

VINYL NEWS AND REVIEWS SECTION SEE PAGE 82

HI-FI WORLD

JULY 2018

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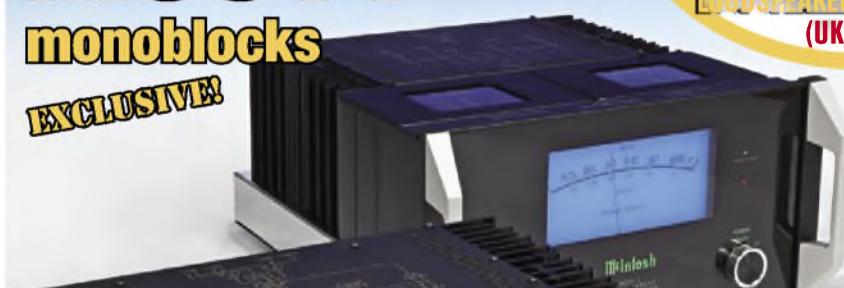
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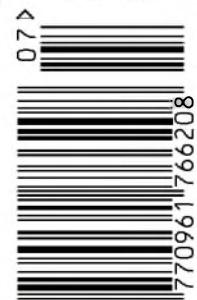
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JULY 2018



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Chord Signature Range
Hi-Fi World Dec 2015



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Chord Sarum T Speaker Cable
Hi-Fi World Dec 2015

welcome

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verdicts



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keenly priced

ELECTRONIC MAGAZINE

Go to our website www.hi-fiworld.co.uk to buy an electronic version of this magazine, individual issues, back issues or a subscription.

We're running a feature this month on bad sound quality. No, as editor I haven't gone mad! It's all the rage these days – and the subject basically revolves around 78s – those shellac 'LPs' that shatter if you drop them. Which is part of the problem: you could possibly shatter a disc that holds an historic performance – then it will be gone forever.

An historic performance is often something you and I may think is worth losing 'cos there are no

electric guitars in there and no dance beat either – so what use does it have? I've been shaken out of such musings by listening to Timestep's Dave Cawley describe the U.S. conferences he attends on archiving, which include vast music collections that occupy whole buildings, left by wealthy individuals in an estate bequeathed to the nation, to be funded by their estate. So think big here; we're talking U.S. multi-millionaires from the entertainment business – films and music – pre-WWII.

But archiving isn't just about the surprising sums of money that lie behind it. It is about preserving a nation's musical heritage and here the 78rpm shellac disc, as the first way of preserving music (ignoring cylinder recorders) takes on a value that transcends LP. Our fascinating feature – see p87 – on George Blood's archiving facility I think you'll find quite extraordinary in explaining all this. There's a lot more to spinning a turntable at the right speed than just trying to get Adele into correct pitch.

History can explain a lot and people in touch with it come up with interesting interpretations of modern situations, even technologies. Mike Creek of Creek Audio observed "auto-transformers were used in early transistor amplifier output stages" when I mentioned that McIntosh use this seemingly bizarre circuit topology. Our review on p12 reveals just how well it works in modern form.

The past is brought up to date in this issue. I hope you enjoy reading about it all in our latest great issue.

Noel Keywood

Editor

testing (see www.hi-fiworld.co.uk for full explanations of all our tests)

To ensure the utmost 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 Brüel & 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 Brüel & 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.



Distributed by Select Publisher Services Ltd. P.O. Box 6337, Bournemouth, BH1 9EH UK Tel +44 (0) 1202 586848

Printed by Precision Colour Printing Halesfield 1, Stirchley, Telford TF7 4QQ, United Kingdom Tel: +44 (0) 1952 585585

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McIntosh's latest MC611 monoblock amplifiers are big, beefy but with a smooth sound, finds Noel Keywood.

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"Tellurium Q Statements are no usual cable affair and if I've called the Silver Diamonds an Emotional Tour de Force what are then the Tellurium Q Statements!? Well, they certainly transcend any typical labeling and this time I'm elevating them on the throne, that they clearly deserve. Their stand out, extraordinary performance can only be recognized with the 2018 Editor Choice Award!"

-Matej Isak, Mono & Stereo

"...you have managed to surpass them [Silver Diamonds] in a truly grand way."



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news

VALVE HEAVEN?

If you are a fan of classic valve amplifiers and retro looks then feast your eyes on the new Audio Research Reference 160M monoblock.

It features four KT150 output tubes with two 6H30 driver valves with both Ultralinear and Triode mode operation available. The former is said to give 150 Watts of output while the latter is rated at 75 Watts.

If you are not a fan of KT150s, KT88s and KT120s can also be used thanks to the incorporated auto-bias circuit.

The transparent faceplate allows a view of the glowing vacuum tubes while the power meter has LEDs to indicate just how loud you are playing your tracks.

They cost £28,998 a pair. Go to UK distributor Absolute Sounds website at www.absolutesounds.com for more info.



SHURE ENDS CARTRIDGES

The vinyl revival doesn't seem to have convinced Shure. The company has announced it is to end the production of cartridges more than 80 years after it produced its first model.

Shure said a lack of consistency in materials as well as rising costs meant it was no longer able to deliver products that matched its exacting standards.

Existing stocks are still on sale, though, so now might be a good time to hunt for a bargain.



SME SYNERGY

Legendary engineering company SME has revealed its first completely integrated turntable system.

The SME Synergy features a magnesium tonearm, moving coil cartridge and built-in phonostage designed by Nagra.

The tonearm is the acclaimed SME Series IV model while the cartridge is Ortofon's MC Windfeld Ti cartridge.

The turntable itself is a completely new design with a main chassis precision machined from aluminium and a platter weighing 4.6kg. The phonostage is also battery powered to offer total isolation from other power sources. The Synergy costs £14950. More details are available at



CHORD'S MUNICH SURPRISE

Chord Electronics took the opportunity of the recent Munich High End show in Germany to launch two new products.

Most talked about, and most surprising, was the Etude stereo power amplifier that features a brand new analogue topology – the company's first for nearly 30 years.

Designed by owner and Managing Director John Franks the Etude is said to have faster power delivery than existing Chord Electronics models to provide a more life-like delivery of transient information, as well as better control over loudspeaker drive units.

Priced at £3,900 the Etude is rated at 150 Watts into 4 Ohms and features three proprietary switch-mode, high frequency power supplies. The unit is housed in Chord's renowned machined aluminium casework and has both balanced XLR and unbalanced RCA inputs.

Also debuting at Munich was the Hugo TT 2, the latest iteration of its well-regarded table-top DAC/headphone amplifier. This new model features improved casework and boasts an Artix 7 FPGA chip, uniquely custom-coded by Chord's digital design consultant Rob Watts. The company says output power is enough to drive efficient compact loudspeakers, with the right cabling.

Technical specifications include a galvanically isolated USB-B connection capable of decoding 768kHz PCM data and DSD 512. The unit's two optical TOSLink inputs are 24-bit/192kHz capable and the dual BNC coaxial inputs 24-bit/768kHz.

Price is expected to be around £3995. Both units should be in the shops by the autumn and more details are available at www.chordelectronics.com.

PIONEER'S BUDGET AMPLIFIER

Pioneer's latest integrated amplifier promises to offer a great deal of value for the money.

Priced at £400 the A-40AE boasts 76 Watts per channel of output into 4 ohms, eight inputs as well as a 32-bit/384kHz Wolfson DAC with optical and coaxial inputs – both capable of 24-bit/192kHz playback. There's also five line-level analogue inputs as well as an MM phono input. It definitely looks interesting.



IFI XDSD

Ifi caused a stir with its iDSD portable high-resolution DAC/headphone amplifier four years ago.

Now it has brought out an improved version – the xDSD. It will accept connections from a mobile 'phone, tablet, PC, Mac and digital audio player, or any other digital audio device via cable – as well as wireless streaming via Bluetooth.

Its Burr-Brown DAC handles PCM data up to 32-bit/768kHz and DSD up to 22.57MHz (DSD12). Battery life is quoted as 10 hours – meaning an easy whole day's use. It's available now priced at £399. More details at www.ifi-audio.com.



OPEN REEL

Open reel tape recorders may well be a niche market but if you are a devotee this one may pique your interest.

It comes from specialist maker Metaxas & Sins and is named the GQT. It's been developed in conjunction with Switzerland's open reel specialist Stellavox. It runs at 15 inches per second, is purely mechanical and is said to be the best way to capture and replay music.

It also looks rather cool. No word on pricing yet but we'll let you know when we have it.

BASEMENT JAXX & PMC

Electronic music duo Basement Jaxx – or Simon Ratcliffe and Felix Buxton as they're known to friends and family – have given loudspeaker experts PMC a big vote of confidence.

The pair have invested in PMC's new result6 compact near-field reference monitors for their private studios in London.

The pair – who have sold more than 3 million albums worldwide – are now using the new loudspeakers for their work on a soundtrack for a new ITV show, as well as working on new material.

Simon told Hi-Fi World "Our result6 speakers tell us everything we need to know to make great music".

Look at <http://www.pmc-speakers.com/products/professional/active/result6> for more information.



QUEEN'S AWARD

Cable specialist Tellurium Q – a Hi-Fi World award winner – have received the Queen's Award for enterprise 2018 in recognition of outstanding export growth over the last three years. Their business success accolade marks the company's expansion into the export market, where its cables are available in 37 countries just 9 years after its founding.



Geoff Merrigan, Tellurium Q's managing director said, "Research developments are coming. We are focused on bringing performance that unleashes your system's potential".

DANISH STYLE

Denmark's Dynaudio has revealed its first wireless music system. The Dynaudio Music system includes four different units. The Music 1 is a battery and mains-powered 'speaker (£450, 4 inch woofer, 1 inch soft-dome tweeter, 80 Watts). There's the Music 3 (£575, 5 inch woofer and two 1 inch soft-dome tweeters, 120 Watts), the Music 5 (£700, 5 inch woofer, two 3 inch mid-range drivers and two 1 inch soft-dome tweeters, 250 Watts), and the Music 7 (£875, two 5 inch woofers, two 3 inch midrange drivers and two 1 inch soft-dome tweeters, 300 Watts).

All the speakers can stream via Wi-Fi, aptX Bluetooth and Apple AirPlay and can access DLNA devices on users' home networks. They all have USB inputs for iOS audio and charging, and can accept 3.5mm analogue inputs. The Music 5 and Music 7 add digital optical inputs to the mix (both support signals up to 24-bit/96kHz). More information at www.dynaudio.com.



GRANDE AMBITIONS

French loudspeaker specialist Focal has unveiled its most sophisticated loudspeakers yet – the Grande Utopia EM Evo and Stella Utopia EM Evo.

However, you'll need some deep pockets (and a big room) to experience them. The EM Evo, for example, stands over 6 feet tall and weighs in at some 265kg with its five drivers including an 11-inch bass unit. It also costs £159,000 while the Stella Utopia Evo is a slightly less daunting at £89,999.

Focal, though, has packed all its latest technologies into the 'speakers with its proprietary tuned mass damping for the mid-range unit to reduce distortion, a revised cabinet and a reinforced acoustic structure featuring machined aluminium parts. Focal also says particular attention has been paid to the crossover to maximise precision.

For full information point your browser to www.focal.com.



LEEMA SIRIUS

The Sirius streaming music server from Leema Acoustics is now shipping. The £3995 unit provides 2TB of storage for ripping CDs and storing high-definition files, as well as UPnP/DLNA capability for accessing music on a home network.

The TEAC-sourced optical CD drive is said to provide bit-perfect copying to the hard drive making it easy to rip silver discs.

Inside, the Sirius employs an ESS ES9038PRO Sabre DAC supporting 16, 24 and 32 bit-depths from 44.1kHz up to 384kHz as well as DSD 64, 128 and 256.

Watch these pages for a forthcoming review and in the meantime go to www.leema-acoustics.com for more information.



DECENT AUDIO AND ECLIPSE

Japanese loudspeaker manufacturer Eclipse has signed a deal with Decent Audio to distribute their distinctive loudspeakers in the UK.

The move follows Decent Audio's recent demonstrations of Eclipse's flagship TD712z Mk2 loudspeaker and TD725SW subwoofer at the Bristol Sound & Vision 2018 show – which drew strong audiences and much praise for the sound quality on offer.

The UK is the strongest market for Eclipse outside of Japan and its combination of a single drive unit housed in an elliptical-shaped cabinet has seen the brand become a favourite with many musicians and mastering engineers.

Decent Audio's owner Simon Griffin said "We are delighted to be chosen by Eclipse to represent their product range in the UK. This is a brand that is absolutely unique in the market and is a perfect fit for our selection of innovative, beautifully designed and sonically superb audio products".

Paul Burnip, Eclipse's UK Sales Manager told Hi-Fi World, "I am delighted that Eclipse will be working with Decent Audio. Decent Audio have a well-earned reputation for a high level of service and extensive product knowledge, both of which Eclipse will benefit from over the coming years".

Having heard these units at Hi-Fi World we would definitely recommend trying them out. For more information go to [www.decentaudio.co.uk](http://decentaudio.co.uk).



YELLOW SUBMARINE

Pro-Ject has made a bit of a thing for making themed turntables in recent years. We've had a Beatles one, a Rolling Stones variant and now, perhaps, the ultimate looking variant – one based on the former's Yellow Submarine film.

Yes, it features a base shaped like a yellow submarine and a platter in – er – yellow.

There's also a yellow cartridge from Ortofon attached to an S-shaped aluminium arm. The chassis is MDF attached to decoupled feet and the whole package costs £389. Any Beatles fans with mainly yellow decor in their room may find it ideal!



LEATHER FINISH

If you like your hi-fi connections to look as good as they sound then Scotland's Atlas Cables may just have the solution for you – ones finished in leather.

The Kilmarnock-based company has introduced Luxe – a luxury finishing concept which comes in with the launch of its flagship Asimi Luxe loudspeaker cable.

The Nappa leather covering is hand-stitched along the length of the cable and is available in a range of colours.

Owners of existing Atlas cables can also have them upgraded to the new finish. The Luxe upgrade is available in four standard Nappa leather finishes; Ebony, Brogue, Ivory and Daytona Red. Completing the finish is two stitch options – Cross stitch and Baseball stitch. A fully bespoke service is also available, so were a customer keen to match the leather in their favourite Ferrari, the clever people at Atlas could manufacture a one-off. The Luxe standard upgrade is priced at £225 per meter while bespoke finishes have a fixed one-off set-up charge of £550 with a variable charge starting at £225 per meter depending on the cable.

Trade up to 800 Series Diamond

This spring, upgrade to any one of the 800 Series Diamond range and your retailer will buy your existing loudspeakers, regardless of their age, condition or brand*. 800 Series Diamond represents the pinnacle of performance with Continuum drivers and iconic Diamond Dome Tweeters that deliver sound quality that will leave you speechless. **Contact your local retailer to find out about upgrade options or visit bowers-wilkins.co.uk**

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*The 800 Series Diamond trade-up promotion runs from 1st May 2018 to 31st July 2018. Participating retailers only. Buy back value is at participating retailers' discretion. Offer valid on the following models in the 800 Series Diamond range: 805 D3, 804 D3, 803 D3, 802 D3 and 800 D3.





Display Of Power

Big, expensive but massively impressive – Noel Keywood relishes the sound of McIntosh's new MC611 monoblock amplifiers.



OK, not many of us can afford these, not at £19,995 a pair just for power amplifiers – but what power amplifiers! McIntosh do things quite differently – with an impressive end result. And that's the case with their new MC611 power amplifiers I'm looking at here.

For your money you get no less than 600 Watts



Internally, paralleled output transistors and their associated emitter resistors (white) sit on circuit boards attached to large heatsinks. This is a classic Class A/B amplifier, not Class D.

per channel – that's the headline figure most people will look at even if it is hard to use except in the biggest homes – as these amplifiers so clearly demonstrated with their meters.

For me the headline feature of these big Macs is their transformers. Yep, I know it sounds boring but McIntosh amps are a story in themselves here and my experience with designing valve amplifiers informs me of their potential. McIntosh do the seemingly insane: use output transformers in a transistor amplifier. They add massively to size, weight and cost – and the whole point of transistors (sort of) was to do away with such things. Yet these massive McIntoshs have them – for reasons I will explain later.

As a result it took three of us to lift one monoblock amplifier, each weighing 44kgs (98lbs). The big grab handles at the front aren't cosmetic – the transformers and weight are at the front. Each monoblock is 44.5cms (17.5 in) wide so will fit a standard 19in rack. It is 56cms (22in) deep and 24cms (9.5in) high. But you'd need a strong rack. They run cool.

The front panel carries a rotary meter switch at left to select illumination of the meters or additional

peak hold. With peak hold selected you get to see how large were the shortest of musical peaks; our tests showed the drive circuits captured everything.

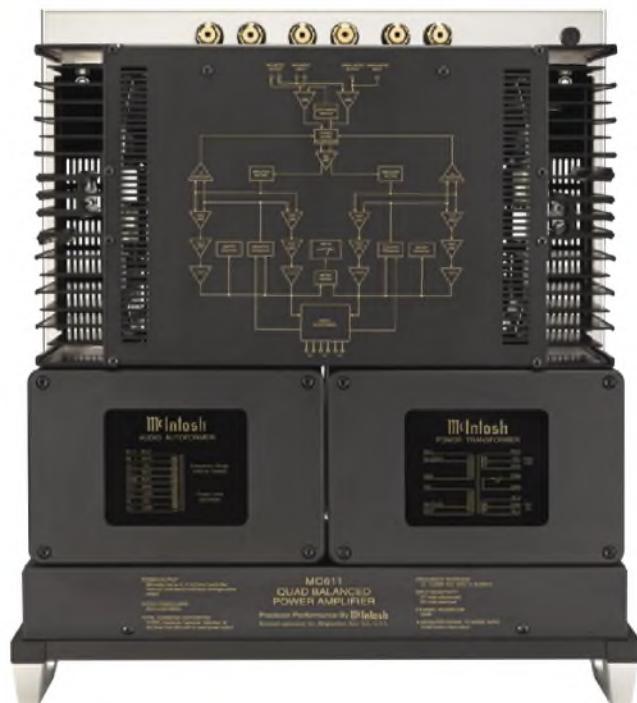
The right rotary is a power

switch and it's important to remember here that any source must be turned right down beforehand, or the loudspeakers may go into orbit. There are comprehensive protection circuits but they only work after 600 Watts has been emitted – way too much for most loudspeakers or humans close by.

The rear panel carries both RCA phono socket (unbalanced) input, and XLR (balanced) inputs, as well as outputs. There are three pairs of large gold plated loudspeaker output sockets for 8 Ohm, 4 Ohm or 2 Ohm loudspeakers, accepting 4mm banana plugs, bare wires or spades.

Nowadays most loudspeakers are nominally 6 Ohms and can be connected to either the 8 Ohm or 4 Ohm terminals but it is best to use the latter to cope with 4 Ohm bass drivers. I used the 2 Ohm terminals to match our Martin Logan X-Stat electrostatic panels that sink to 1 Ohm at 20kHz but this really isn't critical; 4 Ohms would do since the MC611s are not going to be stressed – meaning distort or run out of current – by such a load.

Build quality was superb as it has to be to support the weight of the transformers – and finish excellent too. Like all McIntosh products, turn on brings forth a bright display from the meters and the back-lit fascia: these monoblocks



McIntosh made their name with powerful valve amplifiers employing complex output transformers. The MC611 similarly uses a complex output transformer at left and a mains transformer at right, complete with circuit diagrams.

ortofon

accuracy in sound



2M

The 2M Series, named after the abbreviation of Moving Magnet (MM) technology, is an affordable range of pick-up cartridges with first-class audio design principles throughout. Featuring Ortofon's trademarked split-pole pin technology for a flat frequency response, all 2M cartridges have a high output for easy integration into any turntable system.

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Bronze Cartridges

Featuring a superior body, the Bronze picks up even the highest frequency information for a rich, detailed and deep soundstage, and can be further upgraded with ease.



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A stainless steel chassis supports the weight of the transformers, heavy coloured wires from the output auto-transformer, at right here, leading back to large gold plated loudspeaker binding posts at rear. There are no cooling fans so the unit runs silent.

are no shrinking violets!

The meters have drive circuits that accurately capture even the shortest peaks (see Measured Performance) but it may seem ironic that getting much past 6 Watts at centre scale was difficult. I managed to hit 60 Watts for a brief moment on a Saturday morning with nobody in the office building but could never listen at that level. McIntosh's notes on their protection circuits gave me the feeling some of their customers do use such power and they also make a 1.2kW amplifier if these little monsters aren't enough.

But why transformers? To allow the use of 'fast' output transistors working at low current (but high voltage), resulting in less distortion. The 611s – like our in-house MC152 – produced negligible distortion at all frequencies and outputs, including at 40Hz and 10kHz – quite unlike most other amplifiers on the market.

Easy load matching is a side benefit, including 600 Watts into 2 Ohms, which requires so much current (17A) most amplifiers would melt. This also allows McIntosh amps to drive electrostatic panels (1 Ohm at 20kHz) with ease. Auto-transformers were used in early

"This made for a lovely organic presentation, underpinned by massive dynamic contrasts."

transistor amplifiers to protect fragile output transistors so it's not an unknown technique, but McIntosh have brought new understanding to it. The downside is weight and cost.

quick rustle that heralds track start lanced out of the 'speakers, before the droning synth bass kicked in with force.

The "quick rustle" was peculiarly sweet and tinsel like in a beguiling



The rear carried 8 Ohm, 4 Ohm and 2 Ohm loudspeaker terminals in pairs, fed by dual-balanced internal circuits coupled through the output auto-transformer. Balanced and unbalanced inputs and outputs are provided.



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The big meter is back illuminated and glows bright blue, but lighting can be switched off. It is driven by electronic circuits able to capture the shortest musical peaks, so offers an accurate reading of output level. The fascia is glass.

manner, where other transistor amplifiers have a hissy quality.

Similarly, the strings of Nils Lofgren's guitar in 'Keith Don't Go' had vivid power yet not the lacerative quality I'm accustomed to, possessing instead more inner detail and a richly decorated analogue feel that was lovely to hear. Again – valve-like!

This sense of laconic ease was more surprising than the massive dynamics the 611s coolly produced.

I was expecting edge-of-the-seat listening – as from muscle-amps of yore – but instead heard something quite different: a laid back but sophisticated sound that was easy yet convincingly real.

The soundstage was solidly constructed and there was good sense of depth too, a gentle aura surrounding the Chicago Symphony Orchestra playing Mahler's 'Symphony No8, Veni Creator Spiritus' (24/96), without

compromise to dynamics that were forceful.

As McIntosh claim, their use of double-balanced circuits does subjectively cancel noise and distortion to reveal an almost eerie silence from these amplifiers, between musical crescendos. There is of course supreme bass grip and thrust, with plenty of timbral expression within John McVie's bass on Fleetwood Mac's 'Dreams' (24/96).

LP sounded as smoothly composed as CD and hi-res. There was less contrast between our Icon Audio PS3 valve phono stage and Oppo UDP-205D universal player than I expected, but LP – as always – had a sense of pace and liveliness the 611s strongly conveyed.

CONCLUSION

The MC611s may be vastly expensive but they are equivalently impressive. Most surprising is their full-bodied sound graced by silky smooth treble, yet with fabulous mining of inner detail. This made for a lovely organic presentation, underpinned by massive dynamic contrasts. All the while their big illuminated meters provide reassurance that the loudspeakers are not about to evaporate! They're a great experience.

MEASURED PERFORMANCE

Rated at 600 Watts, under measurement the MC611 produced 750 Watts into an 8 Ohm load and 813 Watts into a 4 Ohm load. With an output auto-transformer it should in theory produce the same power into any load, differences here being relatively minor.

The big power meters have a logarithmic scale: centre scale is 6 Watts, so the needles don't sit idle whilst playing in the home, commonly peaking to centre scale. Measuring their needle ballistics with short tone bursts showed good indication down to 0.01 sec., the Hold function able to capture and display 0.001 secs (1mS) peaks. They display short-term music peaks with superb accuracy.

Frequency response measured flat from 5Hz to 52kHz from the 2 Ohm, 4 Ohm and 8 Ohm outputs.

A feature of McIntosh's output auto-transformers is incredibly low distortion at all frequencies: the value at 10kHz was the same as 1kHz and 40Hz, just 0.007% – extremely low and almost unmatched by other amplifiers, especially into low loads. The output transistors work at

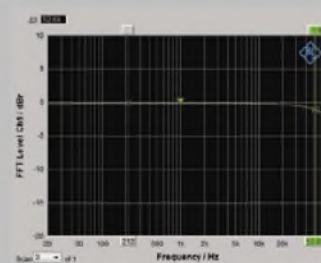
higher voltage and lower current than is usual, low current offering higher linearity. The MC611s offer brute force with finesse. Their 2 Ohm tap matches electrostatics that sink to 1 Ohm at 20kHz

Input sensitivity was a very low 2.7V through the RCA phono sockets (unbalanced) and 5.4V through the XLR sockets (balanced); a preamplifier is needed for full output. However, the 2V output of a silver disc player will deliver 440 Watts and 1V input 100 Watts – enough for most people. A passive preamplifier can be used then.

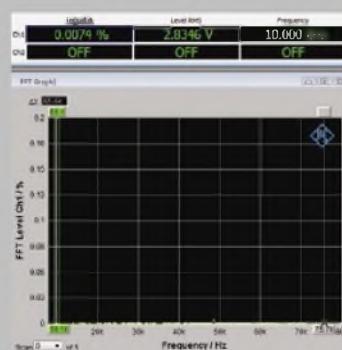
The MC611s offer massive power with minimal distortion at all frequencies, into any load. In doing so they are virtually unique. If full power is wanted a preamplifier is necessary, otherwise a passive will do. **NK**

Power (8 Ohms)	750W
Frequency response (-1dB)	2Hz-52kHz
Distortion (10k, 1W, 4Ω)	0.007%
Sensitivity	2.7V / 5.4V
Noise	-118dB
Damping factor	65

FREQUENCY RESPONSE



DISTORTION



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FOR

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x 190mm (H/W/D) reflex-ported enclosure finished in black or white leatherette they have an 18Watts per channel amplifier inside with a tweeter and mid/bass driver on each loudspeaker.

As well as Bluetooth there are also RCA input jacks on the rear for attaching external sources such as CD players, as well as a USB socket for charging smart devices. There is no S/PDIF or USB digital input.

Wireless doesn't quite mean wire-less as wires are still involved. You need to plug the right hand speaker into a power socket and

then connect it to its partner with the supplied lead, in the usual master/slave arrangement, the slave being passive (no internal amplifier).

After this it's merely a case of pairing the 'speakers with your Bluetooth device using the rear button – or plugging in an alternative analogue source via the RCAs.

A remote control allows switching between inputs and control of volume but there are also buttons on the top of the right-hand master 'speaker to do this as well".

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QUESTIONS

[1] What gap is bridged?

- [a] technology gap
- [b] portable to hi-fi gap
- [c] social gap
- [d] Cumberland gap

[2] Analogue input is via -

- [a] RCA phono sockets
- [b] S/PDIF
- [c] Ethernet
- [d] TOSLINK

[3] The slave unit has no -

- [a] cabinet
- [b] drive unit
- [c] connection
- [d] internal amplifier

[4] Their power rating is -

- [a] 100 Watts per channel
- [b] 100 horsepower each
- [c] 99 BTUs
- [d] 18 Watts per channel

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Finely Polish-ed

Martin Pipe tries the Mytek Liberty, a DAC/headphone amplifier with a professional heritage.

New York-based Mytek, founded in 1992 by Polish emigre Michal Jurewicz, started off by making professional digital audio converters (ADCs and DACs) for recording studios and the like. Its distinctive £1800 Brooklyn DAC/headphone amplifier (since upgraded to 'Plus' status) set audiophile tongues wagging with its MQA support, comprehensive front-panel displays and preamp mode with phono stage. Now we have the 'stripped-down' Liberty, which sells for half the Brooklyn's price while retaining the key technologies (among them the ESS9018 Sabre DAC) and features which include certified MQA support.

The Liberty is designed in the USA and manufactured in Poland. Jurewicz told me that he has "designed about 30 DACs for professional use since 1992". In his view, mastering engineers "basically need a DAC that will extract all detail from

tape/recording without misrepresenting it, so they can make decisions based on facts not illusion. We do not make euphoric DACs - we make 'honest' DACs. A good recording sounds great, while a bad recording sounds the way it does".

Jurewicz outlined to me Mytek's approach: "We design a chain - analogue source to ADC/DAC," which is compared with a direct connection from the analogue source, during an "A/B comparison" stage. Mytek's engineers "try to get the A as close to B as possible, using a high-resolution monitor system - usually several different speakers, to focus on different parts of the sound...then we tweak it - there's a lot of experimenting and measuring!".

Back to the focus of this review. Jurewicz's main concern was to ensure the new model "doesn't cannibalize sales of, for example, Brooklyn". Analogue inputs and the phono stage have disappeared. Gone too is the LCD screen, Liberty

instead employing a line of LEDs to indicate various parameters like volume level, the selected input and the status of the incoming bitstream. As with other devices I've tried, different LED colours confirm what the unit is receiving - helpful when it comes to configuration, especially with PC USB sources.

On which subject, the Liberty gives you - in addition to asynchronous USB - two standard SPDIF inputs, TOSLINK optical and balanced AES/EBU XLR connectivity. You don't get Bluetooth, although both phono and balanced outputs are available. To save rear-panel space, the latter are on TRS quarter-inch jacks rather than XLRs. You'll need the appropriate 'adaptor' cables to interface them to most amps.

Liberty doesn't support balanced headphones, a single 6.3mm front-panel output catering for your cans. All outputs are, for now, simultaneously-active, meaning that plugging in headphones doesn't mute the line



outputs. This could be inconvenient if the Liberty is to be used as a DAC with both headphones and hi-fi equipment. Jurewicz assured me that such functionality will "be added at some point in the next few months".

The unit can be powered by an internal switch-mode supply or a 12V DC external one. Doing so opens up in-car and portable operation, although it's done mostly for performance reasons. Jurewicz told me that the internal power supply is rated at 30W, and that feeding the Liberty from "a much larger (linear) PSU – 300 watts - results in improved sound quality". He estimates that "about 10% of customers will do this". Looking inside the unit reveals that the power supply is a bought-in module, and that internal construction is of an exceptionally high standard. The ES9018K2M DAC is accompanied by a precision voltage reference, low-jitter (10ps) clock source, ST microcontroller and analogue stages built from high-grade components. I note with interest that

The ability to change digital-filter characteristics, whether here or on the front panel, is however absent. One of the configuration options it does provide, volume-control 'bypass', is recommended for 'straight DAC' use.

Another, 'output mode', offers a choice of 16 or 24-bit resolution. Does this mean the Liberty transcodes DSD into PCM? Not at all, Jurewicz assures me: "DSD is native. Always! Output mode setting refers to the USB interface capacity for PCM, and should generally be left at 24". Note however that the Liberty will accept PCM all the way to 32-bit/384kHz, as well as DSD256, via USB. If you're using S/PDIF or AES/EBU, the limits are 192/24 or – courtesy of DoP – DSD64.

My primary sources were a Cambridge CXN streamer (connected via coaxial digital, and pulling tracks off a Synology router with inbuilt NAS) and USB-interfaced Windows 7 PC – drivers (unnecessary for Mac and Linux) –

"The Liberty gets to the heart of the music with believable spatial positioning and an appropriate tonal balance"

the part numbers of the op-amps, and the chipperies associated with the headphone-amp chipperies, have been scratched off!

PERFORMANCE

Liberty is easy to use. The single control is pressed to cycle through inputs, or rotated to raise or lower volume. The latter is achieved in the digital domain, meaning that you don't have to worry about noisy pots in future. Jurewicz was forthright about this aspect of the unit's design: "It works at 32 bit resolution, so it has 192dB dynamic range...it also does the same with DSD...turning it down to -20dB is generally OK, but going down more will result in progressively lost resolution - this is the nature of digital volume control".

You may not get a remote handset but Mytek offers as a consolation its freely-downloadable 'control panel' – for both Mac and Windows. From this useful program you can customise the unit (e.g. LED behaviour), select input, change volume and upgrade the firmware.

were obtained from Mytek's website. I tried a number of headphones including the Oppo PM3, Sennheiser HD650 and Focal Utopia. Liberty met the challenge, quite impressive listening levels being cleanly-achieved from each.

For larger-scale listening I switched to an Arcam A49 integrated amplifier driving Quadral Aurum Wotan VIII floorstanders.

I encountered no trouble getting the Liberty to work with my PC (Windows 10 is supported) and



Note the switch-mode power supply module, in its screened case. The identifications have been ground off some devices. Identifiable are an XMOS microcontroller, Crystal digital interface and ESS DAC.

appropriately-configured Foobar2000 player software. The front-panel 'MQA/DSD' LED changed from orange (PCM) to white when DSD content was played. Playing an MQA test track from 2L (Christian Eggen's performance of Chaconne op 32, from Carl Nielsen Piano Music) caused the LED to go blue, showing that a valid MQA stream had been detected. Most of my music was CD-derived FLAC, but a handful of hi-res tracks were also played.

SOUND QUALITY

The first thing I noted about the Liberty is just how good the bass end is. It's taut, deep, well-defined and above all musical in a genre-neutral way. The bass guitar from Nick Lowe's



A good selection of digital inputs but there's no Bluetooth. Balanced outputs are available via the quarter inch jacks in TRS (Tip-Ring-Sleeve) form, because there's no space for XLRs! The Liberty can be powered from the mains or 12 volts DC.

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The screenshot shows the 'Hi-Fi World' app page on the App Store. At the top, there's a navigation bar with 'Sign In', 'Music', 'Films', 'TV Programmes', 'App Store', 'Books', 'Podcasts', and 'iTunes U'. Below the navigation is a breadcrumb trail: 'App Store > Entertainment > audio web publishing ltd'. The main title 'Hi-Fi World' has a 'Get' button next to it. A note says 'Offers In-App Purchases' and 'This app is designed for both iPhone and iPad'. The rating is 'Rating: 4+'.

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LINKS

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Description

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Information

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

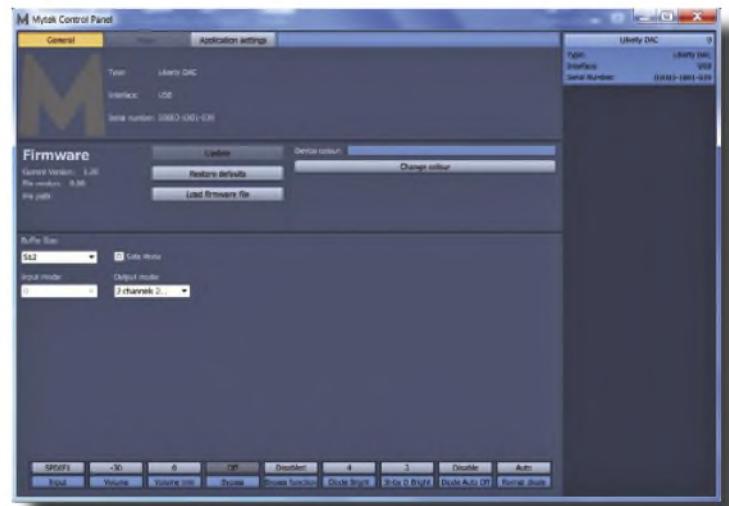
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classic Stiff cut So It Goes (CD) was just as enthralling as the electronics of Mogwai's very different Remurdered (24/96). In other respects, the delivery is punchy – although higher treble is maybe a little recessed.

Overall, though, a good start. Elements like the guitar and multi-tracked vocals of the Lowe piece, and Remurdered's 'rat-a-tat' percussion, could also be picked out clearly and with perfect pacing. Nostalgic Ensemble Hannover's *Musikalische Erinnerungen*, a collection of German light-orchestral pieces popular in the early twentieth century, was next. The Liberty gets to the heart of this music; believable spatial positioning, dynamics and an appropriate tonal balance being ascribed to key elements like the woodwinds and strings (whether plucked or bowed).

The title track of Beck's latest long-player, Colors, could on occasions sound a tad congested – although the energy and atmosphere are still palpable. The intro to another track on this album, the rap-influenced Wow, showed off the DAC's imaging prowess. Similar observations could be made of other dense recordings, among them David Bowie's two final albums. The much-missed artist's voice in Where Are We Now? (CD-derived FLAC) carries well here, ensuring that none of its emotional impact is lost.

DSD was excellent, too. A Blue



Mytek's 'Control Panel' program can configure the unit, select input, change volume and upgrade the firmware, on a Mac or Windows PC. It's clearly of professional origin – but I'm sure that most domestic users would prefer a remote handset...

Coast DSD64 of Keith Greeninger and Dayan Kai's beautiful and revealing 'Looking For A Home' had filigree detail – down to guitar string noises and vocal breaths. Also, there was a good sense of the acoustic space in which the song was recorded. Very good, although a Prism Callia – admittedly a more expensive unit – managed to go just that little bit further.

I compared MQA and CD-resolution versions of the Nielsen piano piece. The former drew me

further into the performance, the reproduced atmosphere and dynamics being just that little bit truer to life.

CONCLUSION

On the whole this little DAC has much going for it, a very musical delivery being coupled to a practical feature set. It houses the ESS ES9018K2M Sabre32 series DAC, plays MQA and is easy to use. There are rivals from Audiolab and Prism to consider, but I felt the Liberty a fine product all the same.

MEASURED PERFORMANCE

The Mytek Liberty DAC / headphone amplifier delivered 8V from its front panel headphone sockets – massive considering 1V-2V is enough – giving volume to spare from a peak digital signal (0dB). The rear Line outputs (phono sockets and 1/4in jacks) delivered 2.5V at 0dB – enough to drive external power amplifiers – so all outputs work well.

With a 24/192 PCM digital input frequency response reached 48kHz (-1dB) before rolling off to the upper theoretical limit of 96kHz, as our analysis shows. This is a good result, ensuring even and open sound with hires digital. There are no filter options to change performance.

The optical input was stable to 96kHz sample rate but became marginal with 176kHz and unusually intermittent with 192kHz sample rate when using a high quality QED glass optical cable. This makes an Astell&Kern optical digital output incompatible, for example.

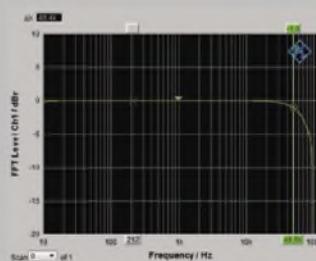
Optical input receivers commonly accept 192kHz nowadays, as they need to do.

Distortion was low at 0.06% (-60dB, 24bit) – good but not class leading (0.02%). Our analysis shows an absence of distortion harmonics but some noise. EIAJ dynamic range measured a mediocre 112dB as a result – behind the 117dB-125dB from competitors using the ES9018 DAC chip, these results applying to all S/PDIF inputs including AES, and USB.

The Mytek Liberty was behind the best in its measured performance; it is commonly surpassed in distortion and dynamic range values. NK

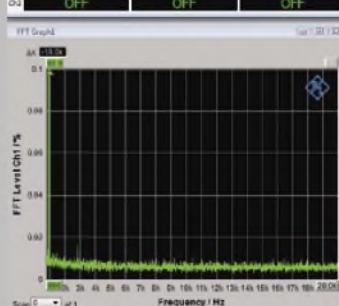
Frequency response	4Hz- 48kHz
Distortion (24bit, -60dB)	0.06%
Separation	90dB
Dynamic range	112dB
Noise	-110dB
Output (line / h'phone)	2.5V / 8V

FREQUENCY RESPONSE



DISTORTION

THD at 0.1W	Level 0dB	Frequency
0.0589 %	2.5086 mV	997.00 Hz



MYTEK LIBERTY £895



EXCELLENT - extremely capable

VALUE - keenly priced

VERDICT

Affordable MQA-capable DACs are beginning to appear and the Liberty has this ability.

FOR

- very musical overall
- one of the best digital low-ends I've heard!
- practical selection of ins and outs

AGAINST

- no remote handset or Bluetooth
- some lack of treble sparkle
- doesn't (yet!) mute line outputs whenever headphones are plugged in

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The TRIODE valve is over 100 years old, regarded by many as the ultimate in sonic perfection. Vintage designs such as the 300B and 845 are still popular today. However amplifiers using directly heated vintage valves have the drawbacks of generally lower power and higher production cost. The modern KT150 valve is very versatile and when used as a triode in our MB90 amplifiers has a very usable 60 Watts output, three times more than the 300B. This way you can have the best of both worlds at a very reasonable price point!

Our MB90 MK IIIm has an "Ultralinear" output of 115 Watts but its real magic is revealed when you switch to "TRIODE" on the front of the amplifier. Under these conditions the KT150 becomes very linear revealing a rich, warm presentation still with plenty of power for all but the most demanding situations. Customer feedback tells us that 80% of owners use "Triode" mode almost exclusively with "Ultralinear" used when high power is required.

The MB90 also features 4 and 8 Ohm matching and high and low sensitivity so designed to work with "Passive" and "Active" pre-amplifiers or direct from our PS1 and PS3 phono stages.

Tolerant of "difficult load" speakers including ESLs. The MB90 MKIIIm will work well with any speaker of about 80dB or more even in large rooms. The "easy bias" meter enables simple checking that the KT150 is always at optimum performance, the meter also gives an indication of the output power. Useful when you may need to know if you are likely approach the maximum available power.

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Earth Improvement

Canadian company Gutwire's earthing cables aim to improve the sound of your system. Jon Myles comes away convinced.

Regular readers will know I'm a firm advocate of the importance of wiring. Loudspeaker cables, interconnects and mains leads all make a difference - whether it be beneficial or deleterious. Get the combination right and you can unlock hitherto unknown abilities from your components.

However, I must admit to scratching my head and going "Mmm" when these earthing leads from Canadian company Gutwire arrived in the office. The premise behind them is that the shortest path to ground from a hi-fi component is best and this should be from the internal circuit board's ground. This should - Gutwire say - reduce background noise and improve soundstaging.

So, what you have here is a lead with a 13 amp plug at one end and an RCA plug at the other which plugs into to any unused input, because input ground connects directly back to circuit board ground. This then in effect connects the circuit board to the grounding block inside the Gutwire (seen as a slight bulge in the cable) which then goes to the mains plug.

Two variants are available; the Perfect Ground at £399 and the

Ultimate Ground at £699. The difference? The latter uses a larger grounding block with higher quality conductors and better shielding. It's noticeable as it is much thicker than the Perfect Ground and obviously aimed at more expensive systems.

Both cables come in 6 foot lengths to enable connection to a wall socket even if it is well away from the equipment it is being used with.

Gutwire recommends starting off using the grounding cables with source components and then moving through the system for maximum benefit. They also advise not connecting them to a mains conditioner or filtered distribution - presumably because there's no need.

As I said, "Mmm" - but, then again, the only way to test any product like this is through listening so I duly plugged them into my home system with its Devialet Expert Pro integrated amplifier, Naim Supernait 2, Creek Audio Evolution 100A and a Naim NDS XS streamer.

SOUND QUALITY

My scepticism over these products soon disappeared. On Steve Earle's 'Washington Square Serenade' with the Perfect Ground in place there was undeniably a lower noise floor

with greater punch to the drums. His guitar playing on 'Steve's Hammer (For Pete)' also sounded more vibrant, having a greater definition and decay to the notes. It was, actually, akin to the improvement I've heard with some (more expensive) mains conditioners.

Moving to the Ultimate Ground the improvement over its lower-priced partner was subtler. A slightly improved soundstage came over with more back-to-front depth but it wasn't exactly night and day. However, on more revealing systems it will probably have a greater impact.

Back with the Perfect Ground and playing Saint Etienne's 'He's On The Phone' (24/96) Etienne Daho's deliciously rich spoken French in the middle of the track seemed to come out of nowhere while Sarah Cracknell's own vocals were even sweeter than without the cable attached.

Taking it out and listening without the Gutwire showed that, yes, it was obviously making a difference.

As such I'd recommend taking a listen to these two cables. They might seem a strange concept and there will be some who see this as a form of snake oil. But I did hear a difference and it was a beneficial one.

**GUTWIRE PERFECT GROUND (£300)
ULTIMATE GROUND (£699)
OUTSTANDING - amongst the best**



VERDICT

A simple idea to improve grounding of equipment which works surprisingly well. Lowers noise floor and improves soundstaging.

FOR

- well constructed
- simple to use
- brings better definition
- lower noise floor

AGAINST

- need an unused RCA input

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Star Polaris



Auralic's new Polaris combines digital and analogue inputs, a powerful amplifier and streaming capabilities all in one compact unit. Jon Myles relishes its flexibility.

Auralic has won many admirers for its sophisticated range of music streamers – and deservedly so. They are well-engineered, easy to set-up and operate and, most importantly, extremely detailed and clean sounding.

I first came across the Auralic Aries wireless streaming bridge last year (Hi-Fi World June 2017 edition) and was taken aback by how much more resolution it provided in my system when streaming high-resolution material from my NAS drive.

Then came the Altair (Hi-Fi World February 2018) – which replicated all the functions of the Aries but added a DAC and pre-amplifier to the equation.

Now we have the Polaris – a device that boasts all the functionality of the Altair but also boasts a Class D amplifier with a claimed output of 120 Watts into 8 Ohms plus a moving magnet phonostage and the option to add 1TB of internal storage so it can be used as a music server.

To put it simply this little box – just 6.5cm x 33cm x 26cm (H/W/

D) – is a do-it-all digital/analogue hub that makes other similar units look positively under-specified.

Digital inputs include AES/EBU, coaxial, Toslink (all S/PDIF) and USB for both computer and external mass storage devices. There's an RJ45 gigabit ethernet connection, as well as tri-band wi-fi. File sizes up to 32bit/384kHz are supported by the well-regarded ESS Sabre 9018K2M DAC chip, as well as quad-rate DSD. There are two pairs of analogue inputs as well.

On the streaming side it, rather naturally, supports UPnP/DLNA to read music from a home computer, Bluetooth to play from a 'phone and Tidal, Qobuz, Roon, Apple AirPlay and Songcast streaming services, plus internet radio.

Put simply, all you need to do is connect it to your source and add a pair of loudspeakers. Specify the Polaris with optional internal storage and you don't even need the source once you've transferred your music collection over. This can be time consuming but once completed you can access all your music straight from the Auralic.

Added to all this is the option

to select any of four different filter modes to suit your taste. There's Precise, Dynamic, Balance and Smooth (more of which later). Taken together, Polaris is a bit like the Swiss army knife of hi-fi.

There's a remote control but operation is best through Auralic's Lightning DS app (iOS only at present) Roon – if you have it – or other, third party UPnP control software if accessing NAS drives.

If you are an Apple iPhone/iPad user then the Lightning DS app is easy to use with a good, simple interface. It enables you to search your music by artist, album, song, composer, genre etc as well as creating playlists, seeing sample rates and a host of other features. If you are not an Apple user I'd recommend looking at Roon (see Hi-Fi World feature March 2018 for details of how this works).

SOUND QUALITY

I connected the Polaris to a pair of Focal's excellent new Kanta No2 floorstanding loudspeakers and started wirelessly streaming from my NAS drive. The first thing to note is that the Auralic handled this with



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The Auralic Polaris has AES, Toslink and USB connections on the rear as well as an RJ45 LAN connection. The supplied antennas allow Bluetooth and wireless connection. Also note the two analogue connections; it can be configured for an MM turntable input.

ease. Selecting tracks was fast and easy while there were no drop-outs at any time.

Class D amplification has a mixed reputation but when well-implemented it can sound clean, clear and detailed. And that's just how the Polaris sounds. The amplification section uses Hypex modules and they do a good job of bringing out the tone of Scarlet Rivera's violin on Bob Dylan's 'Hurricane'. Dylan's vocals are also projected well forward – rising above the backing band with height and depth to them.

SOUND QUALITY

Switching between the Auralic's filter modes didn't turn up major differences in sound quality -- the Precise mode sounded a bit more trebly than the Smooth mode I used for most of my listening. Auralic recommends Smooth as the "all-best"

option for most music – and my listening experience supported that.

Switching to the punk jazz of Acoustic Ladyland's 'Last Chance Disco' (24/96) and the thundering quality of Seb Rochford's drums was well relayed, making me turn up the volume as I enjoyed the reverberant sound. The Polaris also handled the changes of pace on this collection well, switching between the quiet and loud passages without losing any rhythmic pace.

Moving between the various inputs the sound quality remained consistent whichever was chosen. With USB and Bill Evans Trio's 'Turn Out The Stars' the piano playing was dynamic and had a crisp tone. Eddie Gomez's double bass was full and rich.

There's not quite the warmth or thrust you'll get from a classic Class A/B amplifier such as my own

Naim Supernait 2 – but then again it doesn't have the digital capabilities of the Auralic.

CONCLUSION

I suppose you could just about assemble a set of separates that match the Polaris for its £2875 price but that's missing the point. This is a unit that takes up little space, gives you access to all your analogue and digital music, is easy to operate and has excellent sound. What More could you want?



A toroidal transformer feeds the main power supply with shielding around the rest of the circuitry. Auralic have put great effort into the amplifier's internal lay-out.

MEASURED PERFORMANCE

The Polaris produced 105 Watts into 8 Ohms and 170 Watts into 4 Ohms, so it can go very loud with any loudspeaker.

At normal power levels (up to 10 Watts) distortion was low at 0.04%, rising to around 0.4% at high output – not wonderful but this only affects short term peaks. Levels were slightly lower at high frequencies, due to harmonic attenuation from band limiting, but with figures of 0.04% at 1 Watts, 10kHz, and 0.2% just below full output (4 Ohms) the Polaris has sufficiently low distortion for clean treble.

Frequency response rolls off early, just above 24kHz (-1dB), our analysis shows – enough to ensure a smooth and easy sound with no sharpness.

Frequency response of the digital section was similarly tailored ('Precise' filter) to give a gentle roll down, so Auralic have a consistent and deliberate approach here.

The filter options affected matters little in the audio band at all sampling rates and subjectively differences will be minor between them. The optical digital (S/PDIF) input accepted 192kHz sample rate

and noise via digital were very low, resulting in a high EIAJ dynamic range figure of 119dB – very good.

The phono stage is RIAA equalised to a perfectly flat response across the audio band but Auralic have engineered in a very steep warp filter below 30Hz to cut out LP warp signals whilst retaining deep bass – it's very well done, showing thought. However, gain was far too low at 65mV where 5mV is normal, and gain of Line In (AN1) was also too low at 2.2V, where 0.2V is common – with gain options set to maximum – so there's a problem with the analogue input – we are awaiting their reply. NK

AMPLIFIER

Power (8 Ohms) 105W

Frequency response (-1dB) 2Hz-24kHz

Distortion (10k, 1W, 4 Ohms) 0.04%

Sensitivity 400mV

Noise (Line) -95dB

Damping factor 44

Phono

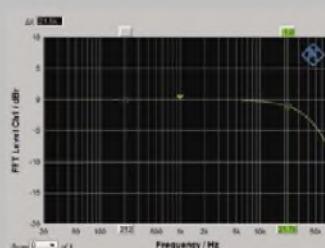
Frequency response (-1dB)

30Hz-20kHz

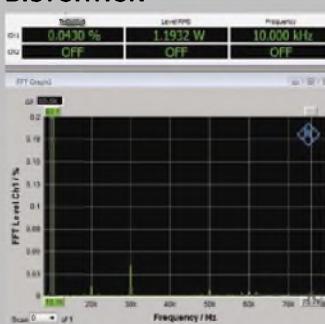
Distortion (0.02% with 24bit, -60dB)

Distortion (10k, 1W, 4 Ohms)	0.2%
Sensitivity (MM)	65mV
Overload	75mV
Noise (MM / MC)	-71dB

FREQUENCY RESPONSE



DISTORTION



AURALIC POLARIS £2875 (STORAGE EXTRA)



OUTSTANDING - amongst the best

VALUE - keenly priced

VERDICT

A do-it-all component that combines pre-amp, amplifier, digital and analogue inputs plus streaming. Just add loudspeakers for a system. Superb control app too.

FOR

- range of inputs
- ease of use
- detailed, clean sound
- compact size
- excellent control app

AGAINST

- app is iOS only

Auralic
www.auralic.com



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



LETTER OF THE MONTH PRIZE



Tannoy Mercury 7.2 loudspeakers

www.tannoy.com

For more advice see Letters from earlier issues at www.hi-fiworld.co.uk/letters

A pair of Tannoy Mercury 7.2 loudspeakers are on their way to DAVID, Letter of the Month winner in our June 2018 issue.

Letter of the Month

STREAMING SOLUTION

At present I have a Onkyo (C-N7050) optically linked to an Audiolab M-DAC then onto my amplifier. The Onkyo is RJ45 connected to a wireless repeater that can, via my Wi-Fi network, access my NAS and the Internet. I have – over many many boring hours! – converted all my CDs to FLAC format and stored them on the NAS, which sits upstairs next to the router, so I can access them from the Onkyo.

The majority of the time this works well but I am unhappy having my hi-fi entertainment relying on the Wi-Fi. I have always liked each system that I use to be independent, but at present accessing my CDs from the NAS means the broadband router (which is supplying the Wi-Fi and IP addresses via DHCP) must be up and working happily with the NAS and of course between all these bits is the Wi-Fi network itself (as well as many neighbours' wife networks broadcasting happily!).

I have looked around for a local/small/silent USB drive that I could copy all my music to but am a bit confused about how the Onkyo will read it? I understand that when the Onkyo accesses the NAS the DLNA/uPNP software on the NAS it presents the albums/tracks to the Onkyo and the



An Onkyo C-N7050 Network Player. Does the USB socket need DLNA/uPNP to read files, asks Andrew Burtchell?

Onkyo plays them, but if I use a USB drive it does not have this DLNA/uPNP ability?

Now after looking around I have found a number of network media storage/players (Naim, Novafidelity, Zen, etc) but considering that all I want is a storage medium that can present the media to the Onkyo in the same way the NAS does but locally connected, they all seem quite expensive!

I have not tried it myself but have read your articles where you copy files to a USB stick and just plug it in to the various players you test. Would this connection type work with a USB drive

housing a SSD drive? And would it be able to distinguish albums/tracks rather than just tracks because it is very useful having a folder set-up rather one long collection of tracks.

Now all the above is the bit I don't like about the way hi-fi seems to be going! It sounds more like a letter into a computer magazine than a hi-fi one. I do still play a lot of analogue and enjoy it greatly but the convenience of streaming digital is useful too, especially where I don't need to have hundreds of CDs racked up downstairs.

Or should I just take the easy path and sell the Onkyo and M-DAC and

just purchase Naim or Novafidelity unit including CD play, adequate storage for converting and a digital input for my FiiO X3?

I think all I would really like, to be honest, would be a version of my FiiO X3 that could access files on a USB drive, with a 1 Tb SSD drive inside. That would allow me to have my files locally stored and output digitally to my M-DAC? Any guidance you can give will be greatly appreciated.

Andrew Burtchaell.

Hi Andrew. An interesting letter that raises a number of points. First of all you have a good set-up there and if it is working happily for you in terms of sound quality then I do not see the need to change it at the moment.

In terms of wi-fi, if you are not experiencing any problems (i.e. music stopping and then starting again) you have nothing to worry about and shows your network is robust enough. Your wi-fi and those of your neighbours are totally separate.

However, as you are looking to take this out of the equation then the good news is the Onkyo C-N7050 will happily accept a mass storage device via its rear USB (not the front one) socket. These are readily available for around £50 for 1TB of memory. Plug it in and you can access tracks via the Onkyo remote or the company's control app for smart devices. Whether it is SSD or HDD makes no difference – although SSD devices tend to be a little more expensive.

Of course you will have to transfer your music to it (again!) but this may well suit your needs and avoid any computer or wi-fi connections in your hi-fi chain. If you go down this route I'd advise placing individual albums into separate named folders where you will be able to access them or select whichever tracks you want to hear. There's no UPnP/DLNA involved – just a straight connection to the Onkyo and it supports FLAC so there's no need to reformat them.

JM

Hi Andrew. UPnP (Universal Plug'n'Play) in conjunction with DLNA (Digital Living Network Alliance) allows files to be requested and sent across a broad range of devices and is commonly used within wired and wireless networks.

USB is a socket with a whole



Audiolab's original M-DAC, fitted with ESS ES9018 DAC chip and boasting a wide ranging filter set for optimum time / amplitude domain behaviour – used by Andrew Burtchaell and worth keeping in the system.

slew of different standards relating to its usage – confusing. It can read Mass Storage devices such as disc drives or memory, the problem here being a screen is needed (or app) to recognise and play stored files, in this case music tracks. That's what a portable player like your FiiO does in effect, a limitation here being the small screen of portables. A Chord Mojo with Poly controlled by an iPad or smartphone is another way of cracking this little problem and may appeal to you. **NK**

APPS AND PLAYERS

I use a MacBook Pro with a solid-state drive connected to an HRT Microstreamer DAC via USB. I play local files with iTunes off the hard disc or from sticks and cards (all files are WAVs), and stream Spotify Premium at 320 kbps.

I am not concerned with

on these players, or provide comments from colleagues who are familiar with them

Thanks in advance,
Nick Miller Jones.

Hi Nick. You don't say if you are using the HRT Microstreamer via headphones or into an amplifier. Either way, Audirvana would definitely bring an improvement in sound quality – I have used it on a MacBook Air and it brings a cleaner, more precise sound than when playing direct from iTunes.

However, with your set-up I would recommend looking at Roon and ditching Spotify for a Tidal subscription. The sound quality on Tidal is much better than Spotify. It doesn't have quite the same number of tracks available but still offers some 40 million which is more than enough for me.

A combination of Roon – whose



A Chord Mojo portable headphone DAC together with Poly plug-in extension acts as a portable player controlled by a phone or tablet (e.g. iPad) screen.

appearance, library management etc, only sound quality. Any tips to improve this would be most welcome. In particular, are apps like Audirvana, BitPerfect etc worthwhile? They vary a lot in price and functionality, and seemingly not all work with streaming. I'm sure it would be of great interest to readers if you could do a group test

sound quality matches Audirvana – Tidal and your HRT will bring an appreciable increase in sound quality. If you want to try the combination both Roon and Tidal offer a free trial period so you can try before you buy. I'd recommend doing this to see what you think. Do report back on your findings. **JM**

LOOKING AT DUO

In your review of the Cambridge Audio Duo phono stage, you emphasised that it is very quiet and you said "I can tell someone at Cambridge has studied this issue and selected a super-quiet chip": in the picture of the innards, it looks as though there are around 12 discrete transistors between the input(s) and the first chip. From this it appears to me that Cambridge have gone to the trouble of designing their own input stage, which would explain the low noise.

The low output voltage is a surprise. This phonostage might well be used in a system with, perhaps, a CD player, most of which give around two volts! Switching between phono and CD would result in a volume increase of 10 times! I am surprised that Cambridge have not provided the unit with sufficient gain to obviate this problem.

In your reviews, you usually mention the type of power supply, but not so in this case. Could it be that the power supply in this case is a switched mode type, which in other reviews has been met with some implied disapproval? Kind Regards,
Mike Ford.

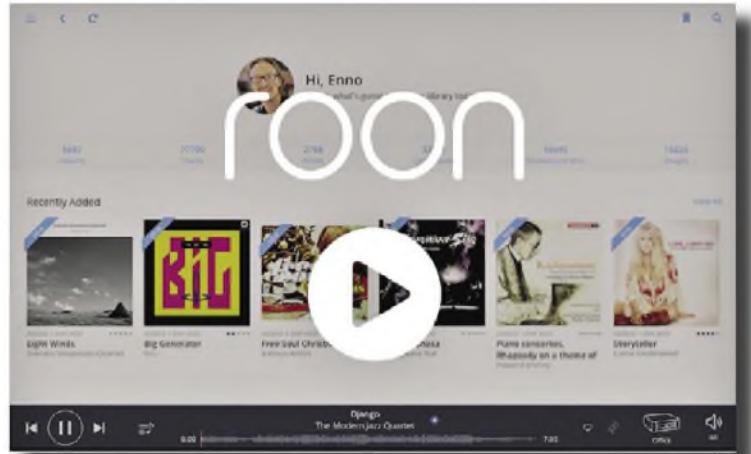
Hi Mike. There are six discrete transistors (BJTs) per channel in both the MC and MM stages, paralleled up to reduce noise.

The reason the gain is kept low, although not as low as some, is to allow headroom for higher output MM/MCs. In fact in this world of louder is better, we've noticed MM cartridge output is creeping up, with 6mV becoming increasingly common.

The power supply is indeed a switched mode type. It has obviously been designed for the Duo phono stage and is tuned for this specific purpose.

Best regards,
DOMINIC BAKER,
TECHNICAL DIRECTOR,
CAMBRIDGE AUDIO.

Hi Mike. Phono stages are designed to a common set of rules, moving magnet (MM) gain $\times 100$ and MC gain $\times 1000$ (at 1kHz). Although commonly used these gain values are low (for a reason). A typical modern MM will deliver around a few millivolts (mV) playing music, giving an output of around 200mV – seemingly ten times lower than CD. That's not the case however because CD gives 2V on peaks only, compressed CD being around 6dB-10dB down, meaning 1V-300mV. In use CD usually



Roon is an on-line player that also aggregates files on a home network. "I would recommend looking at Roon and ditching Spotify for a Tidal subscription." says Jon Myles.

sounds louder – but not ten times louder! – and LP needs volume turned up.

Low gain is used in phonostages to avoid the possibility of (output) overload, because most chips run from standard +/-12V d.c. supply rails that limit output voltage swing to 7V. This in turn gives 70mV overload at $\times 100$ gain – a bit conservative, but a safe choice.

A common workaround for this difficulty is the gain adjusting DIP switches you see on the underside of phonostages. However, the best solution is to use an output stage that swings volts followed by a volume control – then you get gain without overload, plus the ability to drive anything. It's easy to do with high voltage transistors and chip based switched-resistor volume controls (immune to overload) that give remote control, but no one does

it – at least with transistors. Valve based phono stages such as Icon Audio's PS3 and Quad's QC24P work at high voltages so can and do offer high gain without overload – and both have a volume control.

Switch-mode power supplies have a bad reputation in power amplifiers; Japanese high-end manufacturers largely avoid them, talking up their traditional "linear supplies" (see my Yamaha A-S801 amplifier review in this issue for example). I would expect a switch-mode for the light current draw of a phonostage. Not only are they small but universal, running from 100V-240V mains supplies around the world, without any need for voltage selection. **NK**

CHROMECAST COMPLEXITY

As a subscriber for many years (started with Hi-Fi Answers in the early 70's) I've progressed from an Amstrad IC2000



Cambridge Duo phonostage. "It looks as though there are around 12 discrete transistors between the input(s) and the first chip" says Mike Ford. He's right!

(ouch!) and McDonald turntable – my mates all bought the Garrard SP 25 Mark IV so I had to be different – via an all Meridian system and many other combinations to finally settling on a Michell GyroSE/SME IV/Kontrapunkt B, World Designs Series 3 phono/preamplifier supply/headphone amp, WD88A and IPL ST4L speakers/Sennheiser HD650 system. I also use this system for the TV too.

Trouble is, I subscribe to Tidal's Hi-Fi and stream via a Chromecast HDMI, and use a Musical Fidelity Anniversary Trivista DAC. This means I have to extract the digital sound stream from the Chromecast's HDMI output to feed the DAC.

As you probably remember this DAC has a single coax and a single optical input, which make switching between the TV, vinyl and Tidal a nightmare. To simplify connectivity in general I have used a cheap switching gadget – the Portta HDMI Multimedia interface (www.prt-ta.com). This 4 port HDMI switcher with coax and Toslink outputs is well built for the money but both units I have bought spit and crackle via the coax output, which I use for the serious stuff. I listen to the TV via its own Toslink output connected directly to the DAC, bypassing the Portta unit. But the DAC gets confused between its Toslink and coax inputs – it can't switch between them.

I guess a Meridian HD264 would solve all my problems but now I have retired it is out of my price bracket, even second hand.

Any suggestions? I can't be the only one in this mess... second hand is fine by me...

Keep up the good work,
Aidan Magee.

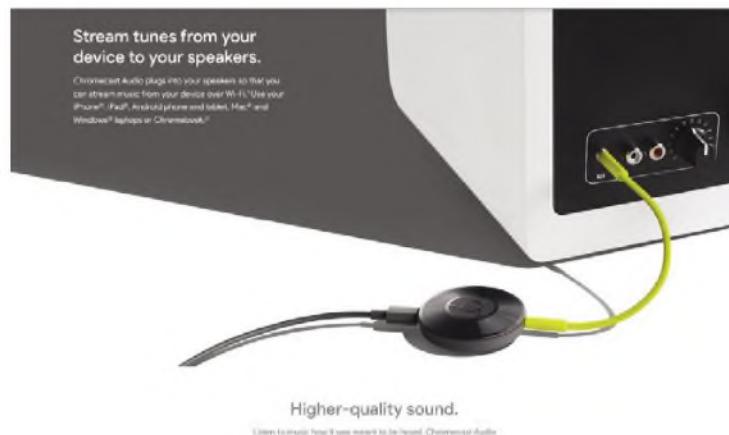
Hi Aidan, that is a complicated set-up you have there – but one that should work well. The spit and crackle you are experiencing through two different boxes leads me to think there may be a cable problem.

I'd advise trying a different coaxial cable to see if this solves the issue.

It could well be that what you are hearing is not down to the Portta but a problem in the coax cable.

I'd also say that the Chromecast is a bottleneck in your system. They work well but do not give perfect resolution. You could try a streamer/DAC to replace the Musical Fidelity which would simplify everything and give you better control over the whole system. JM

Hi Aidan. I suspect the internal



Google's popular and inexpensive (£30) Chromecast unit converts streamed digital to analogue. Aidan Magee uses the video version.

switching of your Portta unit is going intermittent and momentarily interrupting the digital stream, causing those noises. As Jon observes though, you would probably be better off with a dedicated streamer/DAC

I can only assume all compliant USB leads transfer all the bits accurately in JM's review system.

Chord DACs read data from a buffer for onward processing. Playback continues for a moment or two even



A small Portta HDMI switching unit. Is it the source of crackles in Aidan Magee's system?

to replace your budget Chromecast unit and Cambridge Audio might be a good place to start: checkout their Azur 851N or less expensive CXN.

NK

DIGITAL CABLES

I find reviews of USB cables bemusing. JM's review seemed to imply Tellurium Q USB cables transferred data more accurately than a standard compliant USB lead. This cannot be the case. I have USB cables between my Mac & external disc as well as my Mac and Chord DAC. If I verify a file copy it is bit perfect. I'm confident asynchronous USB is also bit perfect to my DAC.

Rob Watts, Chord DAC designer, writes informative posts on Head-Fi forum. If one uses a Windows PC then Rob supplies a driver, which includes error correction. Rob has posted that he has never found USB errors or detected sonic differences between cables. JM used a Chord DAC for his review. So

when the cable is removed. So it is hard to reconcile JM's findings.

I have heard Tellurium Q USB & Chord Company USB and I could hear no difference from those and a bog standard USB printer cable. Even with my iFi iPower & Gemini I hear no difference into a galvanically isolated Chord DAC.

What I would like to see is some hard measurements for these expensive cables. If there is less distortion, more bass or improved signal to noise ratio then these should be measurable. You provide excellent sets of measurements for other equipment reviews. Why not cables?

I don't doubt JM hears something different as all sound quality assessments are subjective. However, I feel some of the technical commentary is not quite right. I have worked for 30 years in IT and do have an appreciation of network technology including RFI/EMI radiating from cables (usually cured by

'If you want the best Wi-Fi speaker...this is it...
you have a near-perfect 21st century speaker.' T3.com



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2014 | 2015 | 2016 | 2017



Tellurium Q USB cable. "I feel some of the technical commentary is not quite right" says Kenny J.

shielding & use of ferrite rings). So am perplexed by claims of boutique cable manufacturers and how expensive they are.

I'd also add that if Ethernet connections are needed then fully qualified cables from Blue Jeans or Supra are all you need. There is no need for anything more expensive on sonic grounds.

Kind regards,
Kenny J.

Hi Kenny. Some time ago – back in the 1990s I recall – recording studios started noticing that long digital cables runs degraded sound quality – an unexpected phenomenon. Digital was at the time considered 'perfect' no matter what. The explanation turned out to be capacitance within the cable was reducing its analogue bandwidth and this in turn was slowing time domain transitions in the digital signal, causing indeterminacy in its timing, producing jitter. This is one mechanism by which digital signals (electrical) can be affected by the cable construction and length.

The other is one you allude to: radio frequency interference (RFI) pickup. Again this is impacted by cable construction and length.

In all then, mechanisms exist that tie cable construction and length to sound quality degradation.

The reason measurement of such phenomena is rare relates to cost and complexity. Analysis equipment is difficult to use and expensive: think £10k minimum. Our Rohde&Schwarz UPV analyser can measure jitter in cables, optical and electrical, and I have run demos on our stand at Bristol's Sound&Vision Show but

only one visitor understood what was going on – and he worked in aerospace on technologically advanced aircraft comms systems. I mention all this to get the subject into perspective. Running such measurements is neither simple nor cheap.

The interesting point he made was that domestic audio uses cheap, cheerful but archaic comms systems, in terms of mechanical cabling, so I think we can expect cables to make a digital difference.

Reading from a buffer does not in itself correct jitter caused by a cable; the data must be re-clocked.



Also, noise in the digital domain feeds through into analogue domain; adding dither reduces distortion but raises the analogue noise floor our analyser shows.

Super high bandwidth optical cables with no jitter are fine threads of glass – very difficult to use and terminate into a plug, so impractical for hi-fi. Most hi-fi optical cable are cheap plastic with poor optical performance – which is why we use QED glass optical cable when testing products. Optical cable X will be better than cable Y if its (optical) bandwidth is greater, assuming its terminations are identical in performance. TOSLINK plugs are poor here: they're mechanically sloppy and just fiddling one into position so light passes through can move you from 24/96 to 24/192 as an upper limit. Not a simple subject then.

Ethernet cables are not purposed for jitter minimisation; they are data cables, not audio cables.

Why don't we publish tests on digital cables? Because results are technologically contentious at present. I could quite clearly see cables making a difference to jitter under test, but the results were difficult to link back to specific parameters, and therefore difficult to explain or defend. More time might solve this but Hi-Fi World

is a magazine – not a research establishment.

Ironically, under test digital cables have greater influence on signal integrity than analogue cables – quite the reverse of what was and still is commonly believed to be the case.

The claims of cable manufacturers aren't very convincing and nor is their technical appreciation in many cases, when quizzed. But I could say this of many turntable manufacturers. In the end both come up with the goods – by trial and error perhaps – and reviewer Jon Myles heard the benefits. **NK**

Glass has better light conduction than plastic – which is why it is used in broadband telecoms networks.
QED's Reference Optical Quartz is one of the few hi-fi optical cables to use glass.

BASS CASE

Your May edition has prompted me to put pen to paper. Klipsch R-28s, they look to be exactly what I need, and until they came along I was convinced that I needed Tannoy Eclipses.

Unfortunately for you, I feel the necessity to drone on about my hi-fi. Caveats: firstly you will probably give a wry smile over my equipment, but I am not rich and all I can say is that it has given me much pleasure over the years.

Secondly, my musical tastes are limited to the likes of Hendrix, Pink Floyd, Jarre, EJH to name but a few and the system has evolved to give a satisfactory rendition of the above.

Thirdly, I am on the autistic spectrum from a hi-fi point of view. This means that I am very critical of the sound I hear and am dismissive of improvements which can only be seen with test equipment.

Fourthly, I'm not bothered about equipment being en vogue but that it does its job correctly.

Lastly, I'm approaching seventy two years old with all the aural misgivings that age brings.

My system – archaic as it may be – has given much pleasure over the past twenty-five years. It consists of a Pioneer DV656A DVD player, Yamaha DSP-AX620 AV Amp. Front speakers are Lentek Monitors: Bert Webbs super duper version of his Cambridge Audio R50s, and the rears

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Paul Rigby – The Audiophile Man, Dec 16

are Cambridge Audio R40s, all of which are transmission line speakers using matching KEF Units.

I have modified the Lenteks by stiffening the cabinets, splitting the cross-overs and rebuilding with Falcon Electronics matched components. The R40s had the cross-overs rebuilt professionally. It pains me to admit that the £25 per cross-over pro rebuild has given superior results to my £200 cross-over rebuilt Lenteks, even though I was overseen by an electronics engineer and used superior components (the £25 jobbies were RS sourced). The R40s have a much tighter bass kick. All four tweeters were replaced by Morrell T27 lookalikes as I had only three matching T27s working. Like as in the Klipsch review I find these Morrells a bit shouty.

My room is well damped 15ft x20ft with low beam ceiling. The front end of the room has an off centre chimney breast giving unequal alcoves. For some reason the room seems to work better if the speakers are sited equidistant to the centre of the chimney breast rather than equidistant from the side wall.

Of course, being on the Aspergers Spectrum (Autistic) I don't use the system normally. The amp is run in five channel stereo mode using the rear channel level and delay functions which enables me to tweak my CDs to maximum effect. Very effective it is too. I humbly suggest that you take the time to explore this method of reproduction. Switching from this set up to normal stereo, which can be done at the touch of a button, is very dramatic 2 channel sounding horribly flat and lifeless and lacking in detail and realism.

After all this praise you may say what's the problem? It's that old perennial – not enough bass! I think the speakers just don't work with the room. I have spent hours positioning the speakers, I've experienced sub sonics outside the house with the windows open but I can't get the desired effect in the room. I don't think my hearing is at fault, as at local live music gigs, our PA man's set up playing Pink Floyd in the intervals between bands sounds superb.

That's what I want to hear, which prompts me to suggest do I need hi-fi speakers; maybe what I need are PA speakers? Are top flight hi-fi systems as good as they are because they have the power of a PA with the finesse of hi-fi, but at a cost few can afford?

So we come back to the Klipsch or the Tannoy. Will they suit my room and which is best? Oh wouldn't it be good if you said, what you have is good, you just



Massive Cambridge R50 transmission line loudspeakers, where a KEF B139 bass unit (bottom) was loaded by a long internal line that exits above.

Bass was prodigious! Keith Patrick uses a version by Lentek in a surround-sound system, together with smaller R40s.

need to get it professionally set up – can you recommend anyone local to me in Norfolk?

I listen at 90 to 100 dB. I abhor distortion, I suffer no listening fatigue so I must assume that I am getting a clean sound. I have gone to the lengths of buying a XTZ Room Analyser and plumbing in graphic equalisers on all four channels, to set up the system as flat as possible. The result bloody awful. I now set it up by ear, but I'm running

experienced hi-fi costing many times what mine has and the only thing that stands out is that the stereo image is much more global... I have to sit 'locked' in position to achieve the correct sound stage, whereas modern speakers seem to allow for considerable leeway but they don't seem to sound any different.

Another point is using a multi speaker set up with the front and rears physically in opposition one would expect some sound cancellation. Indeed, although the SPL Meter shows a 100 dB at the listening position, outside the confines of the circle of speakers it doesn't seem that loud. Surely the DSP in the amp must be programmed to compensate for low frequency cancellation in multi channel mode. Perhaps the problem is that it's not programmed to cope with bass cancellation in five channel stereo mode, hence there is cancellation? By the way the fifth channel is dedicated bass or bass effect. I have tried it with a sub woofer and still no improvement.

Well I hope for your sakes I have entertained you rather than bored you. I could go on forever, none of my friends are into hi-fi but just listen to music. They don't know how lucky they are. Best leave it there... for now anyway. I look forward to hearing your comments.

Kind regards,
Keith Patrick.

Hi Keith. With Cambridge Audio R50s at front and R40s at rear, driven by a Yamaha DSP-AX620 AV amplifier able to deliver 100 Watts per channel into a 20ft long and 15ft wide room (big) you should be getting as much bass as anyone could wish for. But



Yamaha DSP-AX620 AV Amp provides plenty of bass power for Keith Patrick's surround sound system.

bass flat out and it's still not enough. I've even had CDs tricked to give plus +6dB bass boost and it still lacks the desired effect, but Mr PA man has no such problems.

I have not had the opportunity of hearing top flight hi-fi, so I only regurgitate what I have read. I have

as you say, if you can hear big bass outside the room with the windows open then the only explanation can be bass cancellation inside the room. I suggest you try moving your listening position. It's easy enough to experiment by grabbing a small stool to sit on and listening at other

positions around the room, using a bunny rabbit hop with stool to get around!

In a multichannel system, whether rear channels carry bass is entirely down to the recording and the way it is balanced so listen first to bass content from front and rear by disconnecting the associated speakers before you conduct listening tests. You need to play a recording with strong bass from front and rear channels to check for cancellation.

Hi-fi systems are able to fill a room such as yours with powerful bass and I would have thought your loudspeakers would give very good quality in your room. If the Yamaha has a room set-up mode as most do, ensure you have been through the set-up procedure.

I use an AV set-up in a lounge (not my primary listening room) and as you say surround sound can give a wonderfully immersive experience. But I have never suffered lack of bass such as you are experiencing, so cannot help feeling this is something you can sort out with a little experimentation. Have fun! **NK**

CD IS NO DODO

I do question Noel's negativity regarding the poor old and much maligned Compact Disc, a frequent jibe in his otherwise engaging editorial welcomes, and most recently in his May preface.

Having given up on vinyl back in the 70s because of warped discs, infuriating end of side distortion and accompanying pops and clicks, and even dabbling with the audio compromises inherent in the compact cassette (which not even a Nakamichi tape deck could entirely rescue), I welcomed the launch of the CD in 1983 with open arms. There is no doubt the sound quality has improved dramatically from early digital artifice and I have stuck faithfully with the format ever since to the extent of starting to rip my entire 2000 disc collection from 2009 onto a Meridian Sooloos storage system, ground-breaking if hardly cheap technology at the time.

Oh, how NAS-drive prices have subsequently collapsed! Nine years later and a collection now of around 2500 CDs on an upgraded QNAP server, this is still my preferred medium. The resultant FLAC files through a continuing Meridian and dCS active system have kept the sound to my ears cutting edge. Only high-res downloads from studio masters via a recently acquired dCS Network Bridge have offered significantly sharper imagery and sound-stage depth

both in the demo room and now at home.

A recent article in the Times, reporting a significant increase in sales of Compact Discs against a decline in the popularity of streaming prompted me to write in defence of the CD. This trend was also confirmed at a very exclusive Debussy-themed hi-fi event at Metropolis (one of the very top professional recording studios near Hammersmith) in March, hosted by an equally prestigious provider of cutting-edge digital technology, dCS. John Myles and Raphael Todes, both present amongst others from the world of hi-fi journalism, can confirm that within the august company of speakers, including Bob Stuart from Meridian and founder of MQA, David Steven, MD of dCS, and Bertrand Castellani, VP of Warner Classics International Catalogue, we were repeatedly reminded of the continuing market presence and audio validity of the humble Compact Disc. That they themselves still possessed significant libraries of Compact Discs was hugely reassuring! Indeed Castellani was promoting a treasure-trove 33 CD set of Debussy's complete works (in honour of the 100th anniversary of the composer's death) using ripped examples played through a dCS Rossini DAC.

Whilst I will continue to explore the opportunities for superior sound quality from studio master hi-res downloads in conjunction with the MQA codec, I still believe that rumours of the impending demise of the CD are considerably exaggerated. The Hi-Fi World readership represents a broad church if the letters section is anything to go by, boasting

Hi Graham. As you say – and as I also say in my anti-CD rhetoric (!) – CD can sound good. I agree with you. But that is why I rail against bad CD – of which there is too much. It always undermined the potential of the medium – and still does.

At a broader level, digital is compromised by poor recording quality and the compression widely used to make music sound 'loud'. A CD of good provenance, recorded via a high quality analogue-to-digital convertor on top quality equipment and not subsequently over-processed will give fine sound quality. But this experience is too rare; mediocrity rules.

As a small side note though, and really on much the same basic issue, well produced LPs also give superb results and have their own form of analogue magic.

Perhaps we will all agree in the end that DSD is the best compromise, since it offers the best of both worlds: the seeming order of digital with the flow of analogue. Just don't read what the technical boys have to say about it on the 'net though. No one is ever happy, one way or another! **NK**

Hello Graham, I agree - CD can sound superb through the right system and the dCS did sound exceedingly good at the Metropolis evening. The CD is still an essential part of my music collection and listened to on a daily basis alongside high-resolution downloads. Personally, I believe it is not so much the storage medium but more the



New dCS Rossini uses the company's Ring DAC built on an FPGA chip. It streams TIDAL, Spotify Connect and Deezer, plays DSD and employs DXD processing.

an impressively wide perspective across musical tastes and audio formats. That is why it remains for me the most anticipated of a number of music and audio magazines I read on a monthly basis.

Yours,
Graham Griggs,
Ely,
Cambridgeshire.

quality of the recording that counts. That said, I have a CD of Johnny Thunders And The Heartbreakers LAMF album which, frankly, sounds dreadful in terms of quality but still gets my toes tapping due to the infectious nature of the music! Quality plays a part but the music is the most important factor.
JM

Modern classic

Yamaha's latest A-S801 integrated amplifier harks back in looks to the company's classic 1970s designs – but it is thoroughly modern in terms of digital connectivity and thrilling sound, finds Noel Keywood.

Yamaha have a long history in hi-fi, producing distinctively styled and beautifully built amplifiers like the CA-1000 from 1973, with slim, rectangular switch knobs that were a delight to use and looked good: form followed function. In their recent 100 Watt A-S801 I'm reviewing here they've returned to the style and the values of their past, updated with very modern components – including an ESS Sabre32 series digital convertor. Here's a 'digital amplifier' then, one that gives you Yamaha quality – but at a very affordable price of around £650.

Feet on ground: the A-S801 offers a lot, including a very good digital convertor chip – and to do so at the price it doesn't have the

build quality of yore. Even though it has a linear power supply with big mains transformer this amplifier is on the light side – weighing 12.1kgs (27lbs). The chassis and top cover are conventional folded sheet steel, the fascia a simple alloy plate with no end detail. In build then a tad lightweight, but satisfactory and with a good standard of finish.

This amplifier is not Class D like so many nowadays, but a very well-developed nominally 100 Watts Class A/B all-analogue design. And whilst the chassis might not be as solid as Yamahas I have used in the past, inside it houses a line up of facilities far beyond those of the past – Yamaha leave little out.

Fitted with an ESS ES9010K2M DAC chip the A-S801 has a whole

variety of digital inputs, including USB for connection to a computer for music replay. Traditional S/PDIF digital inputs offer connection via optical cable and electrical cable, the former working up to 192kHz sample rate, so the amplifier won't fall silent when confronted by 24/192 digital over optical cable from sources such as portable music players (aka digital audio players or DAPs).

The USB input accepts up to 394kHz sample rate PCM so plays all high-resolution digital audio files PCs and Macs can throw at it. Bluetooth wireless connection is available as an optional extra, via an external receiver.

Also playable is hi-res DSD digital from a PC if you load Windows with a Steinberg driver, available on



Yamaha's website. It packages DSD into a format (DoP) that can be sent over a USB connection, one this Yamaha can receive and deal with. Macs cannot send DSD over USB so this is for PC users only.

In addition to the digital inputs there are five analogue Line inputs, CD, Tuner and three Lines, plus a Phono input for a turntable with moving magnet (MM) cartridge (or a high output MC designed for an MM input).

In keeping with the past, there is a variable loudness control to lift bass and treble at low volume settings, to compensate for the ear's natural loss of sensitivity. There are bass and treble controls too, plus a Direct facility to override them. This works also from the remote control, as does input selection and volume. Two pairs of loudspeakers can be connected or both turned off for headphone listening.

SOUND QUALITY

I connected the A-S801 to our Martin Logan ESL-X hybrid electrostatic loudspeakers through short



(1m) Chord Company Signature Reference cables. An Oppo UDP-205D Universal player span CD, connected via its analogue outputs to the analogue CD input, but also from its optical digital output through a QED glass optical cable to the Yamaha's digital input, allowing me to switch between the Oppo's more expensive ESS ES9018 DAC to see how the less expensive

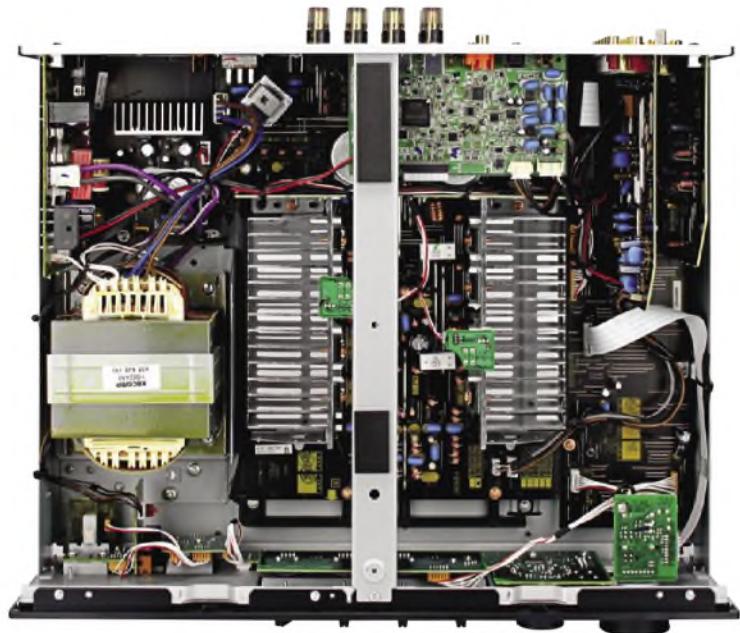
ES9010K2M in the A-S801 compared.

Alternatively, an Astell&Kern AK-120 portable player delivered hi-res digital via optical.

The Phono input was fed by a Timestep Evo Technics SL-1210 Mk2 turntable with SME309 arm carrying an Audio Technica AT-750SH moving magnet (MM) cartridge.

The amplifier ran from the filtered outputs of an Isotek Evo3 Mosaic Genesis mains regenerated power supply, the other components from the regenerated outputs.

The outstanding sonic features of this amplifier were that whatever input I used, it was forward, crisp and



Internally, the A-S801 is a feast of complexity. At left is the big mains transformer of its linear power supply and around centre the heatsinks of its analogue Class A/B amplifier that ran cool under our modest usage. The many circuit boards use both miniature surface mount and larger discrete components.

revealing – an information machine. That also means it is not silky, soft or warm: quite the reverse. Playing CD via the optical digital input, the steel guitar strings of Terry Evans's 'Get Your Lies Straight' cut out of the X-Stat electrostatic panels with some force, plus a forensic sense of clarity and insight.

The sonic picture fleshed out with Safri Duo's 'Sam Adagio', where the bass synth line kicked in with both force and control: the amplifier has superb bass grip and that drum-tight sound many crave.

"the amplifier has superb bass grip and that drum-tight sound many crave."

The sudden interjections of drums in Dadawa's 'Sister Drum' underlined just how dry, tight yet forceful this amplifier is; it controlled our Martin Logan bass units with impressive ability. As I worked my way through various compiled high dynamic range (uncompressed) and well-converted test tracks the amplifier was consistent in its sound.

Moving to hi-res and Fleetwood Mac's 'Dreams' (24/96) again had percussion courtesy of Mick Fleetwood coming over as fast and powerful. Stevie Nicks vocals were

painted up in bright relief; this is an amplifier that unequivocally delivers it all in unbridled fashion.

Switching from the Yamaha's optical digital input to its analogue CD input, to accept the analogue output of our Oppo player, with its more expensive ES9018 DAC, brought a subtle improvement in body to the sound, plus a minuscule amount of extra warmth and depth. The internal ES9010K2M of this amplifier does a very good job, making the A-S801 fine value in digital terms.

With LP I admit the Audio Technica AT-750SH cartridge was arguably not the best choice. Spinning a new re-master (180gm) of Neil Young's 'After the Goldrush' it was incredibly detailed and had strong dynamic contrasts, but a lot of the analogue had seemingly gone, to be replaced by a character closer to digital; I wished for more lushness and less analysis, even with softer LPs such as Dire Straits 'Brothers In Arms' and Kate Bush's 'Aerial'. This was partly due to the Yamaha's sense of analysis portraying what



At rear are analogue inputs at left, including record in/outs. At top lie the digital inputs and below two pairs of loudspeaker outputs able to accept 4mm banana plugs, spades or bare wire. A small slide switch to their right ensures matching to both pairs working simultaneously.

the Audio Technica was digging from the groove, as well as its bass light balance (see Measured Performance); it better suits warmer MM cartridges like Shure's M97xE, or less expensive and analytical cartridges from Audio Technica and Nagaoka. Yet I'd still rate the sound overall as good.

Most impressive was DSD played courtesy of Windows 10 loaded with a Steinberg driver – and here the A-S801 came across as vivid in its

portrayal of tracks like The Doors' 'Riders On The Storm' where I felt I could have been a few feet in front of Jim Morrison. But at present I suspect high-quality DSD is a minority interest.

CONCLUSION

This amplifier is a recreation of past strengths, combined with modern technologies. You don't get a network connection or streaming, nor

dreaded switch-mode power supplies. What you do get is an analogue amplifier with powerful, drum-tight bass and a vivid portrayal from every input, from digital through to LP.

This is a fine amplifier package: it gives a sound of eye-popping clarity and impressive bass quality. Yamaha's A-S801 is a great amplifier at the price, giving superb digital and analogue sound in pure modern form.

MEASURED PERFORMANCE

The Yamaha A-S801 produced 156 Watts into 8 Ohms and 243 Watts into 4 Ohms, well above quoted power of 100 Watts – and more than enough to go very loud with any loudspeaker.

Distortion levels in the Class A/B analogue amplifier were very low under all conditions, measuring just 0.005% at 1kHz and 10kHz 1 Watt, and 0.006% at full output. Frequency response measured flat to 100kHz into 8 Ohms and little less into 4 Ohms.

The optical digital (S/PDIF) input accepted 192kHz sample rate and frequency response through the ESS DAC measured flat to a high 83kHz. A strong second harmonic distortion component degraded the distortion and dynamic range figures to mediocre values of 0.17% (24bit, -60dB) where 0.02% is possible, and 110dB (via loudspeaker and Rec Out) where 117dB or more is possible, so the budget ESS DAC did not fare well against its more expensive stablemates – at least in this amplifier.

The USB input gave identical figures to S/PDIF (in the past USB was noisier) and with our MacBook Pro test mule worked to 384kHz sample rate. A PC will work to 96kHz unless its driver is upgraded with the Steinberg driver Yamaha make available on their website,

then it will also accept DSD (which a Mac cannot do).

The phono stage is RIAA equalised to a flat response down to 100Hz but a steady roll down in the bass is indicative of insufficient gain – a surprising weakness, one that will result in shy bass. Sensitivity, noise and overload and overload figures were all fine.

The A-S801 amplifier produced a superb measured performance in its analogue areas. Phono input excepted; the digital section was mediocre but satisfactory. NK

AMPLIFIER

Power (8 Ohms)	156W
Frequency response (-1dB)	3Hz-100kHz
Distortion (10k, 1W, 4Ω)	0.005%
Sensitivity	300mV
Noise (Line)	-98dB
Damping factor	52

DIGITAL (S/PDIF & USB)

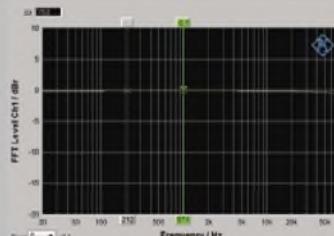
Frequency response (-1dB)	15Hz-87kHz
Distortion (24bit, -60dB)	0.17%
Dynamic range (EIAJ)	110dB

PHONO (LP)

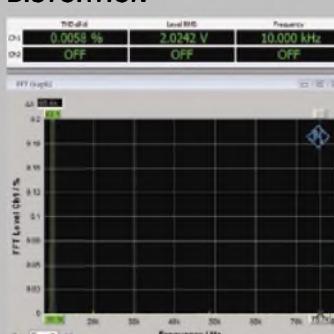
Frequency response (-1dB)	35Hz-20kHz
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Distortion (10mV in)	0.1%
Sensitivity	4mV
Overload	60mV
Noise	-82dB

FREQUENCY RESPONSE



DISTORTION



YAMAHA A-S801

£799.95



OUTSTANDING - amongst the best.

VERDICT

Vivid sound with powerful bass and lots of facilities. Impressive at the price.

FOR

- crystal clear
- fast, strong bass
- good digital

AGAINST

- unrelaxed nature
- imperfect with LP
- dull finish

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Three For All

FiiO's new trio of in-ear monitors offer something for everyone in terms of price and sound, says Jon Myles.

FiiO first found widespread recognition with its value-for-money range of portable high-resolution digital audio players (DAPs) which offered a lower cost alternative to more expensive models from the likes of Astell&Kern.

The Chinese company was founded just 11 years ago but its range of DAPs – from the FiiO X1 which can be had for less than £100 nowadays, to the range-topping X7 with its detachable amplifier modules – has proved immensely popular with both critics and customers alike.

So much so, FiiO made the decision to branch out into the production of headphones of the in-ear monitor design to partner its own products and those by other manufacturers.

Here we have three of the latest models – the FH1, F9 and F9 Pro. They are priced at £74.99, £109.99 and £139.99 respectively, the prices reflecting design differences between the three. It's obvious FiiO is committed to offering a series of 'phones to suit various pockets just as it does with its DAPs. Theoretically, as you go up the range better sound should be the result.

To test this I connected all three earphones to a FiiO X5 MkIII player as well as an Astell&Kern AK120 and used the same high-resolution test tracks on each.

These were New Order's 'Age Of Consent', the San Francisco Orchestra's 'Mahler No 4', Nick Cave's 'Where The Wild Roses Grow', Led Zeppelin's 'When The Levee Breaks' and Keith Jarrett's

'The Kols Concert'. All have different qualities ranging from electronics, female vocals and orchestral power to thundering swampy blues rock.

All three 'phones come packed with the usual accessories – a hard carry case and selection of various eartips so you can get the right fit. This is always a personal issue so there's no point me recommending one over the other.

More unusually, though, FiiO also includes two cables both 1.2mm in length. The first is an unbalanced one with a 3.5mm gold-plated jack with a 24-

to-the-headphones – which means you can also try other similarly terminated cables.

Standard of construction on all three models is excellent. They feel sturdy and withstood being pulled in and out of my pocket on numerous occasions with no sign of wear or tear or damage to the cable.

FiiO FH1



strand oxygen free copper (OFC) conductors. This will probably be the stock one for most users.

However, as a growing number of manufacturers are incorporating a balanced output into their DAPs, there's also a balanced cable with a 2.5mm plug and featuring different wiring to the unbalanced. Whichever you use they both use standard MMCX connections for attaching

SOUND QUALITY

FiiO FH1

The FH1 features a dual driver design with one dynamic and one balanced armature. The former handles the lower frequencies while the latter is for extended upper midband and treble. They are housed in an elliptical ABS plastic shell which is both light and durable.

Playing Led Zeppelin's 'When The Levee Breaks' through these there was an evidence of bass lift which brought out the power of the track. However Robert Plant's vocals were distinct and clear in the mix. Upper treble was slightly bright but not jarring I found.

Kyle Minogue's vocals on 'Where The Wild Roses Grow' had air around them and the different tonality between her lines and Nick Cave's came over well – which is central to the menace of this track.

On New Order's 'Age Of Consent', though, I felt that bass lift robbed it of some of the pace it needs. What it did do is bring out the guitar well and, again, make the vocals stand out from the mix.

For comparison I did pull out a pair of Shure SE215s which retail at a similar price. Listening to them one after the other the Shures were rather crisper but the FiiOs sounded much more rounded and assured.

For the price of £79.99 they are impossible to criticise.

FiiO F9

The FiiO F9 ups the ante from the FH1 by using a different shell – made from CNC machined aluminium. It's an elliptical look again but features a wave-shaped design on the outside. Whether this makes a difference to the sound is a moot point – but it does like nice.

The major difference from the

FH1 is this model uses two balanced armatures allied to that single dynamic driver handling the low frequencies. In theory this should give a cleaner sound with slightly more definition on an in-ear monitor. I've always found extra drivers make a critical difference when listening, my Noble K10s proving this with 10 per side. But that's expensive and the F9s are just over £100.

But the F9s had the same sort of coherence, sense of ease and authority. With Jarrett's 'The Kohn Concert' (24/96) the resonance of the piano took me aback. There is a midband presence here - much more than in the FH1. Notes sprang forward and then decayed much

"With Keith Jarrett's The Kohn Concert the resonance of the piano took me aback. Notes sprang forward and then decayed naturally"

FiiO F9



more naturally.

On 'Age Of Consent' everything sounded more sprightly. Peter Hook's bass was not now as bloated, allowing everything above it to float more freely. Ultimately it was a much more natural presentation.

Mahler's 'No 4' sounded superb. Violins could be tracked, the orchestra sounded as a whole - but what the F9s did best was identify individual instruments and project them into my ear.

FiiO F9 PRO

The FiiO F9 Pro - which shares exactly the same design of the F9 - has been tweaked slightly. There isn't a huge amount of difference but enough to make you notice.

It sounds cleaner than the F9 and has a better sonic balance - although I could imagine fans of heavy bass or female vocals could well prefer the F9.

What the F9 Pro does instead is bring an even sound with an accurate tonal balance. What you will hear through these units is what you have got on your player. 'When The Levee Breaks' had less bass impact and overall impact was lessened too - but it enabled me to better make out individual instruments. FiiO have seemingly dialled in a flatter frequency response and although less dramatic perhaps, brings out more in the music. As a result 'Mahler's No 4' was strikingly vibrant. No undue bass or heightened treble to distract. Just the sound of an orchestra playing at its best.

I replayed it time and time again and found it hard to imagine this was a pair of sub-£200 earphones.

Playing Nick Cave and Kylie Minogue on 'Where The Wild Roses Grow' there seemed even more atmosphere - an extra sweetness to Kylie's voice and more growl to Cave's voice. This, I thought, was just how the track should sound.

So, on to New Order's 'Age Of Consent' and there was no doubt about - the F9 Pros gave the best rendition of all three earphones.

Here the bass drove along well but without too much emphasis, guitar was clear and the vocals not just intelligible but imbued with emotion. Just what you want from an in-ear monitor.

FiiO F9 PRO



CONCLUSION

These three 'phones all have different sonic signatures. The F9 is a clear step-up from the FH1 and the F9 Pro adds a little extra to the sonic

quality but is not so much of a step up. That said, as it's only an extra £30 compared to the F9 I'd consider it worth splashing out the extra. If not the F9 won't let you down.

FiiO FH1 £74.99



OUTSTANDING - amongst the best

VALUE - keenly priced

VERDICT

Excellent dual driver headphone with a sturdy design and great sound. Not exactly neutral with heightened bass but if that's what you like it works well.

FOR

- bass power
- design
- detail
- price
- build quality
- both balanced and unbalanced cables included

AGAINST

- bright treble
- upper bass emphasis

FiiO F9 £109.99



OUTSTANDING - amongst the best

VALUE - keenly priced

VERDICT

Two balanced armatures with one dynamic driver for low frequencies give an expansive, involving sound. Capable of outperforming more expensive models.

FOR

- midband presence
- definition
- authoritative sound
- build quality
- both balanced and unbalanced cables

AGAINST

- F9 Pro offers better definition for £30 more but at the price is outstanding

FiiO F9 PRO £139.99



OUTSTANDING - amongst the best

VALUE - keenly priced

VERDICT

Similar to the F9 but with a rather cleaner, more detailed sound which comes through on high-resolution tracks.

FOR

- neutral, clean sound
- highlights small details in music
- build quality
- aluminium housing with distinctive look

AGAINST

- not a huge difference to the F9

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You are in my Systemdek!

As Martin Pipe discovers, the Systemdek IIXE has its place in the complex tapestry of Scottish turntable history.

Over the years, Scotland has yielded more than its fair share of quality turntables – Ariston, Linn, Fons, Strathclyde Turntable Developments, Systemdek...

"We formed the Systemdek company in 1978," Derek Dunlop told me. The original Systemdek, a three-point suspended-subchassis design with stepped-pulley speed change was a "Nextel-covered



The Systemdek IIX was an audiophile bargain, selling for £180 (without arm) in the mid-1980s. The most successful of the range, it won three consecutive What Hi-Fi awards in the early 1990s. Adding the electronic speed control unit (XE) increased the price to £250 or so. A range of these decks was produced by the Dunlop family, all of which incorporated the classic AC motor, belt-drive and suspended-subchassis elements.



Dunlop specified a 24-pole synchronous AC motor, made by Airpac in Belgium. Other major British turntable manufacturers, among them Linn and Rega, did the same. Some models were powered from the mains via a simple arrangement of wirewound resistors and capacitors; others used an electronic circuit that generated a high-voltage AC signal to drive the motor - this enabled multiple platter speeds to be offered.

work of art" This material, which gives those early Systemdeks their distinctive 'suede' finish, alas deteriorates with time and goes sticky. It was followed in the early 1980s by the equally-distinctive round Systemdek II, which "looked like a biscuit tin...the reason we chose that design is because we were finding it difficult to get a dust-cover that fitted, so we thought we'd just do it with a plastic disc - quite a strange affair! - to protect the platter".

The demise of another turntable manufacturer, BSR, provided Dunlop with the injection-moulding tool needed to make dust covers in-house ("I can remember picking it up... the machinery used for the ADC Accutrac!") Their acquisition allowed the firm to produce more conven-

tional turntables, like the IIX featured here, during the 1980s and 1990s.

A number of IIX variants, all of which employ the basic belt-drive and three-point suspended subchassis, have been sold over the years. The basic IIX model has stepped-pulley speed change, but there was also a variant (the 'IIX electronic') with crystal-derived electronic control of the 24-pole synchronous motor. Systemdek's design switched in a different crystal to offer a 45rpm facility. A related version, the IIXE (as featured here) moved the speed controller to an external box.

Other IIX variants are suffixed '900' (to denote a metal armboard) and/or 'AP' which indicates a main platter made of acrylic material instead of the stock glass. In all cases,



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A lower-priced version of the Alphason Delta, the well-engineered Opal tonearm was a highly-regarded gimbal-bearing design available during the late 1980s and early 1990s. It was a 'drop-in' replacement for many Linn arms.

gain. There's no mains transformer, wirewound resistors being used to drop the rectified mains voltage! But to be honest, can such cheap circuitry hope to match the carefully-regulated mains supply? Eventually, I will convert my deck into a IIX/900 – using a decent filter to 'clean up' the mains.

Some of the Systemdeks with internal electronic speed control, Derek Dunlop told me, only have a single-step pulley. If you convert one of these back to direct mains power, then your deck will – like the original LP12 – only spin at 33rpm, unless you use one of these

replaced then you'll have a deck that will, in the words of an advert for Ariston domestic appliances (no relation!) go on and on and on! You should be able to partner the deck with a decent modern arm and cartridge, if those (if any!) fitted to the deck you encounter aren't to your taste. Rega arms are frequently mentioned. Another possible upgrade is an acrylic platter, which is claimed by some to tighten the bass and improve soundstaging. The latter is available for £135 +VAT, from Audio Note in West Sussex.

Derek and Ramsay Dunlop still take an interest in high-end turntable manufacture. "About ten years ago, we made a turntable with DC motor that sold for about £6k. So we decided to go for it with the big one, the £22,350 3D Reference. It's a monster - 65 kilos! But it uses a 3-point suspension system that's essentially the same to what you have in the IIXE. It uses similar springs, but they're doubled-up at each point". This 'revival' Systemdek is no longer produced, but for those who can't stretch to the Reference there's the 3D Precision with a 14kg Delrin platter, AC motor and the familiar suspended subchassis design. This model sells for a mere £16,000!

Naturally, the Systemdek brand was revived for these new models (<http://www.systemdek.co.uk/>). These elite products may be aimed at well-heeled audiophiles with enviably-high budgets, but at their core is the same basic philosophy that helped to make original Systemdeks like the IIX so special.



This is the external version of the electronic speed control unit, which turned a Systemdek IIX into a IIXE. Some models instead have the electronics built into the plinth. Basically, the electronics provide a crystal-derived high-voltage AC signal to drive the synchronous motor and the ability to change speed at the flick of a switch.

this platter sits on an MDF sub-platter coupled to the motor pulley by a flat belt. The main bearing is, in keeping with Scottish engineering excellence, a substantial machined item.

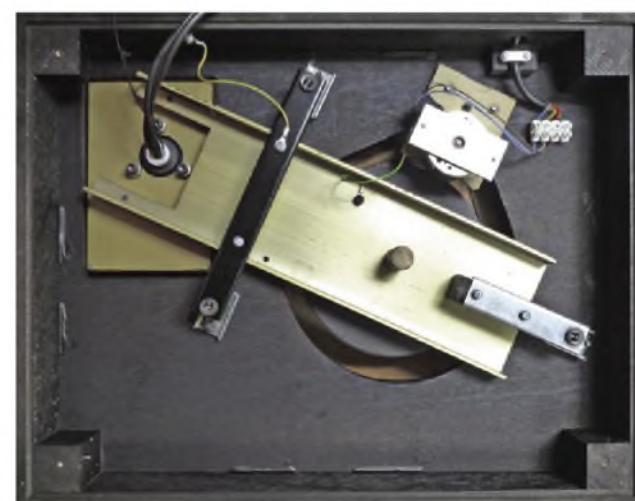
My own deck is a IIXE/900, fitted with Alphason Opal tonearm (a popular early-1990s pairing) and a much more recent (2005) Denon DL304 MC cartridge. The external control box has a toggle switch to flip between 33rpm and 45rpm. "It's not the most reliable thing in the world", as Derek Dunlop admitted to me. Sometimes, the platter needs the help of a finger to start rotating – and on other occasions it goes backwards!

At the heart of my IIXE's controller are two crystal-controlled digital counter/timer chains, one for each speed. The selected chain feeds circuitry that shapes its pulse trains into something approximating the sine wave expected by the motor, a simple Class B amplifier providing the necessary voltage

fancy off-board controllers now doing the rounds. Taking advantage of modern technology, these would be far superior to the 80s-vintage Systemdek designs.

Something I always ask when revisiting these old products is whether it's worth the hassle. And when it comes to the IIXE, the answer is definitely "yes". It offers the classic suspended-subchassis sound – innate musical involvement, good communicative abilities and agile pacing (expect to pay between £100 and £300 for a used specimen). Sure, it lacks the bass slam and articulation of the finest direct drives and idler-driven classics like the Garrard 401, but the sound the deck extracts from your vinyl is nevertheless very easy to live with. Enthusiasts will also appreciate the sheer tweakability of the IIXE, and Systemdeks of its ilk.

Electronic speed controller apart, the IIXE is well-built and reliable. Ensure the suspension is adjusted correctly, and as long as the bearing is lubricated and slipping belts



The neat simplicity of the Systemdek's engineering is laid bare. The three sprung suspension points can clearly be seen - as can the suspension, tonearm base and motor. High-quality materials are evident - this deck is clearly set to last a long time!

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DAP Delight

Cayin's latest portable digital audio player offers thrilling sound and a host of features, says Noel Keywood.

Portable digital players, commonly termed Digital Audio Players (DAPs) are a technological fest where the latest high technology micro-miniature components and manufacturing techniques come together to provide digital sound that matches and sometimes betters anchored hi-fi products. And Cayin's new N5 MK2 portable digital

player I'm reviewing here is no laggard in the race, offering facilities and performance that were impressive at any level – let alone its £299 asking price. Cayin is a brand name of Zhuhai Spark, China, I'll quickly mention – they also make tasty valve amps.

This is a compact player, measuring 56 mm wide, 115 mm high and 16 mm deep, making it easily

pocketable. Weighing 171 gms on our scales the Cayin is just a bit much for a shirt pocket, unlike some, but any other pocket will do. Solidly built, its case is CNC machined from an aluminium billet and it feels bullet proof.

Cayin fit a big stainless steel volume control wheel at top, accessible from front and behind – but it needs a fair bit of rolling to change volume fast. The unit has an 80mm high TFT IPS touch-screen that handles all operations but there are also small side buttons that duplicate track skip, play and pause so the unit can be operated whilst in a pocket – if with a bit of fiddling to find the right button.

At top sit a standard 3.5mm stereo headphone jack that doubles as a Line out but there's no optical digital output buried inside, as on so many players; instead S/PDIF digital is available from a USB C socket no less – a new one to me (more later). Beside this jack sits a 2.5mm four-pole balanced headphone output. Note that Cayin's on-line blurb calls this player an N5ii and has a diagram that shows different socket arrangements but ours was an N5 MK2 as in the downloadable User Manual.

Yes, the N5 MK2 has a USB C socket (cable supplied) – not the common microUSB connector. This links into a Rockchip RK3188 MCU running a customised Android OS that was powerful and fast. This unit and Cayin's programming are responsible for prodigious ability in this player – it really chews the turf and had me in a sweat at times.

All this talk of facilities ignores the player's crowning glory – an ES9018K2M digital-to-analogue convertor (DAC) from ESS of California. Oh phew! And under measurement it blew most else away – more later.

On-board there's 32GB of storage and two microSD card slots – each able to address 400GB,



Cayin say. Mega-storage is potentially needed since this player can read DSD 64 and 128 where file sizes stretch to 0.3GB. Just four tracks can consume 1GB.

As you might expect the N5 MK2 plays most music formats, including Apple formats (a licensing issue), FLAC, MP3, OGG, APE, WMA. With DSD both .dsf and .dff are supported.

The more I used this player the more I became impressed by its powers – but it wasn't easy to use. There are swipe screens from left and top, arrays of menus and settings such that logical structure isn't clear. The last played track's album artwork stayed on-screen when no update was available so Pink Floyd's 'Time' was identified as 'Beethoven String Quartets' by the Allegri String Quartet! I don't think so. At other times, with our in-house generated test tracks for example, one of three generic covers appeared but it



The Track list flags up high resolution and DSD files.

could be replaced with VU meters. However, the VU meters went dead at times, which puzzled me; I found they only work with PCM tracks, not DSD.

The internal 3000mAh rechargeable battery manages 12hrs playing time, but this always depends upon screen usage as the screen draws most current. Re-charge time from a 2A USB C charger is 3.5hrs. Start up time was 30 seconds – about average.

Our software version was 2.1en on delivery and review but I updated to 3.1en and this cured erratic skip forward and backward behaviour and



At left is the symmetrical USB C port that accepts a plug either way around. microSD card slots can address 400GB each.

gave an optional larger menu font. Upgrade from a Mac did not work because re-zipping the downloaded file (that Macs auto-unzip) inserts a Mac desktop file the player's OS would not accept (a routine can be written to overcome this); download from PC worked first time. The User Manual should warn of this; no attention has been paid to Mac users – they cannot upgrade.

The screen is a bit murky with its dark grey typeface and graphics – and I found myself stabbing very small screen active areas and cursing that capacitance wasn't doing its job. The worst sin though – for me – was that in spite of the drive for perfect sound the player runs – as standard – equalised sound modes, a problem that measurement threw up. There are eight of them (Jazz, Classical, etc) and all skew the sound balance. Worse, selecting Audio Priority Mode doesn't de-select these modes – and there's no mention of this in the user manual. I found the player only gives an unequalised flat and accurate output with Custom selected and the 10 band Equaliser set to off or Reset to zero in all bands – a somewhat bizarre situation; reviews of this player will be swayed by the sound mode unless Custom is selected.

On-board are two transmitters, one for wi-fi (streaming, Google Play etc) and the other Bluetooth short range transmission to a hi-fi (with Bluetooth receiver); Audio Priority mode switches them both off. The Cayin can play music files on a networked computer with DLNA, so it can see and play a stored music collection.

A choice of Sharp or Slow digital filters is available in a Music Settings menu but there was no difference between them (see Measured Performance). Also in the menu are three gain options, plus acceptance of DSD via the USB C socket by DoP (DSD within USB Audio) or D2P

(raw DSD) according to what a host PC can send (Macs don't do DSD over USB) when using Cayin's PC driver that needs prior installation. This relates only to the player being used as a DAC between computer and hi-fi or as a DAC/headphone amp. by selecting DAC function. DSD tracks can be copied over from a computer like PCM tracks and play normally. I connected to a Mac running Sierra and a PC Windows 10 without problem.

The balanced output can only be used with headphones that have independent connections to each ear piece, so an 'earth line' is not shared. The micro-miniature 2.5mm four-pole plugs are mechanically weak (they



Entertaining VU meters show music level if selected, with PCM files only.

snap easily) and are nearly impossible to solder; so a made-up proprietary lead must be obtained. Sound quality benefits by a small degree I find, using Oppo PM10s balanced.

Outputting S/PDIF through a USB cable is novel; USB C has multiple data channels and is very flexible in



what it can handle. Sending S/PDIF via USB is 'proprietary' Cayin say (i.e. they thought it up), meaning a custom USB C cable from Cayin with a phono plug at the end must be used. It isn't supplied as standard, so the player does not come with an accessible S/PDIF out: a hi-fi must be driven by analogue out or Bluetooth. Or a fancy modern 'scope is needed to sniff the data lines for DIY.

SOUND QUALITY

Measurement showed Cayin get top level performance from the ES9018K2M DAC – electronically they support it well – and in use this player was just superbly refined. Pitched against a first gen. Audiolab M-DAC I use at home (also with ESS ES9018 Sabre32 series DAC) the N5 MK2 was glisteningly smooth, revealing a hint of edge in the Audiolab – perhaps from its switch-mode power supply – but the Audiolab had – as always – broader dynamic contrasts; battery drive gives a weaker sound in portable players so this is to be expected.

I powered the Cayin from a charger whilst listening as it helps – but internal power management circuits like voltage convertors exist, where they do not in mains equipment so this is no panacea.

The Cayin gave me a wonderfully delicate and open rendition of Dadawa's 'Sister Drum' (CD quality) the drums suddenly interjecting with force – as they are meant to. Sounding smoother than the early Audiolab shows just how refined this player is in its sound, if it did not match the dynamics of our office

Audiolab M-DAC+ that is a whole step up.

I mention all this to get the N5 MK2 into perspective. Plugged into an amplifier's CD inputs it gives sound quality up with the best CD players, giving the sound of a top DAC at a worryingly low price.

I played a long list of high dynamic range CDs, as well as compressed commercial ones like The Eagles 'Long Journey Out of Eden', where 'Somebody' drove along with force, but without the coarseness that it often suffers.

In all then, CDs got the full ESS treatment, coming out largely washed of their mortal sins – clean pure and sweet as a result, insofar as this is possible. The N5 MK2 showed its deep sonic ability here, but better is on offer.

"Better" means DSD. Shuffling huge DSD files onto the player was worth the wait: The Doors 'Light My Fire' came over with forensic insight: the smallest changes of tempo or tone were delivered with purity and the final entrance of Jim Morrison had drama.

The smooth richness of tone from DSD suits classical, with horn in Haydn's 'Horn Concerto No 1' graced by voluminous presence centre stage, sitting within a believable atmospheric, strings dancing around it in gracious harmony (DSD is so good at times, it gets me going!). DSD is extraordinary (until PCM pollution occurs) and the N5 MK2 was sublime with digital such as this. In the on-going tech fest of portable players this one is right at the top in its sound quality.

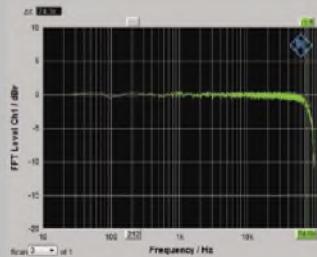
CONCLUSION

There are players with a simpler and clearer user interface than this one and the handbook omits important – even vital – data. Not good at all. Such matters apart the N5 MK2 has massive ability and delivers a great sound. Its 'proprietary' S/PDIF output isn't a great idea, being inaccessible without a special cable, but perhaps that will not worry most users. The player is portable, wonderfully built, has a slew of facilities and costs not-so-much considering all it offers. Fantastic value.

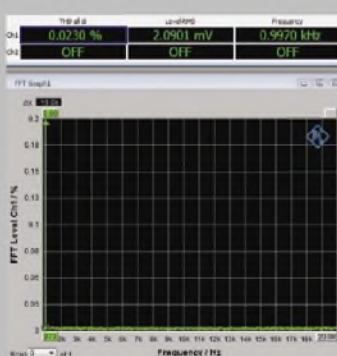
MEASURED PERFORMANCE

Frequency response of the Cayin N5 MK2 was unequalised only at the Custom EQ setting and here measured flat from 8Hz to 74kHz (-1dB) with a 192kHz sample rate PCM digital signal. The EQ settings lower gain as well as tailor frequency response so all measurements here apply only to Custom.

FREQUENCY RESPONSE



DISTORTION



Selecting Slow filter made no difference to Sharp; this function does not work; perhaps a firmware update will activate it in future.

Maximum output when set to Phones out (PO) measured 2.5V through the 3.5mm headphone jack and 3.25V from balanced – more than enough for extremely high volume. With Line Out (LO) output measured 2V, the same as a CD player.

With hi-res digital (24bit) distortion measured just 0.025% from this player – a very low value, up with the best hi-fi DACs (0.02%). With CD it was 0.22% due to 16bit limitation.

Due to low distortion and noise, dynamic range with 24bit was a very high 120dB – better than most digital hi-fi products and right up with the best DACs.

The N5 MK2 measured superbly in all areas but it only offers unequalised and accurate playback in Custom mode, measurement showed. NK

Frequency response (-1dB)	8Hz-74kHz
Distortion (24bit, -60dB)	0.025%
Dynamic range (EIAJ)	120dB
Output (Phones/Line/Balanced)	2.5V, 2V, 3.25V

CAYIN N5 MK2
£299.00

OUTSTANDING - amongst the best

VALUE - keenly priced

VERDICT

Great sound quality but difficult to navigate and erratic user interface.

FOR

- sound quality
- Bluetooth
- wi-fi

AGAINST

- S/PDIF an extra
- no obvious reference replay mode
- software update PC only

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Power To The People

Titan Audio's Styx power cable has the ability to improve all components at a reasonable cost, says Jon Myles.

Titan Audio's Styx high-current mains block proved a potent performer under review earlier this year (Hi-Fi World February 2018 issue). It brought improved sound staging with both source components and amplifiers.

During the listening period it was partnered with Titan Audio's recommended Styx mains lead which, at £50, is at the relatively budget end of the market for specialist power cords.

Which made me wonder just how effective it would be when used on its own into various components. So, try it I did.

Northern Ireland-based Titan are a little coy about the design and materials used in the Styx as they are, understandably, wary of competitors copying their design. But they do say their products are developed in conjunction with experts at Queen's University in their home city of Belfast.

Evolution 100A integrated amplifier and a Naim Supernait 2 amp, with the same selection of tracks used when testing the power block.

SOUND QUALITY

Generally, the power cable brought the same results no matter what piece of equipment it was attached to.

With the amplifiers there was a greater sense of authority and scale. They seemed to gain an extra grip on the speaker, making the sound tauter.

On New Order's 'Brotherhood' CD, Peter Hook's throbbing bass lines gained extra low-end punch and sped along in a thrilling fashion.

Leonard Cohen's inimitable growling vocals on 'First We Take Manhattan' anchored themselves between a pair of B&W 606 S2 stand mounts (see review elsewhere this

issue), being pushed a bit further into the room from the Creek Evolution 100A than when it was connected to the mains via a standard power cord. The Styx was obviously bringing an improvement.

On the Oppo small details in Messiaen's 'Quartet For The End Of Time' (CD) were brought more sharply into focus and the whole piece sounded brighter and more natural. Going back to standard bundled power cords I couldn't wait to plug the Styx back in to enjoy the music better.

As such I'd heartily recommend the Styx power cable if you are looking to upgrade your power cords from the ones that came in the box.

That said, if you have a number of components the Styx power block with its six sockets paired with this mains lead is the better, more convenient way to go and one that will bring improvements to equipment from both budget to higher end components.

CONCLUSION

A decently-priced power lead that works with both source and



The cable itself is relatively chunky – an attractive green and gold – with good quality connectors at either end, although better quality parts are used further up Titan Audio's range.

I plugged the Styx into an array of components, including an Oppo UDP-205 universal disc player, Creek

amplification components. Like its partnering Styx mains block it opens up the soundstage and brings out extra detail in all forms of music. This is another impressive product from Northern Ireland's Titan Audio.

TITAN AUDIO STYX £50



OUTSTANDING - amongst the best

VALUE - keenly priced

VERDICT

The Styx is a no-brainer. It brings better depth and greater instrumental detail.

FOR

- bigger soundstage
- more detail
- greater low-end punch

AGAINST

- nothing

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Inside Hi-Fi Pure Pleasure

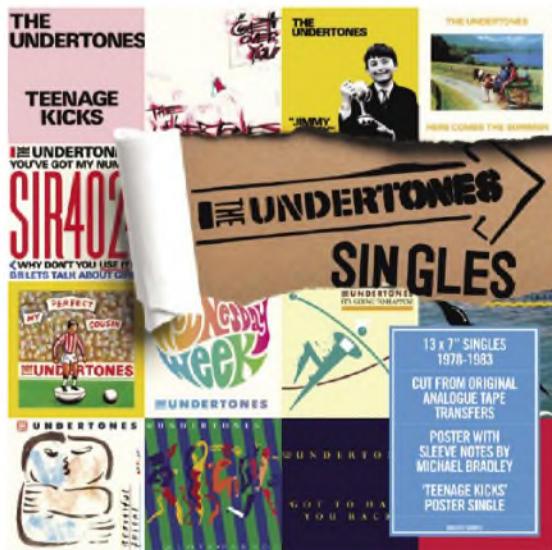
Lell, here's a LP ready-made for this magazine, eh? While the sleeve art will provide a fascinating few moments for some of our readers. Konitz was the leader on this LP. He was famed partly for being a superb altoist but was also lionised for not sounding like Charlie Parker, a trap sprung by many of his contemporaries. This meant that his individual voice allowed him to explore uncharted territory, making his work always of interest to the jazz fan. In fact, maybe his early time on the clarinet modified his alto usage, giving it a unique twist. A fact that was noted by Miles Davis who used Konitz's talents on his 'Birth of the Cool' LP.

This LP, initially released on Atlantic in 1956 and soon after leaving his stint with Stan Kenton, features Rudy Van Gelder as producer with two line-ups that

flip along with the LP from Side A to B. Side A includes guitarist Billy Bauer, Arnold Fishkind on bass and Dick Scott on drums. On the flip, you'll find pianist Sal Mosca, Peter Ind on bass and Dick Scott on drums while Konitz switches to tenor.

The album has received a beautiful mastering job. The sheer breadth of the soundstage is impressive on its own. There is a definite impression that this band is spread across a stage with Konitz on the far left. While there is plenty of dynamic room for his crescendo outbursts, it's good to hear the solid and grounded performance that talks of discipline. This is a man who has two feet firmly planted. He knows where he's going. The imagery is good too with the guitar to the left and behind the percussion. The complexity of this band is there for all to see (and hear).

AUDIOPHILE VINYL



THE UNDERTONES

Singles
BMG

Released for Record Store Day, a 7" box set, covering Undertones singles from 1978-1983, the music has been cut from original analogue tape transfers. Fans will be happy to hear that the original single artwork has been replicated too. So, for example, the iconic 'Teenage Kicks' comes with the original fold-out poster cover.

John Peel once wrote in the Guardian newspaper, "Maybe once a fortnight, after a few days of listening to sizzling new releases and worrying that the music is merging into angst but otherwise characterless soup, I play 'Teenage Kicks' to remind myself exactly how a great record should sound. 'But what's so great about it?' people, from my own children to complete strangers in wine bars, have asked. I've never yet come up with an answer that pleased me much, falling back each time on: 'There's nothing you could

add to it or subtract from it that would improve it."

That single comes complete with the friendly photograph of a damaged door on the rear with the cheery message painted messily upon it, "The Undertones Are S**t". What a way to start a career. Other well known ditties include 'Jimmy Jimmy', 'Here Comes The Summer' and 'My Perfect Cousin'.

Also included is a fold-out black & white poster. On the rear is a series of track by track comments from bassist Michael Bradley.

Formed in Derry in 1974, The Undertones consisted of the O'Neill brothers – John and Damian on guitars, Michael Bradley on bass, Billy Doherty on drums and Feargal Sharkey on vocals.

Mastering is as good as you're going to get on a 7" single which means fair to middlin'. You're limited by the format, to be honest. That said, the reissue does its best and fans will be happy with the result.

Most musicians tend to become safer and more conservative with age. It's to do with money and power plus a lowering of energy, the shock that there's people out there younger than them who think differently. It's to do with hanging on to what they have and also not scaring away the pension plan...sorry, the fans.

You've got to hand it to Young, though, he really doesn't care a damn for any of that. I've never known a contemporary musician in their later years who grows more independent and individual.

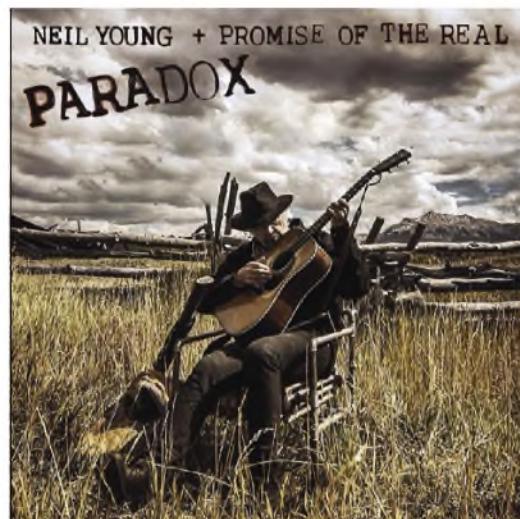
We're in 2018. Have you ever known a series of LPs that scream "I don't care!" like Young's LP releases over the past 18 years? The man is seventy-two, for goodness sake and he gets wilder by the year.

Of late, Young's work has almost become published diaries and musical Post-It notes, reacting

to world events. So, to see a sound track by him - in this case to 'Paradox' - is an oddity. Directed by his partner, actress and activist Daryl Hannah, the music mixes down-tempo musings with Crazy Horse-like, energetic jaunts. But the protests are still there, film or no film. From the off, the first song talks about sexism and the future battles over the Earth's increasingly limited resources. And it goes on from there.

No-one can make a guitar growl like Young and his plaintive vocals deliver the message effectively. The performance shows no signs of age, then. The production and mastering is top notch too. 'Hey' is almost tribal in its punch while the low noise pressing enhances the dynamic range of the LP.

Most critics will hate it. Casual fans will hate it too. I loved it. But maybe that's because I'm becoming as ornery as Neil Young.



NEIL YOUNG + PROMISE OF THE REAL
Paradox

Paradox Reprise

AUDIOPHILE VINYL

Dedicated and hard core Rolling Stones fans will know him as the guy who played percussion on the 1973 Stones LP 'Goats Head Soup' but even they might very well be shocked by the man's own solo output.

Pascal or Raicevik or Head or, as the guys down the pub must have known him, was a man intrigued by early analogue synthesisers. He plowed his electronic furrows in the early seventies before he gave up and sold all of his kit to early ambient producer Steve Roach.

Pascal - let's call him that for now - inserted a host of drug references into his solo work and also integrated 'Do not listen to this album if you are stoned' leaflets under the LP shrink wraps. They have been duplicated within these nicely mastered reissues.

'Numbers' was the first release. Imagine NASA wanting to scare

people and put off future astronauts. It's Tomorrow's World and the Radiophonic Workshop with all of the buttons pressed in at once.

'Beyond the End...Eternity' is stark, like an alien desert spanning a harsh planetary horizon. This is a soundtrack to a 60s Star Trek episode. A particularly dark episode at that.

'Magnetic Web' wanders all over the place and often fives times at once with slightly discordant rhythms clashing, running parallel for a short time and then splintering off in another direction without warning. Based on primitive loops and melodic structures without much structure.

'Zero Gravity' (1975) offers more order, taking basic repeating beats and adding droplets of synthesised effects as grammar which are then changed in tone. Wonderfully vintage, yet I can imagine the futuristic awe generated after contemporary ears heard this one for the first time.



NIK PASCAL

Magnetic Web/Numbers/Beyond the End...Eternity/Zero Gravity
Wah Wah

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"I use advanced test equipment but sound quality in the real world is more complicated"



Noel Keywood

Readers' letters are wonderful things. They lead me down unexpected paths – and one recently directed me to a YouTube polemic about 16bit digital audio, suggesting at the beginning 24/192 is unnecessary.

The reader's letter that drew my attention to all this came from Matthew Rowland. He simply asked: what do you think of <https://www.youtube.com/watch?v=cIQ9IXSJuM>? I duly watched a riveting 30 minutes of video on digital audio and came away impressed and depressed.

The presenter, engineer Christopher (Monty) Montgomery (see Wikipedia) developed the Ogg Vorbis music compression scheme and champions free software and free access to music files apparently. In this video he uses analogue signal generators to add interest and authenticity, giving a well scripted and tight presentation free of the verbal meanderings, 'hums' and 'hars' that infect a lot of on-line amateur video.

Obviously knowledgeable in digital, his explanations on various basic topics were clear and concise. I came away impressed by the effort that had gone into making this video.

But depressing was what it didn't go into. It was an academic abstraction. There was no allusion to real world process: 16bit digital as a music format doesn't come from analogue signal generators; it comes from electric guitar pickups, and microphones in front of drums, in front of singers and in front of much else – including classical string instruments of course. These are analogue signals that have to be converted to digital – which is where degradation starts.

Signals from test generators stay constant: they are invariant, in this video set to a high 1V, just below

peak digital level. That's how Philips originally spec'd CD – at full output. With digital this gives the best result, think 0.005% distortion – a vanishingly low amount. But signals from music vary over something like a 45dB - 60dB range – and at the latter CD is producing 0.2% distortion minimum, double Harold Leek's 0.1% limit he laid down in 1955 for his valve amplifiers. Looked at like this, CD is Neanderthal.

What you have to bear in mind here is that old analogue was spec'd for distortion under worst conditions – and that was maximum signal level. As signal level decreases in an analogue system distortion decreases – sound quality goes up as signal goes down.

Digital is the opposite: it gives best result at maximum signal level and worst performance at low level. Which is why modern digital tests, such as that specified by the EIAJ (Electrical Industries Association of Japan) for dynamic range are carried out at -60dB, not 0dB or -6dB.

This sort of deeper look into the workings of digital – you can go a lot deeper with the psycho-acoustic effects of uncorrelated and frequency-extended distortion patterns the ear hears with acuity – is absent from such a video.

As academically narrow and misrepresentative as it is, videos like this are in their own way valuable. But they should be prefaced with: "this is just one man's view!". Ben Traverser does this well in his instructional videos of web design techniques on YouTube, saying "these are just my opinions; go get others". His disarming honesty comes from an understanding and respect for the wide picture we all need and can benefit from.

This digital video interested me as much for the issues it raises by its existence, rather than the value of its

content.

Digital design engineers in the real world have to deal with sound quality and although they often show scant ability at understanding sound quality issues – loudspeakers, etc – it gets dealt with one way or another.

Mr Montgomery thinks open reel tape recorders offer 13bit recording quality (no mention of discordant quantisation noise and distortion at low levels in 13bit, absent in analogue) the global audio industry would disagree with him, returning to open-reel for top quality demo purposes – displacing the ubiquitous MacBook with its 16bit playlist.

What digital needed and got was better resolution of amplitude and 24bit is enough it seems. Sample rate is a different issue and 24/48 or 24/96 seem good enough to me at present, so perhaps he's right in saying 24/192 is unnecessary. But again, that is strictly his view. Rob Watts, who not only designs top audio DACs and ADCs (Chord Electronics) has always maintained that 384kHz sample rate is needed.

And finally, there's the big question to ask about the assessment of all audio products, especially music compression schemes. Assertions about performance must be validated in listening tests. I recall the Fraunhofer Institute being criticised heavily for their replay equipment used in the development of MP3.

It's interesting that Monty Montgomery skirts this issue entirely, even though he's similarly involved with a music compression scheme. I wonder whether this has influenced his preference not to confront 16bit in the real world, instead using test equipment.

I too use advanced audio test equipment but know that sound quality in the real world is another wholly more complicated issue. ●

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"Tchaikovsky stood out as the essence of the rock god"



Paul Rigby

The name Bram Tchaikovsky is an unlikely one for a rock musician and yet there he was, on 'The Old Grey Whistle Test' in 1978, then resident with The Motors (an offshoot from the band, Ducks Deluxe) playing the song, 'Dancing the Night Away'.

Bram was a busy boy that evening, nodding his head like a good'un. To such a fierce extent, that is, that I feared it might fall off. Bedecked in a red striped T-shirt, Bram took part in what I see as the epitome of Pub Rock, the evolutionary height of creativity of this niche genre.

Carrot-topped, skinny as a rake and a man who could hardly be described a God's gift to women but Tchaikovsky stood out as the essence of the rock god. This was melodic music, yet no nonsense, full of hooks, yet forceful and honest and Tchaikovsky held the song in a blur of guitar strings.

You could easily mine a range of complex psychology in how we view music and musicians. There is something odd and disturbing when a noted band musician leaves the fold to go solo. Some listeners see it as a personal betrayal.

Even if the resultant solo career is a temporary one, a break from the normal main band routine, it is often seen as secondary or unimportant by outsiders. Some fans even see a solo career as a second rate move or an admission of failure. That is, "You couldn't cut it so you've made do with...this."

From the artist's point of view, nothing could be further from the case. In fact, often quite the opposite is true. As you can see in Bram Tchaikovsky's new CD box set from Cherry Red ('The Complete

Recordings 1978-1981'), complete with a host of bonus tracks, he went solo, evolved and lead his own successful power pop trio and was heavily involved in the Stiff label punk scene.

For artists, a successful band can be merely a stepping stone. Some artists can develop and grow within its confines, others see the band itself as a restriction and one that can fulfil 'this' but if the artist wants to move to 'that' then it's up to them to start moving goalposts and changing the furniture along with other mixed metaphors.

Roger Glover found this out when he created 'The Butterfly Ball and the Grasshopper Feast' (1974). A children's record, in this musical adaptation of artist Alan Aldridge and poet William Plomer's book Glover showed a new side to his creativity. Yes he had plenty of support from legends such as David Coverdale, Ronnie James Dio, Glenn Hughes plus many more as you can find out on a new 3CD box set of the same name from Purple Records including the EP and bonus tracks. Yet, the narrative core of the album also demanded a whole new set of scoring and creative skills.

I remember the anthem 'Love is All' plus accompanying animated sequence playing in its entirety on ITV on random weekdays somewhere between 5:30 and 6pm in the seventies. Just before the early evening news. Does anyone else remember that?

Ex-Small Faces man Steve Marriot must have been the target of much disappointment from dedicated SF fans when he left and joined with Peter Frampton, Greg Ridley (Spooky Tooth) and Jerry Shirley to form Humble Pie.

You can hear the raw blues

shouting in elements of Marriot's later Small Faces performances but he was allowed to let loose with Humble Pie. I certainly thought that this blues progression was a natural pathway for him. It would have happened sooner or later anyway. As you can hear on a two live box set collections from HNE (Official Bootleg Box Set Volume 2' and 'Back on Track - Live in Cleveland'), Marriot's voice was designed to voice a gritty blues resonance. He seemed to enjoy funneling his energies into the genre. It also seemed to allow him a freedom that he could not find in the controlling studio atmosphere because Humble Pie would earn a reputation as a storming live band. A live band that, indeed, transcended the studio environment.

Anthony Philips is, indeed, a fine figure to illustrate growth and development. A founder of the legendary prog outfit, Genesis, Philips took part on the LPs 'From Genesis To Revelation' and 'Trespass', left the group in 1970, studied orchestration and harmony at the Guildhall School of Music and Drama in London, became teacher and then launched into a host of excellent solo albums. He's just released 'Private Parts & Pieces IX-XI' on Esoteric which looks at rarities from 1991-2012 that shows his development from this early Genesis times.

All of these artists looked to break out from the usual consumer demand that they spend the rest of their lives merely repeating what made them famous in the first place. A demand that is unfair and restrictive but a natural fault of the fan. Considering the creative riches that often result, I'm glad that such artists ignore the public and just get on with what enthuses them, making great music. ●

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"So how did Gibson manage to get to this sad state of affairs?"



Jon Myles

In the words of Bruce Springsteen: "Well I got this guitar and I learned how to make it sing". Exactly what brand of guitar The Boss made sing is not clear – but if it was a Gibson a great number of would-be musicians might not get the same chance.

For the iconic American guitar-maker has filed for Chapter 11 bankruptcy protection as it is saddled with a £367 million debt and a rather precarious future at the moment.

To someone who grew up with iconic images of the likes of Elvis Presley, Led Zeppelin's Jimmy Page, Bob Marley, The Smiths' Johnny Marr, Noel Gallagher from Oasis and even Guns N' Roses Slash playing a Gibson it is more than sad.

Along with the Fender Stratocaster (as used by Jimi Hendrix and many others) the Gibson Les Paul is probably the most recognisable guitar in the world - wielded by countless musicians on stage and in recordings.

Johnny Marr, for one, speaks lovingly of how his Gibson SG had music stored in it. Stolen in 2000 from the stage at the London Scala after a gig with the indie band Haven it was returned to him 10 years later.

When asked if it still had the same musicality he told The Guitar Magazine, "It absolutely did. Amazingly, it felt exactly the same as when I'd left it. It felt the way it did when I last played it, regardless of the break".

Founded in 1902 as the Gibson Mandolin-Guitar company by a certain Orville Gibson in the deliciously-named city of Kalamazoo in Michigan the firm first made a

thriving business with high-quality acoustic guitars (many of which are still highly collectible today) but it was the introduction of the solid-body electric Les Paul model in 1952 that truly made its name.

The guitar sounded very different to any other on the market at the time. Rich, vibrant and also very distinctive looking. Then came the semi-hollow body ESS-355 used by BB King and Chuck Berry. The likes of Dave Grohl from the Foo Fighters who still eulogise about this design use its successors.

So how did Gibson manage to get to this sad state of affairs? Well, the seeds were sown when the company paid around £100 million to buy the consumer audio division of Dutch multi-national Philips.

Suddenly it went from a pure musical instrument maker to one also invested in the likes of headphones, loudspeakers and DJ products - none of which it had particular expertise in. Unfortunately, just adding the brand name of Gibson to these products manufactured elsewhere didn't quite work and losses mounted. Probably not a good strategic move in hindsight but done for the best intentions.

Also, sales of guitars have slowed. According to latest figures some 2,633,000 units were sold in the USA in 2017. That's still a lot but down 5% from 2008. Also many buyers look to second-hand models as electric guitars are pretty robust nowadays. The on-line musical instrument site Reverb, for example, is expected to sell upwards of £300 million of guitars this year and the majority of them will be used but still work perfectly.

There's also a cultural shift at work. At one time creating rock music relied on the basic line-up of drums, bass, guitar and vocals. However, the rise of electronic music means there's no longer any need to master the art of playing a guitar to create a song. Instead you can just get a MacBook or iMac, load up GarageBand and then sample various tracks to put together a decent sounding track. Believe me, I've spent countless hours doing this – although I'm yet to sign a record deal!

But I'm still in thrall to listening to and watching musicians demonstrate their skills on a big guitar. It's something I cannot do and so admire their talent even more.

Watching a DJ manipulate a pair of record decks or filter the sound through a computer doesn't quite cut it in a live environment. Seeing Johnny Marr play his Gibson at the National Ballroom in Kilburn way back when, however, was magical.

Luckily, the bankruptcy doesn't necessarily mean the end of Gibson as a guitar manufacturer. It's more an attempt to shed the loss-making home entertainment part and get back to what it does best - that is making superb guitars. We'll have to wait to see if that will work but I, for one, am hoping so. Mainly because that way more people will be able to get one of the guitars in their hands, learn to master it and make the music we all love to hear.

Hopefully, then, the Gibson guitar and its heritage will survive. Especially because I think the lyric 'I got this Mac and I learned how to make it sing' doesn't quite resonate as much to me as Bruce Springsteen's lyric. ●

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"it's nothing more than a front panel and circuitry, accompanied by wiring looms"



Martin Pipe

Recently I outlined my experiences reviving seventies-style in-car quadraphonics using much more recent technology – specifically, a JVC KD-AVX2 in-car DVD player. In addition to CDs, this incredibly versatile 2006-vintage unit will play both DVD-Video and DVD-Audio discs – in addition to the DTS CDs that are also frequently used to convey digital transfers of old quadraphonic albums. I've prepared my own transfers of such material, and it has to be said that the results outshine by a considerable margin the original route to vehicular four-channel sound – to wit, the rather dubious 8-track cartridge.

The JVC KD-AVX2 also boasts FM radio and compatibility with CDs/DVDs containing MP3 files. Great for long journeys. Thankfully, there's also a line input for external sources like the DAB tuner we might be forced to use before long. It doesn't however have the USB playback feature of the stereo Sony unit it replaced – never mind features, such as Bluetooth playback and FLAC support, that you'll find in more modern gear. USB playback was very convenient for me, as I could easily 'drag' tracks or albums from my music server onto a tiny storage device. As well as sufficient capacity to yield several hours of uninterrupted music, USB eliminated the need to burn discs, thereby saving wear and tear on the optical drive.

Whilst browsing on eBay recently, I came across a "Wireless MP3 Decoding Board Bluetooth Audio Module USB SD Radio APE FLAC WMA AUX" (<https://bit.ly/2rts9Mh>). Selling for less than £10 (including postage from the Far East), this gadget basically adds all of the features I was missing – and more! As supplied it's nothing more than a front panel and circuitry, accompanied by wiring

looms (the tinned ends of which would be soldered to the connectors of your choice) and a very cheap-looking remote. You have to build it into a case, make the connections and arrange a suitable power source (in this case, 7-12V DC). An ideal in-car gadget? It could however also upgrade ghetto-blasters, music centres and other audio.

So, to the nuts and bolts. At a local amateur radio rally, I found a case that was originally used to stow a laptop power supply out of harm's way. I simply cut a large rectangular hole into its top for the module, which is secured with four screws. Into the sides of the improvised case, I mounted sockets (obtained from the same rally) for audio and power. The audio output is line-level, meaning it can feed the JVC directly (cassette adaptors for older car stereos are another possibility). There's also a line input, which would allow my Pure Highway DAB tuner to be kept 'in the loop'. Incredibly, it can be recorded – as well as selected for listening. The 128kbps MP3 file, which for some reason has a 32kHz sampling rate instead of the usual 44.1kHz or 48kHz, is stored on the same removable media that contains your music files. On which subject, the module has a SD memory-card slot as well as a USB port. Only one can be used at a time...

For ease of connection, I chose stereo 3.5mm sockets for the audio – and a 2.5mm jack for DC. Internally, I used a series of power diodes to drop the supply voltage to around 9 volts while providing a degree of reverse-polarity protection. Thanks to this arrangement, I can use the module at home – as well as in the car, for which I made a cable terminated in a surplus cigarette-lighter plug. I discovered that the module also contains a surprisingly-effective stereo FM radio, which occupies a single 8-pin SOIC. On a whim, I decided to mount an

aerial jack for that! Most of the unit's other functionality is crammed into a small daughterboard. The component count is somewhat low, which helps to explain how it can be sold so cheaply.

It's easy enough to use. A simple blue-backlit 4-digit 8-segment display indicates track time and tuner frequency. Beneath it are buttons to cycle through modes (solid-state playback/FM/Bluetooth/line in), play/pause/stop playback, select the previous/next track and engage repeat. Holding down the mode button starts or stops recording, but only when the line input is selected (why not FM?). These front-panel functions are duplicated on the remote, which adds the luxury of a numeric keypad. You can't use this to enter radio frequencies directly – instead, the previous or next buttons are laboriously pressed until the desired station is heard. No 'preset' memories are offered, but the module does seem to 'remember' the last tuned station. Finally, we have a button that gives you a choice of seven tone-control presets (some with bass-boost).

The self-adhesive top part of the accompanying remote, which contains the membrane buttons, detached from its body during the recent heatwave. It's not hi-fi by any means. Fed into a decent home hi-fi system, music can sound somewhat congested; furthermore, it's somewhat bright in character and lacking in detail. You'd be hard-pressed to tell FLAC apart from MP3! For all this, the module does everything I want of it. In an average in-car environment, with dodgy factory-fit speakers, road noise and air-con blowing is ultimate audio performance crucial? To me, the practicalities of streaming music from my smartphone via Bluetooth or playing a hastily-assembled USB collection are more important. And it means I can save the JVC's disc player for quadraphonics. ●

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 NAIM NAC82, excellent boxed with remote
 NAIM NAC102, MM, excellent with remote
 NAIM NAC202, excellent boxed with remote
 NAIM NAC202, ex demo nr mint
 NAIM NAC252, excellent boxed
 NAIM NAC282, excellent boxed with naps
 NAIM NA1T 3, vgc line level
 NAIM NA1T XS2, excellent, remote & boxed
 NAIM NAP150, excellent boxed
 NAIM NAP180, excellent
 NAIM NAP200, excellent boxed
 NAIM NAP250, from 2000 olive excellent boxed
 NAIM Uniti Nova, as new boxed
 Neukomm CPA33, well built Swiss integrated
 Pathos InProl Remix Hi Dac, ex dem,
 Pathos IT Integrated, excellent,
 Quad 405 upgraded to mk2 lovely order
 Quad 99 Monoblocks, fair condition
 Quad 44 preamplifier, excellent
 Quad 33/FM3 in teak sleeve with 303 boxed
 Rega Mirc 2000, excellent
 Roksan Caspian K3 Integrated, near mint boxed
 Roksan Caspian M2 Integrated, near mint boxed
 Sugden Masterclass Monoblocks
 Talk Electronics Storm 2 Integrated
 VTL Deluxe 300 Monoblock Valve amplifiers

Radio/Recorders

Akai GXC 709D, vintage cassette deck, excellent
 Arcam T51, decent FM tuner for peanuts
 Fostex G16, 16 track Reel to Reel, amazing!
 Naim NATOS, excellent boxed
 Onkyo TX4030 DAB/FM excellent boxed
 Pioneer TX7500, retro quality
 Quad FM4, excellent serviced
 Quad FM3, excellent for year
 Revox PR99, crated, REDUCED
 Rotel RT06, excellent
 Rotel T-11, excellent boxed
 Sansui T-60, vgc
 Sony MDS JA30ES, excellent
 Sony MDS JB930QS, excellent
 Sony ST 2950F, excellent boxed
 Sony TC-WF475, Twin Cassette, sealed box!
 TEAC AD-900, Cassette & USB recorder with CD
 TEAC W890r mk2, Double cassette as new
 TEAC W890r, Double cassette as new
 TEAC CDRW machines as new
 Yamaha T-D500, excellent DAB tuner as new

Packages

x/d 4899 Acros Lustre GST1 Tonearm, near mint boxed
 used 1099 Audio Research Reference Phono 2 nr mint
 used 399 Clearaudio Emotion, Satisfy arm and cover
 used 12799 Dynavector Te Kaitora, rebuilt & unused since
 used 5799 Dr Feickert Twin, monster deck Audiorequest cut boxed
 used 6999 Garrard 401 Motor unit only no arm
 used 6999 Goldring Legacy Ltd edition
 used 549 Graham Phantom Supreme 12", SME cut
 used 2399 Inquest Clear, off board PSU, RB300, 2M Blue
 used 3499 Leeme Phono stage
 used 799 Linn Ittok LVII , excellent
 used 499 Linn Axis c/w Basik LVX
 x/d Call Linn Basik, Akito, AT cart excellent
 used 399 Linn LP12, Hercules2 , Ittok, new lid boxed
 used 149 Linn LP12, new plinth, Hercules2, Project 9rc, new lid
 x/d 2199 Lyra Skalo, excellent boxed
 x/d 2199 Michell Gyro Se DC motor, Technoair, 2M Bronze
 used 2199 Michell Gyrodec, Rega arm, excellent boxed
 used 799 Michell QC upgrade Psu for a/c motor
 used 799 Michell HR upgrade Psu for d/c motor
 used 2499 Michell Orbe DC motor, SME 309, DV17, superb boxed
 x/d 6499 Musical Surroundings Phenomena Phono & psu
 x/d 7249 Nottingham Analogue Mentor & Teserac psu
 used 3999 Ortofon Cadenza Black, mint boxed
 used 3249 Ortofon SMG212, vgc
 used 649 Primare R20 phono stage, excellent
 x/d 3499 Project Phonobox Se, MM/MC, excellent value
 used 6499 Rega Planar 1, brand new customer return
 used 999 Rega Planar 2, brand new customer return
 used 499 Rokson DX2 phono preamplifier
 used 249 Rokson Nimo, excellent
 used 299 Shelter 501/II, excellent boxed
 used 999 Shelter 9000, excellent boxed
 used 749 SME IV, mint, just had full £600+ SME service
 used 3999 SME V, excellent
 used 649 SME Series III S, excellent boxed with cable
 used 749 Systemdek IX900, excellent late model, no armboard
 used 2499 Thorens TD209 turntable package REDUCED
 used 999 Thorens TD150, 2000 Plinth and 3009, superb
 used 849 Thorens TD160HD, OEM 250 excellent boxed
 used 399 Thorens TD280, vgc
 used 799 Thorens TD125 with SME3009
 x/d 1249 Thorens TD160 motor unit only, no arm or lid
 used 2999 Townshend Elite Rock, Excalibur, cover
 used 2749 Transfiguration Temper, excellent boxed
 used 349 Transfiguration Axia S, Vdti retip and boron cantilever
 used 999 Transfiguration Phoenix S, excellent boxed
 used 399 VDH Colibri M/C cartridge, as new boxed, REDUCED
 used 549

Digital

used 1249 Arcam CD72, excellent player at a bargain price
 used 3999 Arcam UDP411, superb boxed
 x/d 749 Aria Piccolo, excellent boxed
 x/d 1999 Audio Analogue Vivace USB DAC,with Pre out
 used 3499 Audio Research DAC8, excellent boxed
 used 399 Bel Canto DAC1.5 and upgrade LNS-1 PSU
 used 449 Bel Canto PL1 multiformat player, good condition boxed
 used 249 Bryston BDP-1, ex display as new boxed
 used 499 Bryston BDP-1 USB, brand new sealed box
 used 229 Bryston BDP-2, as new boxed
 x/d 999 Cairn Mistrale/ Breeze, silver as new boxed
 x/d 1349 Cairn Tornado, as new boxed
 used 3899 Chord Blu Transport, near mint boxed
 used 349 Chord Qute FX/linear psu DAC
 used 1999 Chord 2Qute DAC mint boxed, just a few weeks old
 Chord Mojo, excellent boxed
 Chord Hugo TT, excellent boxed

used 125 Cyrus Streamline 2, excellent
 used 39 Cyrus DACXP Signature
 used Call DCS Verdi laScala CD/SACD Transport boxed
 used 399 DCS Scalatti Masterclock boxed
 used 179 Krell Connect, excellent boxed
 used 99 Linn Akurate DS, excellent
 used 119 Linn Klimax DS renew, excellent
 used 99 Linn Akurate DS renew, excellent
 used 729 Linn Sekrit DS1, excellent
 used 149 Marantz CD73 OK condition, just serviced
 used 159 Marantz SA7 S1, flagship near mint boxed
 used 49 Marantz SA7003, excellent
 used 399 Meridian Sooloos Control 15 and Twinstore NAS
 used 199 Musical Fidelity KW DM25 Transport and DAC, excellent
 used 79 NAIM CDX, excellent boxed with remote etc
 new 119 NAIM NDX, ex demo near mint
 used 199 Pioneer N30,excellent
 used 199 Neukom mC D03, nr mint boxed
 used 149 Rega Planet 2000, excellent
 used Call Rega Saturn R, our demo unit nr mint
 used 219 Wadia S7i, excellent boxed

Loudspeakers

used 299 Aspara Acoustics HL6 in Oak, REDUCED
 used 5999 ATC SCM40active mk2, boxed
 used 649 AVI ADM9.1T, excellent boxed
 used 1799 B&W M1 (5 of) and PV1d Sub, excellent
 used 3249 Castle Severn 2 se, excellent
 used 699 Castle Knight 3, excellent
 new Call Castle Pembroke 2, excellent boxed
 x/d 3199 Celestion A2, vgc boxed
 used 649 Focal Aria 948, excellent in gloss black
 x/d Call Focal Aria 926, excellent boxed
 used 599 Kel 0900 sealed boxes
 used 499 Kel Q700 sealed boxes
 used 399 Kef X300A Active monitors
 used 1999 Infinity RS2 5, Ok condition, sound great!
 used 1999 Infinity RS4 5, fair condition, huge!
 used 2199 Kudos C30 in Oak
 used 1299 Linn Kober, excellent
 used 1399 Magneplanar MG1.7 mint boxed
 used 249 Martin Logan Ethos, excellent no boxes
 used 399 Martin Logan Ethos, near mint boxed
 used 3249 Mirage M1si vgc boxed
 used 499 Monitor Audio PL300s boxed superb
 used 1199 Monitor Audio PL350C boxed with stand
 x/d 1460 Monitor Audio Bronze 5 nr mint boxed
 used 399 Monitor Audio Silver 50, nr mint
 used 499 Monitor Audio RSB, nr mint boxed
 used 299 Monitor Audio BR5, nr mint boxed
 used 299 Monopulse 42a, good condition boxed
 used 749 NAIM SBL excellent boxed
 used 379 NAIM Ovator \$400, excellent boxed
 used 499 NEAT Motive SX2, excellent boxed
 used 1599 NEAT Motive SX3, nr mint in black oak
 used 1999 Pecaudia Rebel 2 cherry & matching stands
 used 2249 PMC Twenty5 24, boxed
 used 349 PMC Twenty5 23, boxed
 used 199 PMC Twenty 23, oak/amarone, boxed
 x/d 599 PMC Twenty5 22, boxed
 used 579 PMC Twenty5 21, boxed
 used 1199 Proac D20i, excellent boxed, ex dealer demo
 used 139 Quad ESL7, vgc
 used 699 Rega RSS, excellent boxed
 used 99 Rogers LS1, bookshelf excellent
 used 999 SD Acoustics SD1 in good condition
 used 799 Sonus Faber Concerto Grand Piano, vgc boxed
 used 799 Sonus Faber Venere 1.5 with matching stands
 used 999 Sonus Faber Venere Centre channel excellent
 used 599 Spendor BCI, near mint boxed
 used 1199 Tannoy Albury, excellent with serviced drivers
 used 1199 Usher Mini Dancer 1, excellent boxed
 used 6371 Usher 6371 fantastic sonic bargain
 used 249 Usher SW103 Sub, superb
 used 299 Veritas H3 (Lowthers) gloss black, 100db,
 used Call Wilson Watt/Puppy, crated, new foams, lovely

SPECIAL SYSTEMS DEALS

Cairn Diablo/Tornado Amp/CD pack was £1900
 Cairn Mistrale/Breeze/Nitro/Kia Monos
 Devialet 400 & Magneplanar MG3.7i speakers
 Devialet 200 & Magneplanar MG1.7 speakers
 Naim Muso nr mint boxed
 Quad 77 CD/Tuner/Pre and Power with remote
 Scansonic USB100 Turntable & Active Speakers
 new 349

Accessories/Cables

used 149 Audeze EL8 Headphones
 used 2399 Audeze LCD2, near mint boxed with cables
 used 599 Audeze LCDX, near mint boxed with cables
 used 1599 Cyrus PSXR, excellent from
 used 1999 Elemental Audio speaker stands
 used 2499 Finite Elemente Rack, excellent
 used 1499 Grado headphones many models
 used 1299 Grado SR325is, excellent boxed
 used 2499 Hifi Man HE500, excellent boxed
 used 1999 Hifi Racks, large black oak AV rack
 used 749 Kimber BiFocal X 2.4m pr
 used 299 Kondo KSL Vc 2m Dif to phono
 used 219 Lexicon MC12 Balanced AV Processor c/w remote
 used 1899 Naim Hilire and Powerline both available used
 used 1699 Naim Headline Headphone amplifier
 used 849 Naim Flatcap 2, excellent
 x/d 2799 Naim XPS Power supply, excellent boxed
 used 349 Oppo HA2 Headphone Amp excellent
 used 799 Project VCS and cover
 used 249 Sennheiser HD590/650/700 & 800s all in stock
 x/d 949 Townshend Seismic racks 2 of...
 used 6499 Van den Hul D102 mk3, selection

"I would have bought the Quad electrostatics but thought they were radiators"



Dave Tutt

Leave That Thing Alone. Not the sort of short sentence or perhaps shouted statement you would expect at Tutt Towers. But sitting in front of the computer screen can be a bit mind numbing. One of the pieces of music that I turn to relieve the tedium is Leave That Thing Alone which you can find on YouTube from the Rush Time Machine DVD. How do three very talented musicians make so much noise, and seem to be enjoying themselves so much doing it! The original from the Counterpoints CD is good but this live version makes me wish I had been there, back when it was recorded some time ago.

Going back in time would also take me to when I first started with any sort of hi-fi. What I had was a Garrard AP76 with a Shure M75ED cartridge, a JVC JAS II amp – successor to a Sinclair 605 kit – and a pair of custom made speakers with 15 ohm Goodmans Axiom 201 and Trebax horn tweeters in a huge pair of boxes. At a time when Garrard's SP25 turntable reigned, fitted with a Shure M44 or M55E if you were well off, it was quite a handsome system, even if the loudspeakers were ad-hoc. I paid the princely sum of £15 for them at the time. If I had had the money I would have also bought the Quad electrostatics that the guy had for £45 but I thought they were radiators not speakers and my folks had central heating anyway – so I didn't really need them did I!

It was around 1974, I was 16 – so £15 was all I had. I still have the speakers or at least the boxes, as well as the JVC and Garrard. At the time the one tune that made this set up sing was the track Mistral Wind from the LP Dog and Butterfly, by Heart in 1978. The opening bars up to the point where the bass kicked

in with a thunderous rumble from the speakers, the acoustic guitars and the vocals in my 10ftx10ft room at my mum's really was great. The drumming and what sounds like synth pad chords and the reverb I loved, but everything got confused once the whole band and the bigger vocal performance kicked in.

I wonder now what Leave That Thing Alone would have sounded like in my old system. Although I can still put it through my JVC, I don't have the track on black plastic to see how the turntable would deal with it.

The Goodmans Axiom drivers, both the 201 and the 301, commonly used in column cabinets in Public Address (PA) systems to shift air, are not tuned to the cabinet. Mine are mostly still in pretty good nick even some 50 years or so after their release. Perhaps Goodmans knew a thing or two about 12 inch drivers when used for PA! I know of at least one band still using Axiom drivers on the local pub circuit. The Watkins web site says columns using the Axiom 301 were warm – which I think is a pretty good description.

It took a while to get anything better than the Garrard AP76 turntable. It has become a valued item again on the second hand market, having been forgotten for best part of 30 years. I have to say it makes a better sound than you would expect. I saved for a belt-drive Thorens TD160 as a replacement, with an SME3009 arm and Ortofon VMS20E cartridge. I lived with this front-end until the upgrade process took over and I made some drastic alterations that changed its sound radically.

At that time the best tunes came from Fleetwood Mac's Rumours LP and Supertramp's Crime of the Century, but one or two other disks scored highly too. John Themis Sirens

arrived as well as UK by UK – and that had me hooked on black plastic.

In the end those 'speakers had to be dealt with. I found a new pair of bass drivers made by Dalesford Loudspeakers. Their 12 inch D300 improved the bottom end so some major wood working then took place. The cabinet was turned 90 degrees so the baffle became narrow and new sides were made with a separate wedge enclosure internally to house the midrange Goodmans 5.25inch and Seas tweeter. Slot loaded porting was employed. The bass driver had an extended bottom-end with a resonance of 23Hz which worked really well. Unfortunately they didn't last much more than 12 years which is a shame. The cone surround failed. I kept them somewhere so may repair them at some point in the future.

Were my 'speakers home-friendly? No! A metre high, half that deep and over 400mm wide put them in the realm of big Tannoyes.

Another upgrade took me to MCM bass drivers with a similar cone material to the Dalesford Bextrene and almost twice the power handling but a higher resonance. The mid was retired and I moved to a yellow glass fibre driver in 6 inch format. They have been my workshop specials for over 20 years, so I got my money's worth from these DIY loudspeakers – I'm still enjoying them today!

My big story of this month though is a large scale move to a new workshop and house (well, 1953 vintage actually) which, once agreed and completed, will be my last move and should see me into my dotage! I hope my new neighbours will be happy once I have sound proofed everything. It is an upgrade even though it requires lots of work – but then everything does. I'll be able to enjoy Leave That Thing Alone in a new workshop – can't wait to hear it! ☺

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

WORLD CLASSICS

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

TURNTABLES

EAT FORTE

2009 £12,500

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



FUNK FIRM VECTOR II

2009 £860

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

REGA P2

2008 £300

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

MCINTOSH MT10

2008 £8,995

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

REGA P3-24

2008 £405

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

ACOUSTIC SOLID ONE

2007 £4,050

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

AVID VOLVERE SEQUEL

2007 £4,600

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

MICHELL GYRODEC SE

2005 £1,115

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

MARANTZ TT-15S1

2005 £1,299

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

MICHELL TECNODEC

2003 £579

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



MICHELL ORBE

1995 £2,500

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

SME MODEL 10A

1995 £4,700

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

LINN AXIS

1987 £253

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

TECHNICS SL-P1200

1987 £800

CD version of the Technics SL-1200 turntable. Massively built to withstand the rigours of 'pr' use and laden with facilities - a great eighties icon.

ROKSAN XERXES

1984 £550

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

DUAL CS505

1982 £75

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

MICHELL GYRODEC

1981 £599

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

TOWNSHEND ROCK

1979 £ N/A

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

MARANTZ TT1000

1978 £ N/A

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



REGA PLANAR 3

1978 £79

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

SONY PS-B80

1978 £800

First outing for Sony's impressive '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!

TRIO LO-7D

1978 £600

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

ADC ACCUTRAC 4000

1976 £300

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 PLC-590

1976 £600

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

PIONEER PL12D

1973 £36

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



TECHNICS SP10

1973 £400

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

LINN SONDEK LP12

1973 £86

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

ARISTON RD11S

1972 £94

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

GOLDRING LENCO GL75

1970 £15.6S

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

GARRARD 301/401

1953 £19

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



THORENS TD124 1959 £N/A

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

TONEARMS**REGA RB251** 2009 £136

Capable way past its price point, the new 3-point mount version of the classic RB250 serves up a taut and detailed sound. A little lean for some tastes, but responds well to rewiring and counter-weight modification.

HELIUS OMEGA 2008 £1,595

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

AUDIO ORIGAMI PU7 2007 £1,300

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

**GRAHAM PHANTOM** 2006 £3,160

Sonically stunning arm with magnificent bass dexterity and soundstaging. Build quality up to SME standards, which is really saying something!

TRI-PLANAR PRECISION 2006 £3,600

Immaculate build, exquisite design and one of the most naturally musical and lucid sounds around.

MICHELL TECNOARM A 2003 £442

Clever reworking of the Rega theme, using blasting, drilling and rewiring!

SME 309 1989 £767

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

NAIM ARO 1987 £1,425

Charismatic unipivot is poor at frequency extremes but sublime in the midband; truly emotive and insightful.

SME SERIES V 1987 £2,390

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

NAIM ARO 1986 £875

Truly endearing and charismatic performer - wonderfully engaging mid-band makes up for softened frequency extremes.

**ALPHASON HR100S** 1981 £150

First class arm, practically up to present-day standards. Buy carefully, though, as there is no service available now. Totally under priced when new, exceptional.

SME SERIES III 1979 £113

Clever variable mass design complete with Titanium Nitride tube tried to be all things to all men, and failed. Charming nonetheless, with a warm and inoffensive sound.

TECHNICS EPA-501 1979 £N/A

Popular partner for late seventies Technics motor units. Nice build and Titanium Nitride tube can't compensate for middling sound.

LINN ITTOK LVII 1978 £253

Japanese design to Linn specs made for a muscular, rhythmic sound with real dynamics. The final LVIII version worth seeking out.

AUDIO TECHNICA AT 1120 1978 £75

Fine finish can't compensate for this ultra low mass arm's limited sonics - a good starter arm if you've only got a few quid to spend.

HADCOCK GH228 1976 £46

Evergreen unipivot with lovely sweet, fluid sound. Excellent service backup.

ACOS LUSTRE GST-1 1975 £46

The archetypal S-shaped seventies arm; good, propulsive and involving sound in its day, but ragged and undynamic now.

SME 309 1959 £18

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

PHONO STAGES**CREEK OBH-8 SE** 1996 £180

Punchy, rhythmic character with oodles of detail makes this a great budget audiophile classic. Partner with a Goldring G1042 for an unbeatable budget combination.

MICHELL ISO 1988 £N/A

This Tom Evans-designed black box started the trend for high performance offboard phono stages. Charismatic, musical and punchy - if lacking in finesse.

**LINN LINNK** 1984 £149

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

INTEGRATED AMPLIFIERS**NAIM NAIT XS** 2009 £1,250

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

MUSICAL FIDELITY PRIMO 2009 £7,900

Seriously expensive, but one listen explains why. Wonderfully exuberant sound that can only come from a top quality tube design.

SUGDEN A21A S2 2008 £1,469

Crystalline clarity, dizzying speed and forensic detailing. Power limited so needs sensitive speakers.

CREEK OBH-22 2008 £350

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

CAMBRIDGE 840A V2 2007 £750

Version 2 addresses version 1's weaknesses to turn in a mightily accomplished performance, offering power, finesse and detail.

SUGDEN IA4 2007 £3,650

Goodly amount of Class A power, icy clarity and a breathtakingly fast, musical sound make this one of the very best super-integrateds.

NUFORCE P-9 2007 £2,200

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

MELODY PURE BLACK 101D 2007 £3,295

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

AUDIOLAB 8000S 2006 £400

In another life, this sold for three times the price, making it a stand-out bargain now. Very clean, powerful and tidy sound.

MCINTOSH MA6800 1995 £3735

Effortlessly sweet, strong and powerful with semi-natural styling to match.

DELTEC 1987 £1900

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

EXPOSURE VII/VIII 1985 £625

Seminal pre-power, offering most of what Naim amps did with just that little bit extra smoothness. Lean, punchy and musical.

**AUDIOLAB 8000A** 1985 £495

Smooth integrated with clean MM/MC phono stage and huge feature count. Extremely reliable, too. Post '93 versions a top used buy.

VTL MINIMAL/50W MONOBLOCK**1985 £1,300**

Rugged, professional build and finish allied to a lively and punchy sound (albeit with limited power) make them an excellent used buy.

MUSICAL FIDELITY A1 1985 £350

Beguiling Class A integrated with exquisite styling. Questionable reliability.

MISSION CYRUS 2 1984 £299

Classic 1980s minimalism combines arresting styling with clean, open, lively sound. Further upgradeable with PSX power supply.

**NAIM NAIT** 1984 £350

Superb rhythms and dynamics make it truly musical, but tonally monochromatic. Fine phono stage, very low power.

CREEK CAS4040 1983 £150

More musical than any budget amp before it; CAS4140 loses tone controls, gains grip

MYST TMA3	1983	£300	NAIM NAP 500	2000	£17,950	LEAK STEREO 60	1958	£N/A			
Madcap eighties minimalism, but a strong and tight performer all the same.			Flagship amplifier will drive just about any speaker with ease. Factor in the company's trademark pace, rhythm and timing and it all adds up to one effortlessly musical package.			Leak's biggest valve power amp offers 35 Watts per channel and more low end welly than the smaller Stereo 20. Despite concerns over reliability rarity value means high price.					
ROTEL RA-820BX	1983	£139	MARANTZ MODEL 9	1997	£8000	QUAD II	1952	£22			
Lively and clean budget integrated that arguably started the move to minimalism.			Authentic reproduction monoblocks still more than cut the sonic mustard. Highly expensive and highly sought after.			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					
NAD 3020	1979	£69	MICHELL ALECTO	1997	£1989						
Brilliantly smooth, sweet and punchy at the price and even has a better phono stage than you'd expect. The archetypal budget super-amp.			Crisp, clean and beautifully controlled with gorgeous styling. Partnered with the £1650 Orca this sounds delicious!								
ROGERS A75	1978	£220		MUSICAL FIDELITY XA200	1996	£1000	LEAK POINT ONE, TL10, TL12.1, TL12 PLUS	1949	£28		
Lots of sensible facilities, a goodly power output and nice sound in one box. The later A75II and A100 versions offered improved sonics and were seriously sweet.			200W of sweet smooth transistor stomp in a grooved tube! Under-rated oddity.			Early classics that are getting expensive. Overhauling is de rigueur before use, using original parts if possible. Surprisingly crisp and musical. Deeply impressive in fine fettle.					
A&R A60	1977	£115	PIONEER M-73	1988	£1,200						
Sweet and musical feature-packed integrated; the Audiolab 8000A remains a classic.			Monster stomp from this seminal Japanese power amplifier, complete with switchable Class A and Class B operation. Clean, open and assured sounding, albeit a tad behind the pace on high speed dance music. Rosewood side cheeks and black brushed aluminium completes the experience.								
SUGDEN C51/P51	1976	£130	KRELL KMA100 II	1987	£5,750		PRE AMPLIFIERS				
Soft sounding early Sugden combo with a plethora of facilities and filters. A sweet and endearing performer but lacking in power and poor load driving ability.			Monoblock version of the giant KSA-100 is one of the seminal 80s transistor power amplifiers. Massive wallop allied to clean and open Class A sound makes this one of the best amplifiers of its type.								
ROGERS CADET III	1965	£34	RADFORD STA25 RENAISSANCE	1986	£977		AUDIO LAB 8000C	1991	£499		
Sweet sounding valve integrated, uses ECL86 output valves, even has a half useable phono stage, sweet, warm a good introduction to valves			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.				Tonally grey but fine phono input and great facilities make it an excellent general purpose tool.				
CHAPMAN 305	1960	£40	QUAD 405	1978	£115		CROFT MICRO	1986	£150		
Smooth pre/power combo with a sweet and open sound. Not quite up to Leak/Quad standards but considerably cheaper secondhand.			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.				Budget valve pre-amp with exceptionally transparent performance.				
POWER AMPLIFIERS			HH ELECTRONICS TPA-50D AMPLIFIERS	1973	£110		CONRAD JOHNSON				
ELECTROCOMPANIET NEMO	2009	£4,995 (EACH)	Simple design with easily available components, solid build quality and fine sound make for a surprisingly overlooked bargain				MOTIV MC-8	1986	£2,500		
Norwegian power station as cool as a glacier tonally, yet impresses with sheer physicality and fleetness of foot. 600W per channel.			LECSON AP1	1973	£N/A		Minimalist FET-based preamplifier is brilliantly neutral and smooth with a spry, light balance in the mould of Sugden. Something of a curio, but worthwhile nonetheless.				
NUFORCE REFERENCE 9SE V2	2006	£1,750	QUAD 303	1968	£55		AUDIO RESEARCH SP-8	1982	£1,400		
Brilliant value for money monoblocks with massive power and super-clean, three dimensional sound.			Bullet proof build, but woolly sound. Off the pace, but endearing nonetheless. Some pipe smoking slipper wearers swear by them!				Beautifully designed and built high end tube pre-amplifier with deliciously sweet and smooth sound. Not the last word in incision or grip.				
QUAD II-80	2005	£6,000 PER PAIR	LEAK STEREO 20	1958	£31		LINN LK-1	1986	£499		
Quad's best ever power amplifier. Dramatic performer with silky but dark tonality, blistering dynamics, serious power and compellingly musical sound.			Excellent workaday classic valve amplifier with decent power and drive. Surprisingly modern sounding if rebuilt sympathetically. Irrepressibly musical and fluid.				A brave attempt to bring remote controlled user-friendliness to hair-shirt audiophile hi-fi. Didn't quite work, but not bad for under £100.				
QUAD 909	2001	£900		NAIM NAC 32.5	1978	£N/A		NAIM NAC 32.5	1978	£N/A	
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.							Classic high end pre. Brilliantly fast and incisive sound that's a joy with vinyl but a tad forward for digital.				
	LECSON AC-1	1973	£N/A		LECSON AC-1	1973	£N/A		LECSON AC-1	1973	£N/A
							Amazing styling courtesy of Allan Boothroyd can't disguise its rather cloudy sound, but a design classic nonetheless.				
	QUAD 33	1968	£43		QUAD 33	1968	£43		QUAD 33	1968	£43
							Better than the 22, but Quad's first tranny pre isn't outstanding. Responds well to tweaking/rebuilding though...				
	LEAK POINT ONE STEREO	1958	£N/A		LEAK POINT ONE STEREO	1958	£N/A		LEAK POINT ONE STEREO	1958	£N/A
							Good for their time, but way off the pace these days. Use of EF86 pentode valve for high gain rules out ultra performance. Not the highest-fi!				

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

LOUDSPEAKERS

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



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

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



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

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



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

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

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

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

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

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



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

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

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

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



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

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

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

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



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

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

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



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 coarse at high frequencies and limp in the bass. Speakers would never be the same again...

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



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

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

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

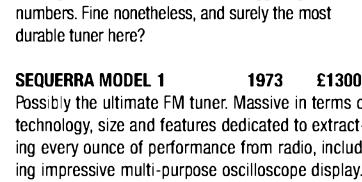
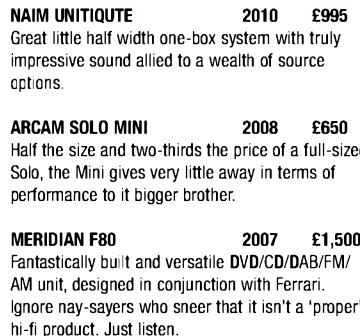
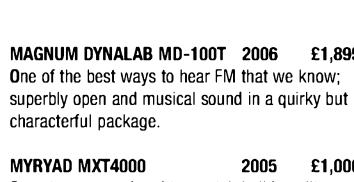
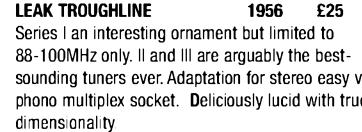
YAMAHA NS1000 1977 £532
High tech Beryllium midband and tweeter domes and brushtech 12" woofers in massive sealed mirror image cabs equals stunning transients, speed and wallop allied to superb transparency and ultra low distortion. Partner carefully!



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

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

CLASSICS

SPENDOR BC1 1976 £240	SHANLING MC-30 2007 £650	CREEK CAS3140 1985 £199
Celestion HF1300 tweeter meets bespoke Spendor Bextrene mid-bass unit. The result is a beautifully warm yet focussed sound. A little bass bloom necessitates careful low-stand mounting.	Quite possibly the cutest all-in-one around with fine performance from the CD player, tuner and MP3 player input. Very low power, though.	Excellent detail, separation and dynamics - brilliantly musical at the price. T40 continued the theme...
		
IMF TLS80 1976 £550	AURA NOTE PREMIER 2007 £1,500	NAD 4040 1979 £79
Warm and powerful 1970s behemoth with transmission loading and a mixture of KEF and Celestion drive units. Impressively physical wideband sound but rhythms not a forte.	Lovely shiny CD/tuner/amplifier with fine sound quality and dynamic abilities.	Tremendously smooth and natural sound allied to low prices and good availability make this budget analogue esoterica.
HH ELECTRONICS TPA-50D AMPLIFIERS 1973 £110		MARANTZ ST-8 1978 £353
Simple design with easily available components, solid build quality and fine sound make for a surprisingly overlooked bargain. Not exactly stylish, however.	MARANTZ 'LEGEND' 2007 £22,000	Marantz's finest radio moment. Warm, organic sound plus an oscilloscope for checking the signal strength and multipath.
BBC LS3/5A 1972 £88	The combination of SA-7S1 disc player, SC-7S2 preamp and MA-9S2 monoblocks delivers jaw-dropping performance.	YAMAHA CT7000 1977 £444
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.	ARCAM SOLO NEO 2006 £1,100	Combines sleek ergonomics, high sensitivity and an explicit, detailed sound.
LEAK SANDWICH 1961 £39 EACH	Excellent all-in-one system, with a warm, smooth and balanced sound to match the features and style.	SONY ST-5950 1977 £222
Warm sounding infinite baffle that, with a reasonably powerful amplifier can sound quite satisfying.	PEACHTREE AUDIO IDECCO £1,000	One of the first Dolby FM-equipped tuners, a format that came to nought. Still, it was Sony's most expensive tuner to date, and boasted good sound quality with brilliant ergonomics.
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.	ROGERS T75 1977 £125	SANSUI TU-9900 1976 £300
SYSTEMS		Superb mid-price British audiophile design, complete with understated black fascia. Smooth and sweet with fine dimensionality.
MERIDIAN SOOLOS 2.1 2010 £6,990	ARCAM FMJ T32 2009 £600	A flagship Japanese tuner. It boasts superlative RF performance and an extremely smooth and lucid sound.
Crisp styling, bright, colourful touchscreen, plus excellent search facilities. This is one hard disk music system with a difference. Best partnered to Meridian active loudspeakers.	Excellent hybrid FM/DAB+ tuner with a smooth, engaging sound. Factor in its fine build and it's a super value package.	
		
NAIM UNITIQUE 2010 £995	MAGNUM DYNALAB MD-100T 2006 £1,895	TECHNICS ST-8080 1976 £180
Great little half width one-box system with truly impressive sound allied to a wealth of source options.	One of the best ways to hear FM that we know; superbly open and musical sound in a quirky but characterful package.	Superb FM stage makes for a clean and smooth listen.
ARCAM SOLO MINI 2008 £650	MYRYAD MXT4000 2005 £1,000	REVOX B760 1975 £520
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.	Sumptuous sound and top-notch build quality make for a tempting AM/FM package. Warm and richly detailed on good-quality music broadcasts.	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?
MERIDIAN F80 2007 £1,500	NAIM NAT03 1993 £595	SEQUERRA MODEL 1 1973 £1300
Fantastically built and versatile DVD/CD/DAB/FM/AM unit, designed in conjunction with Ferrari. Ignore nay-sayers who sneer that it isn't a 'proper' hi-fi product. Just listen.	The warm, atmospheric sound is further proof of Naim's proficiency with tuners.	Possibly the ultimate FM tuner. Massive in terms of technology, size and features dedicated to extracting every ounce of performance from radio, including impressive multi-purpose oscilloscope display.
		
LEAK TROUGHLINE 1956 £25		
Series I an interesting ornament but limited to 88-100MHz only. II and III are arguably the best-sounding tuners ever. Adaptation for stereo easy via phono multiplex socket. Deliciously lucid with true dimensionality.		

HEADPHONE AMPLIFIERS

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



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

CD PLAYER/RECORDERS

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

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



SONY MDS-JE555ES 2000 £900
The best sounding MD deck ever, thanks to awesome build and heroic ATRAC-DSP Type R coding.

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

MARANTZ DR-17 1999 £1100
Probably the best sounding CD recorder made; built like a brick with a true audiophile sound and HDCD compatibility.



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

SONY TCD-8 DATMAN 1996 £599
Super clean sound makes this an amazing portable, but fragile.

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

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

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



MERIDIAN 207 1988 £995

Beautifully-built two-box with pre-amp stage. Very musical although not as refined as modern Bitstream gear. No digital output.

SONY CDP-R1/DAS-R1 1987 £3,000
Sony's first two boxer was right first time. Tonally lean, but probably the most detailed and architectural sounding machine of the eighties.

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



MERIDIAN MCD 1984 £600

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

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

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

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

**ANALOGUE RECORDERS**

AIWA XD-009 1989 £600
Aiwa's Nak beater didn't, but it wasn't half bad nonetheless. Massive spec even included a 16x4 DAC!

NAKAMICHI CR-7E 1987 £800
The very best sounding Nakamichi ever - but lacks the visual drama of a Dragon.



SONY WM-D6C 1985 £290

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

PIONEER CTF-950 1978 £400
Not up to modern standards sonically, but a great symbol of the cassette deck art nonetheless.

YAMAHA TC-800GL 1977 £179

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

SONY TC-377 1972 £N/A
A competitor to the Akai 4000D open reel machine, the Sony offered better sound quality and is still no slouch by modern standards

REVOX A77 1968 £145
The first domestic open reel that the pros used at home. Superbly made, but sonically off the pace these days.

COMPACT DISC TRANSPORTS

ESOTERIC PO 1997 £8,000
The best CD drive bar none. Brilliantly incisive, ridiculously over engineered.

TEAC VRDS-T1 1994 £600
Warm and expansive sound made this a mid price hit. Well built, with a slick mech.

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

DACs

DCS ELGAR 1997 £8500
Extremely open and natural performer, albeit extremely pricey - superb.

DPA LITTLE BIT 3 1996 £299
Rich, clean, rhythmic and punchy sound transforms budget CD players.

CAMBRIDGE AUDIO DAC MAGIC

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

PINK TRIANGLE DACAPO 1993 £N/A
Exquisite; the warmest and most lyrical 16bit digital audio we have ever heard.

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

CABLES

MISSING LINK CRYO REFERENCE 2008 £495/0.5M

High end' interconnects, with deliciously smooth, open and subtle sound without a hint of edge.

TECHLINK WIRES XS 2007 £20
Highly accomplished interconnects at an absurdly low price. Stunning value for money.

VDH ULTIMATE THE FIRST 2004 £250
Carbon interconnects that help you forget the electronics and concentrate on the music. Miraculous transparency. Tight and tuneful bass mixed with air and space.



WIREWORLD OASIS 5 2003 £99/M
Excellent mid-price design with a very neutral, silky and self-effacing sound. Superb value for money.

TCI 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.

Six Appeal

B&W's compact standmount 686 S2 loudspeakers impress Jon Myles with their powerful sound.



Bowers & Wilkins (B&W) makes a comprehensive range of loudspeakers - going from large, lavish heavily-engineered high-end models to smaller, more affordable units better suited to smaller spaces.

The standmount 686 S2 definitely falls into the latter category. Priced at just £350, it's the smallest model in the 600 range, measuring a compact 315mm x 160mm x 229mm (H/W/D) and weighing in at 4.6kg.

But while it may be small B&W have packed some of their latest technology in there. The 25mm tweeter, for example, is the company's own double dome design where a thin, light aluminium diaphragm is surrounded by a thicker ring to prevent audible distortion. This is then housed in a sealed chamber which is decoupled from the cabinet to cut down on vibration.

Below that sits a 130mm mid/bass unit constructed from B&W's favourite material of woven Kevlar. Also at the front is a reflex port featuring the company's Flowport design - which uses small dimples around the aperture to smooth the air flow. On the rear are good quality twin binding posts for those who prefer bi-wiring.



Twin 'speaker binding posts on the rear allow for bi-wiring. There is also a bracket attached for those who want to wall mount the loudspeakers.

Both black ash and white finishes are available while construction-wise the whole package is up to B&W's usual exacting standards with no rough edges and a nice metallic plate around the tweeter which gives the 'speakers a more expensive look than the price would suggest.

SOUND QUALITY

Placed on a pair of sturdy stands and pointing the 'speakers straight down the listening room I hooked them up to a Creek Evolution 100A amplifier - a reliable performer with a nice, open sound and good rhythmic thrust.

It was quickly evident that these 686s pull off the admirable trick of sounding much bigger than they look.

There's a sense of scale to them which - while not as massive as some floorstanders - is pleasingly realistic.

On Led Zeppelin's 'Whole Lotta Love' (24/96) John Paul Jones's bass notes were deep and powerful. The ricocheting effects halfway through the track also echoed around the room.

There's also a clean and precise nature to the sound. With Saint Etienne's 'Milk Bottle Symphony' the clanking of the glass can be clearly heard - something some other small loudspeakers tend to mask. Here it is evident that the tweeter is rather a class act.

It has a crystalline quality that really does bring out the detail in the higher registers but without sounding harsh or edgy. Therefore the saxophone and cymbal work on John Coltrane's 'Interstellar Space' came over with a shimmering quality. Coltrane's sax soared into the room with height and depth.

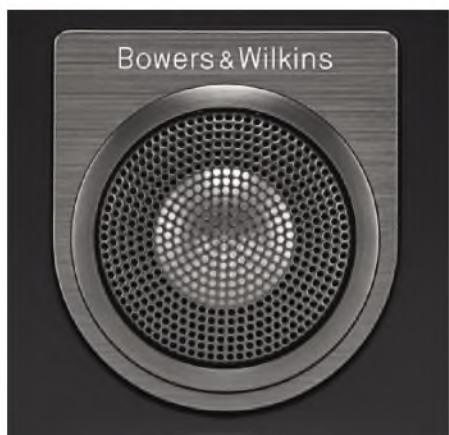
"The B&W 686s provide a very enjoyable, satisfying listen with a sound that belies their size and a detailed, rich presentation".

Angling in the 'speakers towards the listening seat brought this out more but added a little too much bite for my taste. Back to the straight down the room position and everything came over as more refined and as a whole. It's free-form jazz created by Coltrane and drummer Rashied Ali in the studio but the interplay between the pair is well-captured by the B&Ws.

As with most small 'speakers imaging is excellent. The cabinets simply disappear and the sound is anchored firmly centre stage.

Of course, with 'speakers this size, you don't get seismic bass - it's simply not physically possible. But what you do get is all present and correct. As with the Led Zeppelin track the low-end on The Chemical Brothers 'Block Rockin' Beats' had power and bounced along thrillingly.

And they also handle gentler material rather well. I was struck by just how delicate and detailed Messiaen's 'Quartet For The End Of Time' sounded. The instruments had a lifelike presence not all small 'speakers manage to capture, making them easy to track. Changes in



The 25mm tweeter features B&W's double dome design with a light aluminium diaphragm surrounded by a thicker ring to cancel distortion. This then sits in its own decoupled housing with a mesh waveguide in front.

tempo were handled with aplomb.

Bear in mind, though, that the Kevlar mid/bass needs a thorough run-in to really come on song. The

longer you use the 'speakers from new the better; they become fuller and smoother. Ordinary 'speakers need 40 hours; B&W's Kevlars at least double this.

But at this point the B&W 686s provide a very enjoyable, satisfying listen with a sound that belies their size and a detailed, rich presentation.

Listening to 'Mingus Ah Um' Charles Mingus's bass had excellent body underpinning John Handy's weaving alto sax and clarinet lines to provide a thrilling experience.

At this price there's plenty of competition around - the likes of Q Acoustics' Concept 20 at £379 springs to mind. It too provides a big sound from a small cabinet and is well-balanced sonically although doesn't have quite the B&W's top-end sparkle. If you are in the market for a compact bookshelf 'speaker it would be auditioning both.

CONCLUSION

These B&Ws are a class act at the price. Compact yet powerful with an extended treble. Run them in properly and pair them with a good amplifier for an excellent system.

B&W 686 S2
£349.99



OUTSTANDING - amongst the best

VALUE - keenly priced

VERDICT

An excellent small 'speaker from B&W that sounds much bigger than it looks, with a refined sound.

FOR

- good bass
- refined sound
- excellent treble
- design

AGAINST

- need thorough run-in

B&W

Tel: +44 (0) 800 232 1513
www.bowers-wilkins.co.uk

vinyl section

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JULY 2018

www.hi-fiworld.co.uk**PARASOUND JC3 JR 84**

Noel Keywood reviews a semi-pro phono stage.

ARCHIVING THE PAST 87

Paul Rigby talks to George Blood about his work archiving old recordings from LP and 78 – and more.

A KRAUTROCK BIBLE 93

Paul Rigby thumbs through a new book giving a comprehensive low-down on the best of German music on vinyl.

news

FACE YOUR DEMONS ON RSD

Three from Demon (www.demonmusicgroup.co.uk) and a batch of rocking vinyl from Record Store Day. First up is Saxon's 'Metalhead' (1999). This is a picture disc in die-cut sleeve. Familiar heavy metal signposts in a very presentable package.

As is The End's 'Introspection/Retrospection' pairing the quality British psychedelia 1969 original LP with a mid-90s out-takes collection into a two LP gatefold. A rather good idea, done well on translucent vinyl.

Finally, Suede's two LP self-titled debut (1993) on silver vinyl featuring new silver gatefold artwork with the second LP featuring nine B-sides, plus Suede's cover of Pretenders' 'Brass In Pocket'. Great for fans.

**JAZZ HIGHLIGHTS**

Three jazz outings with first from Radka Toneff and Steve Dobrogosz's 'Fairytales' (1982, Odin; odinrecords.com). An LP created from 'long lost' master tapes and featuring spare, delicate piano strains, hesitant female vocals and a stripped approach to classic cuts such as Nature Boy and My Funny Valentine.

Onto more Latin flavours now and Pure Pleasure's Tito Rodriguez and His Orchestra's 'Three Loves Have I' (1957; www.purepleasurerecords.com) with plenty of jazz infusion to spice up the mambo, cha-cha-cha and guaguanco. Packed with energetic, hip swaying, up beat and often rather sexy arrangements.

Finally, Dave Liebman, Tatsuya Nakatani and Adam Rudolph's 'The Unknowable' (RareNoiseRecords; www.rarenoiserecords.com) mixes moody vibes with improv adventures into avant jazz.

Ian Lowery
Get out the sun

Paul Rigby
Heroes

8

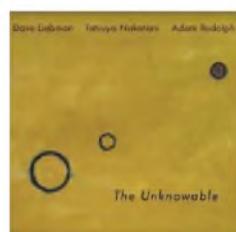
LET'S ROCK

Ex-The Wall, Ski Patrol and Folk Devils, the late Ian Lowery's solo work includes 'Get Out of the Sun' (*Spectacle*; www.spectaclemusic.co.uk). Slashing rock and roll, that's loud and carefree mixing garage outings with introspective, poetic, soap box statements.

'Sonder' from prog-metal outfit, TesseracT (*Kscope*; www.kscopemusic.com) offers a brief and to the point LP that is intriguingly solid in form, mature, a bit on the thoughtful side and considered in its delivery.

Paradise Lost's 'Host' (*Nuclear Blast*; www.nuclearblast.com), their bye-bye-doom-hello-Depeche-Mode 1999 outing, now remastered and appearing on vinyl for the first time.

Finally, ex-Colosseum men Jon Hiseman, Clem Clempson and Mark Clarke's 'Heroes' (*Repertoire*; www.repertoirerecords.com) and songs dedicated to Jack Bruce, Graham Bond, Gary Moore, Dick Heckstall-Smith, Ollie Halsall, Allan Holdsworth, Larry Coryell, Steve Marriott and Greg Ridley. Old stagers who know what they're doing. Power rock trio fans will lap it up.



JAMES HEATHER

Ninja Tune press bloke makes good with his debut, 'Stories From Far Away on Piano' (Ahead of Our Time; coldcut.net/ahead). Moody piano LPs are definitely 'in' at the moment but this is one of the better outings as it features both complex melodies and polyphonic constructions that layer and build to often emotionally symphonic highs...and lows plus neat counterpoints. Where's my hanky?



MAKE WAY FOR THE GALS

First in the queue is Lulu's quite brilliant 'Heaven and Earth And the Stars' (1976) (Demon), a blue vinyl, Record Store Day release complete with limited and collectible numbered 7" single of the two David Bowie written/produced songs ('The Man Who Sold The World' and 'Watch That Man').

Belinda Carlisle's 'Wilder Shores' (2017, Demon), also RSD, also on blue vinyl plus a bonus 7" featuring 'Why' and 'Superstar', recorded for the 'Heaven On Earth 30th Anniversary' project.

From Mobile Fidelity now and Linda Ronstadt's 'Heart Like a Wheel' (1974, www.mofi.com) which shouldn't work but does because of: the song selection, the right production, the passionate delivery. Keynote soft rock.

Carla Thomas' 'The Queen Alone' (1969, Speakers Corner; www.speakerscorner-records.com) combines soul song variants from North and South with a very strong song selection from Isaac Hayes to Burt Bacharach.

...AND FINALLY

Rosebud (RareNoiseRecords; www.rarenoiserecords.com) features Eraldo Bernocchi (Sigillum S, SIMM,), FM Einheit (Einstürzende Neubauten) and cellist Jo Quail in an instrumental: zero oxygen, dark ambience.

Alva Noto's 'Unieqav' (Noton; noton.info) has an Autechre, minimal, blippy, clicky, electronica feel and yet...it grooves.

Jon Allen's 'Blue Flame' (jonallenmusic.com) circles Jamiroquai with funky, jazzy, swing-lite. Ideal listening when hoovering.

Soft As Snow's 'Deep Wave' (Houdstooth; www.houndstoothlabel.com) offers rough-edged, sand-papery, synthpop where the voice is just another instrument.

VLMV's 'Stranded, Not Lost' (VLMV; www.vlmv.co.uk) supplies sparse piano, classical structures and vocal melodies under a post rock arrangement. Dazzling.

Bearfoot Beware's 'Sea Magnolia' (Destroyer; bearfootbeware.co.uk). Shoutie, loudie, indie offering high energy (energie?), stripped, slightly XTC chopped ditties.

Honey Feet's 'Orange Whip' (Wah Wah 45s; www.kudosrecords.co.uk) provides a lively blues/jazz sound with a strong female vocal that sounds capable of just about anything. Worth following, this one.

C.Diab's 'Exit Rumination' (Irjazero; www.irjazerorecords.com) provides atmospheric, airy, space-filled, often slightly distorted ambience with treated guitars and synths. Meditative.

Aussie, Amaya Laucirica and 'Rituals' (www.amayalaucirica.com) sounds like typical John Peel 80s dreamy, fuzzy, indie pop fodder. Which is a good thing. And so is this.

And finally, Nabihah Iqbal's 'Weighing of the Heart' (Nirja Tune; nirjatune.net) features beautifully twangy shoegaze guitars, breathy vocals, delicate synth washes with firm beats. Wondrous.



Paratrooper

The new Parasound JC3 Jr phono stage from renowned designer John Curl is free of frills – but makes up for it with a crisp, dynamic sound, says Noel Keywood.



The Parasound JC3 Jr is one big phono stage – yet this is the Junior for which you pay £2200. It's been designed to fit a Pro 19in rack more than a convenient available space around the hi-fi, but those with racks whose shelves can be adjusted to its low height of 45mm (1.75in) might like the visual fit. You could conceivably place a turntable on top, it is so big – to avoid hum the sort that runs from an external d.c. power supply preferably.

However, the Parasound pitches at being a semi-pro device, designed by renowned John Curl from the USA, so perhaps my idea of putting a turntable on top isn't such a good one; I must get more serious. At the price you can expect it to handle both moving magnet (MM) and moving coil (MC) cartridges, which it does.

Parasound use the simplest arrangement of a single amplifier with switchable gain and input impedances so on the rear panel there is one RCA phono socket input pair catering for one turntable, not the separate MM and MC inputs

of many phono stages. There are two outputs though: normal RCA phono sockets (unbalanced) and XLR sockets (balanced), the XLRs offering double the gain and output voltage as is common. They are best used, especially for long connecting cables if the Parasound is distant from an amplifier.

Also on the rear panel are two small toggle switches, one to set gain for MM and MC and the other to choose between them. The MM position sets input impedance at 47k, the MC position makes input impedance variable from 50 Ohms up to 550 Ohms, the usual value being 100 Ohms. Some MCs (e.g. Clearaudio) need 300 Ohms so this stage will match them or MM can be used (47k) since MC gain is available with MM selected.

The solid, extruded aluminium front panel carries an on/off switch at left and a mono button at right, both having an illuminated bevel to show status. There is no remote

control and no output level control, so the JC3 Jr needs a preamplifier or an integrated amplifier; it cannot drive power amplifiers direct. The unit can optionally be switched on by an external 12V trigger from an amplifier.

The front panel of this phono stage is lavishly built with solid alloyed machined end pieces, firm short-action push buttons having a solid feel, and subtle bevel lighting around the buttons. The switches actuate small-signal sealed relays; there are no switching thumps or noises even with volume turned up, relays allowing short time delays for circuit settling (good ones also having a very long life).

SOUND QUALITY

I connected the JC3 Jr to our Icon Audio Stereo 30SE single-ended valve amplifier driving Martin Logan ESL-X loudspeakers – a very sympathetic combination for LP – where it replaced our Icon Audio PS3 valve



The rear panel carries XLR balanced outputs alongside Phono socket unbalanced. Mini toggle switches change gain and MM/MC state, MC input Z being adjustable.

phono stage. Feeding it was our Timestep Evo upgraded Technics SL-1210 Mk2 turntable with SME309 arm. Cartridges used were an Ortofon 2M Black and three Audio Technica VM-700 MM cartridges (740ML, 750SH, 760SLC), as well as Ortofon Cadenza Bronze and MC A95 MC cartridges.

In this system the JC3 Jr didn't disappoint me. In fact it had the lucidity of our PS3, with little sign of haze, fuzz or muddle, sounding wonderfully clear and transmissive. There was a great sense of listening through an open window, the Parasound putting little on the way between betwixt cartridge and amplifier.

A crisp quality with well-resolved highs brought solid bite to Mark Knopfler's guitar strings in 'Madame Geneva's' from the LP Kill to get Crimson (180gm), whilst the sense of smoothness and depth to this superbly mastered LP was conveyed with little degradation.

As I expected there wasn't the stage depth of the PS3 but there was a sharper outline to images across a broad and well-lit soundstage. A strong grip on tempo propelled the metronomic synth backing to Billy Ocean's 'Get Out Of My Dreams And Into My Car' (12in, 45rpm), the powerful bass line of this 1980s disco number (get yer flares on!) coming across as tight and forceful, with a sense of fulsome power. It was propulsive and exciting.

I did most of my listening with the Ortofon Cadenza Bronze MC, but changing to the MMs showed up differences well, including differences between them. This isn't a phono stage that softens the sound. Quite the reverse, making Audio Technica's VM740ML a good match, rather than the brighter VM760SLC. Our Cadenza Bronze also better suited than the more technical A95, where the two both suit the Icon Audio PS3, so the JC3 Jr is quite specific – and will pep up warm sounding MMs in particular.

Classical music highlighted the clear, open nature of this phono stage but also its analysis. The strings on Marian Thorsen playing Mozart's 'Violin Concerto No4' from a 2L (Norway) LP recorded in DXD and cut to 180gm quiet vinyl sounding shimmeringly clear and richly detailed, yet without any harshness. Wonderful how analogue can do this without the screech of digital. This thought came to me likely because

the Parasound has digital-like composure and presence – no warmth or cuddliness – but without 'digitalness'.

On the matter of hiss and hum, there was no hum in our system and only slight hiss with volume at maximum and my ear against the X-Stat panels.

CONCLUSION

I'm very sensitive to phono stages: they can make or break the sound of my LPs. And because they are easy to knock up, many are simple, unfettered and lacklustre designs that place a flattening veil over the sound. Parasound's JC3 Jr was the opposite: crisp, clear, pacy and dynamic – no veils here.



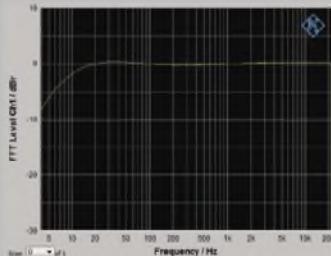
Most phono stages come in small cases so there's space to spare in the Parasound's big chassis, but this lessens hum induction, as does the screened mains transformer of the linear power supply.

As a package it is large and free of frills at the price, but Parasound get the basics right – meaning sound quality – and that makes it well worth auditioning.

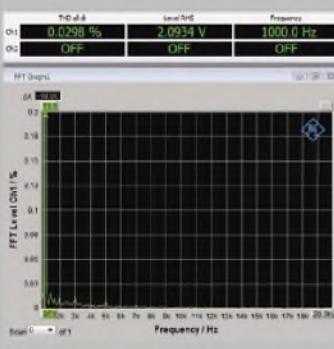
MEASURED PERFORMANCE

Frequency response of the JC3 Jr, shown in our analysis, was identical at all gain settings; it didn't run out of LF gain at the highest setting (60dB), as some can. Equalisation was accurate across the audio band with just a slight lift (+0.5dB) around 40Hz likely introduced by a gentle warp filter that rolls off gain below 12Hz (-1dB) to produce a mild but

FREQUENCY RESPONSE



DISTORTION



useful -8dB attenuation at 5Hz (warps) to lessen cone flap from ported reflex loudspeakers.

Gain was as stated, measuring a normal x100 for MM cartridges, with x340 as an option for low output types, since overload was an acceptable 20mV. Moving coil cartridges have x1000 gain available (60dB) which is enough for high-ish output types but not for very low output MCs. Also, noise (hiss) was low but not very low, measuring 0.2µV in (equivalent input noise) where half this (6dB less hiss) is possible.

The XLR outputs double the gain and overload margins but since many XLR amplifier inputs have equivalently less sensitivity this may not alter anything. As balanced audio is handled by dedicated ICs nowadays there isn't necessarily a fixed 2:1 relationship to unbalanced.

The Parasound JC3 Jr measures well all round but it does not excel with moving coil, best suiting high output budget types if slight hiss is to be avoided. **NK**

Frequency response 12Hz- 20kHz
Gain x110, x340, x1000
Overload (MM,MC) 63, 20, 7mV in / 7V out
Separation 67dB
Noise 0.22µV e.i.n.

PARASOUND JC3 JR £2,200



EXCELLENT - extremely capable.

VERDICT

Fine sounding phono stage, if awkwardly large.

FOR

- snappy and clear
- good bass
- MC matching

AGAINST

- size
- no level control
- fixed warp filter

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Saving Our Songs!

...and much more including live performances, spoken word and video on every conceivable format including the obscure and the obsolete. That's the job of George Blood, archive restorer extraordinaire, says Paul Rigby.

“You keep things alive by keeping them on the move". This is George Blood's answer to those who have ever wondered about the perfect archive system, the best strategy to store data over the extended term and to prevent the loss of priceless information for the foreseeable – and not so foreseeable future.

And what's that got to do with music and, if you're interested, music-based video? Everything, as it happens because Blood handles and rescues the lot from certain death and extinction. Recordings that are either previously thought inaccessible or slowly fading and rotting away.

For audio fans and audiophiles, George Blood is a bona fide hero: "We handle music collections from recitals to record labels, spoken word from oral histories to lectures to board meetings. We have a collection running today regarding environmental lawsuits. We're doing a large collection from a major public broadcaster: both raw interview footage and finished programmes. We're doing 400,000 78rpm sides for the Internet Archive, a lot of work for the New York Public Library's Library of the Performing Arts. Everything from live concerts for every conceivable genre of music to video taped dance programmes.

About 80% of the audio we handle arrives on audio cassettes, quarter inch reels in all speeds and



George Blood's Technics SP-15 turntable with four 12" Jelco arms attached. They carry Shure M44 cartridges with different stylus tip sizes to find a best match with uncatalogued 78s. See 'The Great 78 Project' box-out.

track formats, and 78rpm discs. In video, 80% arrives as VHS and three quarter inch U-matic".

And that lot was only what Blood could recite off the top of his head.

His company, officially known as George Blood, Audio/Video/Film & Data, digitises those mediums as well as migrating that data to usable formats. In business since 1982, Blood was originally employed by a national

syndicator of fine arts programming on the radio known as WFMT-FM in Chicago, gaining precious experience for his future endeavours during this period. "I was actively encouraged to do outside work to learn about other orchestras, other spaces, other microphone techniques and so on. By 1990, I had accumulated a large number of recordings and I was trying to figure out how to organise them.



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My broadcast collection of recordings and the recital archives of the Curtis Institute of Music in Philadelphia got together and I built climate controlled storage for those collections for patron access. I was then asked to start accessing those collections to digitise old formats. Now I have a staff of thirty-five and we handle 11,000 items a month for clients such as government agencies and cultural heritage organisations", said Blood.

The bulk of Blood's work is to create digital surrogates that are authentic copies of the original. "We are preserving the original artefact in a digital form 'as is'. That is 95% of what we do", said Blood.

Getting at the data is often the 'tough ask' in any project. Often, this means tackling obsolete formats. For example: "We can handle unusual noise reduction systems like

Sony VII. It's a huge menagerie of formats. We have many machines where we haven't even used them to play back 100 tapes – they're just that rare".

Blood even carries wire recorders, stemming from 1898. The Webster Chicago recorders were used in the 1950s and '60s as an inexpensive recorder and a competitor to cutting lacquer discs. It's stainless wire that runs 24in per second and has the bandwidth of a "really good phone call" and reasonable dynamic range. "The recorder is running at a constant angular velocity



Setting up a photograph of a record label for a 78.

so that the wire moves faster on the outside, but because there might only be three eighths of an inch of wire, you don't really hear that but the alignment procedure in the technical manual, to set the back tension, tells you to turn up the tension until the recording slows down a bit. So, they're a little iffy when it comes down to things like wow and flutter, as you can imagine".

Original wire recorder 'software' arrives as three inch



What's the collective noun for a group of Studer reel-to-reel machines? Answers on a postcard.

Telcom and the DBX 700 (an early competitor to the Sony Professional Digital Recorders the 1610s and the 80s). We handle one inch and two inch, 8, 16 and 24 track, multi-tracks, 48 track digital reel-to-reel machines.

Unusual things like a brown floppy disc, spanning eight inches with an unmodulated groove on it with a magnetic head underneath the tonearm. It's a flat analogue disc that works like tape and called a VoiceMaster. We also have the largest fleet of working two inch quadruplex machines.

A lot of formats were just spectacular failures, including the one inch video format by IVC and



Part of the video playback suite.

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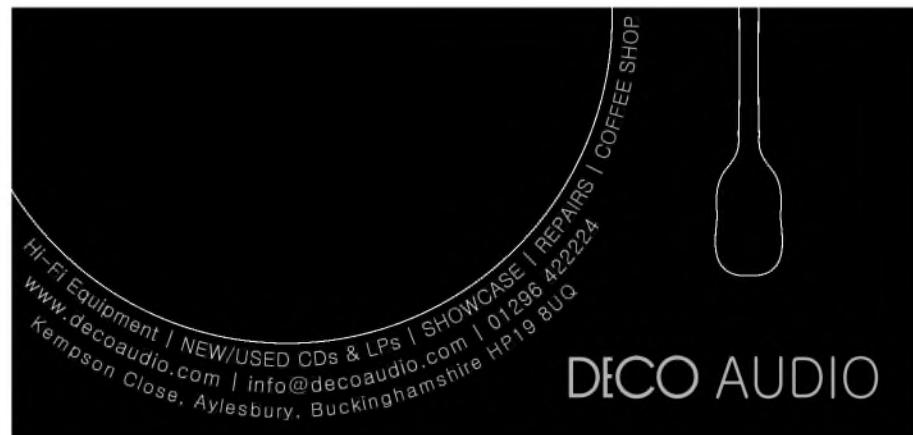
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Keith Monk's cleaning machines are an integral part of the vinyl and shellac cleaning process.

reels on a spool. "They're pretty heavy because it's a lump of stainless steel. We've found unique recordings from home hobbyists featuring the Chicago Symphony and New York Philharmonic off the radio. These are often the only known recordings of that particular concert, for example".

All in all? Blood saves precious recordings from being lost forever and he's doing it at a rate of 40TB every single day. Of course, he's paid for what he's doing but from the perspective of the dedicated audiophile, the man should also be given a medal.

THE GREAT 78 PROJECT

The Internet Archive seeks to preserve universal knowledge to everybody. They've been digitising books for a long time. Music is included too of course. The current goal is to provide a reference section for 78s, supported by twenty different institutes. It's highly inclusive. Hence, there is access to many discs with no particular audience. Things that are not exactly commercially exploitable. Examples are comedy discs from the turn of the 20th century, sound effects discs, music from unusual places such as early Hawaiian music.

Blood estimates that 3-3.5 million unique recordings were released during the 78rpm era. The Internet Archive has committed to digitising 400,000 sides. "We are avoiding classical music because so much of that migrated to LP and CD. It was a way to remove a large quantity of discs so that the resources would be largely devoted to more undiscovered materials.

One of the important parts of the process is that we only digitise a recording once. We focus on more titles. If there's a poor title and that's all we have, the engineer clicks a check box which says, 'Boy, it'd sure be great to get a better copy of this'. Then we'll do another one".

The turntable used in the digitisation process is a Technics SP-15 with four 12" Jelco arms attached. "Ours have been refurbished by Timestep in the UK. Specifically the main bearing, speed controller and logic in the devices. These turntables get a lot of abuse, running sixteen hours a day. Timestep's Dave Cawley works closely with George Blood and also supplies the tonearms and the T-01EQ universal phono equalisers".

Different stylus sizes are applied, re-tipped by Expert Stylus in the UK to M44 Shure cartridges. The stylus tip size varies from 1.5, 1.9, 2.1 and 2.3mil. "We have thirty different tip sizes available", said Blood, "because 78rpm discs were not standardised for speed, equalisation or stylus size".

In the first tonearm, the engineer will refer to the reference information which will say that this disc purports to be this style tip size and then the other three tonearms are sizes that are around that reference point. "What we're working on is the assumption that the disc will have been 'loved' over the years, played many times and maybe worn in a certain way, so we can play a different area of the groove. The 78, like LPs, suffer from inner groove wall distortion so that you may find a better sound with a different styles size on the inside of the disc than the outside of the disc.

"There's debate in the community about choosing the best stylus size. Traditionally, you'd have one tonearm, try one size, listen, try another size and back and forth. This takes time, it's hard on the memory and it's hard on the hardware. I built this turntable to speed the stylus selection options. You put four arms on it, four tips, take an 8-channel A-D and you can compare them side by side in real time play. It's astounding how easily it is to hear and what you can hear. You can easily go back and forth in this way.

After you have the resultant file, you can change the equalisation, speed but not the physical interaction of the tip in the groove. We decided to keep all of them. All of the discs are mono so we have four sizes, right and left groove wall and then with and without EQ (the recommended EQ from that era which you can see on the website). That's 16 channels to choose from for the listener".

For more information click: great78.archive.org/preservation and archive.org/details/78rpm



The video playback suite features some of the most spectacular technology failures in broadcast history. And every one is a priceless addition to George Blood's armoury.

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Krautrock Bible

Paul Rigby takes in the ultimate reference book for fans of Germany's Krautrock records.

Cosmic Price Guide: To Original Krautrock Records
Author: Ulrich Klatte
Price: £25/ 38

Krautrock records represent a particular outpouring of music from Germany, during the late sixties and through the seventies. The genre was unique in only emanating from and being associated with a single country. Unlike most music genres which indicated a tipping point for a smouldering social evolutionary period (i.e. rock'n'roll, hippy/psychedelia, punk, etc), Krautrock was apart. It was a reaction to an event that emerged from their own doorstep. The ending of World War II spawned a host of trailing emotional reactions in Germany including guilt, confusion, shame, defiance, feigned ignorance and a whole lot more. Many wanted to forget as soon as possible.

The next generation growing up after the war, those who hit their teens around the late sixties and seventies, tried to make sense of it all, especially of their parents and the country they were living in. Krautrock was also different because it was not a single genre of music (it included rock of many different types, folk, avant-garde improv, electronica, singer-songwriter and so on), although it was distinctly European, as opposed to American influenced but it did feature an attitude that reflected the social angst.

This price guide looks at many of

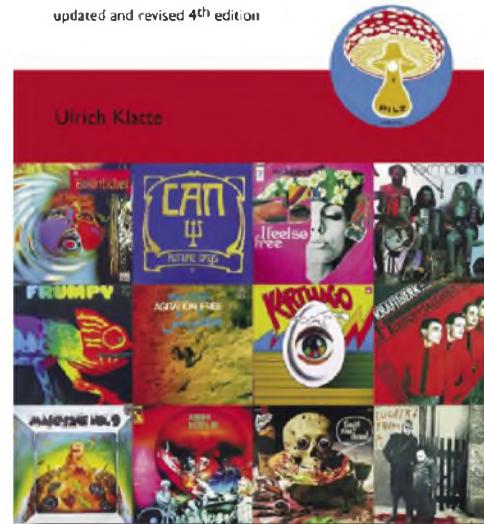
the albums that were released from the period. Spanning 448 pages and offering 3,000 hi-res colour images. The hardback book spans 21.5cm high and 15cm wide. It's an ideal size for the working fan. That is, someone who needs a ready reference on site, as it were: at a record fair, in a shop, in front of a collection and so on. An additional, simple yet important tool to aid that is the ribbon bookmark – a life saver in a rushed situation.

This tome is the updated and revised '4th edition' and it's divided into several sections. The useful introduction (available in English and German) discusses condition and price value, including how a rare LP's price value can leap with the addition of fragile original accessories such as a poster or sleeve-mounted sticker, as well as mini-biographies of some of the principle Krautrock artists.

What follows is a dense, close-typed A-Z listing of selected LPs including the band, LP title, label, catalogue and price. Many of the latter are pricey but, even so, remain surprisingly conservative in value which, to my mind is a good thing. Hopefully it will act as a brake to the often crazy prices that certain greedy dealers (of whatever stripe) love to quote. I would even take this book along to a prospective sale as a weapon in your defence against such excessive practices.

COSMIC PRICE GUIDE

to original KRAUTROCK records
 updated and revised 4th edition



The following section is a breathtaking selection of LP sleeves. Almost 200 pages of the things, twelve to a page and all clearly printed. It's a staggering achievement to feature such a wealth of reference imagery.

Following this section is another detailing paper record labels, poster inserts, photographs and more.

Then you are treated to a list of actual record labels with the bands and records associated with them.

This book doesn't include absolutely every record of the type. It doesn't pretend to – but it does feature the important and the significant and much that is rare and obscure.

For such a compact and, for its size, surprisingly weighty book 'The Cosmic Price Guide' is a brilliant addition to the Krautrock price guide armoury for collectors and buyers of the same. More than that, for the basic fan of the genre, it's a great book just to browse through while, in educational terms, it also adds awareness of unknown LPs by favourite groups and previously unknown artists.

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ARCAM A29 amp, Yamaha S-300 CD, Mitchell Johnson CD20 IV, Marantz UD5007 Bluray/CD, Arcam irDAC2, Yamaha 501 amp. Open to all offers. Collection only. Tel: Alan 01977 695 385

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PROJECT EXTENSION 10 high mass turntable with carbon fibre arm, £900 (RRP £2250). Xindak Anniversary CD transport, £600 (RRP £1595). Xindak Anniversary DAC, £600 (RRP £1595). Whest PS30R phonoamp MM/MC £800 (RRP £1900). Tel: 07905 348 812 for demo.

MARANTZ CD6003 (silver) £125. Furutech ADL H118 phones £175. Clearer Audio copper alpha mains 1mtr £20. QED graphite optical 1mtr £20. Chord Co. Prodac pro digital coax 0.7mtr £20. rustinaway@gmail.com 07599259250 (Russ) West Yorks.

HUMAX FREESAT, Russ Andrews upgraded PVR with 1Gb hard drive £200 in original box. Stax SRM-006t energiser and SR-404 Signature headphones £796, Arcam DV137 DVD player £120. Southport 01704 628968 or 07968769595

PROAC D18 speakers Yew cabinets and Proac boxes £995, Stax SRM-006t energiser and SR-404 Signature headphones £796, Arcam DV137 DVD player £120. Southport 01704 628968 or 07968769595

AUDIO LAB M-DAC. Three years old, little use, immaculate condition. Complete with remote, manual and original packaging. £275. Tel: 0790 5501265 (East Sussex)

CROFT ACOUSTICS Micro 25R line preamp one line input regulated power supply Single volume pot cathode follower circuit 12BH7A valve upgrade £750. Tel 07476001116 or 01243528010

SONUS FABER Electa Amator 2 speakers with ironwood stands. Crossovers replaced with Wimslow Audio crossovers. Original crossovers included. Excellent condition with original boxes. £995. Tel 02392 453382. Hants.

QUAD 606 Power Amplifier £595. Quad 66 Preamp with control panel £385. Both boxed, manuals, cables, mint, light domestic use. Dereham, Norfolk Tel 07415652983

LOWTHER SPEAKER drive units. four EX2's. Three not working. May be useful to exchange at Lowthers for the type you require at some saving in cost. Offers. Tel: 01522 682 926

EPOS K2 speakers. Mint condition, boxed, only one year old, hardly used. £650. Email davidlsmith@yahoo.co.uk Tel 01630 685966. (Shrewsbury area)

FOR SALE: HiFi Choice: The Collection. The complete set from 2004 to 2011 inclusive. In excellent condition. £35 for the set. Cash on collection only. Location Cheshire. Tel: Ray on 07708431963.

WILMSLOW PRESTIGE speakers massive sound from famed ATC mid range and 12ins bass unit and Scanspeak tweeter professionally sprayed silver finish £2500 London 07793749178

PROAC D18 speakers Yew cabinets and Proac boxes £995, Stax SRM-006t energiser and SR-404 Signature headphones £796, Arcam DV137 DVD player £120. Southport 01704 628968 or 07968769595

CANADIAN GUTWIRE Synchrony 3 metre length speaker cables. Superb, totally new condition. £700. (Synchrony Interconnects available separately). Email: stephen.adolphus@gmail.com. Tel: 07787 574784.

MUSIC FIRST Audio Baby Reference V2 preamplifier. 2 years old. WBT Nextgen RCA connectors. Boxed as new. Will demo. Photos available. £3000 (£6000 new) Contact David on 07711 702836

KEF CODA 9 Stereo Speakers'. Black Finish. Used but totally new condition. Collection only from West London. £110. (Tel: 07787 574784) Email: stephenadolphus@yahoo.com.

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SPENDOR D7 floor standing speakers. Walnut finish. Excellent condition with boxes. Will demo. £2400. Email: adrian59.brown@gmail.com. Tel: 01773 827964. Belper, Derbyshire,

P S AUDIO NuWave Phono Converter. First owner, boxed as new. Can demo. £900. Bedfordshire. 07704145987 am only.

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NEXT MONTH

AUGUST 2018 ISSUE

TECHNICS SP-10R

Next month we bring you one of the first Technics SP-10R turntables to hit Europe, an early sample without plinth flown in from Japan. It has been mounted in an original Technics plinth rather than an after-market design, and paired with a Japanese stainless steel Glanz tonearm, fitted with our in-house Ortofon A95 moving coil cartridge – all of which you see here. With coreless Direct Drive motor having twin rotors with drive either side, plus a 7kg platter of brass and aluminium with damping layer, this is some beast. Don't miss our unique review in next month's August 2018 issue.



Also, we hope to bring you –

POWER INSPIRED AG1500-S AC REGENERATOR

Q ACOUSTICS 3050i LOUDSPEAKERS

STUDIO 19 SOLO 500X-EQ SPEAKER

CAMBRIDGE CXN V2 NETWORK PLAYER

NAD C388 DIGITAL INTEGRATED AMP

FiiO M7 HI RES PLAYER

...and much more.

This is a selection of what we hope to bring you, not a complete list. We regret that due to a wide range of issues, we cannot guarantee that all products listed above will appear.

**PICK UP THE AUGUST 2018 ISSUE OF HI-FI WORLD ON SALE JUNE 29TH 2018,
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OCTOBER 2018 - 7TH AUGUST

DELANEY & BONNIE & FRIENDS

To Bonnie From Delaney
Speakers Corner



"on his motor-cycle ... that's when he hit that peach truck and died"

Delaney & Bonnie were an odd couple – compared to other music stars of the time, that is. Odd in that they offered a unique conglomeration of music. Firstly, because they combined a wide range of genres easily into their art from soul to gospel to blues and even country (a pretty wide bunch there, then) so they didn't fit nicely into any label-managed area. More than that, they attracted a selection of high-powered friends (or Friends, as this album has it) who were more than willing to join in the party.

In many ways, this aspect of the duo's career, being a creative catalyst – and not just for the star names – was most intriguing, but it was also a natural part of the couple's make-up and one that's not often explored. That is, the pair were musically inclusive and generous in how they shared their time and space. I think that this attitude, this sort of "Hey you can hang out with us, no pressure," feeling was very attractive. Especially to rock stars who were too used to being in the increasing white heat of publicity.

As Bonnie herself explained, "It would've been rude for an artist to walk in and you not ask them if they want to play. I mean, people bring their own mouth piece and they walk in with their instruments in a soft case which right away says that it's coming out of the case – they want to play. Anybody that carries an instrument in a soft case plays it. It doesn't sit around a lot. It's not safe – if it's in a soft case – to just sit around. So, you could tell who's who by what case they carried."

But their generosity wasn't restricted, either. "It wasn't exclusive that you had to be a star, you just had to want to play. If you were the young gun in town and you showed up at our concert and you came in and said that you wanted to come in and sit in on the jam song, you were welcome on that stage. Delaney didn't care if it was Eric Clapton or Joe Schmoe. It didn't matter to Delaney. He brought that."

And that sense of sharing and camaraderie

was a major part of this album. This 1970 LP release, well mastered by Speakers Corner, was their first release for Atlantic and showed their Rhythm & Blues chops with a host of brilliant performances from Delaney's voice/guitar and Bonnie's Janis Joplin-like delivery. But there's more than that and it is summed up by the above.

The feeling that the journey is the most important thing, that the feeling of the music itself is more significant than any money, marketing or image pressures and that 'we're all here to have a good time'.

You get that when you hear tales of Duane Allman (a resident Friend), "...we got to be best friends," said Delaney, "and if you saw one of us you saw the other. And King Curtis (also on this album) rounded out the trio. I mean, me and Duane and Curtis, we hung together and we made some real good music. You know Duane got little strung out on drugs and I talked to him and asked him before he got any worse if he'd go to the hospital. He said, 'Do you think it would work?' It would have been easy because he wasn't that bad off but he was like me and had a bad temper. He told the nurse, 'I need a little something to calm me down. I'm kind of hurting.' And the nurse yelled, 'Oh all you druggie hippie musicians come here for help and just go back out and do it all again!' It made him mad, so he put his clothes on and got on his motorcycle and took off. And that's when he hit that peach truck and died."

On this LP, also look out for Aretha Franklin backing man, Mike Utley, rock'n'roll legend Little Richard, Derek & The Dominos drummer Jim Gordon plus Bobby Whitlock from the same, Sneaky Pete 'Flying Burrito Brothers' Kleinow plus one of the best guitarists ever to see the light of day but who was taken from us all too early, Charlie Freeman (famed for his appearances with Jerry Lee Lewis, Aretha Franklin, Chuck Berry and Bobby Bland) and legendary producer and keyboard man, Jim Dickinson.

Delaney & Bonnie, boy they knew how to pick 'em. PR

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