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JULY 2009

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Hi-Fi World, U.K.



Prologue1 35 Watts Stereo Integrated Amplifier with EL34



Prologue2 40 Watts Stereo Integrated Amplifier with KT88



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Prologue4 35 Watts Stereo Integrated Amplifier with EL34



Prologue5 35 Watts Stereo Amplifier with EL34



Prologue6 70 Watts Stereo Amplifier with EL34



Prologue7 70 Watts Stereo Amplifier with KT88



Prologue8 Valve CD Player



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Dialogue2 36 Watts Stereo Integrated Amplifier with KT88

PrimaLuna

Music is a universal pleasure that should not be denied to anybody. So, too, the beauty of music reproduced by valves. To make available to a wider audience the seductive, silky sound of the vacuum tube, PrimaLuna has developed a range of all-valve amplifiers with the construction, power and sonic performance of high-end electronics, but with one unique, inimitable feature: prices that can only be described as 'entry level'!

Since the arrival last year of PrimaLuna's first model, the ProLogue One, the audio community has been unable to contain its joy nor reign in its praise, because PrimaLuna has revolutionized the whole concept of 'affordable audio.' Commencing with a pair of integrated amplifiers with prices more typical of mundane, solid-state products, PrimaLuna has shown other manufacturers that compromises in fit and finish, styling and facilities are unnecessary.

And PrimaLuna has shown the music lover that 'high end' performance and pride of ownership can be made available to aficionados on a budget. But don't take our word for it. Audition your preferred ProLogue or the newly-launched Dialogue models at the PISTOL Music dealer of your choice. And prepare your wallet for a pleasant surprise!



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welcome

EDITOR

David Price
tel/fax +44 (0) 1275 371 386
e-mail: editorial@hi-fiworld.co.uk

DESIGN EDITOR

Faiza Chunara
tel: +44 (0) 20 7625 3129
e-mail: adproduction@hi-fiworld.co.uk

PRODUCTION EDITOR

David Noble
tel: +44 (0) 20 7625 3134
e-mail: classifieds@hi-fiworld.co.uk

ADVERTISING SALES EXECUTIVE

Marina Nik
tel: + 44 (0) 20 7372 6018
Mob: + 44 (0) 7917 047 546
email: advertising@hi-fiworld.co.uk

ADVERTISING DIRECTOR

Debi Silver
tel: + 44 (0) 1723 500 435
mob: + 44 (0) 7966 84 35 36
e-mail: debisilver@hi-fiworld.co.uk

ACCOUNTS

tel: +44 (0) 20 8841 8892
fax: +44 (0) 20 8841 9144
e-mail: accounts@hi-fiworld.co.uk

PUBLISHER

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

FREE READERS CLASSIFIEDS

tel: +44 (0) 20 7625 3134
e-mail: classifieds@hi-fiworld.co.uk

SUBSCRIPTIONS

tel: + 44 (0) 1442 879097
fax: + 44 (0) 1442 872279
e-mail: hi-fiworld@webscribe.co.uk

PHOTOGRAPHY

David Noble
tel: +44 (0) 20 7625 3134

WRITERS

Tony Bolton, Peter Comeau, Steven Green, Tim Jamman, Paul Rigby, Adam Smith, Channa Vithana.

hi-fi world

SUITE G4, ARGO HOUSE
KILBURN PARK ROAD
LONDON NW6 5LF
www.hi-fiworld.co.uk

verdicts

●●●●●	OUTSTANDING	simply the best
●●●●●	EXCELLENT	extremely capable
●●●●●	GOOD	worth auditioning
●●●●●	MEDIOCRE	unremarkable
●●●●●	POOR	seriously flawed
£	VALUE	keenly priced

ELECTRONIC MAGAZINE

Go to our website www.hi-fiworld.co.uk to buy an electronic version of this magazine, individual issues or a subscription. At present we do not offer back issues, but hope to soon.



The wonderful thing about hi-fi is that there are so many different ways to strive for perfection, and you're never quite sure which one will work!

Whereas I think all Formula One racing car designers would agree on the use of low mass, high stiffness carbon fibre bodysells, a certain aerodynamic package and the use of a high revving multi-valve engine, with hi-fi there's simply *not* that consensus. The result is that you sometimes

see the audio equivalent of a single-cylinder three wheeler with the drag factor of a brick outhouse, running rings around the competition!

For example, as our phono stage group test on p15 shows, arguably the most impressive unit we reviewed was the Icon Audio PS3, running valves that were supposed to have been rendered obsolete by transistors in the nineteen sixties! Neck and neck was the Holfi Batt2Riaa, a solid-state design powered from batteries like wartime valve radio sets used to be, and close behind was the A.N.T. Audio Kora 3T Ltd., running just three transistors. It's proof positive that there's more than one way of killing the proverbial cat!

Then we have the imponderable question of loudspeakers. Martin Logan's CLX Linear is surely the speaker equivalent of the aforementioned FI car, with 'high tech' plastic film to move air instead of standard moving coil drive units. Or is it because, as Noel Keyword notes in his review on p10, as a technology the electro-static loudspeaker is fifty five years old! Only now, through products such as this, is the technology showing what it can really do...

In the brave new world of Blu-ray, Compact Disc is something that's positively old hat, and yet over twenty five years after its introduction, we're only now seeing what it's truly capable of. In my review of the admittedly expensive Oracle CD1500 on p24, I'm more than a little surprised how close it runs high end vinyl - itself a format that only really came good after it was officially superseded by CD.

The creative use of technologies of all types to achieve stunning sound, is a fascinating thing to behold. Hi-fi's never been such an esoteric mix of interesting engineering of varying vintages. As this issue shows, there's never a dull moment!

David Price, editor

testing

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

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hi-fi world

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Stereo Preamplifier

For more information visit our website: www.melodyvalvehifi.com.au
or email us at: info@melodyvalvehifi.com.au



World Radio History

news

LIVE AND DIRECT

Not long after the LP12 gained the significant Keel subchassis modification, Linn have followed it up with two other major new upgrades. As its name suggests, the new Radikal DC motor control marks a dramatic move away from the Philips AC synchronous design that has spun the Sondek's platter for over thirty five years. The new DC motor control unit and power supply offers a new level of speed accuracy, as well as reduced electrical and mechanical noise. With an onboard speed management system which auto-calibrates the turntable for accurate motor speed control (using technology from Klimax DS), manual speed adjustment is no longer required. The new brushed DC motor has a very low magnetic field as well as very low electrical noise, and is housed in a machined casing designed to reduce vibration and resonance [pictured below left]. The Radikal motor control unit and power supply is encased in an elegant Linn chassis, available in black or silver. However, the same product can also be ordered in a velvet-touch 'machined-from-solid' aluminium chassis to match a Klimax system if required.



Also launched is the Urika, a new inboard phono stage, which is housed in the best possible place for performance - very close to the tonearm lead-out wires. This new internal location is only made possible by the introduction of the DC motor, says Linn, and the position greatly reduces the signal path, minimising loss of information from the cartridge and maximising performance. Other major design enhancements to the phono stage include a new screened and balanced T-Kable and a dual mono phono design. The new T-Kable is directly soldered to the phono stage and delivers an improved signal-to-noise ratio, whilst increased flexibility enables the suspension to work more effectively without interference. The dual mono phono design provides dedicated circuitry for each channel to minimise crosstalk.

Together, the upgrades deliver "the biggest performance improvement from an LP12 ever", claims Linn, and our initial listening impressions at the House of Linn, Manchester (www.houseoflinn.com) bear this out. Having heard a standard AC LP12SE against the Radikal DC version, the change is initially subtle but extended listening actually reveals it to be quite a profound improvement, with substantial improvements to grip, focus and tunefulness. Overall, the new LP12 conveys a far greater sense of musical occasion. Prices are £2,500 for the standard chassis Radikal DC motor and £4,500 in the Klimax DS-style machined-from-solid chassis, and £2,250 for the Linn Urika phono stage. There are also package discounts - £4,200 for the Linn Radikal (standard chassis) plus Linn Urika, and £6,200 for the same but with the Radikal power supply in a machined from solid chassis. The new LP12 SE upgrades can now be auditioned at Linn Turntable Specialists worldwide, many of whom are also hosting an 'Out of this World - LP12 SE' Event. Find out more and book a place on www.linn.co.uk.



STORY OF THE BLU

Sony's new BDP-S360 Blu-ray player is said to deliver pristine 1080p picture quality with full 7.1 surround sound via a compatible AV receiver. This can be achieved through newly incorporated DTS-HD and Dolby TrueHD decoding capabilities, the first time these features have been made available on an entry level Blu-ray player from Sony. The £250 machine also sports Sony's BD-Live system which allows you to download and stream bonus content such as additional scenes, trailers and movie-based games. The BDP-S360's built-in USB port means that exclusive additional content can also be downloaded from special websites dedicated to movies boasting these features and saved onto an optional USB flash storage device. Equipped with Sony's Precision Cinema HD Upscale technology, the BDP-S360 can convert standard definition signals to 1080p, providing a near high definition picture via High Definition Multimedia Interface (HDMI) so that you can enjoy seeing standard DVD films in a whole new way. Additionally, the BDP-S360 adds Sony's Precision Drive technology, which helps to detect and correct wobbling discs from three directions, supporting stabilisation of the playback of bent or scratched Blu-ray Discs and DVDs. It also supports Deep Colour video output and AVCHD discs encoded with x.v.Color™ (xvYCC) technology. For more information, click on www.sony.co.uk.



egrated amplifier incorporates
ster Series M3 amp in an
nd industrial design, and uses an
ilding block' concept to make
MC phono module and other
le. The C375BEE delivers

power, and 200W, 365W and 500W IHF Dynamic power into 8, 4 and 2 Ohms,
ident throughout the amplifier, from its heavy gauge steel chassis and sophisticated
rs channelling large amounts of current to the custom gold-plated speaker binding
amplifier include an application in the output stage of the innovative, patented
Director of Advanced Development Bjorn Erik Edvardsen, and Edvardsen's BEE
ved tone control circuit and PCB layout reduce distortion and noise to unprec-
edance characteristics and adjusts its power settings for the specific load, and Soft Clipping
ne risk of damage to loudspeakers from prolonged operation at high power. There are seven line inputs,
two tape inputs and outputs with dubbing capability; a preamplifier section that separates from the power
amplifier for easy upgrades, or for adding additional equipment to meet future system needs; a 12V trigger for remote
on/off switching, and an IR input and output on the rear panel. Also available are two preamp outputs, allowing bi-
amping — the use of separate power amplifiers to drive the bass and treble sections of a speaker. The first preamp out
includes a level trim control to allow matching amps or speakers with different sensitivities. The second preamp output
can be used to connect a powered subwoofer. Price is £1,000, with £70 for the optional PP375 MM/MC Phono Card
Module. For more details, call +44(0)1279 501111 or click on www.armourhe.co.uk.



EAST LIFE

We hear that respected British audio designer and World Designs supremo Peter Comeau is moving to China to oversee product development for Wharfedale, Mission, Quad, Castle Acoustics and Audiolab, as the new Director of Acoustic Design at International Audio Group. Peter's responsibility is to oversee the teams developing new products for all IAG's domestic audio brands. He will be largely based in Asia, where IAG's factories are situated, with frequent visits to IAG's UK facilities in Huntingdon, Cambridgeshire. Peter's appointment marks his return to the Mission brand, which he left in 2005 prior to its acquisition by IAG. Everyone here at *Hi-Fi World* wishes him well.



OH LA LA!

Parisian high-end audio specialist YBA has announced a new one-box media sever with 500Gb storage (and optional 1 Tb). The twenty five year old company — France's first high-end audio manufacturer — has unveiled the encore YS201, said to have been designed to outshine all its competition in both style and function. It allows the user to plug in a Plasma/LCD and speakers, "and instantly enjoy the very best in home cinema or musical entertainment", the company says. It is able to integrate with both Mac and Windows, allowing "the most simplified download and file share system of any home sever", it is claimed. It boasts full media capabilities, an AM/FM radio tuner, built in 2x40W amplifier and full HD 1080p video capabilities. The DAC is a Wolfson 8740 with Burr Brown 24-bit/192kHz upsampling. Prices are £3,390 for the 500Gb version, or £3,990 for twice the amount of storage. For details, click on www.ybadesign.com.

FORTUNE 600

TEAC's new Reference 600 Series comprises the AG-H600DNT Stereo Internet-Radio Receiver with DAB and the matching PD-H600 CD Player. Both are finished in black aluminium with a cool blue illuminated display, and the development input is by TEAC's high-end Esoteric team no less — responsible for some of the most revered digital replay systems in the world, claims the company! Audiophile-grade components are used throughout and new circuits have been carefully designed to simplify the audio signal path, thereby minimising signal degradation.

The £700 AG-H600DNT's amp section sports discrete dual-mono topology and a top-notch transformer. There's Internet Radio using the Frontier Silicon Venice 6 module and built-in tri-band wi-fi, making 10,000 radio stations accessible from the comfort of your armchair. The DS20 optional iPod Dock supports iPhone; remote control of iPod/iPhone playback and video output and the front-mounted USB port gives easy connectivity of external digital sources. There's also a 3rd generation DAB alternative for UK radio devotees. The amp pushes out 2x 75W via a toroidal-core power transformer from Direct FET Power MOSFET devices. Vital statistics are 295x90x320mm and 6.8kg. The matching £400 PD-H600 CD player sports a USB port and iPod playlists are accessible from the remote control. The mech supports CD, CD-R/RW, MP3 and WMA discs, and runs from a toroidal transformer and drives a 24bit/192kHz Delta-sigma D/A Converter. Vital statistics are 295x90x320mm and 5.8kg. Total price of the package is £1,000. For details, click on www.teac.co.uk or call 0845 130 2511.





THE GREAT OUTDOORS

Armour Home announces the OutCast Jr, a weather-resistant, wireless loudspeaker from Soundcast Systems. Featuring "a unique design that enables music enthusiasts to enjoy rich, multi-directional stereo sound anywhere within a range of up to 350 feet", OutCast Jr lends itself to outdoor applications requiring greater mobility, such as beach visits and garden settings. The system consists of a 60W digital amplifier, a downfiring 6.5-inch woofer, and four omni-directional drivers for 360 degree stereo in an 18 pound package. The plug-and-play kit includes a rechargeable 12V NiMH battery, an external charging kit, 240V power cord and a 12V adapter cable for automotive applications. The OutCast Jr is sold without a transmitter. Users can then purchase either the company's iCast transmitter, which supports Apple iPod- iPhone products and line-level inputs from other audio sources, or the Universal AudioCast Transmitter (UAT), which supports a USB connection to any PC or Mac as well as connections to any audio input device through a line-level jack on the UAT. Transmitter kits include various cable combinations from 3.5mm minijacks through RCA connectors. Each transmitter can send signal to two OutCast or OutCast Jr's or combinations thereof. The OutCast Jr has a new feature that enables the user to designate it as a right or a left channel so that in a two OutCast Jr application, a true stereo soundstage can be achieved.

OutCast Jr will retail at a suggested price of £399.99 without transmitter. The iCast transmitter carries a SRP of £75.00 and the UAT transmitter is priced at £95.00. For more details, call +44(0)1279 501111.

PARALLEL LINES

Avid's new arm-specific alignment gauges are said to be "100% precise to the arm involved". Currently with models for SME, Rega and Linn arms, the design's mirrored surface is said to make all measurements easier and more accurate. The mirror's parallax effect allows the elimination of sighting errors, and provides better lighting, critical in making fine adjustments on small parts. The two null points on the specific alignment tools are surrounded by parallel lines, making cartridge body alignment, both front and rear very precise and the long 'tail' alignment line is extended so that the stylus itself can be checked and aligned in case of cartridge manufacturing errors. Price is £26, although there's also a universal version for £24. See www.avidhifi.co.uk.



BIG BANG

Tympanic Loudspeaker Systems' new 'Model 4212T' loudspeaker stands 965mm high by 262mm wide by 320mm deep, and incorporates two of the very latest 165mm dual-cone Tympanic loudspeaker drivers, providing a substantial improvement in the performance of patented Tympanic technology, it is said. These are combined with two additional 165mm single-cone high quality low-to-medium frequency range drivers, while frequencies above 5kHz being sustained with two high quality 25mm dome tweeters. The loudspeaker has a nominal impedance of 4 ohms with a power capacity of 120W RMS and a claimed frequency range of 25Hz to 30kHz, plus or minus 3dB. For further information please contact Tympanic Loudspeaker Systems on (02) 64581266 or click on www.tympanic.com.au.



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• The Broken Bones	• The Broken Bones	• The Broken Bones	• The Broken Bones

THE BEST OF WOLFGANG'S VAULT

1. The Broken Bones	07/11/1988
2. The Broken Bones	08/11/1988
3. The Broken Bones	09/11/1988
4. The Broken Bones	10/11/1988
5. The Broken Bones	11/11/1988
6. The Broken Bones	12/11/1988
7. The Broken Bones	01/12/1988
8. The Broken Bones	02/12/1988
9. The Broken Bones	03/12/1988
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CLICK ON THIS

www.wolfgangsvault.com

This online music portal sports a huge amount of live recordings of great bands from years ago - including Elton John, Black Sabbath, Little Feat and Grateful Dead - sound quality is generally good.

ISLAND LIFE

Hart Audio is a brand new "high end" hi-fi retail outlet, and the only one on the Isle of Wight. They stock Exposure, Raysonic, Audiovector, Anatek Research, Silver Arrow, and Audiophile Base. Call 01983 612 924 or 0787 232 2768, or click on www.hartaudio.com for details.



Film Star

Martin Logan's new CLX Linear electrostatic loudspeaker is a flight of fancy for the few. Noel Keywood joins the jet set..

"While I solemnly agreed to change into black and meet in

due course in the workshop" said Gilbert Briggs, founder of Wharfedale, after hearing the first demonstration of a full range electrostatic loudspeaker in 1955. Quad's first electrostatic sounded so good it seemed to spell the end of the conventional box loudspeakers, which Wharfedale were making in large quantities at the time. It didn't turn out like that of course, for reasons that Gilbert later lists, but since then a small group of dedicated manufacturers around the world have continued doggedly onward developing this esoteric way of producing sound. Premiere among them is Martin Logan, who launched a new top model one year ago, the £25,000 CLX Anniversary.

But I'm not reviewing it here. Instead I am looking at the newly launched standard production model, the CLX Linear, which you'll be pleased to know is much less expensive - just £15,990! It has all the same working parts and sounds identical to the Anniversary, I am told, only the price and level of finish are different.

If £16k, less 10p, seems like a lot of money to spend on something that uses Clingfilm instead of loudspeaker cones to move air - it is! The CLX's best known rival is Quad's 2905, priced at a slightly more accessible £7,990 and the little known Kingsound Prince II from Hong Kong, fit for paupers at a devastatingly low price of £2,995 and reviewed by me in our April 09 issue. The Prince II and the Quads give amazing sound so the big CLXs should, in a sane world, give proportionately more. But as I ruefully watch open Bentleys drive this way and that directly the sun comes out I realise that for some, £16k is a mere bagatelle and proportionality doesn't come into it. For some, only the best is good enough and they can afford it, in which case the CLX Linear nicely partners the Bentley. The rest of us can at least dream - or perhaps sneak a visit into a showroom to hear what an ultimate electrostatic sounds like, or hope that their importers, Absolute Sounds, will have them on demo at the Audio 09 Show in September (see www.chestergroup.org). If so, it could even be me that demonstrates them to you, because I'm slated to run demos

at that Show and need a pair of electrostatics! I am adept at hustling manufacturers for a good cause, so we'll see...

Having just returned from an after-6pm session in our listening room rounded off by the stridently forceful yet insinuating voice of Ariel Ramirez singing 'Missa Criolla', backed by a heavenly choir stretched slightly above me in a wide arc across the room, with a power and delicacy that was both awesome and beautiful at the same time, I'm reminded that big electrostatics border on a religious experience. If you want a choir of angels singing with heavenly purity from wall to wall across the end of your lounge then there's no better way to achieve it than this. Vocalists sing slightly from above - I preferred to sit just below centre - and are perhaps slightly larger than life image wise, making their presence imposing. The CLXs look big and the sound stage they throw is every bit in keeping with their physical size.

But you will need a big room, because the CLXs stand 176 cms high and are 66 cms wide so they have a looming presence. They fire as much sound backwards as forwards - there is no cabinet - and the rear sound needs to be 'lost' to some reasonable degree if midrange and high frequency muddle is not to set in. We ran them 6ft forward of a rear wall and had 22ft to play with down our 28ft room. Behind them, against the wall, were placed absorptive panels to soak up higher frequency rear radiation. This turned out to be fine tuning however. The CLXs drive a room over a large area and are reasonably uncritical about their environment, I found. Like the Prince IIs they dominate it acoustically and sound balance did not change dramatically down the length of the room - there were no low frequency

"the sound stage they throw is every bit in keeping with their physical size..."

pressure nodes. Even off-axis the sound balance held up, although being a directional dipole treble does fall away. However, so much musical energy is being pumped into the room and bouncing off the walls that the diffuse field is strong and I could walk around and still appreciate music. Because of their sheer size though a room at least 20ft long is needed and 30ft or more would be ideal. Being relatively wide they don't blend in visually and need to be 8ft

or so apart. At 56kgs apiece they are weighty too, and can be tilted forward or backward by adjustable spikes.

The CLXs have a tall, narrow treble panel for smooth lateral dispersion, flanked by large, flat bass panels. Total area is increased by a single side baffle, to smooth and deepen bass. This is an issue with any open panel loudspeaker - the bigger the panel area the deeper the bass.

The CLX comes in handed pairs, the treble panel on the inside edge as usual, for a smooth response untainted by reflections off the bass panels. They need mains power, to generate a static charge on the moving film, which carries a special resistive coating.

So why is the CLX so costly? One significant benefit of Martin Logan panels is their transparency to sound produced by the Mylar film diaphragm, that must disperse through the perforated stator panels. The company also use a curved cross section and strengthening ribs for mechanical strength, and a special coating to prevent high voltage arcing and make them safe. As a result the treble panel is acoustically very transparent, as well as visually transparent of course. This is a lot different from Quads, that have an array of protective covers that obstruct the flow of sound from their film diaphragm. I removed both the outer sock and protective metal grilles of Quad ESL-63s I once used and this improved resolution of fine detail significantly, so it is an issue with electrostatics. The bit you need to hear is buried deep inside, like the filling of a sandwich, and if its properties of low mass and minimal colouration are to be appreciated then the acoustically transparent perforated panels of Martin Logans are likely the best way of doing so.

The vertical high frequency panels work from 350Hz all the way up to 20kHz. Below 350Hz Martin Logan use double layer bass panels to develop sufficient bass drive, comprising two driven films sandwiched by three stators. They are split into sections of differing sizes to avoid a single main resonance, Martin Logan tell me.

Electrostatics are known for bass that 'drifts' from the loudspeaker, bass that lacks slam. With the CLX



Treble panel is curved to smooth frequency response and improve dispersion.

Martin Logan have eliminated this by increasing motor power, to overcome air load damping (which is considerable), and they have extended front-to-rear path length by the use of that single side baffle. So the CLX has been designed to deliver bass slam, yet it draws almost no bass current (or power) from an amplifier to do this, due to high impedance below 100Hz. This is especially complementary to valve amps, minimising bass distortion.

In their handbook, which you can download (go to www.us.martinlogan.com/literature/manuals_current.html), Martin Logan suggest the CLX is kept away from side walls, but Peter Walker of Quad liked to use side walls to increase panel area and, therefore bass, pushing Quads up against them. It strikes me this positioning will suit a long narrow room - then the wide walls are best damped using curtains or such like, Martin Logan suggest. Our measurements show the CLXs go very low, down to 40Hz (-6dB), which is lower than most box loudspeakers, and their dipole radiation pattern little excited our listening room's main mode at 24Hz, something I also noticed in use. Wherever I listened in the room, even against a wall (which is a high pressure point) there was no bass boom, or 'room boom'. So the CLX has strong



bass that runs deep, but it does not excite room boom and this helps keep things lean and clean. This is a positive feature of dipole radiation and contributes to bass quality, but you won't find it discussed anywhere because how a dipole works in a room is little understood - and probably not understandable either without the aid of computer modelling.

One of the many drawbacks of

"If you want a choir of angels singing with heavenly purity from wall to wall, there's no better way to achieve it than this..."

electrostatics that Gilbert Briggs went on to list was limited power handling. This is another area where Martin Logan's electrostatic panels excel. Quoted power handling is a massive 225 Watts, but this is peak power. The suggestion here is that amplifiers up to 200 Watts or so per channel be used. However, our measurements showed the CLX has a reasonably normal sensitivity of 84dB Sound Pressure Level from one Watt (2.8V) input so they

will work from low powers, unlike the Prince IIs, and in use our Icon Audio MB845 valve power amplifiers never swung more than 20V peak (50 Watts peak) across them - playing Darkness at shattering volume! So the big CLXs don't demand big power, giving plenty of leeway in amplifier choice. As always I recommend a valve amplifier; the transparency of an electrostatic like the CLX does transistor amplifiers no favours at all (I tried one and it sounded like a cat being strangled). Worse, anyone aware of an electrostatic foible

that Gilbert never did

mention may have spotted in our tests that the CLX falls to 1.5 Ohms load at 20kHz and some transistors may blow if faced with delivering a strong signal into this, whilst valves are unaffected.

SOUND QUALITY

I'll talk about bass quality first because that is where the CLX really does deliver and where it justifies its

price. In the past I have had glimpses of awesome bass quality from electrostatics, mainly from a friend's pair of Quad ESL-57s positioned at right angles to side walls in a long, narrow room. Improbably, he played reggae through them and I'd never quite heard bass like it, because there was no box boom nor the waffle that comes from overhang; it was clean, tuneful and tight mechanically, and beautifully expressive artistically. Well, now I have - and better, for not only do the big CLXs deliver clean, tuneful bass, they also have unlimited bass power it seems, more than my ears could tolerate anyway. I mentioned earlier the air load on a big panel damps it well, preventing overhang - and it is this last property that struck me most about the CLXs. Take a big drum roll like that at the start of Steve Earle's 'Copperhead Road', a favourite tester of mine, and the drum has wonderful resonant power but there's slightly less characterful richness because of the complete absence of box whoomph - then the sound stops suddenly and cleanly. This gives an unusually clear sense of rhythmic pace with perfectly explicit timing. The CLX gets it all very right at low frequencies in a way that few others can approach. The absence of room boom I mentioned earlier eliminates subsonic waffle, so the emphasised walking bass lines that are a feature of Angelique Kidjo albums strode along cleanly, with a lovely sense of pristine power and nothing following in their wake, the background phantom of decaying room resonances. I can't say how this compares with Quad 2905s, which have bass panels, because it is some time since I have heard them, but the Prince IIs were less even in their bass. Also, where the Prince IIs had a slightly dry balance due to their low

midrange suckout the CLXs sound tonally even and perfectly natural.

Whilst the way bass notes stop is something that had me spellbound, because electrostatic bass is a chimera of perfection that the CLX makes a tangible reality, at the same time there are other sides to this. Firstly, not every recording has a bass line captured in perfect fidelity and the CLXs do make this rudely obvious at times. So spinning 'Cherry Oh Baby' had the bass line sounding obviously soft and undistinguished, but that's what you might expect from old 1970s recording made in a Jamaican reggae studio. Spin the UK UB40 version from 1984 and the differences are obvious. Bass apart though, early reggae stood up very well through the CLXs, the simple studio mixes making for an uncluttered and natural sound stage on which individual musicians and backing singers were clear in both outline and contribution. But then, early Elvis recordings made on quality Westrex equipment shame the middle of much of today's over-mixed studio output. The CLXs surprised me at times by taking what you might expect to be grungy early seventies recordings from a decrepit Kingston studio and showing that in truth their simplicity is a strength that allows the atmosphere and musicianship to shine through.

Whilst on the subject, I did notice that the rumblingly low content of Robbie Shakespeare's bass line on 'Make 'em Move' was lighter than I am used to from big ported loudspeakers; the very lowest frequencies are there but have a little less power than from a box. However, there's a trade off here: cabinets with ports will shake a large room subsonically, but that same energy blurs bass lines too. The CLXs are surgically clean and correct in what they do, but partly because they don't emphasise ultra lows.

The stunning clarity of the CLX had most impact with solo artists singing centre stage, because they construct a large but sharply outlined image, with celestial positioning above the listening axis. So Toni Braxton sang down at me, plucked guitar strings in the opening of Spanish Guitar coming at me with lacerative speed. With the resonant decay of each string tailing away into a believable acoustic ambience, and Braxton's every draw of breath, movement of lips and smallest intonation painted larger than life before me I couldn't help but sit there stunned. Listening later, Editor David Price said, "well, there's no criticism to be made of that", and





The base houses a power supply. It has single-wire inputs that accept 4mm plugs, and it has two light switches.

that understatement sums up the CLX in basic outline: an electrostatic so well crafted it is an 'other world' experience. But still, let's get a bit more into it...

Those guitar strings had just a smidgen of enhancement, a sheen that I found I could adjust down slightly by toeing the CLXs a few degrees in or out. The cause is visible in our frequency response plot: there is a small amount of high frequency lift above 8kHz, just enough to shed a little extra light on higher frequencies. This brings added bite to plectrum against guitar strings on Jackie Leven's 'Desolation Blues', much as it did to Toni Braxton's 'Spanish Guitar' - and also helps etch stereo images more strongly. Especially where there's a wide stage spread of individual percussion instruments, as at the start of Sade's 'Diamond Life', where the CLXs bringing more substance to each than most loudspeakers. Their balance was also less dry than the Prince IIs, giving Leven's deep Celtic drawl a firm sense of body.

The contribution of backing singers and instruments is picked out with forensic precision, helping me spot a little embellishment from one singer whispering a small Spanish phrase behind Toni Braxton, one that it is probably best I don't understand! I was constantly aware of a wealth of fine background detail through the CLXs, and this made obvious the amount of activity in many performances, behind the foreground vocals and main instruments, the funny twiddling of drum sticks that seems to be going on behind the Zuton's 'Valerie' for example.

The smooth, punchy bass of the CLX brought both acoustic power and visceral impact to the many bodhrans used by the Chieftains at the start of 'The Fokie', their assault pressing me back in the settee. This is where the CLX matches conventional loudspeakers in sheer power, but surpasses them in control and clarity. Sinéad O'Connor's sparse, plaintive delivery, projected forcefully from centre stage made me hold my breath, the tremolo in

her voice clearly underlining the message of personal loss in the lyrics. Performances like this are simply breathtaking from the CLX, arguably unmatched by any other loudspeaker currently available.

The CLX's abilities transfer over to classical music without limitation. They make obvious that orchestral violin sections comprise many individual violins working together, rather than presenting a simulacrum of a group of instruments that is so common. Their physical presence wasn't distorted by the crossover phase anomalies that afflict conventional loudspeakers either. This fact alone brought a sense of natural embodiment to Nigel Kennedy's violin and made strings sound smooth and vibrant, as well as finely differentiated.

Tubas huffed and puffed fruitily in Korsakov's 'Scheherazade', brass sounding lovely and brassy, without the steely patina common from today's metal cones. The full sweep and scale of an orchestra was better conveyed by the vast canvas of sound

these loudspeakers project than the narrower letterbox sound stage of cones. With kettle drums having plenty of resonant power and choirs massive scale, I can't think of any way in which the CLXs could be found wanting with classical music.

Bearing in mind that electrostatic loudspeakers are a difficult technology to master, what Martin Logan have achieved with the CLX is impressive; they are a near perfect exponent of the art. Technically and subjectively their tonal balance is convincing, sound from the mylar film is unobstructed by the stators for unrivalled insight, detail retrieval and clarity, bass power is plentiful and maximum volume very high. They don't demand high power inputs too; I used 24 Watts (rms) maximum to go extremely loud in a large room. Gilbert Briggs would have been shocked to hear them, but he still would have listed the need for a large room to enjoy them and a pocket that isn't a lot smaller. So fetch the Bentley please James, it is time to visit the bank manager!

VERDICT ●●●●●

A meticulously crafted electrostatic that's free from traditional limitations, this is one of the very best loudspeakers money can buy.

MARTIN LOGAN

CLX LINEAR £15,993

+44 (0)208 971 3909

www.martinlogan.com

FOR

- sparkingly clear
- finely detailed
- powerful bass

AGAINST

- imposing physical size means large rooms only!
- price

MEASURED PERFORMANCE

The vertical high frequency panel of the CLX is a little directional, but less so than the budget Martin Logan models; moving the measuring microphone laterally in front of the CLX altered the basic high to low energy balance, rather than upsetting frequency response. This means midrange and treble remains as smooth and extended as our stepped sine wave analysis shows, moving up or down in prominence, as listening position changes, relative to bass and midrange frequencies below 1kHz. So whilst the CLX is listening position critical, it isn't too demanding in this respect. It also drove our 28ft square measuring room well, much like the Kingsound Prince II tested in our April 99 issue, giving a consistent sound over a wide frontal area.

Frequency response of the CLX is flat from 700Hz all the way up to 20kHz, so it will sound even in its midband and upper midband/treble delivery. Below 700Hz output is on average 3dB up, right down to 55Hz no less. With a monopole this would give a fulsome balance, but with a dipole it gives a natural balance, likely because the solid radiation angle and associated acoustic power is less. A low frequency peak at 60Hz (third octave analysis, not shown here) suggests there will be no lack of punchy bass. This looks like a carefully tailored euphonic

balance that will be easy on the ear.

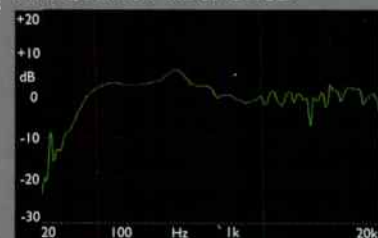
Electrostatics are usually insensitive but the CLX isn't much different from conventional loudspeakers in this area, producing 84dB sound pressure level from one nominal Watt of input (2.84V). This is far better than the 11dB less sensitive (73dB) Kingsound Prince IIs for example. The CLX is a similar amplifier load however, comprising a huge low frequency peak, our analysis shows, reaching a maximum of 125 Ohms at 16Hz, falling to 11 Ohms DCR at 0Hz and 1.5 Ohms at 20kHz. Above 100Hz impedance falls below 15 Ohms and the overall figure measured a normal 5.5 Ohms. The CLX is reactive at low frequencies only, which should not be a problem to amplifiers. Above 300Hz it is largely resistive, making it an easy amplifier load, except for the 1.5 Ohm minimum at 20kHz which could conceivably be too demanding for some solid-state amplifiers. Again, valve amplifiers cope best.

The loudspeaker's spectral decay over 200ms showed there is remarkably little colouration, a strength of the electrostatic, and decay is fast and even across the frequency spectrum, with a small amount of overhang at 60Hz as expected. Distortion

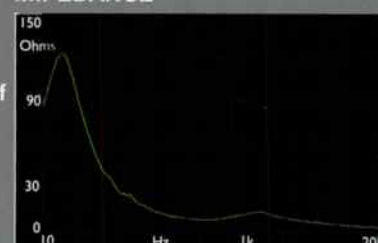
levels were a little above conventional loudspeakers and varied across the bass panel area below 100Hz, falling from 3% at 40Hz down to 1% or so at 100Hz, then around 0.3% up to 1kHz, falling to 0.1% to 6kHz.

The CLX delivers a smooth yet extended sound into the room, free from serious frequency response anomalies. The balance emphasises lows a little, for warmth and body, and low bass output is strong and deep. Its basic accuracy and smoothness of output is excellent for such a big panel, it drives the room evenly and colouration is extremely low, so this is a quality design. NK

FREQUENCY RESPONSE



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Upstaged

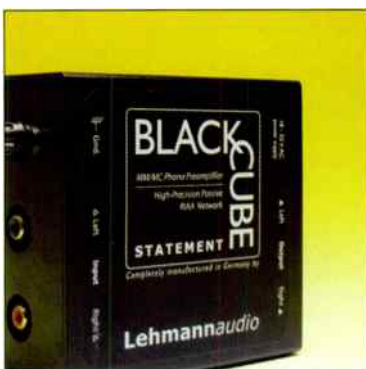
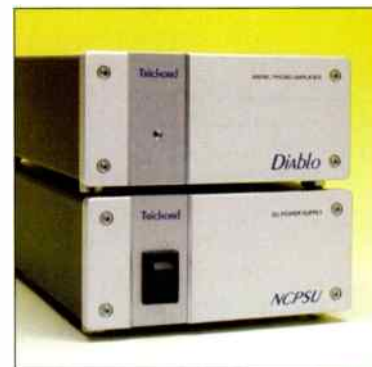
Phono stages have now been with us for over twenty years, and since then the breed has gone from strength to strength. But prospective purchasers face vast differences, not just in price but in sonic presentation - making them something of a minefield for bemused buyers. In this month's group test, Tony Bolton samples six very different designs, in an attempt to make sense of it all...

Twenty years ago, what we used to call 'off-board phono stages' were an expensive and comparatively rare product. Anoraks would probably argue that it was the Linn Linnik that begat the breed in the mid-eighties, but it wasn't until the Michell ISO at the end of that decade that the genre really took off. Now though, they're everywhere – in all shapes and sizes, and prices range from less than a tankful of petrol to more than many will ever pay for a car. But what to make of this all?

Well, here we have gathered together a wonderfully disparate group that encompass solid-state discrete transistor, solid-state op-amp based, valve based and even battery powered. The price range runs from £325 to £2,000. So does spending more, get you more? Well, to attempt to give a level playing field across such a wide selection, each one was run in extensively, then connected up for several days continuously, then compared back-to-back using a range of records from Menuhin playing the Mendelssohn and Bruch Violin Concertos, via Jacques Loussier Trio and Dusty Springfield to the Progressive Trance sound of Human Blue. Enjoy!

REFERENCE SYSTEM

- Clearaudio Master Solution turntable
- Clearaudio Satisfy Carbon tonearm
- Ortofon Kontrapunkt a cartridge
- Leema Acoustics Tucana amplifier
- Chario Ursa Major loudspeakers



THE CONTENDERS

- LEHMANN AUDIO BLACK CUBE STATEMENT p16
- A.N.T. AUDIO KORA 3T LTD p17
- TRICHORD DIABLO NC p18
- ICON AUDIO PS3 p19
- HOLFI BATT2RIAA p20
- ANATEK MCR p21



LEHMANN AUDIO BLACK CUBE STATEMENT £325

The original Black Cube was introduced in 1995, and quickly won itself a reputation for offering both good performance and value for money. Since then this little 103x108x45mm metal box has undergone several modifications to keep it competitive. The current model boasts an entirely passive RIAA network using 'high precision foil capacitors', and an MKP one for bass coupling. All resistors are of the low noise metal film variety. Underneath are two banks of four dip switches to set the gain for either MM or MC type cartridges, and the MC loading to either 1k Ohm or 100 Ohms. A third position allows for the fitting of an internal card for custom loading the impedance. All switches have gold plated contacts. On opposite sides are two sets of gold plated phono plugs for input and output. The former sports an earth binding post, whilst the other side contains the mains socket for the supplied 'wall-wart'.

SOUND QUALITY

Starting off with the pounding trance of Human Blue's 'Electric Roundabout', I found the performance of this little box to be quite sprightly, although the bass was not particularly tight. Moving to bass-driven acoustic music, and I found the Jacques Loussier Trio's 'Play Bach No.2' served up a reasonably sized soundstage that stayed just within the speaker boundaries, but was of moderate depth. The little Cube was happier when not being asked to explore seriously low notes, whereupon

the results were pleasantly engaging. There was a bit of upper mid congestion which occasionally gave the piano a slightly glossy tone, and robbed the sound of its shape a little. That said, the simplicity of the Trio's sound was there for all to enjoy.

The more complex harmonics and wider harmonic range of the Philharmonia Orchestra under the baton of Walter Susskind confirmed my thoughts about the upper mid. The combination of Menuhin's lead violin and a full orchestra could get a little busy at times. The sound didn't get confused, rather it began to blend into a homogenous mass of bowed orchestral instruments, and imaging

became vague, failing to identify the exact location of the first and second banks of violins. Tonal balance was good, although the colours were painted with a fairly broad brush. I felt the Lehmann was at its best playing guitar bands, where its punch and energy could be focused over a smaller group of instruments.

The Black Cube Statement is a flexible and reasonably priced product, but I feel it's a little dated, however. It is at its best when keeping things fairly simple - feed it folk and indie bands and you will be pleased with what you hear - but if your taste runs to more complex fare then it's well worth spending more.

MEASURED PERFORMANCE

Our analysis of equalisation accuracy, or frequency response, shows the Lehmann has the not uncommon balance of slightly accentuated high frequencies, which will add to its sense of insight and detailing. This balance also aligns the sound of LP better with CD, for better or worse according to taste. The Black Cube gave identical results here in MM and MC mode.

Gain with moving magnet (MM) cartridges was a standard x110 (41dB) and with moving coils a useful, but not high, x1164 (61dB). Both values are on the lowish side meaning volume will have to be wound up on insensitive amplifiers possessing a 400mV input sensitivity. The Black Cube overloads at 6.2V out, setting input overload at a satisfactory 56mV with MM cartridges and 5mV with MC cartridges.

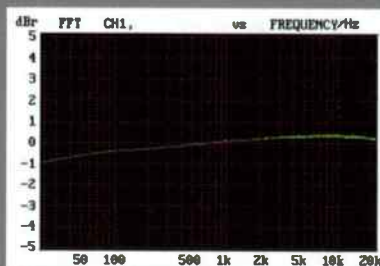
Noise (equivalent input noise, A wtd.) was low at 0.5uV with MM but surprisingly high with MC, measuring 0.17uV against an expected 0.08uV or so, making the Black Cube around 6dB

hissier than rivals, so it is not ideal for low output MCs.

The Black Cube Statement is a little off the modern pace, but it measures acceptably well, ignoring hiss with MC. NK

Frequency response MC	12Hz-56kHz
Separation (MM, MC)	90dB
Noise (e.i.n. MM, MC)	0.5uV, 0.17uV
Distortion	0.002%
Gain (MC)	x110, 1164 (41dB, 61dB)
Overload (MC)	2mV, 56mV in / 5V out

FREQUENCY RESPONSE



VERDICT

Compact, competent budget design with flexible loading options.

LEHMANN AUDIO BLACK CUBE STATEMENT £325

Lehmann Audio
+44 (0)1235 511166
www.henleydesigns.co.uk

FOR

- flexible loading options
- punchy direct sound.
- focused sound stage

AGAINST

- lack of refinement
- stiff competition



A.N.T. AUDIO KORA 3T LTD £775

This comes in a rather unassuming black extruded aluminium box, measuring just 48x91x133mm and tipping the scales at a bare kilogram. At the back are the usual input and output sockets, and power socket for another 'wall wart' power supply. This is a more substantial affair than that of the Lehmann, and may be a little awkward to fit in to some gang sockets. The right hand side of the back panel contains the earth terminal and a small knob for fine-tuning the DC operating point of the circuit. It works by slightly changing the DC bias of the circuit allowing a little 'tuning' of the phono stage to the cartridge. Factory preset has the pointer at the 12 o'clock position, with adjustment available from the 7.30 to 5.30 positions. After a bit of experimentation I settled for the factory preset and got on with the listening. There's an old motto which says "keep it simple", and Alex has done just that with just three transistors per channel, running single ended Class A, and a passive RIAA network.

SOUND QUALITY

Although the Kora 3T is over twice the price of the Black Cube Statement, I wasn't fully prepared for the jump in sound quality. The smoothness and detailing of the composite sounds of the Philharmonia Orchestra was a revelation. There was a maturity and authority in the performance of the Bruch that many aspirational units, several times the price of this, would have difficulty matching. The 3T Ltd's tonality was exceptional from a solid-

state unit, being dark and velvety and thus more akin to the best tube stages. An expansive soundstage extended to the outer edges of the speaker cabinets, but within that area a wealth of detail greeted the listener. Although not the deepest I have heard, it reached back far enough for the orchestra to have room to form themselves into their correct seating arrangement, and to be precisely located in their right places. The level of micro-information reaching my ears was a testament to the simplicity of the design. Menuhin's bowing was displayed clearly yet subtly, without the feeling that attention was being especially drawn to it.

Cellos and double basses had a solid foundation below the other instruments, creating a very cohesive and unforced sound. Staying with double basses neatly leads into Pierre Michelot's playing of jazzed-up Bach. The Kora caught the subtleties of

the swing and the rhythm that the Loussier team injected into 'Chorale' with aplomb. I found myself moving feet and tapping the arm of my chair to the beat. Changing musical gear to the 1965 album 'Everything's Coming Up Dusty' found Miss Springfield in excellent voice covering Little Anthony and the Imperial's soul classic 'It Was Easier To Hurt Him'. Again, the transmission of the beat caused spontaneous movement of arms and legs to occur, showing what a naturally beguiling performer this is!

The Kora is an extremely musical device that presents its message in a pleasantly understated way. It's not shouty, forced or explicit – quite the reverse in fact. It has a dark, beguiling nature that you don't expect from a device at this price, and such a natural musical gait. The only caveat is that there's an upgraded version coming soon, with a better power supply – I can't wait to hear this.

MEASURED PERFORMANCE

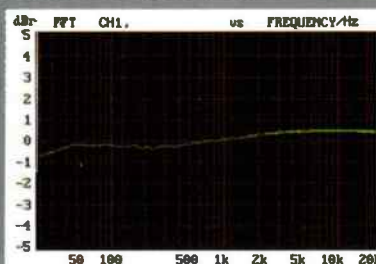
The equalisation of this stage was dead accurate, with gain rolled off slowly below 40Hz to a -1dB point at 22Hz, so there is some lowering of gain (9-10dB) at warp frequencies around 5Hz, but the Kora does not have an IEC warp filter. It will sound tonally accurate, but with well weighted bass.

Input noise was very low at 0.07µV and gain a useful x1337 (63dB) for MC cartridges. An output overload ceiling of 5.7V transferred back to the input as 5mV, good enough figures for overload not to be an issue with today's cartridges.

The Kora 3T measures well in all areas. It is neatly engineered and will likely sound good. NK

Frequency response	22Hz-100kHz
Separation	73dB
Noise (e.i.n.)	0.07µV
Distortion	0.08%
Gain	x1337 (63dB)
Overload	5mV in / 6.7V out

FREQUENCY RESPONSE



VERDICT

Rich, expansive performer with a wonderfully musical demeanor.

A.N.T. AUDIO KORA 3T LTD £775
 A.N.T. Audio
 ☎ +44 (0)1803 833366
 www.ant-audio.co.uk

FOR

- balanced, neutral sound
- expansive soundstage
- snappy timing

AGAINST

- wall wart PSU



TRICHORD DIABLO NC £1,213.62

Another fairly compact unit, measuring just 117x190x55mm, the Diablo sports a crisp aluminium case finished in grey, offset by a brushed alloy fascia. This example was supplied with the optional Never Connected Power Supply which uses a system of switching the input current between two electrolytic capacitors via a diode bridge rectifier and a MOSFET switching circuit. Underneath the Diablo itself are four banks of dip switches, one pair controlling loading, ranging from 100pF to 1k Ohm. The others are for gain (74, 70 and 63dB for MCs and 52 or 48 dB for the MM setting). Internal circuitry includes Analogue Devices and Linear Technology audio-grade bipolar and J-FET operational amplifiers. RIAA equalisation is part passive and part active, using audio grade capacitors and resistors.

SOUND QUALITY

Starting with 'Electric Roundabout', the Diablo dived into the mix with gusto, bringing to the surface a range of textures to the sound that the other phono stages sampled so far made less obvious. This rather bright light brought to bear on the proceedings worked very nicely in the context of my own review system, vividly highlighting the use of synthesiser effects, and this was driven along by a tight kick drum. Still, the crispness of the Trichord's tonality did not do many favours to the surface noise present on a forty four year old mono pressing, but the definition given to Dusty and the instrumentalists gathered

around her was aided by the widest mono image I've ever encountered - impressive stuff

Wishing to provoke a reaction from the Diablo, I cued up 'Vicino a te', the final duet from Giordano's opera 'Andreas Chenier'. The action takes place during the French Revolution, and ends here with Chenier and his lover Maddalena in the Bastille, awaiting execution and singing of their undying love in a tune which culminates in an explosion of massed trumpets, rumbling timpani and crashing cymbals. My suspicions were proved right, as the sharp presentation of the music only just stayed within the realms of acceptability. Returning to calmer waters with the Loussier Trio and the detailing became more of a pleasure

again, as attention focused in turn on the piano on the left, the drums occupying the centre, with the double bass playing tunefully, if slightly dispassionately on the right.

The Diablo struck me as a listener's phono stage, rather than a dancer's one. Timing was very accurate, but a bit 'strict tempo' to my ears, lacking the more organic rhythms of the ANT Audio Kora 3T Ltd. This unit is all about clinical precision and vivid contrasts between dynamic light and shade.

Many will love the top Trichord, as it certainly would 'wake up' an overly laid back or loose sounding system. So adept at producing accurately staged and detailed sonic images, it nevertheless lacks a certain lyricism found elsewhere.

MEASURED PERFORMANCE

The analysis of equalisation accuracy and frequency response shows the Diablo has slightly accentuated higher frequencies, in the 75uS curve above 1kHz with both MM and MC cartridges. This will add a little to insight and detailing. Gain was maintained down to 10Hz; there is no warp filtering. As a result cone flap may occur with warped records but bass will be deep.

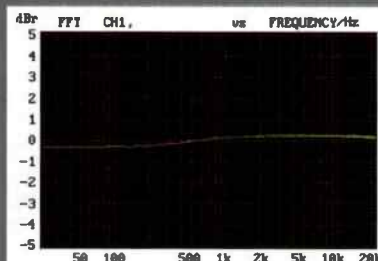
Gain with moving magnet (MM) cartridges was high at x230 (47dB) and x 400 (52dB). With moving coils it measured x1460 (63dB) and x3230 (70dB), with an option of x5850 (75dB). There's enough gain to cope with all cartridges and insensitive amplifiers requiring at least 400mV in. Overload occurs at 9.3V out, a high value, allowing healthy input overload ceilings.

Noise (equivalent input noise, A wtd.) was low at 0.06uV with MC and 0.08uV or so with MM, so the Diablo is very quiet. Distortion was minimal and channel separation high.

The Diablo is a well thought out phono stage with plenty of adjustment to cope with all cartridges. NK

Frequency response MC	10Hz-32kHz
Separation (MM, MC)	78, 68dB
Noise (e.i.n. MM, MC)	0.08uV, 0.06uV
Distortion	0.002%
Gain (MM, MC)	x230, x400, x1460, x3230
Overload (MM, MC)	41mV, 6mV in / 9.3V out

FREQUENCY RESPONSE



VERDICT ●●●●
Vivid, captivating and explicit sounding phono stage that's best used in smooth sounding systems.

TRICHORD
DIABLO NC £1,213.62
Trichord Research Ltd.
+44 (0)1684 292792
www.trichordresearch.co.uk

FOR
- super detailing
- good imaging
- precise timing

AGAINST
- needs careful matching
- cerebral nature



ICON AUDIO PS3 £1,399

The Icon Audio PS3 is a no compromise design based around four ECC 88s and a 6SN7 output valve. The PSU contains an oversize power transformer and an EZ80 valve as rectifier. regulation is via a 5687 valve, controlled by an ECC83. A chrome finished toggle switch on the front of the PSU activates blue LEDs positioned in the corners of the top of the chassis, as well as supplying power. A corresponding switch on the phono stage changes the signal from mono to stereo. To the left of this is a volume control, allowing the unit to drive a power amp directly if you wish to be a purist, on the right is another knob to select MM or MC input. This is fed from separate pairs of sockets for each type, mounted at the back, along with another toggle switch that allows the earth connection to be lifted, which sometimes improves the sound in some systems. It is a case of experiment for yourself

SOUND QUALITY

After the analytical Diablo, the more laid back and organic sounds emanating from the PS3 were a marked contrast. The PS3 did detail, oodles of it, but in a pleasantly understated way that reminded me of the exemplary manners of the Kora 3T Ltd. and its balanced and flowing account of the music fed into it. But this time there was seemingly endless depth, the sort that only thermionic circuits ever produce.

With Dusty Springfield, it wasn't the deep and elegantly presented bass or the gentle but

distinct rustle of shakers that struck me, but to the way I suddenly cared about the meaning of the lyrics of the song - the recounting of the regret at the pain caused to a loved one by a thoughtless moment. I felt involved with the emotion played out by the singer, as well as physically carried by the sway of the rhythm. Back to the Chenier piece and the effect was stupendous, the sudden speed of a crescendo having a physical impact on the listener. The musical roller coaster ride builds to a new level each time before the finale. The Icon presented it with a scale that reminded why opera is sometimes prefixed with the word 'Grand'.

The only quibble I could possibly have with this machine was the slurring of the ends of some of the very deep bass notes that populate 'Electric Roundabout'. It was only slight, and had seemingly no effect upon the foot driving beats of the tunes, yet it was not *quite* as tight as it should have been. This is the one area where the PS3 is not a stellar performer, and where the Kora 3T at half the price beats it roundly. Overall though, the Icon Audio PS3 is an exceptionally good phono stage, and a compulsory audition for anyone looking for one of the best. I felt that it lived up to the reputation it has earned in the pages of this magazine.

MEASURED PERFORMANCE

Equalisation accuracy was fairly accurate from 5Hz to 46kHz for MM, our analysis showing some emphasis of the 75uS characteristic above 1kHz, which will add a little sheen. Equalisation accuracy for MC had output rising steadily above 1kHz to measure +1dB at 17kHz, at maximum (and minimum) volume settings. The volume control rolled off upper treble a little, by -1dB or so at 20kHz, when at centre with both MM and MC. Low frequencies roll off below 7Hz so warp signals will be attenuated little.

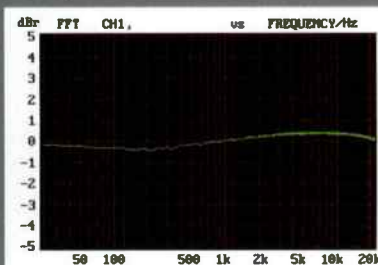
Noise was low via the MM input, measuring 0.7uV equivalent input noise, IEC A weighted. This is low so hiss will be inaudible with MM cartridges. On MC noise measured 0.09uV a little more than is possible with input transformers, but still relatively quiet. There was no hum either. Both MM and MC have very high maximum gain factors of x314 and x3000 respectively, so very low output MCs will be compatible. From just 0.1mV through the MC input the PS3 will deliver

300mV output to an amplifier, just enough to drive most to full output. Distortion and overload levels were fine.

The PS3 measures well in all areas, with a small amount of treble emphasis. NK

Frequency response MM	5Hz-46kHz
MC	7Hz-17kHz
Separation (MM, MC)	51dB
Noise (e.i.n., A wtd.)	0.08uV
Distortion	0.06 / 0.11%
Gain (MM, MC)	x314 / x3000
Overload (MM, MC)	150mV, 15mV in / 30V out

FREQUENCY RESPONSE



VERDICT

Sweet and sumptuous sounding phono stage with great scale and depth. Hard to beat anywhere near the price.

ICON AUDIO PS3 £1,399

Icon Audio
+44 (0)116 2440593
www.iconaudio.co.uk

FOR

- sumptuous triode sound
- depth and dimensionality
- facilities

AGAINST

- slight lack of low bass grip



HOLFI BATT2RIAA £1,580

The Holfi Batt2riaa, as the name suggests, is the mark 2 version of a battery powered, RIAA equalised phono stage. The original Batt2riaa was introduced in its native Denmark as long ago as 1994 and has recently been upgraded to the current model. The circuit is of single-ended topology, operating without global feedback. Transistors are used to amplify the current generated by the cartridge. The metal 450x80x320mm casework also contains the batteries. These are charged automatically unless the button at the front is pressed to override this. A mains switch is situated at the back beside the IEC socket. Two pairs of well spaced WBT Next Gen sockets, convey the signal in and out, and the unit can be configured for a variety of gains, but this does require a soldering iron, since the makers state that they find dip-switches too noisy.

SOUND QUALITY

With a noise floor way below that of nearly all mains powered equipment, the Batt2riaa promised true silence in-between sounds, and so it proved. The gap between tracks stretched like a featureless void until suddenly, the next track started. I have used battery powered phono stages before and have enjoyed their potential for purity of sound but found them to be hampered by a tendency to 'run out of steam' during crescendos and heavier passages. The Batt2riaa bucked that trend, coming a close second to the Icon Audio in terms of slam and the ability to move from quiet to loud in a split second. The Chenier

piece was spellbinding, the DC power giving a smoothness and flow to the sound that could certainly match that of the PS3, although the solidity at subterranean levels was not quite as good. However, the slight lightness of touch here gave slightly better shape to the bottom of the deep notes in 'Electric Roundabout' than the Icon managed. The rhythmic abilities of the Holfi certainly matched those of the Icon, which is no mean feat!

Replaying Menuhin, and I was fascinated by the deep pile textures of sound that flowed from the speakers. It was, I think, the closest I have come to thermionic bliss in a solid-state world. Stereo placement was stable, and the performers were detailed without being focused on

too closely. The ability to portray large scale music so effortlessly was complimented by the focus and flow of sounds from a more intimate performance. The Loussier recording showed off everything that it had to offer: a precisely populated soundstage, where the gap between the performers felt realistic, add the unforced detailing of the creak of shoe leather against the floor or the slither of fingers on a string, and I found myself pleasantly mesmerised.

The Holfi turned my preconceptions about battery power units on its head. This is one that holds a tune, and colours it in a vibrant and thoroughly enjoyable way. A truly special piece of equipment, it joins the PS3 as a 'must-hear'.

MEASURED PERFORMANCE

Equalisation of the Holfi preamp differed from most, a small shelf plateau down at high frequencies and a similar small lift up at lower frequencies giving a total 1dB variance across the audio band that will make the Holfi sound warmer or easier than usual, perhaps with more fulsome bass, our analysis clearly shows this. Nevertheless, the Holfi was accurately equalised from 7Hz to 32kHz within 1dB limits (2dB variance). There is no warp filter, gain extending down to the warp region, so cone flap will not be attenuated.

There was some measured distortion, rare in phono stages which usually use high feedback op amps, but at 0.24% second harmonic only at 1V out this is relatively small, with little subjective impact.

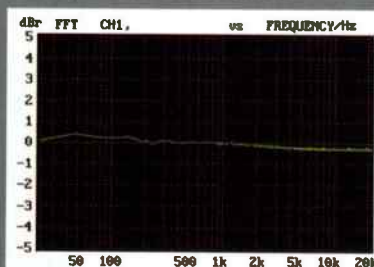
The Holfi is unusually free from hiss, a voltage gain of x2164 producing just 20uV of output noise, making equivalent input noise just 0.01uV (approx) IEC A weighted. This is 18dB quieter than the best rivals, most of which generate 0.08uV noise even utilising current-to-voltage step up

provided by a transformer.

The Batt2riaa measures very well and is an interesting design. It will sound smoother and fuller bodied than most in basic tonal balance and totally silent with even the lowest output MC cartridges. NK

Frequency response MC	7Hz-32kHz
Separation (MM, MC)	90dB
Noise (e.i.n., A wtd.)	0.01uV
Distortion	0.24%
Gain (MC)	x2124 (66dB)
Overload (MC)	2mV in / 5V out

FREQUENCY RESPONSE



VERDICT

Quirky but highly capable battery powered solid-state phono stage with great smoothness and insight.

HOLFI BATT2RIAA £1,580

+45 70278838

www.holfi.com

FOR

- incredibly quiet and smooth
- highly detailed
- fine imaging
- low surface noise

AGAINST

- no mono switch
- lacks visceral impact



ANATEK MCR £2,000

This is a solid-state unit, using an inductor on the enhanced RIAA circuit (Neumann Constant). There is no feedback in the gain stage and output is through a single-ended J-FET stage, chosen as being the "most musical". Input impedance is selected by the very effective method of inserting load plugs into a pair of RCA sockets. The 440x300x70mm casework sports a set of impressive cooling fins along each side. The fascia has a logo in the centre, below which are coloured LEDs - the red one indicating standby and the green denoting operation.

SOUND QUALITY

After the smooth, full bodied flow from the last two contenders, the Anatek was a major change. It has a very clean and precise sound, with a soundstage that is seemingly lit by arc-lamps. Everything is laid out for inspection, from the polish on the instruments themselves, to the pin-point precision of the placement of each and every performer. Even when presented with a full size orchestra I felt that each individual musician had their own floodlight marking their position. The low stringed instruments were accurately reproduced with no overhang on their notes, whilst violins were detailed to a point where I could count them. 'Play Bach No.2' in some ways benefited from this forensic analysis of the sounds. It was very involving, but also quite demanding on the listener since there was always something grabbing your

attention. By contrast, the Holfi laid sounds out for inspection, but left the choice of the closeness of that inspection to the listener...

This analysis also included the condition of the groove wall. I was all too aware that a less than new record was playing, although the snap, crackle and pop was sufficiently muted so as not to be intrusive. With mono recordings the Anatek gave a very precise but confined sound, the image occupying an area of about one third of the space between the speakers, being quite sharply cut off.

The MCR's sense of timing I would describe as majestic. There was the metronomic regularity reminiscent of the Diablo, but with a

greater sensation of authority behind it. Although the sound was firm and distinctly shaped, it still carried a fair bit of weight and solidity. The sound may be very bright and detailed, but do not mistake that for thinness. There was nothing insubstantial about the notes coming out of the speakers but they did not have the same 'hewn from solid' sensation that characterised the previous two.

An extremely accomplished product, prospective purchasers should nevertheless note that it's from the 'seat-of-the-pants' school of music making, rather than being a subtle charmer like the A.N.T. or Icon. Many will love it, but it's not for everyone, all things considered.

MEASURED PERFORMANCE

The MCR has a high gain of x1875 (65dB) so the 0.2mV or so from a typical MC cartridge will be delivered to an amplifier as 375mV or thereabouts - just enough for a modern solid-state amplifier with a low 400mV input sensitivity. Having a high output swing of 13.5V, the Anatek accepts quite a high maximum input of 7mV before overload, more than it is likely to ever see providing a very high output MC meant for MM stages is not used.

Equalisation was correct across the audio band, although a slight slowing of attenuation from the 75uS characteristic results in, effectively, a small treble lift at high frequencies, and considerably more above 20kHz, but since LP goes little higher than 30kHz the MCR's +1dB lift at this frequency is not especially consequential I feel.

At the low frequency end there is no warp filter to reduce subsonic gain and full gain is maintained right down to 0.5Hz so warps will be amplified. Bass quality should be fulsome though.

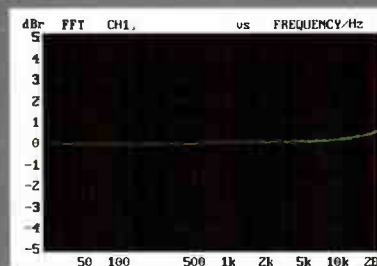
Equivalent input noise (IEC A

weighted) measured a low 0.08uV so the Anatek is quiet enough to accept the lowest output MCs, like Linns.

The MCR measures well all round. It is very accurate and possesses little noise so will suit all moving coil cartridges. NK

Frequency response	0.5Hz-33kHz
Separation	68dB
Noise (e.i.n.)	-76dBV (0.08uV)
Distortion	0.003%
Gain	x1875 (65dB)
Overload	7mV in / 13V out

FREQUENCY RESPONSE



VERDICT ●●●●

Striking sounding phono stage with a vivid, seat-of-the-pants presentation.

ANATEK MCR £2,000

Anatek Research

☎ +44(0)1273 261229

www.anatek-research.co.uk

FOR

- very strong imaging
- forensic detailing
- explicit dynamics

AGAINST

- too explicit for some!

Nothing added. Nothing subtracted.



Piotr Tomaszewski - Piazzale Degli Uffizi, Florence - Sunday afternoon

Music is a reflection of life.
A never-ending dance between your joys
and sorrows, ups and downs and that all
consuming can't-live-without-each-other love.
Music is our reality.

Nothing added. Nothing subtracted.



IN ADMIRATION OF MUSIC

www.dali.dk

World Radio History

This has certainly been a very mixed bag, and has contained a few surprises. The thing that became really obvious to me was the division of the contenders into two camps, based on presentational style. The A.N.T., Icon and Holfi are all what I could describe as "dancer's phono stages". They all transmitted rhythms in a totally seductive manner. The Lehmann, Trichord and Anatek were more cerebral in their sound, or "listener's phono stages". They didn't invite the listener to move so much, but instead offered a chance to look at what was on offer, and almost peruse it in slow motion. I think you, dear reader, can guess which I found more appealing to my aural taste buds - but this isn't to say that you might take a different view, of course.

The worst part of writing a group test is the inevitable ranking of items in order of perceived performance. The question of fair criteria when dealing with such a wide bandwidth of pricing can be vexed, but judging on performance alone, and then making adjustments for the price results in the following line up.

In sixth place comes the Lehmann Black Cube Statement. At its price point it offers a very flexible package that gives good value for money, but it is a base model and the limitations of its capabilities soon come to the fore when pushed by complex musical passages. It is fine in its own right, but makes the point that it is worth spending more, as there's a lot more performance available if you can possibly afford it.

"Does spending more bring more? Well, broadly speaking yes - but it's too difficult to generalise..."

In fifth place I put the Anatek. This will surprise some, given Adam Smith's tremendous enthusiasm for it in last month's issue of *Hi-Fi World*, but in my system and for my tastes I found it simply too revealing. It's a stunning performer, but still spends too much time obsessing over the minute detail in the sound rather than relaying it as a cohesive whole. I know it is the most expensive unit here, and over five times the price of the Lehmann, so there is a vast chasm between the two regarding everything from bandwidth to imaging. But they proved almost

extremes of one another. The relentless insight and analytical detail of the Anatek, in my system at any rate, was too much. This is a fascinating 'hi-fi case in point', as it shows you exactly why you should listen to equipment before you buy. Don't in any way take this as criticism of the Anatek, which is superb in its way, rather the ranking shows how different listeners can come to alternative conclusions about the suitability of kit to them and their systems.

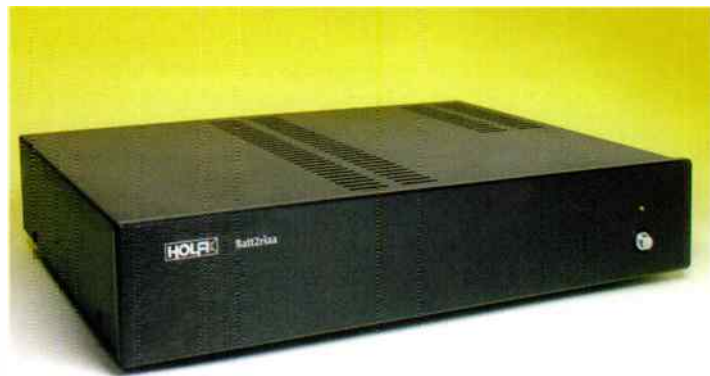
In fourth place comes the Trichord Diablo. Although it shared many of the traits of the Anatek, it was a little more restrained, and would I feel be easier to match into many systems. It's a very impressive device, and I feel a little overlooked recently. Those wanting a grippy, insightful phono stage to 'wake up' an otherwise oversmooth system would love this, and should avoid the following two...

The first podium position goes to the A.N.T. Audio Kora 3T Ltd. I loved the sheer musicality of this unassuming little box; it entices the listener into the music in a totally unforced way that's as effortless as it is beguiling. Especially given the price of £775, I feel the Kora 3T offers something a bit special to the listener, but do remember its deep, dark tonality won't go down well in less incisive systems. Editor DP's system is one of the most explicit I've heard, and the Kora worked brilliantly in this, but with smoother set-ups it

may sound bland.

The question of second place caused me some serious consideration. The similarities in performance between the Icon and the Holfi didn't make life easy, but the latter finally ended up in second place on the grounds of its lack of a mono switch, and the slightly greater weight and punch exhibited by the Icon Audio when the musical going got really tough. It's a brilliant bit of kit, the Holfi, so try it if you possibly can.

The Icon Audio PS3 just scraped first place by a *whisker*. A close race



and from an unexpected source. Based on previous experience of DC powered phono stages, I wouldn't have expected one to match the Icon in any way apart from smoothness. However, a truly awesome performance from the Danish visitor gave the Leicester contender a few breathless moments before being just pipped at the post.

So does spending more bring more? Well, broadly speaking yes, but it's too difficult to generalise. The A.N.T. Kora punches the most above its price and could soon be even more potent with the forthcoming new power supply that's just been announced. The Lehmann represents a good starting point but seems a little off the pace these days. The most expensive here, the Anatek was startling, but simply didn't 'float my boat', and the same could be said for the Trichord to a lesser extent. Ultimately I felt that the second and third most expensive units here offered the best combination of price, performance and facilities - so full marks to the Holfi and Icon Audio. The trouble with conclusions like this of course is that music tastes, systems, room acoustics and sonic proclivities are all very individual things - so the advice is as ever, go out and listen for yourself!

Page-plus

And so it came to pass that the company that brought us arguably the first turntable of the modern age now has a similarly special CD player on sale. David Price consults the new Oracle CD1500 mk II...

It's very important to know just who Oracle are. Back in the nineteen seventies, it seemed - for a while at least - almost impossible to escape the hegemony (for that's surely what it was) of the Linn Sondek LP12 turntable. Looking back thirty years (for that's definitely what it is), the British hi-fi press was absolutely dominated by this particular vinyl spinner. Now, lest we forget, this was three years before Digital so the venerable analogue LP was everything - the sole source of high fidelity mass music playback. So any turntable that was celebrated as the best was surely a thing to behold...

Lest we forget, superdeck after superdeck had come and gone; the JBE, the STD, the Ariston, the Logic. And as for those Japanese pretenders like the Trio L-o7D, well they just didn't get a look in. But lo and behold, in the summer of 1980, a turntable appeared on the UK market that at least some Linn-loving hi-fi hacks reluctantly admitted wasn't a million miles away from the LP12 in sonic performance. Those few British journalists who didn't have a strong allegiance to Castlemilk's finest even suggested it might be better. Whatever, it was certainly different - and superior in many ways.

The Oracle Delphi was launched in its native Canada in 1979, and was a truly epoch-making turntable. It took a while to get to the UK, but when it finally arrived it caused quite a stir, and looked like nothing else any of us had ever seen at the time. A skeletal design, devoid of plinth and with just a Perspex base upon which to sit, it had a clever suspension system that could be easily balanced to suit arms of differing weights.

Sonically,

compared to the Linn it was chalk and cheese - whereas the LP12 was warm and fluffy with a beguilingly bouncy sound, the Oracle had grace, space and pace. It was an altogether more forensic performer, but far more detailed and incisive. It's not glib to say that it was the shape of things to come.

Well, warp forward thirty years and Oracle still makes superb turntables - and Compact Disc players too. The CD1500 mk II is in my view almost as impressive as that classic vinyl spinner, the only difference being that unlike the original Delphi, it isn't that amazing breath of fresh air that first Oracle was. Now in 2009, we have a wide range of superb cost-no-object silver disc spinners around from a number of manufacturers, and it's these that the '1500 has to usurp. Also, there's no one single CD player that everyone agrees is best - those 'black and white' Cold War certainties are gone.

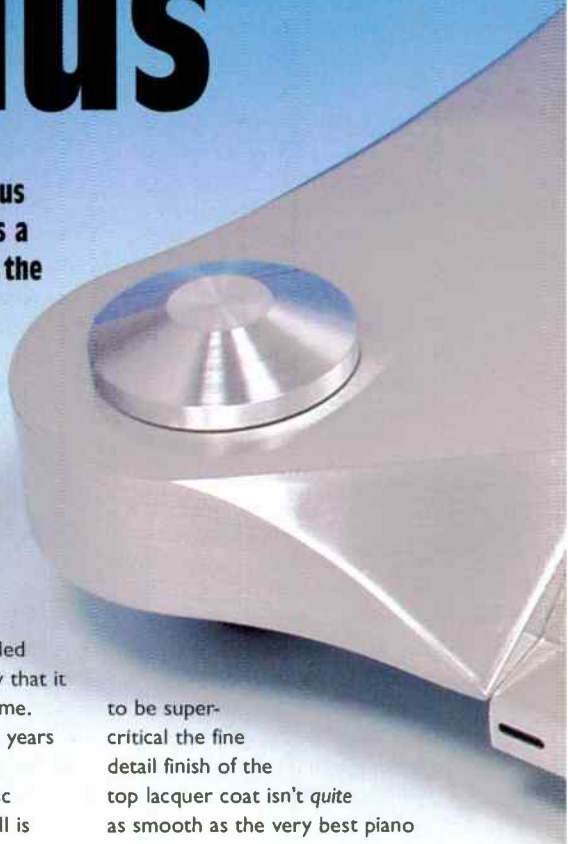
Still, whether or not the CD1500/II is a trail blazer doesn't really matter anymore. If you're in the market for an £8,000 16bit digital disc player, then all you're really worried about is whether the machine does the job of 'extracting' more information from your silver Frisbees than anything else at the price - and in my view this Oracle does, or at least is equal to the very best of the rest.

Just as with that seminal vinyl spinner of yore, the new Oracle silver disc player pays careful attention to the elimination of air and ground borne vibrations. To wit, rather than the almost obligatory 'box of air' - which has been the default CD player blueprint for many years - the 1500/II is hewn from solid aluminium, brushed on the outside and then lacquered. The result is a striking looking (and feeling) machine, although

to be super-critical the fine detail finish of the top lacquer coat isn't quite as smooth as the very best piano black lacquered loudspeakers you find. Still, it is heavy and, importantly, rigid - there's no possibility that its construction will bestow the casing with an acoustic guitar-like 'soundbox' quality.

Inserted into this 419x152x356mm heavy metal ingot is a top quality Philips CD Pro II mechanism, driving a blue fluorescent front mounted display that shows time and track information, but little else. The controls are front mounted, the metal buttons having a feel of precision. The aluminium chassis has four feet, which perform an additional isolating function to all that mass damping, and inside are the DAC and analogue output stages. The former is a 24bit Crystal Semiconductors CSA4390 128 times oversampling type. The analogue output stage offers a choice of balanced or non-balanced outputs, the former being chunky XLR sockets, and the latter Cardas Rhodium plated RCA connectors.

There's a BNC socketed, S/PDIF digital output, plus a power socket that connects to Oracle's chunky 800V external power supply. This is supplied with a long lead, so you can run the two a good metre or more apart should you wish. Completing the picture, a superb full function hand brushed aluminium remote control is supplied. Finally, as per all Philips CD Pro mechs, there's a small magnetic puck supplied which is recommended for use, and the





Oracle also works best with its lift-on/lift-off metal disc cover.

SOUND QUALITY

Having tried both balanced and RCA outputs, in my system at least, I preferred the RCAs. The former had a typically (for balanced) more robust bass and the sense of a slightly lower noise floor, but the latter proved a little sweeter and more subtle, and so the bulk of the listening was done this way. Also, despite the apparently excellent acoustic isolation of this machine, I still noticed it performed better on Audiophile Furniture Base platforms - two, to be precise, in stack formation. Needless to say, placing the power supply unit on another Base platform further improved things.

Properly warmed through then, and correctly fettled with some fine Silver Arrow Daddy Paladium interconnects, I found the CD1500/II to be a startlingly modern silver disc spinner, boasting incision, speed and grip that I simply hadn't thought possible from a one-box player. Rather like that original Oracle turntable, the company's latest digital

audio device is a wholly unromantic tool; if it's an immaculately airbrushed version of CD with all its blemishes ironed out that you crave, then you'll have to look elsewhere. Instead, this player gets 'down and dirty' with the detail of the recording, seeking to retrieve it all rather than just give the bits it can find a makeover...

One of the first songs I played on the Oracle was The Police's 'Message in a Bottle', and the result was electrifying. A tremendously intense performer, the machine dug very deep into the groove of the song and expelled massive amounts of energy out into the room. Whereas The Police can sound insipid on CD via most machines, this player was able to provide an enthralling rendition, all centred around Stewart Copeland's 'machine gunner' drumming. Whereas lesser CD spinners would have matter of factly conveyed that he was hitting a good number of skins, the Oracle took you right up to the front of the kit, whereupon you could 'see' (hear) every last flick of those

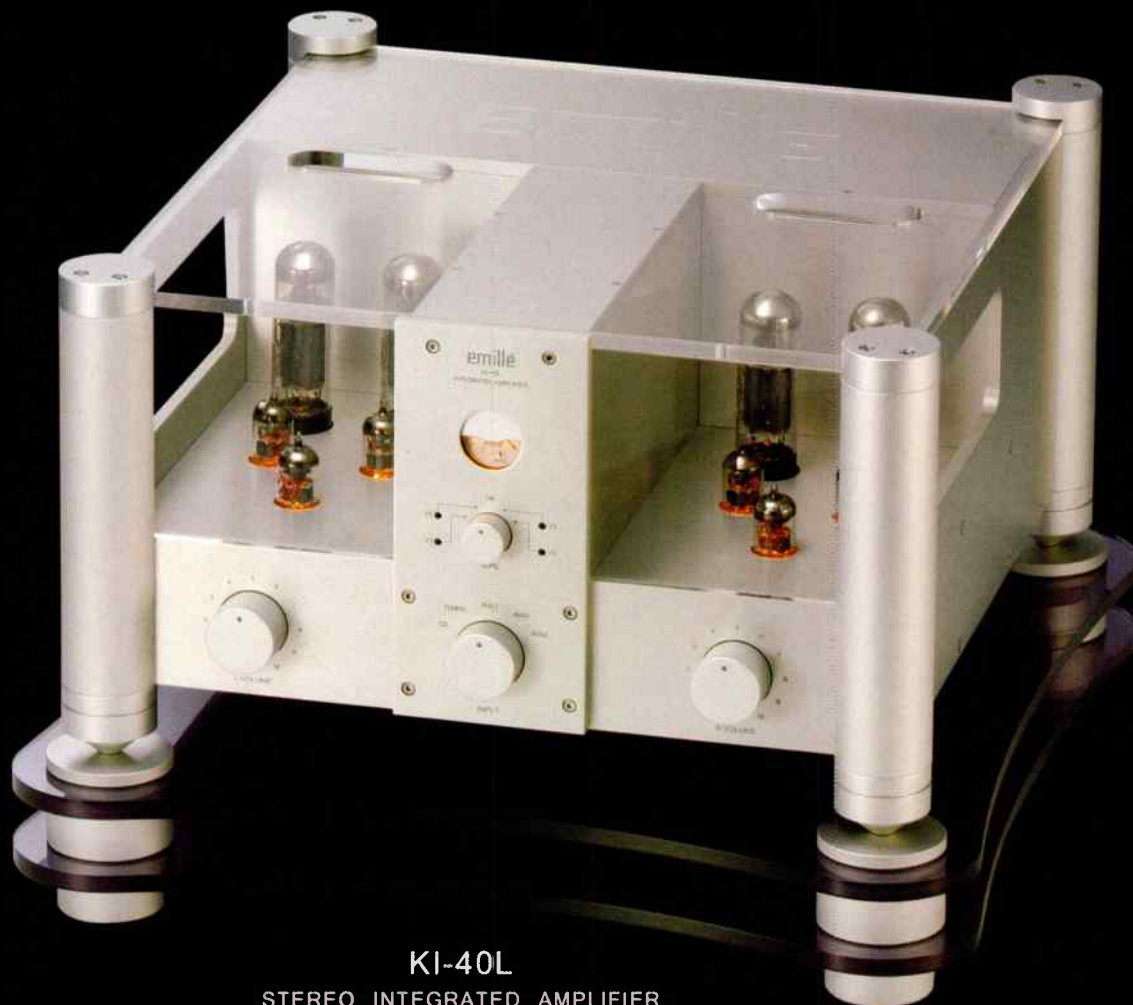
sticks, every last timbral ring of the cymbals, and every thump of the foot pedal onto that tightly strung bass drum. Via the Oracle, The Police became 'Stewart Copeland featuring Sting and Andy Summers', and 'Message' was merely a vehicle to showcase the brilliance of the big American's stick work.

Well almost, because despite nailing that incendiary percussion work down to a tee, it gave a rich and beguilingly rhythmic rendition of Andy Summers' brilliant snatched guitar chords, and Sting's breathless but impassioned vocals. Best of all, it let all the various elements of the recording cohere beautifully, turning this into one of the best ever renditions of the song I've heard - digital or analogue. With adrenaline fuelled power pop, I found the Oracle to be majestic. This player lives and breathes dynamic contrasts much in the same way that the Naim CD555/PS555 does at a whopping £6,000 more.

Moving to a SACD of Simple Minds' 'New Gold Dream', and I'd

emillé

just for your musical bliss



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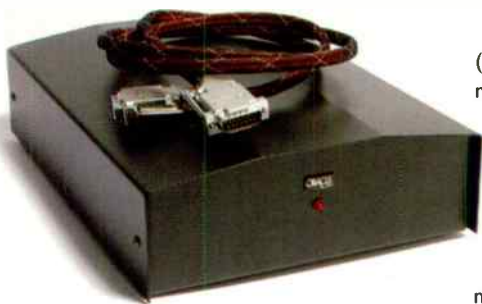
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been listening to this in SACD mode on an Arcam DV139 for a good long while before I 'paged' the Oracle, in CD mode. Now, the Arcam's not a bad Super Audio Compact Disc player and so I wasn't expecting a rout, but sure enough the Oracle playing the CD layer ran a merry dance around the Arcam in SACD, despite the latter format's obvious superiority, all other things being equal. The smoothness and sweetness coming from the '1500 was superior to the Arcam despite the poorer source material, but there was so much more energy and grip there. The seemingly rather random drum solo work on 'Big Sleep' suddenly gained structure and form via the Oracle, rather than being a mere assemblage of drum strikes, while the bass line took on great grip - the bassist suddenly appearing to know where the song was leading to. I was also struck by the quality of the cymbals; they're lovely via SACD and usually a little coarse via the standard 16/44 PCM route, but despite its gripping and engaging nature, the '1500 served up a commendably smooth hi-hat sound, which is about as good as I've heard from CD.

Rose Royce's 'Wishing on a Star', an exquisite late seventies disco ballad with soaring strings and a virtuoso vocal performance from Rose Norwalt, showed that the Oracle wasn't all blood and guts. Despite the song's silkily soft arrangements, it was carried with tremendous emotion. Delicate enough to capture that lead vocal line in all its majesty - just like the

best analogue moving coil cartridge tracing an LP groove - I found myself seduced by this silver disc spinner as well as impressed by it. Tonally it is not soft and sumptuous in the way that some CD players equipped with tube output stages can be, but it never sounded wiry or 'transistory'. Instead, it threw up a vast soundstage, pushing way beyond the plane of the speakers



(both forwards and backwards), making my reference Yamaha NS1000Ms dissolve into space in a way that is not easy for them to do, especially via CD. Bass was powerful and tuneful yet not overblown, treble was sweet and delicate yet not subdued, and the midband was alive with nuance and

"I am sorry to say the Oracle CD1500/II has rather confounded my prejudices against the Compact Disc format..."

detail. Another blinder! And so it was that I ran the gamut of my sizeable silver disc collection, finding this to be one of the most enjoyable digital sources I've ever set ears on. Despite its 'up front and at 'em' style, it never veered into harshness. The opening bars of 'Tour de France Etape 01' can often grate through my reference system, sounding just a tad too close to distortion for comfort, but it came through with surprising smoothness in spite of the bright ray of light it cast on the proceedings. A Deutsche Grammophon transcription of a classic eighties recording of Beethoven's 'Pastorale Symphony' (Karajan, Dresden Philharmonic) which can sound quite sterile - mechanical even - via silver disc was living before my very ears with jaunty rhythms and breathtaking dynamic contrasts. Classic ambient house, in the shape of The Orb's 'Little Fluffy Clouds', was blissfully warm and fulsome, the Oracle serving up vast tracts of bass, performing the sonic equivalent of earth moving - yet there was such delicacy to the gentle hi-hat percussion and synthesiser effects.

CONCLUSION

A slight sinking feeling accompanied me as I ran through my various collection of silver discs - and it's one I rarely get. How so? Well, I'm sorry to say the Oracle CD1500/II rather confounded all my prejudices against the format. Whenever I polemicise

against Compact Disc's risible 16bit resolution in future, saying how sad it is that we've been stuck with such a crude thing for so long, in the back of my head will be machines like this - reminding me that, properly done, CD can run the best of vinyl very close. This startling machine takes the very best of the format (pure,

clean, shiny, unadulterated music) and brings it to the fore without any of the attendant nasties (harshness, blandness, sterility). It is unusually revealing of the mastering of different discs, I found, and yet it seems able to get the best from all of them nevertheless. Overall then, a brilliant high end machine that deserves as much success as its turntable antecedent. The only thought is - the original Delphi arrived three years before the beginning of the end of vinyl, so what does the new CD1500/II signify for longevity (or otherwise) of ye olde CD? Page the oracle, someone!

VERDICT ●●●●●
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- AGAINST**
- price

MEASURED PERFORMANCE

Frequency response is almost ruler flat up to 21kHz our analysis shows, measuring -1dB down at 21.2kHz, the normal limit for CD, via unbalanced (phono) and balanced (XLR) outputs. So the Oracle is accurate, although this balance does nothing to ameliorate the strident top end of many CDs.	-6dB	0.004
	-60dB	0.4
	-80dB	4
Distortion levels were reasonably low, if not class leading, the telling -60dB result of 0.4% being double that of many modern machines. It was obvious during distortion measurement that there was more noise than usual and this degraded the EIAJ Dynamic Range value, returning a poor figure of 103dB, which is 7dB worse than common nowadays. All these figures were identical through unbalanced and balanced outputs. Noise measured a reasonable -97dB all the same.	Separation (1kHz)	80dB
	Noise (IEC A)	-97dB
	Dynamic range	103dB
Output was high at 2.7V unbalanced, and 4.4V via the balanced XLR outputs.	Output (bal.)	2.7V (4.4V)

FREQUENCY RESPONSE

DISTORTION

THD 23456789	Input RMS	Frequency
CH1 0.4036722 %	-60.00 dB	INPUT 2 (PUSH 2)
CH2 OFF	OFF	OFF

Frequency response (-1dB)
CD 2Hz - 21.2kHz

Distortion
0dB CD 0.012

Bright Stuff

Paul Rigby shines a little light on Acoustic Energy's latest Radiance 1 standmounting loudspeakers...

Life's odd isn't it? I often sit, with toast poised above a gaping boiled egg, raising my head slowly from the depths of Ian Kershaw's biography of Adolf Hitler, so as not to spill any knowledge from my noddle, and think – if you had decided to go left instead of right, what would have happened? Take Adolf. If he had decided to get into a spot of painting and decorating instead of being disillusioned with his rejection from the Vienna Academy of Fine Arts, would he have grown up trying fend off thousands of armed Bolsheviks soon after his defeat at Stalingrad? After all, slopping on a couple of coats of gloss is a steady earner and leaves no time at all for mischief...

Mat Spandl faced a similar turning point, but without any armed Bolsheviks for company. When he graduated, he assumed he'd be entering the automotive industry. His thing was vibration or, rather, *preventing* it. His future was assumed to be making engine mounts and cutting the vibrations at source whilst investigating car noise control. And then MG Rover went bust, which put him off seeking employment in that sector. So what did he do? As a fan of speakers he joined Acoustic Energy, involved himself in the design of some of the company's most recent models and now, with the Radiance series, is the ground-up designer for the Radiance 1 bookshelf pairing you see here. Life, eh?

from view. Most companies, when constructing such a shape, put the MDF into a hot press to soften the wood and then bend it. "What we do is a bit different. We cut into the wood, through most of the thickness, at 5mm intervals," said Spandl. "The deep cuts make the MDF very soft and flexible. We then bend it into the cabinet shape and brace it at right angles to the front baffle with MDF to hold it – so it's very rigid."

This inherent 'softness' makes the cabinet non-resonant while the curve in the cabinet reduces standing waves inside the box that would otherwise colour the sound - producing, in worst cases, shrieking.

The internal bracing, apart from stiffening the cabinet walls, also attempts to hold the tweeter still. "The trouble with small, two-way speakers," mused Spandl, "is that the drive units tend to bounce around. Some of that energy is then transferred to the tweeter, shaking it. The bracing doesn't touch the tweeter but tries to prevent any shaking in the first place."

The well finished cabinet is topped off with two sets of binding posts to enable bi-wiring, not a practice which is wholly supported by the designer, it has to be said. He prefers the sound from a single set. However, the option is there if you feel the need.

The tweeter is noticeably different from the norm. Whilst most tweeters on the market are

With a dome tweeter, at a certain frequency, the sound breaks up because the dome can't move fast enough and the manner in which it breaks up affects the sound. With a radiated design, the two rings provide a smaller unsupported area which reduces that break up. Hence colouration is minimised. The result should be a very natural and open treble performance.

So why doesn't every speaker manufacturer use this type of tweeter? Well, there is a downside. The large unit, measuring 40mm, at high frequencies, does have a tendency to beam the sound instead of evenly dispersing it across the room. To counter that potential problem, Spandl has utilised a DXT waveguide, created by Mike Thomas. This shaped metal plate sits behind and around the tweeter. The waveguide also matches the dispersion of the tweeter to that of the mid/bass driver when the crossover level is reached. This means that the overall response should be more even. The bottom line being that more people should receive better sound across a wider variety of room types, say AE.

The mid/bass unit is new and designed by Acoustic Energy but is still constructed of aluminium – a company trait. "Aluminium is very stiff compared to plastic, paper and Kevlar," explained Spandl, "meaning that the break-up frequencies of the sound within are much higher." If designed badly, aluminium cones can sound hard. If you flick a metal cone it will return a metallic 'ting'

"the decision to tackle distortion right from the off is critical to the entire philosophy of this loudspeaker..."

The Radiance 1s, measuring 320x185x250mm and weighing in at 8kg apiece, are a neat, modern, design available in Russian Ash and Antique Ash, "or light and dark," Spandl added rather laconically. The cabinet itself is an interesting feature. Yes it is formed with curved walls but that's not exactly new. The innovation is hidden

dome-based, this example features a ring radiated design, where the soft parts of the tweeter actually form two concentric rings. Produced by VIFA, which is the only outfit that produces this unique design, Spandl chose the tweeter because it offers exceptionally low distortion but, at the same time, very high tolerance.





so such a cone design needs low internal damping. Spandl had to design the rubber edge of the cone very carefully experimenting with different rubber types, formulations, thicknesses and so on to draw the energy out of the cone to prevent ringing. "The rubber compound we use is called IIR and the cone centre has a pointed aluminium dustcap which is strong and aurally neutral."

Another addition to the design make-up is the new voice coil, designed to dissipate heat more efficiently and, thus, improve sound. An inefficient coil will affect the crossover characteristics during loud volumes when more heat is produced.

Speaking of the crossover, this

unit uses as few components as possible – in fact, it only has four where the company's previous generation of speakers had eleven or twelve. AE believes that each extra component on a crossover removes detail and replaces it with distortion while blurring timing and dynamics. One of the worst offenders for that, said Spandl, were the resistors – so they've all gone in the new design. Also, the capacitors were hand picked. In fact, Spandl spent much of his time testing a wide variety – twenty different sets - of capacitors which, he said, all sounded different.

SOUND QUALITY

A note on positioning. Give a clearance of around 18in from the

wall. Don't toe-in the speakers completely, either, so that the treble unit is pointing at your head. When you're sitting you should be able to see the inside surface of the cabinet to receive a more even treble dispersion. Height-wise, you shouldn't be able to see over the top of the cabinet or see the upper surface. If so, you're risking the speakers sounding a little bright. By the same measure, if the speaker is too high, the output can sound a little dull. The treble unit should be placed at ear height. I plopped mine on a pair of solid Atacama HMS 1 stands.

Starting with the Sugababes on CD and 'Stronger' from 'Angels With Dirty Faces' (Island), and I was immediately struck by the sense of

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control and clarity, but the most impressive aspect of the performance was the almost complete absence of distortion, as Noel's tests confirm [see MEASURED PERFORMANCE]. The tonal balance was also very impressive – which is saying something on this CD. Yes, you can hear the damage done to the midrange via the excessive peak limiting, not to mention the splashy treble, but none of these inherent problems translated into the normal screeching and whining because distortion had been stripped. Instead, upper bass exhibited clarity and control whilst lower bass power was startling for a two-way bookshelf loudspeaker.

Carol Kidd's 'A Nightingale Sang In Berkeley Square' via 'Dreamville' (Linn) was, through the AEs, one of the most mature and assured performances I'd yet heard from a box loudspeaker. New details revealed included a subtle reverb on the acoustic guitar solo and the piano was given a fuller presentation, sounding more of a partner to the guitar in the mix instead of being buried into the background. The Radiance 1's competed well with the Sendor's S3/5R (£725) which, while offering smooth upper mids and a deep bass for the small cabinet, suffered when compared to the Radiance 1s with masked mids and a lack of treble air and sparkle. The John Blue JB4s (£654) fared no better presenting an uneven tonal balance and a lack of bass definition when directly compared with the AEs.

Vinyl was even more stark, as the removal of distortion opened doors during the

playing of Kate Bush's 'π' from 'Aerial', allowing her complex vocal textures to really shine. Bass guitar was coolly tracked with superb detail and transparency. In fact, if you were going to nit-pick the Radiance 1s at all, the tendency to provide an overly cool presentation could trigger an accusation of a lack of excitement and involvement. However, this is a (very) minor criticism that is more than made up by the sparkling cymbal crashes, upper mid detail and bass control. Neither the Spondors or John Blues could compete. The former suffered from a veiled treble and subdued upper mids, whilst the latter suffered from strained upper mid performance by comparison to the dominant Radiance 1s.

CONCLUSION

Acoustic Energy's Radiance 1 speakers offer many appealing aural features that are wholly pleasing to the ear. However, the key to them is one overriding and singular element: distortion, or lack thereof. Mat Spandl's decision

to tackle distortion, right from the off, before he even so much as picked up a piece of MDF, has been critical. Not only to the subsequent design, but to the entire philosophy and approach of this speaker. Keep the distortion hanging around and your ears and brain don't want to know. Remove distortion and you allow a whole gang of possibly beneficial sound components to wing their way towards your ears. Acoustic Energy gained a rare talent when Mat Spandl took a right instead of a left, joining the hi-fi industry instead of messing around with Metros, and the Radiance One shows why.

REFERENCE SYSTEM
 Avid Acutus turntable
 SME IV tonearm
 Benz Glider cartridge
 Icon PS3 phono stage
 Naim CD5 CD player
 Aesthetix Calypso preamplifier
 Icon MB845 power amps
 Quad ESL-57 (One Thing) loudspeakers
 Chord Anthem 2 interconnects
 Chord Epic Twin loudspeaker cables
 Atacama Equinox XLPro SE Hi-fi Rack
 Atacama HMS 1 stands

MEASURED PERFORMANCE

The Acoustic Energy Radiance One is characterised by an impressively flat audio band response, with a few tweaks, as it were. There's a small but broad lift around 4kHz, just enough to enhance vocal intelligibility and also lift strings from a mix. There's also a strong lift at low frequencies, across the 100Hz-300Hz region, enough to add warmth and body, and also strengthen output lower down, the bass unit reaching down to 70Hz our pink noise analysis shows. Below this frequency the port takes over, extending output down to 45Hz. With port output measuring +10dB more than driver output at 80Hz, it's contribution is strong.

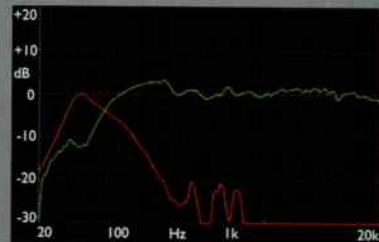
The impedance curve is fairly well controlled, showing the usual midrange peak caused by rising bass unit coil inductance, before the treble unit comes into play above 3kHz, pulling the curve down again as energy is drawn. The Radiance has a high overall impedance value this trace shows, one that measured out at 7.3 Ohms. This partly explains a fairly low sensitivity value of 83dB, meaning the small AE needs quite a lot of power to go loud, around 60 Watts at least.

The long term 200ms decay spectrum clearly shows the Radiance One is colouration-free, managing remarkably well in this test, so it should sound clear, clean and open. Also well controlled was distortion behaviour, with just 1% above 50Hz

from the bass unit and little more from the port. The port reached a reasonable 5% maximum at 43Hz, very good for a small loudspeaker. From 100Hz up to 6kHz level measured 0.2% or less, again a good result.

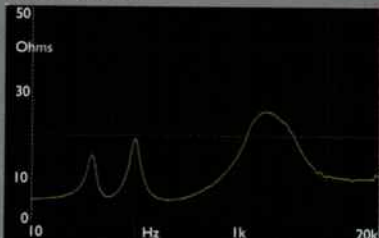
The Radiance One is accurate, smooth and clean, but with raised low frequency output to give it some bass heft. It will likely sound best on a stand, rather than against a wall, measurement suggesting a fine sound from a well developed product. NK

FREQUENCY RESPONSE



Green - driver output
 Red - port output

IMPEDANCE



VERDICT ●●●●●
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B&W PANORAMA £1,500

Getting into multichannel music inevitably requires a plethora of loudspeakers, and this makes a major (and invariably deleterious) impact on your domestic living conditions - boxes, stands and wires now sit where previously there was but lovely open space. For this reason, a profusion of 'soundbars' have appeared on the market of late, offering all five speakers in one unit designed to sit centrally, underneath the TV. Of course, this is potentially a sonic disaster, all too often giving next-to *no* sense of surround sound at all and a depressingly poor rendition of 2.0 music when called upon so to do. So with the Panorama, B&W have set out to elevate the humble soundbar to new heights of fidelity - and, it must be said, price!

The princely sum of £1,500 buys you a true one-box surround system, claim B&W. By the standards of the rest of the market, it's surely the most sophisticated, with nine drive units and digital signal processing to create a package said to deliver deep bass without the need for an external subwoofer. Interestingly, five



drivers are used in the centre channel section: an aluminium dome tweeter using the company's Nautilus Tube Loaded technology, two midrange drivers and two woofers. The other four drivers are used to provide the other channels, each in its own housing to avoid interference, and the whole unit is driven by six Class D amps, with a total output of 175W. Housed in aluminium just like the Zeppelin, it's a beautifully built bit of kit and sports two optical and one electrical digital input, along with and two stereo analogue inputs. The company has avoided video switching, "in the quest for audio quality", it says.

The result is surely the best sounding product of its type so far. The Panorama is a genuinely capable hi-fi product that can give a passable full range multichannel music and/or movie experience. Without the need for a subwoofer, it goes down

surprisingly low, with unexpected power and control, and remains quite enjoyably musical while doing so. In multichannel mode, the Panorama certainly fills a small-to-medium sized room, and even if it does not give true surround, it gives the sense of sound coming from around you as opposed to simply in front. In two channel mode, this new B&W cannot provide *true* hi-fi performance, but it certainly isn't bad, unpleasant or unlistenable - which sets it apart from every other soundbar I've heard. It's a crisp, smooth and musical performer, with only a slightly veiled treble to differentiate it from true hi-fi loudspeaker systems. Of course, the Panorama is a compromise, but space-strapped multichannel music fans might find it an elegant answer to their speaker woes all the same. **DP**

[Contact: +44 (0) 1903 221800, www.bwspeakers.com]

soundbites

AURIOS ISOTONE ISOLATION BEARINGS £190

Back in the old days, poorly designed, cheap turntables used to suffer from acoustic feedback - what the Americans used to graphically refer to as 'howlround'. In other words, when the volume control was extended, the thumping bass notes of the speakers would be picked up by the turntable plinth and this was fed back into the arm and cartridge. With that in mind, hi-fi units were often massive, to 'sink' vibration and damp resonances. These days, there are more diverse approaches to isolation, although mass damping still has many fans and performs well in many contexts. Alternatively, products such as these Aurios Isotone bearings work by displacing the vibration, turning into sideways motion rather than transmitting it up from the support. This is a complete system,

comprising three uppers, three lower bases and three sets of three ball bearings. All you do is position the bases in the correct places for the feet of your equipment, place the ball bearings in the recesses and put the tops on. Then, placing your CD player, amplifier or suchlike on top results in a component that 'wobbles' sideways in a uniform and controlled way when you push it, almost as if it was floating on air...

The manufacturer recommends that these are best suited to glass or metal shelves, but in truth I found them very effective with all kinds of support. Underneath my Marantz CD63 KI DP, I found them to imbue the sound with additional precision and focus, making the player's ever-so-slightly soft bass noticeably tighter and tauter, and locking the midband into better focus, with a fraction more low level

detail. Treble was marginally sweeter too, giving a better sense of rhythm behind intricate hi-hat cymbal work. Obviously, these are expensive accessories for £190, and those with middling systems might feel their money to be better spent elsewhere, but for higher end systems the improvement they bring to rhythms, detail and dynamics is not insignificant. Just a word though; your system support has to be level for them to give of their best, and they're a tad fiddly to use. **DP**

[Contact: +44 (0)20 8958 1004, www.ecsamplifiers.co.uk]



in there and with patience I suspect it will be possible to lessen room boom and improve bass quality generally, in rooms up to 26ft long (a half wavelength of 25Hz).

The PR-SC886 is well built, easy to use as AV products go, accompanied by a good manual, quite heavy and produces a fair amount of heat, so needs ventilation. I had absolutely no problem whatsoever linking it to Quad II-eighty valve amps and B&W loudspeakers, I should add.

SOUND QUALITY

I used the S/PDIF digital output of a Samsung BD-PI 500 Blu-ray player for CD, because our measurements show it has super low jitter. This gives a cleaner result with better defined leading edges and clearer time domain definition as a result. It reduces digital blur, as it were. And a tight grip on timing and pace were evident as Billy Idol's 'Don't Need A Gun' raced out of the blocks, its metronomic drumbeat forcing a fast tempo this system devoured. With

uses high quality digital-to-analogue convertors and I appreciated this by the simple purity of the sound, with its generous presentation of air and space around instruments and performers. Think relaxing and dimensional here; no nasties to induce the subliminal queasiness that warns you aren't listening to the performance, but a representation of the performance. I was happy with this result from CD; it was enjoyable. All the same, if I put on something sonically challenging, like the latest Kings of Leon CD, then it was obvious that there was a brittleness to the sound that made the buzz-saw vocal delivery challenging, so quality hasn't been exchanged for revelation. Better things were to come, however...

Staying with the Samsung BD-PI 500 Blu-ray player acting as a transport, I switched from digital connection into the Onkyo via optical cable (i.e. S/PDIF) to HDMI to listen to high definition digital. With the music-only Blu-ray, musical *Divertimenti* by the Trondheim Soloists in top spec. 24/192 code I heard one of the nicest balances to date from this quite challenging disc. There's intense insight into the strings and a torrent of filigree detail - and you sit within the ensemble, so it's immersive. But the sound can border on shrill too. In this system the strings remained challengingly

Britten's *Playful Pizzicato* grumbling weightily in the background.

Whilst there are few 24/192 music tracks available yet (2L have released two more music Blu-rays but Editor DP ran off with our samples! [who, me? - Ed.]), 24/96 code is becoming more common. John Mayer's 'Where the Light Is' Blu-ray, Live in Los Angeles, recorded in 24/96, is a good example of a clean and very well balanced modern live recording. Through this set up kick drum had plenty of weight at the start of *Vultures* and the band was spread across a wide sound stage in a very large venue on 'Waiting For The World To Change', Mayer's guitar sounding sparkingly clear and his vocals crisp and intelligible. Underpinned by a solid rhythmic backing this system showed it was expansive and dynamically expressive. I'm not a Mayer fan - 'Bold as Love' is just embarrassing - but this concert is well recorded and apart from the usual hollering of the audience(!) I was drawn into this Blu-ray. It's an enjoyable performance and shows what BD can do when attention is paid to sound quality, especially in the original recording. Much like live performances via VHF/FM radio, there's a simple almost analogue accessibility to the sound of these Blu-rays, probably because the live performance is "as is" and not mangled by heavy subsequent studio editing.

SACD offers about the best we can presently expect from digital, although it now seems to be confined to classical recordings where its smoothness is especially appreciated. I switched over to my usual Oppo DV-980H DVD player to send a native DSD stream through HDMI to the Onkyo preamp. With DSD Direct preselected in the Setup menu, pressing Direct on the remote control causes the PR-SC886 to signal DSD Direct on its display panel automatically, a nice touch. Pure Direct can then be selected to turn off the displays. With SACD the Onkyo was almost silkily textured; strings swelled from a deep sound stage in Rachmaninov's Piano Concerto No2, from an excellent Deutsche Grammophon recording with Lang Lang. With harshness absent and the sense of both body and substance to piano that the Quad II-eighties bring I found myself surrounded by the atmosphere of the Martti Talvela Hall, Finland, with some reflected sound only from the rears (i.e. you do not sit in the middle of the orchestra in this recording). The experience was enveloping and easy to assimilate, lacking the mechanical delivery of



Rear panel looks like a receiver, but has no speaker outputs. Instead it's dominated by eight large XLR outputs and two inputs. There are phono outputs too.

plenty of low end push behind the drum and a lovely presentation of Idol's crooning vocals, believably full bodied and surrounded by studio atmosphere, this classic Idol track from 1986 ripped out of the 'speakers like it should. Moving forward to 2007 and the Eagles 'I Love To Watch a Woman Dance' brought a crisper sound with better defined lows and a more expansive acoustic picture, but otherwise this system showed that even with the pace pulled back it still imposed tight timing.

With a generous low end, clear midband and easy treble, the track was engaging, softly sung lyrics drifting out from an open background free of hash and muddle. The PR-SC886 and Quads did a fine job together here, supporting a clean signal from the Samsung BD-PI500. Okay, it isn't an elegant transport to see or use, but music-wise it is an effective one and CD quality from these three items was superb in normal stereo, using Pure Direct of course. The Onkyo

intense but were smoother and the bodies of the instruments a little more obvious, adding some timbral richness to ameliorate the stark balance. Of the encoding options available on this disc I fancied DTS HD Master Audio was balanced a little more to favour lower end of the frequency spectrum, so strings were a little more euphonic; LPCM (Linear Pulse Code Modulation, or normal digital in simpler terms!) at 24/192 seemed most strident yet arguably most detailed; Dolby TrueHD was probably the best balanced of the three, sounding quite dry and concise, yet with slightly stronger lows and better sense of atmosphere. However, whilst it's interesting to hear what 24/192 can do, uncompressed as normal LPCM and losslessly compressed by Dolby and DTS, differences were again small between all three, as they usually are in today's receivers. The Onkyo preamplifier and Quads did a lovely job of reproducing this disc I felt, adding body and texture to instruments, plucked cellos in

solid-state and a welcome step up in quality as a result I felt. The same generous quality was apparent with the Vivino Brothers, saxophone having a nice fruity presence and good bite when played hard, drums a clear centre stage presence and solid kick, guitars cleanly outlined.

As I have found before, the SACD disc of Divertimenti was warmer in balance than the LPCM Blu-ray version, with no sign of shrillness. It was less forceful, but I felt more convincing, retaining the sense of deep filigree detailing but with a broader textural palette to describe instruments. The music had a better sense of flow too.

I've listened to Onkyo's VHF/FM tuners before and they work well, exhibiting the house sound of a full bodied midband underpinned by generous lows and a good sense of atmosphere. Fed from a big roof top array in Central London, pointed toward Wrotham and Crystal Palace transmitters, the Onkyo was quiet and its extended treble gives a slightly more open presentation than previous Onkyos, which had a trace of softness about them. I'm always impressed by VHF/FM and listening to Steve Wright on Radio 2 playing Golden Earing's

"there can't be many surround sound systems like this, but there should be, as it did everything I had hoped!"

'Radar Love' was a simple 'turn it up' experience! The tuner isn't an afterthought; it is a top quality design well honed and 'Radar Love' had both a punchy bass line and a suitable sense of propulsion; it was dynamic yet clear and natural in balance. Too many 'hi-fi' tuners nowadays lack low end drive, sounding neutered with Rock in particular. I spent hours listening to talk shows, Classic FM, Heart and the station once known as Virgin - and enjoyed every moment. If you like radio then the PR-SC886 has a great one inside, probably better than most now that broadcasters have decided VHF/FM lies in the dustbin of history, even though it does work brilliantly.

And finally to good old vinyl. Using a Rega P3-24 fitted with Goldring 1012GX cartridge the phono stage gave me a great sound, with plenty of low punch again and that lovely dynamism and broad sound stage the RB301 arm has. It's a more

than respectable way to play an LP collection, aided by decent front end electronics and of course the Quad II-eightys. With Pure Direct selected this system was no slouch with vinyl.

CONCLUSION

There can't be many surround sound systems like this, but there should be, as it did everything I had hoped! Onkyo's PR-SC886 might suffer AV overload, laden down with every bell and whistle you never knew you needed, and it's also large and runs surprisingly hot for a preamplifier, yet sonically it's a gem. Onkyo have fitted very good digital-to-analogue convertors, great SACD conversion, a wonderful tuner and a fine MM phono stage. Partnered with the supremely smooth Quad II-eighty valve power amplifiers it gave me a system that could play it all and as such it was a great music experience I thoroughly enjoyed.

VERDICT ●●●●●
Excellent AV preamplifier that plays everything to the highest audio standards.

ONKYO PR-SC886 £1,500
Onkyo UK
+44(0) 1494 681515
www.onkyo.co.uk

FOR

- handles all digital formats
- great VHF/FM tuner
- fine SACD decoding
- good phono stage

AGAINST

- big, yet runs hot
- fiddly

MEASURED PERFORMANCE

Via its analogue CD input and through to the phono socket output the PR-SC886 possess a useful x5.5 (15dB) of gain; this doubles to x11 (21dB) via the balanced XLR output. The overload ceilings are set by overload in the output stages at 5.5V via the unbalanced phono socket output and 11V via the balanced XLR output, so there's sufficient headroom to drive all power amplifiers. An analogue input signal through the A/D can exceed no more than 1.96V, a limit avoided by selecting Direct or Pure Direct. Distortion was very low at 0.0002% and noise also low at -90dB at full gain, Direct or Pure Direct selected, lowering to 85dB through the input A/D.

Frequency response of the VHF/FM tuner was flat, our analysis shows, and more accurate than most. It has an mpx filter to remove pilot tone at 19kHz, yet bandwidth was wide, reaching 15kHz (-1dB). Hiss was acceptably low at -68dB (IEC weighted) and distortion low at 0.1% (50% mod.). With good separation of 40dB and full quieting (minimum hiss) reached at 0.5mV (p.d.) from the aerial Onkyo's tuner is a good one, better than usual on AV equipment.

The MM phono stage was accurately equalised, although there was a small +0.3dB lift at 20kHz. Low frequency gain continued unattenuated to 2Hz, there being no warp filter. With very low hiss, good sensitivity and high overload this is a well designed stage.

Frequency response for CD through the D/A convertors via the optical S/PDIF digital input was absolutely flat, reaching 20.6kHz (-1dB). Distortion was low too, measuring 0.21% at -60dB

Results with high resolution digital were

excellent. 24bit PCM gave just 0.05% distortion at -60dB, four times less than CD. Bandwidth with 96kHz sample rate extended to 45kHz (-1dB) and 192kHz sample rate output extended up to 90kHz where it was -3.6dB down, our analysis shows. Set to DSD Direct SACD bandwidth reached 50kHz (-1dB) but extended up to 100kHz where it was -5.4dB down. SACD almost matched PCM linearity at -60dB returning a 0.08% distortion figure. A -100dB dithered signal was resolved with just 5% distortion - this is as good as it gets from DSD code.

Every part of the PR-SC886 meets top specifications. It is very strong with SACD, 24/192 PCM and even VHF/FM radio. It could hardly measure better. NK

Frequency response (Direct)	0.8Hz-120kHz
Separation	95dB
Noise (A/D, Direct)	-85/-90dB
Distortion	0.0002%
Gain	x5.5 / x11
Overload (unbal / bal)	2V in // 5.5V/11V out

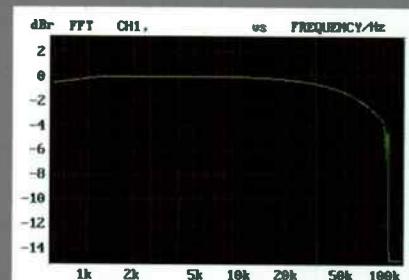
CD/DVD/SACD	
Frequency response (-1dB)	6Hz-45, 45, 50kHz
Separation	89dB
Noise	-106/107/108dB
Distortion (-60dB)	0.22, 0.05, 0.08%

Disc (LP)	
Frequency response	12Hz-26kHz
Separation	68dB
Noise	-81dB
Distortion	0.02%
Sensitivity	3.5mV
Overload	65mV

VHF TUNER

Frequency response	10Hz-15kHz
Stereo separation	40B
Distortion (50% mod.)	0.1%
Hiss (CCIR)	-68dB
Signal for minimum hiss	500uV
Sensitivity (stereo)	60uV

FREQUENCY RESPONSE 192k



DISTORTION, 24bit



DENON

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World Radio History

60 Something

Roberts' RD-60 is a charming retro radio with a pedigree, says Tim Jarman...

This is the latest in Roberts' line of 'Revival' radios that recall the styling of their classic models that adorned every affluent nineteen sixties kitchen. Indeed it's very closely modeled on the R200, which covered MW and LW and was considered a quality set at the time. This time the wavebands covered are FM with RDS and DAB, bringing the concept right up to date. As well as being a portable radio, the Roberts can also be used as an amplifier for a portable music player and a tuner for a larger audio system. The internal amplifier and loudspeaker are mono but it plays in stereo either through headphones or the line out socket.

The RD-60 BK reviewed came finished in gleaming piano black with gold plated fittings, including the aerial. It looks stunning, although the effect was spoiled by the gold disc in the centre of the volume knob being applied eccentrically so that it sticks up on one side, not what you'd expect for £200...

Roberts make a big play on both their packaging and their website about the "eco" credentials of this new set; 120 hours of play on a single set of batteries is claimed, a superficially impressive figure. To test this, the current consumption was measured. With fresh batteries the load was 120mA, a reasonable figure for a DAB receiver. On FM however where the simplicity of the task would lead one to expect the efficiency to improve, the power current consumption actually rose to 140mA! This is a poor result, as FM is still the most popular way people in the UK listen to the radio.

By way of comparison the Sony ICF-M50RDS radio on my kitchen window sill, which on FM offers much the same features as the Roberts, uses only a third of the battery power - so Roberts should look again at the power management circuitry in the RD-60. The heavy load that the RD-60 puts on its batteries means that 4 large D-sized cells are needed. In normal use they would last about

a month, making portable listening a potentially costly habit. Roberts do supply a plug-in power unit, but disappointingly it is of the 'wall wart' type. It would have been nice to have seen a proper mains transformer built into that ample cabinet...

Like most DAB sets, the RD-60 uses an LC display which is reasonably large but it updates slowly, making it difficult to quickly scroll through the available stations. The menus are easy to use once you get the hang, but it is not that intuitive. The software did get stuck on one occasion, rendering all controls inoperative. Roberts detail a procedure to perform a 'system reset' in the instructions, but I would prefer that the software was reliable to the point where this sort of thing was unnecessary! The makers should be commended however for providing a telephone helpline on a non-premium number, others should take note...

In use, the RD-60 came through with warmth and clarity. The volume control is compensated so bass is gently enhanced at low settings, making the sound full and rich. But don't expect this to continue right up the range though; at higher settings

where the bass lift falls away things get thinner and harder. In the original 1960s Roberts R200, the loudspeaker filled most of the metal grille area, these days one has to make do with a single 75mm round unit at one side bolstered by a reflex port. It does better than expected, but limits the usefulness of the auxiliary input - it's not going to turn your Walkman into a ghetto blaster!

The results from DAB vary with the programme content and the bit rate, Radio 4 at 128kbps sounds much the same as it does on FM but further down the scale the tonal quality deteriorates with exaggerated bass and squawky, phsey treble. Sensitivity proved good however, with little 'bubbling mud' in my reception area. Working as a tuner revealed a greater difference between DAB and FM; FM was clean if a little cold whereas DAB had a slightly confused sound with softly exaggerated bass. Its own amplifier and loudspeaker suit it best!

I rather liked this Roberts RD-60. It was pleasant to use and competent in most areas, although it's expensive so you'd have to really like the style to think it good value.



VERDICT ●●●●●
Lavishly presented and characterful retro radio with decent performance across all bands.

ROBERTS RD-60 £199
Roberts
☎ +44 (0)1709 571722
www.roberts.co.uk

FOR
- pleasant sound
- retro styling
- fine build

AGAINST
- FM power consumption
- DAB quality variable



Tannoy fan Noel Keywood greets the new high end floorstanding Definition DC8T loudspeakers...

Hi Definition

If I lived in a Scottish castle, perched on a distant crag, Harry Potter-style, then I would have bought myself a pair of Tannoy Yorkminsters by now - and Westminster Royal SEs would likely grace an ante room. Sad to say my less than palatial London home swaps space for a position in the smoke and didn't suit the Yorkies. At 17ft long my lounge was simply too small to do them justice. Tannoy's new DC8Ts reviewed here found a space in my lounge pretty sharpish then, in the hope that they might fare better. And at £3,999 as quoted by Tannoy they cost a lot less than Yorkminsters, for which £9,000 is required.

Not only is the price different, so is the styling. I never quite knew what to make of the Yorkminster's nineteen sixties Tygan cloth front grilles; at least they didn't have Formica sides! The DC8Ts are audaciously modern by way of contrast, deep black lacquered cabinets trimmed by bright aluminium drive unit surrounds. With curved sides to break up internal reflections and nicely rounded edges, the DC8Ts are easy on the eye and will blend into most homes, I suspect. The front baffle carries an upper Tannoy Dual Concentric drive unit where a horn

loaded tweeter fires out through the centre of the bass midrange unit. This gives the same sort of image focus and consistent off-axis sound as KEF Uni-Q units, but the horn is very projective and I rather like its excellent dynamics. It works from the midband (1.5kHz) upward, the lower crossover frequency giving better integration between the two drive units than you'll hear in most loudspeakers.

Below the Dual Concentric lies a bass unit of the same dimensions, and it works up to 250Hz. Bass loading is reflex, with a port placed at the rear of the cabinet. The terminal panel allows bi-wiring, has the usual Tannoy Earth terminal and its chunky terminals accept bare wires, spade connectors (for the U.S.) and 4mm plugs for the U.K. The cabinets stand just over one metre high (1025mm) and weigh 21kgs apiece, or 76 of those *avoidupois* lbs.

Tannoy have always been concerned with crossover component quality and suppression of vibration. Now they are fitting a Deep Cryogenically Treated crossover, and this includes all the soldering, wires being attached to the drive units via push-on connectors. Deep Cryogenic Treatment reduces temperature slowly to around -190 degrees Celsius and holds it there for twenty four hours. The item is then raised to room temperature slowly. The process improves material properties and has been used with valves for some years now. It clarifies their sound, bringing a better resolution of low level atmosphere from retrieval of fine detail.

SOUND QUALITY

The DC8Ts are very Tannoy-ish; they capture the sound of the larger models nicely and don't fall off the song sheet like some of their lower models. In a nutshell, they are coherent and dynamically very punchy, so although The Stranglers predictably had plenty of grungy power, I was surprised at being hit so hard by the London Philharmonic playing Tchaikovsky's 'Marche Slave'. Short orchestral interjections and the longer main theme pummelled me hard. So even classical music takes on extra dynamic zest. If you like your music to jump out of the loudspeaker then Tannoys do a great job and the DC8T will make rivals sound wimpish. I must explain though that I was using our usual Icon Audio MB84S power amplifiers that are in themselves very dynamic and, as I found with Yorkminsters, sensitive Tannoys and valves definitely go together. Slap these loudspeakers

onto a high power solid-state amplifier and you may well end up listening to crossover distortion so, as with the Yorkminster, choose the amplifier with care. The ultimate for any of the large, ultra sensitive

"If you like your music to jump out of the speaker, the Tannoys do a great job, making rivals sound wimpish!"

Tannoys is a valve single-ended design, that is by basic operating principle pure Class A.

That the DC8T has superbly powerful deep bass and smooth bass coverage was quite obvious and again this contributes to the Tannoy sound. Bass lines were tuneful and strong; at low frequencies the DC8Ts were very expressive so if you want to hear strong bass, but not overpowering or sloppy bass, the DC8Ts won't disappoint. This is a loudspeaker with real heft to its sound, in every area, yet it is nicely controlled and satisfyingly concise. Only with Peter Hurford playing the organ at the Basilica of Saint-Sernin did the Contrebasse and Principle-Basse pipes sound overly large and soft, but then the Tannoys reproduced them with a gusto others couldn't approach - most organ enthusiasts would gurgle with delight!

Deep Cryogenic Treatment seemingly drops the noise and mush floor to open up a very clear window into performances. Not only is dynamic range expanded, but studio atmosphere explicitly revealed too, making for a beautifully atmospheric sound and great detail retrieval. Putting all this together and adding in a little audible treble lift [see MEASURED PERFORMANCE] brought a strong edge to the strings of Jackie Leven's strummed guitar, singing 'Fear of Women'. He sounded large and husky, as he should, and very close up too. A gentle low frequency rumble made its way out into the room, to give a sense of weight and menace; it was all clearly and explicitly portrayed through a sparkling clear window that had just been buffed with Windowleen and hadn't had time to develop even the faintest haze.

The slight emphasis on the upper harmonics of strummed guitar was also audible as added light on Nigel Kennedy's violin, but it wasn't unpleasant. I noticed more how the DC8T's excellent dynamic shading moved Kennedy clearly forward of backing strings and gave each its own clear physical space, rather than

melding them together. The same property kept Amy Winehouse clear of support vocals and in a space of her own in 'Back To Black'; this is a loudspeaker with great resolution of the individual strands and contri-

butions to a performance, separating singers and instruments unusually well. I suspect both the horn loaded tweeter and DCT treated crossover play a part here. Like the Yorky the DC8T has strong midrange dynamics, making for a forceful sound. Horns are popular in the U.S. for this reason and there is a lot to be said for both their efficiency and the sense of life and excitement they bring.

At home, sitting 14ft or so from the DC8Ts I quickly detected a softness in the midband that detracted slightly from vocal intelligibility. However, sitting closer, just 9ft away in our larger listening room, to hear more direct and less reflected energy, this effect was far less apparent. All the same, I fancy the keys of Ashkenazy's piano were a tad softer on initial impact than I remember them, playing Beethoven's 'Moonlight Sonata'. I also noticed that many of my harder sounding all-digital classical recordings, especially



Tannoy's Dual Concentric drive unit has a horn loaded titanium dome tweeter firing out through the centre of the bass/midrange unit, to give an evenly dispersed and focused sound.

of Wagner Highlights it seems (why can't anyone record Wagner well?), were euphonically smoothed and sounded less edgy than usual. Tannoy told me they pulled the midrange down a little to make the DC8T less pushy and more polite in the



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midband. I'm uncertain how this will pan out in a showroom up against rivals, but if you audition them this is likely to be apparent in direct A/B switch overs because the trend these days is to peak at 3kHz to enhance intelligibility. Take this too far and you get an edgy shout, which I don't like at all. But it is what's happening in the showroom so the DC8T will sound different because it has been voiced in a contrary manner. It does make the loudspeaker an easy and assured long term listen, where a more shouty loudspeaker may not be. All the same I do have reservations about troughs that smooth the sound, and also about response discontinuities which add audible character. Tannoy's midrange/treble horn isn't the smoothest, granted, but there are trade-offs in all loudspeakers and it exchanges smoothness for projection, which for many - including me - is an acceptable trade.

The Dual Concentric sounds more coherent than the usual bass/mid and tweeter combination, because it has fewer phase anomalies in the crossover region, and you can hear this as a more assured sound with firm embodiment of instruments. Imaging was first rate and the stage stretched wide beyond the speakers. The even dispersion of Dual Concentrics makes for a stable sound balance when you move around the room, and great focus to individual instruments, especially compared to the vertical smear of D'Appolito arrangements.

The DC8T's easy balance coupled with Technicolour dynamics do make for an intriguing delivery that is both exciting yet refined. This is an unusual combination. Also, as you'd expect of any self respecting Tannoy they go very loud, very cleanly and encouraged me to crank up a lot of Rock CDs I wouldn't use for reviewing purposes! One I do use

for reviewing though is Safri Duo's 'Samb Adagio'. This is a percussive fireworks display and - when no one was around - I put it on and cranked it right up. Well, the DC8Ts are *real* Tannoys. At massive sound pressure levels they were as clean as a whistle and had breathtaking pace. They did not quite dominate the room like Yorkies, but got closer than most. It was a dazzling display of power and control, reminding me that not for nothing are Tannoy renowned.

CONCLUSION

The DC8T is a great loudspeaker, with the power to fill a castle at a price more appropriate for the average home. Still, it isn't cheap and faces serious competition at its price, so it doesn't have things all its own way. Nonetheless, I felt this to be a cracking loudspeaker all the same, with a set of strengths that conspire to make listening to music exciting - which is surely what it's all about.

MEASURED PERFORMANCE

Our analysis of frequency response shows the bass/midrange unit delivers a smooth, peak-free output up to 1kHz, and this is, aurally, most of the audio band up to lower midrange. Looking at the stepped sine wave analysis in conjunction with a pink noise analysis shows that the Tannoy goes very low, flat down to 60Hz from forward output (the small dip at 140Hz is caused by our room height mode), below which the port takes over, peaking acoustically at 36Hz. With port output measuring +4dB over forward output at 80Hz, it is approximately 10dB up at 36Hz so there is plenty of subsonic oomph.

The horn takes over above 1.5kHz and this explains a pronounced dip from 1.5kHz up to 3kHz, an area of high aural sensitivity that affects intelligibility, which will be degraded. Above 3kHz horn output recovers and continues up to 20kHz at a level slightly below the midrange, an unusual characteristic these days. The DC8T is balanced differently to most loudspeakers and will sound less bright in the showroom.

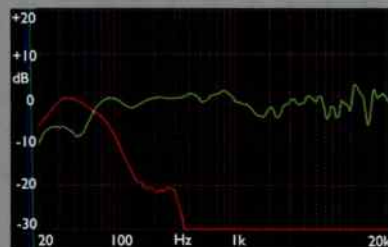
Sensitivity was very high - a massive 91dB from one nominal watt of input (2.84V), but partly because impedance is low, measuring 5 Ohms with pink noise. The bass unit has a very low DCR of 2.7 Ohms and where low frequency power is drawn (30Hz -200Hz) the DC8T is a 4 Ohm loudspeaker, our impedance analysis shows. Acoustic damping imposed by the port is broad around 36Hz, keeping the usual peaks/phase shifts low, an aid to amplifier matching.

A long term 200mS decay spectrum is very clean, being free from peaks or wideband effects, so colouration will be low. The horn was also clean, giving a decay spectrum

up with the best. The two front drivers generate very little distortion, less than 1% bass distortion from 25Hz to 100Hz and then less than 0.2% up to 6kHz, a very good result. The port is less linear, producing 8% distortion 20Hz-30Hz declining above this frequency to 5% at 40Hz and 1% at 70Hz.

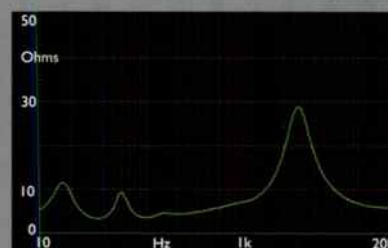
The DC8T measures well all round but it has a distinctive sound balance that will set it apart, something to bear in mind when auditioning. Expect a smooth, dynamic sound with strong, extended but well damped bass and a very smooth, clean midrange. Intelligibility will be a little compromised by the upper midrange dip however, making for a gentler vocal delivery. NK

FREQUENCY RESPONSE



Green - driver output
Red - port output

IMPEDANCE



VERDICT ●●●●
Very refined yet punchy loudspeaker with great bass and coherent sound. Exciting with both Rock and Classical.

TANNOY DC8T £3,999
Tannoy
+44 (0)1236 702503
www.tannoy.co.uk

FOR
- deep bass
- punchy dynamics
- super clarity

AGAINST
- obvious high treble
- soft midband

mail



LETTER OF THE MONTH PRIZE



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Letter of the Month

MOURNING GLORY

Just having my daily trawl through the BBCi News Website I came across this item. Given the ongoing discussion in HFW, regarding the abomination commonly referred to as DAB, I thought you might like to see it at <http://news.bbc.co.uk/1/hi/technology/8014328.stm>

Seems the Beeb haven't yet cottoned onto the fact that DAB is not selling well in the UK and apparently, neither is it selling well elsewhere, especially as the rest of Europe has already abandoned DAB (in the form that the BBC are trying to foist upon us), in favour of other technologies...

Please note, that I do voluntary work within my local community, teaching Silver Surfers to use computers and surf the web and several of them have complained to me recently, that the new DAB radios they bought from various outlets, to replace their apparently obsolete analogue radios, are - to use their own choice of words - "Bloody Rubbish"!

As a regular listener to Radio 3, via my completely analogue system (the important parts of which are a WAD 5881 Mk2 and Quad ESL-57s), I know the joy of listening to a great system (and even not-so-great analogue systems), so I am encouraging them to resurrect their old 'Steam' radios and have them overhauled and repaired.

Most of them were not/are not aware of the revival of valves and LPs, so thought they had no other option but to 'Go Digital'; however, I have been re-educating them and have put them all in touch with a local Radio and TV engineer, who is old enough to know about old valve kit and buys up old radios that are brought to him by younger people, who are disposing of their grandparents' kit, in the belief that it is rubbish, just because it uses

valves and is "only mono".

Two retired and widowed pensioners have decided to rebuild their systems, using kit their "dearly departed" wouldn't allow in the house ("get those monstrosities out of my home!", etc.) and I have had several very enjoyable afternoons, demonstrating my system to them, so as to refresh their memories of what obsolete stuff sounds like.

One gentleman still has his late father's Quad ESL-57s in the attic, as they have blown panels and at the time were not repairable, due to lack of the appropriate film, but I have now put him in touch with Classique Sounds, with a view to having them refurbished. He has decided that as nice as it is to have savings, he can't take it with him, so might as well blow some of it on new kit and having the Quads repaired. He's planning on going the valve route again, as I loaned him a few dozen of my back-numbers of HFW and he has been reading up on what's available; both new and second-hand.

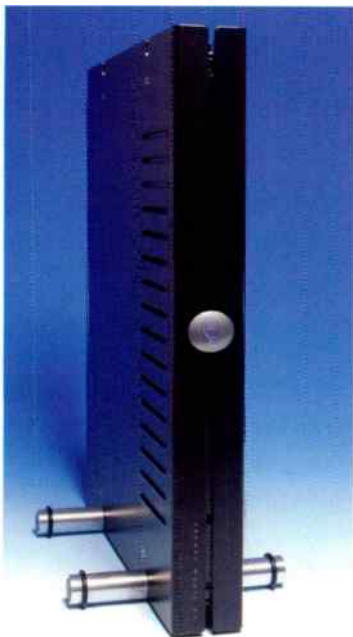
He's planning on spending about five grand or so, including a new LP



If it works well, restore it. Quad ESL-57 electrostatics, launched 1957, can be repaired by Classique Sounds and Quad.

front end and tuner, as he currently has an old late 1950s Bush Radiogram, which is showing its age and which he has 'suffered' for too many years.

Even a couple of my lady friends have decided that old valve radios sound far better than their transistor radios, so are advertising in their local shops and newspapers, to see what they can come up with. They are even advertising on FreeCycle. I must introduce them to the aforementioned Radio Engineer, to see what he's got in stock.



Linn DS doesn't need CD for demo, says reader Guy Pettigrew.

Right, 'uff from me for tonight, otherwise I shall start asking you for advice on upgrading my front end. I know what I want to do, I just haven't made up my mind which order to do it in and which route to take. Upgrade my current arm, or buy a new one? Buy a ready made valve phono stage, or build my own? Buy a new turntable, or go for a classic? Decisions, decisions!

Russ

A lovely letter, Russ. Nice to hear you're responsible for some under cover 'covert operations' fighting for the cause, behind enemy lines, so to speak! In a world of increasingly disposable, limited lifespan, consumer electronic junk, it's great to keep old classic radios on the road. It always amuses me how some of my trendy friends, with their modern 'eco' lives, are constantly lecturing me about my carbon footprint (because I have a juicy old Jag and a valve amp) - yet they're the first to bin their old radios, hi-fis, TVs, etc., when something newer and trendier comes along. Let's remember that it's much better for the environment to recycle (i.e. maintain or restore) classic kit, rather than bin it. The fact that so much fifties, sixties and even seventies stuff is quite simple to repair (all discrete components) and doesn't have the built-in obsolescence of today's mass market tat is even better. I still have a sixties Dansette radio giving perfectly good service, and a better sound than most brand new DAB/analogue hi-fi tuners on AM. Likewise, my 1979 Sony 'Dagicube' clock radio works perfectly, having been on for 262,800 hours continuously (the odd power

cut notwithstanding). I don't think we'll be able to say that of most DAB radios - and that's assuming they even have DAB in thirty years time (I suspect not). That's why you'll find we here at Hi-Fi World are passionately committed to good classic audio. We love new stuff too, but not for its own sake; only if it's any good. All our best wishes to you, your silver surfers and those lovely "lady friends" of yours! **DP**

A TONIC FOR THE TROOPS

I've been using a decent DVD player for a number of years and am wondering if I'm missing out on hearing music as it should be heard. My system consists of a Copland CSA-8 leading the troops; a Pioneer DV-S9 DVD player (<http://pioneer.jp/press-el/1997>) is a capable second-in-command (link attached, not many made it to Blighty), a Sony JA20ES MiniDisc has recording duties as well as a good few hundred hours of radio broadcasts stored on Colonel laptop (don't tell the Beeb). Monitor Audio Radius R270s bring up the rear. Bass is in your face and vocals don't grate but appreciate I'm not quite making the most of what I have.

I'm very happy with the Copland, which is a pleasant variant from the Naim front end in my main system, and the speakers have a high WAF factor due to their room-blending qualities. I was a bit worried about the speakers on the initial purchase, as they screeched like Tweety Pie under attack from Sylvester, but after running in they now sing as sweetly as Susan Boyle (Britain's Got Talent fans will know who I mean). Never judge a book by its (silver) colour...

On permanent rotation are Jazz, Cooltempo, R&B, Hip Hop, Dance and a smidgen of seventies and eighties-tastic pop when the mood is right.

The big question - do I make the best of my DVD player and get a DAC, or cut my losses and get a decent CD spinner? The DVD was about £1,200 when new (1997) so I'm guessing would be sonically on par with a £600 CD spinner of the time. If I do go the CD route, what price range or models are suitable; if a DAC, I'm guessing DACs such as the Stello Signature upwards would bring immediate benefits. I don't want to spend money on a DAC if the transport isn't worthy and I really don't want a glassy, 'warts-and-all' sound; vinyl-like is what I'm after. If it can accommodate the DVD, MD and PC, then A-okay! Stand Easy.

Terry Vassell (Private)

At ease, Vassell. The best tonic for your system is the Cyrus CD8 SE. The Stello DAC is excellent,

but serious CD sound begins with the transport, and this is where the Cyrus shines. An ageing DVD transport cannot be expected to come close, so the abilities of the Stello DAC would be partially disguised. Your high end Sony MiniDisc player has a half-decent DAC built in, so you could route your DVD player and computer through that for a subtle improvement in sound; simply eject the disc and press 'REC' and the Sony will act as a DAC. Ultimately though, you're looking at a really good, no holds barred DAC to work with the Cyrus's superb transport in the long term (and all your other digital sources). Start saving up for a Chord QBD76 (£3,000) or a second-hand DAC64 (for one third of this) - and you'll be the laughing cavalier. **DP**

CONFUSION

How confusing was June's letter of the month about auditioning the range of Linn DS machines? Very confusing!

Apparently Nick Pledger couldn't get an audition because the retailer didn't have a demo CD. Ridiculous. These DS players work by receiving a digital stream from a computer, onto which a CD has been ripped. So, to demo the machines, you take some favourite CDs into the retailer, who rips them onto his computer, then streams the files to each of the machines in turn. A demo CD is definitely not needed.

The retailer should also have a regular CD player available to let the customer hear the difference between streaming and not streaming. I know this because a friend of mine has just been through this process and bought himself an Akurate DS. Perhaps Nick Pledger's retailer hasn't quite grasped how the Linn DS range works!

Guy Pettigrew

Hmmm - you might think that, but I couldn't possibly comment. **DP**

BETTER BITTER

I was looking to upgrade my CD player. I currently have a Musical Fidelity A3.2 CD player going through a Tri Vista 21 DAC and into an Icon Audio 300B amp. Loudspeakers are Ruark Equinox last edition which are silver wired throughout. VPI Scout turntable with a Goldring 1042 cartridge, xlp's phono stage all wired with True Colours Industries top cables. The sound from the analogue end is breathtaking and I am very happy with it. I found that the digital side is very smooth and a bit too laid back for me. I would like something with more transparency and detail. I was considering the Cyrus CD8 SE, the

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reviews are good and it sounds like this might be what I am looking for.

A few days ago I used my computer as my source and nearly wet myself when I heard the result, the only drawback is the noise of the computer fan and the RF interference. Checking the internet I found a soundcard with a digital out and upsample rate of 96kHz (Trust SC 7600) for £30. I am also going to add a pair of Fostex Ft17h super tweeters which Wilmslow Audio are going to put into small wooden boxes for me. Do you think this might add a bit of detail to the sound?

My question is - do I spend £1,200 on a Cyrus CD player or £30 on a Trust soundcard and put up with the noise of the fan? And will I be able to run the computer through my Tri Vista 21 DAC via the digital input?

Alan Moffett
Northern Ireland

Hi Alan. I am a bit confused here about what you did. If the computer sounded so good, how were you connecting it - from an analogue output? If you buy a soundcard and connect up digitally via the card's S/PDIF digital output then you will be hearing the sound of TriVista 21 DAC, albeit perhaps with some subtle differences, yet you say you want to replace it.

Faced with computer noise my approach is to fix the computer, buying a quieter fan is one solution. You can often watch CPU core temperature in the BIOS to gauge how much cooling is needed and sometimes case fans and such like can be dispensed with, and the CPU fan slowed down. By suggesting this approach I at least know that you will like what you get!

Super tweeters add air and space, rather than detail, although you may feel you can hear into recordings better. Some say they sharpen up and speed bass too! **NK**

I simply don't believe that the noisy, vibration filled environment that is your PC will yield superior results as a digital transport to a proper CD player, so am also a tad confused by your letter. The best solution for your system would be to retain your superb Musical Fidelity DAC and use a Cyrus CD Xt SE transport (£800) - this combination would be hard to beat at almost any price, I would wager. **DP**

THE GREAT DEBATE

I read in your Letters column of the June 2009 issue, Gerald Bearman's letter on the pros of CD vs. vinyl. I know the debate will never end and it's nice that you still publish letters



Use a Cyrus CD Xt SE transport (£800) to feed a Musical Fidelity Tri Vista 21 DAC says David.

on this debate. I would like to add my own recent experience. I like CD for its convenience (portability, no changing sides and easy to handle size) for some general listening, usually whilst pottering around the flat and, where I have no vinyl, "proper" listening. I now have a Quad 34/303 amp set-up with Wharfedale 9.1 Anniversary speakers on 24" sand filled Atacama stands, GL75 deck and a Marantz CD52 mark 2 CD player.

When my brother recently visited we did a vinyl vs. CD listen to hear different violin sounds. By chance I have a Deutsche Grammophon box set of Anne-Sophie Mutter with the Berliner Philharmoniker under Karajan. Interestingly, some of this set was recorded in analogue and some on digital. In contrast I had Nigel Kennedy's Vivaldi album, again with the Berlin Philharmoniker.

The analogue vinyl of Anne-Sophie was warm and full, and easy to listen to... Put on Nigel's Viv though and it just sounded thin and screechy; very unsatisfactory. We then listened to the digital recording of Anne-Sophie and, though less scratchy, was noticeably less pleasant to listen to than the analogue recorded session, but nicer than the CD digital recording of Kennedy. It was the most marked contrast I have ever heard.

Later on that night, I listened to the excellent 'On An Island' by David Gilmour, for which I have both CD versions and the vinyl, being a completist nut. I found that the CD version had more apparent upfront detail than the vinyl recording, but I realised that the CD recording was like an overly brightly lit room, at first it's impressive, but eventually it hurts your eyes, or in this case, my ears. In contrast, I loved the sound of the vinyl version and everything was there, but at a bearable level. I have listened to it many times now.

To be absolutely fair, I have listened to some nicely recorded CDs and some poorly recorded vinyl, but in the end, the vinyl is

what I choose to play. I hope I have contributed something worthwhile to this debate.

Paul Clewlow.

That about sums up my experiences too. And I am never quite sure what we are listening to, often suspecting that the biggest culprit behind digital screech - which can be severe - lies somewhere way back in the original recording chain: perhaps the microphone used to record Kennedy's violin had raised treble to improve speech intelligibility, as many do, and this didn't favour violin; or perhaps the analogue-to-digital convertor wasn't good enough. As you say, LP is an easier and more natural listen, if not as clinically tidy - or is that devoid of atmosphere? - as much digital, as a generalisation at least. There are plenty of grotty LPs of course, and good CDs.

I'm also noticing the torrent of remasters, recuts and what have you of old recordings onto new Quiex SV-P 200gm vinyl are sonically satisfying and well worth having, especially when they carry high quality analogue recordings made using Westrex equipment; just listen to early Elvis for this. It's a real trip back in time and being in a studio fifty years ago, or so it seems, is quite breathtaking in its own way.

Super high resolution digital recordings made by 2L of the Trondheim Soloists are interesting as a replacement for CD and I hope we see more music being released on Blu-ray, now that sales are starting to take off (GfK market research figures show). But I note ruefully that HMV's flagship Oxford Street store has just upgraded the visibility of Rock LPs by moving them from the back of the store amongst Dance, House and all that(!), giving them a nice new area spread out amongst music CDs, and the Blu-ray music section has been sent back to purgatory, upstairs submerged by the movies again. Is that it for high resolution digital and the promise of a replacement for the CD I wonder? **NK**

TOP DECK

Hi. I have no doubt the CR7 is a great deck but I'd like you to explain in more detail why you and others think it's better than say, ZX7 or LX5 or ZX1 1000? As I have a DR2 plus a ZX7 and they sound good to. Do you not think it's all about getting the correct leads on source as well as recording leads. I'd be interested to hear your thoughts.

Ken

Ken, the CR-7 and Dragon came after the other decks you mention, or were further up the model range. The CR-7 was the best 'conventional' model, better than the gadget laden Dragon with its auto-azimuth tuning, that demanded split pole pieces in the head, which compromised performance elsewhere, mainly in its low frequency saturation ceiling (head overload, in effect). Both ran to 1993 and the CR-7, which I tested in our August 1992 issue, was far and away the best Nakamichi I had ever encountered. **NK**

I've heard a well set-up ZX-7 against a similarly 'fit' CR-7E and I'd echo Noel's comments; the latter is direct driven and has a superb mechanism, plus superior record/replay electronics. Still, I don't think the CR-7E is utterly peerless amongst cassette decks. It is certainly brilliantly tight, taut and analytical, but whether it is as musical as a Sony Walkman Pro is a question that's worthy of what Mrs. Merton would have described as "a heated debate"!

DP

SPOTIFICATION!

I have recently dipped my toes into the murky waters of 'computer audio' and boy was I in for a shock! Being a bit of a technophobe I was never going to be 'a natural' when it came to listening to music from such a device, but recent circumstances meant I had to give it a proper go, the most appealing benefit being the idea of storing hundreds of CDs and LPs to hard drive and hence freeing much needed shelf space (not to mention floor space!)

Anyway, I went out and bought a rather snazzy Lacie 500GB external drive. Now, Sod's Law, the next day (and I mean the next day) I pick up the Saturday Times in which I read about this new fangled streaming service called Spotify. It all seemed too good to be true but I thought I'd investigate and, well here I am writing to you today. First of all let's make it clear that I do not consider Spotify to be hi-fi, sound quality is adequate at best but really the outstanding achievement here is to make so much music available so readily

The image shows the Spotify website interface. At the top, there's a navigation bar with 'Products', 'Download', 'Help', and 'Blog'. Below that is the Spotify logo. The main banner features a woman with a speech bubble containing musical notes and a play button, with the text 'A world of music' and 'Instant, simple and free'. A 'Get started' button is visible. Below the banner are three subscription options: 'Free' (All the music, no cost), 'Day pass' (24 hours ad free), and 'Premium' (Monthly subscription, no ads). Each option has a corresponding icon and a 'Get started' button.

For free music go to Spotify. It's a great way to listen before you buy.

and at no cost – assuming a reasonable internet connection. Initial impressions were both enlightening and somewhat depressing, especially since the last decent music shop in Canterbury (The Classical Longplayer) closed its doors rather suddenly last month after what must have been thirty plus years - it will be sadly missed.

I doubt any hardware will ever make the Spotify stream sound as good as CD, say, but I expect the social and economic implications will be far reaching, and not just for us lot. The simple idea that this wealth of recorded music is accessible to so many is really quite wonderful, though perhaps inevitably sound quality had to be compromised to make it all possible. It also remains to seen if the business model works (I am holding on to my records)...

If anyone at Spotify is reading this, please note that I will only be prepared to fork out the monthly subscription if the quality (bit rate?) can be improved, and also if the information that is displayed with each track/album is more relevant (right now release dates more often than not seem to be those of the latest CD release, rather than the actual recording date - what good is that if you're interested in 1950s Jazz? And that's not to mention the total absence of information on band members and liner notes.

I must reluctantly admit that I find the new service highly addictive and at present am using it an awful lot. The sense of discovery is what gets me. The signal is streamed from my ageing Compaq laptop, via USB to an equally ancient Onkyo SE-U55 outboard soundcard/DAC, the latter merely begins the conversion process, as the signal is then channelled from the Onkyo's digital out (coax) into the digital in of my Denon receiver (a second DAC?). I have reached this configuration very much by trial and error and it seems to have provided the best results so far, perhaps most significantly getting rid of

all the mains-induced background mush which is the bane of many a laptop I understand - and certainly the one thing that had kept me from giving computer audio a second thought.

Now the Denon receiver is very much the heart of a secondary system, so would I be right in thinking that the same laptop/Onkyo set up could feed a separate DAC, which I could then connect to my 'main' set up, which consists of old Quad IIs feeding fairly revealing horns? Preamp duties are currently served by my trusty Craft Micro. What DAC would you recommend to complete the PC rig? This would be used both for the archive project (still very much on the agenda) and listening to BBC replays as well as said streamer. Budget for the DAC is low hundreds and it would be nice to have some valves in there... (second-hand is fine by me if it helps widen the choice and lower the cost). Presumably the DAC wouldn't need to have a USB input as I can use the Onkyo to do this part of the job?

Now on a final note I will wholly understand if most of my fellow readers think I have sold out to the dark side and carry on thinking of streaming as a 'dirty word' at this point in time, but with the sad demise of so many record shops I do find it brings a sort of compensation for the music buff, albeit a bittersweet one. If anything it allows me to 'listen before I buy', and I have just bought a couple of lush 180gms pressings as a result of hearing the albums on Spotify. Plus ça change...

Gabriel

Hi Gabriel. Thanks for sharing your experiences with Spotify. It is an interesting concept, but "some frequently requested artists that are not in Spotify include Metallica, The Beatles, Pink Floyd, AC/DC and Led Zeppelin" they say, so it doesn't cover as wide an artist base as iTunes I believe. They use the well respected Ogg Vorbis q5 codec which streams at approximately 160kb/s.

There are plenty of USB DACs around and the Russ Andrews DAC-1 USB is one that would connect directly to your Croft preamplifier. This would be the neatest way for you to get music from your laptop into your system, and provide a good level of sound quality, equivalent to most £1,000 CD players. **NK**

LOADS AND MONEY

I currently own a Shanling MC30 CD receiver and was considering upgrading it with an external amplifier. I was going to just connect the power amp to the pre-outs but then I remembered that valve amplifiers are not too happy if you turn them on without loudspeakers or some sort of load connected, due to the output transformer. On looking at the manual, it said that the unit should never be turned on without loudspeakers connected and I found no way to turn the internal amplifier off. This seems to undermine the purpose of the pre-outs. What should I do to connect an external power amplifier? Should I put an 8 ohm resistor dummy load on the output of the MC30, pull out the output valves or just leave it as it is and hope for the best?

Paul

You can do all three if the amplifier has been designed well. The safest option is to wire 8 Ohm 5 Watt resistors across the output terminals. Removing the output valves will work too; voltages will rise a little in the power supply but it should have enough leeway to cope. **NK**

STRATH MORE

Browsing the web a few days ago I came across an article that you had written some time ago extolling the



Strathclyde STD 305 turntable, worth fitting with a good arm, says David Price.

virtues of the Strathclyde STD 305 turntable. I have one of these turntables and was wondering if you thought that I could improve its performance by fitting an Origin Live replacement DC motor at some stage or do you think that it is good enough as is without modification?

In the article you say that you think the turntable was good enough to take an SME 309 arm. At present the turntable has an SME 3009 II Improved, fixed headshell tonearm with the fluid damping kit. This has been modified by a previous owner. Something like an ADC headshell has been fitted (forced?) into the end of the arm so increasing the overall weight of the arm considerably, actually making it difficult to balance my Goldring 1006 cartridge without added weight. I was wondering if you think that this modification would allow the SME to take an MC cartridge. I had an Entre MC cartridge many years ago which I loved dearly and would like to get back to the better sound quality of the MC cartridge.

The rest of my system is fairly mundane, I'm afraid, but the most important thing is that it produces a sound that I can live with when playing Classical music or some Jazz. I do intend to upgrade to an all valve system eventually, but mortgage and maintenance preclude that for some time yet so I thought I'd try to sort out my front end first.

I have a Yaqin valve phonostage, this will be replaced next time funds permit because I find it totally lacking in response at both frequency extremes. A home built, silver wired, passive pre-amp based on a pair of stepped attenuators (one per channel) with 22.5k Kiwame resistors in the famous (infamous) Shunt Mod. This feeds a Quad 303 power amp, which in turn feed a pair of 3 way infinite baffle bookshelf speakers that came from a music centre and actually sound quite good when isolated from their stands by several layers of bubble wrap. Interconnects are homemade silver. I like the clarity and brightness it brings. A Cairn Fog 2 and a Denon TU-260L II complete the setup.

I'll be very grateful for any help you can offer in sorting out my predicament.

Tony Smith

That's a bits'n'bobs system Tony, on the cheap - and not everything cheap is necessarily cheerful. It is possible to get a very good sound without spending much, but you do have to choose carefully or you just end up wasting cash.

I suggest you get a Rega RB250 tonearm on a budget spinner, possibly from Rega, or a Rega P1 or P2 if you can stretch that far, and bolt your Goldring 1006 into it. Alternatively, you could try fitting a Rega arm to your Strathclyde STD 305, although I believe you would need a raised arm board. Any Rega arm is suitable for a budget Moving Coil, but this can get very costly. The cheapest MC we

recommend is the Audio Technica OC9 MLII and that now costs £400.

For loudspeakers, get Q Acoustics 1020i at £130. It's usual to anchor loudspeakers firmly, rather than on bubble warp. But it's original! I'm sure you can piece together something decent for little outlay, but buying decent used items with care will work out cheapest in the long run and most satisfying. **NK**

Hi Tony - having owned an STD 305, I can confirm that it's a superb deck. I'd say it's a good step up from a Rega P3, comparable to a Heybrook TT2 or even Ariston RD11. It's certainly worth using a better tonearm; a dubiously modified SME 3009S2 doesn't sound encouraging, and even in perfect fettle it is emphatically not suited to a moving coil. Of course a Rega RB301 is, or ideally an SME 309 as it should be a direct fit with your existing SME cut-out. The STD has a very warm, sweet sound - a little soft around the edges, but properly balanced with a nice even bounce on the subchassis, you should get a very nice noise from either the Rega or SME 309. Given that it's not too dissimilar to a Linn LPI2 under the skin, your friendly local Linn dealer may well be able to set it up for you. The OL motor would yield a significant improvement in my view, with a far grippier bass and a more upfront presentation, but you might still prefer the more romantic sound of the stock AC STD. Actually, you might find an RB301/Audio Technica OC9 combination a very nice fit with the stock motor STD, as its clarity and bite would complement the latter's euphony. This would seem to be the most cost-effective combo, if you can't stretch to that elusive SME309. **DP**

SINGAPORE SLINGBACK!

I am building a new phono stage that flies against perceived wisdom - EF86 in first stage with IIP Tx (with input transformers). All passive EQ between 2nd and 3rd stage, no feedback, should be punchy. I have the SDS mat, milled off the lip of the Technics platter to get a perfect flat fit. It works great. I DIYed all of Sound Hi-Fi mods for the Technics. Its worth getting in touch with them, the results are great - Dave there was very helpful and open.

Your magazine has stimulated me to bite the bullet (again) and build a monster 211 push-pull - no electrolytics anywhere in the machine. It will need a forklift to pick up the 1.2kV power supply. I've a mountain of parts accumulating. The cost is escalating, the wife's starting to worry - wait until she hears it.



Singapore Railway terminus belongs to Malaysia and stands in its original state, untouched by time.

It would be more sane on every level to get the Icon MB845s but that's not the point is it? Do you think it will drive the Kingsound Prince IIs? Do the Icons drive the Prince IIs okay?

Working in manufacturing silicon chips, I enjoyed the letter on the V-FETs compared to MOSFET. The technology of the implementation is a little different: the V-FET basically has a V shaped trench as opposed to thin oxide in MOSFET for the gate. The standard MOSFET is cheaper to manufacture and more reliable, if memory serves correctly. It is also faster switching. Most silicon is optimised for convenience, not necessarily audiophile considerations.

Anyway great mag, liked the picture of Boat Quay (Singapore River). The Adelphi hi-fi center is just off image to the left, ten minute walk from the photographer's viewpoint. If any of you guys ever make it to Singapore give me a shout I'll take you for a beer. "Cheers!"

Mitch Long
(aka Anon. Singapore)

Hold on there Mitch - a monster 211 amp will run at 1,250V on the H.T. line and you need to check whether your life insurance policy, and/or wife are prepared to allow your involvement here! Big valve amps using early, high voltage triodes like the 211 are nothing other than deadly dangerous in the DIY realm. Your output transformers must have primary-to-secondary insulation that will withstand at least 3kV - and that's a lot of volts. We used a UK manufacturer fluent with high voltage power station transformers (you know, those things with big, white ceramic electrodes sticking out ominously; I was scared to go into the place!) and also with audio (a rare combination). If the primary flashes over to the secondary your speakers will be the first ever to reach the moon unassisted. It has reputedly happened to a Dutch enthusiast.

And of course you will need to stack 500V electrolytic capacitors and use balancing/ safety bleed resistors, and what have you. Having said all that there are nutters around the world doing this and commercial designs exist too. Also, I am assured by one enthusiast in the business that nothing matches a big 211 amplifier for sound quality - and he ran a shop selling valve amps. In addition to solid-state. Yet again, we will publish that picture of our finest moment, the big 211 amplifier Andy Grove designed at Hi-Fi World for a rich Hong Kong enthusiast, just as a reminder of what a real amplifier looks like!

Singapore is an old fave of mine, especially the old, unpainted and much argued about railway terminus, with its murals. It's identical today to how it was rather long ago when I was brought up in Sembawang. It's a great part of the world to visit. Sorry I missed the free beer! **NK**

DIRECT UPGRADE

I have been reading your magazine for about one year now and find the Letters pages most interesting and informative. I

am currently using a Systemdek 11XE 900 with its own arm. I have recently obtained an Ortofon Red 2m and as I bought a Naim Nait 5i amp, had to buy a phono stage, the Creek OBH 18 MM. Initially I was going to buy a new deck for up to about £600-£700, however I do not like the look of these decks. So, can you please help and advise me which arm and cartridge could be fitted to the Systemdek? I am happy enough with the MM, but would like a nice soundstage which I am not getting now. I do like the idea of the Technics SL1210 or is it SL1200? Again, which arm and cartridge combo can be used? Any info will be greatly appreciated.

J Bentley

Thanks 'J', although long time readers will know we have a 'no toadying' policy in the letters pages, so any "you're really great" type letters may be taken as a shameless attempt to inflate our already well padded egos! Hey, we already know we're the bee's knees, so you don't need to bother saying so! But seriously (as the great(?) Phil Collins once said), in my view the best mid-price turntable is the Technics SL1200 - but only if you're of the DIY persuasion, or prepared to send your pride and joy off to the likes of Sound Hi-Fi who specialise in modding this amazing little machine. With stock arm it's a bit like running your Ferrari on remould tyres; masses of potential but no real ability. Switch to a Rega RB250 (or derivative) and suddenly it sings. Add an SDS Isoplatmat and it goes a level higher, then Isonoe feet and it's better still. Then you can start getting into serious territory; power supply mods and main bearing changes. We'll be covering these very soon, so watch this space. Suffice to say that even without these high octane tweaks - and just the basic



Technics SL-1200 turntable is fine if you fit a decent arm.

arm swap, mat and feet - it is an amazingly powerful and engaging performer, with staggering grip and dynamic articulation. There's a little upper midband harshness, but the mat and feet can tune this out. You'll find it a mammoth step forward from the Systemdek. It's only when you get to Michell GyroDec territory than things really get better - and even then the Gyro lacks that brilliant stop-start bass of the Technics. **DP**

OLD vs. NEW

With Arcam CD 192, NAD 4155 tuner and Linn Axis as sources, an old Marantz PM 80SE serves as my trusted amplifier, driving my beloved Spendor S8es, I wondered if I could improve upon my amp? I tried a borrowed Musical Fidelity A5, and while the dynamics were somewhat improved, I thought it a little rough in the treble with less tonal range and less refined overall in comparison, which surprised me, especially with phono input, and I was relieved to reinstall the PM 80.

Would you think the new Marantz PM 8300 would upgrade the sound quality of my seventeen year old amp? I can't demo many decent integrated amps in South Australia as home cinema dominates the markets now.

My system sounds sweet generally, with my diet of mainly classical and jazz, but I keep hearing how these new amps are now better than yesterday's pre / power combos. After my experience with the A5 amp I wonder. Any advice please?

Robert Neill

Hi Robert - well, the PM80SE was a fine mid-priced eighties amplifier and the PM8003 is a fine mid-priced noughties amplifier, but is it better? Well, why should it be? It may be a subtle improvement in some areas, but it will be more of a change than a revelation. Things have generally moved in the right direction, but it is wrong to expect an automatic, de facto improvement simply on the grounds of modernity. Still, there are some really capable amps out there, and I think a Leema Pulse (£1,200 in the UK) would take you in the direction you want to go. It's a very powerful, full bodied sounding amplifier with all the sweetness your Marantz boasts, and more. Naim's new Nait XS (£1,250) is - surprisingly perhaps - also a 'sweet' performer, with an even more dynamic and gutsy, grippy bass, plus oodles of fine detailing. Sugden's A21a S2 (£1,469) would probably be your best bet, though. It isn't the most muscular, but would still drive your relatively efficient Spendor S8es to highish levels, and has an icy clarity across the midband and treble than would

make your Marantz seem positively muddled. It is sweet in the sense there's very little distortion, but not euphonically so. Still, it would really bring the Spondors out of their shells, so to speak, and not sound harsh at all. Only this, I feel, would constitute and all round, 360 degree improvement on what's already a fine classic transistor integrated amp. **DP**

TRANS-MISSION

Your April issue article on transmission line speakers brought back warm memories from many decades ago when I was first discovering that there was something beyond my AR2ax loudspeakers.

In the early nineteen seventies I owned three IMF speakers, two sets of IMF Studios (the second and third generation of your TLS50 model; the second generation used mainly KEF drivers and fibreglass damping while the third used Scandinavian drivers and foam damping), and an early version of the IMF Super Compact used while awaiting my second set of Studios. I thought IMF speakers in particular and transmission lines in general were the 'cat's meow' in those days...

My first set of Studios were instrumental in getting to know their importer (the PVA coating on the midranges was omitted that month because the coater thought it looked ugly), Irving M. Fried (the IMF of IMF), a particularly interesting and fascinating figure in the audio pantheon. 'Bud', as he liked to be called, introduced me to areas of audio I might not have otherwise known and to some audio 'heroes' I recall with great warmth. He and I remained good friends until he passed away a few years ago.

I particularly recall the day I phoned him from work to find out if there were any new mods to my speakers and to simply talk hi-fi. But that day I got a guess who's coming to dinner comment from Bud. Of course I had no idea but it turned out to be David Hafler, Gordon Holt, Percy Wilson and their wives. And did I want to meet them? I recall cursing my way through the afternoon rush hour afraid I would be late. But I wasn't and I had a grand evening including the opportunity to drive Percy and his wife back to their hotel with the promise that Percy tell me The Zanzibar Fallacy which he did. But that's another tale...

Your sonic description of the IMFs



A monster TDL Transmission Line Reference loudspeaker we tested long ago. The big cabinet gave ultra deep bass.

is similar to my memory. I recall deep extension though a little soft on impact with ripe mid-bass and slightly lean upper bass which could have been a result of nulling from the floor reflection to the high mounted woofer. I recall the larger IMF Monitor was similar sonically but a bit more defined and with slightly lower bass response. However, I recently heard a Monitor Mk3 and the bass was much cleaner and more defined than my recall. I'm guessing this is the result of using a replacement TDL driver for the original KEF B139. I suspect the newer driver has better damping.

I know a little bit about Bud's version of how the first IMF Monitor speaker came about and it is interesting. Bud had been an American retailer and importer of British audio gear, some of which he sold under the IMF name. In the early eighties he was visiting Decca records and got into a discussion with Arthur Haddy. Arthur told him that it was time to give up on the older British speakers, especially the wonderful Quad 57, because they weren't up to the increased dynamics that were going to be pressed onto the new Decca records. He advised him to look into transmission line speakers (hereafter shortened to TLs) and told him to contact Radford who were developing commercial TLs. Bud visited them and was impressed enough to want to be their American importer. But years went by and no commercial Radfords appeared. Bud would hopefully announce their debut at audio shows and then have nothing to exhibit. Finally, in the late sixties before another show he got frustrated and discussed the problem with John Wright who he was working with on other projects, and they came up with the idea



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of making their own TL speaker. With only a short time frame they took a KEF Concerto kit (B139 woofer, B110 mid-range, T27 tweeter and crossover) and put them into a TL box and called it the IMF Monitor. This design was modified with the Celestion HF1300 tweeter and HF2000 super tweeter and crossover alterations to become the more familiar IMF Monitor most of us are so familiar with.

Let me throw in two quick comments here about TL loading. I found your comment that some TL lines were 1/8 wave rather than 1/4 wave loadings. I recall Bud telling me exactly that in the early 1970s. He never explained it further, just that was what John Wright, the IMF designer had told him.

I also noted your comment that most commercial TL designs are not aperiodic but that they are closer to bass reflex designs in the way they operate showing the typical double bass impedance rise of a reflex loading. I noted that almost twenty years ago and even wrote a letter for *Stereophile* magazine hypothesising that, but I must admit that after someone I thought was more knowledgeable than I was telling me I was incorrect. I chickened out and never sent the letter - foolish me. I suspect there are more but I can only think of one TL design that is also aperiodic as you define it and that is the Joe D'Appolito design that he did for SEAS. It only displays a single bass resonance rise. You can find the plans on the SEAS web site and it is a popular construction project in the USA.

One final comment. Bud often claimed that as important as a TL was in the bass, it was more important in the midrange which, after all is the heart of the musical spectrum. A good TL should be a very non-reactive loading for a midrange driver and thus show superior information and detail. The early IMF speakers used a tube from the front to the back of the enclosure, a short closed TL. This worked especially well with variable damping, going from lighter to heavier front to back as I found out when my own speakers were changed to this configuration from a simple roll of foam. I recall the Fried model G with a line tunnel bass loading like the Super Compact and a TL midrange. Again, when the midrange loading was changed from a single front to back line to a triple fold line the affect was immediately noticeable (I was at a listening test before the new line was put into production).

I recall other examples, the Precedent Audio MZ Mod 3 with a full TL midrange loading. And I always lament the mid 1960s KEF midrange dome that was never produced, a 2 1/2" dome with double spider and long

flexible wool damped tube loading. What a driver that might have been. And I remember one of your designs from the mid nineties, a three way speaker with a Morel driver and damped labyrinth midrange. If the new TL design you are considering is a three way, I would hope you would consider a TL loading for both the bass and midrange.

Allen Edelstein
New Jersey, USA

Thanks for your reminiscences Allen, and your contribution to the jigsaw of history behind the Transmission Line loudspeaker. To get this into context and meaning for readers, Transmission Line loading is an alternative to reflex loading with an open port, seen in most loudspeakers today, and the simple closed box (infinite baffle). It catches the imagination and has an ardent following in the UK where it was first discussed by Dr Bailey in 1965 and 1972. However, as Peter Comeau points out in our April 09 issue, on p67, it is a development of the Acoustic Labyrinth idea which had been around since the 1930s. The idea has crossed the Atlantic a few times but finally found successful commercial form in loudspeakers produced by U.S. company IMF, the initials of Irving M Fried, its founder.



Myryad MXT2000 tuner, a modern replacement for the Quad FM4.

How loudspeakers produced in the UK came to be successfully marketed by a U.S. company has been something of a mystery that most TL histories skip over, however, so thanks for explaining how it came about Allen. I'll admit I had wondered about this and had never asked John Wright of IMF and later TDL, the UK company he started to continue transmission line manufacture. **NK**

RADIO WAVES

I have been using a Quad FM4 tuner for many years. The sound is very good but the signal is not as good as it might be, even though I use a reasonable aerial and head amp. I am thinking of acquiring a new tuner. You have given good recommendation to the Myryad MXT2000 tuner. Would this be better; particularly would it cope with a weaker signal, better than the Quad, or should I go for the Magnum Dynalab 90T?

Francis H. Gilyott

A very sensitive tuner has low noise input devices, usually FETs, and a lot of front end gain. Since you already have a head amp I doubt that adding even more gain will make much difference and in any case the noise floor will likely be dominated by the head amp. As always if you are suffering hiss and noise look first to the aerial installation. I know it is unglamorous and out-of-sight, but it is here you need to spend a little money. Perhaps use a taller mounting pole and a five element high gain aerial. If you live far from a transmitter, which seems likely, then you may well be equidistant from two transmitters, in which case a rotator would choose between them. This may be useful if the signal is affected irregularly by atmospheric conditions. As aerial fitting is a dirty, arduous and dangerous job it's best to get a local fitter in to do the job, preferably one that is CAI registered (see www.cai.org.uk/asp/about.asp). It will likely cost £200 or so, obviously depending upon installation time and materials, but this is the only way to be sure you will improve performance. Your local fitter should also be aware of signal conditions in your area. What you need to ask him initially is whether he can ensure you get at least 0.5mV (500uV) per station, and

that he is able to demonstrate this on his signal strength meter. If he doesn't have a signal strength meter, do not use him. If he says that is impossible in your area - a possibility - get a second opinion.

The Myryad MXT2000 will give better sound than the Quad FM4. Not only is it a newer design, but it is very good by modern standards - I was very impressed by its clean, open sound. It will not solve your noise problem though, and neither will a Magnum Dynalab, excellent though it is. **NK**

MASTERS AND SERVANTS

No hi-fi system can produce music without vinyl on the turntable or a CD in the slot, and whilst a very good recording can sound satisfying on middle-of-the-road equipment, a poor recording will sound terrible even on the best hi-fi system. The quality of the sound we experience therefore is the

result of a partnership between the electronic engineers who designed the system and the recording engineers who produced the recording, yet whilst the hi-fi press is awash with reviews and critiques of amplifiers, players and speakers and advice on installation, acoustics, etc., no attention seems to be given to the other half of the equation, in particular the CDs themselves. True,

COMPACT disc DIGITAL AUDIO

The Philips Compact Disc logo signifies a CD meets Red Book standards, ensuring compatibility.

there are CD reviews aplenty in various publications, but these consist invariably of highbrow opinions on the interpretation of the music, the fame or failings of the orchestra, conductor or soloist, etc. Only very rarely does the reviewer mention the quality of the recording; indeed, one wonders whether they would be qualified to do so, and whether the equipment they use to play the recording would reveal the deficiencies anyway.

My interest is mainly in classical music and I am a late convert from vinyl to CD - it is wonderful to be able to listen for an hour or more without getting up from my chair, and not to be on edge waiting for the clicks and pops! However, the number of CDs in my so far modest collection which produce a sound comparable to my old LPs can be counted on the fingers of one hand, so much so that I have almost stopped

buying CDs as I am almost always disappointed. Many CDs, even from major companies such as EMI Classics, do not carry the 'Compact Disc Digital Audio' logo any more. I do not know the significance of this, but those that I have, to my ears at least, are most unsatisfactory.

In the days of LP we knew for sure that the disc had been cut and pressed on very sophisticated equipment by the manufacturer shown on the label, and we knew from experience that a Decca SET, for example, would be as good as the vinyl cutting and pressing process allowed, and we accepted the limitations of the technology and trusted the record manufacturer to do his best - we were seldom let down. Today, when we buy a top brand CD, we may be confident that the master tape was created by dedicated professionals but we cannot know whether a sub-contractor made the CDs from it and to what standards.

I am sure many of your readers as well as myself would greatly appreciate an article or two by your experts on the subject of the CDs themselves. As a new subscriber to your magazine I do not, of course, know whether you have covered this before, but even so it would be well worth repeating. Perhaps you could answer such questions as -

What is the significance of the 'Compact Disc Digital Audio' logo and should we avoid buying CDs which do not carry it? What is the 'Red Book'? What is the prevalence of pirate CDs today, and how can they be detected? Where should we buy CDs - should we avoid mail-order?

Do your experts agree that ADD discs, usually made as transfers of recordings originally issued on LP, are far superior to DDD?

Are there any test discs available, like the LP test discs such as EMI TCS WI?

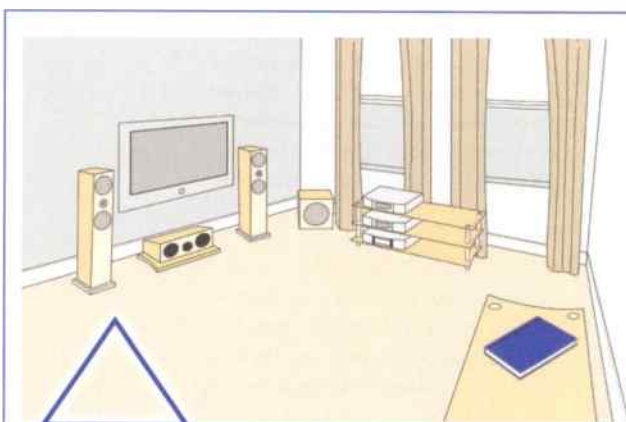
I could go on, but I am sure you have the idea!

C.W.H. (Chris) Somerset

The Compact Disc Digital Audio logo is a trademark, indicating the disc meets Red Book standards, which include its physical structure, error correction methodology, digital coding spec and what have you. Philips were always hot on standards because they ensure compatibility and guarantee a problem-free user experience. Philips have warned that non-standard discs cannot carry this logo, but I have lots of obviously normal CDs that lack it in any case, usually because they are plastered with other logos, and they play fine.

Pirate CDs are usually sold outside the normal retail chain, on market stalls, car boot fairs and what have you. The only time I have ever bought discs that were professionally finished and played perfectly but were, I suspect, counterfeits, was in the Far East, but that trade has been curbed locally as far as I am aware, under pressure from the IFPI. Nevertheless, counterfeiter operations are regularly discovered in Europe including the UK. You can find more on this at www.ifpi.org, under News. Mail Order from reputable companies such as HMV and Amazon should be no problem, but mail order from smaller, unknown operations is always a risk.

Classical recording quality does seem far more variable than that of Rock albums, and like you I often find it is dire. My common complaint is of harshness, screech, muddle and compressed perspectives. I know live recording techniques are more difficult than those in a studio, but I also suspect that the microphones and A/D convertors commonly used play a part in making some music difficult listening. High speed multitrack professional tape recorders did a good job and ADD discs do sound smoother as a result. Unfortunately, classical music sales are in decline and the industry isn't



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Room: majik

exactly awash with cash, so sound quality isn't going to improve greatly I suspect.

Your guess that we cannot easily assess sound quality except by subjective means is correct. The spectrum analysers we use at *Hi-Fi World* to measure products can look at how much deep bass and high treble exist on a disc, and also measure dynamic range, but they cannot measure muddle or distortion, especially from compression and clipping during mastering. As a result they are only able to give half the picture. And in the case of solo violin, say, neither bandwidth nor dynamic range are certain indicators of quality. I agree there is a need for someone to say something about quality, because modern recordings are pretty dire in this area I find. What a pity that digital has done little to improve quality, largely because too many recording and mastering engineers seem not to care much about quality nor understand the issues surrounding it. **NK**

Hi Chris - being a new subscriber, you have much to look forward to on this subject from Paul Rigby. Paul writes about mastering, almost to the complete exclusion of anything else, in his column for *Hi-Fi World*, and has done so for several years. He interviews top mastering engineers every month, along with many of the musicians involved, and this gives great insight - although I have to say it is not always good news! **DP**

MOVING COIL INPUTS

I have just been perusing Peter Comeau's excellent article about moving coil cartridge step-up in the May 07 edition of *HFW*. I was particularly interested in his observation that the *WD Phono 3* unit (a transformer type device) can be used to switch between two turntables. Surely then it is possible to switch easily between two cartridges on the same turntable? Is this equally simple if one is a high output moving magnet and the other a low output moving coil? Where does the ability or inability to do this leave the majority of phono boxes like those from Anatek and Icon Audio? Would anyone need to use the MM input on the pre for one input and a separate phono box for the other? I would appreciate the *WD Phono 3*'s ability to do this explained in more detail if possible. Thanks for an excellent read - one which I look forward to each month.

Alan Robson

I'm not quite sure why or how you will use two cartridges on one turntable Alan! It is possible to



The rear of an Eastern Electric Minimax valve phono stage with a paddle switch to select MC or MM.

mount two arms on one turntable, but they will be used individually, not together unless you are planning a new form of surround-sound from LP or a novel multi-room system!

For low noise with MC cartridges, valve phono stages commonly use input transformers. Circuit wise they are placed in front of the MM stage, making twin inputs and switching between them easy to achieve. As Peter said, you can then use two turntables and switch between them, providing one uses an MM cartridge and the other an MC.

With solid-state phono stages the circuit topology is simpler, because transistors are quieter and can be used to amplify the low output of a Moving Coil cartridge directly, without the need for an expensive transformer. In this case a single input is reconfigured to accept moving coil by increasing gain by x10, requiring one resistor change with an IC, and input impedance lowered from 47k to 100 Ohms by another single resistor change; both changes are made by simple DIP switches. Then - presto - MM has changed to MC. It's all very simple and there are plenty of super low noise audio 'microphone' preamps around - see That Corporation devices and audio info at www.thatcorp.com/. So quality solid-state phono stages rarely have twin inputs, whilst valve stages usually do, simply because of their circuit topologies. **NK**

DOES QUALITY MATTER?

The following article seems to merit an authoritative riposte - perhaps you are best qualified to do it?

Chris Somerset

(Reproduced from *The Daily Telegraph* newspaper, Thursday, February 26, 2009, with their kind permission.)

'Who Cares About Hi-Fi Sound? Not me.' by Ivan Hewett on Music.

"Does the sound of music really matter? Or, to be more exact, does it matter whether I listen to music on a mobile phone or a top-of-the-range hi-fi? In the

classical world, it matters an awful lot. The proof of that can be seen in the tributes that have poured in for two renowned audio engineers who died last week.

Christopher Raeburn, a senior producer for Decca records, was revered by musicians and listeners. The soprano Angelika Kirchsloger wrote to him after a recording session he produced to say: "There is no better example of knowledge, enthusiasm, respect and humanity in this world of music than you!"

James Lock was one of the engineers who created the special "Decca sound" in the sixties, and worked with a Who's Who of great names, Karajan, Solti, Pavarotti and Carreras among them.

But this golden age of classical recording is long gone, and the values it inculcated are fading fast as the culture of downloads and iPods takes over from the CD. This has caused much anguish in the hi-fi industry, which is baffled that the younger generation of music lovers appears to have a tin ear for sound quality.

In this month's issue of *BBC Music Magazine*, there's a 'crie de coeur' on the subject from a consortium of hi-fi retailers. "It is consumers that have driven quality down through a deepening but blind love affair with the MP3 and AAC formats on the ubiquitous iPod," rages the anonymous author. "The sad part is that convenience and 'music on the move' has helped to create a demand for these inferior substitutes, and what is even sadder is that most users are not even aware of what they are missing. The reality is that a generation is now growing up without recognising the loss and appears to be indifferent to quality, almost as if it's an irrelevance."

But all is not lost, because "there are still discerning people around who know how exciting and involving music can be, how it can deliver an emotional experience".

"Well, I've news for those snobbish hi-fi retailers and their ridiculous suggestion that only people who appreciate good hi-fi can really claim to love music. Sound quality is an

irrelevance, and it's only the generation raised on the consumer-driven sound obsession of the hi-fi era that has ever thought differently.

The reason those young listeners to MP3 files don't care that the bass is tinny, or the tone on the shiny side, is that - thank, God - they don't share their parents' skewed values. They understand that when listening to music it's the music that counts, not the sounds it makes.

Ah, that's all very well for pop music-lovers, the hi-fi buff will retort. They've got no taste and their ears are probably ruined by years of too-loud music. Anyone who appreciates the subtleties of classical music is bound to appreciate the subtleties of a first-rate recorded sound.

But this doesn't follow at all. Some weeks ago, I was chatting to a distinguished classical record producer with a decades-long career. I was keen to know what sort of audio gear this keen-eared, knowledgeable man uses at home, "A transistor radio, usually," he shrugged. "As a listener, I'm not bothered about sound quality."

To me, that makes perfect sense. Of course, the ideal experience of recorded music is a "three legged" one - a perfect recording of an inspired performance of a great piece. But only the latter two are essential, because the thing that really matters in music transcends sound.

In some ways, an inferior recorded sound can do that better. In a bad recording of a great performance, our imagination seizes on the dues hidden in the imperfect sounds and builds an ideal image from them. Whereas a manicured sound can end up attracting attention to itself.

Joy in music sinks to a wallowing in gorgeous sounds, and consumerist pride in one's very expensive sound set-up. I've said some skeptical things about the iPod, but if it kills off the audio fetishism of the hi-fi era, it will redeem itself ten times over."

Author Ivan Hewett's background is as a scholar of classical music and lecturer. In excerpts from his book, 'Music: Healing the Rift', published online by Google, he continually mentions the 'craft' of music as he puts it, and that is where he comes from on this subject. If I understand it correctly he also feels that we have been parted from the expressive value of music since as listeners we started to move away from active performance and into the solitude of personal space that is a modern hi-fi system.

This isn't a new idea and it isn't one without merit; I'm encouraging my son to sing with his school choir, play a musical instrument and listen

to music - of all genres - and one reason is that he can and will be able to participate in musical performance through his life, to be able to make music as well as listen to it - and I'm hardly alone in this. It's a popular outlook. I see no dichotomy between performance and audience. And I certainly don't believe that the ability to record music that we gained at the start of the twentieth century is responsible for having had a debili-



Apple's iPod - blamed for killing off hi-fi by dealers and by The Daily Telegraph music critic Ivan Hewett.

tating affect on classical music. The reverse in fact, music has simply been popularised into an accessible form of enjoyment worldwide; it isn't the preserve of the Church or the wealthy and powerful as it once was. And as time changes our language, Time Team labouring over documents just a few hundred years old for example, so it changes our music. That popularity has brought about simplification but the death of classical music isn't an argument I would pursue.

I too have met many classical musicians who give not one jot about sound quality - and that stuck in my mind. A dedicated pianist friend didn't understand the value of good sound quality at all; she heard the performance, not the sound. Not every classical musician is like this though: surprise, surprise, even talented musicians differ like the rest of us, so this proves nothing.

What "the hi-fi buff will retort" in Ivan Hewett's words is so far wide of the mark it could only come from someone not at all aware that hi-fi is seen by most buffs as a way of better appreciating 'performance' as I would prefer to put it, or as 'craft' in his terms. That includes classical music, but Rock is very quality conscious too of course.

That somehow the poor quality of the iPod will make us all work

harder to understand the craft of music, the skill of the composers and performers in toto if you like, is bizarre. But then Ivan Hewett is responding to a group of hi-fi dealers who reportedly claimed that people were killing off hi-fi by listening to iPods and it strikes me we have two bulls in the musical china shop here, they just came in through different doors. **NK**

Hmmm... I think Ivan Hewett's article is a classic case of constructing a straw man. Surely 'music vs. hi-fi' is a false dichotomy? I'm expounding on this in my column - see page 89. **DP**

FEELING BLU?

You may recall I've had a brief chat with you on the Friday of the Bristol Sound & Vision Show (I had a Scottish accent!). Attached is what I was talking about which could be of interest to me - good quality multichannel/stereo SACD playback, coupled with a separate Blu-ray player for Blu-Ray/DVD. This would be an alternative to the Denon universal Blu-ray player which includes SACD multichannel and stereo (at a price). Thought you might be interested and many thanks again for the chat! My latest Sony gear IS SCD-XA 5400ES CD/SACD player, DA 5400ES multichannel amplifier and BDP-S5000ES Blu-Ray player.

Jack Russel

Hi Jack. Thanks to you and all our readers that came to our stand at Bristol Show. We all appreciate it at Hi-Fi World. You can of course use separate players for SACD and Blu-ray, but I am not sure as to the merit of this when one player will do it all. It is the receiver that does the important decoding work these days, with the advent of digital linking via HDMI. Looking at Sony's specification for their BDP-S5000ES Blu-Ray player I am surprised that the inventors of SACD have omitted it from this machine. It plays neither DVD-A or SACD, it appears. We are still awaiting the Denon and Oppo transports/players that will handle all discs. SACD in particular has a big catalogue and a big following too, and SACD audio quality is superb, at least when done properly. I also suspect that as audio gains importance on the Blu-ray horizon, an increasing number of Blu-ray players will be forced to include SACD and DVD-A compatibility to compete with those that already have it.

A large number of receivers now decode DSD from SACD by converting it to PCM then putting it through the on-board LPCM DACs.



The Sony BDP-S5000ES Blu-ray player does not play Sony's own SACD discs, according to their published specifications.

You may be interested in our Onkyo PR-SC886 review this month which covers this topic. **NK**

QUADS DOWN UNDER

I live down under in North Queensland and am two hours from a hi-fi shop that will kindly order anything I wish, but on the understanding that I buy it, so auditioning is impossible. My system comprises a Cyrus CD8 SE CD player and home built monoblock Class A transistor amps which I built with outboard power supplies to ensure low distortion. They run 8 amp supply rails and are around 50W per channel, a Pro-ject RPM6sb turntable, Pioneer PDR509 and Quad ESL-57s which I brought to Aussie with me (they were serviced in 1989). I also have a Wharfedale SW250, which I use with the Quads. I have bought a kit to overhaul the Quads some time ago but I am short of time as we run a large cattle property so I never seem to get round to them. I am a bit of a loss as what to do. Do I spend the time to overhaul my Quads (I am able and aware of the lethal voltages), or start again with something else?

The problem is I enjoy everything from Jazz to Massive Attack, and the Quads don't enjoy Massive Attack or Portishead, to name just a couple, but are amazing with Jazz and I don't want to lose the positives of the Quads, but could really live without the negatives. Would stacking them help, that is if I could even find another pair over here?

On a recent trip to the UK I auditioned a pair of ATC SCM 19s and 40s which I really liked, but over here they are far more expensive than they should be when you do the exchange rate, so I am loathe to go that way. I don't mind kit speakers either, as long as they are available

in Aussie. Any suggestions are really appreciated.

Also, I am a bit confused as what to do next regarding my turntable which I have been quite happy with, but am very curious about the talk about the Technics SL1200. Would it be a side step, or with an arm upgrade to a Technics would you consider it a possible upgrade to the Pro-ject?

Chris Allman

Hi Chris. I visited Cairns last year and wish I was in North Queensland now! I must admit to a great love of Aussie; the wide open spaces are breathtaking, at least to a Londoner whose horizon is invariably a brick wall 50ft away. Stacking Quads increases acoustic power output and volume; it also increases panel area, deepening bass. However, whilst ESL-57s can be picked up cheap second-hand, invariably they are faulty, suffering arcing and such like, and as you likely know this demands specialised servicing. As this isn't available to you, it's not the best solution I feel. You may well be able to buy Kingsound Prince II electrostatics in Aussie, because they are made in Hong Kong by Kings Audio. Okay, HK is a long way from North Queensland (we did KL to Cairns and I thought it would never end!) but the Prince IIs are inexpensive in the UK (around £3,000) and likely so in Aussie too. The only drawback here is that they need a 200 Watt amplifier (to swing the necessary volts), but you may be able to cope with this problem, seeing you build your own. The Prince IIs go loud and have quite large bass too - see our review in the April 2009 issue. But since they are high impedance at low frequencies they do not demand current, a point of interest when designing an amplifier for them: it

doesn't have to be a power station.

The Technics does a sterling job and has that tight sense of timing that quartz locked Direct Drives bask in. For an arm, I would choose a Rega RB301. The Project arm did not measure out well and I have reservations, quite frankly. Seductive in many areas perhaps, I prefer the clearly cut, frank and engaging dynamics of a Rega to the softer and more interpretive view of the Project arm. David has recommended the Technics is upgraded by fitting a better arm, and here I suggest Rega for the budget conscious. **NK**

Hi Chris - please see my answer to 'DIRECT UPGRADE' for advice re: the Technics. **DP**

BOSE VALUE

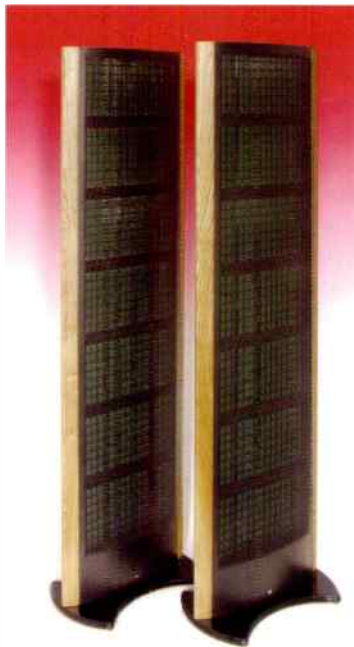
The end is nigh, I've seen the signs. After a fantastic eBay 'hunt' where my prey (an early and armless Elite Rock turntable) was skillfully 'snipered', I found myself in a bank, handing over a deposit slip. The young man behind the counter enquired about the deposit and I told him it was for a turntable. He nodded knowingly and said, "you are a DJ right?"

"Errr no," I replied and proceeded to explain as economically and clearly as I could that the turntable in question was a unit built to provide excellent sonics and that there was a significant intersubjective consensus amongst audiophiles that very good results could be obtained from vinyl. Unfazed the teller replied that he listened to all his music on MP3 anyway 'cos the sound was so good and anyway he played it through his Bose system, and everything sounds good through that, right? At this point I muttered "right" and watched him like a hawk. Were his banking skills worse than his taste in audio? My money was probably being funnelled to Bose central compound at the core of the earth...

Yet no, I fret too much. The funds, and my table, arrived. Its armless status was perfect for me as I had on hand a Rega RB300 with an Audio Origami counterweight, masterfully rewired by my father. He is of the opinion that a Decca London is the way to go in the Rock. How do you think this combo would sound?

The real bonus is that I intended to adapt the paddle/trough concept to my Technics SP10, and the Rock saved me from that quest (an insane undertaking that even my nutter dad shook his head at). The acquisition of an armless Rock was a far saner option.

I'm now considering a Linn Ittok for the Technics. I've only ever heard the Ittok on Linn turntables, so how do you think this arm (Ivor's Japanese Breuer



Kingsound Prince II electrostatic loudspeakers. A good choice in Aussie?

clone?) would perform on the Technics? Have you seen how much SPIOs are going for on eBay? Off the scale. I blame the audio press. Your utterings really do influence prices!

Ben North

Hi Ben - well, as we all know Bose do make the best hi-fi, and it sounds even better via an iPod, doesn't it? Still, if you have to slum it with your nasty old LP records - behaviour that's as mad as a tramp swigging a bottle of Strongbow outside Sainsbury's - then here's what I'd do. Although the Ittok is a classic design now, it is often said that it has 'soft bearings', meaning it is easy to get one a long way from optimum performance when buying second-hand. Simply by installing a cartridge with the arm in situ in the deck, where strain is sent back through the bearings, the arm could be wrecked. So... I would say it's not the world's most reliable used buy - unless you can find one that's a known quantity. Of course this applies to all tonearms to a greater or lesser extent, but the 'Tik Tok' is particularly prone to these woes, it is said. In my opinion, Zetas are far more robust, and would suit the Technics better. Admittedly they are rarer, but maybe no less rare than a non-jiggered Ittok. Also consider Syrinx PU3s - which can be rebuilt by Audio Origami (www.audioorigami.co.uk/). **DP**

PHASED OUT!

Having read the review of the Cambridge DAC Magic in the December issue I decided to buy one and I can only agree that this represents a great upgrade for the price.

What wasn't referred to was the 'Phase select' facility. I have no idea what this does but so far as some CDs are concerned, it certainly has a positive effect. What puzzles me is that using my Denon audio check CD I have established that the sound coming my loudspeakers is 'in phase'. However when I press the 'phase effect' button on the Magic DAC it still registers 'in phase'. I don't understand how the phase effect element works?

As made clear in the review this DAC has a multitude of uses and via my DVD player's coaxial audio output I made a connection to the DAC and am thus able to make use of the various filter/phase select facilities. But this only seems to work with DVDs I have recorded from TV or transcribed from my video cassettes. Commercial DVDs do not seem to provide the requisite digital audio signal for the DAC. This aspect I also find puzzling as CDs played the DVD player's coaxial output work effectively via the DAC. Does this make sense?

Charles T Lout

The Phase change button changes what is termed 'absolute phase', not relative phase between the channels. By changing absolute phase, when a drum is hit, for example, the loudspeaker cones travel outwards, rather than inwards - or vice versa. Some listeners claim this makes a big difference, but only with certain recordings, so your findings agree with those of others.

The DAC Magic will only decode normal digital, known as PCM (Pulse Code Modulation). It will fall silent when faced with Dolby Digital, which most DVDs carry. You may be able to change the DVD player's digital output to transmit PCM only, and not Bitstream (meaning compressed digital from Dolby or DTS). Display your player's Setup Menu on a TV and see what it says. **NK**

NUTS!

I have a Rega P25 and some time ago I wrote to you asking about cartridge upgrades from my Goldring 1042. You suggested the Ortofon Rondo Bronze, however, finance and a tendency to prevarication meant that things got delayed and I eventually went for the Ortofon 2M Black. The 2M Black is very good and all my records achieved 'brand new' status in terms of listening pleasure. However, I had been interested in improving further on the RB600 arm by fitting a new counterweight of some sort. Many of the replacement weights

major on the benefits of reducing the centre of gravity so, in advance of spending £50 to £100 on a commercial item, I thought I would see what I could accomplish myself and the attached picture is the outcome.

It is not particularly pretty, but for the cost of two hex nuts, that I had in my spares draw, a bit of sorbothane rubber for inserts and some glue, my records are once again singing like never before. The main difference is that instruments and performers really stand out. In the case of classical music, from Vaughan Williams to Mahler, individual orchestral elements are now very firmly placed and I don't have to try and listen for specific instruments as they're so solid. Similarly with Rock, from Pink Floyd to Alan Parsons, Genesis or Yes where 'Fragile' has improved out of all recognition!



Fix a nut beneath the Rega counterweight and you get better sound, says Denis Holliday.

Perhaps I should market it as a kit - 2 Hex nuts, a square inch of sorbothane and a small tube of glue. Yours for just £19.95 plus VAT would see the competition off! Thanks for a great magazine.

Denis Holliday

Job's a good 'un, Dennis! **DP**

MISSING MAESTRO

Back in the year 2000, after reading your excellent rave review, I purchased an Audio Analogue Puccini SE amplifier. Recently, I could not help but note that it is not included in the 'World Classics' list. Has the passing of time not been too kind on the performance ability of this amp?

Mr. D. Monk

No - it's still a fine transistor amplifier. But there are many fine transistor amplifiers, and only a few pages for 'World Classics' every month, so I am afraid it has slipped from our listings. Listen and enjoy it! **DP**

Long Way Home

In this new iPod age, MiniDisc is surely an anachronism, but Sony continue to support the format with products like the MZ-RH1 portable Hi-MD recorder.

Tim Jarman listens in...

Back in the early nineties, MiniDisc was Sony's new hope for a better hi-fi world. With no fiddly tape whirring laboriously past magnetic heads, and no cogs, gears or rubber wheels to perish and atrophy, the little enclosed digital disc promised reliability, flexibility and fast track access. MD flourished for a while, especially in its native Japan, but by the early noughties it was looking tired...

Hi-MD, the format that the MZ-RH1 uses, came along to breathe new life into the old disc. Essentially a high density version of the original MiniDisc of the early nineties, it uses special 1GB discs and can store both music and computer data. Hi-MD uses a codec called ATRAC3 Plus, which can compress the contents of a CD about twenty fold. Ordinary 80, 74 or 60 minute MDs can also be used in the MZ-RH1, but with shorter recording and playback times.

So in a world of 100GB-plus MP3 players, why should you spend over £200 on a 1GB relic of a bygone age? In a word, *quality*. As well as ATRAC, the MZ-RH1 can record in PCM, that's the same format as CD. PCM is an uncompressed format of course, but a 1GB Hi-MD disc still gives you 1 hour, 34 minutes of recording. In effect, it's just like a CD recorder, but this one runs on batteries and fits easily in the palm of your hand.

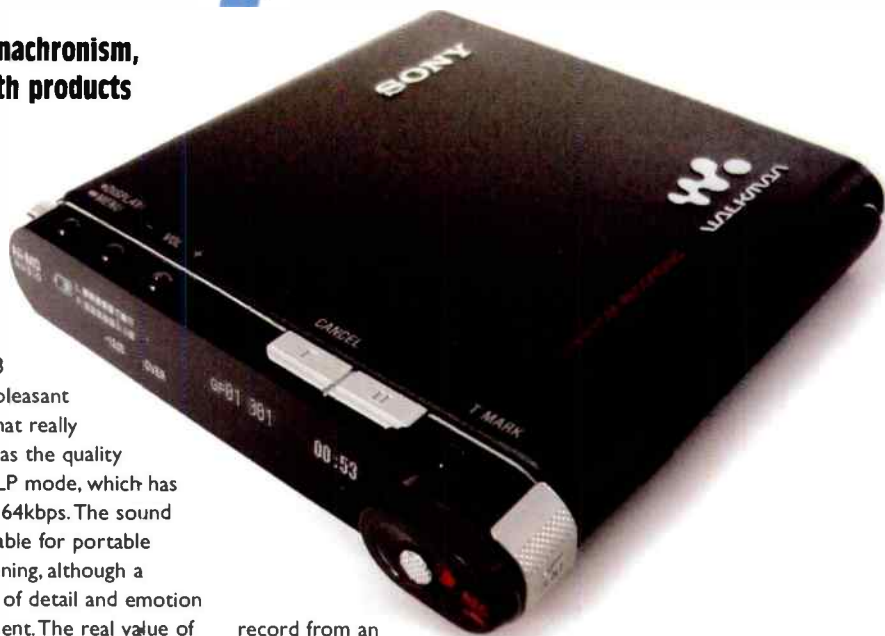
Sony have gone all-out to achieve the best sound quality possible; recording from an analogue source reveals the sound to be rich and detailed, similar on playback to that delivered by the very best portable CD players. The headphone socket can be set to become a line output in the menus and even playback through a full-size hi-fi system does not disgrace the little Sony.

Recording in Hi-SP mode (256kbps), which gives 7 hours and 55 minutes (or about 10 regular

albums) on a Hi-MD disc, would also give any regular MP3 listener a very pleasant surprise, but what really surprised me was the quality obtained in Hi-LP mode, which has bit rate of only 64kbps. The sound was still acceptable for portable headphone listening, although a certain amount of detail and emotion was notably absent. The real value of the Hi-LP mode is that a standard 80 minute MD, which is cheaper and more easily obtainable than the 1GB variety, still accommodates over 10 hours of material. Recordings can also be made in any of the earlier MD formats (SP, LP2, LP4), Sony justifiably claim that their Type-S DSP chip gives superior performance in these modes to the original machines.

What spoiled earlier Net MD and Hi-MD machines was the intrusive Digital Rights Management (DRM) software that Sony burdened them with. The good news is that this is now mostly gone which makes the MZ-RH1 a very flexible recording tool, when used with the Sonic Stage software package you can download and upload freely via the high-speed USB link. For the first time it is also possible to upload any old MD recordings that you have, digitally and at high speed. This was not possible using the earlier models. Tracks transferred from the computer CD drive can be recorded on the MZ-RH1 in any format, including all of the earlier MiniDisc ones. As well as ATRAC, WAV and some MP3 files can also be handled without conversion, an impressive feat. You can also use Sonic Stage to edit, title, divide and store your recordings far more quickly and easily than is possible using the fiddly buttons on the recorder itself. Apple Mac users have not been forgotten, because even though Sonic Stage is a PC-only application a Mac compatible program is included.

On the recorder itself you can



record from an analogue line source, a microphone or optical digital source. This covers most recording needs, odd setups such as recording radio broadcasts digitally from a DVB receiver such as Sony VTX-D800 were handled with ease. A more conventional application would be the recording and subsequent transfer to a computer of material from LPs, again this was very easy as the compact MZ-RH1 could easily be taken to where the hi-fi system is. For more serious users the MZ-RH1 is ideal for recording live events, its combination of high quality, easy computer-based editing and the ability of Sonic Stage to spit out the results on a CD-R makes for a really complete package.

As an MP3 player alternative, the MZ-RH1 is slightly less convincing, although if sound quality is important to you the drawbacks of limited storage and a fiddly menu and track/album structure (all done on a tiny LCD display on the remote control, track and artist data cannot be shown on the machine itself) may be worth overlooking. Even the maximum 1GB capacity is not that limiting when you remember that the media is easily exchangeable.

So is the MZ-RH1 at all comparable to the ubiquitous iPod? No, it's much better than that. Really it's the spiritual successor to the Sony's own WM-D6C Walkman Professional - high praise indeed. Buy now though, while stocks last, as this may well be the last Hi-MD recorder that Sony ever make.

VERDICT

Fiddly, quirky and anachronistic - but a brilliant audio recorder with superlative build and flexibility all the same. MiniDisc's last hurrah!

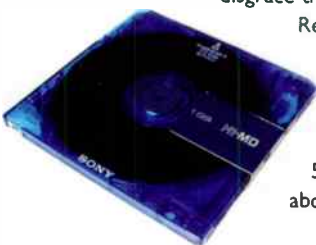
SONY MZ-RH1 £220
Sony UK Ltd.
+44 (0)1932 816786
www.sony.co.uk

FOR

- clean, open, detailed sound
- versatility, build
- great live recording tool

AGAINST

- kooky oddball format!
- limited capacity
- unintuitive ergonomics



Glass War

Forget the Audio Note Ongakus of this world – in 2009 it's possible to assemble a valve powered system on a shoestring. Channa Vithana lavishes glowing praise on this one...



Having been disappointed by many budget valve amplifiers in the past – usually lacking in bass resolution, possessing poor timing and being impractically low-powered – I challenged myself to assemble a system that showcased the strengths of tubes (beautiful midband, lovely vocal rendition and a clear, open musical canvas) without breaking the bank...

Let's address the cost and power issues first. Although not the world's best valve amplifier, the Icon Stereo 25 is clearly super value for money at just under £500. It is nicely and solidly made with well weighted controls. At 215x310x320mm and 15kg the three input Icon features Class-A ultralinear output, hand-wired point-to-point wiring and Teflon insulated silver-wiring in the aid of purer sound quality. Glassware consists of one ECC83/12A7, two ECC81/12AT7 phase splitter valves and four EL34 matched output valves. When it was reviewed by Noel [*Hi-Fi World*, December 2008], the Icon was measured as having 25W at 3% distortion but with 1% distortion, it had an output of only 7W...

Consequently, I required high sensitivity loudspeakers to make the best of it. Usually with lower powered valve amplifiers, partnering higher-sensitivity loudspeakers tend to be large, floorstanding designs. Most small standmount loudspeakers tend to have low sensitivity which precludes valve amplifiers such as this. However, my search was rewarded with the new SP-1 by Russ Andrews. Those familiar with the Focal 700 series will see a lot more than a distant resemblance to the Chorus 705V model. What RA have done is retained the excellence of the bespoke-engineered Focal Polyglass impregnated paper mid-bass driver and aluminium-magnesium alloy TNV tweeter, plus the fine cabinet finish and construction, but replaced the internal wiring with Kimber 4PR, modified the crossover using Kimber

Kap capacitors, and improved cabinet internal damping and added long-hair wool (for better bass).

These modifications have enabled the diminutively sized 192x315x248mm SP-1s to deliver (a claimed) 95dB sensitivity at 8 Ohms, which is most impressive for the price of around £350. Available in attractive Amati (medium brown) and black finishes, and retaining the excellent Focal cabinet design the SP-1s are stylish and versatile speakers.

Together, the Icon and RA SP-1s at around £850 set up the basis for an intriguing, cost-effective and versatile valve system. Versatile because they don't *have* to be used with similar priced budget hi-fi, but they could be teamed up with a low-cost or good second-hand CD player, like the Rega Planet 2000 (about £200 second-hand) to start off with. For this system however, I have teamed them up with the latest £1,995 Unison Research Unico CD player to great effect, as this demonstrates how far up the system the Icon and SP-1 partnership can go.

The Unico CD is a robust silver disc player with sound to match. It has a high-resolution, full-bodied and unfussy nature which allows many varieties of hi-fi, at vastly differing price-ranges, to be connected via its phono or balanced XLR sockets. For example, it sits comfortably with similarly priced amplifiers like the Simaudio Moon i-3 and more expensive loudspeakers like the Spendor S9e (£3,000 when new) that I use as a mid-to-high end reference system. The Unico has a balanced pure triode valve output stage using two EC82 valves with, unusually but usefully, a digital input alongside its digital output which is a handy feature for those wishing to take advantage of the Unico's 24/192 Crystal DAC with satellite or DAB sources. The Unico is nicely finished with simple button-controls, thick, silky-smooth aluminium front-panel and is dimensioned at 435x340x95mm and weighs 12kg.

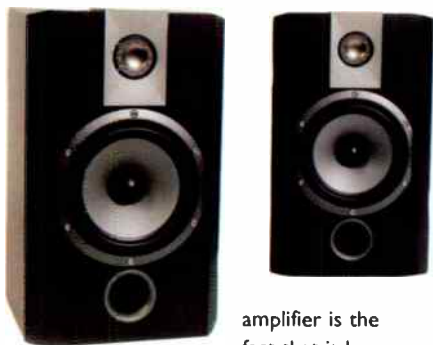
TUNING

I have used relatively inexpensive cables from the Chord Company which match the low cost Icon and RA SP-1 core. I really like the entry-level Crimson interconnect as it has all the trademarks of the Chord sound – i.e. solidity, bass tunefulness and excellent timing – but costs just £37.14. It's a well-made interconnect using multi-strand oxygen-free copper, low density polyethylene dielectric and a vibration damping PVC outer jacket. Chord's Carnival Silver Screen loudspeaker cable priced at a very reasonable £5.88/m (termination is extra) is constructed from 1.8mm diameter multistrand oxygen-free copper, polyethylene insulation, dual foil shield and vibration damping translucent outer jacket.

For this system I have specified one upgrade in the form of The Chord PowerChord mains cable at £137 for 1.5m for the Unico CD source. In construction the PowerChord features a high frequency dual layer shielding system, high density vibration damping outer jacket, high purity copper conductors and is one of the first such mains cable upgrades to carry CE approval. I have used the PowerChord in many high-end systems, some costing almost ten times the price of this one with consistent performance. I find that it improves resolution (better, more realistic instrument and vocal timbre) and musical timing which enables a more seamless layering of musical information.

One great thing about the Icon





amplifier is the fact that it has extra cost factory

customisation options – it can be converted to 15W triode output, have Jensen copper foil in paper and oil capacitors fitted, as well as an automatic HT relay to protect cold valves upon switch-on and extend valve lifespan. There is also a KT88 valve option instead of the EL34s on the standard Stereo 25 which costs £100 more. For more information on tuning and valve options contact Icon Audio at www.iconaudio.com.

I would recommend approximately fifty hours for running-in the system and cables, with the Icon taking up a stable, top-shelf of an equipment rack for best heat ventilation. As both the Icon and Unico CD use valves, it would be best to switch on thirty minutes before use and then switch off

"the beauty is its simplicity and straightforwardness – it just gets to the meaning of the music..."

immediately after listening to prolong valve life. Another tip is to separate-out and gently uncoil all the cables neatly so minimising signal and power interference between them for better sound.

SOUND QUALITY

I personally don't subscribe to the idea that valve amplifiers are only really good with classical and jazz music, so a good variety of material was used for this system once fully warmed through. But I did start with the slightly dry sounding and lower mid-biased Mozart 'Colloredo Serenade' (2008) by Alexander Janiczek and the SCO on Linn Records. I was generally impressed with the system, which offered a relaxed but engaging account of things. The complexities of the chamber orchestra were revealed in all their glory – string and wind instruments were clear and legible in isolation, yet completely of a piece and cohesive when conveying the broad orchestral passages of the music. The violin was clearly enunciated with good phrasing, body

(timbre) and life. It was clean in the high frequencies and never strident or harsh. This is an interesting and welcome combination of virtues where isolated instruments are clearly organised and reproduced but not at the clinical expense of stifling the life and soul of the music – which flowed very nicely – that dry recording quality notwithstanding.

Goldfrapp's 'Seventh Tree' (2008) is a stark departure from their very popular 'Supernature' and hopefully will have got rid of the hordes of new 'fans' in the interim! For the rest of us, 'Seventh Tree' is a stunning blend of folk-pop esoterica with acoustic instruments and layered electronics alloyed to Alison Goldfrapp's complex and unique vocals which go from soft breathy whispers to soaring crystalline high frequencies. Her voice is quite astonishing really, and also somewhat tricky to reproduce, but the system returned a joyful account, with tuneful bass lines and intricate unravelling of harmonies and melodies – be they electronic or acoustic. There was also an enveloping acoustic that spread across the listening room effortlessly.

'Listen Like Thieves' (1985) by INXS proved no less enjoyable as

the bass lines were decently taut, tuneful and never lagged behind the percussion and guitars. The lead guitars had powerful crunching timbres, just as they should and Michael Hutchence's vocals were similarly conveyed in all their powerful, Jagger-esque glory. The slightly murky sounding but wonderful return of BB King on 'One Kind Favour' (2008) had plenty of deep growling boogie. The drums and exquisite 'BB' Gibson guitar sound were in full tone (and swing) while the bass lines were in sync perfectly with the groove and Dr. John's intricate piano playing.

Guns N' Roses' 'Chinese Democracy' (2008) is a challenging record due to its heavy (over) production mixed with decidedly compressed sounding mid-nineties electronica and yet rather beautifully recorded piano and vocal parts! In many ways as complex as the Mozart piece earlier, it is a bit of a handful. It was reproduced well here, with wonderful piano tones that gave way to hard rock guitars and the demanding, dynamic lead vocals of

Axl Rose with no problems. I finished the session with dance pop in the guise of Madonna's 'Like a Virgin' (1984), an excellent Nile Rogers production, and Rihanna's 'Good Girl Gone Bad' (2007). Madonna sounded wonderful, and the big, powerful drums and bass lines were imparted with dynamics and deep, enveloping synthesisers. Rihanna was dazzling – proving she has a brilliant voice – with a touch of emotional grit, plenty of soul and enjoyable, tuneful extension. Rihanna's music was also very enjoyable, with good timing and propulsion to the pop-groove beats this modern occasionally compressed recording was opened out and revealed but not to the extent that the music became sterilised.

CONCLUSION

Of course, this isn't the world's 'highest fi' system, but I had real fun with it. The beauty is its simplicity and straightforwardness – it just gets to the meaning of the music, keeping you blissfully unaware of its various weak points. It's not the world's loudest, nor does it have Electrocompaniet Nemo-like dynamics and grip, and there's a lot of low level detail missing in absolute terms. But as it bounces along joyfully, getting right into the groove, all this simply doesn't matter.

For me, the partnership of the Icon Stereo 20 amplifier and Russ Andrews SP-1 loudspeakers at around £850 together was key. These components worked very well together, being just good enough to really get into the music, but not good enough to reveal one another's respective weaknesses. I suppose that's the definition of synergy! The Icon provided a clean window to all the diverse music used, especially adept with vocals and clarity when confronted with complex recordings.

The Unico CD player is not in my opinion the very best at its £1,995 but in this system worked well, turning in a full-bodied and bold sound that captured the full timbre of an instrument or voice. This seemed to flatter the £350 Russ Andrews SP-1s, which showed their Focal DNA (which I will take any day over loudspeakers with overblown low frequencies that cannot express genuine timing as heard in live music) yet offered additional smoothness and subtlety.

Finally the Chord cables are cost-effective and able to last many upgrades. From Madonna to Mozart, this system gels very nicely and is suitable for many types of music from low-cost to high-end budgets alike.



Chord Crimson



Chord Carnival Silver Screen



Chord PowerChord

CONTACTS

Icon Audio
 ☎ +44 (0)1162 440 593
www.iconaudio.com

Unison Research
 ☎ +44 (0)1753 652 669
www.ukd.co.uk

Russ Andrews
 ☎ +44 (0)845 345 1550
www.russandrews.com

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World Radio History

TANNOY

Big Bang Theory

Bang and Olufsen is a name that's much maligned in audiophile circles, but, argues Tim Jarman, this is based on ignorance and prejudice - and maybe even a latent fear of well designed, ergonomically sound hi-fi! There's much in the company's history to please the purist, he says, and here's his guide...

The pecking order of hi-fi fashion is well understood. At the top there are classic high end esoteric turntables and valve amplifiers, and next there's what the many smaller British specialists produce. Then there's the mainstream mass market and below that are those products which are seldom (if ever) mentioned, such as the high-end offerings of the Japanese household names, and of course Bang & Olufsen...

Bar-stool audiophiles have long dismissed the whole B&O range as over-designed and sonically flawed. This misunderstanding comes in part from the way the range has at some times been constructed; there are two tiers: 'Audio' and 'High Fidelity'. The Audio range products are intended for those who want to enjoy good quality music at home with the minimum of fuss. It comprises many separate as well as combination units, and they tend to be the simpler, lower power models. The High Fidelity range is where the company's engineering and design skills really show similar in a way to Sony's respected 'ES' series, although unlike the Sony offerings the High Fidelity products are less clearly

identified. What follows is a brief introduction to the better end of classic B&O, and the good news is that most of these models can still be bought quite cheaply, so give yourself a treat and seek them out!



BeoCord 9000 cassette deck - a visually arresting mid-1980s marriage of form and function.

"Bar-stool audiophiles have long dismissed B&O as over-designed and sonically flawed..."

RECEIVERS & AMPLIFIERS

The best known classic B&O amplifier is probably the Beolab 5000 of the late nineteen sixties. This, along with its companion Beomaster 5000 tuner, set the style for European hi-fi for the next twenty years both in terms of appearance and performance. Listening to the Beolab 5000 today shows it to be a refined performer with a lively sound, a quirk that was possibly engineered in deliberately to compensate for the dull loudspeakers of the day. The tuner is as pleasant and neutral as one could ask for, later models in the series include an FET front-end and ceramic filters in the IF stages, a thoroughly modern specification.

Both these units were built to a standard more akin to that of professional rather than domestic equipment, so reliability is excellent.

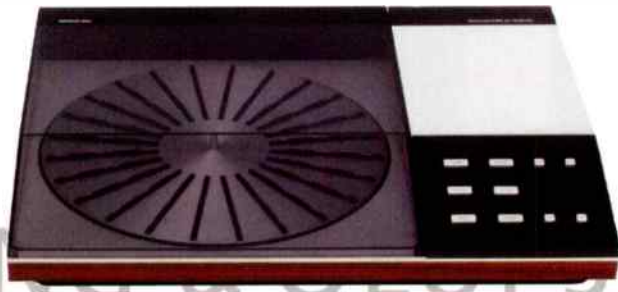
The next big step forward in the evolution of the Beomaster receiver came in 1974, with the introduction of the Beomaster 2000. This was the first B&O model to use a split power supply and therefore direct coupling between the amplifier and the loudspeakers. The result was a crisp, tight sound that was full

of detail. Like the Beolab 5000 the power delivery seemed effortless, even into difficult loads. The tuner section now offered preset tuning on FM and a PLL stereo decoder in an arrangement that really makes the most of the FM signal.

The next Beomaster to consider is the 4400 of 1978. This is the nicest sounding of all Beomasters, the designers had worked hard to eliminate what they referred to as "transistor sound", as well as ensuring that the headroom increased throughout the circuit in such a way that no one stage could overload those that followed. The performance that results is typical of a high-end B&O fare with a warm, extended bass and a detailed and sweet treble, a combination that makes most kinds of music very pleasant and easy to listen to. The effect is similar to adding fine Danish butter to a favourite dish, adding smoothness and creaminess to something that is already enjoyable - possibly not to everyone's taste but it should be tried at least once! The Beomaster 4400 is rated at 75W per channel, more than enough for most applications. Although visually quite different, the Beomaster 2200 is effectively the 4400's smaller brother and shares many of its sonic



sleek Beogram 1700 turntable...



Beogram 8000 - not quite your average Rega...!

traits. The main difference is that the power output has been reduced to 40W. Much of the Beomaster 4400 circuit was also used in the later Beomaster 6000.

Finally, no survey of classic Beomasters can be complete without reference to the Beomaster 8000. Introduced in 1980, this was the largest, most powerful and most expensive of them all. It combined a 150W amplifier with B&O's first digital synthesiser tuner and electronically controlled preamplifier. The result was an enormous unit with a massive punch but for its unconventional appearance would have taken the Japanese super-amps on head to head. This is the only B&O amplifier that uses true dual-mono construction in the power stages and the first to offer infra-red remote control for both the main unit and the sources. As with many very powerful units the sound can sometimes lack the refinement of the smaller models, for those sensitive to this sort of thing the previously mentioned Beomaster 6000, which is similar in appearance but smaller, may fit the bill better.

TURNTABLES

The classic B&O turntable is of course the Beogram 4000. This tangential tracking model does tend to polarise opinion but it should not be dismissed without hearing a good example first. The short, stumpy arm and rigid cast aluminium subchassis and plinth give a tight sound that can be seen as a little dry but it plays records with machine tool precision, in a way that can be highly addictive.



gorgeous BeoCord 5000 cassette deck...

This model was simplified over the years when it became the Beogram 4002 and 4004. Although considerably less sophisticated electronically, these two machines share the same basic mechanical structure as they sound very similar.

The next major development was the Beogram 8000. This used a digitally regulated "Tangential Drive" motor instead of the previous pulley and belt arrangement, resulting in a silent and stable mechanism. The arm remained much as before although inside the supporting structures were now made of pressed steel rather than aluminium. The Beogram 8000 was claimed to be the last word in precision by B&O, and the sound certainly bears that out - it is one of the best sounding fully automatic turntables ever. The later Beogram 8002 used the new miniaturised pickups (MMC 1>5) that B&O had introduced but was otherwise very similar. All these modes are very complex so finding a good one that still genuinely works properly can be difficult.

Although not strictly speaking a High Fidelity range product, the Beogram 1700 cannot be recommended highly enough. Simple and reliable (and importantly, cheap!), when fitted with a decent pickup it compares favourably with the current crop of budget hi-fi decks and offers fully automatic operation as well - a true bargain.

The later B&O tangential decks, that is the Beogram 5005 and its many derivatives, were a disappointment, despite the high price that some models in the series still command. They are fine for completing a matching set of other B&O components but are not a serious hi-fi proposition otherwise.

B&O don't make pickup cartridges any more, but Soundsmith in the USA make a range of very convincing alternatives that work well. For most applications the SMMC 20EN is all you really need.

CASSETTE RECORDERS

Although cassette recorders are not B&O's most famous product line, they have been remarkably consistent in producing good

designs that worked well at their respective price points. The great majority combined quality Japanese mechanisms and heads with B&O-designed electronics, a truly symbiotic combination.

The Beocord 2200 was the first hi-fi cassette Beocord and appeared in 1974. It is still a good proposition today as its wear-proof ferrite heads, simple mechanism and all-discrete electronics pose no complex maintenance problems and once the machine has been recalibrated for modern tapes the performance is outstanding. Treble is not particularly extended but this helps to retain a smooth, relaxing presentation that is a joy to listen to.

The nineteen eighties Beocord 5000 has been mentioned on these pages before and is a truly great recorder. It came factory calibrated for IEC standard tapes and so will still work correctly with what is currently available if in good condition. This model includes Dolby HX Pro, a system that expands the available headroom of the tape



Beocord 2200 - quintessential B&O precision engineering from the mid 1970s.

to give greater dynamic range. There was also a model with the same name in the seventies, this used B&O's only in-house cassette mechanism and was in retrospect not a particularly good design.

The larger Beocord 8004 shares much of its circuitry with the later Beocord 5000 but has a higher specification mechanism. It is also a fine machine but slightly more complex to overhaul. Most complex of all is the self-calibrating Beocord 9000, a machine designed to solve the problem of the wide range of cassette characteristics produced in the seventies. By its launch in the early eighties, this problem had largely been solved by the intervention of the IEC, and so from a sound quality point of view a well set-up Beocord 8004 is a better bet.

COMPACT DISC

B&O joined the Compact Disc market in 1986 with their Beogram CDX. The confusingly named "laser



Beogram CDX CD player - an early Philips 14bit machine in drag, albeit very attractive drag!

optical turntable" was in fact a nicely dressed Philips CD104, complete with a 14bit DAC. The natural, LP-like sound of the early Philips CD players is well known and the CDX gives it in full measure. It is a very pretty machine too. The later Beogram CDX II looks similar but is based on the Philips CD160 and has a rather

replaced by the CD5500. This model was the first CD player that B&O designed themselves, basing it around the Philips CDM-2 pickup and 16bit chipset. This is a classic combination and the B&O implementation is first rate. The DAC used is the famous TDA1541A and the player showcases it to its best effect. The CD5500

"The High Fidelity range is where the company's engineering and design skills really show, similar in a way to Sony's ES series..."

bland sound in comparison. The CDX was designed to be used with any equipment but all other B&O CD players match specific systems and are intended for use mainly via the system remote control. This means that in some cases there are very few controls on the unit itself and although there are always enough to get by it can be a bit limiting at times.

The Beogram CD50 certainly fits into this category. This was the company's second offering and is based on Japanese technology. A single Burr-Brown DAC is used, this is then multiplexed in the analogue domain to form the two stereo channels. The sound is less warm than the CDX but certainly lacks the harshness of some of the early mainstream Japanese models. The laser has also proved durable and so these models are a good used buy.

The Beogram CD50 was

became the CD6500 and finally the CD7000, all of which are very similar technically.

COMBINATION UNITS

It may come as a surprise to find combination units in the High Fidelity line, but there are several. The Beocenter 3500 of the early nineteen seventies combines the second from top receiver and second from top turntable from the separates range into a single compact unit that really does play records exceptionally well, providing that the turntable mechanicals are still in good shape. After hearing one you may be left thinking "can it really be that easy?"

B&O were also a major producer of cassette-based combination units, the best of which was the 1970s Beocenter 4000. This combined a Beomaster 2200 receiver with a comprehensive tape deck based on

the original Beocord 5000. Enough modifications had been made at this stage to the in-house B&O cassette mechanism to make it into a reliable performer, although the complexity is still sobering when the time comes for an overhaul. In 1986 the same name was used for another cassette receiver, this time with two transports. This was spoiled by a rather poor amplifier and is best avoided.



Beo Centre 3500 - superbly engineered, high end mid 1970s music centre.

The Beocenter 9000 of 1987 combined a CD player, tuner and cassette deck in one elegant, touch sensitive unit. All the sources came from the B&O separates range, the CD player was the Beogram CD3300, the tuner and preamplifier came from the Beomaster 5500 and the cassette deck mechanism and electronics are very similar to those used in the Beocord 5500. The later, mildly updated Beocenter 9500 is the one to go for, as it is highly refined in every sense of the word.

The diversity and expansive nature of Bang & Olufsen's historical output shows that it's ridiculous to dismiss the brand outright; like every other hi-fi manufacturer from Arcam to Technics, there are grand designs and not so grand. Locate a good, well preserved High Fidelity range B&O though, and you'll come back wanting more.

Hi-Fi World wishes to thank BeoCentral (www.beocentral.com) for the pictures used in this article.



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Here's your chance to win some great Yamaha electronics, as reviewed by Paul Rigby in the April 2009 issue of *Hi-Fi World* magazine. Here's what we said:

"Whilst Yamaha is an accomplished engineering company – as any R1 motorcycle owner will tell you – its heart lies in musical instrument manufacture (well with a tuning fork as its trademark, what else would you expect?). But it doesn't just do arrestingly beautiful concert grand pianos – there's also a thriving 'pro audio' electronics and loudspeaker side too, and of course hi-fi. Stylistically, the £400 CD-S700 CD player and £500 A-S700 integrated amplifier pay homage to the vintage nineteen seventies A1000 amplifier. Interestingly, this still looks a very clean design. So we see sparsely populated front panels, but still with the feeling of quality and a sprinkling of useful facilities that audiophiles will appreciate.

The CD-S700 uses the company's proprietary 'silent loader' CD mechanism and sports a Burr Brown DSD 1791 DAC with no upsampling

– a conscious decision by Yamaha, the designer believing it bestows few benefits at this price. Both MP3 and WMA formats are supported via both CD-Rs and a USB port is positioned at the front of the chassis. You also receive a Pure Direct button. Pushing out 90W into 8 Ohms, the A-S700 amplifier follows Yamaha's so-called 'ToP-ART' strategy: a direct, symmetrical design option that has been implemented for maximal signal purity. This means that essential components are duplicated: heatsinks, output capacitors and so on, whilst the power supply is bespoke. Again, the front panel features a Pure Direct button to bypass the tone controls plus a CD Direct button which matches the CD signal levels so that each stage produces less noise. Other features include a MM phono stage and support for two sets of speakers.

I threw the Yamaha duo straight into the deep end with the Sugarbabes' 'Angels With Dirty Faces', complete with its ruthless peak limiting compression, limited dynamics and harsh tonal character. I was greeted with a brightly lit presentation, along with quite a colourful midband and a bass displaying a good degree

of bloom. This was offset by excellent instrumental separation for a CD-amp combination at this price, and I was impressed by the innate musicality too. Pressing the Pure Direct button produced a clear reduction in noise however, and I found that it improved clarity no end, immediately enhancing the dynamic character of the performance whilst reducing the worst aspects of the peak limiting. Suddenly the sound seemed clearer and less grainy across the midband. Pressing the CD Direct button on the A-S700 amplifier saw the overall quality of the presentation improve, along with a distinct broadening of the soundstage whilst retaining separation. Pressing the amp's Pure Direct button cut out all of the excess noise on the amp, this time. The Yamahas' success in the upper registers carried onto Black Dog's 'Parallel'. The wonderful instrumental separation that spread over the impressive sound stage gave the album a rare sense of grandeur.

A nice pair, as the saying goes, and one that offers fine build, particularly attractive styling and very decent sound for the money. Not quite impressive as a full size Yamaha grand piano admittedly, but an awful lot more affordable and almost as much fun to play."

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[1] Who makes the R1 motorcycle?

- [a] Yamaha
- [b] Suzuki
- [c] Kawasaki
- [d] Honda

[2] What is Yamaha's trademark?

- [a] a tuning fork
- [b] a pitch fork
- [c] a pick axe
- [d] a tooth pick

[3] What brand of DAC does the CD player use?

- [a] Burr Brown
- [b] Golden Brown
- [c] Gordon Brown
- [d] Arthur Brown

How many Watts does the amplifier output?

- [a] 90W
- [b] 9V
- [c] 900mW
- [d] 900W

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Loop Zilla!



Open reel analogue tape is staging a comeback. Admittedly it's never going to usurp CD or DVD, but the great reel monsters bequeathed to the world from the nineteen seventies are now becoming coveted and collectable. And there are few more beloved than Technics RS1500 series, says Haden Boardman...

There's something incredibly sexy about an open reel tape recorder in operation, and visually it is hard to surpass the Technics RS1500 series machines sold in the late nineteen seventies. Certainly uncommon in the UK, the ubiquity of a certain Revox machine (yes, that's right, the A77) saw to that, but these clever machines are well worth a second look. More than just a classic curio however, top quality open reels such as this offer one of the most direct paths - and least processed sounds - of any piece of hi-fi equipment. For archiving good radio broadcasts or capturing the thrill of a live concert, little can compare.

In the decade that fashion forgot, the aforementioned Revox (in A and later B77 guise) was the standard by which others were judged. And they were fine machines, but the Japanese were not ones - in this period of their hi-fi output at least - to roll over and give in. From the Land of the Rising Sun issued forth a range of machines from a number of manufacturers - Sony's TC765, Pioneer's RT-909 and Akai's GX625 being prime examples. But Matsushita's hi-fi wing was not to be outdone, and crafted one of the finest nineteen seventies monsters - the Technics RS1500.

Measuring 450x500x260mm, weighing a not insubstantial 26kg and

accommodating 10 1/2" reels, these machines are incredibly well thought out. Technology wise, the big thing from Technics was of course the use of a Direct Drive capstan motor - in this case not the already impressive drive fitted to turntables such as the SL1200/II and SP15, but the full monster unit as fitted to the SP10 no less! Attached to the end of the motor is a large 34 millimetre diameter capstan, and attached to the back of the motor a flywheel, this huge device being set up in an isolated loop.

Although it could be said to be not a true dual capstan, the strength, smoothness and sheer power and efficiency of the Technics DD 'Isoloop' motor, combined with the balancing roller at the base of the head block, guarantee better performance than any other rival unit from either Europe or the Far East (the Revox being single capstan, of course).

The operation of the actual DD motor itself is incredibly clever; the motor poles of the unit are fed a DC voltage developed from a rock-steady phase locked quartz oscillator, a separate stator on the motor generates a three phase control voltage that is fed back to the deck's electronics to maintain perfect control and speed. Although not simple to explain, it is incredibly elegant. The levels of wow and flutter are more than very impressive; at less than 0.018% at fifteen inches per second. The capstan operates at three and a quarter, seven and a half and fifteen inches per second, as well as offering variable pitch control.

One very neat feature is that the head block itself is demountable,

which clearly aids maintenance but also extends the flexibility of the machines with a choice of either two or four track recording. All machines are fitted with an extra playback head which allows both head block types to play back all quarter and half track open reel tapes. Head quality is very high, and with that powerful direct drive capstan having a very large (by tape recorder standards) diameter, it allows for low tension across the record, play and erase heads - a further aid against wow and flutter. The pricier RS1700 model differed in that it offered auto reverse; obviously in quarter track only mode, although it is very rare in the UK, and fifty percent higher cost. There was also a 'Pro' two box two track version called the RS1800, I have never seen one, or heard of anyone who has! Cost in Japan was three times a stock RS1506. (The RS1800 also formed the basis of the first Technics digital PCM recorder).

Cosmetically, American models generally came with wooden side cheeks, European models did not, and in Japan the 'Technics Black' was supplemented by silver. Also in Japan, an incredibly cute looking baby 7" reel sized machine called the RS777 was offered up to compete against Pioneer's RT-707.

The transport is full electronic logic controlled. All feather-touch operation, with tiny telltale lights for record, play and pause functions. Spool motors are of course direct drive, although not as large or as powerful as those fitted to the rival 'A77'.

On the audio side of things, there is nothing terribly exciting about the electronics. I would not accuse Technics of skimping on them, as the claimed specifications are quite wide bandwidth, at 7 1/2" 20Hz -

25,000Hz, but signal to noise is 60dB, a figure bettered by certain cassette decks from the era...

Connection-wise, provision is given for microphones, line and DIN inputs, headphone socket, a 'throughput' and two line outputs. Tape bias and EQ are set by a couple of switches, the later RS1520 offers more flexible bias presets not offered on the earlier 1500/1506 machines. Independent left and right tape monitor switches, along with recording switches, separate concentric record level and output controls are provided. A timer start facility and the ability to power the whole machine off 12 volts DC as well as universal AC mains completes a pretty comprehensive, well thought out package.

The internals of this machine never fail to impress. From the massive aforementioned motor, to the way the whole thing is screwed together, Technics *really* thought about this one. Power supplies, audio electronics and transport electronics are carefully engineered not to cause interference to each other; difficult in such a compact enclosure.

SOUND QUALITY

Using the machine in straight playback mode on a couple of commercially made 1960s recordings revealed an expansive soundstage compared to the same recording on vinyl, CD and SACD (in this case Harry Belafonte, 'Live at Carnegie Hall', RCA 2 track 7.5 ips). In straight playback mode and recording, the Technics machine was compared to both a Sony TC-377 and a Revox A77, both well respected machines. Without doubt the Technics was better than these two. All three machines were pressed in to duty recording a couple of concerts off the radio, and with instant off tape monitoring, comparison was very easy! All three sounded great, and running at 7.5 ips both the Revox and the Technics pipped the less expensive Sony to the post. On the lower 3.75 ips speed, the Technics was far better than the other two; something of a surprise.

Choice of open reel tape can be problematic. There are two options, new old stock (see a well known auction website) or 'pro' music supplies such as Studiospares. If you want to use any open reel machine as an amateur, I would suggest you have your machine set up and calibrated for one type of tape, as a random selection of older tapes will leave you with varying results...

None of these machines' electronics seemed incredibly quiet,

and in fact I would say the Revox was the quietest in operation. All three made a good attempt with microphone preamps. I have to say the Technics was a mild disappointment here, the 'pro' pedigree of the Revox working much better with my random selection of ribbon (B&O), capacitor (1970s Calrec) and binaural (JVC electret) types. Only the Technics offered 15 ips in this company; making recordings direct from vinyl and

"the internals never fail to impress, from the massive motor to the way the whole thing is screwed together..."

CD was pretty darn good, if quite expensive in tape!

Overall, the Technics transport proved in a different league to the other two machines, and offers massive flexibility. The Revox has a robust, but crude transport by comparison. The little Sony almost seemed to have the better electronics, but the machine was not quite in the same league otherwise.

As for servicing, there's practically nothing available for the Technics machines in the way of spare parts - if it is worn, it is bust. But this should not be a big problem as the spool motors are direct drive, the capstan motor near indestructible. The motor drive electronics are not as fancy as some of the later Technics turntables, and the audio electronics built using discrete (replaceable) electronics.

Heads, are of course a problem if worn. There are no direct replacements, and although the head block can be modified to take something else, the electronics will need modifying as well, a job for a professional and at great cost. Mechanically the machine can grind to a halt if the tape path gets a good coating of oxide off a dodgy reel of tape. In fact if using the machine as a serious tool, I would avoid using old pre-used tapes altogether; which is a bit of a shame given the machine's flexible extra set of two or four track heads. A couple of my vintage pre-recorded tapes did cause my review machine to stutter.

As with any open reel machine it's essential to keep the tape path clean and demagnetised, but the Technics is certainly more picky than most, a problem clearly exaggerated

by the more complex route taken by the tape. Smooth running of all rollers must be maintained! The mechanical crudeness of simpler machines might have snapped a tape, where the Technics will simply stop.

Mods and tweaks are possibly not for the average DIY man with this fairly tight built unit, but Tim de Paravicini of EAR has developed some mods for the RS1500 series. He has gone a stage further than normal, by creating a complete

new set of audio PCBs to his own bespoke design for the deck! Like me, he was impressed with the incredibly stable wow and flutter-free transport, but rather less impressed with the audio electronics - which he's described as "weak". Sadly I have not been able to lever one of his modified machines off him for comparison yet!

CONCLUSION

It is hard not to be impressed by these sophisticated and elegant units. However, I feel their current value for money is very poor compared to virtually every other open reel machine out there. It seems impossible to find one for less than a King's Ransom. Less money will find you a decent Revox B77, and less than half a good solid Revox A77, or a good clean Sony TC377.

Rarity and collector's value must play a part here in pushing the price up, as well as the popularity of the brand Technics amongst the more trend conscious DJ community. If you have never owned an open reel recorder before, I would suggest having a go with something like the little Sony '377 over this unit. The Technics is a rare, pretty, and well thought out jewel, but like all diamonds, it does carry a premium.



excellent heads mounted on clever detachable head block made the Technics RS1500 series popular with professionals...

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WORLD CLASSICS

DIGITAL

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

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

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

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



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



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

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

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



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



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

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



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

TECHNICS SL-P1200 1987 £800
CD version of the Technics SL-1200 turntable. Massively built to withstand the rigours of 'pro' use and laden with facilities - a great eighties icon. Sonically, it's pure fun, with hefty bass that can still show weedy modern players a thing or two!

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

COMPACT DISC TRANSPORTS

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



In this heavily revised section, you'll find the great and the good from audio's glorious past. Most are seminal designs which have earned their place in hi-fi history, but 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. Think we've overlooked something? Then write in and let us know!

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

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

DACS

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



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



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



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



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

TURNTABLES

ARISTON RD1S 1972 £94

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

ADC ACCUTRAC 4000 1976 £300

Bonkers 1970s direct drive that uses an infra red beam to allow track selection and programming. More of a visual and operational delight than a sonic stunner.

PIONEER PL12D 1973 £36

The beginning of the end for the British turntable industry. When vinyl was the leading source, this bought new standards of noise performance and stability to the class, plus a low friction S-shaped tonearm. Later PL12D was off the pace compared to rivals



PIONEER PLC-S90 1976 £600

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

DUAL CS505 1982 £75

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

GOLDRING Lenco GL75 1970 £15.65

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

LINN AXIS 1987 £253

Simplified cut-price version of the Sondek complete with LVX arm. Elegant and decently performing mid-price package. Later version with Akito tonearm better.

LINN SONDEK LP12 1973 £86

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



MARANTZ TT1000 1978 £ N/A

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



MICHELL GYRODEC 1981 £599

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

TECHNICS SPI0 1973 £400

Seminal Japanese engineering. Sonics depend on plinths, but a well mounted SPI0/II will give any modern a hard time, especially in respect of bass power and midband accuracy.

REGA PLANAR 3 1978 £79

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

GARRARD 301/401 1953 £19

Heavy metal - tremendously strong and articulate with only a veiled treble to let it down. In many respects, better than the seventies 'superdecks' that succeeded it.



ROKSAN XERXES 1984 £550

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

SONY PS-B80 1978 £800

First outing for Sony's impressive 'Biotracer' electronic tonearm. Built like a tank with a clean and tidy sound, albeit lacking involvement. Scarily complicated and with no spares support - buy with caution!

THORENS TD124 1959 £ N/A

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



TOWNSHEND ROCK 1979 £ N/A

The product of academic research by the Cranfield Institute, this novel machine has an extremely clean and fluid sound. Substantially modified through the years, and capable of superb results even today.

TRIO LO-7D 1978 £600

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

TONEARMS

ACOS LUSTRE GST-1 1975 £46

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

AUDIO TECHNICA AT 1120 1978 £75

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

ALPHASON HR100S 1981 £150

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



SME 3009 1959 £18

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

GRACE G707 1974 £58

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

REGA RB300 1983 £88

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



SME SERIES III 1979 £113

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

HADCOCK GH228 1976 £46

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



LINN ITTOK LVII 1978 £253

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

NAIM ARO 1986 £875

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



TECHNICS EPA-501 1979 £ N/A
 Popular partner for late seventies Technics motor units. Nice build and Titanium Nitride tube can't compensate for middling sound.

INTEGRATED AMPLIFIERS/COMBOS

DELTEC 1987 £1900
 Fast, dry and with excellent transients, this first DPA integrated is the real deal for eighties obsessives. Ridiculously punchy 80W per channel from a tiny, half-size box. Radical, cool and more than a little strange.

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

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



SUGDEN CS1/P51 1976 £130
 Soft sounding early Sugden combo with a plethora of facilities and filters, complete with seventies-tastic DIN socketry. A sweet and endearing performer as you'd expect, but lacking in power and poor load driving ability, so partner carefully.

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

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



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

AUDIOLAB 8000A 1985 £495
 Smooth integrated with clean MM/MC phono stage and huge feature count. Extremely reliable, too. Post '93 versions a top used buy.



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

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

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



MUSICAL FIDELITY A1 1985 £350
 Beguiling Class A integrated with exquisite styling. Questionable reliability.



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

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



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

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



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

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

PREAMPLIFIERS

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

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

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

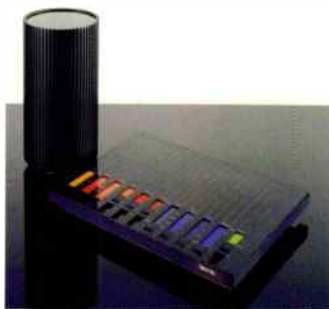
CROFT MICRO 1986 £150
 Budget valve pre-amp with exceptionally transparent performance.

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

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

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

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



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

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

POWER AMPLIFIERS

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

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

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.



LECSON API 1973 £ N/A

Madcap cylindrical styling alluded to its 'tower of power' pretensions, but it wasn't. Poor build, but decently clean sounding when working.

MARANTZ MODEL 9 1997 £8000

Authentic reproduction monoblocks still more than cut the sonic mustard. Highly expensive and highly sought after.

MICHELL ALECTO 1997 £1989

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

LEAK POINT ONE, TL10, TL12.1 1949 £28

Early classics that are getting expensive. Overhauling is de rigueur before use, using original parts if possible. Surprisingly crisp and musical sound, that's far more modern than Quad IIs. Deeply impressive when in fine fettle.



MUSICAL FIDELITY XA200 1996 £1000PR

200W of sweet smooth transistor stomp in a grooved tube! Under-rated oddity.



QUAD II 1952 £22

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



QUAD 405 1978 £115

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

QUAD 303 1968 £55

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

RADFORD STA25 RENAISSANCE 1986 £977

At the time, very possibly the least cool amplifier on the planet – and we're not talking heat dissipation here. This reworking of Radford's original late sixties design was possessed of a wonderfully rich, old school valve sound with enough power (25W) and lots of subtlety.



KRELL KMA100 II 1987 £5,750

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

PIONEER M-73 1988 £1,200

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



PHONO STAGES

CREEK OBH-8 SE 1996 £180

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



LINN LINNK 1984 £149

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

MICHELL ISO 1988 £ N/A

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

TUNERS

MARANTZ ST-8 1978 £353

Marantz's finest radio moment. Warm, organic sound plus an oscilloscope for checking the signal strength and multipath.



CREEK CAS3140 1985 £199

Excellent detail, separation and dynamics - brilliantly musical at the price. T40 continued the theme...

NAD 4040 1979 £79

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

NAIM NAT03 1993 £595

The warm, atmospheric sound is further proof of Naim's proficiency with tuners.

PIONEER TX-9500 1976 £295

Another of the serious classic solid-staters. Boasts the usual high end Jap package of fine sound, brilliant sensitivity and superb build.

LEAK TROUGHLINE 1956 £25

Series I an interesting ornament but limited to 88-100MHz only. II and III are arguably the best-sounding tuners ever. Adaptation for stereo easy via phono multiplex socket. Fed by a modern outboard decoder they're deliciously lucid with true dimensionality.



YAMAHA CT7000 1977 £444

Reputedly the best of the classic Jap analogues, this combines sleek ergonomics, high sensitivity and an explicit, detailed sound.

QUAD FM4 1983 £240

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



REVOX B760 1975 £520

More of a semi-pro machine than a domestic bit of kit, the Revox offers superlative measured performance although the sound isn't quite as staggering as the numbers. Fine nonetheless, and surely the most durable tuner here?

NAD 4140 1995 £199

Brilliant affordable digital tuner has a smooth, detailed musical sound plus sensible real-world facilities.

ROGERS T75 1977 £125

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

SANSUI TU-9900 1976 £300

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

SONY ST-S950 1977 £222

One of the first Dolby FM-equipped tuners, a format that came to nought. Still, it was Sony's most expensive tuner to date, and boasted a very good sound quality allied to brilliant ergonomics.

SEQUERRA MODEL I 1973 £1300

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



TECHNICS ST-8080 1976 £180

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



ANALOGUE RECORDERS

YAMAHA TC-800GL 1977 £179

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



AIWA XD-009 1989 £600

Aiwa's Nak beater didn't, but it wasn't half bad nonetheless. Massive spec even included a 16x4 DAC!

NAKAMICHI CR-7E 1987 £800

The very best sounding Nakamichi ever - but lacks the visual drama of a Dragon.



PIONEER CTF-950 1978 £400

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



REVOX A77 1968 £145

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



SONY WM-D6C 1985 £290

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



SONY TC-377 1972 £N/A

A competitor to the Akai 4000D open reel machine, the Sony offered better sound quality and is still no slouch by modern standards

DIGITAL RECORDERS

SONY MDS-JESSSES 2000 £900

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



PIONEER PDR-SSRW 1999 £480

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

MARANTZ DR-17 1999 £1100

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



KENWOOD DM-9090 1997 £500

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

SONY TCD-8 DATMAN 1996 £599

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

LOUDSPEAKERS

ACOUSTIC RESEARCH

AR185 1978 £125

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

BBC LS3/5A 1972 £88

Extremely low colouration design is amazing in some respects - articulation, stage depth, clarity - and useless in others (both frequency extremes). Came in wide variety of guises from various manufacturers building it under licence. Partner with Rogers AB1 subwoofers for an extra two octaves of bass!

HH ELECTRONICS TPA-S0D

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.



LOWTHER PM6A 1957 £18 EACH

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

TANNOY WESTMINSTER 1985 £4500

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

JR 149 1977 £120

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



SPENDOR BCI 1976 £240

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

QUAD ESL57 1956 £45 EACH

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



CLASSICS

KEF R105 1977 £785

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

IMF TLS80 1976 £550

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

MAGNEPLANAR SMGA 198X £800

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



MISSION 770 1980 £375

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



MISSION 752 1995 £495

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

HEYBROOK HBI 1982 £130

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

CELESTION SL6 1984 £350

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



LEAK SANDWICH 1961 £39 EACH

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



QUAD ESL63 1980 £1200

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



YAMAHA NS1000 1977 £532

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



MISSION X-SPACE 1999 £499

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Alloy Feel

David Price samples Marantz's lavishly hewn new M-CR502 mini system...

It's products like this that remind me of the gulf between 'the real world' (as it is often referred to) and the hi-fi version of the same. As far as audiophiles are concerned, so low in the great scheme of things is it that many will turn their noses up at the M-CR502 - and even raise their aforementioned olfactory orifices aloft at a hi-fi magazine that deems it worthy of page space. On the other hand - as Adam's column on the great £15 Tesco hi-fi system [see p97] shows, many 'civilians' take the view that lavishing a whopping £500 on a product such as this is sheer madness when 'the best' of course costs but a fraction of the price.

In a sense then, it's actually harder for the likes of Marantz to make a mini system with hi-fi pretensions (for that's what the 502 surely is), than it is for them to produce a high end two-channel SACD player such as the £5,000 SA-7S1. How so? Well because at least one constituency (i.e. real hi-fi buyers) will see the need for the SA-7, which is more than you can say for the lowly £500 CR502! As the saying goes, those occupying the middle of the road risk getting run over from both directions...

So, instead of trying to assess just who will buy the Marantz M-CR502, let's just look at why it should be bought - or not, as the case may be. It is a very nicely made little box measuring 280x111x302mm. Inside its beautifully crafted aluminium casing is a CD player, DAB radio (that also receives FM and AM, with RDS on the former) with 50 presets, plus an amplifier with a claimed 50W per channel. Interestingly, this can be split via the doubled-up loudspeaker binding posts at the back, to give 4x25W for bi-amping, should you be so inclined.

On the front panel, you find a simple, central, dot-matrix display, volume, CD control and source selection buttons and three sockets. One is a 3.5mm minijack aux-in (for an MP3 portable or suchlike), another is a headphone output, and then finally there's a USB input for a memory stick. The rear has socketry for an additional input, such as an iPod via Marantz IS201 or IS301 iPod



dock, plus an IEC power input which lets audiophiles choose their own mains leads - a nice touch.

What the M-CR502 is then, is a basic hi-fi system that's 'shrunk in the wash'; the fine build quality, IEC power input and biwiring also show it's been designed with space-starved audiophiles in mind, whereas it's very easy to use and has a USB input for a more general clientele. It's hard doing a crossover product such as this, but Marantz have got all the basics right with this, I feel.

With its front mounted slot loading CD player, the baby Marantz feels nice to use, and looks very presentable - although I don't feel it quite matches the dizzying heights of style and convenience set by the more expensive (£750) Arcam Solo Mini all the same. This shoebox-shaped (90x230x350mm) design has a superior top-mounted control layout, and a far better central dot-matrix display. Ditto the remote control, which looks a bit fussy compared to the elegant simplicity of the Arcam's.

SOUND QUALITY

For an additional £100 Marantz can supply loudspeakers with the package, and although I have heard from independent sources that they're very good, my review sample comprised the M-CR502 only, so I ended up using them with budget Wharfedale Diamond 9.1s for general use, and my own Yamaha NS1000Ms for really critical listening - admittedly not quite what the designers would have had in mind! All the same, I was pleasantly surprised by the results. Most striking is the expansive soundstage, which goes wide across

the room, even via the NS1000Ms, inside which there's a smooth and - if anything - slightly soft and woolly sound. This isn't to say it's unpleasant or uninteresting though, because 'unchallenging' as it may be, the M-CR502 is still surprisingly musical.

'Lilting' would be a good way of putting it, as I cued up Coldplay's 'X&Y'. There's a good approximation of the album's big power pop sound, with a warmish bass that's a little soft around the edges by 'real hi-fi' standards, a fairly clean (if not massively detailed) midband and soft, sweet and fluffy treble. Even via NS1000Ms, there was nothing here to offend or annoy, yet plenty there to enjoy. I really appreciated listening to Simple Minds' 'New Gold Dream' via the Marantz, as it proved well able to push the song along, with a supple and fluid bassline, and plenty of atmosphere further up the frequency spectrum. Not bad for £500.

The Marantz also responded well to being sited on Foculpod feet (£15 for 4), whereupon its bass filled out impressively and there was more verve to the sound, and it also really liked a decent entry level mains cable, such as the Silvermann Clarity One (£70/1.2m), which injected extra clarity to the midband and air to the treble. I would imagine that, partnered with a pair of Q Acoustics 1050i floorstanding loudspeakers (£350), you'd get a big, powerful, room filling sound for under £900.

Overall then, the Marantz M-CR502 is an interesting new option for those of us seeking a second room system, offering enough of a taste of 'real hi-fi' to keep our interest, plus oodles of convenience and a good degree of style.

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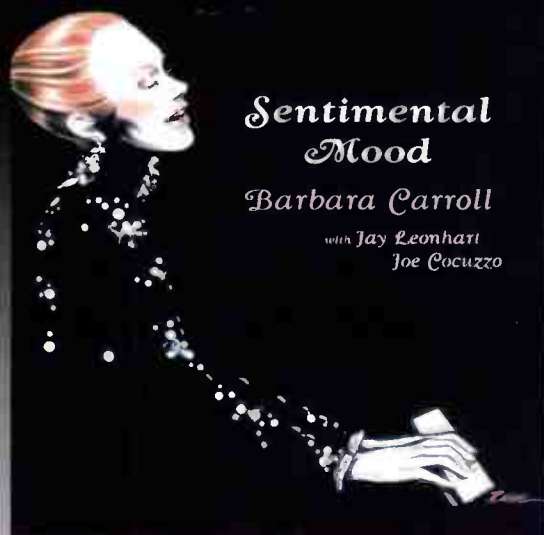
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QUEEN
Sheer Heart Attack
EMI

The band's third album, 'Sheer Heart Attack', was a gigantic leap in quality, ambition and adventure for the band, despite their previous outing, 'Queen II' only being released a few months before. Exhibiting each band member's writing skills, the album proffers a wide, eclectic brief - offering the listener varied styles and tempos from the brutal 'Stone Cold Crazy', to the magisterial prog-infused 'In The Lap Of The Gods' to the delicate 'Lily Of The Valley' plus, of course, the hit single, 'Killer Queen'.

Remove the reissue's plastic outer cover and dedicated fans will notice subtle differences in the artwork. The new version has more depth and focus, the original was always a little over-exposed. The new inner sleeve is not, unfortunately, plastic coated but at least the reissue does arrive with full lyrics. The inner

record label looks a little different too, the EMI logo is a darker shade and the track font is tighter and bolder.

Running the disc on my Avid Acutus-based system, I was immediately struck by the new mastering. The original album, compared to the new reissue, sounds decidedly, not so much bright, as forward in the treble area. The reissue brings that down a notch to improve the clarity of the overall presentation whilst the bass has been opened up making Roger Taylor's drums sound positively cavernous. In fact, the new mastering enhances the depth of the performance over all frequencies providing a sense of structure and focus as well as framing the separation between instruments and vocalists. Whichever way you look at it; packaging, the cover art and record; this is a superior issue of a classic Queen album. Also look out for the reissues of 'Queen II' and 'Day At The Races'.

BARBARA CARROLL TRIO
Sentimental Mood
Venus

Singer and jazz pianist Carroll has been releasing records since 1949 and is still going strong. Here, she offers a selection of classics such as 'Lady Be Good' and 'Fly Me To The Moon' along with Jay Leonhart (bass) and Joe Cocuzzo (drums). The package is luxurious, as all Japanese issues tend to be. After removing the soft plastic outer bag, the card sleeve is thick, sturdy and reminds me of classic American sleeves of yore. It's decorated by a Japanese, paper obi-strip. Inside, the record - pressed on 200gm vinyl - is covered by a Nagaoka-style plastic inner which is also fitted inside a die-cut paper inner. This is a nice combination that stops the record moving about too much inside the sleeve. You also get a paper liner notes sheet - which is, unfortunately, all in Japanese!

The sound is startlingly precise with pin-point transients and a very

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clean, clear presentation. Detail is thus left to fly around the room with speed and you'll initially find yourself mentally sprinting around the sound stage with a pair of wicket keeping gloves trying to keep up with the information that's thrown at you. This recording is only three years old and has, thus, been immediately taken into the digital domain to be processed. To some extent it shows, the 24bit 'Hyper Magnum Sound' sheen of clarity is impressively lucid but it does lay itself open to accusations of being a touch clinical. Just a touch mind you, and not too much to spoil the show. This is not an accusation of old CD-like metallic coldness. You're just aware that it's there. Overall however, this is an admirable recording that will be loved by many jazz fans. Venus is definitely a label to keep an eye on.

DUKE SPECIAL
*I Never Thought This Day
Would Come*
V2

Known to his mum as Peter Wilson, Duke Special says that he is enamoured by 'hobo chic'. Basically, he looks like a dreadlocked tramp and plays beaten-up instruments such as piano and 'found sounds' (items from the kitchen such as a cheese grater) whilst using his Belfast vocalese to tell folk tales of people doing people things; loving and losing, highs and lows. His theatrical approach lends itself to talks of life. His work is melodic with injections of humour and, as far as his other

skills are concerned, the boy can play.

Examining the mastering, I was intrigued to see that it was handled by Metropolis man Miles Showell, the UK's foremost expert on half-speed mastering (although this particular album is a standard speed master) and possibly familiar to Genesis fans as the chap who remastered the recently released 'Genesis 1970-1975' box set (reviewed in *Classic Cuts*, April 2009). The underlying sound of the album reminds me of the Barbara Carroll album reviewed elsewhere in that, recorded directly to the digital domain, the music has an immensely clear texture with startling clarity but just a touch of clinical focus. Showell has utilised this subtly clinical edge to give the vocals a directness and incisive edging and, after the catchy, low-key opener, 'Mockingbird Wish Me Luck', immense power from the up-tempo drums on Sweet Sweet Kisses.

The UK version of the album features four extra tracks that were recorded direct to vinyl whilst Duke Special performed live on stage.

The term 'grower' is a useful cliché when applied to albums with more than a little depth and this new album by 'our Pete' is no exception.

JERRY LEE LEWIS
Original Sun Singles '56-'60
Sundazed

Jerry Lee Lewis was one of the seminal rock'n'roll singers of our time. 'The Killer' was mad and bad and lived life to the full whilst scaring parents senseless. This album is

spread over two slabs of vinyl and packs in twenty eight A-side tracks covering greats such as 'Whole Lot Of Shakin' Going On' and 'Great Balls Of Fire'. Each track is listed in chronological order and comes complete with a serial number and recorded date plus a picture of the original label on the back sleeve. The gatefold packaging is good but I'm a little disappointed that the inners are simple paper sleeves. I would have preferred plastic coated inners and/or information laden inners to enhance the general liners in the centre.

One technical point of note is that this is a mono master and so, if you are fortunate enough to have the option, don't forget to switch your phono amp to mono, it makes all the difference. Testing the album on an Icon Audio PS3, switching from stereo to mono coalesced the performance which seemed to make more sense than the strung out stereo stream. The company says that the music has all been sourced from the original mono masters. You can certainly tell that an analogue source has been utilised as the treble and mid are both well behaved yet dynamic. Bass is lacking in definition however, with little lower bass on offer at all but I would assume that the music was cut like this on purpose to make the music as loud as possible for jukeboxes because the upper mid and treble areas are detailed, vibrant and punchy. A cracking compilation, well mastered and packaged. An essential purchase for any rock'n'roll or Killer fan.

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PHILIPS SHE9850 £79.95

Positioned very much as a luxury product, these swanky in-ear phones come supplied in an attractive presentation box that gives a real sense of opulence, while the phones themselves are well finished in heavily chromed metal and high grade plastics. Even the plug is custom made with a mock turned finish and gold plated contacts. Like many modern miniatures, the SHE9850s rely on making a perfect air tight seal with the listener's ear canal. This method is at odds with the more traditional approach of constructing a small loudspeaker which is loosely coupled to the outer ear as is the case with larger headphones. The Philips method can in theory generate realistic bass with very small drive units but the tiny vibrations are quickly lost if there is any leakage, so three sizes of small rubber 'mushrooms' are provided, and trial and error is required to pick the size that fits best. Also provided are a pair of 'memory foam' covers that mould to the listener's ear, which idea may not be to everyone's taste.

For review purposes, I used a Sony MZ-RH1 Hi-MD recorder, currently the best portable digital music source available in my view. I struggled to get comfortable with the Philips phones - the bass disappeared completely if the fit was not perfect but pushing them in too hard sometimes restricted the openings, making the sound appear distant and lacking in detail. Patience eventually secured what I believed to be representative results and revealed a forward midrange which whilst not being completely accurate must help with intelligibility in noisy environments. Treble is smooth without the usual metallic harshness that one associates with small headphones - a pleasant surprise. Bass was less satisfactory and varied greatly in both intensity and tone with very minor changes in position. The completely sealed principle did make the music sound claustrophobic - you would never lapse into thinking that you were listening to a pair of invisible loudspeakers placed in front of you. Sensitivity was good, as it was possible to achieve near-deafening

levels even with the feeble outputs of modern music players such as the latest iPod Nano.

The bold midrange did tend to colour the sound of whatever was playing, B&O A8 in-ear headphones for example gave a better tonal balance and because they do not require a perfect seal with the ear to obtain good results were more comfortable to wear. So the Philips SHE9850 would make an excellent gift, but whether you are able to obtain good performance from them depends to a large extent on the shape of your ears. They're not the easiest things to try before you buy, but it's worth it if you can. Well presented and made then, but not to everyone's taste. **TJ**

[Contact: +44 (0)870 601 0101, www.philips.com]



soundbites

SILVERMANN CLARITY 1 £70/1.2M

Silvermann is a relatively recent name in cables, but we were impressed with the Clarity range of mains leads [see *Hi-Fi World* February 2008], and so decided to try the just-revised interconnects. Starting at the bottom of the range the Clarity 1 now boasts the PNE (Passive Noise Eliminator) as standard. I have been using mark I versions to power my GSP Audio Revelation phono stage, so an improved pair were substituted. The difference was immediate and not subtle. The ends of the frequency spectrum were more apparent and better defined, and the whole presentation of the sound seemed to have a greater air of maturity than before. Moving to £100 (per 1.2 metre) buys the Clarity 2, with changes to the terminations. The new plugs feature a 5 micron layer of pure silver beneath a 0.5-micron thick layer of gold plating. After plating these are heat treated to migrate the gold into the surface of the silver. This protects the

silver from oxidation. The internal arrangement of 9 separately insulated silver plated conductors, woven together within a double helix screen and a 'high-air-content' dielectric remains the same. Sonically, again I felt that there was an immediate change to the sound. Obvious differences such as deeper and more detailed bass and a more vibrant treble were set against a more subtle sensation of satisfaction. I found that I wasn't listening to, and thinking about, the quality of the bass sound, I was focusing more on the performance of that bass, and coming out of the experience feeling very pleased by it.

This self-effacing ability that leaves the listener focusing on the musical performance was there in bucket loads with the new £200 (per 1.2 metre) Clarity 3. Here again the changes are just to the plugs, with the mains end as per the Clarity 2, but the IEC end sporting a fancy looking Oyaide 037 connector. This features deoxidised phosphor bronze connectors, plated with 1.5 micron of

silver. Following polishing 0.3 micron of Rhodium plating is applied. The results of all this are an astounding level of detail and musicality, that few mains cables, regardless of price can match. The changes made to an already well-respected product range make the Silvermann Clarity range very competitive in a crowded market place - they are consistent and offer exceptional performance at the price. **TB**

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"it's in our nature to strive for quality, so why then should our appreciation of music be any different?"



David Price

Ivan Hewett is a respected author, erudite presenter of BBC Radio 3's 'Music Matters', and a regular correspondent on music for the Telegraph. But, in a recent article in the aforementioned newspaper, he suggests that those who have an interest in hi-fi have "skewed values", particular to a previous generation that's now no longer setting the pace, as it were. He suggests that the new iPod generation, "understand that when listening to music it's the music that counts, not the sounds it makes".

I must confess to a *slight* feeling of puzzlement when I read this. Close examination of his article, reprinted in our letters section with kind permission from the Telegraph, shows Ivan championing the easy accessibility of the iPod, the new culture of listening to music it has engendered, and the symbolism of it standing up against what he calls the "audio fetishism of the hi-fi era".

Okay, I know what he means, in a way. Indeed I'd wager that every single reader (and writer) of this magazine has probably met one person who seems to possess more items of hi-fi equipment than he (for it will invariably be a *he*) has albums. I've met people like this at shows, seen them in dealers, talked to them on the phone. They are absolutely transfixed by hardware, and the word 'hobbyist' doesn't do them justice.

But, these people are the exception rather than the rule. It would be hard, for example, even in my own circle of 'hi-fi friends' to maintain a conversation about the hardware when the software starts to play. Cueing up Pink Floyd's 'Wish You Were Here' on the turntable may cause bottles of beer to be swilled, or glasses of wine to be sipped, but there's silence on the sofa as soon as the music starts. The tapping of feet, the swaying of knees and

the twitching of hands happens in time to the music, and the mood is one of transfixation - not with the loudspeakers' supremely extended frequency response or the turntable's vanishingly low wow and flutter, but the musical event unravelling before our very ears...

Of course, 'the iPod generation' (a rather nebulous term, as I know as many fifty, sixty and even seventy-somethings who own these polycarbonate perils as teens or twenty somethings) can also feel the same visceral thrill as this beautiful song issues forth from their digital music portable at 128,000 bits per second - and why not? But why also should they not want *more*?

Humans are sensual beings. The hurried, harried and hectic nature of our everyday lives often suppresses this fact, but on our high days and holidays, we - by our very nature - choose activities that gratify our senses. We swim, we dance, we 'sight see', we eat, we drink, we listen to music, we regard art, we smell fresh air and we sleep between soft sheets - whenever we possibly can.

And there's a clearly defined hierarchy here: the 'nicer' something is to our senses, the more we enjoy it - and indeed the more we pay for it. That's why humans go to see the Grand Canyon with their own eyes - and not just look at a JPEG on a website. It's why we frequent expensive restaurants to experience eight ounces of sirloin steak in a way that simply isn't available via a burger in a bun at our local fast food shop. It's why we pay more for clothes that fit us, hewn from the best fabrics. It's why we go out on cold, wet Sunday afternoons to see original paintings hung in galleries, when we could easily buy postcard-sized facsimiles. In short, it is in our very *nature* to strive for quality, to elevate our sensual pleasure.

Why then should our appreciation of music be any different, as Ivan suggests? Is there something about music that's uniquely potent, that appeals to the senses in such a profound way that it can be experienced 'second hand', so to speak? He writes that "music transcends sound", but such essentialism is as meaningless as saying "art transcends sight". Surely one is a part of the other, and being the sensual beings that we are, the better the latter is, the more profoundly the former can be experienced?

Don't get me wrong - I am not arguing that you cannot enjoy music without hi-fi. But it does not logically follow that a more intense auditory experience doesn't yield greater musical pleasure. And to suggest that one is not part of the other is to present a false dichotomy.

Ivan's argument that professional musicians often don't have good (if any) hi-fi is an oft quoted point against audiophiles, but is moot. It proves or disproves nothing, as our own letters section shows that many musicians do have serious systems, and spend large sums on them over long periods of time. (Still, his point does fascinate me, as I once assumed that every accomplished musician would have a commensurately grand music replay system - yet it's plainly not the case. There's a pattern here, as I've heard stories of F1 racing drivers not owning fancy road cars - it's well documented that James Hunt famously used to tool around town in an ageing Morris Minor Traveller, for example...)

I don't know one person madly into hi-fi who's not even more into the music. So a love of music is the prerequisite to enjoy hi-fi, but of course a love of hi-fi isn't needed to enjoy music. Ivan's wrong on this one: the two are partially separable, but not wholly divisible. ●

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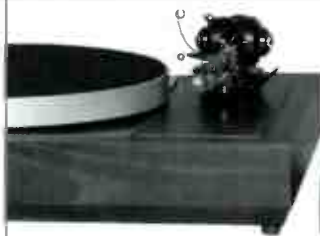
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"the great thing about this label is the real hobbyist feel that each release exudes..."



paul rigby

When is an album not an album? When it's been through a Rollercoaster. The record label, that is! Rollercoaster Records is devoted to Buddy Holly, one of the most important figures in popular music, despite a career that spanned only around eighteen months. His influence is immense. In fact, probably his most successful fan, Paul McCartney, owns the entire Holly library while others may have noted a new 10" LP, 'Baby Let's Play House', issued by Rollercoaster Records and credited to Buddy Holly and the Three Tunes. On the rear, the liner notes are completed by the words, "These notes appeared on the original pressing of the 1956 album". However, before Holly fanatics get too excited, things are not what they seem because, this album... isn't. The LP was never released in 1956. In fact, it is an affectionate pastiche that uses rare Holly tracks, created before he found fame and recorded in his brother's garage.

The LP, pressed by the Czech outfit GZ, "started when we collated the recordings for our 2CD pack, 'Ooh! Annie!'," said label boss, John Beecher. The source for the CD tracks were derived from "an unlikely place" but, reading between the lines, I reckon a Universal record label employee stumbled upon them on an unmarked master tape and then smuggled them out of the office. Beecher was sent a copy of the original masters, featuring a few new tracks and plenty of alternative takes of known songs, as a flat CD transfer.

"A lot of the familiar, circulating tracks have been reprocessed in the sixties and seventies into stereo and

generally mucked about with. I've always thought that the early Decca recordings of Buddy Holly were among the most interesting because he was in rockabilly mode and they deserved to be presented properly. It was interesting to hear this new copy as it featured false starts and more. You can even hear other, faint, Holly recordings in the background that were never erased properly but the tape was re-used!" Using these songs, the 'Baby Let's Play House' vinyl contains tracks that were recorded, often, with just a drummer, "They were the White Stripes of the fifties!" exclaimed Beecher.

The sound was pretty good as the original recordings were taped on a semi-professional machine but Beecher, during mastering, had to EQ the master, bringing up individual instruments and enhancing the bass. There were also 'dull' periods where, possibly, different tape types were stuck together.

The tracks appearing on the Rollercoaster vinyl also appear on a couple of recently released Universal/Island CD compilations. I have not had the opportunity to hear the tracks but reports received say that the Rollercoaster versions are superior for two reasons: Rollercoaster has utilised better quality sources and Rollercoaster's mastering has been more thorough. Then there's the vinyl format itself, of course. So why haven't Universal used the same sources? Speculation takes over here: they were subsequently destroyed in the recent fire? The archive, which is not in the best of order, is a mystery to the suits? Who knows?

Also, look out for Rollercoaster CDs offering many rarities. Each is tied by a theme. See if you can

recognise it. To begin, guitar legend, Davey Graham's, 'After Hours' is a cosy recording in a friend's room within Hull University in 1967, performed just after he'd completed a local gig. Roger Bunn's 'Piece Of Mind' is a superb hippie, progressive rarity from 1969, via Philips, that features Bunn adding a few lost guitar parts to the original, scrappy tapes. 'The David Box Story', featuring the man himself, had an association with Holly's Crickets, after Holly died, singing with the band. He sang solo too and worked with Roy Orbison before, spookily and like Holly, also being killed in a plane crash. An excellent set derived from a mixed set of sources including, "greasy old tape and cracked acetates" but the result is a testament to Beecher's recovery and mastering skills.

The double CD for Sid King And The Five Strings' 'Rockin On The Radio' features classic rockabilly from a band who were hot-to-trot in mid-fifties Texas and signed to Columbia. Beecher got to know the band and found contemporary recordings, off the radio. Recorded by their father, these live tracks were taped via a microphone pointed to the radio. "It sounded pretty good," said Beecher.

The great thing about this label and the theme that ties each together, is the real hobbyist feel that each release exudes. You get the feeling that each CD has been produced for the love of it. Which is why these CDs would never appear via a major label. The amount of legwork to not only track down the initial sources but the hours spent in patching and working with, often, damaged or missing elements, would never be justified by a major which is why I thank the Lord for the indies! ●

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"the BBC would dearly love to magically improve the quality on DAB if it could, but it can't..."



steven green

I thought nothing would shock me about the way the BBC handles digital radio, but the BBC has managed to plumb new depths with the disgraceful way that it has acted regarding its Internet radio streams over the last year.

The issues began when a BBC executive wrote on a BBC blog about the planned quality improvements for the Internet radio streams, that they intended to deliver the live streams at lower quality than the on-demand (listen again) streams. He attempted to justify doing this by saying that live radio is also available via other radio platforms, but by definition that is being biased against the live Internet radio streams. My opinion on why they wanted to do this was to stop the live Internet radio streams outclassing DAB in terms of quality, which in turn is because "the BBC would prefer it if everybody listened to digital radio via DAB", to quote Simon Nelson, the ex-BBC Controller in charge of digital radio.

The BBC eventually climbed down on the above issue, but other issues have emerged to take its place. For example, the original plan was that the quality of the live Internet streams would be improved in June last year, immediately after the quality of the on-demand streams had been improved. At the time of writing almost a year has now passed, but the higher quality live streams still haven't been launched, and the vast majority of people are still receiving low-quality 64kbps Real Player streams. The BBC has been "testing" higher-quality 128kbps AAC live streams since mid-February, but considering what the BBC said last year about wanting to deliver the live streams at lower quality than the on-demand streams, it's not unreasonable to be

suspicious about whether they have kept the quality of the live streams low on purpose for an additional year.

Furthermore, the BBC has always had the option to simply increase the bit rate levels of the existing Real Player streams from 64 to 96kbps (which is the highest bit rate the existing codec can go to) if it wanted to improve the quality of its live streams. This wouldn't have required any hardware changes to be made, and the fact that the BBC couldn't even be bothered to do this speaks volumes about the situation.

The fact that the Beeb has been "testing" the AAC/AAC+ live streams for the last three months also suggests that it's trying to delay the launch of the higher quality live streams for as long as possible. The new hardware that's used to encode and deliver the new AAC/AAC+ and WMA Internet radio streams actually went live last autumn, so no new hardware needs to be tested, and I'd estimate that it should only take a couple of weeks at most to test performance issues.

Arguably an even more outrageous issue is the fact that the BBC reduced the bit rates of the on-demand radio streams from 128 to 96kbps when they switched from using MP3 to AAC+ in February – in other words, the BBC deliberately degraded the audio quality compared to if they'd have left the bit rates unchanged. What makes this so outrageous is that just two months after doing this the BBC launched new HD-quality iPlayer TV streams that are using a bit rate of 3.2Mbps (3,200kbps), and the bit rates of the existing 500 and 800kbps iPlayer SDTV streams were increased to 800 and 1,500kbps respectively. Those bit rate levels are 33, 15 and 8 times higher than the 96kbps used for the

on-demand radio streams, respectively. This sums up what a disgrace the BBC is when it comes to the Internet radio streams.

And what's gone on over the last year is really just a continuation of years of what would best be described as either grossly incompetent management of the Internet radio streams, or the BBC has chosen to degrade the quality to help DAB. For example, support for AAC+ was added to Real Player in January 2004, so the BBC could have vastly improved the diabolical audio quality it was delivering on its Real Player live streams at any point over the last five and a half years, but didn't. The BBC also butchered the audio for the Internet radio streams for six years by 'transcoding' it (converting from one 'lossy'-compressed audio format to another). They did this to save the £5,000 – £10,000 per year required for a dedicated leased-line to be installed to transport the audio to where the encoders and Internet servers are located. It has also emerged recently that the requirements for the new Internet radio hardware that went live last autumn were drawn up over four years ago – why has it taken four years for them to be installed? To put these issues into context, the BBC currently spends around £14 million per year transmitting DAB.

The ultimate question is whether the BBC would do the same things on DAB, and I'm 100% certain that it wouldn't: the BBC would dearly love to magically improve the quality on DAB if it could. The fact is though, that it can't, and the disgraceful thing is that they consider degrading the audio quality on other digital platforms to help DAB to be acceptable behaviour. ●

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World Radio History

"high fidelity is a global business that transcends cultural and geographic barriers..."



noel keyword

I suppose my initial reaction to Ivan Hewett's hope that the iPod will kill off high fidelity (see our Letters pages) was indignance. But then he seems to be reacting to a small group of unidentified hi-fi dealers, perhaps just one feeling his view represents all, who accuse the public of doing this by listening to music on iPods. And who perhaps feel the activity should be taxed and regulated (and any revenues directed to them)? I spoke to Phil Hansen, spokesman for the British Audio Dealers Association about this and neither he nor I had much sympathy for either view. So I'm not going to say any more about this - well, I may allude to it! - because I always felt iTunes was a wonderful service and some may misconstrue this as contrary to the idea of high fidelity (poppycock!).

Ivan's comments have shock value, I'll warrant, but I had a bigger shock recently that affects Hi-Fi World and paints large the commercial world we work in, over and above the artistic one of Mr Hewett. Contributor Peter Comeau 'phoned me to say he had decided to take up an offer to lead product development for the International Audio Group in China, suggesting he would be leaving us and writing no more. I had got used to Peter sagely writing our DIY loudspeaker articles and running World Designs, as well as running the World Design room at U.K. Shows; he had worked his way into the fabric of the magazine and provided us a very stable and extensive knowledge on loudspeakers that comes from a lifetime's experience designing them. But with this call he was saying in effect his goodbyes, which thousands of dedicated DIYers will be quite saddened by I suspect. Whether Peter will be able to contribute from

Shenzhen I do not know - and neither does he, but rest assured I have begged him to do so if possible.

Why? Well, there's a lot written about loudspeakers in magazines and on the internet, but little of it rests on the broad theoretical knowledge and practical experience Peter has. Hi-Fi World's enthusiastic DIY community, as well as loudspeaker engineers both in the UK and out of it, found Peter's articles an interesting and intelligent read, easily understood through their lack of techno babble. And that is quite a rare thing.

Like Gilbert Briggs, founder of Wharfedale, Peter gained his knowledge 'on the ground' from running his own company, Heybrook, in the past and then acting as Chief Design Engineer at Mission loudspeakers. So not only is Peter well acquainted with the history of this branch of audio engineering, he's actually an ongoing part of it.

And this event illustrates, before our very eyes in 'historical real time' shall I say, where the business of high fidelity that Ivan Hewett so despises, is at today. Few people stop to remark upon the fact that music is practiced and enjoyed worldwide - including Western classical music - and that the art of high fidelity is equally a global business that transcends cultural and geographic barriers. The two go hand in hand.


But being a global business also means that when a Hi-Fi World writer is spirited away with promises of greater rewards and a better life elsewhere (impossible!) they're likely to end up in a distant corner of the globe where life is very different, even if musical appreciation is not - Shenzhen in this case. Don't forget to pack your chopsticks, Peter!

It does illustrate a lot about the business of audio though, which is now inextricably tied up with what

is now termed the global Consumer Electronics Business. Whilst Ivan Hewett sees the mechanical reproduction of music as a twentieth century scourge that has destroyed the craft of music making - its composition and performance - those in the audio business live and see a rather different reality, where the appreciation of the craft is closely connected with practical issues concerning jobs and technology.

For most of the world, listening to music is a pleasurable and satisfying experience, made better by hearing it reproduced well so the message is easily intelligible and cogently conveyed. The Chinese are no different in this - in fact they're pretty strong on culture I can report after being nearly trampled to death in Taiwan's national museum some months ago! And for some reason I've yet to fully understand, they also think that British hi-fi is amongst the best. Is it because the reputation of early UK brands like Wharfedale, and Quad was established by exports to the Far East during the nineteen fifties and sixties, when Britain had few rivals?

Whatever, as Chinese manufacturing of audio equipment ramps up to meet the demands of its own people as well as those of the outside world they need experts with the broad, often peculiar and unique range of skills that audio engineering demands. So they've made Peter Comeau an offer he could not refuse and he's off to the other side of the world - I wish him well and hope we hear more soon. When an iPod able to stream Apple Lossless directly to a hi-fi system appears it will become an item of high fidelity. I am sure Peter Comeau will be busy in China crafting the next Quad electrostatic, so 'the closest approach to the original sound' is available to every iPod lover, including Ivan Hewett perhaps! ●



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"Britain's best loved hi-fi system has been officially announced by the, ermm, Reevo website!"



adam smith

It is with a heavy heart that I write this column, as I have to face the sad fact that it could well be my last for *Hi-Fi World*. Not that I'm going anywhere you understand, but I have a terrible feeling that this and indeed every other hi-fi magazine on the UK market may now be obsolete. We have strived to give advice to legions of readers through the years, helping them through the minefield of equipment available, and attempting to get as many people as we can happily settled with a system that they love...

So, "what's changed?" I hear you cry. Well, it appears that completely out of nowhere, some whipper-snapper has dived in, stolen our thunder and, basically, done our job for us! You see, with a fanfare, albeit a pretty small one, "Britain's best loved hi-fi system" has been officially announced by that well known bastion of audiophile insight, the, ermmmm, Reevo website! So then, what is it, I hear you cry? Clearly the word 'Britain' in the award suggests something UK-made, doesn't it? Well then, is the winner going to be something technologically superb from Meridian? Maybe a vast stack from Naim Audio? Perhaps even, given these credit crunch times, something sensible and affordable from the likes of Rega? Well, brace yourselves as I shall keep you in suspense no longer – Britain's best loved hi-fi system is the Tesco Value MC-907; all £16.49 of it.

Okay, so I'm being a *bit* flippant, but I couldn't help being rather amused and just a tad saddened by this news. On the plus side, this award has apparently been granted following reviews by people who went out and bought the unit, and then voted for it, so maybe the MC-907 really is that impressive, but when you consider the news article accompanying the

announcement states that it beat off rivals "costing up to £750" with the intimation that only a reckless lottery millionaire would spend an absurd amount like £750 on a hi-fi system, perhaps the likes of the aforementioned Meridian, Naim and Rega shouldn't be too worried by the possibility of imminent sales losses!

The question for me is who would buy something like this, as it's not something I would ever countenance purchasing in a million years. The unit offers FM and AM radio and a CD player and the fact that this is on offer for less than I pay for most of my LPs is simply staggering, even given the price breaks available from modern Far-Eastern manufacturing – certainly in value for money terms, maybe it really is as good as it gets.

On that topic however, I would be very interested to see a cost breakdown for the manufacture of the unit, and learn exactly how much the people who are assembling it are being paid. I somehow suspect it is a loss-leader for Tesco, namely that they are knowingly selling it at a loss in order to get people talking about their shop, and then drawing the punters in to purchase items that aren't quite so absurdly cheap.

So why should I be saddened at all by this, when clearly it impacts on the hi-fi market that I know and love by precisely zero? Well, for one, it yet again rams home the message that the average person in the street probably has very little idea of what constitutes "hi-fi". Certainly, I have had friends in the past who have given me the well-worn "oh, I'm sure I wouldn't be able to hear the difference" line, where upon I have sat them down, showed them the difference between a small pile of BPC (Black Plastic Cr*p!) and some genuine hi-fi equipment, and watched

their surprised faces as they discover that, yes, they actually can hear the difference.

Equally, I cannot help but feel that this is perhaps the ultimate expression of the throwaway society that we increasingly find ourselves living in. When it comes to audio equipment that is only a few years old when it breaks down, very often the cost of an assessment and repair will be more than the cost of buying a modern equivalent. Certainly, the £16.49 retail price of the MC-907 would mean that most people wouldn't even consider doing anything else other than chucking it into the nearest skip when it breaks (which, to be honest, it surely will, and most likely sooner rather than later). Somehow I cannot help but feel that this goes against the grain of the big recycling kick that the world and his wife seem to be on these days. Given that many people won't countenance the use of disposable nappies for their children, due to the impact of their disposal on the environment, is now really the time to be introducing the disposable hi-fi system?

Still, I suppose that this all becomes academic if it turns out that the MC-907 is really rather good. With this in mind, I headed for my local Tesco store last weekend with a view to buying one, only to find that they are out of stock until the end of May, so clearly word is spreading!

However, dear readers, in the interests of public enlightenment, I shall be back there again to pick up this bargain of the century, and will report back once I have given it a thorough going over. Who knows, maybe I'll end up eating my words, and you'll soon see a Marantz CD94, Naim Supernait and a pair of Ferrograph S1s for sale in the classifieds at the back of the magazine? ●

vinyl section

contents

JULY 2009

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REGA P3-24 100

Adam Smith auditions this latest version of an evergreen classic budget turntable...

MOTH MK.II PRO 103

Here's a great, affordable record cleaning machine, says Paul Rigby.

AUDIO ORIGAMI UNIARM 107

A new, lower priced unipivot version of the AO PU7 tonearm goes for a spin with Adam Smith...

WHEST PS30.RDT 112

David Price tries this new high end solid-state phono stage.

news

STEAMIN' WITH THE MILES DAVIS QUINTET

WE GET REQUESTS
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ADAM'S APPLE
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THE RAMSEY LEWIS TRIO 'N CHICAGO'

JAZZTASTIC

A host of classic jazz albums have been reissued on 140gm vinyl. First up is Miles Davis' 'Steamin' With The Miles Davis Quintet' (Fantasy/Prestige), a comparative rarity comprising two sessions from 1956 and featuring John Coltrane. The great man appears, solo, on his classic 'My Favourite Things' (Atlantic). A brilliant album from 1960 whose strength lies in the power of the Elvin Jones/McCoy Tyner/Steve Davis support to Coltrane's genius. Also look out for Oscar Peterson Trio's 'We Get Requests' (1964) on Verve, Wayne Shorter's 'Adam's Apple' (1966), Graham Collier's 'Deep Dark Blue Centre' on Whatmusic.com (1967) plus The Ramsey Lewis Trio 'In Chicago' on Wax Train Records (1960).

ROLLERCOASTER

Interviewed in my comment piece in this issue (p91), Rollercoaster (www.rollercoasterrecords.com) doesn't just handle CDs. For example, Davy Graham's 'After Hours' recording, mentioned in the piece, is also available as a 10" DMM LP along with 'All That Moody' (1978), a re-recorded revisit of old classics. Another seventies release via Billy Goat Records, is C.S.A.'s Stockade, a rock'n'roll revivalist outfit that sits nicely alongside the real thing, Gene Vincent's 'Hey Mama!', a selection of live recordings and demos from the final days of his time with the Blue Caps between 1957 and 1958. The final 10" DMM release is 'Skiffing Along' via The Vipers – which is about as primeval and energetic as you can possibly get from the skiffle genre.



THE TROUBLE WITH DOXY...

...is trying to keep up with their release schedule! One of the release highlights is the label's willingness to tackle classic rock'n'roll. For example, Chuck Berry's 'After School Session', a classic debut, originally on Chess (its second ever album release) and possibly the album that resulted in The Beatles, the Stones and Dylan. Berry was *that* important. The album features classics such as 'Brown Eyed Handsome Man' and 'Too Much Monkey Business'.

Also look out for Buddy Holly's 'Buddy', a compilation of Holly's second album 'Buddy Holly' (Coral) and the third, 'That'll Be The Day' (Decca), both from 1958; The Modern Jazz Quartet's excellent 'with Milt Jackson', a compilation of two albums covering 1952-1954 plus Thelonius Monk's 'Genius Of Modern Music', a compilation of two albums from Blue Note originally entitled by that label and as 'Volume 1' in 1947 and then 'Volume 2' in 1952. Every jazz fan should listen to this.





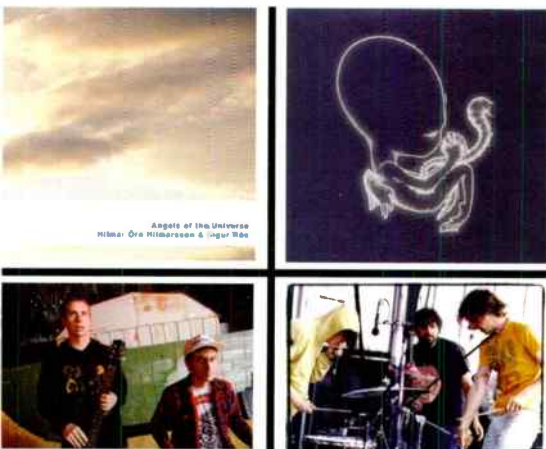
YOU WISH

Fans of Finnish goth/symphonic metal band Nightwish, on the Spinefarm label, are in for a treat with the release of three limited edition double albums. Debut, 'Angels Fall First' (1997), on black/red vinyl, showed flexibility and exploration. 'Oceanborn' (1998), on blue/white vinyl, a cracking second release, saw the band in full opera-metal flow with plenty of melodic invention. The third release, 'Wishmaster' (2000) on orange/red vinyl, continued the operatic metal approach. It's pretty good but inconsistent. Finally, check out Tarja, the female, now ex-, lead singer from Nightwish and 'My Winter Storm' which features clashing song styles that never really gel.

MY PLEASURE

UK-based audiophile label, Pure Pleasure (www.purepleasurerecords.com) has released a range of blues and jazz albums. Robert Pete Williams, a blues artists 'discovered' whilst in jail, played unconventional blues with odd tunings and configurations. 'With Big Joe Williams', released initially via Storyville in 1972, is recommended for anyone interested in blues with a twist...

Keep an eye open for Otis Spann's 'Portraits In Blues' (1963), featuring Lonnie Johnson on guitar; 'Starry Starry Night' (2008) via Paul Clarvis (drums) and Liam Noble (piano), a collection of mostly covers with a wonderfully calming, inviting presentation; Louis Armstrong's 'Satch Plays Fats' and his tribute to Fats Waller; Sonny Rollins' excellent 'What's New?' (1962) in which Rollins' penchant for Latin rhythms comes for the fore and, finally, Richard Holmes and Gene Ammons' 'Groovin' With Jug', a 1961 reissue via Pacific Jazz.



FATCAT

Fans of Sigor Ros take note as Fatcat is reissuing two significant albums on 180gm vinyl. Seen by some as on the forefront of a new prog rock adventure, 'Agaetis Byrjun' (1999), the band's second album, is packed with dense music, multi-layering and uplifting spiritual amazement. Their work with Hilmar Orn Hilmarsson in 'Angels Of The Universe' (2001) from the film of the same name, flips emotional sides however, to one of melancholia – beautiful, nevertheless. Also check out Animal Collective's 'Feels' (2005), an eclectic musical journey and No Age's debut, 'Weirdo Rippers', a lo-fi, avant-brain venture.

...AND FINALLY

The Prodigy has a 180gm vinyl version of its new double album, 'Invaders Must Die' (Cooking Vinyl) set in a single sleeve with picture cover-inners; U2's new album, 'No Line On The Horizon', (Island) arrives as a double album in a weighty gatefold sleeve, picture cover inners, large format photo booklet and outer plastic sleeve and JJ. Cale's latest, 'Roll On' (Because Music), a brief album of under forty minutes, features Eric Clapton.



Planar Speaking

Adam Smith spins some discs on the latest incarnation of Rega's turntable classic, the P3-24...

The Rega Planar 3 has reigned as one of the kings of the affordable turntable world since its introduction over twenty years ago, and it is not hard to understand why. Bearing in mind that it was first introduced towards the end of the nineteen seventies, this simple and elegant design was a world away from the wilfully complicated direct drive decks of the day. Of course, some of those DD heavyweights were unfairly overlooked at the time when 'if it wasn't a Linn, it didn't get a look in', but this was at the top end of the market. Things were a little different lower down the ladder, where the Rega resided.

The trickling down of high end technologies into more affordable models is not always successful, and the Japanese struggled with this in the seventies. Their top models were huge, heavy, brilliantly built and blessed with motors that had the torque of a Rover V8. But cast your eyes at the budget end of a late seventies turntable catalogue however, and you'd find a profusion of resonant plastic plinths, cheap, flimsy arms and puny motors that barely seemed able to turn their thin, pressed metal platters at all!

Enter the Rega Planar 2 and 3 – yes these were simple, but they came with great cost-effective engineering installed as standard. A solid wood base supported a finely tolerated turntable main bearing and a glass platter, driven by a decent motor. Add in a fine arm, in the form of the original Acos-derived Rega R200 and then later the formidable RB250 and RB300, and it was no wonder that they flew off dealers' shelves.

Nearly thirty years later, however, the modern descendant of the Planar 3 is still very much with us and, although rather different under the skin, is instantly recognisable as a relative of the original.

For the latest P3-24, this evolution means that the deck

now sports a phenolic resin laminate plinth, available in a number of eye-catching gloss colours, including red, blue, yellow and the green of the review sample. You can, of course have good old black if this is all a bit too much for your eyes. Also fitted is the higher performance motor carried down from the P5 and P9 models, and this is powered by Rega's TT-PSU power supply which is now standard, offering electronic speed switching.

One of the most obvious alterations, however, is the changing of the tonearm to the RB301 – a subtle but effective reworking of the famous RB300 that has graced so many decks for so many years. For the RB301, Rega have moved to a three point mounting system from their well-known single hole version which has been done in order to increase the mounting stability of the arm, and apparently not just to annoy the legions of manufacturers who make VTA adjusters, armboards, etc., for the old one! The bearings have been improved and the arm has had a little bit of a restyle to include a new bias adjuster which simply pulls in and out of the yoke under the armrest to adjust as required. Frankly this feels a little cheap and flimsy to me but it is amusingly reminiscent of the 'choke' knob on an old carburettor-equipped car. Sadly, I forgot to check whether pulling it out made the platter spin up to speed more quickly...

SOUND QUALITY

I have to confess to having something of a love/hate relationship with the old P3. Whilst I can understand perfectly why so many people like its sophisticated sound, I have always found it to be a rather cold fish, coming across as a little sterile and unemotional. On cueing up the P3-24 however, I realised that things have changed, and definitely for the better. Whilst the P3-24's sound is still as well balanced and couth as it always has been, this latest version adds even more polish and is a world away from cheaper budget turntables and CD players. The midrange is bold, detailed and insightful, capturing every nuance of singers and instruments to ensure that absolutely nothing gets

missed. Instruments were vividly etched within the soundstage and the P3-24 laid performers out well in front of me.

Assisting in this is the treble which is sweet, mellifluous and blessed with superb transparency, although it can tend to lack the very last ounce of crispness. I was also rather aware that there was a faint lack of insight here, making some cymbals sound a little plastic, rather than letting them ring out with a real metallic edge. Swapping the cartridge to a Goldring 2500 helped greatly here however, removing the slightly rolled off treble of the fitted Rega Elys 2 to add back in the high frequency timbre and immediacy that had been missing. Now cymbals rang out across the soundstage in an expressive manner, and hi-hats snapped into proper focus.

The Goldring also helped things along greatly in terms of imagery. The Rega does not offer an expansive soundstage that elbows the loudspeakers aside as if they weren't there (although I cannot think of a £500 turntable that can) but the addition of the 2500 definitely put more space between the performers. Now I was feeling as if the musicians were actually spread out around the studio as they played, rather than being bunched up in the middle of it, crowding around the microphone. A sense of depth appeared and the Rega made a fine job of conveying the spaciousness of Eleanor McEvoy's 'Yola' album. I was also pleased to hear that Eleanor herself sounded suitably emotive and passionate as she sang – for virtually the first time ever in front of a Rega deck I found myself really paying attention to the action. The P3-24 does indeed connect on an emotional level which instantly swept aside my biggest criticism of the older versions.

Bass is an area in which the Regas have always scored well and the P3-24 and RB301 turned in a fine performance here, too. The low end is fulsome, weighty, well detailed and utterly enjoyable. The P3-24 doesn't





have the ability to swiftly snap transients on and off like a direct or idler drive unit, or even a higher quality belt drive, but somehow this doesn't seem to matter too much when the whole of the bottom end is so well balanced. Once again, I have heard more than a few examples of older Planar 3s that have sounded slightly unsure of themselves at the bottom end which, in the past, has been another black mark for me against the deck. However, the combination of the P9 motor and the new power supply has definitely added a healthy stability to the P3-24's bass performance. Across the upper bass I did notice some thickening of notes, which made some singers sound a little 'chesty' at times, but in instrumental terms this actually served to embolden upper bass detail; a certain amount of swings and roundabouts maybe, but overall I felt the gains outweighed the disadvantages. The P3-24 never sounds sloppy or breathless at the bass end of the spectrum and, consequently was more than capable of capturing the rhythm of the music.

CONCLUSION

Up to now, I've never quite bought into the idea of the

Rega Planar 3 as the all-conquering hero of the turntable world that some might have made it out to be. Whilst it has always had obvious strengths, and has certainly always been a consistently reliable performer, I've always felt that its weaknesses were just a little too obvious, and it has never really captured my ears in the way that some other designs have. Well, I'm pleased to say that the P3-24 has finally rugby-tackled those weaknesses head-on, and made a rip-roaring attack on the touchline. Yes, maybe spending £1,000 will buy you a comprehensively better vinyl spinner, as our group test showed last month, but the fact that a £500 deck like the P3-24 can not only take on decks at twice its price or more, but show some a clean pair of heels in certain areas, speaks volumes for the performance it offers. For me, Rega's evergreen classic has finally come of age and matured into a properly enjoyable record player.

REFERENCE SYSTEM

Goldring 2500 cartridge
 Whet Two phono stage
 Naim Supernait amplifier
 Ferrograph S1 loudspeakers (modified)

VERDICT

The best incarnation of the P3 yet, the Rega P3-24 has been brought up to date in a subtle, but highly effective manner.

REGA P3-24 £500

Rega Research

+44(0)1702 333071

www.rega.co.uk

FOR

- polished midrange
- sweet, airy treble
- now more involving
- good low end stability

AGAINST

- 'chesty' upper bass

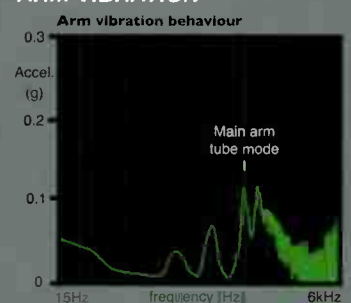
MEASURED PERFORMANCE

The P3-24 carries an improved Rega RB300 arm, named the RB301. It has a three point cartridge fixing arrangement that uses a third clamp screw placed ahead of the usual pair. This locks the cartridge positionally, using Rega's own preferred tracking path across a disc that minimises distortion on inner grooves, rather than its peak level across a disc as per Bearwald. It eliminates overhang/tracking adjustment. However, it doesn't eliminate the need to ensure the cartridge is aligned properly in the headshell I found, a very critical alignment to make, and its greatest benefit isn't tracking accuracy, but suppressing vibrational behaviour in the headshell, our measurements show. Above 1kHz headshell accelerations, seen as forest of spikes at right in our analysis, were very well suppressed by the three point mounted Rega Elys cartridge. The usual Rega tube resonances at 650/1300Hz have also been suppressed by some means, possibly by the use of internal damping (these are tube flexure modes, unaffected by the headshell). All in all, the RB301 with Elys 2 works unusually well in terms of vibrational suppression. However, the Elys itself is a poor tracker and has rolled off treble, which

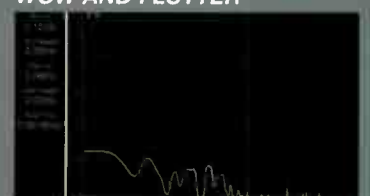
means a warm balance; it isn't so good as budget MMs go.

The turntable runs at exactly the right speed the 3150Hz test tone measuring 3150.96Hz our analysis shows (+0.03% fast!). Drift was low, so with a centred test disc unweighted speed variations (Wow and Flutter) measured low at 0.123%, and 0.069% weighted. The P3-24 measures very well in this area too. NK

ARM VIBRATION



WOW AND FLUTTER



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Upside Your Head

Already a popular accessory, the Moth Group has now upgraded its record cleaning machine. Paul Rigby gets to grips with the Mk. II Pro...

The Moth Group has had much experience in the record cleaning machine business. Many years ago, the company used to be the importers for the VPI record cleaning machine series. Despite that venerable product's qualities however, the Moth Group spent much time repairing the machines which, if they became water-logged due to heavy cleaning liquid spillage or flooded because of the restricted reservoir size, used to split, soaking and expanding the internal chipboard part of the chassis. "We used to inject glue into the burst chipboard and squeeze it back together," said Mike Harris, the founder of the Moth Group. "The outcome was that we decided to create our own machine, the Moth, but in a 16-gauge steel enclosure with a three-part chemi-etch finish to reduce rust problems, rather than a chipboard enclosure." Although, chipboard is the basis of the chassis for the kit version of the Moth machine.

DESIGN

Highlights of the Mk.II, Moth included a three-litre internal reservoir which reduced overflow problems. The most unusual aspect of the Moth, especially when compared to the VPI, was the lack of any platter. "With the VPI," explained Harris, "when you vacuum from above you have two problems. Firstly, you have to take into account the thickness of the record to get a solid vacuum. Records vary in thickness so therefore, the datum point at which you are vacuuming varies. This is a critical measurement. VPI tried to overcome this by introducing a spring loaded vacuum arm which is then pulled down onto the record

from above. However, that uses around 50% of the vacuum pressure – just to get the arm down onto the record. We decided to vacuum from underneath. This means that the datum point is fixed. The bottom of a record is always the bottom of a record regardless of the thickness of the record."

Another advantage of vacuuming from underneath is that you remove the problems associated with a 12" platter which, while providing a good surface to sit your record upon, also provides cross contamination. That is, you put a dirty record onto the platter, you clean the top, you pick it up and turn it over. Then debris that was on the bottom of the record is now transferred to the platter and then the clean side of the record. You can actually overcome that if you use two mats: one for the dirty side and one for the clean side. However, it's quite a trial do this every time you

clean a record!

The design features a vacuum tube that is slightly loose so that when the tube is in its nominal position there is a gap of half a millimetre between the outside edge of the record and the vacuum tube and roughly the same distance between the vacuum tube and the inside edge of the lead off grooves. When you switch on, the vacuum is supposed to be strong enough to pull the record down onto the tube at the outside edge and to lift the vacuum tube, because it's slightly loose, up against the record lead out groove.

But doesn't this mean that the Moth is now using part of its vacuum pressure to move its tube and the record into position as the VPI is accused of doing? Harris demurred, "because you haven't got to move the entire tube and because the entire movement involved is in terms of millimetres, it doesn't matter. Also, the freedom of movement is useful when cleaning warped records as the loose vacuum tube will follow a



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warp."

The Mk. II was released to integrate a reverse direction spindle movement which aids in the cleaning process, helping dislodge stubborn gunge whilst a hingable plastic lid is also included to protect against dust contamination. However, during tests, I found it easier not to fit the hinges and just rest the free-standing lid on top of the Moth's chassis.

This latest version of the Moth, the Pro which is reviewed here, is basically a Moth Mk.II with an extra, internally fitted, fan. "We introduced the Pro machine," said Harris, "for continuous use. When the record is on the turntable and the vacuum is switched on, it's tantamount to you taking a domestic vacuum cleaner and moving your hand over the end of the pipe. The vacuum motor doesn't like it."

Hence, the Pro's extra fan gives a continuous flow of air over the motor keeping temperatures down which means that you can continue to clean your records all day and night if you wish.

One of the most noticeable aspects of the Moth chassis is the lack of any labels – there isn't even a Moth brand label. "After you've had the machine for ten minutes do you need labels? We're anti-label. This came about a long time ago when I was driving behind a Volvo estate and it said 'Volvo', 'Intercooler', 'Turbo', 'Thingy', 'Doo-Dah'. I thought, I know what it is, the bloke that's driving it knows what it is, so why do you need badges to tell us?"

OPERATION

Cleaning a record consists of two processes. The wash stage involves removing the screw-top puck, fitting your record over the exposed screw-thread spindle, reattaching the puck to secure the record, switching on the spindle motor to revolve the record whilst applying cleaning liquid then agitating the liquid with the included brush. Once done you move onto the drying stage. Basically, you remove the puck again, flip over the record and reattach the puck so the wet side is now facing downwards.

After you've started the spindle motor you then operate the vacuum pump. As the record moves over the static vacuum tube, liquid and gunge are sucked away. Only two disc revolutions are necessary. Any more will generate static electricity. You then stop the vacuum, stop the motor afterwards to minimise recontamination, remove the record, clean the vacuum arm and brush and repeat the whole operation of the other, dirty, side.

Be careful when screwing on the puck, however. I thought I had securely fitted mine but the screw resistance is deceiving. I later found out that it needed a couple of extra twists to properly fit it home. Also, the lack of a supporting platter means that you cannot place too much pressure with your cleaning brush on your record or it will bend. I found that positioning the cleaning brush over the part of the record moving across the vacuum arm supplied a necessary support.

Using the Moth is simple and, once you get into a rhythm, you clean on 'automatic', as it were. However, there *are* problems. Firstly, because of the lack of labels and the identical switches, when concentrating on the cleaning, I found myself switching on the vacuum instead of turning off the motor which sometimes, because of the cleaning stage I was at, lead to recontamination and the necessity to vacuum the record all over again. Also, the noise is deafening! This is not a problem reserved to the Moth however, the competing VPI and Nitty Gritty machines all suffer from the same problem.

In operation, you have to be aware about the type of record you are cleaning. For a 180gm LP, clean as usual. However, for thinner 120gm records, make sure that you lift the end of the loosely fitted vacuum tube up a notch or the inner part of your record will not be vacuumed. According to the company, this tube should have automatically lifted to the record surface without any prompting from myself – not on the review sample.

One other point to note – and again this tends to apply to all machines in this category – cleaning an LP with the Moth will not produce a completely dry record. Vacuuming a wet record will soak the vacuum tube and thus the felt pad stuck upon it. Once vacuumed, you will probably see a faint wet line reflecting where the vacuum pad's felt pad last touched the record. This line will be more obvious the wetter you make the record or if you use a non-alcoholic liquid like L'Art du Son. The

record can be easily propped up on its edge to dry – which it will after a few seconds - but there is always the possibility of contaminants remaining, suspended, in the drying liquid which will be redeposited back onto the record. This is why it is important to not only clean the vacuum arm in-between record sides but to dry the felt pads too. Again, however, this 'problem' is not exclusive to the Moth but other machines of the genre.

SOUND QUALITY

Despite the quirky operation, the Moth made a significant difference to the overall sound quality of the treated records. Because of the excellent reverse motor feature, I was able to perform a similar cleaning routine to that of the Loricraft PRC3 SE. That is, soak the record with liquid (I preferred L'Art du Son to the supplied alcohol-based liquid), agitate with the brush, leave for two minutes, then revolve the spindle and vacuum. Then repeat with the spindle moving in the opposite direction. Using this method, many of the clicks and pops were removed. I wondered, however, if particle recontamination prevented the complete eradication of the surface noise. Most impressive, however, was the removal of the caked-on grease, old Mould Release Agent and bonded dust. The Moth provided a definite improvement in basic dynamics, a widening of the soundstage and the rediscovery of musical detail across all frequencies. As such, the Mk. II Pro proved to be a definite asset to improving general sound quality.

CONCLUSION

All record cleaning machines, no-matter what the price point, have an element of the Heath Robinson about them and the Moth is no different. It has its own design quirks and personality. However, if you work with the Moth by being aware of its foibles and taking care to balance the amount of cleaning liquid you use to minimise recontamination, then you will have a highly effective and very efficient cleaning machine that, because of its excellent construction, will last for many years.



VERDICT ●●●●

A carefully considered design that performs well within restricted parameters, the Moth can drastically improve the sound quality of untreated records.

MOTH MK. II PRO £450

Moth

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www.britishaudio.co.uk

FOR

- reverse action
- ease of use
- build quality

AGAINST

- no legends
- quirky design
- noisy

A close-up, angled photograph of a Wharfedale speaker driver. The driver is circular with a black mesh grille and is mounted in a dark, possibly black or dark grey, cabinet. The cabinet has a curved, metallic-looking finish. The lighting is dramatic, highlighting the textures of the mesh and the cabinet's surface. The background is blurred, showing more of the speaker's structure.

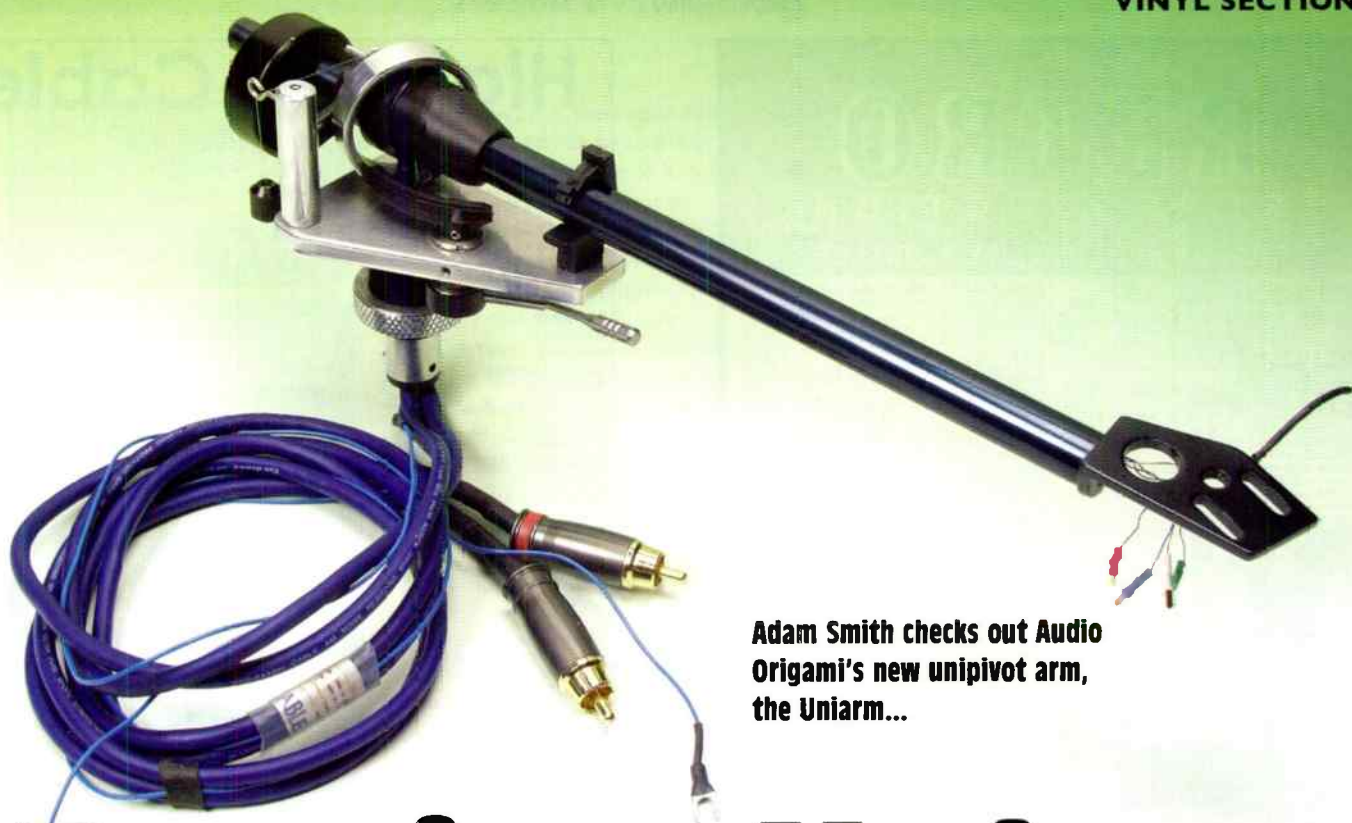
DIAMOND 10 SERIES

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Wharfedale



Adam Smith checks out Audio Origami's new unipivot arm, the Uniarm...

Bearing Up!

It may surprise regular readers to know that, despite having led a life seemingly almost continually playing with turntables, I had absolutely no experience of unipivot arms until I finally joined *Hi-Fi World!* However, since then, a good few have passed through my hands and I can safely say that, without exception, I have been thoroughly impressed by what I have heard. From the affordable Roksan Nima, through the classic Hadcock GH242 and the unquenchably musical Naim Aro, right up to the apparently simple but devastatingly capable Simon Yorke S9 arm, it seems these single bearing wonders all weave their own little magic spell. Heck, even my old unknown Sonab 65S turntable sounds quite different to most of its mid-nineteen seventies contemporaries, and guess how many pivot points its arm has?

In technical terms, it seems that there are arguments both for and against the use of a single pivot. I know of one eminent turntable designer who hates them with a passion, citing their uncontrolled resonances, lack of rigidity at the pivot point and general 'wobblyness' as the work of Beelzebub himself! On the other hand, there is a lot to be said for keeping things simple. One set of bearings instead of two means half the possible sources of friction

instantly, and as this single bearing has to be a simple point to allow the arm to move in any axis, this precludes the use of any fixed ball bearings and means you're left with a simple spike and cup arrangement, effectively. This does of course mean that the joint pairing must be finely machined and of very high quality, and also that balancing the arm in both the fore-aft and port-starboard horizontal planes is a necessity in order that the stylus sits squarely in the groove.

However, I have a sneaking suspicion that the latest manufacturer to join the unipivot band will give no such cause for concern in terms of adjustability and build. This person, you see, is none other than the enigmatic Johnnie from Audio Origami – he mentioned his intention to work on a unipivot design to me last year and my Inbox has been regularly updated with pictures of prototypes, both successful and not quite so, in a wide variety of colours and sizes! However, Johnnie is now happy with his results and the Audio Origami Uniarm is officially born.

As can be seen, the basic design takes a good number of styling cues from the superb PU7, but aims to offer a little more simplicity and a more affordable price tag. As a result, the Uniarm has a rather more simple structure, and a more basic

thread and weight bias system than the PU7 for example, but crucially undercuts its big brother by £600, coming in at a price of £899 for the basic version. This features a choice of Linn or Rega mounting bases, a silver anodised arm tube with choice of brass, black, stainless steel or chrome counterweights and an effective mass of between 11 and 20g according to user requirements. Standard wiring is 33ga OFC copper litz with super OFC interconnect cable, in one single run from cartridge tags to phono plugs.

Naturally, being an Audio Origami product, you can add to your bill and customise your Uniarm to your heart's content! Arm lengths of anything up to twelve inches are offered, plus full Kondo silver wiring and bespoke finishes including gold plating, black anodising, or some of the eye-popping colours for which Audio Origami have become so well known. Naturally, build of the Uniarm is superb and it comes as standard with protractor, stylus balance, tools, a dinky spirit level and a DVD giving highly detailed setup instructions. Ours also came with a bag labelled "*Hi-Fi World Repair Kit*" containing a set of replacement cartridge tags. Honestly, you own up to breaking one off on a previous review sample and you're never allowed to forget it! [Cheek! Ed.]



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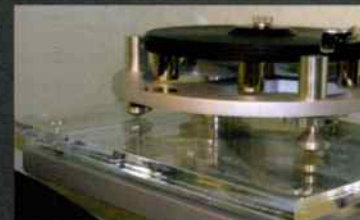
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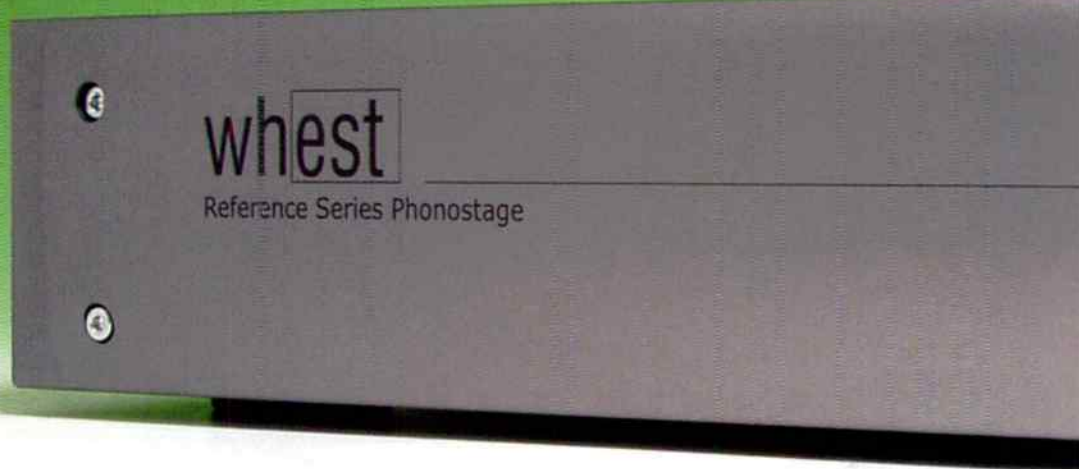


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Whestern Union

Offering classic valve sweetness in a solid-state package, there are few who do transistor phono stages better than Whest Audio says David Price, as the new PS.30RDT shows...

In the weird and wonderful world of phono stages, an increasing number of people are going the way of the thermionic valve, arguing that they're more organic and musical sounding, even if they're slightly noisier. But transistor designs have their devotees too, as they can offer quite a lot more detail and a more even tonal balance. There's also the fact that they're a lot more tolerant of moving coil cartridges with low outputs, as well as sounding quieter even with fairly high output ones. Still, perhaps it's wrong to obsess about the differing technology - because neither is a guarantee of good results.

Talk to an electronics whiz like Ken Ishiwata for example, and he tells an interesting story to illustrate this point. As an impoverished, electronics-obsessed teenager he meticulously copied ("reverse engineered") a Marantz Model 7 preamplifier back in the nineteen sixties, using passive componentry and valves of identical electrical ratings (but rather cheaper than the standard fit fare), and was gobsmacked to find that it didn't sound *anywhere* near as good as the original Marantz item, with all its expensive selected components. His point is of course that it's more than just what you do, it's how you do it. As such, the valve vs. transistor arguments can be a distraction - what matters is how well the technology is implemented in the first place.

Well, in my experience, Whest Audio do solid-state op-amp-based phono stages very well. So I was

most interested to hear this, their 'poor man's high end' PS.30RDT. A close descendent of their flagship MC REF V, it comes in a single 430x280x72mm box, inside which is "an ultra low noise bipolar op-amp DIP8 chip heavily biased into Class A", along with a Whest 'MC REF V' Hybrid filter. The output stage, which Whest's James Henriot says, "is nearly everything you are hearing", is his own discrete ultra low noise Class-A, bipolar design, and this is also used in "a microphone preamp that I am designing for a very well known mixer manufacturer", he told me enigmatically!

The transistors are all very closely hand-matched from Fairchild and Toshiba (straight from the MC REF V), the capacitors are all hand-matched to within 0.5% or closer tolerance and the channels are then matched to within 0.5% or closer. The transformers are ultra low mechanical noise, hand wound in the UK. The power supply is 'close-by' because the circuitry needs the current supply very quickly to react to large dynamic passages.

Filtering is by a large bank of small value, low impedance capacitors and is necessary for speed, Henriot adds. The voltage rails are + and - 18volts (not 5v or 15v like most folks) to allow for high dynamic headroom. It's said to be a fully balanced true dual mono design with a claimed very low output impedance (50ohms at 1kHz), so it can drive extremely long output cables. It also sports six load and six gain settings, all internally adjustable.

SOUND QUALITY

Having spent a long time with Icon Audio's valve PS3, which is over £1,000 cheaper than the Whest's £2,799 selling price - and yet is one of the nicest tube phono stages I've heard - it was fascinating to hear this new Whest. There's no getting around it, the PS.30 does not sound like a valve phono stage, and this is for better and for worse. Likewise, I've done a lot of listening to Naim's similarly priced (£1,700 without fancy power supply) Superline, which is a sort of 'totem pole' for transistor phono stages, and I can report the Whest isn't like this either! Instead, it attempts to give a bit of both worlds; it is unmistakably a solid-stater, but it offers a good deal of what many like about valves. Tubes without tears, if you like.

UB40's 'King' shows why. Driving my reference Sugden amplifier via its balanced outputs, the way it handled the opening sixteen bars absolutely defined its character. Tonally, it is a good deal less 'frosty' than the Naim, proffering a surprisingly fulsome bass, which although it lacks the sumptuousness of the Icon Audio, is not backward in coming forward, as it were. The midband also has a touch of the tubular about it, in its general warmth and scale - rarely have I heard my loudspeakers fill the breadth of my listening room so effortlessly; compared to a Superline it's as if you've pressed the 'stereo wide' button. There's a vast amount of detail bristling through, and an exceptionally low noise floor - even

PS.30RDT

on my dog-eared pressing of 'Signing Off', my attention wasn't drawn to the unfortunate time it spent in my brother's record collection (hijacked and held to ransom), when it was brutalised by a Trio KD1033B tracking an old Audio Technica AT93 cartridge with a spherical stylus, at 3g - and the rest. In other words, surface noise was exceptionally low, and any shrillness was conspicuous by its absence. This is a smooth sounding device, for sure.

Yet, even with my first pressing of Rose Royce's 'Wishing On a Star', a laid back all-analogue recording if there ever was one, the Whest just wanted to boogie. Rhythmically, it is nothing if not snappy. It bounces up and down like a rubber ball, pushing the groove of the song along like it was born to. Take that big fat bass, that midband snap, those pregnant silences, and that snappy gait it has and the song romped along when on other lesser phono stages it would be rendered as just another dirge-like disco ballad. Of course, the Naim Superline does this too - and I think with a little more incision, and slightly more pronounced dynamics - but somehow I loved the way the Whest was so smooth and creamy, yet so rhythmically animated. It marginally bettered the Naim on bass power, lost a little in bass articulation, didn't quite match its forensic midband detailing yet just floated along in an often more enjoyable way. It's a great after dinner listen; it doesn't pin you to your seat, etching the soundstage on to your cranium, but rather seduces and beguiles.

Wings' 'Band on the Run' was a case in point. Not a high point in the vinyl LP's history in terms of recording quality, the Whest flattered slightly but never deceived. It threw out an exceptionally expansive soundstage, inside which the various strands of the mix were all clear

as day, and the slightly shouty vocal quality of Paul McCartney (on this recording at least) was lent a little warmth and smoothness. It also showed real delicacy in the upper regions, cymbals being imbued with great delicacy. This same trait was found in 808 State's 'Pacific 707', a fine slice of early nineties electronica, when the Whest again proved tight as a drum, yet unusually palatable for a solid-stage phono stage. I found it bounced along, giving a very natural, believable rendition of the complex multilayered mix, never tripping over its toes in a bid to supply every last detail. It may have been a fraction less forensic than the Naim Superline here, but this was for the better. What we have here then is a most lucid transistor phono stage.

My only criticism, if there is one, is an ever-so-slightly processed feel to the upper mid band. It's a subtle effect, and one that's far more noticeable on lesser solid-state designs, but there's still a slight 'suck out' of atmosphere, and the tendency to paint percussion in less than fulsome terms. Compared to the Icon Audio PS3 valve phono stage, drum kits sound slightly constrained, or 'reined in'. As the PS.30RDT strives for matter-of-fact accuracy, some of the raw emotion is lost. It's an oft repeated criticism of transistor amplification - and to my ears it's a real one. For example, give the Whest a superbly recorded rock track like Dire Straits' 'Lady Writer' and yes, it gives a lovely rendition, but

it's conspicuously tidier and more ordered than a good valve design.

CONCLUSION

Ultimately, you can't escape the fact that the Whest Audio PS.30RDT is a solid-state phono stage, but in many ways it does a very good job of hiding its DNA. It really does sound more sumptuous than most transistor designs, and doesn't obviously sport op-amp or discrete transistor tendencies. Ultimately, it can't quite compete with the free-form rhythms and natural boogie factor of tubes, but knocks seven bells out of the latter in terms of bass grip, noise performance and focus. It's also highly adjustable, making it ideal for those with several pickup cartridges, and the balanced operation is a boon for those thus equipped. A brilliant all round design then, offering most of what anyone would ever need.

VERDICT

Redoubtable high end solid-state phono stage with real smoothness, space, pace and power.

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- expensive

MEASURED PERFORMANCE

The analysis of equalisation accuracy, or frequency response of this stage, shows the Whest has a small amount of plateau emphasis of treble above 1kHz (i.e. in the 75µs time constant), with a maximum of +0.5dB lift - just enough to give it obvious detail. This affected both MM and MC, as is common with single input solid-state phono stages. It also held via the unbalanced line driver XLR outputs. There is no warp filtering, so gain is maintained down to 10Hz. Distortion was low at 0.003% and input noise very low at 0.08µV, although a 50Hz hum component dominated this reading even with A weighted filtering. It was too low to be audible luckily.

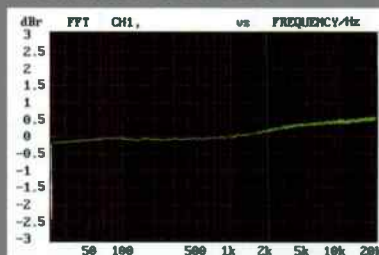
Gain comes in selectable levels and the indicated figures were exactly correct, measurement showed, extending from x100 (40dB) up to x3910 (72dB). This is plenty enough for all cartridges. Overload is set by output overload, which occurred at 10V

via phono and XL outputs and this gave satisfactory input overload figures.

The Whest PS30.RDT works well and offers great flexibility in cartridge matching. NK

Frequency response MC 10Hz-55kHz
Separation (MM, MC) 76dB
Noise (e.i.n.) 0.08µV
Distortion 0.003%
Gain x100 (40dB) - x3910 (72dB)
Overload 100mV-2.6mV in / 10V out

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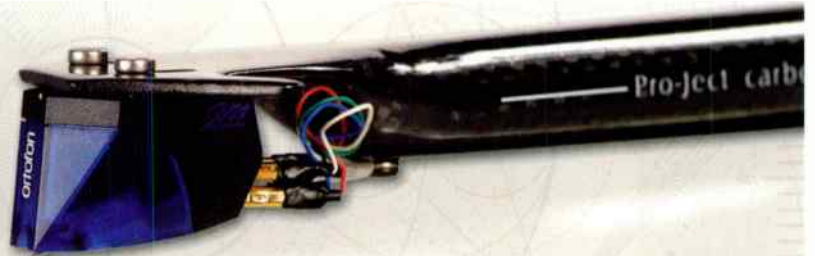
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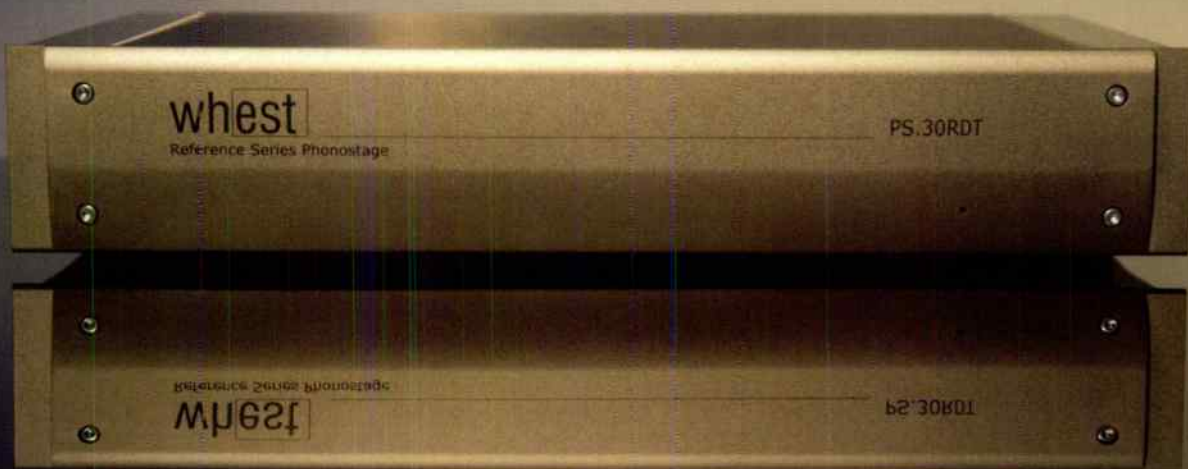
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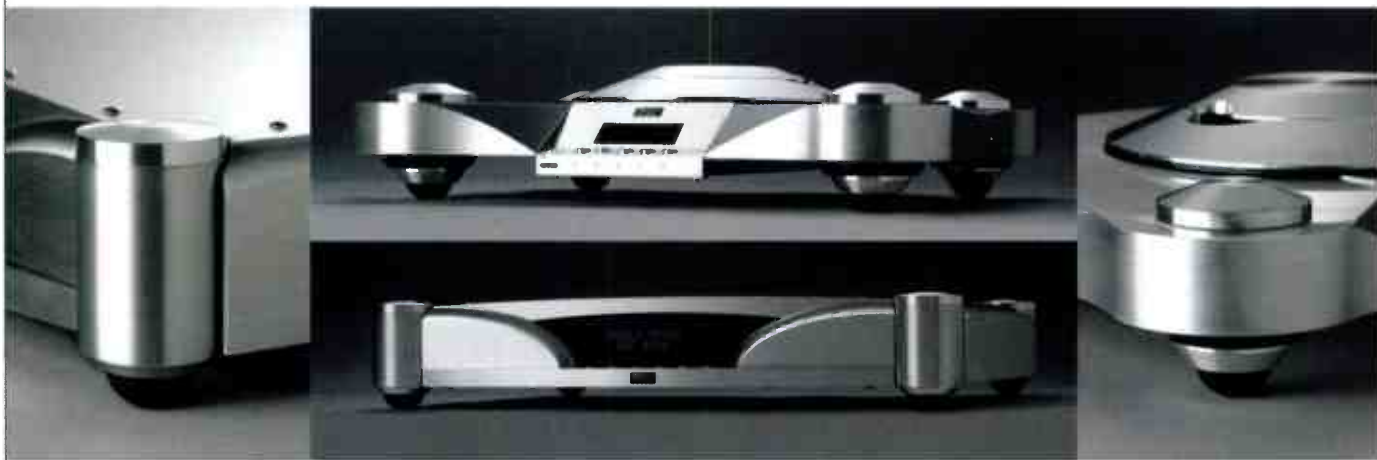
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NEXT MONTH

It's the silly season, so the August issue sports the awards they just couldn't print in any other magazine - The Globies. Everything mad, bad or generally sad about the products we've reviewed over the past year gets a gong as DP and AS let rip while all the hi-fi PR people are sunning themselves on the Costa Del Packet! And if the industry is still talking to us after that, we'll be able to bring you our bumper accessories supertest, which rounds up all the latest and greatest products to tweak your system at an affordable price. There's a report on the Munich High End show, plus a range of superb new kit for your perusal. Here's just some of what we hope to bring you...



[pictured] EMILLE LABS KI-40L VALVE INTEGRATED AMPLIFIER
THE GLOBIES: HI-FI WORLD'S ALTERNATIVE AWARDS
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MUNICH SHOW REPORT

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PORCUPINE TREE

UP THE DOWNSTAIR

1993

Is this the group that saved Progressive Rock? I think so. Porcupine Tree gave credence to a beleaguered genre. One that had received continuing pot shots from insecure, spotty rock journalists trying to make a name for themselves, egged on by shock-punks and desperately flailing around for a means to be accepted by striking out in the only way they know how – with a pen. Prog was an easy target. It was convenient too because, as Prog was associated with classical music and opera, casual jibes were seen as a back-handed swipe at the establishment. In truth, such shallow, generalised criticisms only revealed ignorance, fear, lazy journalism and a self-doubting, cultural malaise that declared that any musical movement derived from these shores must be bad.

Prog was in a poor state when Porcupine Tree released debut, 'On The Sunday Of Life', in 1992. The genre was crammed full of bands like Marillion who looked backwards instead of forwards – more 'Regressive' than 'Progressive'. Blimey, the eighties comeback version of King Crimson was more interesting than those wannabees. Porcupine Tree pushed against this inertia and moved the genre onwards...

Some observers cite the 1999 album, 'Stupid Dream', as being the first Porcupine Tree album to reach 'classic' status but I disagree. 'Up The Downstair' signified a watershed. This was the album that coalesced the genre's past inspirations with the contemporary drive and ambition as well as a nod to a future that would forge new ideas and allow the likes of Radiohead and Mars Volta in the pop scene, Dream Theatre and Opeth in the metal arena and Spock's Beard

"If you've been scared off from listening to Prog by the media, give Porcupine Tree a try – you will be surprised..."

and Flower Kings in the core genre, to prosper.

'Up The Downstair', now issued within a gatefold and on coloured vinyl is the first in, what is proposed to be, a complete vinyl reissue program of Porcupine Tree albums onto vinyl via Snapper/Kscope (also look out for the debut, 'On The Sunday Of Life...')

"The album is just me," declared founder and principle song-writer, Steve Wilson (www.swhq.co.uk), "I made that and 'Sunday' in my bedroom, overdubbing all the instruments and making lots of mistakes as I went along. Porcupine Tree became a band later. The first two albums, which were recorded on to reel-to-reel and then mixed to DAT, were a method of teaching myself how to record and produce via primitive equipment."

Wilson grew up listening to the great seventies bands such as, "King Crimson, Pink Floyd and ELO. That was what my dad used to listen to. Amazingly produced records. I was always aspiring to that and trying to make things sound 'big' without having the equipment. I learnt about microphone placement and EQ by trial and error. In fact, on '...Downstair', you're hearing that learning process. I'd always heard the music in my head but I was learning how to achieve that and, in those early days, I was using stuff that my dad, an electrical engineer, made for me such as a vocoder, an echo machine, a Portastudio and a

sequencer. I was very lucky."

'Downstair' was the first time that Wilson knew he was making an album for an audience and, unlike the collective nature of 'Sunday' which brought together four years of experimental works, no perceived audience and, thus, no attendant pressure, 'Downstair' was addressing a blossoming new musical career, "People now had expectations – this follow-up album was more focused. The first album was ridiculously eclectic: everything from psychedelic to jazz rock. 'Downstair' took progressive rock and ran with it."

So why, when 'Sunday' featured a menu of styles, did Wilson decide to plump for Prog rock? "Playing the other styles... I was acting," he said. "The other styles were fun to play but it was a pastiche. The Progressive side came very naturally. It was in my DNA. That philosophy is where I come from."

Listening to 'Up The Downstair', with its sometimes complex and heavy layering and, at other times, simple and delicate song structures but always brilliant musicianship, is not only an education and a breath of fresh air, it is a statement of intent and a challenge to those affronted elements that snap into character at the mention of the genre. If you have been scared off from listening to Prog by the media, give Porcupine Tree a try – you will be surprised. And now that 'Up The Downstair', has been released on sumptuous vinyl, you've really got no excuse. **PR**

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