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APRIL 2016

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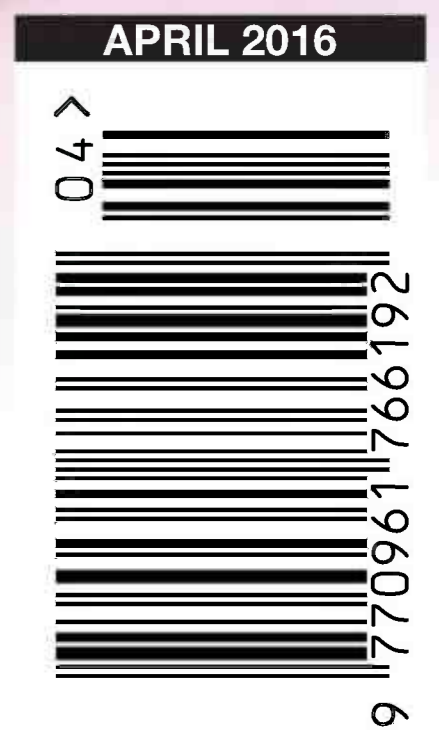


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welcome

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Shaun Daniels, M.D. of Peak Hi-Fi and his manufacturing company SMD, especially wanted me to see and review their new SMD V2.0 turntable, because he knows I am a long term Garrard 401 user. And I was delighted... you can read my review on page 10. In case it isn't quite clear, page space being limited, I received a prototype – and had to reject it. Measurement showed a good, but not exceptional performance – I sensed a problem.

After Shaun bought in the same test equipment I use, to see what I was seeing, he found even greater spindle circularity was needed

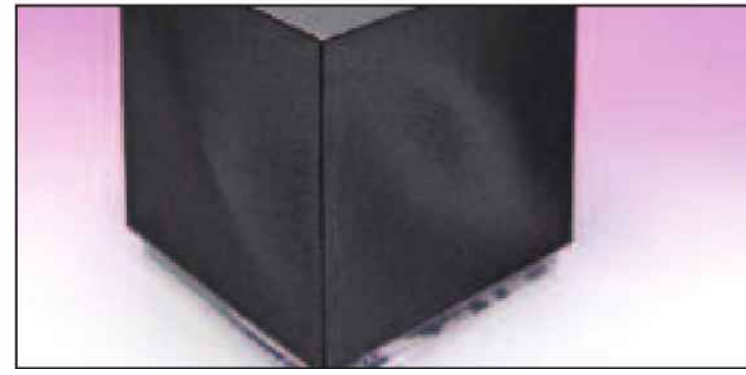
plus a better felt washer and changes to motor feedback. These improvements made an extraordinary difference, moving the V2.0 to a level fractionally better than Direct Drive. I suspect that is down to its now-superb bearing that is likely better than all others, as well as its big 9kg machined platter. And I must not forget the Maxon RE-max 29 brushed d.c. motor and Escon 36/2 motor controller of course.

What a fascinating project and product the SMD V2.0 turned out to be. I was intrigued by it and left very surprised by just what idler drive could achieve using modern day parts to overcome olden day limitations. I hope you enjoy reading what is coming out of Sheffield these days; it isn't cutlery any more.

Also, as Martin Pipe notes, although the Garrard 401 and 301 turntables put idler drive back onto today's turntable wish lists, long ago others used it, notably the Swiss Lenco company in their GL75 turntable. I have serviced them and used them – and they are quaint but clunky! But all the same, a big fan base and web site has grown up around them, all off which you can read about on page 83 Extraordinary.

And whilst I'm known for my Garrard, as it were, Jon Myles is known by Naim as a Naim-ey (or whatever they are!), meaning he owns Naim, knows it every which way and is totally in tune with the marque. This also means he gets to snout out every new Naim product before they've finished inserting the last screw – and that's why you'll find the impressively complex and well finished Mu-so Qb on page 63 of this issue.

The hi-fi world moves ahead, even whilst moving backwards – to vinyl replay. I hope you enjoy reading about its differing directions in this issue!



Noel Keywood
Editor.

hi-fi world

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verdicts

●●●●●	OUTSTANDING
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amongst the best
extremely capable
worth auditioning
unremarkable
flawed
keenly priced

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

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

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

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

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



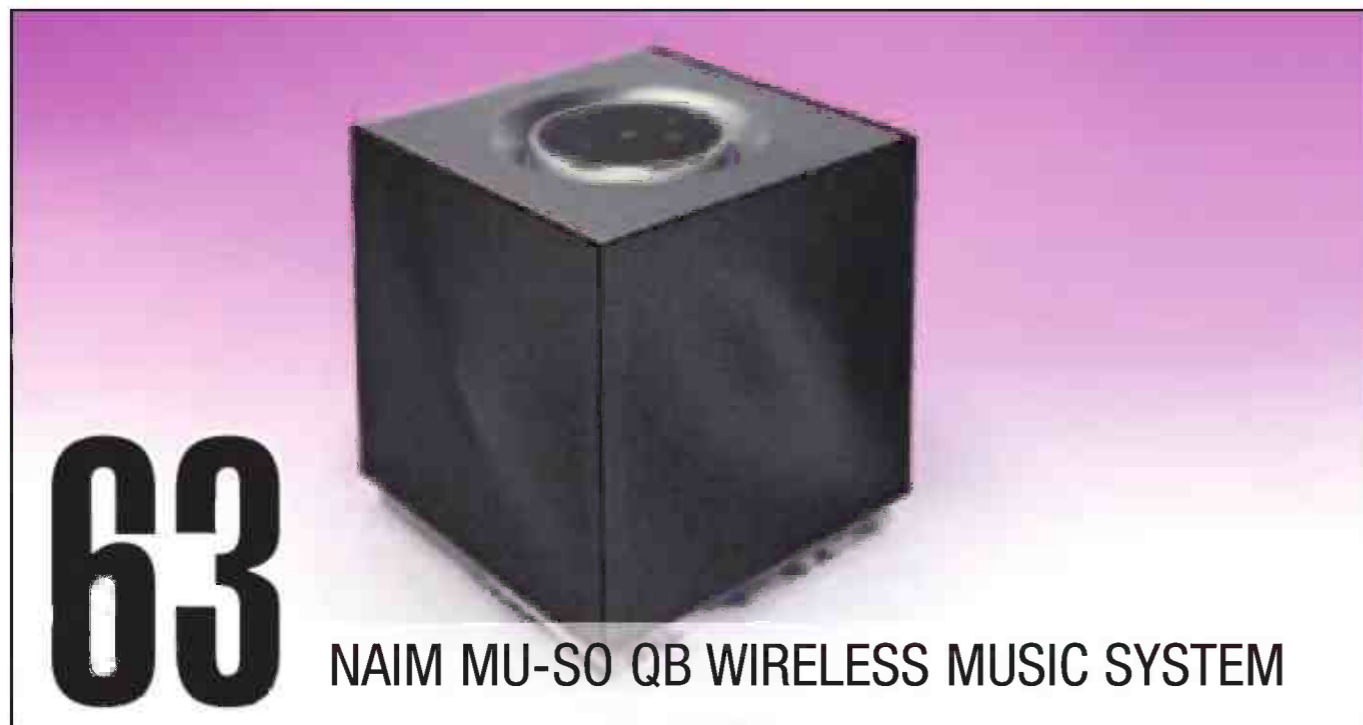
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Hi-Fi World measurement

Two products in this month's issue, under test.

The products we review are tested first to ensure they work properly and meet their manufacturer's specification. Our measurements also look at factors that affect sound quality, like frequency response, distortion and dynamic range, as well as those that affect compatibility, such as output level, output power etc.

These tests are complex and can only be made using a professional audio analyser, calibrated to international ISO standards to ensure accuracy – we use the excellent Rohde&Schwarz UPV.

Loudspeakers and headphones require acoustic analysis. For this we use the well known Clio test system from Audiomatica, Italy to provide reference standard acoustic measurements, within a very large 6000 cu ft test room. You can be sure our loudspeaker reviews, covering the full audio band from 20Hz to 20kHz, are accurate as a result.



The Cyrus Audio Phono Signature phono stage under test, connected to our Rohde&Schwarz UPV audio analyser at top left, with a repeat screen beneath it.

On screen is the Phono Signature's frequency response, produced by feeding in a pseudo-random, wideband noise signal that the analyser can either pre or post-equalise digitally, utilising our own mathematically correct RIAA equalisation time constants, to give a net-flat on screen display (rather than an RIAA curve). The UPV analysis extends from 3Hz up to 20kHz and is accurate to within 0.1dB.

The UPV also measures distortion, noise and overload levels.

Here's our highly specialised turntable speed stability measurement system. At left is a DIN 45 542 test disc that offers better results than all others. Top centre is a Kenwood FL-180A Wow & Flutter meter whose FM demodulated output is fed to a Hewlett Packard HP-3561A spectrum analyser able to work down to super-low frequencies of 0.1Hz or lower. Analysis times are long as a result but we can clearly identify basic rotational speed error at 0.55Hz (33rpm), as well as idler wheel and/or motor capstan components at higher frequencies. The turntable feeds a custom measuring pre-amp, without RIAA.



email:news@hi-fiworld.co.uk

news



AUDIOLAB UPGRADES M-DAC

Audiolab has launched a new version of the M-DAC. The new M-DAC+ is built around the ESS Sabre32 9018, a 32-bit DAC chipset, surrounded by a proprietary, discrete master clock to minimise jitter, coupled with time domain isolation and JFET Class A output stage. The M-DAC+ also features a new chassis with the OLED display window now centrally positioned and rounded at the sides.

The display is flanked by two rotary controls, one to adjust volume and the other to select settings – replacing the buttons found on the M-DAC. Internal improvements include processing audio data up to 32bit/384kHz via USB. The USB input now also supports DSD files, offering compatibility with DSD64, DSD128 and DSD256. The M-DAC+ inherits seven filter settings from the M-DAC for PCM files and adds four more for DSD playback.

Another important change relates to the power supply, which has been upgraded and is now fully incorporated within the M-DAC+'s chassis (hence its slightly taller and deeper case). A toroidal transformer uses multiple windings to feed separate analogue and digital rectification stages.

The Audiolab M-DAC+ comes with a redesigned remote control and is available in black or silver for £799.95. For more information call 01480 447700 or go to www.audiolab.co.uk

PRO-JECT ESSENTIAL II DEMON

Pro-Ject Audio Systems and the Austrian DJ and producer Parov Stelar have co-operated to produce a limited collectors edition turntable based on the Essential series, utilising a straight 8.6in aluminium tonearm design made from a single piece of aluminium with sapphire bearings, feet that effectively decouple the turntable from its surface, a synchronous motor with silicone belt and a low-resonance platter made from laminated particle board. The main platter bearing consists of stainless steel spindle and bronze bushing with Teflon bottom to secure low friction. The Essential II Demon will come with an Ortofon OM MM cartridge. Price is €359.

Click on www.project-audio.com for more information.



YAMAHA AVENTAGE HDR & DTSX UPDATE

Yamaha has announced that the RX-A1050, RX-A2050, RX-A3050 and the CX-A5100 models from the Aventure range of AV receivers will all receive a firmware update to support the latest High Dynamic Range (HDR) technology with HDMI version 2.0a.

In addition to this, these models will also receive support for new DTS:X content platform at the same time, allowing customers to enjoy newly-launched DTS titles as they are released.

The YSP-5600 Atmos soundbar will also benefit from a DTS:X firmware update although this will come later than the Aventure series. Finally, Yamaha has said that the mid- to high-end models of AV Receiver from the brand, the RX-V679, RX-V779 and RX-A850 will all receive firmware updates for HDR as well.

The AV Receiver and Soundbar products feature Yamaha's MusicCast wireless music system, allowing you to stream audio content. You can even link external Bluetooth speakers to MusicCast.

All of these updates will be free and, if you already own one of these products, you will be prompted to download the new firmware if your product is networked. If not, then follow the instructions on the Yamaha website once the firmware is released to update via other methods.

Contact uk.yamaha.com for more information.



PRO-JECT VINYL CLEANING SYSTEM

Pro-Ject has launched its first dedicated vinyl record cleaner. The VC-S uses a specially developed cleaning solution and high-powered vacuum technology, meaning a record side can be dried in as little two rotations, achieving a full rotation in around two seconds. It's also capable of dual-directional rotation. The purpose-engineered aluminium record clamp is lined with a rubber seal that keeps cleaning fluid away from the record label during use. The clamp also replaces the need for a platter. The vacuum arm is robust and uses no springs.

The accumulated waste solution that's sucked through the vacuum is filtered away from the built-in electronics and stored in a 2.5 litre waste container. The fluid level gauge on the side of the VC-S chassis indicates when the tank is nearly full and discharging the waste liquid is achieved with the supplied funnel.

The VC-S is supplied with Pro-Ject's newly developed vinyl cleaning solution, Wash-IT. Pro-Ject has also developed a special alcohol-free solution developed for use with older 78rpm shellac records (Wash-IT 78). The VC-S is supplied with all the accessories you need to get started, including 100ml of Wash-IT. Separate accessories including an optional dust cover and various sizes of Wash-IT cleaning solution are also available. Price is £299, Wash-IT, from £15.00 & VC-S Dust Cover £25.00.

For more information call [01235 511 166](tel:01235 511 166) or visit henleydesigns.co.uk.



AVID SPEAKERS

Following last year's launch of their Reference Amplifiers, Avid has announced its complementary range of Reference loudspeakers, which will officially launch at this year's Munich High End Show 2016.

Made up of one stand-mounted design and two floor-standing models, they feature large, black aluminium enclosures. The three models start with the stand-mount Reference Three through the Reference Two and finishing with the range-topping Reference One.

Prices are expected to be £35K to £120K.

For more information log-on to www.avidhifi.co.uk or call [01480 869 900](tel:01480 869 900)



MCRU - THE MAINS CABLE

Following a five-year research programme into the effects of mains electricity supply on hi-fi equipment, MCRU has introduced Pinnacle which employs cryo-treated (DCT) cable.

Pinnacle is available in two versions: standard and high current, the latter with thicker-gauge cable. All terminations are from Furutech of Japan. Standard length is two metres and extra cable can be specified on order.

The MCRU Pinnacle standard version is £1,265 (2m, terminated) and the high current version is £1,665 (2m, terminated). Call [01484 540561](tel:01484 540561) or log-on to www.mcrucable.co.uk for more information.

'PROJECT R2R'

Austria-based reel-to-reel/vinyl software outfit, Horch House, has announced the initiation of 'Project R2R': the development of the world's only new reel-to-reel tape deck. More news soon on that one...

In related news, the company has announced the release of the following titles on reel-to-reel tape: 'Star Wars Original Soundtracks, Episodes 4, 5 & 6': 'A New Hope', 'The Empire Strikes Back' and 'Return Of The Jedi'; 'Carmina Burana' by Carl Orff performed by the Leipzig Radio Symphony Orchestra; 'The Planets' by Gustav Holst performed by the Boston Symphony Orchestra and conducted by William Steinberg; 'The Reiner Sound', Ravel/Rachmaninoff from the classic RCA Living Stereo series featuring conductor Fritz Reiner with the Chicago Symphony Orchestra plus 'One Second' by Yello.

All new titles are available as reel-to-reel tapes and in three high-resolution digital formats: 24bit/96kHz and 24bit/192kHz each in WAV and DSD in DFF. Reel-to-reel versions cost €398 each while digital formats are priced from €24.95 each.

For more information go to www.horchhouse.eu or call [+43 699 1909 9436](tel:+43 699 1909 9436)



CAD 1543 MK.II

Computer Audio Design has announced a refit to the CAD 1543 DAC. The included Philips TDA1543/N2, with its selected 16 devices, is now mounted on a revised four-layer circuit board to allow native conversion of 24bit/192kHz PCM audio.

Signal wiring has been updated to single-crystal OCC (Ohno Continuous Casting) copper, custom manufactured to CAD specifications. The casework retains its laser-cut 10mm-thick acrylic construction, available in black as standard or other colours to special order, and is now supplemented with internal RFI/EMI materials.

The CAD 1543 MKII DAC is available now, priced at £7,250. Owners of the original 1543 DAC can opt to have their units refitted to full MK.II specification at a cost of £600.

For more information visit www.computeraudiodesign.com



BRICASTI M1SE

This new dual mono Special Edition M1 DAC is presented in an anodised black and aluminium finish and incorporates Stillpoints' feet that are engineered and optimised for the design.

You also get point-to-point wiring, power capacitor improvements, DSD, DSD64 and DSD128 playback and a sampling rate support of up to 24bit/352.8kHz.

Finally, the new M1 Remote Control offers an upgrade to any existing M1 providing remote access to all settings and full parametric control of the M1.

Price is £9,999 with a M1 Limited 'Gold' Edition retailing at £14,999 (special order only)

For more information visit www.bricasti.com.



AXIOS FROM KIMBER KABLE

Russ Andrews has introduced the Kimber Kable Axios headphone cable, created using a new development of the Kimber woven cable design. Axios features sixteen individually insulated 24-gauge strands of OFHC (oxygen-free high thermal conductivity) copper with wooden accents. For example, the Audeze LCD3 cable features a Zebrawood connector; the Sennheiser HD800 is Gaboon Ebony and the HiFiMan is fitted with Mahogany. Each Axios cable is made to order based on the headphone type. The length of the cable can be specified, in addition to the connection at the amplifier end: 3.5mm or 6.3mm jack or 3 pin/4 pin XLR. Price is: Kimber Axios for Sennheiser HD650, 1.2m at £598; Kimber Axios for Audeze EL-8, 1.2m at £598; Kimber Axios for HiFi Man HE-6, 2m at £710 and Kimber Axios for Sony MDR-Z7, 3m at £850.

To learn more click on www.russandrews.com or call 01539 797300.

WILSON AUDIO ANNOUNCES ALEXX

Alexx is the fourth all-new loudspeaker from Wilson Audio in as many years. The Alexx's midrange is divided between two different drivers, each covering a portion of the mid-band area. The 178mm mid was first introduced in the Alexandria XLF. The 146mm is the midrange driver most recently found in the Sabrina. The all-new 267mm and 318mm woofers incorporated into the Alexx evolved from the proprietary 203mm and 254mm models found in the Alexia.

For the first time, a Wilson array features two stair steps, one for each of the two midrange modules. This allows for minute and precise adjustment of both the proper time-alignment of the drivers as well as the optimal axis relationship of the driver to the listening position.

Alexx joins the Alexandria XLF with its ability to move the port to either the front or rear of the bass enclosure. The latest version of the Convergent Synergy Tweeter is deployed in the Alexx. Price will be £90,000.

For more information visit www.wilsonaudio.com or call 020 8971 3909 for more information.



Hard Drive

SMD's V2.0 uses idler drive to spin its platter, like turntables of yore. Noel Keywood peers closely at an interesting update on his beloved Garrard 401.

It was after seeing a beautifully restored Garrard 401 turntable at the National Hi-Fi Show in Whittlebury some years ago that I looked at the Peak Hi-Fi website – and my eyes popped out. There were restored Garrards everywhere it appeared, looking wonderful in a wide variety of finishes and plinths, ready to grace the home of vinyl lovers around the UK – and

outside it. Not surprising then that Peak Hi-Fi should end up producing a modern equivalent, the SMD V2.0 I am reviewing here.

The reason being that Garrard ceased production of this now-famous turntable a long time ago, in 1977 no less, and the company was closed down by owners Plessey a few years later. If you want a 401 today, as many do, you'll have to take

your chances buying a second hand unit – rare as hen's teeth – that will almost certainly need work done on it or buying a re-conditioned one.

Prices are around £400 for the former and up to £3000 for the latter, or even more, depending upon its state, plinth, etc. With a dwindling supply of the things it was only a matter of time before someone produced an alternative, since there's





An open external arm support gives easy access to the signal cable. Our review sample came with an Ortofon Cadenza Bronze MC cartridge fitted to a magnesium SME V arm.

a market within the UK and outside it.

This market existed long before today's vinyl revival: I first saw a container being filled with them for shipment to Japan way back in the early 1990s. And my own 401, bought from Garrard whilst still in production, was fettled to perfection in the early '90s by expert Dr Martin Basin. The 401 has been a recognised classic for decades.

In essence the 401 was simple engineering wise, if superbly made – sort of! Towards the end of its life, quality control went downhill and not all 401s were perfect by any means, which is why new bearings, idler wheels and a very solid plinth are often needed in restoration.

All of which is to explain why Peak Hi-Fi decided to build the new SMD V2.0. Priced at £4900, in essence it is an idler drive turntable designed along similar lines except that it uses not a 1960s squirrel cage motor seemingly strong enough to power a Tube train but a modern low speed d.c. servo-motor from Maxon, a Swiss motor manufacturer.

To feed this motor, the V2.0 has an external two-speed power supply, with on/off and 33/45rpm buttons. Speed is changed electronically, not by moving the idler wheel to a different pulley step as in the original 401, where 78rpm was also available I'll note.

Garrard used a high-torque motor for fast start, since the 401 wasn't really purposed for domestic

use so much as professional use, typically in broadcast studios. Here it needed to react instantly, have steady speed and bullet-proof construction to withstand heavy daily use year in, year out. A bright orange stroboscope illuminated the milled-in markings around the edge of the platter giving it strong visual appeal whilst ensuring chipmunk impressions would not be sent over the airwaves – annoying music teachers and music scholars throughout the Home Counties; perfect pitch can be an issue, mostly with Classical music. Rock demands a different set of sonic priorities and the Garrard met these too, which is why it is legendary today.

The 401 has a sound that

everyone likes, by good fortune. Turntables did not have 'a sound' back then, being seen as sonically inert and I doubt that Garrard subjectively engineered it. It was sonically effective all the same and has since bestowed magical properties upon idler drive.

The SMD V2.0 has been designed to recreate the sound of a 401, or at least its characteristic strengths, avoiding its weaknesses. There were weaknesses; 401s are not perfect by any means, as reviewer and violinist extraordinaire Rafael Todes (Allegri String Quartet) is wont to remind me; he progressed from 401 to Inspire Monarch. I accept the 401 is not an ultimate turntable and I can even tell you why, but this is a review of the SMD V2.0 – and I

must stick to the point!

One of the points is solid build quality, another is ease of use. On the former, the V2.0 is built in much the same way as the Garrard. It uses a gorgeously sculpted heavy and rigid machined alloy chassis, supported by three large support legs that use Sorbothane to provide isolation. A plinth is not needed – no woodwork here – instead there is a vestigial chassis.

The machined aluminium platter is both rigid and heavy at 2.9kgs, so it has a lot of rotational inertia. It spins on a bearing much like that used by Garrard in the 401, but SMD had to finely hone the tool steel spindle to microns to get speed stability figures



A Maxon servo-controlled d.c. motor sits beneath the machined chassis, driving through an idler wheel. Power comes from an external supply through a two-core cable.



With platter removed the idler wheel and its support arm can be seen. Currently there is no hold-off mechanism to disengage it when the platter is stationary. The central bearing has an Oilite bearing and a central shaft ground to very standard of concentricity.

able to match Direct Drive.

I know this because I had doubts about an early sample (good, but not exceptional). Shaun Daniels of SMD investigated and found that extreme precision of circularity was needed to minimise the 'once per revolution' wow at 0.55Hz (33rpm) that most turntables exhibit to a greater or lesser extent, as highlighted by our analysis of wow. This transformed the V2.0, by more than halving the wow, suppressing it to levels lower than other turntables. Servo-control was also adjusted to lessen the motor influencing the platter once at speed, relying on the platter's high inertia to provide speed stability. This allowed the SMD V2.0 to achieve slightly better than Direct Drive speed results and one of the most stable rotational performances I have seen but it lengthened start-up time.

These days electric motors are a big technology. Low speed d.c. motors and stepper motors are everywhere, in disc drives, CD players, washing machines and moving aircraft flaps. The low speed Maxon d.c. motor used by the V2.0 is much the same as these motors, or any Direct Drive motor, in that it is electronically commutated; it wouldn't work without transistors, put simply, switching current into stationary coils.

These days however, the whole process is packaged up into silicon control chips, complete with speed reference and servo-feedback. This then is a modern high-technology

motor, not a simple a.c. synchronous type you find in so many belt drives.

The turntable itself isn't Direct Drive of course: the motor is geared down by the intermediary idler wheel. The hard rubber idler is finely machined to concentricity and works perfectly, measurement showed.

It provides a hard coupling to the motor, removing the variability introduced by elasticity along the length of a belt and the speed variations this introduces – the reason why belt drive turntables commonly lack pace and timing.

The main issue that potential purchasers are likely to find difficult to accept in the V2.0, in current form at least, is the lack of a mechanism to easily disengage the idler when the turntable is not spinning to avoid

flat spots. Currently, a small tool is provided that has been pushed through an opening hidden beneath the base plate – a fiddly job impractical for everyday use.

Whether the SMD 2.0 will be fitted with a hold-off mechanism I do not know at this point. Shaun Daniels was uncertain it was needed but Garrard's 401 did disengage its idler when not in use, as did all idler drive turntables I believe.

I think it would be unwise to ignore this and suggested either a simple cord to pull the idler wheel arm out of engagement or, more ambitiously, a solenoid to hold it in engagement so when power was removed it would disengage.

The other difficulty with our sample was that absolute speed could only be set using a stroboscope. The speed adjustment control was uncalibrated although I did inevitably mark 33.3rpm onto a piece of masking tape for quick reference.

Otherwise, the V2.0 was easy to use. There's an on/off button on the power supply unit, a speed change button and speed adjuster – and that's it.

The adjuster provides 5% speed variation, measurement showed. Run up is slow, but not agonisingly so. A heavy puck holds down an LP, the platter mat being a hard vinyl disc – but this can be replaced of course.

Our sample had a lovely SME V magnesium arm fitted, complete with Ortofon Cadenza Bronze MC cartridge. I connected the arm's leads to an Icon Audio PS3 phono stage and thence to Quad II-eighty valve amplifiers (80W) driving Spendor SP200 loudspeakers, on review for next month's issue. This then is an arch-analogue system with nary a



The power supply speed adjustment control was uncalibrated making a stroboscope essential for setting speed accurately to 33 or 45 rpm. Adjustment range measured +10% to -6%.



A two pin screw connector delivers power to a 1.4 metre fabric covered power cable. Mains power input was via a conventional IEC connector, the Maxon control board accepting 100V-240V mains input.

transistor in sight – and it sounded delicious I will say right now!

SOUND QUALITY

Firstly, one of the peculiarities of a Garrard 401 is that it seemingly maintains blistering pace, having a rock-solid grip on tempo. There's much speculation as to why and the suspicion is that it better resists dynamic wow caused by the stylus in the groove than other turntable types. Belt drives, as a breed, have a more mellifluous sense of tempo.

I ensured the SMD V2.0 was set exactly to the right speed using a test disc, rather than a stroboscope, to be certain about what I was hearing – and sure enough with high-tempo Rock performance came out of the gate seemingly at breakneck speed. A fast tempo song with electronically timed synth beats such as the Scissor Sisters 'Filthy/Gorgeous' highlighted this property in breathless detail: the drum beat was powerful and hard locked onto the beat, whilst the bass line seemed to race along.

Sudden changes in the song's structure were dramatically underlined: the V2.0 brought clarity to what was going on dynamically and in temporal terms, making the song just viscerally more exciting. This is what the Garrard does, it leads music – Rock – on a long high-octane charge that makes it a gripping listen.

I'm aware that Direct Drives like my Technics SL-1210 and Pioneer PLC-590 are actually more metronomically correct and measurement underlines this, yet they don't seem to have the pace and dynamics of the Garrard, which is why I still use it. The SMD V2.0 offered a very similar performance across a wide range of Rock I span on its platter.

Where the V2.0 pulls ahead

of the Garrard is its sense of stage depth, and lack of midrange "greyness", a slight coloration the 401 is known for.

I was well aware when spinning torture 45s like Alison Goldfrapp's 12in 45rpm single 'Ride a White Horse' that this system was not only maintaining the beat and power of the song, but also resolving space and depth in the soundstage around Goldfrapp at the mic.

It added life into the track, making me aware that not only were there programmed synths but also a singer at a microphone. Sudden drum cascades and changes of tempo were vivid in their portrayal: great fun, it brought a smile to my face.

And that was one reason why

you would want a turntable like this: if you have the wish and the home to play Rock as it should be played (cough) then every bit of the hi-fi chain needs to do its job in appropriate fashion and with LP we are talking a big idler drive like this up front.

With more laidback material like Jackie Leven's 'Some Ancient Misty Morning', opening percussion sounded fresh and crisp, timed to perfection but supple and forceful too. This being a more organic Rock ballad, Jackie's voice takes prominence and it was easy to hear him at the microphone, the V2.0 offering a convincing sense of stage openness. This brings a natural, relaxed character to its sound.

CONCLUSION

Shaun Daniels has obviously worked hard and spent money on the SMD V2.0. It is beautifully built, solid – and every bit a successor to the 401 in these terms. You have to work hard to sound like a 401 and I think the V2.0 has managed it. It has also overcome the weaknesses of the 401, offering less colouration and more air and space in the stereo sound stage.

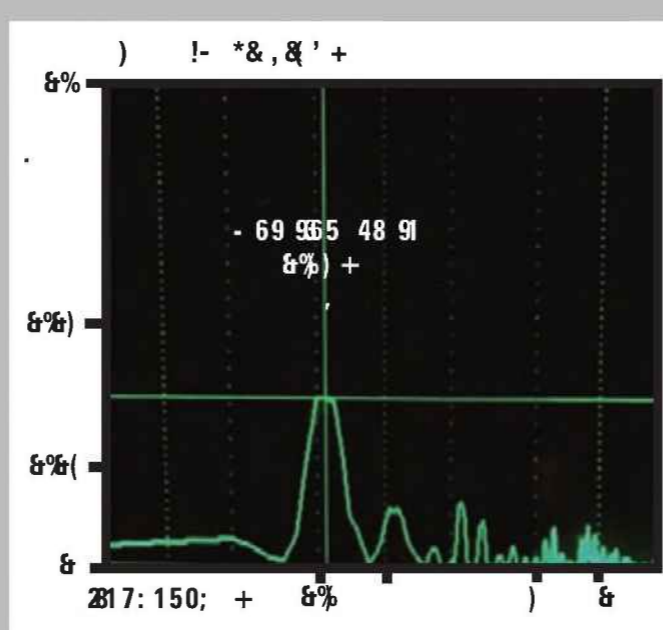
Our review sample was finalised in performance, being more speed stable than Direct Drives, but issues such as idler wheel retraction and speed calibration yet need to be resolved. Potentially then, a great turntable.

MEASURED PERFORMANCE

I set the V2.0 to 33.3rpm with a DIN 45 545 test disc and the servo-controlled Maxon motor held it very steady at this speed.

By not changing speed either regularly (wow) or over the long term (drift) speed variation was low all round. Our analysis shows basic rate rotational wow at 0.55Hz (33rpm) was extremely low, measuring just 0.08% with little fluctuation. I expect to see around 0.2%

SPEED STABILITY



with good belt drives (0.3% for budget designs) and 0.08% with Direct Drive, so the V2.0 is as good as it gets here.

The test disc used and disc centring are critical to measuring low values like these accurately. Our analysis clearly shows the V2.0 has minimal wow at 0.55Hz (33rpm) by the low level of the peak at this frequency.

Apart from this basic rate variation there was little else of note, with no sign of idler wheel disturbance at 7Hz.

The V2.0 was as speed stable as a Direct Drive under measurement, showing the effectiveness of a high quality servo-controlled d.c. drive motor allied to a heavy platter, with no compliant belt to introduce variance in the drive chain. **NK**

Speed accuracy	adjustable
Speed range	-6% to +10%
Wow	0.08%
Flutter	0.05%
Total W&F weighted	0.06%

**SMD V2.0
TURNTABLE
£4900.00**



OUTSTANDING - amongst the best

VERDICT

Top performance and sound, but details need finalising.

FOR

- pacy sound
- solid bass
- adjustable speed

AGAINST

- uncalibrated
- idler hold-off tool
- no 78 rpm

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Stephen Dawson, Audio Esoterica, Australia

"This Sigma system is a huge achievement which everyone must absolutely discover."

Adrien Rouah, Québec Audio & Video, Canada

Crossing The Rubicon

Twin tweeters make Dali's Rubicon 5 a little different from the usual floorstander, says Jon Myles.



Danish manufacturer Dali has been producing loudspeakers since 1983 and boasts a comprehensive line-up ranging from the relatively budget models to the flagship Epicon series whose prices stretch to some £11,500.

The company has built its reputation on the use of its own in-house designed drive units, allied to hand-crafted cabinets and rigorous quality control.

And the company is never afraid to do things slightly differently - as the Rubicon 5 on review here demonstrates. Priced at £2400, it's the smallest floorstander in a six-strong range which also includes two larger brothers, a standmount, centre 'speaker and wall-mounted model.

And while a 2.5-way design, it differs from most rivals in that it uses a 17mm x 45mm ribbon tweeter to augment a more traditional 29mm soft dome unit situated just below it. Dali says this helps improve dispersion plus giving improved resolution at the higher frequencies.

Mid/bass duties are handled by a 16.5cm driver made from Dali's own wood-fibre cone material which is said to give the ideal combination of low weight allied to good damping. This is loaded by a rear-firing reflex port to give better low-frequency extension, while twin pairs of sturdy 'speaker binding posts allow for bi-wiring if required.

The cabinet itself measures 890mm x 195mm x 339mm (H/W/D) and while relatively light at just under 16kg is extremely well constructed, with excellent fit and finish. Our review sample came in gloss white but black and walnut finishes are also available.

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- Jon Myles, *HiFi World* 2015

"But perhaps their reticence is understandable when the product sounds as good as this - after all, why let others in on the secret? Used in a variety of systems the Black Diamonds consistently revealed a wider perceived bandwidth, bigger soundstage and the ability to present transient details in an effortless fashion."

- Awards Edition, *HiFi World* 2015

"The Tellurium Q company has once again proved their products belong at the top of current cabling offerings. No matter how secretive or even mystic their approach may seem, the indisputable fact is their cables show a level of reproduction quality so far unheard of."

- *Mono & Stereo*, 2015

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Stereo Times
The Complete Authority Magazine

BEST High Fidelity 2015

HI-FI WORLD





A rear port loads the bass unit. Bi-wire terminals have gold plated removable links.

All in all it's a handsome looking product with that twin tweeter arrangement offering something different to many of its rivals.

SOUND QUALITY

Hooking the Rubicon 5s up to a Creek Evolution 100A it was immediately obvious they have a rather expansive sound for their size.

Given some room to breath (not too close to a rear wall, ideally) and pointed straight down the room they sound energetic and forceful on up-tempo music.

Playing Bruce Springsteen's 'Land Of Hope And Dreams' from his 'Wrecking Ball' CD there was a pleasing slam and impact to the drums and bass, while guitars sounded lifelike.

There was some sense of an added richness in the low-frequencies which isn't totally accurate but the 'speaker never sounded less than agile. Playing James Blake's 'Limit To Your Love, for example (which can be a bit of a torture track for many a speaker) there was no sense of the bass slowing the music, or masking mid-frequencies. In fact, closing my eyes it was easy to believe it was a much larger bass unit.

Higher up the range those tweeters integrated smoothly - with no indication of listening to separate units. If anything they were slightly forward in their nature - which gives the Rubicon 5s a strong sense of detail.

Listening to Rashied Ali's cymbal work on John Coltrane's classic 'Interstellar Space' I could hear stick hitting metal - which is just as it should be. Female vocals were also clear and sharply defined, with a pleasing air about them.

On the downside, this does mean they are perhaps not the final word in tonal purity if that is what you are after. Other floorstanders have a better balanced nature, Quadral's £1750 Chromium 8s immediately springing to mind here (see review Hi-Fi World March 2016).

But that's not to say the Dalis are doing anything wrong. They are, in fact, an enjoyable loudspeaker that simply gets on with the business of playing music in a vigorous manner. With any album I found myself playing it all the way through in short order.

These 'speakers also image well, as you might expect from a ribbon tweeter, the soundstage extending to the left and right of the cabinets with good depth and height. With 'Mahler's 3rd' by the San Francisco

Symphony (DSD) the various strands of the orchestra were laid out before me, instruments anchored in their correct positions. There was a sense of power to the sound so orchestral crescendoes had grandeur.

Putting all this together, the Rubicon 5s were an enjoyable listen.

CONCLUSION

The Dali Rubicon 5 is a well-engineered loudspeaker with a big sound from a relatively compact cabinet. It has bigger bass than you'd expect while the midband is smooth and the treble - while slightly raised due to the twin tweeters - gives it a detailed, fast sound. It faces some tough competition at its price and it might

not be for those who value absolute tonal accuracy above all else. But it deserves an audition - and many people will likely find the enthusiastic way it goes about its music-making will be right up their street.



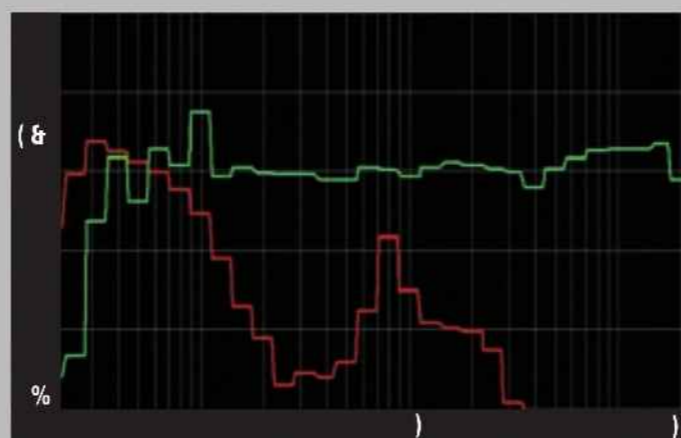
Two tweeters no less - a 29mm dome and, above it, a ribbon. They give the Rubicon 5 strong treble projection.

MEASURED PERFORMANCE

Our analysis of frequency response shows the Rubicon 5 when measured 20 degrees off-axis, between dome and

FREQUENCY RESPONSE

Green - driver output
Red - port output



IMPEDANCE



ribbon tweeter, to capture high frequency output. It gave sharply differing results in the vertical plane, measuring almost flat

on the axis of the dome, but with treble of +3dB up on the axis of the ribbon tweeter. Results varied widely according to mic position but less off-axis, so it is best pointed straight down a room and not at listeners, where the response shown will heard.

With emphasised treble and bass, the 'speaker has some extra zing to stand out under demo; accuracy is not paramount.

Bass output reaches down to a low 40Hz, extended by the port that provides broad acoustic output at low frequencies. Bass damping is good as a result, the impedance dip imposed by the port being wide in influence, with narrow residual peaks.

Sensitivity was high at 88dB sound pressure level from one nominal Watt of input (2.8V) and overall impedance measured 6 Ohms.

The Rubicon 5 has emphasised frequency extremes but otherwise measures well. It will not sound as smoothly accurate as some, but it will stand out. **NK**

DALI RUBICON 5
£2400



EXCELLENT - extremely capable.

VERDICT

A nice floorstander that marries good bass to a strongly-etched treble. Fun.

FOR

- strong bass
- detailed
- twin tweeters
- stereo imaging

AGAINST

- tough competition at the price

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My oh MaiA!

Martin Pipe checks out Pro-Ject MaiA DS – a 24/192 DAC, Class D amplifier, Bluetooth receiver and MM/MC phono stage all in one compact box.

A year or so ago, we tested the original Pro-Ject MaiA. A miracle of miniaturisation, it offered enormous functionality. Key features included a 24/192 DAC with USB input, Bluetooth receiver, remote-controllable preamp/selector (with motorised volume pot), MM

phono stage, Class-D stereo power amp and headphone amp. It needs an external power supply 'brick', but this can be tucked away out of sight. All of this could be yours for a mere £400! It sounded a lot better than mass-market audio systems that don't sell for much less with natural musical 'flow' and a surprising amount of

drive.

It's still available, but now we have the £700 'DS' version which can be seen as a MaiA 'on steroids'. Literally; it's physically-bigger (still small, though, compared to the competition) and you get twice the output. That's just over 50 watts per channel, into 4-ohm loads,



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Spondor D7

Among the finest speakers I've heard at any price
Sam Tellig, Stereophile Nov 2014

Spondor's approach is the most radical I've seen, going where no hi-fi manufacturer has gone before. D7 is extremely capable and very neutral, but most importantly it puts the music first

Hi-Fi + Dec 2013

If you're after a great all-round, affordable, high end loudspeaker, here it is

Hi-Fi Choice issue 370 2014

D7 has an unmistakable touch of magic. Easy to drive, genuinely efficient, undemanding of placement, fine stereo, extended powerful bass, upbeat and well-balanced, build and finish first rate.

What more can one ask?

Hi-Fi Critic Sep 2013

However it's been achieved, we can't help but marvel at the sound from the D7's. Spondor D7's set the standard for speakers at this price

What Hi-Fi Oct 2013

Bass punch allied to tremendous mid band and treble insight makes for a winning combination

Hi-Fi World Jul 2014



NEW Spondor A5R



Spondor A6R



Beautifully balanced sound
fine build and terrific engineering
What Hi-Fi Awards 2015

Brilliant mini-monitor
one of the very best ever
Hi-Fi Choice Yearbook 2014

This is a remarkable
little speaker
Hi-Fi + Sep 2015

Outstanding
Hi-Fi World Oct 2015



Spondor D1

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technology is employed. If this isn't enough, you can get even more 'guts' (80 Watts x 2) if you plump for the aftermarket 'Power Box MaiA DS' power supply unit, which will also power other Pro-Ject 'goodies' - among them the turntables that Pro-Ject is famous for.

Talking of which, the MaiA DS's phono stage - based on the internals of its manufacturer's acclaimed Phono Box - now caters for low-output MC cartridges as well as the MM types catered for by the original MaiA; a sensitivity switch on the rear panel sets gain to an appropriate level. As before, you're also given three line-level inputs. Thanks to the increased rear-panel space afforded by a larger case, they are now all standard phono sockets; 3.5mm jacks are no longer used for audio. A front-panel input of this sort would have been welcome, though.

Outputs are more comprehensive, too, addressing a criticism that was made of the first MaiA. In addition to the speaker terminals, that are still bunched close together, are fixed, variable and (mono) subwoofer line-level outputs. You thus get an upgrade path as active speakers or alternative amplification can now easily be attached. A 12v trigger output can switch such a product (if it has the facility) into and out of standby. Line-level outputs will also appeal to those with analogue-



The remote covers source selection, muting and volume control. The MaiA DS can also be controlled via Bluetooth from a smart device (iOS or Android) installed with the free 'Box Control' app. Infra-red emitters on the front panel allow the app to control other gear lying 'within range'. Clever stuff...



Internal construction is neater than that of the original MaiA. The heatsinks visible to the top-left belong to the two Class-D power amplifier modules - one for each channel. Note also the motorised volume control (bottom-centre), the adjacent Bluetooth module and the miniature PCB relays - which can be heard clicking when you change sources.

recording loyalties, although there's no 'tape monitor' provision. As before headphones plug into a standard 6.3mm socket, muting the speakers.

The digital side of the operation has been given an overhaul too. Yes, the DAC is compatible with 24/192kHz sources and boasts three 'standard' inputs (two optical), in addition to Bluetooth (a screw-in aerial 'wand' is supplied) and asynchronous USB. But the DAC has been changed from the Cirrus CS4344 (as also used in Pro-Ject's Head Box DS headphone amp/DAC) to the TI/Burr-Brown PCM1796. This chip supports DSD 'natively', and thanks to this the MaiA DS can support the technology in its 64, 128 and 256 variants - a welcome boost for those who buy hi-res downloads in this format.

Front-panel LEDs confirm which of these is currently being received. Also here is a sensor for the supplied 'credit-card' remote. But Pro-Ject also offer an alternative control in the form of a free 'Box Control' app. This harnesses the Bluetooth connection and so you don't need a smartphone with infra-red transmitter. This clever arrangement also allows you to

control other gear lying within range courtesy of infra-red emitters set into the fascia. Internally, the greater amount of internal space means the MaiA DS isn't as 'busy' as the earlier model. Construction is neat and practical use is made of relay signal-switching, polyester capacitors and 'daughterboards' - onto which are built the two vertically-mounted power amps, USB interface and Bluetooth radio module.

SOUND QUALITY

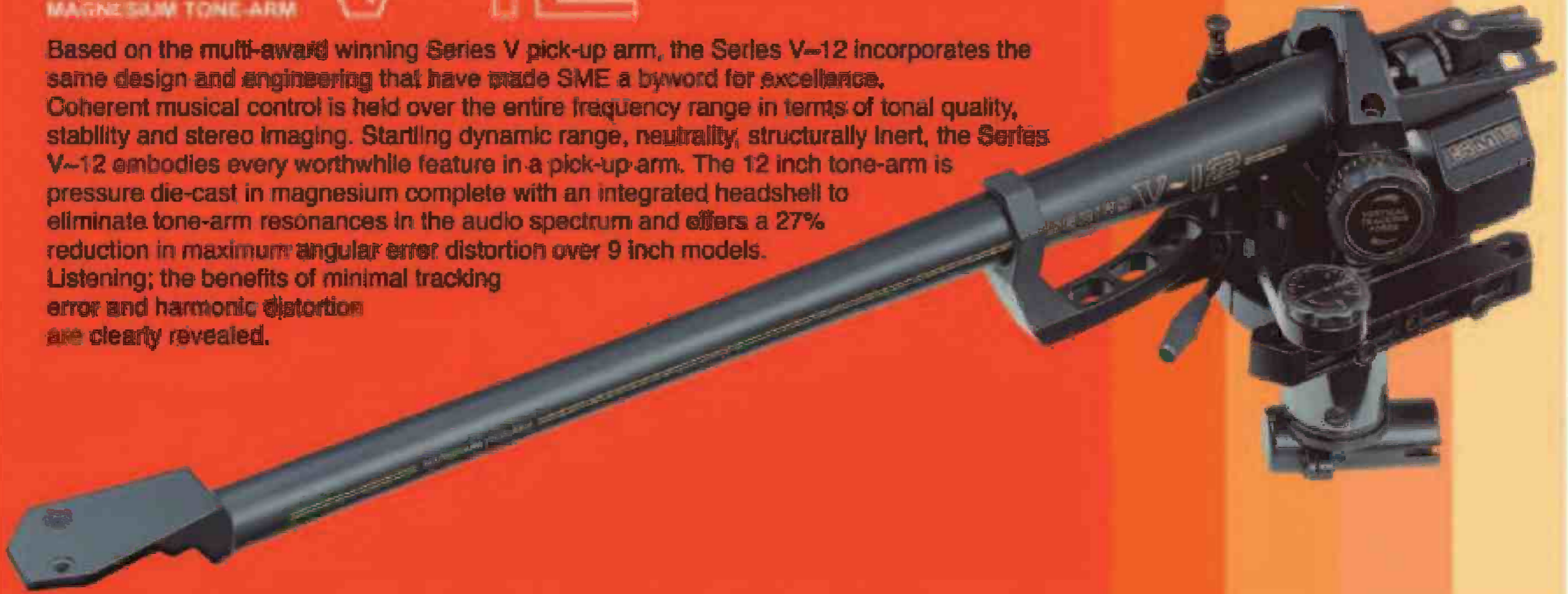
On the whole, presentation can be described as 'hard and fast' - but in a good way. The dirty 'garage-like' sound of the Velvet Underground's 'White Light/White Heat' album (lossless CD rip, played on a digitally-connected Cambridge StreamMagic 2) crackled with commensurate energy when heard via Quadral Aurum Wotan VIII speakers.

Helping here is a slight tendency towards brightness, which also gives percussive elements like hi-hats, cymbals and snares a degree of 'bite'. There was well-defined bass and plenty of body, certainly at listening levels that were comfortably-loud in a 12' x 15' room. In this respect, the

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DS scores over the lower-powered MaiA. Stereo imaging was also excellent.

It's unwaveringly musical, too; the MaiA DS 'involves' you in whatever genres happen to tickle your fancy. Via CD rips and hi-res files I tried a succession of jazz (Archie Shepp and Cannonball Adderley), classical (among them Schumann, Part and Liszt) and pop/rock (for example Bowie, Joe Jackson and The Cure) and all were delivered with that indefinable quality that draws you into the performance and gets your feet tapping - more than I've come to expect from inexpensive Class D amplification.

That said the MaiA DS is not perhaps an overly-analytical unit, in terms of its ability to lay bare the most intricate details. But we should take this in the context of a unit aiming to deliver an awful lot for the money being asked.

And some of those 'extras' are certainly worthwhile. I tried the phono stage with the Goldring-Lenco GL75 covered in this month's Olde Worlde. The low-end potential of the deck was hinted at here and - unexpectedly, given the amp's character - the treble of the elderly Shure cartridge was tamed



Pro-Ject has spoilt us with connectivity. On offer are a phono stage (switchable between MM and MC), three line-level inputs, Bluetooth, two optical digital inputs, one coaxial input and asynchronous USB. Enough for practically anyone! Speakers and headphones apart, the outputs provided are mono subwoofer and fixed/variable stereo phonos for additional amplification.

somewhat. Bluetooth - which, as with other modern implementations, supports an aptX link - works as well as can be expected, ultimately being limited by how music is stored on your mobile device. But although no substitute for the cleanliness of a good uncompressed source, it's of significant practical value when it comes to mobile music collections and streaming services. Finally, we

have the headphone output. With Oppo PM3s there was plenty of drive, with that 'forward' balance still evident.

CONCLUSION

The MaiA DS packs a heck of a lot of functionality into a small package for a bargain price. More importantly it also sounds good with an engaging, foot-tapping presentation.

MEASURED PERFORMANCE

The Class D amplifier of the MaiA DS, into 8 and 4 Ohms respectively, gave 28 and 52 Watts, so it has enough power to go loud with any loudspeaker.

In the mid-band distortion was low, measuring 0.1% from low to high output. At high frequencies distortion was substantially higher, typical of Class D, measuring 1.1% at 1 Watt into 8 Ohms and 0.5% close to full output. Levels like this will produce audible sharpening of the sound, since harmonics were odd order (3rd, 5th etc) and extended.

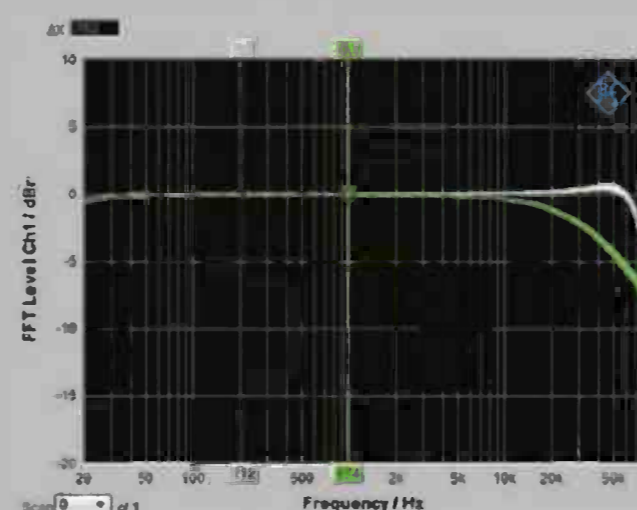
Frequency response measured flat to 80kHz into 8 Ohms but rolled away above 10kHz into 4 Ohms, so tonal balance will be affected by load.

The DAC had a measured dynamic range of 114dB in itself, through the Fixed output, but through the Class D power amplifier this deteriorated to 108dB due to the presence of distortion - a mediocre result.

The digital optical input accepted 192kHz sample rate inputs, unlike many, so it will not fall silent when playing 24/192 files over optical.

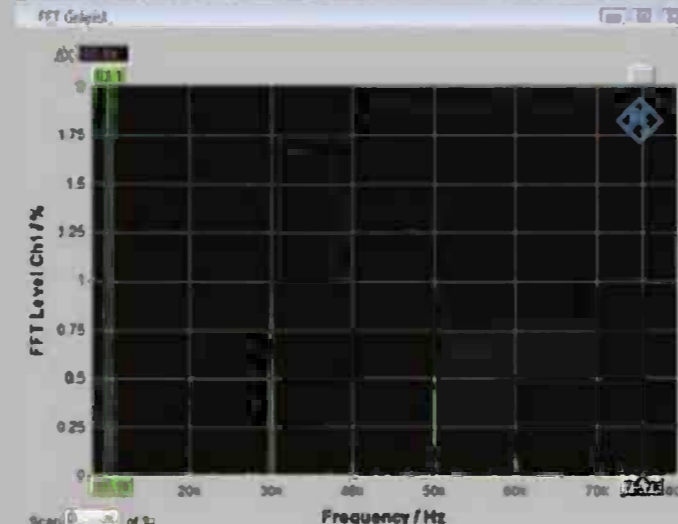
The USB output registered a maximum available sample rate of

FREQUENCY RESPONSE



DISTORTION

THD @ 1W	Level @ 1W	Frequency
ON 1.2998 %	2.0068 V	10.000 kHz
OFF	OFF	OFF



768kHz on a MacBook Pro, but it is unlikely the internal DAC itself works at this rate; few do, 384kHz being a common upper limit. There's no benefit in up-sampling to this rate. Dynamic range via USB measured the same as S/PDIF, 114dB.

The MaiA DS is a bit limited by a Class D amplifier that will likely have a sharp sound, caused by treble distortion. Otherwise it is flexible and works well enough to do a good job. NK

Power	36watts
Frequency response	8Hz-30kHz
Separation	88dB
Noise	-108dB
Distortion	1%
Sensitivity	270mV
Frequency response (-1dB)	4Hz-20kHz
Distortion (%)	24bit
0dB	0.005
-60dB	0.12
Separation (1kHz)	98dB
Noise (IEC A)	-106dB
Dynamic range	108-114dB
Output (headphone)	1.8V

PRO-JECT MaiA DS £700



EXCELLENT - extremely capable

VALUE - keenly priced

VERDICT

The MaiA DS strikes a sensible balance between sound quality, features and affordability. Well worth checking out - especially if you're after a 'secondary system'.

FOR

- enjoyably-musical sound
- numerous features
- expansion potential

AGAINST

- a little 'forward'
- no front-panel audio input

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The new 800 Series Diamond
didn't get better by chance.
It got better by change.
868 changes to be precise.

Bowers & Wilkins

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WIN

A SUPERB PAIR OF SPENDOR D1 LOUDSPEAKERS WORTH £1795 IN THIS MONTH'S GREAT GIVEAWAY!

Here's your chance to win a pair of superb Spendor D1 loudspeakers we reviewed in the October 2015 issue. Read the review excerpt below and answer the questions.

"Spendor has enjoyed considerable success over the years – going right back to the iconic BBC LS3/5A of the 1970s and continuing through to its own well-regarded SAI.

But no loudspeaker manufacturer survives by standing still so the company has now unveiled the £1795 D1 as the spiritual successor to the

previous two designs.

Sharing similar dimensions to the BBC LS3/5A at first glance the new D1 looks a pretty standard example of the classic two-way standmount – albeit an exceptionally well-finished one. But behind the immaculately veneered glossy cabinet there's some sophisticated engineering.

Most obvious is the use of Spendor's new D-series drivers – and especially the 22mm Linear Pressure Zone (LPZ) tweeter. This proprietary design uses a micro-perforated stainless steel mesh cover with a polyamide fabric foil behind it. The cover and foil act as an acoustic load

for the tweeter diaphragm, mechanically and acoustically balancing the load in front of and behind the tweeter. This creates symmetrical pressure on both faces of the diaphragm so it always operates in a balanced linear mode.

Allied to this is a new 150mm mid/bass driver constructed from Spendor's latest EP77 polymer material which was first developed for the larger D7 floorstander.

Unusually for a modern loudspeaker the D1 is also an infinite baffle design and can be used close to rear walls or on a bookshelf."

For a chance to win this great prize, just answer the four questions at right. Send your entries, on a postcard only, by 8th April 2016 to:

**April 2016 Competition,
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QUESTIONS

[1] Success extends back to -

- [a] 1870s
- [b] 1920
- [c] 1970s
- [d] 1560

[2] The D1 is spiritual successor to -

- [a] SAI
- [b] Noah
- [c] Norman Wisdom
- [d] 747

[3] The fabric foil is-

- [a] paper
- [b] PVC
- [c] PTFE
- [d] Polyamide

[4] The mid/bass driver uses-

- [a] Bextrene
- [b] EP77 polymer
- [c] carbon fibre
- [d] Kevlar

entries will be accepted on a postcard only

**JANUARY 2016 WINNER: TELLURIUM Q ULTRA SILVER 2M LOUDSPEAKER CABLE
Mr. N. Fowler of Leicester**

mail



LETTER OF THE MONTH PRIZE



KEF Q100 LOUDSPEAKERS

Visit our website at www.hi-fiworld.co.uk or send your emails to letters@hi-fiworld.co.uk. Letter of the month wins a pair of KEF Q100 loudspeakers.

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

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

A pair of KEF Q100 loudspeakers are on their way to **ROGER SIMMONS**, Letter of the Month winner in our March 2016 issue.

Letter of the Month



"A 14 year old Marantz CD6000KI CD player" sounds "in no way inferior" to DACs playing 16bit FLAC files, says Graham Smith.

STREAM ON

I've almost been fully dragged into the 21st century. A year ago I'd never even owned a PC but have since painstakingly FLAC'd the best part of 1000 CDs using Exact Audio Copy. I play these and a few hi-res downloads via Epiphany Acoustics EDAC and a Cyrus 8 amplifier into PMC twenty 21 speakers.

I've also tried current, highly-regarded £400-£600 DACs in this system. All of which, if nothing else, has increased my appreciation of a 14 year old Marantz CD6000KI CD player, which sounds in no way inferior to the (16 bit) FLAC files.

The EDAC handles files to a maximum of 96kHz but I wonder if you would expect the odd 192 kHz files that I play to sound any better, even though the DAC is not natively resolving their higher sample rate?

Also, Martin Pipe's February review of the Cambridge CXN streamer was of particular interest to me as I've long been considering purchasing

one. However, rising like the sun on the horizon we've now got Meridian's MQA. The more I learn about this clever codec, the better it seems, with no apparent disadvantage. Its file size saving will be welcomed by many.

Personally, I'm one of those not too concerned by long 192kHz download times and large storage space requirements. But the authentication aspect – I want that. Seeing an authentication light will surely be a massive reassurance to hi-res digital file consumers. If, like me, you've used EAC you will know that I'm a patient person, but do any of you think that MQA could be worth waiting for?

Regards
Graham Smith

Hi Graham. DACs (Digital to Analogue Convertors) are a big and complex subject. They – and ADCs (Analogue to Digital Convertors) – are also a vital one, not only in audio but in electronics, since much digital must usefully interface with

the outside analogue world. In 2010, ESS of California introduced their ES9018 Sabre32 DAC that is able to eliminate the repetitive noise patterns of digital noise, as well as reduce its overall level. This DAC outperforms traditional designs, delivering great sound quality, even from 16bit surprisingly. The only competitor to this DAC is Chord's unique WTA unit, that achieves similar figures and quite obviously stunning sound quality. Which brings me to the obvious observation that you need to hear or just buy a Chord Mojo. This costs £399 and out runs all else.

My experience with 192kHz sample rate files is that they don't offer useful improvement over 96kHz sample rate files. However, at this present time I have not heard 24/192 files from a super-high quality ADC played back unmodified through an equally high quality DAC – and this is the acid test.

For the time being however, I

would not expect you to hear any great difference between 96k and 192k files, notwithstanding the fact that in conversion either up or down in sample rate (which may have occurred) they weren't also re-clocked that, by eliminating jitter, does improve sound quality! Got it?

At present I'm sorry to say we have no experience of MQA, in spite of asking Meridian for info. I suspect they are a bit tied up with it at present, marketing the scheme to studios and the music business. It isn't easy to get a new digital format accepted when there are so many around already.

Don't ignore Direct Stream Digital (DSD), because this is not a compression algorithm and, in native unadulterated form at least, is totally different to conventional PCM digital. The broad consensus is it offers better quality than PCM and PCM based systems, but perhaps MQA will change all this when we get to hear what it can do. **NK**

Hi Graham, I own a number of the same tracks in both 24/96kHz and 24/192kHz formats and I have trouble discerning any appreciable difference between the two versions – either through my own Naim equipment or some of the (highly-resolving) Chord DACs we have had at Hi-Fi World for review.

The big leap is from standard Red Book 16/44.1kHz to 24/96 and after that the increase in sound quality seems to become incrementally smaller as the sample rate increases. As your EDAC does not natively resolve 24/192kHz then I would definitely not expect any files to sound better. Judging by your set-up, though, I would expect you are already getting quite a nice sound.

As for MQA, I did hear a demonstration at last year's High End show in Munich and would say it definitely has potential although more detailed listening will be needed. On the hardware front Onkyo, Pioneer, Auralic and Aurender (as well as Meridian themselves) have all announced MQA-ready products and – intriguingly – HTC demonstrated an MQA-equipped smartphone at this year's CES in Las Vegas.

Meridian are also claiming that MQA-treated files sound better even when played through conventional decoders (they are backwards



"I've tried £400-£600 DACs in this system" - but have you tried the new Chord Mojo? This is a technological step ahead of older DACs, has a huge and unrivalled 125dB dynamic range and sounds wonderful.

compatible) and if you want to test this out then the Norwegian 2L site has some free sample files to download. Head over to www.2L.no and click on HiRes Test Bench.

However, the crucial factor in MQA's success will be not just how many hardware manufacturers adopt it or how good it sounds but whether the record companies and studios take it on board. DSD for example – despite offering better quality than PCM – has still not gained any significant traction due to the relatively limited number of titles available. So, yes, patience would seem to be the watchword here! **JM**

HAPPY WITH HANA

There is always something interesting and relevant in Hi-Fi World and your February edition was no exception. It was fortuitous to read of Robin Irwin's query and your helpful advice on replacing his ageing Dynavector DV-20XH when I was busy agonising over the future of the same cartridge which had done 5 years of valiant service on a Rega P7/RB700 and more recently, my lovely Rega P9/RB1000.

I was interested that Noel and Paul put great emphasis on affordable low output moving coil cartridges in combination with MC Phono stage or MC step up device into existing moving magnet input. I use a Croft Series 25R Pre Amp which has a wonderful MM only phono stage and to add a good MC transformer, decent MC cartridge and quality interconnects to do it all justice, seemed prohibitive when my budget was also limited to around £450 at a stretch. I also discovered that the price of a replacement Dynavector has

recently gone well beyond the £500 barrier even with the generous trade in option.

So, it was even more fortuitous to read your excellent review of the Hana EL and EH. I duly contacted Air Audio, the distributors, who were immediately helpful and recommended I consider the more expensive Hana SH with the Shibata stylus for the RB1000. I was able to source the Hana directly as there was not an immediate dealer nearby at the time and it met my budget nicely.

Fitting this cartridge was a little nerve racking and I would suggest keeping alcohol intake well below new Government recommendations the night before, as a steady hand and vision is required with the supplied fixings. It was well worth the effort; cueing up the first LP, I knew immediately that this is



"I knew immediately that this is a cartridge to cherish with a wonderful, open sound, great detail and lovely treble extension without harshness" says Mark Armitage of Hana's Shibata tipped moving coil cartridge.

a cartridge to cherish with a wonderful, open sound, great detail and lovely treble extension without harshness. Bass is ample but well controlled. Apparently, Hana means brilliant and gorgeous in Japanese. I would agree!

Please feel free to forward my experiences to Robin.

Kind regards,

Mark Armitage

Hi Mark – and thanks for letting us and readers know of your experiences with Hana cartridges. We were pleasantly surprised by this new-to-us brand from Japan: they are technically and subjectively fine



“I have a large flagship Trio receiver, built in 1978. This has three superbly contoured tone controls and two very subtle loudness options” says Andy Entwistle in defence of tone controls.

moving coil cartridges.

The Shibata stylus profile usually gives excellent results, with well delineated high treble and low inner groove tracing losses, so the end of an LP doesn't sound worse than the beginning. It's good to hear that Hana's Shibata meets expectations and that you're very happy with the sound of this affordable MC cartridge. May your turntable spin on happily for many moons! **NK**

KNOB AND KNOCKERS

Who decides what we hear from our hi-fi? Is it the purists, the designers, or the consumers? No hi-fi brand has ever asked me, or anyone else I know, what type of sound I like or, perhaps more specifically, what we want from a loudspeaker, amplifier, CD player or turntable. Everyone has different tastes and, I believe, everyone hears sounds differently.

Mine and other letters have touched on hearing loss in the past. As I understand it, one in four males over the age of 40 suffers from some degree of hearing loss, (but only one in ten do something about it). The point I am making is that I would benefit from, and would very much like to be able to adjust the character of the sound I am hearing. There are precious few amplifiers that allow me to do this these days, and most of those that do, require

you to access a digital menu to make any adjustments.

No matter how minimal the facilities and how pure the sound an amplifier produces, there are too many variables to justify denying us some control over the sound. I have CDs that could do with a bass boost or a treble cut. Some of my vinyl pressings from the 1980s sound quite thin without a little boost at certain frequencies. I still have a cassette recorder and many cassettes. Sadly, these are deteriorating and a little treble boost brings them back to life.

My ears are not what they used to be; the room tends to muffle upper middle; I can't always listen at more than low volume levels and boost is needed to hear vocals (dare I say a loudness button!)

I am lucky as I have a large flagship Trio receiver, built in 1978. This has three superbly contoured tone controls and two very subtle loudness options (yes, it has tone defeat too). What happens when this finally gives up and elevates to the listening room in the sky? My options are severely limited to a few Japanese amps, NAD or more vintage gear.

I don't mean slow and fiddly menu driven adjustments, nor the cut-and-boost of cheap amps in the 70s and 80s. The technology to make easily tweaked and wonderfully tactile knob adjustment is here and can sound good. Why don't the manufacturers use them? I suspect the purists, fashionistas or accountants may be responsible. Their approach may be perfect for the young-of-eared listeners in perfectly proportioned rooms with non-reflective walls and perfect pressings. How about real people in real listening situations with less than ideal auditory receivers? I suspect there are a lot more of us than them.

Finally, how come the purists hold

the sounds we hear? I would be very interested to read what others think. Many thanks.

Andy Entwistle, Swindon

You make a very good point Andy. There was a time when manufacturers like Quad, Audiolab, Arcam and NAD offered intelligent treble and bass controls that trimmed just spectrum extremes by a small amount (5dB), giving them great resolution and subtle but useful influence on the sound – and they could be switched out. Engineering wise this is a very easy thing to do.

Mechanical parts such as volume controls and turned alloy knobs are expensive, however, and herein lies the rub. It's the need to keep costs down and make a profit that determines whether the inclusion of tone controls gets considered – although I do suspect that a lot of designers nowadays casually disregard their role and value.

Available design time can be consumed by modern-day complexities that did not affect traditional all-analogue amps, such as USB / digital inputs, or even microprocessor controlled switched resistor-network attenuators that these days are used instead of mechanical volume controls to facilitate remote control of volume. You can see all this in action in the Cyrus Phono Signature we review this month, where a wide range of MC settings are switched electronically, much by remote control, and the state of the unit made available on a display. Old style analogue rotary switches and potentiometers are absent and manufacture can be made fully automated. You get lots of facilities and remote control, but you



Quad offered a range of tone controls on their 34 preamplifier, including shelf functions. There were also high and low pass filters.

sway over the amplifier, but allow speakers to be tuned with extra treble and/or bass? It's a funny old world.

I know that knobs have their knockers (sorry), but I for one am certainly a fan. Am I alone in flying the flag for knobs; for more control over

don't get knobs to twiddle!

All of which is to explain where amplifier design is going and why you don't see tone controls any more. However, they could still be implemented by all-electronic means and made available by remote

control, so there is still an absence of will here.

Linking amplifier tone controls to common loudspeaker response aberrations is an interesting idea that only Quad have explored in the past, by offering shelf boost and cut controls. Since, for example, 80% of loudspeakers have a tweeter that works from 3kHz upward and shelf boost and cut control here would suit many people. Whether they would recognise its value in a shop, so justifying the expense of its addition, is another question. Around such matters and concerns are amplifiers designed. **NK**

MAGIC REPAIR

I have a purchased a pair of Dali Ikon 1 Mark 2 speakers and I'm more than happy with them. For the price they offer a good degree of accuracy and respond well to my amplifier, the Rotel RA-10. During a manic drunk up session last week the speakers got accidentally turned up to 12 and this was too loud for my stereo: within the space of 1 minute the speakers had started sounding fuzzy and old.

On the advice of a contact over the Internet who informs me that there was a residual charge in the driver's which was affecting the performance, I left the stereo off for 3 days and during this time, which was for the charge to naturally dissipate, they had magically repaired themselves!

I'm so happy I still have a stereo and I want to share this information with everybody because it could well save someone from throwing out a pair of speakers that could have been reused, given a little bit of a rest.

Alex of London

Wow Alex – that's a new and mysterious one to me. I know of no mechanism that would allow the 'speakers to self-repair in such a way, and as for "residual charge", that needs thinking about. Electrolytic capacitors can hold a residual charge, and they are to be found in loudspeaker crossover networks; perhaps they are the source of this phenomenon. For this to work an electrolytic would have to be self-healing, a property beyond my knowledge.

Amplifier protection circuits can cut line volts to dramatically reduce power and this will cause an amplifier to suddenly sound distorted. Switching the amp off, then back on clears the problem, providing the original cause has been eliminated.

This may explain what happened.

Usually, when you over drive a loudspeaker it suffers either mechanical damage, by cones slamming into end stops, etc, or thermal damage, usually meaning the voice coil has overheated and burnt out, or shorted. All of these things are a one-way ticket: once the damage has occurred, there's no way it can heal itself.

So I do slightly wonder whether your speakers are still performing as they once used to. If so, then that magic is powerful stuff. **NK**

LOUDSPEAKER REPAIRER DAVE TUTT SAYS -

A couple of things come to mind with this sort of thing. First is the period when the speakers were pushed too hard resulted in the coils being over heated. This in turn causes the expansion of the coils in the voice coil gaps as well as the coil former. The resulting sound would probably be poor due to the voice coils being distorted. The coil former may well be pushed out of shape again, distorting the sound. Also the heat has nowhere to go so it puts the glue, paper, linen and plastic that forms the cone and suspension under stress.

Second thing is that the change in shape of the voice coil in the magnetic field cannot return to normal until it reaches an equilibrium temperature. So even turning the music down will only continue the change in sound and not



"I left the stereo off for 3 days and they magically repaired themselves" Alex says of his Dali loudspeakers.

let it return to normal. It may never go back to normal and this is usually the point at which speakers come to me for repair!

The wait time is purely arbitrary as any time once the speaker has returned to normal temperature should mean that the coils have shrunk and the coil former is back to its normal circular shape. This however may be only a temporary event. There is also the chance that a stray expanded section of copper wire will start to rub in the gap. The classic voice coil failure then ensues!

There is no storage going on in the speaker. There is nothing to store and no where for it to be stored. The effect is purely due to heating of the voice coils. The damage can sometimes be seen or heard in certain types of speaker when you move the cone manually. It is something that you learn by over exposure to the problem over some 45



"I am interested in exploiting the streaming capabilities of the Oppo BDP-105D Blu-ray player" says Ian Napier.

years!

The long term results are not necessarily going to be the same for all speakers. Most speakers will not take kindly to too many Watts and it is unlikely that many a speaker that suffers party volume will survive. As an engineer I see drivers, compression tweeters, hi-fi speakers and anything up to 1200 Watt sub woofers all burnt out due to being driven too hard. The voice coils, if you could see them are often burnt to a crisp, their enamel coating just blackened and blistered. You have to be aware that this may result in shorted turns and eventual failure either as a dead short or open circuit or a significantly lower impedance which in turn could damage your amp! Alex may have just been lucky this time!

**Dave Tutt, 2 Maunders Close,
Chatham, Kent ME5 0AU
Tel: 07759105932
www.tutt-technology.co.uk**

ADD A NAS

I have been a reader of your magazine for a number of years and find it useful and informative. I have recently acquired two of your recommendations, the excellent Oppo BDP-105D Blu-ray player and ISO Acoustics loudspeaker stands.

I am very pleased with the OPPO 105 BD. I am even more surprised at the difference the ISO Acoustics have made to the performance of my Living Voice Auditorium loudspeakers, really tidying up the bass and giving a sharpness to the treble I did not expect.

What I am interested in is exploiting the Streaming capabilities of the Oppo however. It works well from my PC but I would like to add a NAS to the network. Are there any dos and don'ts about buying a NAS? I am aware that some can have software issues and possibly affect sound quality as well.
Kind regards

Ian Napier

Hi Ian, you've made an excellent choice with the Oppo BDP-105D Blu-ray which is a great-sounding player. It's also excellent for streaming as you've already found. Adding a NAS (Network Attached Storage) drive would be the ideal next step and is simplicity itself – the Oppo will find the NAS on the network in the same way that it finds your computer.

There's no end of choice in terms of which NAS to buy but they all do basically the same job. The first priority is to look for one with sufficient capacity, not just for your existing music collection but

for future years as well - especially if you'll be looking to download high-resolution albums that take up more disk space.

The good news is that reliable 2TB models can now be had for less than £100. I've been using a 2TB WD My Cloud NAS with my Naim streamer for the past three years now without a glitch. I find sound quality is as good, if not better, than playing the same tracks through my CD. Transferring music files is simply a matter of dragging and dropping from your computer.

You can also buy dedicated machines such as RipNAS that will not only store but also rip your CDs too – but these tend to be a lot more expensive for the equivalent storage capacity.

One thing to bear in mind is that it's worthwhile getting a separate external hard drive to back-up your NAS on a regular basis. It should last you many years but NAS drives are hard disk-based and hard disks, inevitably, fail at some point. If you haven't a back-up then splat! – there goes your music collection.

One other thing – Oppo have recently released a firmware update for the BDP-105D which gives native support for the Tidal music streaming service. It's similar to Spotify with some 40 million tracks, only much better quality by being lossless in CD standard 16bit/44.1kHz. I find it a great way of finding new music. Go to www.oppodigital.com and click on Product Support to download the update. **JM**

SINGLE MINDED

I wrote to you last Summer (I think we had one, but I must have been asleep that day!) regarding reproducing the "full scale musical experience" in my living room. Totally ludicrous concept because I don't live in the Festival Hall but I wanted more detail and awareness of the performance rather than just hearing musical sounds.

Noel kindly responded recommending a change to Tannoy DC10Ti speakers which I agree are absolutely fantastic although my wife wasn't so keen on the size of them! I

decided to take a trip to my local Hi-Fi Dealer in Aylesbury and following discussions borrowed an Audio Note DAC3 and some Audion Silver Night PSEs.

In my system; Cyrus CD Xt2/PSX, Chord Hugo, Music First Silver preamp, highly modified WAD 6550 and Zingali Overture 3s, the AN DAC lacked detail and involvement compared to the HUGO but the Silver Nights were a revelation. Despite their measly 18w power output they drove the Zingalis to high levels without signs of stress and the sound-staging, especially with LP (Linn LP12 with ebony plinth, Funk carbon top plate, Origin Live DC ultra, OL Illustrious and Zyx Fuji, Bobs Devices step-up transformer, Audio Note L3 phono via AN kits with modifications etc, etc – I love LP!!) was stunning. I immediately thought this is the way to go!

I'm a bit of a DIY fanatic and decided to investigate options rather than simply take the (to me) dull one of simply buying a new amp and contacted Bob Smith at ANK kits to see what he could offer. To cut a long story short I am now the proud owner of a pair of PSE 300B Interstage Monoblocks packed with AN components, silver wiring and some of the biggest C Core output transformers I have ever seen – and I



The rear of a RIPnas monster, with 18TB of storage no less.

built and fettled them myself! Immensely satisfying.

I hardly need say that the sound is stunning and I am now worrying about differences in silver interconnect cables because the variation is so obvious – definitely twisted unscreened Dueland 1.0 rather than AN's for the DAC and the other way round for phono. This saga could run and run!!

Anyway I had better cut this short since I need to work on my Spiccato for my violin lesson. Thanks once again for the advice and an excellent publication. Regards,
Anthony (Parkin).

You certainly do love LP – that is one specialised set up to spin vinyl. And C-core transformers too in the valve amp. Heaven! **NK**



ANK

“I am now the proud owner of a pair of PSE 300B Interstage Monoblocks” Anthony Parkin tells us. These are complex paralleled 300B Single-Ended amplifiers with interstage (driver) transformer and C-core output transformer to avoid d.c. saturation, from Audio Note Kits.

HEAVY MUSIC

Hi again – and many thanks for the surprise of awarding me Letter of the Month! I thought I'd update you on a couple of things in that letter about the weight of audiophile LPs.

I did receive a decent reply from a representative at Sony Legacy Recordings – Experience Hendrix/Jimi Hendrix.com had forwarded my query to them. They advised that in the US, they do indeed manufacture 200g pressings. But in Europe the highest weight available to them is 180g – so that is what they organise. However, there was no real response to my point that it's debatable whether their pressings in Europe are actually the 180g claimed.

I didn't push it too far, mainly because they very kindly mailed me a 200g pressing of Freedom – no questions asked! Many thanks to Evan Jahn at Sony Legacy.

And it is definitely 200g, with superior inners and a slightly heavier card sleeve than the European version – rather like the Miami Pop Festival release I mentioned before. A happy result for me of course. But not sure if anyone else has been OCD enough to pursue things like I did. Photo attached of Freedom on 200g pressing.

I have since purchased further vinyl. The latest and eagerly anticipated King Crimson re-master and pressing of Starless & Bible Black has just arrived. Exemplary as ever on 200g (thank you Professor Fripp!).

Warhorse – reissue on Repertoire and stated as 180g – definitely at least is that and probably more like 190g. Excellent album btw - better than their cousins Deep Purple in some respects.

The Dead Weather, 'Dodge & Burn', just released on Jack Whites Third Man

Records – and as a 'vinyl and valves' fan that Mr White apparently is, no surprise that this is a decent pressing too.

With all of these recent purchases being on the smaller labels, whether or not the corporates are involved somewhere in the chain, it seems pressings are more dependable from smaller labels is the conclusion I'm coming to.

Another example of this is the Steven Wilson and Porcupine Tree output on K-Scope. Always top quality material on top quality vinyl.

However, as I don't buy much music on the large labels it's difficult to have a big enough and recent enough sample to test this. So, it would be interesting to hear if others have any thoughts on the topic. Anything reissued by Warner, Sony, EMI, Universal etc. (I lose track of who owns who so if these are all the same conglomerate - apologies). But I think you know the point I'm trying to make. Thanks again.

**James Douglas
Northwood
Middx.**

Thanks for the update James. It turned out well in the end it seems, and both Sony Legacy Recordings and Experience Hendrix/Jimi Hendrix.com come out of it well.

I'm a Hendrix fan and the opening of Hey Joe drifting up the stairs right now from my son's Epiphone Les Paul electric guitar and Marshall valve amp testify to another member of the household with more than a passing interest! The subject of high-quality Hendrix re-issues – now up to £240 for the vinyl “purple box set” – gets aired regularly, especially around Christmas time (I have this box set, but it's under lock and key!). So your letters about quality and much that lies behind them strikes a deep chord here.

Which reminds me to remind you that as from 10th February 2016 the flat Hendrix shared with Kathy Etchingham, in Brook Street, London

– his “only home” – is now open to visitors. See <http://handelhendrix.org>. The flat is next door to Handel's former house and is administered by the Handel House Museum – hence the web address. Being right in the centre of London it is very easy to reach. I see it is being described as Hendrix's only home – and as ground zero for the moment Hendrix suddenly rocketed to fame, this place is an obligatory visit if you are a Hendrix fan. Hallowed territory!

Talking of which, Abbey Road is also that for legions of Beatles fans worldwide, who continue to besiege the place, and the studio is busy these days doing all it can to improve LP quality, they told us in a recent visit. Half-speed mastering is increasingly being used to this end, but as Sony Legacy noted, pressing the final LP is another issue entirely and pressing plants across Europe – the few there are – are swamped with business and booked up months in advance, Abbey Road told us. There's a shortage of capacity, as you

**Handel
& Hendrix
in London**



You can now visit the 'only home' of Hendrix, his flat in Brook Street, London W1. Restored using Heritage Lottery funding, it is next door to – and a part of – the Handel House museum. See <http://handelhendrix.org>

might expect considering the recent history of the LP and its surprise turn around. All this very much affects today's LP buyers, as it has affected you. **NK**

BETTER THAN BRONZE

A good friend of mine uses a Clearaudio Innovation Compact turntable and an Ortofon Cadenza Bronze. He is planning to upgrade to Clearaudio DaVinci sometime soon, and I proposed that he keeps his Ortofon as a 2nd cartridge on a new arm.

Which model you think might suit



Sinfonia

The Sinfonia integrated amplifier from Unison Research boasts a dual-mono, single-ended, pure Class A valve design that performs to the highest audiophile standard.

Designed and manufactured in Italy, every part of the Sinfonia's stylish, yet sophisticated, design has been meticulously engineered.

The circuitry and purpose-designed bias settings of the amplifier's power stage have been tuned to perfectly accommodate the four 6550 valves. Equally, the ECC83 and ECC82 valves used in the pre- and power-drive stages have been selected due to their superior characteristics. The end-result is a rich valve sound that puts musical enjoyment first.

Available across the UK now.

Technical Information

- Dual-mono stereo integrated amplifier
- Single-ended parallel Class A design
- 4 x 6550 valves (two per-channel)
- 2 x ECC82 valves (one per-channel)
- 2 x ECC83 valves (one per-channel)
- 25W Output
- Frequency Response: 20 - 30,000Hz
- Built-in power supply output for Simply Phono phono stage.
- System Remote included

Sinfonia Anniversary, with Gold Lion valves (pictured), also available.

Ortofon Cadenza sound better? Perhaps a Rega RB303? Or a Clearaudio Satisfy? Thanks a lot for your attention to our question.

Best Regards,

Thanos Mantzoros
Athens,
Greece.

Both arms are very good and both will suit the Cadenza Bronze moving coil cartridge but I would veer toward a Rega RB303 because it is easy to use and has a great sound. Excellent lower midrange stage width and separation gives drums and percussive instruments a firmly outlined stage presence. The Cadenza series also have very good bass and this arm gets the best from them because it is powerful and well



Ortofon Cadenza Bronze moving coil cartridge – wonderful sound at low-ish price.

defined at low frequencies.

By the way, I would describe the DaVinci as different rather than better than the Cadenza Bronze. It is faster and livelier, granted, but it is also less cohesive, and tracking is – shall we say – unremarkable. Of the two, I would choose the more civil and capable Bronze, so it is best he keep it as a second unit, as you suggest.

For a fast, punchy sound don't ignore Lyra's more expensive moving coil cartridges: the Titan i is a dramatic listen, if now very expensive. **NK**

HAPPINESS IS AN M-DAC

I thought I would write you a quick note regarding the Audiolab M-DAC I purchased recently after hearing it and also reading your reviews (I have loads of old Hi-Fi World magazines!).

My first access to what I think of as quality CD replay was an original Musical Fidelity X-Ray (the oval shaped one). That worked brilliantly through many other hi-fi upgrades and never



Rega RB303 arm, with its rigid one-piece, tapered arm tube. It is suitable for an Ortofon Cadenza Bronze MC cartridge.

sounded the weakest link. Then one day it started having problems reading discs, I assumed the laser assembly had finally worn out. So I got a local dealer in Salisbury (who has now gone) to fit a new laser assembly. It came back and played well again but seemed to have problems when the discs were of the greatest hits ilk, i.e. longer than a normal disc would be, jumping and skipping.

So admitting that maybe it had had it's day but without sufficient cash at the time to replace it with a similar quality item I decided to purchase a player that I thought had a good transport that I could add a DAC to later on when cash flow allowed. I purchased an Onkyo C-S5VL SACD player to carry out playing duties.

I've used this player for over a year now, it is fine but didn't give me the tone/atmosphere that I got from the MF X-Ray. I found I was playing less and less CDs and moved back to mostly Vinyl (which is no bad thing as I love the sound of my VPI Scout and Benz micro cartridge).

Anyway, time moved on and I managed to squirrel away some cash, then this January I finally listened to, then purchased, an M-DAC. I am now very happy again, all the tone/atmosphere is back in spades. Everything CD sounds brilliant again and I'm rediscovering my CD collection again.

I have experimented with Optical and Coaxial digital leads between the Onkyo and the M-DAC, but I really can't hear much difference (my hearing must be getting older/degrading?).

Anyway this is just a thank you to Hi Fi World for the reviews you carry out, with your reviews/guidance to create a shortlist, then listening afterwards I have managed to purchase some excellent equipment (Afore mentioned Benz Micro Ace L, Audiolab M-DAC and Icon Audio Stereo 40) that makes my listening to music a real pleasure. Cheers

Andrew Burtchell

Hi Andrew. Thank you for your kind comments. M-DAC was a firm technological step ahead and you can hear it. We were all taken aback at how even the sound of CD improved, but I have since been lectured on

all this by Rob Watts, designer of Chord's unique DAC chips, and it seems that what lies inside this new generation of digital convertors is different from the norm and potentially far more powerful. M-DAC, Hugo, Mojo etc are quite



Lyra Titan i moving coil cartridge – top of Lyra's range. Very fast, punchy sound, but expensive.

different and more advanced than most else and a tonic for CD, as you – and we – find.

There isn't a big difference between optical and electrical S/PDIF connection. Optical is well out of date, using Stone Age digital technology (cheap plastic optical cables) and TOSLINK connectors that don't even align properly; it cannot support high data rates and often 24/192 fails as a result. However, it does provide electrical isolation and has a slightly softer sound than electrical. The electrical link usually offers the crispest sound with most detail (and it can provide isolation through transformers).

What you also have to bear in mind is that you must use good source material; much digital has come from old/poor ADCs, is riddled with quantisation noise and even may have been compressed into MP3 format for ease of processing, transmission and storage. **NK**

Audiolab M-DAC, uses an ESS ES9018S Sabre32 series DAC with a wide range of digital filters from designer John Westlake. This makes it unique – and ensures great sound, even from CD.



The X Factor

Top of FiiO's portable digital player range is the new X7 that uses Android as an operating system and offers a host of capabilities. Noel Keywood gets to grip with its complexities.

Portable audio is a global market so large it can support investment in high technology and FiiO are leveraging this to gain advantage with their new X7 high-resolution digital player. It's a technology showcase, aimed at Astell&Kern players that have lead the market by technical prowess and great sound quality for some years now. But as Astell&Kern's prices have risen substantially, a gap

has opened up for others to exploit – and FiiO have done so most effectively. The X7 is top of FiiO's range, but at £500 it is priced little differently to the AK100, at the bottom of Astell&Kern's range.

All of which is to get this player into market context. In case you're new to the breed, the X7's basic role is to drive headphones, but it can also drive a hi-fi system, delivering sound quality better than CD – something I look at closely with portables. In this case the picture is a bit more complicated than usual: at a functional level the X7 best integrates through a docking station, the K5 costing £96, and this needs to be considered as part of the package, although it is not essential as I will explain.

FiiO say the player uses top-quality audio parts that consume high current, so it needed to be fairly chunky – and it is – to house a large 3500mAh re-chargeable battery, with a claimed battery life of 10 hours. Measuring 130mm high, 64mm wide and 17mm deep the X7 is pocketable, if a bit much for a shirt pocket. Its chassis is machined from a block of aluminium and it feels like it – strong and impressively rigid. Aluminium may be light, but

a weight of 208gms registered on our scales all the same – quite substantial. This puts it well above FiiO's other models, such as the 165gm X5, but below other fully spec'd hi-fi players like Lotoo's PAW Gold at 280gms, reviewed in our October 2015 issue.

FiiO's stated weight for the X7 is 220gms, higher than our measured weight, but that's because the review sample came with a standard 'low power' (as they put it) AM1 bolt-on module, designed for in-ear headphones. There are, in addition, medium and high-power modules, as well as a balanced output module, but little info is available on them and when I contacted the factory for details they were away for the CNY, they said (Chinese New Year). The modules are secured by two tiny Torx screws; a screwdriver and spare screws are supplied.

Where players I have reviewed over the years seemed to gain outputs as their price rose, the X7 with AM1 goes back to basics. There is one headphone output in the AM1 module, a standard 3.5mm stereo jack at the bottom of the player, a slightly awkward place to be. The top face carries the only other output, a switched Line/Coax socket, Coax meaning an electrical digital connection in this case, not a co-





This top view shows the Line/Coax (digital) 3.5mm four pole output jack. The left side has volume, on/off buttons and a microSD card slot.

axial optical output within a 3.5mm headphone socket, as used by Apple and Astell&Kern.

FiiO supply a special adaptor cable with four-pole jack to phono line socket so a standard digital coax S/PDIF connecting cable can be used. You can't use this socket for headphones because Line has no volume control: when switched to Line it is a fixed output suitable for the CD input of a hi-fi amplifier, using a 3.5mm stereo jack to Phono adaptor lead, not supplied.

In addition to these two sockets a microUSB carries power and mates either with the K5 docking station or connects to a computer through a microUSB-to-USB A cable so music files can be uploaded; it is seen as a



The Pure Music mode play window shows album artwork, graphic equaliser, favourites ... and more.

mass storage device. Our X7 could not be used as a DAC; FiiO said on their website at time of review that this would be made available in firmware FW1.8, but after upgrading our sample to FW1.8 there was no sign of it, either in the menus as a

selectable option, or as an available Output on a Mac (running OS-X 10.11.3, El Capitan).

As FiiO's top player, you can be assured that the X7 plays all digital audio file formats, normal and double rate DSD (but not quad) in .dsf and .dff file formats, as well as .iso (SACD) files.

FiiO say the player will in a future firmware upgrade also support DoP through its digital output so DSD can be sent to an external DAC like Mojo. Mojo offers better performance, measurement shows, so this is a potential upgrade. All Apple file formats are supported, WAV and FLAC of course, DXD and all the old compressed formats.

The X7 runs on Android, unlike their other players, and this complicates its user interface by introducing two basic modes: Android and Pure Music mode. I ran in the latter, but had to switch to the former to go online etc; a re-boot is needed – not exactly convenient.

The player has wi-fi that, FiiO say, facilitates auto-updating, but in our early sample player this did not work and it had to be manually updated.

The Pure Music mode interface was usable but needed clarification by use of colour in Settings category headlines, for example; its monochromatic nature was neither attractive nor helpful.

FiiO provide few sound options, Low or High gain (meaning output), Gapless playback, Line/Coax. A 10 band equaliser is available, but only during track play; it has eight presets and a user definable mode. Info/option screens can be slid in from bottom, left and top, with a finger swipe.

Storage comprises 32GB of on-board memory, that contains Android OS support files, plus a music files folder. You only see the latter in Pure Music mode; you see them all when uploading via USB from a computer. Additionally, there is one microSD card slot that will address 128GB maximum; a card is not supplied.

Like Astell&Kern players, but unlike FiiO's less expensive players, the X7 has a touch screen, eliminating the rotating selector and

offering more screen area. Overall, however, I did not find the X7 easier to understand or use. I am no fan of gratuitous complexity and Android moves the X7 toward a mobile phone-type user interface, with lots of bells and whistles – and my pockets and home already have plenty of these, with clocks, apps., accelerometers, web browsers etc. popping up all over. I may be in a minority here by not being wowed by this stuff – and it is why I like the straightforward



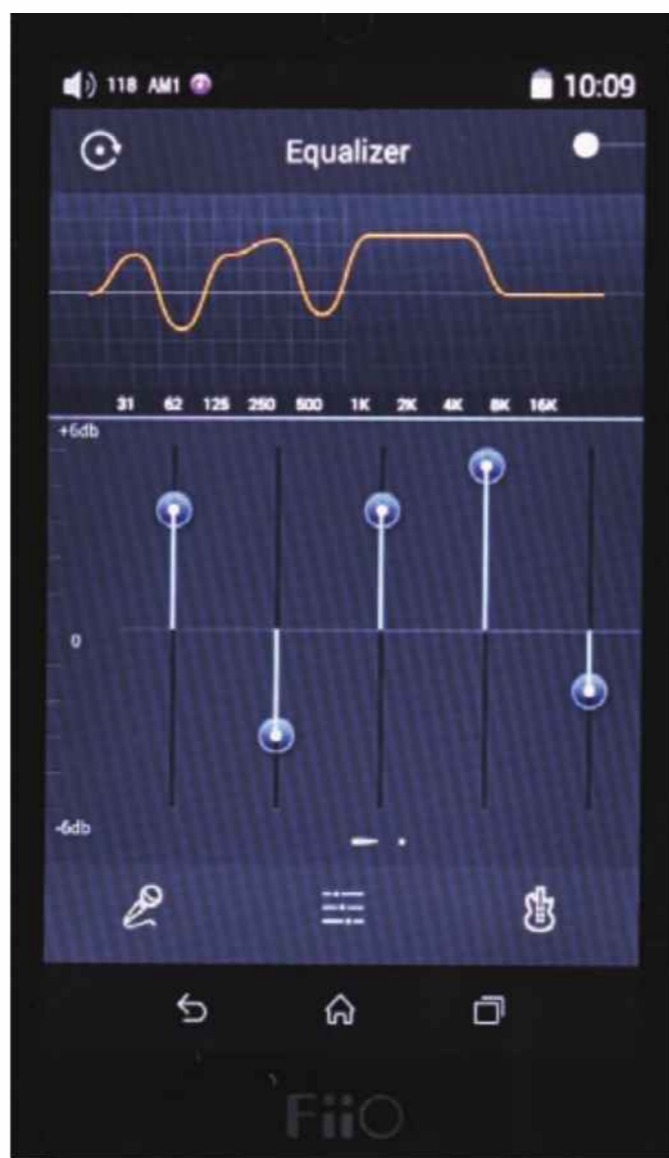
The bottom of the player with an AM1 module attached. It carries the headphone output and microUSB connector that meets the OTG (OnTheGo) standard.

simplicity of FiiO's less grandiose players.

The touch screen controls are duplicated on the right side by a transport control and there's a volume control at left, comprising Up/Down buttons. Start up is a not so fast at 28 seconds, from what FiiO proudly describe as a Rockchip RK3188 CPU. However, more interesting because of its direct relevance to sound quality, was their



The track listing screen in Pure Music mode carries artwork thumbnails.



The graphic equaliser has a range of preset modes, plus a user adjustable mode. It shows response in a graph.

use of an ES9018S DAC chip in the X7, from the renowned Sabre32 series produced by ESS of California. With four of its eight channels paralleled per stereo side this offers, potentially, 123dB Dynamic range, and most manufacturers (e.g. Audiolab) achieve 120-122dB our measurements show.

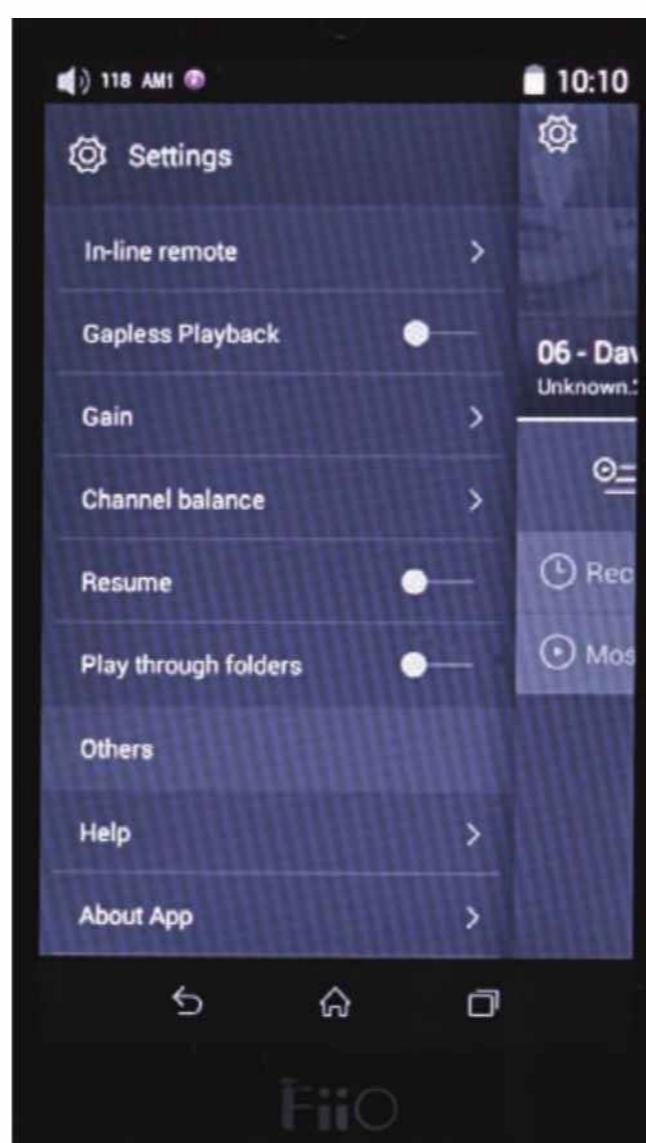
However, in conjunction with an OPA1612 acting as current-to-voltage convertor, and one as a low pass filter, plus OPA1612 feeding an AD8397 headphone driver in the AM1 module, FiiO achieve 117dB dynamic range from the X7 our measurements showed, 5dB below what is possible. All the same, as portables go, this is a good performance – ignoring the 125dB achieved by Chord's Mojo.

I must quickly mention that our review sample had early FW1.0 firmware and it would not update automatically over wi-fi from FiiO's website, as claimed, nor would it update manually from a file downloaded onto a Mac (OSX 10.11.3). Macs automatically unbundle zip files so FW1.8 had to be re-compressed, but still no joy. In the past hidden Mac desktop files were the cause of this problem but these days Mac-zipped files usually run. The X7 only updated from a PC (Windows 7) download, I found, saved straight to the X7's root directory, so Mac owners are going to have problems unless FiiO either sort this out, or warn of the issue on their website/instructions.

IN THE DOCK

The K5 dock is a small desktop unit 120mm wide and 130mm deep, not including protruding plugs etc. The X7 simply plugs in on top, connecting through its small microUSB OTG connector. This is usually a 5pin serial digital link but as the rear digital inputs are simply pass-throughs to allow file loading from a computer, it seems that X7 connects to K5 through an analogue link within microUSB, not digitally. There is no DAC in the K5 it seems, hence no independent digital input as such: the digital inputs are pass throughs to the player.

This link feeds a Texas Instruments TPA 6120 A2 headphone drive chip and it gives quite different



The Settings menu is poorly delineated by same-colour category headers.

results to the X7's AD8397, delivering a massive 7.7V output maximum to headphones through the large 1/4in stereo headphone socket on the front panel – more than enough to drive any headphones; the big knob at front is a volume control.

At rear are two 3.5mm stereo jack sockets, carrying Left and Right balanced outputs intended for the balanced (XLR) inputs of stereo amplifiers. There are also analogue inputs and outputs.

FiiO say K5 has an internal power supply but it does not, coming with an external switch-mode delivering 15V at 1.5A – and unidentified as 'FiiO' or 'K5' by a sticker, so its identity and purpose will be lost amongst all the other under a desk if it becomes disconnected. The dock charges the X7.

SOUND QUALITY

The X7 running solo as a portable – not docked in other words – was full-bodied and almost mild-mannered in its delivery, it was so creamy smooth across the midband.

The 9018S lacks glare and shout, and this came across playing Rock. The drum synth in Queen's 'Radio GaGa' (24/96) was seemingly mighty in its power, if a little soft in leading-edge definition. Queen's harmonies stretched wide though, out far left and right. In true ESS fashion I could hear right into the vocals – this is a very revealing DAC. Treble was finely detailed too, forming a rich tapestry at the high end of the audio scale, and this was delightful.

Unfortunately, when the screen timed out to save battery power, volume became locked, so I found



FiiO's K5 dock has a small, plastic flip-up door on top that covers the docking connector when not in use. Front switches select input and gain.



The K5's rear carries balanced outputs through three-pole 3.5mm jack sockets, rather than XLR sockets. There are digital pass-through inputs and connector for an external power supply, as well as Line inputs/outputs.

myself constantly stabbing the On button for revival to access volume; setting screen sleep to its maximum of 30 minutes alleviated the issue, but volume should be accessible with the screen off.

Playing through a wide variety of Rock I found the AM1 module mild-mannered and full-bodied, lacking the speed and punch of my Astell&Kern AKI20 and far off a Chord Mojo DAC in terms of scale and definition – temporal and spatial.

However, the FiiO is optimised for in-ear monitors - which tend to be more explicit - as Jon Myles found with his Noble K10s it proved very lively (see box-out for more details).

Moving on to Classical, and with 'Saturn' from The Planets I was treated to a lovely peaceful background behind the orchestra as slow kettle drum strikes and horns increased in intensity towards a climax; the X7 sounded magisterial in this role.

On the K5 dock the X7 gained both speed and bite in its timing, sounding altogether larger bodied and less somnambulant. There was less of the smooth creamy-ness I heard from AM1 alone but drums gained size and impact, and bass lines suddenly formed a solid backing against which other band members could work. Kettle drum strikes in 'Saturn' now shook the earpieces of my Fidelio X1 headphones – impressive stuff.

CONCLUSION

Our review sample of the X7 was, judging by its firmware, an early unit. Even with a firmware upgrade to FW1.8 its USB DAC function was unavailable – puzzling. Since the microUSB OTG Standard had 5 pins, as per standard and not 11 as claimed, I wonder whether this had something to do with it. There are mysteries here that needing sorting out with the factory when they return from

Chinese New Year.

Our X7 sounded smooth, full-bodied and sweetly detailed but pace and punch were lacking with over-ear headphones. However using good quality in-ear monitors things were markedly different and the FiiO proved a sterling performer.

It remains to be seen whether the currently unavailable Medium Power (AM2), High Power (AM4) and Balanced (AM3) modules will have

more to offer for users of different headphones.

The optional K5 dock adds scale for an extra £99 but not subtlety.

The X7 is a complex design that tries to meet all requirements. It is for those who want a web browser, Bluetooth, VU meter apps and such like, all of which its Android operating system make possible.

JON MYLES GOES ON THE ROAD WITH THE X7

If you are like me, then the primary function of a portable digital audio player (DAP) is for listening to music while out and about via a set of good quality in-ear monitors. In this respect FiiO really has set the standard in terms of sound-per-pound ratio with its X1, X3 and X5 models. The X1, especially, at just £99 for a 24bit/192kHz capable player which sounds silky smooth is an absolute bargain.

So how does the X7 compare? Driving a pair of my reference Noble K10s as well as Etymotic ER4s it was apparent the new flagship model has the signature FiiO sound - which is detailed with a touch of midband warmth but lively and involving.

In-ear monitors, by their very nature, sound sharper and more explicit than over-ear headphones and here the X7s balance worked well. Playing The Libertines' 'Belly Of The Beast' the pounding drum and bass intro was ferociously powerful – yet when the guitars cut in there was just the right edge to the sound without it being too harsh. It's a subtle balance and the X7 errs on the right side.

That also gives an appreciable sense of ambience. So on Kraftwerk's 'Minimum-Maximum' the group, hall and audience are placed in a definite soundstage. And a very realistic one, too. Sitting on London's Tube playing 'Autobahn' on the X7 with the Etymotics I was – very nearly – transported to Germany. Comparing this to the same track on a FiiO X3, the X7 has much more definition, depth and overall organic flow to it.

Neither have the outright dynamic drive of Astell&Kern's models but the trade-off is the FiiOs sound rather smoother through in-ears.

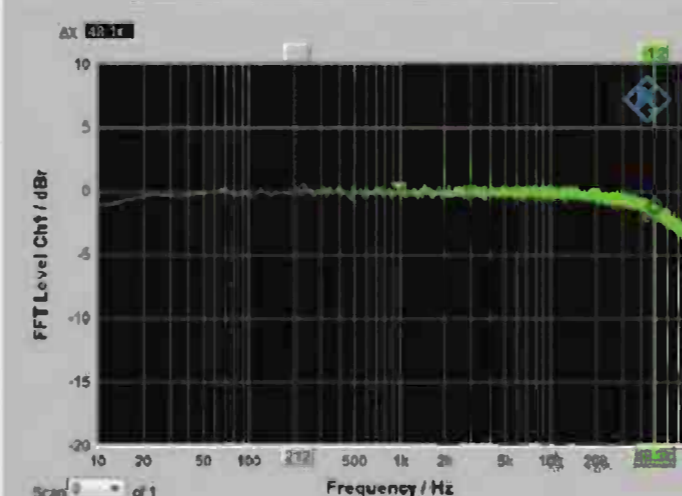
If there was one thing I missed on the X7, though, it was the sheer ease of use of FiiO's other players. The new touch screen looks nice but lacks simplicity and makes selecting tracks or albums less intuitive.

But in the end it's the sound that matters - and here the X7 thoroughly impressed me. Use it with a good pair of in-ear monitors and you have a winning combination.

MEASURED PERFORMANCE

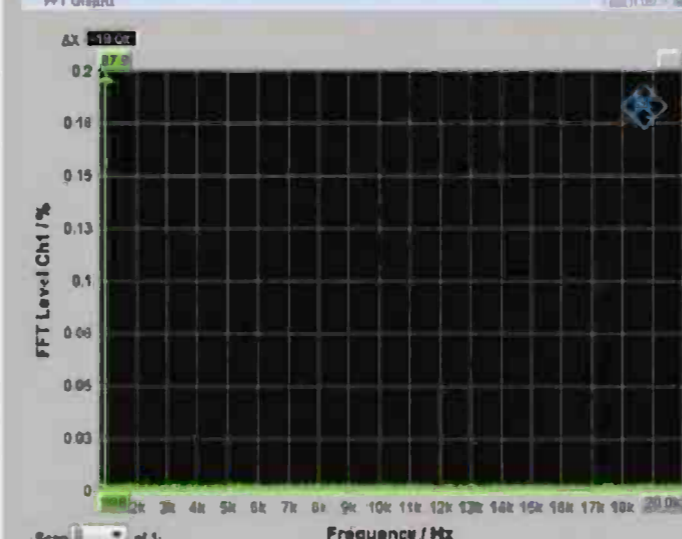
With volume at maximum, headphone output measured 1.8V, enough to go very loud with all headphones, including insensitive high quality magnetic planars. Switched to Line mode, output measured 1.4V, less than a CD player but enough to drive any line input.

FREQUENCY RESPONSE



DISTORTION

THD @ 1%	Level (mV)	Frequency
0.0164 %	1.8101 mV	997.00 Hz
OFF	OFF	OFF



Dynamic Range (EIAJ) measured 117dB with high-resolution (24bit) digital via both headphone and Line outputs, a high value for a portable. Switching Line from analogue to digital allows an external hi-fi DAC to be used, where 120-125dB is possible with good modern designs.

Distortion was very low at 0.02%, as shown in our analysis. No distortion components are visible so 'distortion' here is noise, even though a narrow band harmonic-only analysis was used.

Frequency response, with 192kHz sample rate files, reached 34kHz before a slow roll away to the 96kHz upper half-sample-rate limit.

In all, the X7 with AM1 module produced a good measured performance all round. It can drive high-quality headphones and has sufficient dynamic range to exploit the improvement offered by hi-res digital files. **NK**

Frequency response (-1dB)	
4Hz-34kHz	
Distortion (%)	24bit
0dB	0.003
-60dB	0.02
Separation (1kHz)	101dB
Noise (IEC A)	-115dB
Dynamic range	117dB
Output (headphone)	1.8V

FiiO X7 PLAYER
£500

FiiO K5 DOCK
£96



OUTSTANDING - amongst the best.

VALUE - keenly priced

VERDICT

An ambitiously designed player with complex options but fragmented user interface. Good sound for IEMs from AM1 module.

FOR

- build quality
- big screen
- output amp options

AGAINST

- no USB DAC function
- no dock balanced headphone
- big
- heavy

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Bespoke by name.....



Tailored to suit you in every way, Jon Myles tries out The Bespoke Audio Company's passive preamplifier for size.

How to judge the value of an audio product? Sound quality, obviously. But then there's build, components used and hard to quantify factors such as customer service, pride of ownership and just how many years you expect the unit to reside in your system.

Then, of course, there's your individual circumstances. To some of us spending £3000 on a loudspeaker is a significant outlay – but others think nothing of splashing out ten times that or more on transducers

from the likes of Magico or Wilson. It depends on your disposal income and priorities.

Which brings us to The Bespoke Audio Company's one and only product – its handcrafted passive preamplifier that costs from £9000. The Hastings-based venture was founded by Harry O'Sullivan and Lucy Gastall, both of whom have many years experience in designing and building passive preamplifiers from their time at Music First Audio (for full details see Bespoke Audio feature Hi-Fi World March 2016).

Now, some people will balk at

the very idea of paying £9000 for any preamplifier whether it includes expensive hand-wound transformers or not. But Harry and Lucy are pitching their product very much at the luxury end of the market – aimed at those who not only want the best sound available but demand it is matched by top-quality finish and the sort of service you'd expect when buying a Patek Philippe Swiss watch or bespoke Savile Row suit.

That means each unit is tailored exactly to the customer's specification, including the colour of the case and lid, detailing, the look of the

controls and the configuration of the six inputs with any combination of RCA and XLR possible. Only then does construction begin, which takes five weeks during which the buyer gets a weekly update on how the build is progressing.

Our review unit arrived with three balanced XLRs and a trio of RCA outputs alongside one unbalanced and one balanced output. Lifting it out of the flightcase it came packed in, the quality of construction was obvious. It's finished in a smooth anodised black (virtually any finish is available), measures 110mm x 305mm x 345mm (H/W/D) and weighs some 14kg.

There are just two large rotary controls on the front for volume and source selection; this unit has no gain, it simply passes a signal or attenuates it. Inside the transformers are potted in beeswax for both sound quality and greater longevity, while all the internal copper wiring is cotton insulated. The multi-tapped secondary winding of the transformer volume control has 46 steps operating over a 67.5dB range.

Both controls are smooth and tactile to use while the WBT-0210 Cu Topline Nextgen RCA sockets and Neutrik NC3F/MD-LX-M3 XLR connections are top-quality and provide a firm fit. As such it was easy to test the Bespoke unit in a variety of systems, using amplifiers from Quad (both valve and solid state), Naim and Creek, with material ranging from standard CD to high-resolution 24bit/192kHz and DSD and wiring from Tellurium Q, Chord and Black Rhodium.



Any combination of balanced XLRs or unbalanced RCA inputs is available - our review sample came with three pairs of each.

SOUND QUALITY

Passive preamplifiers often divide opinion, some arguing they rob the music of the drive and energy an active can bring. Others say they remove electronic noise, distortion and the often overlooked vagaries of your domestic power supply. In

keeping with a palpable sense of bow on string, while the saxophone was diamond-hard and soared from the 'speakers.

Moving on to some more hard-charging music and there was no sense of losing any of the so-called drive of an active pre. Again, there

other words, passing the signal as purely as possible with no addition or subtraction and letting you hear exactly what your source, amplification and loudspeakers are doing.

And that is exactly what the Bespoke Audio does. As such, it's hard to describe the sonic signature as it doesn't really have one. But play some well-recorded music through a good amplifier and the soundstage seems to open up with greater definition and timbre to the instruments. Putting on Jan Garbarek's 'In Praise Of Dreams', Kim Kashkashian's viola sounded rich and

was just a greater clarity to the sound with the bass on Model 500s techno classic 'No UFOs' seeming to dig deeper, the vocoder vocals gaining greater resolution.

As I said, a passive pre isn't supposed to add anything to the sound – but by taking away some of the faults of other preamplifiers it allows the music to take on greater coherence and flow.

Of course that also means it's very revealing of sources and recordings. If you want to know just how bad Florence Foster Jenkins' pitch and timing were, for example, then this is the preamp for you!

But pair it with good equipment and there's a sense of magic to what it does.

CONCLUSION

So, to return to the start; how do you value The Bespoke Audio Company's passive preamplifier? If you can afford one, then very highly indeed. Musically, it is remarkably open and neutral, removing any sense of haze and simply imbuing music with more air and space. Then there's the pride of ownership that comes with possession of an individually-tailored piece of equipment handcrafted just for you and a level of service that includes a lifetime guarantee. Judged on those terms it's an exceptional product. Now, if I could just win the Lottery...



Internally the preamplifier uses hand-wound transformers potted in beeswax while the copper wiring is cotton insulated.

THE BESPOKE AUDIO COMPANY PASSIVE PREAMPLIFIER

£9000



OUTSTANDING - amongst the best.

VERDICT

Expensive - but justifies the price with its sound, build and air of luxury.

FOR

- clarity
- lack of grain
- build quality

AGAINST:

- not cheap
- no gain

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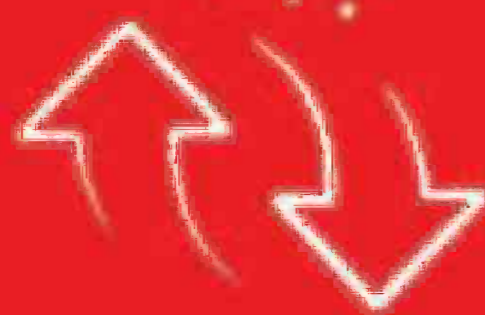
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The Glow Of CD

As CD players fade out of the limelight, Icon Audio add a little glow to keep things alive. Noel Keywood warms to the sound.



Poor old CD! It seems to have silently gone over the edge of a cliff, without anyone noticing. Players are getting ever more scarce and talk has moved on to hi-res, digital, or back to LP. The silver disc has lost its lustre, it seems. As a manufacturer of valve amplifiers, Icon Audio don't pay much attention to market trends however, and recently they highlighted to us the existence of their CD X2 player, as others slowly fade out of sight. So here it is on review for all those

looking around for an affordable frisbee spinner. We've all got a lot of the things after all, making the disappearance of quality players more than an inconvenience.

Naturally, as a manufacturer of valve amps Icon had to put a valve into this player somewhere, it's just that you can't readily see where. Usually they stick up above the case, signalling their presence with a soft red glow from the heaters when switched on – pretty in a low-lit room.

This also facilitates valve changing:

just pull the old one out and plug in a new one. But the player cannot be shipped with valve in place, the unit is less easy to keep free of dust and there are safety issues - pull a valve out and 250V becomes 'exposed' in that there is no insulant between you and the socket. In theory at least, a wire could be poked in and



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theoretical death will result!

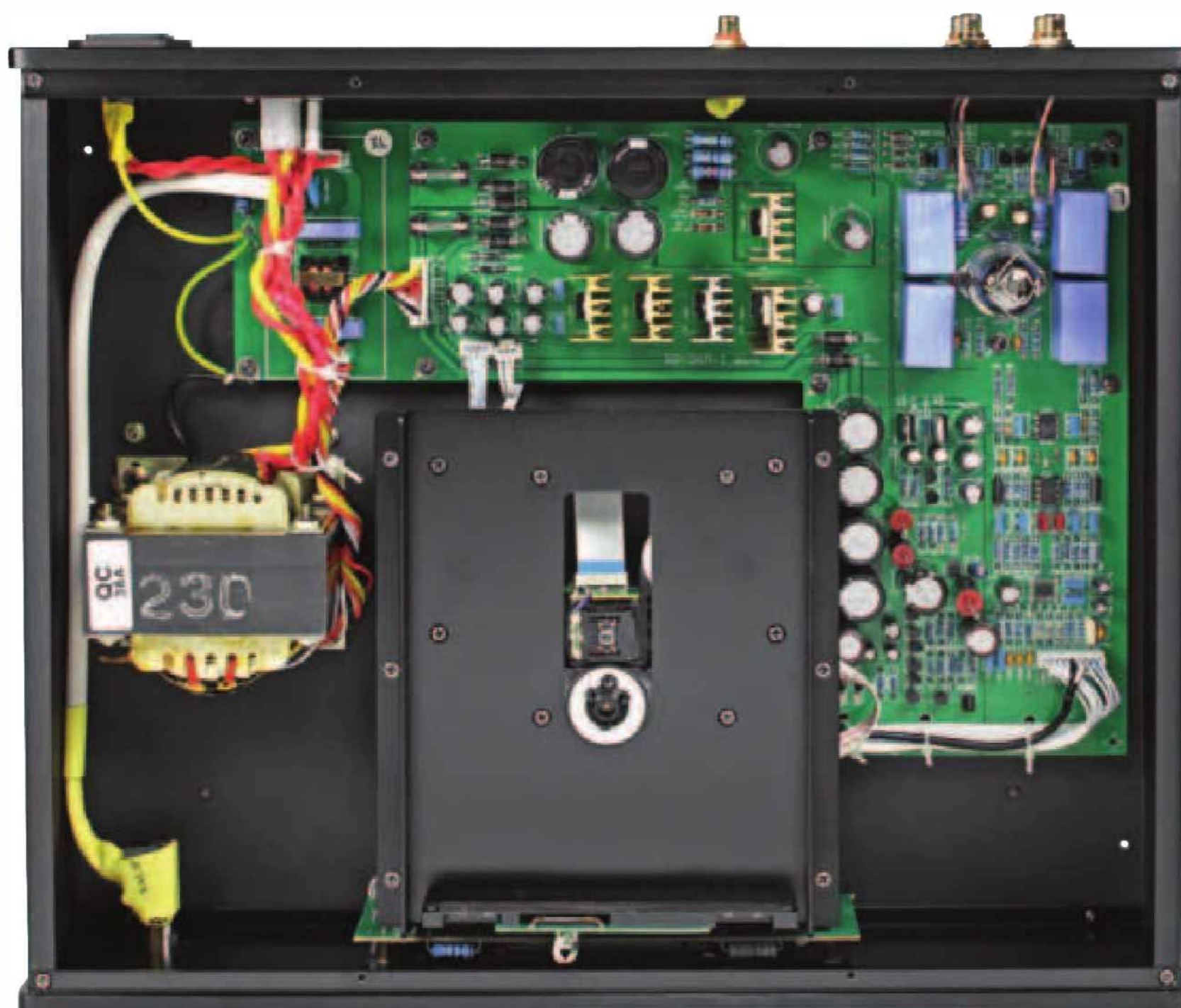
That means a cover must be fitted, or the valve tucked away to make it physically inaccessible.

In the CDX 2 Icon have done the latter. They've fitted a 12AU7 double-triode output valve internally on the circuit board, lit by a blue light emitting diode (LED). To keep dust out – and theoretical bits of wire – a small window has been placed over it. Peer into the gloom and there's the 12AU7 glowing away.

Valve output option apart, the CDX 2 is a fairly straightforward CD spinning package. It is sizeable and heavy, measuring 410mm wide, 350mm deep and 110mm high. At 9kgs this player is quite a lift and it feels solid and chunky – unlike most.

Mains connection is through an IEC connector and the mains power unit is on-board as with most CD players. Press the On button at far left and a modest central display lights up blue to show track number. The numerals are on the small side for viewing at a distance – about 10 feet is the maximum for easy legibility.

A row of buttons offer Play, Pause, Stop and Track Skip but most users will use the remote control for these functions and it also has a keypad for track number entry. Unfortunately, it does not have remote control of volume, nor a mute, although for the latter selecting Pause is a satisfactory alternative.



At centre lies the disc mechanism with circular hub and, above it, sliding servo-controlled carriage with laser. At top right lies the 12AU7 output Tube, as it is called in this player. The blue items are large d.c. blocking capacitors.

CDs are loaded through a sliding door on top of the player, direct onto a small steel hub. The door mechanism controls power to the transport so the laser is automatically switched off with door open. I found it easy enough to put a CD onto the hub and then place a small magnetic puck on top to hold it in place. Sliding the door forward and closed starts the disc so its Table of Content can be read, whereupon the number of tracks available flashes up on-screen as per usual – and you are away.

The rear panel carries two sets of phono socketed outputs, marked OP AMP and TUBE. The former offers a conventional output for those uninterested in having a tube sound, or in case of tube failure. The latter routes the output signal through the 12AU7 that simply acts as a buffer stage with no gain. Measurement showed this stage has been made virtually transparent; the only sign of it was a bit more valve-type soft distortion at full output of 0dB – not a major issue. I was expecting to see either rolled-off high treble or low level noise, but neither exist in this player. There is a digital output too.

Icon Audio, in their manual, advise that the output valve is best not changed to another type, especially

the popular but noisier 12AX7/ ECC83 or the player's performance will not meet its published specification.

Tube rollers will like to know that you can change the tube yourself, to different makes of the same valve type, but there is some spanner work involved. A triode connected as a unity gain cathode follower is not going to affect the sound much, I know from experience with this common arrangement, but the way in which valves affect sound quality can be quite surprising all the same and experiment is tacitly accepted by Icon Audio, their instructions suggest. They address this issue where, with many valve-output CD players, the output valve is just a frippery.

In case you are wondering, by the way, you do not have to adjust bias when changing valves in this player; bias adjustment is only needed in big power valves. And generally, as Icon state, small-signal tubes have a long life, 10,000 hours being the usual value quoted; they will seemingly soldier on for ever, unlike power output tubes.

SOUND QUALITY

I used the CDX 2 in a few systems but mostly with a Creek Evolution



The 12AU7 is held in place by a spring clip. It is flanked by big, blue d.c. blocking capacitors.



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The rear panel carries OP AMP and TUBE output sockets, as well as a digital output. The Tube output is in effect a unity gain buffer stage placed after the Op Amp stage.

amplifier feeding the delightfully accurate and neutral Quadral Chromium Style 8 loudspeakers and, as an occasional alternative, Spondor SP200s, to appear in our next issue.

The Op Amp output behaved as expected, sounding evenly balanced and solid in its depiction of a soundstage, if with a flattening of perspectives that is a feature of CD, unless you are talking an ESS 9018 Sabre32 series DAC or Chord WTA, both of which impose altogether more advanced digital signal processing algorithms than the norm within CD players – and are very expensive parts.

The CDX 2 came across as firm and well-etched with classic rock, Skin having a strong presence at the mic singing Skunk Anansie's 'Hedonism', the bass line fluid and a tad stronger than that of many CD players.

Moving over to the Tube Output gently opened up the sound stage and brought with it a sense of dimension and atmosphere. The effect wasn't great but it was appreciable; now Skin sang within a three-dimensional space it seemed, and this was more convincing and captivating.

I found the effect nicely enhanced classical works in particular, the hall around the Boston Symphony Orchestra playing Rimsky Korsakov's 'Scheherazade' taking on a more obvious presence.

The CDX 2 doesn't deliver any large difference in balance between its two analogue outputs, just subtle differences in presentation.

Both sound solidly-etched and firm in imaging, with a strong low end that gave this player propulsive drive, adding a convincing sense of dynamic power to the synths in Safri Duo's 'Samb Adagio' for example.

Spinning Nigel Kennedy playing Vivaldi's 'Spring' through the revealing ribbon tweeters of Quadral's Chromium Style 8 loudspeakers showed the CDX 2 added a little edge to strings that our

Oppo BDP-105D with its Sabre32 DAC suggested was not there, a product of distortion from this player's BurrBrown DAC that lags the best.

What you have here subjectively is fairly minor and to those used to old TDA1541 Crown chips and the like, a bit of extra rhythmic snap over later delta-sigma DACs that some find smooth to the point of sounding ho-hum.

The CDX 2 by way of contrast offers a full-bodied sound with plenty of rhythmic drive, a solid low-

end and better dimensionality than your average 'op-amp output'.

CONCLUSION

As CD drifts off into the sunset, ever fewer hi-fi players remain available. Icon Audio's CDX 2 not only offers CD replay, it adds a little hi-fi pizzazz in the form of a Tube output.

This player gives CD a sense of heft, space and presence, plus snappy timing. It isn't perfect but it is very good if you want an all-in-one CD player package rather than a DAC.

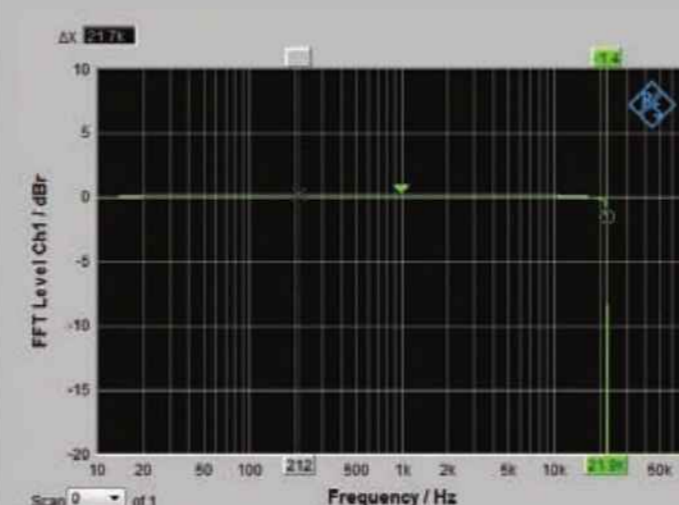
MEASURED PERFORMANCE

Valve output CD players often get noisy at low levels but the CDX 2 avoids this. It uses a 12AU7 output valve (tube) from the preceding transistor circuits, likely as a unity gain cathode follower. Distortion at full digital level (0dB) measured 0.3% via Tube output, but this decreased to just 0.01% at -30dB, showing that the valve output in this player was fairly benign over most of the audio range. Op Amp output avoided high level distortion,

measuring 0.0006% at 0dB.

As signal level decreased, however, digital distortion rose progressively, as it does with digital, reaching 0.28% at -60dB through both outputs. This is a bit higher than usual, so the DAC in this player is not especially linear. As a result dynamic range, a measurement of distortion and noise, was low at 98dB; CD can reach 103dB so the CDX 2 falls short here through both outputs: tube was identical to Op Amp.

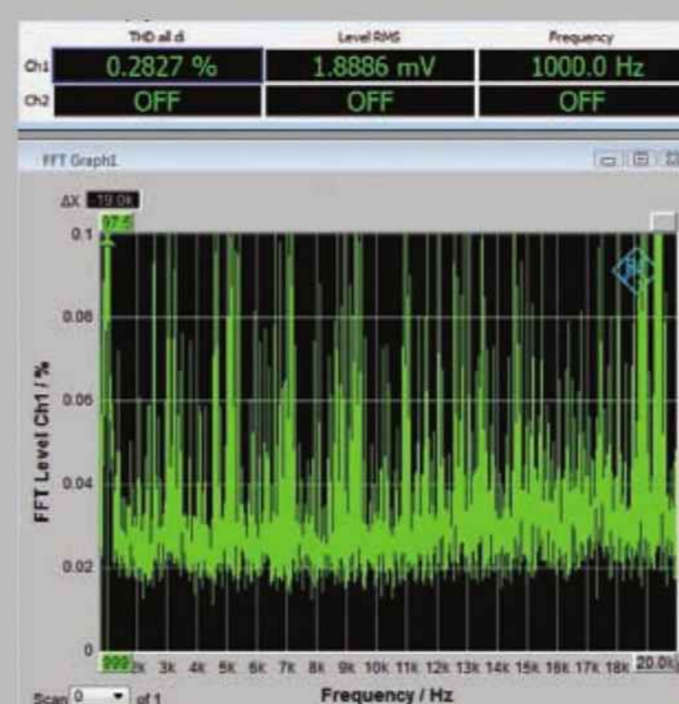
FREQUENCY RESPONSE



Frequency response also measured flat to 21kHz through both outputs – Tube does not roll down treble for a warm sound. Output level was normal at 2V, again from both outputs, and noise was no different too, although the player mutes at 0dB, giving the -127dB noise value.

The CDX 2's 12AU7 (ECC82) Tube output is almost transparent, little influencing measured performance. In particular, noise was minimal. The player's DAC was not especially linear however. NK

DISTORTION



Frequency response (-1dB)

4Hz-21kHz	24bit
Distortion (%)	0.3
0dB	0.28
-60dB	89dB
Separation (1kHz)	-127dB
Noise (IEC A)	98dB
Dynamic range	2V
Output	

ICON AUDIO CDX 2 CD PLAYER £995



EXCELLENT - extremely capable

VERDICT

Firm CD sound, with dimensionality from Tube, but rivalled by modern DACs at its price.

FOR

- solid sound
- tube spaciousness
- solid build

AGAINST

- low dynamic range
- no remote volume
- no USB input

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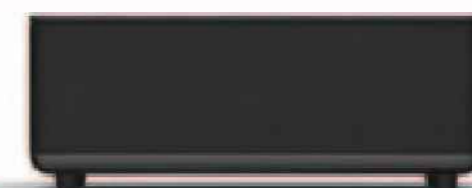
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Portable Heaven

Bowers & Wilkins have hit the mark with their new over-ear portable P3 headphones, says Jon Myles.

As one of the UK's most successful loudspeaker manufacturers it's no surprise Bowers & Wilkins decided to direct some of its engineering expertise into the burgeoning over-ear portable headphone market.

First came the P5s, which won plaudits for their comfort and rather smooth sonic sound signature while still retailing at a realistic price. If there was one drawback, however, it was their size – just a little too large to fit easily into a pocket or bag and so not that easy to tote around with you.

So enter the £169.99 P3s which are a little smaller but appreciably lighter and much more portable. Bowers & Wilkins have re-engineered the drive units and fitted new ear cushions but retained the overall look.

Which means they have an air of quality about them. There's brushed aluminium on the outside of the earpieces and a twisted metal framework to attach them to the main headband. It looks good and also, more importantly, means they sit well and feel extremely comfortable.

They also have a hinged design meaning you can fold them back for carrying or inserting into the supplied clamshell protective case.

Also packaged in the box are two cables – one for iPhones with



the opening bass line was taut and well-defined, and when the guitar line cut in it did so with vibrancy and a welcome lack of harshness. The track had pace to it, helped by the fact that bass, middle and treble integrate extremely well.

There was a sense of openness and spatial separation that's uncommonly good at this price point. Playing Mahler's 'No 3' by the San Francisco Symphony made obvious a great sense of scale and weight,

an in-line microphone and controls and one standard. To switch between the two you simply peel off the headphone pads and route them through the guides.

As to those pads, they are made from a special memory foam which adapts to the shape of your ear over time. This means they can feel a little soft at first – but after a good two weeks of solid use they offer a snug fit.

SOUND QUALITY

The P3s are smooth looking – and their sound matches the style. Overall they have a pleasing balance which doesn't overplay either end of the frequency spectrum but has a nice sense of detail and rhythmic punch.

Playing 'Debaser' by The Pixies

various parts of the orchestra sounding well defined both left and right. Here I could get a sense of magnitude to the performance.

If there's any fault to find it's that some people may look for a little more bass depth or high-frequency extension. The P3s trade that off for a rather more rounded sound that, in the end, better rewards long-term listening. Add in their form factor and all-round quality build and they make a strong case for themselves.

CONCLUSION

If you are looking for a pair of portable on-ear headphones then the P3s come highly recommended. They blend great ergonomics with a smooth, sophisticated sound that never fails to please.

BOWERS & WILKINS P3
£169.99



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VALUE - keenly priced

VERDICT

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FOR

- smooth sound
- superb design
- portability

AGAINST

- not the most explicit

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AUDIO RESEARCH VSI75 £7,498
Powerful, fast valve sound that makes everything else look weak at times. Needs careful matching but well worth the effort.

AUDIO RESEARCH VS115 £5,000
Oodles of power with enormous punch. Rafael Todes said it provided "shock and awe" while retaining incredible smoothness and texture.

ICON AUDIO MB845 MKII £5,500
With 120W from big 845 valves right down to low frequencies, this power amplifier has massive dynamics and bass swing, yet is easy on the ear.



ICON AUDIO MB81 £10,000
Big Russian transmitter valves deliver 200W from these massive monoblock amplifiers. Frightening in every sense.

MCINTOSH MC-152 £4,995
Stunningly insightful sound with enormous bass punch from a uniquely designed transistor amp. Amazing audio, a league up, if expensive.



QUAD ELITE QMP MONOBLOCKS £2400 PR
The proverbial iron fist in a velvet glove. Plenty of power but delivered with an assured and confident nature. Smooth on top and easy on the ear but can rock out when needed.

QUAD II-EIGHTY MONOBLOCKS £6,000 PR
Powerful and expansive sound from modern design monoblocks that also look lovely. Superb – used by us as a reference.



LOUDSPEAKER FLOORSTANDER

B&W 803 D3 £12,500
B&W's updated statement floorstanders deliver depth and definition with breathtaking speed and authority, aided by a diamond coated tweeter. Expensive – but enormously impressive.

CASTLE AVON V £1,600
A big floorstander at a modest price that suits the average room. Refined ribbon treble and deep bass give it a great delivery.



EMINENT TECHNOLOGY LFT-8B £2,500
Excellent U.S. planar magnetic loudspeaker at bargain price. Utterly superb - a must hear.

EPOS K2 £1,000
A fun sound that is tidy all round and very engaging, with solid bass. Music as you hope it to be.

FOCAL ARIA 926 £1,400
Simple, clean, neutral sound – easy going but well engineered and affordable.

MARTIN LOGAN SUMMIT X £16,698
Matches Martin Logan's XStat electrostatic panel to a powerful subwoofer to provide extended, powerful bass. Dramatic sonic purity. Awesome – all but unmatched.



MARTIN LOGAN ELECTROMOTION £2,500
Martin Logan's budget baby XStat hybrid electrostatic. Fits into any lounge to give electrostatic levels of clarity and imaging.



QUADRAL CHROMIUM STYLE 8 £1,700
A supremely smooth yet open sounding loudspeaker. Clean and detailed treble from a fine ribbon tweeter. Accurate yet informative and enjoyable. Pure class.

QUADRAL ORKAN VIII AKTIVS £6,200
Active loudspeaker with tight, powerful bass, perfect accuracy and detailed treble from a ribbon tweeter.



Q ACOUSTICS 2050i £480
A large floorstander at a budget price. Offers high sensitivity and big sound and has very few flaws for the price.

SPENDOR SP100 R2 £6,495
Retro looks but a sound that's hard to match. Spendor's 12" bass unit provides massive low-end grunt with a room-filling sound.



SPENDOR A3 £1,300
Fine little floorstander with a smooth, natural midband and even tonal balance. Ideal for smaller rooms.

TANNOY DEFINITION DC10 Ti £6,000
Enormous power with great projection. Glorious subsonics too. Need little power to go very loud and have superb finish into the bargain.



TANNOY KENSINGTON £9,950
Big but not overpowering, punchy modern sound from classic cabinetry. Need little power to go very loud and suit a traditional home, or castle.



LOUDSPEAKERS STANDMOUNT

ACOUSTIC ENERGY NEO 1 V2 £225
Civilised sounding speaker with fast and tuneful bass.

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



ELAC BS243 £1,000

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



EMINENT TECHNOLOGY LFT-16A £1,200

U.S. planar magnetic bookshelf loudspeaker with unrivalled mid-band and treble. Hear it before all else.

WHARFEDALE DIAMOND 220 £200

Builds on the success of previous Diamond ranges with better bass, more detail and a greater sense of scale.



KEF LS50 £800

Supremely musical mini-monitors which sound much bigger than they look.



MARTIN LOGAN MOTION 35 £1,300

Folded Air-Motion tweeter gives a taste of Martin Logan's electrostatic sound in a standmount. Different from the standard mini-monitor and all the better for it.



PMC TWENTY.21 £1,575

Transmission line loaded standmount with a big box sound from a compact cabinet. Punches well above its weight.



Q ACOUSTICS 2020i £165

Great little bargain-priced stand-mounts with a friendly, fun yet surprisingly refined sound. Hard to better for a pair of starter loudspeakers.

WHARFEDALE DENTON £500

A beguiling mixture of retro looks with modern, high-technology drive units. The Denton has an easy-going, big-hearted sound with a touch of trad warmth that should appeal to many.



HEADPHONE AMPLIFIERS

CREEK OBH11 £150

Designed specifically for low to medium impedance (30 Ohm – 300 Ohm) headphones the little Creek has a marvelously well-judged sound.

CHORD MOJO £399

Class leading portable DAC and headphone amp with ability beyond all else. Big, open spacious sound.



EPIPHANY EHP-02 £99

PP3 battery-powered portable gives great sound quality at an almost giveaway price. Happy with the output from an iPod or CD player, the little epiphany is a true bargain.



ICON AUDIO HP8 MKII £650

The HP8 MKII valve-based headphone amplifier brings the spacious sound of valves to headphones. And it matches 'em all.



FIDELITY AUDIO HPA 100 £350

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

MUSIC FIRST PHONE BOX £276

Brings a big stage, plenty of detail and rich, deep colours to the sonic spectrum.



OPPO HA-2 £250

Remarkable performance and sound from ESS Sabre32 DAC in a slim portable package.



CD PLAYERS

AUDIOLAB 8200CDQ £949

Inspired CD player and DAC with price-performance ratio like no other. Capable of matching designs costing much more.



CANOR CD2+ £3,100

Musically coherent and tuneful valve-driven CD player from Slovakia. Lovely liquid sound.



CAMBRIDGE AUDIO AZUR 651C £410

Snappy modern presentation from this budget CD player. Cracking audiophile entry point for any digital fan.

CHORD RED REFERENCE MKIII £16,000

A unique and massive engineering exercise that could well be the best CD player available. Chord's Pulse Array DAC technology produces a musical experience like few others. A true reference player.



ESOTERIC K-03 £9,495

Superb high-end silver disc spinner that is beyond criticism. Devoid of its own character but has a flawless presentation.



EXPOSURE 101 £395

Detailed player with fine sense of timing should be an automatic entry on any demo list at this price.

ELECTROCOMPANIET EMP-1/S £4,650

Epic in scale, lavish in tone and exuberant in its musicality - this is a memorable SACD spinner. Quirky in operation and modest in finish, though.



OPPO BDP-105D £1200

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



REGA APOLLO-R £550

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



ROKSAN KANDY K2 £900

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

TUNERS

CAMBRIDGE AUDIO AZUR 651T £299

Value-packed AM/FM/DAB and DAB+ ready tuner. Precise and detailed with excellent resolution of spoken word.



CREEK DESTINY 2 £550

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



MAGNUM DYNALAB MD-90T £1,900

Exceptionally able, but commensurately priced, audiophile tuner that cannot fail to charm.



DACS

AUDIOLAB M-DAC £600

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



AUDIOLAB Q-DAC £250

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

ANTELOPE ZODIAC GOLD/VOLTIKUS £3,095

DAC/preamp/power supply combination majors on detail but has a remarkable un-digital sound. One of the best at its price.



CHORD 2QUOTE HD £990

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



DCS DEBUSSY £8,000

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

NORTHERN FIDELITY DAC £650

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



METRUM OCTAVE £729

Unique two-box digital-to-analogue convertor with great sound at a great price. Cuts upper treble, though.

NAIM DAC £2,400

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



TEAC UD-501 £699

Feature-packed DAC with benefit of DSD playback. Superb sound means little to touch it at the price.



RESONESSENCE INVICTA MIRUS £4,499

One of the most highly spec'd DACs available, with a smooth yet enthralling presentation. Few approach it.



NETWORK PLAYERS

CHORD DSX100 £7,500

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



CAMBRIDGE AUDIO NP30 £399

Budget offering from Cambridge offers a great introduction to network streaming.

CYRUS STREAM X £1,400

Gorgeous sound quality even from compressed digital music. New control app makes everyday operation a doddle.



ENTOTEM PLATO £3,600

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



NAIM NDX £2,995

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

NAIM ND5XS £2,175

Great sound quality with traditional Naim heft. A wonderful DAC with full 24/192 handling. Only the display could be better.

NAIM NAC-N172 XS £1,650

A pre-amp/DAC/streamer package provides a taught, rock-solid presentation with a tonally rich midband and a superior sense of rhythm.



PRO-JECT STREAM BOX RS £1,095

Unusual valve-based streamer/preamp with variety of inputs and a lovely liquid sound. Not the most detailed but compensates with sheer musical verve.

QUAD PLATINUM DMP £2,500

Combined CD/network player has all the usual Quad elements but with added zest and detail that brings life to everything you care to play.



DIGITAL SOURCES

ASTELL&KERN AK100 MKII £569

Portable high-definition digital player with superb sound quality. Punchy and fast.



FiiO X3 £150

Fabulous value player with nice easy sound and full range of abilities. Small and light. For newbies.

LOTOO PAW GOLD £1,500

Reference quality sound; it's like carrying your hi-fi in your pocket. Equivalently large too, but stunning headphone quality.



NAIM HDX £4,405

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

NAIM UNITILITE £1,995

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



PORTABLE SPEAKERS

BAYAN SOUNDBOOK £149.99

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



IRIVER IBA-50 £69

Big, warm sound with plenty of volume and clean at high levels. Muscular sound compared to many rivals.

CABLES

BLACK RHODIUM TWIST £71/3M

Twisted to fight off radio frequency, the Black Rhodium speaker cable is easy on the ear with a fine sense of clarity and focus. A remarkable performer at the price.



MAINS CABLES R US NO.27 £95

Offers a sprightly pace with a precise nature. Fast performance enhance frequencies and beautifully etched detail.



CHORD SIGNATURE REFERENCE £900

Majors on timing, detail and openness. Capable of getting the best from most systems and a recommended upgrade.



TELLURIUM Q BLACK 280/3M

A deep, dark, velvety performer that's nevertheless highly musical, it represents excellent value as mid-price cables go.

TELLURIUM Q SILVER DIAMOND £804/M

An open, natural and transparent sound that is difficult to beat, from these great loudspeaker cables.



HEADPHONES

AUDEZE LCD-3 £1,725

A planar magnetic 'phone that offers monitor quality. Strong sound with silky, dark quality that others struggle to match.



B&W P3 £170

Beautifully presented headphones from the loudspeaker specialists. Feed them a good quality source signal and they reward with excellent sound.

JAYS V-JAYS £49

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



NOBLE K10 INC. FITTING £1,279

Custom fit in-ear phones with 10 drivers deliver a sound that is out of this world. Personal and perfect.



PHILIPS FIDELIO X2 £260

Aimed firmly at the upper end of the market, these X1 updates are super-accurate 'phones that match the best. Hear them before anything else.



ONKYO ES-HF300 £180

Detailed and fast sound with good bass and finely-etched treble. Have great presence without colouration.

OPPO PM-1 £950

Planar magnetic phones with a warm, easy but big bodied sound that draws you in. Need a lot of drive, but deliver superb bass.

SENNHEISER HD700 £599

Tremendously fast with a strong, focussed, lower-frequency range and a firm bass punch.

YAMAHA HPH-MT220 £150

Purposed for indoor monitoring yet light and comfortable enough to be used on the move. Excellent sound quality marred only by a slight warmth to vocals.



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The Ultimate Xperience

The 2 Xperience SB DC takes the core design principles from one of our most popular turntables of recent years, and adds a variety of enhancements to achieve a new performance standard.

The striking plinth, available in four stylish finishes, is accented by the thick vinyl-topped platter, which spins on a high-quality bearing and accommodates a light screw-on record clamp.

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The established 9CC Evolution carbon fibre tonearm, with advanced anti-resonance technology and pre-installed Ortofon 2M Silver cartridge, completes the package to a true audiophile standard.

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Heads Up

Metropolis Studios in West London was the venue for this year's Headroom Show – the UK's largest exhibition of headphones, headphone amps, DACs and portable audio players. Noel Keywood and Jon Myles bring you the highlights of the event.



SNUGS

It looks painful, but I'm told it isn't. This man was having his ears measured up for a pair of Snugs custom-fit in-ear tips that are 3D printed. See <https://snugsearphones.co.uk>



CHORD ELECTRONICS DAVE

The latest and greatest DAC from Chord Electronics – Dave – was on show, with headphones connected. After Hugo and Mojo, Dave (Digital Audio Veritas in Extremis) takes Chord's Pulse Array DAC technology to its current limit. Designer Rob Watts was in the Chord room every day, as well as supremo John Franks, to talk people through this new-technology DAC. Priced at £8000 it isn't in everyone's league but it is already selling strongly in the Far East I was told (review samples have yet to be made available). Claimed dynamic range is 128dB. We hope to run a review soon.



TECHNICS EAH-T700

Technics were showing a new high-end headphone, the EAH-T700. Priced at £795 it is out to compete with the likes of top Oppo, Audeze and Sennheiser models.

OBRAVO

The HAMT-1 headphones from Obravo of Taiwan combine an Air Motion transformer tweeter with a dynamic driver to give wide audio response. Air Motion transformers give fast, clean treble with similar subjective properties to a ribbon tweeter, so the HAMT-1 has promise.

Obravo also uses similar technologies in its range of in-ear monitors...only in a much smaller form factor. The £899 Erib-2C model, for example, combines planar magnetic and dynamic drivers while the range-topping EAMT-3A (£1600) uses the Air Motion tweeter. Go to www.custom-cable.co.uk or www.obravoaudio.com.



FINAL SONOROUS III

A pair of Final Sonorous III headphones with bass and treble units laid out alongside, showing just what technology goes into modern high-end phones.



ORPHEUS
 Not surprisingly Sennheiser's bank-busting Orpheus headphone/valve amplifier system drew lots of admiring looks. Pure luxury and sure to take pride of place in any living room!

LINUM
 Linum was showcasing its range of replacement cables for earphones. The cables use silver-plated copper and combine low mass with high tensile strength to avoid the problems of microphony when on the move. Most connection options are available including both European and US-style two-pin. Prices start from around £40.



SENNHEISER HD 800 S
 Sennheiser's new HD 800 S phones (£1200) were on demo, complete with balanced cables terminated in a 4-pin XLR plug.



CHORD COMPANY
 The Chord Company unveiled a version of its groundbreaking Tuned Array cable flexible enough to work with headphones. This XLR-terminated pair was still in prototype form but full production is expected to start later this year. Price is expected to be between £200-£300.

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- We listen and measure products in depth, at our London offices.
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Information

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

**DOWNLOAD OUR APP ON APPLE AND ANDROID
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Box Clever

Naim's new Mu-so Qb takes the one-box wireless streaming loudspeaker concept to a new level, says Jon Myles.



The way people listen to music is changing rapidly – and manufacturers are having to adapt. For evidence, look no further than Naim. This was, remember, the company that held out longer than most before embracing the CD revolution. Yet it was one of the first to produce true hi-fi streaming products

with its ground-breaking Uniti range.

Now it has enthusiastically entered the one-box wireless 'speaker market. First came the Mu-so – a handsome standalone product that packs six drivers, 450 Watts of amplification, network connection, Bluetooth, native Tidal and Spotify compatibility, Bluetooth, internet radio, Apple AirPlay and digital

connections (up to 24bit/192kHz) into a single chassis. It looks like no other Naim product that has gone before but more importantly is both a joy to use and listen to.

Now the design and engineering team in Salisbury have taken the same concept and features but built them into a more compact package in the shape of the Mu-so Qb.



The top-mounted touch-sensitive dial controls volume, inputs and radio pre-sets.

Thinking of this as a Mu-so-lite, though, would be missing the point. Yes, it's smaller and less expensive (£595) but it's been engineered from the ground up to provide that traditional Naim sound in a form factor that suits some of our more bijou living spaces but also allows you to listen to your music from the



Five active front-firing speakers are angled to provide wide sound dispersion. They are augmented by two passive bass radiators.

same range of inputs as the original Mu-so.

So, as the name (sort of) suggests it's in the shape of a cube measuring 210mm x 218mm x 212mm (H/W/D) and weighing 5.6kg. Behind the wraparound grille are five active front-firing drivers – one woofer, two mid-range units and a pair of tweeters.

These are set into a sculpted and extremely rigid glass-filled polymer housing that angles the mids and tweeters to left and right for better sound dispersion. Lower frequencies are also augmented by a pair of passive bass radiators on each side.

Inside, individual Class D amplifiers power each of the active drivers (50 Watts apiece for the mid/tweeters and 100 Watts for the bass), controlled by Naim's in-house designed DSP signal-processing engine.

And talking of control, you'll need Naim's free app for mobiles or tablets (both iOS and Android supported) to set the unit up and take full

advantage of its capabilities for selecting music from your network. This is a fine piece of software which guides you through all the various options available without too many confusing sub-menus.

Once done, volume, source, radio

"it combines versatility, ease of use and great sound with superb design"

presets, play/pause, track forward/back can also be accessed from the unit's top-mounted illuminated dial.

This first appeared on Naim's flagship Statement pre/power combination before finding its way onto the Mu-so and, while not offering as many functions as the app, is so smooth and tactile that you can't help but keep using it to adjust volume. It's also touch sensitive to allow selection of inputs as well as

play/pause and forward/back when playing music.

For existing owners of Naim streaming products Mu-so Qbs can be added to their home network for multi-room music streaming.

As supplied the Qb comes with a standard black speaker grille but other colours will be made available soon for users that wish to match their unit with the home decor.

SOUND QUALITY

The Naim Mu-so Qb may have a small form factor but it also has a very potent sound.

Obviously, as a one-box unit, you don't get true stereo sound or that last iota of detail, but it trades that

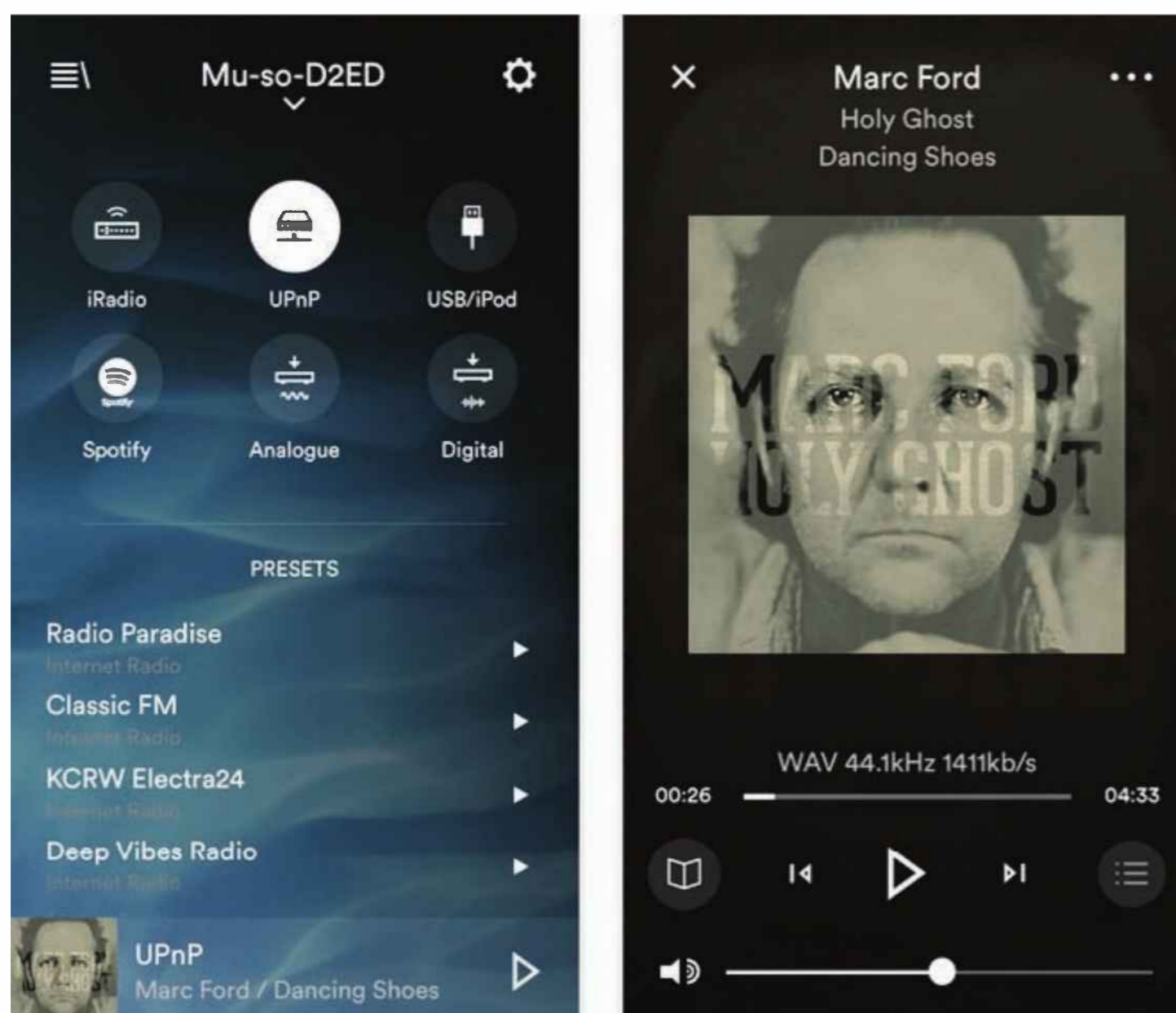


The rear of the Mu-so Qb has an integral heatsink as well as containing all the inputs.

for a rather up-tempo, foot-tapping sound that is extremely enjoyable.

Overall it sounds smooth and fast. Listening to The Killers 'Smile Like You Mean It' (24/96) via wireless highlighted what it does well: there's an ability to latch onto the essentials in the music so although 'obvious' bass or ringing treble may seemingly be missing, the overall sound more than compensates with its smooth accuracy.

Similarly, on 'Go Easy' from



Control of the Mu-so Qb is easy through Naim's free app for both iOS and Android mobiles and tablets. The app will let you select inputs, alter volume and display album artwork.

John Martyn's 'Bless The Weather' the gentle guitar strumming was portrayed with depth and realism - a strong sense of plectrum hitting strings. There was not the definition you'd get from a full-size system - but it was rather captivating all the same for something of the size.

Where the Qb impressed me was across the midband and higher frequencies – the way it integrates everything into a whole. For example on 'Where The Wild Roses Grow' from Nick Cave and The Bad Seeds' 'Murder Ballads' the interplay between Cave's gruff, menacing voice and Kylie Minogue's innocent replies wasn't just relayed mechanically – it had real frisson to it.

On the same album, when 'The Curse Of Millhaven' starts, the descending organ riff gave me a start – just as it should. After that the Qb let me hear just how well the drums, bass, guitar and occasional keyboard meld together to create the atmosphere of the track.

Shutting my eyes, it was hard to believe the sound was coming from a box the size of the Mu-so Qb. The only thing I wanted was a bit more bass power - but that's probably being a bit greedy considering how well-judged the rest of the sound is.

Switching to internet radio the Qb was even more impressive. With Radio 3's 339kpbs stream of Arthur Rubinstein playing Schubert's 'Opus 90/4' there was no lack of definition, or the sense of his deft

touch between left or right hand on the keyboard. The same went for voices on radio: they came over as natural and free of either chestiness or sibilance.

All this was using the Qb in a living room measuring 6.5m x 5.2m – which it managed with some ease without the volume control progressing past the halfway point.

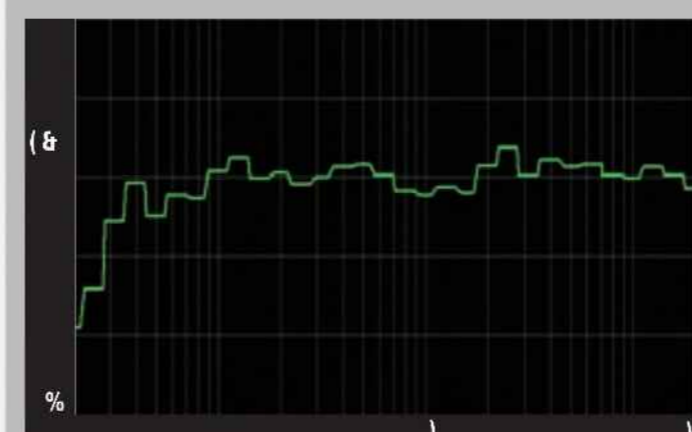


Inputs include USB, optical digital, ethernet as well as 3.5mm analogue line-in.

MEASURED PERFORMANCE

Our third-octave analysis of frequency response, using a pink noise test signal, shows the Mu-so Qb has been carefully engineered to give an impressively flat response, extending the full width of the audio band. The small tweeters

FREQUENCY RESPONSE



Having said that there are two small controls that help let you get the best out of the unit. The first is a loudness control which seems to be turned on by default – you need to go into the app settings menu to turn it off and I much preferred the sound this way.

Secondly, you can set the DSP for operation for more or less than 25cm from a rear wall. This is rather more subtle and is worth experimenting with but can be done on the fly from the app.

That might, though, take you a little time to get around to - because even without those tweaks the Mu-so Qb sounds rather captivating straight out of the box. As it stands I'm struggling to think of anything that comes close to it in terms of functionality and price at anywhere near the price. I'd recommend you take a listen.

CONCLUSION

Not so much a wireless 'speaker' – more a classy hi-fi system in a compact package for just £600. It combines versatility, ease of use and great sound with superb design. It also offers the cheapest and probably most convenient way into the Naim sound – and offers existing Naim streamer owners an alternative to the likes of Sonos in providing multi-room streaming in an easy package.

NAIM MU-SO QB
£595



OUTSTANDING - amongst the best

VALUE - keenly priced

VERDICT

Sets the standard for one-box music systems at an affordable price. A real innovative product.

FOR

- design
- smooth yet punchy sound
- easy set-up
- intuitive control app

AGAINST

- nothing at the price

Naim
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www.naimaudio.com

Titan Power

Jon Myles plugs in Black Rhodium's Titan power lead.



company's Titan power cable which sits just below their flagship Hercules model and retails at £800 for a 1.5 metre length (other lengths can also be ordered).

Bernstein's trumpet on 'Sasa' was clearer and better separated from the instruments below.

The Naim is never short of rhythmic propulsion but throughout this collection the band seemed to be just that little bit tighter and faster.

In contrast, on Michael Tilson Thomas's interpretation of Mahler's 'No 6' (San Francisco Symphony) the soundstage to this epic work opened a shade more with the orchestra sounding larger and so more powerful. At the same time there seemed to be a lowering of the noise floor so there was better light and shade to the various passages, dramatic contrasts gained extra impact.

Switching back to the original power lead revealed just how much improvement the Titan was bringing to the sound. Yes, it was still enjoyable but the Black Rhodium was definitely getting more out of the Naim.

In that respect it's not that different to the Athena and Aria interconnects and loudspeaker cables in its ability to bring better definition, soundstage and instrumental coherence to a system.

CONCLUSION

The Black Rhodium Titan is an excellent power cable that can make a real difference. If you've got the rest of the cabling to your satisfaction (and that should be the first priority) then it could well be the final piece in the jigsaw.

Of all the elements that go into assembling a decent hi-fi system cables can often be the most difficult to get right. While different manufacturers' loudspeaker leads and interconnects can all make an appreciable difference, whether their effect suits your taste can vary depends not only on the make and level of equipment being used, but also exactly what sort of sound you prefer.

Which was why I was mightily impressed with Black Rhodium's Aria DCT++ RCA interconnects and Athena DCT++ loudspeaker cables earlier this year (see review Hi-Fi World February 2016). Not only did they have a superb level of definition and detail, they worked well in a variety of systems – from the relatively budget to ones costing north of £10,000.

But there was one link in the chain missing in the shape of the mains lead. So welcome to the

The Titan uses three separate layers of screening to prevent interference with other cables nearby while the live, neutral and earth conductors are silver-plated and continually twisted along their length to help reject RFI/EMI signals. In addition, two of designer Graham Nalty's vibration stabilisers are fitted – essentially metal clamps engineered to reduce microphonic effects in cables. This translates into a lead that is heavier and thicker than most and can take a bit of wrangling in tight spaces to get into place.

SOUND QUALITY

Replacing the stock lead of my resident Naim Supernait 2 integrated amplifier with the Titan, I was immediately struck by the difference in sound. On Madeski, Martin and Wood's 'End Of The World Party' CD the keyboard notes stopped and started slightly faster while Steve

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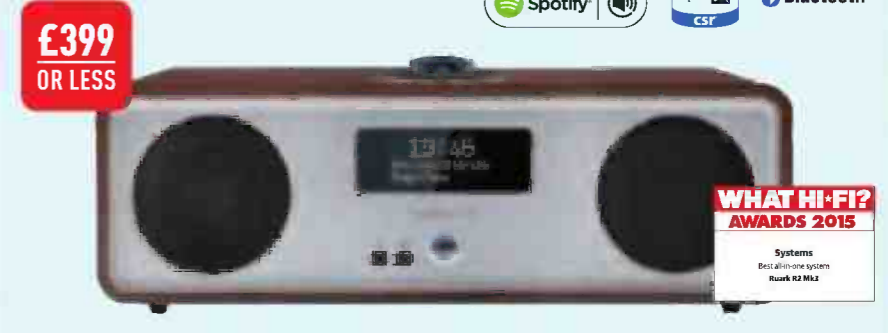
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WHAT HI-FI? AWARDS 2015
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**BOWERS & WILKINS • 685 S2**

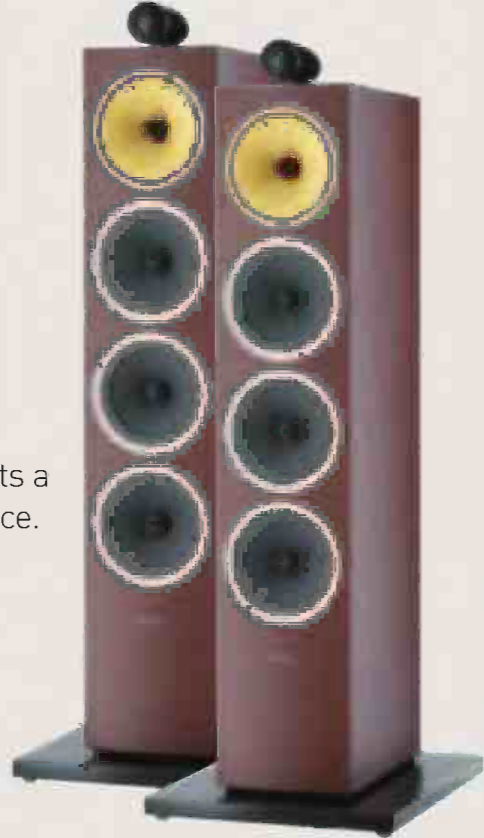
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MARTIANS, DEMONS AND FOOLS LIKE ME

The MCI Records Story 1954-61
Bear Family

MCI (Music Counselors Inc.) was a fascinating small label based in Phoenix, Arizona.

As well as being a learning centre for the upcoming producer Lee Hazelwood, MCI was also a thriving centre for the creation of advertisements and jingles, selling everything from car dealerships to bread and records themselves. The label would also record amateurs who wanted to set their lyrics to music. The label's minor hit 'I Should Not Be Seeing You' from Connie Conway recently appeared on TV's Mad Men.

Sound quality on this collection varies. Not because of the mastering attention paid to the disc by Bear Family - that, in general terms has been excellently applied and in a sympathetic manner - but because of the original studio techniques. Sanford Clark with Al Casey's 'The Fool', for example, is drenched in reverb which bounced all over the place to give you that classic, slow tempo rockabilly feel. Such is

the echo laden upon Clark's voice, though, it results in an almost otherworldly, slightly dream-like, presentation.

From the same year though, 1956, Jimmy Wilcox and his Music Counsellors' 'Mrs. Arizona Home Owner' sounds like (and is) one of the label's many advertisements. The next track is another fine example - 'Money Oldsmobile' being one of the more intriguing song titles to pass my way. The compression on this track provides a dramatically different sound. In fact, it already sounds like a radio broadcast such is the narrow soundstage and restricted dynamics.

Those dynamics are right back in the fold with The Newton Brothers featuring Wayne Newton and 'I Spy' from 1959, a fine rendition in sonic terms with clear, concise vocals, although a touch strident during crescendos. If anything, the varied productions add to the interest of this fascinating, hard-working, label.

AUDIOPHILE CD



MARVIN GAYE

Volume One 1961-1965
Motown

I recently reviewed 'Volume Two' as a vinyl set but wanted to catch up on this interesting collection

of Gaye's oeuvre. This early suite of albums includes 'The Soulful Moods of Marvin Gaye' (1961) as a mono cut, 'That Stubborn Kinda' Fellow' (1962, a truer title was never given to one of his albums), also a mono cut, 'When I'm Alone I Cry' (1964), 'Hello Broadway' (1964), 'Together' (1964), 'How Sweet It Is To Be Loved By You' (1965) and 'A Tribute To The Great Nat King Cole' (1965).

Spinning the latest album from the box set, the 'Nat King Cole' LP and 'Rambling Rose', it's interesting to compare it to the relatively quietly recorded Bear Family release that is based upon even earlier recordings. Here, a certain amount of compression is evident that adds gain to the presentation and also shows a light upon the upper mids, especially during

Gaye's vocal crescendos, while dry percussive strikes are quite sharp and crackling and banks of strings can be a little harsh at times.

That said, spin the lead track to 'Stubborn Kinda' Fellow' and the compressive effects are not as bad. Yes, there is a touch of compression that lifts the vocal a touch and adds a certain zing to the backing instruments but nothing that would be called offensive. In fact, Gaye's close mic'd lead vocal is pretty smooth, while the backing from Martha & The Vandellas is also kept under decent control.

Also, the track, 'How Sweet It Is To Be Loved By You' lies somewhere in the middle: the vocal is becalmed but some of the backing instruments can be a bit on the lively side.

Nevertheless, the music itself is top notch. A time of innocence and ease for Gaye before he transformed into a more visibly troubled soul man of soul.

Firstly they were The Tuxedos, then The Innocents with Mike Berry which connected to a tour with The Rolling Stones in which band members Colin Griffin and Dave Brown became rather friendly with Stones' bassist Bill Wyman.

When the Innocents management disappeared down the plug-hole, both Griffin and Brown decided to take matters into their own hands and start a band of their own. The band was to be known as The End.

The band wanted to play the new wave of American soul and R'n'B. You know the sort of thing, very Otis Redding. So the guys called Rolling Stone Bill Wyman and asked him for help – which was duly forthcoming.

When the band was fully under way, line-up changes prefixed music changes as the band headed towards full blown psychedelia.

The 1969 release 'Introspection'

was released too late to make a mark on the market but has since found belated fame as one of the best albums from the brief British psychedelic wave.

This plush, Bill Wyman-produced LP offers gentle harmonies and leans towards The Zombies in style. Combine this with full on fuzz guitar and period Mellotrons and you tend to have an album that includes more psych-pop.

This album is just part of a larger 4CD box set, though, that is encased within a clamshell box. CD one covers the early days from 1964 to 1967, CD two is the 1968 'Introspection' album with two bonus tracks, CD three features out-takes (including four previously unreleased bonus tracks) from the period 1968/69, while CD four rounds up the band's recordings from 1969/70, before they reinvented themselves as Tucky Buzzard.

Nicely mastered, this is feature-packed set that is worth



THE END

From Beginning To End
Edsel

AUDIOPHILE CD

Brown was an excellent singer of both soul and R&B during the sixties but you could never say that she was a hit machine, in many ways she slipped under the radar. That is, her popularity amongst the general public never really matched the respect she attained amongst dedicated music devotees of the genres.

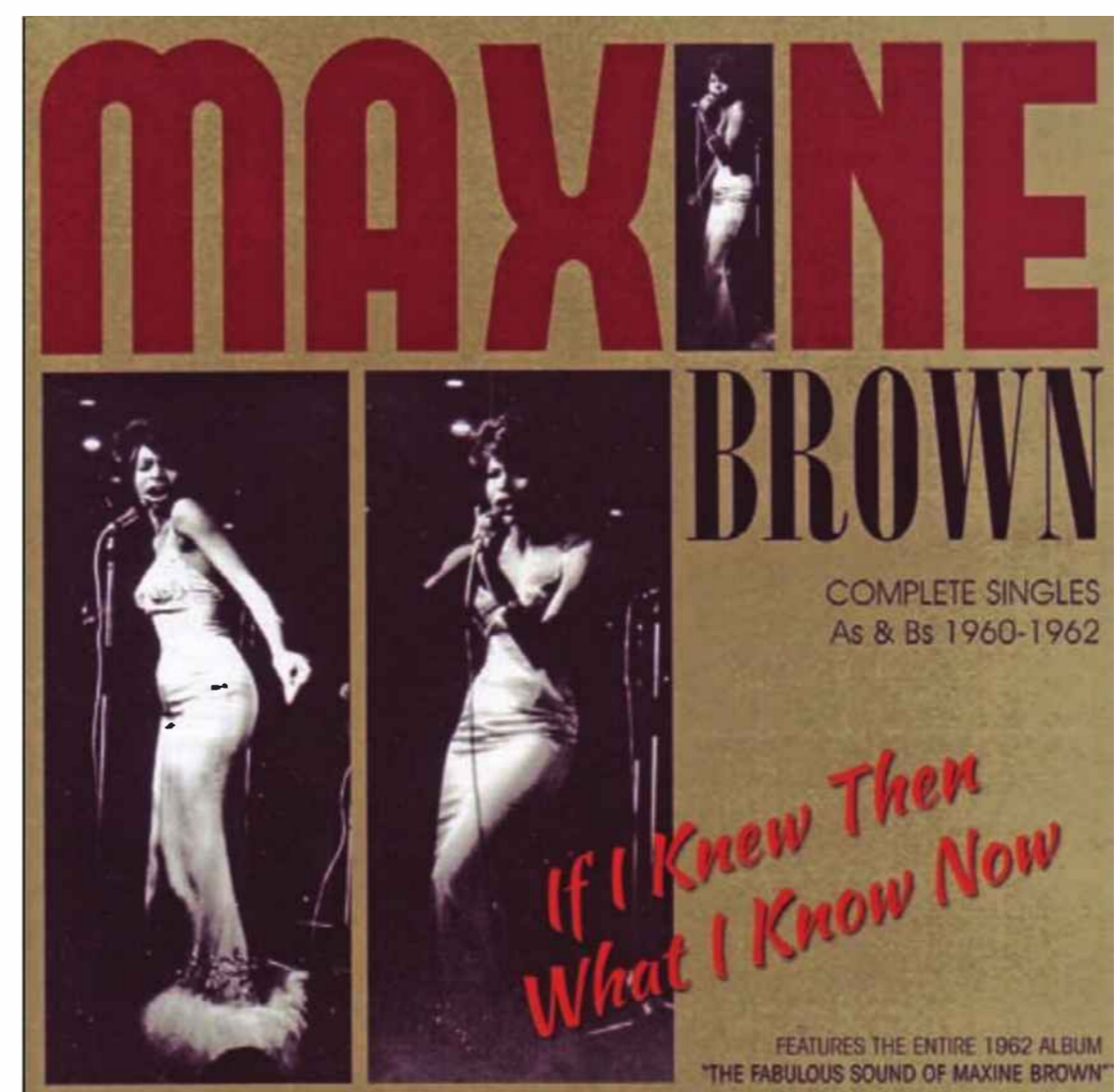
Yes, Maxine had success with both 'Funny' and 'All in My Mind' (which you can find on this fine, single CD compilation) but she never churned out the hits. In some ways, this might have helped her to retain a level of quality – she was never really pressurised into singing songs that were out of her comfort zone or unsuited to her style.

For example, on her 1962 album for the Nomar/Wand label 'The Fabulous Sound of Maxine Brown' she covers a gamut of superb tracks that combine sensual ballads with sweet love songs. In

many ways this LP was not really a coherent, structured album that you might recognise as such. It was a singles collection – but none the worse for that.

In terms of sound quality, the CD retains the original presentation, a slightly compressed and reverb-laden vocal delivery that was true of the period, but Jasmine should be congratulated that they've kept control of the midrange and never let it become aggressive. This is top quality reproduction.

Look out for other Jasmine releases out this month including 'Island In the Sun: The Harry Belafonte Hits Collection 1953-1962', Joanie Sommers 'Johnny Get Angry' featuring all her singles between 1959-62 plus the pick of her LP tracks and, finally, the very shy star Ned Miller in 'From Jack To King' that gathers together everything which Ned Miller recorded commercially between 1956-62.



MAXINE BROWN

Complete Singles As & Bs 1960-1962
Jasmine



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"it soon collected raspberries for rotating backwards at switch on!"



Noel Keywood

I was intrigued to see Technics announce recently they have designed a new Direct Drive motor for their SL-1210Mk2 turntable replacement. From what I've been reading it had to happen.

The reason I say this is not because the original hybrid motor / platter assembly was flawed – quite the reverse: it was a brilliant piece of cost effective 1970s engineering that did its job superbly. But Direct Drive motors have moved on – and how! Nowadays they are blindingly complicated, and most of the complexity is tied up in silicon control chips.

The reason being Direct Drive motors, as we term them in hi-fi, are a compelling technology. They come in all shapes, sizes and powers and a whole industry lies behind their prodigious complexity.

Transistors were a facilitating technology: they allowed electrical current to be switched into drive coils to turn the rotor/platter around. Before this, a variety of mechanical schemes had been used, from brushed commutators to slip rings, induction and what have you.

But once current could be switched into motor drive coils at a defined rate by transistors and – better – a sensing mechanism could tell the circuits whether speed was fast or slow, in order to provide speed correction (a process known as servo-feedback) the servo-controlled low speed d.c. motor was born. It was a child of the 1970s simply because that's when transistors became reliable and usable.

Motors like this are now common in a wide variety of applications, but sadly not in hi-fi. Not only are they fiercely complex they are also commensurately expensive.

All the same, if the vinyl revival

continues, as is likely, we will all be seeing and hearing more about Direct Drive.

This is where my fantasies turn into fears. To be able to process the technical bull that will emanate, I need to have some understanding of the problems. I sense/fear already a wave of press releases being readied to go, to overwhelm us on this one.

How to get savvy? My solution was to get stuck into the Application Sheets of the silicon chips that now dominate this field: for starters Google 'Microchip AN885' on Brushless DC Motor Fundamentals. It's understandable (just!) and fascinating.

What is creeping up on us here is ever more complex systems of electronic control. Modern silicon chips, including CPUs, are used to control the coils and magnets of such motors, and computers are used to programme them. The SMD V2.0 turntable I review in this issue uses just such a motor with computer programmable characteristics, Shaun Daniels told me. Yes, this is an idler drive turntable driven by a 'Direct Drive' motor.

Early Direct Drives had some peculiar problems. Strathearn used a DD Mettoy motor long ago to power their SMA-2 turntable and it soon collected raspberries for rotating backwards at switch on! It's one of those peculiar issues that none of us would think about, but was a problem with early, simple motors. More difficult to eradicate was stepping backward before spinning forward – Technics neatly avoided this with their SL-1210.

Even what speed to run at is a head scratcher. Direct Drives in hi-fi often use a quartz-locked crystal oscillator as a rock steady speed reference.

For the obsessional hi-fi business there are some intriguing issues

Direct Drive should illuminate and hopefully eliminate. One of them is whether playing a record affects speed. The use of a speed sensor for servo-feedback, such as a high resolution optical shaft encoder, can throw light onto this issue.

But in the end, high rotational inertia, meaning a heavy platter, will overcome this problem – and guess what, Technics are claiming to use a heavier platter in the new SL-1200G. The reason is modern Direct Drive motors have more torque than those of yore, due to higher efficiency and more powerful Neodymium magnets. As a result, a heavier platter can be used without lengthening start-up time.

Technics used a light platter on the SL-1210 because it had a low-torque motor and they needed fast start-up for DJ use: it was never intended to be a hi-fi turntable, hence the strictly-70s arm. Saturday Night Fever was its idiom; forget High Fidelity.

But hi-fi buffs use SL-1210s for convenience and what is obviously rock steady pitch. Whilst its light platter is quick to spin up to speed, it has low inertia. A servo works only below low frequencies, circa 5Hz, so it can't affect high frequency stylus drag induced variations (nor would you want it to).

A high mass platter, on the other hand, will plough on unaffected. No wonder then that Technics are saying they use a two part, aluminium and brass high-mass platter. That's exactly what I'd expect, considering this is now a hi-fi turntable, John Travolta being in retirement.

So Direct Drive isn't what it used to be. It's come a long way since spinning Saturday Night Fever in discos around the world. I'm excited by the prospect of Technics' new DD turntable and the return of Direct Drive to high fidelity. ●

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Drive ability	16-300Ω	Weight	220 g
Dimensions	130 mm×64 mm×16.6 mm	THD+N	<0.0007%(32Ω/1 kHz)

M3

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- Smart power saving function
- Dedicated battery status LED
- Supports micro-SD, up to 64GB storage expansion
- CTIA standard earphone in-line remotes supported

Specifications

Output Power	> 30 mW (32Ω loaded)	Drive ability	16-100 Ω
SNR	≥95dB (A-weighted)	Dimensions	74 mm x 39.7 mm x 9.1 mm
THD+N	< 0.08% (32Ω/1 kHz)	Weight	40 g
Battery life	> 24 h		

"sometimes artists will sing certain songs for the first and certainly very last time on the radio"



Paul Rigby

In a way, this column is a warning. Well, maybe that's placing a tad too much drama on matters. A heads-up? If that's a mite too trendy for you – it is for me – then how about an 'alert'?

I'm sure that most of you out there are aware that there is so much music available nowadays, especially with the open door policy of the Internet, that you'd never hear it all in a dozen lifetimes, never mind the years we all have left to us.

More than that, with every reissue and box set, of even familiar albums and song collections, rarities are being found and tagged on to the ends that expose us to new music from even our most treasured and familiar favourites.

Hence, I almost hesitate to mention it, but there are two more sources of rare songs that, in general terms, tend to be left off your basic LP (new or old), CD box set or download extravaganza. The first is the radio broadcast and the second is the home demo collection.

Let's take the radio first. This medium is the source of the rarest musical performances in the world. It's often the case that well-known songs from famous artists will often be sung in either a unique manner or, through a 'new' arrangement on the radio, in a live setting.

Sometimes artists will sing certain songs for the first and very certainly last time on the radio. In the sixties, for example, popular bands were infamous for doing this.

Sometimes new and upcoming bands would be booked to do a daytime pop show and only have one or two songs prepared so would grab a third from the ether.

A song that they might have had just hours to perfect and one that they dropped like a stone and never

revisited afterwards. The ditty being there to fill a bit of air time and nothing more.

If you were alive a bit earlier in history, of course, then you would have seen the radio as an even more important and critical medium for the advancement of your career. Those people performing in the 1940s, for example, would have seen the radio as the tool to connect to 'the people' on a regular basis.

Frank Sinatra was one of those and a new collection which has just been released by the Sinatra estate celebrates this very fact in rather glorious fashion.

It's a four-CD set, entitled 'A Voice On Air 1935-1955' from Sony Music, arrives with a handsome sixty-page book and features some glorious rarities from the Sinatra estate archives, plus rarities from other collections that have received extensive mastering and renovation work. I have to say that the remastering sounds highly impressive in terms of sound quality and has wrought some magic.

From his first radio performance in 1935 (singing 'S-H-I-N-E' with the Hoboken Four) to his last weekly series in 1955 (The Frank Sinatra Show, with an in-studio quintet), this collection joins other radio work already 'out there'.

I have an impressive, now deleted, thirty CD set from Radio Spirits, which also documents Sinatra's time as a guest star on many shows in which he performed, including many variety shows of the day.

The point of all of these shows is that most of the performances were unique to those shows and are, hence, critical for collectors.

What about home demos? As the name suggests, these private works in progress are not meant to be available on a commercial basis but,

when a legendary figure dies, often such recordings change to symbols of 'what might have been' in terms of well-known songs or material that was never finally developed and recorded.

Marc Bolan also has a new set called 'Unchained: Home Recordings & Studio Outtakes' that features solo performances and with the band, T.Rex.

This material has been released before but the entire stock was consumed in the Sony DADC warehouse fire of 2011 whereupon the original release leapt up in value. Reissued by Edsel, this eight CD disc collection is released in a very attractive 12" square book folder. These 184 tracks feature almost-finished songs, jams and intriguing notepad sketchings that wandered down a cul-de-sac and then were abandoned.

Personally, I love this sort of thing. The material here equates to those rarity extras that you might find in a luxury DVD/Blu-ray release. It provides the listener and fan with an aural biography, an entrance into the mind of the artist, a way to understand how that artist thought and worked.

It's tremendously personal too which, to some, might be seen as an intrusion. For a public figure and one of such cultural importance, I see no issue with publishing this sort of work from an artist such as Bolan. Besides, I'm nose-y.

The scary thing, of course, is that there's lots of this sort of stuff out there. Much of it can be found on Internet-based collection, others are just waiting to be released by calculating estates of famous figures or awaiting discovery in an attic chest.

Me? I'm a sucker for all of it, I'm afraid. But then, I'm a hopeless collector of such ephemera. ●

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"In many ways the science of acoustics is still something of a dark art"



Jon Myles

Proposals for a new world class concert hall in London are causing all sorts of controversy – and are likely to keep doing so for the foreseeable future.

The plan is to spend hundreds of millions of pounds on a new venue which would improve on the existing Royal Festival Hall (built in 1951 and extensively renovated twice since), and upon the Barbican which was built in 1982 and has also undergone extensive improvements over the years.

It's an idea enthusiastically endorsed by renowned conductor Sir Simon Rattle – the in-coming music director of the London Symphony Orchestra – and also backed by Chancellor George Osborne and London Mayor Boris Johnson.

Sir Simon says London needs a great venue with first-class acoustics if it is to attract the best musicians. That's hard to argue with but, unfortunately, no-one can quite agree as to exactly where the new concert hall should be sited or even exactly what its design should be. One thing is certain, though; if the venture is to go ahead it is crucial the acoustics are absolutely spot-on.

And this is where things begin to get tricky – a point brought home to me in an excellent new book by Dr Mike Goldsmith called *Discord* which charts the history of noise from the Big Bang right up to the present day.

Now Dr Goldsmith knows a thing or two about his subject – having previously been head of the Acoustics Group at the UK's National Physical Laboratory where he did extensive research of human speech patterns, environmental noise patterns and novel new microphones.

But as he makes abundantly clear, while computer modelling techniques

have moved the science of acoustics forward in leaps and bounds over the past few years, in many ways it is still something of a dark art.

Indeed, the celebrated architect Frank Gehry once remarked that if you got the world's two best acousticians together in a room you can be pretty certain they would disagree with each other.

One of the problems is often the conflict between an effective acoustic space and the aims of the architects designing the building.

Concert halls by their very nature tend to be destination venues which the city or backers funding them want to be seen as impressive venues.

Hence a plethora of halls with sweeping curves and various embellishments. However, it's generally accepted that the best acoustic shape tends to be a basic shoebox arrangement (tall and long) which ensures plenty of early reflections arriving at the listener at the same time.

One only has to look at London's own Royal Albert Hall to see what happens when acoustics and architecture don't move hand-in-hand. Impressive-looking as it is, its circular form and high dome meant that right from its opening in 1871 it was plagued by acoustic problems of echo and reverberations that made many concerts almost unlistenable.

The problem was only solved to anyone's satisfaction as late as 1969 when a series of large fibreglass acoustic diffusing discs (commonly referred to as mushrooms) were installed below the ceiling.

As many experts have pointed out, all this trouble could have been avoided if they'd just built the hall to a different shape in the first place. But then Queen Victoria probably wouldn't have been too keen on a shoebox-shaped building. It would

have sounded better, though.

Frank Gehry himself has tackled the difficulties of combining a distinctive building with a good acoustic space in his much-praised Walt Disney Concert Hall in Los Angeles where his characteristic curved and swooped exterior encloses a basically fundamentally rectangular performance space to great effect.

It's interesting that two relatively new venues constructed in Britain in the past few years – Birmingham Symphony Hall and Manchester's Bridgewater Hall – have pretty much followed the shoebox concept and both are reckoned to have excellent acoustics.

Of course, there's a lot more to acoustics than just that. Construction materials, seating arrangements and even the number of people in a venue can all make a difference. And, as Dr Goldsmith points out, the ideal reverberation time for the best sound also depends on the type of music being played there (for classical composers like Mozart 1.4 seconds is estimated to be about right while Romantic symphonies are said to be at their sweeping best at around 2.1 seconds). Designing a hall that offers both those reverberation times would obviously be a physical impossibility without some arrangement of moving panels – which adds to the expense.

Add in the fact that many halls also now stage pop, rock and jazz concerts with different acoustical demands and you see how complicated the subject can be.

One thing is for sure, though. If London is to get the world-class concert venue it deserves then getting the acoustics right will have to be priority number one. Let's just hope the architects see it that way and can find a solution to the difficulties they'll face. ●

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"here's a turntable tip for the cash-challenged...old roofing slates!"



Martin Pipe

Over coming issues, I hope to share tips and observations that will provoke discussion as well as improve your sound! I'll start with the second-hand system I recently installed for someone to rediscover the joys of vinyl. It's modest by today's state-of-the-art – a Pioneer PL12D turntable (a belt-driven budget classic, with contemporary Shure cartridge), Pioneer receiver and Wharfedale Linton speakers. All are from the mid-1970s and it's a testament to the manufacturers that it's still working.

Much of the music being played on it is from the mid-70s too. LPs by Pink Floyd, Supertramp, Yes, ELP, IOcc etc. But although I was able to achieve creditable playback of these sophisticated works of prog there was an obstinate background noise. A nasty rasping 'buzz' that you could hear above the slight hiss produced by the amplifier whenever the pickup arm was raised.

I discovered that a computer-type filtered mains distribution-board killed the noise. In the end, it had nothing to do with complex earth-loops or anything like that. And ironically, computers were responsible. It turned out that the mains was being 'dirtied' by one of those clever HomePlug-type 'powerline networking' systems that transmit high-speed data over internal mains-wiring.

They're popular in larger homes, where a typical router's Wi-Fi coverage may be insufficient. HomePlugs allow communication between the router and a second Wi-Fi access-point, located in the area where existing coverage is worst.

Great for streamed-music but an analogue disaster! That 1976-vintage Pioneer receiver lacked the mains-filtering found on today's gear,

which must be designed with EMC regulations in mind. It was thus vulnerable to mains-borne 'digital hash'.

The offending equipment had been quietly-installed by a gadget-crazy member of the household who made constant use of the network connection it facilitated, and so it's just as well that the distribution-board effected a cure. But if you get this problem, you'll now be aware of a possible cause – and what to do about it. As 'the Internet of things' increasingly makes its presence felt, this sort of thing is likely to become more common. And 'old-time hi-fi' isn't the only analogue hobby affected. Amateur-radio enthusiasts working the HF bands consider powerline-networking to be the bane of their lives!

Still on vinyl, here's a turntable tip for the cash-challenged. The debt-fuelled housing bubble is leading to a substantial increase in the number of old roofing-slates being disposed of. These are heavy and flat, and ideal for giving mass and rigidity to the table upon which you place your turntable – even a modest and cheap affair like Ikea's Lack 'side-table'.

Applying several sheets of slate yielded a perceptible benefit to the low-end. It seemed weightier and more 'solid', with improved definition. Come across any old roof slates in a skip? Take 'em home, clean 'em up and try 'em on your table!

Next, converting LPs for hires digital playback. Convenient, and your precious records and stylus are spared wear and tear. I experimentally partnered the Pro-Ject RPM5 Carbon turntable/Ortofon Quintet Black with a High-End Audio Devices MC step-up transformer, modified Rotel pre-amp, Meridian MPMMax (a fixed 24-bit/96kHz analogue-to-digital converter, originally intended to

play analogue sources on Meridian digital active-speakers) and M-Audio Microtrack 24/96 (a CompactFlash audio recorder with digital input). I used the Rotel's main output, so its volume control could be used to adjust 'recording level' as the MPMMax is 'fixed level'.

I then converted the 24/96 WAV files into FLAC. This system transcended expectations, preserving much of what makes vinyl special. It certainly bettered CD-quality transfers, listening to a playback system built around a Cambridge CXN and Chord Hugo TT. But I couldn't help thinking that 96kHz-sampling is overkill. Applying Audacity's 'plot spectrum' to a capture, I discovered an absence of useful content above 20kHz on Talking Heads' 'Thank You for Sending Me an Angel'.

This record would have been recorded and mastered with analogue tape, which struggles to deliver usable output above 20kHz! In any case, how many studio microphones are capable of reaching supersonic frequencies?

I have conducted spectral analyses of a number of different LPs and singles, spanning different musical genres, and once you go above 20kHz there's no usable contribution. I'm fully-aware that 24-bit trounces 16-bit – as well it might, with nearly 17m possible conversion 'steps' against 16-bit's 65536 – but why sample above 48kHz?

A 24-bit/48kHz capture occupies half the space of its 24-bit/96kHz equivalent, so you can cram twice as much music into the same storage.

Use FLAC, and capacity is doubled again. Tellingly, the BBC internally-distributes digital audio at 24-bit/48kHz. Try digitising an LP at 24/96, export it to 24/48 and see if you can hear any difference. Then let me know what you think! ●

Egg-cellent KEFs!



Jon Myles cooks up a storm with KEF's new Egg wireless music system.

Once upon a time buying loudspeakers was relatively easy. You selected your preferred size and price, hooked them up to an amplifier and then sat back to enjoy your vinyl or CDs.

The world of digital downloads, Bluetooth and computer music storage is changing all that now,

however, with manufacturers looking to so-called lifestyle 'speaker systems that can take advantage of all the various input options available to us.

Elsewhere in this issue there's Naim's new Mu-so Qb – a one-box system that aims to please those looking for wireless connectivity with sacrificing sound quality.

And here from KEF comes its

£350 two 'speaker Egg package – which boasts Bluetooth, high-resolution USB (24bit/96kHz), line and optical digital in, as well as in-built amplification and a sub-woofer output for those wanting more bass. So it will connect with your smartphone, tablet, computer and even your TV if so desired.

Take them out of the box and

you'll immediately see where the name comes from – with each 'speaker shaped like an egg (well, half an egg anyway). While they might look identical at first, they are actually a master and slave combination.

The right unit contains the 50 Watt digital amplifier and all the inputs, as well as controls on the base plate for on/off, Bluetooth pairing and volume. A supplied cable connects this to the slave unit while KEF also supplies USB and optical digital cables as well as a sturdy and well laid-out remote for operation from across the room.

The Eggs themselves are made from plastic but actually feel quite weighty because of their sturdy non-resonant 'speaker housings. Pull off the grilles and beneath you'll find a version of KEF's famous Uni-Q point-source driver that places the tweeter in the centre of the mid/bass unit for better soundstaging and imaging.

This is vented with a front-firing port to add some extra low-end frequency extension while

the Eggs immediately. The connecting cable is also long enough to enable you to get the units a good four to five feet apart for good stereo separation.

SOUND QUALITY

They may at first sight look like a pair of run-of-the-mill computer 'speakers, but the use of those Uni-Q drivers means the Eggs are a cut above the usual examples of the breed.

In fact whether used on a desktop, next to a TV or even on the floor in a living room the KEFs have a tuneful, smooth presentation which surprises with its overall size.

Starting with The Clash's classic 'London Calling' album in 24/96 via the MacBook Air, bass was well-weighted and allied to a clear midband and a sparkling treble.

They also pushed the music along at a foot-tapping pace, songs like 'The Right Profile' sounding

"the Eggs are extremely agile with great clarity and especially adept at projecting female vocals into the room"

a tangerine-shaped waveguide in front of the tweeter helps sound dispersion.

Set-up is a simple matter of plugging the power cable into the right 'speaker and then connecting it to the left with the special cable. Bluetooth pairing was quick on both Apple and Android mobiles (aptX is supported for 'phones that have it) while my MacBook Air recognised

particularly energetic. Pull them apart as far as they'll go and there's a wide soundstage with good instrumental separation even on dense tracks.

Playing Ornette Coleman's 'Free Jazz' via Bluetooth it was easy for me to tell two different jazz ensembles were at work here, one through each of the left and right channels.

Okay, their bass is never going to shake the room due to the limited



The master unit's rear panel features a cable for connection to the slave 'speaker plus power socket, USB input and a sub-woofer out. A combined 3.5mm line-in/optical digital socket is on the side.



The Eggs use the latest version of KEF's well-regarded Uni-Q point-source driver.

physical size but it was present and correct – and never gave me the impression I was missing out on any of the essential information.

In fact, the Eggs were extremely agile with great clarity, proving especially adept at projecting female vocals into the room. On Barb Jungr's 'From Stockport to Memphis' the singer's smoky jazz tones had a beguiling sense of atmosphere – not something I'd necessarily associate with 'speakers such as these. Even when volume level was raised the Eggs refused to sound congested or struggling to cope with the musical information. Compared to some one-box system at around this price it was like listening to proper hi-fi.

Add in the fact that they are easily portable so could be switched between various rooms as required I can see the little Eggs proving extremely popular for users who want convenience allied to good sound quality.

CONCLUSION

KEF's proud 'speaker-building prowess shines through on the Eggs. Whether connected to a computer for high-resolution replay or streaming music via Bluetooth they sound smooth and well-balanced with good bass depth and fine instrumental separation. They come highly recommended.

KEF EGG £350



OUTSTANDING - amongst the best

VALUE - keenly priced

VERDICT

A do-it-all wireless digital music system that allies unusual looks to an impressive sound. One of the best you can buy at the price.

FOR

- soundstage
- ample bass
- connectivity
- ease of use

AGAINST:

- nothing at the price

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Clockwise from top left: Edge, German Physiks, Clearaudio, GutWire

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Idler drive on a beer budget? That'll be the Lenco L75, sold here by Goldring as the GL75. Martin Pipe revisits an affordable classic.

Swiss-watch

Back in the late 1960s and early 1970s a popular turntable choice for the British audiophile on a budget would have been a Garrard SP25, with its idler-driven 10in. platter and choice of four speeds. Inevitably, the upgrade pang would strike – and a typical ‘next step’ would be a Thorens TD150 or, if funds were tighter, a Goldring-Lenco GL75. Both of these units originated in Switzerland; while the Thorens was a sprung-suspension belt-drive, the Goldring Lenco was an idler-drive that could be supplied in a sprung plinth.

The GL75 – introduced in 1968 and selling for the princely sum of £36 8s 2d (with tonearm, but no plinth) – was nearly always encountered with its own arm, a rather unique device that helps to define the turntable’s character. To put things in perspective, the average weekly wage in 1960 was just under £30 per week.

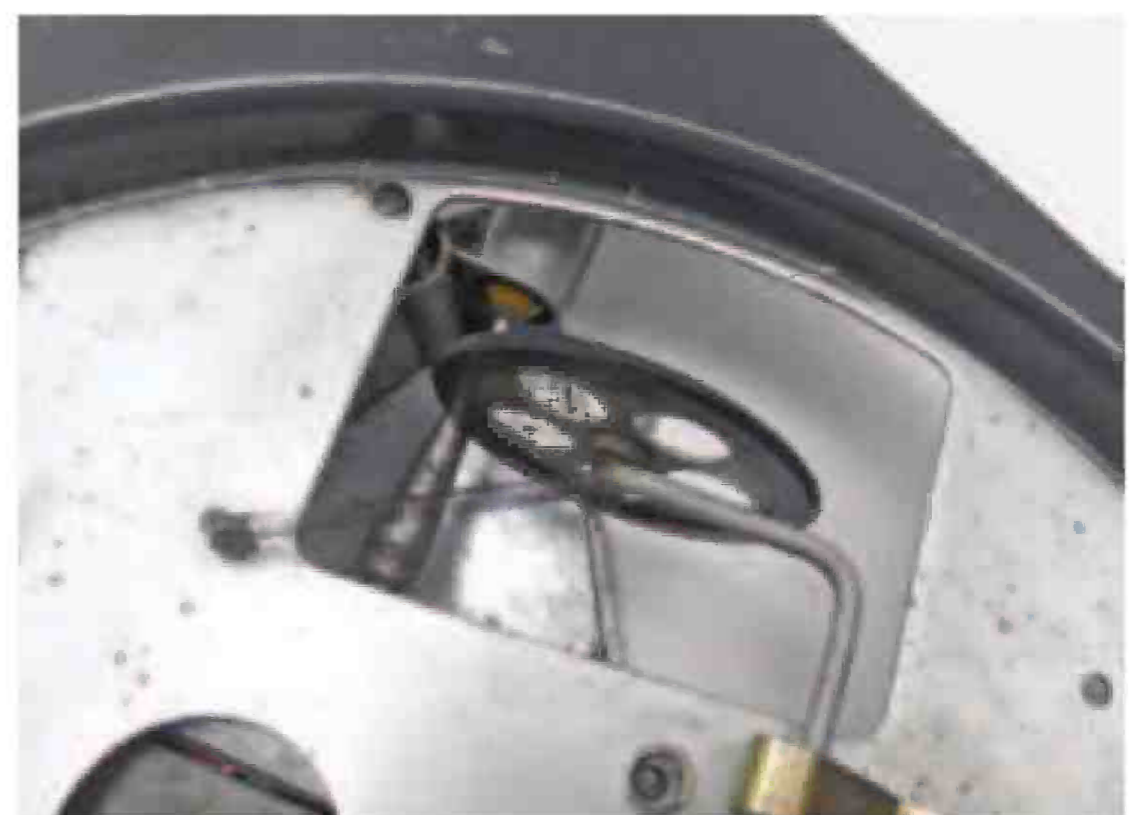
It should be made clear that British firm Goldring, best known for its cartridges (among them the elliptically-tipped G800E moving-magnet, a popular initial choice for

that chunky headshell you see in the photos), was only the importer of the GL75 – elsewhere around the world, the deck was sold as the Lenco L75. Bear this in mind if you’re seeking out a unit or spare parts (it should also be remembered that the substantial 4-pole synchronous motor that’s spring-mounted under the pressed-steel deckplate, and its tapered pulley, was engineered to work at a specific mains frequency and voltage).

The tapered-pulley – inherited from earlier Lenco designs, among them the Garrard 301 competitor that was sold in the UK, circa 1963, as the Goldring G88 ‘motor unit’ – gave rise to much speed-setting flexibility. A slider control operates a series of mechanical linkages that move the idler up and down the pulley shaft, coupling its rotation to the underside of the platter and causing it to turn. Thanks to this arrangement, the speed can be varied continuously from approximately 30rpm to just above 80rpm. Through other linkages the power knob not only activates a mains switch but it also applies a simple ‘brake’ and disengages the idler from the pulley

– always turn off the deck with this knob, or you might end up with a ‘flat spot’.

Such varispeed design was particularly appreciated by ‘old time’ shellac enthusiasts, who knew that their choice of listening was seldom cut at a precise 78rpm; now they could get something approaching ‘perfect pitch’ (to their ears, at any rate).



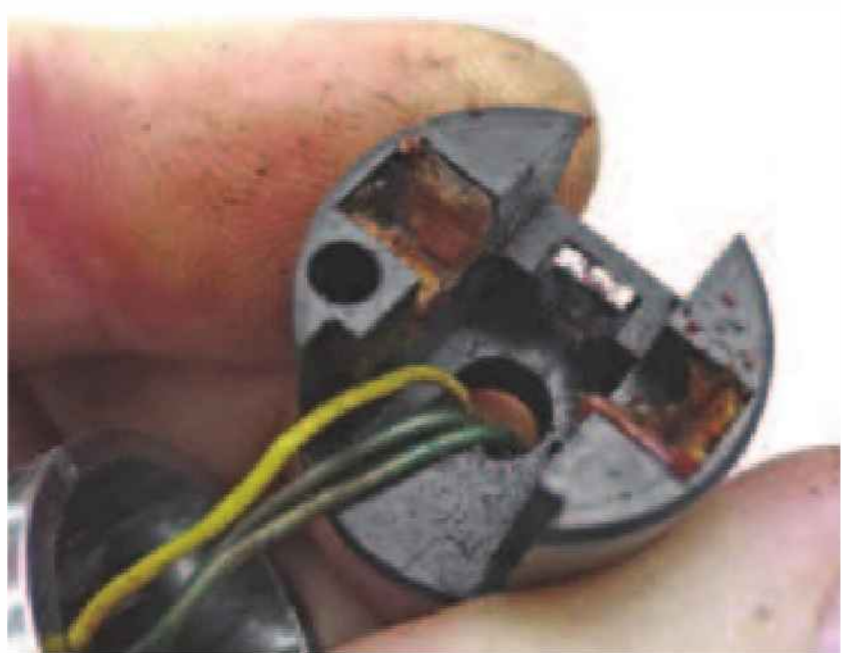
The ‘business end’ of the (G)L75’s drive system. The idler moves on a rail linked to the speed control so that it comes into contact with a different part of the tapered motor shaft. As a result, the idler – which also makes contact with the underside of the (removed) platter – rotates at a different rate. Simple, but effective.



With the platter removed, the simplicity of the (G)L75 design becomes apparent. In addition to the bearing housing and speed control linkage you can see the platter 'brake' (roughly 'three o'clock' in the platter cavity).

At the opposite end of the speed scale, the platter can be made to rotate between 15 and 18 rpm or so. Few 16rpm discs were sold (talking books, mostly), but the slow speed could form the basis of 'half-speed' transfer experiments today. A series of 'stops' under the speed control provide easy access to click-stop 16rpm, 33rpm, 45rpm and 78rpm 'presets'. Simple, and effective. No wonder that Lenco turntables have an online fanbase (www.lencoheaven.net)!

The GL75's platter is dynamically-balanced, and it's pretty hefty 9lb (4kg) mass helps to 'iron out' speed irregularities. Wow and flutter is quoted in the spec sheet (albeit without any parameters) as 0.2%. And the all-important bearing the platter sits on? Its steel shaft



Over time, the arm's V-blocks go soft – sometimes to the point of complete disintegration, as can be seen here! Tracking is adversely affected. There are aftermarket replacements, but Technical and General (01892 654534) still has 'new old stocks' of the genuine article!

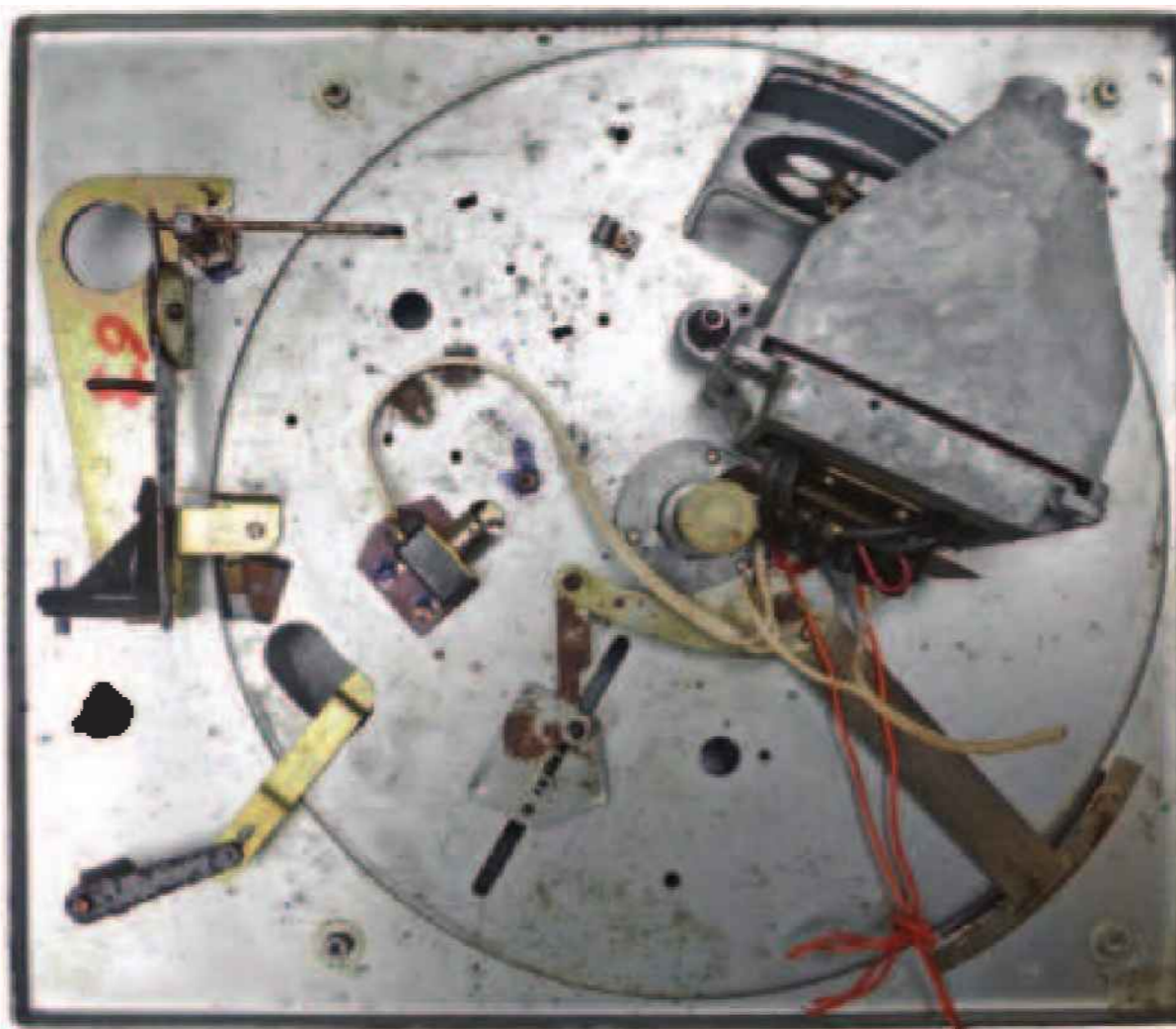
– the central spindle, on the 'record side' of the platter - ends in a 5mm ball (rather than a Linn-type point) that rests on a precision thrust-plate, and is surrounded by a heavy-duty bronze housing that screws into the deckplate. It's built to last, and according to the manual (free, from the wonderful www.vinylengine.com website) is 'self lubricating'. Nearly 50 years on, though, a drop of light machine oil (some enthusiasts recommend ISO46/SAE20 compressor oil for the job) is probably not a bad idea.

Other areas – the idler wheel and motor bearings – could also benefit from a drop of such lubricant, as could the pedestal ball-races of the L75 tonearm (which was also sold separately). This chrome-finished high-mass item, with its oversized pluggable aluminium headshell - just shouts '1970s' at you!

Like the SME 3009 arms, this one has a 'knife-edge' pivot bearing, which supports the mass of the arm-tube and everything that belongs to it. SME used plastic, but Lenco specified

Enterprise provides an answer, and several vendors (among them <http://www.desmovblocks.co.uk/>) can supply replacement V-blocks – expect to pay £20 or so. Some are made of a synthetic material. Others are made of metals like bronze. Claims for these include improved detailing, especially in the treble. I made mine by carefully cutting up a pencil eraser with a craft knife. The arm-tube is in two sections; the shorter one (which carries the counterweight) is decoupled from the longer one by means of a rubber insert. Some reckon that best results are obtained if the two sections are rigidly joined together; that, maybe, is a modification too far...

The arm may be a simple design, but it's fairly easy to set up (if everything is working properly). Move the sub-weight up its outrider pole as far as it will go. Then change the position of the counterweight until the arm (with cartridge attached) is balanced – at the same time, the counterweight can be rotated around the arm-tube so that it doesn't swing



Here the enormous motor, a 4-pole synchronous type, can be seen. It has been mounted on springs to reduce 'rumble' - which is surprisingly low, if your deck has been properly maintained. On the left can be seen the arm's oil-damped cueing mechanism.

a soft rubber to provide isolation from motor noise. Here, the knife-edges on either side of arm-tube sit in 5x5x4mm 'V-blocks' hidden under the top pedestal cap (which can be lifted off, if a screw and semi-circular washer are removed from a rear-located recess). Many (G)L75s used a yellowy rubber that turns to gunk over the years. Symptoms of its deterioration go all the way from poor tracking of certain passages to an inability of the stylus to reach the record in the first place!

inwards or outwards (!). Once you have the right position, the counterweight can be locked with a knob. Tracking force can then be set with the sub-weight; each division on the outrider pole corresponds to an extra half a gram of downforce. The anti-skating device, like that of the SME, consists of a tiny weight providing side-thrust. Two weights are supplied for different downforce ranges. Once again, calibrated divisions allow you to set this with little room for error; the manual

provides a table.

Most enthusiasts don't like the arm, which they consider to be of outmoded design (if serviced, though, it can yield fair results if my experiences are anything to go by). They have fitted many different types, including models from Linn, Rega and Jelco. The old arm can be easily removed, and it has been discovered that little modification is required to fit some modern replacements.

In fact, the (G)L75 has become a present-day tweeker's paradise, owners experimenting with different V-blocks, idler wheels (also available), lubricants, mats and plinths. The accepted wisdom is that the thin deckplate is vulnerable to 'ringing', and so DIY plinths are designed to provide as much support as possible. The most common design is built, layer by layer, out of painstakingly-jigsawn plywood.

I had a pair of GL75s, acquired at various points in the mid-1980s from jumble sales (remember those?). Mine ended up in a self-built DJ console where the GL75's robustness and varispeed were key advantages to someone who couldn't afford the then-dominant Technics SL-1200. And they were very cheap; a couple of quid each, as I recall. At that time, which was just before CD changed mass-market listening habits forever, these decks were about as fashionable as flared jeans. There was constant talk of 'direct-drive versus belt-drive', but idler drive seldom warranted a mention. You could get idler-driven decks like the Garrard 301 and 401 for next to nothing, but all that changed as people discovered the strengths of the Garrards.

And that's why the (G)L75 is enjoying something of a renaissance. So many were sold – it was produced in Italy as late as the mid-1980s – that there are plenty still around. You can find one for much less than £100. But it gives those with limited funds a taste of the sound quality that you can achieve from an idler-driven turntable with massive platter. I still have my original pair of GL75s but after decommissioning they were stored in a shed and aren't in the best of shape (I used them for some of the photography). Last year, though, a friend gave me his

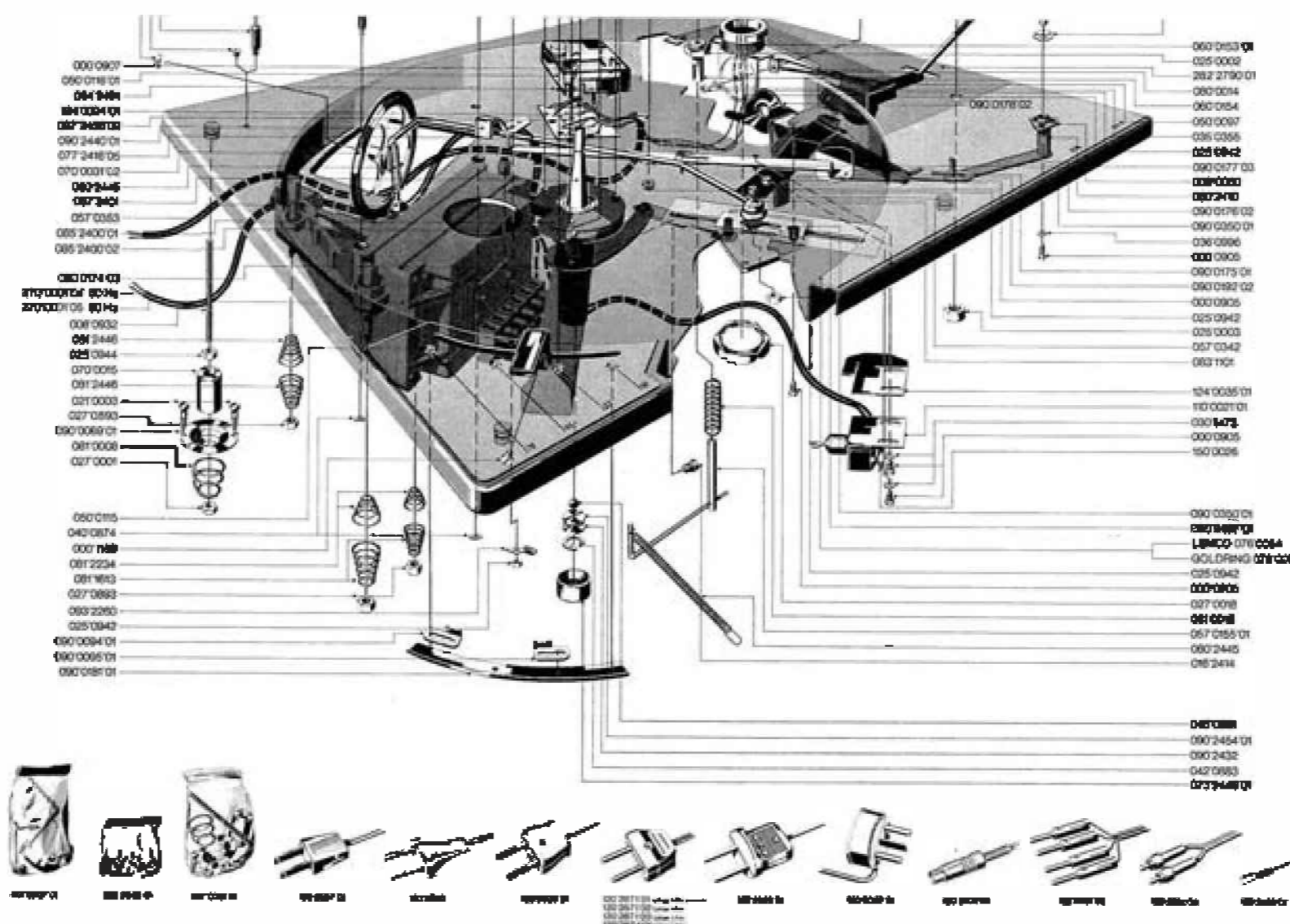


The platter weighs in at a substantial 9lb (4kg). Speed irregularities are as a result very uncommon! It's 'dynamically balanced', and to meet this objective holes are drilled in the side during production. Also visible is the ball-bearing at the end of the shaft.

cherished deck as he hadn't used it in years (he couldn't bear to 'dump it'). This GL75 was in the original Goldring-Lenco sprung plinth, with its

something to behold, when heard via an Arcam A49 and Quadral Aurum Wotan VIII speakers. No wonder that so many prog-lovers owned a GL75! And rumble, long considered the main downside of idler-driven turntables, was never intrusive. Most of the GL75's rumble contribution is said to be in the subsonic region. Not a problem here, as the A49's phono stage filters out this unwanted contribution, and the troublesome woofer cone-flapping that it could produce. Owners of other gear should take heed! '70s amps had switchable 'low filters' for a reason...

I was also impressed with the GL75's grasp of timing and rhythm, as demonstrated with a clutch of house-music singles of the sort I used to spin on my original pair of decks back in the late 1980s. In terms of speed stability, the deck can't be faulted – even with sustained piano or brass, no wavering was evident. However, the presentation was rather coarse and grainy at the top-end; I put this



The (G)L75, as an assembly, is more complex than its basic design might suggest – as this 'exploded view' shows.

L75 arm and a Shure M75EM moving-magnet cartridge. Thanks to its original owner's care, the deck was in very good condition - but the arm's V-blocks were shot.

So, pretty much in its original state (aside from the aforementioned pencil-eraser V-blocks) and as a mid-70s listener would have heard it. Even with that Shure cartridge, the low end was terrific. Solid, tight and well-defined; the Moog Taurus bass-synth of Genesis' 'Squonk' (from the 'Seconds Out' live-double) was

down to the elderly Shure cartridge, more than anything. But remember that here we have a turntable that is pretty much as it was 40 years ago, and that it sounds so solid is a tribute to the basic Lenco design at its core. One can only wonder how this could be improved upon through modifications and tweaks. Perhaps the greatest honour that could be conveyed on the (G)L75 is that, completely rebuilt and given a stunning new finish, it forms the basis of the £2000+ Inspire Enigma...

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

WORLD CLASSICS

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

TURNTABLES

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



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

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

MCINTOSH MT10 2008 £8,995
Big, expensive, controversially styled and glows more than some might consider necessary, but an astonishingly good performer.

REGA P3-24 2008 £405
Seminal affordable audiophile deck with fine bundled tonearm. Tweakable, and really sings with optional £150 outboard power supply.

ACOUSTIC SOLID ONE 2007 £4,050
Huge turntable, both in terms of sheer mass and sonic dynamics. Fit up to three arms and enjoy, just don't damage your back moving it...

AVID VOLVERE SEQUEL 2007 £4,600
Stylish high end vinyl spinner with industrial strength build quality and a sound to match. Sound is edge-of-the-seat stuff.

MICHELL GYRODEC SE 2005 £1,115
Design icon with superlative build. Sound is beautifully smooth, effortless and exceptionally expansive.

MARANTZ TT-15S1 2005 £1,299
Cracking all in one deck/arm/cartridge combination, this must surely be the best sound'plug and play package at this price point.

MICHELL TECNODEC 2003 £579
Superb introduction to Michell turntables - on a budget. Top quality build and elegant design mean it's still the class of the mid-price field.



MICHELL ORBE 1995 £2,500
The top Michell disc spinner remains a superbly capable all rounder with powerful, spacious sound that's delicate and beguiling.

SME MODEL 10A 1995 £4,700
Exquisitely engineered deck and SME V tonearm combo that's an extremely accomplished performer with classical music.

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

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

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

DUAL CS505 1982 £75
Simple high quality engineering and a respectable low mass tonearm made for a brilliant budget buy. Polished, smooth and slightly bland sound.

MICHELL GYRODEC 1981 £599
Thanks to its stunning visuals, this bold design wasn't accorded the respect it deserved. Clean, solid and architectural sound.

TOWNSHEND ROCK 1979 £ N/A
Novel machine has extremely clean and fluid sound. Substantially modified through the years, and capable of superb results even today.

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



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

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

TRIO LO-7D 1978 £600
The best 'all-in-one' turntable package ever made. Clean, powerful and three-dimensional sound, ultimately limited by the tonearm.

ADC ACCUTRAC 4000 1976 £300
Bonkers 1970s direct drive that uses an infra red beam to allow track selection and programming. More of a visual and operational delight than a sonic stunner.

PIONEER PLC-590 1976 £600
Sturdy and competent motor unit that performs well with a wide range of tonearms. Check very thoroughly before buying due to electronic complexity and use of some now-obsolete ICs.

PIONEER PL12D 1973 £36
When vinyl was the leading source, this bought new standards of noise performance and stability to the class, plus a low friction S-shaped tonearm. Later PL112D was off the pace compared to rivals.



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

LINN SONDEK LP12 1973 £86
For many, the Brit superdeck; constant mods meant that early ones sound warmer and more lyrical than modern versions. Recent 'SE' mods have brought it into the 21st century, albeit at a price

ARISTON RD11S 1972 £94
Modern evolution of Thorens' original belt drive paradigm, Scotland's original super-deck was warm and musical, albeit soft. Still capable of fine results today.

GOLDRING Lenco GL75 1970 £15.6S
Simple, well engineered motor unit with soft, sweet sound and reasonable tonearm. Good spares and servicing support even today.

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



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

TONEARMS

REGA RB251 2009 £136
Capable way past its price point, the new 3-point mount version of the classic RB250 serves up a taut and detailed sound. A little lean for some tastes, but responds well to rewiring and counter-weight modification.

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

AUDIO ORIGAMI PU7 2007 £1,300
The classic Syrinx PU3 updated to spectacular effect. Hand made to order, with any mass, length and colour you care for. Fit, finish and sound truly impressive.



GRAHAM PHANTOM 2006 £3,160
Sonically stunning arm with magnificent bass dexterity and soundstaging. Build quality up to SME standards, which is really saying something!

TRI-PLANAR PRECISION 2006 £3,600
Immaculate build, exquisite design and one of the most naturally musical and lucid sounds around.

MICHELL TECNOARM A 2003 £442
Clever reworking of the Rega theme, using blasting, drilling and rewiring!

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

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

SME SERIES V 1987 £2,390
Vice-like bass with incredible weight, ultra clear midband and treble astound, although some don't like its matter of factness!

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



ALPHASON HR100S 1981 £150
First class arm, practically up to present-day standards. Buy carefully, though, as there is no service available now. Totally under priced when new, exceptional.

SME SERIES III 1979 £113
Clever variable mass design complete with Titanium Nitride tube tried to be all things to all men, and failed. Charming nonetheless, with a warm and inoffensive sound.

TECHNICS EPA-501 1979 £ N/A
Popular partner for late seventies Technics motor units. Nice build and Titanium Nitride tube can't compensate for middling sound.

LINN ITTOK LVII 1978 £253
Japanese design to Linn specs made for a muscular, rhythmic sound with real dynamics. The final LVIII version worth seeking out.

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

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

ACOS LUSTRE GST-1 1975 £46
The archetypal S-shaped seventies arm; good, propulsive and involving sound in its day, but ragged and undynamic now.

SME 3009 1959 £18
Once state of the art, but long since bettered. Musical enough, but weak at frequency extremes and veiled in the midband. Legendary serviceability and stunning build has made it a cult, used prices unjustifiably high.

PHONO STAGES

CREEK OBH-8 SE 1996 £180
Punchy, rhythmic character with oodles of detail makes this a great budget audiophile classic. Partner with a Goldring G1042 for an unbeatable budget combination.

MICHELL ISO 1988 £ N/A
This Tom Evans-designed black box started the trend for high performance offboard phono stages. Charismatic, musical and punchy - if lacking in finesse.



LINN LINNK 1984 £149
Naim-designed MC phono stage built to partner the original Naim NAIT - yes, really! Fine sound, although off the pace these days.

INTEGRATED AMPLIFIERS

NAIM NAIT XS 2009 £1,250
With much of the sound of the Supernait at half the price, this is powerful, articulate and smooth beyond class expectations.

MUSICAL FIDELITY PRIMO 2009 £7,900
Seriously expensive, but one listen explains why. Wonderfully exuberant sound that can only come from a top quality tube design.

SUGDEN A21A S2 2008 £1,469
Crystalline clarity, dizzying speed and forensic detailing. Power limited so needs sensitive speakers.

CREEK OBH-22 2008 £350
Brilliant value budget passive, with remote control, mute and input switching, plus an easy, a neutral sound.

CAMBRIDGE 840A V2 2007 £750
Version 2 addresses version 1's weaknesses to turn in a mightily accomplished performance, offering power, finesse and detail.

SUGDEN IA4 2007 £3,650
Goodly amount of Class A power, icy clarity and a breathtakingly fast, musical sound make this one of the very best super-integrateds.

NUFORCE P-9 2007 £2,200
Impressive two box preamp with superb resolution and an engaging sound.

MELODY PURE BLACK 101D 2007 £3,295
The clarity and openness of valves plus firm grip and fine detail make this a preamplifier masterclass.

AUDIOLAB 8000S 2006 £400
In another life, this sold for three times the price, making it a stand-out bargain now. Very clean, powerful and tidy sound.

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

DELTEC 1987 £1900
Fast, dry and with excellent transients, this first DPA integrated is the real deal for eighties obsessives. Ridiculously punchy 80W per channel from a tiny, half-size box. Radical, cool and more than a little strange.

EXPOSURE VII/VIII 1985 £625
Seminal pre-power, offering most of what Naim amps did with just that little bit extra smoothness. Lean, punchy and musical.



AUDIOLAB 8000A 1985 £495
Smooth integrated with clean MM/MC phono stage and huge feature count. Extremely reliable, too. Post '93 versions a top used buy.

VTL MINIMAL/50W MONOBLOCK 1985 £1,300
Rugged, professional build and finish allied to a lively and punchy sound (albeit with limited power) make them an excellent used buy.

MUSICAL FIDELITY A1 1985 £350
Beguiling Class A integrated with exquisite styling. Questionable reliability.

MISSION CYRUS 2 1984 £299
Classic 1980s minimalism combines arresting styling with clean, open, lively sound. Further upgradeable with PSX power supply.



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

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

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

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

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

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

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



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

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

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

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

POWER AMPLIFIERS

ELECTROCOMPANIET NEMO 2009 £4,995 (EACH)

Norwegian power station as cool as a glacier tonally, yet impresses with sheer physicality and fleetness of foot. 600W per channel.

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

QUAD II-80 2005 £6,000 PER PAIR

Quad's best ever power amplifier. Dramatic performer with silky but dark tonality, blistering dynamics, serious power and compellingly musical sound.



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

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

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

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



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

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

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

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

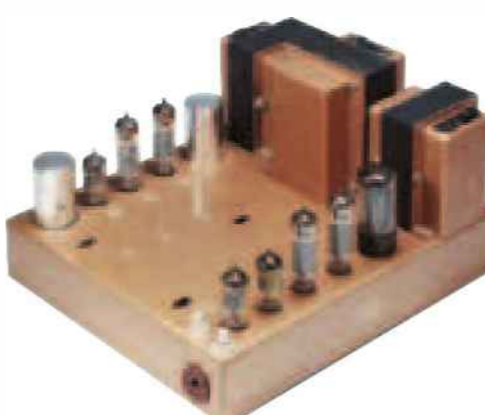
QUAD 405 1978 £115
The first of the current dumpers is a capable design with smooth, effortless power and a decently musical sound. 606 and 707 continue the theme with greater detail and incision.

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

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

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

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



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

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



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

PRE AMPLIFIERS

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



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

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

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

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

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

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

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



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

QUAD 22 1958 £25

The partner to the much vaunted Quad II mono-blocks - cloudy and vague sound means it's for anacrophiles only.

LOUDSPEAKERS

WHARFEDALE DIAMOND 10.3 2010 £290

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



YAMAHA SOAVO 1.1 2009 £3,000

Musical, transparent with impressive dynamics and cohesion. Excellent build and finish.

USHER BE-10 2009 £10,500

Clever high end moving coil design with immense speed and dizzying clarity allied to epic punch. Needs the best ancillaries to fly, though...



SPENDOR A5 2009 £1,695

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

MONITOR AUDIO PL100 2008 £2,300

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



MARTIN LOGAN SOURCE 2008 £1,600

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

PMC OB11 2008 £2,950

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

ISOPHON GALILEO 2007 £2,100

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

ONE THING AUDIO ESL57 2007 £1,450

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

MOWGAN AUDIO MABON 2007 £3,995

Massively capable loudspeakers that offer dynamics, scale and clarity in an elegantly simple package. Wide range of finishes, too.

B&W BEOLAB 9 2007 £5,000

Technically impressive and visually striking loudspeakers with sound quality that more than matches their looks.



ISOPHON CASSIANO 2007 £12,900

Drive units featuring exotic materials allied to superlative build quality result in an immensely capable loudspeaker. Not an easy load to drive, however.

B&W 686 2007 £299

Baby standmounters offer a sophisticated and mature performance that belies both their dimensions and price tag.

QUAD ESL-2905 2006 £5,995

The old 989 with all the bugs taken out, this gives a brilliantly neutral and open sound like only a top electrostatic can; still not a natural rock loudspeaker, though.

B&W 801D 2006 £10,500

In many respects, the ultimate studio monitor; dazzling clarity and speed with commanding scale and dynamics.



REVOLVER CYGNIS 2006 £5,999

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

USHER BE-718 2007 £1,600

Beryllium tweeters work superbly, allied to a fast and punchy bass driver. The result is subtle, smooth and emotive.

USHER S-520 2006 £350

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

ACOUSTIC ENERGY AE1 CLASSIC 2006 £845

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



MISSION X-SPACE 1999 £499

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

MISSION 752 1995 £495

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

TANNOY WESTMINSTER 1985 £4500

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



CELESTION SL6 1984 £350

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

HEYBROOK HB1 1982 £130

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



QUAD ESL63 1980 £1200

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

MISSION 770 1980 £375

Back in its day, it was an innovative product and one of the first of the polypropylene designs. warm, smooth, clean and powerful sound,

ACOUSTIC RESEARCH AR18S 1978 £125

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

YAMAHA NS1000 1977 £532

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



JR 149 1977 £120

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

KEF R105 1977 £785

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

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



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

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

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

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

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

SYSTEMS

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



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

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

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

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



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



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

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

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



TUNERS

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



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

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

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

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

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



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

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

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

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



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

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



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

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

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

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

HEADPHONE AMPLIFIERS

GRAHAM SLEE NOVO 2009 £255

Dynamic headphone amplifier with a great sense of timing. Crisp, clear treble and warm midrange gives an involving sound.



MUSICAL FIDELITY X-CAN V8 2008 £350

Open and explicitly detailed sound plus serious bass wallop. A great partner for most mid-to-high end headphones.

CD PLAYER/RECORDERS

MUSICAL FIDELITY TRIVISTA 2002 £4000

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

MARANTZ SA-1 2000 £5,000

The greatest argument for SACD. This sublime Ken Ishiwata design is utterly musically convincing with both CD and SACD, beating most audiophile CD spinners hands down.



SONY MDS-JE555ES 2000 £900

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

PIONEER PDR-555RW 1999 £480

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

MARANTZ DR-17 1999 £1100

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



CAMBRIDGE AUDIO CD4SE 1998 £200

A touch soft in the treble and tonally light, but outstanding in every other respect.

SONY TCD-8 DATMAN 1996 £599

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

LINN KARIK III 1995 £1775

The final Karik was a gem. Superb transport gives a brilliantly tight, grippy dynamic sound, albeit tonally dry.

NAIM CDS 1990 £ N/A

Classic Philips 16x4 chipset with serious attention to power supplies equals grin-inducing sonics.

MARANTZ CD73 1983 £700

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



MERIDIAN 207 1988 £995

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

SONY CDP-R1/DAS-R1 1987 £3,000

Sony's first two boxer was right first time. Tonally lean, but probably the most detailed and architectural sounding machine of the eighties.

CAMBRIDGE AUDIO CD1 1986 £1500

Inspired Stan Curtis redesign of Philips CD104, complete with switchable digital filter. Lean but tight and musical performer.



MERIDIAN MCD 1984 £600

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

SONY CDP-701ES 1984 £890

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

YAMAHA CD-X1 1983 £340

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

SONY CDP-101 1982 £800

The first Japanese CD spinner was powerful and involving. Brilliant transport more than compensated for 16x2 DAC, and you even got remote control!



ANALOGUE RECORDERS

AIWA XD-009 1989 £600

Aiwa's Nak beater didn't, but it wasn't half bad nonetheless. Massive spec even included a 16x4 DAC!

NAKAMICHI CR-7E 1987 £800

The very best sounding Nakamichi ever - but lacks the visual drama of a Dragon.



SONY WM-D6C 1985 £290

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

PIONEER CTF-950 1978 £400

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

YAMAHA TC-800GL 1977 £179

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

SONY TC-377 1972 £N/A

A competitor to the Akai 4000D open reel machine, the Sony offered better sound quality and is still no slouch by modern standards

REVOX A77 1968 £145

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

COMPACT DISC TRANSPORTS

ESOTERIC P0 1997 £8,000

The best CD drive bar none. Brilliantly incisive, ridiculously over engineered.

TEAC VRDS-T1 1994 £600

Warm and expansive sound made this a mid price hit. Well built, with a slick mech.

KENWOOD 9010 1986 £600

The first discrete Jap transport was beautifully done and responds well to re-clocking.

DACs

DCS ELGAR 1997 £8500

Extremely open and natural performer, albeit extremely pricey - superb.

DPA LITTLE BIT 3 1996 £299

Rich, clean, rhythmic and punchy sound transforms budget CD players.

CAMBRIDGE AUDIO DAC MAGIC 1995 £99

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

PINK TRIANGLE DACAPO 1993 £ N/A

Exquisite; the warmest and most lyrical 16bit digital audio we have ever heard.

QED DIGIT 1991 £90

Budget bitstream performer with tweaks aplenty. Positron PSU upgrade makes it smooth, but now past it.

CABLES

MISSING LINK CRYO REFERENCE 2008
£495/0.5M

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

TECHLINK WIRES XS 2007 £20

Highly accomplished interconnects at an absurdly low price. Stunning value for money.

VDH ULTIMATE THE FIRST 2004 £250

Carbon interconnects that help you forget the electronics and concentrate on the music. Miraculous transparency. Tight and tuneful bass mixed with air and space.



WIREWORLD OASIS 5 2003 £99/M

Excellent mid-price design with a very neutral, silky and self-effacing sound. Superb value for money.

TCI CONSTRICTOR 13A-6 BLOCK 2003 £120

Top quality 'affordable' mains outlet block, with fine build and good sonics. Well worth the extra over standard high street specials, which sound coarse and two-dimensional by comparison.

Signature Sound

Jon Myles plugs his cans into Fosgate's new Signature Tube Headphone Amplifier – and likes what he hears.

To say headphone listening is enjoying a renaissance at the moment would be something of an understatement. The rise of digital audio players coupled with the ubiquity of mobile devices has seen sales of headphones surge - from both the cheap and cheerful to the truly high-end.

And alongside this has come a renewed interest in extracting the best possible sound from those 'phones when listening at home. Hence the increasing number of standalone headphone amplifiers hitting the market. Anyone who attended the recent Headroom show in London (see our



report elsewhere in this issue) would have been given a taste of just how many are on offer nowadays.

And breaking cover here in the UK for the first time was a new model from renowned US designer Jim Fosgate. If you haven't heard the name before Mr Fosgate is a bit of a legend, laying claim to having pioneered high-powered in-car sound systems, holding 18 patents for audio-related inventions and the recipient of an Emmy for his work on surround-sound for television.

So the Fosgate Signature Tube Headphone Amplifier comes with an impressive pedigree. As the name suggests it's built around valves but is actually a hybrid design employing a pair of 12AX7 dual triodes in a push-pull configuration for the input/driver stage, with high current video buffers in the output.

Fosgate says those buffers have no voltage gain and so provide a pure audio path with low output impedance, minimal distortion and a wide signal bandwidth, allowing the smooth, natural sound of the valves to pass straight through.

One look at the fascia also reveals two more unusual features in the circuit. To the right of the volume control are toggle switches marked Surr and Bass with max, min and off settings.

The former is what's dubbed 'Panorama Control' and applies an out-of-phase cross-blend between left and right channels to create a greater sense of depth and blend. The Bass switch does just what it says,



The Fosgate has neat and tidy internal wiring with the high-current video buffers clearly visible at the top of the circuit board.

"What the Fosgate does have is a tremendous ability to pull you into the music in a way that valve-based amplifiers are so good at"

adding extra low-frequency oomph if required, aimed at on-the-ear phones having light bass.

Completing the front panel are a 1/4in headphone socket and toggle switches for choosing either of the two inputs and on/off. Overall the amplifier measures 5.5in x 7in x 11in (H/W/D) and weighs 5lbs.

On the rear are two pairs of RCA inputs plus a direct output that by-passes the Fosgate's volume

control if the unit is connected to a separate pre or integrated amplifier.

Visually, the Fosgate looks delightful. Its sculpted metal front is complemented by wood veneered side panels that convey an air of quality in keeping with its £1500 price tag. And, obviously, those two glowing tubes cannot help but gladden your heart when listening late at night!

For review I used it with a variety of headphones including Sennheiser HD700s, Audeze LCD2s and a pair of Final Audio Design Sonorous VIs and the Fosgate drove them all with ease. Indeed it was able to provide massive drive at all times (see Measured Performance for full details).

SOUND QUALITY

From the start the Fosgate revealed itself to have a natural, engaging sound with good rhythmic flow. Starting with the acoustic jazz of the Thelonious Monk Quartet with John Coltrane on 'At Carnegie Hall' there was good detail and nuance via the Sonorous VIs with just a hint of warmth to the midband.

This CD isn't the best recording in the world but swings brilliantly – and the Fosgate really caught that. Monk's piano especially had terrific timing. I'm no big fan of EQ controls generally but switching in



The rear panel includes two inputs on RCA jacks plus a direct output which by-passes the Fosgate's volume control for connection to a pre-amp or integrated amplifier.



Two 12AX7 dual triodes in a push-pull configuration are used for the input/driver stage.

the Surround function did make a big difference - bringing a wider soundstage and lessening some of the stark left/right balance of the performance.

Switching to the smooth-sounding Sennheisers but with some rather more aggressive music in the shape of The Pixies' 'Wave Of Mutilation' collection showed the Fosgate can also handle Rock well. There was clear delineation between the bass and ringing guitars on 'Debaser' while Black Francis's vocals were suitably gruff. There perhaps wasn't the most extended treble on offer due to that slight warmth - but nor was there any sense of it being rolled off.

Experimenting again by switching in Bass boost on 'Into The White' gave a huge increase in low-frequency response. If you enjoy Dance or Rock with plenty of low-end this could be just the headphone amplifier for you in this mode - but frankly I preferred it without.

What the Fosgate does have is a tremendous ability to pull you into the music in a way that valve-based amplifiers are so good at.

Acoustic instruments sounded natural and lifelike but a slice of modern electronica such as Jamie xx's 'In Colour' also has tremendous warmth and vibrancy to it.

As such it's a great all-rounder with the ability to drive almost any headphone you choose to use.

CONCLUSION

The Fosgate Signature Headphone Amplifier is a classy-looking design

with a sound to match. There's a touch of valve warmth to it but no lack of detail, slam or tempo to its presentation. The Surround and Bass controls might not be to everyone's taste - but it's nice to have the option if they suit your predilections. Personally, I preferred them switched

off but others might like what they do.

The important thing, though, is that if you enjoy high-quality headphone listening then the Fosgate Signature will really make you smile - both in how it sounds and how it looks.

NOEL SAYS -

I liked the smooth, atmospheric presentation of this headphone amplifier, if being surprised that there was no USB input or any sign of digital anywhere, for a £1500 price tag. Hmm... I wonder how many people today connect up through analogue.

Perhaps I have just become used to seeing headphone amps festooned with digital inputs and to thinking that a digital link is necessary when it is not.

The analogue outputs of hi-fi systems and portable players offer a clean sound - and the Fosgate, with its high sensitivity, will be compatible with them all. The analogue outputs of a budget PC, derived from a cheap internal DAC, are least suitable - something to bear in mind. In this situation a USB link feeding a headphone amp with quality DAC is best.

The levels of bass boost available are high and unsuitable for over-the-ear headphones with soft ear pads that form an acoustic seal against the head for strong bass. I "got it" when using my light-weight on-the-ear Jays VJays; then the bass boost on offer here was about right, providing I kept volume down. In all though, the Fosgate Signature was a lovely listen. **NK**

MEASURED PERFORMANCE

From input to headphone output the Fosgate Signature headphone amplifier had x6 gain, so for 1V into headphones (loud) it needs 166mV input, quite a low level signal that's available from most sources, including phono preamps even. Portable players deliver 300mV minimum so any portable or mobile phone can deliver enough signal for this headphone amplifier. Maximum output measured a

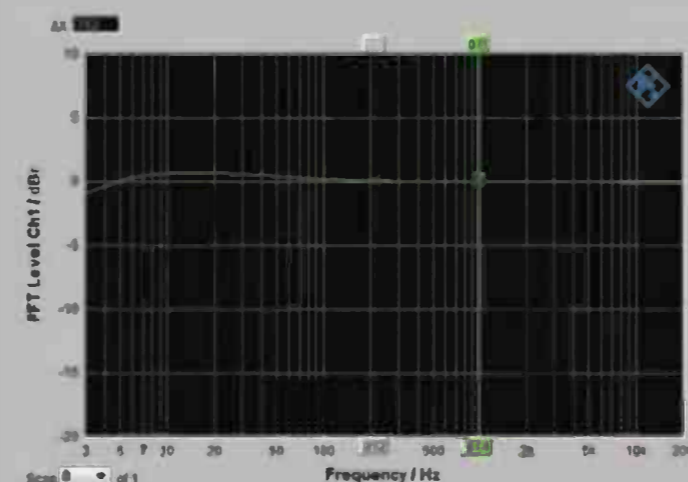
massive 9V, well beyond what is needed by headphones, where 2V is more than enough to go shatteringly loud.

The Signature's frequency response analysis shows there is a small amount of low frequency lift, around +0.8dB, below 100Hz, just enough to add a subtle sense of weight to the sound. Switching in low bass lift adds massive boost, peaking by +5dB at 20Hz, more than enough to make bass obviously heavy. High bass lift increases boost to +8dB at 30Hz and this will sound excessive with wideband headphones. At high volume bass power will overwhelm small headphones, producing distortion.

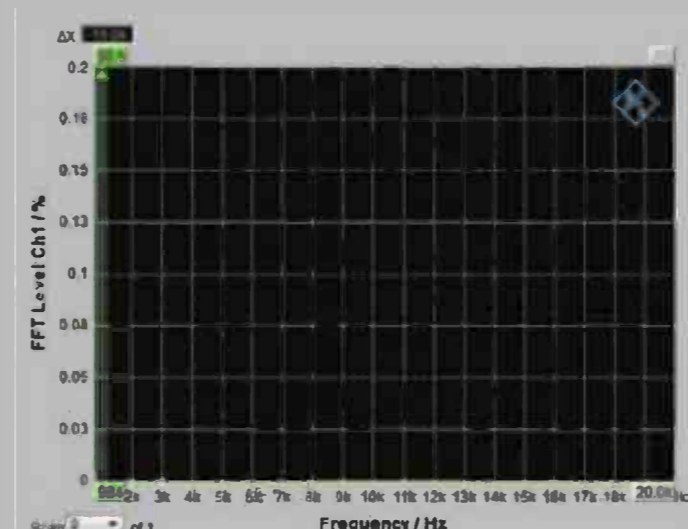
Distortion and noise were low: the Signature worked well here.

The Signature will produce a clean valve sound and more than enough volume whatever headphones it is used with. The bass boost and surround functions alter frequency response substantially; these are not subjectively subtle options. **NK**

FREQUENCY RESPONSE



DISTORTION



Frequency response	3Hz-20kHz
Separation	88dB
Noise	-92dB
Distortion (1V out)	0.005%
Gain	x6, 16dB
Overload	9V out

FOSGATE SIGNATURE HEADPHONE AMPLIFIER £1500



OUTSTANDING - amongst the best

VERDICT

An excellent headphone amplifier that blends valves and solid-state to provide a thoroughly enjoyable sound.

FOR

- bags of power
- smooth, detailed sound
- valves
- build quality

AGAINST

- EQ controls may not be to everyone's taste

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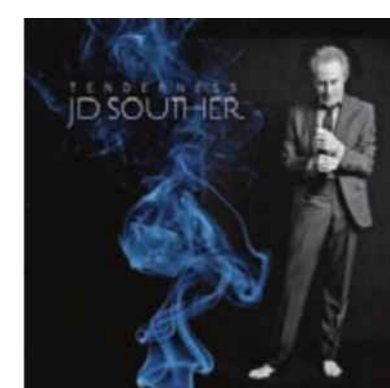
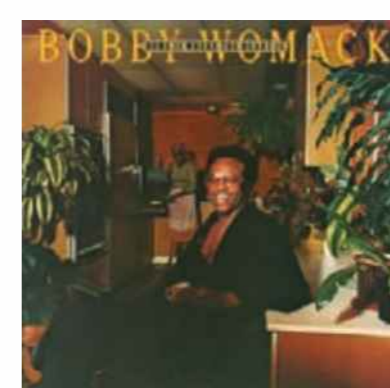
CYRUS SIGNATURE PHONO AMP AND PSX-R2 POWER SUPPLY 99

Paul Rigby enjoys the new phonostage and add-on power supply from renowned British manufacturer Cyrus Audio.

THE BEATLES STORY ON CAPITOL RECORDS 103

A digital tome charting The Beatles vinyl releases on Capitol Records in America catches the eye of Paul Rigby.

news



MOV

Music on Vinyl (www.musiconvinyl.com) continues to amaze by maintaining its high release rate with The Allman Brothers Band's 'Where it All Begins' (1994): solid but lacking in ambition.

Solid can also describe Bobby Womack's 'Home is Where the Heart Is' (1976). Not the best LP but a worthy release after his move to Columbia and some decent pop-soul.

JD Souther's new album 'Tenderness' is more impressive. Easy-going yet stylish with excellent original songs and an emotive vocal delivery.

Another strong showing arrives from Stevie Ray Vaughan and Double Trouble with 'Live At Carnegie Hall' (1997), supporting his second album ('Couldn't Stand the Weather', 1984), it added brass to the sound and Stevie's brother Jimmie. His commercially available best live show.

A change of pace now and Deee-Lite's 'World Clique' (1990). It offered funk, dance and a delightful sense of fun.

From way back in 1972, Blue Oyster Cult's self-titled debut, full of cryptic songs, amazing riffs and metal madness. Another self-titled debut but this time containing pop treasure from Fountains of Wayne (1996), a likeable bunch and a likeable record.



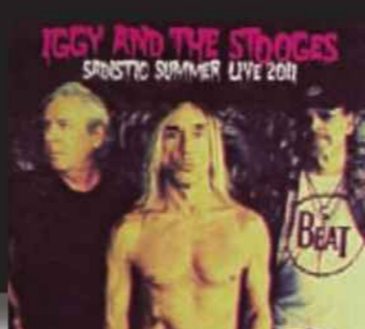
LET THEM EAT VINYL

Let Them Eat Vinyl (www.letthemeatvinyl.com) have a slew of new punk offerings including two from classic outfit The Damned.

'Fiendish Shadows' (1997) documents energetic 1985/86 shows that were fun of vitality. 'Punk Oddities And Rare' features live versions and rare tracks from 1977-1982: both are ideal for Damned collectors.

On 'Babylon's Burning' punk band The Ruts offer a vinyl double including both the decent 2000 compilation 'In A Can' and the reasonable 1987 LP 'Live And Loud'.

Also look out for the single disc album from Iggy And The Stooges 'Sadistic Summer Live 2011'.



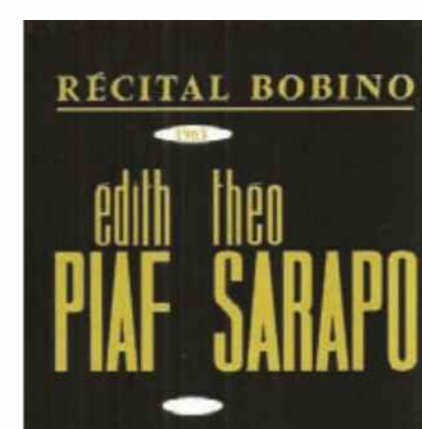
EDITH PIAF

Yes, that's right, Edith Piaf. Quite a lot of Piaf too from Warner Music.

Originally released in 1961 on Columbia, 'A L'Olympia 1961' featured excerpts from her long-running sequence at this one location and reflect her joy at performing. An excellent disc.

'De L'accordéoniste à Milord' was also a 1961 Columbia release, a Greatest Hits album, not the best choice as an introduction but ideal for fans as it includes hardcore classics.

The 1963 set recorded at the Bobino Theatre in Paris, 'Bobino 1963', including selections recorded by her then-boyfriend Theo Sarapo, by himself and in duet with her along with solos from Piaf herself. Great pacing. Also look out for 'Les Amants De Teruel 1962' plus a picture disc '100 Anniversaire'.



SCORPIONS

The 50th anniversary of the Scorpions has triggered a host of deluxe versions of eight albums from 1977-1988 via BMG. All are issued on 180gm vinyl, mastered via DMM at Railroad Tracks. Each includes a CD with the original tracks plus rarities: 'Tokyo Tapes' (1978) includes seven unreleased tracks; 'Taken By Force' (1978) includes five unreleased tracks; 'Lovedrive' (1979) includes two unreleased tracks; 'Animal Magnetism' (1980) includes five unreleased tracks; 'World Wide Live' (1985) includes a tour poster while 'Savage Amusement' includes five unreleased tracks.



AT THE MOVIES

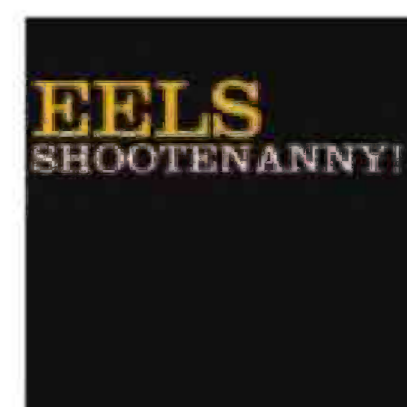
Released via Music On Vinyl this soundtrack series on coloured vinyl includes 'The Walk' via Alan Silvestri (including a booklet), 'La Citta Delle Donne' via Luis Bacalov, 'Phantom of the Paradise' via Paul Williams, 'The Secret Life of Walter Mitty' by Theodore Shaprio and featuring José González plus 'Big Fish' via Danny Elfman (plus a booklet).



EELS

Five Eels albums have landed on my desk via Back To Black (www.backtoblackvinyl.com) or, if you like, the recorded thoughts of 'E', the main singer/songwriter.

The reissues feature the excellent 'Beautiful Freak' debut (1996) including the stupendous 'Susan's House' and the even better follow-up 'Electro Shock Blues' (1998), darker, epic and the result of a number of personal bereavements. 'Daisies of the Galaxy' (2000), a tough to compute, detached release that sees 'E' still in his protective bubble from past hurts. 'Souljacker' (2001), a patchy affair full of poignant moments but also wishy-washy rocking low-lights and 'Shootenanny!' which shows 'E' back on form with plenty of dark humour.



...AND FINALLY

From Back to Black (www.backtoblackvinyl.com) comes Elvis Costello's 1986 LP 'King Of America', a personal collection that returns to his roots.

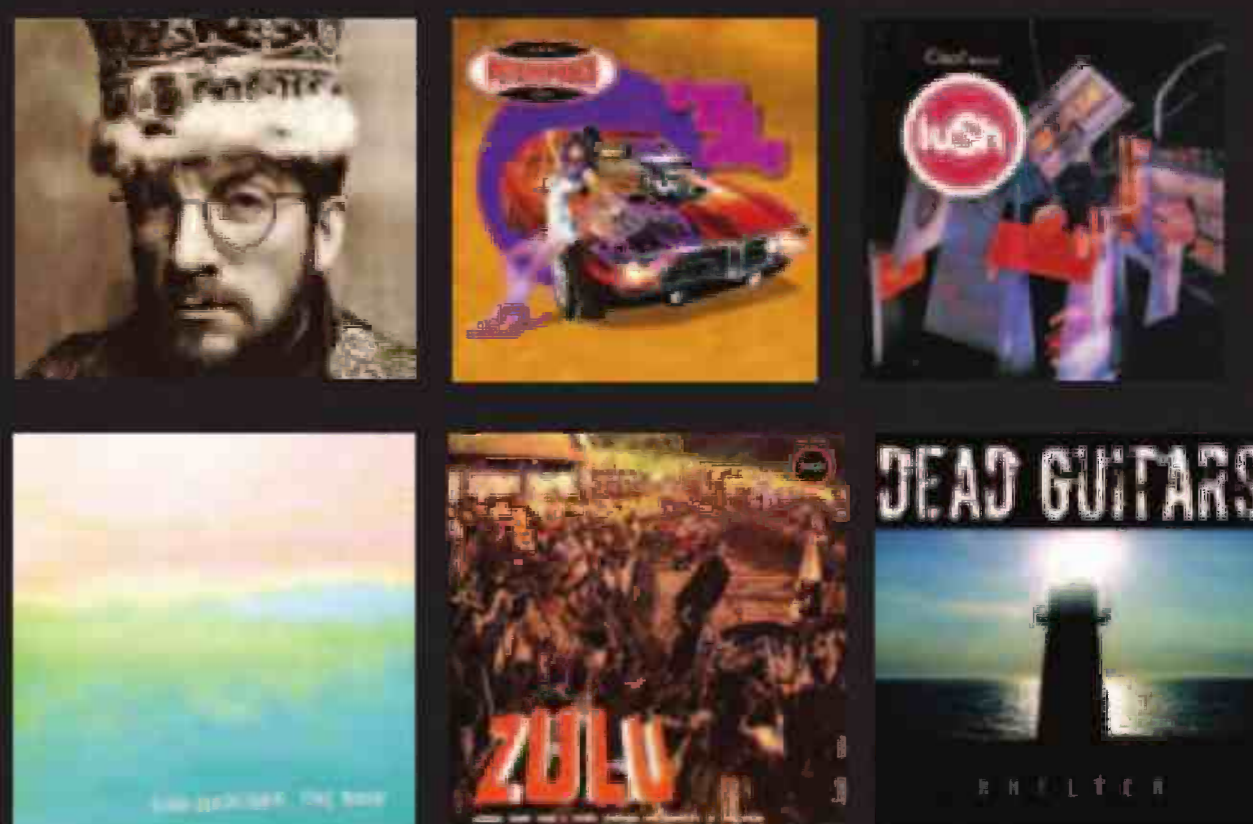
New from Psychopunch, 'Sweet Baby Octane' (www.spv.de) shows continued rock evolution blending Swedish punk and hardcore.

Lush initially release 'Ciao! Best of Lush' (4AD; www.4ad.com) in 2001 on CD only. Now it appears on vinyl for the first time, pressed on red vinyl in a gatefold sleeve.

From more contemporary shoegazers is Ringo Deathstarr's 'Pure Mood' (Club AC30; www.clubac30.com). If you love early-period Lush, you'll love this band. Female lead vocal with glorious, soaring, guitar riffs over a chaotic shoegaze noise. Beautiful.

From Fantastic Voyage/Ember (www.fantasticvoyagemusic.com) is the John Barry soundtrack of 'Zulu' featuring music from from the film on one side with a selection of 'Zulu Stamps' on the flip plus a narration from Richard Burton!

Finally, from the Dead Guitar 'Shelter' (Sireena; www.sireena.de) offers rather sincere rock noises with a driving bass. Imagine a harder version of A-ha.



Duet DCT++ CS

Low Distortion Loudspeaker Cable



by Black Rhodium



"Compared to many high-end cables whose bulk and rigidity (or fragility) seem contrived to make their installation as arduous as possible, Black Rhodium's Duet DCT++ CS is a positive joy to hook up. But while the cable is unusually 'bendable' its sound has real spine – its bass powerful and robust while the treble is smooth rather than incisive or biting. Certainly one for the shortlist, the Duet's warm quality is suited to sharp-sounding systems."

Paul Miller, Hi-Fi News, March 2015

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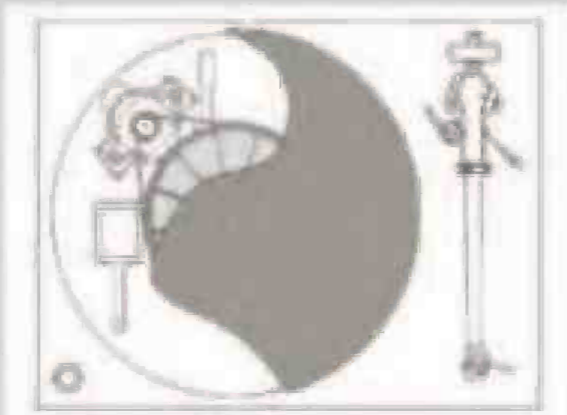
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Phono Power



Paul Rigby reviews the new Phono Signature phono preamplifier from Cyrus Audio, and its optional PSX-R2 external power supply.

What Cyrus has done with the Signature phono amplifier is to offer a comprehensive stand-alone phono preamplifier with – if you want to up the ante – an external power supply, the PSX-R2 which is a useful optional upgrade.

Spanning 73x 215 x 360mm and weighing in at 4.1kg, the svelte Signature offers four pairs of inputs,

meaning you can run up to four turntables from this one box. Each input can be programmed individually to match a cartridge, MC or MM. A pair of unbalanced phono outputs and balanced XLR outputs, plus PSX-R2 connection port complete the array.

The front features seven input buttons, a rotary selector knob (this is not a volume control, so you cannot directly hook up the Signature

to a power amplifier), standby button and display window. These controls allow you to select capacitance, resistance, gain, the warp filter and MM/MC select.

I prefer this type of system to DIP switches but the Cyrus interface still felt rather awkward to me. The pixellated, low-res window readout was also small and took some effort to understand.

A remote control with



The Signature offers unbalanced phono socket and balanced XLR outputs. There are four phono-socketed (unbalanced) inputs, so four turntables can be connected.

illuminated buttons completes the package and the ability to offer remote control is the upside to the Signature's all-electronic selectors. The remote also offers selection of gain, resistance, capacitance, MM/MC, warp filter and input select, so

almost uniquely the Signature allows an owner to tune the sound from the armchair.

Sitting within a similarly sized chassis but weighing in at a meaty 7kg is the PSX-R2. Featuring a 300V toroidal transformer, the PSX-R2 is a simple, no-nonsense product, as it provides a power socket and rocker power switch on the rear with a built-in, 5-pin, umbilical cord output cable. The front sports a small standby light. And that's it.

To begin with, I tested the stand-alone unit with a similarly priced Musical Surroundings Nova II phono amplifier. Once the power

supply was added and the relative price rose, I used my Icon Audio PS3 as the reference.

SOUND QUALITY

I first played Sammy Davis Jr's 'The Candy Man' from the original MGM pressing 'Now'. This is the tale of a man in his mid-40s desperately trying to reconnect with 'the kids' during the hippie era and, it has to be said, largely succeeding (which is more than could be said for his friend, Frank Sinatra). Compared to

the battery option of the Nova II, the Cyrus lost that slightly ethereal nature of the backing vocals and strings but did add an immediacy to the broad soundstage.

Although not as relaxed in presentation terms and lacking a sense of ease, the Cyrus did retain a host of essential detail while minor elements, cymbals for example, were notably accentuated to enhance the available precision.

Switching to balanced outputs confirmed our test results: gain

"with Siouxsie And The Banshees 'Regal Zone' there was a real low blow attitude to the bass frequencies that added to the power and guts of the recording"



Bundled with the Signature, the included remote can also control other Cyrus products.



The PSX-R2 complete with umbilical cord that connects to the Signature.



The PSX-R2 is a large scale linear power supply, that plugs into the Signature, augmenting its internal supply.

had to be increased (from 60dB to 70dB) to achieve the reference volume but it did bring much of the naturalistic, almost ghostly nature of the background strings, while the upper midrange offered a complex and tonally correct suite of harmonic vocals. Bass was both open and characterful while secondary percussion provided air and space.

Having established that balanced mode was the path to tread, I played Siouxsie And The Banshees' 'Regal Zone' from the original pressing of

'Join Hands'. As the tests showed, the Cyrus provided a low noise output but it also, with a rock source, offered a striking bass response. There was a real low-blow attitude to the bass frequencies that added to the power and guts of the recording. Compared to my reference, it was also notable that both upper mids and treble had been slightly tweaked adding precision, especially in cymbal strikes and secondary precision while vocals were slightly more 'in your face'.

It was at this point that I added the external power supply. First impression was of an immediate lowering of the noise floor which freed me to increase the gain. Bass was no more powerful but now featured extra information and detail

within each drum strike. Upper midrange information included greater air and space with bountiful emotional engagement. Cymbal strikes were extended while the tambourine told me more about the initial body impact and guitar work was complex and intricate. The lead vocal, meanwhile wrapped itself in the reverb to extend a scarily intrusive nature to its delivery.

CONCLUSION

Despite the rather awkward interface (better options being available) sound quality of the Signature was immediate, detailed and offered welcome delicacy in balanced mode while the external power supply is an essential upgrade when funds allow.

SYSTEM USED

- EAT C-Sharp turntable
- EAT C-Note arm
- Koetsu Black cartridge
- Icon Audio PS3 phono stage
- Aesthetix Calypso pre-amp
- Icon Audio MB 845 Mk.II monoblocks
- Quad ESL-57 speakers with One Thing mods
- Vertex AQ & Atlas cabling

CYRUS PHONO SIGNATURE £1,200



OUTSTANDING - amongst the best

VERDICT

The Phono Signature digs deep to offer a host of detail while its balanced output adds finesse.

FOR

- detail
- balanced output
- flexibility
- compact

AGAINST

- awkward interface

PSX-R2 £695



OUTSTANDING - amongst the best

VERDICT

Adding the PSX-R2 external power supply brings a new sense of authenticity to the final output.

FOR

- tonal realism
- low noise floor
- midrange extension

AGAINST

- nothing at the price

Cyrus
+44 (0)1480 410 900
www.cyrusaudio.com

MEASURED PERFORMANCE

The Cyrus phono stage has four gain levels, 40/50/60/70dB. Of these only 40dB is used when moving magnet (MM) cartridge is selected. Selecting MC makes all options available, including those for MM, so the MM option is unnecessary, except as a simple switched option.

Measurement showed gain matched the figures stated, 1mV in giving 923mV out for example, with 60dB (x1000) selected – a small shortfall but not significant.

Cyrus claim high overload but the balanced XLR outputs gave 9.5V maximum; the same as silicon chips delivering an unbalanced output, so there is no advantage here.

Noise with MC measured 0.09µV, very low and close to an MC input transformer (0.08µV) so this is a very quiet preamp, optimised for low output moving coil cartridges.

It has an unusually wide range of MC input load options: 11, 16, 33, 47, 100,

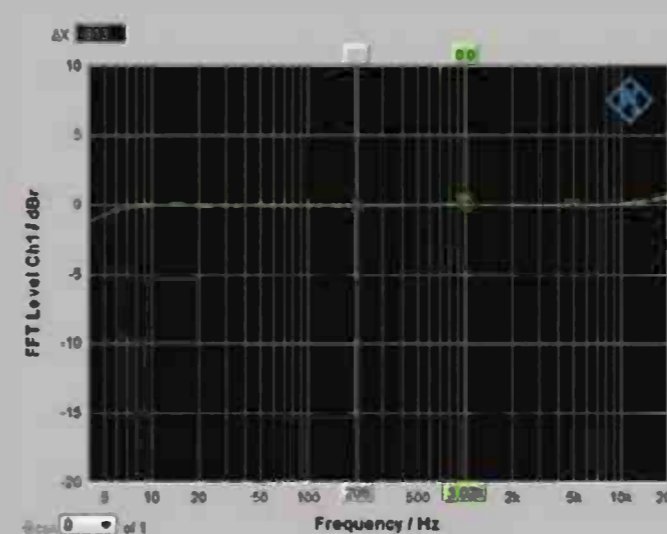
150, 333, 500 and 1000 Ohms for MCs, plus 47k for MMs or high output MCs, designed for an MM input.

RIAA equalisation was accurate and frequency response flat as a result. Switching in the warp filter introduced an IEC specified roll-off below 40Hz that lightens bass subjectively but strongly attenuates warp signals, by -13dB at 5Hz measurement showed.

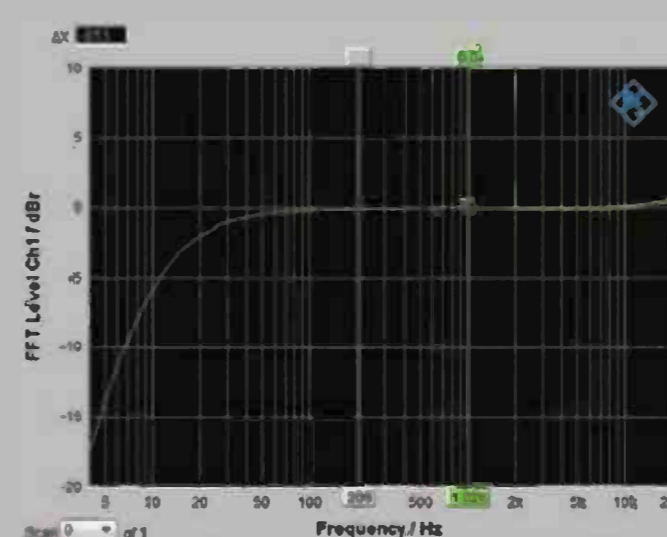
The Cyrus Phono stage measured well in all areas. In the one area Cyrus claim exception it is unexceptional – overload. All the same, this will not be a problem in real life use, with suitable gain selected. Great flexibility and low noise make this an attractive design. **NK**

Frequency response	4Hz-20kHz
Separation	68dB
Noise	0.09µV
Distortion	0.05%
Gain	40,50,60,70dB
Overload	9.5V out

FREQUENCY RESPONSE



WARP FILTER



LUSH

SPLIT
4AD



"Lush were a four-piece indie rock outfit but they were much, much more than simply that"

Ah, Lush. A band that sparks fond memories for many music fans out there. Who were they? Lush were a four-piece indie rock outfit but they were much, much more than simply those two words can ever describe.

Lush specialised in catchy melodies but they packaged them, rolled them up in guitars that were fairly dripping in feedback and then adorned with dreamy vocals.

This early 90s outfit arguably led the shoegazing movement of the time and spread throughout the underground fanatic-factions like a bush fire: in the UK and in the USA.

Some will bristle at that. Some will point a shaking finger of rage in my direction and shout words like "Bloody Valentine" and "Ride" but Lush added an extra ingredient in their seamless recipe of musical life and that ingredient was the vocals from Miki Berenyi who fronted and lead vocalled for Emma Anderson, Chris Acland and Steve Rippon.

Look, any band who can say that they were discovered by The Cocteau Twins' Robin Guthrie has got to be more than just 'good'. In fact, it was Guthrie who helped them onto the 4AD record label – which at the time was the epitome of indie music quality.

4AD, at that time, were a phenomenon all of their own. In fact, the label had reached a point in its existence where music buyers bought every 4AD release that was going, even if they knew nothing about the band contained on the record. Purely because the label was on such a run of form.

Acclaimed EPs were initially issued ('Mad Love' and 'Sweetness and Light') and then the very good debut album 'Spooky' in 1992. 'Split' was released in 1994 but was partly subsumed in the emerging force that was BritPop and the US-based post-grunge movements.

"I guess by the time the album came out the press had moved on to 'grunge' and then to the early days of 'Brit Pop.' Shoegazing was out" said bassist Phil King, who would join the band in 1991, replacing Rippon.

"Two years is a long time in music and for the music press it was out of sight, out of mind – even though we had been busy touring the 'Spooky' album, especially in the US and then

working on the 'Split' album".

That was a shame because 'Split' was and is an incredible piece of art. It offers misty visualisations and can be slightly soundscape-y and one song morphs into another – but there's no escaping the creative range and self-assurance from the band. 'Emotion' is the key word with the album, though, as the turbulent nature of the sensibility is investigated in full.

Said Berenyi, looking back on the album's creation, "It's probably my favourite Lush album but for very personal reasons. I felt more confident as a songwriter at that stage and it felt good to be able to try new things. Emma was the Lush member who usually wrote the dancier tracks ('Nothing Natural', 'Sweetness and Light'), so it was fun for me to have a crack at it with 'Undertow'. Lyrically, I decided to just lay it all out there and I think 'Light From A Dead Star' was where it worked best. Of Emma's songs 'Desire Lines' felt like something genuinely new for us – it had a dignity and sweep I didn't think we were capable of, and 'When I Die' made me weep the first time I heard it (and still does). It's not an easy record to listen to but it is emotionally honest and that moves me".

In fact, 'Desire Lines' became a single off the album which spanned a mighty eight minutes, along with another lengthy outing 'Never-Never'. They both showed that Lush were not afraid – even as the emerging Britpop wham-bam singles promoted short and sweet ditties – to explore thoughts and emotions and plunder time whilst doing so. A brilliant record and nailed on classic.

Now we hear the joyous news that Lush are due to reform and release a new EP. More celebrations have followed with the release of a 4AD, 4 CD box set called 'Chorus' which features the album 'Split' in its entirety but with the addition for seven extra tracks.

Before you ask, the rest of the box set includes the albums 'Spooky', 'Lovelife', the singles and extra collected tracks over three of the early EPs, plus the compilations 'Gala' and 'Topolino' which feature a wide array of B-sides and rarities.

In effect, Lush's entire career is stuffed into this nicely presented book-type 'box'. **PR**

Digital Beatles

In the latest of Paul Rigby's new series on music-related books he takes a look at the digital edition of one of the most comprehensive tomes on The Beatles Capitol Records era in the US.

The Beatles Story On Capitol Records Part One (Digital Edition)

Author: **Bruce Spizer**

Publisher: **498 Productions**

Price: **\$50**

Contact: www.beatle.net

The first time that this book arrived as a print edition, spanning around 226 pages, there was an audible gasp amongst Beatles fans because of the detail and the broad span of information that it covered. Bruce Spizer is one of the world's authorities on The Beatles (he is right there with Mark Lewisohn) and his self-published books, always available as limited editions, are prized amongst the Beatles' cognoscenti.

Beginning with a forward by former Capitol Records president and CEO Alan Livingston, Part One specialises on the Beatles' Capitol Records singles – but that description is a massive over-simplification.

In addition to information on those singles, you will also find a host of details that focus on special releases such as promos and their associated covers and, for collectors, a useful section with colour pictures of all known counterfeit singles that are still out there in the market tempting the uninformed.

Speaking of pictures, there are high-quality, full-colour photos of every record label (both sides, of course), picture sleeves/covers and dozens of bonus photos and rarities including in-store promotional displays, custom posters and custom record browser boxes. There are also many anecdotes and an accurate

history on every release.

Which is great isn't it? Want a copy now? Well, you can't. That is, you can, but you have to pay through the nose to get one because this book is out of print.

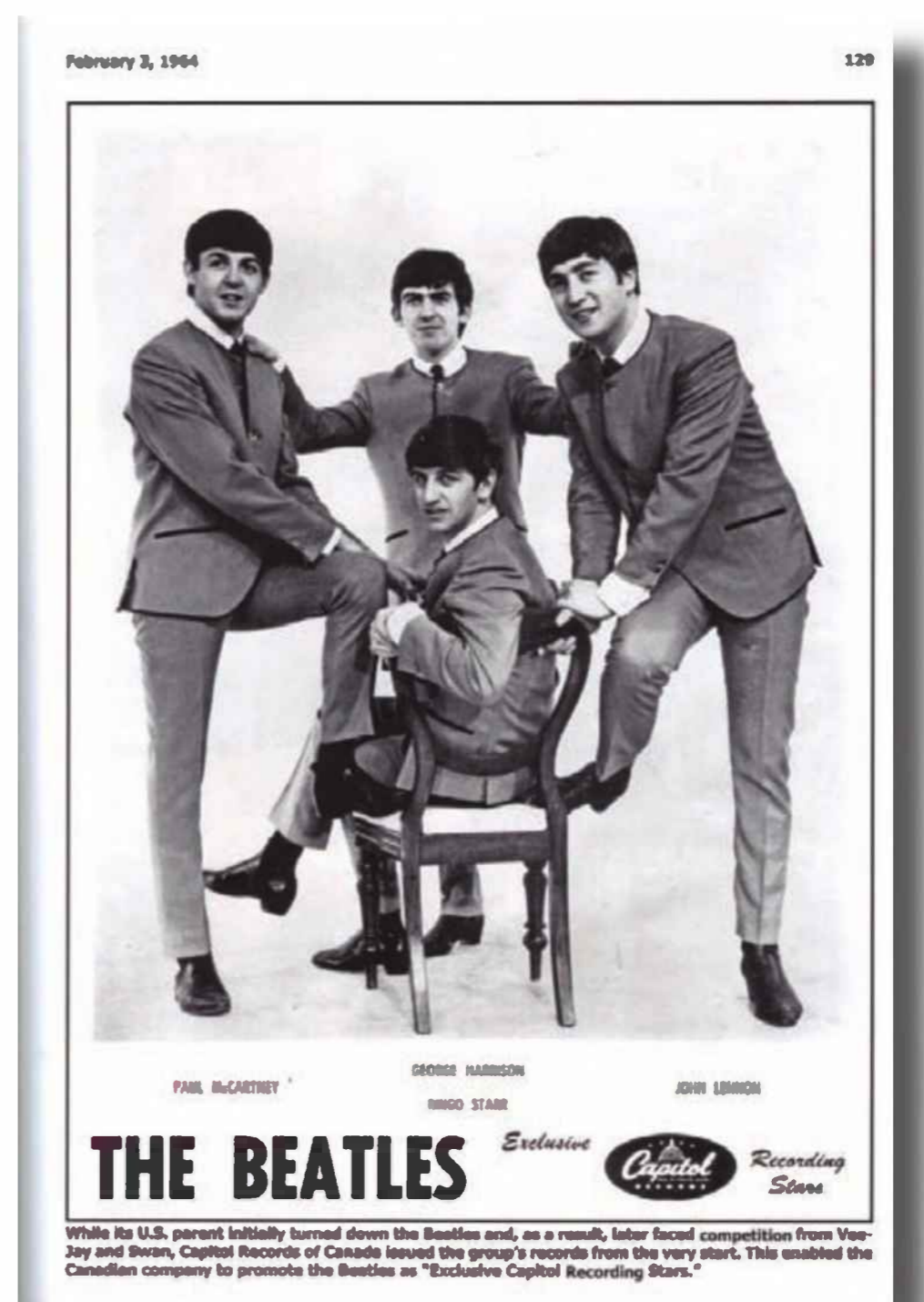
Part One is currently fetching silly money (I noticed a third party seller on Amazon selling one for £178, for example).

What to do? Well, Spizer himself has come to the rescue – and in a quite innovative manner – by reissuing the book as a digital edition that can be viewed on all computer media that supports the PDF format. It's great to read using a tablet, for example (in fact, the book is optimised for the Apple iPad).

So why not just reissue the book? Cost. Spizer decided to expand the information available within the first edition too which would have upped the cost further. In addition to providing new information on all of the Beatles singles issued by Capitol, the revised and expanded digital edition contains the full story behind the Capitol Compact 33 jukebox discs and adds a new chapter on the history of the 45 RPM single and how Capitol quickly embraced the new format.

There is also a new chapter entitled 'Capitol of the World', which lists and provides details on all of the British recordings issued as singles by Capitol pre-Beatles from 1956–1963.

This 497 page digital book is a



magnificent creation and works well using the generally available, low-cost GoodReader app. The addition of searchable text and associated cross references makes this book a joy to read. Of course, images can be zoomed into to view fine detail, if required.

And it doesn't stop there because, due right about now, is the digital edition of Part Two! This will perform the same job as Part One but will focus upon the albums and will include explanations of why the Capitol albums were different than those issued by Parlophone in England, plus session and chart information and pictures of the front and back covers and all label variations of all the Capitol albums, including the most comprehensive coverage ever compiled on the controversial 'Yesterday And Today' album with its Butcher cover.

More than an amazing book, Spizer has created for himself an amazing Beatles' library. Many Beatles fans will be tempted to buy the lot! Bye bye wallet.



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Art Dudley - Stereophile, October 2015



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— Paul Kittinger

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In fact, the Axiom Audio EP500 works so well that my wife and I both stood mouths open (not kidding!) as it shook the rafters and window glass in our house. Amazing! Love that palpable, tight bass... Thank you again for the awesome prize!
— Jeff Merth





RUSS ANDREWS SUPERFUSE £25 (SINGLE); £125 (FOR A 5 PACK)

Russ Andrews describes the SuperFuse as a high-performance mains plug fuse which features a unique Super Burn-In process.

If the concept of a super fuse sounds a little strange to you then it's worth noting the care that has gone into its construction.

The end caps for the ceramic tube are made from nickel and are

highly-polished and treated with the popular Deox-IT contact enhancer. You also get a DeoxIT Gold wiper sachet with every SuperFuse for treatment, just before fitting. Inside the SuperFuse is a silver wire. The fuses themselves are available in 13A, 10A and 5A versions.

Sound tests produced a notably reduced noise floor over the entire soundstage producing more articulate and recognisable pianos, clear and lucid vocals, reduced bloom on some compressed recordings within the upper mids and a punchier but also more complex rock-derived bass.

Allied to that, while listening to jazz the upright bass offered new and subtle manipulations. The delicate twists and turns were now easier to follow.

Oddly, the price of the fuse which, initially, might have triggered howls of derision seemed, after the test, to be rather low. Low, that is, considering the improvements in sound quality.

I found that those improvements changed depending on what piece of kit you used, though.

For example, I found greater changes from a tested CD player and pre-amp than a turntable. Something I would not have predicted.

That said, that might be more to do with the cable because both the pre-amp and CD players were using a higher quality, third party, cable while the turntable was using a bog standard cable supplied by Origin Live.

So maybe that is the important variable in terms of sonic quality. That is, the SuperFuse removes a bottleneck, allowing you to get the most from a more superior cable. Bear that in mind before you buy. **PR**

www.russandrews.com

SOUNDBITES

RUSS ANDREWS AC-24 1000 £201

The ever-tweakable Rega RP3 turntable has yet another third party addition to its upgrade armoury with this a new power supply from Russ Andrews which is a rather macho item when compared to the default, dinky offering that Rega supplies.

This example features a precision rack-wound transformer. You will also find woven Kimber Kable that links the power supply to your RP3. And look, I'm rambling on about the RP3 deck because that was the piece of kit of I attached to this box but you can also upgrade other Rega components with the AC-24 1000 including the Fono MM and MC (these need a 2.5mm plug though, so tell Russ Andrews before you buy) and the TTPSU.

The sonic improvements affected by this upgraded power supply are not subtle. The reduction in the noise floor applies dramatic enhancements to all frequencies and aspects of the sonics.

Treble offers greater reverb, bass more character and upper mids greater transparency. Also take into account that I used a basic kettle-type cable. The addition of a better quality cable (whether that be one of Russ Andrews' own Kimber variety or something from Tellurium Q or Black Rhodium) will increase the sound quality still further.

Would I recommend this power supply if you are looking to buy a RP3? Possibly not, as the combined upfront price allows you to take a serious look at the likes of a Project Experience Basic+ turntable and almost an Avid Ingenium.

For those users who already have a RP3, though, this upgraded



power supply is a complete no-brainer.

For just £201, you will seriously enhance your turntable. As it stands, this Russ Andrews power supply is a great edition to the RP3 user's armoury. **PR**

[\[www.russandrews.com\]](http://www.russandrews.com)

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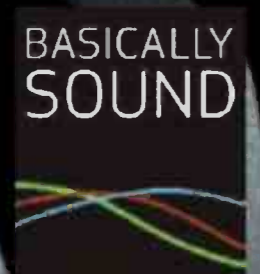
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Information

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

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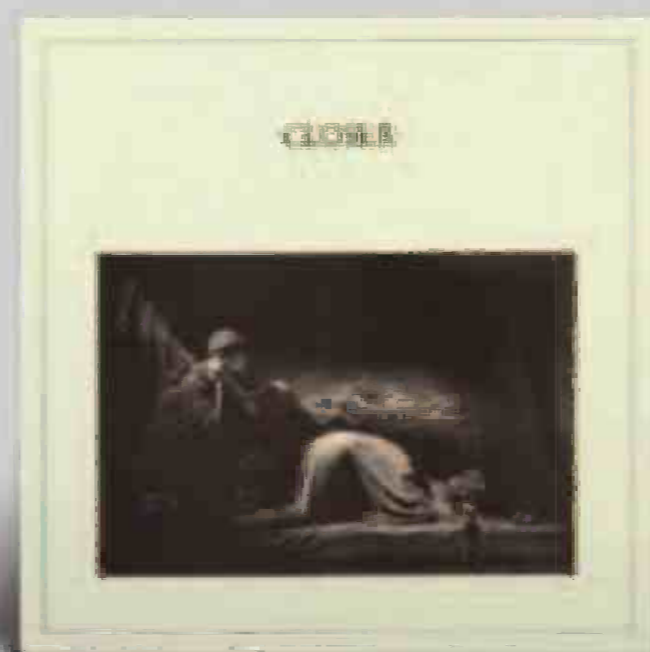


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AUDIO TECHNICA AT-LP 1240 USB turntable, Xmas gift, surplus to requirements. Still in delivery box unopened. New £490 from Harrods. For sale at £250. No offers. Tel: 01494 672 937 (South Bucks)

NEXT MONTH MAY 2016 ISSUE

SPENDOR SP200 LOUDSPEAKERS

Renowned British loudspeaker manufacturer Spendor has a new flagship in its Classic range in the shape of the SP200. Marrying a new EP77 polymer 7-inch midrange to a 22mm tweeter, underpinned by two massive 12-inch woofers it promises deep, controlled bass of the sort big speakers produced long ago. To find out how it sounds don't miss our exclusive listening test and measurements in the next issue.

Also, we hope to bring you —

Tannoy Eclipse 3 loudspeakers

Electrocompaniet ECG1 turntable/Electrocompaniet

ECP2 Phonostage

Final Audio Sonorous V1 headphones

B&W Zeppelin wireless speaker

Unison Research Preludio integrated valve amplifier

Bristol Sound And Vision Hi-Fi Show report

Acoustic Research UA1 USB DAC Headphone amplifier

...and much more.

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

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CREAM

DISRAELI GEARS

1967



"The songwriting is powerful and the musicianship is full-on making this a classic release"

For this LP release, the band's second album, a new producer was brought in, Felix Pappalardi. It's odd the influences that a producer can have on an album and the band itself because you could say that Pappalardi opened the door for Cream to the world of psychedelia ("Felix happened to be in the studio when we went to Atlantic's studio in the USA" said former Cream member and lead singer Jack Bruce. "Felix got things out of us in a subtle way. He wasn't the sort of producer who said 'You do this and you do that'.")

You might feel that, if the band were heading towards the psychedelic genre, that any resultant album would not only be wayward but possibly over-experimental. Not so. In fact, you could lay this accusation at the first album ('Fresh Cream'), in some ways at least. 'Disraeli Gears' would benefit from a measure of logicity.

Of course, all of these manoeuvres meant that Cream (a trio who almost incorporated Steve Winwood in the fold but thought that the trio would, for a rock outfit, be more exciting) were steadily moving away from the pure blues improv outfit that was seen as a mission statement upon their formation. Entering into the wider musical fold, though, did free up their thoughts and allowed them to up the sheer power of their performance while retaining some impressive innovation.

"We actually came to America to make the album 'Disraeli Gears'" said Jack Bruce. "We'd done demos. I came with twenty songs, Eric had two and Ginger had 0.5 of a song. We were told by Atlantic that the songs were not commercial, they thought that they were too ahead of their time. 'Psychedelic hogwash!', somebody said. Then someone else said that Eric should be the front man because, they said to me, 'you can't sing'. So they said to Eric, 'What have you got?' and he said 'Nothin' So they took a backing track away called 'Hey Lawdy Mama' and Felix Pappalardi wrote 'Strange Brew' on top of that. So they had...one song. So, in the end, they had to use my songs".

That's not to say that blues was shunned, far from it. If you take the single track 'Strange Brew' any blues fan will recognise the masterful hand of Albert King. Yet Cream didn't give us

a Klone King, the psychedelia helped to push their stamp upon the music. 'Sunshine of Your Love' ("I remember Booker T. stopping by when we played that early on and said that it was a great thing. Which helped Atlantic to think twice about the song which Atlantic initially hated".) is another good example of this as is 'Tales of Brave Ulysses'.

Actually, Pappalardi wasn't the only person pushing the band towards new venues, lead singer Jack Bruce was doing the same which was helped along with his collaboration with Pete Brown. "Pete was working with Ginger (Baker). Ginger tried to write songs with him but couldn't do it so I took Pete."

The tired and rather repetitive blues-rock hamster wheel that the band had entered in their early days began to give away to something more interesting and also something more Brit-centric. Take the exploding 'SWLABR' as an example of that (a song that was originally called 'She Was Like a Bearded Rainbow'). More so 'Dance the Night Away' provided an illumination into their own cultural past with a firm connection to musical hall influences, as did the track 'Mother's Lament'.

A major heavy rock album of the '60s, this LP will always be seen as a psychedelic release of its time but there is more to this LP than that. There's real innovation within the arrangements, the songwriting is powerful and the musicianship is full-on, making this a classic release.

Oh, and before we go...where did the album's name actually come from? "For the first time ever, a Scotsman (Tommy Simpson) had won the Tour De France" said Bruce. "It had always been dominated by France and Italy. The next year, he died on his bike while taking Speed. His heart burst on a hill. We were saddened by this. He was using a common transmission system on his bike, gears made by Derailleur and a roadie said, 'Oh yea, maybe he was using them Disraeli Gears'".

You can put this album into various guises but I've chosen to tie this column to a new vinyl release that is ever so slightly leftfield. It's the 7" box set entitled 'Cream: The Singles, 1967-1970' (Polydor) including ten vinyl singles that includes four songs from Disraeli Gears: 'Strange Brew', 'Tales of Brave Ulysses', 'Sunshine of Your Love' and 'SWLABR'. **PR**

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