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MARCH 2022

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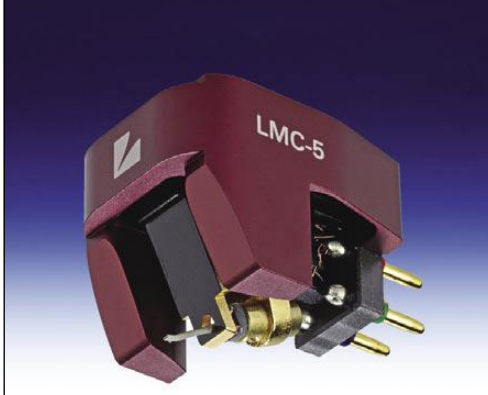
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BLUE AURA BLUE 1 EXCLUSIVE!
receiver



CHORD MOJO 2 EXCLUSIVE!
portable dac



LUXMAN LMC-5 EXCLUSIVE!
moving coil cartridge



COMPETITION

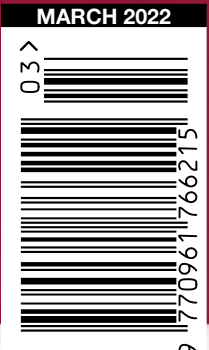


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Q ACOUSTICS CONCEPT 50 loudspeakers

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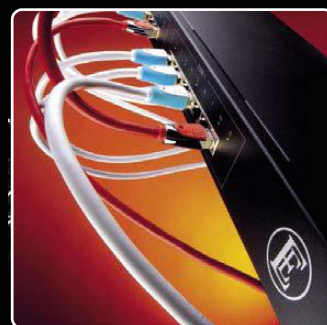
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At Hi-Fi World we've enjoyed bringing you some of the UK's biggest loudspeakers, the most extraordinary being Tannoy's Westminster Royal GRs in our November 2015 issue. Delivered by truck from Scotland, they demanded pallet trolleys and three men to manhandle each one. Thankfully our building had a goods lift. The days of such exotic loudspeakers from Tannoy are over, sad to say. We are still happy to take in and grapple with large floorstanders though and this month yet

another pair grace our pages, this time from Q Acoustics. Where the Westminsters clocked in at £27,950 the Concept 50s are more wallet friendly, just £1,999. Yet they gave a great sound, big enough to keep most listeners happy. You can read about these lovely loudspeakers on p10.

Back to the glorious Westminsters! And Mojo. One of my favourite pictures was of Chord Electronics original Mojo driving these massive speakers, on p78 of our January 2016 issue. Seems that back then Chord Electronics claimed Mojo was capable of driving loudspeakers – so that's what we did! Tannoys finest needed just a few Watts so the task was not as improbable as it might seem – it worked nicely. With Mojo 2 Chord Electronics have quietly dropped that claim, talking up a host of new features instead. To find out more about them just go to p66.

There's no stopping the rise and rise of vinyl. Long ago everyone thought it would be a short-term fad, but not so. For reasons much discussed, sales have risen for the last 14 years according to the British Phonograph Industry (BPI), now topping 5 million. That's a long way off the 85 million peak of 1978 but it's still a commercially significant figure, especially when repeated around the world. Like in Japan for example where even Sony have re-started vinyl production, perhaps prompting Luxman to come up with their new LMC-5 moving coil cartridge that will surely appeal to its home market and global markets. Read about its qualities on p73.

We've got a lot of affordable, yet high quality products in this issue, ones that will improve your enjoyment of music. I hope you enjoy reading about them all.

Noel Keywood
Editor



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verdicts

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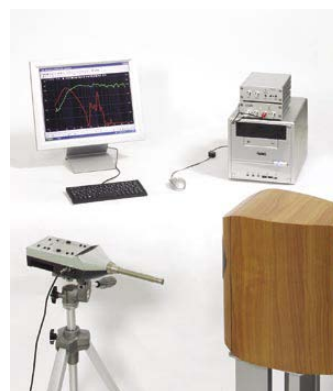
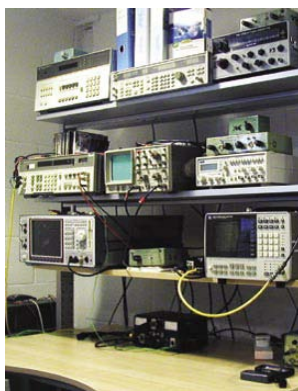
testing (see www.hi-fiworld.co.uk for full explanations of all our tests)

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

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

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

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



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MARRIAGE OF CONVENIENCE

If you like the idea of British-made 'real' hi-fi and vinyl playback, but want a sensibly-priced package deal that's free of hassle, then pop down to your friendly local Rega dealer and arrange to audition the recently-introduced System One.

Described by the Essex firm as "the perfect all-in-one analogue solution", the easy-to-install £1,199 system comprises a two-speed belt-driven Planar 1 turntable with factory-fitted RB110 tonearm and Carbon MM cartridge, a compact 30W per channel i/o (yes, all lower case) amplifier that has two line inputs and a headphone socket, as well as a decent phono stage, two-way Kyte bass-reflex loudspeakers and all the necessary extras, including two 3m lengths of 56-strand speaker cable. In Rega's words, that accounts for everything needed to "immerse yourself in a wonderful world" of LPs and singles. Look out for our review in next month's issue...

Further details: bit.ly/3Fes2Q2



RELENTLESS DETERMINATION

If the Dan D'Agostino Relentless preamplifier and monoblocks featured in News last month lie just outside your budget, fret no more!

Some of the underlying technology has now trickled down to the ex-Krell designer's lower-rung Momentum range - specifically the new Momentum S250 MxV stereo power amplifier (250W p/c and a snip at £48,998!) and Momentum M400 MxV (400W p/c, £45,000 each).

The name comes from basic physics: (M)ass x (V)elocity = momentum! Talking of velocity, the final output stages of both amps use ultrafast (69MHz) output transistors - 26 of them, in the S250 MxV - as built into the Relentless monoblock. Other Relentless techniques and topologies, the Arizona firm points out, have influenced every key section of the hand-built amplifiers - the balanced XLR-fed input, driver, cooling and power supply arrangements as well as the output stage.

Further details: bit.ly/3Gc2hkD; bit.ly/33icbTk; absolutesounds.com (distributor)

BASS HEAD

Headphones with analogue VU meters in the cups. New to us, and we have to ask...why? Should you sit sideways in front of a mirror, to confirm the findings of your ears?

Someone has however suggested that parents can monitor the backlit dancing needles of their headphone-wearing children, and then act to spare them from hearing damage! Gimmicks or not, the Bluetoothed 'Meters' range from Essex-based Ashdown Engineering has been received well...and even won awards in Germany. Ashdown is better-known for its take on bass-guitar amplification and the apparently Flash Gordon-inspired 'Magnifier' technology that makes it happen.

It has now introduced a £69 wired pair of Meters headphones, the 235gm NOVU-1 Studio Reference. Closed-back designs described as "ideal for studio use", they feature 50mm 64 Ohm dynamic drivers, detachable 3m cable with 3.5mm plug and easily-replaceable earpads. What they don't have though is meters.

Further details: bit.ly/3q9k4mS



GETTING CONNECTED

The original force behind Astin Trew now has another string to his bow. Quite literally...as the line-up of Michael Osborne's new accessory brand, 'connected-fidelity', includes a comprehensive range of cables. Known as Unity, the latter includes phono and XLR interconnects, coaxial digital links, speaker cables and IEC mains leads ranging in price from £229 to £1,399.

Then there's the cryogenically-treated AC-2K balanced mains conditioner (£1,995), which Osborne initially developed for personal use after "hearing what balanced mains power could do in a recording studio".

Also in the range are audiophile 13A fuses (£44.95 per 3) and a £249 'wide-band radio-frequency filter' that connects across the speaker terminals to "increase audio fidelity".

Osborne explains that he "didn't set out to create a new brand", connected-fidelity instead germinating from "a personal quest". As an audiophile, none of the commercially-available tweaks he tried could "quite hit the mark" and so he made his own.

Further details: bit.ly/3352qj



GREEKS BEARING GIFTS?

A new name to us is Michael Fidler's Medway-based Classic Audio, the first product of which is the handmade Spartan 10 MM phono stage. Beneath that no-nonsense fascia lurks LFC, a novel (and appropriately analogue-domain!) approach to reducing low-frequency noise.

Fidler noticed that after switching his amplifier to 'mono', the noise caused by record surface imperfections and turntable rumble was audibly-cut. His idea was to 'mix' together the two stereo channels...but only at frequencies below 200Hz. Higher frequencies are unaffected; indeed, cartridge performance is more likely to impact stereo spread than the effects of LFC ('low-frequency crossfeed').

Fidler told us that, with LFC engaged, channel separation is 18dB at 500Hz, 24dB at 1kHz and more than 30dB above 2kHz. Other features of the £380 Spartan 10 include mono switch, subsonic and RF filtering, circuitry based on the 'no-nonsense' NE5532 dual op-amp, close-tolerance passive components for RIAA accuracy, nickel-plated RCA phono connectors and a linear power supply.

Further details: <https://bit.ly/3f6tTfd>



LOW-COST ATMOS

Speaker manufacturer Polk, one of the first to enter the soundbar audio market they say, has launched its first Dolby Atmos model.

Not so long ago, this immersive surround-sound format could only be enjoyed by wealthy home-cinema fans, music lovers and gamers. Polk's Signa S4, however, can be yours for a mere £329 - complete with wireless subwoofer for "deep effortless bass". The slimline main unit incorporates a discrete centre-channel speaker, separate tweeters and woofers for the left/right channels and upwards-firing Atmos height drivers.

Other features include 10m subwoofer connection range, upmixing of non-Atmos content, Polk's proprietary dialogue-enhancing 'VoiceAdjust' technology, Bluetooth, analogue input, optical digital input, an eARC-compatible HDMI port, 'Night' listening mode and flexible audio adjustments.

Further details: bit.ly/3HQ9WFH

NEITHER FISH NOR FOWL?

What have we here? An old-school iPod docking station...could the product that saved Apple be due a vinyl-like revival? Not quite yet. Look closer, and you'll notice that the player is an Astell&Kern model.

Meet the A&K Acro CA1000, billed as a "headphone amplifier with digital audio player capabilities". It's not a docking station, the digital audio player – which folds down into the case – being built into the £2k unit.

The 'carryable' Acro CA1000 boasts features we've come to expect from pocketable A&K DAPs including hi-res support (up to DSD512 and 32bit/384kHz), ESS ES9068AS 'Quad-DAC', touchscreen-driven user interface, Wi-fi, Bluetooth and proprietary 'Teraton Alpha' circuit design. However, with mains power the headpho amp can be made more potent and sophisticated. 'Crossfeedable' 3.5mm, 6.35mm, 2.5mm and 4.4mm outputs are available – and there's a four-step gain control to accommodate different headphone sensitivities.

A micro SD slot augments the 256GB onboard storage, and you can also enjoy music from external analogue and digital sources.

Further details: bit.ly/34HpE7X



BLACK MAGICO

Billed by its Californian maker as "The Ultimate Powered Subwoofer", the Titan 15 from Magico LLC will tip your scales at 177kg. However, importer Absolute Sounds told us that it will simultaneously make your wallet lighter by £37,998!

Inside the beast's sealed and internally-braced aluminium enclosure are two opposed 'force-cancelling' drivers, the 381mm cones of which can move 40mm in either direction. Each is driven, via a 3.2kW Class-D amplifier, by a sophisticated Magico-designed electronic crossover and DSP control centre that enables users to accurately-tailor the Titan 15's impressive output specifically for their sound systems.

Magico claims that its new subwoofer's low-bass performance extends comfortably into the infrasonic region, thereby "expanding the dimensional soundfield in any room space". For those with solidly-built homes...and understanding neighbours.

Further details: bit.ly/3q9cfNV; absolutesounds.com



SILVER SERVICE

In this neat Russ Andrews presentation box is no less than £219's worth of audiophile-grade connectivity, intended to replace the clip-on leads that bridge the terminal pins of cartridge and headshell.

The colour-coded set of four is made from Kimber pure silver wire, coated with Teflon insulation and terminated with rhodium-plated phosphor bronze contacts. Careful determination of "the right spring pressure" allows the latter to strike a balance between ease of installation and reliable contact.

Russ Andrews then treats the four leads to its proprietary (and undisclosed!) 'Process Q' burn-in treatment, which is claimed to "significantly elevate the performance of every element". Confidently guaranteed for 25 years (well, there's not much to go wrong here!), the 'AG-25 Silver Headshell Leads' are available on a 60-day home-trial basis. Available for a further £27 are 'cartridge tweezers' to help you fit the leads.

Further details: bit.ly/3zH3a2l



POWER GRAB

One of the most unusual products I've come across is the Optimo S ATX from Polish outfit JCAT, described as "the world's first truly 100% linear (transformer-based) power supply" for PCs. Computers started off with such arrangements but, as sophistication and demands increased, the designers of these machines switched over to smaller and more efficient switch-mode power supplies (as, out of interest, did firms like Carver and Yamaha for their beefier amplifiers).

The hand-built 450W Optimo S is considerably-larger than a traditional ATX power supply and cannot fit inside a PC case. Instead, the supplied cabling – 1.5m harnesses, made with shielded silver-plated copper wire – must be brought out from its innards to JCAT's large and attractively-finished hi-fi width enclosure, which weighs 27kg.

Acoustically, the passively-cooled €4500 unit is less intrusive than a fan-cooled ATX PSU. JCAT claims that it's much quieter in electrical terms too; less than 25µV RMS of noise 'on the rails' makes it ideal for high-end audiophiles using PCs as audio sources.

Further details: bit.ly/3naNeju





Curious Q

A floorstander different to most else, Q Acoustics Concept 50 gets Noel Keywood's attention.

I found many things curiously interesting about the Concept 50 floorstander from Q Acoustics, important things that distinguish it. But the company don't mention them. Are they meant to be secret? Perhaps. I'll get onto that later. Right now let me outline what this £1,999 loudspeaker is all about.

First major point is that like all Q Acoustics loudspeakers I've reviewed in the past the Concept 50 has been balanced by its designer to have an unusually mild sound. It's still a technically accurate loudspeaker, but one quite different to most else – important to know in any showroom demo. That sets the stage for the rest of the review. This one is different.

Unpacking the Concept 50s revealed a well finished, deep gloss lacquered cabinet with smooth, lightly beveled edges. The dark Anthracite colour of our samples muted their visual presence, but it won't clash with all around it. Q Acoustics call this 'silver'; black and white are also available. A small grille is held on by magnets and beneath it lie two 125mm (5in) bass/midrange units above and below the 25mm (1in) fabric dome tweeter in what's called D'Appolito configuration that gives consistent sound balance with height due to symmetric phase matching.

The drivers are custom designs, mounted on a sturdy 3mm aluminium plate to locate them firmly, the sealed-back

tweeter isolated to lessen vibration into it. Q Acoustics make an issue of the effects of vibration – into the drivers, the crossover and cabinet walls. The crossover is isolated at the bottom of the cabinet to minimise this issue, and the Gelcore dual-layer cabinet walls are asymmetrically braced to lessen discrete panel resonances. Weighing 22.9kgs (50lbs) each of the cabinets are heavy and solid, but narrow at 418mm (16.5in) – we were nervous about leaving them standing without the stabilising outriggers supplied. With these and the adjustable hemispherical feet in place however, they sat firmly. A height of 1 metre (40.4in) is standard enough as is a depth of 319mm (12.6in). The rear carries unusually large bi-wire binding posts able to accept bare wires, spades or 4mm banana plugs. There's also a large-ish port for which optional foam bungs are supplied to lessen bass if need be.

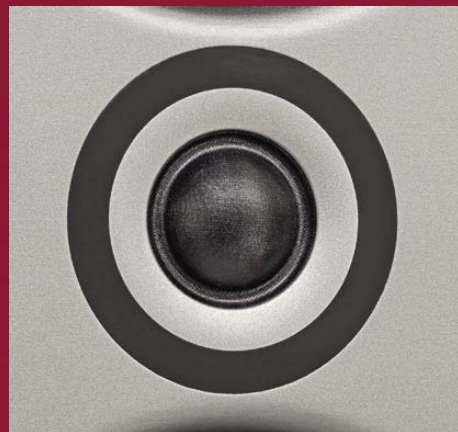
SOUND QUALITY

As I said at the start, this loudspeaker (measurement showed) wasn't going to sound bright so I hooked it up to our PrimaLuna Evo300 Hybrid amplifier rather than the softer sounding Creek Voyage iA20. I did however use the Creek as a preamplifier so as to feed in hi-res Bluetooth (24bit) from an iPhone 11X Pro running an Onkyo HF player app, in addition to CD from an Oppo BDP-205D player connected digitally to

the Creek, utilising that latter's internal AKM DAC.

That the Concept 50 is "mild" as I said earlier is sonically its most obvious feature relative to all else. But that had peculiar impact. It threw emphasis back to the midrange that in itself seemed almost holographic, as well as deeply insightful in a gentle but revealing manner. After some time of relaxed / intrigued listening a voice in my head suddenly said "this is how it was in the past". Not so much a move back to paper cones, woof and honk, but a deeply relaxing listen – in this case one with modern sophistication. This was their secret ingredient.

Easy to pick up and possibly complain about is lack of treble



Between the bass/mid drivers sits a fabric dome tweeter in a shallow waveguide. This gives a smooth response from 2.2kHz up to 20kHz plus good integration for consistent sound around the room.



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sparkle. The rich Bournville balance left that out, yet at the same time there was plenty of high-end oomph with tracks like Nils Lofgren's Keith Don't Go where extended harmonics gave the steel strings necessary bite, yet my attention was more focussed on his lightning finger

messy treble of this dynamically compressed CD track receded, leaving Glen Frey's vocals and the swirling Hammond to step forward. Better, I found it easy to crank up volume and not be assaulted by screeching CD treble. Just like the old days – before CD!

"the Concept 50s had old style weight and thunder, mixed in with great midband insight and lovely imaging"

work and vivid playing skills. I heard more of this performance than usual by being better engaged, rather than distracted by over-emphasised highs.

There were other benefits. With oldies but baddies like The Eagles 'Somebody' the

In keeping with Q Acoustics attention to stability and lack of vibration, stereo imaging was superb in spite of highs being unobvious. And here I get to another peculiar property: where many loudspeakers give flattened perspectives, the Concept 50s

The popular D'Appolito configuration of drive units places a bass/mid unit above and below the tweeter, giving a consistent sound whether sitting down or standing up. Ear height is not an issue.



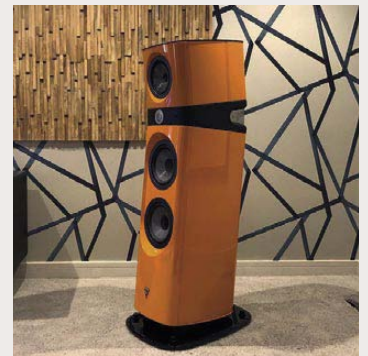
Sturdy bi-wire terminals sited low down at rear, fitted with links for conventional mono-wiring. The links must be removed for bi-wiring, where separate bass and treble cables are used.

came across as atmospherically deep in their sound stage – and this affected much. Johannette Zomer's voice soared from a deep space, singing Handel's *Lascia chi'io Pianga*, with a sense of dynamic push to her voice that made for dramatic listening to this lovely piece. Backing strings were rich and fruity, the harpsichord chimed away gently.

Switching back to conventional Rock and Fleetwood Mac's *Dreams* (24/96) regained the power I recall of it, with none of the treble sharpness. Not just because Stevie Nicks vocals were embodied and punchy in the mix, but because Mick Fleetwood's drums and cymbals were meatily powerful, as I wish-for with classic Rock. It always was that way, my memory tells me, but modern loudspeakers commonly lose the zeitgeist. Let's go back and have some fun, the Concept 50s said.

Bringing me to bass quality. As measurement showed, these 'speakers have plenty of deep bass but it was nicely delivered rather than conspicuous, as with the Acoustic Energy AE320s or JBL HDI-3600s. I was wary about what appears to be a bass port peak in measurement of Frequency Response but this

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A sturdy rear outrigger stabilises the cabinet, helped by adjustable feet. The large reflex port damps both bass drivers that share a single chamber. Like most ports it is tuned to handle low bass frequencies.

was balanced by lower forward output to give a subjectively even result in my 17ft long lounge with its 33Hz length resonance mode, meaning I heard low bass subsonics but was not shaken by them. The overall sonic flavour of these speakers however is one of weight and body, with solid, tuneful bass, in antithesis to the brighter, thinner delivery that is the current norm.

As a quick aside on this topic, the Concept 50s are technically no less inaccurate than their rivals, even though they sound different. It's just that 'bright' has become the norm – but

that doesn't mean it is right. The Concept 50s are just as right, even though conspicuously different. Quite a surprise to me, so a bigger one to others attuned to 'bright'. Depends upon whether you like Cocoa or Lemon Juice before bedtime :-)

What I would say is that the Concept 50s made listening easy and fun. They had old style weight and thunder, mixed in with great midband insight and lovely imaging. As the company claim there was no obvious colour in the usual sense of the word, but I suspect some of the depth perspective came from box echo. There was a sense of depth our Martin Logan electrostatic panels show is not there, suggesting the Concept 50s sex it up a bit, but hey-ho, that's far better than

shrieking! Think Rubens for the sonic picture

CONCLUSION

Quite different in their sound from all else, I thoroughly enjoyed Q Acoustics Concept 50 loudspeakers. They're daringly different in having a big bodied, rich and smooth sound that allowed me to wind up volume and enjoy the music. I got to hear right into performance, rather than being assaulted by artificially emphasised 'detail' – meaning digital distortion. It was reminiscent of analogue from the past even when playing digital of today. A nice trick. Definitely an analogue sounding loudspeaker and one I would urge you to spend listening time with. I thought these loudspeakers were gorgeous – in sound and finish.

MEASURED PERFORMANCE

Our third octave analysis of pink noise shows frequency response is smooth and even (a sign of low colouration from local resonances) but surprisingly output from the tweeter has been set lower than that of the bass/mid drivers, by up to -2dB. This was the best (flatest) result possible, with measuring microphone on-axis. Rarely are loudspeakers balanced like this: it will set the Concept 50 well apart subjectively, with an obviously mild sound against most else, since rivals have at least +3dB more treble by comparison – an easily audible difference obvious in a showroom comparison. The response was well maintained on the forward axis, laterally and vertically, by a well integrated D'Appolito arrangement.

The fabric dome tweeter's output was smooth and peak free from crossover at (quoted) 2.1kHz all the way up to 20kHz: it performs well and should give clean treble free from coarseness.

At low frequencies, broad output from the port (red trace) detracts from forward output in unusual fashion, suggesting the port is not in-phase with forward drivers as usual; there is phase error. Port output (red trace) was as high as shown when SPL matched in measurement, but this balances lower forward output. A peculiar situation but the net result is strong output down to a low 30Hz, so deep rumbling 'subsonics' will be

reproduced.

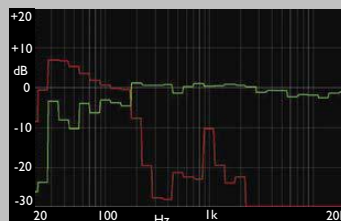
With one nominal Watt of input (2.8V) the Concept 50s produced 88dB sound pressure level (SPL) which is loud. Amplifiers of 40W or more will suit for high volume in reasonably large rooms. Overall impedance measured with pink noise was 6 Ohms, right on the current norm. The impedance curve shows port resonance at 40Hz, correlating with the peak of port acoustic output (red trace).

Measurement shows the Concept 50 will have a mild tonal balance, due to low treble level. Smoothness of response points to low colouration and bass is well extended. **NK**

FREQUENCY RESPONSE

Green - driver output

Red - port output



IMPEDANCE



**Q ACOUSTICS
CONCEPT 50
£1999**



OUTSTANDING - amongst the best.

VALUE - keenly priced.

VERDICT

A fulsome easy listen, yet with deep insight. A 'speaker for long term enjoyment. Lovely.

FOR

- easy sound balance
- superb imaging
- quality of build and finish

AGAINST

- lack treble sparkle

Q Acoustics
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www.qacoustics.co.uk



website: www.jordanacoustics.co.uk

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MCINTOSH MA12000

Integrated Amplifier
£16,500

0% FINANCE EXAMPLE*
Initial 20% deposit of **£3,300**, then
£440.00 per month for **30 months***

The brand new hybrid McIntosh MA12000 is the most powerful integrated amplifier they have ever made. Beautiful engineering combined with uncompromising audio quality set the tone for an essential amplifier for the serious enthusiast.



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Integrated Amplifier
£4,500

0% FINANCE EXAMPLE*
Initial 20% deposit of **£900**, then
£150.00 per month for **24 months***

The MA252 is the first hybrid integrated amplifier from McIntosh. Taking retro design cues from the legendary McIntosh MC275 Vacuum Tube Amplifier, the MA252 combines the best of vacuum tube and solid state circuit design.



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ISOTEK V5 TITAN

Power Cleaning System
£4,499

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The new V5 Titan is a progression of IsoTek's original multi award-winning design. Whilst utilising the unique Direct-Coupled technology, the circuit has been radically updated with 50% increased PCB copper-loading. V5 Titan is the ultimate high current conditioner in the smallest form factor.



“

It drew the sound together in the way only the very finest of this type of product can. That's a joy to find at any price.”

Hi-Fi+, 200th Issue



ISOTEK V5 AQUARIUS

Power Cleaning System
£2,599

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Initial 20% deposit of **£519.80**,
then **£115.51** per month for
18 months*.

The original Aquarius was one of the most cost-effective power cleaning upgrades money could buy. The new V5 model takes the Aquarius concept to an even higher level. Delivering absolute power, the V5 Aquarius provides six outlets: two high-current outlets for amplifiers and four medium-current sockets for preamps, source and network components.



iCan? uCan!

iFi's unusual but sophisticated Pro iCan headphone amp gets an 'Signature' uplift. Martin Pipe reports.

Of the serious headphone amps currently vying for your attention, one of the latest is the £2,249 'Signature' version of the significantly-sized and eyecatchingly-busy Pro iCAN from iFi – a firm better known for producing bijoux hip-flask sized headphone amps, DACs, phono stages and Bluetooth receivers. Key to that Signature suffix is the inclusion – as standard – of a £300 'iPower Elite' audiophile power supply. This 15V DC, 3.5A device – described as (electrically) “quiet as a battery” but with “none of the hassle” – is available separately to existing Pro iCAN owners, should they wish to upgrade.

There is however more to the Signature than a fancy power brick. Lurking within are, relative to the original Pro iCAN, more “ultra-

grade audiophile components” intended to “take your listening to a higher plane than ever before”. To leave you in no doubt, the Signature's front panel is finished with gold trim and a badge that proclaims its elevated status.

Describing the Pro iCan Signature as a mere 'headphone amp' would be a bit like calling the current HMS Queen Elizabeth 'a boat'. There are no fewer than five headphone sockets on its front panel. In addition to a standard 3.5mm stereo jack for conventional headphones, there are 4-pin XLR and 4.4mm four-pole (tip/ring/ring/sleeve) sockets for balanced 'phones. The remaining two are a pair of 6.3mm stereo jacks on either side of the XLR, for iFi's proprietary SEC ('Single-Ended Compatible') balanced system. A special lead is needed to connect balanced 'phones

to these. SEC's advantage is that standard unbalanced headphones can be plugged into the right-hand jack.

A sixth rear-panel output is intended for a proprietary 'iESL Electrostatic Headphone Energiser'. The choice of a HDMI-type connector for proprietary hardware was probably not iFi's most sensible design decision. However, there's more to the Pro iCan Signature than headphones. It can also be used as a high-end preamplifier, the volume-controlled output simultaneously being available on XLR and phono outputs. These could feed power amps or active speakers – such as the Adam A5s I successfully tried.

To take full advantage of such functionality, users can attach four line-level sources (three unbalanced phono, one balanced XLR) to rear-



panel connectors. These are selected via a large knob, located on the opposite end of the front panel to the similarly-sized volume control. Next to the source selector is the four-position 'XBass' switch, which provides four levels of careful bass boost to compensate for 'different recordings and headphones'. As well as 'bypass', there are rolloffs at 10Hz (which few hi-fi grade transducers will reach), 20Hz (some models) and 40Hz (more!). iFi emphasises that XBass is not a 'gimmick to add artificial bass'. Hinting at more unusual signal processing is the control's front-panel counterpart, '3D Holographic'. Implemented totally in the analogue domain with passive components, according to iFi, this headphone-only processing offers three steps of signal 'matrixing' to make the headphone experience subjectively more like speaker listening (i.e. reduce the 'hole in the middle' effect). Three steps - 30 degrees (corresponding to 'narrow' speaker placement), 60 degrees ('textbook' placement) and 90 degrees ('wide') are available, as well as a relay-switched bypass.

Other switches select 9dB or 18dB of gain to accommodate less-sensitive headphones, or the driver stage that feeds the headphone amps and line outputs. Here you're

given a choice of solid-state (JFET-based circuitry) or tubes working in two modes, one of which relies on minimal negative feedback.

Tubes? Yes indeed...two of 'em, in fact, glowing upwards at you from a circular window set into the top of the unit. They are 'new old stock' (NOS) GE-made JAN 5670s - miniature double-triodes originally intended to work at VHF radio frequencies. Several years ago, iFi's parent company AMR snapped up a stockpile of these military-spec valves - which it prefers on account of their sound quality, claimed to approach that of the legendary Western Electric WE396A - to meet its needs 'for the foreseeable future'. You'll find 5670s in some other iFi/AMR designs, including the regular version of the Pro iCan. They're not particularly uncommon, but NOS valves like that specific GE model are, by their very nature, finite in supply (production ended in the 1980s). They are larger, and pin-incompatible, with better-known double-triodes like the ECC83/12AX7. It's perhaps just as well that their lives can be measured in the tens of thousands of hours if operated correctly; for the Pro iCan Signature, though, iFi merely quotes 'many years of enjoyment'.



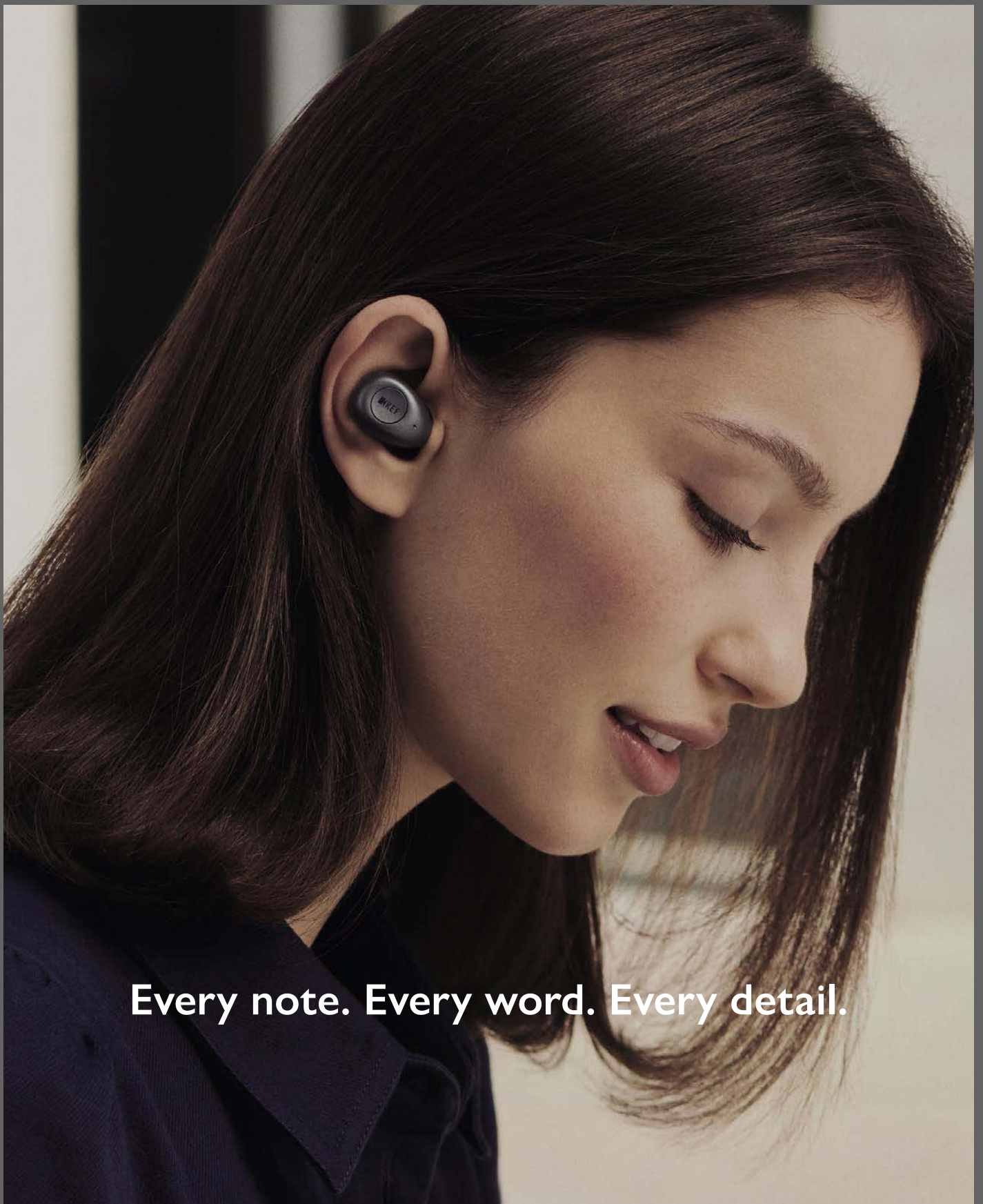
The only remote operation is control over volume; selecting sources, for example, can only be performed by a front-panel knob.

The handset's other buttons operate various functions of iFi's companion Pro iDSD DAC.

USE AND SOUND QUALITY

Inside, the circuitry is built on high-quality printed circuit boards to computer-like standards. The MOSFET-buffered bipolar Class-A final output stages mounted on them, which will operate in Class A/B at high levels, are incredibly-potent by headphone-amp standards. iFi claims that distortion-free peaks of 14 watts into balanced loads (4.8W into





Every note. Every word. Every detail.



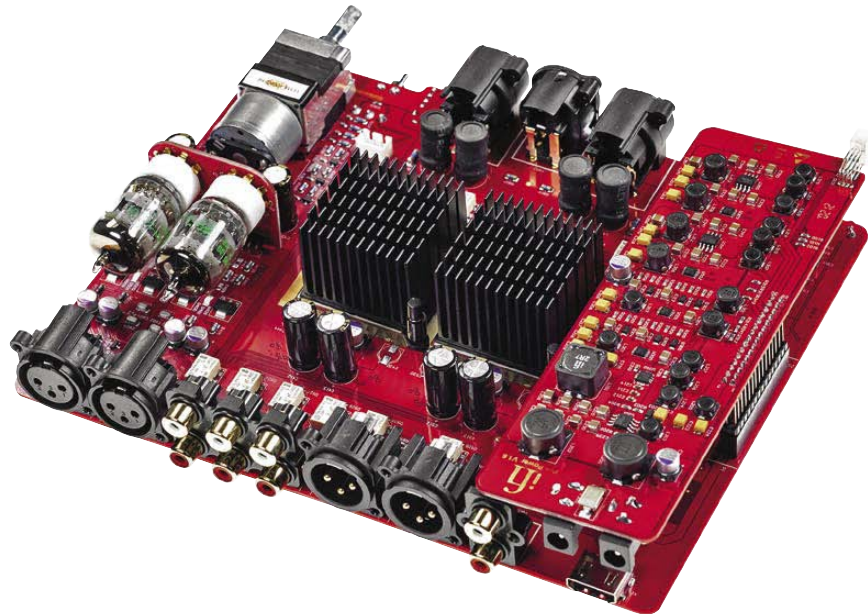
Mu3 noise cancelling true wireless earphones
Sound by KEF. Design by Ross Lovegrove.

We are purists at heart, at KEF, we believe in natural, accurate sound. The Mu3 earphones are the next evolution in that quest. Designed by Ross Lovegrove – pioneer in design and ongoing KEF collaborator - sculptural beauty and engineering excellence come together for audio that's brimming with life in all its astonishing complexity. Old favourites, new tunes, underrated or overplayed, this is music as it was meant to be heard.

Listen and believe

KEF 60
YEARS

It may look like a computer motherboard, but this complex but orderly construction actually lives within the Pro iCAN Signature's distinctive enclosure. We can also see the output stage heatsinks, motorised ALPS volume control and two horizontally-mounted 'new old stock' GE-made 5670 miniature double-triodes.



unbalanced ones) are possible. I was able to simultaneously-drive three pairs of headphones - Meze Empyrean (6.3mm), Hifiman Sundara (3.5mm) and Focal Utopia with Atlas balanced cable (XLR) - with no audible strain whatsoever.

Signature as a preamp, you'll have to switch off your power amps before listening with headphones. Its good to see that iFi has muted switching functions – the gain switch and tube/solid-state mode, for example – to avoid 'pops'. An iFi logo on

the front panel is white-backlit if you're listening via a signal path that's totally solid-state, or orange if tubes are included. Said logo flashes for a few seconds if the valve has to warm up – there's then a brief silence, as the relevant electronics is switched in.

At another practical level, turning the small XBass and '3D Holographic' knobs can be a bit fiddly if headphones are plugged into the adjacent 6.3mm jacks. On the whole, though, the Pro iCan Signature is a well thought-out design. Even the base on which the cabinet sits has received attention – it has been 'quad damped'! I did however note an odd effect with the review sample. Plugging balanced



Gold trim and a 'Signature' badge distinguish this version from the regular Pro iCan. You get the original's features but there are internal component-related differences.

My final trick here was to wire up a pair of loudspeakers (Wharfedale Diamonds) directly. Good clean listening levels, in a smallish room, were obtained here too! I sincerely doubt that the Pro iCan Signature will have any trouble with less-sensitive 'phones like the Dan Clark Stealth planar magnetics. The circuitry is fully-balanced, with identical circuitry for both signal phases of each channel. To this end the motorised volume pot (remote-controllable, with the supplied handset) is more complex than most. It's an ALPS type with six sections, four of which look after the balanced signals. No wonder iFi recommends using balanced headphones whenever possible, as they will be able to "take full advantage of the Pro iCan Signature's true balanced nature".

Unfortunately, plugging in headphones doesn't mute the line input. If you're using the Pro iCan



Key to that Signature suffix is the inclusion of this device. It's a 15V DC, 3.5A 'iPower Elite' audiophile power supply, described by iFi as "quiet as a battery" but with "none of the hassle". Existing Pro iCAN owners can buy one as a £300 upgrade.

Every note. Every word.
Every detail.

LS50 Wireless II



LS50 Wireless II - The Ultimate Wireless HiFi

When you first listen to the new LS50 Wireless II, close your eyes. You'll find it hard to believe that a sound so pure is coming from such compact wireless speakers. That's because our unique Metamaterial Absorption Technology (MAT™) eliminates the high-frequency distortion inside the speaker. So keep your eyes closed and keep listening; there's a whole world of streamed music to enjoy.

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Listen and believe



phones into the XLR socket significantly raises the volume level of any headphones connected to the right-hand 6.3mm jack – unless the gain switch is in its 9dB or 18dB position. The 3.5mm unbalanced output is unaffected.

I tried a number of sources with the Pro iCan Signature, but most of my listening revolved around a Naim Uniti Atom Headphone Edition connected via its balanced output. The overall impression I get from listening to the Pro iCan Signature is one of clarity, authority and scale



Four inputs – three unbalanced sets of phonos, and a pair of XLRs – demonstrate that iFi is serious about the Pro iCAN Signature serving as a preamp, as well as a sophisticated ‘headphone hub’. External amps can be fed via unbalanced or balanced outputs. That HDMI-like connector is reserved for a proprietary ‘iESL Electrostatic Headphone Energiser’.



iFi has bundled this phono-to-phono cable, with gold-plated contacts, to get you going.

– the latter quality eclipsing even the Naim’s fine headphone amp! At no time was any sign of strain audible, and even with the valves switched into circuit the unit is extremely quiet. With dynamic symphonic recordings – Carl Orff’s Carmina Burana (Orchestra Salzburg Mozarteum/Kurt Prestel) and Stravinsky’s Rite of Spring (Birmingham S.O./Simon Rattle), for example – it could swing from forte passages to the most delicate, with no impact on the subtlest of details. How Did This Happen, by New Yorkers Bodego, was heard with tight bass, decent imaging and plenty of drive and rhythm. I also revelled in the percussive detail revealed in One Man No City, by fellow American ‘indies’ Parquet Courts.

All of this was in the unit’s default mode (solid-state, all processing turned off), and even here imaging was wide and tonality neutral. XBass was surprisingly effective, adding impact without overblowing low frequencies or adding colouration elsewhere. A track like London Grammar’s Hey Now demonstrated it well, certainly with the Utopias. iFi recommends using the gain switch only if

necessary, and indeed I found that the most open sound was conveyed when it was turned off.

Switching to valves resulted in a smoother and warmer presentation, harder edges being rounded off. 3D Holographic was interesting, notably altering the width of the image, and can benefit some recordings. Users will doubtless have plenty of fun experimenting with these features, to determine what works best with their particular headphones and music.

CONCLUSION

The Pro iCan Signature is hardly a minimalist headphone amp. iFi’s

engineers have however designed the numerous features, which can be of value, so that they add minimal degradation. In any case, they can be bypassed if not required. In terms of performance, you get a big and engaging sound – backed by plenty of output power that will accommodate the least sensitive of headphones, or drive several pairs simultaneously. We should not overlook the Pro iCan Signature’s ability to act as a four-input preamp. It could therefore be at the heart of a hi-fi system built around speakers rather than headphones, rather than merely sitting on the periphery.

MEASURED PERFORMANCE

This is a fully balanced preamplifier internally with balanced XLR inputs and outputs at rear, plus alternative single-ended inputs and outputs, phono sockets and 3.5mm stereo jack socket.

The front balanced outputs for headphones are via a 4.4mm 4pole jack socket (not a Pentaconn that is five pole), a 4pin XLR socket and two standard 1/4in (6.3mm) 3pole headphone jack sockets that need special cabling for tips and rings to deliver a balanced signal – an unusual arrangement. The front balanced outputs delivered the same measured results as the rears.

Maximum balanced output measured 20V (from solid-state and valve input) and gain was switchable to deliver 8.6V, 2.9V or 1V from 1V input, corresponding to gains of 18dB, 9dB and 0dB as claimed. Unbalanced output was 10V from the rear phono sockets and front 3.5mm stereo jack socket.

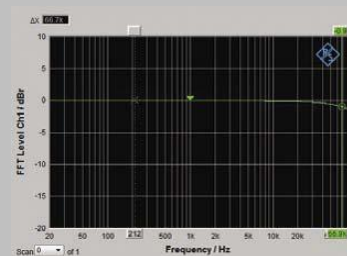
Frequency response stretched from 1Hz to 70kHz (-1dB) at half volume, changing little at full and low volume. Distortion was extremely low at 0.002% with solid-state or valve (tube) selected.

The iFi Pro iCAN Signature measured very well in all areas. It has

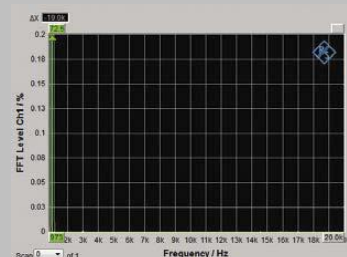
massive output, more than enough to drive all headphones. **NK**

Output (unbal/ bal) 10V / 20V
Gain – x1 (0dB), x2.8 (9dB), x8.4 (18dB)
Frequency response 1Hz-70kHz
Distortion (10kHz, 1W, 4Ω) 0.002%
Noise (IEC A) -91dB

FREQUENCY RESPONSE



DISTORTION



IFI PRO ICAN SIGNATURE £2,249



OUTSTANDING - amongst the best.

VERDICT

Powerful and flexible, the Pro iCan Signature should be considered if you take headphone listening seriously.

FOR

- interesting and unusual features
- incredible scale, but not at the expense of finesse

AGAINST

- line output not muted when phones plugged in
- using an HDMI connector isn't iFi's best idea

iFi
bit.ly/3FAltPc

Intro-ductory offer

Black Rhodium's budget speaker cable is scrutinised by Martin Pipe.

It's all very well having interconnects and cables with price tags approximating those of a pretty good hi-fi system, but few will sell - even to a marketplace of global outlook and scale. That's partly why they are so expensive - all of the development work going into them is spread over the minuscule quantities bought by an extremely-wealthy and selective clientele. After all, how many £100k-plus hi-fi systems - of the sort that would take full advantage of such products - are in use around the world? The other reason is that exotic materials, and the labour-intensive processes forming key elements of the manufacturing process, are themselves not cheap. Such cables are and always will be aspirational 'niche' fare - like the finest cars, couture, watches and wines.

In contrast, there are countless thousands of more affordable music-playback systems giving their comparatively modest-income owners a great deal of pleasure. Attractively-priced accessories and 'tweaks' helping them to make the most of their investments sell by the van load if not truckload; peddlers of exotica could only dream of the sale volumes achieved by the likes of QED, Monster and Chord. To this list we can now add Black Rhodium. At the opposite end of its extensive lines to the £12,000-per-pair Flamenco (what this specifically pays for is not clear on its website) is the 'Intro' - the speaker cable contribution to a new budget range that also includes digital and

analogue interconnects.

To maximise their appeal to audiophiles on a budget, Intro cables are available in a range of different colours. Not only does this make them look good, but it helps users to identify them, thereby making sense of the 'plates of spaghetti' behind the hi-fi.

Black Rhodium has also assembled packs that will enable complete systems to be wired up - no mains cable as yet, though. An advantage of a firm like Black Rhodium producing cables for the rest of us is that it can draw on the



techniques and experience gained through luxury products and, as far as is practical, emulate at least some of their more positive traits using less expensive raw materials. So important is the Intro range to the plans of Black Rhodium, founder Graham Nalty has set up a separate website for it he explained.

The Intro speaker cable is available in three lengths - 2m, 3m and 5m. Thanks to fairly thin copper signal-carrying conductors, and the (unspecified) variety of plastic material that's used to insulate them, these cables are flexible and thus easy to route around listening rooms. The overall cable is sheathed by a woven-nylon jacket - available in black, white, blue or red - which is held in place by custom sleeving. At either end are 4mm banana plugs not dissimilar in overall concept to the budget 'Z-plug' types sold by Chord. The gold-plated hollow pins are essentially sprung, for a tight fit that will make good interior-surface contact with the sockets of your amp and speakers. They are rather long, and won't entirely fit into many sockets. As a result, conductors are exposed - make sure that nothing metal drops behind your speaker, or you might get a

potentially-disastrous short-circuit!

That snug mating isn't without its problems. If my experiences are anything to go by, pulling out a plug is also likely to remove the rubbery boot that covers the cable's entry point. The latter can however easily be slid back into place. Closer examination of the exposed connection reveals that Black Rhodium's wire is terminated in a crimp. Two grub screws in the body of the plug, which are normally covered by the sleeve, hold it in position. On the whole, though, build quality is very good for what is after all a budget product. According to the spec, the conductor is internally-screened to keep RFI at bay - very unusual at the price level. The Intro is, Black Rhodium is keen to point out, "hand-built on-site" in its Derby factory.

Initially, I used the 3m review samples to connect a pair of TDL RTL2 reflex transmission line speakers to a budget Cambridge AXR100D receiver, fed from a Cambridge CXN source. As originally supplied, I found the presentation (relative to Chord Clearway X cables then in use) to be a tad 'forward' and bright. After a few hours, though, the presentation improved. Interestingly, some Black Rhodium dealers offer a 'burn-in' service to remedy such problems. However, as its cost approaches half of the sum you'll pay for a 2m pair of Intros, budget users are advised to instead be

patient! With more 'burn in', these cables did indeed sound detailed and musical. I was pleased, for example, with the presentation of bass and lead guitar in Lemon Jelly's Nice Weather for Ducks (CD FLAC rip).

However, I found that in terms of sheer lower-frequency weight, there's a notable difference between the Intros and more upmarket cables. In other respects, the Intros benefit from Black Rhodium's hallmark neutrality. Switching them to a higher-end system - Quadral Aurum Wotan VIII speakers and an Exposure 3510 integrated amp, fed with digital source material via a Cambridge NQ streamer/pre-amp - reinforced these findings. The differences between the Intros and 'bell-wire' is as clear as day; the character of the instruments being played is better-defined, and the arrangement of the musicians in front of you is more obvious. Backgrounds are silent when they need to be, yet there's a more palpable sense of the performance space with live concert material (e.g. evening Radio 3).

CONCLUSION

Black Rhodium's entry into the affordable end of the speaker cabling market is to be welcomed, and it's good to hear that some of the benefits of its expensive products have made the transition to a more accessible price-point. Worth trialling in your system, alongside competing cables from QED and Chord amongst others.



AVAILABLE SIZES
 £60 (2m pair);
 £90 (5m pair)

BLACK RHODIUM INTRO SPEAKER CABLE £70
 3M PAIR, AS REVIEWED

★★★★★ £

OUTSTANDING - amongst the best.

VALUE - keenly priced.

VERDICT
 Still using 'bell-wire'? Listen, and reconsider...

FOR
 - clean, detailed and musical
 - an obvious upgrade from cheap DIY-store twin-flex

AGAINST
 - burning-in necessary for best results
 - a tad bass-lean
 - tight fit with some sockets

Black Rhodium
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 www.black-rhodium.co.uk

Mail

LETTER OF THE MONTH PRIZE

Visit our website at:
www.hi-fiworld.co.uk or send your
emails to letters@hi-fiworld.co.uk.

Letter of the month wins a pair of
Acoustic Energy NEW AE100²
bookshelf speakers

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



ACOUSTIC ENERGY AE100² BOOKSHELF SPEAKER

<https://www.acoustic-energy.co.uk/>

[subject to availability - Satin Black, Satin White and Walnut vinyl veneer]

A PAIR OF ACOUSTIC ENERGY AE100² LOUDSPEAKERS are on their way to IAN DAVIES, Letter of the Month winner in our February 2022 issue.

Letter of the Month



A simple and cheap (£33) moving magnet cartridge that gives lovely vinyl sound, the Rega Carbon. It may suit Wayne Allen, retaining the warmth of his old LPs.

WHICH CARTRIDGE NEXT!

Your assessment of three budget moving magnet cartridges in the December 2021 edition certainly pricked my interest. After quite a break I am enjoying a return to playing vinyl, albeit with a somewhat elderly system [LP12; Ittok; K18; Majik-i; LK100 etc.]. The K18 will not last forever and since Linn no

longer produce replacement styli I am wondering which cartridge should be my next purchase.

It is unlikely that there are places near to me where I could listen to different cartridges, hence my appealing to you for a shortlist of suitable cartridges. I doubt that I will, for the time being, consider moving to MC although you might

suggest a high output model. From your description I suspect that I am seeking a cartridge that will be kind to my older vinyl and not lose too much of that warmth of old. Your suggestions for suitable cartridges would be greatly appreciated.

All the best,
**Wayne Allen,
Stafford.**



Ortofon's 2M Black LVB MM cartridge – expensive but impressive.

Hi Wayne. As you will have gathered from our article, today's moving magnet cartridges are much different from those of yesteryear. They have lost warmth, becoming more forward and detailed. The drawback here is that old, noisy records can become strident or even fierce: my faves of the 1960s, worn out by gruesome old cartridges like the Shure M47 – all a poor student could afford – are barely playable. So I use them to assess this issue when reviewing cartridges – and it is a peculiar difficulty. As you might expect there are trade-offs to consider.

Options here are the AT-3600



Audio Technica's VM750SH is a top MM at a great price.

from Audio Technica (£28) or Rega Carbon (£33) that appears to be a re-badged version. This cartridge has a curious carbon-fibre cantilever and conical stylus that together give a lovely tonal character that is relatively mild in nature, suppressing old horrors. There is, also, Ortofon's 2M Red that is also mild in nature. Trade-off is they lack insight, giving a glossed over version that's fine with not-golden oldies, but less good with modern LPs.

Getting more serious brings me to Ortofon's 2M Black (£519) with Shibata stylus, or LVB250 version. Audio Technica's VM750SH

(£380) represents fantastic value, with conical alloy cantilever and Shibata stylus; I am very impressed by it. Modern MMs like these do a fantastic job with new vinyl, but with old vinyl you get the faults thrown at you.

You may well like to consider the Sumiko Songbird high output moving coil (Aug20 issue) but it is expensive at £900. The hidden drawback of high output MCs is they track poorly, as with Cambridge Audio's Alva (£450). This is due to the use of many more coil turns increasing tip mass. So a false economy.

I hope all this helps; the main problem at present is we are swamped with options when it comes to MM cartridges. **NK**

DIGITAL DIFFERENCES

I've recently experimented with two DACs in the same system: one a delta-sigma and the other r2r. They sound very different. I would very much appreciate it if you can explain the fundamental differences between the two technologies; the strengths and weaknesses of each and which you believe to be the most musical.

*Kind regards,
Greg White*

Hi Greg. Early DACs used resistive ladders that had to be precisely trimmed to minimise distortion. Delta-Sigma conversion eliminated this problem, lowering distortion and smoothing the sound. Not everyone liked the change however and modern r2rs have appeared claiming

improved performance. I have not measured or listened to them so cannot usefully comment on the differences. They are becoming more common now though; Schiit (USA) have their Yggdrasil (£2500) and – very interestingly – there is Cayin's (China) new RU6 r2r 'dongle' headphone amp, price around £230.

If the r2r you auditioned was based on an old Philips TDA1543 chip then it is likely you heard a sharper, faster sound, yet there will be some coarseness to it that becomes apparent on longer listening; short demos can be misleading.

Some appear to be claiming that modern r2rs don't suffer distortion, or they just don't mention the problem. I used to measure around 1% at -60dB however – and that comprised uncorrelated quantisation noise that stretched to 20kHz. Not nice. It could well be that today's r2rs are much better, but I have no experience of them. I do note that Cayin specifically quote the use of high accuracy resistors (but they don't say why).

If you make comparisons ensure that the non-r2r is a well implemented modern design, ideally with a linear power supply. I would expect obvious sound quality differences, with the r2r sounding faster and snappier, much as reported on the 'net, but you may want to use violin or massed violins in any subjective assessment and see how they fare through such a convertor. **NK**



Cayin's new headphone dongle (DAC) uses an r2r convertor and resistor array volume control, making it very different to all else.



The ShiiT Yggdrasil CD player uses their r2r resistive ladder digital convertor (DAC), making it substantially different.

STREAMER SOLUTION

I want to add a streamer to my system? A minefield!! What am I looking for? I currently use a Sonos Connect into a Chord Qutest into my hi-fi system (with a Play 3 in another room). Obviously, this does not give me CD quality never mind Hi-Res!! I don't think I need to go overboard on hi-res (would I hear the difference with 68 year old ears!!).

So, alternatives appear to be: a. upgrade to the Sonos Port, now capable of delivering CD quality, b. Invest in the new Bluesound Node 2 (better processor and DAC with better hi-res capability), c. Primare NP5 Mk2 - pure streamer to feed into the Qutest, or d. Cambridge Audio CXN. I

use Spotify and Qubuz.

Common sense tells me to go for the Sonos Port but I wonder is it too restrictive and not stretching the high res far enough. I've read so much on it, I'm now very confused!! Any thoughts or guidance appreciated. Thanks,

John Phillips

Hi John. Since your Qutest is a high quality DAC it seems most sensible to go for a streamer only and save a few bob, the Primare NP5 being a good option. Don't forget the Tibo Bond 3, just £150, recommended by reader Mike Tartaglia Kershaw. It has a Crystal DAC chip and delivers CD quality. Or there is the

excellent Pro-Ject Stream Box S2 Ultra at £600. As you say there is no end of choice, but in your case you really do not need to pay for another DAC.

You may well be able to detect and appreciate the smoothness of good hi-res, by which I mean not CD upsampled, but instead recordings made through a decent modern 24bit analogue-to-digital convertor. By their very nature DSD recordings are 'audiophile' and I find most DSD is delightfully smooth and natural, unlike PCM. I'm not aware DSD can be streamed, one-bit data rate is huge, but it can be downloaded. If you are interested then consider a streamer able to read DSD from a flash-drive or hard drive, the Pro-Ject reads from a hard drive. This narrows the field! **NK**

MATS & TRANSFORMERS

Looking through the various Christmas Wish lists in the January 22 edition I realised that I have successfully used the two different platter mats in Paul Rigby's list and that of Martin Pipe in combination to good effect on my original Technics 1210 Mk2 with Jelco ST250 arm.

It all began with the Soundeck platter mat (Martin Pipe) which I have used very successfully with the Soundek foam mat, but it really came together when on a whim I placed the Origin Live Platter mat (Paul Rigby) underneath the Soundeck one.

The Origin live cartridge enhancer has also brought benefits – as did the Isoacoustic isolation feet (as used on the Zazen II on PR's list) I used these in combination with another isolating plinth.

I am really happy with my vinyl sound now and am getting wonderful insight into the music with great separation of instruments and micro-tones, but without any stodginess. Dare I say it is almost there!

I use a Benz Micro Wood cartridge, a DIY (Sowter) step up transformer and the Icon Audio PS3 (Mk I) phono stage.

I have a question for Noel about the use of step up transformers generally as there seems to be a degree of prejudice against their use in some quarters and I wondered why that might be?

I also wondered if he could explain what he meant by the comment in the Jan 2022 Opinion piece about using step-ups into the MM inputs of phono-stages and



Pro-Ject's Stream Box Ultra offers a pure streaming solution without DAC.



Ortofon ST-80 SE. "A good transformer is the best way to audition an MC cartridge with the highest performance possible" say Ortofon.

wondered what I might need to do to wire them directly into the PS3 to mitigate these concerns?

Finally returning to the Christmas Wish list, I can confirm that I have had good experience with the Topping E30 DAC (Dave Tutt) - definitely not a disappointment for the money.
Greg Tzemis

Hi Greg. Step-up transformers for moving coil (MC) cartridges provide a x10 increase in output, sufficient for an MM input. That's the idea behind them.

With regard to a "degree of prejudice against the use" of step-up transformers, I'm not aware of specific criticisms. In the past the few I used sounded "murky" and lacking in detail. Back then (1970s) they were, however, seen as cheap add-ons. That has

now changed: modern designs use very high quality transformers that sound superb, their drawback being bulk and cost. I suggest you don't consider wiring them in since a valve phono stage will

be running at least 250V internally – and hard wired connection will provide no special benefit. See what Icon Audio say next. **NK**

The PS3 MK I is similar to the PS3 MK II. Both were available with or without built-in MC transformers. As Greg uses separate transformers I presume that his PS3 has not got them fitted.

Although I have never used Sowter transformers they have an excellent reputation. We would be happy to retrofit Greg's transformers into his PS3 MK I as it already has the switching fitted.

David Shaw, Icon Audio.

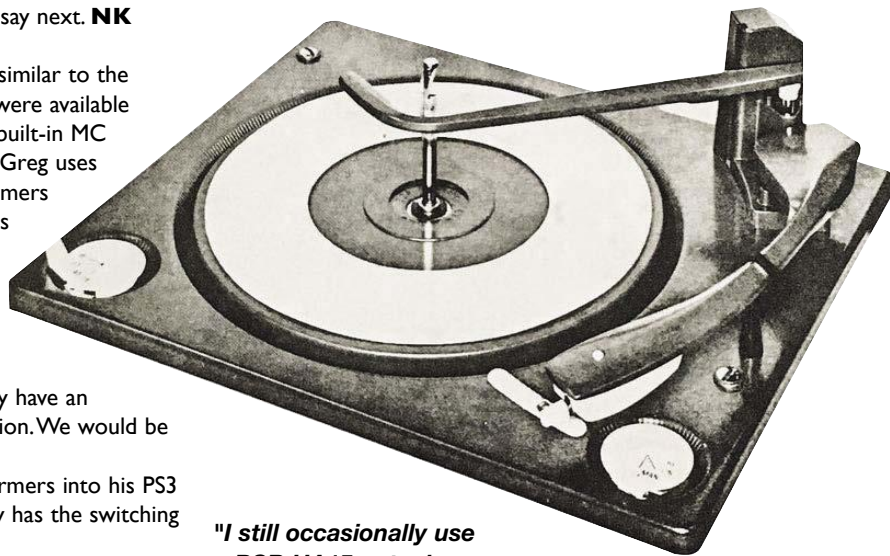
alternative to my Luxman PD1511 AX 590 2 system, which I find stunning. Regards,

William Dudman.

GOOD GALE

Revelling at the end of lockdown I went into the local town and into one of the many charity shops. There on the shelf was a pair of GALE 3010S loudspeakers for £10...yes, I purchased them. Very good condition and rather weighty. Returning home to look online I discovered they had the worst reviews possible and had retailed for £29.99.

Anyway, I disconnected my trusty old Castle loudspeakers and connected the Gales. First they sounded O.K. Not to you or your reader's standards but good. Sitting



"I still occasionally use a BSR UA15 autochange deck" says William Dudman.

listening my wife stood behind me and commented they are very "listenable". I asked her what she was saying. She just said she could sit and listen with no judging if the third violinist bow creaked.

No, I am not saying we are wrong or mad but it made me think. Are we throwing away the baby with the bathwater in our search for – what? A musician friend commented to me that sometimes I am more interested in the equipment than the music. It has made me think.

Regards,

Pat Rickwood.

Hi Pat. My introduction to hi-fi improved my appreciation of music. That's still the case today: good systems take you closer to the performer and there's nothing wrong with that. There remains a big gap between listening to



Icon Audio PS3 MkII, a valve phono stage with external power supply. The MkI can be fitted with MC transformers, seen here.

AUTOCHANGE LPs

With regard to playing LPs on an autochanger, most LPs did and possibly still do have a ridged run in groove and often a raised label area to avoid direct groove contact between discs; many turntables have a central depression to account for this. I still occasionally use a BSR UA15 autochange deck I've fitted into my Pye Black Box which is now a stereo player and the deck is fitted with a robust M75 Shure cartridge. The BSR happily works with a playing weight of 2.5 grams and if I want a big sound I play it through my Marshall Hanwell speaker/lamp (purchased in Hanwell!) This makes a fun

someone playing acoustic guitar and singing live in front of you for example, and a recording, but some of today's well miked DSD recordings convey the essence. As long as you get better appreciation and enjoyment from your system, that's good enough. Ignore the unbelievers! **NK**

MATTER OF BALANCE

I am a fan of phono pre-amps with balanced inputs, so I have enjoyed reading your reviews of two such items in the past year. When I got back into vinyl about twenty years ago, balanced input phono pre-amps were even rarer than they are now, so I was more or less obliged to build my own. Of the various approaches I have tried since, the most successful has been an all-valve unit based on a design by Richard Brice. This was first published in *Wireless World* and later reproduced in the February 1993 issue of *HFW* when Richard had a

having. With the pick-up arm on its rest and the volume at normal I can hear nothing at all in the way of hum or hiss from the speakers, even with one ear pressed right against them.

Another improvement has been to build a valve-rectified and stabilised power supply for this pre-amp, which has led to a further gain in the already impressive sound quality; also for some unaccountable reason it appears to have lowered the subjective impact of ticks and pops arising from imperfections on the record surface.

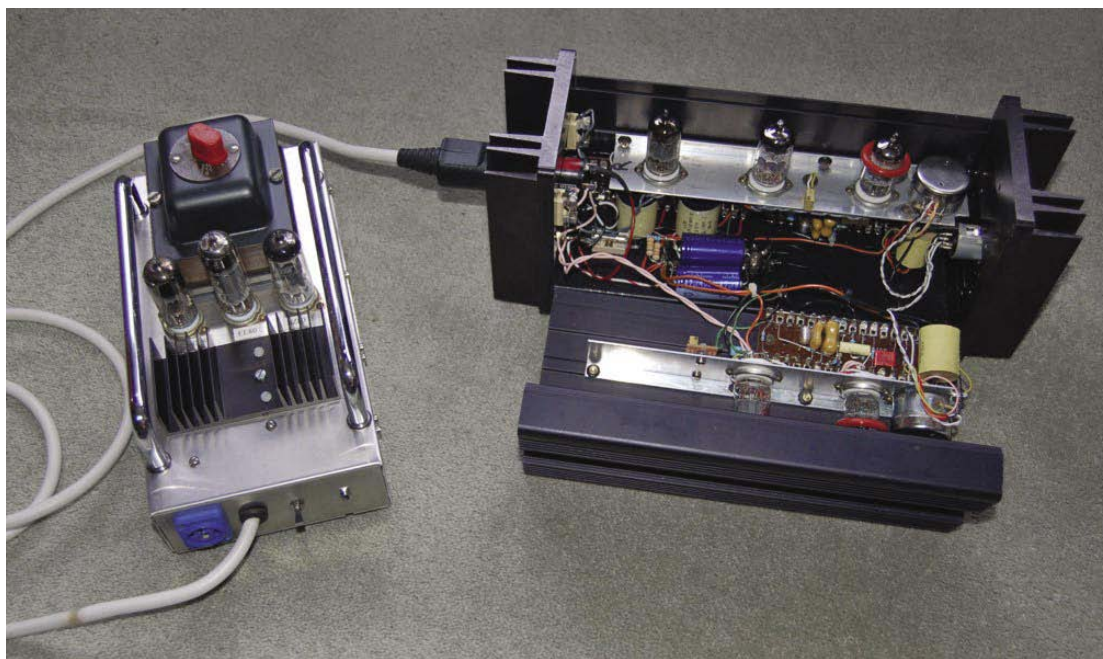
With the excellent sound and negligible noise of this all-valve pre-amp I have really had no need to investigate other approaches. However during lockdown I decided to look again at a transformerless input using solid state devices, and here I found a benefit in going balanced which I had not previously appreciated.

The text-books say that in order to keep noise to the lowest possible

current in the coil with that of the cartridge magnet.

However, with a balanced input the problem disappears because in this case the coil is connected between the bases of the two differential input transistors. Provided these devices and surrounding circuitry are precisely matched there will be no DC potential difference between their bases so no current will flow through the coil.

The ideal device to use for such a balanced input would thus appear to be the obsolete-but-still-obtainable LM394. This has two extremely closely matched bipolar transistors in a single package; moreover each of these transistors is actually made up of 50 smaller transistors all paralleled together. Since each of these small transistors produces a noise signal which is random and uncorrelated with that of its neighbours, some noise cancellation takes place when they are paralleled up to provide 17dB



David Lord's valve phono preamplifier built from a Richard Brice design in *Hi-Fi World* (February 1993). At left is the power supply.

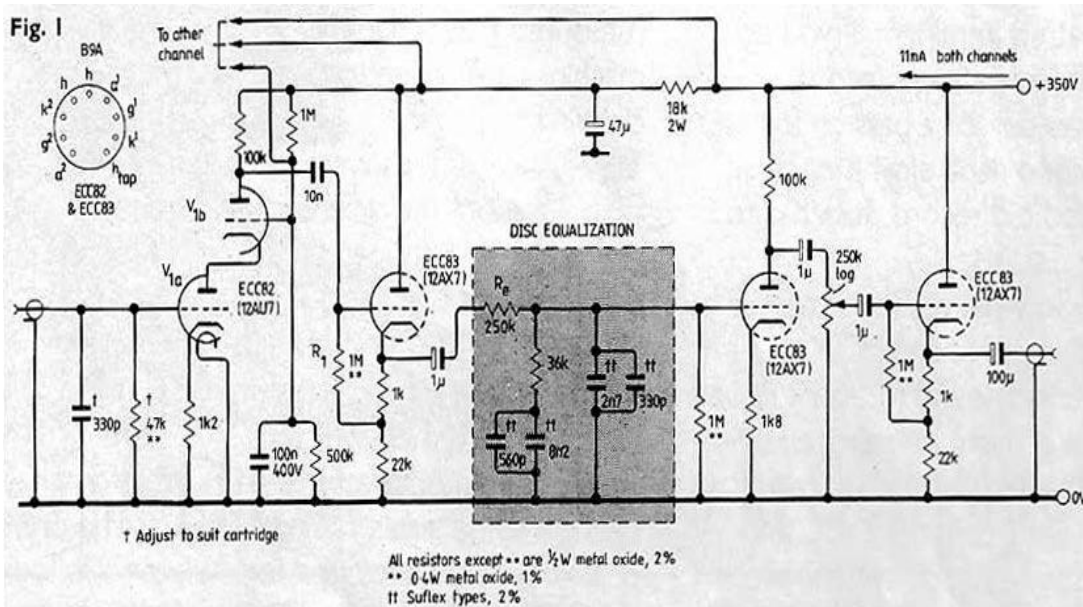
column in this mag. It needs a step up transformer at the front end to accommodate a moving coil PU, so it is simply a matter of using one with a centre-tapped primary in order to have a balanced input.

One recent improvement I have made to the Brice design is to replace the ECC82 cascode input valve with a special quality low-noise 6072. I am currently using an Ortofon Cadenza Black cartridge which has an output some 3dB or 4dB lower than the Bronze I had before, so the reduction in noise from using a 6072 is worth

level when amplifying the output from a very low impedance transducer such as an MC cartridge the best device to use is a bipolar transistor. The snag with this is that bipolar transistors need a bias current fed into their base in order to operate, and it is difficult in practice to avoid all or most of this current flowing through the transducer if it is directly coupled to the input. This is likely to be only a few microamps but I feel it is undesirable, not least because it may result in a slight offset of the cantilever due to the interaction of the field from the

reduction in this case, it is claimed.

I used the LM394 before in a circuit for a microphone pre-amp I came across many years ago when I was building a mixer, so I thought this should work well as a front end for my latest phono pre. The output from this feeds a passive RIAA equaliser, after which some further gain is needed to restore the losses in the eq network. To provide this I decided to use a valve in order to introduce some valve warmth. Like the last stage of the Brice pre-amp I used an ECC83 double triode with the first half giving



The valve phono stage (MM) circuit in our February 1993 issue, designed by Richard Brice. Built by David Lord, its ECC82 input valve was replaced by a quieter 6072 he says.

the gain needed and the second wired as a cathode follower to ensure a reasonably low output impedance.

The dedicated, separate power supply I built for this hybrid pre-amp provides plus and minus 12.6 volt stabilised DC outputs to feed the solid state front ends as well as the valve heaters. The HT supply for the ECC83s is also stabilised but using high voltage transistors rather than valves for the sake of economy.

In comparison with the all-valve pre-amp, the hybrid design also exhibits an extremely low level of noise and to my ears it also sounds almost as good, even if it lacks that last ounce of refinement. I reckon the hybrid pre and its PSU cost about £150 to build, whereas the all valve combo cost about £450. So with the hybrid I get, say, 95% of the performance at a third of the price: twas ever thus with hi-fi.

I attach pictures of the hybrid pre with its lid off, and of the all-valve unit also opened up together with its PSU. As you can see, the hybrid is very compact, being built into a standard 6x4x2 die-cast metal box.

I appreciate that there are likely to be few other readers who build their own phono pre-amps, but I hope that what I have written will be of interest to those who would like to know more about what makes them tick, even if they have no intention of going the DIY route.

David Lord

Hi David. Thank you for that. As you say, there are many ways to conceptualise and build a phono

preamp and – better – you bring up the never-discussed issue of running input bias current through the cartridge. This is something that is a bit technologically embarrassing I feel: I shouldn't happen – but it does.

Most solid-state phono stages, using silicon chips nowadays, conveniently assume that their low input currents, which pass through the cartridge, are inconsequential.

sheet) so this current is not inconsequential and may well affect cartridge behaviour, as you suggest. It's far from ideal, yet there are ways to avoid the issue.

Alternatives are low noise FET pairs like the (expensive) LSK389 etc or input transformers, ignoring use of an input capacitor that carries its own problems.

A good way to assess the options is LTSpice (free) for which



David Lord's hybrid phono preamplifier, using an LM394 front-end and ECC83 double triode output valves. External power supply not shown here.

An MC cartridge delivers 0.5mV into 100Ω, or 5µA at high level, and at low level (-60dB) 5nA. The LM394 has a quoted input bias current of 75nA in one application circuit (Texas Instruments data

there are valve models, as well as all else. It will show you what works and what doesn't, also giving insight into currents – handy when measuring nA is difficult.

NK



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August 2021



July 2020

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Here's your chance to win a superb Black Rhodium Operetta electrical digital cable we reviewed in the August 2021 issue. Read the review excerpt below and answer the questions.

"Black Rhodium goes to great lengths to bill the £330 (1m) Operetta featured here as a "75 Ohm Digital Audio Cable". It's available in two forms – phono (more common, but not 75 Ohm connectors) and BNC (less common, but in 75 Ohm form).

The Operetta Digital's conductors are silver-plated, for "maximum transmission of high frequencies", necessary for fast digital. These conductors are enclosed in a low-loss dielectric material, which is covered by a microphony-resistant shield and – to keep interference at bay – silver-plated copper screening. A final nylon jacket keeps things neat while at the same time, according to Black Rhodium, "damping unwanted vibrations".

Heat-shrunk onto the cable is a label that indicates the direction in which the cable should be run for best results. To eliminate any

doubt, the phono plugs of the review sample feature white (at the source end) and red (DAC end) sections. Nalty admits that using plugs of different colour also helps his firm to "maintain equal stocks of both colours". The gold-plated GN3 plugs, designed by Nalty, make a 'Straight Line' ground connection with the socket barrel. They were, Nalty told me, influenced by the 'Bullet' plug designed by Keith Eichmann. He found that they give "a cleaner and clearer sound than plugs with full circumferential connection".

For a chance to win this great prize, just answer the four easy questions at right. Send your entries on a postcard only, by 11th March 2022 to:

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QUESTIONS

[1] What is the impedance?

- [a] 40 Ohm
- [b] 60 Ohm
- [c] 75 Ohm
- [d] 2.2k Ohm

[2] Name a connector option?

- [a] bayonet cap
- [b] BNC
- [c] Bulgin octal
- [d] B9A

[3] Are the conductors -

- [a] silver plated
- [b] Rhodium plated
- [c] gold plated
- [d] tinned

[4] A label indicates -

- [a] temperature
- [b] humidity
- [c] nationality
- [d] direction

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**DECEMBER 2021 WINNER: WORLD DESIGNS WD PRE4 PREAMPLIFIER & PSU3
Mrs. Lesley Rowell of Whitehaven, Cumbria**

Out Of The Blue

Suddenly a receiver with VHF/FM radio, DAB and much else arrives from Blue Aura. Noel Keywood tunes in.

Receivers with gloriously illuminated tuning scales – Rotel did some beauties – left us long ago. Or so I thought, until Blue Aura's Blue 1 arrived for review. We all have to be disappointed there is no tuning scale nor a giant tuning knob to go

with it, but it does have VHF/FM radio for all those who are happy to surf the air waves, using modern-fangled buttons and pre-sets. It has so much more though, as I'll explain, in a compact package that costs – wait for it – just £399.

You may suspect straight away there must be some serious

compromises but no, there were not. It may not set the world alight in some areas, but it was beyond my expectations. The amplifier for example delivers a firm 77W, measuring superbly (see Measured Performance). No sign of crossover distortion nor anything like it, something budget amps suffer from.



This one was as clean as a whistle.

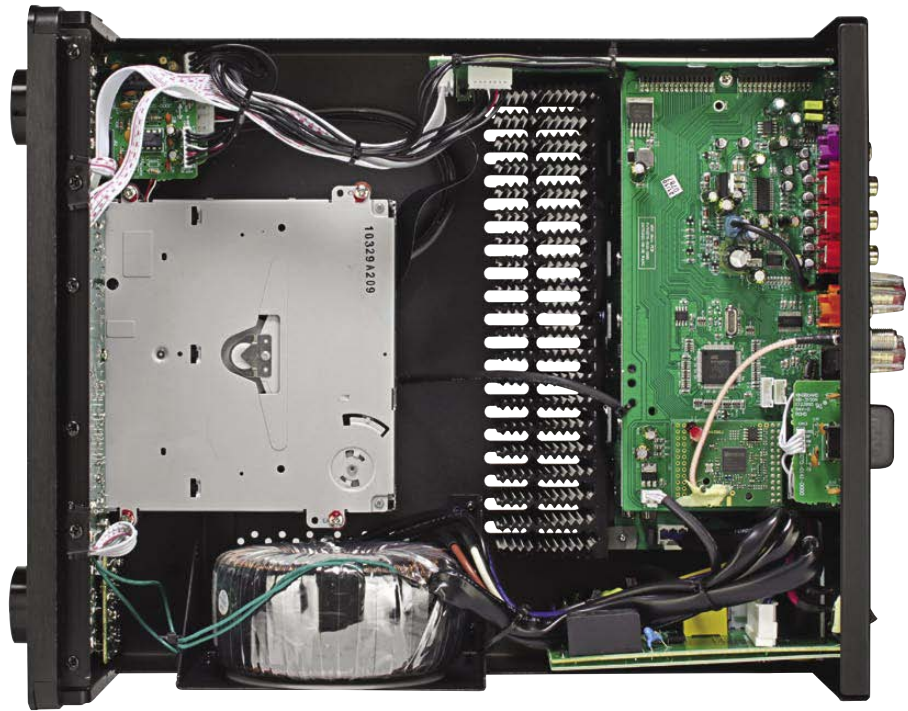
Although the presence of VHF/FM radio suggests Blue Aura have targeted oldies looking for something that will magically revive the Home Service, that's not so. If it was so, then there would be a Phono stage for LP replay – but there isn't. Where a simple MM phono stage has these days become almost obligatory as vinyl sales continue upward, there's no such option here. Instead vinylistas must plug an external phono preamp into the Aux 1 analogue input.

Moving forwards in time from analogue radio brings us to Digital Audio Broadcasting, that wonder of the modern age that never quite made it, in spite of the European Broadcasting Union's best efforts. All the same, for those far from Wrotham, Holme Moss, North Hessary Tor and such wind swept hills there may be a short range DAB transmitter close by that does the job, in which case the Blue 1 is able to receive its signals in DAB or DAB+ form.

Another step forward in time brings us to Bluetooth (v5), also a radio transmission system and available in Blue 1. Often seen as a digital input and derided for having a compression system, in recent form it gives hi-res sound quality, but you don't quite get that here – as I'll explain in Sound Quality.

Leaving air waves behind, the Blue 1 has plenty of other digital inputs. Receivers of the past did not come with record players (let's not talk radiograms) but this one gets a disc spinner – a slot loading CD player. There are also optical and electrical S/PDIF inputs, plus a front panel mounted USB drive socket that will read a Flash (memory) drive (in Sony parlance, a Memory Stick); I presume it will also power and read a mechanical disc drive.

Reading files from a Flash drive (as I'll call it) is one of my favourite ways of playing music: a CD player without CDs in effect. And – better – there is the potential to play hi-res files, including DSD – but not here. The Blue 1 plays CD and MP3 files, meaning wav or compressed wav, up to 24/48 I found, but not higher sample rates, losslessly compressed FLAC files, nor DSD. That'll suit most people perhaps, if not audiophiles. Another limitation is a simple dot-matrix display



Signs of audiophile dedication: at bottom in our picture sits the alloy foil clad toroidal mains transformer of a linear power supply – likely why Blue 1 had plentiful bass. At right (rear) sits a circuit board featuring large scale integrated circuits.

with track and title but no more. However, the rear digital inputs can accept hi-res PCM (from a portable player for example), it's only the front USB input that cannot.

What this receiver specifically lacks is USB computer connection or network connection by any method, so no app or ability to stream internet radio.

I found the Blue 1 easy to use. Its remote control does most of the work, as you'd expect. It switches on and off from standby – always handy – and there's auto-standby to save power. The VHF/FM tuner will auto-tune but it is upset by noise; there's no noise muting. Tuners like this are best set to station frequency manually: for example I found that in NW London the wire aerial supplied got best signal from Crystal Palace at 88.8MHz, rather than Wrotham (89.1MHz) that my now-deceased outdoor array once pointed at (see Radiodns.uk for this info). I

used a loft aerial for radio listening.

There were some confusions: the handbook says a ST beacon should light when receiving stereo but this did not work with our unit, even when receiving a powerful stereo signal from an FM test generator. Switching from Stereo to Mono when working from the aerial confirmed it was receiving stereo,



Every button on the large remote control is linked to a function on the receiver; there are no redundant functions. Beneath the circular jog control lies Tone, to select bass and treble adjustment. At left lies a tuning rocker, and right a volume rocker. The unit can be switched on/off by remote too. It goes into standby after a period of inactivity.

just not indicating it. The aerial socket is an F connector designed to accept solid-core co-axial cable with a simple clamp; an adaptor is needed to accept co-axial (Belling-Lee) plugs. With 40 presets it's best to select a preset rather than manually tune. And the wire aerial supplied is proportioned for DAB, not VHF/FM; a slightly bigger aerial is needed for best reception of the latter. Because DAB is easily blocked by buildings and hills it most needs an aerial so this is the best choice, but it is not explained anywhere. Always best to use a multi-element aerial though, preferably in the loft (i.e. high up), pointed at the local transmitter, especially with VHF/FM for hiss free reception.

Also available from the remote control are very well crafted tone controls, bass and treble having different characteristics – something I have not seen before (see Measured Performance). There's a Loudness function too.

A 3.5mm stereo headphone sits on the front panel, but as you might expect connection is by wire only, not Bluetooth transmission. Pressing the BT button on the remote brought up 'Blue I' on my iPhone and it connected immediately via Bluetooth.

SOUND QUALITY

I connected Blue I to our resident Martin Logan ESL-X hybrid electrostatic loudspeakers through Chord Company cables. Having used it during test with Oppo PM1 magnetic planar headphones



The blue dot-matrix display gives basic information only, but is visible at a distance. Forty presets can store station frequency, for instant selection.

I knew it had punchy, clean bass and that was very clearly repeated when spinning Safri Duo's Samb Adagio on CD. Small units like this commonly come across as bass light, but not the Blue I; I carefully checked to ensure the bass control was set to zero. Running through a wide range of CDs it became clear

AK120 portable player via a digital optical cable again there was smooth deep sound from Rebecca Pidgeon singing Spanish Harlem (24/176.4) and even Otis Redding came through in stable form, from a 24/192kHz file (optical sometimes gets shaky at this high sample rate). Playing from a Flash

"the amplifier has a smooth yet dense sound with generous timbral resolution, something that worked well for classical"

the amplifier has quite a smooth yet dense sound with generous timbral resolution, something that worked well for classical, bringing a natural sound to Nigel Kennedy's Stradivarius when playing Massenet's Meditation (CD).

Connected to an Astell&Kern

drive gave exactly the same sound as CD in effect, and Bluetooth worked nicely, if losing fine detail from Handel's Lascio ch'io Planga where Johannette Zomer was firm and clear centre stage but the delicate background harpsichord got a bit lost. Yet with scuzzy Rock such as The Eagles Busy Being Fabulous that, being compressed upward to sound loud, can sound edgy, the receiver's smooth sound balance with strong bass made sense of it.

With VHF/FM in Stereo mode noise level measured -60dB where -65dB or better is common. In practice I could not get noise free stereo from my loft aerial, but pressing the Mono button eliminated the problem entirely. It has a slightly noisy stereo decoder, but then a better aerial than mine may be the cure. DAB provided a quieter alternative to Radio 2 for example, if the harder, more mechanical sound DAB is known for. Good to hear BBC's Maida Vale studio being rummaged through when I was sitting just around the corner; radio comes up with



At front a slot-loading CD drive with transport buttons. Below lies a USB socket able to read music files on a Flash drive, up to 24/48 hi-res, CD, MP3 and WMA, but not FLAC.



A master power switch at top left. At top centre an F connector for VHF/FM / DAB aerial. The wire aerial supplied is optimised for DAB. As always, a loft or external aerial is needed for best results.

surprises, in this case I was listening to Radio 2 and learned that Hendrix and The Beatles played there (should've known that!).

CONCLUSION

Blue Aura's Blue 1 receiver was for me a total success. From the

off it was easy to understand and use (good instruction manual), having all necessary basics whilst dispensing with fripperies. There are some limitations, inability to play hi-res from a Flash drive being the most obvious, but this is possible from an external

player such as the AKI20 I used. With fine sound quality from the basic amplifier and a wide range of inputs, plus DAB and VHF/FM radio, it caters for most people's needs – at a price that is breath-takingly low. Superb. I found it thoroughly enjoyable.

MEASURED PERFORMANCE

The Blue Aura Blue 1 receiver produced 66 Watts into 8 Ohms, increasing to 100 Watts into 4 Ohms. Most loudspeakers are now 6 Ohms, into which output is 77 Watts – making this a typical real-life value. It's more than enough to go very loud, even with small (insensitive) bookshelf loudspeakers.

Output impedance was low at 0.15Ω giving a damping factor of 54, which will impose good 'speaker cone control.

Frequency response measured flat from 1Hz to 100kHz (-1dB) via the Aux1 input, unaffected by load value or volume control position. The tone controls were interesting and obviously carefully tailored. Bass added or subtracted output around 100Hz, putting in a peak or a dip at that frequency. Very low bass remained unaffected, to prevent excessive cone movement (and power draw). The treble control was different: it applied shelf boost or cut, in 2dB steps. There was no supersonic peaking here either. Shelf cut like this is perfect for adjusting tweeter output, mostly to tame brightness.

Distortion values were very low, measuring 0.004% up to near full output (1kHz). At 10kHz the figures changed

little, just 0.01% at 1W into 4 Ohms as our analysis shows. At full output this rose to just 0.02% – so no crossover distortion.

The optical digital input worked up to 192kHz sample rate (as did the electrical), the digital S/PDIF inputs giving a respectable 109dB EIAJ Dynamic Range value (better than CD). Frequency response extended to 53kHz before falling away to 96kHz, the theoretical maximum. Distortion was a low 0.1% (24bit, -60dB) and 0.22% with CD as always due to 16bit quantisation noise.

Bluetooth frequency response was flat to 20kHz and Dynamic Range 90dB, 10dB worse than CD but as expected for a budget system.

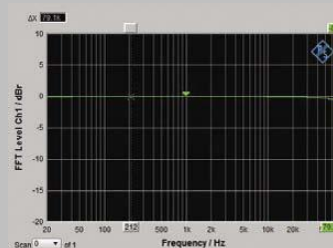
The VHF/FM section measured flat to 6kHz, with just slight roll down to -1dB at 12kHz before the pilot tone filter notch at 19kHz. Full quieting (minimum hiss) was fair at -60dB, reached >200µV aerial input, making sensitivity good.

The Blue 1 gave either superb or very good results in all areas. **NK**

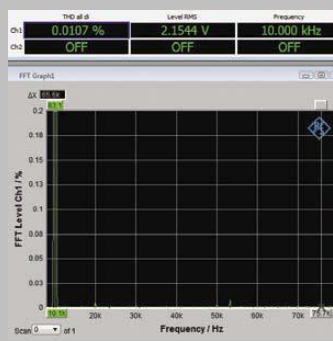
Power (8Ω)	100W
Frequency response	1Hz-100kHz
Distortion (10kHz, 1W, 4Ω)	0.01%
Noise (IEC A)	-98dB

Sensitivity	400mV
DIGITAL	
Frequency response	10Hz-53kHz
Distortion (-60dB, 24bit)	0.1%
Dynamic Range (EIAJ)	109dB

FREQUENCY RESPONSE



DISTORTION



BLUE AURA BLUE 1 £399



OUTSTANDING - amongst the best.

VALUE - keenly priced.

VERDICT
Powerful receiver with oodles of inputs and smooth powerful sound. Amazing value.

FOR
- sound quality
- VHF/FM and DAB radio
- good remote control

AGAINST
- noisy VHF/FM stereo
- no hi-res from Flash drive
- F connector only for aerial

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State of Flux

Martin Pipe is 'wired for sound' by Furutech's Lineflux NCF phono-to-phono interconnects.

Modern hi-fi is pretty high-tech 'under the bonnet' - and I'm not just talking about the clever digital and streaming

stuff. Just take a look at the sophisticated design, materials and engineering that go into today's amps, turntables and speakers. Another analogue element of the reproduction chain that has received con-

siderable attention in recent years is cabling. Even the more affordable end of that market has seen considerable change for the better in terms of conductors, insulators and connectors. Thanks to advances in



technology, some budget products are capable of performance levels that audibly approach those of yesterday's state-of-the-art offerings.

However, the more esoteric products are of course raising their game too. Take, for example, the imposing top-of-the-range Lineflux NCF phono-to-phono interconnects featured here. Manufactured by premium connectivity specialist Furutech, these £1,750 (for the 1.2m pair, as featured here) employ all kinds of exotic aerospace-grade materials and processes. At the signal-carrying core of the Lineflux NCF are solid-core OCC (Ohno Continuous Cast) copper conductors, covered by successive outward layers that include high-grade polyethylene dielectrics and two layers of screening - one a wrap of PET/aluminium tape, the

with arrows, the orientation necessary for optimal signal flow.

Talking of which, the Lineflux NCF boasts Furutech's latest CF-102 NCF ('Nano Crystal Formula') phono plugs, which are themselves beautifully-made high-tech joys to behold. NCF, deployed elsewhere in Furutech's extensive lineup, is described as a crystalline material that will "generate negative ions to eliminate static" as well as "converting thermal energy into far infrared". Someone go tell NASA. This wonder material is injected into the plug's all-important central pin, which is made from rhodium-plated copper. Providing the ground connection to the barrel of your phono sockets is the rhodium-plated copper body. Its clear-coated outer construction uses yet more NCF, here in combination

with Coherent 6D Gen 2 phono cables which, at £2,495 a pair, are even more expensive than the Lineflux NCFs! Funnily enough, the Coherent cables also use Furutech phono plugs. It would seem those 'hollow' central pins are slightly shorter than most, with non-conducting tips (NCF isn't good here!).

When I pointed this out to Coherent's 'main man' Tony Sallis, who is very familiar with hi-fi of the rarified sort that would be interconnected by cables like the Lineflux NCF, he told me that he "genuinely never had any issues" with Furutech plugs. I tried other equipment, admittedly none of which is in the billionaire super-fi category, and no further intermittency was encountered; then again, they aren't equipped with phono sockets of the sort fitted to the Amber 3T.

As you would expect given the pricing, these tonally-neutral cables perform extremely well. Improvements are very subtle, akin to switching between a DAC's digital filters. A palpable reduction in low-level noise is evident during the breaks between movements, and there's a tad more clarity during quiet passages. At the same time, I could hear more rhythmic 'snap' and perceive nuances that had hitherto been buried in a hires recording. Such benefits are, albeit to a marginally-lesser extent, also noticeable with much more affordable interconnects. I can't however help thinking that their true potential is lost on the kit I'm interconnecting (good though it is in its class).

CONCLUSION

If you are indeed fortunate enough to own 'super-fi', with unbalanced phono connections somewhere in the chain, it may be worth your while giving a pair of Lineflux NCFs a home trial. Not only are they beautifully made, using some pretty esoteric ideas and materials, but their performance could do justice to your system. I could hear a positive difference - yours may well be truly revelatory. Furutech is keen to warn potential customers that some of its products are being counterfeited and so you should stick with genuine imports, which are handled in the UK by official distributor Sonic Fowndations.

"A palpable reduction in low-level noise is evident during the breaks between movements, and there's a tad more clarity during quiet passages".

other a copper braid - to keep external noise at bay.

Furutech has treated the conductors - and, come to think of it, all of the Lineflux NCF's metal parts - with its proprietary 'Alpha' cryogenic and demagnetisation process. This, the Japanese firm reckons, will render the "metal stress-free, stable and highly electrically-conductive...enabling that all-important Furutech goal of pure transmission".

Then there's the composite sheath, which incorporates a resonance-damping material containing ceramic and carbon nanoparticles. It may not be in the signal path, but "improved signal transmission" is claimed as a result - presumably due to the aforementioned mechanical damping. Most owners won't get to see this apparently-greenish material, though, as it's covered by a nylon outer braid. Close to the plug ends of each cable are metal collars - more likely dampers than radio-frequency interference rejecting ferrites - that indicate,

with nonmagnetic stainless-steel and carbon-fibre for "the best of damping and insulation". NCF, Furutech tells us, delivers "improvements in the depth and focus of the sound stage, harmonics and tonal balance... low frequencies are cleaner, with a greater sense of definition made possible by a lowered noise floor".

No practicality issues were experienced with the majority of the equipment partnered with these interconnects - including a Cambridge Edge NQ streamer/preamp and Exposure 3510 integrated amp (driving Quadral Aurum Wotan VIII speakers). They are notably heavier than most - owing to the cable construction, metal dampers and phono plugs that alone weigh 29.5g each. Said plugs have rotating collars that lock the splined barrel securely to the sockets of your equipment. However, audio was intermittent when an Amber 3T headphone amp was used (this doesn't happen with other phono plugs). I had similar problems last year,

**FURUTECH'S
LINEFLUX NCF
£1,750 PHONO
1.2M PAIR
(£2,995 XLR, 1M PAIR)**



OUTSTANDING - amongst the best.

VERDICT

The money buys you high-tech design, impressive build quality and strong performance

FOR

- very well made
- audible improvements in micro-detailing and background 'blackness'

AGAINST

- very expensive!
- short pins of phono plugs might be problematic

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In The Ring

Mission fit a Ring Dome tweeter to their budget QX2 MkII loudspeaker. Noel Keywood listens to the outcome.



This is a very interesting little loudspeaker, one that had me listening intently over a long period. Mission's recently upgraded QX-2 MkII standmounter also had me puzzled, yet impressed too. Especially at a price of £399 per pair.

I was puzzled by what can't be seen or easily identified, the hidden and little discussed issue of cone material and the "flavour" of the sound. To illustrate this, imagine the difference between a paper cone and a metal cone. Hit a cardboard box – the one that just came in from Amazon will do – and an

aluminium saucepan and they'll sound different. It's as simple as that. I'll cover this in greater detail later when talking about sound quality.

Mission don't use paper or metal cones in the QX-2 MkII, but a modern composite cone comprising pulp with acrylic fibres. Point number one – this is not a metal cone, so it won't have a bright or ringy quality. I knew I could expect a darker sound. In a novel arrangement a rear cone made of this material drives a front fibre dish made of the same material, explaining the drive unit's unusual appearance and perhaps

unusual sound.

There's a rubber surround with serrated acoustic damping frame in front of it that contributes to an appearance of teeth. These scatter reflections Mission say, and tapered indentations have been added to the tweeter surround and even the rear port for similar purpose. Even though a budget speaker, the chassis is rigid cast alloy casting rather than pressed steel with two ferrite magnets to energise the yoke.

The 'speaker itself, in physical form, is quite large and a tad tubby, measuring 220mm wide, 300mm deep and 320mm high – purposed

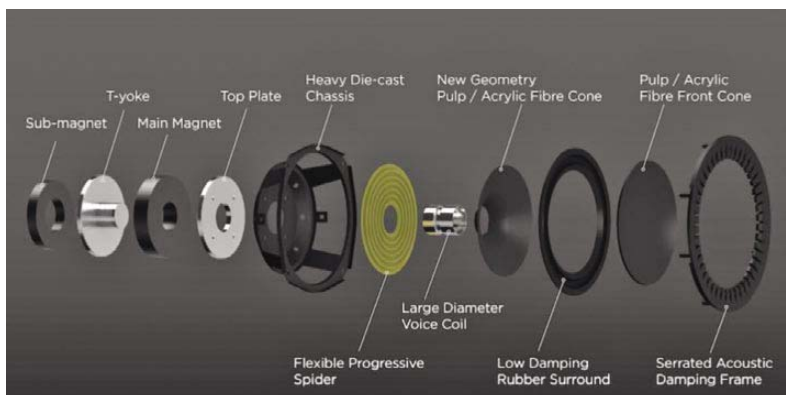


for stand mounting, but you could also shelf mount it. There's a rear port but these only need a few centimetres (1in) of rear breathing space. Unusually, Mission fit a solid aluminium base and top plate that add weight and rigidity – and also suited our top-spiked stands. The 'speakers don't come with spikes or pads but this is a good strong base able to accept such additions, perhaps attached using Araldite, by anyone wanting to get creative. These plates contribute to a relatively high weight of 8.5kgs, making the cabinets feel unusually sturdy for their size. In addition to black and white finishes there is also a Walnut wood veneered version.

What Mission were keen to point out in their Press info is that the MkII has been fitted with a Ring Dome tweeter. And these are fascinating devices that truly do sound better. In a nutshell they have an annular diaphragm anchored at centre and at edge, driven by a voice coil attached centrally to the ring. This creates a pulsating ring, with small central phase plug to break up (prevent) destructive phase cancellations.



The shallow dish-shaped pulp/acrylic fibre front face is attached to a rear cone made of the same material, as shown below.



An unusual rear port with serrations to improve air flow, Mission say. Tuned to 40Hz it also helps the small 'speaker go low – right down to 30Hz our measurements show.

One pair of terminals is fitted for mono-wiring; they accept 4mm banana plugs, bare wires or spades.

Ring Domes are more expensive than normal dome tweeters, but they have smoother frequency response and commensurately smoother sound that lacks the slightly spiky, coarse quality of a conventional dome. Also note this is not an alloy dome tweeter: again no metal. Dare I say it, but using a Ring Dome on any speaker is a mission statement: "high quality treble a priority".

See also that the tweeter is positioned as close as possible to the woofer to minimise phase cancellations caused by distance, and Mission say the crossover has been designed for best integration of drivers at the ear's listening height.

As a short summary, the small QX-2 MkII is heavier, better built and better equipped than most else, at just about any price let alone £399. But our measurements showed the 'speaker has designed-in ability not mentioned in the Press info, that I'll get straight into next, because I suspect it is important to most listeners: bass.

SOUND QUALITY

This is a small loudspeaker with "bass". Measurement showed the QX-2 MkII went unusually low. It is possible to do this by sacrificing sensitivity but it was satisfactory at 85dB according to our measurements; think 60W-100W amps. Bringing me to the use of a PrimaLuna EVO300 Hybrid amplifier rather than the softer sound of our Creek iA20 amplifier (both 100W). It has enough power and a lively sound that suited the Missions since they were, I found, quite a laid-back loudspeaker with an easy going milieu. Yet the PrimaLuna gripped them nicely to

deliver strong low bass. Not quite floor stander bass, but a nice deep presence behind Antonio Forcione's Tears of Joy from a synth that others of the size miss. The ability to tease out deep bass lines, synths and such like made the QX-2 MkIIs sound bigger than their physical size: "did that come from there?" They don't deliver floorstander power and cannot be taken too loud without starting to become boxy, so not disco machines. However, they go plenty loud enough for most people whilst still delivering a satisfyingly low rumble from what looks like an unfeasibly small cabinet.

Because the lows are there but not too emphasised the QX-2 MkII will likely suit small-ish rooms without inducing boom. Having

"Josefine Chronholm's In Your Wild Garden had a weighty presence to it, her vocals cutting out clearly from a smoothly composed sound stage"

said that, they don't come with foam bungs to damp bass down if need be. It was an impressive performance though – at the size and the price.

Further up the band the two-part composite cone had me a little confused. It has a mild, yet dark flavour to its sound, with good rendition of depth. Josefine Chronholm's In Your Wild Garden had a weighty presence to it, her vocals cutting out clearly from a smoothly composed sound stage. Fleetwood Mac's Silver Spring had some edginess to vocals I'd picked up on earlier listening that seemingly popped out of the darkness, likely due to a rise in output from the tweeter around 5kHz. This apart treble was refined and extended.

CONCLUSION

For all those looking for deep bass and a powerful sound, the sturdy Mission QX-2 MkIIs are a go-to at the price, especially for those who insist on stand or shelf mounting. Having a smooth, dark sound and pleasant treble from a ring-dome tweeter they are well worth hearing.



Mission's ring-dome tweeter – an annular diaphragm that forms a ring, driven by a voice coil. At centre lies a static phase plug to break up cancellations across the diaphragm. Ring domes are more complex than traditional domes but give smoother response by avoiding cavitation of dome apex.

MEASURED PERFORMANCE

The QX-2 MkII runs very low for a small loudspeaker, reaching down to 30Hz our third-octave pink noise analysis shows. This suggests it will produce deep bass down to rumbling subsonics. The port (red trace) contributes to this and damps the bass unit strongly over a broad band, so for a sense of bounce this is a loudspeaker that needs near-wall positioning to work with resonant room modes, bearing in mind a room 19ft long is needed to fully support 30Hz.

To run so low some sensitivity has been sacrificed, a modest 85dB being produced from one nominal Watt (2.8V) of input, which is loud but not very loud. Amplifiers of 60W or more would be needed for high volume. Overall impedance is low too, just 5Ω, likely to maximise sensitivity.

The bass/midrange unit reaches up to 2.5kHz, handing over to a tweeter that runs smoothly up to 20kHz. Output is strong around 4kHz where there is a +2dB peak and this will add some brightness but overall lift in energy terms (plateau width) is not great. Integration between the drive units was very good too, making for consistency of tonal

balance with differing seating heights.

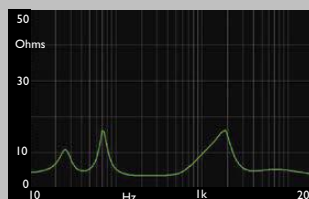
The QX-2 MkII is able to produce unusually deep bass for its size, but it is strongly damped to compensate for room modes, so will not sound bass heavy. With a broadly correct tonal balance and some treble lift it will also deliver plenty of detail. **NK**

FREQUENCY RESPONSE

*Green - driver output
Red - port output*



IMPEDANCE



MISSION QX-2 MKII £399



OUTSTANDING - amongst the best

VALUE - keenly priced

VERDICT
Big bass and smooth demeanour. Seductive listening at a low price.

FOR
- deep bass
- smooth rich midband
- sturdy build

AGAINST
- some sharpness at times.
- boxy at high volume

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Works of ART



Martin Pipe finds that Adam Audio's diminutive A5 active speakers, sold for professional use, still have small-room hi-fi potential today.

Olde Worlde usually focuses on the hi-fi gear of yesteryear. Occasionally though I like to drop in other items that might be of interest, such as professional audio - an Aphex Aural Exciter here, a portable digital recorder there. This month, I'm featuring a pair of Adam A5s - active 'nearfield' speakers, of the sort that you might find above the mixing desk of a small studio where space is tight.

The ancestry of this sort of thing can be traced back to the manufactured-under-licence LS3/5a, which was developed by the BBC for decent monitoring within the tight confines of outside-broadcast trucks. The music you're listening to right now might well have been monitored on air-shifters like these, making the Adams here arguably relevant! This particular pair came with a small and easily-fixable

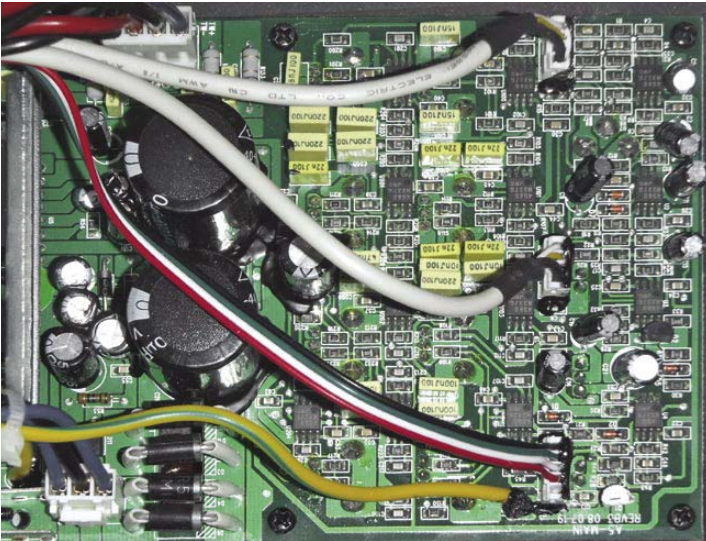
fault (more of which later) from a generous BBC colleague who's an audiophile.

I suspect, though, that the gentleman in question simply wanted an excuse to upgrade - to Focal monitors, as it happens. He's very much into making music with analogue synthesisers, but speakers like these can be found in the bedroom studios of hip-hop artists, guitarists, video producers and games designers amongst others.

A scaled down version of its existing A7 models, the 5kg A5s were the entry-level active speakers from pro-audio specialist Adam Audio, which was founded in Berlin at the turn of the millennium. Key to Adam's success was its revival of Oskar Heil's Air Motion Transformer (AMT) tweeter. The firm's designers refined this with technologies and materials that simply didn't exist in the 1960s. The result was the ART

(Accelerating Ribbon Technology) tweeter. Key to the transducer's design is a pleated foil diaphragm that, according to Adam, is capable of "moving the air four times faster than the folds themselves are moving". The result is, Adam claims, a treble that's distortion-free and accurate, when compared to that from traditional tweeters with vibrating diaphragms. Those claims weren't without subjective merit and Adam ended up selling large numbers of speakers. The A5 is a two-way ported design that combines a 2.5in. ART tweeter with a grille-covered 5.5in composite bass/midrange driver, the crossover point being 2.2kHz.

Each driver is powered by an internal 25W RMS amplifier (here, the two sections of a heatsinked stereo chip) via an electronic crossover. This approach, which can lead to much more accurate reproduction, is usually only found



The electronics, which rely heavily on surface-mounted components, are built onto this single glass-fibre circuit board. 'Audio-grade' opamps (RC4580s) and polyester capacitors are used in the amplifier and filter sections.

in the most expensive of hi-fi systems. It's therefore gratifying to find such electronics in a pair of active speakers that, at the time, sold for £500.

Around the back, I can adjust the 'low' (<150Hz) and 'high' (>6kHz) frequency sections of this crossover to compensate for the effects of room acoustics, 6dB of adjustment either way being possible here. A third recessed knob reduces or increases, by up to 3dB, the overall tweeter level so that the desired level of clarity can be reached. Adam recommends

using these controls "with utmost care and only after several audio tests with familiar recordings". It's rare to find adjustments like these on hi-fi loudspeakers, certainly nowadays.

– and easy to fit. Some users have simply chosen to bridge a dead switch's contacts, instead using external means (the switch on the mains socket!) to remove power from the A5s.

Whilst the unit was in bits, I took time to look inside. The construction is busy, but neat, audio being routed internally via screened cable links. A bituminous material is used to seal switches and connectors, preventing rattle (I opted for car underseal mastic for the replacement switch, as I had some going spare).

The electronics, relying heavily on surface-mounted components, are built onto a single glass-fibre circuit board. Many audio-grade opamps (RC4580s) are used in the amplifier and filter sections. Accounting for the bulk of the board's through-hole components are polyester capacitors – good-sounding components that you'll find in most hi-fi equipment.

Adam specified a power supply of conventional linear design. Its mains transformer is EI-cored,



Just beneath the woofer are the volume control and that trouble-prone mains switch. In addition to a power-on LED is one that illuminates when the 'stereo link' mode is active.



The 5.5 in midbass driver, which crosses over to the tweeter at 2.2kHz, is protected by a metal grille. Its cone is made of an unusual composite material – a sandwich of Rohacell (described as a "lightweight structural foam") and carbon-fibre. Although it doesn't go particularly low, the A5's bass is tight and accurate.

A volume control with centre detent lurks beneath the woofer grille. The A5s can – as products aimed at professional users - be fed via balanced XLRs, as well as unbalanced phono jacks.

On a plastic front-panel insert is a rocker-type power switch. This leads me to an explanation of how these A5s came into my possession. Adam's choice of switch tends to fail after several years of use, leading to dead or permanently-on speakers. One of the donated pair had suffered in this way. Fortunately, exact replacements for these single-pole switches are cheap – I paid an eBay supplier (bit.ly/3FcKZSV) £4 for a pack of five

rather than toroidal type, which is interesting given the manufacturer's desire to minimise stray magnetic fields. To reduce potential hum problems, the transformer is mounted on the other side of the large aluminium heatsink to which the amplifier chip and a voltage regulator are attached. Mains switch apart, the A5 seems to be a reliable beastie – which is perhaps just as well, given that servicing information and circuit diagrams aren't particularly easy to find.

The A5 sold well, and appears to have been a game changer in its intended market. Even today it's quite clear that the A5s are in a completely-different league to



The impression of sound with eyes and ears



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December 2021



August 2021

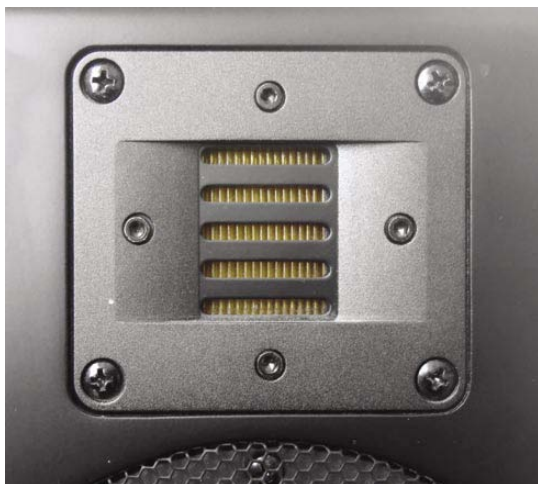


May 2021



Distributed by Henley Audio

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A core contributor to the A5's credible performance is Adam's ART (Accelerating Ribbon Technology) tweeter – a 21st-century development of Oskar Heil's Air Motion Transformer (AMT) concept. A refined X-ART version forms part of the (still-available) A5X model that followed.

the amplified speakers that are sold for, say, computer or gaming-console use. Measuring a mere 285x172x200mm, you cannot expect room-shaking bass of the magnitude associated with larger studio monitors – and indeed you don't get it. This naturally impacts the sheer sense of scale that can be imparted, although what bass you do get is punchy and well-defined. If low frequencies are important, and you have the space for one, a subwoofer is recommended.

I have tried the A5s with a compact Cambridge Audio subwoofer, to good effect. The midrange is clear and uncoloured, with no untoward 'cuppiness'. As a result, singers, guitars and speech sound very natural. However, it's in the upper registers that the A5s truly excel. Treble is fast and exquisitely-detailed – due to Adam's ART tweeters, no doubt – and benefits from a clarity that puts some hi-fi speakers to shame. It's easy to make out finer details within the mix, but I suspect that was the intention for equipment that – after all – is aimed at 'content creators'.

Even passive consumers of music will be able to enjoy the A5s, though. I have been using mine with the balanced outputs of a Naim Uniti Atom Headphone Edition, and can honestly say that they didn't disgrace such exalted company. No wonder they have held their value



Plenty going on here – these are professional workhorses, not consumer hi-fi equipment. As active speakers, the A5s can be fed at line-level via phono sockets (unbalanced) or XLRs (balanced). Low and high levels can be adjusted to compensate for room acoustics.

well; expect to pay as much as £300 for a pair in good condition. And Adam? It went on to launch the A5X, an 'overhauled' version with the latest X-ART incarnation of that fantastic tweeter. A pair of new A5Xs can be yours, for approximately £600 per pair.



Adam's choice of front-panel mains switch alas tends to fail after several years of use, leading to dead or permanently-on speakers. Fortunately, exact replacements for these single-pole switches are cheap to buy on eBay. Bridging a dead switch's contacts is however a cheaper alternative.



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"they want twenty people in there, which in itself negates serious listening"



Noel Keywood

Last month I said I would describe how to assess sound quality in this month's opinion piece. It's about assessing sound quality of programme material I must explain, rather than assessing hardware sound quality, since I was discussing a paper from the International Telecommunications Union (ITU) on the "subjective assessment of small impairments in audio systems" that really is just mis-titled: they mean "programme transmission systems". But no matter, hardware is still important in this discussion.

The first bullet to bite is that of the loudspeaker and the room it works in. It can't be any old loudspeaker, nor one that its manufacturer claims is a "reference monitor". A lot of big studio monitors come into this category, and sadly some 'hi-fi' loudspeakers. They're designed for punch and power, not accuracy or depth of revelation.

As dismissive as I was last month about the ITU's clunky lecture on this subject, I accept their recommendation of a loudspeaker measuring flat from 40Hz-16kHz, within 4dB variance – providing that means +/-2dB (they don't say). Otherwise, a two-way could be flat to 3kHz and have a tweeter +4dB up and still remain within their criterion, which is absurd; it would sound unacceptably bright and skew conclusions. A variance of +/-2dB around a mean at 1kHz is common and acceptable in my experience. And that is met by a majority of hi-fi loudspeakers. But I wouldn't use any of 'em.

For assessment of sound quality nothing matches an electrostatic loudspeaker: lack of colouration, low distortion, absence of phase problems and no delayed box echoes through the cones. They give deep

insight into music and are a perfect analysis tool for the sort of work the ITU's members and other large organisations carry out. The problem here is you get a sound outside the common experience. They'd be my choice – but arguably unsuitable for public listening, illustrating how difficult this subject can be. The ITU's long list of loudspeaker specifications are wholly inadequate to cover the topic of a suitable loudspeaker by the very fact that the most appropriate for their purposes is excluded. Oh well.

Next up is a suitable room. And here I would not pay much attention to the ITU's coverage of this topic, since they want twenty people in there, which in itself negates serious listening. Like assessing sound quality at a football match.

I would specify a room 20ft long, 14ft wide, with a 9ft ceiling since it looks sweet in its Bonello modes (see <https://trikustik.at/raummoden-rechner>) and has plenty of space for absorptive settee and listeners. All this ensures balanced, well damped sound below 200Hz, meaning balanced bass that goes low, in this room down to 28Hz if the speakers are at one end and the listeners – all twenty of them! – sit at the other. In practice such a room could accept three, possibly four listeners. Low frequency performance isn't usually a problem for digital programme transmission systems but always best for a system to sound balanced overall so as to provide a seemingly natural delivery.

Room acoustics need attention, furtwangled by the use of absorbers and reflectors, including absorptive carpet on the floor and – ideally – ceiling diffusers. There's no point in ITU quasi-intelligent talk about acoustics: any listening environment must simply please listeners, meaning it must be within their everyday

experience. And anyone who has done all this in real life will know that you cannot specify anything because twenty human bodies in a room totally change its acoustic! The ITU made no mention of this awkward reality, one that throws reverb times out of the window. You want twenty listeners? Er – no. Make it three professionals.

Music content is crucial. There must be instruments and vocals that are common to human experience, from recordings with appropriate spectral content and wide dynamic range. There's also a need to differentiate between continuous and transient, at both low and high frequencies: organ bass is different from kick drum, and flute is different from cymbal. It is possible to measure and specify such properties, a topic completely ignored by the ITU. Early compression systems like MP2 and MP3 homogenised massed strings for example, whilst little affecting bass quality. As an aside, dynamic range measurement clearly shows the degradation caused by compression schemes such as MP2, MP3 and (early) Bluetooth. No need for a gang of twenty.

Rock or Classical? Both. Rock covers most issues but classical has microphones capturing acoustic instruments in a reverberant space – usefully challenging. Those massed strings again: are they a blurred mass or a group of individual instruments? Do they sound edgy? Is there a sense of depth to the sound stage? What are the violins made out of: wood or aluminium?

My original concern was how professionals responsible for sound quality make their assessments – something we rarely hear about. Turns out that keen listeners around the world enjoy much better listening conditions and equipment than most of them. ●



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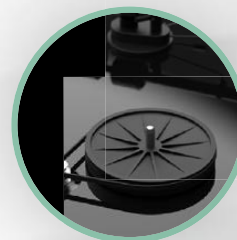
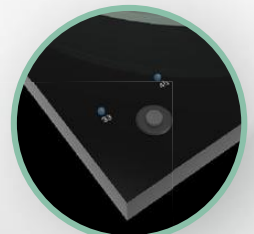
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"I'm expecting several genius bands and solo artists to arrive at the local bus stop, any minute now"



Paul Rigby

I remember a TV programme back in the eighties. I think it might have been part of an early series by comic genius, Victoria Wood (please correct me if I'm wrong) in which there appeared a guest performance from one, Rik Mayall. He had a brief guest spot as his much missed character, Kevin Turvey – an over-excited, immature, slightly incoherent individual.

On this guest spot, a darkened studio lit up to display Turvey, in a swing chair, his back to the audience. Dramatically (everything was a little dramatic with Turvey), our hero swung around to face the audience. A nervous tick occupied his face, he found it difficult to sit still, his hands moved uncontrollably while still gripping the arms on his chair. His feet had a life of their own. You could see the bubbling energy in the man, waiting, threatening to burst forth with Vesuvian proportions.

Unable to contain himself any longer, his twitching, nervous silence ongoing during the entire time to this one point, he unloaded a single, invective-tinged word full of anger, frustration and bewilderment. He exclaimed in a full-throated and spittle encrusted manner, "Thatcher!!!"

Whereupon, he shut up, swivelled his chair around, his back once more facing the audience, the lights dimmed and Victoria Wood carried on with her TV show.

That one moment summed up feelings of a large chunk of the populace during the eighties in the UK, especially the early part of that decade.

Now this column is not a place for politics and, I don't know about you, but I tend to read hi-fi magazines knowing that I will be cosseted within a safe isolation

from the screaming invective from the tabloids and...well, they're all tabloids these days, aren't they?

No matter what your political affiliation with this handbag-bedecked individual, there is probably one aspect of her time in power that we can agree on here. She did more for music than just about any other reigning monarch... prime minister of the day.

Did I hear a splutter?

Consider this. Margaret Thatcher put so many young people on the dole that they had plenty of time to learn how to play an instrument, gaze out of windows to consider passing clouds and write books full of songs to be played down the local pub in return for a pint and a packet of crisps. Thatcher reverse-subsidised the British pop and rock industry at that time.

Before Thatcher, this sort of thing was done at Art School (maybe you can tell me what the difference between being on the dole and being at Art School). John Lennon might reply, "Nothing at all."

In fact, my secondary school lay right next to the building that Lennon dossed, sketched and painted merrily within, to his heart's content. So I knew from whence he emerged, a Fab light in his eyes.

Thatcher's dole queues, on the other hand, featured the seedlings of Two Tone records and Echo & The Bunnymen. Being on the dole myself at that time, I was most grateful to Thatcher for providing me access to the only booming industry in the city at that time, a host of shiny new charity shops that sprang directly from the soil like the stop-motion Skeletons during the fight sequence in the film, 'Jason and The Argonauts'.

This (along with local car boot fairs) was where the local working

class (before they were turned into CHAVS) filled their wardrobes and outfitted their homes. These dens of discount (well, they were back then) were also ideal places for me to purchase a Crombie coat which meant that I could carry vinyl albums by the Bunnymen, The Cure and Teardrop Explodes with some aplomb and a certain measure of cool.

More than that, the entire electronica industry in Britain was a response to urban decay, no jobs and riots. The Sheffield scene of the day spawned the likes of The Human League, early ABC, Clock DVA, Thompson Twins and Pulp.

All would emerge through the grime and hopelessness of the times. Oh, and the dawning of day-time TV (which was the same thing, basically). So, there was plenty of raw material that exposed the nature and soul of the British public.

Running hand in hand with alternative music was alternative comedy. Another cultural phenomena that the lady spawned. She enabled Ben Elton and his friends to create a forum and subject to rage about within comedy clubs and late-night TV on Channel 4 (another new entry of the times).

She also deregulated TV to enable the same alternative comedians to own their shows and material in order to make fortunes from their DVD collections and rock musicals. This was the era that begat the shortest trip from poverty to the bourgeoisie, in history.

Finally? Let me assure you, the very best music tends to appear from hopeless times. So I'm expecting several genius bands and solo artists to arrive at the local bus stop, any minute now. ●

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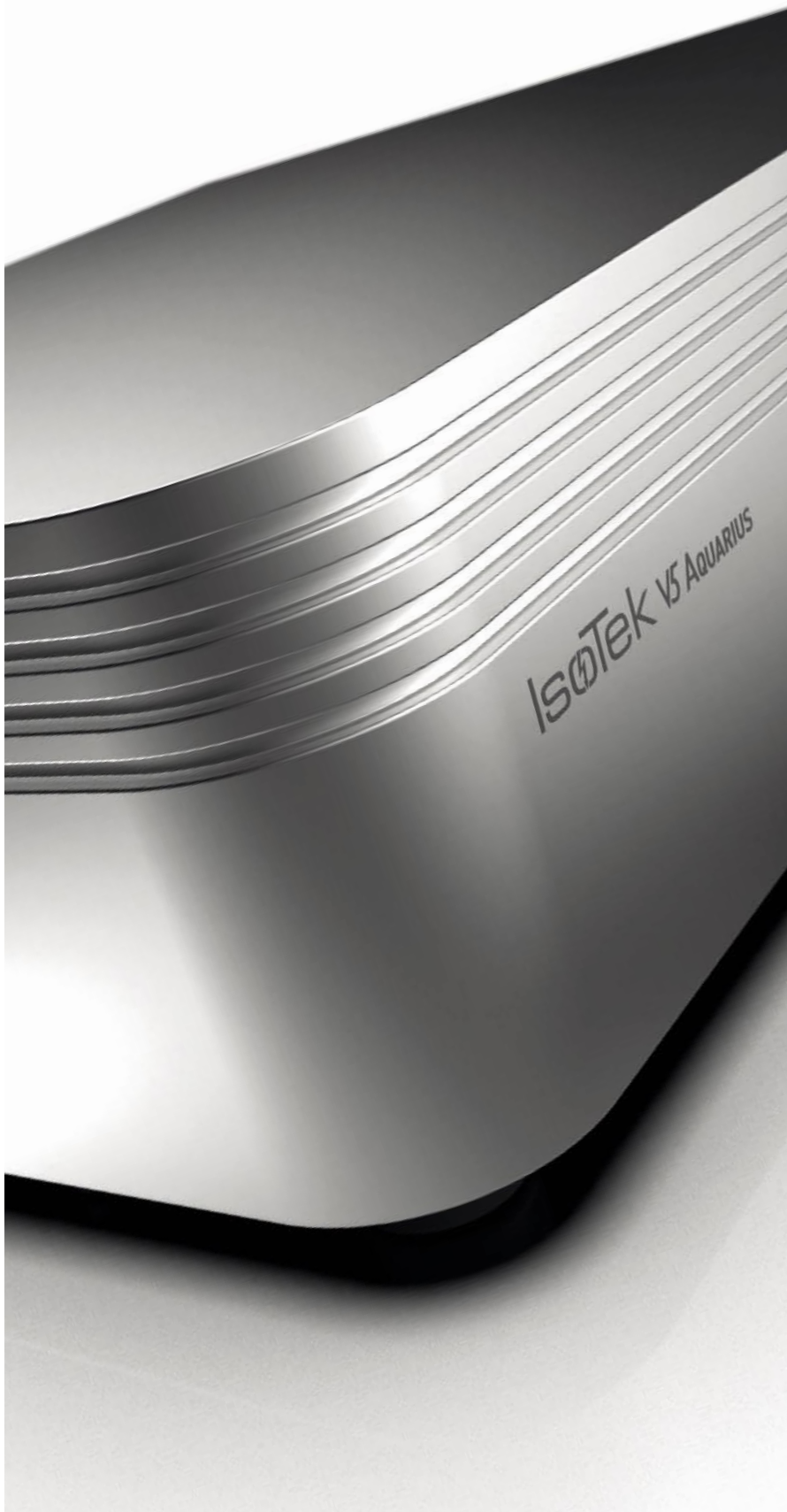
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"using the Wayback Machine I chanced on the audio assets of the Internet Archive"



Martin Pipe

Five years ago, the BBC began a lossless 'Concert Sound' online radio-streaming trial. Its public phase, promoted as a Research and Development 'Taster' project, coincided with the 2017 Proms. The FLAC-encoded stream was accessed via a PC web browser, audio typically being passed to equipment via HDMI. Instead of using the 'in-browser' player, I chose to save the streams to my PC's hard disk. These could then be auditioned on my hi-fi system via a Cambridge Audio network audio player. I was impressed by what I heard.

After the lossless audio project ended, everything went quiet. Questions I asked the BBC about the possibility of launching a full-time lossless-streaming service for, at the very least Radio 3, remained unanswered.

Only after starting work at BBC R&D the following year (something I could not have predicted!) did I discover why such a service would not be forthcoming. R&D carried out a "subjective evaluation of high bitrate coding of (16-bit) music", employing 'double-blind triple stimulus with hidden reference method' procedures to ITU standards (ITU-R BS.1116-3 circa 2015, as published here: <https://bit.ly/3FTcDph>). Its 18 participants were chosen on the basis of "their previous experience and performance in previous tests". You can read more in R&D White Paper 384 (<https://bbc.in/3pQ4xrY>), as presented to the AES in 2018.

The BBC concluded that there was "no perceptible difference between lossless and AAC-LC 320kbps encoding" (half the data rate). Funnily enough the BBC

has for some time been using the latter codec to 'simulcast' all of its core radio services. Produced using an internal platform known as 'Audio Factory', it was indeed available as long ago as 2015 - two years before BBC R&D's FLAC experiments took place. During a 2015 Royal Albert Hall visit to look 'behind the scenes' of the Proms, I discovered that Radio 3 internally-distributes audio at 24-bit/48kHz. Wouldn't it be great if the BBC decided to trial 24-bit lossless streaming during the 2022 Proms season?

Hi-fi enthusiasts would benefit, and I'm positive that the 'R&D 18' would be able to hear the difference between 16-bit lossy and 24-bit lossless! Many claim, like BBC R&D, that there's no audible difference between lossy and lossless audio content encoded from the same 16-bit PCM source...yet commercial music-streaming services charge a premium for lossless. Why not judge for yourself? Since 2014, anyone with an Internet connection has been able to try a lossy/lossless ABX comparison (<https://bit.ly/3EKrgde>). If you genuinely can't hear a difference, save yourself some money!

There's more to Internet audio than radio, online music and hearing tests! Whilst using the Wayback Machine, I chanced on the audio assets of the Internet Archive. Among the diverse audio categories are Cratediggers (<https://bit.ly/32UEzdR>, obscure recordings), Etree (<https://bit.ly/3zjqx1C>, live music), Old Time Radio (<https://bit.ly/3pQpdjK>, mostly 'golden age' American programming), hip-hop mixtapes (<https://bit.ly/3sYywQr>), careful captures of 78rpm discs (<https://bit.ly/3pQtFPn>) and the weird and

wonderful Folksoundomy 'sound library' (<https://bit.ly/3pOb4Ds>). Much can be downloaded; MP3 and Ogg Vorbis are common choices, but FLAC is often available too. I then discovered Album Recordings (<https://bit.ly/3sPYkhH>), a collection of nearly 70,000 digitised LPs. Short 'samples' tend to be the order of the day. Check the 'Unlocked Recordings' search box, though, and you'll find over 15,000 LPs for download...as 24-bit/96kHz FLACs.

And what a treasure trove! I found early electronica, Yiddish songs, sound-effects, Iranian folk, Hindi film soundtracks, poetry, hi-fi dem-discs, big-band swing, psalms, language lessons, steam-trains and Gregorian chant.

Of enormous interest to classical music lovers will be the extensive collection of performances conducted by Davis, Solti, Bernstein and Stokowski amongst others. I found a three-LP Decca set of the opera Peter Grimes, conducted by Benjamin Britten himself in 1959. It's stereo, and still sounds pretty good today. Occasional crackles and pops are audible, but the LPs seem to have been looked after. This is perhaps just as well, as many Decca master tapes are rumoured to have been lost in the 2008 Universal fire.

Pops, clicks, level imbalances and superfluous material can be removed with Audacity, and I soon learnt how to remove clicks without affecting sound quality (manual removal is best, albeit time-consuming). In 'tracks/mix', there's a handy mono mixdown feature. I then used the freeware Mp3tag utility to add metadata (track/album info, recording notes and artwork). Well worth using modern tools to clean up historic files. ●



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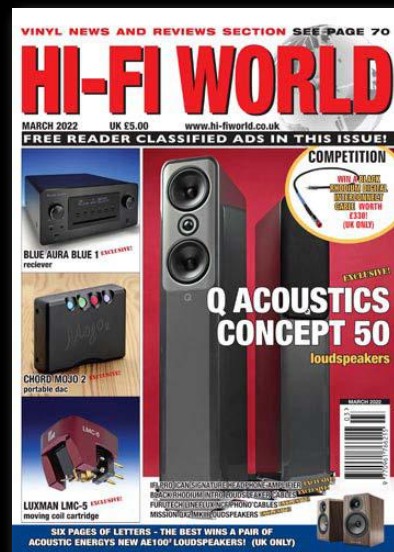
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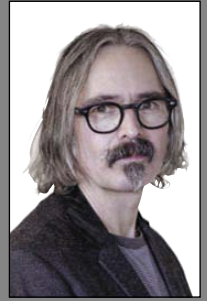
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"Not only did the Tannoy Ardens sound fantastic to my young ears, they also looked incredible"



John Pickford

I am something of a rare beast, coming from the pro-audio world yet having a passion for high fidelity sound reproduction in the home. It astonishes me how few sound recording professionals share my interest in hi-fi. I'm sure there must be others out there but often, when I enquire about their home system, I receive the verbal equivalent of a shrug of the shoulders.

These are the same people incidentally, who, like me, obsess over this or that microphone, which compressor to strap across the bass guitar track and whether or not to EQ the lead vocal. Their dedication to achieving optimum sound quality cannot be doubted, however when it comes to all things hi-fi, never the twain shall meet, or so it seems.

It was in a recording studio where I first experienced superb sound, having previously only heard my own and other friends' music centres, none of which could be described as hi-fi. That was in October 1985 when, as a plucky seventeen-year-old, I had just landed the job of Assistant Engineer at a (long defunct) recording studio in Bristol.

You couldn't miss the massive mixing console, which dominated the control room, nor the Scully 16-track tape machine it was my job to operate, but what really caught my eye was the huge pair of Tannoy Arden monitors with their 15-inch Dual Concentric drivers exposed. And what a sound they produced – I'd really never heard anything quite like it. After all, at the time I was using a Sharp music centre with loudness button engaged and boosted bass and treble – talk about boom

and tizz... Now, for the first time, I could hear midrange detail and clarity that I never knew existed.

During downtime I would play my favourite LPs on the studio's turntable. I've no idea what model the deck was, but the sound emitting from the huge Tannoys was, quite literally, a revelation. Around this time, the holy grail of state-of-the-art record production was (in no particular order) Kate Bush's Hounds Of Love; Peter Gabriel's So - complete with guest appearance by Ms Bush - and Dire Straits' Brothers In Arms. As much as I admired those pristine multi-track recordings, it was hearing my prized mono copy of The Beatles' Revolver blasting out of the Ardens that did it for me; it was like hearing it for the first time, which, in a sense, I was.

Not only did the Tannoys sound fantastic to my young ears, they also looked incredible. I was fascinated by the diagram below the huge drive units, proudly headed 'Tannoy Integrated Loudspeaker System', which highlighted such things as the 'High frequency voice coil and precision contoured diaphragm' and 'Concentric high frequency horn'. There were even two separate level controls for Treble Roll Off and Treble Energy; this was next-level stuff for me.

"They're for fine-tuning the sound so they'll sound good in any room", the boss informed me. I can't recall the settings he used but it occurred to me that he'd got it spot-on.

Twenty five years or so later, one of the recording studios I use nowadays relocated, moving into the space formerly occupied by another studio. Left behind, along

with some rubbish destined for a skip, was a tatty pair of Tannoys. They were of a similar mid-70s vintage to the ones I first heard back in the 80s, however these were Berkeleys, with a smaller cabinet than the Ardens.

Both models featured the HPD-385 15" Dual Concentric driver, which was the successor to the famed Monitor Gold and the last of the series originally launched in 1947 with the Monitor Black. Unlike the earlier models, the HPD drivers employed a plastic-foam roll-surround that disintegrates after about fifteen years and, unsurprisingly, the Berkeley's surround had perished, leaving a gap between the speaker cone and cabinet so you could peer right inside. This, along with the scratched wood veneer, is probably what led the previous owner to abandon them as junk.

No longer the green rookie engineer, I knew about this problem with the surround, so I set about ordering replacement surrounds for an easy repair. As the present studio uses an ATC based monitoring system, including the large, powered SCM100As as main monitors, we were scratching our heads about how to make use of the Tannoys. Eventually, I asked the Studio Manager if I could try the Berkeleys at home and, when loading them into the van he said, "I'll be glad to get them out of the way to be honest"; I knew they wouldn't be going back. They remain parked happily at one end of my listening room, where they continue to express the same wonderful, effortless Tannoy sound that opened my ears to hi-fi all those years ago. ●

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WORLD CLASSICS

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

TURNTABLES

EAT FORTE 2009 £12,500
Lavishly finished two box, two motor turntable with gorgeous Ikeda 407 tonearm bundled. Exceptionally stable and unfussy performer with a relaxed but highly enjoyable gait.



FUNK FIRM VECTOR II 2009 £860
Innovative engineering gives a nimble, pacy and musical sound that's one of the best at the price.

REGA P2 2008 £300
Excellent value for money engineering, easy set up and fine sound.

MICINTOSH 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.

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 PL12D 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 £15.65
Simple, well engineered motor unit with soft, sweet sound and reasonable tonearm. Good spares and servicing support even today.

GARRARD 301/401 1953 £19
Tremendously strong and articulate with only a veiled treble to let it down.



THORENS TD124 1959 £ N/A
The template for virtually every 1970s 'superdeck', this iconic design was the only real competition for Garrard's 301. It was sweeter and more lyrical, yet lighter and less impactful in the bass

TONEARMS

REGA RB251 2009 £136

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

HELIUS OMEGA 2008 £1,595

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

AUDIO ORIGAMI PU7 2007 £1,300

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



GRAHAM PHANTOM 2006 £3,160

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

TRI-PLANAR PRECISION 2006 £3,600

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

MICHELL TECNOARM A 2003 £442

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

SME 309 1989 £767

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

NAIM ARO 1987 £1,425

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

SME SERIES V 1987 £2,390

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

NAIM ARO 1986 £875

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



ALPHASON HR100S 1981 £150

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

SME SERIES III 1979 £113

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

TECHNICS EPA-501 1979 £ N/A

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

LINN ITTOK LVII 1978 £253

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

AUDIO TECHNICA AT 1120 1978 £75

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

HADCOCK GH228 1976 £46

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

ACOS LUSTRE GST-1 1975 £46

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

SME 3009 1959 £18

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

PHONO STAGES

CREEK OBH-8 SE 1996 £180

Punchy, rhythmic character with 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 seminal styling to match.

DELTEC 1987 £1900

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

EXPOSURE VII/VIII 1985 £625

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



AUDIOLAB 8000A 1985 £495

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

VTL MINIMAL/50W MONOBLOCK 1985 £1,300

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

MUSICAL FIDELITY A1 1985 £350

Beguiling Class A integrated with exquisite styling. Questionable reliability.

MISSION CYRUS 2 1984 £299

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



NAIM NAIT 1984 £350

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

CREEK CAS4040 1983 £150

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

MYST TMA3 1983 £300

Madcap eighties minimalism, but a strong and tight performer all the same.

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

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

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

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



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

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

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

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

POWER AMPLIFIERS

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

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

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



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

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

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

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



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

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

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

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

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

HH ELECTRONICS TPA-50D AMPLIFIERS 1973 £110
Simple design with easily available components, solid build quality and fine sound make for a surprisingly overlooked bargain

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

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

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



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

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



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

PRE AMPLIFIERS

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



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

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

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

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

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

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

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



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

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

LOUDSPEAKERS

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



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

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



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

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



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

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

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

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

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

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

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



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

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

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



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

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

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

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



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

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

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



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

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



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

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

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

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

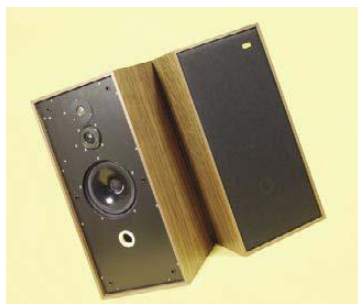


JR 149 1977 £120
Cylindrical speaker was ignored for decades but now back in fashion! Based on classic KEF T27/B110 combo as seen in the BBC LS3/5a. Doesn't play loud, needs a powerful transistor amplifier, but has clarity and imaging,

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.

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

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



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

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

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

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

SYSTEMS

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



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

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

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

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

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



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



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

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



TUNERS

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



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

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

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

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

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



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

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

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

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



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

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



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

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



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

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

HEADPHONE AMPLIFIERS

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



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

CD PLAYER/RECORDERS

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

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



SONY MDS-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.

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

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

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



MERIDIAN 207 1988 £995
Beautifully-built two-box with pre-amp stage. Very musical although not as refined as modern Bitstream gear. No digital output.

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



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

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

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

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



ANALOGUE RECORDERS

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

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



SONY WM-D6C 1985 £290
Single capstan transport on a par with a Swiss watch, single rec/replay head better than most Naks. Result: sublime.

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

YAMAHA TC-800GL 1977 £179
Early classic with ski-slope styling. Middling sonics by modern standards, but cool nonetheless!

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

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

COMPACT DISC TRANSPORTS

ESOTERIC P0 1997 £8,000
The best CD drive bar none. Brilliantly incisive, ridiculously over engineered.

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

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

DACs

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

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

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

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

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

CABLES

MISSING LINK CRYO REFERENCE 2008 £495/0.5M
High end' interconnects, with deliciously smooth, open and subtle sound without a hint of edge.

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

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



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

TCI CONSTRICTOR 13A-6 BLOCK 2003 £120
Top quality 'affordable' mains outlet block, with fine build and good sonics. Well worth the extra over standard high street specials, which sound coarse and two-dimensional by comparison.



THE GUN CLUB

Preaching the Blues
Flood Gallery

An intriguing box set from an intriguing band. The group emerged from the LA punk scene, taking blues as a bedrock and overlaying a host of other genres on top. And then throwing the lot directly at the audience with a sense of aggression and no little drama (partly fuelled by heavy drinking).

Lead during the band's seventeen year life by Jeffrey Lee Pierce, The Gun Club reflected Pierce's eclectic musical tastes and his inherent personality.

That is, he riffled through band members like a stack of cards. He clashed more than a pair of cymbals and clashed with drink and drugs more than that.

There's six remastered 7" singles here, contained in a pizza-style box plus an extra 'Miami Demos' release. What I like about a collection of singles rather than any Gun Club album release is their immediacy and impact. It

empties a bucket of energy over your head and then bam, it's gone.

The box itself includes the group's debut 'Ghost On The Highway/Sex Beat'. If you sought out an original pressing of this one then you'd expect to pay anywhere between £65 and £90 for this one disc. That's the price of this box set alone sorted then, which retails for around £75. Other singles include 'Fire of Love', 'Miami Demos', 'Death Party', 'The Great Divide', 'Pastoral Hide and Seek' and 'Cry to Me'.

You'll also find a fifty-two page booklet with rare photographs and liner notes plus a 'Fire Of Love' Fanzine, 'Gun' Button and Promo Postcard. In mastering terms? For a 'mere' 7" single collection, I was impressed. Sure, there was a measure of compression here but it offered a broad-based soundstage and was far more mature in midrange terms than it had a right to be. Excellent stuff.

AUDIOPHILE VINYL



POPOL VUH

Vol.2: Acoustic & Ambient Spheres
BMG

Been waiting a long time for this, since Volume one appeared in 2019, actually. Volume two of this album compilation series focuses on the krautrock band's albums: 'Seligpreisung' (1973, the only LP in a gatefold sleeve), 'Coeur de Verre' (1970, a Werner Herzog soundtrack), 'Agape-Agape (Love-Love)' (1983) and 'Cobra Verde' (1987, another Herzog soundtrack featuring Klaus Kinski. Kinski, a man who has appeared in every single European film during the past 147 years.

These prog and ambient works have all been remastered. You'll also find a bonus track on each album, though you might have to hunt around on the rear sleeve to see them as they're not particularly obvious.

The 4LP vinyl set, plus inserts, arrives in a slipcase outer box. There's a six-sided, fold-out

booklet packed with information. In there, you'll note that leader and soul of Popol Vuh, Florian Fricke, was accompanied by a rotating line up of excellent musicians, many of whom would end up in that other legendary krautrock outfit, Amon Düül. This package also features three prints, a collector's film still poster from 'Coeur de Verre' and the original movie poster from 'Cobra Verde'.

The pressings in this box set are nicely presented in sonic and physical terms. In mastering terms? The original masters had a large part in how the music was presented here so the early 70s tracks had a 70s glow to them but even the eighties releases never showed any hint of digital edge, keeping the old time personality. I guess the vintage studio gear was still in use at this time. It's a stunning box set from a stunning band inspired by a creative genius, Florian Fricke.

It's anniversary time, folks! The 40th for the original album. It's a good one too – which is half expected because it features left over items from the seventies. It's also a surprise for the same reason. Featuring the singles 'Waiting On A Friend' and the hit 'Start Me Up' the album includes some superb sleazy rock and top notch ballads. So, the original album gets a big thumbs up.

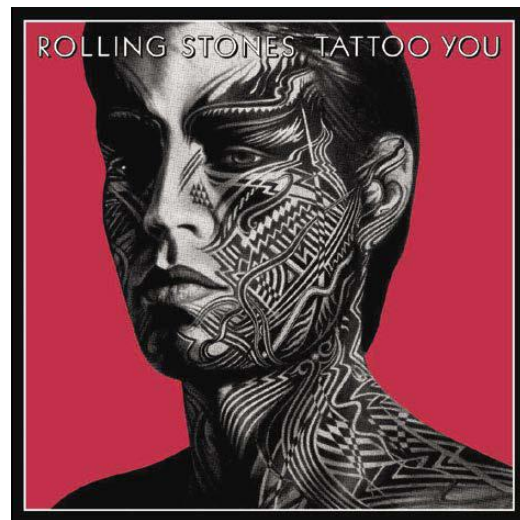
The album has been remastered and includes, at least on the vinyl edition I received, another disc called 'Lost & Found: Rarities'. Nine tracks of previously unreleased works.

What worries me is the small print found on the accompanying website saying that the package "...contains no fewer than nine previously unreleased songs from the period of the album's original release, newly completed and enhanced with additional vocals and guitar by the band".

To confirm, the band has taken archival tracks and added brand new vocals and instrumentation and then passed those off as rarities. The original mixes are not included too, as a corrective. You only receive the bastardised versions. It's wrong.

That new Jagger vocal is not the same as the contemporary seventies' model and neither is the guitar work. Any over dubbing fundamentally distorts and manipulates history and insults the bands own original art.

Adding new vocals and instrumentation onto original archival work and selling that as a commercial product without placing the original right alongside to indicate which is the historical artefact and which is not reduces the group's legacy to a farce. The Stones should be ashamed of themselves for taking part. Either release archival works 'as is' or leave well alone. Do not mess with history.



THE ROLLING STONES

Tattoo You
Polydor

AUDIOPHILE VINYL

The lady's debut performance at New York City's Carnegie Hall is receiving its first-ever commercial release as a stand-alone LP. It's also to be found as part of the box set 'Joni Mitchell Archives Vol. 2: The Reprise Years (1968-1971)'.

Mitchell was just twenty-five years old when she took the stage on 1 February 1969, one year after the release of her debut album 'Song to a Seagull'. In the audience were her mother and father, her partner was there too, Graham Nash, as was Bob Dylan.

This collection includes the hit 'Chelsea Morning', in which she refers to her apartment on West 16th Street in Manhattan's Chelsea District. 'I Had a King' from 'Song to a Seagull' is also there, as are several tracks destined for future albums like Clouds (1969), such as 'That Song About the Midway'. Even 'Little Green' appears here,

which wouldn't appear on a Mitchell album until 'Blue' in 1971.

A three disc set, the music spans five sides with an American eagle etching adorning side six, the same design seen on the Mitchell's skirt during the concert.

In terms of mastering? The noise floor is generally low, the audience are in their place but never dominant, the presentation is balanced, there's enough dynamic reach around the mids to add a measure of sparkle but its the insight and detail around the mids that stands out here. Her vocal presence adds foundation to each song, vocal texture aids emotion while the resonant elements from the acoustic guitar gives the song an unpredictability because you never know if a string will ping off in an unexpected direction. Live recordings can often disappoint, sonically, but this is one of the best live recordings I've heard for some time.



JONI MITCHELL

Live at Carnegie Hall - 1969
Rhino
Reprise

2 On Cue

Chord Electronics release Mojo 2, updating their popular budget DAC just when needed. Noel Keywood looks closely.

It was back in the halcyon pre-bug days of 2016 that Chord Electronics launched the original Mojo portable DAC, purposed for high quality headphone listening from a mobile phone. Price – just £399. For that the little Mojo out performed most else: we measured a massive

dynamic range of 125dB. The best hi-fi DACs struggled to get close. Recently, days before Christmas 2021, the company released Mojo 2 (£449) and sent us a review sample, just in time for me to watch the promo video (instead of Kim Wilde :-)) over a bit of turkey,

Before I get to the updates, I'll

sketch in the background picture, simply and quickly. The reason Chord Electronics outperform most else is that they design and build their own DACs, designer Rob Watts being No1 in the field. Whilst DAC chips from ESS of California and – more recently – AKM of Japan, approach Chord Electronics



performance figures, they are found in convertors costing thousands. Mojo 2 continues the tradition of offering stellar performance at lower cost. The question arising: why not use it instead of a mainstream convertor? Something I will answer later.

The video I watched over Christmas won't get an Oscar methinks and I'll re-run Kim next Christmas, but it made salient points the User Manual could not, talking up additions and improvements that distinguish the new version. The most significant is addition of tone controls! If not of the bass/treble variety from long ago. Instead there are four adjustable frequency bands: lower bass, upper bass, low treble, upper treble, each band adjustable by +/-9dB. This is made possible by a new and – they say – unique 'UHD DSP' (ultra high definition digital signal processor) with a 104bit core running at 768kHz (max). It was very accurate, giving exactly 1dB steps, and was additive so lower bass lift could be combined with upper bass lift for example, but this was a fiddly button pressing process. Settings are retained at switch off and can be quickly removed by pressing up and down buttons together.

There's talk about super low noise and improved noise shaping to better reveal fine details. Mojo 2 clocked up 125dB dynamic range on our Rohde&Schwarz analyser with volume set to avoid output overload – still better than most mains powered DACs, if no change from Mojo 1.

I found it interesting that the company allude to the adoption of an isolated power supply, since this affects its use as a mains powered DAC, run from a 5V USB mobile phone charger – use as a "mainstream DAC" as I said earlier, for use in a hi-fi system. Whilst Chord Electronics don't play up this role, obviously they've catered for it. Point being, a mains power supply can introduce ground noise that degrades performance, something I have seen many times on DACs during measurement. It's the reason I measure dynamic range using optical connection: it offers ground isolation and an assured best result.

Manufacturers, however, often prefer electrical connection since it allows higher bandwidth / higher sample rate and lower jitter. To make electrical connection work



At left is a small 3.5mm stereo jack socket able to accept a digital S/PDIF input in electrical form, or twin inputs from the M Scaler digital filter for CD. Beside it are two USB inputs – microUSB and USB C sockets. Another microUSB is for charging and at front there's an optical digital S/PDIF input.

Button colours are light spectrum linked: red for low (level or sample rate), ascending through orange, yellow, green, light blue, dark blue, purple, then to white as a maximum.

properly in conjunction with a mains power supply Mojo 2 has an isolated supply and, indeed, when running from a mobile phone charger it worked as well as running from battery, measurement showed. A new intelligent charging system prevents battery over-charging in this situation.

So on the quiet, Mojo 2 has been optimised for use as a mainstream DAC that you can slot into the hi-fi. Don't expect the bass

also accepts a dual channel input from a Chord Electronics M Scaler digital filter, for superb CD quality. The optical input worked up to 176.4kHz, becoming intermittent and unusable with our optical leads at 192kHz; this is an issue with TOSLINK plug fit, not the cables.

Mojo 2 connected successfully to my iPhone via an Apple Lightning-to-microUSB adaptor (as the instructions say) that adds to bulk. It also connects to Android and

"There was swathes of fine detail, far beyond that from other portables or most mains powered DACs"

slam of a mains powered DAC with high current chips but this will be the only drawback. You can connect up a CD player digitally to take advantage of Mojo's abilities, connecting a headphone output to an amplifier.

A USB C socket (which did not work with my iPhone using a direct Lightning-USB C lead) has been added to complement the microUSB digital input and as before there are optical and electrical S/PDIF inputs, the latter being through a 3.5mm headphone-style jack. It

other types with the usual caveat that a PC needs driver software to transmit sample rates above 96kHz. It will play DSD (up to 256) when sent via DOP from a computer software player able to do this; I used Audirvana. It will also play DSD from an iPhone no less, when packaged as DOP by an Onkyo HF player in my case. With PCM digital, max sample rate is 768kHz. Sample rate is shown by power button colour, red for CD (44.1kHz) and white for DSD for example.

Outputs from Mojo 2 are

two 3.5mm stereo jack sockets, without independent control of volume – and there is no balanced output. I don't find this any great drawback since it only separates a short shared ground line between earpieces that provides slight improvement in sharpness and stereo definition, but I haven't swapped between unbalanced and balanced with high-end planar magnetic headphones as yet (even though I use Oppo PM1s) where balanced may well be a more obvious benefit.

Output is high at 4.8V, sufficient to take insensitive planar magnetics to high volume. Conventional 'dynamic headphones' (moving coil drivers) and in-ear monitors (IEMs) only need 1V to go shatteringly loud so plenty of leeway here. A Crossfeed facility blends the channels (four settings) to take the images out of the head, simulating loudspeaker listening.

Volume level is shown by colour of the volume buttons that move in two stages, a low range of 0V-30mV

output (menu light off), and a high range (menu light on) that is maximum whilst avoiding output overload when both buttons turn 'white' (there's a slightly blue hue). Level can then be increased substantially but overload becomes possible on musical peaks, depending upon how loud a recording has been made. The use for this is to raise volume of low level recordings, which I suspect will be home recordings since commercial music is usually taken to maximum level.

As with other Chord Electronics products there is no input selector: it auto-switches to any input with a signal on it, a very nice touch. With multiple inputs there is a hierarchy (USB C takes precedence).

Machined from alloy, this little device is tough – and feels it. On our scales it weighed a solid 183gms and will fit most pockets, measuring

83mm wide, 62mm high and 23mm deep. The battery

gives approximately 8hrs life and a 5V phone charger is needed, able to supply 1.5A. When on the move all buttons can be locked to prevent accidental operation. In use it gets quite warm.

Mojo can be combined with Chord's Poly streamer (£499) whereupon it can read a microSD card, converting it into a player, or stream wirelessly from the 'net.

SOUND QUALITY

To review Mojo 2 I mostly used it as intended, with an iPhone (11X Pro) as a portable DAC, playing music out from an Onkyo HF player, an app costing just £8 in its hi-res version, to Oppo PM1 (planar magnetic) headphones. As a reference I used the same tracks played through a mains powered Audiolab M-DAC+ fed by the Audirvana Plus software player on a Mac.

Generally, running through a whole slew of tracks I got the impression – unsurprisingly perhaps – that Mojo 2's character and strengths were similar to Mojo 1. It excels in midband resolution and projection, with plenty of fine detail. Diana Krall singing

Cry Me a River (24/96) came over as super clear and finely



Connection to an iPhone is through an adaptor; a direct Lightning-to-microUSB cable does not work we found. Here an Onkyo HF player app for iPhone sends House of the Rising Sun (DSD) out to Mojo 2 – and not as PCM since Mojo's indicator (the power button) lit up white, as shown here.

etched, bathed in bright light slightly ahead of the mix. Her breathy vocals were made apparent, in a balance that was less expansive and fulsome than the Audiolab, but more insightful.

With Fleetwood Mac's *Go Your Own Way* (24/96) vocals were strong centre stage and oodles of fine treble fired from the percussion, whilst drums were drier with less weight and stereo spread than a mains powered DAC. With Giorgio by Moroder from Daft Punk (24/88.2kHz) there was again superb clarity if less shape to the repetitive synth, but then this is always the case when a battery powered device is compared to one that is mains powered. Connecting up to a 5V charger whilst listening made no difference.

What about use as a mains DAC in a hi-fi? This worked well, with enough output to drive a PrimaLuna EVO300 Hybrid amplifier connected to Martin Logan ESL-X hybrid electrostatic loudspeakers. Input came from an Oppo BDP-205D hi-res player connected by QED Quartz optical cable. Relieved of a Planar Magnetic output load the headphone amp tightened up a little to give tauter and better spread bass across the sound stage, Fleetwood Mac's *Go Your Own Way*, revealing the way kick drum is panned on the stage (in the digital transcription). Our electrostatics better displayed this DAC's superb midrange resolution and especially, its sparkling treble. There was swathes of fine detail, far beyond that from other portables or most mains powered DACs. This was very apparent with Vivaldi's *Concerto in D Minor* (DSD 2.8MHz), Mojo's insight gave a composed sound stage with instruments well separated and firmly anchored, plus insight into strings that were clear and detailed. A fantastic result at the price and quite unique.

CONCLUSION

Mojo 2 has been upgraded to have broader compatibility and more facilities than its seminal predecessor. The extra menu button and light combinations make operation more difficult yet still easier than the buried menu systems of portable players. The tone controls worked well at lower levels, providing subtle adjustment, the shelf controls (upper bass/lower treble) set to +/-2dB being just



Output for headphones is via two 3.5mm stereo jack sockets. Connection to an amplifier needs a simple adaptor lead with in-line phono sockets.

right to balance out headphone and loudspeaker errors, something that can be useful. With low price and

massive ability this is a DAC that in many areas others cannot match. Well worth hearing.

MEASURED PERFORMANCE

Mojo 2 delivered 4.8V maximum output, from a full scale (0dB) digital input, with volume set to avoid output overload, shown by both volume buttons lighting white.

EIAJ Dynamic Range measured 125dB at this setting, rising to 142dB with volume taken to maximum, a situation only possible with the low level -60dB test signal used for dynamic range measurement.

Distortion was very low 0.014% at -60dB (24bit) and 0.0002% at 0dB. With 16bit distortion measured the usual 0.22% due to quantisation noise being dominant at this bit depth.

Frequency response measured flat to 28kHz (-1dB) via the analogue headphone output, as our analysis shows, output falling away steadily above this frequency to the upper theoretical limit of 96kHz from the 192kHz sample rate test signal. The optical input accepted 176.4kHz maximum, but not 192kHz from our various optical cables that manage 192kHz with other products.

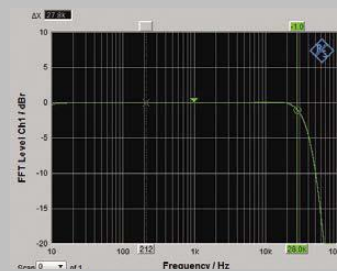
The tone controls give exactly +/-9dB lift/cut in 1dB steps, 'lower bass' and 'upper treble' applying fine trim at spectrum extremes, whilst the 'mid bass' and 'lower treble' give shelf lift/cut. Pressing both Up and Down buttons at the same time resets to zero.

With enormous dynamic range, ultra-low distortion and high output,

Mojo 2 eclipses all else in its measured performance. **NK**

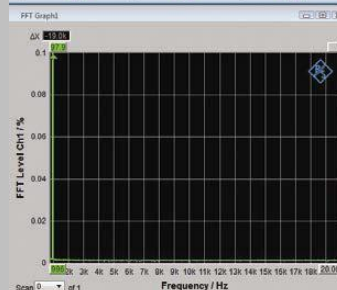
Frequency response (-1dB)	4Hz-28kHz
Distortion (24bit)	
0dB	0.0003%
-60dB	0.014%
Separation (1kHz)	110dB
Noise (IEC A)	-123dB
Dynamic range (EIAJ)	125dB
Output	4.8V

FREQUENCY RESPONSE



DISTORTION

THD all dB	Level RMS	Frequency
0.0122 %	5.4223 mV	997.02 Hz
OFF	OFF	OFF



CHORD MOJO 2 DAC £449



OUTSTANDING - amongst the best.

VALUE - keenly priced.

VERDICT

Great performance from a small, low price package.

FOR

- insightful sound
- quad-DSD replay
- up to 32/768kHz PCM digital
- works from mains power

AGAINST

- no balanced output
- needs adaptor for iPhone

Chord Electronics
+44 (0)1622 721444
www.chordelectronics.co.uk

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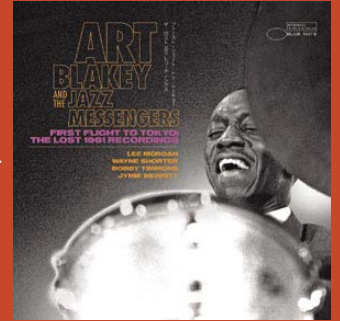
THE BRKN RECORD

Created by Heliocentrics man Jake Ferguson, 'The Architecture of Oppression Part 1' (*Mr Bongo, mrbongo.com*) is a new album presented in a gatefold sleeve. A concept piece looking at the plight of black Britons (part of the damning 350 page MacPherson Report from 1999 is printed on the rear sleeve), the LP features Jermain Jackman, Zara McFarlane and Dylema amongst others, packing in considered jazz, R&B and soul alongside passionate oratory.



ART BLAKEY AND THE JAZZ MESSENGERS

Newly reissued from Blue Note, this limited-edition, double album version of 'First Flight to Tokyo: The Lost 1961 Recordings' features six colour postcards and a sixteen page booklet. Lee Morgan, Wayne Shorter, Bobby Timmons and Jymie Merritt aid Blakey on Charlie Parker's 'Now's the Time', Thelonious Monk's 'Round About Midnight' plus Jazz Messenger hits.



These recently discovered tape reels, mastered by star mastering engineer Bernie Grundman and manufactured at Optimal, were recorded at the Hibiya Public Hall in Tokyo on 14 January 1961 during the band's first-ever tour of Japan.

LONGPIGS

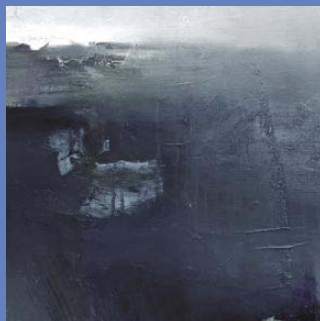
Issued on vinyl for the first time, 'Mobile Home' (Mother, 1999) was the group's last album. The Longpigs were supposed to be a Britpop band but I saw them far on that genre's margins, better occupying an alt.rock berth.



Underrated, I bought the band's first album but lost touch after that so was happy to see this one and was surprised at the high quality.

PHANTASMAGORIA, OR A DIFFERENT KIND OF JOURNEY

...is an album name to conjure with, 'Phantasmagoria...' is the new album from Eivind Aarset 4tet (*eivindaarset.bandcamp.com/album/phantasmagoria-or-a-different-kind-of-journey*). Featuring Eivind Aarset, Wetle Holte, Erlend Dahlen and Audun Erlien, takes jazz ambience and adds a guitar spine. This series of instrumentals takes melodies and harmonies and, well, messes with them basically. Low key and introspective but wholly fascinating.



JOOLS HOLLAND

Called 'Piano & Friends' (East West), spanning two discs and residing in a gatefold sleeve, this collection of varied tracks by varied friends is a bit of a party album with celebs as guests. Featuring seven songs penned by Holland himself, guests include Rick Wakeman, David Gilmour, Joe Bonamassa, Lang Lang, Herbie Hancock, Jamie Cullum, Booker T., Tom Jones and more.





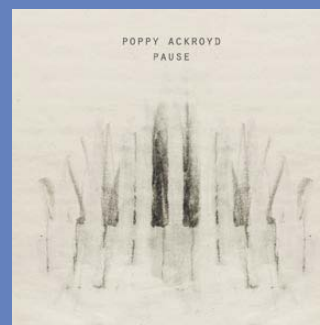
MADE TO MEASURE VOL. 46

Produced by French avant-rock outfit, Aquaserge, the band tackle – head on – varied experimental classical outings from the 20th century. Namely: Scelsi, Ligeti, Varèse and Feldman. The nine-piece outfit combine classical and rock but explore a host of musical grammar, grapple with improv and embrace the sonic timbres.

ROSS FROM FRIENDS

I love the band name, have to start with that. The album 'Tread' (rossfromfriends.bandcamp.com/album/tread) has been crafted by British producer Felix Clary Weatherall – the man specialises in good names, it seems.

This is ideal club night fare, full of danceable beats, hip swinging rhythms and female vocal punctuations to soften the effect. This is the sort of electro house you might find in a sweaty, backstreet New York club packed with smiling patrons.



POPPY ACKROYD

Ackroyd is a trained pianist, violinist, producer and composer but her works are rather more melodic and target pattern matching with a neo-classical frame.

'Pause' (poppy.bandcamp.com/album/pause) is the Brighton-based musician's fourth LP, written during the current unpleasantness and just after the birth of her child. A series of spacious solo piano works, each is light, fluid and sparkling, like the sun hitting falling water drops.



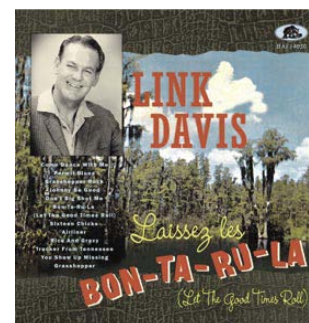
PARK HYE JIN

Her debut release, 'Before I Die' (Ninja Tune) this South Korean-born and LA-based producer, rapper/singer combines a smooth delivery with sparse beats that blend well with looping organic instrumentation that contrasts – sometimes starkly – with her sometimes, umm, frank and spiky lyrical content that sit like peppercorns amongst the pop pie.

LINK DAVIS

From Germany's audiophile label, Bear Family (www.bear-family.com) comes Link Davis' and the expansively titled 'Laissez Les Bon-Ta-Ru-La (Let the Good Times Roll)' on 10" vinyl.

This one is packed with goodies. Apart from the vinyl, you also get a twenty-six track CD and eight-page booklet. This release combines Cajun, blues and rockabilly.



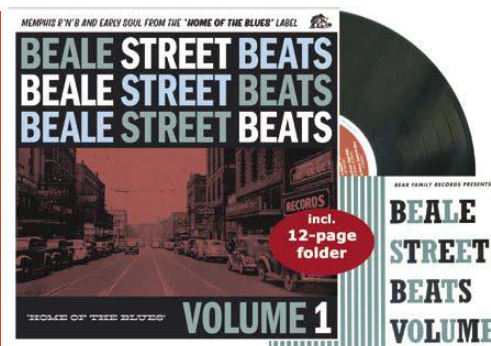
JOHN COLTRANE

The classic album release, 'A Love Supreme' was Coltrane's 1965 post bop/modal, magnum opus. Backed by Elvin Jones, McCoy Tyner and Jimmy Garrison, the music is more spiritual than angry or aggressive. Which makes this new find, 'Live in Seattle', spanning two discs and recorded in October 1965 (Impulse) all the more interesting.

Featuring the addition of Pharoah Sanders, Donald Garrett and Carlos Ward, this live outing extends and adds a more intense, polyrhythmic approach to the original music.

BEALE STREET BEATS VOLUME 1

...includes the subtitle, 'Home of the Blues', that was the very name of the label that sat on Beale Street itself. This compilation of tracks arrives from Bear Family as a 10" disc. Offering rhythm 'n' blues, soul, blues and rock 'n' roll, Volume 1 focuses more on the label's blues output from the likes of Dave Dixon, Willie Cobbs and Jimmy Dotson. The package also includes an eight-page booklet.



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Deep Red

Luxman's LMC-5 moving coil cartridge runs deep, finds Noel Keywood.

Here's a moving coil cartridge that's unusual in being usual. Yes, completely normal. No new technologies, just a vanilla design nicely optimised I found. That is Luxman's LMC-5 under review here, price £2000 which places it amongst premium MCs, if not esoterica.

Luxman describe it as having a conventional MC "engine" as they call it, but is more conventionally called a "generator" – of the coil and magnet variety, as used in all pickup cartridges with electromagnetic generators (MCs and MMs), excluding budget ceramics and rare optical types.

The LMC-5 engine comprises two copper wire coils – no gold plating – wound on an iron yoke sitting in a field established by a body-mounted Samarium Cobalt magnet. Luxman quote a coil impedance of 4.7 Ohms at 1kHz – a common value. It's usual to quote a load $\times 10$ greater than the generator and this they do, saying a load of 40 Ohms or more is suitable, making the cartridge compatible with standard 100 Ohm MC phono stages. Output is healthy: they quote 0.4mV, suitable for most MC phono stages; super high gains are unnecessary.

The generator assembly sits in a body pared down for light weight and made asymmetric for low resonances, externally anodised ruby red. Like most MCs left channel ground (green) is not connected to the bodywork so the cartridge can be connected up balanced if desired. Checking this out I found that the inner body is not metal: the fixing screws were not electrically connected to each other, nor the metallic outer shell.

I connected up unbalanced, through our Icon Audio PS3 valve phono stage, probably because



I associate Luxman with a Lux 40W per channel valve amplifier I owned long, long ago, designed in Japan by Tim Paravicini before he returned to the UK to start EAR. Luxman were well known for this amplifier at a time when valves were dying out – or so it seemed – and they still make them today, for a "natural sound free from exaggeration" they say. I see the same thinking within the LMC-5 cartridge. The PS3 I guessed would be a natural fit.

The cartridge comes in a small hinged case together with three pairs of M2.6 stainless steel screws, 5mm, 8mm, 10mm thread length, plus two clear nylon protective washers and a hex key. There are no nuts because the body comes with threaded inserts, making fixing easy. There are no accessories either, such as stylus brush.

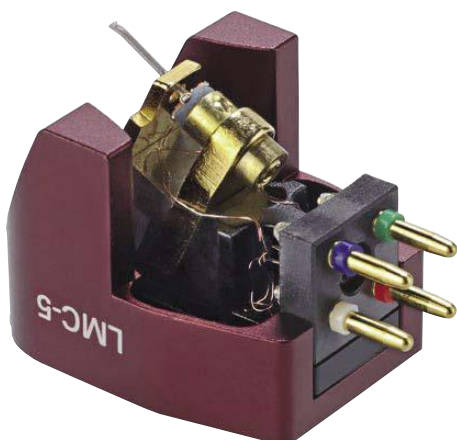
A body weight of 8.5gms sits comfortably in the centre of the 6gm-10gm weight range most

arms accept. Quoted tracking force range is 2.1gm-2.3gm with 2.2gm recommended and that figure is now commonly used with moving coil cartridges in this price category. Ortofon's esoterica like the SPU series needs 4gm but this is an exception.

I was surprised that with boron rod cantilevers becoming common in high performance cartridges Luxman use a conventional parallel sided aluminium tube in this design – not even a conical tube. Attached is a tiny, nude Shibata profile stylus – my preferred shape and now very popular generally, a trend that makes sense then!

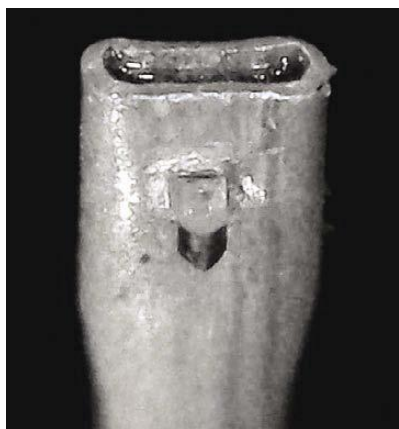
SOUND QUALITY

The LMC-5 was installed into our SME309 arm on Timestep Evo modified Technics SL-1210 Mk2 turntable, set to the recommended 2.2gm downforce then run in. Mostly I used it with our Icon Audio PS3 MkII



The skeletal outer shell is machined from aluminium and anodised red. The stylus is clearly visible for ease of cueing.

valve phono stage (with input transformers) as mentioned earlier, feeding a PrimaLuna EVO 300 Hybrid amplifier driving Martin Logan ESL-X hybrid electrostatic loudspeakers through Chord Company Signature Reference screened loudspeaker cables. There was just reason to change over to a Pro-Ject Phono Box RS2 solid-



The stylus has a rectangular shank for accuracy of orientation on the cantilever. Note how the alloy tube has been crimped to provide a flat surface.

state phono stage with balanced input for an alternative sound, as I'll explain.

My initial and enduring impression of the LMC-5 was one of laconic smoothness and depth in absolutely classic fashion. With King of the Mountain from Aerial I was greeted by a spacious sound stage from which Kate Bush sang centre-stage with convincingly natural tone. Images

across the stage were stable in position and generous in body, and I luxuriated in a wonderfully tactile delivery that was every bit what you'd hope for from a quality MC cartridge, with word "refined" appended. By that I mean no sign of top end tizz or any type of "exaggeration" as Luxman would put it. So right on message. This is an album with an easy balance instrumentally, Kate Bush not being into heavy Rock, so I ignored its sonic gentleness.

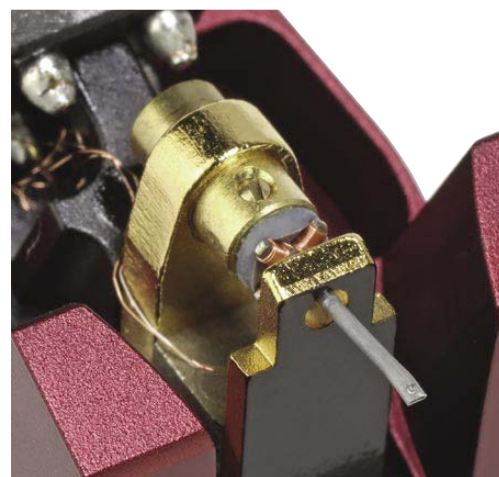
With the Syd Lawrence Orchestra playing Sing, Sing, Sing, from Big Band Spectacular (Chasing the Dragon), the drum work was firm, powerful and deep with the lovely sense of stage depth expected from a valve phono stage boasting input transformers.

After playing a slew of LPs I become aware that some might want less "gentleness" and a bit more bite, plus top-end sparkle, so decided to change over to our Pro-Ject Phono Box RS2 phono stage, connected up balanced to the SME after an arm-lead change. This swapped the smooth, deep sound for one with vivid mid-band insight. Trumpets and trombones moved forward and developed blare, but were also purposefully resolved. The drum work gained speed whilst losing some low-end weight, the general milieu changing substantially: I now heard a more forward and sharper etched delivery from the LMC-5 but still one relatively easy going and neutral in character, if with lessened stage depth due to the absence of transformers in front of valves.

These changes showed me the Luxman has a mild, self-

effacing nature, a gentle easiness that submits to changes without becoming sonically unbalanced. This is in contrast to currently-popular boron rod cantilevers that technically surpass all else, including the simple aluminium tube of the LMC-5, but have a mechanically hard sound that is, I feel, soul-less and best not partnered with 'hard' amplifiers.

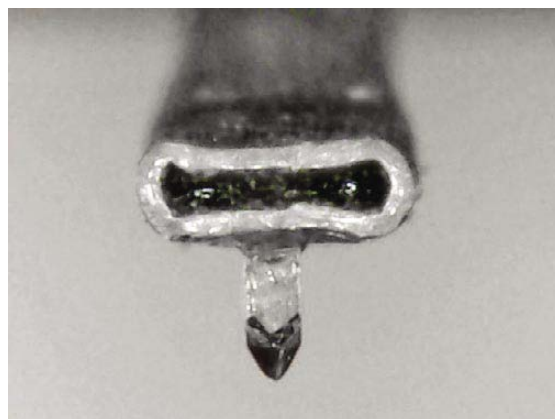
My personal preference is for conical aluminium cantilevers, in Ortofon's Cadenza Bronze for example, that bring just a little



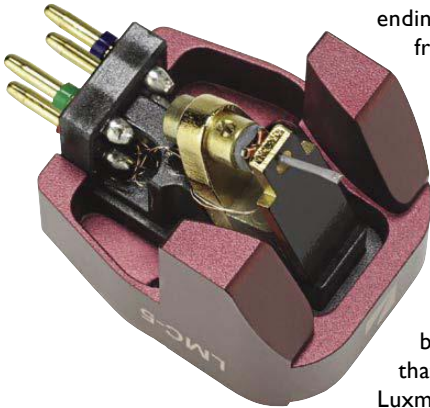
Visible just behind the cantilever hinge are two of the four micro-coils that sit on an iron yoke. Behind lie parts of the magnetic circuit. At front is a pole plate.

more speed and definition to the sound of the commonly used, parallel sided 0.5mm alloy tube Luxman employ here. But the merit of Luxman's choice is soft neutrality.

I was always aware of the civility of the sound, how it carried no offence, no colour. But



The dark tip appearance suggests it can be profiled by laser, rather than grind wheel, the original way to profile a Shibata – purposed for 1970s CD4 discs.



The inner body is non-metallic, isolating the body from the arm headshell, tests showed.

when spinning Rosella Caporale singing Time to Say Goodbye from Two Nations One Heart, as a check of performance in the run-out grooves where stylus life gets difficult, the composure of the LMC-5 made me realise just how good its Shibata stylus is, instruments staying steady and clear in the mix, where there is commonly a slight sense of jitter within sound stage images. The song glided through to her

vocal crescendo with confidence, ending as if nothing was different from outer grooves. The LMC-5 trod with care and dexterity at all times, sounding adept yet balanced.

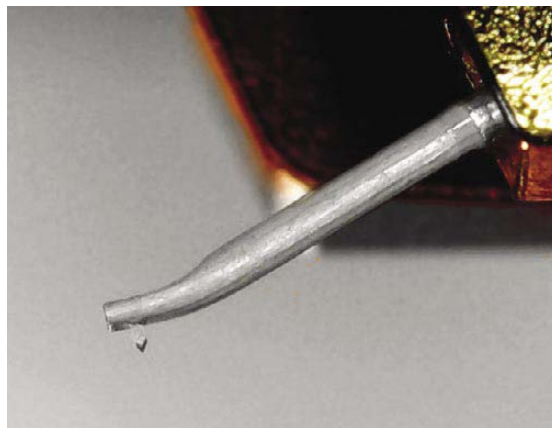
CONCLUSION

For anyone wanting classic moving coil sound, free of fannies such as bright treble or the sterility that comes from boron,

Luxman's LMC-5 is worth hearing. It has been finely honed to be easy going yet truthful – and this was very obvious to me at all times. I didn't squirm once! Instead I enjoyed listening to it, admiring its sense of smoothness and depth. What more could you want?

Well, one obvious thing is lower price. As lovely as this cartridge is the price tag is above that of Ortofon's Cadenza

Bronze, price £1800 that is simply better, technically and in sound quality. There are other options from Denon and Audio Technica that cost far less, the latter's AT-OC9XSH that I also use regularly coming in at £600. Luxman are plunging into a competitive field with this one and as lovely as it is, the price is on the high side. Well worth considering though, if you would like to hear a classic MC that is refined and lovely in its sound, rather than hard and fast.



A conventional parallel sided aluminium alloy tube, crimped and bent at the end, a common manufacturing technique used on inexpensive cartridges.

MEASURED PERFORMANCE

Luxman publish a frequency response for their LMC-5 moving coil cartridge, using a JAS AD-1 (Japanese Audio Society) test disc. Our response, using a reference JVC TRS-1007 test disc and shown here, was nearly identical, a surprising similarity showing just how accurate vinyl can be. The point they are making is that the LMC-5 is as tonally accurate as CD, fully matching the standard now reached by companies such as Ortofon and Audio Technica. There was little tracing loss on inner grooves our analysis shows (red trace) due to the Shibata's ability to trace short mechanical wavelengths.

Tracking of the 300Hz tones on CBS-STR112 test disc was secure up to a high value of 80µm peak amplitude, at 2.2gm recommended down force. At 1kHz where tip mass and acceleration become important, it managed a high 18cms/sec, mistracking marginally at 20cms/sec and failing the 25cms/sec torture track on B&K2010 test disc that few cartridges manage. In all then, a good tracker.

Output was normal enough, measuring 0.37mV at 3.54cms/sec

– a value that is nether high nor low, being x10 less than a typical MM, as expected.

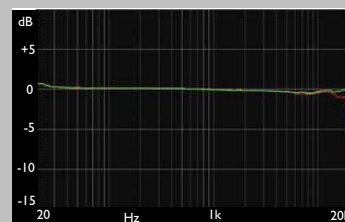
Distortion was unusually low on a 45µm lateral cut (CBS STR-112), measuring 0.4% against a common 1% value. On vertical modulation this jumped to 4% due to a high measured vertical tracking angle (VTA) of 27 degrees (DIN 45542 test disc), a not uncommon problem. Being correlated second harmonic it's not as bad as it sounds. Optimal is 22 degrees.

The LMC-5 is a conventional moving coil cartridge, with tubular aluminium alloy cantilever, well engineered to be accurate and problem free measurement showed. **NK**

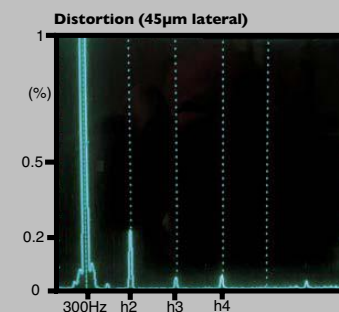
Tracking force	2.2gm
Weight	8.5gms
Vertical tracking angle	27degrees
Frequency response	20Hz-20kHz
Channel separation	27dB
Tracking ability (300Hz)	
lateral	80µm
vertical	45µm
lateral (1kHz)	18cms/sec.

Distortion (45µm)	
lateral	0.4%
vertical	4%
Output (3.45cms/sec rms)	0.37mV

FREQUENCY RESPONSE



DISTORTION



LUXMAN LMC-5 £2000



OUTSTANDING - amongst the best

VERDICT

Sophisticated sound full of analogue loveliness. But expensive.

FOR

- balanced and refined sound
- superb on inner grooves
- deep sound stage

AGAINST

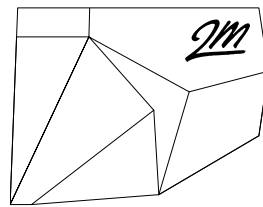
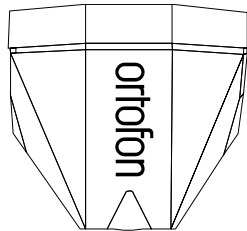
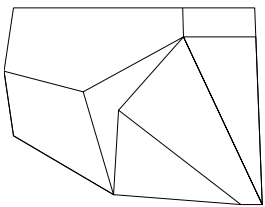
- lacks visceral impact

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2M Red

September 2013 May 2007

2M Blue

September 2013 May 2007

2M Black

September 2020 December 2011

2M Black LVB 250

September 2020 May 2021 EISA Award 2021 April 2021

Time to talk

From the early years of Barry Adamson to the later years of Genesis and the Southern years of Alan Walden, Paul Rigby takes time to talk time.

GENESIS

I don't normally make a point of referring to the weight of a book during a review but I have to mention it here. This is a paperback – but it still weighs in at a full 2kg, which is more than the larger 'Up Above the City...' hardback reviewed elsewhere here. It offers superb production standards: satin finish cover, heavy gauge paper, colour concert images, ticket scans, posters, magazine covers.

This is a biography of a band. More than that, a specific period within a band's life. Namely, the post Peter Gabriel era Genesis, lead by cheeky, chirpy, short sticked (I'm talkin' drums here) Phil Collins.

The book tracks album releases, providing musical context – what was happening elsewhere during the period, a track-by-track analysis of that particular album alongside valuable interviews, the concerts following that album release and more. Giammetti even adds source notes for his quotes while ephemera such as songs that never made the album provide welcome tidbits for hardcore fans.

Giammetti does a great job here. He even manages to confirm, during the pivotal 'Duke' era, how Genesis were moving away from the fantasy and the fantastical style of songwriting towards realism and the tribulations of modern life. This book is effectively Part 2. I liked this book so much, I'm off to find Giammetti's Gabriel-era Part 1 book release.

UP ABOVE THE CITY...

Written by Barry Adamson, who was a member of the post punk outfit, Magazine and a founder member for Nick Cave's Bad Seeds – this book reveals that he once drew and framed a portrait of Tommy Steele (and very nice it is too, actually). Let me pause within this random section of the book though because it shines a light on

the tome as a whole. Adamson talks in the first person: "I" did this, "We" did that. His style is spare and fast paced. The book cover mentions a noir-ish style and yes, Chandler-esque did spring to mind.

Don't get cocky, though, Barry. You don't have the great man's observational wit, but the pace of this book motors along nicely.

Remember Tommy Steele? I was immediately drawn in by Adamson's tale of his jaded and oft-disappointed art teacher who, despite Adamson's show of youthful, artistic enthusiasm (Mondrian, anyone?) appeared too jaded and worn by years of teaching disappointments to be able to fully engage.

Contrast? Touring with Magazine, Adamson accompanies a girl to buy cocaine from a dubious place of residence occupied by similarly questionable individuals. The situation quickly becomes dangerous, in more ways than one.

Fashionably, and not for the first time in terms of recent music book publishing, the book covers Adamson's early life. It's a cracking read.

SOUTHERN MAN

Manager, publisher, booking agent, and promoter, Alan Walden worked with Otis Redding, Sam and Dave, Percy Sledge, Albert King, Lynyrd Skynyrd, founded Capricorn Records in the mid sixties, introducing many to the Southern rock sounds of The Allman Brothers and more.

The guy has had a busy career and, to be frank, I wanted more than this book could give me.

It's termed a 'memoir' which is short-hand for saying that it's half a book. The extravagant line spacing reveals more than the page count. The book itself is packed with stories but they're stories you hear in a bar over a pint. I wish he would slow down, take his time, add context, detail and flavour.

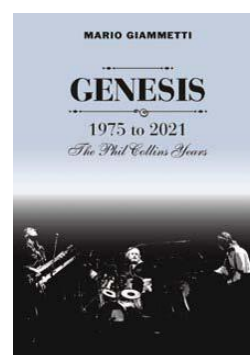
Title: Genesis – 1975 to 2021, The Phil Collins Years

Author: Mario Giammetti

Publisher: Kingmaker

Price: £24.99

Pages: 289



Title: Up Above the City, Down Beneath the Stars

Author: Barry Adamson

Publisher: Omnibus

Price: £20

Pages: 324



Title: Southern Man – Music and Mayhem in the American South

Author: Alan Walden with S.E. Feinberg

Publisher: Jawbone

Price: £14.95

Pages: 272



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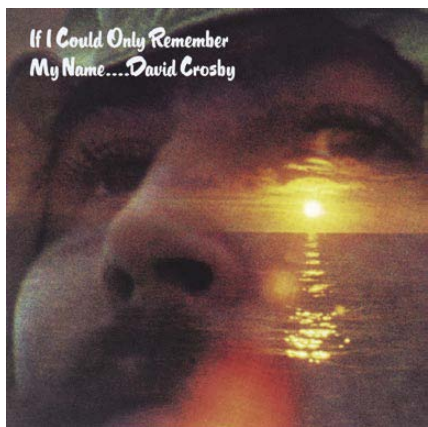
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IF I COULD ONLY REMEMBER MY NAME... DAVID CROSBY

ATLANTIC



"he was a personality full of craters, crags and fissures, beaten up and battered by excessive cocaine and heroin use"

Not only genre defining but culture defining in terms of its musical content, its lyrical content, the people involved and even the sleeve art. This album was part of the hippie movement, it swam amongst the Woodstock flotsam and sat as a backdrop to those who studied the consequences of the Age of Aquarius.

This LP featured the members of the movement's high table, the spokesmen and women who walked the walk and talked the talk but they also sniffed the powder so that you didn't have to. Oh yes, they were in the trenches, wearing heavy-duty fringe jackets.

I'm talking about Crosby himself sure – but also Graham Nash, Neil Young, Joni Mitchell, Jerry Garcia and other Deadmen such as Phil Lesh, Bill Kreutzmann and Micky Hart, Jefferson Airplane luminaries such as Grace Slick, Jorma Kaukonen, Paul Kantner, David Freiburg and Jack Casady, Santana's Michael Shrieve and a lady who seemed to be on every significant and interesting album of the time – lurking over in the background sometimes but, even so, there – Rita Coolidge.

This LP offers a West Coast cuddle, a California caress and every track fits. This is an album that is of its time. More of its time than just about any album I can recall right now. Crosby knew the scene. He was of the zeitgeist and understood those in and around it. This album hit the streets in 1971 and Crosby knew the times because they were his times. Hence, the purity and the simplicity of the message with its rather angelic vocal presentation. Only Crosby circa 1971 could get away with inserting a wordless track like 'Song with No Words (Tree with No Leaves)' and absolutely nailing it to the groove. 'Laughing' soars cross the cosmos while 'What Are Their Names' brings the album down to earth as it directs the ear to social concerns: "I wonder who they are/The men who really run this land/And I wonder why they run it/With such a thoughtless hand".

These thoughts were on the minds of everyone who attended the Woodstock festival and even many of the military helicopter pilots who flew food and celebrities into the festival during that iconic

event.

And because Crosby plugged into the heart of the matter, this album had no padding. Crosby was never verbose in this release. Instead, every single song here was cut to the bone. It was lean. It was direct. To the point.

And the music press hated it. "The truth is they just didn't understand it" said Crosby to the LA Times, "They were looking for another record that was full of big, flashy lead guitar and blues licks and screaming lyrics. It was not where everything else was going, so they thought it was irrelevant".

Crosby was, at the time of the album's creating, sad and hurting after the death of his girlfriend Christine Hinton who was killed in a car crash. "Jerry Garcia was probably the single largest influence. I don't remember us talking about Christine or the fact that I was sad or overwhelmed. But I know that he knew. He was sensitive and very intelligent, and he knew what I was going through. He showed up every night because he knew that that was going to save my f*****g life".

The shame of this album, if there could be shame applied to a masterpiece, is that Crosby didn't follow it up until eighteen years later. Then, at that point, he was a different person, a personality full of craters, crags and fissures, beaten up and battered by excessive cocaine and heroin use.

"I'm stunned by how happy [the album] sounds" said Crosby. "It's actually a pretty happy-sounding record and I wasn't. But music and friendship can help you transcend even deep sadness and loss. That album was a lifesaver and I love it".

So the shame is not with the work itself but with the man and what he would or could have been. How he could have built upon this foundation stone, one of the most important works to come from the volcanic grouping of Crosby Stills Nash & Young. Where would his song writing have gone? How would he have blossomed as a solo artist? What influences would he have taken as the seventies progressed and how would he have interpreted the tumultuous political and cultural changes of those times? It's sad that we'll never find out. At least we have this. **PR**



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