quality remains a major issue and is quietly improving. I hope you enjoy reading about some great new digital products we review in this issue – and are not too baffled by it all. The days of the disc are over it seems.

**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.



## ELECTRONIC MAGAZINE

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Noel Keywood, Editor, HiFi World 2012

"A certain magic when it comes to absolute sound quality"

Jimmy Hughes, Hi Fi Choice 2012

"I've talked a lot about Tellurium Q of late. I've also sung its praises constantly. To be honest, I wish I had something to grump about, it would make a change but when a company gets a series of products "this right" it is difficult to say anything negative."

Paul Rigby, HiFi World 2012



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Power cable Product of the Year 2012

hi-fi+ Products of the Year 2010



Hi Fi World  
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# news

## CHORD NETWORK STREAMER

Chord has released a new digital network streamer called the DSX1000. Priced at £7,500 (or £7,830 for the nickel-plated version) the new streamer uses the company's latest-generation Field Programmable Gate Array architecture found inside the QBD76 HSD DAC and the Red Reference Mk.III CD player.

The FPGA handles all the digital data decoding, clocking, WTA filtering and the 5th generation Pulse Array DAC. The included Pulse Array DAC has been complemented with an enhanced power supply design and layout while the DSX1000's streaming engine is directly coupled into Chord's DAC technology, which re-clocks all data.

The DSX1000 includes UPnP/DLNA access and control for MP3, WMA, WAV, AAC, ALAC and FLAC files, with 24-bit/192kHz support. Features include an in-built analogue volume control circuit for accurate volume adjustment. Both volume-controlled and line-level analogue outputs feature both balanced XLR and RCA phono connections and the network connection is via a fixed-wired Ethernet port due to the bandwidth limitations of Wi-Fi for 24bit/192kHz support (Ethernet-over-mains connections can also be used if required).

The DSX1000 has a full-colour 3.5-inch TFT front-panel display showing album artwork and set-up options, but conventional control is via a front-panel cursor button that illuminates depending on the button pressed. Remote control is also available. The unit can also be controlled via iPhone, iPad and Android devices. Spanning 420x355x88mm, it weighs in at 12kg.

Call 01622 721444 or click on [chordelectronics.co.uk](http://chordelectronics.co.uk) for more information.



## THE CONCORD DAC1

Eighteen months in development, the Astin Trew Concord DAC1 offers music up to 24bit/192kHz. The audio signal outputs to a pre-amplifier or integrated amplifier through either a single ended, RCA valve buffered circuit or fully balanced XLR, using solid state circuitry. The first analogue amplification stage runs in 'Class A', the single-ended output uses a hybrid tube buffered output design.

The Concord fascia is sculpted from aluminium and offered in silver or black finish and the damped aluminium case cover is secured without visible fixings and rear mounted inputs/outputs are recessed. Two rotary switches and LED displays on the Concord DAC1 form the interface.

Two transformers, multiple power supplies, galvanically isolated inputs and mains conditioning ensure optimum operating conditions for all digital and analogue stages, while modular PCB construction future proofs this DAC. A dual-mono audio design, using two PCM1794 D/A converters, it offers a 132dB dynamic range, a THD+N of 0.0004% and true dual-mono layout from the processor onward.

The basic model retails at £3780 but further options include either asynchronous USB (£4,100) or FireWire (£4,200).

More details are available from 01491 629629 (M 07775 625312) or [www.astintrew.co.uk](http://www.astintrew.co.uk)

## CANOR'S HEADPHONE AMP

The TP10 is a new valve hybrid headphone amplifier from Canor, using a 12AT7 input valve feeding a Class-A output stage incorporating Burr Brown amplifiers and polypropylene capacitors plus circuit boards featuring patented CMT (CANOR Milling Technology): the removal of certain areas of the circuit board where high impedances occurs apparently gives the circuit similar characteristics to one direct-wired with air dielectric.

The volume control is mounted in precision bearings and connected to an ALPS Blue potentiometer via a flexible coupling. The TP10 is also housed in a resonance-damped chassis with a 10mm thick aluminium front panel while gold-plated input and output connectors are used throughout. The TP10 can drive dynamic headphones from 30 Ohms to 300 Ohms. Measuring 210x88x295mm, it weighs in at 3kg and is priced at £850. Contact 01276 501392 or click on [www.soundfoundations.co.uk](http://www.soundfoundations.co.uk) for more information.





## DAMSON TWIST

A compact Bluetooth speaker, the company asks you to: twist, pair and play using its Incisor Diffusion Technology originally developed by the U.S. Navy: it has a resonator that turns the surface it is sitting on into a de facto speaker. To operate the speaker, you turn it on by twisting the top half of its cylindrical shape against the lower half. After turning it to the 'BT' (Bluetooth) setting, you pair it with your smartphone or tablet. Measuring 56x74mm, the Twist is a portable affair and arrives with a 3.5mm audio input for wired connection and a 3.5mm output allowing you to daisy chain two or more Twists. With a wireless range of around 10 metres, the Twist's battery can be recharged using the supplied cable. Price is £80. Contact [uk.damsonaudio.com](http://uk.damsonaudio.com) or [info@damsonaudio.com](mailto:info@damsonaudio.com) for more information.

## SONOS iTUNES UPGRADE

Sonos has announced that a new software upgrade, Sonos System Software 3.8.3 in fact, now plays iTunes music and podcasts direct from an iOS device anywhere there is a Sonos speaker or player. The software update enables the wireless playback of iTunes music and podcasts direct from the iPhone, iPad or iPod touch to Sonos so you no longer have to visit your Sonos Controller for Mac or PC to import your iTunes playlist to the library on your Sonos system. Once complete, all of your iOS devices' music, playlists and podcasts are available as a music source under 'This iPhone/This iPad/This iPod'. The software can be downloaded via Apple's App Store.

For more information, click on [www.sonos.com](http://www.sonos.com) or call 0808 234 6596



## AUDIOPHILE AUDIO PLAYER

Astell & Kern's AK100 is an audio player capable of playing back data files up to 24bit/192kHz. Fitted with dual SD slots, the player arrives with 32MB of internal memory, but 96MB is possible. The first portable player to sport a Wolfson 8740 DAC, it includes a 2.4inch touch screen plus an aluminium chassis. On the sides of the chassis are buttons to control previous/rewind and next/fast forward plus a volume knob while, at the base, is a headphone output, optical input and a power button. Other features include a microUSB port, a touch screen EQ facility plus support for WAV, FLAC, APE, MP3, WMA and OGG. Price is \$699. Contact [www.audio.com](http://www.audio.com) or phone 001 971 2794357 for more information.



## BLACKBOX EARPHONES

Phitek Systems, a supplier of noise cancelling technology to the aviation industry, now offers the Blackbox C20 noise cancelling earphones. Using the signal received from microphones built into the C20s, Phitek's ANR Active Noise Rejection technology monitors and analyses sound entering the ear canal and compares this with the sound signal from the original source. ANR then generates 'anti-waves' of sound, to suppress and largely cancel-out the unwanted, external noise in the music.

Featuring neodymium magnets, the earphones offer up to fifty hours of power delivered by a single AAA alkaline battery concealed within the clip-on controller. Designed to work with Apple iOS devices, the C20 features an in-line mic/audio remote control that answers/ends calls, controls music via play/pause/next/previous functions.

The Blackbox C20s come with three different sized earbuds, as well as a cable clip, an airline adapter, an AAA alkaline battery and a protective carry case. Price is £100. Click on [www.blackboxonline.com](http://www.blackboxonline.com) for more information





## ARCAM AMP

Arcam has announced a new integrated amplifier. The A19 features a new, low noise moving magnet phono stage with improved headphone sections plus six line-inputs, one aux input and one phono input plus an expensive electronic volume control from Burr-Brown, as used on the £4,000-rated AV888, AV amplifier. The A19's audio circuits are combined with a low noise power supply built around a toroidal transformer. The A19 is designed in the UK and available in a black finish. Spanning 432x275x85mm, the 50W A19 weighs in at 8.5kg and arrives with a remote control.

Click on [www.arcam.co.uk](http://www.arcam.co.uk) for more information.



## CYRUS CONTROL APP

Cyrus Audio, is launching an iOS control App for its audiophile streaming products. Called Cadence, the new App will give users visibility over networked music and streamer feature control.

Fully integrated into the streamer via the home network, it can control the streamer to discover and 'pull' files from a UPnP library. Because the Cyrus App is linked with the streamer's own software, it gives wider control than that of third-party Apps.

The first version of Cadence will be launched for the iPad and will be compatible with iOS 5.0 and above. Variants for the iPhone 3Gs (and above), iPod touch 3rd generation and Android will follow.

The new App has been designed to complement, rather than replace, Cyrus's n-remote – a device that controls Cyrus streamers in a technically similar way but also has the useful ability to 'learn' IR remote codes for other devices. The first version of Cadence is available for free from the Apple App Store

Streamer customers with V2 variants may need a software update prior to being able to use the App but this update can be carried out for free at Cyrus retailers. Customers with earlier streaming models (V1), will need a hardware upgrade to use the App and should contact their local retailer for details.

Phone 01480 435577 or click on [www.cyrusaudio.com](http://www.cyrusaudio.com) for more information.

## FERRARI BY LOGIC3

Logic3 has released two new products under the Ferrari brand; a pair of active noise-cancelling headphones and a Bluetooth speaker dock.

The Cavallino T350 headphones include lambskin leather support, machine-crafted metal arms and housing and includes a 40mm driver incorporated into the close-backed design with Active Noise Cancellation (ANC) Technology that seals the ear pads to prevent loss of music dynamics while reducing unwanted ambient noise. It includes a 3-button, Apple-friendly, and 1-button in-line remote for mobile and MP3 devices. All cables provided with the T350 are anti-tangle, detachable and trimmed in fabric.

The Scuderia FSI Bluetooth, 2.1 speaker dock takes its inspiration from the Scuderia Ferrari racing team in its design. Powered by newly patented 'Class HD Technology' amplification and two, 52mm drivers, the Bluetooth module supports Apple, Android and Windows-based devices. The headphones will retail at £299 and the dock at £399.

Contact [www.ferrari-by-logic3.com](http://www.ferrari-by-logic3.com) for further information.



## PORTABLE TWIST

A new brand within the industry, i-box has unveiled the first in a new range of accessories for the tablet and smartphone: the Twist, a portable speaker offering wireless Bluetooth for £69.99.

A circular, illuminated, top-mounted panel provides the necessary controls. Inside the Twist's casing is a pair of 38mm full-range drivers and a passive bass radiator. Measuring 240x65x60mm, the Twist's built-in battery is charged via the supplied USB cable, each charge providing around five hours of use. In addition to Bluetooth connectivity, music sources may be connected via a 3.5mm jack – a suitable cable is supplied.

For more details click on [www.iboxstyle.com](http://www.iboxstyle.com) or mail to [sales@iboxstyle.com](mailto:sales@iboxstyle.com)





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For more information on Tannoy's extensive loudspeaker range visit [www.tannoy.com](http://www.tannoy.com)

## think thinksound

A new pair of earphones, compatible with all iPhones including iPhone 5, iPads, iPods and most BlackBerry models and smart phones, the ts02+mic features a 8mm driver set into a handcrafted wood housing. Available in two finishes – silver/cherry and black/chocolate – the ts02+mic comes with four different-sized silicon earbuds with passive noise isolation. Also included is a cotton carry pouch to carry the headphones, which includes room for an iPod, iPhone and other MP3 players.

Thinksound headphones are assembled primarily from renewable, recyclable resources such as wood and aluminium and feature PVC-free cables. The packaging is made from bleach-free recycled cardboard and is designed to eliminate much of the elaborate plastic packaging normally associated with headphones. Price is £99.99. For further details, visit [www.thinksound.com](http://www.thinksound.com).

## ATRATUS MAINS CABLE

Epiphany Acoustics has announced the release of a new mains cable in the Atratus range.

The cable itself comprises heavy gauge copper conductors, terminated with gold plated connectors at each end.

The Atratus mains cable benefits from 100% shielding, fitted to reduce the external interference. It will be available for £49.99 per metre plus £10 for an additional metre and can be bought as a customisable length, price on application.

Click on [www.epiphany-acoustics.co.uk](http://www.epiphany-acoustics.co.uk) for more information.



## RJC RACK

RJC Audio has announced a new range of hi-fi support equipment which incorporates a built-in damping system, employed to remove vibrations. Additionally, the supports are designed to fit the range of Hush Isolation Platforms. Named after mountains: Wasdale; Red Pike, Yewbarrow, Pillar, Great Gable and Scafell, the supports are available in two, three or four-shelf options with a variety of finishes including Oak, Cherry, European Walnut and Bird's Eye Maple veneers with solid wood framework and surrounds. Granite, Slate, Engineered Stone and Valchromat inserts are available in lieu of a veneered finish.

Shelf sizes vary from 600mm to 2000mm long with a depth between 450mm and 650mm. Each shelf is between 40mm and 60mm thick and able to support the heaviest of loads.

Prices start from £1750

Click on [www.RJCAudio.co.uk](http://www.RJCAudio.co.uk) or contact [rjcaudio@gmail.com](mailto:rjcaudio@gmail.com) for more information.



## CROSSFADE M-100

V-MODA has a new set of style phones on offer. Underscored by a pair of patent-pending 50mm dual-diaphragms, they feature inner and outer rings to separate the bass from bleeding into the midrange and have 'natural analogue noise isolation'. That is, there is no artificial processing or requirements for internally fitted batteries which might, says the company, "...pollute the purity of your music."

The chassis includes a strong SteelFlex headband: a steel frame with interchangeable, aircraft grade, metal shields (that can be laser engraved to feature your own logo and shield colour) plus an exoskeleton, form-fitting case. The cable has been Kevlar-reinforced, the ear cushions feature memory foam and also get a bag clip. Price is \$310.

Contact [v-moda.com](http://v-moda.com) for more information.



# icon Audio

## Our NEW Stereo 60 MK IIIm KT120

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The new MK III version of the Stereo 60 now comes with several improvements in sound and performance, and build quality. This is our biggest integrated amplifier. It is ideal for someone wanting a very dynamic fast sound. It has a big power supply, big output transformers, and uses the excellent new KT120, and comes with many features. The new super strong KT120 has caused a storm in the hi fi world, with 50% more power than the KT88. It enabled us to improve the sonics, power, distortion and reliability. An excellent alternative to a fast modern transistor amplifier, the ST60III m will deliver the finest detail of modern recordings in a more vivid way and present jazz and rock music without harshness or tizz.

**Two Amplifiers in One. The importance of Triode** The triode sound is preferred by many hi fi fans, although the power is lower in the ST60 is still ample for all but the most demanding levels. Ignored or neglected in the past we gave equal priority to the triode function so the full quality is maintained. With our UL/Triode switch you can change from 80 watts to 40 watts of pure triode sound at the flick of a switch.

**New Pure Power Amplifier 60 IIIpm** made by popular request, a pure power amplifier version of similar looks and identical specification. This matches virtually any high quality valve or transistor pre amplifier. It may even be driven directly from a single source already having variable output.

**Now with "Easy Bias" Meter** We think of our amplifiers as musical instruments. Like a piano needs occasional tuning, big amplifiers need the bias checking. This way you can be sure of 100% performance all of the time. Simple with our "easy bias" meter. If the pointer is in the "black" it's correct! Also useful to check if your valves are worn or faulty. Long term performance is important to us and this useful aid will take the guesswork out of maintaining your amplifier.

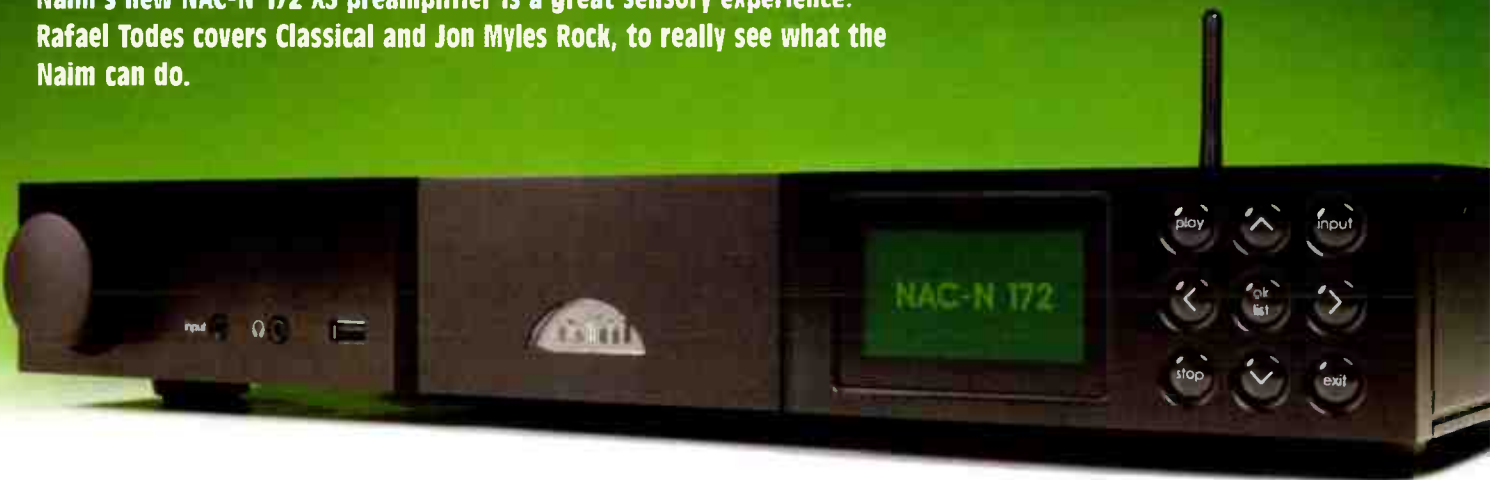
**Attractive Valve cover** Most valve amplifier covers look as though they were done as a cost saving after thought, and don't exactly enhance the look of the amplifier. They are rarely seen in advertisements. We think that something you will use every day should look attractive. That's why we use 18 pieces of laser cut Perspex assembled with a further 20 precision components. See picture on our website.

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# Pre-ception

Naim's new NAC-N 172 XS preamplifier is a great sensory experience. Rafael Todes covers Classical and Jon Myles Rock, to really see what the Naim can do.



## RAFAEL TODES, ALLEGRI STRING QUARTET, SAYS -

Looking down the specification of Naim's new NAC-N 172 XS preamp, it is surprising quite how much they have packed into this product – considering its price. I listened to it first through my own system with which I'm familiar, then through the Naim NAP 155 XS power amplifier they supplied. What follows is the sound through my system comprising VAC Auricle Musicbloccs (valve) connected to B&W 802D loudspeakers.

Listening to my stock hi-res digital audio collection, starting with the Rimsky-Korsakov "Dance of the Tumblers" on Chesky, through a USB memory stick inserted at the front of the player, I was immediately struck by the fact that the sound is significantly better than that I get from a Windows laptop, running Windows 7, Foobar with JPlay, and using the Halide Bridge as a SPDIF/USB convertor. The NAC-N 172 XS makes my current setup sound smudged and lacking in resolution. The Naim has a tautness in the bass, a speed of timing which makes the track rock impressively. The soundstage isn't the most cavernous I've heard, the Weiss DAC202 does that better, but at £5000 it should!

Having just found out about Hyperion Record's growing collection of superbly recorded high res material, I listened to the much under-appreciated Schumann D minor Violin Concerto, beautifully expounded by soloist Anthony Marwood. The preamp/DAC provides

a warm, tonally rich account of the sound, without any nasty digital artefacts that sometimes can be present. Its superior sense of rhythm seems to enjoy the pulsating triplet quavers that pervade the first movement.

Listening to a live concert recording I made of my quartet – the Allegri Quartet in Beethoven's Op18 no6 Quartet 3rd movement, the Naim really captures the heat of the live concert. Tonally the balance isn't bright, it is mellow at the top and unmistakably 'Naim' in the middle, but it reminds me of the digital I heard from the best USB/SPDIF convertors – a taught, rock-solid sound you get with very low jitter. The first-violin's Amati violin sounds tonally transformed, as does my Brescian Maggini violin, not unattractively so, but it is not strictly timbrally accurate. The top end of the instrument is a little closed-in, giving it a slightly 'pinched' sound.

I really appreciated the convenience of operating this preamp/player from my iPhone App; I could stream from any computer in the house easily, and the preamp also includes an Internet radio facility. Having just bought a Magnum Dynalab tuner, it makes Radio 3's digital efforts via the Naim sound like plastic as there is very little tonal subtlety coming through, nevertheless it's a useful armchair facility.

Trying out some CD, in the form of Ray Gelato recorded by Linn Records, playing on my Bel Canto CD2, connected using a

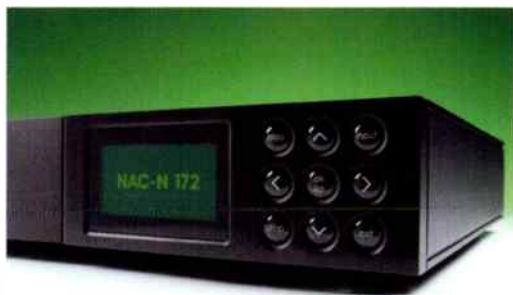
Chord S/PDIF Indigo Plus S/PDIF electrical cable, shows the NAC-N 172 XS acting as a DAC at its best. The percussion section seemed to have died and gone to hi-fi heaven: the high hat was as crisp as I've ever heard it, the drum kit positively sizzled, and the track had a driving energy which brought it alive (resurrection no less!).

Turning to some classical fodder, Nielsen's 4th Symphony the 'Inextinguishable' conducted by Herbert Blomstedt on Decca, a truly miserable epic work that



**Naim NAP-155 XS power amplifier.**

finds redemption at the end, I hear a very different sonic picture emerging. The lack of stage depth of this naturally recorded symphony sounds a great deal less organic than through the Weiss DAC202. There is good textural separation of instruments for the most part, except the midrange which is a little more confused than I am used to, but there is a lack of layering on the stage depth front. The spatial integrity here is wanting. When the first violin section have a solo line, accompanied by the kettle drum, the resultant effect is extremely powerful, due



to the preamp's ability to separate the textures. When the rest of the orchestra rejoins the musical argument, the stage seems to shrink, and that wonderful clarity is lost.

It seems that this preamp offers a hell of a bang for the buck. It will suit recordings which employ smaller forces, and that are bass-driven from the bottom upwards, like rock and percussive jazz more than classical, or naturally recorded music. I particularly liked the way the USB memory stick at the front demonstrates a huge capability to play high-res

on Decca. I noticed a much tighter rhythmic drive than my VAC Auricle Musicblobs (valve) are capable of, the extraordinary and indeed revolutionary use of polyrhythms being showcased with powerful yet precise drive. In particular the percussion was revelatory, and the power amp had ample resources to drive my B&W 802Ds to new exalted heights. Clearly the use of a valve phono stage with this combination is an interesting and fruitful one.

Turning to CD and a grand orchestral work – Nielsen's 4th Symphony, Blomstedt on Decca, played through my reference Bel Canto CD2 transport and both my Weiss DAC202 and the NAIM preamp's internal DAC, via electrical S/PDIF, yielded something of a disappointment. The soundstage had been collapsed compared to my valve monoblocs, and tonally, the midrange had lost the lovely tonal palette that I normally hear, swapping it for a

vibrant, toe-tapping and fast.

Obviously, I am skewed in my preferences towards the thermionic, but for me, the NAP 155 XS performed best with the combination of a valve phono stage, which seems a great antidote to the inherent characteristics of the power amp, the phono stage having a complex tonality in the midrange, superior spatiality, but a weak bottom end which lacks the tightness of Naim's typical fare. The high-res nature of the Inspire Monarch contributed positively to the symbiosis of these components.

The 155 XS has a creaminess to it that is different in quality to the brighter Naim kit of yesteryear, there has been a subtle but significant development to the 'House Sound' which I appreciate. I can also see that for music which is percussion-led, like the 'Rite of Spring' or Rock and Jazz, this power amp has the right qualities to be greatly attractive to a listener

**Inputs and outputs now through conventional phono sockets (at last!) as well as trad. Naim DIN sockets.**



material convincingly, much more so than any laptop solution I've had the pleasure to review. The iPhone iPad integration is superb, and even the built-in headphone amplifier performs well. Naim's NAC-N 172 XS preamplifier is a lot of well-engineered audio for the price.

**WITH THE NAP 155 XS**

It is rare that I find huge discrepancies in how a piece of hi-fi performs across different inputs, as with the NAC-N 172 XS preamplifier connected to the NAP 155 XS power amplifier Naim supplied to match it. There is normally a consistency to a unit's characteristics that transcends what is playing. However, with this combination I was stumped.

Using my all-valve Icon Audio PS3 phono stage feeding the preamp's analogue inputs yielded some stunningly powerful results from LP. The first piece I listened to on my Inspire Monarch turntable with an Ortofon Cadenza

Bronze in an SMEV arm was a vintage recording of Stravinsky's 'The Rite of Spring', Solti conducting the Chicago Symphony Orchestra

pleasant but far less subtle version, a touch desiccated and rubberised.

Yes, the bass was full and tight and highly attractive, but the midrange was missing a trick or two. The Weiss' party piece of separating a violin section, enabling the listener to feel the weight of the different players' contributions had disappeared, in its place was a narrow and smudged version which was far less involving. With this pre/power combination, I found it much harder to distinguish between the Weiss DAC and the internal DAC of the NAC-N 172 XS, the power amp in its transformations had minimised these differences.

Similarly, listening to the tuner input, and in particular my Magnum Dynalab MD90TSE, a virtuoso amongst tuners, the subtleties that this great product can bring to a live Radio 3 broadcast were minimised. The tuner has an almost magical ability to introduce very accurate spatiality and weight to a live concert, with a gloriously beautiful oak-like timbre to the string sound. Under the Naim's tutelage, this was eroded.

Listening to Ray Gelato (CD) on Linn Records once more yielded an attractive and impressive result. Recorded using multi-tracking, rather than real 3D mic'ing, with heavy percussion, the sound was throbbing,

and will make many friends.

For my own personal tastes and requirements, it doesn't do enough in the areas I value and enjoy, quite in the right way. I also find that with my reviewer's hat on, it is much harder to discern the contribution of other components in the chain as the NAP 155 XS lacks the transparency I need to hear subtle differences.

**JON MYLES SAYS -**

**T**o say Naim has enthusiastically endorsed the brave new audiophile world of streaming music would be something of an understatement.

Their range now stretches from the sub-£1000 UnitiQute to the heady heights of the flagship NDS which comes in at £6250 without power supply. And now comes the NAC-N 172 XS – basically a pre-amp with streaming facilities priced at £1650.

In effect Naim sees it as an ideal starting point for adding network attached storage to an existing system – or alternatively starting afresh with one of the company's own power amps. And let's be frank, the latter combination is how the majority of 172s will be used because that's what Naim owners do. Which



in a way is shame – because this pre-amp is good enough to fit into a variety of systems.

I'll admit to being a bit of a Naim fan and regularly use a Supernait for everyday listening. And for those who say they don't 'get' the Naim sound it's worth noting that the overall balance of today's equipment is a lot smoother than that of previous years. The NAC-N 172 XS is a case in point. Hooked up to the supplied NAP 155 XS and it showed its talents immediately. Yes, there's still those almost clichéd Naim talents of pace and the ability to pull a rhythm out of almost any piece of music – but it does it without any sense of heavy-handedness.

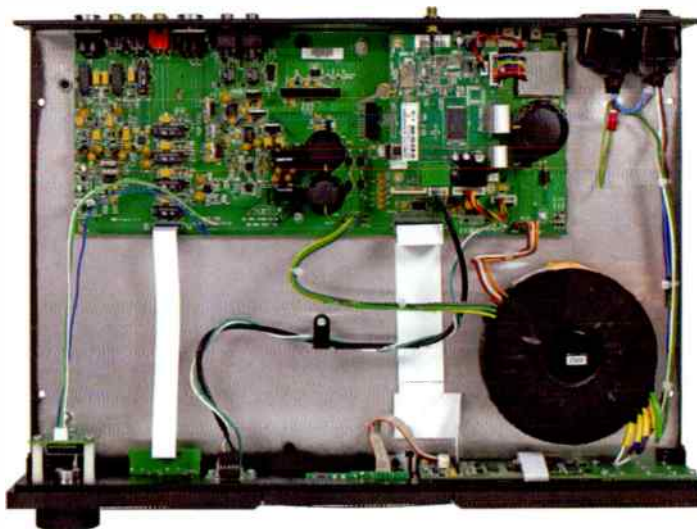
Barb Jungr's 'The Men I Love' sounded deliciously rich – the Naim combination delivering a wide soundstage that positively oozed atmosphere. It has a seemingly natural affinity for vocals – Sinead O'Connor's 'Sean Nos-Nua' sounding similarly detailed and vibrant.

Switching to streaming from a RipNAS and the NAC's ease of use was exemplary. It picked up the network immediately and the iPhone/iPad N-Stream App is simplicity itself to use. But it's the music that counts and the Brian Eno/David Byrne 'My Life In The Bush Of Ghosts' collaboration played to the 172's strengths. It's an album of studio trickery and densely-layered samples which on the wrong system can sound

a bewildering mess. But the Naim effortlessly portrayed the various strands, making it easy to hear right into the mix. It was the same with Steve Reich's 'Different Trains' – the sometimes murky sampled vocals actually becoming crystal clear. Was streaming better than CD as some people claim? Probably not – but it's certainly close.

What was better though was a high-res download of the Neil Cowley Trio's 'The Face Of Mount Molehill' played through the front-facing USB port. Here the strength of the Naim's internal DAC showed itself – with a palpable sense of greater air and space around the instruments. Of the pairing, there's no doubt the pre-amp is the star of the show.

I briefly connected it to a Naim NAP 200 and the obvious benefits of this power-amp's greater resolving power showed through. There was a definable leap in resolution and authority – showing the NAC-N 172 XS can hold its own in more



Modern chips and miniature surface mount components occupy a compact circuit board, spaced back from front-displays and large toroidal mains transformer (right).

expensive company.

If there's one minor criticism to be levelled at the unit it's the fact that if you're a non-iPod / iPhone / iPad user then you'll be stuck with the Naim remote control because at present there is no Android App. It's not a deal-breaker, but it does negate some of the convenience of streaming.

Apart from that, this is a very accomplished product from Naim. For the price it's an excellent pre-amp offering all the connectivity you'll probably ever need. Whether you are new to Naim or already a user, it's well worth a listen.

**VERDICT** ●●●●● £

A top quality preamp/network player from Naim that impressed both our reviewers. Great quality and value.

**NAIM NAC-N 172 XS** £1650

Naim Audio

+44 (0)1722 426600

www.naimaudio.com

**FOR**

- streaming capability
- excellent DAC
- dynamic sound
- iPhone/iPad App

**AGAINST**

- no Android App

**MEASURED PERFORMANCE**

The preamplifier has a useful x5 gain (14dB), that translates back to an input sensitivity of 200mV for 1V output to a power amplifier – enough to drive most power amps to full output. Frequency response measured 4Hz-59kHz – adequately wide, especially by Naim standards as they commonly bandwidth limit their power amps to 22kHz. It overloads at 9V output, a normal enough figure.

Frequency response through the electrical S/PDIF inputs reached just 24kHz (-1dB) with a 192kHz sample rate S/PDIF input, our analysis shows. A figure of around 35kHz is common and the hard upper limit is 96kHz, so this figure is low, but it is within Naim's philosophy of bandwidth limiting.

The optical S/PDIF worked reliably up to 96kHz sample rate and frequency response was identical to that for 192kHz sample rate, the upper -1dB limit being 24kHz and the -3dB limit 30kHz.

This result also applied to USB when playing 24/96 wav files from a memory key, and when reading the same files from a computer via ethernet. Both USB and Ethernet were a little noisier than S/PDIF but the Naim was, all the same, quieter than most rivals, with a -98dB noise floor, IEC A weighted.

Distortion at -60dB via S/PDIF measured 0.21% with a 16bit signal and 0.06% with a 24bit signal, both low values for the resolution

available, although 24bit can manage 0.02% and noise raised the Naim value a trifle. All inputs gave this result. EIAJ Dynamic Range values were 102dB (good) for 16bit and 108dB for 24bit (fair).

Naim use good quality, low noise receiver chips in their network products, including the NAC-N 172 XS digital preamp tested here. It yields excellent results. But Naim have chosen to bandwidth limit this preamp's digital inputs to 24kHz (-1dB) even at 192kHz sample rate where 96kHz of analogue bandwidth is theoretically available. This is in line with their power amps though, which are also bandwidth limited to 24kHz. It maintains the Naim warm, smooth top end. NK

**PREAMP**

Frequency response (-1dB)	4Hz-59kHz
Gain	x5 (14dB)
Overload	9V out

**S/PDIF / USB / Ethernet  
Frequency response (-1dB)**

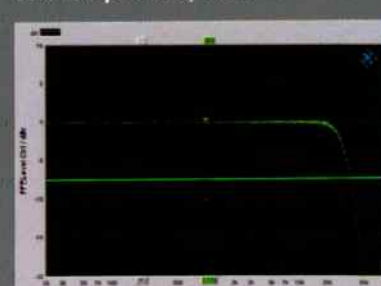
192k sample rate	4Hz - 24kHz
Distortion (16/24bit)	%
0dB	0.04 / 0.04
-60dB	0.21 / 0.06
Separation (1kHz)	112dB
Noise USB (IEC A)	-98dB

Dynamic range Output 102 / 108dB  
9V max

**FREQUENCY RESPONSE  
192k sample rate, S/PDIF**



**FREQUENCY RESPONSE  
96k sample rate, USB**





### MC88-C STEREO INTEGRATED AMPLIFIER

Output Power : 50W x2

Vacuum Tubes : (special) KT88x4

(JJ) ECC83 x2 (JJ) ECC82 x 2

INTERNATIONAL FAMOUS BRAND



### MC34-ASE STEREO INTEGRATED AMPLIFIER

Output Power : 38W x2

Vacuum Tubes : (JJ) EL34 x4

(JJ) ECC83 x2 (JJ) ECC82 x 2



More information, please visit its website.

<http://www.mei-xing.com>

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**WIN A PAIR OF  
WHARFEDALE DENTON  
80TH ANNIVERSARY  
EDITION WORTH £500 IN  
THIS MONTH'S GREAT  
GIVEAWAY!**

**H**ere's your chance to win a pair of Wharfedale Denton 80th Anniversary Edition loudspeakers worth £500. Read about them here and answer the questions, at right on this page.

"It takes a company with a certain chutzpah to release a product harking back 45 years. But then again not every company is Wharfedale – with all the heritage that famous name brings with it.

What better way for the iconic loudspeaker brand to celebrate its 80th anniversary than by revisiting one of its most popular models? The

new, limited-edition Denton compact standmounter does just that.

The original Denton hit the market in 1967 and became one of the then Yorkshire-based outfit's biggest-selling models – bringing a taste of high fidelity to those who couldn't afford Wharfedale's more exotic (and expensive) speakers.

In fact, there are more than a few of the originals still in use, as a quick look at any number of internet auction sites will testify.

What you get with the new Denton is a decidedly retro looking loudspeaker boasting a beautifully veneered Mahogany cabinet, inset front baffle and traditional cloth grille.

But beneath that 1960s fascia things inside are very different indeed. The original model's paper cone mid/bass unit is replaced by Wharfedale's own 21st century 125mm woven Kevlar driver while the tweeter is a bang-up-to-date 25mm textile soft dome.

Round the back are a pair of small rear ports and sturdy off-set bi-wire terminals.

Sensitivity is quoted at 86dB with a 6 Ohm nominal impedance.

The whole package measures 320x200x305mm – slightly deeper but not too far off the originals. The new Denton may hark back to the past but there's no doubt it looks and feels fantastic."

For a chance to win this great prize, just answer the four easy questions at right. Send your entries on a postcard only, by 31st January 2013 to:

**February 2013 Competition,  
Hi-Fi World magazine,  
Unit G4, Argo House,  
Kilburn Park Road,  
London NW6 5LF**

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## QUESTIONS

**[1] How far does it "hark back"?**

- [a] 5 years
- [b] 2 days
- [c] 45 years
- [d] yesterday

**[2] What Anniversary is celebrated?**

- [a] 80th
- [b] 50th
- [c] 2nd
- [d] silver

**[3] The mid/bass unit is made of?**

- [a] plastic
- [b] bubblegum
- [c] Kevlar
- [d] Glass

**[4] How big is the tweeter?**

- [a] 10mm
- [b] 6in
- [c] one foot
- [d] 25mm

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**entries will be accepted on a postcard only**

**NOVEMBER 2012 CYRUS 6 DAC WINNER:  
Mr J R Sayers, Kirriemuir, Scotland**

# Pre with power



**Meridian Audio recently launched their 818 preamplifier. Rafael Todes auditions a modern and complex product and Noel Keywood adds valve amps.**

**T**he Meridian 818 is a high quality preamplifier and DAC that lives at the heart of a Meridian Digital Media System (formerly Sooloos).

It can be used as a stand-alone preamp and DAC and indeed was sent for review as a solo item, but it is designed to integrate into the heart of the wider Meridian Digital Media System. We asked Meridian to supply the M6 active loudspeakers to be able to get it into context.

The 818 feeds a digital signal to the M6 speakers via a Cat 5 digital 'ethernet' cable; Meridian loudspeakers all have in-built DACs and power amplifiers. This avoids the issues that speaker cables bring. In addition to this digital speaker link, there are also unbalanced analogue phono outputs, as well as balanced XLR outputs, to drive a conventional power amplifier. Both are fed from an internal DAC.

The user is spoilt for choice by

a wide range of inputs. There are six unbalanced analogue line inputs, three digital coaxial S/PDIFs, five Toslinks (optical S/PDIF), and a USB. The maximum sampling rate that can be handled by S/PDIF is 24bit/96k – disappointing for a unit of this price. USB accepts a 192kHz input but gives 24/96 results in our tests. At present there is little 192k around and – subjectively – differences between 96kHz and 192kHz sample rates are hard to discern. Often there is no measured difference either, certainly with the 818 and with Naim's NAC-N 172 XS review this month. So lack of 192kHz ability isn't of great consequence in real terms, but it is in the specs war as all digital processing is moving towards 192k capability. In the broader digital picture however, 24bit resolution is more important than sample rate and here the 818 was peerless in our tests.

The unit comes in either elegant black lacquer, graphite, or silver metallic finishes in metal and glass,

with other Meridian colours also available. With dimensions of 75mm (6.9in) x 480mm (18.9in) x 411mm (16.2), the 818 is a substantial size. A 20-character green LED display gives information about input/volume etc, easily readable from a typical listening seat. A good range of controls are available on the front panel and depressing a flap, it flips open and further controls are revealed.

Meridian supply a high quality bespoke remote control, that is comprehensive and substantial in build.

To hook up the M6 speakers requires a Cat 5 lead to one speaker, the second being connected in a daisy chain to the first one, or they can be connected individually as normal. As the output to the Meridian M6 speaker is digital, (24/96) this means that whilst the 818 can accept analogue inputs, say from a phono stage or FM tuner, the analogue signal is converted to a digital one (24/96) through an



**The 818 has a vertical array of unbalanced analogue inputs (left) via phono sockets. There are optical and electrical S/PDIFs too. Unbalanced and balanced (XLR) analogue outputs are fitted and these can feed any power amplifier.**

analogue-to-digital convertor (ADC), sent along the Cat 5 cable, before being converted back to analogue by a DAC built into the speaker. This is a lot of extra processing, and inevitably it will appeal to the more 21st century-facing punter than the 20th century lover of analogue! There was no 'pure direct' bypass switch to skirt this processing to digital and back again, as there is in AV receivers.

For those unfamiliar with the Control 15 (formerly Sooloos) interface, it comes in the form of a touch-screen. When set-up, pictures of your CD collections appear on the screen: touch them, and they will play. It is one of the most appetising and convenient ways to play CDs, and it represents in my opinion the state of the art.

Equally conveniently, CDs can

**Meridian M6 loudspeakers**



also be selected by an iPad interface, and the volume levels can be altered with this, or the remote control unit.

Ripping CDs is about as simple as it gets, the screen has a slit into which you insert a CD, and a few minutes later, the CD is returned, with all the tracks labelled reliably.

**SOUND QUALITY**

To see exactly how the 818 behaved I played it through my reference system, a Bel Canto CD2 transport and VAC Auricle Musicblocs driving B&W 802D speakers. This way I could see what the 818 was doing compared to my reference Weiss DAC202, and what exactly this piece of kit is contributing – or not!

Starting with the Beaux Arts Trio playing the final Mozart Piano Trio, beautifully recorded on Philips, yielded a soft and gentle sound. There were definitely no rough or sharp edges, but the sound of the piano had an understated leading edge, so whilst I heard a rounded sound, I was not hearing the very beginning impulse when a note is created by the hammer hitting the string.

The tone of the violin was good; I have heard greater complexity from my reference Weiss DAC, but the Meridian has a thoroughly pleasant sound. Spatially the players are reasonably well defined in the room, if not what I'd classify as 'holographic'. Whilst the sound has a beauty to it, I'd like to feel more

involved with the micro-dynamics but could not help feeling that some of the nuances created by changing bow speed were being underplayed. I can't quite feel the 'air' in the studio like I can with my reference DAC, playing commercial recordings or my own of the Allegri String Quartet, in which I play.

Listening to Colin Davis' Philips recording of the Beethoven Symphonies, yielded a mellifluously full-bodied sound. It's the sort of sound which is confident, and rounded, not squeezing every detail from the music, but the sort of thing



**Meridian Control 15 touch screen display.**

I'd love to hear after a long day at the office, if indeed I worked in an office – which I don't! My attention wasn't pointed to the insight of the DAC/Pre and the information it was throwing up, rather to the unity of the whole orchestra and overall coherence of sound.

Claire Martin's Linn album 'Offbeat' came off well with this DAC/Pre, Martin's characterful voice comes across with real quality, slightly husky, laid-back, and you can almost smell the cigar smoke! The DAC copes well with the small forces at work, and is well suited to this type of music.

**M6 SPEAKERS – RAFAEL SAYS.**

Looking like the tip of a nuclear warhead, these speakers have a single 3inch front firing driver at the top of the cabinet together with a downward-pointed woofer. It is fed by a digital signal using cat 5 cable, and may be daisy-chained.

Listening to the opening of Mahler's 2nd Symphony, Simon Rattle conducting the CBSO on EMI, the opening statement consists of the bass and cello section in unison, grunting for their dear lives! The speakers seem to have problems coping with this, the bass booms and the treble sounds muffled. There seems to be a lack of definition and space.

Turning to Ray Gelato in "Basin Street Blues" skilfully recorded on the Linn label sounds a lot better, the bass is once more over-represented, but the combination of instruments individually miked seems to cause fewer problems, Ray Gelato's voice sounds natural, the band sounds vibrant and toe-tapping. These speakers are more comfortable with Jazz/Rock than Classical, or smaller forces. They can put on a relatively strong performance when the forces present are few in number, but are found wanting with a scaling up of the personnel involved. Rafael Todes

**CONCLUSION**

This Pre/DAC has many virtues, not least of which is its rightful place in the Meridian Digital Media System, and the convenience and sheer usability it brings to storing and listening to CDs. It is handsomely designed and built, and produces

an exceptionally beautiful sound for someone wishing to enjoy their music in a non-analytical way. As a product with an eye towards "lifestyle", it is extremely strong and has to be one of the best examples in terms of design, ease-of-use, and sonic beauty of its class.

Reference system  
 VAC Auricle Monoblocs  
 B&W802Ds  
 Chord Indigo Plus SPDIF cable  
 Townshend Allegri Preamp  
 Bel Canto CD2 Transport  
 Tellurium Q Ultra Black Speaker Cable  
 Weiss DAC202



**NOEL NEWWOOD SAYS**

The 818 is big, its rear panel covered in digital inputs and outputs. There are numerous pre-sets to be made too, like input gain and output function. Meridian expect a trained dealer to install it. Once set up it is easy to use.

The analogue inputs are converted to digital then back to analogue before the outputs: there's no Pure Direct bypass function found in AV receivers to avoid this surfeit of processing, as well as avoid input overload of the ADC that we suffered. Some AV receivers have an overload warning light and switched input attenuator; the 818 needs at least a warning light.

Another missed trick is absence of a recording output via USB. It's a pity, because Meridian's ADC is very high quality and would suit recording of LP nicely.

Also missing are a headphone output, iPod 3.5mm jack socket analogue input and USB memory stick input on the front panel. Getting high resolution digital downloads, say from HD Tracks, requires a Control 15 with its internet connection, since the 818 lacks network connectivity.

What you get with the 818 used as a digital pre-amp is LP replay, using an external phono stage, and a super high quality DAC for CD replay. You also get one of the best USB inputs available for replaying computer audio. The USB input plays 24/192 files, our measurements showing an analogue bandwidth to 31kHz so they're probably downsampled to 96kHz.

**SOUND QUALITY**

I first used the 818 with the M6 loudspeakers. Measurement suggested the M6s should be listened to off-axis and in use I found pointing them outward by around 10 degrees smoothed their treble peak and gave a capacious wide sound stage – nice. They sounded fine in terms of basic balance when I was seated but their upward tilted drive units sounded distinctly brighter when standing. Images were stable, if not hewn in stone.

The M6s sounded clean across the midband and quite explicit. The loudspeakers are not fulsome in their tonal balance, but quite dry and academic, underpinned by big bass with the 'Free' room-matching setting. As Rafael noted, bass quality is inflated but it put heft behind heavier tracks like Adele's 'Rolling in the Deep', from CD.

Selecting Corner in the room matching menu (plateau bass cut) tightened up bass, improving pace and timing. Spinning Phil Collins singing and drumming his way through 'I don't care anymore' from the LP of 'Hello, I must be going' (on 180gm vinyl) had the M6s sounding tight and punchy. I enjoyed this, using an Ortofon 2M Black running through an Icon Audio PS1.2. But the high output 2M Black and PS1.2 produce 9V and grossly overloaded the 818's 2V analogue input, producing a gritty sounding mess. Turning volume down on the PS1.2 stopped this. Then the 818 did very little to subjectively 'digitise' the sound, although the warmth and fullness of the PS1.2, with its valves, helped ameliorate the system's dry and concise presentation.

Dave's True Story 'Misery' in 24/96 from my MacBook Pro via USB came over as super smooth, richly detailed, with great dynamics and stable images. The Eagles track 'I love to watch a woman dance' slid by sounding movingly intense (a CD



rip that sounds better than the CD!) with Glenn Frey clearly outlined, the M6s keeping a tight grip on tempo. Drum strikes were fast and clean, with plenty of oomph behind them and the gentle run down at the end of this track was perfectly described in the time domain. Sound quality from computer audio via USB was about the best I have heard to date.

Removing the M6s, I connected the 818 to our big Icon Audio MB845 MkII monoblock valve power amplifiers, driving Quadral Wotan VIII's loudspeakers. Heavens! Even playing the compressed and messy 'Stairway to the Skies' from Within Temptation, a ropery iTunes Plus download at 320kbps that I can hardly bear to listen to, brought forth a wonderfully strong and punchy sound, far less messy than usual.

Running through a wide selection of CD rips and high resolution 24/96 tracks from the MacBook Pro showed the 818 drove this system wonderfully. I also got great results from LP and CD. This system shaded the M6s, sounding lushly smooth, big hearted and deep in sound staging, but it was double their price at £9k. The single forward firing drive unit of the M6 was eclipsed, as you might expect.

What was fascinating was how good the 818 sounded, clear cut and super clean – and a perfect match for our valve amps, believe it or not. Meridian's digital processing is peerless and it is apparent. I ended up very impressed by the 818. It is a step up on most else in terms of digital processing, although functionality is limited considering its high price.



*Meridian M6 loudspeaker 'all natural' – sack removed. At top is a single 3in full-range drive unit. Firing downward is a 6in bass unit, in a ported chamber. Inside each diagonally-connected M6 is a DAC, DSP processing unit TCVV power amplifiers.*

## MEASURED PERFORMANCE

### MERIDIAN 818

The preamplifier has a wide range of gain values. The unbalanced phono socket output offers x6 right up to x34, according to input gain setting. The XLR output offers double this, x12 up to x70. However, the analogue inputs feed an ADC and this sets low input overload thresholds. The highest is 2V, with an overly optimistic '2.5V in' gain setting selected (x6). Increasing gain decreases the input overload threshold, all the way down to 0.34V. Most CD players would overload the highest threshold of 2V, so a digital connection must be used for CD. These figures are OK for most tuners and phono stages and x6 gain with the 2.5Vin setting is plenty enough to drive power amplifiers (x3 is a common gain value for preamps). Output overload is a low 3.4V from the unbalanced phono output sockets, but double that at 7V from XLR.

Like AV receivers, the 818 analogue inputs feed a 24/96 Analogue-to-Digital Converter (ADC). This sets an upper frequency limit of 30kHz. It was linear, producing little distortion of 0.12% with a -60dB analogue input, full gain through the XLR output, and most of this was noise. The noise floor measured -102dB using a 24bit quantised -60dB test tone notched out, to measure the true noise contribution of the ADC and this is impressively low as ADCs go. So analogue to digital conversion is a high quality process through the 818.

The S/PDIF inputs, optical and electrical, worked to 96kHz sample rate and frequency response extended to 32kHz (-1dB) before rolling down smoothly. Distortion was very low with both 16bit and 24bit quantisation, the latter returning 0.014% distortion at -60dB, the lowest we have measured.

The same performance was provided by the USB input. USB was unusually quiet and distortion free (0.08% at -60dB, 24bit), managing a massive 112dB EIAJ Dynamic Range with a 24bit signal. Although USB played a 192kHz sample rate input, frequency response was the same as that of a 96kHz sample rate signal, being limited to 32kHz and the 818 likely down-samples to 96kHz.

The 818 turns in some great figures, but it must be set carefully to avoid input overload. All

analogue inputs run through an ADC then back out through a DAC to the analogue output. The USB input performance was the best we have measured to date and S/PDIF the best too. The ADC was also technically immaculate. NK

<b>PREAMP (analogue in)</b>	
Frequency response (-1dB)	4Hz-30kHz
Gain	x6-x70
Overload (phono/XLR)	3.4 / 7V out
Distortion (-60dB) analogue in	0.12%
Noise	-101dB

<b>S/PDIF / USB</b>	
Frequency response (-1dB)	
96k sample rate	4Hz - 32kHz
Analogue input	4Hz-30kHz

Distortion (16/24bit)	%
0dB 0.04 / 0.04	
-60dB	0.19 / 0.012
Separation (1kHz)	114dB
Noise USB (IEC A)	-110dB
Dynamic range (EIAJ, 24bit)	112dB

### MERIDIAN M6 LOUDSPEAKER

The M6 has a forward firing, full range 80mm alloy cone drive unit, from which the central dust cap radiates high treble. This gives a peaky response (green trace). However, off-axis or with treble set to -2dB (yellow trace) gives a near flat result. On the plus side, there is no crossover dip in the response at 3kHz to soften detail.

The important midband measured flat and here the M6 was nicely accurate and should give an even sound free from coloration.

Bass from the downward firing 140mm alloy cone driver lifts strongly around 100Hz, enough to give subjectively 'obvious' bass; dialling up Corner in DSP instead of Free usefully reduced the peak by a few dB.

Bass lift in small cabinets increases the amount of low frequency energy pumped backwards into the cabinet and it comes out through the cone as delayed information, smearing bass; our 200mS decay map shows this as red 'hot' zones.

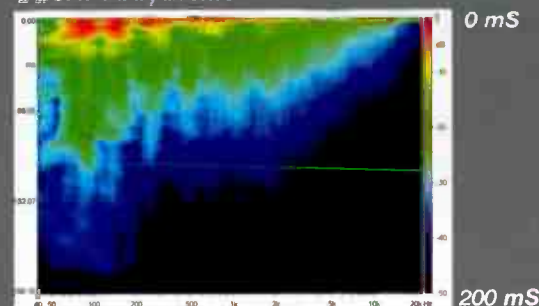
The small M6 has many good features but treble could usefully be smoothed and bass performance improved. NK

### FREQUENCY RESPONSE

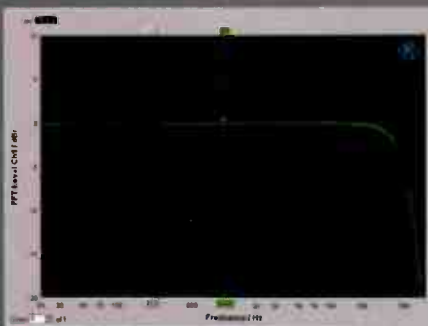


Green - on-axis; yellow off-axis  
Red - port output

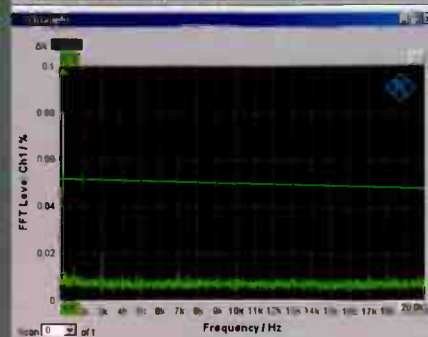
### DECAY MAP, 200mS



### FREQUENCY RESPONSE, 96k



### DISTORTION, USB, 60dB, 24bit



**VERDICT** ●●●●●  
A complex and advanced preamplifier best in an all-Meridian system, but good outside it too.

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<b>MERIDIAN 818</b>	£7,500
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# Top Ten

Exposure has released a high quality DAC. Paul Rigby reviews the 2010 S2.



**E**xposure's 2010 S2 DAC is the company's first foray into the genre. According to the unit's designer, Tony Brady, "We could see that there was a market. CD player sales were falling so we believed that we'd better get into DACs. We were also producing the high-end MCX which arrived with four separate DACs within, so the concept wasn't entirely new to us".

This model started out as a more expensive design but I could see that there were a lot of competitively priced DACs around £500-600 so I thought that we'd better get in there first, instead".

The 2010 S2 DAC is flexible and can be used as a pre-amp and headphone amp. It also has a remote control. Inside the silver or black aluminium chassis, which measures 90x440x310mm and weighs around 5kg in total, the layout betrays the DAC's antecedents, specifically, the 2010 S2 CD player. It has the same chassis, the same toroidal power supply and transformer. The new DAC even began with the same output stage but that was upgraded to all-discrete for extra performance. No Op amps are featured.

"The DAC is a Wolfson WM8742" said Brady. "Part of the reason for the choice is because it has a volume control. We normally use Burr Brown but not all of those have volume controls. Using a DAC with a volume control means that I can offer a pre-amp option. So, if you

have a digital source, you only need to add a power amp and a pair of speakers and you're off".

Also featured are five, built-in filters. Filter 1 is a default while the others, according to Brady, include variations in treble roll-off. You will also find a more expensive Wolfson input receiver plus an asynchronous USB socket with its own clock which promises higher quality sound over an adaptive mode. "Other people have the asynchronous USB software written for them but I write my own. I like the challenge. If you do it yourself then you know exactly what's in there. Otherwise you get a basic solution which isn't as tweaked up as you might want".

The button-festooned panel is lifted from an Exposure tuner to reduce costs and includes a menu system to change the output from line to headphones with a fixed or variable volume, filtering and a defeatable display to improve sound quality.

I found the menu cumbersome and awkward to use. Frustration set in when wrong buttons were pushed and when particular sequences were required to do a particular job. The panel is also the cause for the 3.5mm headphone socket being placed on the rear. I much prefer a front-fixed socket for convenience, it prevents you fiddling around in the shadows and it maximises the length of the headphone cable.

At the rear of the chassis, you'll also find a selection of BNC and

optical connections, but no phono socket coaxial S/PDIF that many prefer to optical. BNC is a better connector, for technical reasons.

## SOUND QUALITY

Listening tests began via Stevie Wonder's 'That Girl' with the Exposure plugged into a Fidelity Audio modified Cambridge Azur 640C V1, Rega Brio-R and a pair of Spendor S3/5R2 speakers perched upon a Magic-Rack shelf and Track Audio Precision 600 speaker stands.

Playing this album, using wideband Filter 3, the output was clean, Stevie Wonder's vocal seemingly expanded, giving it a greater presence within the soundstage. Distance existed between the background vocal and the lead vocal, giving more structure to the presentation. Detail was just a tad sharp and edgy, especially within this eighties' vintage production. Percussion started and stopped on a sixpence and treble was informative, displaying presence within the mix.

Moving to Bruch's Violin Concerto No. 1, the Exposure played the Adagio with an emotion that revealed its drama and pathos, well supporting the backing orchestra and presenting a grand picture. The soloist's upper mid-heavy performance was infused with a particular clarity that gave it a

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dynamic presence and power.

Looking at our test figures, the best contrast for the wide bandwidth of Filter 3 was either Filters 4 or 5. I chose 5 as a contrast and returned to Bruch. The differences in Filter sounds were quite subtle but noticeable within the upper

mids with Filter 5. The violin soloist now played within his own area. This moved the solo violin further back towards the orchestra, providing a more balanced and civilised picture. The odd sparking frequency variation, heard with Filter 3, had been eliminated.

Moving to Stevie Wonder, drums had a touch less bite with Filter 5, aiding the Wonder vocal. Previously, the percussion did attempt to dominate the mix. As such, the piano was now slightly more prominent within the mix.

Switching to the USB input, I played the 24bit/96kHz FLAC of Rimsky-Korsakov's 'The Snow Maiden - Dance of The Tumblers' on my MacBook Pro. The Exposure was connected in this test to my reference Acoustic Energy Radiance One speakers, Rega Mira amplifier, Tellurium Q Black USB cable. An Arcam rDAC had been in use, cheaper than the Exposure at around

£300, but it often out-performs more expensive DACs.

After a few seconds of listening to the Exposure as a computer-based DAC, it is obvious that this is where the Exposure DAC finds its milieu. It comes alive with a rich, detailed and dynamic midrange, powerful bass and delicate, rather fragile treble. The entire soundstage was broad, conveying the drama of the piece brilliantly.

Energy levels are high with a clarity on offer that was delightful, it had me listening ever closer to newly discovered detail. Strings had a mass and dynamic power while brass displayed a rich tone and secondary percussion was feathery light.

Dexter Gordon's 'You've Changed' WAV via an EAC-ripped CD revealed a constant stream of emotional playing from the lips of the legendary sax player. The soundstage was wide, with lots of air and space between the sax, piano and drums. The latter's brush strokes grazed the drum skins gently; the later introduction of the trumpet saw the Exposure give it a wide dynamic allowance, with plenty of room to manoeuvre. The final ensemble piece exhibited an ordered soundstage within which was a band

that felt comfortable within their surroundings.

**CONCLUSION**

The Exposure DAC is packed with options for the digital user. The optical S/PDIF input provides a strong insight into the mix and the filters help tailor the sound to a system, but they are subtle.

For computer play, the DAC offers a performance that provides exceptional detail retrieval, clarity and presentation. It's fun to listen to and envelops you within the music. If you are looking to build or upgrade a digital system then you should demo this DAC forth with.



**VERDICT** ●●●●●  
 Superb performance from the USB input and filter options on USB and S/PDIF make this a flexible DAC, with a great sound.

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  - flexibility
- AGAINST**
- rear headphone socket
  - menu interface

**MEASURED PERFORMANCE**

The electrical and optical S/PDIF inputs both accepted a maximum resolution 24/192 signal, although optical is specified to 96kHz only and was a little erratic in coping with 176.4 and 192 from our Rohde & Schwarz UPV digital generator. Frequency response extended upward to 60kHz with Filter 3 (-1dB) with a 192kHz sample rate signal and rolled off smoothly above this frequency. The other filters gave less bandwidth, to around 40kHz. Filters 4 and 5 were well damped, offering the smoothest roll off and probably the best subjective result. Stop band attenuation was identical for all five filters. These are good results, fine for high quality audio.

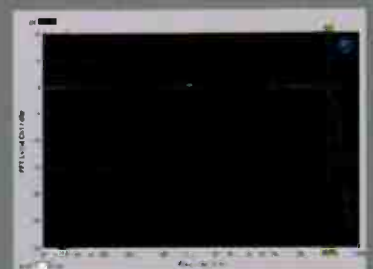
Linearity with a 24bit signal at 44.1kHz sample rate was very good, distortion measuring just 0.02% at -60dB, a very low value. At 48kHz/96kHz sample rates this lifted a tad to 0.05%. In all, the S/PDIF inputs handled high resolution digital signals well. EIAJ Dynamic Range with CD was high at 101dB and with 24bit very high at 114dB, so the 2010 S2 comes out well overall.

More interesting than S/PDIF, commonly used for CD, was USB behaviour for computer playback. USB ports are often noisy but Exposure's was very quiet. It was also very linear, returning the same distortion figures as S/PDIF for 16bit and 24bit signals. This is far better than is common at present. Bandwidth was good too, a 96kHz sample rate signal extending frequency response to 40kHz (-1dB) with the widest Filter 3, before output rolled down smoothly. The Filters

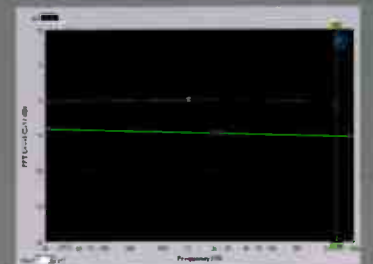
worked with USB and again Filters 4 and 5 gave the best damped roll off and bandwidth to 29kHz. These are great results for USB and promise better computer audio quality than most others. NK

Frequency response (-1dB)	192k sample rate	4Hz - 60kHz
Distortion (16 / 24bit)	0dB	% 0.002/ 0.002
	-60dB	0.2 / 0.02
Separation (1kHz)		112dB
Noise (IEC A)		-114dB
Dynamic range (16/24bit)	101 / 114dB	
Output		2V

**FREQUENCY RESPONSE, F1**



**FREQUENCY RESPONSE, F3**



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KEF Q100 LOUDSPEAKERS

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 KEF Q100 loudspeakers are on their way to **NEIL PORTER**, Letter of the Month winner in our January 2013 issue.

## Letter of the Month

### ELECTROSTATIC CABLES

My system comprises SME 10 turntable, Graham 2.2 Unipivot tonearm, Ortofon Jubilee cartridge, Leben RS 30 EQ Phonostage fed by 1:20 step-up transformers, LSA Standard Integrated amplifier and a set of Kingsound Prince II Electrostatic speakers.

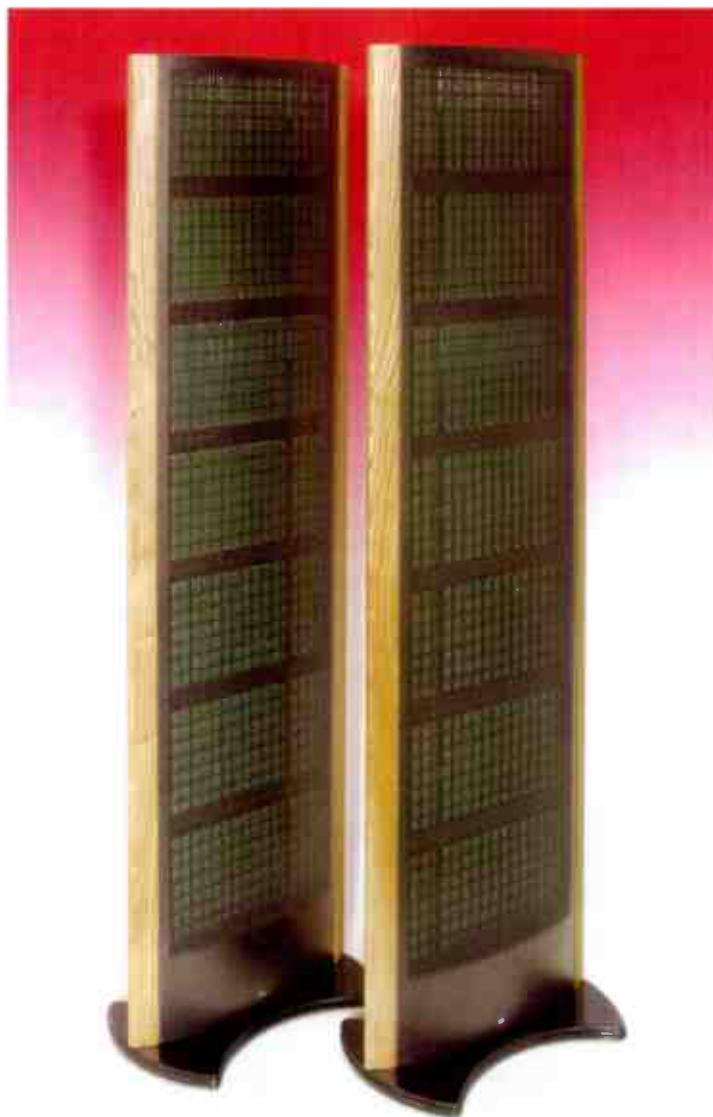
After reading your review of the Kingsound Prince speakers I saved up my pennies and bought a pair and can only agree with your review.

My question is one of speaker cables. You did not say what you used and if you tried bi-wiring as I have found it makes a big difference to them. I see you had some trouble getting any volume out of them but a company at [www.sandersoundsystems.com](http://www.sandersoundsystems.com) seems to have the answers to some of the problems with large electrostatics. Their site is a mine of information regarding amplifiers and cables.

I have found myself that cables do make a huge difference to the amplifier's ability to drive them. I have tried many types, from shop-bought to home-made including normal 2.5mm twin and earth and flexible 2.5mm cables - they make it easy to drive the speakers but lose some focus.

At present I have a set of bi-wire QED 25th Anniversary cables in use which are a good compromise in being relatively easy to drive and giving a good sound.

Reading on the site mentioned above that a speaker cable with a low inductance and capacitance is a must for an electrostatic speaker as they act more like capacitors than inductors;



The Kingsound Prince II electrostatic loudspeaker, a revealing design. "Cables do make a huge difference to the amplifier's ability to drive them" says Robert Gardiner.

hence the need for more volts, not current to drive them.

I know the company above sell cables but can you suggest a British company who could help? I have asked a few dealers but they tend not to do much with electrostatics.

Kind regards,

**Robert Gardiner**

The need for volts is down to high impedance at low frequencies. Your (lovely) Prince IIs reach a massive 450 Ohms at 25Hz our impedance analysis shows, so a 100 Watt amplifier can push just 2 Watts into them here. But electrostatics are dramatic things; at 20kHz your Prince IIs have fallen from 450 Ohms to just 2 Ohms. Now, a 100 Watt (transistor) amplifier will deliver 450 Watts, or try to, possibly blowing up in the process.

That's why electrostatics are difficult to drive: they demand high peak currents at high frequencies and this can blow power transistors, because current protection circuits in amplifiers are usually slugged so they don't operate too quickly, to avoid relay chatter. It's an almost insurmountable problem for amplifier designers. So electrostatics do demand current – that's the problem with them.

Your Prince IIs are inductive up to 25Hz, resistive at 25Hz and capacitive above 25Hz. By 10kHz their impedance has sunk to residual resistance, probably from the step-up transformer windings. So they are not just capacitors, that is a too-simplistic model.

That closely spaced, parallel cables are inductive or capacitive (i.e. reactive) I am unsure – I have asked Chord to answer this. As a twisted cable pair has enormous analogue bandwidth and forms the basis of most high analogue bandwidth / digital data rate cables, from Ethernet through USB to HDMI, taking in Thunderbolt on the way no less, I can't help suspecting that looking at the physical structure of a cable can be misleading. I suspect we will hear more about this from engineering readers or cable manufacturers!

All the same, that electrostatics need special matching cables is an interesting idea. We deliberately use very short cables around 1.5 metres long, from amps sited between the loudspeakers to minimise cable influence. I cannot recall what was used in our Kingsound Prince II review (April 09 issue) but I do remember that they were impressive electrostatics, if hard to drive.

I have no experience of the LSA amplifier, but I see its transistor Class



**LSA Standard hybrid amplifier, a U.S. design that uses tubes and transistors. It delivers 150 Watts per channel.**

A/B output stage is rated for delivery into 1.3 Ohms (800 Watts!), and this suggests it has been designed with electrostatics in mind, the Prince IIs reaching 2 Ohms at 20kHz according to our measurements.

But Robert, I have never heard a transistor amplifier I would choose to use with electrostatics – and boy have I tried! Electrostatics open up and relax with a good valve amplifier and you hear into the music, rather than into transistors. No disrespect to the LSA, which looks like a great hybrid amp., but I would suggest you get a demo of a valve amp. sometime. As the Kingsounds are imported by Icon Audio, I am sure they can help you get a demo to hear for yourself. Their MB190 MkIIIm monoblocks would be suitable.

Generally, look for at least 80 Watts per channel from paralleled KT88 power valves, or perhaps good quality KT90s / 120s.

Valve amps have far less feedback than transistor amps, important when driving a capacitive load, and they shrug off a low load at 20kHz, where transistor amps can go into transient instability, current limiting or just blow up. But let your ears be the judge. **NK**

### ... AND CHORD CABLES SAY

Comments on the Sanders Sound website are interesting, but some we would agree with and others we would take issue. Their comments about capacitance and inductance we agree with. With the work we've done with loudspeaker cables over the years we have come to the conclusion that there is a set of capacitance and inductance parameters. If the loudspeaker cables fall within this range, then to some extent their effect alone on the performance of the system that they are used in is pretty negligible.

We would also agree with their website in pointing out that cables that fall outside of these parameters will affect the performance, and particularly the tonal characteristics. These types of cables though are relatively unusual and the vast majority of cables fall within the parameters we have mentioned above.

Like you, we have an ongoing fascination with electrostatic loudspeakers. One of the most compelling demonstrations that I experienced of what an electrostatic loudspeaker can do took place at a dealer in Chicago. Without wishing to



**Icon Audio MB190 MkIIIm monoblocks deliver 110 Watts and will drive electrostatic loudspeakers like Kingsound Prince IIs.**

disagree with Noel about the merits of valve versus solid-state amplification, the system was an LP12, Naim pre-amp and 250 power amplifier, driving a pair of Quad ESL 57s. The song was "The Wind that shakes the Barley" by Dead Can Dance. It was absolutely extraordinary.

I can obviously only speak from our experience so I can tell you that Chord Odyssey and Chord Epic are both extremely popular cables for use with electrostatic speakers and also valve amplifiers. Auditioning both of these cables (manufactured completely in the UK) would let you hear exactly why we choose to use high frequency effective shields on so many of our cables, Epic being a screened version of Odyssey. In terms of measurement they strike a happy medium (or a good compromise) between capacitance and inductance. Both cables use multi-stranded silver-plated conductors, arranged in a twisted pair configuration.

There is another important point I would like to make. Obviously you have an extremely transparent set of speakers. Frankly, the better the speaker cable, the better the sound. I would suggest that you look at some of the higher end cables that are available. Better still, listen to them in your own system. From here I would echo Noel's words – let your ears be the judge.

**Nigel Finn, Chord Cables.**

### WITH BRIO

Firstly may I introduce myself. I am Terry Bateman, the designer of the Rega Brio amplifier reviewed in the November 2012 issue of Hi-Fi World.

Yes, the story is true as regards the power amplifier circuit. It was about

**Chord Odyssey 2 cable suits electrostatic loudspeakers, say The Chord Company.**



22 years ago I came by a collection of Wireless World magazines covering the 1960s and first half of the 1970s which 'road mapped' evolution of the transistor amplifier circuit which started in 1961 with the Toby & Dinsdale circuit (based on the work of H.C. Lin) and saw the work and designs of Bailey, Walker, Hood, Leak, Nelson-Jones, Sugden & Baxandall et al, which evolved into the classic circuits which are in use today.

As well as having a keen interest in valve amplifiers such as the Stereo 20, Quad 22 & Radford STAs etc. I also like researching the transistor amplifier circuits of the 1960s and the 1970s, which led me to the idea that I used in the Brio-r amplifier. The work done by Hood in the late 60s and early 70s was the inspiration for the circuit. I have to point out when I was researching and developing the circuit, which was to be used in the Brio-r, I used valve amplifiers such as the Stereo 20 and Mullard 5-10 etc to compare the prototype against.

As stated in the review, the earlier

incarnations of the Brio were already very good but I felt the power stage could be further improved with the research I'd been doing on transistor amplifiers and so the Brio amplifier you reviewed came about.

Personally, I've got my hands on good examples of the Quad 33/303, later (silicon) Leak ST30+170, Rogers Ravensbourne, Sugden A21/C51/PS1 and Revox A78 amplifiers to chart and research the evolution of the second-generation (silicon-based) commercial transistor hi-fi amplifiers in the UK in the latter part of the 60s and first half of the 70s. I'm also looking at the kits like the PW Texan and Hood Hi-Fi News 75 Watt amplifiers. As part of this research I'd like to take the prototype of the Brio-r power amplifier and replicate the subjective listening tests Hood did in 1969-71 between this and say something like the Mullard 5-10 using a passive pre-amplifier.

I also felt the review of the DAC you did a couple of months ago was a cracking piece. Speaking as its designer, the review really got a handle on what the Rega DAC was all about.

Finally, I have a few Troughline tuners in the collection so I enjoyed the recent article on the Troughline. I agree with the safety letter in the November issue though.

Regards,

**Terry Bateman**

Thanks for that Terry. I'm suitably impressed you have heard such a wide range of amplifiers and love the design history; it's so important to have a good over-view. So many design engineers I meet (which I like to do) have heard few products outside their own personal cocoon, whose boundaries often do not extend far. It's what Alex Garner of Tannoy named the "not invented here syndrome". Meaning it isn't worth knowing about if not invented 'here'.



**The Rega Brio amplifier was designed very much with an ear on good designs from the past, says its designer Terry Bateman.**



**Quad 303 power amplifier was beautifully made and very reliable, but may have sounded better with quality components.**

Such parochialism doesn't help one little bit.

The only confusing factor about old designs is old components. Even Quad admitted to me a little sheepishly in the end that had they not had a blind belief that components are passive and don't affect sound quality then some earlier products could have sounded much better.

Worse, not only did old designs have poor components, those components age, especially electrolytic capacitors. So what we hear today from an old design may misrepresent what it can do. People rebuild Quad 33/303s with new bits and report amazing results, for example. It's an interesting conundrum: to rebuild or not to rebuild?

The Rega DAC review – ah yes, the scintillating ear of Rafael Todes and his candid commentary does tend to impress us all. I am glad you appreciate his perceptive insights. Rafael can hear jitter before I measure it! **NK**

### ALL THE ANGLES

Perhaps I should have been more careful in my argument in citing small VTA changes as more important than small VTF changes (Hi-Fi World Letters, August 2012).

I was trying to argue that minor VTF changes do not matter so long as the pickup is not mistracking and that it was a waste of time to set VTA to hundredths of a gram – but that it was the geometrical relationships of stylus to groove (or internal cartridge geometries) that are more important than fine adjustments.

I cited VTA because many of us are familiar with it and it was being changed by altering VTF. I cited using VTF as a simple way to fine tune geometrical

relationships by ear if your tonearm does not have micro adjustments built in, as most do not. Trying to fine adjust the height of a tone arm without fine height control is a thankless task.

Many audio advances are done without first knowing the scientific logic behind them. Indeed there are many things we do in set-up and design that are 'good' but we don't really know why. But repeatable results are surely meaningful. So asking me to produce a detailed explanation in a simple letter to a magazine is hardly necessary and probably a waste of space. I could just as well ask for Mr. Beal to provide a

clear explanation of why my procedure is not true.

By the way I only referenced the old issue of Stereophile to make the point that this was not a new idea not as support for my point. I wrote the Stereophile article and citing oneself as a reference is certainly circular and irrelevant.

In all but a few corners (such as Rega) fine VTA adjustment has been accepted and heard by many as significant and should be readjusted when VTF is changed. Indeed if one wants to take it to extremes (as some do) it needs to be altered for different manufacturers and different record thicknesses which I honestly rarely do.

I strongly believe that VTA precision is a minor factor in tuning our record systems and fine tuning of geometry is much more significant. I'm always open to being shown differently – it won't be either the first or last time – but so far I haven't seen or heard anything to alter my mind.

On another note, a thank-you and a bit of nostalgia. I was looking through some old Hi-Fi World DIY supplements (I save almost everything audio) and in issue 31 from October 1997 I found an article on using sticky tape on speaker fronts to smooth diffraction caused by minor gaps. My main speakers are SEAS Froy 3 kits (with custom 18" woofers below 85 Hz) and while the fronts were professionally constructed that only means they were paid for, not that they

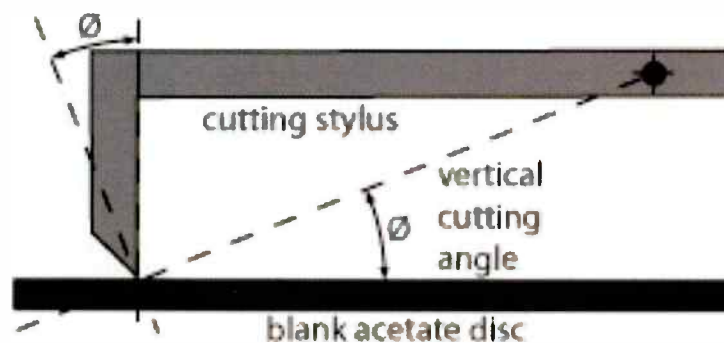


Fig 2

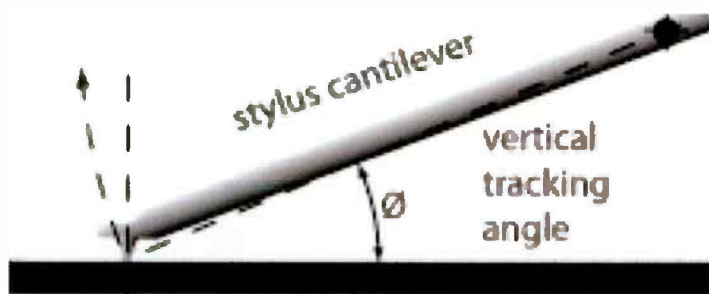


Fig 1

**The cutter head has a specific cutting angle, set to 15 degrees in the USA and 22 degrees in Europe. The Vertical Tracking Angle of a cartridge must be similar to avoid distortion.**

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## World Mail June 2011 issue

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Your experts are -  
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were well done. My gaps were larger than would be optimum, to say the least. Well I tried the sticky tape and it gets my recommendation. It definitely smoothed up the high end. Thank you. I miss those supplements; they were the impetus to my first purchase of your magazine.

**Allen Edelstein**  
New Jersey,  
USA

When people get pernickity about Vertical Tracking Angle, I always recall reading a white paper from Benjamin Bauer, of CBS Labs, about the phenomenon of lacquer springback and how it alters the intended cutting angle, confusing the issue completely. Quite what the final modulation slant is on an LP then becomes an unknown, at least to any

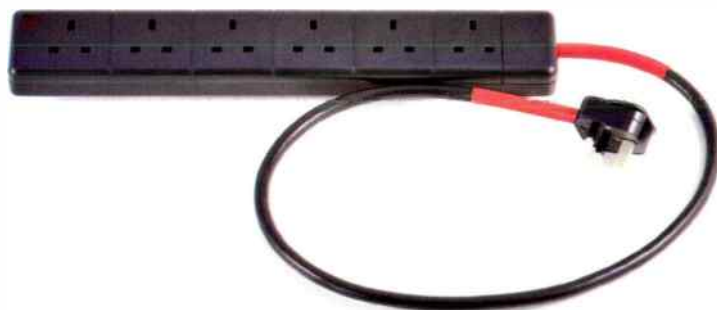
serviced as there is a problem with the right hand VU meter.

Kind regards,  
**John Lander**

I'd advise dropping a line to PR Audio. See [www.wpraudio.co.uk](http://www.wpraudio.co.uk). They should be able to offer some advice. **JM**

### **MAINS BLOCK**

This story starts with my going back to your Hi-Fi World Awards 2011 issue and spotting a reference to a mains distribution block supplied by Mains Cables R Us. After an interest in hi-fi since the 1970s I have arrived at a very pleasing system comprising a Naim Uniti, NAP 200 and Hi-Cap feeding Ruark Talisman 2 speakers. The retailer I use is now suggesting an upgrade of the speakers with which I have always been happy so there has been a reluctance on my part



**A simple, inexpensive but quality mains Power Block from Mains Cables R Us, with plated components, Bussman fuse and Belden cable, did just what we said, Horley Bosley tells us.**

useful degree of accuracy. This is one confusing factor.

Another one is that most cartridges have a VTA of around 30 degrees, way above the correct value of 22 degrees. A change of 8 degrees at the headshell to correct this means moving the arm pillar down 32mm, an impossibly large amount.

And finally (!) I have yet to become convinced that correct VTA in a cartridge is strongly linked to sound quality. Other factors have greater influence it seems to me, having measured VTA and then listened to the product, for hundreds of models over more than 20 years or more (don't like to think about this!). Even Ortofons nowadays don't come with measurably correct VTA, as they once did (e.g. VMS20E), but it doesn't seem to affect their sound quality. And I know Ortofon listen carefully to all they produce. As you say, other issues are at play. Best to relax and enjoy the music, methinks!

**NK**

### **METER MADE**

Can anyone help me to find where I can have my Akai GXC-709 cassette deck

to consider anything else. Being open to other suggestions the recommendation in the Soundbites article seemed to be worth a try at a cost of £87.

What happened to my system is exactly as described. A clearer, cleaner sound with less hash and mush, subtly more musical and tauter bass, smoother and more sparkly treble and an improvement in midband focus. I'm very satisfied with this small-cost improvement and my retailer will have to wait a lot longer before I change my speakers. I would like to thank your magazine for this excellent tip.

**Horley Bosley**  
Upton St. Leonards  
Gloucester

It's amazing what difference spending some time and money on mains cables, distribution blocks and connections – especially in an already well-sorted set-up. **JM**

### **COSTLY COILS**

I have to assume that the adjective 'budget' in Tony Bolton's recent cartridge test was done to provoke a response from those to whom the words sense and money work in the reverse order.

By their very nature moving coils are ephemeral and often overly-priced. By refusing to question the ridiculous price demanded by these manufacturers, I suggest that you do the reader a disservice. The actual cost to them of the tiny amounts of material must be negligible in comparison with the asking price of the product.

Let me compare a musical instrument with the above. A good quality flute with solid silver head joint can be bought for around £800. A clarinet made from ebony with silver keys for around £1000. If we go on to high-quality watches the comparison is laughable.



**Assembly of a pickup cartridge. Our picture is taken from the video at <http://ortofonmicrotech.com/technologies/coils.html>. Select HD and go to full screen mode. It's better than Lawrence of Arabia!**

There is, however, more than one way to skin a cat. My philosophy over many years has been to spend the majority of the front-end money on the arm and the deck. These will not require replacing at frequent intervals and will give superb results with the most humble cartridges. I have a Triplanar tonearm mounted on an Oracle deck. Both were purchased in the 1980s. Mounting a Sumiko Pearl which costs peanuts gives superb results and I don't weep buckets when it needs to be replaced. Here is a challenge for you: compare the sound of an expensive moving coil cartridge mounted in a mid-priced deck with a humble Sumiko in a top-quality unit. You may be in for a shock!

Yours sincerely  
**Paul L Speed**  
**Ross on Wye**

Material costs alone do not determine final price, Paul. Design time, skill levels and, in the case of a moving coil cartridge, build time all enter the equation. Raw material costs are high too. I remember being told by John Wright of TDL loudspeakers that sourcing high quality parts for cartridges was next to impossible because of the small quantities involved. Try buying a small part from a big Far East supplier and they'll ask you for a 10,000 minimum order quantity!

Coil winding on a coil winding machine might seem a prosaic skill, but it is a peculiarly rare one. Morite transformers used to supply us with audio output transformers and they could only be assembled by one woman. When she left to have a family, after 15 years, they ceased production.

Getting women (it's usually women because they are more dextrous) to wind the micro coils of an MC cartridge, under a microscope, with silver or copper wire thinner than a hair (down to 15µm) is not to be underestimated. You can see a video of this process at <http://ortofonmicrotech.com/technologies/coils.html>.

And how do cartridge manufacturers (well, their sub-contractors) grind diamond styli to precise geometric shapes?

Cartridge manufacture is a fascinating business, in some cases a father and son business because of the unique skills and equipment, passed down the generations.

Both Ortofon of Denmark and Nagaoka of Japan are precision engineering businesses specialising in high technology, miniature parts and I think the cartridges they both produce are very reasonably priced

in view of the difficulties of making them.

An MC cartridge is a precision transducer of awesome basic purity, quite different from an MM cartridge. MMs produce (Johnson) noise that swamps the phono input stage, meaning the cartridge is noisier than any amplifier it is used with, a point few appreciate.

MCs produce no noise, so they are fundamentally better, having a wider dynamic range. The challenge is to exploit this, something only a transformer can do properly, because of the very low source impedance of an MC cartridge.

If you are happy with a Sumiko Pearl, however, by all means don't go down the MC route, because there's no doubt that getting the best from them is an art, even a religion – but I think a worthwhile one. **NK**

### PASSIVE PREAMP

*I would like some advice on a pre-amp for my recently purchased XTZ AP100 Class A power amplifier. I understand that a valve pre amp works really well with a transistor power amp, so would you suggest any? Maybe the Icon Audio?*

*Also, what might be a good passive preamp as I see online there are scores of them, ranging from stepped attenuators and cheapish ones from the Far East, and also well reviewed stuff from Luminous Audio in the States, and numerous home grown items!! Any advice would be greatly appreciated!*

*I would also like to take this opportunity to give thanks to Robert at Inspire, along with Jeff Spall at Audiomod, who both were superb with their advice and help in getting my Rega*

*clear up and running! Both companies a credit to the British hi-fi scene!*

Best regards,  
**David Prior**

The Icon Audio LA4 MkII is a good match for Naim because it has large bass, and that suits the Naim style, plus incredibly smooth and open midband due to those early, low current-density, 6SN7 triodes. There's plenty of gain too.

Icon Audio make a good passive preamp and Creek have their remote controlled OBH-22 that uses an Alps motorised volume control pot. We don't know the Luminous Audio product but it looks interesting.

Another very interesting product to come our way, tested and reviewed last month, is the Furutech Esprit. This makes a very strong proposition: it is a preamp, it has USB record and playback, and it converts analogue to digital, so you can record from it. Not bad for £835. It has a squeaky clean transistor sound, so will not add the lush smoothness of a valve preamp, nor the sense of air and space, but for USB it is unrivalled. **NK**

### PRIZE PHONO

*I was totally bowled over to win the prize Tellurium Q phono preamp in your magazine competition and wanted to let you know that my life has been changed profoundly as a result.*

*Your timing could not have been better. Over the last couple of years I have been trying to get my love of music back (new Sonus Faber Liuto towers and a Naim Supernait) and had come to the decision that I had to go back to*



**Icon Audio LA4 MkII preamplifier, with its 6SN7 valves, has a lovely smooth, liquid sound that suits Naim power amplifiers, making for a great hybrid arrangement.**





**The Tellurium Q phono preamp won as a prize by Peter Willmott was an "analogue joy" he says.**

vinyl. So my LP12 had to come out of retirement. But that involved so many practical issues – including no phono input on my amplifier, nowhere to put it, plus I didn't know the condition of the turntable, arm and cartridge – each time I thought about it I was getting nowhere.

My first breakthrough was at the National Audio Show. I met up with Peter Swain from Cymbiosis who had last looked at my turntable in the 1980s and he proposed an examination of my system and discussion of the options in his listening room. I agreed.

Two days after that I took the call from your office to say that I was going to receive the five star award winning Tellurium Q Iridium phono preamp as a prize. Once I had been convinced that it wasn't a hoax call (sorry) and I re-read the review (April 2012) I realized that my problems were probably going to change at some speed as a result. That was an underestimate.

First step was a call from Geoff Merrigan at Tellurium Q who has been fantastic from that day. Tellurium Q upgraded the phono to the very latest version (which improves upon the one reviewed) and made some helpful suggestions about cables. But most importantly sent the parcel for next day delivery!

I was waiting by the door when the postman came... and spent the next couple of hours moving everything and cabling up. Totally unfairly I tried out the system stone cold, no run in and so I was not expecting to listen – just check I had wired up OK.

But instead... words fail me, I had tears in my eyes and lost every bone in my body. It is astonishing, beautiful and sublime. Everything just fell away and left me listening to the music – it was an unearthly experience.

And as you recall I had pre-booked to take this same turntable to see if it was a runner. I was in total confusion. But loving the music. The soundstage was wide and deep, placement solid and

the sound was an analogue joy. It was somehow just 'right'. I could see why the review was so positive and there was nothing to say that was negative. It was all totally positive for me too.

When my wife came home she had a similar reaction. Most of my vinyl is quite old but well looked after. I played her 'take five' from her very early copy and she couldn't move from the seat. She said 'I don't see what can be improved'.

Three hours with Peter Swain a week later showed me the possibilities. Each option demonstrated carefully and as a result I retained the Linn Ittok arm, updated the LP12 bearing to a Cirkus and changed the power supply and mat. The Linn Asaka cartridge was pensioned off and I invested in a beautiful Dynavector XX2.

At the end of the session Peter switched the system to a 'good' £400/500 phono stage (that I might have bought). For the first time I saw the huge contribution of the Tellurium Q Iridium to the sound. Without it the delicacy, subtlety and beauty just fell away. It was just hi-fi – no longer 'Heaven on Earth'.

When I spoke with Geoff he said that they are just a very small company and they only produce a device if it is the absolute best they can do. Colin Wonfor is responsible for the way the system works. And everything is made here in the UK with real care.

All I can say is that their care and Colin's technical skill really shows through. If you want to get joy from vinyl and get the opportunity to try the Iridium out – don't miss the chance. The difference it makes is fundamental and needs to be heard. I can't find the words to explain what it does to me.

I am now looking forward to trying their upcoming DAC, which is one of their latest projects, as I know that it too will be worth waiting for.

This has been a tough year for me

personally and there are times when I just need to find some peace away from things. So without exaggeration I can say it is life changing for me to be listening to music on vinyl again with this system. I have found joy and unblocked deep emotions. Does music get any better?

Thank you for changing my life - Geoff, Colin, Peter and everyone at HI-Fi World.

**Peter Willmott  
Northampton**

Thanks for letting us know about your experiences Peter. It's always good to hear about what went on. Almost turns Hi-Fi World into OK magazine! **NK**

### 78 MATE

As a result of an article in the December issue, I have bought the Ortofon 2M 78 cartridge and find it to be excellent. It tracks well at the recommended 1.8 g on conventional 78s and acetates while reducing the surface noise which I think shows that the stylus profile is accurate.

I bought it partly because I use the Ortofon 2M Blue cartridge for stereo LPs. I noted that Ortofon also list a 2M mono cartridge for mono vinyl. However, although the cartridge body appears to be the same as that for the 2M 78 unit (at £80), the cost of the mono version is £230 with a replacement stylus price of £175. That seems to be unreasonable in comparison.

I am sure that all original mono LPs and 45s need the larger stylus. What the more recent audiophile mono LPs need could be anything.

**George Hulme  
London**

You're faster than us George! We will be reviewing the Ortofon Mono and 78 cartridges soon. The spherical tipped Mono did not work so well on a microgroove test disc, unlike the MC Cadenza Mono we tested, so we await Ortofon's comments. I believe it is purposed for old mono records, not new ones like the forthcoming Beatles Mono LPs. **NK**



**Ortofon's 78 rpm cartridge works well, says George Hulme.**

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## Phono Stages and Accessories



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# Cable convert

Halide build their USB digital audio convertor into the cable between computer and hi-fi. Noel Keywood is a convert.

**W**e stumbled upon Halide Design almost by accident. An American company (U.S.A. that is!) their Bridge USB-to-S/PDIF convertor arrived in a group supplied to us by Item Audio, and was reviewed in our March 12 issue (see our website - put 'Halide' into Search). The Bridge isn't a product to catch your eye, and neither is their new USB DAC, reviewed here. All that is remarkable – visually – is that you seem to get astonishingly little for the money! It costs £475 and has no freestanding case – the DAC is built into the signal lead, no less. A more self-effacing product you could hardly wish to come across, but this DAC sounded lovely. I can understand why Rafael Todes gave their Bridge the thumbs up a while back.

Halide sent us the DAC in a small cardboard Pizza-style box measuring roughly 9in square. Inside

was the DAC HD, as it is called, coiled up. It comprises a small, lightweight aluminium in-line case that is part of a USB-to-phono plug lead. The USB plug goes into the computer, in my case a MacBook Pro, and the phono plugs go into the amplifier – it's as simple as that. It works asynchronously, possessing an internal master clock against which the computer supplies a digital signal as requested by the DAC, via a buffer. The stream is then fed clock-locked through the DAC, minimising jitter. Halide write their own 'Streamlength' software, using a pre-configured audio template for the DSP packaged inside. Power comes down the 5V line that is within every USB cable, and the line is separated from the data twisted pair, they say, presumably to lower noise induction. The supply is also filtered to eliminate noise and then regulated to stabilise the voltage, with the master clock – important in asynchronous operation

– having its own supply.

Since digital leads and connectors can add jitter by reducing analogue bandwidth to smear the pulse transition point, and send reflections down the cable from termination discontinuities, eliminating connectors and adding in the leads is more than a convenience: done well it improves performance.

Halide obviously know a thing or three about all this so I am fairly confident their choice of digital USB cable, 'Starlight' from Wireworld, is a good one, and the cabling well executed. At the analogue end, Eichmann bullet plugs are used, so there's good attention to detail in this product.

As if all this deep specialisation were not enough, Halide cryogenically treat the DAC too! In my limited experience of this process to date, cryogenic treatment does produce audible improvement. What I have heard is a finer and



deeper sense of insight, as if music has vertical depth and it is possible to hear right down to the finest of details at the lowest levels. The Halide had this property and perhaps that is why it hooked me so quickly.

The Wireworld digital cable is inflexible, but it wasn't a problem. The cable comes 2 metres long as standard, but can be supplied to other lengths.

The DAC handles a maximum sample rate of 96kHz, something that may deter those who want to be able to resolve higher rates of 176.4kHz and 192kHz. Although the Halide fell silent when fed 176.4kHz or 192kHz code from our Rohde & Schwarz digital generator, a Mac has an output



Audio/Midi utilities panel of a Mac sets sample rate.

quite analogue-like was quite obvious, making the Halide conspicuously smooth and easy sounding in nature.

Put all these characteristics together and you get a quite distinct presentation that I heard consistently across a wide range of recordings. Even my ripped Eagles tracks sounded better than I usually hear

passive preamplifier and direct into Icon Audio MB845 MkIIIm valve power amplifiers driving Quadral Wotan VIII loudspeakers. The amps underpinned the Halide's strong bass and the revealing ribbon tweeters of the Wotans made clear to me that there was no treble screech from this DAC.

**CONCLUSION**

Halide take an unusual path with the DAC HD. It is a minimalist and easy to use 24/96 DAC that avoids all audio religion. There isn't a switch or light in sight, making it unexciting to either look at or use. All the same, it is well made with great attention to fine audio detail, and of unique design too, being built around proprietary code run on an internal DSP that makes computer interfacing simple. Measurement showed a good performance and listening backed this up. The Halide offers a lovely rich, deep sound from computer audio fed out via USB. It is a superb digital convertor and a great way to enjoy high definition digital music files.

"A gentle air to the sound, free from glare or harshness and quite analogue-like was quite obvious"

data rate setting it samples up or down to. When this is set to 96kHz, higher rate files are down-sampled and play normally. What is important is linearity with 24bit code and here measurement showed the Halide was up with the best. With a PC the Halide installs drivers and comes up immediately as a selectable playback device (identified as 'Speaker' in System 7), the 'Advanced panel' of its Properties giving sample rate options.

**SOUND QUALITY**

Playing 'Misery', a 24/96 track from Dave's True Story, I was immediately impressed by the lovely expansive sound stage of the Halide. It seemed to stretch farther back and arch further upward over the loudspeakers than usual, rather than occupy just a thin ribbon between them. By what mechanism good digital sources are able to do this I am unsure, but low jitter is the usual quoted reason and certainly the Bridge was a very jitter free product so I assume the DAC HD is too (we could not measure jitter in this case because our analyser measures jitter in the digital domain; there is no accepted way of doing this on an analogue output).

The bass line had a nice, solid, independent presence, sounding well separated from the other instruments around it. This allowed me to clearly discern its contribution, making bass more an instrument on the stage than a sound within a melange. A gentle air to the sound, free from glare or harshness and

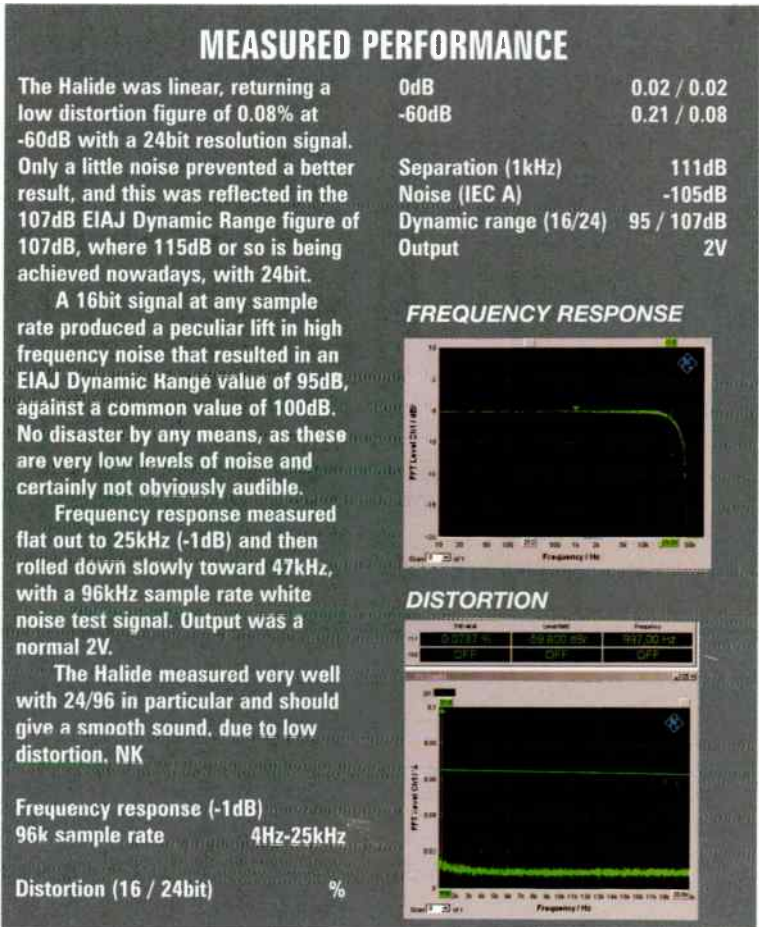
them, although there was some of the hard metallic twang to them I get from the original CD. The Halide took 'It's Your World Now' and set the accordion into a clean space of its own, whilst the lilting trumpet accompaniment had a convincing brass rasp, and the slowly timed drum strikes had plenty of heft to them. The Halide DAC has a big, fulsome sound that's inviting, especially if – like me – you tend to prefer analogue to most current digital. Listening to the Halide with 24/96, or even 24/192 files from 2L (the Mac down-samples these when set to output 96k), made me again feel that digital is slowly going analogue, as it were. Cleaned from its sins, something the Halide DAC HD does very well my ears tell me, the result is not just 'impressive' but easy on the ear and natural. The DAC HD had a liquidity that speaks of analogue and this suited the strings of the Trondheim Soloists playing 'Divertimenti'. They had a lush quality and there was an enveloping sense of space around the instruments playing in this live recording. The properties of smoothness and scale suited classical well.

Having the same output as a CD player (2V) I fed this into a Creek OBH-22

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### TDK ST750 HEADPHONES £150

On the face of it, this seemingly standard pair of closed-backed, dynamic headphones, weighing in at 209gms, offers the usual fare, namely a set of 40mm drivers with a 1.2m cable, a gold-plated 3.5mm plug, a storage pouch and a shirt clip for good measure. Looking closer, however, reveals a twist – a built-in amplifier to boost low-powered MP3 players. According to TDK, many mobile devices pumping out digital

music are not 'fit for purpose', to coin a government colloquialism. TDK, therefore, aim to give the poor wretches a bit of a boost by upping the volume by 6dB, reducing distortion along the way, say the company.

To that effect, you will see a tiny on/off switch at the base of one of the headphone cups while the external, circular chassis of that cup twists off to reveal two AAA battery sockets.

Hooking the headphones to my iPod Classic and playing Half Man Half Biscuit's '4AD3DCD', as an EAC-ripped WAV, with the headphone amplifier in the 'off' position, the volume was naturally low which demanded more gain from the iPod. This didn't do the TDK headphones any favours at all because it revealed a terribly thin bass along with a disappointingly one-dimensional suite of upper mids, a flat treble and a constrained soundstage.

Switching the TDK's internal amp 'on' completely transformed the entire sonic character of the headphones. They now provided a major power boost to the signal

demanding that the iPod volume be reduced. Bass now had new weight and heft, while the upper mids, which hardly sounded rich and mature, did display new insight, including a range of fineness to coarseness on the lead guitar, and an opening up of the treble.

Moving to my reference system, including the Icon HP8 Mk.II headphone amp and spinning Handel's 'Wretched Lovers!' from Acis & Galatea via the Dunedin Consort & Players, the TDK 'phones exhibited a surprisingly open sound. There may have been a touch of narrowness within the extended frequency regions with a slight muddle within more complex arrangements but, for the price, these headphones had a sprightly outlook. Vocals were fast, lithe and nimble while strings were precise and sharp.

An intriguing design that gets the most out of limited mobile technology, the TDK ST750 headphones offer a worthy performance that demand audition.

**PR**

[Contact: [www.tdkperformance.eu](http://www.tdkperformance.eu)]

# soundbites

### SENNHEISER CX 890I £120

Sennheiser's new in-ear phones combine glass with metal, arriving in black and white with matching cables for each colour. A 3.5mm plug is fitted as standard while the company says that the nominal impedance has been reduced for mobile use.

As you might expect, the package also arrives with multiple ear plug sizes while an integrated smart remote control and microphone – for use with Apple's iPad, iPhone and iPod – can be used to adjust the volume and select tracks but also to take phone calls and activate the voice control or personal assistant features.

During sound tests, via Half Man Half Biscuits' beautifully acerbic '4AD3DCD', the CX 890i in-ears exhibited a pleasingly low noise floor. In fact, after listening to my, admittedly cheaper, Sennheiser CX95s, I found that the new CX890is could stand a hike in gain which obviously took the ear closer to the music. Such was the general smoothness of play, vocals were

noticeable by the amount of air and space surrounding them. At all times, there was a slight reverb attached to the lead vocal which gave it a sense of freedom, preventing the slight claustrophobia that in-ear designs sometimes create. A useful spin-off was the enhancement in diction.

On this CD, upper mids were quite cool in character but there was plenty of information on show with guitar and secondary percussion displaying a distinct edge that subtly tweaked detail up a notch.

Bass was both tight and strong with a forceful power that gave this rock piece drive.

Inserting a slice of classical and Handel's 'Wretched Lovers!' from Acis & Galatea via the Dunedin Consort & Players, this superior master exhibited a smooth presentation but without the previous, cool nature of the upper mids. It quickly became apparent that the CD890i earphones had an inherent transparency and an uncomfortable honesty. Any flaws in mastering will be highlighted with the CD890is.

Here, vocals were vibrant and resonant, especially the more bass-infused vocalists, while the conglomeration of simultaneous frequencies that arise from this track were handled with aplomb. Wind instruments showed a welcome clarity while strings had a textural quality that added character. The CD offered a structured soundstage that allowed the vocalists room to manoeuvre while the instrumental contribution provided a backing that was both engaging but gently supportive.

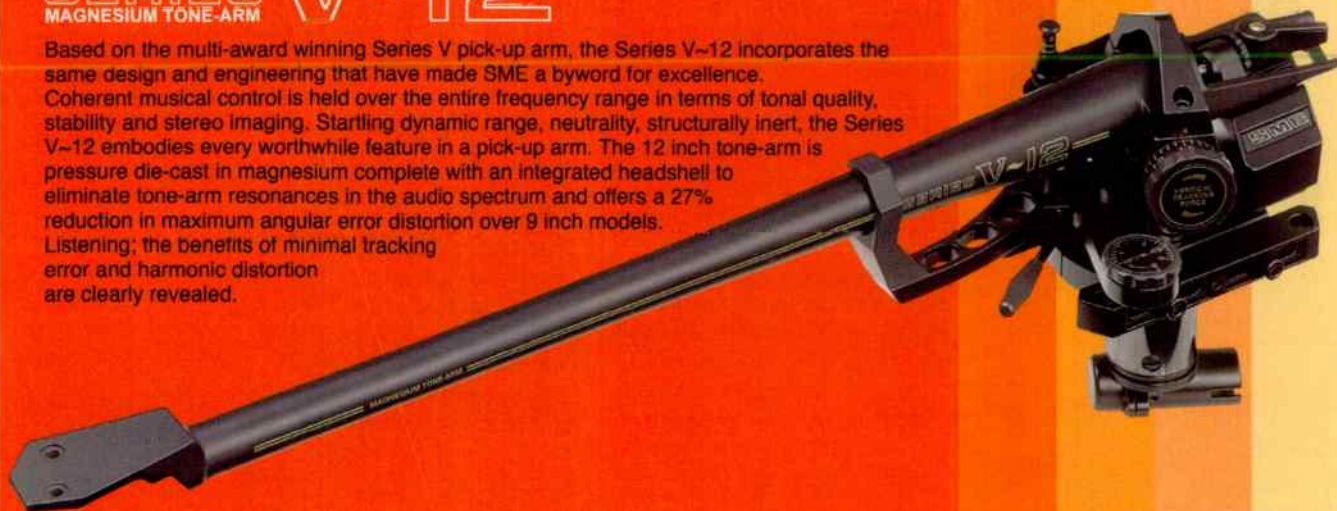
The Sennheiser CX 890i in-ear phones are audiophile tools, presenting the unvarnished truth about music. In-ear phones, in fact, for the discerning palette. **PR**

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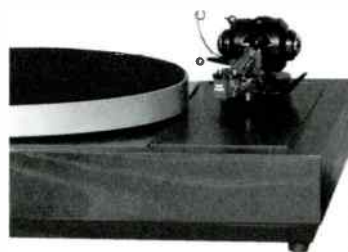
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# Record in digital

How do I turn my old analogue audio sources to digital? Martin Pipe looks at recording with Audacity, a free editing programme for Mac and PC.

**M**ake a pristine digital copy of a record or tape and the original can be put into storage with no further wear. At various times, we would have recommended DAT or a CD recorder – and even the DCC and Minidisc had their day. Nowadays, though, you can use hardware you probably already own – a personal computer, Mac or PC. For both of these, you can download free of charge a wonderful program known as Audacity. Get your copy from <http://audacity.sourceforge.net/download/>.

This program has three main functions – recording, editing and processing – and offers features that, until comparatively recently, were restricted to highly-expensive studio gear. Recording takes place from your audio source in 'real time', although you can also load previously-made recordings or audio files including CD 'rips' (if you're using a Mac, try 'Rip' from <http://www.macupdate.com/app/mac/33152/rip> - PC users are directed to Exact Audio Copy, from <http://www.exactaudiocopy.de>. Both are free!)

Once the recording is sitting on your hard disk, it can be 'edited'. Long recordings, such as a tape or LP side, can be 'chopped' into individual tracks. Levels can be changed, and anomalies like scratches removed. Audacity also includes a large selection of effects (the program is also compatible with professional VST 'plugins').

You'll find compressors, equalisers, delays, phasers, noise reduction, reverse playback, stereo-to-mono conversion and fades. Although most are aimed at budding musicians, a handful will be of interest

when archiving analogue sources.

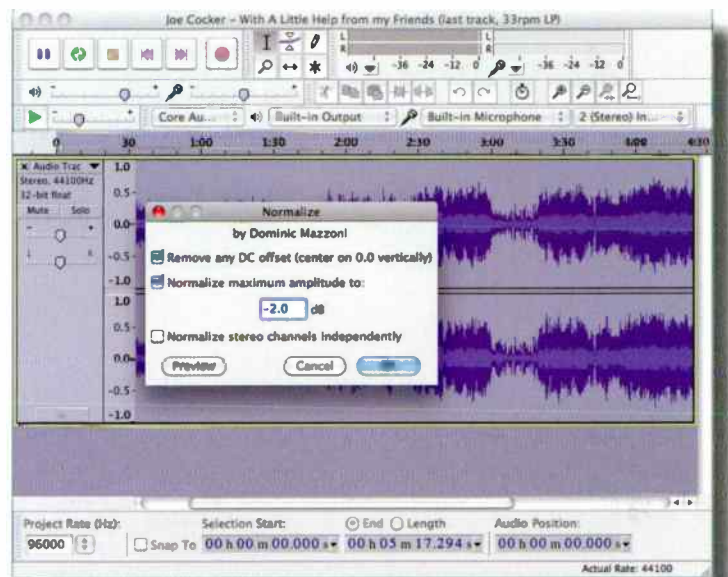
Recordings, processed or otherwise, can be 'exported' as CD-quality WAV or AIFF tracks for transfer to 'custom' CDs – all modern computers are equipped with CD/DVD 'burners'. Other formats supported include lossless FLAC and lossy MP3 (for the latter, you'll need to download the 'compiled' LAME encoder for your computer's specific operating-system from <http://www.rarewares.org/mp3-lame-bundle.php> – this is also free!).

Such recordings could also be stored on a server for 'streaming' to networked players, or transferred to a personal music player.

To preserve sound quality when editing and processing, Audacity processes audio 'internally' at a 32-bit resolution – it's only 'downsampled' during the export phase. It supports 16 and 24-bit recording at sampling rates of up to 192kHz.

Which brings us to how you actually get audio into your computer in the first place. All modern computers have audio hardware (such as a soundcard), although in nearly all cases the quality falls short of audiophile standards. If you have a PC, buy the best 'soundcard' you can afford. The interior of a PC is – alas – an electrically-noisy environment that does delicate analogue audio signals no good at all!

Our recommendation is therefore to use an external USB device; indeed, this is the only high-quality option for Mac users.



**Normalization' amplifies the recording so that its highest levels ('peaks') are brought to a specified level. That way, a series of recordings will (compression notwithstanding!) have a similar volume during playback.**

During the course of preparing this article, we successfully worked with the Furutech ADL Esprit that was enthusiastically reviewed last month. It, like most decent soundcards, will capture 24-bit audio with a 96kHz sampling rate.

If you have a PC with a digital (coaxial/optical) audio input, another option is available to you. Use an external ADC; this could be an old Sony DAT or Minidisc deck set to 'record' with no media loaded! Unfortunately, such equipment only works at 16-bit resolution, with a sampling rate of 44.1kHz (a 48kHz alternative is available for DAT), and this is not so good nowadays.

The golden rule is to capture at the highest quality you can – hard-disk space is plentiful and cheap nowadays. You can always 'downconvert' later, if need be (for



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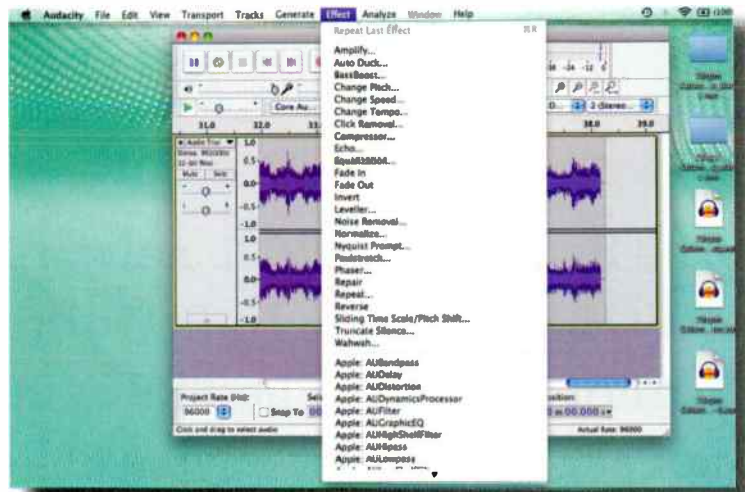
CDs, etc). Soundcards need 'line level' audio sources; to dub vinyl, you'll need a phono stage. An alternative is the 'tape-out' of an integrated amp with the facility.

With the hardware sorted, we can turn our attention to Audacity. In the top-right corner of the program's window is a set of peak-reading meters for recording-level – next to these are another set for playback level. Below these are pull-down boxes for selecting the playback and recording devices.

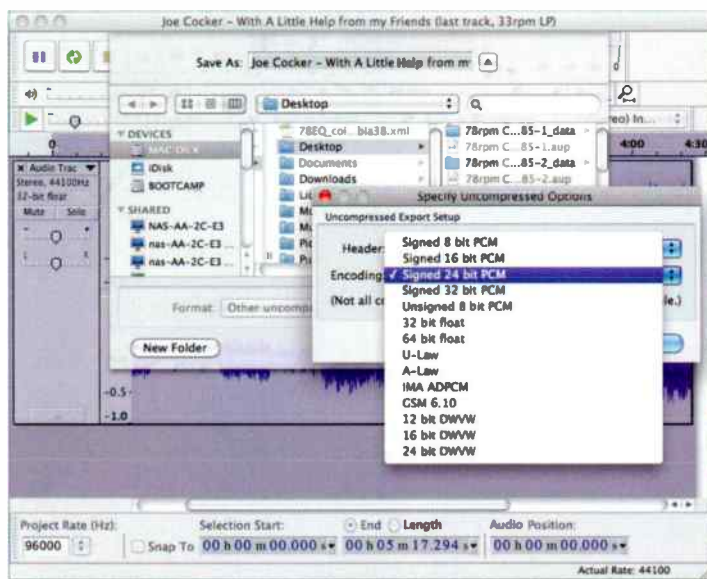
If you're using a USB device, it will be shown alongside any 'embedded' audio hardware (note that Macs recognise USB audio devices automatically, but you'll need to install 'drivers' on a Windows

PC). Make sure that you select the correct input; if your laptop has an inbuilt microphone, you will end up recording from that by mistake.

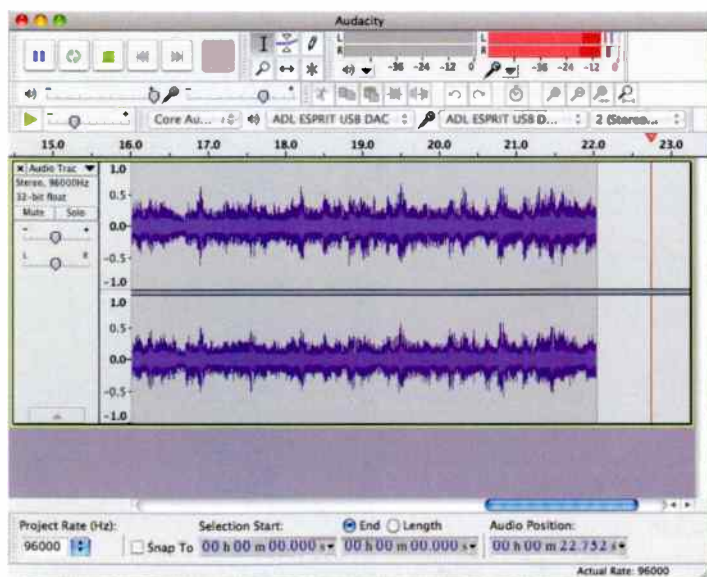
So, let's make a recording! First of all, select the highest 'project rate' (sampling rate) that your hardware allows. For most modern gear, this will be 96kHz. If hard-drive space is limited, stick with the default 44.1kHz (CD quality). The key parameter is arguably resolution, which is a function of your audio hardware. Stick with 24-bit if you can.



**A wide range of effects are supplied with Audacity – others can be added as 'plugins'. Only a few are of value for high-quality audio transfer work, though.**



**You should always work in Audacity's 'native' 32-bit format when recording, editing and processing. The final result can be 'exported' to a 16- or 24-bit file that can be handled by regular playback devices.**



**After setting the recording level, it's time to 'kick off' the process of capturing audio to your hard drive. We recommend using the 96kHz project 'sampling rate', which is supported by most decent soundcards and external ADCs.**

Just under the recording level meter is a pull-down menu that engages a 'start monitoring' function. Start your source playing, and adjust the record-level slider (it's under the 'record' button of the transport controls located at the top left of the program's window) so that musical peaks register at -6dB. This will give you some headroom. Avoid 'clipping' (going 'into the red') as it sounds terrible!

Once this has been done, return your source to the beginning. Start Audacity recording (the sixth 'transport' button) and the source playing. The left and right waveforms of the incoming audio signal are displayed as the recording proceeds. When the piece has finished, stop both recording (the Audacity transport's third button) and source. Save your work ('file' menu/save project as') with an identifiable name.

While holding down its button, drag your mouse left or right to work your way along the recorded waveform to its beginning; there's also a progress slider under the audio waveform window. Find out where the music starts, and delete any superfluous material (like vinyl 'lead-ins') by highlighting the area between this point and the start. Press the computer's 'delete' key to remove it. Repeat this procedure to eliminate unwanted 'junk' at the end of the recording.

If you've dubbed from vinyl, chances are that you'll encounter unwelcome 'pops' and 'clicks'. Audacity has a 'click-removal' effect, but the 'minimalist' way of dealing with these is to replace the most objectionable ones with silence. Work your way along the recorded waveform. Vinyl defects are usually obvious – they're very short 'spikes' of much higher level than the wanted audio.

# Hi-Fi World Exclusive Offer

The Sansui WMH700L network mini system received a **FIVE GLOBE** review in Hi-Fi World magazine when it launched earlier this year. The RRP at the time was £499 including speakers. You now have a chance to acquire one of these excellent systems at an amazing **£200 DISCOUNT** for **£299**



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**PAUL RIGBY** says: *Offering an impressive feature list, the Sansui WMH-700L in terms of value and design implementation, is quite stunning for the price. It will certainly provide everything a digital-only first time buyer will need and will give the older user an ideal entry point into the streaming community.*

## HI-FI WORLD

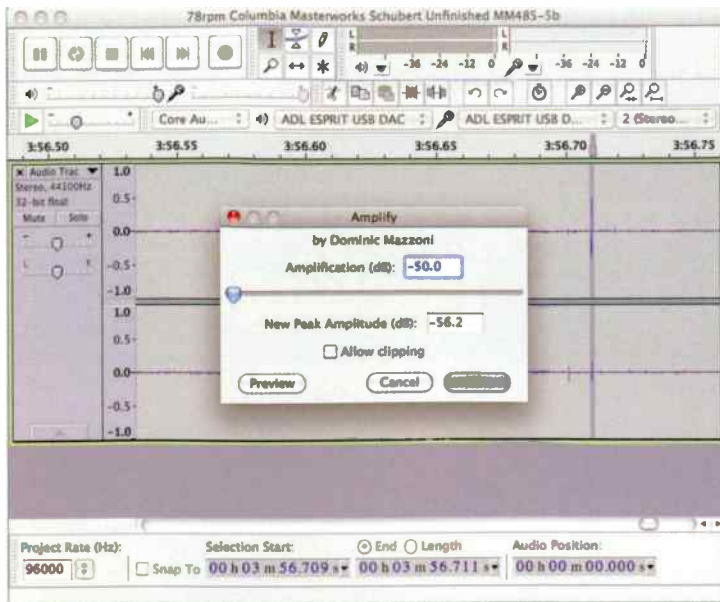
**VERDICT** ●●●●●

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**Although Audacity (and similar software) has a noise reduction feature, it's often more effective to isolate each vinyl 'pop' and mute it. Commercial 'pop-eliminators' of the 1970s applied a similar principle.**

When you come across one, use the 'zoom in' function (it's in the view menu) several times to 'close in' on it. Hold down the mouse button while dragging it along the waveform until the 'pop' is enclosed within the highlighted area. Now select 'amplify' from the 'effects' menu, and turn the slider all the way to the left (-50dB) and press 'OK'. Zoom out, highlight the area around where the scratch was and click 'play' (the second transport button). You can hear the effect of your first vinyl restoration! Remove other audible defects using this method.

With the worst pops and clicks removed, we can now 'normalize' the recording ('effect' menu/'normalize'). This automatically adjusts the amplitude of the recording so that the peaks are brought to a defined level. This is set at -1dB; we recommend setting it to -2dB to provide acceptable headroom in the reproduction chain. Normalisation helps to ensure even playback volume across multiple tracks recorded from different sources.

Now it's time to isolate individual tracks. You might need to 'zoom out' ('view' menu) to make this easier. Go to the 'edit' menu and choose the 'remove audio'/'cut' option of the edit menu. From the 'file' menu, create a 'new' window for the track you've just 'cut'. In this menu, choose 'paste' from the edit menu.

If desired, you could 'fade in' and 'fade out' the beginning and end of the track to make rumble, crackle or hiss less objectionable; highlight the relevant area with the mouse. These useful tools are available

from the 'effects' menu. Save the processed track with an appropriate name. Repeat this process until all tracks have been isolated and saved separately.

So far, we have been working 'natively' in Audacity's proprietary audio format. In order to load your music into other software, we need to save it in a more universal format – and that's a function of the file menu's 'export' function. Choose the default 'WAV signed 16-bit PCM' if you want a CD-quality track.

If it's an uncompressed 24-bit file you're after, select 'Other

uncompressed files' and click on 'options' - select 'signed 24-bit PCM' from the 'encoding' pull-down menu. For 'header', select the file format your playback equipment can understand – typically AIFF for Apple, or WAV for Windows.

An alternative is to use the export menu's FLAC option; 16-bit and 24-bit resolutions are supported. If you've installed LAME, then MP3 compression is available too. These are the basics of using Audacity to 'digitise' analogue audio collections. Many more functions are available, and some of these are discussed in the 'boxout'.

Commercial audio editing software of even greater sophistication, such as Adobe Audition is available. Whether you need the extra features of this professional software is entirely your decision - but Audition is a great starting point. Have fun!

**Some PCs have digital audio inputs – usually coaxial connectors. Into these can be plugged an external ADC (an old digital recorder will suffice). Make sure the digital input is enabled in the recording 'mixer', though.**



#### OTHER AUDACITY 'EFFECT' TRICKS

**Stereo-to-mono conversion.** Tired with the 'artificiality' of earlier stereo recordings - notably Beatles releases? Then convert them into mono! Basically, the two stereo channels are 'summed' together. The resulting effect isn't unlike the mono switch that once graced our amplifiers. Also worth doing for mono recordings, as it can partially cancel out rumble.

**Hiss reduction.** Audacity has a filter that can deal with this unwanted tape artifact. It works by taking a 'print' of the noise from a quiet passage, which is then 'subtracted' from the entire recording. Use lightly, though, or it can sound horrible! The result can then be treated to a slight high-frequency 'boost' to restore some top-end 'sparkle' (see below)

**Equalization.** This effect has a 'graphic equaliser' mode, which can be used to tailor the tonal response of a bad recording. Dullness, coloured vocals and 'thick' low-ends can be treated here. The listening preferences of the recording engineer no longer have to be forced on your ears!

**Digitising 78rpm records.** The equalisation mode also has a 'curve' function - interestingly, one of the presets offers RIAA correction for LPs (try this with a 'flat' preamplifier, and compare the results with your phono stage). A free plugin (see [http://wiki.audacityteam.org/wiki/78rpm\\_playback\\_curves](http://wiki.audacityteam.org/wiki/78rpm_playback_curves)) deals with all the various equalisation curves associated with 78rpm records. Get a suitable turntable, and a 78rpm stylus for a vintage magnetic cartridge (I use a Shure M75). Use this with a flat preamp (the microphone inputs of that old cassette deck are ideal, if phono to quarter-inch jack adaptors are used!), and those old jazz classics can be brought back to life!

**Compressor/expander.** If a recording has too much or (as is more common) too little dynamic range, these effects are worth playing with.



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# Blu blade

The Samsung BD-E8500M is something of a digital Swiss-Army knife, Martin Pipe discovers.

**H**ere we have a single box that combines the functions of slot-loading 3D Blu-ray player, high-definition personal video recorder (with 500GB of capacity) and multimedia 'hub'. If you bought your TV before they started going 'smart', you'll appreciate that the slim box also offers most, if not all, of the smart functions of Samsung's latest flat-panel telejies.

It even builds in a web browser and although the idea of 'surfing the web' on a TV has some merit, the handset-based user interface won't give those selling more orthodox web-access devices any sleepless nights. This apart, it won't give you any either - thanks to its overall user-friendly nature, free smartphone control 'App' and ability to connect to your home network via Ethernet or wirelessly.

Let's start with the disc player. This will deal with CDs (with online album identification) DVDs, CD-ROMs or DVD-ROMs containing compatible content and of course Blu-rays - 2D or, if your display is

compatible, 3D (it also has a system of converting 2D into 3D, but it's of little practical value). Hi-res audio formats like DVD-A or SACD are also ignored; if the latter is of interest, consider the Sony BDP-S790 reviewed in the November issue. The BD-E8500M will play Blu-ray hi-def. (24/96) music concerts and rarer audio-only discs, such as those from 2L of Norway (24/192).

Terrestrial TV programmes can be recorded as a disc plays, if need be. When you're viewing a recording, you're accessing a hard-disk capture of the very same bitstream that carried the original broadcast. In practical terms, this translates to no discernible quality loss whatsoever.

HD broadcasts fared very well, with excellent colour rendition and wide visual dynamic range. In comparison, upscaled SD broadcasts are often marked by an understandable 'softness' and tendency to artefact.

Annoyingly, many HD broadcasts that were flagged up as '5.1 AAC' (including, surprisingly, a C4 showing of Predators) were reproduced in

two channels only - regardless of audio settings. The only genuine 5.1 content came from the BBC HD demo loop.

Such broadcasts are sent to a receiver via HDMI in Dolby Digital format when the box is configured for 'bitstream' necessary to convey multi-channel Blu-rays in all their potential glory, but there's a sonic penalty to be paid for this AAC-to-Dolby transcoding. Samsung should provide a dedicated PCM output option for 5.1 terrestrial HD. Oddly, two-channel HD broadcasts are already conveyed as 2-channel PCM with the 'bitstream (unprocessed)' audio mode selected!

All of the usual features of digital TV and PVRs are supported. Among them are subtitles, digital teletext, pay-TV CI slot, powerful EPG, timeshift and the ability to record one channel while viewing another (this is a dual-tuner unit). It's just a shame that the optical disc drive is only a reader. You can't make DVDs or Blu-rays from hard-disk recordings, although it is possible to connect a USB drive and record on



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that instead when the internal one begins to fill up.

There's also iPlayer support – in HD, too. This 'App' is one of the many delights of Samsung's SmartHub, which also includes YouTube, LoveFilm, Netflix, Picasa, a 'search' function and the aforementioned web-browser. Other Apps, covering a wide range of tastes, can be downloaded and installed. What a shame that Spotify isn't among them. The only 'musical' App gives you Berlin Philharmoniker content, but I somehow doubt that audiophiles will relish the prospect of hearing this great orchestra's performances murdered by heavy compression.

**PERFORMANCE**

The 3D version of Alien prequel Prometheus looked sublime on a Epson TW-9100W Full-HD projector. This is one of the 3D Blu-rays worthy of that moniker, and the scene in which android David activates the hitherto-dead 'Engineer' ship's start-chart stands out in particular. The intricate glowing patterns that fill the cavernous interior can all be spatially-identified.

What it can't do – or, perhaps more accurately, our sample couldn't – is handle Blu-ray online content, known as BD-Live. I tried plugging USB storage devices into the front and rear USB ports (FAT16/32 and NTFS formatted) but none worked; all I got was error messages. It's a pity the BD-E8500M cannot store temporary BD-Live data on its internal hard drive instead of USB and 'our' USB didn't work, for reasons unknown (we asked Samsung but had no reply before publication).

Sonically, the BD-E8500M accurately-delivered the goods (specifically, a DTS-MA hi-res soundtrack) to an Onkyo TX-NR818 receiver (reviewed in December) and the Rogers GS6/GS5/C33/ASB60 speaker setup it drove. It maintained a delicious balance between the

delicately-atmospheric (the 'drip-drip' of ancient spaceship interiors) and the bombastic (full-on explosions!) while maintaining a near-holographic soundstage. 2D Blu-rays and upscaled DVDs were also competently-handled both visually and sonically.

The BD-E8500M's multimedia playback capabilities are praiseworthy – in part. It can draw on content from CDs/DVDs, DLNA servers or USB storage devices. There's also an alphabetically-organised multimedia jukebox on board - CDs can be 'ripped' to the hard disk, although the only storage option is 192kbps MP3.

It's more versatile in terms of the types of content that can be played. Video compatibility includes DivX/XviD, mkv, mov and MPEG. JPEG photos are suitable too. Sometimes, though, the first second or so of playback is lost.

The usual compressed audio formats – MP3, AAC and WMA – are supported. But I found that the BD-E8500M can also play higher quality WAVs and FLACs all the way to 24/96 – provided they're loaded via USB. Although files can be copied from USB (but not, sadly, DLNA networked devices) to the jukebox, only MP3/WMA is recognised.

If this machine can play WAV and FLAC from USB, then why not the hard disk? A feature of genuine value to music lovers has been needlessly-fettered. But that's not all. If the Onkyo's onscreen displays are to be believed, 96kHz USB material is 'downsampled' to 48kHz; no menu 'tweaking' made any difference here. Blu-ray audio, mercifully, is left intact.

CDs and

uncompressed/losslessly-compressed audio files play very well via HDMI. Music ranging from Autechre's Incunabula to Led Zep's 'Houses of the Holy' was endowed with a sense of scale and impeccable timing. Using the analogue output with a Naim Nait 3 and Acoustic Energy AE109s, the presentation proved to be rather thin, lean and lacking in detail. An external DAC (ADL's Esprit), fed from the unit's optical output, restored the character to a far more musical one with firmer basslines.

**CONCLUSION**

The BD-E8500M has clearly been designed to appeal to as many users as possible. In this, it mostly succeeds although there are some annoying traits – the jukebox's format incompatibilities, for one. A pity; used with appropriate outboard gear, meaning a good AV receiver of course, a product that is not intended for audiophile use does have high-quality music-playback from Blu-ray music concerts and audio discs, as well as CD and DVD Video playback, plus so much else for the modern consumer.



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**AGAINST**  
 - rips to MP3 only  
 - would not store BD-Live  
 - no SACD or DVD-A replay

**MEASURED PERFORMANCE**

Our analysis of frequency response from the analogue output shows the BD-E8500M measured flat to 21kHz before rolling down sharply due to the usual anti-alias filters. The analogue outputs will give an even tonal balance and good treble extension.

Samsung use quality parts and corners have not been cut in the DAC, in terms of linearity. Distortion was low from 0dB (0.002%) right down to the critical -60dB level where we measured a creditable 0.22%, as good as a typical hi-fi CD player. As always there is quantisation noise in our distortion analysis, but this is due to 16bit quantisation, rather than intrinsic DAC non-linearity within the player.

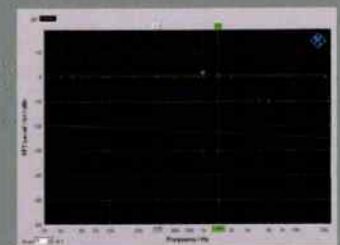
The player's EIAJ Dynamic Range value was good at 100dB, if not up with the best that can manage 102dB, but this is to be expected from a player whose primary output is HDMI.

Output measured a standard 2V and noise was low at -112dB.

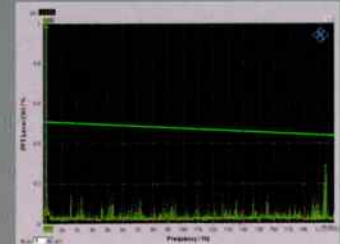
The BD-E8500M produced a tidy set of figures for CD replay. It is no hi-fi

player perhaps, but there is little sign of limitation in its measured performance, so it will offer at least 'decent quality' analogue sound. NK

**FREQUENCY RESPONSE**



**DISTORTION**



# 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.

**We do not sell these products  
It is for your information only.**

## DIGITAL

**CAMBRIDGE AUDIO CDI 1986 £1500**  
Inspired Stan Curtis redesign of Philips CD104, complete with switchable digital filter. Lean but tight and musical performer.

**CAMBRIDGE AUDIO CD4SE 1998 £200**  
A touch soft in the treble and tonally light, but outstanding in every other respect.

**LINN KARIK III 1995 £1775**  
The final Karik was a gem. Superb transport gives a brilliantly tight, grippy dynamic sound, albeit tonally dry.

**MARANTZ CD73 1983 £700**  
A riot of gold brushed aluminium and LEDs, this distinctive machine squeezed every last ounce from its 14x4 DAC -super musical



**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.



**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.

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

**MERIDIAN MCD 1984 £600**  
The first British 'audiophile' machine was a sweeter, more detailed Philips CD100. 14x4 never sounded so good, until the MCD Pro arrived a year later.



**NAIM CDS 1990 £ N/A**  
Classic Philips 16x4 chipset with serious attention to power supplies equals grin-inducing sonics.



**SONY CDP-101 1982 £800**  
The first Japanese CD spinner was powerful and involving. Brilliant transport more than compensated for 16x2 DAC, and you even got remote control!

**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.



**SONY CDP-701ES 1984 £890**  
Sony's first ever bespoke high end audiophile machine used a 16x2 DAC to provide a clinically incisive sound; supreme build quality allied to the pure unadulterated luxury of a paperback-sized remote control.

**TECHNICS SL-PI200 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. Sonically, it's pure fun, with hefty bass that can still show weedy modern players a thing or two!

**YAMAHA CD-X1 1983 £340**  
Nicely built 16x2 machine with a very sharp and detailed sound; sometimes too much so. Excellent ergonomics, unlike almost every other rival of the time.

## COMPACT DISC TRANSPORTS

**TEAC VRDS-TI 1994 £600**  
Warm and expansive sound made this a mid price hit. Well built, with a slick mech.



**ESOTERIC P0 1997 £8,000**  
The best CD drive bar none; TEAC's Tokyo boys pushed the boat out in style. Brilliantly incisive, ridiculously over engineered.

**KENWOOD 9010 1986 £600**  
The first discrete Jap transport was beautifully done and responds well to re-clocking even today.

## DACs

**CAMBRIDGE AUDIO DACMAGIC 1995 £99**  
Good value upgrade for budget CD players with extensive facilities and detailed sonics.



**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.



**PINK TRIANGLE DACAPO 1993 £ N/A**  
Exquisite; the warmest and most lyrical 16bit digital audio we have ever heard. Clever plug-in digital filter modules really worked!



**QED DIGIT 1991 £90**  
Budget bitstream performer with tweaks aplenty. Positron PSU upgrade makes it smooth, but now past it.

**TURNTABLES**

**ARISTON RDI1S 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.

**ADC ACCUTRAC 4000 1976 £300**  
Bonkers 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 PL12D 1973 £36**  
The beginning of the end for the British turntable industry. 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



**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.

**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.

**GOLDRING LENCO GL75 1970 £15.65**  
Simple, well engineered motor unit with soft, sweet sound and reasonable tonearm. Good spares and servicing support even today from specialists. Eminently tweakable. Similar 88 and 99 motor units are budget 301/TD124 rivals.

**LINN AXIS 1987 £253**  
Simplified cut-price version of the Sondek complete with LVX arm. Elegant and decently performing mid-price package. Later version with Akito tonearm better.

**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..



**MARANTZ TT1000 1978 £ N/A**  
Beautiful seventies high end belt drive with sweet and clean sound. Rare in Europe, but big in Japan.



**MICHELL GYRODEC 1981 £599**  
Thanks to its stunning visuals, this bold design wasn't accorded the respect it deserved until recently. Early examples sound cold and mechanical, but now right on the pace. Clean, solid and architectural sound.

**TECHNICS SP10 1973 £400**  
Seminal Japanese engineering. Sonics depend on plinths, but a well mounted SP10/II will give any modern a hard time, especially in respect of bass power and midband accuracy.

**REGA PLANAR 3 1978 £79**  
Brilliantly simple but clean and musical performer, complete with Acos-derived S-shaped tonearm. 1983 saw the arrival of the RB300, which added detail at the expense of warmth. Superb budget buy.

**GARRARD 301/401 1953 £19**  
Heavy metal - tremendously strong and articulate with only a veiled treble to let it down. In many respects, better than the seventies 'superdecks' that succeeded it.



**ROKSAN XERXES 1984 £550**  
Supposedly the first to 'better' the LP12. Super tight and clean sound, with excellent transients. Less musical than the Sondek, but more neutral. Sagging plinth top-plates make them a dubious used buy.

**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. Scarily complicated and with no spares support - buy with caution!

**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.



**TOWNSHEND ROCK 1979 £ N/A**  
The product of academic research by the Cranfield Institute, this novel machine has an extremely clean and fluid sound. Substantially modified through the years, and capable of superb results even today.

**TRIO LO-7D 1978 £600**  
The best 'all-in-one' turntable package ever made, Trio/Kenwood threw their 'engineering best practice' book at this one with startling results. Clean, powerful and three-dimensional sound, ultimately limited by the tonearm.

**TO NEARMS**

**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.

**AUDIO TECHNICA AT 1120 1978 £75**  
Fine finish can't compensate for this ultra low mass arm's limited sonics - a good starter arm if you've only got a few quid to spend.

**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 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.

**GRACE G707 1974 £58**  
This early Japanese example of the tonearm art has a smooth, lyrical sound. Imported by Linn, fitted to early LP12s. Sonically way off the pace now, though.

**REGA RB300 1983 £88**  
Inspired budget esoterica. Detailed, tight, neutral sound but tonally grey sounding in absolute terms. Responds well to tweaking, and its cheaper RB250 brother better still.



**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.

**HADCOCK GH228 1976 £46**  
Evergreen unipivot with lovely sweet, fluid sound. Excellent service backup.



**LINN ITTOK LVII 1978 £253**  
Arguably the first 'superarm'; Japanese design to Linn specs made for a muscular, rhythmic sound with real dynamics. Now off the pace, but the final LVIII version worth seeking out.

**NAIM ARO 1986 £875**  
Truly endearing and charismatic performer - wonderfully engaging mid-band makes up for softened frequency extremes.



**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.

**INTEGRATED AMPLIFIERS/COMBOS**

**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.

**ROGERS A75 1978 £220**  
The prototypical Audiolab 8000a – lots of sensible facilities, a goody power output and nice sound in one box. The later A75II and A100 versions offered improved sonics and were seriously sweet and open to listen to.

**EXPOSURE VII/VIII 1985 £625**  
Seminal mid-eighties Exposure pre-power, offering most of what rival Naim amps did with just that little bit extra smoothness and sweetness. Still, it's by no means 'sweet' by today's standards, being lean, punchy, musical. It's also possessed of that quintessentially eighties look – frumpy black steel boxes with rough silk screened logos!



**SUGDEN C51/P51 1976 £130**  
Soft sounding early Sugden combo with a plethora of facilities and filters, complete with seventies-tastic DIN socketry. A sweet and endearing performer as you'd expect, but lacking in power and poor load driving ability, so partner carefully.

**VTL MINIMAL/50W MONOBLOCK 1985 £1,300**  
Vacuum Tube Logic was one of the Europe's biggest tube names in the eighties, and it shows. Rugged, professional build and finish allied to a lively and punchy sound (albeit with limited power) make them an excellent used buy.

**A&R A60 1977 £115**  
Sweet and musical feature-packed integrated; the Audiolab 8000A used its blueprint to great effect.



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

**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.



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

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

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



**MUSICAL FIDELITY A11985 £350**  
Beguiling Class A integrated with exquisite styling. Questionable reliability.



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

**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.



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

**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



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

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

**PREAMPLIFIERS**  
**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.

**AUDIO RESEARCH SP-8 1982 £1,400**  
Beautifully designed and built high end tube preamplifier with deliciously sweet and smooth sound. Not the last word in incision or grip, but that didn't matter to those who aspired to it.

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

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

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

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

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

**NAIM NAC32.5 1978 £ N/A**  
The Salisbury company came of age with this, their classic high end pre. Brilliantly fast and incisive sound that's a joy with vinyl but a tad forward for digital.

**POWER AMPLIFIERS**  
**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.

**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 their rarity means high prices are the order of the day.

**LECSON API 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.

**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!

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



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



**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



**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.

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

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

**RADFORD STA25 RENAISSANCE 1986 £977**

At the time, very possibly the least cool amplifier on the planet – and we're not talking heat dissipation here. 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.



**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 eighties-tastic experience.



**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.



**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.

**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.

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



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

**NAD 4040 1979 £79**  
 Tremendously smooth and natural sound allied to low prices and good availability make this budget analogue esoterica. Needs a good antenna to work properly, however.

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

**PIONEER TX-9500 1976 £295**  
 Another of the serious classic solid-staters. Boasts the usual high end Jap package of fine sound, brilliant sensitivity and superb build.

**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. Fed to a modern outboard decoder they're deliciously lucid with true dimensionality.



**YAMAHA CT7000 1977 £444**  
 Reputedly the best of the classic Jap analogues, this combines sleek ergonomics, high sensitivity and an explicit, detailed sound.

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



**REVOX B760 1975 £520**  
 More of a semi-pro machine than a domestic bit of kit, 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!

**NAD 4140 1995 £199**  
 Brilliant affordable digital tuner has a smooth, detailed musical sound plus sensible real-world facilities.

**ROGERS T75 1977 £125**  
 Superb mid-price British audiophile design, complete with understated black fascia. Fine sound in the true Rogers mould – smooth and sweet with fine dimensionality.

**SANSUI TU-9900 1976 £300**  
 A flagship Japanese tuner designed to steal sales from the likes of Accuphase and Revox, it boasts superlative RF performance and an extremely smooth and lucid sound, along with very fine build and finish.

**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 a very good sound quality allied to brilliant ergonomics.

**SEQUERRA MODEL I 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.



## CLASSICS

### TECHNICS ST-8080 1976 £180

National Panasonic's specialist hi-fi brand was a big hitter back then, and this is no exception. Superb FM stage makes for a very clean and smooth listen with lots of detail and depth.



### ANALOGUE RECORDERS

#### YAMAHA TC-800GL 1977 £179

Early classic with ski-slope styling courtesy of Mario Bellini. Middling sonics by modern standards, but cool nonetheless!



#### 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.



#### PIONEER CTF-950 1978 £400

Not up to modern standards sonically, but a great symbol of the cassette deck art nonetheless.



#### REVOX A77 1968 £145

The first domestic open reel that the pros used at home. Superbly made, but sonically off the pace these days. B77 better, but couldn't match the Japanese.



### SONY WM-D6C 1985 £290

Single capstan transport on a par with a Swiss watch, single rec/replay head better than most Naks. Result: sublime.



#### 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

### DIGITAL RECORDERS

#### SONY MDS-JE55ES 2000 £900

The best sounding MD deck ever, thanks to awesome build and heroic ATRAC-DSP Type R coding.



#### PIONEER PDR-555RW 1999 £480

For a moment, this was the CD recorder to have. Clean and detailed.

#### MARANTZ DR-17 1999 £1100

Probably the best sounding CD recorder made; built like a brick outhouse with a true audiophile sound and HDCD compatibility.



#### KENWOOD DM-9090 1997 £500

Serious and sophisticated sound thanks to well implemented ATRAC 4.5; surprisingly musical MD recorder.

#### SONY TCD-8 DATMAN 1996 £599

Super clean sound makes this an amazing portable, but fragile.

### LOUDSPEAKERS

#### ACOUSTIC RESEARCH ARI8S 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...

#### 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. Partner with Rogers ABI subwoofers for an extra two octaves of bass!

#### LOWTHER PM6A 1957 £18 EACH

This seminal full-range driver is still manufactured. High sensitivity, as fitted to many classic horn designs.

#### 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.

### TANNOY WESTMINSTER 1985 £4500

Folded horn monsters which certainly sound good if you have the space. Not the last word in tautness but can drive large rooms and image like few others.

#### JR 149 1977 £120

Infamous cylindrical speaker that was ignored for decades but now back in fashion! Based on classic KEFT27 / B110 combo as seen in the BBC LS3/5a. Doesn't play loud, needs a powerful transistor amplifier, but rewards with fine clarity and imaging.



#### SPENDOR BCI 1976 £240

Celestion HF1300 tweeter meets bespoke Spendor Bextrene mid-bass unit - and the result is a beautifully warm yet well focussed sound. A little bass bloom necessitates careful low-stand mounting, but these prove that the seventies did have some fine designs after all!

#### 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.



#### KEF R105 1977 £785

Three way Bextrene-based floorstander (complete with castors!) gave a truly wide-band listen and massive (500W) power handling. A very neutral, spacious and polite sounding design, but rhythmically well off the pace. The quintessential nineteen seventies loudspeaker.

#### IMF TLS80 1976 £550

Warm and powerful nineteen seventies behemoth with transmission loading and a mixture of KEF and Celestion drive units. Impressively physical wideband sound but rhythms aren't its forte.

#### MAGNEPLANAR SMGA 198X £800

Technological loudspeaker with genuinely musical abilities; fast, smooth, open, dry.



**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.



**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.

**HEYBROOK HBI 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.

**CELESTION SL6 1984 £350**

Smallish 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...

**LEAK SANDWICH 1961 £39 EACH**

Warm sounding infinite baffle that, with a reasonably powerful amplifier can sound quite satisfying.



**QUAD ESL63 1980 £1200**

An update of the ESL57, with stiffer cabinets. Until the 989, the best of the Quad electrostatics



**YAMAHA NS1000 1977 £532**

High tech Beryllium midband and tweeter domes and brutish 12" woofers in massive soaled mirror image cabs equals stunning transients, speed and wallop allied to superb transparency and ultra low distortion. Partner carefully!



**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!



**CLASSIC CONTACTS**

When a classic goes 'poof' your troubles have just started, but there may be a good ending. Replacing failing parts can improve the sound, so here is a short listing of all these companies who specialise in getting a classic up and running again after its deposited a small ring of soot on your ceiling!

**GT AUDIO**

(Graham Tricker, Bucks)  
Leak Troughline specialists. Also Quad and most classic tuners, radios and amplifiers restored, repaired.  
Tel: 01895 833099  
Mob: 07960 962579  
www.gtaudio.com

**TECHNICAL AND GENERAL**

(East Sussex)  
Turntable parts - wide range of spares and accessories, plus arms and cartridges.  
Tel: 01892 654534

**CARTRIDGE MAN**

(Len Gregory, London)  
Specialist cartridge re-tipping service and repairs. High quality special cartridges.  
Tel: 020 8688 6565  
Email: thecartridgeman@talktalk.net  
www.thecartridgeman.com

**QUAD ELECTROACOUSTICS**

(Cams) Quad's service department, able to repair almost all Quad products, from the very first. (Also Audiolab, Mission & Wharfedale).  
Tel: 0845 458001 | www.quad-hifi.co.uk

**DR MARTIN BASTIN**

(Shropshire) Garrard 301/401 restoration, renovation and service. Special plinths; rumble cures, etc.  
Tel: 01584 823446

**ARKLESS ELECTRONICS**

(Northumberland)  
Specialist in repairs, restoration and modifications to all amplifiers, valve or solid state, ancient and modern.  
Tel.: 01670 530674  
Email: info@arklesselectronics.com  
www.arklesselectronics.com

**CLASSIQUE SOUNDS**

(Paul Greenfield, Leicester)  
ESL-57s restored, rebuilt, fully renovated or improved. Leak, Quad valves amps etc.  
Tel: 0845 123 5137/  
Mob: 0116 2835821  
Email: classique\_sounds@yahoo.co.uk  
www.flashbacksales.co.uk/classique

**WEMBLEY LOUDSPEAKER**

(Paul MacCallam, London)  
Comprehensive loudspeaker servicing.  
Tel: 020 8 743 4567  
Email: paul@wembleyloudspeaker.co.uk  
www.wembleyloudspeaker.com

**CLASSIC NAKAMICHI**

(Paul Wilkins, Worthing, West Sussex).  
Restore, Repair & Service Nakamichi Cassette Decks.  
Tel: 01903 695695  
Email: paul@bowersandwilkins.co.uk  
www.bowersandwilkins.co.uk

**ONE THING**

(Coventry) Specialist in electrostatic panel manufacture and repair. Can refurbish ESL 57s and 63s as well as Leak Troughlines and Quad IIs.  
Email: one.thing@ntworld.com  
www.onethingaudio.com

**LORICRAFT AUDIO**

(Terry O'Sullivan, Bucks)  
Garrard 301/401 and their own 501 repair, spares and service.:  
Tel: 01488 72267  
www.garrard501.com

**EXPERT STYLUS COMPANY**

(Wyndham Hodgson, Surrey) Stylus replacement service for all types of cartridge. Including precise profiling for 78s. Tel: 01372 276604  
Email: w.hodgson@btclick.com

**OCTAVE AUDIO WOODWORKING**

(Bristol) Unit 2, 16 Midland Street, St Phillips, Bristol. Tel: 0117 925 6015  
www.octave-aw.co.uk

**REVOX**

(Brian Reeves, Cheshire)  
Revox tape recorder spares, service and repair. Accessories also available.  
Tel: 0161 499 2349  
Email: brian@revoxservice.co.uk  
www.revox.freuk.com

**SOWTER TRANSFORMERS**

(Brian Sowter, Ipswich)  
Large range of audio transformers for valve amps, cartridges, line drive, interstage plus all associated services.  
Tel: 01473 252794  
www.sowter.co.uk

**LOCKWOOD AUDIO**

(London)  
Tannoy loudspeaker parts, restoration and repair. Also Epos and TDL loudspeakers.  
Tel: 020 8 864 8008  
www.lockwoodaudio.co.uk

**ATV AUDIO**

(Henry Dulat, Surrey)  
Repairs, restorations and upgrades to valve and transistor amps and all analogue audio including Revox.  
Tel: 01372 456921 Mobile: 07730 134973

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**WOLFMAN MACABRE**

*Dragonmilk*  
**Audio Archives**

Making its first appearance in this column, Audio Archives is doing a sterling job of tracking down English underground rock and folk music, largely from the early seventies.

London-based Dragonmilk is a supreme example. Created by John and Alan Carrington and touring the club and pub circuits, the band were known for their signature Hammond organ sound. The band played a combination of their own prog material, covers and classical reinterpretations. So, very Emerson, Lake And Palmer then.

This CD is almost a window onto the band's career. A live recording at The Royal Fort in Bermondsey, 26 June 1971, the resultant tape (from a Revox A77 no-less) was to be used to obtain a record deal. As such, the CD is quite endearing as, in-between songs, the band chat to the audience, talking about a possible single here and a possible album there.

It has to be said that the music is excellent, although it's not of audiophile quality. On this evidence, how they remained unsigned is a mystery, with John Carrington's Hammond organ being a highlight and a delight. The guy can certainly play. His improv meanderings bring life and drive to each track while the

band, as a whole, should appeal to any prog fan out there.

The band did release a (largely unrepresentative) single, which bombed, a cassette-only album and survived into the punk era.

Also look out for Elder Kindred's 'Kindred Spirits' a pop/rock outfit with psychedelic edge from 1970. This CD has been collated from rare acetates. England's self-titled album (1976), which was released on the Deroy label, focused on heavy rock. Ferris Wheel's 'Supernatural Girl' (1974) is a lost stoner-acid folk gem offering downbeat yet subdued beauty while Savanna's 'Collected Madness' (Deroy, 1973) is a folk LP of fragility and circumspection.

**ATLANTIC SOUL LEGENDS**

*Various*  
**Rhino**

The Atlantic label was a principle source of top quality soul and R&B from the sixties, producing a series of seminal LPs including Booker T. & the M.G.'s 'Green Onions' (1962), an almost perfect instrumental album covering just thirty-five minutes hanging on Booker T. Jones' Hammond organ and Steve Cropper's guitar. Otis Redding's 'Otis Blue' (1965), his third album and his most well structured. There are slices of pure soul magic on this album including the Stones cover '(I

Can't Get No) Satisfaction', 'Respect' and 'Shake'. Here Redding even reaches beyond what seems to be his ability, stretching his talent to the utmost. Another classic on the label was Don Covay & the Goodtimers' 'Mercy'. Covay supplied Atlantic a single, 'Mercy Mercy' which was a surprise hit. This album was produced off the back of that single. Many artists, faced with the chance, have produced filler or have buckled under the responsibility but Covey rose to the occasion producing, what turned out to be, one if not the best ever soul albums on the label.

All three of these albums have now been included in an absolutely magnificent box set that features twenty soul albums that are never less than good, often very good and occasionally brilliant. Secured in a sturdy, lidded, box each album has been secured in a duplicate, mini-vinyl, sleeve featuring replica sleeve art. Okay, there are no inner sleeves to protect the CDs but this is a box that only asks for £35 which, considering the quality of the content is more than a steal, it's almost criminal.

Other albums include Howard Tate's self-titled album ((1972), William Bell's 'The Soul Of A Bell' (1967), the Bar-Kays' 'Soul Finger' ((1967), Percy Sledge's 'When A Man Loves A Woman' ((1966) and Aretha Franklin's 'Lady Soul' (1968).



**YAZOO**

*The Collection*  
**Music Club Deluxe**

In these days of downloads and iTunes and dial yourself a compilation from a pick'n'mix selection of MP3s, the CD-based compilation seems not only an anachronism but a complete waste of time. Yet, EMI's imprint, Music Club Deluxe, continues to produce a wide selection of collections and 'best ofs' and other various compilations.

So why do we still see the CD compilation? There are a range of excellent reasons, actually, that seem to have been submerged in download-oriented marketing.

Downloads, generally speaking, provide lower sound quality than a CD-based compilation. That is, download compilations mostly include reasonable MP3 quality tracks which don't stand a chance when faced with the superior output from a CD, so such a compilation will offer superior value for money. This is often ignored, the convenience of downloading taking precedent.

With this Yazoo compilation, you are getting 32 songs for a measly fiver. That's just over 15p per track. Better quality music, far cheaper, and a physical source for you to make your own multi-quality data tracks of your own. Which would you rather buy? A bit of a no-brainer isn't it?

Compilations, these days, tend to be rather more intelligent than of yore. Yes, you need to see all of the hits in a collection such as this and, with the Yazoo collection, there is 'Only You' and 'Don't Go' but you will also see nine additional, alternative mixes that are relatively rare and will be welcomed by fans.

Also look out for collections by Duran Duran (which includes two 7" mixes of 'The Reflex' and 'My Own Way', Hazell Dean, Billie (with eleven alternative mixes and a bonus track), Martine McCutcheon (with two alternative mixes) and Ike & Tina Turner.

**JACK BRADSHAW**  
*Saturday Night Special*  
**Bear Family**

Bradshaw was a country artist from an age where you were travelling from honky-tonk to tavern, performing late into the night while juggling the pressures of a marriage and family while holding down a day job. This was Bradshaw in the forties, fifties and sixties. Bradshaw did briefly secure a major contract with Decca but politics and other egos beyond his control conspired to scupper it.

Hence, the major figure in his working life was one, Harry Glenn. As Bradshaw said, "Harry was very persuasive. He was a pusher, whether you wanted to be pushed

or not."

Spreading the news about Bradshaw's music is revealing and illustrative of the times, "Glenn would take trips down to Nashville, to Alabama, just travel around and pull into towns along the way and simply play his records over his vehicle's loudspeakers. He'd announce a song, then play it and smile and say, "available here." He had boxes of them ready to go."

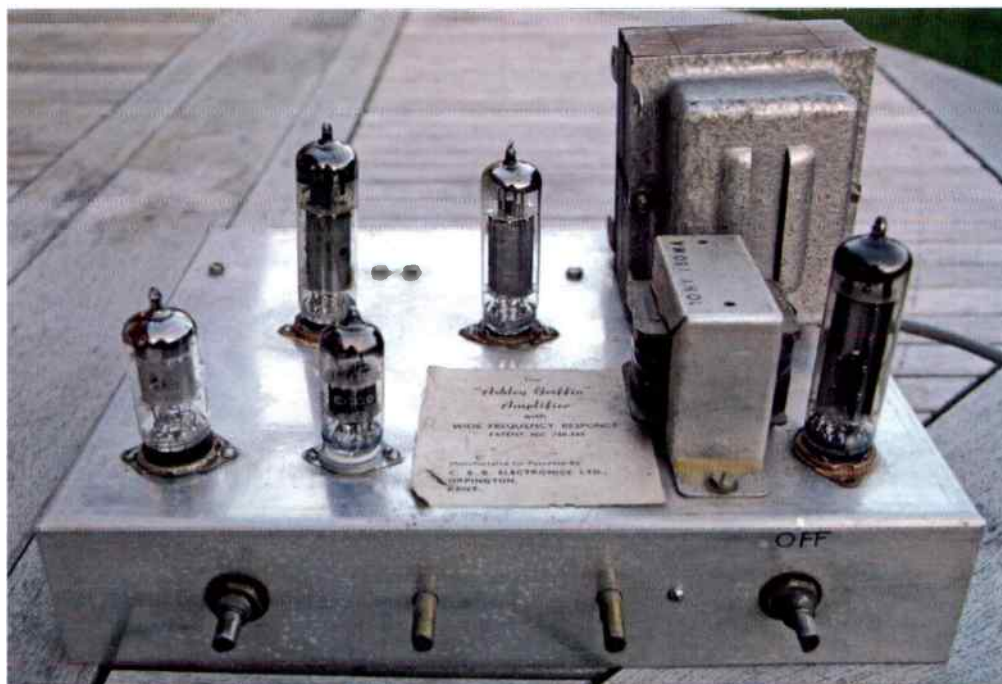
Bradshaw's music is sensitive while his vocal delivery projects a longing or yearning with song titles like, 'Don't Tease Me' and 'Searching' backing up his light, rhythmic voice with a gliding steel guitar floating in the background.

Also available on Bear Family is The Bailes Brothers over two CDs: The Legendary King Sessions: 1946 and 1953. From the mid-forties through to the fifties, the Bailes Brothers were among the most popular close-harmony duets. 'Juke Joint Johnny' focuses on Red Sovine, a singer/songwriter and guitarist who was best remembered for his earnest, funny and sentimental songs.

Finally, R&B singer, Edna McGriff ('Start Movin' In My Direction') had little success during the early fifties and found herself singing a gamut of covers. Her voice suited the Broadway song instead of the rather earthy rock'n'roll numbers she tried to tackle.

# Ashley Griffin

Patented wide frequency response amplifier... featuring bi-amplification, Single Ended Triode connection, and a simple Active Crossover, and all from 1956. Haden Boardman checks out an unusual amplifier...



*Classic British chassis from the mid 1950s. The manufacturer would expect the end user to fit it to a 'radiogram' cabinet, with the control shafts passing through the woodwork.*

/ strapped EL84s, output is going to be a few Watts, with quite a low current consumption. The power supply here is about four times the size it needed to be. Still, it is quite rare to find Single Ended EL84 valves being treated so well, a clearly well over specified mains transformer, and a very generous choke.

The amplifier lacks overall feedback, so there is more necessity for a smooth high tension supply than the 'norm' using EL84s. Conversely, the two output transformers are two 'standard' Radio Spares jobs; not even the 'de luxe' models from RS. Still, they are quite excellent little transformers, and considering the pretty low output power, are man enough for the job. There is no other feedback within the amplifier at all. This was quite common 1950s practice using an EL84 in Single Ended pentode mode, with no feedback and little electrical damping as a result, most speakers 'self damping' in this period.

Located on the left hand side of the amplifier is a single RF type coax socket, which connects in to the control grid of the drive / gain valve, an EF86 pentode (gain approx x200) via main volume control. This then feeds through to a single seven pin ECC91, a very odd ball double triode. The valve has a shared cathode connection, limiting its use somewhat. Gain matches the earlier ECC40 valve (another oddity these days with an eight pin base). In this design one section is ignored, and the other section wired as a split load phase splitter (equal resistor loads

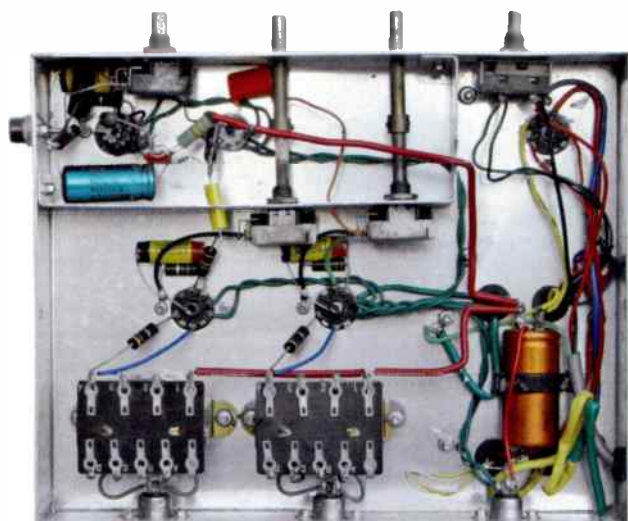
**A**fter thirty five years of pulling things apart, specifically audio and radio equipment, this compact little amplifier came as quite a pleasant surprise. In a week when I was playing with another one of those un-known

audio products from Philips; an EL95 Single Ended (SE) valve amplifier, this little Ashley Griffin thing turned up.

I have never heard of Ashley Griffin, but the guy was keen enough on his bespoke design to take a patent out on it. He certainly was not the first to bi-amp. The circuits of the original British Thompson Houston (BTH) cinema type 'A' amplifiers from the 1920s all have a Single Ended output triode for the high frequencies, and parallel single ended output for the bass, but by the average of 1956 standards this was quite advanced stuff.

Other than his (granted) patent, number 788453 I know nothing about Ashley Griffin, and knew little more about him after my purchase.

The compact chassis boasts quite an enormous power supply, EZ81 valve rectified and fitted with a decent choke. I am presuming that there was a matching pre amp at some point, as the rear panel contains three DIN sockets, two three pin type for loudspeaker connection, and one for power supply / high tension / low tension out. But in the contexts of the output valves being triode connected



*Highly original, and very clean. Three new components fitted badly by previous owner, Compact 'RS' output transformers under chassis. No attention to bus bar or star earthing here!*



**Unusual valve complement of an ECC91 as frequency splitter, anode driving HF and cathode LF crossover components, before triode connected EL84 in background. The EF86 provided voltage gain.**

in the valve's anode and cathode circuits), with the cathode driving the bass amplifier section and the anode driving the treble amplifier, with "RC" filters placed between the ECC91 valve and a pair of one Megohm potentiometers fitted on both of the EL84 output valve's control grids, used to trim the bass and treble actual levels.

I have always been a big fan of the mighty miniature EL84 tube. At 17 Watts anode dissipation, for its size, it is mighty powerful. It requires

EL84 tubes over a pair of the big brother EL34 valve, both sonically and reliability wise.

The obvious loudspeaker to wire to the Ashley Griffin amplifier was the Celestion Ditton 15 reviewed here by me a month or so back. Having already been re-wired with Chord Company cable, the crossover on the Ditton 15 in stock form is easy to access from the rear of the cabinet. In this situation it needed to be by-passed. The HF1300 treble unit (originally from GEC) in the Ditton 15 is absolutely of the era, and looking at the selected crossover components on the Ashley Griffin, 3,500Hz was about the right crossover point (6dB slope). Of course, I am talking mono here, with just one Ashley Griffin amplifier. Luckily I recently inherited a large stack of very early 45s, all from 1952, so armed with suitable preamp and deck, listening commenced...

First surprise was just how loud the system went. We are talking only a couple of watts, but I was missing the choke on the bass unit, with its losses. Bass and treble balance was easy to achieve aurally, no real need for a set of test tones. And in truth, the Ditton 15s really sounded most excellent; improving dramatically on the standard set up, everything

The Ashley Griffin circuit worked quite well. His idea was not totally unique, but his implementation was quite clever, but the build was, well, a tad flaky in places. The chassis is earthed all over, rather than to a common bus bar, and what has been nicknamed 'fly wire' practices are involved with the build, in that certain passive components are literally mounted on the end of a bit of solid core cable. The chassis is not the most sophisticated of things. Still, it worked. The previous owners had done some mild repair work; I could spot their soldering and replacement coupling capacitors, but overall, it was pretty original.

The little amplifier performed well, but as a fairly random design, a very random purchase, and I doubt more than a handful ever made, it is more a passing curiosity than a pace setter. of the time. Still it is very interesting for those of us who might of thought bi-wiring and bi-amplification a very new thing, and another amp for my EL84 collection.



**Rear view, and unusual use of DIN connectors; three pin type for both loudspeakers (no indication of which channel is doing what!) The six pin DIN carries Aux HT & LT supplies - dangerous!**

very little driving; a single valve is quite happy to deliver 4 Watts Single Ended or a pair 12 Watts Push-Pull, for years, without complaint or need for replacement. Famous for its use in the classic Mullard 3-3 and 5-10 designs, as well as Leak Stereo 20s and TL12+, both of which admirably outperform the soggy sonics of the larger Leaks using EL34 and KT88.

The biggest down fall I feel is it lack of visual sex appeal: it does not look much. But in most circumstances I would rather have four

worked remarkably well.

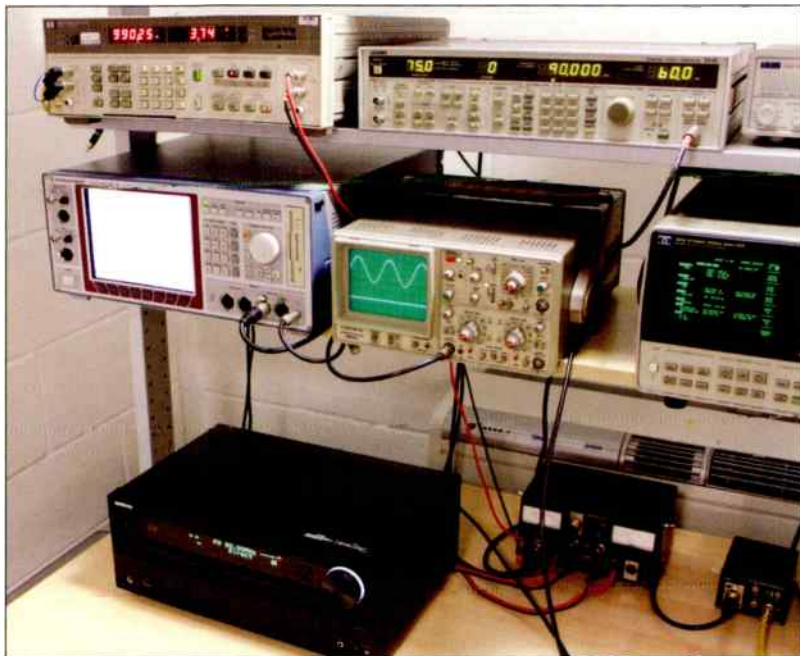
My Marantz DI DAC was made mono for a while (thanks to a set of Pro Sowter Transformers made for the job – first time used in my ownership) and the usual Hammond torture track fed through, plus internet radio and some high res files (although the TDA1541s don't scale all of those dizzy, and unnecessary heights), but I spent a lot of my time trawling through early mono LPs and EPs, having carefully set up a deck specific for the purpose.



**Single input on side of chassis, and note; with Haden's preferred RF / TV connector, rather than a nasty phono socket!**



**Proudly made by C&B Electronics, with Mr Griffin's patent number. Note the large choke, with no feedback around output stage. This was probably a necessity.**



# WORLD STANDARD TESTS

How we perform all the tests, and what they mean, is detailed on our website: [www.hi-fiworld.co.uk](http://www.hi-fiworld.co.uk). Go to the *product category* (e.g. Loudspeakers), then *Tests*.

**Hi-Fi World tests all products before they are reviewed. Many fail this first hurdle, rejected for a variety of faults. Pre-testing is crucial but only Hi-Fi World does it. For those products that pass, our measurements give our reviewers invaluable information about behaviour. Hi-Fi World is the only magazine, worldwide, sufficiently well equipped to be able to apply comprehensive tests in all product categories. Here's how we do it...**

## LOUDSPEAKERS

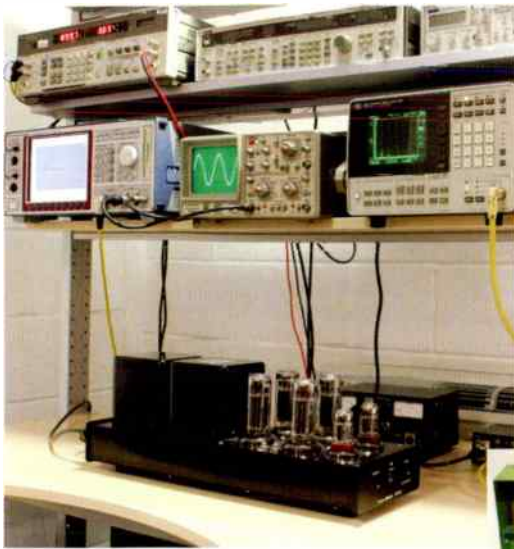
Loudspeakers are tested with the industry standard Clio measurement system from Audiomatica of Italy, giving results understood and accepted by manufacturers worldwide. Measuring microphones are a Bruel & Kjaer mic. capsule on a B&K SPL meter and an Audiomatica microphone. Our tests include decay plots and coloured contour maps, as well as unique distortion measurement that provides valuable insight into bass behaviour. See our website [www.hi-fiworld/loudspeakers/tests](http://www.hi-fiworld/loudspeakers/tests) for more detail.



## PICKUP ARMS

Our unique arm vibration tests are made using a special miniature Bruel & Kjaer accelerometer attached to the arm's headshell, at the cartridge mounting position, as our picture shows. This reveals arm tube bending modes and high frequency vibrations in the headshell, that degrade sound.



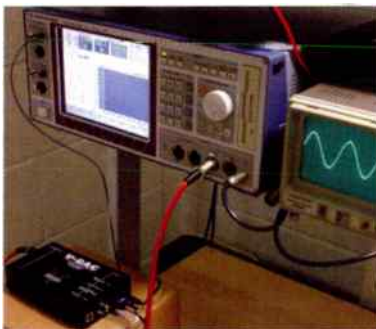


**AMPLIFIERS**

Amplifiers are connected to large resistive loads, 8 ohms and 4 ohms, and all parameters including power and distortion are measured by a Rohde & Schwarz UPL, the world's most advanced audio analyser. The loads are custom built to our specification, able to absorb 200 Watts without generating high frequency distortion due to magnetic hysteresis caused by iron content in the wire. This allows us to measure crossover distortion at 10kHz accurately and understand its influence upon sound.

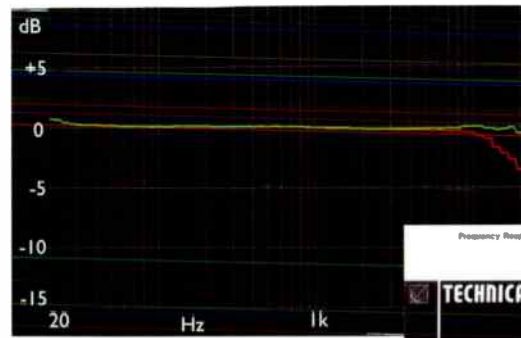
**DIGITAL CONVERTORS**

DACs are connected to the digital signal generator of our Rohde & Schwarz UPL analyser and their analogue output sent to the analyser for analysis. We can measure all parameters and even pre-jitter the signal to test effectiveness of reclocking, allowing us to uniquely determine impact on sound quality.



**TURNTABLES**

Analysing turntable speed stability is thorny. We have just bought a Kenwood 180FL Wow & Flutter meter to get a high resolution analysis from its frequency demodulated speed stability output, important to see what Direct Drives are really doing.



**PICKUP CARTRIDGES**

To measure pickup cartridges you need an accurate test disc – and there is only one, JVC TRS-1007. We have two of them. It was cut at half speed and needs special equalisation, but is super accurate. That is why our cartridge measurements are of unparalleled accuracy, matching those of Ortofon for example, who also use TRS-1007.



**VHF/FM TUNERS**

Top quality VHF/FM tuners demand the use of a reference standard RF signal generator and for this we use a Leader 3412 Standard Signal Generator. An external MPX filter and post-equalisation network complete the picture, giving super accurate data for analysis in our Rohde & Schwarz UPL analyser.



**CD, DVD AND BLU-RAY PLAYERS**

To test CD and SACD players you need top quality test discs – and they come from Philips, inventors of the medium. We use Philips discs, as well as Sony and Denon for CD. We use the expensive but comprehensive Burosch DVD test disc set, with top resolution 24/192 PCM data, for DVD and Blu-ray players.

# WORLD STANDARDS

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

## TURNTABLES

**REGA RPI** 2010 £225

Pleasing sound, fine build and ease of set-up and use make this a great first 'real' hi-fi turntable.

**REGA P2** 2008 £300

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

**REGA P3-24** 2008 £405

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

**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.

**FUNK FIRM VECTOR II 2009** £860

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



**MICHELL GYRODEC SE 2005** £1,138

Design icon with superlative build and finish. Sound is beautifully smooth, effortless and exceptionally expansive. No longer peerless at the price, but still a brilliant platform.

**MARANTZ TT-15S1** 2005 £1,299

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

**ROKSAN RADIUS 5.2** 2011 £1,450

Although getting expensive, the latest Radius is a highly grown up package with a flowing yet engaging nature; a fine package.



**AVID DIVA II SP** 2010 £2,000

New twin belt drive and power supply make this a more commanding performer, although there's a substantial price hike. Speed, dynamics and detail are hard to beat anywhere near the price.

**INSPIRE ECLIPSE SEv2 12**

2010 £2,349

Finely engineered, smooth and detailed sounding deck offering valuable twelve inch tonearm compatibility.

**NOTTINGHAM ANALOGUE**

**HYPERSPACE** 2010 £2,390

Deliciously spacious, lyrical and beguiling sounding turntable, but lacks ultimate grip.

**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.

**DR FEICKERT WOODPECKER 2010**

£3,445

Elegant deck with great low frequency solidity, coherent soundstaging and a precise midband.



**LINN LP12SE** 2010 £3,510

Surely hi-fi's most iconic turntable, the legendary Sondek goes from strength to strength. New Keel subchassis and Radical DC motor add precision and grip to one of the world's most musical disc spinners. Expensive, though.

**ACOUSTIC SIGNATURE**

**STORM** 2011 £3,612

An excellent high end design with a smooth, solid, open and lyrical sound and razor sharp styling and build.

**FLETCHER AUDIO OMEGA .5**

2010 £3,699

Charming high end turntable that's a fitting testament to the late Tom Fletcher.

**PALMER 3** 2010 £3,750

Eccentric hand built high end turntable with a pleasingly smooth, sweet and lucid sound.



**E.A.T. FORTE S EVO 12 2010** £4,750

Excellent premium price turntable with power, precision and passion aplenty, but relaxed and easy going by nature too. Great value package with the Pro-ject Evo 12" arm option.

**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...

**SME MODEL 10A** 1995 £4,556

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

**AVID VOLVERE**

**SEQUEL** 2007 £4,600

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

**BRINKMANN**

**BARDO** 2010 £5,845

Unique high end direct drive turntable with amazing grip and focus, albeit not the most romantic of natures.



**McINTOSH MT10** 2008 £8,995

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

**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.

## 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 counterweight modification.

**MICHELL TECNOARM A** 2003 £442

The late John Michell's clever reworking of the Rega theme, using blasting, drilling and rewiring! Surely the best overall performer under £500.



**ORIGIN LIVE**

**SILVER 3C** 2010 £599  
Excellent mid-price tonearm with a clean and open yet lyrical sound.

**HADCOCK GH-242 EXPORT**

2010 £770  
Consummately musical, lyrical sounding tonearm, but needs the right turntable. Excellent value.

**SME 309**

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

**FUNK FIRM FXR II**

2010 £1,175  
Clever reworking of the ubiquitous Rega platform, the FXR II gives a wonderfully musical, almost unipivot like performance.

**AUDIO ORIGAMI PU7**

2007 £1,300  
The classic Syrinx PU3 updated to spectacular effect. Hand made to order, with any mass, length and colour you care for. Fit, finish and sound truly impressive.

**NAIM ARO**

1987 £1,425  
Charismatic unipivot is poor at frequency extremes but sublime in the midband; truly emotive and insightful.

**HELIUS OMEGA**

2008 £1,595  
Stylish and solid lump of arm with fabulous build quality, that turns in a dynamic and weighty performance.

**SME SERIES IV**

1988 £1,620  
Offers nine tenths of the SMEV's magic at just over half price. Exquisitely built and finished, and a design classic. Faces stiff competition these days, but lovely nevertheless.

**SME 312S**

2010 £1,750  
Twelve inch magnesium alloy armtube plus SMEV bearings makes an impressive transcription tool with an insightful yet composed sound. Superlative build completes the package.

**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.

**SME SERIES V**

1987 £2,389  
Vice-like bass with incredible weight, ultra clear midband and treble astound, although some don't like its matter of factness!

**LINN EKOS SE**

2010 £3,700  
Subtle mods over the years, including revised bearings and the recent new wiring has kept it a serious contender in the superarm stakes. Has a commanding musicality all of its own.

**OL ENTERPRISE 3C**

2010 £4,500  
Few if any pivoted arms come close to this arm's combination of liquid musicality and forensic grip.

**CARTRIDGES****AUDIO TECHNICA AT-95E**

1984 £25  
Great starter cartridge that's detailed and musical beyond its price. Superglue the stylus in for better sound!

**AUDIO TECHNICA AT-F3/III**

2010 £189  
Great value entry level moving coil with detail and grip you just can't get from similarly priced moving magnets.

**ORTOFON 2M RED/BLUE**

2007 £60/£120  
Modern, high resolution budget moving magnets that are always an engaging listen.

**GOLDRING G1042**

1994 £239  
One of the best MMs going, with sweet and extended treble and punchy, muscular bass.

**ORTOFON VIVO BLUE2011**

£275  
Super new budget moving coil cartridge from respected Danish manufacturer; a real step up from previous efforts.

**DENON DL103R**

2006 £295  
Awkward to get working properly with a poor mounting arrangement, yet it rewards with a musical performance that makes similar priced cartridges sound cold.

**DYNAVECTOR DV10X52003**

£295  
Distant descendent of the classic Ultimo 10X, this has warmth and sweetness in spades, allied to a punchy bass. Beats G1042 comfortably.

**ORTOFON 2M BLACK**

2007 £350  
Staggeringly good high-end MM that uses a stylus from the MC Jubilee and easily rivals similarly-priced MMs

**DYNAVECTOR DV20X-H2003**

£395  
Deliciously sweet sound with fantastic get-up-and-go makes this a great value budget MC. High output version works a treat with valve phono stages too.

**AUDIO TECHNICA AT-OC9MLIII**

2010 £399  
New stylus and cantilever breathe life into this feisty, punchy and detailed performer.

**ORTOFON RONDO BRONZE**

2005 £500  
Excellent mid-price moving coil with real rhythmic alacrity and a decent deal of finesse.

**LYRA DORIAN**

2007 £649  
Incisive and musical, this baby Lyra is one of the most powerful and revealing MMs at its price point. Beware the sharp treble, though!

**BENZ MICRO GLIDER L2**

2008 £650  
Crisp, clean and detailed MC; particularly impressive at both ends of the frequency spectrum

**ZYX R-100H**

2005 £799  
Exceptionally tight sounding and detailed cartridge with the musical skills to match, this is up with the best at the price, with a presentation all of its own.

**TRANSFIGURATION****AXIA**

2007 £890  
Musically adept and highly resolute cartridge with impressive tracking abilities. Top end lift means careful matching required, however..

**BENZ MICRO WOOD SL**

2010 £945  
Highly finessed Swiss moving coil that plays music with riflebolt precision.

**ORTOFON CADENZA****BLUE**

2009 £1,000  
Musical, out of the box sound, allied to real finesse, makes this a great do-it-all high end moving coil.

**ORTOFON CADENZA****BRONZE**

2010 £1,350  
Smooth and engaging high end MC with a slightly warmer and more relaxed presentation than its superb bigger brother.

**ORTOFON CADENZA****BLACK**

2010 £1,650  
Ultra incisive, transparent and dimensional moving coil with grip and punch aplenty.

**ORTOFON MC WINDFELD**

2008 £2,250

Ortofon's new flagship MC is a sophisticated and alluring performer that takes the vinyl experience to a new level.

**KOETSU RED K****SIGNATURE**

2007 £2,399  
The new K Signature adds a hefty dose of insight and finesse to the already impressive Red and the results are fabulous.



**DIGITAL SOURCES****MUSICAL FIDELITY V-DAC** 2010 £170

Clear, concise, low distortion sound belies giveaway price. Supelative value for money.

**CAMBRIDGE AUDIO DACMAGIC** 2010 £230

A flexible new DAC, this is an impressively rhythmic and detailed performer.

**ARCAM rDAC** 2010 £300

Cracking budget DAC sporting a fulsome and musical sound with gorgeous build and styling.

**MUSICAL FIDELITY MI DAC** 2010 £400

Surprisingly sophisticated upsampling DAC with oodles of detail and air, but bass isn't quite as powerful as it could be.

**STELLO DA100 SIGNATURE** £750

Superbly finessed sounding DAC at the price, with strong driving bass and plenty of air and space.

**CAMBRIDGE AZUR 840C** 2006 £800

Well built CD player with a silky, yet detailed sound and a whole host of useful facilities. Excellent value for money.

**NAIM CDSI** 2008 £895

Naim's new italic 'i' variant improves even further on the original mid-price classic, offering super tight, grippy and musical sound.

**ROKSAN KANDY K2 CD** 2010 £900

A charmingly musical performer at the price, this is a surprisingly sophisticated CD player for the money.

**BENCHMARK DAC-1S** 2009 £930

Power, precision and poise - allied to real seat-of-the-pants musicality, this DAC justifies its premium price.

**MUSICAL FIDELITY M3 CD** 2011 £995

Excellent mid-price machine with slick slot loading and an open and inviting sound.

**ELECTROCOMPANET PD-1** 2011 £1,250

Quirky but highly capable digital convertor with an effective wireless radio option (£250) and balanced outputs.

**SIMAUDIO MOON 300D** 2010 £1,290

Lovely fluid sounding DAC with a deep, dark, velvety tonality.

**CYRUS CD8 SE** 2008 £1,350

Bespoke Servo Evolution mech makes this the most musically engaging machine at the price, with super smooth tonality to boot. Optional PSX-R adds bass and dimensionality.

**DENON DCD2010AE** 2010 £1,700

Powerful, open sound allied to a rich tonality and satisfying subtlety make this an excellent mid-price buy.

**NAIM DAC** 2010 £1,995

Superb high end digital convertor with a probing, punchy and forensically detailed sound.

**MERIDIAN G08.2** 2011 £2,400

Everyman's modern high end CD player, the stylish, well made Meridian has an extremely enjoyable yet refined and accurate sound.

**MARANTZ SA-KI PEARL CD** 2010 £2,500

Finely honed affordable high end silver disc spinner, this has a musical lucidity that's unexpected at this price.

**LEEMA ANTILLA IIS ECO** 2011 £2,995

Stable and smooth yet superbly detailed and musically engaging, this is class of the £3,000 CD player field.

**CHORD QBD64** 2008 £3,000

Bespoke architecture gives a uniquely musical sound that's beguiling yet proffers dizzying incision and grip.

**ELECTROCOMPANET EMC-IUP** 2009 £3,450

Quirky yet extremely capable high end upsampling CD spinner, with a musical fluency that beguiles more than it impresses.

**ACCUSTIC ARTS CDP1MK2** 2007 £3,985

Styling not to everyone's taste but build quality is impeccable and the performance is stunningly musical.

**ESOTERIC X-05** 2010 £4,495

Superlative 'affordable high end' CD/SACD spinner with excellent build, massive detail and great poise.

**WEISS DAC202** 2010 £4,600

Brilliantly open and insightful sounding DAC with a range of useful features.

**ELECTROCOMPANET EMP-1/S** 2011 £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.

**NAIM CDX2-XPS2** 2003 £4,950

A fine high end machine, but add an XPS2 and it becomes one of the most charismatically engaging 16bit machines we've ever heard. Plays music with such passion!

**NAIM CDS3** 2003 £7,050

The most polished Naim CD to date; tremendously capable and musical, but lacks the Rottweiler quality of the cheaper CDX2-XPS2.

**dCS DEBUSSY** 2011 £7,500

Compact, stylish DAC bringing the gloriously smooth, svelte, spacious sound of dCS to a wider audience.

**ACCUSTIC ARTS DRIVE I MK2/TUBE DAC 2** 2007 £7,980

Superbly built high end CD transport and DAC combo that shows just what the format can be capable of. Very tangible, musical sound with wonderful dynamics and glistening harmonics. Only curious styling and clunky build detract from its brilliance!

**dCS PAGANINI DAC** £9,599

Digital rarely sounds better; dCS's bespoke Ring DAC makes for power, punch and insight on an epic scale. Add clock and upsampler for an even more profound experience.

**NAIM CD555/555PS** 2006 £14,000

Very probably the best CD player yet made - certainly the most expensive; a digital *tour de force*.

**NETWORK****NAIM HDX** 2009 £4,405

Interesting one-box network enabled hard disk music system gives superb sonics together with impressive ease of use.

**LINN KLIMAX DS** 2007 £9,600

Landmark network music player, offering brilliant sonics at up to 24/96 resolution from hard disk/NAS. Expensive, but you can hear why...

**PHONO STAGES****CAMBRIDGE AUDIO 640P** 2009 £99

Excellent entry level design that raises the bar for budget phono stages. Crisp, smooth yet brightly lit sound on both MM and MC that's a vast improvement on most budget inboard designs.

**GRAHAM SLEE ERA GOLD V** 2004 £370

Warm, open and musical nature makes this a great budget phono stage.

**ICON AUDIO PS1.2** 2007 £599

Excellent valve phono stage with good range of facilities and fine imaging abilities.



**CHORD CHORDETTE DUAL 2010**  
£799

Well presented mid price designed with detailed sound and USB input for archiving.

**ASTIN TREW AT8000 2010** £880

Expansive, detailed, powerful sound makes this a leading sub-£1,000 contender.

**A.N.T. AUDIO KORA 3T LTD** 2010 £995

Exceptionally musical and natural sounding all discrete transistor phono stage, with highly lucid, valve-like presentation.

**AVID PULSUS** 2010 £1,100

Powerful, propulsive, expansive sound puts this right at the top of the £1,000 phono stage tree.

**QUAD QC24P** 2007 £1,200

Dynamic performer that can be used on its own as a complete phono-level preamp.

**ICON AUDIO PS3** 2008 £1,500

Super sounding valve phono preamplifier, with an expansive, engaging and organic nature that makes vinyl sheer joy!

**SUTHERLAND 20/20 2010** £1,999

Well engineered, smooth sounding solid-state phono stage with a charm of its own.

**EMILLE ALLURE** 2010 £2,495

Just as the name suggests, this is a lovely way to play LP with an exceptionally open and lucid sound.

**AVID PULSARE** 2010 £3,800

This superbly built, well specified phono stage has a powerful and authoritative sound that bristles with detail and energy.

**WHEST PS.30 RDT SE2011** £4,500

The least solid-state sounding Whest we've heard, this builds on the family strengths of precision and grip but adds a welcome poise and fluidity.

**NAT AUDIO SIGNATURE** 2011 £5,633

Sophisticated sounding, unusually engineered MM and MC phono stage, but faces stiff competition at this lofty price.

**AMPLIFIERS****ICON AUDIO STEREO 40/III**  
2010 £1,200

Excellent starter tube integrated, with plenty of detail and an expansively musical sound.

**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 but not the world's most beguiling.

**NAIM NAIT 5i** 2007 £725

The italic 'i' version remains one of the most musically competent and dynamically engaging integrateds at the price.

**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 MYSTRO** 2010 £1,225

Sugden's first Class AB integrated in a long time surprises; rollickingly good fun, it loses surprisingly little in smoothness to its Class AB siblings.

**NAIM NAIT XS** 2009 £1,250

With much of the sound of the Supernait at half the price, this is powerful, articulate and smooth beyond class expectations.

**CREEK DESTINY 2** 2010 £1,445

Beautifully voiced integrated amplifier with a distinctly seductive, tube like sound. A solid-state superstar!

**SUGDEN A21A S2** 2008 £1,469

Crystalline clarity, dizzying speed and forensic detailing makes this seminal design the most musical at the price, but power limited so needs sensitive speakers.

**CYRUS 8XPD** 2010 £1,500

A quality integrated that suits all genres of music providing insight and clarity in a compact but flexible package.

**ANATEK A50R** 2007 £1,600

Simple integrated amplifier with super bass grip and effortless dynamics.

**VINCENT SA-236MK** 2010 £1,749

Big, powerful and expansive sounding hybrid transistor amplifier, with a lively, musical nature.

**NAIM SUPERNAIT** 2007 £2,475

Integrated *tour de force* from Naim that combines impressive functionality and connectivity with super sound.

**AUDIO RESEARCH VS160** 2009  
£3,298

Load of tube power allied to a strong bass and smooth open midband makes this a grin-inducing listen.

**LEEMA TUCANA II** 2010 £3,495

Polished high end integrated amp that combines power, detail and genuine musicality with a good range of facilities.

**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.

**QUAD II CLASSIC** 2010 £4,500

Beautiful retro styled integrated amplifier with a subtle, supple sound - although needs matching to speakers that are easy loads.

**QUAD II CLASSIC INTEGRATED**  
2010 £4,500

Thoroughly modern music maker with classic style and great pedigree, this amp sings with gentle music but is no headbanger!

**SIM AUDIO MOON 600i** 2010 £5,750

Sturdy build, useful facilities and a wonderfully relaxed, seamless and even-handed sound will win this many friends.

**MUSICAL FIDELITY AMS35i** 2010 £6,000

One of the best high end integrateds we've come across, this combines hear-through transparency with musical get-up-and-go.

**DARTZEEL CTH-8550** 2010 £16,500

Charismatic and quirky high end solid-state integrated amplifier with superb sound and a charming visage.

**HEADPHONE AMPLIFIERS****FIDELITY AUDIO HPA 100** 2011  
£350

Great little headphone amplifier with a lively yet refined and open sound.

**MUSICAL FIDELITY X-CAN V8** 2008 £350

Open and explicitly detailed sound plus serious bass wallop and the ability to drive anything to very high levels makes this a great partner for most mid-to-high end headphones.

**PREAMPLIFIERS****MING DA MD7-SE** 2012 £1520.00

A valve preamplifier with an open, effortless sound and big sound stage. It has plenty of gain so will accept any source and drive any power amp. A tuneful beauty.

**CREEK OBH-22** 2008 £350

Brilliant value budget passive, with remote control, mute and input switching, plus an easy, a neutral sound.

**ICON AUDIO LA-4** 2011 £800

Uses early 6SN7 triodes for liquid sound, has plenty of gain and remote control.

**DPA CA-1** 2010 £2,650

Excellent solid-state preamp with a meticulously detailed and propulsive sound, but a deep velvety tonality.

**MELODY PURE BLACK 101D** 2007 £3,295

The clarity and openness of valves plus firm grip and fine detail make this a preamplifier masterclass.

**MF AUDIO CLASSIC CII SILVER**

2010 £4,500

One of the best preamplifiers we've heard at any price, this transformer coupled marvel does very little wrong: its powerful, clean, open yet delicate sound is unmatched at or near the price.



## STANDARDS

### MODWRIGHT 36.5 PRE/PSU 2010 £5,995

Exceptionally open and expansive, yet musically expressive sounding high end preamplifier.

### 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.

### NUFORCE P-9 2007 £2,200

Impressive two box preamp with superb resolution and an engaging sound.

### POWER AMPLIFIERS XTZ AP-100 2010 £520

Decently smooth yet usefully muscular; this power amp punches way beyond its price point in sonic and value terms.

### QUAD 909 2001 £900

The latest 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. Lovely build, finish and Quad's legendary service are nice.

### NUFORCE REFERENCE 9SE V2 2006 £1,750

Brilliant value for money monoblocks with massive power and super-clean, three dimensional sound.



### DPA SA-1 2010 £2,850

Pacey, engaging and rhythmic almost to a fault, this solid-state power amplifier isn't the world's most powerful but is none the worse for it.

### QUAD II-40 2005 £3,230

Modern tube monoblock power amplifiers with plenty of power, liquid and open mid-band and spacious, airy treble. Explicit, engaging sound, but not as euphonic as some.

### ELECTROCOMPANET NEMO 2009 £4,450 (EACH)

The Norwegian power station is as cool as a glacier tonally, yet impresses with its sheer physicality and fleetness of foot. 600W per channel makes for a massive bang per buck.

### ICON AUDIO MB845 MKII 2010 £5,500

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.



### QUAD II-80 2005 £6,000

Quad's best ever power amplifier; this is a dramatic performer with a silky but dark tonality, blistering dynamics, serious power and a compellingly musical sound. They don't come much better.

### MUSICAL FIDELITY AM550 2010 £7,000

Mighty, assured high end full Class A integrated proffering icy clarity allied to real musicality. Lacks the lucidity of the best tube amps but redeems with power and punch.

### LOUDSPEAKERS Q ACOUSTICS 2020 2010 £140

Great little standmounters with a friendly, fun yet surprisingly refined gait. Excellent value starter speakers.

### ACOUSTIC ENERGY NEO I 2007 £199

Tidy and well balanced standmounters with pleasing clarity and detail.

### MISSION MX2 2011 £200

Sophisticated sound alloyed with real musical insight makes these small standmounters super value for money.

### ACOUSTIC ENERGY NEO I v2 2010 £225

Civilised sounding speaker with fast and tuneful bass.

### B&W 686 2007 £279

B&W's new baby standmounters offer a sophisticated and mature performance that belies both their dimensions and price tag.

### WHARFEDALE DIAMOND 10.3 2010 £290

Great small standmounters for audiophiles on a budget; dry punchy sound with impressive soundstaging at the price.

### MORDAUNT SHORT AVIANO 2 2010 £300

Classy sounding standmounter at a still affordable price.

### KEF IQ30 2009 £330

Beautifully built, classily styled standmounters with exceptional image projection and a very clean, detailed sound.



### USHER S-520 2006 £350

Astonishingly capable budget standmounters that offer detail and dynamics well beyond their price and dimensions.

### XTZ 99.25 2010 £640

Disarmingly open and refined at the price, these standmounters bring unexpected civility, refinement and insight to the price point. Exceptional value for money.



### ACOUSTIC ENERGY AEI CLASSIC 2006 £845

Brilliantly successful remake of an iconic design; not flawless, but surely one of the most musical loudspeakers ever made.

### SPENDOR 53/5E 2004 £950

A natural successor to the BBC LS3/5a, whose impressive neutrality, imaging and evenhandedness makes this a superior, if less charismatic, loudspeaker.

### MY AUDIO DESIGN MY1920 2011 £1350

Exceptionally smooth, spacious and refined mini monitors that beguile and excite in equal measure.



### ELAC BS243 2010 £1,000

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

### RRR FS100 2007 £1,055

Mind-boggling amount of loudspeaker for the money. Big and sturdily built with serious bass and awesome soundstage scale. A real bargain.

### ONE THING AUDIO ESL57 2007 £1,450

One Thing Audio's modifications keep the good old ESL57 at the very top of the game.

### GURU QM-10P 2007 £1,595

Quirky but adorable standmounters that are way off the pace in respect of detail and power, but well capable at playing a tune and pulling you in to the music.

### 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.

### 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.

### SPENDOR S8E 2008 £1,895

Generously large, silky smooth delivery, this dynamic sounding floorstander is an excellent all rounder.



### ISOPHON GALILEO 2007 £2,100

Big standmounters that really grip the music and offer quite startling dynamics and grip.

### MONITOR AUDIO PL100 2008 £2,300

The flagship 'Platinum' series standmounter has a lovely warm and delicate sound with superlative treble.

### PMC OB11 2008 £2,950

Cleverly updated floorstanders give scale and solidity in slim and well finished package.

**EMMINENT TECHNOLOGY****LFT8B 2010 £2,300**

Brilliant ribbon/moving coil hybrid with seamless, delicate and expansive yet tremendously musical nature.

**MY AUDIO DESIGN****MYCLAPTON SE 2010 £3,299**

Powerful, dynamic, musical yet refined, this unconventional point-source design yields dramatic sonic benefits.

**MAD MY CLAPTON GRAND MM****2010 £3,599**

Distinctive coaxial standmounters with wonderful soundstaging, bright lucid midband and true musical insight.

**YAMAHA SOAVO 1.1 2009 £3,000**

Musical, transparent large floorstanders with impressive dynamics and cohesion. Excellent build and finish.

**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.

**TANNOY DEFINITION DC10T****2010 £5,000**

Wonderfully wide and open, super fast and amazingly engaging to listen to.

**ECLIPSE****TD712z/2 2011 2011 £5,100**

Flawed genius, and wilfully so. These loudspeakers don't do everything well, but what they can do is profound and enthralling; rhythms, dynamics and soundstaging.

**ARS AURES MI 2006 £5,995**

Sublime build and finish allied to an insightful, assured and even-handed musical performance makes these an essential high end audition.

**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.

**SPENDOR ST 2010 £5,995**

This classy sounding, superbly presented big floorstander will appeal to those seeking high end sonics with subtle looks.

**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.

**VIVID VI.5 2010 £6,000**

Breathtaking transparency, superlative coherence and dizzying speed make these one of the best standmounters ever made - providing you like their 'studio sound'.

**GERMAN PHYSIKS LIMITED II****2011 £7,800**

Don't be fooled by the austere looks; this is a superbly enjoyable omnidirectional speaker with a wonderfully fast, expansive sound.

**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...

**B&W 801D 2006 £10,500**

In many respects, the ultimate studio monitor; dazzling clarity and speed with commanding scale and dynamics.

**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.

**REVOLVER CYGNIS GOLD****2010 £15,000**

Vast in scale with effortless dynamics and an easy, barrel chested bass, these big bangers are great for lowish power tube amps. Large room needed!

**MARTIN LOGAN CLX LINEAR****2010 £15,990**

Meticulously crafted electrostatic that's free from traditional limitations, this is one of the very best loudspeakers money can buy.

**ACCESSORIES****WADIA I701 2010 £349**

The first iPod dock to extract the music digitally, letting you hook your little Apple directly to a DAC for superior sound.

**ISOTEK AQUARIUS 2010 £795**

Highly accomplished premium priced mains conditioner that delivers the sonic goods, unlike so many others.

**TOWNSHEND MAXIMUM****2003 £800**

Classy ribbon supertweeter with flexible level settings and cool styling - you'll be amazed at the difference it makes, especially with Quad electrostatics.

**HEADPHONES****JAYS V-JAYS 2010 £49**

Wonderful little budget over-ear portable phones with a clean, smooth sound to beat the best of the rest at the price.

**SENNHEISER MX-550 2005 £19**

Our unqualified recommendation for those seeking a serious sounding pair of in-ear phones. Smooth, detailed and musical.

**SENNHEISER PX-100 2002 £29**

Cracking pair of lightweight open back cans ideal for personals, but good enough for real hi-fi use. Superb build allied to a smooth and engaging performance make them the spiritual successor to the HD400s.

**GOLDRING DR150 2006 £70**

Excellent build and fine sound makes these budget cans superlative value for money.

**SENNHEISER HD-590 1998 £199**

The company's best real-world cans to date. Open and smooth with plenty of detail. Brightly lit midband makes them an ideal partner for a valve headphone amp.

**SENNHEISER HD-650 2004 £250**

A super all round reference design with crisp, detailed and even sound allied to superlative build and comfort. Cable upgrade yields great results.

**SENNHEISER HD800 2010 £1,000**

The ultimate expression of the Sennheiser philosophy offers massive speed, clarity and insight, although lacks some of the charm of the softer, more beguiling rival Staxes.



## STANDARDS

### STAX SR-007T OMEGA II/SRM-007T 2006 £2,890

Simply the best headphones we've ever heard at any price, these sweetly translucent electrostatic ear-speakers are like no other headphone, or loudspeaker for that matter...

## INTERCONNECTS

### TELLURIUM Q BLACK 2010 £276/3m

A deep, dark, velvety performer that's nevertheless highly musical, it represents excellent value as mid-price cables go.



### TECHLINK WIRES XS 2007 £20

Highly accomplished interconnects at an absurdly low price. Stunning value for money.

### WIREWORLD OASIS 5 2003 £99/M

Excellent mid-price design with a very neutral, silky and self-effacing sound. Superb value for money.

### CHORD COMPANY CHAMELEON 2 £90/M

One of our favourites, these are musical performers with a smooth yet open sound.



### DNM RESON 2002 £40/M

Neutral and transparent - a steal!

### VDH ULTIMATE THE FIRST 2004 £260/0.6M

Carbon interconnects that help you forget the electronics and concentrate on the music. Miraculous transparency. Tight and tuneful bass mixed with air and space results in a cracking cable for the money.



### TCI CONSTRUCTOR 13A-6 BLOCK 2003 £120

Top quality 'affordable' mains outlet block, with fine build and good sonics. Well worth the extra over standard high street specials, which sound coarse and two-dimensional by comparison.

### MISSING LINK CRYO REFERENCE 2008 £375

Currently our favourite 'affordable high end' interconnects, with a deliciously smooth, open and subtle sound without a hint of edge or grain. Superb value, inasmuch as it's as good as some designs at three times the price.

## TUNERS

### DENON TU-1500AE 2006 £120

Excellent entry level analogue tuner; slick sonics and fine feature count make it a bargain.



### CAMBRIDGE AUDIO 640T 2005 £250

Sweet sounding digital/analogue hybrid with fine build and finish at the price.

### ARCAM FMJ T32 2009 £550

Excellent hybrid FM/DAB+ tuner with a smooth, engaging sound. Factor in its fine build and it's a super value package.

### CREEK CLASSIC TUNER 2006 £550

No tuner offers better sound per pound; wonderfully three dimensional and smooth from bottom to top.

### MICROMEGA FM-10 2010 £750

Don't let the modest proportions fool you, this is a state-of-the-art modern analogue tuner with bespoke internals giving a warm, expansive sound.

### MYRYAD MXT-2000 2005 £800

Sumptuous sound and excellent build is all most will ever need in a tuner; superb.

### MAGNUM DYNALAB MD-90T 2010 £1,295

Exceptionally able, but commensurately priced, audiophile tuner that cannot fail to charm.

### 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.



## SYSTEMS

### YAMAHA CRX-M170 2007 £200

One heck of a lot of quality performance on DAB, CD and FM for £200! Optional matching £120 NX-E300 loudspeakers aren't too shabby either.

### TEAC DR-H300DAB 2008 £329

Nicely built and styled mini with fine performance on all sources that even plays DVDs!



### NAD C-715DAB 2008 £429

Small, neat looks cover a truly capable system that shows just what a compact design can achieve.

### 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.

### 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.



### PEACHTREE AUDIO IDECCO £1,000

Excellent sounding iPod dock, impressive DAC and fine amplifier section make this an excellent one box style system.

### ARCAM SOLO 2005 £1,249

Excellent all-in-one system, with a warm, smooth and balanced sound to match the features and style.

### LINN CLASSIK MUSIC 2008 £1,250

Neat update of the original and best one-box stereo system; superbly musical sound beats equivalently priced separates.

### NAIM UNITIQUE 2010 £1,350

Great little half width one-box system with truly impressive sound allied to a wealth of source options.



### 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; most see sense when they listen to it...



### AURA NOTE MUSIC CENTRE 2007 £1,500

Lovely shiny CD/tuner/amplifier with fine sound quality and dynamic abilities.

### NAIM UNITI 2009 £1,995

Uniquely versatile one box music system with excellent ergonomics and sonics to match. A landmark product for Naim.

### LINN CLASSIK MOVIE 2007 £2,250

Superbly built all-in-one that offers excellent sound across all formats and is surprisingly easy to use.



### MERIDIAN SOOLOOS 2.1 2010 £6,990

Thanks to its crisp styling and bright, colourful touchscreen, plus excellent search facilities this is one hard disk music system with a difference. Best partnered to Meridian active loudspeakers.

### MARANTZ 'LEGEND' 2007 £22,000

The combination of SA-7S1 disc player, SC-7S2 preamp and MA-9S2 monoblocks delivers jaw-dropping performance.



# Feel The Silence

Paul Rigby reviews the new RJC Audio Hush Isolation platform which aims to tackle it.

**W**hen you buy a new turntable, CD player or amplifier, you expect them to perform at the top of their abilities. That is not always the case, however. One reason may be distortion. This umbrella term is used for a host of interfering, unwanted frequencies that get in the way, masking the sound you want to hear from your hi-fi equipment.

One tool that will help you to remove distortion is the Hush Isolation Platform from RJC Audio. Acoustically shielded and damped, its Valchromat platform with damping layer sits within an American oak or cherry frame (black walnut is an option) with a birch plywood base.

The platform is 'platforms', really. There are three, aimed at turntables weighing in at 6kg-17kg with made-to-order models for heavier examples. Then there are three equipment

that's it.

The platform, weighing in at 8kg and spanning 515x415x100mm, includes an optional brass weight that sits in a recess on the top to act as a counter for top-heavy components. The design is quite elegant and the platform is well-made.

## SOUND QUALITY

Starting with Porcupine Tree's 'Buying New Soul', the Hush added reverb to the introductory cello sequence – but that was just a taste of what was to come. Once the vocals began, so did a newly constructed 3D stereo image and soundstage, lending the whole track a sense of maturity and confidence. The vocals revealed a new textured reverb on both left and right channels.

Percussion also benefitted. Before, the drum strikes were

hard but rather soulless, glossy like a snooker ball.

Once the Hush was installed, the drums featured a 'give' in their strike. That is, there was an organic feel and character. A noisy crescendo that appeared in the later parts of the track became more recognisable, gaining definition.

As the track progressed, the Hush seemed to improve or was it just that my ears were adjusting to the new frequencies that appeared from all quarters? Never mind about instrumental separation, within acoustic guitar strums, there was now enhanced string separation.

Treble was arguably the frequency that benefitted most.



Cymbal strikes

sounded natural and unforced. In fact, never have cymbals sounded more realistic, via a CD, on my system. Even to the extent that one of the cymbals didn't sound balanced. There was a slight lop-sided sound after each strike. As if the cymbal was too loose on its stand.

Moving to Tchaikovsky's 'Nutcracker', conducted by Andre Previn, the combination of wind and string instruments were kept well away from each other; there was no bleed between them with the Hush. Indeed, the strings possessed pace and focus, resembling a group of individuals all pulling in the same direction. This gave a sense of power to the string section that was uplifting.

Meanwhile the wind instruments added more emotion to the performance, as if they were fussing over the string section as the strings endeavoured to escape. Such pictures can only be painted when the ear is allowed to relax into the music and hi-fi stops getting in the way.

## CONCLUSION

In many ways, I felt that I was hearing my Densen B-475 CD player for the very first time, over all frequencies, the amount of new detail on offer was quite breath-taking, especially for a 'mere' support platform.

In short, the Hush is a revelation, if you are looking to support your hi-fi, give the Hush a demo. Even if you already have a top quality support system, I would say you need to hear the silence of the Hush.



platforms for equipment weighing in between 15kg-40kg with specialist monoblock platforms that can handle loads between 25kg-40kg. Again, for heavier equipment, RJC Audio can work with you on a bespoke model.

I used one of their platforms for my Densen CD player. The Densen is a two-box affair so I placed the platform under the transport. A cinch to install, I screwed the three shaped, oak feet under the platform and

## VERDICT ●●●●●

Offering a major improvement in sonic performance, the Hush platform offers a genuine upgrade for your hi-fi system.

**HUSH ISOLATION PLATFORM** FROM £465  
RJC Audio  
☎ +44 (0)1229 821681  
[www.rjcaudio.co.uk](http://www.rjcaudio.co.uk)

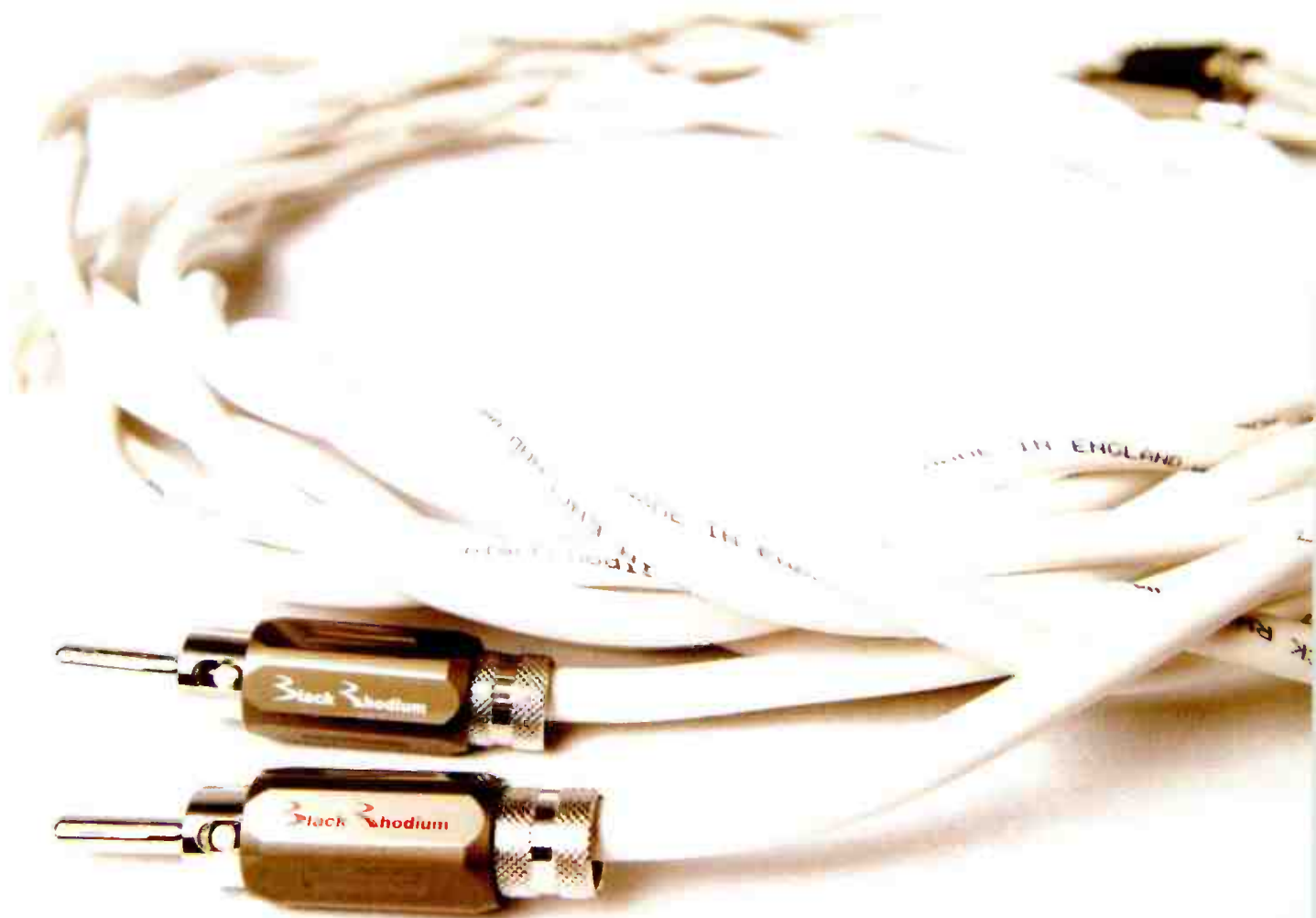
## FOR

- overall sound quality
- build
- design

## AGAINST

- nothing

**Simple design,  
elegant construction,  
and does not miss a beat!**



## **SAMBA**

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The simple yet elegant construction of Samba loudspeaker cable can easily distract you from the advanced technical design features that are incorporated in its manufacture. To hear the bass lines in your music in greater detail, appreciate the artistry of choirs singing in harmony or simply get more pleasure from your music collection, try Samba speaker cable in your system.

You will be pleasantly surprised!

To find out more about Samba and how it can make your hi-fi system sound even better, go to [www.blackrhodium.co.uk/samba](http://www.blackrhodium.co.uk/samba) or telephone us on +44(0)1332 342233



"mono was how most Beatles fans were listening to their music"



## paul rigby

**T**his month has seen the welcome release of the official Beatles discography on vinyl from EMI: 'The Beatles In Stereo'. You can read more about this box set within my feature review elsewhere. Of course, the included LPs utilise the stereo mixes for each and every record but that, as any Beatles fan will tell you, is only half of the story.

Due for release sometime in 2013, will be an additional box set via EMI called 'The Beatles In Mono'. This box set will feature the album's mono mixes. It is thought that the content of the vinyl box will broadly mirror the content found within the CD mono box set, losing both the stereo-only 'Abbey Road' and 'Let It Be' LPs.

How were the mono versions created in the first place? According to the mastering engineer for the mono box set, Sean Magee, "The Beatles were recorded onto multi-track tapes. The vocals and the instruments were recorded on separate channels so that they could combine them together to have complete control of the levels so that they could create the ideal mono mix and, later, a stereo mix. In a typical session of, say, four hours, they would spend three hours on the mono mixing and then lay out the stereo mix in the final hour".

As you can see, the mono mixes, for those early albums, were the most important. After all, mono was how most Beatles fans were listening to their music. Hence, more care, attention and raw staff hours were devoted to the mono mixes. The team would often slave for many hours on a mono mix, endeavouring to get the mix "just right".

The stereo mix of the same track was positively slap-dash by

comparison. To give you one example, according to Beatles master tape guru, Mark Lewisohn, on 27 October 1964, five stereo tracks for the album, 'Beatles For Sale' were remixed in half an hour!

Those meticulous readers out there will be able to actually hear the difference in practical terms too. There are plenty of minor changes between the mono and stereo mixes for example: a few extra seconds of music here and a different sound effect there.

Magee was able to provide information on the technical aspects of the mono mastering. There was some question as to whether the cutting head would have to be changed for the mono series.

Magee was quite adamant on this matter. He stated that the cutter head will definitely be the same as the stereo master; the difference will lie in the groove itself as the mono version will offer no vertical movement, only lateral. Stereo cuts vary both in vertical and lateral movement.

As such, the mono mixes will feature the same parameters as the stereo versions. That includes the same Analogue to Digital Convertor and the same 24bit/44.1kHz file source.

There are two additional, related points to make regarding the mono box set and mono in general. Firstly, although the specific contents of the new mono box has yet to be formerly announced, one piece of information that I did manage to glean from Magee was that the contentious George Martin stereo remixes, found in the stereo box set, will be replaced by the original mono mixes for 'Help!' and 'Rubber Soul'.

Some fans wonder why the stereo box set has to include the

Martin mixes at all. Talking to The New York Times in 1987, at the time of the original CD reissue series, Martin explained, "I looked at those and found that the (original) stereos of that weren't very good. They were very woolly and not at all what I thought should be a good issue. I went back to the four-tracks on those and actually did remix them – not changing anything but hardening up the sound a little bit and cutting down a little background noise.

The mixes that I did in 1964 were fine for vinyl, issued in 1964. When you hear them on CD, they're not fine. Now the reason for this is that you hear a wider frequency range on CD, and you're hearing things that I never intended you to listen to in the first place, in 1964. I was making a record that was designed to cut through the fog of the players of those days. What I'm saying is that the mixes I did then, when they're heard in the form they were done then were fine; but if you're hearing them as CDs, they should be different in order to be the same."

That said, some audiophiles still prefer the original stereo mixes to the Martin remixes. For those fans who missed them, the original stereo mixes can be found within the mono CD box set. It is unknown, at present, if the original stereo mixes will also appear within the mono vinyl box set.

Secondly, when you listen to the stereo box set, you may notice that one or two of the included tracks are, in fact, mono. Why is this? "It's possible that the stereo tapes for those tracks went missing," suggested Magee.

So there is another Beatles LP box set to come and you can be sure I will be reviewing it. Get ready for the Mono box set. ●



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"these machines can be surprisingly capable sonically,  
and are great fun to play with"



## tony bolton

In last month's column I recounted my adventures in rescuing my 1931 GEC-ophone Gala radiogram from long term storage in a friend's attic and the acquisition of a 1930 Decca 73 floor-standing gramophone.

Both needed some attention to get them working properly. The radiogram had badly decayed wiring and the rubber mountings in the magnetic pickup head had become rock solid with age, rendering it unusable. I spotted a suitable replacement on eBay and won it for the princely sum of £7.99. It looks almost the same as the original except that the casing around the head is made of metal and is screwed together, allowing easy access to the internals. The original had a clipped-together Bakelite head which is too delicate to risk taking apart. A quick check inside the replacement one revealed that the rubber had also gone hard on this unit, but it can be replaced quite easily, so this will be done during the restoration of the internals.

I have made arrangements to rewire the radiogram. I am not taking on the job since soldering is not one of my strongest points. Luckily a friend, who is very skilled in this art, has offered to take on the job, so in the New Year the GEC will be transported to his house for attention.

The acoustic gramophone needed attention to its head as well. In this case I suspected either the gaskets around the diaphragm or the stylus bar pivots as the cause of the distortion in the sound. A thorough investigation revealed that it was the latter.

For those not used to such machinery, an acoustic pick up consists of a circular casing, (made of either brass or Mazak) usually

about 2 1/2 to 3 inches in diameter with either a mica or aluminium diaphragm inside it. A thin but stiff metal bar (the stylus bar) is mounted in the centre of the diaphragm and reaches down below the casing to a mounting block with a screw with a finger grip on it, sticking out at the bottom. The needle goes in here. At the lowest point of the casing are the two pivot points (effectively a hinge) which translates the lateral movement of the needle in the groove into movement of the diaphragm. This motion sets up air waves which are amplified by the horn.

There are three main designs of pivot, the earliest being that used on HMV's Exhibition soundboxes where there are two tensioning springs that must be evenly adjusted to give good results. Later designs, including this Decca model, have two spikes extending sideways from the stylus bar into housings built into the bottom of the soundbox casing. These are secured by screws with appropriate recesses, which are tightened to allow movement but no play.

The last design was used on Meltrope III soundboxes and the later Decca models, where the bottom of the cover over the diaphragm rests on two ball bearings, with another pair behind the suitably shaped recesses on the stylus bar. The tension on the screws holding the cover in place adjusts the pressure on the pivot points. This is the most compliant design and the Meltrope III was the soundbox of choice for fans of thorn and fibre needles. They can sound a bit shouty when used with conventional steel needles.

Tuning a soundbox is a bit of a black art akin to tuning the suspension on a Linn Sondek. On paper it sounds very easy, but getting

it exactly right can require a lot of patience.

The idea is to get the pivot tight enough so that there is no lateral play in it, but loose enough so that there is no hindrance to the movement of the stylus bar. If it is too loose or too tight then record wear will be greatly accelerated, and the sound will be either compressed and bassless (too tight) or the bass will have a rattle to it and the sound will lack definition (too loose).

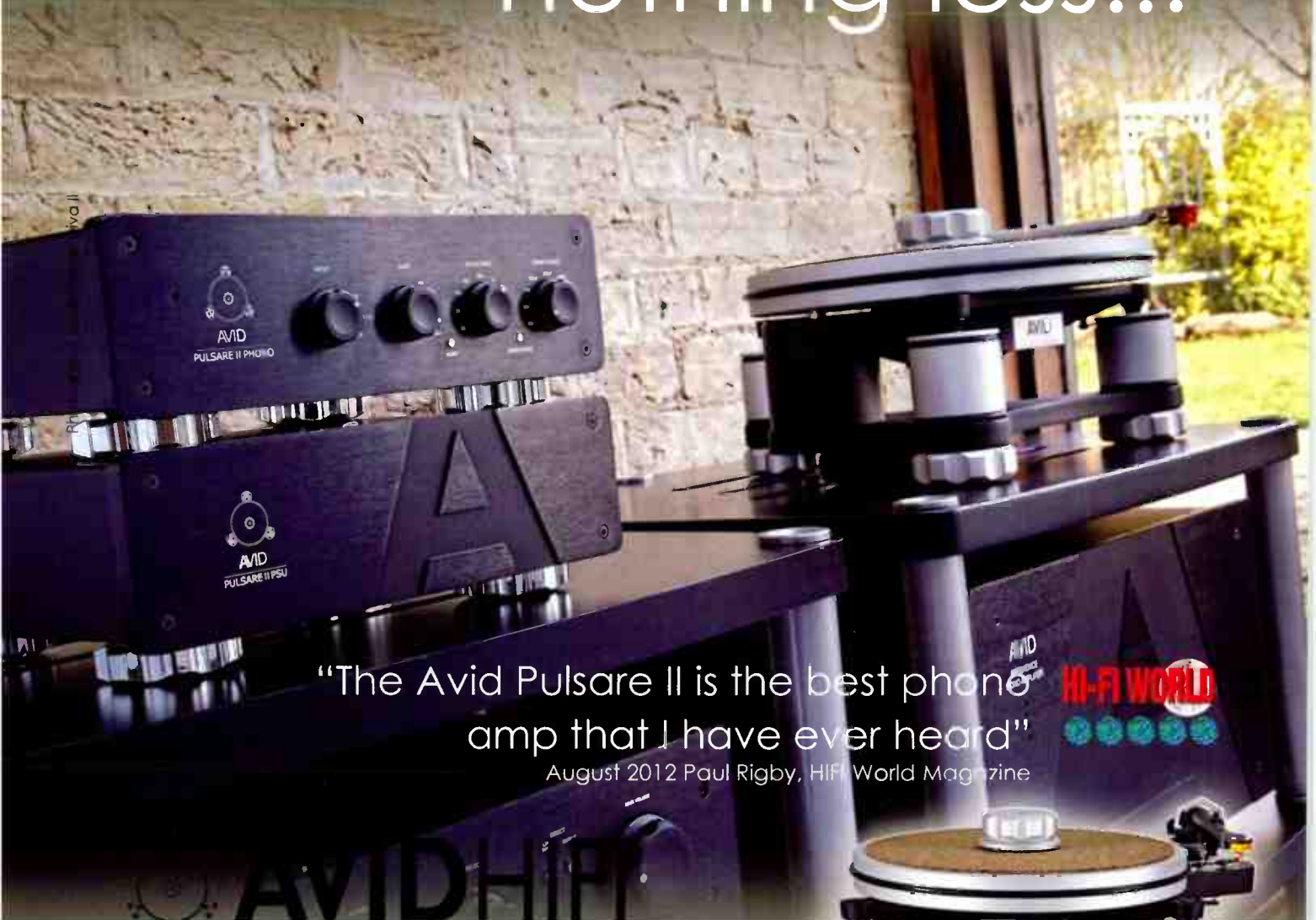
I took the soundbox apart and found the ends of the pivots and the screws were caked with a dark gunge that had accumulated over the years. A good soaking with Isopropyl Alcohol cleaned it off.

After reassembly I started the tuning process. The trick is to tap the screw on the needle holder with your finger nail. When the adjustment is correct you should hear an open hollow sound from the soundbox. If it is a dull thump then the pivot is too tight. Too loose a setting will produce a slight rattle. Care needs to be taken to ensure that the stylus bar is accurately centred on the pivot so that the diaphragm isn't twisted.

It took about half an hour of fiddling to get it set correctly and then I tried it on the gramophone. The results were most satisfactory, with a well projected midband, trumpets and vocals having a great deal of presence in the room, with a reasonably smooth treble and a bass sound that was not that weighty but was quite well defined.

Although not hi-fi in the modern sense, these machines can be surprisingly capable sonically, and are great fun to play with. The generally excellent build and component quality, and the straight forward mechanics of the design make them a delight to work on. Think of it as therapy for hi-fi reviewers! ●

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August 2012 Paul Rigby, HiFi World Magazine



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"It's the best in my view, yet most people probably would not want to live with it"



## noel keyword

**T**he best loudspeaker in the world could not – and did not – get a 5 Globe rating from us, there was too much wrong with it. Which makes me feel uneasy about simple rating systems. I understand their value: a Globe rating, a Star rating, or whatever is a useful way to visually summarise a product's worth at a glance. We use them because readers demand it. Unfortunately, there are plenty of cases where a simple rating masks complex issues. The world's best loudspeaker illustrates the conundrum that such rating schemes raise.

The best loudspeaker in the world is One Thing Audio's tuned up Quad ESL-57. I'm not being romantic, nostalgic or deliberately provocative. Yet I know most people wouldn't understand why I say this – and I suspect few would want it in their homes either. In most people's eyes the ESL-57 is an awkward, unlovely electrostatic panel loudspeaker from the past that looks like a radiator. It doesn't produce much bass, which is why you can justifiably call me nuts for claiming it is the best loudspeaker in the world, and it isn't even technologically advanced; Martin Logan's X-Stat panel takes that accolade.

But the ESL-57 is a full range electrostatic, so there's no box bass, eliminating most electrostatic rivals at one fell swoop. Now remaining in the field are other Quad electrostatics, like the new Quad ESL-2812 I will be reviewing next month, the Martin Logan CLX and the Kingsound Prince II. That's a pretty small field in a world that nowadays teems with loudspeaker manufacturers, all claiming perfection.

But once you sit in front of the One Thing tuned up ESL-57 and acclimatise to it, it does things no other loudspeaker can manage

and – worse – shames them in the process. The trouble with the Quad is that it suggests, perhaps I should say demonstrates, the flaws and problems of other loudspeakers. It may not "do bass" as most expect to hear it, but if you want near perfect vocals, uncoloured strings, shimmering detail and no colour or distortion, then this is the one. It's an education, which is why every loudspeaker manufacturer once had a pair. They don't now because most original ESL-57s are too decayed to work well; and I am talking specifically about One Thing's rebuilt and improved ESL-57.

All the same, taking into account all the practical problems of this loudspeaker, such as limited volume / power handling, weak bass, extreme directionality and more, it isn't for the average listener. That's why it was given 4 Globes in our review in the October 07 issue (now on our website) in deference to the views of typical audiophiles.

However, you'll see on the website that reader Manolis Kroussaniotakis of Cyprus did not agree with us and I've been involved in long conversations with Rafael Todes, who impulsively bought a pair recently and is puzzling over whether his violins sound better via the Quads than anything else.

What I am trying to illustrate here is a product that defies simple categorisation. It's the best in my view, yet most people probably would not want to live with it.

Having designed and built many box loudspeakers, as well as having used so many panels, I veer towards the truth of a panel, for I know boxes return bass energy out through their cones, giving a nice delayed echo effect, a big fat boom. In other words, their sound is a contrivance.

Full range panels do not suffer this so inevitably their bass seems

less full, but it is cleaner in nature and I have heard ESL-57s sitting at right angles to side walls in a long, narrow room making a great job of playing Reggae. It was about the best bass I have ever heard, in terms of liveness and control. So 4 Globes or 5?

Rating systems work well in many cases, but they fail to say much of use about more complex products. Unfortunately, some readers see red if any product is given 5 Globes when it is obviously flawed, whilst manufacturers inevitably think everything they produce is a 5 Globe product, at least until the next model. There's no way to resolve these differing and conflicting views it seems and how people actually react to a product in real life is just about impossible to predict too, I find. Most are pragmatic and can stand back and take a view; some shout "rip off" or "rubbish" at the first sign of a flaw.

Some products are clearly good value all round, the simple Epiphany E DAC reviewed in our December 2012 issue was a good example. But what to make of Meridian's 818 preamplifier in this issue? On a simple feature count alone the 818 does not stand up well against other preamps, but it isn't purposed to do so. It has been designed to run within an all-Meridian system and there it works supremely well. Our Globe rating relates to usability as a stand alone preamplifier, rather than its worth within a Meridian system. So here is another example of a contentious Globe rating.

Rating systems summarise some products well, but they misrepresent others. I suggest you look past this quick summary into what a product can do well – and badly – to reach your own conclusion, based on what matters to you. Like Manolis Kroussaniotakis, you may not agree with us, and I may agree with you! ●

# vinyl section

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FEBRUARY 2013

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A steam driven turntable, no less.

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## news



### MY PLEASURE

New out on UK outfit, Pure Pleasure, is Ike & Tina Turner's 'Feel Good' (1972), a wonderfully sleazy record that highlights pimping and coats it in nasty rock vibes complete with seedy funk and sordid party vibes.

On 'Total Explosion' (1976), soul singer, Syl Johnson plays the despicable lover, bragging and venomous. This is soul music with edge and attitude. A classic.



Also look out for: Nina Simone's 'Forbidden Fruit' (1961) a gatefold double album of love songs; Al Green's 'Al Green Explores Your Mind' (1974) is infused with the great soul singers talent, intelligence and charm, no matter what quality of song he tackles; Phil Woods' 'Rights Of Swing' (1960) is a brilliant LP dominated by the thirty-eight minute self-titled suite. An excellent set of arrangements supported by superb playing.



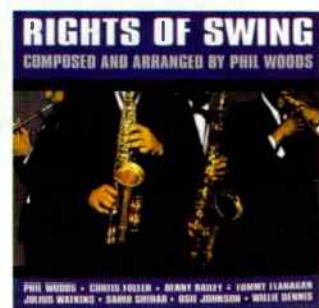
### NEW MOV

There's no let up in Music On Vinyl's release schedule and what a selection we have this month topped by the limited edition of The Resident's 'Eskimo' (1979) which has already sold out – so scan the shops and internet for a spare. The most accomplished album by the mysterious, avant-garde group, it sprinkles politics, ethnography and humour into a potent mix.

Johnny Cash's 'Hello, I'm Johnny Cash' (1969) is one of the best albums that Cash ever produced. Packed with energy, great originals and wonderfully executed covers, this Cash album is a must.



Also look out for Rodrigo Y Gabriela's self-titled album (2006) that combines rock with Mexican Latin rhythm. Orgiastic passion from the guitar duo; Dr. Byrds & Mr. Hyde (1969) was an uneven LP that saw the only founder member, Roger McGuinn, recruit an entirely new band including Gene Parsons and Clarence White; the limited edition version of Cradle Of Filth's 'Damnation And A Day' (2003) a symphonic black metal LP complete with a forty-piece orchestra and thirty-two-piece choir!



**AUDIO FIDELITY**



Three audiophile releases from this US-based label includes 'The Jeff Beck Group' (1972) featuring the great man, Cozy Powell, Max Middleton, Bob Tench and Clive Chaman. Not the best produced LP, it does feature excellent songs such as 'Ice Cream Cakes' and 'Going Down'. This version is essential – beware of other, poorly mastered and pressed editions.

The History Of The Grateful Dead Vol. I (1973) was the final sanctioned collection for Warners but was a sad affair because it centred on Ron 'Pigpen' McKernan who had recently left the band due to illness. It features a quality set of live cuts, however.

Also look out for Ten Years After's 'A Space In Time' (1971) a more pop-centred album, featuring guitar maestro Alvin Lee and 'I'd Love to Change the World', the band's only hit single.

**SPEAKERS CORNER**

Speakers Corner has a typically high quality selection of LPs on offer this month. All are exact duplicates, with no contemporary logos or small print actually on the gatefolds – it's on the shrink wrap, instead. They include Michel Legrand's 'Heralds U.S. Jazz Giants' (1958) in which he compiles eleven tracks for three different groups including Miles Davis and Thelonious Monk; Ann Peebles 'Straight From the Heart' (1972), a lean and tough set with typically relaxed yet biting Peebles vocals. Also look out for the best version of Ian Dury's 'New Boots And Panties' (1977) available so far (it's been around the houses, this one) and Maggie & Terre Roche's 'Seductive Reasoning' (1975), a folk LP featuring a selection of superb songs featuring notable word-play. It was produced by Paul Simon (who also plays guitar) with help from Phil Ramone and ex-Yardbird, Paul Samwell-Smith.



**MO-FI TRIO**

Three from US-based Mobile Fidelity include Bob Dylan's 'Another Side Of Bob Dylan' (1964), a varied album that shoe-horns both poetry and protest in an LP packed with Dylan standards such as "It Ain't Me Babe". This is one of Dylan's best.

Also look out for Yazoo's 'Upstairs At Eric's' (1982), featuring the talented synth pioneer, Vince Clark and bluesy vocalist Alison Moyet on this excellent debut. Finally, Los Lobos' 'By The Light Of The Moon' (1987) features smiling rock'n'roll while, in contrast, investigating the realities of life making this a more serious album than their earlier efforts.

**...AND FINALLY**

Vampi Soul has released 'Isaoco!: The Bomba And Plena Explosion In Puerto Rico 1954-1966'. A 3LP set which investigates the Caribbean culture musical output that would pioneer the salsa movement.

Richard Hawley's new album, 'Standing At The Sky's Edge' (Parlophone), which includes a CD version of the album and Hawley's aggressive, Scott Walker-esque tones with added psychedelia.

White Stripes-esque guitar/drum boy girl duo, Cowbell's newly released 'Beat Stampede' (Damaged Goods) offers raucous rock with wild, sometimes vintage sixties flavours that reflects melodic beat vibes.

Hello Skinny's new, self-titled album (Snowfoot) takes electronica with left field edges that retains melodic vibes that mix the innocent with the portentous.

From Spain, Stay's 'The Fourth Dimension' (Subterfuge), English language release was recorded in my home town of Liverpool. Rollicking indie rock that combines Britpop with late sixties psychedelia, Stay offer reverb-drenched, sometimes gloriously harmonic, vocals.







# The Beatles - in Stereo



After a long wait, The Beatles discography has finally appeared on vinyl. Paul Rigby reviews The Beatles In Stereo.

**STEREO LP BOX SET £300**  
(also mentioned here is the Stereo CD box set, price £180)

**T**he last time The Beatles catalogue officially appeared via EMI, newly remastered on vinyl was back in 1978 with an additional Mobile Fidelity box set released later in 1982. Since that time, we have waited for a new, updated, version to appear. And now it has.

The set itself features original stereo mixes for all of the Beatles albums, from 'Please Please Me' to 'Let It Be', including 'Magical Mystery Tour' and 'Past Masters 1 & 2'. They are pressed on 180gm vinyl and presented in thick card sleeves, along with a magnificent 253-page hardback book detailing every album. These items are contained in a sturdy, flip-top box, an outer card sleeve encasing the box.

The review of this album set

begins at the source, however – in this case Abbey Road and an interview with one of the participating mastering engineers, Sean Magee, who has been working on this project since October 2009. He is an ideal figure to lay to rest internet gossip regarding this release, prompting queries to us at Hi-Fi World. But then, The Beatles have a semi-religious world-wide following and any re-release like this gets close and critical inspection.

A major concern is the source of the music. Was it the original master tapes? Apparently not.

"We couldn't really", said Magee. "We have all the cutting notes left by Harry Moss (the original cutting engineer for The Beatles' recording output) but we don't have the same equipment. We could kind of

recreate the analogue chain and kind of recreate what Harry Moss did to get that sound but it wouldn't be the same."

Another reason has been the demands of Apple: that amalgamation of the remaining Beatles plus the estates of the rest. Apple want any Beatles recordings to have a particular 'sound', a traditional presentation based upon the original recordings that, to some extent, constrained the mastering engineers at Abbey Road. To get the required sound required a considerable amount of EQ (Equalization: boosting or reducing the levels of different frequencies in a signal). "To physically do this in real time whilst cutting from the original analogue masters would have been almost impossible to do", said Magee.

# Vinyl is black!



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The approved EQ shouldn't be taken lightly, either. It took four and a half years to create it, prior to the release of the CD box sets in 2009. Consequently, the vinyl has been remastered from digital sources created before the CD box sets were released, in 24bit/192kHz digital, meaning super high quality, way better than CD.

Magee found, however, that even those files were going to be a problem when remastering the stereo vinyl because of vinyl cutting EQ requirements.

Also, on the earlier albums, primitive stereo processing placed vocals on one channel and instruments on the other which meant that "there are different EQs on the left than there is on the right because the content is different on either side. Sorting all of these EQs, track by track, whilst cutting would be impossible.

Also, you cannot do separate jobs at 192. You can't de-click, then EQ and so on. You have to do the lot while cutting. There isn't the equipment at 192 to do that. Not easily, at any rate. The practicality and time of even doing that process at 24/96 would have taken about a year. You'd also need a lot of double checking".

It so happened that the complex EQ applications had already been made on the CD version. "To use the 192kHz sources now would have entailed recreating the EQ source that we did at 24/44.1, which wasn't viable".

So a decision was made to master the vinyl at 24bit/44.1kHz. I can hear the sound of fainting audiophiles across the land.

Despite the extra time that a 24bit/192kHz or even a 24bit/96kHz cutting master would have taken to create there was, according to Magee, no real deadline for this project. So the reason for using the 44.1kHz files was? "I was told to use these 24bits (files), so that's what we used, it was the most practical".

Practical? Because of the cutter head, according to Magee. "It has a limited frequency response and cuts off at 24kHz. There is nothing above that. As a cutting engineer, anything of significant level above 16kHz is dangerous. You don't want that going to your cutter head because it gets very hot and can destroy it. It



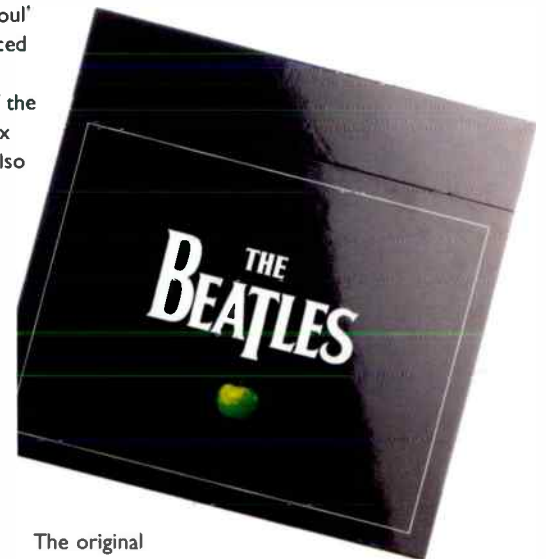
From the enclosed book, *Studio 2, Abbey Road*, where The Beatles recorded their early albums.

wouldn't have mattered if the signal had gone to 192kHz or 96kHz, it wouldn't have been on the record because you can't cut it, you can't hear it and I wouldn't want it there anyway because a stray signal at 60kHz would destroy the lathe head. The most important part is that it's 24bit, not that it's 96kHz or 192kHz (sample rate) because the cutter head won't even cut content up to 48kHz".

According to Magee, you're far better off having a decent ADC (Analogue-to-Digital Converter, a high-specification design from Prism

is almost surgical in its accuracy and doesn't affect adjacent frequencies as older systems did.

On other points of note, the contentious George Martin 1986 stereo mixes for 'Help!' and 'Rubber Soul' that surfaced in the CD version of the Stereo box set have also appeared within this vinyl box set.



The original stereo mixes can currently be found in the CD Mono box set. There is no information about which version will appear in the future Beatles On Mono box set.



in Abbey Road's case) and a clean 24bit signal if you are capturing all of those extra highs. "The reason 24bit is important is because, in 16bit audio CD play, when you get down to -50 something then you start getting quantisation. The signal can't make up its mind whether it's a one or a zero. You end up with a buzzy sound. At 24bit, you get no perceivable noise".

Audiophiles will be happy to hear that no compression has been added to the vinyl masters, while a decision to use Direct Metal Master cutting process to enhance detail was rejected by Apple in favour of the warmer sound of lacquers. The only processing done was a series of precise and targeted removals of sibilance which, with Cedia Retouch,

## SOUND QUALITY

I auditioned and compared three generations of pressings for this review. I selected an original copy of 'With The Beatles' album (1963) and the 1978 UK version from the EMI box set reissue (better sounding than the comparable USA and Australian versions and sourced direct from the master tapes) and the new 2012 copy.

Also, the original pressing of 'Magical Mystery Tour' (1967) was compared directly with the new version. I also decided to undertake a more considered test with the 1978 and 2012 versions of 'Abbey Road' (1969).

Starting with 'With The Beatles' and the track 'It Won't Be Long', the 1978 reissue offered more

# RETRO

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detail than the original. I could hear that Lennon's voice was double tracked while the bass had more resonance and body. Drums played a big part in the mix, with beautiful separation between cymbal strikes. The downside was the compression that dominated both record versions. There was a brightness that compromised the sonic improvements of the 1978 version.

Moving to the new release, the 2012 version offered a much quieter cut: gain had to be upped a few notches to achieve the same volume. Even though there was no compression on these pressings the nature of the EQ - an Apple stipulation - meant that the vocals sounded slightly restricted. This was partly down to the early stereo mix that sounds rather claustrophobic. Even so, Lennon's double-tracked vocals were pleasingly resonant. Similarly, the backing harmonies were far more recognisable with a separation from the lead that just wasn't present on the original pressing and was less noticeable on the 1978 version due to the compression used.

With the 2012 version of 'It Won't Be Long', instrumentally the track was a triumph, despite the claustrophobic effect. The drums were more at ease, making clear a flair and nonchalance that drummer Ringo Starr was known for, while the new master better revealed Harrison's attacking guitar style.

Comparing the new version of 'Magical Mystery Tour' and the original, there really was no contest. The 2012 version offered a more explicit soundstage structure within

lacking within the original.

Moving to 'Here Comes The Sun', from the Abbey Road album, I must say that I feared for the new version after listening to the 1978 cut. The latter is an excellent version, one of the highlights of that entire box set, in fact. The detail extraction was of a high order while the soundstage

complexity to the arrangement while adding welcome contrast with the other rhythmic elements.

## CONCLUSION

A number of points raised their heads during this test. Firstly, the original masters are poor in audiophile terms. Aimed at the



was wide and the upper mids were tonally accurate with a deftness of presentation, along with a 3D stereo image and an attractive instrumental separation.

Quite incredibly, the new 2012 version blew the 1978 master away. The right/left transition at the beginning of the track was strong

Dansette generation, compression and brightness was the order of the day back then.

Another point of interest is that a mastering engineer's client can have a significant effect on the final product. If Apple was not so set on retaining the original EQ, I think that the Abbey Road engineers would have produced an even better sounding suite of albums. But then, we wouldn't be listening to The Beatles as we know them. For the audiophile, is that a bad thing?

What will be shocking to some, however, is the realisation that the source is not the be-all and end-all for a good quality vinyl cut. That became obvious in my comparisons. Both the original issue and the 1978 master used the original master tapes but both were significantly inferior to the new pressings, that use 'mere' 24bit/44.1kHz digital files as a source.

The critical variable is a human one: the mastering engineer. Mastering engineers can make or break an LP cut. I feel the Abbey Road engineers have done a fine job with this new Stereo box set. Beatles fans around the world will hear the original balances, but with much improved audio quality, fit for today's hi-fi, rather than yesterday's Dansettes!

**An LP cutting lathe at Abbey Road studios, part of the LP production process. It cuts the groove into a soft 'lacquer'. This is then plated to produce stampers for the pressing machines.**

**Note the B&W 802 monitor loudspeaker in the background, used for sound quality checks.**

"Both the original issue and the 1978 master used the original master tapes but both were significantly inferior to the new pressings"

the limited boundaries of the rather naive stereo mix. It also clarified the upper mids, adding separation to the harmonic and double tracked vocals and making each vocal part more recognisable. The essential brass accompaniment, an iconic section of this famous track, could be heard properly for the first time. Each instrument had personality and less bloom while the secondary percussion that was masked by compression on the original could now be discerned. McCartney's bass was prominent too, while drums bathed in a clarity that was sadly

and secure, while the organ effect on the left channel was more noticeable. The instrumental separation was not only superior but, once separated, each instrument was clearer. Detail on this track was quite magnificent, with tonally correct hand claps. The acoustic guitar had a rich texture that emphasised the attack of strumming, while percussive bass was solid and provided a firm foundation for the track.

What was most surprising was the Moog synthesiser which had a dominating effect on the new master, broadening the track and adding

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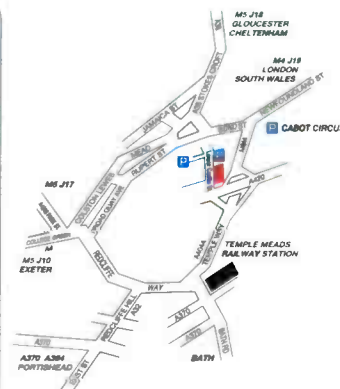
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WHAT HI-FI?  
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# Diamond Choice

**Nagaoka's budget MP-110 cartridge can be upgraded to an MP-200 with a boron cantilever, or to play old mono LPs and 78s. Noel Keywood investigates.**

**W**hat can you play a new set of Beatles LPs with? Surprisingly, a £99 budget cartridge like the Nagaoka MP-110 reviewed here will do fine: it tracks well and won't cause damage. Better, it can be upgraded with a better stylus when the pennies are available. The body of the MP-110 is the same as that used on the more expensive MP-200, only the stylus assembly is different. To upgrade the MP-110 you just need to buy a JN-P200 stylus, used in the MP-200, and plug it in. It's a five second job that only requires steady hands, because the stylus is delicate and can be damaged if dropped, or mishandled.

In this review I look at the differences this upgrade brings. However, an unusual and rare feature of the Nagaoka range is that you can choose not just an upgrade stylus, but a change in function. Stylus assemblies are available for older mono records with wider grooves, as well as 78rpm styli in a range of widths, making the MP-110 a great choice for record collectors. So the humble MP-110 is unusually flexible in what it can do. But how does it fare with modern stereo and mono LPs?

You may not have heard of Nagaoka. They are a Japanese company specialising in precision materials that have also been manufacturing cartridges for a long time. Nagaoka cartridges are well thought out and engineered. They don't look as swish as Ortofon or Goldring, having a square body that is visually prosaic, but it is firmly functional. Likewise the stylus assemblies are simple and functional plastic mouldings. Presentation is not something that seems to bother this company, but don't let appearances deceive: Nagaokas work very well and are up with the best. Their low

price and mundane appearance disguises great ability.

The MP-110 comes in a plastic case housing a basic instruction sheet, plus specifications for the range of which the cartridge is a part. You get four fixing screws, two cylindrical nuts, two plastic washers and a small screwdriver. A body weight of 6.5 gms is low, keeping effective mass of the headshell assembly low which aids warp riding. As arms commonly cope with a 5-10gm cartridge weight range there is no problem with compatibility.

Fitting the cartridge is fiddly compared to modern Ortofon with their built-in threaded screw holes and it's best done with the stylus assembly removed. The connecting pins are colour coded like most.

Square bodied cartridges might look a little clunky but they are easy to align accurately, so there's a benefit here. Just align the straight edge so it's parallel with the main axis of the headshell, which usually

corresponds to the headshell's edge. This keeps distortion from tracking error to a minimum – a sensitive alignment little talked about. Because small misalignments produce large increases in distortion, getting the cartridge body straight in the headshell is worth doing.

Nagaoka specify a downforce of 1.5gms-2gms for the MP-110 and the MP-200. Both have a 0.4 x 0.7 mil elliptical diamond stylus. The main difference between them is the MP-110 has the usual aluminium



cantilever tube, but the MP-200 has a boron rod. The use of fine boron rods is becoming popular in high end cartridges so the MP-200 brings a taste of high-end.

## SOUND QUALITY

The cantilever affects sound quality by changing its 'flavour'. Our measurements pinpointed fine differences between the two stylus assemblies, but the main factor affecting sound quality was a frequency response characterised by falling treble, giving a warm balance. This is a little old-fashioned; cartridges of yore measured like this

"As tracks became louder the MP-200 stylus better retained its dynamic composure"

and the Shure M97xE – a venerable old design – still measures like it. Goldrings are flatter in output and more up-front in their sound, and Ortofon of the 2M series much brighter. But the Nagaokas are super smooth and real record preservers.

The MP-110 had a lovely, smooth relaxed sound through an Icon Audio PS1.5 valve phono stage, backing vocals surrounding Kate Bush on 'King of the Mountain', from the LP Aerial, forming a wide halo of sound behind her. The reggae rhythm

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guitar cut out nicely, the whole performance sounding fulsome and confident. Firm, well timed bass strutted from our Quadral Wotan VIII loudspeakers, driven by Icon Audio MB845 MkII m valve power amplifiers.

Spinning Amy Winehouse singing 'Back to Black' had the lady sounding as adept at her business as La Bush, but the LP sounded a tad warm. I swapped over to a Trichord Diablo on the basis that this would be more like the phono stage used with a budget cartridge, but the midband developed a mechanical character and this got worse when I selected extra capacitive loading of 1.1nF. So I swapped back to the PSI.2 and remained happy from then on.

tale against a nice dark background. There's no spitch or shout from the MP-110, it is a real smoothy and I could listen to it without criticism, it has such a simple, honest presentation.

Swapping over to the purple coloured MP-200 stylus, it sounded softer up top, high treble being very muted. However, the midband became more muscular, harder wrought and forceful. Now, singing 'Some Ancient Misty Morning' Jackie's voice rang out with greater strength, there was less a tad less vagueness or muddle and I suddenly became more aware of a bass line starting some



The tubular aluminium cantilever and diamond stylus of the MP-110. The MP-200 uses a boron rod as a cantilever.

MP-200 captured these high octave deliveries well, holding their timing and supporting their force with alacrity. Although an old recording, My Generation rolled along sounding clean, muscular and sorted, the power behind its statements of youthful intent sounding fresh and engaging.

**CONCLUSION**

The MP-110 is a great budget cartridge for those who want a big, smooth sound. The upgrade to MP-200 status added warmth, but also improved definition and dynamic muscularity. Mono and 78 stylus options widen the picture further, making the MP-110 a great choice for record collectors on a budget.

**VERDICT** ●●●●● £

A budget cartridge that tracks well, can be upgraded to boron cantilever, or to play old mono or 78 records. A record collectors bargain, with a warm sound.

**NAGAOKA MP-110** £99  
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**FOR**

- smooth, confident sound
- good tracking
- upgradeable

**AGAINST**

- warm sound
- awkward attachment



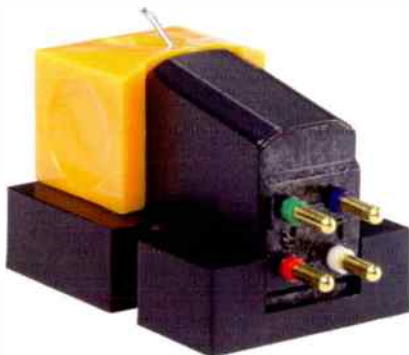
With the well cut and pressed 'Hello, I Must Be Going' LP from Phil Collins, a heavy, flat 180gm pressing, his cascading drum intro to 'I Don't Care Anymore' punched its way from the Wotans – lovely, and a demo of how good LP can be. The MP-110, for a humble MM, sounded absolutely

way into the track. The MP-200 offers a cleaner and more firmly stated sound, with better bass resolution. The lack of extreme top seemed well balanced by the stabbing twang of strummed guitar strings and their resonant decay. As tracks became louder the MP-200 stylus better retained its dynamic composure, so climaxes remained clear and muddle free.

With old recordings like The Who's 'My Generation' (a new pressing on heavy vinyl) a cartridge can be too revealing but the MP-200 got it right by emphasising the bite of hard, chiming guitar chords on tracks like 'Out In The Street', Daltry spitting lyrics into the microphone in characteristic fashion. The

gorgeous. Again, it was confident and relaxed in what it did, a reflection on its good tracking, yet there was plenty of slam and copious dynamic contrast as Collins laid down this signature start.

Similarly, lone drum strikes rang out firmly from Jackie Leven's 'Some Ancient Misty Morning', Jackie singing clearly his wistful



**MEASURED PERFORMANCE**

The MP-110 tracked every test level at 300Hz, including the top torture track. It was marginal on a 1kHz torture track at 25 cms/sec but the tip stayed in the groove at the maximum quoted downforce of 2gms. The JN-P200 stylus was a trifle worse, being marginal on the 300Hz tracks and less secure at 25cms/sec.

Frequency response of both styli had falling treble, so both will give a warm sound. However, the MP-200 falls -3dB at 10kHz and of the two has the warmest sound. However, tip mass is lower and there was no lift to tip mass resonance as there was with the MP-110.

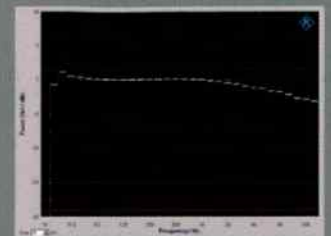
Output from the MP-200 stylus (i.e. JN-P200) measured 5mV against 4mV (at 3.5cms/sec) for the MP-110 stylus, a 2dB increase in volume, suggesting the magnet used is stronger. Nagaoka quote the exact opposite figures.

Distortion on lateral modulation was low at 0.6%. Vertical tracking angle was a little high at 25degrees for the MP-110 and 28degrees for the MP-200, giving the MP-200 a slightly higher distortion figure with vertical modulation.

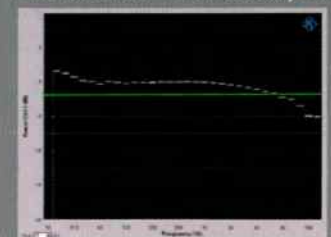
Measurement shows both these cartridges will give a warm sound, the MP-200 sounding warmest. Both track very well and will not damage precious vinyl. NK

MP-110 / MP-200	
Tracking force	1.5-2gms
Weight	6.5gms
VTA	25/28degrees
Frequency response 20Hz - 20/10kHz	
Channel separation	25dB
Tracking ability (300Hz)	
lateral	90µm
vertical	45µm
lateral (1kHz)	23cms/sec.
Distortion (45µm)	
lateral	0.6/0.6%
vertical	4/6%
Output (5cms/sec rms)	4/5mV

FREQUENCY RESPONSE, MP-110



FREQUENCY RESPONSE, MP-200



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Stereo/Mono 0.7mil stylus: JN-P200	£199.50
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Mono/78 2.0mil stylus: NMP2.0	£99
78rpm 2.5mil stylus: NMP2.5	£99
78rpm 3.0mil stylus: NMP3.0	£99
78rpm 3.5mil stylus: NMP3.5	£99
78rpm 4.0mil stylus: NMP4.0	£99

# Steam Drive

Forget Direct Drive – here's Steam Drive! Yes, it's a steam powered turntable from New Zealand, where the Hobbits play. And this is likely what they use to spin LP.

Designer and builder Simon Jansen told us it was built as a joke on the Steampunk movement. Joke or not, it's ingenious and it works – and surely it is the world's most amazing turntable!

Where the arm should be – at right – instead sits a steam engine. This puts the right handed arm at left, so it must be swung fully across the platter to the rear to play an LP. Well, this is an eccentric turntable, so why not keep it that way?



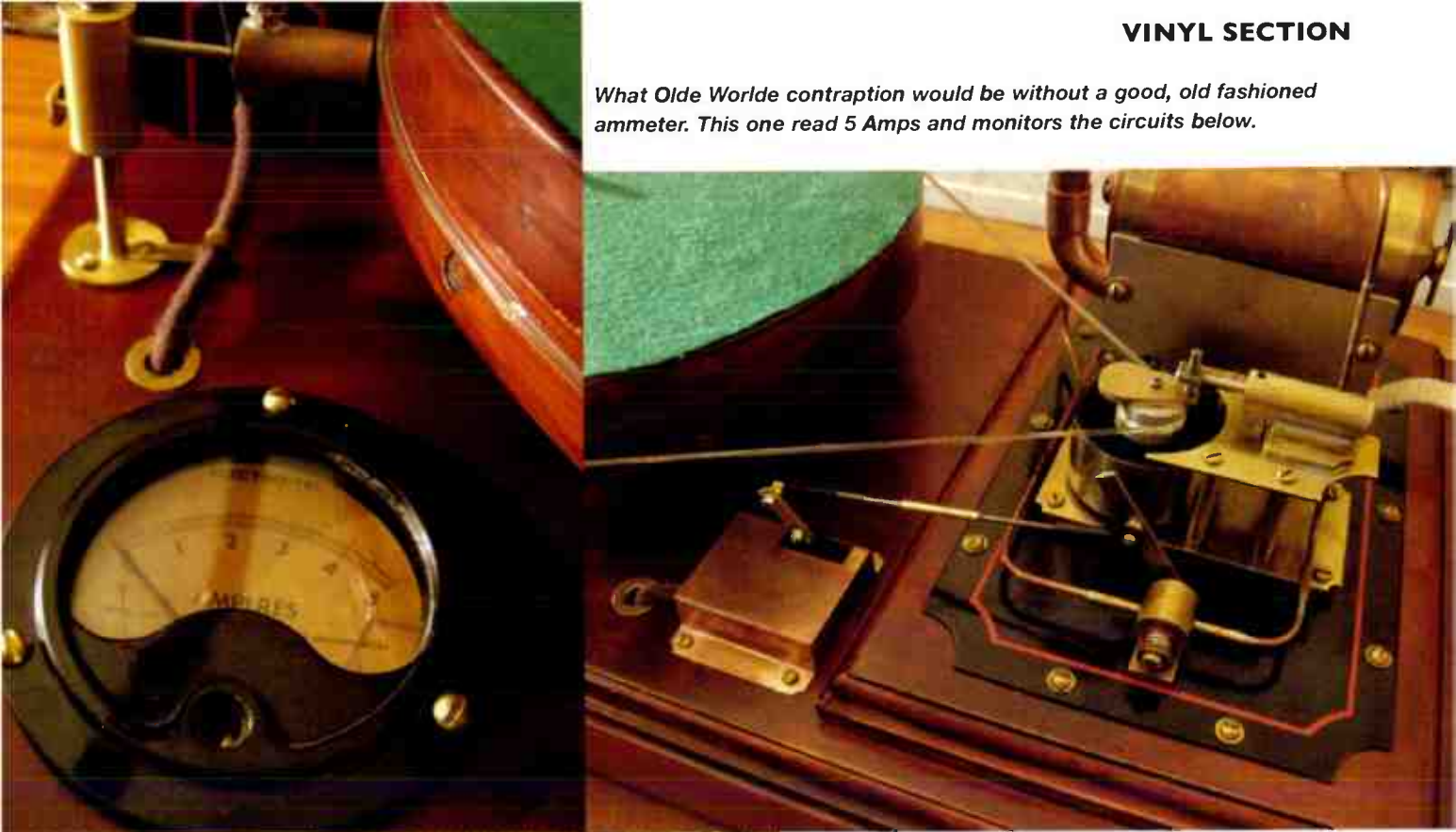
The independent boiler feeds a piston that drives a wheel with a crank, just like any self respecting steam train. But in this case the wheel is a pulley for a belt that drives the platter.

At front sits a steam valve connected to the boiler's output. This acts as a throttle that controls speed, no less! That vertical lever is pushed by a solenoid.

You may think it's as far away from Direct Drive as you could possibly get, but in truth a surprise awaits: the speed control system borrows heavily from Direct Drive (read on).



What Olde Worlde contraption would be without a good, old fashioned ammeter. This one read 5 Amps and monitors the circuits below.



The piston comes from an old Mamod steam engine, but the crank, pulley and flywheel below were all made by Simon, turned up on his home lathe. He used scraps of metal and wood in construction. It took a "few months of messing about" he said.



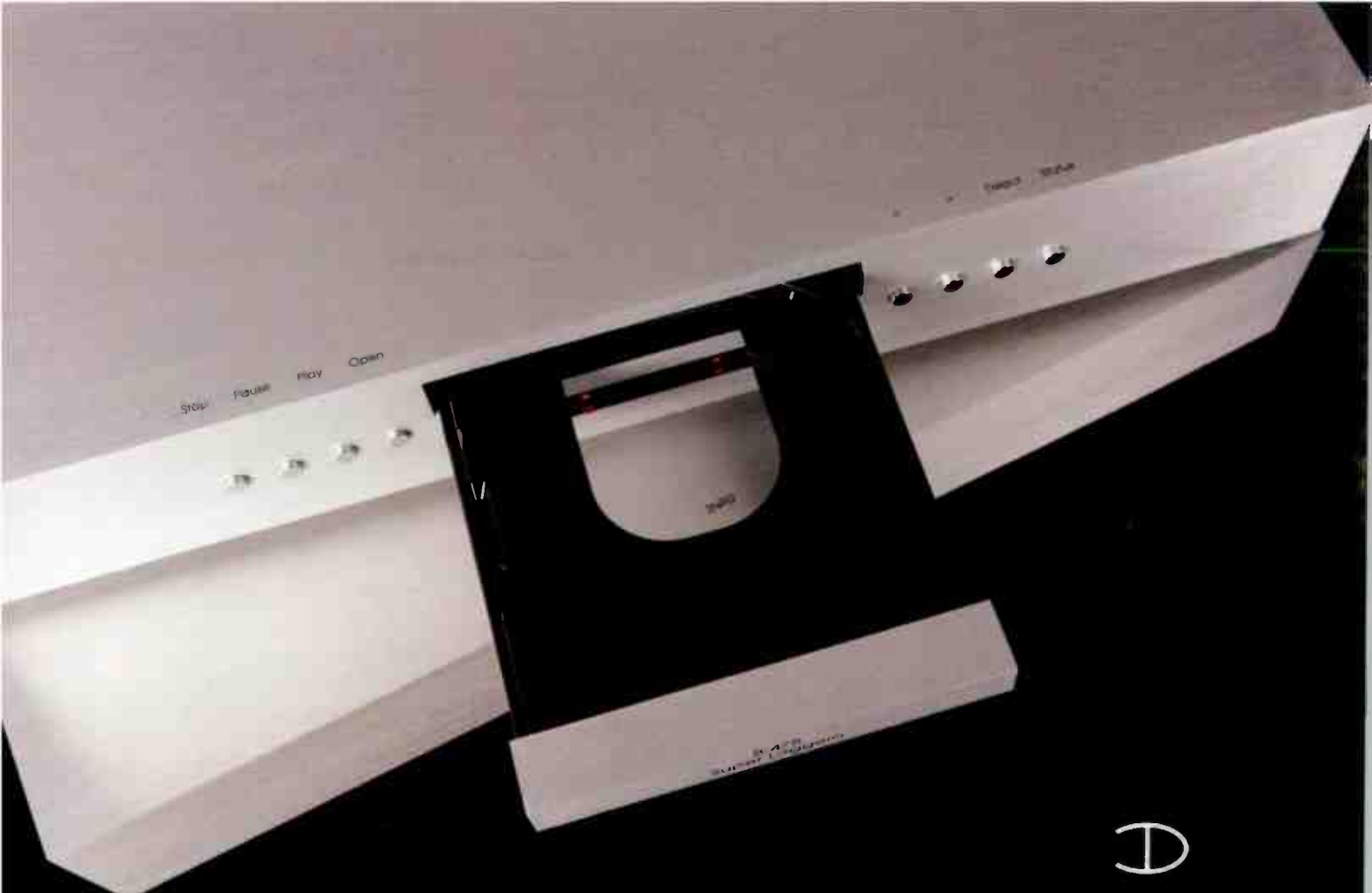
This shot shows the lovely copper boiler, tested to withstand 100psi. It runs at around 20psi, however, so designer Simon Jansen reckons it won't blow up if asked to spin a 78.

Note the fluted top of the funnel, a style instrument from around 1820 used in Stephenson's 'Rocket' locomotive.

... and finally, the servo feedback speed control system. As in Direct Drive turntables, magnets under the platter pass sensing coils, sending a speed signal to a logic system that controls a servo actuator, hidden under the turntable. This operates a crank that pushes a rod that pulls a lever attached to a steam control valve, that controls speed. Technicians eat your heart out. Designer Simon Jansen reckon's speed "is a bit wobbly".



Go to Simon Jansen's website <http://www.asciimation.co.nz> to read more, and also for a link to a YouTube video of it in action. Extraordinary!



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World Radio History





The upgraded Gyrodec, with new platter, clamp and Techno Arm.

# Belle Michell

Want a beautifully made turntable? Tony Bolton looks at the popular Michell Gyrodec and upgrades available for it.

**T**here is an old saying that if something isn't broken, then don't fix it, and this can be readily applied to the Michell Gyrodec which is about to enter its fourth decade of production. What changes there have been since it was introduced in January 1982 have been few but important.

The original aluminium platter was replaced by the current carbon loaded acrylic design with

an inverted bearing in 1986, the suspension was modified in 1998, and in 1999 the SE model under review here was introduced.

Probably the biggest change was the introduction of the DC motor in November 2000 and this was followed by the HR power supply in 2003. This is also the year that the Techno Arm was introduced as an option. The most recent alteration was the decoupling of the arm mounting

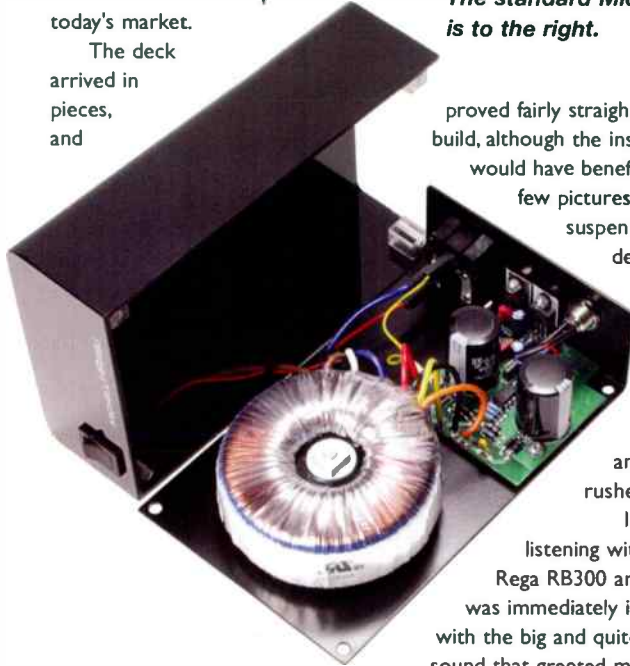


The Orbe platter kit. At the bottom are the threaded securing washer, felt ring and Delron record clamp.

plate from the chassis in 2007.

Although the deck still looks the same, the modifications have all affected the sound. So, since it is a number of years since I have had the opportunity to use one of these machines, a Gyrodec SE with the options of the HR Power supply, a Techno-arm and the Orbe platter kit were delivered to my house to see how it measures up in today's market.

The deck arrived in pieces, and



**Inside of the HR PSU. The toroidal transformer feeds the 'Never Connected' circuit which totally separates the incoming mains from the DC output, ensuring mains pollution is not a problem.**

proved fairly straightforward to build, although the instructions would have benefitted from a few pictures. As with all suspended chassis designs, getting the bounce just right paid big dividends in improved sound quality, and should not be rushed.

I started listening with the standard Rega RB300 arm in situ, and was immediately impressed with the big and quite powerful sound that greeted me. The funky bass lines of the 'Four Tops Live' at the Roostertail in Detroit were relayed with quite a lot of energy behind them that got my feet tapping. However, I felt very aware that I was listening to an older recording.

Changing to the Techno Arm, which is a substantial reworking of

the Rega RB 250 arm, seemed to bring the music to life somewhat. The soundstage was bigger and deeper, with better separation and projection of the vocals. The bass lines played with a bit more naturalness to their gait and the whole sound felt more vibrant and open.

This arm benefits from silver litz cable with a PTFE dielectric, metal braided shielding and a separate ground wire. The arm tube is bead blasted and perforated to disperse structural resonances and is internally damped. The headshell is machined flat, and at the other end, the Techno Weight hangs below the arm pivot to give superior tracking ability. There is also a VTA adjuster built in.

I used this combination to listen to Dvorak's 'New World Symphony'. This recording was one of my first classical recordings, given to me in my mid teens and has remained a favourite version over the years. Jorda had a light touch as a conductor, bringing out the romantic nature of the 'Largo' yet having



**The standard Michell power supply is on the left, the HR PSU is to the right.**



**The Michell Gyrodec SE in standard form with Rega RB 300 arm.**



**The back of the HR PSU. The speed adjuster is factory set so shouldn't need touching, but can alter the turntable speed by up to 5% fast or slow.**

enough weight and power to make the finale of the fourth movement imposing.

The Gyrodec/ Techno Arm combination relayed this very well, presenting more body and substance to the sound than I get from my Sondek, although I felt that there was a little more air in the treble with the LP12.

At this point I plugged in the HR Power Supply. This is a low noise power source that uses Michell's 'Never Connected' circuit which isolates the output to the motor from the mains input, eliminating any potential problems from mains pollution.

The results were quite dramatic. The sound seemed to be more solid and substantial, and yet also seemed freer to move and express itself. This time the 'Largo' seemed to acquire an almost liquid flow, with the strings and Cor Anglais displaying a level of emotion that was previously missing.

I stayed in a gentle mood with Nat King Cole's soothing vocals wanting to 'Fly Me To The Moon', with George Shearing's piano and Quintet providing soothing backing. This disc is very well recorded and the Gyrodec played it in exemplary manner, displaying the detail around his vocal inflections in a way that made it sound as though he had stepped forward into the room.

At this point I installed the Orbe platter kit. This consists of the 60mm thick carbon loaded acrylic platter from the Orbe. Fitting was simple, requiring the old platter

with the gold plated brass weights underneath to be removed from the bearing assembly and the new platter screwed into its place.



Again there was quite a dramatic change to the sound with an increase in the perceived weight of the bass. Shearing's lower piano notes seemed to have more power, while Cole's vocals displayed a richer, darker tone and texture.

I finished listening with Morcheeba's timeless LP 'Big Calm'. It played with a full-bodied and grounded sound. The instruments and her voice came from a dark background which suited this type of music well. However, returning to the Cole/Shearing LP left me feeling that I actually preferred the sound of this disc with the slightly lighter presentation of the standard platter in place. The weight of the sound combined with the fulsome tones of Cole's voice seemed a little too rich for my taste.

With this exception, each upgrade brought a substantial improvement to the sound, opening it up both in levels of detail, size of soundstage and tightness of the timing. If I was buying one of these machines then I would certainly budget for the Techno arm and the HR Power

Supply unit. Both of these improve on an already good sound to make one that can still stand as a reference at the appropriate price points, and demonstrates how good the original design was when it was introduced 30 years ago.

The Orbe Platter kit takes the performance up in another way, adding weight and power to the sound, but I felt that there was a little trade off in the delicacy of touch that, for me, makes the Gyrodec such a pleasant turntable to listen to.

Whichever platter you choose, I can say that the Gyrodec stands as one of the great turntable designs. It is beautifully engineered and a delight to both use and listen to. I shall be very sad when this example leaves.

**The Michell Techno Arm. The underslung counterweight comes in two sizes to accommodate cartridges weighing between either 3 - 6g or 7 - 13g. The VTA Adjuster is the knurled ring just below the black mounting block.**

**MUSIC USED:**  
Dvorak 'Symphony No. 5 in E minor, op. 95 (from the New World). Enrique Jorda conducting the New Symphony Orchestra of London. Decca, Ace of Clubs records. ACL 18. circa 1960.

Nat King Cole/ George Shearing Quintet. 'Nat King Cole Sings/ George Shearing Plays'. Capitol Records. SW 1675. 1962.

The Four Tops. 'The Four Tops Live'. Tamla Motown Records. TML 11041. 1967.

Morcheeba. 'Big Calm'. Indochina Records. ZENO17LP. 1998.

**SYSTEM USED:**  
Leema Acoustics Agena phonostage and Tucana II amplifier.  
Chario Ursa Major loudspeakers

#### VERDICT

Classic deck that has stood the test of time. Optional upgrades enhance sound greatly.

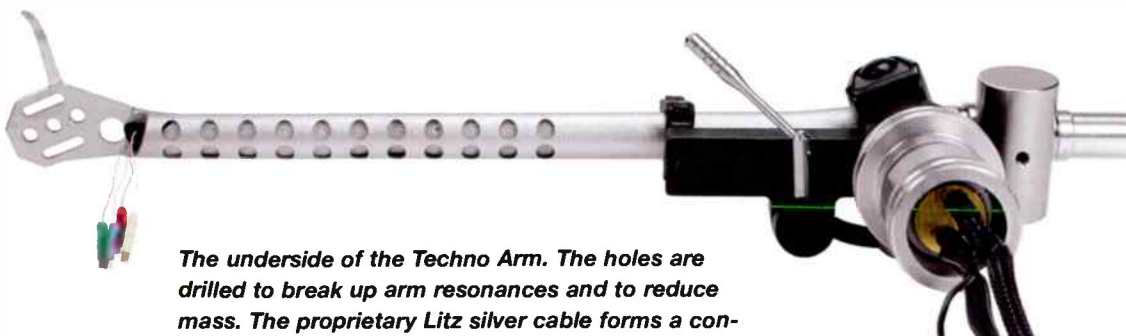
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# Space race

Rega has drawn praise with its entry-level Brio-R amplifier and matching DAC. Can it make it a hat-trick with its accompanying Apollo-R CD player? Jon Myles finds out.

**R**ega don't rush into things. They make a virtue of the fact that they were one of the last major specialist hi-fi manufacturers to turn its hands to producing a CD player. That, they say, meant that when they did, they had the chance to make sure they got it right.

So perhaps it's no surprise the Southend-on-Sea based outfit has waited seven years before choosing to update its entry-level Apollo CD player with the Apollo-R replacement.

The most obvious change between the two is the move to a new half-width casing identical to that seen on the new Brio-R amplifier and much-praised Rega DAC.

It's a minimalist design with

just five buttons on the front, plus analogue line outputs, as well as digital coaxial and optical outputs on the rear. There's also a basic but functional remote control.

Inside the improvements over the original model include a new Wolfson WM8742 DAC, enhanced output amplifier circuit, redeveloped analogue and digital outputs and improved digital power supplies.

What you don't get is any form of digital inputs such as on some rival machines. The Apollo-R is a CD spinner, pure and simple.

## OPERATION

Out the box the Rega feels reassuringly sturdy in its aluminium casing. Its top-loading system is

manual with a pleasingly positive action in use - simply slide the spaceship-shaped cover up and back before clamping the CD on the spindle and closing the lid again.

After that Rega's control system clicks into place - meaning you are first greeted by the message 'Initialising' on the red LED front display. That's followed by a slight delay after pressing play while the buffer fills itself with the required information from the CD.

Rega claims this system



maximises playback quality for each individual disc by minimising read errors, although it can mean longer loading times. In practice, you soon get used to it and any frustrations are immediately dispelled when the Apollo actually does start playing.

**SOUND QUALITY**

That's because, quite simply, this is an exceptionally confident CD player for the money. Words like agile, authoritative and organic immediately spring to mind from the very off.

It also only takes a few minutes to realise the Apollo-R is adept at retrieving bags of detail from familiar discs.

Scott Walker's 'Tilt' isn't the easiest of listening experiences but does boast some gorgeous orchestration including the London Sinfonia Strings, Central Methodist Hall Pipe Organ, chitarrones, bass, drums and hand cymbals. Some CD players can make it sound too dull and ponderous while others fail to bring out the inherent tension in the music.

Through the Apollo though the interplay between the various elements is superbly rendered - allowing you to hear just how well they complement Walker's inimitable vocals. It retains an inherent grip on the music throughout, fully tracking the alternate peaks and troughs of the performance.

Moving onto something a little more upbeat and the little Rega evidenced its timing and dynamic drive with the likes of Saint Etienne's 'London Conversations'. Bass is well-defined and propulsive while the highs never tip over into splashiness. There's also a lovely air and spaciousness around instruments which makes the likes of 'Who Do You Think You Are' a joy to hear.

The Apollo-R also lets you know the same collection's 'Join Our Club' is not the outfit's best-recorded moment but doesn't labour the point, managing to tame some of the track's top-end harshness.

Moving to the bassier combination of Jah Wobble and Evan Parker on 'Passage To Hades' and the Rega proved it's no slouch when it comes to digging out the

lower registers. Yet it did so while retaining a convincing musical flow, never allowing Wobble's booming, repetitive riffs to slow the overall pace of the compositions.

Ultimately, the Rega may not have quite the bass extension or apparent rhythmic drive of, say, a Naim CD5i. But the Naim is almost twice the price of the Apollo-R and the Rega arguably matches the more expensive player in terms of detail.

The Apollo-R is also an assured all-rounder. Never did it let the teeming swell of sound that comprises the Utah Symphony Orchestra's recording of Varese's 'Ameriques' to tip over into cacophony. Instead it allowed the various orchestral strands to stand on their own, providing a rich and wide soundstage which positively filled the room.

Players in this price range take one of two routes - lean, thin and upfront or rich and smooth. The Rega, in contrast, treads a fine line between them both and by doing so allows what's on the disc to shine through.

There's no doubt it's a consummate all-rounder with the welcome ability to tackle a variety of music without tripping over itself in the process.

**CONCLUSION**

The increasing number of streaming products hitting the market has convinced some that the days of CD replay are inevitably numbered. But not everyone is ready to abandon the silver disc



for the complexities of a networked music set-up.

For those, the Rega Apollo-R could be just the thing. The original Apollo was no slouch - selling some 20,000 units worldwide over its lifespan. The new model takes all the attributes of the original and builds on them.

It combines an even tonal balance with assured delivery, bags of detail and an admirable punch to the sound. Add in its attractive design and competitive price and it's clear Rega has produced another winner.

If you are in the market for a well-built, great-sounding player at a reasonable price take a listen to the Rega Apollo-R. You won't be disappointed.

**VERDICT** ●●●●●  
 A talented CD player from the Rega stable. Bags of detail and an easy, unforced sound at all times. Definitely recommended.

**REGA APOLLO-R CD PLAYER** £550  
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[www.rega.co.uk](http://www.rega.co.uk)

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  - simple display



**MEASURED PERFORMANCE**

The Apollo-R would not reproduce a fast pulse for our usual convolved impulse frequency response test, suggesting unusual filtering has been used. Rega have used their own steep filter that limits the upper response to 17kHz, instead of the usual 21kHz for CD. As output is flat to that frequency its effect will be hard to detect subjectively, but deeper stop band attenuation and a cleaner sound are likely, to avoid high-end harshness. Distortion levels were low throughout the dynamic range, a figure of 0.26% being returned at -60dB. Our analysis shows some quantisation noise and although much is attributable to 16bit limitations, some seems to arise from the player as its EIAJ Dynamic Range value was a mediocre 98dB, where 100dB is typical and 102dB possible.

Jitter on the digital output measured 30pS on a 1kHz, -60dB tone. Random jitter measured around 5pS and low rate clock drift was very low at 10pS, a good set of figures all round.

The Apollo-R measured well in all areas. It has different filtering arrangements to many players and may well benefit from slightly less edgy treble. NK

Frequency response (-1dB)	4Hz- 17kHz
Distortion (16 bit)	%
0dB	0.002
-60dB	0.25
Separation (1kHz)	112dB
Noise (IEC A)	-114dB
Dynamic range (EIAJ)	98dB
Output	2V

**FREQUENCY RESPONSE**

**DISTORTION**

THD+N	THD	IMD
0.2611 %	-99.373 dB	1000.2 Hz
OFF	OFF	OFF

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# Cables section

**Y**ou love 'em or hate 'em. Cables raise some people's hackles, but Hi-Fi World readers tell us repeatedly cables improve their sound and are a great upgrade. So here we are with a more organised approach to the subject. Loudspeaker cables, interconnects and mains cables, as well as accessories such as connecting blocks will appear in this section in future. If you hate 'em - don't look. But if you love 'em you now know where the goodies are.

Initially at least, we will look at affordable products across a single manufacturer's range. This month Black Rhodium, next month Mains Cables R Us, etc.



This month Paul Rigby takes a look at Black Rhodium's cables, the Twist, Tempo, Twirl, Samba, Libra, and Cratos.

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# INTERCONNECTS

## BLACK RHODIUM TWIST/TEMPO

**J**ust released via Black Rhodium, the Twist is what it says, a twisted length of cable to form a low cost interconnect. Simple and pliable, the Twist is aimed at those looking for a first interconnect. The Tempo is rather more expensive and feels it, as it is made from silver plated copper wire insulated in silicone rubber. First in line for sound quality testing was the Twist.

### SOUND QUALITY

Listening tests began via Stevie Wonder's hit single, 'Superstition' on a Fidelity Audio-modified Cambridge Azur 640CV1, Rega Brio-R and a pair of Spondor S3/5R2 speakers perched upon a Magic-Rack shelf and Track Audio Precision 600 speaker stands.

The Twist had an immediate effect. Instrumental placement became clearer and made more sense. There was less apparent crowding as the soundstage was extended in height. Each element of the backing band, people and instruments, took a position that I could pinpoint easily, to great effect. The result was an attractive 3D element added to the soundstage. Complex instruments, such as the Clavinet keyboard, became more engaging because each layer of the performance was better separated, enabling my ear to recognise each and every part.

The brass section had more personality and greater emotional impact, while bass guitar, although not pushed any further from the mix, was easy to spot within its location.

Enhanced lucidity and a lowering of distortion helped produce a clear-cut cymbal outline and generally improved treble.

Spinning Mozart's 'Eine Kleine Nachtmusik', the production featured a balanced soundstage so that no one element took charge or dominated. With this string-heavy composition, there is a danger that it can become a little one dimensional but, with the Twist interconnect, the orchestration exhibited a full, sonically poised, presentation while light and shade within the strings were clearer and more discernible to my ear.

I moved to my reference system to review the Tempo, spinning the Wonder CD on my Densen CD player while bringing in Tellurium Q's similarly priced Blue as the cable reference. The Tempo also had a balanced presentation. I never, at any time, felt that the soundstage was being overly dominated by any one element of the sonic mix. Upper mids were clear and at ease on the soundstage. Despite not being quite as extended in the treble area as the Tellurium Q, the Tempo did provide a mass of cymbal information that added finesse to the song as a whole. Wonder's Clavinet may not have

been quite as exhaustively revealing on the Tempo but it did explore the instrument thoroughly. Soundstage and bass, on the Tempo, were similar to the Tellurium Q. The latter gave the track both a solid foundation and a distinct musicality that kept my feet tapping.

Spinning the Mozart track, the Tempo gave my ear a sweet, smooth transcription with strings soaring over the other upper-mid instruments. A slight blending in the Tempo's definition meant that classical strings were a little less delineated, one from the other. The low noise floor allowed a large amount of lower midrange and upper bass to emerge, however. The Tempo remained musical in its presentation and quite enticing when examined in the round.

### CONCLUSION

I had to keep reminding myself just how cheap the Twist interconnect really was. At the price it offers supreme value for money, especially when you consider how much it transforms the basic elements of the soundstage to good effect.

The Tempo is a top flight interconnect that provides a wealth of upper mid detail as well as addressing the low frequency spectrum in equal measure to give the ear one of the most composed cables in its price bracket.

### VERDICT

#### BLACK RHODIUM TWIST

1M PAIR £36

Offering amazing value for money, every new hi-fi user should demo these interconnects.

#### FOR

- orderly soundstage
- lucid treble
- low noise floor

#### AGAINST

- nothing at the price

### VERDICT

#### BLACK RHODIUM TEMPO

1M PAIR £225

One of the most well-adjusted interconnect designs on the market

#### FOR

- balanced presentation
- broad soundstage
- low distortion

#### AGAINST

- nothing at the price

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# LOUDSPEAKER CABLES

## BLACK RHODIUM TWIRL/SAMBA

**T**here are plenty of loudspeaker cables on the market. There are relatively few, though, that I could thoroughly recommend. Black Rhodium's Twist was certainly one of them. In fact, I bestowed a well-deserved five globes upon the product during a cable group test earlier this year.

Many companies would have rested on their laurels but not Black Rhodium. It has improved the basic design by increasing the overall size of the internal conductors to 2.5sq mm in cross section, the idea being to lower impedance of what is now called the Twirl. In addition, it has thicker insulation than the Twist which, the company reported, has resulted in lower 'Transient Phase Distortion' (TPD). That is, the magnetic field generated by the current in the wires has reduced.

The other enhancements mean that a number of spin-off improvements can be expected. For example, the cable should better suit longer cable runs, because lower impedance lessens signal loss over distance.

Finally, the positive and negative cores are connected in opposite directions to lower the noise floor while silicone rubber insulation is used to lower dielectric loss to, again, lower distortion.

Another spin-off from the Twist

design is the new, rather more expensive, Samba speaker cables. Taking the basic design of the cable, it forms a higher specification with silver-plated copper conductors which are three times the size of the Twist cable due to the 3sq mm cross section. There's also a much thicker insulation on this design. The enhanced conductor size plus the insulation improvement aid the sonic cause.

Like the Twirl, the Samba retains the twisting of the cable along its length to prevent the entire cable acting like a loop aerial for airborne radio frequency interference. Also, the positive and negative cores are connected in opposite directions in an attempt to lower the noise floor.

### SOUND QUALITY

Spinning 'Mel Tormé Swings Shubert Alley' on vinyl and utilising the Tellurium Q Blue as a benchmark, Tormé's vocal was both open and smooth with a low distortion presentation that allowed my ear to follow the undulations of his voice and his vibrato as he held the note before the orchestra kicked in. Where the Tellurium Q Blue reduced the noise floor effectively, the Twirl repeated the process but then also extended the frequency range, allowing the upper mids to reach further and higher.

I then moved to my reference

Densen B-475 CD player and played Handel's 'Wretched Lovers' from Acis & Galatea via the Dunedin Consort & Players. This complex choral suite risked smearing and bloom within the upper mids but the Twirl was pleasingly accurate, along with clear instrumental and vocal separation that added scale. Additionally, this well organised sound stage supported bass precision so my ear didn't miss a thing.

Via Tormé, the Samba cables moved the sound onwards another big step. From the first few moments of this track when the hi-hat comes into play, there was a beautifully full sound that was deeply multi-textural in its construction. Tormé's vocal was super smooth and yet fluid.

Switching to CD and the Handel piece, the whole soundstage seemed larger than the Twirl's, an impressive polyphonic array of voices filling the void, giving the music an epic feel. The overlapping voices built to a dramatic climax that the Samba aided, making for an uplifting presentation.

### CONCLUSION

Both of these cables take the basic Twist design and effectively build upon it to provide gradations of improvement, within a familiar 'house style'. They enhance perceived detail, expand the soundstage and improve the complexity of the presentation. They're a cultured listen, in fact

#### VERDICT

**BLACK RHODIUM TWIRL 3M PAIR TERMINATED WITH SILVER PLATED PLUGS £181**

A balanced presentation with delightful tonal accuracy, the Twirl is a worthy system upgrade.

#### FOR

- value for money
- open midrange
- expanded soundstage

#### AGAINST

- nothing at the price

#### VERDICT

**BLACK RHODIUM SAMBA 3M PAIR TERMINATED WITH RHODIUM PLUGS £480**

Offering a clear midrange with tight and efficient bass, the Samba is a refined speaker cable.

#### FOR

- clear midrange
- organised sound stage
- bass control

#### AGAINST

- nothing at the price

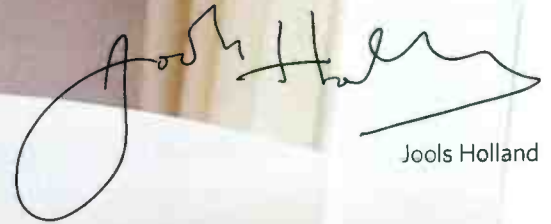
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# POWER CABLES

## BLACK RHODIUM LIBRA/CRATOS

**Q**uite apart from the norm, both Black Rhodium cables are niche designs, aimed at particular categories of product. The Libra is designed for low power units, front-end systems such as CD players and the like. Rated at 5A, the cable, says the company, is designed with low Transient Phase Distortion (TPD) in mind by using much thicker insulation than would be necessary for insulation of the mains voltage.

In contrast, the Cratos power cable is aimed at the other end of the scale, at high current amplifiers and other areas of power distribution. Rated at 15A, this cable has also received the TPD treatment.

### SOUND QUALITY

Using the similarly priced Nordost Magus power cable as a reference, I played Stevie Wonder's hit single, 'Superstition' on a Fidelity Audio-modified Cambridge Azur 640C CD player, Rega Brio-R amplifier and a pair of Spondor S3/SR speakers perched upon a Magic-Rack shelf and Track Audio Precision 600 speaker stands.

I noticed how clear the presentation of the music was through the Libra. This sense of clarity existed throughout a wider and less muddled soundstage. It seemingly broadened

the frequency spectrum to provide a wider dynamic. The Libra provided a relieving sense of order to the music, introducing air and space around the vocals. The lowering of a touch of stridency in the upper mids also calmed sibilance.

Better insight meant that notes from Wonder's Hohner Clavinet keyboard better started and stopped.

Treble was tonally accurate, producing a decent reverb tail for the first time while the bass guitar was able to move away from the rest of the band, gaining in definition. This injected a finer, more confident rhythm to the track.

Moving to Mozart's 'Eine Kleine Nachtmusik', the sweeping strings no longer sounded like an amorphous blob. A greater degree of demarcation between individual instruments provided more character to this portion of the music. As a whole, the presentation was more interesting because the wider and more dispersed tonal colour added light and shade to the piece while upper mids lost a degree of lift to, instead, insert a richer, darker tone that spoke of a lowered noise floor.

Moving onto the Cratos and continuing with Mozart, these cables provided a deeper, more confident bass with smoother mids that featured a silky lower mid region that helped the strings to glide by. In fact,

there seemed to be more strings within the soundstage itself. It was almost as if each string element has fattened up. A bit like conditioning hair, where each hair itself increases in size giving the whole head a more voluminous aspect. That was the effect given by the Cratos. It provided more mass to the string section. This effect also added confidence to the presentation, along with strength and power.

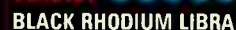
For Wonder's Superstition, these cables gave a more rocking track with bigger and bolder drums. Bass guitar took a larger role in the mix, and a major part in how the track ran from beginning to end.

Wonder's vocal performance also benefited, with more gravitas to his delivery. His vocal is obviously the central point of the song but, via the Cratos, Wonder now lead the music and the instruments instead of the instruments crowding him, threatening to take the initiative.

### CONCLUSION

Both of these cables are game changing in terms of their design and what they can bring to a typical hi-fi system. They are complementary: the Libra aimed at the front end and the Cratos targeted towards power amplifiers, makes them a dynamic duo, an ideal team that should be demoed together

#### VERDICT



**BLACK RHODIUM LIBRA**  
1.5M POWER CABLE WITH  
5A PLUG AND IEC £100

Opening up the sound stage, the Black Rhodium Libra offers a significant sound upgrade to a basic power lead.

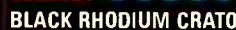
#### FOR

- wide soundstage
- instrumental separation
- tonal accuracy

#### AGAINST

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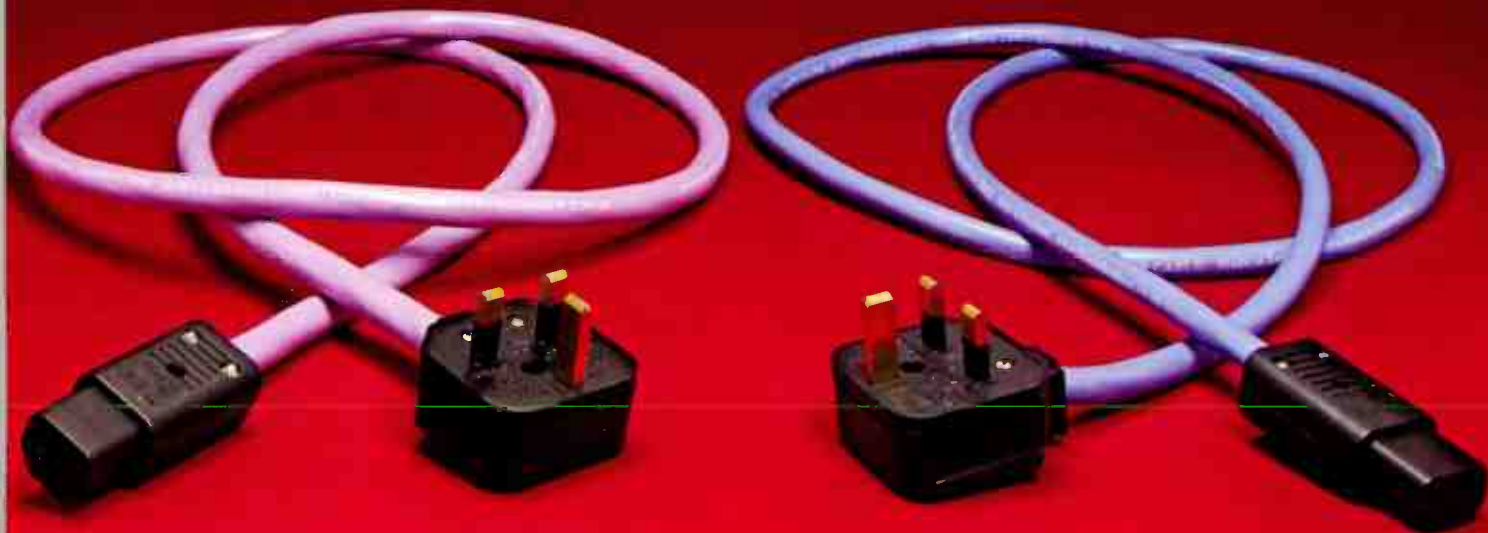
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WANTED THORENS 124 or preferably 224 turntable and any interesting valve amps from 40's to 70's. Still looking for the elusive single Radford Auditorium speaker. Will travel, cash waiting. 0117 946 7188 [slkw@btinternet.com](mailto:slkw@btinternet.com)

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THORENS TD166 Mk2 turntable, very good condition, £90. Sony TCK 611S cassette, £50. JVC HR-S7500EK SVHS video, unused, purchased new (receipt) £100. Grundig A5000, SVX6000 pre and power amplifiers, 120 wpc, £195. Tel: 01708 457 691

WHARFEDALE 10.3 floorstanding speakers, £120 or near offer. Buyer must collect. Can demonstrate. Tel: 07986 607 893 or Email: [thompson37\\_steve@hotmail.com](mailto:thompson37_steve@hotmail.com) (Croydon area)

EXPOSURE SUPER Eight power amp £170. Miller and Kriesel V.125 active sub £150. B&O 3000 receiver (spares only) £10. Leak ST20 bronze (all Mullard) £650. Quad 57's, black, (1979), £750. Tel: 01722 334 694

WANTED: 5mm jack plug(s) to fit Fi-Cord 202A or leads. Tel: Roger 0114 287 9972 or mobile 0784 757 3031

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DENON DL160 MC cartridge, less than 50 hours, £115. Audio Technica AT-33EV MC cartridge, unused in original unopened box, £330. Hadcock GH220 tonearm, £100. Audiolab 8000C preamp, £150. Tel: 01323 728 118

VAN DEN Hul The Teatrack bi-wireable speaker cable, 10.5 metre pair. Offers please. Tel: 01825 722 936

WANTED: UNCOMPLICATED Modern Fluke P.A.T. tester. Tom Evans phonostage. Shanling valve monoblocks, 80 or 800 series. For Sale: See previous Hi-Fi World advert December 2012. B.A.T. CD player £1500. Bargain. Technics DDTT's £150 for both. Valves etc. Tel: Solly 020 8451 0353

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QUAD 306 power amplifier, 34 Control Unit, FM tuner. Original boxes, instruction books, shelf and floor stands. Quad IIL speakers. Original box. NAD C542 CD player. £600. Tel: 0779 407 4611 or 020 8325 3515

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CLASSÉ CAV 150, 6 channel home cinema amp boxed, £995, Classé 25 power amp £1100, Classé SSP 50 processor pre amp boxed £850, Kef 200 centre speaker, boxed mint £295. Kef 105/3 speakers, £695. Phone 003531 2014427

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MICHELL GYRODEC SE with RB300 arm in excellent condition, 6 years old but little used as owner working away from home. Reluctant sale £750. email jazzevan@hotmail.com. Tel 01482 651963 (Hull)

TECHNICS SL1210 Mk2 (no cartridge) £249, Garrard 401 with plinth, no arm £699, Garrard 401/301 power supply £299. Can post if needed. Call 0207 499 8729.

RUSS ANDREWS Classic PowerKord with 24ct Isotek WattGate IEC connection. Worth £135 +. Sell for £65 including P&P. Tel Andy 01484 427 426

AUDIO RESEARCH Ref 210 mono amplifiers. 200 Hours use from new, perfect, boxed and all accessories. Sale due to overseas work £9,250.00 Contact 01925 656990 or npage-jv@midmac.net

GRADO REFERENCE RS2 £220 (£495) headphones (also includes the current Grado carrying case), Grado Prestige SR225 £80 (£225), both boxed, light use only. Tel Richard on (07772) 711432 (Bucks) or email richard.schofield@kcl.ac.uk

MARANTZ CD10 CD Player, recently serviced (laser and belts) in good condition, bought from new, complete with manual, remote and original box. £350 ono. Tel: 01303 863424

CYRUS PSX-R matt black, boxed with manual. £30. Buyer collects 01608 684 845

ACCUPHASE DP800/801 CD/DAC. Absolutely perfect, boxed, stunning sound. Inspection welcome 8,995.00. For more details contact Neil on 01925 656990 or npage-jv@midmac.net

MARANTZ PM 11-S2 integrated amp with phono, in silver, only 6 months old in superb condition complete with remote, manual and original box (£3,500), now £1500 ono 01303 863424 (Kent)

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ICON AUDIO PSI valve phonostage, the MM & MC version with volume control and original power supply. Excellent condition. £425 + £20 carriage. Email snapper\_pete@hotmail.com (Highland)

REGA 25 Turntable offered in total mint condition. RB600 arm /Grado Gold cartridge. All original packaging. Pictures on request. £400 no offers accepted. 01934 521621 or stemar1@tiscali.co.uk

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MARANTZ PM11S2 Integrated amp, Silver £1650. Marantz SA11S2 SACD player, silver £1650. 1 year old. Buyer must collect. (Broadstairs, Kent). Please no withheld or private numbers. 01843 600722

CHORD SPM650 amplifier in polished aluminium, Integra pillar legs. Chord's legendary construction and sound in more compact package. Little used, mint, original packaging. £2200. (Currently £3500+). mc@mikecoe.com 07850832750. Worcs.

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AUDION EDISON 60 valve amp kit part built: £350 Leak Troughline with EAR / HFV decoder: £165 Cyrus Icon loudspeakers: Offers Quad 909: £475 Linn LP12 rosewood, clear lid/ Hercules on board psu/Nima: £425 Electrocompaniet ECP 1 mm/mc phono stage: £225 Audio Symphonies Plus line pre amp: £325 (Winchester) 07527079229

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## GUIDELINES FOR BUYING AND SELLING SECOND-HAND EQUIPMENT

### FOR THE BUYER

1. Not everyone is honest - Buyer Beware!
2. Don't send cash!
3. Accept no verbal guarantees.
4. Have you heard the item or something similar? If not, why do you want it?
5. Don't pretend to have knowledge - it's your fingers that will get burnt!
6. Is it working? If not, why not? Can it be repaired and if so is it worth it?
7. Has it been modified and, if so, have notes been kept?
8. Was it any good in the first place?
9. Don't send cash!
10. If you are in the slightest doubt, arrange an audition (see point 5) If it's too far, wait for another time.
11. Either buy it or don't: vendors are excusably impatient with 'consultation' exercises.
12. Don't send cash!

### FOR THE SELLER

1. Not everyone is honest - Seller Beware!
2. Make no verbal guarantees.
3. Even 'nearly new' is still second-hand. If the manufacturer's guarantee is no longer in force, your price should reflect this.
4. There is very little intrinsic value in second-hand hi-fi; it's only worth what someone will pay for it.
5. The best guide to pricing is last month's Classifieds: that a 'classic' was worth £xxx a year or two ago is no guide. Values fall as well as rise.
6. Amateur second-hand dealing is not a big money game: you win some, you lose some.
7. Be prompt with despatch. If in doubt about buyer's bona-fides, either wash out the deal or send C.O.D.
8. There will always be time-wasters; be tolerant within reason!



## NEXT MONTH MARCH 2013 ISSUE

### LOUDSPEAKERS

Quad ESL-2812

### FEATURES

Rachmaninoff feature  
Ortofon factory visit

### VINYL

Avid Ingenium turntable

### DIGITAL

Chordette Qute USB DAC

MicroMega DAC

Samsung 10.1 Tablet

Yamaha RX-A820 receiver

### OLDE WORLDE

Leak stereo 20 TL12+ history  
and modification

### SOUNDBITES

Russ andrews absorber/ music works  
- power cable, power block and  
response mini isolator

### AMPLIFICATION

Prima Luna Prologue valve amp

Audiosmilie DEQ 2496

Erzetich Bacillus Tilia

### BOOK REVIEW

Acoustics - Sound fields and transducers

Next month we will be listening closely to the new ESL 2812 Quad electrostatic loudspeakers. As you'd guess many pairs of ears want to hear these so expect more than one view, as well as our revealing measurement of course. New Quad electrostatics are an audio ever so don't miss our carefully considered review

The Samsung Tablet 10.1 can play music through the hi-fi over a Bluetooth wireless link, and act as remote control, and even over HDMI via an adaptor. The adaptor never turned up but the tablet did and will now appear in our next issue

The Behringer DEQ2496 preamp and room equaliser modified by Audiosmile to suit domestic hi-fi system will appear too. Can it help match electrostatics into room? Find out in our next issue

Here are the products we hope to bring you in the fab March issue

We either have, or are about to receive these products, but can't guarantee they will appear

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APRIL 2013 - 5TH FEBRUARY

MAY 2013 4TH MARCH

# PETER GABRIEL

SO  
1986



**G**abriel was the celebrated leader of prog outfit, Genesis, bringing a defining voice to the band's mythological, historical and sociological music themes while adding a theatricality to the band's live performance until he announced his departure in May of 1975. Gabriel began his solo career in 1977 with a series of albums simply named 'Peter Gabriel' and each had an increasing amount of success but it wasn't until this album, released in 1986, that his cache as an international star hit the heights. 'So' was a genuine blockbuster of an album with hit singles and a perfect blend of melodicism and a cultural diversity that reflected Gabriel's interest in African rhythms and musical cadences and modulations to the arrangements that gave it both depth and mystery.

The defining single from the album was 'Sledgehammer', a slice of soul/pop that was full of hooks. It was notable for its animated pop video, created by Nick Parks' Aardman Animations, responsible for the Wallace & Grommet animated characters, which won nine MTV awards and is still the most played video on the station.

There were plenty of other highly regarded songs on the album too, including the delightful duet with Kate Bush ('Don't Give Up') and 'In Your Eyes', a classic love song that appeared in Cameron Crowe's movie, 'Say Anything'.

This is an album that showed Gabriel with an extra degree of confidence that blended well with a level of openness that attracted music fans who had no knowledge or even cared about his past work with Genesis or his more avant-garde

"EMI have done themselves proud with this Deluxe version, giving Gabriel a fitting tribute"

musical textures of earlier albums.

The album itself was also notable for the contributors that helped Gabriel along the way. They included Lori Anderson, ex-Police drummer Stewart Copeland, producer of the likes of Emmy-Lou Harris and U2 Daniel Lanois, Simple Minds' frontman Jim Kerr, producer and multi-instrumentalist Bill Laswell and the brains behind the disco legends, Chic, and consummate guitarist, Nile Rodgers.

EMI has now reissued the album over a variety of formats. As you might expect, a basic CD format includes the re-mastered album. Of more interest is the Special Edition 3CD set that adds a previously unreleased double CD 'Live in Athens 1987' album. Finally, the limited edition Deluxe box set contains the re-mastered 'So' album, the 2CD 'Live in Athens 1987' album but also an additional CD album called 'So (DNA)' CD which gives an insight into the writing and recording of 'So' via a track by track evolutionary process leading you from the early moments when rhythms, melodies and lyrical ideas were discovered through the various stages of song development and recording. There are also two previously unreleased DVDs on offer, 'Live in Athens 1987' has been directed by Michael Chapman with Executive Producing completed via Martin Scorsese. This was the first filmed Peter Gabriel concert, now fully restored and pieced together from over 150 reels of original 35mm negatives and remixed in 5.1. In addition to that lot is the 'So: Classic Album' documentary. The

latest addition to the Classic Album series tells the story behind the making of the album and features contributions from many of those involved in the album and videos, with interviews with Peter Gabriel, co-producer Daniel Lanois and more. You also get an audiophile quality, half speed cut vinyl version and, if that little lot wasn't enough, a double A-side 12in vinyl containing two previously unreleased tracks: 'Courage' and 'Sagrada' plus 'Don't Give Up' (alternative version piano and bvox mix). That's topped off by a 60-page case bound book including an introduction and 'So (DNA)' summary by Peter Gabriel, new liner notes and an extensive collection of rare and never before seen photographs.

There are box sets and there are box sets, devoted to single albums or retrospectives – some fetching too much money and of dubious quality. But EMI have done themselves proud with this Deluxe version, giving Gabriel a fitting tribute.

Unlike their recent luxury Jethro Tull box set, which offers fifty-seven ways of presenting the same album, there is genuine lateral interest here, supplying rarities plus new and interesting secondary media. As such, you won't mind spending the necessary £100 on such a wealth of information.

While it is arguable whether this album is Gabriel's best ever (I would vote for his third release – 'Peter Gabriel 3' on that score), 'So' is certainly Gabriel's landmark LP and one that should be celebrated. An excellent album and a superb release effort from EMI. **PR**

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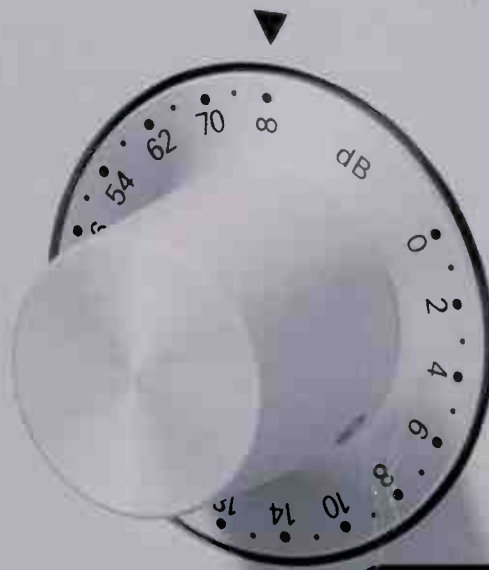
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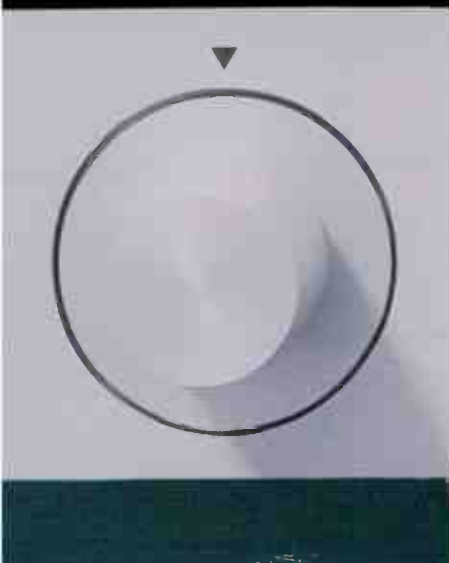


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