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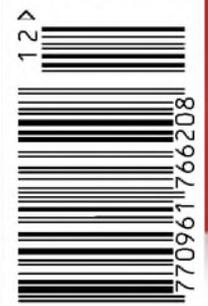
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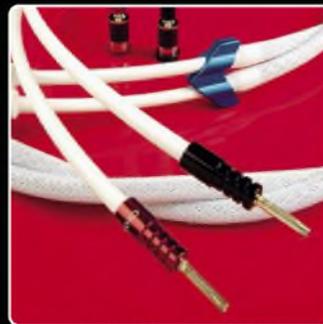
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EDITOR

Noel Keywood
e-mail: editorial@hi-fiworld.co.uk

DESIGN EDITOR

Faiza Chunara
tel: +44 (0)7399 361 785
e-mail: adproduction@hi-fiworld.co.uk

PRODUCTION EDITOR

David Noble
tel: +44 (0) 207 286 1270
e-mail: classifieds@hi-fiworld.co.uk

SALES MANAGER

Louise Palfrey
mob: +44 (0) 7917 047 548
e-mail: louise@hi-fiworld.co.uk

ADVERTISING EXECUTIVE

Rose Williams
mob: +44 (0) 7956 885 189
e-mail: rose@hi-fiworld.co.uk

PUBLISHER

Noel Keywood
e-mail: publisher@hi-fiworld.co.uk

FREE READERS CLASSIFIEDS

tel: +44 (0) 207 286 1270
e-mail: classifieds@hi-fiworld.co.uk

SUBSCRIPTIONS

tel: +44 (0) 1442 820 580
fax: +44 (0) 1442 827 912
e-mail: hi-fiworld@webscribe.co.uk

PHOTOGRAPHY

David Noble
tel: +44 (0) 207 286 1270

WRITERS

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



How to design an attractive loudspeaker? Give it lots of bass. That's what we all expect from a capable hi-fi system – including me – and that will sell a loudspeaker. Deliver physical power to the human body, provide a moving experience. JBL's HDI-3600 loudspeakers reviewed on p10 did just that. By simple method: they directed bass through all three bass/midrange units. JBL have long history in loudspeakers, they know a thing or two as

our review reveals. Here's a loudspeaker for anyone wanting to be moved – literally. From large to small, we take an in-depth look at three moving magnet pickup cartridges suitable for beginners. They won't break the bank and even if a stylus does get bent it can be easily and cheaply replaced. Results were surprisingly good however, the days of groove cutters are over. You'll get a good idea of what to expect from our detailed coverage, that you can find on p64.

Staying on a budget theme, Cambridge Audio's SX-60 loudspeaker gets the attention of all their knowledge and comes out looking good. For those who don't want, or just cannot accommodate a big floor stander like JBL's, this is a possible choice we check out on p41.

As CD slowly fades away readers ask about how they can continue to play their collection. Not everyone wants to rip to a NAS drive under the stairs: some are happier with a simpler format. In response we look at two players this month, one from Cyrus on p36 and another from Creek on p24. Both use quality DAC chips and are slot loaders, but this apart there's little common ground between them. Creek provide digital inputs and a great CD filter set that makes their player look particularly attractive.

Ever wonder how they build a record player for £99? Martin Pipe brings you the grim truth when he finds one abandoned in the street! Be amused when you read all about it on p58.

Top headphones use planar magnetic drivers with open backs – and usually cost north of £1k. HIFIMAN of China jump in with their take on things, price just £160 or thereabouts. What's the catch? Find out on p18.

Lots of variety this month, all from affordable products that work well. I hope you enjoy another great issue of Hi-Fi World.

Noel Keywood
Editor



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Audio Web Publishing
Office 052
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To ensure the utmost accuracy in our product reviews, *Hi-Fi World* has extremely comprehensive in-house test facilities, and our test equipment - from big names like Rohde & Schwarz and Hewlett Packard - is amongst the most advanced in the world.

Loudspeakers are measured using a calibrated 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.

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Our Agents in Malaysia Millennium Hi-Fi & AV Simon Chang Showroom & office, 500-1-3 First Floor Wisma Indah (Shen Court), Jalan Tun Razak 50400 Kuala Lumpur, Malaysia
Tel: 603 9283 8171 Fax: 603 9281 3762 e-mail: info@millennium-audio.com

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news

SHHHH...

Following in the footsteps of Aalborg-based Aavik's distinctive i-180 integrated amp (£6k) are the updated i-280 (£10k) and i-580 (£20k) models. Specs are similar, the more expensive models including greater numbers of 'active Tesla coils' and more sophisticated 'dither circuitry' for noise-reduction purposes. The new 2x 300W (8 Ohms) units also feature Aavik's proprietary UMAC take on Class-D amplification technology. This is fed, via a 76-step volume control, from an integral five-input line-stage (preamp) with 'unique' high-stability topology. A switching power supply is specified, additional ultra-low noise regulators improving performance. The cabinets use unusual materials to achieve Aavik's performance goals: "too much damping kills the dynamics", we're told, "whereas metallic resonances generate a bright and peaky sound". Aavik claims that its amps are characterised by "dynamic speed, tight control and balanced stability" for reproduction of "even the finest sonic details". Matching components (streamers, DACs and phono stages) are also available.

Further details: *Aavik*, bit.ly/2ZvRZv3; *Auditorium* (UK distributor), bit.ly/3uj32mY



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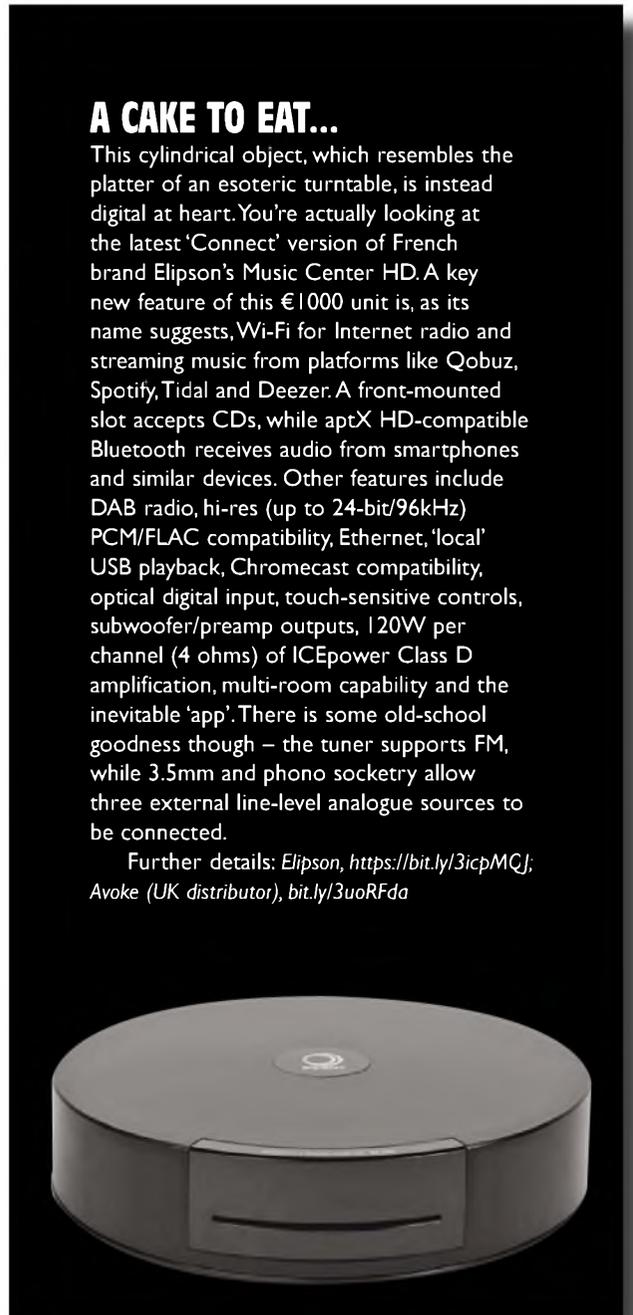
As lovers of DJ culture know, Technics produced two versions of its iconic 'wheels of steel' – the SL1200 (silver finish) and SL1210 (black). It was 1979's Mk.2 version that set dance floors alight with its robustness, pitch slider and quartz-lock, the original (1972) model being pitched at hi-fi enthusiasts. By 2010, when Technics stopped production 3.5 million had been sold. Technics resumed the line six years later, taking advantage of new tech to bolster performance. First up was the 'limited edition' SL-1200GAE, aimed more at well-heeled audiophiles than DJs. The same is true of today's SL-1200G which, in keeping with tradition, has now been joined by a 'minimalist' black version. Like its silver counterpart, the SL-1210G features a cog-free direct-drive motor, robust magnesium tonearm with precision bearings, individually-adjusted three-layer platter and rigid cabinet with silicone-rubber insulators. From October, you'll be able to buy this latest 'Twelve Ten'...for a not-insignificant £3,499.

Further details: *Technics*: bit.ly/39Fwud1

A CAKE TO EAT...

This cylindrical object, which resembles the platter of an esoteric turntable, is instead digital at heart. You're actually looking at the latest 'Connect' version of French brand Elipson's Music Center HD. A key new feature of this €1,000 unit is, as its name suggests, Wi-Fi for Internet radio and streaming music from platforms like Qobuz, Spotify, Tidal and Deezer. A front-mounted slot accepts CDs, while aptX HD-compatible Bluetooth receives audio from smartphones and similar devices. Other features include DAB radio, hi-res (up to 24-bit/96kHz) PCM/FLAC compatibility, Ethernet, 'local' USB playback, Chromecast compatibility, optical digital input, touch-sensitive controls, subwoofer/preamp outputs, 120W per channel (4 ohms) of ICEpower Class D amplification, multi-room capability and the inevitable 'app'. There is some old-school goodness though – the tuner supports FM, while 3.5mm and phono socketry allow three external line-level analogue sources to be connected.

Further details: *Elipson*, <https://bit.ly/3icpMCJ>; *Avoke* (UK distributor), bit.ly/3uoRFda





HERFORD LIGHTNING

T+A's house-styled 'Series 200' range of components has just been enlarged to include a 'multi-source player (the £3990 MP200), DAC/preamp (the £4990 DAC200) and power amp (the £3490 A200). The DAC-less and app-controlled MP200 boasts a CD transport, 'Room Ready' streaming and Bluetooth playback – also built-in is an FM/DAB/DAB+ tuner. In an all-T+A system its S/PDIF output would feed the DAC200, which features proprietary 'true 1-bit' converters. Described as 'unique', the latter handles DSD natively; double-differential conversion deals with PCM (up to 32-bit/768 kHz). In addition to S/PDIF are USB, AES-EBU, optical and (optional) HDMI inputs. The DAC200's Class-A pre-amp features metering, unbalanced headphone amp, a single unbalanced line-level analogue input and relay-switched resistors for volume control. Completing the range, the Class-D A200 has an output of 125W per channel into 8 Ohms. It can be fed from the DAC200 via balanced (XLR) or unbalanced (phono) means.

Further details: T+A, bit.ly/391r9BP; KOG Audio (UK distributor), bit.ly/3uq0BPu

CLASSIC ALTERNATIVE

American speakers that may be easier to find over here than the Augspurgers are JBL's £1,000-per-pair L52 Classics, which have a distinctively vintage look; JBL used chunky 'Quadrex' foam grilles in the '70s. A two-way bookshelf design, it's essentially a scaled-down L82 (itself a smaller L100). A 5.25-inch cast-frame woofer with white cone is augmented by a 0.75in. titanium-domed tweeter with acoustic-lens waveguide. A front-panel pot matches the latter's output to personal taste, or your system. Sold in



mirror-imaged pairs, the 4 Ohm L52 is claimed to deliver a 'big sound' for its 10-75W power-handling and 13x8x9in.size. Also announced is JBL's £1,500 L75ms Classic, a retro-styled all-in-one. Behind its Quadrex grille lurks a multi-angled baffle, which hosts two 1in. titanium-dome tweeters, two 5.25in. white-cone woofers, dual front-firing ports and central 4in. midrange driver. The electronics driving them includes a wired/wireless 'streaming engine' with Chromecast, AirPlay 2, Bluetooth and 32-bit/192kHz DAC. Analogue connections include MM phono.

Further details: L52, bit.ly/3umDEfX; L75ms, bit.ly/3F1GN9S

WHO'S THE DADDY?

Unusual products from Chord Electronics aren't unknown, but the £1,195 Anni 'desktop integrated amplifier' surprised even us! Small in footprint and evidently designed to complement existing products like the Qutest DAC and Huei phono stage – it's compatible with Chord's QSS (Qutest Stand System) rack – the Anni is capable of delivering 10W per channel into 8 ohms. Although efficient 'speakers are recommended, a two-step gain control allows different sensitivities to be accommodated. Headphone use is also possible, simultaneously-usable 3.5 and 6.3mm outlets being CNC-machined into the Anni's trademark aluminium enclosure. Chord's proprietary 'Ultima' design and dual feed-forward circuitry provide error-monitoring and stable performance, regardless of load. Other features include two Line phono-socket inputs, recessed rear-panel 4mm speaker socketry, integral volume control, external wall-wart power supply (expect third-party upgrades!) and a 12V DC socket able to power Qutest-type products.

Further details: Chord, bit.ly/3mmse8x



A WORD IN YOUR EAR

Chicago-based valve revivalists EarMen now make the £599 Tradutto, a compact and feature-rich DAC imported here by SCV Distribution. Boasting “fully-balanced” topology, the Tradutto is built around the ESS ES9038Q2M Sabre32 chip. This is capable of “outstanding sound performance,” as well as support for 32bit/768kHz PCM and DSD512. It's mounted, alongside supporting components, on a gold-plated circuit board for “low-resistance contact”. EarMen has endowed the Tradutto with USB, optical and coaxial inputs, as well as Bluetooth 5.1. The latter, the function of a dedicated Qualcomm device, caters for all key codecs; XMOS silicon, meanwhile, will decode MQA sources. EarMen has specified audiophile-grade components (including WIMA capacitors, MELF resistors and SoundPlus op-amps) and clock circuitry that has been “carefully adjusted” for minimal jitter. There are balanced outputs in addition to the usual phonos, but owing to the Tradutto's small size they're available on a 4.4mm socket rather than the usual XLRs.

Further details: [EarMen, bit.ly/3EVx44U](http://EarMen.bit.ly/3EVx44U); [SCV \(UK distributor\), bit.ly/3zJfTzH](http://SCV (UK distributor).bit.ly/3zJfTzH)



AUD-EZE AS L-C-D

Latest in the ‘super-cans’ stakes is Audeze's over-ear/open-back LCD-5. Based around planar-magnetic transducers, the LCD-5 is the latest in a series that first appeared in 2009. Audeze states that the LCD-5 incorporates refined earpads, frame design and drivers. These contribute, the Californian firm claims, to improvements in comfort as well as performance characteristics like transparency, resolution, speed and sound staging. The 14 Ohm drivers of the LCD-5 harness ‘Fluxor’ magnets, updated ‘Fazor’ waveguides, ‘nano-scale’ diaphragms and printed voice coils with parallel traces of varying width to achieve 5W power handling, 90dB/1mW sensitivity, distortion of less than 0.5% (100dB SPL) and 5Hz-50kHz frequency response. Combinations of materials like magnesium, aluminium and acetate helped Audeze designers to achieve 420g weight with rigidity, while earpads are internally-sloped to reduce unwanted resonances and interior reflections. By the time you read this, Scan (more associated with computer gear than hi-fi!) should be offering the LCD-5 for £3,999.

Further details: [Audeze, bit.ly/39WL9Rx](http://Audeze.bit.ly/39WL9Rx); [Scan, https://bit.ly/3uAEu7j](https://bit.ly/3uAEu7j)

MAXED OUT

They're intended for ‘near-field’ monitoring purposes, which means Augspurger's MinimaX MX65s are more likely to be heard by those who mix the music you listen to. The MX65s, which sell for around \$11k, are supplied with a software-customisable DSP/amplifier that's fed from a “console...desktop” or, for that matter, any electrically-compatible source. Each cabinet, which can be positioned vertically or horizontally, hosts two drivers. Most eye-catching is the rotatable maplewood tweeter. Behind its horn lurks a 1.4in. compression driver, which features a 99.97%-pure beryllium diaphragm. Handling lower frequencies is a 6.5in. woofer; if truly deep bass is required, a pair of SUB10s or SUB12s can be added “for full range 3-way performance”. Augspurger claims that the MX65s are capable of 70x110-degree dispersion, for “extremely-controlled, highly-accurate directivity of the sound”. Although the speakers are described as suitable for a “vast array” of listening environments, those working with Dolby Atmos sound tracks are singled-out.

Further details: [Augspurger, bit.ly/3AOWxdQ](http://Augspurger.bit.ly/3AOWxdQ)



A MERRY DANCE

Black Rhodium's high-end Charleston speaker cables (£5000 and up!) have been joined by a similarly-esoteric IEC mains cable. As with the Derby firm's other products, the ‘music-optimised’ Charleston S has been designed to prevent audio equipment from being affected by radio-frequency interference (RFI) from nearby computers and other ‘everyday’ digital devices. This, reckons Black Rhodium, can “drain the life and excitement from your favourite musicians”. To this end there are various RFI noise-reduction measures, the most prominent of which is a tightly-braided metal screen. Other features include vibration-suppression techniques and ‘ultra-low transient phase distortion’. The latter is claimed to yield “very clear diction of a singer's voice” and the “superb” separation of musical instruments. 1.7m in length for the “best sound quality”, the hand-built Charleston S is available with rhodium-plated 13A plug (£4,000), ‘Power’ European Schuko plug (£3,600) or ‘Power’ US UL plug (£3,600). All have ‘Power’ rhodium-plated IEC connectors.

Further details: Black Rhodium, –



Go Big

JBL's HDI-3600 floorstander has impact, says Noel Keywood.

If you want to go big with a loudspeaker – as in big sound, then JBL is your brand. This US company specialises in conspicuous power and they don't let up. The large HDI-3600 floorstanders (£3198) I'm reviewing here radiate bass from three drive units, just to make sure it gets through. I'll say straight away they are designed to shake a house, just so you know in advance what we're discussing here!

What JBL tell us is this loudspeaker uses "three 6.5in (165mm) aluminum matrix cone woofers". You might be surprised to know that this still doesn't add up to the area of one 12in bass unit, just bettering a 10in driver, so you can see why JBL have made them all radiate bass, because the more surface area the better. Only the top 6.5in unit handles mid-range also, reaching all the way up to the horn loaded tweeter situated directly above it. Surprisingly, the two lower bass units also cover a lot of midrange, making for a vertically extended line-source array. I suspect JBL have done this to improve stage height and presence; it's usual to limit bass drivers to bass only (below 100Hz), but not here. So in a



demo the HDI-3600 will sound rather different – larger – to other loudspeakers whose lower drivers handle bass only. Hence my comments on JBL going for a big sound.

Big bass comes from a big cabinet and this one looks slightly larger than most, although it's only just above the popular 1 metre mark, measuring 103cm high according to our tape measure – if not JBL's. They get width and depth right though, at 255mm and 342mm, the latter including the (removable) grille that projects slightly. A weight of 28kg makes each speaker quite awkward to move: these are not lightweights. The cabinets feel very solid and are heavily braced internally JBL say.

Finishes are gloss black, satin grey Oak wood veneer, or satin Walnut wood veneer. Our review samples were the latter. The company say they use wood veneers, but these days real veneers are finished with acrylic coatings that make them look artificial, grain being filled in – and that's how ours appeared. Tannoy used real wood veneers but they supplied a tin of wax with their loudspeakers and requested the curtains of the castle not to be opened to avoid discolouration from sunlight! Modern lacquers have advantages.

At rear of the cabinet lie two large ports that may well vent one internal chamber, since they gave identical output. Below them lie a conventional set of gold plated bi-wire terminals, with removable straps to facilitate bi-wiring. JBL quote a sensitivity of 90dB and that's exactly what we measured, meaning amplifiers down to 20 Watts are suitable. Three large drive units can absorb power too, giving a maximum of 250 Watts they say, but this would be insanely loud. Even getting 60 Watts through them on peaks would be challenging, except in a very big room (>25ft long).

At top sits the company's patented horn tweeter with 'High Definition Waveguide technology', driven by a patented 1in (25mm) compression driver. Just like that used in the HDI-1600, reviewed in our November 2021 issue, it covers a wide range, terminating in a distinctive peak above 16kHz. JBL make its output strong and obvious, but not excessive (see Measured

Performance). This is an accurate loudspeaker, not an 'enhanced' one, but treble horns are usually quite obvious in their contribution, unlike smaller area domes.

SOUND QUALITY

The JBLs were run in then connected to our Creek Voyage i20 and – alternatively – our Icon Audio Stereo 30SE single-ended valve amplifier whose 30 Watts is plenty enough for such a 'speaker. Having reviewed the HDI-1600 I suspected the Icon would be a symbiotic match for JBL's horn tweeter. Cables were Chord

"The rumbling lows added weight and majesty, without becoming intrusive or overwhelming"

Company Signature Reference (screened).

Sources were an Oppo UDP-205D universal player acting as a CD transport, digitally connected by QED Quartz glass optical cable to the Creek's internal AKM DAC. I also used Bluetooth fed by the Hi-Res section of an Onkyo HF Player app. on an iPhone 11X Pro that gives 24bit resolution, plus a wider selection of music from a MacBook Pro running Audirvana+ player software, specifically to access Chesky low bass test tracks as well as DSD transmitted as such, not PCM (iPhone/HF Player).

As measurement suggested the HD-3600s go low – very low. They start delivering deep bass almost before a track has started; when I pressed Play on my iPhone with Fleetwood Mac's Dreams (24/96) I was hit immediately by powerful low bass that energised the floorboards and just about all else. Seemingly there was a whole extra octave of bass I rarely get to hear. There wasn't the sonic grip of a big 12in driver, but there was prodigious power and presence all the same, John McVie's bass line striding across the room at me like a hippopotamus – big, unstoppable.

That doesn't sound complimentary, but it is; the HDI-3600s deliver bass with laconic ease and it brought a smile to my face, as well as better appreciation of all that goes on in the lower octaves we commonly don't get to hear. And I was impressed that even in my 17ft long lounge they did not invoke boom, nor any sense of disproportion. The rumbling lows added weight and majesty, without becoming intrusive or overwhelming. The big ports and multiple bass units drive the air load effectively, rather than flailing at it (producing distortion) – and

this is important in the home. With Dadawa's Canton Story (CD) I was rather expecting the sudden entrance of the drum to be overwhelming – but it wasn't. The big JBLs revealed its qualities better than most, but kept its power in correct proportion to the rest of the track, making for a great listen.

The big 3600s sounded smooth and dark in general tonality,



The shape and flair of JBL's horn is patented. It gives wide dispersion, high sensitivity and flat frequency response over a wide band. Plus a projective sound.

something I appreciate. Music jumped out of a dark space should I better say, rather than from the brighter hue of zingy alloy drivers. This I like. With superb insight and detailing, a lovely smooth yet tonally accurate sound plus ground shaking lower octaves there was little to loathe and much to like here, much to like very much.



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Two large ports provide generous low frequency output, at fairly low distortion, supporting subsonics.

Johannette Zomer's voice soared beautifully in Handel's *Lascia chi'io Pianga* (DSD64), projected strongly outward at me but without blemish.

There were a few odd moments when the horn tweeter suddenly seemed to want to strut its stuff. One was with The Eagles 'Somebody' (CD) where high treble had a piercing quality that sounded to me I was hearing the tweeter's treble peak above 16kHz, even though with steady signals I can't hear up that far. Whatever, the horn tweeter is powerfully projective and can at times be a bit too strong with recordings that have their own problems. The 'speakers were generally easy going yet balanced and revealing, but every now and then they would bite. JBL's treble horn was the reason; its peak needs removal.

With the Icon Audio Stereo 30SE valve amplifier there was some loss of bass resolution: the HDI-3600s need electrical damping and here a valve amplifier does not suit. However, this was only obvious with prodigious deep bass; most of the time the two worked together beautifully, the Icon delivering a timbrally rich sound that fleshed out the shimmering strings of Nils Lofgren's guitar in 'Keith Don't Go'. Would the tweeter's peak above 16kHz drill my ears? It did not, but I was aware

of strong high-highs on this track. And all the time the Icon's output meter just bounced around against its zero end stop, even though I was playing loud. The 'speakers are valve amplifier friendly, having a relaxed and easy demeanour, but the resultant sound is unusual in nature.

CONCLUSION

JBL's HDI-3600s were laconic giants. They cruised through all I threw at them, rarely putting a foot wrong. From powerfully projected high treble down to deep room shaking subsonics, these loudspeakers carry a powerful punch that is the epitome of high fidelity. Yet they are also subtle and insightful too, just as good with the massed strings of an orchestra as with Rock. Now and then needles hit my ears, but for the most part I loved what I heard: exciting yet balanced and truthful. A great loudspeaker.



Below the horn lie three drivers delivering bass. The lower two reach up to 900Hz, the top one 2kHz.

MEASURED PERFORMANCE

Frequency response of the HDI-3600 was essentially flat across the audio band, from a very low 30Hz up to 16kHz. The dip and peak around 55Hz is a phase rotation due to the room so can be ignored. A dip at 800Hz exists at the crossover point – but it is a small effect of little subjective consequence.

The lowest driver works up to 800Hz, the next up to 900Hz and the third up acts as a bass/midrange unit, reaching right up to 2kHz where it crosses over to the tweeter. So in effect there are three bass units, one midrange and one tweeter – an unusual arrangement that maximises bass cone area.

As with the smaller HDI-1600 reviewed in our November 2021 issue the horn loaded tweeter gives smooth, even output up to 16kHz, above which it peaks sharply; luckily, few can hear this high.

JBL have obviously designed the HDI-3600 to be technically accurate, rather than contrived. It will not sound overly bright, but the tweeter is no

shrinking violet either. Our measurement is slightly off-axis (20degrees), with grille off. Putting the grille on made no difference. The speaker is best aimed straight down the room, its dispersion being sufficiently wide and smooth to make positioning uncritical.

This loudspeaker reaches very low: few run flat down to 30Hz. The ports (red trace) peak broadly around 40Hz, suggesting good bass damping. The impedance curve reflects this situation too, by a fairly wide dip around port frequency. Powerful low bass will be produced in any room, but especially a large one 18ft long or more.

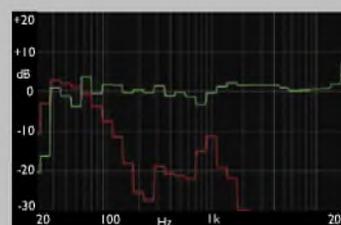
Impedance (measured with pink noise) was exactly 6 Ohms and bass unit combined d.c.r. 4.3 Ohms, as seen at the terminals, all standard nowadays. Sensitivity was high at 90dB from one nominal Watt of input (2.8V) so amplifiers of 20 Watts or more suit, with little need for more than 100 Watts.

A nicely engineered loudspeaker

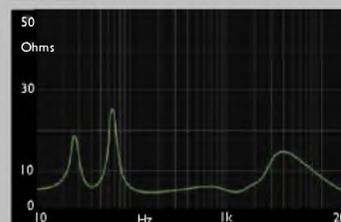
that's accurate, will have powerful bass yet not wallow. Very good all round. **NK**

FREQUENCY RESPONSE

*Green - driver output
Red - port output*



IMPEDANCE



JBL HDI-3600
£3198



OUTSTANDING - amongst the best.

VERDICT

Plentiful subsonic bass, accurate and revealing. Very exciting: a big sound.

FOR

- endlessly deep bass
- accurate tonal balance
- dark tonal hue

AGAINST

- occasional sharp treble

JBL
<https://bit.ly/3luRLOa>



Terms of Reference

Martin Pipe tries a QED interconnect that's both upmarket and affordable.

You can spend many thousands of pounds on a pair of analogue interconnects – the variety that, for example, feeds an amplifier from a DAC or CD player. These artisan products, from relatively-small high-tech specialists, employ exotic materials in all

manner of esoteric designs. We've reviewed plenty of them over the years. They can make a positive difference, but spending £1,500 on a phono cable for a £5,000 system makes little sense; the generally-accepted rule is that 10% of your system budget should be allocated to interconnects, and cables for

mains and speakers. Thankfully, there are options for those of us with more modest hi-fi installations – from larger concerns like Monster, Chord and QED.

The latter, one of the more established names in this field, launched its game-changing 79-strand speaker cable 45 years ago.

Now part of the Armour group, QED has conducted plenty of fundamental research into cables (some of which has been published as the Genesis Reports) and has itself sold some rather sophisticated and exotic products over the years. However, they tend to be affordable – the top range of its current quartet, 'Signature', contains products that sell for less than the entry-level esoterica. Being a large manufacturer, with extensive facilities and

are also subjectively impacted by this electrical characteristic.

This new version of the Reference Audio 40 is marked by QED's 'Analog2' phono plugs. These use plastic barrels, with pins to make electrical contact with the socket's ground connection; superficially, they resemble (Black Rhodium) Graham Nalty's GN 'Line Contact' plugs. QED assured me that any similarities between these and the Analog2 plugs – which, unlike the GNs, are twist-lockable – are "purely coincidental". The move from brass to a "high rigidity thermoplastic material" is said to reduce eddy currents. These, according to QED, can "adversely affect the information contained in the audio signal". Said plastic is colour-coded, to identify channels.

QED admitted that the Reference Audio 40 relies on the same red-jacketed coaxial cable of its predecessor...well, if it ain't broke! As with some competitors, ferrites are used to reject the high-frequency interference that can have an "adverse effect...on micro-timing".

More unusual is 'Complementary Conductor Technology', in which your audio signal is simultaneously-carried by two silver-plated OFC conductors of different diameters. Its aim is to provide an "alternative path for the high-frequency audio components" that might otherwise be "time smeared". Separating these conductors from the braid, neatly visible under the jacket in all its herringboned glory, is foamed polyethylene dielectric. This material has a low dielectric constant, thereby helping to keep capacitance low.

Low capacitance? Long-in-the-tooth audiophiles will remember that such a characteristic was essential for CD-4 quadraphonics. And so I inserted the Reference Audio 40 between my Technics SL1200Mk3 turntable, which is equipped with an Audio-Technica AT440MLb cartridge, and my vintage Pioneer QX-949 receiver. I lowered the stylus onto a CD-4 record and all was fine. The receiver's 'radar' lamp lit and the

ensuing playback was tonally full-bodied, with four clean channels of discrete goodness. So QED's claims are evidently of practical merit.

This also shows the Reference Audio 40 is kind of delicate small signals, as well as line-level ones. The cable's substantial screening helps to keep hum at bay – not a trace, even at higher listening levels.

In its intended role, the Reference Audio 40 cannot be faulted. Amongst other things, it was used to interconnect a PC-fed Chord Qutest DAC and ANT Audio Amber 3T headphone amplifier driving HiFiMan Sundara headphones. Relative to a budget cable, more detailing was evident on recordings. I was drawn into the atmospheric proto-fusion of Miles Davis' *In a Silent Way* (in 24-bit, 88.2kHz-sampled hi-res form). In particular the guitar, upper percussion and of course Davis's trumpet were conveyed with crystal clarity – yet master-tape hiss did not intrude.

This classic album isn't known for its activity at the bass end of the musical scale; after switching to London Grammar's *Hey Now* (If You Wait, CD FLAC rip), I found that the prominent bass line got the depth and tautness that makes the track a demo fave.

Next came Steve Reich's *Music for 18 Musicians* (Ensemble Signal/Brad Lubman, Harmonia Mundi, CD FLAC rip). Its insistent pace and timing were conveyed well, demonstrating that QED's engineers met another goal. With this recording it was also easy to pick out the textures of the individual instruments – among them strings, pianos, clarinets, marimbas and vibes.

CONCLUSION

It's difficult to fault the Reference Audio 40. QED has used the considerable resources at its disposal to make an analogue interconnect that sounds very good without costing an arm and a leg. The only serious criticism I can make is that it's difficult to tell apart the left and right cables when lighting is subdued – all you have to go by is the colour of the Analog2 plug's internal barrel plastic (white for left and red for right). These fittings are invisible when the plugs are in position! Top caps of different colour would fix the problem; as things stand, they're both black.

worldwide distribution clearly has its advantages.

One of QED's most recent additions is the latest incarnation of the well-received Reference Audio 40, a professionally-made and well-packaged analogue interconnect from the range that's a step down from the Signature. As with other QED products, it's priced to reach the majority of audiophiles; the 1m review sample has a £120 price tag. It shares one of the key design goals of its cryogenically-treated £240 Signature equivalent, namely the reduction of capacitance between outer screen and inner signal core. As well as its provable effects on high-frequency performance, QED claims that tightness and rhythm

QED REFERENCE AUDIO 40 £120 1M VERSION, AS TESTED

(£100 0.6M AND £150 3M VERSIONS ARE ALSO AVAILABLE)



OUTSTANDING - amongst the best.

VALUE - keenly priced.

VERDICT

A high-end stereo analogue phono interconnect that everyone can afford.

FOR

- very well made
- plugs will 'lock' to the sockets of your equipment
- smooth, detailed, balanced and engaging presentation

AGAINST

- difficult to identify left and right cables when lighting is poor

QED
bit.ly/3vmsqsj



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"WDPRE4 is a unity gain preamplifier. The signal that goes in comes out no larger. It is purposed to sit between a World Design power amplifier – or any other power amplifier – and a digital source like a CD player or streamer that delivers 2V out – as most do. Low gain phono stages are

not an ideal match: volume will need to be turned up.

Turning up volume with WDPRE4 is a satisfying experience. Do it manually with the volume control or by using the slim, light plastic remote control. An Alps Blue motorised potentiometer then turns the knob for you in ghostly fashion. The small remote also switches between five sets of phono-socket Line inputs. There are two sets of line outputs via phono-sockets, one set recessed.

Power comes from an external WDPSU3 linear power supply unit capable of delivering in 307V from a

choke smoothed supply, but this is held to 200V HT by a zener in Pre4. PSU3 can feed a WDPPhono3 stage simultaneously.

Pre4 comes with three circuit boards. At front is the remote control and actuator board, bolted to the front of the chassis. There is a horizontal main board with single ECC88 / 6922 double-triode valve. At rear lies the input relay board mounted vertically on the rear panel. This arrangement avoids cable looms, keeping signal connections short".

For a chance to win this great prize, just answer the four easy questions at right. Send your entries on a postcard only, by 8th December 2021 to:

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Competition,
Hi-Fi World magazine,
Office 052
464 Edgware Road
London
W2 1AH**

QUESTIONS

[1] The signal comes out -

- [a] "larger"
- [b] "no larger"
- [c] "smaller"
- [d] "very small"

[2] The Alps Blue is -

- [a] hybridised
- [b] pneumatic
- [c] steam actuated
- [d] motorised

[3] How many Line input sets -

- [a] five
- [b] four
- [c] three
- [d] two

[4] Smoothing is by -

- [a] steam roller
- [b] rolling pin
- [c] choke
- [d] hydraulic press

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Low Plane

Costing little, the HE400se magnetic planar headphones from HIFIMAN wow Noel Keywood.



I'll use planar magnetic headphones if I can. Have a pair of well used Oppo PM1s sitting in front of me at this moment and Audezes are always a lovely review experience. So good to receive a pair of planar magnetics from HiFiMan (China) – if almost disturbing that their new HE400se is quoted as \$149 on their website. Whoaa! How much?

As my Oppo PM1s (£1k) are in decline it seems, I had to listen to the HE400se just in case they could possibly be good enough to act as a replacement at one-tenth the cost. Unrealistic and it won't happen, but comparisons were interesting; these are impressive 'phones.

Conventional (dynamic) headphones – which most are – sound itchy-bitsy: bass boof here, midrange there and treble somewhere else. Just like a typical multi-way box loudspeaker. When well engineered they offer great sound – but planars are more cohesive: everything ties together better, rather than jumping in or out in disparate fashion.

A planar drive unit comprises a thin, light mylar film onto which is bonded an electrical track through which the music current passes. It sits between magnets – vibrating in sympathy with the music as a result. It's another form of electric motor – a planar one. Clever stuff, nicely showcased to the world

in 1972 by Wharfedale with their Isodynamic headphones, now in the Victoria & Albert museum (London). The drawback was low sensitivity back then: they had to be connected to an amplifier's loudspeaker outputs!

Low sensitivity is still an issue with magnetic planars. HiFiMan state the HE400se is reasonably sensitive at "90dB". Which doesn't say much. Playing 'Gimme Shelter' I had to add +10dB of gain to get them to match the volume of my Oppos. And that's big. Not only is the '400se low impedance at 25 Ohms, drawing more current than dynamic phones (300 Ohms/40 Ohms), but they need high volume (voltage) as well. Likely because there are magnets on one side only, making the motor relatively weak.

HiFiMan call this "single-ended", trying to invoke the aura of quality attached to single-ended amplifiers, but in fact single-sided would be a more suitable description. Double-sided drivers are more linear (less distortion) and of higher sensitivity, making them superior. But cost is an issue here.

These 'phones would likely be unsuitable for my iPhone 11X Pro if it had a headphone socket – but it does not. Portable players can handle such a load, so in real life the low impedance and sensitivity of the HE400se isn't likely to be an issue. Best not used with an

old, weak 'phone though. Since these are open backed phones they're not ideal for use in busy places because of noise leakage so portable players aren't likely to be used in any case. Their planar drivers need and deserve quality drive from a mains powered headphone amplifier, although the 2V available from DAPs (Digital Audio Players) is sufficient.

I admired both build quality and finish. Although simple in basic construction the HE400se looks good and feels it. Weight is low-ish at 387gms on our scales, cables and plugs adding 44gms. The ear pads are large diameter so don't pinch the pinna. I found them more comfortable than most 'phones and quite cool too. The pads just need a twist to come off, exposing the planar drive unit – it all looks surprisingly simple. The earpieces are handed L and R, and each has its own 3.5mm stereo jack socket, making balanced connection possible and easy to arrange – no 2.5mm mini-plugs here, nor rare types. A 150cm (5ft) long cable is supplied, terminated by a 3.5mm stereo jack at the source end, using a right-angle plug. An adaptor to fit a trad. 1/4in (6.3mm) socket is supplied. And that is all: there's no carrying case, alternative lead etc.

SOUND QUALITY

For musical drive I used an Audiolab M-DAC+ fed by



At centre, the planar drive unit with its bar magnets in front of a mylar film embossed with current carrying tracks, to produce sound from a signal. The earpiece at left simply twists on to give the complete assembly seen at right.

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Each earpiece has its own 3.5mm stereo jack socket, making balanced connection possible, but a balanced lead is not supplied.

Audirvana+ music player software running on a Mac, reading CD, hi-res and DSD files. Spinning through standard Rock fare I know well the HE400se gave a smooth and cohesive sound just as expected – right up to the mark for a magnetic planar design. The word here is “svelte”. These ‘phones deliver smoothness, an “all-of-a-piece” sound rather than bits pasted together. The only exception was a slight treble hiss I heard immediately with songs having strong sibilance, such as Willy de Ville’s Spanish Harlem (CD) that is laced with it when he’s up close to the microphone. But since my Oppos were becoming a tad too warm I felt this wasn’t totally out of place. Measurement later confirmed a peak at 12kHz, explaining what I was hearing.

The other issue was a lighter patina to bass; deep bass is there but not so strong. Other headphones commonly give a bit more low down – especially closed-back designs – but for me this is not a deal breaker. With bass heavy tracks such as Daft Punk’s Giorgio by Moroder (24/88.2) the synthesised bass line was dynamically restrained, where other ‘phones and speakers make it prominent. With Fleetwood Mac’s Dreams (24/96) the bass line was there but Mick Fleetwood’s drums lacked weight and dynamic resolution. Nice, rather than powerful. The Oppo PM1s had massive power and punch by way of contrast.

It was across the mid-band that these ‘phones sounded good, clear and concise with vocals, even with old, muzzy recordings such

as Gerry Rafferty’s Times Caught Up With You (CD), that these ‘phones made sense of; the balance was bright but clean. With Lascia chi’io pianga, from Handel’s Love and Madness (DSD64) Johannette Zomer’s voice soared in a lovely clear space between my ears, free from the warmth of closed back phones and the slight implausibility



The supplied lead comes with a right-angle 3.5mm stereo jack plug, plus adaptor for 1/4in (6.3mm) outlets.

MEASURED PERFORMANCE

Frequency response of the HE400se was smooth our response analysis shows (no HRTF correction), with the usual roll down above 1kHz to compensate for hearing characteristics. This result is much like that from Audeze and Oppo planar phones, except there is a little more midband output around 3kHz and a distinct treble peak around 12kHz. Also, there is slightly less low bass (below 50Hz).

As a load the HE400se was purely resistive, all the way to 20kHz, measuring 29 Ohms – a low value. Sensitivity measured a low 71dB with a true 1mW input (0.16V), inadequate for a portable player or phone with 0.3V out maximum. However, most now deliver

of dynamic drivers. Airy, if with quite strong highs.

Consistently, the HE400se was insightful, detailed and revealing. Better, they had the lovely smoothness of magnetic planars. What you lose at the low price though is bass power and dynamic thrust: down at the low end they were in nice balance but a little anaemic, shall I say. All the same, I enjoyed their insight and found them easy to live with, great with vocals across both classical and Rock.

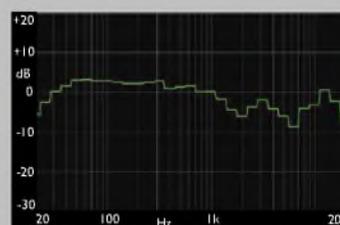
CONCLUSION

Magnetic planar headphones for \$149 – there has to be a catch. And there is one: low sensitivity and limited bass dynamics. Those are the bad bits. The good bits however are superb smoothness in true magnetic planar fashion, a very insightful and clean sound that is a delight. Add in lovely build and finish and the HE400ses are well worth hearing I feel. I enjoyed them.

2V and this is enough, 90dB (loud) being achieved from 1V in. However, more than 2V would be needed for 100dB (extremely loud). The HE400se is insensitive against most else.

The HE400Se measured well in frequency response, but they are very insensitive. **NK**

FREQUENCY RESPONSE



HIFIMAN HE400SE £159



EXCELLENT - extremely capable.

VERDICT

Smooth and refined, if lacking in bass punch. Lovely all the same.

FOR

- smooth and cohesive
- well built and finished
- comfortable

AGAINST

- anaemic bass
- very low sensitivity

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Natural CD

Creek's Voyage CD player has intriguing ability, Noel Keywood finds.

A CD player or a digital preamplifier? The Voyage CD player is both Creek say, fulfilling much the same role as other CD player/DAC combinations, but with a few nice touches.

A primary reason this CD player can be labelled a preamplifier is presence of a digital volume control – yes, it's that simple. A volume control allows a "CD player" to be hooked up direct to a power amplifier. And since this player also has digital inputs, optical, electrical and USB (for computer) it can host a variety of digital sources, acting as a hi-res DAC/preamplifier. Plug in a portable player (DAP) or a laptop perhaps. Missing are analogue inputs or the ability to read a USB drive, the latter being a disappointment.

This is a full CD player with AKM AK4493 DAC chip on board, a top spec chip that's part of AKM's

Velvet Sound series. All quality DAC chips have balanced output, volume control, on-board filters and the ability to process DSD, so that's what you get here. Creek fit XLR output sockets for balanced analogue output, plus phono sockets for the usual unbalanced output. Note that the unbalanced output of just about all quality DACs/CD players, including this one, passes through a balanced-unbalanced conversion chip, another stage so the use of balanced output is always best. Creek say they use Texas Instruments OPA2134 SoundPlus™ op-amps in the outputs.

The filter set fitted is interesting, since it has massive effect with CD and 48kHz sample rate PCM but little effect with higher sample rates such as 96kHz and 192kHz. There are five filters in all; Sharp, Sharp+, Slow, Slow+ and Natural. Since the Sharp filters

roll down treble slightly to -1dB at 20kHz this is never going to be a tizzy sounding player; Creek deliberately use well damped filters rather than zingy sounding brick-walls so there's not even a brick-wall option. The Slow filters roll down output fast above 12kHz, which all but eliminates distortion harmonics without seriously affecting treble, whilst Natural is fascinating in that it imposes a slow roll down above 6kHz in the audio band and does not have high attenuation even above 21kHz. In other words, it is a thoroughly analogue style filter that was quite intriguing to look at on the spectrum analyser. All filters can be cycled through on the remote control for easy auditioning from the settee.

Volume can also be altered on the remote control, as you might expect and there is a large volume level display on the player. A small



slide switch at rear selects this or fixed output and when changed the amp must be switched off/on to effect the change over. Maximum variable output is the same as maximum fixed output: 4V for XLR and 2V for phono socket.

Input limits are 384kHz PCM and 22.4MHz for (DSD512) although my Mac saw 768kHz max for PCM, as AKM claim. All file types were played, including FLAC and ALAC.

The player is solidly built with a thick front panel, steel top cover over steel chassis in conventional arrangement. Dimensions are 430mm wide, 80mm high and 320mm deep, or 350mm including mains plug. CDs are taken in by a slot-loading mechanism, said to be a Stream Unlimited CD80. Weight is substantial at 6.8kgs. The fascia carries CD transport controls and an input selector; but not volume control, filter selection or anything else, so the remote is best not lost. The power supply is a switch-mode that Creek are at pains to say is a custom design, with an 86V-265V input range, and 20W consumption, an auto-standby circuit (that can be switched off) cutting this to less than 0.5W to meet European regulations. It allows use in any country around the world.



At bottom left the Stream Unlimited slot loading mechanism that connects via ribbon cable to the main board housing an AKM DAC. At top right a small switch-mode power supply board.

SOUND QUALITY

The Voyage CD was connected with Chord Company Epic balanced XLR cables to their Voyage i20 amplifier, so as to use the AKM DAC in the CD player rather than the amplifier. I also ran the player from its unbalanced phono-socket outputs into our Icon Audio Stereo 30SE amplifier, so as to use it in full preamplifier mode as it were, and outside an

all-Creek environment. Although the Voyage CD is styled to match the amplifier it's not an efficient pairing since player or amplifier DAC goes unused. I'd connect the two digitally, using the player's digital output, rendering its internal DAC and filters redundant. Digital connection sounds a tad tidier than analogue I find, some of the benefit lying in shorter, connector-free linkage between DAC and amplifier



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At centre the analogue signal outputs, and at far right the digital inputs, including USB. There are also optical and electrical digital outputs from the transport.

stages in the amplifier itself.

Loudspeakers were Martin Logan ESL-X hybrid electrostatics connected by Chord Company Signature Reference screened cables.

AKM's 'Velvet Sound' DAC chips give just that: a velvet sound. Think very easy on the ear, fractionally more so than those from ESS. Not better, just different – and minimally so. But in this player Creek have inserted an influential filter set that sets it apart, so I spent time with these filters to check out how well they act specifically as a stand-alone CD player (rather than a transport).

With Hans Theessink singing Mississippi the Sharp filters gave a vivid rendition of his guitar strings, well defined between left and right loudspeakers; I liked the Sharp+ in particular, that suited our loudspeakers. The Slow filters removed some of the cutting edge to guitar strings, easing the sound slightly and this had its merits with older CDs in particular.

Switching in the Natural filter was intriguing. The overall sound balance softened out slightly, whilst the sound stage opened up to stretch wide, beyond the electrostatic panels. Images became better defined and there was more detail and insight into the performance too. The presentation became spacious in an unforced manner. Some may prefer the tonal balance of Sharp or Sharp+ to this presentation, but with today's loudspeakers sounding sharp in any case, perhaps not. Natural offers a sound that is not only ameliorative, but also more refined in pure hi-fi terms and I settled into using it. Classical performances like Cesar Franck's Le Chasseur Maudit (CD) spread wide, brass pushing out powerfully whilst sounding smooth, a large and ethereal kettle drum adding in deep subsonics.

One small concern was that when strong treble existed I think I detected a bit of background muzz with this filter, but with Classical I

did not, nor most Rock. This may well be linked to its lack of alias reduction, but the other filters provide high alias reduction so they can always be used instead.

Generally, the player has a deep, full bodied sound very much in Creek tradition and this brought weight to classical, as well as Rock.

CONCLUSION

Creek's Voyage CD player offers a wealth of ability and a great sound from its AKM DAC – relaxed, spacious yet powerful. The filter set is tailored for CD usage, offering a conventional 'Sharp' balance, an unusual 'Soft' option to tame discs that are too sharp in any case, and a 'Natural' filter that is a bit left-field, but intriguing in what it achieves; it



At top a large volume level display, readable from afar. Below, the Filter setting, in this case Creek's unusual Natural option.

ended up as my preference. This is a lovely sounding player of broad ability – well worth auditioning.

MEASURED PERFORMANCE

With a 24/192 digital input, frequency response of the Voyage CD measured flat from 4Hz up to 33kHz via XLR out, with a slow roll down to the upper 96kHz analogue limit. The filters affected this result little.

With 44.1kHz (CD) or 48kHz sample rate the filters had substantial affect, Sharp and Sharp+ being alike and curtailing output above 10kHz slightly. Slow and Slow+ rolled down output fast above 12kHz whilst Natural (shown here) had a slower roll down from 6kHz and far less attenuation above 21kHz from its anti-alias filtering. These last three filters will obviously soften the sound of CD, more so than most filter sets.

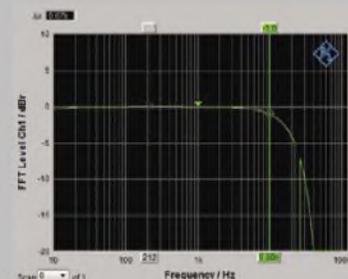
Distortion values were as expected for CD, 0.002% at full level (0dB) and 0.22% at -60dB, set by 16bit quantisation noise. With 24bit distortion fell to 0.03% at -60dB from XLR. Dynamic range (EIAJ) was high at 117dB for 24bit and 101dB for CD (XLR out).

Output measured 2V from the unbalanced phono sockets and 4V from balanced XLR, with volume in or out.

The Voyage CD measured very well all round and has an interesting filter set. NK

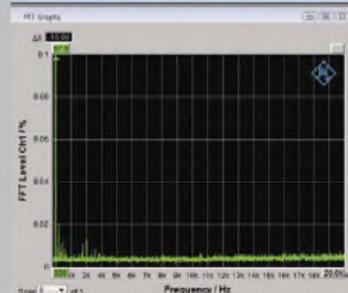
Frequency response	4Hz-33kHz
Distortion (-60dB)	0.03%
Separation	98dB
Output	2/4V
Noise	-113dB
Dynamic Range (EIAJ)	117dB

FREQUENCY RESPONSE



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



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Letter of the Month

SPEED STEADY

I was very intrigued with your recent review of the TEAC TN-5BB turntable. Intrigued because I had no intention of buying another belt-drive, but your review made me rethink my hard-line attitude. For me the single most important thing that a turntable should do is spin at a constant speed. After being dissatisfied in this respect by several different Rega and Project models in the early Noughties that could not play sustained piano chords without watery pitch, I bought a second-hand 1970s Toshiba SR-370 Direct Drive as a stopgap, or so I thought. It's still with me, but it's now time for a replacement.

I had girded myself to shell out £3000 for the Technics SL1200G to be sure of pitch stability. Now, however, after reading of the Teac's servo-stabilised belt drive I'm beginning to hope this could be a possible solution at half the cost, with the additional luxury of semi-automatic operation and balanced output.

Before I investigate further though, you conclude that arm resonances rather let the side down. Now I recently replaced my Len Gregory Cartridge Isolator (after



Teac TN-5BB turntable. "For me the single most important thing that a turntable should do is spin at a constant speed" says Tim Keenan. "After reading of the Teac's servo-stabilised belt drive I'm beginning to hope this could be a possible solution".

13 years of service) with an Origin Live Cartridge Enabler and I was wondering whether the Enabler or, better perhaps, the Funk Houdini

(which advertises itself as taking the arm out of the equation) would eliminate, or at least reduce, the resonances you mention? If so, the



Balanced-input phono stages are rare. Teac's PE-505 matches their TN-5BB record deck.

Teac with the Houdini could be a relative bargain (irrespective of the luxury additions!).

Best wishes,

Tim Keenan

P.S. I bought a Quad Artera Pre after reading your excellent review (still I think the only full UK review of this specific component). Its an excellent bit of kit that goes brilliantly with my VTV Purifi eigentakt (another sub £1k bargain). HFW has the knack of reviewing stuff that other mags miss. Many thanks.

Hi Tim. The short answer is I do not know how arm tube resonances would be affected, not having measured a standard tubular arm with any make of cartridge isolator. I would expect them to have more affect upon higher frequency headshell vibrations than the lower frequency tube bending mode.

Tubular arms are sometimes damped by the use of an internal filler, so external damping should work. A simple light plastic sheath around the tube may well help, perhaps a piece of clear polythene tubing slit open and slipped over as a collar. It can be easily removed if ineffective. I don't think this issue is a deal breaker, though as there is so much else that's important.

The TN-5BB was beautifully built and finished in typical Teac fashion and will give you the speed stability you hope for. It deserves a better cartridge though and perhaps you should think about swapping out the 2M Red for a moving coil that can be connected up balanced. I would tend to move in this direction, although cost will mount. You could upgrade in stages, first to moving coil then to a

balanced preamplifier such as Teac's PE-505 (£1450).

Alternatively, consider swapping the 2M Red for a 2M Silver – see our review in this issue. At £1499 for the turntable and £164 for the cartridge you'll save a few bob but get a great sound. **NK**

AGEING EARS

Your response to John Hurley's letter Ageing Ears was spot on, in particular the subject of loudspeakers having a flat response. I believe that some manufactures tweak the response of a loudspeaker to impress in the demonstration room, but as you say, it isn't accurate.

As I've said before, I ask if I can buy the loudspeaker which I'm interested in on the credit card and listen to it at home for around a week, connected to my amp. and ancillaries and used in the room where they will be listened to. Having listened to the loudspeakers for about a week, I then ask myself, can I live with them? I have usually taken them back and got a refund

Mike Bickley.

Hi Mike. That's an interesting approach in commercial terms. A credit card offers protection and I believe The Consumer Rights Act says goods must be 'fit for purpose and meet customer expectations', a

broad requirement. Best to speak to a retailer about their returns policy as well, although contract cannot overturn law.

When a manufacturer produces a product in a batch, it's common to allocate a percentage to promotional purposes, to be written off (reducing tax). They are billed out at manufacturing cost, commonly five times lower than retail cost. What this means is that it is possible to provide at-cost demo samples to retailers, ones not for sale. Unfortunately, not all manufacturers do this; some see promo as the retailer's responsibility. It looks like you have one who accepts this.

The room is crucial. There are quite specific differences between loudspeakers designed for small and large rooms. It's assumed small loudspeakers will be used against a wall in a small room; bass is rolled down slowly in an over-damped arrangement to minimise room boom. A 12ft long room has a main length mode at 47Hz. Put a small loudspeaker at one end and sit against the wall at the other end and it will work well. In a large room though it will sound bass light and dry.

The opposite situation occurs with a large room, which will run lower and not have obvious boom, partly because the ear is less sensitive below 40Hz and also because air volume is greater, lessening the strength of its



Tannoy GRF90. 'Level' was set by a listening panel, not measurement.

resonant modes. An 18ft long room reaches down to 30Hz, although that is not to say nothing lower is supported: there is a roll down below this frequency. Mastering engineers like to ensure lows down to 30Hz are strong to give music weight.

What we perceive as subsonics is usually information in the 20Hz-40Hz region. To hear this a big loudspeaker is needed, in a big room – meaning 18ft long or greater. Reviewing big Tannoys like the Westminster we used rooms 25ft long, lower limit 23Hz. This allowed them to strut their stuff.

Those are basic guide lines. In real life rooms vary so much strange things can happen. Large area stud walls can suck out bass we have found from selling WAD loudspeakers through dealers – so beware dealer demo rooms. Always best to audition a loudspeaker at home, as you say.

One issue here though. You need to use music that is full range. If there's no high treble energy a tweeter peak won't be heard. Classical music is not a good choice here, since there's little high treble. I use specific tracks like Nils Lofgren's Keith Don't Go (CD) that has massive treble energy up to 20kHz (as do tracks on the EMI and Decca demo LPs reviewed in this issue). Play tracks like this through a loudspeaker with raised treble and watch bats fall dead outside your window.

Classical music is superb for timbral truth: it picks up colourations in drive units, be they undamped metal cones or untreated paper cones. Listening at home as you do gives the opportunity to try all sorts of music in a relaxed situation. **NK**

PURITY OR EXCITEMENT

Thank you for your response to my letter in the November edition. I think you are quite correct when you say we may not hear a pure 16 kHz tone but do hear the spectrum of sound around it. That will of course include any distortion artefacts and explain why we may become more sensitive to the grit and grain they contain. Hence the greater sensitivity to edginess which experienced listeners are reporting as they get older.

Raising treble output may well increase the perception of these artefacts if the purity of the signal is poor. If as you say entirely neutral



KEF LS50 Meta – a small but accurate loudspeaker.

cables, speakers etc might initially sound dull compared with those which “enhance” the signal to create more drama, it does suggest the reason why such “dull” components can also sound more transparent, less distorted, in the treble, thus revealing more delicate treble sounds otherwise obscured by mush.

I think I am fortunate that the combination of the cable to headphone amp and headphone works so well because it illustrates this principle. With an ageing buying public, but one which has on average more spending power than the young, perhaps more manufacturers might prioritise purity over excitement.

Dr John Hurley

Hi John. Yes, one would hope “purity over excitement” would be a norm, but there remains an underlying logic behind raising treble that is difficult to fathom and never discussed – or even acknowledged. I don't recall any allusion to a “bright sound” in manufacturer's literature, although I did see a product that was said to have “sparkle” the other day – suitably ambiguous. What's more, no manufacturer will admit to me their loudspeakers are inaccurate in such fashion: they simply deny it outright whilst not challenging our measurements.

One manufacturer recently explained it as a “house sound” some adhere to. And indeed we published this in our review of Tannoy's GRF90 loudspeaker (Feb 17 issue).

“I spoke to Tannoy and they said ‘Level’ on the GRF90 had been set subjectively by their own listeners – a bit surprising because Tannoy have an anechoic chamber that supports accurate

measurement and it had been over-ruled. Hi-Fi World listeners are exposed to a stream of loudspeakers of all sorts, on review, most of which measure near flat, so their ears are calibrated by experience; our subjective view of Level was different to theirs. I mention all this just to explain the background details that affect manufacturer's views and our views, reminded in this instance that it was Alex Garner (ex-MD, Tannoy) who told me loudspeaker manufacturers live in their own cocoon



Beyerdynamic Amiron headphones used by Dr John Hurley.

– a source of both uniqueness and insularity”.

Another manufacturer told me they tailor sound balance in response to feedback from the sales force, who are in turn influenced by customer reaction relayed to them by dealers. Any notion of accuracy goes out of the window here; what the public in general, rather than audiophiles, think is high fidelity commonly lies

far from any notion of technical accuracy. An expectation of sonic drama is more like it, of the sort dished up by large A/V systems.

Thankfully, a lot of manufacturers still hold a firm line on sonic honesty, especially in the headphone market you allude to, where I now see fewer Beats 'phones and more respected brands like Sony, Sennheiser, Audio Technica and Beyerdynamic, including the Amiron you use. Germany's manufacturers respect the notion of accuracy, as do manufacturers in Japan and America. **NK**

RUMBLE WITH SANTANA

Picking-up on comments from both Noel and Dave in their respective columns in the most recent edition, I was reminded to query on that all important topic of bass. And in the context of listening room, speaker size and even room construction materials. I have been the happy owner of some decent speakers over the years including ProAc Tablettes, ProAc Studio 100s and for the past 10 years, Spondor S9e.

I have always been pretty satisfied with levels and detail in the bass regardless of the wide range in size of speaker models I've used. Satisfied meaning with about 90% of the music I play. Maybe I have been lucky with the size and type of room-speaker combination I have lived in over the years.

Obviously I have gained deeper bass with more attack with the larger Spondors, which I welcome of course. But its the remaining 10% of music played that I have realised I have consistent queries or doubts about deep bass quality. My concern is whether it is to do with my equipment and room set-up or actually the recordings and production.

My power amplification is currently both Croft Series 3 OTL (when not broken.. see my letter from Feb edition!) and CI Audio D100 monoblocks which I switch between. So, very different in terms of their character. Pre-amp is Xindak XA3200. Ironically, I listen to some bass-laden types of music such as classic reggae dub. None of this material has any issues with the deep bass, whichever amps I use.

But a good example of where I now realise there has always been an issue is material off albums such as Santana 3. If you're familiar with it, you'll know its Santana's 1971



Santana 3.

album where a now-8 member line-up reaches its peak of both Latin heavy melodic rock, guitar virtuosity, layers of percussion and sheer hairy-ness, flared and snakeskin-booted intensity! Great music in Santana's almost unique way.

But the bass on certain tracks is often unfathomable in how deep it goes. Listen to the tracks No-one To Depend On and its successor Taboo. The bass is sometimes clear and deep. Then it becomes almost as if the studio floor itself is resonating rather than the amplified strings of Dave Brown's bass. A real rumble or wobble rather than musical notes. The same effect persists on both vinyl and CD.

So, I doubt very much my beloved GyroDec is suffering from rumble or feedback. I have other types of music where a similar more subtle effect occurs. Most notably the classic recordings of Erik Saties Gymnopedies and Gnossiennes by pianist Pascal Rog. I sometimes wonder if the recording venue has suffered the effects of a distant underground train passing! And that is on CD. It's not loud but there, in the background.

Also of concern is that we are the proud residents of a new house we have built in Cork, Ireland I still haven't had a chance to move the main hi-fi into my new listening room.... I am dreading the possibility that with a much more solid building with a concrete floor and larger space to fill, the sound, including the bass, might disappoint, having been so used to living in smaller-roomed properties with suspended wooden floors and older brick-built, thinner walls.

Maybe I have been lucky in experiencing a happy resonance of the room on that 90% of music and will now find it's less than that in the new house rather than nearer to 100%. Who knows? Maybe I will just have to bite that bass line someday soon! But seeing your articles does at least give me much more to think about in terms of how much a room and even, possibly, a recording studio

might be affecting bass quality. I wonder if others have noticed certain recordings with these deep bass-load effects?

Regards

**James Douglas
Cork,
Ireland (& Northwood)**

Hi James. Sounds like it is a problem in the recording. I have many Santana albums but not that one, or I would check it out. My old Victorian home has dodgy brick walls and wooden suspended floors, but does not suffer what you describe. However, our offices (over the years) were mostly concrete with large floor area and I found them better for bass definition and depth, so I think you'll be pleasantly surprised with the sonics of your new home. Let us know how the sound changes and whether Santana 3 is redeemed! **NK**



Spondor S9e. "I have gained deeper bass with more attack with the larger Spondors" says James Douglas.

REVIEWING REVIEWS

I write to congratulate Hi-Fi World on the thoroughness and honesty of its equipment reviews. This is emphasised on those rare occasions when a competitor magazine reviews the same item of equipment as Hi-Fi World.

Recently, two rival reviews of the same turntable came up for comparison purposes. A large

proportion of the competitor's review consisted of quoting the views of the turntable company's CEO and discussing record pucks. In contrast, Noel simply got stuck into the task of independently reviewing the turntable for us – warts and all!

Both magazines concluded that the turntable in question was excellent in performance terms, but only *Hi-Fi World* explored the everyday practicalities of using its features. Little details like the lack of an arm rest clip can make or break a potential purchase, and therefore warrant comment.

The honesty of *Hi-Fi World* reviews even extends to the contentious and highly subjective area of cable reviews! In his review of mains cables that cost in the region of £2k, Martin Pipe sensibly concludes "If you have a high-end system, give



Shure's clever stylus guard that protected, destaticised and damped.

the (cables) a trial. If you hear no difference, don't buy them. It's as simple as that".

Your approach to reviews is refreshing in today's marketplace, and any manufacturer worth their salt would value your detailed and honest appraisal of their product. Keep up the good work!

Alan Scott

Hi Alan. Thank's for the praise – and the observation about the arm rest clip. I'll make sure I maintain concentration on such details, that affect me but are commonly ignored by others: am I a pedant or are they non-users?

Here's one of hi-fi's biggest problems that no manufacturer seems able to solve but readers might like to comment on: the stylus guard. Long ago, drop down guards were abandoned for removable guards that sound (minimally) better. But all removable guards I know of are a threat to the stylus assembly. In other words: not fit for purpose. I can't think of a removable guard



Cambridge CX-N streamer with screen and balanced outputs – suitable for Edward Martin's system, except it is app controlled!

design that is anywhere near clever.

My money goes on flip-down guards. Shure's damped version on their M97xE (and many others) was nothing short of technically brilliant. It cleans the record, removes static, gives warp riding to stop loudspeaker cone flap and protects the stylus.

All this from a stylus guard? Yes – and it worked. But now history since Shure ceased cartridge production in 2018.

I still enjoy the flip-down guard on our Audio Technica VM750SH but I fear the crude plastic cover of their OC9X SH as I also fear all Ortofon guards, that are even worse.

Anyone got an idea for a stylus guard that protects rather than threatens? It may be worth patenting! **NK**

MAIN STREAM

I'd appreciate your advice on a choice of streamer for my system. I'd want to connect and play music from Qobuz/Tidal and Spotify. Control needs to be fairly simple as I don't want to buy a separate DAC or need to use a Tablet or smart phone to control the device.

The streamer will connect directly to my pre-amp, currently an Audio Note M6, and I have unused balanced XLR inputs which I'd like to use. My system is all Audio Note, hence valves, connected up with AN Silver cable. Although I do have an Orbe and SME for vinyl. Plus an AN 4.1x CD player.

I currently (very rarely) use Qobuz/Tidal & Spotify via a MacBook Pro running Audirvana into a McJo and Focal Elear headphones but I'm seeking a permanent solution to allow me to play music through my main system and speakers.

In truth I'm a tad confused and

not even sure if "streamer" is the right word. I just need a device that will connect to the internet with a good quality DAC and XLR outputs that will allow me to play hi-res music files directly from Qobuz. Hope this makes sense (?)

At the moment there seem to be so many devices on the market with a huge price spread that I'm struggling to see the wood for the trees and hope you can point me in the right direction.

Kind regards,

Ted (Edward Martin)

Hi Ted. I understand where you are coming from and sympathise, but streamers – by their very nature – come with app control. They are internet connected so must go through the domestic router, where they read control apps from the music service provider. These have to be displayed somewhere, a phone or tablet screen being most convenient.

A Cambridge CXN has an on-board screen that is a great help, but you need to get up close to use these things.

As much as I dislike apps, most of which have a gruesome human interface in my view, I just accept their inevitability – and I think you have to do so too. The CXN also has balanced outputs that will connect into your pre-amp.

Using a streamer like this means you don't have to fire up the MacBook Pro – a faff around. The CXN will also play hi-res from local USB flash memory, making it in effect a digital player from which you can play downloads or CD rips. A great all-rounder then that I think is about as close as you can get to a valve based streamer! **NK**

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The siren call of Cyrus

Cyrus claims its new XR series represents a step change in design. So Chris Frankland checks out the i9-XR integrated amplifier and CDI-XR CD player.



The Cyrus brand has a heritage dating back almost 40 years and its latest XR series boasts “a fundamental step change in design approach”.

Cyrus says that the XR series has benefited from improved manufacturing processes and the availability of high-grade components, with a ground-up redesign where its engineers were free to select components based on efficiency and optimal performance “without consideration of cost”.

Reducing noise was one of its primary design goals with the SR series, taking care to isolate signal paths from any sources of noise. Another was optimising the power supply by using “only the best components”, while finally paying close attention to the design of its DACs. Aimed at the “discerning audio enthusiast”, Cyrus says that the XR series has benefited from its understanding of DAC technologies and power supply designs.

The XR range consists of two integrated amplifiers with built-in DACs (i7-XR and i9-XR), a CD player and a CD transport, a preamp and a separate power supply. I am looking in this review at the £2,995 i9-XR integrated amplifier and the £1,995 CDi-XR CD player (not the transport) because so many ask about them.

The i9-XR amplifier breaks the mould in terms of its size and shape. At just 215mm wide by 73mm high and 360mm deep, it is only around half the width of most products, which means that the CDi-XR can sit next to it and still occupy only the same space as a typical integrated amplifier. Its aluminium case, shared with the CD player, is finished in a matt black and feels solid and sturdy. The i9-XR is rated at 91 watts into 6 ohms with a quoted dynamic range of 104dB. It provides four analogue inputs, a moving magnet phono input, a USB input and four digital inputs (2 x SPDIF, 2 x optical). It also provides a headphone output – but on the rear panel. A multi-pin connector is provided so the i9-XR it can easily be upgraded by adding the separate PSU-XR power supply (£1,995).

One annoyance is the speaker sockets, which are the type that

have a central pin to accept plugs that are hollow. This means a plug swap if your existing speaker cables have conventional banana plugs. Two sets of terminals allow for bi-wiring. A preamp output and an upgrade socket to enable firmware upgrades are also included. For those who end up with multiple XR series components, there is an MC-BUS output that allows them all to be daisy-chained so that the power function of the entire system can be controlled from one remote control.

The front panel of the i9-XR is minimal, with a main display, a rotary volume/selector knob and buttons to select input, mute,

stating that some off-the-shelf mechanisms produce significant noise when stepper motors are used, Cyrus says it has designed its Servo-Evolution system to reduce disc re-reads and corrections by around 20%, producing a cleaner data stream for the DAC, which is the same QXR DAC (ESS Sabre) as found in the i9-XR and housed here in its own shielded section of the PCB. It claims to have optimised the inbound data path, data conversion and the filtering stages to produce the best analogue output. Cyrus circuits have been designed using “counter-current” methodologies to reduce noise pickup. Cyrus says that

“The Cyrus conveyed Sarah Jarosz voice well: she was open and articulate, with good delicacy and attack from her mandolin”

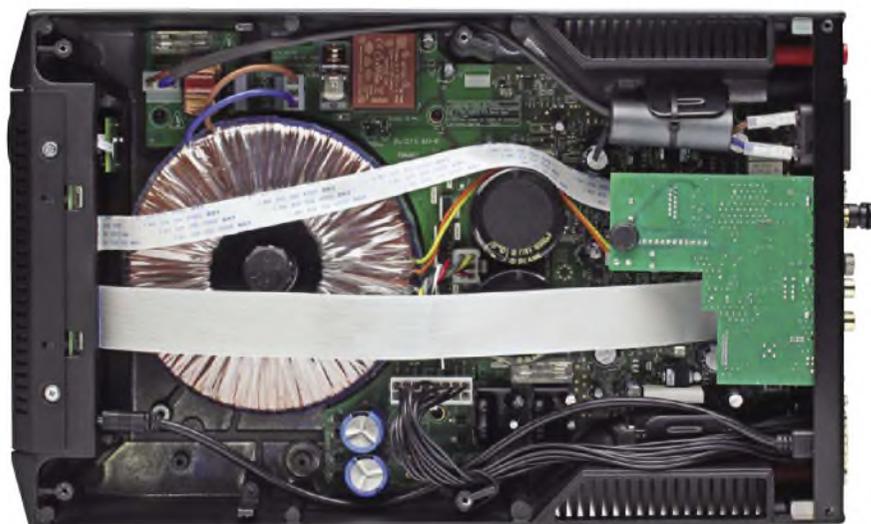
headphones, channel balance, main menu and select one of the seven digital filters on the DAC.

Cyrus says that the preamp section uses relay input selection, a high-performance gain stage and keeps signal paths short to optimise sound quality. The built-in DAC uses an ESS Sabre chip and an all-new high-speed analogue buffer. Input options include sample rates up to 32/768k on USB, as well as DSD to DSD512, although DSD512 requires a Cyrus USB driver.

In the CDi-XR CD player,

its engineers have geometrically aligned individual components to facilitate the cleanest possible flow of power and the music signal. To this end, the power supply circuits for the XR have had a complete overhaul.

The CDi-XR provides two analogue and both optical and electrical S/PDIF digital outputs on the rear panel, where there is also a socket to connect a separate power supply and a micro USB connector for firmware upgrades, as on the amplifier.



Large toroidal transformer helps the i9-XR pack quite a punch.

SOUND QUALITY

There was certainly plenty to get my teeth into with this review and so I started by hooking up to a Pro-Ject Stream Box S2 Ultra streamer to the i9-XR, playing through Neat XPlorer loudspeakers.

On the excellent Build Me Up from Bones from the Sarah



Cyrus remote control is comprehensive and will work the CD player as well as the amplifier.

Jarosz album of the same name, the Cyrus conveyed her voice well, it was open and articulate, with good delicacy and attack on her mandolin. Backing cello and violin were also well separated and the track ebbed and flowed well.

Switching to I Can See Clearly Now from guitarist Peter White's excellent Groovin' album, the i9-XR captured the delicacy and nuances of his play, separated the accordion backing well and preserved the lilt and movement of this track. The sound had a warmish balance, but not overly so, and bass was tuneful and powerful.

Broad Daylight from Ben Sidran's wonderful The Doctor Is In album also came across well on the i9-XR, with good weight and movement to the bass line, openness and articu-



i9-XR offers analogue inputs, an MM phono input, a USB input and four digital inputs (2 x SPDIF, 2 x optical). It also provides a headphone output and a multi-pin for the separate PSU-XR power supply upgrade.

lation on his vocals plus body, power and dynamics on his piano play. Again, it did have a slight warmth that some competitors may not have, but I can truly say it wasn't to any great detriment to the sound. In fact, dare I say that if you have speakers that are slightly bright or forward, the i9-XR may prove the ideal partner.

I mentioned earlier that the DAC offers seven filters. The manual says these provide subtle changes but that the default setting offers the best all-round performance. Any differences are indeed subtle. Experiment if you wish, but I'd stick with the default.

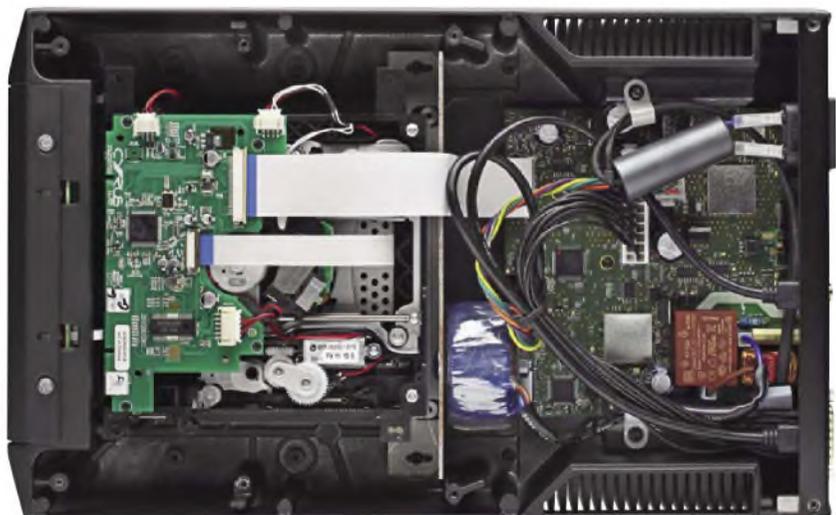
While I had been enjoying the performance of the i9-XR on Tidal through the Pro-Ject, the CDi-XR had been switched on and limbering up and was ready for action.

First up was the funky Honey Dipped from sax ace Dave Koz's Saxophonic CD. Here, the sound using the CDi-XR was dynamic

and tuneful, conveying both the body and power of Koz's sax. Drums and percussion were open and delicately handled, while Jerry Hey's trumpet was well separated and easy to follow. The bass line also moved well, having good weight.

Calling on Ben Sidran again, I next tried his excellent rendition of Sunny Side of the Street. Here, the CDi-XR really put a snap into drums and the DX7 synth was voiced well with great sparkle and presence. Sidran's vocals had emotional impact and articulation and the whole track moved well, with that smoking bass line conveyed with good weight, but also excellent grip and poise.

It only remained to try the phono input and headphone output of the amplifier. I hooked up my Audio Note TT3/Arm2/lo1 with S9 transformer and spun up Hello Tomorrow from guitarist Larry Carlton's excellent Discovery album. And no



CDi XR DAC section is housed in its own shielded area on the PCB.



CDi-XR has two analogue, electrical and optical digital outputs plus micro-USB ports for firmware and servo upgrades.

complaints here. The sound was detailed, dynamic, open, tuneful and captured the voice of his guitar and nuances of his play. It was a credit to the i9-XR that it more than ably demonstrated the improvement in sound when plugging in a state-of-the-art turntable combination. I was happy.

To test its headphone amp circuits, which by the way are rated at 138mW into 16ohms, I

plugged in a pair of Focal Clear phones. It was a slight nuisance that the socket was on the back panel of the amplifier as that instantly shortens the headphone cable, although many users will probably be using an extension lead anyway.

A quick blast of Larry Carlton's Sleepwalk and Dave Koz's Saxophonic soon showed me that the i9-XR's sound quality on

headphones was in no way going to let the side down. The sound was detailed, clean, dynamic and well balanced, lacking any glaring faults. Both units have auto-shut off that can be defeated, that the manuals don't mention.

CONCLUSION

The Cyrus i9-XR amplifier is a very versatile and capable performer. It is powerful and its sound is dynamic, detailed, articulate and tuneful. It drove most speakers I threw at it while barely breaking into a sweat.

The CDi-XR also impressed with its musical, pacey and dynamic performance. This is a quality CD player for stand-alone use. The amplifier only needs a Cyrus transport of course.

Sharing a remote, both units worked well together so if you are after a combo that looks good, sounds good and doesn't take up too much space, they are worth investigating.

MEASURED PERFORMANCE

CYRUS i9-XR

The Cyrus i9 XR produced 90 Watts into an 8 Ohm load, increasing to 156 Watts into a 4 Ohm load. Frequency response measured flat from 3Hz up to 39kHz as our analysis shows, unaffected by load value.

Distortion values were very low at 0.003% up to near full output (1kHz). At 10kHz the figures were also low, just 0.01% at 1W and up to near full output.

The MM phono stage was accurately equalised to give flat response from 5Hz-20kHz, with no warp filtering. Gain was high, input sensitivity measuring 2.4mV – good enough for high output MCs. However, input overload was low 35mV but this is satisfactory.

The digital section worked up to 192kHz sample rate, except through the optical inputs that reached 176.4kHz. Distortion was reasonably low at 0.03% but EIAJ dynamic range limited to 108dB by some noise peaks above 10kHz. USB gave identical results to S/PDIF.

The many filters changed frequency response little, even the slow filters having no affect at 30kHz (192kHz sample rate), or at 20kHz with CD (44.1kHz sample rate). There will be minimal subjective impact.

The Cyrus i9 XR measured well, having plenty of power and very low distortion. Digital results could usefully have been better to match rivals though.

NK

Power (8Ω)	90W
Frequency response	3Hz-39kHz
Distortion (10kHz, 1W, 4Ω)	0.01%
Noise (IEC A)	-102dB
Sensitivity	270mV

PHONO MM

Frequency response	5Hz-20kHz
Distortion	0.02%
Sensitivity	2.4mV
Overload	35mV
Noise	-87dBV

DIGITAL

Frequency response	5Hz-20kHz
Distortion	0.02%
Sensitivity	2.4mV
Overload	35mV
Noise	-87dBV

CYRUS CDi-XR

Frequency response of the CDi XR measured ruler flat from 4Hz up to 20kHz, terminating in a very steep 'brick wall' anti-aliasing filter.

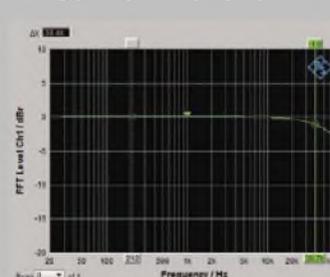
Distortion values were as expected for CD 0.0015% at full level (0dB) and 0.25% at -60dB, set by 16bit quantisation noise, not the player. It is this noise that fixes CD dynamic range at around 102dB maximum, the Cyrus managing 98dB – close but sometimes bettered. Surprising as they say it has "a Sabre DAC".

Output level was 2.4V which again is a fairly standard figure, in line with Philips Red Book standard of 2V.

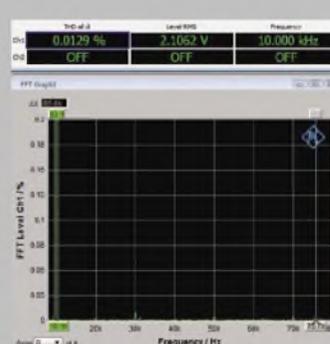
The CDi XR gave a satisfactory set of performance figures entirely in keeping with CD. **NK**

Frequency response	4Hz-20kHz
Distortion (-60dB)	0.25%
Separation	92dB
Output	2.4V
Noise	-97dB
Dynamic Range (EIAJ)	98dB

FREQUENCY RESPONSE



DISTORTION



CYRUS i9-XR AMPLIFIER £2,995



EXCELLENT - extremely capable.

VALUE - keenly priced.

VERDICT

Solid performer. Versatile, easy to use and easy on the ear.

FOR

- powerful and dynamic
- excellent built-in DAC
- headphone output
- MM phono stage

AGAINST

- auto-standby shutoff
- won't accept standard 4mm speaker plugs

CYRUS CDi-XR £1,995



EXCELLENT - extremely capable.

VERDICT

Sound is clean, detailed and dynamic. No nasties. Well worth a listen.

FOR

- detailed and well balanced sound
- easy to use
- compact
- shares remote with the amplifier

AGAINST

- I don't like slot-loading mechanisms
- no auto-standby shutoff

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Low & High

Low price and high sound quality from Cambridge Audio's SX-60 get Noel Keywood's attention.



How much? Just £230. That's a price that would catch anyone's attention. Especially when compared to how they measure – superbly well. Only the finish of Cambridge Audio's small SX-60 entry level loudspeaker hints at its market position. It is not alone

of course: looks like the SX-60 is aimed straight at Wharfedale's eternally popular Diamond loudspeakers, notably the Diamond 12.2. Good to have a choice at this level, even though these 'speakers are closely matched.

Weighing 5kgs apiece and measuring 340mm high, 200mm wide and 272mm deep this is a

large bookshelf loudspeaker, or a small standmounter. With port placed on the front and a set of foam bungs supplied I suspect the designers had in mind use against a wall although little space is needed – 1in or 2cm – behind a ported loudspeaker for it to work properly. No problem with a front port providing it doesn't

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colour the sound from box noise inside the cabinet – the reason they usually go on the rear. I'm told, however, that a loudspeaker is judged more complex with a "third" drive unit on the front, so appearance comes into this. With concealed fixings and smooth finish the SX-60 looks smart and interestingly, the tweeter has been positioned as close to the woofer as possible for best phase integration.

And the tweeter is a good one, surprisingly so considering price. The 25mm silk dome has a smooth, peak free output and Cambridge have kept it in check



Smartly finished with all fixings covered by trim rings. For those who would rather not see drive units, an acoustically transparent grille is supplied.

to provide an unusually accurate sound balance measurement showed. However, what you have to bear in mind here is it will have less immediate "sparkle" than a loudspeaker with emphasised treble; accurate loudspeakers by definition tend to be not very apparent. This is how it is meant to be but many people actually want to hear the loudspeaker, rather than not hear it – at least on short acquaintance. Over a long period though an accurate loudspeaker is an easier listen,

especially with CDs that in themselves can sound edgy due to digital distortion. Modern CDs suffer this affliction less than older ones that pre-date the new millennium, when analogue-to-digital studio convertors were poor. What went onto CD in the past still lurks there today, as it does in any old digital recording and a loudspeaker that does not emphasise

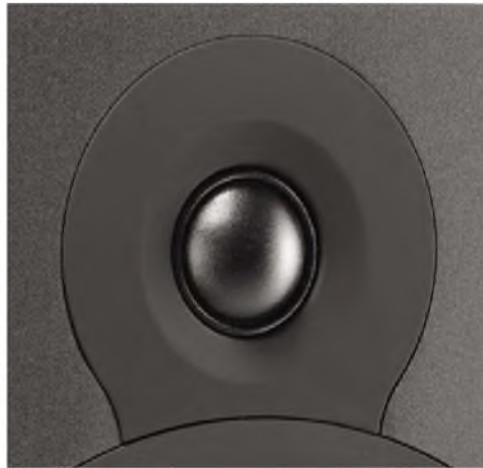
distortion harmonics

is the best bet in the long term.

Below the tweeter lies a doped paper cone 165mm (6.5in) bass/midrange unit reflex loaded by the front port. The port damps it quite strongly measurement revealed so no sloppy bass here. The SX-60 has been designed for expected use against a wall though where it will effectively drive room modes to enhance low bass strength. In this situation it's best not to overplay bass output,

those foam bungs adding further damping in a room that booms, notably a square room. As a loudspeaker this size is likely to be used in a small-ish room this all makes sense, since small rooms boom more than large ones, so it's a bigger issue.

Cambridge Audio quote an efficiency of 89dB but that's a bit optimistic for any small loudspeaker, most of which come in around 86dB, meaning they go loud from one Watt of input, if not very loud. In practice we measured a



The 1in silk dome tweeter sits in a shallow depression that smooths its forward output.

reasonably high 86.6dB so it stacks up well against the opposition here. Amplifiers of around 40 Watts are needed for good volume, Cambridge Audio quoting 100 Watts as a maximum. The rear carries a single pair of terminals, able to accept 4mm banana plugs, spades or bare wire; bi-wiring is not possible.

Our review samples came in Black, which was more like matt anthracite, and there is a Walnut finish too. Cloth grilles carry four plastic pins that mate with small plastic sockets for easy attachment and removal. They are acoustically transparent, having no affect on the sound.

SOUND QUALITY

Attached to our Creek Voyage iA20 amplifier through Chord Company cables, the SX-60s were run in for 45 hours, then fed



A single pair of gold plated rear terminals accept 4mm banana plugs, spades or bare wires.

MUSICAL FIDELITY



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music from our Oppo BDP-205D CD player, as well as hi-res from a MacBook Pro running Audirvana+ software player connected via USB to the Oppo, to exploit the quality of its ESS ES9038 Pro DAC.

It was clear from the outset, when spinning our uncompressed review CDs, that the SX-60s were evenly balanced with no obvious stand-outs. Yet they are quite obvious in treble output, with no sign of warmth. One reason being the bass/midrange unit delivers upper midband output strongly, giving a forward sound with swathes of detail. With the Pink Panther theme cymbal taps rang out strongly, positioned solidly and concisely on the sound stage; imaging was excellent. You get to hear it all, but there is a remorseless quality rather than romantic warmth, or laconic ease. Curiously, the 'speakers were sort-

where bass would be strengthened at 47Hz.

CONCLUSION

Small and with a price tag so low it amounts to a few trips to the local supermarket, Cambridge Audio's SX-60 loudspeakers are remarkable in their own way. Accurate yet forthright, they throw it all at you. I would have liked a gentler, smoother and more amenable presentation for late night listening but that's personal taste. Great sound stage imaging made them dramatic but dry bass countered that by removing any feeling of weight. A small room



A smooth rear without port makes the SX-60 suitable for shelf mounting against a wall.

"the bass/midrange unit delivers upper midband output strongly, giving a forward sound with swathes of detail"

of "too good": they threw so much out it was challenging at times. With Diana Krall's Cry Me A River (24/96) all was sweet, this being a clean and easy going audiophile recording, but Johannette Zomer sounded hard of tone with Handel's Lascia chi'io Pianga, from Love and Madness (DSD64).

Running Fleetwood Mac's Silver Spring (24/96) the multi-track vocals of Stevie Nicks were sheeny. The SX-60 provides a vivid sound alright, plus impressive insight, but it isn't subtle.

As you might expect from a small, budget cabinet there was a small amount of "box boof" that hovered behind vocals, making for a little boxiness.

Even when pushed back against a wall bass output was restrained: these are not bass heavy loudspeakers, even with strong synth bass lines like that behind Giorgio by Moroder from Daft Punk (24/88.2). The bass is tuneful though, kept well under control. I suspect they'd suit rooms smaller than my 17ft long lounge, say 12ft long or so

would have added weight to bass I suspect.

Although I was more impressed than entertained, at the end of the day they offer great sound at the price – full of high-end traits – and are well worth auditioning.

MEASURED PERFORMANCE

The frequency response of this loudspeaker shows it has been engineered to be tonally accurate. The 1in (25mm) silk dome tweeter is especially smooth, suggesting treble free from spikiness or spit. Crossover occurs at 3kHz our impedance trace shows, Cambridge positioning the tweeter as close as possible to the woofer to minimise phase error between the two.

The bass/midrange unit peaks slightly at 100Hz and rolls down slowly to 60Hz, below which the port (red trace) adds in output down to a low 30Hz. This would suggest deep bass but small ports deliver limited bass power so this is an add-on as it were, as in any loudspeaker. The impedance curve shows bass is very well damped so they should sound well controlled at low frequencies. Unlikely to sound bass heavy though.

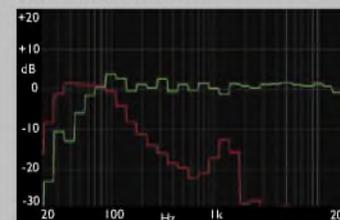
With an impedance of 6 Ohms, measured with pink noise, and a 4 Ohm d.c.r. bass unit, the SX-60 is a standard load any amplifier can cope with. Sensitivity measured 87dB – a good result. Amplifiers of 60 Watts or more will suit for high volume, and 40 Watts will suffice for good volume in a medium

sized room.

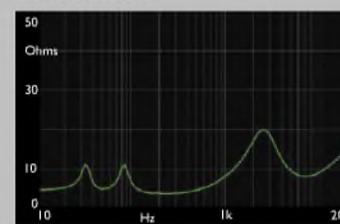
With the SX-60 Cambridge Audio have chosen to engineer an accurate loudspeaker, not one artificially enhanced by raised treble or bass. Smooth response suggests low colouration, although the forward firing port may add some. NK

FREQUENCY RESPONSE

Green - driver output
Red - port output



IMPEDANCE



CAMBRIDGE AUDIO SX-60 £230



EXCELLENT - extremely capable

VALUE - keenly priced

VERDICT
Forward and revealing, sometimes too much so. Very high quality though, especially at the price.

FOR
- very revealing
- accurate tonal balance
- excellent imaging

AGAINST
- reticent bass
- slight boxiness
- a bit edgy

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CHORD CLEARWAY STREAMING, £90 (1.5M)

Chord's 'Clearway' range of interconnects, which sits between the C-series and Shawline, has been well-received. No surprise, then, that the Wiltshire-based firm has been adding to it. As well as conventional audio we have HDMI for the AV crowd and, most recently, USB and Ethernet. The latter is aimed at those who enjoy Internet radio and music sourced from local servers or lossless providers like Tidal and Qobuz. Priced

at £90 (1.5m, as reviewed), the 'Clearway Streaming' is claimed to offer a "noticeable" performance-gain relative to the C-Stream.

As with the best commercial-grade Ethernet cables, the Clearway Streaming is of S-FTP construction. Each of the four signal-carrying Twisted Pair conductors (fashioned from 'high-speed' 26AWG oxygen-free copper, we're told) is covered with Foil (FTP) and these FTP bundles are covered by an overall Screen (S). As a result, high-frequency interference can neither enter nor leave the cable. Such internal sophistication is not outwardly-evident, the Clearway Streaming being covered by a neat blue jacket.

Fitted to either end of the cable are 24-karat gold-plated RJ45 connectors. These incorporate tough strain-relief boots, made of zinc-alloy for further shielding. Chord has evidently learnt from previous criticism, as these 'latest-generation'

plugs are narrower than those fitted to the Shawline Streaming and don't foul adjacent sockets. I tried the Clearway Streaming in a number of applications; in each case, SFTP-grade CAT6 cabling was substituted. I firstly connected a Cambridge Edge Q streamer (which feeds the matching Edge W amp and Quadral Aurum Wotan VIII speakers) to my enterprise-grade HP switch.

Next, it was run between the ISP's modem and a broadband router. Finally, I linked it between the router and a NAS. Even after careful listening with revealing hi-res material (and Focal Utopia headphones!) any sonic improvement alas eluded me. Esoterica owners claim that such cables can make a difference, though. My advice is to try one, on the basis it can be returned if there's no audible benefit. The Clearway Streaming is beautifully-made to last a lifetime, and so there could be long-term reliability benefits. **MP**

[The Chord Company, +44 (0)1980 664 754, bit.ly/3ACkKmkJ]

SOUNDBITES



CHORD CLEARWAY USB, £120 (1.5M)

Thanks to modern USB-equipped DACs, a computer can store music and stream it out for high quality conversion. Decent USB interconnects are therefore just as valid as other specialist digital interconnects; why compromise your gear with 'pound-shop' cabling? Chord's Clearway USB, an audiophile alternative, is certainly not cheap. The 1.5m version tested

here retails for £120. That said, you can pay considerably more.

The Clearway USB, which is also available in 0.75m/3m/5m lengths, boasts a complex shield with double-foils and high-density braid to protect your data. It works 'both ways', ensuring that fast digital streams don't contaminate any sensitive analogue signals nearby. The connectors at each end (USB-A for the PC, USB-B for the DAC) themselves provide screening, in the form of zinc-alloy sleeves. The USB data lines at their core are silver-plated oxygen-free conductors, terminated with gold-plated pins. Forget such attention to detail with the anonymous cheapies!

I tried the Clearway USB with a couple of systems. One was an old i5 Dell desktop, connected to a Chord Electronics Qutest DAC feeding HiFiMan Sundara headphones via ANT Audio Amber 3T amplification.

The other was a newer Dell laptop, which I partnered with a Prism Callia 'headphone DAC' and Focal Utopia headphones. Both systems run Windows 10, and have been installed with the FooBar2000 freeware player. Class 2 audio drivers allow hi-res and DSD-over-PCM to be played natively.

In both cases, there was a very subtle but perceptible improvement. I found that John Bilezikjian's oud playing and Leonard Cohen's distinctive vocal, which timelessly-balance the somewhat-dated digital synths and electronic percussion of the latter's Everybody Knows (I'm Your Man, lossless CD rip) were better delineated within the mix. Every strum of the Turkish stringed instrument could clearly be picked out. With hi-res material, notably Britten's War Requiem (Noseda/LSO et al), a tad more openness was appreciated. **MP**

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"I might just have found an ideal music source – an app and iPhone"



Noel Keywood

You've got to hate them – apps I mean. Even logging into Apple's app store frightens me. It's another world, one full of Super Mario successors, aimed at teenage girls. OK I'm probably wrong with that but you get my drift: there are worlds out there, peopled by humans, that make Mars look normal.

And most of the hi-fi apps I have to download and use don't alter this view. In fact, I think I'd find Super Mario easier to understand. With so little screen area available on a 'phone and lighting conditions varying from dark to tomb-like in Keywood towers during late night listening, simple high contrast text against light backgrounds, unpolluted by spurious graphics would be a nice way to go. Apple use such an approach in their widely copied house style. The motto here: "less is more".

Others take a different view: "more is more" you could say. And if dull colours, low contrast text and naff graphics that would shame a primary school art class aren't bad enough, I have to contend with technical phrases that mean nothing, such "as server time out; false poll result" and such like. Cut and paste it into Google to see if anyone on the planet can explain what action to take as a result and hope for the best. Sometimes I get lucky – a person with more patience than me has ploughed through all options or perhaps understands the underlying software structure to explain what to do, other than jump on the 'phone!

I understand why manufacturers like to use generic control apps like mconnect, it saves the cost of a custom build. But this app is one of my pet hates. Not only is it visually turgid but you get messages like "waiting for previous renderer" for example. Think that means there's another app running and trying to

access the 'phone's services, so it's time to re-boot to clear the system, then mconnect might do something useful. But the truth is I'm guessing because there's no useful help to explain exactly what to do. You are on your own.

Perhaps there are alternatives to mconnect. Google lists many but I haven't investigated most of them; many look like music players rather than control apps able to discover network servers and such like, as well as act as a player. One I occasionally look at but still don't really understand is 8player Pro. It has things like SMB that I'm sure is worth knowing about, but this app's user interface is so awful I can barely bring myself to use it. If it has any advantages over mconnect I have yet to find them. Must try harder perhaps.

General purpose control apps like mconnect cannot perform unique functions like select inputs, filters, what have you. For this either a separate control app must be written – the solution used by Chord Electronics – or a custom app must be built. With Chord's approach you end up with two apps – aaargh! This takes some getting used to. It does allow mconnect or similar alternatives to be used however, or a music player like Onkyo HF player, which blows all others into the weeds. It also shows that the music player function within mconnect is pretty basic.

Bringing me onto a new app horror story that isn't. Yes, I hate 'em but I've just done something worrying: use an app in preference to all else. With a valve amplifier. They're so mutually incompatible I half expected one or other to explode – with me following. But no – it worked, and worked well. Leaving me with a changing view about apps.

Instead of using our Oppo

BDP-205D CD player/DAC plus a MacBook Pro to provide hi-res including DSD, I drove our Icon Audio Stereo 30SE from the preamplifier outputs of our Creek Voyage i20 amplifier acting as a Bluetooth receiver, fitted with AKM DAC.

This curious combo worked supremely well. Leaving me to muse on what was happening. I was using my iPhone as a hi-res music player, in conjunction with an Onkyo HF Player app. that is capable of 24/48 resolution, measurement confirms. However, my ears told me some time ago the iPhone 11X Pro with Bluetooth 5.1 sounded smoother and deeper than other digital sources, from both hi-res PCM and DSD stored on the 'phone. OK, DSD will be converted to PCM by the player before flying through the air via Bluetooth, but most DSD music files are of good quality in the first place, unlike much hi-res that is upsampled CD I suspect, because its sounds like it and because the spectrum analyser shows brick-wall cut off at 21kHz.

Whatever, DSD sounds good from my iPhone and even much hi-res comes across as svelte when played by this app. I can just about cope with the gloomy Onkyo user interface and its foibles, and even use its equaliser now and then to experiment with tonal balance. The spectrum display showing music energy is very useful.

With all this in my hand, including volume control, I'm getting great sound quality – supremely smooth and deep – plus unrivalled convenience. Through a valve amplifier! And no need for a network either.

Wake me up, I must be dreaming. Apps – I hate 'em. Or perhaps not. I might just have found an ideal music source comprising app and iPhone. I'll let you know if anything blows up in protest. ●

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"It's a sonic experiment: the audience are lab rats in effect"



Paul Rigby

I'd like to skim across the hoary old topic of 'what is music?' this month. But I want to approach it in a slightly different way and wish for your input.

The question is this: "where do you draw the line?" I'm not referring to music you dislike or music you just can't bear to hear. I'm talking about something more basic than that. For you, when does music not become music – and has that line changed as you've grown older?

I pride myself on my eclectic musical tastes. My musical loves are wide ranging, from Frank Sinatra to Frank Zappa. From Bossa Nova to Punk. From Prog to Funk to vocal jazz and avant-garde electronica and more.

When I were a lad I set out to educate myself about music. All music. Even music that I might not have immediately considered music.

I wanted to expose myself to musical genres and types from around the world. At that time, I was listening to core genres of course but, with the latest copy of *The Wire* magazine in hand, ventured into pastures new. And my goodness, there were – and still are – many creations that are certainly 'out there'.

So I dutifully approached this stuff and tried to absorb much, if not all of it. That included Yoko Ono-style vocal wailing and gnashing of teeth. It included outer atmosphere free jazz, found-sound recordings of someone walking in the woods complete with snapping twigs and bird song, broken guitar solos, avant yodelling, high-pitched noise and distortion, someone banging on a RSJ and more.

After years of trying, really trying to like all of the above

and more, I fell back in my chair. Exhausted. I gave up.

Why weren't these works connecting with me? Was I approaching them in the wrong way? Other people out there said they loved them. So why didn't I love them, then?

Why don't I have copies of Stockhausen in my collection? Keiji Haino and other noise music? Sun Ra? A certain album by Lou Reed, anyone in the *musique concrète* school or in the free improv movements? What's wrong with me?

That's what was my mind set when I was in my late teens and twenties. When I hit thirty, my exploratory urges began to waver.

By the time I hit forty, then fifty, I had given up on 'out there' music. Stopped buying *The Wire* and realised that time was more important. If I wanted to fully explore the music I loved, I'd better get a move on before I popped my clogs.

So, in many ways, age has dramatically focused my musical likes and dislikes. I like this, I don't like that so, for goodness sake, stop trying and just listen to the stuff you do like.

Thing is, though, you might peruse my current record collection and denounce parts of it as not being music. There are elements of Frank Zappa that, even for me, dally on the edge of the unlistenable. There are numerous groups in my electronica collection that you might declare as "nothing but blips and blobs". Autechre is one group, To Rococo Rot is another. Some of the krautrock stuff I listen to can also verge towards the "eh?"

So my line in the sand might be very different to yours. What then is yours?

Some of the experimental and avant work explorations I talked about above were indeed music. Music I didn't like but music, nevertheless. Much of it was not music, though. At least according to my current personal definition.

And what do I consider non-music? Well, I see one of the human brain's most remarkable talents as its ability to recognise patterns. Once we can discern a pattern, that grabs our attention. Trashy pop, for example, is packed with patterns. That's why it sells.

To me, on a broadly reductionist level, music is the brain 'pattern matching'. There are good and bad patterns out there – sure – but when patterns are lost, so is the music. Hence, John Cage's '4:33' of silence or rather, the sounds that fill that silence, especially when the track is played 'live', as it were. Well, that's not music. To me, it's a sonic experiment that addresses areas of awareness and perception. The audience are lab rats in effect.

When the band, My Bloody Valentine used to play live and fill a concert space with twenty minutes of distortion (I have been told that there are images to these concerts that show the entire audience with their hands over their ears...and they paid to get in), then that's not music. It's an emotional statement by the band, possibly expressing anger, frustration, a reaction against the failure to buy a ready supply of Pop Tarts before the concert. Who knows? I like the band's more melodic fare, incidentally.

So tell me: to you, what's music, what's not music, is age a factor and do you have records in your collection that, in your opinion, flirt with non music? I'm fascinated and looking for answers. ●

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"To make it affordable, constructional quality was cheap and nasty"



Martin Pipe

I've just returned from a cycle-camping trip to Norfolk, the highlights of which included an enjoyable organ recital in Norwich Cathedral and seeing, at first hand, coastal seal colonies. On the opposite end of the scale was hearing, on a crackly transistor radio, that technology entrepreneur Sir Clive Sinclair had died following a long illness.

Sinclair, one of my personal heroes, was mocked for his C5 electric recumbent tricycle. It was launched in the mid-1980s, but quickly disappeared. For a few years, C5 parts like wheels and Hoover-made third-horsepower motors were offered cheaply by J&N Bull. This Brighton-based firm, which stocked all manner of interesting items, regularly advertised in technical magazines like ETI and Television. Unlike the C5, Bull is still around (<https://www.bullybeef.co.uk/>).

The C5 was part-funded by the enormous success of Sinclair's personal computers – another area in which he was demonstrably forward-thinking (but he refused to use 'the web' in later years!). Affordable machines like the ZX81 and Spectrum gave many, myself included, their first hands-on experiences of home-computing. For this, Sinclair was knighted in 1984.

His modest machines spawned cottage industries, which sold programs – loaded from audio cassettes! – and Sinclair-compatible peripherals. ETI and its hobbyist competitors (among them, the Maplin magazine I worked for) published designs for these add-ons, which could increase the versatility of Sinclair's cost-reduced hardware. They ranged from music synthesizers and tactile replacements for

cheap membrane and rubberised keyboards, to automation circuitry and interfaces for floppy-disk drives. Faster than audio cassettes, such disks were a practical alternative to Sinclair's own 'Microdrives', which used tape half the width of the stuff you'd find in cassettes and were notoriously-unreliable!

Some of the entrepreneurs who cut their teeth on Sinclair computers moved to greater things. The UK's strengths in the gaming industry can be partially-attributed to Sinclair – and the machine, built by rival Acorn, that ended up being adopted for the BBC's computer literacy project.

Sinclair's most famous computers, the ZX81, Spectrum and business-orientated QL were products of Cambridge-based Sinclair Research. A different company, Sinclair Vehicles, made the C5. By the time the C5 hit the market, though, the home computer boom had ended. The assets of Sinclair Research ended up in the ownership of Amstrad, another UK company involved in hi-fi then computers.

This wouldn't be the first Sinclair company to run into trouble. Sinclair Radionics, which had been enjoying success with its digital calculators and electronic test equipment, launched the stylish 'Black Watch' in 1975. One of the first LED digital watches to be available in kit form (a DIY option Sinclair would later offer for some of his computers), the Black Watch sold well. There were however problems with battery life, timekeeping and static electricity 'zapping' the custom chip.

The government-backed National Enterprise Board came to the rescue, but its involvement was too late as the market had by then been flooded by cheap imports. £7m of taxpayers' money was eventually written off, by which time Sinclair

had moved onto computers – the first of which was the MK14, an odd calculator-like affair based around an obscure National Semiconductor 8-bit microprocessor.

Sinclair Radionics, founded in 1962, had however done a lot of very interesting things before that. Clive Sinclair was obsessed with making things as small as possible, and to this end we saw micro-amplifiers, matchbox-sized FM radios and pocketable monochrome TVs. Some included transistors that Sinclair had acquired cheaply as 'rejects', only to discover they worked perfectly well under most circumstances.

As with Amstrad in its early days, there was much activity in the then-booming hi-fi market. Class-D amps may be all the rage today, but Sinclair launched a 10 Watt one in 1964. However, its output wasn't filtered and so the amp radiated considerable amounts of radio interference. It was also somewhat unreliable.

In the late 1960s and early 1970s, Sinclair enjoyed more success with a range of more conventional (Class B) amplifier, tuner, and active-filter modules that could be wired together within enclosures – or even built into turntable plinths. Later, Sinclair even released a simple SQ quadrasonic decoder, based on a CBS chip, and compact speakers. I found some at amateur radio rallies and electronics shop 'bargain bins' in the 1980s, but the stuff still crops up today.

To make it affordable, constructional quality was cheap and nasty. Presets were 'extended' to the front panel as controls, and glued speaker magnets could drop off in transit! Reports of performance vary. One thing's for definite, though. The UK economy needs more characters like Sir Clive Sinclair. ●

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"Stack systems are only a replacement for the 1970s music centre"



Dave Tutt

Even the lowliest of the equipment that I usually get to work with is beyond what many people would consider adequate as a high fidelity stereo system. They have this view that wire is not allowed, a single mains plug is more than enough and if it weighs nothing and is in a single box then that is good. Recently I had several such bits arrive in a pile, few of which really inspired any great feeling toward their sonic capabilities.

The pile included a Technics SL-PJ22 CD player from 1988. Stripping it down I found one of the small circuit protectors open circuit. With no clear faults, a replacement brought the thing back to life but as soon as I shut the drawer the fuse blew. Closer examination showed that when the servo systems powered up and tried to move the laser the circuit protector blew again. Little point in going further with this as the laser is rare, the motors even rarer and expensive and changing the servo chips really can't be justified.

This machine was partnered with a Technics stacking system and to be honest I rarely even take the lid off such contraptions as they are never worth the time – and that goes for all manufacturers' stacking systems. The parts from cassettes that fell out when I did take the lid off told me that it really was rubbish! There was just one motor to drive two cassette decks! The nasty little record deck on top was the finishing touch to something that might have done for a teenagers' bedroom but otherwise is a joke.

Then there was an Aiwa CX80M stacking system that was dead. Capacitors blown on the

main power supply had killed the internal fuse but that wasn't all. The displays are powered by a 24 Volt negative supply which was dead so that had to be fixed. Some of the displays were okay but the tuner's was rather dim. Then the cassettes were filled with thick fluff and dirt that stopped them running. The right hand channel of the right hand cassette mechanism was dead but with auto reverse rotating head mechanisms you never know if the head cable has been broken – not economically viable to do anything more.

The system has an external CD player that is powered via a multi-core umbilical wire that also needed work. Fortunately a clean and a spot of oil on the slides made things well again. Ran fine with a dim display that was still readable. So at that point I decided to stop.

The final part from the same customer was a Technics SU 610 and his complaint was it didn't sound like it was working properly! Funny that it was the only item that was. These amps tend to sound warm and a little restrained. You can't actually get a fierce, hard, early digital sound from them as they don't work that way. They are however quite a good amplifier in their own way and this model is one of many that Technics made with the NewClass A label which is, in this case, fundamentally due to the SV1 3102B amplifier module. The tone controls are subtle, and generally it is a simple amplifier that works much as expected. Not a hard sounding amp at all.

So many members of the public don't actually know what proper hi-fi is about. When the likes of PC World and companies such as Currys, Comet, Dixons,

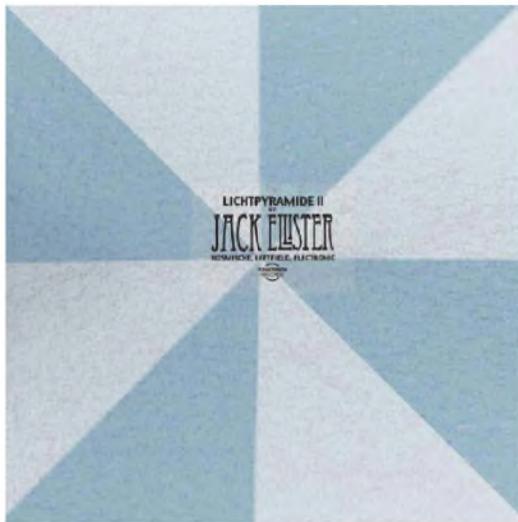
Rumbeles are all selling stack systems that are only a replacement for the 1970s music centre or the 1950s radiogram, it shows that real hi-fi is not understood or appreciated to any great extent. Most buyers never went in and purchased a stereo based on how it sounded. It was flashing lights, how small it was, would it look okay on the sideboard, what would the rest of the non hi-fi people think when it was at full volume for a party.

Once we take into account the cheapest of components, switch mode power supplies or conventional supplies with transformers half the size they should be, flashing lights, thermoplastics, lead free solder, speakers good for 5 Watts and designed-in obsolescence for disposability rather than audio quality, you cannot expect any of this stuff to have any resale value or any sort of decent sound.

But that is what Mr Average has become totally happy with and lives with that compromise even if they profess to be music lovers which are not the same as hi-fi lovers. Most strange!

Whilst repairing equipment you become aware of how people think. This week I repaired a Denon amplifier and as it was a 90 minute job with a few parts I thought my charge was reasonable. The customer wanted it for twenty British Pounds! Basically I loose my Tenner profit. I explained again why it was costing my price and no less. He then had the cheek to suggest for that price I should deliver it to him 20km away while his brand new Lexus RX sits on his drive. The amp is still sitting here and even if I was going past his door I would not deliver it. I don't need customers like that. ●

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JACK ELLISTER

Lichtpyramide II
Tonzonen

I! The first installment was released last year. Ellister is nothing if not international in his outlook. The spoken word elements on this release include English but also German and Polish, while the song 'Gensang: Der Mensch' was taken from a South German humanist and writer, Freidrich Hoelderlin. A German sixties krautrock, prog-folk / psychedelia band, Hoelderlin, also took the man's name.

Moving Ellister's singles and EPs to the side for the moment, I reckon this is his fifth album, the second for the German label, whose roster is awash with fascinating band names like Welcome Inside The Brain, The Captain Is Speaking, The Captain Is Dead, etc. So Ellister is in good company.

This CD, limited to just 300 copies, continues the fine tradition of earlier krautrock groups. It utilises a range of

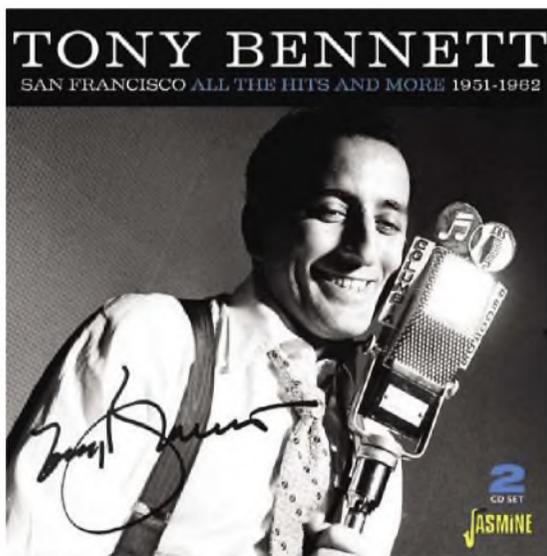
synths to establish ambience and tonal colour while taking its time to insert melodic structures in a gently unhurried manner. They're worth the wait with 'Noorderlicht', offering quite delicious musicality.

'Polonium' and 'Rotierende Reisenbahn' wallows in steady Tangerine Dream-esque' loops and Klaus Schulze soundscapes. 'Fragestellung' even inserts a slight prog-folk measure in and around the electronica.

Mastering is a little severe, disappointingly so. The mids are accentuated. I was hoping for more space and air. More – I don't know – care I suppose. Nevertheless, the mastering doesn't negate the music itself and that's the focus here.

In musical terms, the quality never dips throughout. An album that is tailor-made for anyone who might have a soft spot for the krautrock genre. I loved every minute of it.

AUDIOPHILE CD



TONY BENNETT

San Francisco, All The Hits and More:
1951-1962
Jasmine

Bennett's Italian father was a grocer and his American mother a seamstress but it was his tap-dancing vaudevillian uncle who showed him the bright lights. This sat well with a boy who loved art and painting.

This double CD package kicks into gear when Bennett was signed up by Columbia's A&R head, Mitch Miller. It took Bennett a while to find the right song, two years in fact – but he did so with the first song on this collection, 'Because of You' (1951) which was taken from the film 'I Was An American Spy'. Despite being one of several versions of the song in the charts, Bennett had the success, hitting No.1 and staying there for ten weeks.

His follow up, Cold Cold Heart replaced it. A Hank Williams cover it was a second million seller for Bennett.

The singles poured forth. All of them did well with another No.1 outing, 'Stranger in Paradise' hitting No.1 in the UK in 1953.

It's interesting to see Bennett travel around the musical firmament via this double CD package as he moved towards show tunes as the 1950s progressed. He then ran smack dab into the force that was rock'n'roll but, you've got to give the man credit, he held his own and still charted. Sure, the chart positions were a tad lower than before but he got up there. Then jazz beckoned, opening up another chapter.

This is a singles compilation and compression was the norm to vault across relatively basic radio reception of the time. On that basis, Jasmine has done a good production job here to produce a superb tour of the man's early heights.

The man had a long and varied career and he left us last December at the age of seventy-five. I'm always in favour in labels spending time in and around such productive characters. West might not have been a big-time star but he was a revered rock veteran and deserves the attention.

He began as lead guitarist for the sixties rock outfit, the Vagrants. Felix Pappalardi (ex-Cream producer) produced one of the group's singles then joined West on bass for West's solo debut, Mountain, in 1969. Joined by a drummer and keyboard player the quartet then founded a band called Mountain. Which is how most rock fans associate Leslie West, with that band.

A trio of albums followed, after which West and his drummer Corky Laing got together with Jack Bruce to form West, Bruce & Laing for two Studio and one Live album.

After that West was part of a

flurry of bands: Mountain re-formed and split, West then set up his Wild West Show band. More work followed in the eighties including reforming Mountain again, more work with Jack Bruce, more solo work, then Mountain reformed again in the nineties with ex-Hendrix man, Noel Redding and...well the guy was a workaholic.

This box set reflects that. 'Five Originals' include five solo works over three CDs: 'The Leslie West Band' (1976) featuring Foreigner's Mick Jones and a lovely rendition of 'Dear Prudence', 'The Great Fatsby' including Mick Jagger and excellent blues guitar work (1975), 'Theme' (1988) with Jack Bruce, 'Alligator' (1989) and series of top covers on 'Guitarded' (2004).

Maintaining high quality work throughout, this is an excellent array of varied albums.

Mastering is surprisingly good with plenty of clarity and midrange, while the overall presentation is big, as big as a Mountain.



LESLIE WEST

Five Originals
Voiceprint

AUDIOPHILE CD

I must say, when this one appeared at my door, I thought Queen had reissued their 'Greatest Hits' collections again. That box art. Was it a good idea? I had to look twice to see Turner's name on there.

Nevertheless, this is both a compact and yet still substantial CD box set that is packed with content and quality.

In the box is a delightful facsimile passport booklet packed with photographs. Thing is, the passport might have been a great idea but its implementation is atrocious. The typical passport like wavy lines backdrop on the pages of the same combine with the micro font means that all of the included text is completely unreadable. Trying to read the text, combined with the background wavy lines, threatens to trigger a migraine.

An additional booklet offering an essay and track by track analysis is much better in terms of

readability, thank goodness.

The album itself spawned a range of hits singles including 'I Don't Wanna Lose You', 'Steamy Windows', the title track and 'The Best'. Spanning four CDs and a DVD, you'll find a remastered version of the album on the first disc, remixes and B-sides on the second disc and then two further discs of Tina Turner live in Barcelona in 1990.

As for the DVD? That features this same Barcelona concert but you'll also find promo videos for the album's singles here too.

In mastering terms? There is a smattering of compression here, as you'll find in most commercial releases. The mids have been lifted a tad to accentuate detail and to focus elements like the vocal and guitar but there's nothing too accentuated. Nothing that will grate or trigger listening fatigue. Overall, the mastering produces a punchy output with a big, bold soundstage.



TINA TURNER

Foreign Affair
Parlophone

Cruise mishap



Should iconic brands be left in peace? Yes, says Martin Pipe, if the 'retro' Crosley Cruiser record player is anything to go by.

Earlier this year, I featured a 1960s-vintage Hacker Gondolier stereo record player in Olde Worlde. Many of us will remember these suitcase players and their rivals from Dansette and the like. The British-made Gondolier features valve amps and an idler-driven Garrard record changer fitted with a ceramic cartridge. To ensure a good stereo spread, one of the channels is reproduced by an external amplifier-speaker that was an optional item.

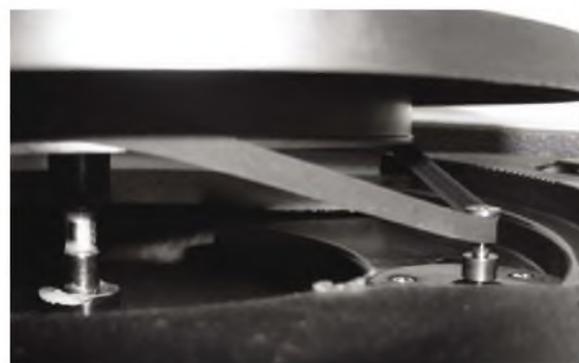
Thanks to the vinyl revival you can now buy – from supermarkets, music-store chains, gadget shops and other high-street emporia

– the modern-day equivalents of such record players over the counter, as well as online.

Among the first such products was the Crosley Cruiser, a retro-styled manually-operated affair that could be seen behind plate-glass windows up and down the land. When writing about the Gondolier, I wondered if the performance of such newcomers was in any way comparable. I didn't have to wait long to satisfy my curiosity.

A Cruiser specimen recently drew me in, from its pristine cardboard

cocoon on the other side of the road, during a local walk. The thing had been left outside a house,



A flat belt couples the motor drive to an inner platter surface. The poor bearing can also be seen.

alongside other surplus items, for interested members of the public to retrieve. I should have known better...but how could I resist something for free?

I accepted the product must have been given away for a reason: maybe it was faulty. Removed from its box, light mould was visible on the blue mock-leather material of the Cruiser's suitcase-like enclosure. Evidently, it hadn't been used for some time, despite – according to a rear-panel label – being made in September 2015.



The Cruiser's front-mounted speakers are powered by a TDA2822 stereo amplifier chip, which lives on this small circuit board. An 8-pin chip, it can be driven directly from the cartridge with no need for the additional gain of a preamplifier stage.

were vinyl copies of Bob Marley's Legend (£14.99), Prince's Purple Rain soundtrack (£9.99) and – to lighten the mood a little – Straight Outta Compton (£20.99) by N.W.A.

Powel Crosley Jr. was at one time described as the 'Henry Ford of radio'. His Cincinnati-based Crosley Radio Corporation was, by the mid-20s, claimed to be the

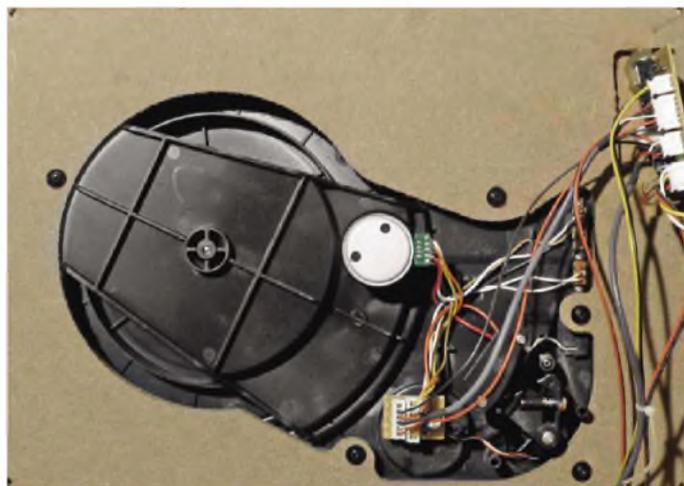
WLW), owned the Cincinnati Reds baseball team and helped the war effort. This incarnation of Crosley is not to be confused with the modern-day Kentucky-based brand, which imports its budget product lines from the Far East.

The Crosley Radio Corporation's 'golden-age-of-radio' wares were themselves, for the most part, pitched at the 'man in



The Cruiser's stereo ceramic cartridge is hardly in the same league as, say, the Decca Deram. Some claim it tracks at weights as high as 10 grams!

Either that, or it was no longer deemed worthy of careful storage. And what's this in the bottom of the box, alongside the 9V DC 400mA wall-wart power supply? An HMV receipt, dated February 2016. The original owner of this Cruiser paid £79.99 for it, and a further £8.99 for a Hama carbon-fibre brush. He (or she) was evidently planning to (re)discover the joys of vinyl; also itemised on the receipt



The Cruiser's plastic turntable is screwed into the MDF cabinet. On its underside we can see the 3-speed motor, and the amplifier. The use of connectors (which add expense, but aid servicing and repair) is surprising!

world's largest radio manufacturer. Crosley's operations subsequently widened in scope to include high-end 'console' radios (1936's \$1,500, 37 tube, 75 Watt 'WLW Super Power') to compete with E.H. Scott, home appliances and even aircraft. He also dabbled with cars, operated a high-power AM broadcasting station (call sign:

the street'. Making the Cruiser as cheap, simple and easy to use as possible is therefore in keeping with the original manufacturer's philosophy.

Open the lid of the Cruiser's covered-MDF enclosure, and its most obvious feature is an 8in. plastic platter – the rubbery mat that covers it has roughly the same



The tracking force of the Cruiser's cartridge evidently exceeds the 5 grams limit of this stylus pressure gauge! Not good for record life.



A 3.5mm input allows personal music player or smartphone to be played over the small speakers.

The Cruiser's output can be fed to an external audio system via the phono sockets, but doing so can highlight a multitude of sins!

diameter as a 45rpm single (out of interest, a centre-hole adaptor for these lurks in a recess). The platter is driven, via a flat belt, from a DC motor. A vertical slide-switch to the right of the tonearm changes the platter speed between 33, 45 and 78rpm; beneath it is another slide switch that removes power from the motor whenever the manually-cued tonearm isn't positioned over the record's playing area.

a pair of front-mounted speakers. Powering them is a TDA2822 stereo amplifier chip, which lives on a small circuit board internally-mounted on the underside of the plinth. This 8-pin chip, which can be fed directly by the relatively-high output of the cartridge, delivers a few hundred milliwatts per channel to those tiny loudspeakers.

As well handling records, the amp can be fed by an external source courtesy of a 3.5mm jack mounted on the rear panel. For those occasions when the Cruiser's onboard amp and speakers won't be manly enough, Crosley's designer has provided a pair of phono output sockets. These may also be useful if you're recording records for enjoyment 'on the move'.

The Cruiser featured here proved not to be faulty, although its performance is so poor it might as well have been! With LPs, which aren't supported across their full diameter due to the tiny platter, I noted a tendency to 'jump' whenever more complex passages are being played; smaller 45rpm singles fared better in this regard.



A vertical slide-switch to the right of the tonearm changes the platter speed between 33, 45 and 78rpm; beneath it is another slide switch that removes power from the motor whenever the tonearm isn't positioned over the record's playing area.

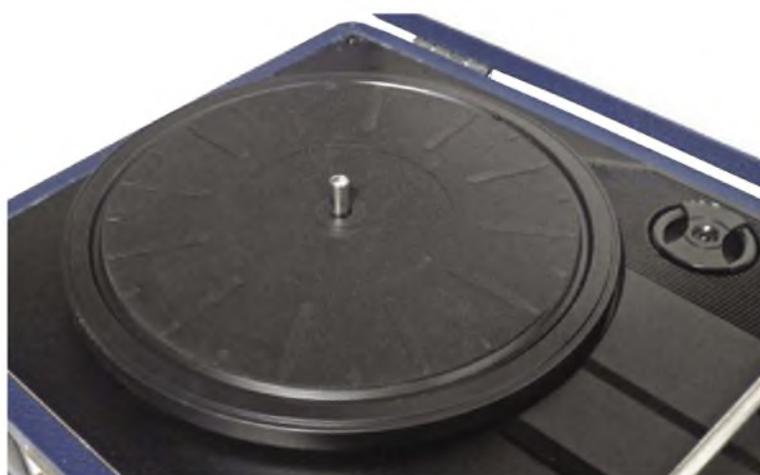
It's the lousy sound that probably led the original owner to casually-discard something for



These tiny speakers – smaller than those fitted to many present-day TV sets – contribute to the Cruiser's mediocre performance.

The arm has crude bearings that exhibit a disturbing amount of play, and is fitted with an equally-crude sapphire-tipped ceramic cartridge. Its tracking force proved too much for my stylus-pressure gauge, which cannot register anything higher than 5g. I've heard that the Crosley carts track at anything up to 10g – this doesn't augur well for record life. No wonder the same stylus can be used for 78s, as well as microgrooved LPs and singles!

Also mounted on the plinth is a rotary volume control, plus a headphone socket for personal listening. Under normal circumstances, though, audio is fed to



A 45rpm adaptor is provided for singles – which aren't much smaller than the Cruiser's plastic platter! There's a thin rubber mat.

which £80 had been paid a few years earlier. Presentation of music is tinny, hollow and lifeless, thanks to speakers that are a couple of inches or so in size. Being constrained by the cabinet, they are spaced mere inches apart – doing nothing for stereo imaging. Even the average modern flat-panel TV's sound system can do better, and hardly surprisingly the Gondolier proved superior too! Hacker's separate-speaker approach would have been incompatible with the Cruiser's hassle-free one-box concept.

Matters improved superficially after I switched listening to headphones (in this case, the JBL Tour One in wired mode). Thanks to higher output at the frequency extremes, percussion got a little more bite and I could at least sense that a bass guitar was being played...somewhere. However, those headphones simply revealed more inadequacies. An unpleasant



The Cruiser, let loose on a copy of David Bowie's Scary Monsters LP. The tonearm, as we can see, is tubular and straight - not so obvious from this photo is the significant amount of 'play' in the pivot bearings.

– to play cracked records, and don't want to risk decent gear.

What of the Cruiser today? Crosley's website currently catalogues a Bluetoothed update, in

than a ceramic tracking at over 5g.

\$230 buys you a belt-driven vari-speed deck that's clearly inspired by the Technics SL-1200. It boasts an aluminium platter, Audio Technica cartridge and phono stage ('speakers not included', though). Spend another fifty bucks, and you get the direct-drive version.

The latter decks may not be hi-fi as we know it, Jim, but they'll be kinder to your records than the uber-budget Cruiser.

In a more positive twist to my street Cruiser saga, only the record player (and its power supply) had been thrown away. The records bought with it were nowhere to be seen, and the Hama brush appears to have been retained by the buyer too. Admittedly, someone else might have got there first and ignored the Cruiser. However, I'd like to think the original owner – who must have wondered what all that vinyl-related fuss was about, after hearing their favourite music murdered – persisted, and is now playing those discs (and, come to think of it, other vinyl) on better hi-fi gear.

That £80 would have been better-spent in the first place, though. Second-hand hi-fi, of the sort normally featured in Olde Worlde, would be the way to go. You could assemble a decent 'budget' system for under £100, by carefully shopping at – for example – an audiojumble. eBay, second-hand shops, car boot sales and Freecycle are other places. The Cruiser's price was just too low to give any idea of how good LP can sound.



Singles and albums may sound pretty dire on the Cruiser, but reproduction of 78rpm shellac records is surprisingly-acceptable through an external amp and speakers.

sibilance spoils speech and female vocals, while male vocals are far more strident than they should have been. Thanks to a lack of finesse and detail, music is starved of subtlety and character.

Speed isn't particularly stable, piano players and saxophonists occasionally slurring to the point of drunkenness.

Pretty awful stuff, but the Cruiser does have a saving grace – the enjoyment of shellac 78s isn't entirely ruined, provided an external amp and speakers are used. Useful if you want – as I did

various styles and colo(u)rs. There's also a rather plasticky \$250 take on the Dansette Bermuda, complete with spindly legs (why can't yesteryear's iconic brands be left in peace?) as well as faux music centres and old-style radios.

Some moderately better-quality products are however also available. They include the oddly-shaped belt-driven \$100 C3 turntable – complete with budget Audio Technica MM cart and phono stage. Which seems more promising, since a budget MM cartridge will be far kinder to LPs

vinyl section

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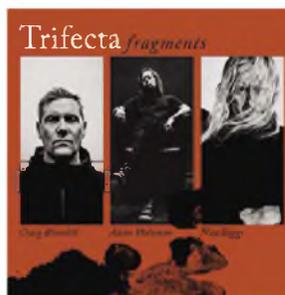
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KSCOPE PAIR

From Kscope (kscopemusic.com) comes 3LP, multi-gatefold 'Portals' from prog-metal outfit, Tesseract. This is a physical release of the recent two-hour-plus online offering back-catalogue wares.

Also, For Trifecta 'Fragments' offers lively, funky jazz rock from Nick Beggs, Adam Holzman and Craig Blundell. The trio blend well and produce a big sound. There's more than six hands on this lot, isn't there?

news



THE REPLACEMENTS

The band's debut 'Sorry Ma, Forgot to take out the Trash' (1981, Rhino) now appears in a hardback book edition covering a single vinyl disc and four CDs.

Inside is the remastered album, an alternative version of the album, rare demos and sturdy tracks and a previously unreleased 1981 live show. It's a lovely package.

PETE AVES



Singer-songwriter Aves' new album 'Sweet Are the Uses' (peteaves.bandcamp.com/album/sweet-are-the-uses) offers simplicity in arrangement and clarity in delivery.

It's old fashioned song construction using a presentation that allows the song to do the work. Aves is only there for the ride. Which is how it should be. Thumbs up.

DEMON TRIO

Via Demon (www.demonmusicgroup.co.uk) and from Le Flex "The best greatest hits you've never heard by the artist with more than 65 million streams". Heard amongst his 65 million streams (which may have netted him what, £3.50 or so?) are 12 tracks of derivative pop, re-used hooks, template rhythms, tea bag hooks and freeze-dried song writing.

Toyah's new album 'Posh Pop' – pressed on "space grey" vinyl – is a plucky release co-starring King Crimson's Robert Fripp, her hubby. Not amazing but it has...possibilities.

Also look out for the 25th anniversary of Heavy Stereo's debut and only LP release, the Oasis-lite, brit-rocker 'Déjà Voodoo' on clear vinyl.



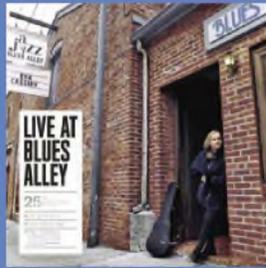
KASPER BJØRKE

Copenhagen DJ, Bjørke has released 'Sprinkles' (hfn; kasperbjørke.com). Danceable, airy and light vibes. This is Choux pastry pop of the French electro-pop school.

EVA CASSIDY

The 25th anniversary of Cassidy's 'Live at Blues Alley' (Blix; www.blixstreet.com) has been issued over two discs within a gatefold.

Packed with standards and classics from 'Cheek to Cheek' to 'Take Me to the River' what Cassidy brings to these works is her pitch-perfect voice and her incredible interpretive abilities. Thus even the overly familiar sounds unique under Cassidy's watch. Brilliant.



ON OUR OWN CLOCK

The band's self-titled LP (Mushroom Hour Half Hour) combines fourteen artists spouting South African jazz, Senegalese instrumental music with smatterings of London-infused spice. It's fresh and oozes positivity.

MANU DELAGO

There's nothing so scary as twenty double bass players, giving it their grinding, plucking, wrenching all – in the woods.

On 'Environ Me' (One Little Independent Records; manudelago.bandcamp.com/album/environ-me-2) we get the full horror (its the theme of the month folks!).

Thank goodness for Delago's amiable handpan then. This is a beat-ridden, instrumentally percussive outing of (generally) gentle vision and application. Imaginative.



MADE TO MEASURE

'Vol. 15 - Douzième Journée: Le verbe, la parure, l'amour' to give this LP it's full title (benjaminlew.bandcamp.com/album/made-to-measure-vol-15-douzi-me-journ-e-le-verbe-la-parure-lamour) is a new Crammed Discs' Composer Series release. Thirty-five LPs in this series appeared from 1984-1994.

Benjamin Lew's remastered 1982 delicate and/or angular ambience adds another instrumental release to celebrate the series' 40th anniversary.



THE MONTREUX YEARS

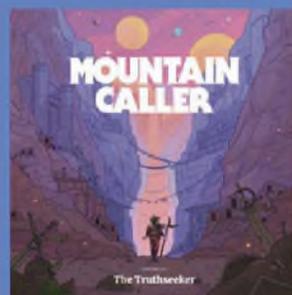
More classic music from this classic series (BMG) – and wedged in gatefold sleeves too. The Muddy Waters edition includes three performances from 1972, 1974 and 1977. Including Pinetop Perkins Bill Wyman, Buddy Guy and Terry Taylor. Two things stand out here. Firstly, it's a greatest hits collection making it approachable. Secondly, Waters worked best live. Combine the two and you've got some package here.

The Marianne Faithfull release includes highlights from five performances from 1995, 1999, 2002, 2005 and 2009. Surprisingly, the jigsaw of performances flows well, while the Faithfull interpretive abilities are on fine form here, especially during covers of Billie Holiday, Van Morrison and John Lennon.



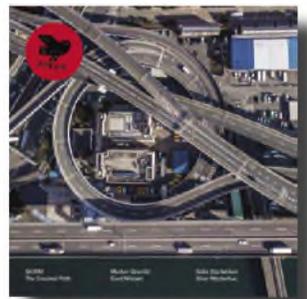
MOUNTAIN CALLER

'Chronicle: Prologue' (New Heavy Sounds; mountaincaller.bandcamp.com/album/chronicle-prologue) offers a 3-track EP spanning around twenty minutes of instrumental heavy prog nicely blending chaos and melodicism with plenty of meaty drama as a backdrop. Great stuff.



SKRIM

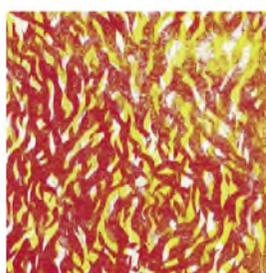
Why do I like the sleeve art so much? Not sure. But Skrim's (formerly sPacemonKey) 'The Crooked Path' (Hubro, www.hubromusic.com) plumbs the scary depths of jazz improv-based electronica. It's the sound of SF survival horror. I'm looking under the bed tonight.



THE BUG

'Fire' (Ninja Tune; ninjatune.net) is another dark, SF nightmare. A dystopian tale using the Pandemic as a useful metaphor, with lots of guests.

Combining emotional hip hop rhymes, fierce beats and a cleansing menace. It's wax on wax.



GOO GOO DOLLS

This new gatefold double album (via Warners) compiles rarities from 1995-2007 including B-sides, live tracks, radio sessions and more. Spanning twenty tracks, this is a must have for the fans.



3 MMs

Noel Keywood looks at three budget moving magnet cartridges.

The three cartridges here are all manufactured by Ortofon using their 2M body, but each is a variant looking for a different sort of sound from LP. Comparing them will give you some idea of what to expect from these popular units – and also a few things to think about before buying any cartridge.

The trio comprise a standard Ortofon 2M Red (£95), 2M Silver (£164) and Pro-Ject Pick it S2 (£79).

Long ago, budget MMs were what the family used to play their LPs. Cartridges would mistrack – the stylus losing contact with the groove. A slight buzz from a kettle drum or those canons in the 1812, or a rasp from close-miked vocals, were a sure sign of this happening. Mistracking damages the groove wall, imprinting distortion into it; LPs would buzz or rasp for ever more afterward, even when a better cartridge was used. Good tracking is important then and that's what I'll look at later.

SOUND BALANCE

Importantly, there's the "sound of vinyl" to consider. Terms such as 'warm', 'mellow' and 'easy' form the common view. Anyone wanting such a sound may well get a shock from today's MMs, because most don't sound warm at all.

The classic warmth of LP was largely down to what is known as 'generator loss' in the cartridge coils. Those losses have been reduced in recent designs – and that lovely warmth. Oh dear! A warm sound is enjoyable in its own way and if that is what you want, then beware, modern technology has made it rare.

LPs can sound harsh – and for good reason. There's lots of potential for distortion in any LP and, as they wear, damage, dust and dirt accumulate, making matters worse. Vinyl also dries out, losing oils to become noisy (a reason to use plastic liners). My 1960s LPs are not nice by current standards, especially on inner grooves where distortion rises. Warm sounding cartridges lessen distortion by

reducing the strength of upper distortion harmonics, and they also reduce surface noise. This explains why a warm cartridge is also an 'easy' listen, the two go together. So less harsh with old LPs, damaged LPs or just poor LPs.

But those new to the black disc may prefer a brighter sound, something with speed – rather than old fashioned warmth. And that's fine: new high quality pressings having little wear or dirt on them. I well know from playing old against new that a modern flat-response MM cartridge will sound fine with fresh vinyl. They have more apparent detail, insight and clarity.

To banish warmth the signal coils have fewer turns on them to lower their electrical impedance. This reduces output slightly, 5.5mV down to 4.7mV (-1.4dB) in this group.

You are faced with a simple choice: buy a warm sounding budget MM cartridge or buy an accurate one. And we have both here, in an interesting little story. Back in 2010 when I measured Ortofon's 2M



Red I was surprised to find it had treble lift, making it sound obviously bright – and this wasn't always so pleasant, depending upon LP quality. It's sound was out-of-idiom: just not what I – nor many others I suspect – expect LP to sound like.

Looks like the company have had a change of heart: the Red now has slowly falling treble and a softer, more amenable sound, but the amount of treble roll-down is well judged to avoid excessive

sound balance.

With Pick it S2 – a peculiar name – Pro-Ject have produced (or specified) a variant of the previous two Ortofonos that is to be their entrance into the cartridge market, they tell me. Pro-Ject of Austria work closely with Ortofon of Denmark and Henley Audio of the UK, so there is collaboration here. Priced at a low £79 this cartridge is bargain sub-basement and – I found – 'unusual'. It's as accurate as the

Modern cartridges track 45µm comfortably, so mistracking is not such a big issue nowadays. For this article I measured music level on a variety of LPs and they were 10dB lower (at 300Hz) than what these cartridges are capable of tracking – a comfortable margin.

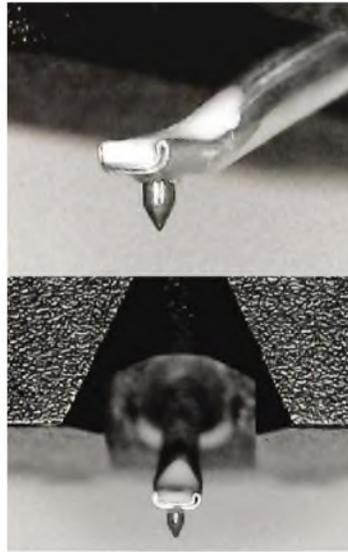
As an aside, test discs are cut much higher, up to 100µm (Clearaudio) or the limit of the lathe with horizontal modulation, but such high levels are not found



Ortofon 2M Red

warmth. This is now a cartridge for those who want traditional sound from their vinyl, including all those mesmeric LPs played to death in a mis-spent youth! Or perhaps recent purchases from charity shops, car boot sales etc. Listening to grunge and groove damage is not fun; 2M Red softens the pain. I notice that Ortofon do now say it has a "slight touch of warmth". The 2M Red has been relegated to bargain basement (£95), even though it tracks well and suffers no weaknesses.

Above it comes the 2M Silver that has peculiar status. Billed as an OEM on their website, meaning purposed for Outside Equipment Manufacturers (of turntables) it can also be bought from dealers for a reasonable £164. Our samples came in a small, unmarked black box with no accessories, identification or anything else. Ortofon say on their website that there are fewer coil turns than the Red, meaning it has more treble – and indeed it measures ruler flat to 20kHz, so no warm sound here. You pay extra for accuracy, in effect. Also for silver plated copper signal coils, hence the name. This is a cartridge using modern ideas to achieve a modern



Ortofon 2M Silver

2M Silver but with poorer tracking than both Ortofonos. So no warm sound – and tracking ability that is just about good enough for most commercial LPs, without much leeway.

TRACKING

Where manufacturers for some reason never talk about response accuracy and basic sound balance, you'll hear a lot about the subject of tracking, or "trackability". Brought to the fore long ago by Shure of the USA, there are numerous test discs – as there always have been. Today you can get test LPs from Ortofon and Clearaudio if you want to check tracking for yourself. Let me go over the issues quickly without getting technical about it.

First, it's useful to remember that when an LP is cut, the cutting engineer will deliberately keep maximum level in-check to ensure purchasers do not suffer mistracking. CBS make the interesting point in their notes for STR-112 test disc that +12dB (45µm peak excursion) is maximum for vertical modulation (due to lacquer thickness) and therefore also for lateral (mono) modulation.



Pro-Ject Pick it S2

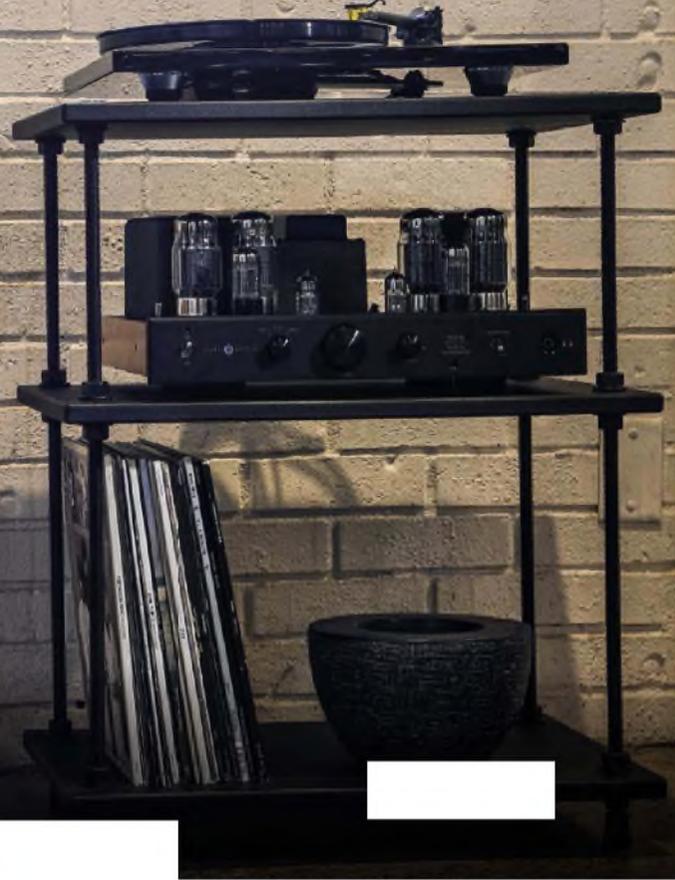
on music discs; bear this in mind when using one. Also, these test tones are cut at a low 300Hz to check how far a stylus can move, quoted as µm or millionths of a metre. But how far it can move is different from how fast it can move. And when someone hits a cymbal, it needs to move fast.

This raises the issue of high frequency tracking. Here, at higher accelerations to reach high speed, stylus (effective) tip mass enters the picture. To accelerate fast, low mass is needed, explaining the benefit of a small 'nude' stylus, a light cantilever and small moving magnet. Adding to cost and leading to fragility. If anything now defines the limitation of a budget MM it is this property: tip mass.

None of the cartridges managed especially well on high frequency test (B&K 2010 test disc, 1kHz). The Pick it S2 was the worst tracker, likely because of the extra mass added by the blob of red glue you can see in our pictures, plus strong cantilever. Both the 2M Red and 2M Silver were not stellar either, because (I suspect) their stylus shanks are long to provide dust clearance. It's assumed budget

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buyers will have dust/fluff on their LPs, unlike fastidious audiophiles.

But measurement showed music levels on LP were generally 10dB lower at 1kHz than the upper tracking limit of these cartridges, so they are satisfactory. An audiophile re-master of Neil Young's *After The Goldrush* was obviously 'hot': it got within +5dB of all three budget MMs here can cope with – but that's good enough.

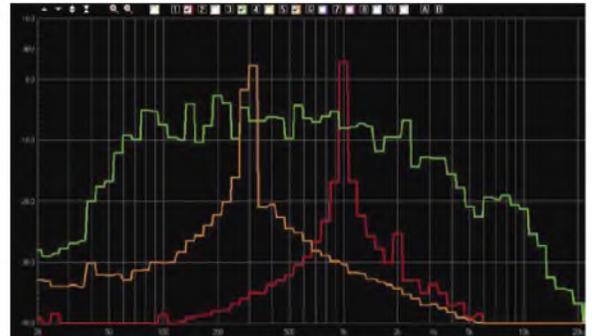
...AND THE REST

There are many other parameters in a cartridge specification but few are majorly important. Attention is turning to stylus profile and performance, and it's best not to expect too much at these price levels. You can see from our pictures you get a crimped alloy tube with cylindrical-shank stylus inserted. Some manufacturers apply adhesive, as do Pro-Ject here. I presume it is to survive heavy treatment as the "special elliptical stylus tip is attached to a strong cantilever, used in DJ cartridges" Pro-Ject say. Yet the stylus in our sample traced the short mechanical wavelengths of inner grooves better than most. Its ability to trace inner grooves with no loss means the stylus is able to pick out finest details: it is

typical of a budget elliptical. On outer grooves and well cut LPs like Hugh Masekela's *Hope* the 2M has strong bass and sounds meaty, but cymbals lacked sparkle and were a tad diffuse in nature.

Rosella Caporale's *Time to Say Goodbye (Two Countries One Heart)* on inner grooves was again lacking in focus but where she holds a frightening crescendo right to the run-out groove the Red tracked this, if sounding a little coarse.

The 2M Silver was very different to the Red. Rather than bright it sounded very insightful across the upper mid-band and at times a bit forward. I was aware of a sheeny balance to Hugh Masekela's *Hope* LP but there was superb focus and clarity to highs, with no sign of vagueness at all. Perhaps not quite the differentiation achieved by a better tip, but very close. Spinning a heavily played oldie from 1969, Decca's *World of Blues Power*, had Alvin Lee well forward in the mix of *Spoonful*, playing slickly as he was known to do, an accomplished finger picker. The Silver made this very evident. Rosella Caporale was clear and focussed, fine details very evident even on inner grooves. Her final crescendo held together well, the stylus sounding confident in the



Tracking limits of the cartridges, shown as an orange peak (300Hz, 45µm) and a red peak (1kHz, 12.6cms/sec). The green trace shows peaks reached by a recent audiophile re-master of Neil Young's 'After the Goldrush'. All three budget MMs have a wide tracking margin.

to *Say Goodbye*. But she remained steady of tone with no sign of tracking difficulty on her crescendo just before the run-out groove. The Pick it S2 was easily the bargain of the group, with its darker vinyl-like presentation yet good focus at high frequencies and incisive high highs – those little pin darts that shoot out now and then.

CONCLUSION

As a hi-fi editor used to say to me: "which would you buy?". I would buy the 2M Silver. It is quite dramatic at the price, almost



All three cartridges have the same body and rear connecting pins, but not the same coils. The styli are not interchangeable.

both aligned and profiled to do so it seems. And that sets the Pick it S2 apart in this group.

The 2M Red and Silver both have elliptical styli that appear identical, with slightly more inner groove loss.

SOUND QUALITY

The 2M Red has what I would describe as an 'easy' sound rather than an obviously warm one, but it quite obviously lacked bite or incision. Higher frequencies were de-focussed or fluffy, for want of a better description. This is fairly

groove. At all times the Silver was impressive for the price, with high end ability at a super low price. Not as smooth and nuanced as a 2M Black LVB but very close.

The Pick it S2 was an interesting variant, having a darker and arguably more cohesive sound than the Silver, but with excellent focus and detail retrieval at the very top end, if apparently less so in the mid-band. It was softer in its delivery – a little creamy – making it more vinyl-like. Alvin Lee stepped back playing *Spoonful*, as did Rosella Caporale with *Time*

embarrassingly so. But I did wonder at times whether there was just a tad too much glare and I would tire of it in the end. That makes the Pick it S2 the most balanced design, leaving the Red as an easy-on-the-ear also-ran because of its fluffy top end, rather than its mild tonal balance. The bottom line is though, all three track well enough to stay in the groove measurement showed and there were no major weaknesses either. I've reviewed more expensive designs that were little better, making this trio excellent value.



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MEASURED PERFORMANCE

ORTOFON 2M RED

Frequency response of the 2M Red (2021 sample) measured flat to 6kHz our analysis shows, above which output falls slowly to reach -2dB at 10kHz. On inner grooves (red trace) this fall increases above 10kHz due to stylus tracing loss on shorter mechanical wavelengths. Upper treble then falls to -8dB at 20kHz – substantial loss. The latest 2M Red will have a warm sound as a result.

Tracking of 300Hz test tones on CBS-STR112 test disc was very good, 90µm at 1.8gm down force, if with slight mistracking – hence our 80µm quoted value.

At 1kHz (B&K2010 test disc) where acceleration is higher and tip mass more

influential, 16cms/sec band was cleared, with slightly mistracking at 20cms/sec, a good result for a budget MM.

Distortion was as expected, measuring 1.2% on lateral modulation. On vertical modulation the figure was a reasonable 3.6% due to a measured vertical tracking angle of 27 degrees (DIN 45-452 test disc). Optimal is 22 degrees.

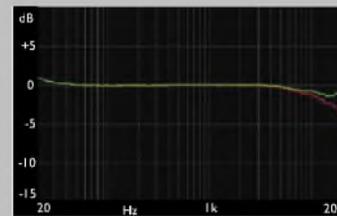
Output measured a healthy 5.4mV at 3.45cm/sec, which is high.

The 2M Red tracks well and will have a warm sound. **NK**

Tracking force	1.8gm
Weight	7.2gms
Vertical tracking angle	27degrees
Frequency response	25Hz-10kHz

Channel separation	24dB
Tracking ability (300Hz)	
lateral	80µm
vertical	45µm
lateral (1kHz)	18cms/sec.
Distortion (300Hz 45µm)	
lateral	1.2%
vertical	3.6%
Output (3.45cms/sec rms)	5.4mV

FREQUENCY RESPONSE



ORTOFON 2M RED £95



EXCELLENT - extremely capable.

VALUE - keenly priced.

VERDICT

Mellow sound and works well all round.

FOR

- easy sound balance
- good tracking
- high output

AGAINST

- diffuse treble

ORTOFON 2M SILVER £164



OUTSTANDING - amongst the best at the price.

VALUE - keenly priced.

VERDICT

High insight, very revealing.

FOR

- clear treble
- good tracking
- fast bass

AGAINST

- sheeny

PRO-JECT PICK IT S2 £79



EXCELLENT - extremely capable.

VALUE - keenly priced.

VERDICT

Tonally balanced mellow sound.

FOR

- clear treble
- superb on inner grooves
- vinyl type delivery

AGAINST

- mediocre tracking

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MEASURED PERFORMANCE

ORTOFON 2M SILVER

Our frequency response analysis (JVC TRS-1007 test disc) shows the 2M Silver measured flat to 20kHz with just a small amount of tracing loss on inner grooves (red trace). Making this an accurate MM cartridge up to best current standards.

Tracking of 300Hz test tones on CBS-STR112 test disc at 1.8gms down force was very good, clearing a high 80µm peak amplitude.

At 1kHz (B&K2010 test disc) where acceleration is higher and tip mass more influential, 16cms/sec band was cleared, with slightly mistracking at 20cms/sec, so 18cms/sec is maximum – a good result for a budget MM.

Distortion was as expected, measuring 1.3% on lateral modulation. On vertical modulation the figure was 2.6% due to a measured vertical tracking angle of 27 degrees (DIN 45-452 test disc). Optimal is 22 degrees.

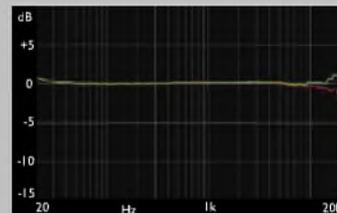
Output measured a healthy 4.7mV at 3.45cm/sec, which is reasonably high – as hoped for with budget MM.

The 2M Silver tracks well and will have an accurate sound balance. **NK**

Tracking force	1.8gm
Weight	7.2gms
Vertical tracking angle	27degrees
Frequency response	25Hz-20kHz
Channel separation	28dB

Tracking ability (300Hz)	
lateral	80µm
vertical	45µm
lateral (1kHz)	18cms/sec.
Distortion (45µm)	
lateral	1.3%
vertical	2.6%
Output (3.45cms/sec rms)	4.7mV

FREQUENCY RESPONSE



MEASURED PERFORMANCE

PRO-JECT PICK IT S2

Frequency response of the Pick it S2 measured flat to 20kHz our analysis shows. Impressive is that the stylus traced inner grooves without tracing loss, treble output remaining high (red trace). This makes the Pick it S2 very accurate in tonal balance.

Channel separation was high at 29dB, Ortofon usually measuring around 22dB here, so another variation. Output was healthy at 4.7mV but Vertical Tracking Angle on the high side at 28 degrees (DIN 45 542 test disc).

Tracking of 300Hz test tones on CBS-STR112 test disc was mediocre, just 45µm at 1.8gm down force.

At 1kHz (B&K2010 test disc) where

acceleration is higher and tip mass more influential, just 14cms/sec was cleared, another poor result, even for a budget MM.

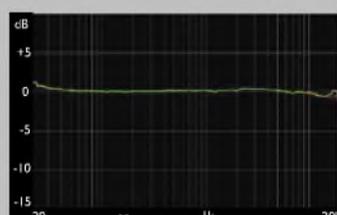
Distortion measured a fairly typical 1.1% on lateral modulation, rising to 4% on vertical modulation due to the high vertical tracking angle of 28 degrees.

The Pick it S2 has an excellent stylus and is tonally accurate, but its tracking is below current standards. **NK**

Tracking force	1.8gm
Weight	7.2gms
Vertical tracking angle	28degrees
Frequency response	25Hz-20kHz
Channel separation	29dB

Tracking ability (300Hz)	
lateral	45µm
vertical	45µm
lateral (1kHz)	14cms/sec.
Distortion (45µm)	
lateral	1.1%
vertical	4%
Output (3.45cms/sec rms)	4.7mV

FREQUENCY RESPONSE





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On Demo

Noel Keywood looks at the development of high fidelity and stereo through the demo LP and the story it tells.

When hi-fi was king long ago there were plenty of LPs to demonstrate its magnificence. I've got them in lines behind me in a rack where I've created a special section for these things – and they are slowly metamorphosing from value of content to a look back at earlier times, sounds – even outlooks. Here's a look at demo LPs past and present, backed by measurement in a separate box-out.

My earliest hi-fi demo LP is a wonder from EMI simply titled "Stereophonic Recording" (SDD1), released 1957. Side One presented the new technology of stereo, starting with a quick history lesson: "EMI has been working on stereophony since 1931" we are told; they were aided by the great

SDD1' on www.discogs.com and you can hear this intro for yourself in a video clip.

After SDD1's spoken intro come ping-pong balls, road drills, fire alarms, trains and swimming baths to show what stereo can do. Just imagine going into your local hi-fi dealer today and being asked to listen to this lot!

Side Two has music. In new-fangled stereo. From Happy Banjos to the Dagenham Girl Pipers, spiced up by a metronome. Some of the music recordings sound jumbled but that's hardly surprising with live in-situ recording using old valve tape machines. There's a slightly wiry quality across the whole LP; a harshness of tone that sounds 1950s.

Interesting though is that whilst Tchaikovsky gets a look in, plus a bit of opera – and those Dagenham Girls – there's no skiffle, nor guitars and drums. No devil's music. All this was to come later; this stereo LP pre-dates Rock, coming from a musically more conservative time.

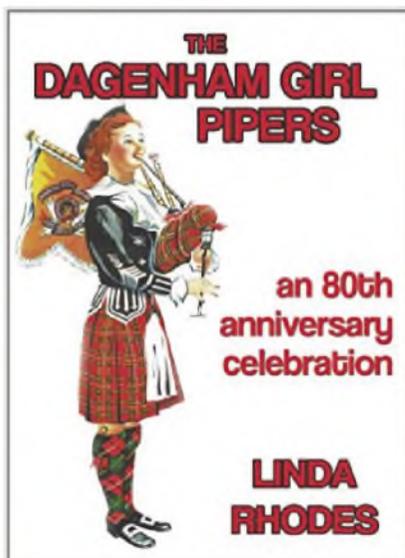
But a new musical era was dawning, one where stereo had the same resonance as hi-res does



When stereo was young – 1957 – this demo LP was released, showcasing EMI's work on the subject since 1931.

today, even if The Beatles weren't convinced. Rifling through my demo LPs, chronologically next was Decca's Give Yourself a Stereo Checkout from 1967 (SKL4861) – impressive at the time and still so today, if for different reasons. It has a darker and smoother tone than EMI's SDD1.

There's a lot of (amusing) talk



The Dagenham Girl Pipers, still going today. Linda Rhodes has a book on them, see Amazon.

Alan Dower Blumlein who also patented the Ultralinear amplifier and ultimately died in an early radar experiment, when his Halifax bomber crashed. Look up 'EMI



Decca released this novel and impressive demo LP in 1967, full of music, test tones and talk.

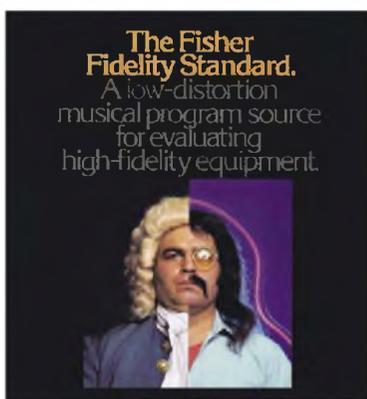


A different type of demo LP from Shure, cut to very high levels with tracking tests.

on this demo LP, between Jack de Manio and Elizabeth Knight. Some of the music is impressively full bodied, especially at the start of Side 2. Here, in a classic 1950s Pathé newsreel style commentary, we get to hear a piano being thrown out of a window (yes!): "by jove, they're doing it" the presenter says. There's an almighty crash that's frightening.

Someone had a sense of humour: a live versus recorded demo of keys tinkling, balloons bursting etc ends with feathers falling. Not sure I could hear this one. Hmm...very funny!

There wasn't perfection: their 3kHz Wow&Flutter tone was far from steady, but that's down to the recording equipment and/or cutting lathe. And still no Rock music even though Decca by that time



From Fisher a varied selection of music tracks cut at normal level; no test tones.

were churning out early British Blues acts from John Mayall's Bluesbreakers, with a youthful Eric Clapton and Peter Green, for example – and doubtless making money at it. High fidelity was for the cognoscenti back then, not

uncouth youth.

Also in 1967 Shure (USA) released TTR-101, An Audio Obstacle Course. This contains no music as such, rather musical instruments such as orchestral bells, drum and cymbal, harpsichord, recorded at progressively higher levels as a test of cartridge tracking ability, explained by deadpan announcements. My sample is dreadfully noisy due, I suspect, to the vinyl drying out. It does have a good inner Fact Sheet where Shure say they use an "analog-computer" to optimise their Shure V15 cartridge. Bill Gates was still at school back then so the computer gave a useful result.

The Sixties is rounded out by HFS69 test disc (1969), from Hi-

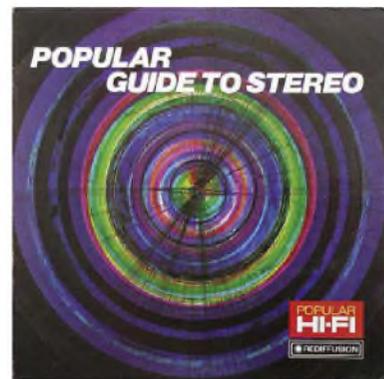


Mostly test tones, HFS69 did a worthy job for UK consumers, if bettered by CBS of the USA.

Fi Sound magazine, produced by Haymarket Publishing (London). Largely test tones, it does have one classical musical except that is quite strong in treble, editor Clement Brown (under whom I worked) considering classical the only music worth using on such an LP. Consigned to inner grooves it didn't sound nice.

When the 1970s get into their stride demo discs appeared regularly. This is when a hi-fi system came fourth in people's buying priorities, behind house, car and television, Philips marketing department once informed us.

From Fisher "we invented high fidelity" of the USA I can listen to Avery Fisher talking to me from the company's The Fisher Fidelity Standard (FIQ-51072), an LP I once used regularly when assessing hi-fi systems. Produced in 1972 "this is a record I've always wanted to make" says Avery Fisher. He also points out that it is matrix



As music demo LPs go this one was arguably the best in its time.

encoded with the four-channel CBS SQ system. Yep, stereo was about to get challenged.

Although good at the time Fisher's LP sounds a bit lifeless nowadays. I valued it especially for Chopin's Nocturne Opus 48, No 1 where there are long piano sustains, using them to judge speed stability in record decks. Until I became suspicious about the warbling piano I was so often hearing. Nowadays our Timestep Evo modified Technics Direct Drive SL-1210 shows it was in the recording, from the tape recorder or cutting lathe. Oh dear!

A little later – 1973 – JBL (USA) released their Sessions demo double-disc, full of impressive Rock recordings. This then took over from Fisher as an LP to be used for assessing a decent hi-fi, although the music was more functional than exciting.

Also from 1973 I have a demo LP from UK magazine Popular Hi-Fi. It was the down-market alternative to Hi-Fi Sound, releasing a demo LP entitled "Popular Guide to Stereo" (PHF1000B). It rounds off my look at early demo discs, because – surprisingly – quality and commentary are right up to current standards. Putting it clearly ahead of the LPs I've mentioned so far. Yep, the 'worst' demo LP actually is the best.

Drawback? The music is boring, although not without merit. My copy has low surface noise from good vinyl and a sense of depth to the sound and breadth to the frequency range that is sonically superb, courtesy of Rediffusion who recorded and manufactured it. Cymbals and brass sound strong yet clean and unmuddled; Mari Griffith singing The Gentle Bird in

Welsh has clear rolling Rs in an enchanting performance. The presenter is BBC's James Burke who narrates clearly; the script is good, explaining issues like stage depth and near/distant recording trade-offs. Anodyne in some senses, but superb in others, it was a well judged and balanced demo LP.

After 1973 vinyl remained king until 1983, when CD was introduced. And after re-reviewing these demo LPs I recall why CD sounded so awful at the time. From Decca's excellent 1967 Give Yourself a Stereo Checkout through to Popular Hi-Fi's Popular Guide to Stereo from 1973, the LP had delivered great sound quality, something the CD could not match because of its terrible digital distortion. All the same, digital won the day and the rest is history.

If with a sting in the tail as LP sales now exceed those of CD and sound quality has made a comeback. Bringing me to modern music demo LPs.

Where early LPs were all-analogue we now commonly have digital recorders in the studio like the Tascam DA-78 HR used for the Solid Acoustic Reference demo disc from STS Digital of the Netherlands, whose 2003 demo LP



Two demo LPs in a double-gatefold from Chasing the Dragon (UK). One live direct-to-disc and the other through a high-speed pro analogue tape recorder, illustrating differences. Fabulous sound quality; perhaps the ultimate demo LP.

is a cracker. But since then plenty of others around the world have put effort into achieving top audio quality on LP. Check out 'Chasing the Dragon' for example – where live performances from skilled musicians are captured to high speed analogue tape or direct-to-disc through top quality recording equipment, burnished right down to cables and connectors. This is then laid down to quality vinyl. Sonically, the results are spectacular, being modern recordings rather than re-masters of old analogue tapes.

Old demo LPs, as lovely as

they are, do not stand scrutiny against such specialised end-to-end productions, so the idiom has faded away. No more pianos being thrown out of windows, nor the sound of feathers hitting the floor! All the same, like those lovely old black-and-white Pathé News reels now re-birthed onto YouTube, these discs deliver high fidelity sound as it once was back in the 1950s and onward. Some of it being a great listen 60 years later. So wonderful time pieces that tell an interesting story of the development of recorded audio on LP.

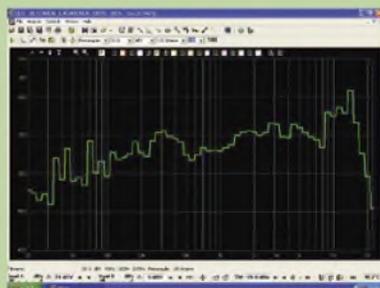
WHAT'S ON A DEMO DISC?

For an LP recorded in 1957 EMI SDD1 is impressive, the fire engine bells and – especially – the road drills pumping out massive energy up to 15kHz our spectrum analyser showed.

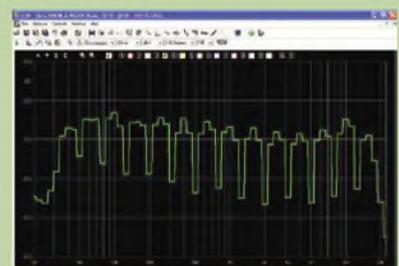
Decca's Give Yourself a Stereo Checkout (SKL4861) comes ten years later and benefits from it, with a bandwidth that stretches right out to 20kHz. Decca have a warble tone centred at 10kHz. Disarmingly, they ask that you set level to match 1kHz, or get someone in if you can't hear it! There are also pink noise bands that step down from a very high 16kHz, to 10kHz then 6.3kHz; all these have been successfully cut at full level (i.e. similar to the 1kHz reference) our analysis shows. Impressive for 1967.

Maximum recording level on this LP was a bass drum and plucked bass, cut as high as considered realistic for replay equipment of the time, disc surface noise measuring -70dB below, so this is the dynamic range being achieved. For an LP recorded 55 years ago it's a high value, little bettered today with music LPs. Out of interest, modern test LPs like Clearaudio's Tracking Test Disc (LPT83063) manage 80dB between the high 80µm cut and disc surface noise.

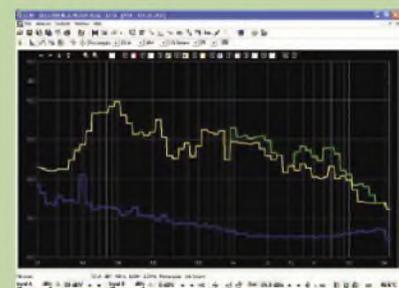
To audition and measure these LPs we used our Timestep Evo improved Technics SL-1210 Direct Drive turntable fitted with SME309 arm, carrying an Audio Technica VM750 SH moving magnet (MM) cartridge fitted with Shibata stylus.



EMI road drill: massive output up to 15kHz.



Decca pink noise bands, 16kHz down to 40Hz.



Dynamic range of Decca LP.

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EMERSON LAKE & PALMER

OUT OF THIS WORLD: LIVE (1970-1997)

BMG

In this long run of Classic Cuts columns, I have focused on classic albums, sometimes classic collections of one sort or another but I don't think I've ever singled out a live performance as a Classic Cut.

This one is different though because this live performance, Emerson Lake & Palmer's second ever live concert, made their name and an instant reputation. This one performance, in front of 600,000 or so people on the Isle of Wight in August of 1970 saw the trio blossom right in front of their eyes. Three men transformed from a headline – the archetypal 'super group' – and from an interesting musical anomaly (dig those classical-infused rock anthems) to an instant colossus, in rock terms.

It happened in a matter of hours. And it happened right there on the stage. As Carl Palmer himself stated "From the second concert we were an international success. It went from nothing to something overnight!".

And let's not forget, their very first concert took place in Plymouth Guildhall only the week before. Turning up at the Isle of Wight and performing in front of so many people with a largely untested group after just a few weeks of rehearsal was a major effort.

The band were actually so short of material that they had to use an old piece of music, from Keith Emerson's old band, The Nice. A 1960 single called Nutrocker.

More than that, the decision to play the 'Pictures At An Exhibition' suite had been rehearsed but the trio would have preferred not to play it live – even though they eventually did. This suite was complex. It was bad enough for an experienced band to tackle this piece of work that sprawled over thirty-five minutes, never mind three blokes who hardly knew each other.

And then there was Emerson's bright idea of firing a couple of antique canons in that piece of work. The final, enormous explosions from these canons stemmed from an attendant roadie who was encouraged to double the normal charge for each weapon.

As Greg Lake stated "Unlike most bands, where you get a chance to develop a bit before you get really thrust in the

public arena, ELP was sort of instantly out there. The band was really under the focus of public scrutiny from the moment of its inception. There's a good side to that because you're instantly recognised. People take notice and listen to your records and that's obviously an advantage. The disadvantage is you don't get time to do your developmental stuff before you're the subject of all kinds of scrutiny".

If ELP had merely staggered through the Isle of Wight then praise for effort would have been deserved. Yet the band hit the ground running with this performance.

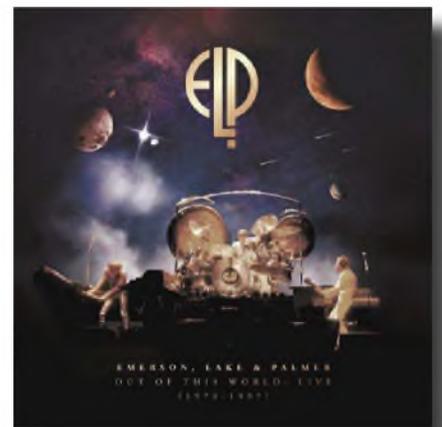
They offered confidence, buckets of energy and the sort of showmanship that is only produced when your keyboard specialist decides to swing off a full-sized Moog synthesiser. An instrument which had, thus far, only ever been seen in the studio and whose emergence on stage was seen as nothing short of madness. But there was Keith Emerson, bouncing all over it in the same way that a Safari park monkey bounces all over your car as it slowly strips off the windscreen wipers. ELP showed no reserve. Only a mixture of brilliant musicianship and naked bravado.

With the Isle of Wight, the public saw the birth, not only of ELP but of super stadia, smile-inducing live performances and, just to top it, the creation of modern-era prog to the public eye.

All in all, it was quite an occasion.

You can find this concert snuggled up to a host of others on one of two new box sets dedicated to either seven CDs or ten pieces of vinyl via the BMG label. Called 'Out of This World: Live (1970-1997)' both include a thirty-two page glossy book packed with images and info. For vinyl that means five gatefold editions covering five concerts in all.

Those concerts include the inaugural California Jam, California, USA 1974, Works Live Montreal, Montreal, Canada 1977, Royal Albert Hall, London, England October 1992, undertaken after the band had reformed in 1991, Union Hall, Phoenix, Arizona USA September 1997 is the one concert in these sets that have previously been unreleased. And finally, of course, Isle Of Wight Festival, Newport, England, 29 August 1970. **PR**



"They offered confidence, buckets of energy and the sort of showmanship only produced with a full-sized Moog synthesiser"

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Back Tracks

A pictorial and illustrative theme ranges across three books reviewed by Paul Rigby this month.

LED ZEPPELIN

Let's begin with the large format, 12" square Led Zep book that features over 300 illustrations. Moving on from the common albums to the weird and wonderful albums and yes, even singles.

Divided into Studio Albums, Live Recordings and Singles, Promos & Rarities, this is a pictorial account of a band. Text for each entry is minimal here, reduced to label, catalogue number, format, date and place of release. The rest of the page is the image of the release itself. A catalogue section at the rear adds a little more information but has little to add.

This is a book for collectors, for fans and for art lovers because, more than anything else, this is an art book devoted to an idea: Led Zeppelin. And boy are there colours and patterns and raucous, sensuous art explorations here.

Take this book for what it is and you'll love it. Don't expect exposition and analysis. Don't expect editorialisation. Don't expect stories and anecdotes. And don't expect completeness, either. This is celebration, not of the band but of the band's influence, its fan base and the culture bred from that.

THE BEST OF JAMMING!

Homebrew fanzines were a pre-social media method of expounding on anything you fancy. Music mostly, because it mattered. They spread ideas and thoughts and released emotions. They were also flags. They indicated that others believed in the same things as you.

Tony Fletcher's 'Jamming!' fanzine was different. It began in 1977 (limited to fifty copies and written by a thirteen year old Fletcher), then transitioned into a news-stand magazine, closing its doors in 1986.

This soft-back book covers choice excerpts from the Jamming! series including art and sports and politics but the focus, of course, is music so expect to see interviews with the likes of Paul Weller, Mark E. Smith, U2 and Pete Townshend.

This is a busy book, packed with a scrapbook of goodies from past issues often with modern contextual comments from Fletcher.

My gripe is that too much is often packed onto the page. Hence, you might have four fanzine pages reduced in size to fit on one book page. Combine the resultant micro font and busy background colours splattered over the fanzine page reproductions and they are tough to read too often. Time to get out the magnifier methinks!

Apart from that, this is a wonderful selection. Culture in amber if you will – and achingly nostalgic too.

PUNKZINES

This collection takes a similar road to 'Jamming!' but looks at a broader range of punk fanzines such as '48 Thrills', 'Bondage', 'London's Burning' and – yes – 'Jamming!' as well. It also takes a wider view of the scene as a whole. Talking to people who were active during the time, Punkzines interviews fanzine creators as well as others in the music business of the times.

Punkzines takes all of these voices and images and spins a narrative that looks at the rise of the scene, other factors that played a part such as politics (e.g. Rock Against Racism), the splintering of the genre in the early eighties during its so-called Second Wave, the growing professionalism of many fanzine editors and more. More than a straight fanzine overview, it's also a valuable adjunct to punk history as a whole. **PR**

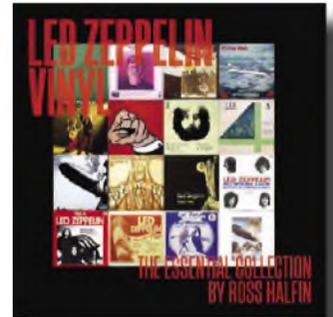
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Author: Ross Halfin

Publisher: RAP

Price: £50

Pages: 216



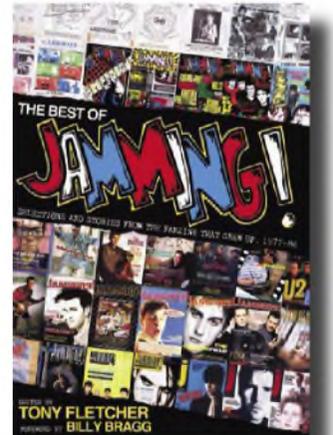
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Publisher: Omnibus

Price: £25

Pages: 288



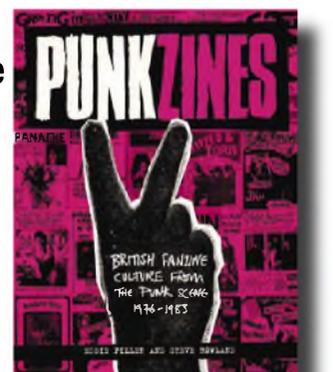
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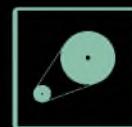
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loudspeakers. Excellent cabinets and drivers including Mission Stancette stands. Matching serial numbers. £195. Tel: Rob 07770 359 443 or Email: robrolandsuk@btinternet.com (Staffordshire)

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MUSIC FIRST Audio transformer conversion isolation box. Was £600 new. Excellent condition. Offers around £200. Tel: 01245 250 375

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SONUS FABER Sonetto speaker stands, in excellent condition, with original packaging. £250. Collection from Heathrow area. Tel: 07398 642 586 or Email: johnakeanelangley@gmail.com

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REGA P3-24 (white) + motor fitted. Goldring Eroica LX MC. £325 ono. Will split. 3 metre pair Russ Andrews speaker cable £120 ono. All limited use vgc. Tel: John Harris 07905501265 (East Sussex)

2 NAKAMICHI CR-7 tape decks. £2600 (or £1300 for one deck) Both near mint and used regularly. One deck, light in tape well not working. I believe both to be gear drive. One recently serviced by Peter Dolman and the other a few years back by B & W England. Tel: 07983 864 126

QUADRASPIRE HI-FI Qube, cherry, sand blast glass doors, x2, £169 each or £299 for both. Tel: John 07526 306 713 (N.Wales)

MARSHALL CODE, 100w head plus 4x12 cab £265, Tel: John 07526 306 713 (North Wales/18 miles Chester)

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PRO-JECT BOX RS-PRE, MM/MC, black, £200. Heed Orbit-1 motor controller. 2-Speed, leads, motor + pulley. £200. Cyrus PSX-R, black, £200. Tel: 01608 684 845

NAIM NAIT XS. Excellent condition, boxed, manual. Chord RCA interconnect cable. £650. Tel: 07864 034 087 (Eastbourne)

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NEXT MONTH JANUARY 2022 ISSUE

WORLD AWARDS ISSUE

We select the best products to pass through our portals in 2021. If you want to know what is the best of the best, don't miss this great issue.

PRIMALUNA EVO 300 AMPLIFIER

New from PrimaLuna is their EVO 300 Hybrid amplifier that, as you may guess, combines valves with transistors to give the best of both. The power amplifier section uses FET's to produce a claimed 100W per channel, helping to deliver "taught and tuneful bass" they say. Up front, the preamplifier stage has no fewer than six 12AU7 valves, fed by two power supply transformers. Add in a massive 500VA toroidal for the power amplifier and this is one big amplifier weighing 25kg. Don't miss our in-depth review in the next great issue.

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This is a selection of what we hope to bring you, not a complete list. We regret that due to a wide range of issues, we cannot guarantee that all products listed above will appear.

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"In amongst the whimsy and trickery there was a large lump of melodrama"

It's odd isn't it? You see a music star up there on a stage and you assume they were born bred and grew up, right there. The thought that they had another life is far from your thoughts as you browse their works on the record shelves.

But Harry Nilsson was a guy from another life and one that would draw yawns from anyone who might have prodded his biography. Nilsson worked in a bank. He only did that because he lied at the interview, saying he was a graduate. He wasn't. Saying that, Nilsson had an aptitude for the bank computers he worked with during his night job, which left him the sunshine hours to work on his songs.

Emerging from a poor, one-parent family, Nilsson had to hustle to live and hustle he did. On song terms he peddled his art to Phil Spector to be sung by The Ronettes and the Modern Folk Quartet, The Monkees – and even The Yardbirds.

He quit the bank job when his debut LP 'Pandemonium Shadow Show' was released in 1967. A series of albums would follow including 'Aerial Ballet' which featured the Fred Neil cover 'Everybody's Talkin'. It was chosen as a theme for the film 'Midnight Cowboy' which helped to push the song towards Nilsson's first Top 10 hit.

The die was cast, he was singled out as a favourite by The Beatles of all people and the man became a star – but Nilsson made a point of refusing to be categorised. His albums shifted amongst genres, neatly avoiding being packaged. He released an LP containing songs by Randy Newman ('Nilsson sings Newman', 1970) and then another as a sound track to a children's animated special ('The Point', 1971).

In that same year 'Nilsson Schmilsson' was released after being recorded at Trident Studios in London, engineered by Robin Geoffrey Cable who would work on Carly Simon's blockbuster 'No Secrets' the following year.

Arguably Nilsson's first mainstream release, this album was a real rock album full of pop references to please as many people as possible of a mature bent. This one was created to launch the man into the stratosphere. And it did.

One wonders if the coherent nature of

this album – unusual for Nilsson – was down to Barbra Streisand's older producer, Richard Perry being the man with his hand on the tiller.

Nilsson's supporting cast was also as solid as a rock for this release, adding a sense of confidence to the arrangements. They included ex-Streisand guitarist, John Uribe, Eric Clapton man Jim Gordon, Herbie Flowers, Chris Spedding and John Lennon chum, Klaus Voorman on bass.

Certainly, this album, which looks at those careless, youthful days, life in suburbia and more mature growth and living in the now has a certain steady flow, a sense of purpose and direction. Again, not something you'd normally associate with Nilsson. Yet it retained the Nilsson wit too, so it the album always felt like a Nilsson creation.

I say "creation" and that's true. There are seven originals on this LP but there's also a few covers including the mighty Badfinger cover 'Without You' (Nilsson's interpretation would win him a Grammy). This track said everything about the album because in amongst the whimsy and trickery, here was a large lump of melodrama. No Nilsson LP ever had that sense of creative balance. Not before nor since.

Arguably, the most intriguing part of this album is the name itself. I must admit to scratching a chin on several occasions wondering about its origins. And then I found the answer from a 'live' WNEW-FM interview Nilsson did with the remarkable radio DJ, Alison Steele, aka The Nightbird, a lady with a sultry voice who became an institution on New York radio in the seventies.

Steele opened with "I had a picture of you sitting there and trying to find a title and saying 'Oh Nilsson Schmilsson, what's the difference?'".

Nilsson countered with "We were sitting in our room, trying to think of a title for the album and a friend of mine, whose name is Bill Martin, a very old and dear friend, said those very same words".

The album can be enjoyed once more via the American audiophile outfit, Mobile Fidelity, that has reissued the LP as a double album gatefold because the mastering has been completed at 45rpm to enhance the sonics.

PR



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